1. General Description S510001

A: SPECIFICATIONS S510001E49

1. DRIVE PLATE AND DRIVEN PLATE S510001E4901

Plate number of high clutch	1.6 L	3
	2.0 L	4
	2.0 L TURBO	5
	2.5 L	4
	3.0 L	5
Plate number of reverse clutch	1.6 L	1
	2.0 L	2
	2.0 L TURBO	2
	2.5 L	2
	3.0 L	2
Plate number of 2-4 brake	1.6 L	2
	2.0 L	3
	2.0 L TURBO	4
	2.5 L	3
	3.0 L	4
Plate number of low clutch	1.6 L	4
	2.0 L	4
	2.0 L TURBO	7
	2.5 L	6
	3.0 L	7
Plate number of low and reverse brake	1.6 L	4
	2.0 L	4
	2.0 L TURBO	7
	2.5 L	6
	3.0 L	7
Plate number of transfer clutch	1.6 L	4
	2.0 L	4
	2.0 L TURBO (Without VTD)	6
	2.0 L TURBO (With VTD)	3
	2.5 L (Without VTD)	5
	2.5 L (With VTD)	3
	3.0 L (Without VTD)	6
	3.0 L (With VTD)	3

2. AUTOMATIC TRANSMISSION FLUID CAPACITY S510001E4902

Dexron III type Automatic transmission fluid	
1.6 L, 2.0 L	8.4 — 8.7 ℓ (8.9 — 9.2 US qt, 7.4 — 7.7 Imp qt)
2.0 L TURBO, 2.5 L, 3.0 L	9.3 — 9.6 ℓ (9.8 — 10.1 US qt, 8.2 — 8.4 Imp qt)

3. FRONT DIFFERENTIAL OIL CAPACITY

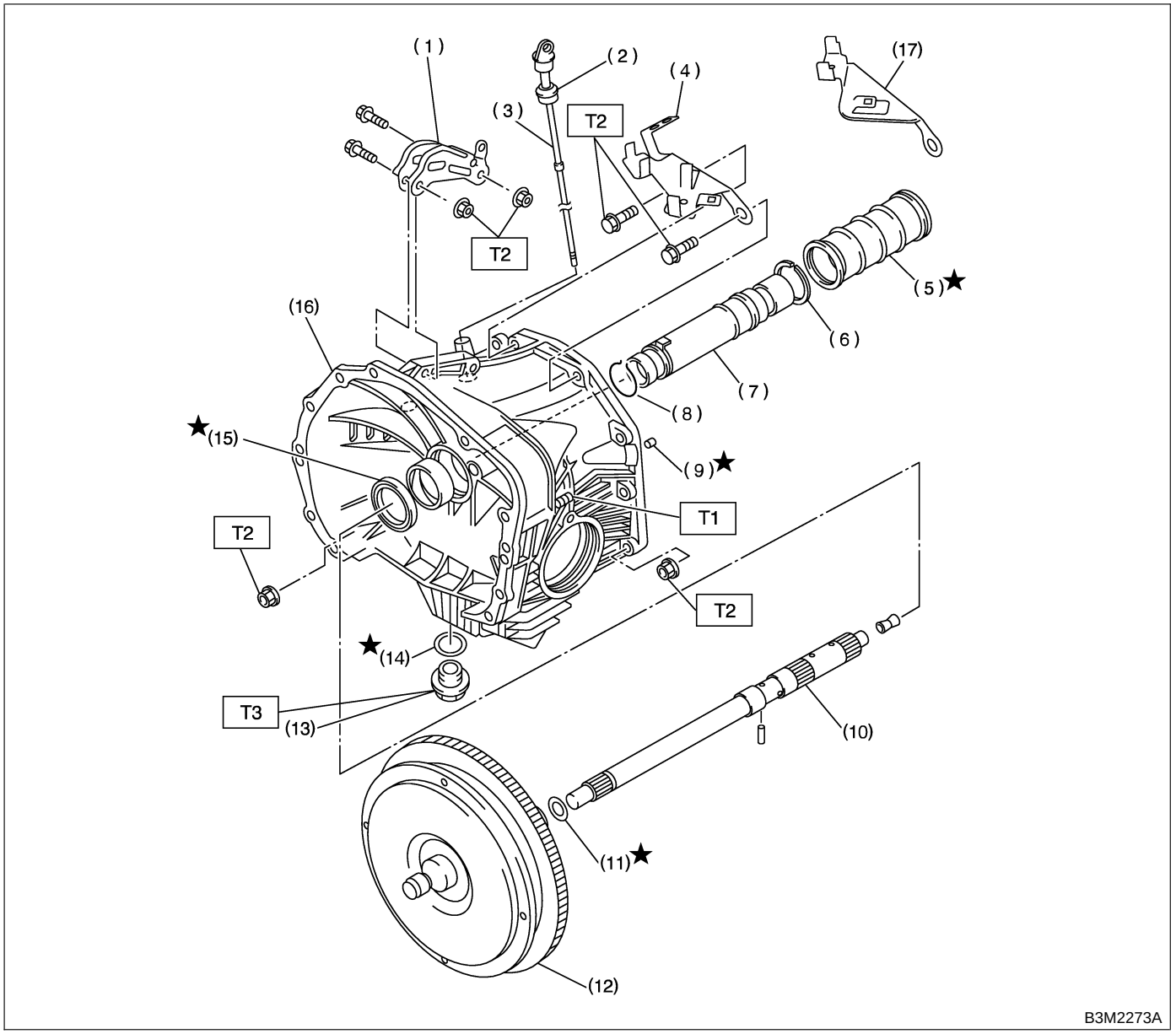
S510001E4903

Recommended oil	Oil capacity
GL-5	1.1 — 1.2 ℓ (1.2 — 1.3 US qt, 1.0 — 1.1 Imp qt)

MEMO:

B: COMPONENT S510001A05

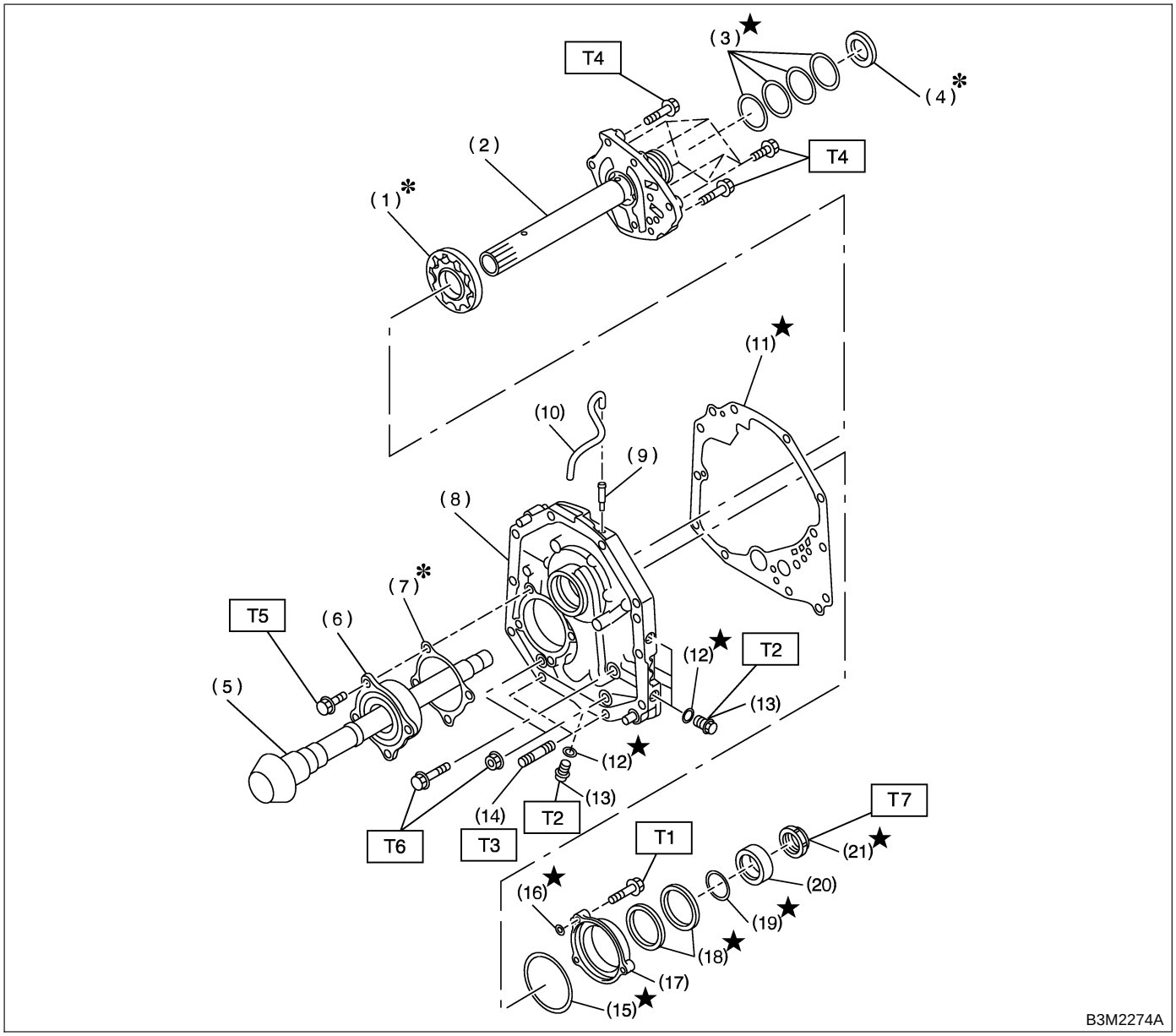
1. TORQUE CONVERTER CLUTCH AND CASE S510001A0501



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

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)

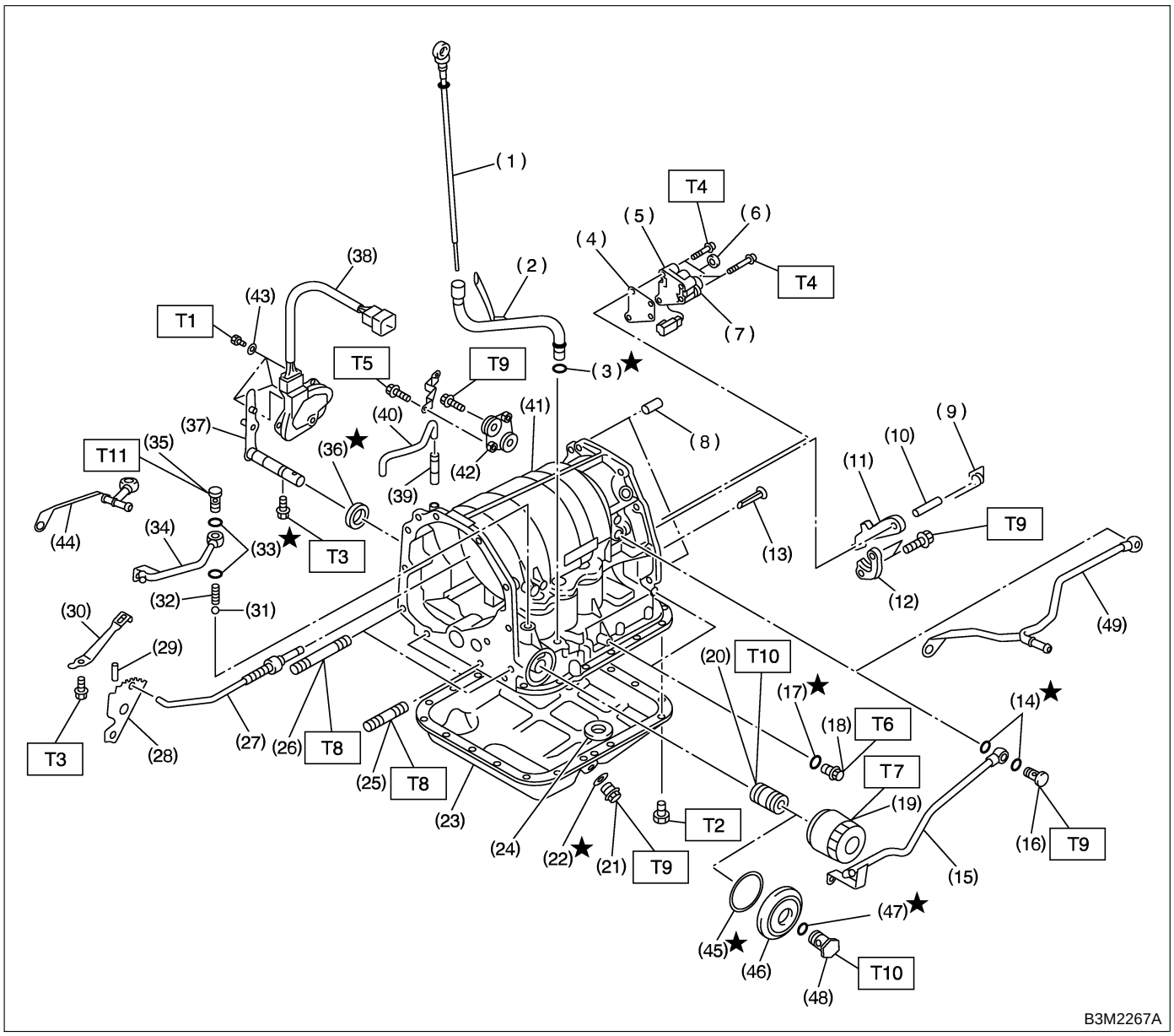
2. OIL PUMP S510001A0502



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

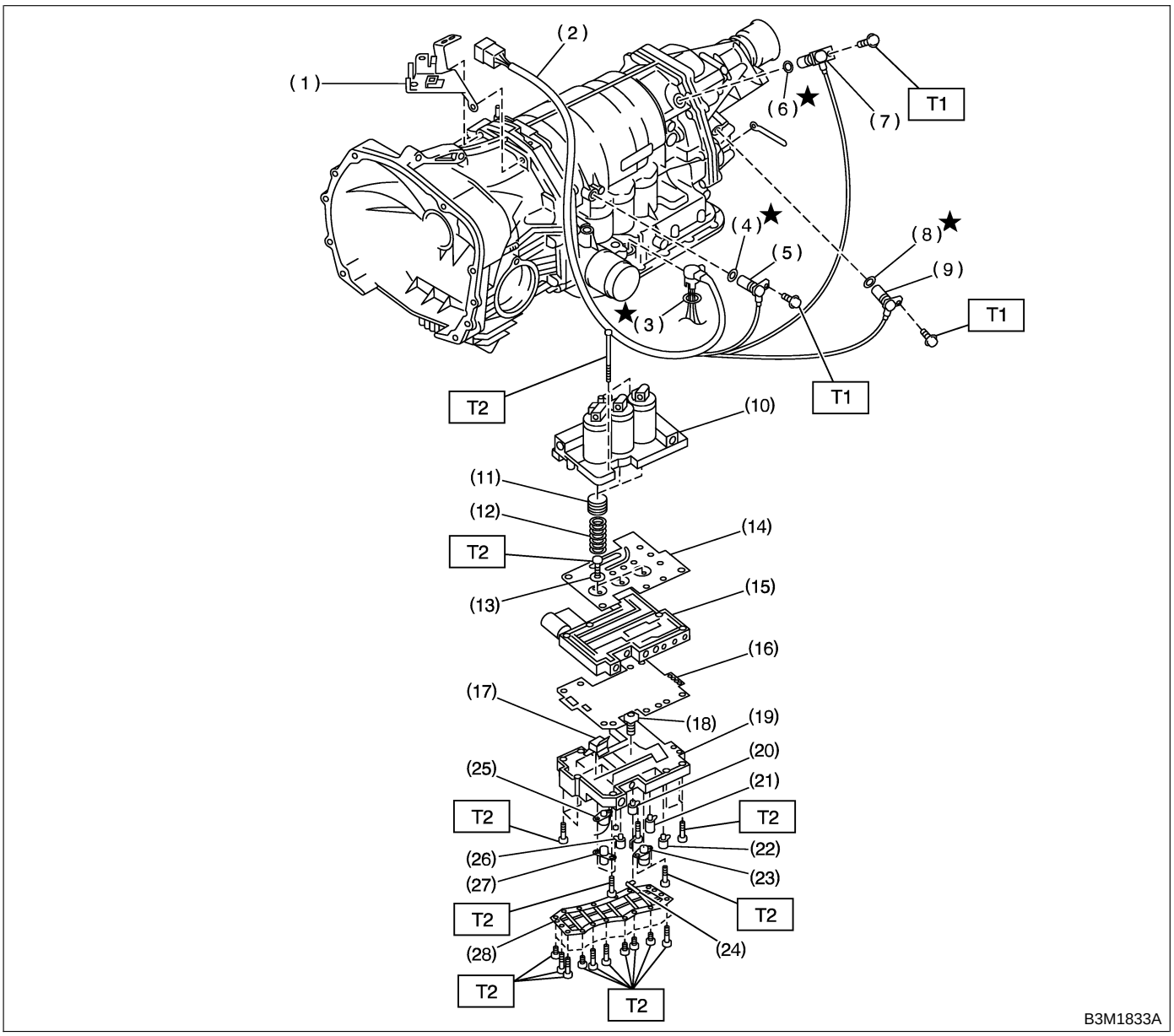
3. TRANSMISSION CASE AND CONTROL DEVICE S510001A0503



(1) ATF level gauge
(2) ATF charger pipe
(3) O-ring
(4) Transfer valve plate
(5) Transfer valve ASSY
(6) Transfer clutch seal
(7) Transfer duty solenoid
(8) Straight pin
(9) Return spring
(10) Shaft
(11) Parking pawl
(12) Parking support
(13) Inlet filter
(14) Gasket
(15) Inlet pipe (Except for Forester)
(16) Union screw
(17) O-ring
(18) Test plug
(19) Oil filter (Except 3.0 L model)
(20) Oil filter stud bolt
(21) Drain plug
(22) Gasket
(23) Oil pan
(24) Magnet
(25) Stud bolt (Short)
(26) Stud bolt (Long)
(27) Parking rod
(28) Manual plate
(29) Spring pin
(30) Detention spring
(31) Ball
(32) Spring
(33) Gasket
(34) Outlet pipe (For Forester)
(35) Union screw
(36) Oil seal
(37) Select lever
(38) Inhibitor switch ASSY
(39) Nipple
(40) Air breather hose
(41) Transmission case
(42) Plate ASSY
(43) Washer
(44) Outlet pipe (Except for Forester)
(45) O-ring (3.0 L model)
(46) Cover (3.0 L model)
(47) Gasket (3.0 L model)
(48) Union screw (3.0 L model)
(49) Inlet pipe (Except for Forester)

Tightening torque: N·m (kgf-m, ft-lb)
T1: 3.4 (0.35, 2.5)
T2: 5 (0.5, 3.6)
T3: 6 (0.6, 4)
T4: 8 (0.8, 6)
T5: 12 (1.2, 8.7)
T6: 13 (1.3, 10)
T7: 14 (1.4, 10)
T8: 18 (1.8, 13)
T9: 25 (2.6, 18)
T10: 44 (4.5, 32)

4. CONTROL VALVE AND HARNESS ROUTING S510001A0504

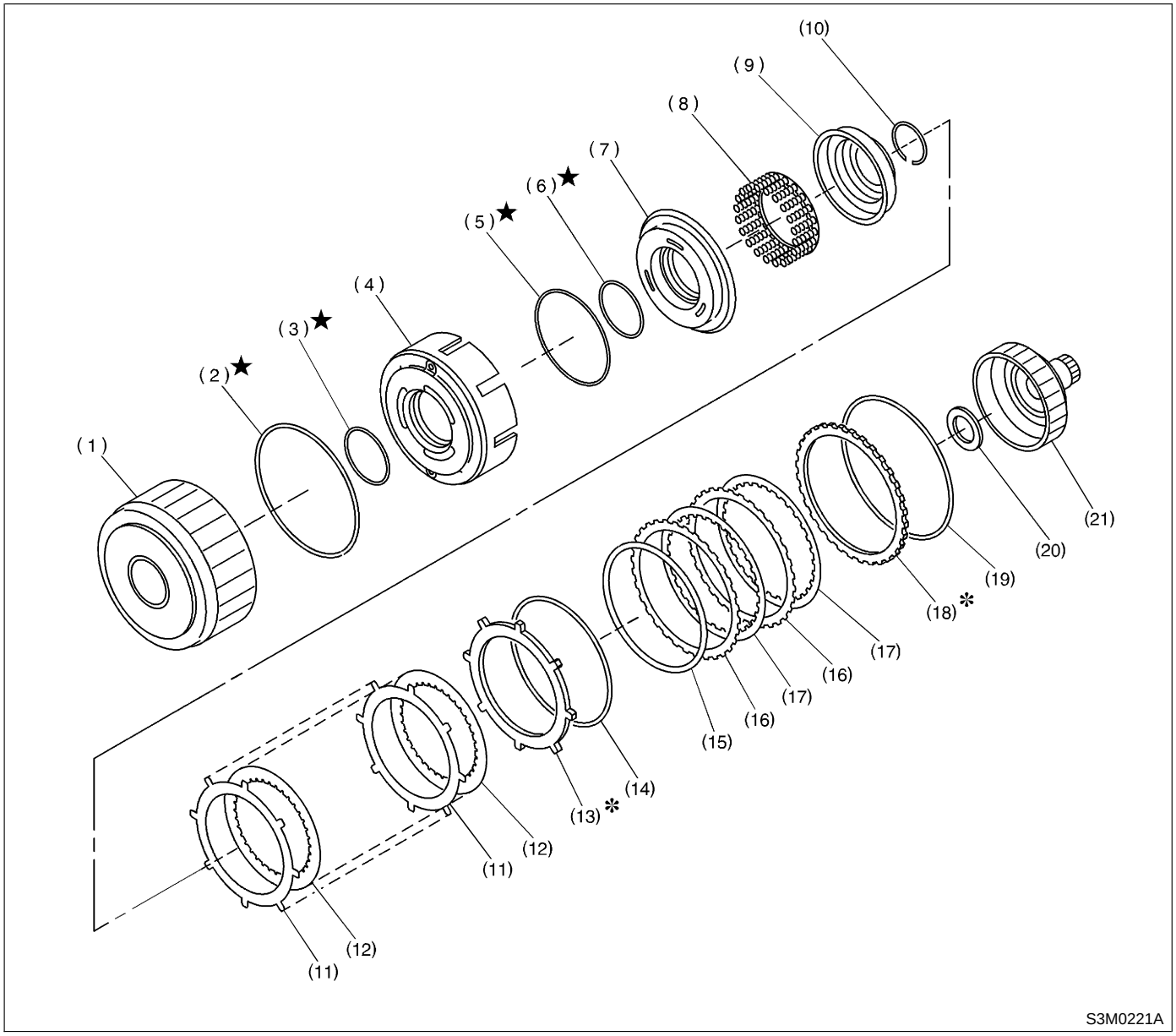


(1) Stay
(2) Transmission harness
(3) O-ring
(4) O-ring
(5) Torque converter turbine speed sensor
(6) O-ring
(7) Front vehicle speed sensor
(8) O-ring
(9) Rear vehicle speed sensor
(10) Upper valve body
(11) Accumulator piston
(12) Accumulator spring
(13) Side plate
(14) Separate plate
(15) Middle valve 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

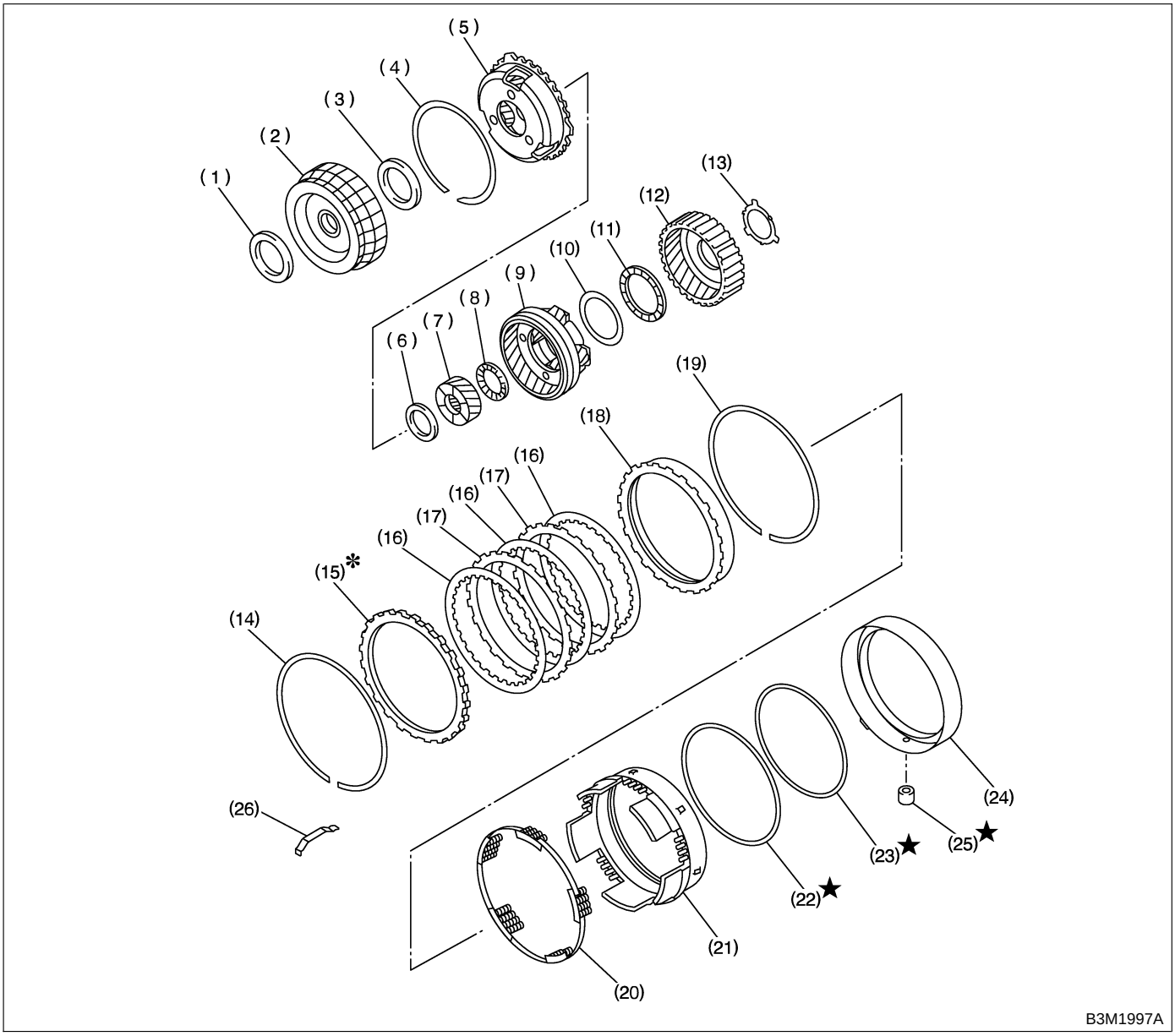
S510001A0505



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

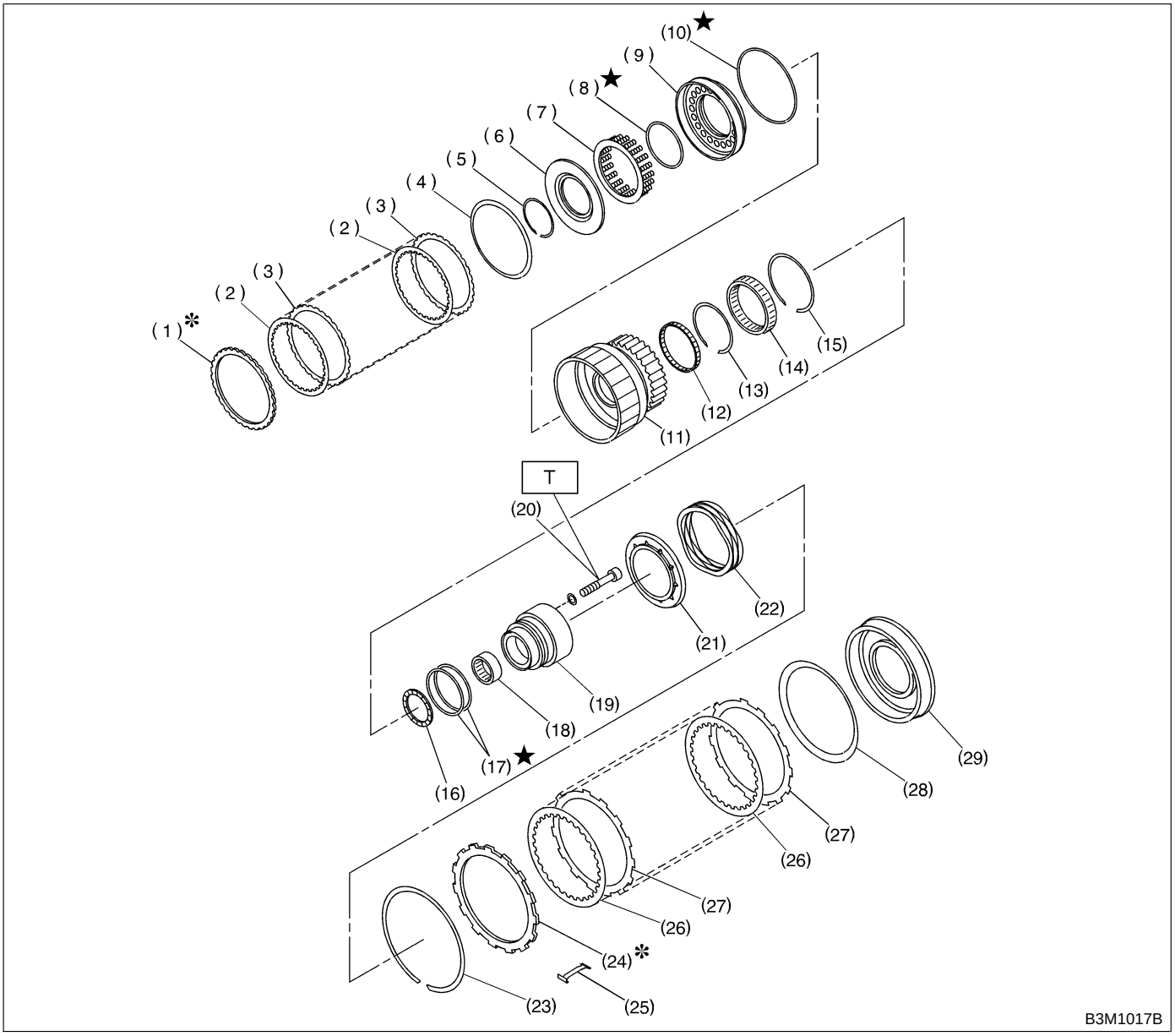
6. PLANETARY GEAR AND 2-4 BRAKE

S510001A0506



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

7. LOW CLUTCH AND LOW & REVERSE BRAKE S510001A0507

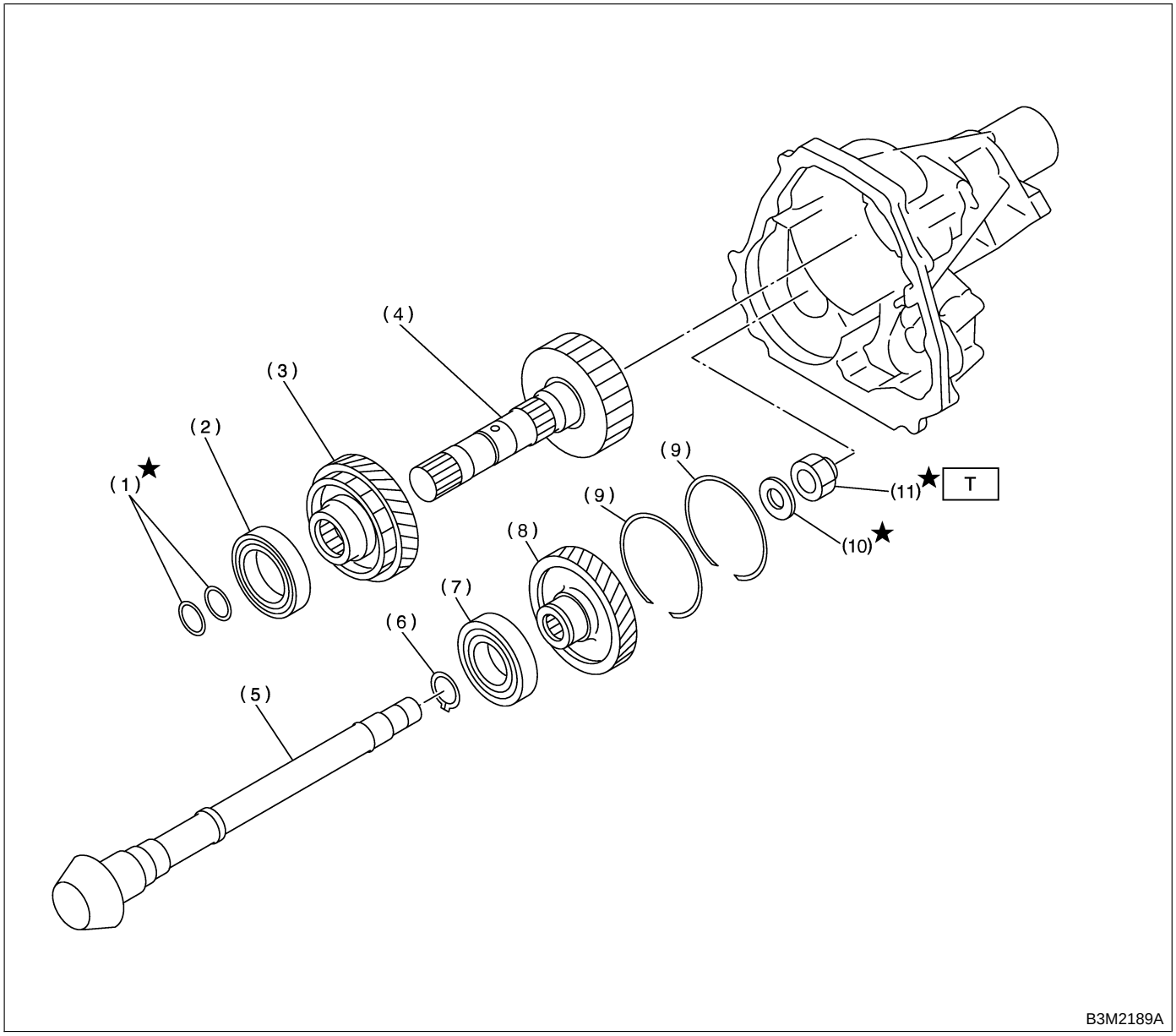


(1) Retaining plate
(2) Drive plate
(3) Driven plate
(4) Dish plate
(5) Snap ring
(6) Cover
(7) Spring retainer
(8) Lathe cut seal ring
(9) Low clutch piston
(10) Lathe cut seal ring
(11) Low clutch drum
(12) Needle bearing
(13) Inner snap ring
(14) One-way clutch
(15) Outer snap ring
(16) Thrust needle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

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

8. REDUCTION GEAR WITHOUT VTD

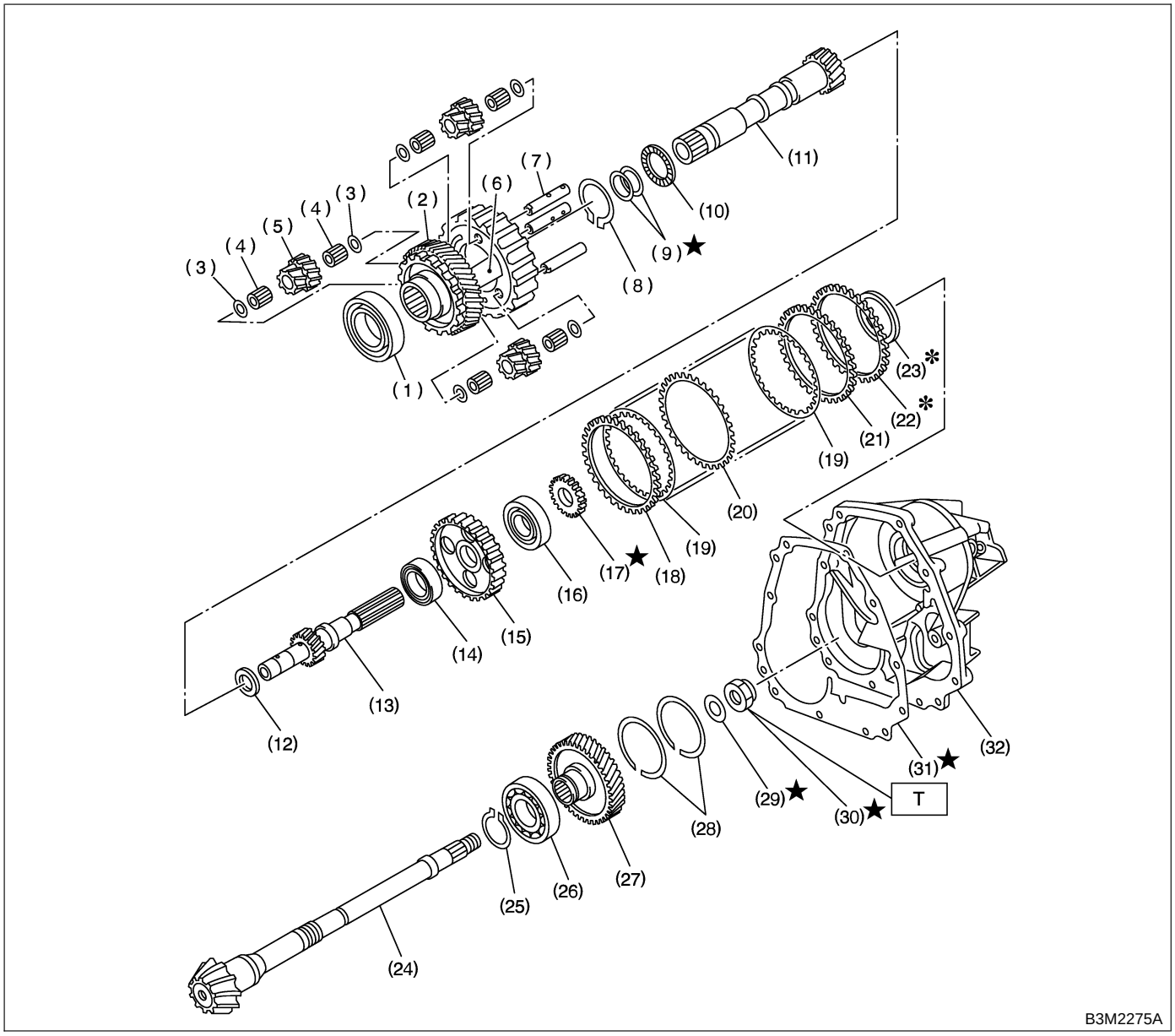
S510001A0508



(1) Seal ring
(2) Ball bearing
(3) Reduction drive gear
(4) Reduction drive shaft
(5) Drive pinion shaft
(6) Snap ring
(7) Ball bearing
(8) Reduction driven gear
(9) Snap ring (Legacy 2.5 L US model and 3.0 L model)
(10) Washer
(11) Lock nut

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

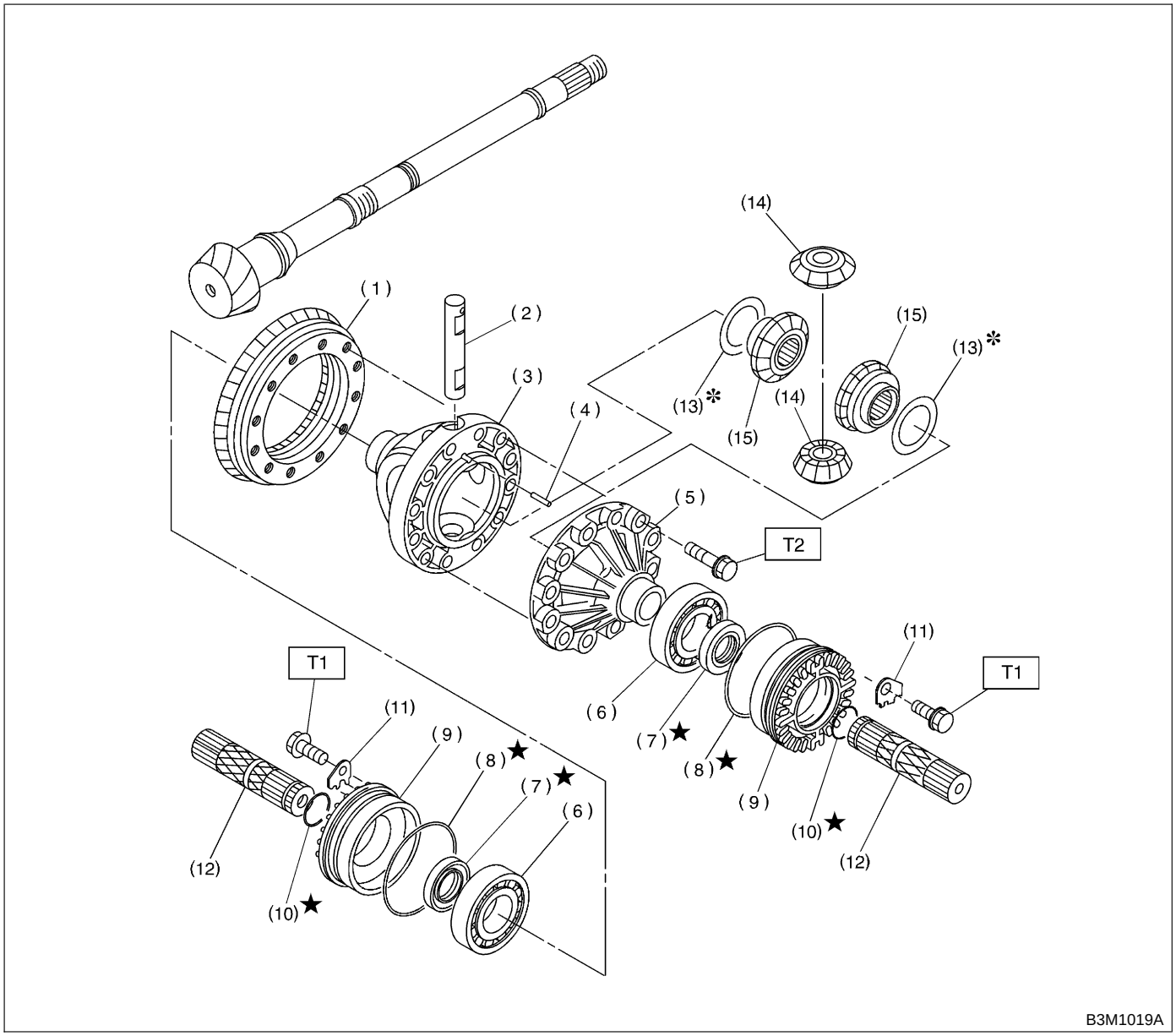
9. REDUCTION GEAR WITH VTD S510001A0509



(1) Ball bearing
(2) Reduction drive gear
(3) Washer
(4) Needle bearing
(5) Pinion gear
(6) Carrier
(7) Planetary pinion shaft
(8) Snap ring
(9) Seal ring
(10) Thrust needle bearing
(11) Intermediate shaft
(12) Thrust washer
(13) Rear drive shaft
(14) Ball bearing
(15) Multi-plate clutch (LSD) hub
(16) Ball bearing
(17) Revolution gear
(18) Driven plate (Thicker)
(19) Drive plate
(20) Driven plate (Thinner)
(21) Driven plate (Thicker)
(22) Adjust plate
(23) Rear drive shaft shim
(24) Drive pinion shaft
(25) Snap ring
(26) Ball bearing
(27) Reduction driven gear
(28) Snap ring (Legacy 2.5 L US model and 3.0 L model)
(29) Lock washer
(30) Lock nut
(31) Gasket
(32) Extension case

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

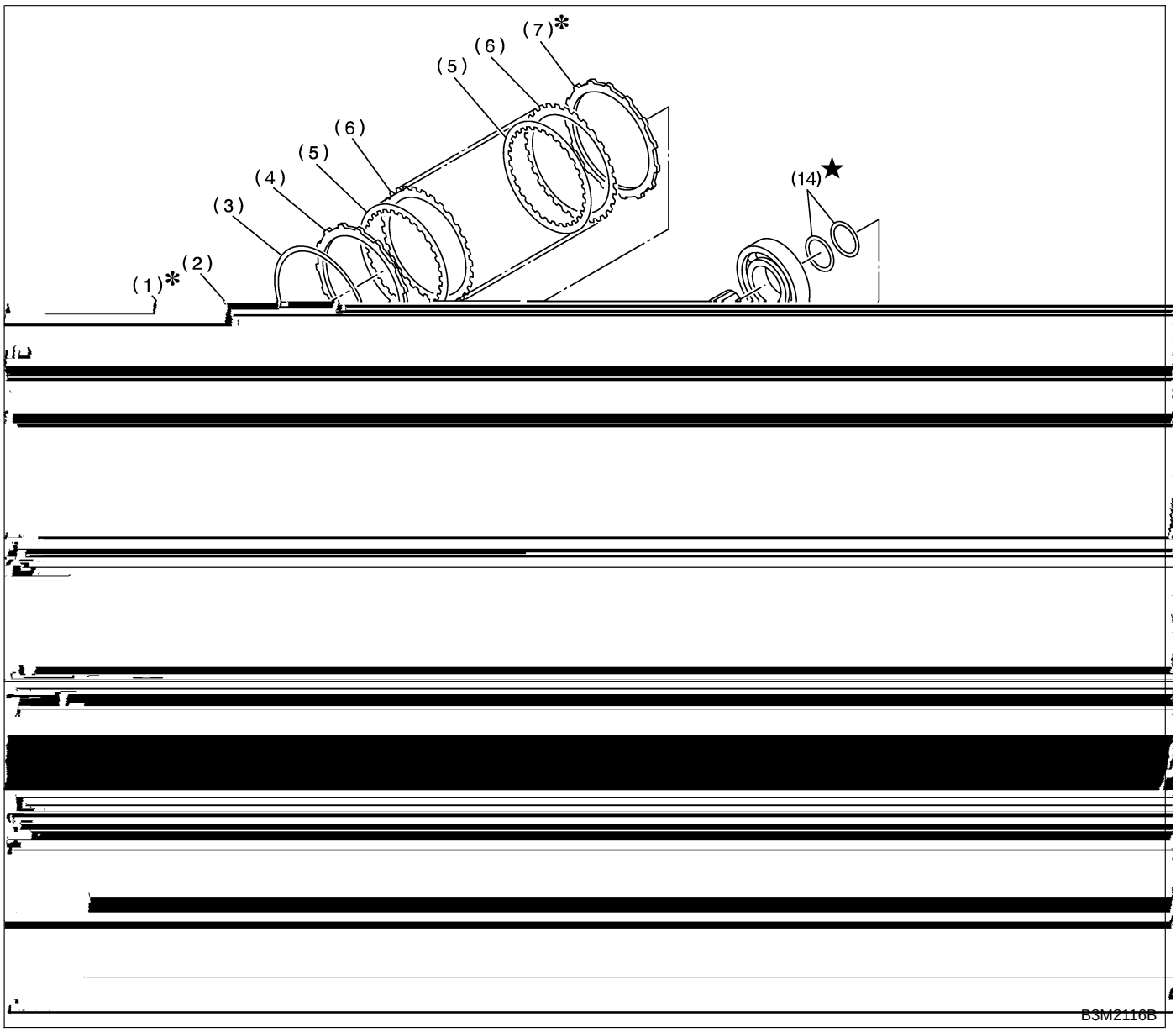
10. DIFFERENTIAL GEAR S510001A0510



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

Tightening torque: N·m (kgf-m, ft-lb)
T1: 25 (2.5, 18.1)
T2: 62 (6.3, 45.6)

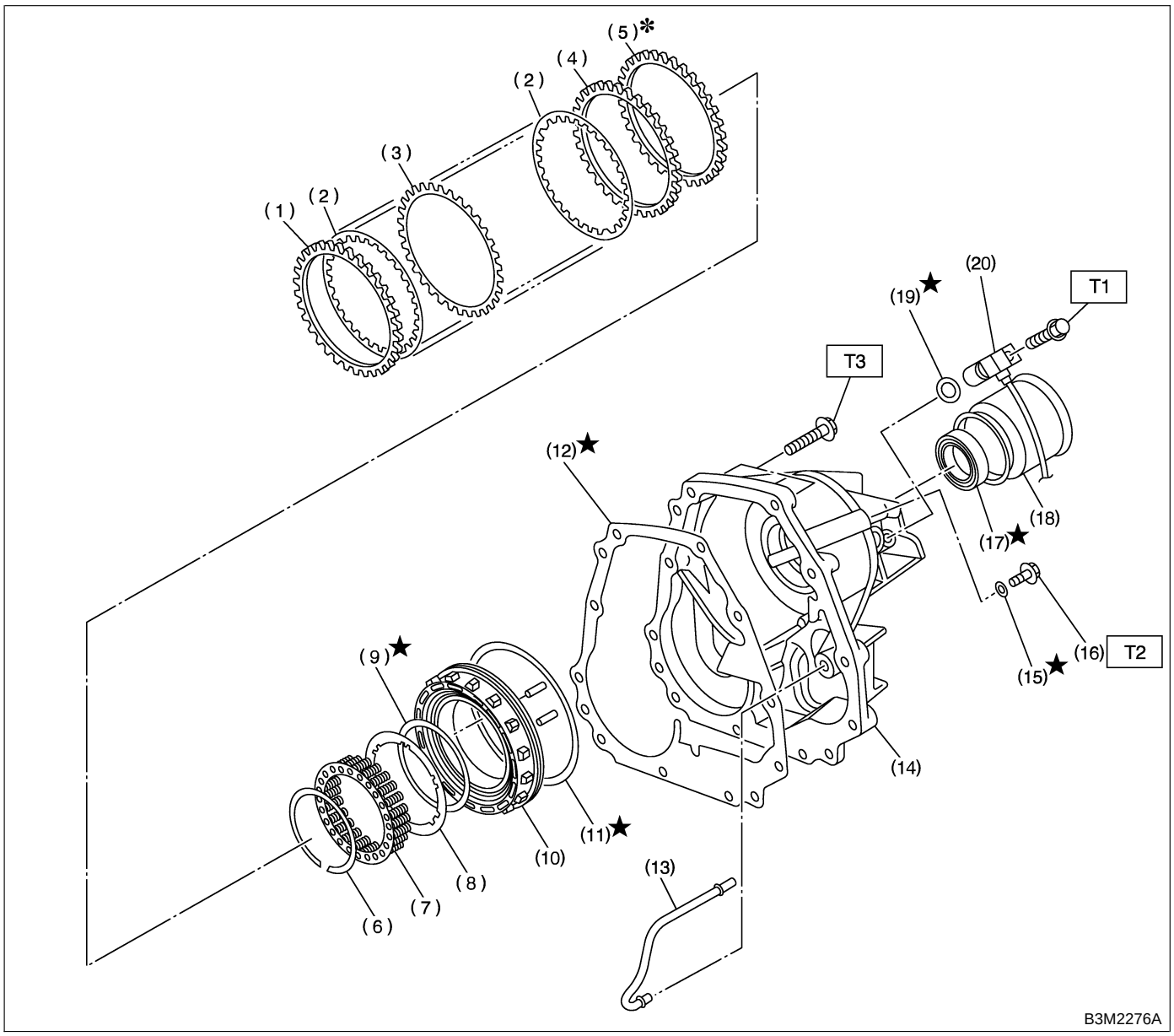
11. TRANSFER AND EXTENSION CASE WITHOUT VTD S510001A0511



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

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

12. TRANSFER AND EXTENSION CASE WITH VTD S510001A0512



(1) Driven plate (Thicker)
(2) Drive plate
(3) Driven plate (Thinner)
(4) Driven plate (Thicker)
(5) Adjust plate
(6) Snap ring
(7) Spring retainer
(8) Plate
(9) Lathe cut seal ring
(10) Multi-plate clutch (LSD) piston ASSY
(11) Lathe cut seal ring
(12) Gasket
(13) Multi-plate clutch (LSD) pipe
(14) Extension case
(15) O-ring
(16) Test plug
(17) Oil seal
(18) Dust cover
(19) O-ring
(20) Rear vehicle speed sensor

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)

C: PRECAUTION S510001F59

When disassembling or assembling the automatic transmission, observe the following instructions.

1) Workshop

Provide a place that is clean and free from dust. Principally the conventional workshop is suitable except for a dusty place. In a workshop where grinding work, etc. which produces fine particles is done, make independent place divided by the vinyl curtain or the equivalent.

2) Work table

The size of 1 x 1.5 m (40 x 60 in) is large enough to work, and it is more desirable that its surface be covered with flat plate like iron plate which is not rusted too much.

3) Cleaning of exterior
   (1) Clean the exterior surface of transmission with steam and/or kerosene prior to disassembly, however it should be noted that vinyl tape be placed on the air breather or oil level gauge to prevent infiltration of the steam into the transmission and also the cleaning job be done away from the place of disassembly and assembly.
   (2) Partial cleaning will do, depending on the extent of disassembly (such as when disassembly is limited to some certain parts).

4) Disassembly, assembly and cleaning
   (1) Disassemble and assemble the transmission while inspecting the parts in accordance with the Diagnostics.
   (2) During job, do not use gloves. Do not clean the parts with rags: Use chamois or nylon cloth.
   (3) Pay special attention to the air to be used for cleaning. Get the moisture and the dust rid of the air as much as possible. Be careful not to scratch or dent any part while checking for proper operation with an air gun.
   (4) Complete the job from cleaning to completion of assembly as continuously and speedily as possible in order to avoid occurrence of secondary troubles caused by dust. When stopping the job unavoidably cover the parts with clean chamois or nylon cloth to keep them away from any dust.
   (5) Use kerosene, white gasoline or the equivalent as washing fluid. Use always new fluid for cleaning the automatic transmission parts and never reuse. The used fluid is usable in disassemble and assemble work of engine and manual transmission.
   (6) Although the cleaning should be done by dipping into the washing fluid or blowing of the pressurized washing fluid, the dipping is more desirable. (Do not rub with a brush.) Assemble the parts immediately after the cleaning without exposure to the air for a while. Besides in case of washing rubber parts, perform the job quickly not to dip them into the washing fluid for long time.
   (7) Apply the automatic transmission fluid (ATF) onto the parts immediately prior to assembly, and the specified tightening torque should be observed carefully.
   (8) Use vaseline if it is necessary to hold parts in the position when assembling.
   (9) Drain ATF and differential gear oil into a saucer so that the conditions of fluid and oil can be inspected.
   (10) Do not support axle drive shaft, stator shaft, input shaft or various pipes when moving transmission from one place to another.
   (11) Always discard old oil seals and O-ring, and install new ones.
   (12) Be sure to replace parts which are damaged, worn, scratched, discolored, etc.

D: PREPARATION TOOL S510001A17

1. SPECIAL TOOLS S510001A1701

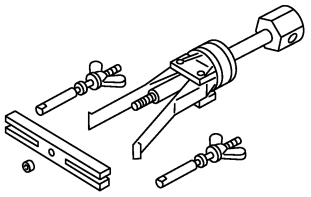
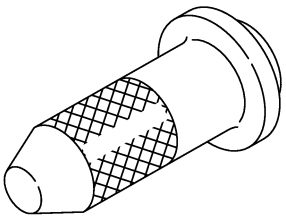
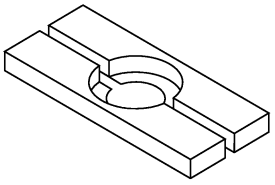
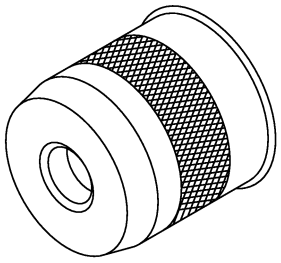
ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 B3M1977	398527700	PULLER ASSY	• Used for removing extension case roller bearing. • Used for removing extension oil seal. • Used for removing front differential side retainer bearing outer race.
 B3M1972	498057300	INSTALLER	Used for installing extension oil seal.
 B3M1998	498077000	REMOVER	Used for removing differential taper roller bearing.
 B3M1999	499247400	INSTALLER	• Used for installing transfer outer snap ring. • Used with GUIDE (499257300).

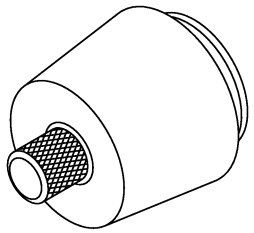
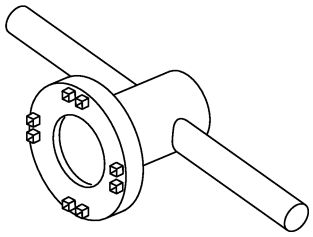
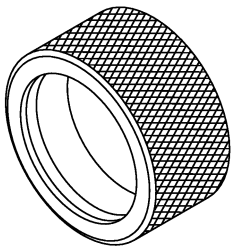
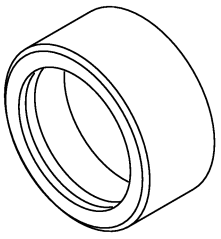
ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 B3M2000	499257300	SNAP RING OUTER GUIDE	• Used for installing transfer outer snap ring. • Used with INSTALLER (499247400).
 B3M1953	499787000	WRENCH ASSY	Used for removing and installing differential side retainer.
 B3M2001	398437700	DRIFT	Used for installing converter case oil seal.
 B3M1912	398487700	INSTALLER	Used for installing taper roller bearing of front differential.

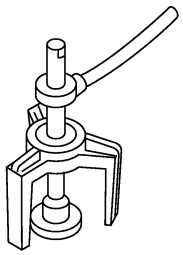
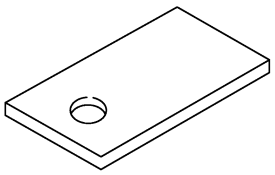
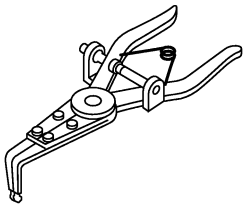
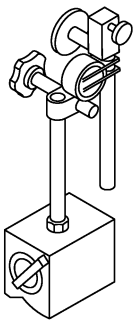
ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 B3M2002	398673600	COMPRESSOR	Used for removing and installing clutch spring.
 B3M1973	498255400	PLATE	Used for measuring backlash of hypoid gear.
 B3M2003	399893600	PLIERS	Used for removing and installing clutch spring.
 B3M1945	498247001	MAGNET BASE	• Used for measuring gear backlash. • Used with DIAL GAUGE (498247100).

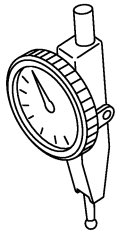
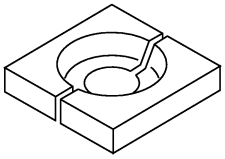
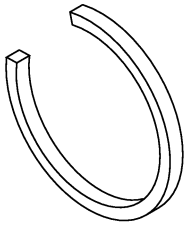
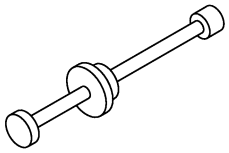
ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 B3M1946	498247100	DIAL GAUGE	• Used for measuring gear backlash. • Used with MAGNET BASE (498247001).
 B3M2004	498517000	REPLACER	Used for removing front roller bearing.
 B3M2005	498627100	SEAT	Used for removing spring of transfer clutch piston.
 B3M2006	499095500	REMOVER	Used for removing axle shaft.

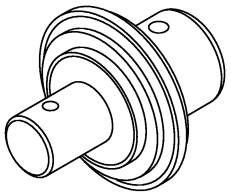
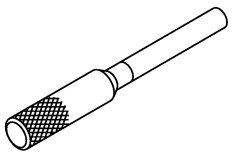
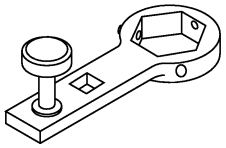
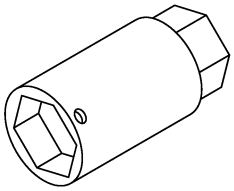
ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 B3M2007	499247300	INSTALLER	• Used for removing axle shaft. • Used with REMOVER (499095500).
 B3M2008	499267300	STOPPER PIN	Used for installing inhibitor switch.
 B3M2009	499787700	WRENCH	Used for removing and installing drive pinion lock nut.
 B3M2010	499787500	ADAPTER	Used for removing and installing drive pinion lock nut.

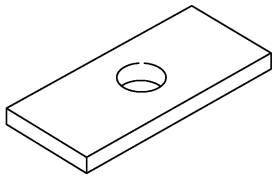
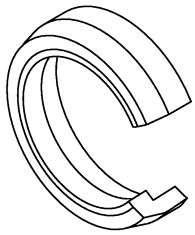
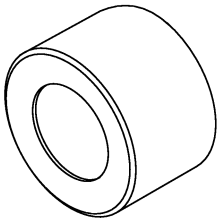
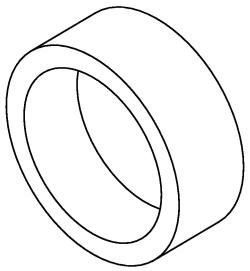
ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 B3M1978	398643600	GAUGE	Used for measuring total end play, extension end play and drive pinion height.
 B3M2011	498627100	SEAT	Used for holding low clutch piston retainer spring when installing snap ring.
 B3M2012	499577000	GAUGE	• Used for measuring the transmission case mating surface to the reduction gear end surface. • For without VTD.
 B2M3854	398744300	GAUGE	• Used for measuring the transmission case mating surface to the multi-plate clutch end surface. • For with VTD.

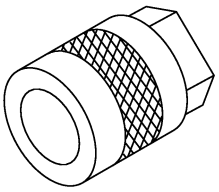
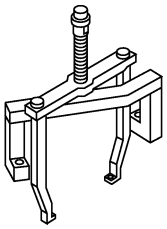
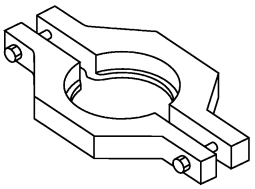
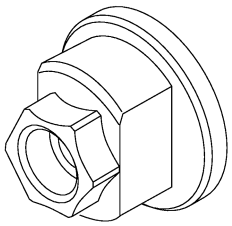
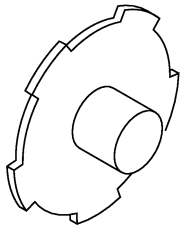
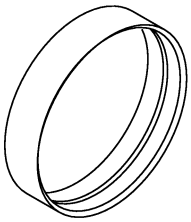
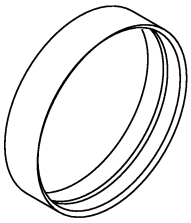
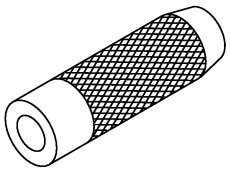
ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 B3M2013	499737000	PULLER	Used for removing reduction driven gear assembly.
 B3M2014	499737100	PULLER SET	Used for removing reduction drive gear assembly.
 B3M2015	498077600	REMOVER	Used for removing ball bearing.
 B3M2016	498937110	HOLDER	Used for removing and installing drive pinion lock nut.

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 B3M2017	498677100	COMPRESSOR	Used for installing 2-4 brake snap ring.
 B3M2018	498437000	HIGH CLUTCH PISTON GUIDE	Used for installing high clutch piston.
 B3M2018	498437100	LOW CLUTCH PISTON GUIDE	Used for installing low clutch piston.
 B3M2019	899580100	INSTALLER	Used for press-fitting the ball bearing for transfer clutch.

2. GENERAL PURPOSE TOOLS S510001A1702

TOOL NAME	REMARKS
Depth gauge	Used for measuring transmission end play.
Thickness gauge	Used for measuring clearances of clutch, brake and oil pump.
Micro meter	Used for measuring thickness of drive pinion.
Spring balance	Used for measuring starting torque of drive pinion.

E: PROCEDURE S510001E45

● In this section the procedures described under each index are all connected and stated in order. It will be the complete procedure for overhauling of the automatic transmission itself when you go through all steps in the process.
Therefore, in this section, to conduct the particular procedure within the flow of a section, you need to go back and conduct the procedure described previously in order to do that particular procedure.