

# 1988 TOYOTA CELICA ALL-TRAC/4WD REPAIR MANUAL

NOTE: The following screen toning letters sections refer to the 1988 CELICA REPAIR MANUAL (Pub. No. RM071U).

INTRODUCTION	IN
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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 perform the task and gives other information such as specifications and warnings.

Example:

*Illustration:  
what to do and where*

- Task heading: what to do*
- 21. CHECK PISTON STROKE OF OVERDRIVE BRAKE**
- (a) Place SST and a dial indicator onto the overdrive brake piston as shown in the figure.
- SST 09350-30020 (09350-06120)
- Set part No.*                      *Component part No.*
- Detail text: how to do it*
- (b) Measure the stroke applying and releasing the compressed air (4 – 8 kg/cm<sup>2</sup>, 57 – 114 psi or 392 – 785 kPa) as shown in the figure.
- Piston stroke: 1.40 – 1.70 mm (0.0551 – 0.0669 in.)**
- Specification*

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 and only when necessary, 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 go to.

## SPECIFICATIONS

Specifications are presented in bold type throughout the text in the applicable step. You never have to leave the procedure to look up your specs. All specifications are also found in Appendix A, specifications, for quick reference.

## WARNINGS, CAUTIONS, NOTES:

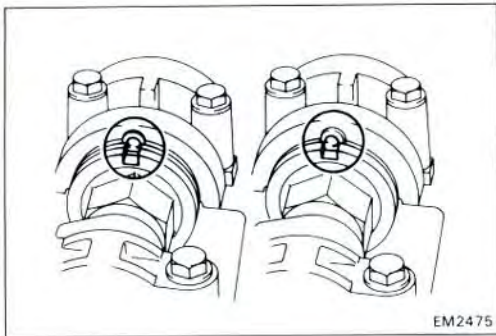
- **WARNINGS** are presented in bold type, and indicate there is a possibility of injury to you or other people.
- **CAUTIONS** are also presented in bold type, and indicate the possibility of damage to the components being repaired.
- **NOTES** are separated from the text but do not appear in bold.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

**EXCESSIVE FUEL CONSUMPTION**

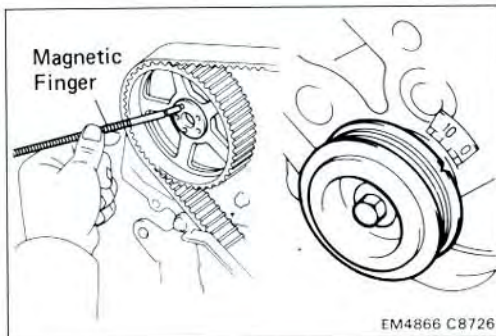
<b>Problem</b>	<b>Possible cause</b>	<b>Remedy</b>	<b>Page</b>
Poor gasoline mileage	Fuel leak	Repair as necessary	MA-4 IG-9
	Air cleaner clogged	Check air cleaner	
	Incorrect ignition timing	Reset timing	
	EFI system problems <ul style="list-style-type: none"> <li>● Injector faulty</li> <li>● Deceleration fuel cut system faulty</li> </ul>	Repair as necessary	FI-44 IG-5 EC-8 EM-10
	Idle speed too high	Check ISC system	
	Spark plug faulty	Inspect plugs	
	EGR system always on	Check EGR system	
	Low compression	Check compression	
	Tires improperly inflated	Inflate tires to proper pressure	
	Clutch slips	Troubleshoot clutch	
Brakes drag	Troubleshoot brakes		

**UNPLEASANT ODOR**

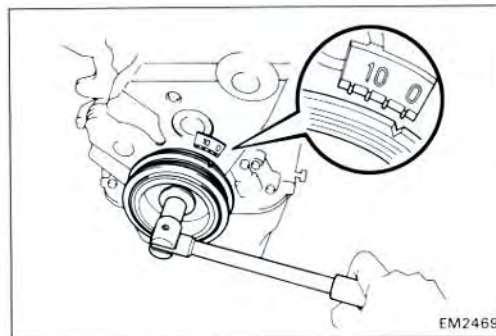
<b>Problem</b>	<b>Possible cause</b>	<b>Remedy</b>	<b>Page</b>
Unpleasant odor	Incorrect idle speed	Check ISC system	FI-44
	Incorrect ignition timing	Reset timing	IG-9
	Vacuum leaks <ul style="list-style-type: none"> <li>● PCV line</li> <li>● EGR line</li> <li>● Intake manifold</li> <li>● Intake air control valve</li> <li>● Throttle body</li> <li>● ISC valve</li> <li>● Brake booster line</li> </ul>	Repair as necessary	
	EFI system problems	Repair as necessary	



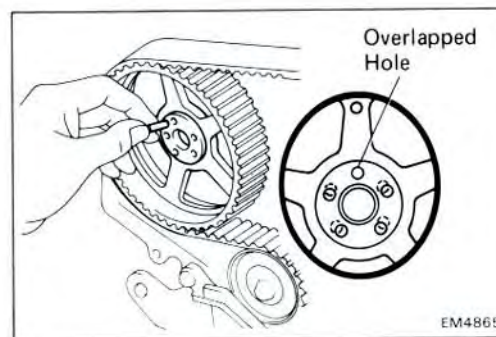
- (b) Check that the camshaft grooves are aligned with the drilled mark of the No.1 camshaft bearing cap.



- (c) Using a magnetic finger, remove the knock pin from the pin hole of camshaft timing pulley.



- (d) Turn the crankshaft pulley and align its groove with mark "0" of the No.1 timing belt cover.



- (e) There are five pin holes of the camshaft and timing pulley.  
Select one overlapped hole and insert the match pin into it.

**NOTE:**

- If there is not an overlapped hole, rotate the crankshaft a little and insert the pin into the hole nearly overlapped.
  - By changing the pin hole to the next one, the crankshaft pulley angle can be adjusted by approx. 2°.
  - By changing the pin hole to the next two, the crankshaft pulley angle can be adjusted by approx. 5°.
- (f) Hold the hexagonal wrench head portion of the camshaft with a wrench, and install the pulley bolt.

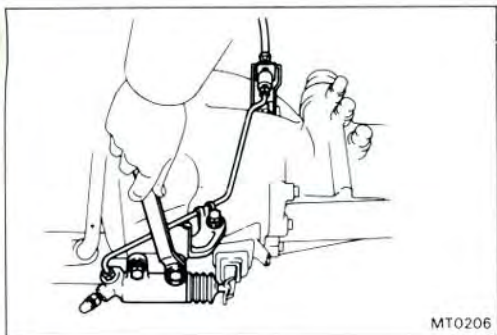
**Torque: 600 kg-cm (43 ft-lb, 59 N·m)**

**CAUTION:** Do not make use of the timing belt tension when tightening the bolt.

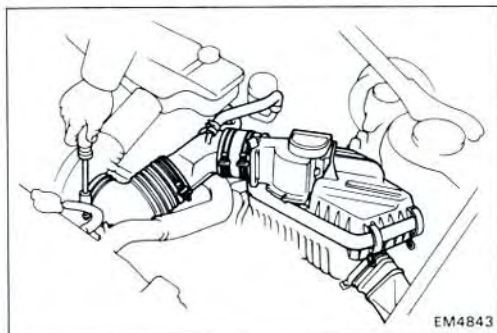


**15. INSTALL A/C COMPRESSOR**

- (a) Install the compressor with the three bolts.
- (b) Install the drive belt.

**16. INSTALL ALTERNATOR****17. CONNECT TRANSAXLE CONTROL CABLE****18. CONNECT SPEEDOMETER CABLE****19. INSTALL CLUTCH RELEASE CYLINDER AND HOSE BRACKET****20. INSTALL AIR CLEANER ASSEMBLY**

- (a) Install the air cleaner case with the three bolts.
- (b) Install air cleaner element.
- (c) Install the air cleaner cap, air flow meter, air connector pipe and air cleaner hoses.
- (d) Connect the air flow meter connector.

**21. INSTALL CRUISE CONTROL ACTUATOR**

- (a) Install the actuator and the bracket.
- (b) Connect the actuator connector.
- (c) Connect the actuator vacuum hose.
- (d) Install the actuator cover.
- (e) Connect the ground strap connector.

**22. CONNECT FUEL HOSES**

- (a) Fuel inlet hose
- (b) Fuel return hose

**23. CONNECT HEATER WATER HOSES****24. CONNECT INTERCOOLER WATER HOSES****25. INSTALL ENGINE RADIATOR**

(See Pub. No. RM071U on page CO-15)

**26. INSTALL ACCELERATOR CABLE AND ADJUST IT****27. INSTALL BATTERY**

## TROUBLESHOOTING

NOTE: Before troubleshooting the turbocharger, first check the engine itself. (Valve clearance, engine compression, ignition timing etc.)

### INSUFFICIENT ACCELERATION, LACK OF POWER OR EXCESSIVE FUEL CONSUMPTION

#### (Possible Cause)

#### (Check Procedure and Correction Method)

#### 1. TURBOCHARGING PRESSURE TOO LOW

Check turbocharging pressure. (See page TC-8)

**Turbocharging pressure:**

**0.40 – 0.70 kg/cm<sup>2</sup>**

**(5.7 – 10.0 psi, 39 – 69 kPa)**

If the pressure is below specification, begin diagnosis from item 2.

#### 2. RESTRICTED INTAKE AIR SYSTEM

Check intake air system, and repair or replace parts as necessary. (See page TC-8)

#### 3. LEAK IN INTAKE AIR SYSTEM

Check intake air system, and repair or replace parts as necessary. (See page TC-8)

#### 4. RESTRICTED EXHAUST SYSTEM

Check exhaust system, and repair or replace parts as necessary. (See page TC-8)

#### 5. LEAK IN EXHAUST SYSTEM

Check exhaust system, and repair or replace parts as necessary. (See page TC-8)

#### 6. ERRATIC TURBOCHARGER OPERATION

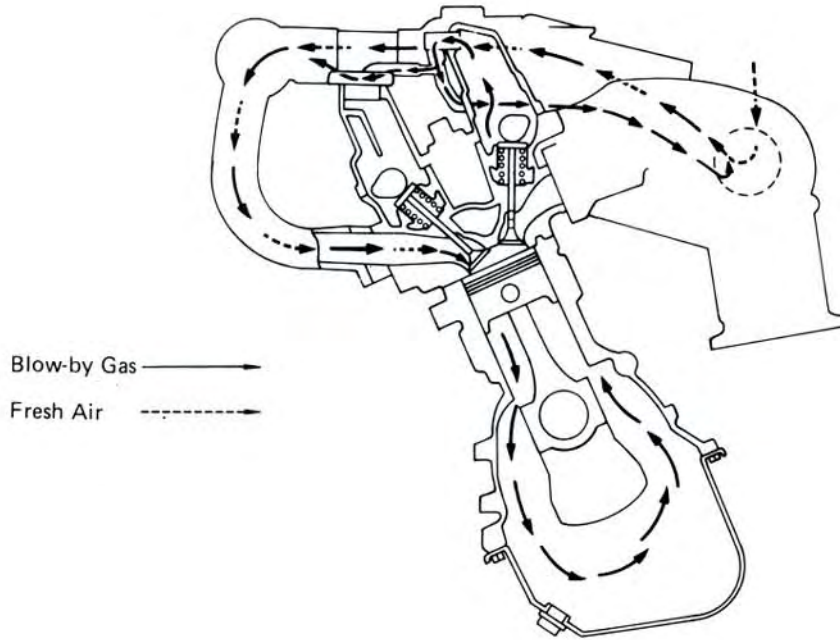
Check rotation of impeller wheel. If it does not turn or turns with a heavy drag, replace the turbocharger assembly.

Check axial play of impeller wheel. (See page TC-12)

**Axial play: 0.13 mm (0.0051 in.) or less**

If not within specification, replace the turbocharger assembly.

## POSITIVE CRANKCASE VENTILATION (PCV) SYSTEM

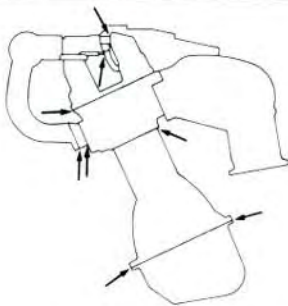


Blow-by Gas —————>

Fresh Air - - - - ->

EC2829

To reduce HC emissions, crankcase blow-by gas (HC) is routed to the intake manifold for combustion in the cylinders.



EC2828

### INSPECTION OF PCV HOSE AND CONNECTIONS

#### VISUALLY INSPECT HOSE AND CONNECTIONS

Check for cracks, leaks, or damage.

# EFI SYSTEM

REFER TO 1988 CELICA REPAIR MANUAL (Pub. No. RM071U)

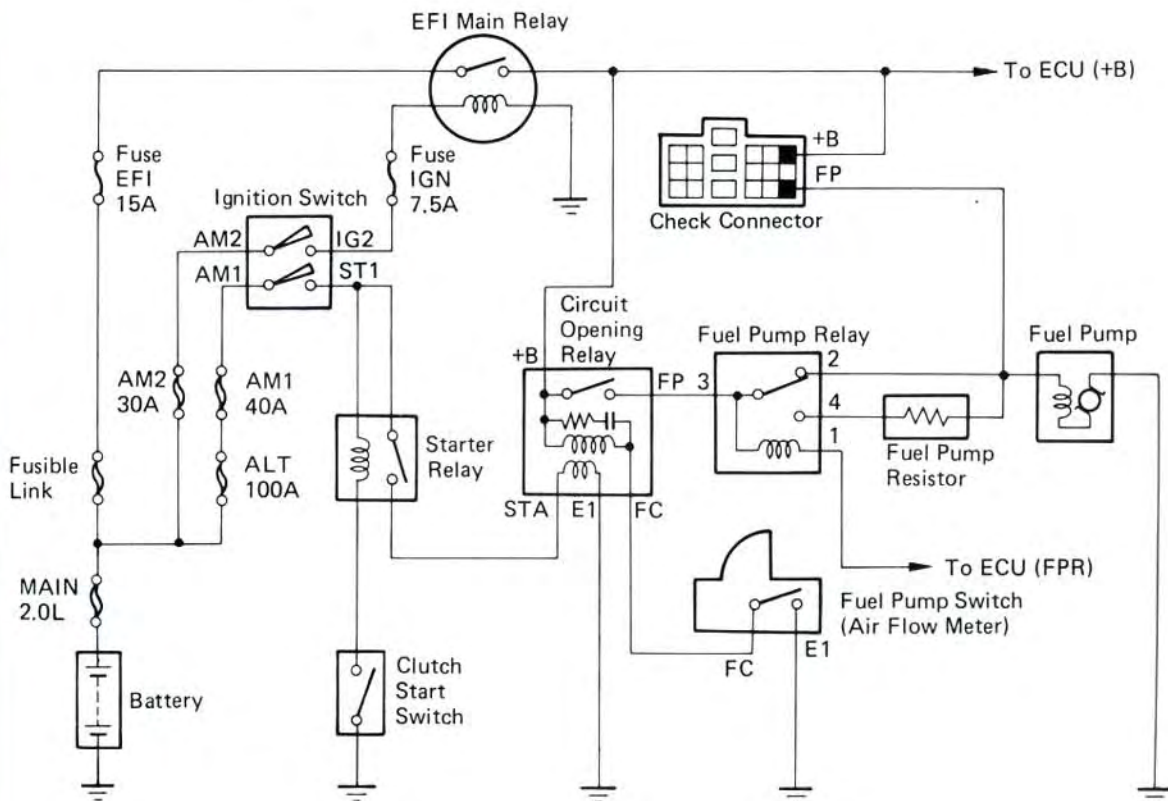
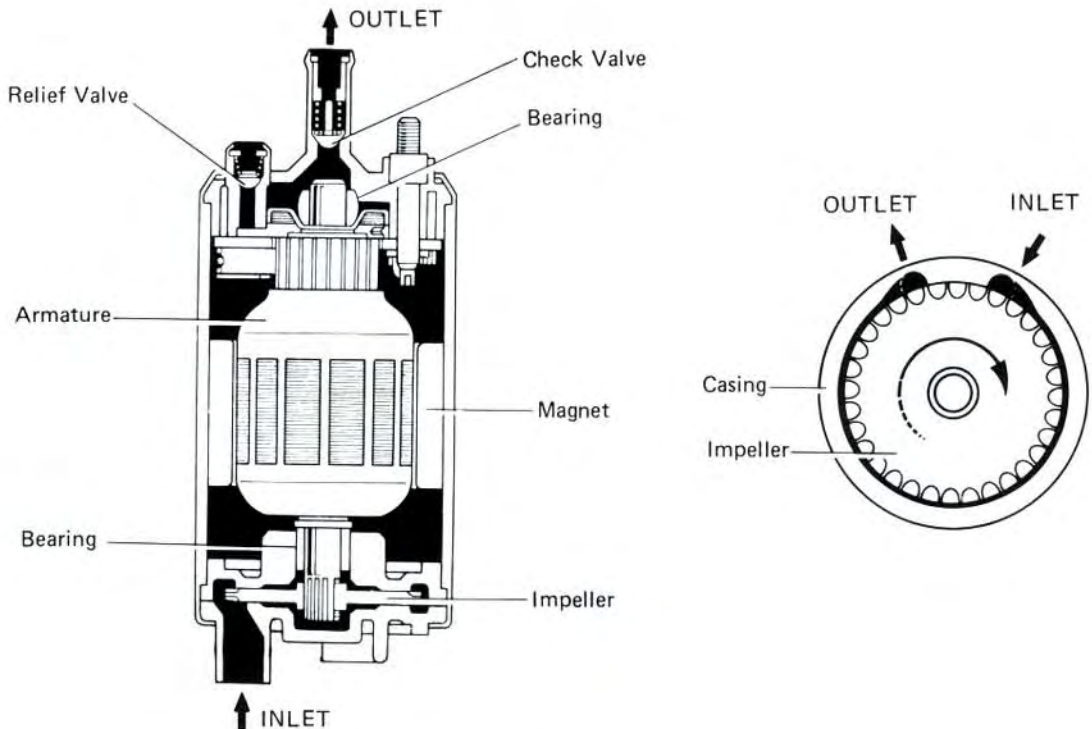
NOTE: The following pages contain only the points which differ from the above listed manual.

	Page
SYSTEM DESCRIPTION .....	FI-2
TROUBLESHOOTING .....	FI-4
DIAGNOSIS SYSTEM .....	FI-14
TROUBLESHOOTING WITH VOLT/OHMMETER .....	FI-16
FUEL SYSTEM .....	FI-23
Fuel Pump .....	FI-23
Cold Start Injector .....	FI-29
Fuel Pressure Regulator .....	FI-32
Injectors .....	FI-34
Fuel Tank and Lines .....	FI-39
AIR INDUCTION SYSTEM .....	FI-40
Throttle Body .....	FI-40
Idle Speed Control (ISC) Valve .....	FI-44
ELECTRONIC CONTROL SYSTEM .....	FI-46
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Circuit Opening Relay .....	FI-47
Fuel Pump Relay and resistor .....	FI-48
Solenoid Resistor .....	FI-49
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T-VIS VSV .....	FI-51
EGR Control VSV .....	FI-52
Turbocharging Pressure Sensor .....	FI-53
Turbocharging Pressure VSV .....	FI-54
Electronic Controlled Unit (ECU) .....	FI-56
Fuel Cut RPM .....	FI-59
High-temperature Line Pressure Up System .....	FI-60



# FUEL SYSTEM

## Fuel Pump

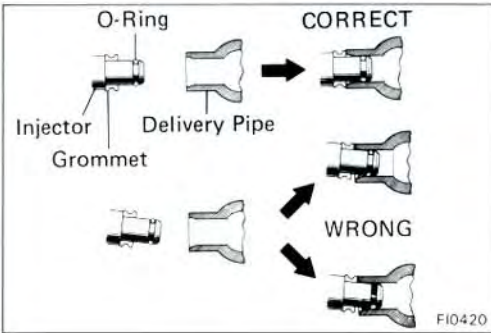
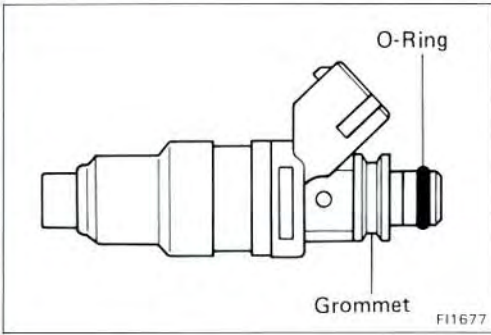


## INSTALLATION OF INJECTORS

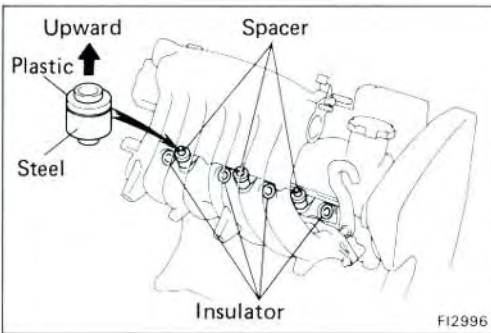
### 1. INSTALL FUEL RETURN PIPE TO DELIVERY PIPE

### 2. INSTALL INJECTORS AND DELIVERY PIPE

- (a) Install a new grommet to the injector.
- (b) Apply a light coat of gasoline to a new O-ring and install it to the injector.

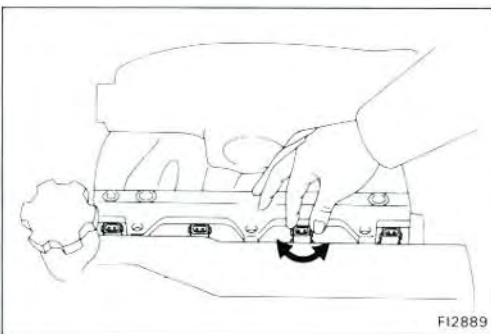


- (c) While turning the injector left and right, install it to the delivery pipe. Install the four injectors.



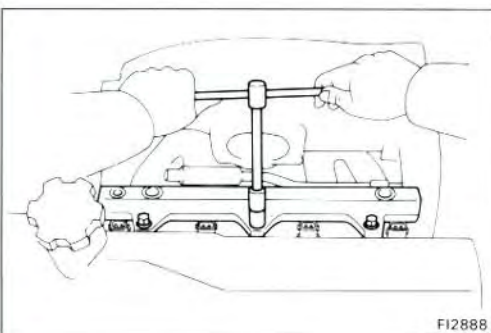
- (d) Place the four insulators and three spacers in position on the cylinder head.

- (e) Place the injectors together with the delivery pipe in position on the cylinder head.



- (f) Check that the injectors rotate smoothly.

NOTE: If the injectors do not rotate smoothly, the probable cause is incorrect installation of O-rings. Replace the O-rings.

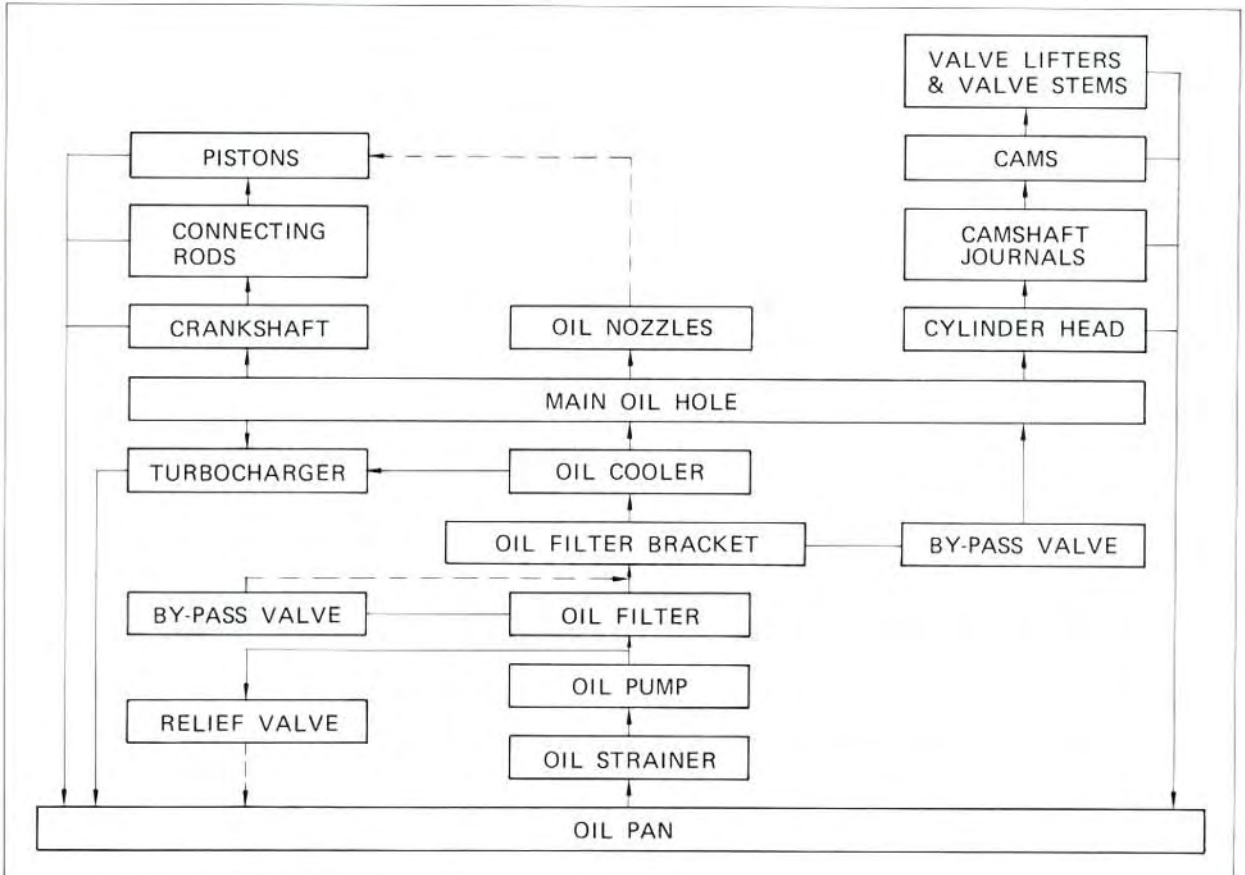
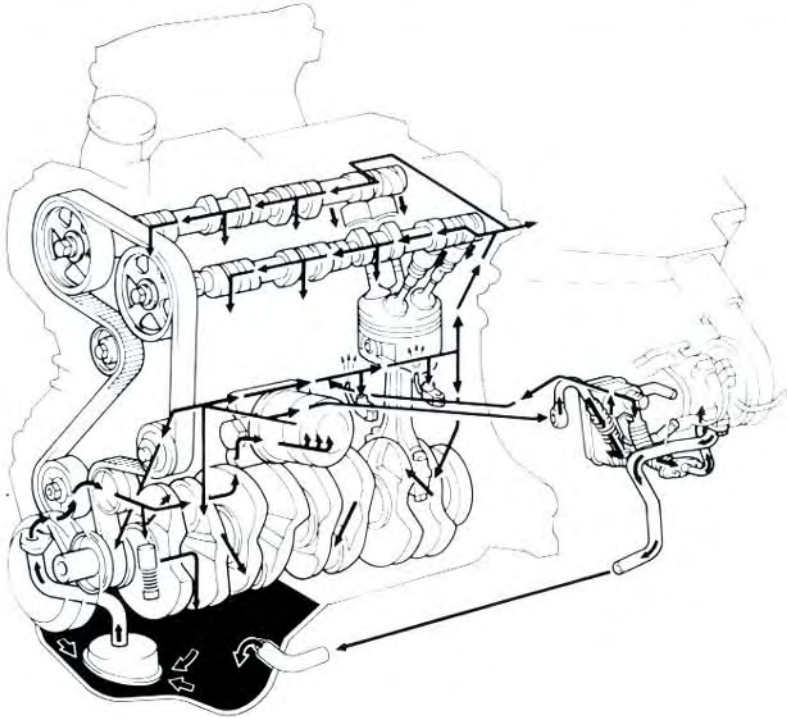


- (g) Install and torque the three bolts.

**Torque: 195 kg-cm (14 ft-lb, 19 N·m)**

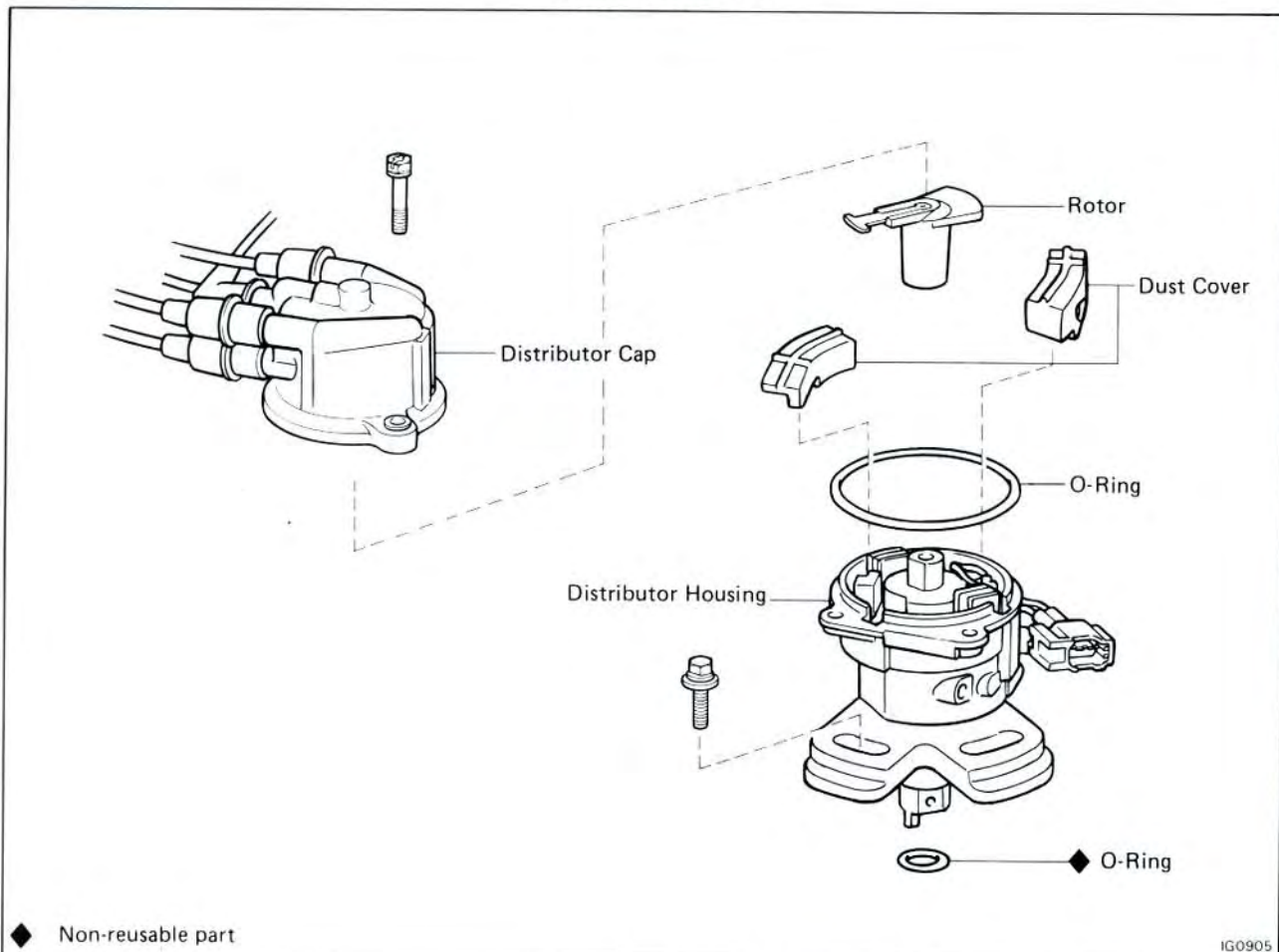
# DESCRIPTION

A fully pressurized, fully filtered lubrication system has been adopted for this engine.



# DISTRIBUTOR

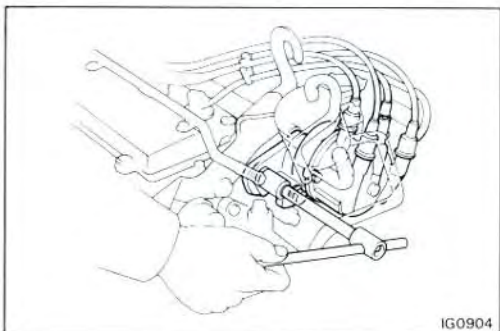
## COMPONENTS



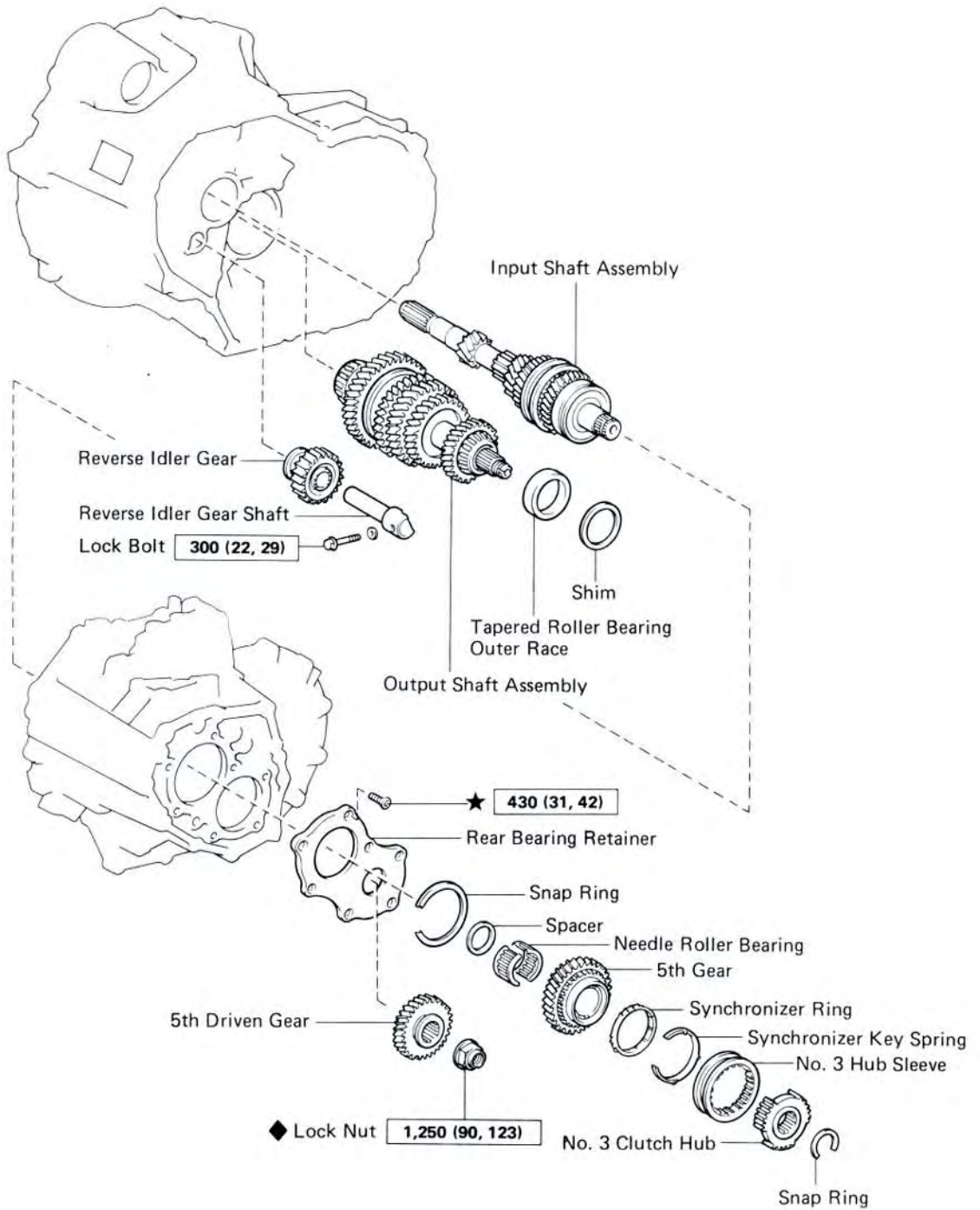
## REMOVAL OF DISTRIBUTOR

1. DISCONNECT CABLE FROM NEGATIVE TERMINAL OF BATTERY
2. REMOVE INTERCOOLER  
(See steps 3 and 7 on page TC-10)
3. DISCONNECT DISTRIBUTOR CONNECTOR
4. DISCONNECT HIGH-TENSION CORDS FROM SPARK PLUGS AND IGNITION COIL
5. REMOVE DISTRIBUTOR

Remove the two hold-down bolts and pull out the distributor. Remove the O-ring.



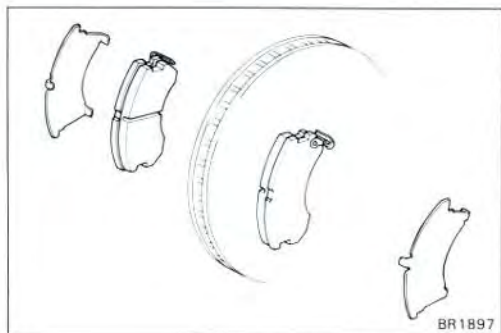
COMPONENTS (Cont'd)



kg-cm (ft-lb, N·m) : Specified torque

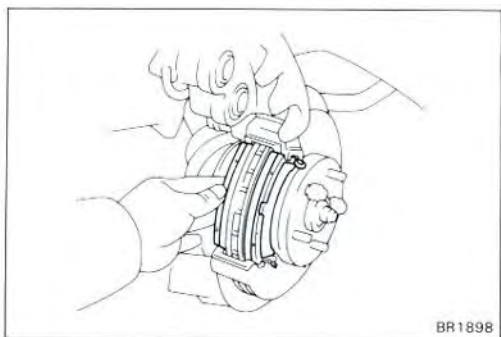
◆ : Non-reusable part

★ : Precoated part



## 8. INSTALL NEW PADS

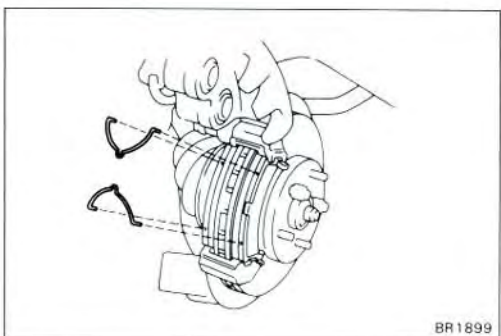
- (a) Install the anti-squeal shims to the pads.



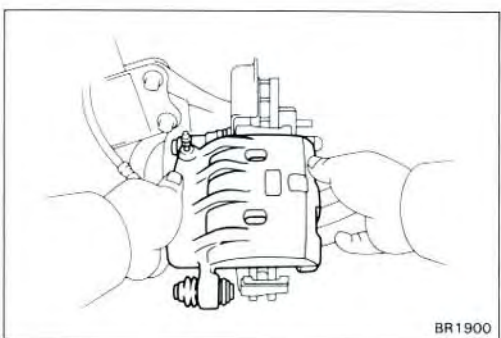
- (b) Install the pads onto each support plate.

**NOTE:** Install the pads so the wear indicator is at the top side.

**CAUTION:** Do not allow oil or grease to get on the rubbing face.



- (c) Install the anti-squeal springs in position.



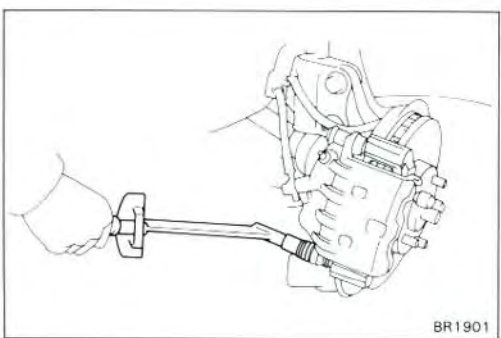
## 9. INSTALL CYLINDER

- (a) Draw out a small amount of brake fluid from the reservoir.

- (b) Press in piston with a hammer handle or an equivalent.

**NOTE:** Always change the pad on one wheel at a time as there is a possibility of the opposite piston flying out.

- (c) Insert the brake cylinder carefully so the boot is not wedged.



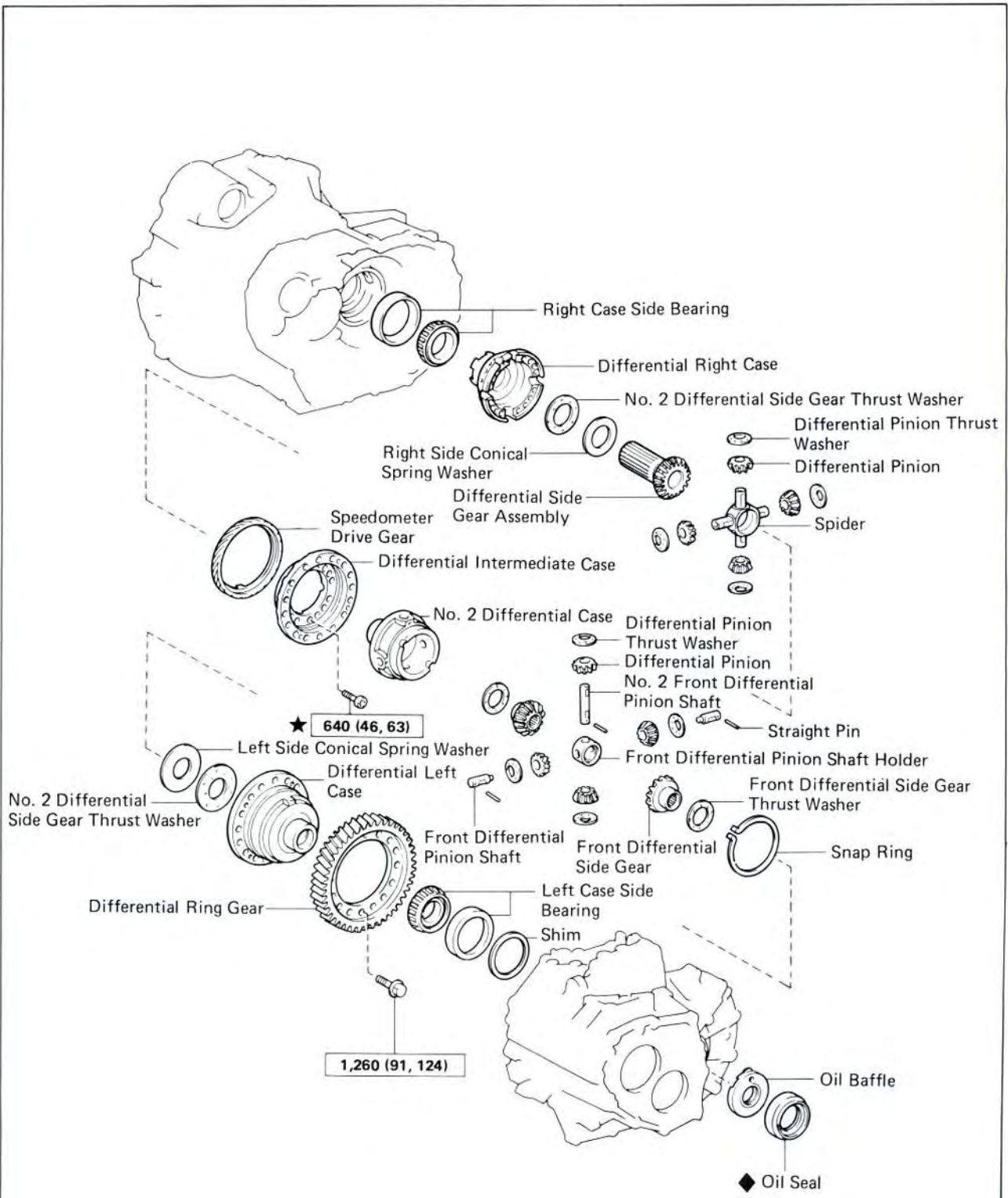
- (d) Install and torque the installation bolt.

**Torque:** 370 kg-cm (27 ft-lb, 36 N·m)

## 10. INSTALL FRONT WHEEL

## 11. CHECK THAT FLUID LEVEL IS MAX LINE

# Differential Case



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

◆ : Non-reusable part

★ : Precoated part