ENG-01, Engine Removal

Tools Needed

- Jack stands
- Floor Jack
- Hose clamps or locking pliers (locking pliers can damage hoses)
- Metric Socket set
- Metric Wrench set
- Set of Phillips and Flat tip screwdrivers
- Engine Hoist
- Diagonal cutters
- Several clothes hangers, bailing wire, and/or bungee cords of different sizes

Other Procedures Needed

- DME-01, DME Control Unit Removal and Installation
- AF-01, Air Filter Housing and Air Flow Sensor - Removal and Installation
- IGN-01, Distributor Cap and Rotor Replacement
- COOL-04, Radiator Removal and Installation
- COOL-02, Coolant System Draining, Filling, and Venting

Procedure

1. Remove the fuse for the fuel pump.
2. Attempt to start the vehicle. The vehicle may start but should immediately stall as the fuel system depressurizes.
3. Disconnect the battery as follows:
   . Disconnect the battery ground cable and then the battery positive cable.
   a. Push the positive cable through the hole in the firewall and into the engine compartment. (Removing the battery will make getting the cable through the firewall much easier)
   b. If equipped with cruise control, disconnect the electrical connector at the cruise control servo unit near the passenger's side strut tower.
4. Using DME-01, disconnect the DME Control Unit. On turbo models, also disconnect the KLR Control Unit.
5. Release/cut tie wraps (depending on type) at the firewall to get the battery cable out of the way of the DME wire bundle.
6. Pull the DME control unit plug through the opening in the firewall and into the engine compartment. (There may be several other cable connectors near the DME that have wires running in the DME wire bundle which will have to be disconnected to get the wire bundle through the firewall. Ensure all wires are disconnected before attempting to pull the bundle through the firewall).
7. Using AF-01, remove the air filter housing and the air flow sensor assembly.
8. On turbo model, remove the throttle body inlet line from the intercooler, and the rubber inlet plenum boot.

9. Using IGN-01, remove the distributor cap, rotor, and dust cap.
10. Loosen the lug nuts on the wheels enough to allow them to be removed easily once the car is raised. (One or two turns is more than enough)
11. Place the vehicle on jack stands. The engine is removed from underneath the vehicle so at least 21 inches of clearance is required. Raising the vehicle to a lower height initially will simplify any work done from above. The vehicle can then be raised to obtain clearance just prior to removing the front cross-member.
12. Remove the front wheels.
13. From underneath the car, remove all skid/belly pans which protects the bottom of the engine. On models which have the "turbo" aerodynamics package, you will need to remove the skid pan under the nose panel as well.

    NOTE: Many of the cars that have been around for a while have had the back belly pan removed and left off for easier access to the oil drain plug.

14. Using COOL-04, remove the radiator from the car.
15. On turbocharged cars perform the following:

    a. Loosen and remove the hose from the coolant expansion tank to the turbocharger and the hose to the turbocharger pump suction.
    b. Loosen the hose on the turbocharger pump discharge , disconnect the pump electrical connector, and remove the pump and mounting bracket from the car.

NOTE

Clean as much debris from the radiator coils as you can while you have it out of the car. You may also want to have the radiator inspected/tested by your local radiator shop while it is out of the car. It's also a good time to install new radiator hoses and a lower temperature thermofan switch if you've been considering either.

16. Unplug all wiring harness connectors at the firewall and finishing releasing/cutting any cable ties attaching the harness to the firewall.
17. Disconnect the throttle cable. If equipped with cruise control, disconnect the cruise control cable as well.
18. Disconnect the brake booster vacuum hose.
19. Disconnect the engine ground cables at the firewall.
20. In the engine compartment, disconnect the starter wiring connector.
21. Remove the starter from the vehicle.
22. Disconnect the hoses from the power steering pump and remove the pump.
23. Remove the clutch slave cylinder bracket bolts.
24. Mark all hoses which must be removed from the car for ease of installation.
25. Remove the coolant hose on the heater valve.

26. Remove the coolant return heater hose at the rear of the cylinder head.
27. If not already done, remove the coolant feed hoses on the expansion tank.
28. Remove the vacuum lines to the vent valve and the thermo valve at the back of the engine.
29. Remove the A/C fast idle hose.
30. Remove the charcoal venting hose.
31. Disconnect the fuel supply and return lines. The fuel system should be depressurized but, a small amount of fuel may leak from the fuel rail or the fuel lines when disconnected. Hose clamps or locking pliers can be used as an additional measure to prevent leakage. If you decide not to use clamps, have some rags handy to catch any leaking fuel.
32. Attach an engine hoist to the lifting rings mounted on the engine.
33. If equipped with an oxygen sensor (USA cars), disconnect the O_2 sensor wire at the fire wall and remove the O_2 sensor from the exhaust.
34. Remove the exhaust system.
35. Unbolt the slave cylinder and move it out of the way, leaving the fluid lines attached.
36. Remove the right side motor mount shield.
37. Remove the alternator. This step is called for the in the factory manual. However, the engine can be removed with the alternator installed.
38. Remove the front stabilizer bar assembly-to-chassis (drop link) bolts and control arm bolts and remove the stabilizer from the vehicle.
39. Unbolt the air conditioning compressor, with lines intact, and hang it from the front strut spring.
40. Remove the bolts that attach the torque tube to the clutch housing.
41. Disconnect the steering tie rod ends.
42. Place alignment marks on the splined input shaft on the steering rack and the universal joint on the steering shaft so they can be assembled in the same orientation on installation. (A punch and hammer or brightly colored finger nail polish will work fine.)
43. Disconnect the steering gear shaft using a punch and hammer. Be careful not to damage the splines on the steering shaft.
44. Remove the bolts that attach the suspension control arm to the chassis.
45. Disconnect the suspension ball joints on the control arm.
46. Remove the motor mount nuts and bolts.
47. Support the cross member using a floor jack and a piece of wood.
48. With the engine supported by the engine hoist above, remove the cross member bolts.
49. Disconnect the cross member with the steering rack and stabilizer bar attached and lower it from the vehicle.

50. Lower the engine from the car, moving it forward to disengage the drive shaft splines from the engine as it is lowered. Lowering the engine on to a piece of carpet or cardboard will make it easier to slide the engine out from underneath the car.
51. Disconnect the hoist from the engine and slide the engine out from underneath the car.
52. Attach the hoist to the engine and move the engine to a suitable place to be worked on.
