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INTRODUCTION

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INTRODUCTION — How to Use This Manual

### HOW TO USE THIS MANUAL

To assist in finding your way through this manual, the Section Title and major heading are given at the top of every page.

An **INDEX** is provided on the 1st page of each section to guide you to the item to be repaired.

At the beginning of each section, **PRECAUTIONS** are given that pertain to *all* repair operations contained in that section. *Read these precautions before starting any repair task.*

**TROUBLESHOOTING** tables are included for each system to help you diagnose the system problem and find the cause. The repair for each possible cause is referenced in the remedy column to quickly lead you to the solution.

### REPAIR PROCEDURES

Most repair operations begin with an overview illustration. It identifies the components and shows how the parts fit together.

Example:

Nozzle Leakage Pipe

Injection Nozzle

◆ Gasket

◆ Gasket

Fuel Hose

Clamp

Injection Pipe

Nozzle Seat

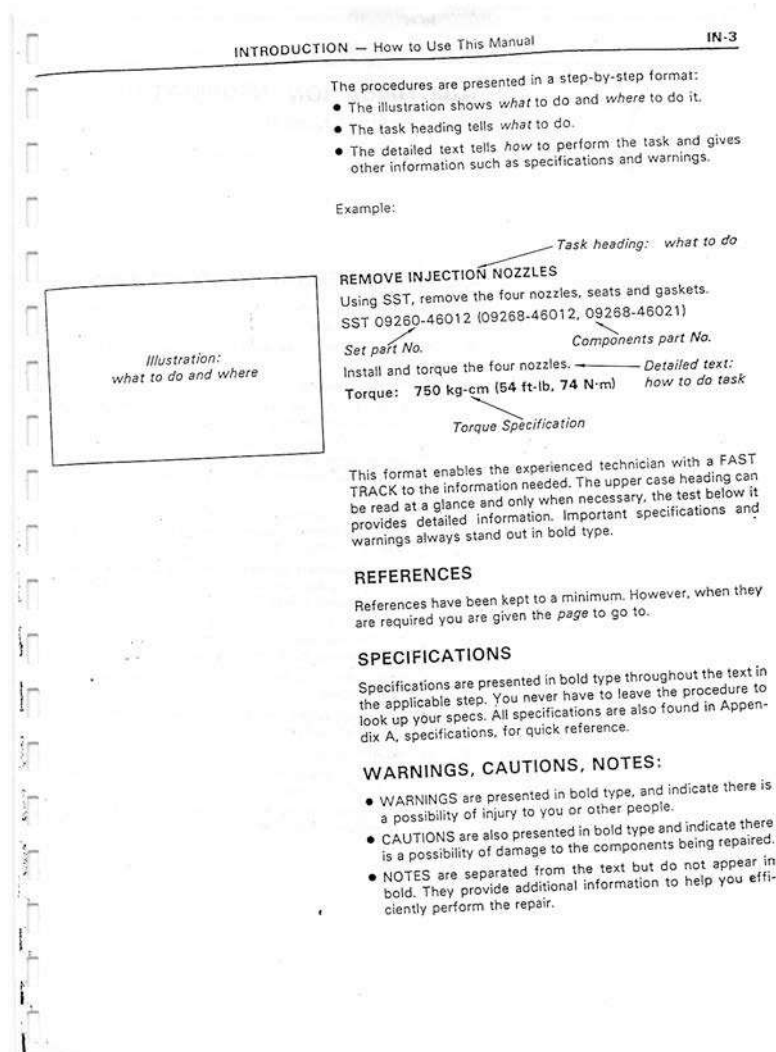
450 (33, 44)

700 (51, 69)

250 (18, 25)

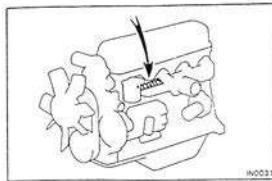
kg-cm (ft-lb, N-m) : Specified torque

◆ Non-reusable part



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INTRODUCTION — Identification Information, General Repair Instructions

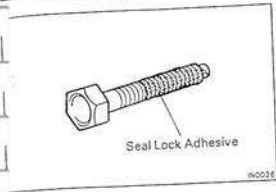
**IDENTIFICATION INFORMATION****ENGINE SERIAL NUMBER**

The engine serial number is stamped on the left side of the cylinder block.

**GENERAL REPAIR INSTRUCTIONS**

1. Use fender, seat and floor covers to keep the vehicle clean and prevent damage.
2. During disassembly, keep parts in order to facilitate reassembly.
3. Observe the following:
  - (a) Before performing electrical work, disconnect the negative cable from the battery terminal.
  - (b) If it is necessary to disconnect the battery for inspection or repair, always disconnect the cable from the negative (-) terminal which is grounded to the vehicle body.
  - (c) To prevent damage to the battery terminal post, loosen the terminal nut and raise the cable straight up without twisting or prying it.
  - (d) Clean the battery terminal posts and cable terminal with a shop rag. Do not scrape them with a file or other abrasive object.
  - (e) Install the cable terminal to the battery post with the nut loose and tighten the nut after installation. Do not use a hammer to tap the terminal onto the post.
  - (f) Be sure the cover for the positive (+) terminal is properly in place.
4. Check hose and wiring connectors to make sure they are securely and correctly connected.
5. Non-reusable parts
  - (a) Always replace cotter pins gaskets, O-rings, oil seals, etc. with new ones.
  - (b) Non-reusable parts are indicated in the component illustrations by the "◆" symbol.

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6. **Precoated Parts**  
Precoated parts are the bolts, nuts, etc. which have been coated with a seal lock adhesive at the factory.

- (a) If a precoated part is tightened, loosened or caused to move in any way, it must be recoated with the specified adhesive.
- (b) **Recoating of Precoating Parts**
  - (1) Clean off the old adhesive from the bolt, nut or installation part threads.
  - (2) Dry with compressed air.
  - (3) Apply the specified seal lock adhesive to the bolt or nut threads.
- (c) Precoated parts are indicated in the component illustrations by the "★" symbol.

7. When necessary, use a sealer on gaskets to prevent leaks.

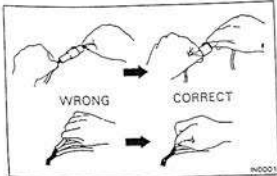
8. Carefully observe all specifications for bolt tightening torques. Always use a torque wrench.

9. Use of special service tools (SST) and special service materials (SSM) may be required depending on the nature of the repair. Be sure to use SST and SSM where specified and follow the proper work procedure. A list of SST and SSM can be found at the back of this manual.

10. When replacing fuses, be sure the new fuse is the correct amperage rating. DO NOT exceed the fuse amp rating or use one of a lower rating.

11. Care must be taken when jacking up and supporting the vehicle. Be sure to lift and support the vehicle at the proper locations.

- (a) If the vehicle is to be jacked up only at the front or rear end, be sure to block the wheels in order to ensure safety.
- (b) After the vehicle is jacked up, be sure to support it on stands. It is extremely dangerous to do any work on the vehicle raised on one jack alone, even for a small job that can be finished quickly.



12. Observe the following precautions to avoid damage the parts:

- (a) To disconnect vacuum hoses, pull on the end, not the middle of the hose.
- (b) To pull apart electrical connectors, pull on the connector itself, not the wires.
- (c) Be careful not to drop electrical components, such as sensors or relays. If they are dropped on a hard floor, they should be replaced and not reused.

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## INTRODUCTION — General Repair Instructions

- (d) When steam cleaning an engine, protect the air filter and injection pump from water.
  - (e) Never use an impact wrench to remove or install thermo switches or thermo sensors.
  - (f) When checking continuity at the wire connector, insert the tester probe carefully to prevent terminals from bending.
  - (g) When using a vacuum gauge, never force the hose onto a connector that is too large. Use a step-down adapter instead. Once the hose has been stretched, it may leak.
13. After removing and reinstalling the injection pump and fuel hoses, clean off the fuel on engine components. In particular, be sure to check the radiator hose and by-pass hose, because they deteriorate easily if they come into contact with fuel.

| INTRODUCTION — Abbreviations Used in This Manual |                                     | IN-7 |
|--------------------------------------------------|-------------------------------------|------|
| ABBREVIATIONS USED IN THIS MANUAL                |                                     |      |
| A/C                                              | Air Conditioner                     |      |
| A/T                                              | Automatic Transmission              |      |
| ATDC                                             | After Top Dead Center               |      |
| BDC                                              | Bottom Dead Center                  |      |
| BTDC                                             | Before Top Dead Center              |      |
| DP                                               | Dash Pot                            |      |
| EDIC                                             | Electrical Diesel Injection Control |      |
| EX                                               | Exhaust                             |      |
| Ex.                                              | Except                              |      |
| HAC                                              | High Altitude Compensator           |      |
| IN                                               | Intake                              |      |
| MP                                               | Multipurpose                        |      |
| M/T                                              | Manual Transmission                 |      |
| O/S                                              | Oversize                            |      |
| PCV                                              | Positive Crankcase Ventilation      |      |
| PS                                               | Power Steering                      |      |
| SSM                                              | Special Service Materials           |      |
| SST                                              | Special Service Tools               |      |
| STD                                              | Standard                            |      |
| TDC                                              | Top Dead Center                     |      |
| U/S                                              | Undersize                           |      |
| VSV                                              | Vacuum Switching Valve              |      |
| w/                                               | With                                |      |
| w/o                                              | Without                             |      |