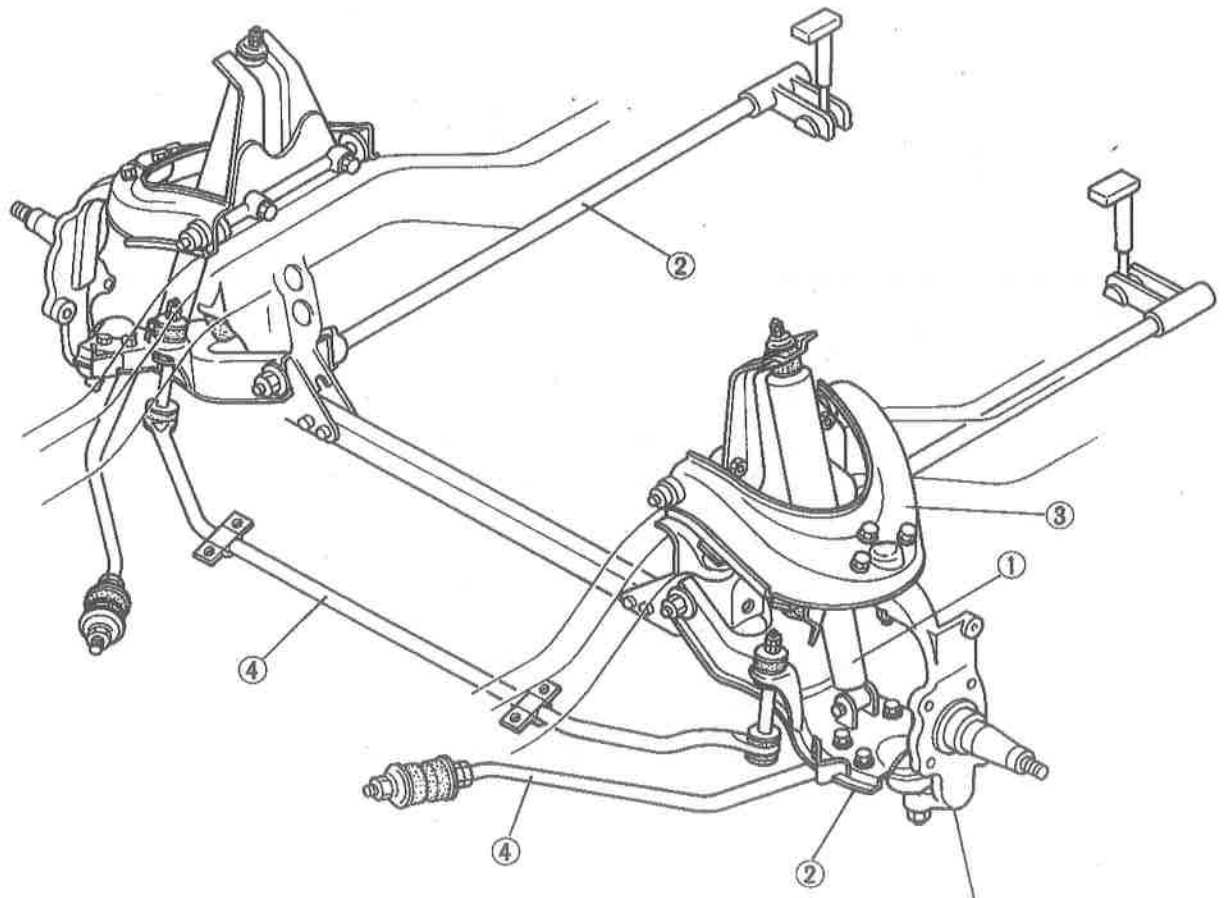
SUSPENSION

2BU0RX-001

INDEX

FRONT SUSPENSION (4x2)

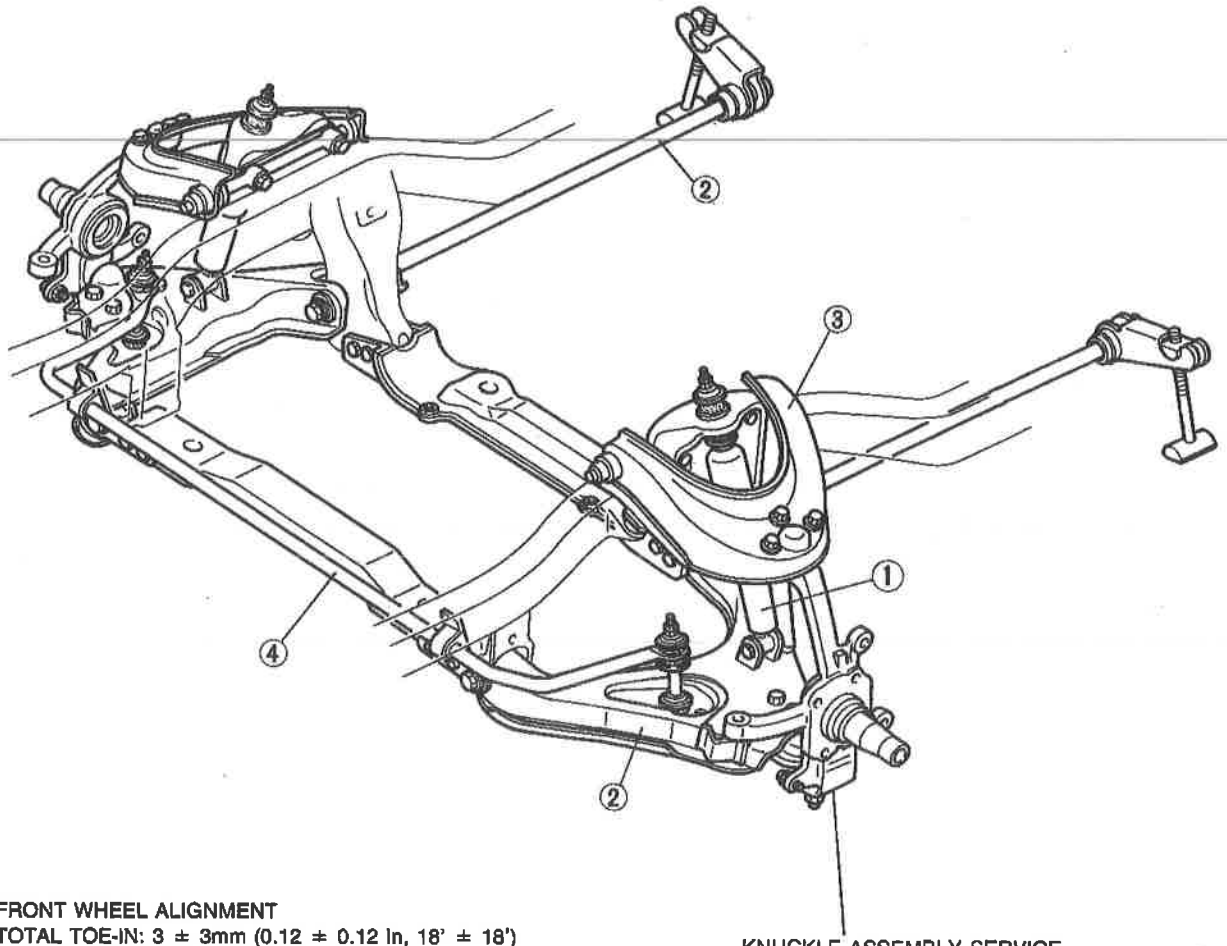


FRONT WHEEL ALIGNMENT
TOTAL TOE-IN: 3 ± 3mm (0.12 ± 0.12 in, 18' ± 18')
MAXIMUM STEERING ANGLE: 35°00' ± 2° (INNER)
33°00' ± 2° (OUTER)
CAMBER ANGLE: 0°45' $^{+30'}_{-20'}$
CASTER ANGLE M/S: 0°50' ± 45'
P/S: 1°50' ± 45'
KINGPIN ANGLE: 8°15'

KNUCKLE ASSEMBLY SERVICE, SECTION M

2BU0RX-002

FRONT SUSPENSION (4x4)

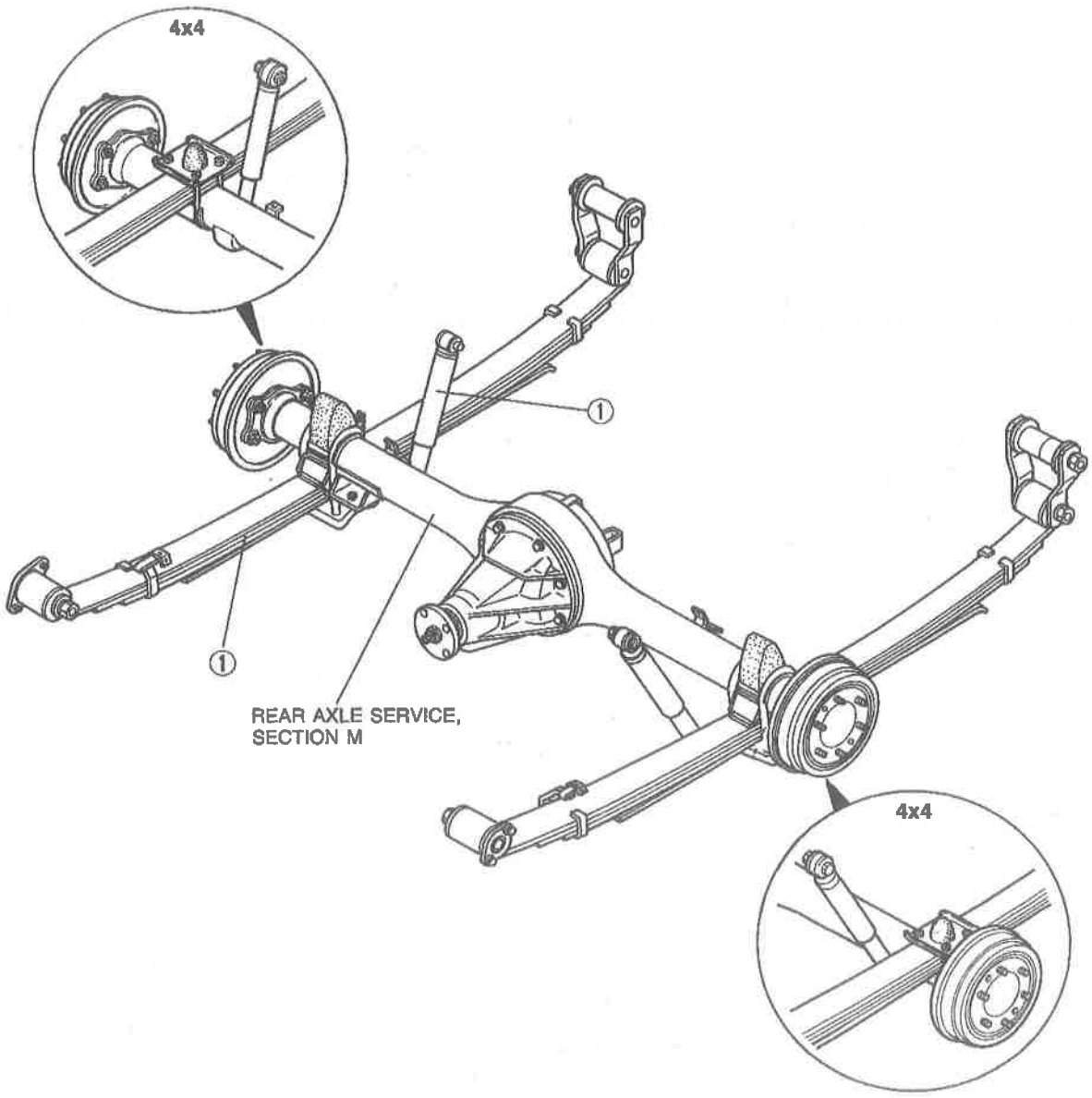


FRONT WHEEL ALIGNMENT
TOTAL TOE-IN: 3 ± 3mm (0.12 ± 0.12 In, 18' ± 18')
MAXIMUM STEERING ANGLE: 33°30' ± 2° (INNER)
30°00' ± 2° (OUTER)
CAMBER ANGLE: 1°00' $^{+30'}_{-20'}$
CASTER ANGLE: 2°00' ± 45'
KINGPIN ANGLE: 10°20'

KNUCKLE ASSEMBLY SERVICE, SECTION M

2BU0RX-003

REAR SUSPENSION (4x2 and 4x4)



2BU0RX-004

1. Shock absorber and leaf springs
   Removal and Inspection ..... page R–28
   Installation..... page R–30

OUTLINE

SPECIFICATIONS

Item \ Model			4x2	4x4
Front Suspension				
Suspension type			Double wishbone	
Springs	Type		Torsion bar spring	
	Dimensions (bar diameter × length) mm (in)		21.9×901 (0.86×35.47)	23.8×924 (0.94×36.38)
Stabilizer	Type		Torsion bar	
	Diameter mm (in)		22 (0.87)	24 (0.94)
Shock absorbers	Type		Cylindrical, double-acting	
	Damping force N (kg, lb) at 0.3 m/s	Extended	785 ± 118 (80 ± 12, 176 ± 26)	1,825 ± 255 (186 ± 26, 409 ± 57)
		Compressed	245 ± 59 (25 ± 6, 55 ± 13)	530 ± 98 (54 ± 10, 119 ± 22)
Front wheel alignment (*Unladen condition)	Turning angle	Inner	35°00' ± 2°	33°30' ± 2°
		Outer	33°00' ± 2°	30°00' ± 2°
	Total toe-in	mm (in)	3 ± 3 (0.12 ± 0.12)	
		degree	18' ± 18'	
	Camber angle		0°45' $^{+30'}_{-20'}$	1°00' $^{+30'}_{-20'}$
	Caster angle		M/S: 0°50' ± 45' P/S: 1°50' ± 45'	2°00' ± 45'
	Kingpin angle		8°15'	10°20'
	Caster trail mm (in)		4.4 (0.17)	12 (0.47)
Rear Suspension				
Suspension type			Leaf spring	
Springs	Type		Semielliptic leaf spring	
	Dimensions (length × width × thickness) mm (in)		1,566×60× 7 (61.65×2.36×0.28) 1,132×60× 6 (44.57×2.36×0.24) 966×60× 6 (38.03×2.36×0.24) 790×60×14 (31.10×2.36×0.55)	1,422×60× 9 (55.98×2.36×0.35) 979×60× 6 (38.54×2.36×0.24) 844×60× 6 (33.23×2.36×0.24) 639×60×12 (25.16×2.36×0.47)
Shock absorbers	Type		Cylindrical, double-acting	
	Damping force N (kg, lb) at 0.3 m/s	Extended	687 ± 108 (70 ± 11, 154 ± 24)	1,079 ± 167 (110 ± 17, 242 ± 37)
		Compressed	471 ± 98 (48 ± 10, 106 ± 22)	441 ± 98 (45 ± 10, 99 ± 22)

M/S: Manual steering P/S: Power steering 1BU0RX-001

* Fuel tank full; radiator coolant and engine oil at specified level, and spare tire, jack, and tools in designated position.

TROUBLESHOOTING GUIDE

Problem	Possible Cause	Remedy	Page
Body rolls	Weak stabilizer	Replace	R–24, 26
	Worn or deteriorated stabilizer or tension rod bushing	Replace	R–24, 26
	Malfunctioning shock absorber	Replace	R–10, 28
Poor riding comfort	Weak torsion bar or leaf spring	Replace	R–11,16,28
	Malfunctioning shock absorber	Replace	R–10, 28
	Excessive tire pressure	Adjust	Section Q
Body leans	Weak torsion bar or leaf spring	Replace	R–11,16,28
	Weak stabilizer bushing	Replace	R–24, 26
Abnormal noise from suspension system	Poor lubrication or wear of upper or lower arm ball joint	Lubricate or replace	R–11,16,21
	Looseness of peripheral connections	Tighten	—
	Malfunctioning shock absorber	Replace	R–10, 28
	Worn or deteriorated stabilizer or tension rod bushing	Replace	R–24, 26
Steering "heavy"	Poor lubrication of or foreign material in upper or lower arm ball joint	Lubricate or replace	R–11,16,21
	Stuck or damaged upper or lower arm ball joint	Replace	R–11,16,21
	Improperly adjusted front wheel alignment	Adjust	R–7
	Problem related to steering system	—	Section N
Steering wheel pulls to one side	Weak torsion bar spring	Replace	R–11, 16
	Worn or damaged stabilizer	Replace	R–24, 26
	Improperly adjusted front wheel alignment	Adjust	R–7
	Problem related to steering system	—	Section N
	Problem related to braking system	—	Section P
	Problem related to wheels and tires	—	Section Q
Poor steering wheel return	Stuck or damaged upper or lower arm ball joints	Replace	R–11,16,21
	Improperly adjusted front wheel alignment	Adjust	R–7
	Problem related to steering system	—	Section N
	Problem related to wheels and tires	—	Section Q
General instability while driving	Weak torsion bar spring	Replace	R–11, 16
	Worn or damaged stabilizer	Replace	R–24, 26
	Malfunctioning shock absorber	Replace	R–10, 28
	Improperly adjust front wheel alignment	Adjust	R–7
	Problem related to steering system	—	Section N
	Problem related to wheels and tires	—	Section Q
"Shimmy" occurs (Steering wheel vibrates left/right)	Stuck or damage upper or lower arm ball joints	Replace	R–11,16,21
	Malfunctioning shock absorber	Replace	R–10, 28
	Loose shock absorber mounting bolts	Tighten	R–10, 28
	Cracked or worn suspension bushing	Replace	R–11,16,21,28
	Improperly adjusted front wheel alignment	Adjust	R–7
	Problem related to steering system	—	Section N
	Problem related to wheels and tires	—	Section Q

2BU0RX-005

WHEEL ALIGNMENT

PRE-INSPECTION

1. Check the tire inflations and set to the recommended pressure if necessary.
2. Inspect the front wheel bearing play and correct if necessary.
3. Inspect the wheel and tire runout.
4. Inspect the ball joints and steering linkage for any excessive looseness.
5. The vehicle must be on level ground and have no luggage or passenger load.
6. The difference in height between the left and right sides from the center of the wheel to the fender brim must not exceed **10mm (0.39 In)**.

0BU0RX-003

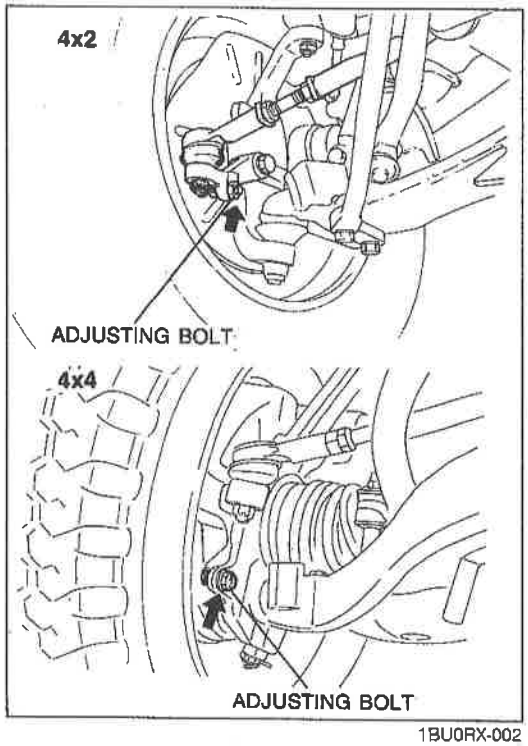
FRONT WHEEL ALIGNMENT
Specifications

Item			Specifications	
			4x2	4x4
Front wheel alignment (*1Unladen)	Total toe-in	mm (in)	3 ± 3 (0.12 ± 0.12)	
		degree	18' ± 18'	
	Maximum steering angle	Inner	35°00' ± 2°	33°30' ± 2°
		Outer	33°00' ± 2°	30°00' ± 2°
	Camber angle		0°45' $^{+30'}_{-20'}$	1°00' $^{+30'}_{-20'}$
	Caster angle		M/S: 0°50' ± 45' P/S: 1°50' ± 45'	2°00' ± 45'
	Kingpin angle		8°15'	10°20'

M/S: Manual steering P/S: Power steering

2BU0RX-006

*1 Fuel tank full; radiator coolant and engine oil at specified level, and spare tire, jack, and tools in designated position.



1BU0RX-002

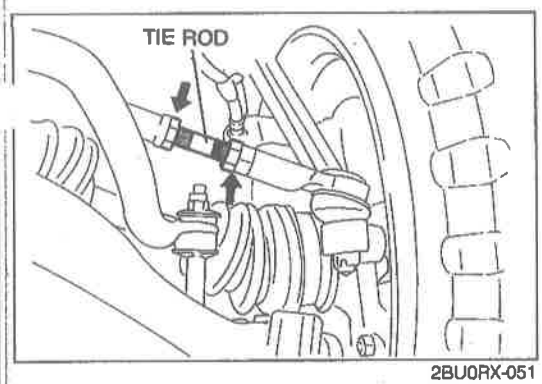
Adjustment
Maximum steering angle

Adjust the turning angle as follows:

1. Loosen the adjusting bolt locknut.
2. Turn the adjusting bolt to provide the correct turning angle.
3. After adjustment, tighten the locknut to the specified torque.

Tightening torque:
39—59 N·m (4.0—6.0 m-kg, 29—43 ft-lb)

R



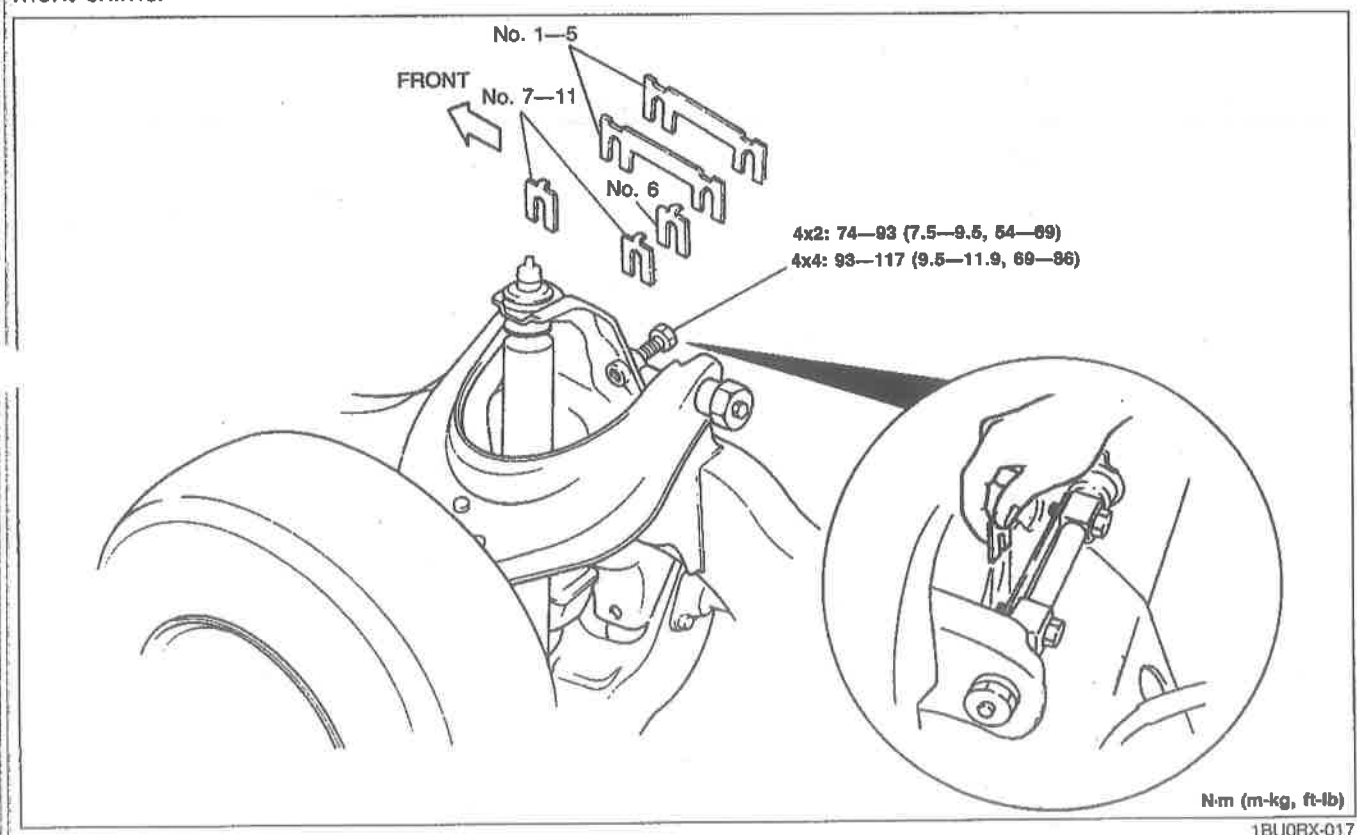
2BU0RX-051

Total toe-in
To adjust the toe-in, loosen the left and right tie rod locknuts, and turn each tie rod an equal amount.

Locknut tightening torque:
69—78 N·m (7.0—8.0 m-kg, 51—58 ft-lb)

Note
a) The left and right tie rods are both right threaded. To increase the toe-in, turn the right tie rod toward the front of the vehicle, and turn the left tie rod by the same amount toward the rear.
b) One turn of the tie rod (both sides) changes the toe-in by about 30mm (1.18 in).

Camber and caster
To adjust the camber and caster angles, loosen the bolts of the upper arm shaft and insert or remove adjustment shims.



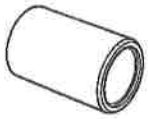
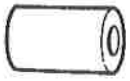
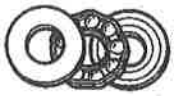
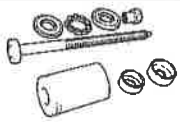
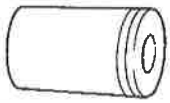
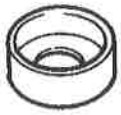
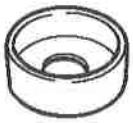
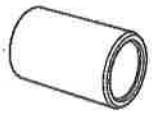
1BU0RX-017

No.	Thickness mm (in)	No.	Thickness mm (in)
1	1.0 (0.004)	7	1.0 (0.004)
2	1.6 (0.063)	8	1.6 (0.063)
3	2.0 (0.079)	9	2.0 (0.079)
4	3.2 (0.126)	10	3.2 (0.126)
5	4.0 (0.157)	11	4.0 (0.157)
6	2.0 (0.079)		

Note
1. Shims No.1—5 are used at the left and right sides (2/side).
2. Shims No.7—11 are used at the front and rear of the left and right sides (2/side).
3. Shim No.6 is for models equipped with power steering and is used at the rear only of the left and right sides (1/side).
4. Camber: A change of shim thickness (at front and rear) of 1mm (0.004 in) results in a change of about 15'.
5. Caster: A change of shim thickness (at front or rear only) of 1mm (0.004 in) results in a change of about 30'.

FRONT SUSPENSION (DOUBLE WISHBONE)

PREPARATION

49 0727 575 Puller, ball joint 	49 S120 785 Installer, dust boot 	49 0180 510B Attachment, preload measurement 
49 U034 2A0 Lower arm bushing puller & installer 	49 U034 201 Shaft (Part of 49 U034 2A0) 	49 U034 202 Support block (Part of 49 U034 2A0) 
49 U034 203 Installer (Part of 49 U034 2A0) 	49 W034 305 Bearing (Part of 49 U034 2A0) 	49 UB39 615 Bushing puller and installer set 
49 UB39 616 Shaft set (Part of 49 UB39 615) 	49 UB39 617 Support block (Part of 49 UB39 615) 	49 UB39 618 Attachment A (Part of 49 UB39 615) 
49 UB39 619 Attachment B (Part of 49 UB39 615) 	49 U034 204 Installer, dust boot 	

9BU0RX-017

R

SHOCK ABSORBER (4x2 AND 4x4)

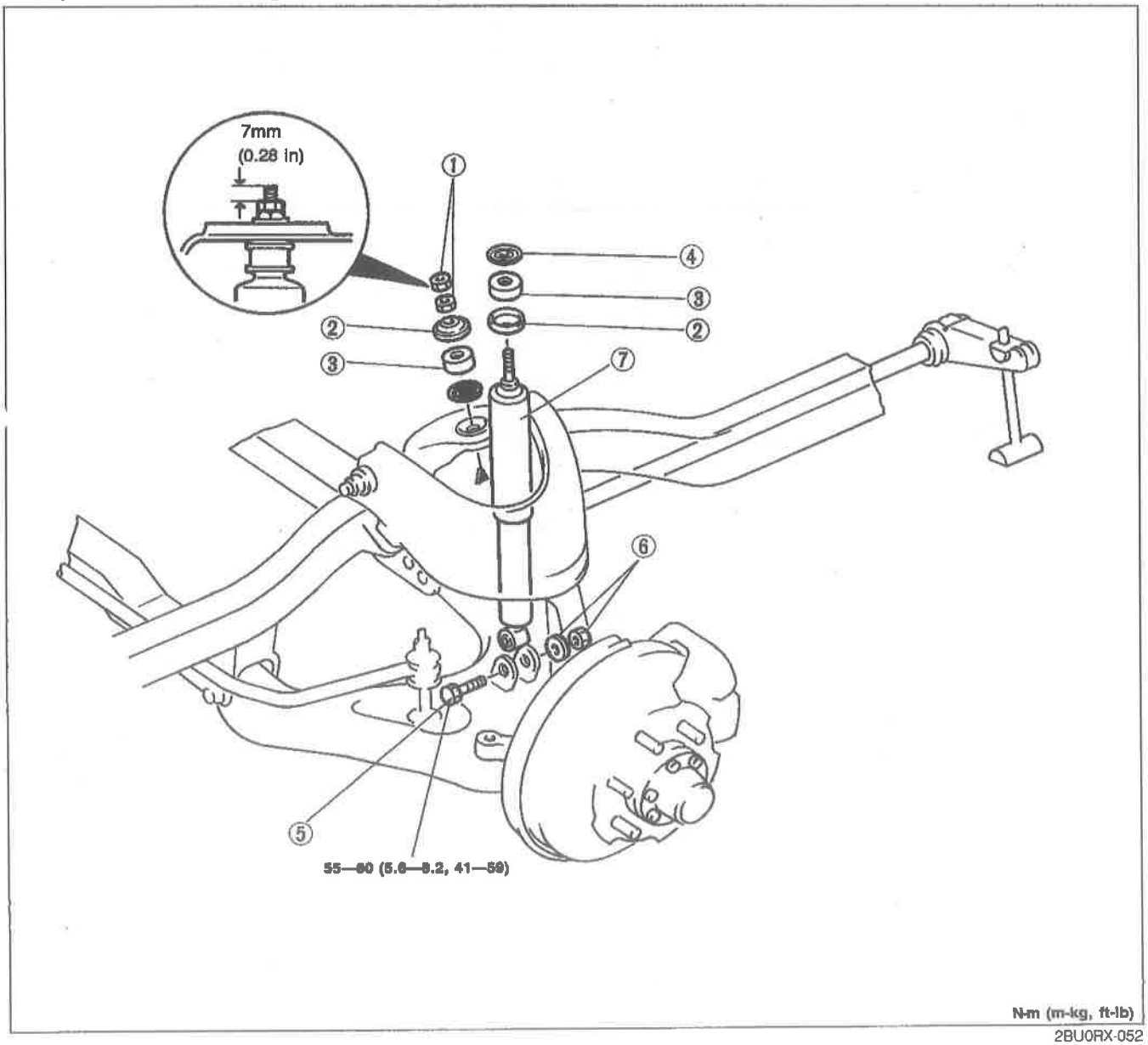
Removal, Inspection and Installation

1. Loosen the wheel lug nuts.
2. Jack up the front of the vehicle, and support it with safety stands.
3. Remove the wheels.
4. Remove in the order shown in the figure.
5. Inspect the shock absorber components and repair or replace as necessary.
6. Install in the reverse order of removal.

Caution

Loosely tighten the shock absorber to the lower arm when installing. Lower the vehicle and tighten all nuts and bolts to the specified torques with the vehicle unladen.

7. Inspect front wheel alignment and adjust it as necessary.



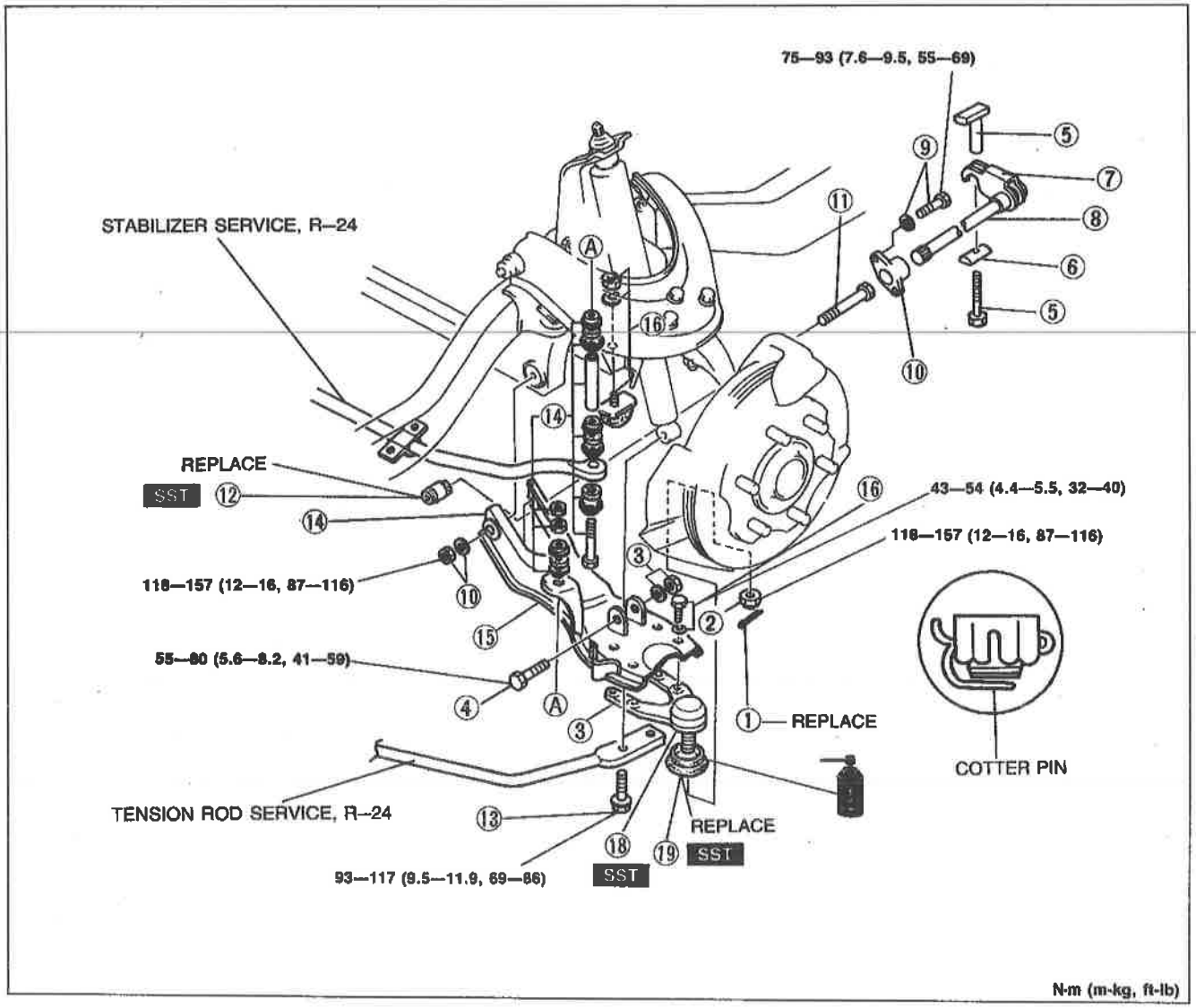
2BU0RX-052

1. Nuts
2. Retainers
3. Bushings
   Check for damage or deterioration
4. Retainer
5. Bolt
6. Washer and nut
7. Shock absorber
   Check for oil leakage, poor operation, damage, or deterioration

TORSION BAR SPRING AND LOWER ARM (4x2)

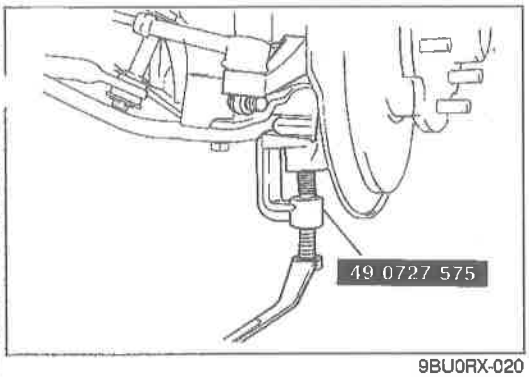
Removal

1. Loosen the wheel lug nuts.
2. Jack up the front of the vehicle and support it with safety stands.
3. Remove the wheels.
4. Remove in the order shown in the figure, referring to **Removal Note**.



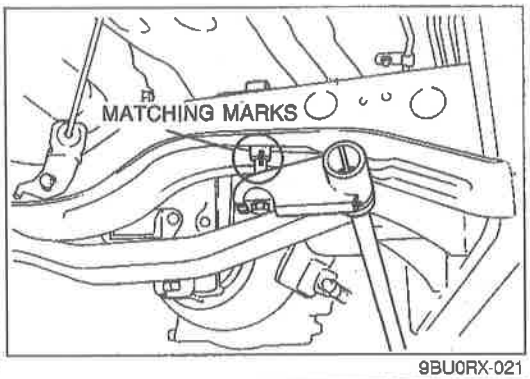
2BU0RX-007

1. Cotter pin
2. Nut
3. Lower arm ball joint, Knuckle arm
   Removal Note..... page R–12
4. Bolt, washer, and nut (shock absorber)
5. Anchor bolt
   Removal Note..... page R–12
6. Anchor swivel
7. Anchor arm
   Inspection..... page R–13
8. Torsion bar spring
   Removal Note..... page R–12
   Inspection..... page R–13
9. Bolts and washers
10. Torque plate
    Inspection..... page R–13
11. Lower arm spindle, washer, and nut
12. Rubber bushing
    Removal and installation ..... page R–12
13. Tension rod bolt
14. Bolts, bushings, retainers, spacer, and nuts (stabilizer)
15. Lower arm
    Inspection..... page R–13
16. Bound bumper, washer, and nut
17. Bolts and washer (ball joint)
18. Lower arm ball joint
    Inspection..... page R–13
19. Lower arm ball joint boot
    Removal Note..... page R–12



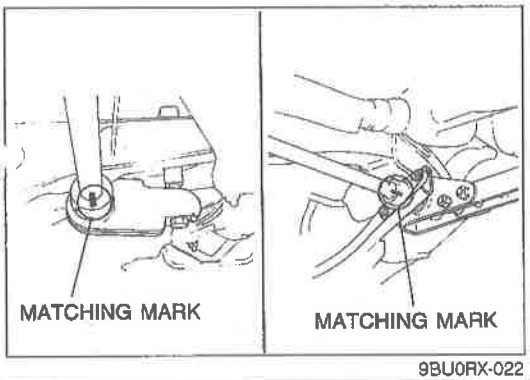
9BU0RX-020

Removal note
Lower arm ball joint/Knuckle arm
Separate the ball joint from the knuckle arm with the **SST**.



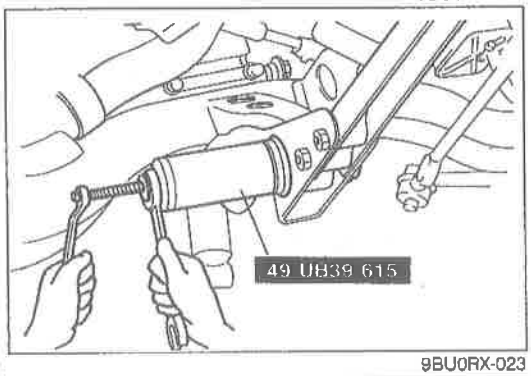
9BU0RX-021

Anchor bolt
Mark the anchor bolt and swivel for reference during reassembly.



9BU0RX-022

Torsion bar spring
Mark the torsion bar spring and anchor arm and the torsion bar spring and torque plate for reference during reassembly.



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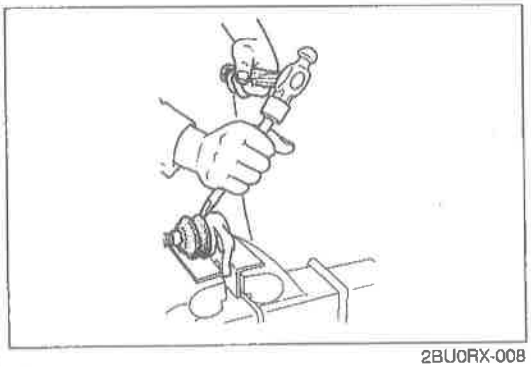
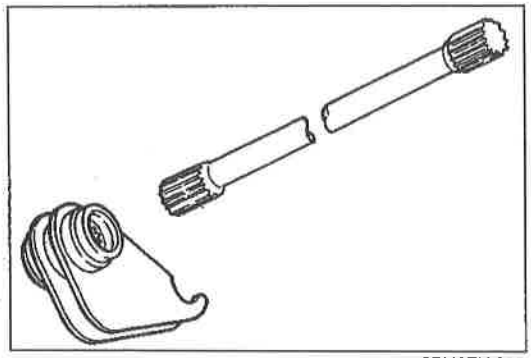
Rubber bushing
Remove the rubber bushing from the body with the **SST**. Install the new bushing into the body with the same **SST**.



2BU0RX-008

Lower arm ball joint boot
1. Secure the lower arm in a vise protected with brass pads.
2. Use a chisel to remove the boot.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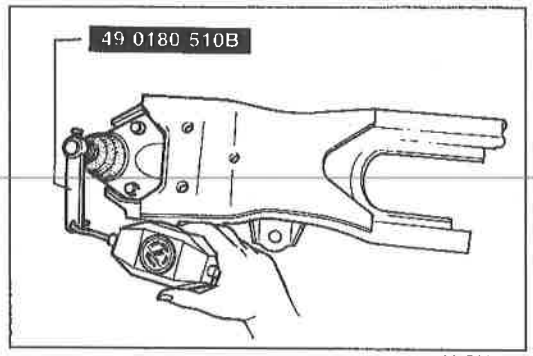

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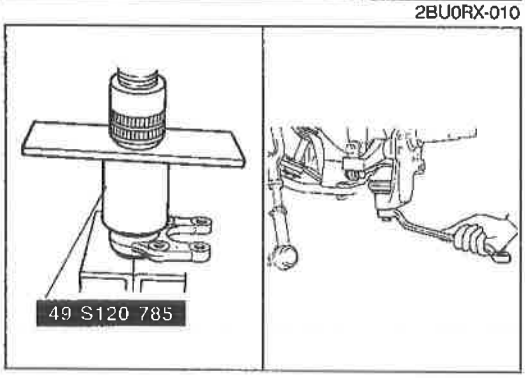

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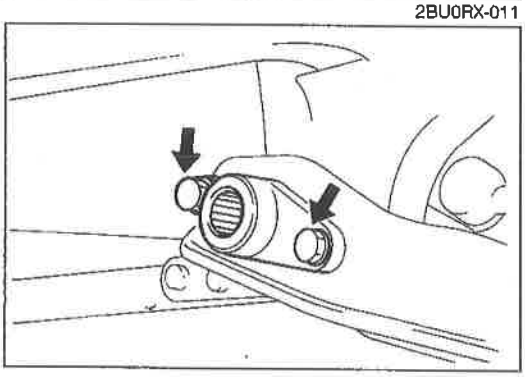
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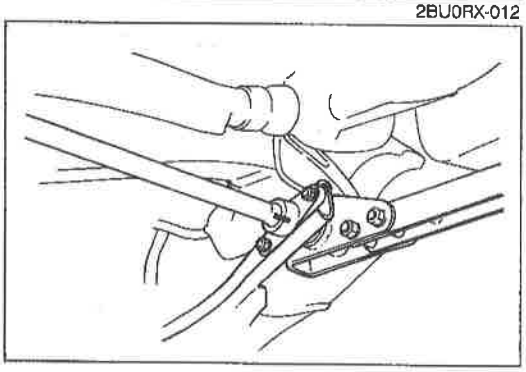

2BU0RX-013

Inspection
Check for the following and repair or replace parts as necessary.
1. Bending or damage of torsion bar spring.
2. Looseness between serrations of torsion bar spring and anchor arm or the torque plate.
3. Damage or poor operation of ball joint.
4. Damage of lower arm.

5. Lower arm ball joint preload.
   Attach the **SST** to the ball stud, and measure the preload with a pull scale.

   Caution
   Measure the preload after first shaking the stud of the ball joint 3 or 4 times.

   Pull scale reading:
   20—34 N (2.0—3.5 kg, 4.4—7.7 lb)
   (While ball stud is rotating)

Installation
Install as follows:
1. Liberally coat a new lower arm ball joint boot with grease.
2. Wipe away any grease that has been expelled from the lower arm ball joint boot.
3. Press a new lower arm ball joint boot with the **SST**.
4. Install the lower arm ball joint to the lower arm.
5. Install the lower arm spindle to the lower arm, and temporarily tighten the nut.
6. Install the lower arm ball joint to the knuckle arm.
   Tighten the ball joint nut to the specified torque and install a new cotter pin.

   Tightening torque:
   118—157 N·m (12—16 m-kg, 87—116 ft-lb)

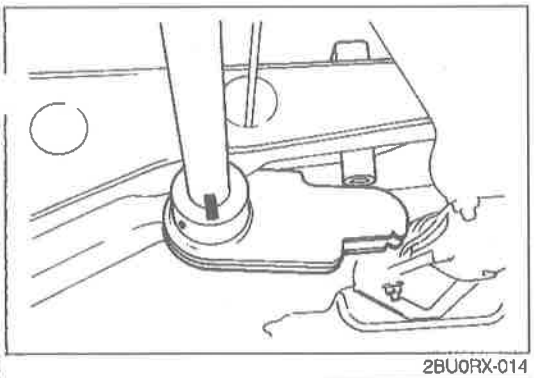
7. Install the torque plate and tighten it to the specified torque.

   Tightening torque:
   75—93 N·m (7.6—9.5 m-kg, 55—69 ft-lb)

8. Align the marks made during removal, and connect the torsion bar spring to the torque plate.

   Caution
   a) Coat the serrations of the torsion bar with grease.
   b) Before installation, check the identification color on the end of the torsion bar spring.

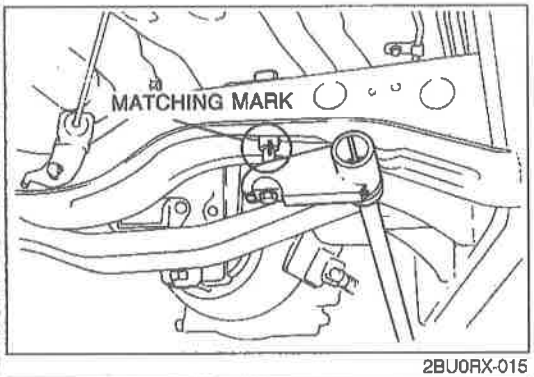
   Yellow: Left bar, White: Right bar



2BU0RX-014

9. Align the marks made during removal, and install the anchor arm onto the torsion bar spring.

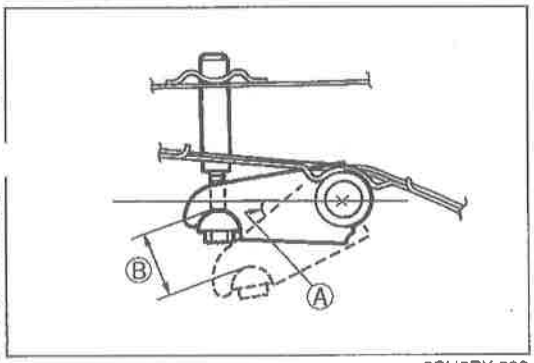
Caution
Coat the serrations of the torsion bar with grease.



2BU0RX-015

10. Install the anchor bolt, and tighten it until the marks made during removal are aligned.

Note
If the anchor bolt was not marked during removal, install it as follows:
1. **Lower the front suspension until the upper arm contacts the rebound stopper.**
2. **Install the anchor arm so that the angle Ⓐ is 33°30'.**
3. **Install the anchor bolt and tighten it by the amount Ⓑ.**

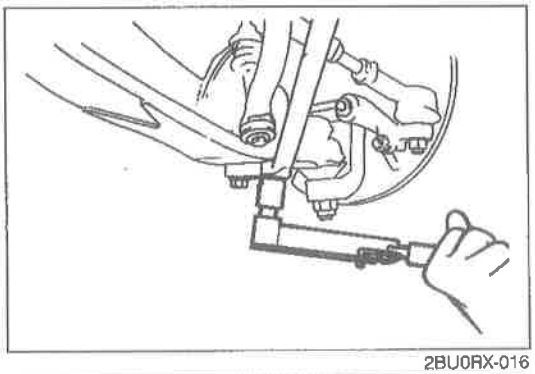


0BU0RX-008

Amount Ⓑ:

B2200		B2600i
M/T	A/T	M/T and A/T
45 ± 1mm (1.77 ± 0.04 in)	50 ± 1mm (1.97 ± 0.04 in)	54.5 ± 1mm (2.15 ± 0.04 in)

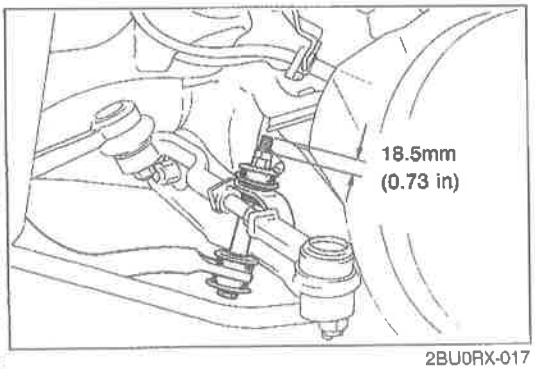
M/T: Manual transmission
A/T : Automatic transmission



2BU0RX-016

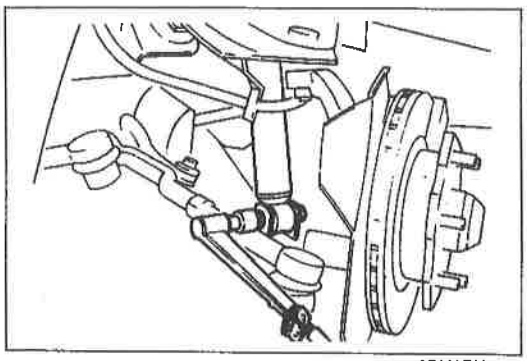
11. Install the tension rod bolt.

Tightening torque:
93—117 N·m (9.5—11.9 m-kg, 69—86 ft-lb)



2BU0RX-017

12. Install the stabilizer bolt.
Tighten the nuts so that **18.5mm (0.73 in)** of thread is exposed at the end of the bolt.

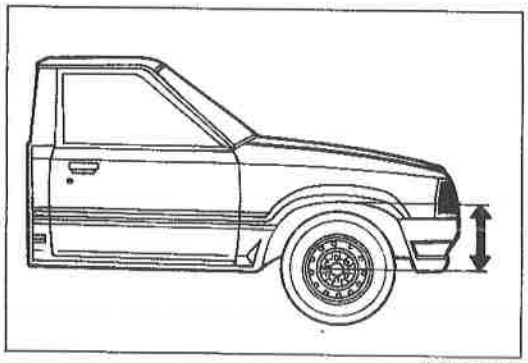

2BU0RX-018

13. Install the shock absorber to the lower arm, and temporarily tighten the bolt and nut.
14. Install the wheels.
15. Lower the vehicle from the safety stands.
16. Tighten the lower arm spindle nut temporarily tightened in Step 5.

Tightening torque:
118—157 N·m (12—16 m-kg, 87—116 ft-lb)

17. Tighten the shock absorber bolt and nut temporarily tightened in Step 13.

Tightening torque:
55—80 N·m (5.6—8.2 m-kg, 41—59 ft-lb)


2BU0RX-019

18. Adjust the vehicle height by turning the torsion bar spring anchor bolt.
    (1) With the vehicle on level ground, check the front and rear tire pressures.
    (2) Measure the distance from the center of each front wheel to the fender brim.

mm (in)

Stretch	430 (16.9)
Short	436 (17.2)
Long	431 (17.0)

    (3) If the difference between the left and right is not within the specification, adjust the necessary anchor bolt.

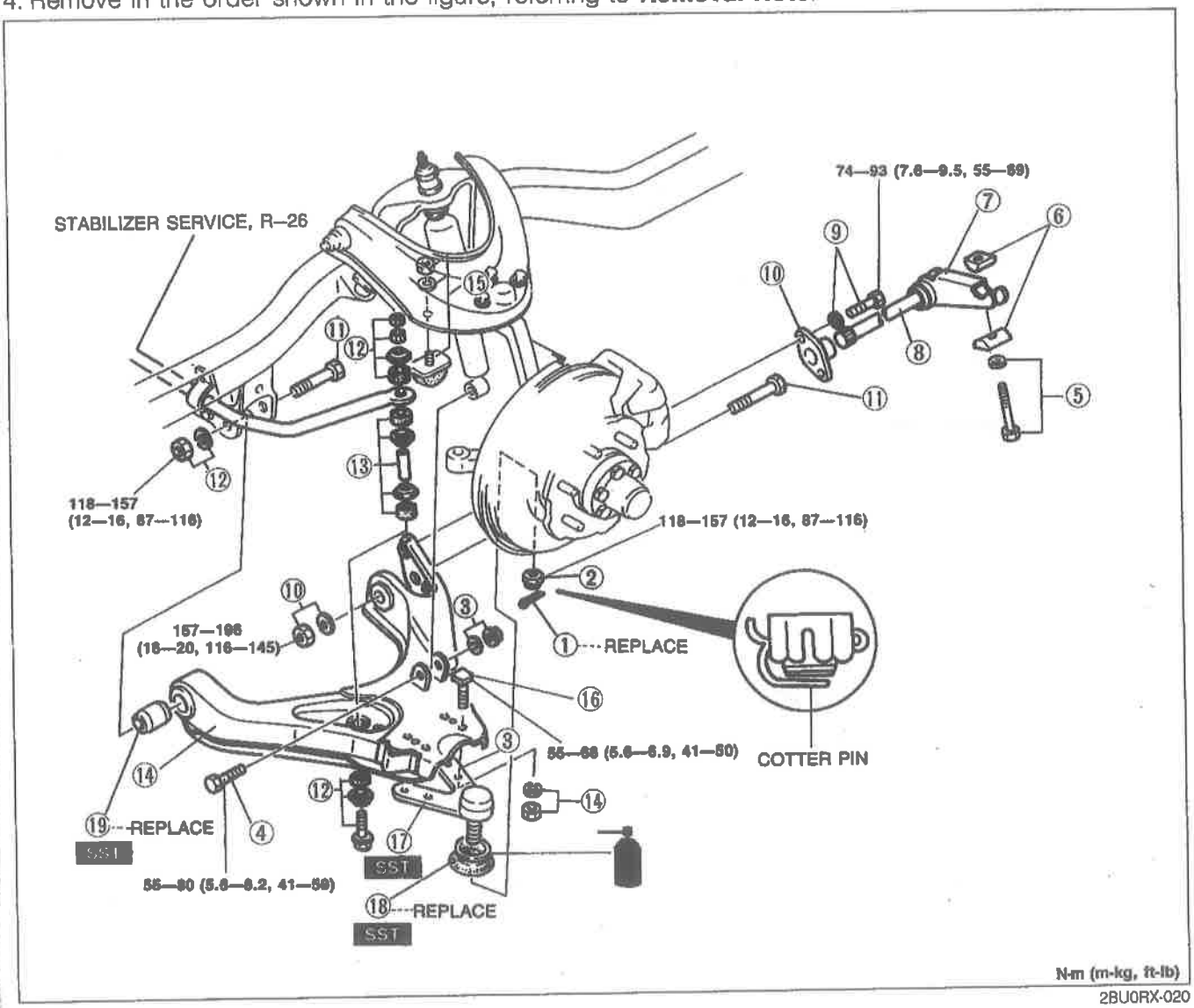
Vehicle height left/right difference:
10mm (0.39 in) max.

19. Inspect front wheel alignment and adjust it as necessary.

TORSION BAR SPRING AND LOWER ARM (4x4)

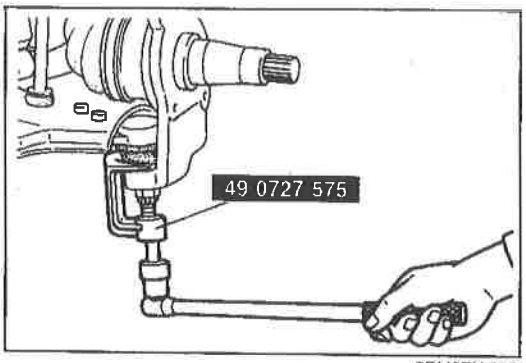
Removal

1. Loosen the wheel lug nuts.
2. Jack up the front of the vehicle and support it with safety stands.
3. Remove the wheels.
4. Remove in the order shown in the figure, referring to **Removal Note**.



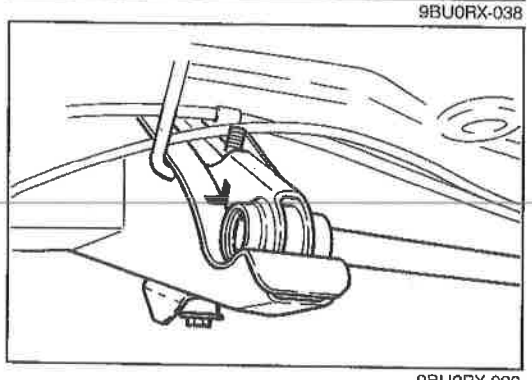
2BU0RX-020

1. Cotter pin
2. Nut
3. Lower arm ball joint, Knuckle arm
   Removal Note..... page R–17
4. Bolt, washer and nut (Shock absorber)
5. Anchor bolt and washer
6. Anchor swivel
7. Anchor arm
   Removal Note..... page R–17
   Inspection..... page R–18
8. Torsion bar spring
   Removal Note..... page R–17
   Inspection..... page R–18
9. Bolts and washers
10. Torque plate
    Inspection..... page R–18
11. Lower arm spindle (rear), washer and nut
12. Lower arm spindle (front), washer and nut
13. Bolt, bushings, retainers, spacer and nuts (stabilizer)
14. Lower arm
    Inspection..... page R–18
15. Bound bumper, washer, and nut
16. Bolts, washers and nuts
17. Lower arm ball joint
    Inspection..... page R–18
18. Lower arm ball joint boot
    Removal Note..... page R–17
19. Lower arm bushing
    Removal Note..... page R–18

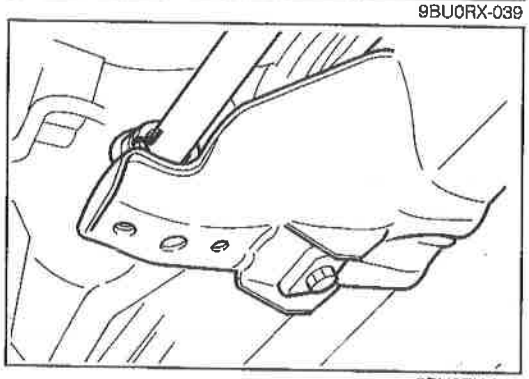


9BU0RX-038

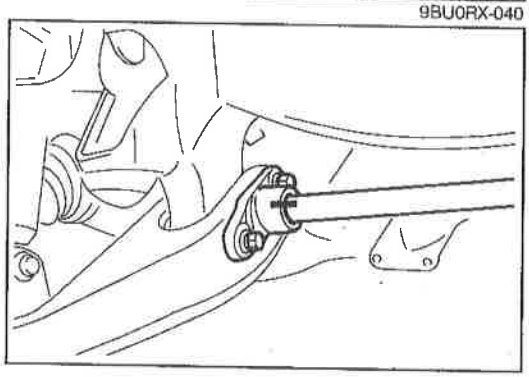
Removal note
Lower arm ball joint/Knuckle arm
Separate the ball joint from the knuckle arm with the **SST**.

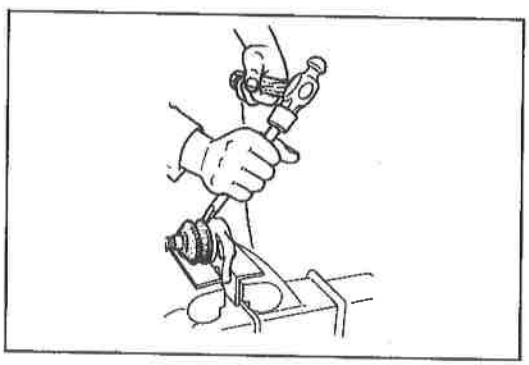

9BU0RX-039

Anchor arm
Mark the anchor arm and body for reference during reassembly.

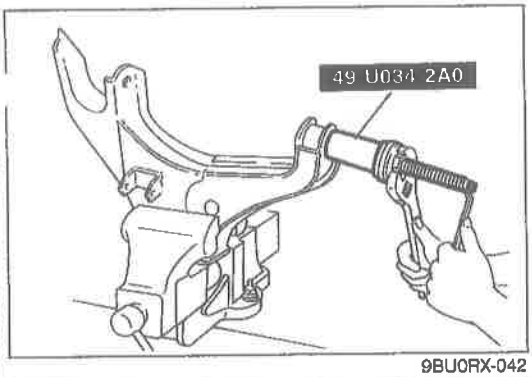

9BU0RX-040

Torsion bar spring
Mark the torsion bar spring and anchor arm and the torsion bar spring and torque plate for reference during reassembly.

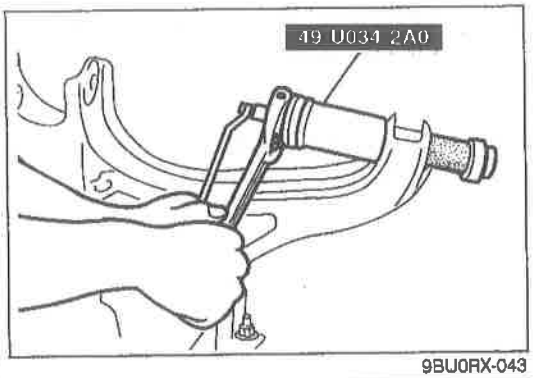



2BU0RX-021

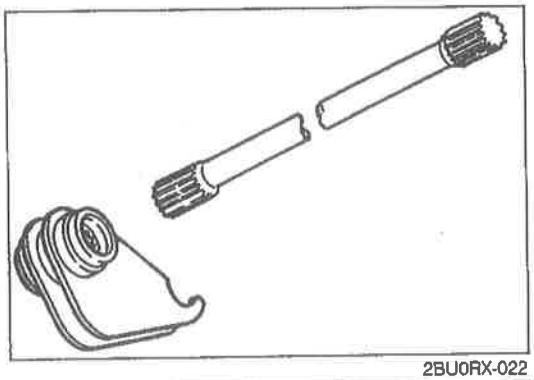
Lower arm ball joint boot
1. Secure the lower arm in a vise protected with brass pads.
2. Use a chisel to remove the boot.

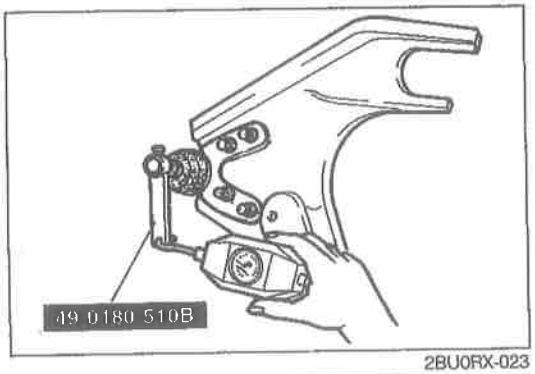


9BU0RX-042

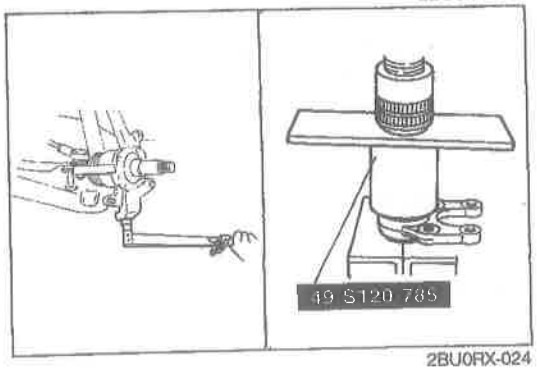


9BU0RX-043


2BU0RX-022



2BU0RX-023



2BU0RX-024

Lower arm bushing
Removal:
Remove the bushing from the lower arm with the **SST**.

Installation:
Install a new bushing into the lower arm with the **SST** as illustrated.

Note
Before installing the bushing, apply soapy water to the bushing surface.

Inspection
Check for the following and repair or replace parts as necessary.
1. Bending or damage of the torsion bar spring.
2. Looseness between serrations of the torsion bar and the anchor arm or the torque plate.
3. Damage or poor operation of ball joint.
4. Damage of lower arm.

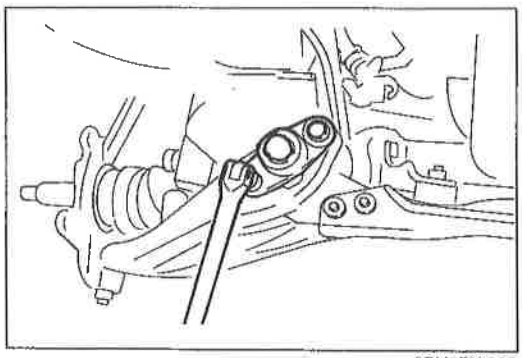
5. Lower arm ball joint preload.
   Attach the **SST** to the ball stud, and measure the preload with a pull scale.

Caution
Measure the preload after first shaking the joint stud 3 or 4 times.

Pull scale reading: 20—35 N (2.0—3.5 kg, 4.4—7.7 lb) (while ball stud is rotating)

Installation
Install as follows:
1. Liberally coat a new lower arm ball joint boot with grease.
2. Wipe away any grease that has been expelled from the lower arm ball joint boot.
3. Press a new lower arm ball joint boot with the **SST**.
4. Install the lower arm ball joint to the lower arm.
5. Install the lower arm spindle to the lower arm, and temporarily tighten the nut.
6. Install the lower arm ball joint into the knuckle arm. Tighten the ball joint nut to the specified torque and install a new cotter pin.

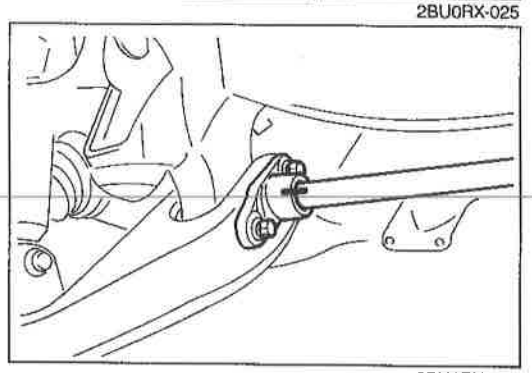
Tightening torque:
118—157 N·m (12.0—16.0 m-kg, 87—116 ft-lb)



2BU0RX-025

7. Install the torque plate and tighten it to the specified torque.

Tightening torque:
75—93 N·m (7.6—9.5 m-kg, 55—69 ft-lb)

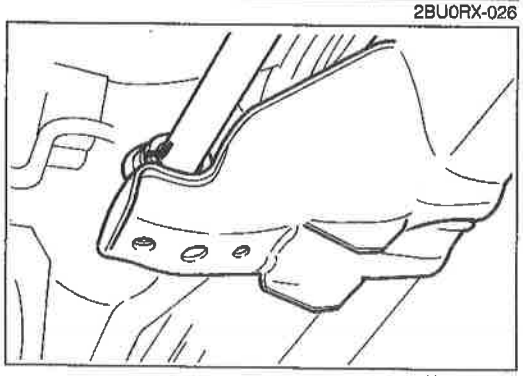


2BU0RX-026

8. Align the marks made during removal, and connect the torsion bar spring into the torque plate.

Caution
a) Coat the serrations of the torsion bar with grease.
b) Before installation, check the identification color on the end of torsion bar spring.

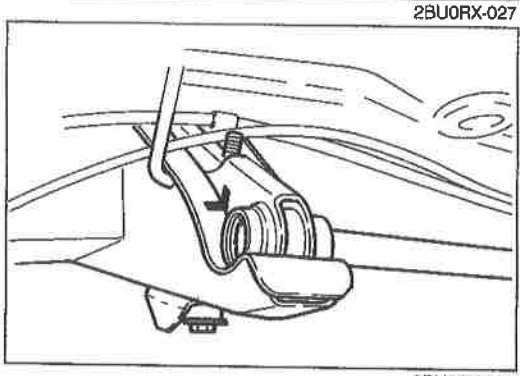
Yellow: Left bar, White: Right bar



2BU0RX-027

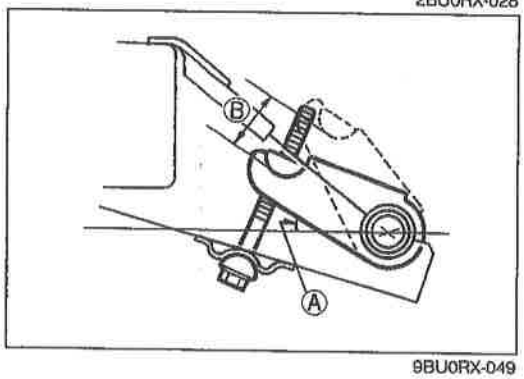
9. Align the marks made during removal, and install the anchor arm onto the torsion bar spring.

Caution
Coat the serrations of the torsion bar with grease.



2BU0RX-028

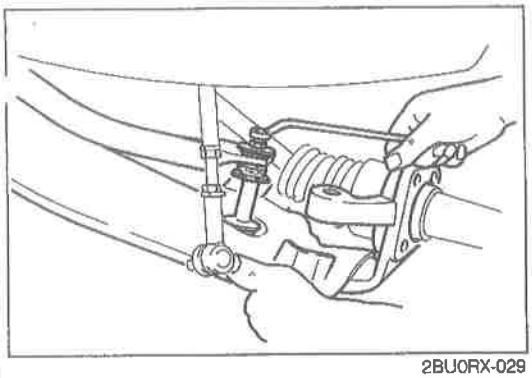
10. Install the anchor bolt, and tighten it until the marks made during removal are aligned.



9BU0RX-049

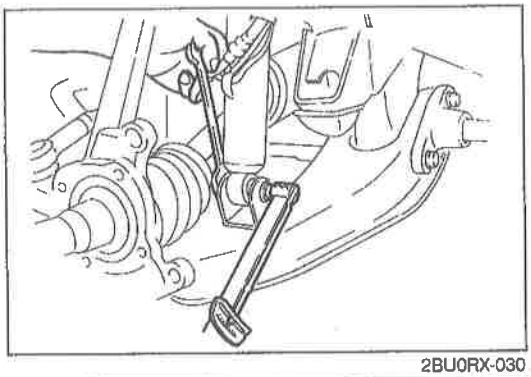
Note
If the anchor bolt was not marked during removal, install it as follows:
1. Lower the front suspension until the upper arm contacts the rebound stopper.
2. Install the anchor arm so that the angle Ⓐ is 47°.
3. Install the anchor bolt and tighten it by the amount Ⓑ.

Amount Ⓑ: 40mm (1.57 in)



2BU0RX-029

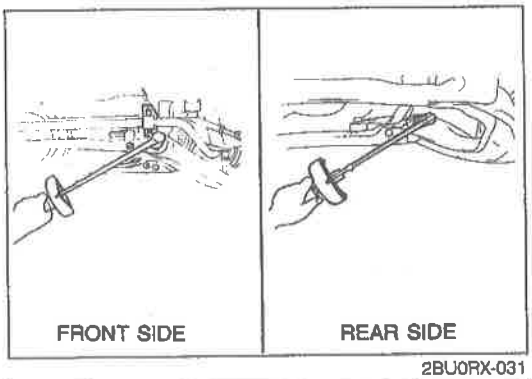
11. Install the stabilizer bolt.
    Tighten the nuts so that **18.5mm (0.73 in)** of thread is exposed at the end of the bolt.
12. Install the shock absorber to the lower arm, and temporarily tighten the bolt and nut.
13. Install the wheels.
14. Lower the vehicle from the safety stands.



2BU0RX-030

15. Tighten the shock absorber bolt and nut temporarily tightened in Step 12.

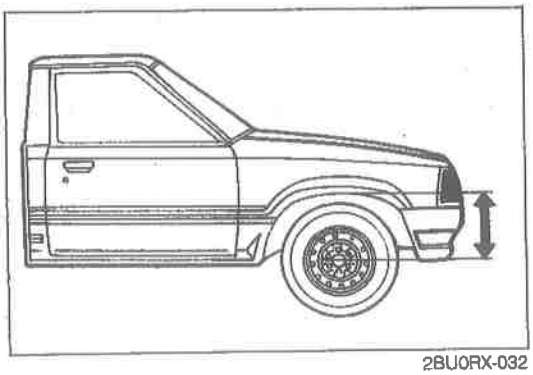
    Tightening torque:
    55—80 N·m (5.6—8.2 m-kg, 41—59 ft-lb)



2BU0RX-031

16. Tighten the lower arm spindle nuts temporarily tightened in Step 5.

    Tightening torque
    Front lower arm spindle nut:
    118—157 N·m (12—16 m-kg, 87—116 ft-lb)
    Rear lower arm spindle nut:
    157—196 N·m (16—20 m-kg, 116—145 ft-lb)



2BU0RX-032

17. Adjust the vehicle height by turning the torsion bar spring anchor bolt.
    (1) With the vehicle on level ground, check the front and rear tire pressures.
    (2) Measure the distance from the center of each front wheel to the fender brim.

    Distance: 502mm (19.8 in)

    (3) If the difference between the left and right is within the specification, adjust the necessary anchor bolt.

    Vehicle height left/right difference:
    10mm (0.39 in) max.

18. Inspect front wheel alignment and adjust it as necessary.

UPPER ARM (4x2 AND 4x4)

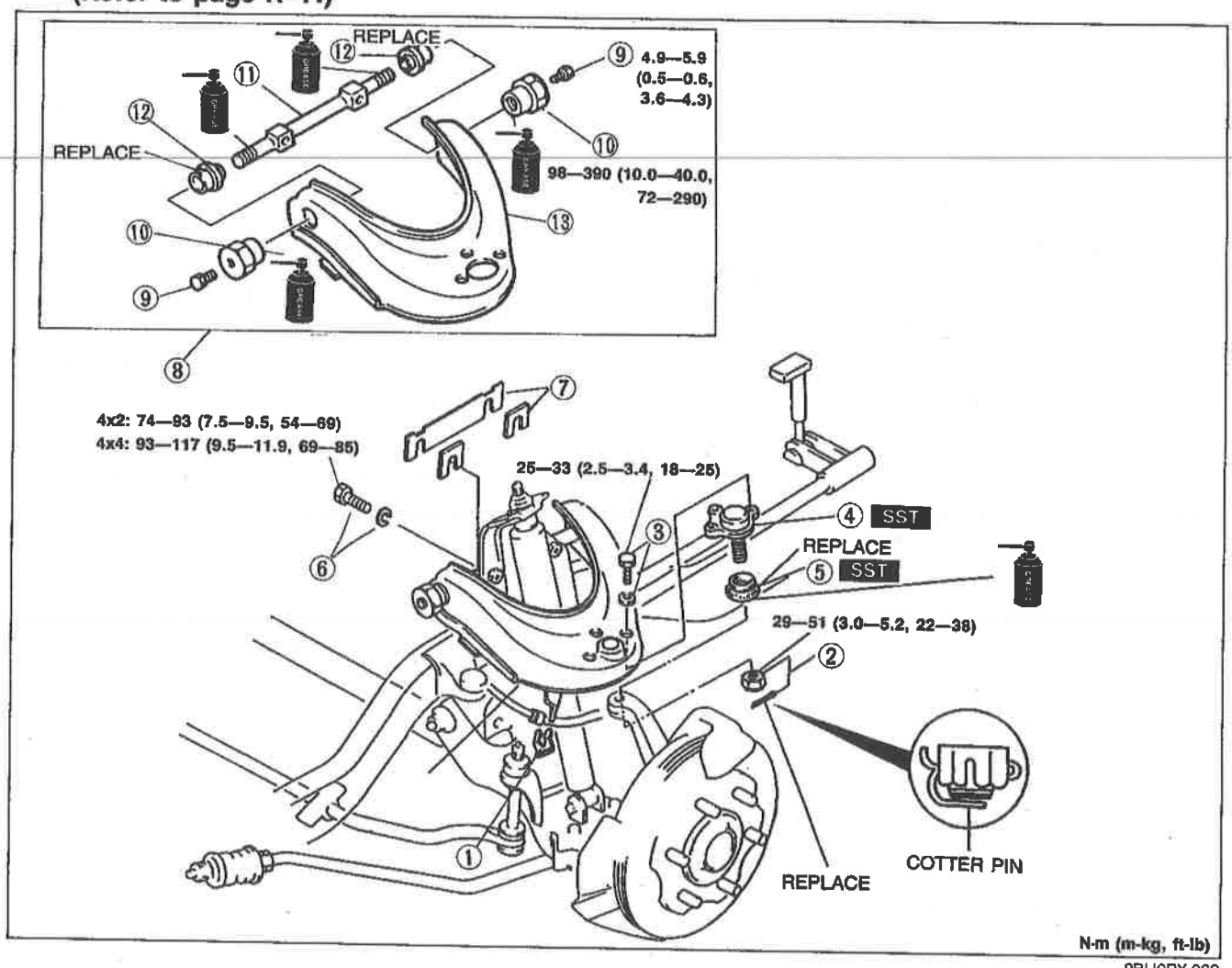
Removal and Installation

1. Loosen the wheel lug nuts.
2. Jack up the front of the vehicle and support it with safety stands.
3. Remove the wheels.
4. Remove in the order shown in the figure, referring to **Removal Note**.
5. Install in the reverse order of removal, referring to **Installation Note**.

Note

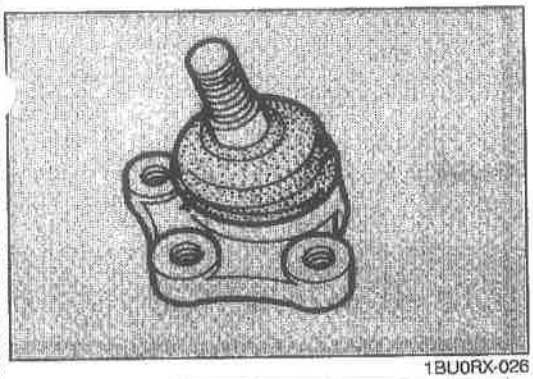
a) During removal, note the number, amount and position of the adjustment shims so that they are reinstalled in the correct positions.

b) After installation, check the wheel alignment and adjust it if necessary. (Refer to page R–7.)

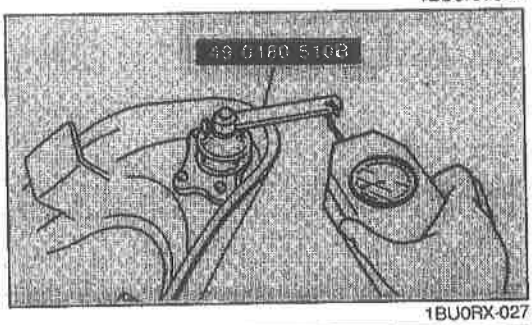


2BU0RX-033

1. Clip
2. Cotter pin and nut
3. Upper arm ball joint, Knuckle arm
   Removal Note..... page R–22
4. Bolts and washers
5. Upper arm ball joint
   Removal Note..... page R–22
   Inspection..... page R–23
6. Upper arm ball joint boot
   Removal Note..... page R–22
   Installation Note..... page R–23
7. Bolts and washers
8. Adjustment shims
9. Upper arm assembly
10. Plug
11. Threaded bushing
    Removal Note..... page R–22
    Installation Note..... page R–22
12. Upper arm shaft
    Installation Note..... page R–22
    Inspection..... page R–23
13. Dust seal
14. Upper arm
    Inspection..... page R–23


1BU0RX-026

Inspection
Check for the following and repair or replace parts as necessary.
1. Cracking, damage, and bending of upper arm and upper arm shaft.
2. Damage and poor operation of upper arm ball joint.

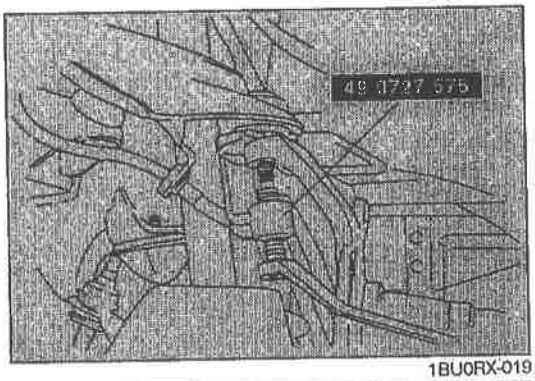

1BU0RX-027

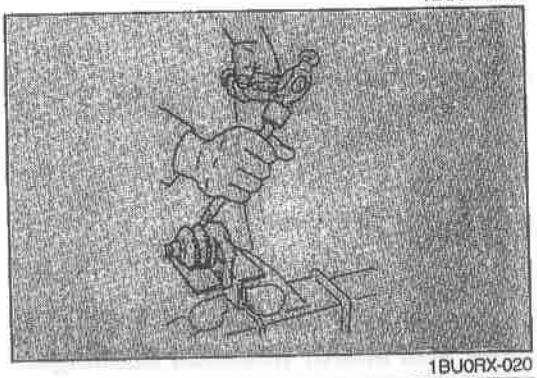
3. Upper arm ball joint preload.
   Attach the **SST** to the ball stud, and measure the preload with a pull scale.

   Caution
   Measure the preload after first rocking the ball joint stud 3 or 4 times.

   Pull scale reading: 20—34 N (2.0—3.5 kg, 4.4—7.7 lb) (While ball stud is rotating)

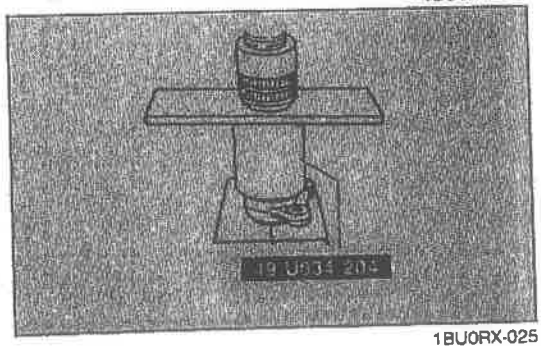
Removal note
Upper arm ball joint/Knuckle arm
Using the **SST**, separate the upper arm ball joint from the knuckle arm.


1BU0RX-019

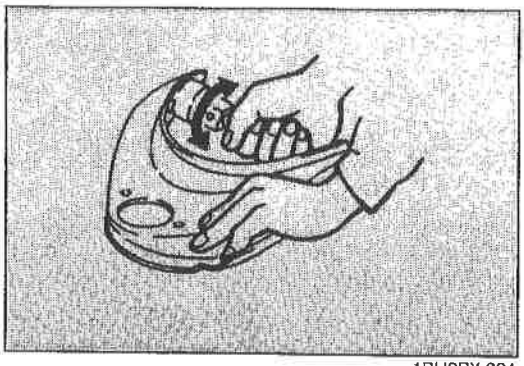

1BU0RX-020

Upper arm ball joint boot
1. Secure the upper arm in a vise.
2. Use a chisel as shown to remove the upper arm ball joint boot.

   Note
   Use protective plates in the jaws of the vise to prevent damage to the part secured.


1BU0RX-025

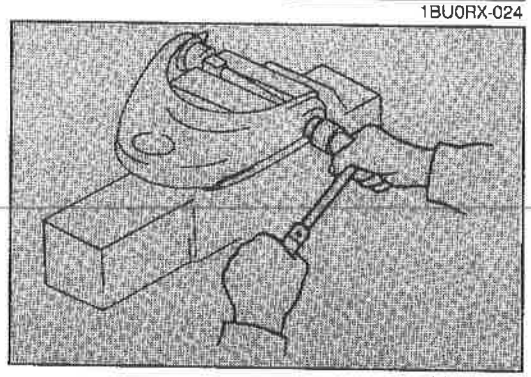
Upper arm ball joint boot
1. Liberally coat the new boot with grease, and use the **SST** to press it on.


1BU0RX-024

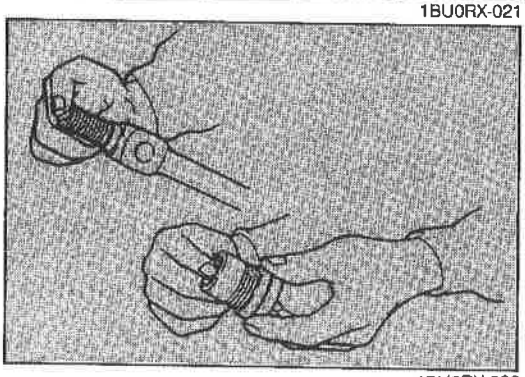
Inspection

Verify that the upper arm shaft turns smoothly.

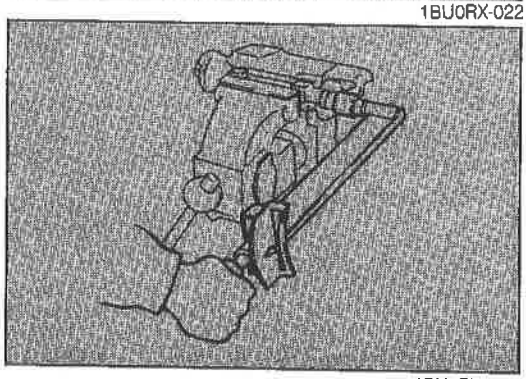
Caution
If the upper arm shaft cannot be turned smoothly, replace the upper arm and/or threaded bushings.


1BU0RX-021

Threaded bushing
1. Secure the upper arm shaft in a vise.
2. Alternately loosen the threaded bushings in steps.
3. Remove the threaded bushings.


1BU0RX-022

Installation note
Upper arm shaft/Threaded bushing
1. Apply the specified grease to the upper arm shaft and threaded bushings.


1BU0RX-027

2. Secure the upper arm shaft in a vise.
3. Install the dust seals and upper arm shaft to the upper arm.
4. Alternately tighten the threaded bushings in steps.

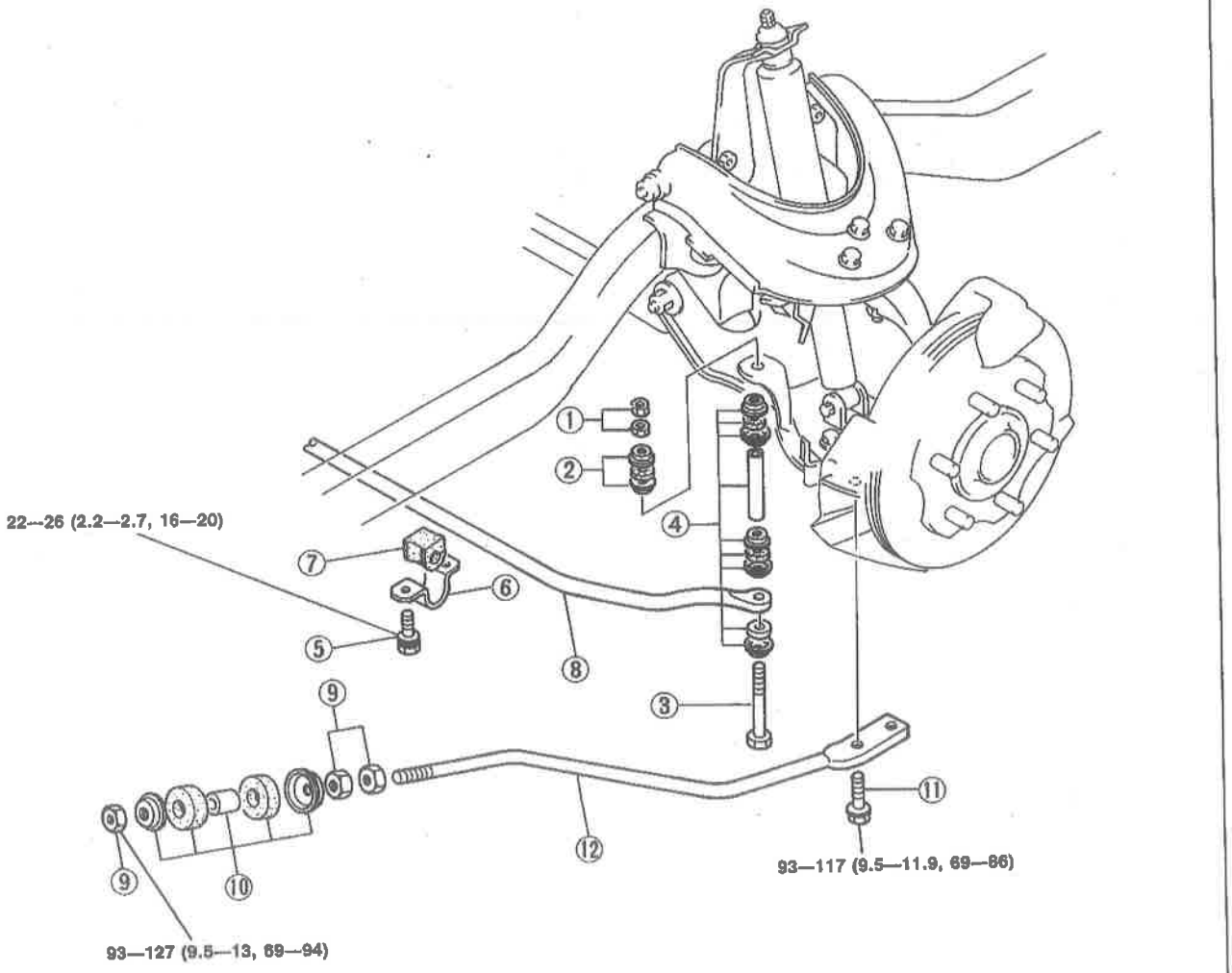
Tightening torque:
98—390 N·m (10—40 m-kg, 72—290 ft-lb)

Caution
If the specified tightening torque cannot be obtained, replace the upper arm and/or threaded bushings.

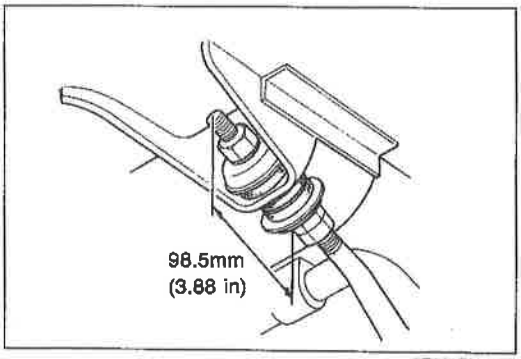
STABILIZER AND TENSION ROD (4x2)

Removal and Inspection

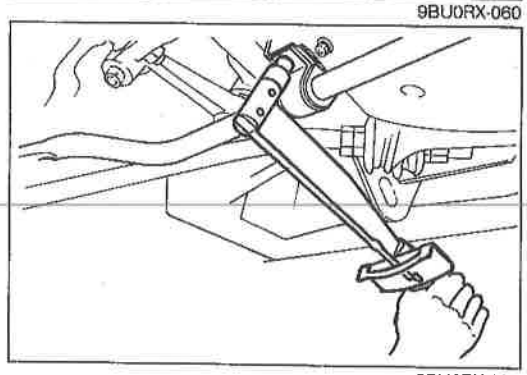
1. Loosen the wheel lug nuts.
2. Jack up the front of the vehicle and support it with safety stands.
3. Remove the wheel.
4. Remove in the order shown in the figure.
5. Inspect the stabilizer and tension rod components and repair or replace as necessary.



1. Nuts
2. Retainers
3. Bolt
4. Bushings, retainers and spacer
   Check the bushings for wear or deterioration
5. Bolts
6. Stabilizer bracket
7. Bushing
   Check for wear or deterioration
8. Stabilizer bar
   Check for bending, cracking, deterioration or damage
9. Nuts
10. Bushings and retainers
    Check bushings for wear or deterioration
11. Bolt
12. Tension rod
    Check for bending, cracking, deterioration or damage



9BU0RX-060



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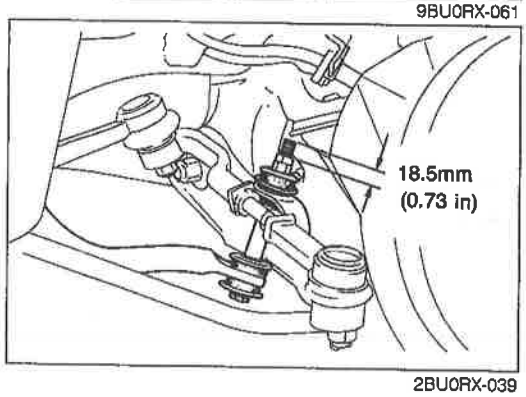


2BU0RX-039

Installation

Install as follows:

1. Install the tension rod.

Tightening torque
Bushing (front):
93—127 N·m (9.5—13.0 m-kg, 69—94 ft-lb)
Lower arm:
93—117 N·m (9.5—11.9 m-kg, 69—86 ft-lb)

2. Install the stabilizer bushing and bracket. Tighten the bolts to the specified torque.

Tightening torque:
22—26 N·m (2.2—2.7 m-kg, 16—20 ft-lb)

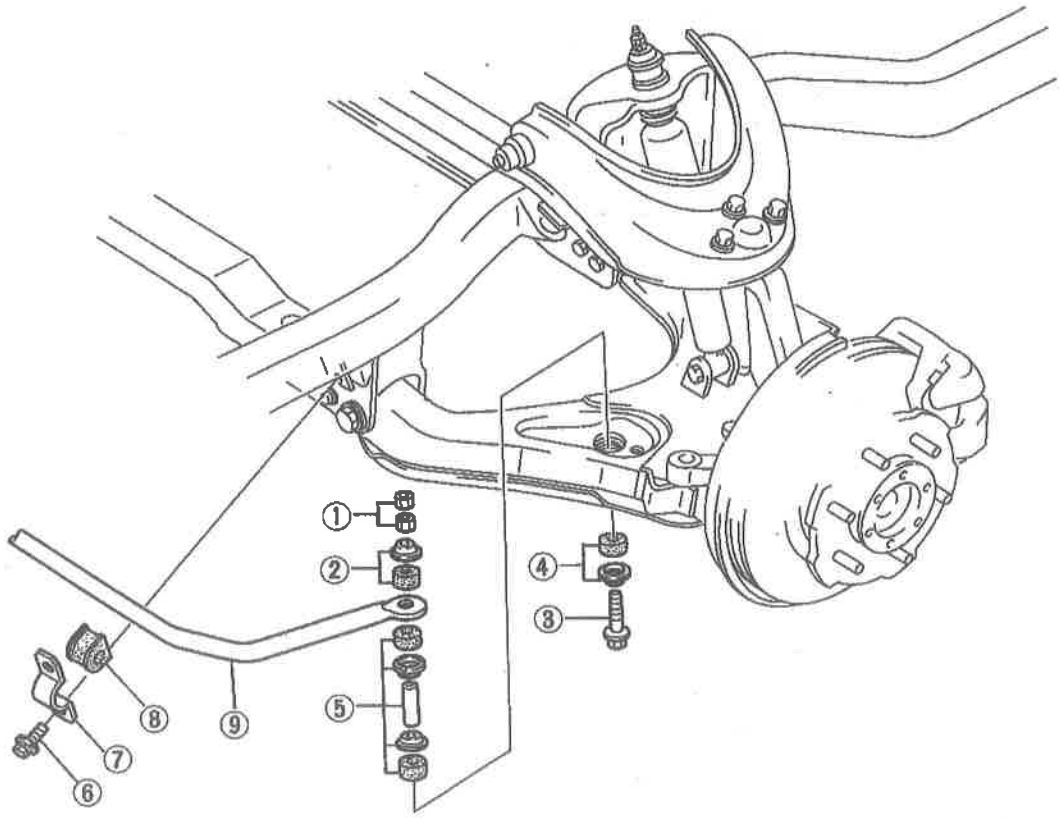
Caution
a) Install so that the bushing seam faces forward.
b) Lower the vehicle, and then tighten once again to the specified torque with the vehicle in the unladen condition.

3. Install the stabilizer bolt.
   Tighten the nuts so that **18.5mm (0.73 in)** of thread is exposed at the end of the bolt.
4. After installation, check the caster angle.
   (Refer to page R–7.)

STABILIZER (4x4)

Removal and Inspection

1. Loosen the wheel lug nuts.
2. Jack up the front of the vehicle and support it with safety stands.
3. Remove the wheel.
4. Remove in the order shown in the figure.
5. Inspect the stabilizer components and repair or replace as necessary.

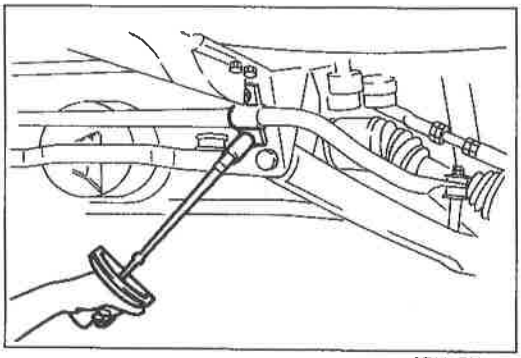


22—26 (2.2—2.7, 16—20)

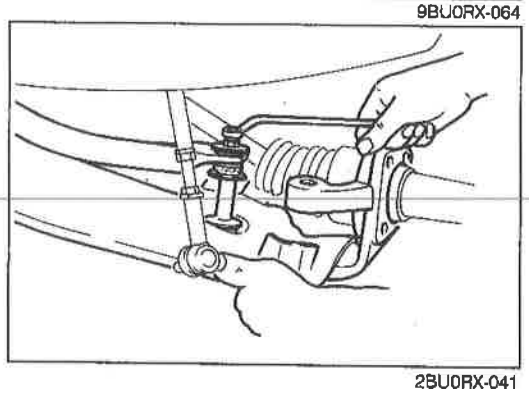
N·m (m-kg, ft-lb)

2BU0RX-040

1. Nuts
2. Retainer and bushing
   Check bushing for wear or deterioration
3. Bolt
4. Retainer and bushing
   Check bushing for wear or deterioration
5. Retainers, bushings, and spacer
   Check bushings for wear or deterioration
6. Bolts
7. Stabilizer bracket
8. Bushing
   Check for wear or deterioration
9. Stabilizer bar
   Check for cracking, bending, deterioration or damage



9BU0RX-064



2BU0RX-041

Installation

1. Install the stabilizer bushing and bracket, and tighten the bolts to the specified torque.

   Tightening torque:
   22—26 N·m (2.2—2.7 m-kg, 16—20 ft-lb)

   Caution
   a) Install so that the bushing seam faces forward.
   b) Lower the vehicle, and then tighten once again to the specified torque with the vehicle in the unladen condition.

2. Install the stabilizer bolt.
   Tighten the nuts so that **18.5mm (0.73 in)** of thread is exposed at the end of the bolt.
3. After installation, check the caster angle.
   (Refer to page R–7.)

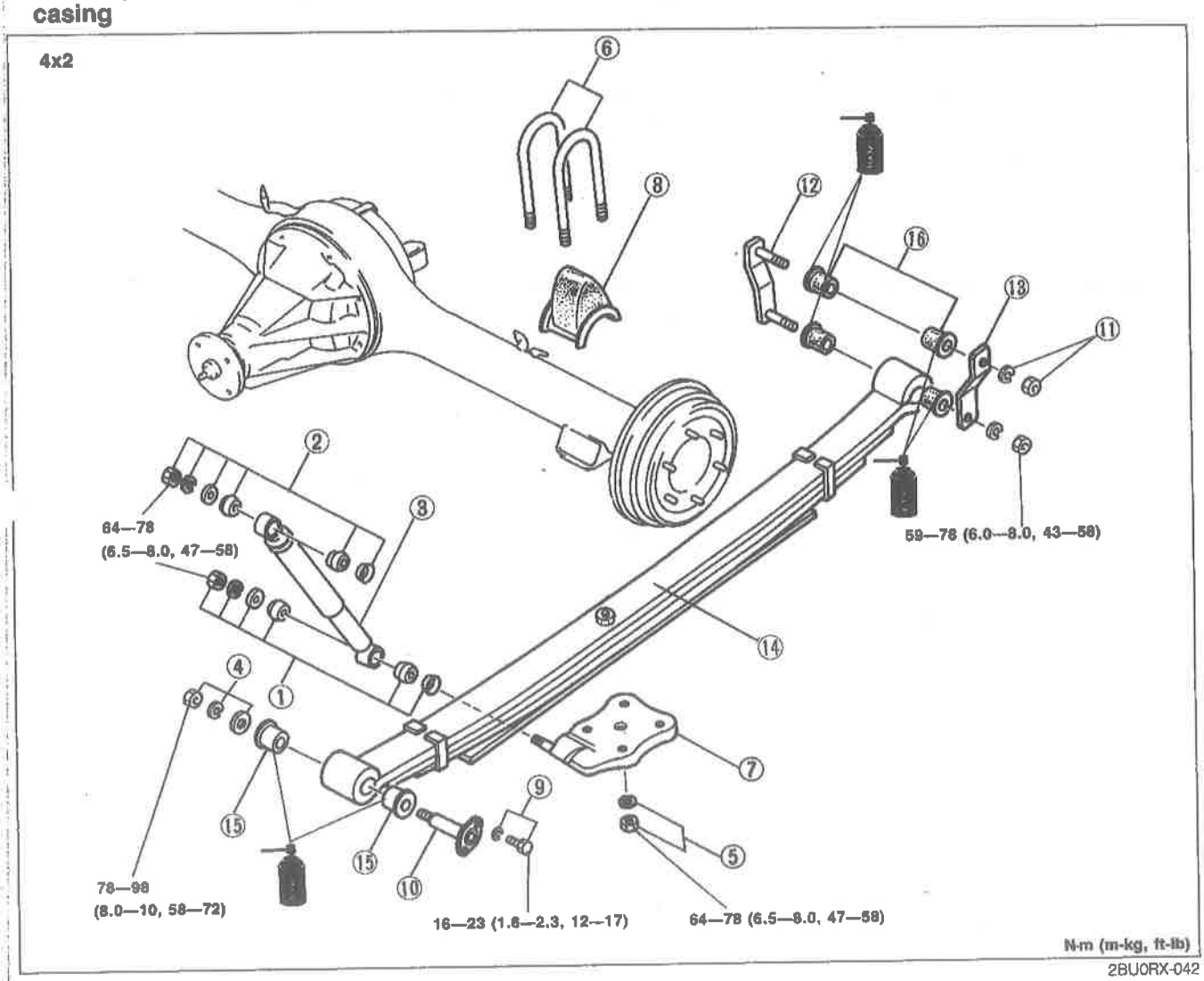
REAR SUSPENSION (LEAF SPRING)

SHOCK ABSORBER AND LEAF SPRINGS (4x2 AND 4x4)

Removal and Inspection

1. Loosen the wheel lug nuts.
2. Jack up the rear of the vehicle and support it with safety stands.
3. Remove in the order shown in the figure, referring to **Removal Note**.
4. Inspect the shock absorber and leaf spring components and repair or replace as necessary.

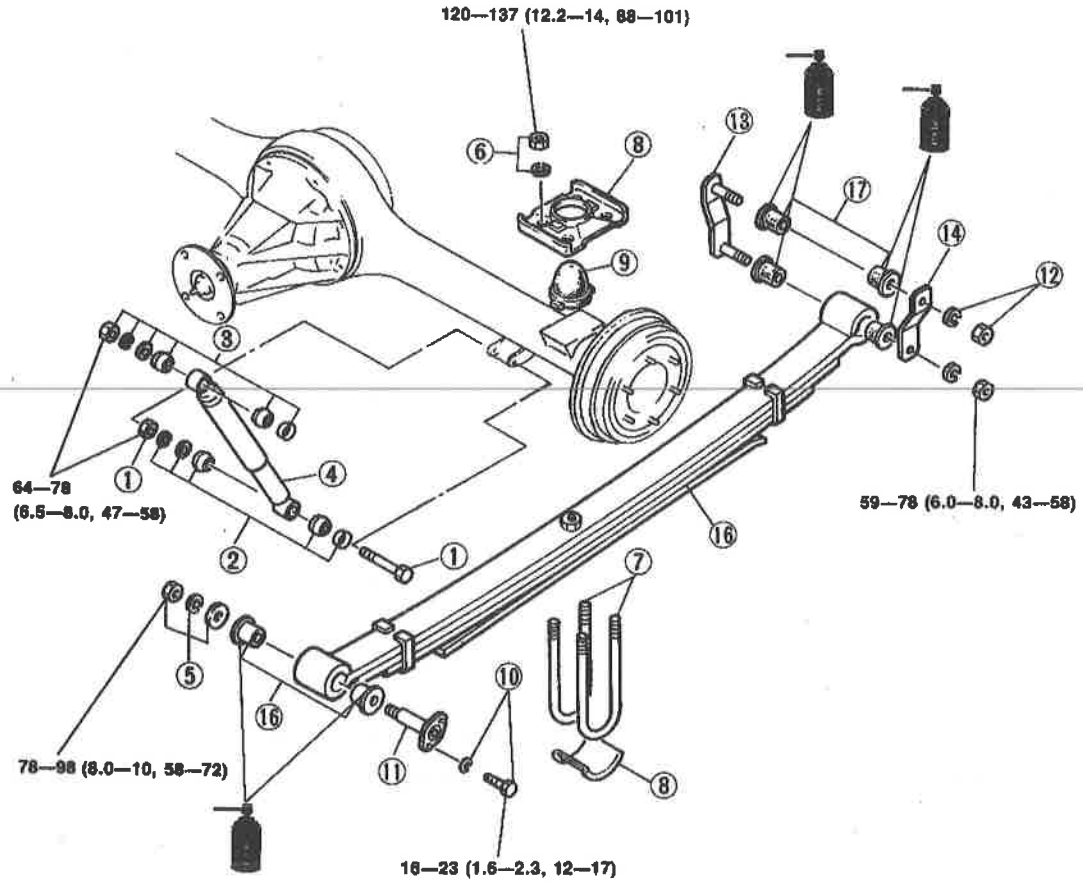
Warning
Do not place the safety stands under the rear axle casing. Use a jack to raise or lower the axle casing



2BU0RX-042

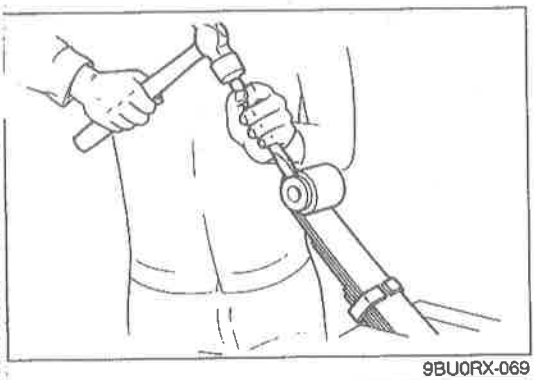
1. Nut, washers, retainer, and bushings
   Check bushings for wear or deterioration
2. Nut, washers, retainer, and bushings
   Check bushings for wear or deterioration
3. Shock absorber
   Check for oil leakage or poor operation
4. Nut and washers
5. Nuts and washers
6. U-bolts
7. Spring clamp
8. Stopper rubber
   Check for damage or deterioration
9. Bolts and washers
10. Spring pin
11. Nuts and washers
12. Shackle pin
13. Shackle plate
14. Leaf spring assembly
    Disassembly ..... page R–31
    Assembly ..... page R–31
    Check for weakness or damage
15. Leaf spring bushings
    Removal Note ..... page R–30
    Check for wear or deterioration

4x4



2BU0RX-043

1. Bolt and nut
2. Washers, retainer, and bushings
   Check bushings for wear or deterioration
3. Nut, washers, retainer, and bushings
   Check the bushing for wear or deterioration
4. Shock absorber
   Check for oil leakage or poor operating
5. Nut and washers
6. Nut and washer
7. U-bolts
8. Set plates
9. Spring clamp
10. Stopper rubber
    Check for wear or deterioration
11. Bolt and washer
12. Spring pin
13. Nut and washer
14. Shackle pin
15. Shackle plate
16. Leaf spring assembly
    Disassembly ..... page R–31
    Assembly ..... page R–31
    Check for weakness or damage
17. Leaf spring bushing
    Removal Note ..... page R–30
    Check for wear or deterioration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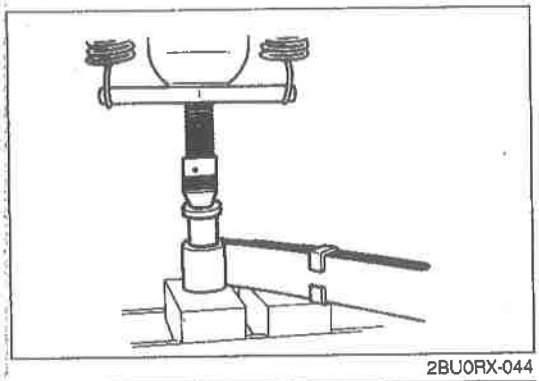
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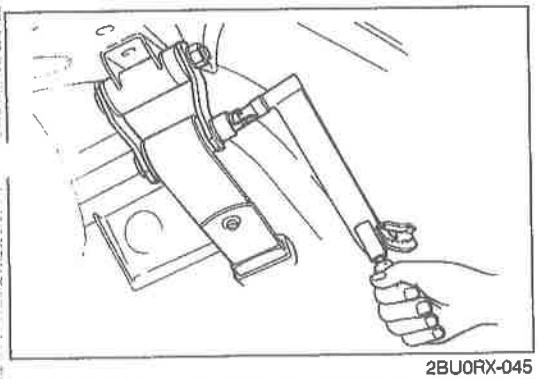
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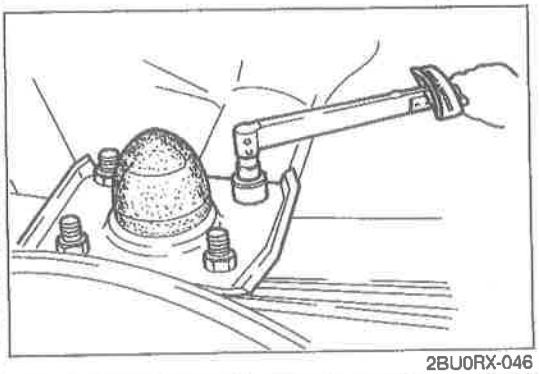
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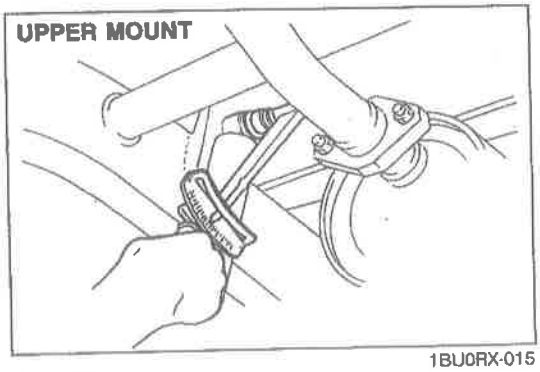


1BU0RX-015

Removal note
Leaf spring bushings
Removal:
Secure the leaf spring assembly in a vise and use a chisel to remove the bushings.

Caution
Use protective pads in the vise.

Installation:
Apply rubber grease to the bushing outer surface and press the new bushings in with a suitable round bar.

Installation
1. Lift the leaf spring assembly into place.
2. Wipe away the grease on the shackle pin and shackle plate.
3. Install the shackle pin and shackle plate, and loosely tighten the shackle mounting nut.
4. Lift the front of the spring assembly.
5. Wipe away grease on the spring pin.
6. Install the spring pin and tighten the mounting nuts of shackle pin and spring pin to the specified torques.

Tightening torque
Shackle pin:
59—78 N·m (6.0—8.0 m-kg, 43—58 ft-lb)
Spring pin:
78—98 N·m (8.0—10.0 m-kg, 58—72 ft-lb)

7. Wipe away any grease that has been expelled from the shackle pin, shackle plate and spring pin.

8. Install the U-bolts, set plates and stopper rubber. Tighten the U-bolt mounting nuts to the specified torque.

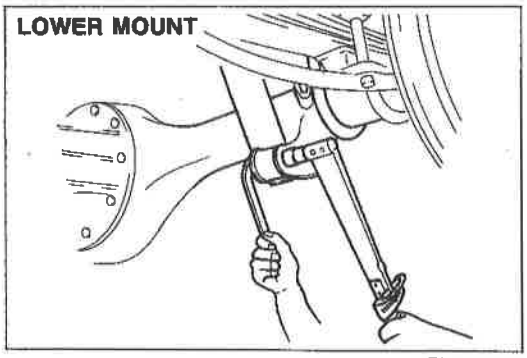
Tightening torque
4x2: 64—78 N·m (6.5—8.0 m-kg, 47—58 ft-lb)
4x4:
120—137 N·m (12.2—14.0 m-kg, 88—101 ft-lb)

Caution
Retighten the nuts to the specified torque after lowering the vehicle (unladen condition).

9. Tighten the shock absorber mounting nuts to the specified torque.

(4x2 and 4x4 Upper mount)

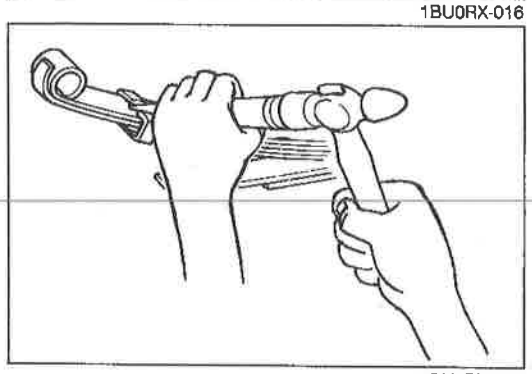
Tightening torque:
64—78 N·m (6.5—8.0 m-kg, 47—58 ft-lb)



1BU0RX-016

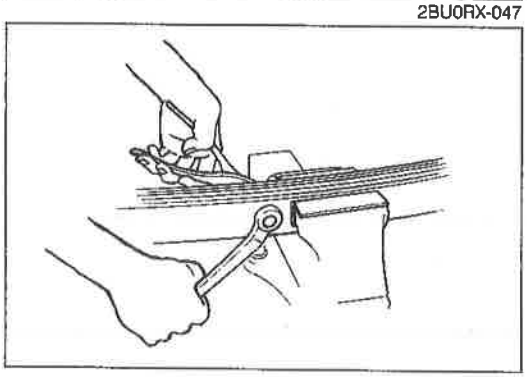
(4x2 and 4x4 Lower mount)

Tightening torque:
64—78 N·m (6.5—8.0 m-kg, 47—58 ft-lb)

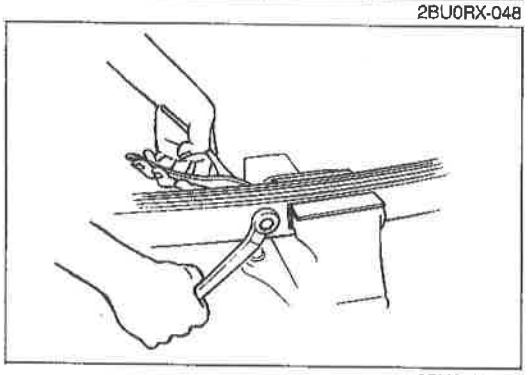

2BU0RX-047

Leaf spring assembly
Disassembly
1. Secure the leaf spring assembly in a vise.

Note
Use protective plates in the jaws of the vise to prevent damage to the port secured.

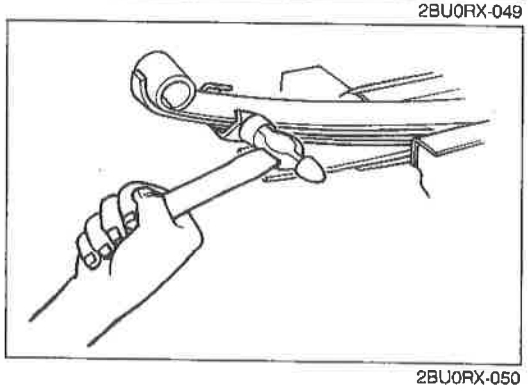

2BU0RX-048

2. Uncrimp the clip.
3. Remove the center bolt.


2BU0RX-049

Assembly
1. Secure the leaf springs in a vise.
2. Install the center bolt from the upper side.

Tightening torque:
98—137 N·m (10.0—14.0 m-kg, 72—101 ft-lb)


2BU0RX-050

3. Crimp the clip.

Caution
Do not allow any gap between the clip and the springs.