

Diamond Stars

In baseball, most major league teams support several minor league teams. They use these minor league teams to develop the new talent they need to replace their injured or aging diamond stars.

Mitsubishi served as Chrysler's minor league farm club for several years. In the 1970's, Chrysler started "calling up" several promising young prospects from the Mitsubishi farm club in Japan to fill holes in the major league Chrysler lineup here in the States.

This arrangement seemed to work out well for Chrysler. But Mitsubishi must have grown tired of its role as Chrysler's minor league farm team and decided to break into the American big leagues by marketing their cars under their own name. At the same time, they continued to supply cars to Chrysler.

The end result is an often confusing array of very similar car models, each sold and serviced at dealerships with different names. Once you raise the hood, it's hard to tell if you're working on a Dodge Colt, a Mitsubishi Mirage, or an Eagle Summit. Is it an Eagle

Talon, a Mitsubishi Eclipse, or a Plymouth Laser? Where was the car built and who supplied the drive-train? Like they say at the ball park, you can't tell the players without a scorecard.

The staggering number of players on the joint Chrysler/Mitsubishi roster prevents us from covering all of them in one article. What we will do instead is concentrate on one very popular starting player (the Talon/Laser/Eclipse) in our photo captions, and point out some helpful service tips and injury reports on the rest of the lineup at the end of the introduction.

Hall of Fame

How many stories have you heard about bright young baseball prospects who were completely out of baseball after just a few short seasons in the game? Cars, like baseball players, will last much longer and return more years of service if they are properly maintained throughout their careers.

Most late model automobiles don't require as much maintenance as their predecessors. Unfortunately this has given some owners the impression that they can get by with little or no vehicle maintenance. Mitsubishi vehicles will go the distance (and even extra innings) if the owner is willing to follow a sensible maintenance routine.

In our discussions with several Mitsubishi repair specialists, we found that many of the problems Mitsubishi owners do experience with their cars can be traced to poor maintenance. Few cars will make it to the 100,000 Mile Hall of Fame if the oil only gets changed once every leap year.

SCOUTING REPORTS

Engine Start Up Noise

Insufficient timing belt tension on 1990 Eclipse, Galant and Mirage models built before January 22, 1990 and equipped with 2.0 or 1.6 liter DOHC engines may cause engine start up noise. A new service automatic tensioner is available to correct this problem.

Remove the timing belt cover. If a loose timing belt is found, check the tensioner. If the tensioner is malfunctioning, replace it with a new service tensioner. The overall length of the new tensioner is 9mm longer than the old one.

Colt Timing Belt Noise

The oil pump sprocket has been changed to a tapered design to reduce timing belt noise on Colt engines produced after February 1988. The new tapered sprocket design can be identified by the letter "T" stamped on the sprocket. The new sprocket is interchangeable and may be installed on earlier engines.

Water Outlet Gaskets

A new design water outlet gasket is available for 1990-91 Eclipse, Galant, Mirage, Montero, Pickup, Sigma, and Van/Wagon models. The gasket has been changed from a fiber material to a rubber-coated metal design.

The new gasket has a top side and a bottom side. The top side is labeled with an "UP" mark. The bottom side is unlabeled. When installing the new gasket, make sure the "UP" mark is facing the water outlet fitting side. If you're using the early style fiber gasket, either side may be installed on top.

Eclipse Steering Pull Or Drift

Some 1990-91 Eclipse models may have a slight steering wheel pull or drift on uncambered road surfaces, even when the tire pressure and wheel alignment are correct. If front and rear wheel align-

ments are within the specified ranges and the tire pressures are at the values shown in the tire pressure chart below, use the following steps to correct the steering pull:

- Rotate the tires on one side of the car.
- Adjust the tire pressures after changing wheel locations.
- Road test the car. If the condition persists, return the tires to their original position.
- Rotate both tires on the other side of the car. This tire switch procedure is necessary because the pull or drift is caused by the front tires as a set, and the set must be broken up.
- Again adjust the front and rear tire pressures to specifications,
- Road test the car again. If the condition persists, recheck the front and rear alignment and check for worn or damaged parts.

APPLICATION	2WD	4WD
Front Tire Pressure (PSI)	29	32
Rear Tire Pressure (PSI)	26	29

Summit Hesitation/Surge

Engine oil and carbon deposits may cause some 1989-90 Eagle Summits equipped with 1.5 liter engines to hesitate, surge, stumble or die out within the first 60 seconds after a cold start. If all vehicle systems are functioning normally and no fault codes are present, perform the following repair:

- Check the air flow sensor identification number. It should be E5TO1571.
- Inspect the mass air flow sensor for plugged air bypass holes.
- If both of the bypass holes are open, the air flow sensor should be replaced with a new service mass air flow sensor.
- Clean any oil and/or carbon deposits from the air flow sensor, air intake hose, throttle body, air intake plenum, and intake manifold.
- Check the fuel injectors for correct operation and replace as necessary.
- With the air intake plenum and intake manifold removed from the engine, check the intake valves for carbon deposits.
- The valves must be cleaned if the carbon deposits are heavy. The suggested cleaning method is to remove the cylinder head from the engine. The cylinder head should be disassembled and valves cleaned with a wire brush.
- Remove any carbon deposits from the spark plugs.
- Install a new service valve cover. The cover has been redesigned to improve air flow and to prevent oil spillover into the air cleaner.
- Recheck the engine when cold to make sure its cold start problems have been corrected.

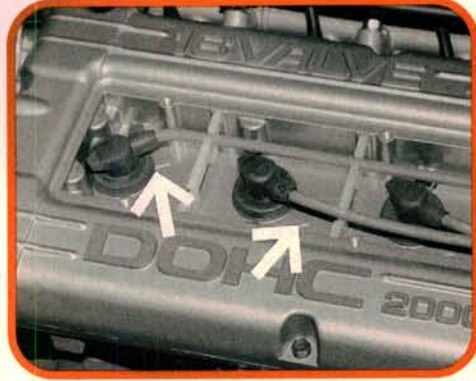
— By Karl Seyfert

Diamond Stars



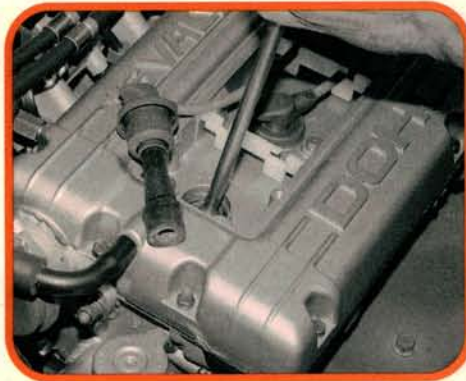
1

We picked a late model Eclipse with a DOHC engine to demonstrate some simple but important Mitsubishi maintenance techniques. Ignition points may be gone for good, but there's more to a tune up on a modern engine than a fresh set of plugs and some filters. We'll start by removing the ignition wire access cover.



2

A place for everything, and everything in its place. The arrows on the head indicate the proper positioning of the secondary ignition wires leading from the remote coil packs. It's mighty cramped and a few crossed wires could cause interference between different cylinders.



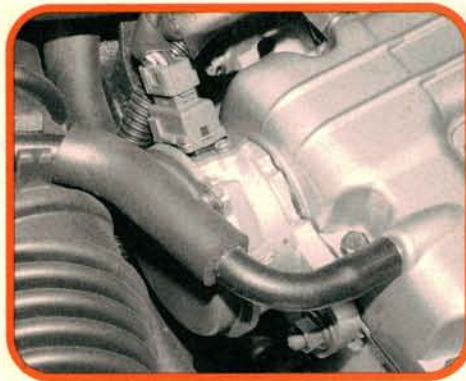
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Reading spark plugs is a dying art form, like setting points and adjusting valve clearances. Take a close look at the old plugs before you toss them in the dumper, they may be trying to tell you something. These plugs indicate the engine has a rich mixture.



4

To set the timing and basic engine adjustments, the engine should be at operating temperature, all lights and fans off, the transaxle in neutral, and the steering straight ahead. Ground the ignition timing connector (arrow) to hold the timing at its base setting, then check the timing.



5

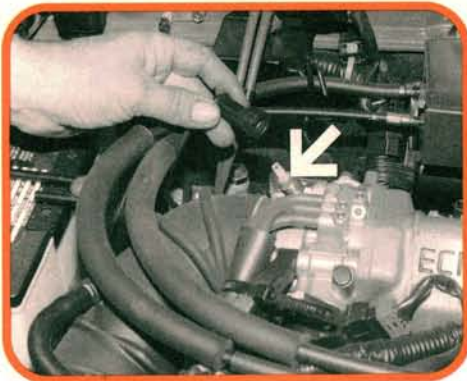
The engine doesn't have a distributor, just a position sensor on the end of the intake cam to signal the ECU. If the timing was out of specification, adjust it by loosening the sensor bolts, then rotating the sensor. Remove the grounding lead from the timing check connector when you're done.



6

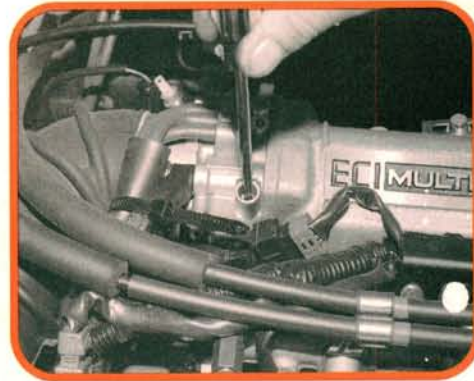
A factory tool called a Multi Use Tester (MUT) plugs into the diagnostic connector located near the interior fuse box on the Eclipse (arrow). We'll use the MUT to tap into the ECU for the rest of our adjustments. Aftermarket scan tools also use this connector to retrieve the same information.

Diamond Stars



7

The Eclipse uses a stepper motor to maintain a stable idle speed under changing engine loads. The motor opens or closes the throttle slightly to adjust the idle speed. Before setting the base idle speed, disable the stepper motor by disconnecting the lead from the fixed speed adjusting screw (arrow).



8

The only speed adjusting screw (SAS) that should be moved to set base idle is located under a rubber plug in the throttle body. If you can't adjust the base idle speed by turning the SAS, it's possible that someone has been wrenching on the fixed speed adjusting screw we showed you in our last step.



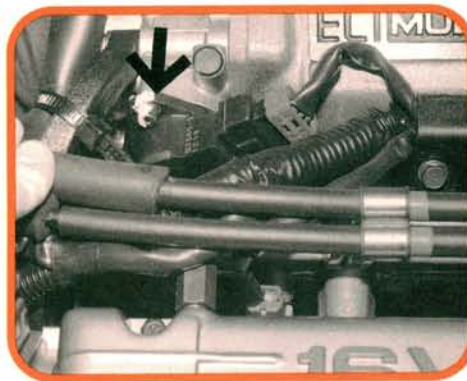
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If the base idle speed still can't be adjusted to specs, make sure the throttle cable is properly adjusted. A tight cable holds the throttle open and will also affect the throttle position sensor adjustment. Incorrect throttle cable adjustment can also affect transmission and cruise control operation.



10

Check the throttle position sensor adjustment with the engine off, ignition on. The MUT gives a TPS read-out in millivolts, as well as the position of the stepper motor, measured in steps. Tap into terminals 2 and 4 of the TPS harness connector for a TPS measurement using a DVOM if you don't have a scan tool.



11

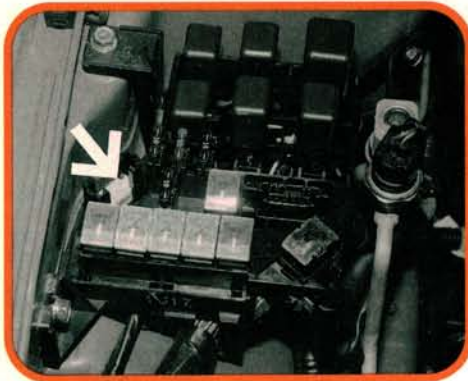
The acceptable TPS adjustment range is 480-520 millivolts. The top bolt is easy enough to reach on our Eclipse, but part of the fuel rail must be disassembled to reach the lower bolt. It's much easier on most other models. The TPS output voltage increases as the TPS is turned clockwise.



12

The other eyes and ears in the system are not adjustable and shouldn't require your attention. The system will operate in fail-safe mode if one of the sensors fails. The engine still ran with the air flow meter disconnected, but we triggered the Check Engine light and set a trouble code.

Diamond Stars



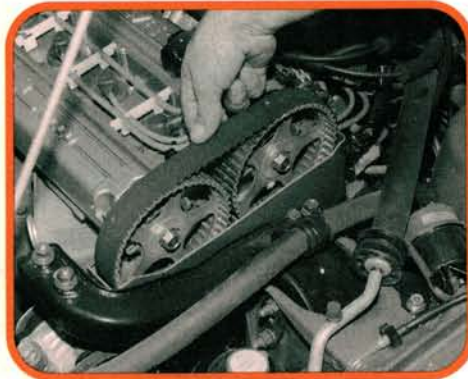
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Trouble codes are cleared by disconnecting the battery. The fuse panels are divided by function. The main panel includes a battery saver switch to disable clock and memory functions for long term vehicle storage. A separate fuse panel near the left side of the firewall handles all air conditioning related fuses.



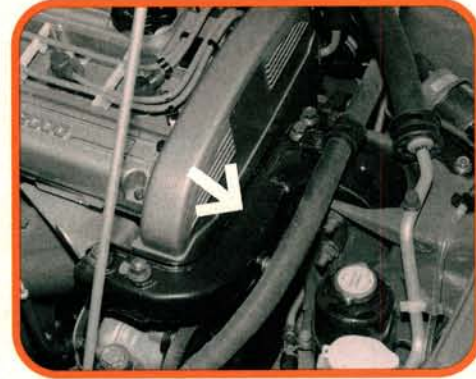
14

Maybe someone in the Design Department is really thinking about technicians. This float gauge above the flush headlight allows a simple level adjustment, without additional hang on adapters and gauges. Just make sure the vehicle is sitting on a level surface before making the adjustment.



15

As we mentioned earlier, the timing belt auto tensioner caused cold start up belt noises on some DOHC engines. Remove the upper timing belt cover to inspect the belt during a maintenance. If the belt is extra loose, the tensioner may be leaking down while the engine is turned off.



16

The left motor mount must be removed to get at the one piece lower timing belt cover if the timing belt or tensioner need to be replaced. Support the engine from below with a floor jack or install an overhead engine support before removing the motor mount. Remove the accessory belts, then the cover.



17

The tensioner may leak at the piston seal and lose hydraulic pressure after the engine sits overnight. A very weak tensioner may allow the timing belt to jump teeth, an expensive prospect on a valve bending engine. The replacement tensioner piston is 9 mm longer than the original.



18

A timing belt replacement can be a tough sell. This high stress belt has been known to break if the replacement interval is exceeded. Check for marks that look like impressions of the teeth on the outside of the belt, then check the inside of the belt for cracking or torn fibers that precede tooth separation.

Diamond Stars



19

The accessory drive belts aren't "forever belts" either. Poly vee belts can fool you. The outside covering may look pretty good long after the belt is really shot. For a careful inspection, remove the belt, then turn it inside out and check for cracking across the ribs.



20

We won't waste space preaching about oil changes, except to say how important they are on high revving, high stress engines. Oil change duty is often assigned to the shop apprentice. A veteran technician may be able to spot and correct a problem in the making during this routine service.



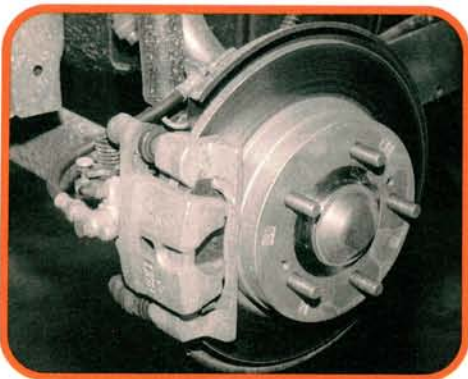
21

While you're under the car, check the suspension and underbody bolts. These bolts were probably properly tightened at the factory, but that's no guarantee that they will stay tight for the life of the car. Many of the creaks and groans present in an older car can be eliminated by retorquing a few bolts.



22

Check the condition of the heat shields and other exhaust components. The exhaust sections bolt together at flange joints for easy alignment at replacement time. We picked a two wheel drive Eclipse for our maintenance. Exhaust placement is more cramped on all wheel drive versions.



23

Parking for extended periods with the parking brake applied may cause the metallic rear brake pads to rust solid to the rotor. The pads will break loose with a bang or a knocking noise when the car is moved. The rust causes a rubbing noise until the pads wear the rust away.



24

The rusty outline of the brake pad is visible on the rotor in this photo. Resurfacing the rotor will eliminate the rust and noise, but the problem may reoccur. Metallic pads containing copper rather than iron particles are available for a more permanent answer to the rotor rusting problem.