

DAIHATSU

Rocky

FRONT AXLE & SUSPENSION

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WRU90-FS001

FS

OUTLINE OF FRONT AXLE & SUSPENSION

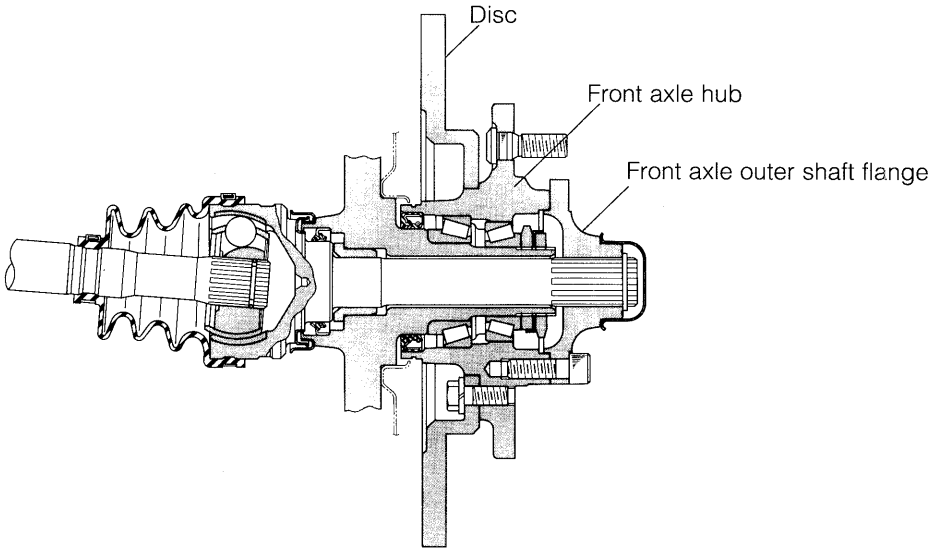
FRONT AXLE

- The driving force from the engine is transmitted to the drive shafts at the right and left sides via the transmission, transfer, front propeller shaft and front differential, finally reaching the front hub meshed with the spline provided at the forward end of each drive shaft. Consequently, the tires are driven.
- The drive shaft employs a full floating type in which the vehicle weight is sustained by means of two tapered roller bearings located between the front axle hub and the steering knuckle. Hence, no vehicle weight is applied to the drive shaft.
- The forward section of the front axle hub adopts two types, depending upon the vehicle type: the rigid type and the locking hub type.
Furthermore, the locking hub comes in two kinds: the manual locking hub mechanism and the automatic locking hub mechanism.
This mechanism makes it possible to reduce a mechanical loss which will be generated when the power from the front wheel drives the front differential and transfer during two wheel drive.

WRU90-FS002

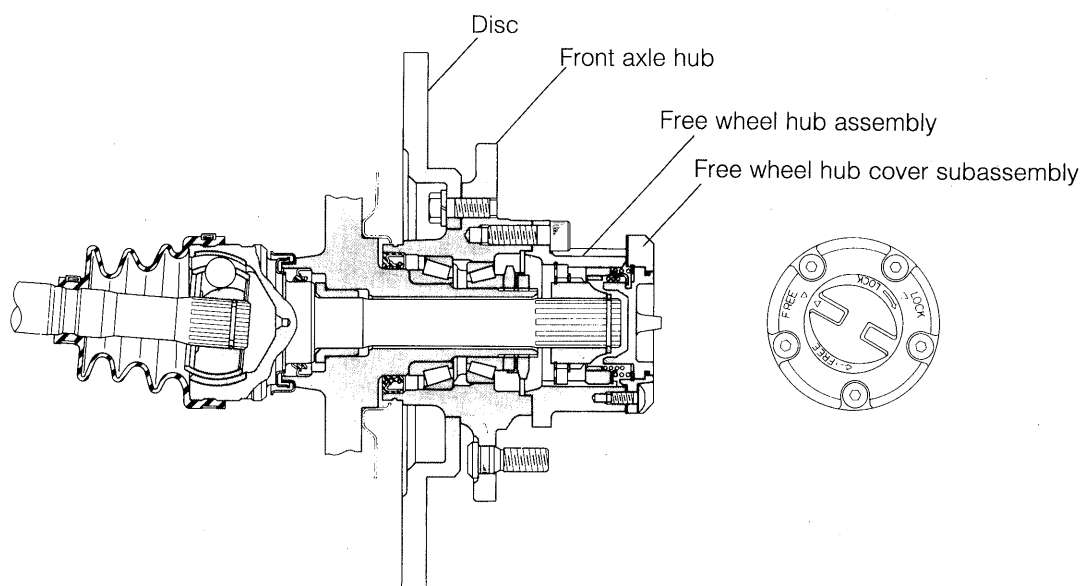
Table of front axle hubs

	Rigid (Full-time)	Manual locking hub	Automatic locking hub
F300LG-BMDEA2		○	
F300LG-BMHEA2	○		○
F300LC-FMDEA2		○	
F300LC-FMHEA2	○		○

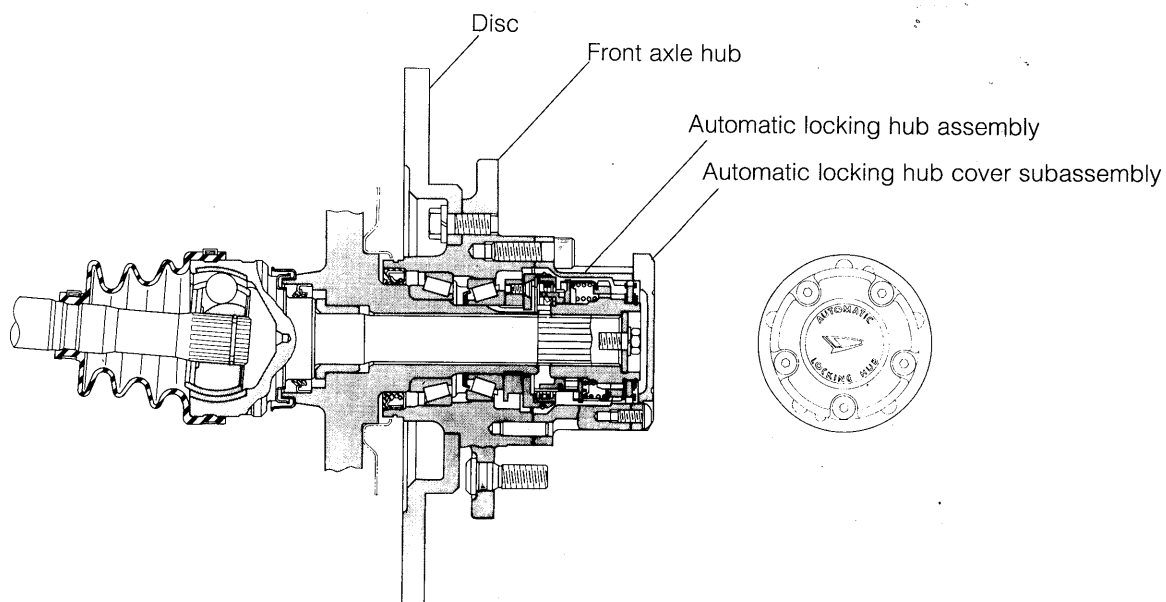


Rigid type

WRU90-FS003



Manual locking hub-equipped vehicle



Automatic locking hub-equipped vehicle

FRONT AXLE & SUSPENSION

1. MANUAL LOCKING HUB

The manual locking hub is a mechanism whereby the switching of power flow is made so that the driving force from the front drive shaft can be transmitted to the front wheel or the torque from the front wheel can not be transmitted to the front drive shaft, etc. and this switching is performed through the operation of the handle provided at the front wheel hub.

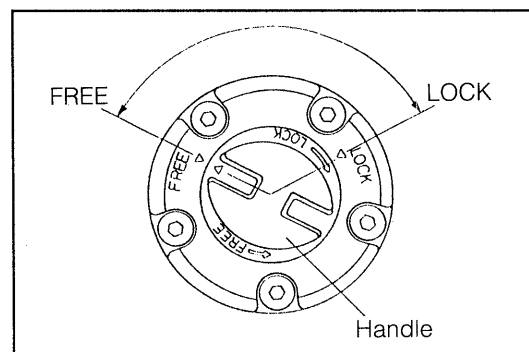
WRU90-FS005

How to operate

- When the transfer shift lever is shifted to the [2H] position, set the locking hub handle to the [FREE] position at both the right and left wheels.
- When the transfer shift lever is shifted to the [4H] or [4L] position, set the locking hub handle to the [LOCK] position at both the right and left wheels.

CAUTION:

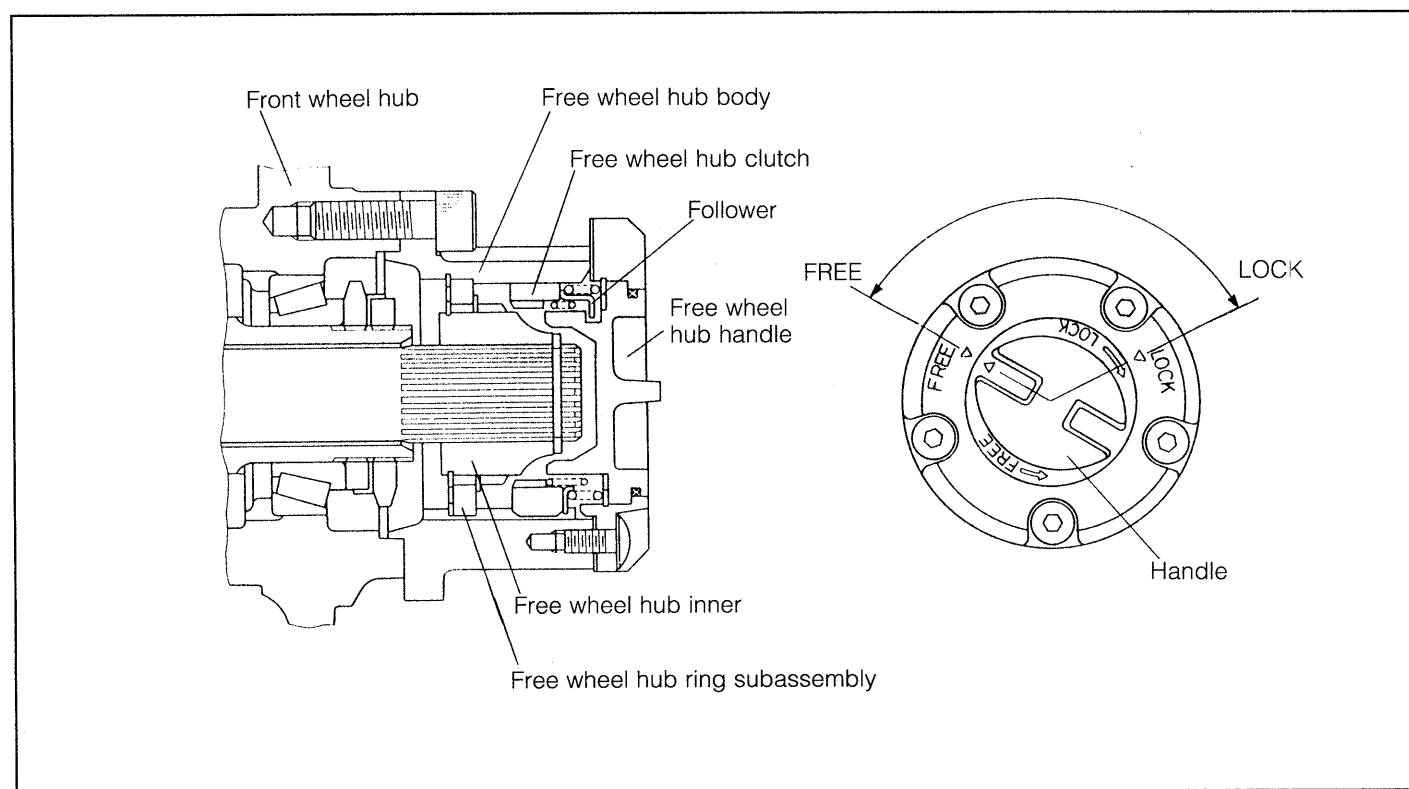
1. Do not move the vehicle if the handle (Δ mark) is not aligned exactly with the ∇ mark at the "Free" or "Lock" position on the cover.
2. Do not operate the vehicle in 4L or 4H when the hub handle is set at the "Free" position.
3. Make save to set the handle (Δ mark on the both the right and left wheels at the same position.



WRU90-FS006

Construction

- The manual locking hub (manual free wheel hub assembly) consists of the free wheel hub body, free wheel hub inner, free wheel hub ring sub assembly, free wheel hub clutch, free wheel hub handle, follower and so forth.
- The free wheel hub inner is spline-connected to the drive shaft. On the other hand, the free wheel hub body is mounted on the front wheel hub. Furthermore, its inside is spline-connected to the free wheel hub clutch.
- The free wheel hub clutch is attached to the free wheel hub handle by means of the follower and two springs.

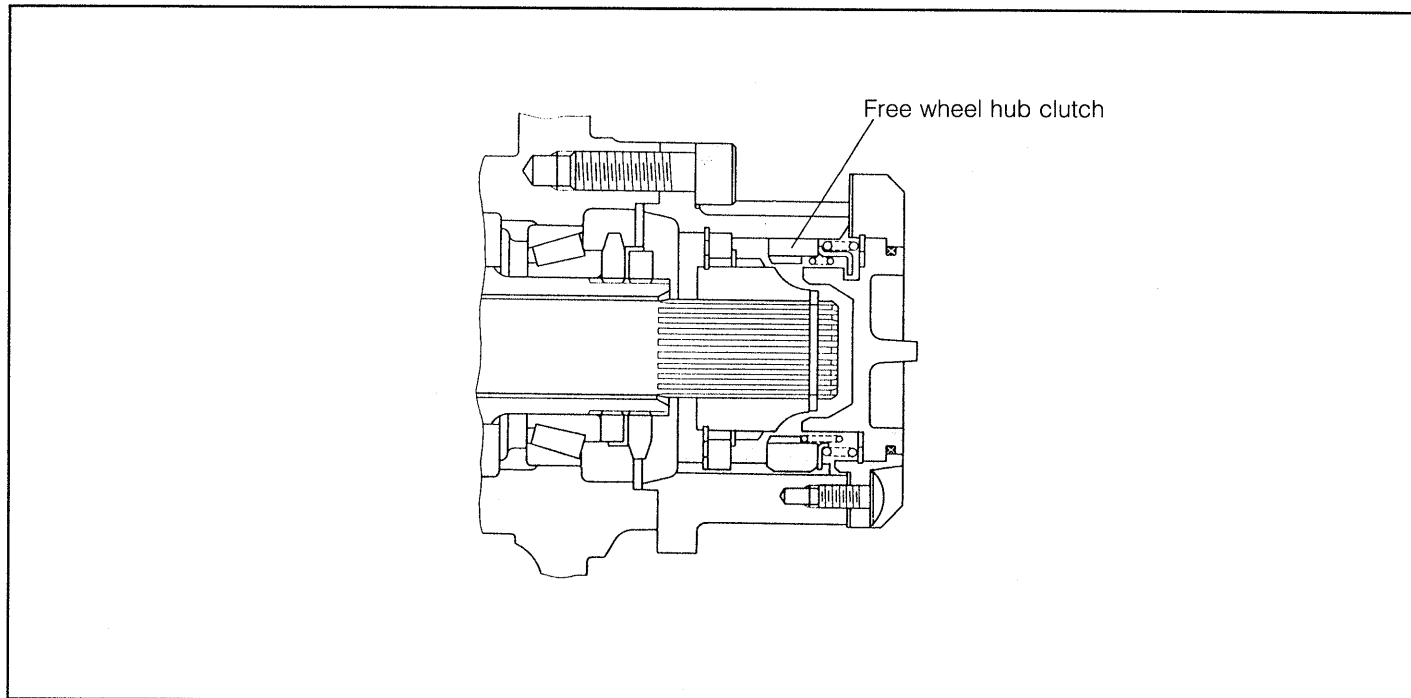


WRU90-FS007

Operation

• LOCKING HUB HANDLE (FREE WHEEL HUB HANDLE) WHEN SET TO [FREE] POSITION

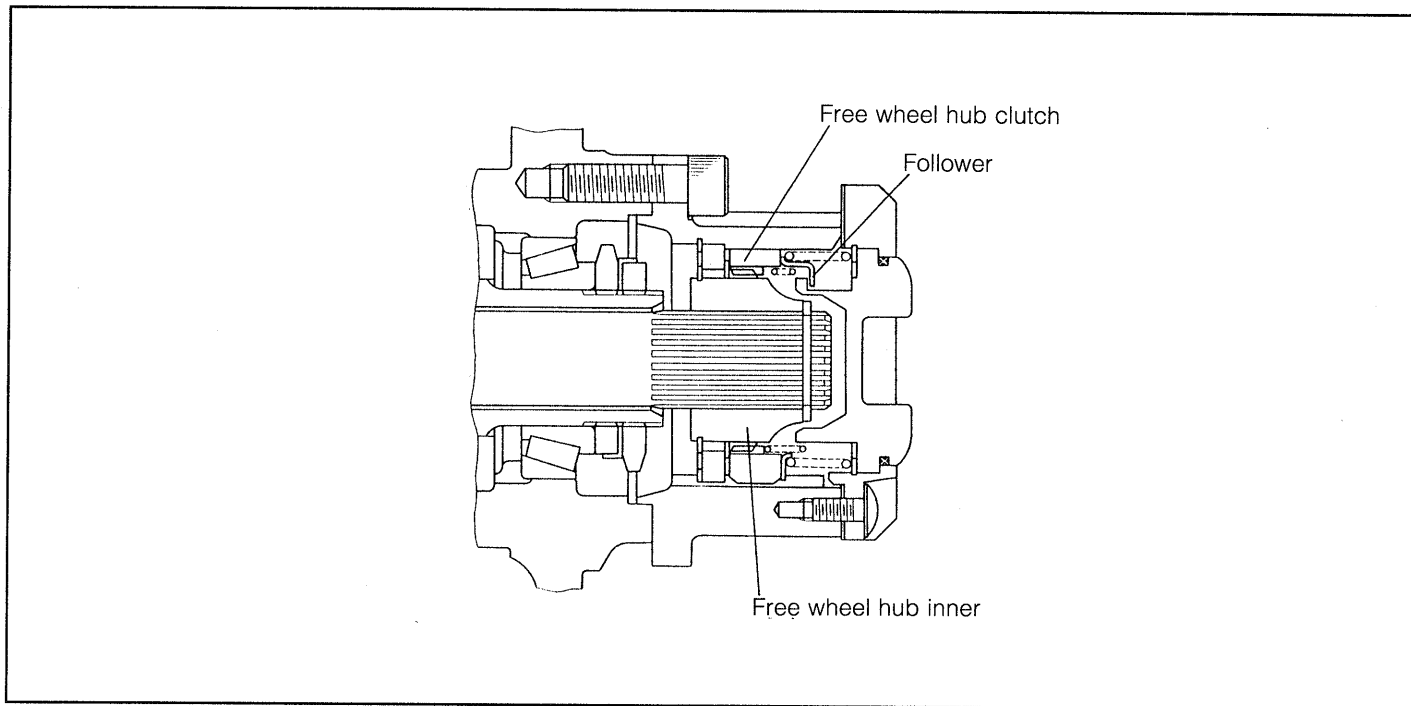
When the free wheel hub handle is set to the [FREE] position, the free wheel hub clutch comes at the outermost position on the spline of the free wheel hub body (at the extremely right position in the figure below), where no driving force from the drive shaft is transmitted to the front wheel hub.



WRU90-FS008

• LOCKING HUB HANDLE (FREE WHEEL HUB HANDLE) WHEN SET TO [LOCK] POSITION

When the free wheel hub handle is turned from the [FREE] position to the [LOCK] position, the follower moves toward the inside (toward the left side in this figure) along the diagonal groove provided inside the free wheel hub handle. As a result, the free wheel hub clutch which is attached to the follower by means of springs will move toward the inside along the spline of the free wheel hub body. This operation causes the free wheel hub clutch to mesh with the spline of the free wheel hub inner. Consequently, the driving force from the drive shaft is transmitted to the front wheel hub.



WRU90-FS009

2. AUTOMATIC LOCKING HUB

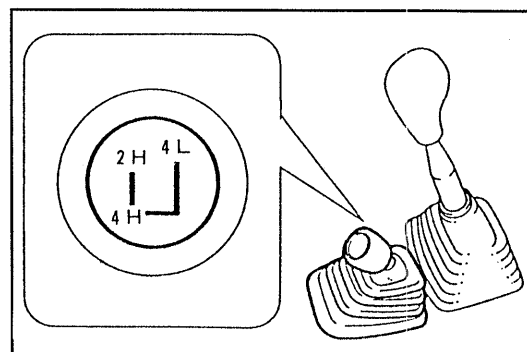
The automatic locking hub is a mechanism whereby the switching of power flow is made automatically so that the driving force from the front drive shaft can be transmitted to the front wheel or no driving force can not be transmitted to the front wheel when the transfer lever is shifted from the [2H] position to the [4H] position or the [4L] position and the vehicle is run.

WRU90-FS010

How to operate

1. [FREE] STATE TO [LOCK] STATE

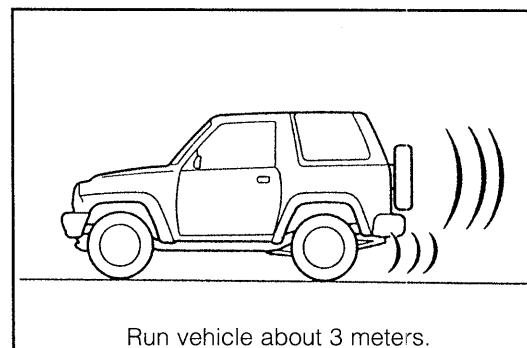
- (1) With the vehicle in a stationary state, shift the transfer shift lever from the [2H] position to the [4H] position or the [4L] position.
- (2) With the steering wheel set to a straight-ahead position, slowly move off the vehicle and run it approximately more than 3 meters. Then, the vehicle is put automatically under the [LOCK] condition.



WRU90-FS011

NOTE:

- When the vehicle runs in a direction opposite to the former direction before stopping (forward movement ↔ backward movement) after the vehicle has been run with the transfer shift lever placed in the [4H] or [4L] position and with the automatic locking hub set to the [LOCK] state and the vehicle has been stopped, the automatic locking hub will be switched from the [LOCK] state to the [FREE] state and will become the [LOCK] state again.

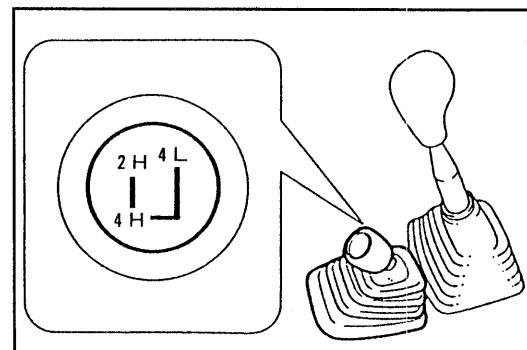


Run vehicle about 3 meters.

WRU90-FS012

2. [LOCK] STATE TO [FREE] STATE

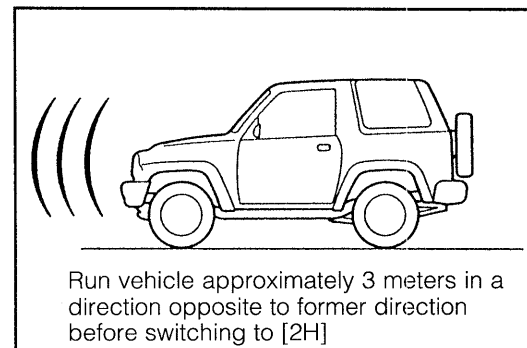
- (1) With the vehicle in a stationary state, shift the transfer shift lever from the [4H] or [4L] position to the [2H] position.
- (2) With the steering wheel set to a straight-ahead position, slowly move off the vehicle in a direction opposite to the former direction before the switching to [2H] position and run the vehicle approximately more than 3 meters. Then, the vehicle is put automatically under the [FREE] condition.



WRU90-FS013

NOTE:

- If the vehicle is moved off in the same direction as the former direction before the switching to the [2H] position in the operation described in Step (2) above, the vehicle will run under the [LOCK] lock state continually.



Run vehicle approximately 3 meters in a direction opposite to former direction before switching to [2H]

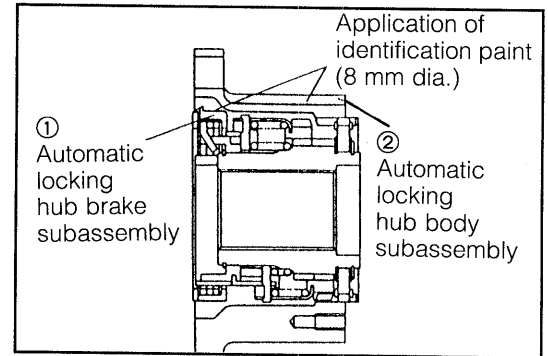
WRU90-FS014

Handling Instructions on Automatic Locking Hub

- Avoidance of Ratcheting Phenomenon

The ratcheting phenomenon means a gear clashing noise which occurs when the automatic locking hub clutch meshes with the automatic locking hub body if there exists a difference in rotational speed between these two components.

When such phenomenon occurs, first stop the vehicle. Again place the transfer in the 4WD position. Slowly move off the vehicle straight. Then, proceed to drive the vehicle normally.



WRU90-FS400

1. Prohibition of shifting operation of transfer during running

If the transfer should be shifted from the 2WD to the 4WD during the running, the aforesaid ratcheting phenomenon would occur. Hence, do not shift the transfer during the running.

2. Observance of driving straight immediately after transfer shifting When the automatic locking hub is shifted from the Free position to the Lock position, first stop the vehicle. Then, be certain to move off the vehicle with the steering wheel held in a straight-ahead state and run the vehicle at least 3 meters under this state.

If the steering wheel should be turned before the vehicle has been run at least 3 meters, one hub of the automatic locking hubs at the right and left sides may be locked and the other hub may become free, thereby causing the ratcheting phenomenon to occur.

3. Avoidance of sudden moving off

If the vehicle should be moved off suddenly after the transfer has been shifted from the 2WD to the 4WD, the ratcheting phenomenon might occur. Hence, make sure to avoid moving the vehicle suddenly.

4. Shifting of transfer during running on muddy terrain

If you want to get the vehicle out from a muddy terrain or on snowy roads or the like by shifting the transfer from the 2WD to the 4WD while the rear wheels are slipping on these roads, perform the locking slowly, using the half clutch so as to prevent the occurrence of ratcheting phenomenon.

5. Observance of driving vehicle under 4WD mode during extremely cold climate [below – 15°C (5°F)]

If the vehicle should be run under the 2WD mode with the automatic locking hub in the free state, the vehicle may assume the 4WD mode owing to high viscosity of the transfer oil. Consequently, the ratcheting phenomenon may occur. Therefore, during extremely cold climate, drive the vehicle under the 4WD mode until the warming-up is completed.

WRU90-FS401

6. Handling during extremely cold climate [below – 15°C (5°F)]

There are many instances where the automatic locking hub fails to become free when the automatic locking hub is in the locked state and you try to unlock it by shifting the transfer shift lever to the 2WD position and by driving the vehicle reversely. This is because the viscosity of the transfer oil is too high. Hence, be certain to drive the vehicle under the 4WD mode until the warming-up is completed.

In this case, after completion of the warming-up operation, shift the transfer from the 4WD to the 2WD.

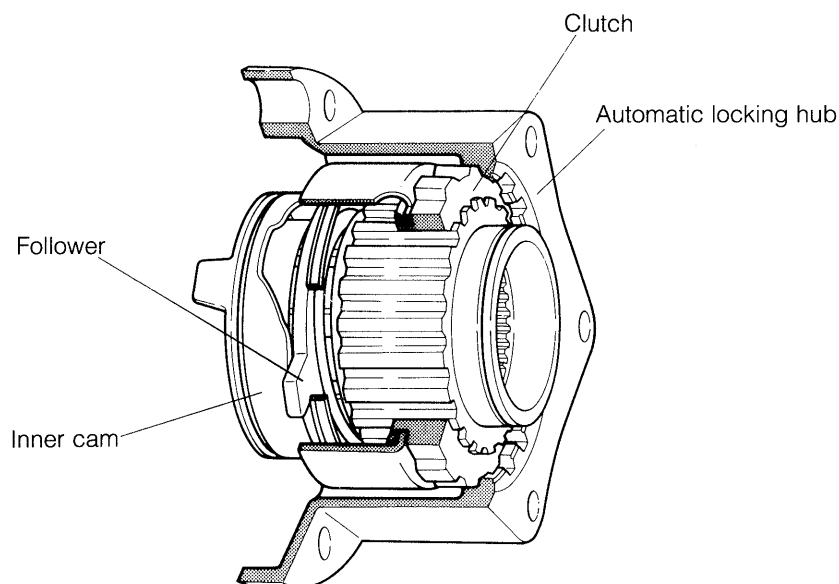
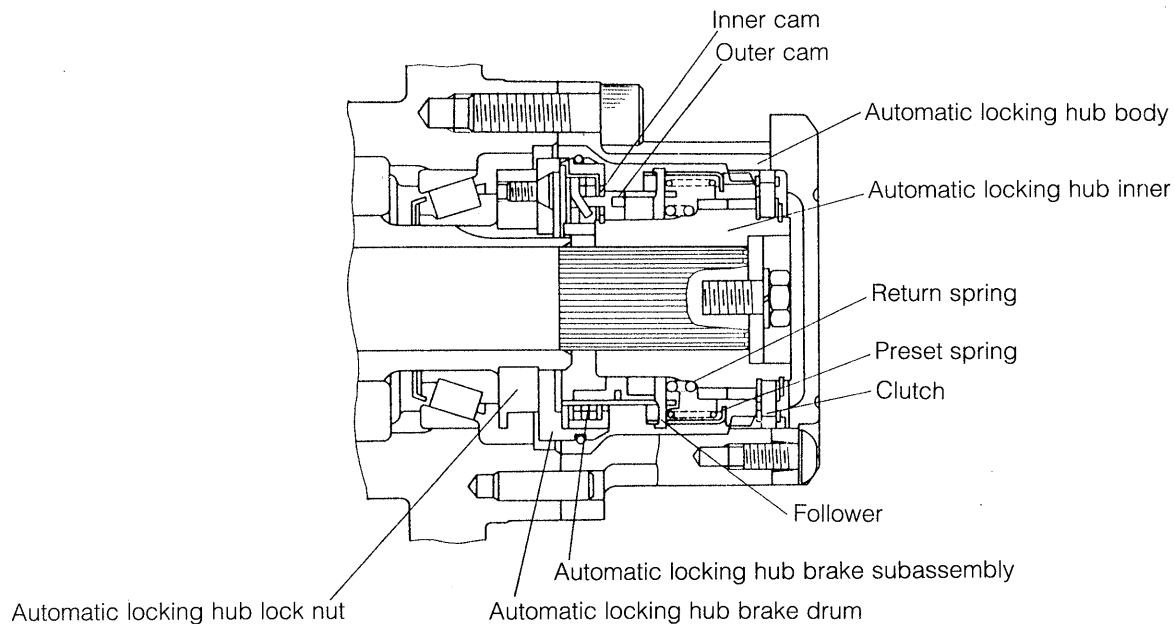
7. Do not soil or wipe off the grease that has been applied to the automatic locking hub brake subassembly. Failure to observe this caution makes it impossible to reuse the brake subassembly.

WRU90-FS402

FRONT AXLE & SUSPENSION

Construction

- The automatic locking hub assembly consists of the automatic locking hub lock nut, automatic locking hub brake drum, automatic locking hub brake subassembly, outer cam, inner cam, automatic locking hub body, clutch and so forth.
- The inside of the automatic locking hub inner is spline- connected to the front drive shaft. On its outside are mounted the clutch and so forth. On the other hand, the automatic locking hub body is mounted on the front wheel hub. Furthermore, the inside of the automatic locking hub body is provided with spline so that it may connected with the clutch.
- On the clutch are attached the follower, two springs, inner cam and outer cam.
- The automatic locking hub brake drum is attached to the hub lock nut with screws.



Operation

• AUTOMATIC LOCKING HUB [FREE] STATE TO [LOCK] STATE

When the drive shaft turns after the transfer shift lever has been shifted to the [4H] or [4L] position and the vehicle has been moved off, the automatic locking hub inner and follower which are connected with each other through spline will turn as an integral unit. (The follower is connected by means of the outer spline of the automatic locking hub inner.)

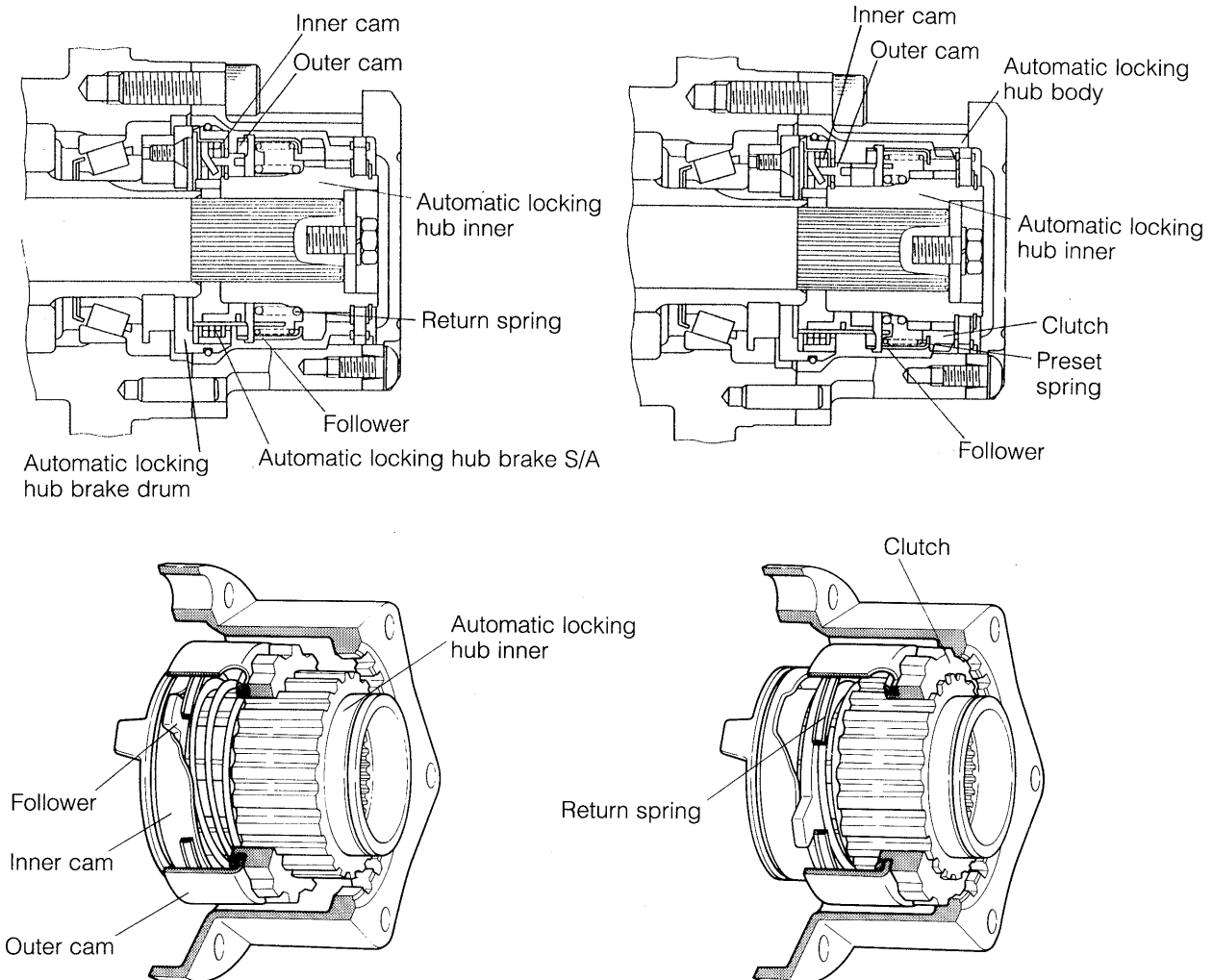
On the other hand, the inner and outer cams tend to remain in their position because of the operation of the automatic locking hub brake subassembly. As a result, the follower moves toward the outside while turning along with the diagonal surface of the inner cam. (The follower moves toward the right side in the figure below.) Refer to Reference 1 in the following pages.

When the follower moves toward the outside, the clutch, too, which is pushed by the spring tension, will move toward the outside. Thus, the clutch meshes with the inner spline of the automatic locking hub body, thereby transmitting the driving force from the drive shaft to the front tire via the front wheel hub.

Moreover, the point where the automatic locking hub is locked corresponds to the point where the rotation of the follower is prevented by means of the outer cam (i.e. a point where the movement toward the outside is completed). Refer to Reference 2 in the following pages.

[Reference]

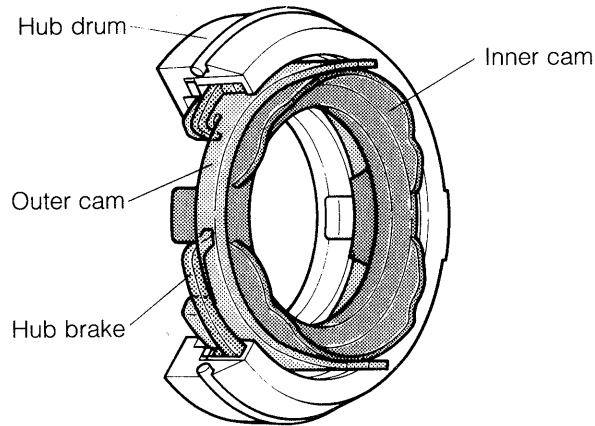
When the locking of the automatic locking hub is completed, the outer cam rotates in the automatic locking hub brake drum, while sliding together with the automatic locking hub brake subassembly.



FRONT AXLE & SUSPENSION

[Reference 1]

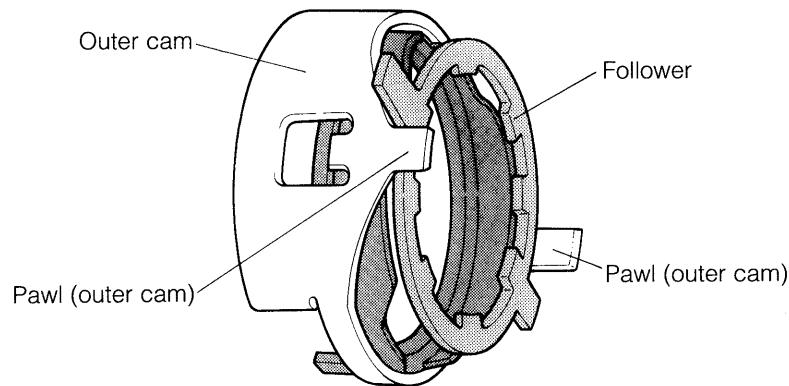
- ① The inner and outer cams have a pawl, respectively. Also, the automatic locking hub brake has an involute- shaped pawl.
- ② In the beginning of the [LOCK] phase, both the inner and inner cams are turning. Thus, their respective pawls are contacting with the pawl of the automatic locking hub brake. At this stage, the hub brake expands because of its involute shape. Consequently, the friction relative to the automatic locking hub brake drum is on the increase, finally stopping the rotation of the inner and outer cams.



WRU90-FS017

[Reference 2]

The outer cam has two pawls; One pawl which functions relative to the automatic locking hub brake and the other pawl which is located at the opposite side. When the follower makes contact with the latter pawl, the rotation of the follower is stopped.



WRU90-FS018

• AUTOMATIC LOCKING HUB [LOCK] STATE TO [FREE] STATE

When the transfer shift lever is shifted to the [2H] position and the vehicle is run approximately 3 meters in a direction opposite to former direction before switching to [2H], the automatic locking hub body and the automatic locking hub inner as well as the follower start to rotate as a unit, for power is transmitted from the tires. (The drive shaft and clutch, too, rotate as a unit, until the lock is released.)

Since the follower is connected by means of the outer spline of the automatic locking hub inner and it is pushed against the diagonal surface of the inner cam by the spring tension, the follower rotates as an integral unit as the automatic locking hub inner. As a result, the follower moves toward the inside while turning along with the diagonal surface of the inner cam. (The follower moves toward the left side in the figure below.)

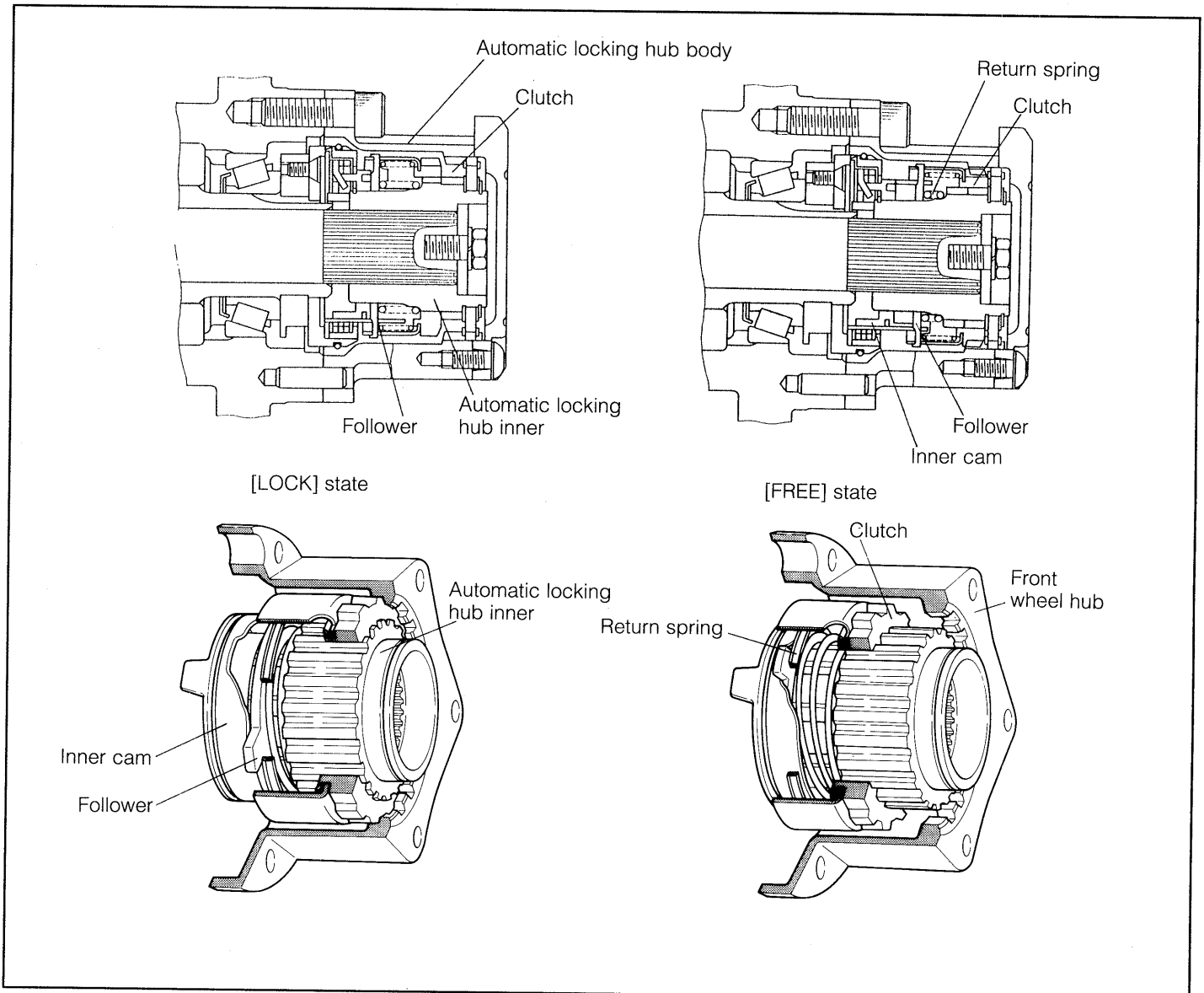
At this stage, the inner and outer cams tend to remain at their position, for their rotation is restricted by the automatic locking brake subassembly.

When the follower moves toward the inside, the clutch, too, will move because of the spring tension. Therefore, the meshing of the clutch with the inner spline of the front wheel hub will be disengaged.

Consequently, the driving force from the tire side will no longer be transmitted. Moreover, the point where the automatic locking hub is freed corresponds to the point where the rotation of the follower is prevented by means of the outer cam (i.e. a point where the movement toward the inside is completed).

[Reference]

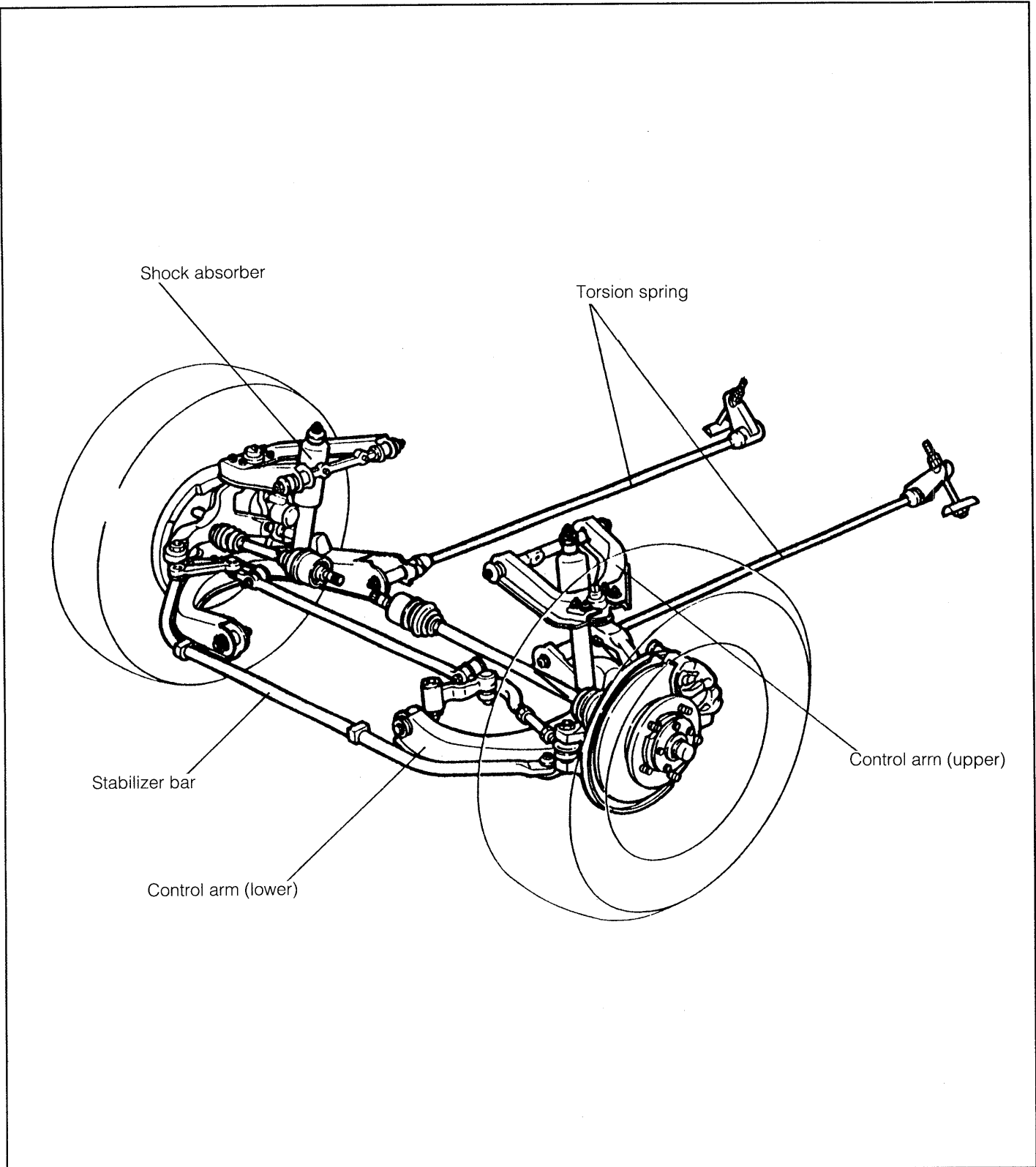
To change the mode from the [LOCK] state to the [FREE] state, refer to the "How to Operate" under Section "Automatic Locking Hub," 2.



FRONT AXLE & SUSPENSION

FRONT SUSPENSION

- The front suspension employs a double wishbone type where the vehicle body weight is sustained by two control arms.
- The springs adopt a torsion bar spring featuring light weight and a comparatively great energy absorption rate per unit weight.
- The shock absorbers employ a nitrogen-sealed type shock absorber.
- For improved running stability, a stabilizer bar is provided.

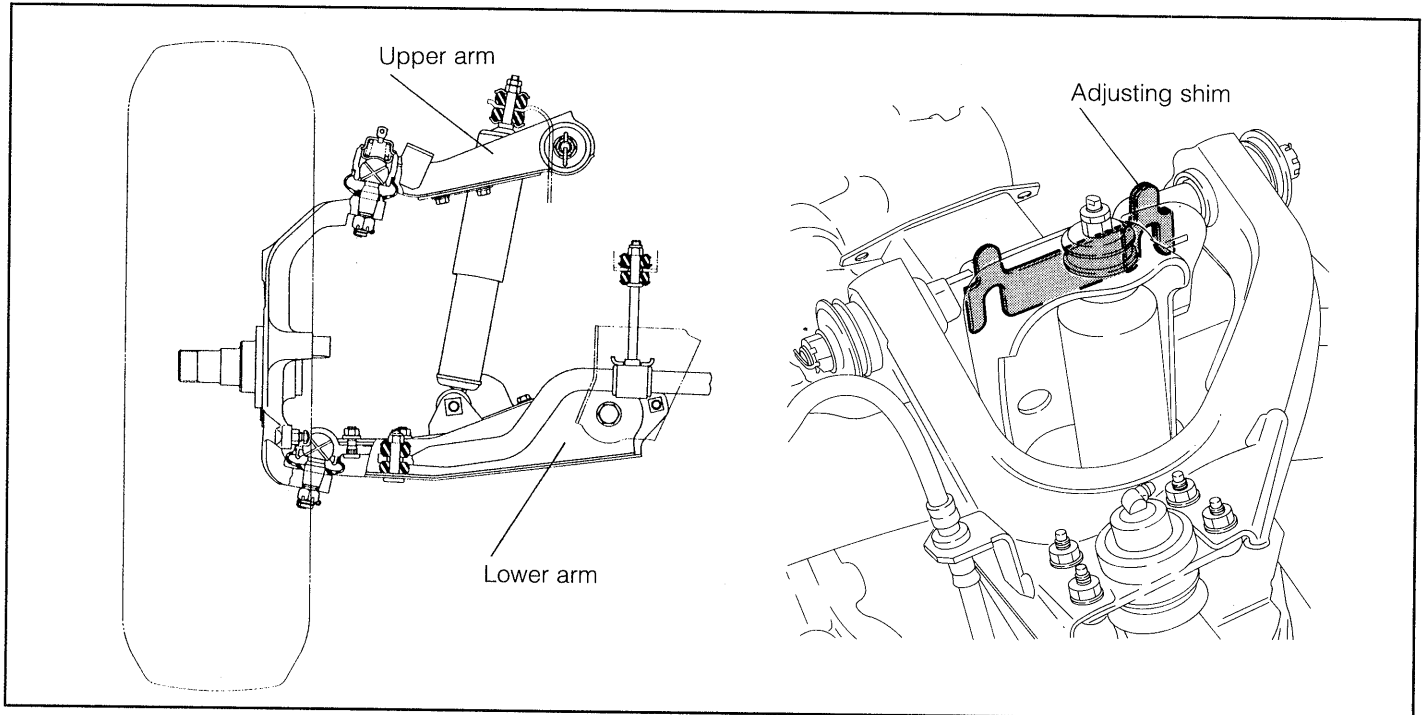


WRU90-FS020

Upper arms & lower arms

The front suspension employs a double wishbone type. In the suspension of this type, the driving, braking, lateral forces and so forth of the front wheels are supported by means of the upper and lower control arms. The camber and caster angles can be altered by changing the thickness of the adjusting shims for the upper arm.

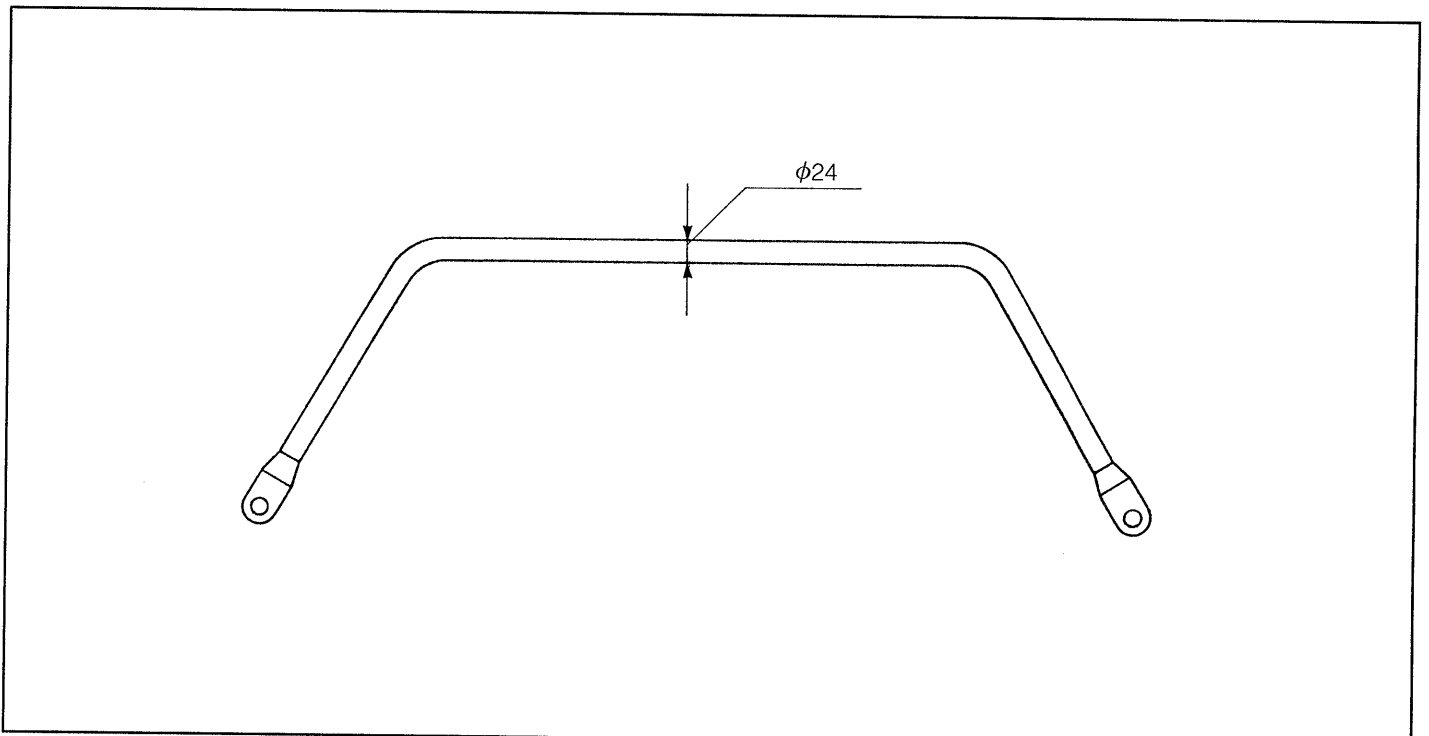
The camber angle decreases when the thickness of adjusting shims for the upper arm is increased. Furthermore, the caster angle can be altered by changing the thickness of adjusting shims for the upper arm at the forward side or the backward side.



WRU90-FS021

Stabilizer bar

For improved running stability, the stabilizer bar is standard equipment on all vehicle models. It is provided between the lower arms at the right and left sides.

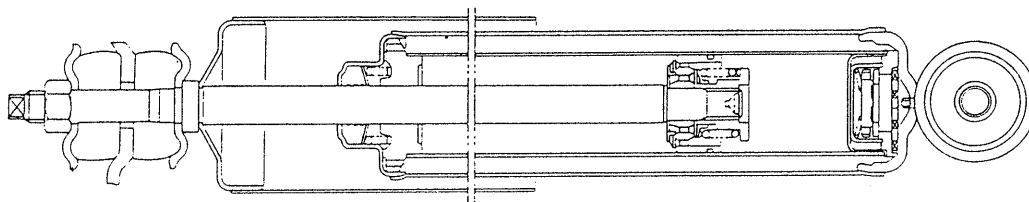


WRU90-FS022

FRONT AXLE & SUSPENSION

Front shock absorbers

The front shock absorbers employ a nitrogen-sealed type shock absorber.

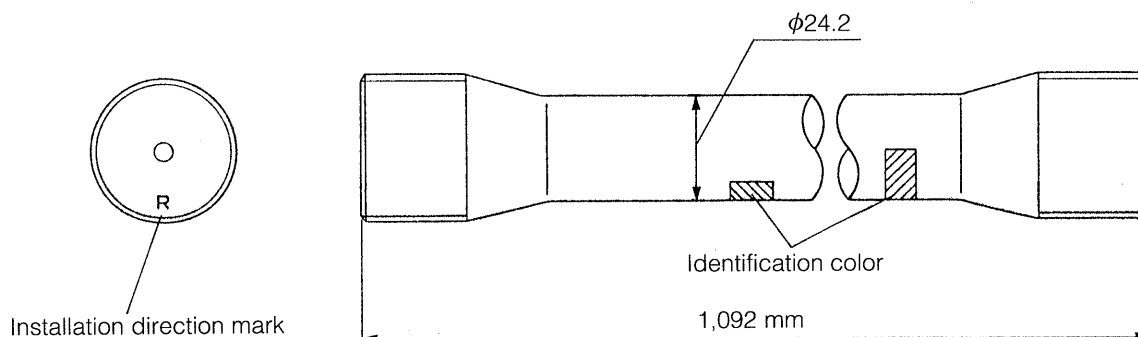


WRU90-FS023

Front springs

The front springs adopt a torsion bar spring that features light weight and a comparatively great energy absorption rate per unit weight.

The torsion bar springs come in two kinds; One for the right side and the other for the left side. Hence, make sure that the respective springs are installed at the correct side. If the springs should be installed at a wrong side, the durability will drop.



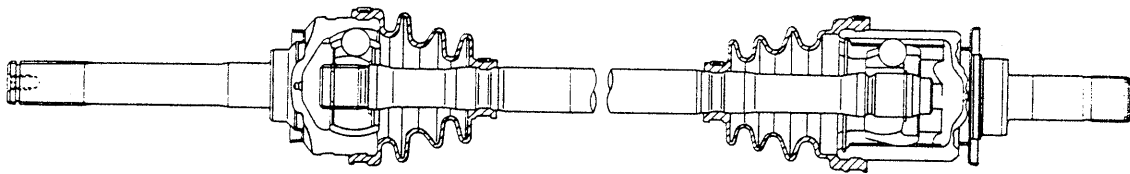
WRU90-FS024

DRIVE SHAFTS

The drive shafts are used to drive the front wheels. Their outboard joint employs a birfield type constant-velocity joint, whereas their inboard joint adopts a double offset type constant-velocity type joint.

The outboard joint at the tire side compensates for the angle change of the steering tire, while the inboard joint at the differential side compensates for the wheel movement in an up-and-down direction as well as in an axial direction.

Consequently, the power from the engine can be transmitted smoothly under various running conditions.



WRU90-FS025

FRONT AXLE & SUSPENSION

Front suspension specifications

Vehicle model			All models
Item			
Wheel alignment	Toe-in mm (inch)		$4 \begin{smallmatrix} -1 \\ -3 \end{smallmatrix}$ (0.16 $\begin{smallmatrix} -0.04 \\ -0.12 \end{smallmatrix}$)
	Camber degree		$1^{\circ} \begin{smallmatrix} +0 \\ -1 \end{smallmatrix}$
	Caster degree		$2^{\circ} \pm 30$
	Kingpin inclination angle degree		$9^{\circ}30'$
	Tire turning angle (degree)	Inside degree	$27^{\circ}05' \begin{smallmatrix} +0 \\ -3 \end{smallmatrix}$
		Outside degree	$23^{\circ}55'$
Torsion bar spring	Overall length mm (inch)		1,092 (42.99) [1,048 (41.26) effective length]
	Outer diameter mm (inch)		23.5 (0.93)
	Spring constant kg/mm (lb/inch)		2.29 (128.23) [As installed]
	Identification color	Right side	Orange (marking RH)
		Left side	Light blue (marking LH)
Shock absorber	Damping force (at piston speed of 0.3 m/sec)	Rebound stroke kg (lb)	200 (440.9)
		Compression stroke kg (lb)	37 (81.57)
Stabi-lizer	Outer diameter mm (inch)		24 (0.94)
	Spring constant kg/mm (lb/inch)		2.83 (158.47)
Drive shaft	Manufacturer		Toyota Koki
	Shaft overall length	Left side mm (inch)	956.3 (37.65)
		Right side mm (inch)	671.7 (26.44)
	Shaft diameter mm (inch)		25.5 (1.01)
	Joint type	Wheel side	Birfield type
		Differential side	Double offset type
	Grease to be used	Wheel side	Morilex S No. 2
		Amount to be applied g (oz)	90 ± 10 (3.18 \pm 0.35)
		Differential side	Morilex S No. 2
		Amount to be applied g (oz)	170 ± 10 (6.00 \pm 0.35)

WRU92-FS411

WHEELS & TIRES

NOTE:

- The tires should exhibit no damage, such as excessive wear, uneven wear and scratches.
- Any foreign matter, such as grit caught in the groove of the tire, should be removed in advance.
- The tires should not be so worn that slip signs appear on their tread surfaces.

WRU90-FS028

1. Check of tire size

Confirm the following points.

- (1) Ensure that the tires having the designated tire size are mounted.

Designated Tire Size:

P205/75 R15

P225/70 R15

- (2) Ensure that the four tires have the same size and they are ones made by the same manufacturer.

- (3) There is no significant difference in wear between the right and left tires.

WRU90-FS029

2. Tire inflation pressure

Ensure that the tires are inflated to the specified air pressure.

Specified Value

kgf/cm²(psi)

	FRONT	REAR
P205/75 R15	1.8 (26)	2.4 (35)
P225/70 R15	1.8 (26)	2.4 (35)

NOTE:

- The tire inflation pressure should be adjusted when the tire temperature is at the ambient temperature (prior to the running).
- The tire inflation pressure should be adjusted under the unloaded state.

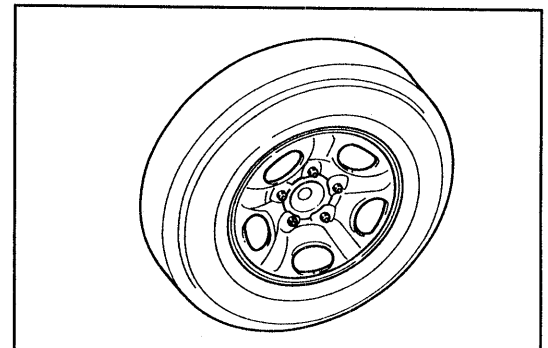
WRU90-FS030

3. Check of disc wheel and tire

- (1) Ensure that the disc wheel exhibits no damage, such as deformation and cracks.

If any damage is present, replace the disc wheel.

- (2) Jack up the vehicle and support it with safety stands. (See GI section.)



WRU90-FS031

FRONT AXLE & SUSPENSION

- (3) Check the wheel and tire for runout, using a dial gauge. Ensure that the runout is within the allowable limit.

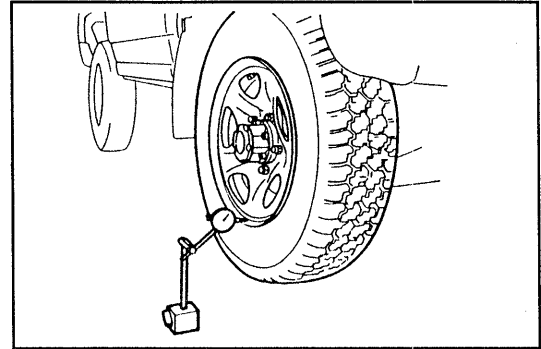
Wheel Maximum Runout:

Mean value of runouts at front and rear sides not to exceed 1.0 mm (0.04 inch)

Tire Maximum Runout:

Vertical Runout: Not to Exceed 1.4 mm
(Not to Exceed 0.0551 inch)

Lateral Runout: Not to Exceed 2.0 mm
(Not to Exceed 0.0787 inch)

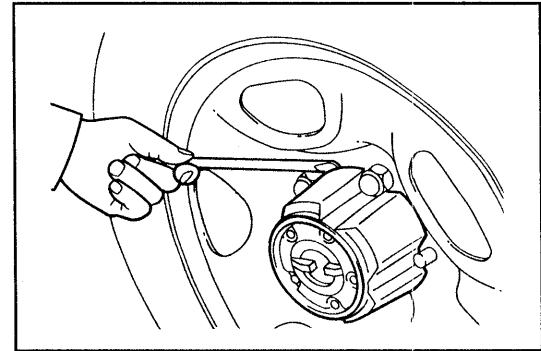


WRU90-FS032

- (4) Jack down the vehicle.

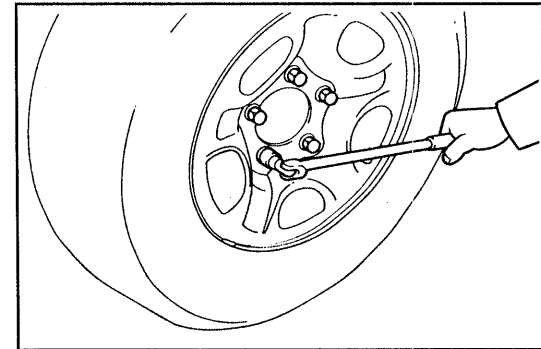
4. Removal and installation of tire

- (1) Pry off the center cap by inserting an L type handle into between the wheel and the center cap.



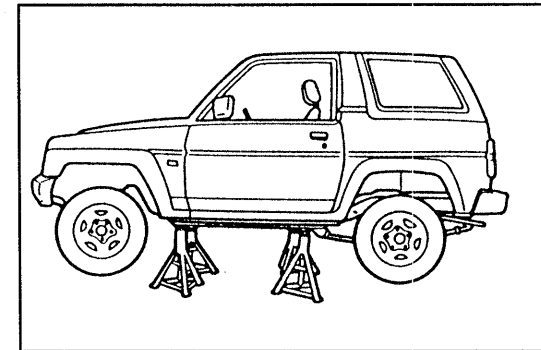
WRU90-FS033

- (2) Slightly loosen the wheel lug nuts in the sequence indicated in the right figure.



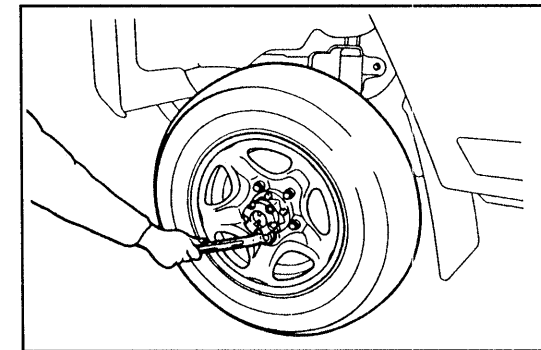
WRU90-FS403

- (3) Jack up the vehicle and support it with safety stands. (See GI section.)



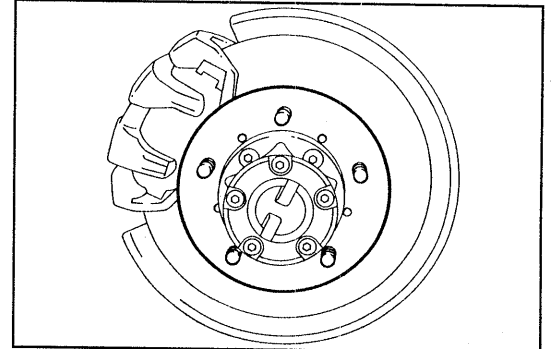
WRU90-FS034

- (4) Remove the wheel hub nuts. Remove the wheel from the vehicle.



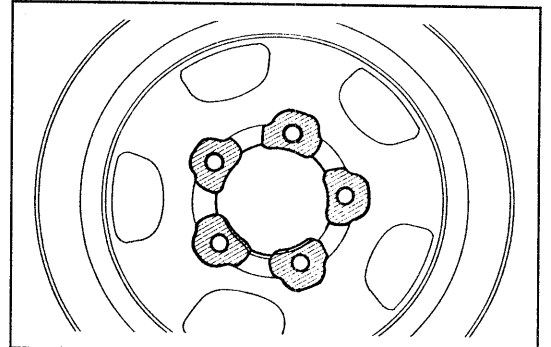
WRU90-FS035

- (5) Ensure that no foreign matter, such as dirt, is stuck on the wheel attaching surface at the vehicle side.



WRU90-FS036

- (6) Ensure that no foreign matter is stuck to the wheel attaching surface.

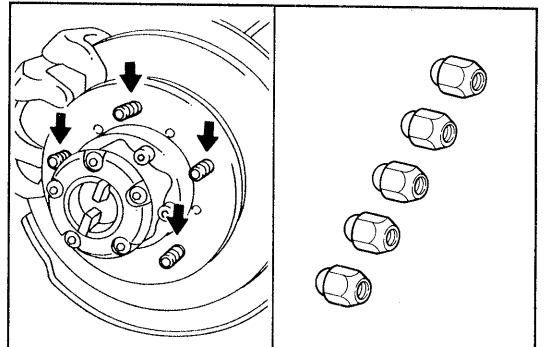


WRU90-FS037

- (7) Ensure that the hub bolts and hub nuts exhibit no damage.

If any hub bolt or hub nut exhibits damage, replace the damaged hub bolt and/or hub nut.

- (8) Attach the wheel to the vehicle. Temporarily tighten the hub nut, until the wheel can be secured.



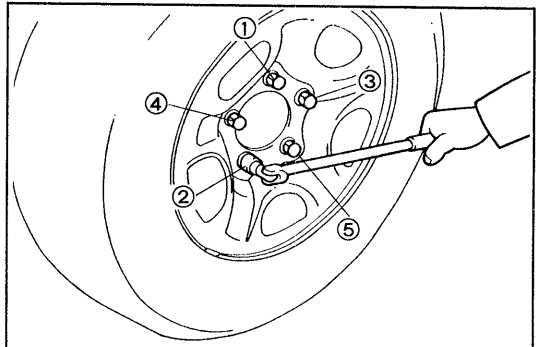
WRU90-FS038

- (9) Jack down the vehicle.

- (10) Evenly tighten the wheel lug nuts to the specified torque over two or three stages in the sequence indicated in the right figure.

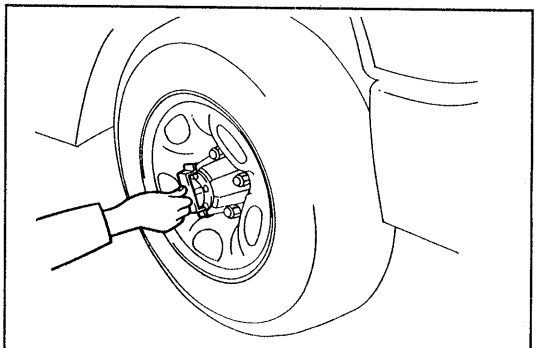
Tightening Torque:

9.0 - 12.0 kgf-m (65.1 - 87.0 ft-lb, 89.2 - 118 N·m)



WRU90-FS040

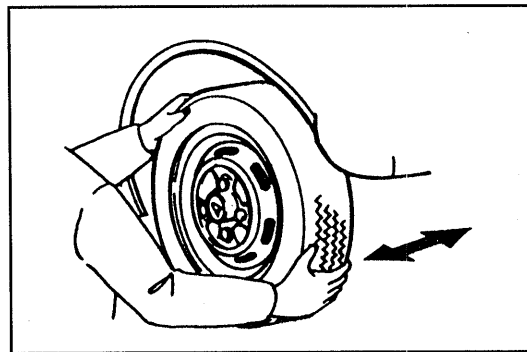
- (11) Attach the vehicle tool indicated in the right figure to the wheel cap. Press the wheel cap to the wheel.



WRU90-FS041

FRONT AXLE & SUSPENSION

5. Check of each related part for excessive play
 - (1) Front wheel bearing for excessive play
 - (2) Suspension ball joint for excessive play
 - (3) Steering linkage for excessive play and deformation
 - (4) Suspension-related parts for excessive play and deformationCheck the items above by rocking the tire in a fore-&-aft direction as well as in a right-&-left direction.



WRU90-FS042

FRONT WHEEL ALIGNMENT

TROUBLE SHOOTING

Symptom	Possible causes	Checking points
Tire unevenly worn at inner side	Toe-in amount too small Camber amount too small	Check toe-in. Check camber.
Tire unevenly worn at outer side	Toe-in amount too large or camber amount too large	Check toe-in. Check camber.
Turning effort is too great when steering wheel is turned with vehicle in stationary state.	Caster angle too large Tire air inflation pressure too low	Check caster. Check tire air inflation pressure.
Vehicle pulls to one side continuously while straight-ahead driving.	Caster angle too small Excessive difference in camber angle between right and left sides	Check caster. Check camber.
Vehicle pulls to one side during braking.	Kingpin angle improperly set	Check upper arm bush. Check upper arm for damage or deformation. Check upper arm ball joint for excessive play. Check lower arm bush. Check lower arm for damage or deformation. Check lower arm ball joint for excessive play. Knuckle deformed Check frame dimensions at installation side of suspension upper arm and lower arm.

WRU90-FS043

PRELIMINARY CHECK ITEMS

1. Check of tire size and tire wear
Ensure that the tires having the designated size are mounted and that there is no significant difference in wear between the right and left tires.

Designated Tire Size:

P205/75 R15

P225/70 R15

WRU90-FS044

2. Check of tire inflation pressure
Set the tire inflation pressure to the specified value in accordance with the designated tires mounted.

Specified Value

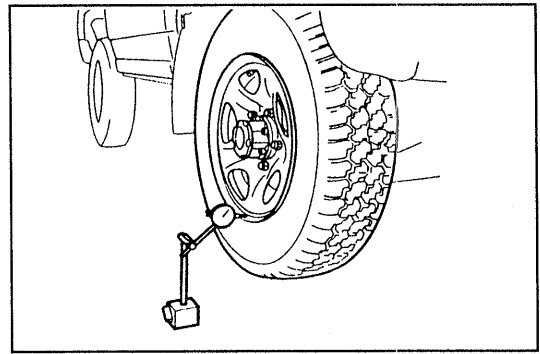
kgf/cm² (psi)

	FRONT	REAR
P205/75 R15	1.8 (26)	2.4 (35)
P225/70 R15	1.8 (26)	2.4 (35)

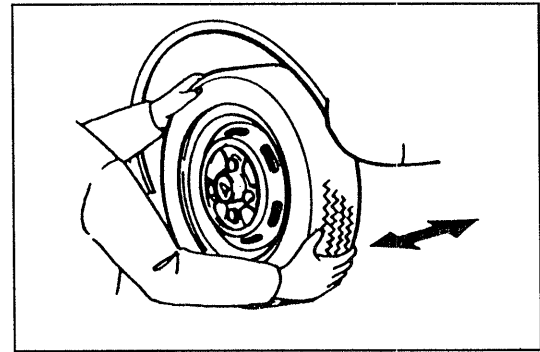
WRU90-FS045

FRONT AXLE & SUSPENSION

3. Check of disc wheel and tire runout
 - (1) Check the disc wheel for runout, using a dial gauge.
Allowable Limit: Mean value of runouts at front and rear sides not to exceed 1.0 mm (0.04 inch)
 - (2) Check the tire for runout, using a dial gauge.
Radial Runout: Not to Exceed 1.4 mm.
(Not to Exceed 0.0551 inch.)
Lateral Runout: Not to Exceed 2.0 mm.
(Not to Exceed 0.0787 inch.)
4. Check of suspension-related sections for bolt and nut tightness.
5. Check that the front shock absorber operates correctly while rocking the vehicle body.



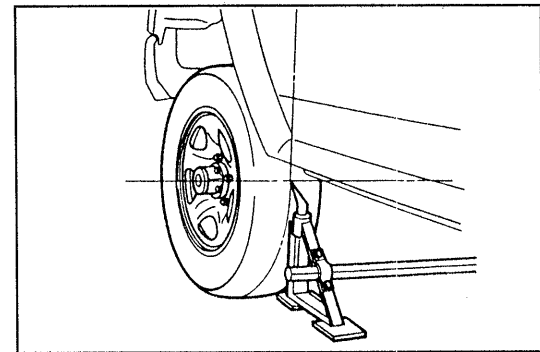
WRU90-FS046



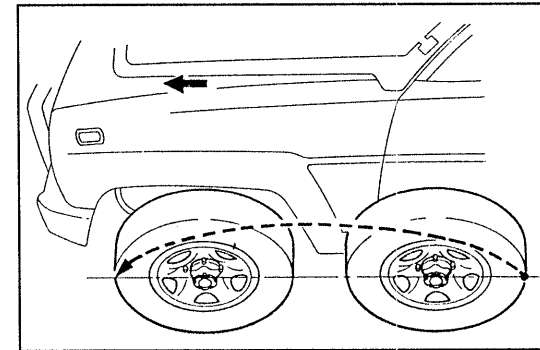
WRU90-FS047

Toe-in check

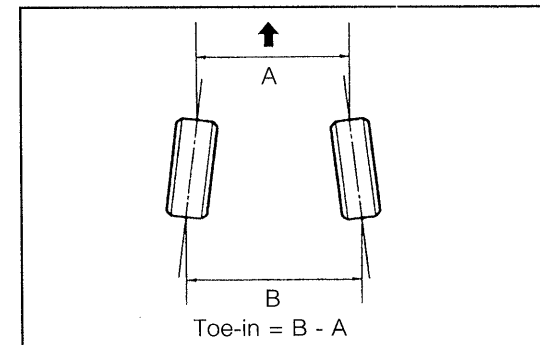
1. Move the vehicle forward so that the front wheels becomes straight.
2. Apply a toe-in gauge to the center point of the height at the rear side of each front wheel of the vehicle.
3. Mark the tread center at the rear side of each front tire. Measure the distance between the marks.
4. Move the vehicle slowly until the front wheels turn 180 degrees.
5. Measure the distance between the marks at the front side of each front wheel. Determine the toe-in amount by calculating the difference.
Specified Value: $4 \begin{smallmatrix} -1 \\ -3 \end{smallmatrix} \text{ mm } (0.16 \begin{smallmatrix} -0.04 \\ -0.12 \end{smallmatrix} \text{ inch})$



WRU90-FS048



WRU90-FS049



WRU92-FS412

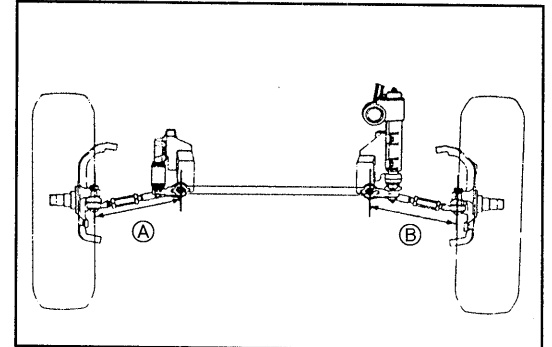
If the toe-in amount fails to conform to the specification, adjust the tie rod length by turning the tie rod adjusting tube the same amount at the right and left sides, until the difference in length between the right and left tie rods (A) and (B) shown in the right figure becomes within 3 mm (0.118 inch).

<Tie Rod Tightening Procedure>

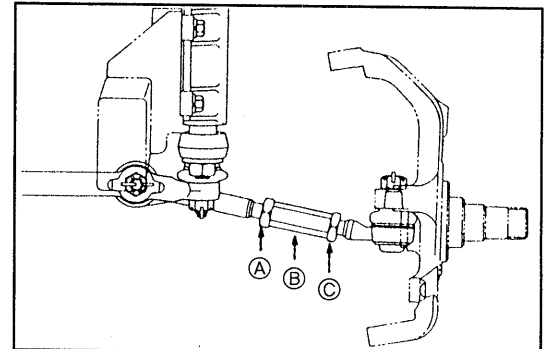
1. Tighten the tie rod by turning the nut (A), with a wrench applied to the section (B) shown in the right figure.
2. Tighten the tie rod by turning the nut (C), with a wrench applied to the section (B) shown in the right figure.

Tightening Torque:

12 - 17 kgf-m (87.0 - 123 ft-lb, 118 - 167 N·m)



WRU90-FS051

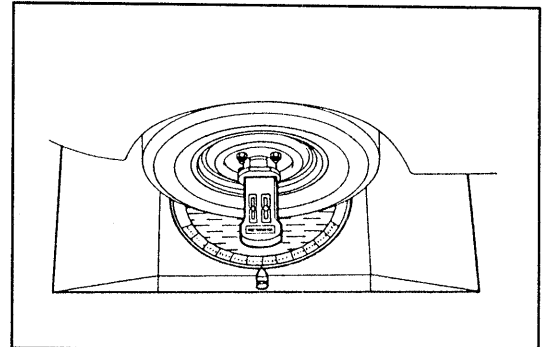


WRU90-FS052

Camber check and caster check

1. Place the wheel on a turning radius gauge.
2. Remove the free wheel hub cover.
3. Align the forward end of the center rod of the camber, caster and kingpin gauge with the center of the drive shaft section.

Proceed to make the forward end of the center rod closely contact with the hub body.



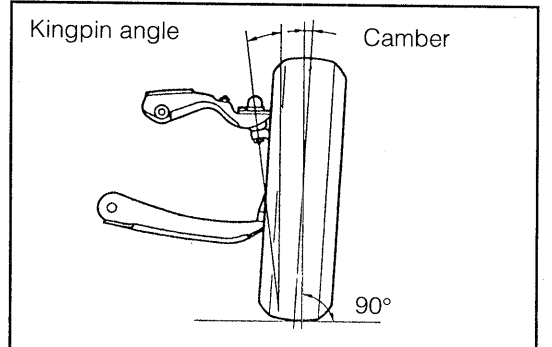
WRU90-FS53

4. Camber measurement

Specified Camber Amount: $1^{\circ} \begin{smallmatrix} +0^{\circ} \\ -1^{\circ} \end{smallmatrix}$

NOTE:

- The measurement should be performed in the same way at the right and left wheels.



WRU90-FS054

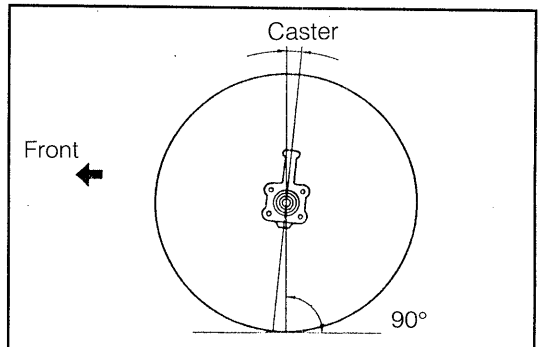
5. Caster measurement

Specified Caster Amount: $2^{\circ} \pm 30'$

Specified Kingpin Angle: $9^{\circ}30'$

NOTE:

- For the alignment checks, turn the steering wheel until the reading of the turning radius gauge becomes 20 degrees at the right wheel or the left wheel, respectively.

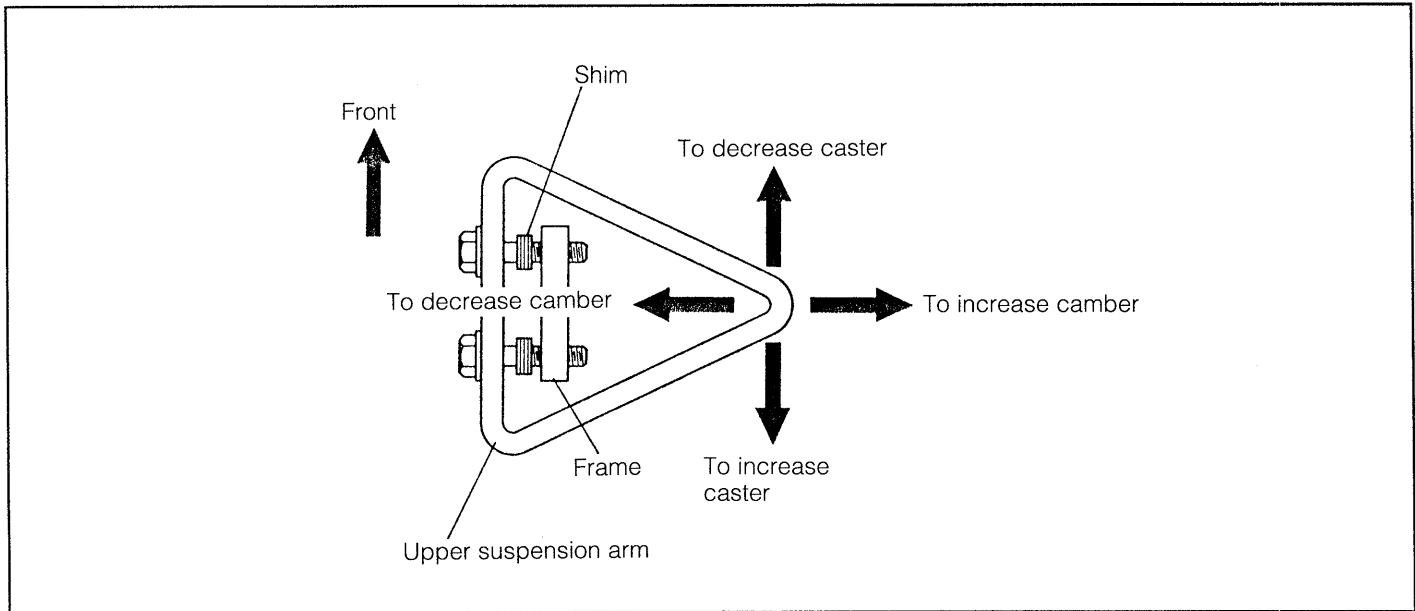


WRU90-FS055

FRONT AXLE & SUSPENSION

Adjusting procedure for camber and caster

The camber and caster vary by increasing/decreasing the number of the adjusting shims provided at the frame installation surface of the upper arm shaft.



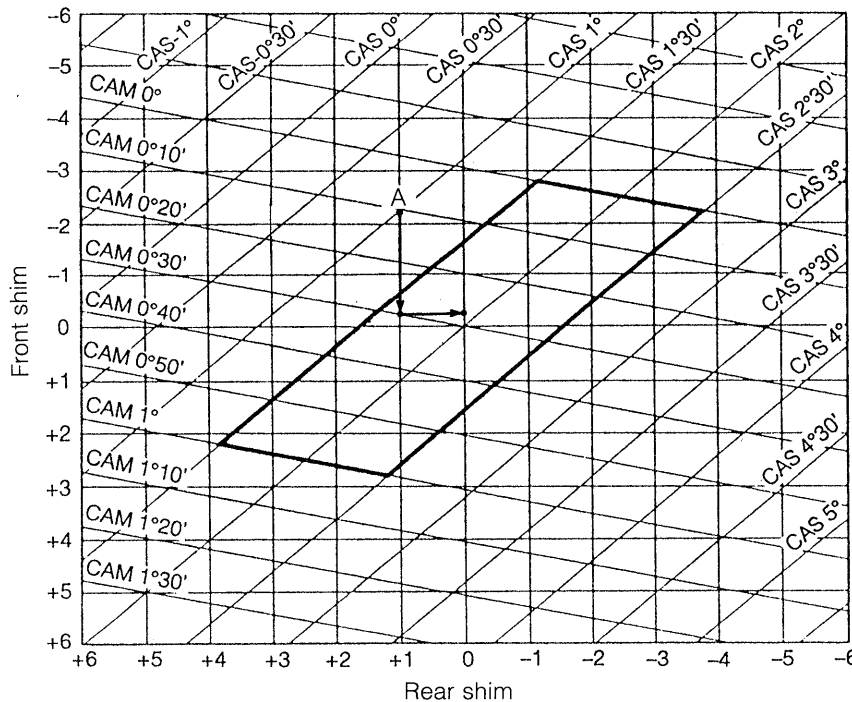
WRU90-FS056

Selecting method of adjusting shim

1. Select a suitable adjusting shim, using the diagram below.

<How to Read Diagram>

- (1) Suppose that the measurement on a vehicle reveals the following results:
Caster: 1° Camber: $0^{\circ}10'$
- (2) Plot the intersection of the caster line with camber line in the diagram below. The intersection is designated as the point A.
- (3) Decrease the front shim thickness by 2 mm (0.079 inch) and increase the rear shim thickness by 1 mm (0.039 inch). Thus, the point A enters into the specified range.



NOTE:
The area enclosed by heavy lines () in the left diagram denotes the permissible range for camber and caster angle.

WRU90-FS057

- Both the front and rear shim thickness should not exceed 8 mm (0.31 inch). The difference in thickness between the front shim and the rear shim should not exceed 4 mm (0.16 inch).
- After the adjusting shims have been installed, finally ensure that the front alignment conforms to the specifications.

WRU90-FS058

Check of steering wheel turning angle

- Place the wheel on the turning radius gauge. Check the wheel turning angle.

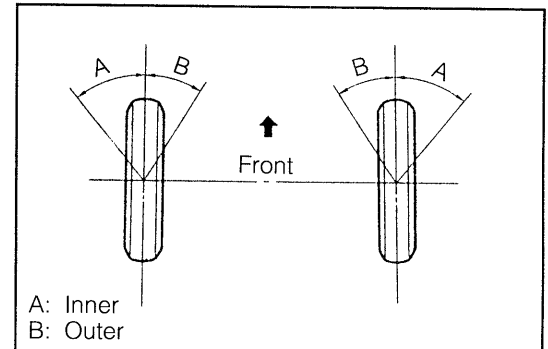
Specified Value:

Mounted tire	Inner turning (A)	Outer turning (B)
P205/75 R15	27°05' $^{+0}_{-3}$	23°55'
P225/70 R15	27°05' $^{+0}_{-3}$	23°55'

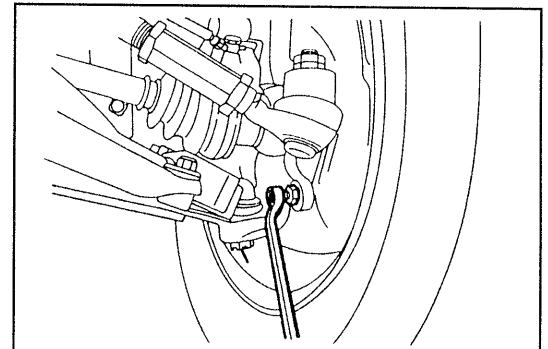
- If the measured turning angle fails to conform to the specifications, adjust the wheel turning angle by means of the knuckle stopper bolt.

Stopper Bolt Tightening Torque:

8.0 - 10.0 kgf-m (57.9 - 72.0 ft-lb, 78.5 - 98.0 N·m).



WRU90-FS059



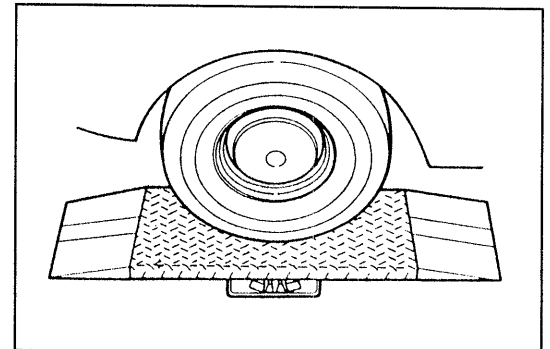
WRU90-FS060

Sideslip check

- Check the sideslip, using a sideslip tester.

Specified Value:

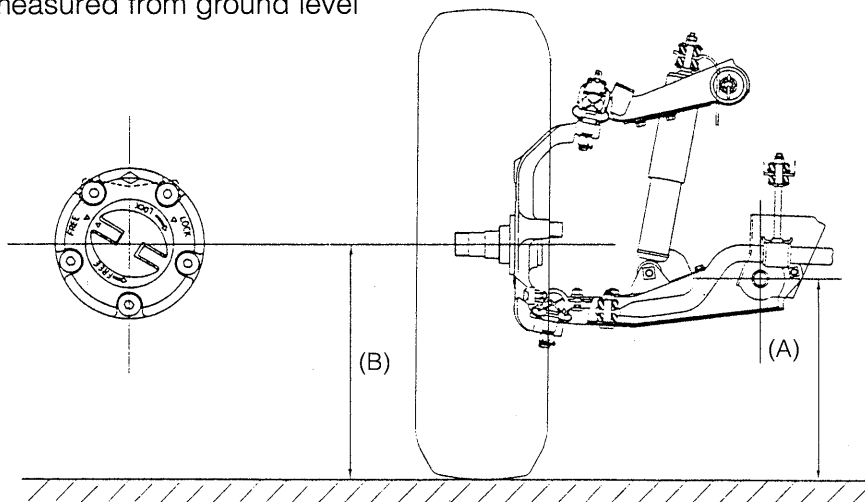
Within 3 mm (0.12 inch) per one meter



WRU90-FS061

<Checking and Adjusting Procedures for Vehicle Height>

- (A): Height of center of attaching bolt at front side of lower arm, measured from ground level
- (B): Height of center of wheel ornament or free wheel hub, measured from ground level



Care must be exercised as to the following points before the vehicle height check is carried out.

- (1) The designated tires are installed.
- (2) The tires are inflated to the specified value.
- (3) The vehicle is under no-loaded state.

NOTE:

- The measurement should be conducted with the vehicle under no-loaded state.

- (4) Rock the vehicle several times so as to settle the suspensions.
- (5) Move the vehicle about three meters (about 10 feet) twice in a fore-and-aft direction.

WRU90-FS062

Adjusting procedure

1. Adjust the anchor bolt so that the following specified value may be obtained.

Specified Value: $(B) - (A) = 36 \pm 10 \text{ mm}$
(1.42 \pm 0.39 inches)

NOTE:

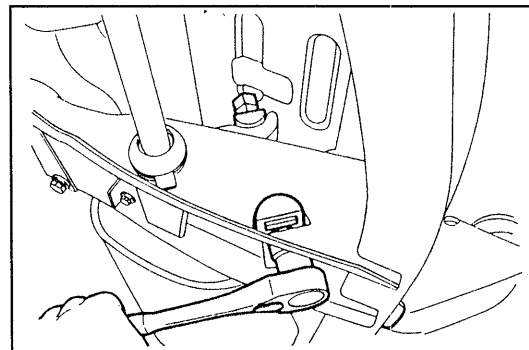
1. As regards the vehicle height, the adjustment should be carried out so that any variation in the specified value between the right and left sides may become within 10 mm (0.4 inch).
2. With regard to the protrusion height of the anchor bolt, the adjustment should be carried out so that any variation between the right and left sides may become within 10 mm (0.4 inch).

2. Secure the anchor bolt by means of the lock nut.

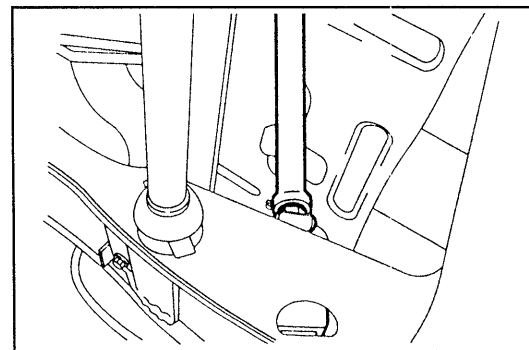
Tightening Torque:
7.0 - 9.0 kgf-m (50.6 - 65.1 ft-lb, 68.6 - 88.3 N-m)

NOTE:

- Secure the lock nut by tightening the upper nut while preventing the lower nut from turning by means of a spanner.



WRU90-FS063



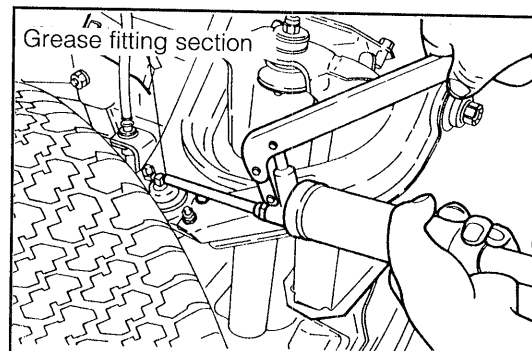
WRU90-FS064

GREASE LUBRICATION

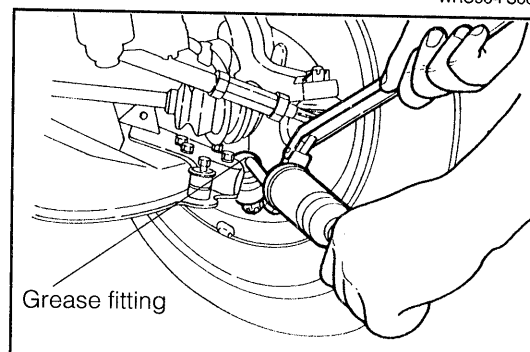
1. Upper arm ball joint
 - (1) Clean the grease fitting of the upper arm ball joint.
 - (2) Ensure that the grease fitting of the upper arm ball joint exhibits no damage.
If any damage is present, replace the damaged grease fitting.
 - (3) Fill grease from the grease fitting, using a grease gun.
Specified Grease: Lithium-based MP grease
Filling Amount: 27 grams (0.81 oz)
(In cases where a new part is installed)

2. Lower arm ball joint
 - (1) Clean the grease fitting of the lower arm ball joint.
 - (2) Ensure that the grease fitting of the upper arm ball joint exhibits no damage.
If any damage is present, replace the damaged grease fitting.
 - (3) Fill grease from the grease fitting, using a grease gun.
Specified Grease: Lithium-based MP grease
Filling Amount: 10 grams (0.3 oz)
(In cases where a new part is installed)

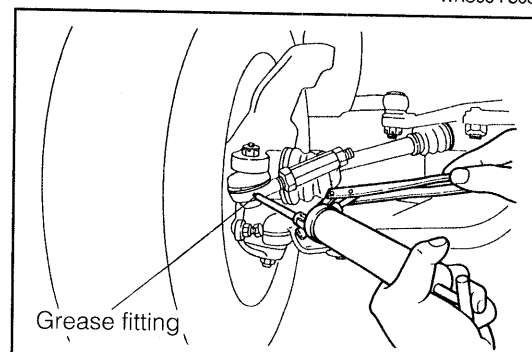
3. Tie rod end ball joint
(See the Steering section.)



WRU90-FS065



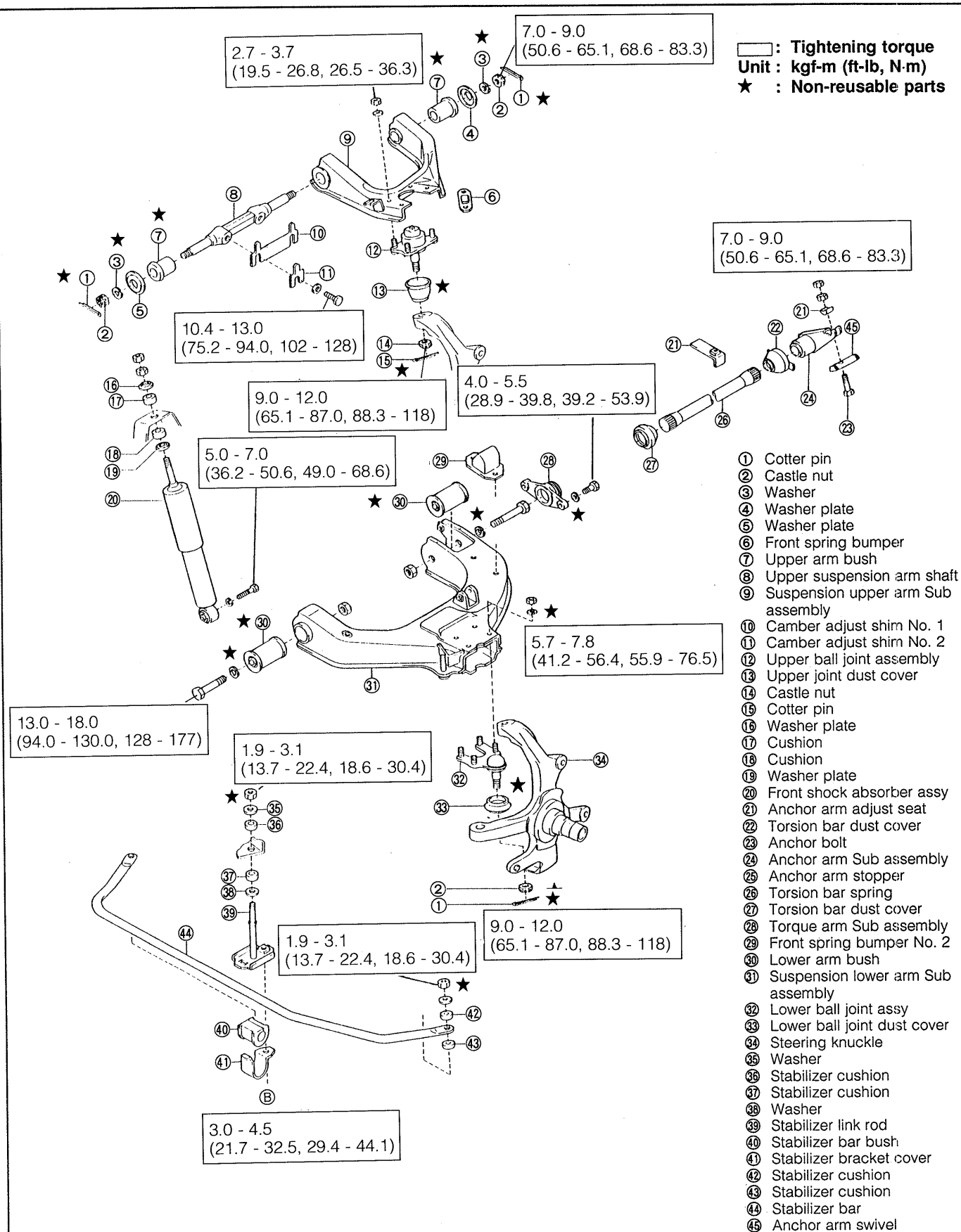
WRU90-FS066



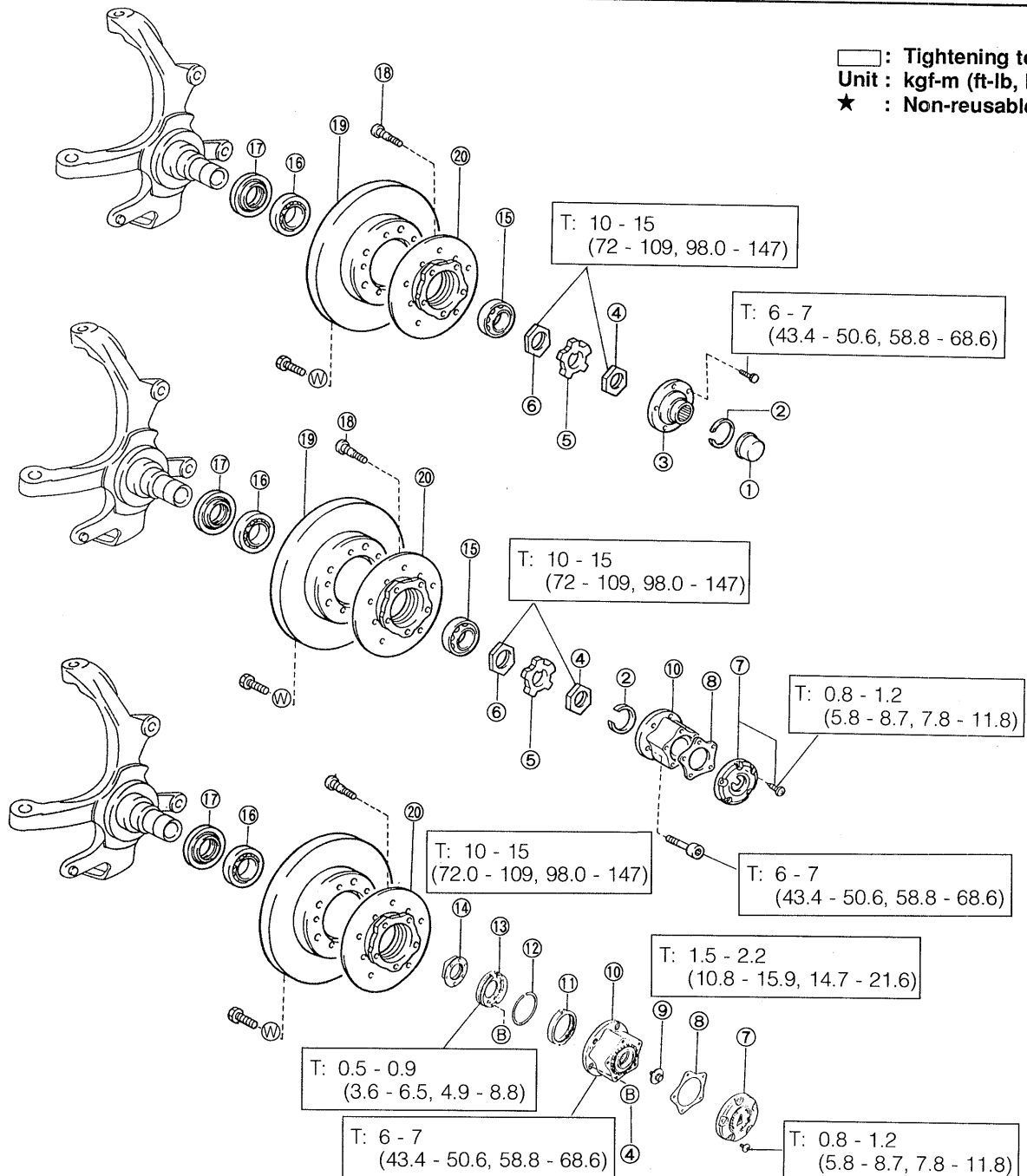
WRU90-FS067

FRONT SUSPENSION

COMPONENTS



FRONT AXLE HUB COMPONENTS



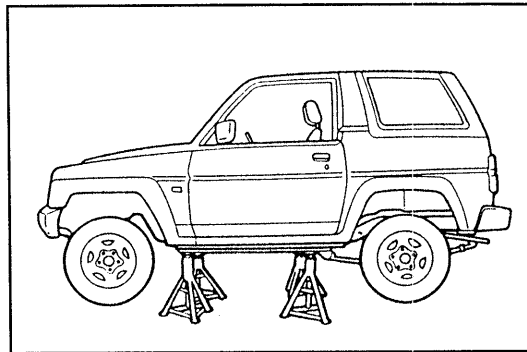
- ① Hub cap
- ② Snap ring
- ③ Hub cover
- ④ Lock nut
- ⑤ Lock washer
- ⑥ Lock nut
- ⑦ Hub cover
- ⑧ Gasket
- ⑨ Lock bolt (with washer)
- ⑩ Free wheel hub body

- ⑪ Brake shoe subassembly
- ⑫ Brake shoe snap ring
- ⑬ Brake drum
- ⑭ Lock nut
- ⑮ Tapered roller bearing (outer)
- ⑯ Tapered roller bearing (inner)
- ⑰ Oil seal
- ⑱ Hub bolt
- ⑲ Disc wheel
- ⑳ Axle hub

CHECK OF FREE WHEEL HUB OPERATION

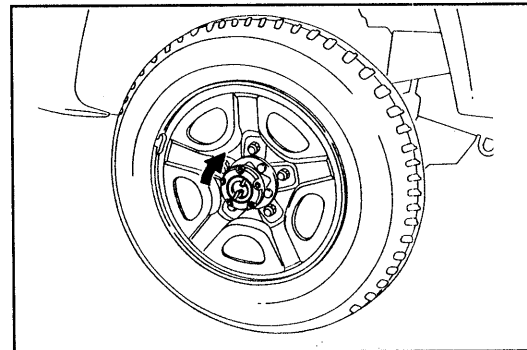
1. Check of manual free wheel hub

- (1) Jack up the vehicle and support it with safety stands.
(See GI section.)



WRU90-FS070

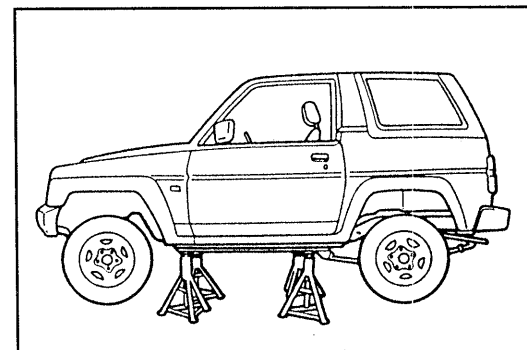
- (2) Set the handle of the free wheel hub to the "LOCK" position.
- (3) Turn the tire several times. At this time, ensure that the front drive shaft turns together with the tire.
If not, replace the free wheel hub.
- (4) Set the handle of the free wheel hub to the "FREE" position.
- (5) Turn the tire several times. At this time, ensure that the front drive shaft will not turn together with the tire.
If not, replace the free wheel hub.
- (6) Jack down the vehicle.



WRU90-FS071

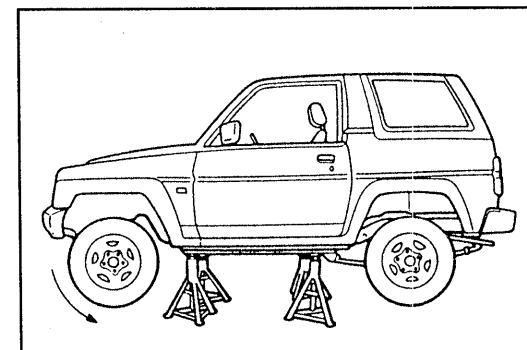
2. Check of automatic free wheel hub

- (1) Jack up the vehicle and support it with safety stands.
(See GI section.)



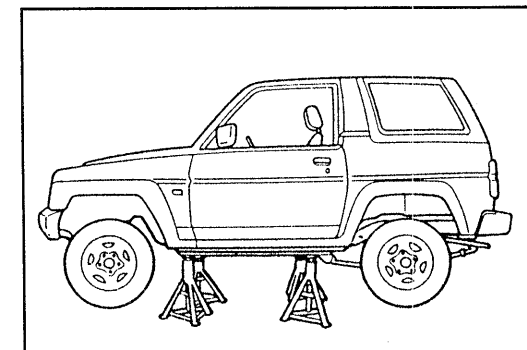
WRU90-FS072

- (2) Shift the shift lever to the 4H position.
- (3) Start the engine. When the driving force is applied to the wheel, ensure that the front wheels turn.
If not, replace the free wheel hub.



WRU90-FS073

- (4) Shift the shift lever to the 2H position.
- (5) While slightly applying the brake, apply the driving force to the wheel in a direction opposite to the former direction in the step (3). In this way, turn the wheel more than three times.

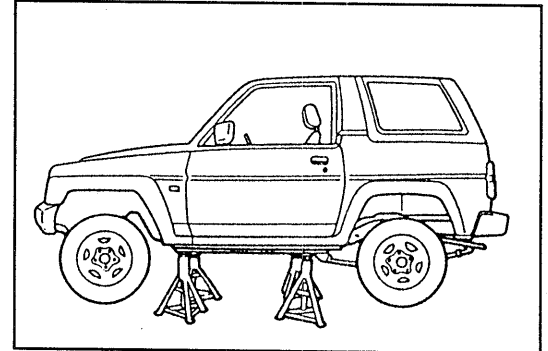


WRU90-FS074

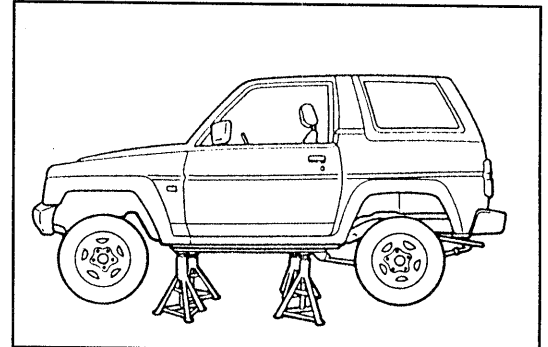
- (6) Stop the engine.
- (7) When turning the wheel by hands, ensure that the drive shaft will not turn together.
If not, replace the free wheel hub.
- (8) Jack down the vehicle.

REMOVAL/DISASSEMBLY OF FRONT AXLE HUB

1. Jack up the vehicle and support it with safety stands.
(See GI section.)

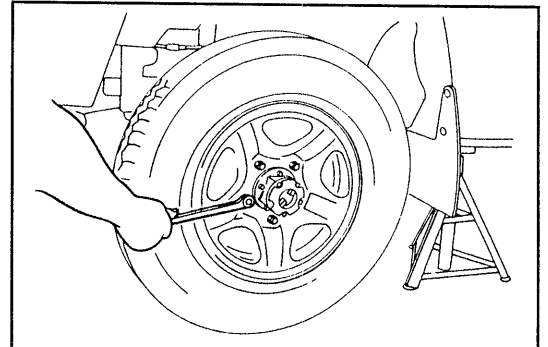


WRU90-FS075



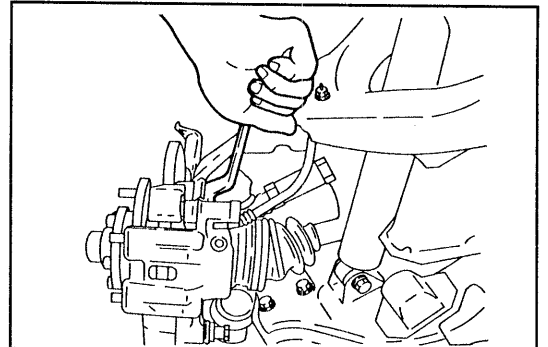
WRU90-FS076

2. Remove the front wheel.
(See page FS-18.)



WRU90-FS077

3. Remove the brake mounting support attaching bolts. Remove the brake mounting support together with calipers. Suspend the brake mounting support from the upper frame in such a way that no undue force is applied to the brake hose.

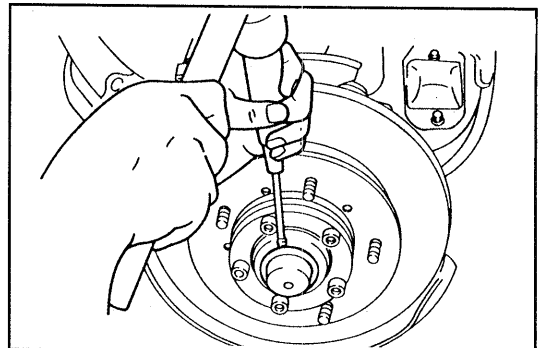


WRU90-FS078

4. Removal of hub cap (Full-time 4WD vehicle only)
 - (1) Remove the hub cap by lightly and evenly driving a chisel or the like into between the hub cap and the cover.

NOTE:

- Do not reuse the hub cap.
- Be very careful not to damage the hub cover during the removal.



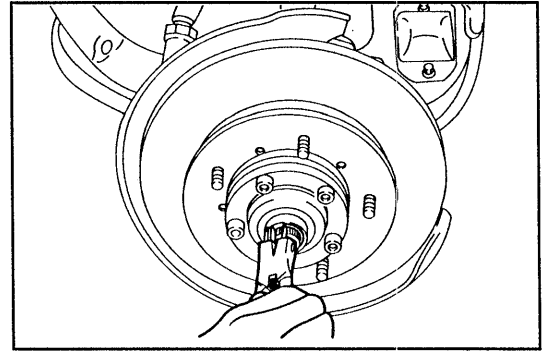
WRU90-FS079

FRONT AXLE & SUSPENSION

- (2) Remove the snap ring from the drive shaft, using a snap ring expander.

NOTE:

- Do not reuse the snap ring.



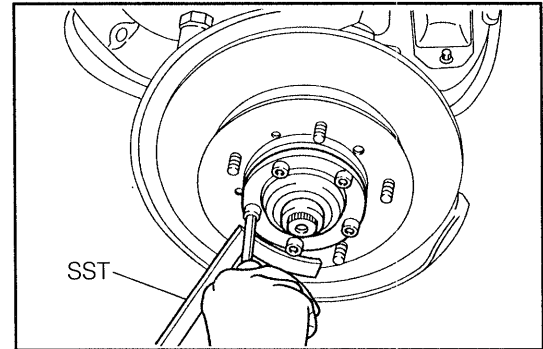
WRU90-080

- (3) Remove the hub cover attaching bolts by means of a hexagonal box wrench (8 mm).

NOTE:

- Prevent the hub from turning, using the following SST given below.

SST: 09511-87202-000

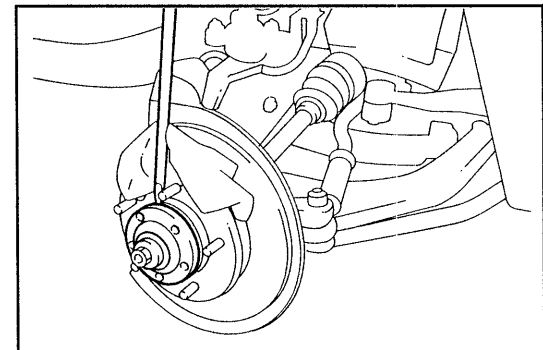


WRU90-FS081

- (4) Detach the hub cover from the hub by prying it off evenly by means of a tire lever or the like.

NOTE:

- Be sure to interpose an adequate cloth between the tire lever and the front axle hub so as not to damage the tire attaching surface of the front axle hub as well as the disc rotor.
- After the hub cover has been removed, completely remove any bond remaining trace from between the hub cover and the hub.

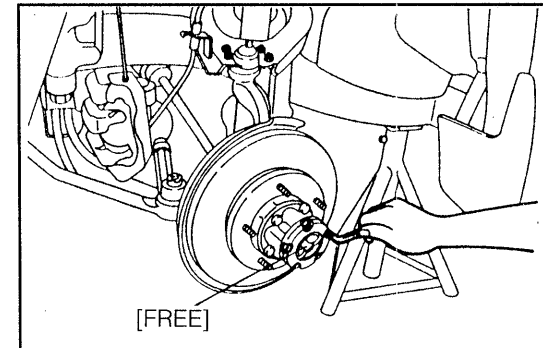


WRU90-FS082

5. Removal of free wheel hub

As for the manual locking hub, see page FS-43 to FS-45.

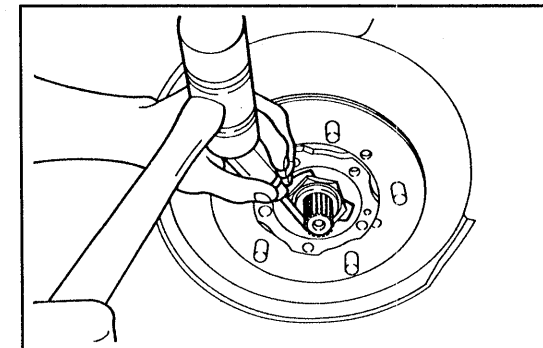
As for the automatic locking hub, see page FS-48 to FS-50.



WRU90-FS083

6. Removal of lock nut (Full-time 4WD vehicle and manual locking hub-equipped vehicle only)

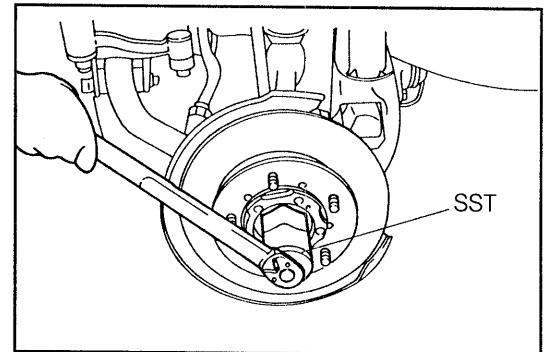
- (1) Raise the pawl of the lock washer by means of a chisel or the like.



WRU90-FS084

- (2) Remove the lock nut, using the following SSTs.

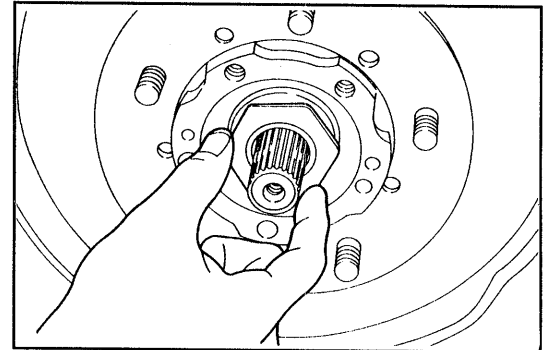
SST: 09607-87602-000



WRU90-FS085

- (3) Remove the lock washer.

- (4) Remove the lock nut, using the same SSTs as the step (2).

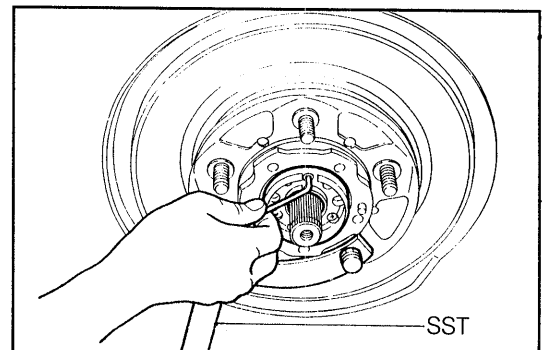


WRU90-FS086

7. Removal of lock nut (Automatic locking hub-equipped vehicle only)

- (1) While preventing the brake drum from turning, remove the brake drum by means of a torque wrench. For this operation, use the following SST.

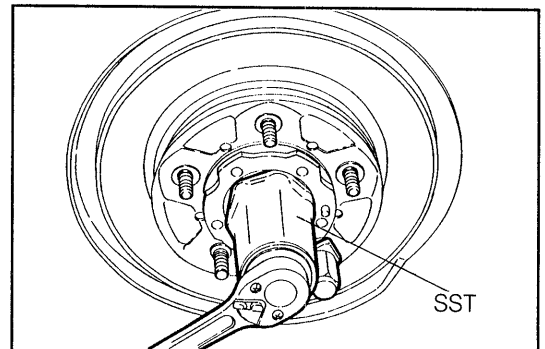
SST: 09511-87202-000



WRU90-FS087

- (2) Remove the lock nut, using the following SSTs.

SST: 09607-87603-000



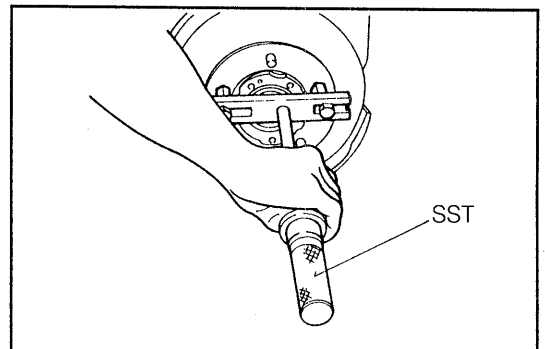
WRU90-FS088

8. Remove the front axle hub, using the following SST.

NOTE:

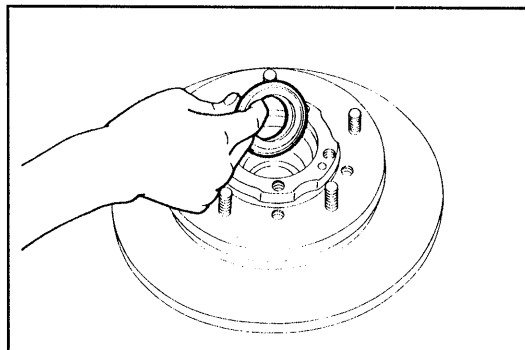
- Be very careful not to drop the outer bearing and hub during the removal.

SST: 09520-00031-000



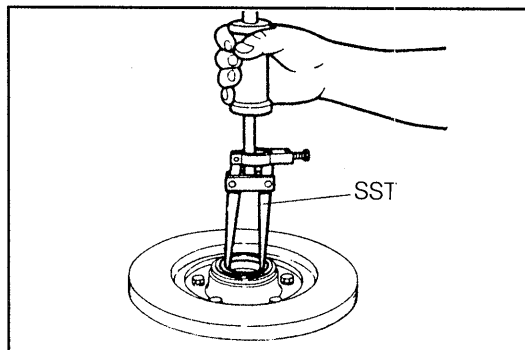
WRU90-FS089

9. Remove the tapered outer roller bearing (outer side) from the hub.



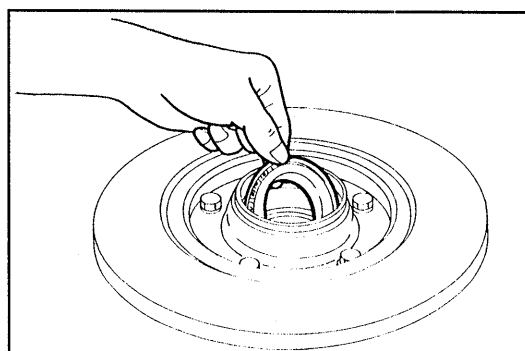
WRU90-FS090

10. Remove the type T oil seal, using the following SST.
SST: 09308-00010-000



WRU90-FS091

11. Remove the tapered roller bearing (inner side).

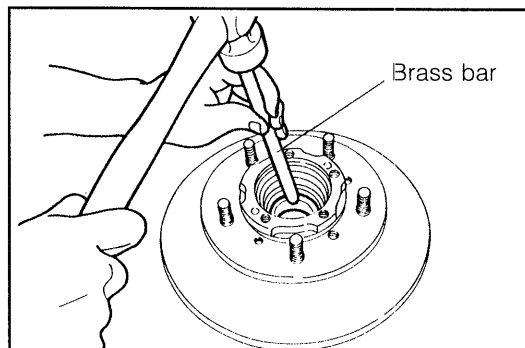


WRU90-FS092

12. Pull out the inner race (inner side) of the tapered roller bearing by evenly tapping it by means of a brass bar or the like.

NOTE:

- This operation is required only when the bearing is replaced.

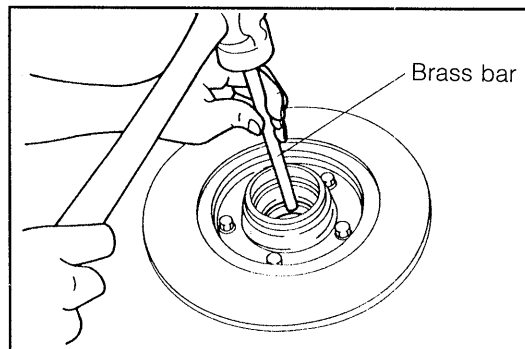


WRU90-FS093

13. Pull out the inner race (outer side) of the tapered roller bearing by evenly tapping a brass bar or the like.

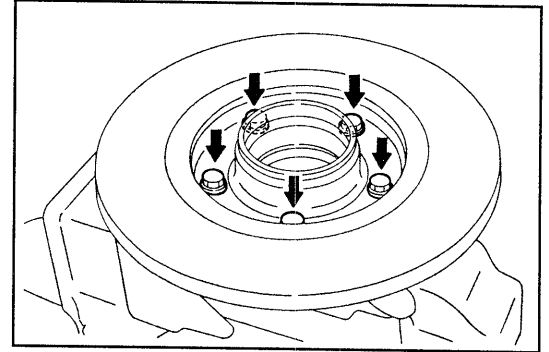
NOTE:

- This operation is required only when the bearing is replaced.



WRU90-FS094

14. Remove the brake disc by removing the brake disc attaching bolts from the front axle hub.

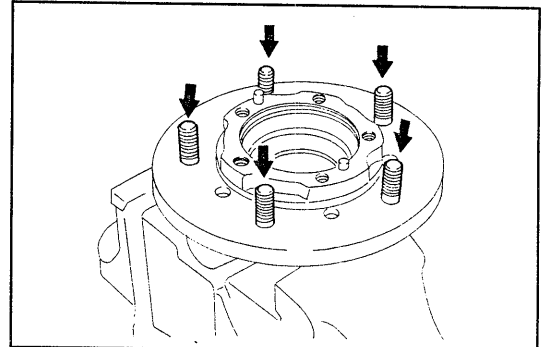


WRU90-FS095

15. Drive out the hub bolt from the front axle hub by means of a plastic hammer or the like.

NOTE:

- Attach the nut in place so that the threaded portion may not be damaged.



WRU90-FS096

INSPECTION

Wash the disassembled parts and dry them with compressed air, except for the free wheel hub.

As for the brake discs, degrease them with cleaning solvent, such as alcohol.

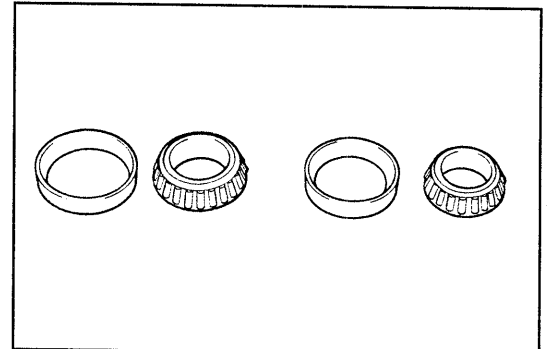
WRU90-FS097

1. Ensure that the inner and outer tapered roller bearings exhibit no damage, such as wear and scratches.

If they exhibit damage, replace the defective bearings.

NOTE:

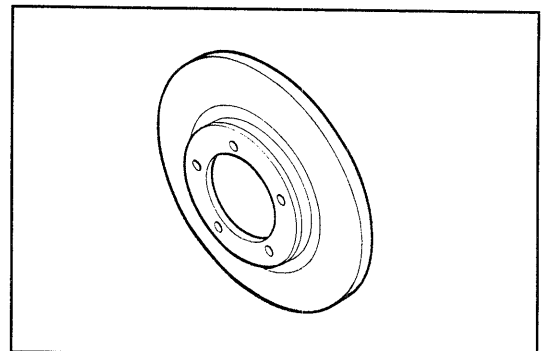
- Be sure to replace the outer race and/or inner race of the bearing as a set.



WRU90-FS098

2. Ensure that the brake disc exhibits no damage, such as wear, cracks and scratches.

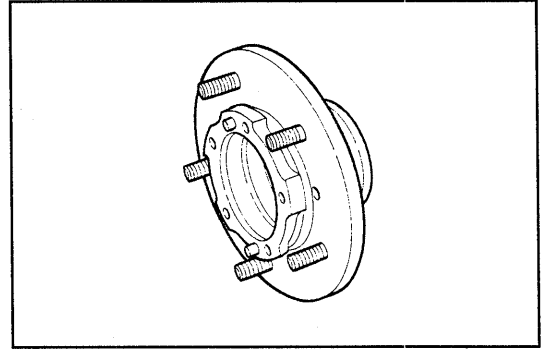
If any damage is present, replace the brake disc.



WRU90-FS099

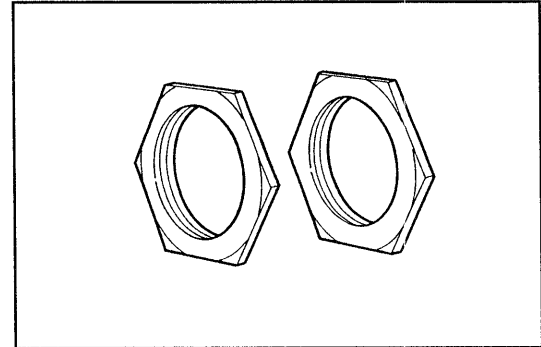
FRONT AXLE & SUSPENSION

3. Ensure that the front axle hub exhibits no damage, such as wear, cracks and scratches.
If any damage is present, replace the front axle hub.



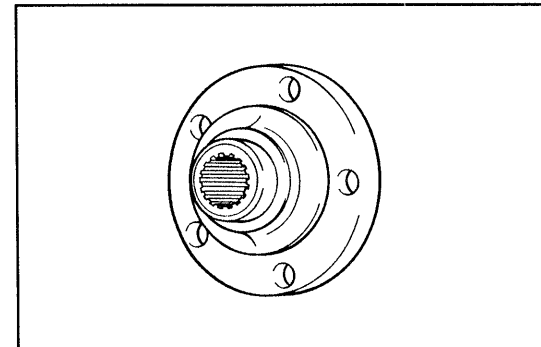
WRU90-FS100

4. Ensure that lock nut exhibits no damage.
If any damage is present, replace the lock nut.



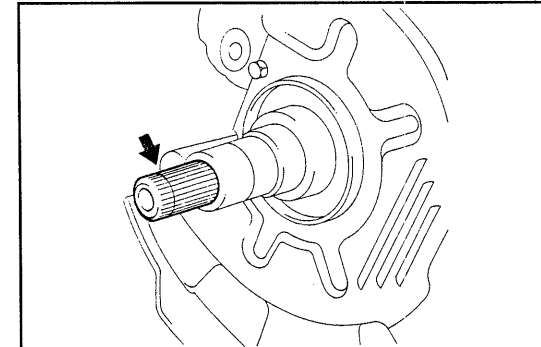
WRU90-FS101

5. Ensure that the hub cover exhibits no damage, such as wear and cracks.
If any damage is present, replace the hub cover.
If the spline section exhibits damage, check the spline at the drive shaft side.



WRU90-FS102

6. Ensure that the drive shaft spline section exhibits no damage, such as wear and cracks.
If any damage is present, replace the drive shaft.
(See page FS-89.)



WRU90-FS103

7. Check of free wheel hub
- As for the manual locking hub, see page FS-45.
 - As for the automatic locking hub, see page FS-51.

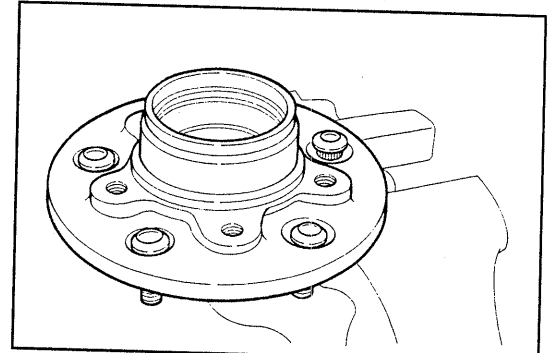
WRU90-FS104

ASSEMBLY OF FRONT AXLE HUB

1. Drive the hub bolt into the front axle hub by means of a plastic hammer.

NOTE:

- Be sure to align the cut-out section of the hub bolt with the hub.

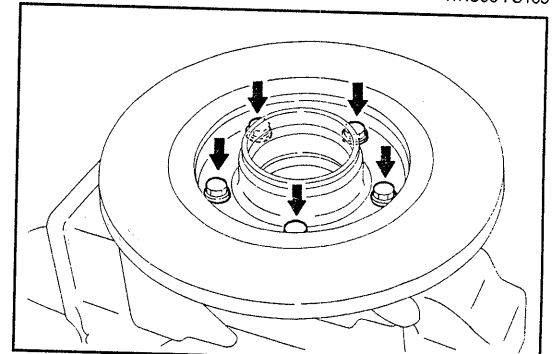


WRU90-FS105

2. Install the brake disc to the front axle hub. Evenly tighten the attaching bolts to the specified torque over two or three stages.

Tightening Torque:

5.5 - 7.5 kgf-m (39.8 - 54.2 ft-lb, 53.9 - 73.5 N·m)

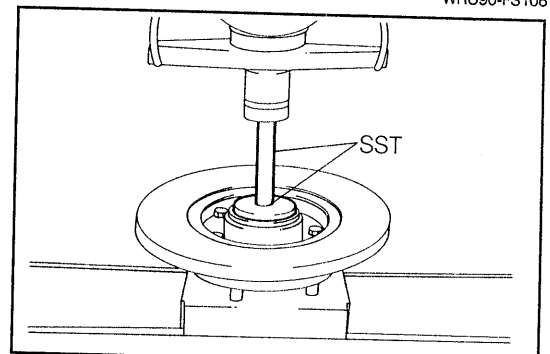


WRU90-FS106

3. Install the outer race (inner side) of the tapered roller bearing, using the following SST.

SST: 09608-87604-000

09611-87506-000

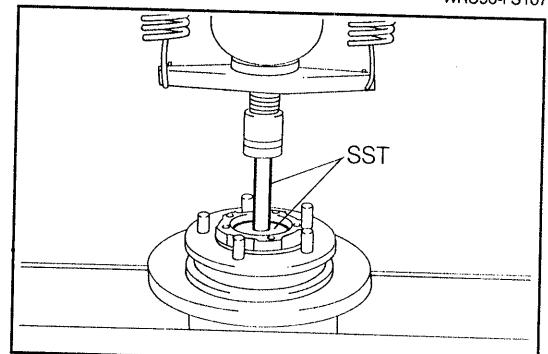


WRU90-FS107

4. Install the outer race (outer side) of the tapered roller bearing, using the following SST.

SST: 09608-87603-000

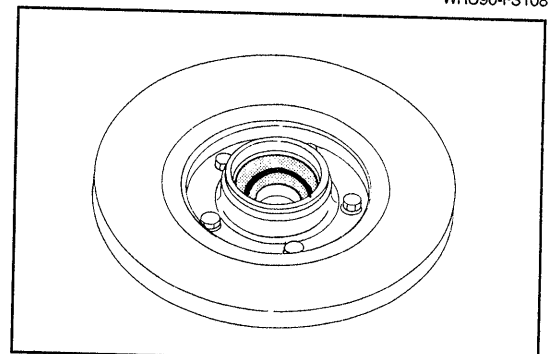
09611-87506-000



WRU90-FS108

5. Fill the specified amount of lithium based MP grease to a space between the outer races of the inner and outer bearings.

Filling Amount: 35 - 40 grams (1.24 - 1.4 oz)



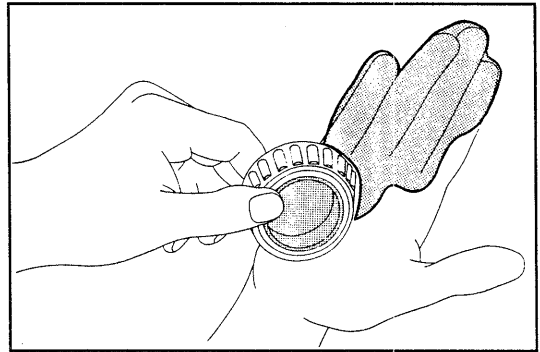
WRU90-FS109

FRONT AXLE & SUSPENSION

6. Fill MP grease to the inner and outer bearings.

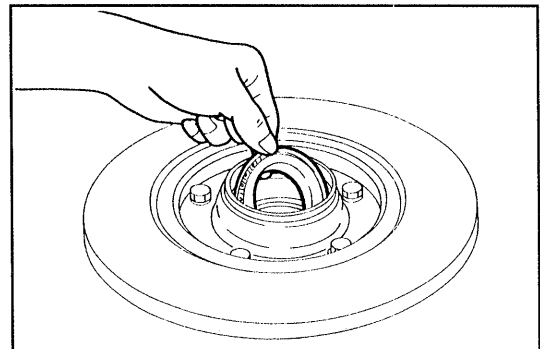
NOTE:

- Fill grease to a space between the inner race and the bearing guide, until the grease oozes from the inside of the bearing guide. Then, apply grease to the surface.



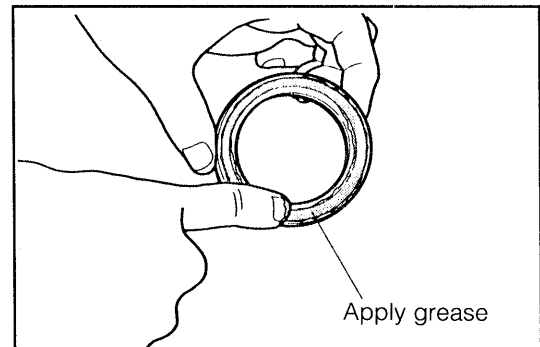
WRU90-FS110

7. Install the inner bearing to the hub.



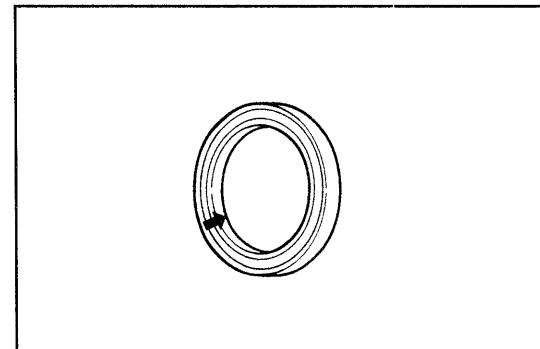
WRU90-FS111

8. Fill the specified amount of lithium based MP grease to the back side of the oil seal lip section.



WRU90-FS112

9. Apply lithium-based MP grease to the lip section of the oil seal.



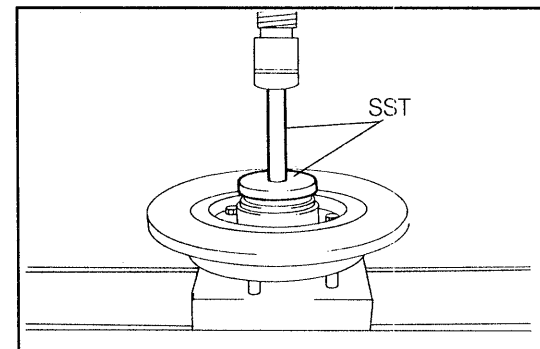
WRU90-FS113

10. Press the oil seal to the hub edge surface, using the following SST.

SST: 09608-87602-000
09611-87506-000

NOTE:

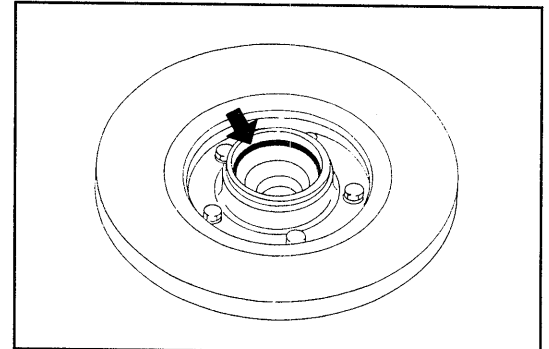
- Care must be exercised to ensure that the oil seal will not tilt during the press operation.



WRU90-FS114

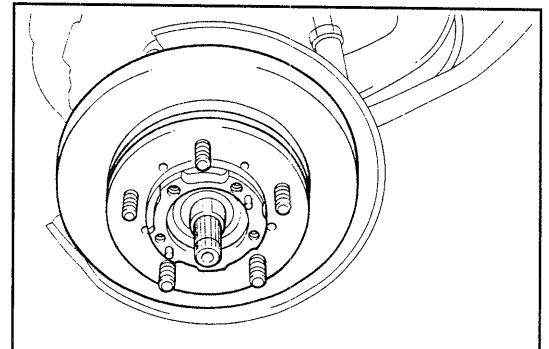
11. Fill lithium based MP grease between the oil seal and the bearing.

Filling amount: 25 - 30 grams (0.88 - 1.06 oz)



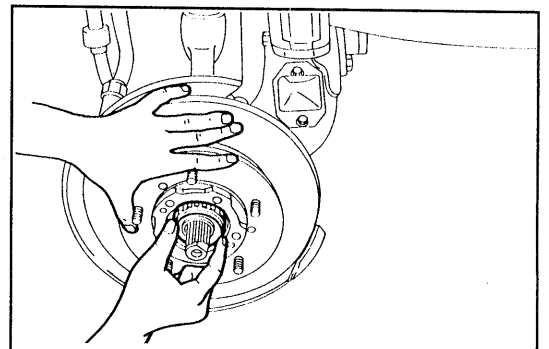
WRU90-FS115

12. Install the front axle hub to the steering knuckle.



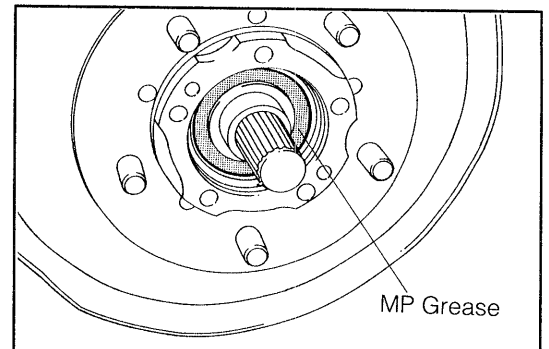
WRU90-FS116

13. Insert the outer bearing into the front axle hub.



WRU90-FS117

14. Fill lithium based MP grease to the outer bearing.



WRU90-FS124

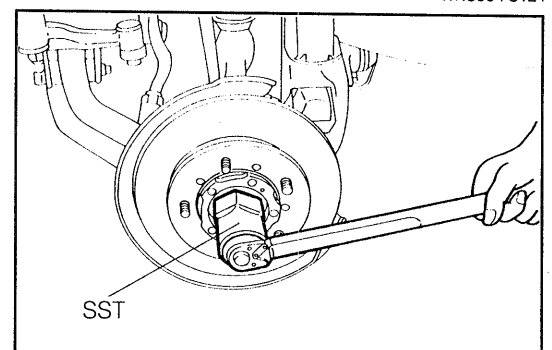
15. Tighten the lock nut to the specified torque, using the following SST. Then, back off the lock nut one sixth turn.

SST: Manual locking hub-equipped vehicle and full-time 4WD vehicle: 09607-87602-000

Automatic locking hub-equipped vehicle:
09607-87603-000

Tightening Torque:

10 - 15 kgf-m (72.0 - 109 ft-lb, 98.0 - 147 N-m)



WRU90-FS404

FRONT AXLE & SUSPENSION

16. Rotate the axle hub two or three turns so that the axle hub may be bedded in.

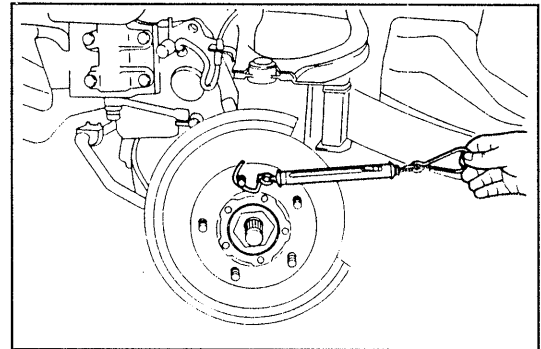
WRU90-FS118

17. Adjust the lock nut so that the starting torque may conform to the specified value.

Starting Load: 1.4 - 3.6 kgf (3.1 - 7.9 lb)

[Reference]

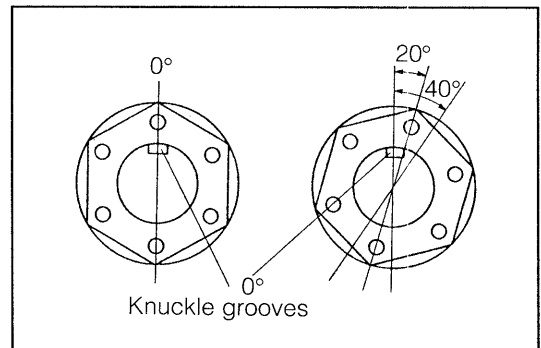
Starting Torque: 10 - 25 kgf-cm (8.7 - 21.7 inch-lb)



WRU92-FS415

NOTE:

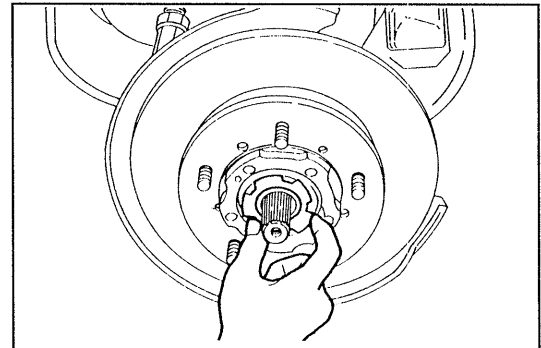
- Adjust the automatic locking hub nut in such a way that the hub nut position comes at the position indicated in the right figure after completion of the adjustment.



WRU90-FS120

18. Installation of lock washer and lock nut (Manual locking hub-equipped vehicle only)

- (1) Install the lock washer.



WRU92-FS416

- (2) Tighten the lock nut to the specified torque, using the following SST.

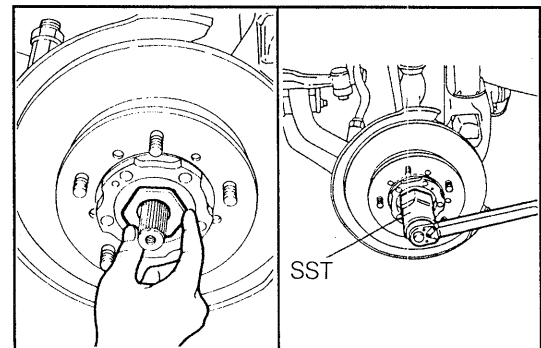
Tightening Torque:

10 - 15 kgf-m (72.0 - 109 ft-lb, 98.0 - 147 N-m)

SST: 09607-87602-000

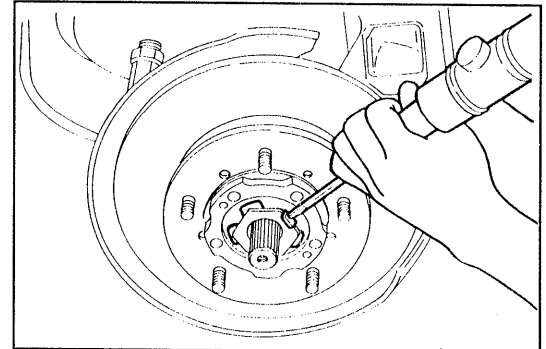
- (3) Ensure that the starting torque is within the specified range. (See the step 17.)

If not, adjust the lock nut, backing off the amount described in the step 15. Again perform the operations from the step 15.



WRU90-FS122

- (4) Bend the tang of the lock washer toward the lock nut edge surface at the inner and outer side.

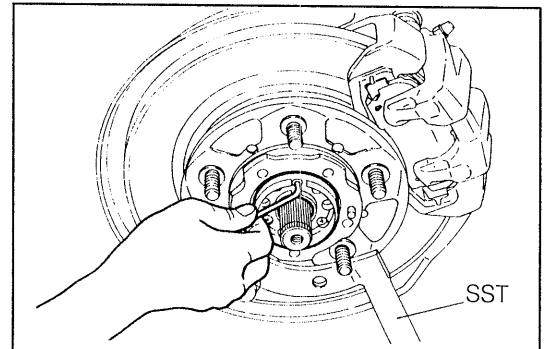


WRU90-FS123

19. Install the brake drum and tighten the attaching screws (torque screws) to the specified torque. (Automatic free wheel hub-equipped vehicle only)

Tightening Torque:

0.5 - 0.9 kgf-m (3.6 - 6.5 ft-lb, 4.9 - 8.8 N·m)



WRU90-FS125

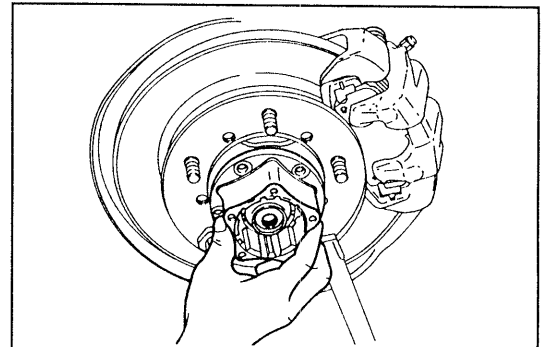
20. Installation of free wheel hub
(Free wheel hub-equipped vehicle only)

Manual locking hub

See page FS-46 to FS-48.

Automatic locking hub

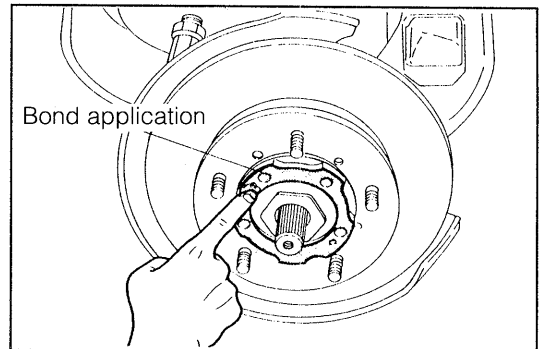
See page FS-51 to FS-54.



WRU90-FS126

21. Installation of hub cover

Thinly and evenly apply the Daihatsu Bond No.4 to the edge surface of the hub.



WRU92-FS417

22. Install the hub cover. Tighten the attaching bolts evenly to the specified torque over two or three stages.

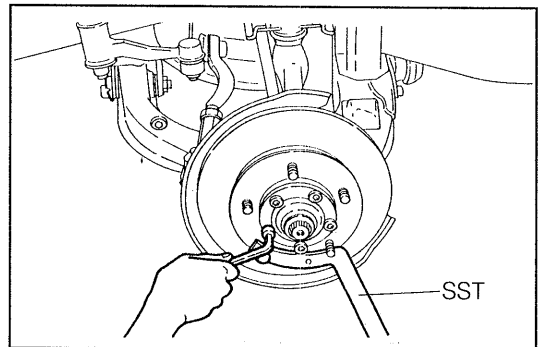
Tightening Torque:

6.0 - 7.0 kgf-m (43.4 - 50.6 ft-lb, 58.8 - 68.6 N·m)

NOTE:

- Use a hexagonal box wrench for the bolt tightening.
- Wipe off any oozed bond.
- Prevent the hub from turning, using the following SST.

SST: 09511-87202-000



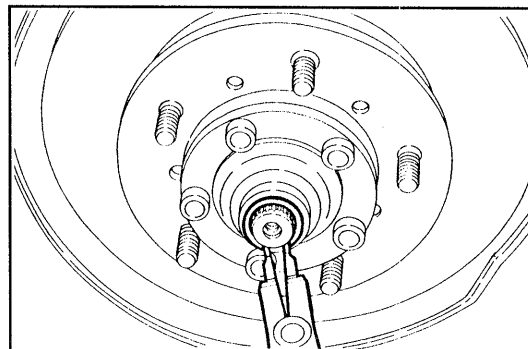
WRU92-FS418

FRONT AXLE & SUSPENSION

23. Install a new snap ring to the groove section of the drive shaft.

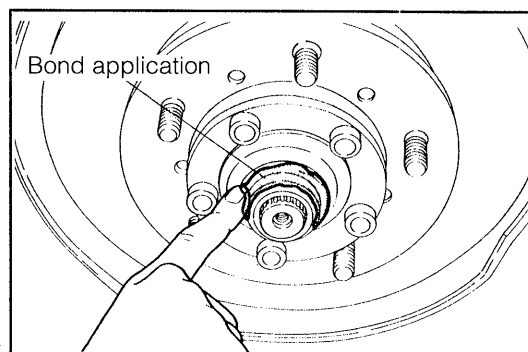
NOTE:

- Do not reuse the snap ring.



WRU90-FS129

24. Apply the Daihatsu Bond No.4 to the hub cap attaching surface of the hub cover.



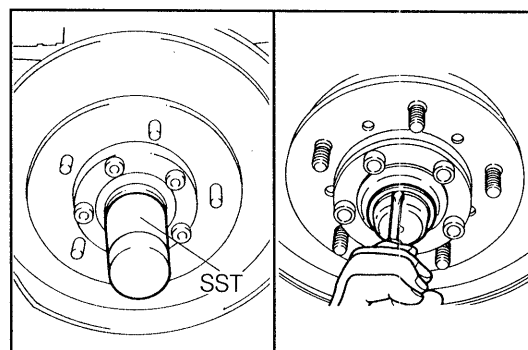
WRU90-FS130

25. Press the hub cap, using the following SST or a screwdriver or the like.

SST: 09608-87613-000

NOTE:

- Do not reuse the hub cap.
- Wipe off any bond that has oozed out.

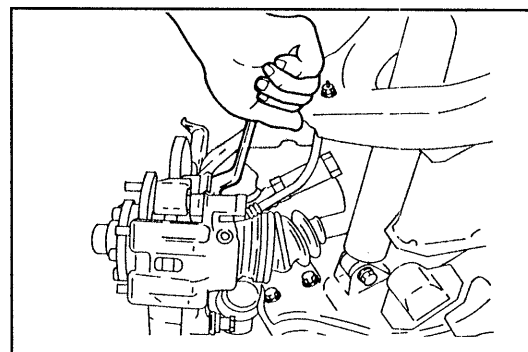


WRU90-FS131

26. Install the brake mounting support together with calipers to the steering knuckle.

Tightening Torque:

7.0 - 9.0 kgf-m (50.6 - 65.1 ft-lb 68.6 - 88.3 N·m)



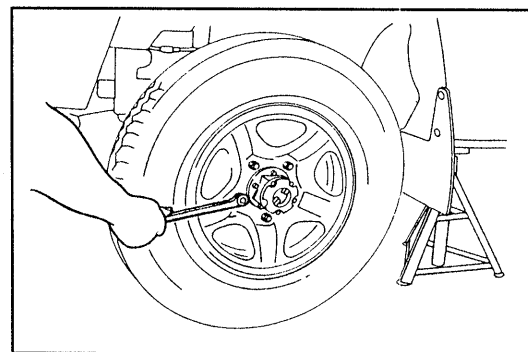
WRU90-FS132

27. Install the front wheel.

(See page FS-18)

28. Jack up the vehicle and remove the safety stands. Then, jack down the vehicle.

29. Tighten the front wheel attaching bolts to the specified torque. (See page FS-19.)

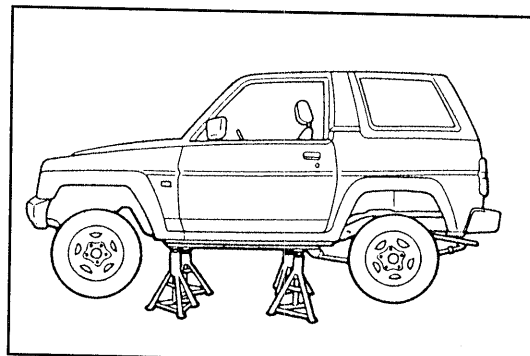


WRU90-FS133

MANUAL FREE WHEEL HUB

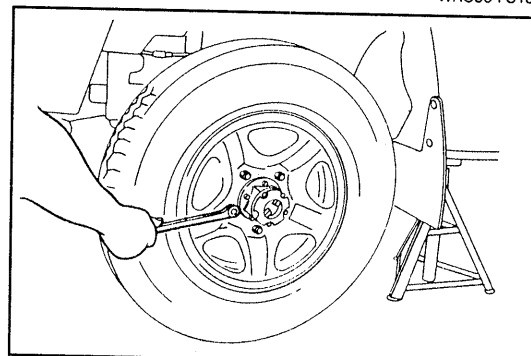
Disassembly

1. Jack up the vehicle and support it with safety stands.
(See GI section.)



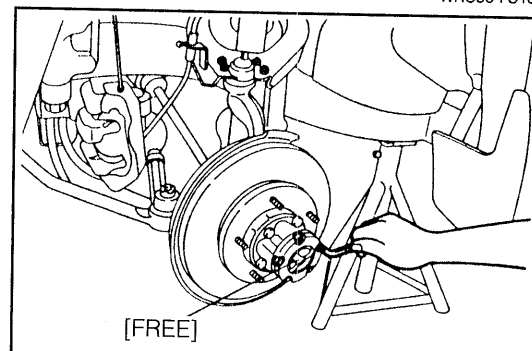
WRU90-FS134

2. Remove the front wheel.
(See page FS-18.)



WRU90-FS135

3. Removal of free wheel hub cover
 - (1) Set the handle of the free wheel hub cover to the "FREE" position.



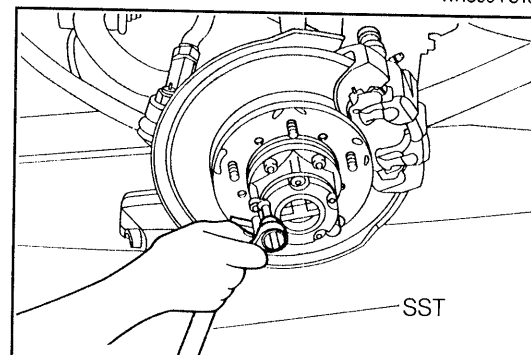
WRU90-FS136

- (2) Evenly loosen the free wheel cover attaching bolts and remove them.

NOTE:

- Prevent the hub bolt from turning, using the following SST.

SST: 09511-87202-000

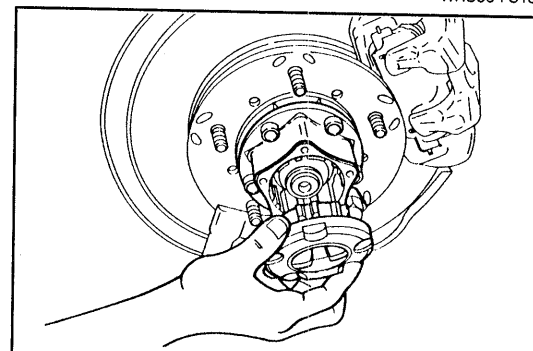


WRU90-FS137

- (3) Remove the hub cover from the hub body in a state that the hub cover is assembled to the clutch and spring.

NOTE:

- The handle of the free wheel cover should be at the "FREE" position.



WRU90-FS138

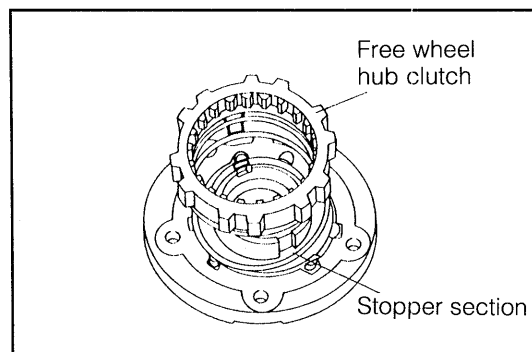
FRONT AXLE & SUSPENSION

4. Removal of clutch subassembly

- (1) With the handle of the hub cover set to the "FREE" position, turn the clutch subassembly, until the clutch stops, while pushing the clutch subassembly against the cover side.

NOTE:

- Be very careful not to damage the compression spring and follower by applying excessive force during this operation.

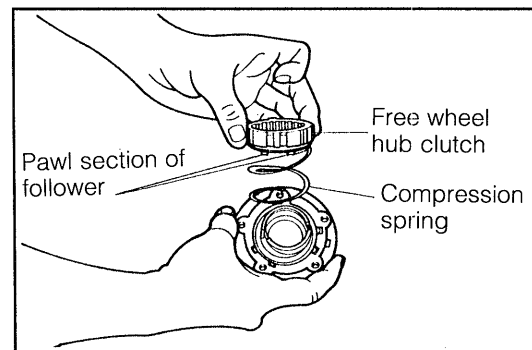


WRU90-FS139

- (2) Push the clutch toward the cover side further. Remove the pawl section of the follower from the stopper section of the hub cover handle. Then, remove the clutch subassembly from the cover.

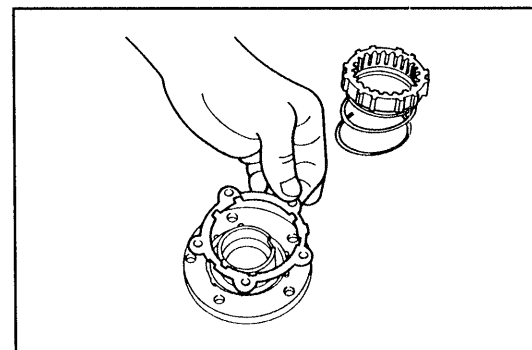
NOTE:

- Do not remove the compression spring from the follower.



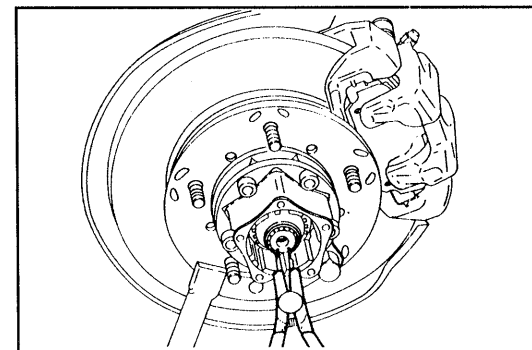
WRU90-FS140

- (3) Remove the gasket.



WRU90-FS141

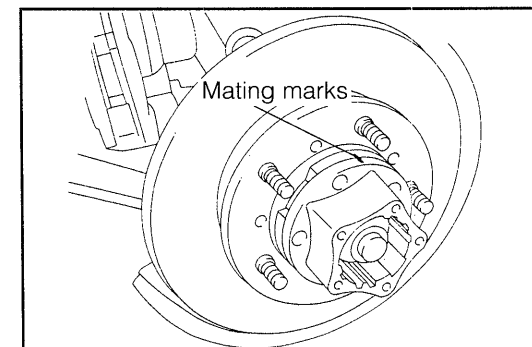
5. Remove the snap ring from the drive shaft.



WRU90-FS142

6. Removal of hub body

- (1) Put mating marks at a point between the hub body and the hub by means of a marker pen or the like.

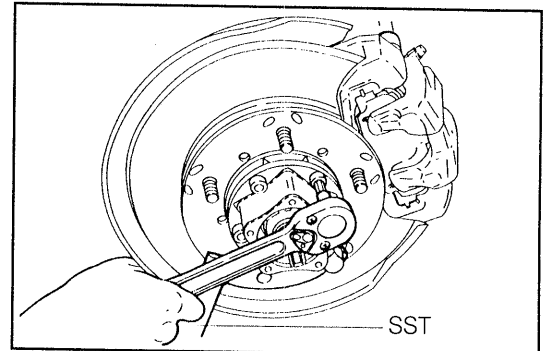


WRU90-FS143

- (2) Evenly loosen the hub body attaching bolts and remove them.

NOTE:

- Prevent the hub from turning, using the following SST.
SST: 09511-87202-000

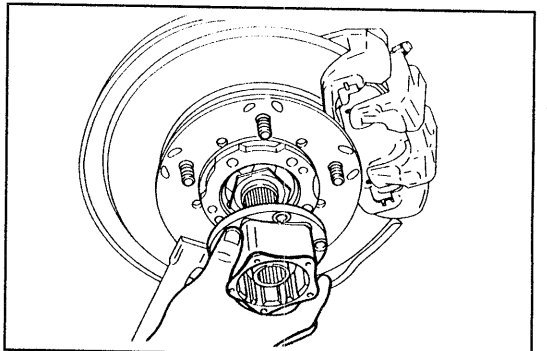
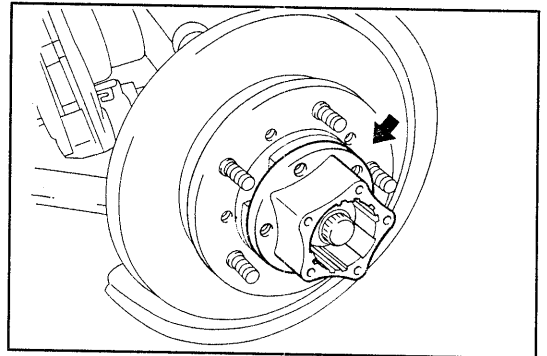


WRU90-FS144

- (3) Remove the hub body by lightly tapping it by means of a plastic hammer or the like.

NOTE:

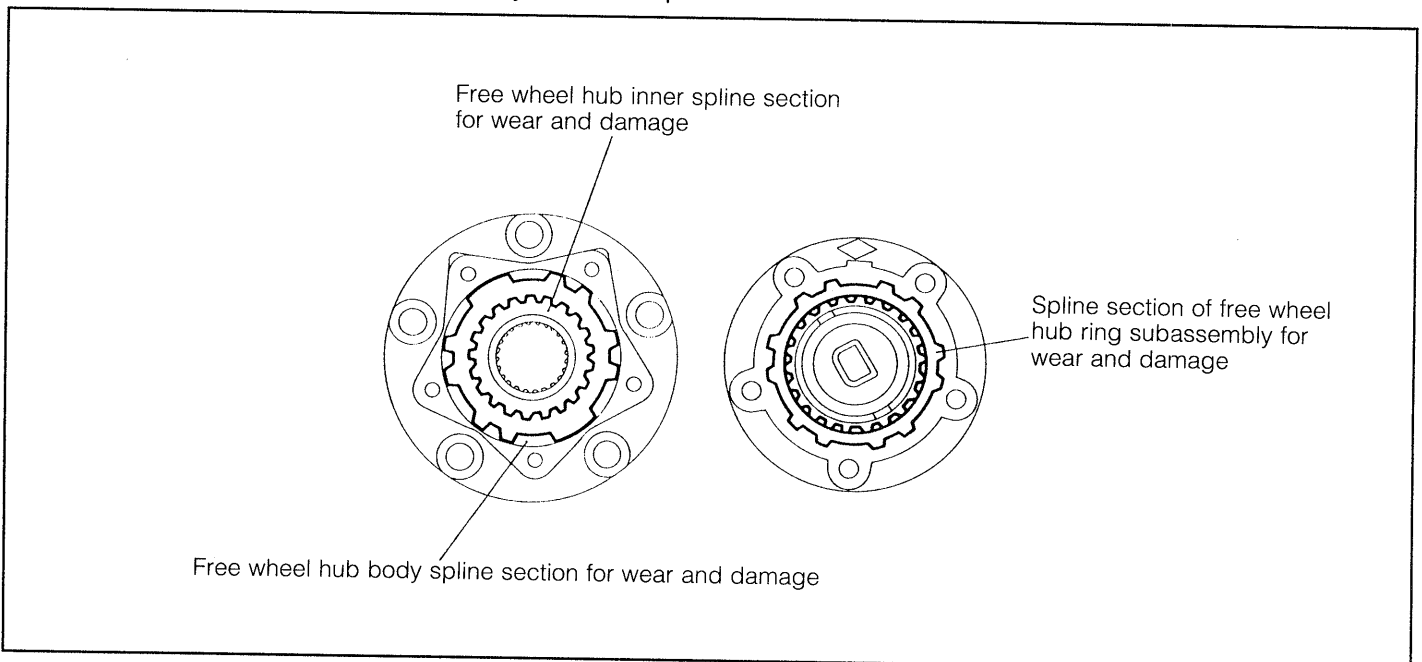
- Be very careful not to drop the hub body.
- Care must be exercised so as not to apply strong impacts to the hub body.



WRU90-FS145

Inspection

Check the following parts. Replace any defective parts.



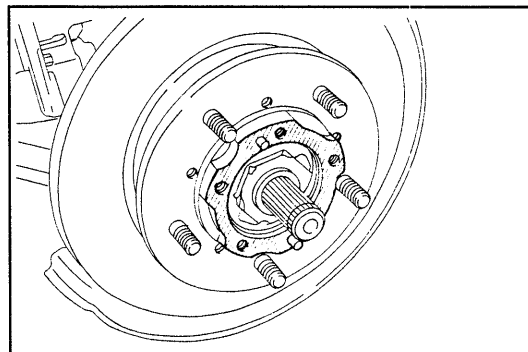
WRU90-FS146

FRONT AXLE & SUSPENSION

Assembly

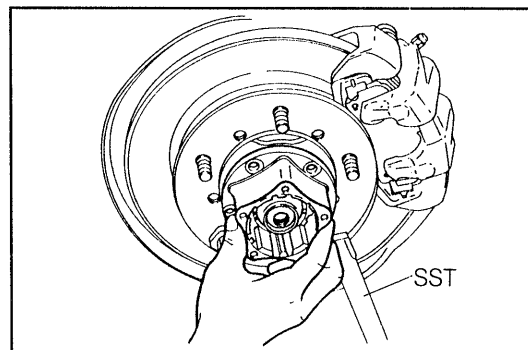
1. Installation of hub body

- (1) Clean the mating surfaces of the hub body and axle hub. Then, thinly and evenly apply the Daihatsu Bond No. 4.



WRU90-FS147

- (2) While aligning the knock pin hole of the hub body with the knock pin of the hub, install the hub body to the hub.



WRU90-FS148

- (3) Tighten the hub body attaching bolts to the specified torque over two or three stages evenly.

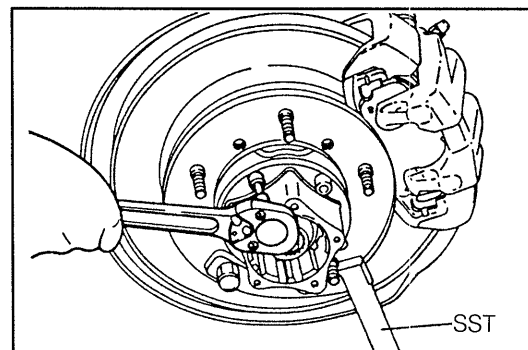
Tightening Torque:

6.0 - 7.0 kgf-m (43.4 - 50.6 ft-lb, 58.8 - 68.6 N-m)

NOTE:

- Prevent the axle hub from turning, using the following SST.

SST: 09511-87202-000

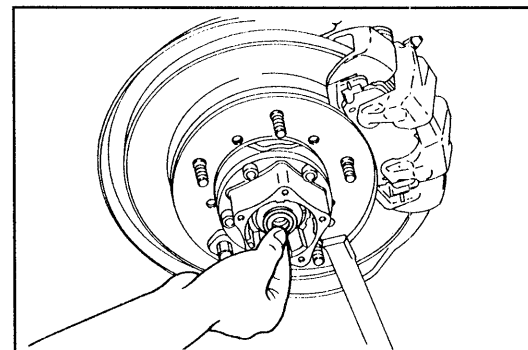


WRU90-FS149

2. Assemble a new snap ring to the drive shaft.

NOTE:

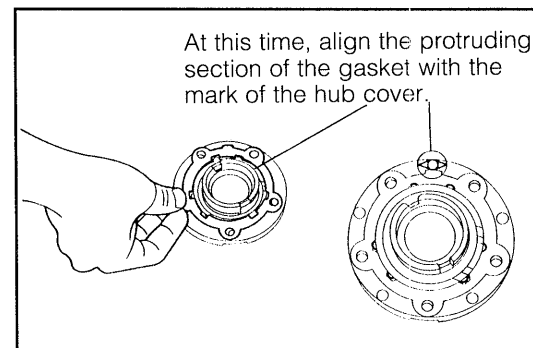
- Never reuse the snap ring.
- Fit the snap ring positively to the groove of the drive shaft.



WRU90-FS150

3. Assembly of hub cover

- (1) Install a new gasket to the hub cover.

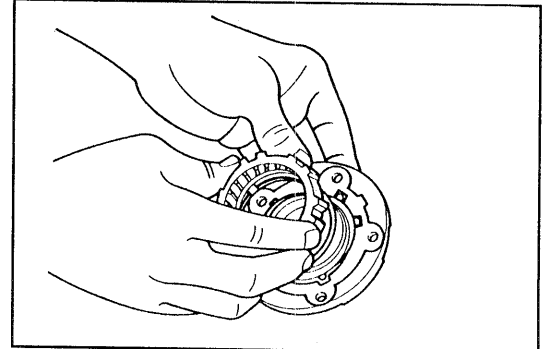


WRU90-FS151

- (2) Move the handle of the hub cover to the "FREE" position. Align the pawl of the clutch subassembly with the cut-out section of the handle.

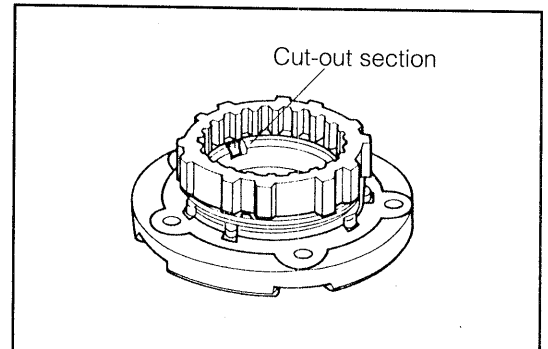
NOTE:

- Make sure that the compression spring is positively placed in the follower.



WRU90-FS152

- (3) Turn the clutch subassembly, until the clutch stops, while pushing the clutch subassembly against the cover side.
- (4) Move the handle of the hub cover several times from the "FREE" position to the "LOCK" position; from the "LOCK" position to the "FREE" position. At this time, ensure that the clutch operates smoothly.



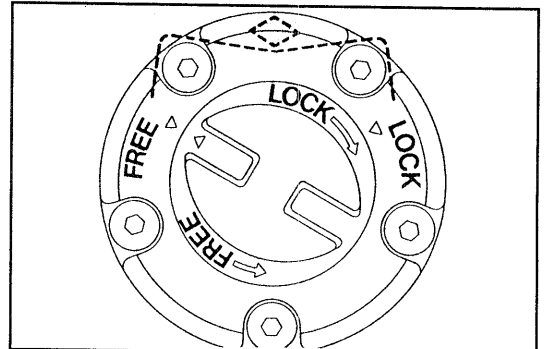
WRU90-FS153

4. Installation of hub cover

- (1) Set the handle of the hub cover to the "FREE" position.
- (2) Install the hub cover to the hub body, while aligning the mark at the reverse side of the hub cover with the protruding section at the hub body side.

NOTE:

- Be very careful not to displace the gasket position during this operation.



WRU90-FS154

- (3) Tighten the hub cover attaching bolts to the specified torque.

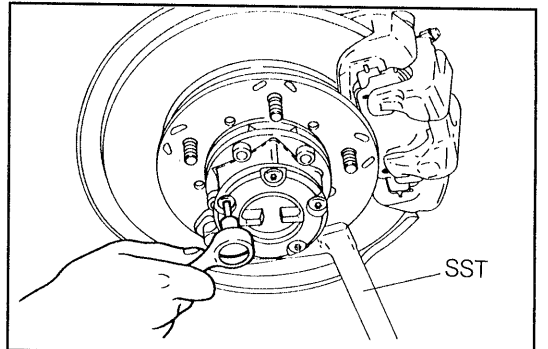
Tightening Torque:

0.8 - 1.2 kgf-m (5.8 - 8.7 ft-lb, 7.8 - 11.8 N-m)

NOTE:

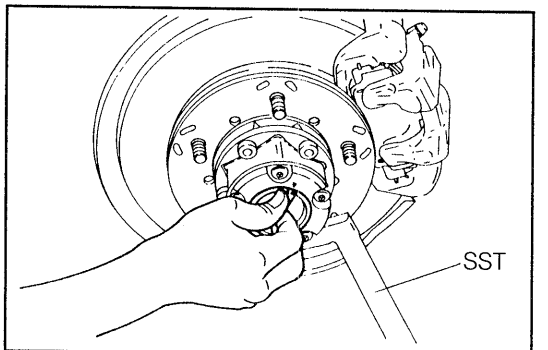
- Prevent the axle hub from turning, using the following SST.

SST: 09511-87202-000



WRU90-FS155

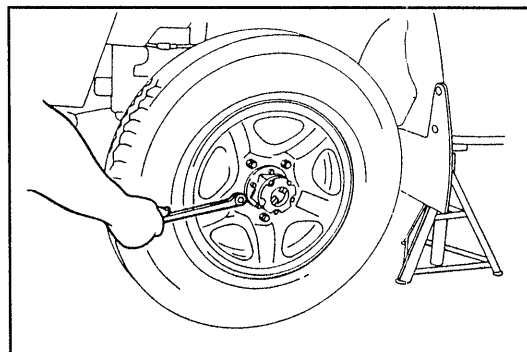
5. Move the handle of the hub cover several times from the "FREE" position to the "LOCK" position; from the "LOCK" position to the "FREE" position. At this time, ensure that the handle operates smoothly.



WRU90-FS156

FRONT AXLE & SUSPENSION

6. Install the front wheel temporarily.



WRU90-FS157

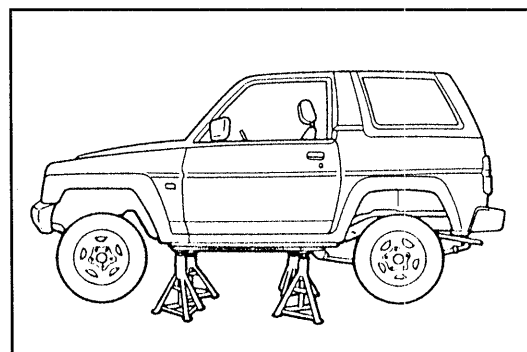
7. Perform the operation check.
(See page FS-30.)
8. Jack up the vehicle and remove the safety stands.
9. Tighten the front wheel attaching bolts to the specified torque.
(See page FS-19.)

WRU90-FS158

AUTOMATIC LOCKING HUB

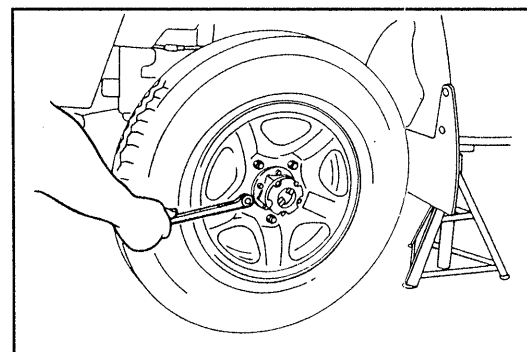
Removal

1. Jack up the vehicle and support it with safety stands.
(See GI section.)



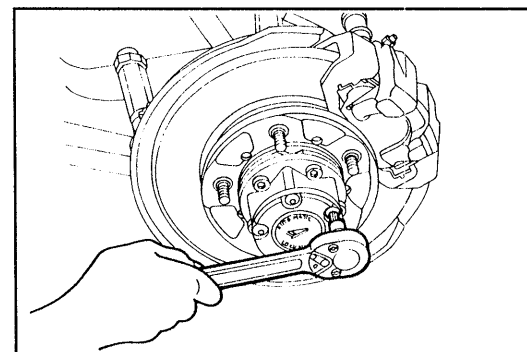
WRU90-FS159

2. Remove the front wheel.
(See page FS-18.)



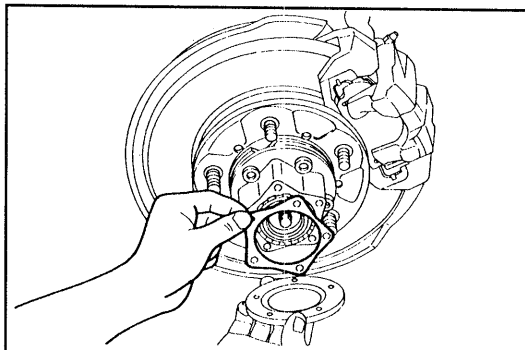
WRU90-FS160

3. Remove the hub cover.



WRU90-FS161

4. Remove the gasket from the hub body.



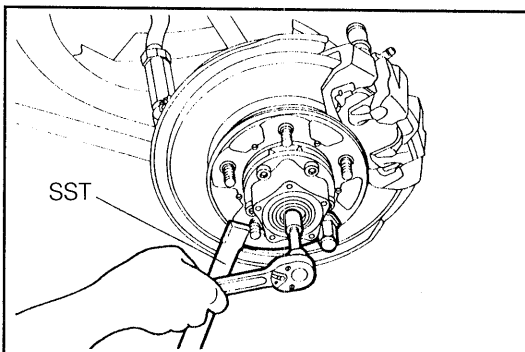
WRU90-FS162

5. Remove the attaching bolt with washer.

NOTE:

- Prevent the axle hub from turning, using the following SST.

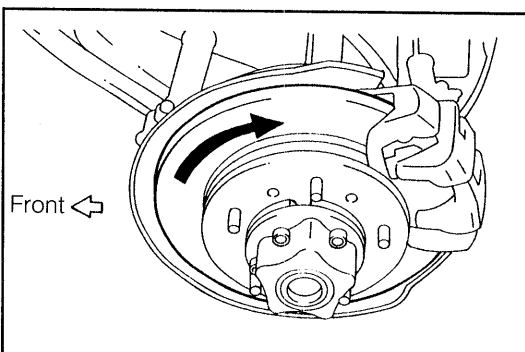
SST: 09511-87202-000



WRU90-FS163

6. Turn the hub. Ensure that the hub is set to the free wheel state.

If the hub is not set to the free condition, turn the hub (three turns or more) reversely relative to the forward direction so that the hub may be set to the free condition.



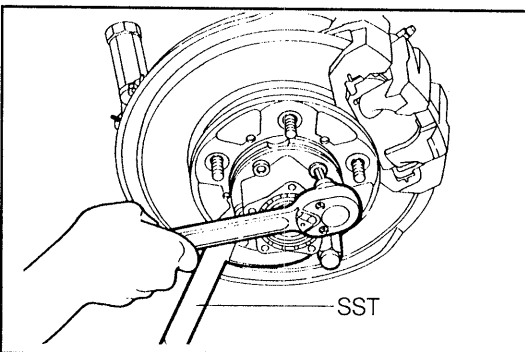
WRU90-FS164

7. Evenly loosen the hub body attaching bolts and remove them.

NOTE:

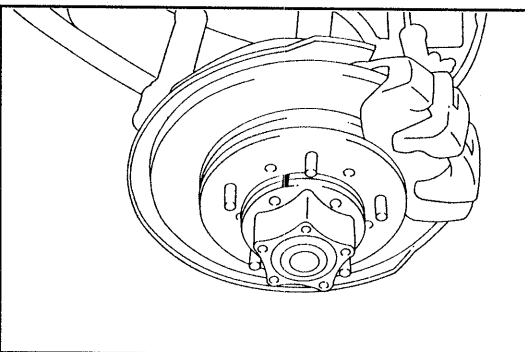
- Prevent the axle hub from turning, using the following SST.

SST: 09511-87202-000



WRU90-FS165

8. Put mating marks at a point between the hub body and the axle hub by means of a marker pen or the like.



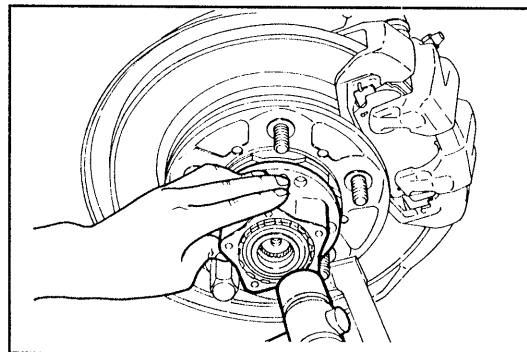
WRU90-FS166

FRONT AXLE & SUSPENSION

9. Remove the hub body from the axle hub by lightly tapping the hub body by means of a plastic hammer or the like.

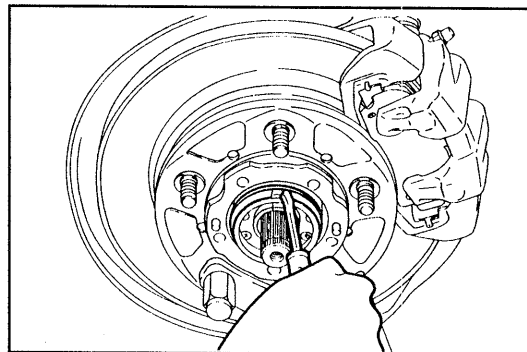
NOTE:

- Be very careful not to drop the hub body.
- Care must be exercised not to apply strong impacts to hub body.



WRU90-FS167

10. Remove the brake shoe snap ring.

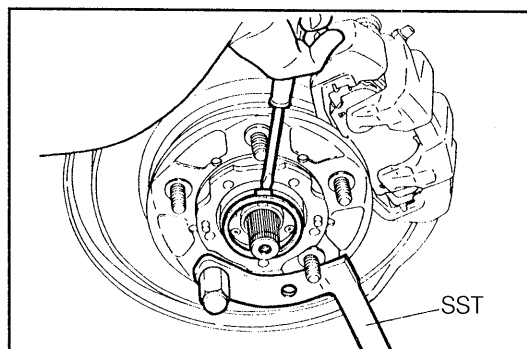


WRU90-FS168

11. Remove the brake shoe by lightly prying off the brake shoe by means of a screwdriver or the like.

NOTE:

- Since the brake shoe is provided with inserting sections at its upper and lower sides, be sure to pry off the brake shoe at upper and lower sides evenly and alternately.
- Be very careful not to scratch the brake drum and/or brake shoe.
- Do not remove the grease that has been applied to the removed brake shoe. Leave the grease as it is.
- Do not soil the removed brake shoe and grease.
- Do not allow the grease of the removed brake shoe to get to other sliding parts.
- Do not allow the grease of the removed brake shoe to get into other grease.



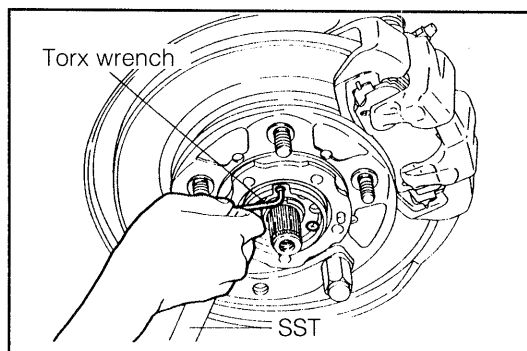
WRU90-FS169

12. Remove the brake drum from the lock nut, using a torx wrench.

NOTE:

- Prevent the axle hub from turning, using the following SST.

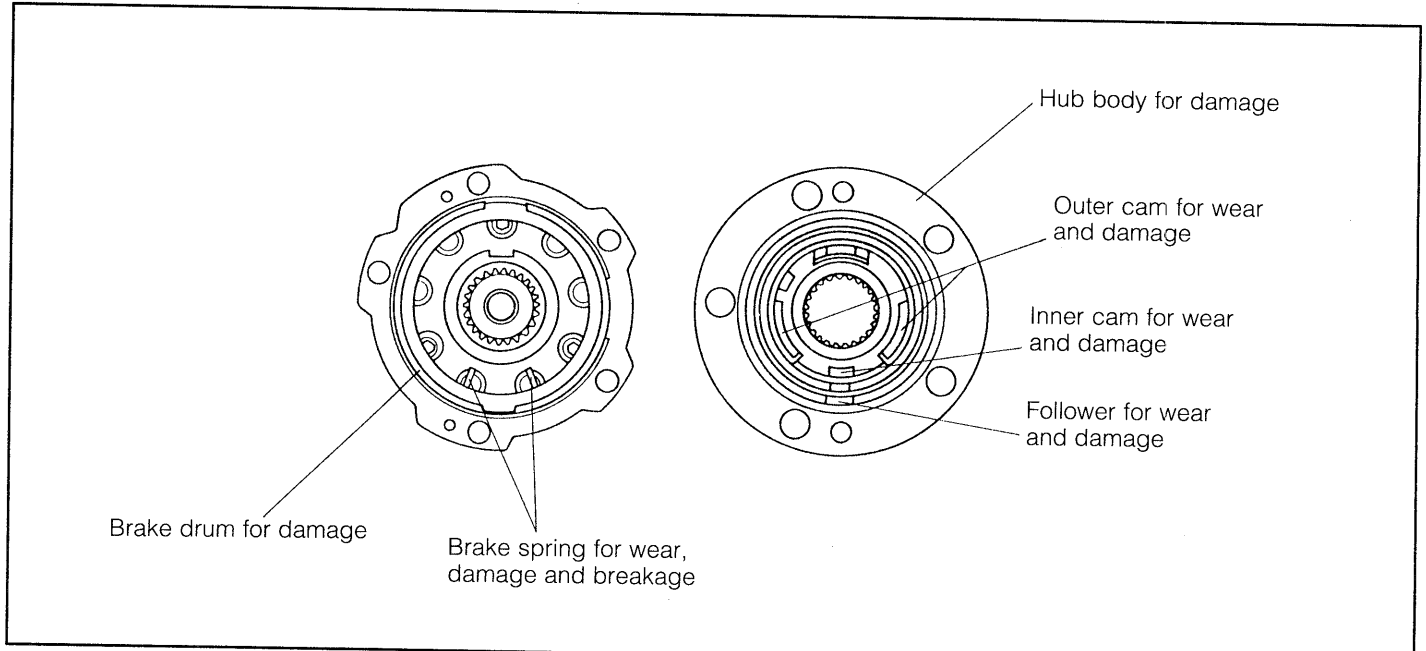
SST: 09511-87202-000



WRU90-FS170

Inspection

Check the following parts. Replace any defective parts.



WRU90-FS171

ASSEMBLY

NOTE:

Identification of Automatic Locking Hub

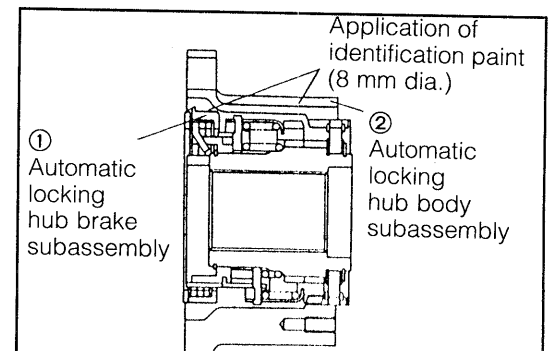
- When the hub body assembly and/or the hub brake subassembly is replaced, it is necessary to consider the combination of the hub body assembly and the hub brake subassembly.
- Before these parts are assembled, be certain to confirm their identification, using the table below.

Identification colors

Identification color		Brake subassembly	
		Yellow	blue
Hub body assembly	Yellow	○	○
	Blue	×	○

The O-marked combination only is acceptable.

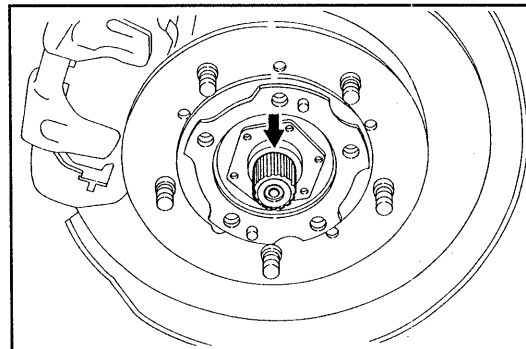
- However, when replacing the hub brake subassembly, if it is impossible to confirm the identification color of the hub body assembly, be certain to employ a blue brake subassembly.



WRU90-FS405

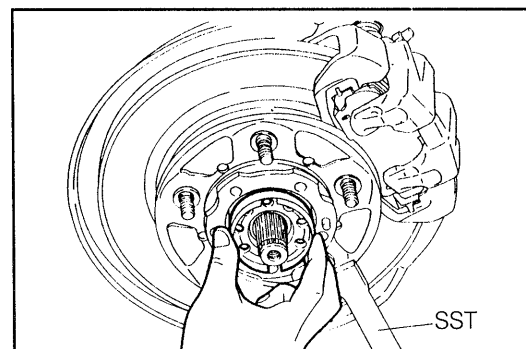
FRONT AXLE & SUSPENSION

1. Clean the serration section of the drive shaft so as to remove grease or the like.



WRU90-FS406

2. While aligning the brake drum with the groove of the knuckle, assemble them.



WRU90-FS172

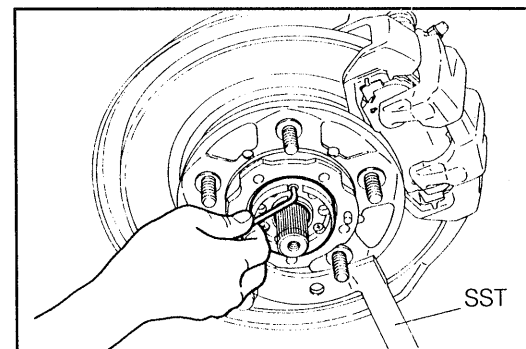
3. Tighten the brake drum attaching screws (torx) to the specified torque.

Tightening Torque:

0.5 - 0.9 kgf-m (3.6 - 6.5 ft-lb, 4.9 - 8.8 N-m)

NOTE:

- Prevent the axle hub from turning, using the following SST.
- SST: 09511-87202-000

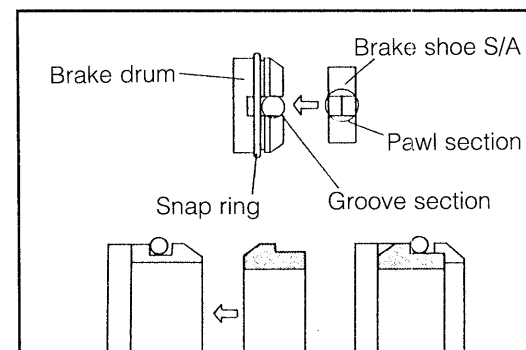


WRU90-FS173

4. Install the brake shoe to the brake drum.

NOTE:

- Since the width of the pawl of the brake shoe differs between the upper section and the lower section, be certain to confirm the width of the pawl before the installation.
- Make sure that the brake shoe is installed in the correct direction.
- Do not remove the grease that has been applied to the brake shoe.
- Do not soil the brake shoe and grease.
- Do not allow the grease applied to the brake shoe to get to other sliding parts.
- Do not allow the grease that has been applied to the brake shoe to get into other grease.



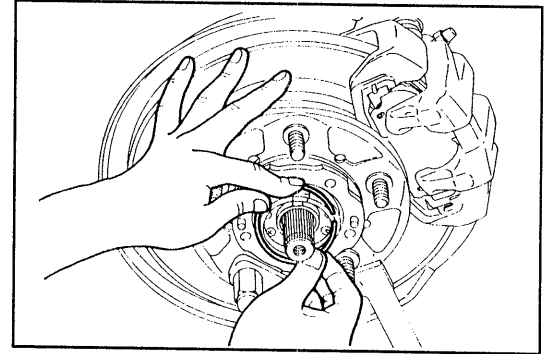
WRU90-FS174

If the grease applied to the brake shoe should be soiled and/or removed, be sure to replace the brake shoe with a new one. The new brake shoe will be supplied with grease applied.

5. Install the brake shoe snap ring so as to secure the the brake shoe.

NOTE:

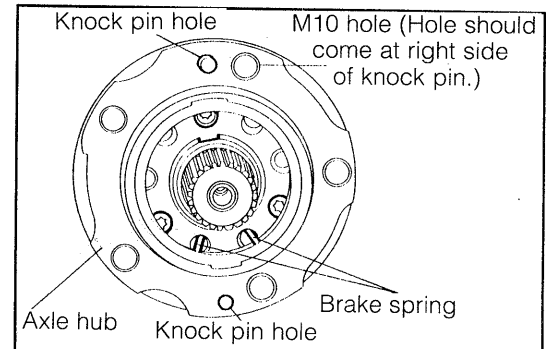
- Be sure to set the opening of the snap ring within a range of $90^\circ \pm 20$ relative to the cut-out section provided at the pawl section of the brake shoe of the brake drum.



WRU90-FS175

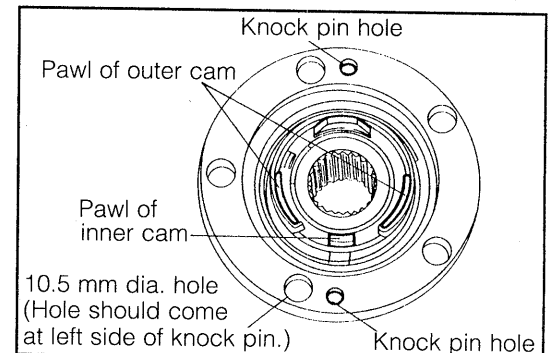
6. Installation of hub body

- (1) Turn the axle hub so as to set it, as indicated in the right figure.
- (2) Turn the spring so that the end section of the brake spring may come at the position as indicated in the right figure.



WRU90-FS177

- (3) Turn the cam so that the pawls of the inner cam and outer cam of the hub body may come at the position as indicated in the right figure.



WRU90-FS178

- (4) Clean the attaching surfaces of the axle hub and hub body. Thinly and evenly apply the Daihatsu Bond No.4 to the axle hub side.

NOTE:

- At this time, make sure that no grease is stuck to the serration section of the drive shaft.

- (5) Install the hub body to the axle hub. Tighten the attaching bolts to the specified torque evenly over two or three stages.

Tightening Torque:

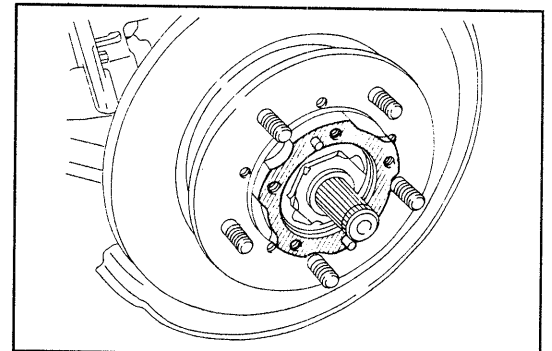
6.0 - 7.0 kgf-m (43.4 - 50.6 ft-lb, 58.8 - 68.6 N·m)

NOTE:

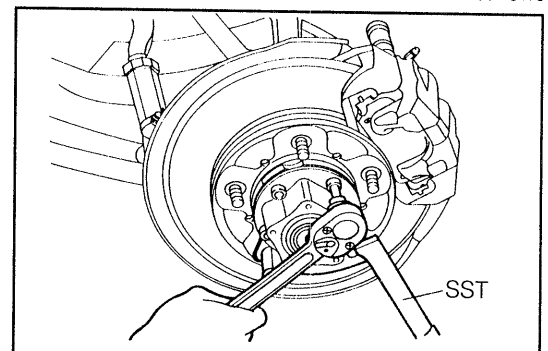
- Prevent the axle hub from turning, using the following SST.

SST: 09511-87202-000

- Wipe off any oozed bond.
- Be very careful not to get lithium based MP grease to the brake shoe subassembly.



WRU90-FS179



WRU90-FS180

FRONT AXLE & SUSPENSION

- (6) Install the plate washer with the attaching bolt.

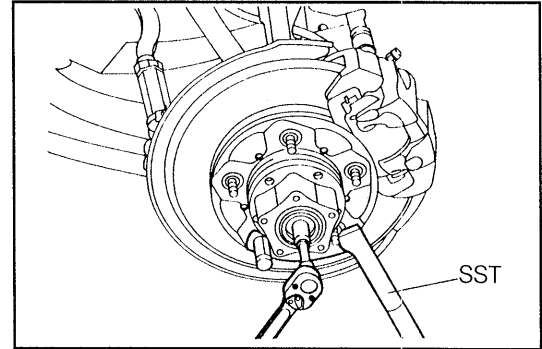
Tightening Torque:

1.5 - 2.2 kgf-m (10.8 - 15.9 ft-lb, 14.7 - 21.6 N·m)

NOTE:

- Prevent the axle hub from turning, using the following SST.

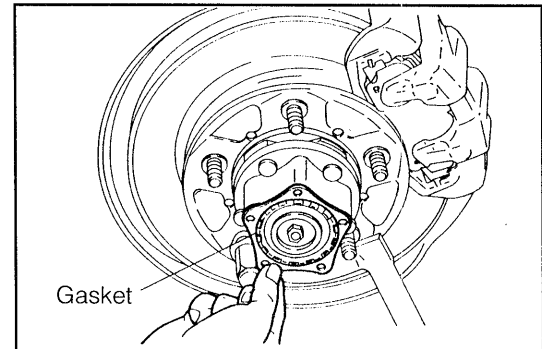
SST: 09511-87202-000



WRU90-FS181

7. Installation of hub cover

- (1) Install a new gasket to the hub body.



WRU90-FS182

- (2) Install the hub cover with the bolt.

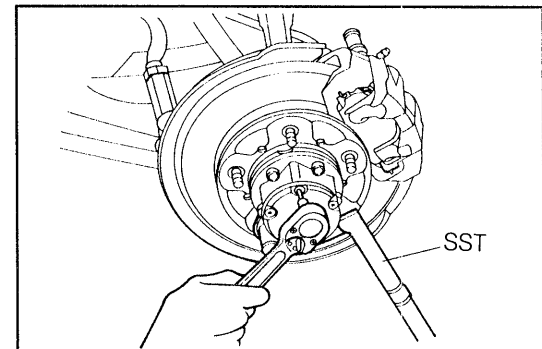
Tightening Torque:

0.8 - 1.2 kgf-m (5.8 - 8.7 ft-lb, 7.8 - 11.8 N·m)

NOTE:

- Prevent the axle hub from turning, using the following SST.

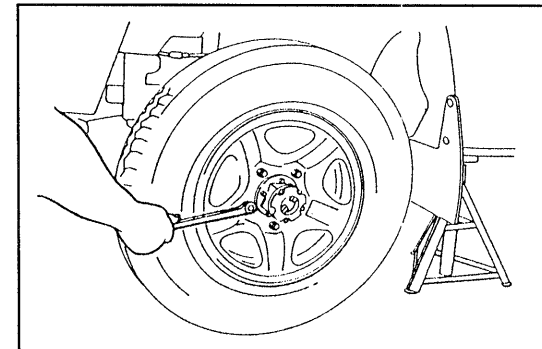
SST: 09511-87202-000



WRU90-FS183

8. Install the front wheel.

(See page FS-18.)



WRU90-FS184

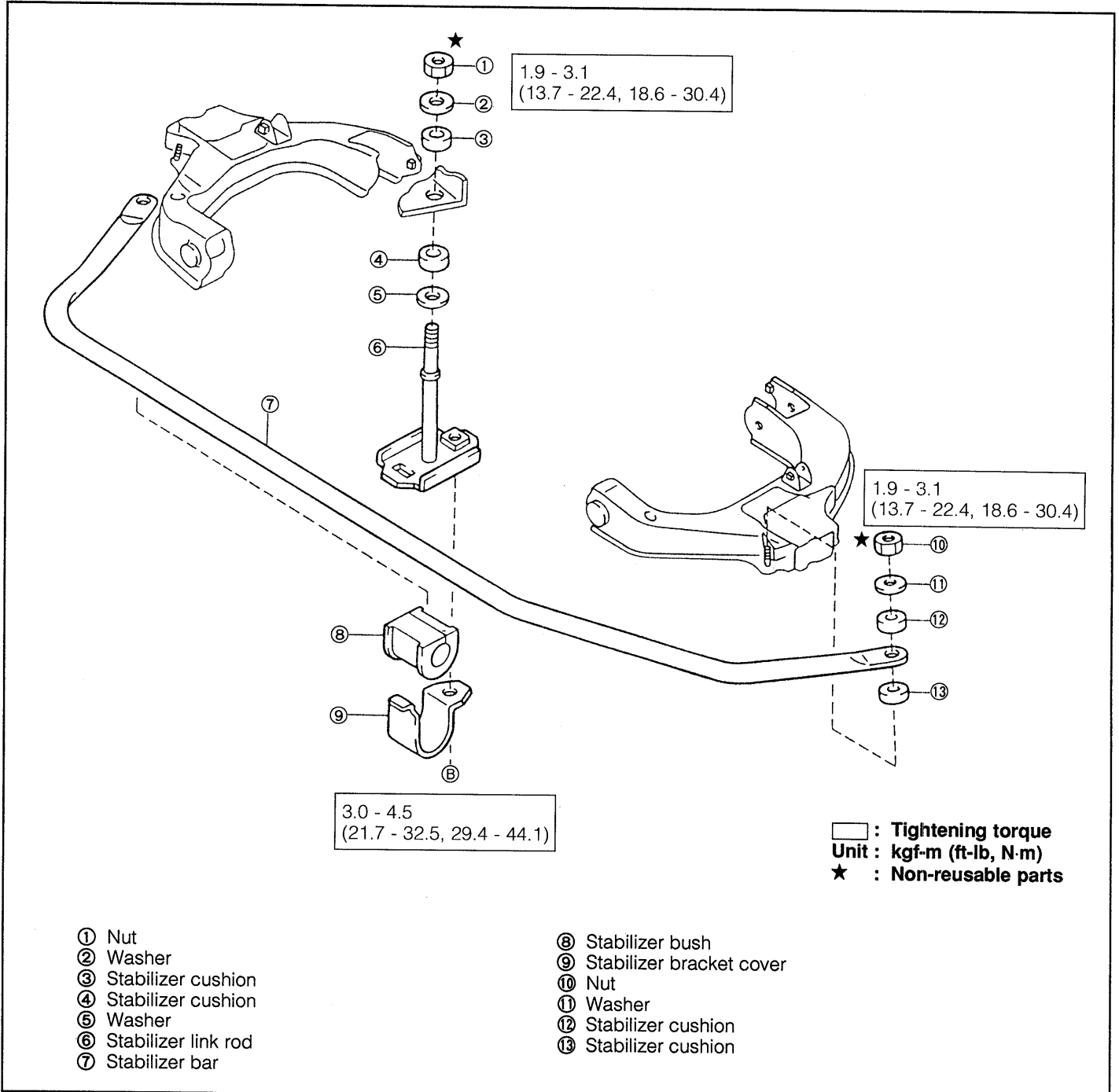
9. Perform the operation check.

(See page FS-30.)

10. Jack up the vehicle and remove the safety stands. Then, jack down the vehicle.

WRU90-FS185

STABILIZER BAR COMPONENTS



WRU90-FS186

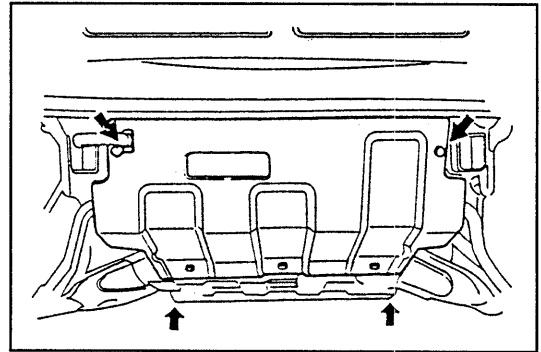
TROUBLE SHOOTING

Symptom	Possible causes	Checking points
Excessive rolling of vehicle body during running	Stabilizer damaged	Check stabilizer.
	Stabilizer installing section damaged	Check stabilizer installing section.

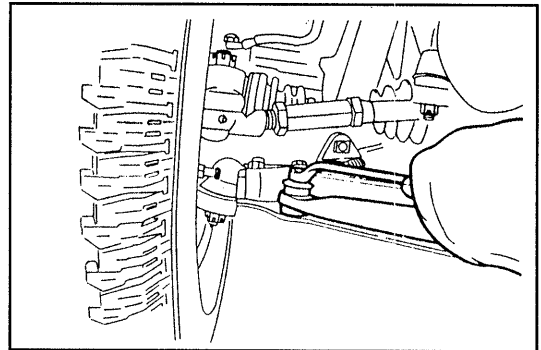
WRU90-FS187

REMOVAL

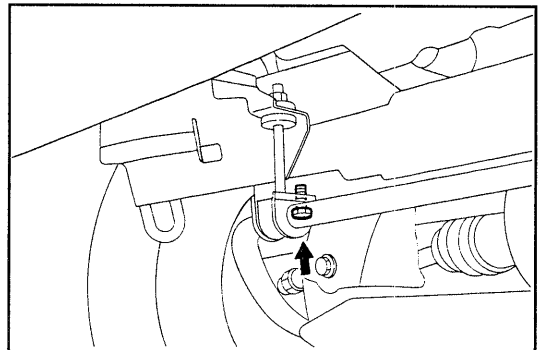
1. Place the vehicle in an unloaded state.
2. Remove the engine undercover at the front side.
3. Remove the bolts attaching the stabilizer bar to the lower arm at the right and left sides. Remove the washer and cushion.
4. Loosen the attaching bolts of the stabilizer bracket covers.
5. Remove the stabilizer link rod attaching nut. Remove the washer and cushion.
6. Remove the stabilizer bar from the lower arm. Remove the cushion.



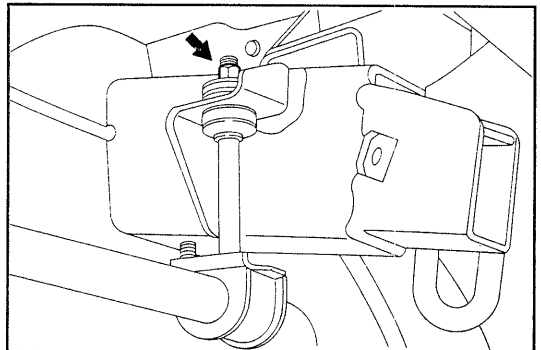
WRU90-FS188



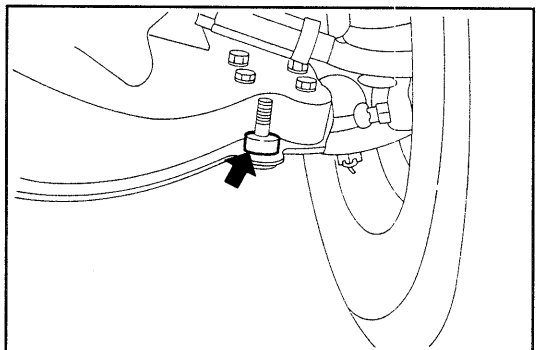
WRU90-FS189



WRU90-FS190

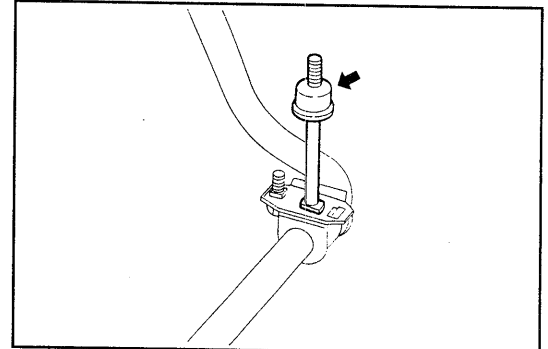


WRU90-FS191



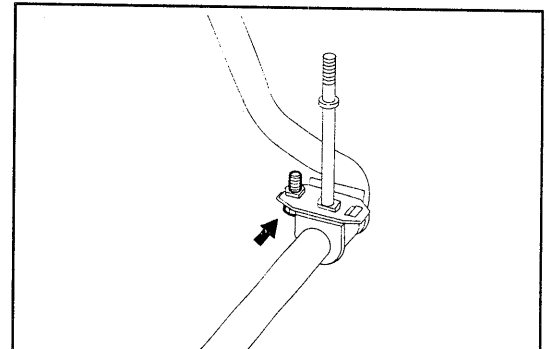
WRU90-FS192

7. Remove the cushion and washer from the stabilizer link rod.



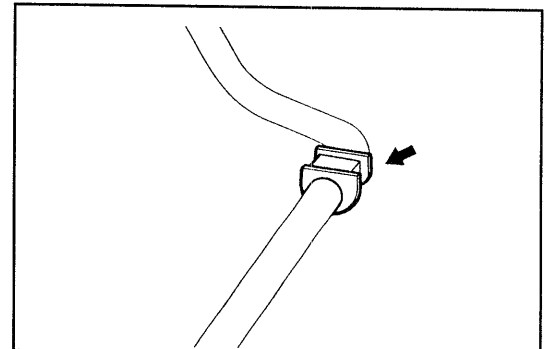
WRU90-FS195

8. Remove the stabilizer bracket cover.



WRU90-FS193

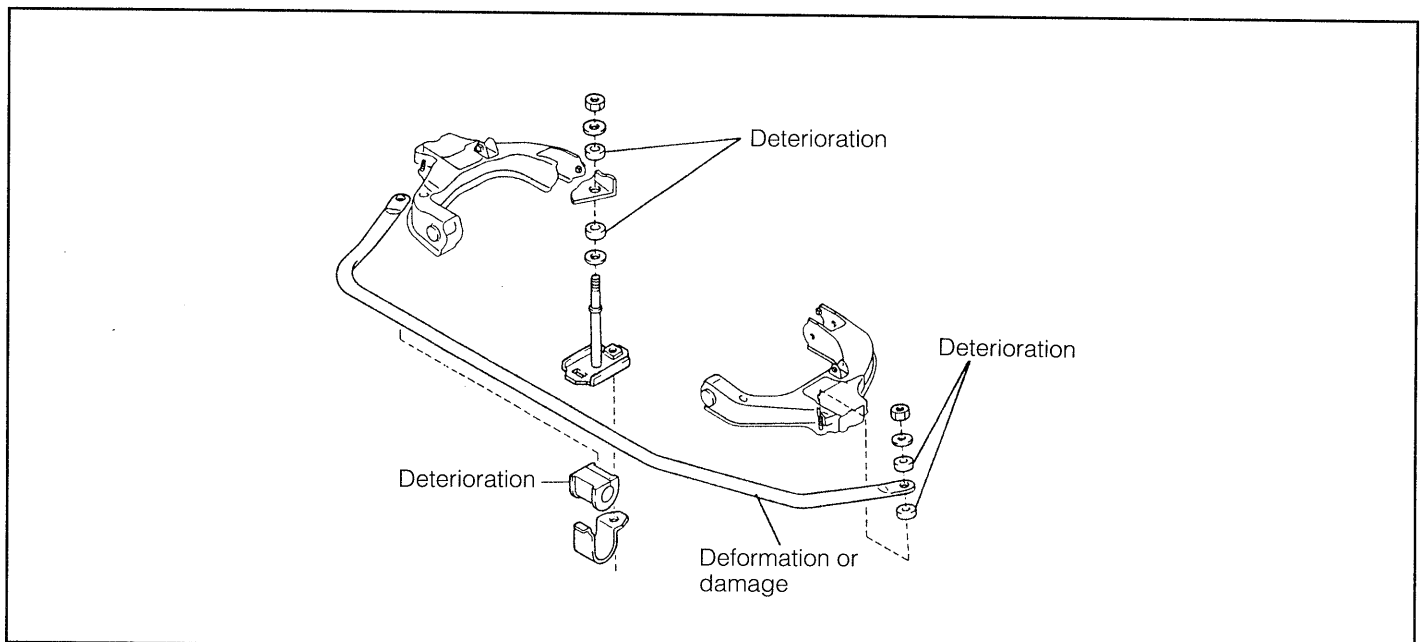
9. Remove the stabilizer bush.



WRU90-FS194

INSPECTION

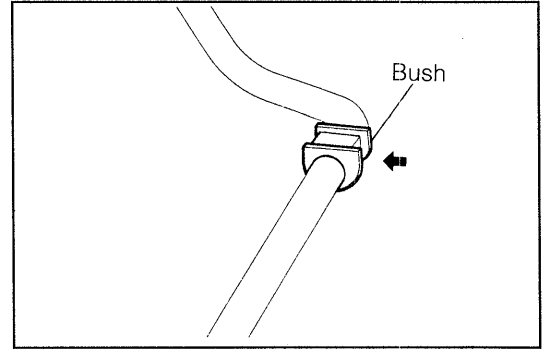
Check the following parts. Replace any defective parts.



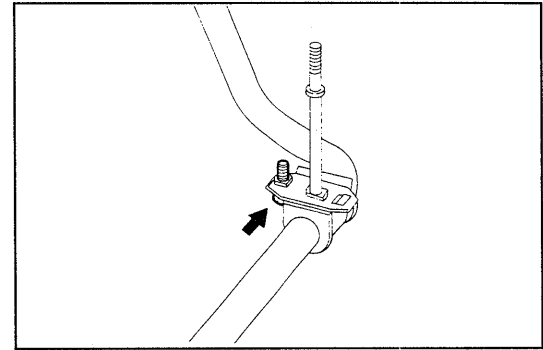
WRU90-FS196

INSTALLATION

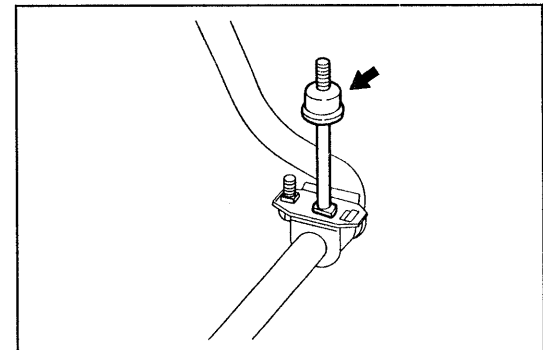
1. Install the bush to the stabilizer bar.
2. Install the stabilizer link rod to the cushion. Temporarily install the stabilizer bracket cover.
3. Install the washer and cushion to the stabilizer link rod.
4. Install the cushion to the lower arm.
5. Connect the stabilizer to the lower arm attaching bolt. Install the stabilizer link to the frame. Tighten the nut with the cushion and washer interposed.



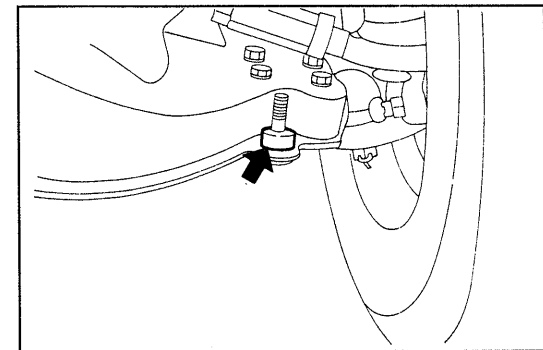
WRU90-FS197



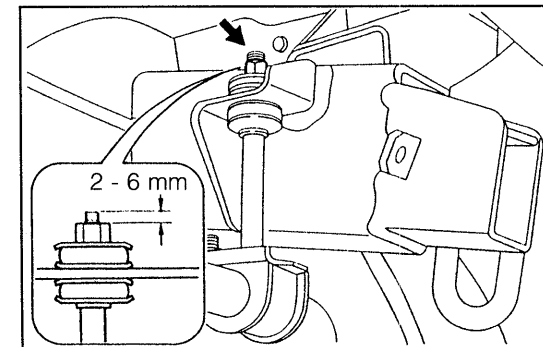
WRU90-FS198



WRU90-FS199

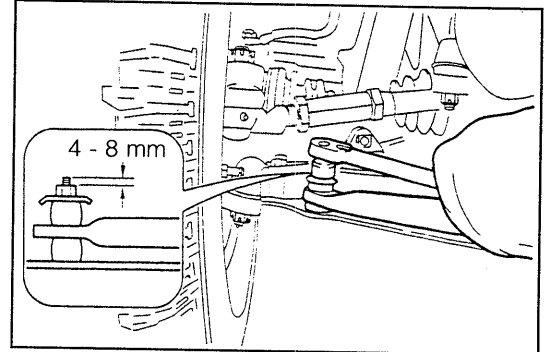


WRU90-FS200



WRU92-FS413

6. Install the cushion and washer to the lower arm. Tighten the attaching nut.

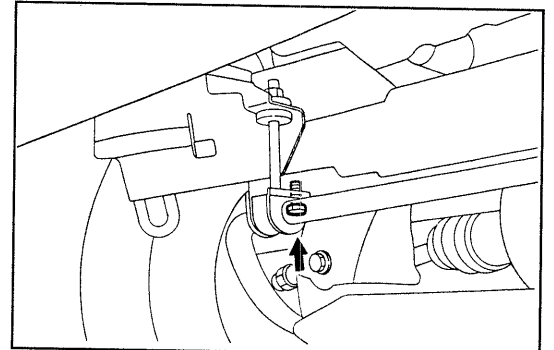


WRU92-FS414

7. Tighten the stabilizer bracket cover attaching bolt.

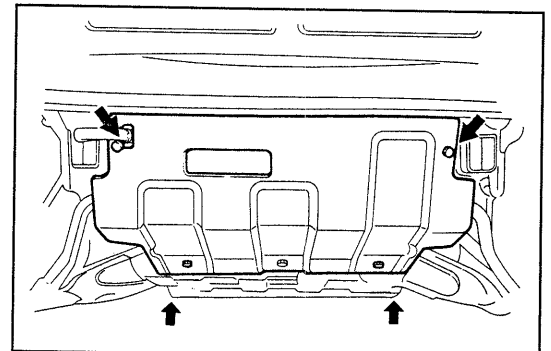
Tightening Torque:

3.0 - 4.5 kgf-m (21.7 - 32.5 ft-lb, 29.4 - 44.1 N-m)



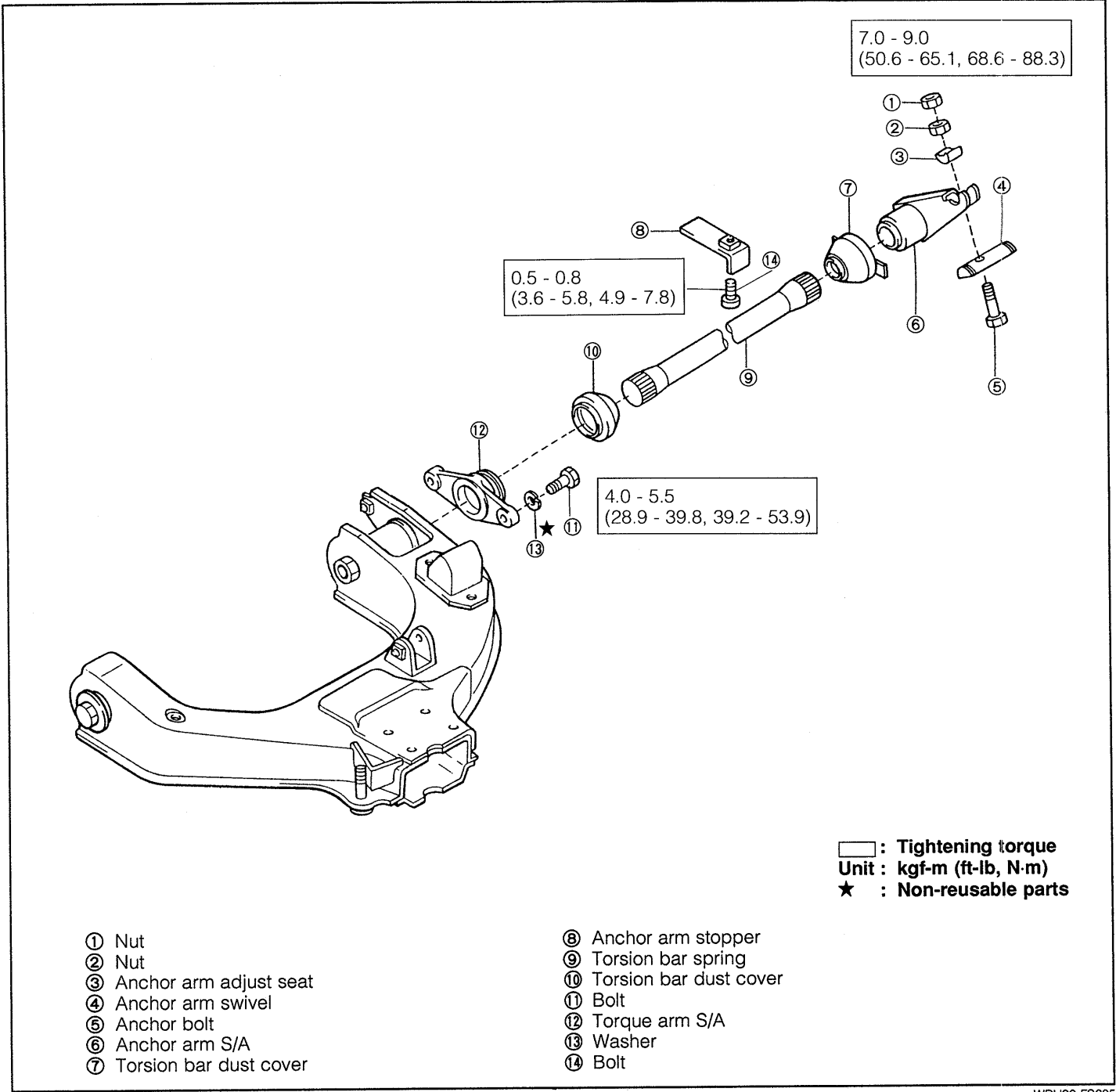
WRU90-FS203

8. Install the engine front undercover.



WRU90-FS204

TORSION BAR SPRINGS
COMPONENTS



WRU90-FS205

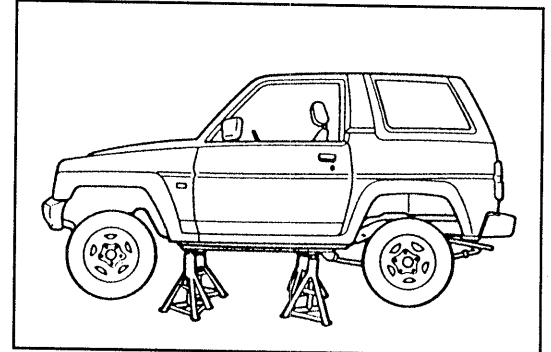
TROUBLE SHOOTING

Symptom	Possible causes	Checking points
Vehicle body tilted	Torsion bar improperly adjusted	Adjust vehicle height.

WRU90-FS206

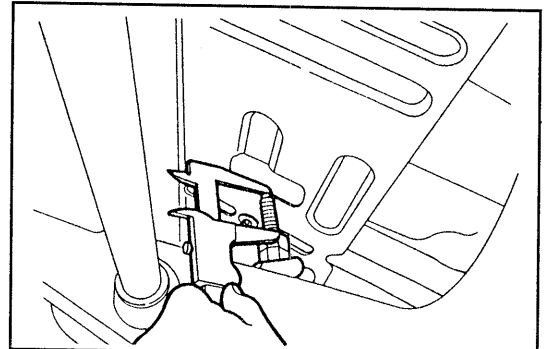
REMOVAL

1. Jack up the vehicle and support it with safety stands.
(See GI section.)



WRU90-FS207

2. Measure the protruding dimension of the anchor bolt.
Record the measured value.

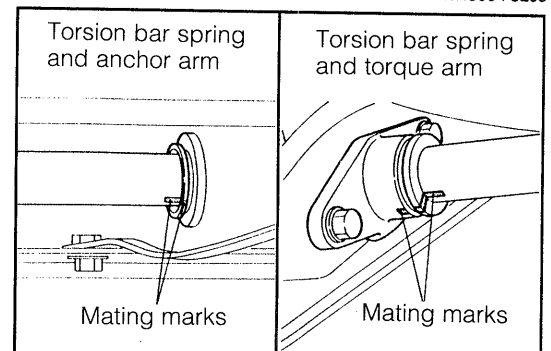


WRU90-FS208

3. Remove the rubber boot. Put mating marks at a point between the torsion bar spring and the anchor arm and also at a point between the torsion bar spring and the torque arm. For this identification marks, use white paint or the like.

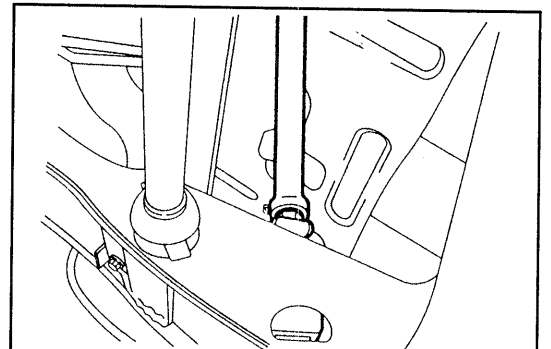
NOTE:

- Since the shape of the torsion bar spring differs between the right side and the left side, be sure to put mating marks, so that the torsion bar springs may be installed correctly in their original positions.



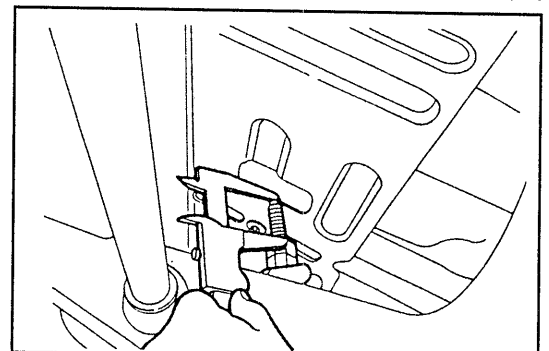
WRU90-FS209

4. Loosen the lock nut of the anchor bolt, until the reaction force of the torsion bar spring is just eliminated.



WRU90-FS210

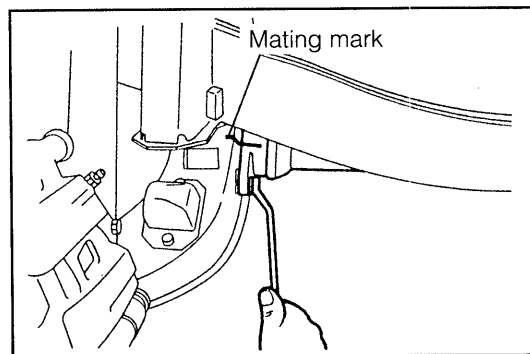
5. Measure the protruding dimension of the anchor bolt.
Record the measured value.



WRU90-FS211

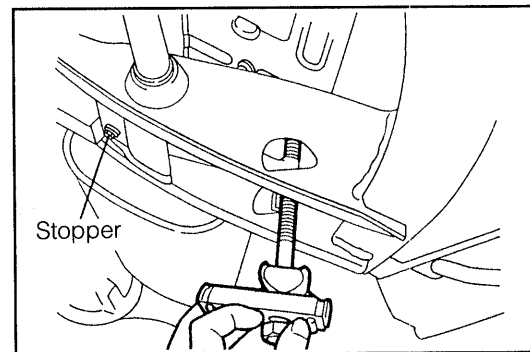
FRONT AXLE & SUSPENSION

6. Remove the torque arm from the lower arm by removing the torque arm attaching bolt.



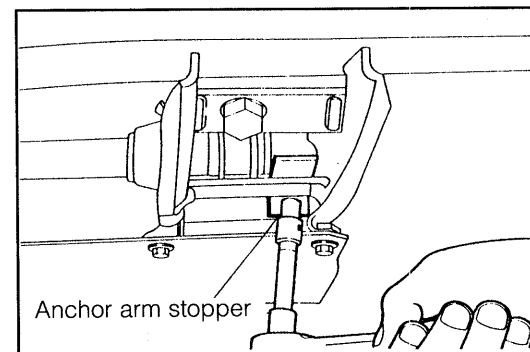
WRU90-FS212

7. Remove the adjusting seat from the anchor arm. Then, remove the anchor arm swivel together with the anchor bolts, nuts and anchor arm adjusting seat from the frame.



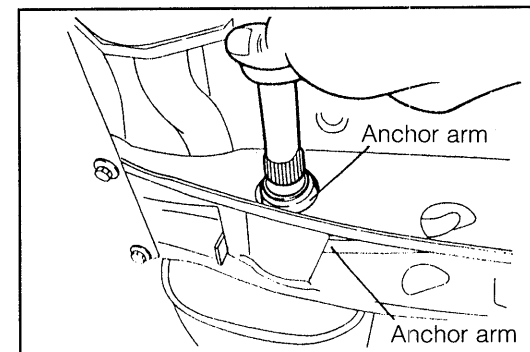
WRU90-FS213

8. Remove the anchor arm stopper from the frame.



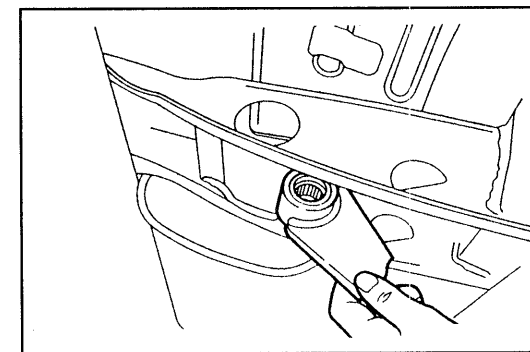
WRU90-FS214

9. Pull out the torsion bar spring from the anchor arm.



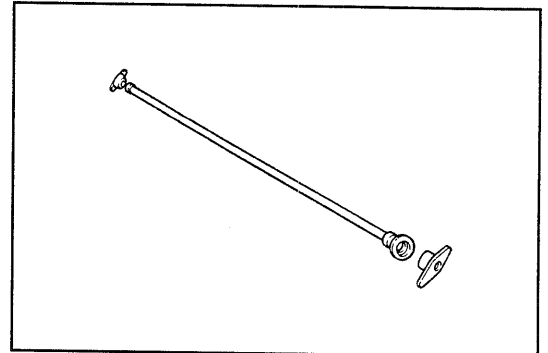
WRU90-FS215

10. Remove the anchor arm from the frame.



WRU90-FS216

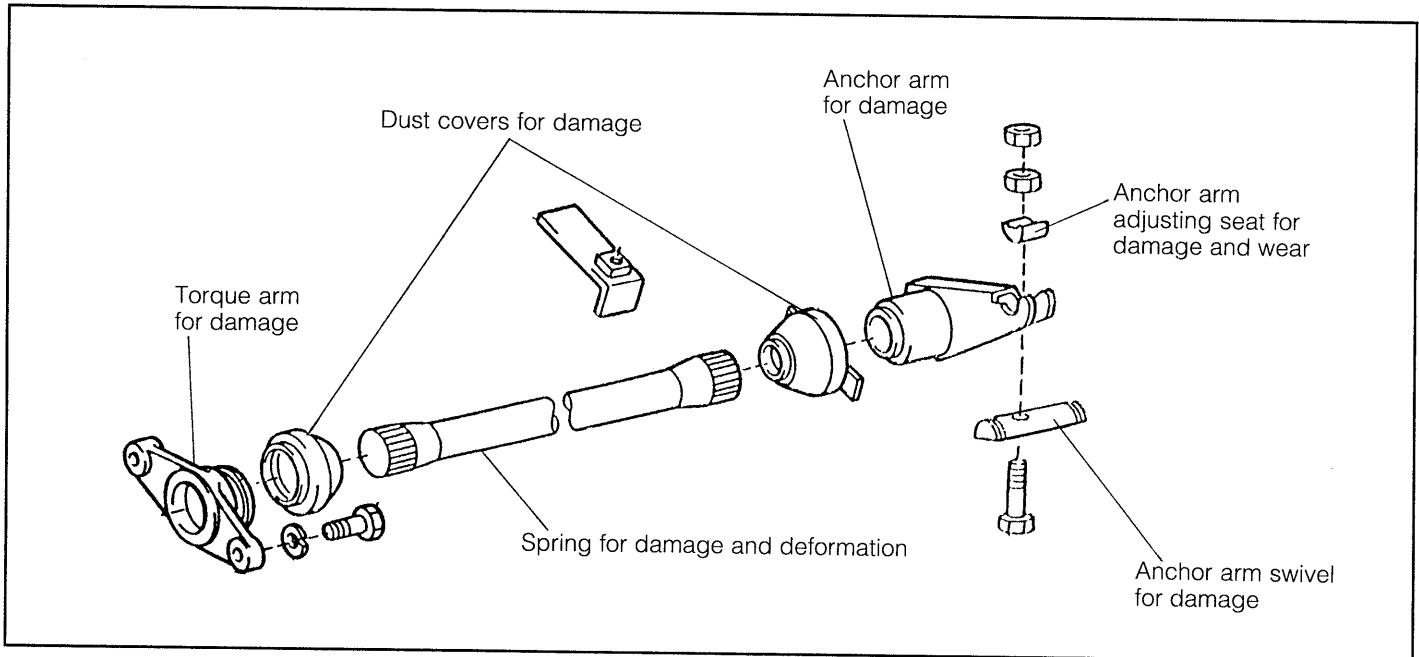
- Remove the torque arm and dust covers from the torsion bar spring.



WRU90-FS217

INSPECTION

Check the following parts. Replace any defective parts.



NOTE:

- Torsion bar springs for the right and for the left are the designated parts exclusively for each side. Care must be exercised as to the following identification marks.

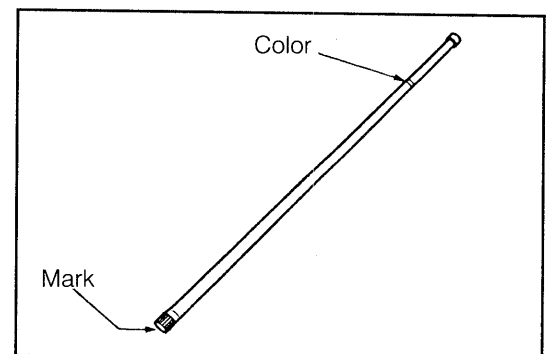
WRU90-FS218

<Identification Marks>

	Left side	Right side
Color	Blue	Orange
Mark		

CAUTION:

- As respects the torsion bar springs, be sure to observe the combination above.
- If this caution should fail to be observed, the running performance may drop significantly.



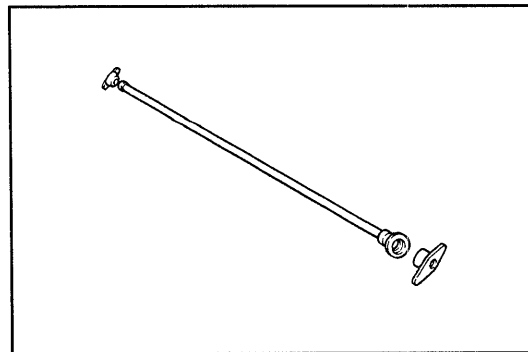
WRU90-FS219

INSTALLATION

1. Install the dust covers and torque arm to the torsion bar.

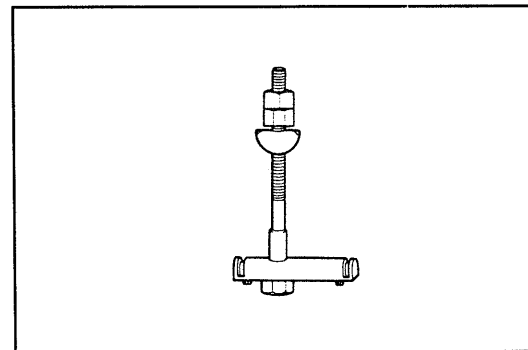
NOTE:

- Make sure that the front and rear dust covers are installed correctly in their respective positions.



WRU90-FS220

2. Install the anchor arm swivel, anchor arm stopper and lock nut to the anchor bolt.



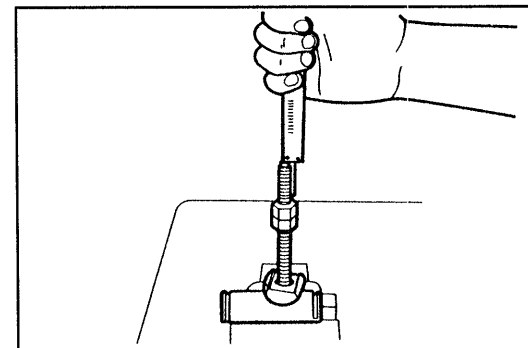
WRU90-FS221

3. Adjust the length from the anchor bolt end to the lock nut upper surface to the specified value.

Specified Value: 30 mm (1.18 inch)

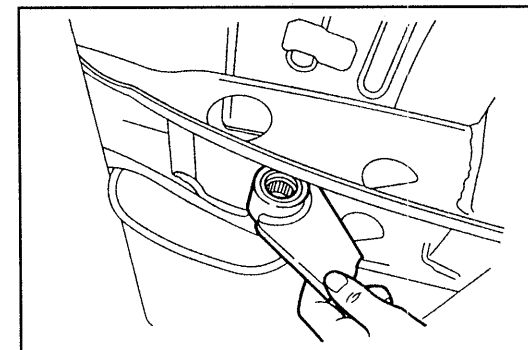
NOTE:

- In cases where the torsion bar, anchor arm and torque arm are reused, set their positions to the original heights measured during the disassembly.



WRU90-FS222

4. Insert the anchor arm into the frame.

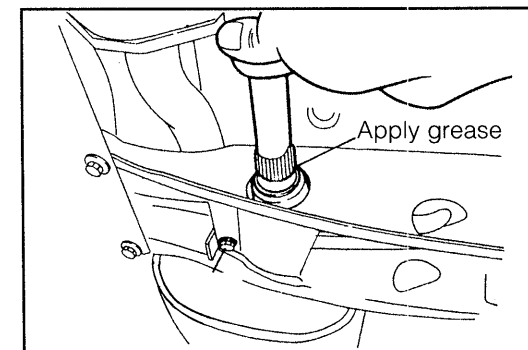


WRU90-FS223

5. Apply MP grease to the torsion bar spline section. Connect the torsion bar to the anchor arm.

NOTE:

- In cases where the torsion bar, torque arm and anchor arm are reused, align the mating marks put during the removal.

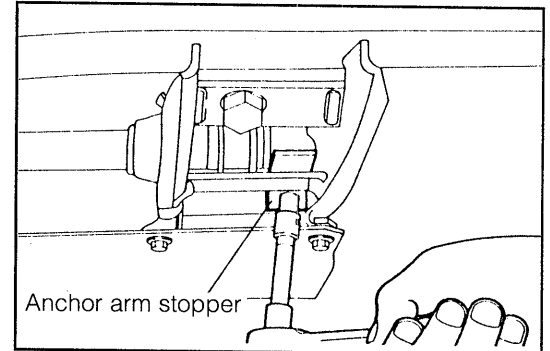


WRU90-FS224

6. Install the anchor arm stopper.

Tightening Torque:

0.5 - 0.8 kgf-m (3.6 - 5.8 ft-lb, 4.9 - 7.8 N-m)

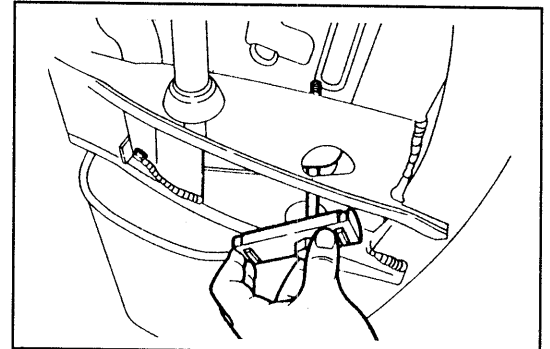


WRU90-FS225

7. Install the anchor arm stopper to the anchor. Install the anchor swivel to the frame.

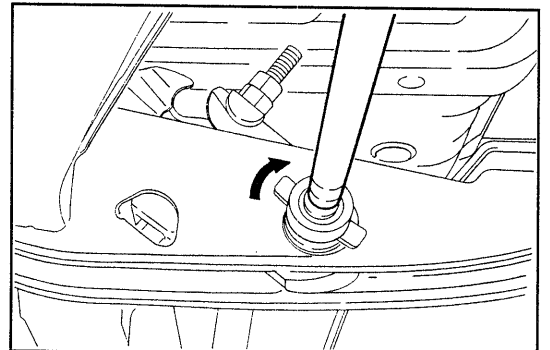
NOTE:

- Make sure that the anchor arm swivel is inserted into the frame positively.



WRU90-FS226

8. Turn the torque arm. Ensure that the anchor arm stopper and anchor swivel come at their correct positions.

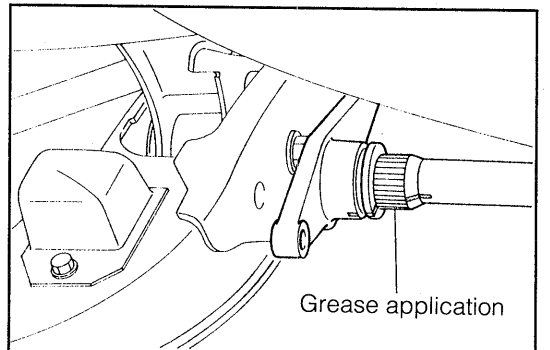


WRU90-FS227

9. Under the condition described in the step 8, apply lithium-based MP grease to the spline section of the torsion bar spring. Install the torque arm to the lower arm.

Tightening Torque:

4.0 - 5.5 kgf-m (28.9 - 39.8 ft-lb, 39.2 - 53.9 N-m)



WRU90-FS228

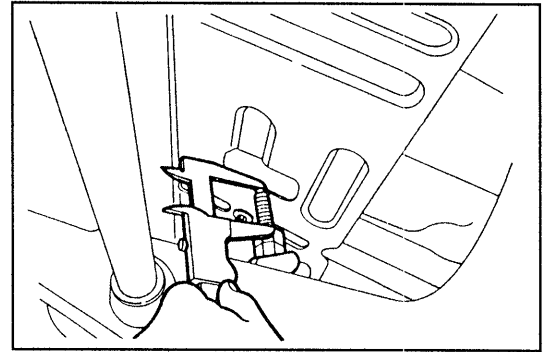
NOTE:

- In cases where the torque arm, torsion bar spring and anchor arm are reused, install the torque arm to the lower arm while aligning the mating marks put during the removal.
- At this time, make sure that the anchor arm stopper and anchor swivel are placed at their correct positional relationship and that no excessive play is present.

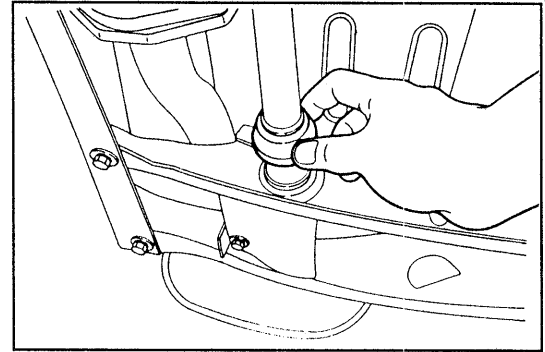
WRU90-FS229

FRONT AXLE & SUSPENSION

10. While preventing the lock nut at the frame side from turning, adjust the anchor bolt so that the protruding dimension of the anchor bolt may become the value measured before the disassembly.



11. Install the dust covers to the torque arm and anchor arm.



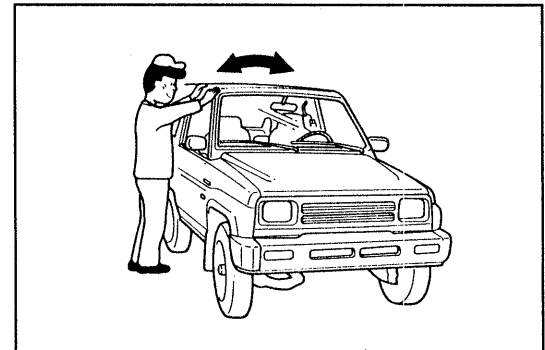
12. Remove the safety stands.

13. Check and adjustment of vehicle height

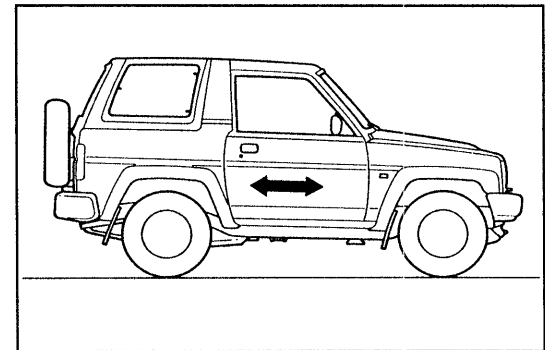
Confirmation items prior to check and adjustment

- Ensure that the designated tires are installed.
- Ensure that the tires are inflated to the specified air pressure. Also, ensure that the air inflation pressure is uniform on the four tires.
- Ensure that the vehicle is under no-loaded state.
- Ensure that the floor where the check and adjustment are carried out is level.

- (1) Rock the vehicle several times so as to stabilize the suspensions.

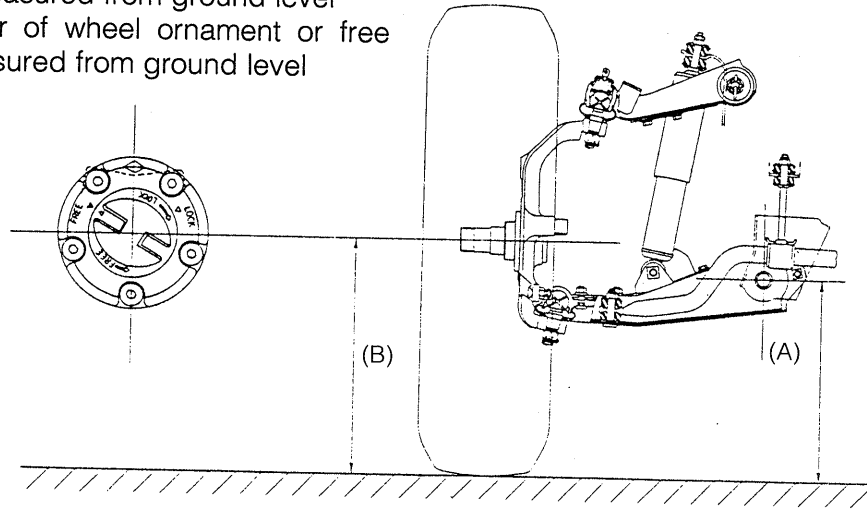


- (2) Move the vehicle about three meters twice in a fore-and-aft direction.



- (3) Measure the distance from the center of the front ornament or the free wheel hub to the ground level. Also, measure the distance from the center of the attaching bolt of the lower arm at the front side to the ground level. Record the measured values.

- (A): Height of center of attaching bolt at front side of lower arm, measured from ground level
(B): Height of center of wheel ornament or free wheel hub, measured from ground level



WRU90-FS234

- (4) Calculate the measured value. Ensure that the difference conforms to the specified value. However, the variation in the specified value between the right and left sides should be within 10 mm.

B - A = Specified value

Specified Value: 36 ± 10 mm (1.42 ± 0.39 inches)

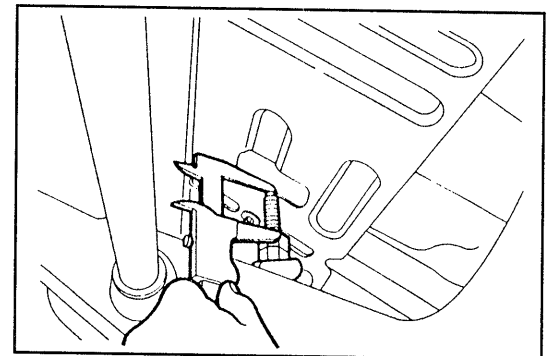
If the calculated results do not conform to the specified value or the variation in height between the right and left sides is 10 mm (0.39 inch) or more, adjust the vehicle height by means of the anchor bolt.

After the adjustment, repeat the operation from the step (1).

14. Measure the protruding dimension of the anchor bolt. Ensure that the variation between the right and left sides is within 10 mm (0.39 inch).

If not, replace the torsion bar spring.

Prior to the replacement of the torsion bar, recheck to ensure that the spline exhibits no displacement under assembled condition.



WRU90-FS235

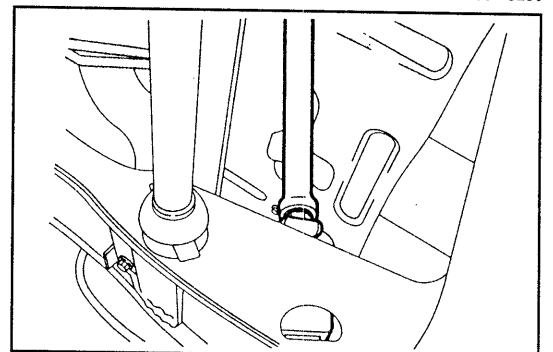
15. Tighten the lock nut of the anchor bolt and lock it.

Tightening Torque:

7.0 - 9.0 kgf-m (50.6 - 65.1 ft-lb, 68.6 - 88.3 N-m)

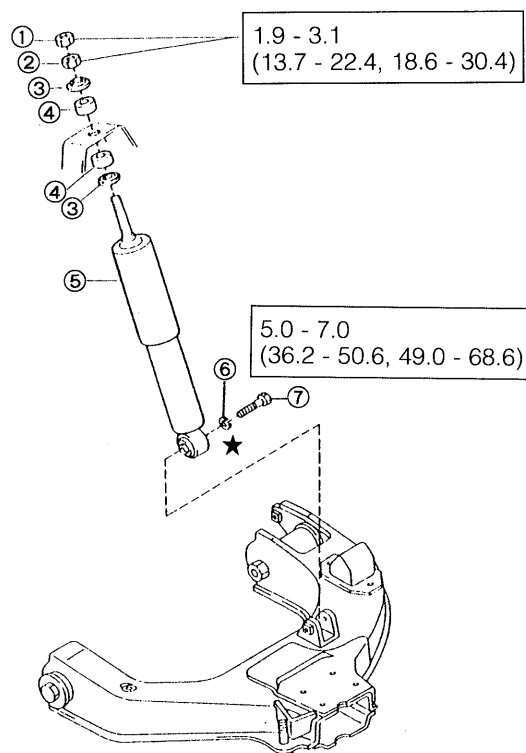
NOTE:

- As regards the tightening of the lock nut, be sure to prevent the lower nut from turning, using a spanner or the like. Then, tighten the upper nut.



WRU90-FS237

FRONT SHOCK ABSORBERS COMPONENTS



□ : Tightening torque
Unit : kgf-m (ft-lb, N-m)

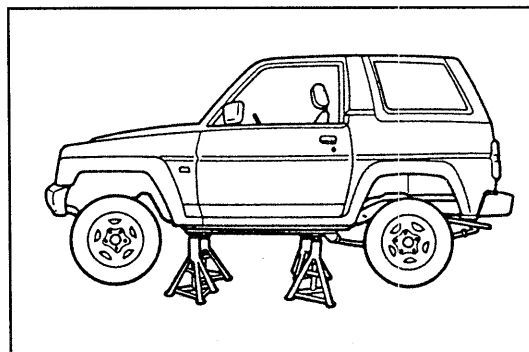
- ① Nut
- ② Nut
- ③ Washer plate
- ④ Cushion

- ⑤ Front shock absorber
- ⑥ Washer
- ⑦ Bolt

WRU90-FS238

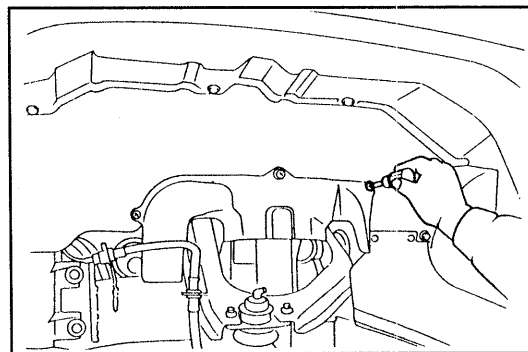
REMOVAL

1. Jack up the vehicle and support it with safety stands.
(See GI section.)



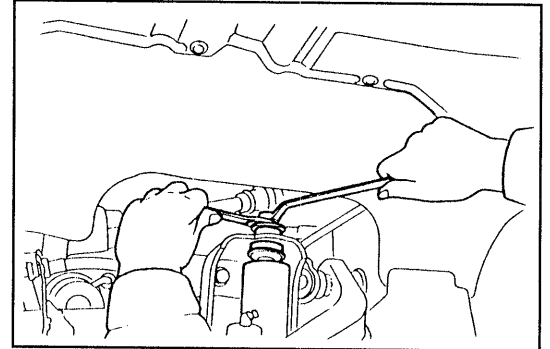
WRU90-FS239

2. Remove the dust cover.



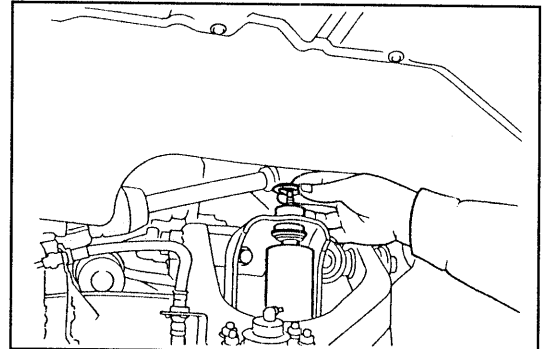
WRU90-FS240

3. Loosen the lock nut.
4. While preventing the lock nut and attaching nut from turning at the top of the shock absorber, remove them.



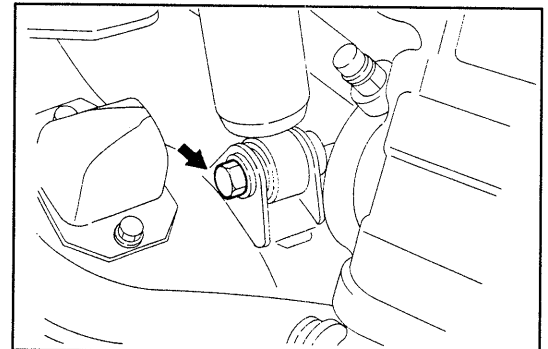
WRU90-FS241

5. Remove the plate washer and cushion.



WRU90-FS242

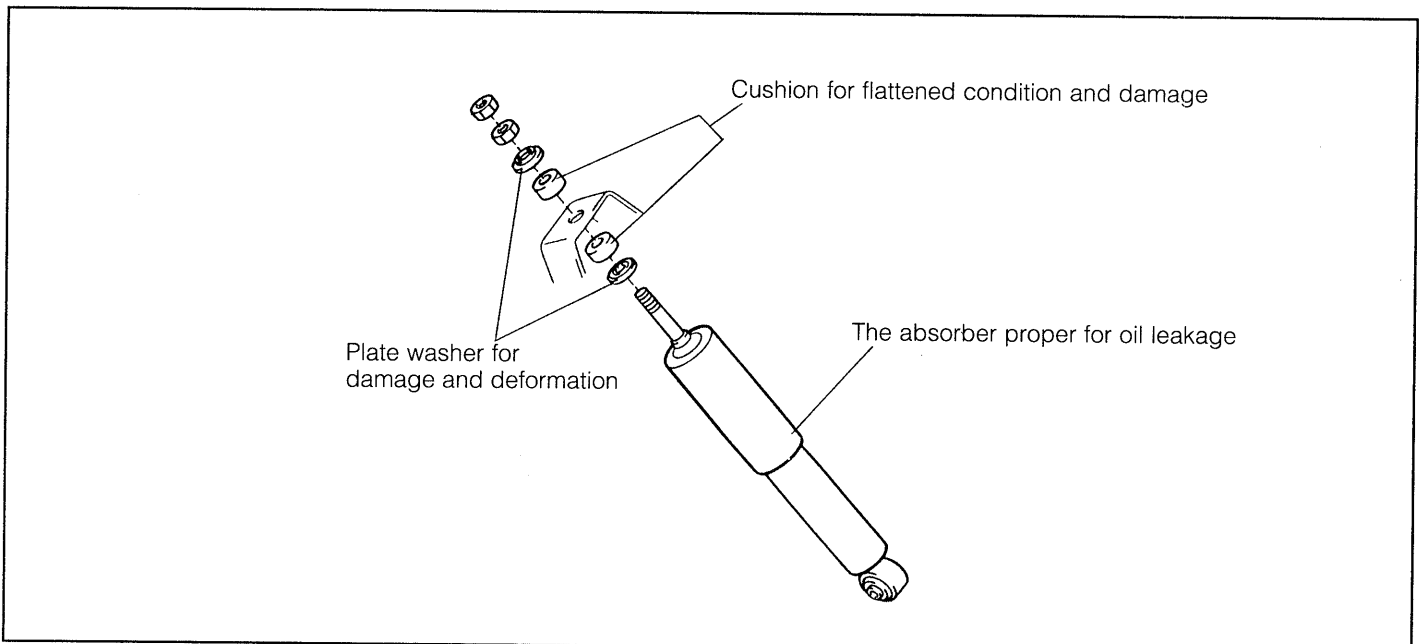
6. Remove the bolt connecting the shock absorber to the lower arm. Remove the shock absorber.
7. Remove the cushion and washer plate from the shock absorber.



WRU90-FS243

INSPECTION

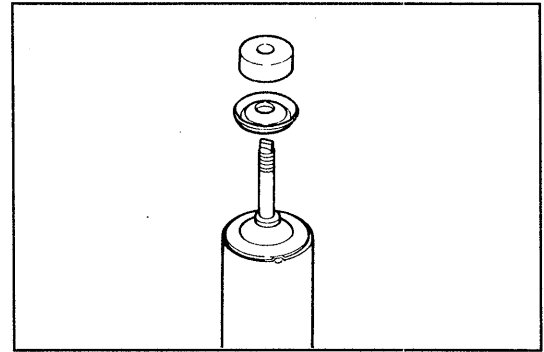
Check the following parts. Replace any defective parts.



WRU90-FS244

INSTALLATION

1. Install the washer plate and cushion to the shock absorber.

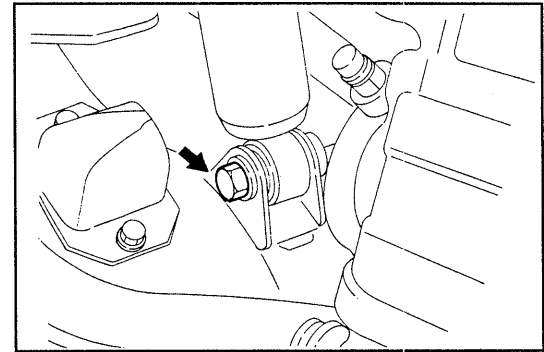


WRU90-FS245

2. Insert the shock absorber into the attaching hole at the chassis side.
3. With the shock absorber contracted, connect the shock absorber to the lower arm attaching section. Tighten the attaching bolt.

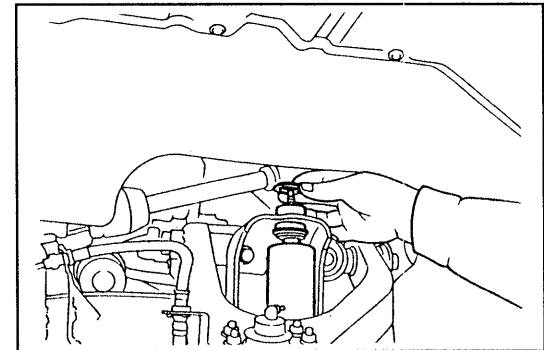
Tightening Torque:

5.0 - 7.0 kgf-m (36.2 - 50.6 ft-lb, 49.0 - 68.6 N·m)



WRU90-FS246

4. Install the cushion and washer plate.



WRU90-FS247

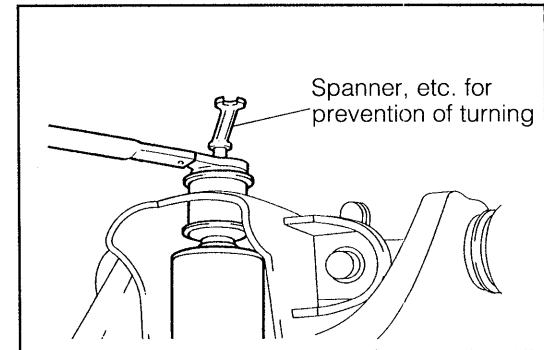
5. Install the attaching nut to the top of the shock absorber. While preventing the attaching nut from turning, tighten the nut to the specified torque.

Tightening Torque:

1.9 - 3.1 kgf-m (13.7 - 22.4 ft-lb, 18.6 - 30.4 N·m)

NOTE:

Nut thickness: 8 mm (0.31 inch)



WRU90-FS248

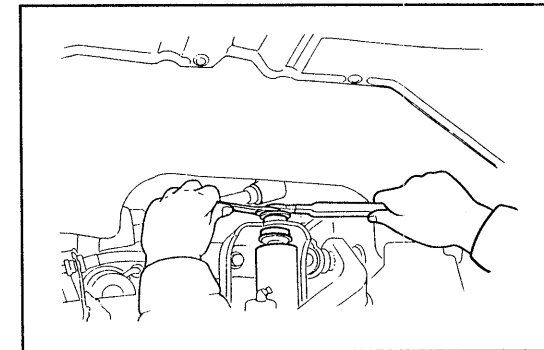
6. Install the lock nut and tighten it to the specified torque.

Tightening Torque:

1.9 - 3.1 kgf-m (13.7 - 22.4 ft-lb, 18.6 - 30.4 N·m)

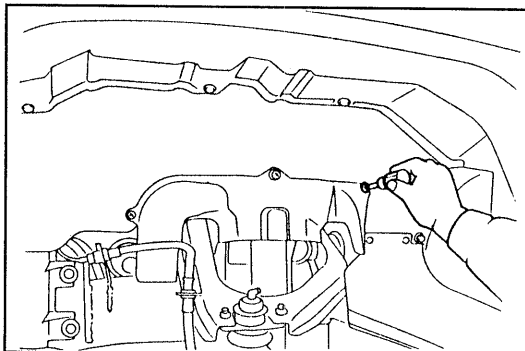
NOTE:

Nut thickness: 6 mm (0.23 inch)



WRU90-FS249

7. Install the dust cover.

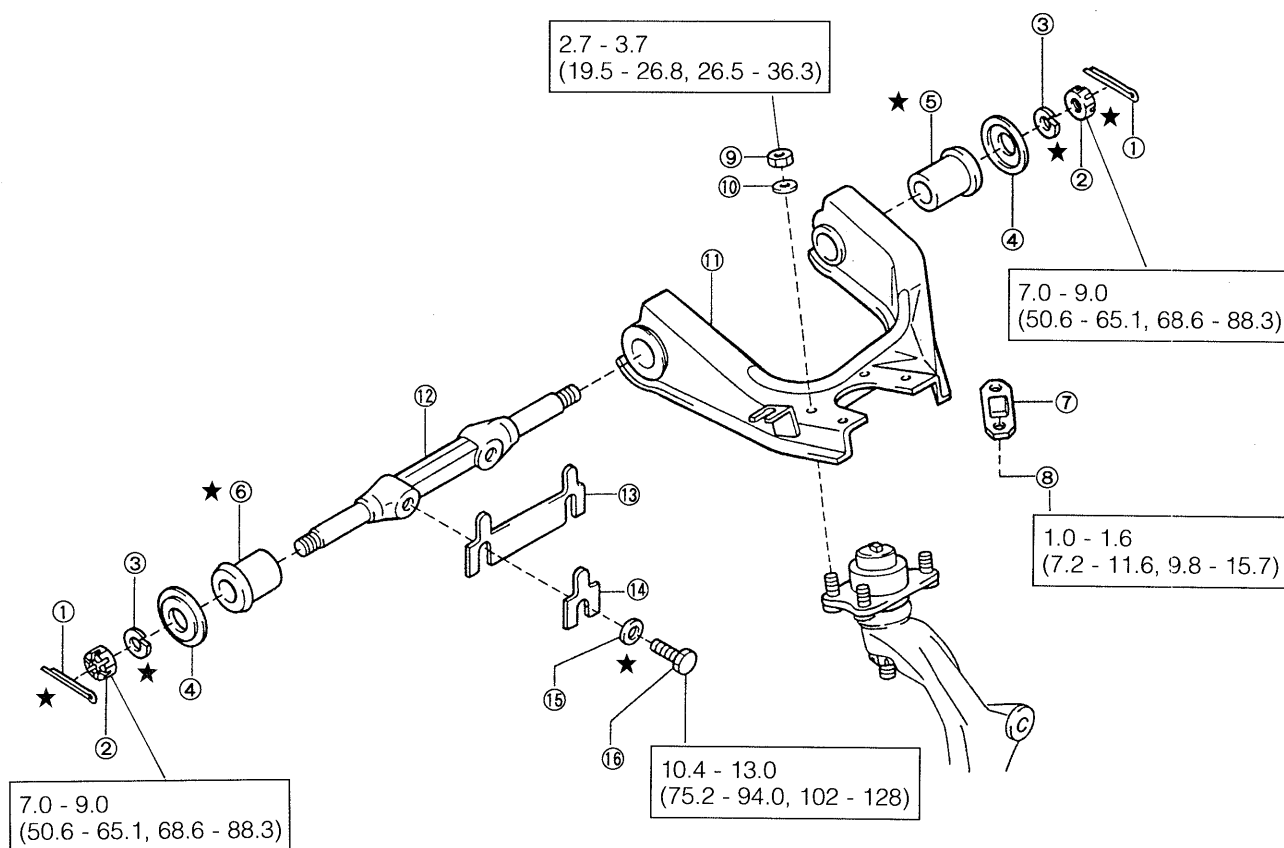


WRU90-FS250

8. Jack up the vehicle and remove the safety stands. Then, jack down the vehicle.

WRU90-FS251

UPPER ARMS COMPONENTS



- ① Cotter pin
- ② Castle nut
- ③ Washer
- ④ Washer plate
- ⑤ Upper arm bush
- ⑥ Upper arm bush
- ⑦ Front spring bumper
- ⑧ Bolt

- ⑨ Nut
- ⑩ Washer
- ⑪ Suspension upper arm sub assembly
- ⑫ Suspension upper arm shaft
- ⑬ Camber adjust shim No. 1
- ⑭ Camber adjust shim No. 2
- ⑮ Washer
- ⑯ Bolt

WRU90-FS252

TROUBLE SHOOTING

Symptom	Possible causes	Checking points
Improper front alignment (Improper camber and caster)	Bush worn or damaged Upper arm damaged or deformed	Check bush. Check upper arm.

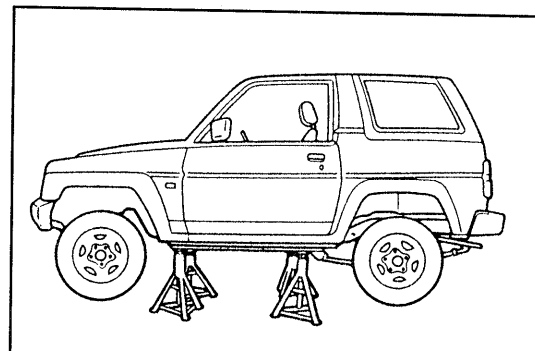
WRU90-FS253

REMOVAL

1. Remove the torsion bar.
(See page FS-60 to FS-63.)

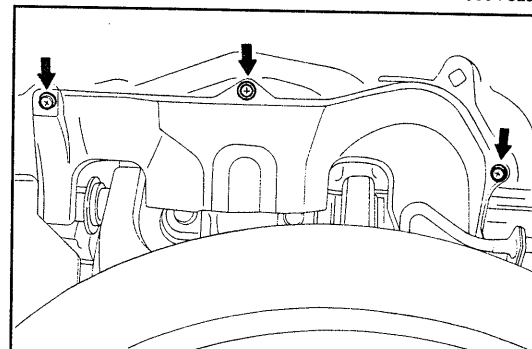
WRU90-FS254

2. Support the front frame with jacks. Lower the vehicle, until the front tires come in contact with the floor surface.
3. Support the vehicle with safety stands.



WRU90-FS255

4. Remove the dust cover by removing the attaching clip.

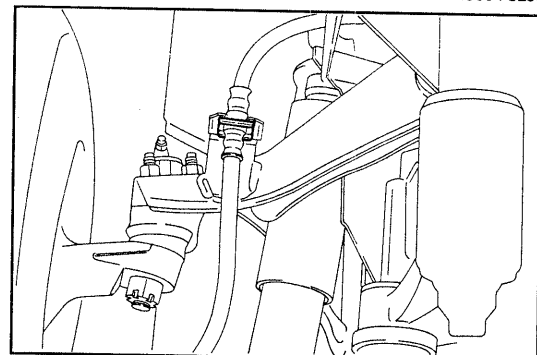


WRU90-FS256

5. Pull out the clip. Disconnect the brake hose from the upper arm.

NOTE:

- Do not reuse the clip.

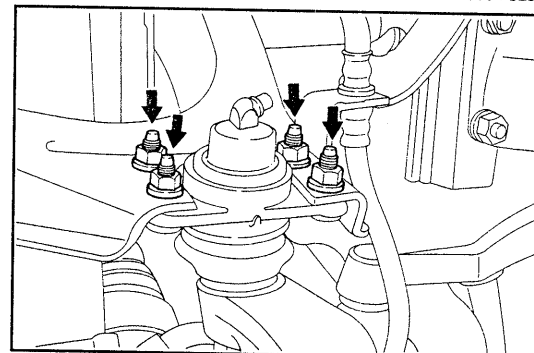


WRU90-FS257

6. Remove the attaching nut at the upper arm ball joint side.

NOTE:

- Do not reuse the spring washer.



WRU90-FS258

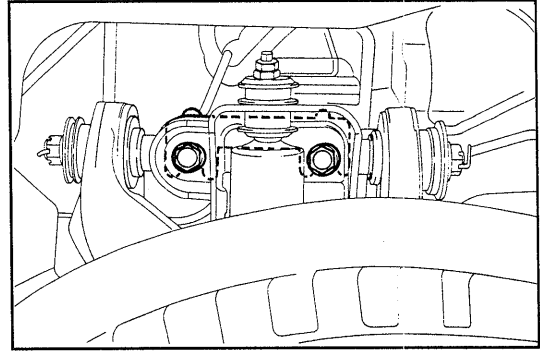
FRONT AXLE & SUSPENSION

- Remove the camber adjusting shim by loosening the upper arm attaching bolts.

NOTE:

- Record the number, kind and installation position of the removed shim.

- Remove the upper arm by removing the upper arm attaching bolts.



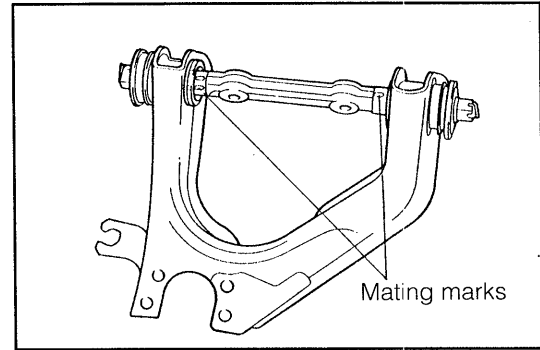
WRU90-FS259

DISASSEMBLY

- Put mating marks at points between the upper arm and the upper shaft.

NOTE:

- Putting marks are required, only when either the upper arm or the upper shaft is reused.



WRU90-FS260

- Remove the cotter pin.

NOTE:

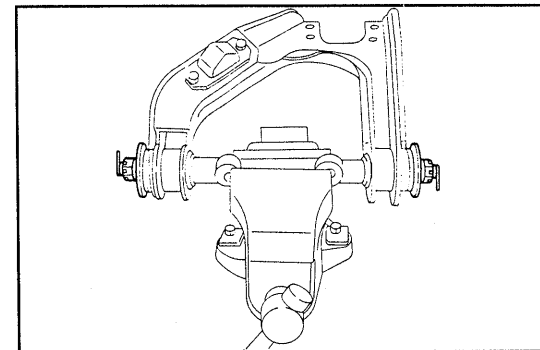
- Never reuse the cotter pin.

- Remove the castle nuts.

- Remove the washer and washer plate.

NOTE:

- Never reuse the washer.



WRU90-FS261

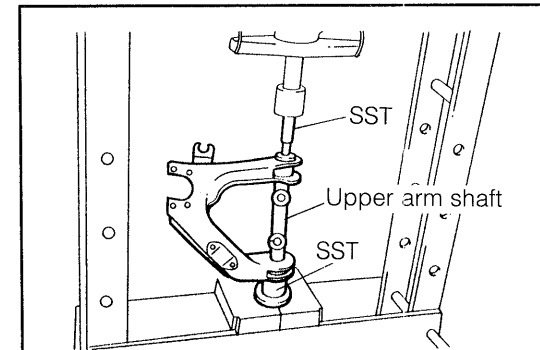
- Removal of upper arm bush (at rear side)
Remove the upper arm shaft together with the upper arm bush, using a hydraulic press in combination with the following SST.

SST: 09608-87612-000

09608-87609-000

NOTE:

- Be very careful not to drop the upper arm shaft.

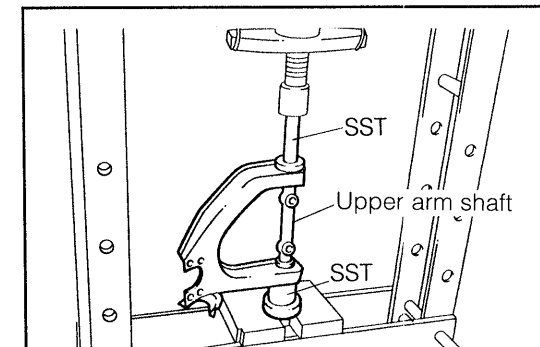


WRU90-FS262

- Removal of upper arm bush (at front side)
Remove the upper arm bush, using a hydraulic press in combination with the following SST.

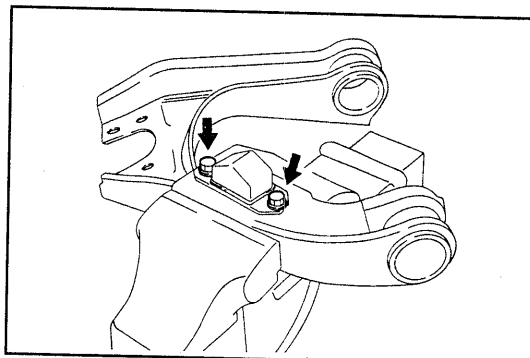
SST: 09608-87612-000

09608-87609-000



WRU90-FS263

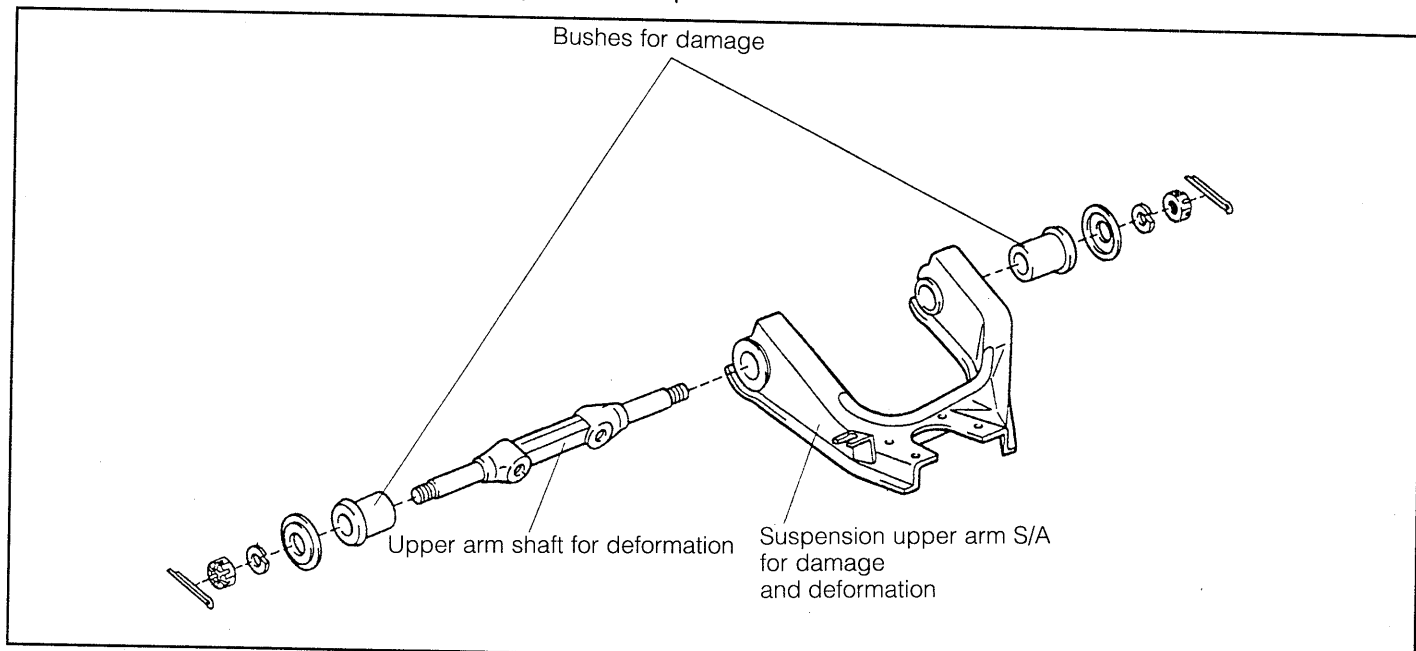
- Remove the front spring bumper from the upper arm.



WRU90-FS264

INSPECTION

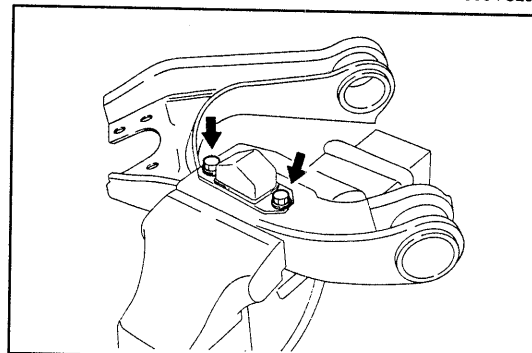
Check the following parts. Replace any defective parts.



WRU90-FS265

ASSEMBLY OF SUSPENSION ARM

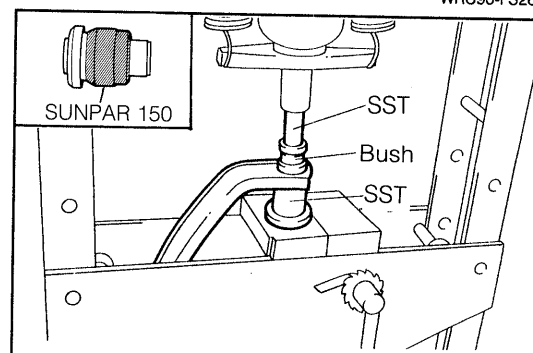
- Install the front spring bumper to the upper arm.
Tightening Torque:
1.0 - 1.6 kgf-m (7.2 - 11.6 ft-lb, 9.8 - 15.7 N·m)



WRU90-FS266

- Installation of upper arm bush (at front side)
 - Apply the SUNPAR 150® to the press-fitting section of a new bush.
 - Press the bush into the upper arm, using a hydraulic press in combination with the following SST.

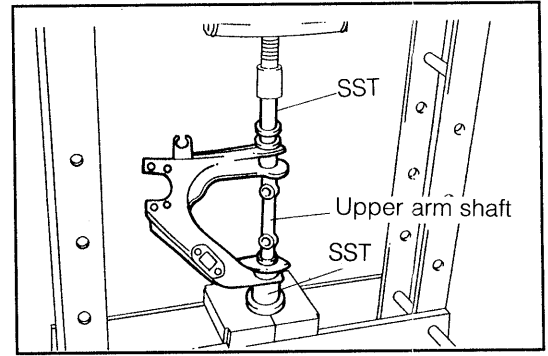
SST: 09608-87612-000
09608-87610-000



WRU90-FS267

FRONT AXLE & SUSPENSION

3. Installation of upper arm bush (at rear side)
 - (1) Install the upper arm shaft to the upper arm.
 - (2) Press the upper arm bush, using a hydraulic press in combination with the following SST.SST: 09608-87612-000
09608-87610-000



WRU90-FS268

4. Install the plate washer and washer.
5. Tighten the castle nut while aligning the mating marks which have been put at the upper arm and upper arm shaft during the disassembly. (In cases where the upper arm and upper arm shaft are reused.)

Tightening Torque:

7.0 - 9.0 kgf-m (50.6 - 65.0 ft-lb, 68.6 - 88.3 N·m)

NOTE:

- Align the cotter pin hole with the cotter pin groove during the tightening.

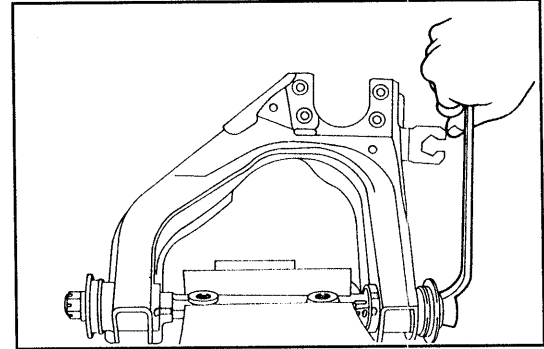
6. Set the upper arm and upper shaft in such a way that they are placed at their positional relationship as indicated in the right figure.

Tightening Torque:

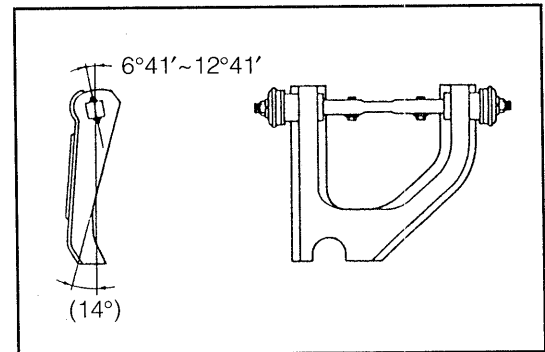
7.0 - 9.0 kgf-m (50.6 - 65.0 ft-lb, 68.6 - 88.3 N·m)

NOTE:

- Align the cotter pin hole with the cotter pin groove during the tightening.



WRU90-FS270

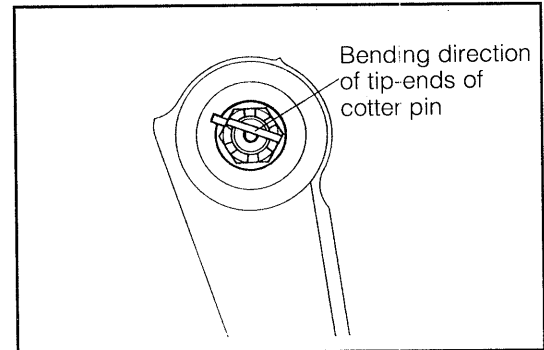


WRU90-FS271

7. Install the new cotter pin and bend its tip-ends, as indicated in the right figure.

NOTE:

- Do not reuse the cotter pin.



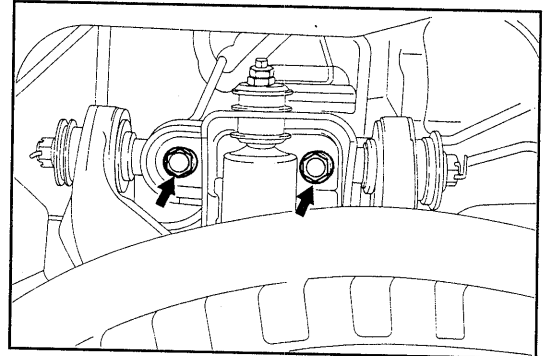
WRU90-FS272

INSTALLATION

1. Temporarily install the upper arm shaft to the chassis with bolts and new washers interposed.

NOTE:

- Never reuse the washer

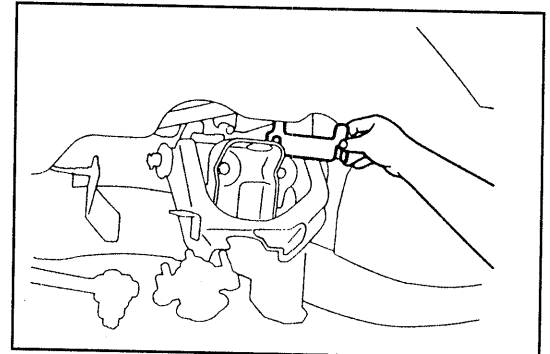


WRU90-FS273

2. Insert the camber adjusting shim into between the upper arm shaft and the chassis.

NOTE:

- Make sure that the correct number and kind of shims are installed in their respective installation positions.

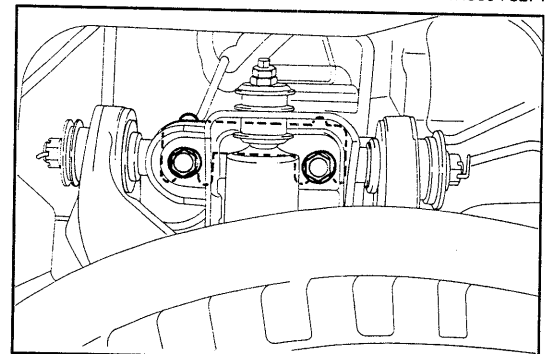


WRU90-FS274

3. Tighten the upper arm shaft attaching bolts.

Tightening Torque:

10.4 - 13.0 kgf-m (75.2 - 94.0 ft-lb, 102 - 128 N-m)



WRU90-FS275

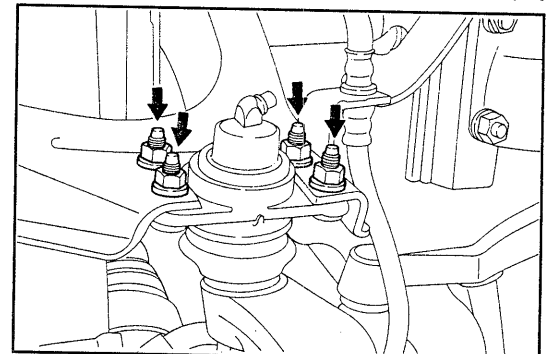
4. Connect the upper arm ball joint to the upper arm. Tighten the attaching nuts with a new washer interposed.

Tightening Torque:

2.7 - 3.7 kgf-m (19.5 - 26.8 ft-lb, 26.5 - 36.3 N-m)

NOTE:

- Never reuse the washer.

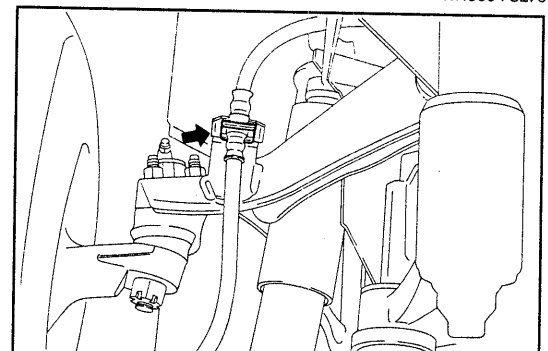


WRU90-FS276

5. Connect the brake hose to the upper arm. Install a new clip.

NOTE:

- Never reuse the clip.



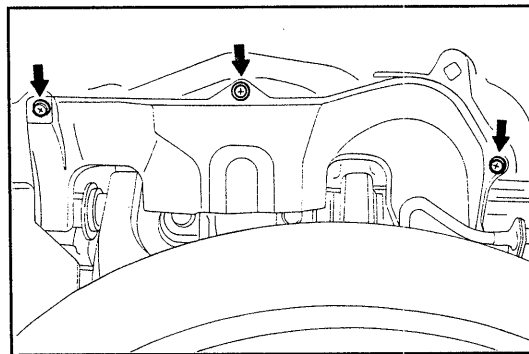
WRU90-FS277

FRONT AXLE & SUSPENSION

6. Install the torsion bar.
(See page FS-63 to FS-67.)
7. Check and adjust the front wheel alignment.
(See page FS-21 to FS-25)

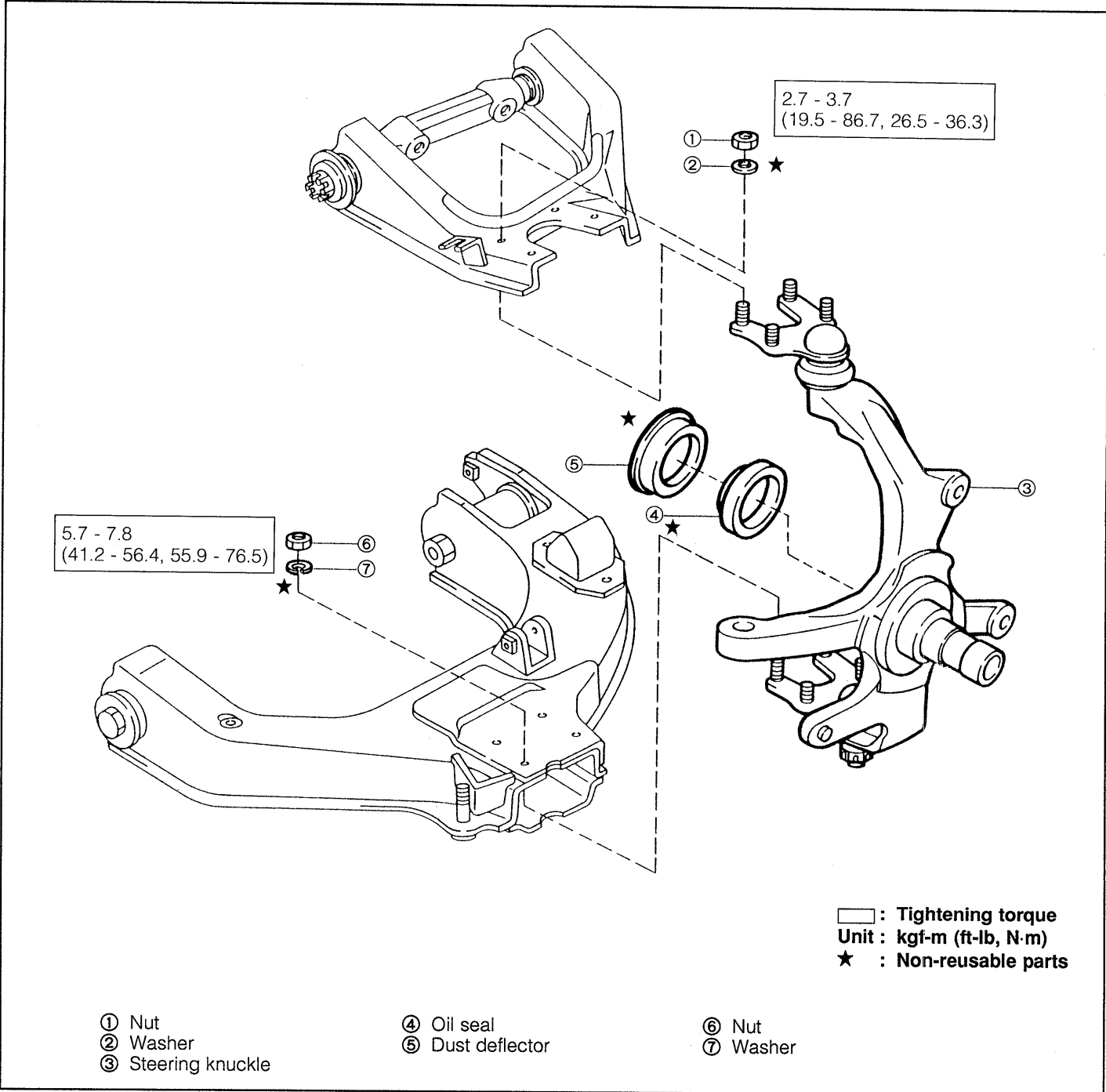
WRU90-FS278

8. Install the dust cover.



WRU90-FS279

STEERING KNUCKLES
COMPONENTS



WRU90-FS280

TROUBLE SHOOTING

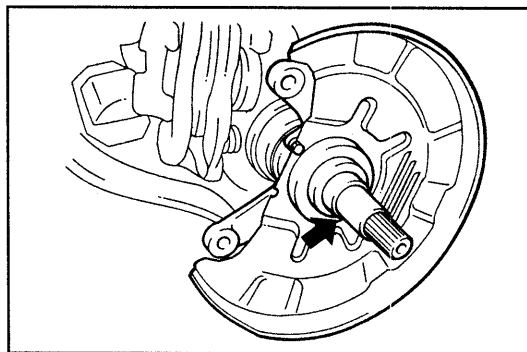
Symptom	Possible causes	Checking points
Oil leakage	Oil seal damaged Oil seal improperly installed	Installing condition of oil seal
Abnormal noise	Bush seized	Check inner bush.

WRU90-FS281

REMOVAL

1. Remove the stabilizer bar.
(See page FS-55 to FS-57.)
2. Remove the torsion spring.
(See page FS-60 to FS-63.)
3. Remove the front axle hub.
(See page FS-31 to FS-33.)
4. Check of steering knuckle
Ensure that each section of the steering knuckle exhibits no damage, such as cracks and wear.
If any damage is present, replace the steering knuckle.

WRU90-FS282

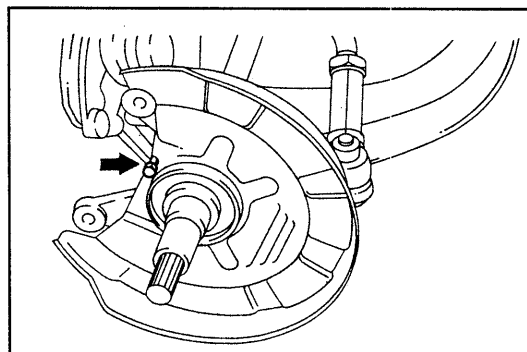


WRU90-FS283

Only when the brake disc dust cover is replaced, remove the brake disc dust cover attaching bolts. Then, remove the brake disc dust cover by lightly tapping it with a plastic hammer or the like.

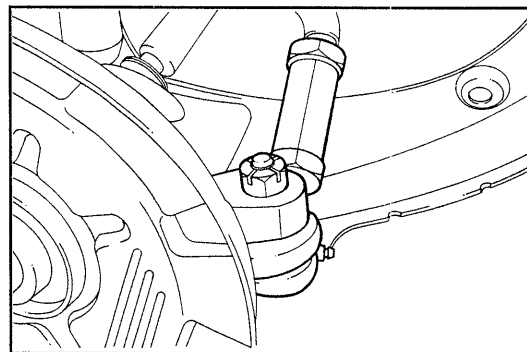
NOTE:

- Do not reuse the removed brake disc dust cover.



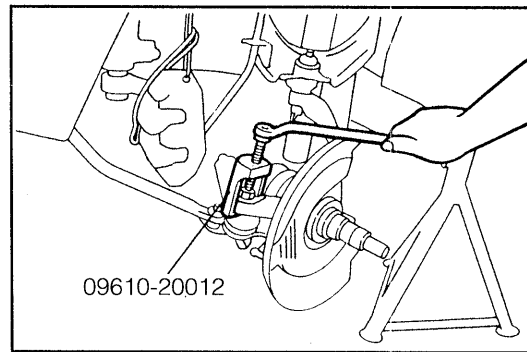
WRU90-FS284

5. Removal of tie rod end
 - (1) Remove the cotter pin of the tie rod end attaching nut.
 - (2) Remove the attaching nut.



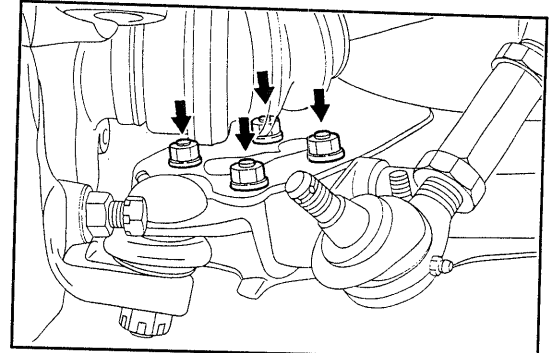
WRU90-FS285

- (3) Remove the tie rod end from the steering knuckle, using the following SST.
SST: 09610-20012-000
(See page SR-55.)



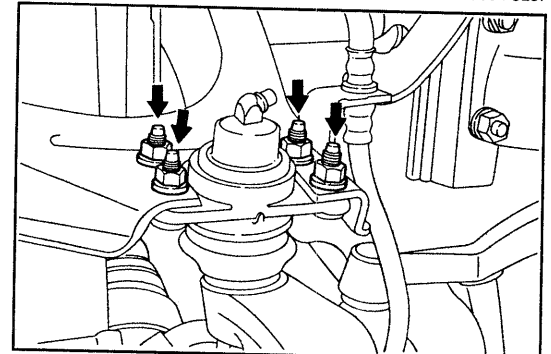
WRU90-FS286

6. Remove the lower arm ball joint attaching nut from the lower arm.



WRU90-FS287

7. Remove the upper arm ball joint attaching nut from the upper arm.

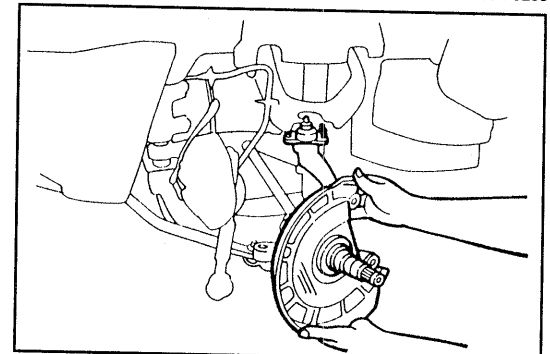


WRU90-FS288

8. Remove the steering knuckle.

NOTE:

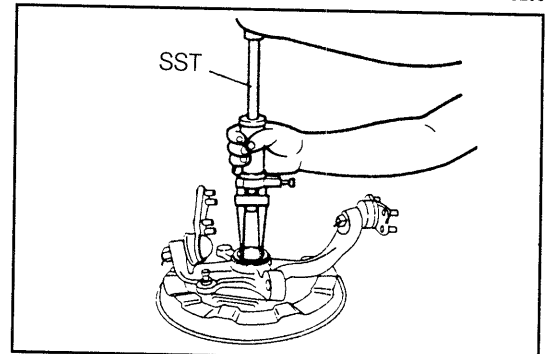
- Be very careful not to scratch the drive shaft during the removal.



WRU90-FS289

9. Remove the oil seal, using the following SST.

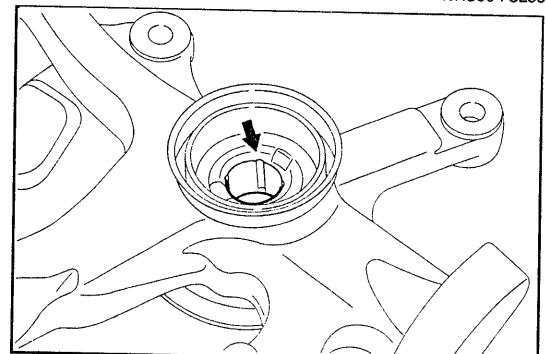
SST: 09308-00010-000



WRU90-FS290

10. Check of steering knuckle bush

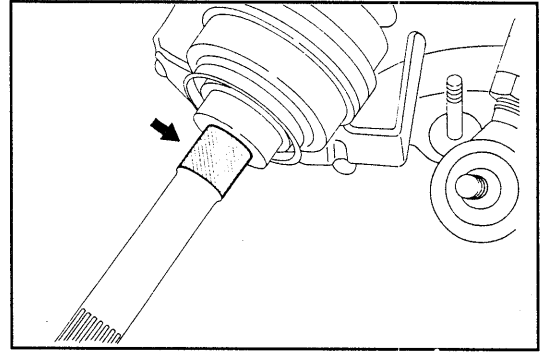
- (1) Ensure that the steering knuckle bush exhibits no seizure and abnormal wear.
If any defect is present, replace the steering knuckle and drive shaft.



WRU90-FS291

FRONT AXLE & SUSPENSION

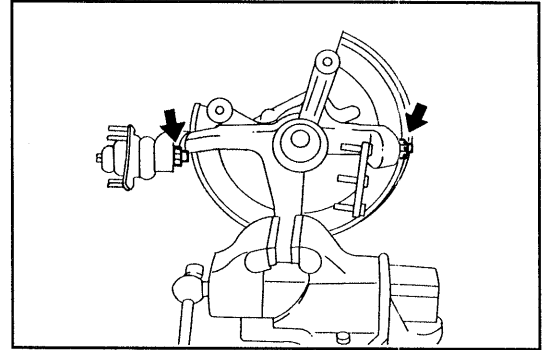
- (2) Ensure that the steering knuckle bush contact surface of the drive shaft exhibits no seizure and abnormal wear.
If any defect is present, replace the steering knuckle and drive shaft.



WRU90-FS29

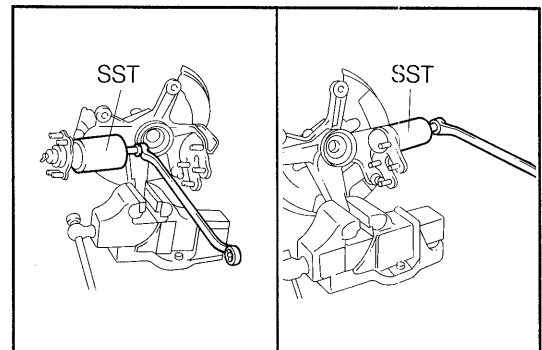
11. Removal of ball joints

- (1) Remove the cotter pin.
(2) Loosen the castle nut.



WRU90-FS293

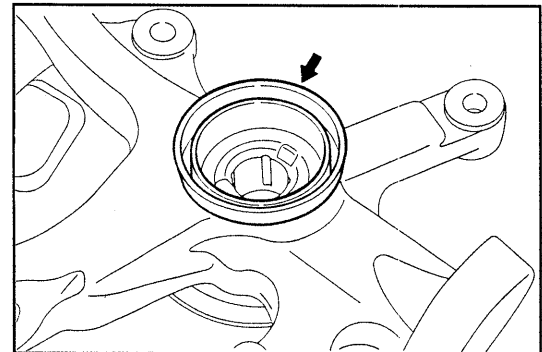
- (3) Remove the ball joints from the steering knuckle, using the following SST.
SST: 09610-20012



WRU90-FS294

12. Check of dust deflector

Check the dust deflector for damage, such as deformation.
If any damage is present, replace the dust deflector.



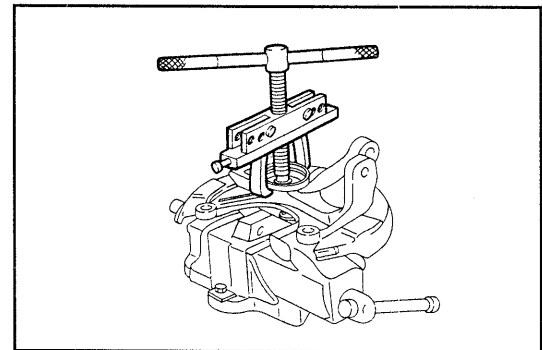
WRU90-FS295

13. Removal of dust deflector

(Only when the removal is required)
Remove the dust deflector, using the following SST.
SST: 09950-20017-000

NOTE:

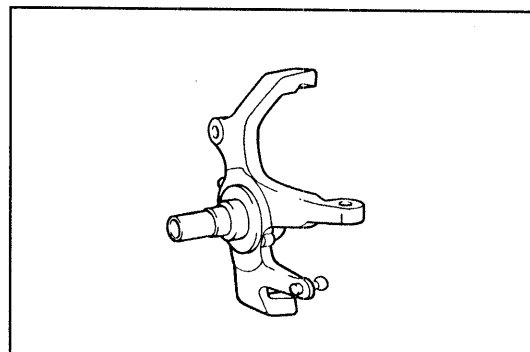
- Do not reuse the dust deflector.



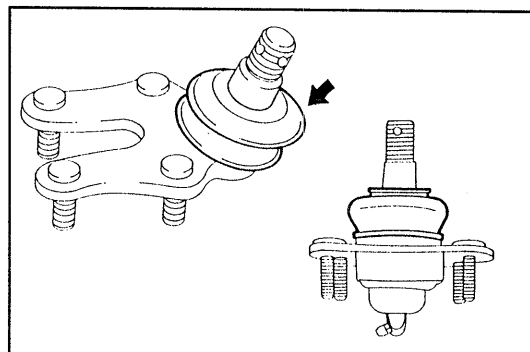
WRU90-FS296

INSPECTION

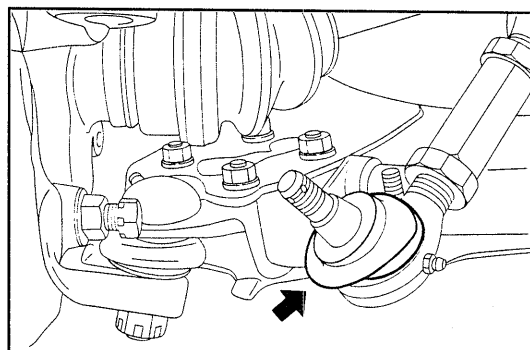
1. Steering knuckle
Ensure that the steering knuckle exhibits no damage, such as wear, seizure and cracks.
If any damage is present, replace the steering knuckle.
2. Check of upper and lower ball joints
Ensure that the boot sections of the upper and lower ball joints exhibit no damage.
If any damage is present, replace the boot.
(See page FS-103.)
3. Check of tie rod end
Ensure that the boot section of the tie rod end exhibits no damage.
If any damage is present, replace the boot.
(See page SR-60.)



WRU90-FS297



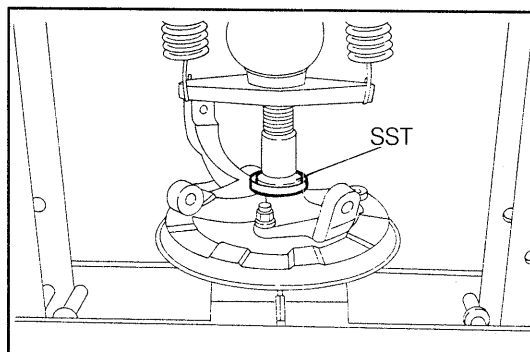
WRU90-FS298



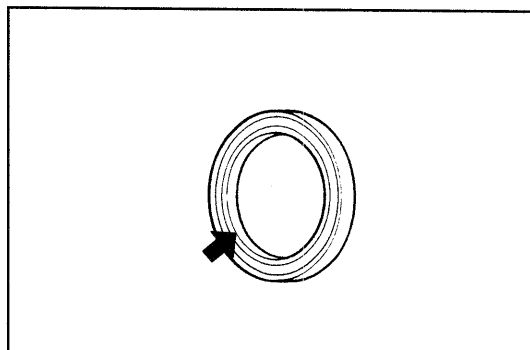
WRU90-FS299

INSTALLATION OF STEERING KNUCKLE

1. Press the oil deflector into the steering knuckle, using the following SST in combination with a hydraulic press.
SST: 09608-87605-000
2. Apply lithium-based MP grease to the oil seal lip section.



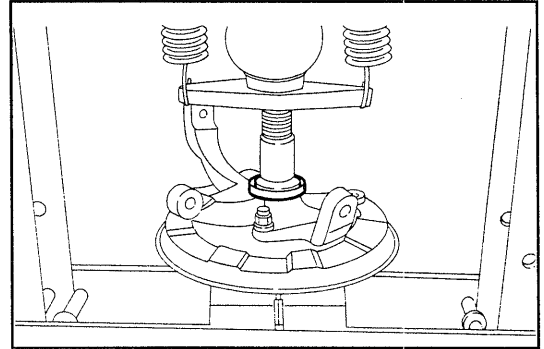
WRU90-FS300



WRU90-FS302

FRONT AXLE & SUSPENSION

3. Press the oil seal into position, using the following SST.
SST: 09608-87605-000

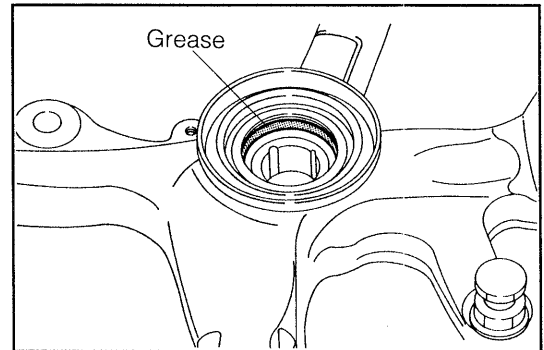


WRU90-FS303

4. Fill lithium based MP grease to a space between the oil seal and the bush.

Filling Amount of Grease:

25 - 30 grams (0.88 - 1.06 oz)

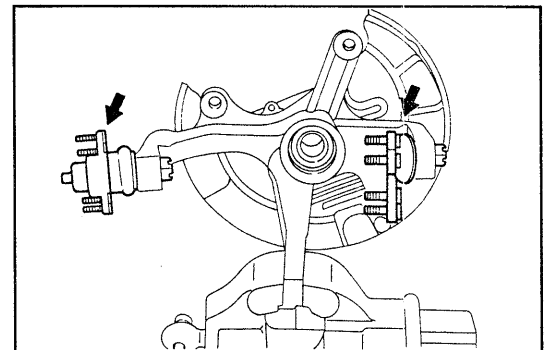


WRU90-FS304

5. Temporarily install the upper and lower ball joints to the steering knuckle with castle nuts.

NOTE:

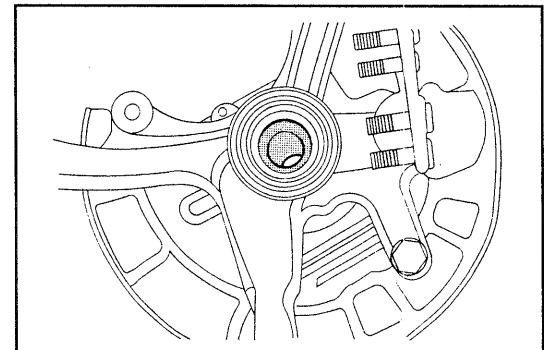
- Make sure that no grease and oil or the like is stuck on the tapered sections and threaded portions of the ball joints.



WRU90-FS305

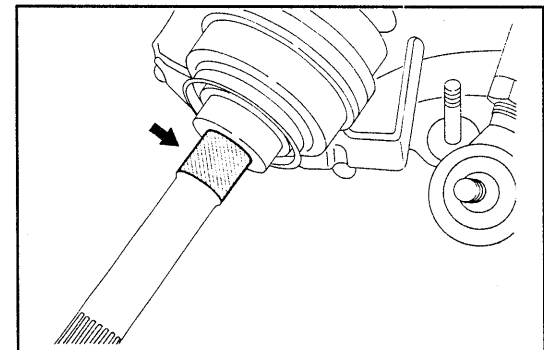
6. Apply the specified amount of lithium based MP grease to the steering knuckle bush section.

Specified Amount: 25 - 30 grams (0.88 - 1.06 oz)



WRU90-FS306

7. Clean the drive shaft. Apply lithium based MP grease to the steering knuckle bush contact surface.

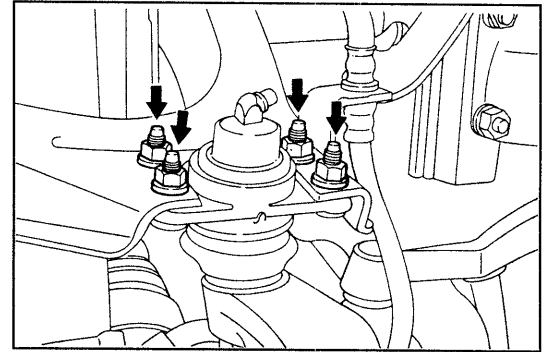


WRU90-FS307

8. Install the steering knuckle to the upper arm after passing the drive shaft through the steering knuckle.

Tightening Torque:

2.7 - 3.7 kgf-m (19.5 - 26.8 ft-lb, 26.5 - 36.3 N·m)

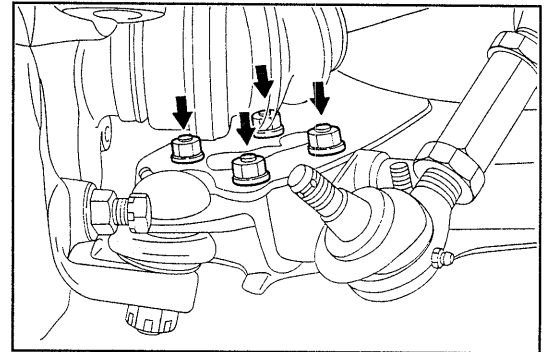


WRU90-FS308

9. Install the steering knuckle to the lower arm. Tighten the attaching bolts.

Tightening Torque:

5.7 - 7.8 kgf-m (41.2 - 56.4 ft-lb, 55.9 - 76.5 N·m)



WRU90-FS309

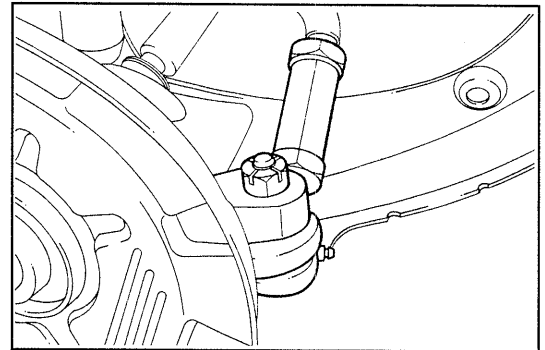
10. Install the tie rod end to the steering knuckle. Tighten the castle nut.

Tightening Torque:

7.0 - 14 kgf-m (50.6 - 101 ft-lb, 68.6 - 137 N·m)

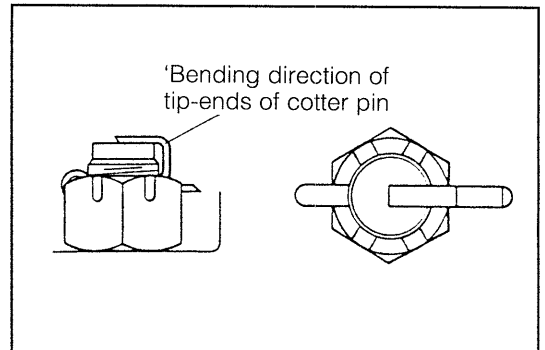
NOTE:

- Align the cotter pin hole of the ball joint with the cotter pin groove of the castle nut.



WRU90-FS310

11. Install the cotter pin to the castle nut, as indicated in the right figure.



WRU90-FS311

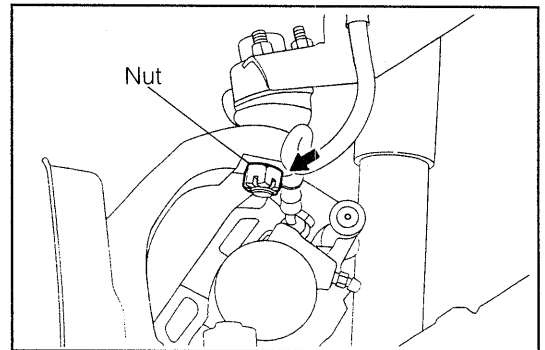
12. Tighten the upper ball joint attaching castle nut.

Tightening Torque:

9.0 - 12 kgf-m (65.1 - 87.0 ft-lb, 88.3 - 118 N·m)

NOTE:

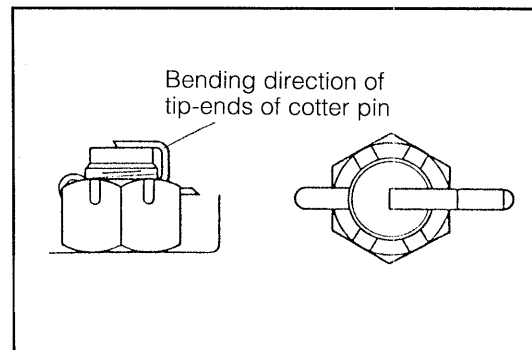
- Align the cotter pin hole of the ball joint with the cotter pin groove of the castle nut.



WRU90-FS312

FRONT AXLE & SUSPENSION

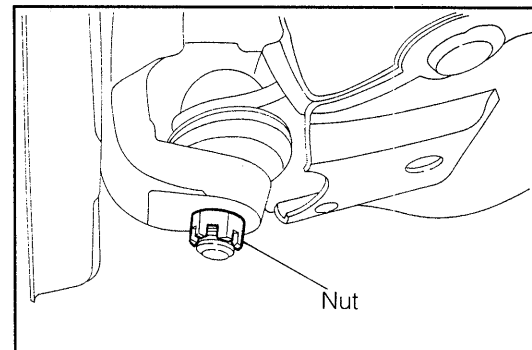
13. Install the cotter pin to the castle nut, as indicated in the right figure.



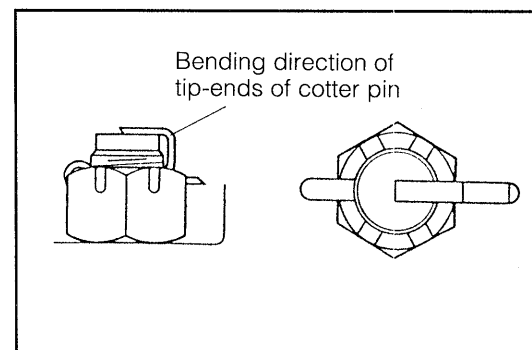
14. Tighten the lower ball joint attaching castle nut.
Tightening Torque:
9 - 12 kgf-m (65.1 - 87.0 ft-lb, 88.3 - 118 N·m)

NOTE:

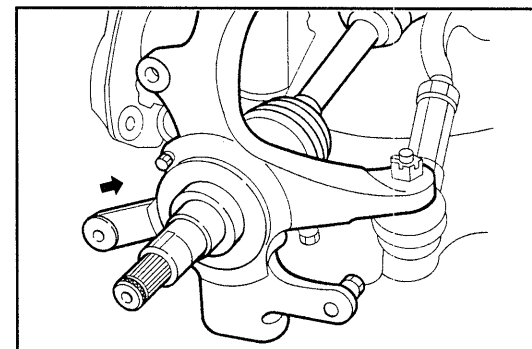
- Align the cotter pin hole of the ball joint with the cotter pin groove of the castle nut.



15. Install the cotter pin to the castle nut, as indicated in the right figure.



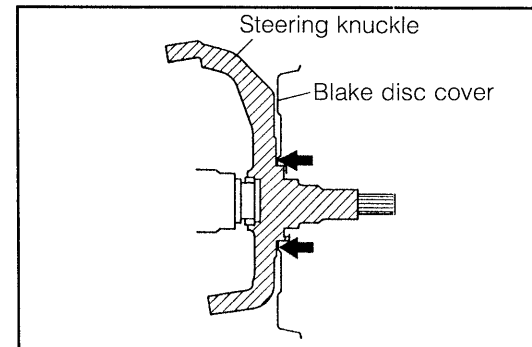
16. Installation of brake disc cover
(1) Slightly thread the brake disc cover attaching bolts into the steering knuckle.



- (2) Press a new brake disc cover into the steering knuckle with an appropriate rod applied to the point as indicated in the right figure.

NOTE:

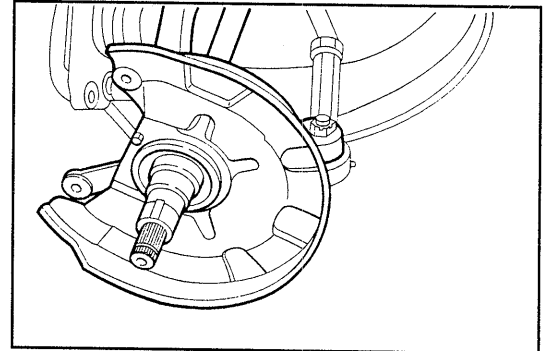
- Never reuse the brake disc cover.
- Care must be exercised to ensure that the arrowheaded sections are driven into position evenly.



- (3) Tighten the attaching bolts.

Tightening Torque:

0.6 - 0.9 kgf-m (4.3 - 6.5 ft-lb, 5.9 - 8.8 N-m)



WRU90-FS317

17. Install the front axle hub.
(See page FS-37 to FS-42.)
18. Install the torsion spring.
(See page FS-64 to FS-67.)
19. Install the stabilizer bar.
(See page FS-58 to FS-59.)

WRU90-FS318

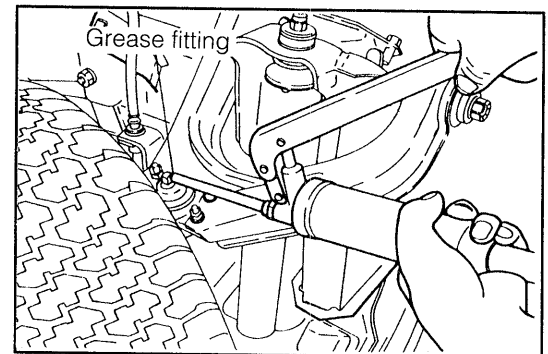
20. Fill lithium based MP grease to the upper joint, lower joint and tie rod end, using a grease gun.

Grease Filling Amount

Upper ball joint: 27 grams (0.95 oz)

Lower ball joint: 10 grams (0.35 oz)

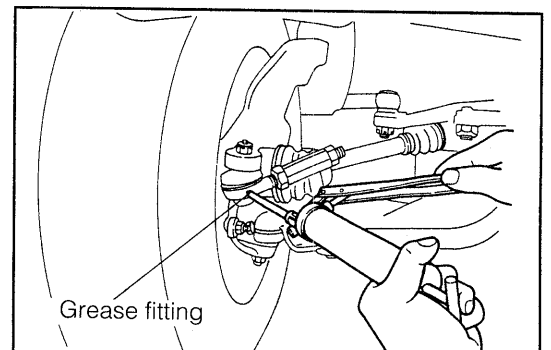
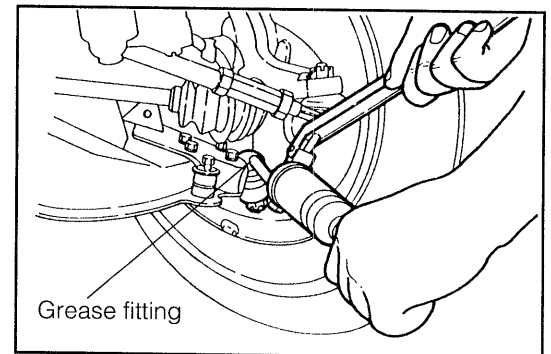
Pitman arm: 15 grams (0.53 oz)



Grease to Be Used:
Lithium-based MP grease

NOTE:

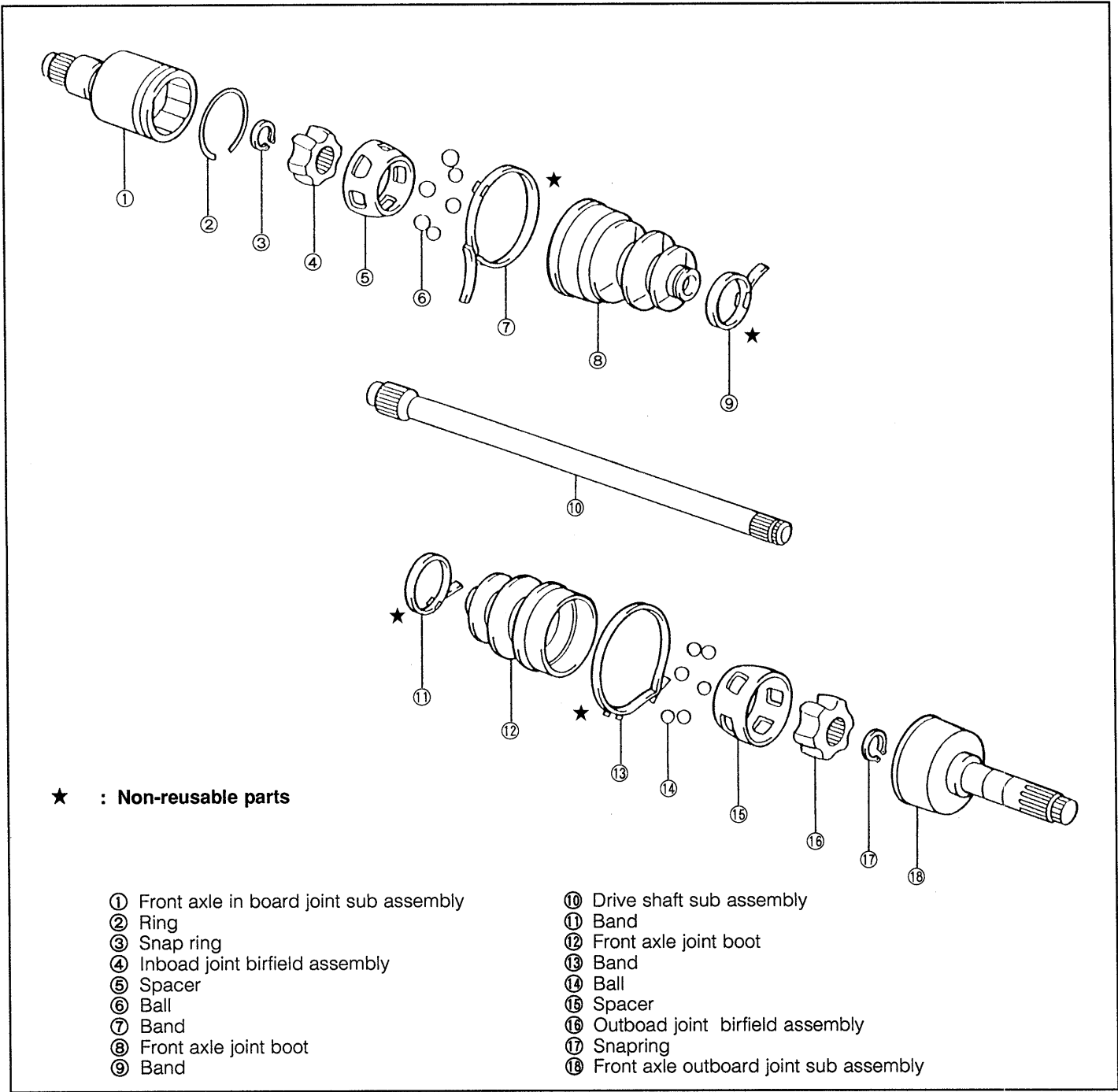
- The filling amount above is the specified amount for cases where new parts are assembled.



WRU90-FS319

21. Check the front alignment.
(See page FS-21.)

DRIVE SHAFTS
COMPONENTS



WRU90-FS320

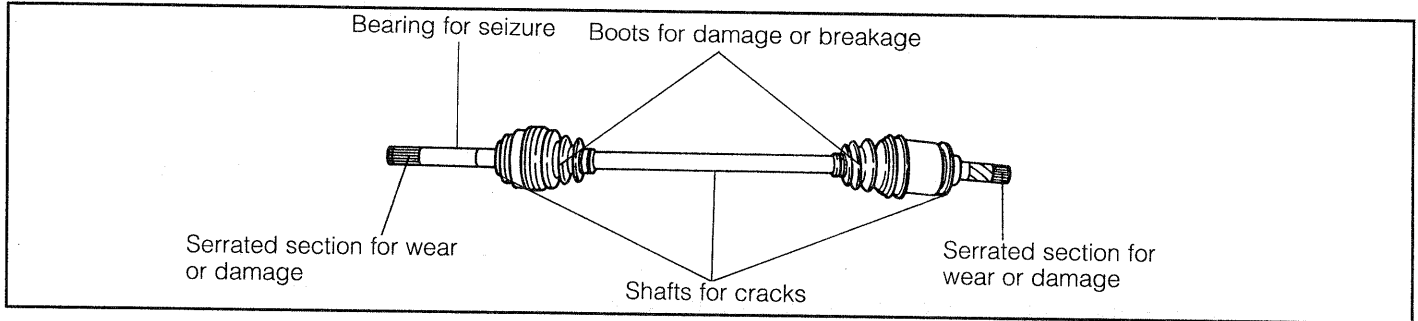
TROUBLE SHOOTING

Symptom	Possible causes	Checking points
Abnormal noise Abnormal vibration Oil leakage	Drive shaft bent or damaged Joint section damaged Boot damaged	Check drive shaft. Check joint. Check boot.

WRU90-FS321

CHECK PRIOR TO DISASSEMBLY

Check the following points indicated in the figure below. Replace any defective parts.



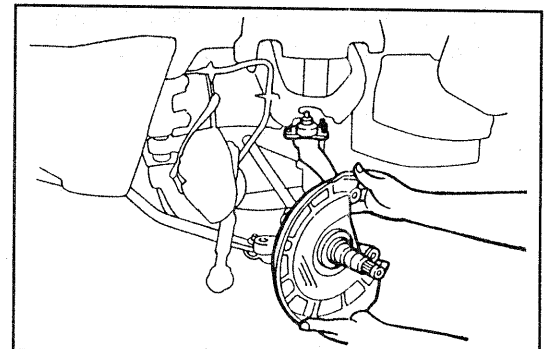
NOTE:

1. The outboard bearing is a part not to be disassembled.
2. As for those parts to be reused, wash them using cleaning solvent and then dry them in advance.
3. If the bearing section is encountered with damage, such as seizure, check the bush section of the steering knuckle.
4. If the splined section at the outboard side is encountered with damage, check the splined section of the hub.
5. If the splined section at the inboard side is encountered with damage, check the side gears of the differential.

REMOVAL

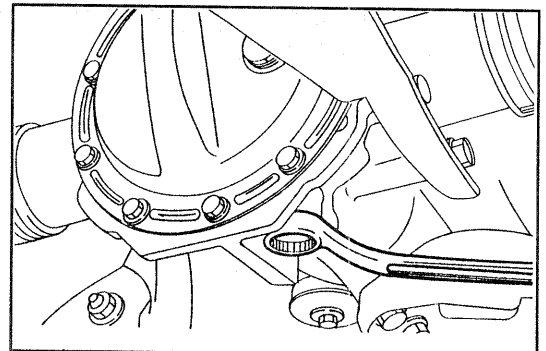
1. Remove the steering knuckle.
(See page FS-80 under section "Removal of Steering Knuckle.")

WRU90-FS322



2. Drain the front differential oil.
(See Differential section.)

WRU90-FS323

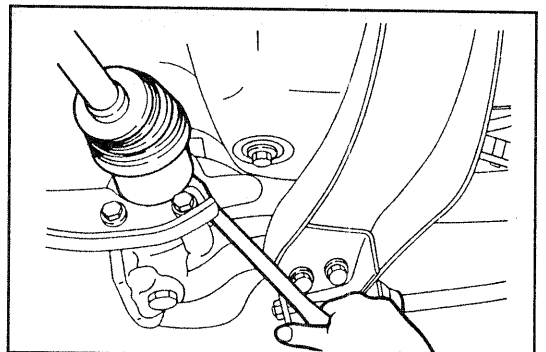


3. Pull out the drive shaft, using a tire lever or the like.

NOTE:

- Be very careful not to damage the spline, oil seal, boot and so forth during the removal.

WRU90-FS324



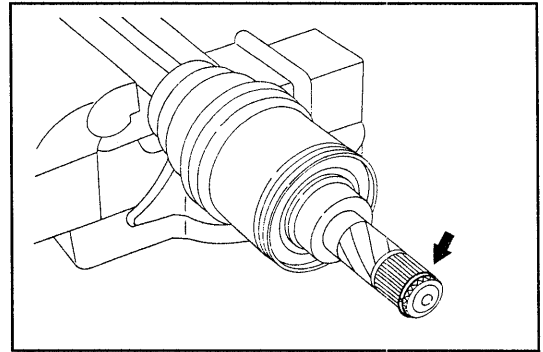
WRU90-FS325

DISASSEMBLY

1. Remove the expansion ring from the inboard joint.

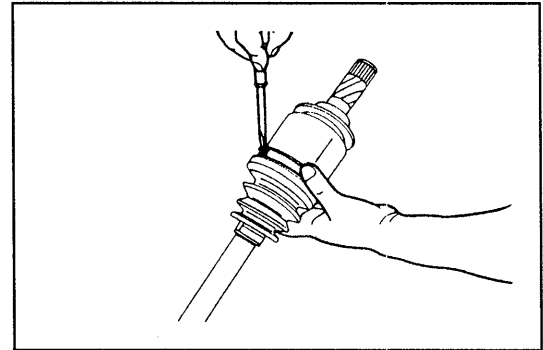
NOTE:

- Do not reuse the expansion ring.



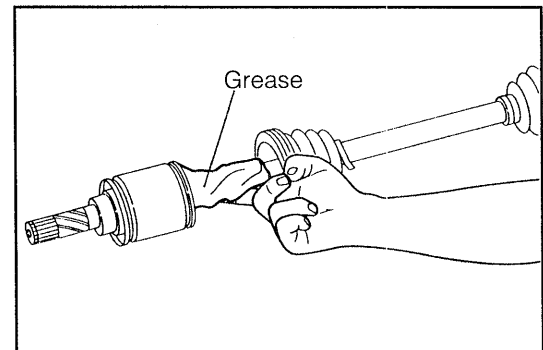
WRU90-FS326

2. Raise the tang of each boot band of the inboard bearing by means of a screwdriver or the like so as to loosen the boot band.



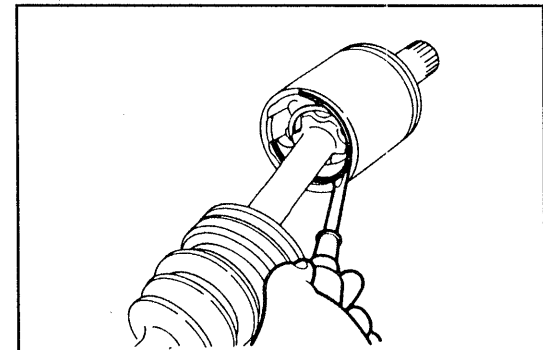
WRU90-FS327

3. Displace the boot toward the inboard side and remove any grease from the inside of the boot.



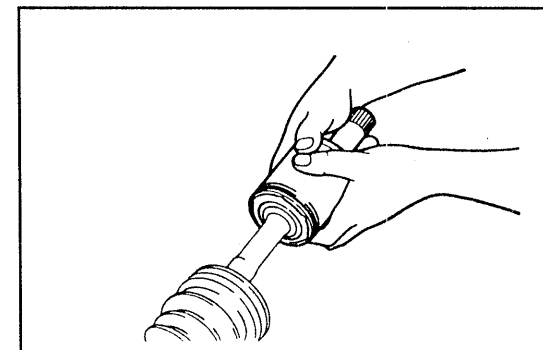
WRU90-FS328

4. Detach the hole snap ring from the inboard joint, using a minor screwdriver.



WRU90-FS329

5. Remove the inboard joint from the drive shaft.

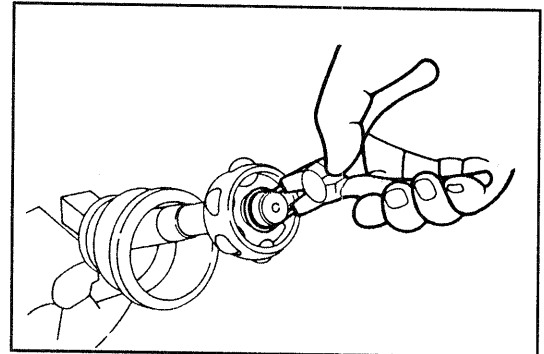


WRU90-FS330

6. Detach the snap ring from the drive shaft, using a snap ring expander.

NOTE:

- Do not reuse the removed snap ring.



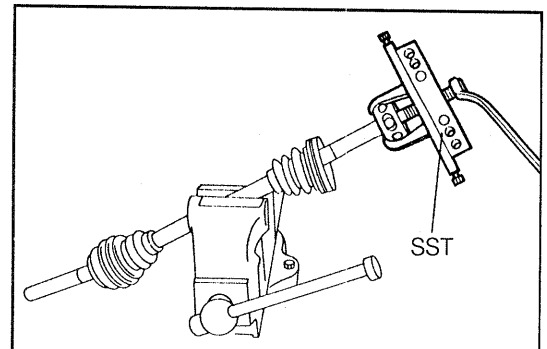
WRU90-FS331

7. Remove the ball subassembly from the drive shaft. If any difficulty is encountered in removing the ball subassembly by hands, drive it out by tapping it by means of an appropriate rod, or remove it using the following SST.

SST: 09950-20017-000

NOTE:

- When removing the ball subassembly, be sure to hold the inner race so as to avoid the interference with the bearing guide.

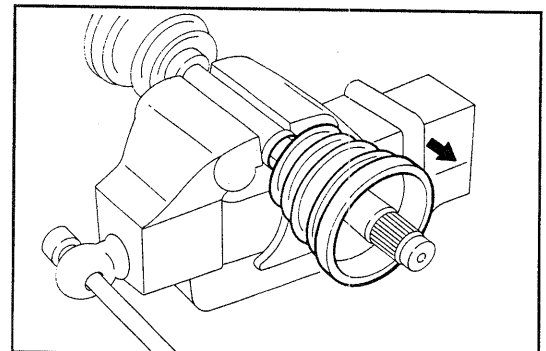


WRU90-FS332

8. Detach the boot and boot band at the inner race from the drive shaft.

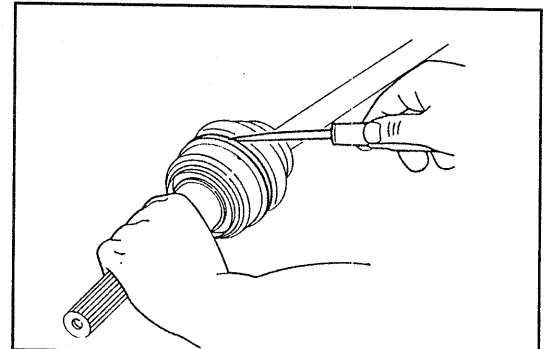
NOTE:

- Do not reuse the removed boot band.



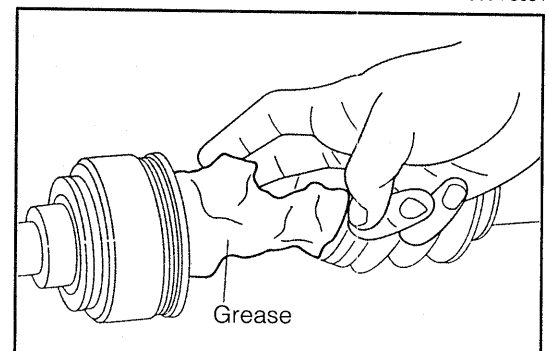
WRU90-FS333

9. Raise the tang of each boot band by means of a screwdriver or the like so as to loosen the boot band.



WRU90-FS334

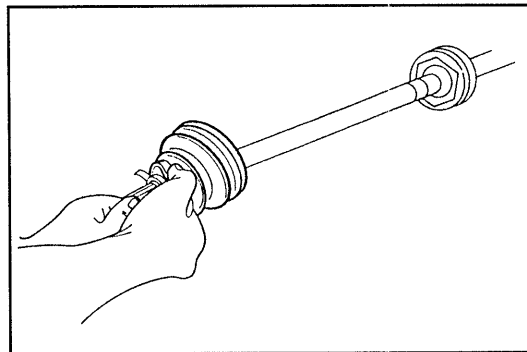
10. Displace the boot and remove any grease from the inside of the boot.



WRU90-FS335

FRONT AXLE & SUSPENSION

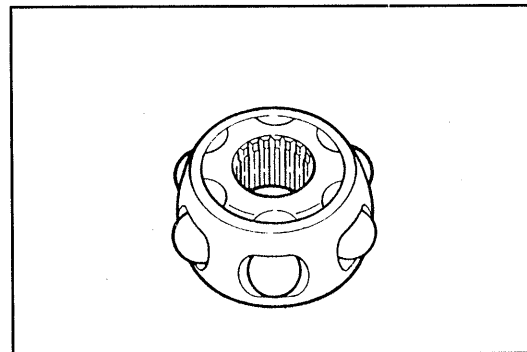
11. Detach the boot and boot band from the drive shaft.



WRU90-FS336

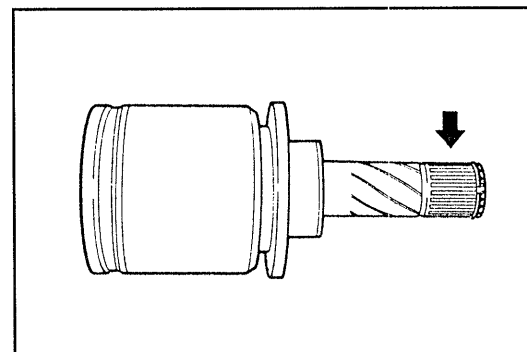
INSPECTION

1. Ensure that the ball subassembly exhibits no wear, cracks, scratches and so forth.
If any damage is present, replace the inboard assembly.



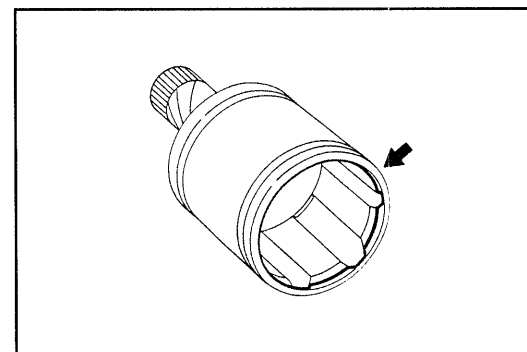
WRU90-FS337

2. Check of inboard joint
 - (1) Ensure that the spline section exhibits no damage, such as wear and cracks.
If any damage is present, replace the inboard assembly.



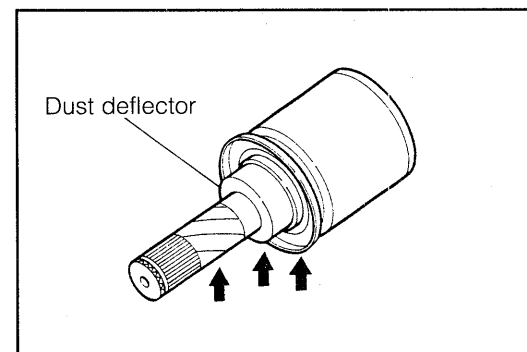
WRU90-FS338

- (2) Ensure that the ball joint groove section exhibits no damage, such as wear, cracks and scratches.
If any damage is present, replace the inboard assembly.



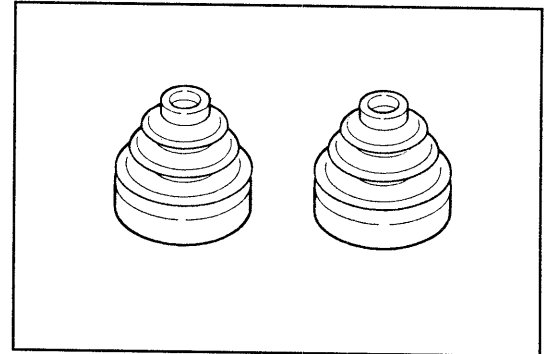
WRU90-FS339

- (3) Ensure that the dust deflector exhibits no damage.
If any damage is present, replace the inboard subassembly.
 - (4) Ensure that the shaft section and oil seal contact surface exhibit no damage, such as wear, scratches and rust.
If any damage is present, replace the inboard assembly.



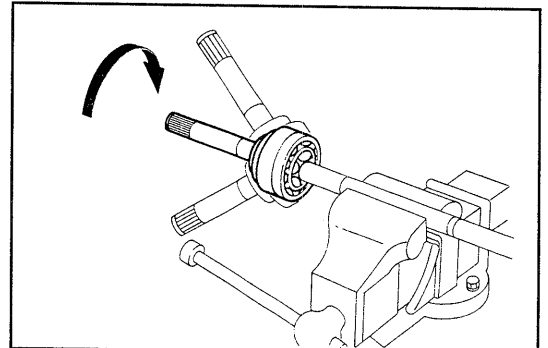
WRU90-FS340

3. Boot check
Ensure that the boot exhibits no damage, such as cracks.
If any damage is present, replace the boot.



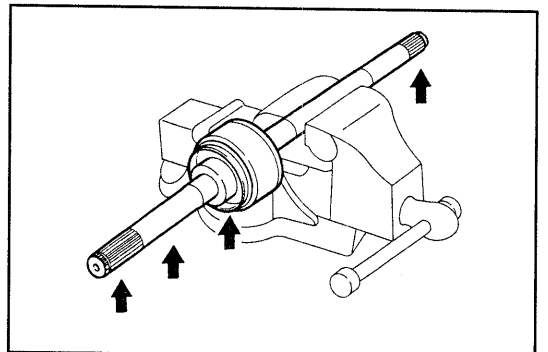
WRU90-FS341

4. Check of inboard joint
 - (1) Ensure that the inboard joint exhibits no excessive play and/or sticking.
If any damage is present, replace the inboard assembly.



WRU90-FS342

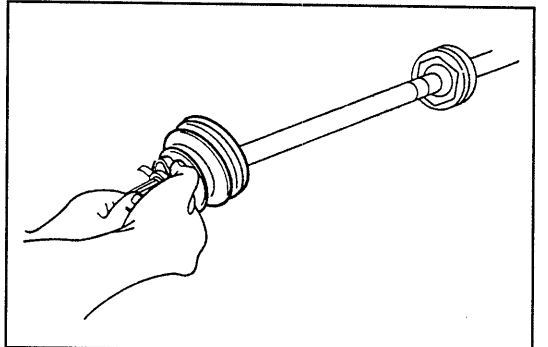
- (2) Ensure that the spline and shaft section exhibits no damage, such as wear, cracks and rust.
If any damage is present, replace the inboard assembly.
 - (3) Ensure that the dust deflector exhibits no damage.
If any damage is present, replace the inboard assembly.
 - (4) Ensure that the inboard ball subassembly attaching section exhibits no damage, such as wear and cracks.
If any damage is present, replace the inboard subassembly.



WRU90-FS343

ASSEMBLY

1. Install the boot to the outboard joint.
NOTE:
 - Be very careful not to damage the boot.

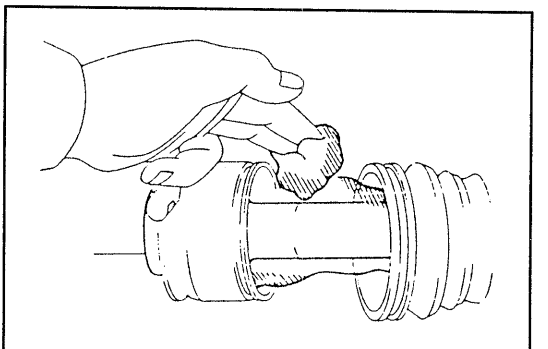


WRU90-FS344

2. Positively fill the specified amount of grease furnished in the boot band or the boot set to the outboard joint as well as the inside of the boot.

Grease to Be Used: Morilex No. 2

Amount to Be Used: 80 - 100 grams (2.82 - 3.53 oz)



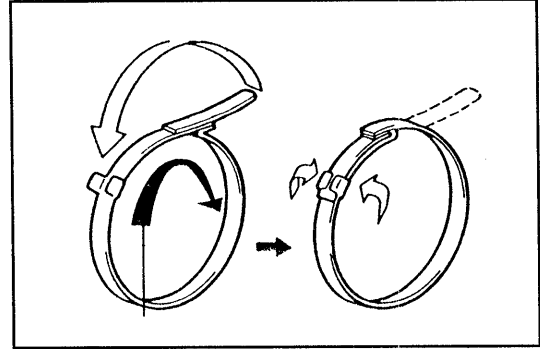
WRU90-FS345

FRONT AXLE & SUSPENSION

3. Install the boot correctly. Attach the boot bands and bend them in the sequence as indicated in the right figure.

NOTE:

1. Be sure to install the boot band in such a way that the bending direction of the boot band becomes opposite to the rotating direction of the drive shaft.
2. Be sure to use a new boot band.
3. Care must be exercised to ensure that no air is trapped inside of the boot, resulting in a bulging boot.

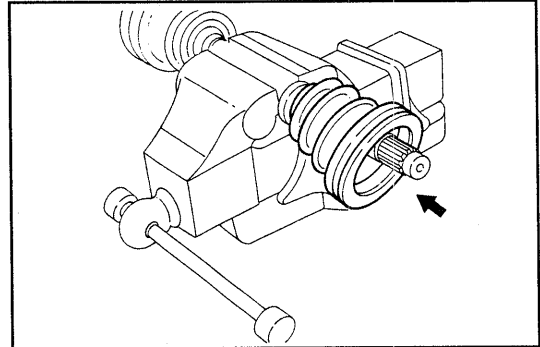


WRU90-FS346

4. Insert the boot and boot band at the inboard joint side into the drive shaft side.

NOTE:

- Make sure that the boot bands are bent in the correct direction.

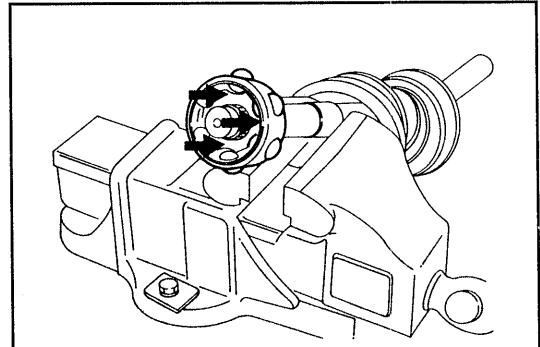


WRU90-FS347

5. Install the ball subassembly to the drive shaft by tapping the inner race of the ball subassembly by means of an appropriate rod.

NOTE:

- Be very careful not to damage the bearing guide section.
- Be sure to tap the inner race.

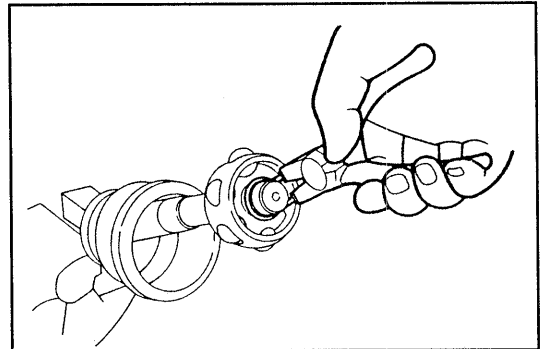


WRU90-FS348

6. Install the snap ring to the drive shaft, using a snap ring expander.

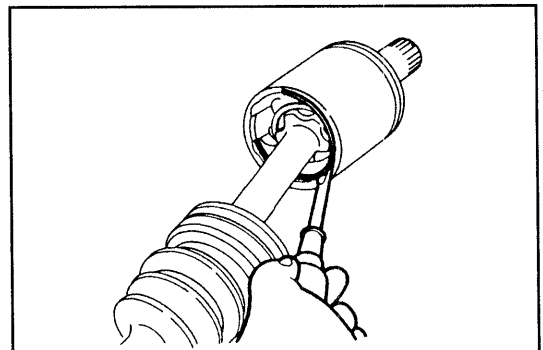
NOTE:

- Use a new snap ring.



WRU90-FS349

7. Connect the inboard joint to the ball subassembly. Install the hole snap ring to the inboard joint.



WRU90-FS350

8. Positively fill the specified amount of grease furnished in the boot band or the boot set to the inboard joint as well as the inside of the boot.

Grease to Be Used: Morilex No. 2

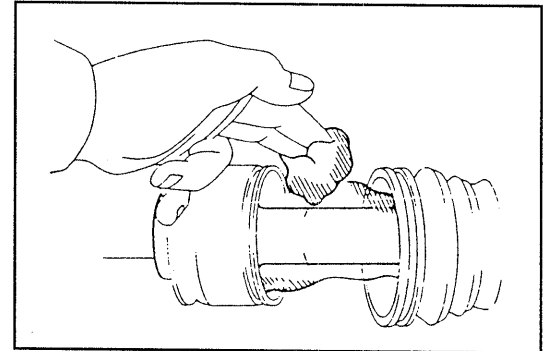
Amount to Be Used:

160 - 180 grams (5.65 - 6.35 oz)

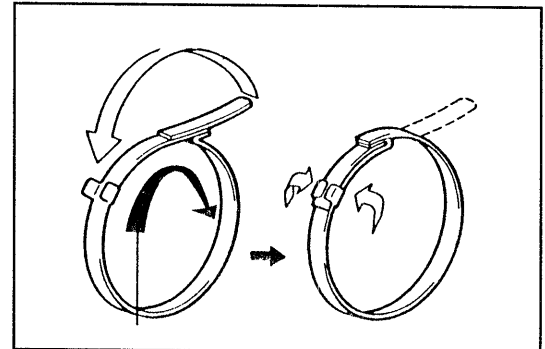
9. Install the boot correctly. Attach the boot bands and bend them in the sequence as indicated in the right figure.

NOTE:

1. Be sure to install the boot band in such a way that the bending direction of the boot band becomes opposite to the rotating direction of the drive shaft.
2. Be sure to use a new boot band.
3. Care must be exercised to ensure that no air is trapped inside of the boot, resulting in a bulging boot.



WRU90-FS351

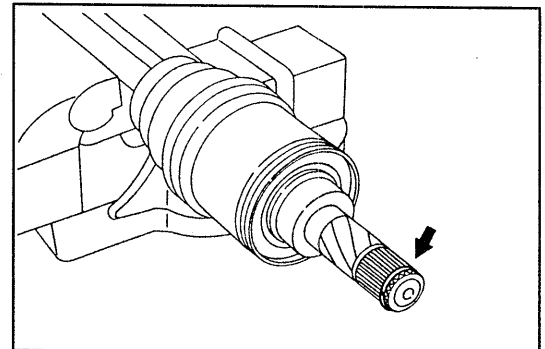


WRU90-FS352

10. Install the expansion ring to the inboard joint.

NOTE:

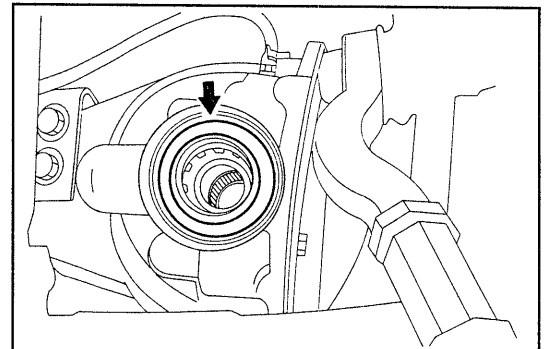
- Do not reuse the expansion ring.



WRU90-FS408

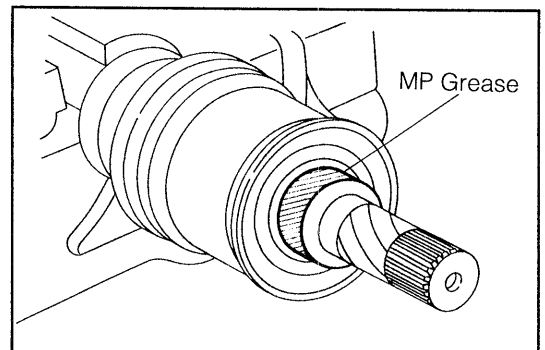
ASSEMBLY OF DRIVE SHAFT

1. Ensure that the oil seal at the front differential side exhibits no damage, such as scratches.
If any damage is present, replace the oil seal.
(See the Front Differential section.)
2. Apply lithium based MP grease to the lip section of the front differential oil seal.



WRU90-FS353

3. Thinly apply lithium based MP grease to the oil seal contact surface of the inboard.



WRU90-FS354

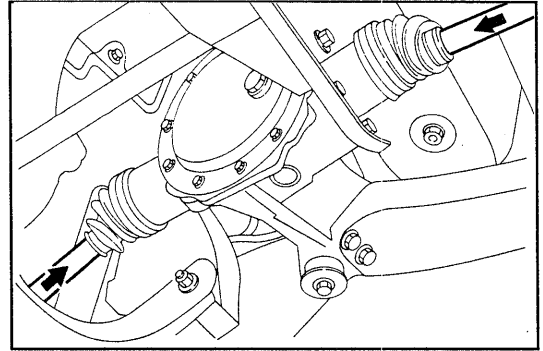
FRONT AXLE & SUSPENSION

4. Insert the inboard joint into the front differential.

NOTE:

- Be very careful not to get damage to the oil seals.

5. After inserting the inboard joint into the front differential, ensure that the inboard joint can not be pulled out by hands. If the inboard joint can be pulled out by hands, replace the expansion ring at the forward end of the inboard joint with a new part. After completion of the replacement, install the inboard joint again.

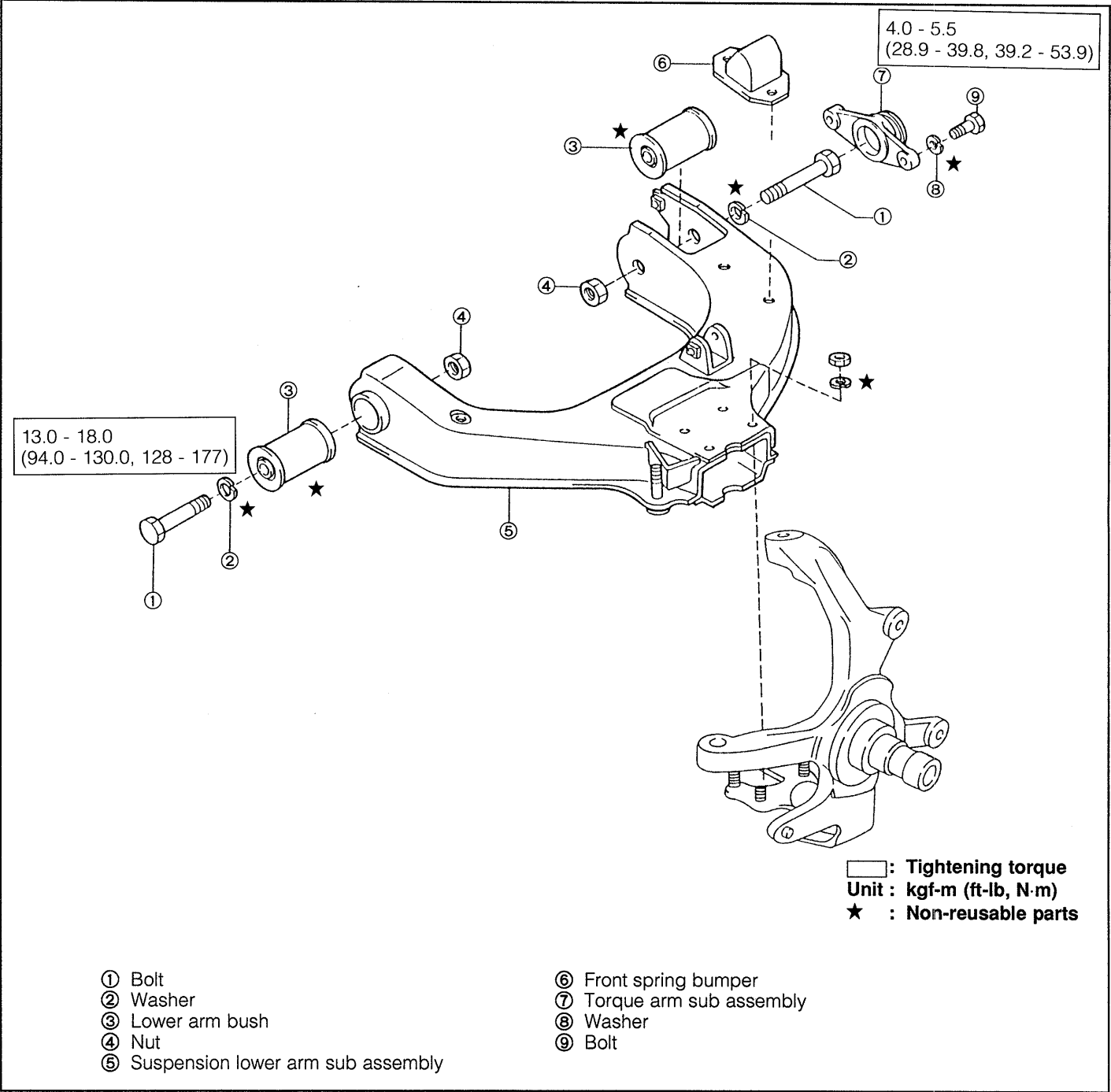


WRU90-FS355

6. Fill front differential oil.
(See the Front Differential section.)
7. Install the steering knuckle.
(See page FS-83.)

WRU90-FS356

LOWER ARMS
COMPONENTS



WRU90-FS357

TROUBLE SHOOTING

Symptom	Possible causes	Checking points
Improper front alignment (Improper camber and caster)	Bush worn or damaged Lower arm damaged or deformed	Check bush. Check lower arm.
Abnormal noise		

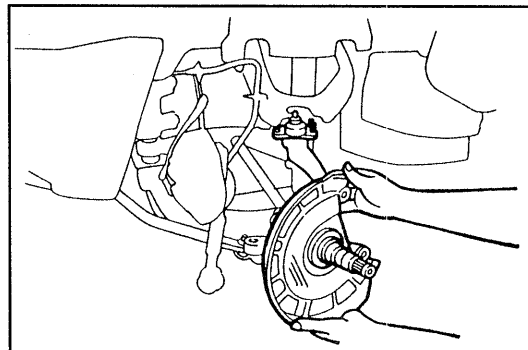
WRU90-FS358

REMOVAL

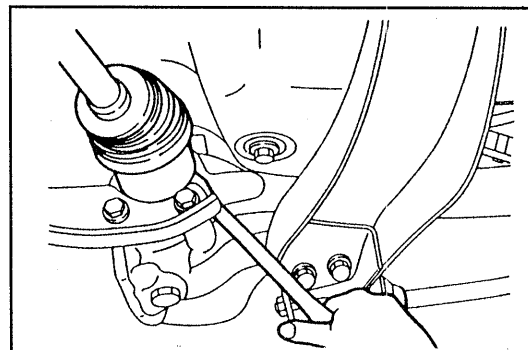
1. Remove the steering knuckle.
(See page FS-80 to FS-83.)
2. Remove the drive shaft (at the right side only).
(See page FS-89.)
3. Remove the shock absorber attaching bolts from the lower arm.
4. Remove the lower arm from the frame by removing the lower arm attaching bolts and nuts.
5. Removal of lower arm bush (at frame side)
Remove the lower arm bush, using the following SST.
SST: 09608-87615-000

NOTE:

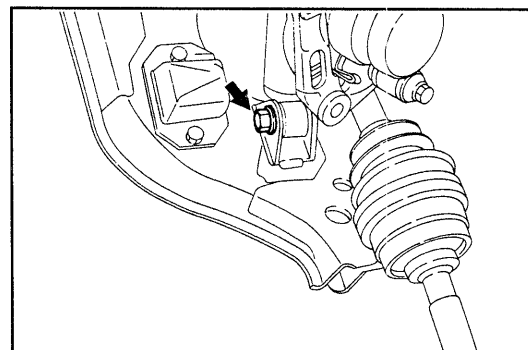
- Apply an adequate amount of MP grease to the threaded portion of the SST.
- If the bush rubber remains at the frame side, remove the rubber by attaching an appropriate plate washer to the SST.
- If the bolt turns when tightening the nut, prevent the bolt from turning, using the two flat sections provided at the forward end of the bolt.



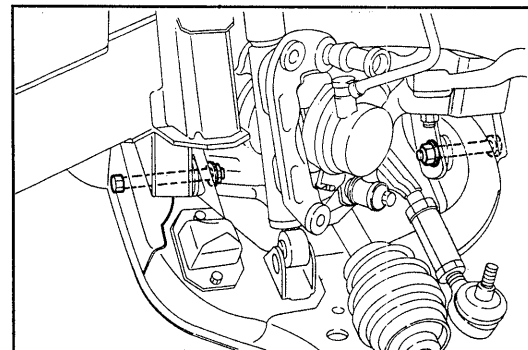
WRU90-FS409



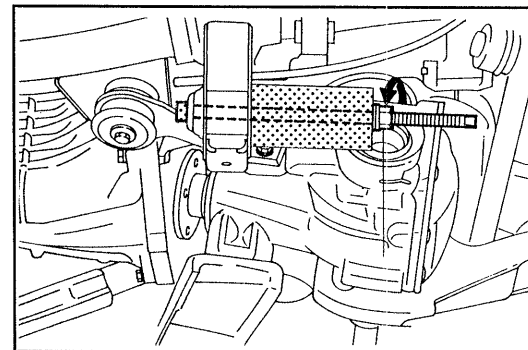
WRU90-FS359



WRU90-FS360



WRU90-FS361



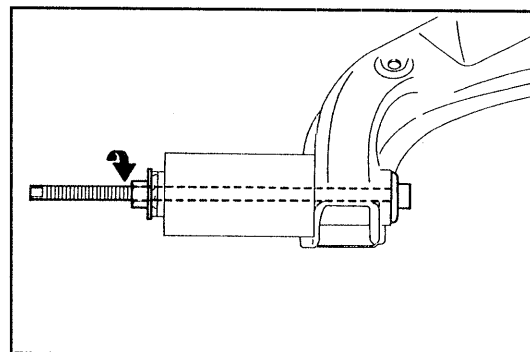
WRU90-FS362

6. Removal of lower arm bush (at lower arm side)
Remove the lower arm bush, using the following SST.
SST: 09608-87615-000

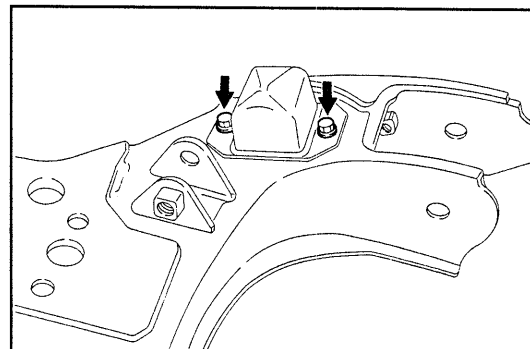
NOTE:

- Apply an adequate amount of MP grease to the threaded portion of the SST.
- If the bush rubber remains at the frame side, remove the rubber by attaching an appropriate plate washer to the SST.
- If the bolt turns when tightening the nut, prevent the bolt from turning, using the two flat sections provided at the forward end of the bolt.

7. Remove the front spring bumper from the lower arm.



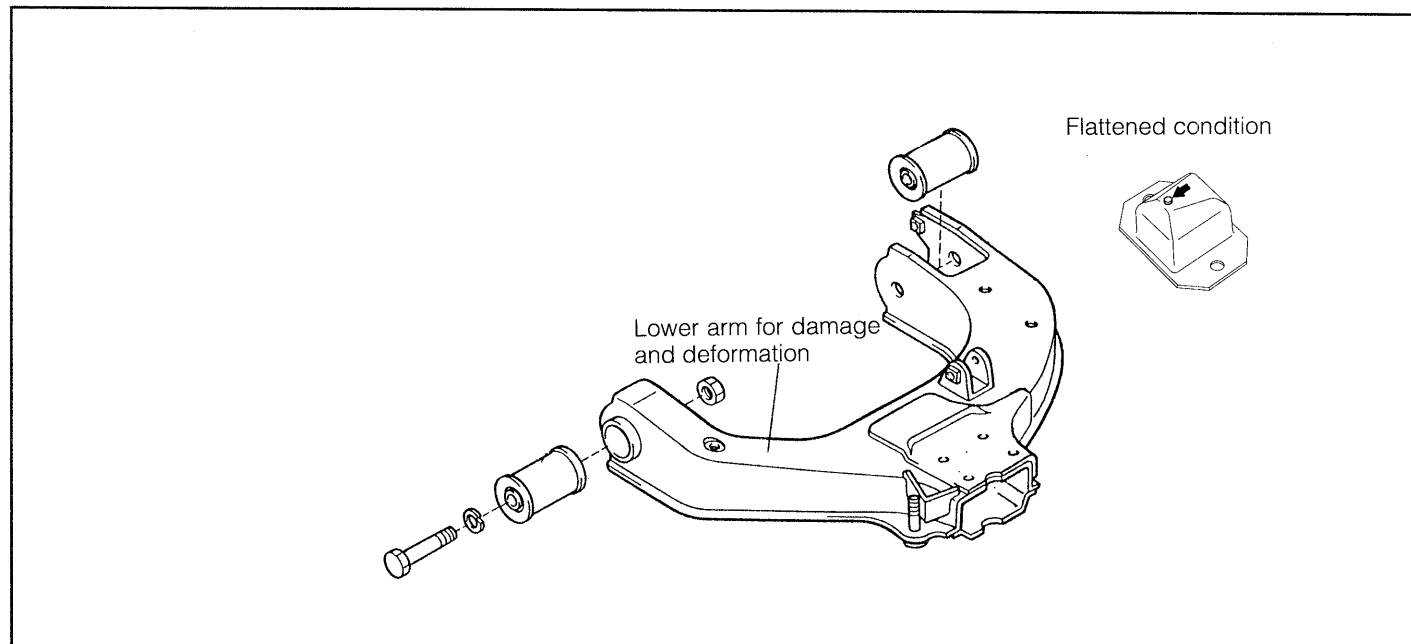
WRU90-FS363



WRU90-FS364

INSPECTION

Check the following parts. Replace any defective parts.



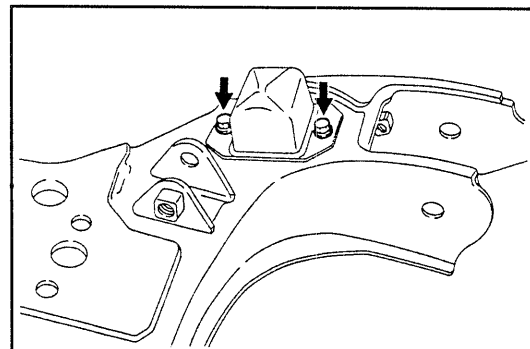
WRU90-FS365

INSTALLATION

1. Install the front spring bumper on the lower arm.

NOTE:

- Install the spring bumper in such a way that the arrow direction faces toward the forward direction of the vehicle.

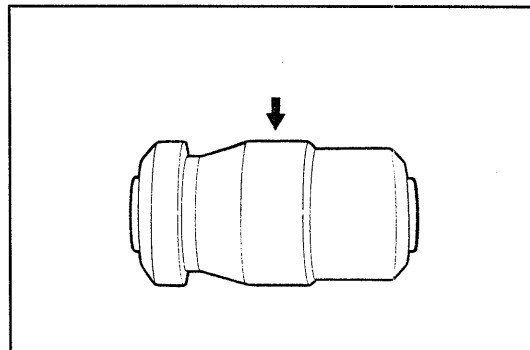


WRU90-FS410

FRONT AXLE & SUSPENSION

2. Installation of lower arm bush (at lower arm side)

- (1) Apply the SUNPAR 150® to the press-fitting section of the lower arm bush.



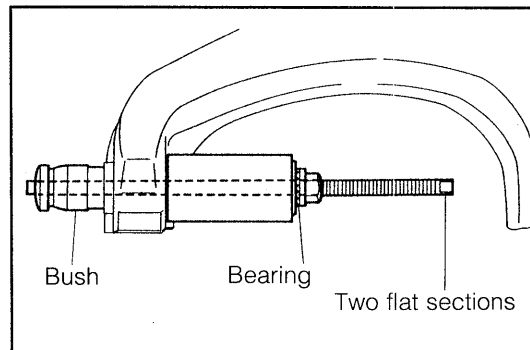
WRU90-FS366

- (2) Press the lower arm bush into the lower arm, using the following SST.

SST: 09608-87615-000

NOTE:

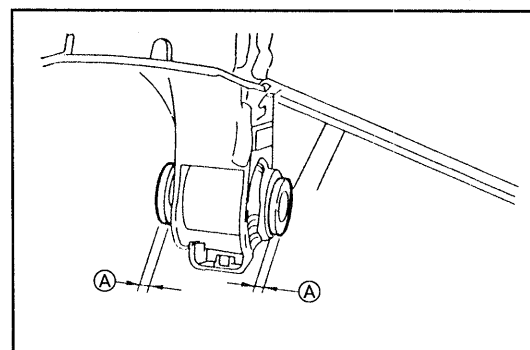
- If the bolt turns when tightening the nut, prevent the bolt from turning, using the two flat sections provided at the forward end of the bolt.



WRU90-FS367

- After completion of the press-fitting, perform adjustment so that the relationship between the bush edge surface and the lower arm may become as indicated in the right figure.

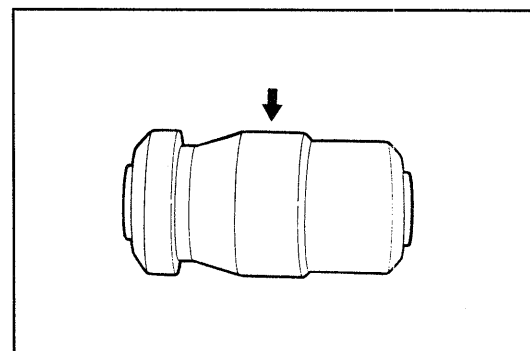
Dimension A: 7 ± 1 mm (0.28 ± 0.04 inch)



WRU90-FS368

3. Installation of lower arm bush (at frame side)

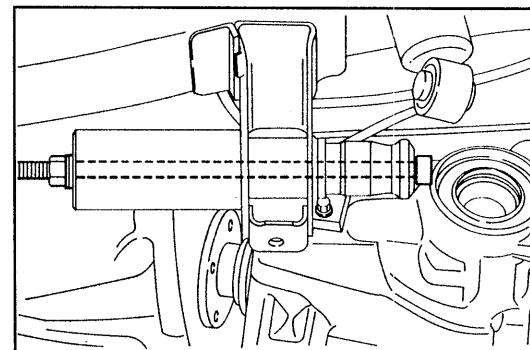
- (1) Apply the SUNPAR 150® to the press-fitting section of the lower arm bush.



WRU90-FS369

- (2) Press the lower arm bush into the frame, using the following SST.

SST: 09608-87615-000



WRU90-FS370

NOTE:

- After completion of the press-fitting, perform adjustment so that the relationship between the bush edge surface and the lower arm may become as indicated in the right figure.

Dimension A: $7 \pm 1 \text{ mm}$ ($0.28 \pm 0.04 \text{ inch}$)

- If the bolt turns when tightening the nut, prevent the bolt from turning, using the two flat sections provided at the forward end of the bolt.

- Install the lower arm to the frame. Temporarily tighten the attaching bolts and nuts.

NOTE:

- Never reuse the spring washer.

- Set the lower arm so that it may become as indicated in the right figure. Tighten the lower arm attaching bolts.

Installation Height: $A - B = C$

C: $82 \pm 10 \text{ mm}$ ($3.23 \pm 0.4 \text{ inch}$)

Tightening Torque:

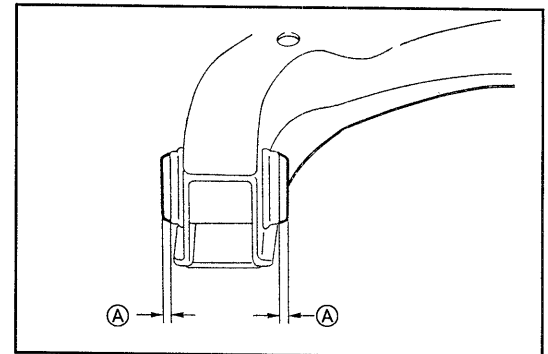
$13.0 - 18.0 \text{ kgf-m}$ ($94.0 - 130 \text{ ft-lb}$, $128 - 177 \text{ N-m}$)

- Install the shock absorber to the lower arm with bolts.

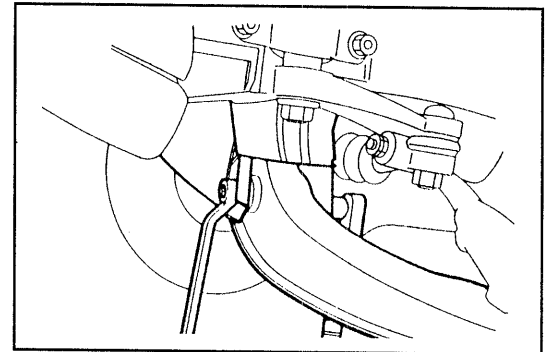
Tightening Torque:

$5.0 - 7.0 \text{ kgf-m}$ ($36.2 - 50.6 \text{ ft-lb}$, $49.0 - 68.6 \text{ N-m}$)

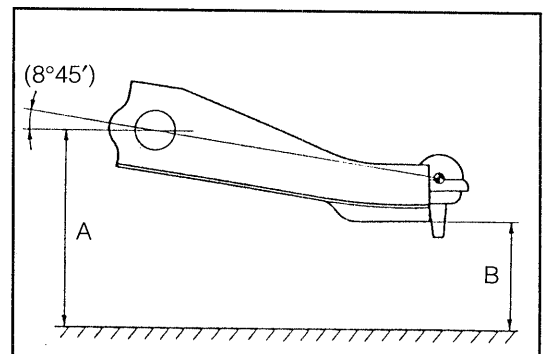
- Install the steering knuckle.
(See page FS-83 to FS-87.)



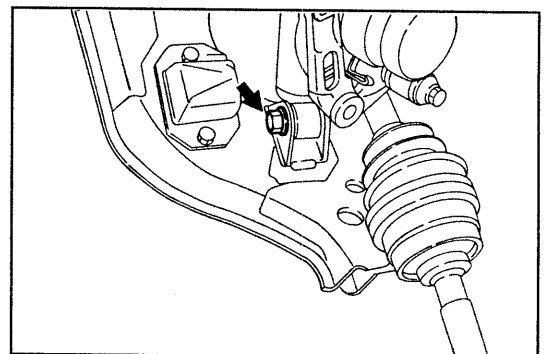
WRU90-FS371



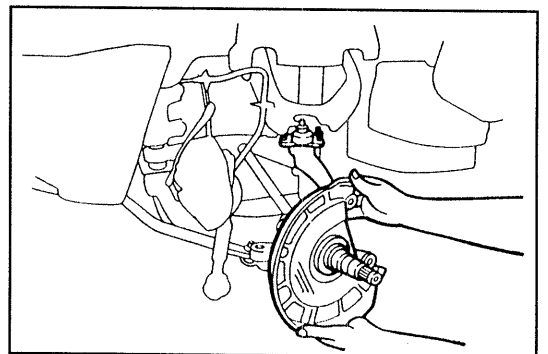
WRU90-FS372



WRU90-FS373



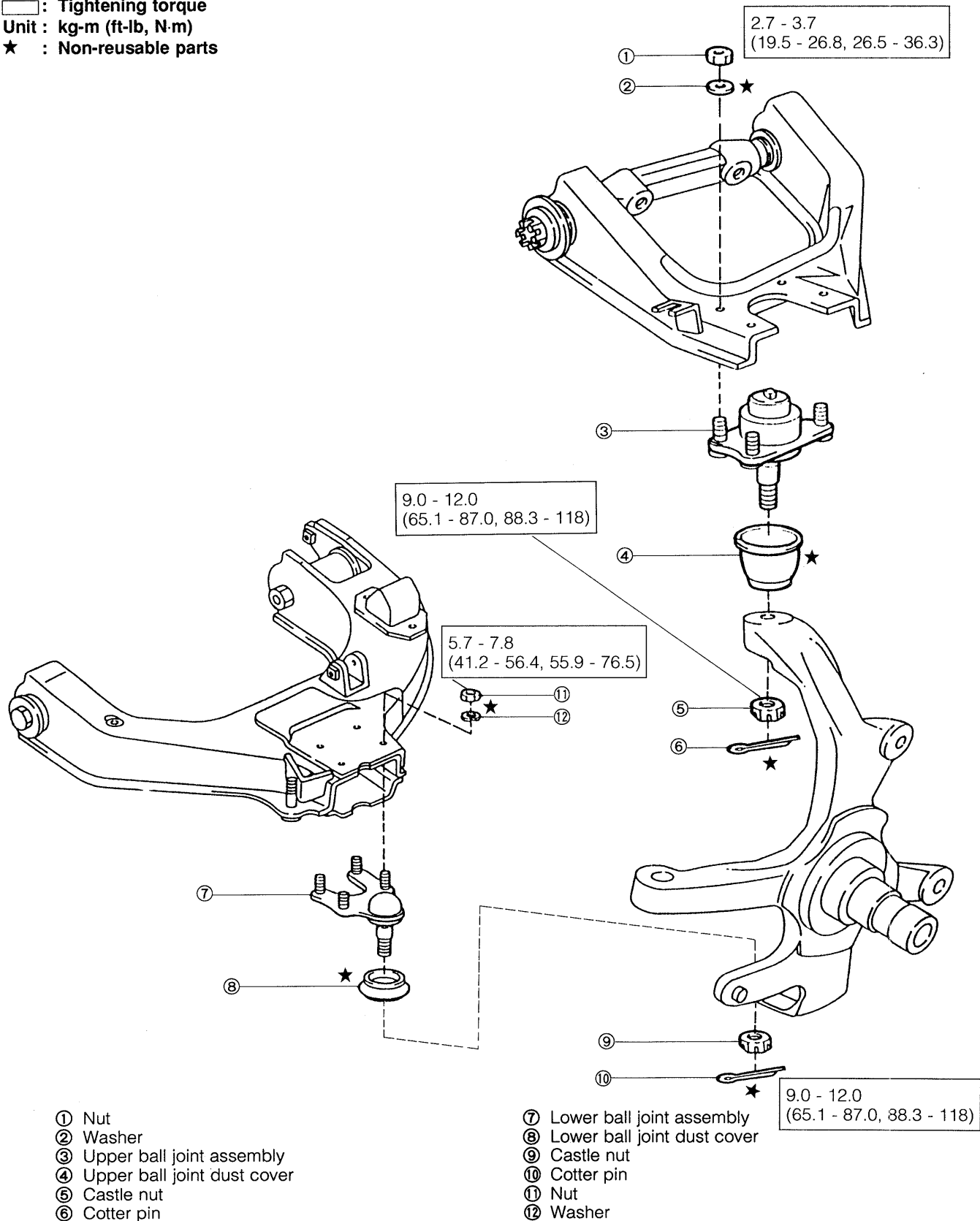
WRU90-FS374



WRU90-FS375

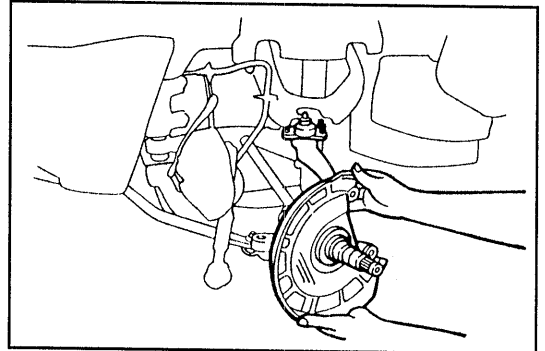
UPPER & LOWER BALL JOINTS COMPONENTS

 : Tightening torque
 Unit : kg-m (ft-lb, N-m)
 ★ : Non-reusable parts



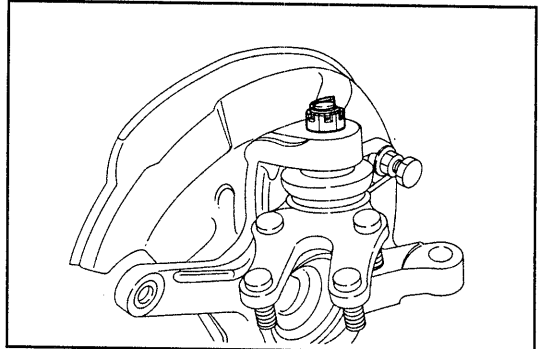
REMOVAL

1. Remove the steering knuckle arm.
(See page FS-80.)



WRU90-FS378

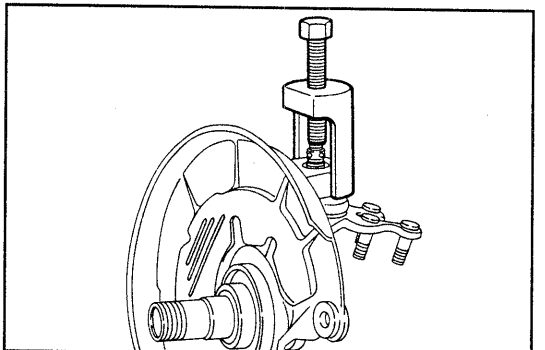
2. Pull out the cotter pin.
3. Remove the castle nut.



WRU90-FS379

4. Remove the ball joint from the knuckle arm, using the following SST.

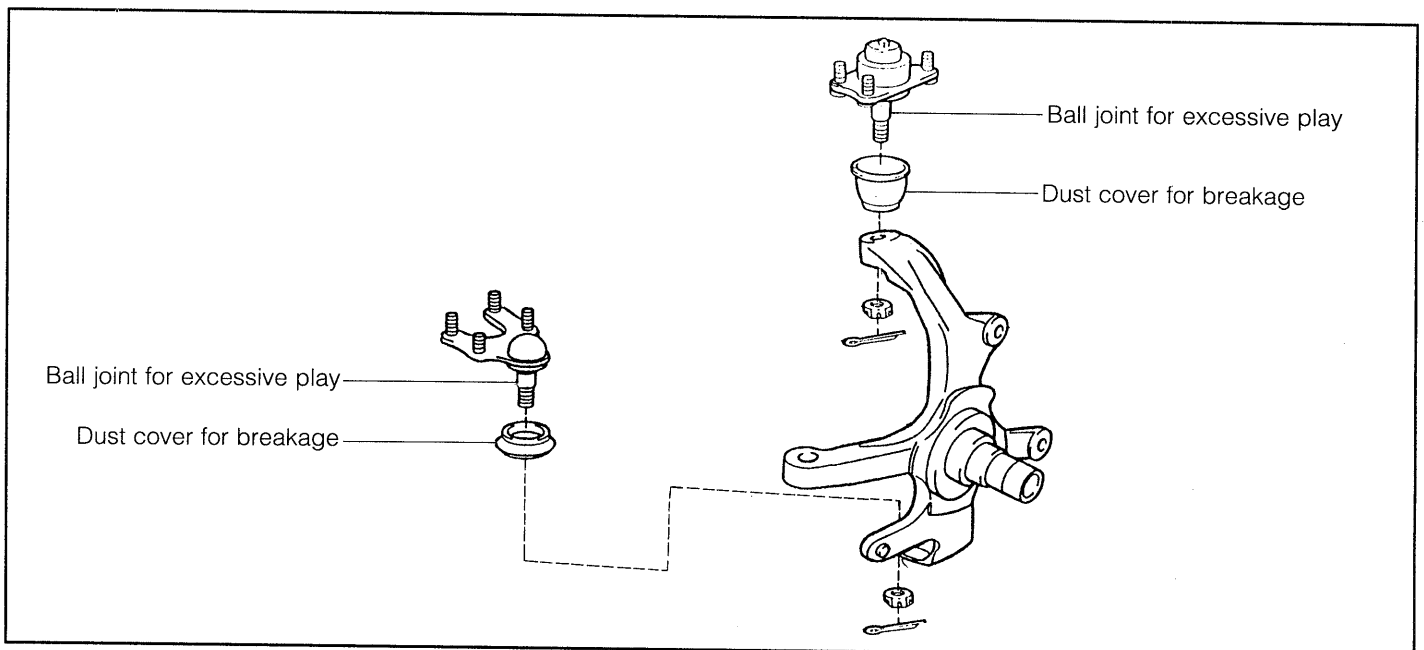
SST: 09610-20012-000



WRU90-FS380

INSPECTION

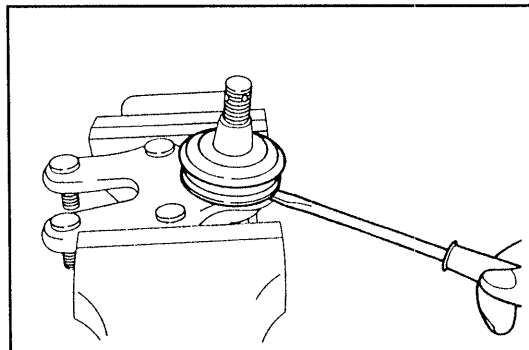
Check the following parts. Replace any defective parts.



WRU90-FS381

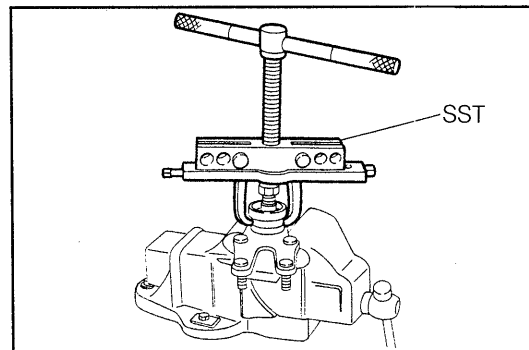
INSTALLATION

1. Replacement of rubber boot (if so required)
 - (1) Detach the press-fitting section of the rubber boot from the ball joint by means of a screwdriver or the like.



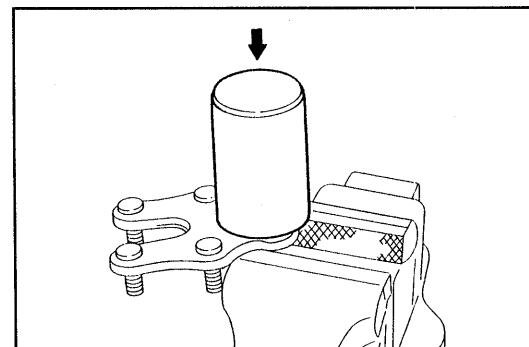
WRU90-FS382

- (2) Remove the rubber boot from the ball joint, using the following SST or a suitable tool.
SST: 09950-20017-000



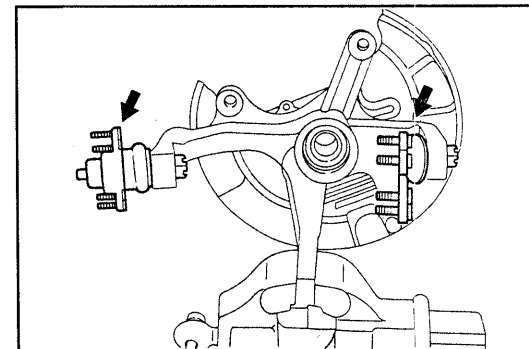
WRU90-FS383

- (3) Press a new rubber boot into position, using the following SST.
SST (lower ball joint): 09608-87611-000
(upper ball joint): 09608-87613-000



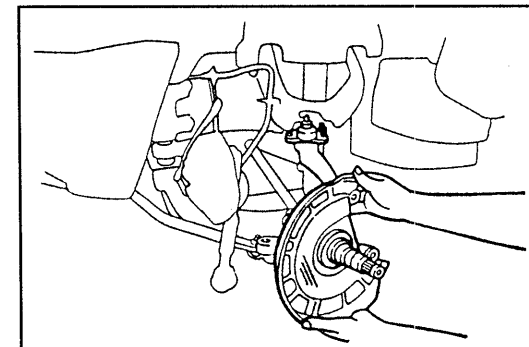
WRU90-FS384

2. Connect the ball joint to the steering knuckle.
NOTE:
 - Be very careful not to get any lubricant, such as grease, onto the tapered section.
3. Temporarily tighten the castle nut.



WRU90-FS385

4. Install the steering knuckle arm.
(See page FS-83.)



WRU90-FS386