

## 3-4 ENGINE AND ENGINE OVERHAUL

### Engine

In the process of removing the engine, you will come across a number of steps which call for the removal of a separate component or system, such as "disconnect the exhaust system" or "remove the radiator." In most instances, a detailed removal procedure can be found elsewhere in this manual.

It is virtually impossible to list each individual wire and hose which must be disconnected, simply because so many different model and engine combinations have been manufactured. Careful observation and common sense are the best possible approaches to any repair procedure.

Removal and installation of the engine can be made easier if you follow these basic points:

- If you have to drain any of the fluids, use a suitable container.
- Always tag any wires or hoses and, if possible, the components they came from before disconnecting them.
- Because there are so many bolts and fasteners involved, it is wise to store, and label the retainers from components separately in marked containers, jars, or coffee cans. This will prevent confusion during installation.
- After unbolting the transmission or transaxle, always make sure it is properly supported.
- If it is necessary to disconnect the air conditioning system, have this service performed by a qualified technician using a recovery/recycling station. If the system does not have to be disconnected, unbolt the compressor and set it aside.
- When unbolting the engine mounts, always make sure the engine is properly supported. When

removing the engine, make sure that any lifting devices are properly attached to the engine. It is recommended that if your engine is supplied with lifting hooks, your lifting apparatus be attached to them.

- Lift the engine from its compartment slowly, checking that no hoses, wires, or other components are still connected.
- After the engine is clear of the compartment, place it on an engine stand or workbench.
- After the engine has been removed, you can perform a partial or full teardown of the engine using the procedures outlined in this manual.

➤ **Label all wiring, vacuum hoses, fuel lines, etc. before disconnecting them; making installation much easier. Be sure to disable the air suspension systems where applicable.**

➤ **If your vehicle is equipped with air conditioning, refer to Section 1 for information regarding the implications of servicing your A/C system yourself. Only an MVAC-trained, EPA-certified, automotive technician should service the A/C system or its components.**

### \*\*\* CAUTION

**Never open, service, or drain the radiator or cooling system when hot; serious burns can occur from the steam and hot coolant. In addition, when draining engine coolant, keep in mind that cats and dogs are attracted to ethylene glycol antifreeze and could drink any that is left in an uncovered container or in puddles on the ground. This will prove fatal in sufficient quantities.**

**Always drain coolant into a sealable container. Coolant should be reused unless it is contaminated or is several years old.**

### \*\*\* CAUTION

**Observe all applicable safety precautions when working around fuel. Whenever servicing the fuel system, always work in a well-ventilated area. Do not allow fuel spray or vapors to be exposed to a spark or open flame. Keep a dry chemical fire extinguisher near the work area. Always keep fuel in a container specifically designed for fuel storage; also, always properly seal fuel containers to avoid the possibility of fire or explosion.**

### REMOVAL & INSTALLATION

#### 3.8L Engine

➤ See Figures 1 thru 8

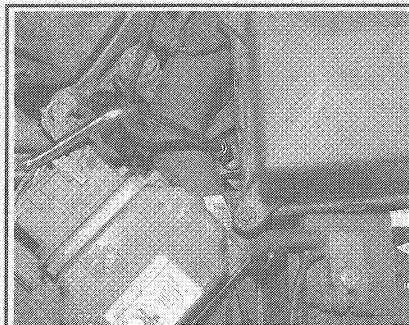
➤ **If your vehicle is equipped with air conditioning, refer to Section 1 for information regarding the implications of servicing your A/C system yourself. Only an MVAC-trained, EPA-certified, automotive technician should service the A/C system or its components. Turn off or disable the air suspension system.**

1. Drain the cooling system, then disconnect the negative battery cable.
2. Properly relieve the fuel system pressure.



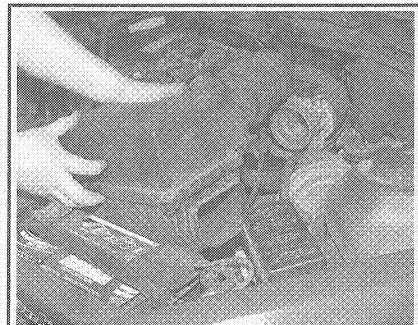
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**Fig. 1** Pointing to the IRCM, partially hidden under the radiator frame near the battery



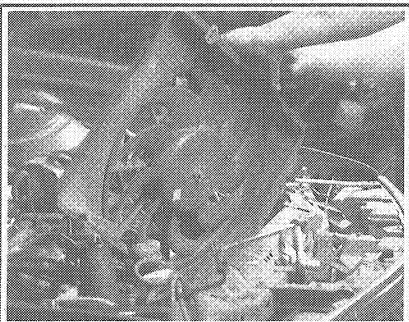
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**Fig. 2** One screw at the base of the air cleaner holds the entire assembly in place



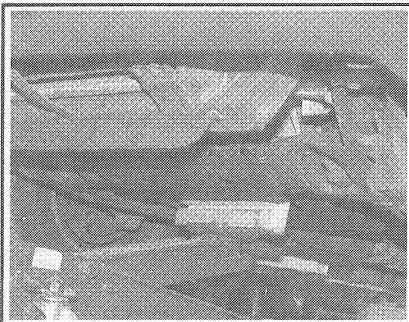
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**Fig. 3** Lifting the air cleaner assembly out as an assembly



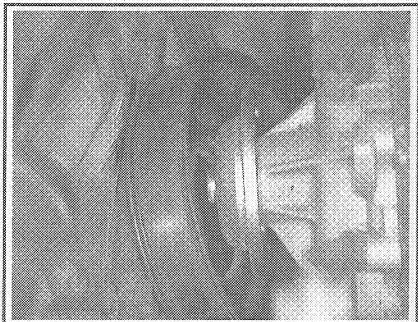
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**Fig. 4** The fan shroud and fan comes out as an assembly



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**Fig. 5** Be sure to use a block of wood to protect the bottom of the engine



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**Fig. 6** With the engine slightly raised the water pump pulley is removable