

## Removal and Replacement of Serpentine Belt, Idler pulleys and Belt Tensioner- 05 E320 CDI

Introduction: Since the fan shroud needs to be removed to replace the belt, the dealer will charge anywhere from 1.5 to 3 hours labor, plus parts for just the belt. Since I was going to be in there and there are reports of pulley failures and belt tensioner failures, I changed them also. My cars have 80,000 and 120,000 on them. It only adds about 20 minutes to the job. For a first time doing this procedure, it will take about 2-4 hours depending on your skill level.

1. Remove the top engine cover. Re-torque is 9nm.
2. Jack the car on the left or front right pad and remove the forward soundproofing. There are two brackets, left and right at the bottom of the shroud that secure hoses. Pop the hoses out of the brackets. This will allow you to get the fan shroud up and out.
3. Disconnect the ground cable from the main battery in the trunk and protect it to prevent it touching the negative terminal when you are working. You will be disconnecting the electrical connection to the fan and this will prevent an accidental short.
4. Remove the rubber seal near the cross member. You only have to remove about 3/4<sup>th</sup> of it to work. Just peel it up and lay it over.

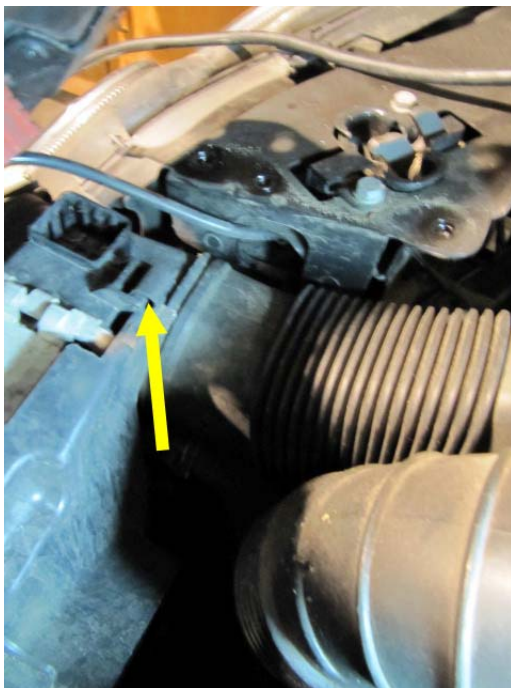


5. Remove the 9 screws on cross member. 3 on left, 3 on right, 3 in center. 10nm socket and T-30 torx. Re-torque is 10nm.



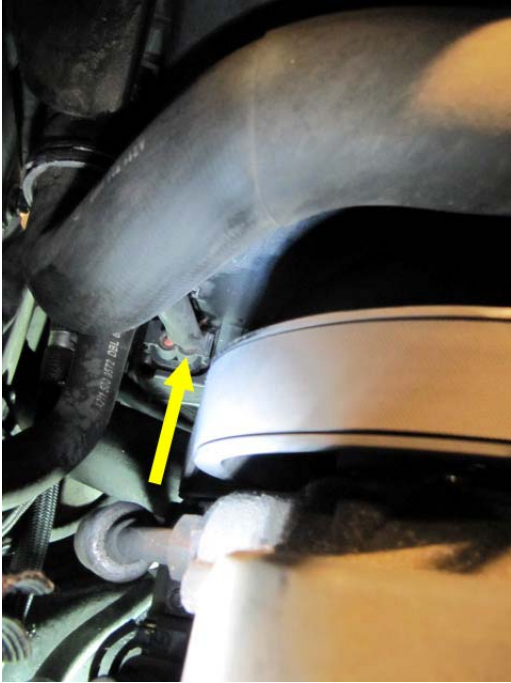
The cross member will not be completely disconnected but you can fold it back towards the front of the car while you are lifting the fan shroud out.

6. Pull out the 2 flat springs, left and right, on either side of the fan shroud. Insert small screwdriver through clip and lift up gently to prevent dropping.

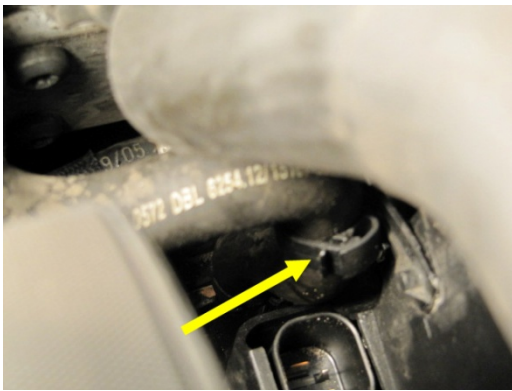


7. Detach the fan electrical connector from the shroud. This is a connector that is locked by two ribs that fit into the bottom of the connector. As you face the engine compartment it is on the middle right side of the fan shroud. You can reach in and squeeze the two

tabs at the top of the connector which will release the two tabs on the bottom. Pull up and it releases.



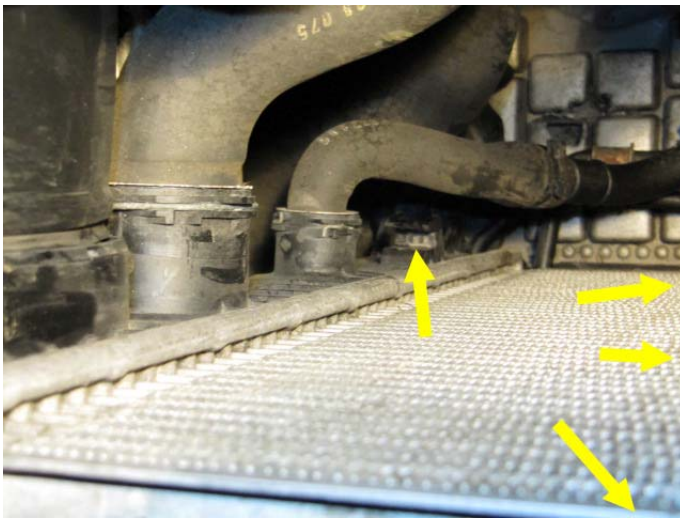
8. There is a coolant hose attached to a clip directly above the electrical connector. Squeeze the clip and release the hose and move it out of the way.



9. The fan shroud is a little difficult to lift out. Remove the accordion forward intake to the air cleaner to give yourself more room.



Work the fan shroud up and out. Be careful not to be too aggressive or you might puncture a coolant hose. There is some room moving the shroud towards the rear of the car. Tilt and pull up and out. Note the 4 receptacles for the fan shroud: one left and right and one top and bottom.



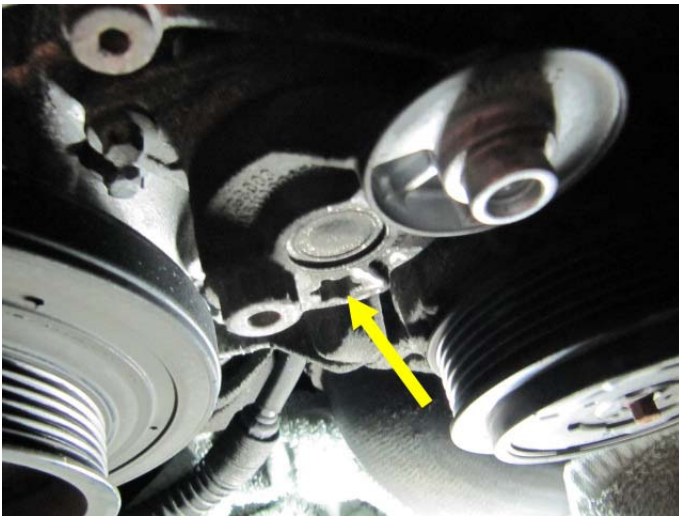
10. Draw a diagram of the belt over and under the pulleys. I used a DAYCO 5060890 belt.





11. There is a T60 torx fitting on the tensioner. It is a little hard to see under the belt. I used a small mirror to locate it. I used a Lisle 59800 Belt Tensioner tool. I think there is probably enough room to get a ½ inch drive with the T60 into the socket, but the tool makes it easier and gives you some leverage. Rotate the tensioner to the left and the pulley releases its tension on the belt and the belt can be removed. You can hold it and then release it once the belt is removed and re-do it as you put on a new belt, or you can hold the tension to the left and insert a small pin or screwdriver in the hole to hold the tension. If you are removing the belt tensioner, you should do this. Remove the belt.

The following is a photo of the tensioner with the pulley and belt removed. I thought I could just purchase a pulley, but the whole tensioner comes as a unit. It is around \$95 from Benz and it is not a bad idea to replace it at least every 100,000.



12. Removal of Tensioner- Once the pin is engaged, the tensioner comes out easily. Loosen and remove the left bolt and the right bolt. I used an E10 star socket. Re-install in reverse order. Re-torque to 30nm. Part# A6112000570

13. I also decided to replace the other two idler pulleys. The OEM benz pulley has a dust cover on it. Insert a small screwdriver in the top and pry off the dust cover. I used a T50 torx to remove the pulley. FEBI Part#0002020019. Couldn't find the torque to redo it so I just got it nice and tight. Replace dust covers.
  
14. Re-installing fan shroud. There are 4 plastic tabs on the shroud which have to be seated in their receptacles. Work it down and get them seated. Go under the car and check that the bottom one is seated and the left and right. Re-seat the hoses in the brackets. Re-insert the electrical connector. If you push straight down, it will automatically engage the clips on the bottom. Place the coolant hose in the clip and align the clip vertically. Squeeze the clip to close. Insert the two clips in the top of the radiator housing. Re-install the aircleaner accordion small duct. Fold the center section back down. There are 2 plastic blocks that have to line up for the center section to be flat. Install the 9 screws you removed the center section. Torque to 10nm. Reinstall the rubber waterproofing stip. Reinstall the bottom soundproofing. Reconnect the negative battery lead. Reinstall the top cover on the engine.

Do an operational check for proper operation and no leaks.