DATSUN **Model S110 Series**

SECTION FA

FRONT AXLE & FRONT SUSPENSION

CONTENTS

Refer to Section MA (Front Axle and Front Suspension) for:

- ADJUSTING WHEEL BEARING PRELOAD
- CHECKING WHEEL ALIGNMENT

FA

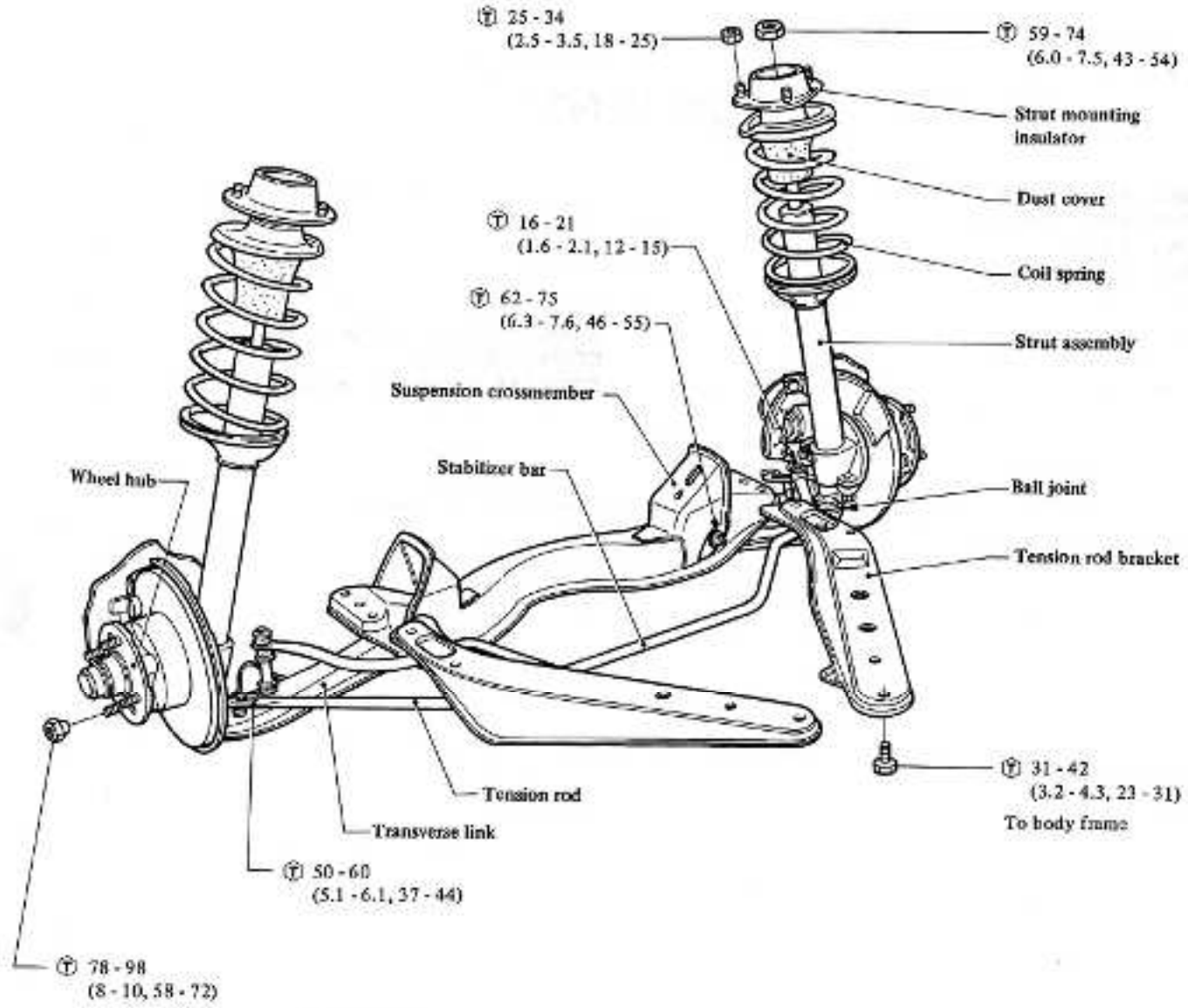
FRONT AXLE AND FRONT SUSPENSION

Wheel alignment

- Camber, caster and kingpin are preset at factory and cannot be adjusted.
- The car requires only toe-in and car posture adjustments.

  Toe-in 0 - 2 mm (0 - 0.08 in)
  [0° to 0°12']

Refer to section MA for Wheel Alignment.



Wheel bearing

- Do not overtighten wheel bearing nuts, as this can cause wheel bearing seizure.
- Axial play: 0 mm (0 in)
- Preload (As measured at wheel bolt) with used parts
  2.0 - 7.8 N (0.2 - 0.8 kg, 0.4 - 1.8 lb)
- When measuring bearing preload, do not include "dragging" resistance with brake pads.

Refer to section MA for Adjusting Wheel Bearing Preload.

Ⓣ : N·m (kg-m, ft-lb)

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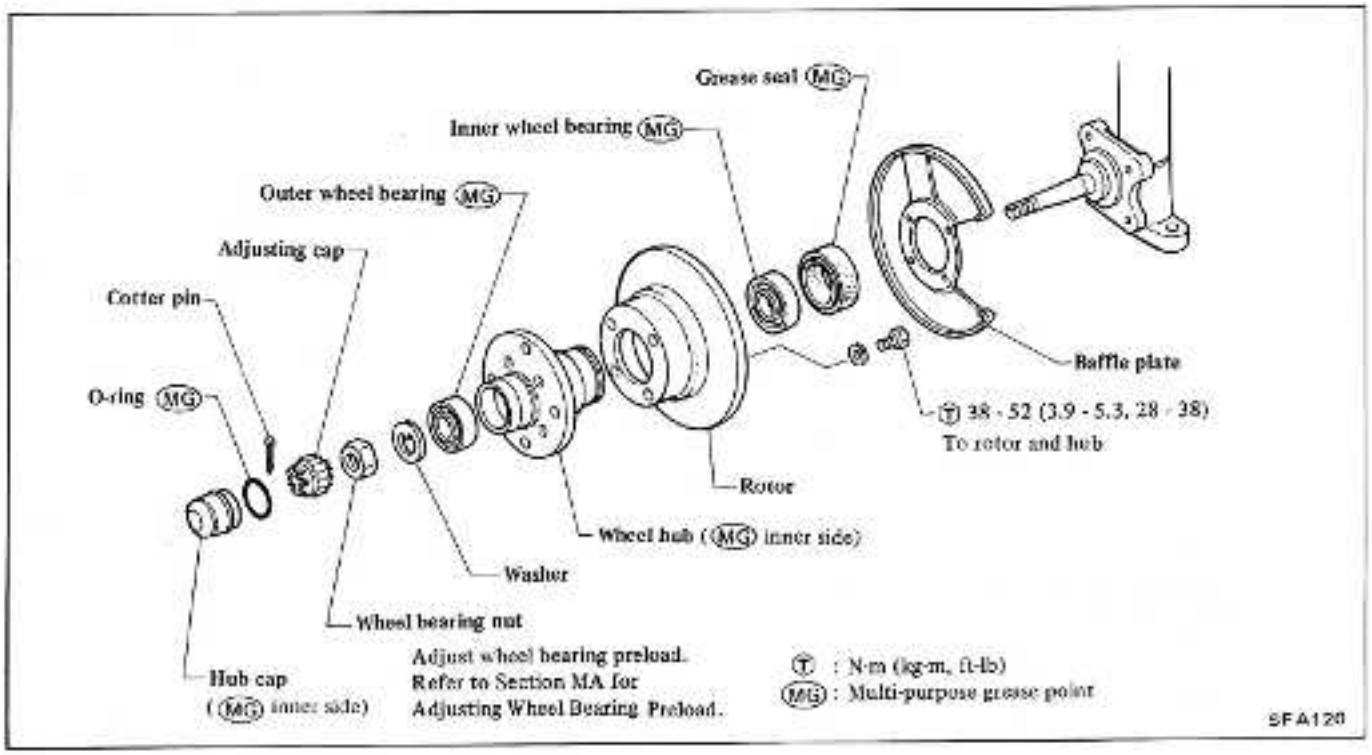
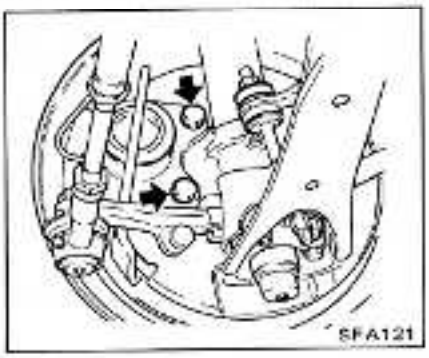
FRONT AXLE



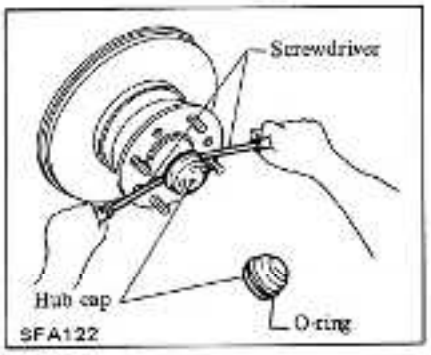
REMOVAL

1. Block rear wheels with chocks and raise front of car, and then **support it with safety stands. Refer to Section GI for Lifting Points and Towing.**
2. Remove wheel and tire assembly.
3. Remove caliper assembly. **Refer to Section BR for removal.**

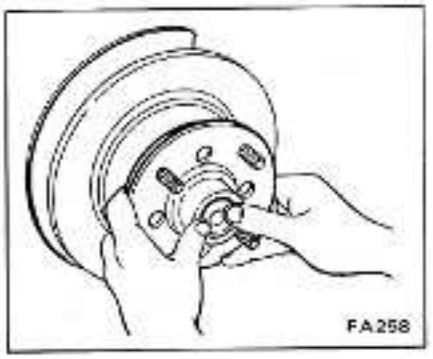


CAUTION:
Make sure brake hose is secured and not twisted.

4. Work off hub cap.

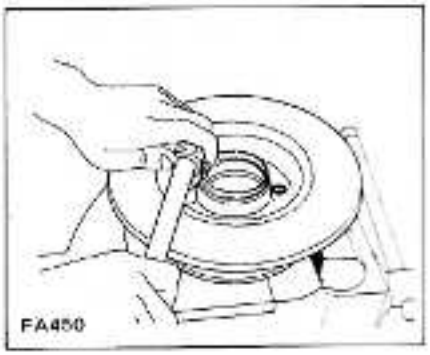


5. Pry off cotter pin; take out adjusting cap and wheel bearing nut. **Cotter pin must not be reused.**
6. Remove wheel hub with disc brake rotor.



CAUTION
Be careful not to drop wheel bearing.

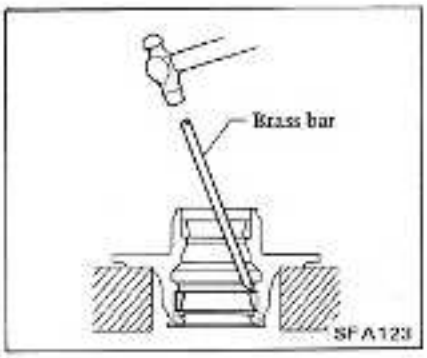
7. Separate outside wheel bearing inner race and washer.
8. Separate brake rotor and hub.

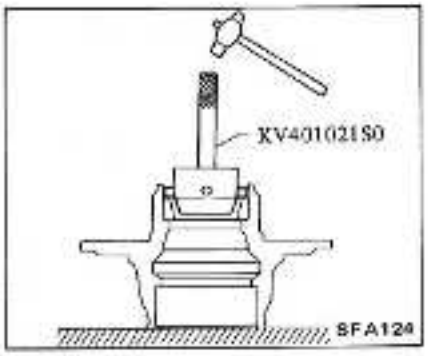


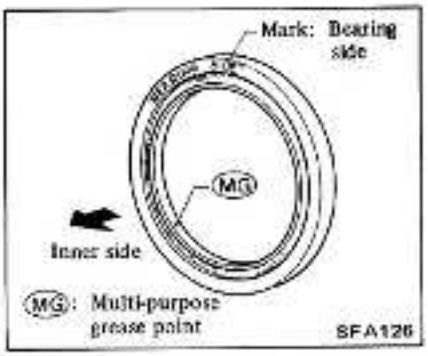
9. Remove inside wheel bearing outer race, grease seal and outside outer race.

CAUTION
Be careful not to drop wheel bearing.

Grease seal must not be reused.







INSPECTION

Thoroughly clean bearing and each part and dry with compressed air.

Wheel bearing

When race, cage or roller sufaces make noise or are cracked, pitted, worn, rough, or out-of-round, replace bearing assembly.

Wheel hub

Check wheel hub for cracks by means of magnetic flaw detecting or dyeing test; replace if necessary.

Knuckle spindle

Also check wheel hub; replace if cracked or damaged. When thread is damaged, replace strut assembly.

Grease seal

If grease leakage is detected during removal, replace grease seal.

Replace grease seal at every disassembly even if it appears good.

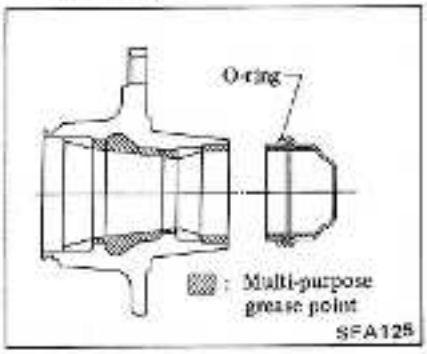
INSTALLATION

Install front axle in the reverse order of removal as follows:

1. Install bearing outer race with Tool until it seats in hub.

2. Pack hub and hub cap with **recommended multi-purpose grease.**

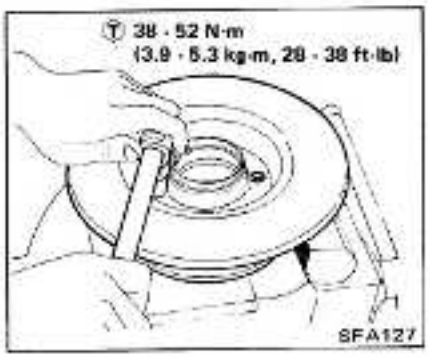
Coat O-ring with recommended multi-purpose grease.



3. Coat each bearings **with recommended multi-purpose grease.**

4. Place inner bearing in hub and install a new grease seal, **coating sealing lips with recommended multi-purpose grease.**

5. Fix brake rotor to hub.



6. Sparingly apply recommended multi-purpose grease to each part.
- Threaded portion of spindle.
- Bearing washer to bearing contacting face.

7. Put hub assembly on spindle and then install washer and wheel bearing nut.

8. Adjust wheel bearing preload.
Refer to Section MA for adjustment.

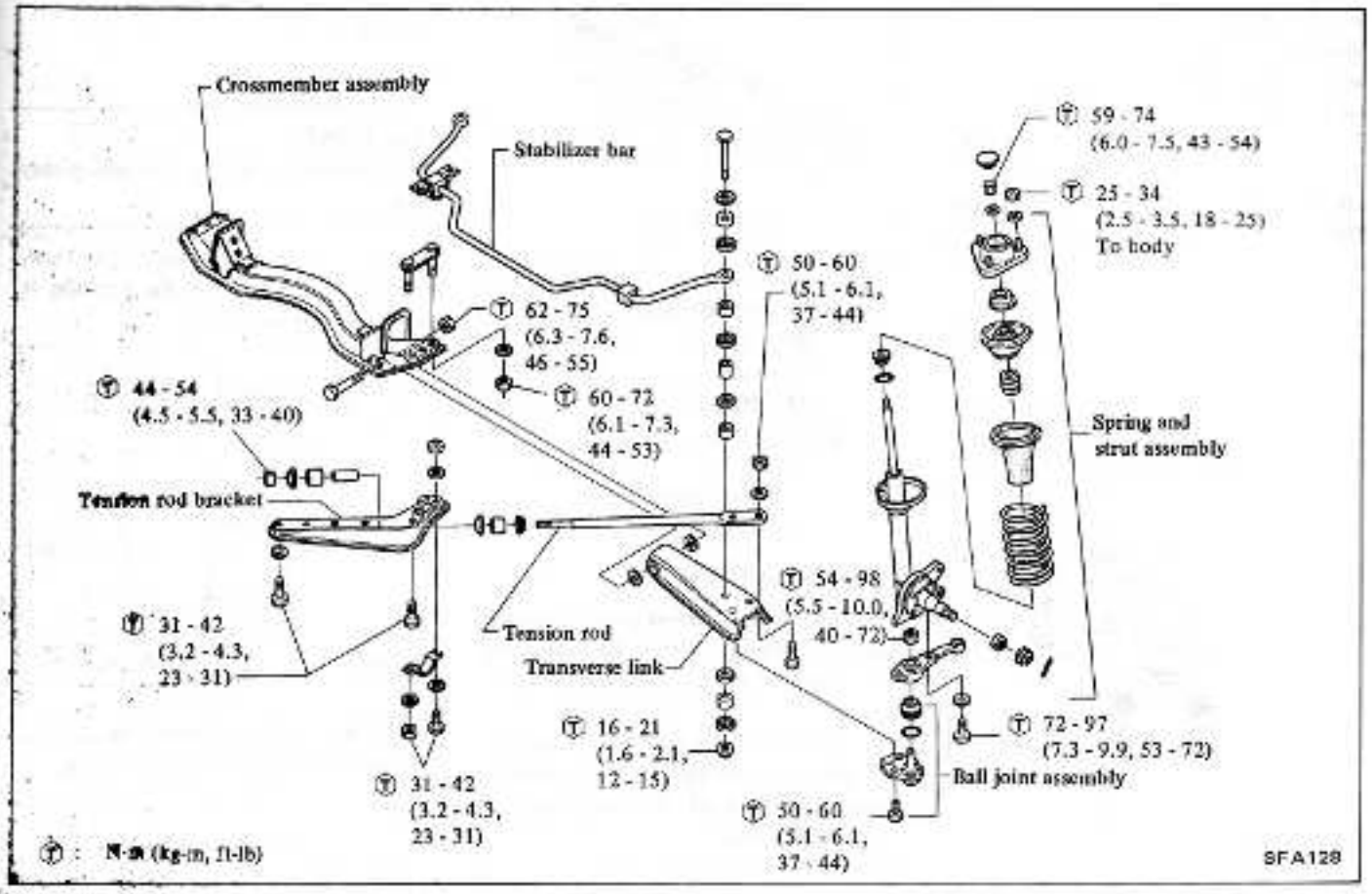
9. Install hub cap with O-ring on hub.

10. Install brake caliper assembly.
Refer to Section BR for installation.

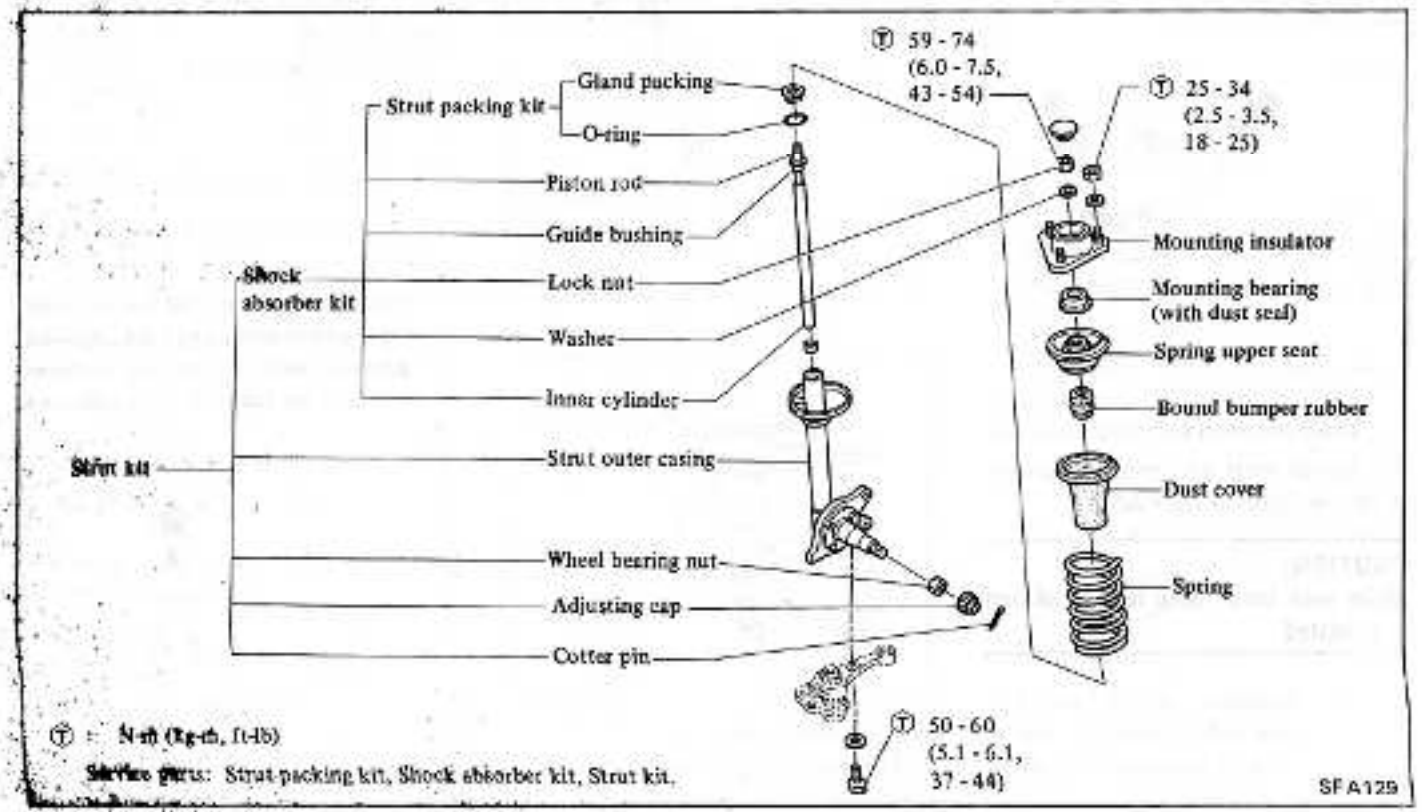
11. Install wheel and tire.

Ⓣ: **78 - 98 N·m (8.0 - 10.0 kg-m, 58 - 72 ft-lb)**

FRONT SUSPENSION

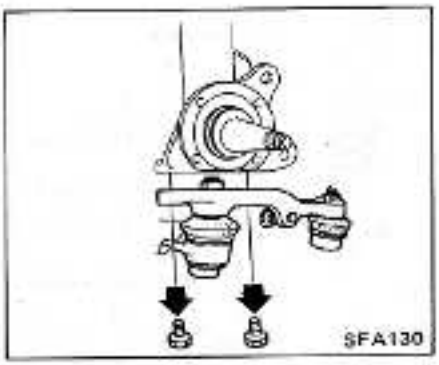


SPRING AND STRUT ASSEMBLY

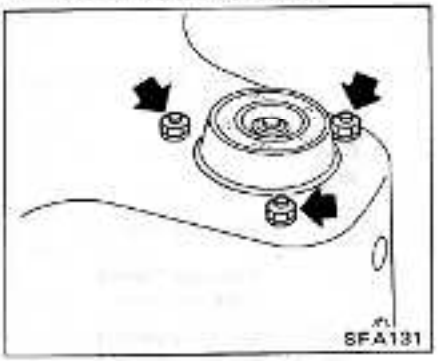


REMOVAL AND INSTALLATION

1. Block rear wheels with chocks and raise front of car, and then **support it with safety stands. Refer to Section GI for Lifting Points and Towing.**
2. Remove wheel and tire assembly.
3. Remove brake tube and caliper. **Refer to Front Disc Brake (Section BR).**
4. Remove wheel hub and wheel bearing, if necessary.
5. Separate knuckle arm from strut lower end.



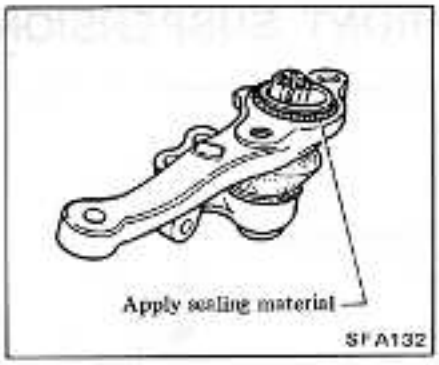
6. Support strut assembly with a suitable stand.
7. Remove strut upper end.



8. Draw out strut assembly from car.
9. Install strut and spring assembly in reverse order of removal.

CAUTION:
Make sure brake hose is secured and not twisted.

- When installing steering knuckle arm to the strut assembly, apply suitable sealing material to portion indicated in figure.

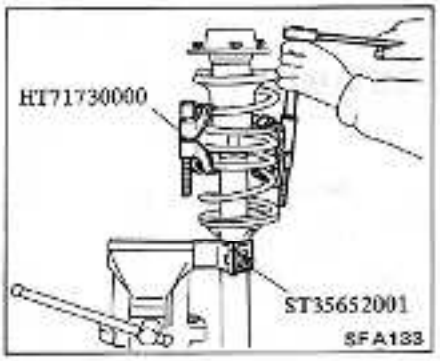


Ⓣ : **Strut to hoodledge**
25 - 34 N-m
(2.5 - 3.5 kg-m,
18 - 25 ft-lb)
Strut to knuckle arm
72 - 97 N-m
(7.3 - 9.9 kg-m,
53 - 72 ft-lb)

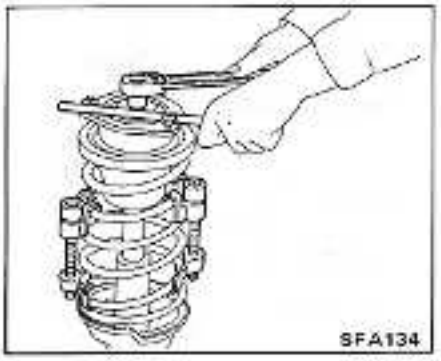
DISASSEMBLY

When disassembling strut assembly, extra caution should be exercised to prevent dirt and dust from entering strut.

1. Set up **Tools** on strut assembly.
Compress spring just for enough to permit turning of strut mounting insulator by hand.



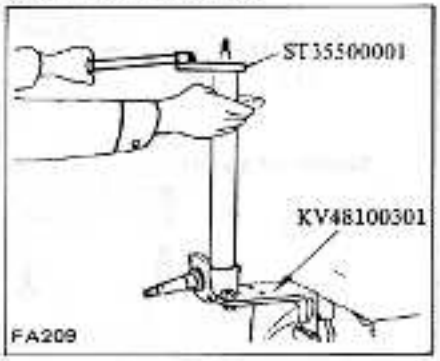
2. Remove lock nut from top of piston rod.



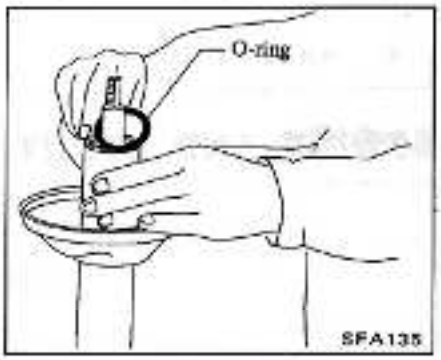
Separate following parts:
- Strut mounting insulator
- Strut mounting bearing
- Dust seal
- Spring upper seat
- Bound bumper rubber
- Coil spring
- Dust cover

CAUTION:
Pay attention not to damage piston rod.

3. Remove gland packing with **Tool.**
Retract piston rod by pushing it down until it bottoms.

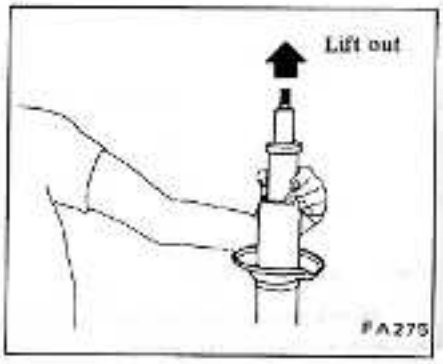


4. Remove O-ring from top of outer casing and draw out guide bushing.

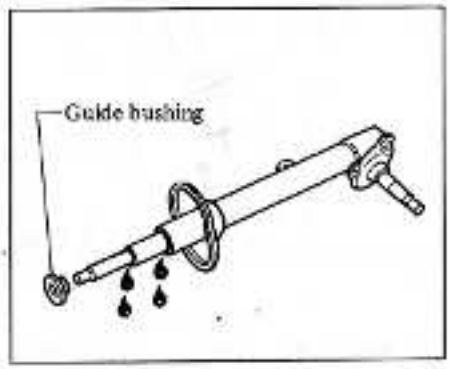


5. Lift out piston rod together with cylinder.

Piston rod, piston rod guide, inner cylinder and bottom valve are adjusted to provide precision mating surfaces and should be handled as a matched it.



6. Drain fluid thoroughly from inner cylinder and outer casing.



This operation is very important since performance of strut varies with amount of fluid filled within strut.

INSPECTION

- Wash all parts, except for nonmetallic parts, clean with suitable solvent and dry with compressed air.
- Blow dirt and dust off of nonmetallic parts using compressed air.

a. Oil oozing out at and around gland packing does not call for strut maintenance. If oil leaks past spring seat, check piston rod and gland packing to correct the cause of problem. If oil leakage occurs on welded portion of outer strut casing, replace strut assembly.

b. If shock absorber itself is malfunctioning, replace as shock absorber kit (including pistion rod, cylinder, bottom valve and guide bushing).

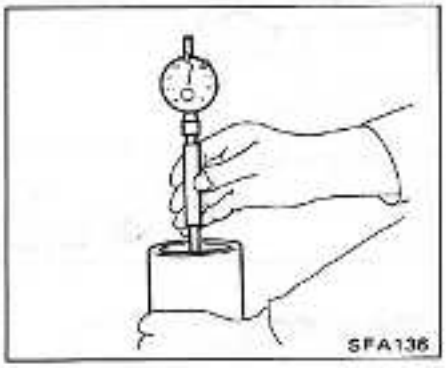
Gland packing, O-ring and fluid

Replace with new gland packing and O-ring or replace with fresh fluid whenever strut is disassembled.

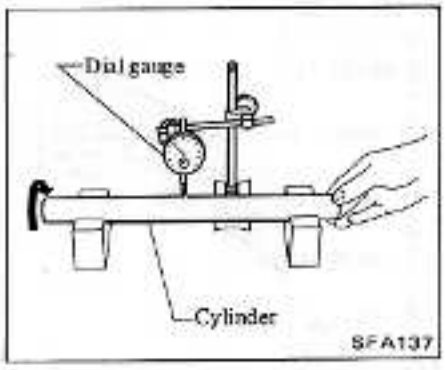
Inner cylinder and outer casing

- Inspect inner cylinder and outer casing for cracks, deformation or other damage. As for inner cylinder, replace shock absorber kit. As for outer casing, replace strut assembly.

Inner diameter:
Inner cylinder
30.02 - 30.10 mm
(1.1819 - 1.1850 in)



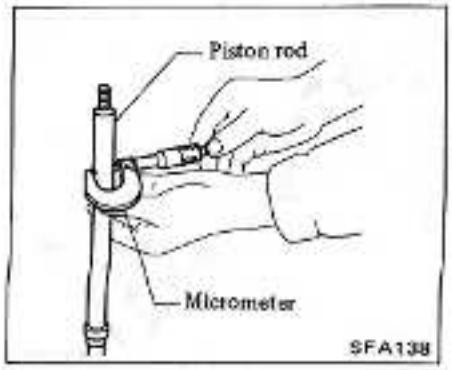
Maximum runout:
Inner cylinder
Less than 0.2 mm (0.008 in)



Piston rod

- Inspect piston rod for cracks deformation or other damage. Replace shock absorber kit.
- Inspect threads for cracks or other damage. Replace shock absorber kit.

Rod diameter:
19.965 - 19.975 mm
(0.7860 - 0.7864 in)
Maximum runout:
Less than 0.1 mm (0.004 in)



Strut mounting insulator

Replace if cemented rubber-to-metal portion are melted or cracked. Rubber parts should also be replaced, if deteriorated.

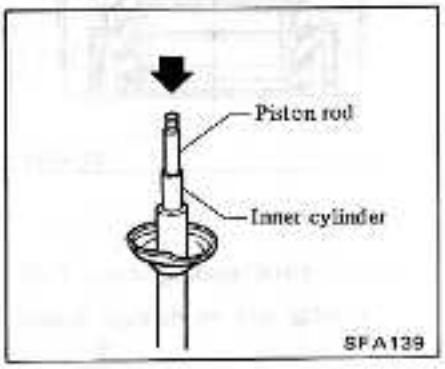
Strut mounting bearing

Replace if inspection reveals abnormal noise or excessive rattle in axial direction.

ASSEMBLY

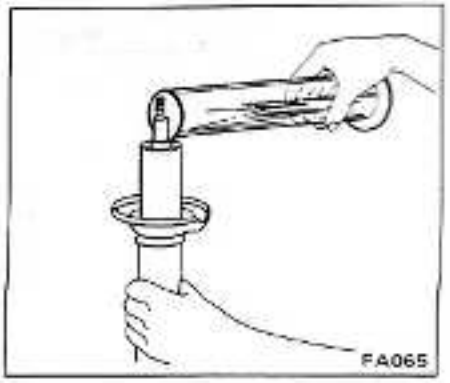
Before assembly, clean away all dirt to prevent any possible entry of dirt into strut assembly.

1. Install strut assembly on **Tool** KV48100301.
2. Install piston rod and inner cylinder (shock absorber kit).

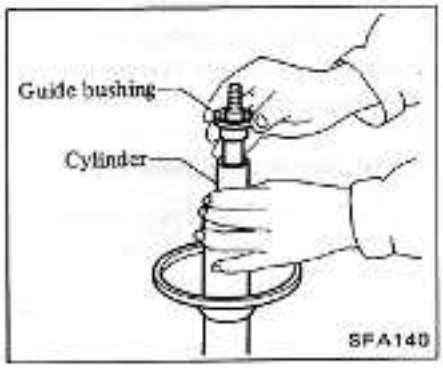


3. Pour correct amount of fluid.
Use "NISSAN GENUINE STRUT FLUID" or equivalent.

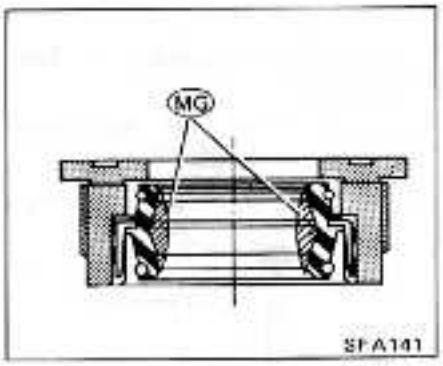
Capacity:
325 mℓ (11.4 Imp fl oz)



4. Place guide bushing.

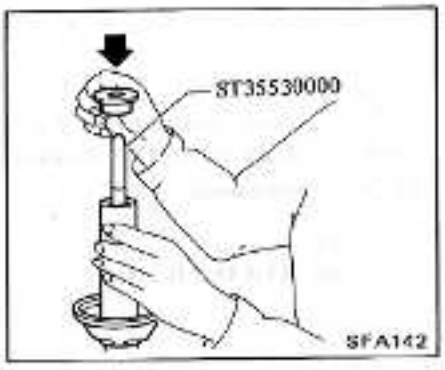


5. Lubricate sealing lip of gland packing.

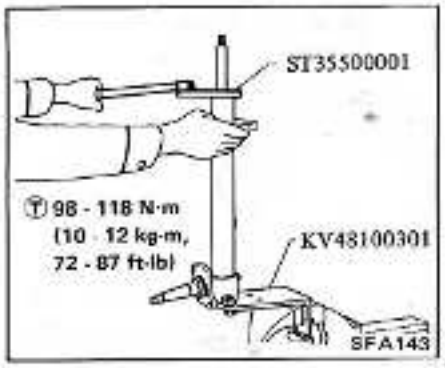


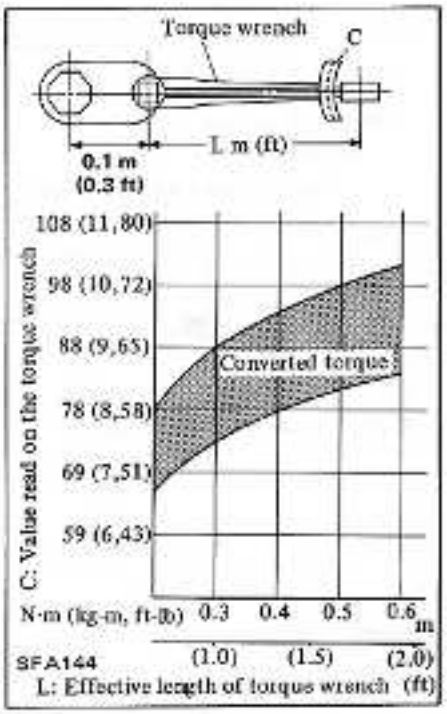
6. Install gland packing using **Tool.**

Be careful not to damage sealing lip.



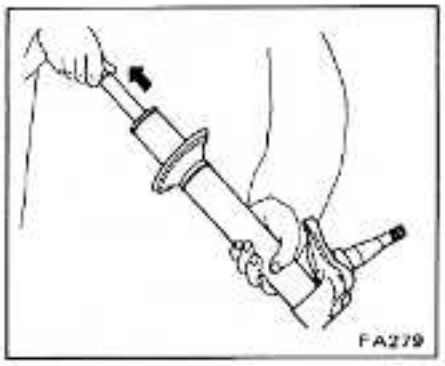
7. Tighten gland packing.

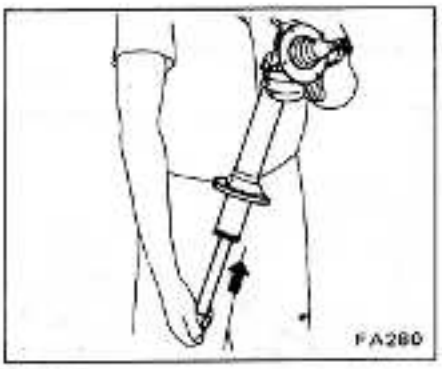




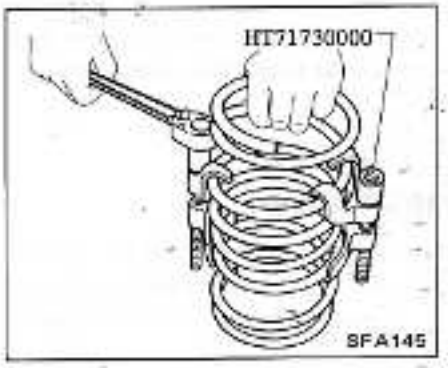
8. Remove strut from **Tool** KV48100301.
9. After the above steps have been completed, air should be removed from shock absorber system.

Repeat above procedures several times so that air will be bled out from strut thoroughly as shown.

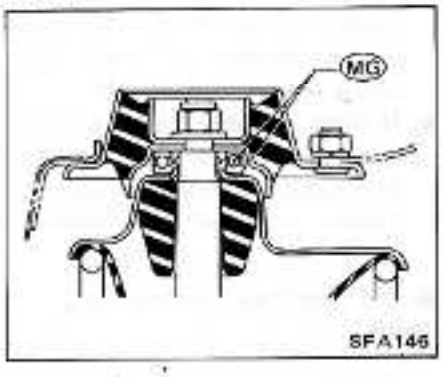




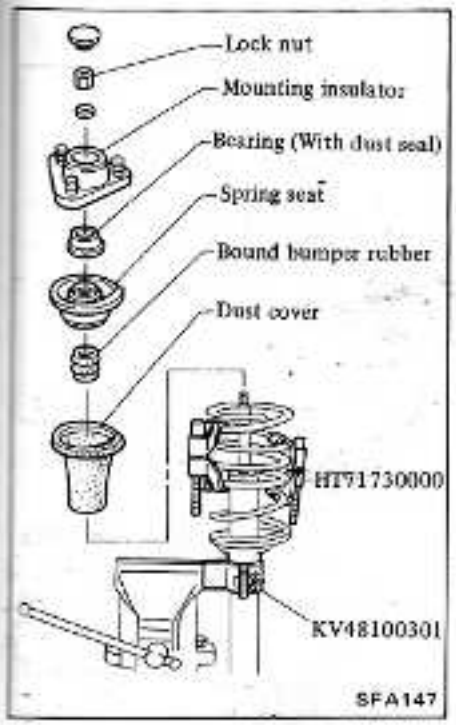
10. Reinstall strut on **Tool** KV48100301.
11. Compress coil srping using **Tool.**



12. Set up coil spring with **Tool** HT71730000 on spring lower seat of strut.
13. Lubricate parts indicated in figure.

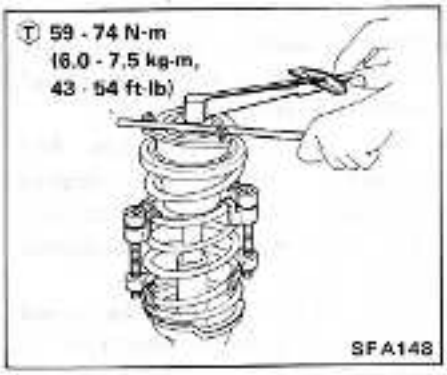


14. Mount following part as shown in figure.



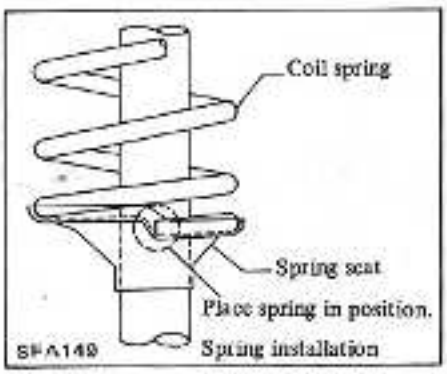
- Install bound bumper rubber in place to prevent piston rod from falling by its own weight.
- Install mounting bearing so that it points in correct direction.

15. Tighten new piston rod self-locking nut.

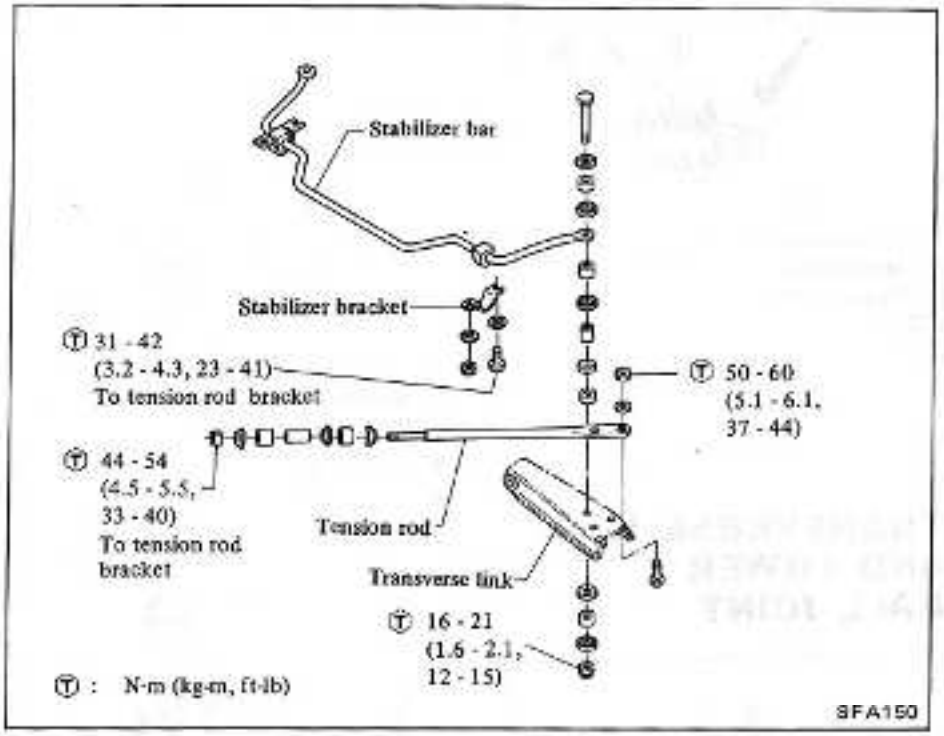


16. Remove **Tool** HT71730000 on strut assembly.

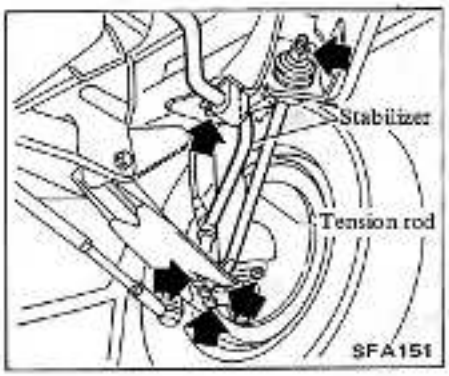
After placing spring in position between upper and lower spring seats, release compressor gradually.

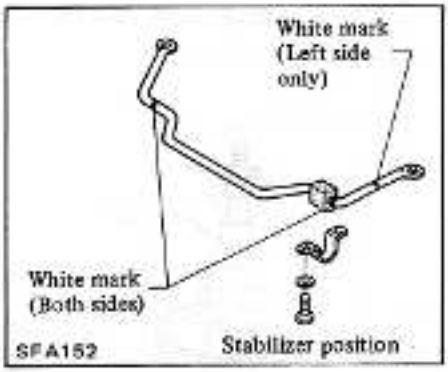


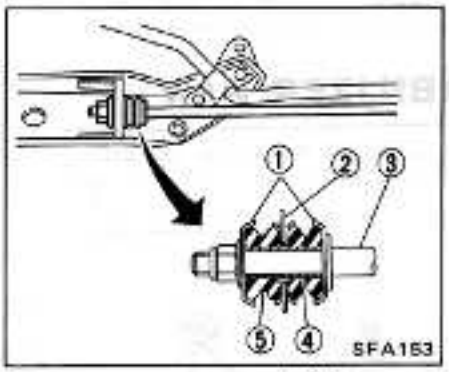
TENSION ROD AND STABILIZER BAR



- Remove under cover.
- Set load of car.
- If correctly installed; white mark painted on stabilizer bushing seat can be seen from both sides of car.
- Always install the stabilizer which has the white mark on it on the left transverse link.
- When installing a bushing, do not allow it to project beyond the surface area of the washer.
- Do not allow the bushings and washers to come in contact with grease, oil, soapy water, etc.

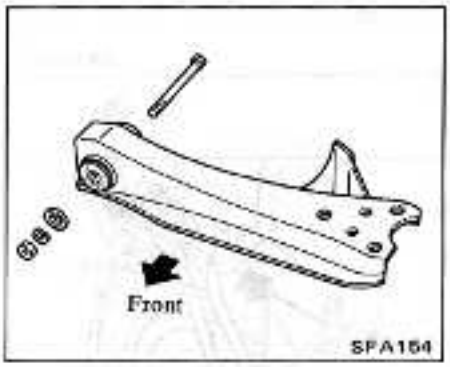






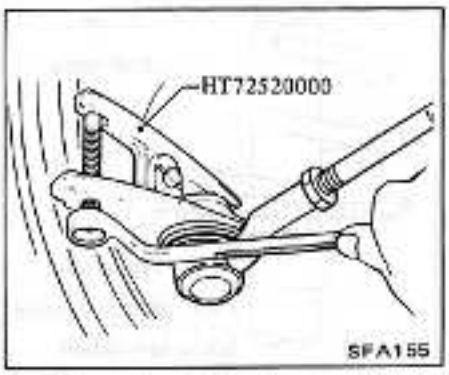
1 Thrust washer
2 Tension rod bracket
3 Tension rod
4 Collar
5 Bushing

TRANSVERSE LINK AND LOWER BALL JOINT

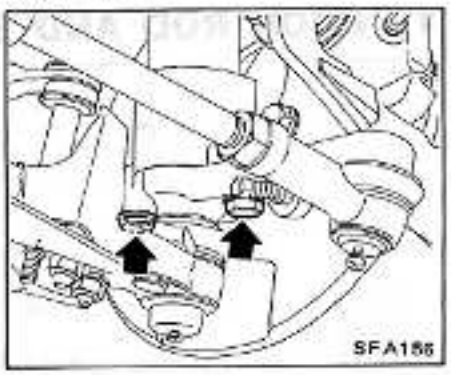


REMOVAL AND INSTALLATION

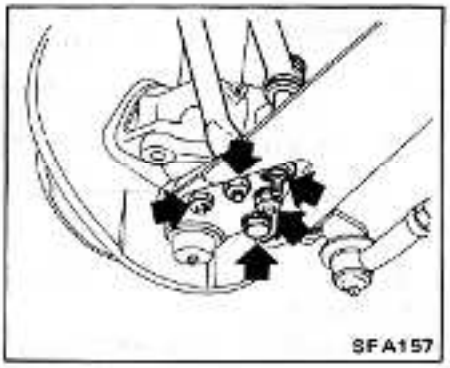
1. Block rear wheels with chocks, and raise front of car, and then **support it with safety stands. Refer to Section GI for Lifting Points and Towing.**
2. Remove wheel and tire assembly.
3. Separate knuckle arm to side rod using **Tool.**



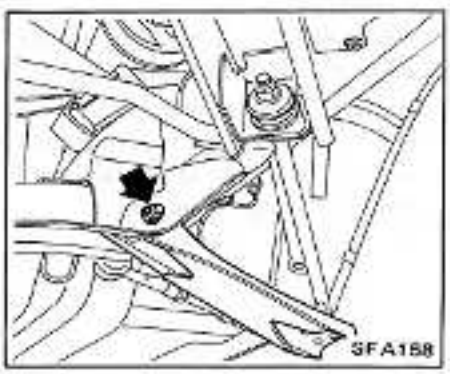
4. Separate strut lower end to knuckle arm.



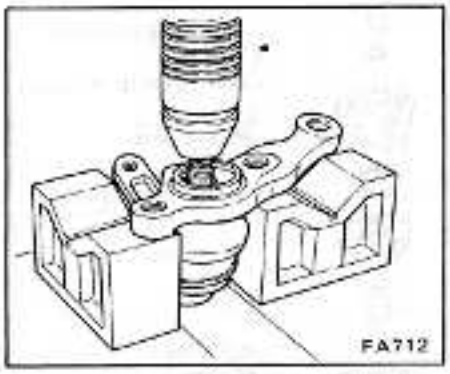
5. Remove following parts from transverse link.
- Ball joint
- Stabilizer
- Tension rod



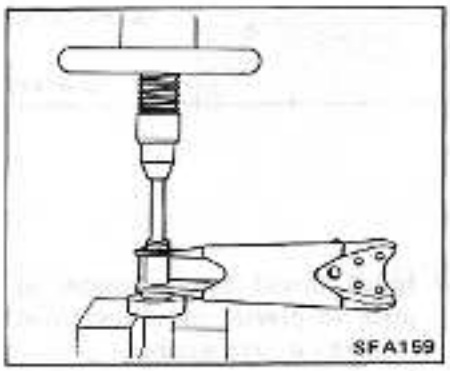
6. Remove transverse link from crossmember.



7. Separate following parts.
- Ball joint to knuckle arm using press.



- Link bushing to transverse link using Set **Tool** ST36720000.



8. Install transverse link and lower ball joint in the reverse order of removal, noting the following:
- **When installing transverse link spindle, insert it from rear side of suspension crossmember.**
- **To install transverse link first temporarily tighten nuts securing transverse link spindle which connects transverse link to suspension crossmember.**
- **Final tightening should be carried out at curb weight with tires on ground.**
- **Make sure mating surface of bushing is clean and free from oil and grease.**
- **Install transverse link bushing using set Tool ST36720000.**

Ⓣ: Knuckle arm to strut assembly
72 - 97 N·m
(7.3 - 9.9 kg-m,
53 - 72 ft-lb)

Ball joint to knuckle arm
Front brake AN20 model
54 - 98 N·m
(5.5 - 10.0 kg-m,
4.0 - 72 ft-lb)
Front brake N22 model
97 - 120 N·m
(9.8 - 12.2 kg-m,
71 - 88 ft-lb)
Ball joint to transverse link
50 - 60 N·m
(5.1 - 6.1 kg-m,
37 - 44 ft-lb)
Transverse link to crossmember
62 - 75 N·m
(6.3 - 7.6 kg-m,
46 - 55 ft-lb)

INSPECTION

Transverse link

- Check for signs of cracks, distortion or other damage. Replace if any of above conditions are beyond repair.
- If rubber bushing shows evidence of cracking, replace with a new one.

Ball joint

- Ball joint is assembled at the factory and cannot be disassembled. Check ball stud turning torque with nut in place on ball stud.
  If excessively higher or lower than specifications and ball joint is properly lubricated, replace.

Turning torque:
New parts
3.9 - 9.8 N·m
(40 - 100 kg-cm,
35 - 87 in-lb)
Used parts
2.0 - 7.8 N·m
(20 - 80 kg-cm,
17 - 69 in-lb)

2. Check conditional dust cover. If found to be cracked excessively beyond use, replace ball joint with a new one.
3. Lubricate ball joint with recommended multi-purpose grease regularly.

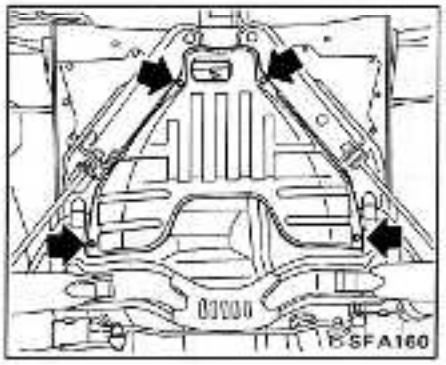
To lubricate, remove plug and install grease nipple in its place.
Pump grease slowly until old grease is completely forced out. After greasing, reinstall plug.

When a high-pressure grease gun is used, operate the grease gun carefully so that grease is injected slowly and new grease does not come out from the clamp portion.

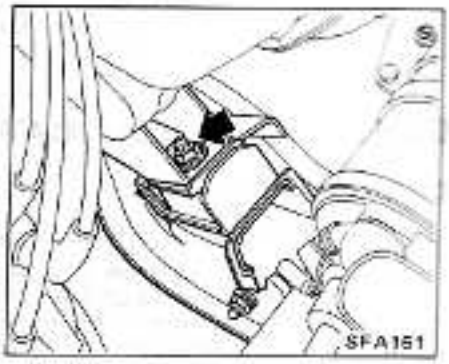
SUSPENSION CROSSMEMBER

REMOVAL AND INSTALLATION

1. Block rear wheels with chocks, and raise front of car, and then **support it with safety stands. Refer to Section GI for Lifting Points and Towing.**
2. Remove wheel and tire assembly.
3. Remove under cover.



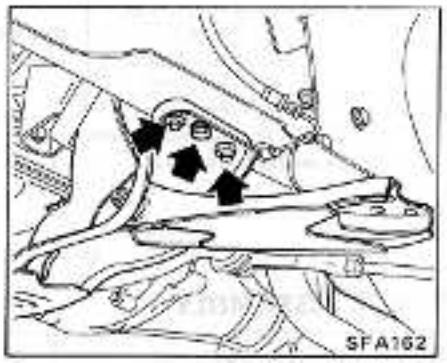
4. Remove transverse link from crossmember. **Refer to Transverse Link and Lower Ball joint.**
5. Separate suspension crossmember from engine mounting insulator.



6. Raise up engine.

Support weight of engine to remove load from engine mounting.

7. Remove suspension crossmember from body frame.



8. Install suspension crossmember in reverse order of removal.

Ⓣ: Crossmember to transverse link
62 - 75 N·m
(6.3 - 7.6 kg-m,
46 - 55 ft-lb)
Engine mounting insulator to crossmember
31 - 42 N·m
(3.2 - 4.3 kg-m,
23 -31 ft-lb)
Crossmember to body frame
Bolt (Center)
31 - 42 N·m
(3.2 - 4.3 kg-m,
23 - 31 ft-lb)
Nut (Both sides)
60 - 72 N·m
(6.1 - 7.3 kg-m,
44 - 53 ft-lb)

INSPECTION

Check suspension crossmember for evidence of deformation or cracking; if necessary, replace.

SERVICE DATA AND SPECIFICATIONS

GENERAL SPECIFICATIONS

COIL SPRING

Item		Dimension d x D x L*	Color identification	Spring constant
Europe		10.8 x 100 x 362.5 (0.425 x 3.94 x 14.27	Orange 1, Blue 2 (With Left and right)	17.75 N/mm (1.81 kg/mm, 101.4 lb/in)
Non-Europe	Right	12.0 x 130 x 373 (0.472 x 5.12 x 14.69)	Pink 1 White 2	15.08 N/mm (1.64 kg/mm, 91.84 lb/in)
	Left	12.0 x 130 x 363 (0.472 x 5.12 x 14.29)	Orange 1 White 2	

*1 d x D x L: Wire diameter [mm (in)] x Coil diameter [mm (in)] x Free length [mm (in)]

STRUT ASSEMBLY

		Europe	Non-Europe
Shock absorber type		Hydraulic	
Shock absorber fluid	mℓ (cu in)	325 (11.4 Imp fl oz)	
Piston rod diameter	mm (in)	19.965 - 19.975 (0.7860 - 0.7864)	
Inner cylinder inner diameter	mm (in)	30.02 - 30.10 (1.1819 - 1.1850)	
Stroke	mm (in)	172 (6.77)	
Damping force [at 0.3 m (1.0 ft)/sec]	Expansion N (kg, lb)	981 (100, 221)	785 (80, 176)
	Compression N (kg, lb)	441 (45, 99)	392 (40, 88)

STABILIZER BAR

Bar diameter	mm (in)	19 (0.75)

INSPECTION AND ADJUSTMENT

WHEEL ALIGNMENT (Unladen *1)

Camber	degree	–40' - 50'
Caster	degree	1°45' - 3°15'
Kingpin inclination	degree	7°25' - 8°55'
Toe-in	mm (in)	0 - 2 (0 - 0.08)
	degree *2	0° - 12'
Front wheel turning angle (Full turn) degree	Inside	33° - 36°
	Outside	27° - 29°
Front wheel Toe-out turns degree	Inside	20°
	Outside	18.7°

*1: Tankful of fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools, mats in designed position.
*2: On both sides

WHEEL BEARING

Wheel bearing axial play		mm (in)	0 (0)
Wheel bearing nut tightening torque		N·m (kg-m, ft-lb)	25 - 29 (2.5 - 3.0, 18 - 22)
	Return angle	degree	60°
Wheel bearing starting torque	With new grease seal	N·m (kg-cm, in-lb)	0.39 - 0.83 (4.0 - 8.5, 3.5 - 7.4)
	With used grease seal	N·m (kg-cm, in-lb)	0.10 - 0.44 (1.0 - 4.5, 0.9 - 3.9)
	At wheel hub bolt: With new grease seal	N (kg, lb)	6.9 - 14.7 (0.7 - 1.5, 1.5 - 3.3)
	At wheel hub bolt: With used grease seal	N (kg, lb)	2.0 - 7.8 (0.2 - 0.8, 0.4 - 1.8)

LOWER BALL JOINT

Turning torque	New parts	N·m (kg-cm, in-lb)	3.9 - 9.8 (40 - 100, 35 - 87)
	Used parts	N·m (kg-cm, in-lb)	2.0 - 7.8 (20 - 80, 17 - 69)

TIGHTENING TORQUE

Unit	N·m	kg-m	ft-lb
Hub			
Wheel hub nut	78 - 98	8 - 10	58 - 72
Disc brake			
Rotor to hub	38 - 52	3.9 - 5.3	28 - 38
Strut			
Strut to hoodledge	25 - 34	2.5 - 3.5	18 - 25
Piston rod self-locking nut	69 - 74	6.0 - 7.5	43 - 54
Gland packing	98 - 118	10.0 - 12.0	72 - 87
Strut to knuckle arm	72 - 97	7.3 - 9.9	53 - 72
Caliper to strut	72 - 97	7.3 - 9.9	53 - 72
Knuckle arm			
Knuckle arm to side rod ball joint	29 - 69	3.0 - 7.0	22 - 51
Ball joint			
Ball joint to knuckle arm (Front brake AN20 model)	54 - 98	5.5 - 10.0	40 - 72
Ball joint to knuckle arm (Front brake N22 model)	96 - 120	9.8 - 12.2	71 - 88
Ball joint to transverse link	50 - 60	5.1 - 6.1	37 - 44
Transverse link			
Transverse link to crossmember	62 - 75	6.3 - 7.6	46 - 55
Suspension crossmember			
Cross-member to body frame (Nut (Both sides))	60 - 72	6.1 - 7.3	44 - 53
Cross-member to body frame (Bolt (Center))	31 - 42	3.2 - 4.3	23 - 31
Engine mounting insulator to crossmember	31 - 42	3.2 - 4.3	23 - 31
Tension rod			
Tension rod to tension rod bracket	44 - 54	4.5 - 5.5	33 - 40
Tension rod to transverse link	50 - 60	5.1 - 6.1	37 - 44
Tension rod bracket to body frame	31 - 42	3.2 - 4.3	23 - 31
Stabilizer bar			
Stabilizer bar bracket to tension rod bracket (or body frame)	31 - 42	3.2 - 4.3	23 - 31
Connecting rod to transverse link or stabilizer bar	16 - 21	1.6 - 2.1	12 - 15

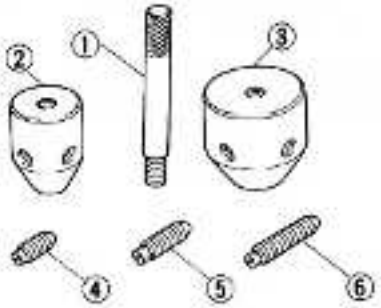
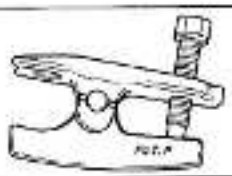
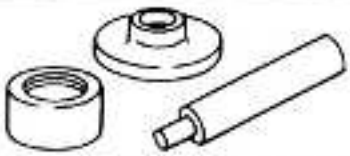
TROUBLE DIAGNOSES AND CORRECTIONS

Condition	Probable cause	Corrective action
Vibration, shock and shimmy of steering wheel. **Vibration:** Loose connection of each part and wear of each part of linkage cause vibration of front wheels and, steering wheel vibration. This is very noticeable when travelling on rough road. **Shock:** When the front wheels are travelling on bumpy roads, the play of the steering linkage is transmitted to the steering wheel. This is especially noticeable when travelling on rough road. **Shimmy:** Abnormal vibration of the front suspension system and the whole steering linkage, which occurs at specific speeds.	Improper tire pressure.	Adjust.
	Imbalance and deformation of road wheel.	Correct the imbalance or replace.
	Unevenly worn tire or insufficient tightening of wheel nuts.	Replace or tighten.
	Improperly adjusted or worn front wheel bearing.	Adjust or tighten.
	Faulty wheel alignment.	Adjust.
	Worn transverse link bushings.	Replace.
	Insufficiently tightened steering gear housing.	Retighten.
	Wear of steering linkage.	Replace faulty parts.
	Worn suspension ball joint.	Replace.
	Excessive backlash due to improper adjustment of the steering gear box.	Adjust correctly.
	Damaged idler arm.	Replace.
	Worn column bearing, weakened column bearing spring, or loose clamp.	Replace or retighten.
	Malfunction of shock absorber (inside the strut) or loose installation bolts.	Replace or retighten.
	Imbalance of car level.	Correct the imbalance.
Car pulls to right or left. When driving with hands off the steering wheel on a flat road, the car gently swerves to right or left. **Note: A faulty rear suspension may also be the cause of this problem and, therefore, see also Section RA.**	Improper tire pressure or insufficient tightening of wheel nuts.	Adjust or tighten.
	Difference in wear and tear of right and left tire treads.	Replace tires.
	Incorrect adjustment or abrasion of front wheel bearing.	Adjust or replace.
	Collapsed or twisted front spring.	Replace.
	Incorrect wheel alignment.	Adjust.
	Incorrect brake adjustment (binding).	Adjust.
	Worn rubber bushings for transverse link and tension rod.	Replace.
	Deformed steering linkage and transverse link and tension rod.	Replace.
	Imbalance of car level.	Correct the imbalance.

Condition	Probable cause	Corrective action
Instability of car.	Improper tire pressure.	Adjust.
	Worn rubber bushings for transverse link and tension rod.	Replace.
	Incorrect wheel alignment.	Adjust.
	Worn or deformed steering linkage and transverse link.	Replace.
	Incorrect adjustment of steering gear.	Adjust.
	Deformed or unbalanced road wheel.	Correct or replace.
Stiff steering wheel. (Checking up procedure) Jack up front wheels, detach the steering gear arm and operate the steering wheel, and; If it is light, check steering linkage, and suspension parts. If it is heavy, check steering gear and steering column parts.	Improper tire pressure.	Adjust.
	Insufficient lubricants or mixing impurities in steering gear box or excessively worn steering linkage.	Replenish grease or replace the part.
	Stiff or damaged suspension ball joint, or lack of grease.	Replace.
	Worn or incorrectly adjusted wheel bearing.	Replace or adjust.
	Worn or damaged steering gear and bearing.	Replace
	Incorrectly adjusted steering gear.	Adjust.
	Deformed steering linkage.	Replace.
	Incorrect wheel alignment.	Adjust.
	Damaged strut mounting bearing.	Replace.
	Damaged or stiff piston or shock absorber piston rod (in the strut).	Replace.
	Interference of steering column with turn signal switch.	Replace.
Excessive steering wheel play.	Incorrectly adjusted steering gear housing.	Adjust.
	Worn steering linkage.	Replace.
	Improperly fitted gear housing.	Retighten.
	Incorrectly adjusted wheel bearing.	Adjust.
	Worn transverse link and tension rod bushings.	Replace.
Noises.	Improper tire pressure.	Adjust.
	Insufficient lubricating oil and grease for suspension ball joint and steering linkage, or their breakage.	Replenish lubricating oil and grease, or replace.
	Loose steering gear bolts, linkage and suspension parts.	Retighten.
	Faulty shock absorber (inside the strut).	Replace.
	Faulty wheel bearing.	Replace
	Worn steering linkage and steering gear.	Replace
	Worn transverse link and tension rod bushings.	Replace
	Broken or collapsed coil spring.	Replace

Condition	Probable cause	Corrective action
	Loose stabilizer bar installation bolts and nuts.	Retighten.
	Loose strut to hoodledge installation nuts.	Retighten.
Grating tire noise.	Improper tire pressure.	Adjust.
	Incorrect wheel alignment.	Adjust.
	Deformed knuckle spindle and suspension linkage.	Replace.
Jumping of disc wheel.	Improper tire pressure.	Adjust.
	Imbalanced road wheels.	Adjust.
	Faulty shock absorber.	Replace.
	Faulty tire.	Replace.
	Deformed wheel rim.	Replace.
Excessively or partially worn tire.	Improper tire pressure.	Adjust.
	Incorrect wheel alignment.	Adjust.
	Faulty wheel bearing.	Replace.
	Incorrect brake adjustment.	Adjust.
	Tires not rotated.	Rotate tires at recommended intervals.
	Rough and improper driving manner.	Drive more gently.

SPECIAL SERVICE TOOLS

Tool number	Tool name
KV40102180 ① ST35325000 ② KV40102110 ③ KV40102120 ④ KV40102130 ⑤ KV40102140 ⑥ KV40102150	Bearing outer race drift set Drift bar Drift (A) Drift (B) Screw (A) Screw (B) Screw (C) 
KV48100301	Strut and steering gear housing attachment 
HT71730000	Coil spring compressor 
ST35500001	Gland packing wrench 
ST35530000	Gland packing guide 
HT72520000	Ball joint remover 
ST36720000	Transverse link bushing replacer 
ST35652001	Clamp 

DATSUN Model S110 Series

SECTION RA

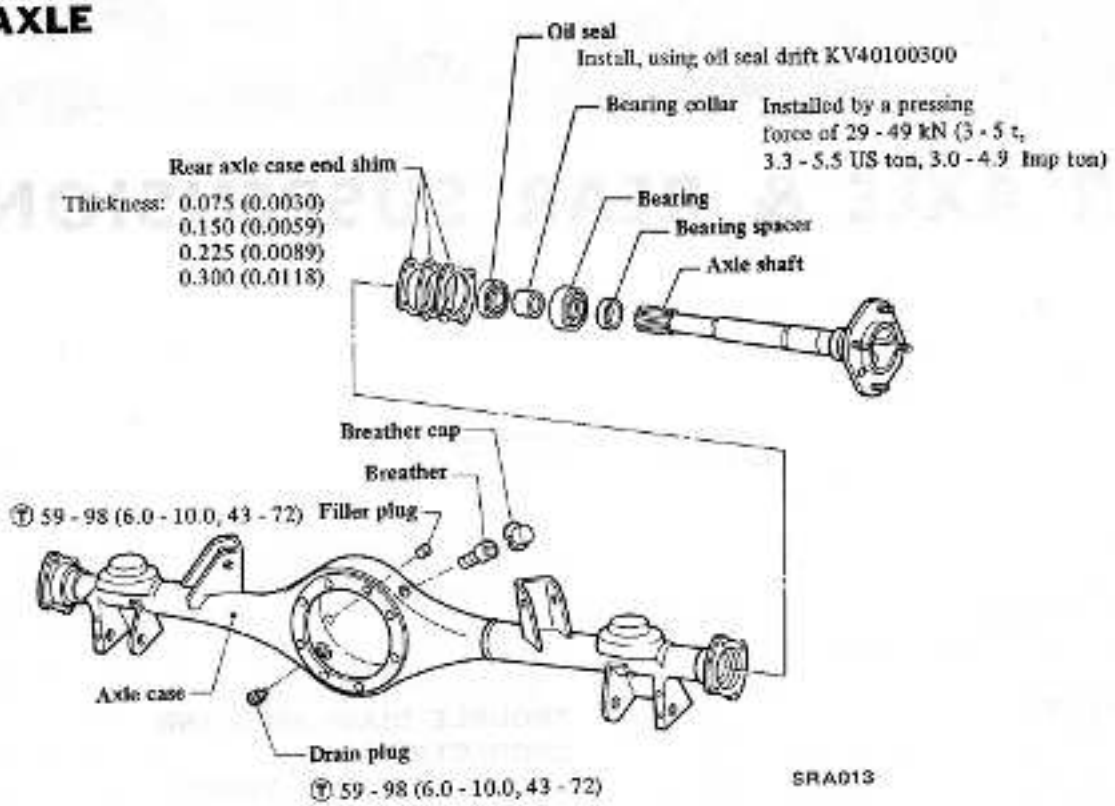
REAR AXLE & REAR SUSPENSION

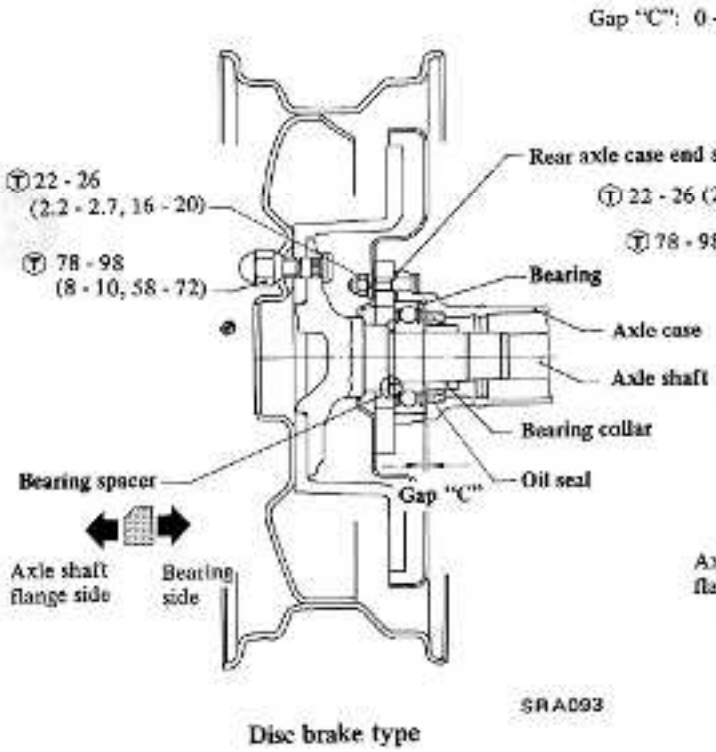
CONTENTS

RA

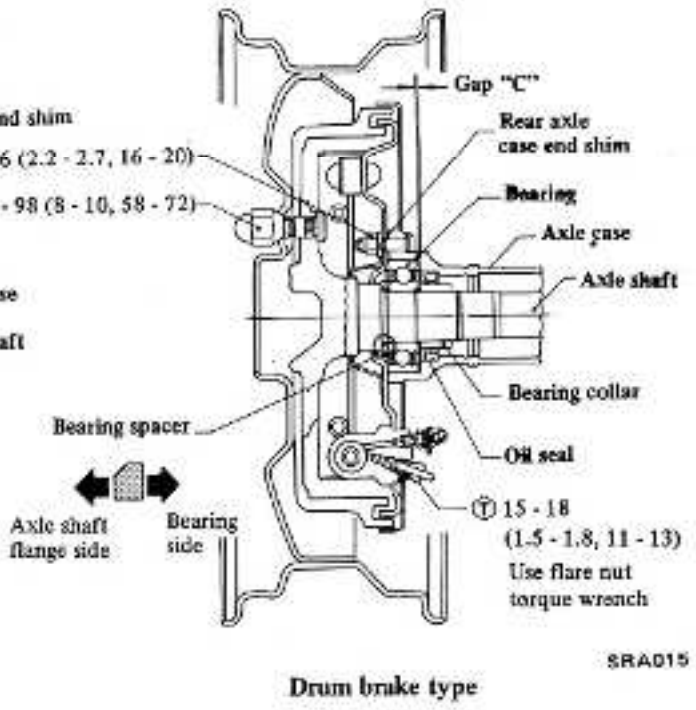
REAR AXLE

REAR AXLE





Disc brake type



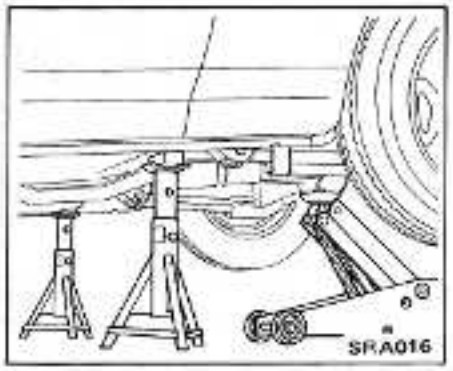
Drum brake type

Ⓣ: N·m (kg-m, ft-lb)
Unit: mm (in)

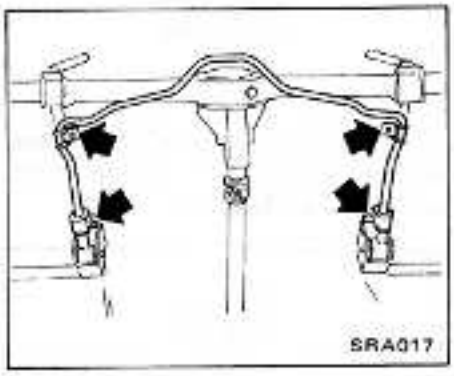
REAR AXLE ASSEMBLY

Removal and installation

1. Block front wheels. Place stands. Support under differential carrier with garage jack.

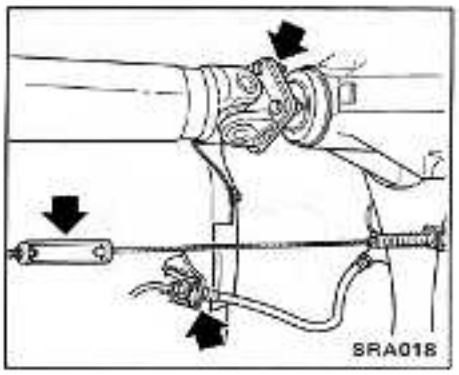


2. Remove stabilizer bar. Refer to Stabilizer Bar for installation.



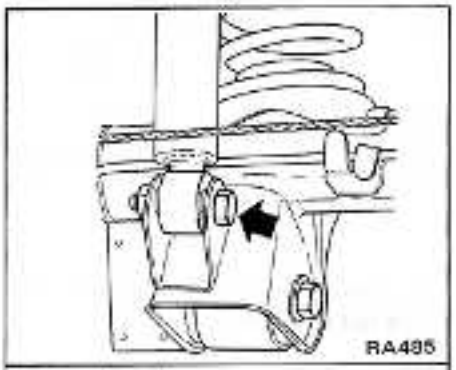
3. Disconnect propeller shaft (Refer to PD section for removal), brake hydraulic line and parking brake cable.

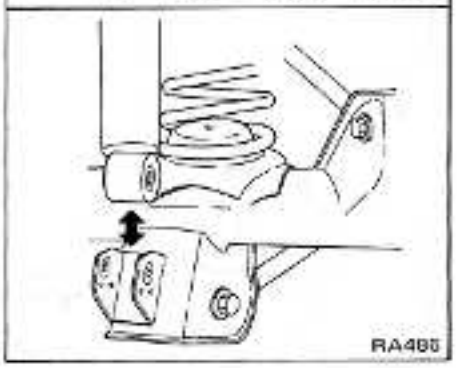
CAUTION:
When removing or installing brake tubes, use Tool GG94310000.



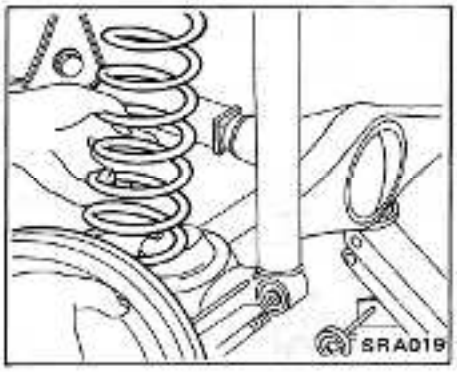
4. Disconnect shock absorber lower end on each side.

When removing shock absorber lower end from bracket, squeeze shock absorber and lift it out right above to accommodate embossment inside bracket.

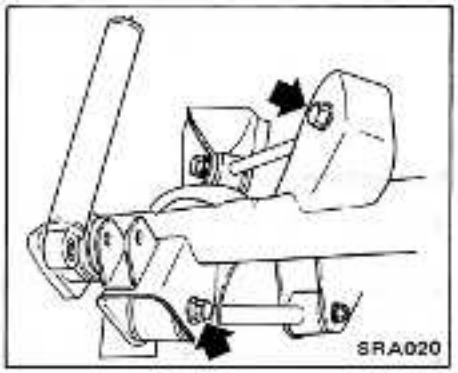




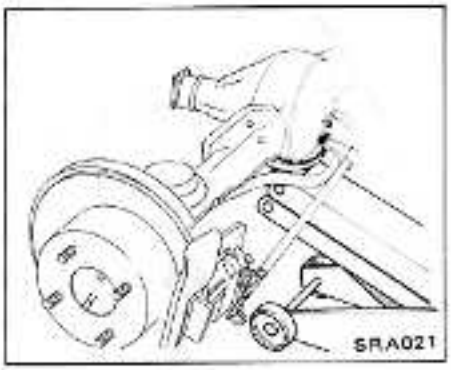
5. Lower jack and remove coil spring on each side.



6. Raise jack to previous position. Disconnect upper link and lower link at axle case side.



7. Release jack and pull it out.



Installation is in reverse order of removal.

Refer to Upper Link and Lower Link for installation of upper link and lower link.

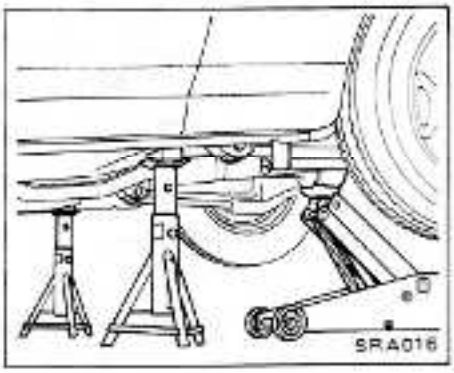
Inspection

Check axle case for yield, deformation or cracks and replace if necessary.

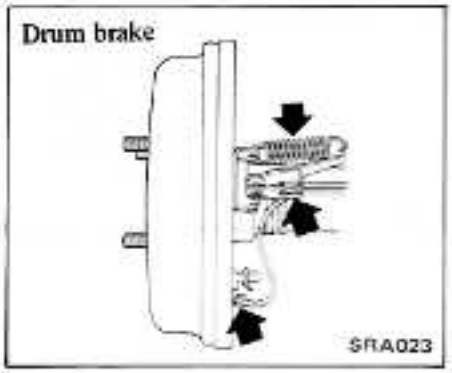
REAR AXLE SHAFT AND WHEEL BEARING

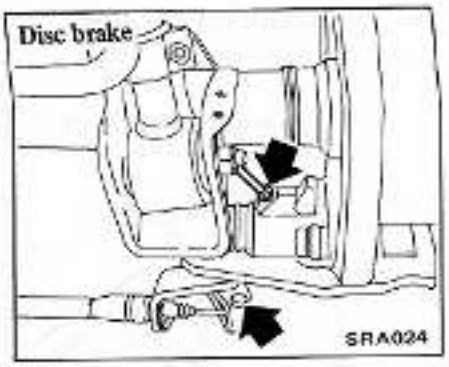
Removal and disassembly

1. Block front wheels. Place stands. Remove rear wheel.

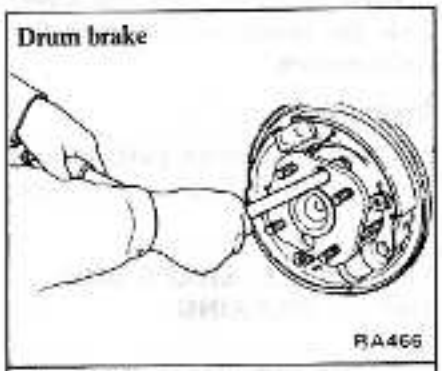


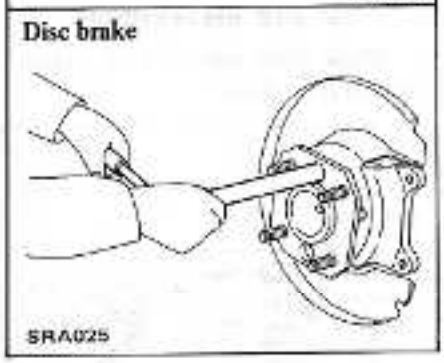
2. Disconnect parking brake cable and brake tube.



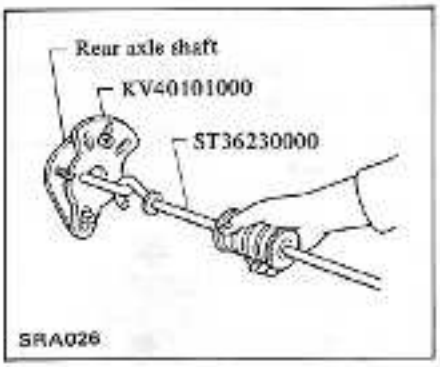


3. Remove drum, or caliper and rotor. Remove nuts securing back plate or baffle plate.

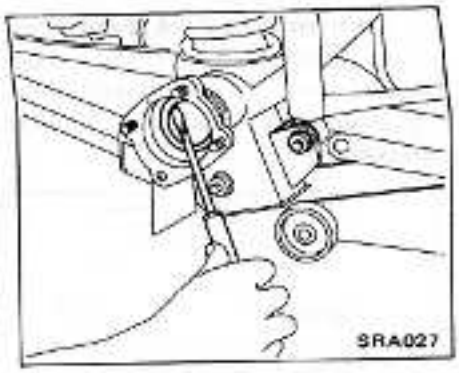




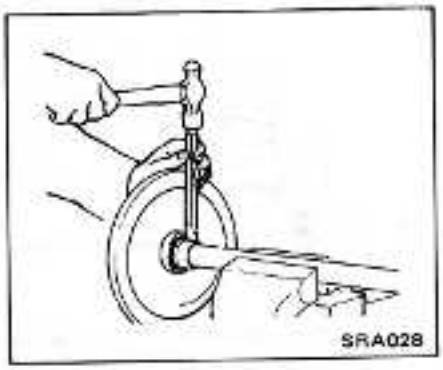
4. Draw out axle shaft.



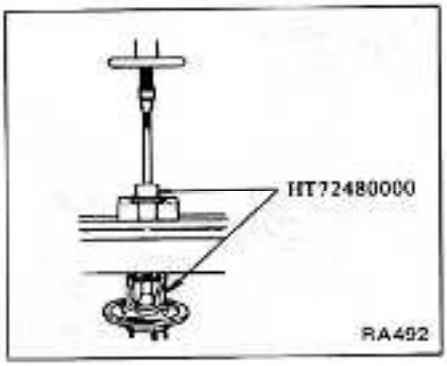
5. Remove oil seal.



6. Cut collar with cold chisel. **Take care not to damage axle shaft.**



7. Remove wheel bearing and collar.



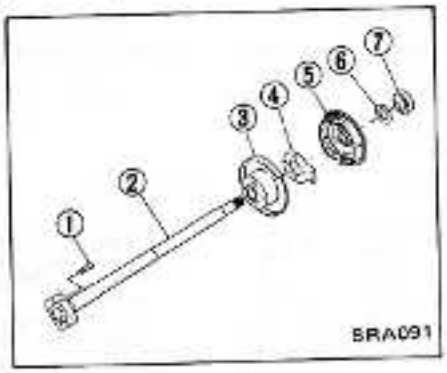
8. Take out back plate. (Drum brake only)

Inspection

- Check axle shaft for straightness, cracks, damage, wear or distortion.
- Check lip of oil seal for damage, deformation or wear.
- Check bearing for wear or damage.

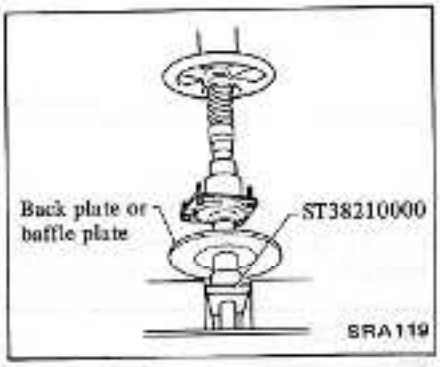
Assembly and installation

1. Install bearing spacer **with chamfer side facing axle shaft flange.** Insert wheel bearing **with seal side facing axle shaft flange.**

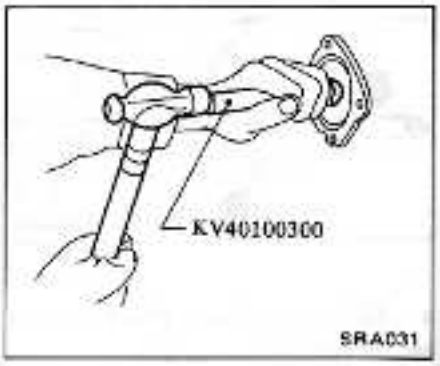


1 Bolt
2 Rear axle shaft
3 Baffle plate (For disc brake)
4 Adapter plate (For disc brake)
5 Back plate (For drum brake)
6 Bearing spacer
7 Wheel bearing

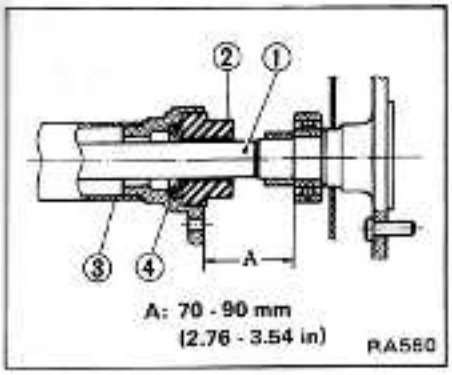
2. Press new bearing collar by a load of 29 to 49 kN (3 to 5 t, 3.3 to 5.5 US ton, 3.0 to 4.9 Imp ton).



3. Install oil seal, packing cavity between sealing lips with recommended multi-purpose grease.



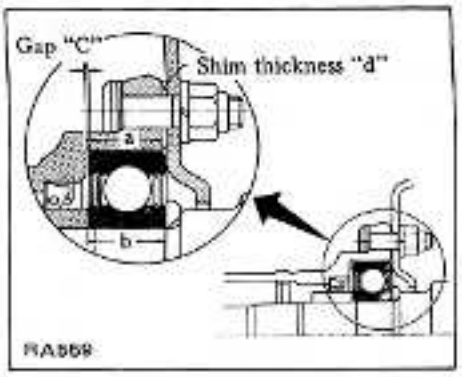
4. Insert axle shaft into axle case applying multi-purpose grease to the outer periphery of bearing collar. Remove guide when distance "A" between axle flange and bearing is 70 to 90 mm (2.76 to 3.54 in).



1 Rear axle shaft
2 Rear axle shaft guide (ST37840000)
3 Rear axle case
4 Oil seal

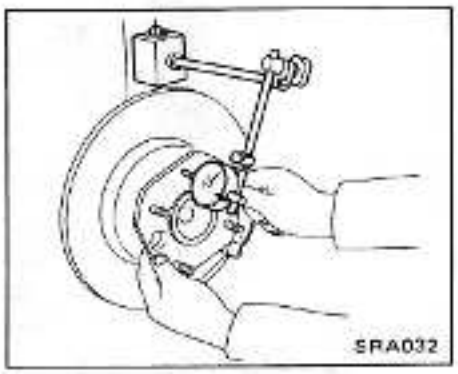
5. Adjust gap "C" between wheel bearing and axle tube end by selecting shim.

Gap "C":
Less than 0.1 mm (0.004 in)



Rear axle case end shim:
Refer to S.D.S.

6. Measure end play of axle shaft.

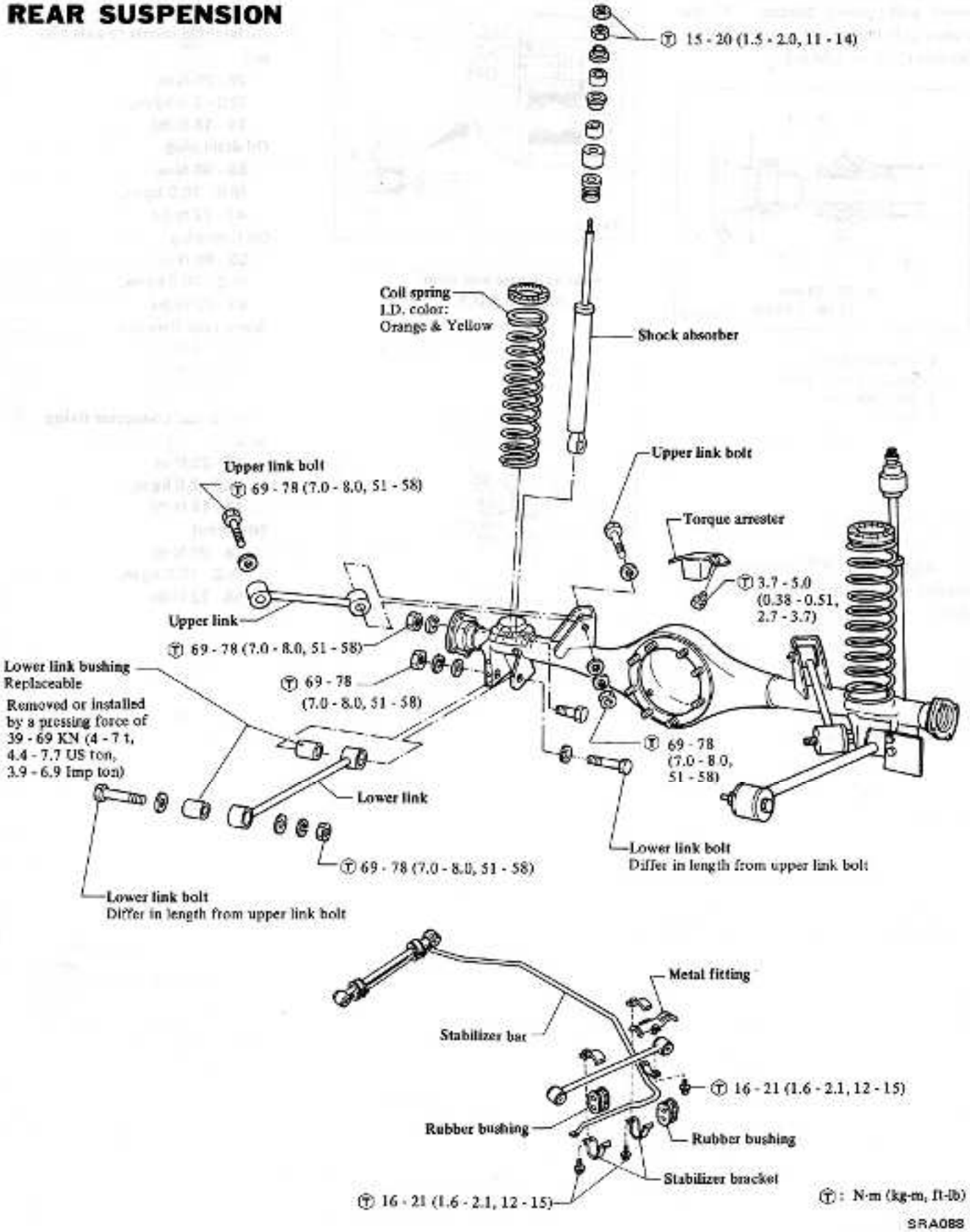


Axial end play:
0.05 - 0.40 mm
(0.0020 - 0.0157 in)

Ⓣ : Differential carrier-to-axle case nut
20 - 25 N·m
(2.0 - 2.5 kg-m,
14 - 18 ft-lb)
Oil drain plug
59 - 98 N·m
(6.0 - 10.0 kg-m,
43 - 72 ft-lb)
Oil filler plug
59 - 98 N·m
(6.0 - 10.0 kg-m,
43 - 72 ft-lb)
Brake tube flare nut
15 - 18 N·m
(1.5 - 1.8 kg-m,
11 - 13 ft-lb)
Brake 3-way connector fixing bolt
17 - 20 N·m
(1.7 - 2.0 kg-m,
12 - 14 ft-lb)
Wheel nut
78 - 98 N·m
(8.0 - 10.0 kg-m,
58 - 72 ft-lb)

REAR SUSPENSION

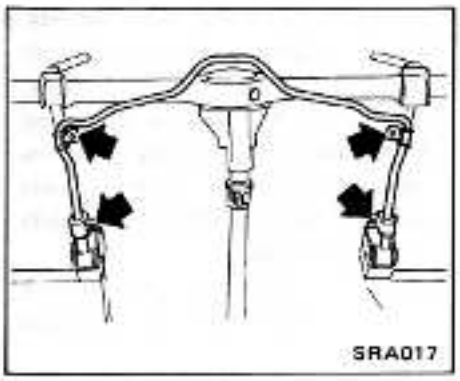
REAR SUSPENSION



STABILIZER BAR

Removal

Remove stabilizer bar.

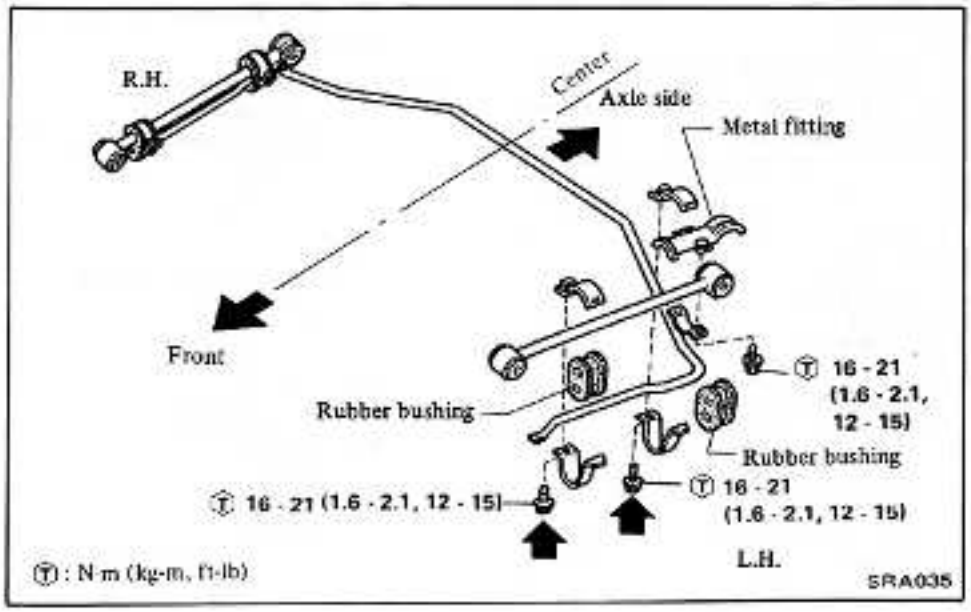


Inspection

1. Check stabilizer bar for evidence of deformation or cracks, replace if necessary.
2. Check rubber parts to be sure they are not deteriorated or cracked; replace if necessary.

Installation

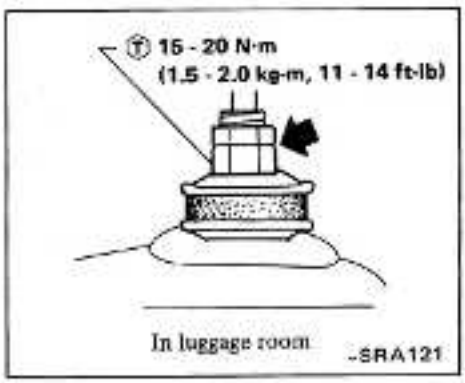
a. Install stabilizer bar, being careful not to confuse right and left sides.
b. Install rubber bushing with metal fitting on axle case side.
c. Install bolt attaching bushing so that bolt is inside the car.



SHOCK ABSORBER

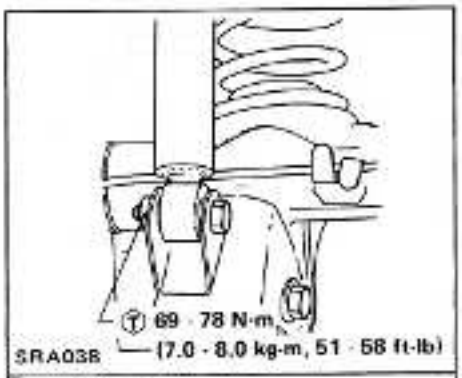
Removal and installation

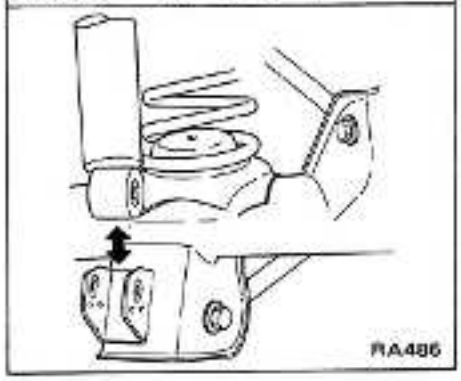
1. Disconnect upper end.



2. Disconnect lower end and remove shock absorber.

Squeeze shock absorber and lift it out right above to accommodate embossment inside bracket.





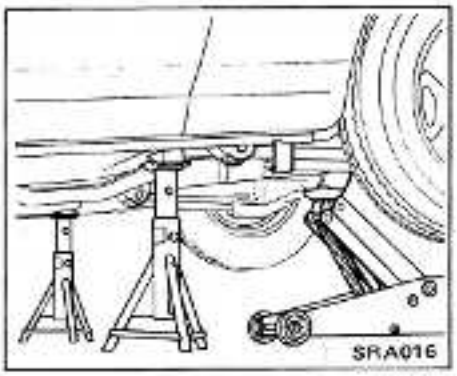
Inspection

- Test shock absorber and compare with specifications given in S.D.S. Replace if necessary.
- Check for oil leakage and cracks. Also, check shaft for bending.
- Inspect rubber bushings for damage, cracks and deformation. Replace parts if necessary.

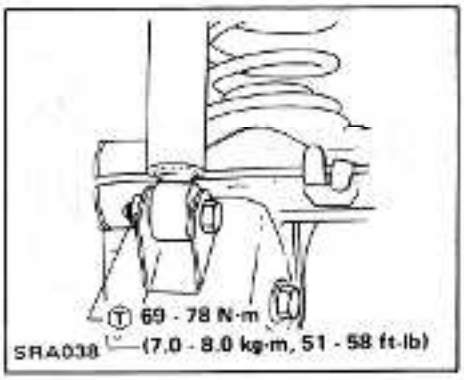
COIL SPRING

Removal and installation

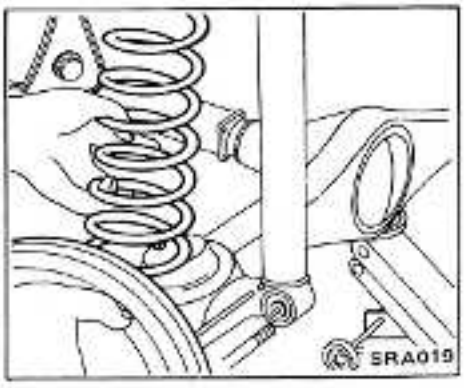
1. Block front wheels. Place stands. Support under differential carrier with garage jack.



2. Disconnect shock absorber lower end.



3. Lower jack slowly and remove coil springs on each side.



Inspection

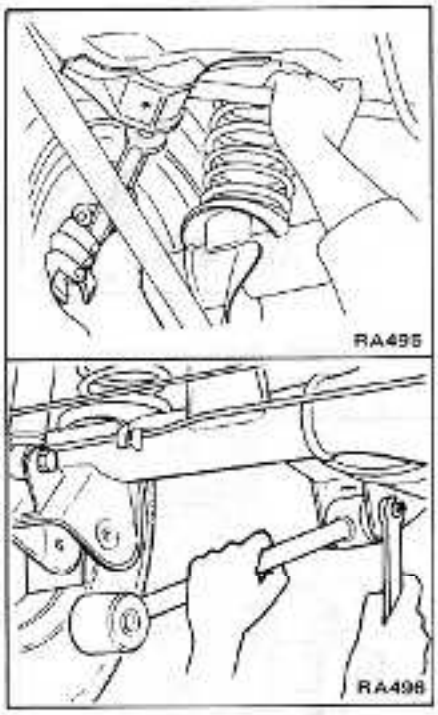
- Check coil spring for yield, deformation or cracks.
- Test spring and compare with specifications given in S.D.S.
- Check all rubber parts for wear, cracks, damage or deformation. Replace if necessary.

UPPER LINK AND LOWER LINK

Removal

Remove upper link or lower link alone by removing bolt on each end.

It is possible to remove one link assembly alone from car.



Inspection

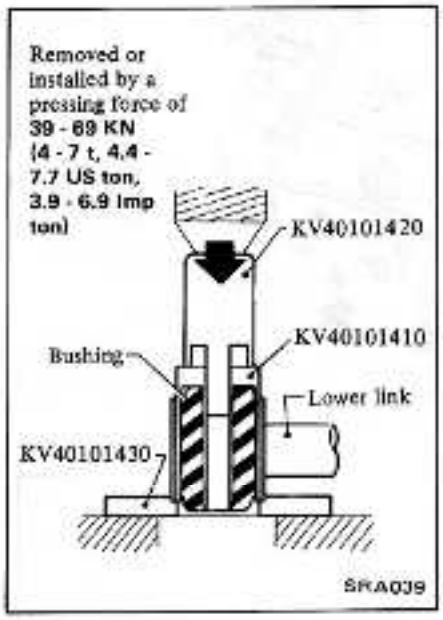
Check for signs of cracks, distortion or other damage. Replace if beyond repair.

Bushing replacement (For lower link only)

If rubber bushing shows evidence of cracks, replace it using **Tool.**

Upper link bushing is secured by adhesion and cannot be removed. Replace as an assembly as necessary.

CAUTION:
Do not tap end face of bushing directly with a hammer as deformation may result in loose bolt.



Installation

a. **Securing bolts for use with lower link differ in length from those for upper link. If used wrong, securing bolts cannot be tightened securely.**
b. **When installing upper link, install one end of upper link on car body, make sure that link is level, and then tighten link securely. Next, install the other end of link on axle side and securely tighten link while tires are on ground.**
c. **When installing lower link, securely tighten link while tires are on ground.**

Ⓣ : **Shock absorber upper end nut**
15 - 20 N·m
(1.5 - 2.0 kg-m,
11 - 14 ft-lb)
Shock absorber lower end nut
69 - 78 N·m
(7.0 - 8.0 kg-m,
51 - 58 ft-lb)
Upper link fixing bolt and nut
69 - 78 N·m
(7.0 - 8.0 kg-m,
51 - 58 ft-lb)
Lower link fixing nut
69 - 78 N·m
(7.0 - 8.0 kg-m,
51 - 58 ft-lb)

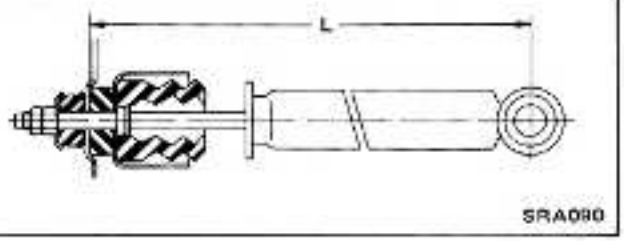
SERVICE DATA AND SPECIFICATIONS

GENERAL SPECIFICATIONS

SHOCK ABSORBER

Unit: mm (in)

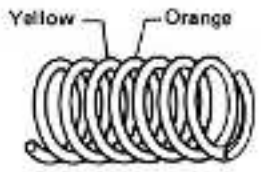
Maximum length "L"	525 (20.67)
Stroke	146 (5.75)



COIL SPRING

Wire diameter	mm (in)	10.0 (0.394)
Coil diameter	mm (in)	90 (3.54)
Free length	mm (in)	346 (13.62)
Effective turns		7.75
Spring constant N/mm (kg/mm, lb/in)		17.46 (1.78, 99.7)

Identification color



INSPECTION AND ADJUSTMENT

SHOCK ABSORBER

Shock absorber damping force at 0.3 m (1.0 ft)/s.			
Destination	For Europe	Except for Europe	
		Rear drum brake	Rear disc brake
Expansion N (kg, lb)	834 - 1,128 (85 - 115, 187 - 254)	530 - 726 (54 - 74, 119 - 163)	857 - 912 (87 - 93 146 - 205)
Compression N (kg, lb)	353 - 530 (36 - 54, 79 - 119)	265 - 392 (27 - 40, 60 - 88)	265 - 422 (27 - 43, 60 - 95)

REAR AXLE

End play mm (in)	0.05 - 0.40 (0.0020 - 0.0157)	
Thickness of rear axle case end shim	Thickness mm (in)	Part number
	0.075 (0.0030)	43036 H5000
	0.150 (0.0059)	43036 H5001
	0.225 (0.0089)	43036 H5002
	0.300 (0.0118)	43036 H5003

TIGHTENING TORQUE

Unit	N·m	kg-m	ft-lb
Brake tube flare nut	15 - 18	1.5 - 1.8	11 - 13
Brake 3-way connector fixing bolt	17 - 20	1.7 - 2.0	12 - 14
Brake caliper fixing bolt	38 - 52	3.9 - 5.3	28 - 38
Baffle plate fixing nut	22 - 26	2.2 - 2.7	16 - 20
Back plate fixing nut	22 - 26	2.2 - 2.7	16 - 20
Propeller shaft to companion flange connecting nut	24 - 32	2.4 - 3.3	17 - 24
Wheel nut	78 - 98	8.0 - 10.0	58 - 72
Oil drain plug	59 - 98	6.0 - 10.0	43 - 72
Oil filler plug	59 - 98	6.0 - 10.0	43 - 72
Differential carrier-to-axle case nut	20 - 25	2.0 - 2.5	14 - 18
Shock absorber upper end nut	15 - 20	1.5 - 2.0	11 - 14
Shock absorber lower end nut	69 - 78	7.0 - 8.0	51 - 58
Upper link fixing bolt	69 - 78	7.0 - 8.0	51 - 58
Upper link fixing nut	69 - 78	7.0 - 8.0	51 - 58
Lower link fixing nut	69 - 78	7.0 - 8.0	51 - 58

TROUBLE DIAGNOSES AND CORRECTIONS

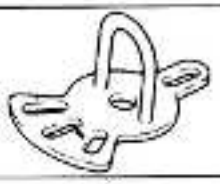
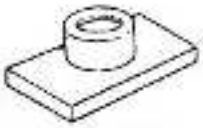
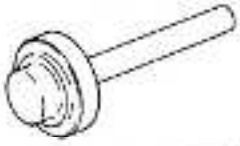
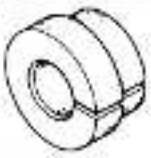
When rear axle and suspension is suspected of being noisy, it is advisable to make thorough test to determine whether the noise originates in the tires, road surface, exhaust, propeller shaft, engine, transmission, universal joint, wheel bearings or suspension.

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.
	Unbalance of wheel and tire.	Balance.
	Damage of the rubber parts such as link bushing, shock absorber mounting bushing.	Replace damaged parts.
	Faulty universal joints.	Adjust or replace.
	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.
	Damaged rear link rubber bushings.	Replace.
	Worn shock absorber.	Replace.
	Incorrect wheel alignment.	Adjust.
	Spring wear.	Replace.
Oil leakage	Damaged oil seal on rear axle shaft.	Replace.
	Oil leakage from the differential carrier.	Replace parts as required.
	Damaged grease seal of rear axle shaft.	Replace.

SPECIAL SERVICE TOOLS

Tool number	Tool name
GG94310000	Flare nut torque wrench 
KV40101000	Rear axle stand 
ST36230000	Sliding hammer 
HT72480000	Rear axle shaft bearing puller 
ST38210000	Wheel bearing collar press stand 
KV40100300	Rear axle oil seal drift 
ST37840000	Rear axle shaft guide 
KV40101480 ① KV40101410 ② KV40101420 ③ KV40101430 ④ KV40101440	Link rubber bushing drift Drift Drift Base Ring (Useless)