

How To Filet A Fish - The End Of The Tale

by Chuck Wills

Many of you will remember "How to Filet a Fish, Part I" from the July Open Road. It was the story of the AIM Tuning crew building a Miata race car, nicknamed "The Fish", on a \$2000 budget and going to Florida to race. When we last left our heroes, they were in southern Kentucky heading south. Having left Indy early a day early, they had plenty of time to make the trip and spend some time on the beach before the competition. All was well until smoke started to pour from underneath the car. (Editors note: Open Road sources say the smoke may or may not have been induced by a blast of speed.)

The team limped over to the side of the road to see what happened. They hoped for something simple like a broken oil line, but it was much worse than that. The #4 piston and rod had decided to exit the engine quickly and violently. There were three holes in the engine block, and what was left of the connecting rod looked like a crumpled pop can.

So there we were, stuck in Kentucky with a broken car and no way to tow it anywhere. After a quick group meeting, we decided to try and fix the car and continue on to Florida. We had to be there by 10am Friday, so time was short.

Wednesday 3pm: Cell phones flipped open and we started calling everyone we could think of. Our list of needs was fairly significant, a truck and trailer, an engine and a shop to install the new engine. Then it got interesting.

SCCA member and all-around good guy Don Kline immediately headed south with his van and trailer to rescue us. With his rig, we would at least be mobile. Shane contacted Mike Weinbrener, a Spec Miata racer from Louisville. Mike runs a performance shop and said we were welcome to use his place to rebuild the car. The last component was an engine and where do you find a Miata engine in southern Kentucky? You don't.

Wednesday 4pm: Kentucky is NASCAR and Corvette country, and "What's a Mirada" was the normal response to our question. About to give up, I remembered that the Ford Escort GT used a variant of the Miata engine, and with some modification it might work. We called salvage yards again, looking for the Escort block. As luck would have it, there was a place six miles away that had three of them! Things were looking up. We drove over to the junk yard and picked the best of what they had. The engine was of unknown model year and mileage, but seemed to spin freely enough. Since they didn't know the heritage of the engine, we were able to buy it for about \$100. That's about \$300 less than if we bought one in Indy. What a deal!

Wednesday 7pm: Don showed up, the Fish was loaded on the trailer, we got our engine and headed north. It was a difficult thing to go north instead of south, but at least we had a plan. We dropped everything off at Mike's shop around 1:00am and retired to a local flea bag motel.

Thursday 7am: We got to Mike's shop bright and early to formulate our game plan. Shane and I would remove the engine and turbo system from the Fish, while Jay and Zac would strip the new engine and get it ready to transplant. Since we were putting a front wheel drive Ford engine into a rear wheel drive Mazda chassis, many things from the old engine would have to be reused on the new one, even if they had been damaged in the explosion.

We disassembled and cleaned everything until it sparkled so that we could inventory the parts we would need to fix or fabricate. The oil pan and windage tray were beat, bent and had holes in them. With help from the welder next door we were able to repair them as good as new within two hours.

Thursday Noon: (22 hours to go): By lunch, we were doing quite well. The new engine looked very good on the inside and the old parts were nearly ready

to start the re-build process. The car was an oily mess, so Zac was elected to clean the engine compartment and underside of the car. Then the rebuild process began. We had about 10 hours to finish the rebuild and get it in the car, before we absolutely had to be back on the road. The rebuild had gone smoothly with few surprises so far, so our goal seemed easily attainable.

Thursday 3pm: It was getting tough. The differences in the engine were getting pretty obvious; we had to take a hacksaw to the back of the head just to make everything fit close to where it should, and the turbo did not want to cooperate. It took us a good three hours just to get the turbo plumbing bolted together so that it wouldn't leak. The alternator wouldn't fit, so we borrowed a different one from one of Mike's cars and "massaged" it until it fit.

Thursday 6pm: The engine was in the car, and with a few final connections made it started on the first try! The valve train clacked loudly and the exhaust was smoky, but it ran! Within about 20 minutes all of the bad sounds and smells had subsided, leaving the engine purring like any hybrid Miata./ Escort engine should. By 8pm, the car was buttoned up and we were ready to roll. It was a record breaking effort, to rebuild the car in a little over 12 hours.

Then disaster struck again, the clutch wouldn't work. No matter how we pounded on the clutch pedal, the car was stuck in gear. We bled the hydraulics, and did all we could to make it work, to no avail. Still determined, we headed south anyway, but after a few blocks of having to shut the car off at every light, we threw in the towel.

The interesting thing is how this problem actually saved us. In our haste to get the clutch together, we had installed the clutch disk backwards, permanently locking the car in gear. It wasn't until after we tore the engine down in Indy that we found the cause of the first engine failure. The boost gauge (it was only showing 5psi max) and the turbo waste gate broke at the same time which caused the engine to produce about 20psi of boost! So the car was over boosting terribly

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