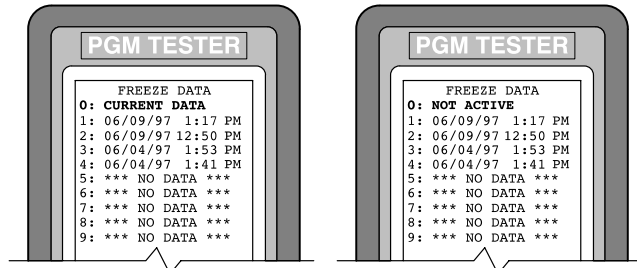




## Freeze Data Basics

Here are some basics to help you understand the Freeze Data function on your PGM Tester. Refer to this sample screen while reading.



**SAMPLE 1:** Tester is hooked up, and vehicle has a current DTC.

**SAMPLE 2:** Tester is not hooked up, or vehicle doesn't have a current DTC.

- When the Tester is connected to a vehicle with one or more DTCs, select "0: CURRENT DATA" to view the DTCs, along with freeze data that was retrieved the instant the MIL came on. If multiple DTCs are stored, the freeze data will be from the most recent one.
- When the Tester isn't connected to a vehicle, or if the vehicle's ECM/PCM has been cleared, the "0" line will read, "0: NOT ACTIVE."
- To view freeze data from the last vehicle the Tester was connected to, select line 1. When you do, *confirm the VIN so you know the data is from the vehicle you're working on.*
- To view freeze data from a vehicle previously connected to the Tester, select a line, 1 thru 9, with a date and a time on it. When you do, *confirm the VIN so you know the data is from the vehicle you're working on.*
- Lines 1 thru 9 indicate the dates and times the Tester was connected to vehicles that had stored DTCs; *they're not the dates and times the MIL came on.*
- The Tester can store freeze data for the last nine DTCs it recorded. This data isn't necessarily from the vehicle you're working on. If all nine lines haven't been filled since the Tester's program card was installed, the unused lines read, "\*\*\* NO DATA \*\*\*."



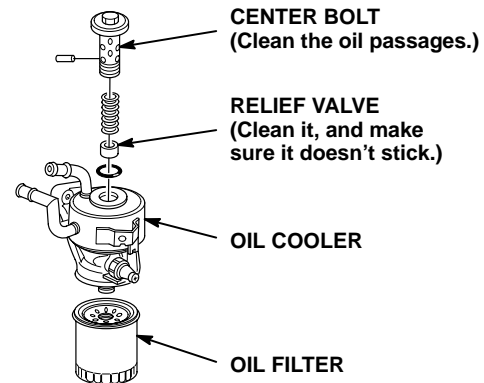
## Low Oil Pressure Diagnosis: Legend

For customer complaints of low engine oil pressure on '86-90 Legends, check for . . .

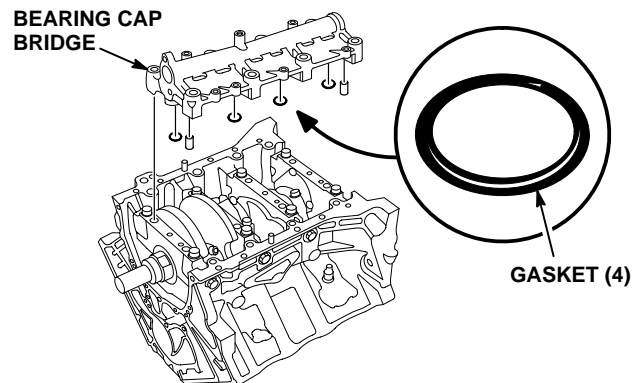
**A dented oil pan.** A dent in the bottom of the pan can block the oil pump pickup screen.

**Sludge buildup.** Infrequent oil changes can cause sludge buildup that blocks the oil pump pickup screen.

**Oil cooler blockage.** The relief valve in the oil cooler needs to slide freely within its bore in the center bolt. If it doesn't, oil can't flow from the filter to the oil gallery. Remove the valve from the bolt, and clean it along with the oil passages in the bolt. If the valve still sticks, replace the bolt.



**Missing or leaking gaskets between the main bearing caps and the bearing cap bridge.** These four gaskets maintain oil pressure to the main bearings. If they're dried out or aren't replaced after engine repairs, oil pressure will be low.



**Flashing oil pressure warning light.** If the light flashes even though you've confirmed the oil pressure is OK, check the printed circuit board on the instrument panel. If it has a faulty solder joint, replace the board. For details, refer to S/B 90-013, *Low-oil Pressure Light Flashes.*



## O<sub>2</sub> Sensor and Converter Test

On pre-OBD II vehicles that fail the State emissions test but do not set a DTC and do not have a driveability problem, test the O<sub>2</sub> (oxygen) sensor and the catalytic converter with this procedure.

1. Run the engine until it warms up, then monitor O<sub>2</sub> sensor voltage with the PGM Tester, or by backprobing the sensor.
  - If the voltage rapidly fluctuates between 0.2 and 0.8, the sensor and PGM-FI system are OK; go to step 2.
  - If the voltage is between 0.8 and 1.0, correct the causes of a rich mixture.
  - If the voltage is between 0 and 0.3, correct the causes of a lean mixture.
  - If the voltage is between 0.4 and 0.6, replace the sensor.
2. Turn the engine off, and disconnect one of the fuel injector connectors.
3. Start the engine, and monitor the tailpipe emissions with an exhaust analyzer.
  - If the emissions don't drop within 20 seconds, replace the catalytic converter. The cylinder with the disconnected injector acts as an air pump, injecting oxygen into the exhaust stream. If the catalytic converter is working, this action will lower tailpipe emissions.
  - If the emissions drop within 20 seconds, the catalytic converter is OK. Look for other causes of high emissions such as a rich or lean mixture, a fouled plug, or a bad plug wire.



## Loose Timing Belt Causes Noise

On Integras (any year), a loose timing belt can cause the distributor to make a rattling/knocking noise that sounds like a bad distributor shaft bearing. The noise is worse when starting a cold engine; as the engine warms up, thermal expansion of the head and block tightens the timing belt. For this reason, if you adjust the timing belt, make sure the engine temperature is less than 100 degrees F.

**NOTE:** On a '92-93 Integra, if the noise doesn't go away after you adjust the timing belt, refer to S/B 96-015, *Product Update Campaign: 1992-93 Integra Distributor*, and S/B 96-022, *Warranty Extension: 1992-93 Integra Distributor*.



## Radiator Testing

Here's an easy way to find out if the radiator is causing the engine to overheat. You'll need two wire thermocouples for this test. Thermocouples convert most digital multimeters into pyrometers. They're available from Fluke by calling 800-873-5853.

1. Carefully loosen the radiator cap to relieve system pressure. Use a shop rag, and turn the cap to the first stop, but don't remove it.
2. Loosen the clamp on the lower radiator hose (radiator side), insert a thermocouple wire between the hose and the radiator, and retighten the clamp.
3. Repeat step 2 on the upper radiator hose.
4. With the ends of the thermocouples connected to your multimeter in the passenger compartment, drive the vehicle under the same conditions as when the overheating occurred.
5. Compare the temperature difference between the two thermocouples:
  - If it's more than 15 degrees F, the radiator is probably OK. Check for other causes of overheating.
  - If it's less than 15 degrees F, replace the radiator.

(These readings apply to ambient temperatures of 60 degrees to 80 degrees F. If the air temperature is lower, the difference will be less.)

**NOTE:** A rebuilt radiator may not cool as well as a new one because the fin-to-tube bond is sometimes damaged during the rebuilding process.



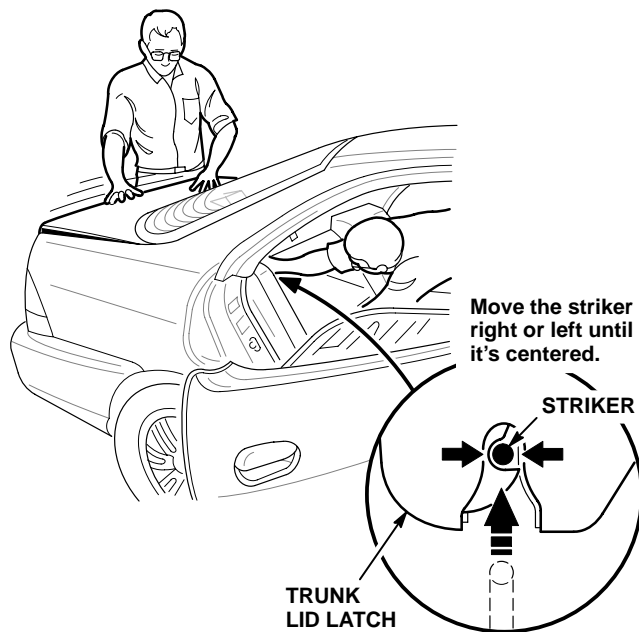
## Tech Line Access Can Be Customized

When calling Tech Line, your six-digit dealer number must be entered before talking to a Specialist. If you're concerned about unauthorized use of your dealer number, get a customized PIN (personal identification number) for your dealership. To activate a PIN, have your Service Manager call Tech Line, and give the Specialist the six-digit PIN your dealership would like to use. Once the new PIN is activated, it must be entered after your dealer number for Tech Line access. If the PIN ever needs to be changed, your Service Manager can call Tech Line and request a new PIN.



## Trunk Hard to Close on '94-97 Integras

A hard-to-close trunk lid on a '94-97 Integra probably means the striker on the lid needs to be adjusted. To adjust it, lower the rear seat-back and watch how the striker aligns with the latch while an assistant *slowly* closes the lid. This way, you can see which way to move the striker so it's centered in the latch.



## Navigation System Hard Drive Info

When it was introduced in '96, the 3.5RL navigation system came with a 170-megabyte hard drive to cover DCA 1 (database coverage area 1, California and Nevada). When the navigation system was expanded to the East coast in mid-'97 (covering DCA 7, 8, and 9), it required a 340-megabyte hard drive.

To allow flexibility in vehicle allocation, all navigation systems are preloaded with DCA 1. This means that cars driven on the East coast need to be programmed to DCA 7 and 8, or 8 and 9. (See S/B 97-016 to load the East coast info using ACURALINK 2000.)

If you ever replace a 340-megabyte hard drive, use P/N 39010-SZ3-315. Don't order the hard drive P/N listed in the parts catalog because it's the 170-megabyte type. For DCA 1, the 170-megabyte drive was, and still is, large enough.



## A/C Leak Checking Precaution

Before testing for leaks with your A/C leak detector, don't clean the engine compartment with brake cleaner or other solvents. Chemicals in these solvents wash away evidence of leaks (oil in the refrigerant collects dust, making some leaks easier to find), and they also affect the sensitivity of your detector, making it hard to locate leaks in both R-12 and R-134a systems. And, after only a short time of exposure to these chemicals, the detector's sensor will fail.

To avoid problems, don't clean the engine until you've checked and repaired the A/C system.



## Replacement Tip: CL Dashboard

If you need to replace the dashboard on a 2.2 or 3.0CL (regardless of the VIN), it's a good idea to perform the procedure in S/B 96-053, *Pop or Creak From the Right Side of the Dashboard*. This way, you ensure that the car won't return with dashboard noises. If the dash still makes noise after you do the S/B, see "Quiet the Creak" in the March '97 issue of S/N.



## Great PQRs

Our Service Engineering Information Department is always happy to recognize those of you who send in Product Quality Reports (PQRs) that are legible, complete, well-written, and include illustrations or photos.

Thanks to these conscientious professionals who recently sent in great PQRs:

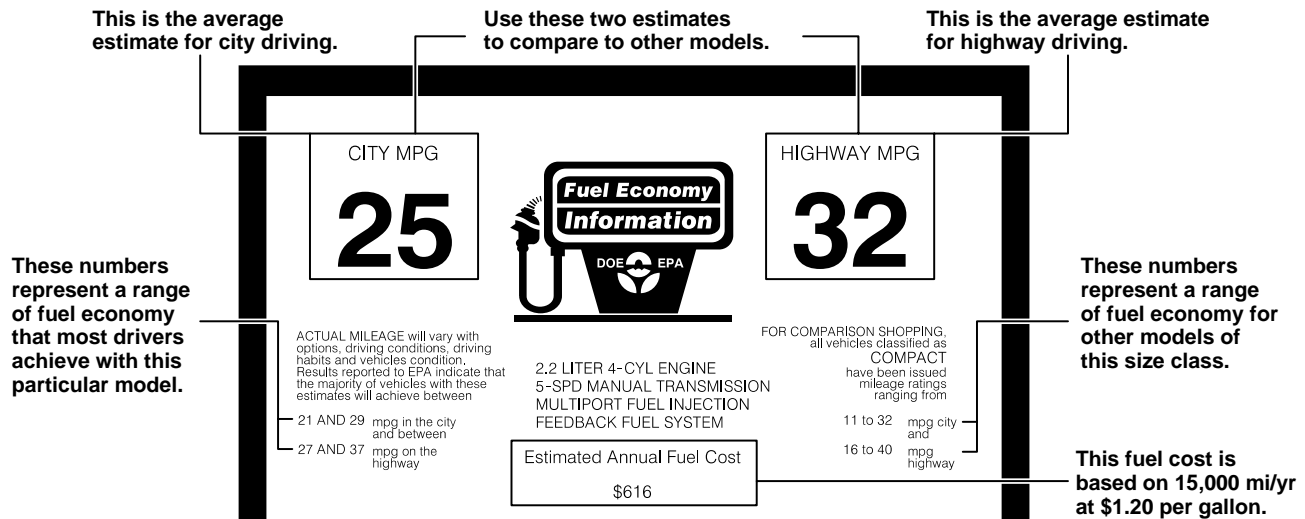
Rick Boleto  
Gary Craft  
Jeremy Ela  
Andy Grinde  
Karl Kababik  
Steve Muniz  
Patrick Rabin  
Lee Rathbun  
Larry Sax  
Randall Varney  
Steve Warend  
Donald Way

Northeast Acura  
Northeast Acura  
Clair Acura  
Buerkle Acura  
Acura of Milford  
Clair Acura  
Frank Leta Acura  
Miller Acura  
Acura of Augusta  
Benson Acura  
Acura of Brookfield  
Mossy Acura



# Fuel Economy Q & A

Tech Line fields many questions on fuel economy, especially why some vehicles don't achieve the mpg estimates shown on the fuel economy label (part of the Monroney label on every new car and truck). Before you read the Q&A, here's a sample label with an explanation of its contents.



**Question:** Why can't I achieve the City and Highway mpg estimates on the label?

**Answer:** Mileage estimates on the label are not the actual estimates for each vehicle; they're the average mpg achieved by similar vehicles in a model line under controlled laboratory conditions, not the result of a road test.

**Question:** How are EPA mileage estimates made?

**Answer:** Test vehicles are operated by professional drivers on a treadmill-like device that measures exhaust emissions and fuel usage. During the test, the vehicle's headlights, A/C, heater, radio, and all accessories are off. Upshifts on M/T vehicles are typically made at 15 mph (1st to 2nd), 28 mph (2nd to 3rd), 41 mph (3rd to 4th), and 52 mph (4th to 5th).

The City portion of the test simulates a 7.5 mile stop-and-go trip with an average speed of 20 mph. The "trip" takes 23 minutes, has 18 stops, and keeps the engine idling about 18% of the time to simulate rush hour traffic delays.

The Highway test simulates a 10 mile drive with speeds averaging 48 mph. It's run from a hot start. There are no stops, and not much idling time. A mixture of rural and interstate driving conditions are used.

When both test results are known, the City mpg is lowered by 10%, and the Highway mpg is lowered by 22%: these figures are closer to "real world" fuel consumption.

**Question:** How can I increase my vehicle's mpg?

**Answer:** To increase mpg:

- As often as possible, accelerate slowly and smoothly, keep your engine speed below 3,000 rpm, and reduce your road speed.
- Keep tires inflated to the door jamb sticker specs.
- Keep your vehicle in top condition by following the O/M maintenance schedule.

And remember, as stated on the fuel economy label: *"Actual mileage will vary with options, driving conditions, driving habits, and the condition of the vehicle."*

**Question:** How do I calculate mpg?

**Answer:** Divide the miles driven by the gallons of fuel used.

**Question:** Where can I get more info on fuel economy?

**Answer:** Order a free copy of the 1997 EPA Fuel Economy Guide by calling (800) 523-2929. If you'd like multiple copies, write to:

**Consumer Information Center  
Gas Mileage Guide  
Pueblo, CO 81009**

**ACURA ServiceNews**

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