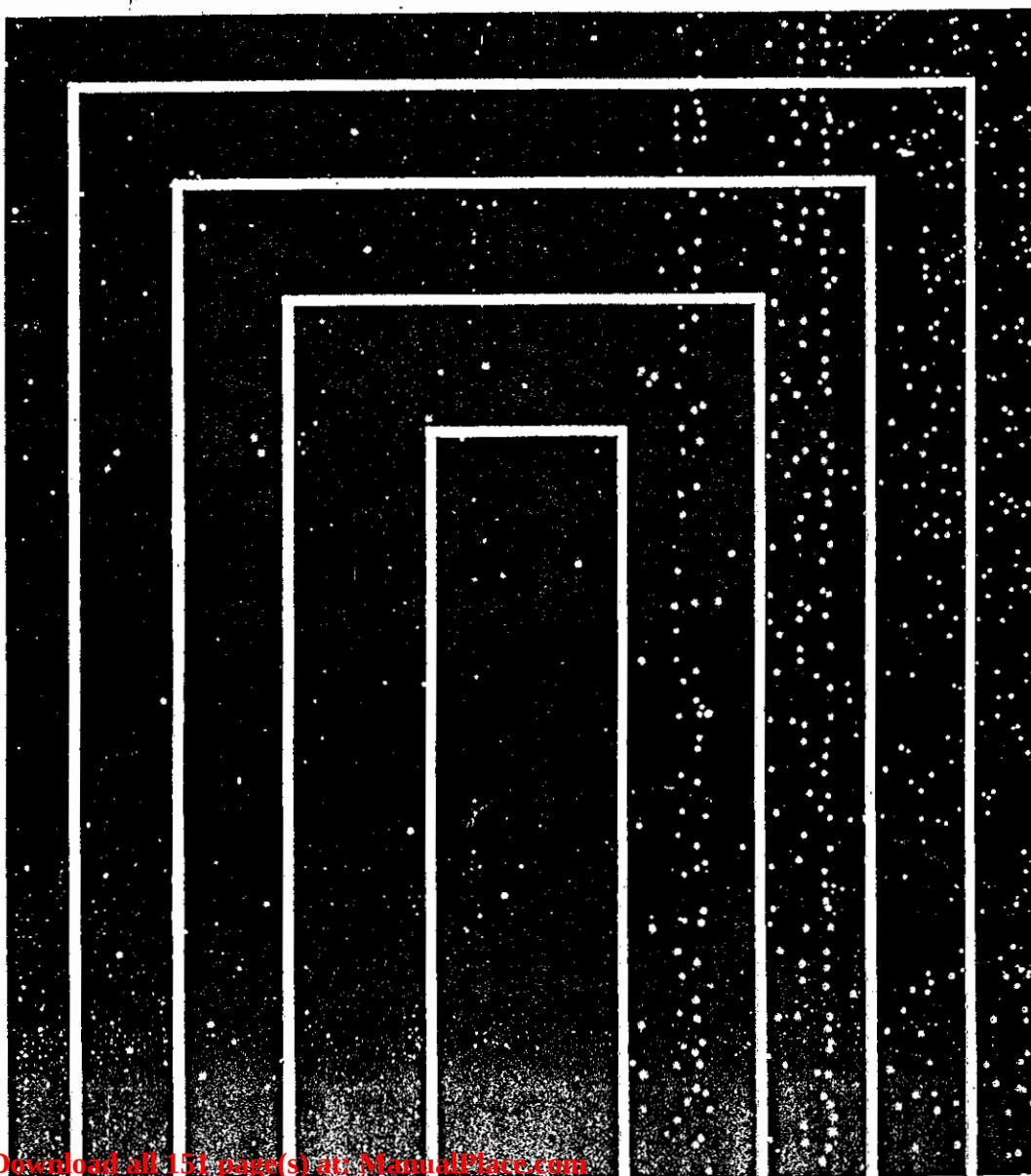




7K ENGINE

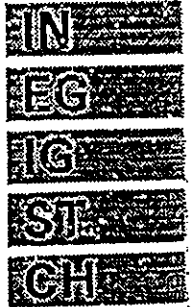
REPAIR MANUAL

Jul., 1995



Pub. No

INTRODUCTION
ENGINE
IGNITION SYSTEM
STARTING SYSTEM
CHARGING SYSTEM



FOREWORD

This repair manual has been prepared to provide information covering general service repairs for the 7K engine equipped in the TOYOTA TUV.

Applicable models: KF42, 52 series

Please note that the publications below have also been prepared as relevant service manuals for the components and system in this engine.

All information in this manual is based on the latest product information at the time of publication. However, specifications and procedures are subject to change without notice.

TOYOTA MOTOR CORPORATION



INTRODUCTION

HOW TO USE THIS MANUAL	IN- 2
IDENTIFICATION INFORMATION	IN- 4
GENERAL REPAIR INSTRUCTIONS	IN- 4
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HOW TO USE THIS MANUAL INDEX

An INDEX is provided on the first page of each section to guide you to the item to be repaired. To assist you in finding your way through the manual, the Section Title and major heading are given at the top of every page.

GENERAL DESCRIPTION

At the beginning of each section, a General Description is given that pertains to all repair operations contained in that section.

Read these precautions before starting any repair task.

TROUBLESHOOTING

TROUBLESHOOTING tables are included for each system to help you diagnose the problem and find the cause.

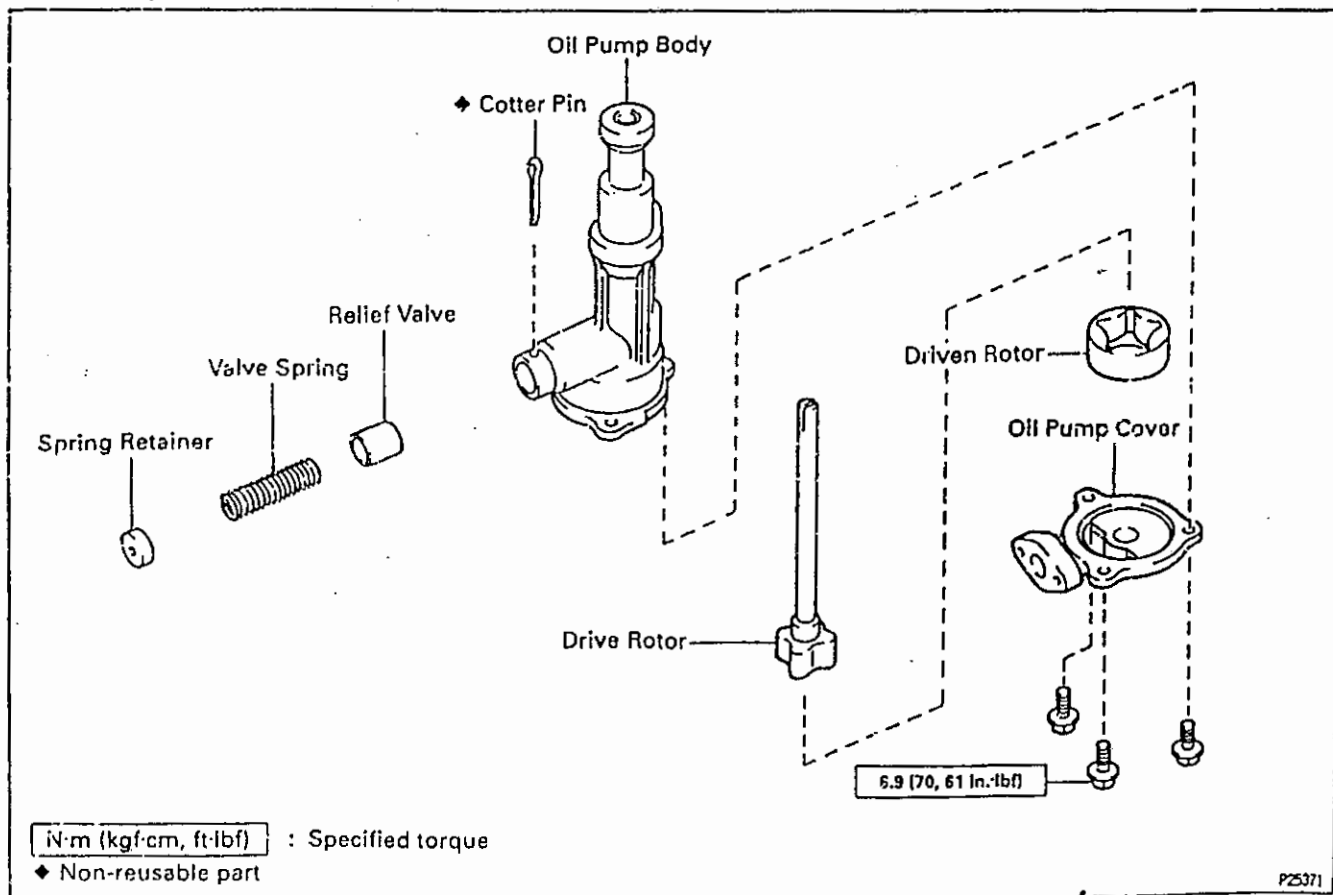
PREPARATION

Preparation lists the SST (Special Service Tools), recommended tools, equipment, lubricant and SSM (Special Service Materials) which should be prepared before beginning the operation and explains the purpose of each one.

REPAIR PROCEDURES

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

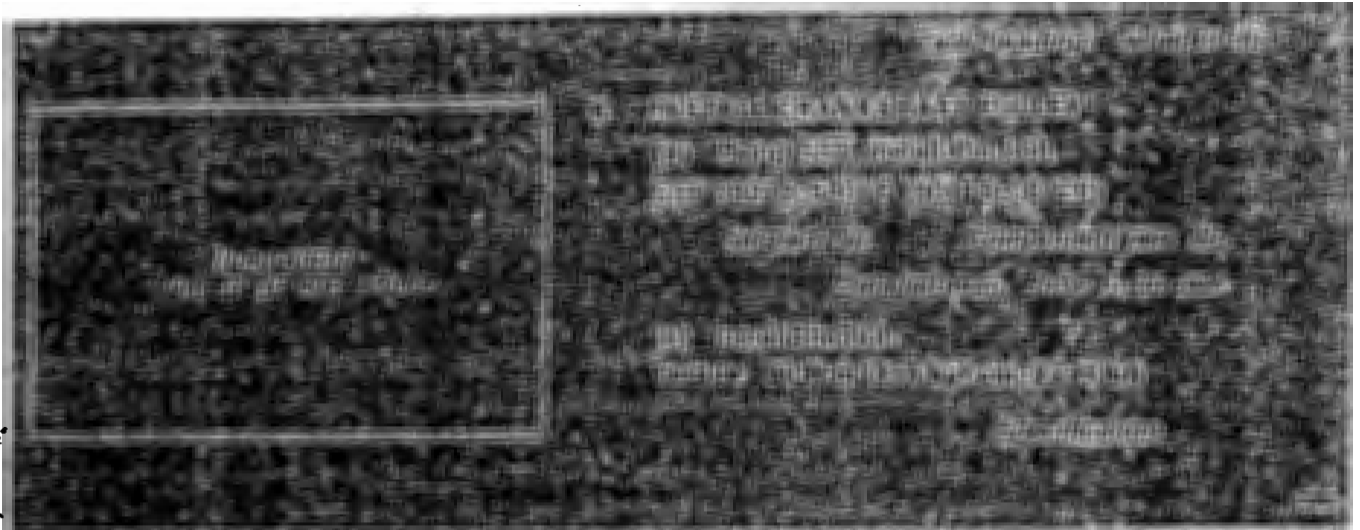
Example:



The procedures are presented in a step-by-step format:

- The illustration shows what to do and where to do it.
- The task heading tells what to do.
- The detailed text tells how to do the task and gives other information such as specifications and warnings.

Example:



This format provides the experienced technician with a FAST TRACK to the information needed. The upper case task heading can be read at a glance when necessary, and the text below it provides detailed information. Important specifications and warnings always stand out in bold type.

REFERENCES

References have been kept to a minimum. However, when they are required you are given the page to refer to.

SPECIFICATIONS

Specifications are presented in bold type throughout the text where needed. You never have to leave the procedure to look up your specifications. They are also found at the end of each section, for quick reference.

CAUTIONS, NOTICES, HINTS:

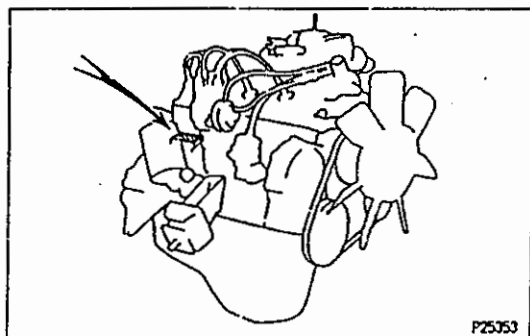
- **CAUTIONS** are presented in bold type, and indicate there is a possibility of injury to you or other people.
- **NOTICES** are also presented in bold type, and indicate the possibility of damage to the components being repaired.
- **HINTS** are separated from the text but do not appear in bold. They provide additional information to help you perform the repair efficiently.

SI UNIT

The UNITS given in this manual are primarily expressed according to the SI UNIT (International System of Unit), and alternately expressed in the metric system and in the English System.

Example:

Torque: 30 N·m (310 kgf·cm, 22 ft·lbf)



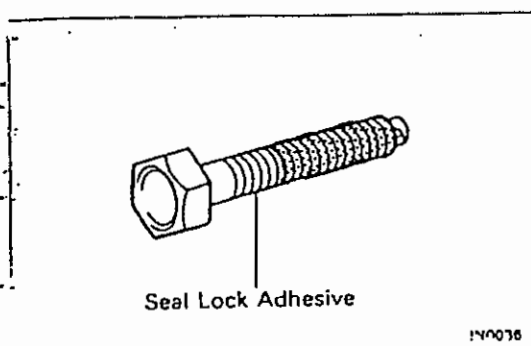
IDENTIFICATION INFORMATION

ENGINE SERIAL NUMBER

The engine serial number is stamped on the engine block as shown.

GENERAL REPAIR INSTRUCTIONS

1. Use fender, seat and floor covers to keep the vehicle clean and prevent damage.
2. During disassembly, keep parts in the appropriate order to facilitate reassembly.
3. Observe the following:
 - (a) Before doing 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 terminals with a clean shop rag. Do not scrape them with a file or other abrasive objects.
 - (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 that they are secure and correct.



5. Non-reusable parts
 - (a) Always replace cotter pins, gaskets, O-rings and oil seals etc. with new ones.
 - (b) Non-reusable parts are indicated in the component illustrations by the "◆" symbol.
6. Precoated parts

Precoated parts are bolts and nuts, etc. that are coated with a seal lock adhesive at the factory.

 - (a) If a precoated part is retightened, loosened or caused to move in any way, it must be recoated with the specified adhesive.
 - (b) When reusing precoated parts, clean off the old adhesive and dry with compressed air. Then apply the specified seal lock adhesive to the bolt, nut or 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 SST and 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 in the preparation part at the front of each section in this manual.
10. When replacing fuses, be sure the new fuse has the correct amperage rating. DO NOT exceed the rating or use one with a lower rating.

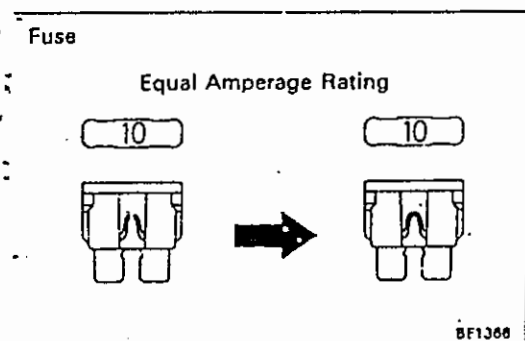
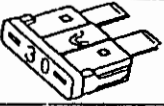
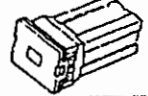
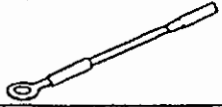
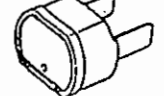
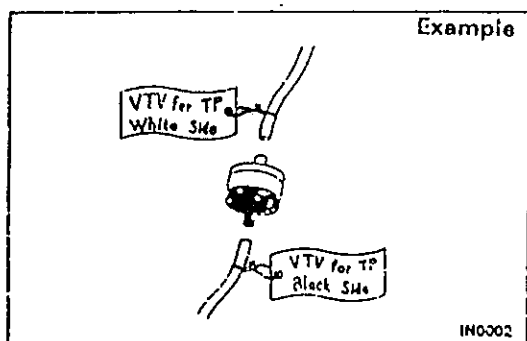
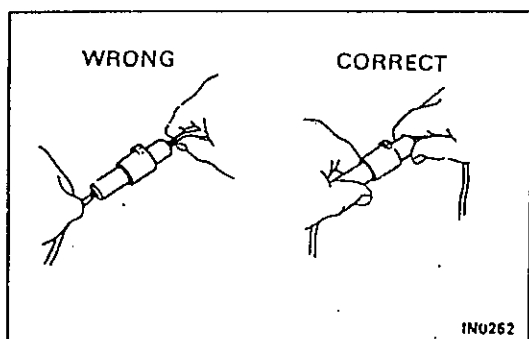
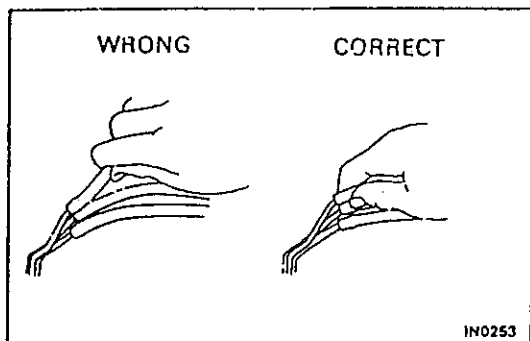


Illustration	Symbol	Part Name	Abbreviation
 BE5594	 W0365	FUSE	FUSE
 BE5595	 W0366	MEDIUM CURRENT FUSE	M-FUSE
 BE5596	 W0367	HIGH CURRENT FUSE	H-FUSE
 BE5597	 W0367	FUSIBLE LINK	FL
 BE5598	 W0368	CIRCUIT BREAKER	CB



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 at the opposite end 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 a vehicle raised on a jack alone, even for a small job that can be finished quickly.
12. Observe these precautions to avoid damage to the parts:
 - (a) Do not open the cover or case of the ECU unless absolutely necessary. (If the IC terminals are touched, the IC may be destroyed by static electricity.)
 - (b) To disconnect vacuum hoses, pull on the end, not the middle of the hose.
 - (c) To pull apart electrical connectors, pull on the connector itself, not the wires.
 - (d) 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.
 - (e) When steam cleaning an engine, protect the electronic components, air filter, and emissions related components from water.
 - (f) Never use an impact wrench to remove or install temperature switches or temperature sensors.
 - (g) When checking continuity at the wire connector, insert the tester probe carefully to prevent terminals from bending.
 - (h) 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. Tag hoses before disconnecting them:
 - (a) When disconnecting vacuum hoses, use tags to identify how they should be reconnected.
 - (b) After completing a job, double check that the vacuum hoses are properly connected. A label under the hood shows the proper layout.
14. Unless otherwise stated, all resistance is measured at an ambient temperature of 20°C (68°F). Because the resistance may be outside specifications if measured at high temperatures immediately after the vehicle has been running, measurements should be made when the engine has cooled down.

ABBREVIATIONS USED IN THIS
MANUAL

10000-00

A/C	Air Conditioner
Approx.	Approximately
BDC	Bottom Dead Center
FIPG	Formed In Place Gasket
MP	Multipurpose
C/S	Oversized
PCV	Positive Crankcase Ventilation
SSM	Special Service Materials
SST	Special Service Tools
STD	Standard
SW	Switch
TDC	Top Dead Center
TEMP.	Temperature
U/S	Undersize
VSV	Vacuum Switching Valve
w/	With
w/o	Without

