



**MITSUBISHI  
TURBOCHARGER**

**SERVICE AND  
MAINTENANCE**

**TD025**

**TD03**

**TD04**

**TD05**

**TD06**

**[www.mitsubishi-turbo.com](http://www.mitsubishi-turbo.com)**



**MITSUBISHI  
HEAVY INDUSTRIES**

MITSUBISHI HEAVY INDUSTRIES, LTD.

No. 5-1, Marunouchi, 2-chome Chiyoda-ku, Tokyo Japan

Phone: Tokyo (03) 212-3111 Telex: J22282, J22443 HISHIJU

## INTRODUCTION

This Service Manual is written to familiarize you with the construction and maintenance of your Mitsubishi TD025, TD03, TD04, TD05 and TD06 Turbochargers.

Long life and efficient performance are the essential qualities required of the turbochargers if they are to fulfil their function of turbocharging the engines. These qualities depend to a great extent on the care exercised in maintenance of the turbochargers.

We hope you read this manual carefully, preferably referring to the separate parts catalogue, to get to know your new turbochargers and learn how to service them before starting disassembly, inspection, cleaning, repair and reassembly.

The description, illustrations and specifications contained in this manual were of the turbochargers manufactured at the time this manual was approved for printing.

Mitsubishi reserves the right to change specifications or design without notice and without incurring obligation.


## HOW TO USE THIS MANUAL


1. The parts read in the texts or shown in the illustrations are numbered in the disassembling sequence prescribed for each system or assembly.
2. The items to be inspected during disassembly are indicated in ☐ in the disassembled view.
3. The maintenance standards to be referred to for inspection and reassembly are indicated in easy-to-refer passages of the texts and also in MAINTENANCE STANDARDS in a tabulated form.
4. The sequence in which the parts are to be reassembled are shown in the form of, for example, ⑤→②→④→③→①, below the assembled view.
5. The following marks are used in this manual:

## NOTES, CAUTIONS and WARNINGS

NOTES, CAUTIONS and WARNINGS are used in this manual to emphasize important and critical instructions. They are used for the following conditions:

**NOTE** ..... An operating procedure, condition, etc., which is essential to highlight.

 **CAUTION** ..... Operating procedures, practices, etc., which if not strictly observed, will result in damage to or destruction of turbocharger.

 **WARNING** ..... Operating procedures, practices, etc., which if not correctly followed, will result in personal injury or loss of life.

## DEFINITION OF TERMS

In this manual, the following terms are used in the dimensional and other specifications:

NOMINAL VALUE ..... Indicates the standard dimension of a part.

ASSEMBLY STANDARD ..... Indicates the dimension of a part, the dimension to be attained at the time of reassembly or the standard performance. Its value is rounded to the nearest whole number needed for inspection and is different from the design value.

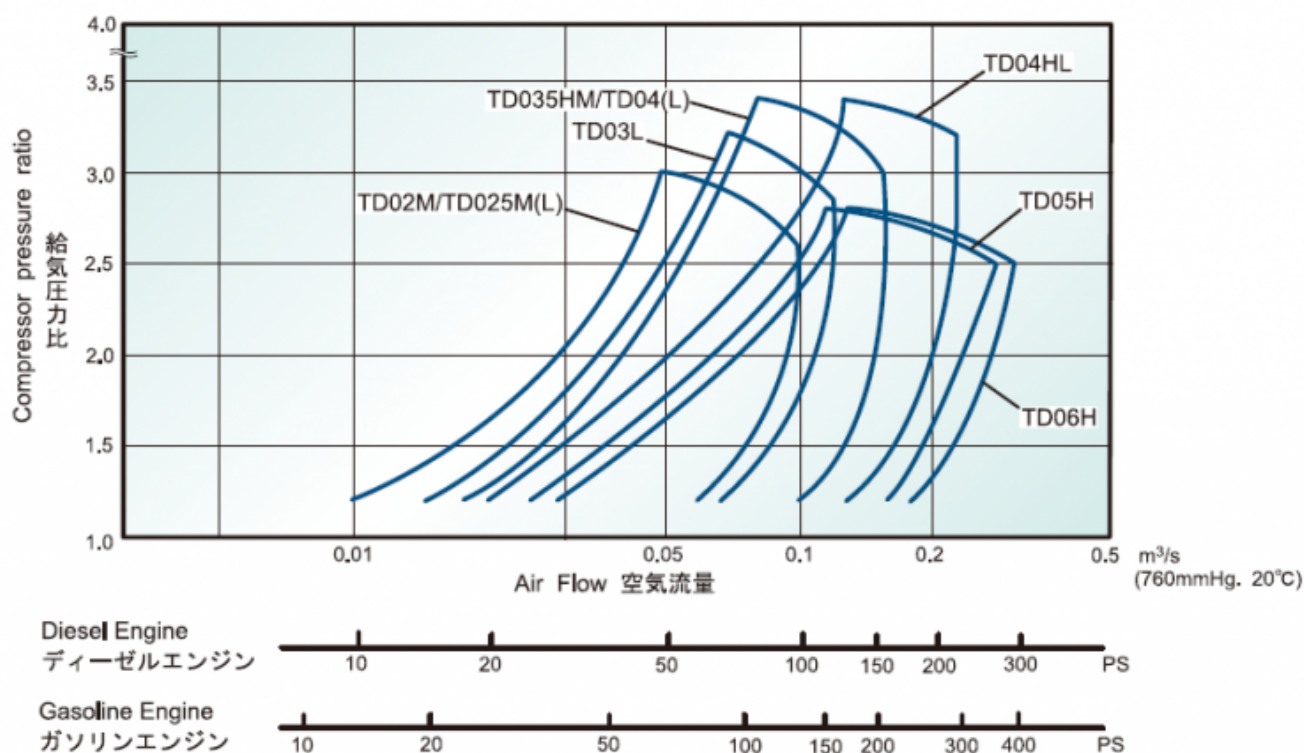
STANDARD CLEARANCE ..... Indicates the clearance to be obtained between mating parts at the time of reassembly.

REPAIR LIMIT ..... A part which has reached this limit must be repaired.

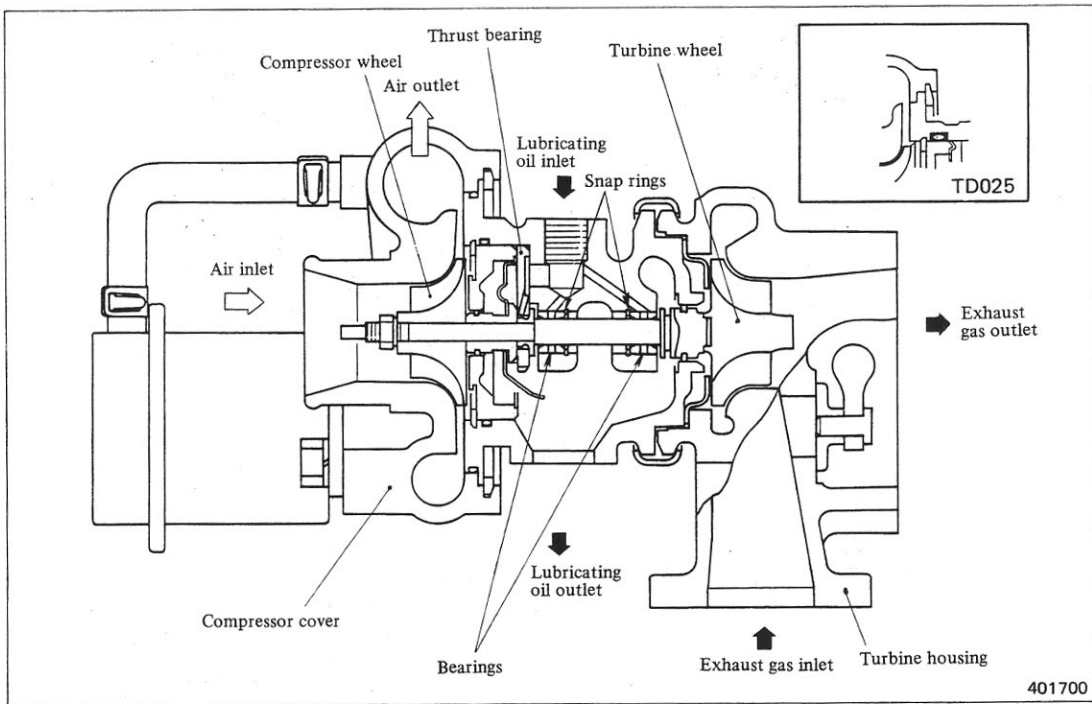
SERVICE LIMIT ..... A part which has reached this limit must be replaced.

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## DESCRIPTION



The turbocharger consists of a mixed-flow turbine, driven by the exhaust gases coming from the engine, a centrifugal air compressor for pumping air toward the inlet manifold of the engine, and a shaft common to the turbine and compressor.

The turbocharger supplies a larger amount of inlet air to the engine than the amount it can draw in naturally aspirated condition.

For those diesel engine applications needing not so high "boost" (manifold) pressures, the larger amount of inlet air that turbocharging makes available eliminates sooty exhaust smoke, reduces the chances of engine overheating (by keeping down the cylinder temperature), improves fuel economy and does away with the need of engine derating at higher altitudes.

There are applications requiring more power from a given size of engine. For

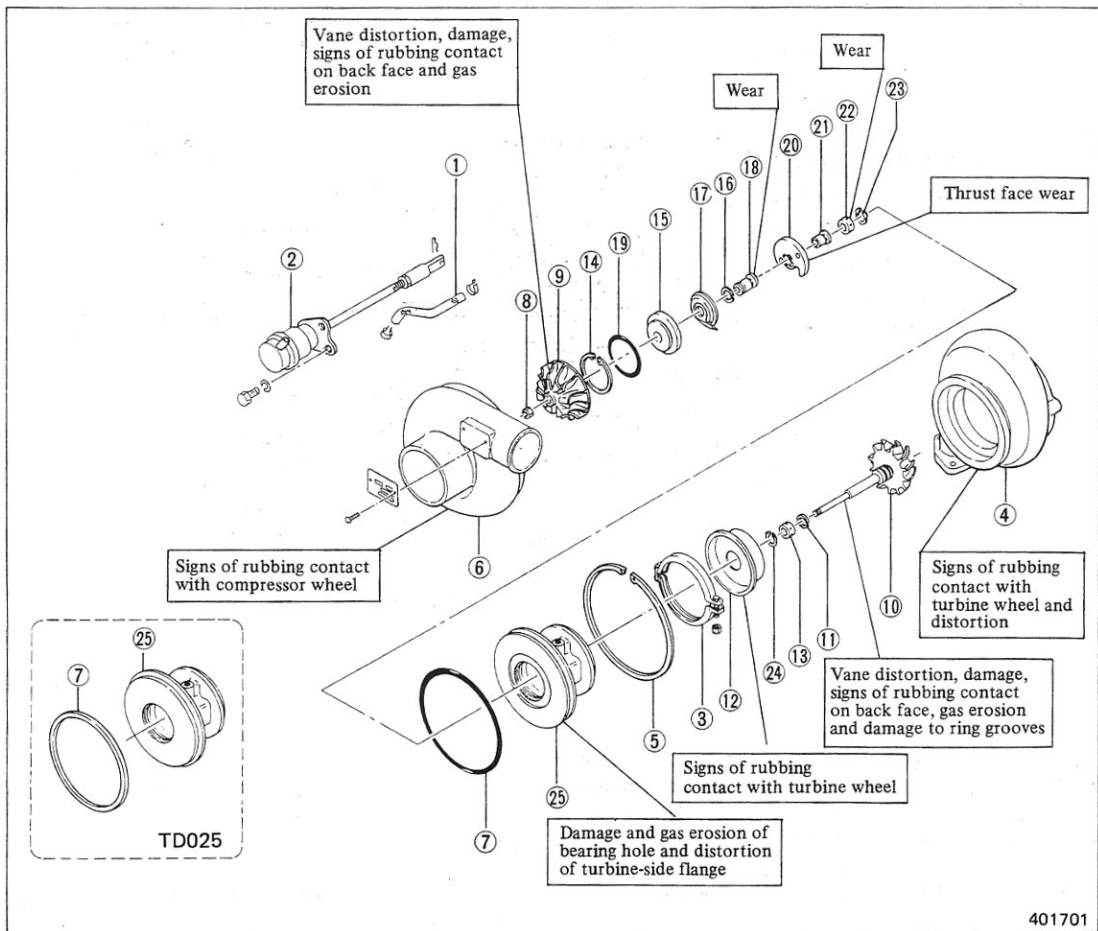
such applications, turbocharging meets the requirement by enabling the engine to convert more fuel into a large power output.

The high turbocharger technology of Mitsubishi is reflected in these turbochargers in terms of performance, reliability and durability. In comparison with other turbochargers, these five models feature separated-type bearings for supporting close to the ends of the shaft on which a greater part of rotary mass is concentrated during operation.

Other features are a shaft made slenderer to reduce the loss due to high-speed rotary friction and a separated-type turbine back plate designed to block more effectively the flow of heat from turbine side to bearing housing.

# DISASSEMBLY

## DISASSEMBLY



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- |                     |                         |                   |
|---------------------|-------------------------|-------------------|
| ① Hose              | ⑨ Compressor wheel      | ⑰ Oil deflector   |
| ② Actuator          | ⑩ Shaft & turbine wheel | ⑱ Thrust sleeve   |
| ③ Coupling assembly | ⑪ Piston ring           | ⑲ O-ring          |
| ④ Turbine housing   | ⑫ Turbine back plate    | ⑳ Thrust bearing  |
| ⑤ Snap ring         | ⑬ Bearing               | ㉑ Thrust ring     |
| ⑥ Compressor cover  | ⑭ Snap ring             | ㉒ Bearing         |
| ⑦ O-ring            | ⑮ Insert                | ㉓ Snap ring       |
| (shim for TD025)    | ⑯ Piston ring           | ㉔ Snap ring       |
| ⑧ Lock nut          |                         | ㉕ Bearing housing |



### CAUTION

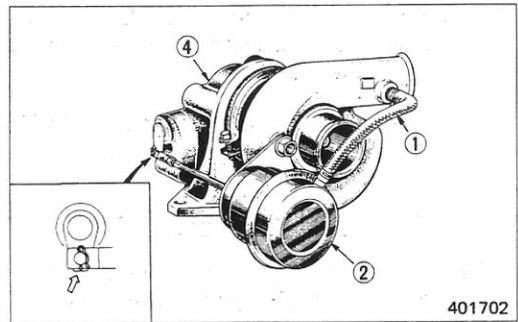
The vanes of compressor wheel and turbine wheel are not quite strong and can easily be distorted. When handling these wheels, be careful not to drop or shock them.

### 1. Removal of actuator

Disconnect hose (1) from actuator, and remove actuator (2).

#### NOTE

To disconnect the rod of actuator (2) from turbine housing (4), pull off snap pin at the lever joint.

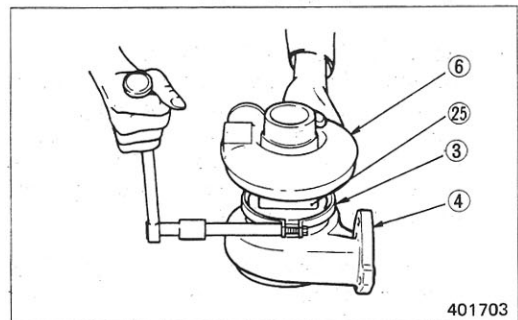


### 2. Removal of turbine housing

Loosen coupling assembly (3), as shown, and separate turbine housing (4) from bearing housing (25).

#### NOTE

Before separating the three enclosure parts, namely, compressor cover (6), bearing housing (25) and turbine housing (4), be sure to give match marks across each joint. A punch or quick-drying ink pen may be used.



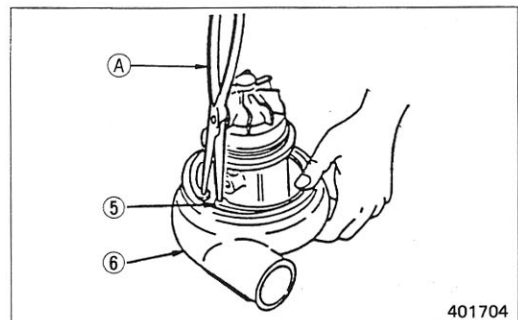
### 3. Removal of compressor cover

- (1) Lay compressor cover (6) flat on the table, as shown. Using the snap ring pliers (A) (49160-90100), take off snap ring (5).



#### WARNING

Hold down the snap ring by hand while pinching the ring ends with the snap ring pliers, so that the ring will not fly off just in case the ring ends slip off the pliers.



## DISASSEMBLY

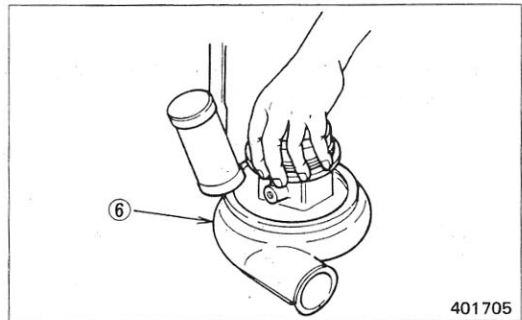
- (2) Using a plastic hammer, lightly tap around on compressor cover (6) to remove the cover.

Remove the O-ring or shim (TD025) (7) from the bearing housing.



### CAUTION

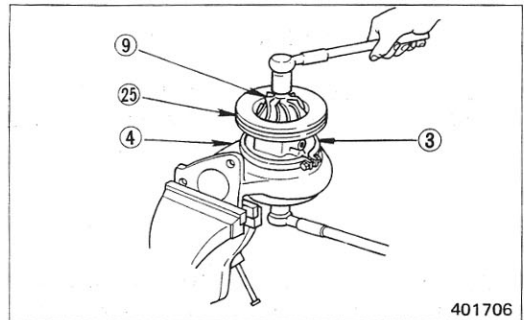
Be careful not to bump the compressor wheel against the cover.



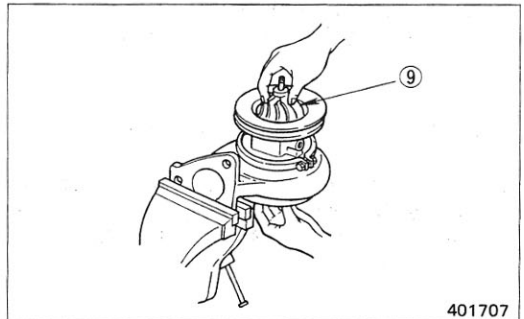
## 4. Removal of compressor wheel

- (1) Hold turbine housing (4) in a vise, as shown. Fit the removed bearing housing (25) to the housing, and secure it temporarily with coupling. Shaft & turbine wheel (10) is now back in the turbine housing and compressor wheel (9) is on top.

While holding the boss part of turbine wheel as shown, loosen off lock nut (8) from the shaft.



- (2) Put your hand to the turbine wheel and, while holding this wheel, turn compressor wheel (9) back and forth with the other hand to lift it off the shaft.



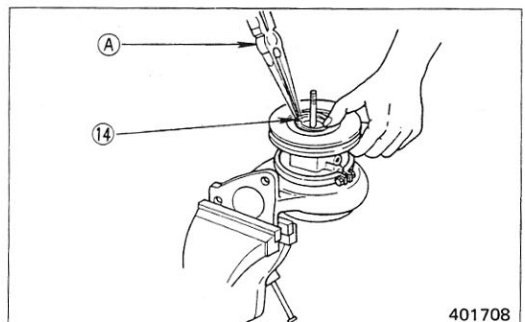
## 5. Removal of snap ring

Using the snap ring pliers (A) (49160-90100), remove snap ring (14).



### WARNING

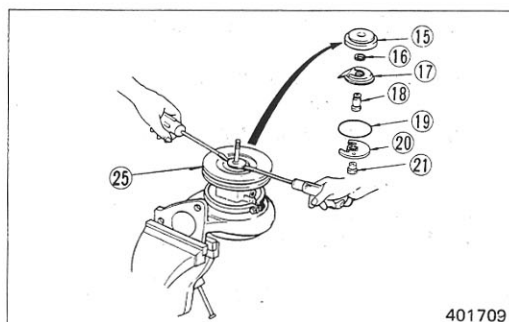
Hold down the snap ring by hand while pinching the ring ends with the snap ring pliers, so that the ring will not fly off just in case the ring ends slip off the pliers.



## 6. Removal of insert, oil deflector and others

Using two screwdrivers, gently lift insert (15) off bearing housing (25). Remove the following parts:

- ⑩ Piston ring
- ⑪ Oil deflector
- ⑫ Thrust sleeve
- ⑬ O-ring
- ⑭ Thrust bearing
- ⑮ Thrust ring



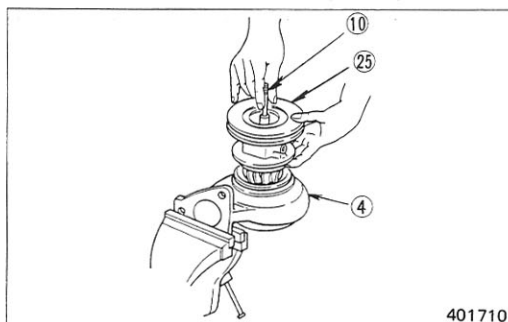
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### NOTE

In reassembling, position snap ring (14) with its flat side facing insert (15).

## 7. Removal of shaft & turbine wheel and bearing

- (1) Lift bearing housing (25) complete with shaft & turbine wheel (10) off turbine housing (4) held in the vise, with one hand holding the shaft and with the other hand holding the bearing housing (25). Be careful not to damage the vanes as the shaft & turbine wheel clears turbine housing (4).

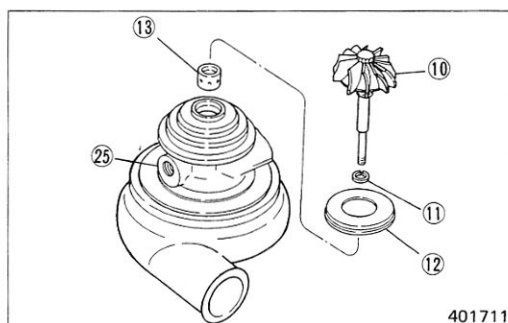


401710

- (2) Turn bearing housing (25) upside down (with the turbine wheel up), and lay it on compressor cover. Under this condition, remove the following parts:

(To remove shaft & turbine wheel (10), lightly tap on its end with a hammer handle.)

- ⑩ Shaft & turbine wheel
- ⑪ Piston ring
- ⑫ Turbine back plate
- ⑬ Bearing (turbine side)



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## DISASSEMBLY

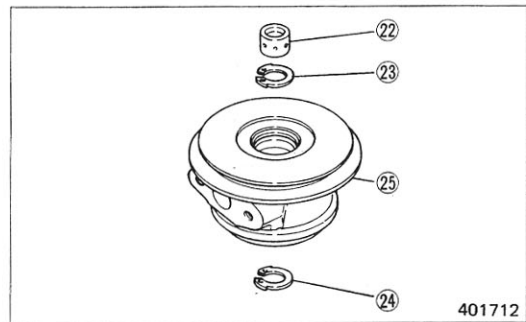
### 8. Removal of snap rings and bearing

Lay bearing housing (25) on the bench with the compressor side up, and remove the following parts:

- ②② Bearing } (compressor side)
- ②③ Snap ring }
- ②④ Snap ring (turbine side)

#### NOTE

- a) Use the snap ring pliers (49160-90200) to remove the snap rings.
- b) When removing the snap ring, be careful not to damage the inside surface of bearing housing and sealing face (turbine side) of piston ring.



## CLEANING AND INSPECTION

## 1. Cleaning

Blasting equipment is used in the factory to clean turbochargers. At the dealer level, the following cleaning method, based on the use of a non-inflammable solvent (for which Die Cleaner T-30 of Daido Chemical make is recommendable), may be applied:

**NOTE**

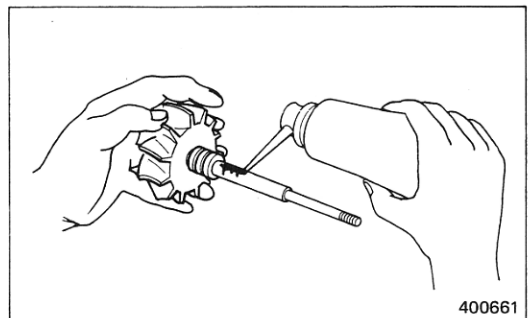
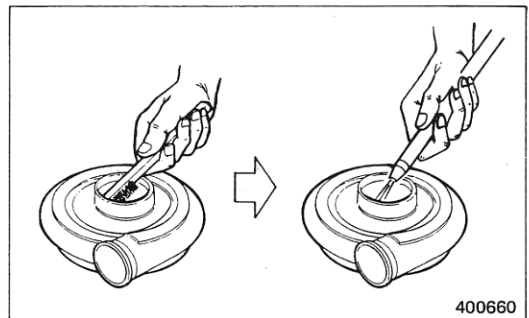
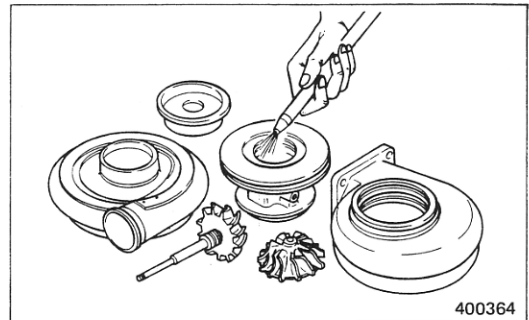
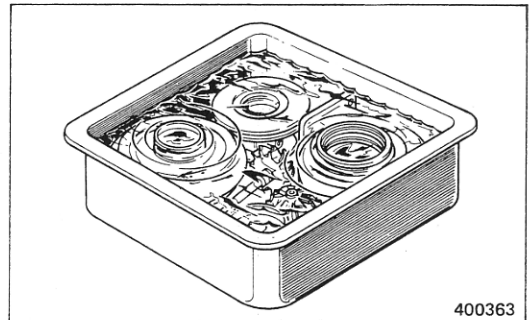
Non-sudsing household detergent may be used instead of the solvent. In such a case, be sure to select one that is chemically neutral and does not attack metals.

- (1) Visually inspect the parts to detect signs of burning and other mal-conditions in order to obtain as much information as possible before washing them.
- (2) Immerse the parts in the washing pan filled with the solvent, and wash each clean, making it completely free of oily matter.
- (3) Take out the washed parts and dry them by directing compressed air: blow off the solvent from every nook and corner of each part.
- (4) Scale-like deposits, if any, must be removed by using a plastic scraper or bristle brush. After removing the deposits off, wash the part and dry it again as before.

**CAUTION**

When washing and drying the parts, handle them cautiously and avoid denting or nicking them.

- (5) Protect the sliding surfaces of the cleaned parts against rusting by applying clean engine oil to them.



## CLEANING AND INSPECTION

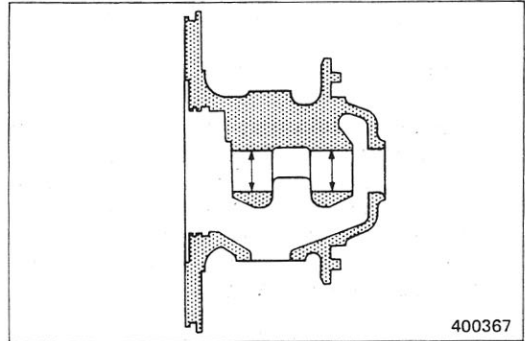
### 2. Inspection

#### (1) Bearing housing

Measure the inside diameter of bearing bores in the housing. If it exceeds the Service limit, replace the housing.

Unit: mm (in.)

Item	Service limit		
	TD025	TD03/TD04	TD05/TD06
Inside diameter of bearing bores in housing	11.006 (0.43331)	13.006 (0.51205)	15.686 (0.61756)

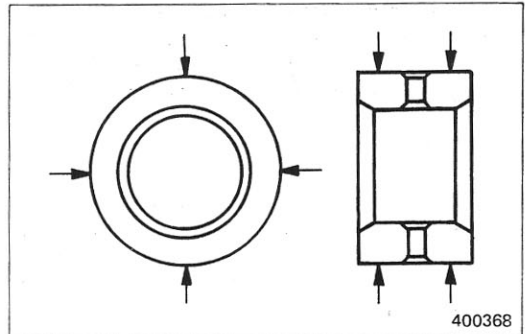


#### (2) Bearing

- (a) Measure the outside diameter of the bearing. If it is less than the Service limit, replace the bearing.

Unit: mm (in.)

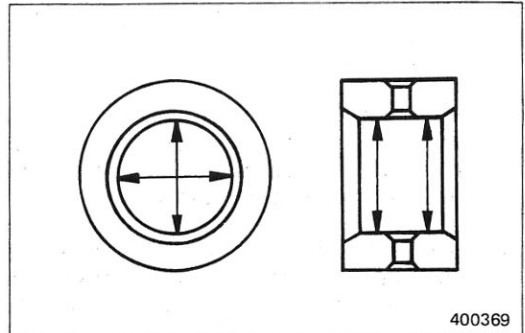
Item	Service limit		
	TD025	TD03/TD04	TD05/TD06
Outside diameter of bearing	10.924 (0.43008)	12.924 (0.50882)	15.574 (0.61315)



- (b) Measure the inside diameter of the bearing. If it exceeds the Service limit, replace the bearing.

Unit: mm (in.)

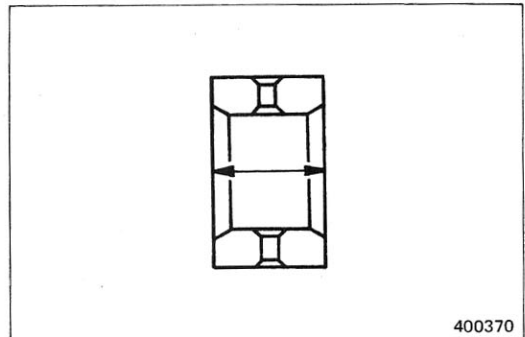
Item	Service limit		
	TD025	TD03/TD04	TD05/TD06
Inside diameter of bearing	6.029 (0.23736)	7.529 (0.29642)	9.040 (0.35590)



- (c) Measure the length of the bearing. If it is less than the Service limit, replace the bearing.

Unit: mm (in.)

Item	Service limit		
	TD025	TD03/TD04	TD05/TD06
Length of bearing	6.94 (0.2732)	7.94 (0.3126)	9.34 (0.3677)

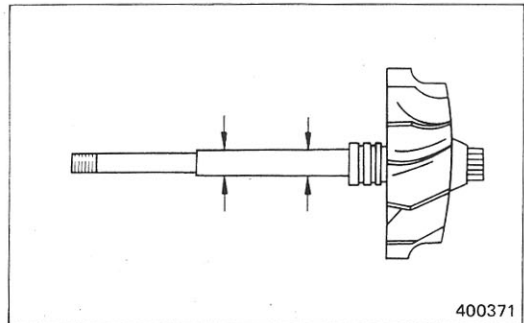


## (3) Shaft &amp; turbine wheel

- (a) Measure the diameter of the shaft journals. If it is less than the Service limit, replace the shaft & turbine wheel and piston ring.

Unit: mm (in.)

Item	Service limit		
	TD025	TD03/TD04	TD05/TD06
Diameter of shaft journals	5.996 (0.23606)	7.496 (0.29512)	8.994 (0.35410)

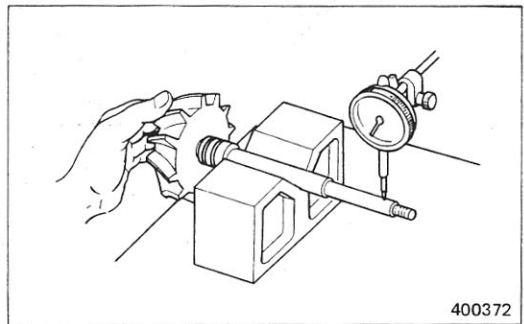


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- (b) Using a dial indicator and V-block, measure the runout of the shaft. If it exceeds the Service limit, replace the shaft & turbine wheel.

Unit: mm (in.)

Item	Service limit		
	TD025	TD03/TD04	TD05/TD06
Runout of shaft & turbine wheel	0.015 (0.00059)		



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**NOTE**

Do not attempt to straighten a distorted shaft. Be sure to replace the shaft & turbine wheel with a new one when the shaft is distorted.

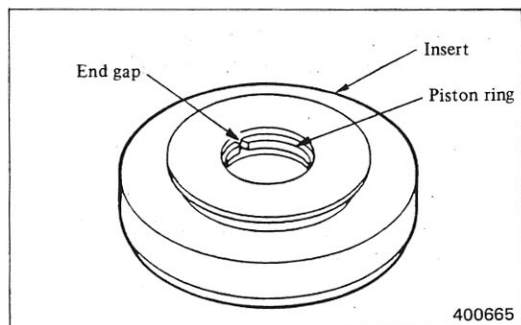
- (c) Check the surfaces of shaft journals for condition. If they are roughened, hold the shaft on a lathe by tightening it in the chucks at its center, and turn it at 300 to 600 rpm to lightly polish the journals with #400 sandpaper and engine oil.

## (4) Insert

Place a new piston ring in the groove in the insert, and measure the end gap of the ring. If the gap exceeds the Standard clearance, replace the insert.

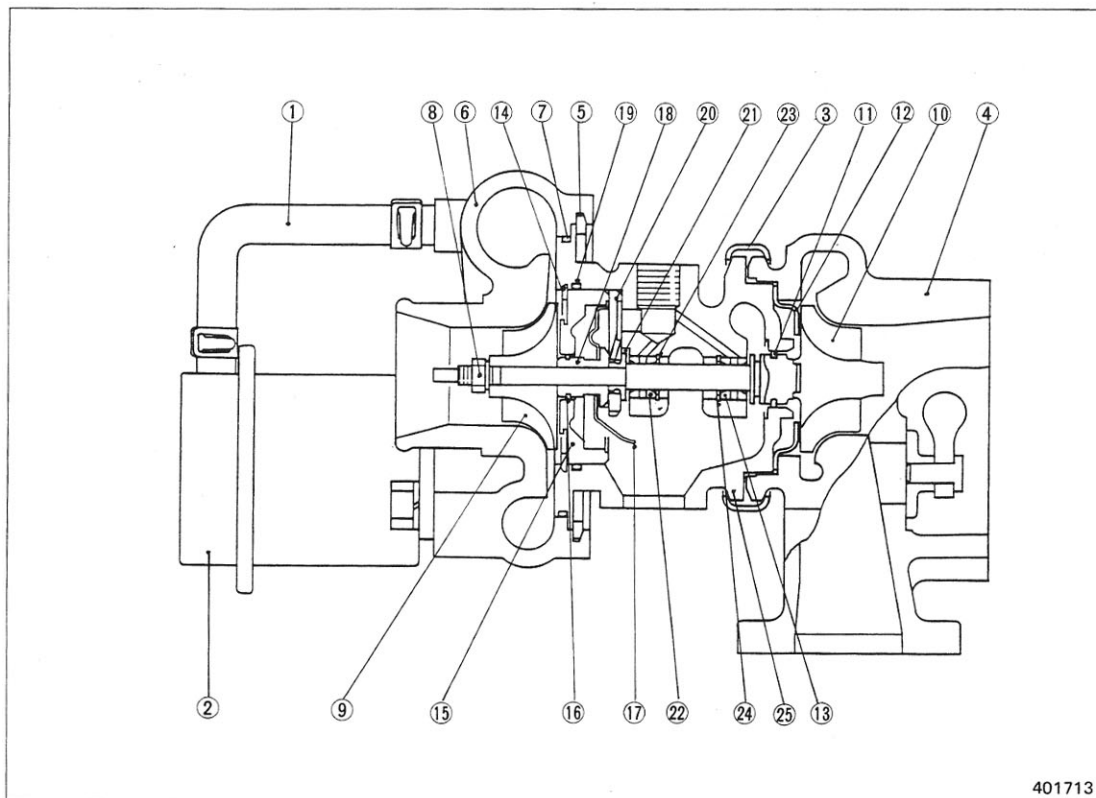
Unit: mm (in.)

Item	Standard clearance		
	TD025	TD03/TD04	TD05/TD06
End gap of piston ring	0.05 - 0.15 (0.0020 - 0.0059)		



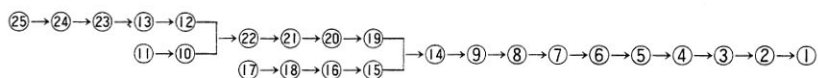
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# REASSEMBLY



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## Reassembling sequence



### NOTE

a) Replace the following parts when reassembling the turbocharger:

- |                 |            |
|-----------------|------------|
| 11) Piston ring | 19) O-ring |
| 16) Piston ring | 7) O-ring  |

b) After installing an overhauled turbocharger on the engine, crank the engine with the starter to permit the engine oil to flow to the turbocharger.



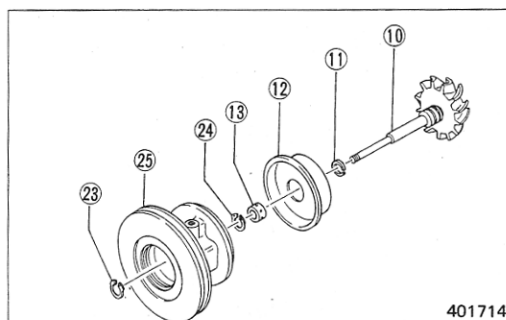
### CAUTION

Replace the compressor wheel or shaft & turbine wheel if its vanes are badly distorted or cracked. A single blade having minor distortion or scratching is not the cause for replacement; in such a case, never attempt to re-shape the distorted vane.

# 1. Installation of shaft & turbine wheel and bearings

## (1) Reassemble the following parts:

- ②⑤ Bearing housing
- ②④ Snap ring
- ②③ Snap ring
- ②③ Bearing
- ②① Piston ring
- ②⑩ Shaft & turbine wheel



## CAUTION

- a) Use the snap ring pliers (49160-90200) to install the snap rings. After installing the snap ring, make sure that it can be finger rotated freely.
- b) Apply engine oil to the inside and outside surfaces of bearing when installing the bearing to the shaft.
- c) When installing the piston ring to the shaft & turbine wheel, be careful not to expand the ring more than is necessary for installation nor to twist it.
- d) After installing the piston ring in its groove, apply Molykote to it.

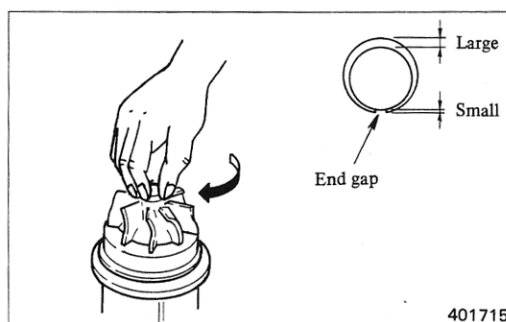
Lay bearing housing (25) on compressor cover (6) and install turbine back plate (12).

## (2) When installing shaft & turbine wheel complete with piston ring to the bearing housing, position the piston ring as shown, and insert the shaft & turbine wheel into the housing while rotating it back and forth.



## CAUTION

Never force the shaft & turbine wheel unless it is in line with the turbine back plate and bearing housing.



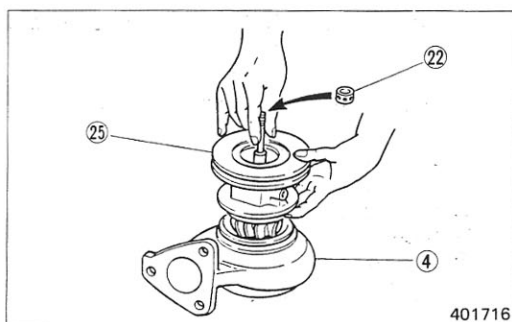
## REASSEMBLY

- (3) After installing shaft & turbine wheel (10), hold the end of shaft by hand, and turn it upside down so that its compressor side is up. Then, install compressor-side bearing (22). Temporarily install bearing housing (25) to turbine housing (4), and install coupling assembly (3) by tightening its nut temporarily.



### CAUTION

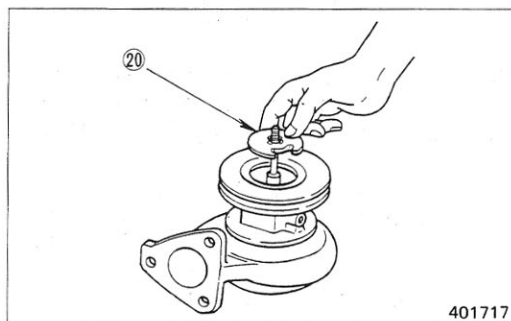
Hold the shaft by hand to prevent it from sliding out of position during installation.



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### 2. Installation of thrust bearing

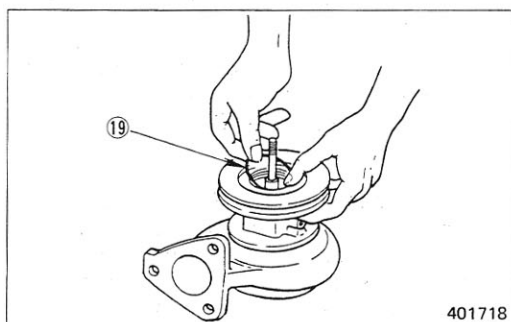
Apply engine oil to the inside and outside surfaces of thrust ring (21) and thrust bearing (20), and install the ring and bearing in place.



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### 3. Installation of O-ring

Apply engine oil to O-ring (19), and install it in place.



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#### 4. Reassembly of insert subassembly

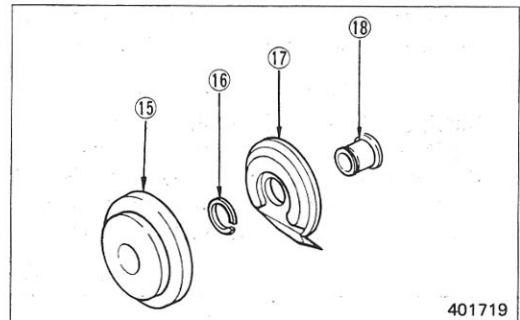
- (1) Reassemble the insert parts in the following sequence:

- ⑰ Oil deflector
- ⑱ Thrust sleeve
- ⑯ Piston ring
- ⑮ Insert



#### CAUTION

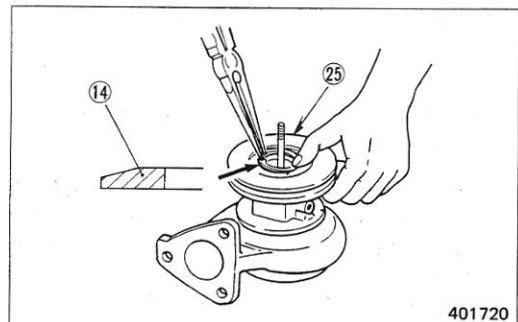
- a) When installing the piston ring to the thrust sleeve, be careful neither to expand the ring more than is necessary for installation nor to twist its end gap.
- b) Apply Molykote to the piston ring fitted to the thrust sleeve, and install the sleeve to the insert, taking care not to damage the ring.



- (2) Install the insert subassembly to bearing housing (25).

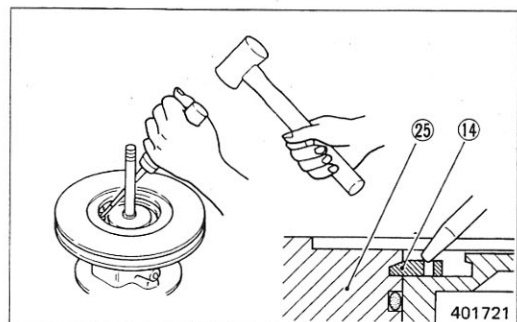
#### 5. Installation of snap ring

Using the snap ring pliers (49160-90100), install snap ring (14) to bearing housing (25), with its tapered side facing upward.



#### CAUTION

- a) Be sure to position the snap ring as specified above when installing it.
- b) Give light hammer blows to the ends of snap ring through a screwdriver to fit the ring in the groove in the bearing housing.
- c) When giving hammer blows to the snap ring, be careful not to damage the bearing housing.



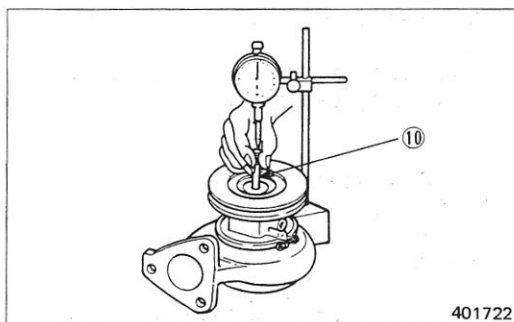
## REASSEMBLY

### 6. Measurement of clearance between turbine wheel and turbine housing

Set up a dial indicator on shaft & turbine wheel (10) as shown. Move the shaft in the axial direction to measure the clearance. If the clearance is out of the Standard clearance, disassemble the parts, and investigate for the cause.

Unit: mm (in.)

Item	Standard clearance		
	TD025	TD03/TD04	TD05/TD06
Clearance between shaft & turbine wheel and turbine housing	0.39 – 1.00 (0.0154 – 0.0394)	0.28 – 0.97 (0.0110 – 0.0382)	0.42 – 1.10 (0.0165 – 0.0433)



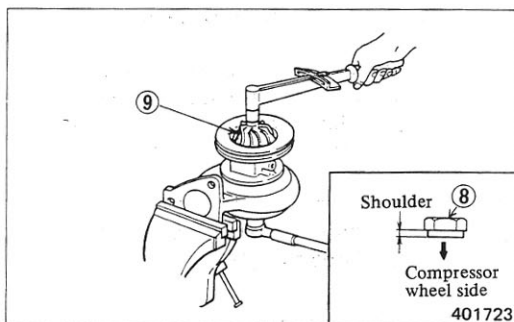
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### 7. Installation of compressor wheel

Install compressor wheel (9), apply Molykote to the lock nut and tighten it to the specified torque.

Unit: kgf-m (lbf-ft) [N-m]

Item	Tightening torque		
	TD025	TD03/TD04	TD05/TD06
Compressor wheel lock nut	0.15 – 0.25 (1.1 – 1.8) [1.5 – 2.5]	0.40 – 0.50 (2.9 – 3.6) [3.9 – 4.9]	0.80 – 0.90 (5.8 – 6.5) [7.8 – 8.8]



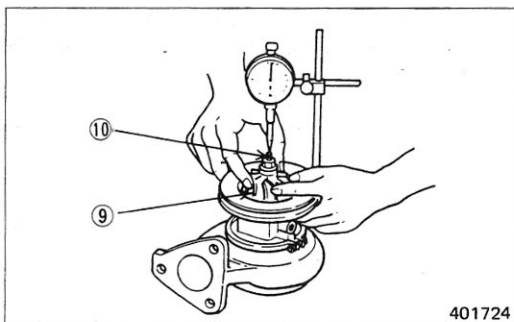
401723

### 8. Measurement of axial play of shaft & turbine wheel

Set up a dial indicator on shaft & turbine wheel (10) as shown. Move compressor wheel (9) in the axial direction to measure the play. If the play is out of the Standard clearance, disassemble the parts, and investigate for the cause.

Unit: mm (in.)

Item	Standard clearance		
	TD025	TD03/TD04	TD05/TD06
Axial play of shaft & turbine wheel	0.057 – 0.103 (0.00224 – 0.00406)		



401724

# 9. Measurement of clearance between turbine back plate and turbine wheel

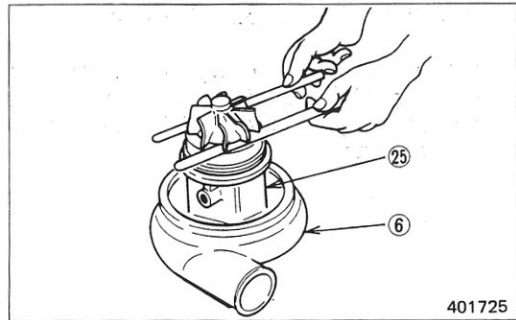
Remove the turbine housing from bearing housing (25), and install compressor cover (6). Using filler gauges, measure the clearance between turbine back plate (12) and turbine wheel. If the clearance is out of the Standard clearance, disassemble the parts, and investigate for the cause.

## NOTE

Measure the clearance at the tips of vanes with two feeler gauges.

Unit: mm (in.)

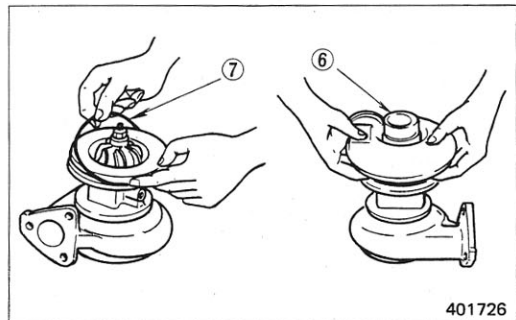
Item	Standard clearance		
	TD025	TD03/TD04	TD05/TD06
Clearance between turbine back plate and turbine wheel	0.88 – 1.32 (0.0346 – 0.0520)	0.39 – 0.83 (0.0154 – 0.0327)	0.37 – 0.85 (0.0146 – 0.0335)



401725

# 10. Installation of compressor cover

Install compressor cover (6), making sure that it is correctly positioned with respect to the turbine housing. Apply grease to O-ring (7) when installing it.



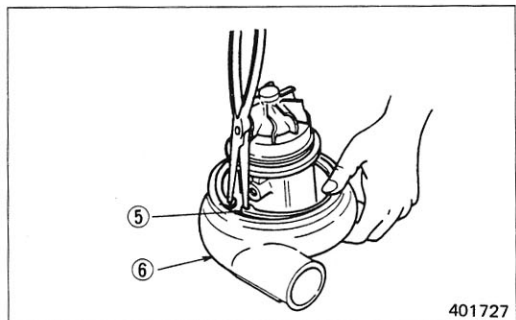
401726

# 11. Installation of snap ring

Using the snap ring pliers (49160-90100), install snap ring (5) to compressor cover (6), with its tapered side facing upward.

## NOTE

- Be sure to position the snap ring as specified above when installing it.
- Give light hammer blows to the ends of snap ring to fit the ring in the groove in the bearing housing.

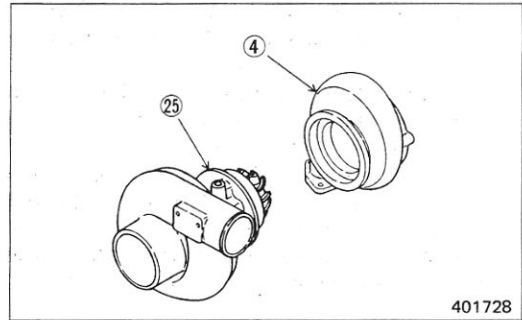


401727

## REASSEMBLY

### 12. Installation of turbine housing

Install turbine housing (4) to bearing housing (25), making sure that it is correctly positioned with respect to the housing.

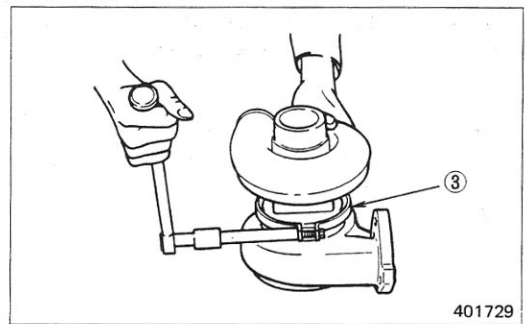


### 13. Installation of coupling assembly

Apply Molykote to the threads of nut of coupling assembly (3), and tighten the nut to the specified torque.

Unit: kgf-m (lbf-ft) [N-m]

Item	Tightening torque		
	TD025	TD03/TD04	TD05/TD06
Coupling assembly nut	0.15 – 0.25	0.40 – 0.50	0.40 – 0.50
	(1.1 – 1.8)	(2.9 – 3.6)	(2.9 – 3.6)
	[1.5 – 2.5]	[3.9 – 4.9]	[3.9 – 4.9]

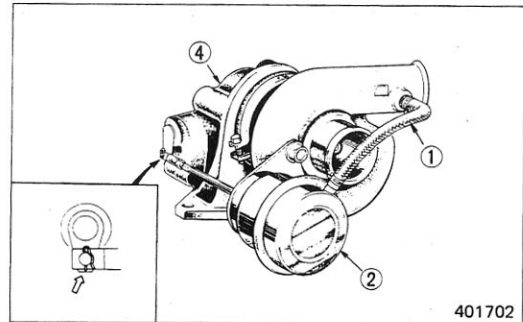


### 14. Installation of actuator

Install actuator (2) in place, and connect hose to actuator.

#### NOTE

After installing actuator body (2) to compressor cover (6), connect its rod to the lever of turbine housing (4) with snap pin.



## TROUBLESHOOTING

Symptom	Possible causes and remedy
Rough running (abnormal running noise or vibration)	<p>(1) Bearing could be in faulty condition or rotating parts, particularly wheels, could be rubbing surrounding parts. This type of trouble is often caused by keeping a deteriorated lubricating oil in service, by inadequate oil supply due to a clogged oil pipe or broken or clogged oil filter, or by habitual quick cold starting or abrupt shutting down of a hot engine.</p> <p>(2) Evidence of rubbing contact on rotating parts indicates loss of balance in rotating mass or a distorted shaft, caused by a worn-down bearing or by an airborne or gasborne object impinging upon the compressor or turbine wheel to disturb its mass distribution.</p> <p>In either case, turbocharger must be taken down and inspected. Usually repair service is required.</p>
Turbocharger appears to be in sound condition but engine lacks power.	<p>(1) Exhaust gases could be leaking. Check exhaust gas line from engine manifold to turbocharger gas inlet.</p> <p>(2) Abnormally high back pressure to turbocharger's exhaust gas outlet could be the cause. Check muffler for clogging with carbon.</p> <p>(3) Boost air could be leaking or air cleaner could be in clogged condition. If clogged, clean or replace element.</p> <p>(4) Compressor interior could be dirty with excessive dust accumulation. If this happens to be the case, remove compressor cover and clean.</p> <p>(5) After shutting down engine, try to spin rotor by hand. If rotor will not spin, disassemble turbocharger and clean.</p>

Symptom	Possible causes and remedy
Oil leaks from exhaust gas outlet pipe or from inlet air pipe.	(1) A clogged air cleaner is liable to create a negative-pressure condition on suction side to draw in lubricating oil. Clean or replace element.
Exhaust smoke tends to pick whitish color.	(2) Inspect lubricating oil return pipe for damage. A dented or distorted pipe must be repaired or replaced.
	(3) See if piston ring is worn down or, because of its groove being worn down, loose in groove: if so, replace worn parts.
	(4) Keeping turbocharger in service with its bearing in faulty condition will damage piston ring in time, resulting in leakage of oil into both ends, that is, gas outlet pipe and inlet air pipe.

# MAINTENANCE STANDARDS

## 1. Maintenance standards

Unit: mm (in.)

Part or item		Nominal value	Assembly standard [Standard clearance]	Repair limit [Clearance]	Service limit [Clearance]	Remarks
Inside diameter of bearing bores in bearing housing	TD025	11.0 (0.433)			11.006 (0.43331)	
	TD03/TD04	13.0 (0.512)			13.006 (0.51205)	
	TD05/TD06	15.6 (0.614)			15.686 (0.61756)	
Bearing	Outside diameter	TD025			10.924 (0.43008)	
		TD03/TD04			12.924 (0.50882)	
		TD05/TD06			15.574 (0.61315)	
	Inside diameter	TD025			6.029 (0.23736)	
		TD03/TD04			7.529 (0.29642)	
		TD05/TD06			9.040 (0.35590)	
	Length	TD025			6.94 (0.2732)	
		TD03/TD04			7.94 (0.3126)	
		TD05/TD06			9.34 (0.3677)	
Shaft & turbine wheel	Diameter of shaft journals	TD025	6 (0.236)		5.996 (0.23606)	
		TD03/TD04	7.5 (0.295)		7.496 (0.29512)	
		TD05/TD06	9 (0.354)		8.994 (0.35410)	
	Runout of shaft				0.015 (0.00059)	
End gap of piston ring			0.05 – 0.15 [(0.0020 – 0.0059)]			With ring fitted in insert
Clearance between shaft & turbine wheel and turbine housing	TD025		0.39 – 1.00 [(0.0154 – 0.0394)]			
	TD03/TD04		0.28 – 0.97 [(0.0110 – 0.0382)]			
	TD05/TD06		0.42 – 1.10 [(0.0165 – 0.0433)]			
Axial play of shaft & turbine wheel			0.57 – 0.103 [(0.00224 – 0.00406)]			

## MAINTENANCE STANDARDS

Unit: mm (in.)

Part or item		Nominal value	Assembly standard [Standard clearance]	Repair limit [Clearance]	Service limit [Clearance]	Remarks
Clearance between turbine back plate and turbine wheel	TD025		0.88 – 1.32 [(0.0346 – 0.0520)]			
	TD03/TD04		0.39 – 0.83 [(0.0154 – 0.0327)]			
	TD05/TD06		0.37 – 0.85 [(0.0146 – 0.0335)]			

## 2. Tightening torques

Secured part or component		Thread Diam. – pitch	Width across flats	Tightening torque			Remarks
				kgf·m	lbf·ft	N·m	
Compressor wheel lock nut	TD025	4 – 0.7 (0.16 – 0.03)	7 (0.28)	0.15 – 0.25	1.1 – 1.8	1.5 – 2.5	Apply Molykote to threads
	TD03/TD04	5 – 0.8 (0.20 – 0.03)	8 (0.31)	0.40 – 0.50	2.9 – 3.6	3.9 – 4.9	
	TD05/TD06	1/4-28UNF-3A	11 (0.43)	0.80 – 0.90	5.8 – 6.5	7.8 – 8.8	
Coupling assembly nut	TD025	5 – 0.8 (0.20 – 0.03)	8 (0.31)	0.15 – 0.25	1.1 – 1.8	1.5 – 2.5	Apply Molykote to threads
	TD03/TD04	6 – 1.0 (0.24 – 0.04)	10 (0.39)	0.40 – 0.50	2.9 – 3.6	3.9 – 4.9	
	TD05/TD06	6 – 1.0 (0.24 – 0.04)	10 (0.39)	0.40 – 0.50	2.9 – 3.6	3.9 – 4.9	