

General Description

MANUAL TRANSMISSION AND DIFFERENTIAL

1. General Description

A: SPECIFICATION

1. MANUAL TRANSMISSION AND FRONT DIFFERENTIAL

Type	6-forward speeds and 1-reverse		
Transmission gear ratio	1st		3.636
	2nd		2.235
	3rd		1.521
	4th		1.137
	5th		0.971
	6th		0.756
	Reverse		3.545
Front reduction gear	Final	Type of gear	Hypoid
		Gear ratio	3.900
Rear reduction gear	Transfer	Type of gear	Helical
		Gear ratio	1.103
	Final	Type of gear	Hypoid
		Gear ratio	3.545
Front differential	Type and number of gear		Planetary gear (pinion gear: 8, gear: 2)
	LSD type		Helical
Center differential	Type and number of gear		Planetary gear (Internal gear: 1, pinion gear: 6, sun gear: 1, and solenoid compression variable control multiplate clutch)
Transmission gear oil		GL-5	
Transmission gear oil capacity		4.1 L (4.3 US qt, 3.6 Imp qt)	

2. TRANSMISSION GEAR OIL

Recommended oil:

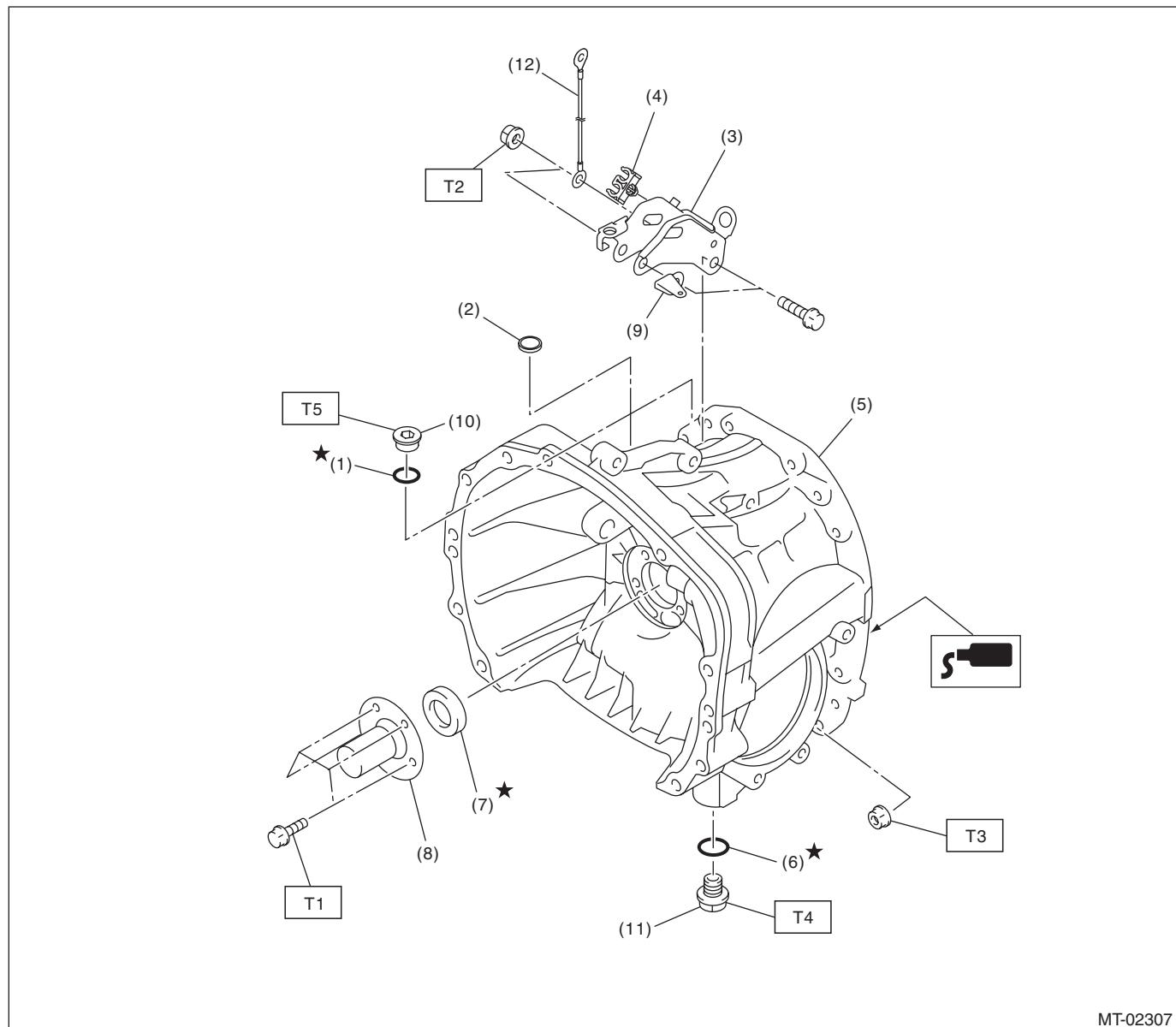
GL-5 (75W-90) or equivalent

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B: COMPONENT

1. CLUTCH HOUSING



(1) Gasket	(7) Oil seal
(2) Plug	(8) Clutch release bearing guide
(3) Pitching stopper bracket	(9) Return spring bracket
(4) Clip	(10) Plug
(5) Clutch housing	(11) Drain plug
(6) Gasket	(12) Transmission radio ground cable

Tightening torque: N·m (kgf-m, ft-lb)

T1: 6.4 (0.7, 4.7)

T2: 41 (4.2, 30.2)

T3: 50 (5.1, 36.9)

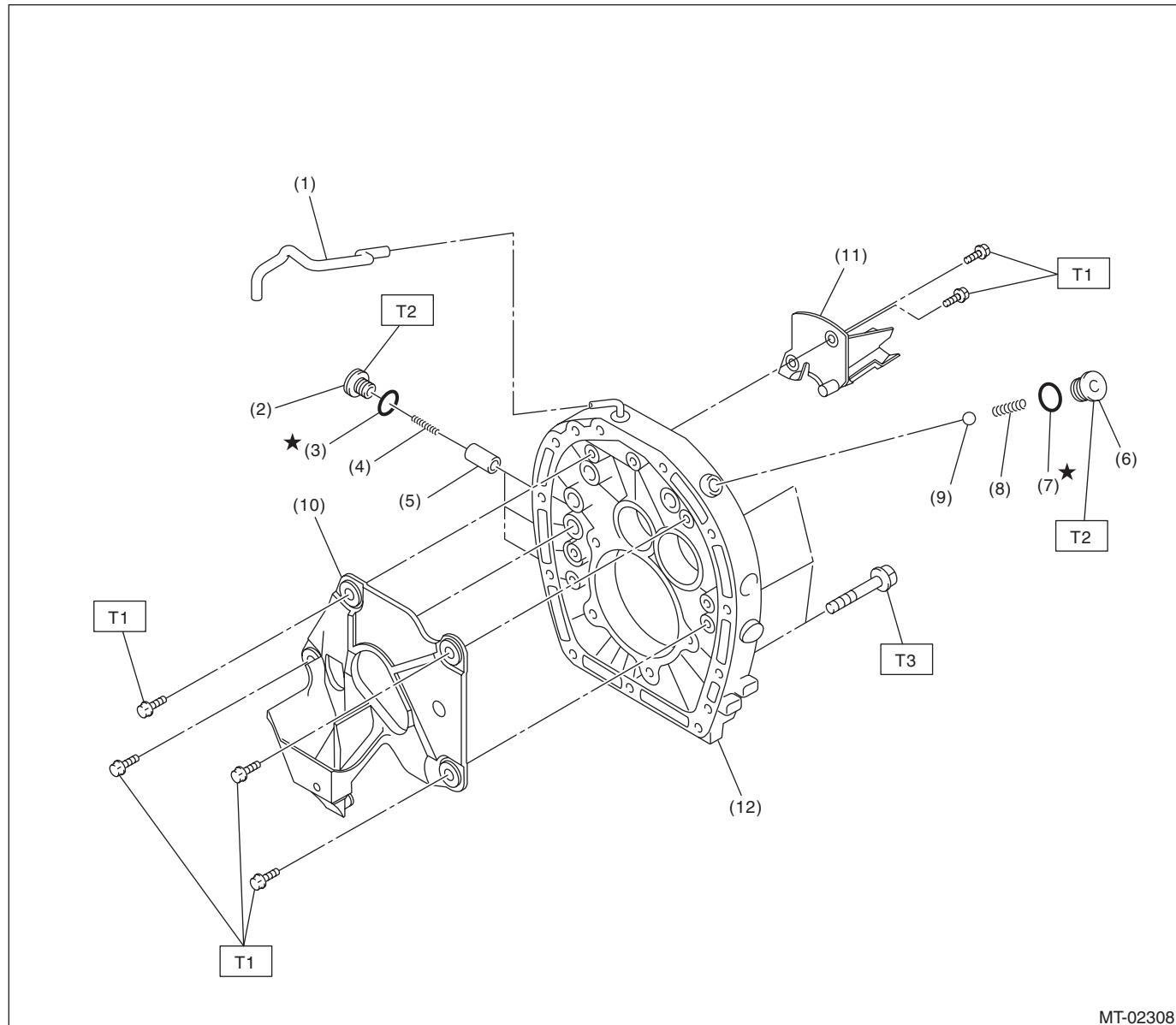
T4: 70 (7.1, 51.6)

T5: 46 (4.7, 33.9)

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2. ADAPTER PLATE



MT-02308

(1)	Breather hose	(7)	O-ring
(2)	Check plug	(8)	Checking spring
(3)	O-ring	(9)	Check ball
(4)	Checking spring	(10)	Oil guide A
(5)	Plunger	(11)	Oil guide B
(6)	Check plug	(12)	Adapter plate

Tightening torque: N·m (kgf-m, ft-lb)

T1: 18 (1.8, 13.3)

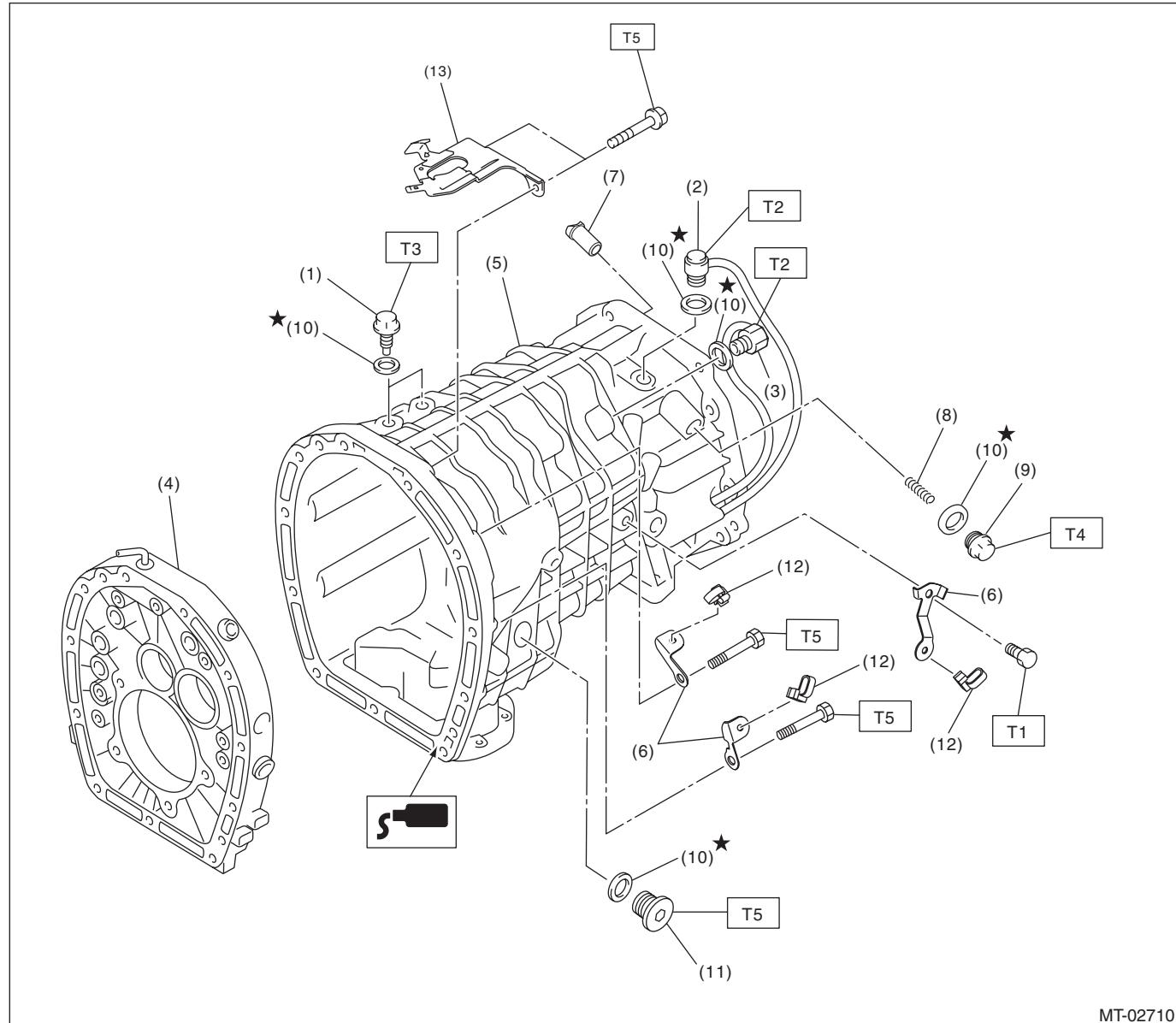
T2: 25 (2.5, 18.4)

T3: 50 (5.1, 36.9)

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3. TRANSMISSION CASE



MT-02710

(1) Pilot bolt	(8) Spring
(2) Neutral switch	(9) Plug
(3) Back-up light switch	(10) Gasket
(4) Adapter plate	(11) Filler plug
(5) Transmission case	(12) Band clip
(6) Harness bracket	(13) Transmission harness stay
(7) Selector plunger	

Tightening torque: N·m (kgf-m, ft-lb)

T1: 16 (1.6, 11.8)

T2: 32 (3.3, 23.6)

T3: 34 (3.5, 25.1)

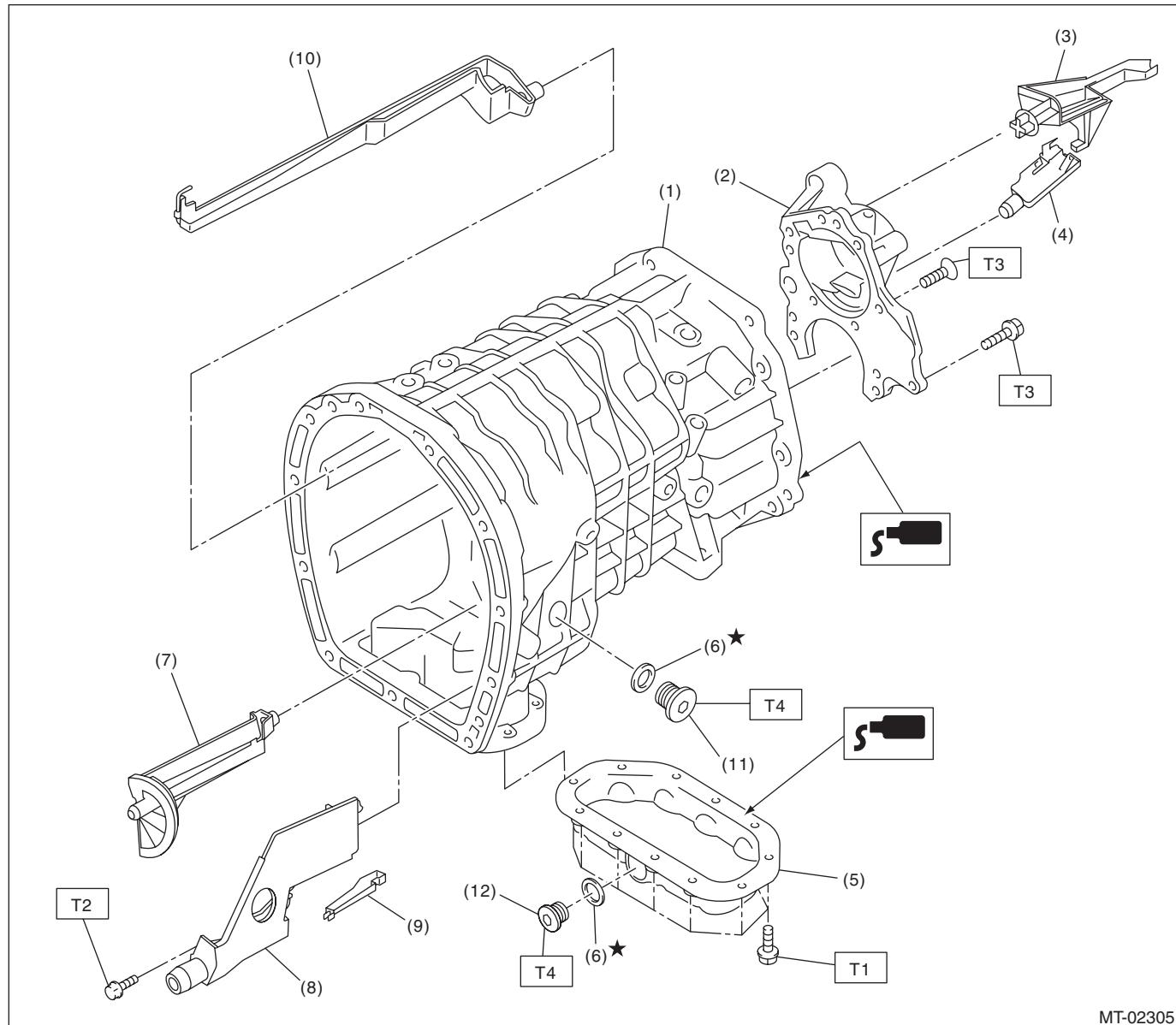
T4: 41 (4.2, 30.2)

T5: 50 (5.1, 36.9)

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4. OIL PAN & OIL GUIDE



(1)	Transmission case	(7)	Oil guide F
(2)	Transfer bearing holder	(8)	Oil guide D
(3)	Oil guide G	(9)	Oil guide E
(4)	Oil guide H	(10)	Oil guide C
(5)	Oil pan	(11)	Filler plug
(6)	Gasket	(12)	Drain plug

Tightening torque: N·m (kgf-m, ft-lb)

T1: 6.4 (0.7, 4.7)

T2: 18 (1.8, 13.3)

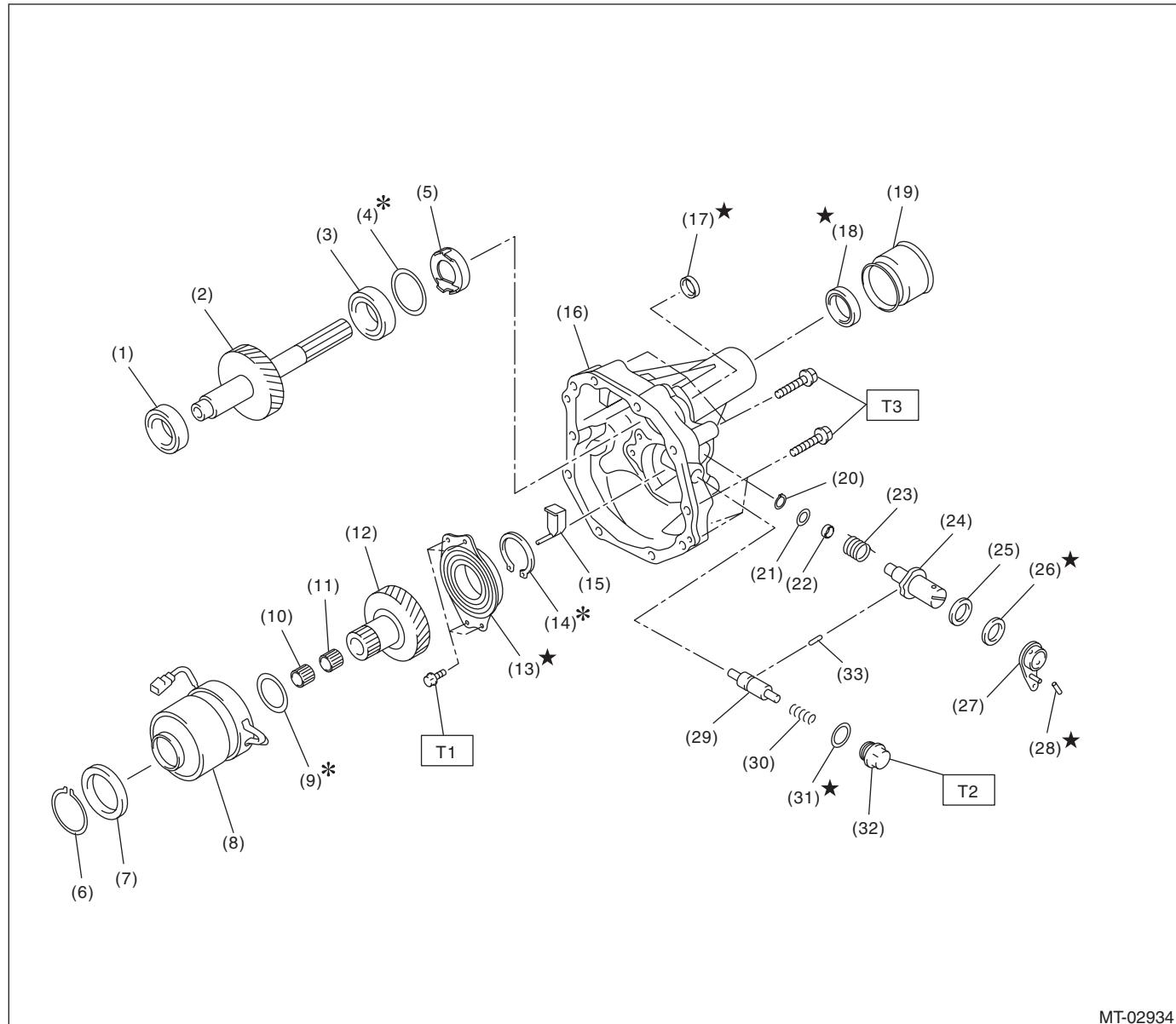
T3: 25 (2.5, 18.4)

T4: 50 (5.1, 36.9)

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5. EXTENSION CASE AND CENTER DIFFERENTIAL



MT-02934

(1) Taper roller bearing	(14) Snap ring	(27) Reverse check lever COMPL
(2) Transfer driven gear	(15) Oil guide	(28) Straight pin
(3) Taper roller bearing	(16) Extension case	(29) Reverse check plug
(4) Adjusting washer	(17) Oil seal	(30) Spring
(5) Oil plate	(18) Oil seal	(31) Gasket
(6) Snap ring	(19) Dust cover	(32) Plug
(7) Collar	(20) Snap ring	(33) Plunger
(8) Center differential	(21) Washer	
(9) Adjusting washer	(22) Bushing	
(10) Needle bearing	(23) Spring	
(11) Needle bearing	(24) Reverse check shaft	
(12) Transfer drive gear	(25) Ball bearing	
(13) Ball bearing (with flange)	(26) Oil seal	

Tightening torque: N·m (kgf·m, ft·lb)

T1: 25 (2.5, 18.4)

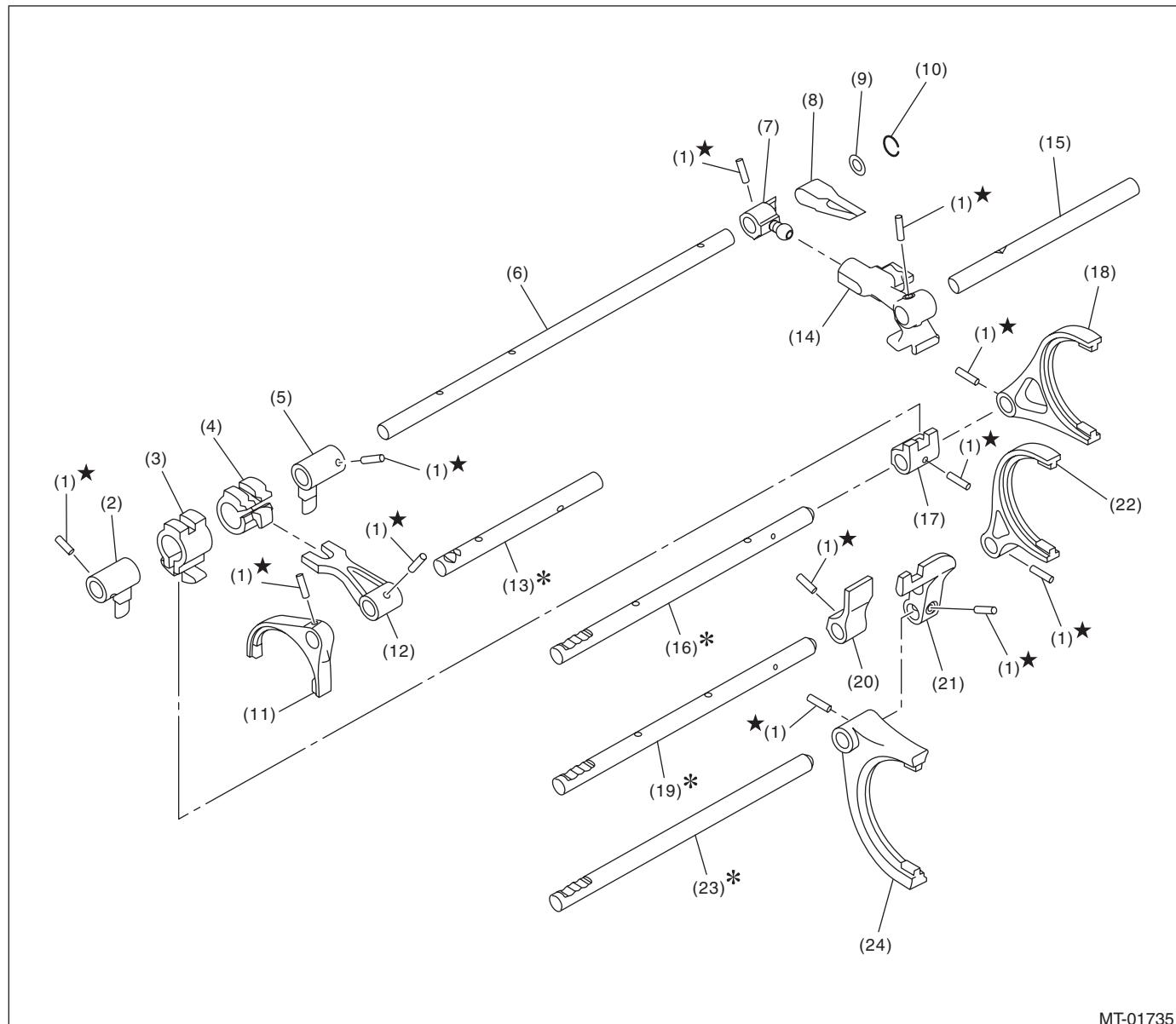
T2: 41 (4.2, 30.2)

T3: 48 (4.9, 35.4)

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6. SHIFTER FORK AND FORK ROD



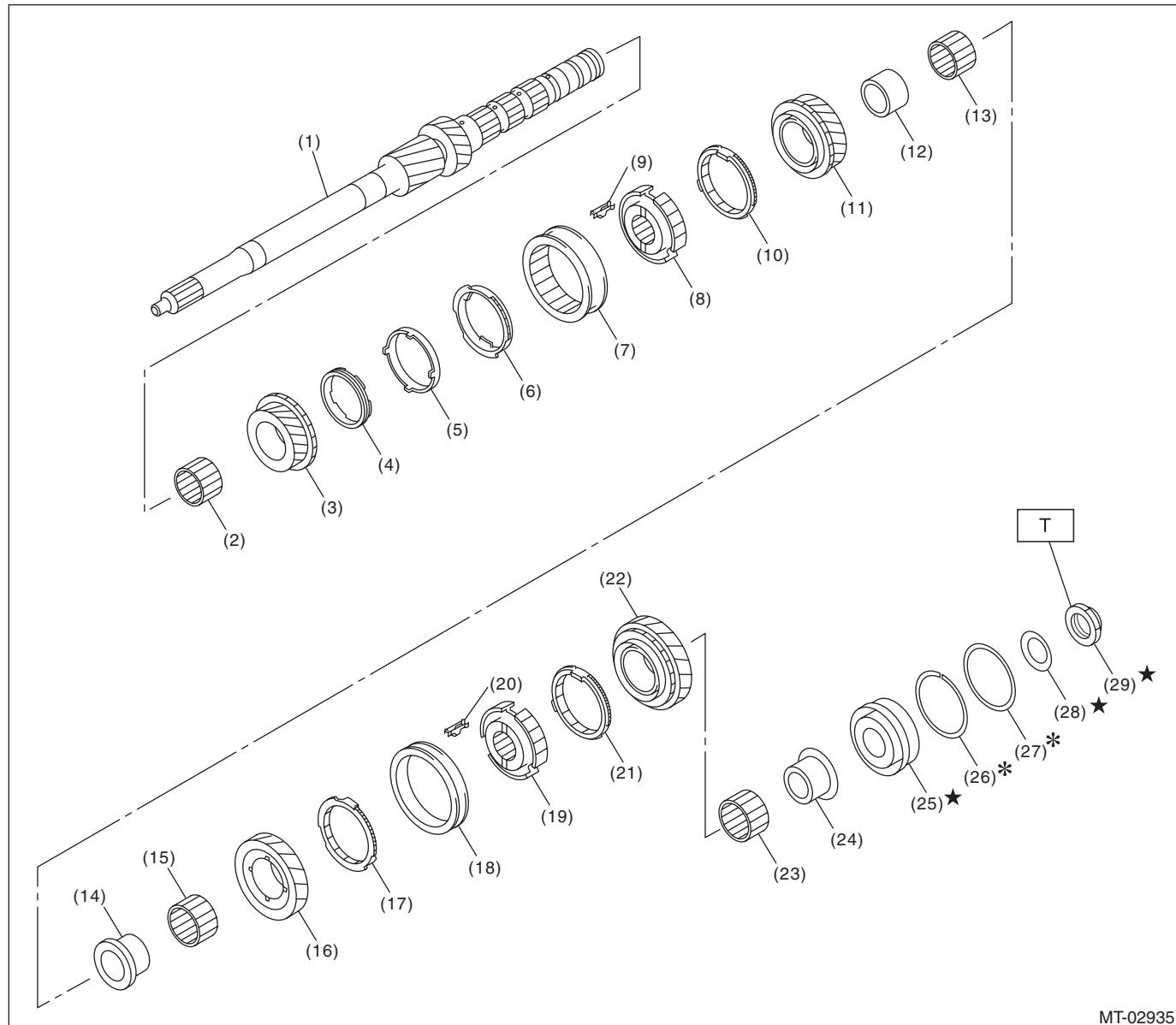
MT-01735

(1) Straight pin	(9) Washer	(17) 5th-6th shifter arm
(2) Interlock arm	(10) Snap ring	(18) 5th-6th fork COMPL
(3) Interlock block	(11) Reverse fork COMPL	(19) 3rd-4th fork rod
(4) Reverse interlock block	(12) Reverse shifter arm	(20) 3rd-4th shifter arm
(5) Interlock arm	(13) Reverse fork rod	(21) 1st-2nd shifter arm
(6) Striking rod	(14) Selector arm	(22) 3rd-4th fork COMPL
(7) Selector arm No. 2	(15) Shifter arm shaft	(23) 1st-2nd fork rod
(8) Neutral set spring	(16) 5th-6th fork rod	(24) 1st-2nd fork COMPL

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7. MAIN SHAFT ASSY



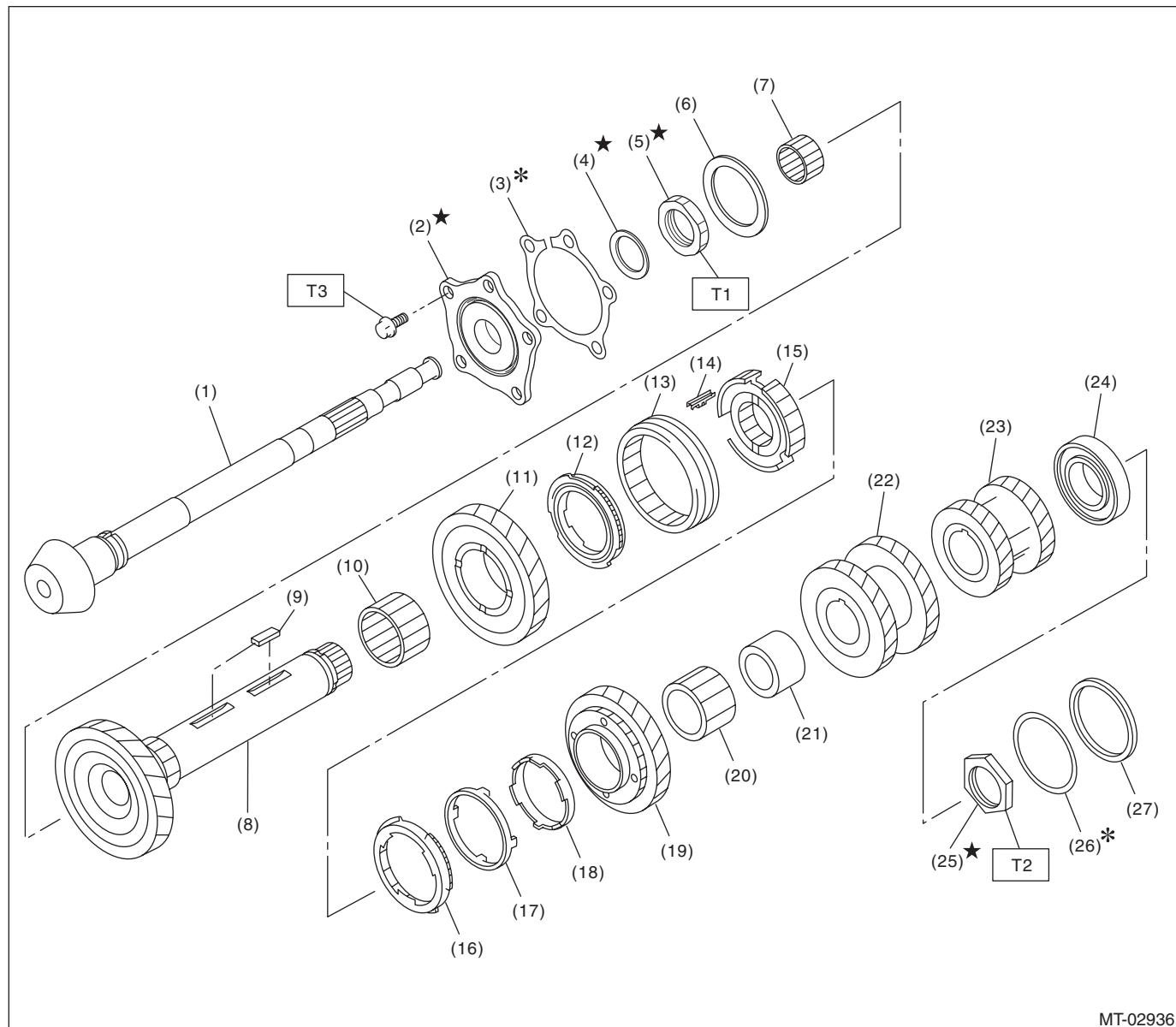
(1) Main shaft	(12) 4th bushing	(23) Needle bearing
(2) Needle bearing	(13) Needle bearing	(24) 6th bushing
(3) 3rd drive gear	(14) 5th bushing	(25) Double taper roller bearing
(4) Inner baulk ring	(15) Needle bearing	(26) Snap ring
(5) Synchro cone	(16) 5th drive gear	(27) Adjusting washer
(6) Outer baulk ring	(17) 5th baulk ring	(28) Lock washer
(7) 3rd-4th sleeve	(18) 5th-6th sleeve	(29) Lock nut
(8) 3rd-4th hub	(19) 5th-6th hub	
(9) Shifting insert	(20) Shifting insert	
(10) 4th baulk ring	(21) 6th baulk ring	
(11) 4th gear	(22) 6th drive gear	

Tightening torque: N·m (kgf-m, ft-lb)
T: 392 (40.0, 289.1)

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8. DRIVE PINION SHAFT ASSY & DRIVEN GEAR ASSY



MT-02936

(1) Drive pinion shaft	(13) 1st-2nd sleeve	(25) Lock nut
(2) Double taper roller bearing	(14) Shifting insert	(26) Adjusting washer
(3) Drive pinion shim	(15) 1st-2nd hub	(27) Collar
(4) Lock washer	(16) Outer baulk ring	
(5) Lock nut	(17) Synchro cone	
(6) Thrust bearing	(18) Inner baulk ring	
(7) Needle bearing	(19) 2nd driven gear	
(8) Driven shaft	(20) Needle bearing	
(9) Key	(21) 2nd bushing	
(10) Needle bearing	(22) 3rd-4th driven gear	
(11) 1st driven gear	(23) 5th-6th driven gear	
(12) 1st synchronizer set	(24) Ball bearing	

Tightening torque: N·m (kgf-m, ft-lb)

T1: 285 (29.1, 210.2)

***265 (27.0, 195.4)**

T2: 570 (58.1, 420.4)

***530 (54.0, 390.9)**

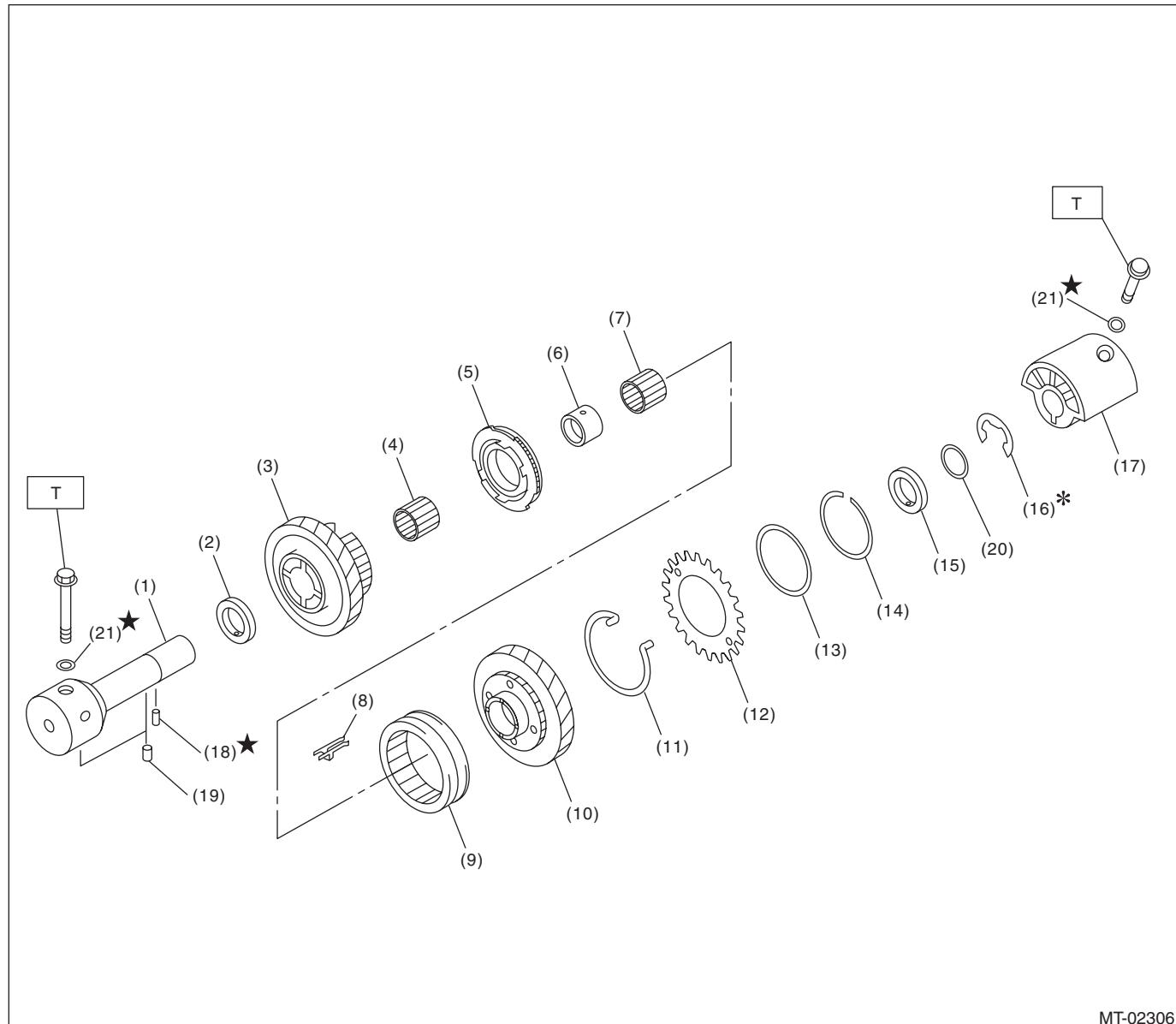
T3: 54 (5.5, 39.8)

* Tightening torque when using the ST

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9. REVERSE IDLER GEAR ASSY



MT-02306

(1) Base COMPL	(9) Reverse coupling sleeve	(17) Reverse idler holder
(2) Counter high and low washer	(10) Reverse idler gear	(18) Straight pin
(3) Reverse idler gear No. 2	(11) Spring	(19) Knock pin
(4) Needle bearing	(12) Sub gear	(20) Washer
(5) Reverse idler synchro set	(13) Friction plate	(21) Gasket
(6) Reverse idler gear bushing	(14) Snap ring	
(7) Needle bearing	(15) Counter high and low washer	
(8) Shifting insert	(16) Snap ring	

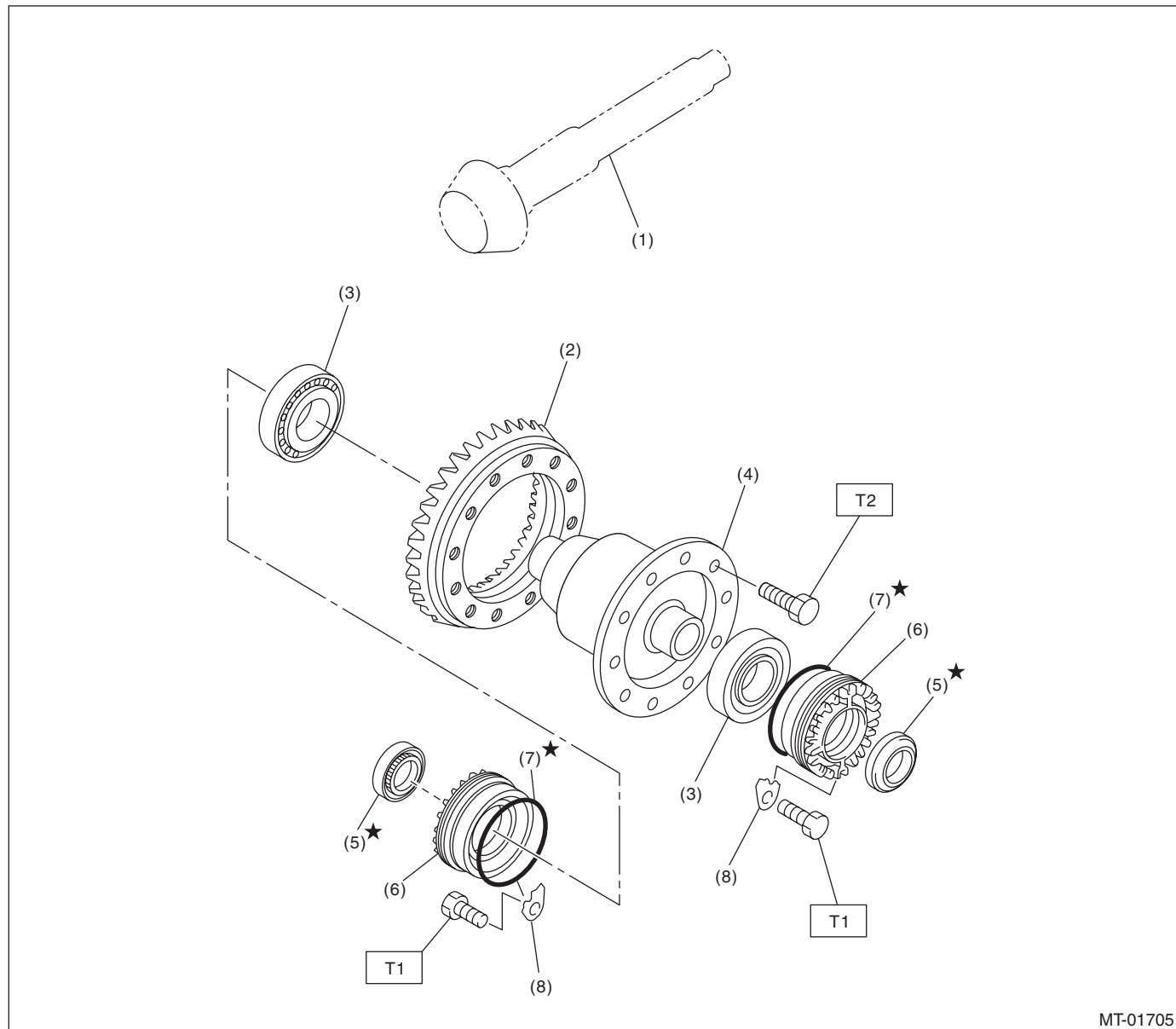
Tightening torque: N·m (kgf·m, ft·lb)

T: 25 (2.5, 18.4)

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10.FRONT DIFFERENTIAL ASSY



(1) Drive pinion shaft	(5) Oil seal
(2) Hypoid driven gear	(6) Differential side retainer
(3) Roller bearing	(7) O-ring
(4) Differential ASSY	(8) Retainer lock plate

Tightening torque: N·m (kgf·m, ft·lb)

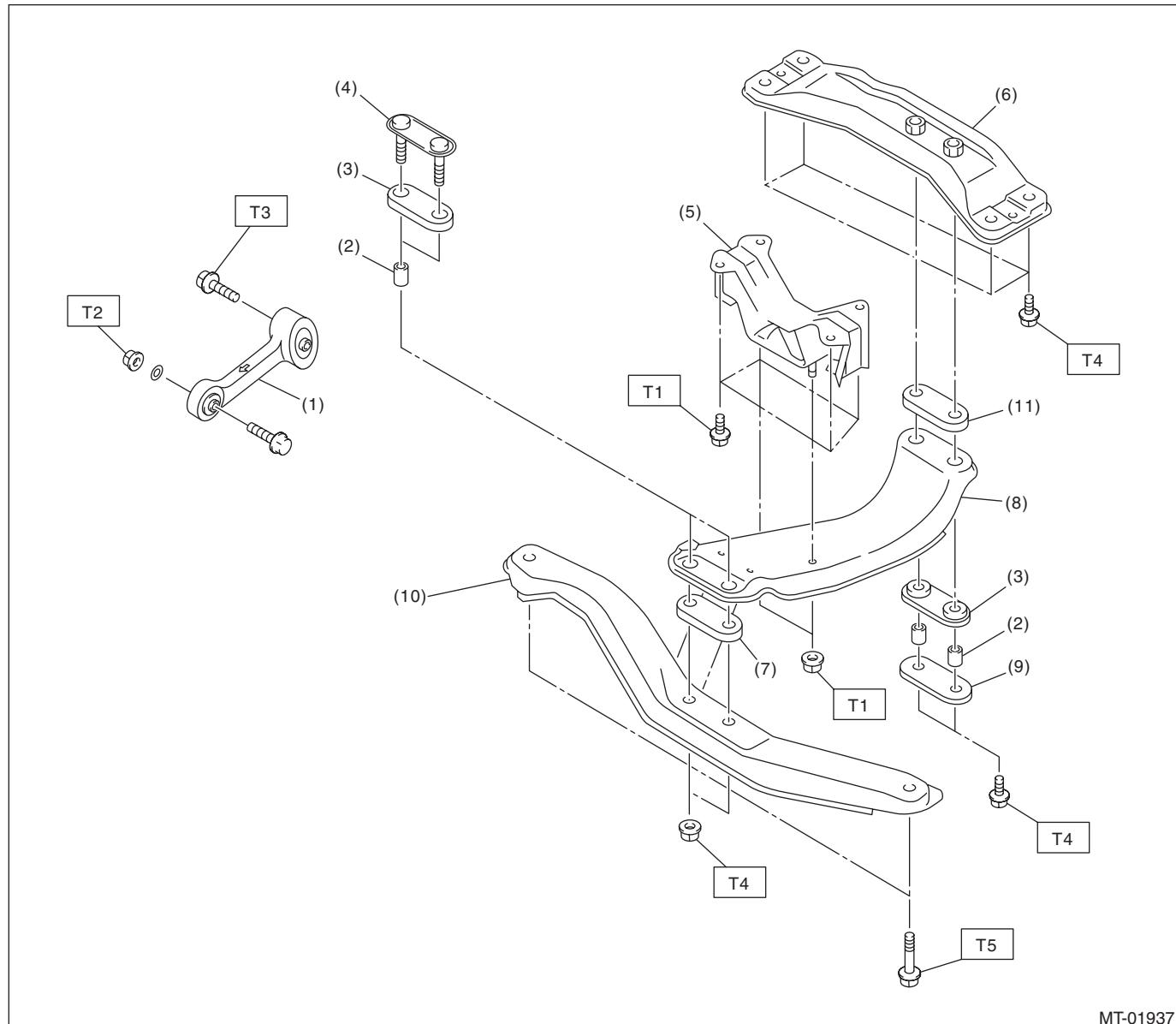
T1: 25 (2.5, 18.4)

T2: 69 (7.0, 50.9)

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11. TRANSMISSION MOUNTING



MT-01937

(1) Pitching stopper	(7) Upper cushion rubber
(2) Spacer	(8) Center crossmember
(3) Lower cushion rubber	(9) Rear plate
(4) Front plate	(10) Front crossmember
(5) Transmission cushion rubber	(11) Rear cushion rubber
(6) Rear crossmember	

Tightening torque: N·m (kgf-m, ft-lb)

T1: 35 (3.6, 25.8)

T2: 50 (5.1, 36.9)

T3: 58 (5.9, 42.8)

T4: 70 (7.1, 51.6)

T5: 140 (14.3, 103.3)

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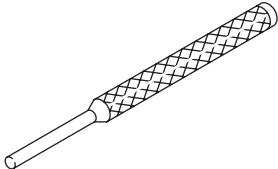
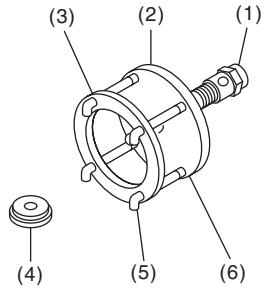
MANUAL TRANSMISSION AND DIFFERENTIAL

C: CAUTION

- Wear appropriate work clothing, including a cap, protective goggles and protective shoes when performing any work.
- Remove contamination including dirt and corrosion before removal, installation or disassembly.
- Keep the disassembled parts in order and protect them from dust and dirt.
- Before removal, installation or disassembly, be sure to clarify the failure. Avoid unnecessary removal, installation, disassembly and replacement.
- When disassembling the case and other light alloy parts, disassemble by using a plastic hammer. Do not pry apart with screwdrivers or other tools.
- Vehicle components are extremely hot after driving. Be wary of receiving burns from heated parts.
- Use SUBARU genuine transmission gear oil, grease or equivalent. Do not mix transmission gear oil, grease etc. of different grades or manufacturers.
- Be sure to tighten fasteners including bolts and nuts to the specified torque.
- Place shop jacks or rigid racks at the specified points.
- Apply transmission gear oil onto sliding or revolving surfaces before installation.
- Always replace deformed or damaged snap rings.
- Before installing O-rings or oil seals, apply sufficient amount of transmission gear oil to avoid damage and deformation.
- Be careful not to incorrectly install or fail to install O-rings, snap rings and other such parts.
- Before securing a part on a vise, place cushioning materials such as wood blocks, aluminum plates, or waste cloth between the part and the vise.
- Avoid damaging the mating surface of the case.
- Before applying liquid gasket, completely remove the old liquid gasket.

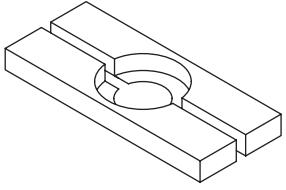
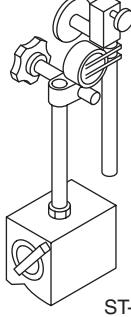
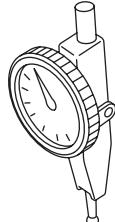
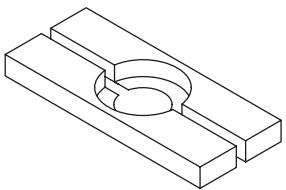
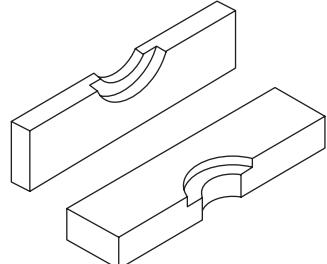
D: PREPARATION TOOL

1. SPECIAL TOOL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
	398791700	REMOVER	Used for removing and installing the straight pin (6 mm).
	399527700	PULLER SET	Used for removing and installing the roller bearing (differential). (1) BOLT (899521412) (2) PULLER (399527702) (3) HOLDER (399527703) (4) ADAPTER (398497701) (5) BOLT (899520107) (6) NUT (021008000)

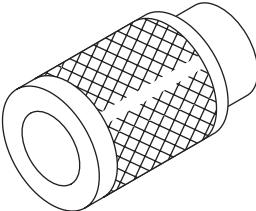
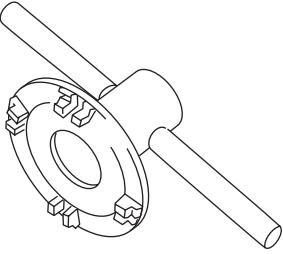
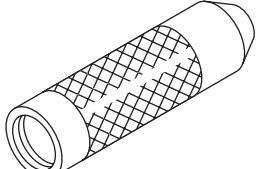
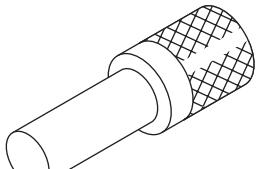
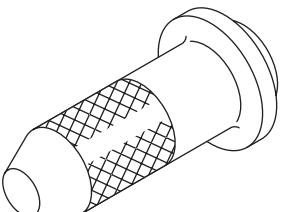
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 ST-498515700	498515700	REMOVER	Used for removing the roller bearing of the transfer driven gear.
 ST-498247001	498247001	MAGNET BASE	<ul style="list-style-type: none"> Used for measuring the backlash between hypoid gears. Used with DIAL GAUGE (498247100).
 ST-498247100	498247100	DIAL GAUGE	<ul style="list-style-type: none"> Used for measuring the backlash between hypoid gears. Used with MAGNET BASE (498247001).
 ST-498077000	498077000	REMOVER	Used for removing the differential taper roller bearing.
 ST-899858600	899858600	REMOVER	Used for removing the roller bearing.

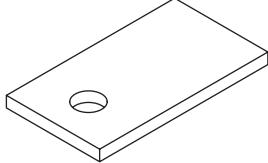
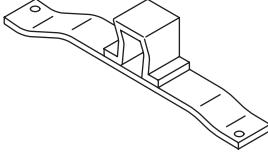
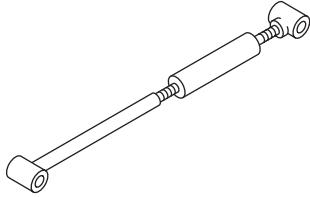
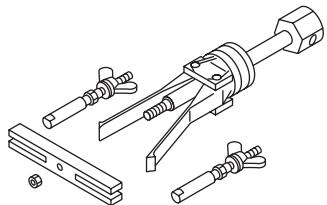
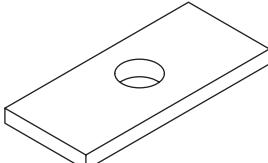
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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST-499757002	499757002	INSTALLER	Used for installing the bearing cone of transfer driven gear (transmission case side).
 ST18630AA010	18630AA010	WRENCH COMPL RETAINER	<ul style="list-style-type: none"> Used for removing and installing the differential side retainer RH. WRENCH ASSY (499787000) can also be used.
 ST-499877000	499877000	RACE 4-5 INSTALLER	Used for disassembling the driven shaft and transfer driven gear.
 ST-899864100	899864100	REMOVER	Used for removing the transmission main shaft and drive pinion parts.
 ST-498057300	498057300	INSTALLER	Used for installing the extension oil seal.

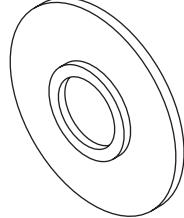
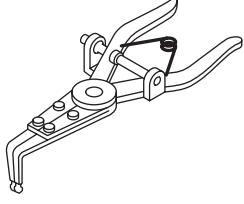
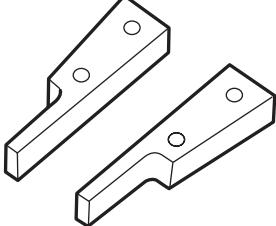
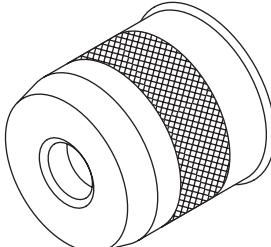
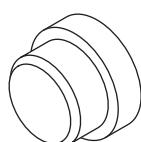
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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST-498255400	498255400	PLATE	Used for measuring backlash.
 ST41099AA010	41099AA010	ENGINE SUPPORT BRACKET	Used for supporting engine.
 ST41099AA020	41099AA020	ENGINE SUPPORT	Used for supporting engine.
 ST-398527700	398527700	PULLER ASSY	<ul style="list-style-type: none"> Used for removing the extension case oil seal. Used for removing the front differential side bearing outer race. (Used together with 18760AA000 (CLAW).)
 ST-398643600	398643600	GAUGE	Used for adjusting total end play, extension end play and drive pinion shim.

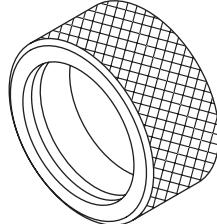
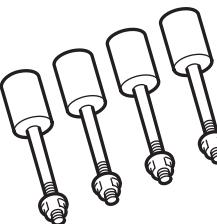
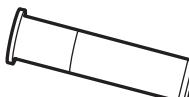
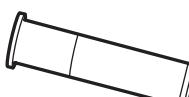
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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
	398177700	INSTALLER	<ul style="list-style-type: none"> Used for assembling the main shaft. Used for installing the roller bearing of transfer driven gear (extension case side).
	399893600	PLIER	<ul style="list-style-type: none"> Used for removing and installing the neutral set spring. Used together with CLAW (18756AA000).
	18756AA000	CLAW	<ul style="list-style-type: none"> Used for removing and installing the neutral set spring. Used together with PLIER (399893600).
	499247400	INSTALLER	Used for installing the ball bearing of the transfer drive gear.
	398497701	SEAT	<ul style="list-style-type: none"> Used for installing the ball bearing of the transfer drive gear. Used for installing the front differential side bearing.

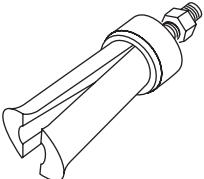
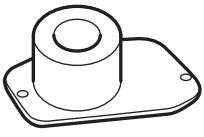
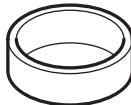
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 ST-398437700	398437700	INSTALLER	Used for installing the front differential side bearing.
 ST18632AA000	18632AA000	STAND ASSY	Used for disassembling and assembling the transmission.
 ST18671AA000	18671AA000	OIL SEAL GUIDE	<ul style="list-style-type: none"> Used for installing the reverse check shaft oil seal. Used for installing the shifter arm oil seal. Used together with INSTALLER (18657AA010).
 ST18657AA010	18657AA010	INSTALLER	<ul style="list-style-type: none"> Used for installing the reverse check shaft oil seal. Used together with OIL SEAL GUIDE (18671AA000).
 ST18657AA000	18657AA000	INSTALLER	<ul style="list-style-type: none"> Used for installing the shifter arm oil seal. Used together with OIL SEAL GUIDE (18671AA000).

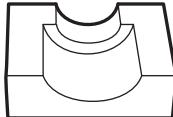
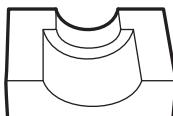
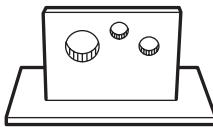
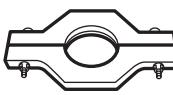
General Description

MANUAL TRANSMISSION AND DIFFERENTIAL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
	18758AA000	PULLER	Used for removing the transfer driven gear bearing outer race.
	18831AA000	GAUGE	Used for selecting the transfer driven gear bearing thrust washer.
	18631AA000	HANDLE	Used for measuring the front differential backlash.
	18754AA000	REMOVER	Used to remove parts of the driven gear.
	18757AA000	STRAIGHT PIN REMOVER	Used for installing the reverse idler gear.
	ST18758AA000		
	ST18831AA000		
	ST18631AA000		
	ST18754AA000		
	ST18757AA000		

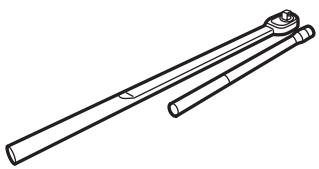
General Description

MANUAL TRANSMISSION AND DIFFERENTIAL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
	18665AA000	HOLDER	<ul style="list-style-type: none"> Used for removing and installing the main shaft lock nut. Used together with BASE (18664AA000).
ST18665AA000			
	18666AA000	HOLDER	<ul style="list-style-type: none"> Used for removing and installing the driven shaft lock nut. Used together with BASE (18664AA000).
ST18666AA000			
	18667AA000	HOLDER	<ul style="list-style-type: none"> Used for removing and installing the drive pinion shaft lock nut. Used together with BASE (18664AA000).
ST18667AA000			
	18664AA000	BASE	<ul style="list-style-type: none"> Used for removing and installing the main shaft lock nut. Used for removing and installing the drive pinion shaft lock nut. Used for removing and installing the driven shaft lock nut.
ST18664AA000			
	18722AA010	REMOVER	Used for disassembling the main shaft.
ST18722AA010			

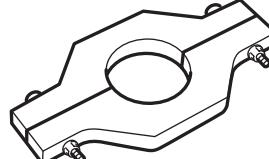
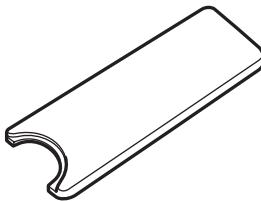
General Description

MANUAL TRANSMISSION AND DIFFERENTIAL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST18651AA000	18651AA000	INSTALLER	Used for assembling the main shaft.
 ST18852AA000	18852AA000	TORQUE WRENCH	<ul style="list-style-type: none"> Used to tighten the main shaft lock nut. Used to tighten the drive pinion shaft lock nut. Used to tighten the driven shaft lock nut.
 ST18668AA000	18668AA000	PUNCH	Used to crimp the main shaft lock nut.
 ST18669AA000	18669AA000	PUNCH	Used to crimp the driven shaft lock nut.
 ST18670AA000	18670AA000	PUNCH	Used to crimp the drive pinion shaft lock nut.

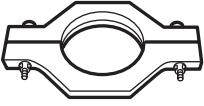
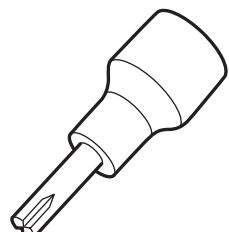
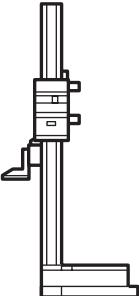
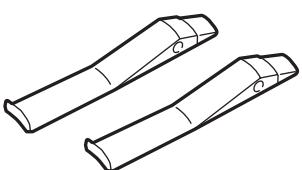
General Description

MANUAL TRANSMISSION AND DIFFERENTIAL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
	18620AA000	ADAPTER WRENCH	Used for removing and installing the driven gear shaft lock nut.
	18621AA000	ADAPTER WRENCH	Used for removing and installing the drive pinion shaft lock nut.
	18723AA000	REMOVER	Used for disassembling the driven shaft.
	18630AA000	WRENCH ASSY	Used for removing and installing the differential side retainer LH.
	18672AA000	GUIDE CLIP	Used for installing the reverse idler snap ring.

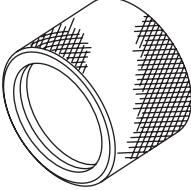
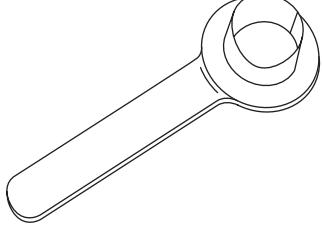
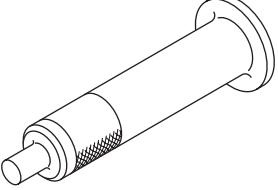
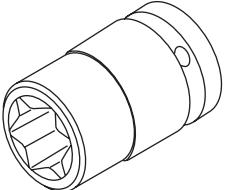
General Description

MANUAL TRANSMISSION AND DIFFERENTIAL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
	18720AA000	REMOVER	Used for disassembling the main shaft.
	18654AA000	INSTALLER	Used for assembling the driven shaft.
	18663AA000	SOCKET	Used for removing and installing the transfer bearing holder.
	18853AA000	HEIGHT GAUGE	<ul style="list-style-type: none"> Used for selecting the shift rod. Used for selecting the snap ring and washer of the main shaft.
	18760AA000	CLAW	<ul style="list-style-type: none"> Used for removing the front differential side bearing outer race. Used together with PULLER ASSY (398527700).

General Description

MANUAL TRANSMISSION AND DIFFERENTIAL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST18675AA000	18675AA000	DIFFERENTIAL SIDE OIL SEAL INSTALLER	Used for installing the differential side retainer oil seal.
 ST28399SA010	28399SA010	OIL SEAL PROTECTOR	Used for protecting oil seal when installing front drive shaft.
 ST18657AA020	18657AA020	OIL SEAL INSTALLER	Used for installing the oil seal.
 ST18270KA020	18270KA020	SOCKET (E20)	Used for removing and installing the hypoid driven gear.

2. GENERAL TOOL

TOOL NAME	REMARKS
Circuit tester	Used for measuring resistance, voltage and current.
TORX® bit T70	Used for removing and installing transmission gear oil drain plug.
Depth gauge	Used for measuring the transmission end play.