

GENERAL DESCRIPTION

AUTOMATIC TRANSMISSION

1. General Description

A: SPECIFICATIONS

1. TORQUE CONVERTER CLUTCH

| Model | Non-turbo | Turbo |
|----------------------------|--|-------------------|
| Type | Symmetric, 3 element, single stage, 2 phase torque converter | |
| Stall torque ratio | 1.85 — 2.15 | 2.05 — 2.35 |
| Nominal diameter | 246 mm (9.69 in) | |
| Stall speed (at sea level) | 2,100 — 2,600 rpm | 2,600 — 3,400 rpm |
| One-way clutch | Sprague type one-way clutch | |

2. OIL PUMP

| | | |
|-----------------|--------------------------------------|----|
| Type | Parachoid constant-displacement pump | |
| Driving method | Driven by engine | |
| Number of teeth | Inner rotor | 9 |
| | Outer rotor | 10 |

3. TRANSMISSION CONTROL ELEMENT

| | | |
|-------------------------------|--|--|
| Type | 4-forward, 1-reverse, double-row planetary gears | |
| Multi-plate clutch | 3 sets | |
| Multi-plate brake | 2 sets | |
| One-way clutch (sprague type) | 1 set | |

4. TRANSMISSION GEAR RATIO

| Model | Sedan (non-turbo) | Except sedan (non-turbo) |
|-------|-------------------|--------------------------|
| 1st | 3.027 | 2.785 |
| 2nd | 1.619 | 1.545 |
| 3rd | 1.000 | |
| 4th | 0.694 | |
| Rev | 2.272 | |

5. PLANETARY GEAR AND PLATE

| Model | Non-turbo | | Turbo |
|---|-----------|-------|-------|
| | Sedan | Wagon | |
| Front sun gear, number of teeth | 33 | | |
| Front pinion, number of teeth | 21 | | |
| Front internal gear, number of teeth | 75 | | |
| Rear sun gear, number of teeth | 37 | 42 | |
| Rear pinion, number of teeth | 19 | 17 | |
| Rear internal gear, number of teeth | 75 | | |
| Drive plate number of high clutch | 4 | | 5 |
| Drive plate number of low clutch | 6 | | 7 |
| Drive plate number of reverse clutch | 2 | | |
| Drive plate number of 2-4 brake | 3 | | 4 |
| Drive plate number of low & reverse brake | 6 | | 7 |

6. SELECTOR POSITION

| | |
|----------------|--|
| P (Park) | Transmission in neutral, output member immovable, and engine start possible |
| R (Reverse) | Transmission in reverse for backing up |
| N (Neutral) | Transmission in neutral and engine start possible |
| D (Drive) | Automatic gear change 1st \leftarrow \rightarrow 2nd \leftarrow \rightarrow 3rd \leftarrow \rightarrow 4th |
| 3 (3rd) | Automatic gear change 1st \leftarrow \rightarrow 2nd \leftarrow \rightarrow 3rd \leftarrow \rightarrow 4th |
| 2 (2nd) | 2nd gear locked (deceleration possible 2nd \leftarrow 3rd \leftarrow 4th) |
| 1 (1st) | 1st gear locked (deceleration possible 1st \leftarrow 2nd \leftarrow 3rd \leftarrow 4th) |
| Control method | Wire cable |

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7. HYDRAULIC CONTROL AND LUBRICATION

| | |
|--------------------|---|
| Type | Electronic-hydraulic control [four forward speeds change by electrical signals of vehicle speed and accelerator (throttle) opening] |
| Fluid | Dexron III type automatic transmission fluid |
| Fluid capacity: | 9.3 — 9.6 ℥ (9.8 — 10.1 US qt, 7.4 — 7.7 Imp qt) |
| Lubrication system | Forced feed lubrication with oil pump |
| Oil | Automatic transmission fluid (above mentioned) |

8. COOLING AND HARNESS

| | |
|----------------------|---|
| Cooling system | Liquid-cooled cooler incorporated in radiator |
| Inhibitor switch | 12 poles |
| Transmission harness | 20 poles |

9. TRANSFER

| Model | Non-turbo | Turbo |
|--|---|------------------------------------|
| Transfer type | Multi-plate transfer (MPT) | Variable torque distribution (VTD) |
| Number of drive & driven plates in transfer clutch | 5 | 3 |
| Control method | Electronic, hydraulic type | |
| Lubricant | The same automatic transmission fluid as used in automatic transmission | |
| 1st reduction gear ratio | 1.000 (53/53) | |

10. FINAL REDUCTION

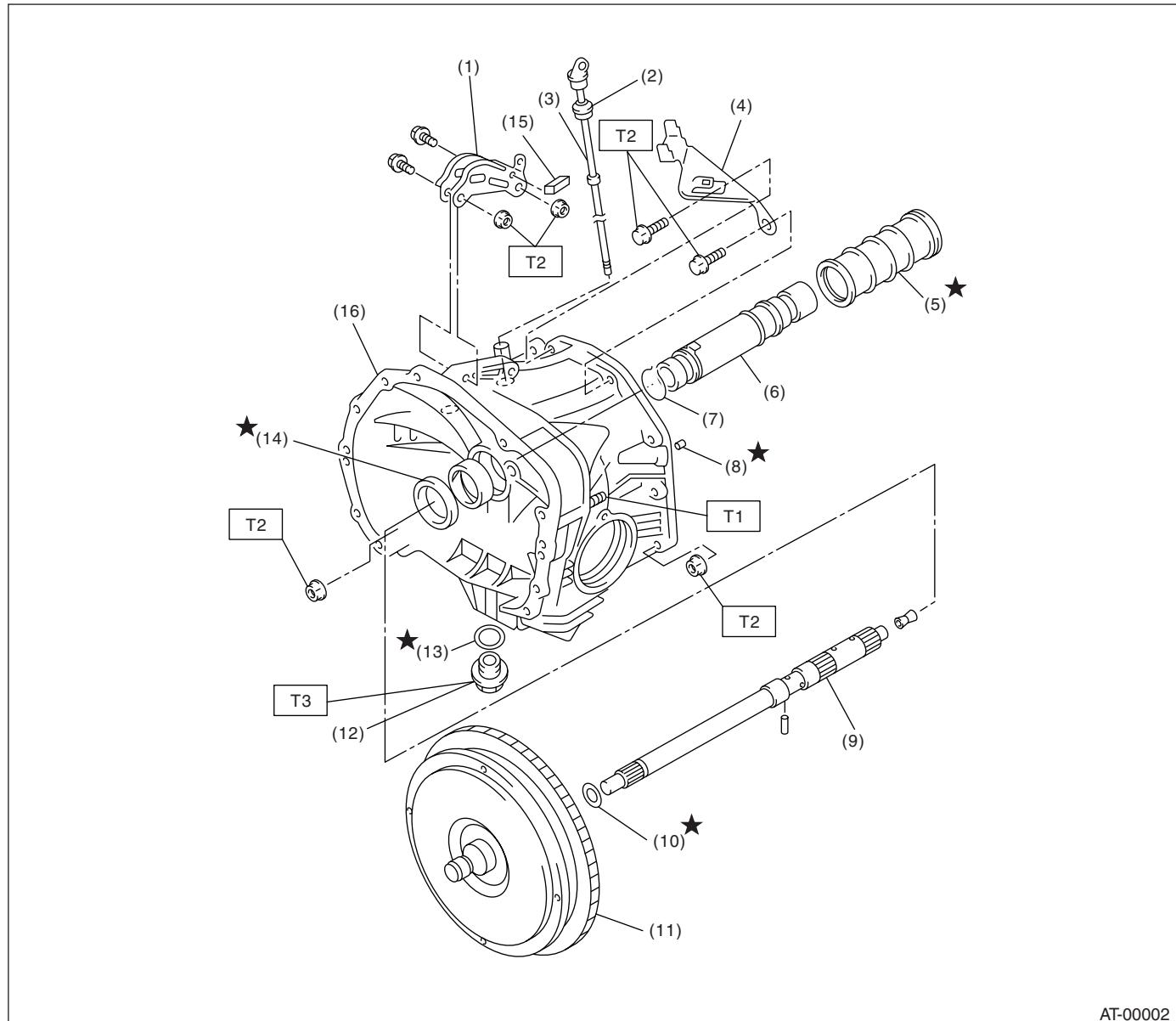
| | | | | | | | | | | | | | | | | | | | | |
|---------------------------------|---|--------------------------|------|-----|-----|-----|----|----|----|----|----|------|-----|-----|---|----|----|----|----|----|
| Model | Sedan (non-turbo) | Except sedan (non-turbo) | | | | | | | | | | | | | | | | | | |
| Front final gear ratio | 4.444 (40/9) | 4.111 (37/9) | | | | | | | | | | | | | | | | | | |
| Lubrication oil | <p>ITEM</p> <ul style="list-style-type: none"> Front differential gear oil <p>API Classification</p> <p>GL-5</p> <p>SAE Viscosity No. and Applicable Temperature</p> <table> <tr> <td>(°C)</td> <td>-30</td> <td>-26</td> <td>-15</td> <td>-5</td> <td>0</td> <td>15</td> <td>25</td> <td>30</td> </tr> <tr> <td>(°F)</td> <td>-22</td> <td>-15</td> <td>5</td> <td>23</td> <td>32</td> <td>59</td> <td>77</td> <td>86</td> </tr> </table> <p>AT-00001</p> | | (°C) | -30 | -26 | -15 | -5 | 0 | 15 | 25 | 30 | (°F) | -22 | -15 | 5 | 23 | 32 | 59 | 77 | 86 |
| (°C) | -30 | -26 | -15 | -5 | 0 | 15 | 25 | 30 | | | | | | | | | | | | |
| (°F) | -22 | -15 | 5 | 23 | 32 | 59 | 77 | 86 | | | | | | | | | | | | |
| Front differential oil capacity | 1.1 — 1.3 ℥ (1.2 — 1.4 US qt, 1.0 — 1.1 Imp qt) | | | | | | | | | | | | | | | | | | | |

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B: COMPONENT

1. TORQUE CONVERTER CLUTCH AND CASE



| | | |
|----------------------------------|---------------------------------------|-----------------------------------|
| (1) Pitching stopper bracket | (8) Oil drain pipe | (15) Clip (turbo model) |
| (2) O-ring | (9) Input shaft | (16) Torque converter clutch case |
| (3) Differential oil level gauge | (10) O-ring | |
| (4) Stay | (11) Torque converter clutch assembly | |
| (5) Seal pipe | (12) Drain plug | |
| (6) Oil pump shaft | (13) Gasket | |
| (7) Clip | (14) Oil seal | |

Tightening torque: N·m (kgf·m, ft-lb)

T1: 18 (1.8, 13.0)

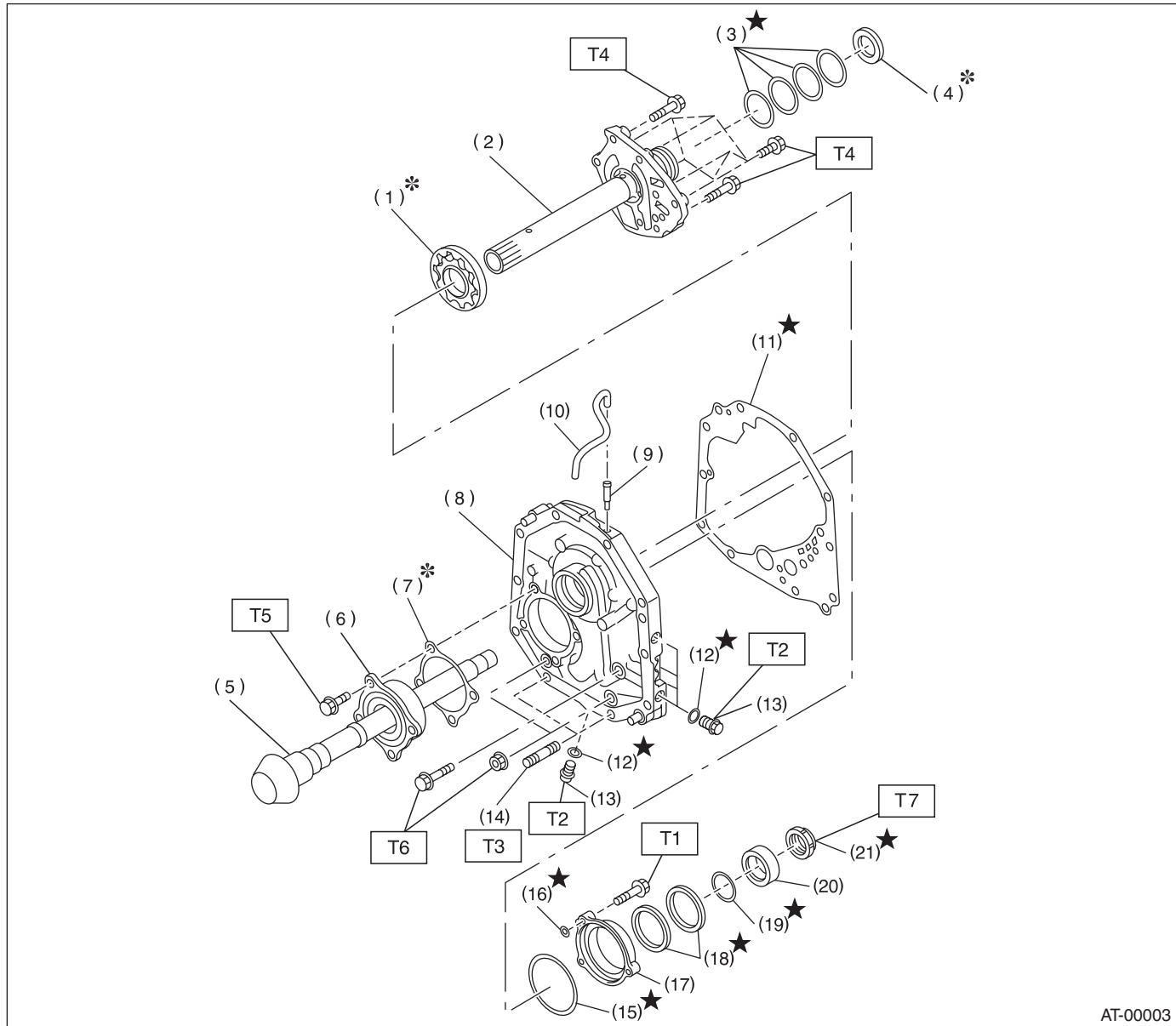
T2: 41 (4.2, 30.4)

T3: 44 (4.5, 32.5)

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2. OIL PUMP



| | | | |
|------|-----------------------|------|---------------------|
| (1) | Oil pump rotor | (11) | Gasket |
| (2) | Oil pump cover | (12) | O-ring |
| (3) | Seal ring | (13) | Test plug |
| (4) | Thrust needle bearing | (14) | Stud bolt |
| (5) | Drive pinion shaft | (15) | O-ring |
| (6) | Roller bearing | (16) | O-ring |
| (7) | Shim | (17) | Oil seal retainer |
| (8) | Oil pump housing | (18) | Oil seal |
| (9) | Nipple | (19) | O-ring |
| (10) | Air breather hose | (20) | Drive pinion collar |

(21) Lock nut

Tightening torque: N·m (kgf·m, ft·lb)

T1: 7 (0.7, 5.1)

T2: 13 (1.3, 9.4)

T3: 18 (1.8, 13.0)

T4: 25 (2.5, 18.1)

T5: 40 (4.1, 30)

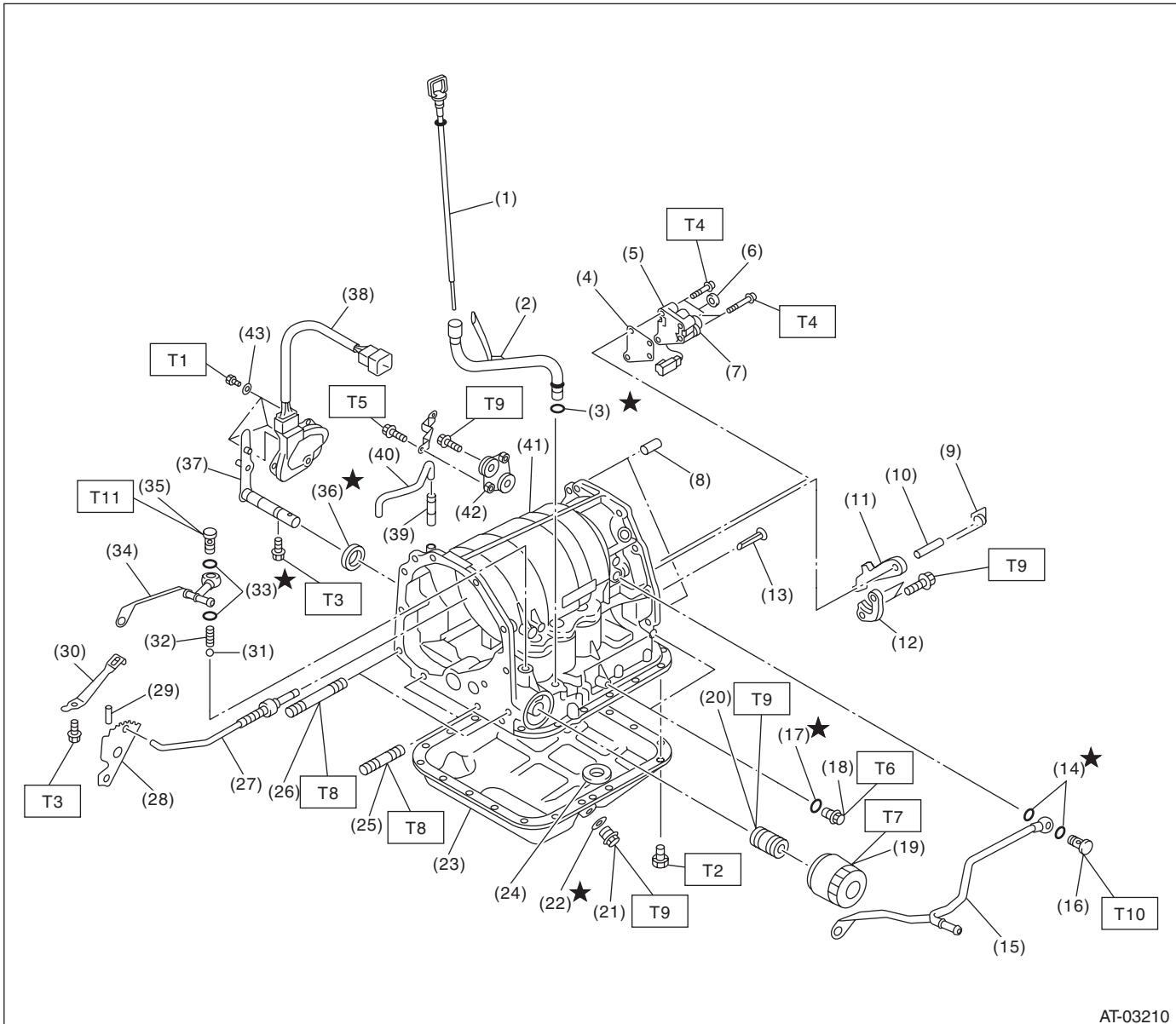
T6: 42 (4.3, 31)

T7: 116 (11.8, 85)

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3. TRANSMISSION CASE AND CONTROL DEVICE



GENERAL DESCRIPTION

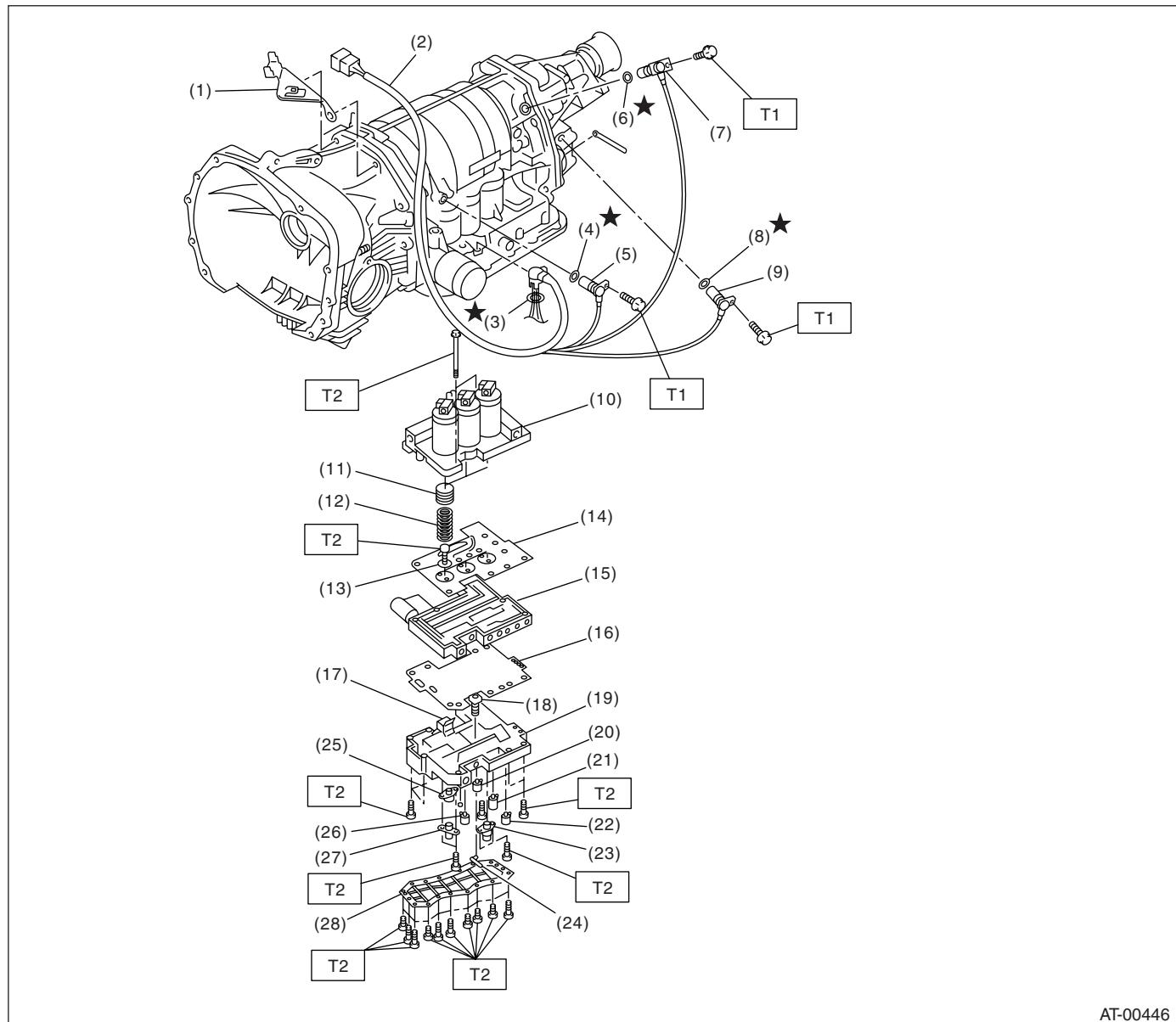
AUTOMATIC TRANSMISSION

| | | |
|-----------------------------|--------------------------------|--|
| (1) ATF level gauge | (20) Oil filter stud bolt | (39) Nipple |
| (2) ATF charger pipe | (21) Drain plug | (40) Air breather hose |
| (3) O-ring | (22) Gasket | (41) Transmission case |
| (4) Transfer valve plate | (23) Oil pan | (42) Plate assembly |
| (5) Transfer valve assembly | (24) Magnet | (43) Washer |
| (6) Transfer clutch seal | (25) Stud bolt (short) | |
| (7) Transfer duty solenoid | (26) Stud bolt (long) | |
| (8) Straight pin | (27) Parking rod | Tightening torque: N·m (kgf·m, ft-lb) |
| (9) Return spring | (28) Manual plate | T1: 3.4 (0.35, 2.5) |
| (10) Shaft | (29) Spring pin | T2: 5 (0.5, 3.6) |
| (11) Parking pawl | (30) Detention spring | T3: 6 (0.6, 4) |
| (12) Parking support | (31) Ball | T4: 8 (0.8, 6) |
| (13) Inlet filter | (32) Spring | T5: 12 (1.2, 8.7) |
| (14) Gasket | (33) Gasket | T6: 13 (1.3, 10) |
| (15) Inlet pipe | (34) Outlet pipe | T7: 14 (1.4, 10) |
| (16) Union screw | (35) Union screw | T8: 18 (1.8, 13) |
| (17) O-ring | (36) Oil seal | T9: 25 (2.6, 18) |
| (18) Test plug | (37) Select lever | T10: 40 (4.1, 30) |
| (19) Oil filter | (38) Inhibitor switch assembly | T11: 44 (4.5, 32) |

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4. CONTROL VALVE AND HARNESS ROUTING



(1) Stay
(2) Transmission harness
(3) O-ring
(4) O-ring
(5) Torque converter turbine speed sensor
(6) O-ring
(7) Front vehicle speed sensor
(8) O-ring
(9) Rear vehicle speed sensor
(10) Upper valve body
(11) Accumulator spring

(12) Accumulator spring
(13) Side plate
(14) Separate plate
(15) Middle valve body
(16) Separate plate
(17) Fluid filter
(18) Fluid filter
(19) Lower valve body
(20) Shift solenoid 2
(21) Shift solenoid 1
(22) 2-4 brake timing solenoid
(23) 2-4 brake duty solenoid

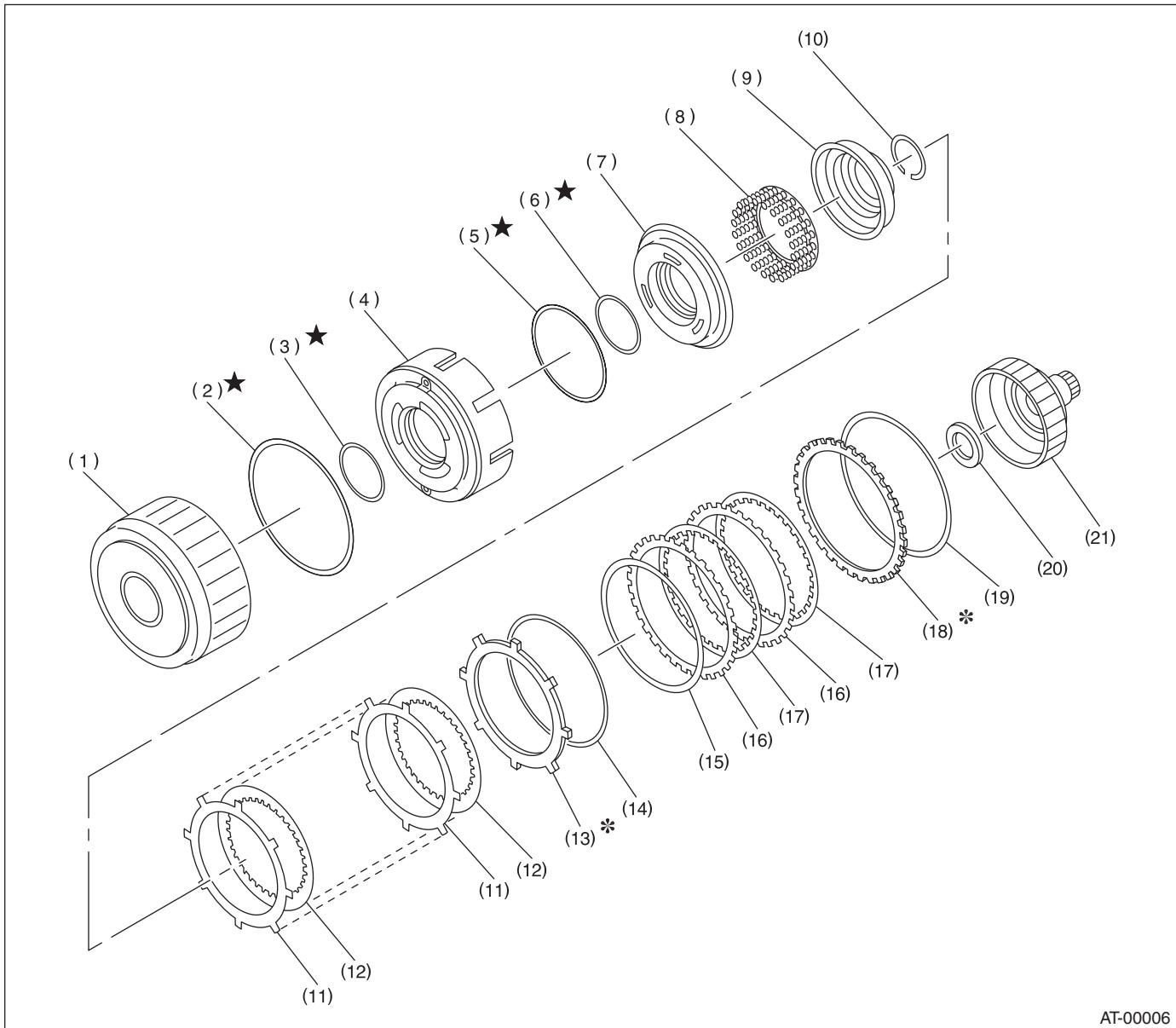
(24) ATF temperature sensor
(25) Line pressure duty solenoid
(26) Low clutch timing solenoid
(27) Lock-up duty solenoid
(28) Oil strainer

Tightening torque: N·m (kgf·m, ft·lb)

T1: 7 (0.7, 5.1)

T2: 8 (0.8, 5.8)

5. HIGH CLUTCH AND REVERSE CLUTCH



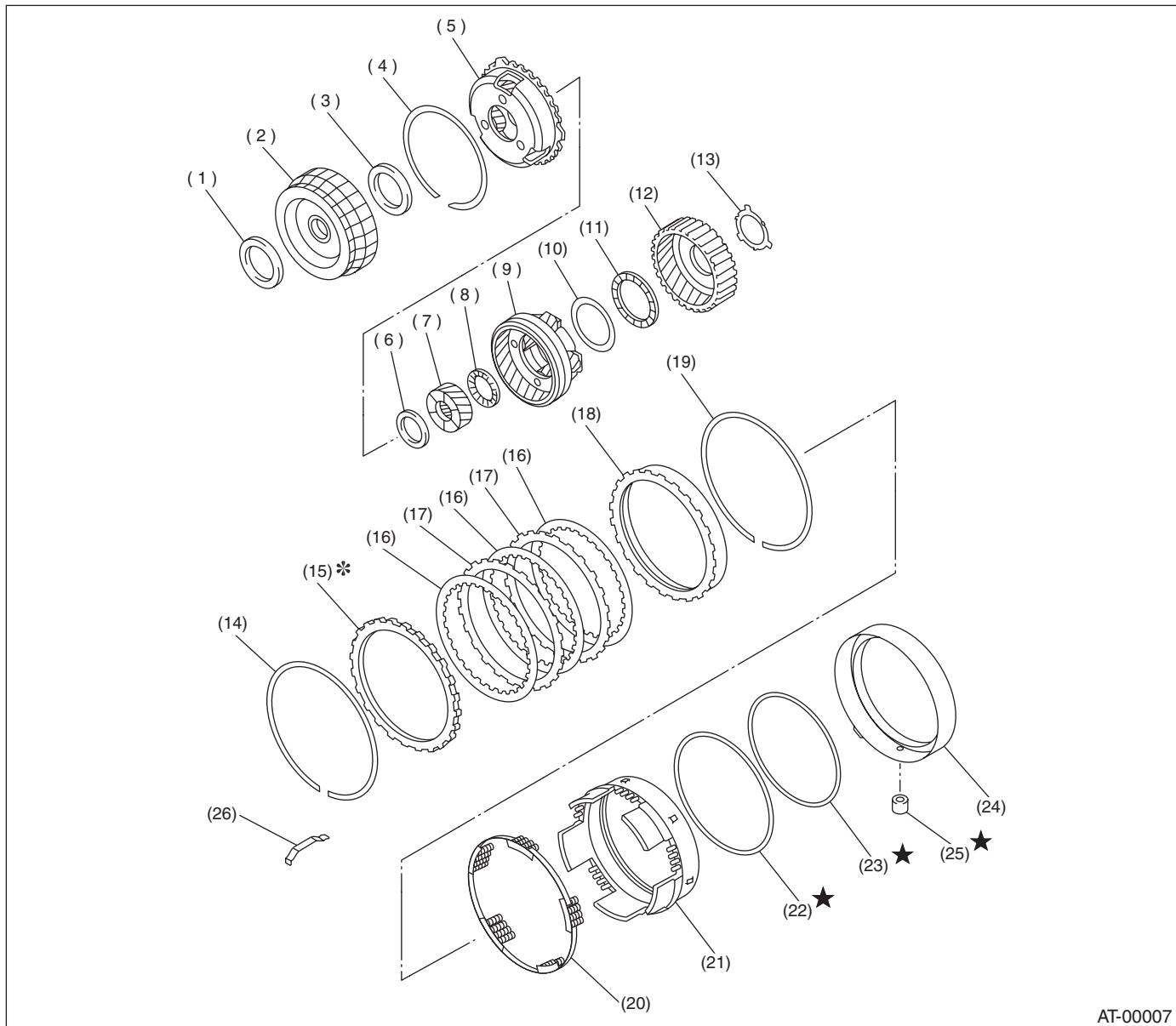
AT-00006

| | | |
|---------------------------|----------------------|----------------------------|
| (1) High clutch drum | (8) Spring retainer | (15) Dish plate |
| (2) Lip seal | (9) Cover | (16) Driven plate |
| (3) D ring | (10) Snap ring | (17) Drive plate |
| (4) Reverse clutch piston | (11) Driven plate | (18) Retaining plate |
| (5) D ring | (12) Drive plate | (19) Snap ring |
| (6) D ring | (13) Retaining plate | (20) Thrust needle bearing |
| (7) High clutch piston | (14) Snap ring | (21) High clutch hub |

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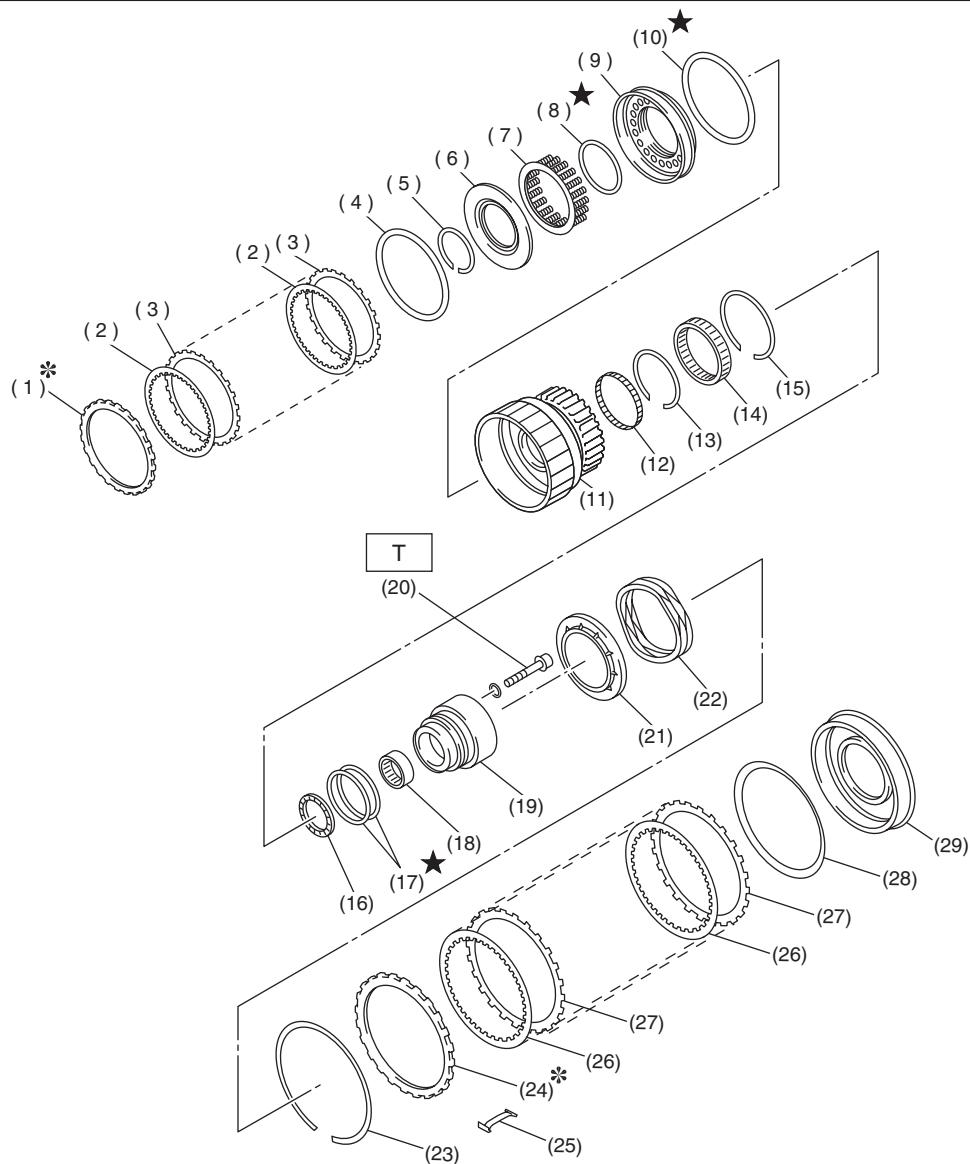
AUTOMATIC TRANSMISSION

6. PLANETARY GEAR AND 2-4 BRAKE



| | | |
|-----------------------------|----------------------------|--------------------------------|
| (1) Thrust needle bearing | (10) Washer | (19) Snap ring |
| (2) Front sun gear | (11) Thrust needle bearing | (20) Spring retainer |
| (3) Thrust needle bearing | (12) Rear internal gear | (21) 2-4 brake piston |
| (4) Snap ring | (13) Washer | (22) D ring |
| (5) Front planetary carrier | (14) Snap ring | (23) D ring |
| (6) Thrust needle bearing | (15) Retaining plate | (24) 2-4 brake piston retainer |
| (7) Rear sun gear | (16) Drive plate | (25) 2-4 brake seal |
| (8) Thrust needle bearing | (17) Driven plate | |
| (9) Rear planetary carrier | (18) Pressure rear plate | |
| | | (26) Leaf spring |

7. LOW CLUTCH AND LOW & REVERSE BRAKE



AT-00008

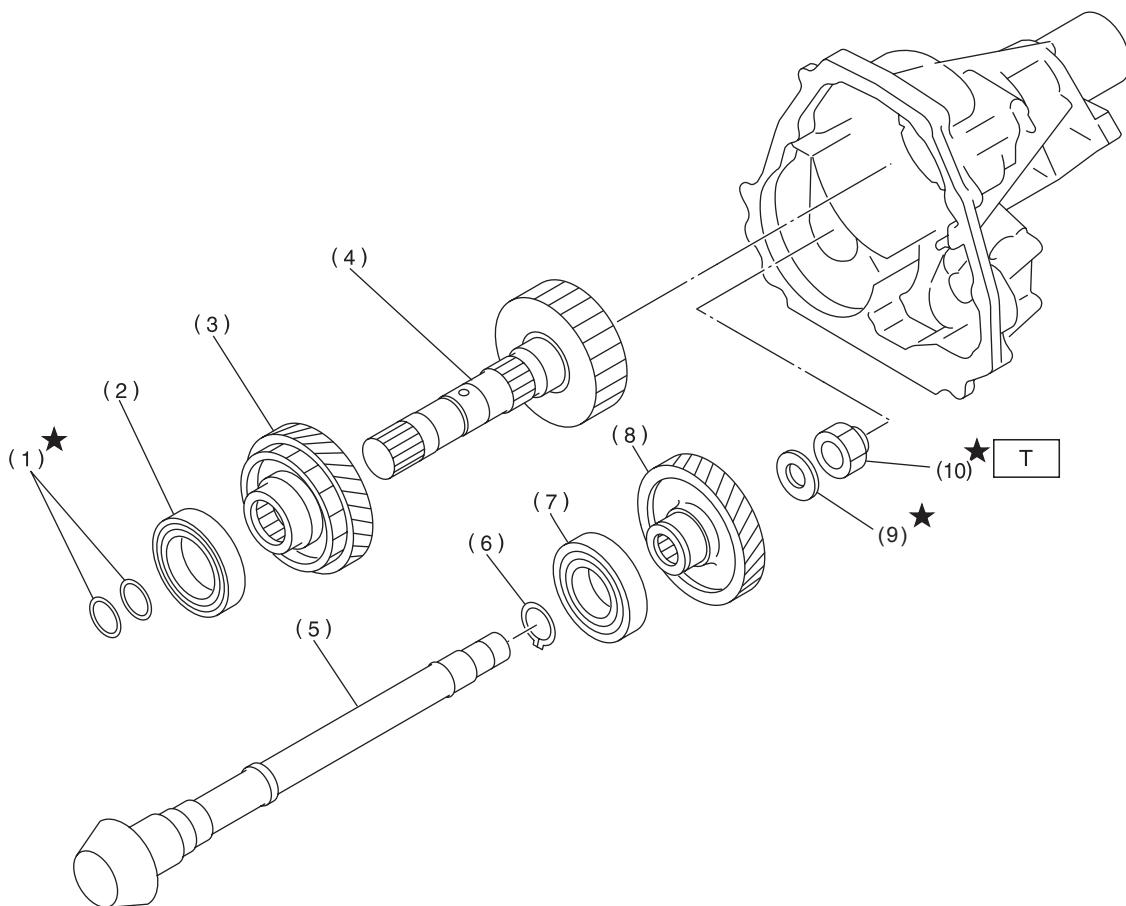
| | | |
|-----------------------|--------------------------------|-----------------------------------|
| (1) Retaining plate | (12) Needle bearing | (23) Snap ring |
| (2) Drive plate | (13) Inner snap ring | (24) Retaining plate |
| (3) Driven plate | (14) One-way clutch | (25) Leaf spring |
| (4) Dish plate | (15) Outer snap ring | (26) Drive plate |
| (5) Snap ring | (16) Thrust needle bearing | (27) Driven plate |
| (6) Cover | (17) Seal ring | (28) Dish plate |
| (7) Spring retainer | (18) Needle bearing | (29) Low and reverse brake piston |
| (8) D ring | (19) One-way clutch inner race | |
| (9) Low clutch piston | (20) Socket bolt | |
| (10) D ring | (21) Spring retainer | |
| (11) Low clutch drum | (22) Return spring | |

Tightening torque: N·m (kgf-m, ft-lb)
T: 25 (2.5, 18.1)

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8. REDUCTION GEAR (MPT)



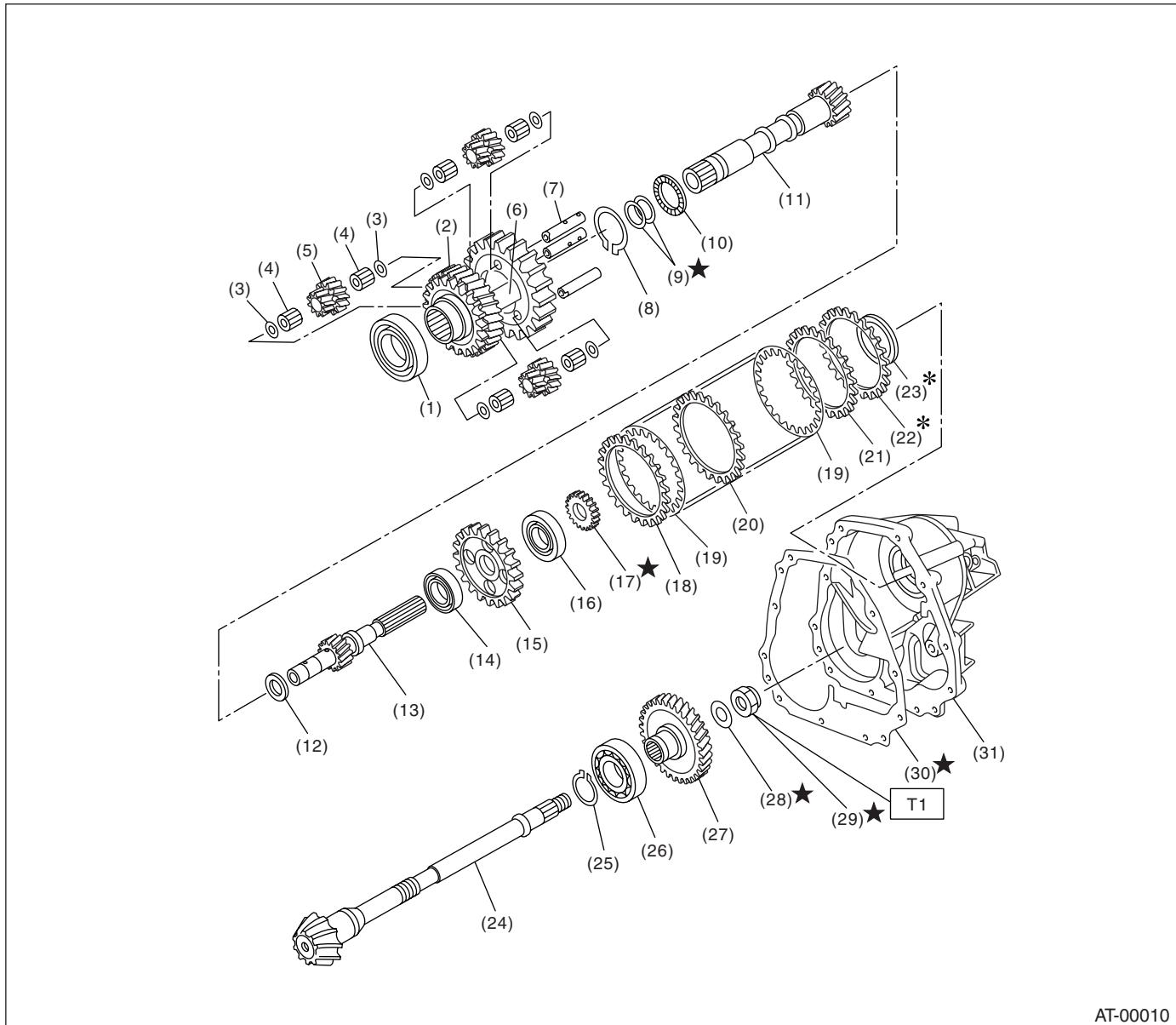
AT-01014

| | |
|---------------------------|---------------------------|
| (1) Seal ring | (6) Snap ring |
| (2) Ball bearing | (7) Ball bearing |
| (3) Reduction drive gear | (8) Reduction driven gear |
| (4) Reduction drive shaft | (9) Washer |
| (5) Drive pinion shaft | (10) Lock nut |

Tightening torque: N·m (kgf·m, ft·lb)

T: 100 (10.2, 73.8)

9. REDUCTION GEAR (VTD)



AT-000010

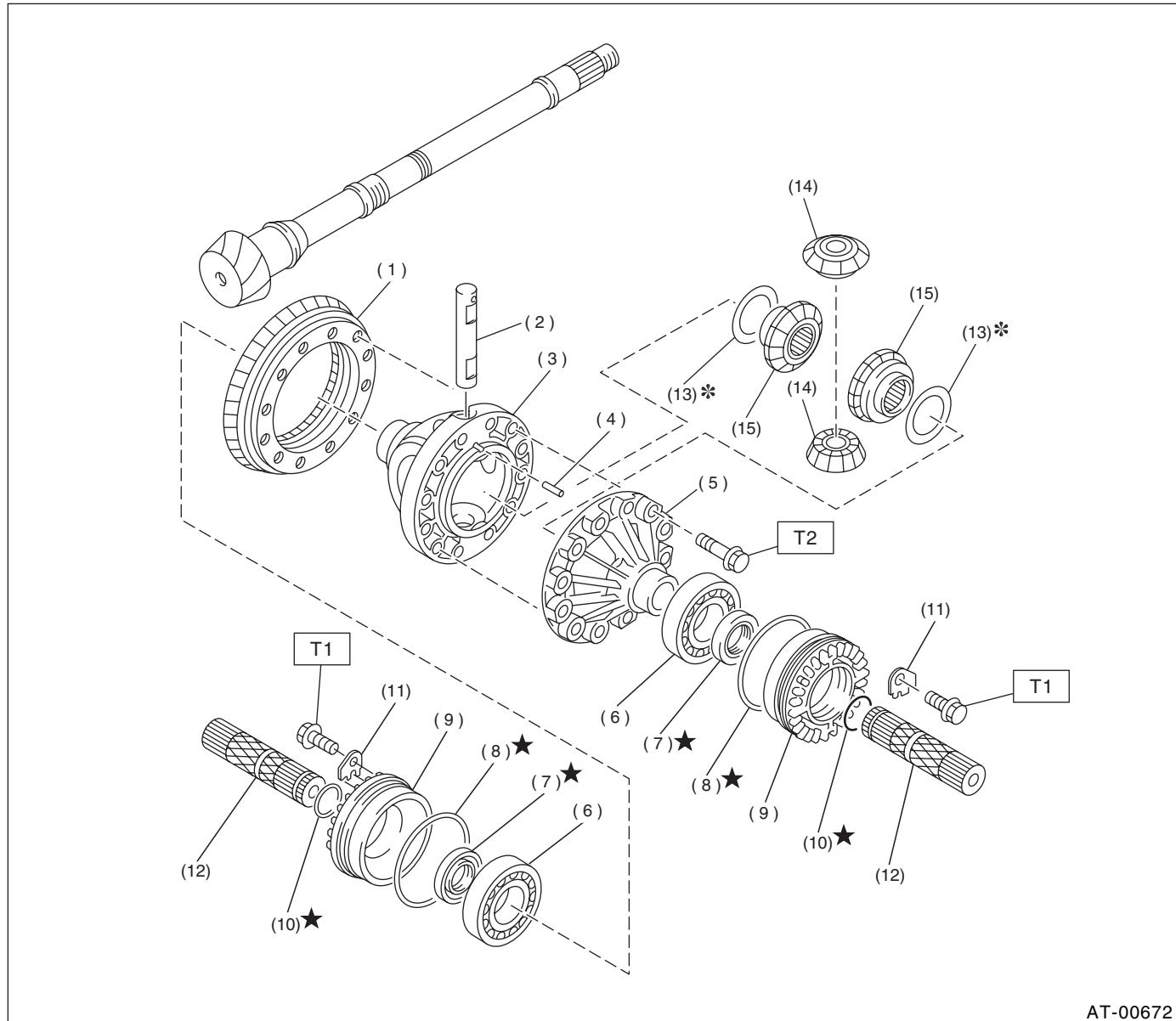
| | | |
|----------------------------|-----------------------------------|----------------------------|
| (1) Ball bearing | (13) Rear drive shaft | (25) Snap ring |
| (2) Reduction drive gear | (14) Ball bearing | (26) Ball bearing |
| (3) Washer | (15) Multi-plate clutch (LSD) hub | (27) Reduction driven gear |
| (4) Needle bearing | (16) Ball bearing | (28) Lock washer |
| (5) Pinion gear | (17) Revolution gear | (29) Lock nut |
| (6) Carrier | (18) Driven plate (thick) | (30) Gasket |
| (7) Planetary pinion shaft | (19) Drive plate | (31) Extension case |
| (8) Snap ring | (20) Driven plate (thin) | |
| (9) Seal ring | (21) Driven plate (thick) | |
| (10) Thrust needle bearing | (22) Pressure plate | |
| (11) Intermediate shaft | (23) Rear drive shaft shim | |
| (12) Thrust washer | (24) Drive pinion shaft | |

Tightening torque: N·m (kgf·m, ft-lb)**T1: 100 (10.2, 73.8)**

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10. DIFFERENTIAL GEAR



AT-00672

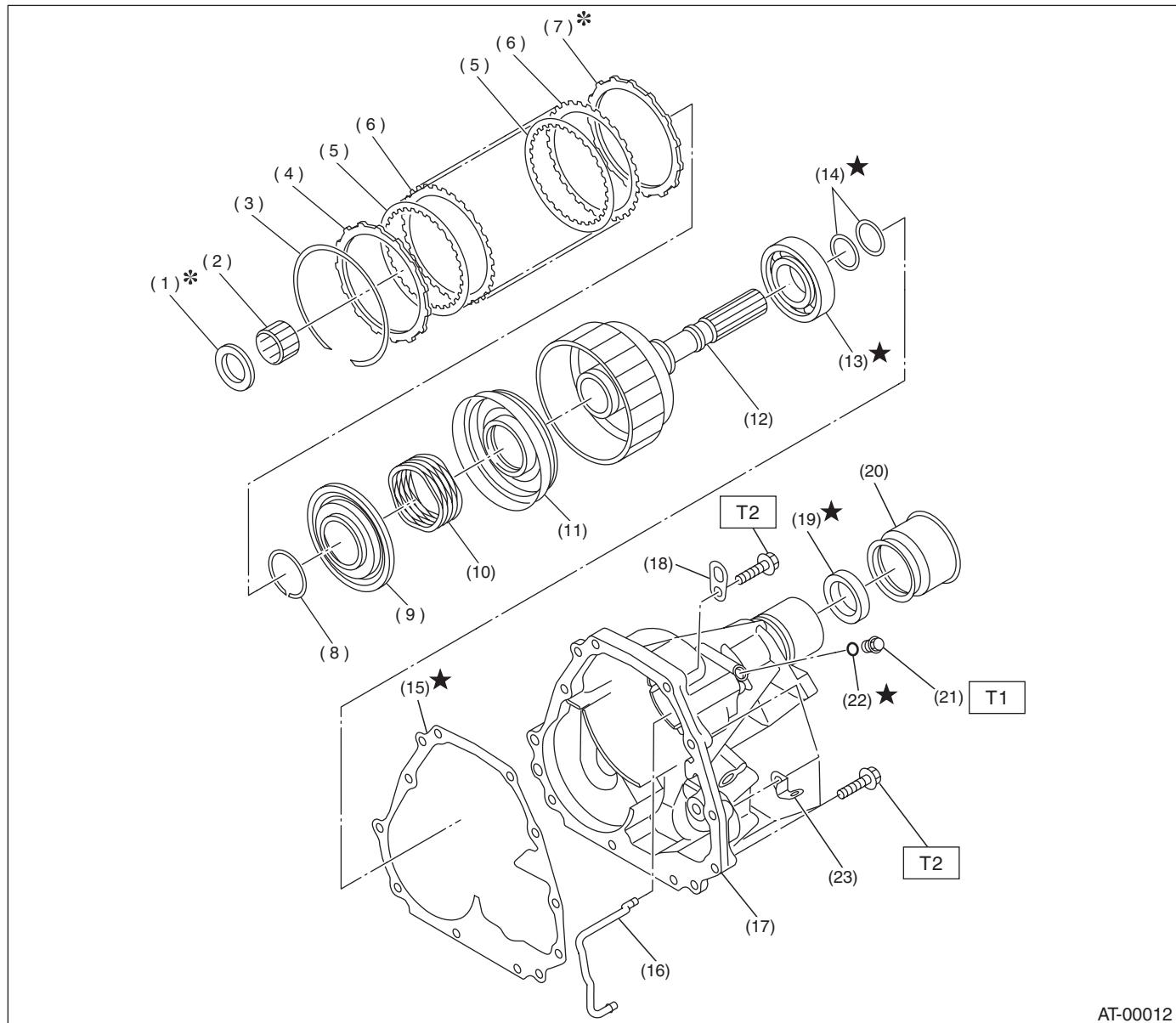
| | | |
|----------------------------|--------------------------------|------------------------------|
| (1) Crown gear | (8) O-ring | (15) Differential bevel gear |
| (2) Pinion shaft | (9) Differential side retainer | |
| (3) Differential case (RH) | (10) Snap ring | |
| (4) Straight pin | (11) Lock plate | |
| (5) Differential case (LH) | (12) Axle shaft | |
| (6) Taper roller bearing | (13) Washer | |
| (7) Oil seal | (14) Differential bevel pinion | |

Tightening torque: N·m (kgf·m, ft-lb)

T1: 25 (2.5, 18.1)

T2: 62 (6.3, 45.6)

11. TRANSFER AND EXTENSION CASE (MPT)



AT-00012

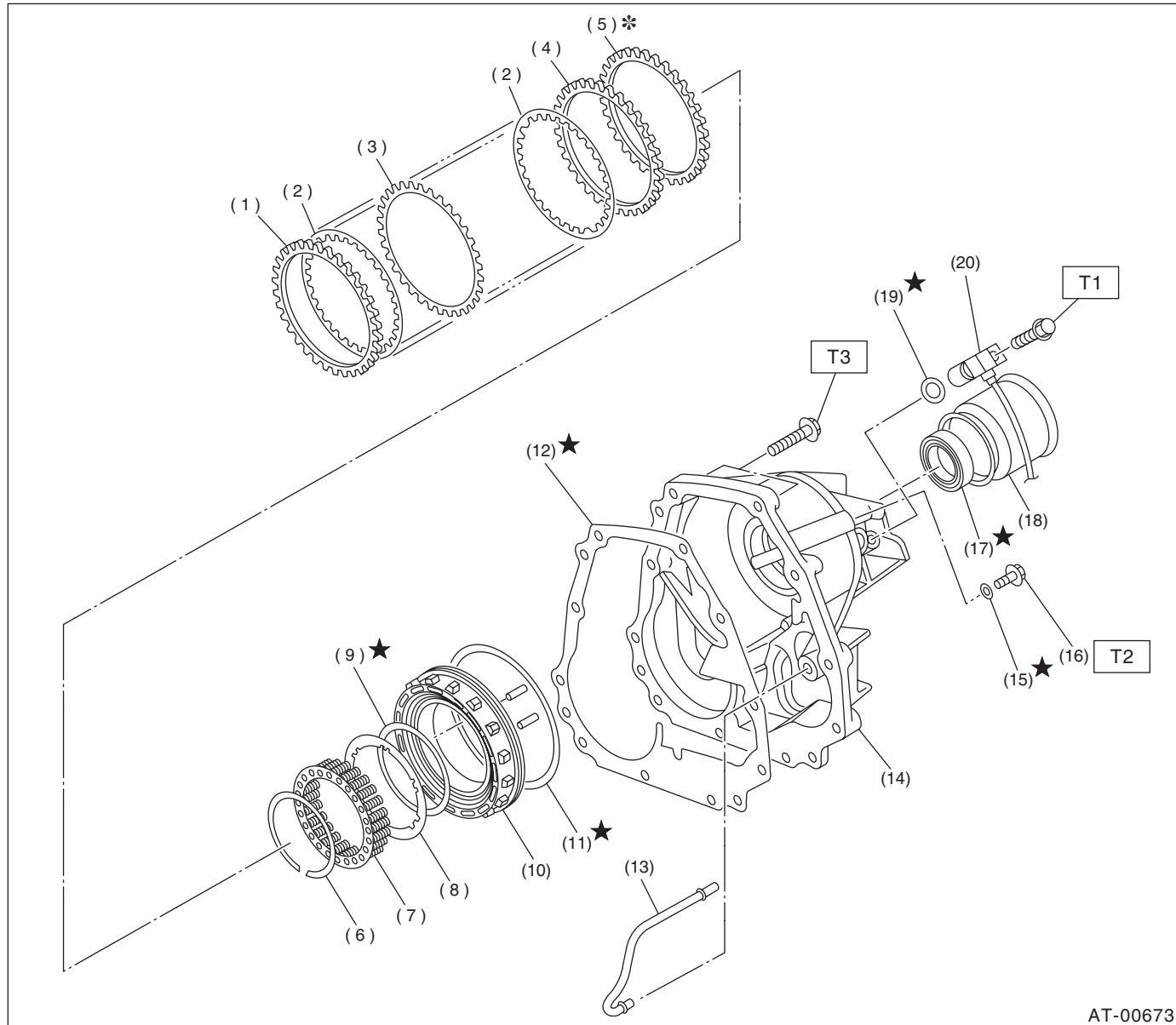
| | | |
|---------------------------|-----------------------------|-----------------|
| (1) Thrust needle bearing | (10) Return spring | (19) Oil seal |
| (2) Needle bearing | (11) Transfer clutch piston | (20) Dust cover |
| (3) Snap ring | (12) Rear drive shaft | (21) Test plug |
| (4) Pressure plate | (13) Ball bearing | (22) O-ring |
| (5) Drive plate | (14) Seal ring | (23) Clip |
| (6) Driven plate | (15) Gasket | |
| (7) Pressure plate | (16) Transfer clutch pipe | |
| (8) Snap ring | (17) Extension case | |
| (9) Transfer piston seal | (18) Transmission hanger | |

Tightening torque: N·m (kgf·m, ft·lb)**T1: 13 (1.3, 9.4)****T2: 25 (2.5, 18.1)**

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12. TRANSFER AND EXTENSION CASE (VTD)



| | | |
|--------------------------|---|------------------------------|
| (1) Driven plate (thick) | (10) Multi-plate clutch (LSD) piston assembly | (18) Dust cover |
| (2) Drive plate | (11) D ring | (19) O-ring |
| (3) Driven plate (thin) | (12) Gasket | (20) Rear wheel speed sensor |
| (4) Driven plate (thick) | (13) Multi-plate clutch (LSD) pipe | |
| (5) Adjusting plate | (14) Extension case | |
| (6) Snap ring | (15) O-ring | |
| (7) Spring retainer | (16) Test plug | |
| (8) Plate | (17) Oil seal | |
| (9) O ring | | |

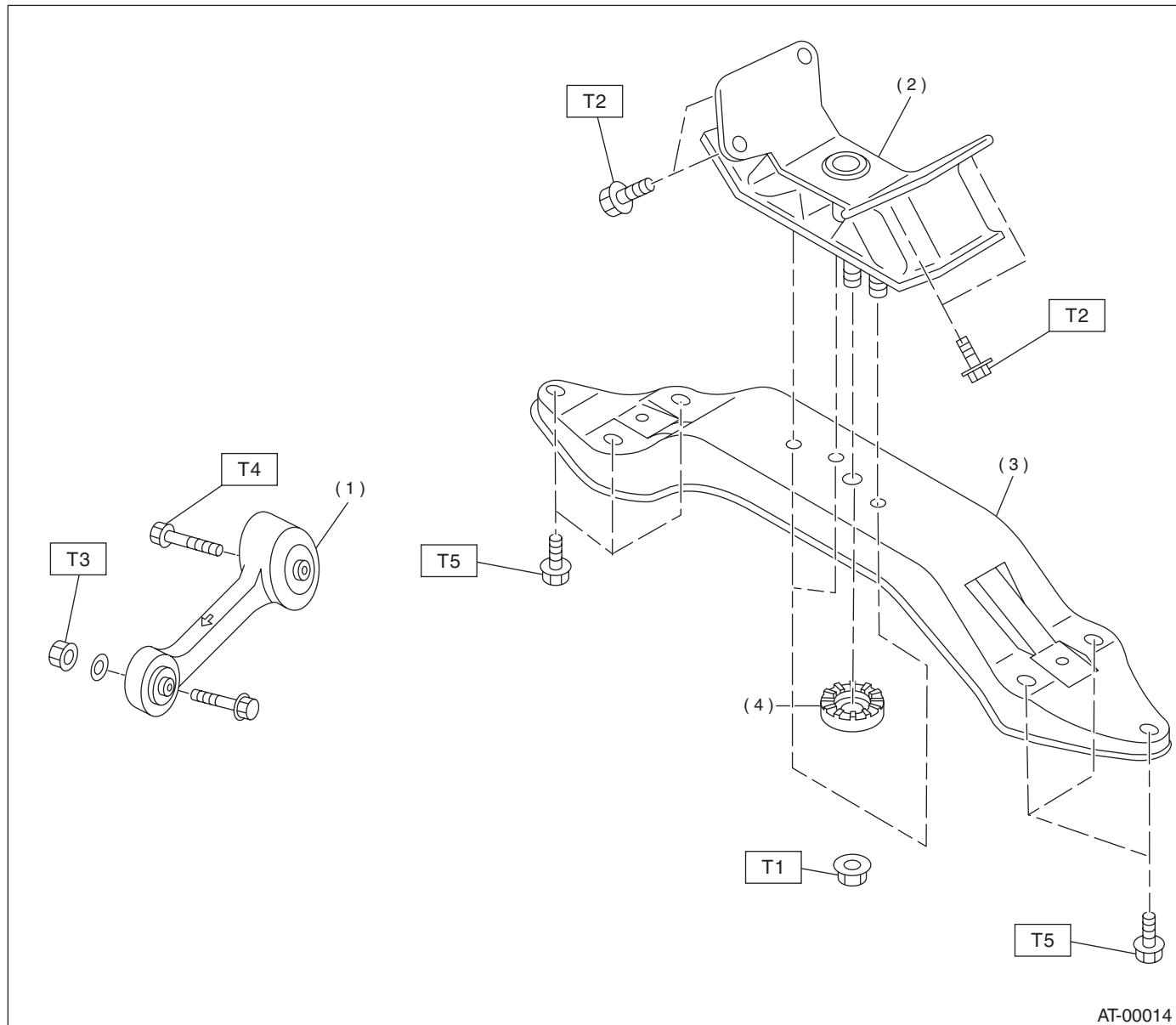
Tightening torque: N·m (kgf·m, ft·lb)

T1: 7 (0.7, 5.1)

T2: 13 (1.3, 9.4)

T3: 25 (2.5, 18.1)

13. TRANSMISSION MOUNTING



AT-00014

- (1) Pitching Stopper
- (2) Rear cushion rubber
- (3) Crossmember
- (4) Stopper

Tightening torque: N·m (kgf·m, ft·lb)

- T1: 35 (3.6, 26)
- T2: 39 (4.0, 29)
- T3: 50 (5.1, 37)
- T4: 58 (5.9, 43)
- T5: 70 (7.1, 51)

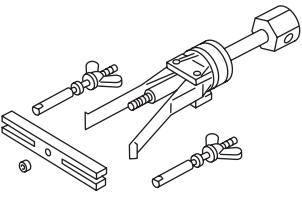
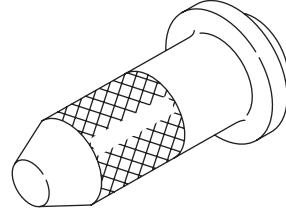
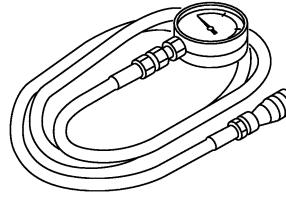
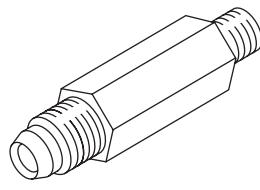
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C: CAUTION

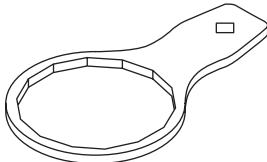
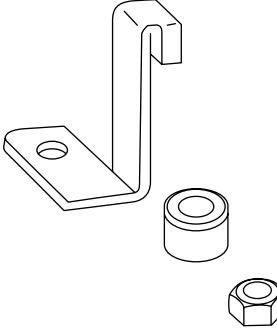
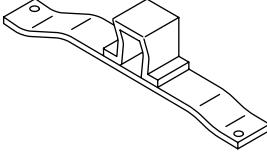
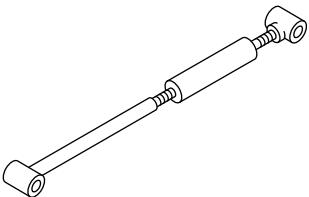
- Wear working clothing, including a cap, protective goggles, and protective shoes during operation.
- Remove contamination including dirt and corrosion before removal, installation or disassembly.
- Keep the disassembled parts in order and protect them from dust or dirt.
- Until the oil pan is removed, do not place with the oil pan side facing up to prevent foreign matter from entering the valve body.
- 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, use a plastic hammer to force it apart. Do not pry it apart with a screwdriver or other tool.
- Be careful not to burn your hands, because each part on the vehicle is hot after running.
- Use Subaru genuine gear oil, grease etc. or the equivalent. Do not mix gear oil, grease etc. with that of another grade or from other manufacturers.
- Be sure to tighten fasteners including bolts and nuts to the specified torque.
- Place shop jacks or safety stands at the specified points.
- Apply gear oil onto sliding or revolution surfaces before installation.
- Replace deformed or otherwise damaged snap rings with new ones.
- Before installing O-rings or oil seals, apply sufficient amount of ATF fluid 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 material such as wooden blocks, aluminum plate, or shop cloth between the part and the vise.
- Avoid damaging the mating surface of the case.
- Before applying sealant, completely remove the old seal.

D: PREPARATION TOOL**1. SPECIAL TOOLS**

| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|---|-------------|-------------------------|--|
|  | 398527700 | PULLER ASSY | Used for removing and installing extension case roller bearings. |
|  | 498057300 | INSTALLER | Used for installing extension oil seal. |
|  | 498575400 | OIL PRESSURE GAUGE ASSY | Used for measuring oil pressure. |
|  | 498897200 | ADAPTER | Used on oil pump housing when measuring reverse clutch pressure and line pressure. |

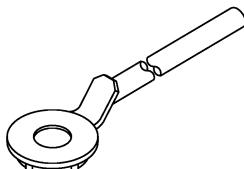
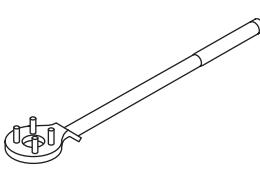
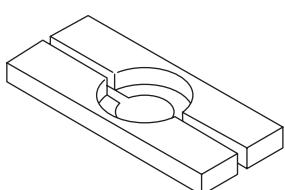
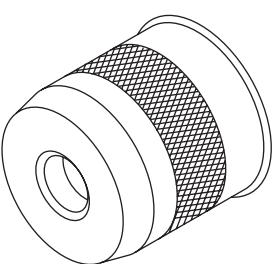
GENERAL DESCRIPTION

AUTOMATIC TRANSMISSION

| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|---|-------------|------------------------|---|
|  | 498545400 | FILTER WRENCH | Used for removing and installing ATF filter. |
|  | 498277200 | STOPPER SET | Used for removing and installing automatic transmission assembly to engine. |
|  | 41099AA010 | ENGINE SUPPORT BRACKET | <ul style="list-style-type: none"> Used for supporting engine. Used with ENGINE SUPPORT (41099AA020). |
|  | 41099AA020 | ENGINE SUPPORT | <ul style="list-style-type: none"> Used for supporting engine. Used with ENGINE SUPPORT BRACKET (41099AA010). |

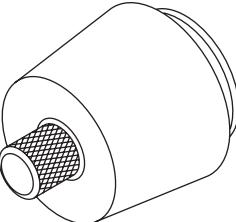
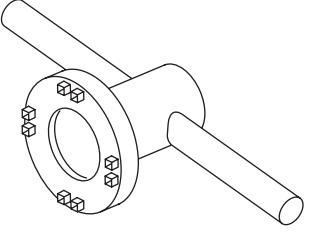
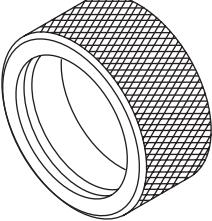
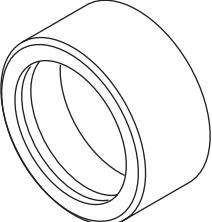
GENERAL DESCRIPTION

AUTOMATIC TRANSMISSION

| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|---|-------------|--------------------------|---|
|  ST-499977400 | 499977400 | CRANKSHAFT PULLEY WRENCH | <ul style="list-style-type: none"> Used for rotating crankshaft. Used on turbo models. |
|  ST-499977100 | 499977100 | CRANKSHAFT PULLEY WRENCH | <ul style="list-style-type: none"> Used for rotating crankshaft. Used on non-turbo models. |
|  ST-498077000 | 498077000 | REMOVER | Used for removing differential taper roller bearing. |
|  ST-499247400 | 499247400 | INSTALLER | <ul style="list-style-type: none"> Used for installing transfer outer snap ring. Used with GUIDE (499257300). |

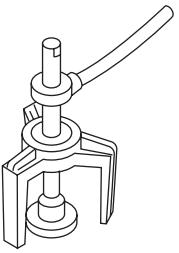
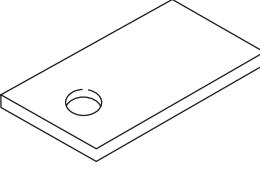
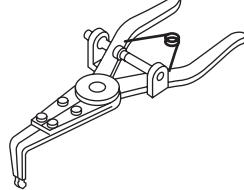
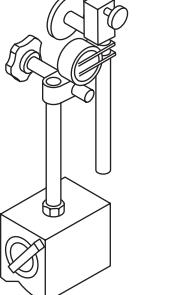
GENERAL DESCRIPTION

AUTOMATIC TRANSMISSION

| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|---|-------------|--------------------------|---|
|  | 499257300 | SNAP RING OUTER GUIDE | <ul style="list-style-type: none"> Used for installing transfer outer snap ring. Used with INSTALLER (499247400). |
|  | 499787000 | WRENCH ASSY | Used for removing and installing differential side retainer. |
|  | 398437700 | DRIFT | Used for installing converter case oil seal. |
|  | 398487700 | INSTALLER | Used for installing taper roller bearing of front differential. |

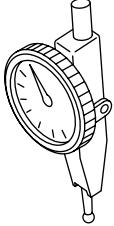
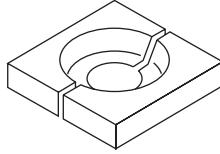
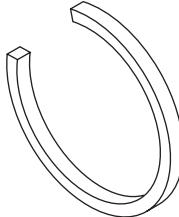
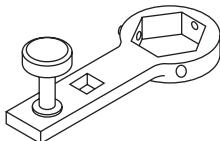
GENERAL DESCRIPTION

AUTOMATIC TRANSMISSION

| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|---|-------------|-------------|---|
|  ST-398673600 | 398673600 | COMPRESSOR | Used for removing and installing clutch spring. |
|  ST-498255400 | 498255400 | Plate | Used for measuring backlash of hypoid gear. |
|  ST-399893600 | 399893600 | PLIERS | Used for removing and installing clutch spring. |
|  ST-498247001 | 498247001 | MAGNET BASE | <ul style="list-style-type: none">Used for measuring gear backlash.Used with DIAL GAUGE (498247100). |

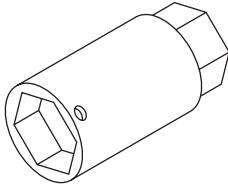
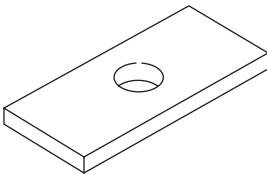
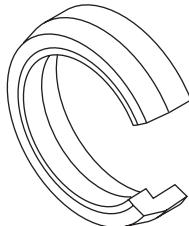
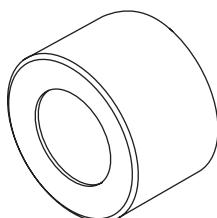
GENERAL DESCRIPTION

AUTOMATIC TRANSMISSION

| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|---|-------------|-------------|---|
|  ST-498247100 | 498247100 | Dial gauge | <ul style="list-style-type: none"> Used for measuring gear backlash. Used with MAGNET BASE (498247001). |
|  ST-498517000 | 498517000 | REPLACER | Used for removing front roller bearing. |
|  ST-398623600 | 398623600 | Seat | Used for removing spring of transfer clutch piston. |
|  ST-499787700 | 499787700 | WRENCH | Used for removing and installing drive pinion lock nut. |

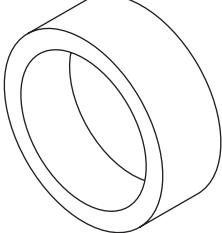
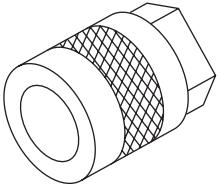
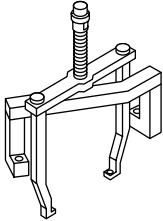
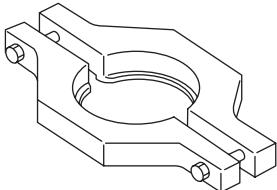
GENERAL DESCRIPTION

AUTOMATIC TRANSMISSION

| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|--|-------------|-------------|---|
|  ST-499787500 | 499787500 | ADAPTER | Used for removing and installing drive pinion lock nut. |
|  ST-398643600 | 398643600 | GAUGE | Used for measuring total end play, extension end play and drive pinion height. |
|  ST-498627100 | 498627100 | Seat | Used for holding low clutch piston retainer spring when installing snap ring. |
|  ST-499577000 | 499577000 | GAUGE | <ul style="list-style-type: none"> Used for measuring the transmission case mating surface to the reduction gear end surface. For MPT model |

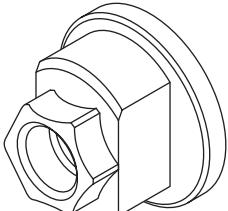
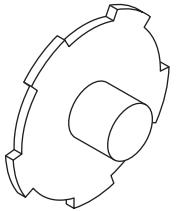
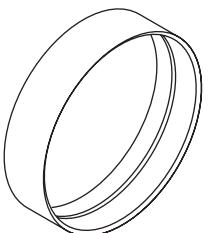
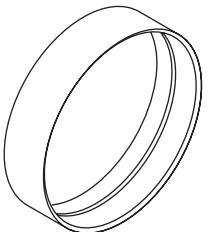
GENERAL DESCRIPTION

AUTOMATIC TRANSMISSION

| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|---|---------------------------|-------------|---|
|  | 398744300 ST-398744300 | GAUGE | <ul style="list-style-type: none"> Used for measuring the transmission case mating surface to the multi-plate clutch end surface. For VTD model |
|  | 499737000 ST-499737000 | PULLER | Used for removing reduction driven gear assembly. |
|  | 499737100 ST-499737100 | PULLER SET | Used for removing reduction drive gear assembly. |
|  | 498077600 ST-498077600 | REMOVER | Used for removing ball bearing. |

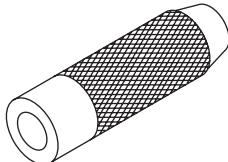
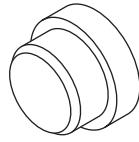
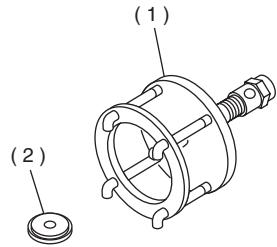
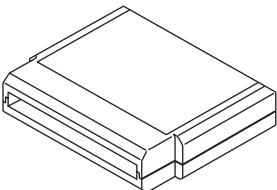
GENERAL DESCRIPTION

AUTOMATIC TRANSMISSION

| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|---|-------------|--------------------------|---|
|  ST-498937110 | 498937110 | HOLDER | Used for removing and installing drive pinion lock nut. |
|  ST-498677100 | 498677100 | COMPRESSOR | Used for installing 2-4 brake snap ring. |
|  ST-498437000 | 498437000 | HIGH CLUTCH PISTON GUIDE | Used for installing high clutch piston. |
|  ST-498437100 | 498437100 | LOW CLUTCH PISTON GUIDE | Used for installing low clutch piston. |

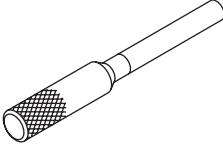
GENERAL DESCRIPTION

AUTOMATIC TRANSMISSION

| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|---|--|-------------|---|
|  | 899580100 ST-899580100 | INSTALLER | Used for press-fitting the ball bearing for transfer clutch. |
|  | 398497701 ST-398497701 | ADAPTER | Used for installing needle bearing. |
|  | 899524100 ST-899524100 | PULLER SET | <ul style="list-style-type: none"> Using the bolt only. (1) Bolt Used with PULLER SET (499737100). Used with PULLER (499737000). (1) Puller (2) Cap |
|  | 24082AA210 (newly adopted tool) ST24082AA210 | CARTRIDGE | Troubleshooting for electrical systems. |

GENERAL DESCRIPTION

AUTOMATIC TRANSMISSION

| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|---|----------------------------|--------------------|---|
|  | 22771AA030 ST22771AA030 | SELECT MONITOR KIT | <p>Troubleshooting for electrical systems.</p> <ul style="list-style-type: none"> • English: 22771AA030 (without printer) • German: 22771AA070 (without printer) • French: 22771AA080 (without printer) • Spanish: 22771AA090 (without printer) |
|  | 499267300 ST-499267300 | STOPPER PIN | Used for installing and adjusting inhibitor switch. |

2. GENERAL PURPOSE TOOLS

| TOOL NAME | REMARKS |
|-----------------|--|
| Circuit tester | Used for measuring resistance, voltage and current. |
| Depth gauge | Used for measuring transmission end play. |
| Thickness gauge | Used for measuring clearances of clutch, brake and oil pump. |
| Micrometer | Used for measuring thickness of drive pinion. |
| Spring balance | Used for measuring starting torque of drive pinion. |