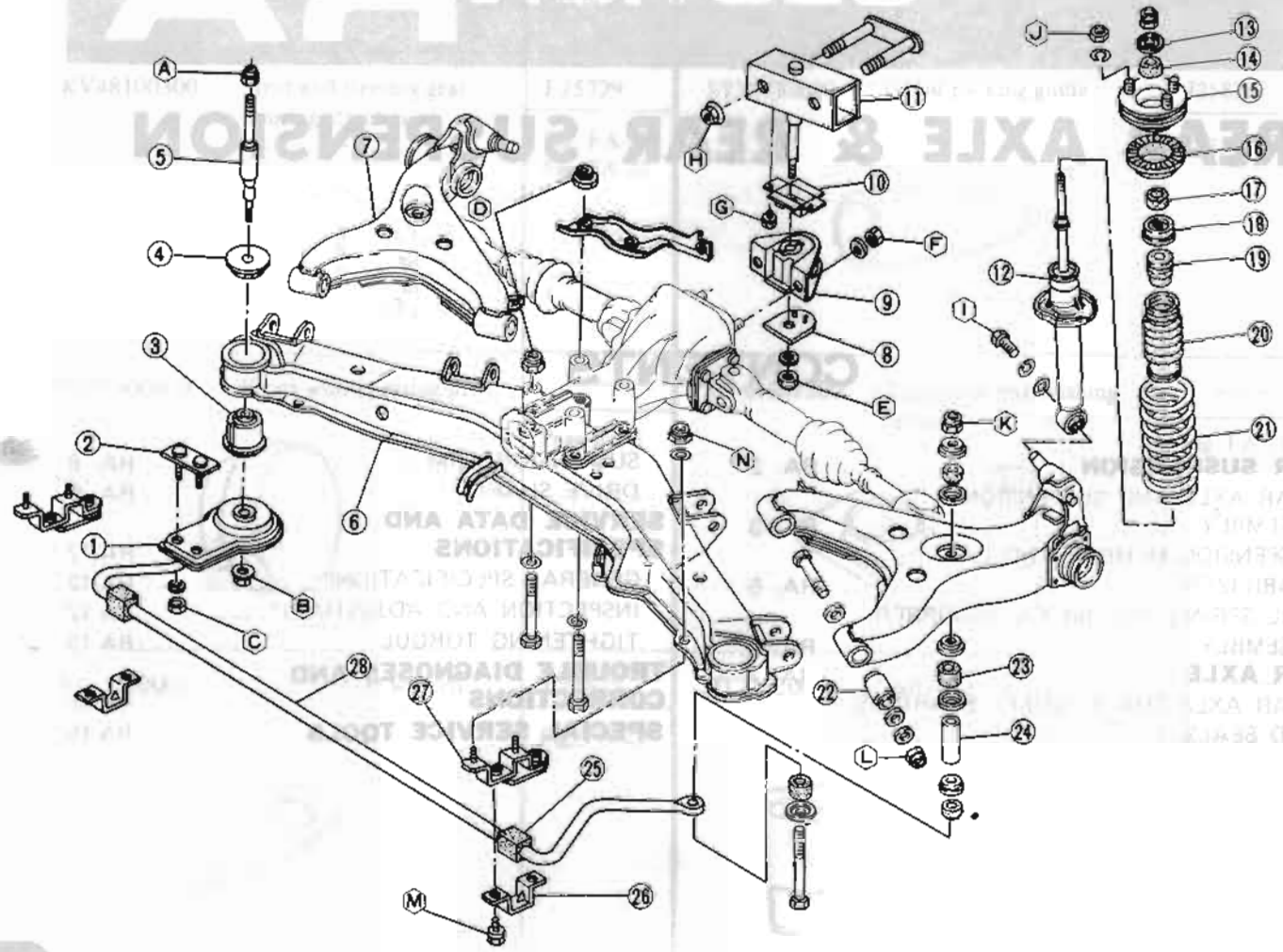
SECTION RA

REAR AXLE & REAR SUSPENSION

CONTENTS

REAR SUSPENSION



1 Suspension member mounting stay
2 Suspension member mounting bolt
3 Member mounting insulator
4 Member mounting upper stopper
5 Suspension mounting bolt
6 Suspension member assembly
7 Suspension arm assembly
8 Differential mounting plate
9 Differential mounting insulator
10 Differential mounting adapter plate
11 Differential mounting bracket
12 Shock absorber assembly
13 Special washer
14 Shock absorber mounting bushing A
15 Shock absorber mounting insulator
16 Spring seat rubber
17 Shock absorber mounting bushing B
18 Bound bumper cover
19 Bound bumper
20 Dust cover
21 Coil spring
22 Suspension arm bushing
23 Stabilizer bushing
24 Stabilizer collar
25 Stabilizer mounting bushing
26 Stabilizer mounting clip
27 Stabilizer mounting bracket
28 Rear stabilizer

Tightening torque kg-m (ft-lb)

Ⓐ : 12 to 16 (87 to 116)
Ⓑ : 8 to 10 (58 to 72)
Ⓒ : 2 to 2.6 (14 to 19)
Ⓓ : 6 to 8 (43 to 58)
Ⓔ : 8 to 10 (58 to 72)
Ⓕ : R200 Diff.:
9 to 12 (65 to 87)
R180 Diff.:
6 to 8 (43 to 58)
Ⓖ : 3.2 to 4.3 (23 to 31)
Ⓗ : 6 to 8 (43 to 58)
Ⓘ : 6 to 8 (43 to 58)
Ⓙ : 3 to 4 (22 to 29)
Ⓚ : 16 to 2.1 (12 to 15)
Ⓛ : 8 to 10 (58 to 72)
Ⓜ : 1.6 to 2.1 (12 to 15)
Ⓝ : 1.6 to 2.1 (12 to 15)

RA573

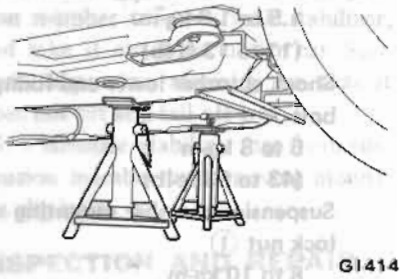
Fig. RA-1 Rear Axle and Suspension Assembly

REAR AXLE AND SUSPENSION ASSEMBLY

REMOVAL

It is not necessary to remove rear axle and suspension assembly for any normal repairs. However, if the rear suspension member is damaged, the rear axle and the suspension member assembly may be removed and installed using the following procedure.

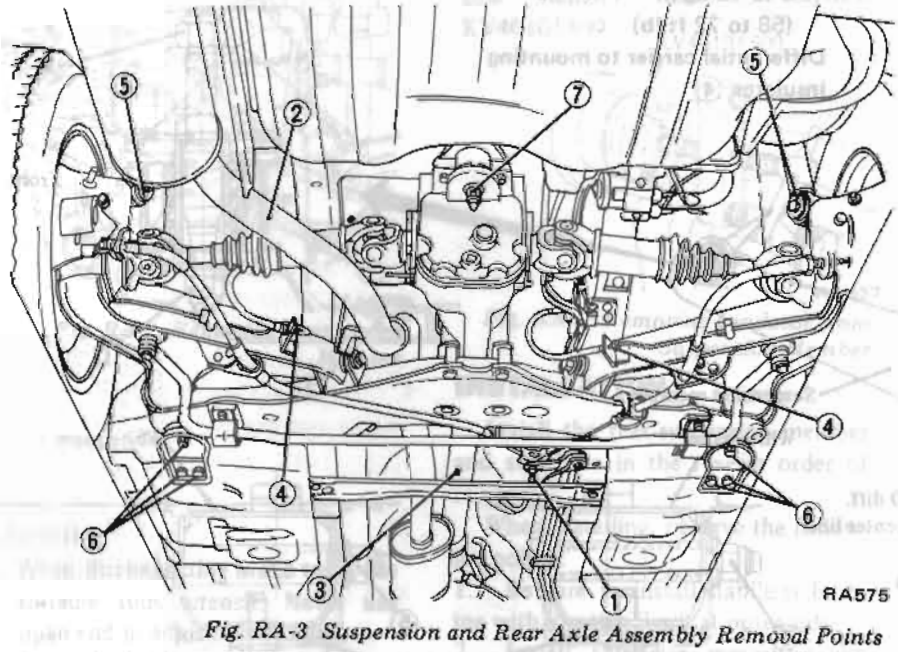
1. Block front wheels with chocks.
2. Raise the rear of car high enough to permit working underneath, and support it on safety stands. Place stands solidly under body member on both sides.



G1414

Fig. RA-2 Supporting Points

3. Remove rear wheels.
4. Remove heat shield plate located in front of fuel tank.
5. Disconnect hand brake cable by removing lock nut at adjuster and clevis pin ①.



RA575

Fig. RA-3 Suspension and Rear Axle Assembly Removal Points

6. Remove rear exhaust tube and muffler ②. Refer to Exhaust System (Section FE).
7. Mark flange yoke of propeller shaft and companion flange of differential gear carrier for proper reassembly, then remove propeller shaft ③.
8. Disconnect rear brake hoses ④.

CAUTION:

a. When disconnecting brake tube, use suitable tube wrench. Never use open-end or adjustable wrench.

b. Cover brake hose and tube openings to prevent entrance of dirt.

9. Support under center of suspension member and differential carrier with a transmission jack.
10. Disconnect shock absorbers at lower end ⑤.
11. Disconnect suspension member from body by removing nuts ⑥ at both ends of member.
12. Disconnect differential carrier mounting lock nut ⑦.
13. Carefully lower jack with suspension assembly, and take it out from under car. Support suspension assembly so that it does not tilt and fall off jack.

INSPECTION AND REPAIR

When the rear suspension has been removed, examine all parts for wear or damage. Particular attention should be given to bushing in suspension arms and bound bumper rubbers. Also check the condition of rubber insulators in the suspension member and the differential mounting.

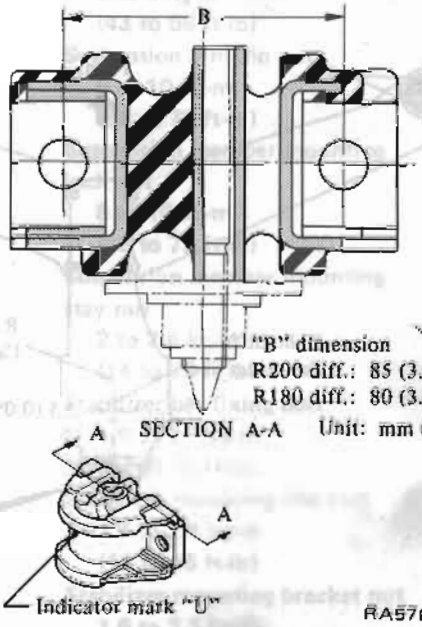
Any of these components, if worn, can result in noise and vibration to the interior of car.

If necessary, replace differential mounting insulator.

Note:

a. Mounting insulator of R200 differential carrier differs in dimension "B" from that of R180 differential carrier.

b. When replacing, be sure to install differential mounting insulator with "U" mark facing upward.



"B" dimension
R200 diff.: 85 (3.35)
R180 diff.: 80 (3.15)

SECTION A-A Unit: mm (in)

RA576

Fig. RA-4 Differential Mounting Insulator

INSTALLATION

Install rear axle and suspension assembly in the reverse order of removal, noting the following points.

CAUTION:

When installing brake tubes, use Flare Nut Torque Wrench GG94310000.

1. Ensure suspension member and differential mounting insulator are correctly lined up.
2. When installing suspension member insulator, two slits in rubber insulators should be positioned in fore-and-after direction as shown in Fig. RA-5. Rubber insulators should be inserted from the underside of member.
3. Do not use lesser quality or substitute design parts.
4. Replace self-locking nuts at each removal.
5. Tightening torque values must be used as specified during reassembly to assure proper retention of parts.

Ⓣ **Tightening torque:**

Propeller shaft to companion flange connecting nut
3.5 to 4.5 kg-m
(25 to 33 ft-lb)

Brake tube connector flare nut
1.5 to 1.8 kg-m
(11 to 13 ft-lb)

Shock absorber lower end fixing bolt
6 to 8 kg-m
(43 to 58 ft-lb)

Suspension member mounting lock nut ①
8 to 10 kg-m
(58 to 72 ft-lb)

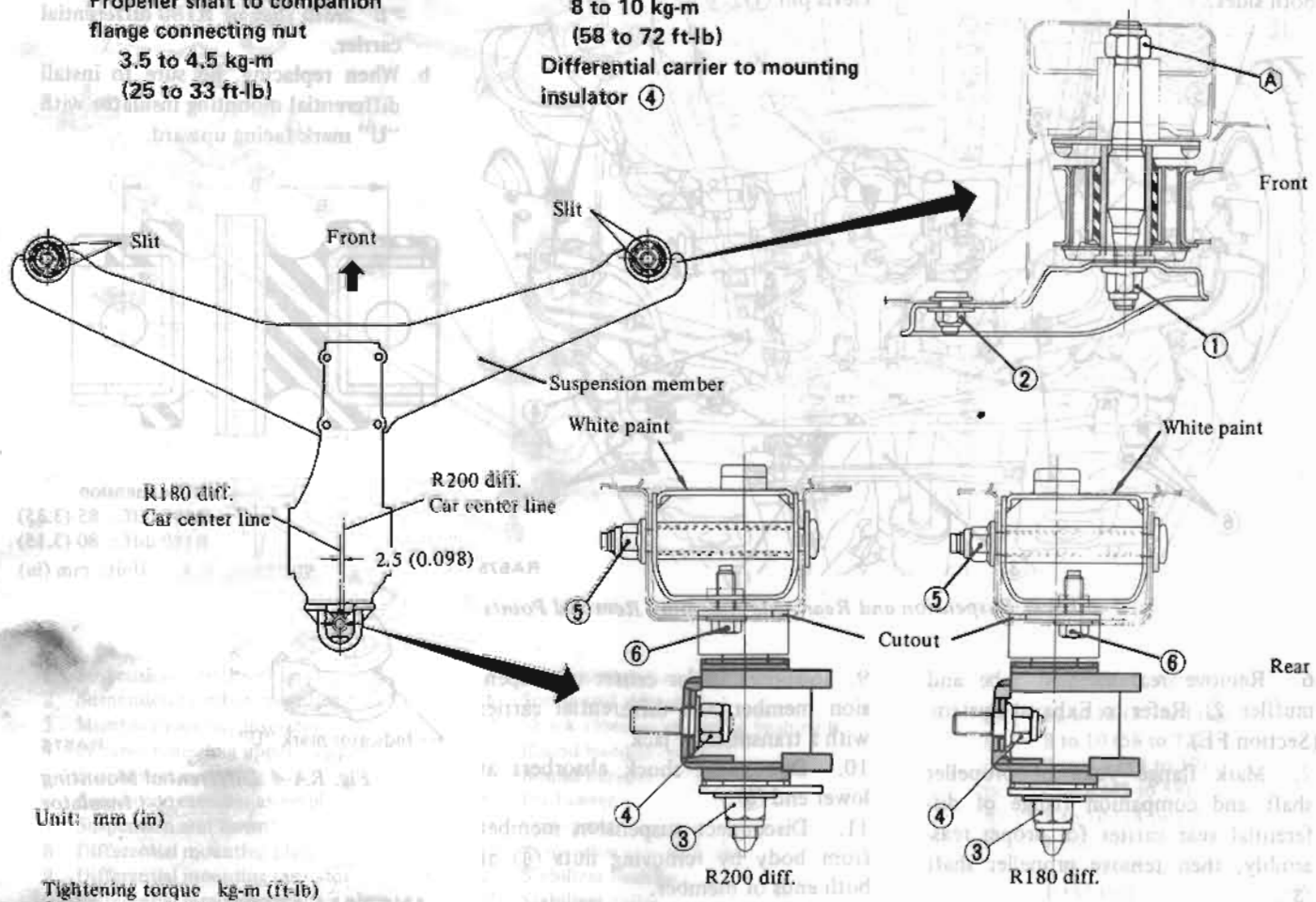
Suspension member mounting stay nut ②
2 to 2.6 kg-m
(14 to 19 ft-lb)

Differential carrier mounting lock nut ③
8 to 10 kg-m
(58 to 72 ft-lb)

Differential carrier to mounting insulator ④
(R200 diff.)
9 to 12 kg-m
(65 to 87 ft-lb)
(R180 diff.)
6 to 8 kg-m
(43 to 58 ft-lb)

Differential mounting bracket fixing nut ⑤
6 to 8 kg-m
(43 to 58 ft-lb)

Differential mounting adapter plate bolt ⑥
3.2 to 4.3 kg-m
(23 to 31 ft-lb)



Unit: mm (in)

Tightening torque kg-m (ft-lb)
Ⓐ : 12 to 16 (87 to 116)

RA577

Note: Differential mounting bracket and adapter plate of R200 differential carrier are installed opposite to those of R180 differential carrier. Install them according to identification marks shown in table below.

	Bracket	Adapter plate
	White paint	Cutout
R200 diff.	Front	Rear
R180 diff.	Rear	Front

Fig. RA-5 Rear Suspension Mounting Insulators

SUSPENSION MEMBER AND STABILIZER

REMOVAL

1. Block front wheels with chocks.
2. Raise the rear of car high enough to permit working underneath, and support it on safety stands. Place stands solidly under body member on both sides.
3. Support under center of differential carrier with a garage jack.
4. Disconnect brake tube ① and hand brake cable ② from suspension arm and member.

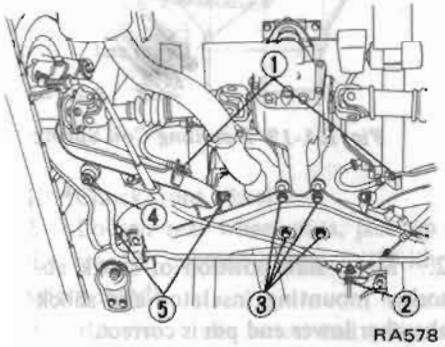


Fig. RA-6 Removing Suspension Member

CAUTION:
a. When disconnecting brake tube, use suitable tube wrench. Never use open-end or adjustable wrench.
b. Cover brake hose and tube openings to prevent entrance of dirt.
c. When disconnecting brake hose, be careful not to twist it while holding one side of it.

5. Disconnect differential gear carrier by removing bolts ③ at center of suspension member.
6. Remove stabilizer bar fixing bolt from suspension arm ④.
7. Disconnect suspension arms by removing suspension arm pins ⑤.
8. Disconnect suspension member from body by removing nuts at both ends of member.
9. Carefully lower jack with suspension member together with stabilizer, and take it out from under car. Support suspension assembly so that it does not tilt and fall off jack.
10. Remove stabilizer bar from suspension member by removing mounting clip bolts.

INSPECTION AND REPAIR

1. Check for evidence of deformation or cracks; if necessary, replace.
2. Check the rubber insulators of suspension member and mounting bushing of stabilizer for deterioration or cracks; if necessary, replace.

Replace rubber insulators of the suspension member using Rear Suspension Member Insulator Replacer KV40101300.

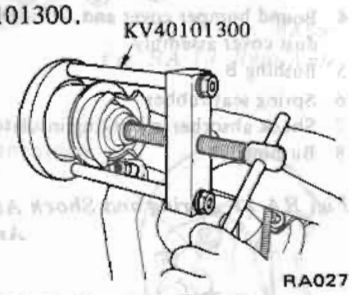


Fig. RA-7 Removing Insulator from Suspension Member

INSTALLATION

Install the rear suspension member and stabilizer in the reverse order of removal.

When installing, observe the following points:

1. Be sure to install stabilizer bushing with locating mark at outer side.
2. Install stabilizer mounting clip with arrow mark pointing to front.

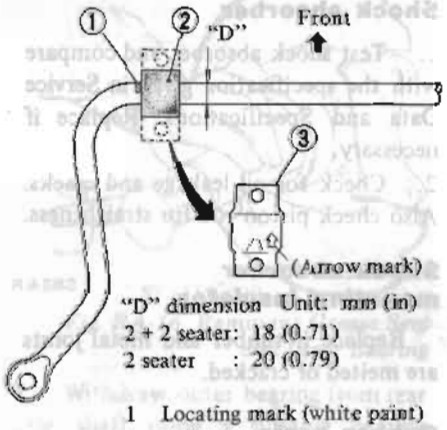


Fig. RA-8 Stabilizer

3. Securely tighten stabilizer fixing bolt self-locking nut until it will no longer go.
4. Replace self-locking nuts at each removal.

CAUTION:
When installing brake tubes, use Flare Nut Torque Wrench GG94310000.

Note: Car weight must be on rear wheels when tightening suspension arm pins in order to clamp rubber bushings in a neutral or unloaded position.

Ⓣ Tightening torque:

Brake tube connector flare nut
1.5 to 1.8 kg-m
(11 to 13 ft-lb)
Differential gear carrier fitting nut
6 to 8 kg-m
(43 to 58 ft-lb)
Suspension arm pin nut
8 to 10 kg-m
(58 to 72 ft-lb)
Suspension member mounting lock nut
8 to 10 kg-m
(58 to 72 ft-lb)
Suspension member mounting stay nut
2 to 2.6 kg-m
(14 to 19 ft-lb)
Stabilizer bar fixing bolt
1.6 to 2.1 kg-m
(12 to 15 ft-lb)
Stabilizer mounting clip bolt
1.6 to 2.1 kg-m
(12 to 15 ft-lb)
Stabilizer mounting bracket nut
1.6 to 2.1 kg-m
(12 to 15 ft-lb)

COIL SPRING AND SHOCK ABSORBER ASSEMBLY

REMOVAL

1. Block front wheels with chocks.
2. Raise the rear of car high enough to permit working underneath and until rear spring does not support car weight, and support it on safety

stands. Place stands solidly under body member on both sides.

3. Open tail gate and turn cap at upper end of wheel house counterclockwise.

4. Remove nuts securing shock absorber mounting insulator to body.

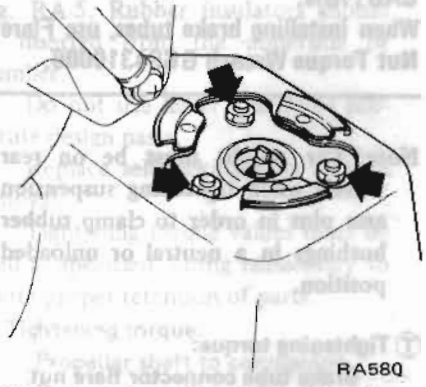


Fig. RA-9 Removing Shock Absorber Installation Nut

5. Disconnect shock absorber by removing bolt at suspension arm.

DISASSEMBLY

1. Mark position of shock absorber mounting insulator and shock absorber lower end pin for proper reassembly.

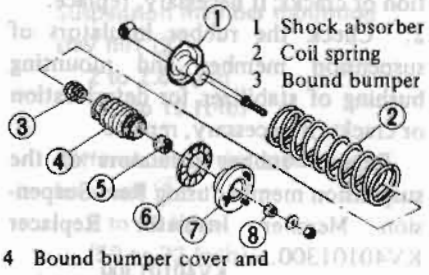
2. Set up Spring Compressor ST35651001 on spring. Compress spring just far enough to permit turning of mounting insulator by hand.

Fig. RA-10 Compressing Spring

CAUTION:
Set Spring Compressor only on spring. Be careful so as not to damage shock absorber housing and piston rod.

3. Remove piston rod self-locking nut and washer. Release Spring Compressor ST35651001 and remove it from spring.

4. Take out bushing A, spring seat rubber, shock absorber mounting insulator, bushing B, bound bumper cover (dust cover) and bound bumper in that order.



4 Bound bumper cover and dust cover assembly
5 Bushing B
6 Spring seat rubber
7 Shock absorber mounting insulator
8 Bushing A

Fig. RA-11 Spring and Shock Absorber Assembly

INSPECTION

Coil spring

1. Check coil spring for yield, deformation or cracks.

2. Test spring and compare with the specifications given in Service Data and Specifications.

Shock absorber

1. Test shock absorber and compare with the specification given in Service Data and Specifications. Replace if necessary.

2. Check for oil leakage and cracks. Also check piston rod for straightness.

Shock absorber mounting insulator

Replace if rubber and metal joints are melted or cracked.

Rubber parts

Check all rubber parts for wear, cracks, damage or deformation. Replace if necessary.

ASSEMBLY

Assemble spring and shock absorber assembly in the reverse order of disassembly, noting the following:

1. Correctly place coil spring in the lower spring seat. (Flat face of spring is top.)

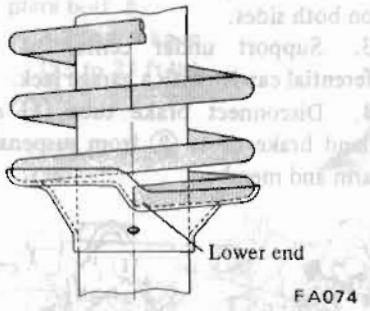


Fig. RA-12 Installing Coil Spring

2. Make sure position of shock absorber mounting insulator and shock absorber lower end pin is correct.

3. Replace self-locking nut whenever it is removed.

4. Securely tighten piston rod self-locking nut until it will no longer go.

INSTALLATION

Install spring and shock absorber assembly in the reverse order of removal, noting the following:

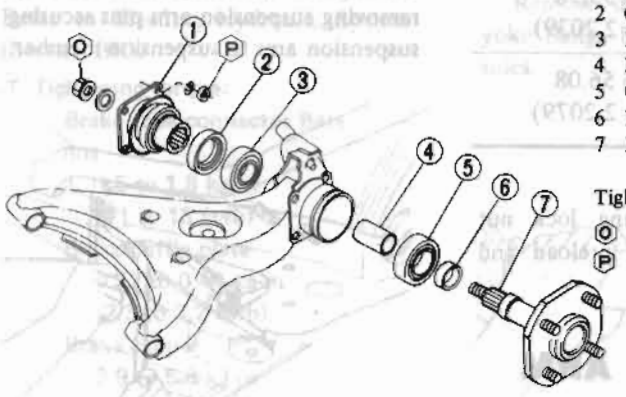
Install top end of spring and shock absorber assembly first.

Ⓣ Tightening torque:
Shock absorber mounting insulator to body nut
3 to 4 kg-m
(22 to 29 ft-lb)
Shock absorber lower end fixing bolt
6 to 8 kg-m
(43 to 58 ft-lb)
Piston rod nut
1.9 to 2.6 kg-m
(14 to 19 ft-lb)

REAR AXLE

REAR AXLE SHAFT, WHEEL BEARINGS AND SEALS

REMOVAL AND DISASSEMBLY



1 Companion flange
2 Grease seal
3 Inner wheel bearing
4 Distance piece
5 Outer wheel bearing
6 Bearing spacer
7 Rear axle shaft assembly

Tightening torque kg-m (ft-lb)
◎ : 25 to 33 (181 to 239)
Ⓟ : 5 to 6 (36 to 43)

Fig. RA-13 Rear Axle

1. Chock front wheels.
2. Loosen rear wheel nuts, jack up the rear of car and support it with safety stands.
3. Remove brake rotor and caliper assembly, referring to Section BR.
4. Disconnect drive shaft from axle shaft.
5. Remove wheel bearing lock nut using Rear Axle Stand KV40101000 and suitable bar.

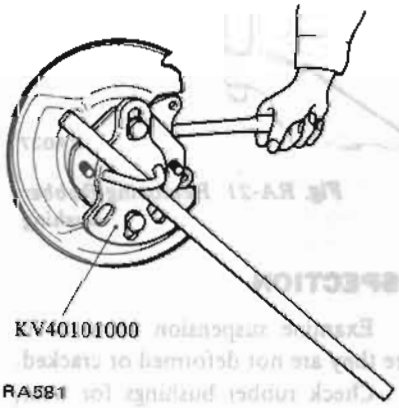


Fig. RA-14 Removing Wheel Bearing Lock Nut

6. Draw out axle shaft using Rear Axle Stand KV40101000 and Sliding Hammer ST36230000. Remove rear axle shaft.

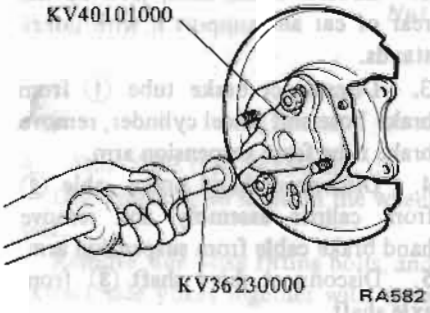


Fig. RA-15 Removing Rear Axle Shaft

7. Remove companion flange.
8. Remove grease seal and inner bearing using Rear Axle Shaft Bearing Drift ST37750000.

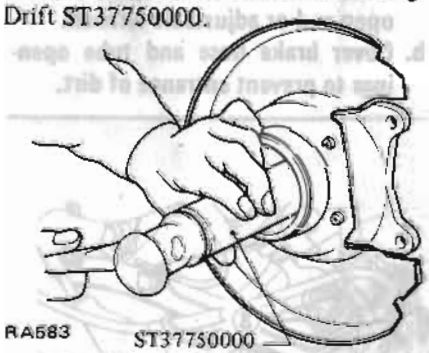


Fig. RA-16 Removing Grease Seal and Inner Bearing

9. Withdraw outer bearing from rear axle shaft using a suitable bearing puller.

Note: Do not reuse bearings and grease seal after removal.

INSPECTION

Inspect the following parts. Replace or repair if necessary.

1. Check wheel bearing for end play and rolling surface for flaking, wear or seizure.
2. Check axle shaft for straightness, cracks, wear or distortion.
3. Check grease seal for cracks or deformation and seal lip for damage or wear.

ASSEMBLY AND INSTALLATION

Install in the reverse order of removal, noting the following points.

1. Clean wheel bearings, grease seal and the inside of axle shaft housing.
2. Wheel bearings are sealed type. When installing ensure that the sealed side of outer bearing faces the wheel and that the sealed side of inner bearing faces the differential.
3. When installing outer bearing to rear axle shaft, use Rear Axle Shaft Bearing Drift ST37750000.
4. A mark "N", "M", or "P" is stamped on bearing housing. Select a distance piece having a mark corresponding to the mark on bearing housing.

When a distance piece is reused, make sure that both ends are not collapsed or deformed.

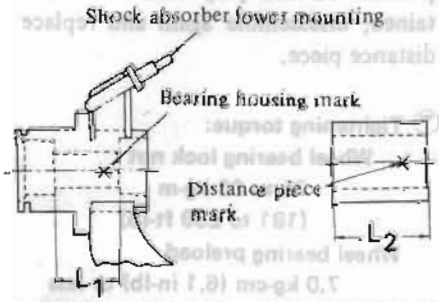
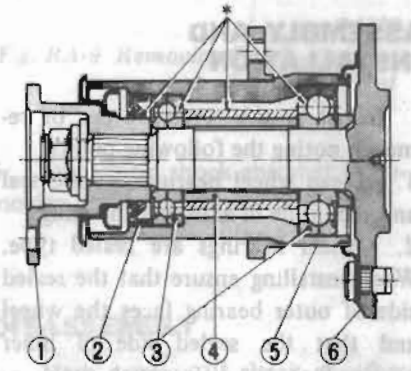


Fig. RA-17 Marking Position of Bearing Housing and Distance Piece

Rear bearing housing		Distance piece	
Mark	Size (L_1 length) mm (in)	Mark	Size (L_2 length) mm (in)
N	55.85 to 55.95 (2.1988 to 2.2028)	N	55.82 to 55.88 (2.1976 to 2.2000)
M	55.95 to 56.05 (2.2028 to 2.2067)	M	55.92 to 55.98 (2.2016 to 2.2039)
P	56.05 to 56.15 (2.2067 to 2.2106)	P	56.02 to 56.08 (2.2055 to 2.2079)

5. Fill recommended multi-purpose grease to the portions indicated by asterisk (*) in Fig. RA-18.



1 Companion flange
2 Grease seal
3 Wheel bearing
4 Distance piece
5 Bearing housing
6 Rear axle shaft

RA399

Fig. RA-18 Lubricating Portions of Rear Axle

6. Install grease seal by Rear Axle Grease Seal Drift ST37710000.
7. Tighten new wheel bearing lock nut and measure the preload and rear axle shaft end play. If the correct preload or end play cannot be obtained, disassemble again and replace distance piece.

(T) Tightening torque:
Wheel bearing lock nut
25 to 33 kg-m
(181 to 239 ft-lb)
Wheel bearing preload
7.0 kg-cm (6.1 in-lb) or less
At the hub bolt
1.2 kg (2.6 lb) or less
Rear axle shaft end play
Less than 0.3 mm (0.012 in)

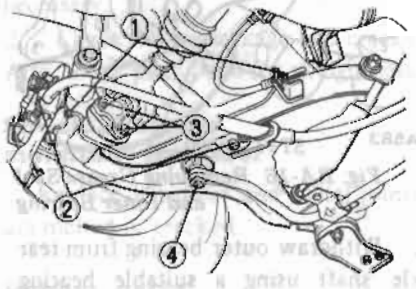
8. Caulk wheel bearing lock nut securely after checking preload and end play.

SUSPENSION ARM

REMOVAL

1. Chock front wheels.
2. Loosen wheel nuts, jack up the rear of car and support it with safety stands.
3. Disconnect brake tube ① from brake hose and wheel cylinder, remove brake tube from suspension arm.
4. Disconnect hand brake cable ② from caliper assembly and remove hand brake cable from suspension arm.
5. Disconnect drive shaft ③ from axle shaft.
6. Remove stabilizer bar bolt ④.

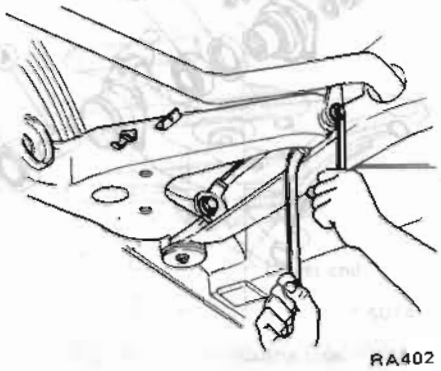
CAUTION:
a. When disconnecting brake tube, use suitable tube wrench. Never use open-end or adjustable wrench.
b. Cover brake hose and tube openings to prevent entrance of dirt.



RA584

Fig. RA-19 Removing Suspension Arm Fitting Parts

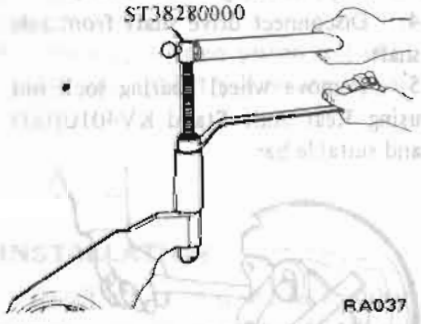
7. Remove brake rotor and caliper assembly, referring to Section BR.
8. Remove rear axle shaft, wheel bearings and grease seal. Refer to Rear Axle for removal and disassembly.
9. Disconnect shock absorber at lower end.
10. Disconnect suspension arm by removing suspension arm pins securing suspension arm to suspension member.



RA402

Fig. RA-20 Removing Suspension Arm

11. Draw out rubber bushings from suspension arm using Rear Suspension Arm Bushing Remover ST38280000.



RA037

Fig. RA-21 Removing Rubber Bushing

INSPECTION

1. Examine suspension arms to ensure they are not deformed or cracked.
2. Check rubber bushings for wear, damage or separation. Replace if necessary.

INSTALLATION

Install in the reverse order of removal, noting the following points:

1. Replace self-locking nuts at each removal.
2. Finally tighten suspension arm pin nut to specifications after install-

ing wheels and placing car on ground under the curb weight in order to clamp rubber bushings in a neutral position.

3. Adjust hand brake cable. Refer to Hand Brake (Section BR) for adjustment.

4. Bleed air from brake system. Refer to Bleeding Hydraulic System (Section BR).

Ⓣ Tightening torque:

Brake tube connector flare nut
1.5 to 1.8 kg-m
(11 to 13 ft-lb)
Brake baffle plate
0.32 to 0.44 kg-m
(2.3 to 3.2 ft-lb)
Brake caliper
3.9 to 5.3 kg-m
(28 to 38 ft-lb)
Wheel bearing lock nut
25 to 33 kg-m
(181 to 239 ft-lb)
Drive shaft flange yoke nut
5 to 6 kg-m
(36 to 43 ft-lb)
Suspension arm pin nut
8 to 10 kg-m
(58 to 72 ft-lb)
Stabilizer bar fixing or mounting bolts
1.6 to 2.1 kg-m
(12 to 15 ft-lb)

DRIVE SHAFT

REMOVAL

1. Chock front wheels.
2. Jack up rear of car and support on safety stands.
3. Side Flange type (R200 diff.);

Remove drive shaft universal joint yoke flange bolts and nuts from both sides.

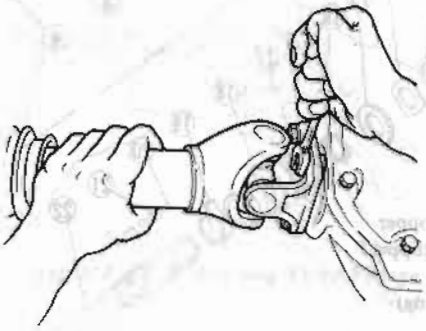


Fig. RA-22 Removing Yoke Flange Nut

4. Side Yoke type (R180 diff.);

Disconnect drive shaft on the wheel side.

Remove side yoke fitting bolts, and extract side yokes together with drive shafts.

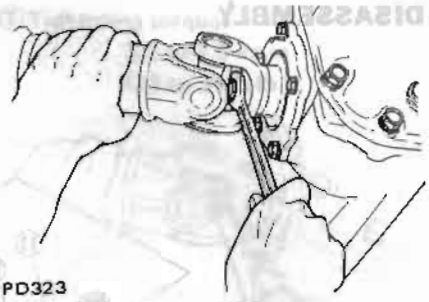


Fig. RA-23 Removing Side Yoke Fitting Bolt

Pre-disassembly Inspection

1. Visually inspect parts for wear, deformation or damage.
2. Stroke drive shaft to see if it moves smoothly.
3. Check play in drive shaft. If the play exceeds 0.1 mm (0.004 in), replace drive shaft assembly.

Note: Measurement should be taken with drive shaft fully compressed.

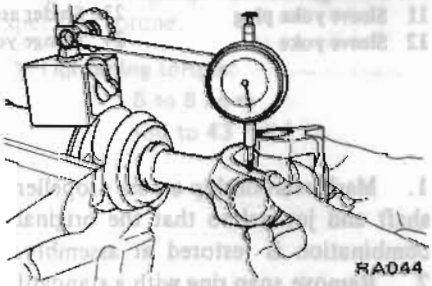
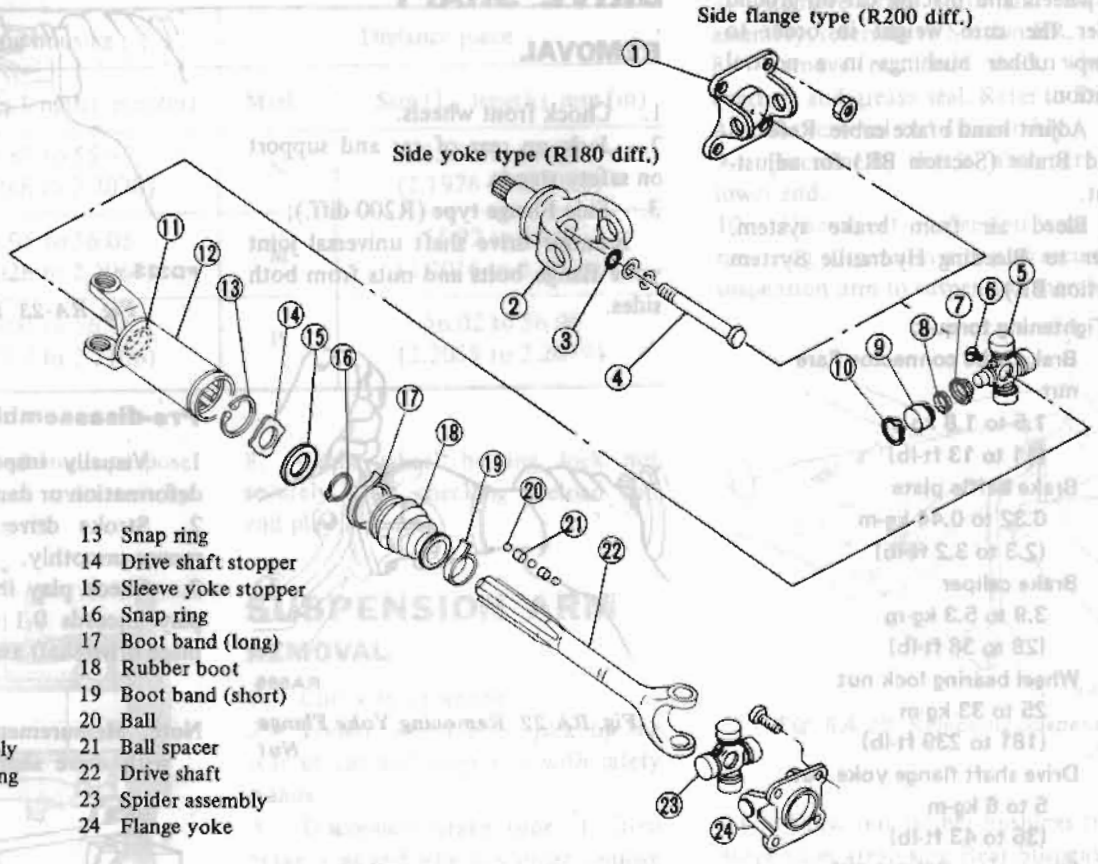


Fig. RA-24 Measuring Play in Drive Shaft

4. Check movement of spider journal. If journal does not move smoothly, disassemble and replace journal.
5. Check journal axial play. If the play exceeds 0.02 mm (0.0008 in), adjust or replace as required.

DISASSEMBLY



1 Yoke flange
2 Side yoke
3 O-ring
4 Side yoke bolt
5 Spider journal
6 Filler plug
7 Dust cover
8 Oil seal
9 Bearing race assembly
10 Bearing race snap ring
11 Sleeve yoke plug
12 Sleeve yoke
13 Snap ring
14 Drive shaft stopper
15 Sleeve yoke stopper
16 Snap ring
17 Boot band (long)
18 Rubber boot
19 Boot band (short)
20 Ball
21 Ball spacer
22 Drive shaft
23 Spider assembly
24 Flange yoke

RA586

Fig. RA-25 Drive Shaft

1. Mark relationship across propeller shaft and journal so that the original combination is restored at assembly.
2. Remove snap ring with a standard screwdriver.
3. Lightly tap base of yoke with a hammer, and withdraw bearing race.
4. Cut boot band and remove boot from sleeve yoke.
5. Remove snap ring from sleeve yoke using suitable snap ring plier.
6. Withdraw drive shaft carefully from sleeve yoke so as not to lose balls and spacers.

INSPECTION

1. Replace boot and O-ring of side yoke, if damaged.
2. Check drive shaft for straightness, cracks, damage, wear or distortion. Replace drive shaft assembly as required.
3. Check steel balls and sleeve yoke for damage, wear or distortion. Replace drive shaft assembly as required.
4. Check journal pin for dent or brinell marks, and yoke hole for sign of wear or damage.

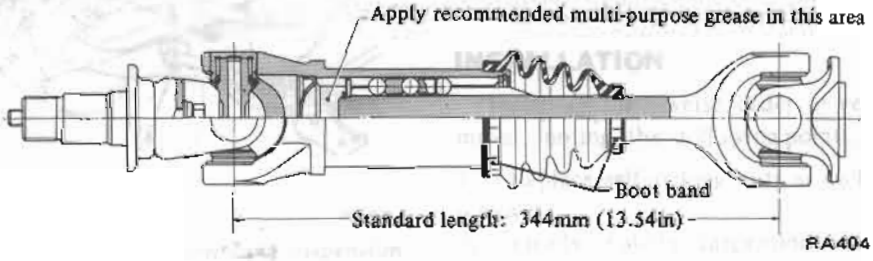
Snap ring, bearing, grease seal and dust seal should also be inspected to see if they are damaged, worn or deformed. Replace as required.

Note: Sleeve yoke, balls, spacers and drive shaft are not available as service parts. Therefore, if any wear or damage exists in above parts, drive shaft must be replaced as an assembly.

ASSEMBLY

Assemble drive shaft in the reverse order of disassembly, noting the following:

1. Thoroughly remove used grease from sleeve yoke, drive shaft ball rolling grooves and grease grooves, and clean them.
2. Align the yokes and ensure that steel balls and spacers are fitted in the correct sequence.
3. Apply an adequate quantity of multi-purpose grease to the ball rolling groove and grease groove, approximately 10 g (0.35 oz). In addition, apply 35 g (1.23 oz) of grease to the area shown in Fig. RA-26.



RA404

Fig. RA-26 Drive Shaft

4. Check the drive shaft play. Refer to Drive Shaft for pre-disassembly inspection.
5. Adjust distance between spider journals to standard length of 344 mm (13.54 in). Cover sleeve yoke with boot and secure with boot band. See Fig. RA-26.
6. Selecting a suitable snap ring, adjust the axial play of universal joint to within 0.02 mm (0.0008 in). Snap rings of seven different thicknesses are available. Refer to Service Data and Specifications.

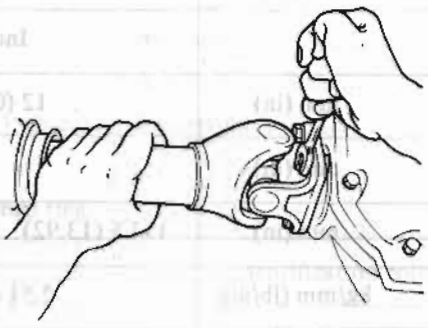
Note: Two opposite snap rings should be equal in thickness.

INSTALLATION

1. Side Flange type (R200 diff.);

Install drive shaft universal joint yoke flange bolts and nuts on both sides, and tighten yoke flange bolts and nuts to specified torque using torque wrench.

Ⓣ Tightening torque:
5 to 6 kg-m
(36 to 43 ft-lb)



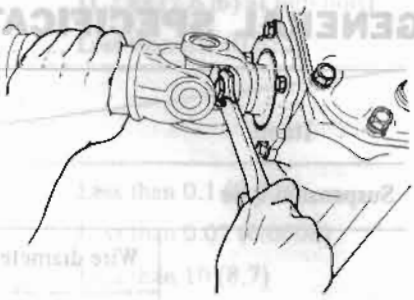
RA585

Fig. RA-27 Tightening Yoke Flange Nut

2. Side Yoke type (R180 diff.);

Install side yoke together with drive shafts to differential gear carrier assembly, and tighten side yoke fitting bolts to specified torque using torque wrench.

Ⓣ Tightening torque:
3.2 to 4.3 kg-m
(23 to 31 ft-lb)



PD324

Fig. RA-28 Tightening Side Yoke Fitting Bolt

CAUTION:
Be careful not to damage side yoke and oil seal when installing.

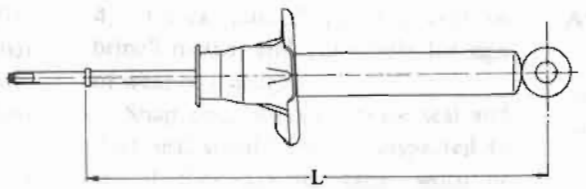
3. Join drive shafts with rear axle flanges and tighten connecting bolts to specified torque.

Ⓣ Tightening torque:
5 to 6 kg-m
(36 to 43 ft-lb)

SERVICE DATA AND SPECIFICATIONS

GENERAL SPECIFICATIONS

Items		Models	S130	S130J	GS130 GS130J
Suspension type			Independent rear suspension		
Coil spring	Wire diameter	mm (in)	12 (0.472)		12.2 (0.480)
	Coil diameter	mm (in)	100 (3.94)		
	Free length	mm (in)	353.5 (13.92)	361.5 (14.23)	353.5 (13.92)
	Spring constant	kg/mm (lb/in)	2.51 (140.6)		2.67 (149.5)
	Identification color		Reddish-yellow, purple	Purple	White, purple
Shock absorber	Maximum length "L"	mm (in)	537.3 (21.15)		
	Stroke	mm (in)	175 (6.89)		
Stabilizer bar	Bar diameter	mm (in)	20 (0.79)		18 (0.71)



Shock absorber maximum length "L" RA419

INSPECTION AND ADJUSTMENT

WHEEL ALIGNMENT (Unladen)

Camber	degree	−55′ to 1°25′
Toe-in	mm (in)	1 to 3 (0.04 to 0.12)

SHOCK ABSORBER

Item	Model	S130 S130J	GS130 GS130J
Damping force at 0.3 m (1.0 ft)/s			
Expansion	kg (lb)	85 (187)	100 (221)
Compression	kg (lb)	45 (99)	55 (121)

REAR AXLE

Turning torque	kg-cm (in-lb)	Less than 7.0 (6.1) [1.2 kg (2.6 lb) at hub bolt]
End play	mm (in)	Less than 0.3 (0.012)

DRIVE SHAFT

Radial play of ball spline	mm (in)	Less than 0.1 (0.004)
Axial play of spider journal	mm (in)	Less than 0.02 (0.0008)
Journal swinging torque	kg-cm (in-lb)	Less than 10 (8.7)

Thickness of spider journal adjusting snap ring.

Thickness mm (in)	Identification color
1.49 (0.0587)	White
1.52 (0.0598)	Yellow
1.55 (0.0610)	Red
1.58 (0.0622)	Green
1.61 (0.0634)	Blue
1.64 (0.0646)	Light brown
1.67 (0.0657)	Black

TIGHTENING TORQUE

Brake tube connector flare nut	kg-m (ft-lb)	1.5 to 1.8 (11 to 13)
Brake caliper	kg-m (ft-lb)	3.9 to 5.3 (28 to 38)
Brake baffle plate	kg-m (ft-lb)	0.32 to 0.44 (2.3 to 3.2)
Propeller shaft to companion flange connecting nut	kg-m (ft-lb)	3.5 to 4.5 (25 to 33)
Wheel bearing lock nut	kg-m (ft-lb)	25 to 33 (181 to 239)
Drive shaft installation bolts		
Gear carrier side (R200 diff.)	kg-m (ft-lb)	5 to 6 (36 to 43)
Gear carrier side (R180 diff.)	kg-m (ft-lb)	3.2 to 4.3 (23 to 31)
Wheel side	kg-m (ft-lb)	5 to 6 (36 to 43)
Shock absorber mounting insulator to body nut	kg-m (ft-lb)	3 to 4 (22 to 29)
Shock absorber lower end fixing bolt	kg-m (ft-lb)	6 to 8 (43 to 58)
Shock absorber piston rod nut	kg-m (ft-lb)	1.9 to 2.6 (14 to 19)
Suspension member mounting lock nut	kg-m (ft-lb)	8 to 10 (58 to 72)
Suspension member mounting stay nut	kg-m (ft-lb)	2 to 2.6 (14 to 19)
Differential gear carrier fitting nut	kg-m (ft-lb)	6 to 8 (43 to 58)
Differential carrier mounting lock nut	kg-m (ft-lb)	8 to 10 (58 to 72)
Differential carrier to mounting insulator		
(R200 diff.)	kg-m (ft-lb)	9 to 12 (65 to 87)
(R180 diff.)	kg-m (ft-lb)	6 to 8 (43 to 58)

Differential mounting bracket fixing nut	kg-m (ft-lb)	6 to 8 (43 to 58)
Differential mounting adapter plate bolt	kg-m (ft-lb)	3.2 to 4.3 (23 to 31)
Suspension arm pin nut	kg-m (ft-lb)	8 to 10 (58 to 72)
Stabilizer bar fixing bolt	kg-m (ft-lb)	1.6 to 2.1 (12 to 15)
Stabilizer mounting clip bolt	kg-m (ft-lb)	1.6 to 2.1 (12 to 15)
Stabilizer mounting bracket nut	kg-m (ft-lb)	1.6 to 2.1 (12 to 15)
Wheel nut		
Steel wheel	kg-m (ft-lb)	8 to 10 (58 to 72)
Aluminum	kg-m (ft-lb)	8 to 10 (58 to 72)

TROUBLE DIAGNOSES AND CORRECTIONS

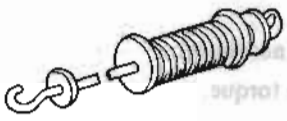
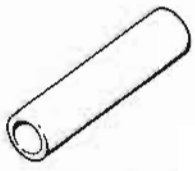
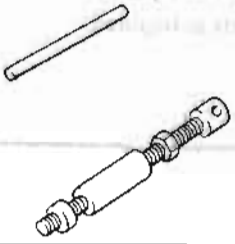
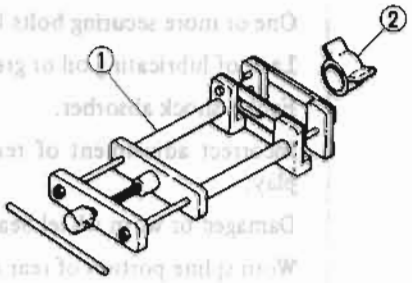
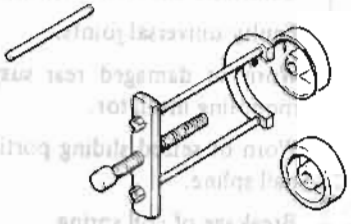
When rear axle and suspension is suspected of being noisy it is advisable to make thorough test to determine whether the noise originates in the tires, road surface, exhaust, propeller shaft, engine, transmission, universal joint, wheel bearings or suspension.

Noise which originates in other places cannot be corrected by adjustment or replacement of parts in the rear axle and rear suspension.

In case of oil leak, first check if there is any damage or restriction in breather.

Condition	Probable cause	Corrective action
Noise (unusual sound)	Loose wheel nuts.	Tighten.
	One or more securing bolts loose.	Tighten to specified torque.
	Lack of lubricating oil or grease.	Lubricate as required.
	Faulty shock absorber.	Replace.
	Incorrect adjustment of rear axle shaft end play.	Adjust.
	Damaged or worn wheel bearing.	Replace.
	Worn spline portion of rear axle shaft.	Replace if necessary.
	Loose journal, connections, etc.	Tighten to torque.
	Unbalance of wheel and tire.	Balance.
	Damage of the rubber parts such as suspension arm bush, shock absorber mounting bush.	Replace damaged parts.
	Deformed differential mounting insulator.	Replace.
	Faulty universal joints.	Adjust or replace.
	Worn or damaged rear suspension insulator. mounting insulator.	Replace.
	Worn or seized sliding portion of drive shaft ball spline.	Replace drive shaft assembly.
	Breakage of coil spring.	Replace.
Instability in driving This problem is also related to the front suspension. For trouble diagnosis, also refer to the FA section.	Loose wheel nuts.	Tighten to specified torque.
	Worn shock absorber.	Replace.
	Incorrect wheel alignment. 1) Coil spring wear. 2) Worn-out drive shaft ball spline.	Replace.
	Damaged rear suspension arm rubber bushing, suspension member insulator, differential mounting insulator.	Replace. Replace drive shaft assembly.
Oil leakage	Damaged oil seal on rear axle shaft.	Replace.
	Oil leakage from the differential carrier.	Replace parts as required.
	Damaged dust cover of drive shaft.	Replace.
	Damaged grease seal of rear axle shaft.	Replace.

SPECIAL SERVICE TOOLS

Tool number & tool name	Kent-Moore No. / Reference page or Fig. No.
KV40101000 Rear axle stand 	J 25604-01 / Fig. RA-14, Fig. RA-15
ST36230000 Sliding hammer 	J 25840 / Fig. RA-15
ST37710000 Rear axle grease seal drift 	J 25861 / Page RA-8
ST37750000 Rear axle shaft bearing drift 	J 25862 / Fig. RA-16
ST38280000 Rear suspension arm bushing remover 	J 25871 / Fig. RA-21
ST35655001 Coil spring compressor set ①ST35651001 Spring compressor ②ST35652001 Clamp 	J 25833 / Fig. RA-10
KV40101300 Rear suspension member insulator replacer 	– / Fig. RA-7
GG94310000 Flare nut torque wrench 	– / Page RA-3, Page RA-5