

TECHNICAL TIPS – “Wench With A Wrench”
By Gail Wagner – Midstate Miata Club of NY

Keeping the NC Engine From Exploding (I'm Not Kidding)

If you own a Miata "NC" (2006 - 2013) you might want to read this carefully and consider.

The NC Miata (2006-2016) is the ONLY series Miata that its plastic expansion tank is PRESSURIZED. Therefore, if it leaking, cracks or fails, your engine can be totally trashed for lack of circulating coolant by the time you realize it by either not noticing the temp gauge all the way to "H" (HOT!) or when steam comes pouring out from under your hood. What a nightmare, huh?

Since earlier Miata series NA's and NB's (1989-2005) coolant reservoir tanks are not pressurized, it's not such a big deal but you should be visually aware per my June article about this problem.

I just bought one of these metal expansion coolant tanks for my 2006 Miata from www.Goodwinracing.com and will be installing myself, quick and easy with a few new screw-type clamps. It was well under \$250.00 but I paid extra for the sexy black powder-coated version. There are Mazda OEM plastic tanks (not metal) available for the earlier Miata NA and NB versions too.

You can buy and install the NC metal tank yourself per instructions below or buy it and have your mechanic/shop install. Very quick and easy. There is a much cheaper plastic OEM Mazda part available for NC's but this metal tank will last forever with no worries.

It's certainly worth hedging your NC coolant bets especially after experiencing this extremely hot summer

2020. I thought it might be worth passing this tip on to all you OCD-types like me.



This YouTube video shows how easy it is to replace the tank in your NC.
<https://www.youtube.com/watch?v=Vx9wpLpKEM0>

P.S. I did write a brief article about coolant and overheating in the June newsletter and watching for the "brownish" plastic tank color that could indicate imminent failure (cracking, splitting, etc.) but I didn't offer a remedy, at least for the NC's. Here it is. Now I can sleep at night.

The following article and pictures were copied from *Revlimiter.com*, February 2, 2017.



Shiny metal goodness.

In the past couple weeks, I've learned a lot of trivia about NC Miatas. Facts such as – the coolant bottle in the NC is pressurized. And also – said pressurized coolant expansion tank is prone to cracking and failing after a random number of miles. Sometimes it's a high mileage like 140k. Sometimes it's quite low like 14k.

I learned this after driving an unknown NC with 155k on the clock across the desert for 300 miles.

Even better! If and when the bottle explodes, you basically lose the NC's engine. It apparently cannot take a single overheat.



Sight glass.

Even more interesting is the fact that a solution for the problem did not exist until around December of 2016. That's a full decade after the NC started production.

The past solution to the exploding overflow bottle was to kinda “watch it” and replace it with a new one when it starts to turn from white to yellow. If they get orange or brown, you’re living on borrowed time. And NC owners lived like this throughout the time while the car was being made.

Enter the metal bottle done by Moroso and Goodwin Racing. No more expansion tank explosions.



This is a very nicely welded piece. It’s got internal baffles just like the stock bottle. It bolts on just like stock and has all of the correct hose outlets. It’s also got a nice sight glass so that you can see if there’s anything inside the little metal bottle.

It costs about 4x the price of a new plastic bottle from Mazda. But it should be a lifetime part without any failure points.

Worth it!



Ready to get fixed.

Always be safe. Use as high quality a jack stand as you can find and afford.



Old bottle screw points.

The bottle is held in by 3 nuts.

3 bolts with 10mm heads. All on top and not hidden. EASY!



Plugged.

No coolant was really in danger of coming out, but I didn't wanna take any chances. And I've got plenty of 3/8" socket extensions.

I like a needle nose vise grip for removing hose clamps. It makes the job very easy.



One large hose at the bottom.



Bucket.

There's a large hose at the bottom of the reservoir that needs to come off. I quickly removed it and held the tank over top of my spillproof funnel. I didn't spill any this way.

After I got all the fluid out of the reservoir, it got tossed aside and I bolted on the new metal one.



Ready for filling and burping.

I love the [spill-proof funnel](#). It's an amazing tool.

I burped the NC radiator just like I would an NA or NB. I filled the bottle ALL the way up with the car jacked up and added a few inches of distilled water to the funnel. That put the highest water level inside the funnel.

This is not how Miata.net would have you burp an NC radiator. The approved method there is to loosen the big hose and metal tube combo that runs across the back of the engine and try to let some air escape there. This seems insane to me. Making a leak in the cooling system to burp it? It might work very well, but it's not something I would do with my car.

If anyone reading decides to burp an NC like I did, realize that you've gotta siphon some fluid back out of the expansion tank after you're done. It's an expansion tank after all and is not meant to be full like a radiator is. Drain it to somewhere on the sight glass or below the "full" mark on the OEM bottle.

Anyways, like I said, I burped the radiator this way. I had no problems. I squeezed the hoses on the back side of the engine and got a lot of big bubbles out. I ran the car for a good 20 minutes and let the thermostat cycle open and closed many times (as seen on my OBDII scanner).



So much black plastic in that engine bay...

And no exploding coolant bottles to be found anywhere. WOO HOO!!!

After burping, I took a test drive. The engine stayed between 179* and 186*F. (So odd having an ECU that reads in Imperial – Sharka is metric.) No overheating or bad behavior. And the heat blows HOT inside the car!! It's never been so nice and warm.

Take care of your Miata and it will take care of you!

Zoom Zoom Safely!

Gail

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