

HOW TO USE THIS MANUAL

PREPARATION

PREPARATION points out the needed SST for the service operation that follows. It is best to gather all necessary SST before beginning work.

Example:

N TIE-ROD END BOOT AND STEERING GEAR BOOT

TIE-ROD END BOOT AND STEERING GEAR BOOT

PREPARATION

49 0118 850C Puller, ball joint	49 H028 301 Installer, boot
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9MU0NX-030

SST NUMBER
49 H028 301

SST NAME
Installer, boot

SST ILLUSTRATION

9MUGIX-033

REPAIR PROCEDURE

1. Most repair operations begin with an overview illustration. It identifies the components, shows how the parts fit together, and visual parts inspections. If a damaged or worn part is found, repair or replace it as necessary.
2. Expendable parts, tightening torques, and symbols for oil, grease, and sealant are shown in the overview illustration.
3. Pages related to service procedures are shown under the illustration. Refer to this information when servicing the related part.

Example:

SHOWS EXPENDABLE PARTS

SHOWS TIGHTENING TORQUE SPECIFICATION *2

SHOWS APPLICATION POINT OF OIL, ETC.

SHOWS TIGHTENING TORQUE UNIT

SHOWS RELATED PAGE FOR SERVICE

SHOWS VISUAL INSPECTION INFORMATION

1. Bolt	16. Bearing inner race	page M-22
2. Lock plate	Removal	page M-22
3. Bearing cup	Inspect for damage or rough rotation	page M-24
4. Adjusting screw	Installation	page M-24
5. Bearing outer race	17. Spacer	
6. Locknut	18. Drive pinion	
7. Washer	Removal	page M-21
8. Companion flange	Inspect spines and teeth for wear or damage	page M-22
Adjusting screw	Adjustment of height	page M-22
Inspect spines	Adjustment	page M-24

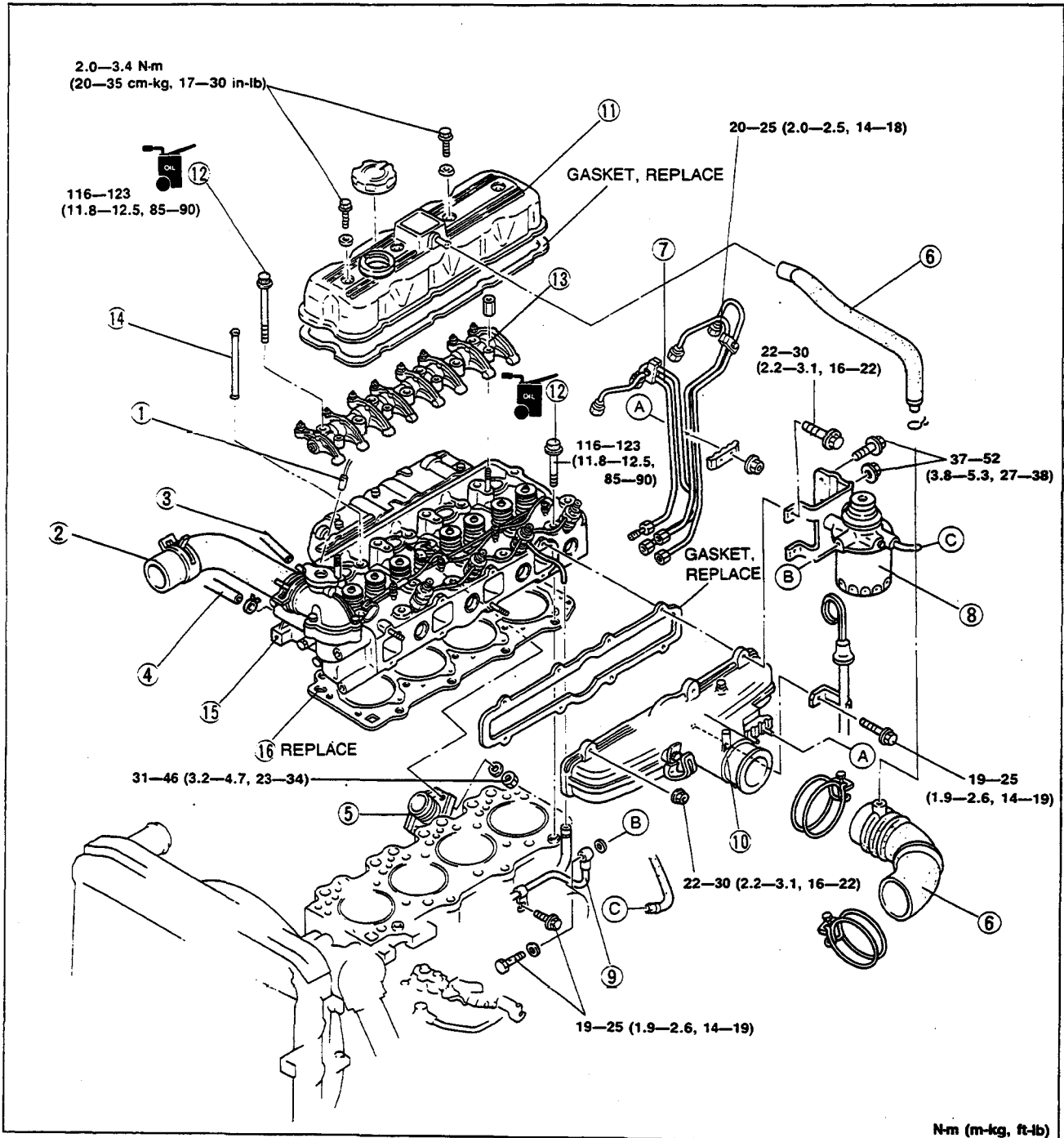
*1: The numbering (ex. ①) shows service procedure.

*2: Units shown in N-m (m-kg, ft-lb) unless otherwise specified.

B

ON-VEHICLE MAINTENANCE

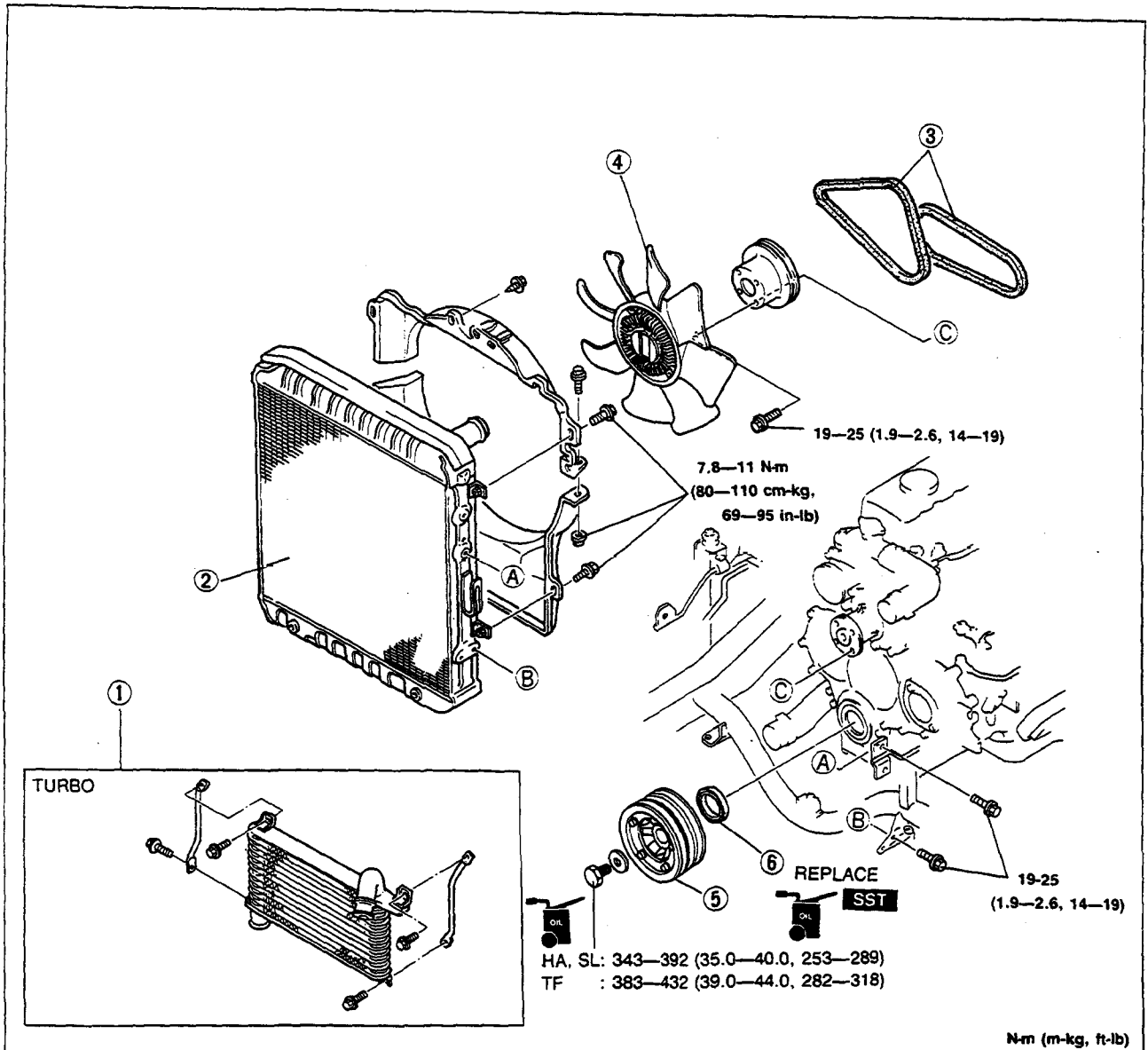
HA Engine



N-m (m-kg, ft-lb)

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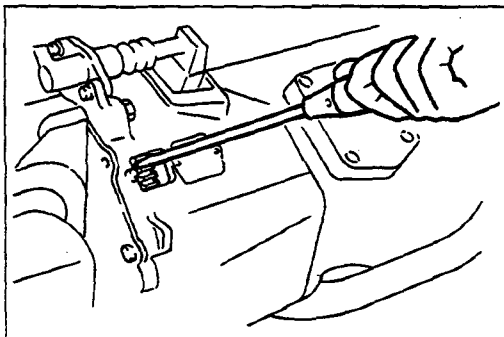
- | | |
|------------------------------|-----------------------------------|
| 1. Harness connector | 12. Cylinder head bolt |
| 2. Upper radiator hose | Removal Note..... page B- 23 |
| 3. Coolant reservoir hose | Installation Note..... page B- 23 |
| 4. Heater hose | 13. Rocker arm assembly |
| 5. Exhaust pipe | 14. Push rod |
| 6. Air hose | Installation Note..... page B- 23 |
| 7. Injection pipe | 15. Cylinder head |
| 8. Fuel filter body | Disassembly page B- 60 |
| 9. Fuel pipe | Inspection..... page B- 76 |
| 10. Intake manifold assembly | Assembly..... page B-113 |
| 11. Cylinder head cover | 16. Cylinder head gasket |



9TF0BX-019

- 1. Intercooler (Turbo)
Service..... Section F
- 2. Radiator
Service Section E
- 3. Drive belt
Adjustment page B-9
- 4. Cooling fan

- 5. Crankshaft pulley
Removal Note..... page B-29
Installation Note..... page B-30
- 6. Oil seal
Removal Note (HA)..... page B-30
Installation Note..... page B-30



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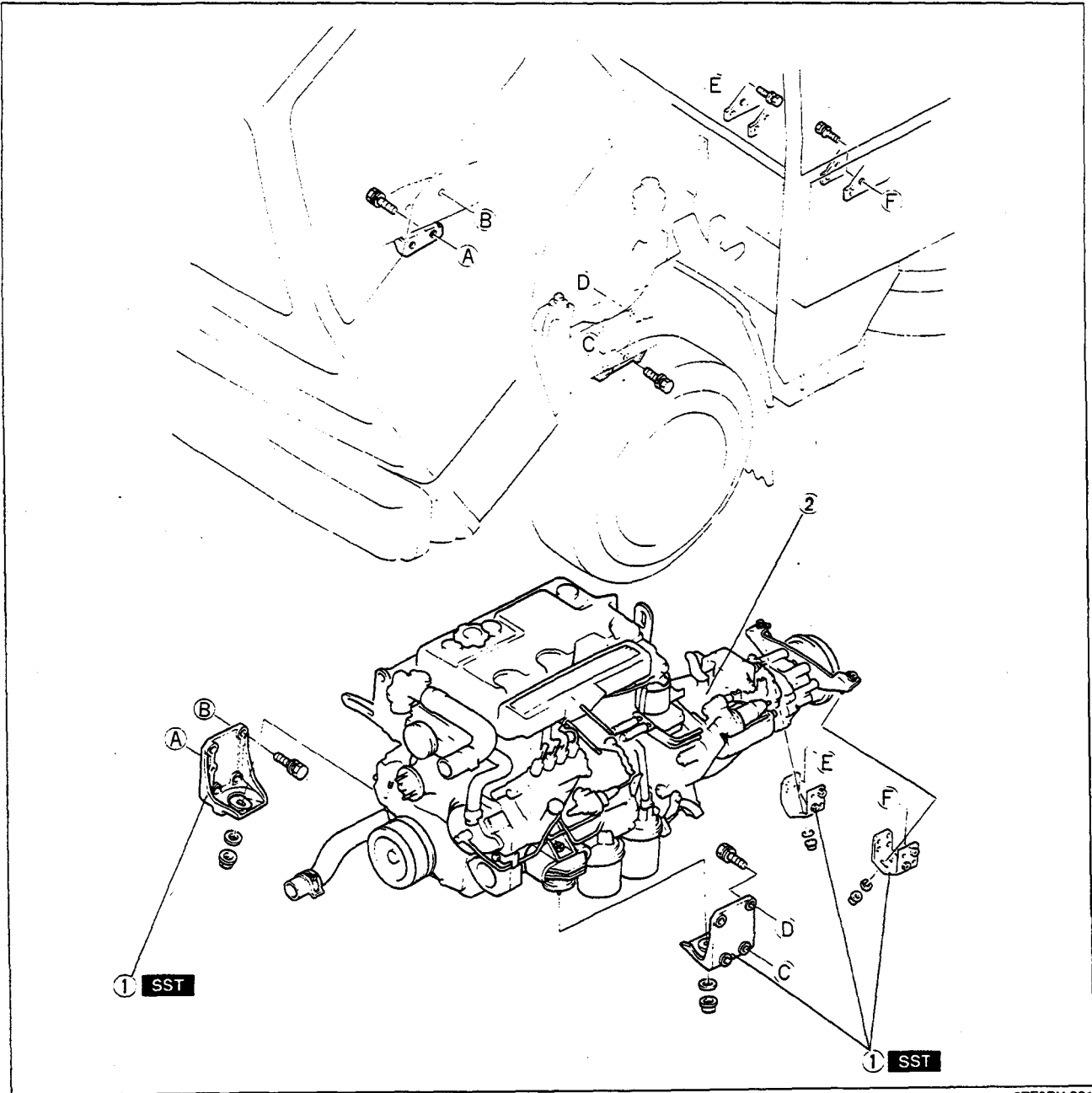
**Removal note
Crankshaft pulley**

Caution

- Perform this operation with the aid of a helper.

1. Remove the cover from the clutch housing (HA, SL) or from the end plate (TF).
2. Set a suitable tool against the flywheel ring gear for prevention of engine rotation.
3. Remove the pulley bolt (HA, SL) or nut (TF).
4. Remove the crankshaft pulley.

Step 5

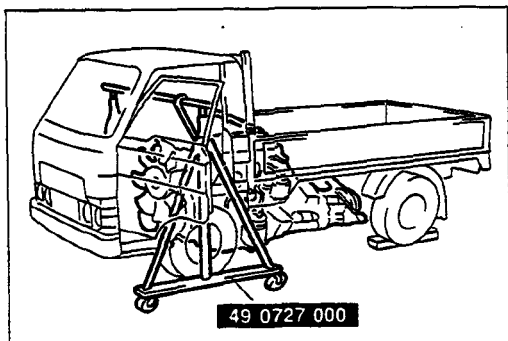


9TF0BX-031

1. Engine support bracket

2. Engine and transmission assembly

Removal Note..... page B-53

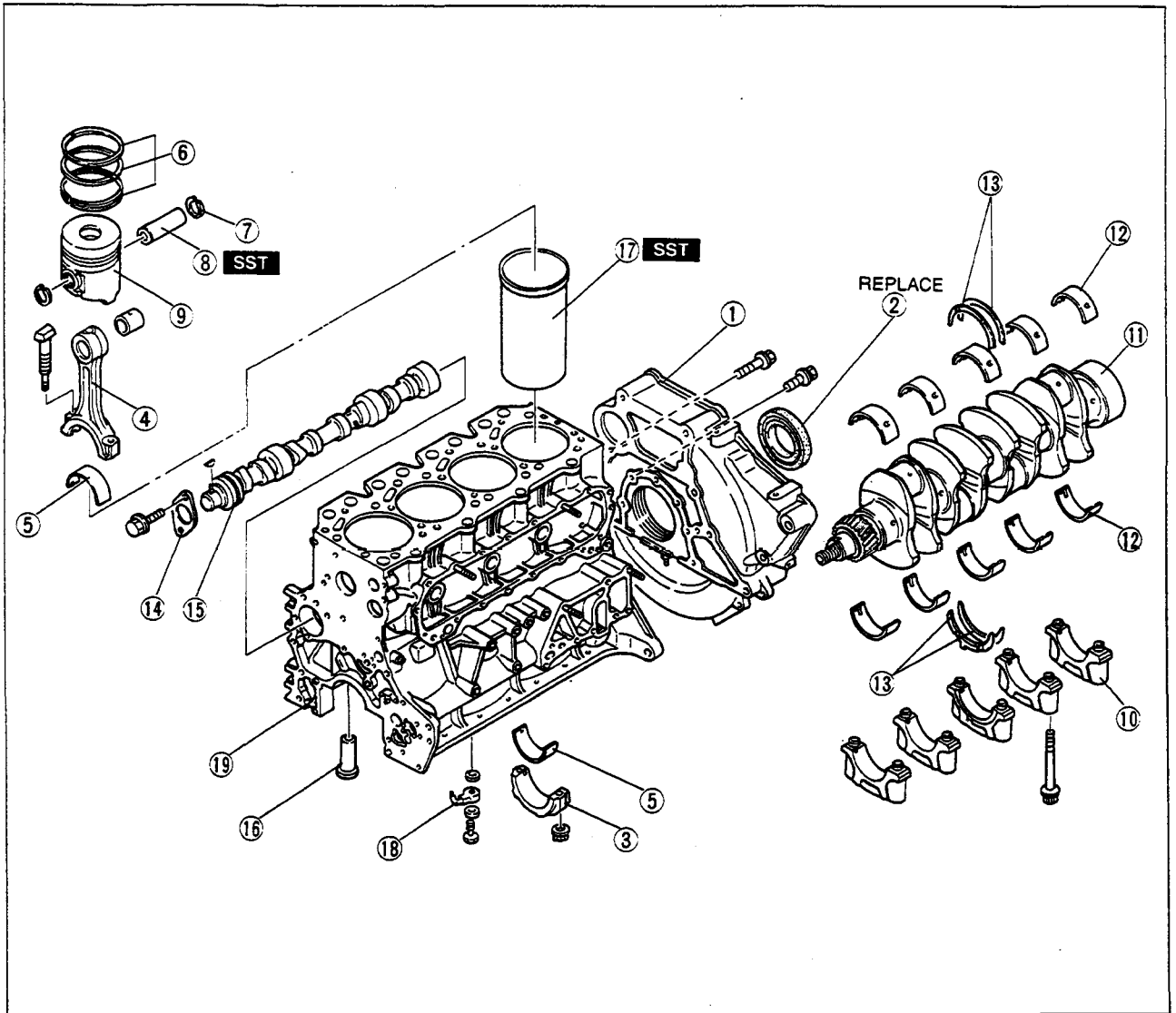


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Removal note
Engine support bracket

1. Raise the vehicle and support it on safety stands so that the distance between all wheels and the ground is at least 1 m (3.3 ft).
2. (Tilt cabin)
Support the engine with a hoist.
(Non-tilt cabin)
Support the engine with the **SST**.

TF Engine



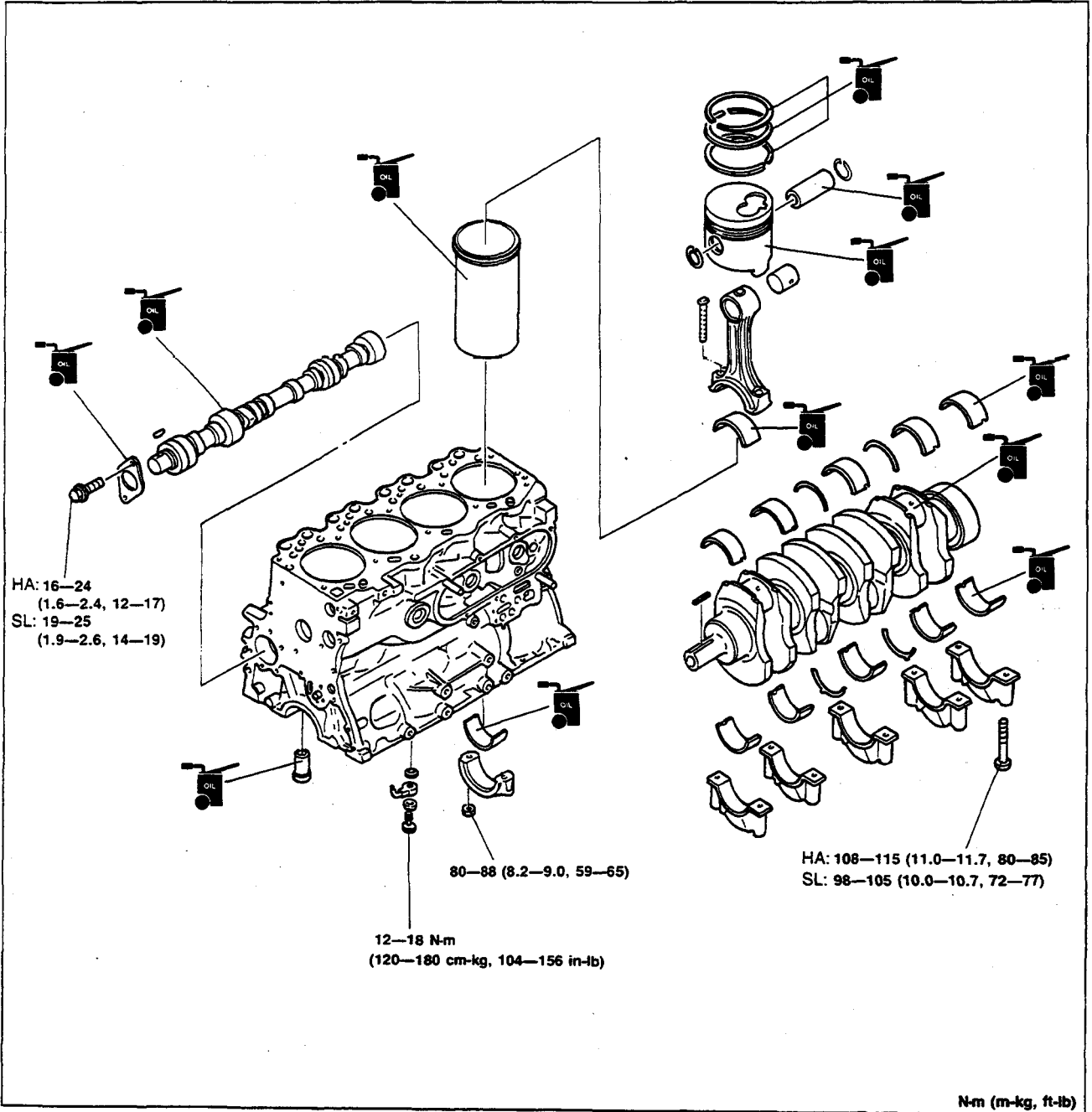
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- | | |
|----------------------------------|----------------------------------|
| 1. End plate | 11. Crankshaft |
| 2. Rear oil seal | Disassembly Note page B-75 |
| 3. Connecting rod cap | Inspection page B-84 |
| Disassembly Note page B-74 | 12. Main bearing |
| 4. Connecting rod | Inspection page B-85 |
| Disassembly Note page B-74 | 13. Thrust bearing |
| Inspection page B-83 | 14. Camshaft thrust plate |
| 5. Connecting rod bearing | 15. Camshaft |
| Inspection page B-85 | Inspection page B-85 |
| 6. Piston ring | 16. Tappet |
| Disassembly Note page B-74 | Inspection page B-87 |
| Inspection page B-82 | 17. Cylinder liner |
| 7. Piston pin clip | Disassembly Note page B-75 |
| 8. Piston pin | Inspection page B-80 |
| Disassembly Note page B-74 | 18. Oil jet |
| Inspection page B-83 | Inspection page B-87 |
| 9. Piston | 19. Cylinder block |
| Inspection page B-81 | Inspection page B-80 |
| 10. Main bearing cap | |
| Disassembly Note page B-75 | |

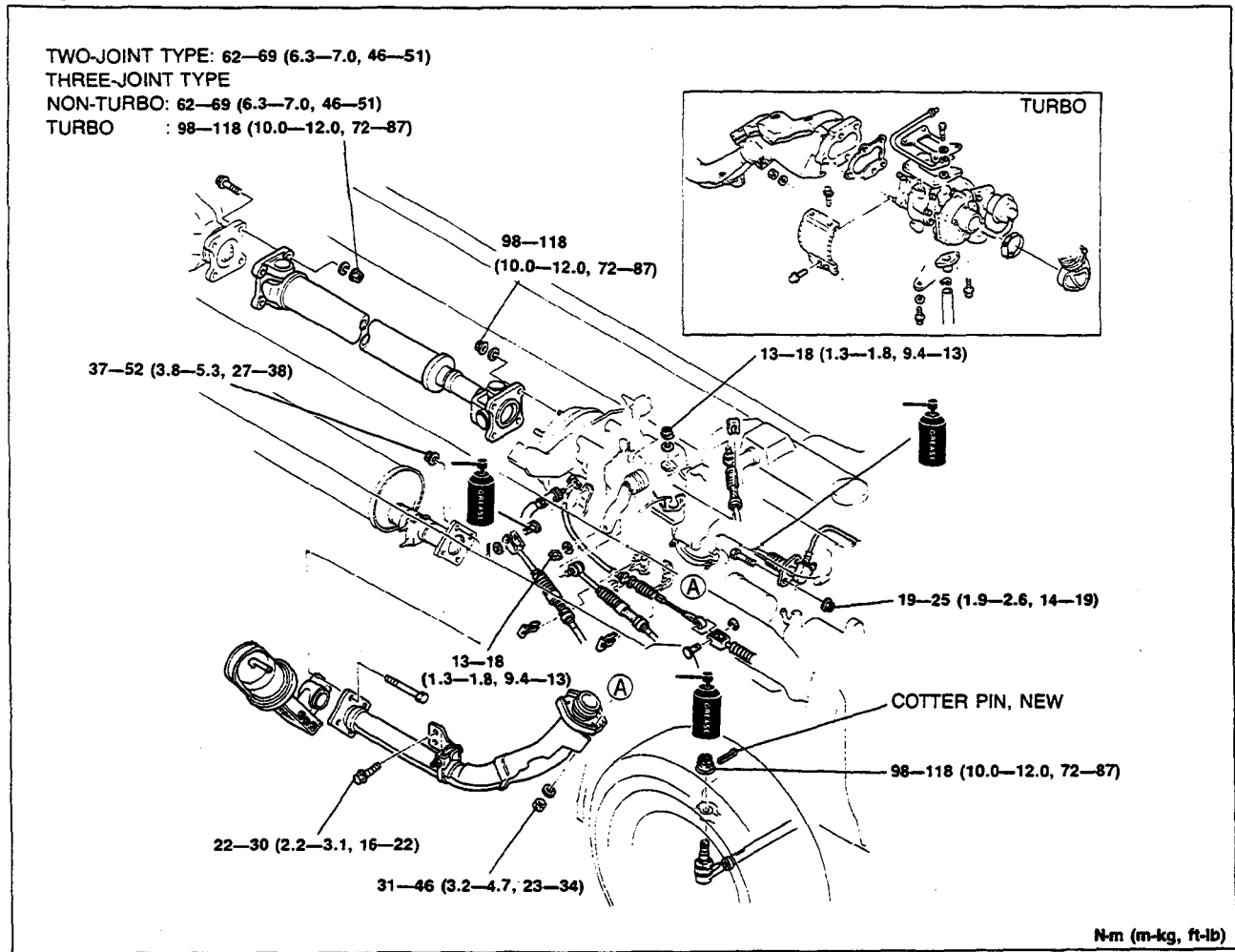
CYLINDER BLOCK (INTERNAL PARTS)

HA, SL Engine

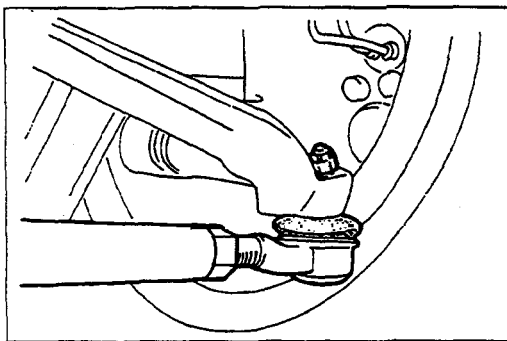
Torque Specifications



Step 3 Torque Specifications



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9TG0B2-416

Propeller shaft

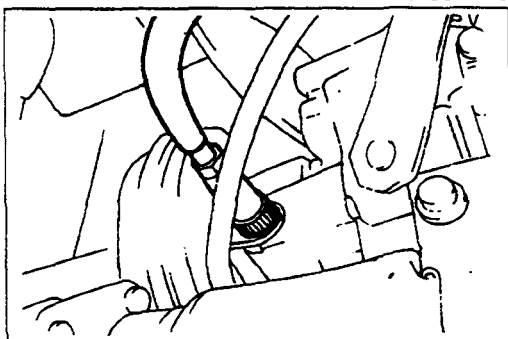
1. Install the propeller shaft. (Refer to Section L.)

Tie-rod

1. Apply grease to the ball joint of the tie-rod end.
2. Install the tie-rod to the knuckle.
3. Install the nut and a new cotter pin.

Tightening torque:

98-118 N-m (10.0-12.0 m-kg, 72-87 ft-lb)



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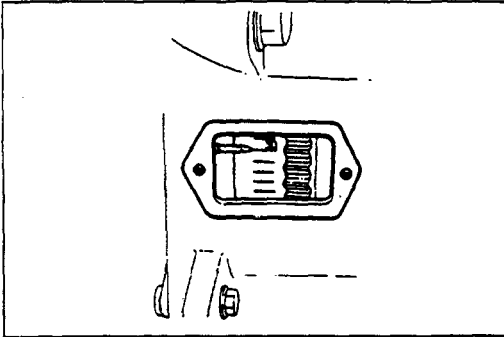
Speedometer cable

1. Install the speedometer cable.

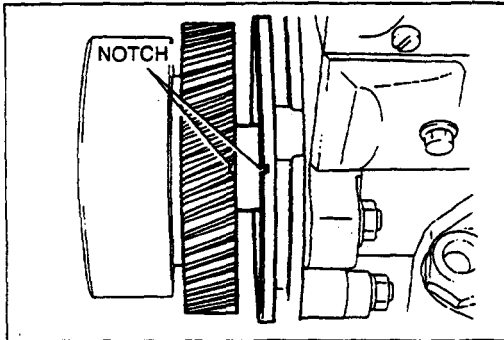
Installation

1. Install in the reverse order of removal, referring to **Installation Note**.
2. Adjust the injection timing. (Refer to page F2-14.)
3. Bleed air from the fuel system. (Refer to page F2-35.)

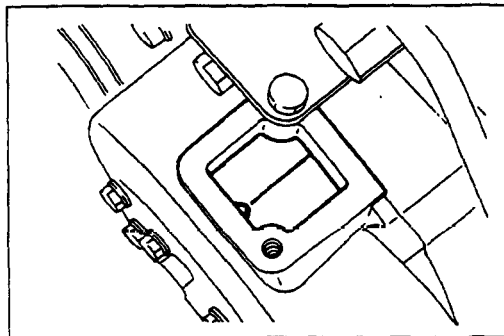
9TG0F2-080



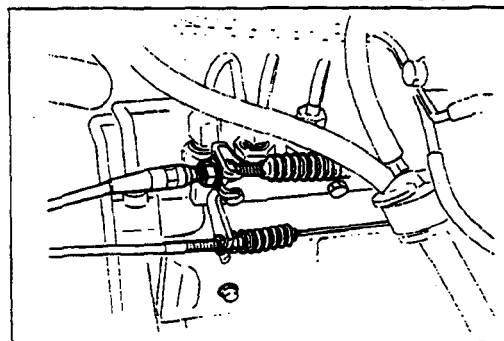
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9TG0F2-082



9TG0F2-083



9TG0F2-084

Installation note

Injection pump

1. Before installing the injection pump, verify that No.1 cylinder is at 30° BTDC.

2. Align the notches of the flange plate and the injection pump gear.

3. Install the injection pump.

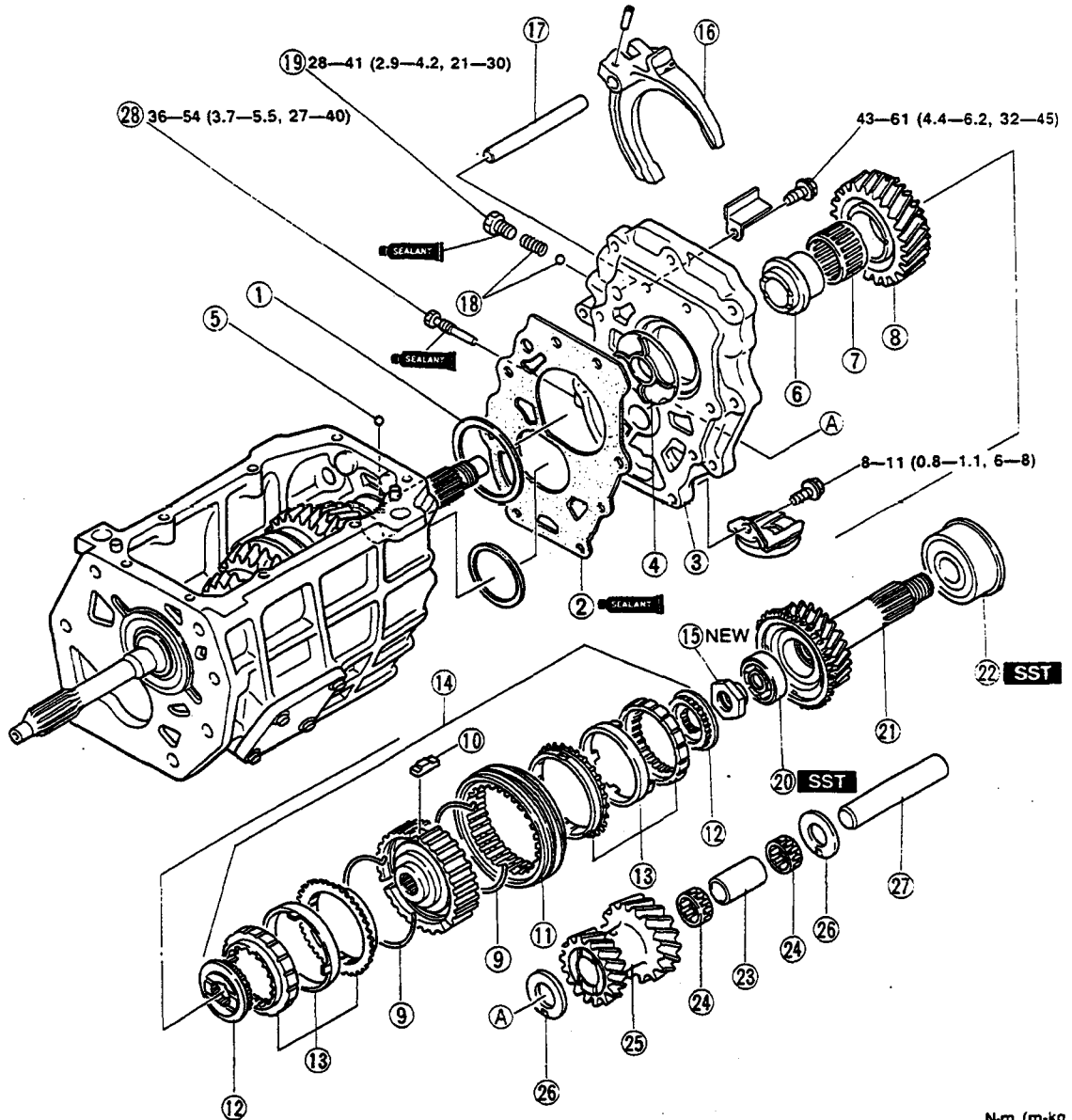
4. Verify that the mark on the timer and the tab of the timing gear case are aligned.

Accelerator cable, fuel stop cable

1. After installing the accelerator cable, adjust the free play of the cable. (Refer to page F2-40.)
2. After installing the fuel stop cable, adjust the free play of the cable. (Refer to page F2-41.)

Sub-transmission Parts

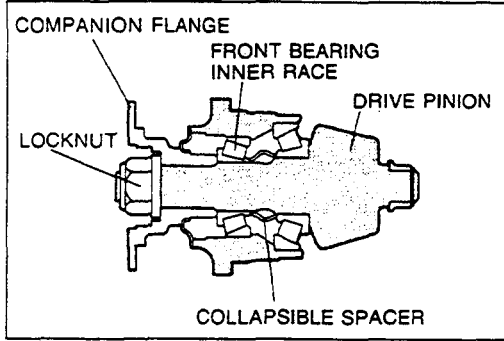
1. Assemble in the order shown in the figure, referring to **Assembly Note**.



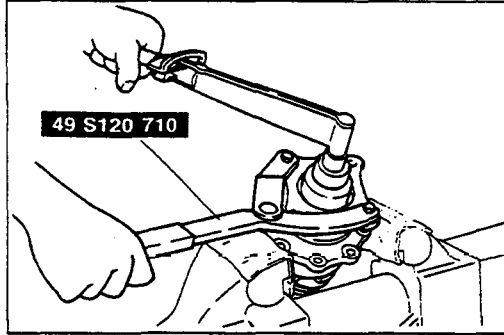
N-m (m-kg, ft-lb)

9TF0J1-016

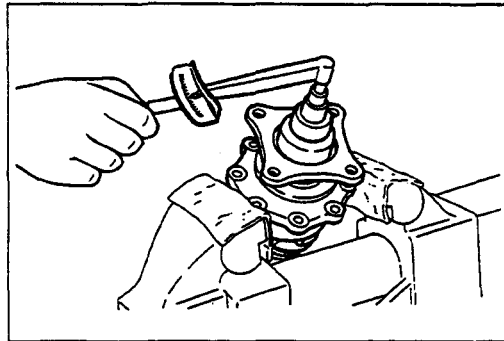
- | | | |
|---------------------------------------------------------|-----------------------------------------------------|---------------------------------------------------------------|
| 1. Adjustment shim
Assembly Note
..... page J1-42 | 14. Clutch hub assembly | 21. Output shaft |
| 2. Gasket | 15. Locknut
Assembly Note
..... page J1-42 | 22. Output shaft bearing
Assembly Note
..... page J1-42 |
| 3. Case adapter | 16. Shift fork
Assembly Note
..... page J1-42 | 23. Spacer |
| 4. Scoop ring | 17. Shift rod
Assembly Note
..... page J1-42 | 24. Needle bearing |
| 5. Steel ball | 18. Steel ball and spring | 25. Counter high gear |
| 6. Gear sleeve | 19. Cap plug | 26. Thrust washer |
| 7. Needle bearing | 20. Bearing
Assembly Note
..... page J1-42 | 27. Counter gear shaft |
| 8. High gear | | 28. Mounting bolt
Assembly Note
..... page J1-43 |
| 9. Synchronizer key spring | | |
| 10. Synchronizer key | | |
| 11. Clutch hub sleeve | | |
| 12. Inner cone hub | | |
| 13. Double cone assembly | | |



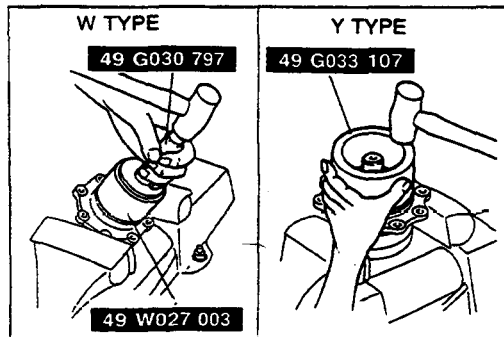
9TGOMX-164



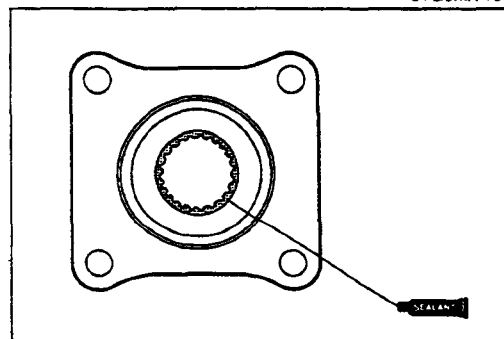
9TGOMX-165



9TGOMX-166



9TGOMX-167



9TGOMX-168

Adjustment of drive pinion preload

Caution

- Do not install the oil seal.

1. Install the drive pinion, new collapsible spacer, front bearing inner race, companion flange, washer, and new locknut onto the bearing housing. Temporarily tighten the locknut.
2. Place the bearing housing in a vise.
3. Turn the companion flange by hand to seat the bearings.

Note

- Make a notion of this torque for proper assembly.
- If the specified preload cannot be obtained, reassemble and check it again.

4. Hold the flange with the **SST** and tighten the locknut to the lowest value of the specified torque to obtain the specified preload.

	W type	Y type
Tightening torque	235—392 N·m (24—40 m·kg, 174—289 ft·lb)	275—392 N·m (28—40 m·kg, 203—289 ft·lb)
Preload	0.8—1.6 N·m (8—16 cm·kg, 7—14 in·lb)	2.6—3.4 N·m (27—35 cm·kg, 23—30 in·lb)

5. Remove the locknut, washer, and companion flange.

Oil seal

Note

- Apply gear oil to the lip of the new oil seal.
- Push the oil seal fully into the carrier.

1. Install the new oil seal into the carrier with the **SST**.

Companion flange

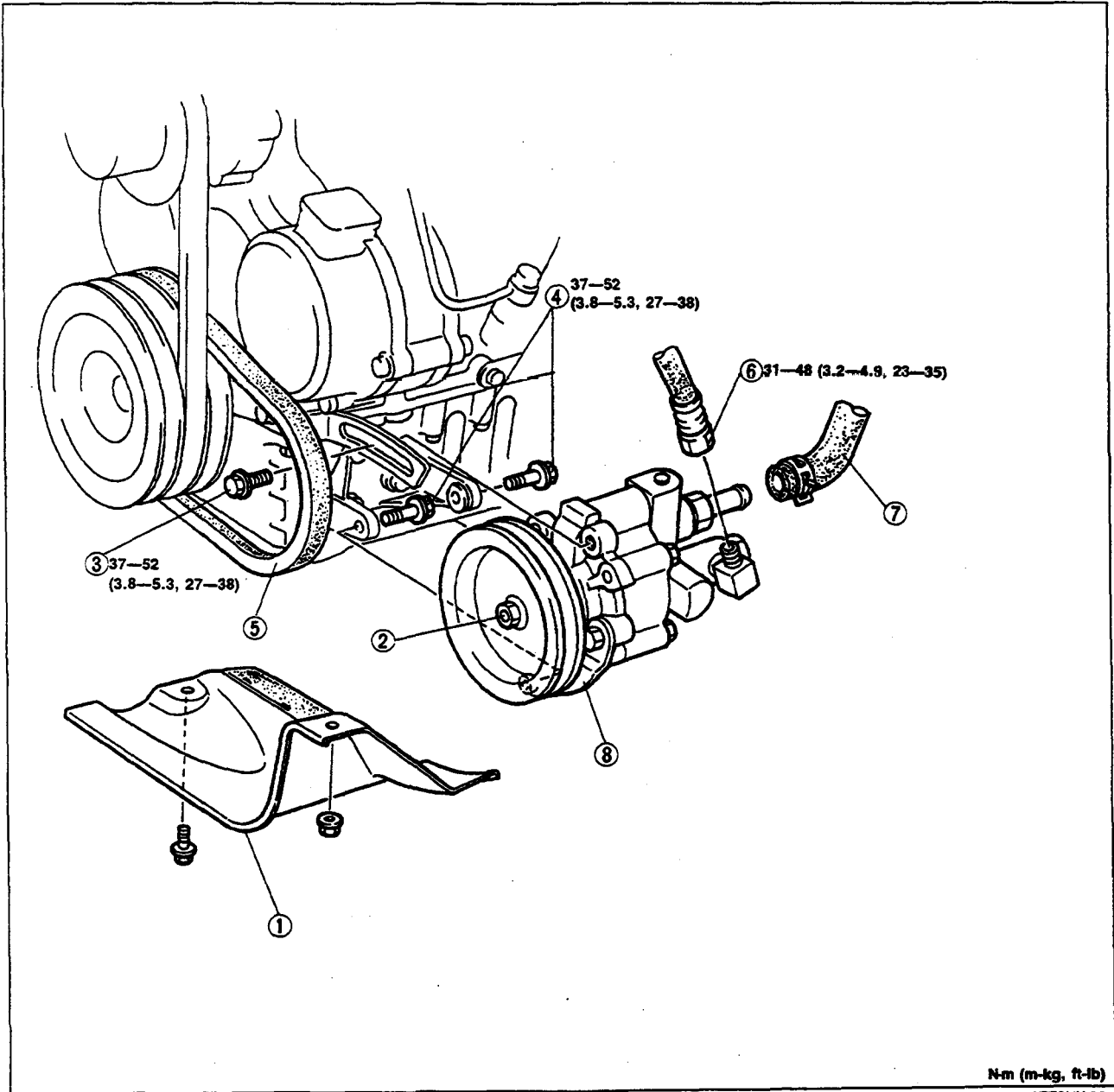
1. Install the companion flange to the drive pinion. After installation, apply 0.5 cc (0.03 cu in) of sealant around the splines of the companion flange.

POWER STEERING OIL PUMP

Removal / Installation

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal, referring to **Installation Note**.

3.5 L TURBO Engine type



N·m (m·kg, ft·lb)

9TF0NX-021

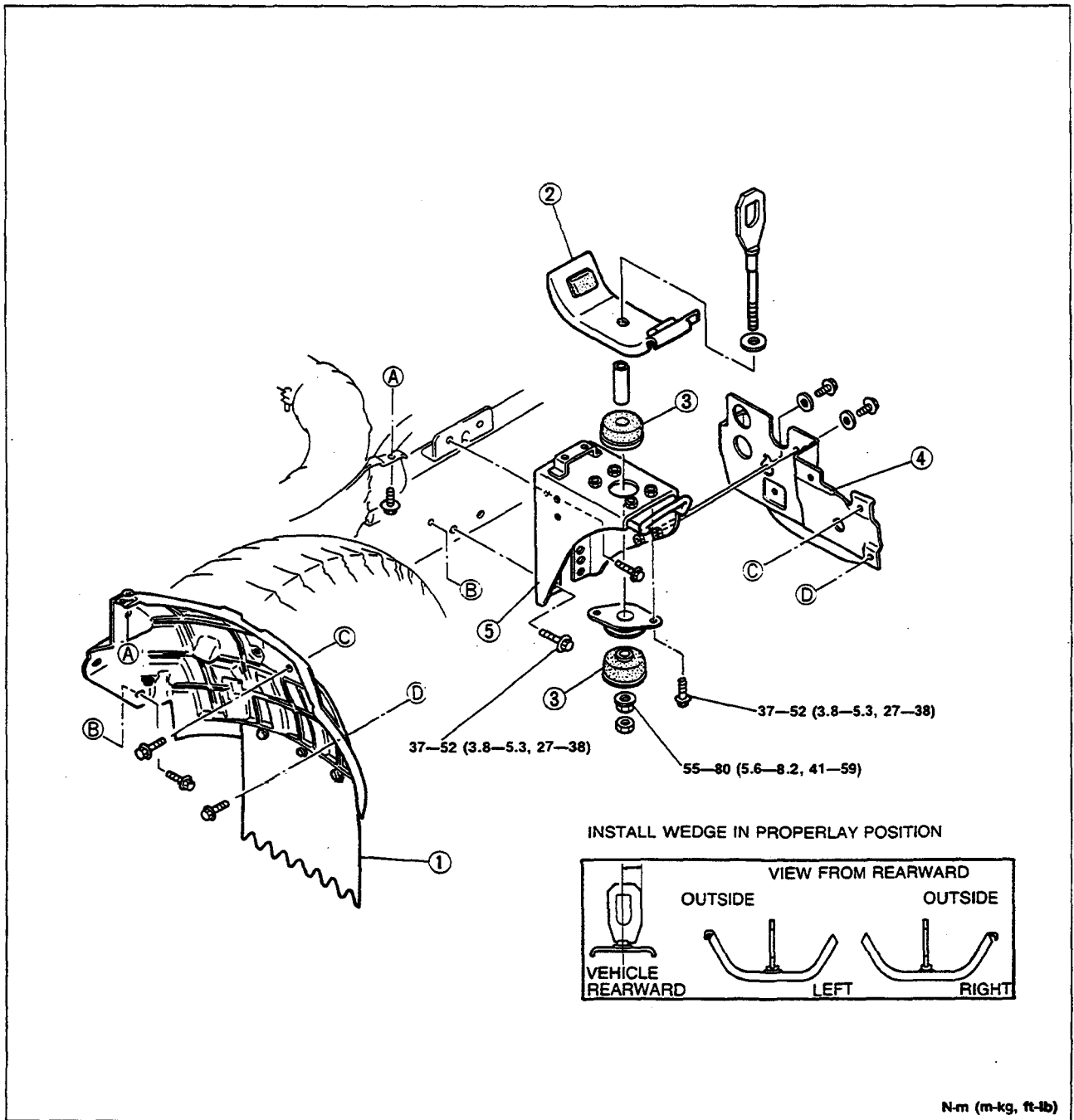
- | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> 1. Pump protector 2. Locknut (Do not remove if not necessary)
Removal note page N-38
Installation note page N-38 3. Strap bolt 4. Bolt 5. Drive belt
Inspection page N-46
Adjustment page N-46
Replacement page N-47 | <ol style="list-style-type: none"> 6. Pressure pipe 7. Return hose 8. Oil pump assembly
Disassembly / Inspection /
Assembly page N-39 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

REAR CABIN MOUNT Without Damper Removal / Installation

Caution

- Securely lock the cabin while raised.

1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure.
3. Install in the reverse order of removal.



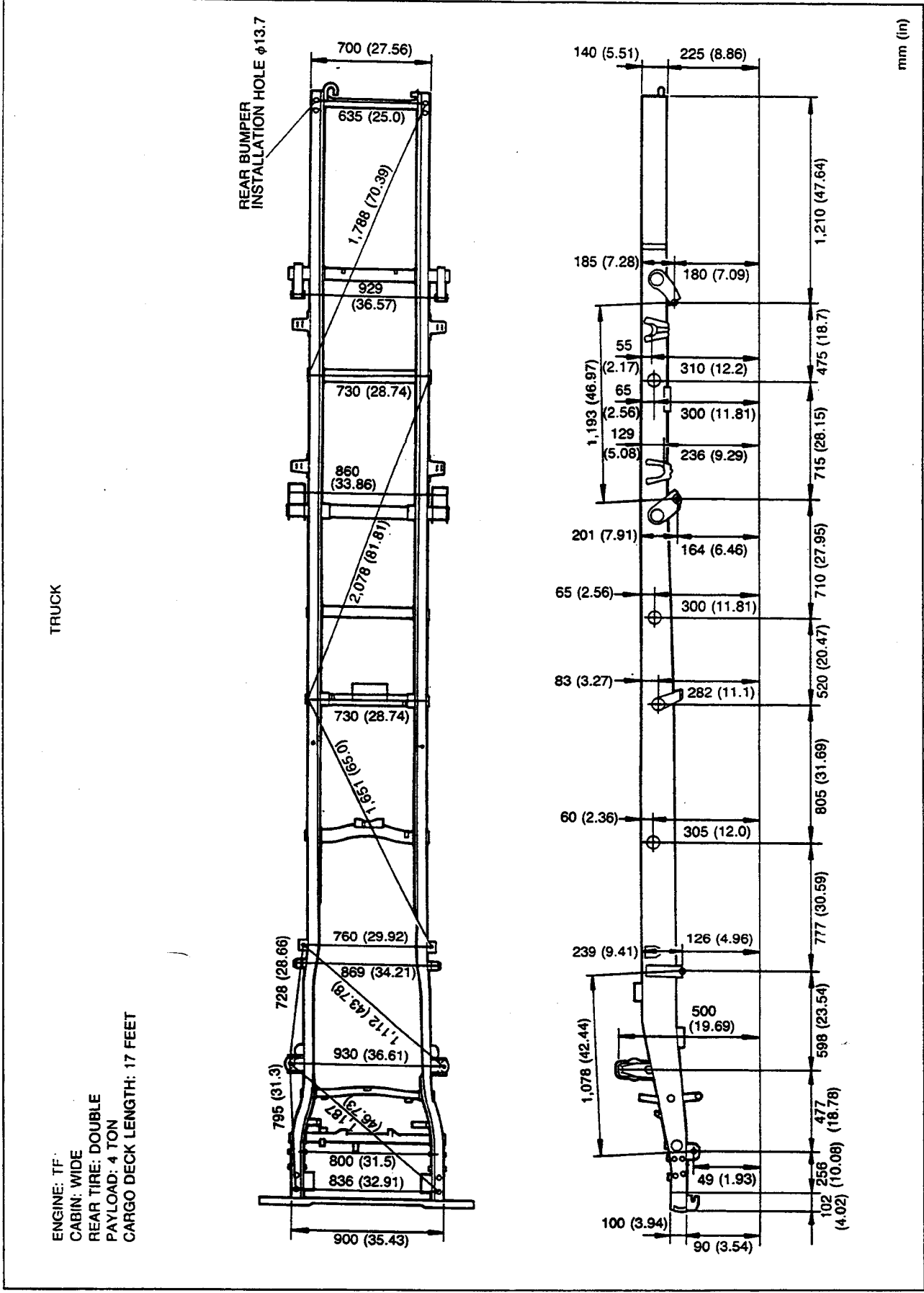
9TG0SX-095

1. Mud guard and flap
2. Wedge
3. Bushing

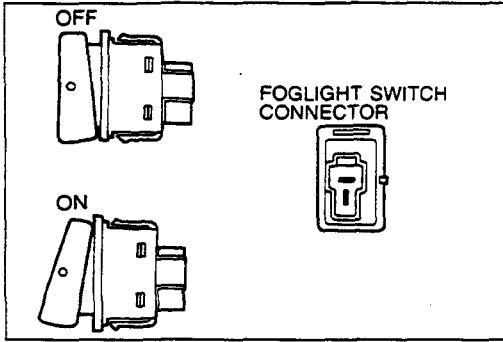
4. Front flap bracket
5. Rear cabin bracket

UNDERBODY DIMENSIONS

S



T EXTERIOR LIGHTING SYSTEM/INTERIOR LIGHTING SYSTEM



9TG0TX-057

FOG LIGHT SWITCH

Inspection

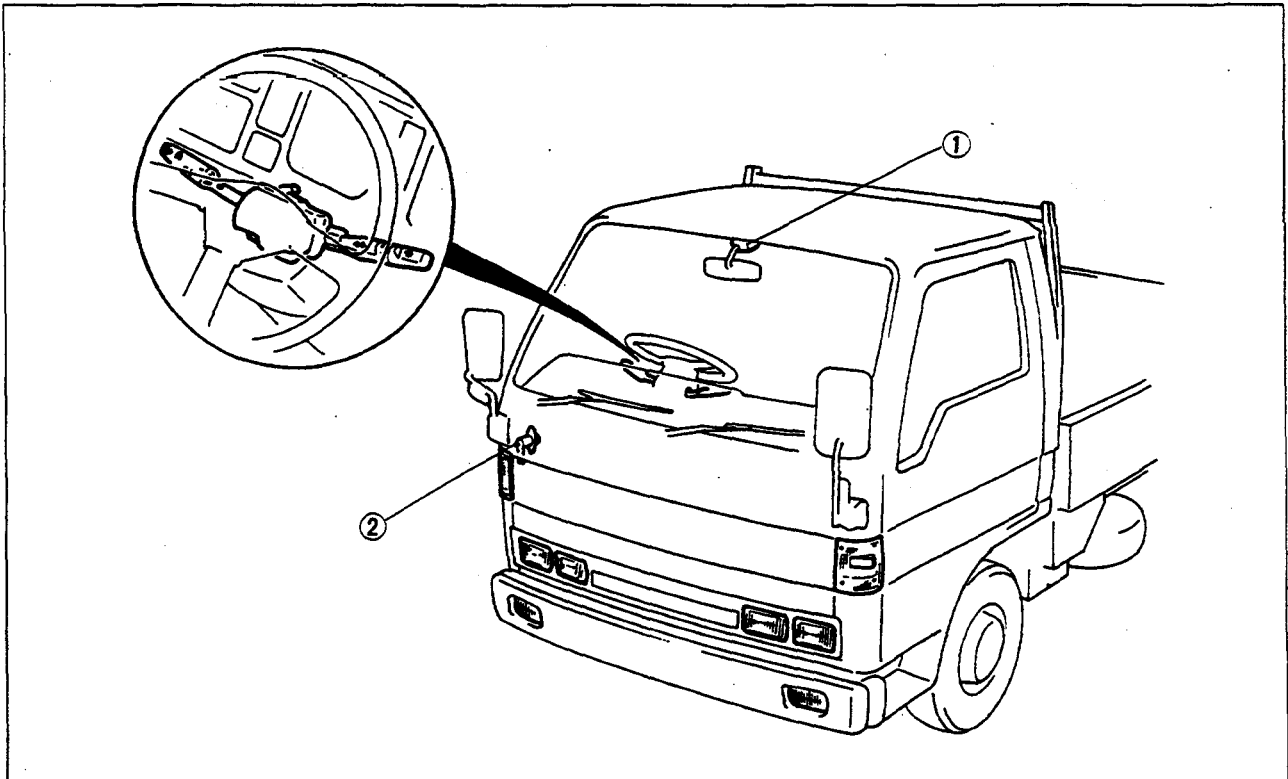
1. Remove the fog light switch.
2. Disconnect the fog light switch connector.
3. Check continuity of the fog light switch.

Switch	Continuity
ON	Yes
OFF	No

4. Replace the fog light switch if not as specified.

INTERIOR LIGHTING SYSTEM

STRUCTURAL VIEW



9TG0TX-058

1. Interior lamp
 Troubleshooting page T-43
 Removal / Inspection /
 Installation page T-46

2. Door switch
 Inspection page T-46

SPECIFICATIONS

Lamp	Bulb (W)	Remark
Interior lamp	10	Front interior lamp
	10	Rear interior lamp (Crew cab.)

9TG0TX-059