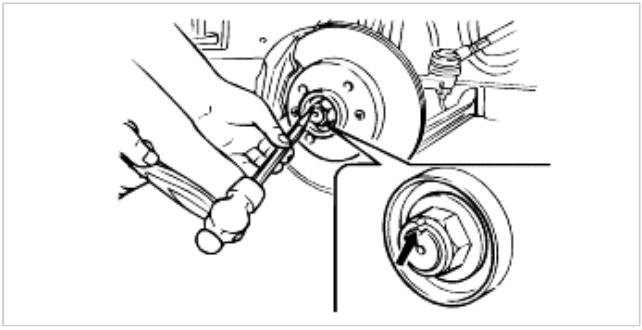
REMOVAL

1. Raise the front of the vehicle and support it with a safety stands.
2. Remove the wheel.
3. Raise the nut tab and remove the driveshaft locknut. Discard the locknut, regardless of condition.

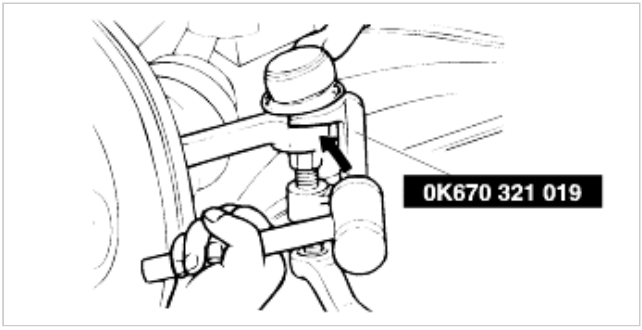
> **⚠ CAUTION**
> Use care not to damage the groove and threads in the driveshaft end.

> ***NOTICE***
> When loosening the nut, lock the hub by applying the brakes.

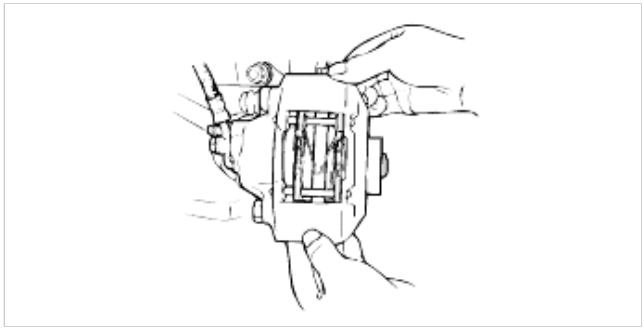


4. Remove the cotter pin and the tie rod end attaching nut. Discard the cotter pin, regardless of condition.
5. Separate the tie-rod end from the knuckle with the SST.

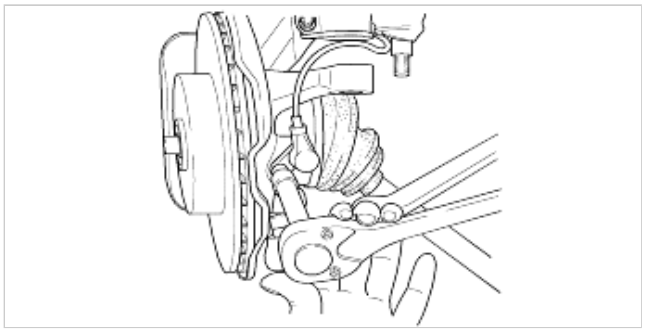
> ***NOTICE***
> If it is difficult to separate, hit the knuckle with a hammer.



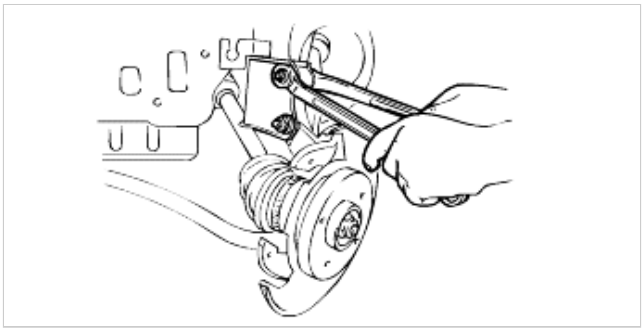
6. Remove the caliper assembly from the knuckle. Do not allow the caliper to hang freely by its flexible hose. Suspend the assembly by rope or wire from the Macpherson strut.



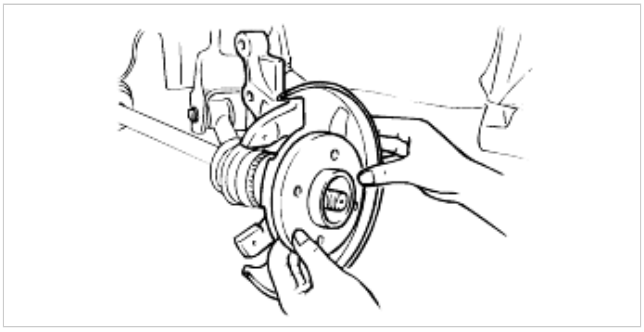
7. Remove the ABS speed sensor and the wheel speed sensor #(RH side).



8. Remove the disc rotor.
9. Remove the clamp bolt and nut. Push the lower arm downward to separate the knuckle and the ball-joint.
10. Remove the bolts and nuts which couple the knuckle and the shock absorber.



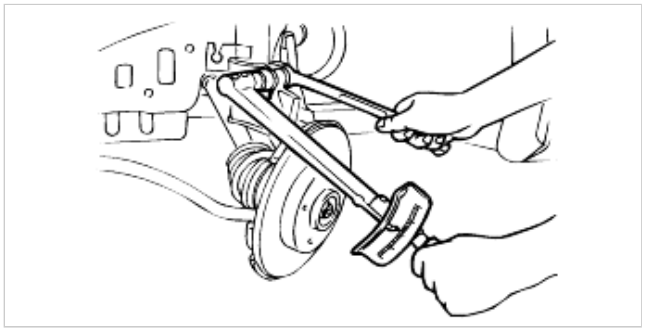
11. Separate the front hub and the knuckle from the driveshaft.



INSTALLATION

1. Mount the front hub and knuckle to the driveshaft.
2. Mount the knuckle to the lower arm ball-joint and to the shock absorber.
3. Tighten the mounting bolts and nuts.

Tightening torque :
Knuckle to shock absorber 76~90 lb·ft (103~122 N·m, 10.5~12.5 kg·m)
knuckle to lower arm ball-joint 40~50 lb·ft (54~68 N·m, 5.5~6.9 kg·m)

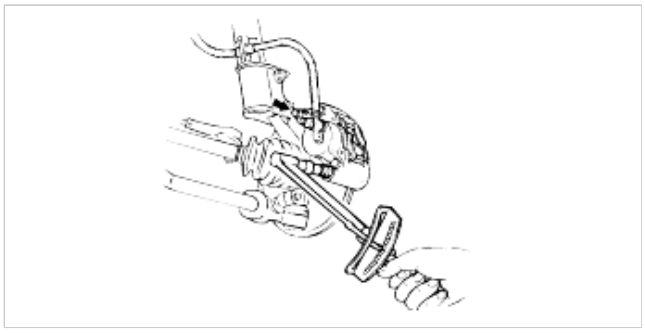


4. Install the disc rotor.

Tightening torque : 7.2~10.8 lb·ft (9.8~14.7 N·m, 1.0~1.5 kg·m)

5. Install the disc brake caliper assembly.

Tightening torque : 29~36 lb·ft (39~49 N·m, 4.0~5.0 kg·m)

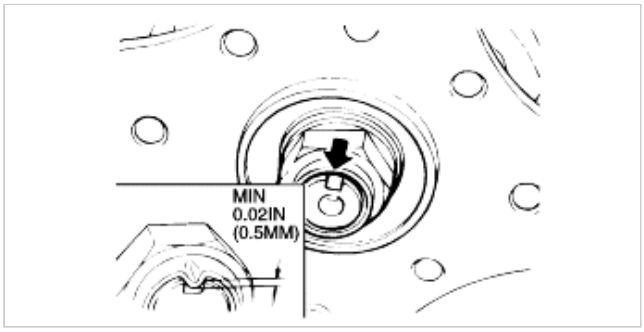


6. Position the caliper hose in the strut routing bracket and install the retaining clip.
7. Use a new driveshaft lock nut, tighten it to the specified torque and stake it securely into the groove.

Tightening torque : 116~174 lb·ft (157~235 N·m, 16.0~24.0 kg·m)

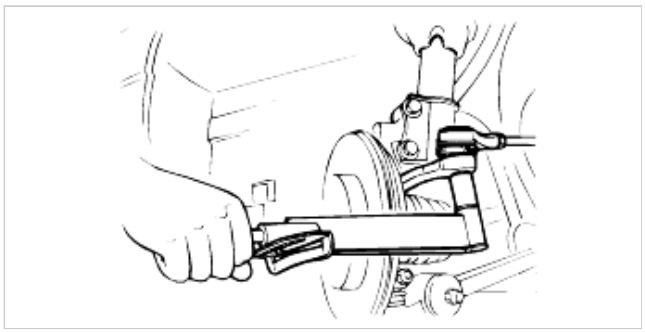
NOTICE

- Do not use a sharp edge tool for staking. If the nut cracks even slightly during staking, replace it with another new one.
- Check that the wheel hub turns freely by hand.



8. Install the tie-rod end to the knuckle and tighten the nut.

Tightening torque : 32~41 lb·-ft (47~52 N·m, 3.8~5.3 kg·m)



NOTICE

Use a new cotter pin.

9. Install a new cotter pin through the tie rod end attaching nut and the tie rod ball stud.
   If the openings in the nut and the hole in the tie rod ball stud fail to line up, tighten the nut slightly just to the point of alignment. Never loosen the nut.

Tightening torque : 65~87 lb·ft (88~118 N·m, 9.0~12.0 kg·m)

10. Install the ABS speed sensor and the wheel speed sensor.

Tightening torque : 6~8 lb·ft (8~12 N·m, 0.8~1.2 kg·m)

11. Install the wheel and tighten the wheel lug bolts.

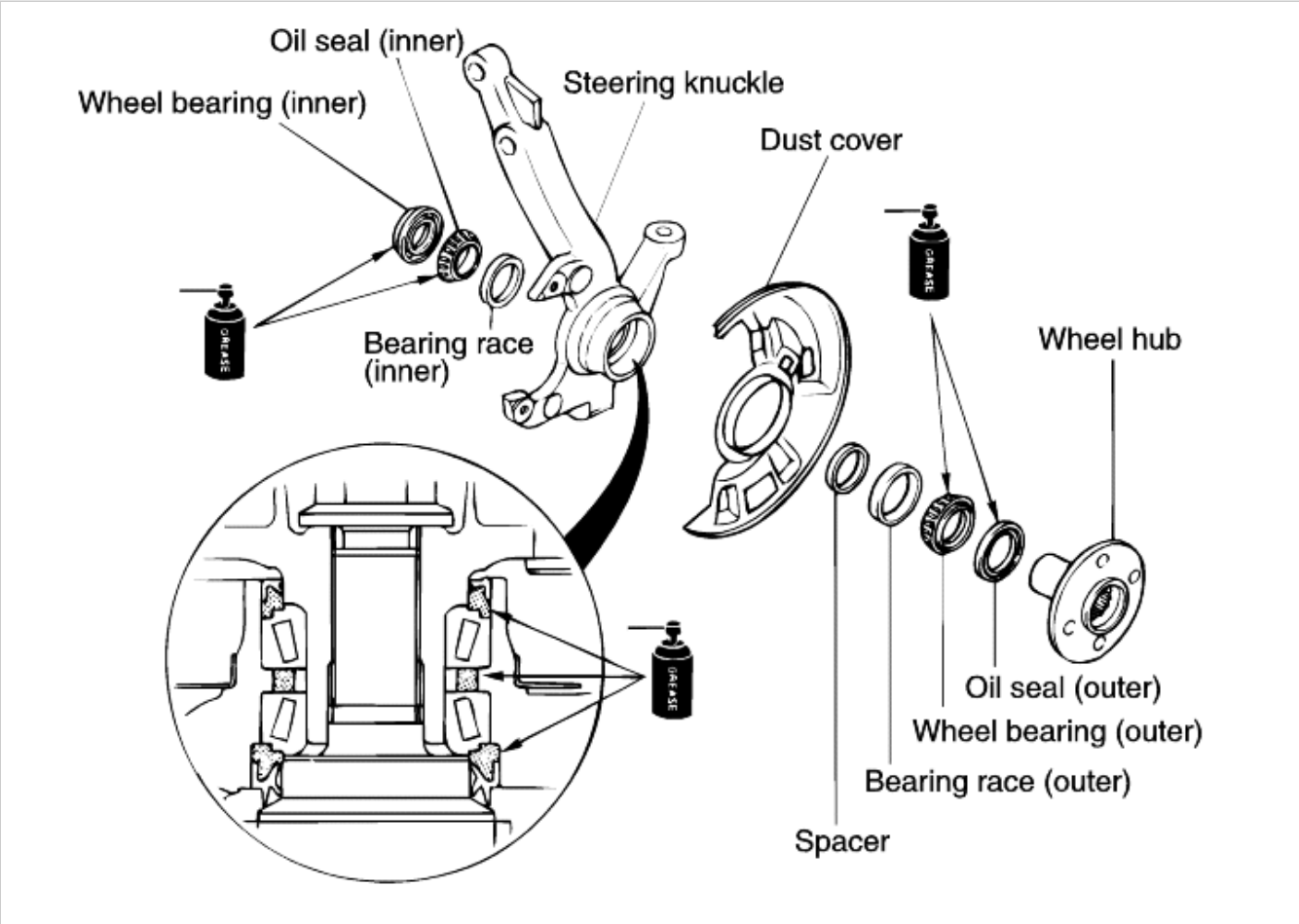
REASSEMBLY

FRONT HUB/KNUCKLE

NOTICE

- Do not remove the dust cover unless necessary for repairs.
- Do not confuse the inner bearing with the outer bearing.

COMPONENT



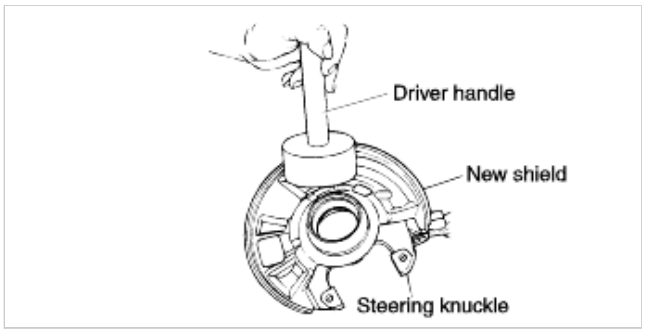
REASSEMBLY

WHEEL BEARING PRELOAD

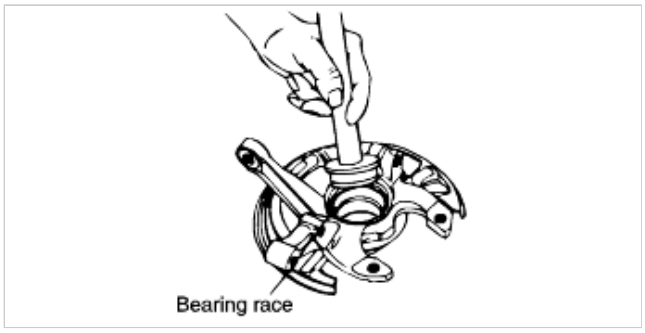
NOTICE

If the bearings or knuckle have been replaced, the bearing preload must be checked before assembly. If necessary, refer to the procedure in this Section.

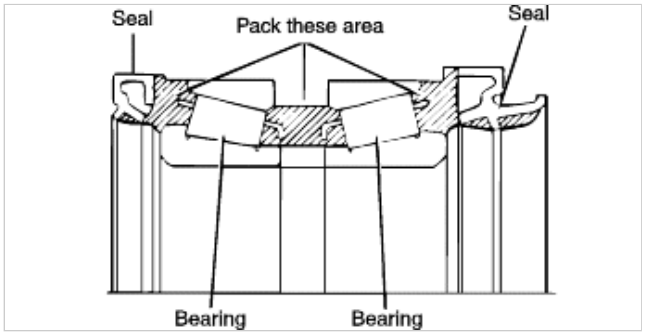
1. If the dust shield was removed, install a new one by using the Dust Shield Replacer or equivalent.



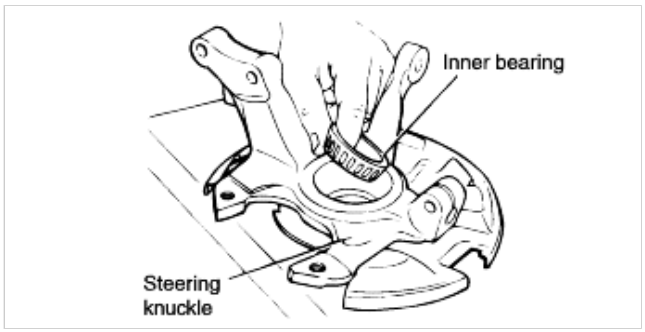
2. Install the bearing races in the steering knuckle.



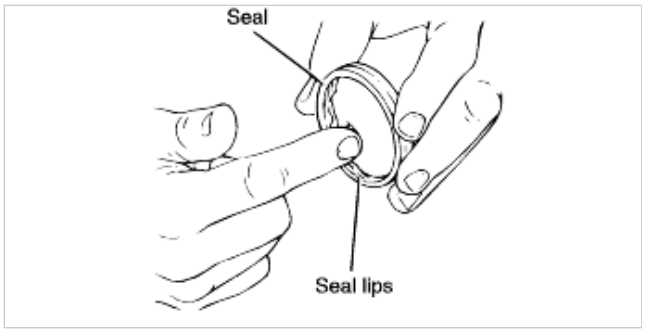
3. Pack the bearings with the Lubricant lithium grease. Pack the hub area as shown in the figure.



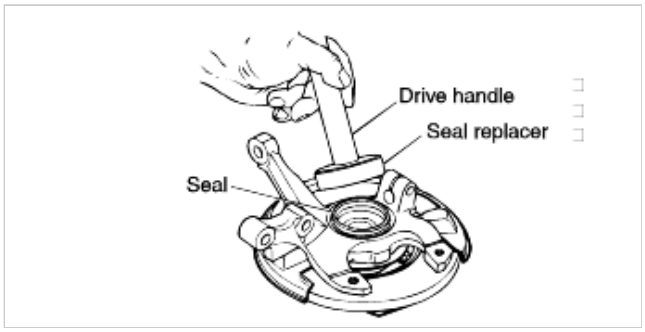
4. Place the inner bearing into the steering knuckle bore so that it rests in a level position.



5. Lubricate the lip of the new inner oil seal. Apply a sufficient amount of lubricate to the cutting parts along the edge of seal lip.

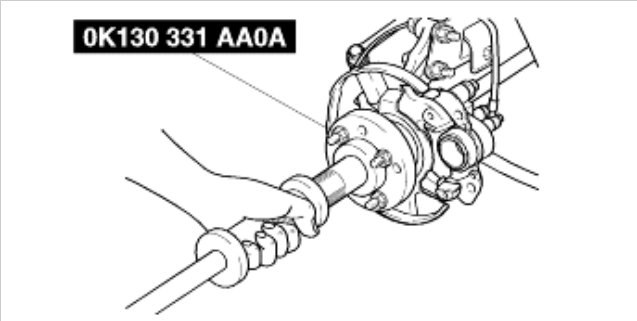


6. Install the new inner oil seal in the bore.



7. Place the original bearing preload spacer, or the spacer selected from the bearing preload check procedure in the steering knuckle bore.
8. Position the outer bearing in the steering knuckle bore.
9. Lubricate the lip of a new outer oil seal.

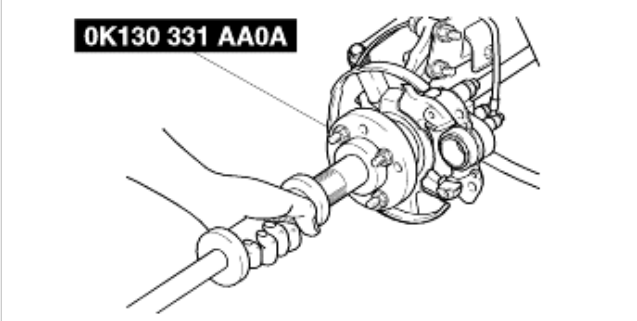
10. Install the new outer oil seal in the steering knuckle bore.
11. Install the knuckle assembly.
12. Use the SST and position the wheel hub assembly in the steering knuckle bore.



DISASSEMBLY

FRONT HUB/KNUCKLE

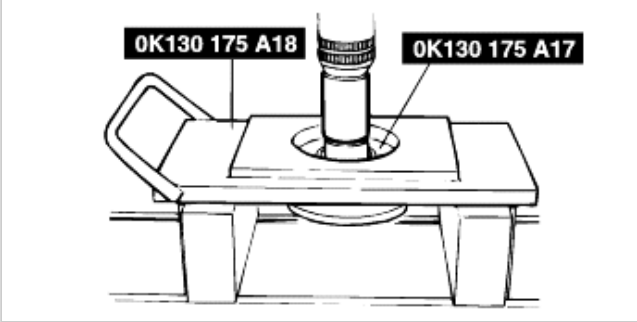
1. Remove the knuckle assembly.
2. Remove the wheel hub assembly by using the SST.



3. Remove the outer bearing, outer oil seal, outer bearing race and spacer from the wheel hub by using the SST.

⚠ CAUTION

Hold the hub to prevent it from falling.



4. Discard the oil seal, regardless of condition.
5. Disassemble the knuckle assembly.

NOTICE

Remove the race gradually and carefully.

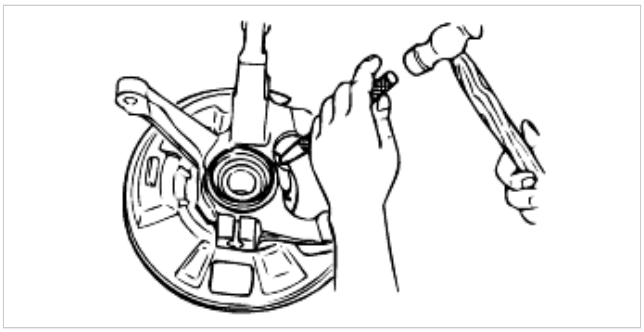
6. Remove the oil seal (inner) with a screwdriver.
7. Remove the wheel bearing (inner).
8. Remove the bearing race (inner) with the SST and a hammer.

⚠ CAUTION

Tap on the bearing race (inner) only.

Do not remove the dust cover if it is not necessary.
Do not reuse the dust cover if it is removed once.

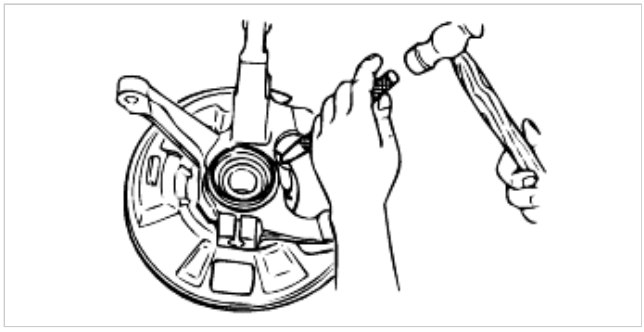
9. Mark the dust cover and knuckle for the proper reassembly.
10. Remove the dust cover with a chisel.



INSPECTION

FRONT HUB/KNUCKLE

1. Wash the disassembled parts before inspecting. Replace any damaged parts. Minor rust should be removed with a fine sandpaper.



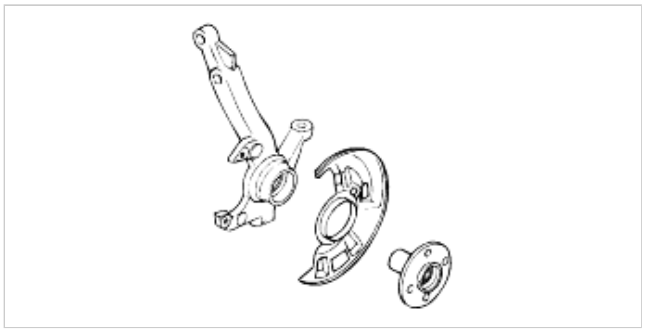
Inspect for :

1. Abnormal wear, damage or seizure of bearing.

NOTICE

Replace the bearing as a set (inner and outer races).

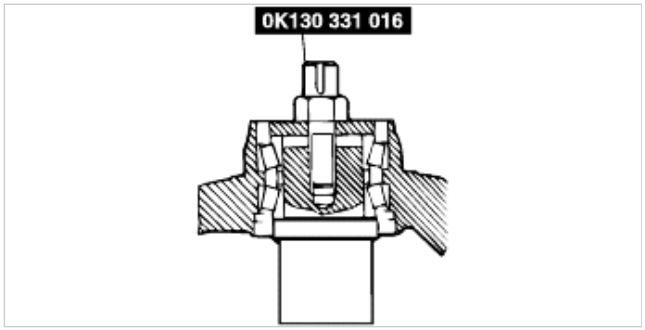
2. Cracks or damage of the knuckle. Scoring or rust of the bearing bore.
3. Damaged dust cover or poor fit with knuckle.
4. Cracks or damage of the hub. Scoring or rust of the bearing bore. Wear at the oil seal contact surface.



ADJUSTMENT

WHEEL BEARING PRELOAD

1. Insert the two wheel bearings and removed spacer into the steering knuckle and attach the SST.
2. Secure the bottom of the SST.

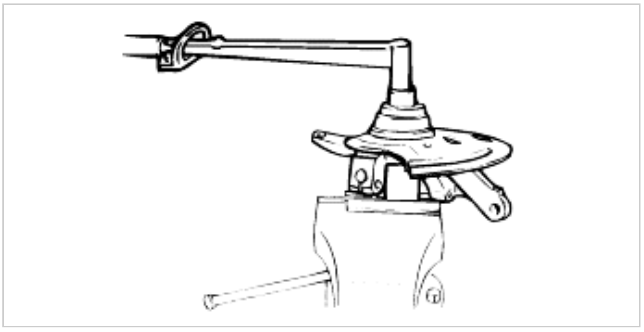


3. Tighten the nut of the SST to the specified torque.

Tightening torque : 116~173 lb·ft (157~235 N·m, 16~24 kg·m)

⚠ CAUTION

When tightening, tighten it with 49 N·m (5 kg-m, 36 lb-ft) step by step to prevent applying the excessive preload.



4. Rotate the steering knuckle to seat the wheel bearings.
5. Measure the wheel bearing preload with the SST and a pull scale.

Wheel bearing preload : 2.17~10.41 lb·in (0.25~1.17 N·m, 2.5~12 kg·cm)
0.55~2.64 lb (2.5~11.7 N, 0.25~1.2kg)
(pull scale reading)

6. If the preload is not within the specification, select the proper spacer from the table to adjust it.

NOTICE

Increase the spacer thickness to reduce the preload and decrease it to increase the preload.When a spacer is changed by 1 rank, the preload changes 0.2 to 0.4 N.m (2.0~4.0 kg·cm, 1.7~3.5 lb·in)The rank marking is stamped on the outer periphery of the spacer.

Mark	Thickness (in (mm))	Mark	Thickness (in (mm))
1	0.2474 (6.285)	12	0.2648 (6.725)
2	0.2490 (6.325)	13	0.2663 (6.765)
3	0.2506 (6.365)	14	0.2679 (6.805)
4	0.2522 (6.405)	15	0.2695 (6.845)
5	0.2538 (6.445)	16	0.2711 (6.885)
6	0.2554 (6.485)	17	0.2726 (6.925)
7	0.2570 (6.525)	18	0.2742 (6.965)
8	0.2585 (6.565)	19	0.2758 (7.005)
9	0.2600 (6.605)	20	0.2774 (7.045)
10	0.2616 (6.645)	21	0.2789 (7.085)
11	0.2631 (6.685)		

7. Remove the SST.
   Wheel bearing (outer & inner), oil seal (outer), and spacer

NOTICE

Completely fill the shaded area shown in the figure with a lithium grease.