

SERVICE MANUAL

DATSUN
MODEL 330 SERIES
CHASSIS & BODY



NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

SECTION FA

FRONT AXLE & FRONT SUSPENSION

FA

DESCRIPTION	FA- 2
ADJUSTMENT	FA- 3
FRONT AXLE	FA- 5
FRONT SUSPENSION	FA- 7
SERVICE DATA AND SPECIFICATIONS	FA-12
TROUBLE DIAGNOSES AND CORRECTIONS	FA-15
SPECIAL SERVICE TOOLS	FA-17

DESCRIPTION

The front suspension is an independent double-wishbone type employing coil springs, and equipped with gas-filled shock absorbers and a torsion bar stabilizer.

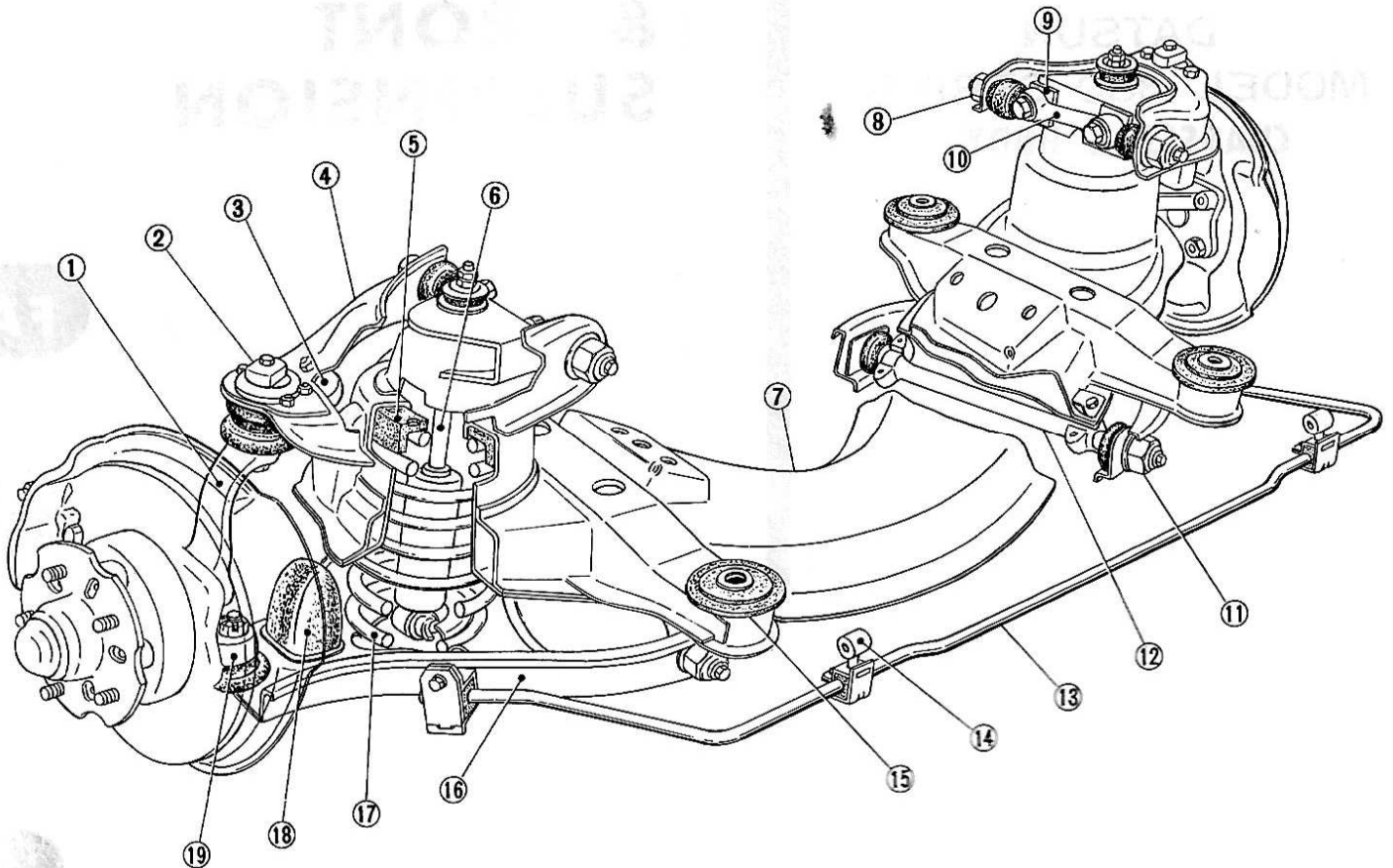
The top and bottom of the knuckle

spindle are fitted to the upper link and lower link through ball joints so that the wheels can be steered.

The upper and lower links are installed on the suspension member through screw bushings to allow both

links to swing vertically.

Up and down movement is absorbed by the coil spring and shock absorber, which are encased between the spring tower of the suspension member and the lower link.



- 1 Knuckle spindle
- 2 Upper ball joint
- 3 Rebound bumper
- 4 Upper link
- 5 Spring seat
- 6 Shock absorber
- 7 Suspension member

- 8 Upper link bushing
- 9 Camber shim
- 10 Upper link spindle
- 11 Lower link bushing
- 12 Lower link spindle
- 13 Stabilizer
- 14 Connecting rod

- 15 Suspension member mounting insulator
- 16 Lower link
- 17 Coil spring
- 18 Bound bumper
- 19 Lower ball joint

FA497

Fig. FA-1 Front axle and suspension assembly

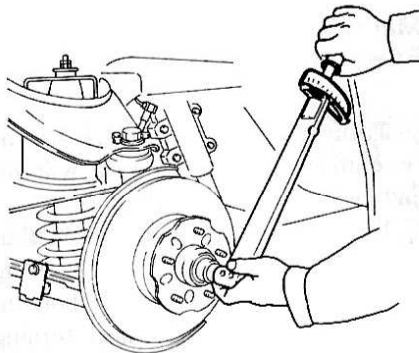
ADJUSTMENT

CONTENTS

WHEEL BEARING	FA-3	TOE-IN	FA-4
WHEEL ALIGNMENT	FA-3	STEERING ANGLE	FA-4
CAMBER AND CASTER	FA-4	CAR LEVEL	FA-4

WHEEL BEARING

1. Sparingly apply grease to threaded parts of spindle shaft, wheel bearing washer and spindle nut.
2. Tighten spindle nut to 3.5 to 4.0 kg-m (25 to 29 ft-lb) torque, using suitable torque wrench.



FA498

Fig. FA-2 Tightening spindle nut

3. Turn wheel hub several times in both directions to seat wheel bearing correctly; again tighten spindle nut to the above torque.
4. Turn spindle nut back 45 degrees. Install adjusting cap and tighten until any of its grooves aligns with hole in spindle. If the above procedure fails to align hole and groove, then tighten lock nut as much as 15 degrees.
5. Again turn wheel hub in several times in both directions to see if it rotates freely. Then, measure bearing preload (with oil seal) using a spring balance as follows:

New parts

22 kg-cm (306 in-oz) or less

As measured at wheel hub bolt

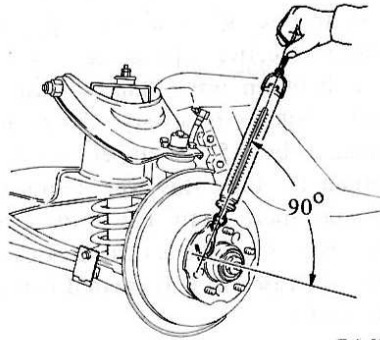
3.9 kg (8.60 lb) or less

Adjustment with old parts

7 kg-cm (97 in-oz)

As measured at wheel hub bolt

1.2 kg (2.65 lb)



FA499

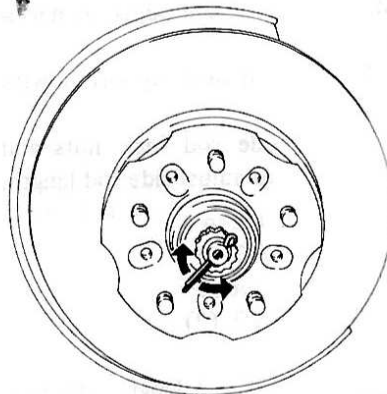
Fig. FA-3 Measuring bearing preload

Repeat above procedures until correct preload is obtained.

Notes:

- a. Correctly measure rotation starting force toward tangential direction against hub bolt.
- b. Slackness of wheel bearings in axial direction should be 0.08 mm (0.0031 in).

6. Insert cotter pin with legs through these two parts; spread legs away from each other against sides of spindle nut to secure installation.



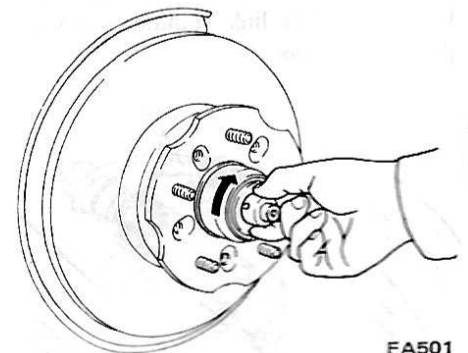
FA500

Fig. FA-4 Installing cotter pin

7. Install hub cap.

Note: If torque wrench is not available for securing spindle nut, carry out the following procedure temporarily. Then, tighten spindle nut using a torque wrench and spring balance and referring to steps "2" to "4".

- (1) Using a wrench, tighten spindle nut to settle wheel bearing down.
- (2) Turn wheel hub several times in both directions, noting if it rotates freely.
- (3) Back off spindle nut until it can be turned out further by hand. Install socket on spindle nut and tighten socket as far as it will go.



FA501

Fig. FA-5 Tightening spindle nut by hand

- (4) Line up hole in spindle with groove in bearing cap. Always turn cap in tightening direction.

WHEEL ALIGNMENT

Correct alignment of front wheels is a very important factor in safety of the car and in the economy of its operation.

Incorrect alignment has considerable adverse effect not only on tire wear and damage, but also on the handling and performance of the car.

Front Axle & Front Suspension

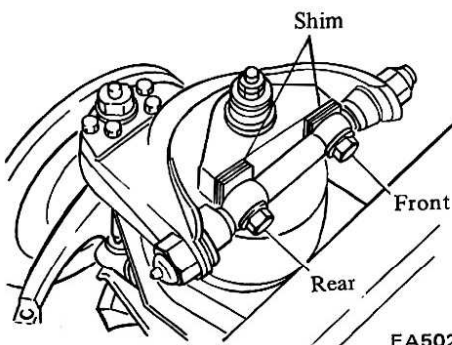
In order to adjust wheel alignment, it is necessary that any faulty part of the front axle assembly be completely corrected. Prior to aligning wheels, the following should be inspected.

- (1) Runout of wheels and tires.
- (2) Tightening of wheel nuts.
- (3) Improperly adjusted wheel bearings.
- (4) Tire pressure and uneven tire wear.
- (5) Loose or improperly adjusted steering gear.
- (6) Play or excessive wear in ball joint.
- (7) Improper coil spring heights.

CAMBER AND CASTER

Measure camber and caster angles of both left and right wheels with a suitable alignment gauge.

Both camber and caster angles are adjusted by increasing or decreasing the number of caster shims inserted between upper link spindle and suspension member.



FA502

Fig. FA-6 Adjusting camber and caster angles

Available camber shim	Thickness mm (in)
A	4 (0.158)
B	1 (0.039)
C	2 (0.079)
D	6 (0.236)

To adjust caster, change thickness of shims between front and rear.

To increase caster:

Remove shims from front and add them to rear.

To decrease caster:

Remove shims from rear and add them to front.

1 mm (0.0394 in) increase in shim thickness corresponds to a 30' change in caster angle. In no event should difference in shim thickness exceed 2 mm (0.0787 in) between front and rear. In cases where above steps are no longer effective, change relative position between upper link spindle and upper link as necessary. Caster angle changes by 15' as upper spindle is turned 1/2 turn. However, do not turn spindle more than 1/2 turn. Caster increases as spindle is turned clockwise and decreases as it is rotated counterclockwise.

To adjust camber, add or remove equal number of shims to or from front and rear.

To increase camber:

Remove shims from front and rear.

To decrease camber:

Add shims to front and rear.

1 mm (0.0394 in) increase in shim thickness corresponds to a 15' change in camber.

Note: Camber and caster setting should not vary more than 45' from side to side.

TOE-IN

Measure toe-in and adjust as necessary.

1. Jack up car and support it with safety stands.
2. Loosen side rod lock nuts and turn side rod to adjust side rod length.

To increase toe-in

Figure FA-7. (1)

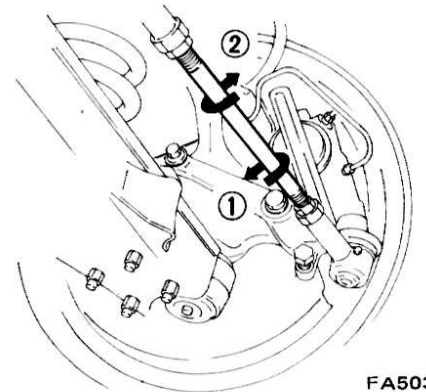
To decrease toe-in

Figure FA-7. (2)

Standard side rod length (distance between socket centers) is 354.4 mm (13.9 in).

Note: Screwed depth of both left and right ball sockets should be equal.

3. After adjusting side rod length, be sure to tighten side rod lock nuts to specified torque.



FA503

Fig. FA-7 Adjustment of toe-in

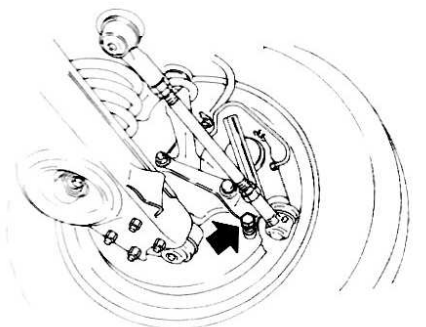
STEERING ANGLE

Manual steering, Power steering

Turn steering wheel clockwise or counterclockwise as far as it will go, and measure turning angle.

If turning angle is not held within specified values, adjust by screwing stopper bolt caps on stopper bolts in or out after adjusting wheel turning angle.

Note: Turning angle of outer wheel will automatically be set by adjusting turning angle of inner wheel to specified values.



FA504

Fig. FA-8 Adjustment of steering angle

CAR LEVEL

Adjustment can be made by selecting a spring which will keep car in a normal level position.

FRONT AXLE

CONTENTS

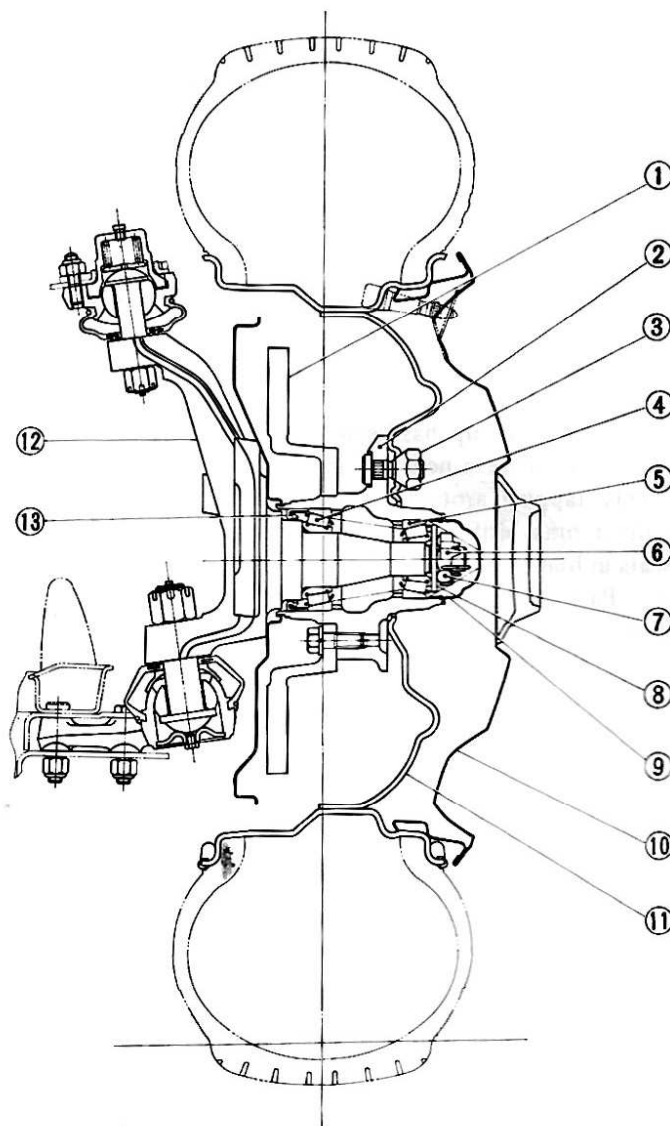
KNUCKLE SPINDLE AND FRONT HUB FA-5
 REMOVAL FA-5

INSPECTION FA-6
 INSTALLATION FA-6

KNUCKLE SPINDLE AND FRONT HUB

On cars equipped with disc brakes, spindle and front wheel hub differ in shape from those on drum brake

equipped cars. The construction, however, is essentially the same.



- 1 Rotor
- 2 Front wheel hub
- 3 Road wheel nut
- 4 Front wheel inner bearing
- 5 Front wheel outer bearing
- 6 Lock nut cap
- 7 Spindle nut
- 8 Front wheel bearing washer
- 9 Front wheel hub cap
- 10 Road wheel cover
- 11 Wheel and tire
- 12 Knuckle spindle
- 13 Front hub grease seal

FA505

Fig. FA-9 Cross-sectional view of front axle (Disc type)

REMOVAL

1. Jack up car and support it with safety stands.
2. Remove wheel cover and remove wheel and tire assembly.

3. Remove caliper assembly if so equipped. See Brake section for Caliper Removing Procedure.
4. Remove hub cap, cotter pin,

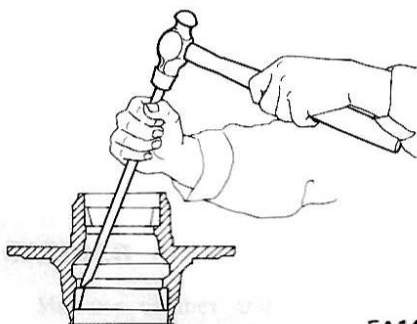
- spindle nut, and washer.
5. Remove hub and rotor assembly (or brake drum and hub assembly).
 Do not allow outer bearing cone to

Front Axle & Front Suspension

fall out of hub when removing hub from knuckle spindle.

6. Remove outer bearing cone with fingers and remove inner bearing cone by prying out grease seal with a screwdriver. Discard grease seal.

7. If it is necessary to replace bearing cup, drive it out from hub with a brass drift and mallet. Evenly tap bearing cup through groove inside hub.



FA140

Fig. FA-10 Removing wheel bearing cup

INSPECTION

1. Grease seal

Replace grease seal every disassembly even if it appears good.

2. Wheel bearing

Thoroughly clean grease and dirt from wheel bearing with cleaning solvent, and dry with compressed air free of moisture. Check wheel bearing to see that it rolls freely and is free from noise, crack, pitting, or wear. Also, check condition of outer race. Removal of outer race from drum is not necessary.

Shown below is a chart furnishing the necessary information on Visual Serviceability Standard for Wheel Bearing.

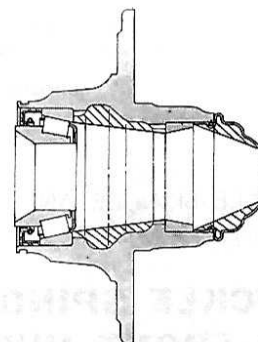
3. Wheel hub

Check hub for cracks by means of a magnetic exploration or dyeing test. Replace if cracked.

INSTALLATION

1. If bearing cup has been removed from hub, drive a new one in hub by evenly tapping around circumference with a brass drift and mallet until it seats in hub.

2. Pack hub and hub cap with recommended grease up to shaded portions indicated in Figure FA-11.



FA506

Fig. FA-11 Greasing portion

3. Pack cavity of each bearing cone with a sufficient amount of recommended grease.

4. Place inner bearing cone in hub and install a new grease seal, coating sealing lips with recommended grease.

5. Install hub assembly over spindle and then install outer bearing cone.

6. Thinly apply recommended grease to washer and threaded portions of spindle shaft and spindle nut.

Then install washer and spindle nut. Adjust as outlined under Wheel Bearing Adjustment.

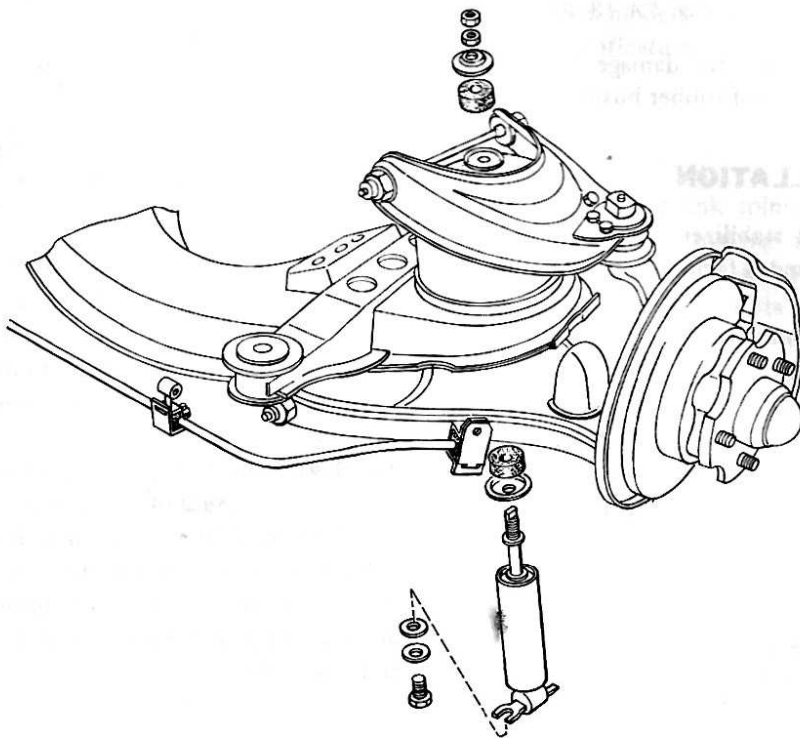
Note: In order to provide wheel bearings with proper pressure and to extend their service life, install wheel bearings, grease seal, washer, and spindle nut carefully so that no dust or foreign materials become stuck on grease applied to them.

FRONT SUSPENSION

CONTENTS

SHOCK ABSORBER	FA- 7	LOWER BALL JOINT	FA- 9
REMOVAL	FA- 7	REMOVAL	FA- 9
INSPECTION	FA- 7	INSPECTION	FA- 9
INSTALLATION	FA- 7	INSTALLATION	FA- 9
STABILIZER	FA- 8	UPPER LINK AND UPPER	
REMOVAL	FA- 8	BALL JOINT	FA-10
INSPECTION	FA- 8	REMOVAL	FA-10
INSTALLATION	FA- 8	INSPECTION	FA-10
FRONT SPRING AND LOWER		INSTALLATION	FA-10
LINK	FA- 8	FRONT SUSPENSION MEMBER	FA-11
REMOVAL	FA- 9	REMOVAL	FA-11
INSPECTION	FA- 9	INSTALLATION	FA-11
INSTALLATION	FA- 9		

SHOCK ABSORBER



FA507

Fig. FA-12 Shock absorber

REMOVAL

1. Jack up car and support it with safety stands.
2. Remove wheel cover and remove wheel and tire assembly.
3. Hold upper end of shock absorber

stem and remove lock nut, nut, outer washer, rubber bushing, and inner washer from upper end of shock absorber.

4. Remove two bolts from lower

end of shock absorber.

5. Lower shock absorber from car and remove rubber bushing and outer washer from upper end of shock absorber.

Note: When shock absorber is to be discarded, drill a hole in lower portion of tube to release high pressure gas.

This procedure facilitates removal of shock absorber.

INSPECTION

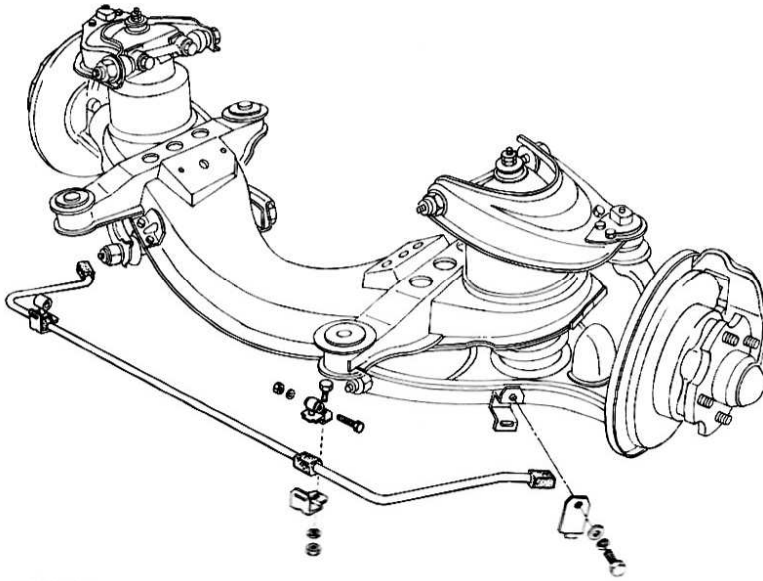
1. Replace shock absorber if it shows evidence of oil leakage, reduced damping force, or a bent shaft.
2. Replace rubber bushing if damage, cracks, or deformation is apparent.

INSTALLATION

Install shock absorber in reverse order of removal, observing the following:

1. Tighten shock absorber bottom bolts to 1.3 to 1.8 kg-m (10 to 13 ft-lb)
2. Hold upper end of shock absorber stem and turn nut fully against threaded portion. Then tighten lock nuts to 1.6 to 2.2 kg-m (12 to 16 ft-lb).

STABILIZER



FA508

Fig. FA-13 Stabilizer

REMOVAL

1. Jack up car and support it with safety stands.
2. Remove outer stabilizer mounting plate from lower link (on both sides).
3. Remove inner stabilizer mounting bracket from frame (on both sides).

INSPECTION

Check for crack or deformation on

stabilizer, and for damage, cracks, or deformation of rubber bushing.

INSTALLATION

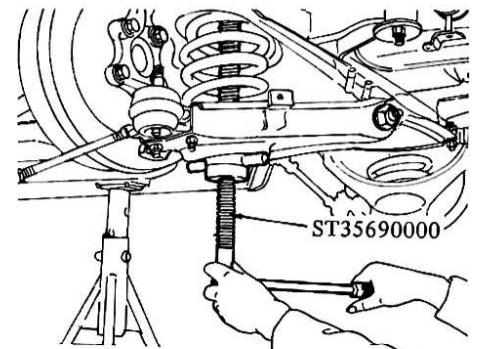
Install stabilizer, making sure that painted end is facing toward the left of car.

If connecting rod was removed from frame, torque fixing nut to 5.1 to 6.9 kg-m (37 to 50 ft-lb).

REMOVAL

1. Remove wheel cover and remove wheel and tire.
2. Remove caliper assembly if so equipped. See Brake section for Caliper Removing Procedure.
3. Remove shock absorber and stabilizer as outlined in Shock Absorber and Stabilizer.
4. Install Coil Spring Setting Tool ST35690000 as shown in Figure FA-15.

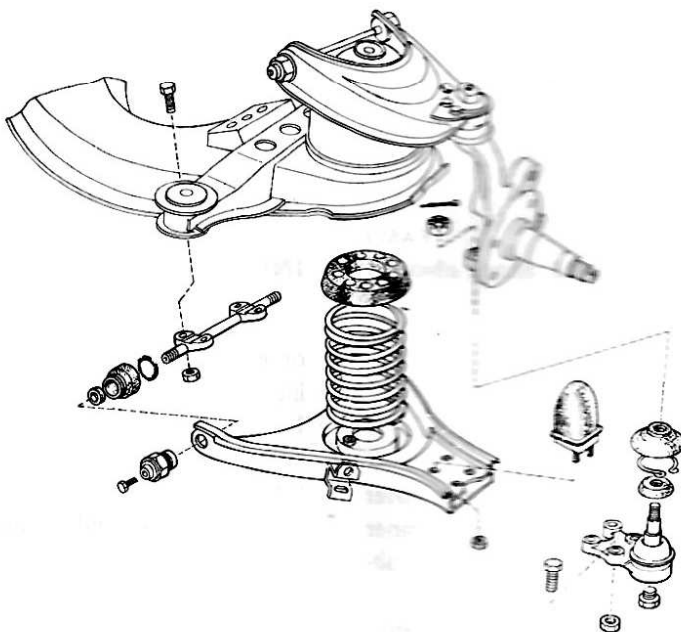
Tighten handle to compress coil spring.



FA147

Fig. FA-15 Compressing coil spring

FRONT SPRING AND LOWER LINK



FA509

Fig. FA-14 Front spring and lower link

5. Remove cotter pin and nut from lower ball joint stud and disconnect lower ball joint from knuckle spindle.
6. Remove two bound bumper securing nuts and remove bound bumper.
7. Turn handle of special tool out to release compression of coil spring.
8. Remove four bolts securing lower link spindle to suspension member.
9. Completely release compression of coil spring and remove coil spring and lower link.

Disassembly of lower link assembly

1. Place lower link in a vise. Pry dust cover clamp out of its groove in dust cover with a screwdriver, and strip dust cover from lower link bushing.
2. Install a suitable socket to hexagon head of lower link bushing and unscrew lower link bushing with a socket wrench. Remove lower link bushings, one on each side. Lower link spindle can now be easily removed from lower link.

INSPECTION

1. Coil spring

Replace any coil spring which is fatigued, cracked, deformed, or damaged.

2. Lower link spindle, Lower link bushing.

(1) If excessive grease leakage from dust cover is found at time of disassembly, check dust cover and dust seal for wear or damage and replace if necessary.

(2) Check lower link spindle and bushing for damaged or worn screw threads with lower link spindle screwed into lower link bushing.

Axial play:

0.35 mm (0.014 in) maximum

3. Lower link

Check lower link for deformation or cracks.

Replace if necessary.

INSTALLATION

Reverse the sequence of removal, observing the following:

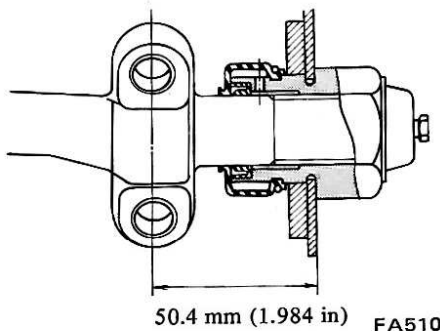


Fig. FA-16 Sectional view of lower spindle and bushing

1. Place lower link in a vice.

2. Prior to assembling lower link bushing, pack inside of lower link bushing with sufficient amount of recommended grease.

Also apply recommended grease to dust seal and screw threads of lower link spindle as shown in Figure FA-16.

3. Install lower link spindle and lower link bushings to lower link, making sure that dust seals and dust covers are in their correct places.

4. Tighten lower link bushing head with a suitable socket and socket wrench until it is seated against lower link. Torque lower link bushing to specifications.

5. Turn lower link spindle all the way in both directions noting total number of turns. Turn it back half the turns so that it is in center of upper link.

6. Set up lower link and coil spring on suspension member using Coil Spring Setting Tool ST35690000. Tighten tool handle to compress coil spring.

Notes:

a. Be sure to install spring seat.

b. Prior to compressing coil spring, properly position lower end of coil spring in seat in lower link.

c. Do not interchange coil springs between models. They are painted for identification.

7. Install lower link spindle to suspension member, making sure that lower link spindle is at center of lower link. Torque attaching nuts to specifications.

8. Compress coil spring until lower ball joint stud secured to lower link is guided into knuckle spindle.

9. Install lower ball joint stud nut and torque to specifications.

10. Release compression of coil spring by turning handle of special tool.

11. Install stabilizer and shock absorber as outlined in Stabilizer and Shock Absorber.

12. Tightening torque

Lower link bushing to lower link:

24 to 45 kg-m
(174 to 325 ft-lb)

Lower link spindle to suspension member:

9.3 to 10.7 kg-m
(67 to 77 ft-lb)

Lower link joint stud nut:

9.0 to 14.0 kg-m
(65 to 101 ft-lb)

Lower ball joint to lower link:

3.3 to 4.3 kg-m
(24 to 31 ft-lb)

LOWER BALL JOINT

REMOVAL

1. Jack up car and support it with safety stands.

2. Remove wheel cover and remove wheel and tire assembly.

3. Support lower link with a hydraulic floor jack.

4. Remove cotter pin and nut from lower ball joint stud and separate lower ball joint from knuckle spindle.

5. Remove four lower ball joint securing nuts and remove lower ball joint together with bound bumper.

INSPECTION

Using a grease gun, inject grease through grease nipple into ball joint until it overflows from plug hole. When completely lubricated, shape of dust cover forms normally.

Ball joint Ball joint is a non-disassembly type.

1. Check stud end play in axial direction.

Stud end play (standard):

0 to 0.7 mm (0 to 0.028 in)

2. When dust cover is cracked, replace.

INSTALLATION

1. Install lower ball joint and bound bumper to lower arm.

2. Guide lower ball joint stud into knuckle spindle and install nut. Torque nut to specifications.

3. Release hydraulic floor jack to lower lower link.

4. Tightening torque

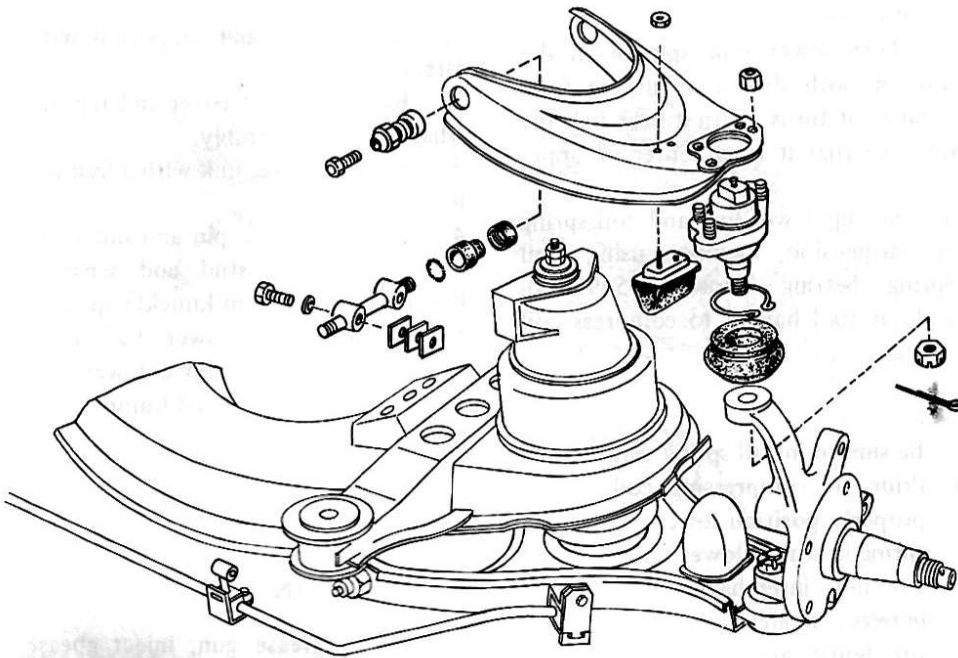
Lower ball joint to lower link:

2.3 to 4.3 kg-m
(17 to 31 ft-lb)

Lower link joint stud nut:

17.2 to 19.5 kg-m
(124 to 141 ft-lb)

UPPER LINK AND UPPER BALL JOINT



FA511

Fig. FA-17 Upper link and upper ball joint

REMOVAL

1. Jack up car and support is with safety stands.
2. Remove wheel cover and remove wheel and tire assembly.
3. Support lower link with a hydraulic floor jack.
4. Remove cotter pin and nut from upper ball joint stud and separate upper ball joint from knuckle spindle.
5. Remove four upper ball joint securing nuts and remove upper ball joint.
6. Remove rebound bumper securing nut and remove rebound bumper.
7. Remove two upper link mounting bolts and remove upper link and upper link spindle as an assembly.

Note: Be careful not to lose camber shims.

Disassembly of upper link assembly

1. Place upper link in a vise. Pry dust cover clamp out of its groove in

dust cover with a screwdriver, and strip dust cover from upper link bushing.

2. Install a suitable socket to hexagon head of upper link bushing and unscrew upper link bushing with a socket wrench. Remove upper link bushings, one on each side. Upper link spindle can now be easily removed from upper link.

INSPECTION

1. Upper ball joint

For details, refer to Inspection for Lower Ball Joint.

- (1) Hook a spring balance to stud upper end and measure stud swinging torque. If it deviates excessively high or low from specifications, replace ball joint.

Stud swining torque (standard):

6.2 to 7.3 kg-m
(45 to 54 ft-lb)

- (2) No stud end play toward axial direction should exist in upper ball

joint.

- (3) If dust cover is cracked, replace.
2. Upper link spindle, Upper link bushing

(1) If excessive grease leakage from dust cover is found at time of disassembly, check dust cover and dust seal for wear and damage; if necessary, replace.

- (2) Check upper link spindle and bushing for damage or worn screw threads with upper link spindle screwed into upper link bushing.

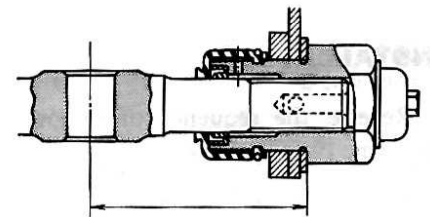
Axial play:

0.35 mm (0.014 in), maximum

3. Upper link

Check upper link for deformation or cracks. Replace if necessary.

INSTALLATION



65.7 mm (2.587 in)

FA512

Fig. FA-18 Sectional view of upper spindle and bushing

Reverse the order of removal, observing the following:

1. Place upper link in a vise.
2. Prior to assembling upper link bushing, pack inside of upper link bushing with a sufficient amount of recommended grease.

Also apply recommended grease to dust seal and screw threads of upper link spindle as shown in Figure FA-18.

3. Install upper link spindle and upper link bushings to upper link, making sure that dust seals and dust covers are in place.

4. Tighten upper link bushing head with a suitable socket and socket wrench until it is seated against upper link. Torque upper link bushing to specifications.

- Turn upper link spindle all the way in both directions, noting number of turns. Turn it back half the turns so that it is in center of upper link.
- Install upper link and upper link spindle as an assembly to suspension member, making sure that upper link spindle is at center of upper link. Torque attaching nuts to specifications.

Note: Be sure to re-intall original camber shims.

- Install rebound bumper.
- Install upper ball joint to upper arm.
- Guide upper ball joint stud into knuckle spindle and install nut. Torque nut to specifications.
- Release hydraulic floor jack to lower lower link.
- Check and adjust front wheel alignment.

12. Tightening torque

Upper ball joint to upper link:

1.7 to 2.2 kg-m
(12 to 16 ft-lb)

Upper link bushing to upper link:

24 to 25 kg-m
(174 to 181 ft-lb)

Upper link spindle to suspension member:

9.5 to 11.0 kg-m
(69 to 80 ft-lb)

Upper link joint stud nut:

6.2 to 7.3 kg-m
(45 to 53 ft-lb)

FRONT SUSPENSION MEMBER

REMOVAL

- Jack up car and support it with safety stands.
- Remove wheel cover and remove wheel and tire assembly.
- Remove caliper assembly if so equipped. See Brake section for Removal Procedure.
- Remove stabilizer. See Stabilizer.
- Remove under cover.
- Remove two bolts securing suspension member to install power steering pipe (if so equipped).
- Hoist up front end of engine with a lifting cable or chain so that front engine mounting insulators are just barely free from engine weight.
- Remove four insulator securing bolts.
- Place hydraulic floor jack under each lower link to support suspension weight.

Remove four mounting bolts and remove front suspension member, lowering jack gently.

INSTALLATION

Installation is in the reverse order of removal. However, observe the following items as well as the service notes in each section.

- Do not confuse right and left coil springs.
- Front suspension installation bolts should be tightened starting with upper one.

Tightening torque:

Front suspension member to frame:

Upper side:

4.8 to 5.8 kg-m
(35 to 42 ft-lb)

Lower side:

4.4 to 5.4 kg-m
(32 to 39 ft-lb)

- After installation, bleed brake as outlined in section Brake.
- Check and adjust front wheel alignment.

SERVICE DATA AND SPECIFICATIONS

WHEEL ALIGNMENT

(When car is unloaded and tire pressure is specified value.)

Applied model	Condition	Unladen			
	Seating capacity	Camber degree	Caster degree	Kingpin inclination degree	Toe-in (extreme front and rear of tire center) mm (in)
Sedan	6	0° to 1°	20' to 1°20'	7°20'	3 to 5 (0.118 to 0.197)
Sedan and Hardtop	5	10' to 1°10'	30' to 1°30'		
Sedan (diesel)	5, 6	0° to 1°	30' to 1°30'		
Station Wagon	5	-10' to 50'	5' to 1°5'		

STEERING ANGLE

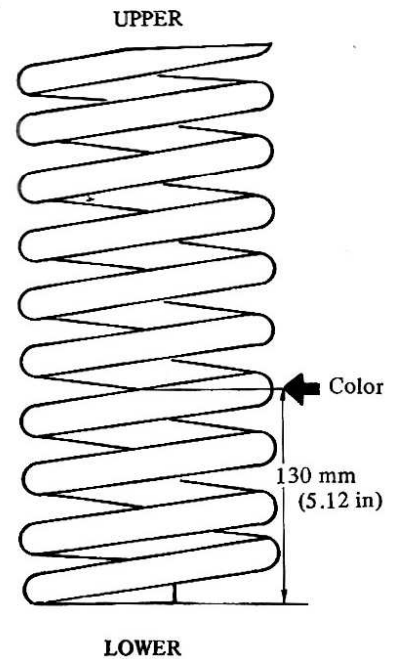
MANUAL STEERING, POWER STEERING

Inner wheel	37°30' to 38°30'
Outer wheel	29°30' to 30°30'

COIL SPRING

Front coil spring	Steering location	Spring location	Wire diameter mm (in)	Coil diameter mm (in)	Free length mm (in)	Spring constant kg/mm (lb/in)	Identification color
Sedan (deluxe and custom deluxe)	R.H.	R.H.	16.0 (0.630)	113.0 (4.45)	406.0 (15.98)	5.34 (299.0)	Blue
		L.H.	16.0 (0.630)	113.0 (4.45)	391.0 (15.39)		Yellow
	L.H.	R.H.	16.0 (0.630)	113.0 (4.45)	406.0 (15.98)	5.34 (299.0)	Blue
		L.H.	16.0 (0.630)	113.0 (4.45)	398.5 (15.69)		White
Hardtop	R.H.	R.H.	16.0 (0.630)	113.0 (4.45)	406.0 (15.98)	5.34 (299.0)	Blue
		L.H.	16.0 (0.630)	113.0 (4.45)	391.0 (15.39)		Yellow
	L.H.	R.H.	16.0 (0.630)	113.0 (4.45)	391.0 (15.39)	5.34 (299.0)	Yellow
		L.H.	16.0 (0.630)	113.0 (4.45)	398.5 (15.69)		White
Sedan (diesel)	R.H.	R.H.	16.0 (0.630)	113.0 (4.45)	406.0 (15.98)	5.34 (299.0)	Blue
		L.H.	16.0 (0.630)	113.0 (4.45)	398.5 (15.69)		White
	L.H.*	R.H.	16.5 (0.650)	113.5 (4.47)	355.5 (14.00)	7.24 (405.0)	Green
		L.H.	16.5 (0.650)	113.5 (4.47)	355.5 (14.00)		Green
Station Wagon	R.H.	R.H.	16.0 (0.630)	113.0 (4.45)	406.0 (15.98)	5.34 (299.0)	Blue
		L.H.	16.0 (0.630)	113.0 (4.45)	391.0 (15.39)		Yellow
	L.H.	R.H.	16.0 (0.630)	113.0 (4.45)	406.0 (15.98)	5.34 (299.0)	Blue
		L.H.	16.0 (0.630)	113.0 (4.45)	398.5 (15.69)		White

Effective turn: 7.0 (* marked item) 8.5 (Others)



Front Axle & Front Suspension

SHOCK ABSORBER

Shock absorber	Stroke mm (in)	Damping force kg (lb)		Piston diameter mm (in)
		Expansion	Compression	
Sedan (deluxe and * custom deluxe) Hardtop	130 (5.12)	137 (302)	88 (194)	40 (1.575)
Sedan (diesel)	R/H	140 (5.51)	120 (265)	30.2 (1.189)
	L/H*	130 (5.12)	174 (384)	40 (1.575)
Station Wagon*	130 (5.12)	174 (384)	94 (207)	40 (1.575)

Mark * indicates gas-filled shock absorber.

STABILIZER

Stabilizer	Diameter mm (in)
Station Wagon Van	23 (0.906)
Diesel Standard Deluxe	20 (0.787)

Wheel bearing

Rotation starting torque:

With new bearings	kg-cm (in-oz)	22 (305) maximum
With used bearings	kg-cm (in-oz)	7 (97) maximum

Rotation starting force (hooked at hub bolt)

With new bearings	kg (lb)	3.9 (8.6) maximum
With used bearings	kg (lb)	1.2 (2.6) maximum

Lower ball joint

Stud end play (Standard)	mm (in)	0 to 0.7 (0 to 0.0276)
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Upper ball joint

Stud swinging torque (Standard)	kg-m (ft-lb)	0.2 to 0.9 (1.7 to 6.5)
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TIGHTENING TORQUE

Schock absorber

Lower side fixing bolt	kg-m (ft-lb)	1.6 to 1.9 (12 to 14)
Upper side lock nut	kg-m (ft-lb)	2 to 3 (14 to 22)

Stabilizer

Connecting rod fixing bolt	kg-m (ft-lb)	5.1 to 6.9 (37 to 50)
----------------------------	--------------------	-----------------------

Front Axle & Front Suspension

Lower link and ball joint

Lower ball joint to lower link	kg-m (ft-lb)	2.3 to 4.3 (17 to 31)
Lower link bushing lower link	kg-m (ft-lb)	24 to 25 (174 to 181)
Lower link spindle to suspension member	kg-m (ft-lb)	9.3 to 10.7 (67 to 77)
Lower link ball joint stud nut	kg-m (ft-lb)	17.2 to 19.5 (124 to 141)

Upper link and ball joint

Upper ball joint to upper link	kg-m (ft-lb)	1.7 to 2.2 (12 to 16)
Upper link bushing to upper link	kg-m (ft-lb)	20 to 21 (145 to 152)
Upper link spindle to suspension member	kg-m (ft-lb)	9.5 to 11.0 (69 to 80)
Upper link joint stud nut	kg-m (ft-lb)	6.2 to 7.3 (45 to 53)

Knuckle arm

Side rod ball joint to knuckle arm	kg-m (ft-lb)	5.5 to 10 (40 to 72)
Side rod lock nut	kg-m (ft-lb)	7.7 to 10.5 (56 to 76)
Front hub to rotor	kg-m (ft-lb)	3.9 to 5.3 (28 to 38)

Suspension member

Suspension member to frame		
Upper side	kg-m (ft-lb)	4.0 to 5.0 (29 to 36)
Lower side	kg-m (ft-lb)	3.7 to 4.5 (27 to 33)

Front Axle & Front Suspension

TROUBLE DIAGNOSES AND CORRECTIONS

Condition	Probable cause	Corrective action
<p>Vibration, shock and shimmy of steering wheel.</p> <p>Vibration: Excessive backlash in steering gears and vibration of front wheels are often transmitted to steering wheel. This is most noticeable when travelling over rough roads at high speeds.</p> <p>Shock: When front wheels are travelling over bumpy roads, the play of steering linkage is transmitted to steering wheel. This is especially noticeable when travelling over rough roads.</p> <p>Shimmy: Abnormal vibrations of front suspension group and entire steering linkage occur when a specific speed is attained.</p>	<p>Improper tire pressure.</p> <p>Unbalanced or deformed wheel.</p> <p>Unevenly worn or insufficiently tightened tire.</p> <p>Improperly adjusted or worn front wheel bearing.</p> <p>Faulty wheel alignment.</p> <p>Worn or loose suspension link screw bushing.</p> <p>Damaged idler arm.</p> <p>Insufficiently tightened steering gear housing.</p> <p>Worn steering linkage.</p> <p>Improper steering gear adjustment (insufficient backlash).</p> <p>Damaged shock absorber or loose installation.</p> <p>Unbalanced car posture.</p>	<p>Adjust.</p> <p>Correct or replace.</p> <p>Replace or tighten.</p> <p>Adjust or replace.</p> <p>Adjust.</p> <p>Replace.</p> <p>Replace.</p> <p>Tighten.</p> <p>Replace ball joint.</p> <p>Adjust.</p> <p>Replace or tighten.</p> <p>Adjust.</p>
<p>Car pulls to right or left.</p> <p>When driving with hands off steering wheel on a flat road, the car gently swerves to right or left.</p> <p>Note: A faulty rear suspension may also be the cause of this problem. Thus, also see chapter dealing with rear suspension.</p>	<p>Improper tire pressure or insufficient tightening of wheel nuts.</p> <p>Difference in height of right and left tire treads.</p> <p>Incorrect adjustment or abrasion of front wheel bearing.</p> <p>Front coil spring weakened or out of specifications.</p> <p>Worn or loose suspension link screw bushing.</p> <p>Deformed steering linkage and suspension link.</p> <p>Unbalanced car posture.</p>	<p>Adjust or tighten.</p> <p>Replace tires.</p> <p>Adjust or replace.</p> <p>Replace.</p> <p>Replace.</p> <p>Replace.</p> <p>Correct.</p>
<p>Car instability.</p>	<p>Improper tire pressure.</p> <p>Worn or loose suspension link screw bushing.</p> <p>Incorrect wheel alignment.</p> <p>Worn or deformed steering linkage and suspension link.</p> <p>Incorrect adjustment of steering gear.</p> <p>Deformed or unbalanced wheel.</p>	<p>Adjust.</p> <p>Replace.</p> <p>Adjust.</p> <p>Replace.</p> <p>Adjust.</p> <p>Correct or replace.</p>

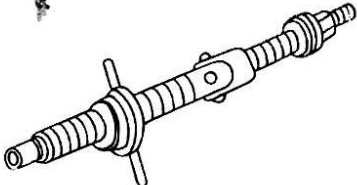
Front Axle & Front Suspension

Condition	Probable cause	Corrective action
<p>Stiff steering wheel. (Inspection procedure)</p> <p>Jack up front wheels, detach gear arm and operate steering wheel. If it moves lightly, check steering linkage and suspension groups. If it moves but sluggishly, check steering gear and associated parts.</p>	<p>Improper tire pressure.</p> <p>Insufficient or improper lubricant in steering gear box or excessively worn steering linkage.</p> <p>Insufficient lubricant in gear box or contaminated lubricant.</p> <p>Worn or incorrectly adjusted wheel bearing.</p> <p>Worn or damaged steering gear and bearing.</p> <p>Incorrectly adjusted steering gear.</p> <p>Deformed steering linkage.</p> <p>Incorrect wheel alignment.</p> <p>Interference of steering column with turn signal switch.</p>	<p>Adjust.</p> <p>Replenish lubricant or replace.</p> <p>Add or replace lubricant.</p> <p>Replace or adjust.</p> <p>Replace.</p> <p>Adjust.</p> <p>Replace.</p> <p>Adjust.</p> <p>Adjust.</p>
<p>Excessive steering wheel play.</p>	<p>Incorrectly adjusted steering gear.</p> <p>Worn steering linkage idler arm.</p> <p>Improperly fitted gear box.</p> <p>Incorrectly adjusted wheel bearing.</p> <p>Worn or loose suspension link screw bushing.</p>	<p>Adjust.</p> <p>Replace.</p> <p>Retighten.</p> <p>Adjust.</p> <p>Replace.</p>
<p>Noise.</p>	<p>Improper tire pressure.</p> <p>Insufficient grease for, or broken, suspension ball joint, screw bushing, and steering linkage.</p> <p>Loose steering linkage and suspension parts.</p> <p>Damaged shock absorber.</p> <p>Worn wheel bearing.</p> <p>Worn steering linkage and steering gear.</p> <p>Worn or loose suspension link screw bushing.</p>	<p>Adjust.</p> <p>Replenish grease, or replace.</p> <p>Retighten.</p> <p>Replace.</p> <p>Replace.</p> <p>Replace.</p> <p>Replace.</p>
<p>Tire noise.</p>	<p>Improper tire pressure.</p> <p>Incorrect wheel alignment.</p> <p>Deformed suspension linkage.</p>	<p>Adjust.</p> <p>Adjust.</p> <p>Replace.</p>

Front Axle & Front Suspension

Condition	Probable cause	Corrective action
Jumping of disc wheel.	Improper tire pressure. Unbalanced wheel and tire. Damaged shock absorber. Damaged tire. Deformed wheel rim.	Adjust. Adjust. Replace. Replace. Replace.
Excessively or partially worn tire.	Improper tire pressure. Incorrect wheel alignment. Worn wheel bearing. Incorrect brake adjustment. Improper tire rotation. Rough and improper driving manner.	Adjust. Adjust. Replace. Adjust. Adjust. Drive more gently.

SPECIAL SERVICE TOOL

No.	Tool number & tool name	Description	For use on	Reference page or Figure No.
1.	ST35690000 Coil spring setting tool	For removal of front suspension coil spring. <div style="text-align: center;">  </div>	330 230 250	Fig. FA-15

SE 109

1000
1000

1000
1000



SERVICE MANUAL

DATSUN
MODEL 330 SERIES
CHASSIS & BODY

SECTION RA

REAR AXLE & REAR SUSPENSION

RA

REAR AXLE AND SUSPENSION	RA- 2
REAR AXLE	RA- 3
REAR SUSPENSION	RA- 5
SERVICE DATA AND SPECIFICATIONS	RA- 7
TROUBLE DIAGNOSES AND CORRECTIONS	RA- 9
SPECIAL SERVICE TOOLS	RA-10

NISSAN

NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

REAR AXLE AND SUSPENSION

DESCRIPTION

The rear axle assembly is a semi-floating type in which the car weight is carried on the axle shafts through the bearings in the outer end of the rear axle case. The axle case is a "Banjo" type.

The rear axle assembly is attached to the frame through semi-elliptic leaf springs and shock absorbers.

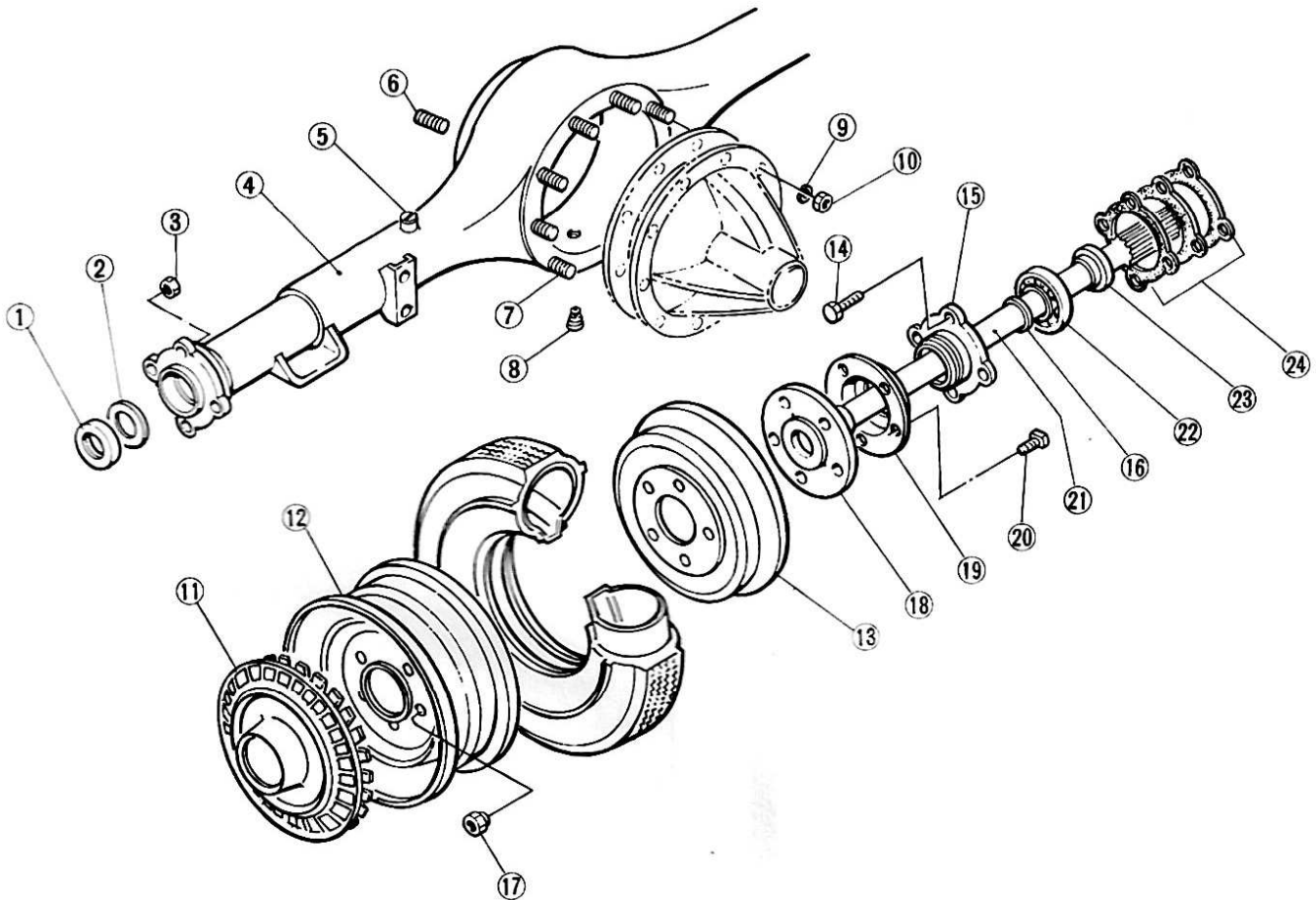
Vibration and noise are effectively

absorbed by rubber bushings at each end of the leaf springs, gas-filled shock absorbers, and spring pads at spring seats attached to leaf spring singly, or in combination.

On some models, double-acting hydraulic shock absorbers are utilized. Torque arrestors minimize the movement of the gear carrier and propeller shaft resulting from so-called "winding-up".

The rear axle shafts are float-fitted to the differential side gears through splines. The outer ends are supported at the ends of the rear axle case by a single set of sealed ball bearings.

The bearings are lubricated with recommended multipurpose grease. The axle shaft oil seals are located inboard of the axle case. The bearings are secured against shaft shoulders by means of collars.



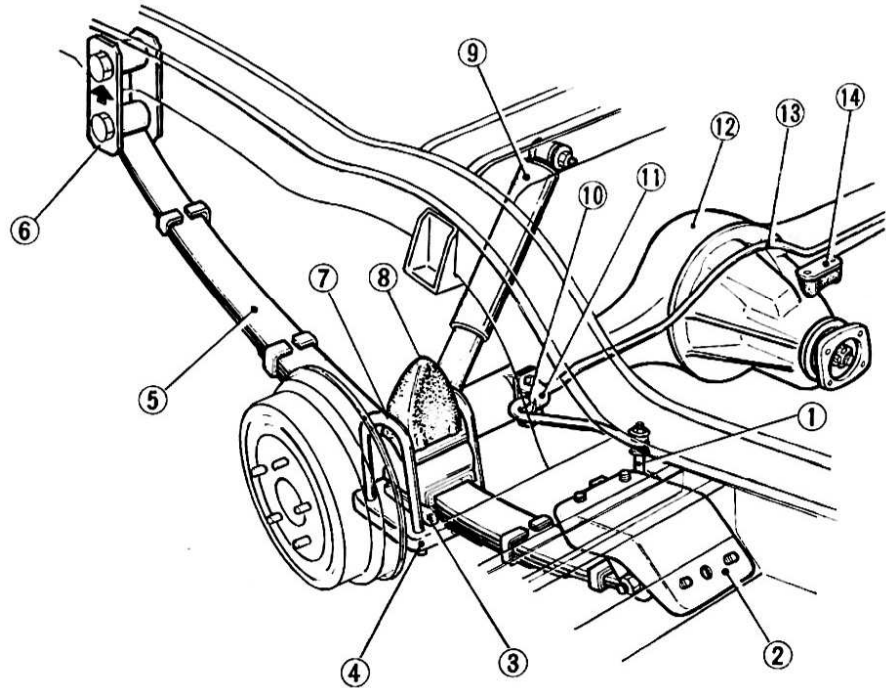
- 1 Rear axle shaft oil seal
- 2 Rear axle oil seal spacer
- 3 Lock nut
- 4 Rear axle case assembly
- 5 Breather assembly
- 6 Filler plug
- 7 Gear carrier fixing stud
- 8 Drain plug assembly

- 9 Lock washer
- 10 Hex nut
- 11 Road wheel cover assembly
- 12 Road wheel assembly
- 13 Rear brake drum
- 14 Rear axle bearing cage bolt
- 15 Rear axle bearing case
- 16 Rear axle bearing spacer

- 17 Road wheel nut
- 18 Rear wheel bearing grease catcher
- 19 Rear axle grease catcher
- 20 Road wheel hub bolt
- 21 Rear axle shaft assembly
- 22 Rear axle shaft bearing
- 23 Rear axle shaft bearing collar
- 24 Rear axle end shim case

RA337

Fig. RA-1 Structural view of rear axle



- 1 Special bolt
- 2 Rear front bracket
- 3 Location plate
- 4 Rear suspension seat assembly
- 5 Leaf spring
- 6 Rear spring shackle assembly
- 7 Rear suspension clip
- 8 Rear suspension bumper assembly
- 9 Rear shock absorber assembly
- 10 Stabilizer rear bushing
- 11 Stabilizer mounting bracket
- 12 Rear axle case assembly
- 13 Rear stabilizer bar
- 14 Rear suspension torque arrester assembly

RA090

Fig. RA-2 Rear suspension system

REAR AXLE

CONTENTS

REAR AXLE ASSEMBLY	RA-3	REMOVAL	RA-4
REMOVAL	RA-3	INSPECTION	RA-5
INSTALLATION	RA-4	INSTALLATION	RA-5
REAR AXLE SHAFT AND WHEEL BEARING	RA-4		

REAR AXLE ASSEMBLY

REMOVAL

It is not necessary to remove the rear axle assembly for minor repairs.

However, if the axle case is damaged, the rear axle assembly may be removed as follows:

1. Raise rear of car high enough to permit working under it. Place a jack under center of axle case so it just barely raises rear axle assembly.

Place stands under body member on both sides. Remove rear wheels.

2. Mark propeller shaft flange and companion flange of differential carrier so that original combination can be restored.

3. For a 3-joint propeller shaft, remove two bolts holding center bearing bracket to body and four bolts connecting propeller shaft to companion flange of differential carrier in that order. Then withdraw propeller shaft sleeve yoke from transmission by moving shaft rearward, passing it

under rear axle. Prevent oil leakage from transmission end.

Note: Remove propeller shaft carefully so as not to damage spline, sleeve yoke or rear oil seal.

4. Disconnect brake hose ① and hand brake wire ②, and remove shock absorber ③. See Figure RA-3.

5. On cars with stabilizer, back off bolts ④ attaching it to axle case (banjo). See Figure RA-3.

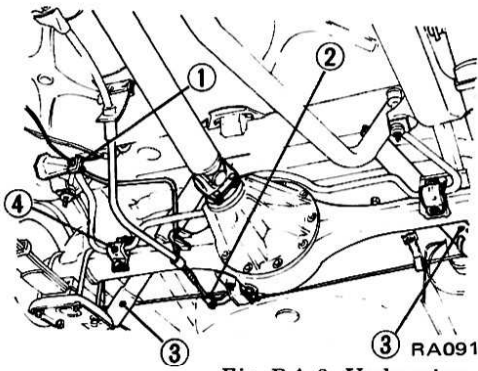


Fig. RA-3 Under view

6. Place a jack beneath center of axle case to support its weight.
7. Back off lock nuts of rear spring U-bolt and remove bolts, spring seat location plates and seat pads.

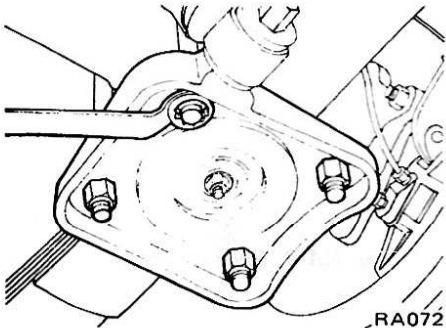


Fig. RA-4 Removing U-bolt

8. Pass axle case through space above spring, and take it out to the side. See Figure RA-4.

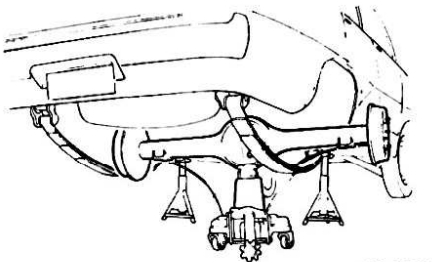


Fig. RA-5 Removing rear axle assembly

INSTALLATION

Install axle case assembly in reverse order of removal, noting the following:

- Tightening torque:
- U-bolt (Spring clip):
4.0 to 4.8 kg-m
(28.9 to 34.7 ft-lb)

- Shock absorber lower end bolt:
5.9 to 7.7 kg-m
(42.7 to 55.7 ft-lb)
- Propeller shaft-to-companion
flange connecting bolt:
2.5 to 3.2 kg-m
(18 to 23 ft-lb)

REAR AXLE SHAFT AND WHEEL BEARING

REMOVAL

Prior to removing rear axle, inspection should be made to determine if it has been working properly.

1. Raise rear end of car with jack and place stands under right and left side members. Remove road wheel and brake drum. Refer to Brake Section for Rear Brake Disassembly.
2. Remove brake tube connector ② and side brake rod ③ which connect to axle.

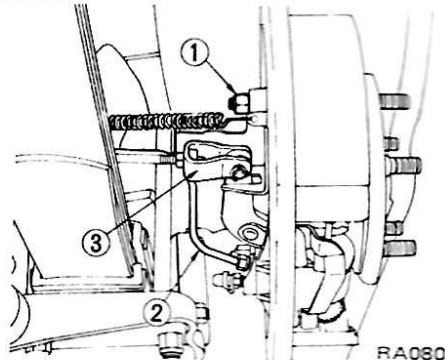


Fig. RA-6 Disassembling rear axle

3. Back off four nuts ① holding bearing cage to axle case end.

Remove axle shaft together with bearing cage and brake assembly.

If it is difficult to remove axle shaft because of rust, use special tools ST07620000 and ST36230000 as in Figure RA-7.

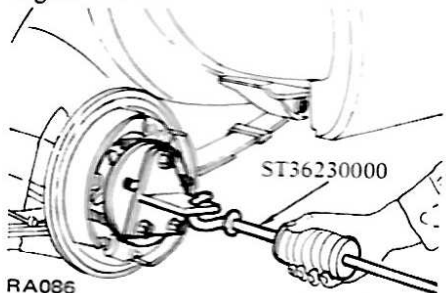


Fig. RA-7 Removing axle shaft with special tools

4. Strike bearing collar with a blunt chisel to loosen it. Press only axle shaft out of its position using Bearing Puller ST37110000 as shown. Take out bearing cage. Brake assembly will still be on bearing at this stage of assembly.

Notes:

- a. When striking bearing collar, be careful not to damage axle shaft.
- b. Always use new bearing collar to avoid loosening bearing during this operation.

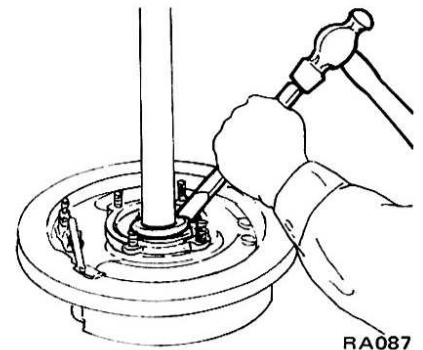


Fig. RA-8 Cutting bearing collar

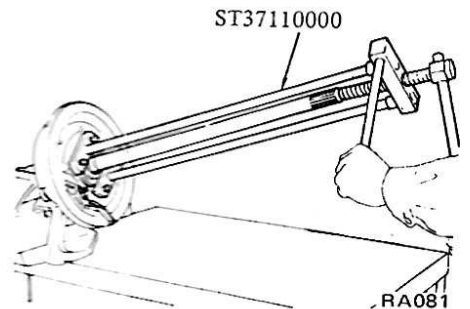


Fig. RA-9 Removing axle shaft

5. Using Drift ST37152000 or copper drift, drive bearing out from bearing cage.

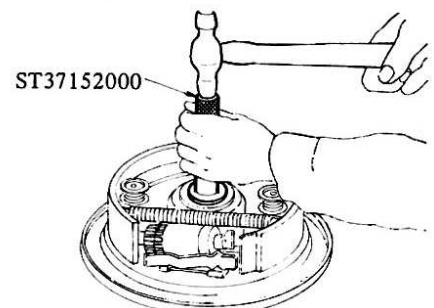


Fig. RA-10 Withdrawing bearing

6. If necessary, pry oil seal out of position with a screwdriver, etc.

Note: Do not re-use old oil seal.

Rear Axle & Rear Suspension

INSPECTION

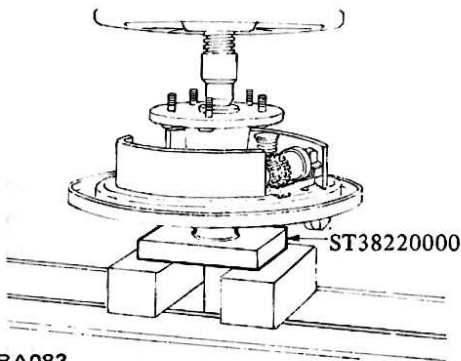
1. Check entire length of axle shaft for bending or cracks. If cracked beyond safe limits, discard. Light bending can be straightened in a heavy press.
2. Do not re-use old oil seal, bearing or bearing collar.

INSTALLATION

1. Drive fit bearing into bearing cage. To do this, use a copper drift and apply force to outer race evenly.

Note: Be sure to apply force only to outer race.

2. Using special tool ST38220000, install bearing and bearing collar on axle shaft.



RA083

Fig. RA-11 Installing bearing

Note: Surface which comes in contact with bearing should be free from oil or grease.

When bearing is installed, pressure should be 4 to 4.5 ton (8,818 to 9,920 lb).

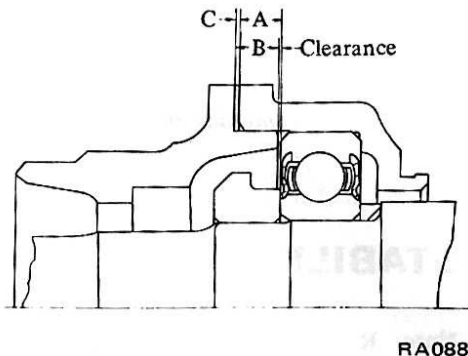
3. Install oil seal to tube end by tapping with a soft hammer through a piece of wood, being sure to apply force evenly.

Note: Be careful not to damage sealing lip or else deformation will result.

4. Pack sealing lips with grease.
5. Measure distances A and B to determine proper thickness of shim C to assure correct bearing side clearance.

$$C \geq B - A$$

$$C \leq B - A + 0.1$$



RA088

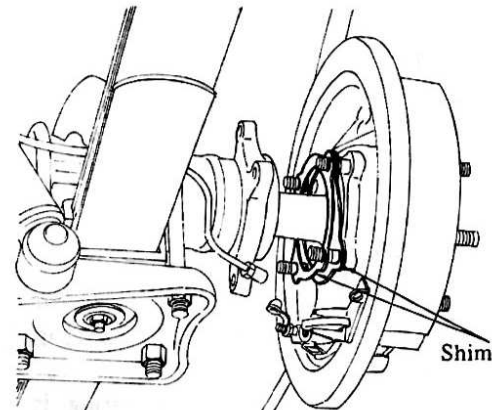
Fig. RA-12 Installing bearing

Bearing clearance:
0 to 0.1 mm (0 to 0.039 in)

6. Using calculated thickness of shim C, assemble axle shaft.

Tightening torque:
2.7 to 3.7 kg-m
(20 to 27 ft-lb)

7. Install axle case assembly in reverse order of removal.



RA084

Fig. RA-13 Installing axle shaft

REAR SUSPENSION

CONTENTS

LEAF SPRING	RA-5	REMOVAL	RA-6
REMOVAL	RA-5	STABILIZER	RA-6
INSPECTION	RA-6	REMOVAL	RA-6
INSTALLATION	RA-6	INSPECTION	RA-6
SHOCK ABSORBER	RA-6	INSTALLATION	RA-6

LEAF SPRING

REMOVAL

Study and practice steps 1 to 7 of

rear axle assembly removal. See pages RA-3 and RA-4.

Then remove rear suspension,

following the instructions below.

1. Remove total of four bolts holding front bracket in place.

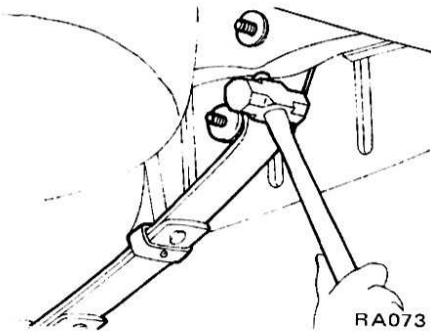


Fig. RA-14 Removing rear spring shackle

2. Take out rear suspension assembly while lowering jack slowly.

INSPECTION

1. Visually inspect front bracket for sign of damage to rubber or cracks in bracket; if necessary, replace.
2. Check to see if leaf spring is broken, cracked or weakened. If found broken or weakened, replace.

Note: If either spring is broken, replace both as a matched set.

3. Check U-bolts for bending, dents, cracks or breakage. Discard if threads are stripped.
4. Check to determine that pads, rubber bushings and silencers are not cracked, damaged, worn or fatigued, replacing those found worn or damaged beyond limits.

INSTALLATION

To install, reverse removal procedure. However, observe the following:

1. To install front bracket, use center bolt holes. Apply soapy water to rubber bushings to facilitate the installation.
2. Parts with rubber bushings should be tightened only when wheels take weight of car without load.

SHOCK ABSORBER

REMOVAL

Shock absorber can be taken out easily by removing upper and lower nuts.

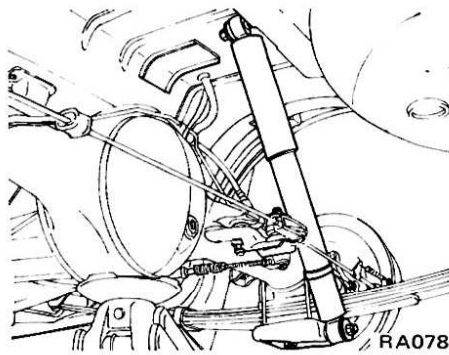


Fig. RA-15 Removing shock absorber

STABILIZER

Note: Rear stabilizer is not equipped on Station Wagon models.

REMOVAL

1. Stabilizer is connected to side member with bolt ② and to axle case with bolt ①. To take it out, remove these bolts with a suitable wrench.

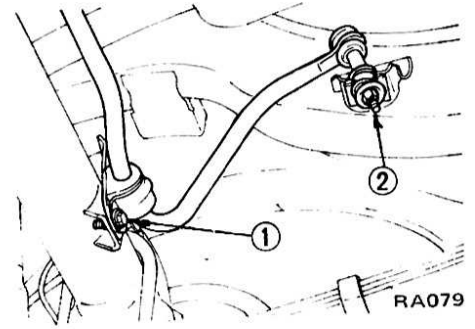


Fig. RA-16 Removing stabilizer

INSPECTION

1. Check to see if it is damaged or cracked. Discard if found to be damaged or cracked beyond limits.
2. Check to see that bushings are in good condition. If not, replace with new ones.

INSTALLATION

To install stabilizer, reverse above procedure, being sure that centering washer on side member is properly seated.

Note: Stabilizer should be installed with notched face of bushing down (axle case side).

Tightening torque:

Bracket mounting bolt:

0.8 to 1.1 kg-m
(5.8 to 8.0 ft-lb)

Nut on side member:

1.2 to 1.5 kg-m
(8.7 to 11 ft-lb)

SERVICE DATA AND SPECIFICATIONS

SPECIFICATION

Axle type		Semi-floating banjo type.
Suspension type		Rigid-axle type employing parallel, semi-elliptical leaf springs.
Shock absorber type		
Sedan and Hardtop		Gas-filled type.
Station Wagon		Double-acting hydraulic type.
Leaf spring		
Dimension (Length x width x thickness)		
Sedan and Hardtop	mm (in)	1,400 x 70 x 6.0 (55.12 x 2.756 x 0.236)
Station Wagon	mm (in)	1,400 x 60 x 7.0 (55.12 x 2.362 x 0.276)
Free camber		
Sedan and Hardtop	mm (in)	136.5 (5.37)
Station Wagon	mm (in)	173 (6.81)
Laden camber		
Sedan and Hardtop	mm (in)	0 (0)
Station Wagon	mm (in)	0 (0)
Shock absorber		
Stroke x Max. length "A"		
Sedan and Hardtop	mm (in)	195 x 532 (7.68 x 20.94)
Station Wagon	mm (in)	195 x 532 (7.68 x 20.94)
Damping force at 0.3 m/sec.		
Sedan and Hardtop		
Expansion	kg (lb)	92 (202.9)
Compression	kg (lb)	30 (66.2)
Station Wagon		
Expansion	kg (lb)	69 (152.1)
Compression	kg (lb)	48 (105.8)
Rear axle		
End play	mm (in)	0 to 0.1 (0 to 0.0394)
Rear axle case end shim thickness	mm (in)	0.05 (0.002) 0.07 (0.003) 0.10 (0.004) 0.20 (0.008) 0.50 (0.020)

TIGHTENING TORQUE

Shock absorber		
Upper end bolt (or nut)	kg-m (ft-lb)	5.9 to 7.7 (43 to 56)
Lower end bolt (or nut)	kg-m (ft-lb)	5.9 to 7.7 (43 to 56)
Rear spring U-bolt	kg-m (ft-lb)	4.0 to 4.8 (29 to 35)
Spring		
Front pin (or nut)	kg-m (ft-lb)	8.9 to 12.2 (64 to 88)
Shackle nut	kg-m (ft-lb)	5.1 to 6.9 (37 to 50)
Brake		
Brake hose connector	kg-m (ft-lb)	2.0 to 2.8 (14 to 20)
Brake tube connector	kg-m (ft-lb)	1.5 to 1.8 (11 to 13)
Propeller shaft companion flange bolt	kg-m (ft-lb)	2.5 to 3.2 (18 to 23)
Wheel nut	kg-m (ft-lb)	8.0 to 10.0 (58 to 72)
Bearing cage bolt	kg-m (ft-lb)	2.7 to 3.7 (20 to 27)
Differential carrier and axle case	kg-m (ft-lb)	1.7 to 2.5 (12 to 18)

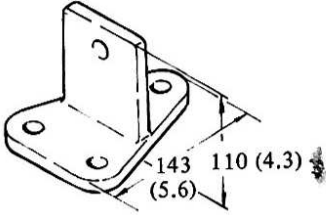
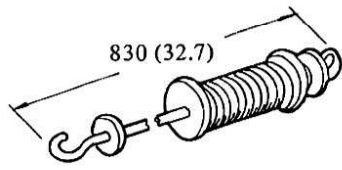
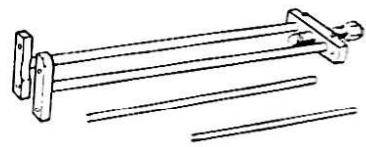
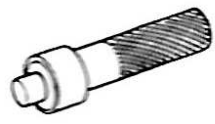
Rear Axle & Rear Suspension

TROUBLE DIAGNOSES AND CORRECTIONS

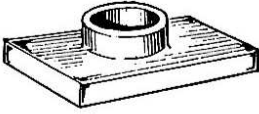
Condition	Probable cause	Corrective action
Instability in driving.	Loosened wheel nut. Loosened or broken U-bolt. Loosened shackle mounting area. Malfunctioning shock absorber. Broken leaf spring. Worn or damaged spring rubber bushing. Worn or damaged rear axle bearing.	Retighten. Retighten or replace. Retighten. Replace. Replace. Replace. Replace.
Abnormal noise. (Check to determine if noise comes from propeller shaft or gear carrier.)	Leaf spring squeaking. Broken leaf spring. Damaged or fatigued rubber bushing. Rear axle shaft shimmed incorrectly. Damaged rear axle shaft bearing. Worn or bent rear axle shaft serration (splines). Loosened rear wheel nut. Loosened joint or connection. Lack of lubricant. Malfunctioning shock absorber.	Replace spacer. Replace. Replace. Readjust. Replace. Replace. Retighten. Retighten. Replenish. Replace.
Oil leak.	Damaged axle shaft oil seal. Oil leaking through gasketed surface of gear carrier. Oil filler and drain plug leaking oil.	Replace. Replace gasket. Retighten.

Rear Axle & Rear Suspension

SPECIAL SERVICE TOOLS

No.	Tool number & tool name	Description Unit: mm (in)	For use on	Reference page or Figure No.
1.	ST07620000 Rear axle stand	For pulling out rear axle shaft (Use with sliding hammer ST36230000). <div style="text-align: center;">  </div> <p style="text-align: right;">SE110</p>	330 230 250	Fig. RA-7 Page RA-4
2.	ST36230000 Sliding hammer	For pulling out rear axle shaft (Use with rear axle stand ST07620000). <div style="text-align: center;">  </div> <p style="text-align: right;">SE111</p>	All models	Fig. RA-7
3.	ST37110000 Rear axle shaft bearing puller	For removal of rear axle shaft. <div style="text-align: center;">  </div> <p style="text-align: right;">SE112</p>	330 230 250	Fig. RA-9
4.	ST37152000 Drift	For driving out axle shaft bearing. <div style="text-align: center;">  </div> <p style="text-align: right;">SE113</p>	330 230 250	Fig. RA-10

Rear Axle & Rear Suspension

No.	Tool number & tool name	Description Unit: mm (in)	For use on	Reference page or Figure No.
5.	ST38220000 Bearing inserter	For installing bearing to rear axle shaft.  SE114	330 230 250	Fig. RA-11

