



3 Engine removal - methods and precautions

- 1 If you have decided that the engine must be removed for overhaul or major repair work, several preliminary steps should be taken.
- 2 Locating a suitable place to work is extremely important. Adequate work space, along with storage space for the car, will be needed. If a workshop or garage is not available, at the very least, a flat, level, clean work surface is required.
- 3 Cleaning the engine compartment and engine/transmission before beginning the removal procedure will help keep tools clean and organized.
- 4 An engine hoist or A-frame will also be necessary. Make sure the equipment is rated in excess of the weight of the engine. Safety is of primary importance, considering the potential hazards involved in lifting the engine out of the car.
- 5 If this is the first time you have removed an engine, an assistant should ideally be available. Advice and aid from someone more experienced would also be helpful. There are many instances when one person cannot simultaneously perform all of the operations required when lifting the engine out of the vehicle.
- 6 Plan the operation ahead of time. Before starting work, arrange for the hire of or obtain all of the tools and equipment you will need. Some of the equipment necessary to perform engine/transmission removal and installation safely and with relative ease (in addition to an engine hoist) is as follows: a heavy duty floor jack, complete sets of wrenches and sockets (see *"Tools and Working Facilities"*), wooden blocks, and plenty of rags and cleaning solvent for mopping up spilled oil, coolant and fuel. If the hoist must be rented, make sure that you arrange for it in advance, and perform all of the operations possible without it beforehand. This will save you money and time.
- 7 Plan for the car to be out of use for quite a while. A machine shop will be required to perform some of the work which the do-it-yourselfer cannot accomplish without special equipment. These places often have a busy schedule, so it would be a good idea to consult them before removing the engine, in order to accurately estimate the amount of time required to rebuild or repair components that may need work.
- 8 Always be extremely careful when removing and installing the engine/transmission. Serious injury can result from careless actions. Plan ahead and take your time, and a job of this nature, although major, can be accomplished successfully.

9 On all models, then engine is removed by first removing the transmission, then lifting the engine out from above the vehicle.