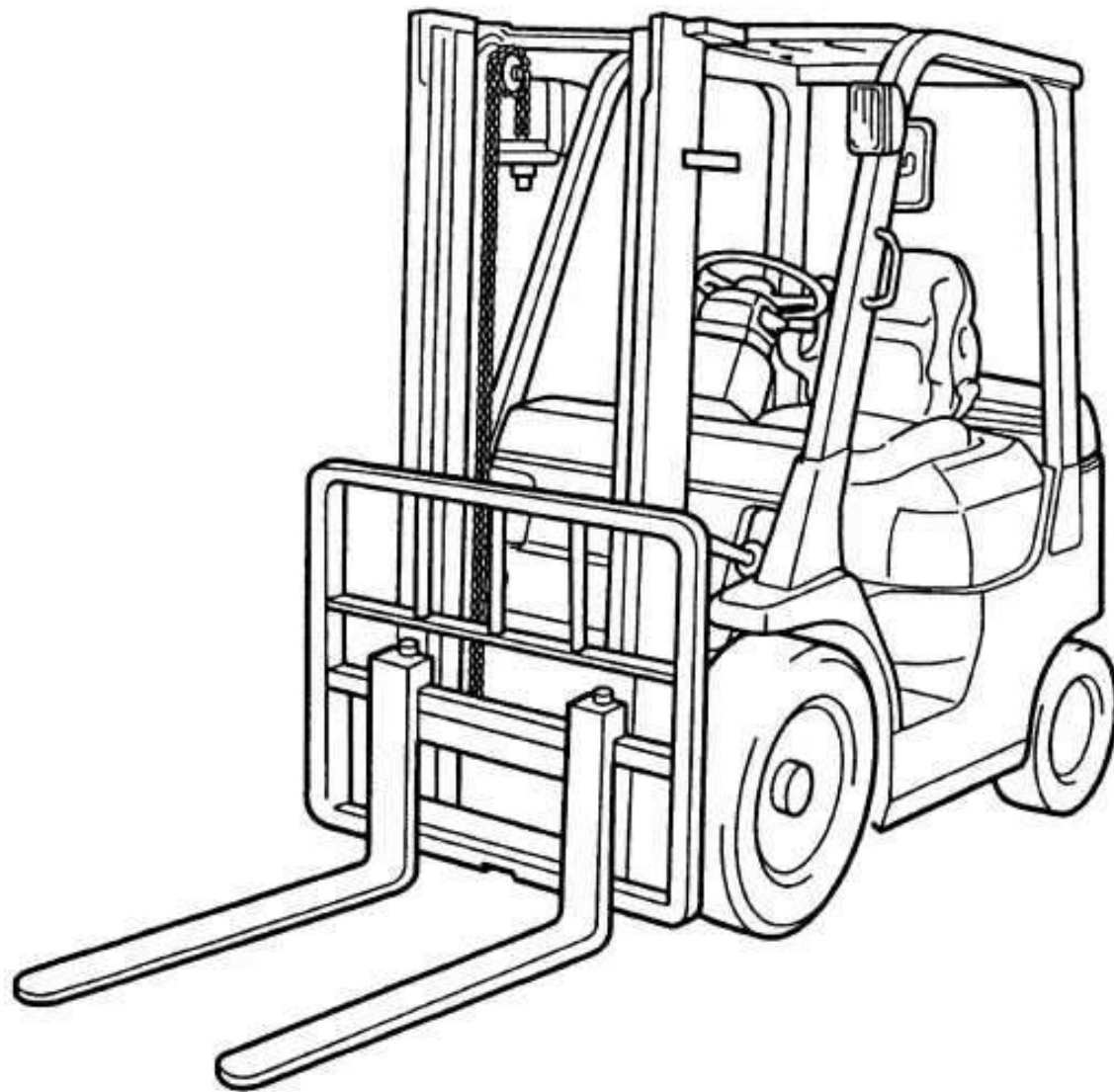


SECTION INDEX

NAME	SECTION
GENERAL	0
FEATURES	1
MANUAL TRANSMISSION	2
DIFFERENTIAL	3
APPENDIX	4

EXTERIOR VIEWS



Classification		Vehicle Model	Transmission Type	Engine	
Series	Model				
3 ton series	3.0 ton model	7FG30	M/T	4Y	Gasoline
		02-7FG30	T/C		
		60-7FD30	M/T	1DZ-II	Diesel
		62-7FD30	T/C		
		7FD30	M/T	2Z	Diesel
		02-7FD30	T/C		
K2 ton series	K2.0 ton model	7FGK20	M/T	5K	Gasoline
		02-7FGK20	T/C		
		40-7FGK20	M/T	4Y	Gasoline
		42-7FGK20	T/C		
		7FDK20	M/T	1DZ-II	Diesel
		02-7FDK20	T/C		
	K2.5 ton model	7FGK25	M/T	5K	Gasoline
		02-7FGK25	T/C		
		40-7FGK25	M/T	4Y	Gasoline
		42-7FGK25	T/C		
		7FDK25	M/T	1DZ-II	Diesel
		02-7FDK25	T/C		
K3 ton series	K3.0 ton model	7FGK30	M/T	4Y	Gasoline
		02-7FGK30	T/C		
		7FDK30	M/T	1DZ-II	Diesel
		02-7FDK30	T/C		
J3.5 ton series	J3.5 ton model	7FGJ35	M/T	4Y	Gasoline
		02-7FGJ35	T/C		
		7FDJ35	M/T	2Z	Diesel
		02-7FDJ35	T/C		

HOW TO USE THIS MANUAL

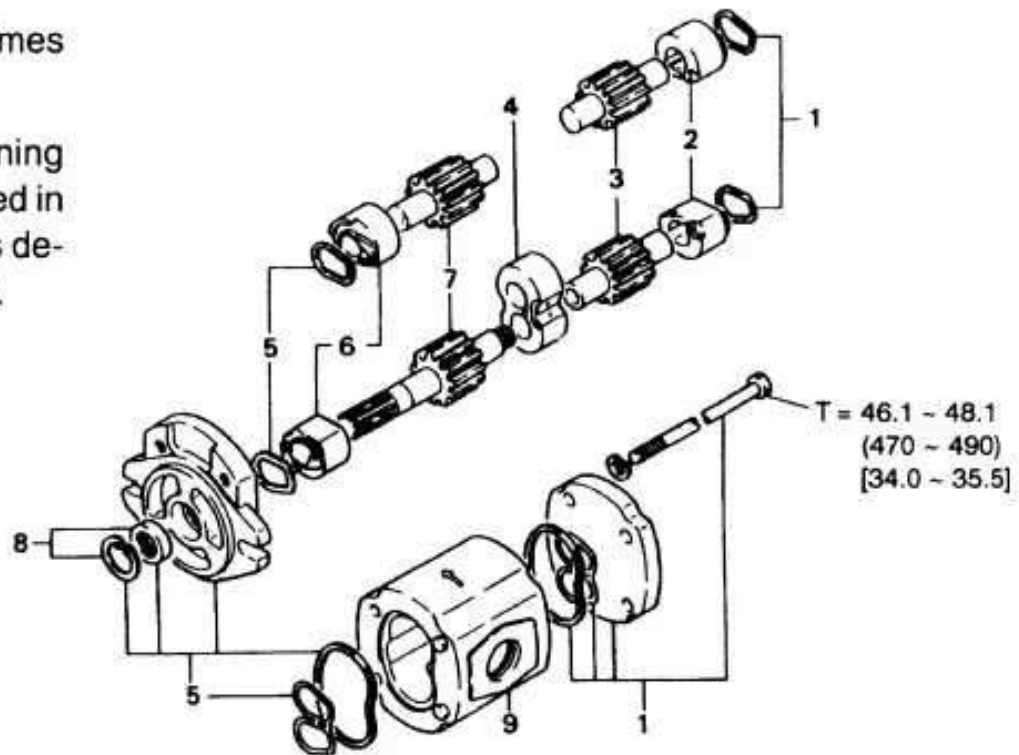
EXPLANATION METHOD

1. Operation procedure
 - (1) The operation procedure is described in either pattern A or pattern B below.
 - Pattern A: Explanation of each operation step with illustration.
 - Pattern B: Explanation of operation procedure by indicating step numbers in one illustration, followed by explanation of cautions and notes summarized as point operations.

Example of description in pattern B

DISASSEMBLY·INSPECTION·REASSEMBLY Tightening torque unit T = N·m (kgf·cm) [ft·lbf]

- Step Nos. are partially sometimes omitted in illustrations.
- When a part requiring tightening torque instruction is not indicated in the illustration, the part name is described in the illustration frame.



Disassembly Procedure

- 1 Remove the cover. **[Point 1]**
- 2 Remove the bushing **[Point 2]** ← Operation explained later
- 3 Remove the gear.

Point Operations Explanation of key point for operation with an illustration

[Point 1]

Disassembly: Put a match mark when removing the pump cover.

[Point 2]

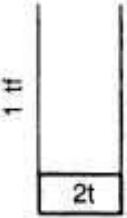
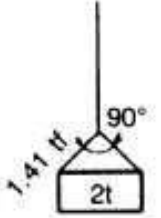
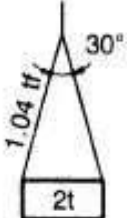
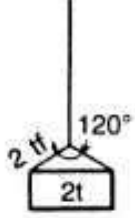
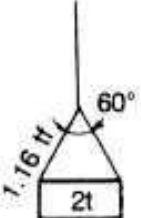
Inspection: Measure the bush inside diameter.

Limit: 19.12 mm (0.7528 in)

PF1/2	59 (600) [43.4]	56 ~ 62 (570 ~ 630) [41.2 ~ 45.6]	12 (0.47)
PF3/4	118 (1200) [86.8]	112 ~ 123 (1140 ~ 1250) [82.5 ~ 90.4]	19 (0.75)
PF1	137 (1400) [101.3]	130 ~ 144 (1330 ~ 1470) [96.2 ~ 106.4]	25 (0.98)

0-16

WIRE ROPE SUSPENSION ANGLE LIST

Lifting angle	Tension	Compression	Suspension method	Lifting angle	Tension	Compression	Suspension method
0°	1.00 time	0 time		90°	1.41 time	1.00 time	
30°	1.04 time	0.27 time		120°	2.00 time	1.73 time	
60°	1.16 time	0.58 time					

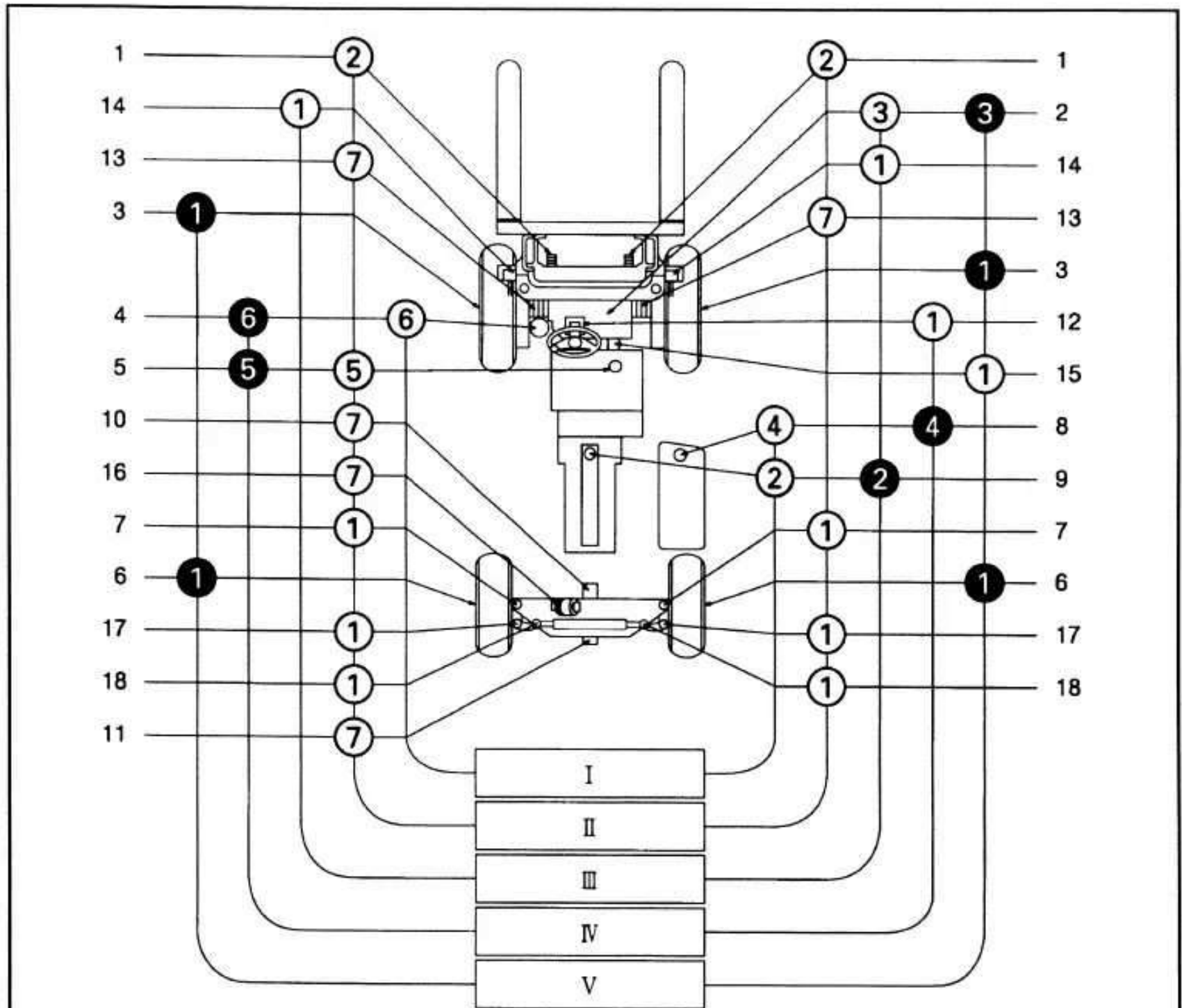
SAFE LOAD FOR EACH WIRE ROPE SUSPENSION ANGLE

Unit: N (tf) [lbf]

Rope diameter	Cutting load	Single-rope suspension	Two-rope suspension				Four-rope suspension			
		0°	0°	30°	60°	90°	0°	30°	60°	90°
6mm (0.24 in)	21380 (2.18) [4807]	3040 (0.31) [683.6]	6080 (0.62) [1367]	5880 (0.6) [1323]	5200 (0.53) [1169]	4310 (0.44) [970]	12160 (1.24) [2734]	11770 (1.2) [2646]	10400 (1.06) [2337]	8630 (0.88) [1940]
8 mm (0.32 in)	31480 (3.21) [7078]	4410 (0.45) [992.3]	8830 (0.9) [1985]	8530 (0.87) [1918]	7650 (0.78) [1720]	6280 (0.64) [1411]	17650 (1.8) [3969]	17060 (1.74) [3937]	15300 (1.56) [3440]	12550 (1.28) [2322]
10 mm (0.4 in)	49230 (5.02) [11.69]	6960 (0.71) [1565.6]	14020 (1.43) [3153]	13440 (1.37) [3021]	11770 (1.2) [2646]	9810 (1.0) [2205]	27460 (2.8) [6174]	26480 (2.7) [5954]	23540 (2.4) [5292]	19610 (2.0) [4410]
12.5 mm	76880	10980	21570	21280	18630	14710	43150	41190	37270	29420

- | | |
|------------------------------------|------------------------------------|
| 1 Chain | 11 Rear axle beam rear pin |
| 2 Differential | 12 Tilt steering locking mechanism |
| 3 Front wheel bearing | 13 Mast support bushing |
| 4 Brake and clutch master cylinder | 14 Tilt cylinder front pin |
| 5 Transmission case | 15 Propeller shaft |
| 6 Rear wheel bearing | 16 Gear shift link |
| 7 Steering knuckle king pin | 17 Swing lock cylinder lower pin |
| 8 Oil tank | 18 Tie rod end pin |
| 9 Engine crank case | 19 Rear axle cylinder end pin |
| 10 Rear axle beam front pin | 20 Gear shift lever |

Torque Converter & Transmission Model



- Inspection
- Replacement
- ① MP grease
- ② Engine oil
- ③ Hypoid gear oil
- ④ Hydraulic oil
- ⑤ Automatic transmission fluid
- ⑥ Brake fluid
- ⑦ Molybdenum disulfide grease

- I Inspect every 8 hours (daily)
- II Inspect every 40 hours (weekly)
- III Inspect every 170 hours (monthly)
- IV Inspect every 1000 hours (6 monthly)
- V Inspect every 2000 hours (annual)

	chain wheel	I	←	←	←
Various attachments	Abnormality and mounting condition of each part	I	←	←	←
HYDRAULIC SYSTEM					
Cylinder	Loosening and damage of cylinder mounting	T	←	←	←
	Deformation and damage of rod, rod screw and rod end	I	←	←	←
	Cylinder operation	I	←	←	←
	Natural drop and natural forward tilt (hydraulic drift)	M	←	←	←

0-26

Item		Inspection Period			
		Every 1 month	Every 3 months	Every 6 months	Every 12 months
		Every 170 hours	Every 500 hours	Every 1000 hours	Every 2000 hours
Cylinder	Oil leak and damage	I	←	←	←
	Wear and damage of pin and cylinder bearing	I	←	←	←
	Lifting speed	M	←	←	←
	Uneven movement	I	←	←	←
Oil pump	Oil leak and abnormal sound	I	←	←	←
Hydraulic oil tank	Oil level and contamination	I	←	←	←
	Tank and oil strainer			C	←
	Oil leak	I	←	←	←
Control lever	Loose linkage	I	←	←	←
	Operation	I	←	←	←
Oil control valve	Oil leak	I	←	←	←
	Relief pressure measurement				M
	Relief valve and tilt lock valve functions	I	←	←	←
Hydraulic piping	Oil leak	I	←	←	←
	Deformation and damage	I	←	←	←
	Loose joint	T	←	←	←
ELECTRICAL SYSTEM					
Ignition timing	Cracks on distributor cap	I	←	←	←
	Spark plug burning and gap	I	←	←	←
	Distributor side terminal burning	I	←	←	←
	Distributor cap center piece wear and damage	I	←	←	←
	Plug cord internal discontinuity				I
	Ignition timing			M	←

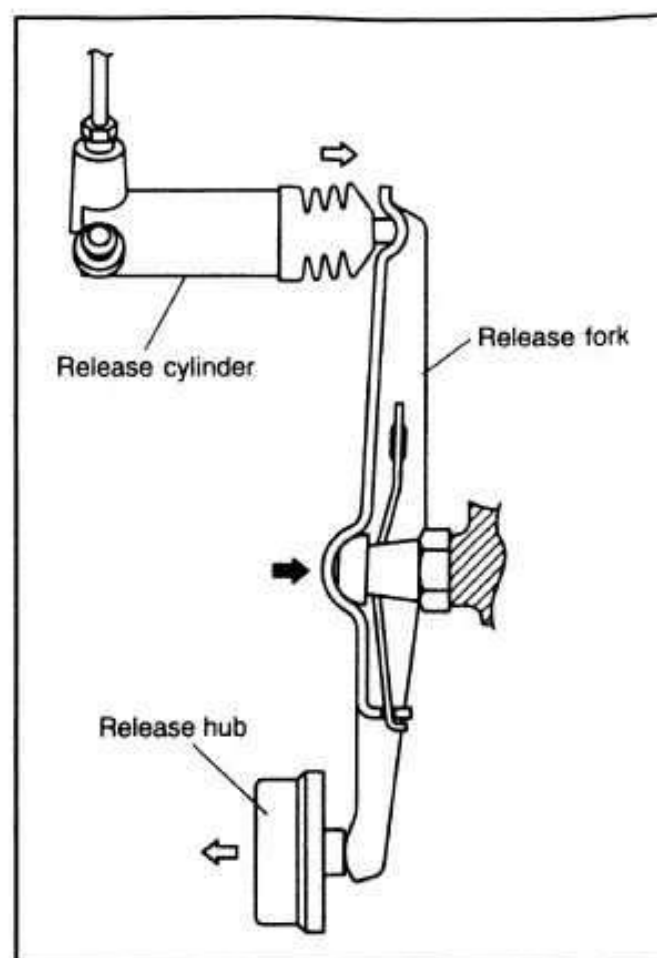
CLUTCH

GENERAL

The clutch release hub link mechanism has been modified. On conventional vehicles, the pedal depression force was transmitted from the clutch release cylinder to the clutch cover through the release fork shaft, release fork and release hub. The same is transmitted from the release cylinder to the clutch cover through the release fork and release hub after the modification made this time.

The clutch system, therefore, has been simplified.

Vehicles with the 4Y-ECS engine consisting of the 4Y engine and ECS are newly added.



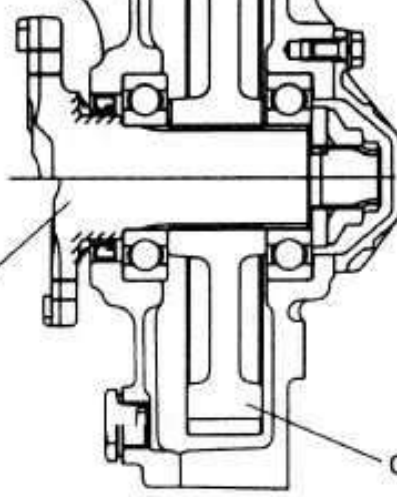
CLUTCH SPECIFICATIONS

		5K	4Y-1DZ-II	2Z
Clutch	Type	Dry, single-plate, spring type	←	←
	Operating method	Hydraulic	←	←
Clutch cover	Size mm	278	←	←
	Installation load N (kg)	2,354 (240)	3,236 (330)	3,923 (400)
	O.D. × I.D. × thickness (mm)	275 × 175 × 3.5	←	←
Clutch disc	Front frictional area (cm ²)	300.5 × 2	←	←
	Material	Special woven	←	←

Forward idle gear

Joint yoke

Output gear

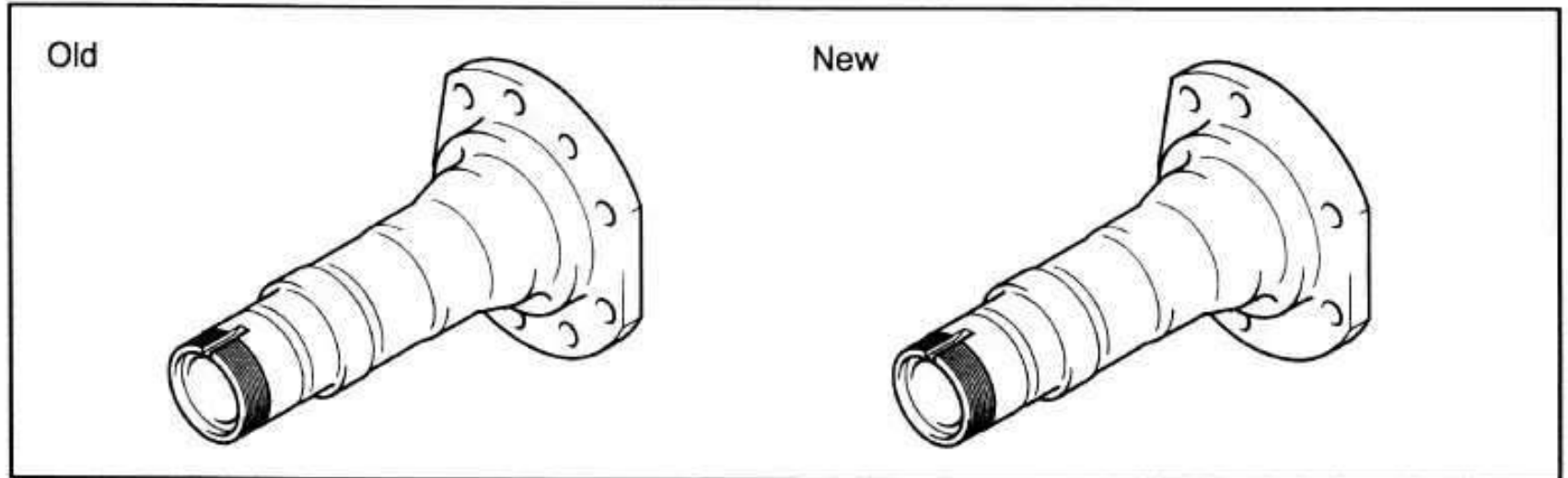


FRONT AXLE-DIFFERENTIAL

MAJOR MODIFICATIONS

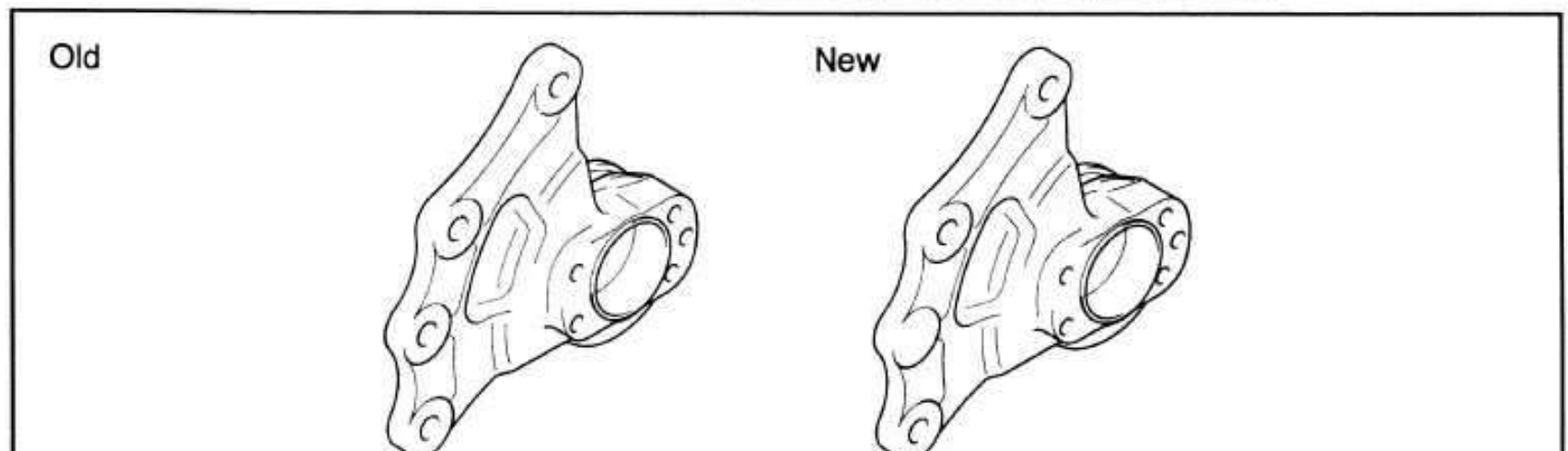
FRONT AXLE HOUSING

The number of front axle housing bolts has been changed from 16 to 12 pcs./vehicle.



FRONT AXLE BRACKET

The number of front axle bracket set bolts has been changed from 8 to 6 pcs./vehicle.



J3.5 Ton Vehicle

Component		Rim	Pneumatic Tire		Pneumatic Type Solid Tire				
Type	Tire Size		J-Lug	Tire Size	J-Lug Non-Puncture	Soft Non-Puncture	White Non-Puncture	Green Non-Puncture	
Front Tire	Single	Side ring	250-15-16	●	250-15	△	△	-	△
	Standard Double		6.00-15-10	○	6.00-15				
	Special Double		28x8-15-12	△	7.00-15				
Rear Tires	6.50-10-12		●	6.50-10	△				

1-16

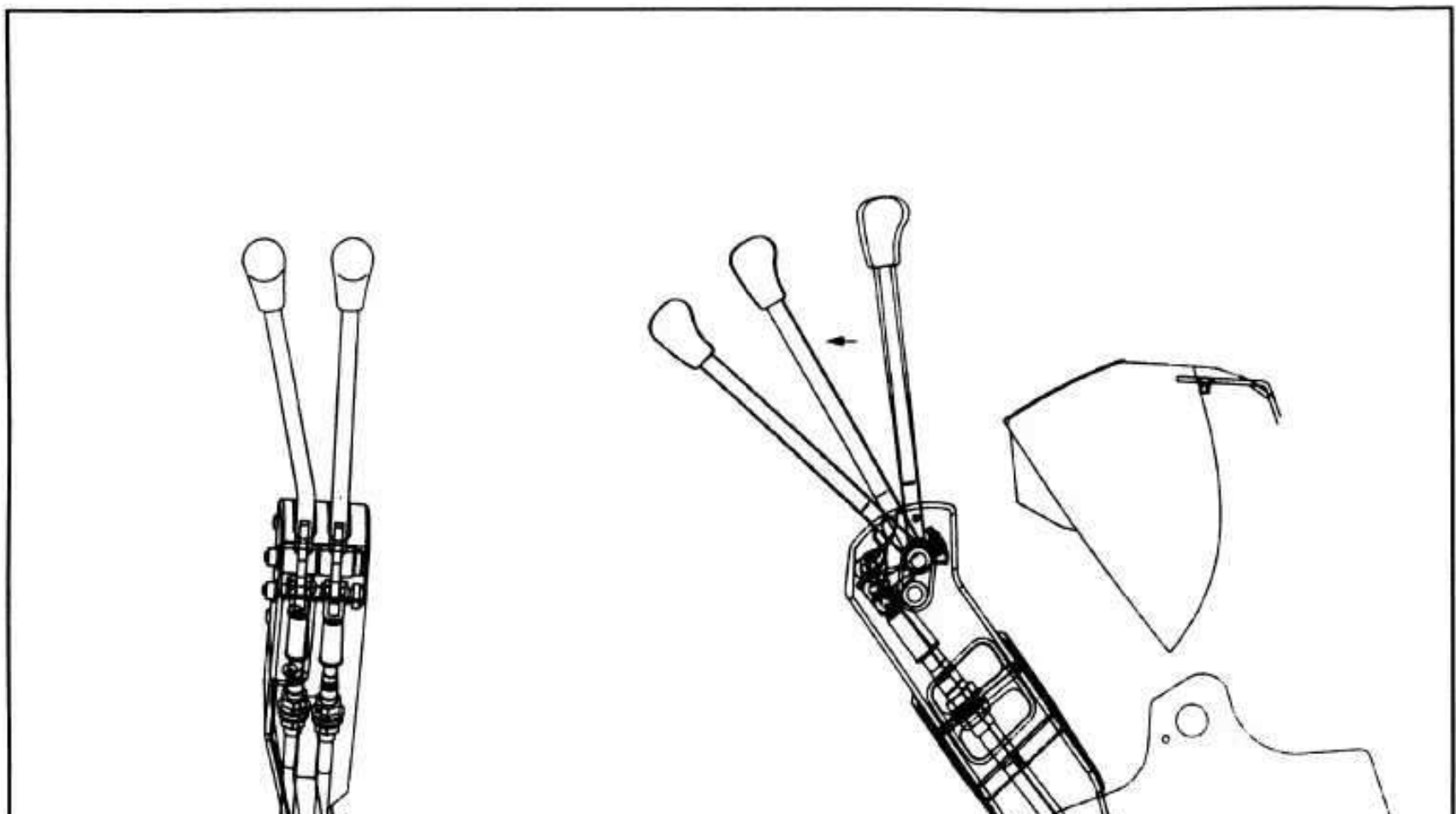
CHANGE LEVER

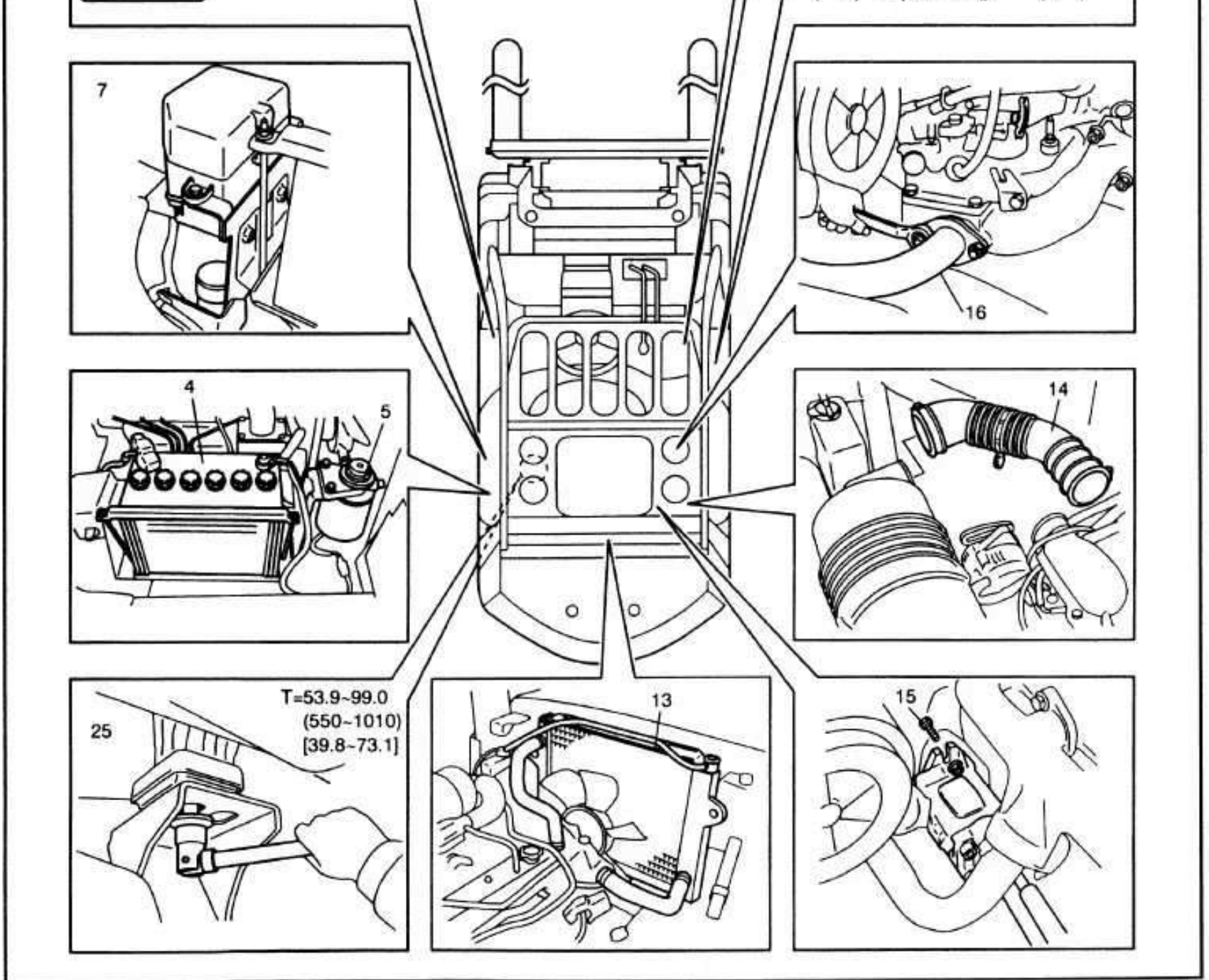
GENERAL

The shift mechanism on manual transmission vehicles is changed from the conventional link type to the cable type.

Adoption of the cable type has reduced lever vibration and stroke, resulting in easier operation.

The brace rod used in the link type is also eliminated.





Removal Procedure

- 1 Remove the engine hood. (Refer to page 11-5 in the 7FG/7FD Series Repair Manual (No. CE024))
- 2 Remove the toe board.
- 3 Drain coolant.
- 4 Remove the battery and battery tray.
- 5 Diesel engine vehicle:
Remove the sediment bracket set bolt for freeing.
- 6 Disconnect the accelerator wire and fuel hose. **[Point 1]**
- 7 Remove the fuse box and electrical parts plate set bolts for freeing.
- 8 Disconnect connectors and wire harness clamps around the engine and transmission.
- 9 Remove the horn W/bracket.
- 10 Vehicle with oil clutch:
Disconnect the oil clutch pipe.
- 11 Disconnect the clutch release cylinder push rod.
- 12 Remove the clutch release cylinder set bolts and hydraulic piping clamps set bolts, and keep them in

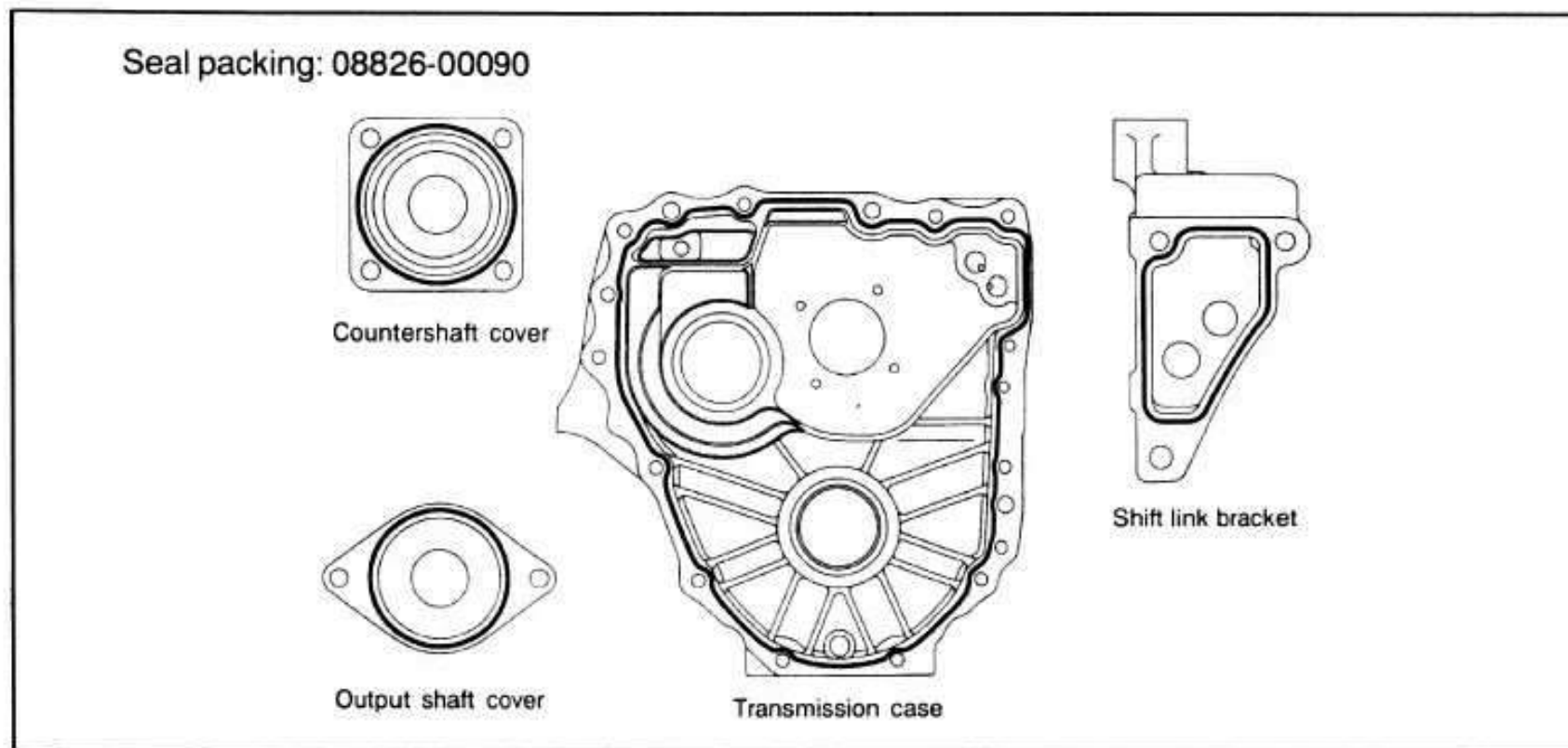
- 12 Remove the shift fork and fork shaft.
- 13 Remove the output gear and bearing.
- 14 Remove the countershaft ASSY and speed shaft ASSY.
- 15 Remove the transmission rear case. **[Point 7]**

Reassembly Procedure

The reassembly procedure is the reverse of the disassembly procedure.

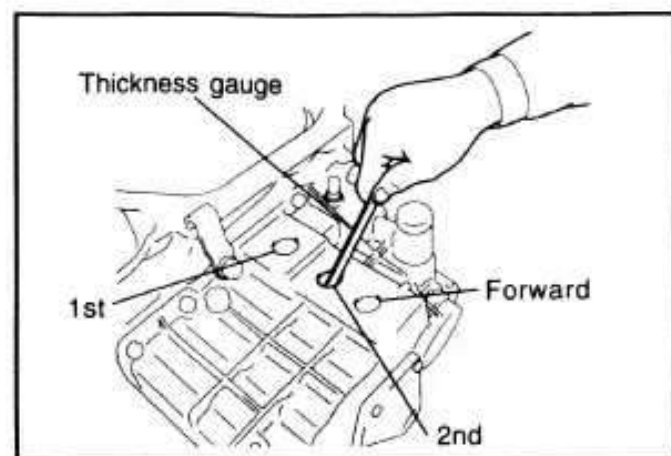
Notes

- Remove the sealing agent applied on the mating surfaces of the transmission case and each cover.
- Apply new sealing agent by referring to the illustrations below.



- Apply sealing agent also on the threaded portions of set bolts at the time of reassembly.

2-12



Point Operations

[Point 1]

Inspection:

Measure the clearance between the synchronizer ring and each gear.

Standard:

1st-2nd gear: 1.25 - 2.05 mm

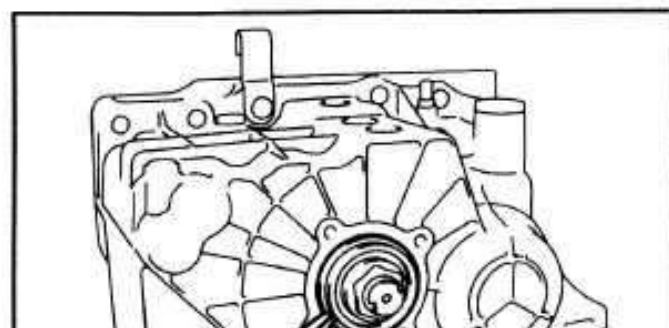
Forward gear: 1.15 - 2.15 mm

Limit:

1st-2nd gear: 0.6 mm

Forward gear: 0.6 mm

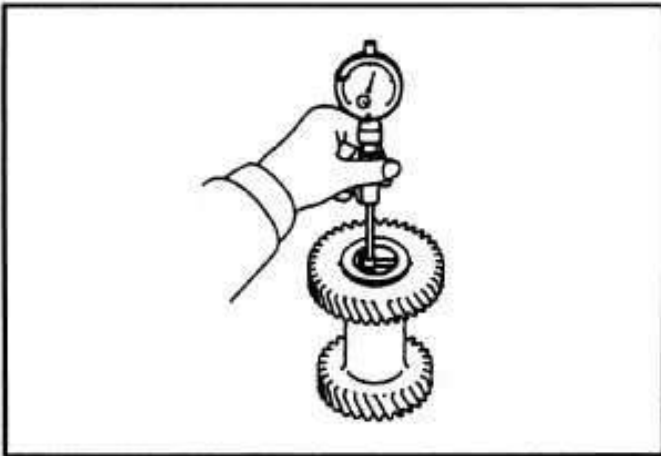
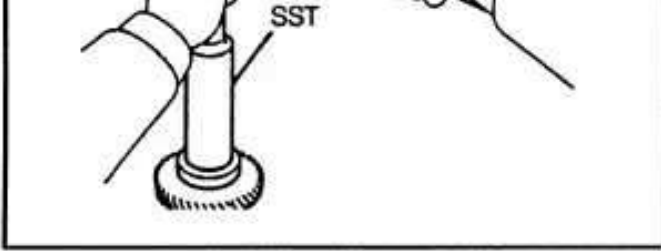
The clearance is immeasurable for the reverse gear.



[Point 2]

Disassembly:

SST 09905-00012

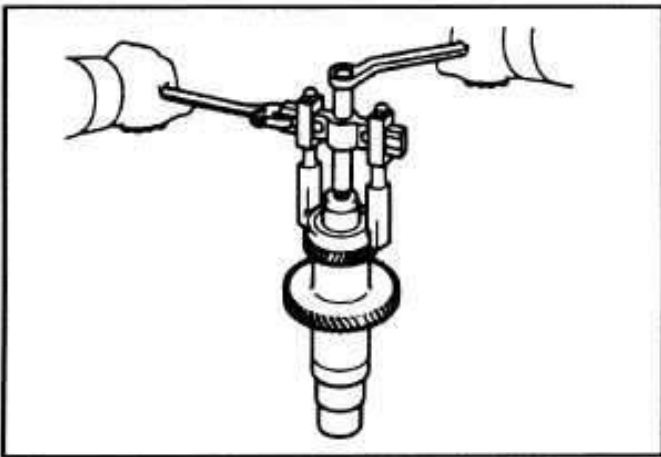


[Point 4]

Inspection:

Measure the inside diameter of the forward idle gear.

Limit: 55.1 mm (2.169 in)

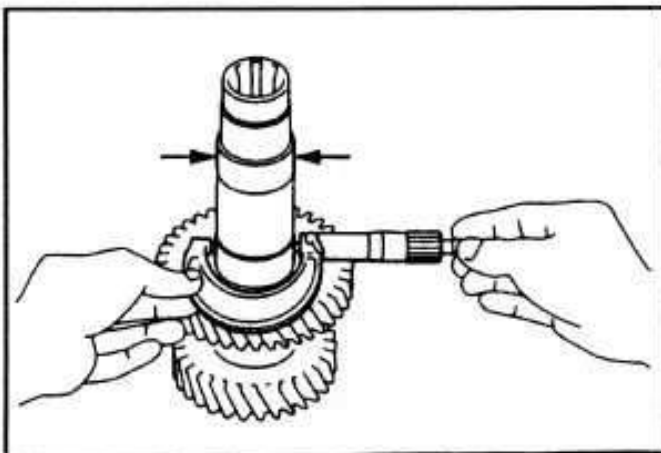


[Point 5]

Disassembly:

SST 09950-40011 --- ①

09950-60010 --- ②



[Point 6]

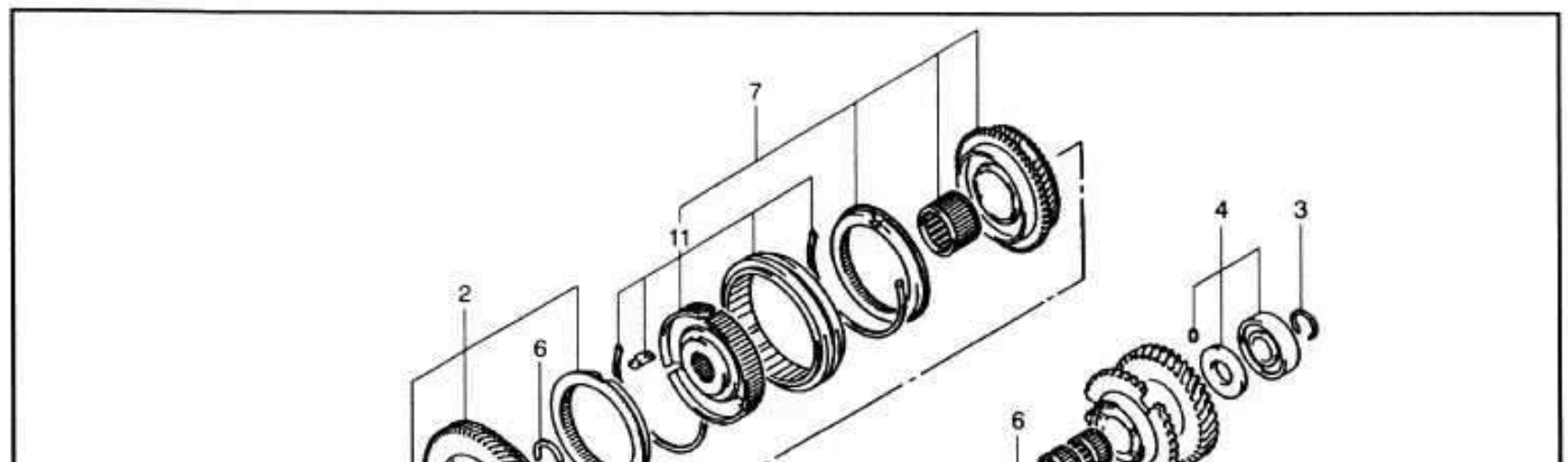
Inspection:

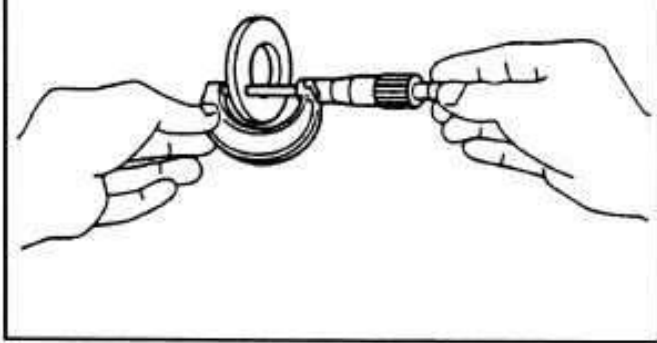
Measure the outside diameter of the speed shaft journal.

Limit: 47.9 mm (1.886 in)

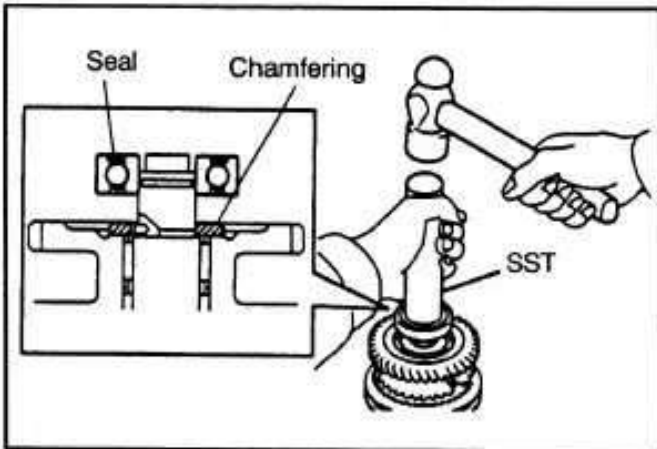
COUNTERSHAFT ASSY

DISASSEMBLY·INSPECTION·REASSEMBLY





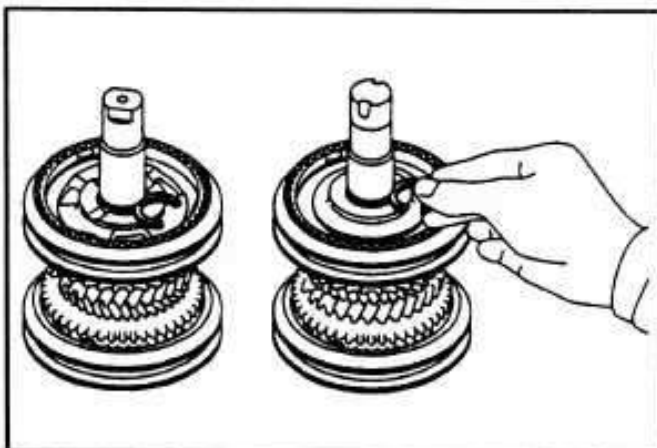
Limit: 5.9 mm (0.232 in)



Reassembly:

Install the thrust washer and rear bearing by checking the directions.

SST 09608-04031

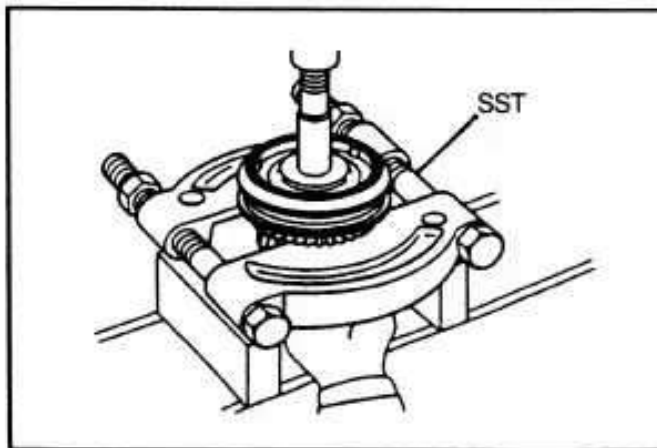


[Point 4]

Reassembly:

Select and install the thickest snap ring that can be installed to make the clutch hub clearance 0.1 mm or less.

Mark	Thickness	mm (in)
A	1.85 ~ 1.90	(0.0728 ~ 0.0748)
B	1.95 ~ 2.00	(0.0768 ~ 0.0787)
C	2.05 ~ 2.10	(0.0807 ~ 0.0827)
D	2.15 ~ 2.20	(0.0846 ~ 0.0866)

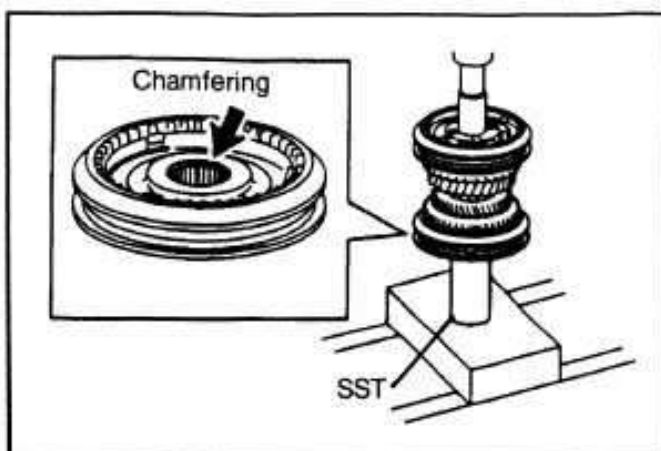


[Point 5]

Disassembly:

SST 09420-23000-71

2-20



Reassembly:

Press in after matching the chamfered side of the hub spline with the shaft spline inlet.

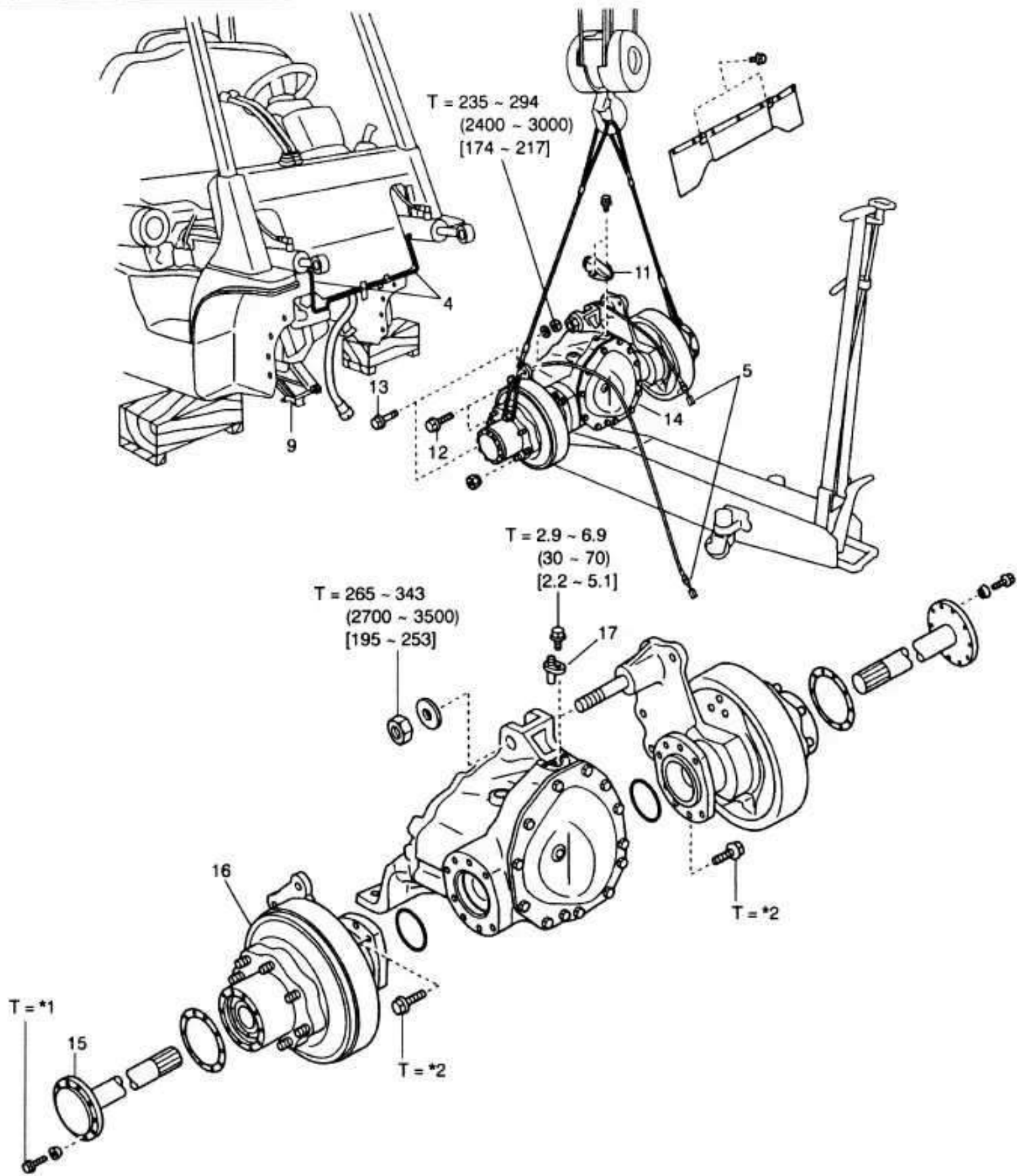
SST 09608-04031



[Point 6]

Inspection:

Measure the forward and rear thrust clearances.



*1 Axle shaft set bolt	3·J3.5 ton series	T = 98.07 ~ 127.5 (1000 ~ 1300) [72.35 ~ 94.06]
	Other	T = 68.6 ~ 88.3 (700 ~ 900) [50.6 ~ 65.1]
*2 Front axle ASSY set bolts	1·2 ton series, K2·K3 ton series	T = 107.9 ~ 137.3 (1100 ~ 1400) [79.59 ~ 101.3]
	3 ton series, J3.5 ton series	T = 127.5 ~ 166.7 (1300 ~ 1700) [94.06 ~ 123.0]

Removal Procedure

- 1 Remove the mast. (Refer to page 13-11 in the 7FG/7FD Series Repair Manual (No. CE024))
- 2 Drain differential oil. **[Point 1]**<https://>