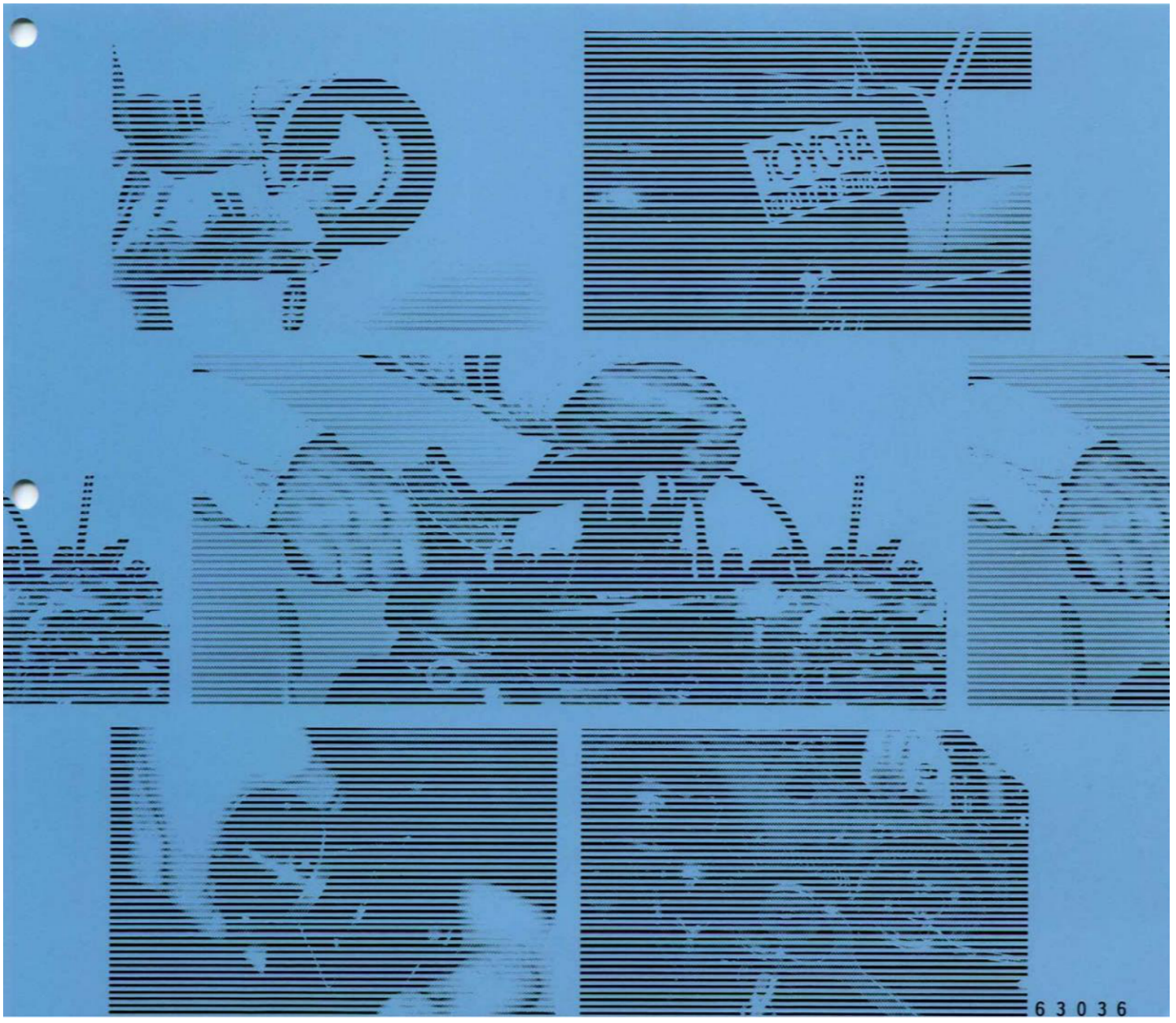
TOYOTA

1JZ-GE 1JZ-GTE 2JZ-GE 2JZ-GTE

ENGINE REPAIR MANUAL

December 1992



This repair demand as for procurement desired one, store of nearby Toyota car or on the Toyota part joint sales bottom, attaching price, please apply.

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December 12, 1992 Issue

Toyota 1JZ-GE 1JZ-GTE 2JZ-GE 2JZ-GTE Engine Manual

1,500 Yen (plus tax)

Compiled by Toyota Motor Company, service issue section
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FOREWORD

This manual explains the main service points of the 1JZ-GE, 1JZ-GTE, 2JZ-GE and 2JZ-GTE engines. Please utilize as a guide in order to execute quick and accurate service of this engine. This book explains the engine installed in October 1992 present production vehicles. For vehicles manufactured at a later date, the installed engine may differ from the contents of this manual. Consent the engine specifications before every repair.

TOYOTA MOTOR CORPORATION

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INTRODUCTION

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OVERVIEW

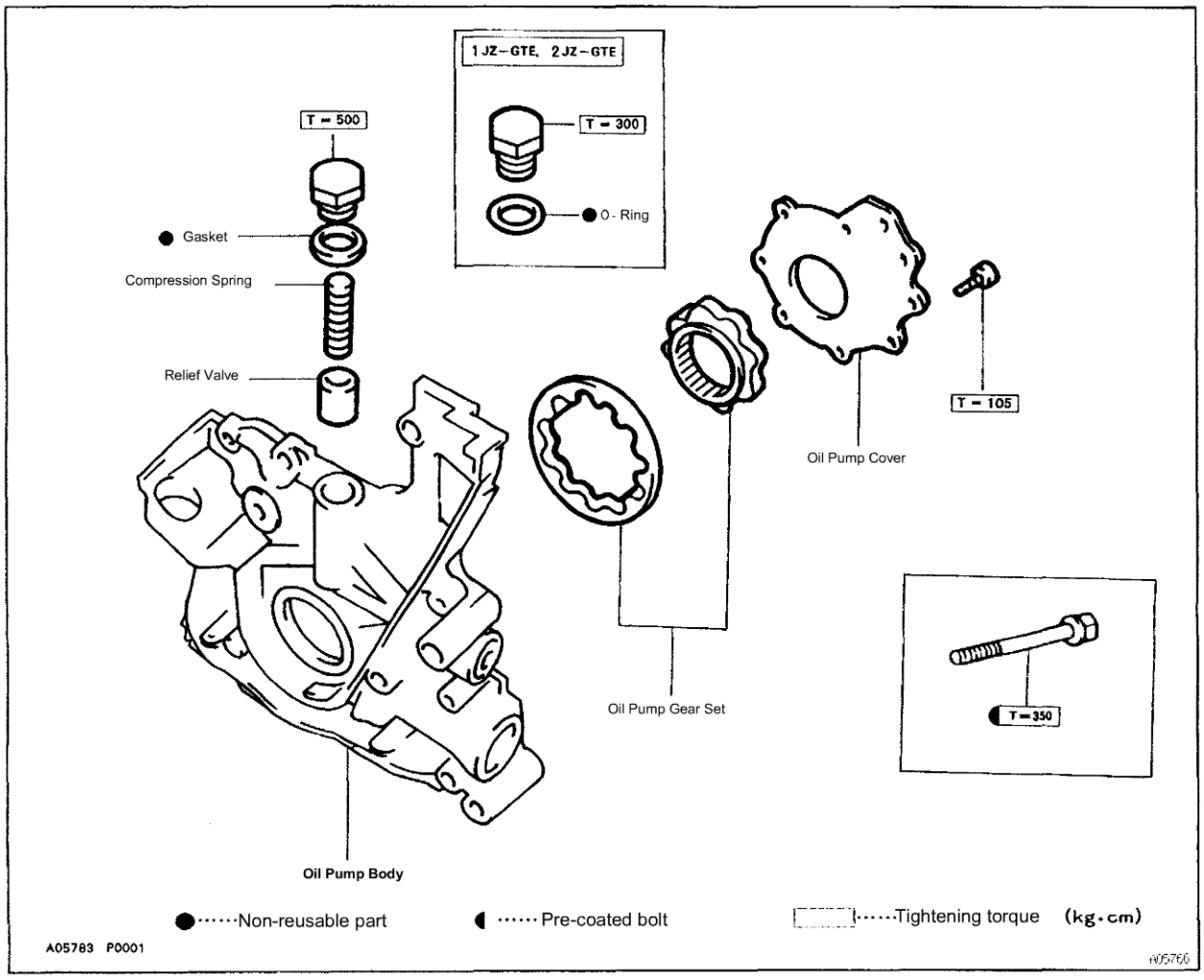
SCOPE OF REPAIR

This manual covers the repair of the engine and accessories (starter, etc) including disassembly, inspection, and adjustment. It does not cover removal and installation of the engine from/to the vehicle or adjustments on the vehicle.

NOTES REGARDING CONTENTS

1 Notice
   1) Please read and understand notices pertaining to the job before you begin.
2 Tool/Material Information
   1) Before beginning each job, the required Toyota SST (Special Service Tool), meters, oil and grease etc should be acquired. Specific details regarding these items are omitted under the assumption that they are provided in the Toyota maintenance shop.
3 Block Diagrams
   1) Non-reusable part, pre-coated bolt, and tightening torque information is noted in the block diagrams.

BLOCK DIAGRAM EXAMPLE



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

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JOB ILLUSTRATION EXAMPLE

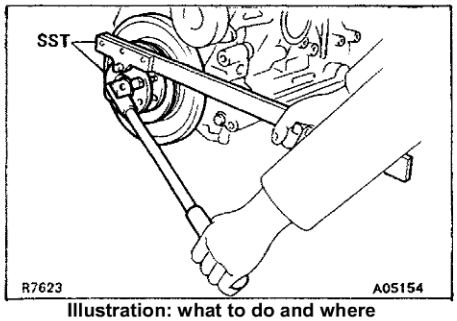

Illustration: what to do and where

Crankshaft Pulley Removal and Installation ← Task Heading

1 Crankshaft Pulley Installation ← Job Item

(1) The crankshaft pulley is installed on the crankshaft.
(2) Use SST to lock crankshaft pulley. Install and tighten the bolt.

S S T 09213-54015 (Set Part Number) 90915-08076
09330-00021
T=2500kg•cm

Part Number
Specification
Detailed Text: how to do the task

The contents which are abbreviated in this book

(1) The instruction of each job is abbreviated in this book, but please execute when performing the actual job:

① Cleaning of part upon removal
② Visual inspection

DEFINITION OF TERMINOLOGY

Reference level	.....	The desired value when inspecting or adjusting
Limit	.....	The lowest or highest value not to exceed when inspecting or adjusting
Turn thought value	.....	Because measuring method in order to know reference level to be considerable it is difficult the reference level in the simple measurement method when really there is no possibility of upper trouble occurrence is displayed.
position chapter one	.....	Prohibition job and the like, you do not have to go, it publishes concerning thing and is. In addition it publishes the item which especially should note in job manner and is.
<Turn you think>	.....	supplemental explanation in order to make job easy from the descriptive text, it publishes and is.

(1) ## ABBREVIATION EXPLAINATION

ABBR	Explanation
ASSY	Assembly
EX	Exhaust
FIPG	Fix-In-Place Gasket (Liquid Molded Gasket)
IN	Intake
O/S	Oversize
SST	Special Service Tool
STD	Standard
T=	Tightening Torque
U/S	Undersize

NOTE OF DISASSEMBLY/ASSEMBLY

Job notes are explained at the beginning of each section.
Published are the minimum necessary notices for disassembly and assembly.

1 About the prevention of foreign material mixture
- (1) When foreign material such as dust, sand and metal pieces mix inside the engine, they can cause damage.
  - ① Note: Before disassembling
    - The sand and the mud etc which have come in contact outside the engine are dropped sufficiently.
  - ② Note: When disassembling and assembling
    - Cover disassembled parts with a vinyl cover or similar to protect them from dust.

2 Preventing damage to mating surfaces
- (1) If a mating or bearing surface or becomes gouged, it can cause an oil leak or overheating.
  - ① Note: When disassembling and assembling
    - Use a rubber or plastic mallet when disassembling mating faces, unless otherwise noted.
    - Use aluminum or plastic vice jaws whenever holding a mating surface in a vise.

3 About washing of the part
- (1) Before attaching each part, wash it sufficiently and air dry or dry with compressed air.
  - ① Note: Washing prohibited with alkaline chemicals
    - Aluminum parts and rubber parts (valve cover gasket or similar)
  - ② Note: Washing prohibited with part washing oil (kerosene and gasoline, etc)
    - Rubber parts (valve cover gasket or similar)

4 Attachment position, about directivity
- (1) Each part attaches in the same position as before the disassembly.
  - ① Note: When disassembling and assembling
    - If before disassembling, the alignment mark or the direction mark is within context, be sure to follow that indication when re-assembling.
    - Reassemble parts in the same order arrangement as they were in before being disassembled.
    - Be sure to attach with in context, and when there is an indication of position and direction, follow that indication.

■ Crown

Engine type	Vehicle Type	Automatic Transmission Types		
		A340E	A341E	A350E
1JZ-GE	E- JZ8131	AESJF		
		AESQF		
		AEPJF		
		AEPQF		
	E-JZS130G		AWPJF	
			AW8QF	
			AWPQF	
	E- 1ZS141	ATPSF		
		ATP1F		
		ATPQF		
2JZ-GE	E-JZS133	AESQF		
		AEPQF		
	E- 1ZS135	AESUF		
		AEPUF		
	E- 1Z8143	ATPQF		ATAXF
	E- JZ8145	ATPVF		

■ Crown Patrol Car

Engine Type	Vehicle Type	Manual transmission type
		W58
2JZ-GE	E- JZS133Z	AEMRF (Restriction Patrol Car)
		AEMKF (Mask Patrol Car)

■ Crown Road Round Car (A1)

Engine Type	Vehicle Type	Manual transmission type
		W58
2JZ-GE	E- JZ51332	AEMCF

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■ Crown Majesty

Engine Type	Vehicle Type	Automatic Transmission Type
		A340E
2JZ-GE	E-JZS149	ATPQF
		ATPVF

■ Aristo

Engine Type	Vehicle Type	Automatic Transmission Type
		A340E
2JZ-GE	E- JZS147	BEPQF
2JZ-GTE		BEPVZ

■ Mark II

Engine Type	Vehicle Type	Automatic Transmission Type		Manual Transmission Type
		A340E	A341E	R154
1JZ-GE	E-JZX90	ATPZF		
		ATPQF		
1JZ-GTE			ATPVZ	ATMVZ
2JZ-GE	E-JZX91		ATPZF	
			ATPQF	

■ Chaser

Engine Type	Vehicle Type	Automatic Transmission Type		Manual Transmission Type
		A340E	A341E	R154
1JZ-GE	E-JZX90	BTPZF		
		BTPQF		
1JZ-GTE			BTPVZ	BTMVZ
2JZ-GE	E- JZX91		BTPZF	
			BTPQF	

■ Cresta

Engine Type	Vehicle Type	Automatic Transmission Type		Manual Transmission Type
		A340E	A341E	R154
1JZ-GE	E- JZX90	CEPZF		
		CEPQF		
1JZ-GTE			CEPVZ	CEMVZ
2JZ-GE	E-JZX91		CEPZF	
			CEPQF	

■ Supra

Engine Type	Vehicle Type	Automatic Transmission Type	Manual Transmission Type
		A342E	R154
1JZ-GTE	E-JZA70	BLPVZ	BLMVZ
		BJPVZ	BJMVZ
		BLPQZ	BLMQZ
		BLPZZ	BLMZZ
		B1PZZ	B1MZZ

■ Soarer

Engine Type	Vehicle Type	Automatic Transmission Type	Manual Transmission Type
		A340E	R154
1JZ-GTE	E-JZZ30	ACPVZ	ACMVZ
		ACPZZ	ACMZZ

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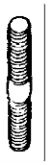
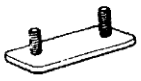
For cases when a specific torque is not listed, use the chart below along with the torque chart on the following page to determine the desired torque.

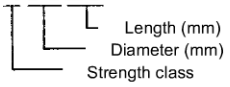
If torquing a nut to a bolt, use the torque value corresponding to the mating bolt.

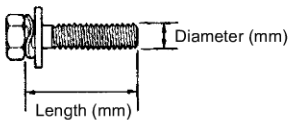
HOW TO DETERMINE BOLT TORQUE

	Mark		Class		Mark		Class
Hexagon head bolt		Bolt head numbered	4 = 4T 5 = 5T 6 = 6T 7 = 7T	Stud bolt		No mark	4T
		No mark	4T				
Hexagon flange bolt		No mark	4T			Grooved	6T
Hexagon head bolt		2 protruding lines	5T				
Hexagon flange bolt		2 protruding lines	6T	Welded bolt			4T
Hexagon head bolt		3 protruding lines	7T				

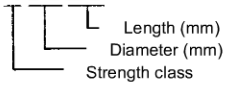
IDENTIFICATION BY PART NUMBER

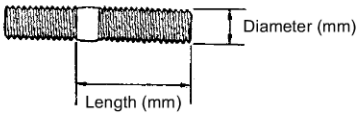
Hex head bolt Part 91111-40620



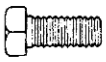
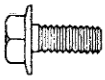


Stud bolt Part 92132-40620





TORQUE CHART

STRENGTH CLASS	DIAMETER (mm)	THREAD PITCH (mm)	STANDARD TORQUE (kg/cm)	
			Hexagon head bolt 	Hexagon flange bolt 
4T	6	1.0	55	60
	8	1.25	130	145
	10	1.25	260	290
	12	1.25	480	540
	14	1.5	760	850
	16	1.5	1,150	--
5T	6	1.0	65	--
	8	1.25	160	--
	10	1.25	330	--
	12	1.25	600	--
	14	1.5	930	--
	16	1.5	1,400	--
6T	6	1.0	80	90
	8	1.25	195	210
	10	1.25	400	440
	12	1.25	730	810
	14	1.5	1,100	1,250
7T	6	1.0	110	120
	8	1.25	260	290
	10	1.25	530	590
	12	1.25	970	1,050
	14	1.5	1,500	1,700
	16	1.5	2,300	--

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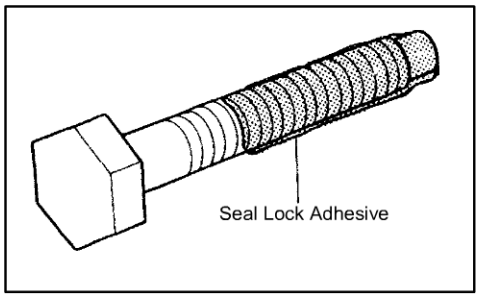
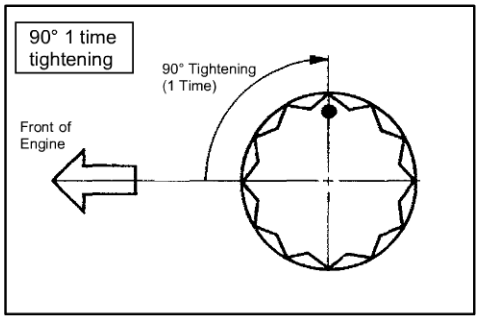
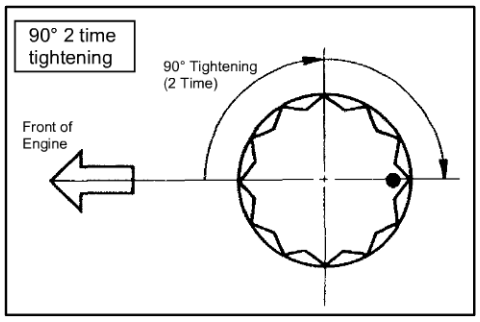


PRECOATED BOLTS

1. Precoated bolts are bolts 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 threads.





TIGHTENING PLASTIC (STRETCH) BOLTS

1. Instructions
   - There are bolts on the engine that are plastic (stretch) type bolts. The tightening procedure is different than that of normal bolts, so please follow these instructions for tightening.

2. Stretch Bolt Locations
   - Cylinder head bolt
   - Crankshaft bearing clamp bolt
   - Connecting rod bearing clamp bolt

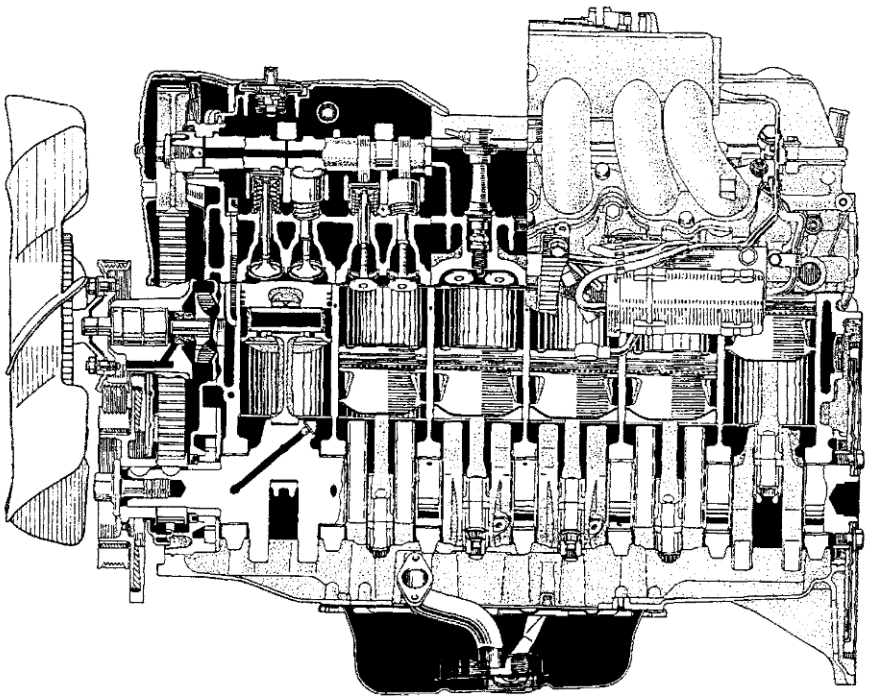
3. After tightening to the specified torque value
   - Tighten all fasteners in sequence 90 degrees, and then tighten another 90 degrees in sequence.

1 ENGINE MECHANICAL

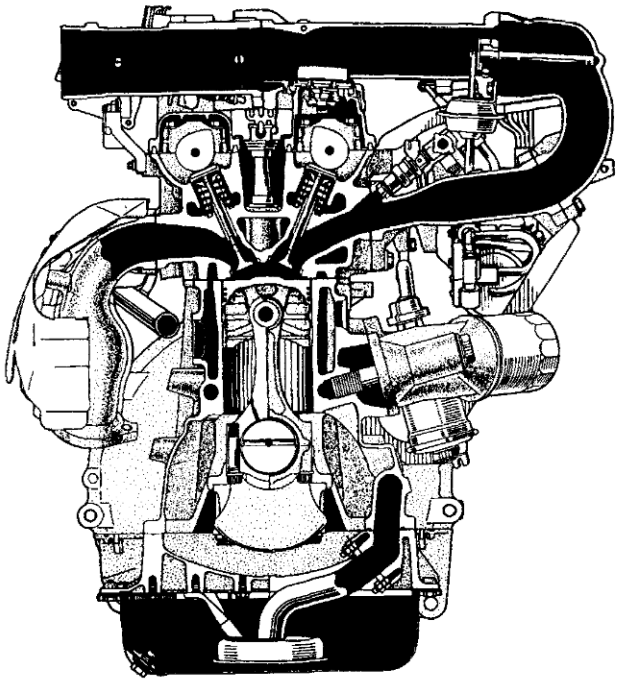
ENGINE SECTION

1

LONGITUDINAL SECTION

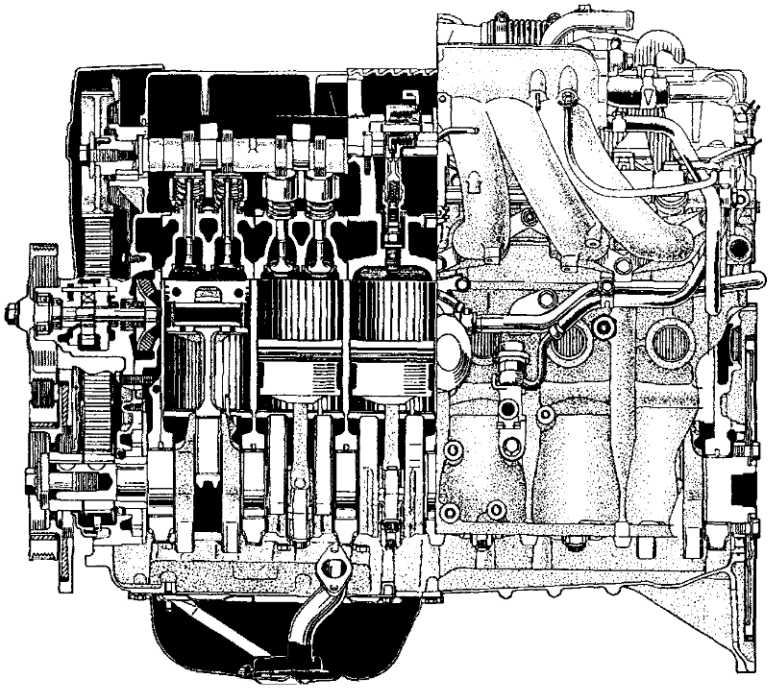


CROSS SECTION



ZS131 (1JZ-GE)

LONGITUDINAL SECTION



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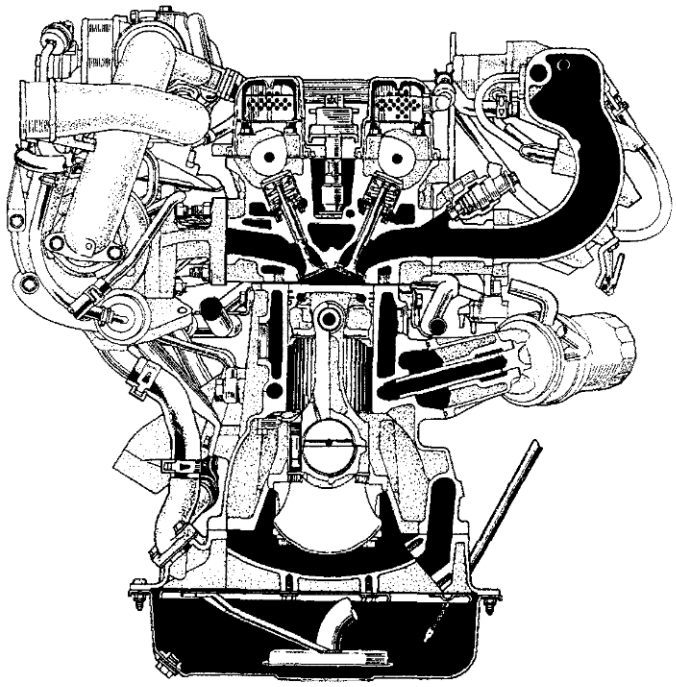

JZX90 (1JZ-GTE)

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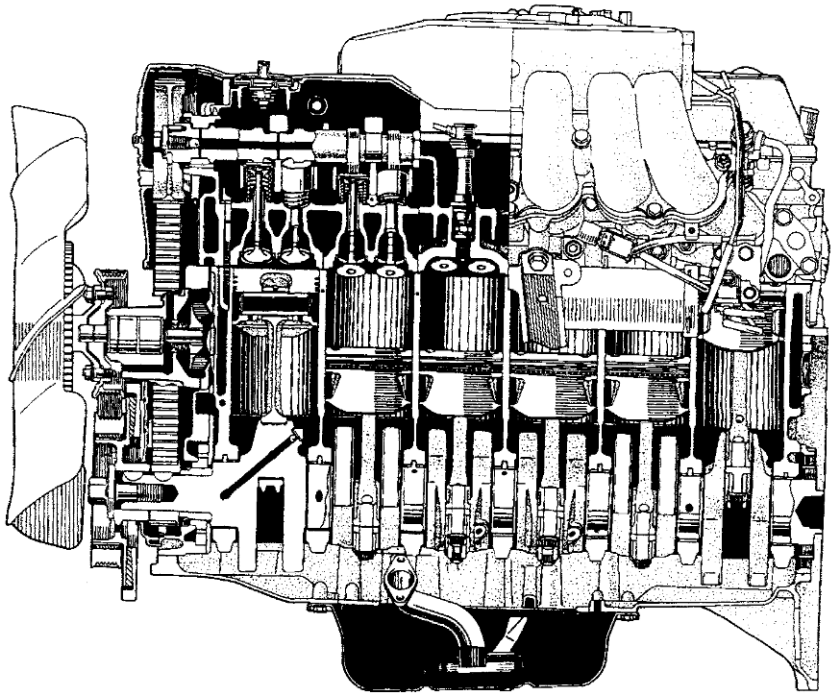
LONGITUDINAL SECTION



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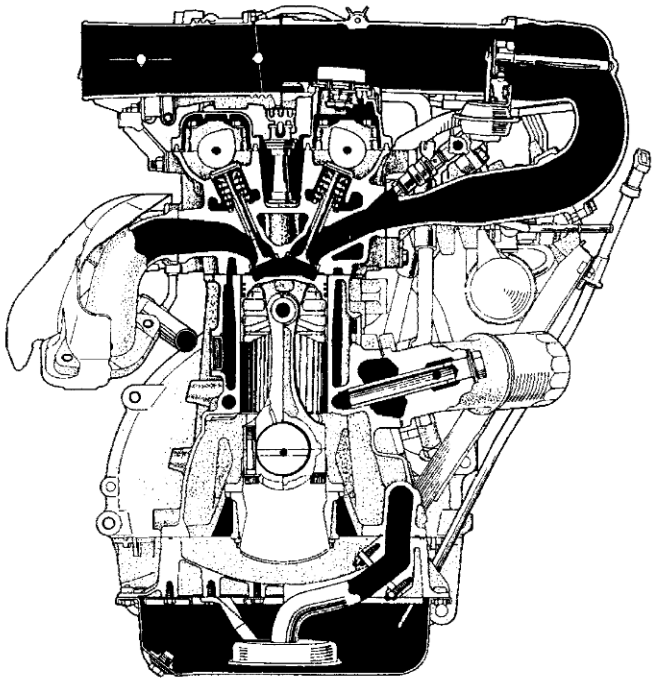
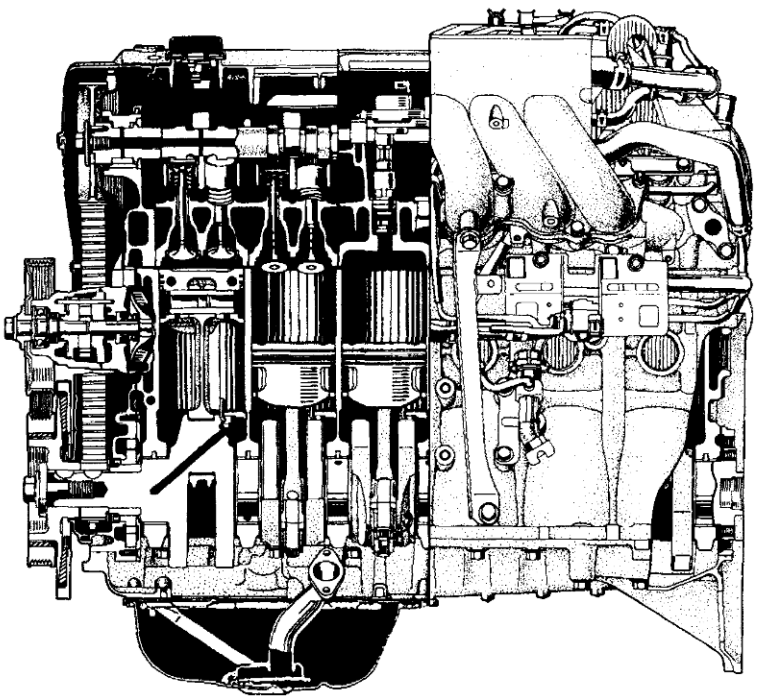


JZS133 (2JZ-GE)

LONGITUDINAL SECTION



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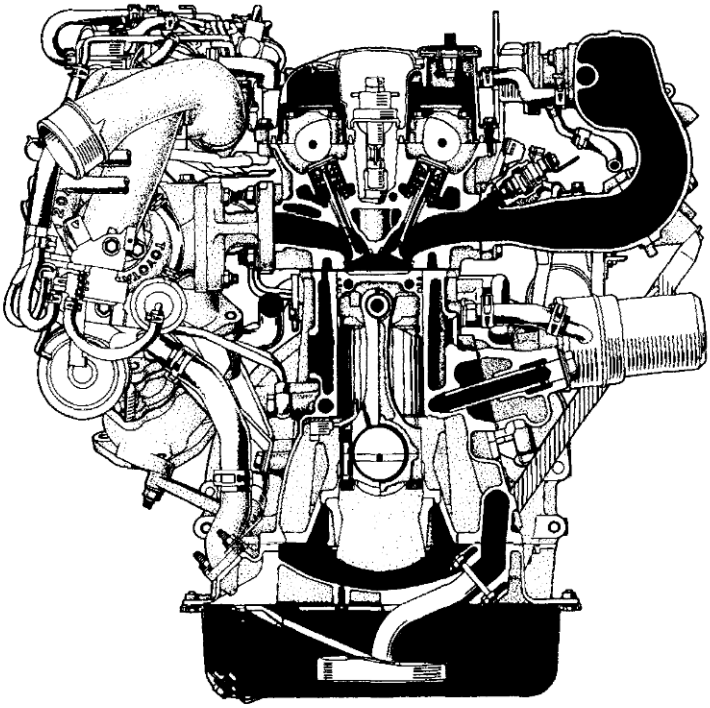


JZS147 (2JZ-GTE)

FIPG (MOLDED LIQUID GASKET) HANDLING

1 APPLICATION METHOD AND LOCATION

CAUTION: When removing old gasket material, be sure that debris does not contaminate the inside of the engine.

(1) Clean each part of oil, water, debris, etc before applying.

(2) FIPG is applied only to the part mating surface.

(3) Be sure to apply sufficient gasket to coat the entire mating surface, but do not use an excessive amount. Use the correct gasket type according to the table below.

(4) After positioning the parts, be careful not to move them as the gasket dries.

(5) Position parts within 5 minutes of gasket application.

(6) Allow sufficient time for the gasket to cure before exposing it to engine fluids or running the engine.

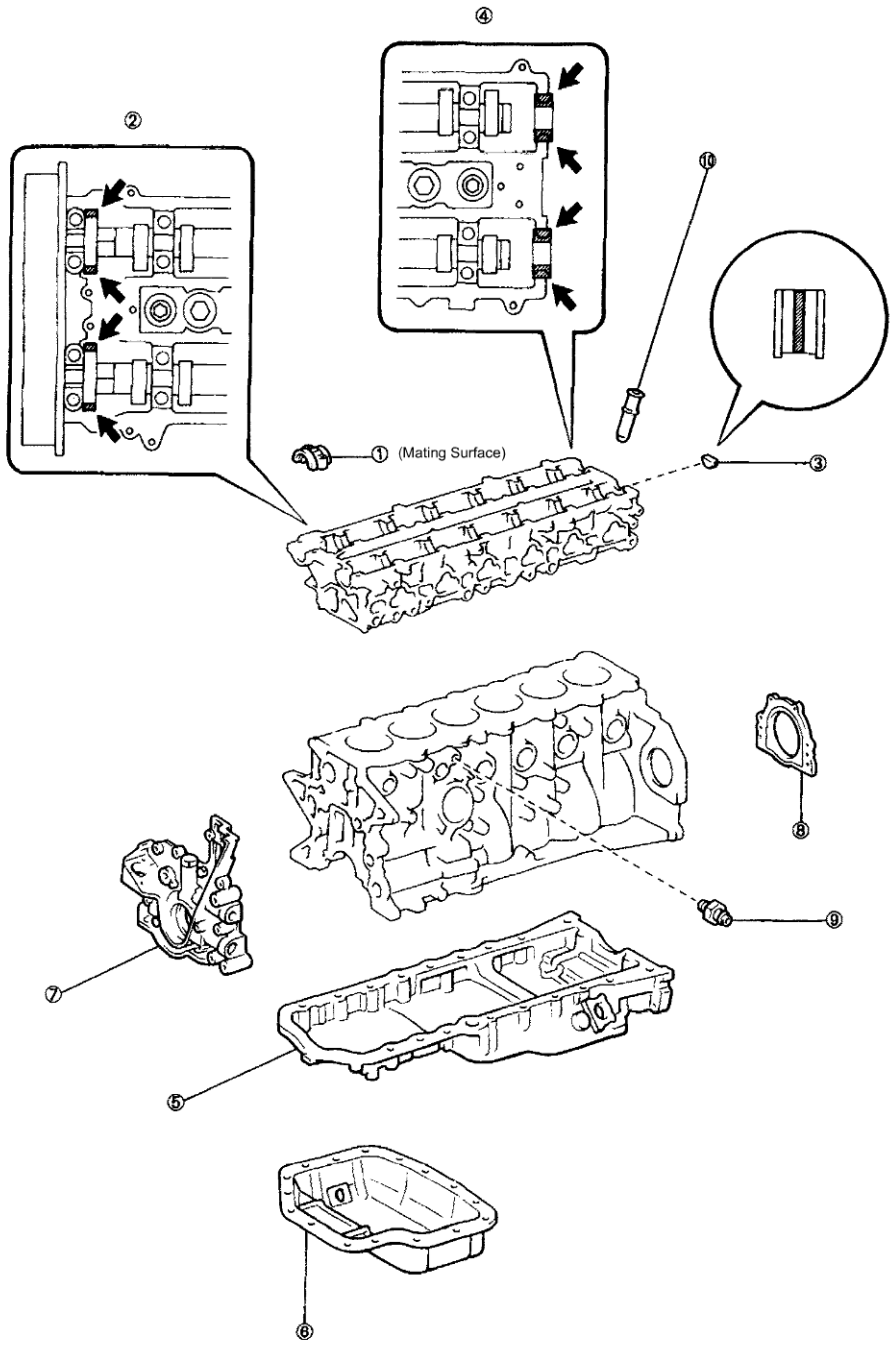
2 APPLICATIONS, FIPG TYPE, AND DRYING TIME

Fig No.	FIPG Application	Use FIPG	Drying Time
①	Camshaft Bearing Cap No. 1 X Cylinder Head	Seal Packing Black	2 Hours
②	Camshaft Bearing Cap No. 1 Corner X Cylinder Head Cover Gasket		
③	Semi-Circular Plug* X Cylinder Head		
④	Semi-Circular Plug Junction* X Cylinder Head Cover Gasket		
⑤	Oil Pan No. 1 X Cylinder Block		
⑥	Oil Pan No. 2 X Oil Pan No. 1		
⑦	Oil Pump X Cylinder Block		
⑧	Rear Oil Seal Retainer X Cylinder Block		
⑨	Union (For Oil Cooler Hose) * X Cylinder Block	Adhesive 1324	1 Hour
⑩	Heater Union** X Cylinder Head		

*…… 1JZ-GTE

**……Except 1 JZ-GTE

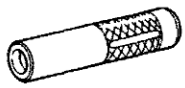
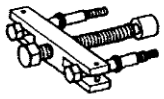
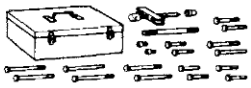
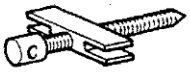
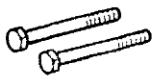
FIPG APPLICATIONS

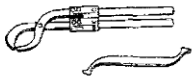
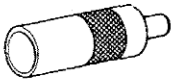
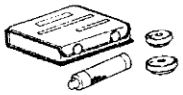
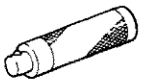
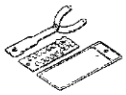
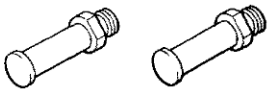


PREPARATION ITEM

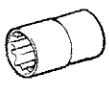
1

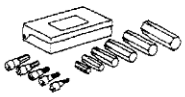
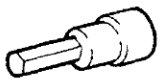
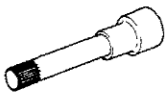
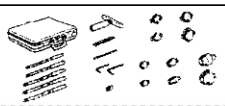
SST

	09201-10000	Valve Guide Bushing Remover And Replacer Set	
	(09201-01060)	Valve Guide Bushing Remover And Replacer 6	For valve guide bushing removal and installation
	09201-41020	Valve Stem Oil Seal Replacer	For valve stem oil seal installation
	09202-70010	Valve Spring Compressor	For valve removal and installation
	09213-31021	Crankshaft Pulley Puller	For crankshaft pulley removal
	09213-60017	Crankshaft Pulley And Gear Puller	
	(09213-00020)	Body With Bolt	For crankshaft timing pulley removal
	(09213-00030)	Handle	For crankshaft timing pulley removal
	(09213-00040)	Attachment Set	For crankshaft timing pulley removal
	(09213-00050)	Bolt Set	For crankshaft timing pulley removal
	09213-70010	Crankshaft Pulley Holding Tool	
	(90105-08076)	Bolt	For crankshaft pulley fixing
	09222-30010	Connecting Rod Bushing Remover And Replacer	For connecting rod bushing removal and installation

	09223-15030	Oil Seal And Bearing Press	For engine rear oil seal installation
	09248-55040	Valve Lifter Press And Stopper	
	(09248-05410)	Valve Lifter Press	For valve clearance adjustment
	(09248-05420)	Valve Lifter Stopper	For valve clearance adjustment
	09316-60010	Transmission And Transfer Bearing Replacer	
	(09316-00010)	Replacer Pipe	For camshaft oil seal and crankshaft front oil seal installation
	(09316-00050)	Replacer D	For camshaft oil seal installation
	09330-00021	Companion Flange Holding Tool	For holding crankshaft pulley
	09608-30022	Freon Hub Replacer Set	
	(09608-05010)	Handle	For valve guide bushing removal and installation For crankshaft rear oil seal installation ※ (length 100mm)
	09960-10010	Variable Pin Wrench Set	
	(09962-01000)	Variable Pin Wrench Arm ASSY	For hydraulic motor vane pump pulley removal and re-installation (1JZ-GTE, 2JZ-GTE)
	(09963-01000)	Pin 10	For hydraulic motor vane pump pulley other version (1JZ-GTE, 2JZ-GTE)

TOOL

	09011-38121	Socket Wrench (12mm)	For connecting rod bolt removal and installation

	09032-00100	Gasket Seal Cutter	For oil pan No. 2 removal
	09040-00010	Hexagon Wrench Set	
	(09043-20100)	Socket Hexagon Wrench 10	For timing belt idler removal and installation
	09043-50100	Double Hexagon 10 Wrench	For cylinder head bolt removal and installation
	Z-202	Piston Ring Tool (Handling) Banzai Treatment	For piston ring removal and installation
	RC-25	Piston Ring Compressor (Handling) Banzai Treatment	For piston installation
	TB-524	Valve Seat Cutter Set (Handling) Banzai Treatment	
	(N-230)	Cutter Head 30° X 45° (Handling) Banzai Treatment	For intake and exhaust valve seat repair
	(N-150-6.0)	Pilot Stem (Handling) Banzai Treatment	For intake and exhaust valve seat repair
	(N-125)	Cutter Head 75° (Handling) Banzai Treatment	For intake and exhaust valve seat repair
	(N-120-6.0)	Pilot Stem (Handling) Banzai Treatment	For intake and exhaust valve seat repair
	(N-505)	T Type Wrench (Handling) Banzai Treatment	For intake and exhaust valve seat repair
	(N-503-1)	T Type Wrench Adapter (Handling) Banzai Treatment	For intake and exhaust valve seat repair
Hexagon stick wrench (5mm)			For part removal and installation
Hexagon stick wrench (1.27mm)			For timing belt tensioner installation

METER

Straight Edge Ruler	For distortion measurement
Square	For compression spring check
Micrometer (O-25, 25-50, 50-75, 75-1OOmm)	For part measurement
Caliper Gauge	For part measurement
Dial Gauge	For part measurement
Pressure Gauge	For oil clearance measurement
Cylinder Gauge (75-100mm)	For cylinder inside diameter measurement

OIL AND GREASE ETC

Black Seal Packing	For part application
Adhesive 1324	For part application
Engine Oil	For part lubrication For part application
CASL And MP Grease No. 2	For part lubrication
Red Lead Primer	For valve inspection
Dyeing Permeable Flaw Detection Agent (Red Check)	For checking for cylinder head cracks
Paint	For plastic (stretch) bolt marking
Piston Heater	For piston removal and installation
Compound (Extra Fine Detail)	For valve seat adjustment
Chalk	For timing belt rotation direction entry
Piece of Wood	For heater union installation For oil seal replacement

※……AVAILABLE SHAPED HANDLE SST

Part Number (Handle)	Parent Part Number	Length (mm)	Part Number (Handle)	Parent Part Number	Length (mm)
09252・10010	09250・10011	88	09608-06020	09608-35014	158
09252-10010	09550・10012	88	09550-05020	09550・55010	208
09550-00020	09550・22011	158	09608・03020	09608・20012	208
09552-10010	09550・10012	158	09631-00020	09620-30010	208
09608・00020	09608-12010	158	09631・00020	09630-00012	208
09608-04020	09608-30012	158	09631・12020	--	358

NOTES

1 Engine overhaul is performed after attaching the engine to an engine work stand.

2 The removed parts are arranged and tidied up in the order of removal.

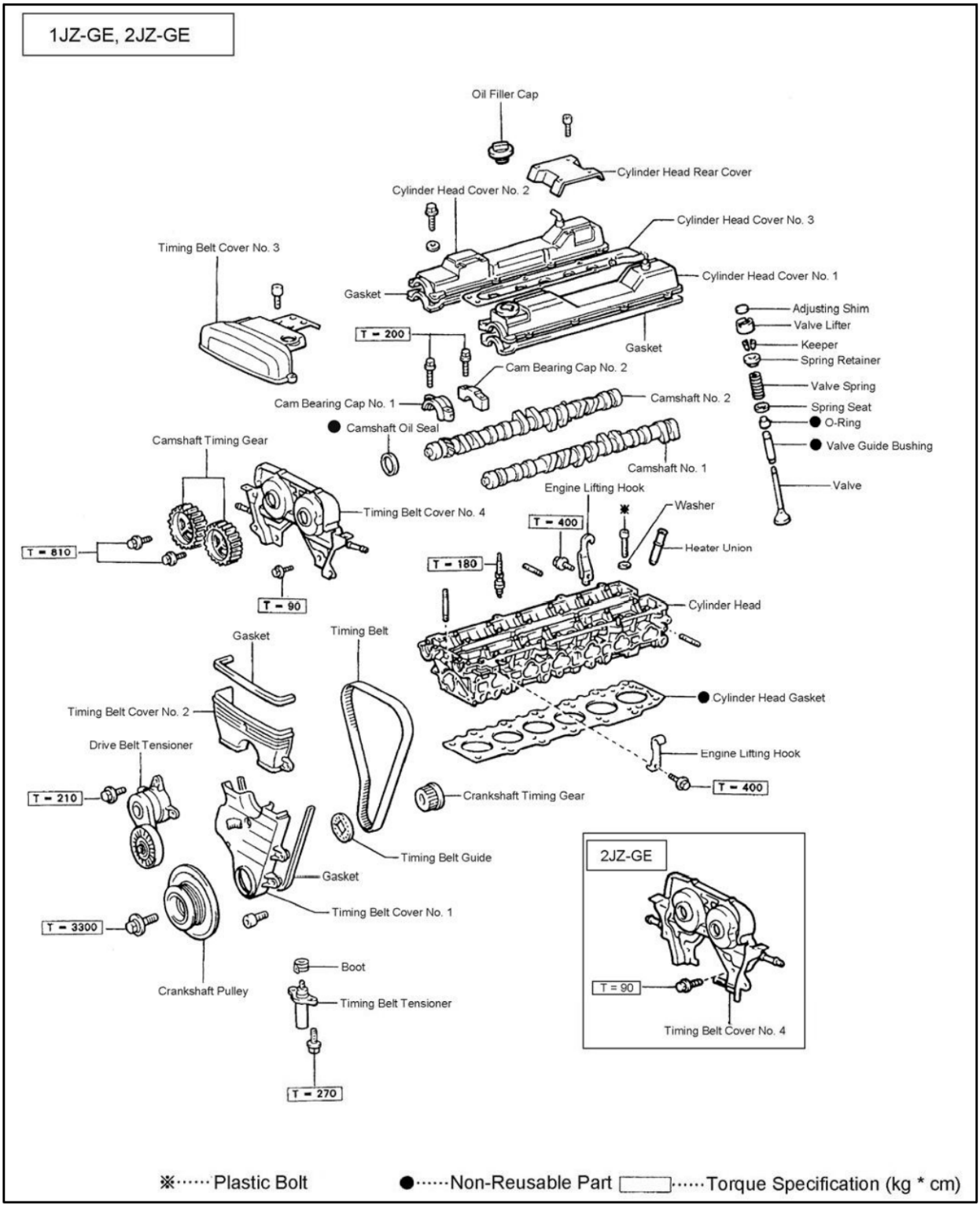
3 Each part should be sufficiently cleaned before installation.

4 During assembly, apply motor oil to moving parts.

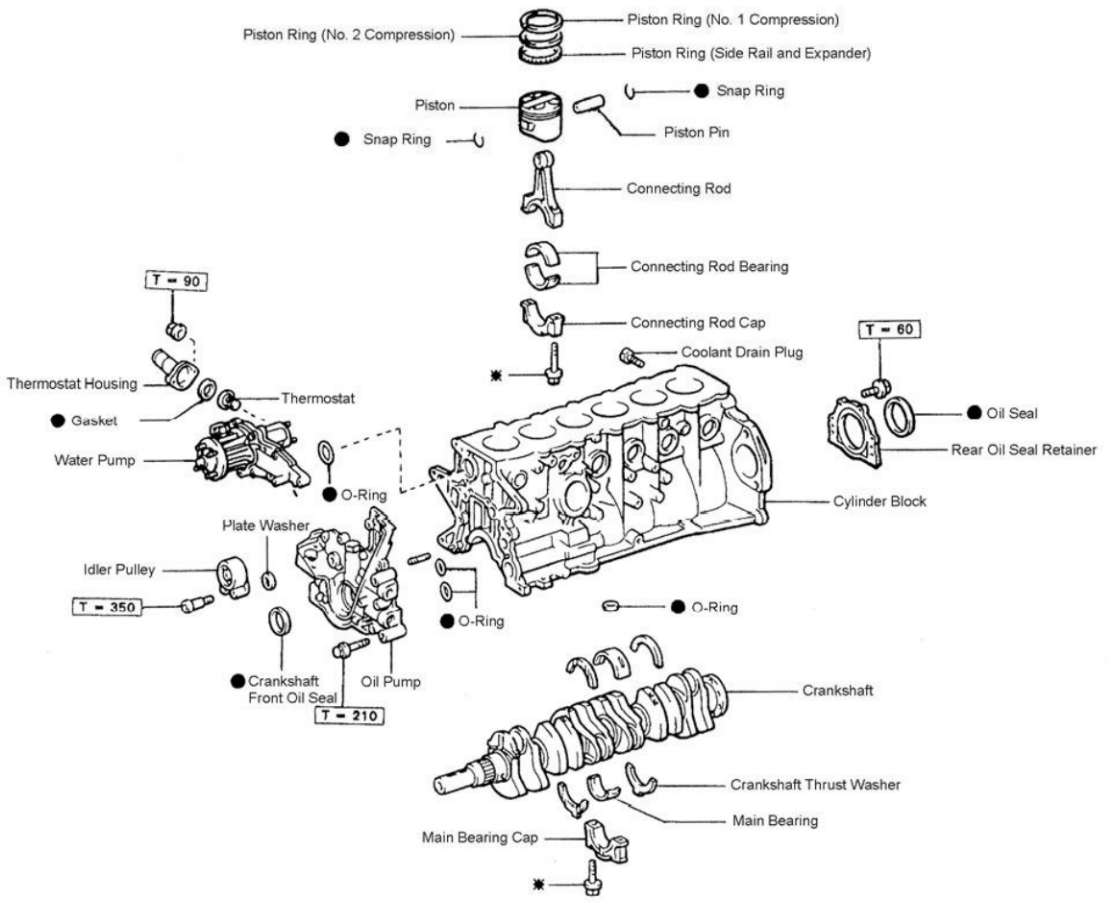
5 Replace non-reusable parts such as gaskets and seals with new ones.

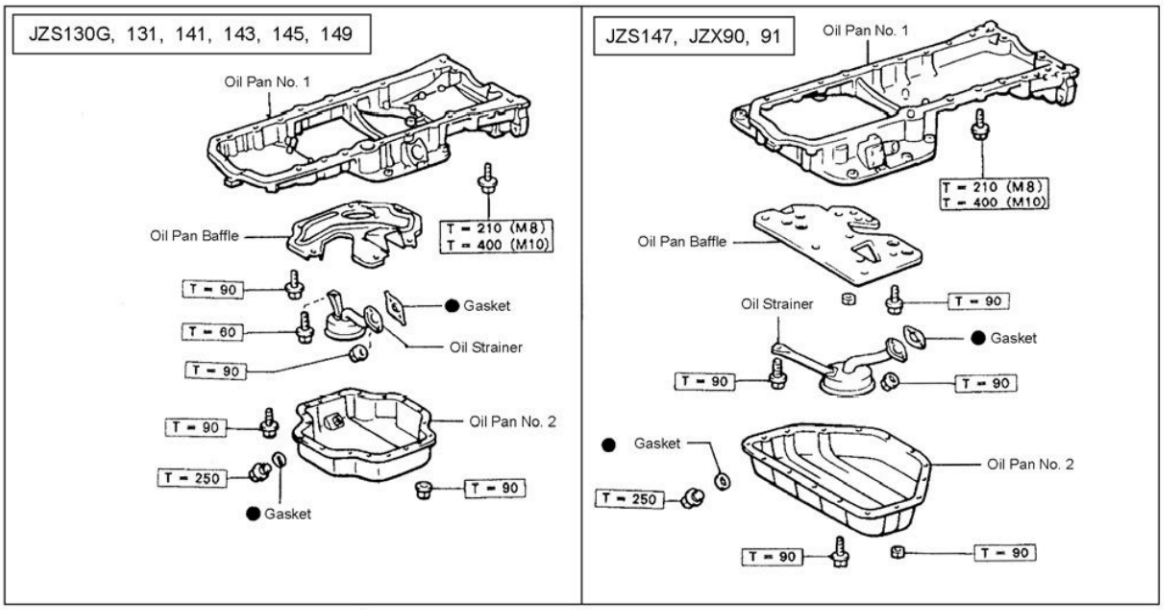
6 Before applying gasket maker, use a solvent to wash the area.

PARTIAL ENGINE
ASSEMBLY BLOCK DIAGRAM



1

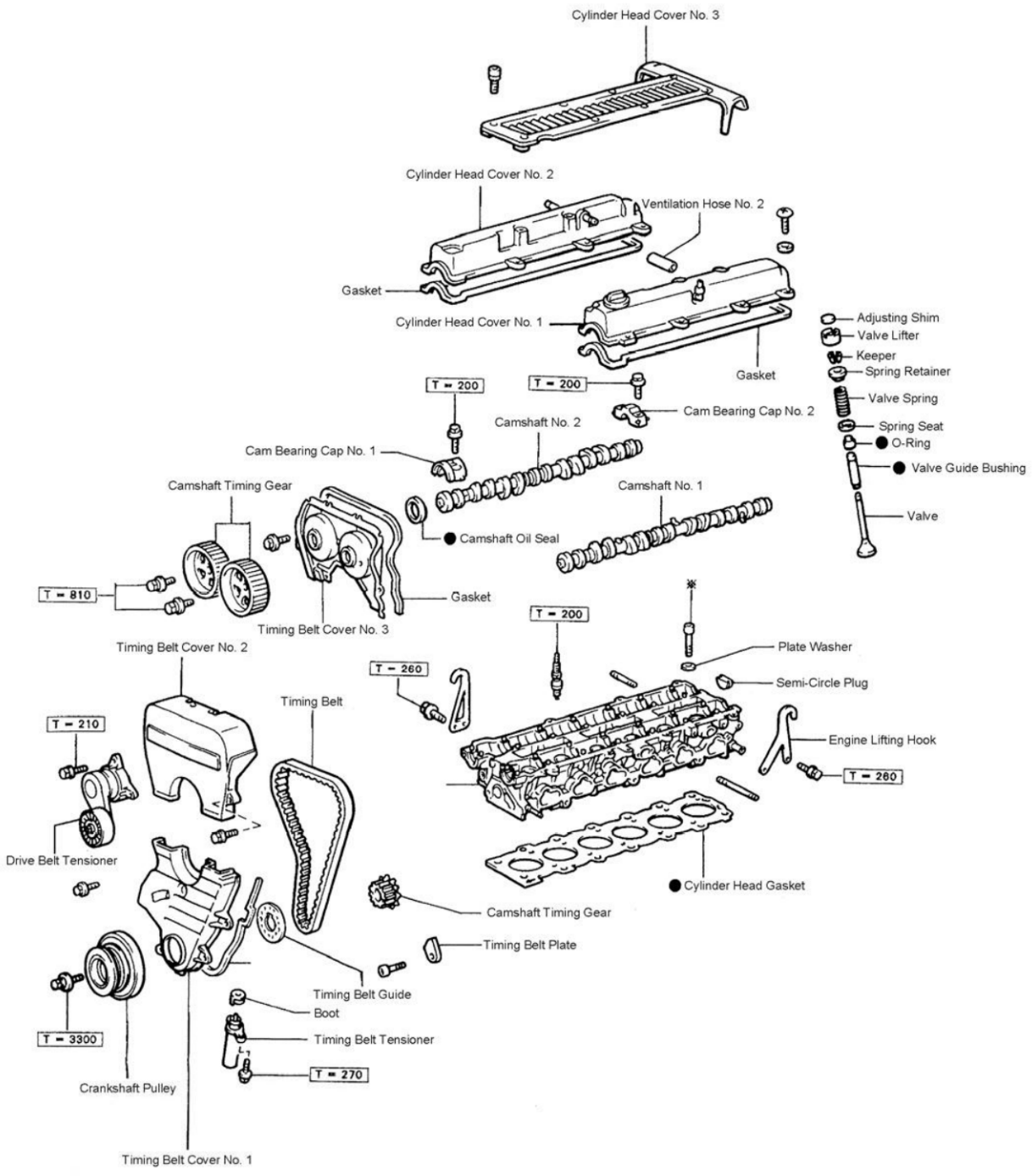




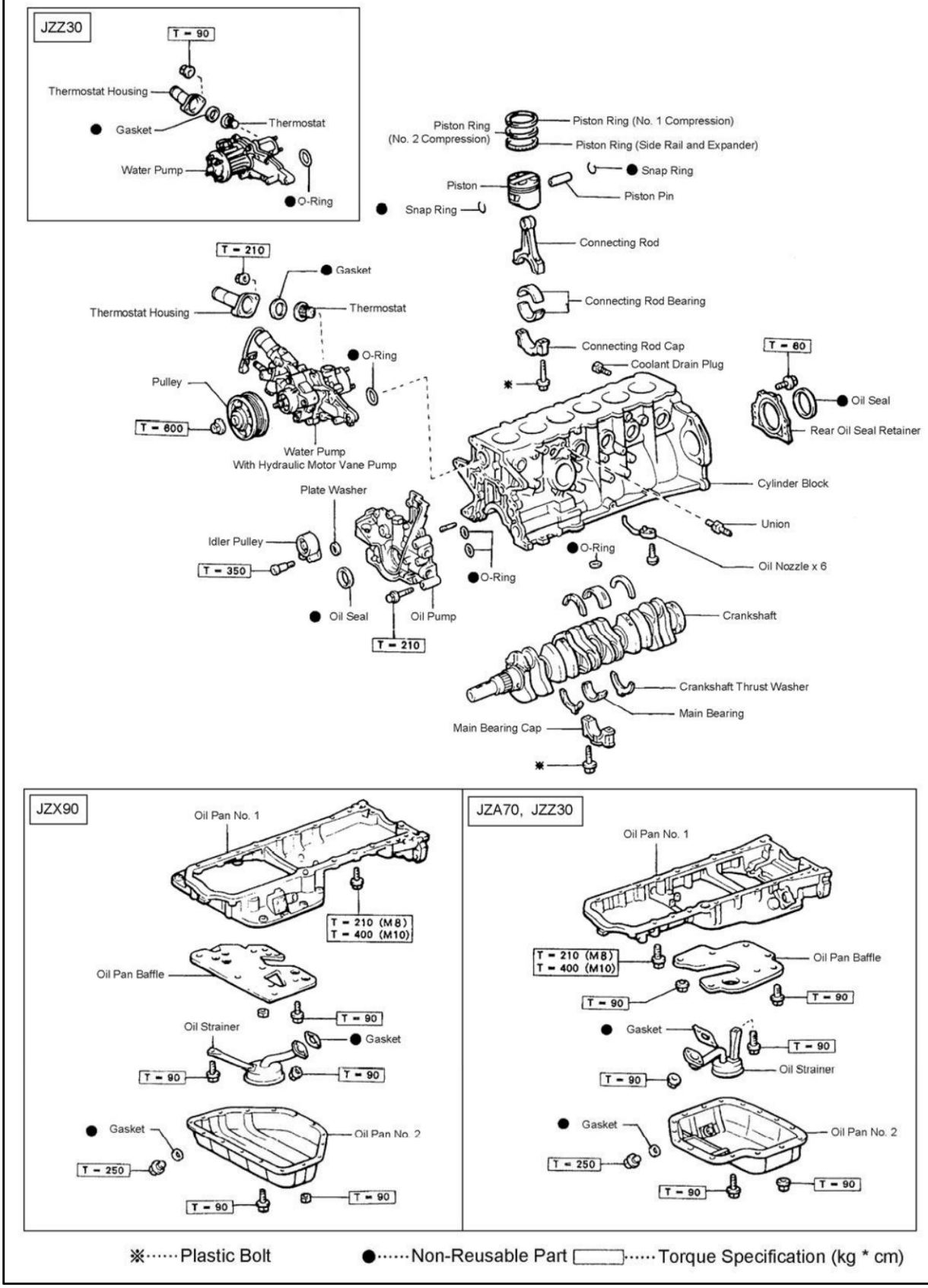
※……Plastic Bolt ●……Non-Reusable Part □…… Torque Specification (kg * cm)

1

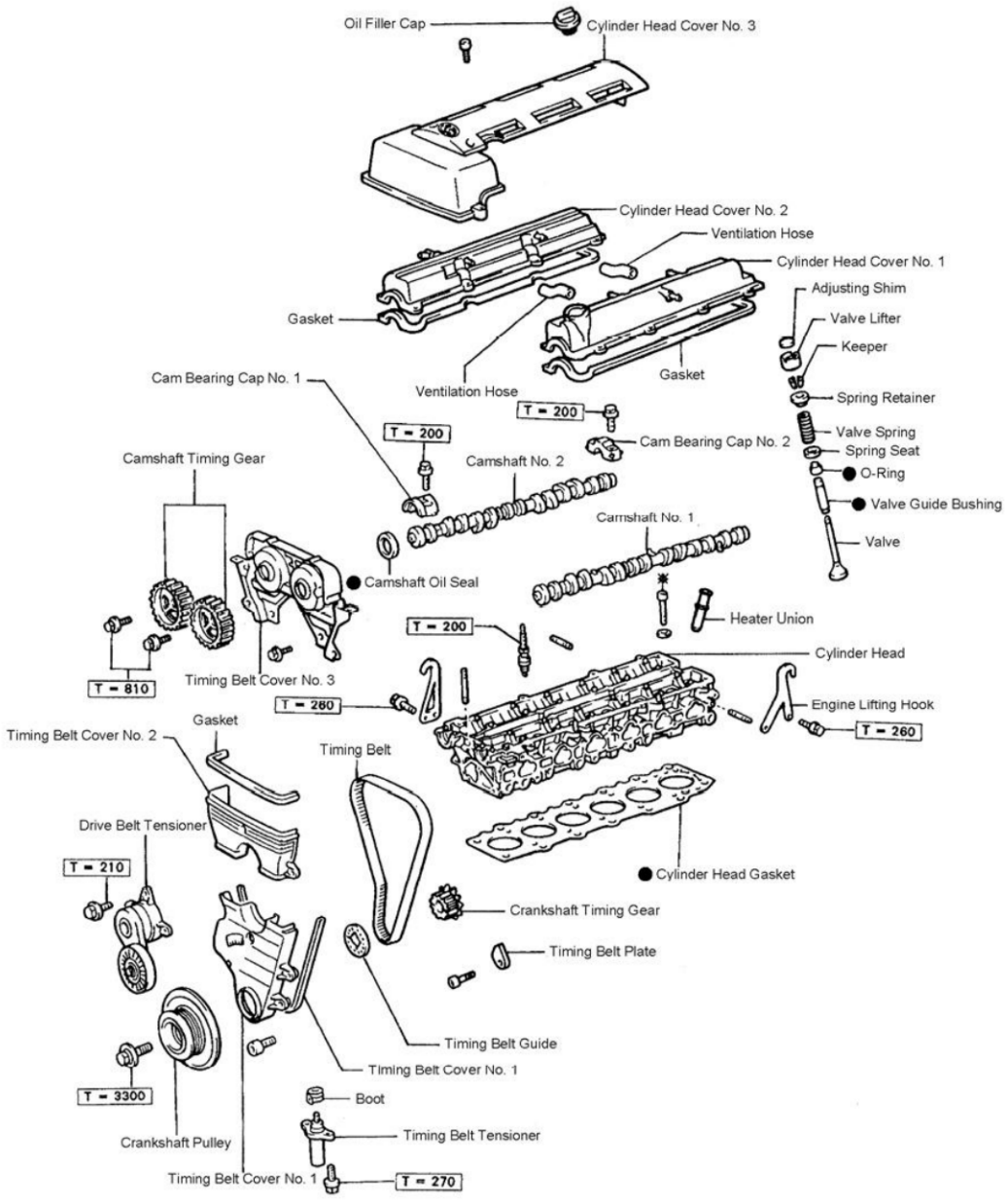
1JZ-GTE


Cylinder Head Cover No. 3
Cylinder Head Cover No. 2
Ventilation Hose No. 2
Gasket
Cylinder Head Cover No. 1
Gasket
Adjusting Shim
Valve Lifter
Keeper
Spring Retainer
Valve Spring
Spring Seat
O-Ring
Valve Guide Bushing
Valve
T = 200
T = 200
Cam Bearing Cap No. 2
Camshaft No. 2
Cam Bearing Cap No. 1
Camshaft Timing Gear
Camshaft No. 1
Camshaft Oil Seal
T = 810
Gasket
Timing Belt Cover No. 3
T = 200
※
Plate Washer
Timing Belt Cover No. 2
T = 260
Semi-Circle Plug
Timing Belt
T = 210
Engine Lifting Hook
T = 260
Drive Belt Tensioner
Cylinder Head Gasket
Camshaft Timing Gear
Timing Belt Plate
Timing Belt Guide
Boot
T = 3300
Timing Belt Tensioner
T = 270
Crankshaft Pulley
Timing Belt Cover No. 1
※……Plastic Bolt
●……Non-Reusable Part
……Torque Specification (kg * cm)

1

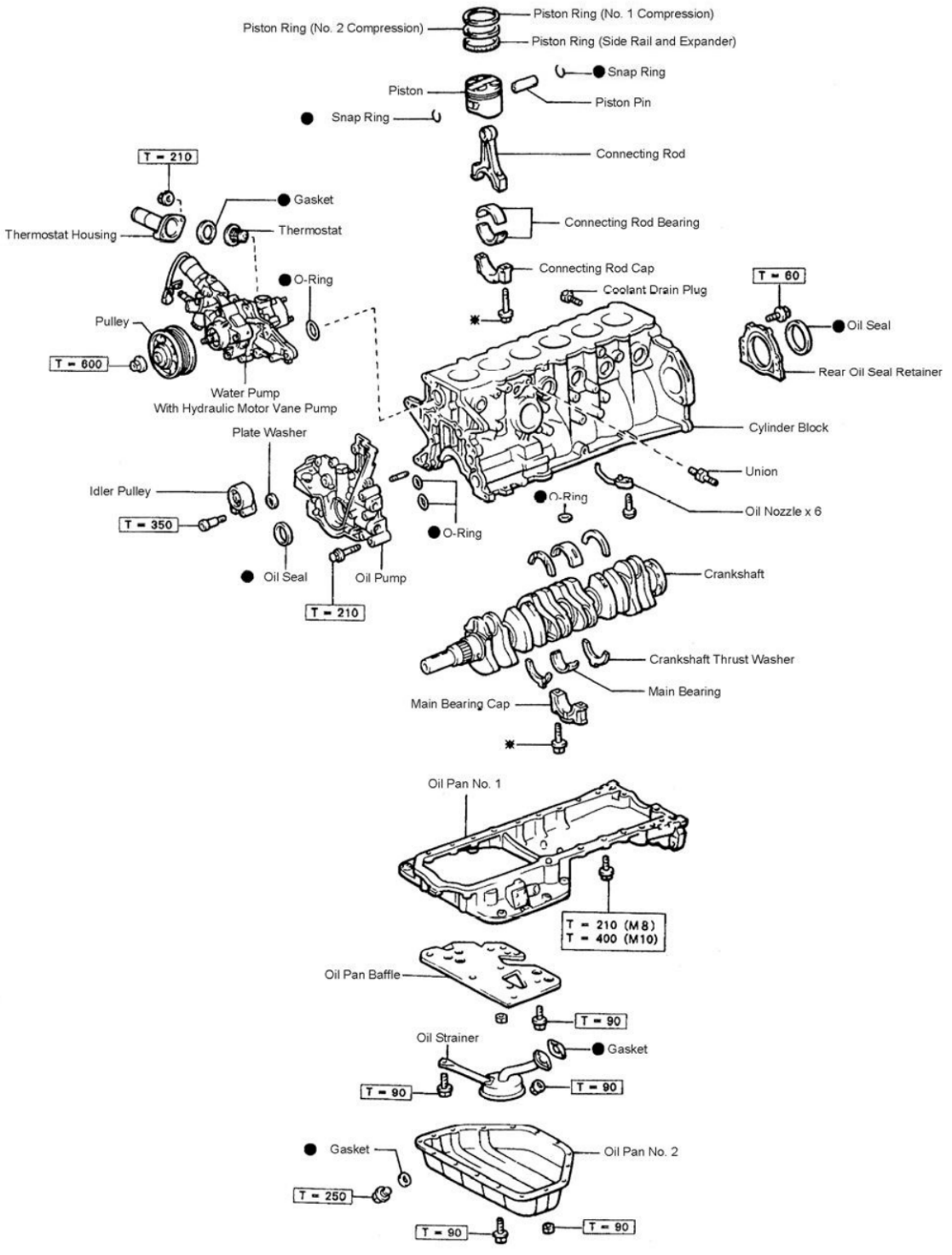

JZZ30
T = 90
Thermostat Housing
Gasket
Thermostat
Water Pump
O-Ring
Piston Ring (No. 2 Compression)
Piston Ring (No. 1 Compression)
Piston Ring (Side Rail and Expander)
Snap Ring
Piston
Piston Pin
Snap Ring
Connecting Rod
T = 210
Gasket
Thermostat Housing
Thermostat
Connecting Rod Bearing
Connecting Rod Cap
Coolant Drain Plug
T = 60
O-Ring
Oil Seal
Pulley
T = 600
Rear Oil Seal Retainer
Water Pump
With Hydraulic Motor Vane Pump
Cylinder Block
Plate Washer
Union
Idler Pulley
T = 350
O-Ring
O-Ring
Oil Nozzle x 6
Oil Seal
Oil Pump
T = 210
Crankshaft
Crankshaft Thrust Washer
Main Bearing
Main Bearing Cap
JZX90
Oil Pan No. 1
T = 210 (M8)
T = 400 (M10)
Oil Pan Baffle
T = 90
Oil Strainer
Gasket
T = 90
T = 90
Gasket
Oil Pan No. 2
T = 250
T = 90
T = 90
JZA70, JZZ30
Oil Pan No. 1
T = 210 (M8)
T = 400 (M10)
Oil Pan Baffle
T = 90
T = 90
Gasket
T = 90
T = 90
Oil Strainer
Gasket
Oil Pan No. 2
T = 250
T = 90
T = 90
※……Plastic Bolt
●……Non-Reusable Part
□……Torque Specification (kg * cm)

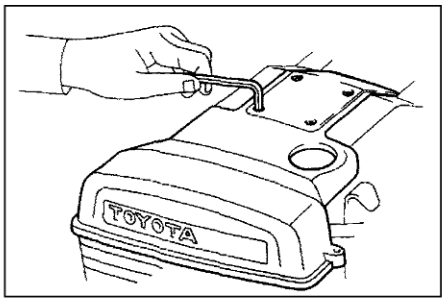
2JZ-GTE



※……Plastic Bolt ●……Non-Reusable Part □……Torque Specification (kg * cm)

1


Piston Ring (No. 2 Compression)
Piston Ring (No. 1 Compression)
Piston Ring (Side Rail and Expander)
Snap Ring
Piston
Piston Pin
Snap Ring
Connecting Rod
T = 210
Gasket
Thermostat Housing
Thermostat
Connecting Rod Bearing
Connecting Rod Cap
T = 60
Coolant Drain Plug
O-Ring
Pulley
Oil Seal
T = 600
Rear Oil Seal Retainer
Water Pump
With Hydraulic Motor Vane Pump
Cylinder Block
Plate Washer
Union
Idler Pulley
O-Ring
Oil Nozzle x 6
T = 350
O-Ring
Crankshaft
Oil Seal
Oil Pump
T = 210
Crankshaft Thrust Washer
Main Bearing
Main Bearing Cap
Oil Pan No. 1
T = 210 (M8)
T = 400 (M10)
Oil Pan Baffle
T = 90
Oil Strainer
Gasket
T = 90
T = 90
Gasket
Oil Pan No. 2
T = 250
T = 90
T = 90
※……Plastic Bolt
●……Non-Reusable Part
……Torque Specification (kg * cm)



ENGINE DISASSEMBLY

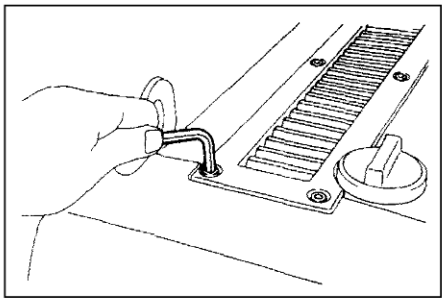
TIMING BELT REMOVAL

1 REMOVE TIMING BELT COVER NO. 3

1JZ-GE, 2JZ-GE

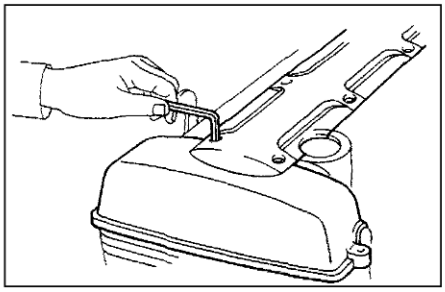
(1) Remove the Oil Filler Cap.

(2) Remove the six bolts using a 5mm hexagon wrench. Remove Timing Belt Cover No. 3.



1JZ-GTE

(1) Remove the eight bolts using a 5mm hexagon wrench. Remove Cylinder Head Cover No. 3

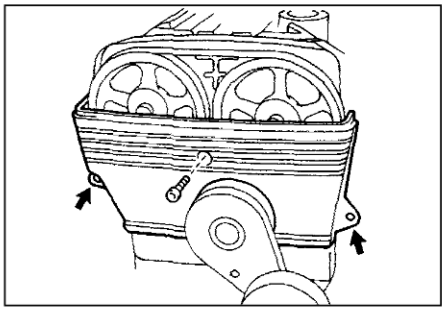


2JZ-GTE

(1) Remove the Oil Filler Cap.

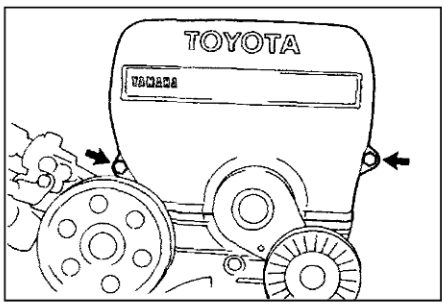
(2) Remove the ten bolts using a 5mm hexagon wrench. Remove Timing Belt Cover No. 3.

2 REMOVE TIMING BELT COVER NO. 2



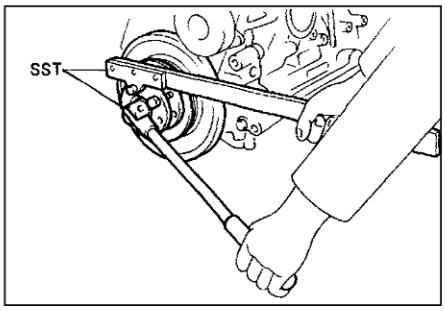
1JZ-GE, 2JZ-GE, 2JZ-GTE

(1) Remove the three bolts using a 5mm hexagon wrench. Removing Timing Belt Cover No. 2.



1JZ-GTE

(1) Remove the two bolts. Remove Timing Belt Cover No. 2.

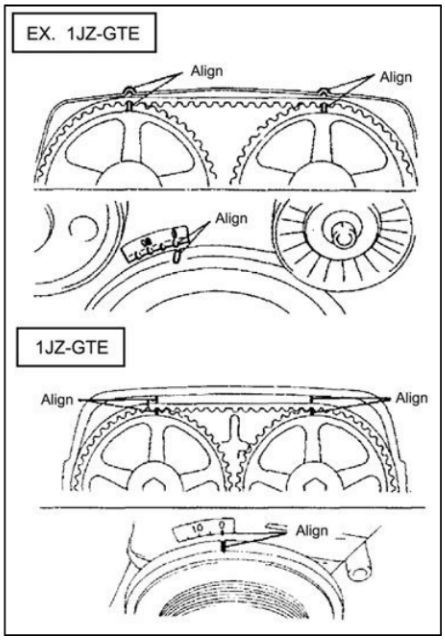


3 REMOVE CRANKSHAFT PULLEY

(1) Using the SST, loosen the crankshaft pulley bolt.

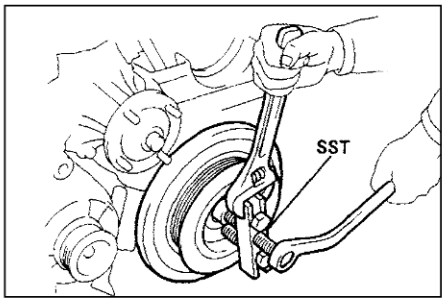
SST 09213-70010 09330-00021 90105-08076

HINT: Since the bolt torque is large, a steel pipe etc may need to be used to loosen the bolt.



(2) Rotate the crankshaft until the No. 1 cylinder is at compression top dead center.

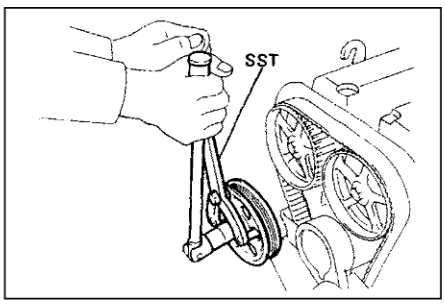
(3) Remove SST and crankshaft pulley bolt.



(4) Remove the crankshaft pulley by hand.

HINT: Use the SST if the pulley cannot be removed by hand.

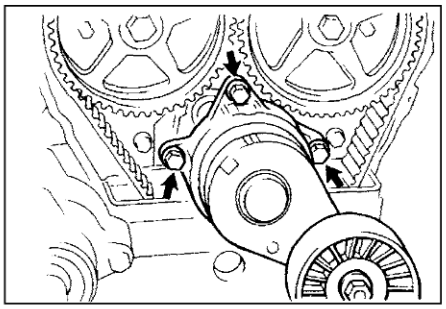
SST 09213-31021



4 REMOVE HYDRAULIC VANE PUMP PULLEY (1JZ-GTE (EX. JZZ30), 2JZ-GTE)

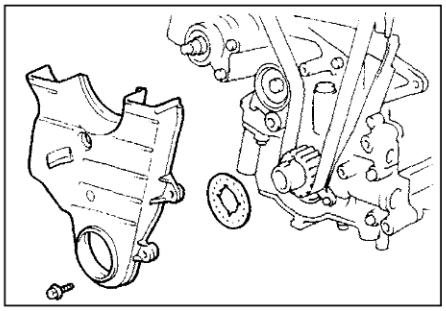
(1) Using the SST, remove the pulley from the vane pump.

SST 09962-01000 09963-01000



5 REMOVE DRIVE BELT TENSIONER

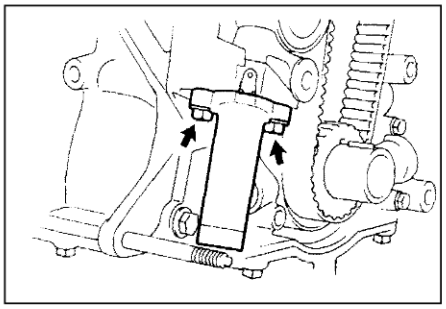
(1) Remove the three bolts holding the tensioner to the cylinder head. Remove the tensioner.



6 REMOVE TIMING BELT COVER NO. 1

(1) Remove the five bolts holding the cover to the oil pump. Remove Timing Belt Cover No. 1.

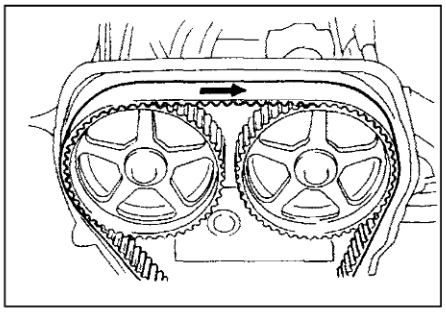
7 REMOVE TIMING BELT GUIDE



8 REMOVE TIMING BELT TENSIONER

(1) Alternately loosen the two bolts. Remove the tensioner.

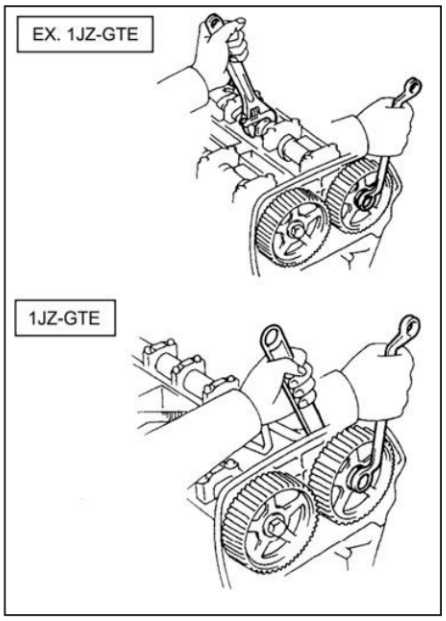
NOTICE: Do not install the tensioner with the rod extended.



9 REMOVE TIMING BELT

(1) If re-using the belt, mark the back of the belt with chalk to ensure that the belt is re-installed in the same direction.

(2) Remove the belt from the pulleys.

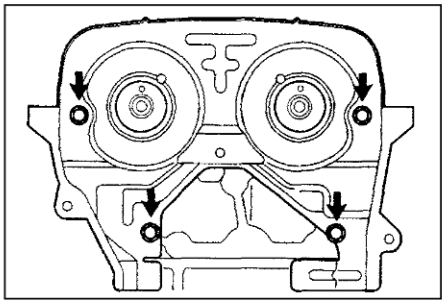


1 REMOVE CYLINDER HEAD COVER AND GASKET

2 REMOVE CAMSHAFT TIMING PULLEY

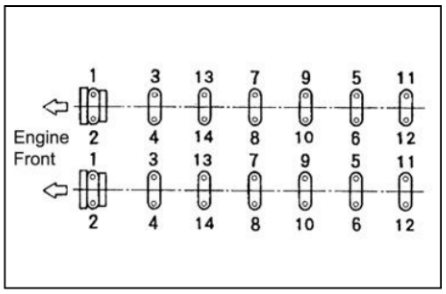
(1) Using an adjustable hexagon wrench, hold the camshaft from turning. Remove the camshaft pulley bolt.

(2) Remove the camshaft pulley.



3 TIMING BELT COVER NO. 4 REMOVAL (EX. 1JZ-GTE)
TIMING BELT COVER NO. 3 REMOVAL (1JZ-GTE)

(1) Remove the four bolts holding the cover to the cylinder head. Remove the cover.

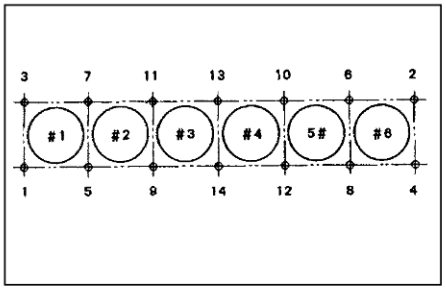


4 REMOVE CAMSHAFT

(1) Alternately loosen the bolts on each side of the cam bearing caps in the order shown in the figure.

(2) Remove the cam bearing caps.

(3) Remove the camshafts and oil seals.



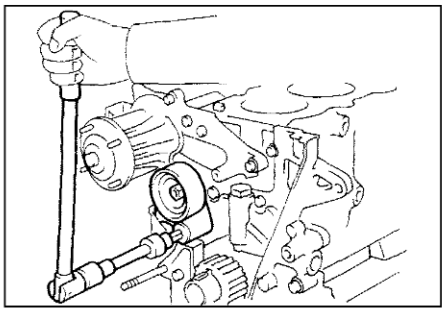
CYLINDER HEAD REMOVAL

1 REMOVE CYLINDER HEAD

(1) Using a double hexagon 10 wrench, alternately loosen the head bolts in the order shown in the figure.

(2) Remove the head bolts and plate washers.

(3) Remove the cylinder head.

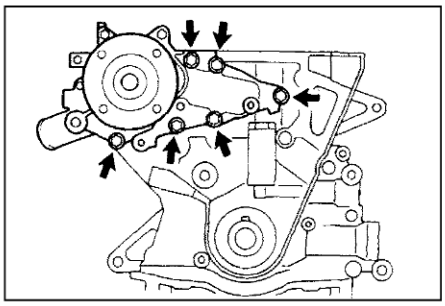


WATER PUMP REMOVAL

(1JZ-GE, 1JZ-GTE (JZZ30), 2JZ-GE)

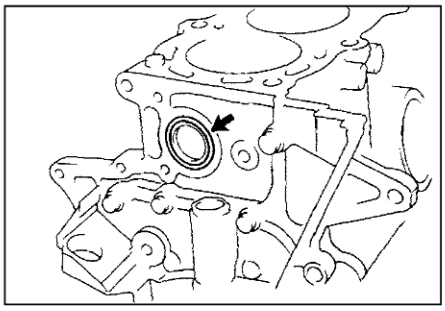
1 REMOVE TIMING BELT IDLER

(1) Remove the bolt using hexagon wrench 10, and remove the idler and plate washer.

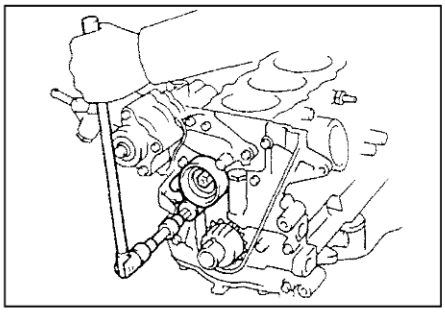


2 REMOVE WATER PUMP

(1) Remove the six bolts holding the water pump to the cylinder block. Remove the water pump.



(2) Remove the O-Ring from the cylinder block.

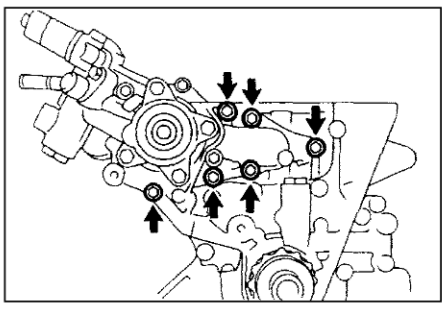


WATER PUMP W/ HYDRAULIC VANE PUMP REMOVAL

(1JZ-GTE (EX. JZZ30), 2JZ-GTE)

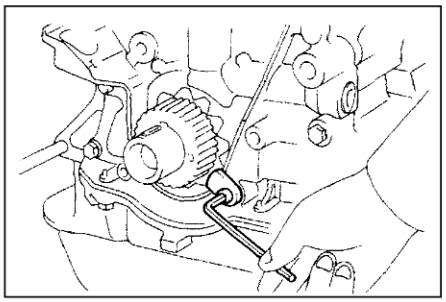
1 REMOVE TIMING BELT IDLER

(1) Remove the bolt using hexagon wrench 10, and remove the idler and plate washer.



2 REMOVE WATER PUMP W/ HYDRAULIC VANE PUMP

(1) Remove the six bolts holding the water pump to the cylinder block. Remove the water pump.

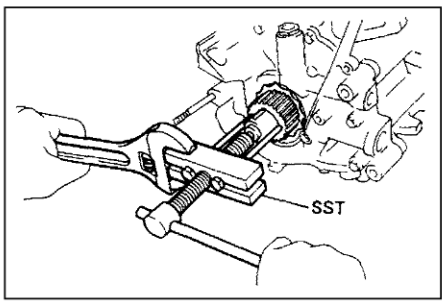


OIL PUMP REMOVAL

1 REMOVE TIMING BELT PLATE

(1JZ-GTE, 2JZ-GTE)

(1) Remove the bolt using a 5mm hexagon wrench. Remove the timing belt plate.

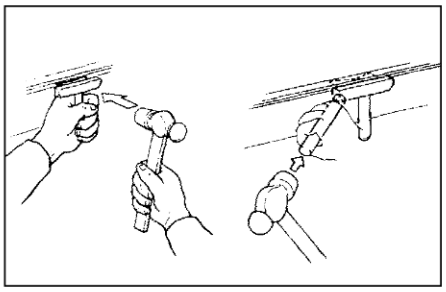


2 REMOVE CRANKSHAFT TIMING PULLEY

(1) Remove the crankshaft timing pulley by hand.

HINT: If the pulley cannot be removed by hand, use the SST.

SST	09213-00020	09213-00030	09213-00040	
	09213-00050			

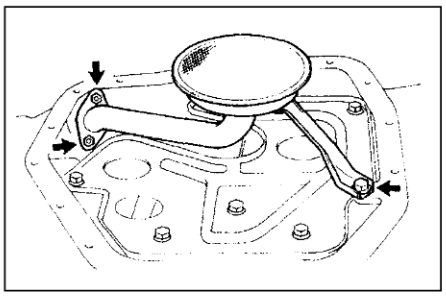


3 REMOVE OIL PAN NO. 2

(1) Remove 16 bolts and two nuts (EX JZA70, JZZ30) or 14 bolts and two nuts (JZA70, JZZ30).
(2) Use a gasket cutter and push bar to remove Oil Pan No. 2.

NOTICE:

- **Be careful not to damage the No. 2 oil pan contact surface of the No. 1 oil pan.**
- **Be careful not to damage the oil pan flange.**

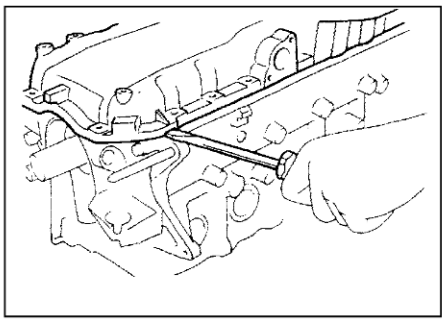


4 REMOVE OIL STRAINER

(1) Remove the bolt and two nuts. Remove the oil strainer.

(2) Remove the gasket.

5 REMOVE OIL PAN BAFFLE



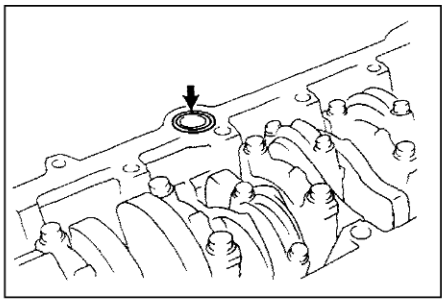
6 REMOVE OIL PAN NO. 1

(1) Remove the 22 bolts.

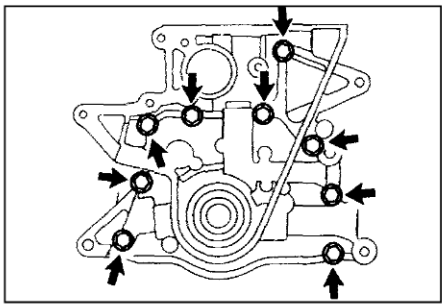
(2) Remove the No.1 oil pan by prying the portions between the cylinder block and No.1 oil pan with a screwdriver.

NOTICE:

- **Be careful not to damage the contact surfaces of the cylinder block and No.1 oil pan.**

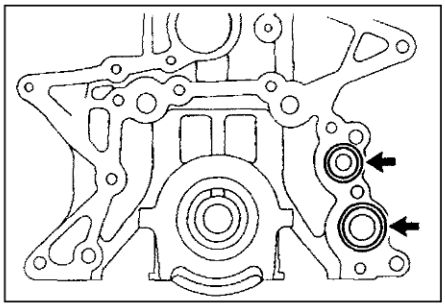


(3) Remove the O-Ring from the cylinder block.

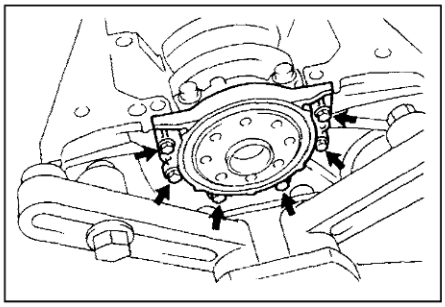


7 REMOVE OIL PUMP

(1) Remove the nine bolts holding the oil pump to the cylinder block. Remove the oil pump.



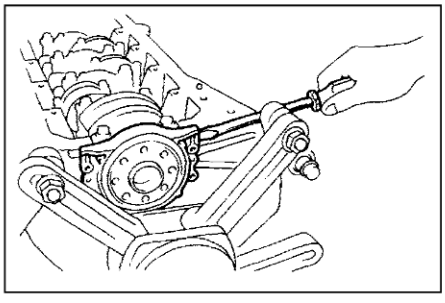
(2) Remove the two O-Rings from the cylinder block.



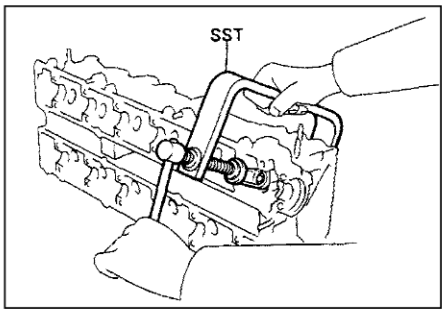
REAR OIL SEAL RETAINER REMOVAL

1 REMOVE REAR OIL SEAL RETAINER

(1) Remove the six bolts.



(2) Remove the rear oil seal retainer by prying in the notches between the retainer and cylinder block with a screwdriver.



CYLINDER HEAD DISASSEMBLY

1 REMOVE ENGINE LIFTING HOOKS

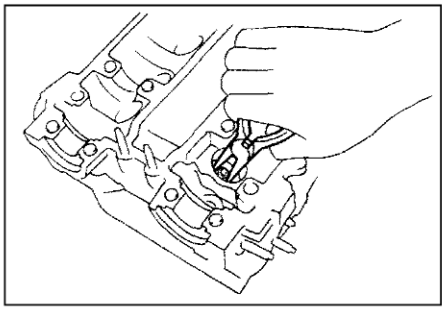
2 REMOVE VALVE LIFTERS AND ADJUSTING SHIMS

3 REMOVE VALVES

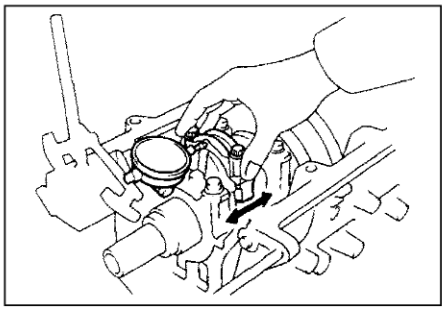
(1) Using SST, compress the valve spring and remove the 2 keepers.

SST 09202–70020

(2) Remove the spring retainer, valve spring, valve and spring seat.



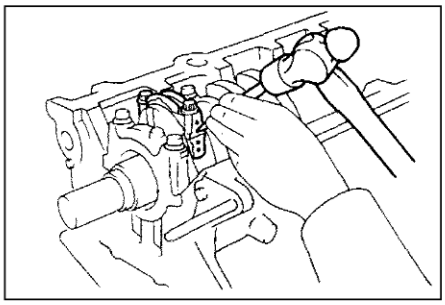
4 REMOVE VALVE STEM OIL SEALS



CYLINDER BLOCK DISASSEMBLY

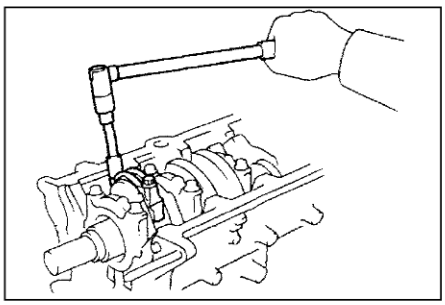
1 CHECK CONNECTING ROD THRUST CLEARANCE

(1) Using a dial indicator, measure the thrust clearance while moving the connecting rods back and forth.
Standard thrust clearance: 0.250 – 0.402 mm
Maximum thrust clearance: 0.50 mm
If the thrust clearance is greater than maximum, replace the connecting rod assembly(s). If necessary, replace the crankshaft.
Connecting rod thickness: 25.898 – 25.950 mm



2 CHECK CONNECTING ROD BEARING OIL CLEARANCE

(1) If matchmarks are not present on rod and cap, mark each rod and cap with the cylinder No. using a center punch.



(2) Use a 12mm socket wrench to remove the two connecting rod bolts.