

1997 Ford F 150 4.6 97 Expedition w/ addendum001 Heater Core Replacement Instructions

c/o Ford Technical Service Publication Service Manual

After using the unedited original from a forum reader, I added lots of extra notes and tips after completing the heater core job on my own 97F150 4.6 4x4.

I am not a paid Ford mechanic.

Please use at own risk. I crossed out the steps that are required if you completely remove the dash but **may be** unnecessary if your not going to remove it, that's your choice. I do not endorse the use of these instructions by individuals not qualified or certified to repair/service Ford vehicles. Ok, that's my legal disclaimer, ☺

But first here are some very important warnings that you must not skip!! They are copied directly from the instructions but I also put them here so I can sleep at night...

WARNING:

ALWAYS WEAR SAFETY GLASSES WHEN REMOVING AND HANDLING AN AIR BAG. ALWAYS CARRY A LIVE AIR BAG WITH THE BAG AND TRIM COVER POINTED AWAY FROM YOUR BODY. AN ACCIDENTAL DEPLOYMENT WILL THEN DEPLOY WITH MINIMAL CHANCE OF INJURY. PLACE A LIVE AIR BAG ON A BENCH OR OTHER SURFACE WITH THE TRIM COVER UP.

WARNING:

TO AVOID ACCIDENTAL DEPLOYMENT AND POSSIBLE INJURY, THE BACKUP POWER SUPPLY MUST BE DEPLETED BEFORE SERVICING OR REPLACING ANY AIR BAG SYSTEM COMPONENTS. TO DEplete THE BACKUP POWER SUPPLY ENERGY,

DISCONNECT THE BATTERY TO STARTER RELAY CABLE AND WAIT ONE MINUTE.

Here's a list of tips before you get started, I got a lot of advice and help from Ford truck forums so I am just returning the favor,

Shopping list from FORD dealer, \$15.00 for 2 sets of heater hose o-rings and snap clips, \$40.00 heater core, (cheaper at the dealer but no warrantee, aftermarket parts store model preferred by many @ \$55) insulated foam tape to wrap new core with (parts dept just gave me what I needed), and a gallon of anti freeze.

1. **Tying off the antenna cable to a old shoelace** was a great little trick that made the reassembly a snap, allowed pulling antenna cable back out of the hole real easy. I used elect tape too, didn't want "ANY" surprises later!

2. **Get the heater hose removal tool from a mechanic willing to loan it out to you.** I was surprised at the helping hand the dealer mechs were. The tool took a few minutes to figure out. Took a second trip back to the Ford dealer for replacement o-rings and clips. **save time, buy these first** cause you'll break the originals, if you dont, change em anyway, your in this deep!! 😊

2-A **Another method** without using the tool is just cutting off the inlet and outlet pipes from the heater core with a saws-all and pulling the hose/pipe out from the engine compartment side. This is done after the H-Core plenum is removed. I got so frustrated without the special tool I nearly did this too!!

3. **Leave all the steering column and large bulkhead elect plugs attached,** I unhooked these before the Ford mechanic advised me not to mess with them.

4. **Try to follow in reverse** the "dash removal instructions" during reassembly so you dont have any "do overs" when you cant get a screw to line up properly. (Don't ask how I now this)

5. **Get a large box** for all the trim parts.

6. **Updated tip** To help to figure out where all the screws go I am recommending an idea from a user of this heater doc who offered this tip. I wish I had used this method myself, had 3 left over, no rattles. **Tip:** if you have a helper, have them read the steps aloud while you perform them and also have them **put the screws removed in baggies labeled with the corresponding number of the step.**

7. I removed the big elect housing located right over the heater core housing to aide in getting the cover reinstalled, it was in the way when I was reinstalling the plenum cover, 2 screws, no big deal.

Important hint -if you cant reach the spot to start a screw by hand. Use either a magnet screw tip or a piece of tape/sticky foam. That will do the trick when reaching those backside screws on the heater cowling cover, this is not the time to tear the dash back out to get a &^%\$ little screw that dropped off the screwdriver or out of the socket. 😊

Tools I used, priceless – .

Battery op drill w/socket adapters/extensions, (really speeds things up)

Sockets - 5/16, 7mm, 8mm, 10mm for dash screws, 13mm for the steering col nuts,

Flashlight, a must for searching for black screw heads under the dash.

Screwdriver w/ changeable heads for sockets and screws.

A magnet tool for retrieving that socket you cant reach

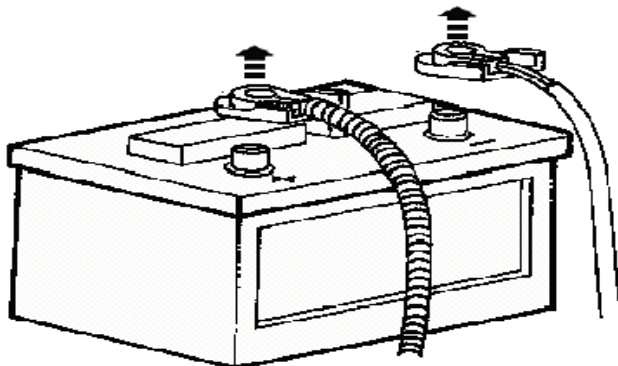
Short rubber hose for the radiator drain plug.

A magnet bowl, its pretty handy item to hold screws and small sockets.

Make sure that the temperature control is set only to “cool”, not Max Cold, (0900 position is ok, that’s straight out to the left) prior to getting started, that takes a lot of pressure off the blender door for easy removal.

This step is FIRST and very important!!!!

1. **Disconnect BOTH** the battery Positive and Negative Ground cables.
(can you say airbags, BOOM!!)



Disconnect Both Cables

Note: When the battery is disconnected and reconnected, some abnormal drive symptoms may occur while the vehicle relearns its adaptive strategy. The vehicle may need to be driven 16 km (10 mi) or more to relearn the strategy.

2. Drain the radiator. (**Attach a short rubber hose to the drain, it helps in your efforts to keep the fluid off your driveway).**

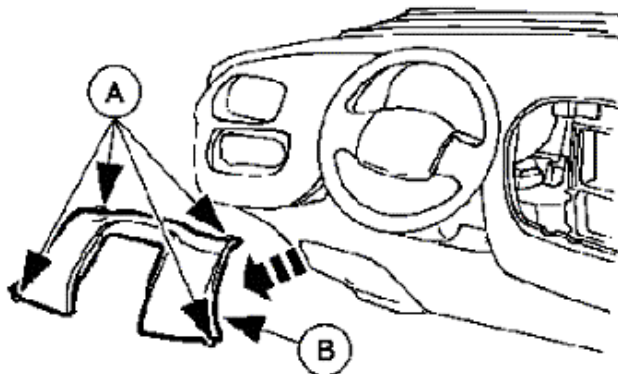
«Section 501-12: INSTRUMENT PANEL AND CONSOLE» «REMOVAL AND INSTALLATION»

Installation *(To re-install, simply just reverse the removal procedure.)*

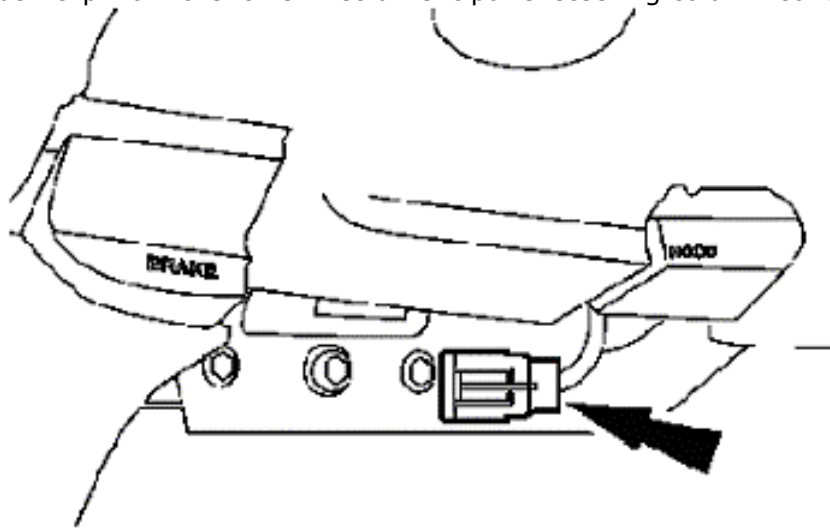
1. WARNING:

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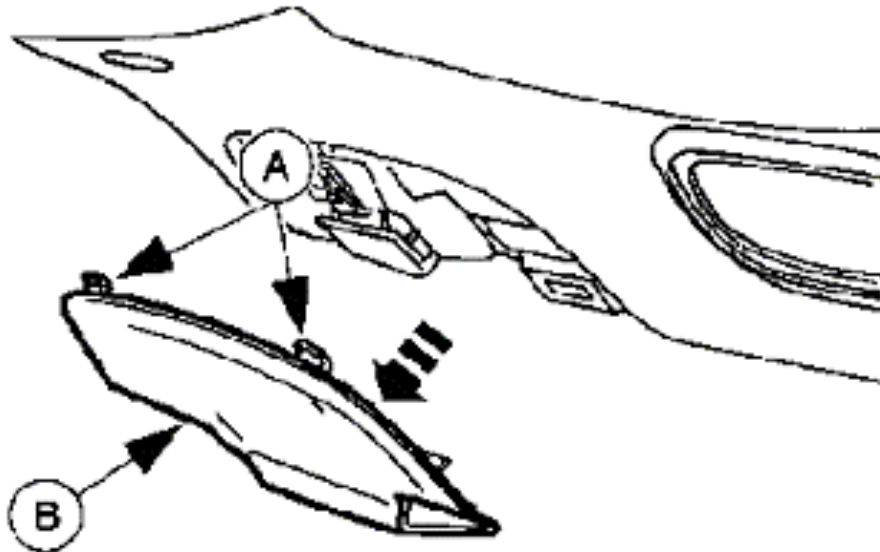
2. Note:
On vehicles equipped with automatic transmissions, move the shift lever to the 1 position to ease removal of the steering column top opening cover. **ALWAYS A** Good idea to **put wood blocks** at the rear wheels so you don't roll away! Carefully pry to release the (A) four clips and remove the (B) steering column **(TOP)** opening cover.



3. Position the electrical connector aside.
 - Release the push clip from the lower instrument panel steering column cover.



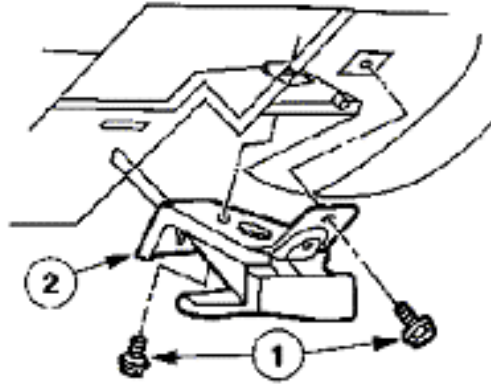
4. Pull to release the three (A) clips and remove the (B) fuse door.



5. Position the hood latch release handle aside.

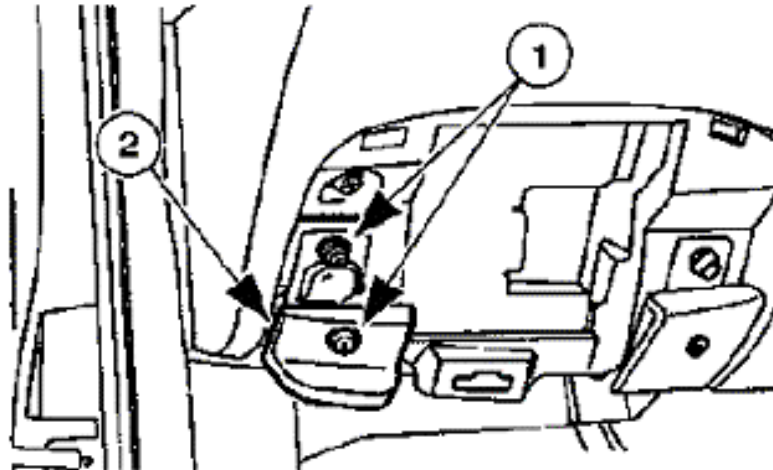
(Steps 5&6 – Start bagging those screws for safe keeping)

- 1 Remove the two hood latch release handle screws.
- 2 Remove the hood latch release handle.



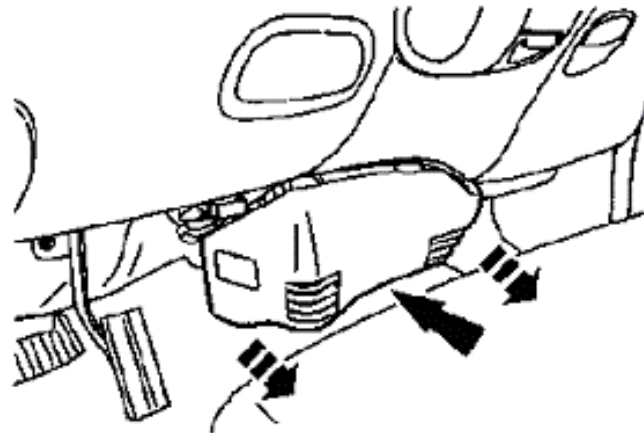
6. Position the parking brake release handle aside.

- 1 Remove the two parking brake release handle screws.
- 2 Remove the parking brake release handle.

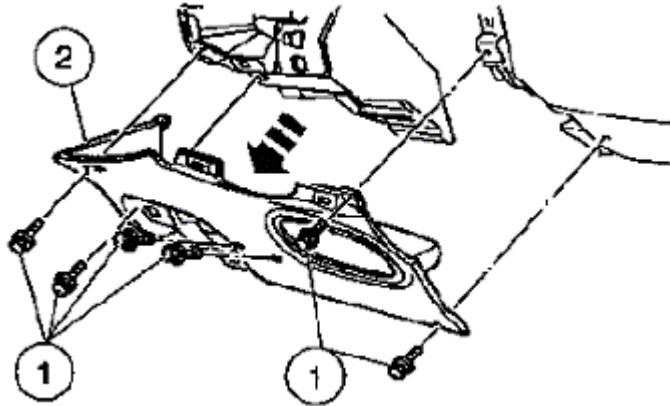


7. Remove the instrument panel floor duct panel.

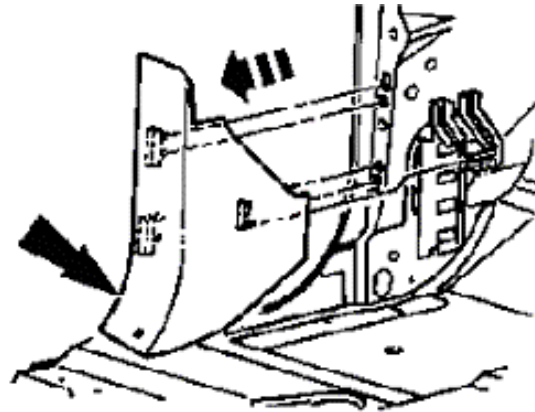
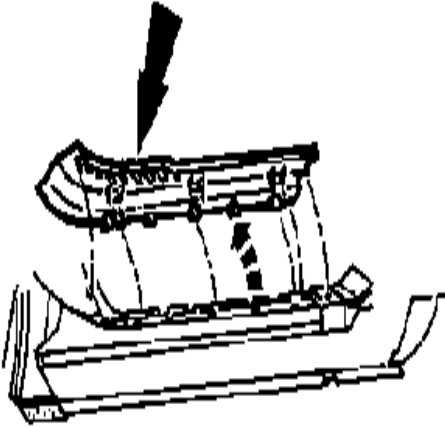
- Remove two push clips and release one expander clip.



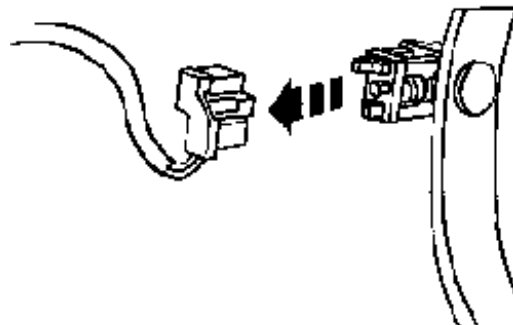
7. Remove the lower instrument panel steering column cover (04459).
(TIP, KEEP THESE 6 SCREWS TOGETHER)
- 1 Remove the six lower instrument panel steering column cover bolts.
 - 2 Remove the lower instrument panel steering column cover.



9. Remove the LH and RH door scuff plates.
10. Remove the LH and RH cowl side trim panels.



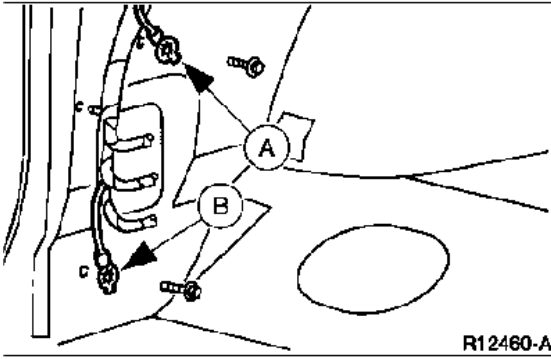
11. Disconnect the brake on/off (BOO) switch electrical connector. **(Located above the brake pedal, now your getting into it)**



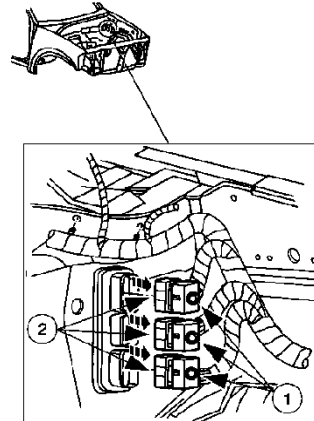
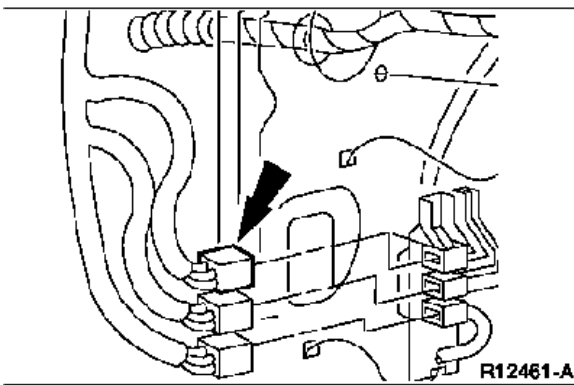
Now Skip to step 16 If you choose as I did not to completely remove the dash. (OPTIONAL STEPS 12-15 NOT NEEDED if you don't remove the dash. You just need to pull it out from the passenger side enough to access the heater core plenum). Let me just say this is a lot of unnecessary work if you choose to do it anyway!!!!

THIS PAGE IS TOTALLY OPTIONAL/SKIP IT

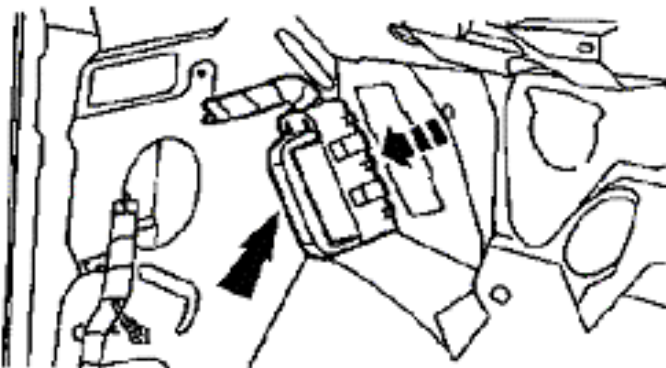
12. ~~Remove the (A) radio ground and the (B) GEM/CTM ground. OPTIONAL!!~~



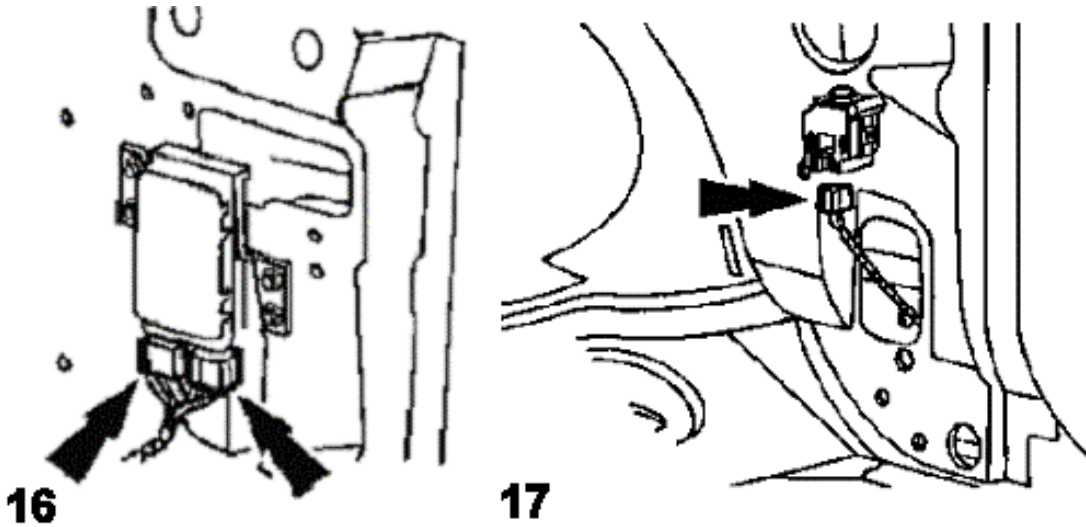
13. ~~Skip this///// Disconnect the three instrument panel main harness connectors. OPTIONAL!!~~



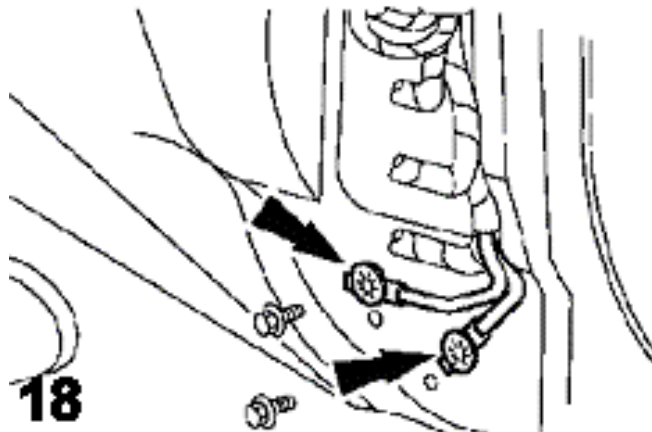
14. ~~Remove the bulkhead wiring harness from inside the engine compartment. OPTIONAL!!~~
~~1 Loosen the three bulkhead wiring harness electrical connector bolts. Disconnect the three bulkhead electrical connectors.~~
15. ~~Pull the bulkhead electrical connector handle to disconnect the harness. OPTIONAL!! Oh yeah right, this is a pain!! I stopped here and got some professional consultation. Only to find out I didn't have to do this...Please continue..... your doing great!!~~



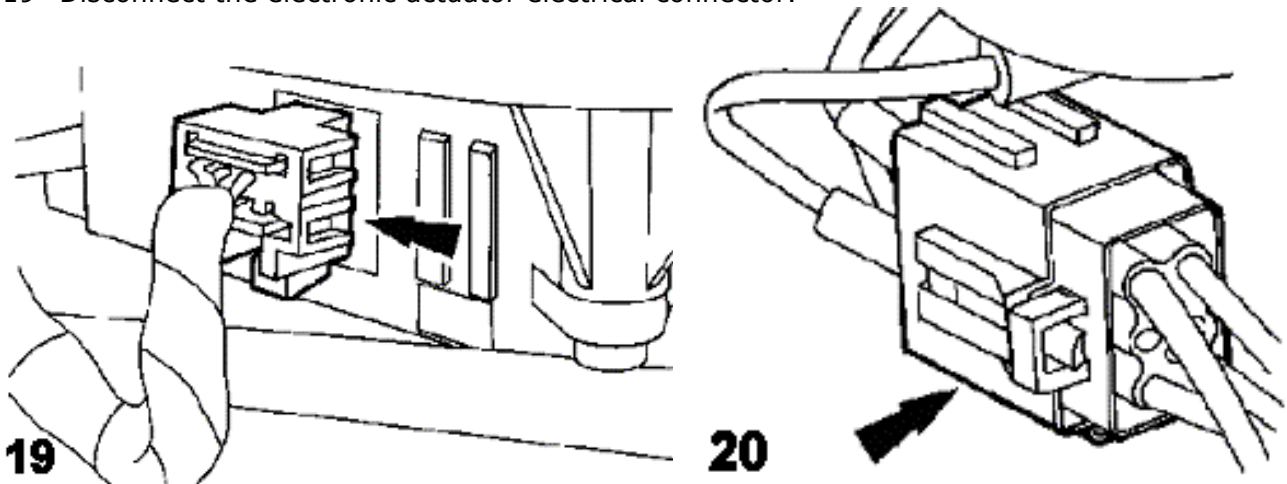
16. Disconnect the two air bag diagnostic monitor electrical connectors. (**Steps 16-20, disconnect "all" plugs and ground wires on the RH Passenger floorboard, some may not be listed here**) user tip: use masking tape to label matching ends of these plugs
17. Disconnect the inertia fuel shutoff switch electrical connector.



18. Remove the two grounds from the RH cowl.



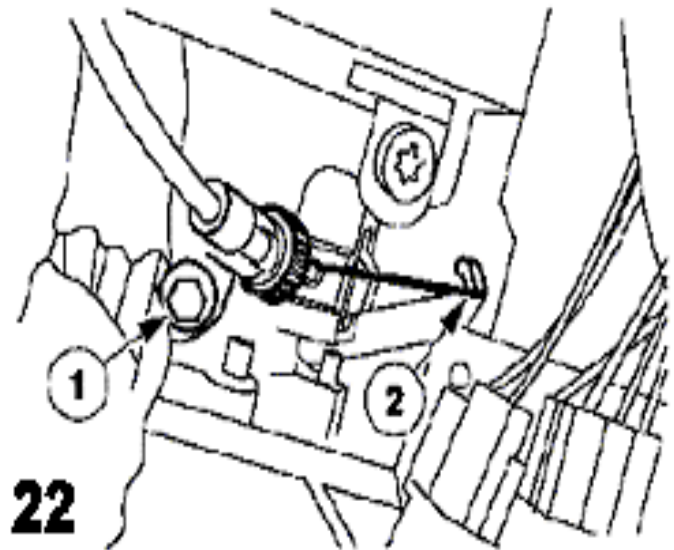
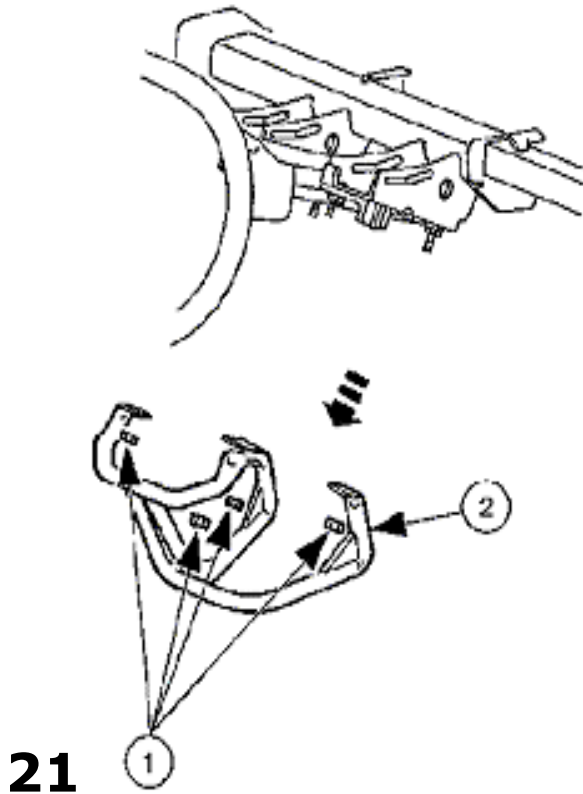
19. Disconnect the electronic actuator electrical connector.



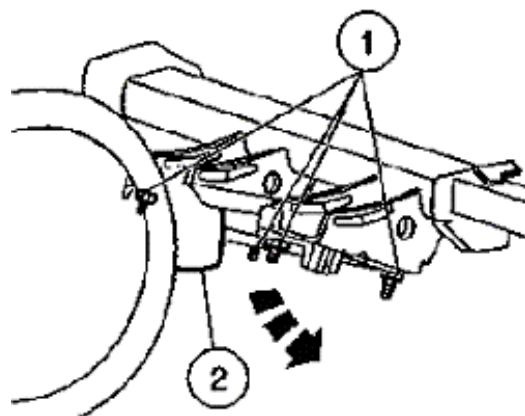
20. Disconnect the climate control head vacuum line connector

21. Remove the inst panel steering column opening cover reinforcement. **(13mm deep socket)**
 - 1 Remove the four instrument panel steering column opening cover reinforcement nuts.
 - 2 Remove the instrument panel steering column opening cover reinforcement.

22. If equipped, disconnect the transmission range indicator from the steering column.
 - 1 Remove the bolt.
 - 2 Disconnect the cable.



23. Lower the steering column (3C529). **(I left in 1 nut just a couple threads to hold this up until I was ready to pull out the dash, then I just laid the steering col on the front seat.)**
 - 1 Remove the four steering column support nuts. **(13mm x 4)**
 - 2 Lower the steering column. **Slowly!!**



Note: For 97 Expeditions, See Addendum001, (last page)
 "Removal of Radio Chassis"

24. Note: The antenna cable will be removed with the instrument panel.

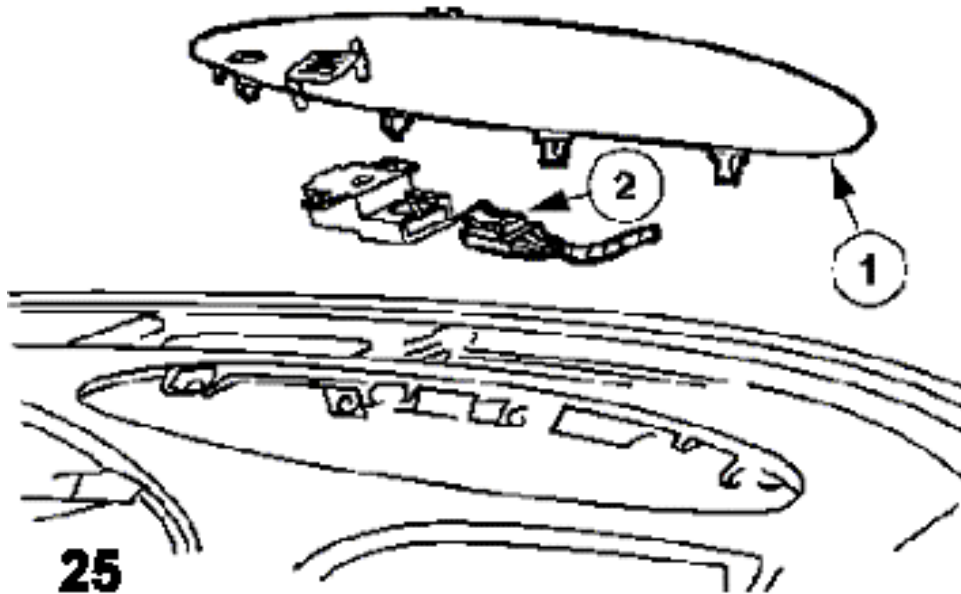
Disconnect the antenna cable from the outside of the vehicle, **(The black plastic cover just snaps down over the antenna base, carefully pry it off, and expose 3 screws, remove them and pull the antenna cable out like a stereo plug. Connect the cable to a shoelace or cord and feed it back down the hole giving it some slack that's needed when you have to pull on it to move the dash away from the passenger side.)**

NOTE Have your cord and tape ready before you unhook it, I dropped the cable back in the hole but was able to retrieve it with a tool grabber, I love my tools!! **(CONNECT A WIRE OR CORD TO THE WIRE CABLE, You'll use it to pull the cable back out when your done. I tied it to a leather shoelace and taped it too!!!)**

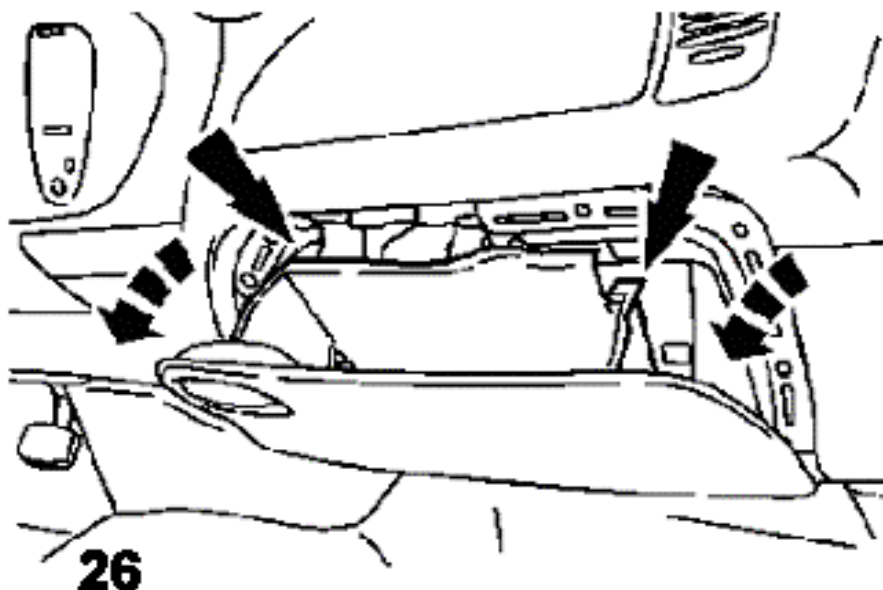
25. Remove the instrument panel relay cover.

(Careful with step 2, its pretty easy to break the little tabs on the sensor, oops)

- 1 Remove the instrument panel relay cover.
- 2 Disconnect the auto lamp sensor electrical connector, if equipped.



26. Open the glove compartment and release the two doorstops.



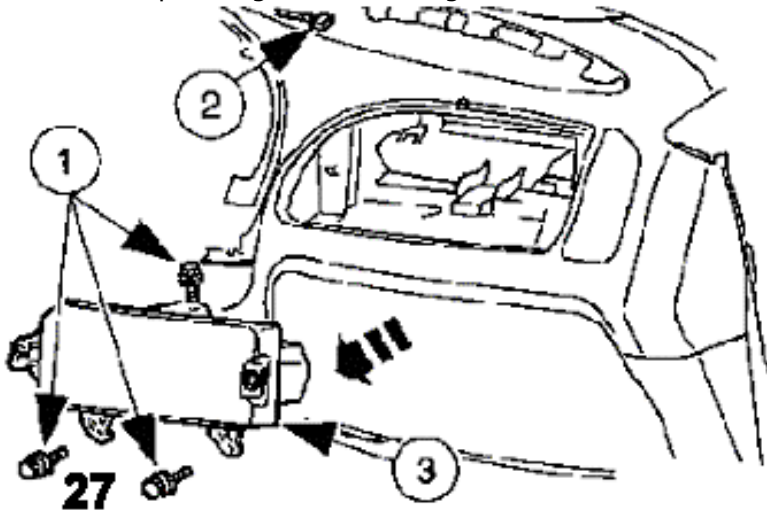
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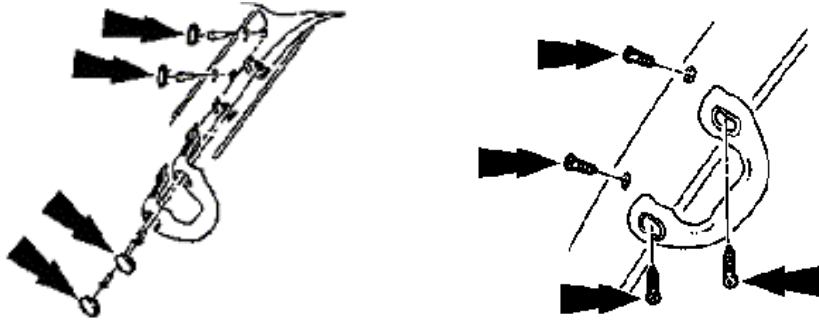
27. Remove the passenger side air bag module.

(A little spooky but I survived) I carried it like dynamite. Lol, ☺ 3 screws, 1 elect plug.

- 1 Remove the three passenger side air bag module screws.
(Save these too!, stick them in a baggie and tape it to the airbag module.)
- 2 Disconnect the passenger side air bag module electrical connector.
- 3 Remove the passenger side air bag module.



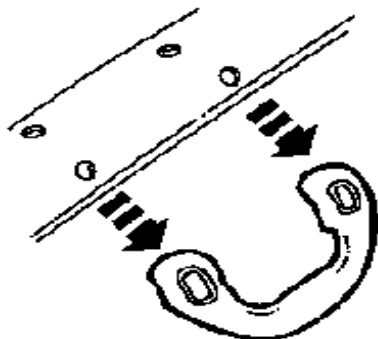
28. Remove the four RH assist handle screw covers. (28,29 "bag'em")



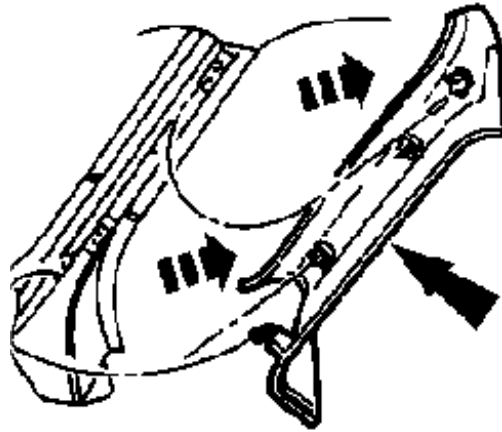
29. Remove the four RH assist handle screws.

These are tricky to reinstall, use a magnetic screwdriver to hold the screws or a piece of sticky tape on the screwdriver so you don't drop the screw back down behind the trim piece.

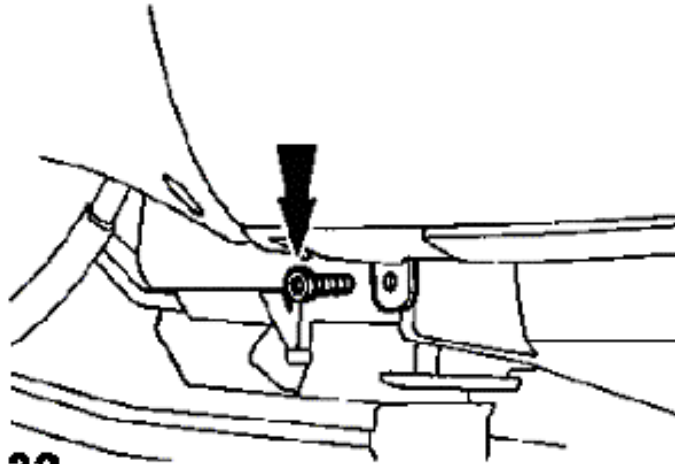
30. Remove the RH assist handle.



31. Remove the RH windshield side garnish moulding.

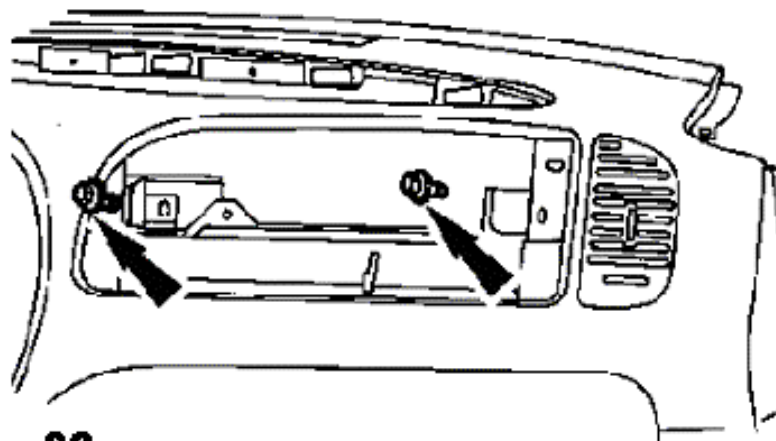


32. Remove the instrument panel bolt below and to the left of the glove compartment.



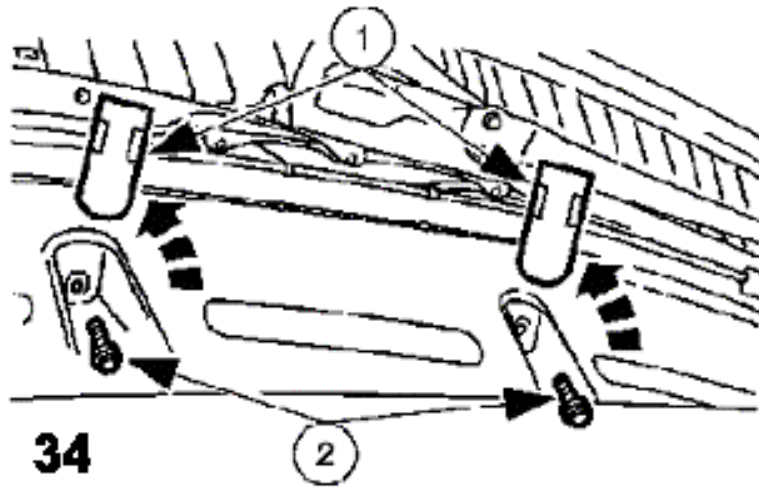
32

33. Remove both instrument panel bolts behind the passenger side air bag module opening.

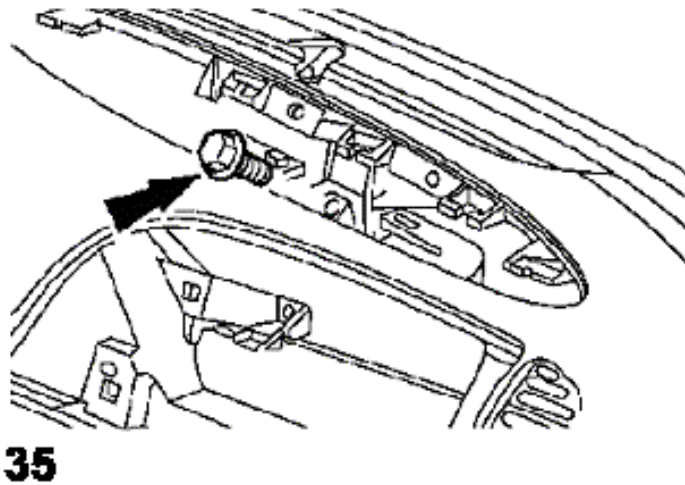


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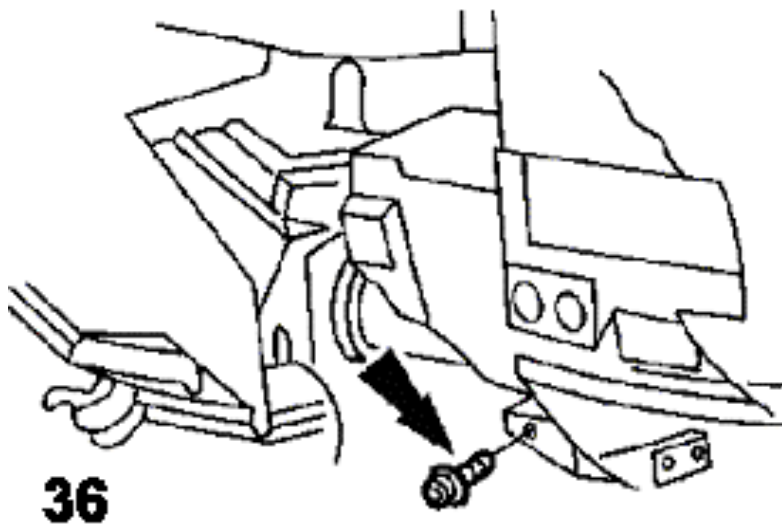
34. Remove the two instrument panel bolts on the top of the instrument panel.
1 Remove the two covers.
2 Remove the two bolts.



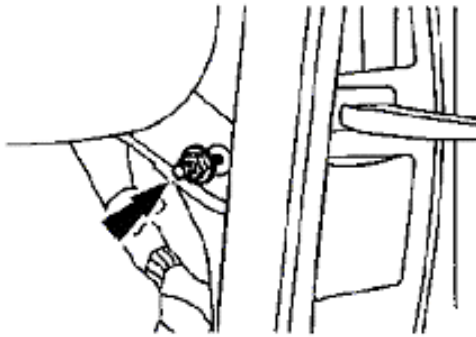
35. Remove the instrument panel bolt on the relay bracket.



36. Remove the instrument panel bolt below and to the left of the cigar lighter and power point.



37. Remove the instrument panel nut on the bottom RH corner of the instrument panel.
(37 and 38 are two larger bolts next on each side of the dash at the doors. Don't lose these!!), need I say, Bag'em!

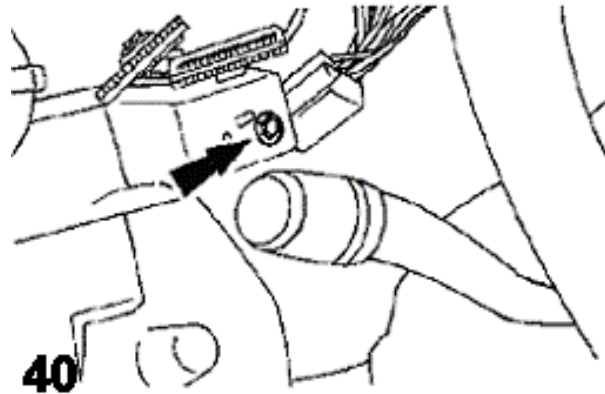


(37)



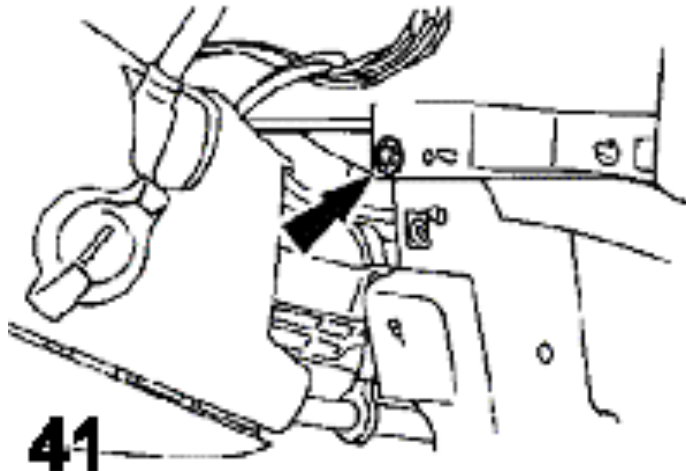
(38)

38. Remove the instrument panel nut on the bottom LH corner of the instrument panel.
39. Remove the instrument panel bolt under the center of the steering column. **(You can see it when you lower the steering column)**
40. Remove the instrument panel bolt on the bottom LH side of the instrument cluster opening.



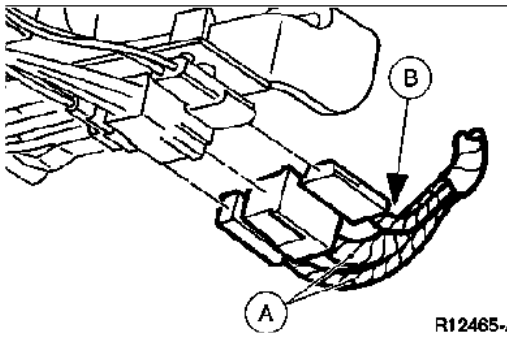
40

41. Remove the instrument panel bolt on the bottom right side of the instrument cluster opening.

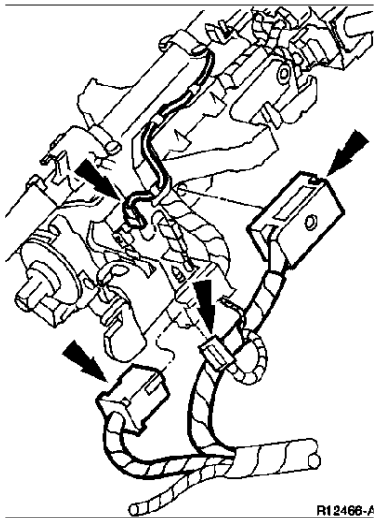


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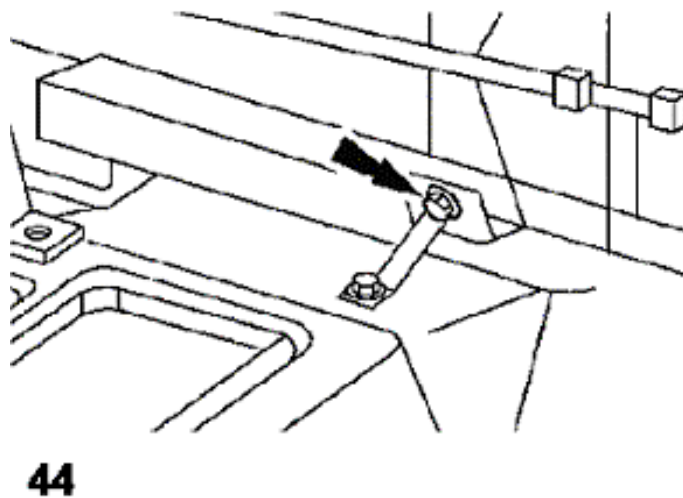
42 Disconnect the (A) air bag sliding contact electrical connectors and the (B) anti-theft sensor electrical connector. OPTIONAL!!



43 Disconnect the remaining electrical connectors on the steering column. OPTIONAL!!



44 Remove the instrument panel from the RH floor brace.



45. Note:

Two technicians are required to perform this step. (Pull the door rubber on both door frames out of the way of the dash),
(OK now drop the steering col down on the seat),

Yeah its heavy, so with both doors open, pull the dashboard out from its slots under the front window and swing the passenger side out as far as it will go. On the right you'll be connected by the antenna cable, it will give you enough slack if you tied a shoelace to it and pulled into the cab just what you need, need more? Unhook the cable from the dashboard where its tied into place. The driver side doesn't need to move out very far, maybe a few inches.

Remove the instrument panel. Optional, (just move it out as far as you need to access behind the dash on the passenger side, set the right side on the passenger seat, move seat forward as needed).



It's much easier without the dash in the cab but you saved lots of time not taking it all the way out. Be patient getting all those screws out of the heater core housing. I used a ¼ " ratchet, 7mm socket screwdriver, comb wrench. Be creative... you'll notice the elect box that sits on the top of the housing when you try to pull it out. Just remove the 2 - 5/16 screws and push it out of the way.

PROBLEMS? If the dash seems to be stuck, just search for a screw that may not be listed here. I found one near the center of the dash. You can pull gently, rocking up/down, side to side on the dash to tell where it is binding up or where it is still attached.

HEATER CORE REMOVAL

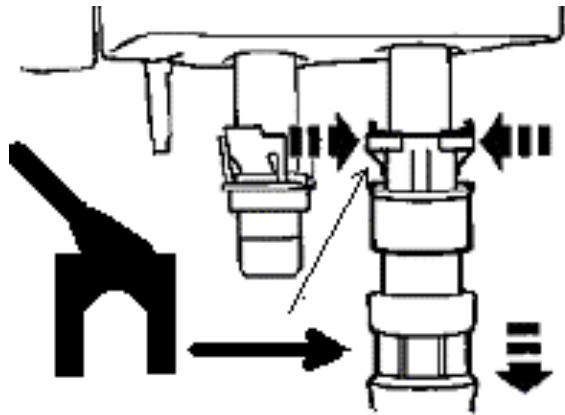
Steps 1,2 and 3 are already completed back at the beginning, battery, radiator, dash...OK?..
(Just so you don't think there's something missing here)

4. Compress the holding tabs (in engine compartment up against the firewall, just below the dash, use a flashlight to see them, see photos on next page) and disconnect the heater water hoses at the heater core. **Alan's Note: Since I didn't have the special tool I just cut off the two heater core supply and return tube inside the cab using a small hack saw.**

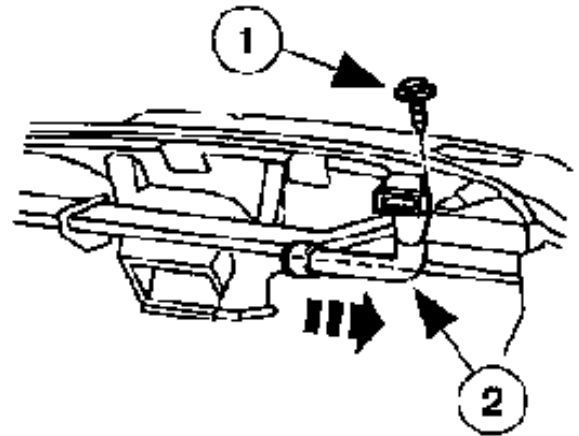
(GET THE SPECIAL TOOL FROM A FORD MECHANIC, I DID, I added what the tool looks like)

NOTE: The hose tool is only needed to reach under the dash overhang while under the hood to release the hoses. Be sure to replace the o-rings, 2 rubber 1 plastic on each hose. You just stack them inside the hose tip, rubber, plastic, rubber. Then you snap into place the plastic clip, making sure the tabs fit into the openings on the side of the heater hose fitting. The plastic ends stick out of the end of the hose. I snapped it in and didn't notice the little tabs weren't lined up with the slots!! Luckily I got it off and got them aligned correctly. The hoses just snap back on the heater core, you'll feel them click into place.

5. Remove the A/C plenum demister adapter (19E662).
1 Remove the screw, Remove the A/C plenum demister adapter.

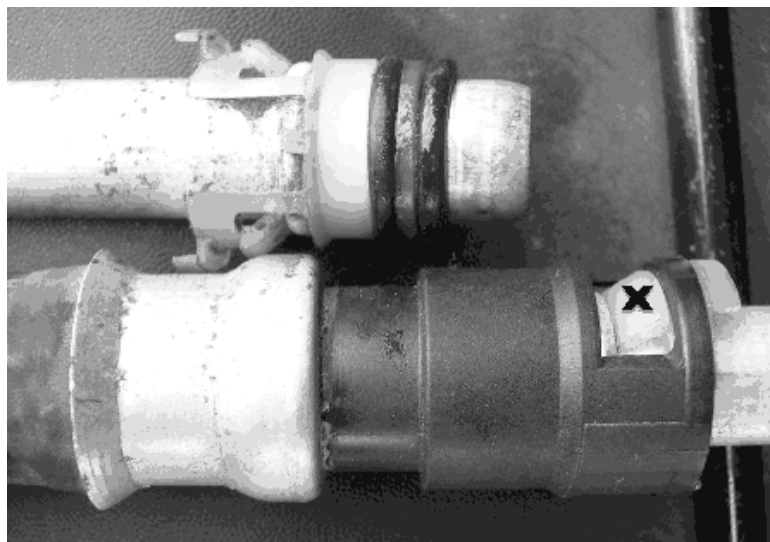


(4) insert tool in slots, push forward, pull hose out
(pushing forward will pinch the tabs together)



(5)

Thanks go out to Nick, for the pics below



The heater core pipe with the clip installed shows the two sided clip with the pressure points exposed

I placed an X on the pressure point of the clip that you push the special tool against to release the

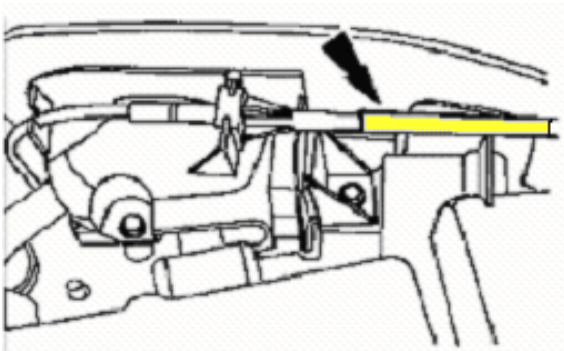
hose from the plastic clip



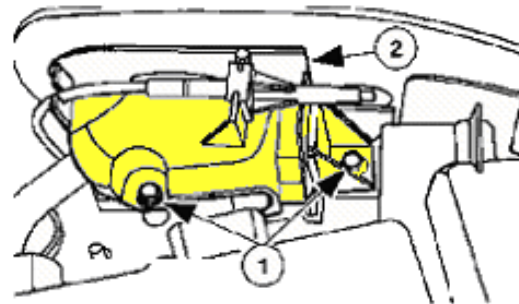
New heater hose with new plastic clip, o-ring, spacer and o-ring installed. Top pic shows proper installation method.

Load up the old hose just like this, then press on to the newly installed core pipes sticking out through the firewall. Snaps right on

6. Disconnect the vacuum line.



(6)



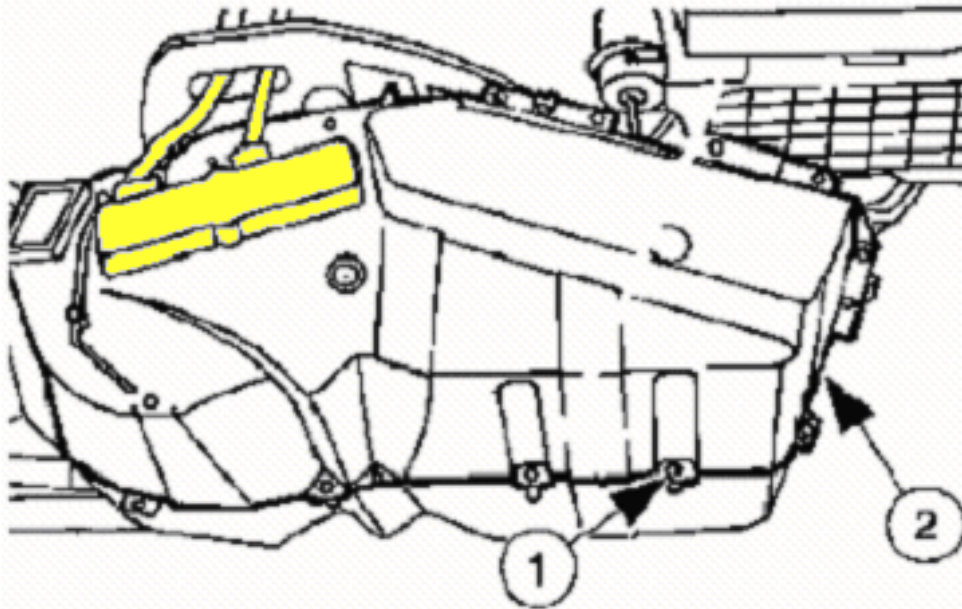
(7)

7. Remove the heater core bracket. **(more of a housing cover than a bracket)**

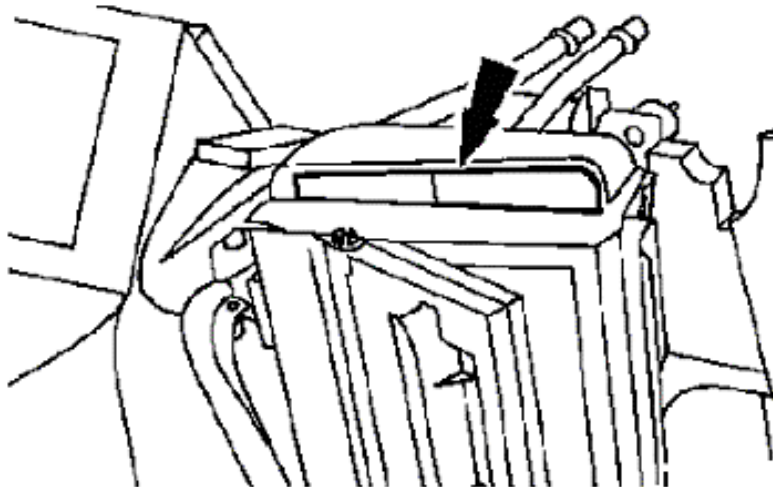
- 1 Remove the two screws.
- 2 Remove the bracket.

Its much easier doing this without the dash in the cab but you saved lots of time and effort not taking it all the way out. Be patient getting all those screws out of the heater core housing. I used a 1/4 " ratchet, 7mm socket screwdriver, combination wrench. Be creative....

8. Remove the plenum assembly top. **Lots of screws, I removed the black elect box above the heater plenum to ease access, just two small screws (size 7/32) then move it out of the way**
1. Remove the 13 screws. **(Could be more screws on later models)**
 2. Remove the plenum assembly top. (Core is highlighted)



9. Remove the blend door assembly from the case. **(Pick straight up after releasing the tab at the top right side, the door hinges on a gear on the bottom left)**
10. Remove the heater core. **(It's a little pull to get the plastic tabs through the firewall foam if they're still on the pipes.) The new core needs to be wrapped with foam tape; you'll see it on the old core when you get it out. It keeps it from rattling inside against the plastic plenum housing. Try to talk the parts guy into just giving you a strip of it when you buy the heater core.**



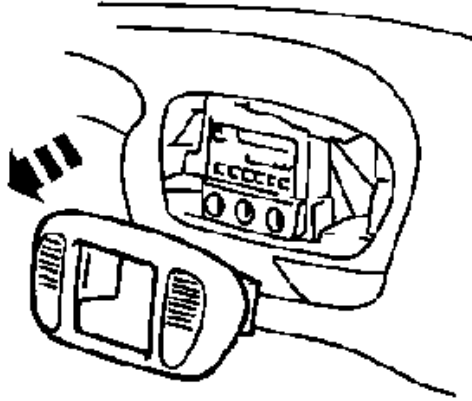
**OK NOW, EVERYTHING IN REVERSE TO INSTALL THE NEW CORE AND DASH!
Wrap the new core with foam tape like the old one and put it in.
What time is it? Your half way there!!
And they said this was hard!**



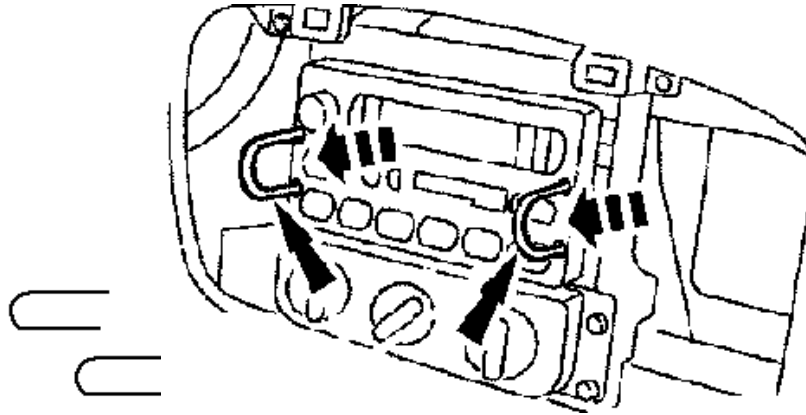
Addendum 001
Addition for "97 Expedition Owners"
Heater Core Removal Procedure.

Perform these steps after lowering steering column (step 23)

1. Carefully pry to release the four clips and remove the center instrument panel finish panel.

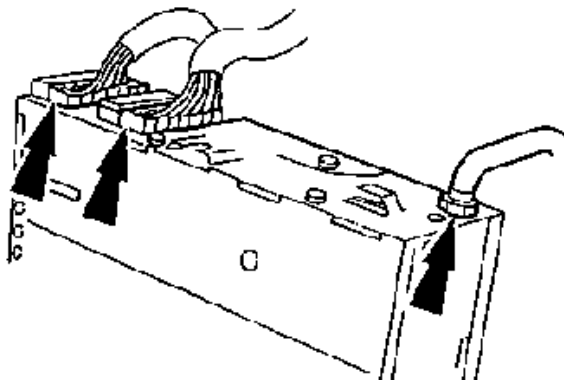


2. Remove the radio chassis.



I. Insert Radio Removal Tool (**two pieces of heavy wire coat hanger bent in a long U**) into the radio face plate and release the radio retaining clips and pull outward on the Radio Removal Tool while pulling the radio chassis away from the instrument panel.

3. Disconnect the radio antenna lead in cable (18812) and the radio wiring connectors.



4. To install, reverse the removal procedure.

Now back to Step 25. (Ignore 24)