D2 DRIVE SHAFT/PROPELLER SHAFT/AXLE

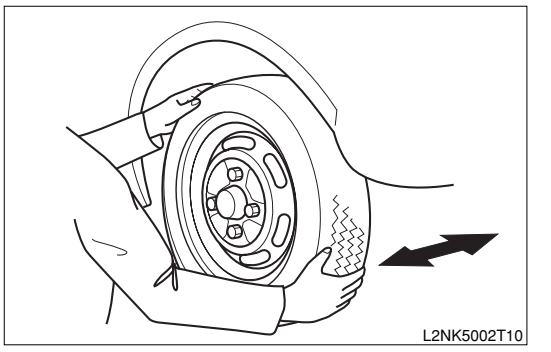
1 AXLE SYSTEM

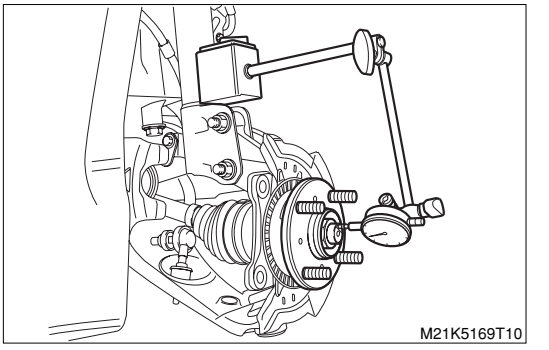
1-1 BASIC CHECK AND ADJUSTMENT

1-1-1 CHECK OF WHEEL BEARING FOR EXCESSIVE PLAY

(1) Check of wheel bearing for excessive play

1. Move the tire by holding the tire at the upper and lower parts by hands. Check to see if the wheel bearing has excessive play.
   If there is excessive play, perform the check again while depressing the brake pedal and confirm whether it is excessive play of the wheel bearing or not.
2. Turn the wheel and check to see if abnormal noise is emitted.
3. If necessary, set a dial gauge at the circumference of the forward end of the drive shaft and check for excessive play in the bearing axial direction.
   If the allowable limit is exceeded, replace the axle hub and radial ball bearing.
   ALLOWABLE LIMIT: 0.05mm





(2) Check of boot for cracks and damage

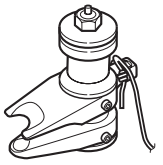
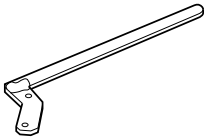
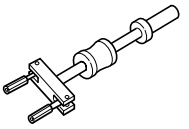
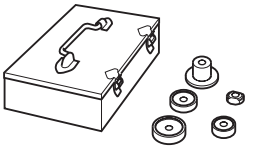
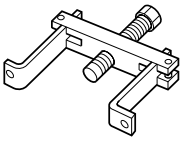
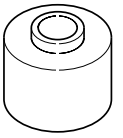
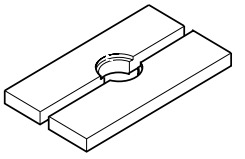
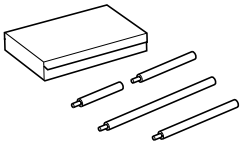
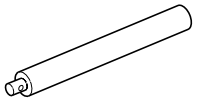
1. Visually check the boot of the universal joint section of the drive shaft for any cracks or damage.
2. Visually check to see if any boot rupture or boot band looseness is present.

2 FRONT AXLE

2-1 REMOVAL AND INSTALLATION

2-1-1 ARTICLES TO BE PREPARED

SST

Shape	Part No.	Part name
	09628-00011-000 (09611-87701-000)	Puller,tie-rod end
	09511-87202-000	Wrench rear axle bearing lock nut
	09520-00031-000 (09520-00030-000)	Puller,rear axle shaft
	09550-10013-000 (09550-10012-000)	set,replacer B
	09950-97201-000 (09950-20017-000)	Puller,universal
	09510-87301-000	Puller,axle shaft
	09506-87301-000	Replacer,differential drive pinion bearing corn,rear
	09527-87301-000	Remover,rear axle shaft bearing
	09950-70010-000	Set,handle
	09951-07200-000 (09631-00020-000)	Handle

Tool

Snap ring pliers

Instrument

Dial gauge,Torque wrench

2-1-2 OPERATION BEFORE REMOVAL

1.Lift up the vehicle.
2.Remove the front wheel.
3.Remove the front wheel speed sensor.(ABS equipped vehicles)
Refer to Page E3-4.

4.Remove the front disc brake caliper assembly and hang it, using a wire or the like.
Refer to Page E1-53.

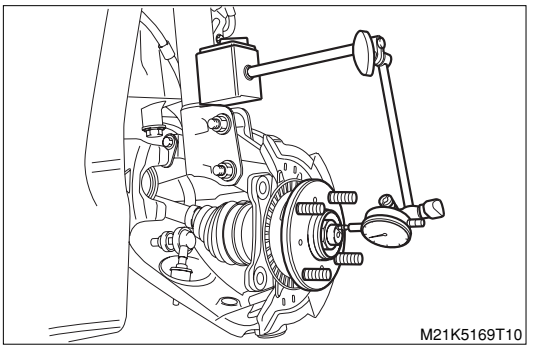
CAUTION
- Be very careful not to damage the flexible hose.

5.Remove the brake disc.

2-1-3 INSPECTION

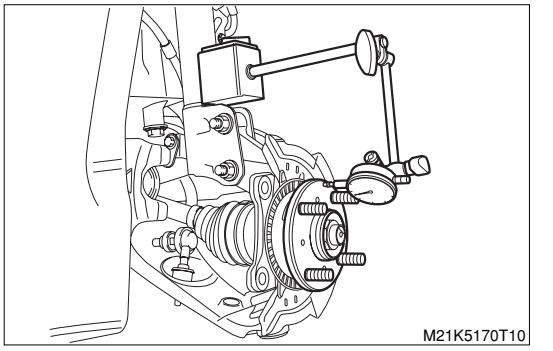
(1) Check of bearing for axial play

1.Set a dial gauge to a point on the periphery at the tip-end of the drive shaft. Check the bearing for axial play.
If the play exceeds the limit, replace the axle hub and radial ball bearing.
ALLOWABLE LIMIT: 0.05mm


M21K5169T10

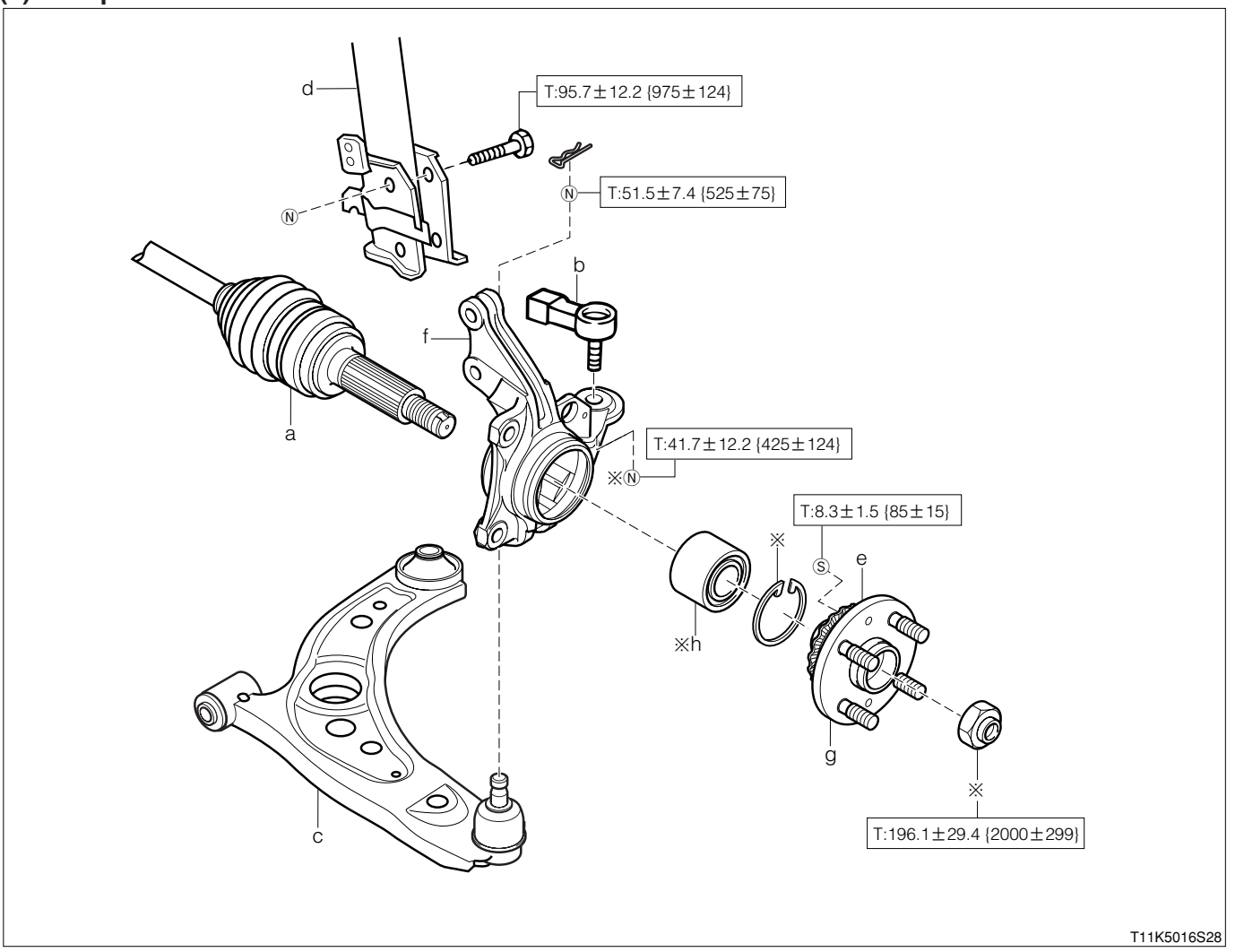
(2) Check of front axle runout

1.Set a dial gauge to the outer periphery of the axle hub. Turn the axle hub to check the runout.
If the runout exceeds the limit, replace the axle hub and radial ball bearing.
ALLOWABLE LIMIT: 0.05mm


M21K5170T10

2-1-4 REMOVAL AND INSTALLATION PROCEDURES

(1) Components



※:Non - reusable parts

Unit:N·m{kgf·cm}

(2) Removal and installation procedures

▼ ▲ 1 a Shaft Ay, front drive,RH/LH
▼ 2 b End S/A, tie rod,RH/LH
▼ ▲ 3 c Arm S/A, suspension lower W/bush,RH/LH
▼ 4 a Shaft Ay, front drive,RH/LH
5 d Absorber Ay, shock front,RH/LH
▼ 6 e Hub S/A, front axle
7 f Knuckle, steering,RH/LH
8 g Rotor, skid control, sensor front
▼ ▲ 9 h Bearing, Radial ball

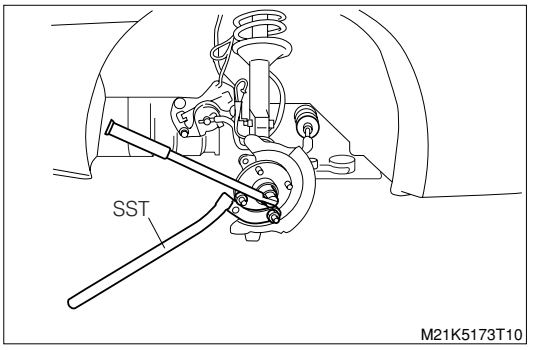
2-1-5 POINTS OF REMOVAL

(1) Shaft Ay, front drive,RH/LH

1.Remove the nut.

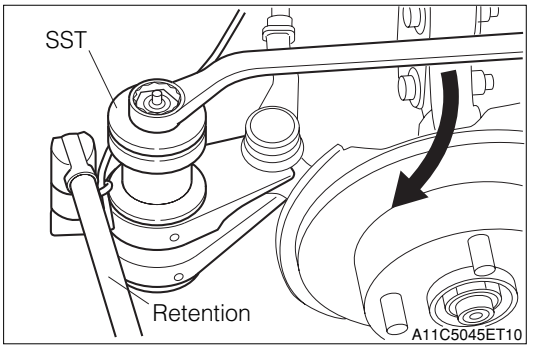
(1) Release the staked portion, using a chisel or the like.

(2) Remove the nut, using the SST.
SST: 09511-87202-000



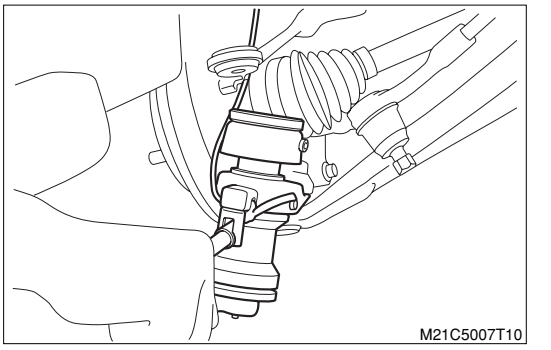
(2) End S/A, tie rod,RH/LH

1.Separate the RH/LH steering knuckles from the end S/A, using the SST.
(1) Suspend the SST with a rope.
(2) Install a dummy nut to the threaded section of the end S/A. Set the SST and remove the end S/A.
SST: 09628-00011-000



(3) Arm S/A, suspension lower W/bush,RH/LH

1.Remove the ball joint section of the arm S/A, using the SST.
(1) Suspend the SST with a rope.
(2) Install a dummy nut to the threaded section of the arm S/A. Set the SST and remove the arm S/A.
SST: 09628-00011-000

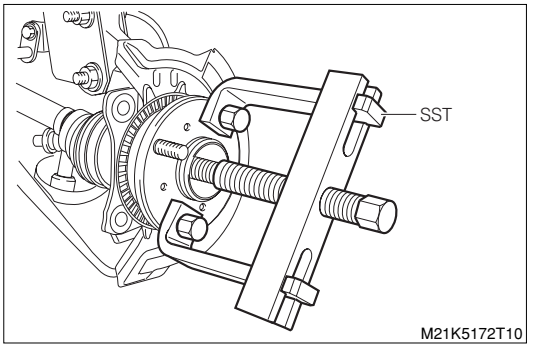


(4) Shaft Ay, front drive,RH/LH

1.Separate the shaft Ay from the front axle hub S/A and RH/LH steering knuckle, using the SST.
SST: 09510-87301-000

CAUTION

- Hang the drive shaft by means of wire or the like.



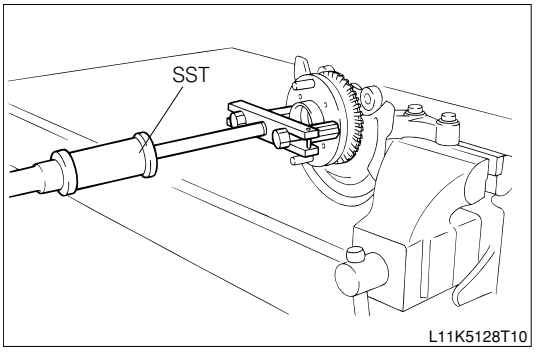
(5) Hub S/A, front axle

1.Remove the hub S/A and RH/LH steering knuckle from the RH/LH front shock absorber Ay.
2.Remove the front axle hub S/A.
(1) Secure the hub S/A and RH/LH steering knuckle in a vice, using the bolts that retain the RH/LH steering knuckles in the RH/LH front shock absorber Ay.

(2) Remove the hub S/A from the RH/LH steering knuckle, using the SST.

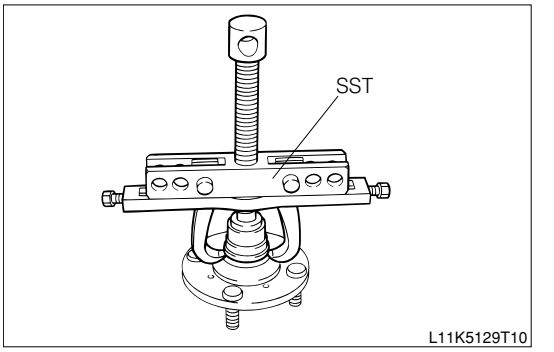
SST: 09520-00031-000

(3) Remove the skid control sensor rotor.(ABS-equipped vehicles)



(4) Remove the radial ball bearing inner race, using the SST.

SST: 09950-97201-000

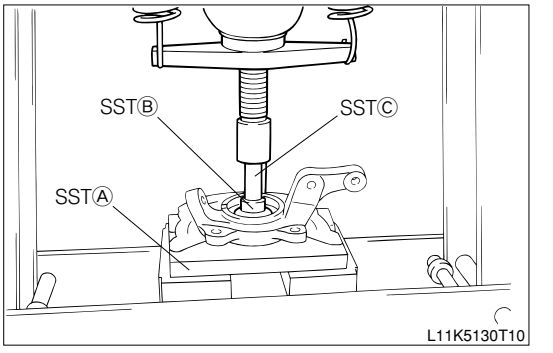


(6) Bearing, radial ball

1.Detach the hole snap ring, using a snap ring expander.

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

SST: 09527-87301-000(Ⓐ)
09554-10011-000 [09554-10011-000](Ⓑ)
09951-07200-000 [09951-07200-000](Ⓒ)



2-1-6 POINTS OF INSTALLATION

(1) Bearing, radial ball

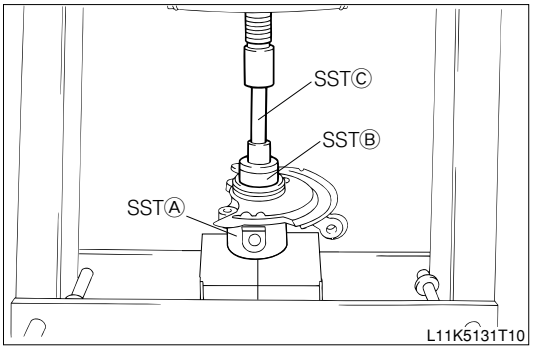
1.Press the radial ball bearing to the steering knuckle S/A, using the SST in combination with a press. Install the hole snap ring.

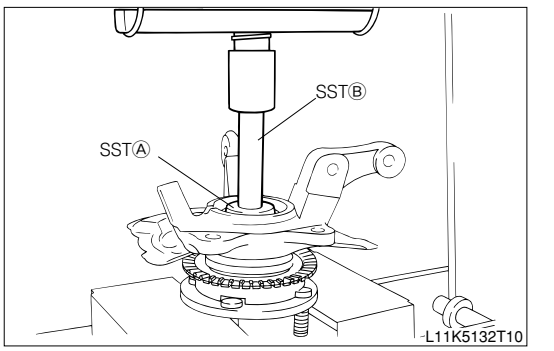
SST: 09506-87301-000(Ⓐ)
09554-10011-000 [09554-10011-000](Ⓑ)
09951-07200-000 [09951-07200-000](Ⓒ)

2.Install the skid control sensor rotor.(ABS-equipped vehicles)

3.Press the front axle hub S/A into the steering knuckle, using the SST in combination with a press.

SST: 09556-10011-000 [09556-10011-000](Ⓐ)
09951-07200-000 [09551-07200-000](Ⓑ)





(2) Arm S/A, suspension lower W/bush,RH/LH

1.Install the RH/LH steering knuckle to the arm S/A.

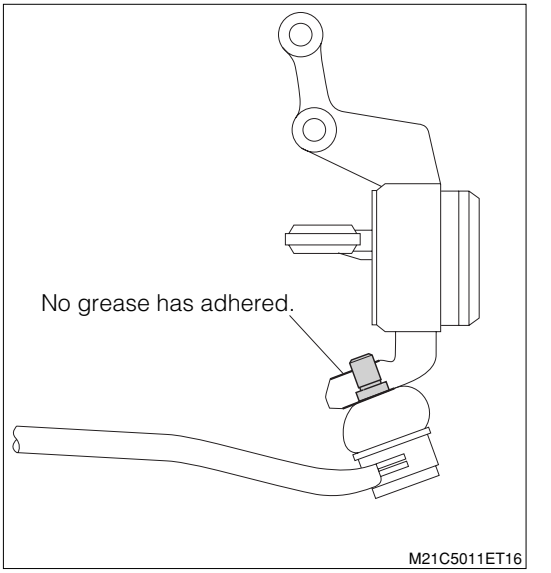
CAUTION

- During the assembly, ensure that no lubricant, such as grease, is adhered to the threaded portion, tapered section, and RH/LH steering knuckle installation sections of the ball stud of the arm S/A. If any lubricant is adhered, be certain to wipe it off.

2.Install the front axle hub S/A and RH/LH steering knuckle to the shock absrober, while inserting the RH/LH front drive shaft Ay.

CAUTION

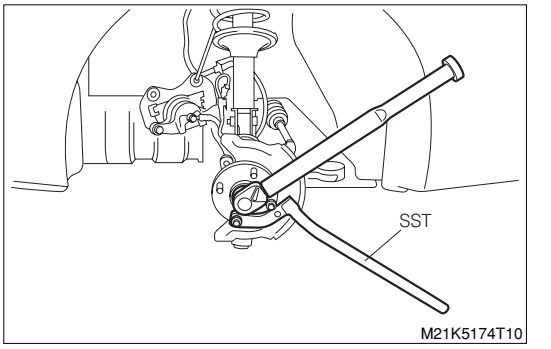
- Do not pull out the drive shaft beyond the required extent.



(3) ShaftAy, front drive,RH/LH

1.Install the nut.

(1) Tighten the nut to the specified torque, using the SST.
SST: 09511-87202-000



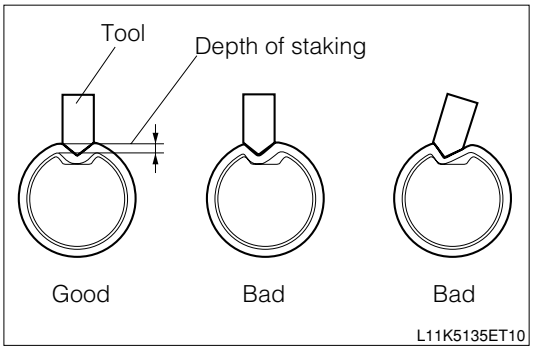
(2) Using a chisel, firmly stake the tip-end of the front drive shaft and nut, as indicated in the right figure.

CAUTION

- Ensure that the staked section of the nut and the threaded portion of the shaft Ay exhibit no crack. (Peeling off of the plating of the nut is permissible.)

NOTE

- The staking should be carried out in the center direction of the shaft Ay. The staking depth must be $3.5^{+1.5}_{-0.5}$ mm



2-1-7 OPERATION AFTER INSTALLATION

1.Install the brake disc.

2.Install the front disc brake caliper assembly.
Refer to Page E1-53.

3.Install the front wheel speed sensor.(ABS-equipped vehicles)
Refer to Page E3-4.

4.Install the front wheel.
TIGHTENING TORQUE: 103.0±14.7N·m {1050±150kgf·cm}

5.Check the front alignment.
Refer to Page C1-1.

6.Lift down the vehicle.

3 FRONT DRIVE SHAFT

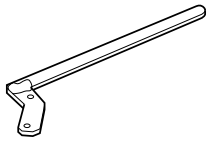
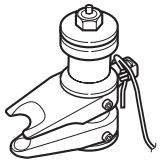
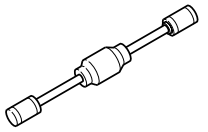
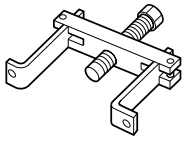
3-1 REMOVAL AND INSTALLATION

WARNING

- Do not carry out the operation while the exhaust pipe is still hot, for there is a pssibility of getting scalded.

3-1-1 ARTICLES TO BE PREPARED

SST

Shape	Part No.	Part name
	09511-87202-000	Wrench rear axle bearing lock nut
	09628-00011-000 (09611-87701-000)	Puller,tie-rod end
	09912-87301-000	Puller,slide hammer
	09510-87301-000	Puller,axle shaft

Instrument

Torque wrench

Lubricant,adhesive,others

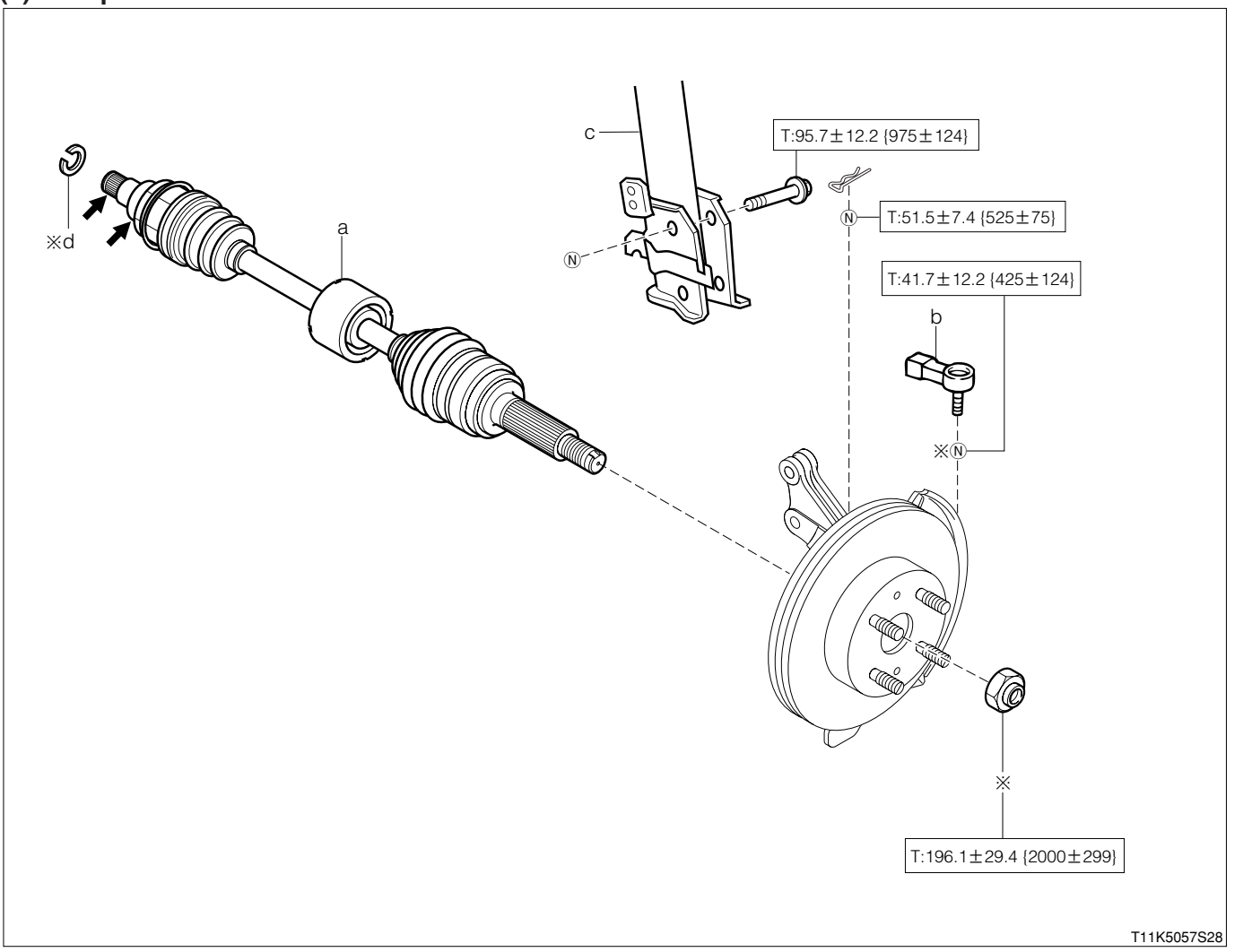
MP grease,ATF Dexron®Ⅲ,Transmission gear oil SAE75W－90 or SAE75W－85 or SAE75W－80 (API Classification GL3 or GL4)

3-1-2 OPERATION BEFORE REMOVAL

1.Lift up the vehicle.
2.Remove the front wheel.
3.Drian the transaxle oil.

3-1-3 REMOVAL AND INSTALLATION PROCEDURES

(1) Components



➡: MP grease
※: Non-reusable parts
Unit: N·m{kgf·cm}

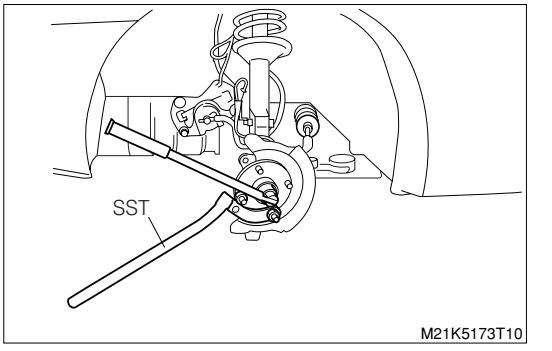
(2) Removal and installation procedures

▼ ▲ 1 a Shaft Ay, front drive,RH/LH
▼ 2 b End S/A, tie rod,RH/LH
3 c Absorber Ay, shock front,RH/LH
▼ ▲ 4 a Shaft Ay, front drive,RH/LH
5 d Ring, shaft snap

3-1-4 POINTS OF REMOVAL

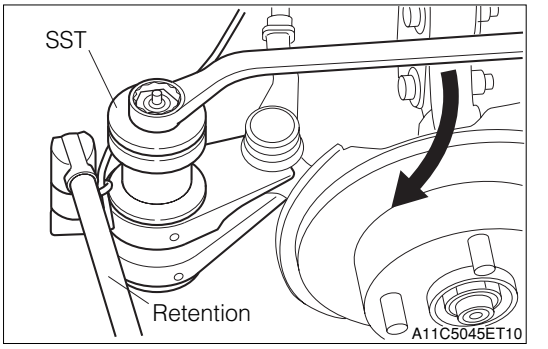
(1) Shaft Ay, front drive,RH/LH

1.Remove the lock nut.
(1) Release the staked portion, using a chisel or the like.
(2) Remove the nut by using the SST to prevent turning.
SST: 09511-87202-000



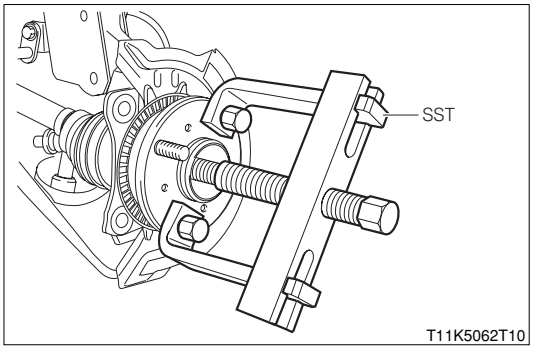
(2) End S/A, tie rod,RH/LH

1.Remove the end S/A from the RH/LH steering knuckles, using the SST.
(1) Suspend the SST with a rope.
(2) Install a dummy nut to the threaded section of the end S/A. Set the SST and remove the end S/A.
SST: 09628-00011-000

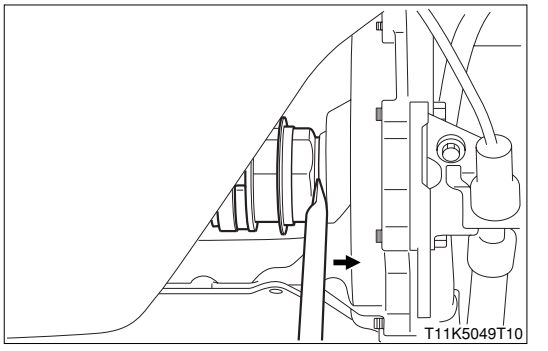


(3) Shaft Ay, front drive,RH/LH

1.Separate the shaft Ay from the RH/LH steering knuckles, using the SST.
SST: 09510-87301-000



2.Turn over the dust cover, while paying attention not to scratch the dust cover. Remove the shaft Ay by applying the arrow edge of the hub nut wrench to the edge surface of the shaft Ay.



3-1-5 INSPECTION

Check the boot for brekage or damage. Replace any faulty part.

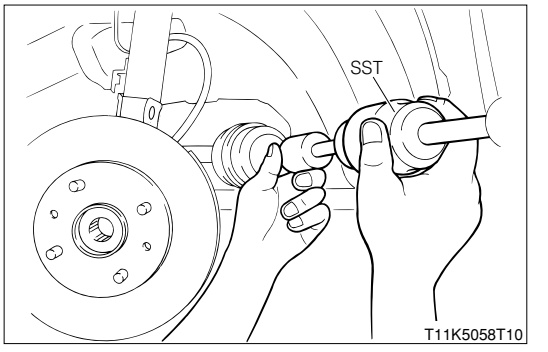
3-1-6 POINTS OF INSTALLATION

(1) Shaft Ay, front drive,RH/LH

1.Insert the front drive shaft assembly to the differential carrier assembly, using the SST.
SST: 09912-87301-000

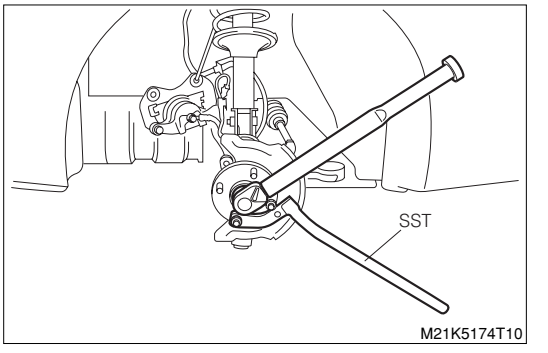
CAUTION

- The insertion should be carried out in such a way that the lip section of the oil seal may not be damaged.
- Apply MP grease to the oil seal contact surface of the shaft Ay and its serration section.

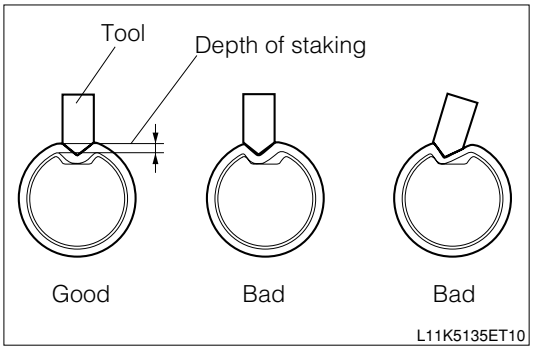


(2) Shaft Ay, front drive,RH/LH

1.Install the nut.
(1) Tighten the nut to the specified torque, using the SST.
SST: 09511-87202-000



(2) Using a chisel, firmly stake the tip-end of the front drive shaft and nut, as indicated in the right figure.



CAUTION

- Ensure that the staked section of the nut and the threaded portion of the shaft Ay exhibit no crack. (Peeling off of the plating of the nut is permissible.)

NOTE

- The staking should be carried out in the center direction of the shaft Ay. The staking depth must be $3.5^{+1.5}_{-0.5}$ mm

3-1-7 OPERATION AFTER INSTALLATION

1.Fill transaxle fluid.

(1) M/T vehicle

Refer to Page F2-1.

(2) A/T vehicle

Refer to Page F3-1.

2.Install the front wheel.

TIGHTENING TORQUE: 103.0±14.7N·m {1050±150kgf·cm}

3.Lift down the vehicle.

4.Check and adjust the front wheel alignment.

Refer to Page C1-1.

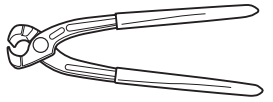
3-2 DISASSEMBLING AND ASSEMBLING

3-2-1 ARTICLES TO BE PREPARED

Tool

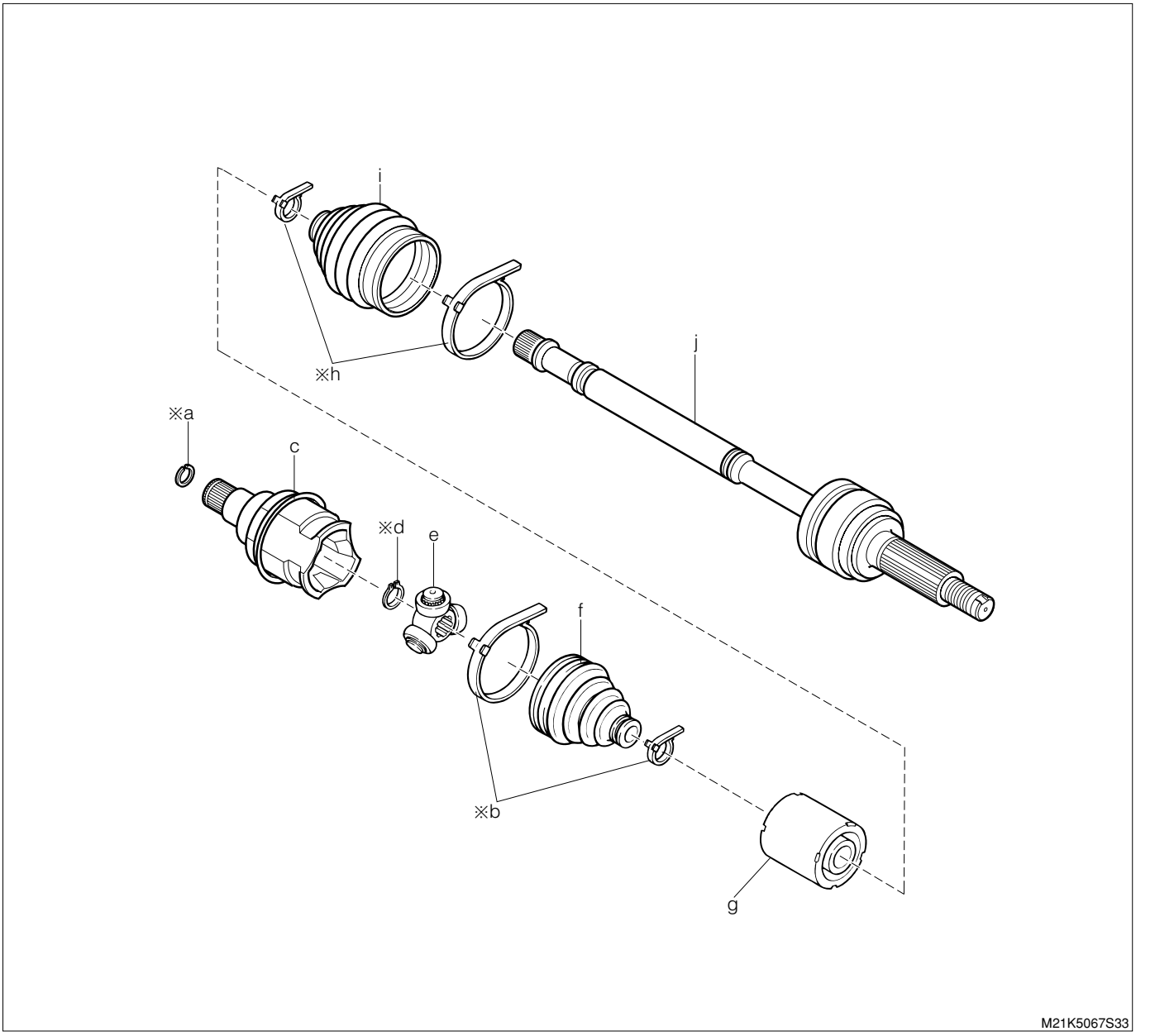
Snap ring expander

SST

Shape	Part No.	Part name
	09648-97202-000	pliers B,drive shaft boots band

3-2-2 DISASSEMBLY AND ASSEMBLY PROCEDURES

(1) Components



※:Non - reusable parts

(2) Disassembling and assembling procedure

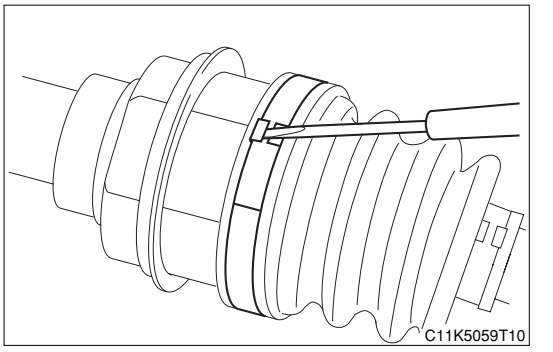
	1	a	Ring, shaft snap	▼	6	f	Boot, front axle inboard joint
	2	b	Clamp, rear drive shaft boot	▼ ▲	7	g	Damper, drive shaft
▼ ▲	3	c	Joint S/A, front axle inboard		8	h	Clamp, Rear drive shaft boot
	4	d	Ring, drive shaft snap	▼ ▲	9	i	Boot, front axle outboard joint
▼ ▲	5	e	Tripod Ay, Inboard joint		10	j	Shaft,front axle,RH/LH

3-2-3 POINTS OF DISASSEMBLY

(1) Joint S/A, front axle inboard

1.Remove the rear drive shaft boot clamp (At the inboard side).

(1) Using a flat screwdriver, release the locking at the bent section of the boot band (At the inboard side).

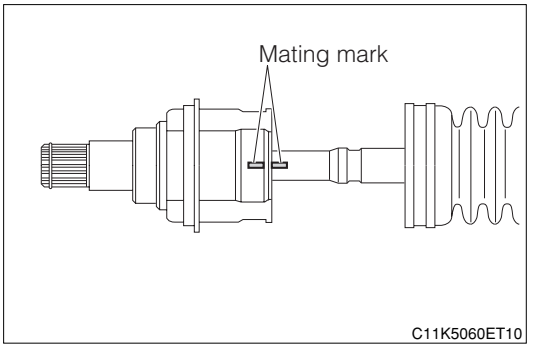


2.Displace the front axle inboard joint boot. Wipe off grease. Put mate marks on the joint S/A and RH/LH front axle shaft.

CAUTION

- As for the mate marks, use paint. (Do not use punching.

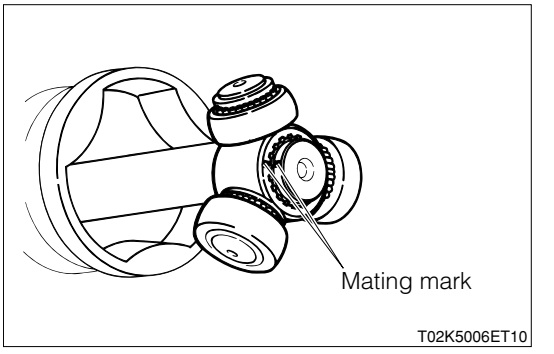
3.Remove the front axle inboard joint S/A



(2) Tripod Ay, Inboard joint

1.Remove the drive shaft snap ring, using a snap ring expander.
TOOL: Snap ring expander

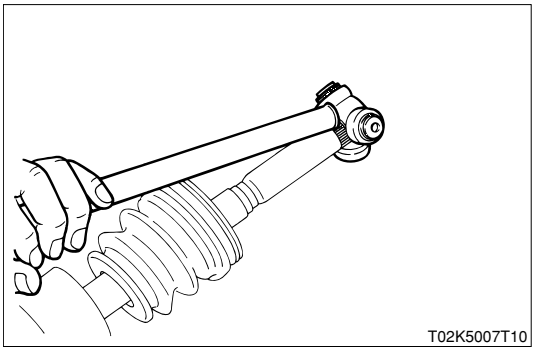
2.Put mating marks on the tripod Ay and RH/LH front axle shaft.



3.Remove the inboard joint tripod Ay, using a brass bar.

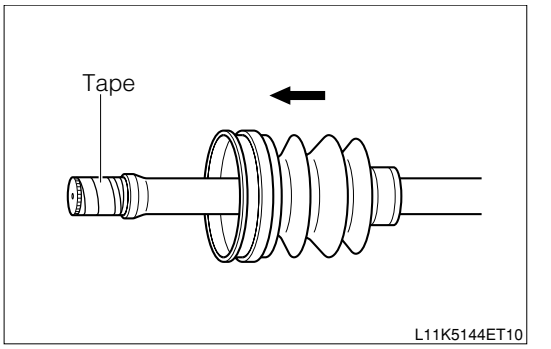
CAUTION

- Be sure to apply a brass bar to the boss section of the tripod, not at the roller section.


T02K5007T10

(3) Boot, front axle inboard joint

1.Wind a tape on the spline section at the inboard side. Remove the boot (At the inboard side).

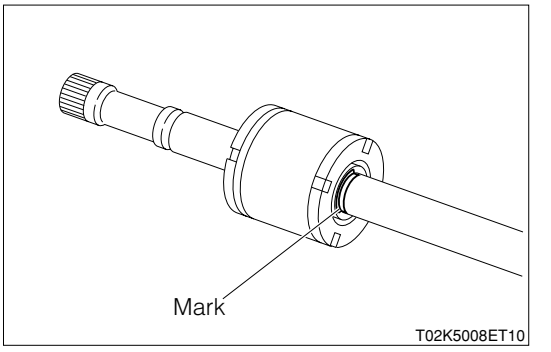


L11K5144ET10

(4) Damper, drive shaft

1.Put mate marks on the damper and drive shaft. (These mate marks are used as a guide during the press-fitting.)

2.Remove the damper, using a press.

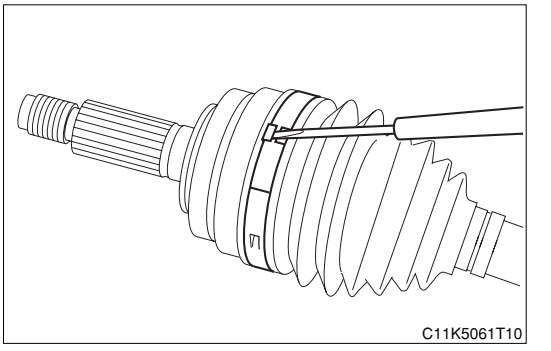


T02K5008ET10

(5) Boot, front axle outboard joint

1.Remove the boot band (At the outboard side).

(1) Using a flat screwdriver, release the locking at the bent section of the boot band (at the outboard side).


C11K5061T10

2.Remove the boot (At the outboard side).

3-2-4 POINTS OF ASSEMBLY

(1) Boot, front axle outboard joint

1. Assemble the boot (At the outboard side).

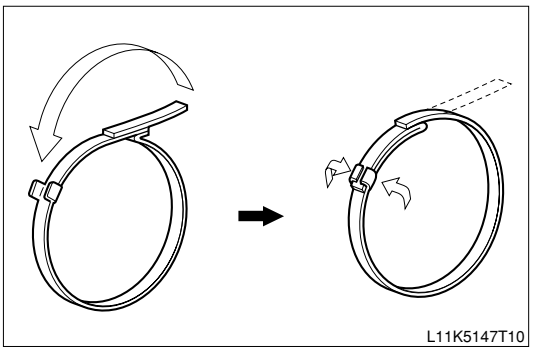
(1) Wind a tape on the spline section at the inboard side. .

(2) Fill the outboard joint section and the inside of the boot with the grease furnished in the boot set. Assemble the boot (At the outboard side).

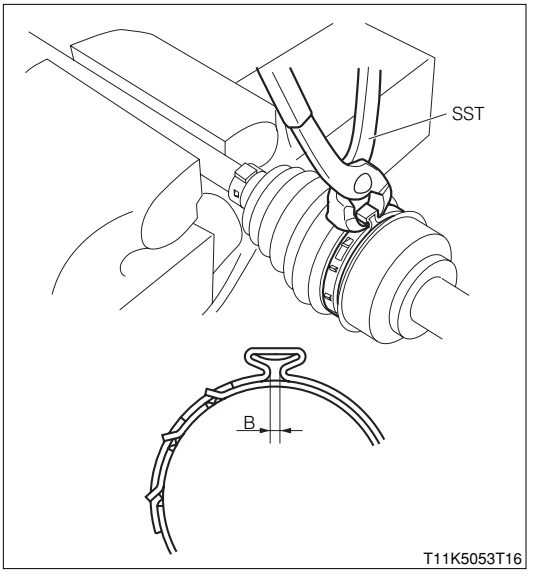
NOTE

- Filling amount: 1KR engine mounted vehicles: 70±10g
  K3 engine mounted vehicles: 95±10g

2.Assemble the rear drive shaft boot clamp by bending it in the sequence specified in the right figure.
(Type 1KR engine mounted vehicles)

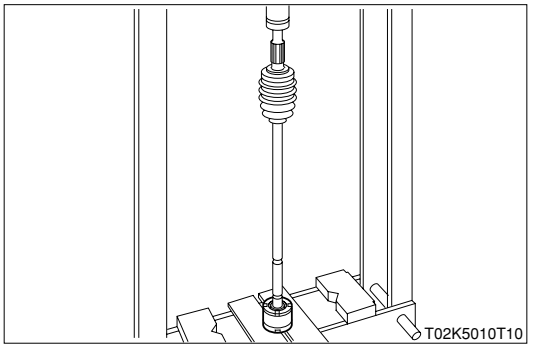


3.Positively stake the rear drive shaft boot clamp, using the SST.
(Type K3 engine mounted vehicles)
SST: 09648-97202-000
NOTE
- Dimensions B 1.0 - 4.0mm



(2) Damper, drive shaft

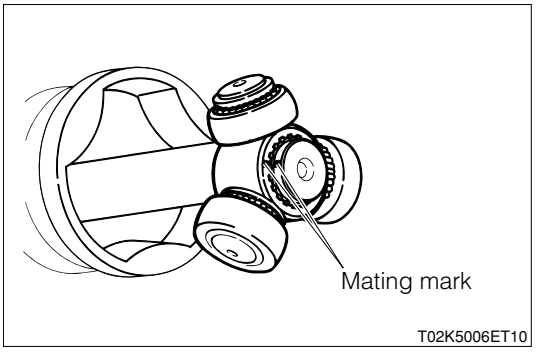
1.The press-fitting should be made up to the mark position that was put during the disassembly.
CAUTION
- The press-fitting should be with the joint section in a straight condition.



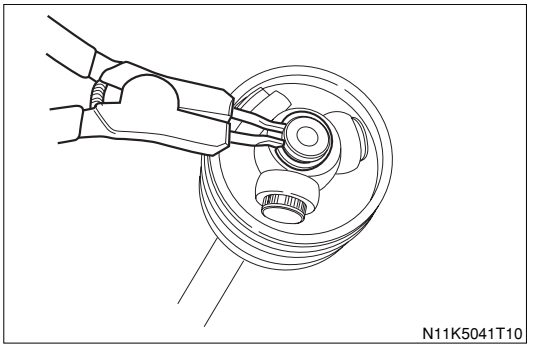
(3) Tripod Ay, inboard joint

1.Assemble the front axle inboard joint boot and rear drive shaft boot clamp to the RH/LH front axle shafts.

2.Assemble the tripod Ay, aligning with the mating marks on the RH/LH front axle shaft.
CAUTION
- Assemble the tripod Ay to the RH/LH front axle shaft from the chamfered side of the spline.
- When the brass bar is used for driving, be sure to apply the brass bar to the boss section of the tripod, not to the roller section.



3.Install the drive shaft snap ring, using a snap ring expander.
TOOL: Snap ring expander

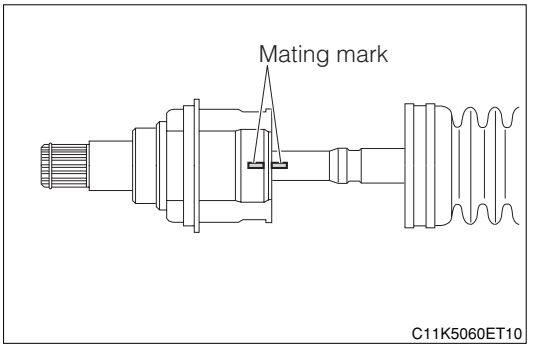

N11K5041T10

(4) Joint S/A, front axle inboard

1.Fill the joint S/A with the grease furnished in the boot set. Assemble the joint S/A, aligning with the mate marks on the RH/LH front axle shafts. .

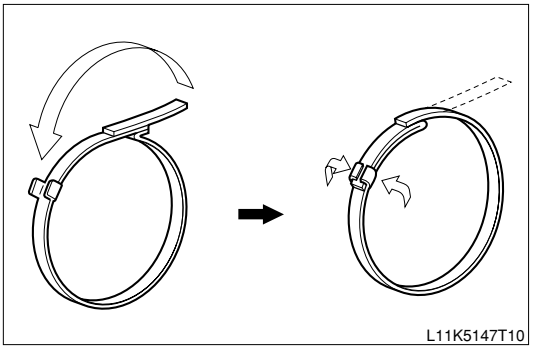
NOTE

- Filling amount:1KR engine mounted vehicles: 65±10g
  K3 engine mounted vehicles: 80±10g



C11K5060ET10

2.Bend and assemble the boot band, as indicated in the right figure.


L11K5147T10

4 REAR AXLE BEARING (2WD)

4-1 REMOVAL AND INSTALLATION (VEHICLES NOT EQUIPPED WITH ABS)

Refer to Page E1-65.

4-3 REMOVAL AND INSTALLATION (ABS-EQUIPPED VEHICLES)

Refer to Page E1-65.