Moonlight Sonata

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Hyundai has been like nightfall, quietly creeping up on us until we find that we are completely surrounded. At this writing, there are 900,635 Hyundais on the road. As a result, it's very likely that a few will land in your bay sooner or later. But don't fear. If you've ever seen a Mitsubishi, this car will seem familiar. The car may be built by Hyundai in Korea, but the technology, especially drivetrain technology, is Mitsubishi licensed.

So far we've automatically associated the name Hyundai with the Excel model. Now we need to include the Sonata, the newest Hyundai offering with almost 35,000 units already on the road. And with a limited number of dealers, these cars will need service from someone. With a little familiarity, you will find that this is a fairly straightforward car, and easily maintained.

In August 1989 we did a maintenance overview on the Excel. Now it's big brother's turn. We'll take you on a guided tour of major component locations, and highlight common maintenance procedures.

The Sonata is offered with three powertrain combinations:

- A four-cylinder with a manual transmission;
- A four-cylinder automatic;
- And a six-cylinder automatic.

We spent our time with a four-cylinder automatic, and will focus on that version. This is the most common combination and the one you're most likely to see.

After a little research, we did find a few common items to look for. Most are small annoyances that shouldn't turn into major projects if you know where to look:

- **Occasionally, in cold weather, the interior lights will not come on when the door is opened**. Don't

spend a lot of time looking for this one. The rubber boot over the door jamb switch gets stiff in the cold and does not allow the switch to extend far enough to make contact.

• **If the air conditioner or cruise control disengage but the indicator light stays on, look for bad switch contacts in the dash switches.** These are still under warranty, and a newly designed switch replaces the old style. It's possible these may all be taken care of before you ever see the car, but keep it in mind.

• **When we picked up our car, the left windshield wiper did not work**. A quick check by a dealer technician showed the wiper was frozen to the window, causing the wiper arm mount to loosen at the pivot. Freeing the blade from the glass, repositioning the arm in the proper location, and tightening the pivot is all it took to set things right.

• **The only other problem we know of at this time is the possibility of the oil pressure sending unit leaking oil**. Hyundai is working on a replacement unit to cure the problem.

The Sonata does not have any maintenance or oxygen sensor lights to advise its owner of required maintenance. It's up to you to recommend required services for your customers. Keeping up with a good maintenance schedule will prevent many future problems, and keep your Sonata customers singing—instead of being frustrated enough to howl at the moon.

—By Ken Styer

HYUNDAI SONATA MAINTENANCE INFORMATION CHART

FLUID CAPACITIES AND RECOMMENDED LUBRICANTS

Crankcase—API Classification SF or SF/CC or SG

Without filter: 3.5 liters (3.7 quarts)
With filter: 3.9 liters (4.1 quarts)

Manual Transmission—Hypoid gear oil 2.5 liters (2.6 quarts) SAE 75W-85W

Automatic Transmission—Dexron® or Dexron® II ATF
5.8 liters (6.1 quarts)

Power Steering—Dexron® II ATF, 0.9 liters

Cooling System—ethylene glycol, 50 percent concentration, 7 liters (7.4 quarts)

Brake Fluid—must conform to DOT 3 or equivalent

MAINTENANCE AND REPLACEMENT INTERVALS

Engine Oil and Filter—7500 miles or ten months, 3000 miles or three months under severe usage

Air Cleaner—30,000 miles or 30 months, more frequently under severe usage

Spark Plugs—30,000 miles or 30 months, every 24,000 miles or 18 months under severe usage

Engine Coolant—30,000 miles or 30 months

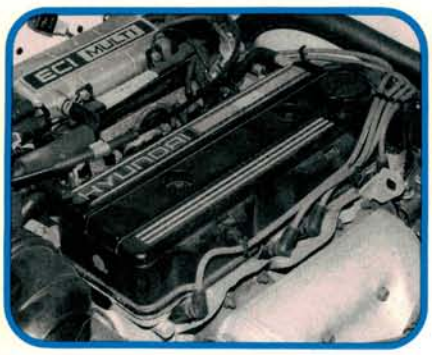
Automatic Transmission—Change fluid or filter 30,000 miles or 30 months

Manual Transmission—Inspect 30,000 miles or 30 months

Jet Valve Clearance Adjustment—15,000 miles or 15 months

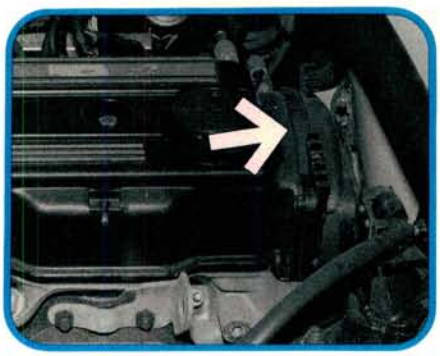
Timing Belts—60,000 miles or 70 months

Oxygen Sensor and Charcoal Canister—52,500 miles or 60 months



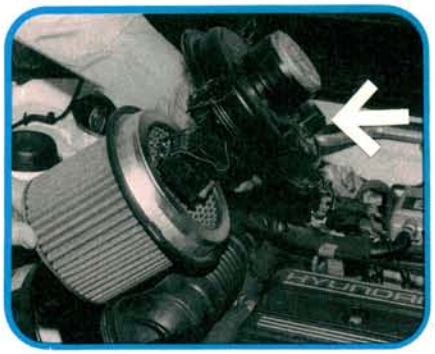
1

The Sonata uses an inline four-cylinder engine as standard equipment. Like the old 2.6 Mitsubishi engine, it has an overhead camshaft, two balance shafts, and a jet valve for each cylinder. The optional V6 engine has a belt driven camshaft in each cylinder head, but has no balance shafts or jet valves.



2

Unlike the 2.6 engine, the 2.4 liter uses toothed belts to drive the cam and countershafts. Hidden below this cover are two separate belts. One belt drives the cam and one of the countershafts. A shorter, inner belt runs the other balance shaft. Both have separate tensioners.

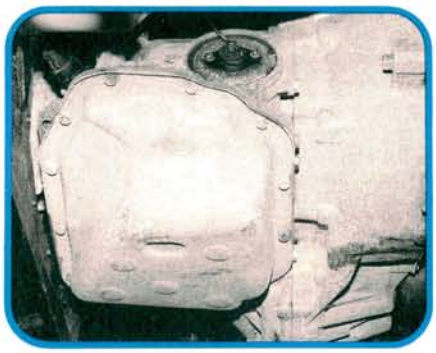


3

Remove the wiring connector and release three clips to remove the air filter housing lid. Be careful not to damage the air flow sensor located inside the filter itself when removing the lid. A dry type filter cartridge is serviced every 30,000 miles.

4

Oil filter access is very easy. It's located right up front on the driver side of the engine. Oil requirements vary from 5W20 to 20W50 depending on climate, with 10W30 as the most likely choice. Check the service charts for the proper weight and recommended oil change intervals.

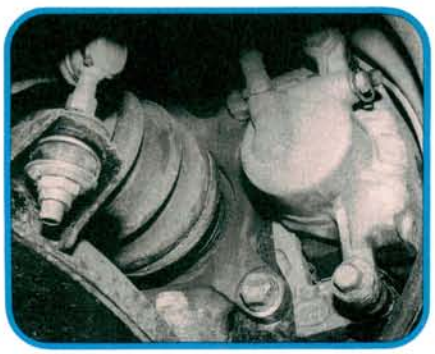


5

Our four-banger uses a four-speed automatic transaxle with lock up torque converter and overdrive. A manual five-speed overdrive is standard. In the V6, a four-speed automatic overdrive is standard, but has no locking converter. Both automatics are electronically controlled and use Dexron® fluid.

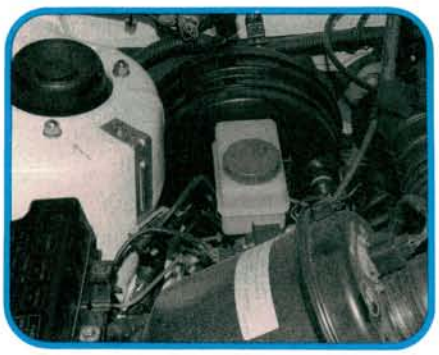
6

The dipstick/fill tube for the automatic transaxle is located behind the radiator cooling fan. To check the fluid the engine must be fully warm. Then shift through all gear selector positions and return the shifter to neutral. Don't forget to set the parking brake.



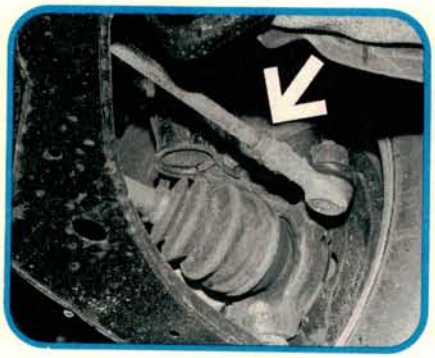
7

Ventilated front disc brake rotors are found up front. Pad replacement is easy. Just remove the two caliper slide mounting bolts, lift the caliper, and slide the pads out. Drum brakes are standard on the rear on all cars regardless of powertrain combinations.



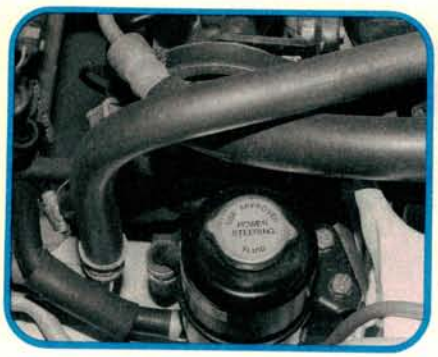
8

No we didn't print the photo backward and your glasses are not on upside down. The master cylinder and vacuum power booster are on the right side of the car. This is a great car for drivers' education conversion. Use only fresh DOT 3 brake fluid from a sealed container. No contamination please.



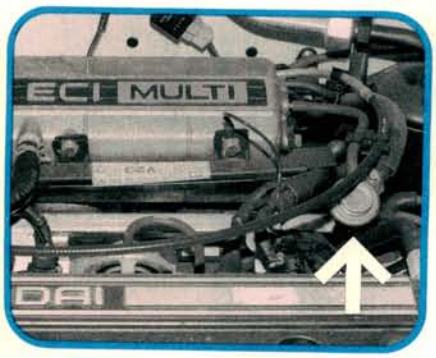
9

The front strut suspension allows for toe adjustment only. Loosen the lock nut and rotate the inner tie rod. No camber or caster adjustments are provided. If readings are out of spec, replace bent or worn parts. A nonadjustable three-link U-beam axle connects the rear wheels.



10

The power steering reservoir is mounted by the driver side inner fender well, just in front of the strut tower. Use Dexron® II automatic transmission fluid. Remember to check the rack, boots, and power steering hoses every 24,000 km (15,000 miles).

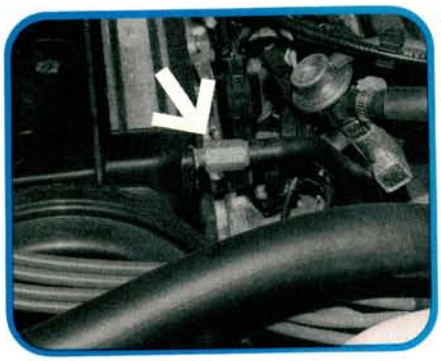


11

Fuel is supplied by a Multi Point Injection system. By today's standards, this is a fairly stock multi-port setup consisting of an O^2 sensor, idle speed control, various inputs, and control pressure regulator (shown with arrow). System pressure (vacuum hose connected at idle) is 2.7 bar (39 PSI).

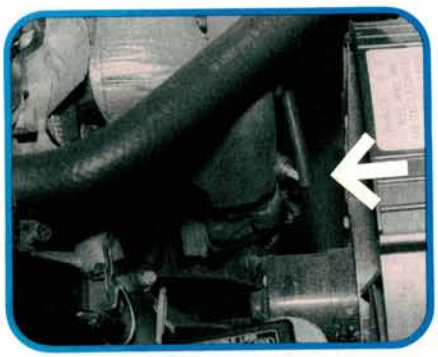
12

Admittedly, the fuel filter is a little hard to reach. It is located on the firewall behind the engine. Both inlet and outlet lines are connected with banjo fittings. Disconnect the power to the fuel pump and run the engine to relieve system pressure before loosening the fuel lines.



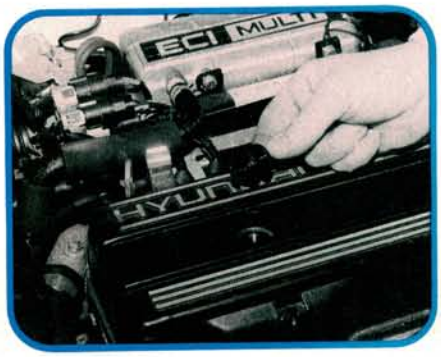
13

The PCV valve screws directly into the left rear corner of the valve cover. Check to be sure the valve moves freely. Inspect the PCV hose for cracks and vacuum flow. Replace the PCV valve at 84,000 km (52,500 miles). Replace the charcoal canister at this interval as well.



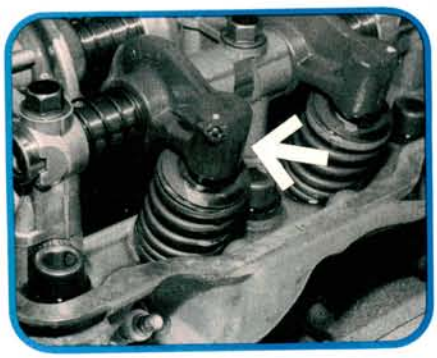
14

Finding the oxygen sensor is easy. Just look in the exhaust manifold on the front of the engine. The suggested replacement interval for the oxygen sensor is 84,000 km (52,500 miles). Remember to use a good quality anti-seize on the threads when removing and reinstalling an O^2 sensor.



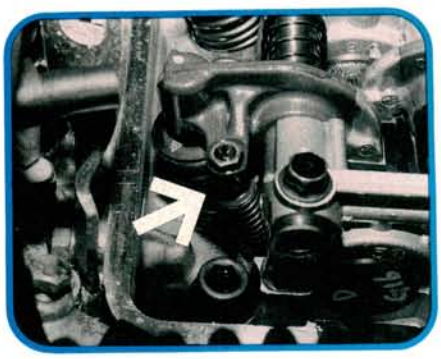
15

Valve cover removal is a piece of cake. There are only two bolts (with seals and washers) holding the cover to the head, and two 6 mm bolts holding the timing belt cover to the valve cover. Remove the crankcase ventilation hoses and the cover is ready to come off.



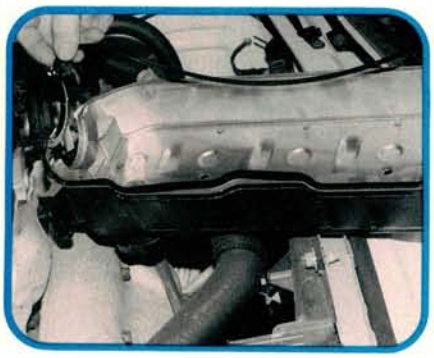
16

Look Ma, no main valve adjustment! Hyundai has placed an auto lash adjustor inside the rocker arm directly on the top of the valve. While doing the same job as a hydraulic lifter, it is considerably smaller. Due to its small size, dirt could be a big enemy.



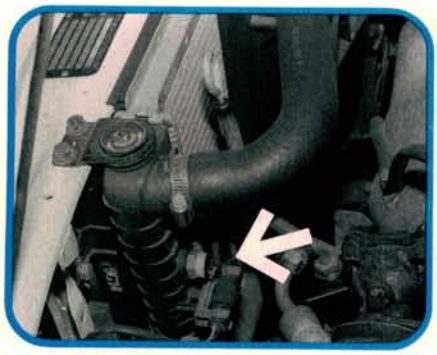
17

You're not off the hook yet. The jet valve still needs to be adjusted. Use a tender touch with your feeler gauge. The valve spring has very light tension and may easily be depressed while checking the clearance. Rough adjustment cold is 0.17 mm. Final setting is 0.25 mm on a hot engine.



18

Clean the valve cover surface and groove before inserting a gasket in the cover. A little unwanted dirt will leave you with a leaky gasket. Check the gasket for cracks or wear; replace it if you have any doubts. We reused this gasket on our brand new car.

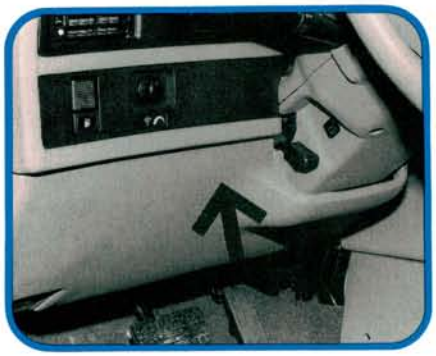


19

There is nothing unusual about the cooling system. Standard fare includes a 0.74-1.05 bar (10.7-14.9 PSI) pressure rating and an electric cooling fan. The fan thermo-sensor is located in the radiator (arrow). Use a 50/50 ethylene glycol based antifreeze. Get the stuff that's compatible with aluminum.

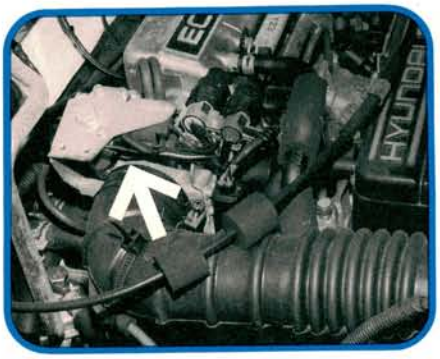
20

Fuses are found in three separate locations. Main fuses and relays are found near the battery on the right side under the hood. These are shown with the cover removed. Fusible links are attached to the positive battery terminal. Interior fuses are in the left kick panel behind an access panel.



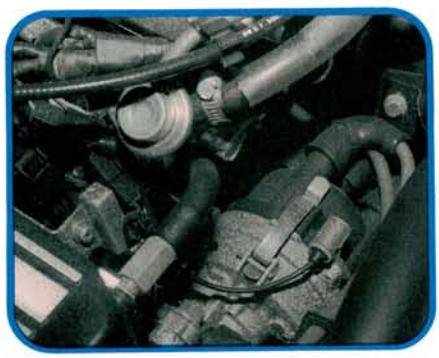
21

A peek behind the lower dash panel will reveal the diagnostic connector for the MPI system. Twelve codes are possible for system checks. The automatic transmission has its own diagnostic connector located under the left kick panel near the fuse box. Twelve codes are possible here also.



22

Idle speed is maintained by an ISC (Idle Speed Control) motor. Base idle must be set before the ISC can do its job properly. Base setting is 750 RPM plus or minus 100 RPM, and should be checked every 24,000 km (15,000 miles).



23

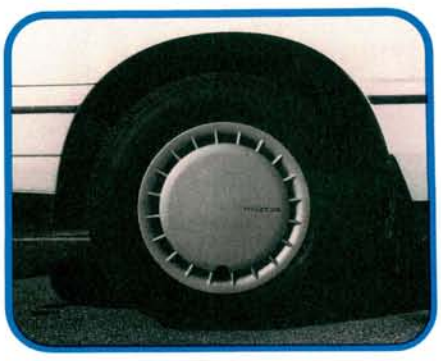
The distributor is located at the rear of the cylinder head on the driver side of the car. Ignition is strictly electronic. Timing should be checked every time you replace the O^2 sensor. Spark plugs are easy to reach in the front of the head, and should be replaced every 48,000 km (30,000 miles).

24

For your convenience, Hyundai has provided two underhood specification labels. The one shown is for basic engine settings. The second one provides information on oil change intervals and recommended oil weights. Both are very handy for quick reference in your bay.

25

Body grounds are in several locations throughout the car instead of one or two main grounds points. Be sure to check them when diagnosing a circuit problem. Headlights are the new composite style and use a separate, replaceable halogen bulb.



26

Tire rotation varies depending on what each car is equipped with. The standard steel wheels use the traditional X-pattern. Include the spare if it's a full size one. For the alloy wheels, rotate from front to rear only, and other than air pressure, forget the spare.