A GENERAL INFORMATION

1 HOW TO USE THIS MANUAL

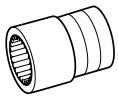
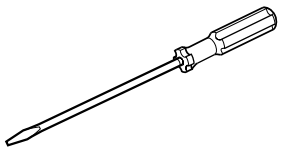
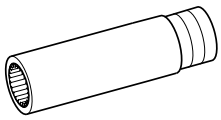
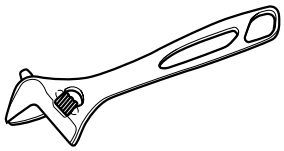
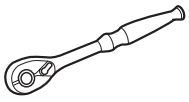
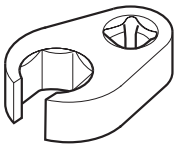
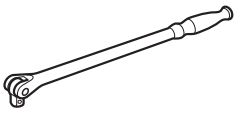
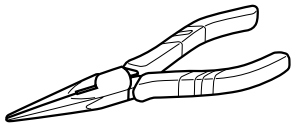
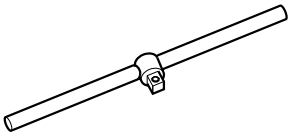
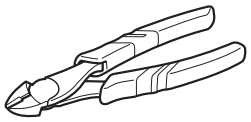
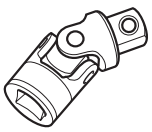
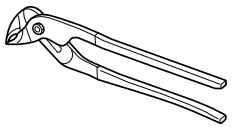
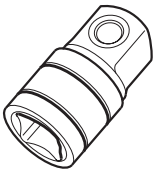
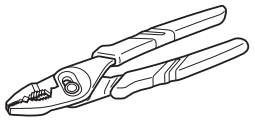
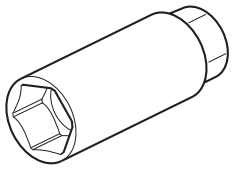
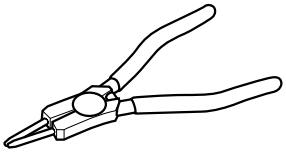
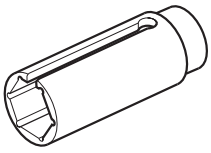
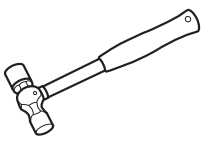
1-1 SCOPE OF DESCRIPTION IN THIS MANUAL

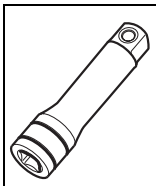
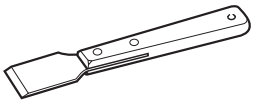
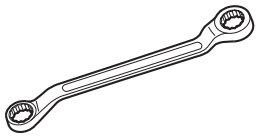
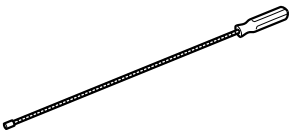
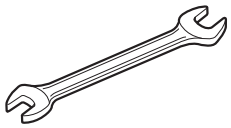
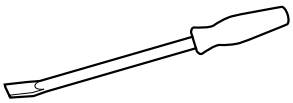
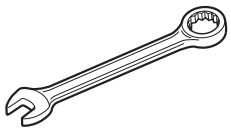
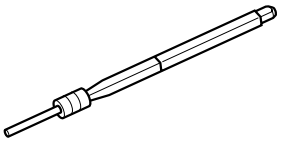
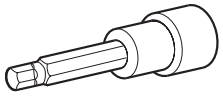
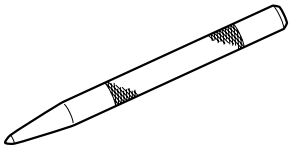
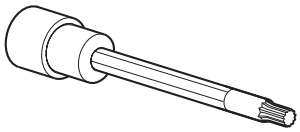
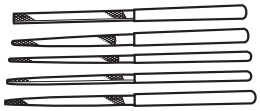
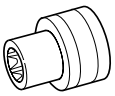
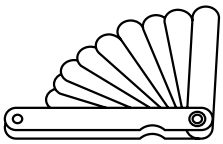
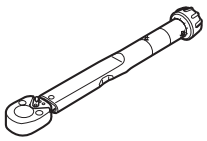
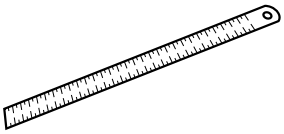
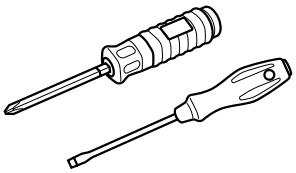
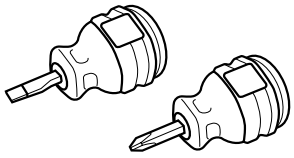
This manual describes the Disassembling and Assembling Procedure for Type M5H transmission assembly. As for the procedure for removal and installation from and to the vehicle as well as the procedures for oil supply, checks and adjustment after completion of mounting on the vehicle, these procedures are described in the repair manual of respective vehicle models.

1-2 ARTICLES TO BE PREPARED

When SSTs, tools, measuring instruments, and various kinds of oils and lubricants need to be prepared before operations, they are described as preparation tools in a table at the beginning of each item. However, general tools, jacks, and fixtures that are considered standard equipment in the service shop are usually omitted.

STANDARD TOOLS

	Socket 9.5sq (7, 8, 10, 12, 14, 17, 19, 21, 22) 12.7sq (12, 14, 17, 19, 21, 22, 23, 24, 26, 27, 30, 32, 36)		Baby screwdriver
	Deep socket 9.5sq. (8, 10, 12, 14) 12.7sq. (12, 14, 17, 19, 21, 22, 24, 27, 30)		Crescent wrench
	Ratchet handle (9.5sq., 12.7sq.)		Crow foot wrench (10, 12, 14, 17., 19)
	Spinner handle (12.7sq.)		Longnose pliers
	Sliding T-handle (9.5sq.)		Nipper
	Universal joint (9.5sq., 12.7sq.)		Water pump pliers
	Socket adapter (6.3sq., 9.5sq., 12.7sq.)		Combination pliers
	Plug wrench 9.5sq. (16, 20.8)		Internal snap ring pliers (ϕ2.0, ϕ1.2)
	Oxygen sensor socket		Combination hammer

	Extention bar 9.5sq. (30mm, 75mm, 100mm, 150mm, 270mm) 12.7sq. (75mm, 150mm, 270mm, 600mm)		Stainless scrapers
	Long offset wrench (8×10, 10×12, 12×14, 14×17, 17×19, 19×21, 22×24, 24×27)		Magnet hand
	Spanner wrench (6×7, 8×10, 10×12, 12×14, 14×17, 17×19)		Handy bar (330mm, 420mm, 600mm)
	Combination wrench (10, 12, 14, 17)		Knock pin punch (ϕ3, ϕ4, ϕ5)
	Hexagon bit socket 9.5sq. (4, 5, 6, 8, 10, 12 12.7sq. (14)		Centering punch
	T-type long torx bit socket 12.7sq. (T55)		A set of files (5pieces)
	T-type torx wrench 9.5sq. (E10, E14)		Thickness gauge (9 pieces, 5 pieces on one side and 11 pieces on the other)
	Ratchet-equipped preset type torque wrench 9.5sq. (5 - 25, 10 - 50) 12.7sq. (20 - 100, 30 - 140, 40 - 200)		Square (150mm, 300mm)
	Screwdriver		Oil jug
	Stubby screwdriver		

1-3 **COMPONENTS**

1. The essential points for the disassembly and assembly of each component part are described in the order below. However, the operations for cleaning, inspections, adjustments and replacements are only described if necessary.

1-1-1 ARTICLES TO BE PREPARED
1-1-2 OPERATION BEFORE DISASSEMBLY
1-1-3 DISASSEMBLING AND ASSEMBLING PROCEDURES
1-1-4 POINTS OF DISASSEMBLY
1-1-5 CLEANING
1-1-6 CHECK
1-1-7 ADJUSTMENT
1-1-8 REPLACEMENT
1-1-9 POINTS OF ASSEMBLY
1-1-10 OPERATION AFTER ASSEMBLY

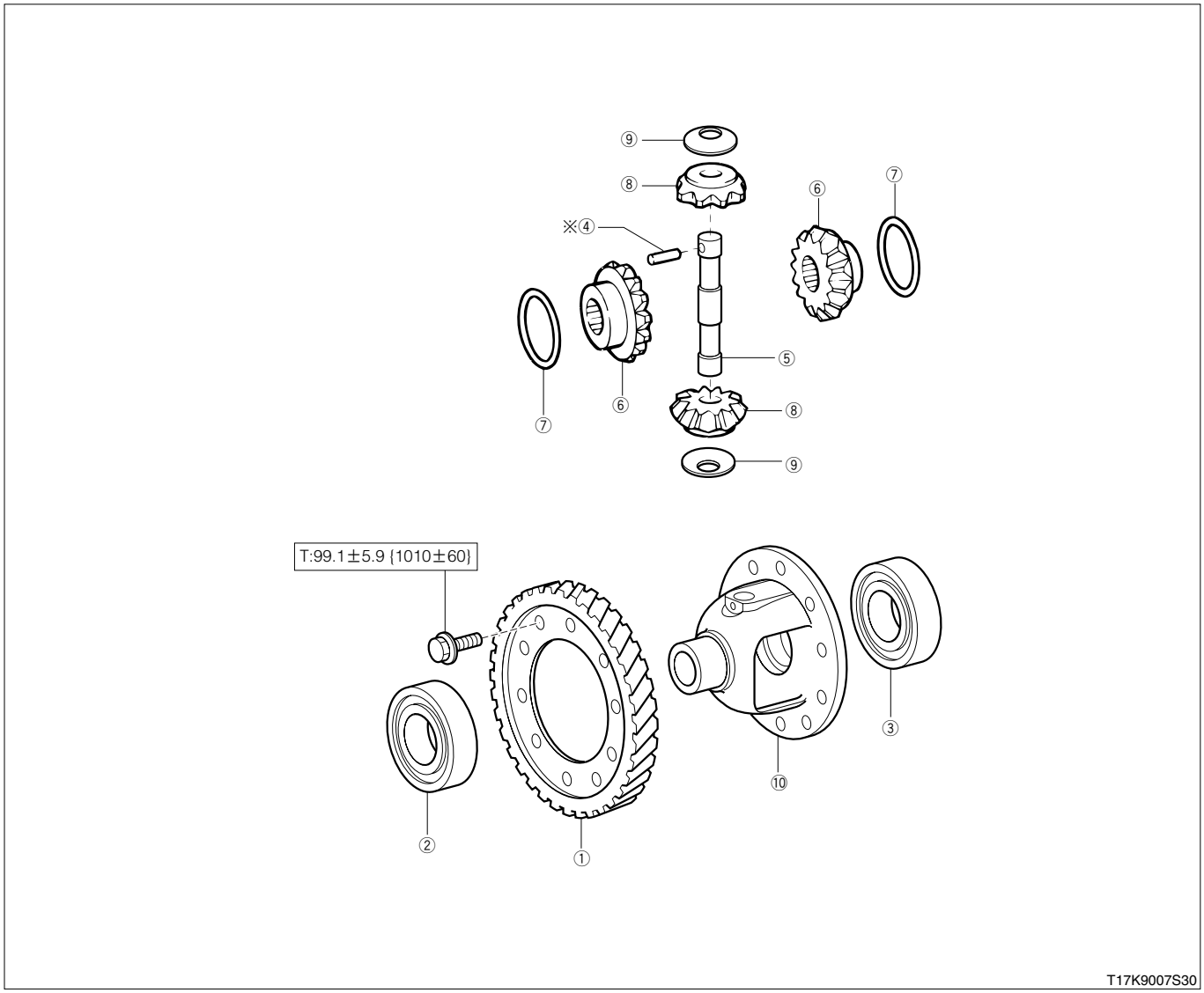
2. Components diagrams and cross-sectional views are posted for disassembling and assembling procedures to show the installed state of each part.
3. In the components diagram, the application points for the grease, lubricant and sealer are indicated by arrows. Tightening torques and non-reusable parts are also indicated. The meaning of each code is given below the components diagram.
4. The disassembling procedure and the list of part names are shown just below the components diagram. And the number before each part name is linked to a number in the diagram.
5. In principle, reverse the removal (or disassembly) procedure to install (or assemble) the parts.

NOTE

- The installation (or assembly) procedure is provided only in cases where the installation (or assembly) can not be carried out by reversing the removal (or disassembly) procedure.

1-3-1 ENTRY EXAMPLE

(1) COMPONENTS



*: Non-reusable parts

Unit: N·m{kgf·cm}

(2) DISASSEMBLING AND ASSEMBLING PROCEDURES

1	Gear, differential ring	6	Gear, differential side
2	Bearing, radial ball	7	Washer, differential side gear thrust
3	Bearing, radial ball	8	Pinion, differential
4	Pin, slotted spring	9	Washer, differential pinion thrust
5	Shaft, differential pinion	10	Case, differential

1-4 CONTENTS NOT DESCRIBED IN THIS MANUAL

The description of the next elemental operation may be omitted in this service manual, but please perform the actual operation.

1. Cleaning and washing of removed parts to be performed if necessary.
2. Visual inspection
3. Basic check after assembly

1-5 DEFINITIONS OF TERMS

SPECIFIED VALUE	This mark shows the standard value at the time of the check or adjustment.
ALLOWABLE LIMIT	This mark shows the maximum or minimum value at the time of the check or adjustment.
DEVIATION	This value refers to the difference between the maximum clearance and the minimum clearance.
WARNING	This symbol means that there is the possibility of personal injury of the operator himself or the nearby workers if the operator fails to follow the operating procedure prescribed in this manual.
CAUTION	This symbol means that there is the possibility of damage to the component being repaired if the operator fails to follow the operating procedure prescribed in this manual.
NOTE	Supplementary explanation which facilitates the operation is posted separately from the explanation. Because of difficulties in measurements to determine specified values, there may be cases where the specified values for simple measurement methods are indicated if malfunctions are unlikely to take place actually.

2 ABBREVIATION CODES

The abbreviation codes that appear in this manual stand for the following, respectively.

Abbreviation code	Original word	Meaning
API	American Petroleum Institute (American Petroleum Institute)	The standards set by the American Petroleum Institute (otherwise known as API service classifications) are used to evaluate the performance of engine oils. Gasoline engines use the classifications SG, SH and SJ etc, and diesel engines use CD and CE etc.
Ay	Assembly	A module that consists of two or more single parts, or that is an aggregate of combined sub-assembly parts.
FR	Front	Front
LH	Left Hand	LH
M/T	Manual Transmission (manual transmission)	Manual type transmission
RH	Right Hand	RH
RR	Rear	Rear
S/A	Sub Assembly	A module that consists of two or more single parts welded or caulked together.
SAE	Society of Automotive Engineers (Society of Automotive Engineers)	When prescribing the oil, the SAE number is number〇〇. This is the standard set by America`s Society of Automotive Engineers (SAE). Larger numbers indicate a high viscosity, and smaller numbers indicate a low viscosity.
SST	Special Service Tool (Special service tools)	SST (Special Service Tool)
T	Torque	Tightening torque
W/	With	The following items are included. (For example, W/ washers means washers included)
Ⓑ Ⓢ Ⓝ Ⓦ	Bolt Screw Nut Washer	Symbols for cases where abbreviations for standard bolts, screws, nuts and washers are used in a table.

3 UNIT

The units are the SI units [International System of Units]. (The representative conventional units are also indicated.)

Example: 33.3±13.3N·m{340±135kgf·cm}

3-1 NEW UNIT BECAUSE OF THE INTRODUCTION OF THE SI UNIT

Detected item	New units	Conventional units	Convention table
Force	N (newton)	kgf	1 kgf = 9.80665N
Torque	N·m (newton meter)	kgf·cm	1 kgf·cm = 0.0980665N·m
Spring constant	N/mm	kgf/mm	1 kgf/mm = 9.80665N/mm
Pressure	Pa (Pascal)	kgf/cm^2	1 kgf/cm^2 = 98.0665kPa
		mmHg	1 mmHg = 0.133322kPa

3-2 PREFIX USER IN SI UNIT

The following are typical prefixes used in SI Unit (10 to the power of n).

M(mega)	10^6
k(kilo)	10^3
h(hecto)	10^2
da (deca)	10^1
d (deci)	$10^{-1}=0.1$
c(centi)	$10^{-2}=0.01$
m(milli)	$10^{-3}=0.001$
μ(micro)	$10^{-6}=0.000001$

4 HOW TO GRASP SPECIFIED TIGHTENING TORQUE FOR GENERAL STANDARD BOLT AND NUT

4-1 DETERMINING PROCEDURE FOR TIGHTENING TORQUE FOR GENERAL STANDARD BOLTS AND NUTS

4-1-1 DETERMINING PROCEDURE FOR TIGHTENING TORQUE FOR BOLTS

Determine the strength division of bolts, based on the table below. Then, obtain the value, based on the tightening torque table.

4-1-2 DETERMINING PROCEDURE FOR TIGHTENING TORQUE FOR NUTS

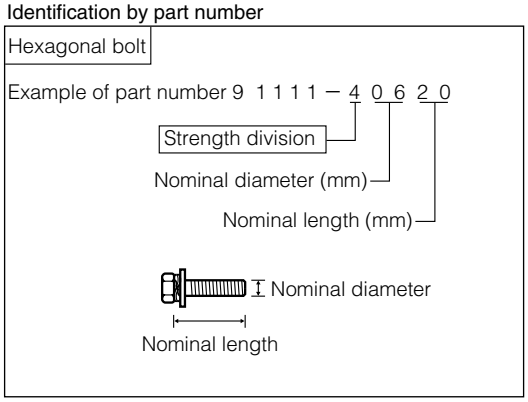
Determine with the aforesaid method, based on the mating bolt.

4-1-3 IDENTIFICATION

Identification of strength division by checking bolts themselves

Classification (Strength division)	Shape of head (how to know strength division)	
	Bolt without collar	Bolt with collar
4 T		
5 T		—
6 T	— 	
7 T		—

Identification by part number



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4-1-4 TIGHTENING TORQUE TABLE FOR GENERAL STANDARD BOLTS

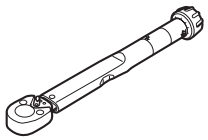
Strength division	Nominal diameter (mm)	Pitch (mm)	Standard tightening torque (N·m{kgf·cm})	
			Bolt without flange	Bolt with flange
4 T	6	1.0	5.0 {55}	6.0 {60}
	8	1.25	12.5 {130}	14.0 {145}
	10	1.25	26.0 {260}	29.0 {290}
	12	1.25	47.0 {480}	53.0 {540}
	14	1.5	74.0 {760}	84.0 {850}
	16	1.5	115.0 {1150}	—
5 T	6	1.0	6.5 {65}	7.5{75}
	8	1.25	15.5 {160}	17.5{175}
	10	1.25	32.0 {330}	36.0 {360}
	12	1.25	59.0 {600}	65.0 {670}
	14	1.5	91.0 {930}	100.0 {1050}
	16	1.5	140.0 {1400}	—
6 T	6	1.0	8.0 {80}	9.0 {90}
	8	1.25	19.0 {195}	21.0 {210}
	10	1.25	39.0 {400}	44.0 {440}
	12	1.25	71.0 {730}	80.0 {810}
	14	1.5	110.0 {1100}	125.0 {1250}
	16	1.5	170.0 {1750}	—
7 T	6	1.0	10.5 {110}	12.0 {120}
	8	1.25	25.0 {260}	28.0 {290}
	10	1.25	52.0 {530}	58.0 {590}
	12	1.25	95.0 {970}	105.0 {1050}
	14	1.5	145.0 {1500}	165.0 {1700}
	16	1.5	230.0 {2300}	—

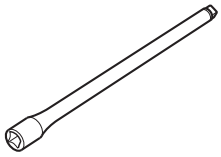
4-2 PROCEDURE FOR TIGHTENING

4-2-1 TIGHTENING TOOL

To control the torque indicated in this manual, use the torque wrench (equivalent item) as shown in the following table.

Use the most appropriate torque wrench in combination with an extension tool (such as an extension bar, etc.), according to the work and space, etc.

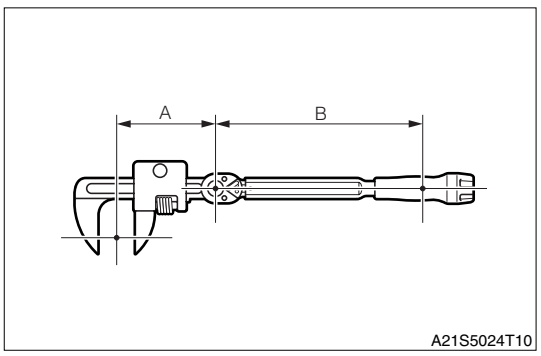
Item name (the range of torque to be used)	
Preset type torque wrench with ratchet 	9.5sq(5－25N·m)
	9.5sq(10－50N·m)
	12.7sq(20－100N·m)
	12.7sq(30－140N·m)
	12.7sq(40－200N·m)

Item name (total length of tool)	
Extension bar 	9.5sq(30mm)
	9.5sq(75mm)
	9.5sq(100mm)
	9.5sq(150mm)
	9.5sq(270mm)
	12.7sq(75mm)
	12.7sq(150mm)
	12.7sq(270mm)
	12.7sq(600mm)

4-2-2 WHEN AN EXTENSION TOOL IS USED

1. When tightening with the SST or a tool connected to the torque wrench for a drive-end extension, a higher tightening torque will result, if tightened until the reading on the torque wrench indicates the specified torque.
2. This manual contains specified torques only. When using the SST or an extension tool, the torque wrench reading must be computed using the following formula.
3. Calculation formula: $T' = T \times B / (A + B)$

Abbreviation code	Meaning	UNIT
T′	Torque wrench reading	N·m{kgf·cm}
T	Specified tightening torque	N·m{kgf·cm}
A	Length of the SST or a tool	cm
B	Torque wrench length	cm



5 CAUTIONS FOR THE DISASSEMBLY AND ASSEMBLY PROCEDURES FOR THE MANUAL TRANSAXLE.

5-1 USE OF THE SST

1. For increased work efficiency and improved accuracy, be sure to utilize the SSTs (Special Service Tools) effectively.

5-2 BEFORE DISASSEMBLY

1. Prior to the disassembling, be sure to wash away sands and mud that has adhered to the exterior of the transaxle so that it will not be admitted to the interior at the time of the disassembling and assembling.

5-3 DURING DISASSEMBLING

1. When the joint section of light-alloy parts such as the transaxle is to be disassembled, do not pry using a screwdriver or the like, but perform the disassembling by lightly tapping with a plastic hammer.
2. Place the disassembled parts in order at all times. Keep them away from dust.
3. Extreme care must be exercised to ensure that the mating surface of the case is not damaged, as this could lead to oil leakage.
4. When a part is to be secured in a vise, be sure to secure it with the aluminum sheets interposed.
5. For complicated places, to make the assembly easier, add stamping marks and alignment marks in places where there will not be any effect on function.
6. Whenever a part is removed, check its condition when assembled, looking for deformation, breakage, roughness and the existence of scratches.
7. Arrange the removed parts in order, and divide them into parts to replace and parts to reuse.
8. Each part to be reused must be cleaned and washed thoroughly.

5-4 CLEANING AND WASHING

1. Wash each part thoroughly before assembly. After drying the parts, apply Transmission gear oil SAE75W−90, SAE75W−85 or SAE75W−80 (API Classification GL3 or GL4) to them.
2. Never wash aluminum and rubber parts with alkali chemicals.
3. Never wash rubber parts, such as O-rings and oil seals, with cleaning oil (white gasoline or the like).
4. Prior to the application of the seal agent, be sure to completely remove any oil seal agent remaining on the seal section. Then, wash the seal agent application section with white gasoline and dry it thoroughly.

5-5 INSPECTION, MEASUREMENT AND ADJUSTMENT

1. With regards to those parts to be used again, perform thorough checks and measurements, as required.
2. Adjust to the specified service standard value using the gauge and the tester.

5-6 REPLACE AND ASSEMBLE

1. After the seal section has been assembled, wait at least one hour, until the seal agent dries completely. Then, fill the oil.
2. Replace any snap ring that has been scratched or deformed with a new one.
3. Be sure to apply ample Transmission gear oil SAE75W−90, SAE75W−85 or SAE75W−80 (API Classification GL3 or GL4) to sliding surfaces and rotating surfaces before assembly.
4. Assemble the good parts using the correct procedures in accordance with the specified standard (Values for adjustment, tightening torque).
5. Use genuine parts for replacements.
6. Do not forget to apply sealing packing and greases, depending on the part.
7. Ensure that you use new packing, gaskets or the like, and O-rings, etc.
8. When using seal bolts, ensure that you use the specified liquid gasket or apply seal lock chemicals.
9. Use the specified bolts and nuts. Unless otherwise specified, the side for which the torque is indicated should be tightened to the specified torque, using a torque wrench. If there is no means to prevent turning on the opposite side, be sure to prevent turning using box wrenches, spanners or the like.

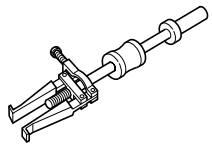
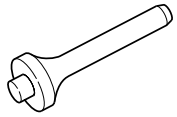
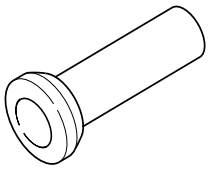
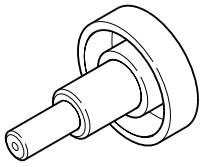
F2 MANUAL TRANSMISSION/MANUAL TRANSAXLE

1 MANUAL TRANSMISSION

1-1 DISASSEMBLING AND ASSEMBLING

1-1-1 ARTICLES TO BE PREPARED

SST

Shape	Part No.	Part name
	09308-00010-000	Puller,oil seal
	09606-87201-000	Remover & replace front hub bearing
	09309-87201-000	Replacer,transmission bearing
	09515-87201-000	Replacer,rear axle shaft bearing outer
	09518-87709-000	Replacer,oil seal No.8

Tool

Knock pin punch

Instrument

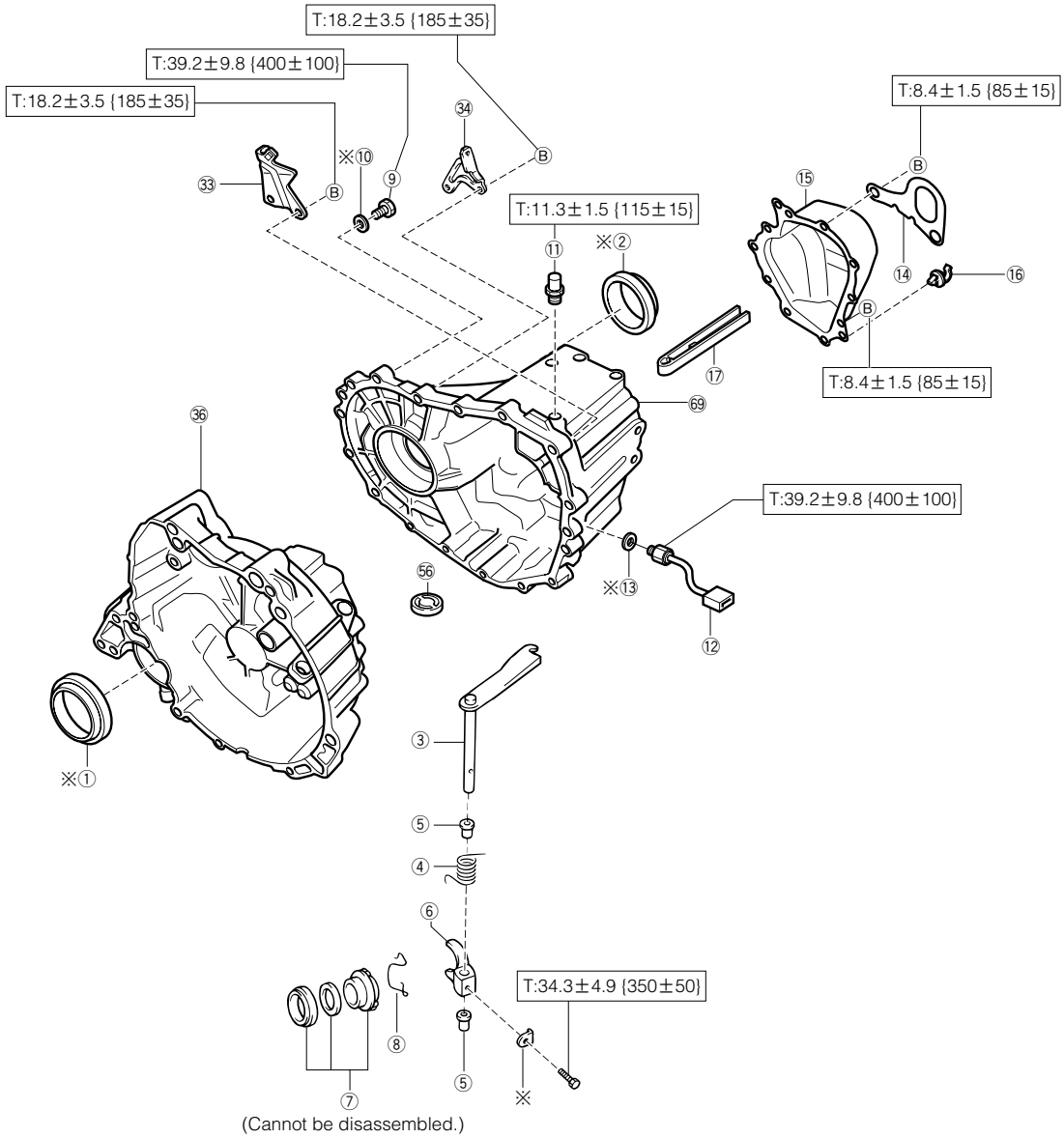
Vernier calipers,Caliper gauge,Thickness gauge,Dial gauge

Lubricant,adhesive,others

Three Bond1217,Transmission gear oil SAE75W－90 or SAE75W－85 or SAE75W－80 (API Classification GL3 or GL4)

1-1-2 **COMPONENTS**

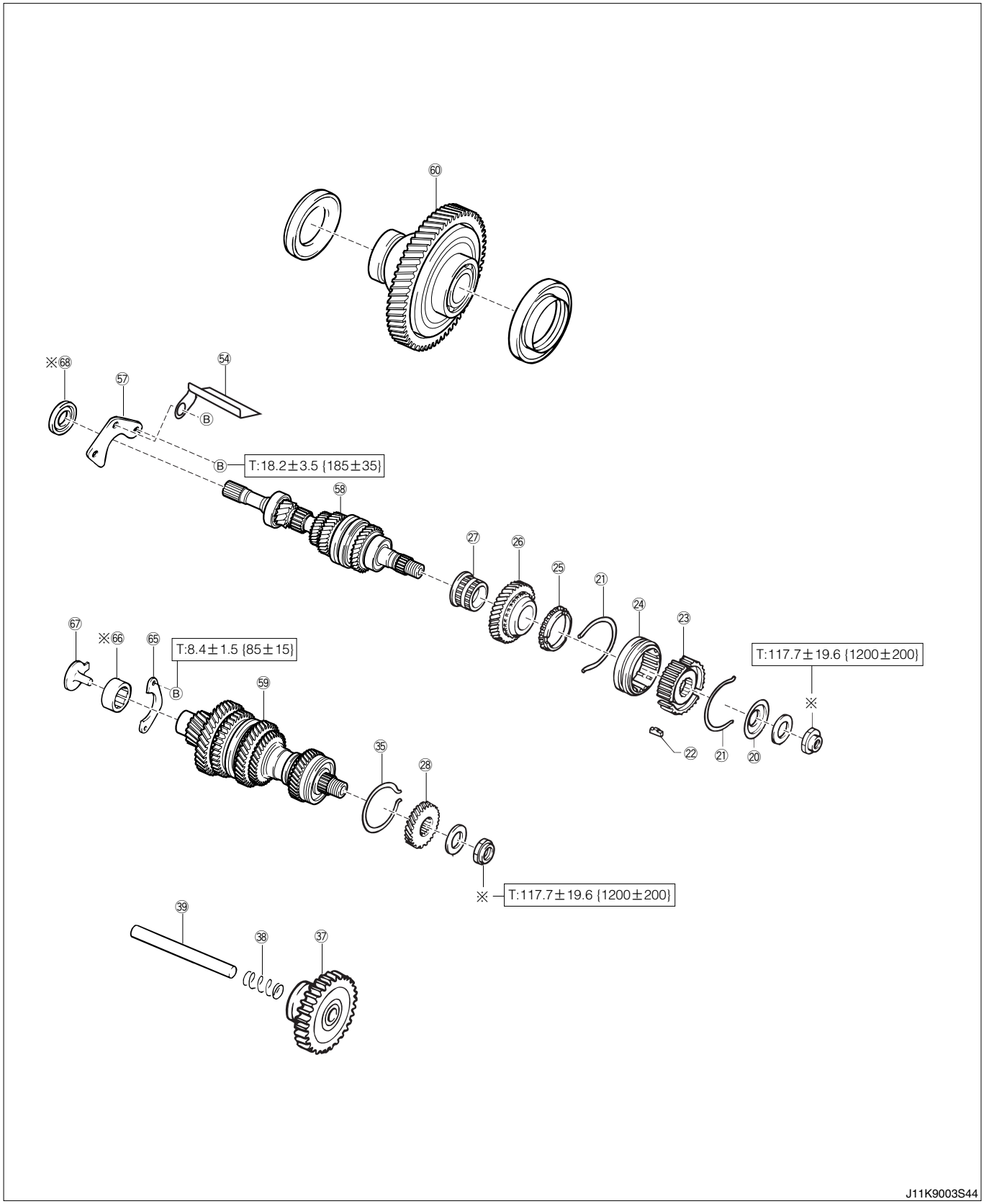
(1) **Components**



J11K9002ES44

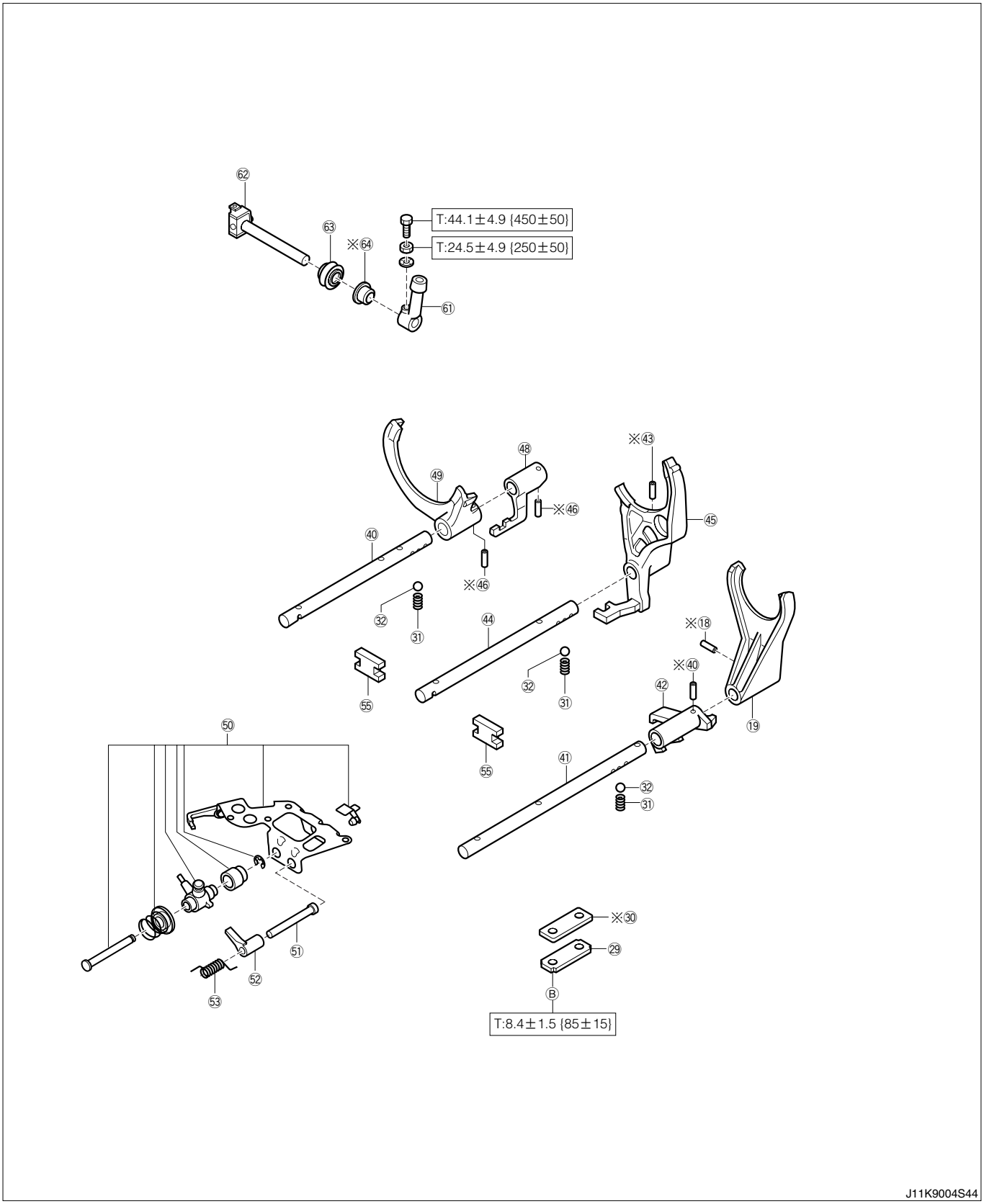
※Non - reusable parts

Unit:N·m{kgf·cm}



※Non - reusable parts

Unit:N·m{kgf·cm}



※Non - reusable parts

Unit:N·m{kgf·cm}

(2) **Disassembly procedure**

- ▼ 1 Seal, type T oil
- ▼ 2 Seal, type T oil
- ▼ 3 Lever S/A, clutch release
- ▼ 4 Spring, torsion
- ▼ 5 Bush
- ▼ 6 Yoke, release lever
- ▼ 7 Hub Ay, clutch release bearing
- ▼ 8 Clip, release bearing hub
- ▼ 9 Plug, w/head straight screw
- ▼ 10 Gasket
- ▼ 11 Plug, bleeder
- ▼ 12 Switch Ay, back up lamp
- ▼ 13 Gasket
- ▼ 14 Hanger, engine No.2
- ▼ 15 Cover S/A, transmission case
- ▼ 16 Clamp
- ▼ 17 Pipe, case cover oil
- ▼ 18 Pin, slotted spring
- ▼ 19 Fork , 5th shift
- 20 Stopper, transmission hub sleeve
- 21 Spring, synchromesh shifting key
- 22 Key, synchromesh shifting
- 23 Hub, transmission clutch, No.3
- 24 Sleeve, transmission hub
- 25 Ring, transmission, No.1
- 26 Gear, 5th
- 27 Bush, 5th gear
- 28 Gear, output 5th
- ▼ 29 Plate, fork shaft lock ball
- ▼ 30 Gasket, lock ball plate
- ▼ 31 Spring, compression
- ▼ 32 Ball
- ▼ 33 Bracket, clutch cable
- ▼ 34 Bracket, wiring harness
- ▼ 35 Ring, shaft snap
- ▼ 36 Case, transmission
- ▼ 37 Gear S/A, reverse idler
- ▼ 38 Spring, compression
- ▼ 39 Shaft, reverse idler gear
- ▼ 40 Pin, slotted spring
- ▼ 41 Shaft, 5th&reverse shift fork
- ▼ 42 Head, reverse shift
- ▼ 43 Pin, slotted spring
- ▼ 44 Shaft, 3rd&4th shift fork
- ▼ 45 Fork , 3rd&4th shift
- ▼ 46 Pin, slotted spring
- ▼ 47 Shaft, 1st&2nd shift fork
- ▼ 48 Head, 1st&2nd shift
- ▼ 49 Fork , 1st&2nd shift
- ▼ 50 Support Ay, bellcrank
- ▼ 51 Shaft, reverse restrict
- ▼ 52 Cam, reverse restrict
- ▼ 53 Spring, compression
- 54 Plate,side
- ▼ 55 Plate, shift inter lock
- ▼ 56 Magnet, transmission
- ▼ 57 Plate, bearing lock
- ▼ 58 Shaft Ay, input
- ▼ 59 Shaft Ay, output
- ▼ 60 Differential Ay
- ▼ 61 Lever, shift inner
- ▼ 62 Shaft, shift&select
- ▼ 63 Boot, control shaft
- ▼ 64 Seal, type T oil
- ▼ 65 Plate, output shaft bearing lock
- ▼ 66 Bearing, needle roller
- 67 Cover, output shaft
- ▼ 68 Seal, type S oil
- 69 Case, transaxle

(3) **Assembly procedure**

1 Case, transaxle
▲ 2 Seal, type S oil
▲ 3 Cover, output shaft
▲ 4 Bearing, needle roller
▲ 5 Plate, output shaft bearing lock
▲ 6 Seal, type T oil
▲ 7 Boot, control shaft
▲ 8 Shaft, shift&select
▲ 9 Lever, shift inner
▲ 10 Differential Ay
▲ 11 Shaft Ay, output
▲ 12 Shaft Ay, input
▲ 13 Plate, bearing lock
▲ 14 Magnet, transmission
▲ 15 Fork , 1st&2nd shift
▲ 16 Plate, shift inter lock
▲ 17 Shaft, reverse restrict
▲ 18 Cam, reverse restrict
▲ 19 Spring, compression
▲ 20 Spring, compression
▲ 21 Head, 1st&2nd shift
▲ 22 Shaft, 1st&2nd shift fork
▲ 23 Pin, slotted spring
▲ 24 Fork , 3rd&4th shift
▲ 25 Shaft, 3rd&4th shift fork
▲ 26 Pin, slotted spring
▲ 27 Head, reverse shift
▲ 28 Shaft, 5th&reverse shift fork
▲ 29 Pin, slotted spring
▲ 30 Shaft, reverse idler gear
▲ 31 Spring, compression
▲ 32 Gear S/A, reverse idler
▲ 33 Case, transmission
▲ 34 Ring, shaft snap
▲ 35 Bracket, wiring harness
▲ 36 Bracket, clutch cable
▲ 37 Ball
▲ 38 Spring, compression
▲ 39 Gasket, lock ball plate
▲ 40 Plate, fork shaft lock ball
▲ 41 Gear, output 5th
▲ 42 Bush, 5th gear
▲ 43 Gear, 5th
▲ 44 Ring, transmission, No.1
▲ 45 Sleeve, transmission hub
▲ 46 Hub, transmission clutch, No.3
47 Key, synchromesh shifting
48 Spring, synchromesh shifting key
49 Stopper, transmission hub sleeve
▲ 50 Fork , 5th shift
▲ 51 Pin, slotted spring
▲ 52 Pipe, case cover oil
▲ 53 Clamp
▲ 54 Cover S/A, transmission case
▲ 55 Hanger, engine No.2
▲ 56 Gasket
▲ 57 Switch Ay, back up lamp
▲ 58 Plug, bleeder
▲ 59 Gasket
▲ 60 Plug, w/head straight screw
▲ 61 Clip, release bearing hub
▲ 62 Hub Ay, clutch release bearing
▲ 63 Yoke, release lever
▲ 64 Bush
▲ 65 Spring, torsion
▲ 66 Lever S/A, clutch release
▲ 67 Seal, type T oil
▲ 68 Seal, type T oil

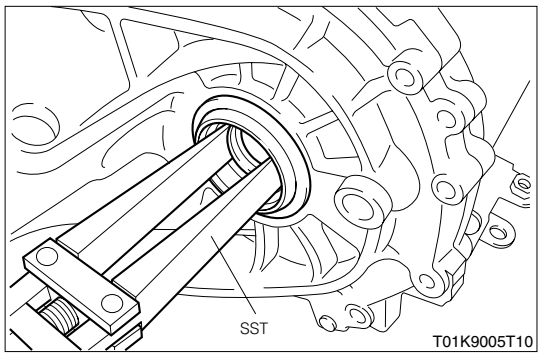
1-1-3 DISASSEMBLY

1. Remove the type T oil seal of the transmission case and the transaxle case, using the SST.

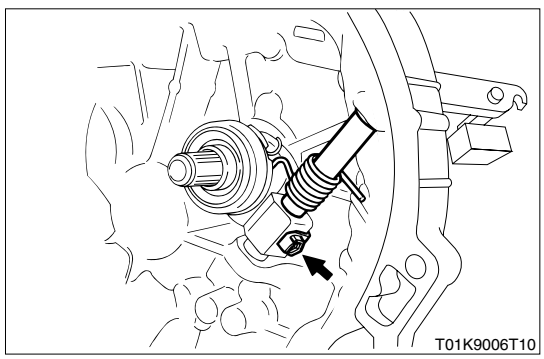
CAUTION

- Do not reuse the type T oil seal.

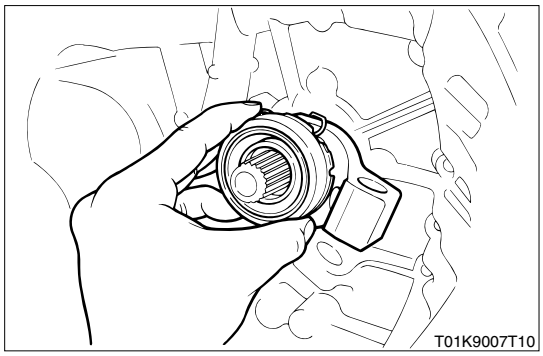
SST: 09308-00010-000



2. Release the lock of the lock washer, remove the bolt(s), and remove the clutch release lever S/A and the torsion spring.
3. Remove the bushes (two) from the transaxle case.



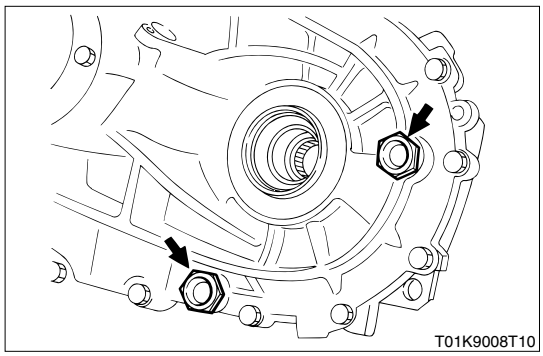
4. Remove the release lever yoke, together with the clutch release bearing hub Ay.
5. Remove the release bearing hub clip, and then disconnect the release lever yoke from the clutch release bearing hub Ay.


T01K9007T10

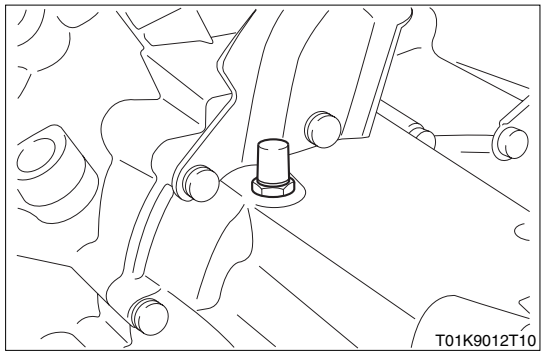
6. Remove the straight screw plugs with heads (two) and the gaskets (two).

CAUTION

- Do not reuse the gasket.


T01K9008T10

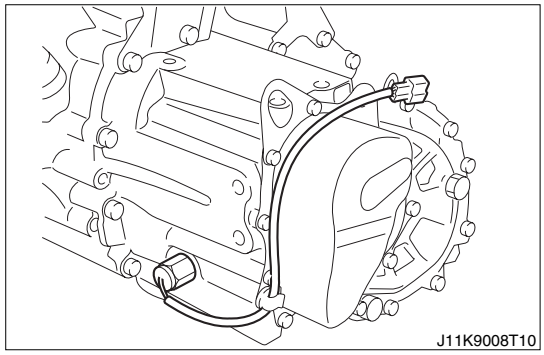
7. Remove the breather plug.


T01K9012T10

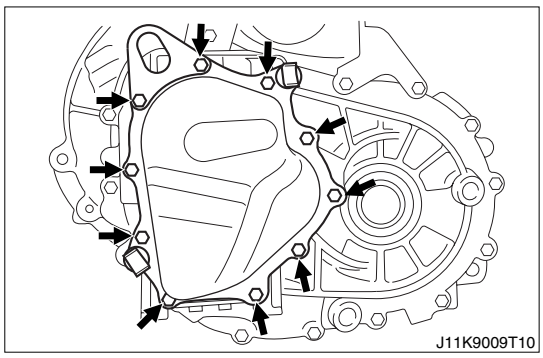
8. Remove the back up lamp switch Ay, and the gasket.

CAUTION

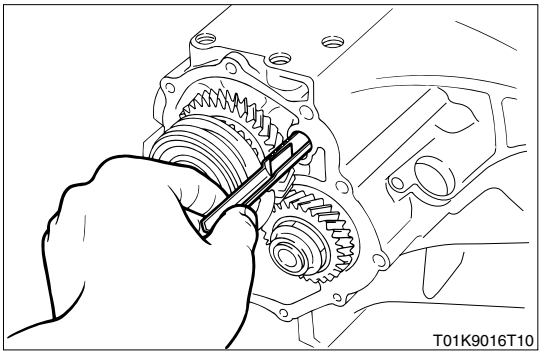
- Do not reuse the gasket.


J11K9008T10

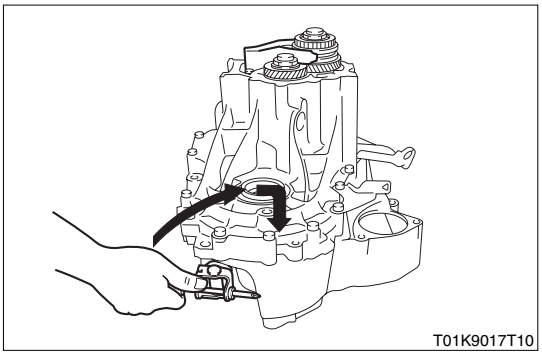
9. Remove ten bolts, and remove the engine hanger No.2, the transmission case cover S/A, and the clamp.


J11K9009T10

10. Remove the case cover oil pipe.



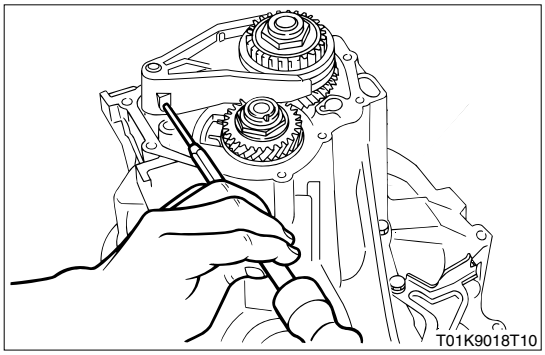
11. Move the shift & select shaft into the 5th gear.



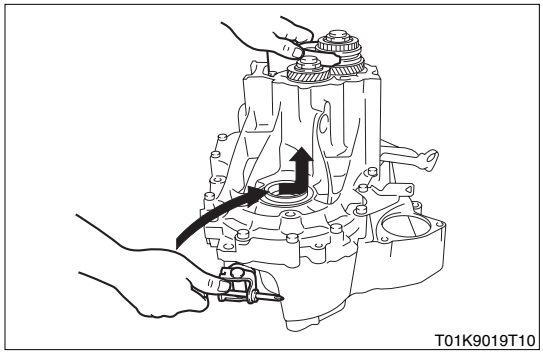
12. Remove the slotted spring pin, using the knock pin punch.

CAUTION

- Do not reuse the slotted spring pins.



13. While holding the 5th shift fork, move the shift & select shaft into neutral once, and then move it into reverse, and put it into a state of double-engagement.

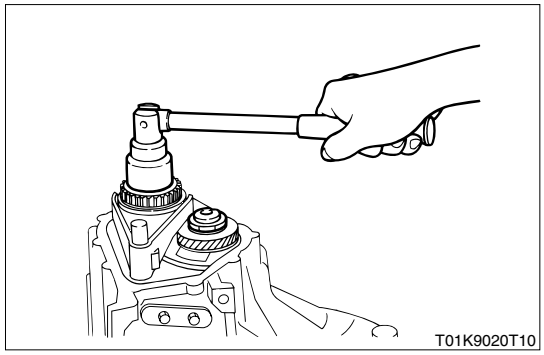


14. Remove the staked section of the nut from the input shaft side or the output shaft side using a chisel or a hammer, and then remove the nut.

CAUTION

- Do not reuse the nuts.

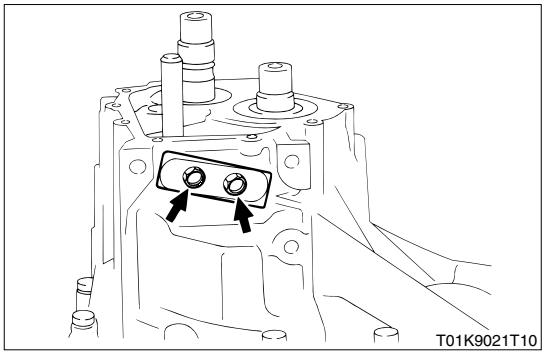
15. Remove the following parts.
    5th shift fork → output 5th gear.



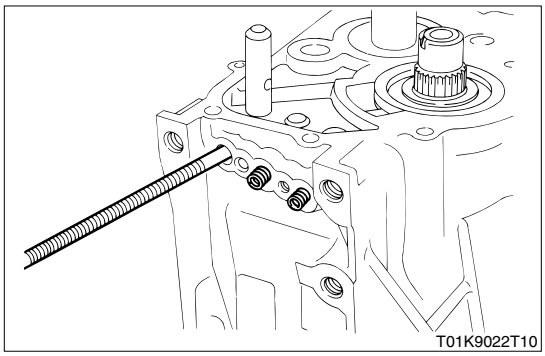
16. Remove two bolts, the fork shaft lock ball plate, and the lock ball plate gasket.

CAUTION

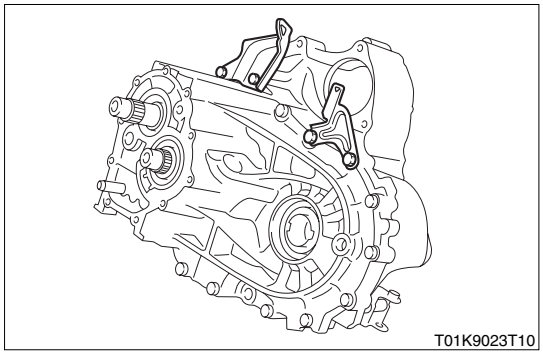
- When removing the plate, be very careful to prevent the springs from jumping out.
- Do not reuse the lock plate gasket.



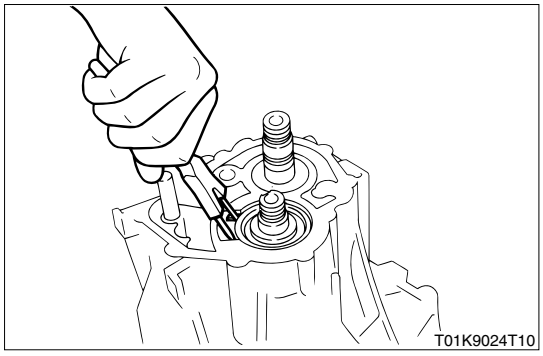
17. Remove the compression springs (three), and the balls (three).



18. Remove the sixteen attaching bolts of the transaxle case and the transmission case, and remove the clutch cable bracket, and the wiring harness bracket.



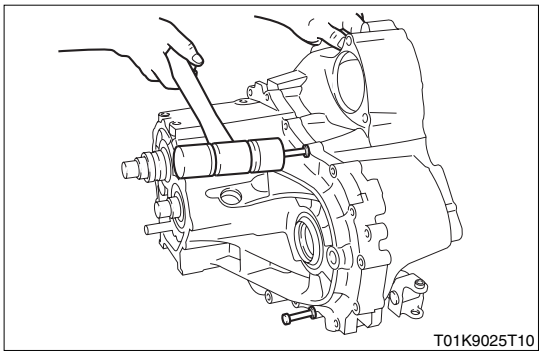
19. Open the shaft snap ring (for output shaft side radial ball bearing use) using the snap ring expander, then hit the ribbed section of the transaxle case with a plastic hammer, and remove the transmission case.



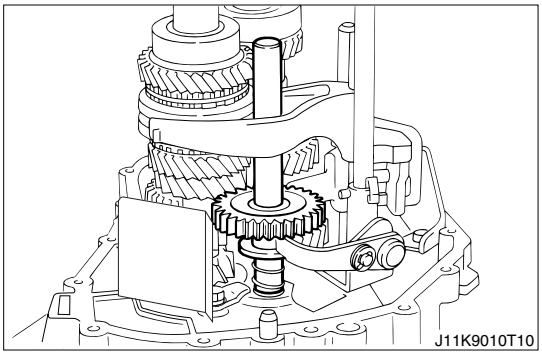
NOTE

- When it is difficult to keep the transaxle case and the transmission case apart, screw in the longer bolts of those removed in Item 18 fully in the position in the figure on the right, apply an impact to them with a plastic hammer, and perform the operation in Item 20 when the transaxle case and the transmission case have come apart a little.

20. Remove the shaft snap ring from the transmission case.



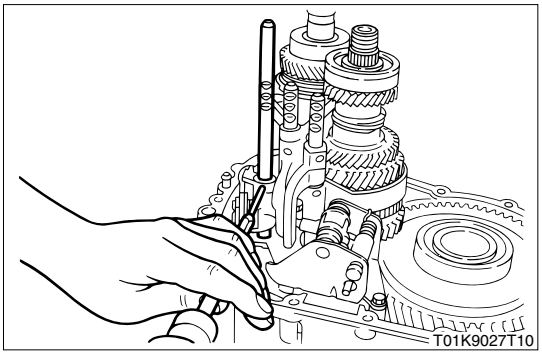
21. Remove the reverse idler gear S/A, the compression spring, and the reverse idler gear shaft.



22. Remove the slotted spring pin using a knock pin punch, and remove the 5th and reverse shift fork shafts, and the reverse shift head.

CAUTION

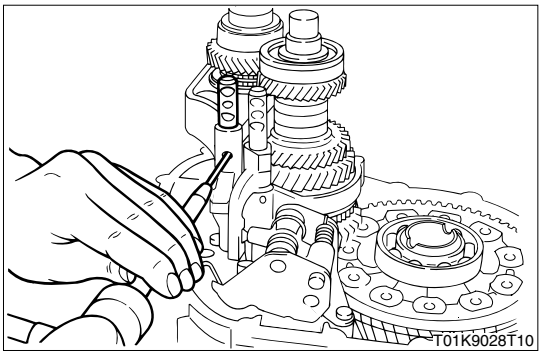
- Do not reuse the slotted spring pins.



23. Remove the slotted spring pin using a knock pin punch, and remove the 3rd & 4th shift fork shafts and the 3rd & 4th shift forks.

CAUTION

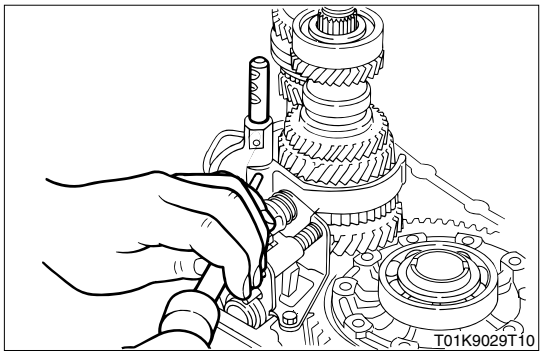
- Do not reuse the slotted spring pins.



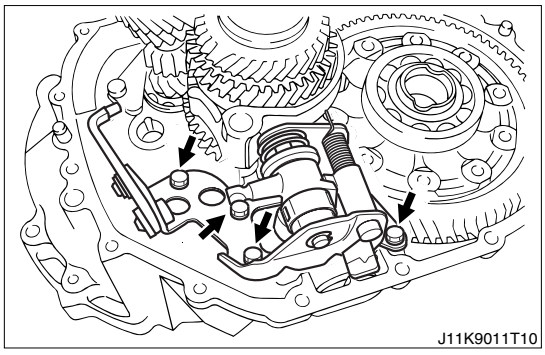
24. Remove the slotted spring pins (two) using a knock pin punch, and remove the 1st & 2nd shift fork shafts and the 1st & 2nd shift heads.

CAUTION

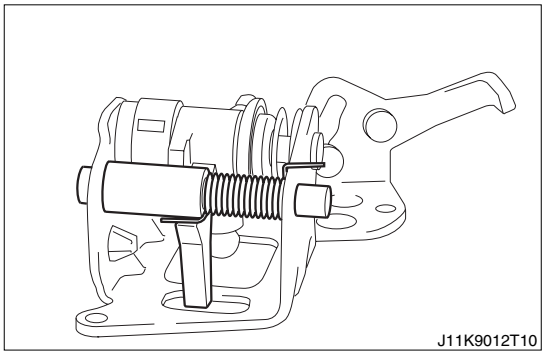
- Do not reuse the slotted spring pins.



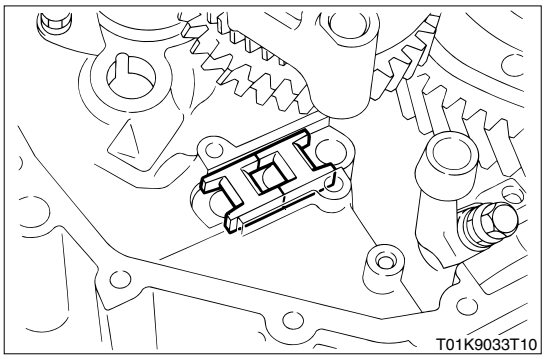
25. Remove the bellcrank support Ay by removing the four bolts.



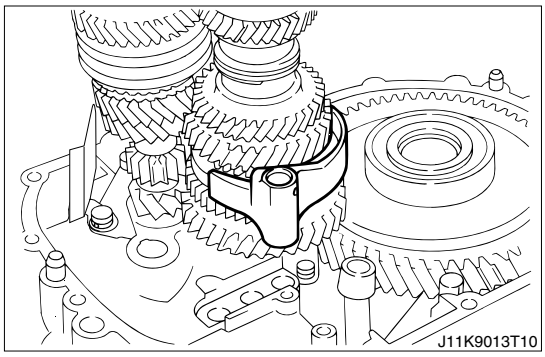
26. Remove the reverse restrict shaft, the reverse restrict cam, and the compression spring from the bellcrank support Ay.



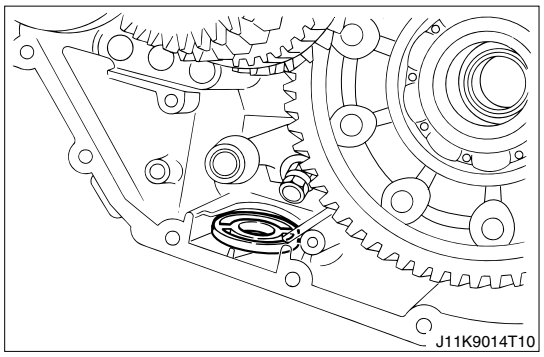
27. Remove the shift interlock plate (2 pieces)



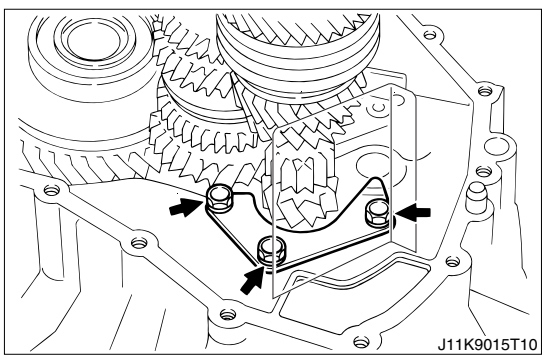
28. Remove the 1st & 2nd shift fork.



29. Remove the transmission magnet.



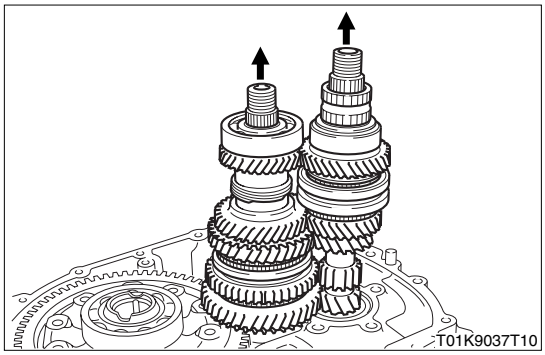
30. Remove the bearing lock plate by removing the three bolts.



31. Remove the input shaft Ay, and the output shaft Ay.

NOTE

- Remove the input shaft and the output shaft while gradually pulling them out alternately.

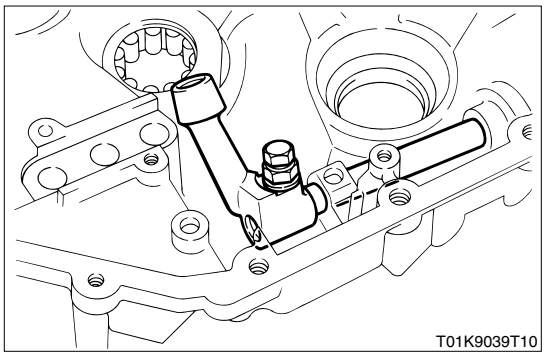


32. Remove the differential Ay from the transaxle case.

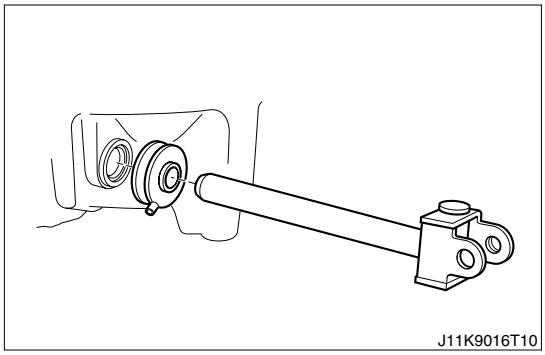
NOTE

- If it is difficult to remove, use a brass bar to lightly tap the radial ball bearing inner race, and then remove it.

33. Remove the set bolts, nuts, and washers, and then remove the shift inner lever.



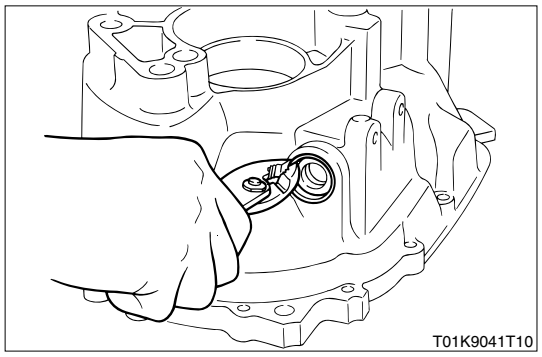
34. Remove the shift & select shaft, and the control shaft boot.



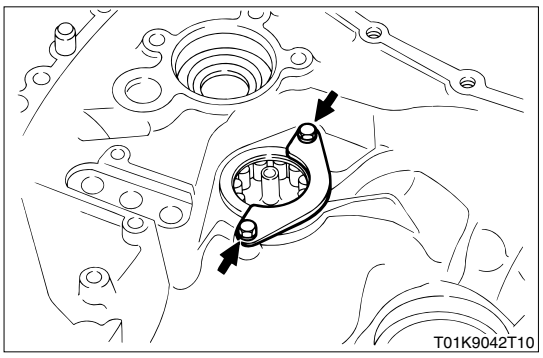
35. Remove the type T oil seal from the transaxle case, using pliers or the like.

CAUTION

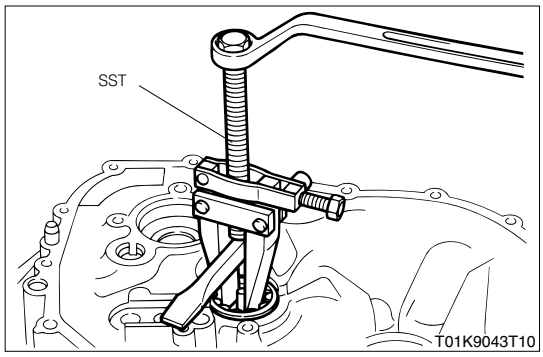
- Do not reuse the type T oil seal.



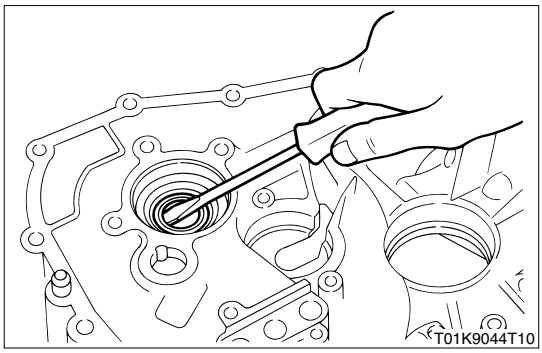
36. Remove the output shaft bearing lock plate by removing two bolts.



37. Remove the needle roller bearing, using the SST, a chisel or the like.
    SST: 09308-10010-000
    CAUTION
    - Do not reuse the needle roller bearings.
38. Remove the output shaft cover.



39. Remove the type S oil seal from the transaxle case, using a screwdriver or the like.
    CAUTION
    - Do not reuse the type S oil seal.
40. Remove the sealer from the transmission case cover S/A, the transmission case, and the transaxle case using a scraper.

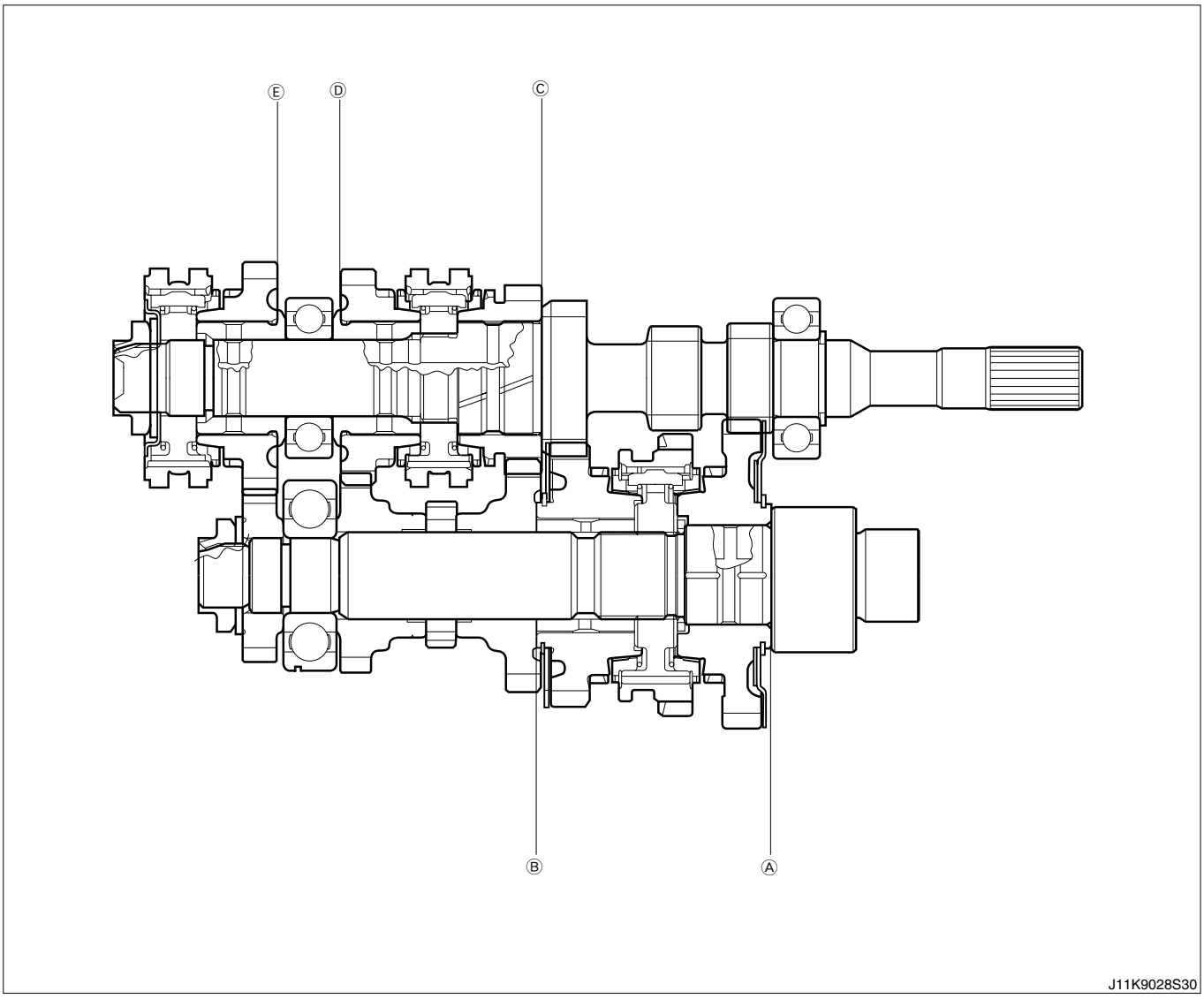


1-1-4 **INSPECTION**

(1) **Check of thrust clearance of each gear**

1. Measure the clearance of the thrust of each gear using a thickness gauge.
   SPECIFIED VALUE: 0.10~0.40mm(1st)Ⓐ
   0.10－0.37mm(3rd)Ⓒ
   0.10－0.23mm(2nd, 4th, 5th)ⒷⒹⒺ)
   ALLOWABLE LIMIT: 0.5mm(1st)
   0.5mm(3rd)
   0.4mm(2nd, 4th, 5th)

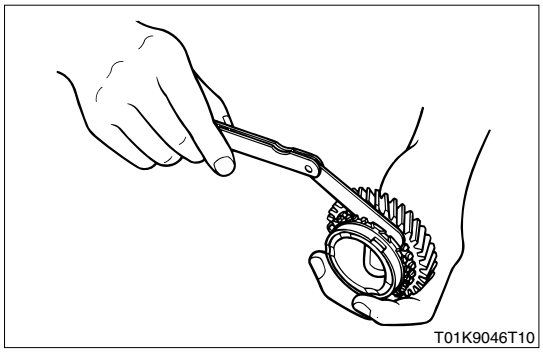
CAUTION
- Check the entire periphery.



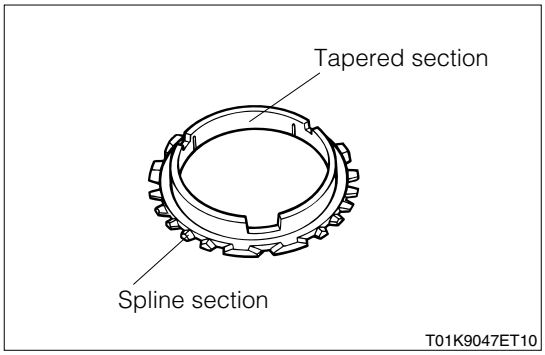
J11K9028S30

(2) **Check of synchronizer ring**

1. Measure the clearance of the synchronizer rings using a thickness gauge, when press-fitting the synchronizer rings to the 5th gear by hand.
   SPECIFIED VALUE: 0.85 − 1.45mm
   ALLOWABLE LIMIT: 0.5mm
   CAUTION
   - The entire periphery of the gears must be checked.

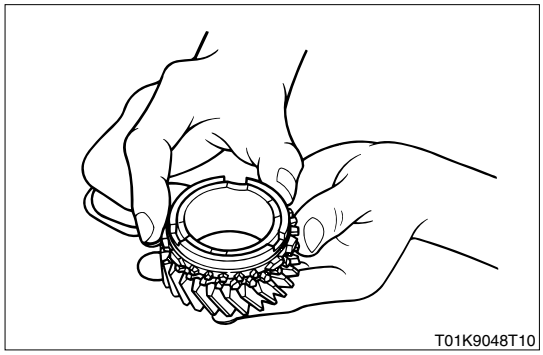

T01K9046T10

2. Check that there is no damage or scratches to the inner tapered section and outer periphery section of the synchronizer rings.



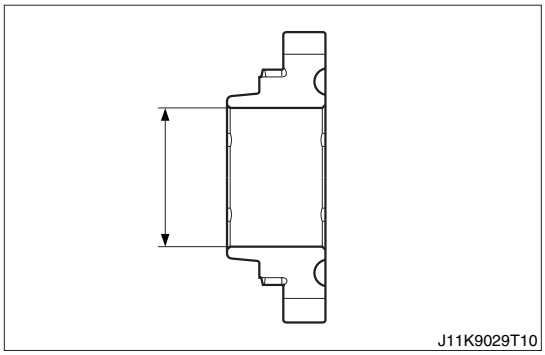
T01K9047ET10

3. Apply gear oil to the tapered section of the 5th gear, and check that the synchronizer ring does not slip when rotated while press-fitting.

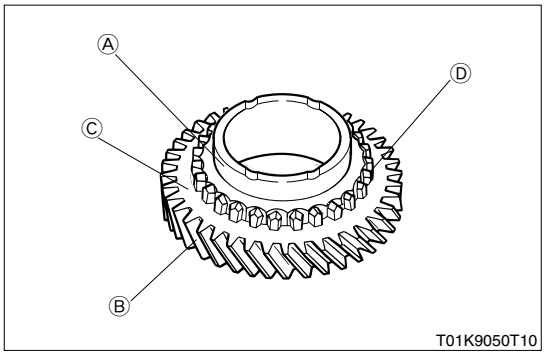

T01K9048T10

(3) **Check of gears**

1. Measure the inner diameter of the 5th gear using a caliper gauge.
   SPECIFIED VALUE: 37.000−37.025mm
   ALLOWABLE LIMIT: 37.25mm

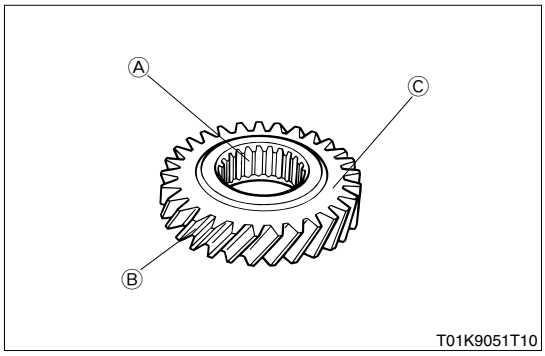

J11K9029T10

2. Check that there is no severe damage or wear to the Ⓐtapered section, the Ⓑtooth section, the Ⓒgear end face, and the Ⓓfitting section of the hub sleeve of the 5th gear.



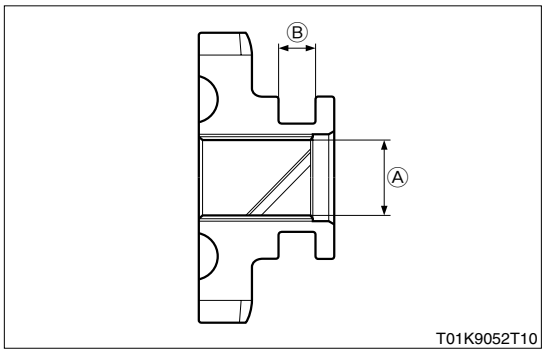
T01K9050T10

3. Check that there is no severe damage or wear to the Ⓐspline section, the Ⓑtooth section, and the Ⓒgear end face of the output 5th gear.



T01K9051T10

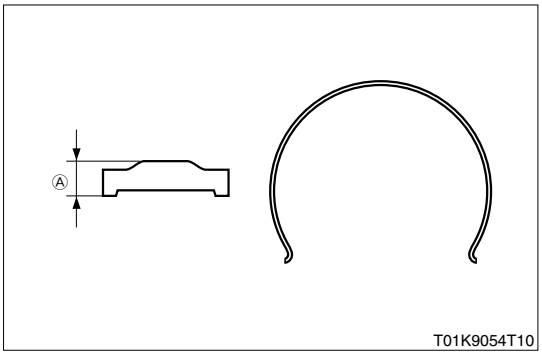
4. Measure the inner diameterⒶ and the groove widthⒷ of the reverse idler gear S/A.
   SPECIFIED VALUE: 17.000−17.027mm(inner diameterⒶ)
   8.00−8.058mm(groove widthⒷ)
   ALLOWABLE LIMIT: 17.050mm(inner diameterⒶ)
   8.2mm(groove widthⒷ)



T01K9052T10

(4) **Check of synchromesh shifting key and key spring**

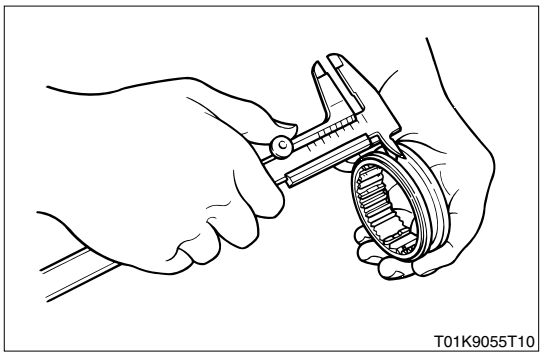
1. Measure the Ⓐdimension in the diagram on the right for the synchromesh shifting key.
   SPECIFIED VALUE: 4.6 to 4.8mm(for 5th)
   ALLOWABLE LIMIT: 4.3mm(for 5th)
2. Check that there is no severe wear or damage to the key spring.



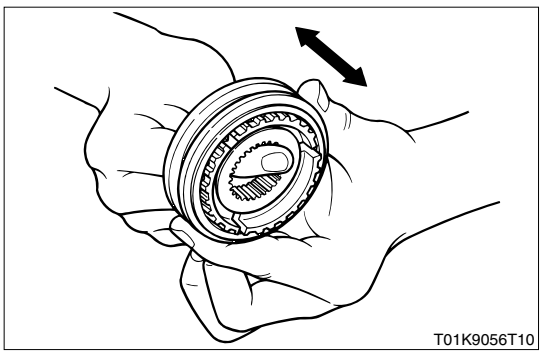
T01K9054T10

(5) **Check of transmission hub sleeve**

1. Measure the groove width of the transmission hub sleeve using vernier calipers.
   SPECIFIED VALUE: 7.05−7.12mm
   ALLOWABLE LIMIT: 7.3mm
2. Check that there is no wear or damage to the fitting section of the gears.

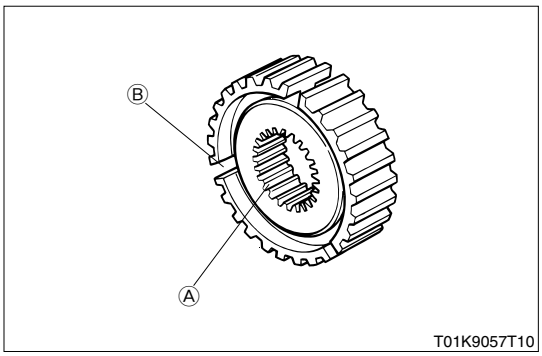

T01K9055T10

3. Assemble the transmission hub sleeve and the transmission clutch No.3 hub, and check their sliding condition.


T01K9056T10

(6) **Check of transmission clutch hub**

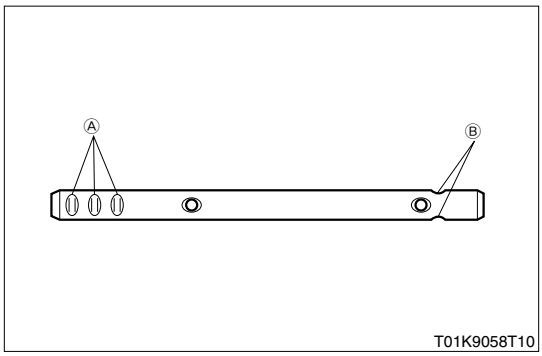
Check that there is no wear or damage to the Ⓐspline section, or the Ⓑinserting section of the synchromesh shifting key.



T01K9057T10

(7) **Check of shift fork shaft**

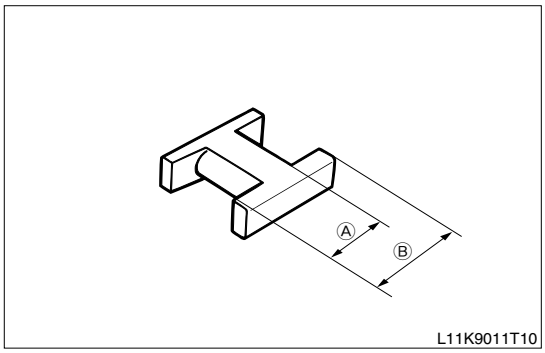
Check that there is no severe wear or damage to the Ⓐball lock section or the Ⓑinterlock section.



T01K9058T10

(8) **Check of shift interlock plate**

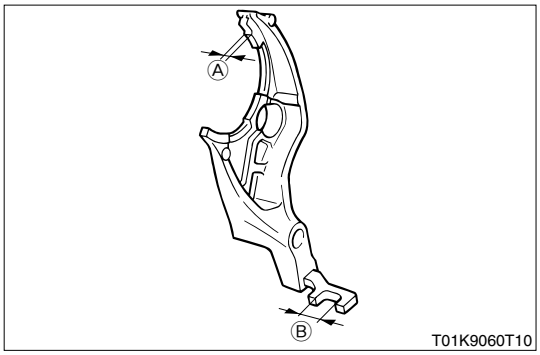
1. Measure the length between the rollers of the lock plate using the vernier calipers.
   SPECIFIED VALUE: 11.1 to 11.3mm(Ⓐ section)
   16.15 to 16.45mm(Ⓑ section)
   ALLOWABLE LIMIT: 11.0mm
   16.0mm
2. Check that there is no severe wear or damage to the roller section.



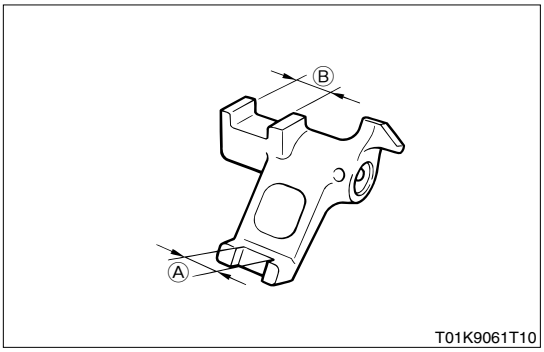
L11K9011T10

(9) **Check of shift fork and shift head**

1. Measure the Ⓐthickness of the shift forks for 1st & 2nd, 3rd & 4th and 5th & reverse, and the Ⓑwidth of the contact section of the shift inner levers of the 3rd & 4th shift forks.
   SPECIFIED VALUE: 6.8 to 7.0mm(Ⓐ section)
   12.2 to 12.3mm(Ⓑ section)
   ALLOWABLE LIMIT: 6.3mm(Ⓐ section)
   12.8mm(Ⓑ section)
2. Measure the Ⓐgroove width of the contact section of the 1st & 2nd and reverse shift inner levers of the shift heads, and the Ⓑwidth of the contact section of the reverse shift head, and the reverse shift arm pin.
   SPECIFIED VALUE: 12.1 to 12.2mm(Ⓐ section)
   15.000 to 15.043mm(Ⓑ section)
   ALLOWABLE LIMIT: 12.7mm(Ⓐ section)
   15.1mm(Ⓑ section)



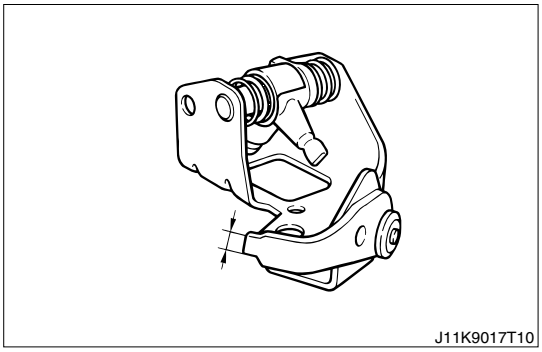
T01K9060T10



T01K9061T10

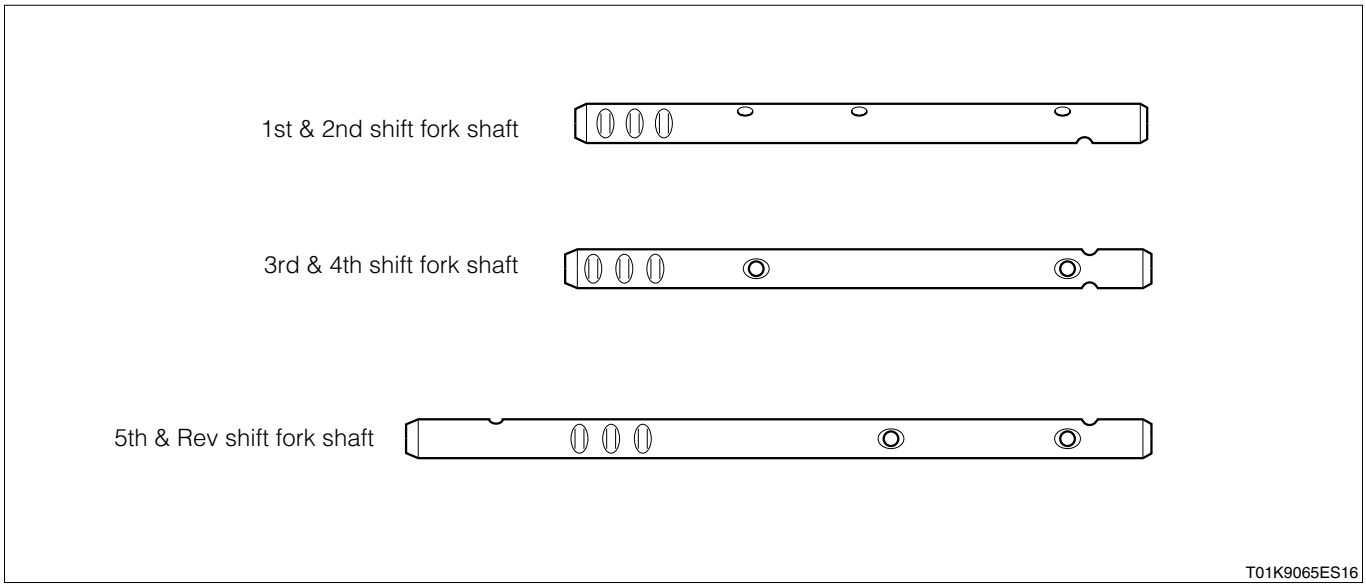
(10) **Check of bellcrank support Ay**

1. Measure the width of the tip end section of the reverse shift arm using vernier calipers.
   SPECIFIED VALUE: 7.884−7.920mm


J11K9017T10

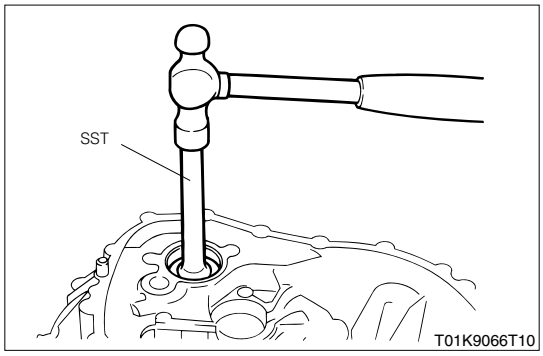
1-1-5 **ASSEMBLY**

(1) **Identification of shift fork shaft**

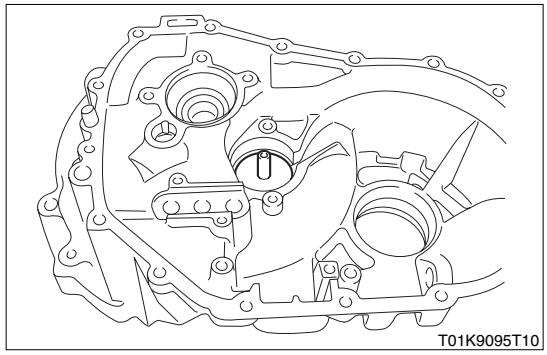


(2) **ASSEMBLY**

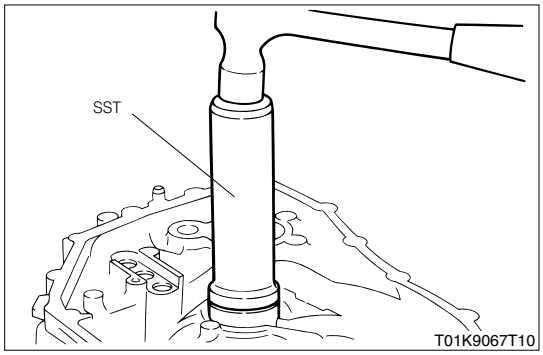
1. Install a new type S oil seal to the transaxle case using the SST, and apply gear oil to the lip section.
   SST: 09606-87201-000



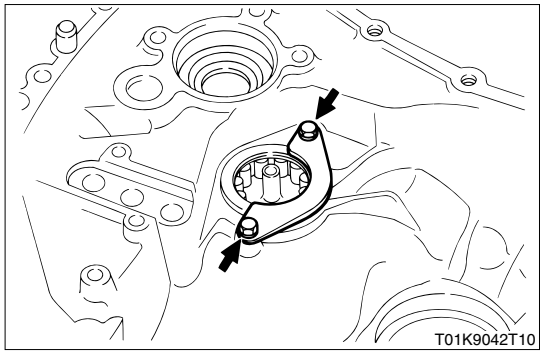
2. Assemble the output shaft cover.



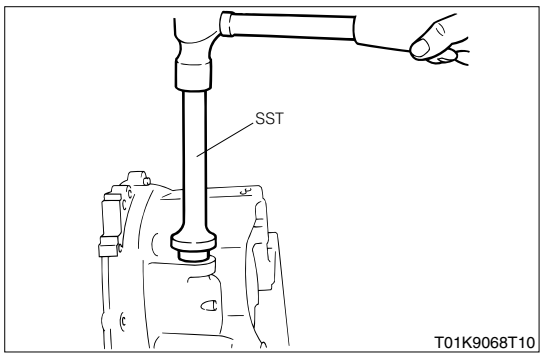
3. Install a new needle roller bearing, using the SST.
   SST: 09309-87201-000



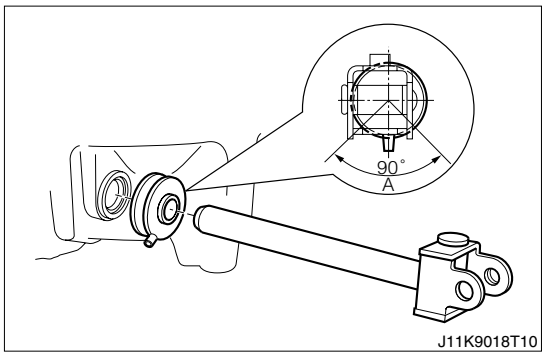
4. Attach the output shaft bearing lock plate, and tighten the two bolts to the specified torque.
   TIGHTENING TORQUE: 8.4±1.5N·m {85±15kgf·cm}



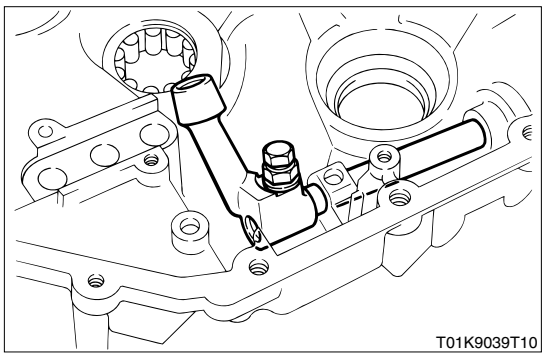
5. Install a new type T oil seal to the transaxle case, using the SST.
   SST: 09515-87201-000



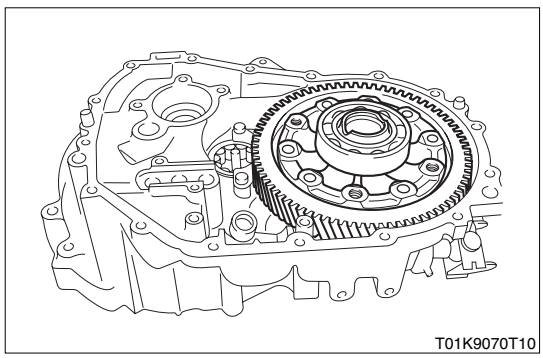
6. Attach the control shaft boot to the transaxle case.
7. Apply Ammix MP grease to the tip end of the shift and select shaft, and then attach it to the transmission case.
   LUBRICANT: MP grease
   CAUTION
   - The water drain hole of the control shaft boot is within the range of the Ⓐchart on the right (90˚).



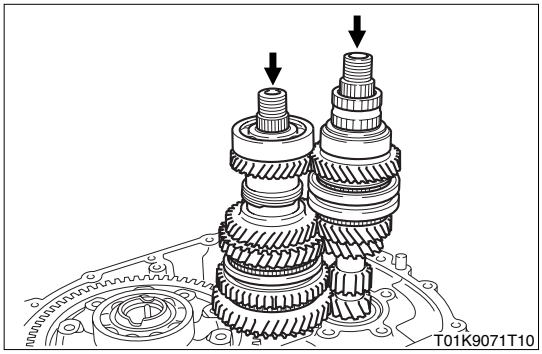
8. Assemble the shift inner lever, bolts, nuts and washers, and tighten the bolts and nuts,in that order, to the specified torque.
   TIGHTENING TORQUE: 44.1±4.9N·m
   {450±50kgf·cm}(bolts)
   24.5±4.9N·m
   {250±50kgf·cm}(nuts)



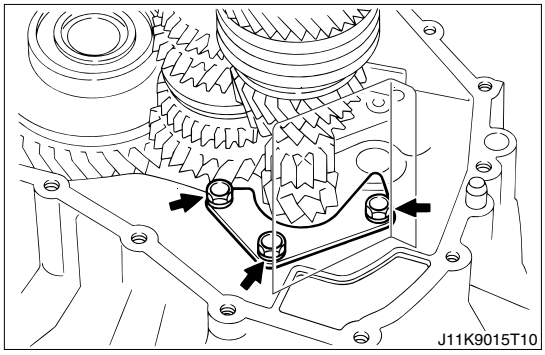
9. Assemble the differential Ay to the transaxle case.



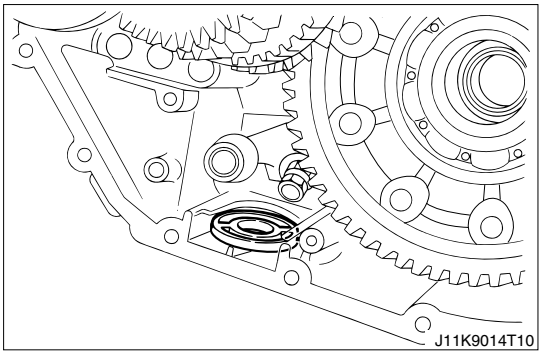
10. Engage to each gear of the input shaft Ay and the output shaft Ay, and install both shafts into the transaxle case at the same time.



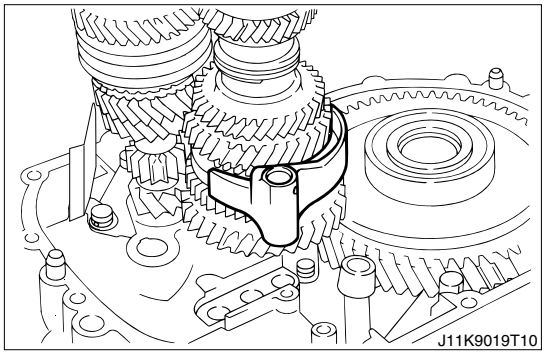
11. Attach the bearing lock plate, and tighten the three bolts to the specified torque.
TIGHTENING TORQUE: 18.2±3.5N·m{185±35kgf·cm}



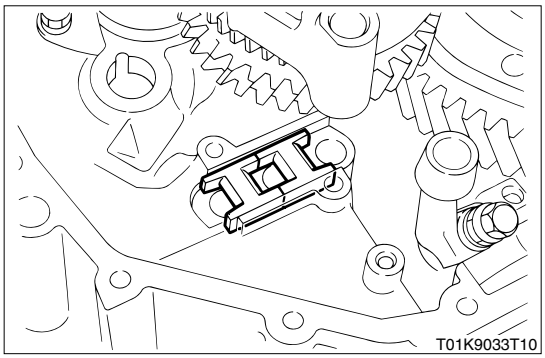
12. Attach the transmission magnet to the transaxle case.



13. Attach the 1st & 2nd shift fork to the reverse section of the output shaft Ay.



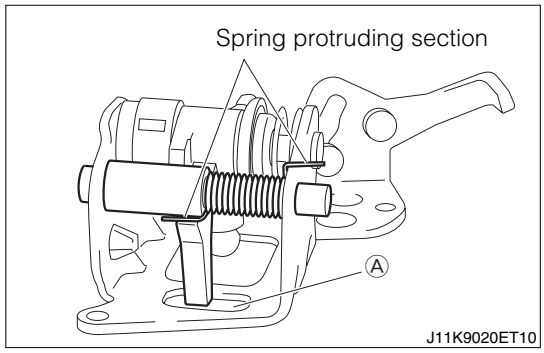
14. Attach the shift interlock plate to the transaxle case.



15. Attach the reverse restrict shaft, the reverse restrict cam, and the compression spring to the bellcrank support Ay.

CAUTION

- The tip end section of the reverse restrict cam is in the A section of the bellcrank support Ay figure on the right.

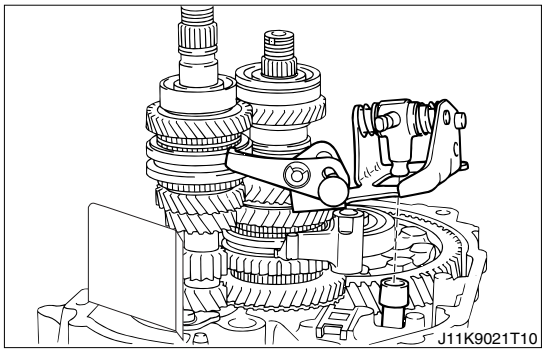


16. Assemble the bellcrank support Ay, and tighten the four bolts to the specified torque.

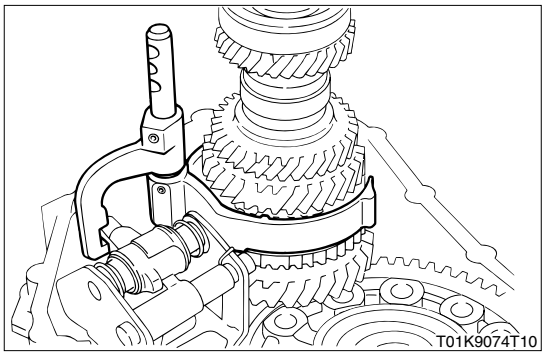
TIGHTENING TORQUE: 8.4±1.5N·m {85±15kgf·cm}

CAUTION

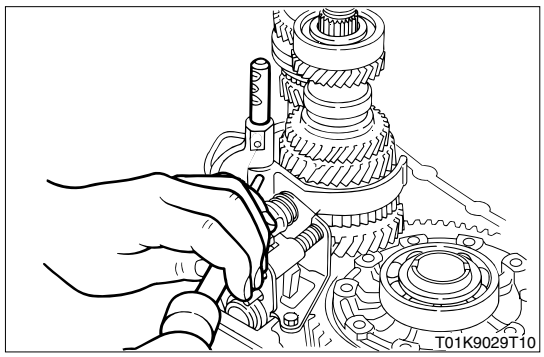
- The select and shifting bellcrank section of the bellcrank support Ay and the shift inner lever must be engaged, and the assembly performed.



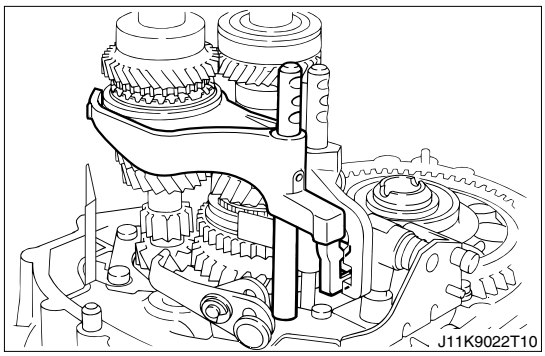
17. Assemble the 1st & 2nd shift fork shaft and the 1st & 2nd shift head.



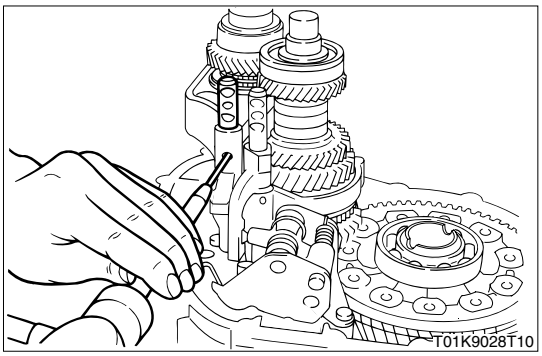
18. Drive in new slotted spring pins (two) using a knock pin punch, and secure the 1st & 2nd shift fork shafts, the 1st & 2nd shift heads, and the 1st & 2nd shift forks.



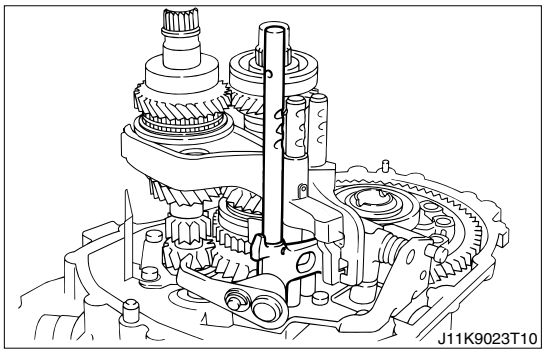
19. Assemble the 3rd & 4th shift fork shaft and the 3rd & 4th shift fork.



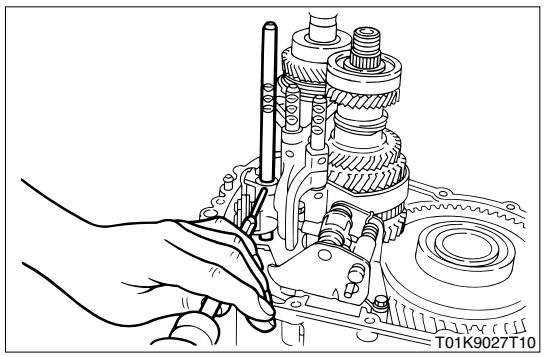
20. Drive in new slotted spring pins using a knock pin punch, and secure the 3rd & 4th shift fork shafts, and the 3rd & 4th shift forks.



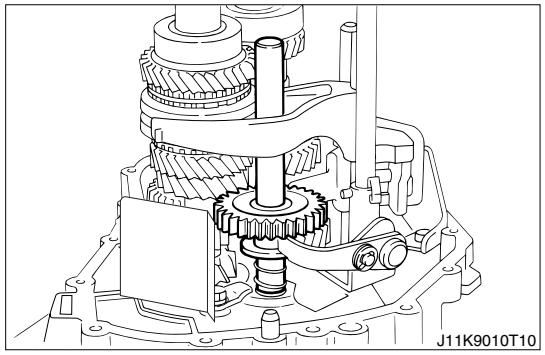
21. Assemble the 5th & reverse shift fork shaft and the reverse shift head.



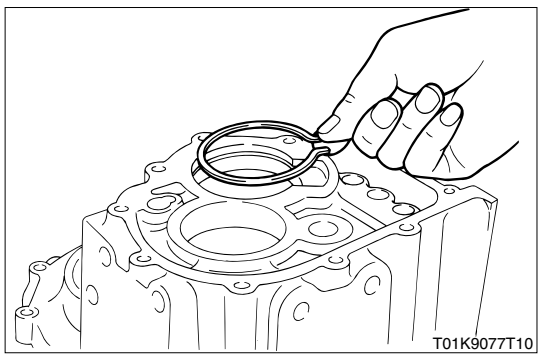
22. Drive in new slotted spring pins using a knock pin punch, and secure the 5th and reverse shift fork shafts, and the reverse shift head.



23. Assemble the reverse idler gear S/A, the compression spring, and the reverse idler gear shaft.

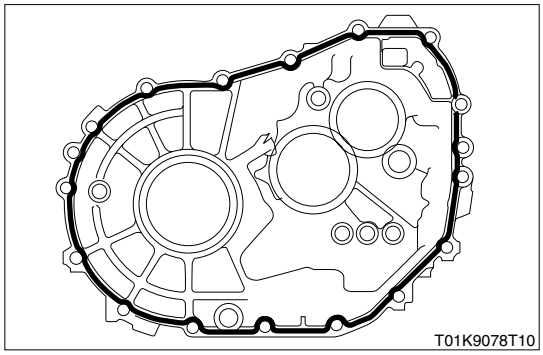


24. Install the shaft snap ring to the transmission case.

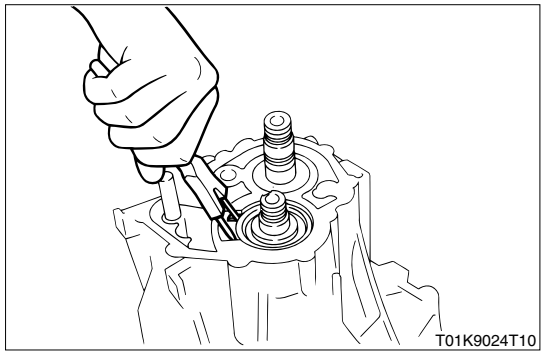


25. Apply liquid gasket to the transmission case.
CAUTION
- Dust and oil, etc must be cleaned off the paint finishing surface.

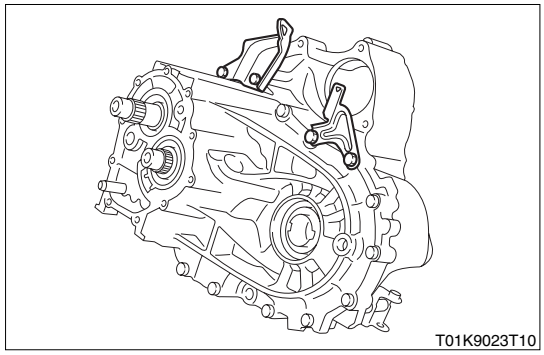
ADHESIVE: Three Bond1217


T01K9078T10

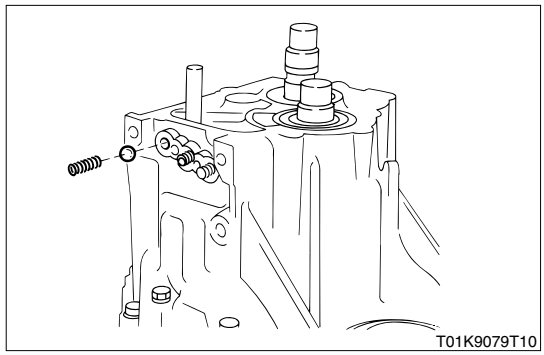
26. Open the shaft snap ring using a snap ring expander, and install the transmission case into the transaxle case.
27. Engage the shaft snap ring to the groove of the radial ball bearing section of the output shaft Ay.


T01K9024T10

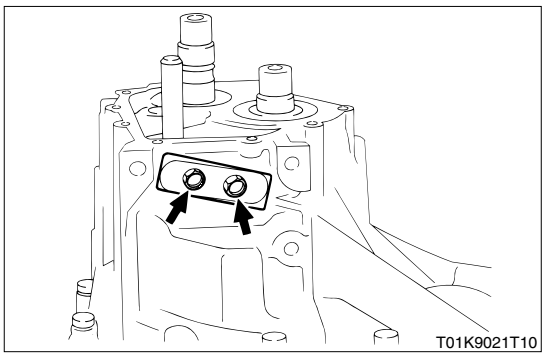
28. Assemble the clutch cable bracket and wiring harness bracket, and tighten the 16 bolts to the specified torque.
TIGHTENING TORQUE: 18.2±3.5N·m {185±35kgf·cm}


T01K9023T10

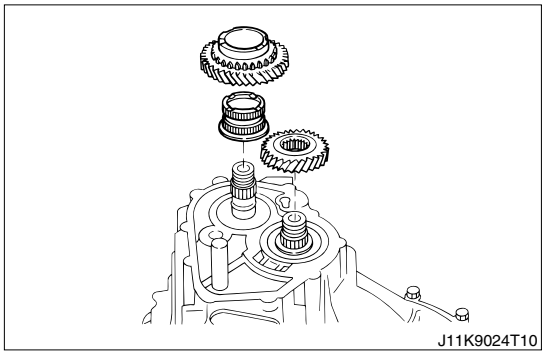
29. Assemble the compression springs (three) and the balls (three).


T01K9079T10

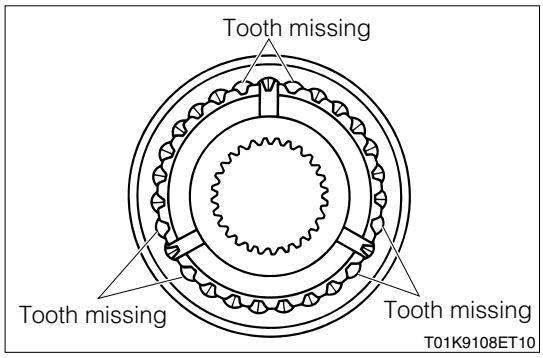
30. Assemble the fork shaft lock ball plate and a new lock ball plate gasket, and tighten the 2 bolts to the specified torque.
TIGHTENING TORQUE: 8.4±1.5N·m {85±15kgf·cm}


T01K9021T10

31. Assemble the 5th gear, the 5th gear bush, and the output 5th gear to the input and output shafts.



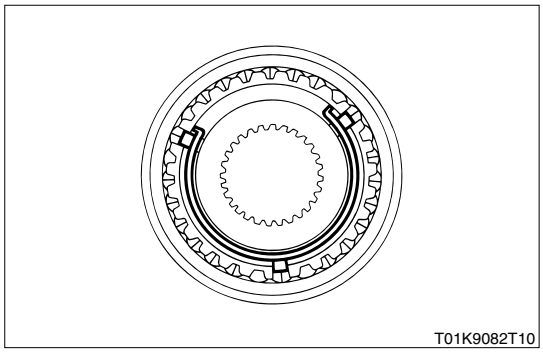
32. Attach the transmission clutch No.3 hub to the transmission hub sleeve.



33. Install the synchromesh shifting keys (three) into the transmission hub sleeve, and secure them with synchromesh shifting key springs (two).

CAUTION

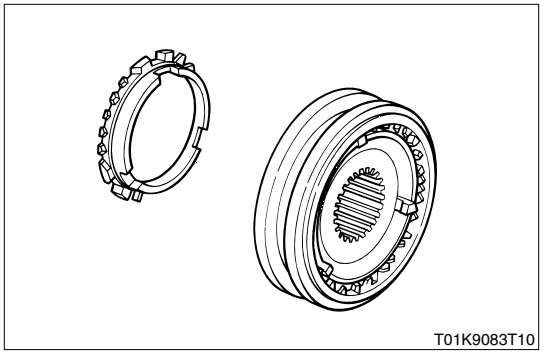
- The openings of the key springs must not face the same direction.



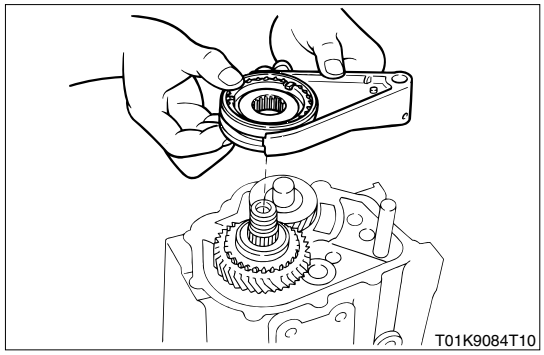
34. Assemble the synchronizer No.1 ring.

CAUTION

- Perform the assembly so that the key groove of the synchronizer ring and the key of the synchromesh shifting key are aligned.



35. Assemble the transmission hub sleeve, together with the synchronizer No.1 ring and the 5th shift fork, to the input shaft Ay.


T01K9084T10

36. Install the transmission hub sleeve stopper and the conical spring washers into the input shaft, and temporarily tighten the new nuts.

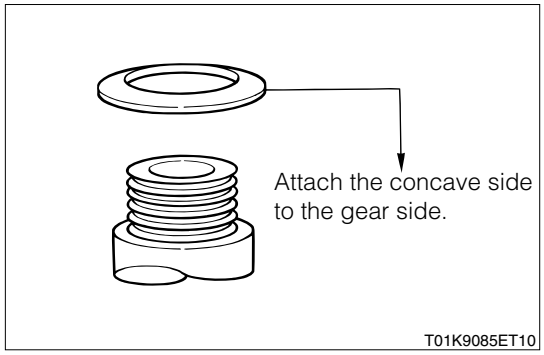
CAUTION

- Attach the indented surface side of the conical spring washer to the gears, as shown in the figure on the right.

37. Install the conical spring washers into the output shaft, and temporarily tighten the new nuts.

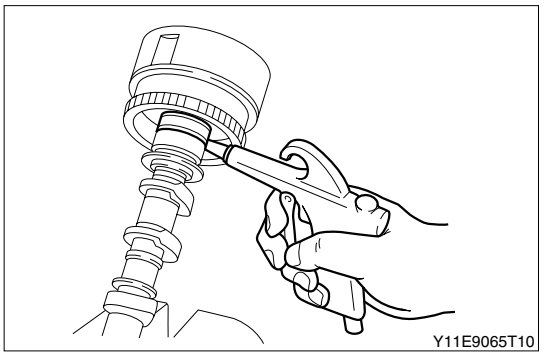
CAUTION

- Attach the indented surface side of the conical spring washer to the gears, as shown in the figure on the right.

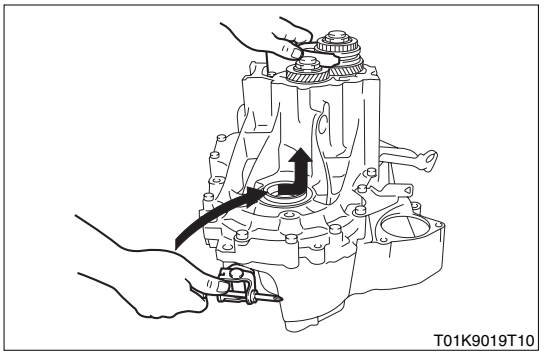


T01K9085ET10

38. Shift the 5th shift fork and the transmission hub sleeve to the 5th side.

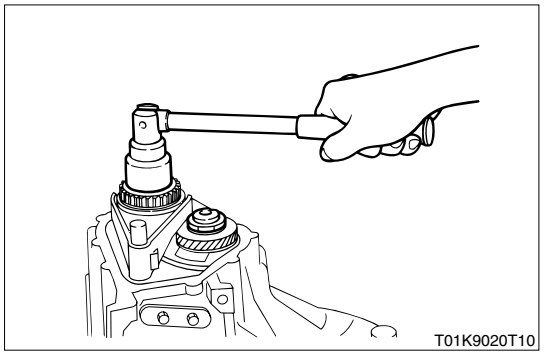

Y11E9065T10

39. While holding the 5th shift fork, move the shift and select shaft into reverse, and put it into a state of double-engagement.

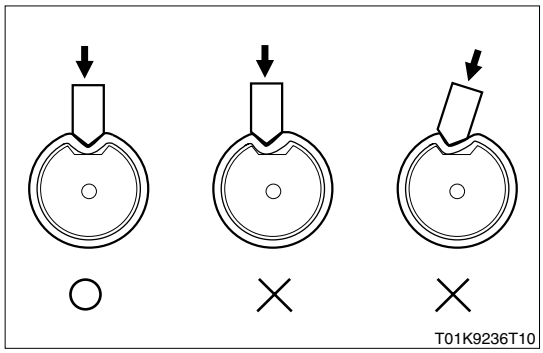

T01K9019T10

40. Tighten the nuts to the specified torque.

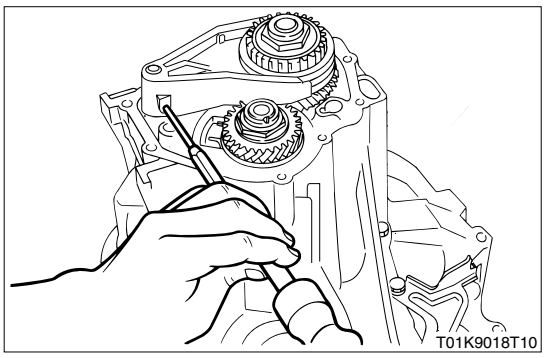
TIGHTENING TORQUE: 117.7±19.6N·m
{1,200±200kgf·cm}


T01K9020T10

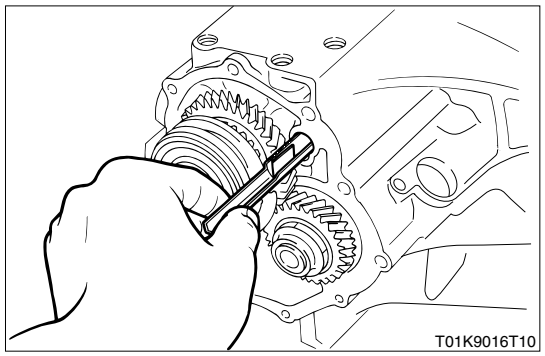
41. Firmly stake the nuts to the groove sections of both the input shaft and output shaft.
42. Shift the 5th shift fork and the transmission hub sleeve to the neutral side.
43. Move the shift & select shaft into neutral range.



44. Drive in new slotted spring pins using a knock pin punch, and secure the 5th shift fork, and the 5th and reverse shift fork shafts.



45. Assemble the case cover oil pipe.

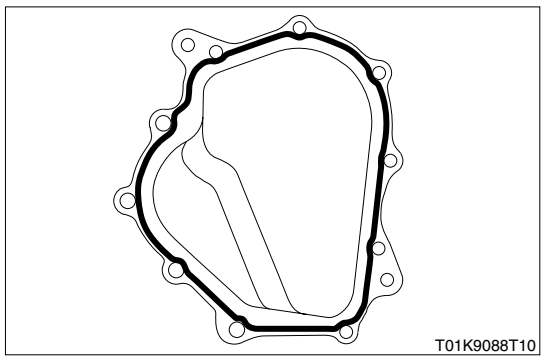


46. Apply liquid gasket to the transmission case cover S/A.

CAUTION

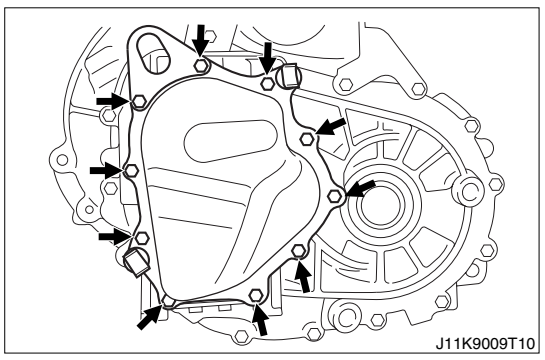
- Dust and oil, etc must be cleaned off the paint finishing surface.

ADHESIVE: Three Bond1217

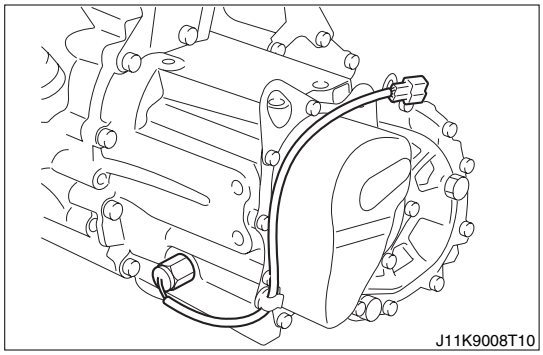


47. Assemble the transmission case cover S/A and clamps , and tighten the 10 bolts to the specified torque.

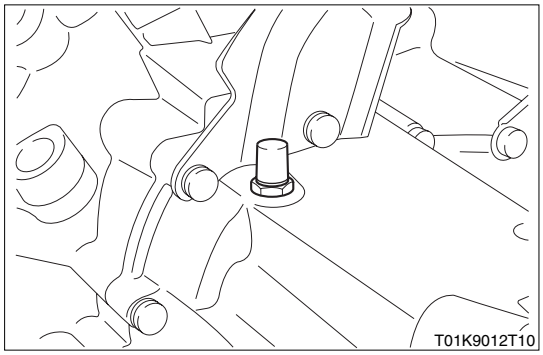
TIGHTENING TORQUE: 8.4±1.5N·m {85±15kgf·cm} (M6)
18.2±3.5N·m {185±36kgf·cm} (M8)



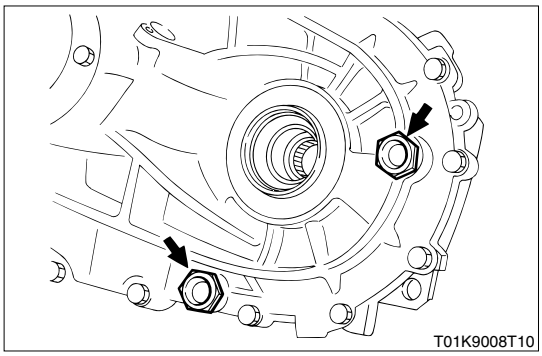
48. After assembling a new gasket, tighten the back up lamp switch Ay to the specified torque.
TIGHTENING TORQUE: 39.2±9.8N·m
{400±100kgf·cm}


J11K9008T10

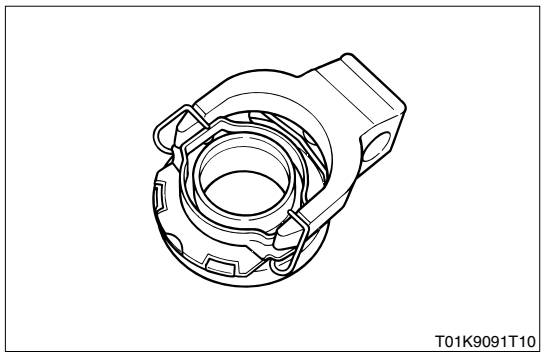
49. Tighten the breather plug to the specified torque.
TIGHTENING TORQUE: 11.3±1.5N·m
{115±15kgf·cm}


T01K9012T10

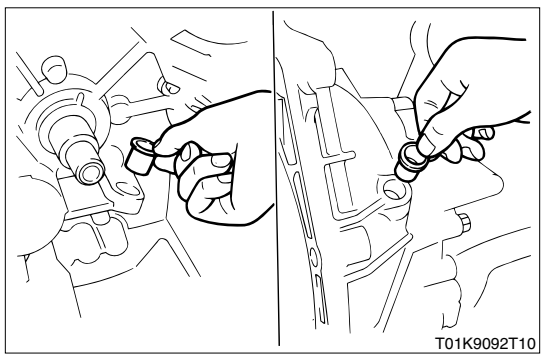
50. After assembling a new gasket, tighten the W/ head straight screw plug to the specified torque.
TIGHTENING TORQUE: 39.2±9.8N·m
{400±100kgf·cm}


T01K9008T10

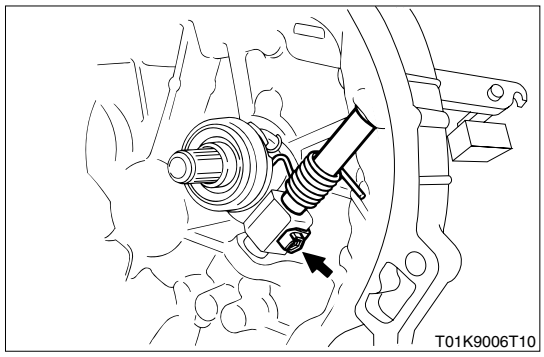
51. Apply EP grease to the contact section of the clutch release bearing hub Ay of the release lever yoke.
LUBRICANT: EP(Extreme Pressure) grease
52. Secure the release lever yoke and the clutch release bearing hub Ay with the release bearing hub clip.


T01K9091T10

53. Apply MP grease to the bushes (two), and install them in the transaxle case.
LUBRICANT: MP grease

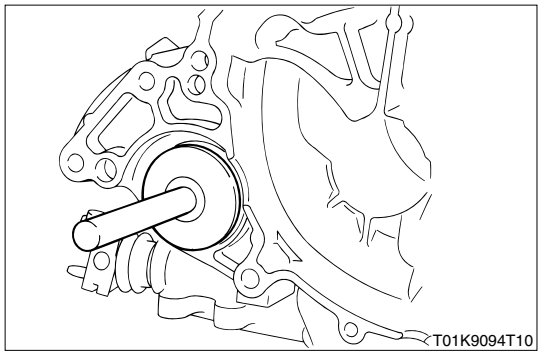

T01K9092T10

54. Assemble the clutch release lever S/A, the torsion springs, and the release lever yoke, and tighten the bolts to the specified torque, and then firmly stake the lock washers.
    TIGHTENING TORQUE: 34.3±4.9N·m
    {350±50kgf·cm}



55. Assemble the type T oil seal, and the type T oil seal.
    (1) Remove oil and grease from the transaxle case and the oil seal installation section of the transmission case.
56. Install new type T oil seals into the transaxle case, and type T oil seals into the transmission case, using the SST.
    SST: 09518-87709-000

    CAUTION
    - Be very careful not to allow any oil to get to the outer periphery of the oil seals before assembly.

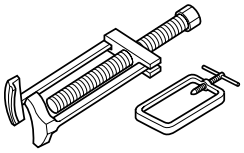
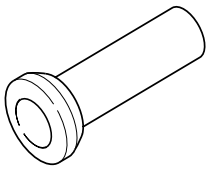


2 INPUT SHAFT AY

2-1 DISASSEMBLING AND ASSEMBLING

2-1-1 ARTICLES TO BE PREPARED

SST

Shape	Part No.	Part name
	09602-87301-000	Puller,counter gear bearing
	09309-87201-000	Replacer,transmission bearing

Instrument

Vernier calipers,Caliper gauge,Thickness gauge

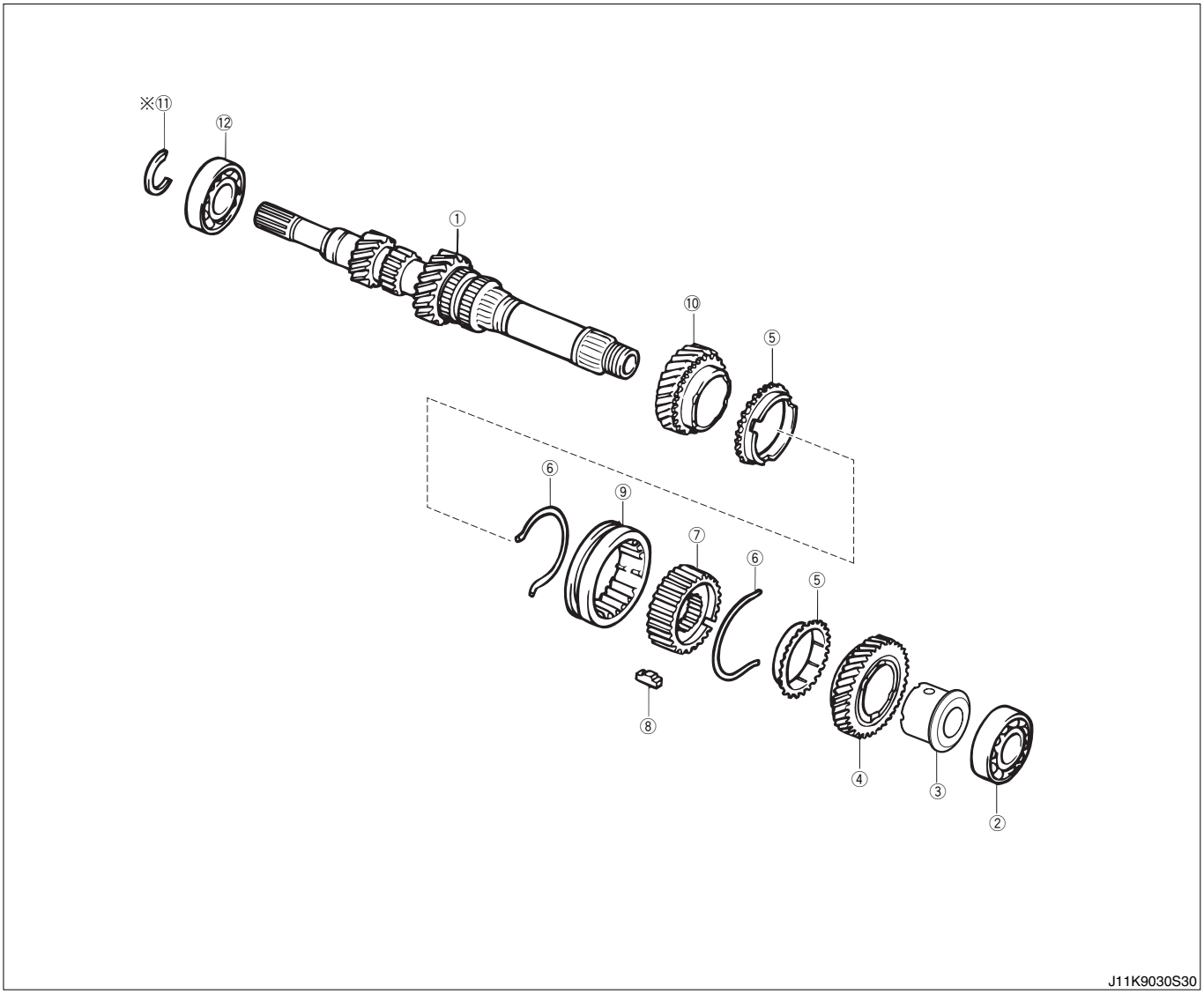
Lubricant,adhesive,others

Transmission gear oil SAE75W－90 or SAE75W－85 or SAE75W－80 (API Classification GL3 or GL4)

2-1-2 OPERATION BEFORE DISASSEMBLY

2-1-3 COMPONENTS

(1) Components



※: Non-reusable parts

(2) Disassembly procedure

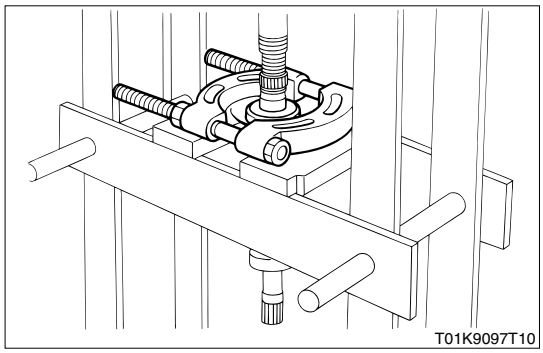
1 Shaft, input
2 Bearing, radial ball
3 Race, 4th gear bearing inner
4 Gear, 4th
5 Ring, synchronizer No.1
6 Spring, synchromesh shifting key
7 Hub, transmission clutch No.1
8 Key, synchromesh shifting
9 Sleeve, transmission hub
10 Gear, 3rd
11 Ring, shaft snap
12 Bearing, radial ball

(3) Assembly procedure

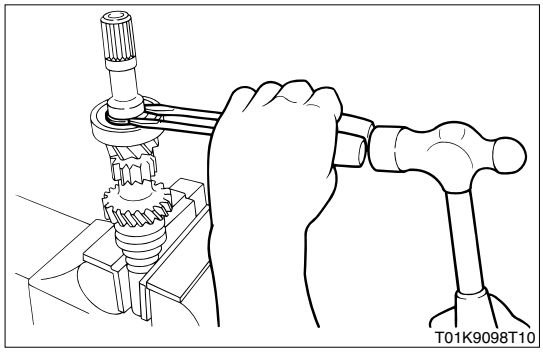
1 Bearing, radial ball
2 Ring, shaft snap
3 Gear, 3rd
4 Sleeve, transmission hub
5 Key, synchromesh shifting
6 Hub, transmission clutch No.1
7 Spring, synchromesh shifting key
8 Ring, synchronizer No.1
9 Gear, 4th
10 Race, 4th gear bearing inner
11 Bearing, radial ball
12 Shaft, input

2-1-4 **DISASSEMBLY**

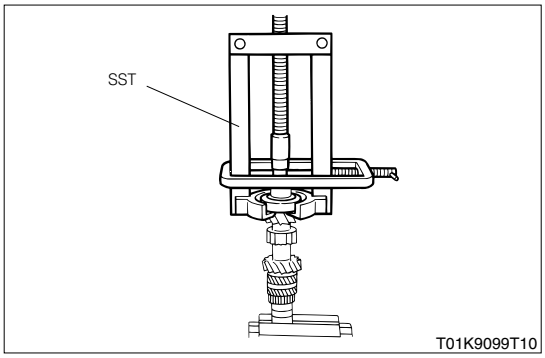
1. Remove the radial ball bearing from the input shaft, using the bearing pulling attachment in combination with a press.
2. Remove the following parts.
   4th gear bush → 3rd gear


T01K9097T10

3. Remove the shaft snap ring using two flat screwdrivers.
   CAUTION
   - Be very careful not to scratch the input shaft.
   - Do not reuse the shaft snap rings.


T01K9098T10

4. Remove the radial ball bearing, using the SST.
   SST: 09602-87301-000

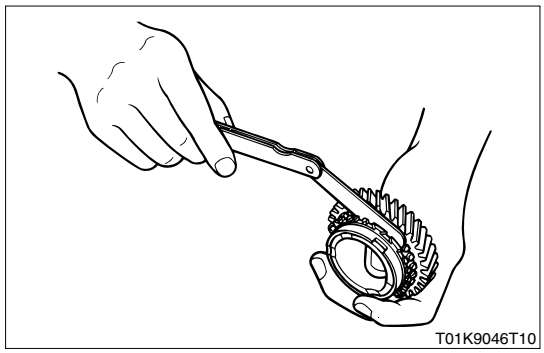


T01K9099T10

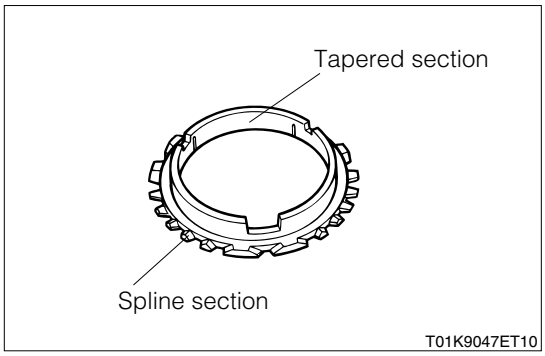
2-1-5 **INSPECTION**

(1) **Check of synchronizer ring**

1. Check the clearance of the gears and synchronizer rings using a thickness gauge, when press-fitting the synchronizer rings to the 3rd and 4th gears by hand.
   SPECIFIED VALUE: 0.85 − 1.45mm
   ALLOWABLE LIMIT: 0.5mm
   CAUTION
   - Check the entire periphery of the gears.

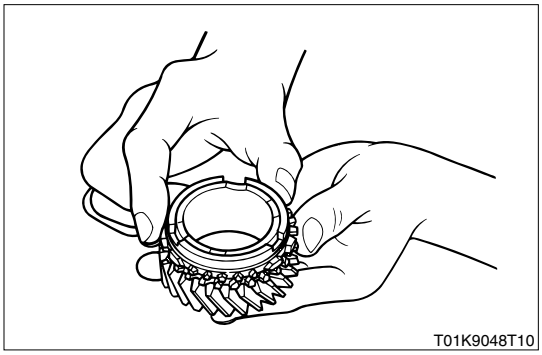

T01K9046T10

2. Check for damage and scratches to the inner tapered section and the spline section of the outer periphery of the synchronizer rings.



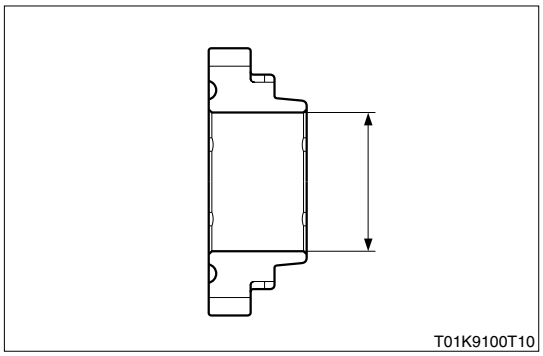
T01K9047ET10

3. Apply gear oil to the tapered section of the 3rd and 4th gears, and check that the synchronizer ring does not slip when rotated while press-fitting by hand.

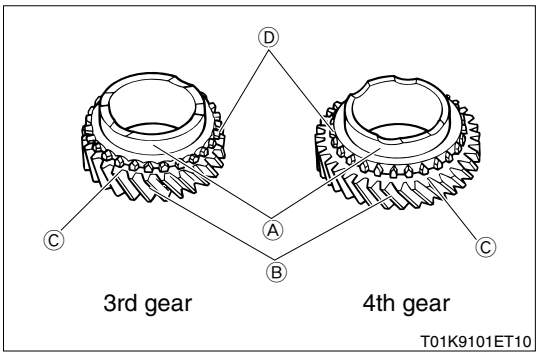

T01K9048T10

(2) **Check of gears**

1. Measure the inner diameter of the 3rd and 4th gears using a caliper gauge.
   SPECIFIED VALUE: 37.000－37.025mm
   ALLOWABLE LIMIT: 37.25mm


T01K9100T10

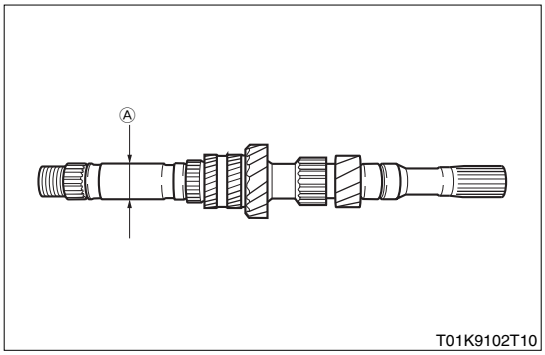
2. Check that there is no severe damage or wear to the Ⓐtapered section, the Ⓑtooth section, the Ⓒgear end face, and theⒹ fitting section of the hub sleeve of the 3rd and 4th gears.



T01K9101ET10

(3) **Check of input shaft**

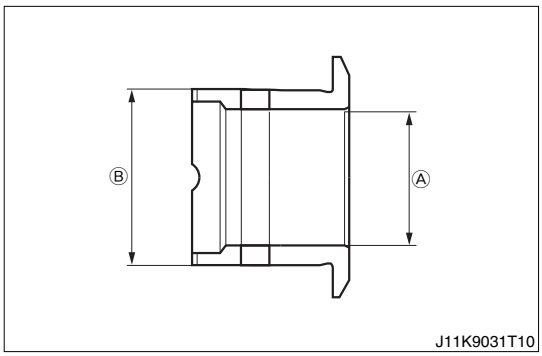
1. Measure the outer diameter of the areas of the input shaft shown in the figure on the right.
   SPECIFIED VALUE: 25.002－25.017mm
   ALLOWABLE LIMIT: 24.990mm
2. Check that there is no severe wear or damage to the tooth section or spline section of the input shaft.



T01K9102T10

(4) **Check of 4th gear bearing inner rece**

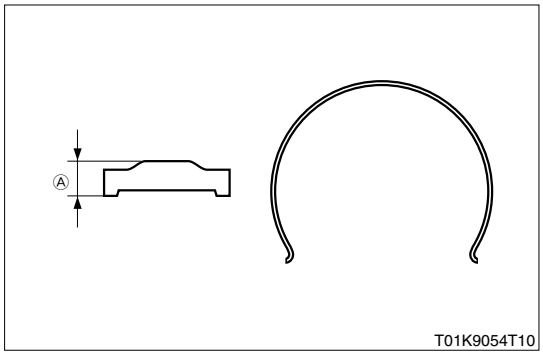
Measure both the inner and outer diameters of the 4th gear bearing inner rece.
SPECIFIED VALUE: 25.020－25.035(inner diameter)
31.971－31.986(outer diameter)



J11K9031T10

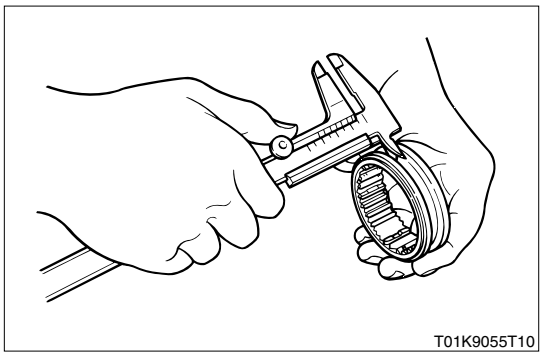
(5) **Check of synchromesh shifting key and key spring**

1. Measure the Ⓐdimension in the diagram on the right for the synchromesh shifting key.
   SPECIFIED VALUE: 4.6 to 4.8mm(for 3rd & 4th)
   ALLOWABLE LIMIT: 4.3mm(for 3rd & 4th)
2. Check that there is no severe wear or damage to the key spring.

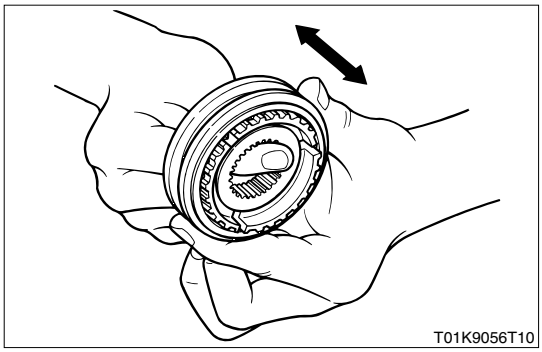


(6) **Check of transmission hub sleeve**

1. Measure the groove width of the transmission hub sleeve using vernier calipers.
   SPECIFIED VALUE: 7.05−7.12mm
   ALLOWABLE LIMIT: 7.3mm
2. Check that there is no wear or damage to the fitting section of the gears.

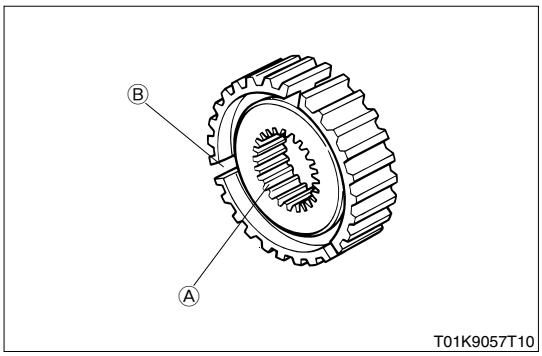


3. Assemble the transmission hub sleeve and the transmission clutch No.1hub, and check their sliding condition.



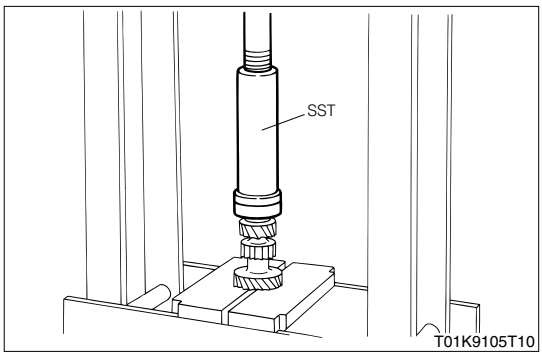
(7) **Check of transmission clutch hub**

1. Check that there is no wear or damage to the Ⓐspline section, or the Ⓑinserting section of the synchromesh shifting key.



2-1-6 **ASSEMBLY**

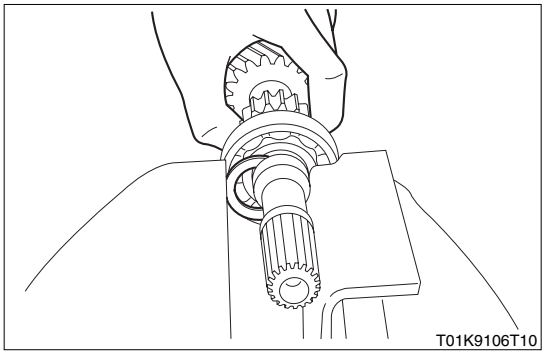
1. Install the radial ball bearing, using the SST.
   SST: 09309-87201-000



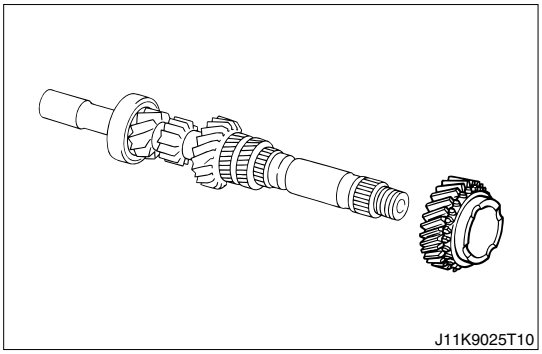
2. Assemble a new shaft snap ring, using the vice.

CAUTION

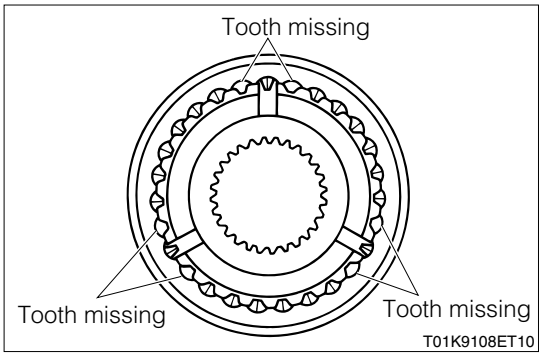
- Be very careful not to scratch the input shaft bearings.



3. Apply gear oil to the inner surface, end face and tapered section of the 3rd gear, and then attach it to the input shaft.



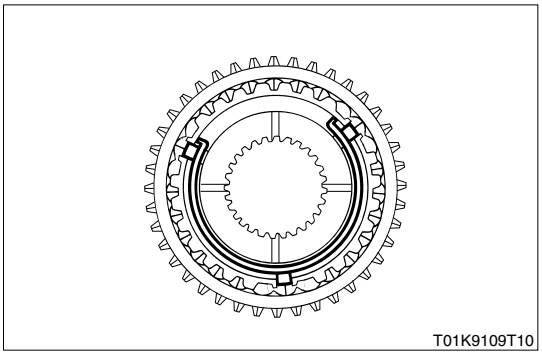
4. Attach the transmission clutch No.1 hub to the transmission hub sleeve.



5. Install the synchromesh shifting keys (three), and secure them with the synchromesh shifting key springs (two).

CAUTION

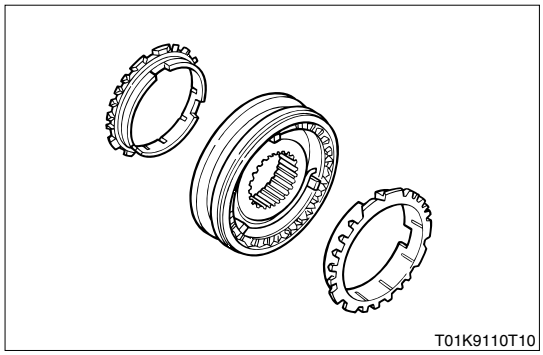
- Do not face the openings of the key springs in the same direction.



6. Install the synchronizer No.1 rings (two).

CAUTION

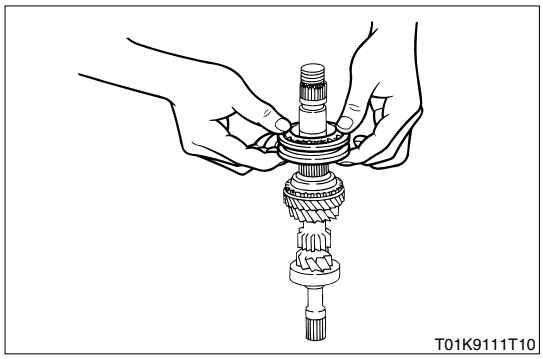
- Perform the assembly so that the key groove of the synchronizer ring and the key of the synchromesh shifting key are aligned.


T01K9110T10

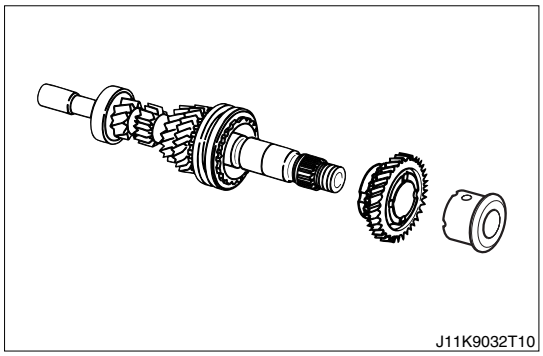
7. Attach the transmission hub sleeve to the input shaft.

CAUTION

- Be careful not to drop the synchronizer No.1 ring.

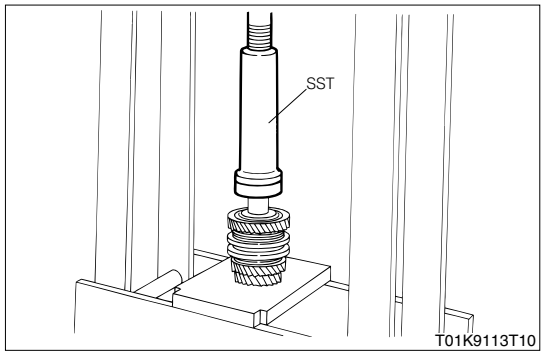

T01K9111T10

8. Apply to the inner surface, end face, tapered section of the 4th gear, and the exterior of the 4th gear bearing inner rece, and then attach them to the input shaft.


J11K9032T10

9. Install the radial ball bearing, using the SST.

SST: 09309-87201-000



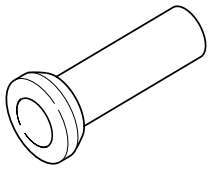
T01K9113T10

3 OUTPUT SHAFT AY

3-1 DISASSEMBLING AND ASSEMBLING

3-1-1 ARTICLES TO BE PREPARED

SST

Shape	Part No.	Part name
	09309-87201-000	Replacer,transmission bearing

Instrument

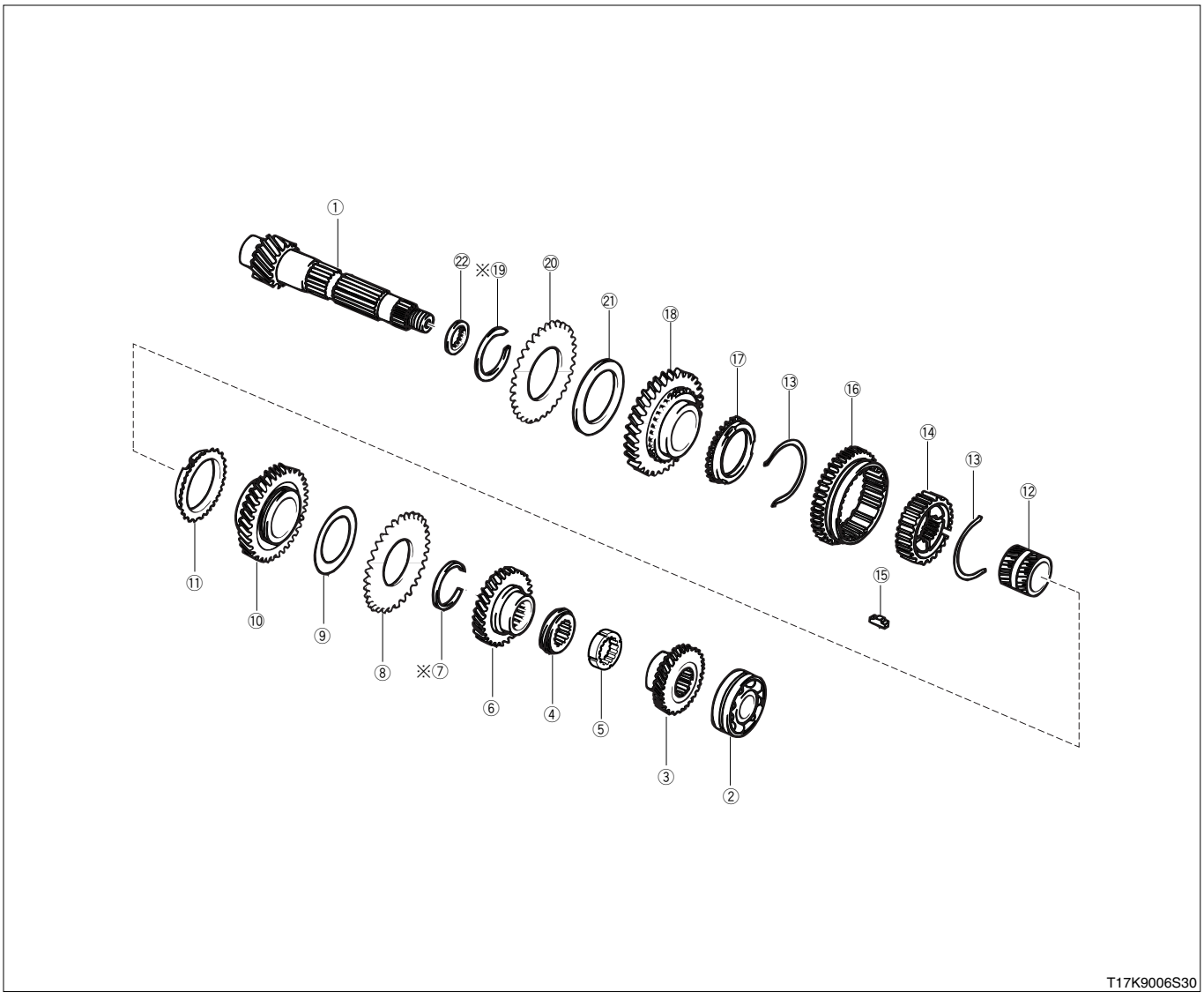
Vernier calipers,Caliper gauge,Thickness gauge

Lubricant,adhesive,others

Transmission gear oil SAE75W－90 or SAE75W－85 or SAE75W－80 (API Classification GL3 or GL4)

3-1-2 COMPONENTS

(1) **Components**



※: Non-reusable parts

(2) **Disassembly procedure**

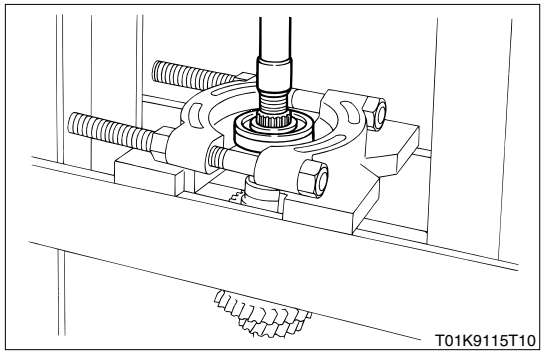
1	Shaft, output	12	Bush, 2nd gear
2	Bearing, radial ball	13	Spring, synchromesh shifting key No.2
3	Gear, output 4th	14	Hub, transmission clutch No.2
4	Gear, speedometer drive	15	Key, synchromesh shifting No.2
5	Hub, speedometer drive gear	16	Gear, reverse
6	Gear, output 3rd	17	Ring, synchronizer No.2
7	Ring, snap	18	Gear, 1st
8	Sub gear, 2nd	19	Ring, snap
9	Washer, conical spring	20	Sub gear, 1st
10	Gear, 2nd	21	Washer, conical spring
11	Ring, synchronizer No.3	22	Washer, transmission hub

(3) **Assembly procedure**

1	Washer, transmission hub	12	Ring, synchronizer No.3
2	Washer, conical spring	13	Gear, 2nd
3	Sub gear, 1st	14	Washer, conical spring
4	Ring, snap	15	Sub gear, 2nd
5	Gear, 1st	16	Ring, snap
6	Ring, synchronizer No.2	17	Gear, output 3rd
7	Gear, reverse	18	Hub, speedometer drive gear
8	Key, synchromesh shifting No.2	19	Gear, speedometer drive
9	Hub, transmission clutch No.2	20	Gear, output 4th
10	Spring, synchromesh shifting key No.2	21	Bearing, radial ball
11	Bush, 2nd gear	22	Shaft, output

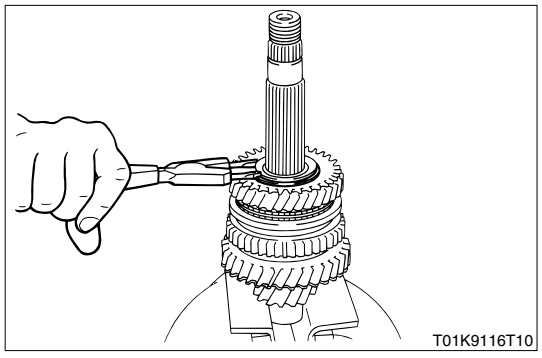
3-1-3 DISASSEMBLY

1. Remove the radial ball bearing from the output shaft, using the bearing pulling attachment in combination with a press.
2. Remove the following parts.
   output 4th gear → output 3rd gear.

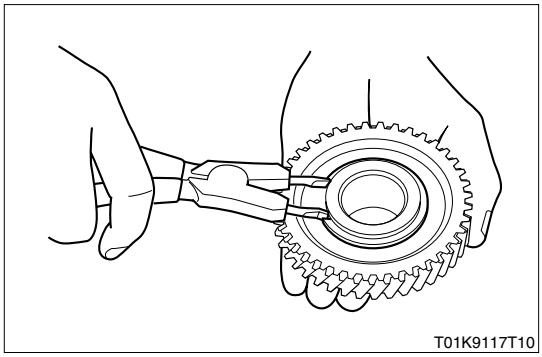

T01K9115T10

3. Remove the snap ring, the 2nd sub gear, the conical spring washer, and the 2nd gear.

   CAUTION
   - Do not reuse the snap rings.
4. Remove the following parts.
   synchronizer ring No.3 → synchronizer ring No.2.


T01K9116T10

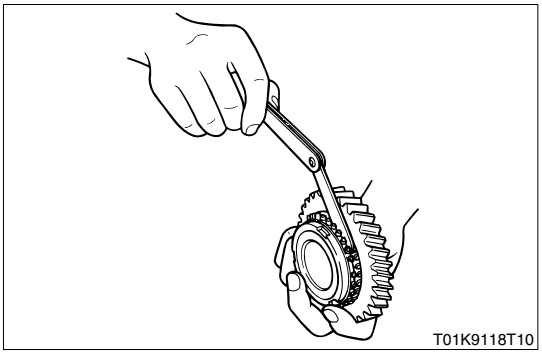
5. Remove the 1st gear, and then remove the snap ring, the 1st sub gear, and the conical spring washer.
   CAUTION
   - Do not reuse the snap rings.
6. Remove the transmission hub washer.


T01K9117T10

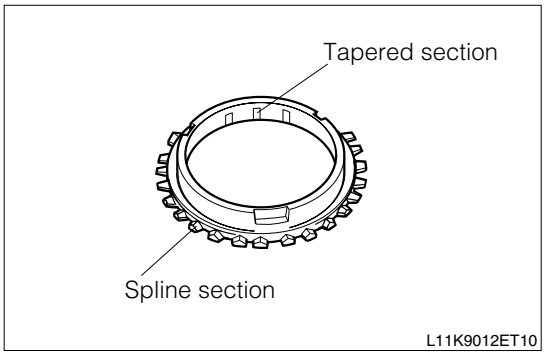
3-1-4 INSPECTION

(1) Check of synchronizer ring

1. Check the clearance of the gears and synchronizer rings using a thickness gauge, when press-fitting the synchronizer rings to the 1st and 2nd gears by hand.
   SPECIFIED VALUE: 0.85－1.45mm
   ALLOWABLE LIMIT: 0.5mm
   CAUTION
   - Check the entire periphery of the gears.

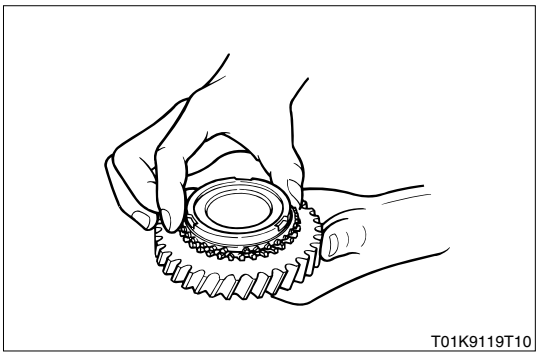

T01K9118T10

2. Check for damage and scratches to the inner tapered section and the spline section of the outer periphery of the synchronizer rings.



L11K9012ET10

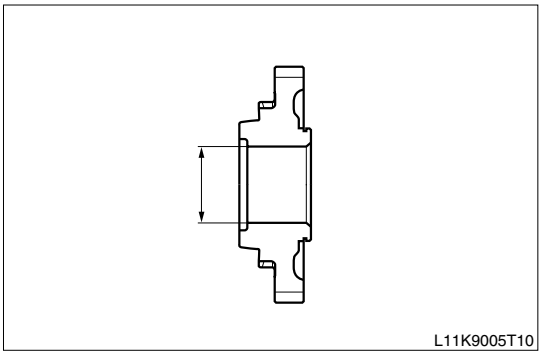
3. Apply gear oil to the cone section of the 1st and 2nd gears, and check that the synchronizer ring does not slip when rotated while press fitting by hand.


T01K9119T10

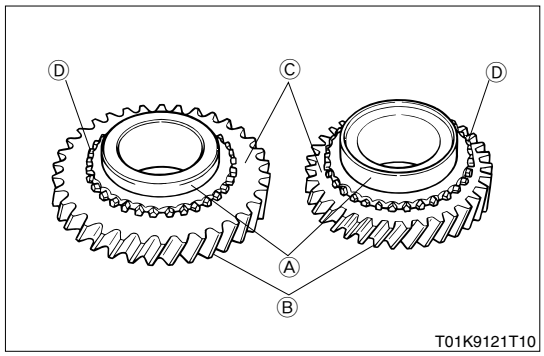
(2) Check of gears

1. Measure the inner diameter of the 1st and 2nd gears, using a caliper gauge.

1st gear	Specified value(mm)	32.025~32.050
	Limit value(mm)	32.75
2nd gear	Specified value(mm)	37.000－37.025
	Limit value(mm)	37.25

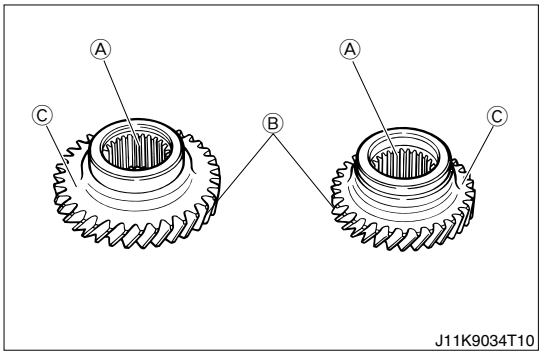

L11K9005T10

2. Check that there is no severe damage or wear to the Ⓐtapered section, the Ⓑtooth section, the Ⓒgear end face, and theⒹfitting section of the hub sleeve of the 1st and 2nd gears.



T01K9121T10

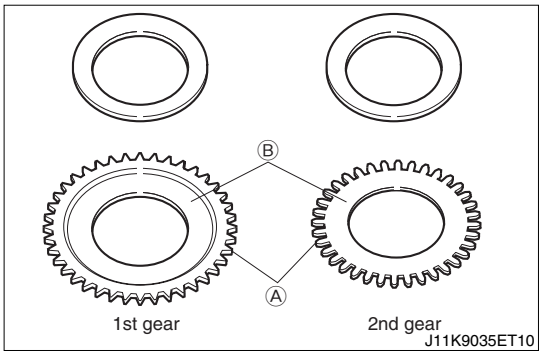
3. Check that there is no severe wear or damage to the Ⓐspline section, Ⓑtooth section, or Ⓒgear end face of the output 3rd gear and the output 4th gear.



J11K9034T10

(3) **Check of sub gear and conical spring washer**

1. Check that there is no severe wear or damage to the Ⓐtooth section and Ⓑgear side face of the 1st and 2nd sub-gears.
2. Check that there is no severe damage to the 1st and 2nd conical spring washers.

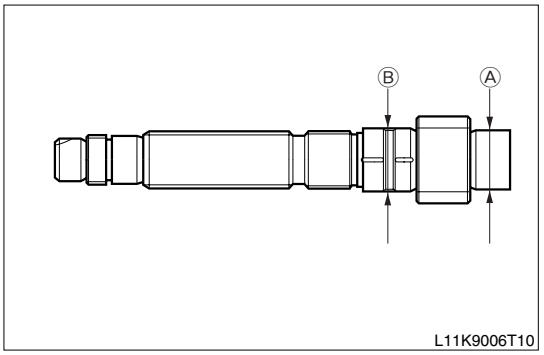


J11K9035ET10

(4) **Check of output shaft**

1. Measure the outer diameter of the areas of the output shaft shown in the figure on the right.

Ⓐ section	Specified value(mm)	29.979 ~30.000
	Limit value(mm)	29.96
Ⓑ section	Specified value(mm)	31.971 −31.991
	Limit value(mm)	31.96



L11K9006T10

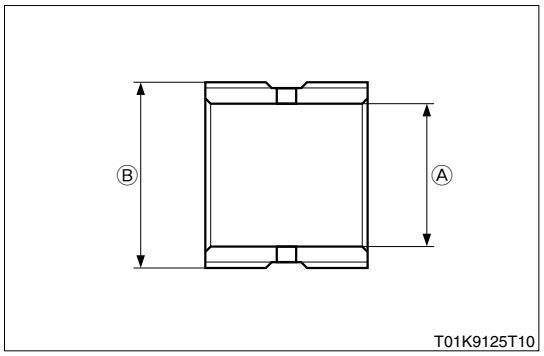
2. Check that there is no severe wear or damage to the tooth section or spline section of the output shaft.

(5) **Check of bush**

Measure both the innerⒶ and outerⒷ diameters of the 2nd gear bush.

SPECIFIED VALUE: 28.870−28.885mm(inner diameterⒶ)
36.940−36.960mm(outer diameterⒷ)

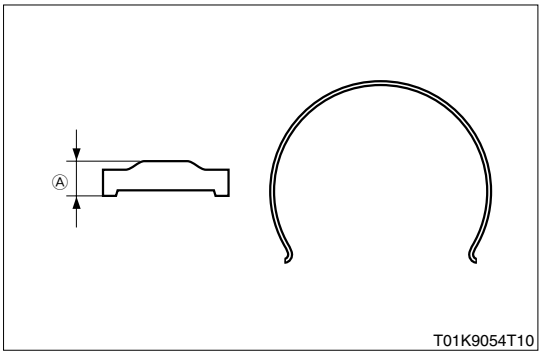
ALLOWABLE LIMIT: 28.92mm(inner diameterⒶ)
36.89mm(outer diameterⒷ)



T01K9125T10

(6) **Check of synchromesh shifting key and key spring**

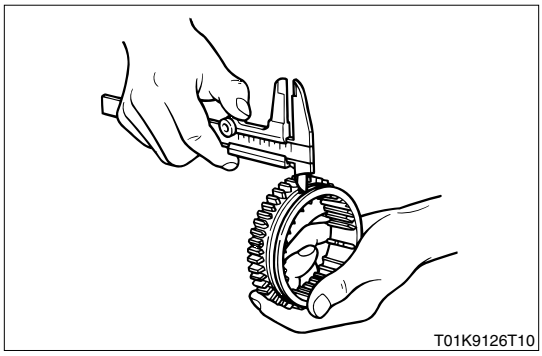
1. Measure the Ⓐdimension in the diagram on the right for the synchromesh shifting key.
   SPECIFIED VALUE: 5.0 to 5.2mm(for 1st & 2nd)
   ALLOWABLE LIMIT: 4.7mm(for 1st & 2nd)
2. Check that there is no severe wear or damage to the key spring.



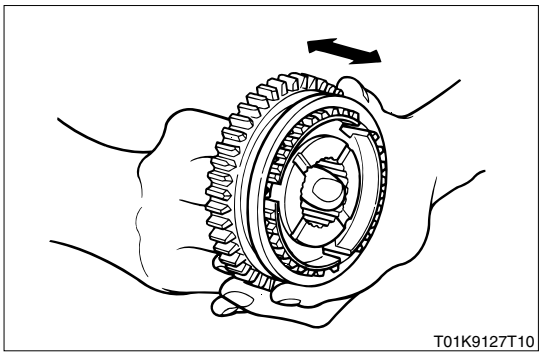
T01K9054T10

(7) **Check of reverse gear**

1. Measure the groove width of reverse gear, using vernier calipers.
   SPECIFIED VALUE: 7.05−7.18mm
   ALLOWABLE LIMIT: 7.3mm
2. Check that there is no wear or damage to the fitting section of the gears.

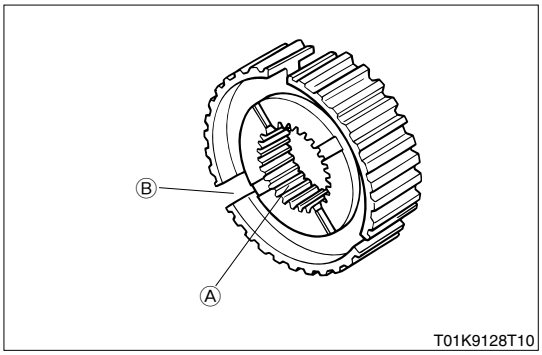

T01K9126T10

3. Assemble the reverse gear and the transmission clutch No.2 hub, and check their sliding condition.


T01K9127T10

(8) **Check of transmission clutch hub**

Check that there is no wear or damage to the Ⓐspline section, or the inserting section of the synchromesh shifting key.



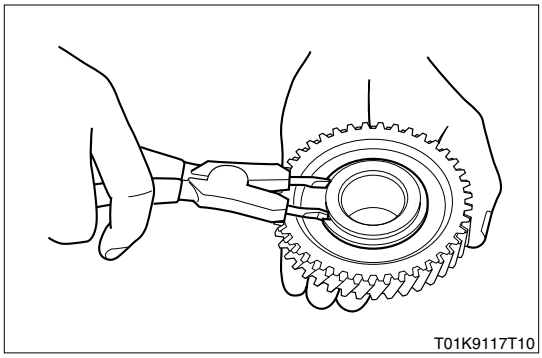
T01K9128T10

3-1-5 **ASSEMBLY**

1. Attach the conical spring washer, the 1st sub gear, and a new snap ring to the 1st gear.

CAUTION

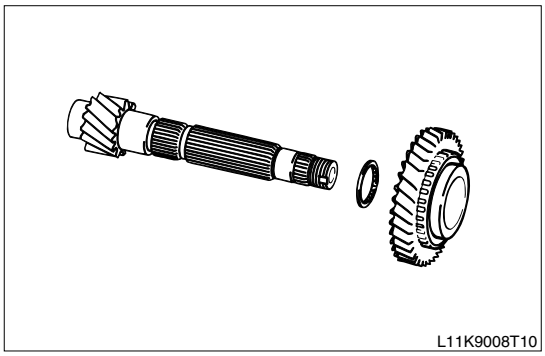
- Place the protruding surface of the 1st sub gear on the 1st gear side, and attach it.
  Place the protruding surface of the conical spring washer on the 1st gear side, and attach it. (2nd gear faces the same direction)


T01K9117T10

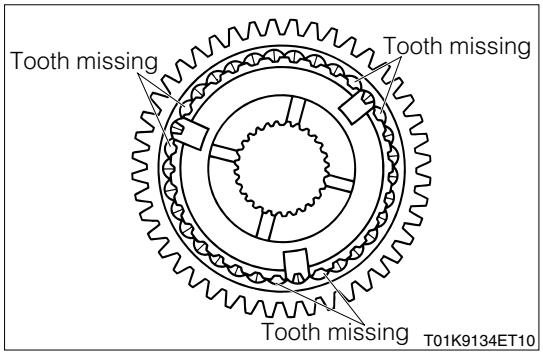
2. Assemble both the 1st gear and the transmission hub washer to the output shaft.

CAUTION

- Apply gear oil to the inner surface, end face and tapered section of the 1st gear, and the outer periphery of the output shaft.



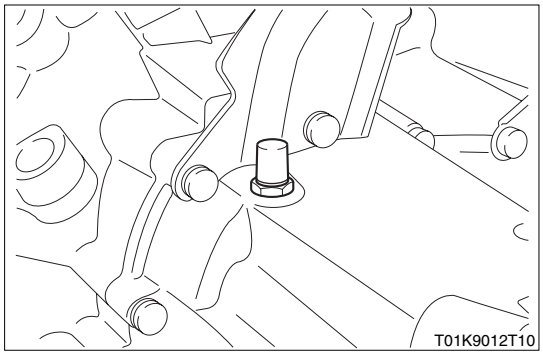
3. Attach the transmission clutch No.2 hub to the reverse gear.



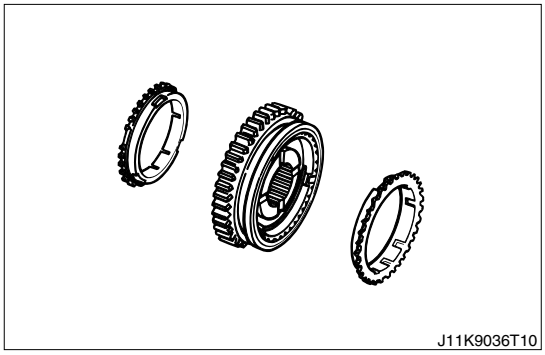
4. Install the synchromesh shifting No.2 keys (three), and secure them with the synchromesh shifting key No.2 spring (two).

CAUTION

- Do not face the openings of the key springs in the same direction.



5. Assemble the synchronizer No.2 ring, and the synchronizer No.3 ring.

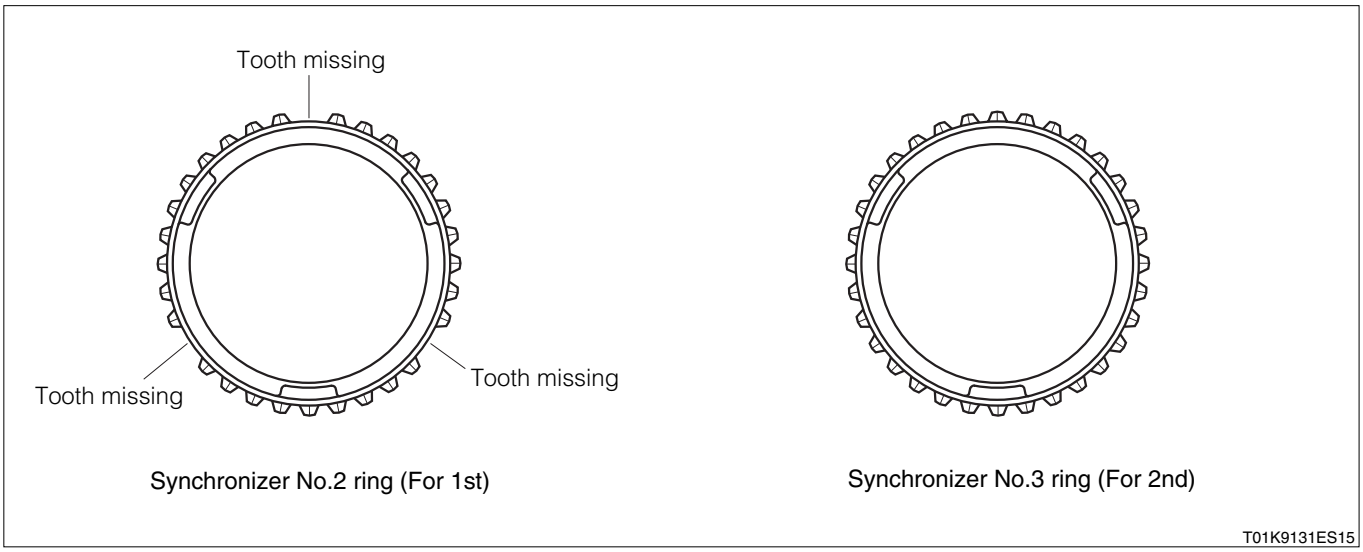


CAUTION

- Be careful not to make a mistake with the synchronizer No.2 ring (with tooth missing), and the No.3 ring (without tooth missing)
  Assemble so that the key groove of the synchronizer ring and the synchromesh shifting key are aligned.

NOTE

- Identification



Synchronizer No.2 ring (For 1st)

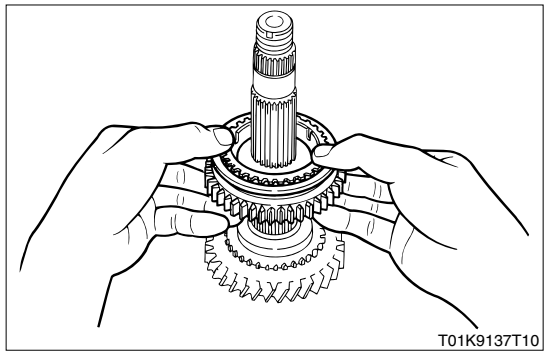
Synchronizer No.3 ring (For 2nd)

T01K9131ES15

6. Assemble the reverse gear together with the synchronizer No.1 ring and the synchronizer No.3 ring to the output shaft.

CAUTION

- Ensure that the synchronizer No.2 ring and No.3 ring do not fall.

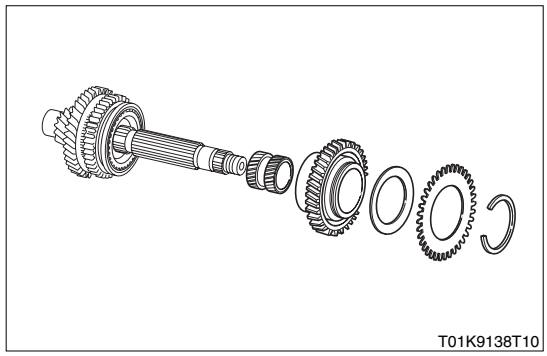


T01K9137T10

7. Attach the 2nd gear bush, the 2nd gear, the conical spring washers, the 2nd sub gear, and a new snap ring to the output shaft.

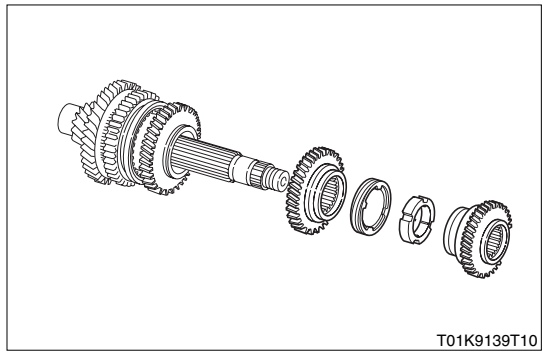
CAUTION

- Apply gear oil to the inner surface, end face and tapered section of the 2nd gear, and the outer periphery of the 2nd gear bush.
  Perform the assembly of the 2nd sub-gear, using the same procedure as for the 1st gear.



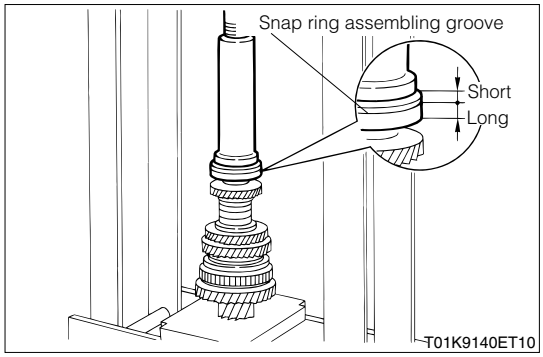
T01K9138T10

8. Assemble the output 3rd gear, the speedometer drive gear hub, the speedometer drive gear, and the output 4th gear to the output shaft.



T01K9139T10

9. Install the radial ball bearing, using the SST.
   SST: 09309-87201-000
   CAUTION
   - Be careful not to attach the bearings in the wrong direction.

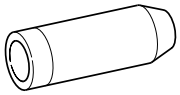


4 DIFFERENTIAL AY

4-1 DISASSEMBLING AND ASSEMBLING

4-1-1 ARTICLES TO BE PREPARED

SST

Shape	Part No.	Part name
	09950-97201-000 (09950-20017-000)	Puller,universal
	09618-87301-000	Replacer,transmission bearing

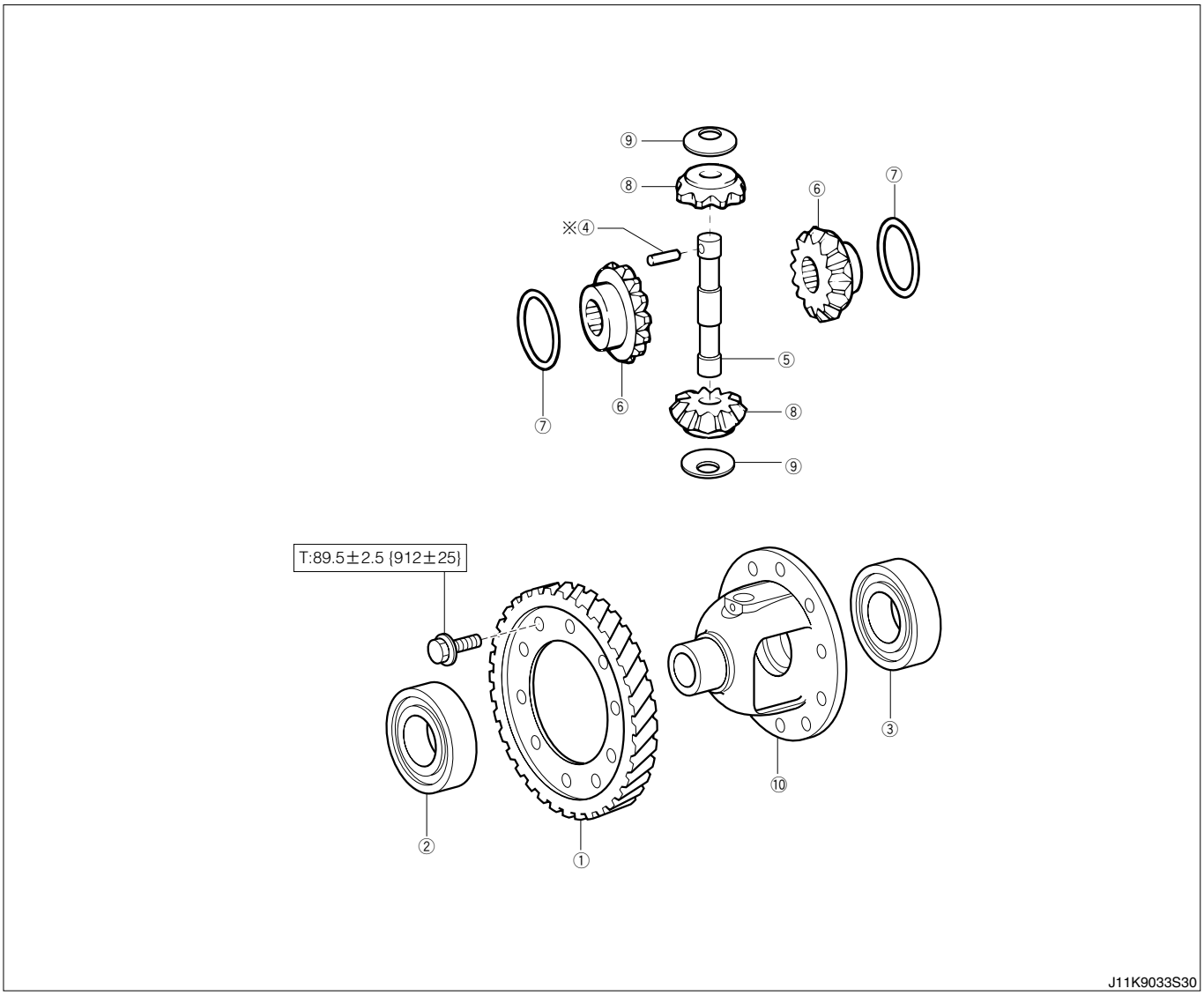
Instrument

Vernier calipers,Caliper gauge,Thickness gauge

Lubricant,adhesive,others

Transmission gear oil SAE75W−90 or SAE75W−85 or SAE75W−80 (API Classification GL3 or GL4)

4-1-2 COMPONENTS



※: Non-reusable parts

(1) **Disassembly procedure**

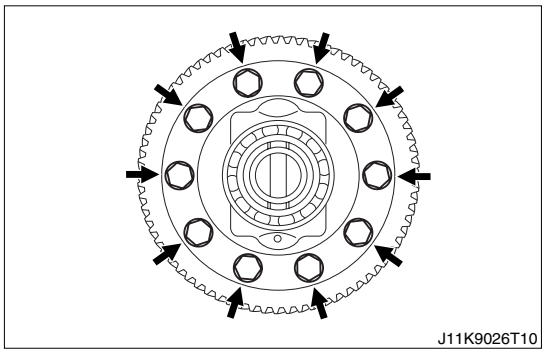
1 Gear, differential ring
2 Bearing, radial ball
3 Bearing, radial ball
4 Pin, slotted spring
5 Shaft, differential pinion
6 Gear, differential side
7 Washer, differential side gear thrust
8 Pinion, differential
9 Washer, differential pinion thrust
10 Case, differential

(2) **Assembly procedure**

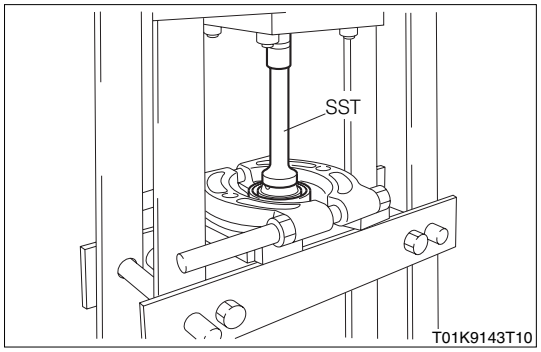
1 Case, differential
2 Washer, differential pinion thrust
3 Pinion, differential
4 Washer, differential side gear thrust
5 Gear, differential side
6 Shaft, differential pinion
7 Pin, slotted spring
8 Bearing, radial ball
9 Bearing, radial ball
10 Gear, differential ring

4-1-3 **DISASSEMBLY**

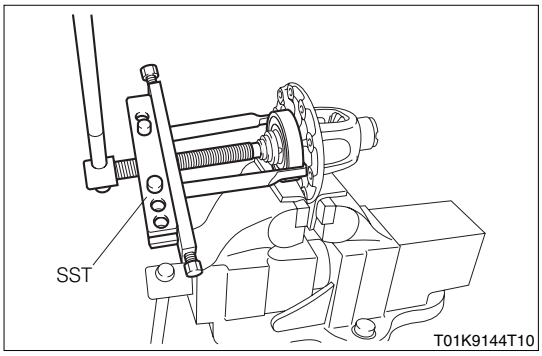
1. Remove ten bolts , and remove the differential ring gear.



2. Remove the bearing, using the bearing pulling attachment in combination with a press.



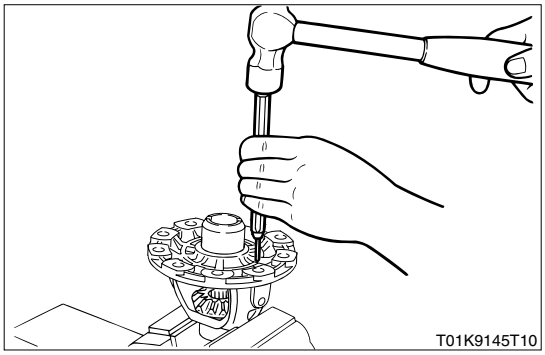
3. Remove the radial ball bearing, using the SST.
   SST: 09950-97201-000



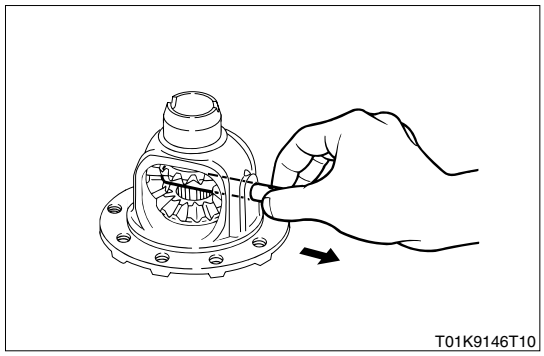
4. Remove the slotted spring pin, using the knock pin punch.

CAUTION

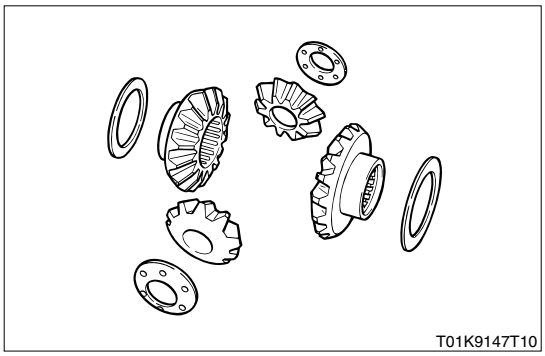
- Do not reuse the slotted spring pins.


T01K9145T10

5. Remove the differential pinion shaft.

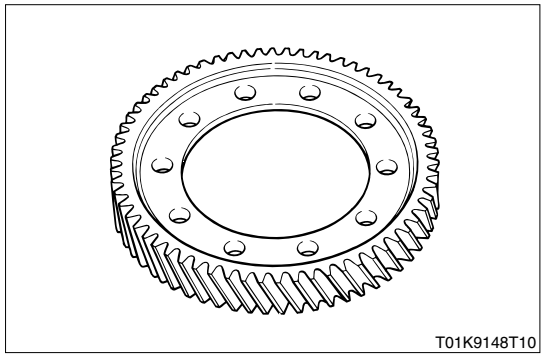

T01K9146T10

6. Remove the differential side gear, the differential side gear thrust washer, the differential pinion, and the differential pinion thrust washer from the differential case.


T01K9147T10

4-1-4 **INSPECTION**

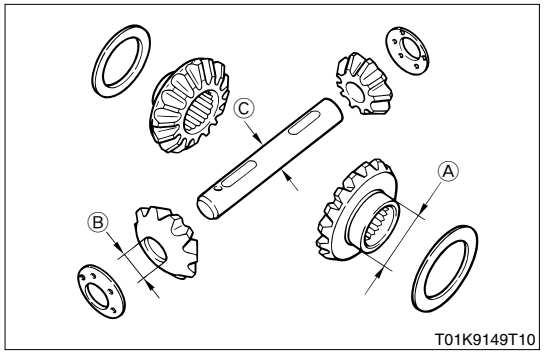
1. Check that there are no scratches or damage on the installation surface and tooth surface of the differential ring gear.


T01K9148T10

2. Check that there is no damage to the differential side gear, the differential pinion, the differential pinion shaft, or the thrust washer.

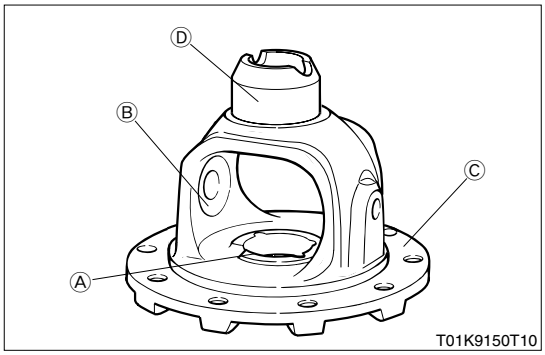
SPECIFIED VALUE: 31.950－31.975mmⒶ
15.03－15.08mmⒷ
14.944－14.962mmⒸ

ALLOWABLE LIMIT: 31.90mmⒶ
15.1mmⒷ
14.90mmⒸ



T01K9149T10

3. Check that there is no damage or wear to the Ⓐside gear boss contact section, Ⓑpinion contact section, Ⓒring gear installation section, and Ⓓside bearing press-fitting section, etc. of the differential case.



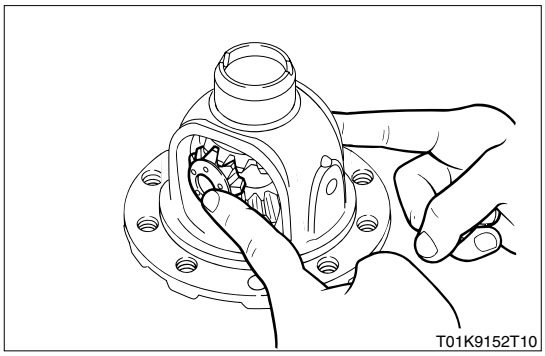
T01K9150T10

4-1-5 **ASSEMBLY**

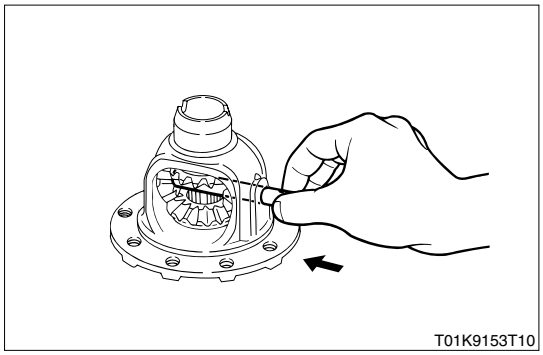
1. Attach the differential side gear, the differential side gear thrust washer, the differential pinion, and the differential pinion thrust washer to the differential case.

CAUTION

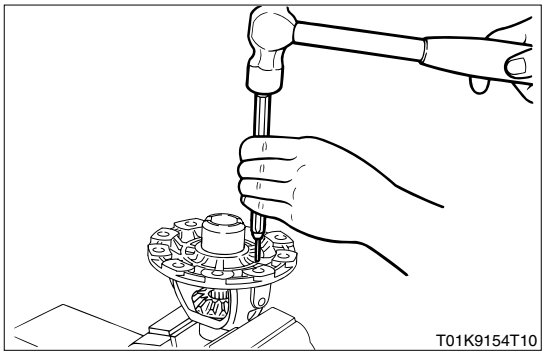
- Apply gear oil to each section and assemble.


T01K9152T10

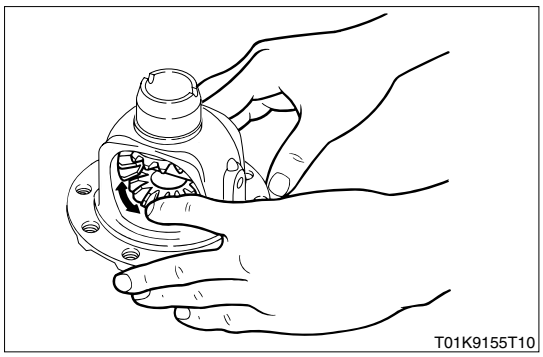
2. Assemble the differential pinion shaft.


T01K9153T10

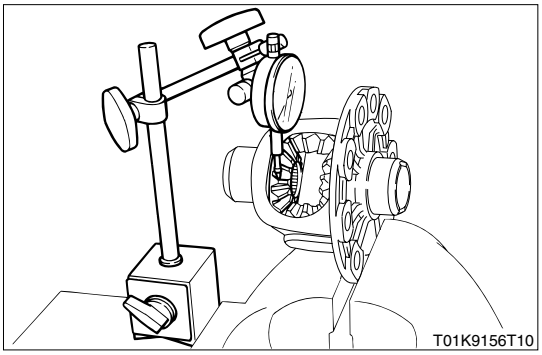
3. Attach a new slotted spring pin, using the knock pin punch.


T01K9154T10

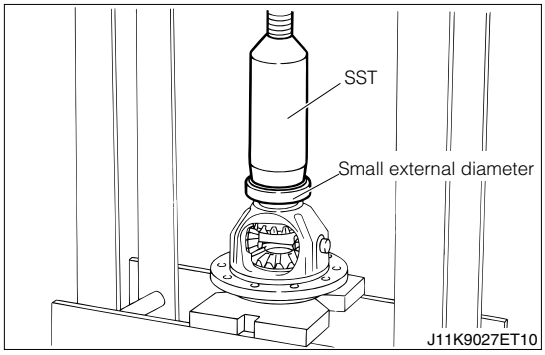
4. Check whether the differential side gear rotates smoothly by turning it.


T01K9155T10

5. Measure the backlash of the differential side gear.
   SPECIFIED VALUE: 0.02−0.21mm



6. Install the radial ball bearing (large outer diameter), using the SST.
   SST: 09618-87301-000
7. Install the radial ball bearing (small outer diameter), using the SST.
   SST: 09618-87301-000
   CAUTION
   - Use the correct type of bearing.



8. Assemble the differential ring gear, and tighten the ten bolts to the specified torque.
   TIGHTENING TORQUE: 89.5±2.5N·m{913±25kgf·cm}
   CAUTION
   - Attach the side of the differential ring gear inner diameter section with the larger chamfered area to the differential case side.