

## W203 2003 C-230 Kompressor Sports Sedan 1.8l Thermostat Replacement & Antifreeze flush

First, I have to thank everyone who has contributed to the MBworld.org forums – without you; I would not have gotten the courage to do this work myself. OK, here's my situation:  
Last month (December) in Austin, TX, I was getting a check engine light on my 2003 C230. I drove over to my local AutoZone and had my car scanned (it's free). It showed P0128 (Coolant Temperature Below Thermostat Regulating Temperature). This means the thermostat has failed.

The thermostat stays open when it fails. So, during startup the coolant temperature cannot reach 90°C as it keeps circulating to radiator. After some predetermined time, the computer generates the Check Engine code P0128.

Normally, the closed thermostat blocks the coolant in the engine block and lets it heat up to 90°C. When the coolant temperature reaches above 90°C, it opens the thermostat and the coolant circulates through radiator to maintain temp around 90°C.

You can drive your car with a failed open thermostat for few days. I drove mine for a couple of weeks, but only around town, nothing beyond 30 miles a day.

What you'll need:

1. Thermostat and O-ring
  - a. Ordered mine from <http://www.mymercedesparts.com/>
  - b. My cost was:
    - i. ~\$28.00 for the T-Stat
    - ii. ~\$1.88 for the O-ring
    - iii. Shipping was ~\$6.50
    - iv. PLEASE NOTE: This website is a dealership in Atlanta, GA which sells MB genuine parts. Call them if you have questions. They were very helpful with me. They'll ask for your VIN # to make sure you have the right parts for your particular car.
2. Zerex G-05 Antifreeze
  - a. I ordered mine from O'reilly Auto Parts – they were no help. I had to find the part myself. Luckily, they were able to order some and had it overnight!
  - b. \* NOTE \* Be sure to get the 50-50 pre-mix. The O'reilly people didn't bother to offer me the 50-50, so I had to mix mine with Distilled water (see picture)
  - c. My cost:
    - i. ~\$17.00 Antifreeze 1 Gallon
    - ii. ~\$1.00 Distilled water 1 Gallon
3. Tools
  - a. 8mm socket wrench or manual wrench
  - b. Small flathead screwdriver
  - c. Plastic bendable hose ½ inch in diameter and about 4-5 inches long (see orange hose in my picture). Got mine at Wal-Mart for \$.50 cents
4. Time
  - a. Give yourself about 1-2 hours for complete job and don't forget a cheap beer or two ;0)

Parts:



Tools:



### STEP ONE: REMOVE ENGINE COVER (UNDERNEATH CAR)

Use your 8mm ratchet wrench and remove the 6 bolts holding your engine cover. My car only had 4 (no more trips to the dealer ☹ )



I had to roll my car into lifts because I am too big to get underneath my car. Once I removed the engine cover, I rolled the car back to a flat surface.



Remember to keep track of your bolts. I use a plastic cup or a sandwich bag.

## STEP TWO: DRAIN COOLANT

First, unscrew coolant reservoir cap and remove. (The air will push coolant down faster). You can find the coolant reservoir cap in the picture below (left side – red circle).



Next; at the front, right side, underneath the engine you will find a RED plastic bolt and black plate. Affix your plastic /rubber hose to a nipple behind the black plate. See arrow below.

Please note, you can just feel for the nipple and place hose as shown in the second photo.





The picture below shows the placed hose. Now use a flathead screwdriver to turn the red plastic bolt and release the coolant. Be gentle with this red bolt! (Brake it and you'll have coolant everywhere!)



Notice the coolant flow (total should be about 1+ gallon). Also, keep the tray nearby. When you remove the Thermostat housing (later) more coolant will come out! (Some splashed next to the tray).



### STEP THREE: REMOVE THERMOSTAT

Here you can see the Thermostat housing (circled). In order to get to it, we will remove a front top engine cover.



Pop each side by placing your hand underneath it and pull towards you. This should easily come out.



Now using a small flathead screw driver remove the hose clamp. If you accidentally remove the metal clamp, don't worry, you can place it back later.

Also be aware that when you pull out the hose from the T-Stat housing, coolant will flow below and also through here, so be gentle and know that you will need to let the coolant empty out. Give yourself about 5-10 minutes for coolant to empty completely.



Now we can begin removing the T-stat housing by unscrewing these two bolts. You can use either a ratchet wrench or the manual I am using here 8mm. These two bolts are long so, be patient.







OK, time to remove the T-stat housing.

After having removed the hose from the front, be careful in pulling the T-stat housing off from the engine block. I used a flathead screwdriver to help me pop it open (pictured below). Take your time and be careful. It took me a good 5-8 minutes to jar it loose. Remember this piece has dried coolant and may stick. Again, mine took a while to pull out.





The pictures below show the T-stat housing with the old T-Stat in place and the engine block and connecting hose.



#### STEP FOUR: REPLACE THERMOSTAT

Hopefully you are feeling pretty good now. The rest should be quite easy. OK, let's keep going.

Remove the old T-Stat and O-ring (seen on the top of the picture here).



Place the new O-ring on the t-stat housing.



When placing the new T-stat, be careful as it only goes in one way. There are a couple of tabs inside the housing. \* DON'T FORCE IT IN! \* Again, it only goes in one way.



Remember to place back the hose clamp we removed in the beginning. Don't force it close. Leave it like the photo. You will force it close once you have inserted the radiator hose from where you removed it earlier.





Insert the T-Stat housing back on the engine block and re-screw the bolts.



Also remember to reconnect the radiator hose and press down on the metal clamp, as shown below:



Your work should look like this! We are almost done.



## STEP FIVE: PUT CAR BACK TOGETHER AND REPLACE ANTIFREEZE

Place back the front engine cover.



Remember to remove plastic hose and tighten the red bolt underneath the engine (BE CAREFUL), FINGER SCREW TIGHT AND THEN ONLY USE SLIGHT STRENGTH TO TIGHTEN WITH FLATHEAD SCREWDRIVER.





Replace coolant through coolant reservoir. After filling up coolant, be sure to run your engine and check underneath engine to make sure you have no leaks. You will see "Check Coolant Level" in your dash when you first start-up the engine. Coolant will need to travel throughout the engine. Give it several minutes. Continue to check coolant level reservoir.



Let the engine sit, (shut off for another 10 minutes), or enough to where you feel comfortable placing back the engine cover underneath.





Now, remember to run your engine and keep an eye on the coolant level in the tank. Fill as required.

Also, please note because I did my work in January (middle of winter in TX with temps in the 40s-50s). I had to drive my car through normal operation, for about 3 days before my "Check Engine" light turned off in the console. The car has to run at 85-90C for a while before the "Check Engine" light will turn off – this is normal, so don't be alarmed if your "Check Engine" light stays on for a couple of days.

Also, please discard your old coolant through your local auto-parts store; do not discard in storm drains!

Enjoy your beer! :o)