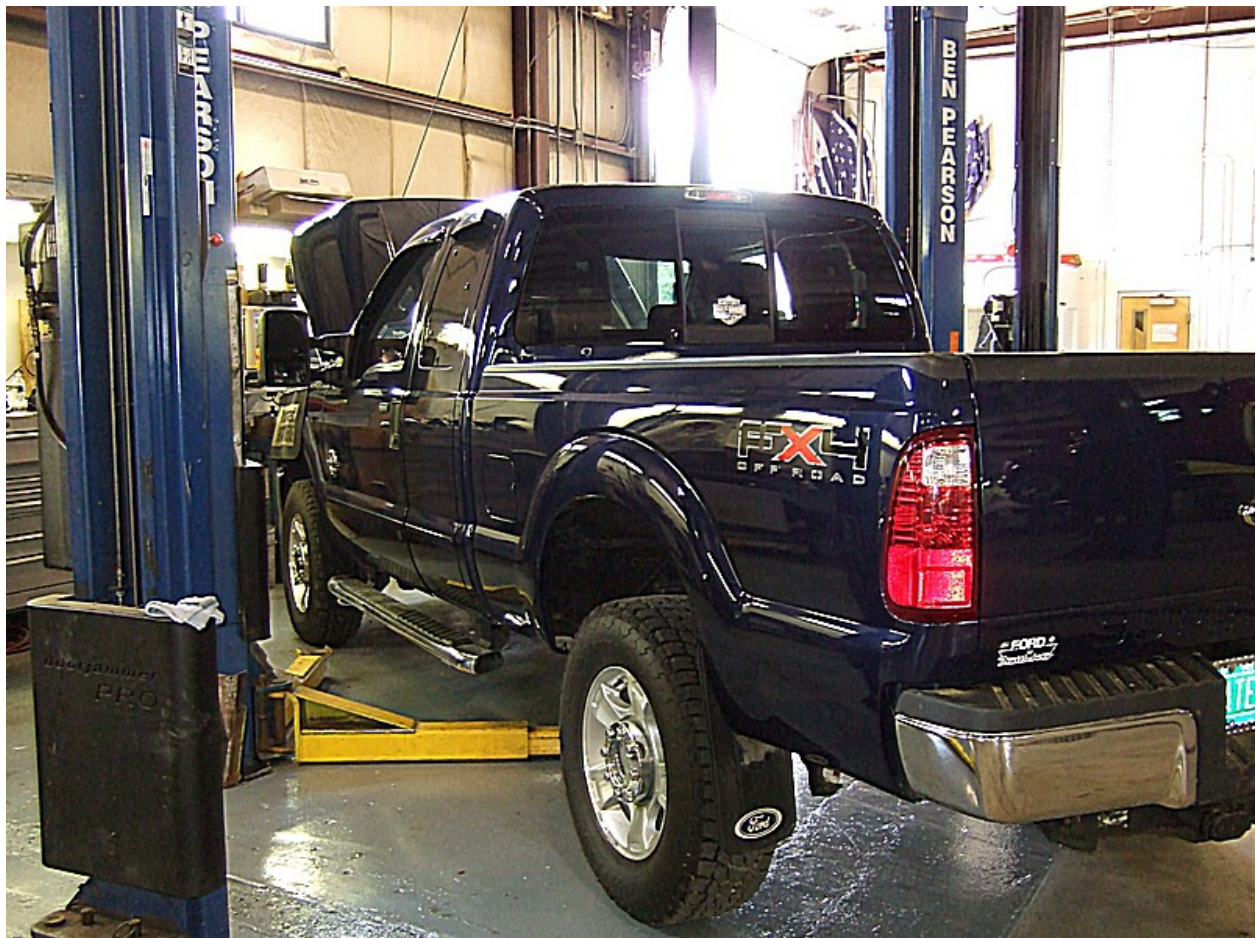


2011 Super Duty Cab Removal

This is my take on cab removal for a 2011 Super Duty equipped with a 6.7 liter diesel. It's not really any more difficult than a 6.0 liter or 6.4 liter but there is a little more effort involved. The 6.7 has a lot of extra plumbing and can be a tad confusing at first glance. One of the tricks to taking the complexity out of it all is to break everything down into sections.

Disclaimer: Please note that this document is not a replacement for the procedure outlined in the Ford service publication. Working on automotive vehicles is inherently dangerous. Cab removal requires lifting heavy components that make up the vehicle and that are disproportionate and unbalanced. Extreme caution must be exercised and the shop manual should always be consulted when performing this procedure to prevent damage to the vehicle and serious personal injury.



Here is the truck. The nice thing about this one is it's not a crew cab. It does have a snow plow on it and *that* requires extra attention. First, disconnect both negative battery cables. Second, remove the primary degas bottle cap, the secondary degas bottle cap, and the power steering reservoir cap. This will allow the fluids to drain more easily when the truck is hoisted later.

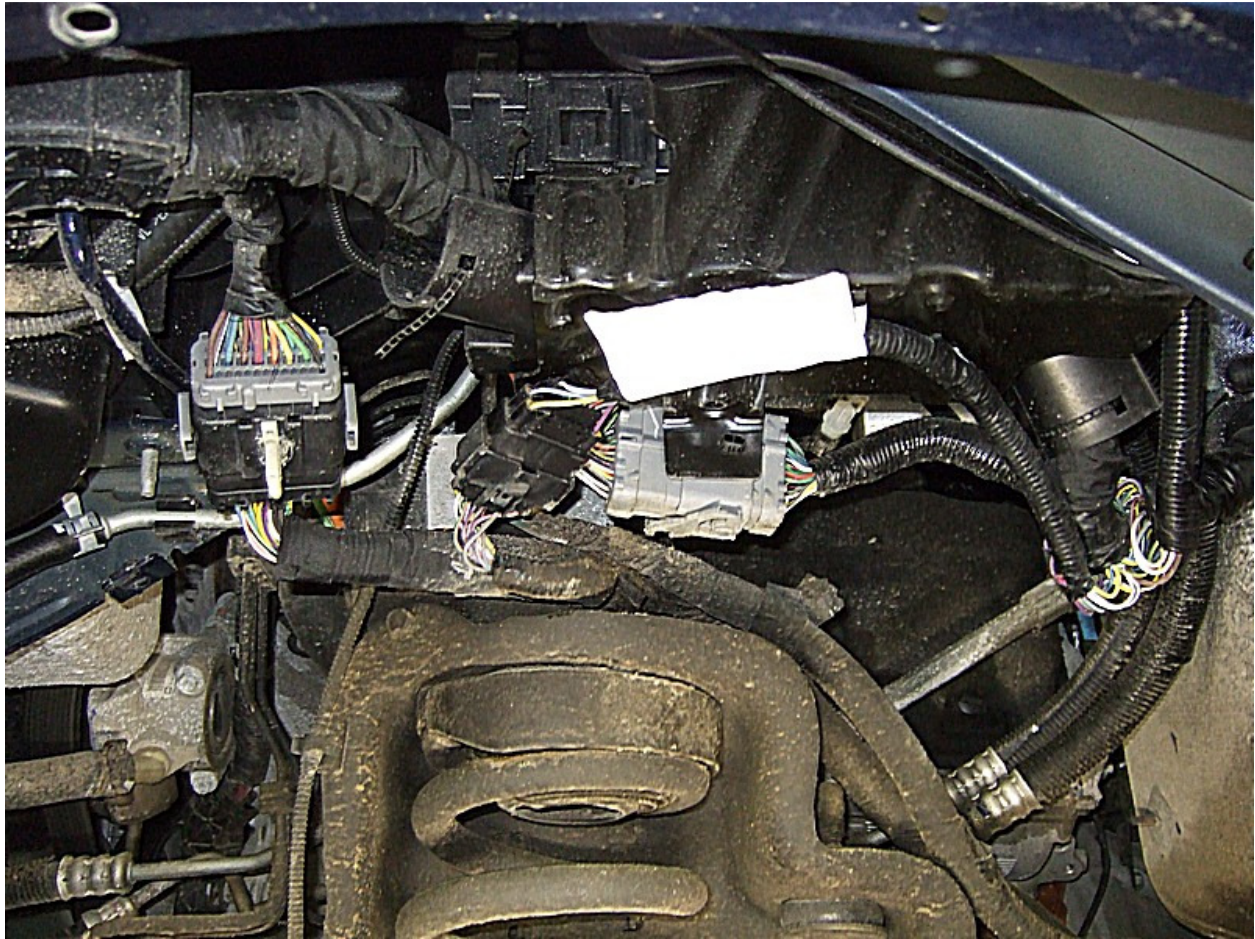
I studied the cooling system for quite some time and tried to simplify the setup as much as possible. I decided to use color coded arrows for the hoses and where they connect. At the end of this document in the appendix is a list of all the cooling system hoses that must be disconnected. This list can be printed out and has the specific order to remove and reinstall the hoses. I skip down to the end of the document first, print the list and charts and put it on a clip board on my toolbox and check the corresponding box beside the hose as I remove or install them. This is a bit of a failsafe to prevent forgetting about a hose since there are so many. When removing the body, all of the tear down boxes must be checked or the body will not separate from the chassis. If you have an unchecked box, see which hose it is and find it on the truck and make sure it is disconnected then check it off, the same goes for reassembly. My shop does not have a color printer, so I print it off at home and bring it to work with me and have a few extra copies filed away at work.

Now I raise the vehicle and stop at the wheel openings.

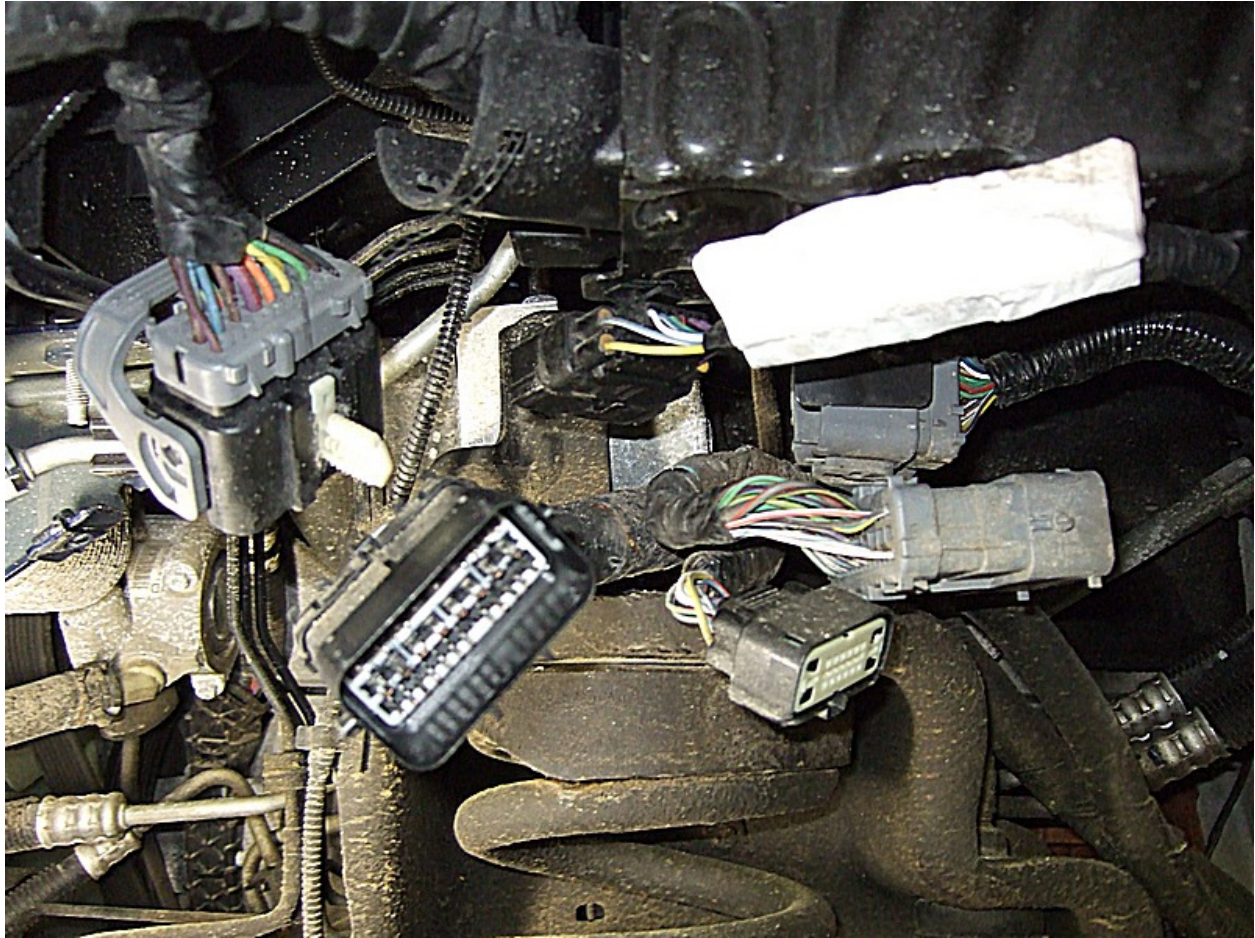


The fender liners have been redesigned on these vehicles and they are nice and flexible. Liner removal is not necessary but I highly recommend it. It's similar to opening the blinds in your house i.e. it lets a lot

of light in and you can keep an eye on everything much easier. Total time spend taking both liners out is less than 10 minutes.



After removing the fender liner on the left side, disconnect these 3 connectors.



This is a very nice and clean setup on the wiring on the left side. The whole truck is that way for the most part, very well thought out. In fact there are less than 10 connectors to unplug to separate the body from the chassis. The right side does not require any attention, but as stated before it gives a better view as to what's happening while raising and lowering the truck.



I made a document on cab removal for a 2004 Super Duty and it had an old style park brake cable union. This one has the newer style with the dimple that prevents the barrel end of the cable from backing out. I decided to snap a few more photos to give a detailed idea of how I separate these. It's a little more informative than the classic shop manual instruction saying "separate".

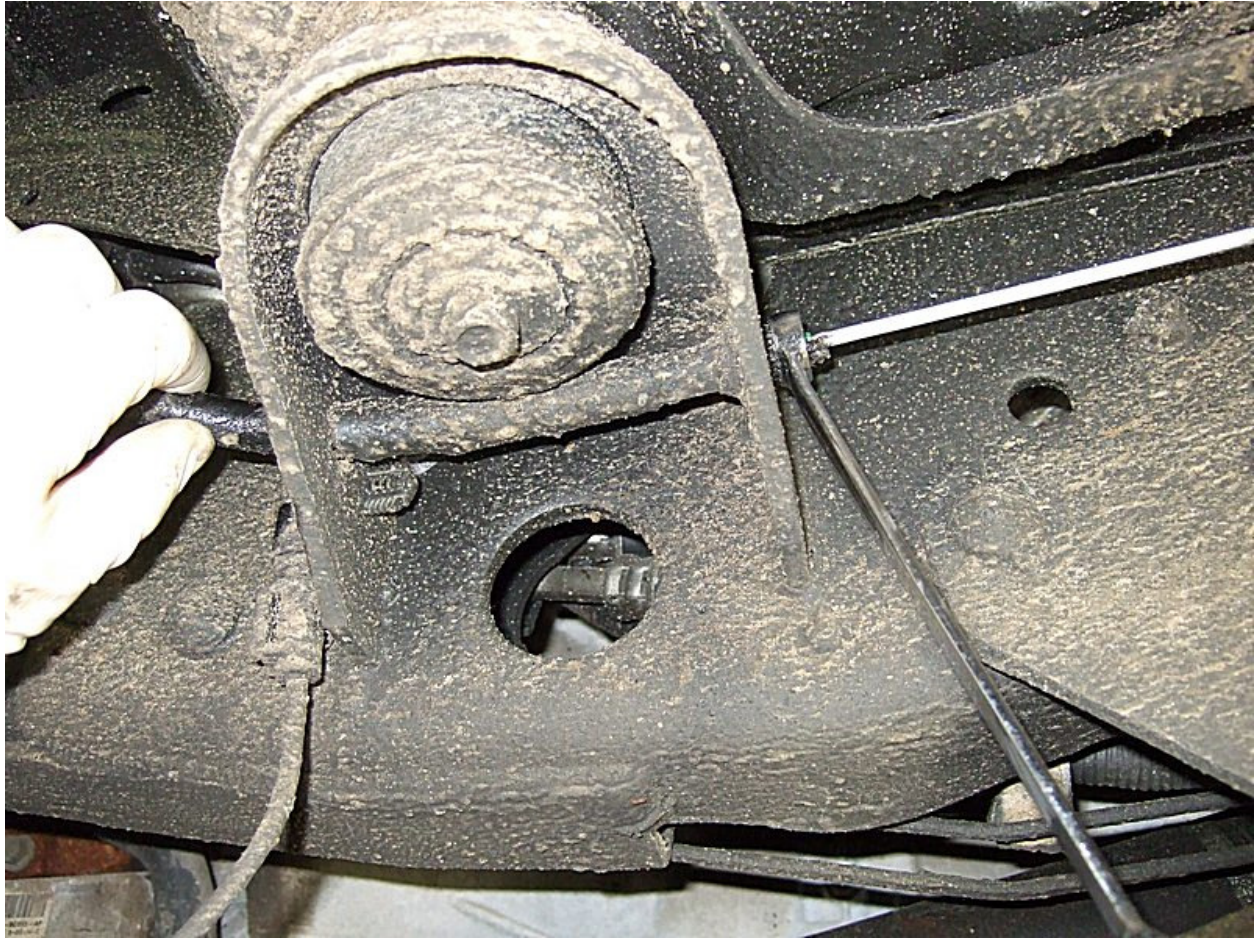
First, I pull the cable down to get some slack, then I clamp the cable at the housing as lightly as possible so the pliers don't damage the coating on the cable.



Now I use a pencil bit on my small air hammer and I lay the union against the frame and use the air hammer to knock the dimple down flat. It only takes a few "blats" to accomplish this.



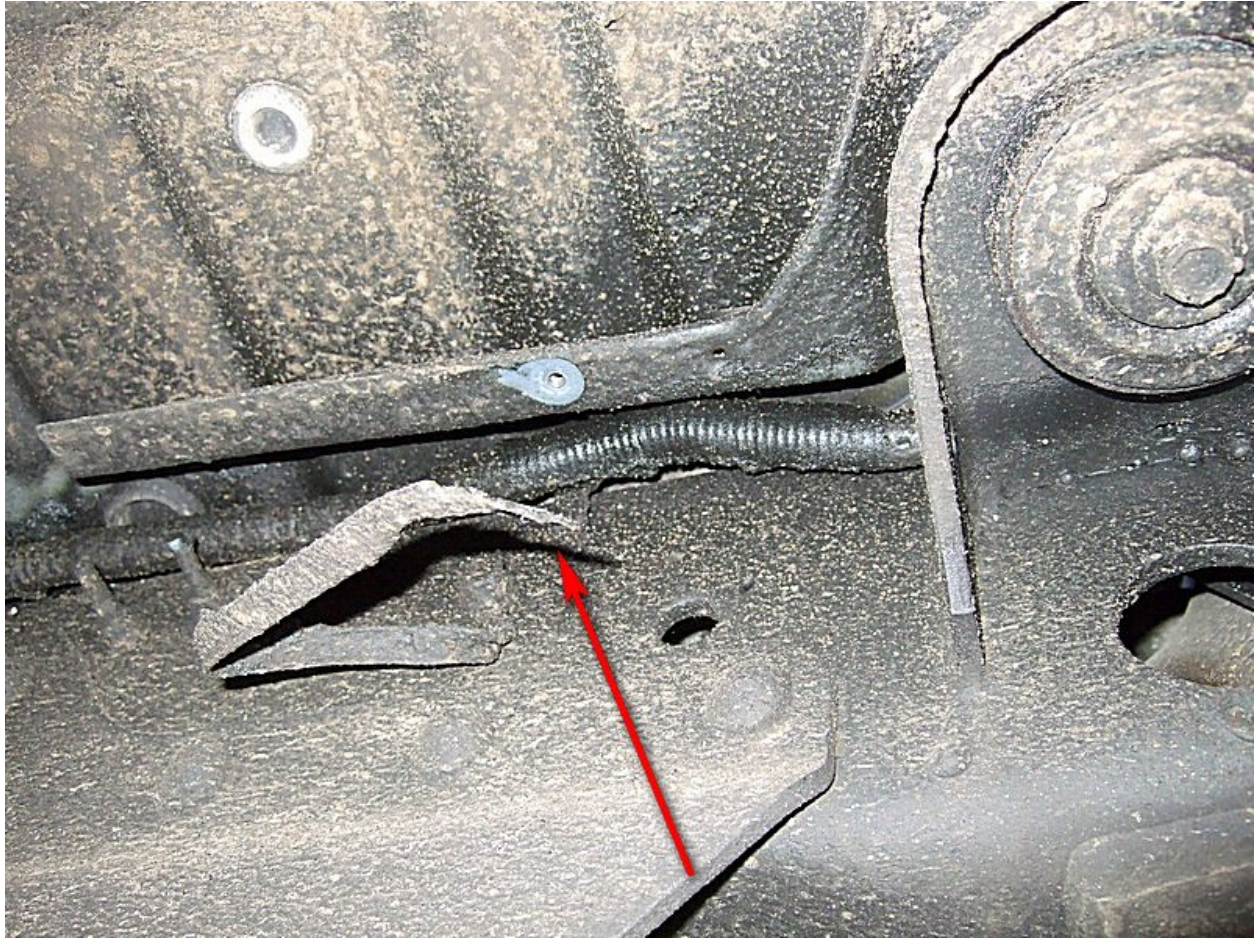
Now the dimple is not completely flush, and that is not what I am after. I just want to knock the dimple down enough to get the cable by. Now I use my trusty drum brake spring tool (have to knock the dust off of it first) and leverage the cable out as shown. This thing makes short work of it.



Ford has made the cable housing clips a little more robust on this section of brake cable. I use a box end $\frac{1}{2}$ inch wrench slid down over the clip fingers to compress them and remove the cable from the body mount bracket. This is an old trick that has been around for many moons and takes the frustration out of it all.



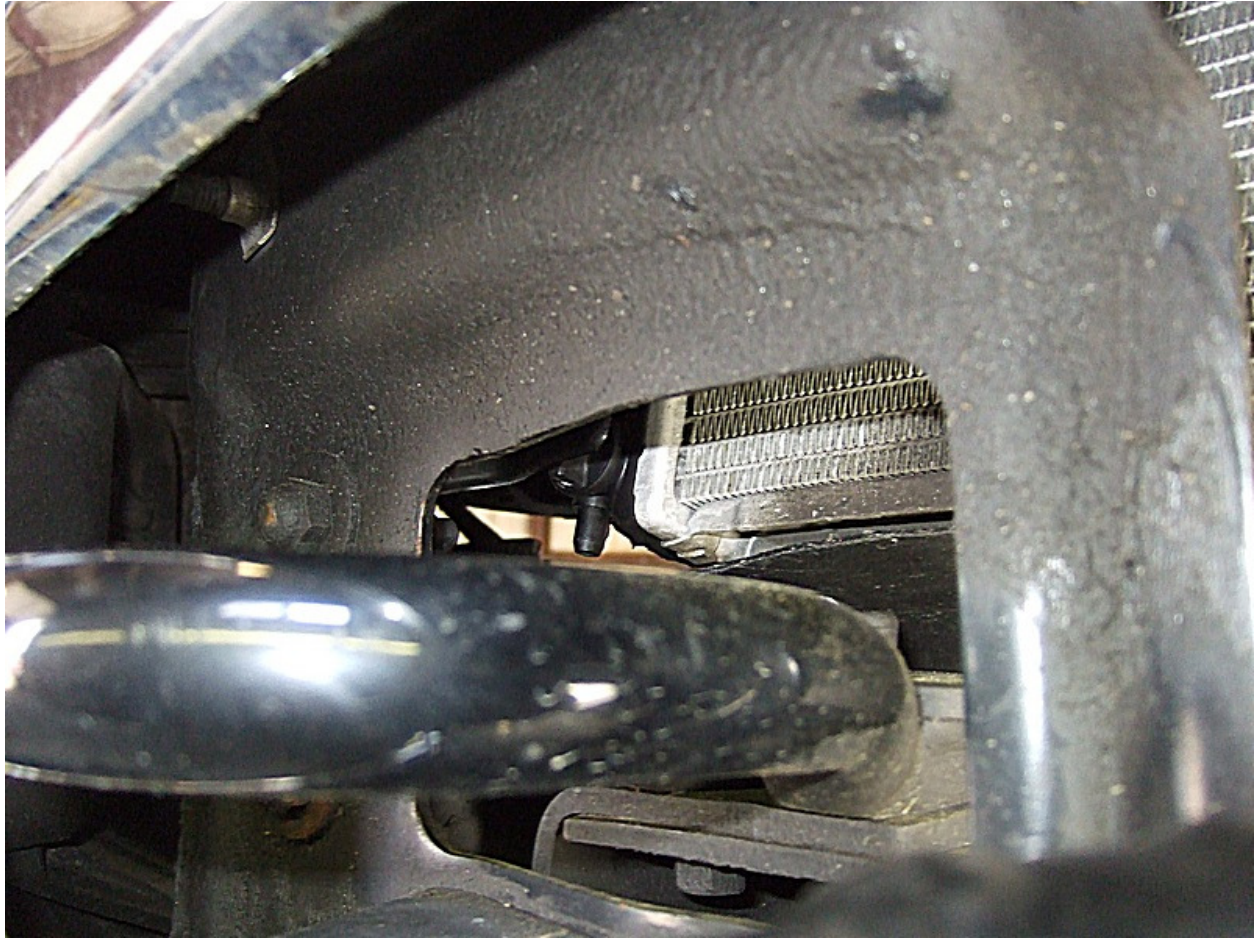
Manual transmissions aren't available anymore for a 6.7 liter. So the shifter cable will be what needs to be removed from now on. I do a lot of trans work and have always found it easier to remove the entire bracket and not to disturb the cable where it passes through the bracket. This truck has an electric transfer case and requires no attention. An interesting thing about this photo and the idea of perspectives, notice the wiring harness at the rear of the front driveshaft? From this angle one would swear it is rubbing on the driveshaft, in fact it is nowhere near it!



The old steady right side body ground is still there.



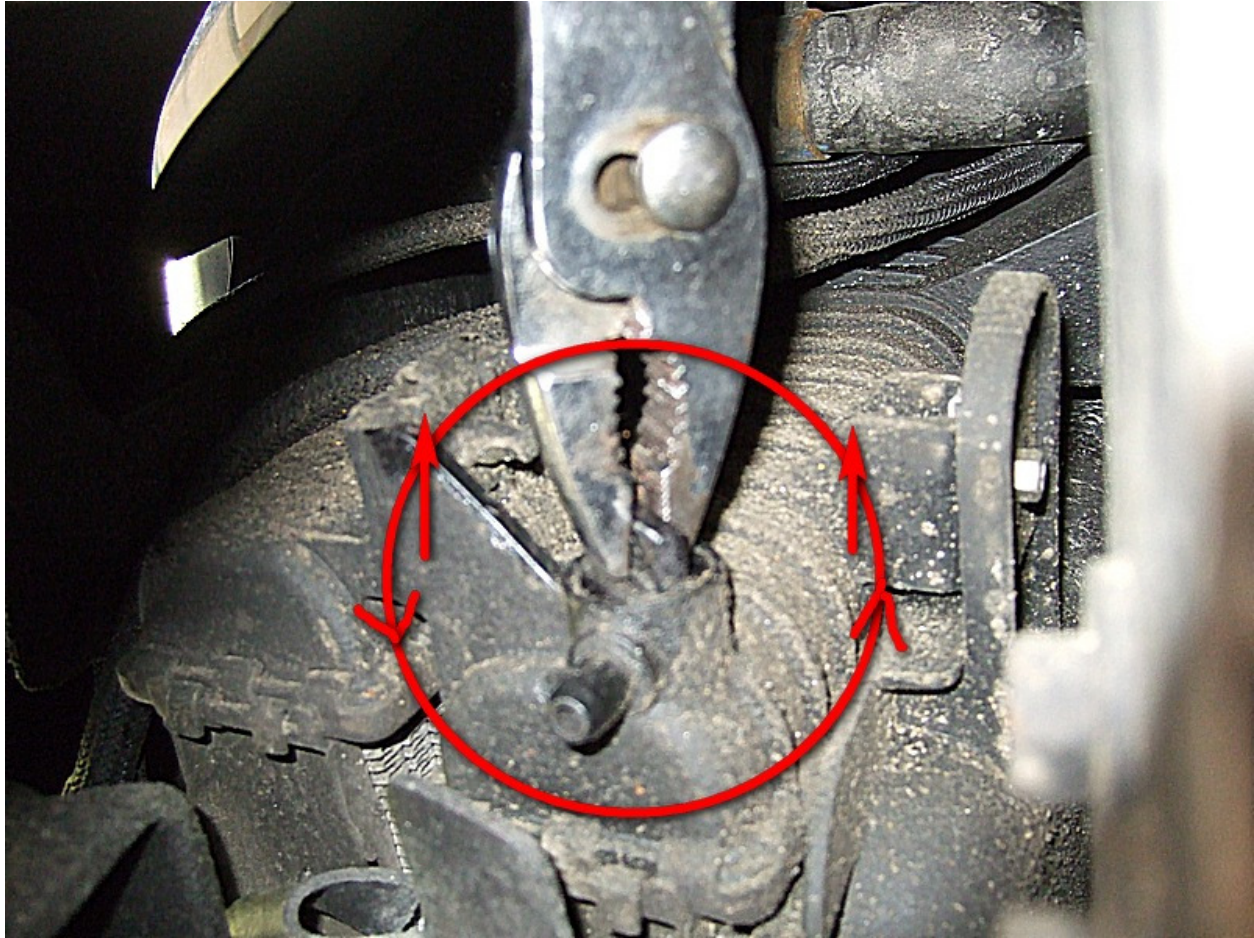
The body bolts on the '11 seem to be a little easier to deal with than the '08-'10s. I didn't use any heat or air tools. They were pretty tight but only chattered for a second after the initial first turn. After that they came right out very easily by hand.



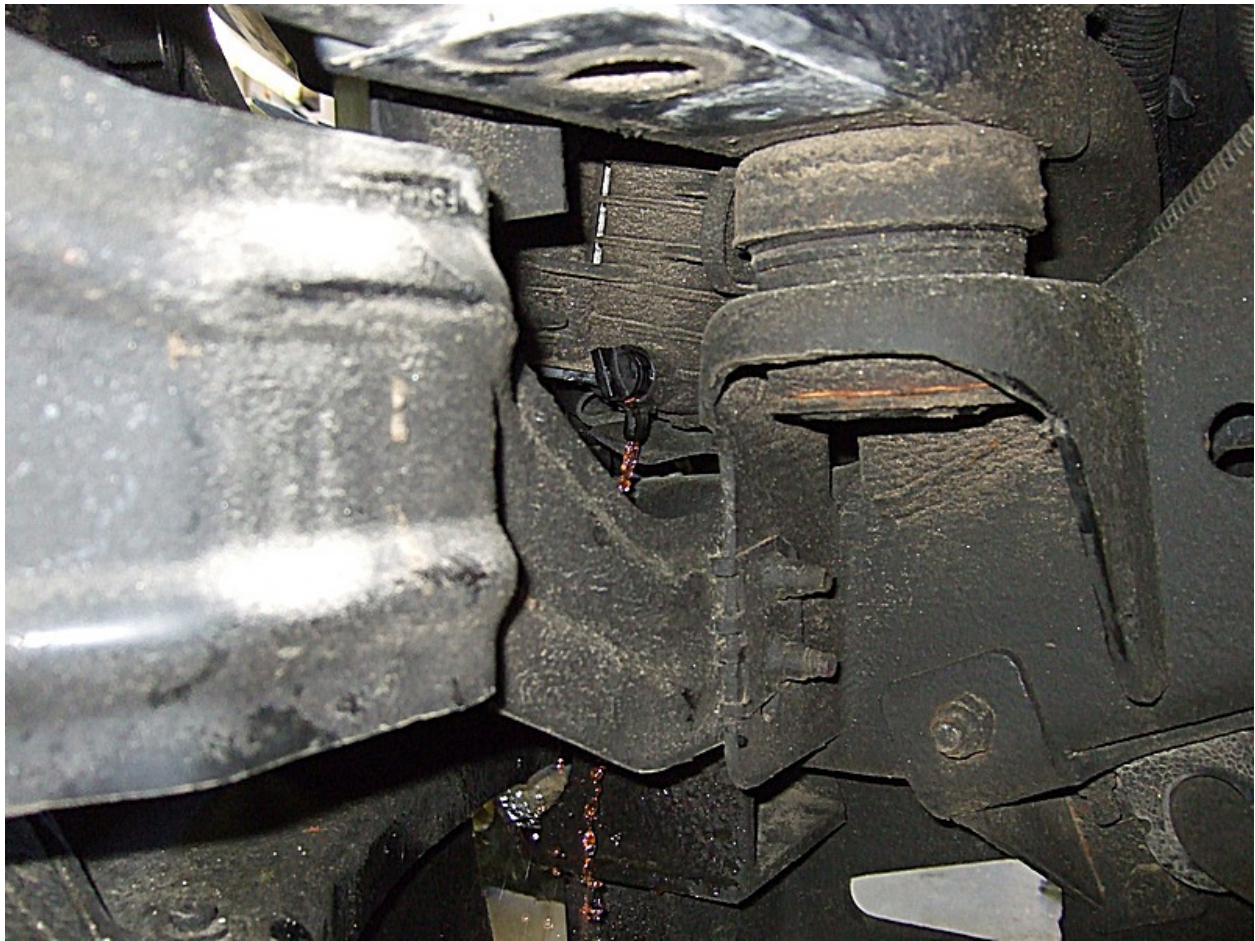
Now it's time to drain the fluids. I am one of the types that likes to make as little mess as possible. It can be time consuming to keep it clean when taking a cab off, and the 6.7 ups the difficulty level. Here is a photo of the drain on the secondary radiator. I opt not to use it to drain the secondary system. It's a little unhandy to get to (from the front or back) and it drains all over the frame rail and is difficult to catch in a drain pan.



Instead I unhook the supply line to the transmission cooler (orange arrow). This drains the secondary cooling system for the most part as needed and it is quicker and easier to catch the fluid and the hose has to come off anyway. The air dam needs to be unhooked from the bumper (red arrow) which is held up with 3 push pins.



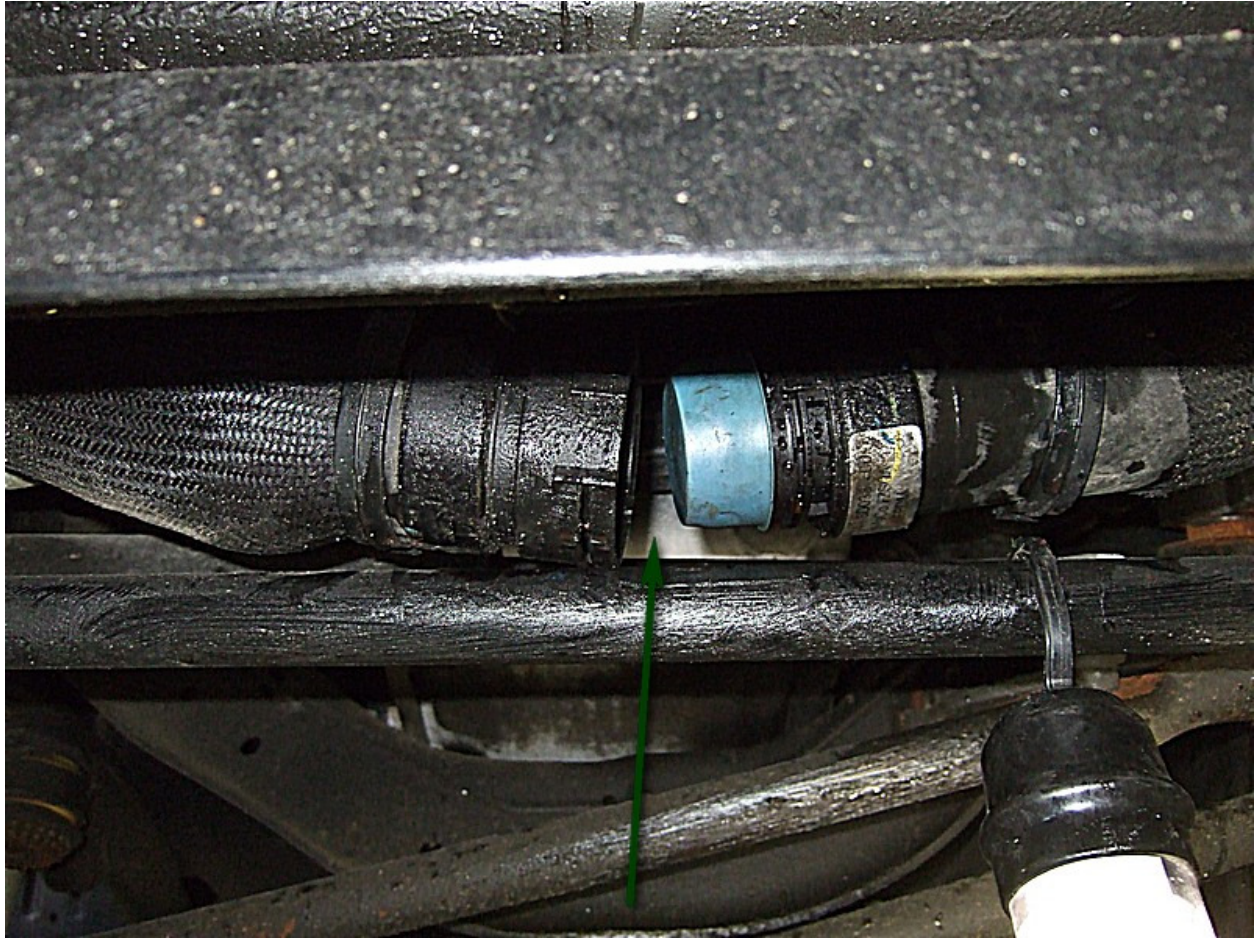
Now for the primary cooling system. This drain plug is similar to the oil drain plug and requires pulling it out as it is turned. Now I lower the truck back down as close to the floor as possible while still being able to get a 5 gallon bucket under the drain and finish unscrewing the primary radiator drain.



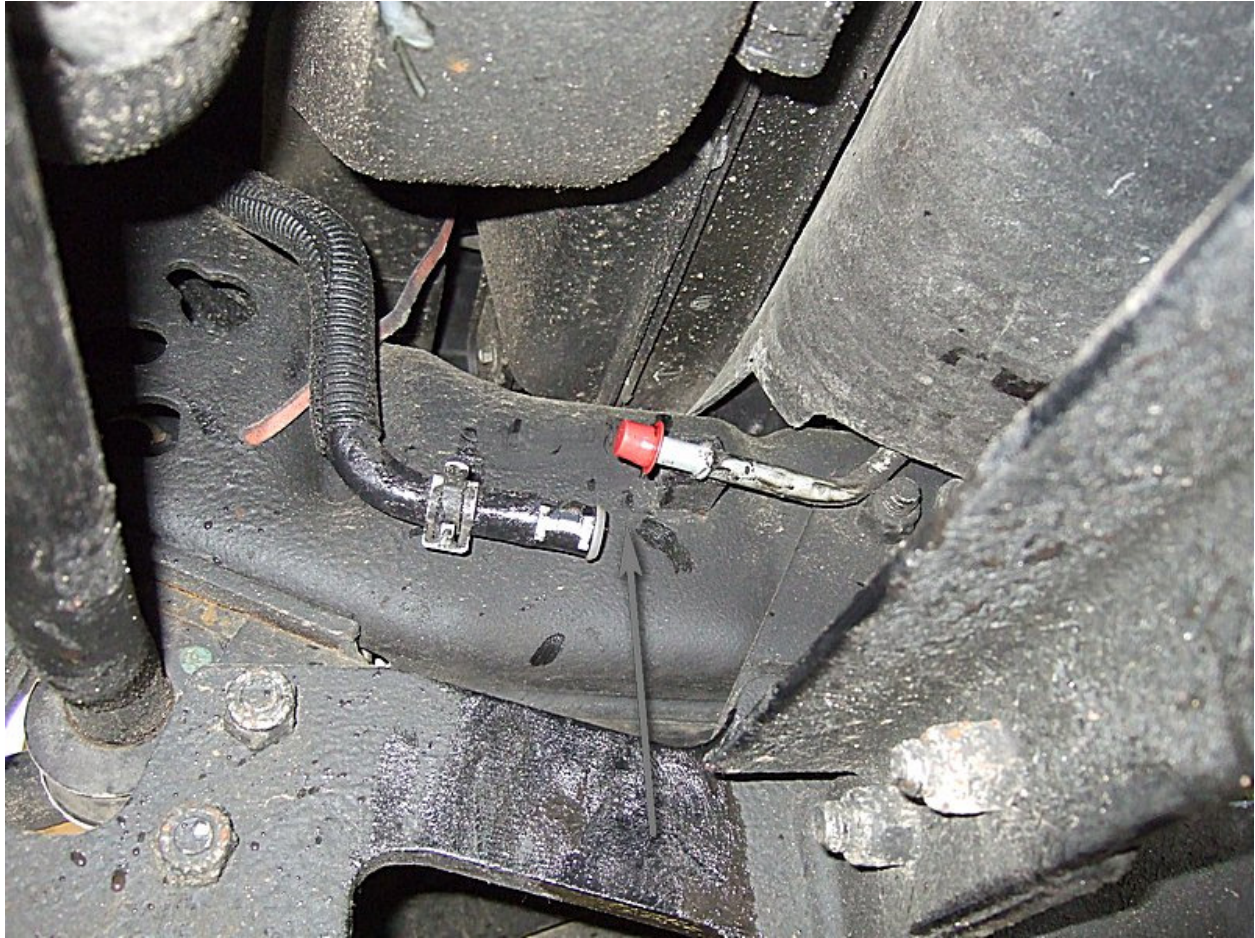
And you should end up with something that resembles this. The system holds a lot of antifreeze so be prepared to have more than one catch pan if they are small. I use a 5 gallon bucket and it almost overflowed before it finished draining.



While the cooling system is draining, I evacuate the air conditioning.



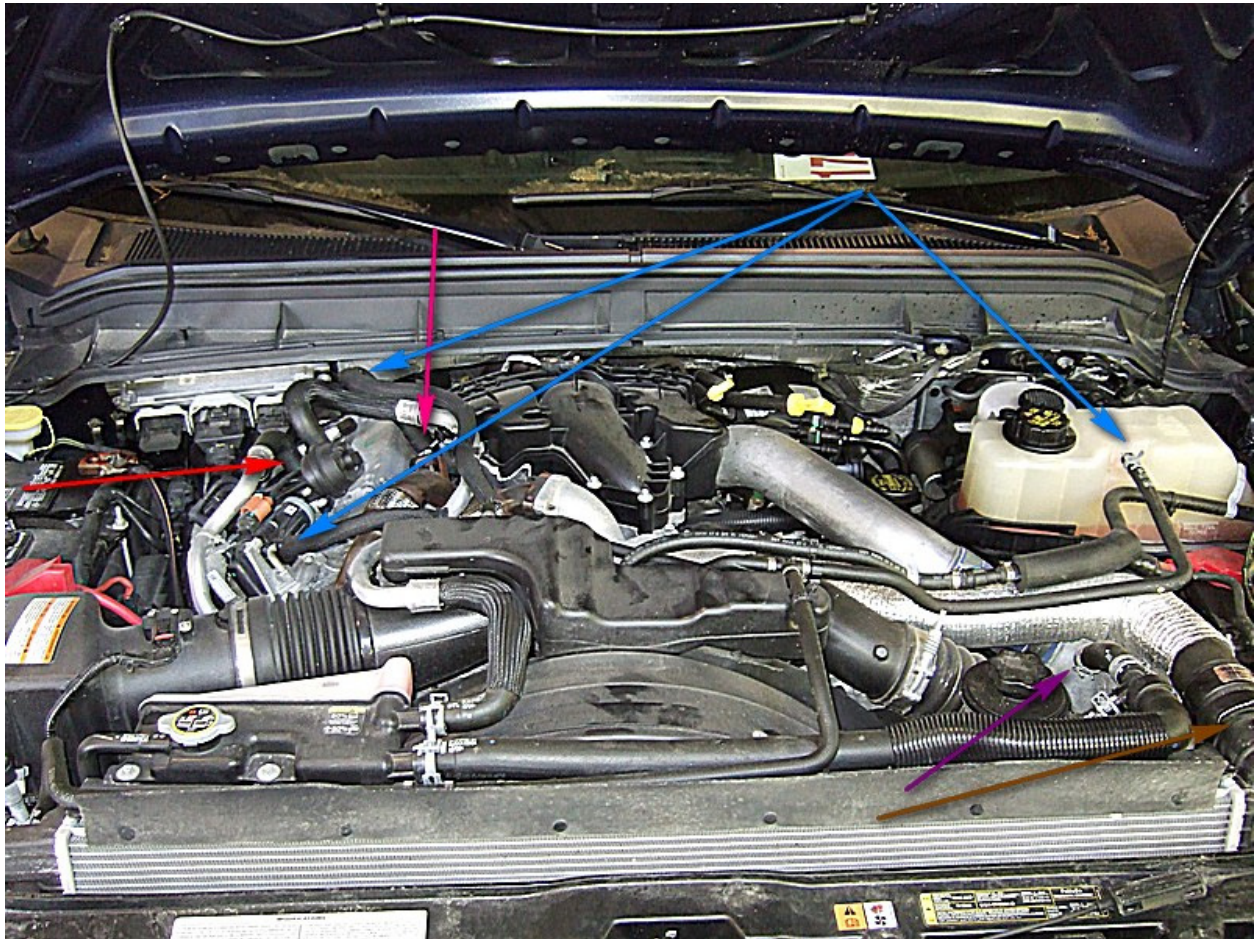
After draining the radiator and the a/c, I lift the truck once more and unhook the bottom radiator hose and detach the clip retaining the portion of the hose going to the motor from the shroud.



While under the truck, I disconnect the power steering gear to cooler line at the convenient break point (at the left front frame horn) that Ford provided specifically to ease cab removal. Allow this to drain until it stops before capping it off, this lets the reservoir empty out so that it doesn't need to be emptied using a suction gun or pump. Now there is a method to my madness with having to raise and lower the truck a few times. I do it this way basically to keep from taking a bath or having fluids dripping on me. In other words I do as much mechanical as possible underneath before draining anything or uncoupling any hoses, which I try to save for last. Sometimes this means lifting and lowering the rig a few times but it's worth a few wasted motions to stay clean and dry.

Now we're through under the truck and it can be lowered down for the last time.

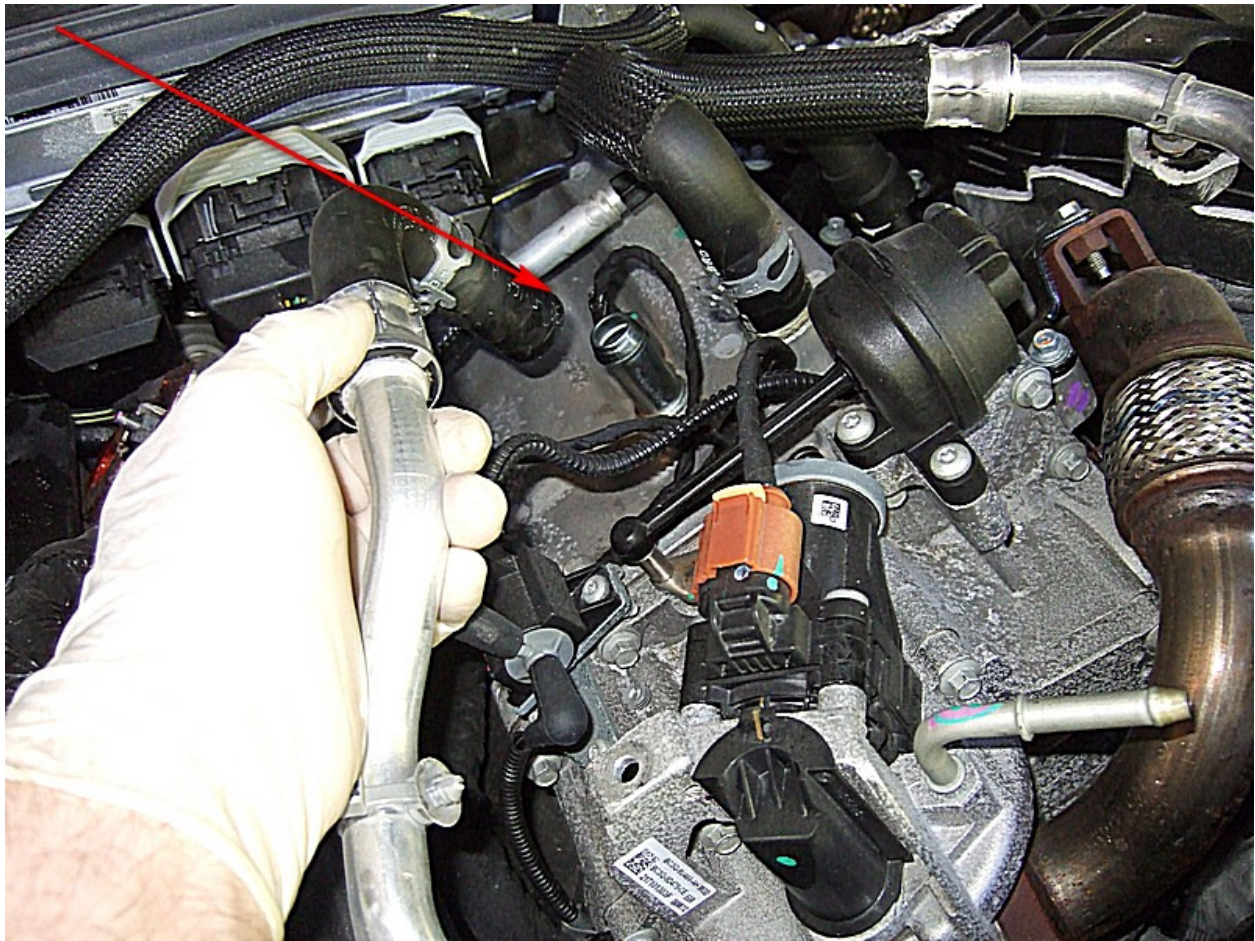
Okay, now the truck is back on the ground and it's time to tackle all the plumbing.



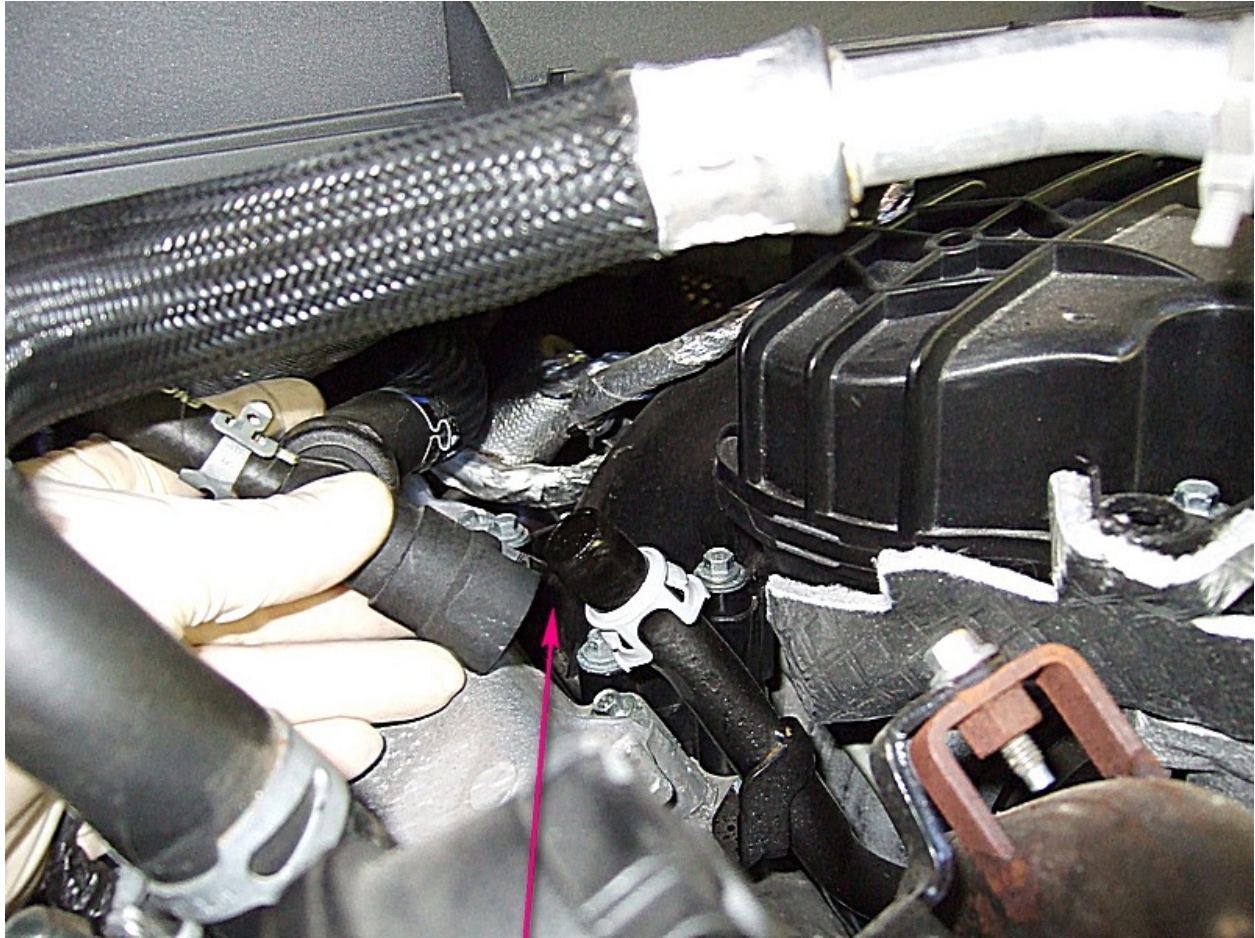
This is what you will see when the truck is on the ground and your ready to start under the hood. It's tough to get a handle on things in this picture but once you start on the truck the colored arrows will make sense. Remove the air filter box assembly. Next, remove the vent hoses from the 3 locations (light blue arrows) at the heater inlet hose, egr valve, and primary degas bottle and lay the assembly over on the radiator support.



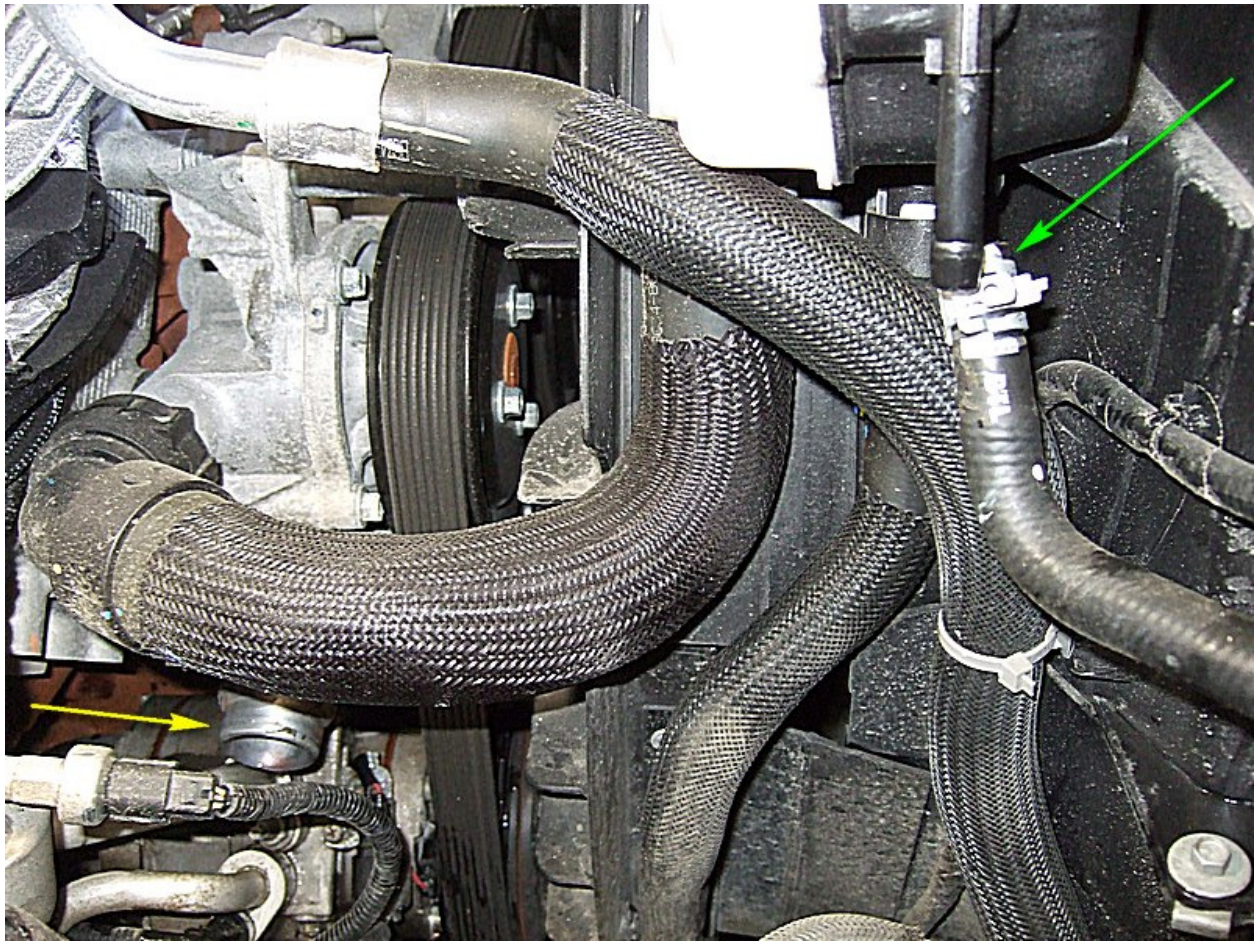
This is the vacuum supply line from the vacuum pump.



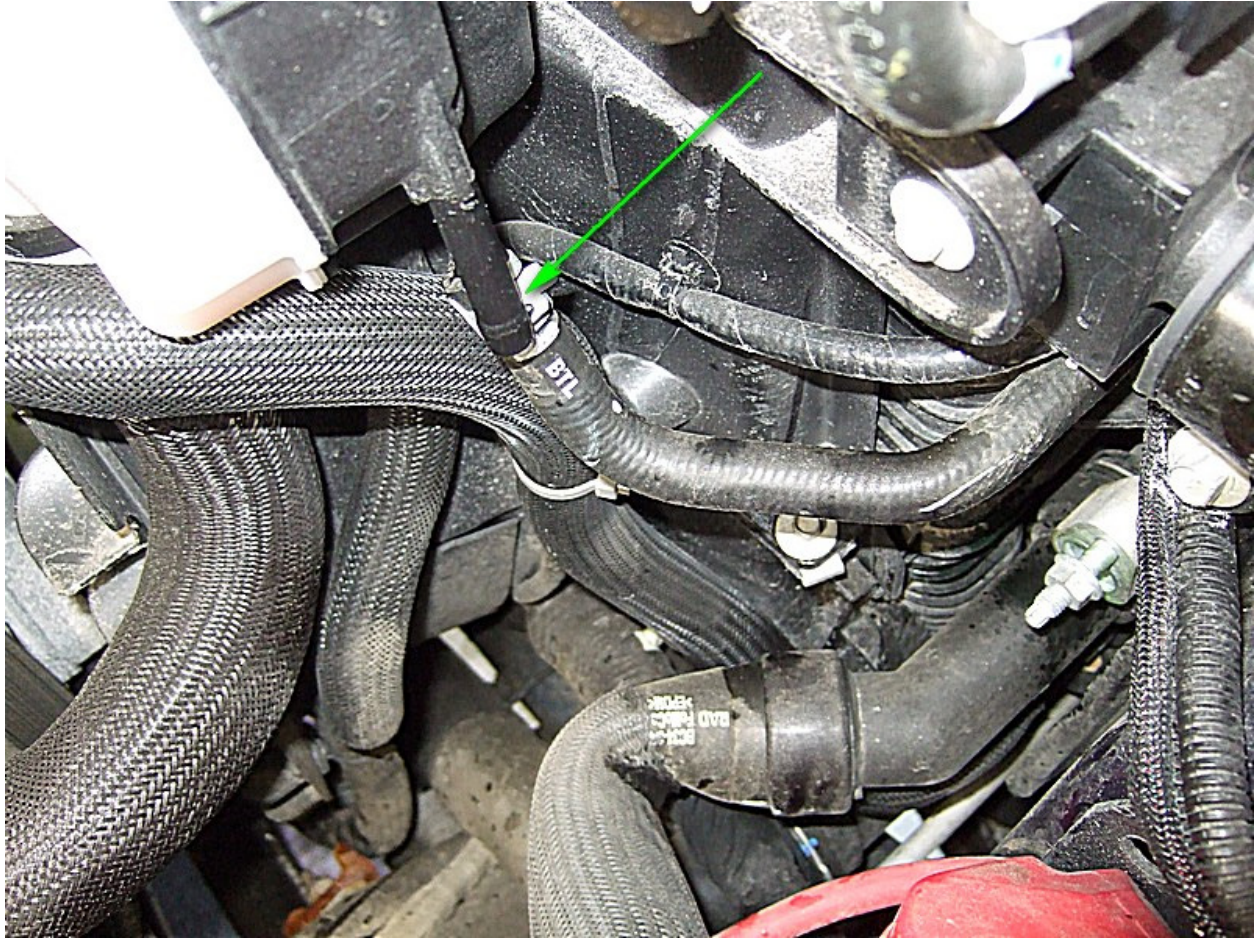
Ok, the first hose on the list for the secondary cooling system was the transmission cooler. This is the next hose on the list. I disconnect this and lay it over on radiator support or down where the air filter box sits (which has been removed already).



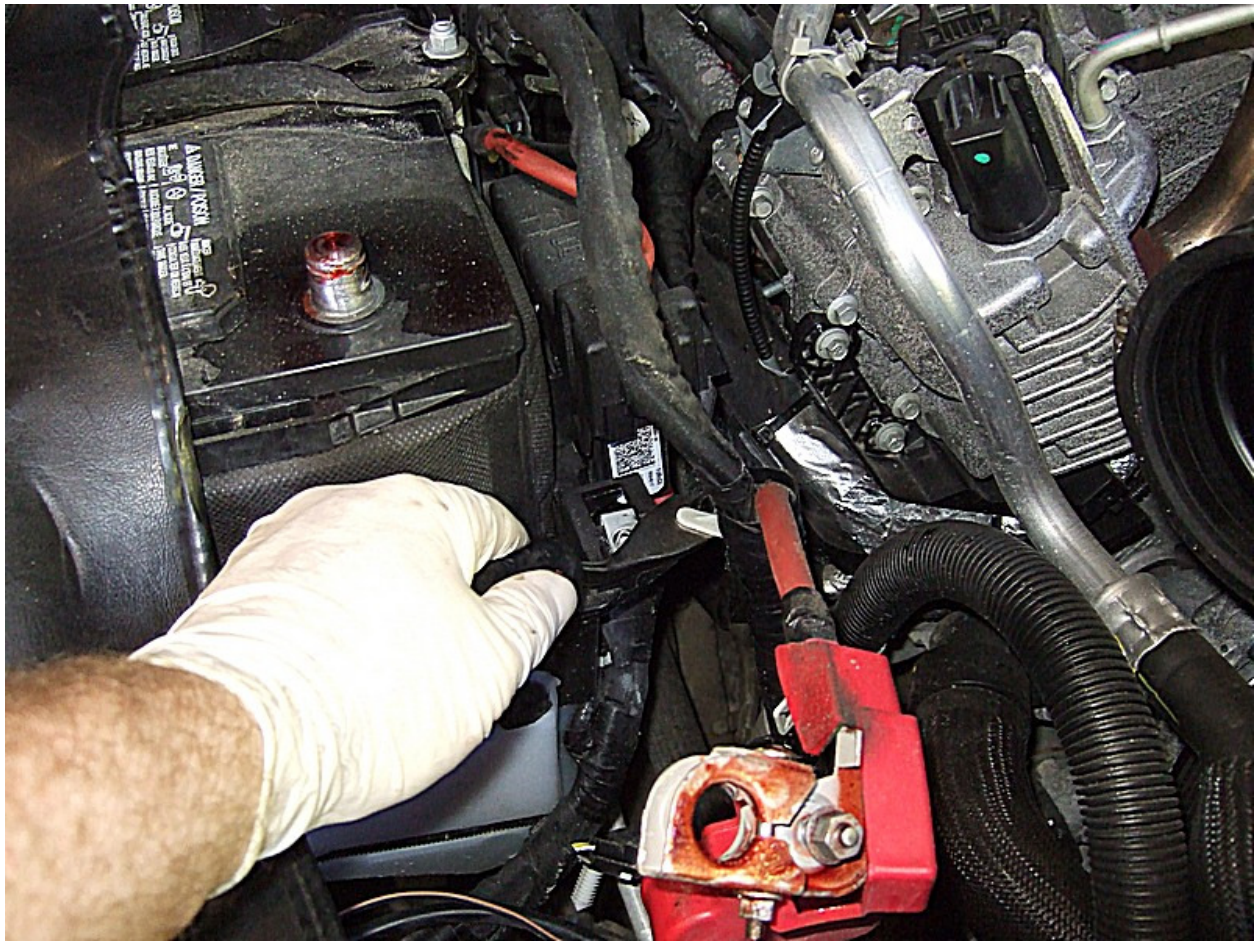
This is the heater supply hose. It is easier to remove the vent hose first before taking the heater hose off. If you have decided to remove the fender liners, then you can remove the heater hose at the core and leave it connected here. This will allow it to lay on the engine as the cab is raised and not hang up on anything. If you disconnect it here, it should be tied up to the cowl or something on the body.



Next, take the coolant pump-to-radiator hose off and tuck it over where the air box would sit. Then disconnect the vent hose to the degas bottle. Lastly unbolt the degas bottle from the upper radiator shroud.



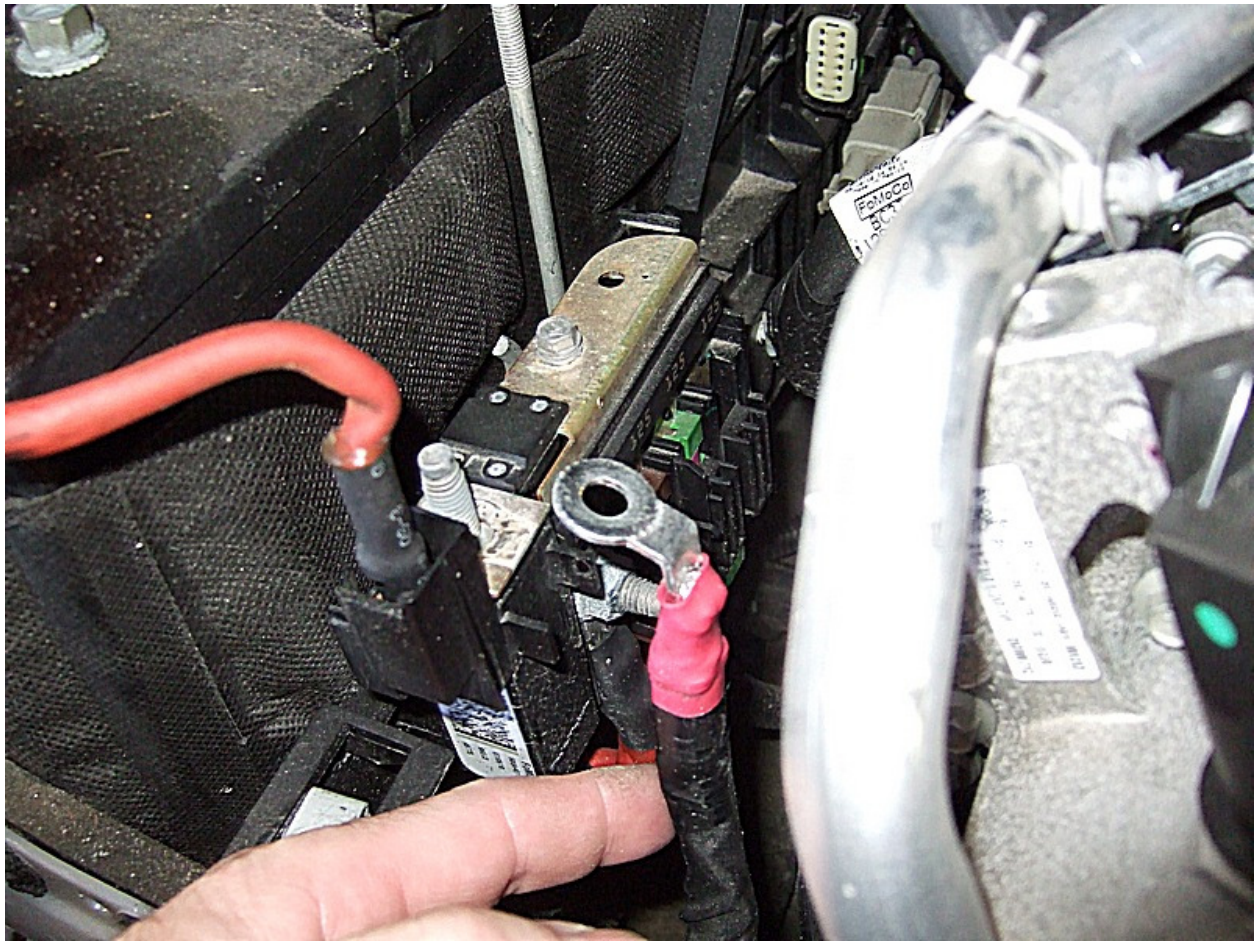
Notice that the vent hose was disconnected in the previous step (picture) but this picture still has an arrow pointing at it. This is just for visual purposes, since it is already disconnected. The arrow is there to help with the relationship of the parts (color coding is constant throughout the whole procedure). Disconnect the a/c line going to the condenser and lay the line on the engine. You can see the coolant pump to radiator hose tucked in at the bottom.



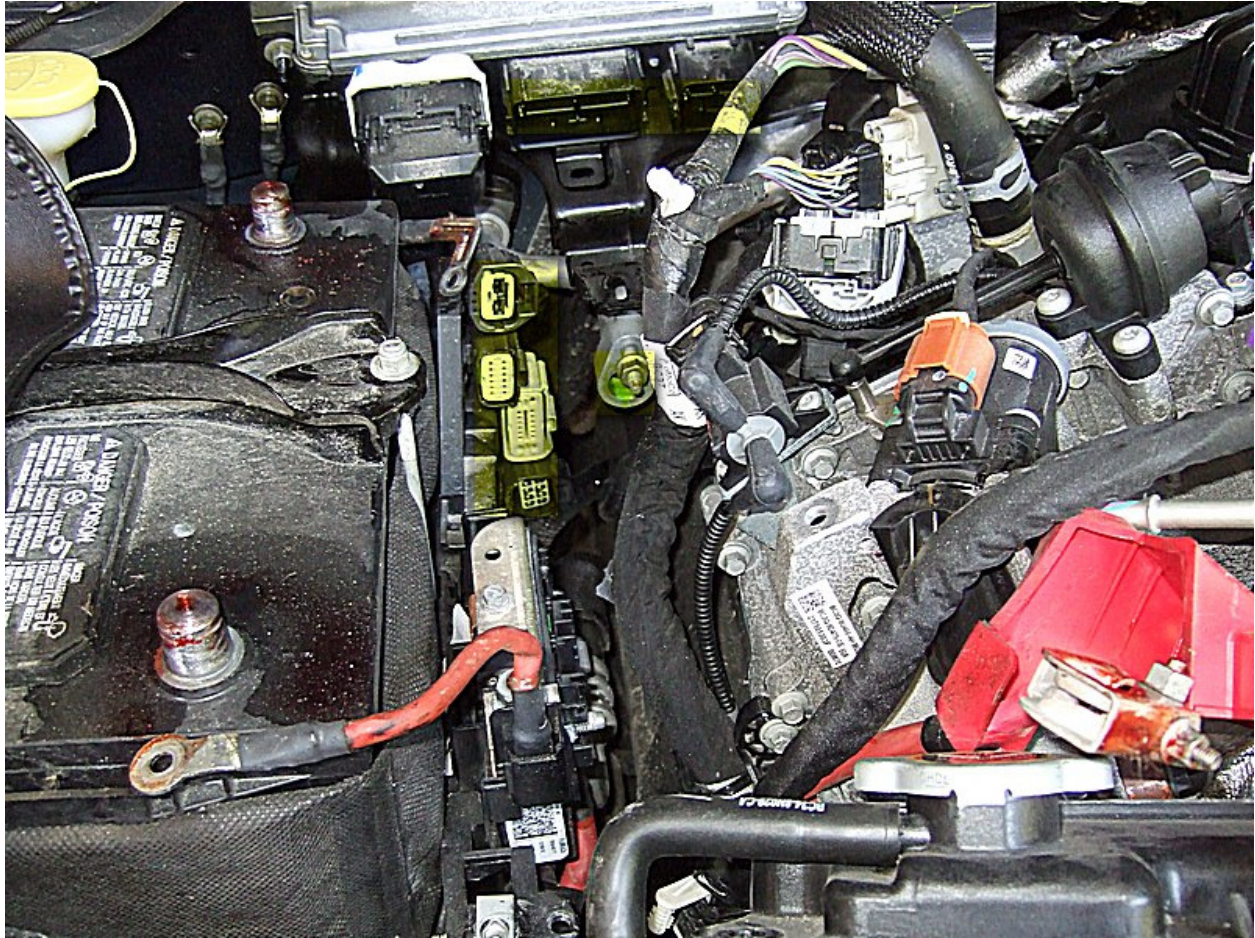
That takes care of all the coolant hoses on the right side of the engine bay. Now it's time to take care of the electrical while we are still on this side. The primary battery can stay in the vehicle. Remove all the wires from the positive and negative terminals. Remove this push pin securing the positive cable to the battery tray.



These two connectors are part of the battery cables, disconnect them. The cables are now free from the body and can be laid on the engine.

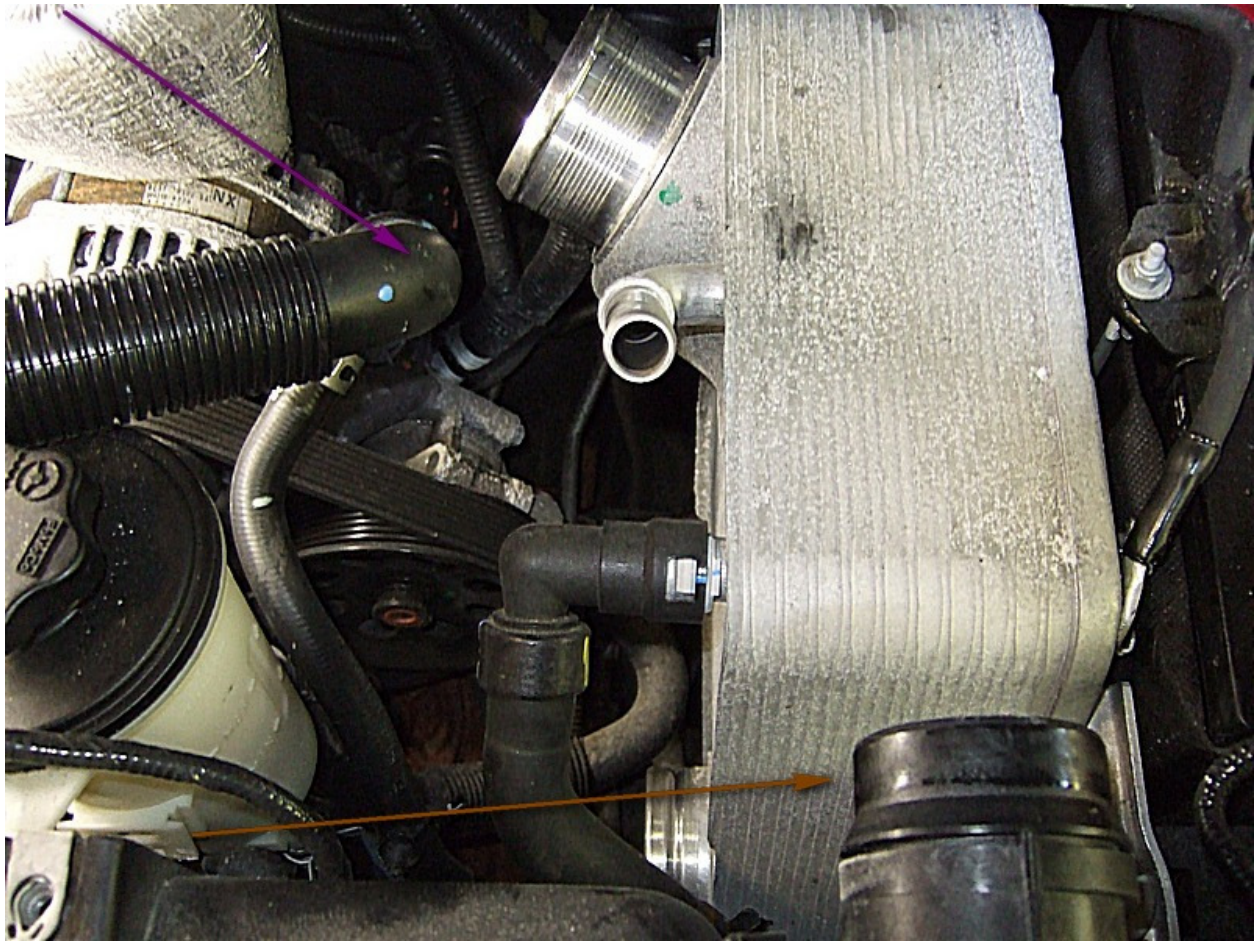


This is the power cable to the alternator, unbolt it and tuck it over near the engine with the battery cables so it clears the body when raised.

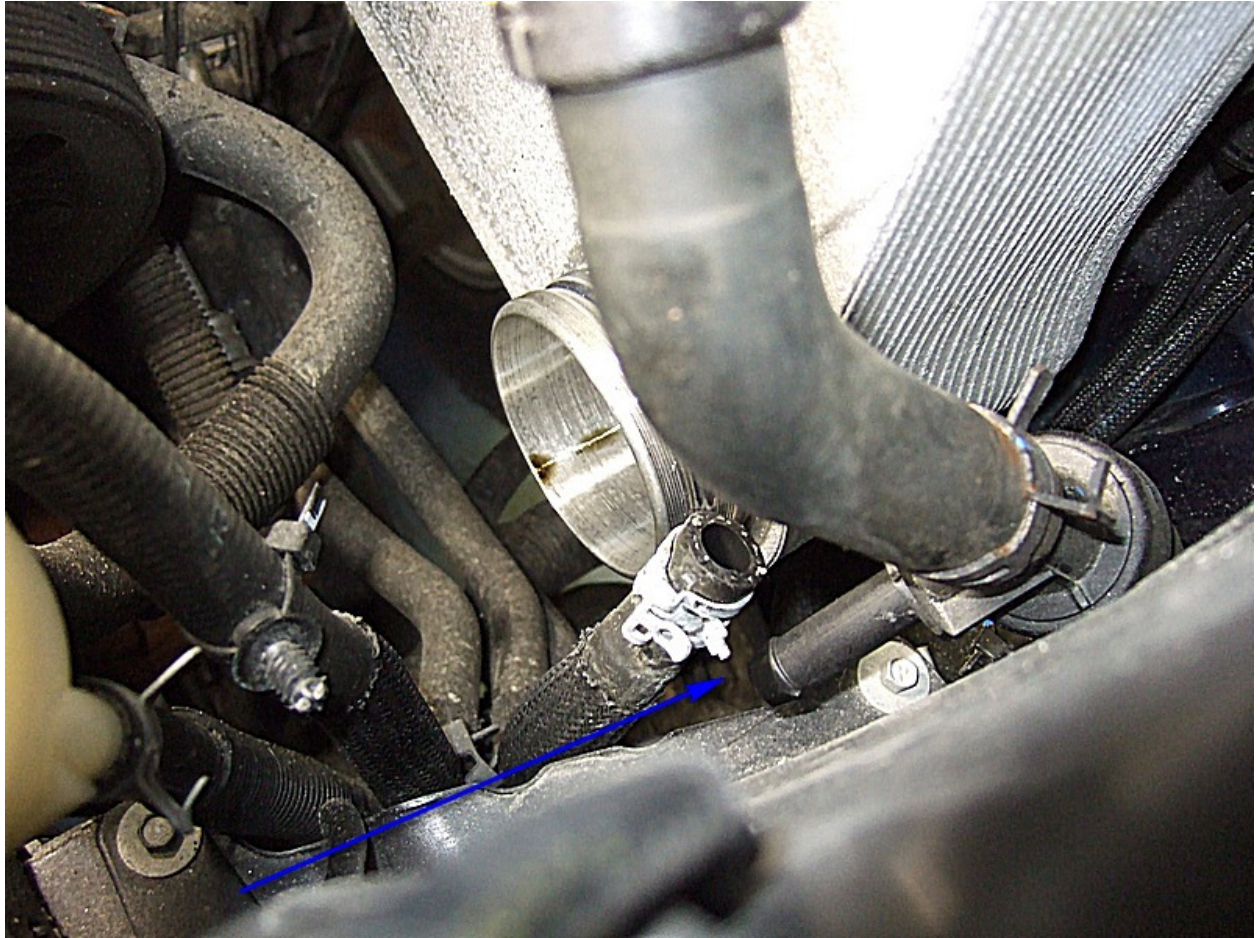


Unplug the transmission and engine harness from the PCM. There are two connectors that go with the Engine harness (pictured in the bottom of the highlighted row) unplug these as well and secure the harness to the motor. Disconnect the a/c line going to the firewall.

That takes care of the right side, very simple as far as electrical goes.



Now for the left side. This is pretty straight forward as well. Disconnect the CAC outlet hose and the top radiator hose. The CAC outlet hose will lay on the engine as well as the top rad hose. This side is a little tight with the CAC and the degas bottle in place. It makes getting to the master cylinder a little unhandy. I remove both components and make lots of room. They come out easily. Remove the hot and cold CAC hoses.



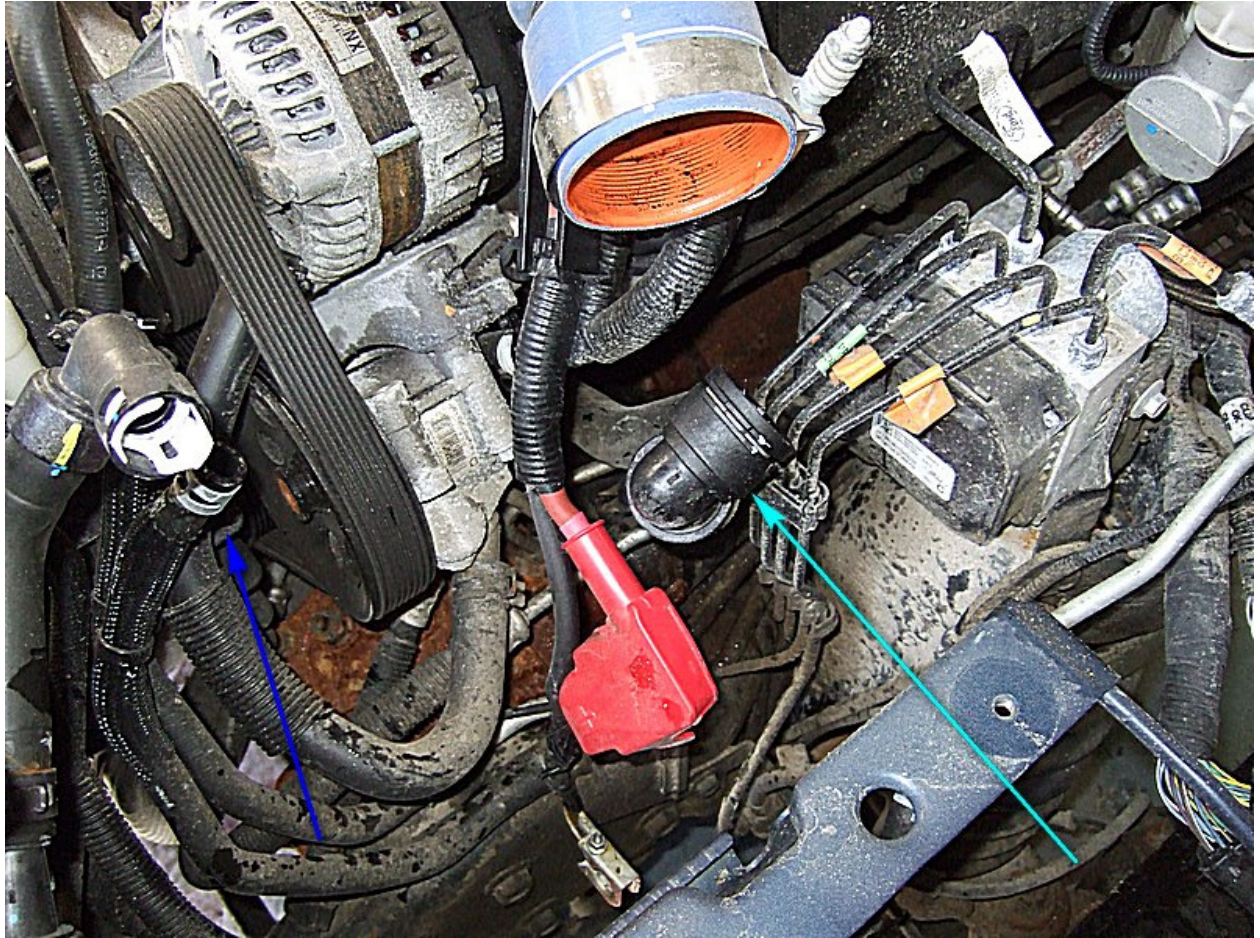
Disconnect the fuel cooler coolant hose, it will stay on the frame rail. It is tight down in there, so you can disconnect it after the CAC is removed to make things easier.



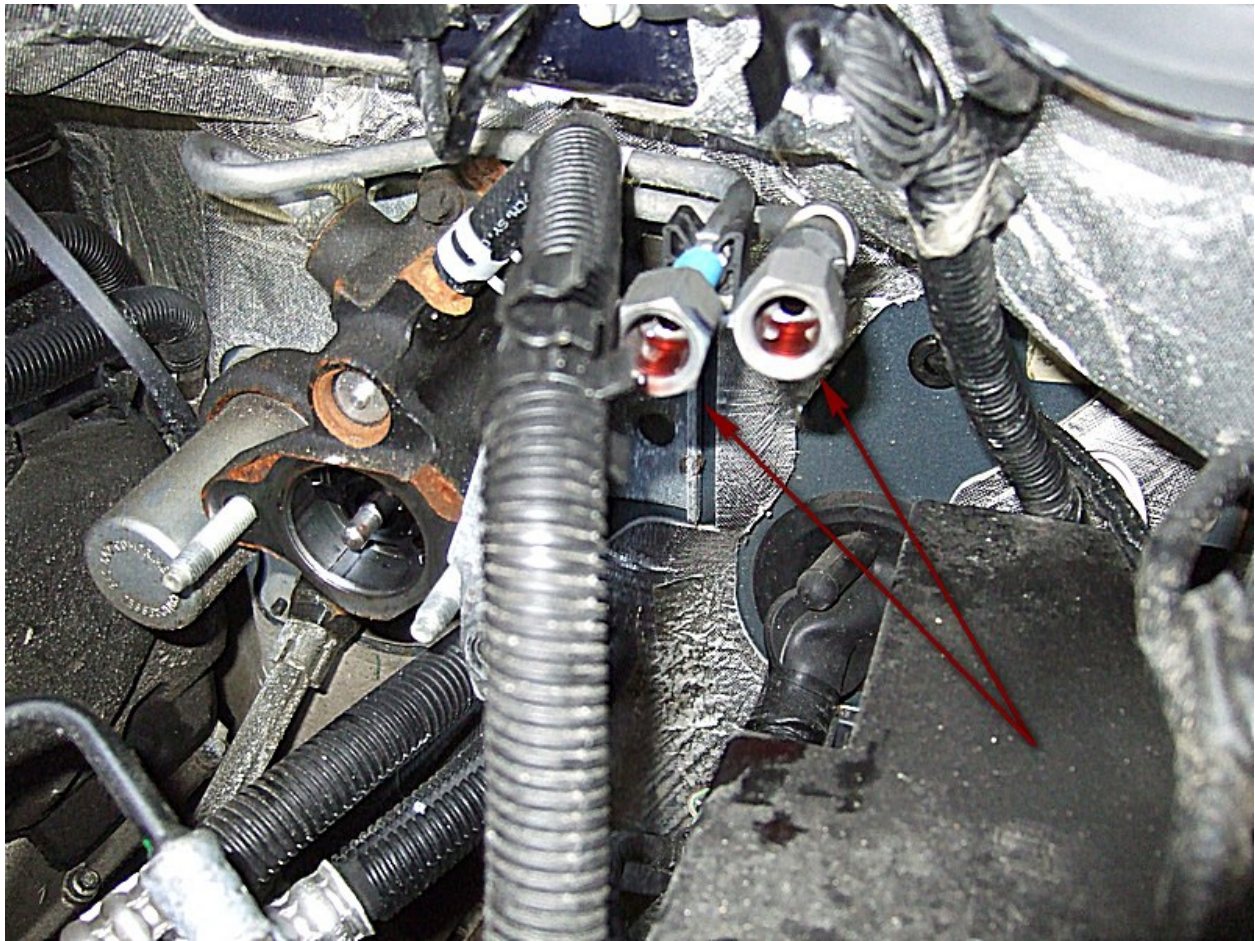
Disconnect the power steering supply hose to the p/s pump and tuck it over under the belt. The reservoir will already be drained from disconnecting the gear to cooler hose down on the frame rail earlier. So there is no need to suction out the reservoir and there is no mess!



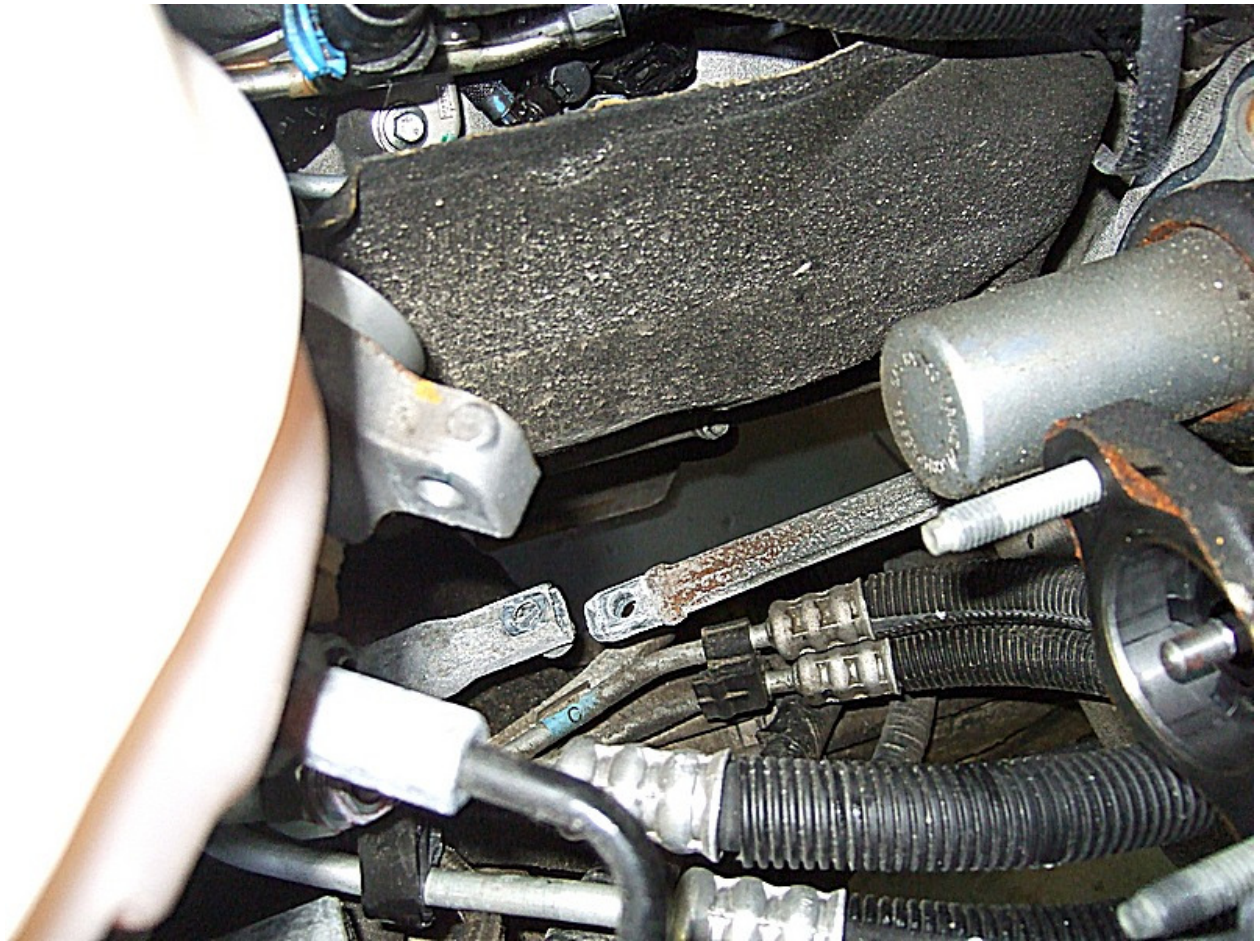
This vehicle is equipped with automatic four wheel drive and the hub lock solenoid is mounted on the degas bottle. I disconnect the solenoid wiring and vacuum supply hose and remove the degas bottle.



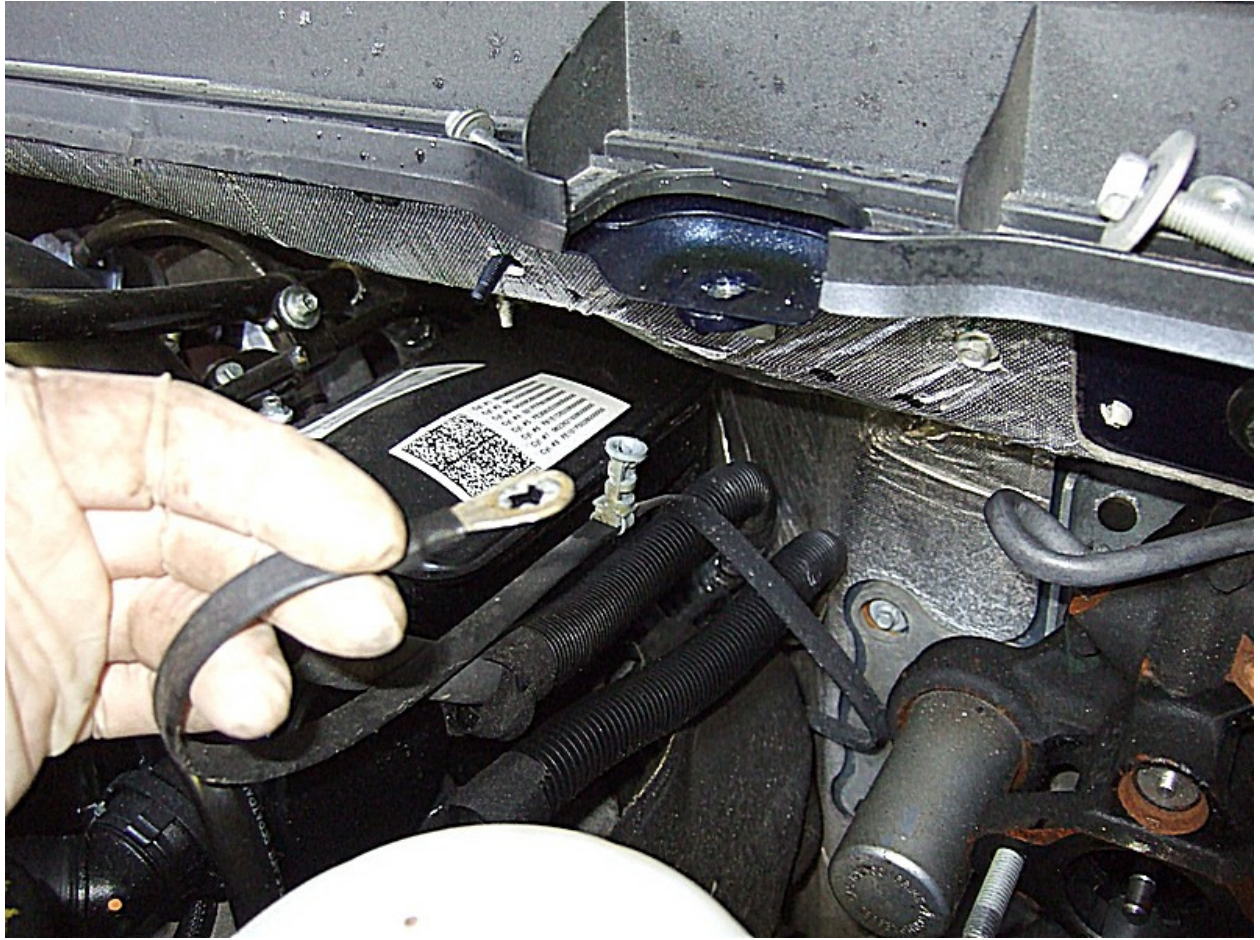
This photo shows from left to right, the CAC inlet coolant hose, the fuel cooler supply hose (blue arrow), the degas bottle hose (aqua arrow) and CAC hot hose.



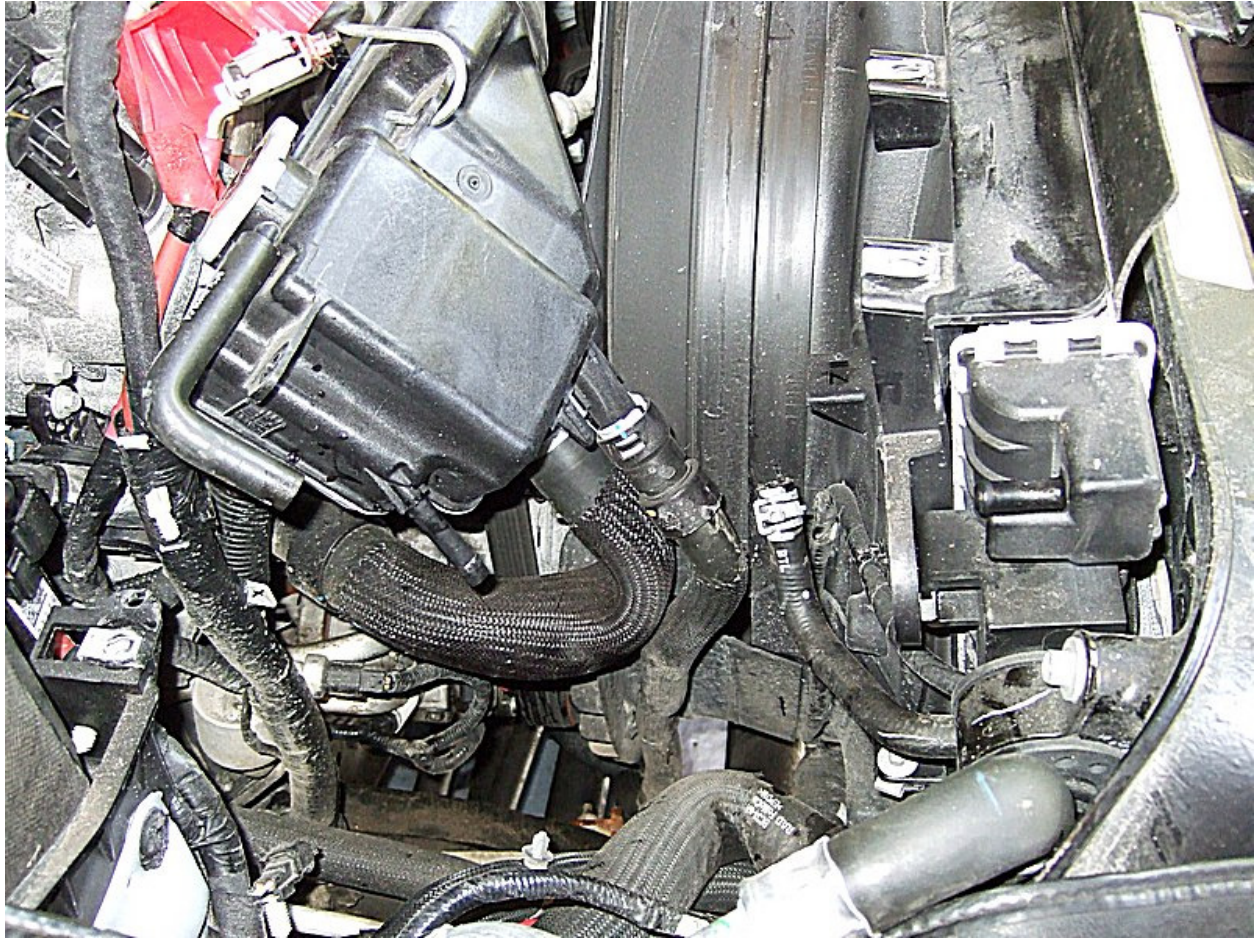
Next, unbolt the master cylinder and both hydro boost lines (if equipped).



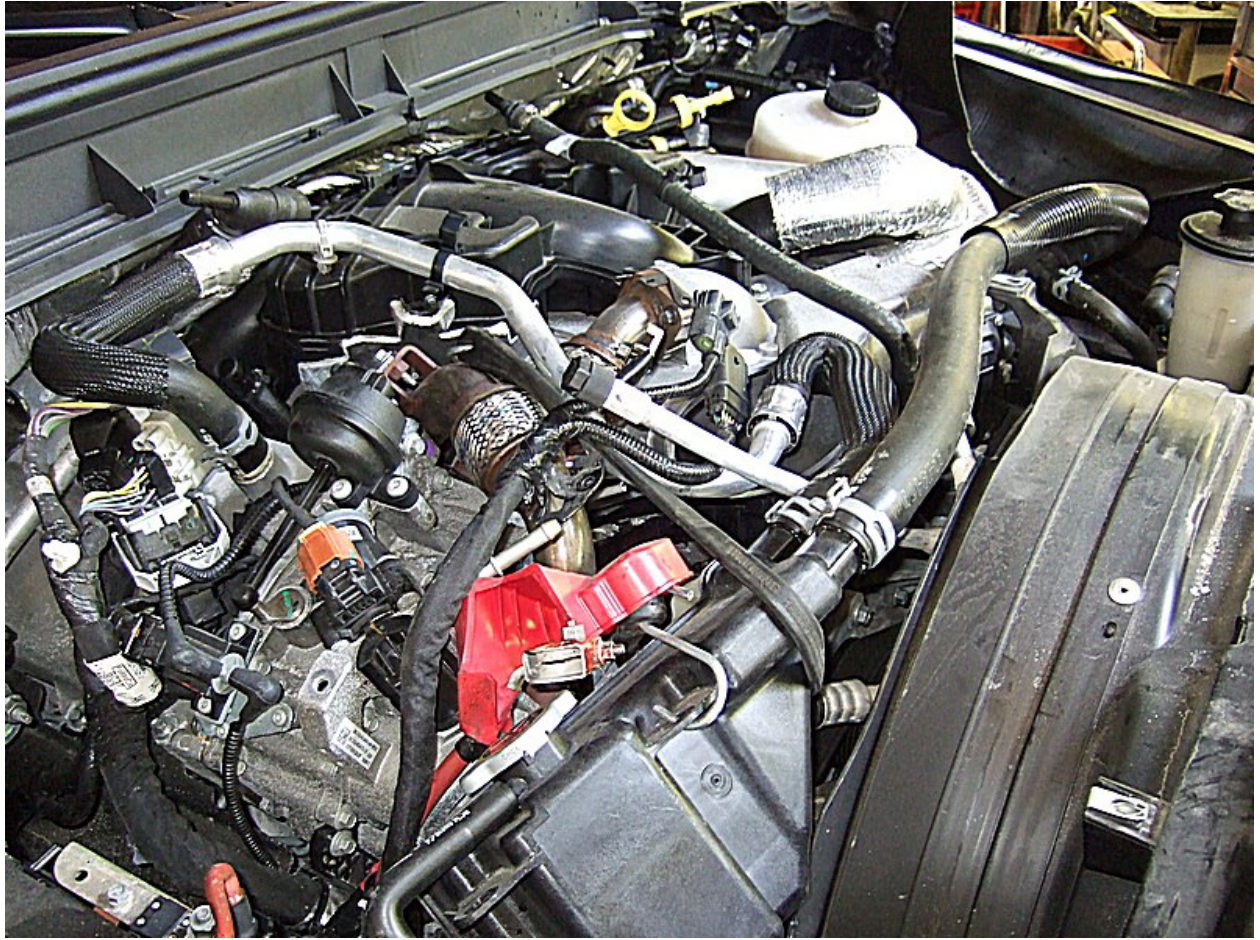
Separate the steering shaft.



Remove the radio suppression ground wire bolt and clip.



Now it's time to tie everything that's loose to the motor. These trucks have been redesigned quite a bit and the hood line is much straighter. This allowed the radiator to be installed more vertically than compared to the '08-'10 models. It makes it easier to remove the body also. None of the fan shrouds need to be removed.



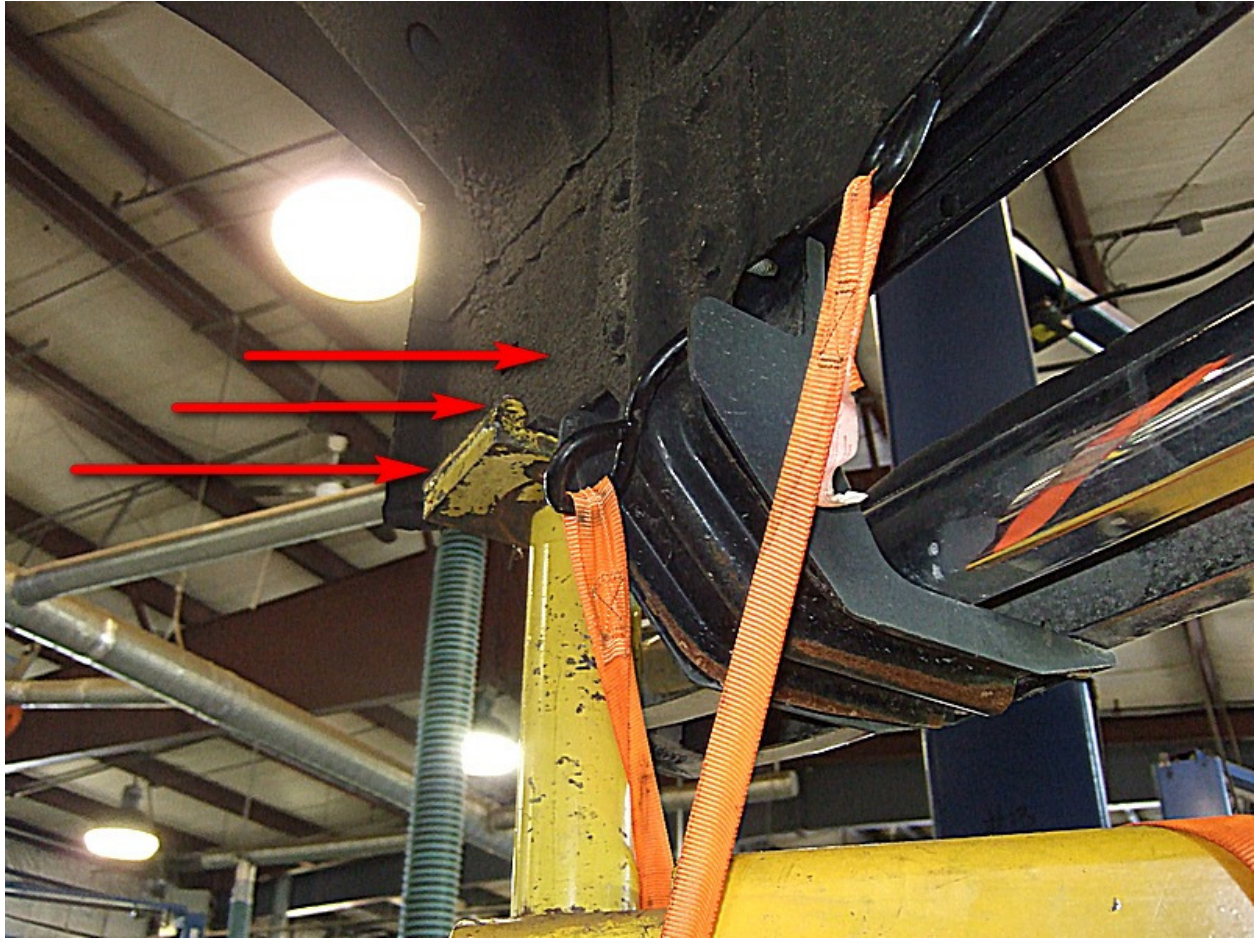
Overall view of everything tied back and down, ready for cab lift.



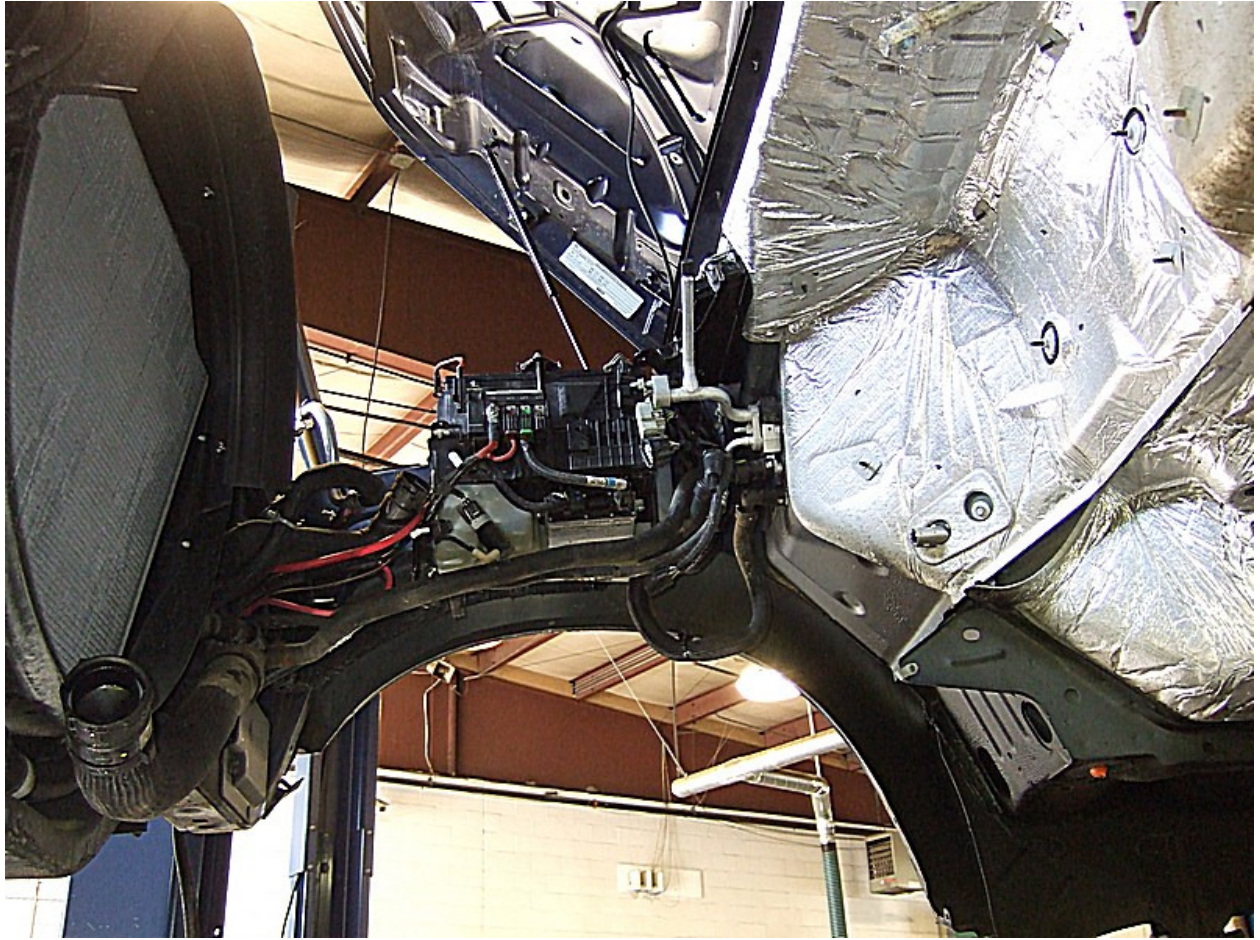
The cooling fan stator has the bottom shroud made into it and the top shroud fits into it perfectly when lifted up and down with the body.



Please note: this vehicle is equipped with a midship fuel tank and has an additional crash protection bracket bolted to the number 3 frame mount. This bracket is very close to the pinch weld on the body and the lift can hit it. If you encounter this, place the lift arm as far as possibly safe to the outside of the body. If this is not possible then unbolt the bracket.



This lift has a pretty good edge that will not slip on the body so it can be placed as far over as possible and still be safe. This is a super cab body and sits balanced very well on this lift which is a non asymmetric type lift, so a small strap is all that is needed to keep things from moving around. When in doubt or not comfortable with the strap size, then use a larger strap.



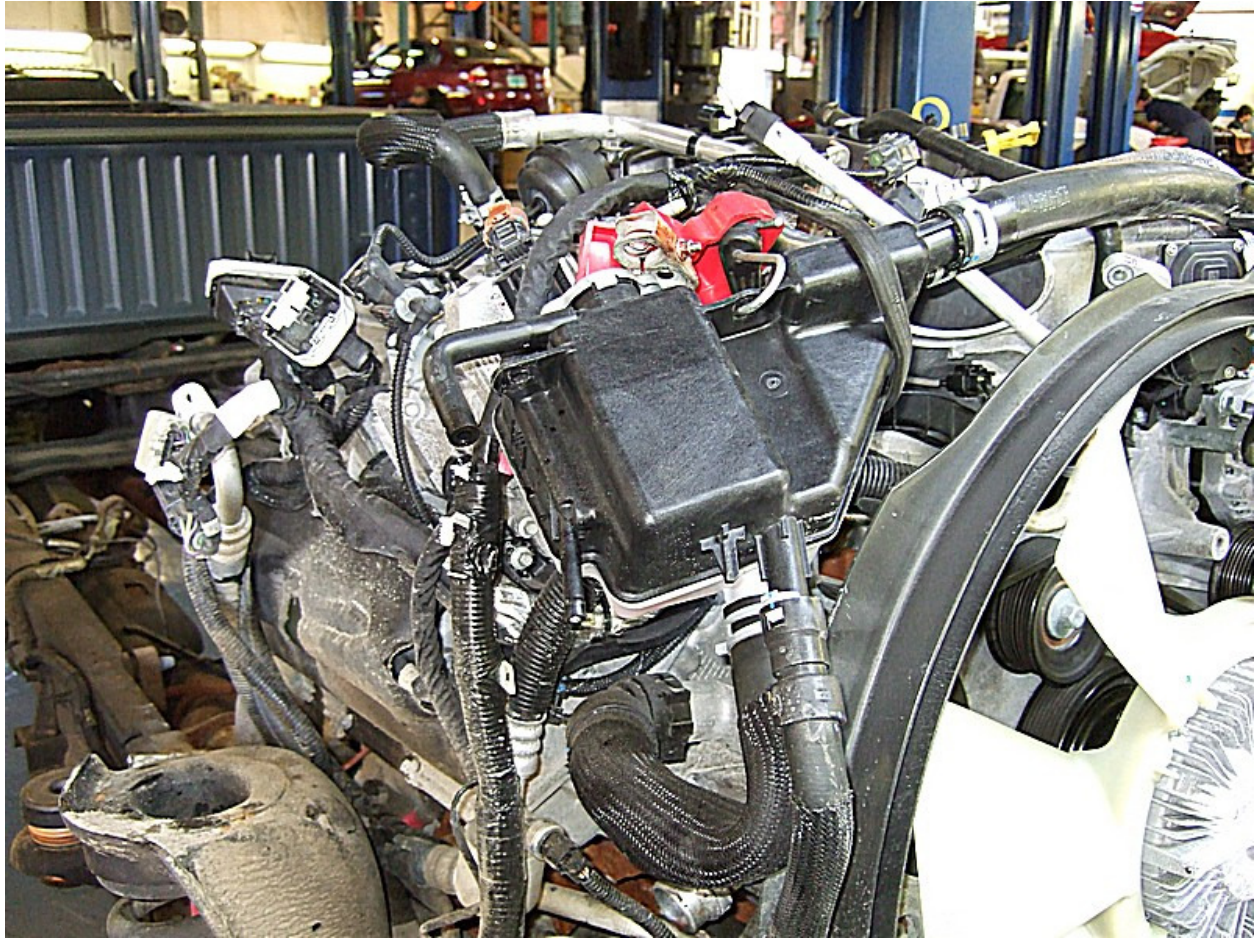
This is a really clean and tidy set up. The air conditioning hoses are straight forward, the electrical is very compact, the radiator hose clips have been redesigned and are much more user friendly. Here you can see the how the top shroud keys into the cooling fan stator.



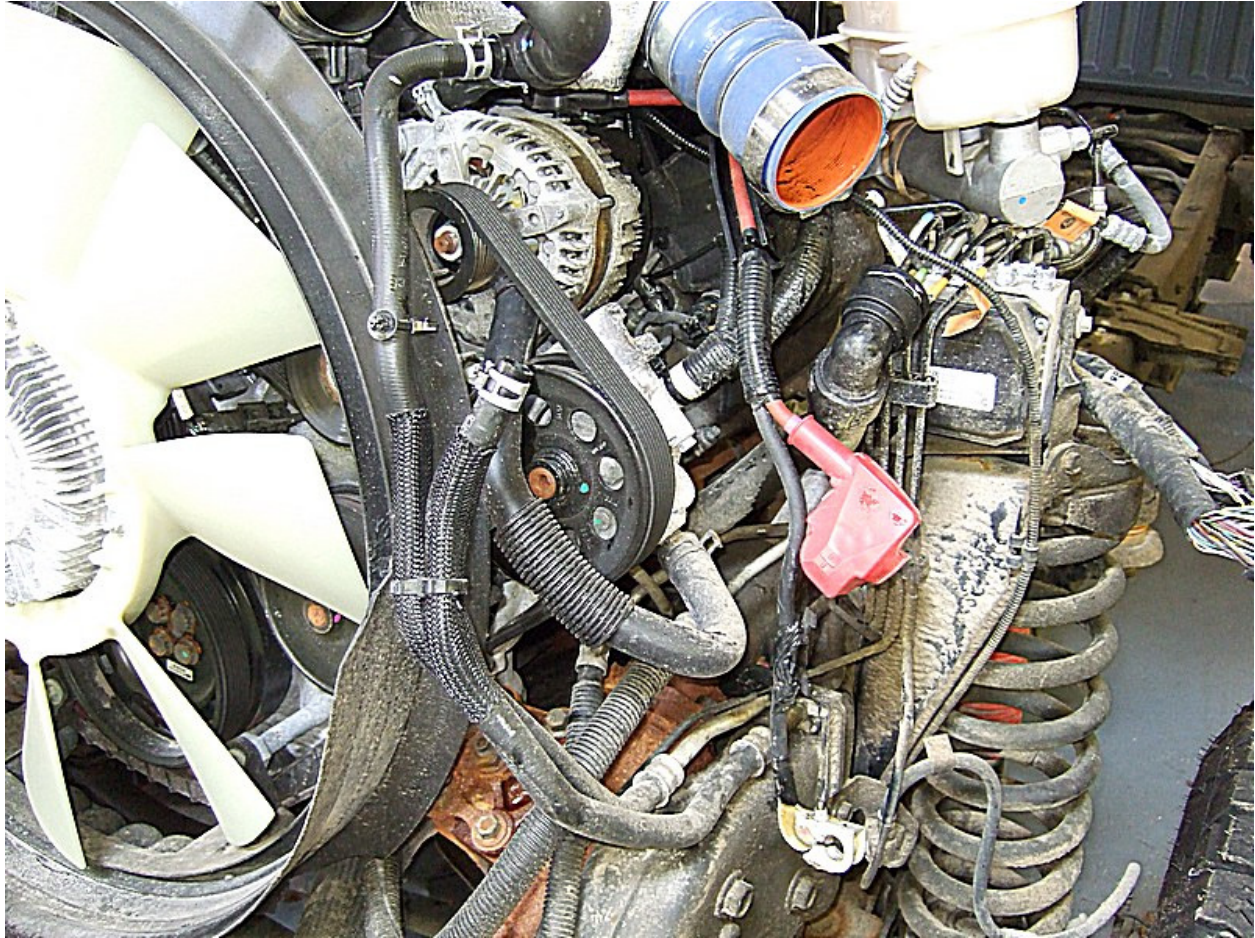
Front view.



Left fender view.



Now the hoses and wiring can be laid back onto the frame and into the bumper cavity to access the engine for repairs.



Left side of the vehicle.

After all the engine work is done, the procedure can be reversed to install the body and hose list can be checked off (paying close attention to the right side of the list and noting direction of arrow for reassembly) as you go. When finished all the check boxes should be filled.

Document prepared by Bradley C Clayton

6/12/2011

Photography by Bradley C Clayton

Appendix: This is the hose connection list and 3 flow charts. Print all four pages to use as reference when performing the procedure.

SECONDARY COOLANT HOSE CHECK LIST

tear down



- #13 trans fluid cooler inlet hose [orange]
- #17 egr cooler inlet hose [red]
- #10 coolant pump-to-radiator hose [yellow]
- #18 degas bottle-to-radiator hose [green]
- #2 charge air cooler outlet hose [purple]
- #4 fuel cooler hose assy [blue]

reassembly



-
-
-
-
-
-

PRIMARY COOLANT HOSE CHECK LIST

tear down



- #10 lower rear radiator hose [dark green]
- #15 radiator overflow hose [light blue]
- #6 heater inlet hose [pink]
- #2 upper radiator hose [brown]
- #4 degas bottle-to-engine hose [aqua]

reassembly



-
-
-
-
-

STEERING HOSE CHECK LIST

tear down

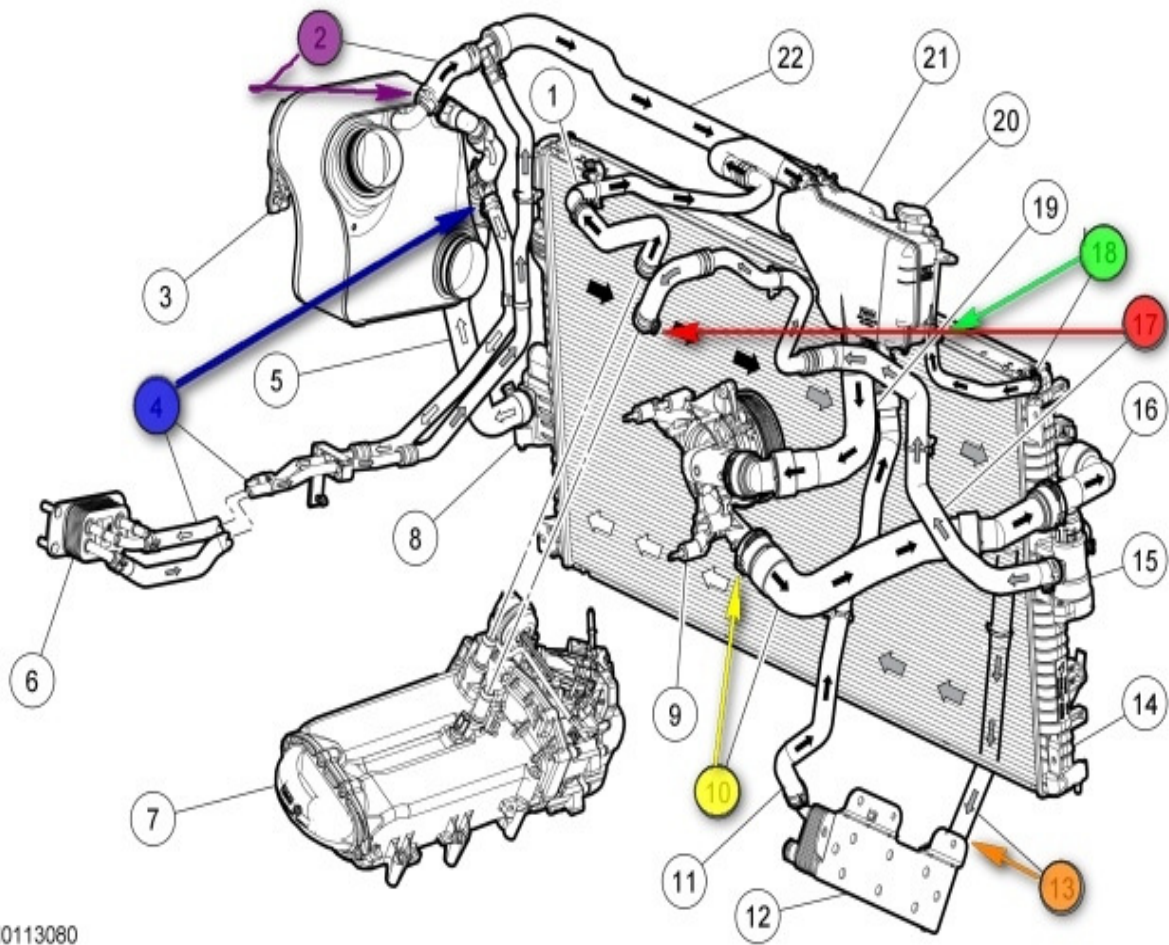


- #9 steering gear-to-fluid cooler return hose [grey]
- #4 supply hose [olive]
- #16&17 power steering pump-to-hydraulic booster pressure line, hydraulic booster-to-steering gear pressure line [maroon]

reassembly

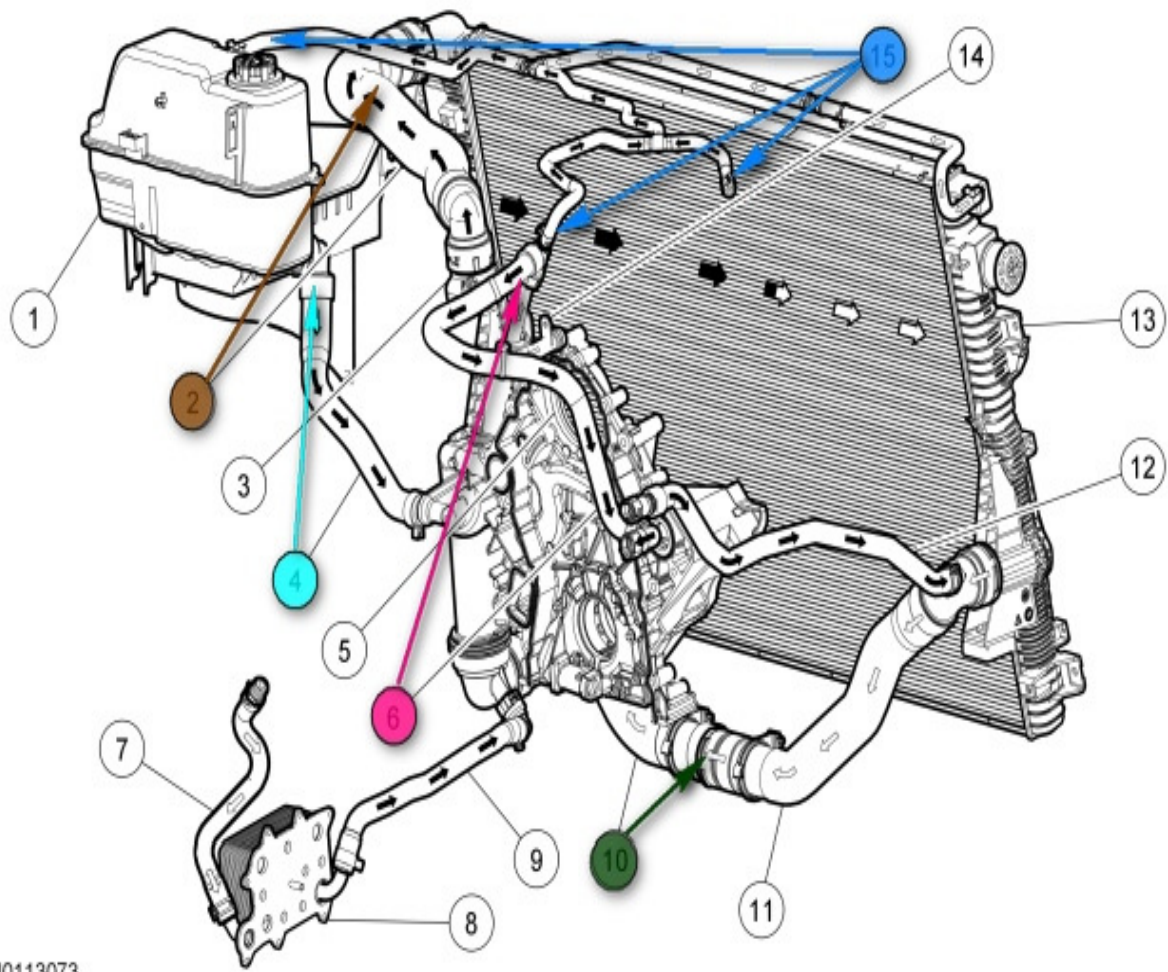


-
-
-



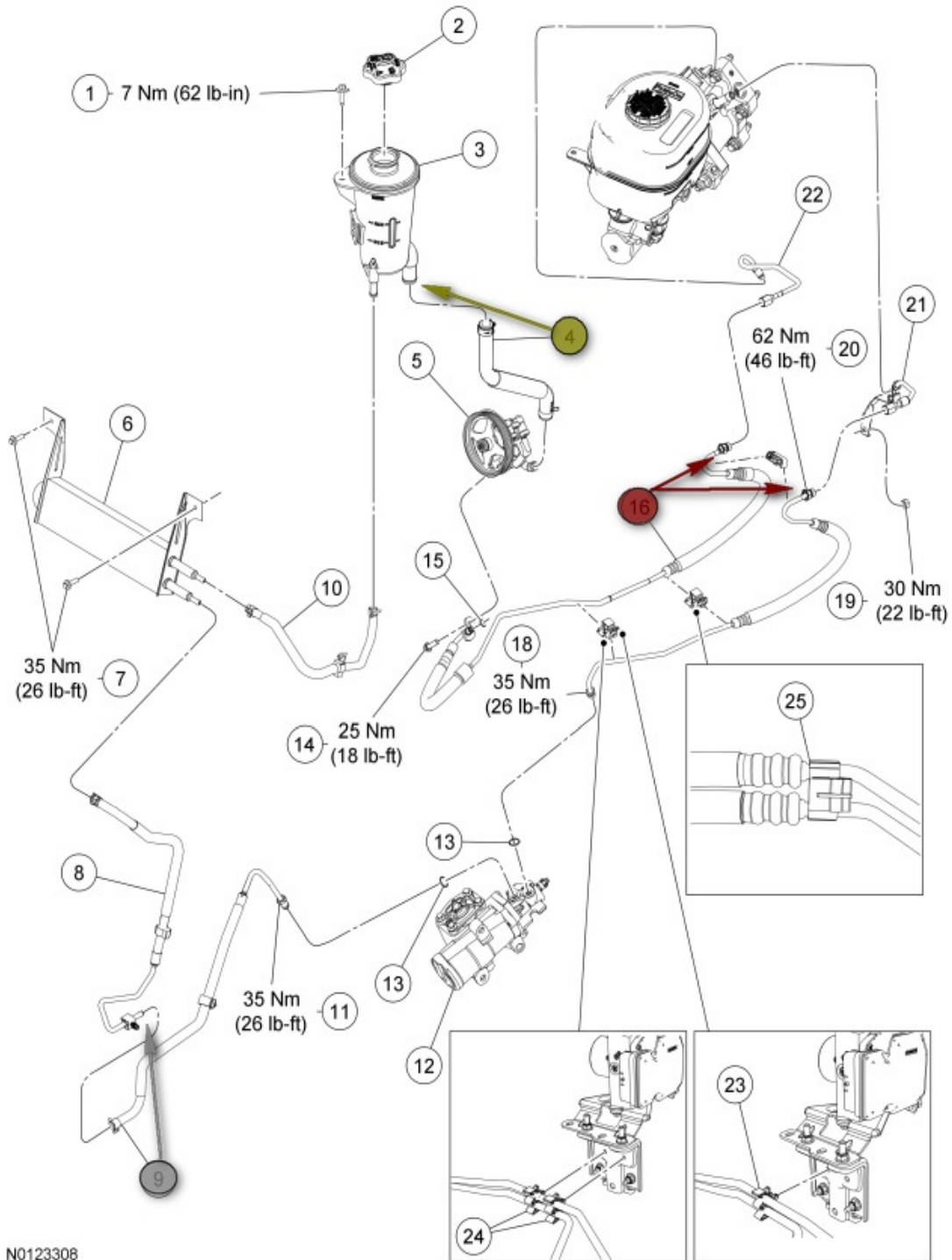
N0113080

Secondary cooling system flow chart



N0113073

Primary cooling system flow chart



Steering hose chart