

# Service Manual

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**G424 Gasoline/LP Engine**

**G424 LP Engine (Low Emission Version)**

**G20E-3, G25E-3, G30E-3**

**GC20E-3, GC25E-3, GC30E-3**

# Important Safety Information

Most accidents involving product operation, maintenance and repair are caused by failure to observe basic safety rules or precautions. An accident can often be avoided by recognizing potentially hazardous situations before an accident occurs. A person must be alert to potential hazards. This person should also have the necessary training, skills and tools to perform these functions properly.

**Read and understand all safety precautions and warnings before operating or performing lubrication, maintenance and repair on this product.**

Basic safety precautions are listed in the "Safety" section of the Service or Technical Manual. Additional safety precautions are listed in the "Safety" section of the owner/operation/maintenance publication. Specific safety warnings for all these publications are provided in the description of operations where hazards exist. WARNING labels have also been put on the product to provide instructions and to identify specific hazards. If these hazard warnings are not heeded, bodily injury or death could occur to you or other persons. Warnings in this publication and on the product labels are identified by the following symbol.



**Improper operation, lubrication, maintenance or repair of this product can be dangerous and could result in injury or death.**

**Do not operate or perform any lubrication, maintenance or repair on this product, until you have read and understood the operation, lubrication, maintenance and repair information.**

Operations that may cause product damage are identified by NOTICE labels on the product and in this publication.

DAEWOO cannot anticipate every possible circumstance that might involve a potential hazard. The warnings in this publication and on the product are therefore not all inclusive. If a tool, procedure, work method or operating technique not specifically recommended by DAEWOO is used, you must satisfy yourself that it is safe for you and others. You should also ensure that the product will not be damaged or made unsafe by the operation, lubrication, maintenance or repair procedures you choose.

The information, specifications, and illustrations in this publication are on the basis of information available at the time it was written. The specifications, torques, pressures, measurements, adjustments, illustrations, and other items can change at any time. These changes can affect the service given to the product. Obtain the complete and most current information before starting any job. DAEWOO dealers have the most current information available.

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# GENERAL INFORMATION

## How To Read This Manual


### Scope of Explanation

This book describes the service procedures for the engine removed from the vehicle.

For procedures concerning removal of the engine from the vehicle and on-vehicle inspection and servicing, refer to the appropriate service manuals separately prepared for the individual models.

### Maintenance and Servicing Procedures

(1) A diagram of the component parts is provided near the front each section in order to give the reader a better understanding of the installed condition of component parts.

(2) The numbers provided within the diagram indicate the sequence for maintenance and servicing procedures; the symbol  indicates a non-reusable part; the tightening torque is provided where applicable.

- Removal steps:  
The part designation number corresponds to the number in the illustration to indicate removal steps.
- Installation steps:  
Specified in case installation impossible in reverse order of removal steps. Omitted if installation is possible in reverse order of removal steps.
- Disassembly steps:  
The part designation number corresponds to the number in the illustration to indicates disassembly steps.
- Reassembly steps.  
Specified in case reassembly is impossible in reverse order of disassembly steps. Omitted if reassembly is possible in reverse order of disassembly steps.

### Classification of Major Maintenance/Service points

When there are major points relative to maintenance and servicing procedures (such as essential maintenance and service points, maintenance and service standard values, information regarding the use of special tools, etc.), these are arranged together as major maintenance and service points and explained in detail.

← A → : Indicates that there are essential points for removal or disassembly.

→ B ← : Indicates that there are essential points for installation or reassembly.

### Symbols for Lubrication, Sealants and Adhesives

Information concerning the locations for lubrication and for application of sealants and adhesives if provided, by using symbols, in the diagram of component parts, or on the page



.... Sealant or adhesive



.... Engine oil or gear oil

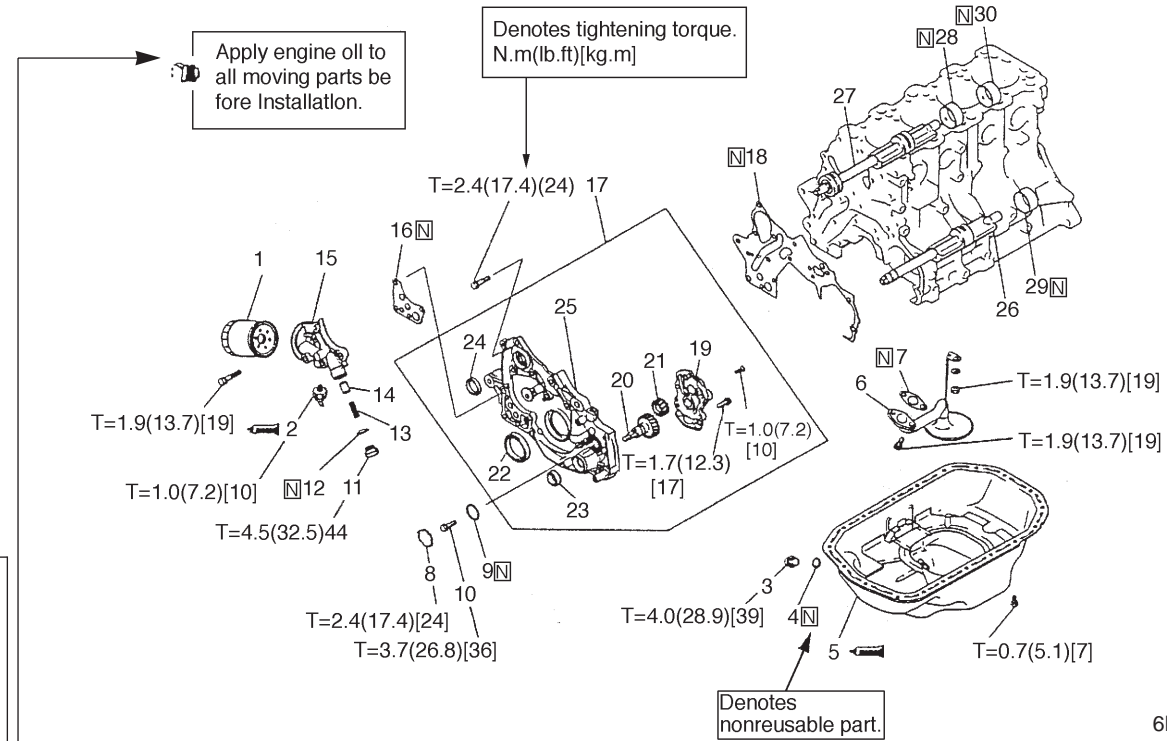
following the component parts page, and explained.

### Inspection

Only the inspections to be performed by using special tools or measuring instruments are covered. General service procedures not covered in this manual, such as visual inspections and cleaning of parts, however, should always be performed during actual service operations.

# FRONT CASE AND OIL PAN REMOVAL AND INSTALLATION

↑  
Indicates  
the section title.



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### Removal steps

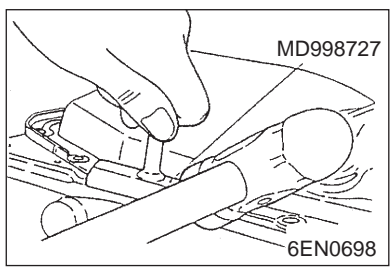
- N← 1. Oil filter
- M← 2. Oil pressure switch
- 3. Drain plug
- L← 4. Drain plug gasket
- ←A→ →K← 5. Oil pan
- 6. Oil screen
- 7. Oil screen gasket
- ←B→ →J← 8. Plug
- 9. O-ring
- ←C→ →I← 10. Flang bolt
- 11. Relief plug
- 12. Gasket
- 13. Relief spring
- 14. Relief plunger
- 15. Oil filter bracket
- 16. Oil filter bracket gasket

- H← 17. Oil pump case assembly
- 18. Front case gasket
- G 19. Oil pump cover
- G← 20. Oil pump drive gear
- G← 21. Oil pump driven gear
- F← 22. Crankshaft front oil seal
- E← 23. Oil pump oil seal
- D← 24. Counterbalance shaft oil seal
- 25. Front case
- 26. Counterbalance shaft, left
- 27. Counterbalance shaft, right
- ←D→ →C← 28. Counterbalance shaft, front bearing
- ←E→ →B← 29. Counterbalance shaft, rear bearing, left
- ←E→ →A← 30. Counterbalance shaft, rear bearing, right

### REMOVAL SERVICE POINTS

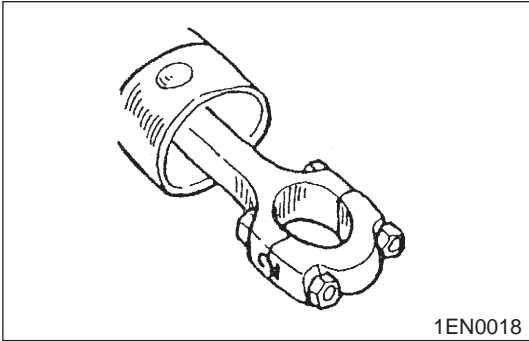
#### ← A → Oil pan removal

- (1) Remove the all oil pan bolts.
- (2) Drive in the special tool between the cylinder block and oil pan.
- (3) Side the tool by striking the edge of the special tool to separate the oil pan from the cylinder block.



This alphabetical letter corresponds to the one assigned to a part in the removal, installation, disassembly or reassembly steps that are indicated in the drawing on the first page of each section.

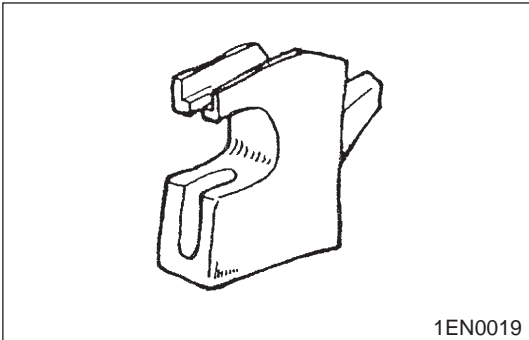
Operating procedures, cautions, etc. on removal, installation, disassembly and reassembly are described



## Precautions Before Service

### Removal and Disassembly

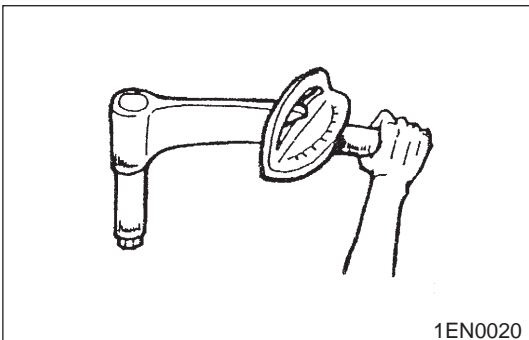
For prevention of wrong installation or reassembly and for ease of operation, put mating marks to the parts where no function is adversely affected.



### Special Tool

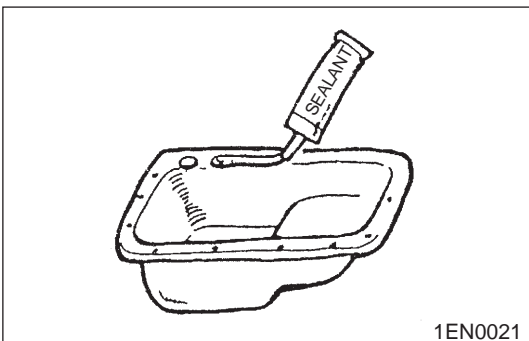
Be sure to use Special Tools when their use is specified for the operation.

Use of substitute tools will result in malfunction of the part or damage it.



### Tightening Torque

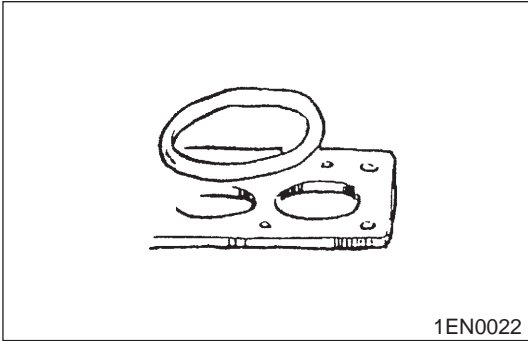
Tighten the part properly to specified torque.



### Sealant

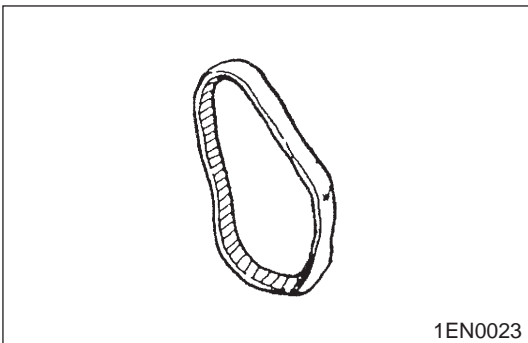
Use specified brand of sealant.

Use of sealant other than specified sealant may cause water or oil leaks.



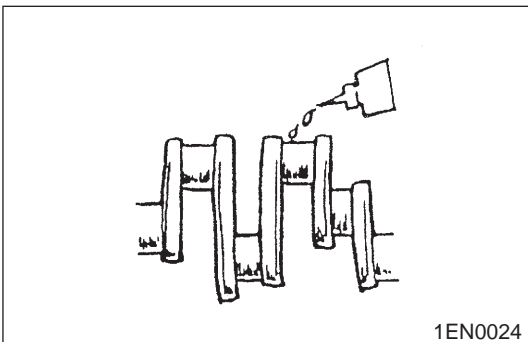
### Replacement Part

When oil seal, O-ring, packing and gasket have been removed, be sure to replace them with new parts. However, rocker cover gasket may be reused if it is not damaged.



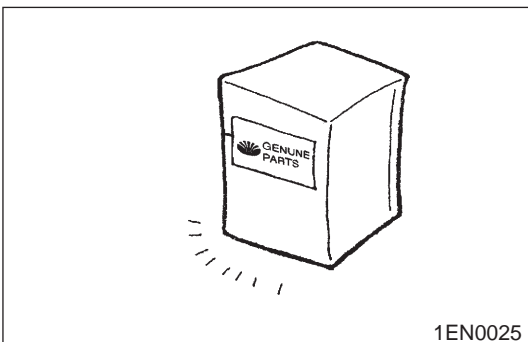
### Rubber Parts

Do not stain timing belt and V-belt with oil or water. Therefore, do not clean the pulley and sprocket with detergent.



### Oil and Grease

Before reassembly, apply specified oil to the rotating and sliding parts.



### Genuine Part

When the part is to be replaced, be sure to use genuine part. For selection of appropriate parts, refer to the Parts Catalog.



# General

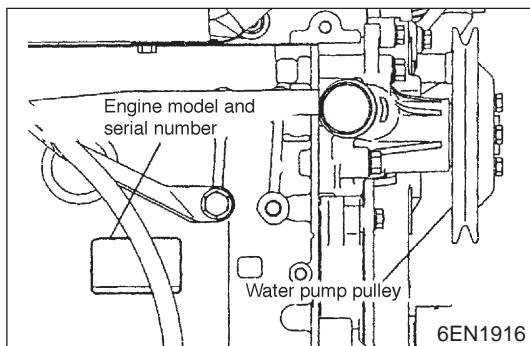
Engine models and numbers

Engine model	Fuel type
G424	Gasoline, LPG, LPG (Low Emission Version)

## Indication of engine model and number

The engine model and serial number are stamped on the right side of cylinder block surface.

Engine model	Engine number
4G64	AA0001 to YY9999



## Tightening Torque

### Major Bolts and Nuts

Item		Torque			Remarks	
		kg•m	lb•ft	N•m		
Ignition system	Water pump pulley bolt	0.9	6.5	9		
	Crankshaft pulley bolt	2.5	18.1	25		
	Spark plug	2.5	18.1	25		
	Distributor nut	1.2	8.7	12		
Tensioner belt	Timing belt cover bolt	1.1	8.0	11		
		0.9	6.5	9		
	Tensioner spring spacer	4.9	35.4	48		
	Tensioner bolt	4.9	35.4	48		
	Oil pump sprocket nut	5.5	39.8	54		
	Crankshaft bolt	12.0	86.8	118		
	Tensioner B bolt	1.9	13.7	19		
	Counterbalance shaft	4.6	33.3	45		
	Engine support bracket bolt	3.6	26.0	35		
	Camshaft sprocket bolt	9.0	65.1	88		
Timing belt rear bolt	1.4	10.1	14			
Fuel system carburetor	Carburetor nut	1.2	8.7	12		
	Air horn nut	1.2	8.7	12		
	Stud	1.2	8.7	12		
	Fuel pump	1.1	8.0	11		
Fuel system LPG carburetor	LPG carburetor nut	1.2	8.7	12		
	Fuel pump cover	1.1	8.0	11		
Intake manifold	Water outlet bolt	1.4	10.1	14		
	Intake manifold bolt/nut	1.8	13.0	18		
Exhaust manifold	Oil level gauge guide bolt	1.4	10.1	14		
	Heat protector bolt	0.9	6.5	9		
	Exhaust manifold nut	3.5	25.3	34		
	Water inlet pipe bolt	1.4	10.1	14		
	Water pump bolt	1.4	10.1	14		
Rocker arm and camshaft	Rocker cover bolt	0.6	4.3	6		
	Bearing cap bolt	M8 × 25	2.4	17.4	24	
		M6 × 65	2.0	14.5	20	
Cylinder head, valve	Cylinder head bolt	8.0 kgf•m(57.9 lb•ft)[78 N•m]+ 0 + 2.0 kgf•m(14.5 lb•ft)[20 N•m]+ 1/4 turn + 1/4 turn				