SECTION FAX

FRONT AXLE

CONTENTS

PRECAUTIONS

PFP:00001

Caution

BDS0005P

- When installing rubber parts, final tightening must be carried out under unladen condition* with tires on ground.
- Oil will shorten the life of rubber bushes. Be sure to wipe off any spilled oil.
  *: Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.
- After installing removed suspension parts, check wheel alignment and adjust if necessary.

Observe the following precautions when disassembling and servicing drive shaft.

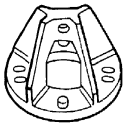
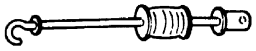
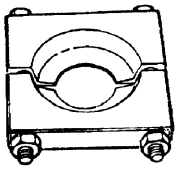
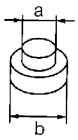
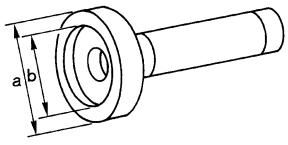
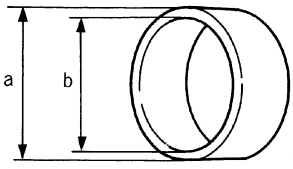
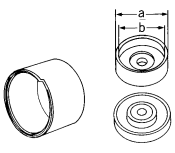
- Perform work in a location which is as dust-free as possible.
- Before disassembling and servicing, clean the outside of parts.
- Prevention of the entry of foreign objects must be taken into account during disassembly of the service location.
- Disassembled parts must be carefully reassembled in the correct order. If work is interrupted, a clean cover must be placed over parts.
- Paper shop cloths must be used. Fabric shop cloths must not be used because of the danger of lint adhering to parts.
- Disassembled parts (except for rubber parts) should be cleaned with kerosene which shall be removed by blowing with air or wiping with paper shop cloths.

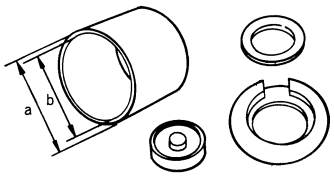
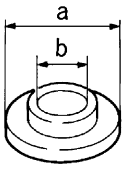
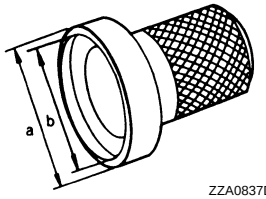
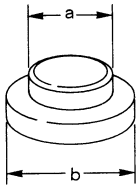
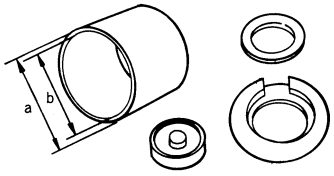
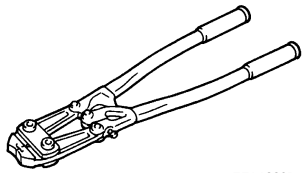
PREPARATION

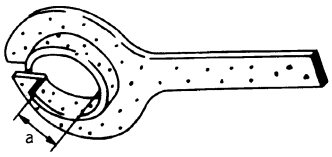
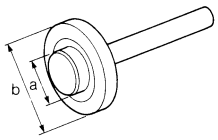
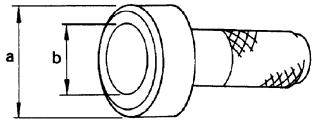
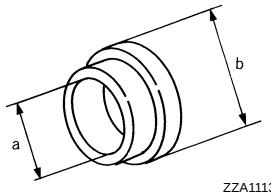
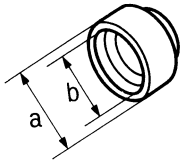
PFP:00002

Special Service Tools (SST)

BDS0005Q

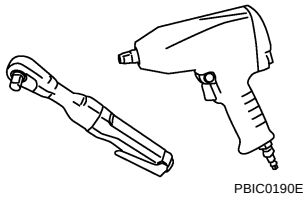
Tool number Tool name	Description
KV4010400 Attachment  ZZA0804D	Removing wheel hub and bearing assembly
ST36230000 Sliding hammer  ZZA0803D	Removing wheel hub and bearing assembly
ST30031000 Bearing replacer  ZZA0700D	Removing inner race on outer side of wheel bearing
ST33061000 Drift a: 28.5 mm (1.122 in) dia. b: 38.0 mm (1.496 in) dia.  ZZA0969D	Removing inner race on outer side of wheel bearing
KV38100200 Drift a: 65 mm (2.56 in) dia. b: 49 mm (1.93 in) dia.  ZZA1143D	Removing wheel bearing
KV40106200 Drift a: 114.3 mm (4.50 in) dia. b: 105.3 mm (4.15 in) dia.  ZZA0936D	Removing wheel bearing, installing splash guard
KV401052S0 Drift set KV40105210 KV40105220 Drift a: 75 mm (2.95 in) dia. b: 62 mm (2.44 in) dia. KV40105230  ZZA1101D	Installing splash guard

Tool number Tool name		Description
KV401047S0 Drift set KV40104710 Drift a: 76.3 mm (3.004 in) dia. b: 67.9 mm (2.673 in) dia. KV40104720-1 KV40104720-2 KV40104730	 ZZA0808D	Installing wheel bearing and splash guard
ST30022000 Drift a: 110 mm (4.33 in) dia. b: 46 mm (1.81 in) dia.	 ZZA0920D	Installing splash guard
ST35271000 Drift a: 72 mm (2.83 in) dia. b: 63 mm (2.48 in) dia.	 ZZA0837D	● Assembling support bearing ● Installing wheel bearing
ST35300000 Drift a: 45 mm (1.77 in) dia. b: 59 mm (2.32 in) dia.	 ZZA0881D	Installing wheel hub
KV401053S0 Drift set KV40105310 Drift a: 89 mm (3.50 in) dia. b: 80.7 mm (3.177 in) dia. KV40105320 KV40105330	 ZZA0808D	Installing wheel hub
KV40107300 Boot band crimping tool	 ZZA1229D	Installing boot band
KV40107500 Drive shaft attachment	 ZZA1230D	Removing drive shaft

Tool number Tool name		Description
KV38107800 Protector a: 29 mm (1.14 in) dia. KV38105500 Protector a: 40 mm (1.57 in) dia.	 ZZA0835D	Installing drive shaft
ST17130000 Drift a: 32 mm (1.26 in) dia. b: 60 mm (2.36 in) dia.	 ZZA0836D	Disassembling support bearing
KV38100500 Drift a: 80 mm (3.15 in) dia. b: 60 mm (2.36 in) dia.	 ZZA0701D	Installing sensor rotor
KV40101840 Collar a: 67 mm (2.64 in) dia. b: 85 mm (3.35 in) dia.	 ZZA1113D	Installing sensor rotor
ST33252000 Drift a: 82 mm (3.23 in) dia. b: 60 mm (2.36 in) dia.	 ZZA0838D	Assembling support bearing

Commercial Service Tools

BDS0007E

Tool name		Description
Power tool	 PBIC0190E	● Removing wheel nuts ● Removing torque member fixing bolts ● Removing hub lock nut

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

PFP:00003

NVH Troubleshooting Chart

BDS0005R

Use the chart below to help you find the cause of the symptom. If necessary, repair or replace these parts.

Reference page			—	FAX-8	—	FAX-7, FAX-14	—	NVH in PR section	NVH in RFD section	NVH in FAX and FSU sections	Refer to FRONT AXLE in this chart.	NVH in WT section	NVH in WT section	Refer to DRIVE SHAFT in this chart.	NVH in BR section	NVH in PS section
Possible cause and SUSPECTED PARTS			Excessive joint angle	Joint sliding resistance	Imbalance	Improper installation, looseness	Parts interference	PROPELLER SHAFT	DIFFERENTIAL	FRONT AXLE AND FRONT SUSPENSION	FRONT AXLE	TYRES	ROAD WHEEL	DRIVE SHAFT	BRAKES	STEERING
Symptom	DRIVE SHAFT	Noise	×	×				×	×	×	×	×	×		×	×
		Shake	×		×			×		×	×	×	×		×	×
	FRONT AXLE	Noise				×	×	×	×	×		×	×	×	×	×
		Shake				×	×	×		×		×	×	×	×	×
		Vibration				×	×	×		×		×		×		×
		Shimmy				×	×			×		×	×		×	×
		Judder				×				×		×	×		×	×
		Poor quality ride or handling				×	×			×		×	×			

×: Applicable

FRONT WHEEL HUB AND KNUCKLE

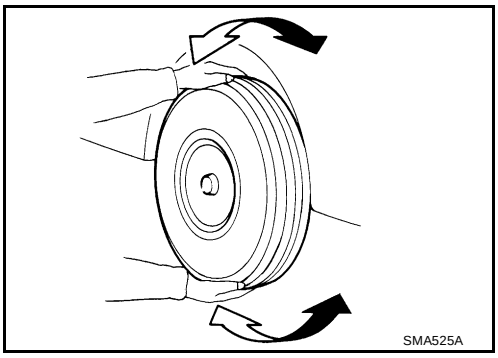
PFP:40202

On-Vehicle Inspection

BDS0005S

Inspect to check that there is no excessive play, cracking, wear, or other damage to front axle.

- Turn front wheels (left/right) and check the play.
- Check that no nails or other foreign objects are embedded.
- Retighten all axle nuts and bolts to the specified torque.



FRONT WHEEL BEARINGS

With the vehicle raised, inspect the following.

- Move wheel hub in the axial direction by hand. Check that there is no looseness of front wheel bearings.

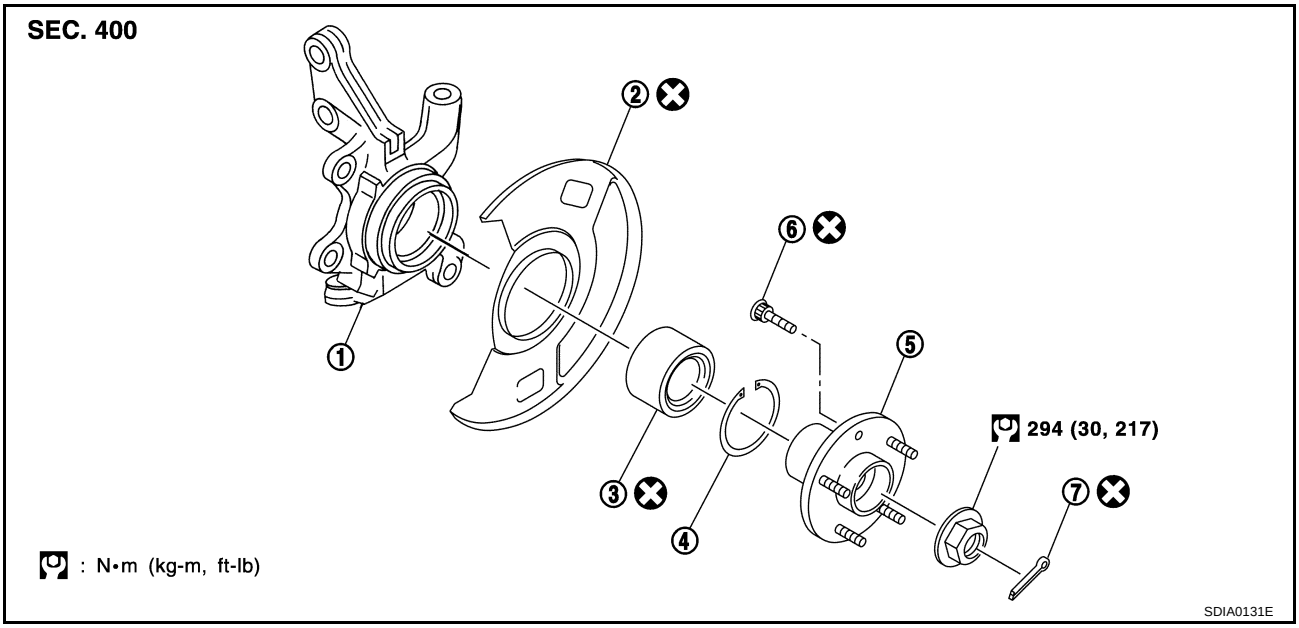
Axial end play : 0.05 mm (0.002 in)

- Rotate wheel hub and check that there is no unusual noise or other irregular conditions. If there are any irregular conditions, replace the wheel bearing.

Removal and Installation

BDS0005T

COMPONENTS



1. Steering knuckle
2. Splash guard
3. Wheel bearing assembly
4. Snap ring
5. Wheel hub
6. Hub bolt
7. Cotter pin

REMOVAL

1. Remove tyre. Remove brake hose lock plate from strut.
2. Remove brake caliper from steering knuckle. Hang it in a place where it will not interfere with work. Refer to BR-25, "FRONT DISC BRAKE" .

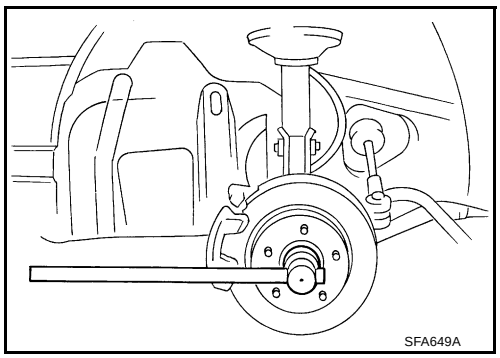
   CAUTION:
   Avoid depressing the brake pedal with brake caliper removed.
3. Remove wheel sensor from steering knuckle. Refer to BRC-107, "WHEEL SENSORS" .

   CAUTION:
   Do not pull on wheel sensor harness.

4. Remove cotter pin. Use a hub lock nut wrench to remove lock nut from drive shaft.
5. Remove disc rotor from wheel hub.
6. Remove cotter pin. Use a ball joint remover to remove tie rod from steering knuckle.

   CAUTION:
   When using a ball joint remover, install nuts temporarily.
7. Remove steering knuckle from strut.
8. Remove drive shaft from steering knuckle.
9. Remove cotter pin. Use a ball joint remover to remove transverse link from steering knuckle.

   CAUTION:
   When using a ball joint remover, install nuts temporarily.


SFA649A

INSPECTION AFTER REMOVAL

Check for deformity, cracks and damage on each parts, replace if necessary.

Ball Joint Inspection

- Check for boot breakage, axial looseness, and torque of transverse link ball joint. Refer to FSU-10, "INSPECTION AFTER REMOVAL" .

INSTALLATION

- Refer to FAX-7, "Removal and Installation" for tightening torque. Install in the reverse order of removal.

  NOTE:
  Refer to component parts location and do not reuse non-reusable parts.

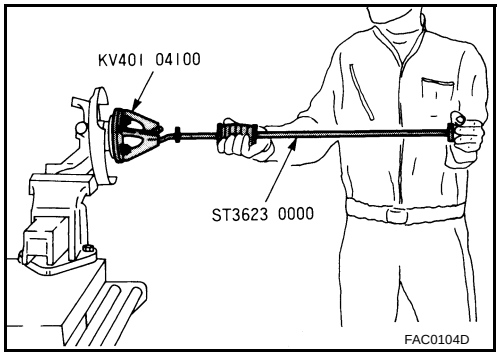
Disassembly and Assembly

BDS0005U

DISASSEMBLY

1. Set steering knuckle on bench vise at point where strut is attached. Use a sliding hammer (SST) and attachment (SST) to remove wheel hub and bearing assembly from steering knuckle.

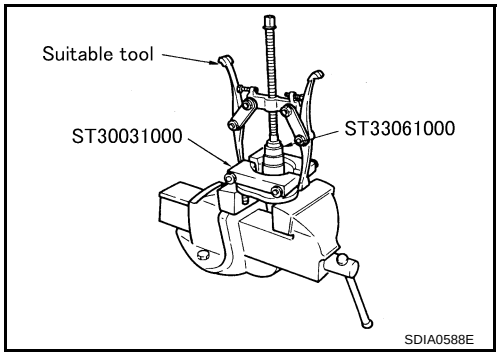
   CAUTION:
   When placing onto vise, be careful not to damage strut mounting surface of steering knuckle. Use an aluminum plate or another suitable tool.



FAC0104D

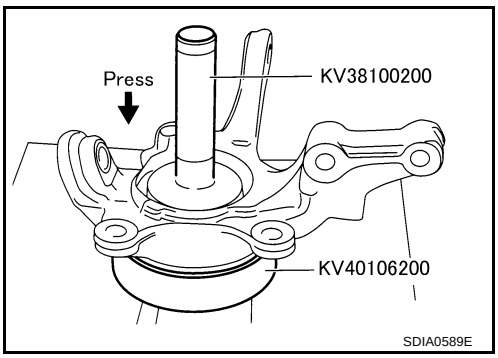
2. As shown in the figure, use a puller (suitable tool), drift (SST), and bearing replacer (SST) to remove inner race of outer wheel bearing from wheel hub.
3. Use a flat-bladed screwdriver or similar tool to remove snap ring.

   CAUTION:
   Be careful not to scratch the steering knuckle.
4. Fix steering knuckle to bench vise. Use a flat-bladed screwdriver and hammer to remove splash guard from steering knuckle.



SDIA0588E

5. Use a drift (SST) and a press to remove wheel bearing.



INSPECTION AFTER DISASSEMBLY

Wheel Hub

- Check wheel bearings for damage, seizure, and corrosion. Also check wheel hubs for cracks (using a die test or other method). Replace if any irregular conditions are found.

Steering Knuckle

- Check steering knuckle for deformation, cracks, and other damage. Replace if any irregular conditions are found.

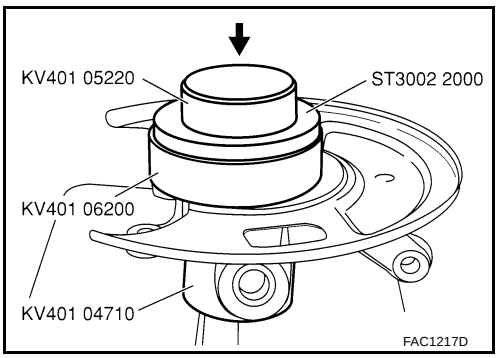
Snap Ring

- Check snap ring for wear or other damage. Replace if any irregular conditions are found.

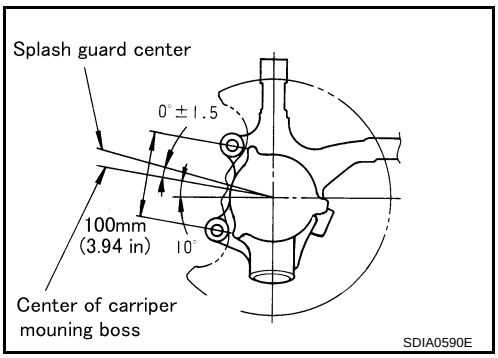
ASSEMBLY

1. Use a drift (SST) to install splash guard onto steering knuckle.

   CAUTION:
   Discard the old splash guard; replace with a new one.



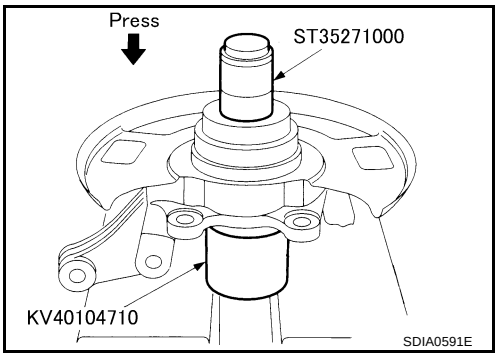
   - Install splash guard in position shown in the figure.



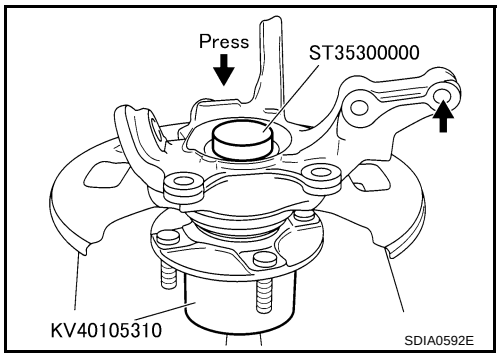
2. Use a drift (SST) and a press to press-fit wheel bearing onto steering knuckle.

   CAUTION:
   Discard the old wheel bearing; replace with a new one.

3. Install snap ring onto steering knuckle.



4. Use a drift (SST) and a press to install wheel hub.
5. As shown in the figure, apply a load of 34,324 - 49,033 N (3501 - 5,001.4 kg, 7,716 - 11,023 lb). Rotate in forward and reverse directions 10 times each to ensure a good fit.
6. At a rotation speed of 10±2 rpm, place a spring balance at the point where strut is joined (upper-side bolt hole). Measure rotating torque. Refer to FAX-7, "FRONT WHEEL BEARINGS" .



Rotating torque : 1.645 N·m (0.17 kg-m, 15 in-lb) or less

Spring balance reading : 10.6 N (1.1 kg, 2.0 lb) or less

NOTE:
If a load of 34,300 - 49,033 N (3,498.6 - 5,001.4 kg, 7711 - 11,023 lb) cannot be applied, carry out the following actions.

- Assemble drive shaft and tighten wheel hub lock nuts to specified torque. Then rotate in forward and reverse direction 10 times each to ensure a good fit.
- At a rotation speed of 10±2 rpm, place a spring balance on hub bolt to measure torque.

Rotation torque : 2.215 N·m (0.23 kg-m, 20 in-lb) or less

Spring balance reading : 37.2 N (3.8 kg, 8.0 lb) or less

FRONT DRIVE SHAFT

PFP:39100

On-Vehicle Inspection and Service

BDS0006N

- Check drive shaft mounting point and joint for looseness and other damage.
- Check boot for cracks and other damage.

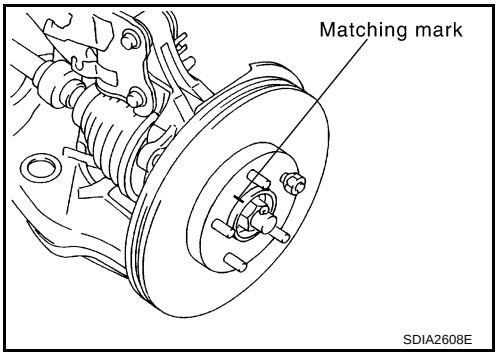
CAUTION:
Replace entire drive shaft assembly when noise or vibration occur from drive shaft.

DRIVE SHAFT BOOT REPLACEMENT

1. Remove tyres from vehicle with a power tool.
2. Remove wheel sensor from steering knuckle. Refer to BRC-41, "WHEEL SENSORS" .

   CAUTION:
   Do not pull on wheel sensor harness.
3. Remove torque member fixing bolts with a power tool. Hang torque member in a place where it will not interfere with work. Refer to .BR-25, "FRONT DISC BRAKE"

   CAUTION:
   Do not depressing brake pedal while brake caliper is removed.
4. Put matching mark on disc rotor and wheel hub and bearing assembly, then remove disc rotor.

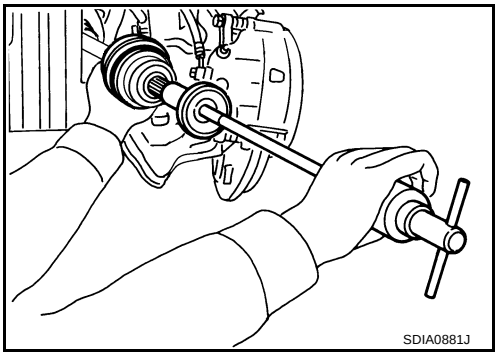


5. Remove cotter pin, then loosen hub lock nut with a power tool.
6. Separate wheel hub and bearing assembly from drive shaft by lightly tapping the end with a hammer (suitable tool) and a wood block, and then remove had lock nut.

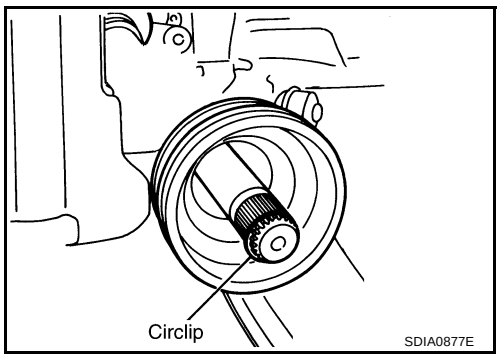
   CAUTION:
   - **Do not place drive shaft joint at an extreme angle. Also be careful not to overextend slide joint.**
   - **Do not allow drive shaft to hang down without support for housing (or joint sub-assembly), shaft and the other parts.**

   NOTE:
   Use a puller (suitable tool) if wheel hub and drive shaft comet be separated even after performing the above procedure.
7. Remove fixing nuts and bolts, and then remove steering knuckle from strut assembly. Refer to FSU-8, "COIL SPRING AND SHOCK ABSORBER" .
8. Remove drive shaft from wheel hub and bearing assembly.
9. Remove boot bands, and then remove boot from the joint sub-assembly.
10. Screw a drive shaft puller (suitable tool) into joint sub-assembly screw part to a length of 30 mm (1.18 in) or more. Support drive shaft with one hand and pull out joint sub-assembly with a sliding hammer (suitable tool) from shaft.

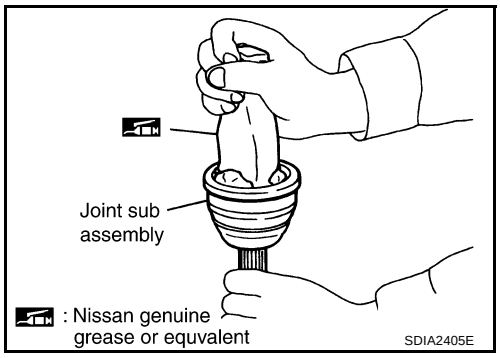
    CAUTION:
    - **Align sliding hammer and drive shaft and remove them by pulling firmly and uniformly.**
    - **If joint sub-assembly cannot be pulled out, try after removing drive shaft from vehicle.**



11. Remove the circular clip from the shaft.
12. Remove boot from shaft.
13. Clean the old grease on joint sub-assembly with paper towels.



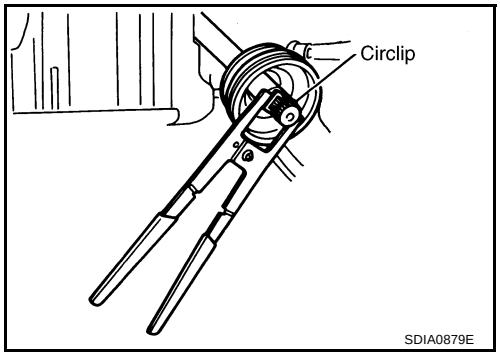
14. Apply the specified amount of grease (Nissan genuine grease or equivalent) inside joint sub-assembly serration hole until grease begins to ooze from ball groove and serration hole. After applying grease, use a shop cloth to wipe off old grease that has oozed out.
15. Wrap serration on shaft with tape to protect the boot from damage. Install new boot and boot bands to shaft.
16. Remove the tape wrapped around the serration on shaft.



17. Position circular clip on groove at the shaft edge. Align both counter axles of the shaft edge and joint sub-assembly. Then, assemble shaft with circular clip onto joint sub-assembly.

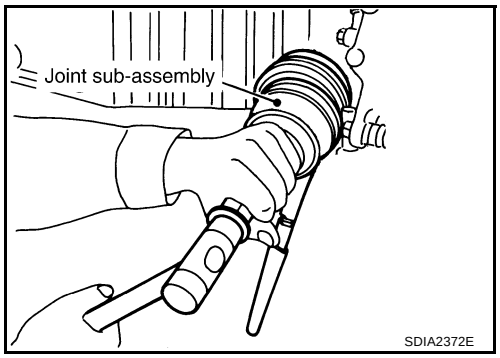
    NOTE:
    Drive joint inserter (suitable tool) is recommended when installing circular clip.
18. Install joint sub-assembly to shaft using plastic hammer.

    CAUTION:
    Confirm that joint sub-assembly is correctly engaged while rotating drive shaft.



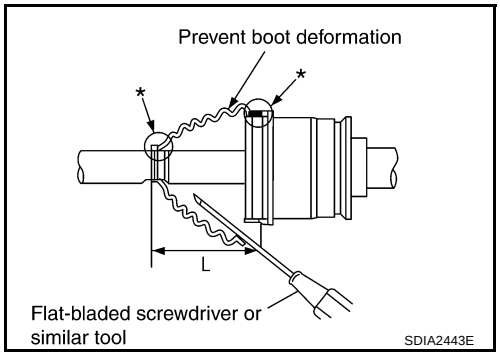
19. Apply the balance of the specified amount of grease (Nissan genuine grease or equivalent) into the boot inside from large diameter of boot.

    Grease amount : 115 – 125 g (4.06 – 4.41 oz)



20. Install the boot securely into grooves (indicated by *marks) shown in the figure.

    CAUTION:
    If grease adheres to the boot mounting surface (with *mark) on the shaft and joint sub-assembly, boot may come off. Remove all grease from the surface.
21. To prevent from the deformation of the boot, adjust the boot installation length to the specified value shown below (L) by inserting the flat-bladed screwdriver into inside of the boot from the large diameter side of the boot and discharging the inside air.

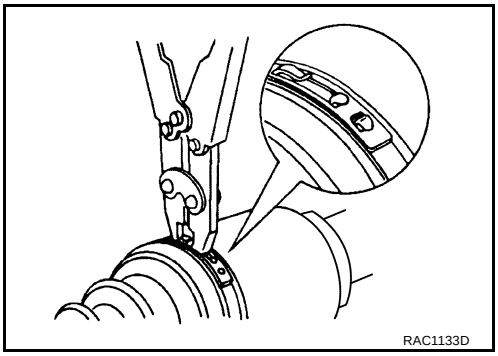


Boot installation length (L) : 100 – 103 mm (3.94 – 4.06 in)

CAUTION:

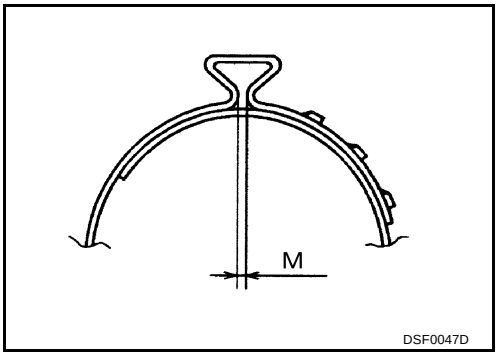
- **If the boot mounting length is outside the standard, it may cause breakage in the boot.**
- **Be careful not to touch inside of the boot with the tip of a flat-bladed screwdriver.**

22. Secure the large and small ends of the boot with new boot bands using the boot band crimping tool [SST: KV40107300] as shown in the figure.

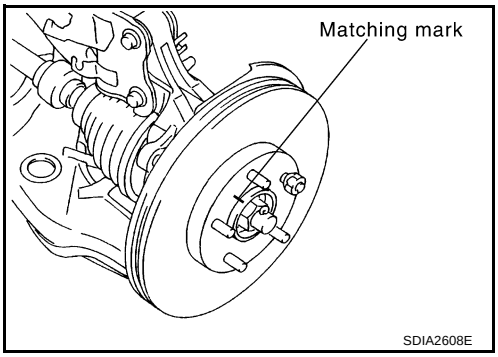


NOTE:
Secure boot band so that dimension “M” meets the specification as shown.

Dimension “M” : 2.0 – 3.0 mm (0.079 – 0.118 in)



23. Secure joint sub-assembly and shaft, and then make sure that they are in the correct position when rotating boot. Install them with new boot band when boot installation positions become incorrect.
24. Confirm that circular clip on the transaxle side is fully engaged.
25. Insert drive shaft to wheel hub and bearing assembly, and then temporarily tighten hub lock nut.
26. Install nuts and bolts of steering knuckle and strut. Refer to FSU-5, "Components" .
27. Assembly disc rotor and wheel hub and bearing assembly by aligning each matching mark as shown in the figure when installing disc rotor.
28. Install wheel sensor to steering knuckle. Refer to BRC-41, "WHEEL SENSORS" .
29. Install torque member fixing bolts to steering knuckle. Refer to BR-25, "FRONT DISC BRAKE" .
30. Tighten the hub lock nut to the specified torque. Refer to FAX-14, "COMPONENTS" .
31. Install cotter pin.
32. Install tyres to vehicle.

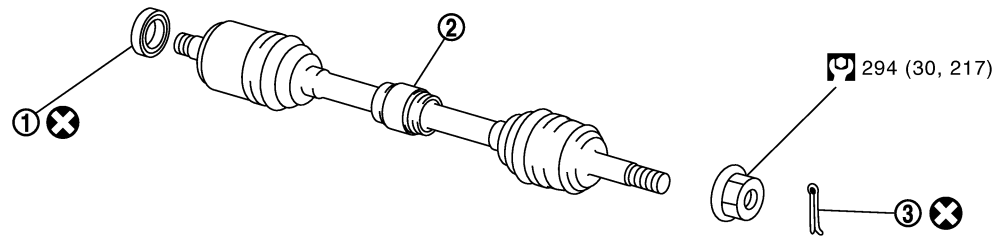


Removal and Installation (LH)

BDS0006L

COMPONENTS

SEC. 396



1. Dust shield
2. Drive shaft
3. Cotter pin

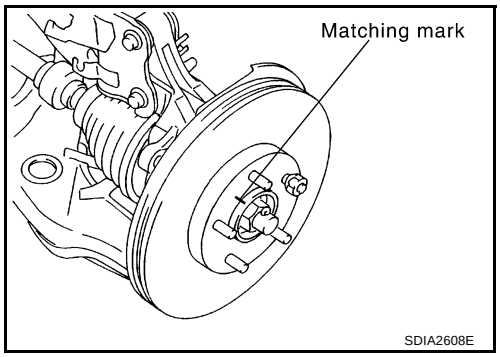
Refer to GI-9, "Components" , for the symbols in the figure.

REMOVAL

1. Remove tyres from vehicle with a power tool.
2. Remove wheel sensor from steering knuckle. Refer to BRC-41, "WHEEL SENSORS" .

   CAUTION:
   Do not pull on wheel sensor harness.
3. Remove torque member fixing bolts with a power tool. Hang torque member in a place where it will not interfere with work. Refer to BR-25, "FRONT DISC BRAKE" .

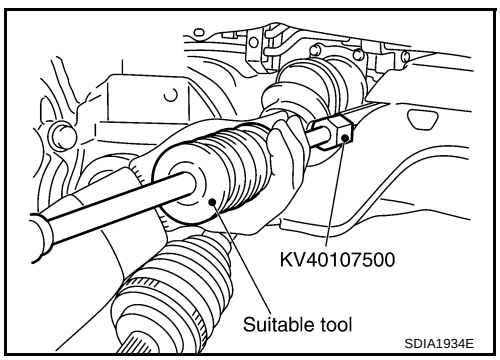
   CAUTION:
   Do not depress brake pedal while brake caliper is removed.
4. Put matching mark on disc rotor and wheel hub and bearing assembly, then remove disc rotor.
5. Remove cotter pin, then loosen hub lock nut with a power tool.
6. Separate wheel hub and bearing assembly from drive shaft by lightly tapping the end with a hammer (suitable tool) and a wood block, and then remove hub lock nut.



   CAUTION:
   - **Do not place drive shaft joint at an extreme angle. Also be careful not to overextend slide joint.**
   - **Do not allow drive shaft to hang down without support for housing (or joint sub-assembly), shaft and the other parts.**

   NOTE:
   Use a puller (suitable tool) if wheel hub and drive shaft cannot be separate even after performing the above procedure.
7. Remove fixing nuts and bolts, and then remove steering knuckle from strut assembly. Refer to FAX-7, "Removal and Installation" .
8. Remove drive shaft from wheel hub and bearing assembly.
9. Remove drive shaft from transaxle.
   - Remove drive shaft from transaxle using the drive shaft attachment [SST] and a drive shaft puller (suitable tool) while inserting tip of the drive shaft attachment [SST] between housing and transaxle as shown in the figure.
   - Make sure that circular clip is attached on the edge.

   CAUTION:
   Do not place drive shaft joint at an extreme angle when removing drive shaft. Also be careful not to overextend slide joint.



INSPECTION AFTER REMOVAL

- Move joint up/down, left/right, and in the axial directions. Check for motion that is not smooth and for significant looseness.
- Check boot for cracks, damage, and leakage of grease.
- Disassemble drive shaft and exchange malfunctioning part if there is a non-standard condition.

INSTALLATION

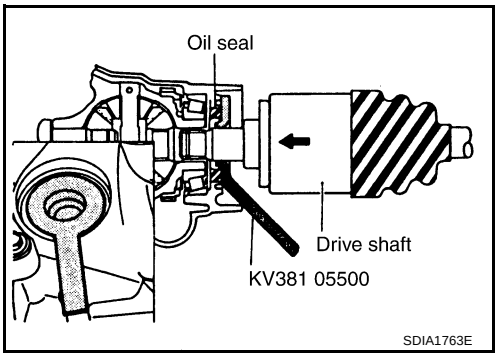
CAUTION:

Always replace transaxle side oil seal with new one when installing drive shaft. Refer to AT-402, "Differential Side Oil Seal Replacement" .

- Installation is the reverse order of removal. For tightening torque refer to FAX-14, "COMPONENTS" .
- Place the protector [SST] onto transaxle to prevent damage to the oil seal while inserting drive shaft. Slide drive shaft sliding joint and tap with a hammer to install securely.

  CAUTION:

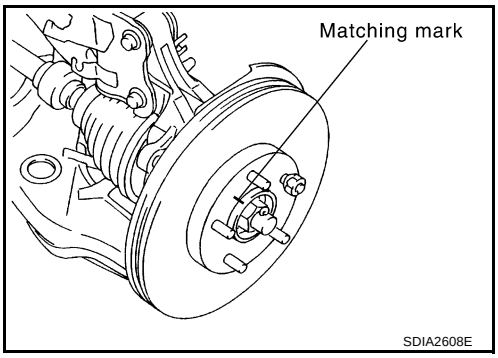
  Make sure that circular clip is completely engaged.



- Assembly disc rotor and wheel hub and bearing assembly by aligning each matching mark as show in the figure when installing disc rotor.

  NOTE:

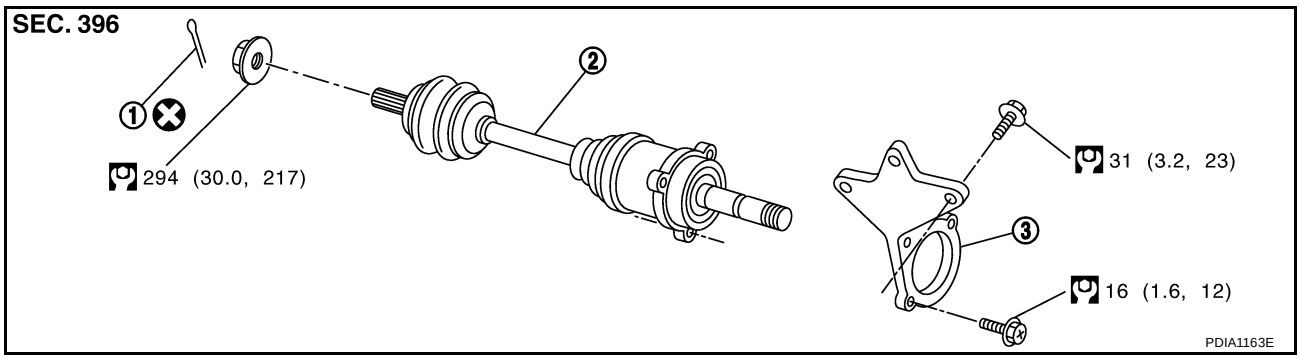
  Refer to BR-29, "DISC ROTOR INSPECTION" , for assembly when removing disc without matching.



Removal and Installation (QR20DE 2WD Models: RH)

BDS0006K

COMPONENTS



1. Cotter pin
2. Drive shaft
3. Support bearing bracket

Refer to GI-9, "Components" , for the symbols in the figure.

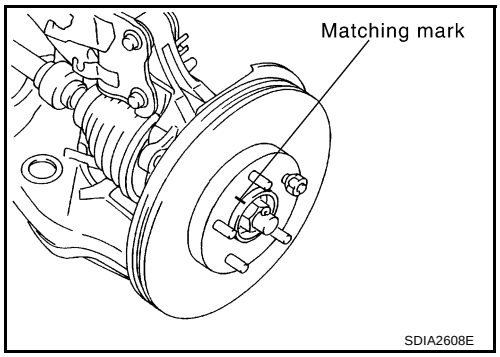
REMOVAL

1. Remove tyres from vehicle with a power tool.
2. Remove wheel sensor from steering knuckle. Refer to BRC-41, "WHEEL SENSORS" .

   CAUTION:
   Do not pull on wheel sensor harness.
3. Remove torque member fixing bolts with a power tool. Hang torque member in a place where it will not interfere with work. Refer to BR-25, "FRONT DISC BRAKE" .

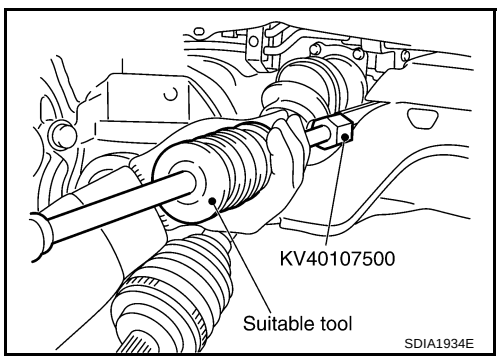
   CAUTION:
   Do not depress brake pedal while brake caliper is removed.
4. Put matching mark on disc rotor and wheel hub and bearing assembly, then remove disc rotor.
5. Remove cotter pin, then loosen hub lock nut with a power tool.
6. Separate wheel hub and bearing assembly from drive shaft by lightly tapping the end with a hammer (suitable tool) and a wood block, and then remove hub lock nut.

   CAUTION:
   - **Do not place drive shaft joint at an extreme angle. Also be careful not to overextend slide joint.**
   - **Do not allow drive shaft to hang down without support for housing (or joint sub-assembly), shaft and the other parts.**



   NOTE:
   Use a puller (suitable tool) if wheel hub and drive shaft cannot be separate even after performing the above procedure.
7. Remove fixing nuts and bolts, and then remove steering knuckle from strut assembly. Refer to FAX-7, "Removal and Installation" .
8. Remove drive shaft from wheel hub and bearing assembly.
9. Remove bolts, and then separate drive shaft and support bearing bracket.
10. Remove drive shaft from transaxle.
    - Remove drive shaft from transaxle using the drive shaft attachment [SST] and a drive shaft puller (suitable tool) while inserting tip of the drive shaft attachment [SST] between housing and transaxle as shown in the figure.

      CAUTION:
      Do not place drive shaft joint at an extreme angle when removing drive shaft. Also be careful not to overextend slide joint.



INSPECTION AFTER REMOVAL

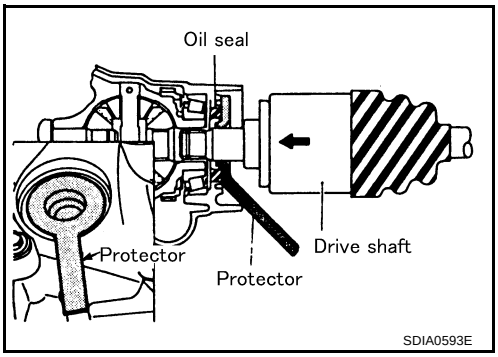
- Move joint up/down, left/right, and in the axial directions. Check for motion that is not smooth and for significant looseness.
- Check boot for cracks, damage, and leakage of grease.
- Disassemble drive shaft and exchange malfunctioning part if there is a non-standard condition.

INSTALLATION

CAUTION:

Always replace transaxle side oil seal with new one when installing drive shaft. Refer to AT-402, "Differential Side Oil Seal Replacement" .

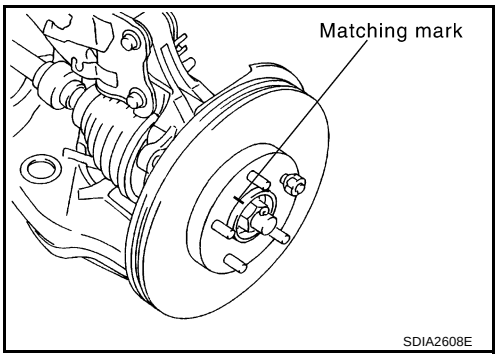
- Installation the reverse order of removal. For tightening torque refer to FAX-14, "COMPONENTS" .
- Place the protector [SST: KV38107800] onto transaxle to prevent damage to the oil seal while inserting drive shaft. Slide drive shaft sliding joint and top with a hummer to install securely.



- Assembly disc rotor and wheel hub and bearing assembly by aligning each matching mark as show in the figure when installing disc rotor.

  NOTE:

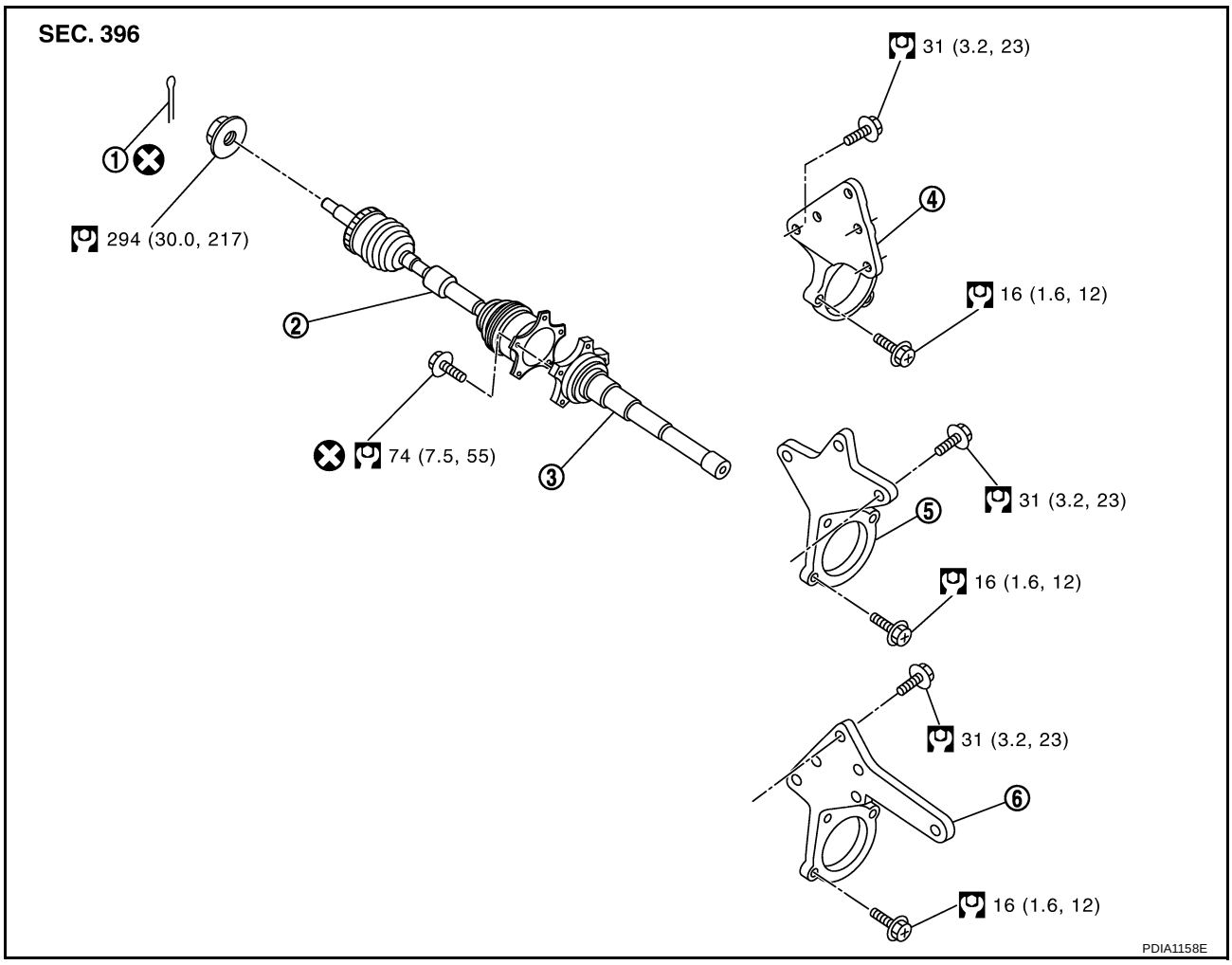
  Refer to BR-29, "DISC ROTOR INSPECTION" , for assembly when removing disc without matching.



Removal and Installation (Except for QR20DE 2WD Models: RH)

BDS0006Q

COMPONENTS



1. Cotter pin
2. Drive shaft
3. Side shaft
4. Support bearing bracket (QR20, 25DE 4WD models)
5. Support bearing bracket (YD22DDTi 2WD models)
6. Support bearing bracket (YD22DDTi 4WD models)

Refer to GI-9, "Components" , for the symbols in the figure.

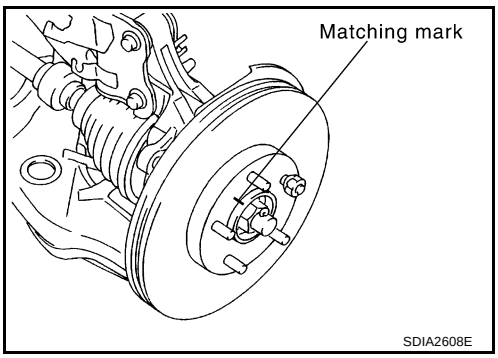
REMOVAL

1. Remove tyres from vehicle with a power tool.
2. Remove wheel sensor from steering knuckle. Refer to BRC-41, "WHEEL SENSORS" .

   CAUTION:
   Do not pull on wheel sensor harness.
3. Remove torque member fixing bolts with a power tool. Hang torque member in a place where it will not interfere with work. Refer to BR-25, "FRONT DISC BRAKE" .

   CAUTION:
   Avoid depressing brake pedal while brake caliper is removed.

4. Put matching mark on disc rotor and wheel hub and bearing assembly, then remove disc rotor.
5. Remove cotter pin, then loosen hub lock nut with a power tool.
6. Separate wheel hub and bearing assembly from drive shaft by lightly tapping the end with a hammer (suitable tool) and a wood block, and then remove lock nut.



CAUTION:

- **Do not place drive shaft joint at an extreme angle. Also be careful not to overextend slide joint.**
- **Do not allow drive shaft to hang down without support for housing (or joint sub-assembly), shaft and the other parts.**

NOTE:
Use a puller (suitable tool) if wheel hub and drive shaft cannot be separate even after performing the above procedure.

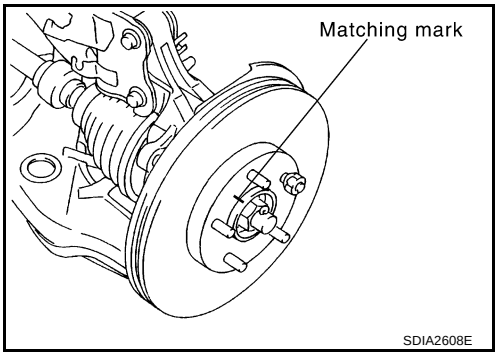
7. Remove fixing nuts and bolts, and then remove steering knuckle from strut assembly. Refer to FAX-7, "Removal and Installation" .
8. Remove drive shaft from wheel hub and bearing assembly.
9. Remove fixing bolts, and then separate drive shaft and side shaft.

INSPECTION AFTER REMOVAL

- Move joint up/down, left/right, and in the axial directions. Check for motion that is not smooth and for significant looseness.
- Check boot for cracks, damage, and leakage of grease.
- Disassemble drive shaft and exchange malfunctioning part if there is a non-standard condition.

INSTALLATION

- Installation is the reverse order of removal. For tightening torque, refer to FAX-18, "COMPONENTS" .
- Assembly disc rotor and wheel hub and bearing assembly by aligning each matching mark as show in the figure when installing disc rotor.

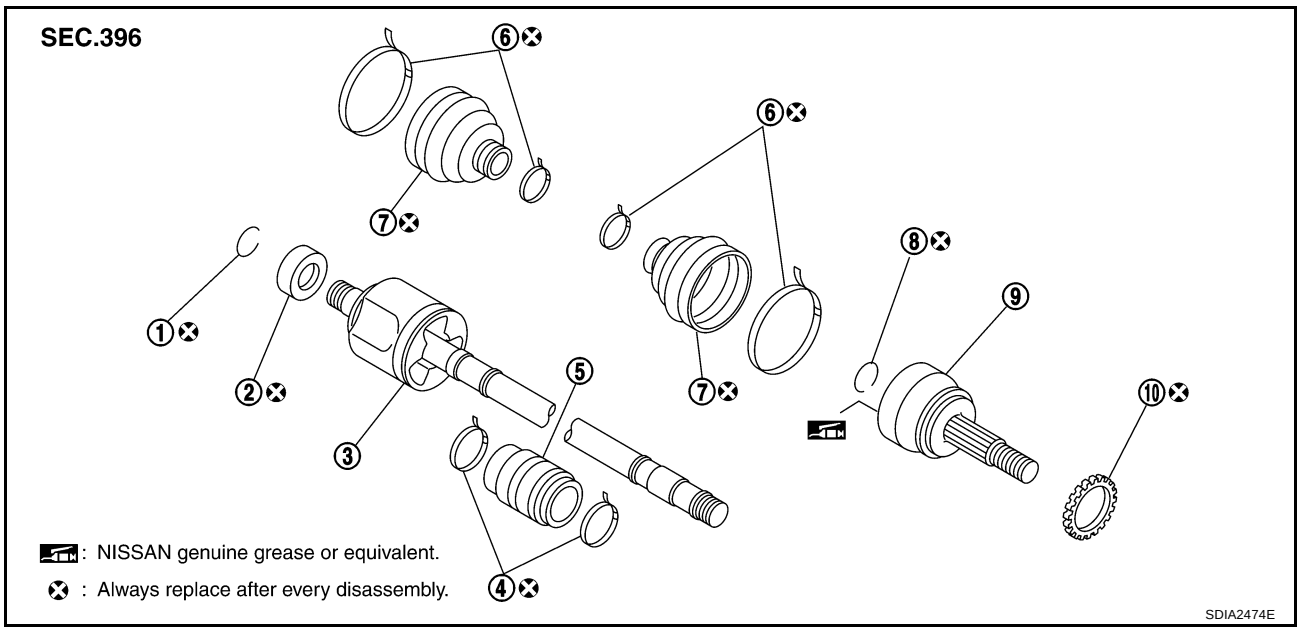


NOTE:
Refer to BR-29, "DISC ROTOR INSPECTION" , for assembly when removing disc without matching.

Disassembly and Assembly (LH)

BDS0006J

COMPONENTS



1. Circular clip
2. Dust cover
3. Housing assembly
4. Band
5. Dynamic damper
6. Boot band
7. Boot
8. Circular clip
9. Joint sub-assembly
10. Sensor rotor

DISASSEMBLY

Transaxle Side

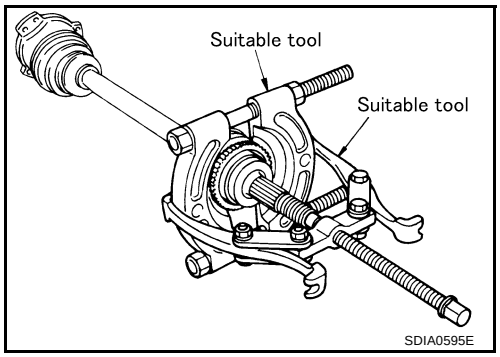
1. For transaxle side housing is non-disassemble, removing boots from shaft is done after removing dynamic damper and band, and after procedure of disassembly instruction 1 to 5 for wheel side.
2. Remove boot band, then remove boot from housing, and remove boot from shaft after the above service.
3. Remove circular clip and dust cover from housing.

Wheel Side

1. As shown in the figure, use a bearing replacer (suitable tool) and puller (suitable tool) to remove sensor rotor from drive shaft.
2. Secure the shaft in a vise.

   CAUTION:

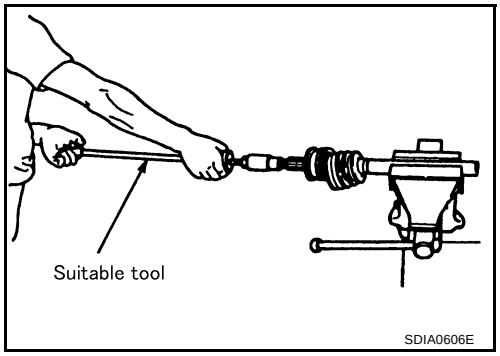
   Protect the shaft when securing in a vise using aluminum or copper plates.



3. Screw the drive shaft puller (suitable tool) 30 mm (1.18 in) or more over the thread on joint sub-assembly, and pull the joint sub-assembly out of the shaft.

   CAUTION:

   - **Replace entire drive shaft assembly if joint sub-assembly cannot be removed after five or more unsuccessful attempts.**
   - **Align sliding hammer and drive shaft and remove them by pulling firmly and uniformly.**



4. Remove circular clip from the shaft.
5. Remove boot from the shaft.

6. Clean the old grease on joint sub-assembly with paper towels while rotating ball cage.

Dynamic Damper

Remove band. Then, remove dynamic damper from shaft.

INSPECTION AFTER DISASSEMBLY

Shaft

Check shaft for runout, cracks, or other damage. Replace shaft and housing assembly in a set.

Wheel Side (Joint Sub-Assembly)

- Check joint sub-assembly for rough rotation and excessive axial looseness.
- Check inside the joint sub-assembly for entry of foreign material.
- Check for compression scars, cracks, and fractures inside of joint sub-assembly.
- Replace joint sub-assembly if there are any non-standard conditions of components.

Transaxle Side

NOTE:
Housing assembly cannot be disassembled. If there are any non-standard conditions, replace housing assembly.

Dynamic Damper

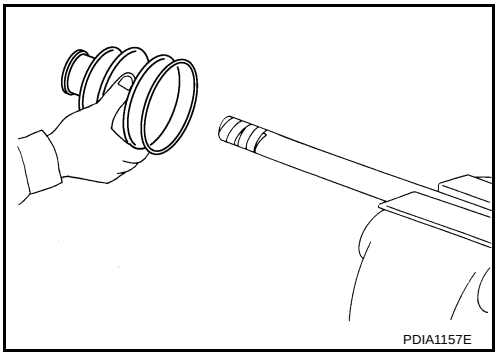
Check for cracks, and other damage. Replace if there are.

ASSEMBLY

Transaxle Side

1. Wrap shaft serration with tape to protect the boot from damage. Install new boot and boot bands to the shaft.
2. Remove the tape wrapped around the serration on the shaft.
3. Apply the appropriate amount of grease (NISSAN genuine grease or equivalent) to housing assembly.

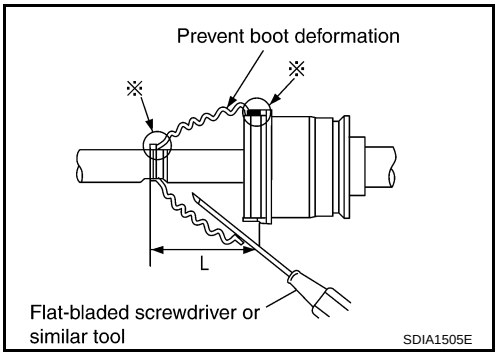
   Grease amount : 132 – 142 g (4.66 – 5.01 oz)



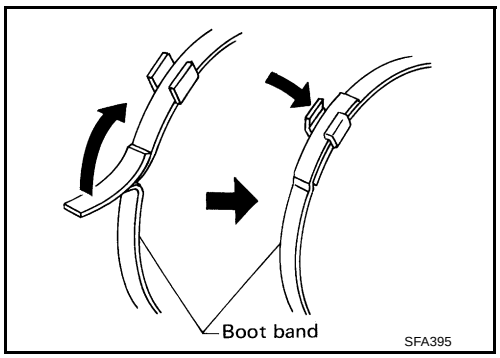
4. Install boot securely into grooves (indicated by *marks) shown in the figure.
5. To prevent from the deformation of the boot, adjust the boot installation length to value shown below (L) by inserting the flat-bladed screwdriver into inside of boot from the large diameter side of the boot and discharging the inside air.

   Boot installation length (L) 84 - 86 mm (3.31 - 3.39 in)

   CAUTION:
   - **If boot mounting length is outside the standard, it may cause breakage in the boot.**
   - **Be careful not to touch inside of the boot with the tip of a flat-bladed screw driver.**



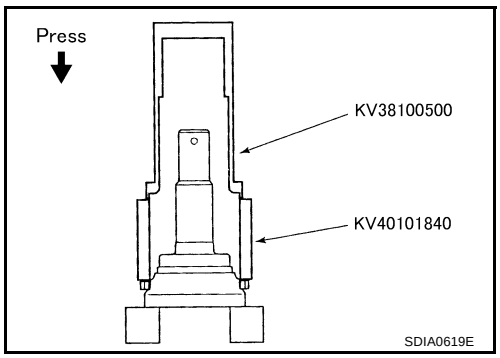
6. Secure the large and small ends of the boot with new boot bands as shown in the figure.
7. Secure housing assembly, and then make sure that they are in the correct position when rotating boot. Install them with new boot band when the mounting positions become incorrect.



Wheel Side

1. Using a drift [SST] to press-fit sensor rotor into joint sub-assembly.

   NOTE:
   Do not reuse sensor rotor.
2. Assemble in steps 14 to 23 of FAX-11, "DRIVE SHAFT BOOT REPLACEMENT" , “On-vehicle Inspection and Service”, after the above service.

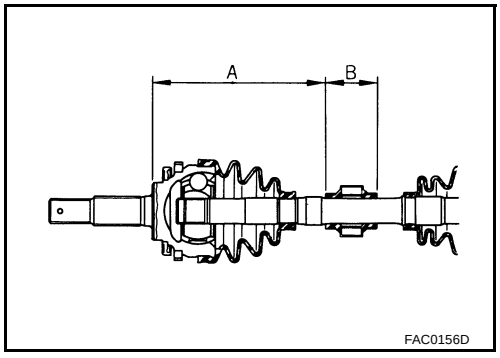


Dynamic Damper

Secure dynamic damper with bands in the following specified position when removing.

Dimension A : 205 - 215 mm (8.07 - 8.46 in)

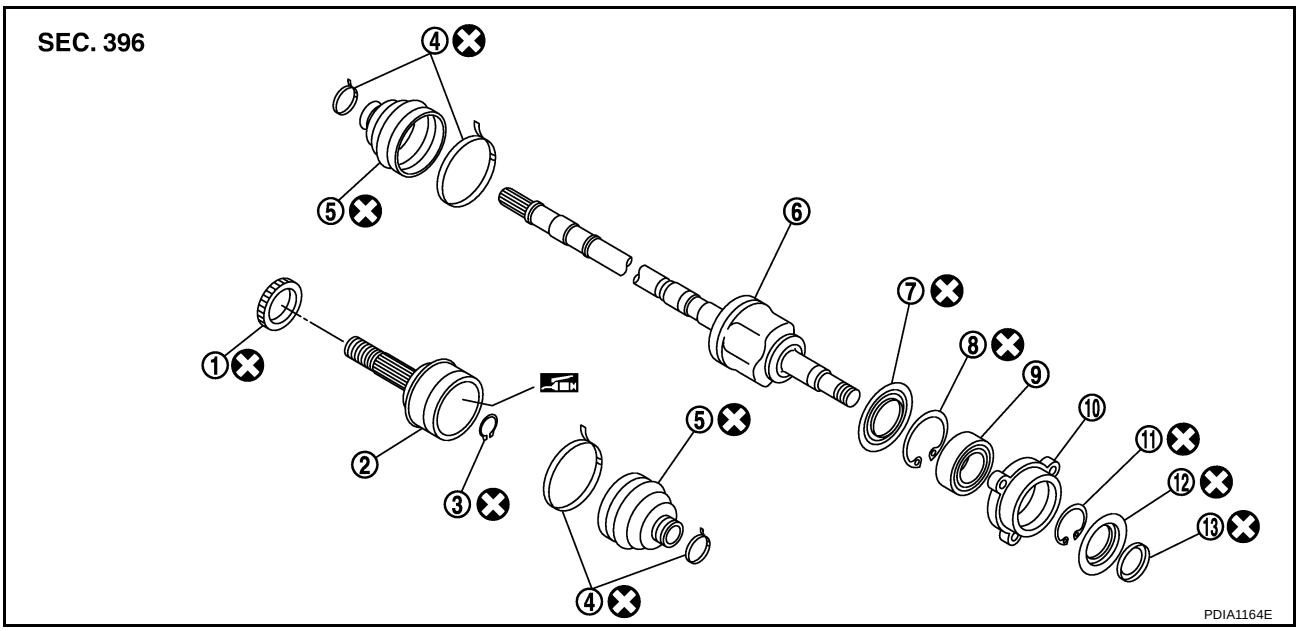
Dimension B : 70 mm (2.76 in)



Disassembly and Assembly (QR20DE 2WD Models: RH)

BDS0006I

COMPONENTS



1. Sensor rotor
2. Joint sub-assembly
3. Circular clip
4. Boot band
5. Boot
6. Housing assembly
7. Dust cover A
8. Snap ring
9. Support bearing
10. Retainer
11. Snap ring
12. Dust cover B
13. Dust cover C

Refer to GI-9, "Components" , and the followings for the symbols in the figure.

: Apply NISSAN genuine grease or equivalent.

DISASSEMBLY

Transaxle Side

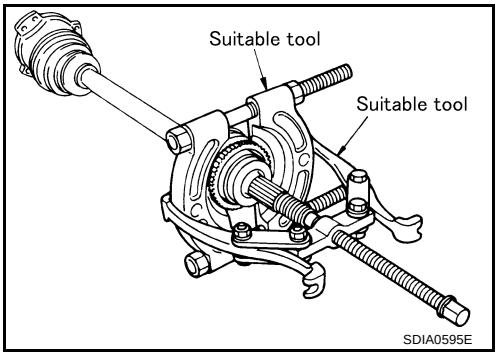
1. For transaxle side housing is non-disassemble, removing boots from shaft is done after procedure of disassembly instruction 1 to 5 for wheel side.
2. Remove boot band, then remove boot from housing, and remove boot from shaft after the above service.

Wheel Side

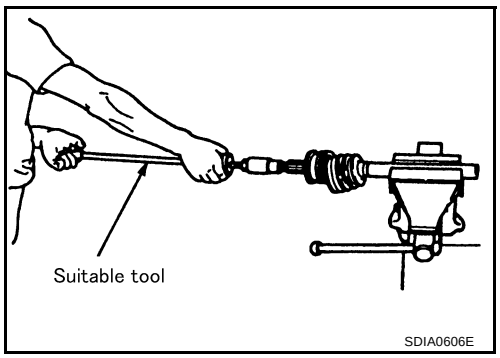
1. As shown in the figure, use a bearing replacer (suitable tool) and puller (suitable tool) to remove sensor rotor from drive shaft.
2. Secure the shaft in a vise.

CAUTION:

Protect the shaft when securing in a vise using aluminum or copper plates.



3. Screw the drive shaft puller (suitable tool) 30 mm (1.18 in) or more over the thread on joint sub-assembly, and pull the joint sub-assembly out of the shaft.



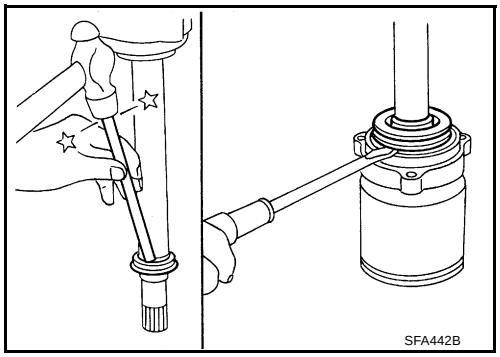
CAUTION:

- **Replace entire drive shaft assembly if joint sub-assembly cannot be removed after five or more unsuccessful attempts.**
- **Align sliding hammer and drive shaft and remove them by pulling firmly and uniformly.**

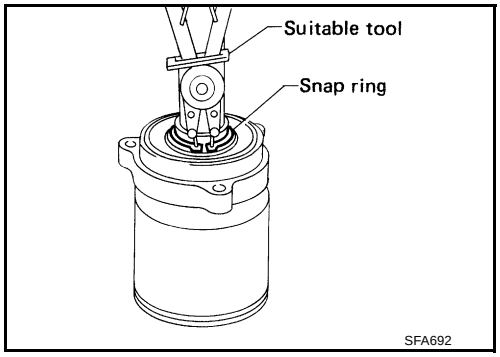
4. Remove circular clip from the shaft.
5. Remove boot from the shaft.
6. Clean the old grease on joint sub-assembly with paper towels while rotating ball cage.

Support Bearing

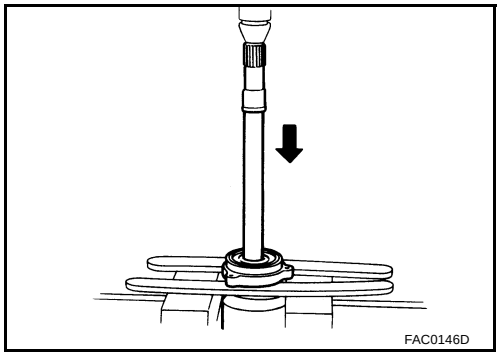
1. Remove dust covers B and C from housing using a brass rod and flat-bladed screwdriver.



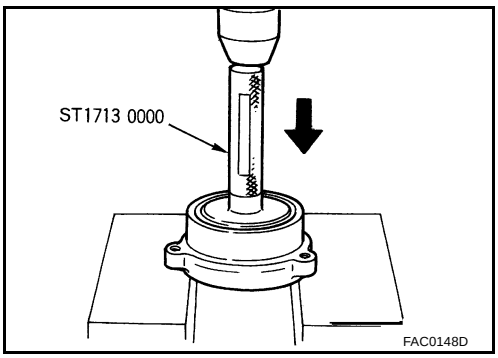
2. Remove snap ring from housing using snap ring pliers (suitable tool).



3. Press out retainer and support bearing from housing.



4. Remove snap ring, and then remove support bearing from retainer using a drift [SST].
5. Remove dust cover A from housing.



INSPECTION AFTER DISASSEMBLY

Shaft

Check shaft for runout, cracks, or other damage. Replace shaft and housing assembly in a set.

Wheel Side (Joint Sub-Assembly)

- Check joint sub-assembly for rough rotation and excessive axial looseness.
- Check inside the joint sub-assembly for entry of foreign material.
- Check for compression scars, cracks, and fractures inside of joint sub-assembly.
- Replace joint sub-assembly if there are any non-standard conditions of components.

Transaxle Side

NOTE:

Housing assembly cannot be disassembled. If there are any non-standard conditions, replace housing assembly.

Support Bearing

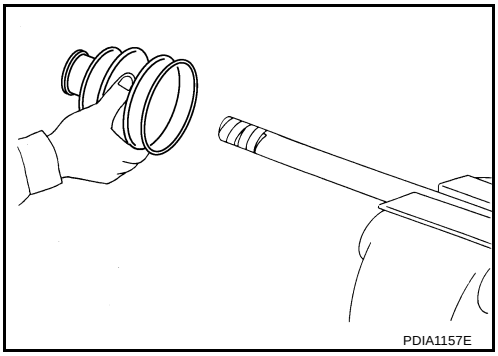
- Check support bearing for wear and other damage.
- Check retainer for cracks and other damage.

ASSEMBLY

Transaxle Side

1. Wrap shaft serration with tape to protect the boot from damage. Install new boot and boot bands to the shaft.
2. Remove the tape wrapped around the serration on the shaft.
3. Apply the appropriate amount of grease (NISSAN genuine grease or equivalent) to housing assembly.

   Grease amount : 132 – 142 g (4.66 – 5.01 oz)

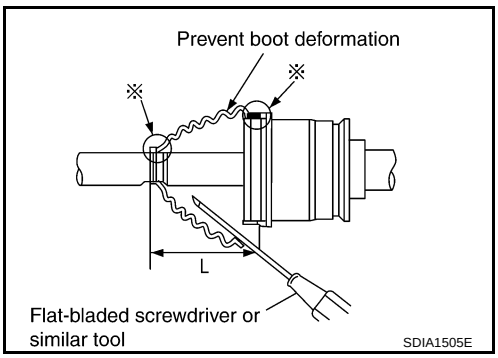


4. Install boot securely into grooves (indicated by *marks) shown in figure.
5. To prevent from the deformation of the boot, adjust the boot installation length to value shown below (L) by inserting the flat-bladed screwdriver into inside of boot from the large diameter side of the boot and discharging the inside air.

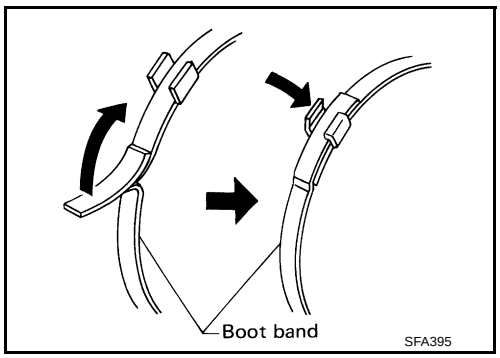
   Boot installation length (L) : 84 – 86 mm (3.31 – 3.39 in)

   CAUTION:

   - **If boot mounting length is outside the standard, it may cause breakage in the boot.**
   - **Be careful not to touch inside of the boot with the tip of a flat-bladed screw driver.**

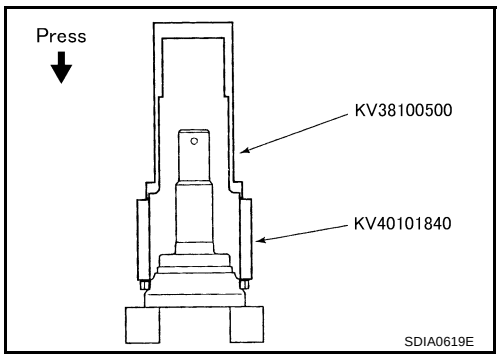


6. Secure the large and small ends of the boot with new boot bands as shown in the figure.
7. Secure housing and shaft, and then make sure that they are in the correct position when rotating boot. Install them with new boot band when the mounting positions become incorrect.



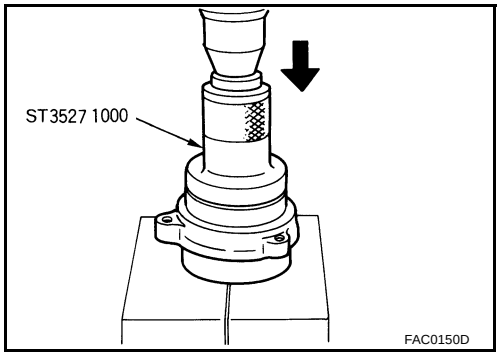
Wheel Side

1. Using a drift [SST] to press-fit sensor rotor into joint sub-assembly.
2. Assemble in steps 14 to 23 of FAX-11, "DRIVE SHAFT BOOT REPLACEMENT" , “On-vehicle Inspection and Service”, after the above service.

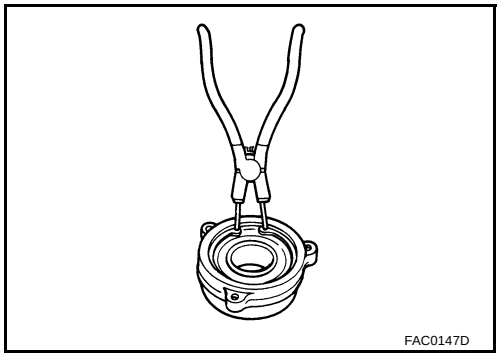


Support Bearing

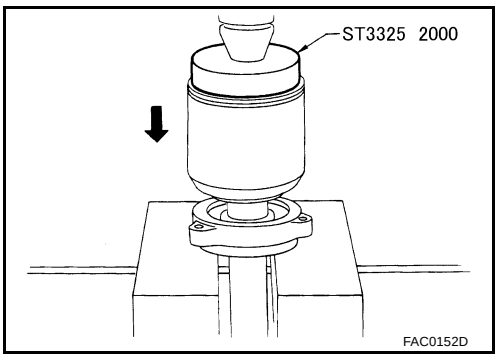
1. Install support bearing into retainer using a drift [SST].



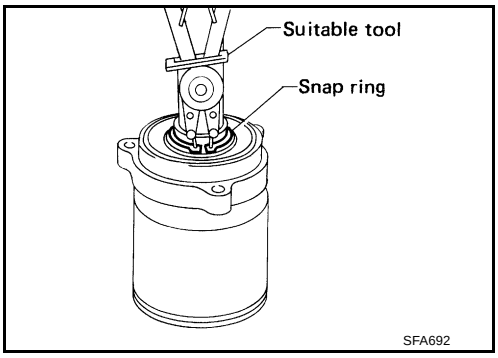
2. Install snap ring to retainer.
3. Install dust cover A to housing.



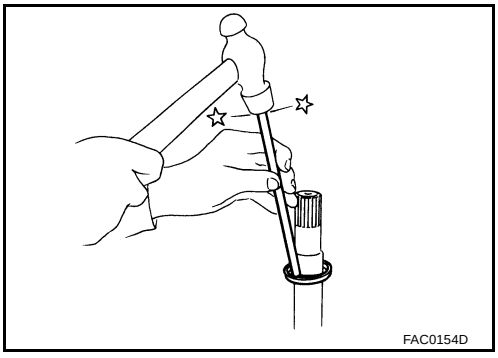
4. Install support bearing into housing using a drift [SST].



5. Install snap ring to housing using snap ring pliers (suitable tool).



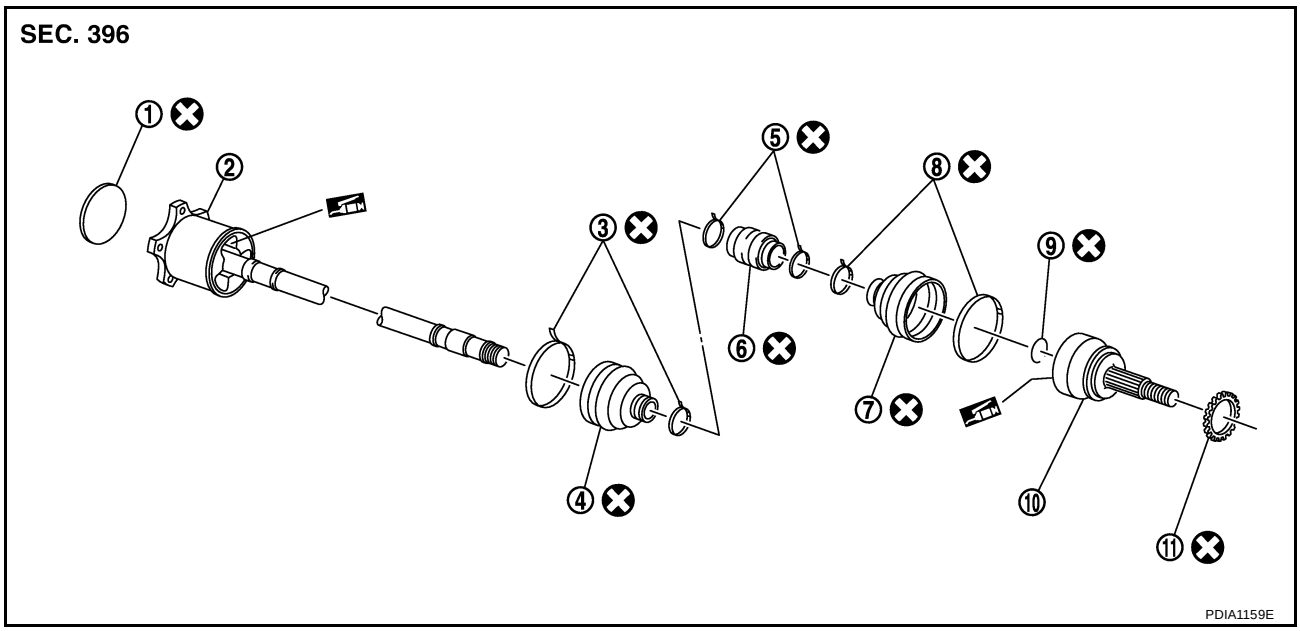
6. Install dust covers B and C to housing using a brass rod and flat-bladed screwdriver.



Disassembly and Assembly (Except for QR20DE 2WD Models: RH)

BDS0006M

COMPONENTS



1. Plug	2. Housing assembly	3. Boot band
4. Boot	5. Band	6. Dynamic damper
7. Boot	8. Boots band	9. Circular clip
10. Joint sub-assembly	11. Sensor rotor	

Refer to GI-9, "Components" , and the followings for the symbols in the figure.

: Apply NISSAN genuine grease or equivalent

DISASSEMBLY

Transaxle Side

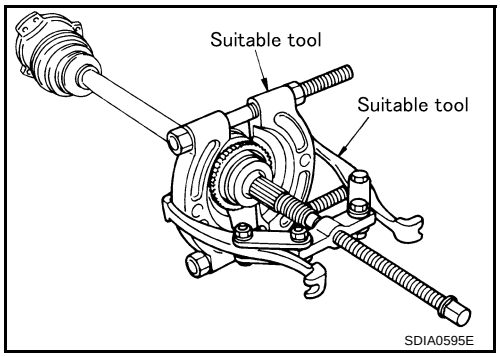
1. For transaxle side housing is non-disassemble, removing boots from shaft is done after removing dynamic damper and band, and after procedure of disassembly instruction 1 to 5 for wheel side.
2. Remove boots band, then remove boots from housing, and remove boots from shaft after the above service.

Wheel Side

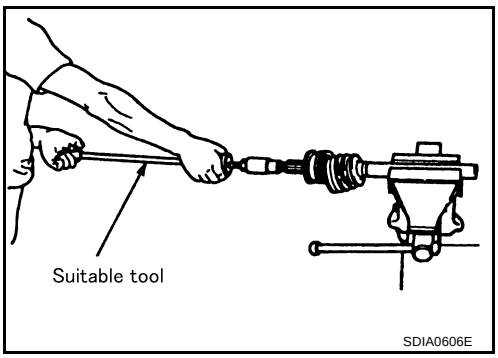
1. As shown in the figure, use a bearing replacer (suitable tool) and puller (suitable tool) to remove sensor rotor from drive shaft.
2. Secure the shaft in a vise.

CAUTION:

Protect the shaft when securing in a vise using aluminum or copper plates.



3. Screw the drive shaft puller (suitable tool) 30 mm (1.18 in) or more over the thread on joint sub-assembly, and pull the joint sub-assembly out of the shaft.



CAUTION:

- **Replace entire drive shaft assembly if joint sub-assembly cannot be removed after five or more unsuccessful attempts.**
- **Align sliding hammer and drive shaft and remove them by pulling firmly and uniformly.**

4. Remove circular clip from the shaft.
5. Remove boot from the shaft.
6. Clean the old grease on joint sub-assembly with paper towels while rotating ball cage.

Dynamic Damper

Remove band. Then, remove dynamic damper from shaft.

INSPECTION AFTER DISASSEMBLY

Shaft

Check shaft for runout, cracks, or other damage. Replace shaft and housing assembly in a set.

Wheel Side (Joint Sub-Assembly)

- Check joint sub-assembly for rough rotation and excessive axial looseness.
- Check inside the joint sub-assembly for entry of foreign material.
- Check for compression scars, cracks, and fractures inside of joint sub-assembly.
- Replace joint sub-assembly if there are any non-standard conditions of components.

Transaxle Side

NOTE:
Housing assembly cannot be disassembled. If there are any non-standard conditions, replace housing assembly.

Dynamic Damper

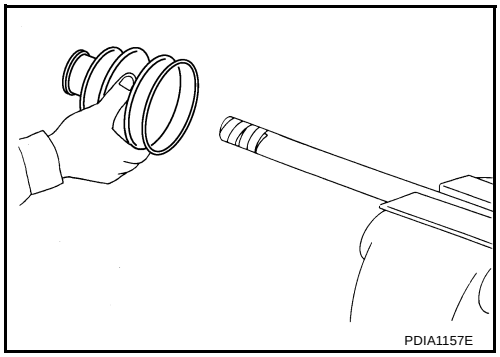
Check for cracks, and other damage. Replace if there are.

ASSEMBLY

Transaxle Side

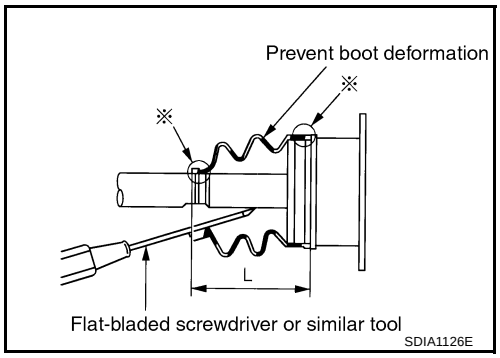
1. Wrap shaft serration with tape to protect the boot from damage. Install new boot and boot bands to the shaft.
2. Remove the tape wrapped around the serration on the shaft.
3. Apply the appropriate amount of grease (NISSAN genuine grease or equivalent) to housing assembly.

   Grease amount : 132 – 142 g (4.66 – 5.01 oz)



4. Install boot securely into grooves (indicated by *marks) shown in figure.
5. To prevent from the deformation of the boot, adjust the boot installation length to value shown below (L) by inserting the flat-bladed screwdriver into inside of boot from the large diameter side of the boot and discharging the inside air.

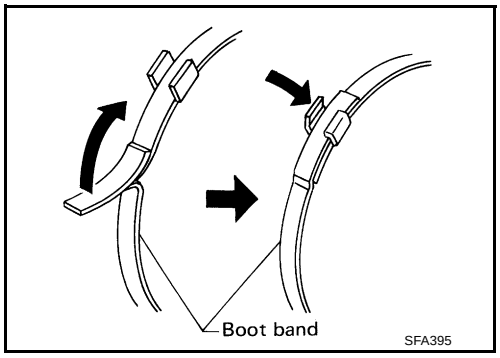
   Boot installation length (L) : 84 – 86 mm (3.31 – 3.39 in)



CAUTION:

- **If boot mounting length is outside the standard, it may cause breakage in the boot.**
- **Be careful not to touch inside of the boot with the tip of a flat-bladed screw driver.**

6. Secure the large and small ends of the boot with new boot bands as shown in the figure.
7. Secure housing and shaft, and then make sure that they are in the correct position when rotating boot. Install them with new boot band when the mounting positions become incorrect.

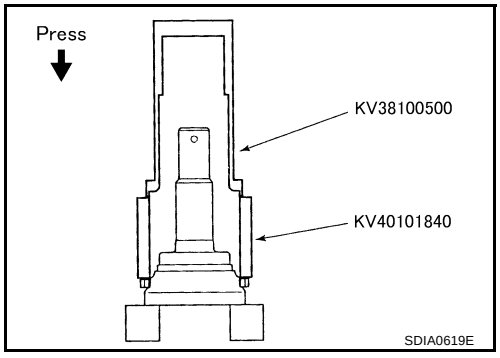


Wheel Side

1. Using a drift [SST] to press-fit sensor rotor into joint sub-assembly.

   NOTE:
   Do not reuse sensor rotor.

2. Assemble in steps 14 to 23 of FAX-11, "DRIVE SHAFT BOOT REPLACEMENT" , “On-vehicle Inspection and Service”, after the above service.



Dynamic Damper

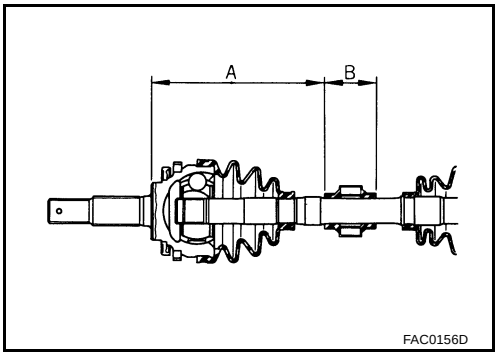
Secure dynamic damper with bands in the following specified position when removing.

Dimension A : 210 mm (8.27 in)

Dimension B : 70 mm (2.76 in) (QR25DE models)

: 68 mm (2.68 in) (YD22DDTi 2WD models)

: 50 mm (1.97 in) (QR20DE, YD22DDTi 4WD models)

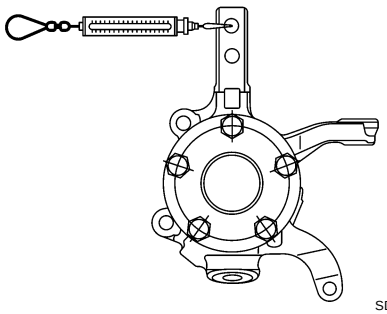


SERVICE DATA AND SPECIFICATIONS (SDS)

PFP:00030

Wheel Bearing

BDS0006O

Axial end play	0.05 mm (0.002 in) or less
Rotating torque	Less than 1.645 N·m (0.17 kg-m, 15 in-lb)
Spring balance reading	Less than 10.6 N (1.1 kg, 2.0 lb)
Measuring point	 SDIA2518E

Drive Shaft

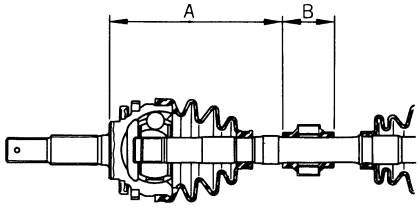
BDS0005Y

Joint type	Wheel side	Transaxle side
Grease amount	115 - 125 g (4.06 - 4.41 oz)	132 - 142 g (4.66 - 5.01 oz)
Boot length	100 - 103 mm (3.94 - 4.06 in)	84 - 86 mm (3.31 - 3.39 in)

Dynamic Damper

BDS0007F

Dimension A		Dimension B
LH	205 - 215 mm (8.07 - 8.46 in)	70 mm (2.76 in)
RH	210 mm (8.27 in)	70 mm (2.76 in) (QR25DE models)
		68 mm (2.68 in) (YD22DDTi 2WD models)
		50 mm (1.97 in) (QR20DE, YD22DDTi 4WD models)



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