

SUSPENSION

(REAR, MODELS: FR, FS, FY, SS, ZS)

SU02-002

LEAF SUSPENSION ASSEMBLY SU02-2

DATA AND SPECIFICATIONS..... SU02-2

DESCRIPTION SU02-2

TROUBLESHOOTING..... SU02-3

SPECIAL TOOL..... SU02-3

COMPONENT LOCATOR SU02-4

OVERHAUL SU02-5

INSPECTION AND REPAIR SU02-9

LEAF SUSPENSION ASSEMBLY

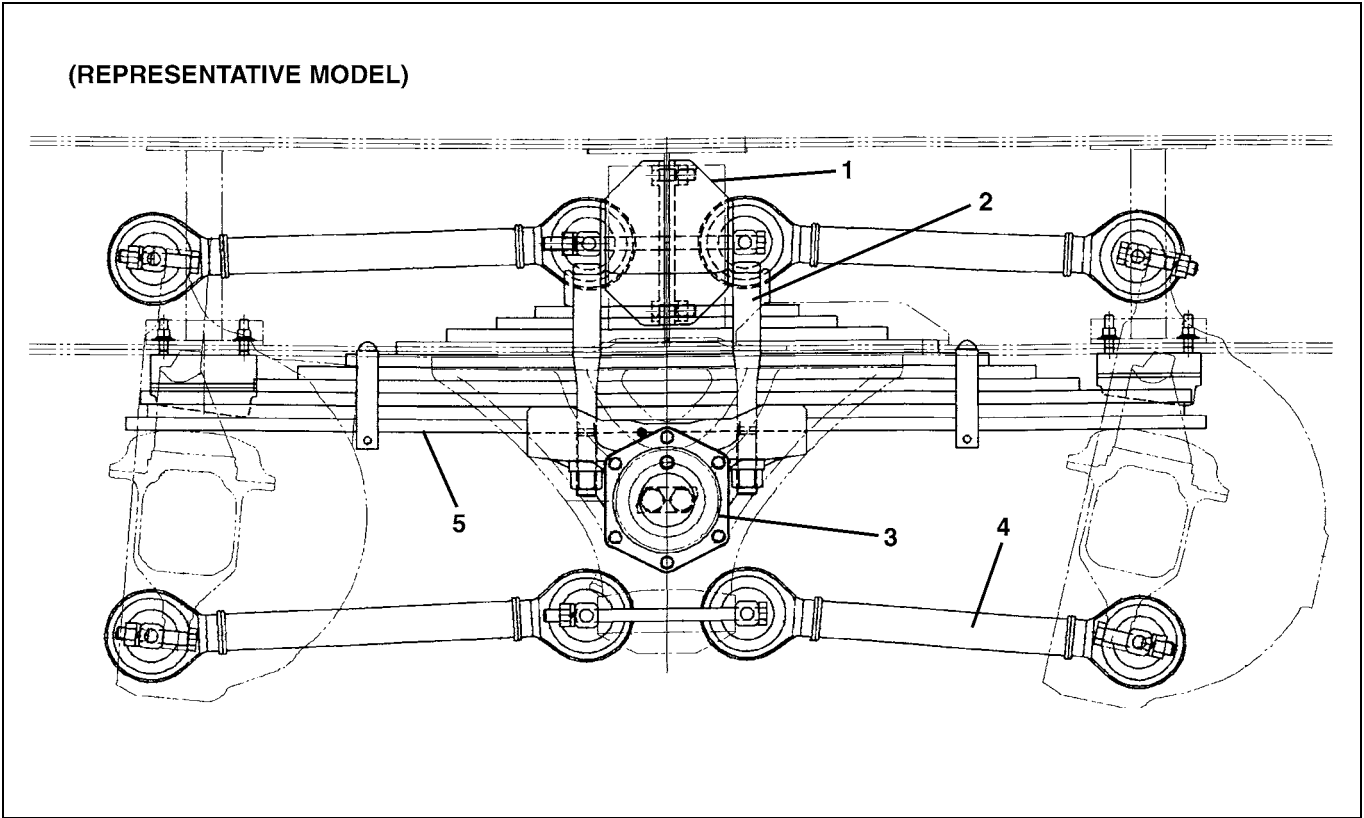
DATA AND SPECIFICATIONS

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Unit: mm {in.}

Models		FR	FS			FY		SS	ZS
Type		Semi-elliptic springs with torque rod							
Dimensions of leaf springs	Span	1,310 {51.57}							1,500 {59.06}
	Width	90 {3.54}							
	Thickness of leaves	Multi leaf spring					Taper leaf spring	Multi leaf spring	
		14 {0.55}	16 {0.63}	22 {0.87}	16 {0.63}	21 {0.83}	33 {1.30}	20 {0.79}	
		16 {0.63}	18 {0.71}	25 {0.98}	18 {0.71}	22 {0.87}	—	22 {0.87}	

DESCRIPTION

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1	Torque rod bracket	4	Torque rod
2	U-bolt	5	Leaf spring assembly
3	Trunnion assembly		

TROUBLESHOOTING

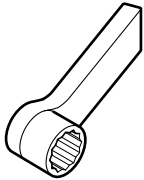
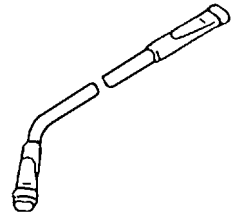
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Symptom	Possible cause	Remedy/Prevention
Rough ride	Broken leaves	Replace the leaves. Check the load capacity rating.
	Cracked or damaged	Replace the leaves. Check the load capacity rating.
	Overloading	Decrease the load.
Heavy sway	Inoperative shock absorber	Replace the shock absorber.
Leaves broken at the center bolt hole	Loosen U-bolts	Tighten to specified torque.
Squeaking of the leaves	Friction between the leaves	Replace the silencers and/or apply chassis grease between leaves.

SPECIAL TOOL

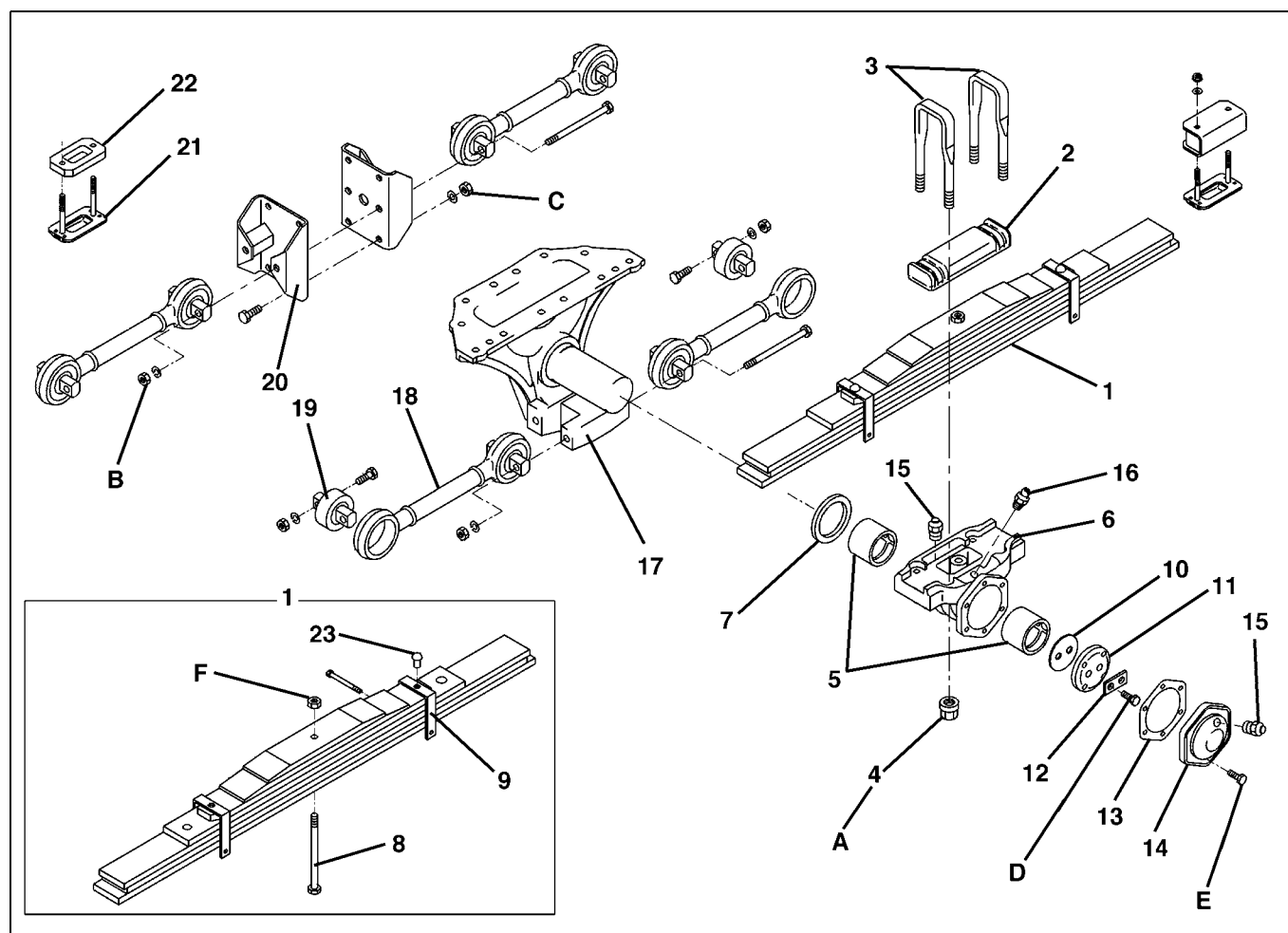
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Prior to starting a suspension overhaul, it is necessary to have these special tools.

Illustration	Part number	Tool name	Remarks
	09603-1010	SOCKET WRENCH	FOR REAR U-BOLT
	09404-1060	HANDLE	

COMPONENT LOCATOR

EN09A0602D100001



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1 Leaf spring assembly	9 Clip	17 Trunnion bracket
2 Spring pad	10 Shim	18 Torque rod
3 U-bolt	11 Clamp plate	19 Rubber bushing
4 Nut	12 Lock plate	20 Torque rod bracket
5 Bushing	13 Trunnion gasket	21 Spring bumper
6 Trunnion seat	14 Trunnion cover	22 Spacer
7 Oil seal	15 Breather valve	23 Rivet
8 Center bolt	16 Lubrication fitting	

Tightening torque

Unit: N·m {kgf·cm, lbf·ft}

A 782-978 {7,975-9,972, 577-721}	D 341-459 {3,478-4,680, 252-338}
B 236-324 {2,407-3,303, 175-238}	E 37-49 {378-499, 28-36}
C 170-230 {1,734-2,345, 126-169}	F 226-284 {2,305-2,895, 167-209}

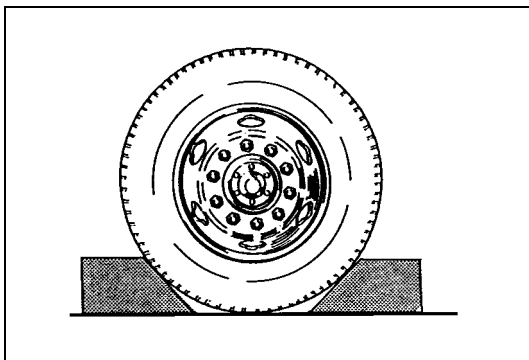
OVERHAUL

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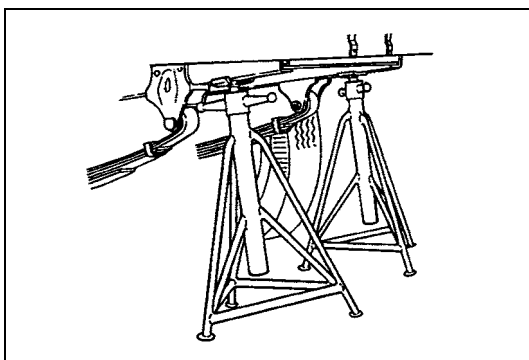
IMPORTANT POINTS - DISMOUNTING

1. SUPPORT OF THE FRAME WITH STANDS

- (1) Park the vehicle on level ground.
- (2) Be sure to block the wheels before dismounting.

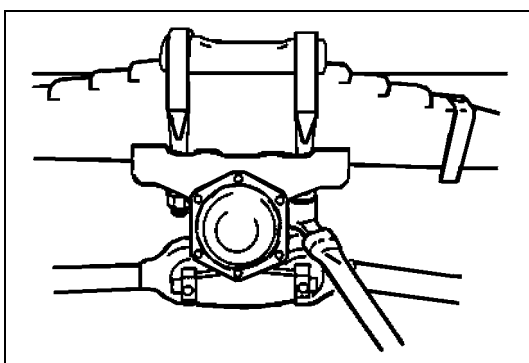


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SHTS09A060200006

- (3) Jack up the axle, and support the frame with stands.
- (4) Remove the tires.



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2. REMOVAL OF THE U-BOLT

- (1) Support the axle with a floor jack.
- (2) Remove the U-bolt mounting nuts.

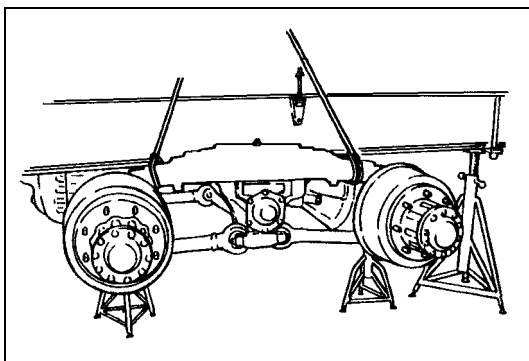
NOTICE

When cutting off the U-bolts (Due to rusted threads) with a torch, never direct the flame toward the leaves or allow sparks to come in contact with the leaves.

SST:

Socket Wrench for Rear U-bolt (09603-1010)

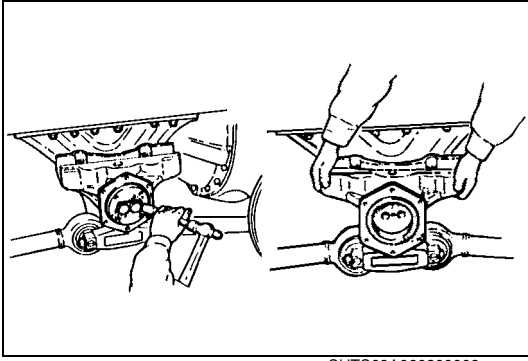
Handle (09404-1060)



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3. REMOVAL OF THE LEAF SPRING FROM THE TRUNNION SEAT

- (1) Remove the leaf spring from the trunnion seat.



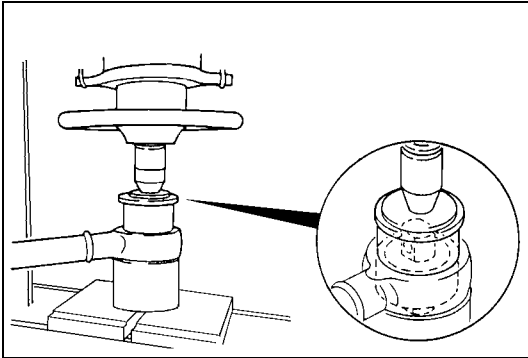
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4. REMOVAL OF THE TRUNNION SEAT

- (1) Remove the trunnion shaft cover.
- (2) Uncaulk the lock plate of the clamp plate bolts with a chisel, then remove the bolts, lock plate, clamp plate and shims.
- (3) Remove the trunnion seat from trunnion shaft.

⚠ WARNING

Since the trunnion seat is too heavy, be careful not to drop it on your feet.

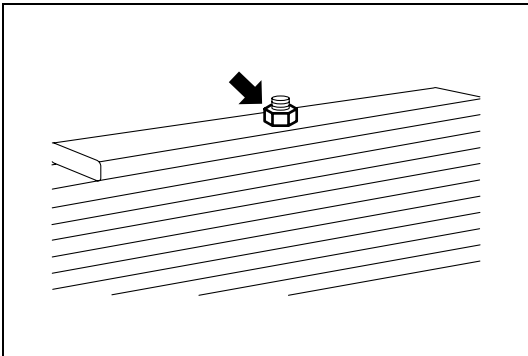


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IMPORTANT POINTS - DISASSEMBLY

1. REPLACEMENT OF THE RUBBER BUSHING

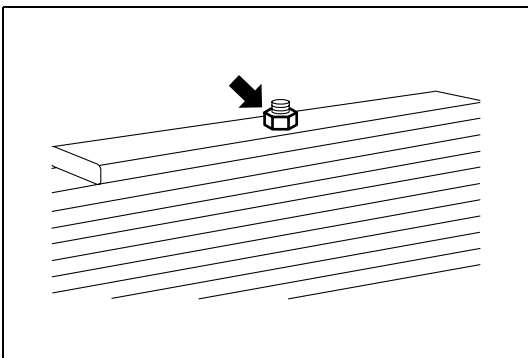
- (1) Use a commercial tool to press out the old rubber bushing.
- (2) Use a commercial tool to press in the new rubber bushing.



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2. DISASSEMBLY OF THE LEAF SPRING

- (1) Remove the clip bolts.
- (2) Remove the center bolt.



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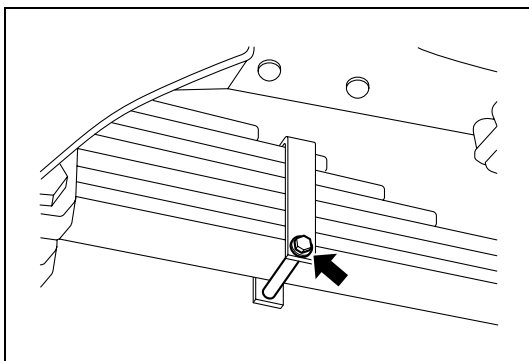
IMPORTANT POINT - ASSEMBLY

1. ASSEMBLY OF THE LEAF SPRING

- (1) Insert the center bolt and tighten the lock nut.

NOTICE

When reassembling the leaf spring, replace the center bolt with a new one.

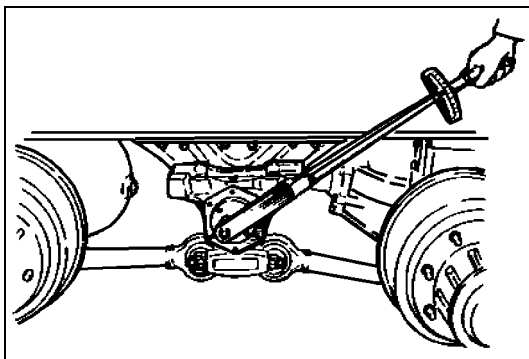


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(2) Tighten the clip bolts.

NOTICE

When tightening the clip bolts, use a new clip bolts.



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IMPORTANT POINTS - MOUNTING

1. INSPECT THE CLEARANCE BETWEEN THE CLAMP PLATE AND THE TRUNNION SEAT.

NOTICE

- Replace the oil seal and trunnion gasket with new ones.
- Apply chassis grease to lip of the oil seal and the inside of the bushing.
- Insert two trunnion seat bolts before installing the trunnion seat on the trunnion shaft.

(1) Install the trunnion seat to the trunnion shaft.
 (2) Set the shim and clamp plate and tighten the bolts with the lock plate.

(3) Inspect the clearance between the clamp plate and trunnion seat.

Standard clearance: 0.05-0.1 mm {0.0020-0.0039 in.}

Service limit: 0.4 mm {0.0157 in.}

NOTICE

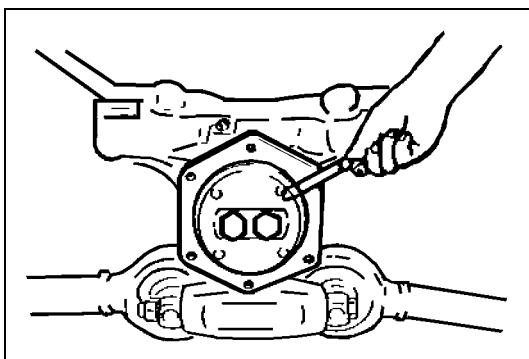
If the standard clearance is not correct, adjust the clearance by decreasing or increasing the shim.

The following shims are available.

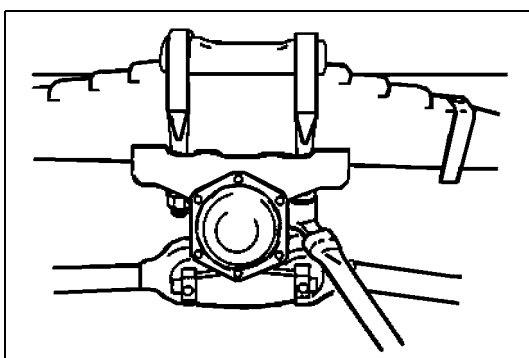
0.30 mm {0.0118 in.}, 0.40 mm {0.0157 in.},

0.45 mm {0.0177 in.}, 0.50 mm {0.0197 in.}.

(4) Lock the clamp plate bolts with the lock plate.



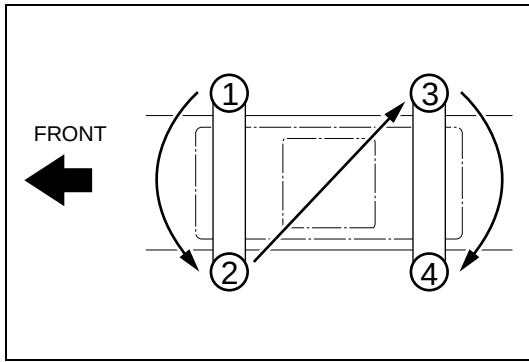
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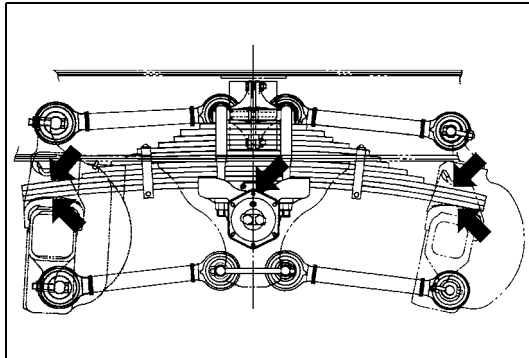
2. INSTALLATION OF THE U-BOLT

- (1) Put the spring pads on the leaf springs.
 (2) Set the U-bolt so that they catch the spring pads and tighten the U-bolt nuts temporarily.



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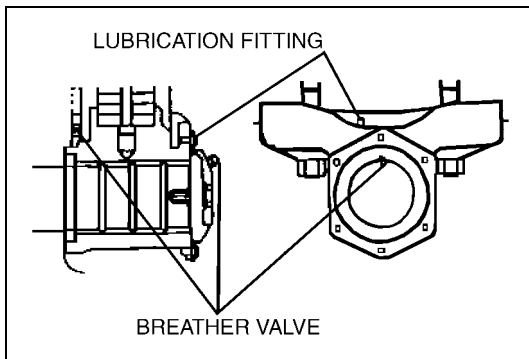
- (3) Using the special tool, tighten the U-bolt nuts (4 pieces) alternately right and left and equally.
After repeating this operation 3 to 5 times, tighten the nuts to the specified torque.

SST:**Socket Wrench for Rear U-bolt (09603-1010)****Handle (09404-1060)**

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3. LUBRICATION

- (1) Lubricate the following parts with chassis grease.
- Spring surface of the spring and axle housing
 - Trunnion shaft



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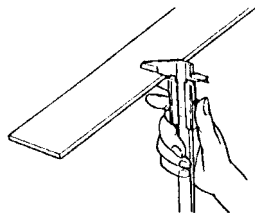
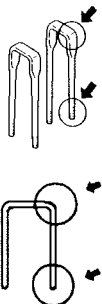
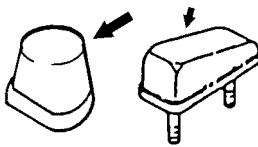
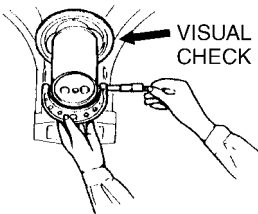
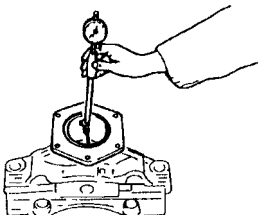
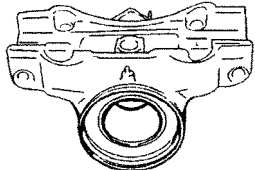
NOTICE

Use the lubrication fitting to chassis grease the trunnion shaft, until the grease flows out from the breather valve of trunnion seat and trunnion cover.

INSPECTION AND REPAIR

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Unit: mm {in.}

Inspection item	Standard	Limit	Remedy	Inspection procedure
Leaf: Damage and wear.	—	More than 15%	Replace.	Measure 
U-Bolt: Damage.	—	—	Replace, if necessary.	Visual check 
Spring bumper: Damage and wear.	—	—	Replace, if necessary.	Visual check 
Trunnion shaft outside diameter.	100 {3.937}	—	Replace, if necessary.	Measure  
Clearance between trunnion shaft and bushing.	0.26-0.43 {0.0103-0.0169}	0.7 {0.0275}	Replace, if necessary.	
Dust shield: Damage.	—	—	Replace, if necessary.	
Trunnion oil seal: Damage.	—	—	Replace, if necessary.	Visual check 

Inspection item	Standard	Limit	Remedy	Inspection procedure
Rubber bushing: Damage and crack.	—	15 {0.59}	In case cracks have developed on the rubber circumference in the range (A or B) shown in figure, replace the torque rod bushing.	Measure and Visual check 