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## GENERAL DESCRIPTION

M1261000100381

The front axle consists of front hubs, knuckles, wheel bearings and driveshafts, and it has the following features:

- The wheel bearing is a double-row angular contact ball bearing which incorporates the oil seals and is highly resistant to a thrust load.
- The driveshaft incorporates BJ-TJ type constant velocity joints <Vehicles without center bearing>, EBJ-ETJ <Vehicles with center bearing> with high transmission efficiency and low vibration and noise.
- The dynamic dampers have been mounted on the right and left driveshafts <Vehicles without center bearing>, left driveshaft <Vehicles with center bearing> to reduce vibration.

- Due to the use of the inner shaft and bracket assembly, the right and left drive shafts are approximately the same in length. This reduces noise, vibration and torque steer. <Vehicles with center bearing>
- ABS rotors for detecting the wheel speeds are press-fitted to the BJ <Vehicles without center bearing>, EBJ <Vehicles with center bearing> in vehicles with ABS.

### NOTE:

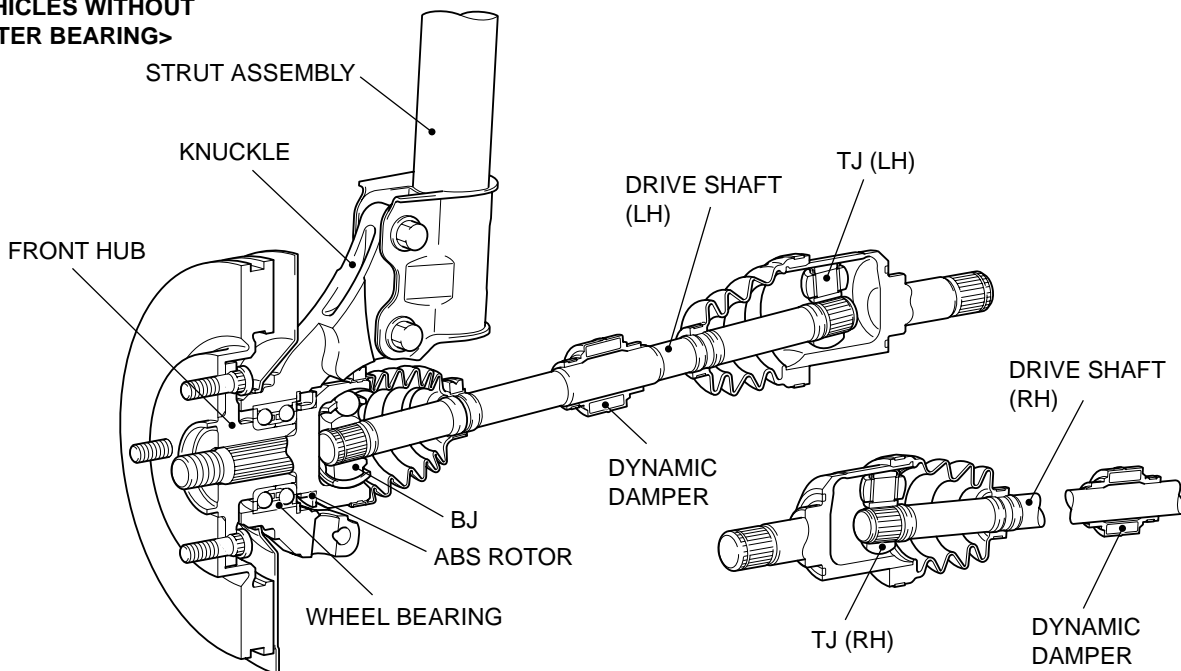
- TJ: Tripod Joint
- BJ: Birfield Joint

**NOTE: ETJ: Eco type Tripod Joint:** Constant velocity joint, which is lighter and more compact than a conventional TJ joint

**NOTE: EBJ (Eight Ball Fixed Joint):** Constant velocity joint, which is lighter and more compact than a conventional BT joint by using eight small diameter balls.

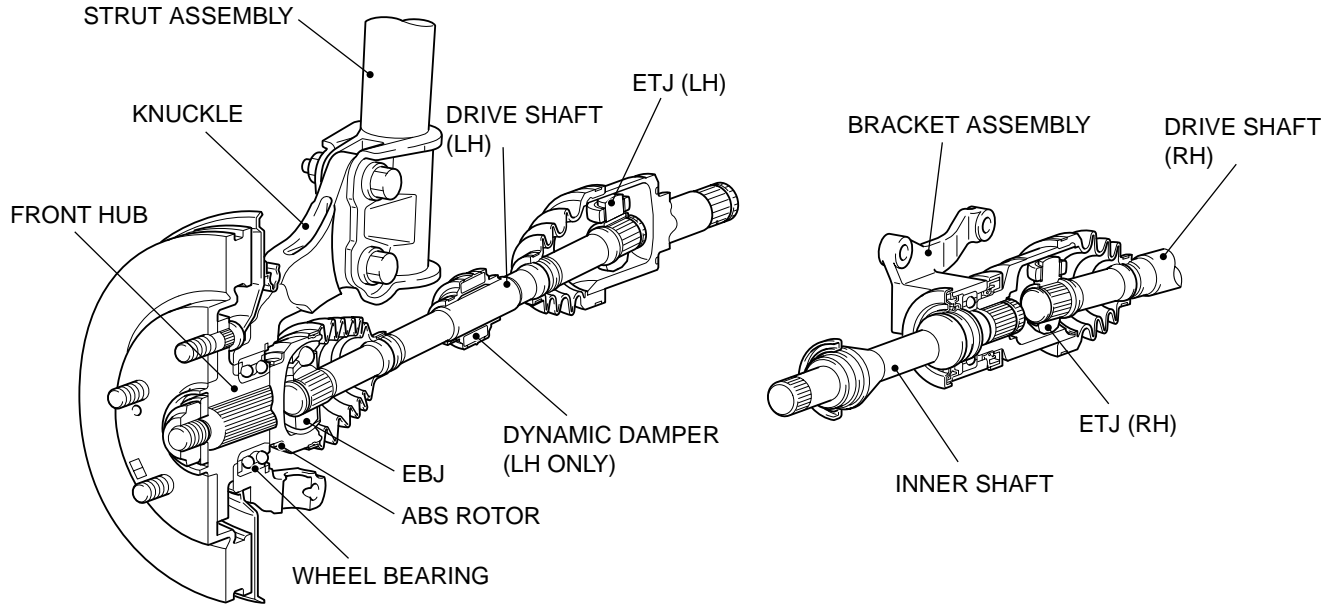
## CONSTRUCTION DIAGRAM

<VEHICLES WITHOUT  
CENTER BEARING>



AC306517AB

<VEHICLES WITH  
CENTER BEARING>



AC304405AC

## FRONT AXLE DIAGNOSIS

### TROUBLESHOOTING STRATEGY

Use these steps to plan your diagnostic strategy. If you follow them carefully, you will be sure that you have exhausted most of the possible ways to find a front axle fault.

1. Gather information from the customer.

2. Verify that the condition described by the customer exists.
3. Find the malfunction by following the Symptom Chart.
4. Verify malfunction is eliminated.

M1261005600091

### SYMPTOM CHART

M1261005700117

SYMPTOM		INSPECTION PROCEDURE	REFERENCE PAGE
Driveshaft	Noise during wheel rotation	1	P.26-4
	Noise due to excessive play of wheel in turning direction	2	P.26-4

**SYMPTOM PROCEDURES**

---

**INSPECTION PROCEDURE 1: Noise during Wheel Rotation**

---

**DIAGNOSIS**

---

**STEP 1. Check the wheel bearing end play.**  
(Refer to [P.26-8.](#))

**Q: Is the wheel bearing end play within standard value?**

**YES :** Go to step 2.

**NO :** Replace the part, then go to Step 4.

---

**STEP 2. Check the driveshaft for bending.**

**Q: Is the driveshaft bent?**

**YES :** Go to step 3.

**NO :** Replace the part. Then go to Step 4.

---

**STEP 3. Check the driveshaft assembly for wear or damage.**

**Q: Is the driveshaft assembly worn or damaged?**

**YES :** Replace the driveshaft assembly. Then go to Step 4.

**NO :** There is no action to be taken.

---

**STEP 4. Retest the system.**

**Q: Is the abnormal noise eliminated?**

**YES :** The procedure is complete.

**NO :** Repeat from Step 1.

---

**INSPECTION PROCEDURE 2: Noise Due to Excessive Play of Wheel in Turning Direction**

---

**DIAGNOSIS**

---

**STEP 1. Check for play in the driveshaft and side gear front hub serration or the driveshaft and front hub serration.**

**Q: Is the play found?**

**YES :** Adjust or replace the part. Then go to Step 2.

**NO :** The procedure is complete.

---

**STEP 2. Retest the system.**

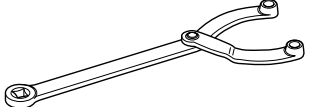
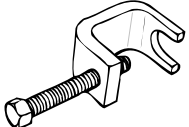
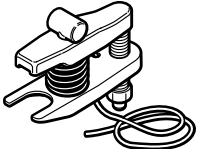
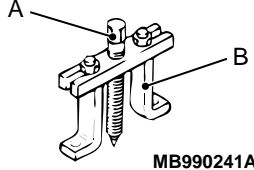

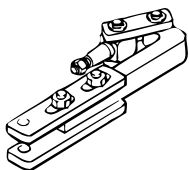

**Q: Is the abnormal noise eliminated?**

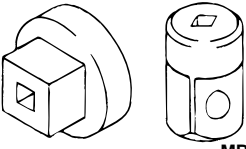
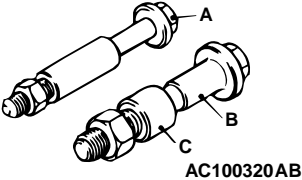

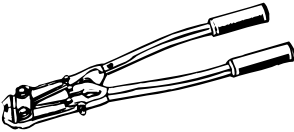
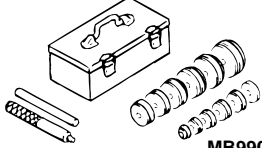

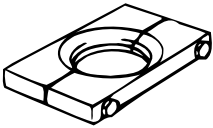
**YES :** The procedure is complete.

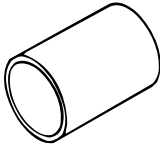
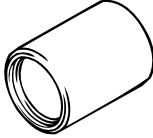
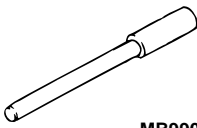
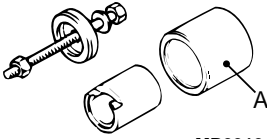
**NO :** Repeat from Step 1.

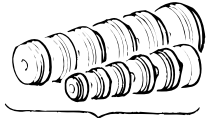
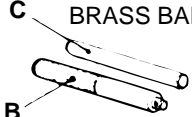

# SPECIAL TOOLS

M1261000600416

TOOL	TOOL NUMBER AND NAME	SUPERSESSION	APPLICATION
 <p>B990767</p>	MB990767 End yoke holder	MB990767-01	Fixing of the hub
 <p>MB991618</p>	MB991618 Hub bolt remover	General service tool	Removal of the hub bolt
 <p>AC106827</p>	MB991897 Ball joint remover	MB991113-01, MB990635-01 or General service tool	Knuckle and tie rod end ball joint disconnection <i>NOTE: Steering linkage puller(MB990635 or MB991113)is also used to disconnect knuckle and tie rod end ball joint.</i>
 <p>MB990241AB</p>	MB990241 Axle shaft puller A: MB990242 Puller shaft B: MB990244 Puller bar	MB990241-01 or General service tool	Removal of the driveshaft
 <p>MB991354</p>	MB991354 Puller body	General service tool	
	MB991056 or MB991355 Knuckle arm bridge	MB991056-01	<ul style="list-style-type: none"> <li>Removal of the hub</li> <li>Removal of the wheel bearing</li> </ul>
	MB990685 Torque wrench	General service tool	Measurement of wheel bearing rotation starting torque

TOOL	TOOL NUMBER AND NAME	SUPERSESION	APPLICATION
 MB990326	MB990326 Preload socket	General service tool	Measurement of wheel bearing rotation starting torque
 AC100320AB	A: MB991017 B: MB990998 C: MB991000 A, B: Front hub remover and installer C: Spacer	MB990998-01	<ul style="list-style-type: none"> <li>Provisional holding of the wheel bearing</li> <li>Measurement of wheel bearing rotation starting torque</li> <li>Measurement of wheel bearing end play MB991000, which belongs to MB990998, should be used as a spacer.</li> </ul>
	MB991460 Plug	General service tool	Prevention of transmission fluid drain and of entry of foreign objects
 MB991561	MB991561 Boot band crimping tool	MB991561	Resin boot band installation
 MB990925	MB990925 Bearing and oil seal installer set	MB990925-01 or General service tool	Removal of wheel bearing
 MB990810	MB990810 Side bearing puller	General service tool	Removal of the wheel bearing inner race (outside)
 MB991248	MB991248 or MB998801 Inner shaft remover	MD998348-01 or General service tool	Removal of the inner shaft

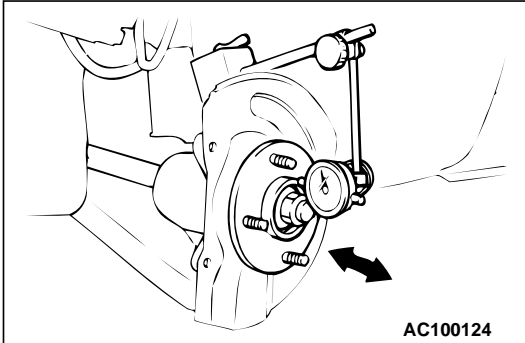
TOOL	TOOL NUMBER AND NAME	SUPERSESION	APPLICATION
	MB991172 Inner shaft installer base	–	Press-fitting of the inner shaft
 MB990890	MB990890 Rear suspension bush base	MB990890-1	<ul style="list-style-type: none"> <li>Wheel bearing installation &lt;M, SPORT, RALLIART EDITION&gt;</li> <li>Press-fitting of the dust seal outer, inner</li> </ul>
 MB990883	MB990883 Rear suspension bush arbor	MB990883-1	Wheel bearing installation <M, SPORT, RALLIART EDITION>
 MB991045AB	MB991045 Bush remover and installer A: Base (B)	–	Wheel bearing installation <LL, L>

TOOL	TYPE	TOOL NUMBER	O D mm (in)
MB990925   <b>A</b> INSTALL ADAPTER   <b>C</b> BRASS BAR <b>B</b> BAR (SNAP-IN TYPE)	A	MB990926	39.0 (1.54)
		MB990927	45.0 (1.77)
		MB990928	49.5 (1.95)
		MB990929	51.0 (2.00)
		MB990930	54.0 (2.13)
		MB990931	57.0 (2.24)
		MB990932	61.0 (2.40)
		MB990933	63.5 (2.50)
		MB990934	67.5 (2.66)
		MB990935	71.5 (2.81)
		MB990936	75.5 (2.97)
		MB990937	79.0 (3.11)
 TOOL BOX ACX02372 AB	B	MB990938	–
	C	MB990939	–

## ON-VEHICLE SERVICE

### WHEEL BEARING END PLAY CHECK

M1261000900097



1. Remove the disc brake caliper and suspend it with a wire.
2. Remove the brake disc from the front hub.
3. Attach a dial gauge as shown in the illustration, and then measure the end play while moving the hub in the axial direction.  
**Limit: 0.05 mm (0.002 inch)**
4. If end play exceeds the limit, replace the front hub assembly.

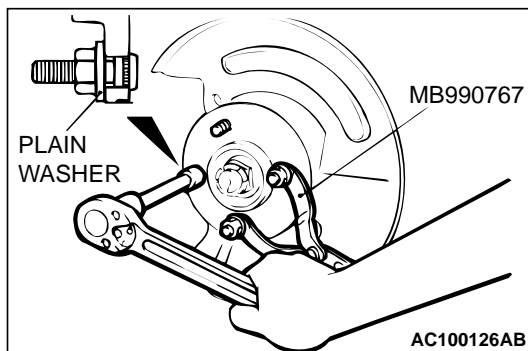
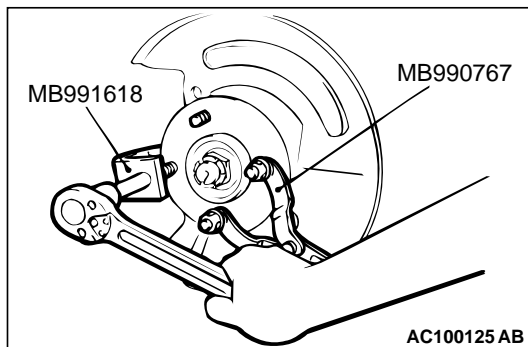
### HUB BOLT REPLACEMENT

M1261001000116

#### Required Special Tools:

- MB990767: End Yoke Holder
- MB991618: Hub Bolt Remover

1. Remove the caliper assembly and suspend it with wire so that it does not fall.
2. Remove the brake disc.
3. Use special tools MB990767 and MB991618 to remove the hub bolts.



4. Install the plain washer to the new hub bolt, and install the bolt with a nut.



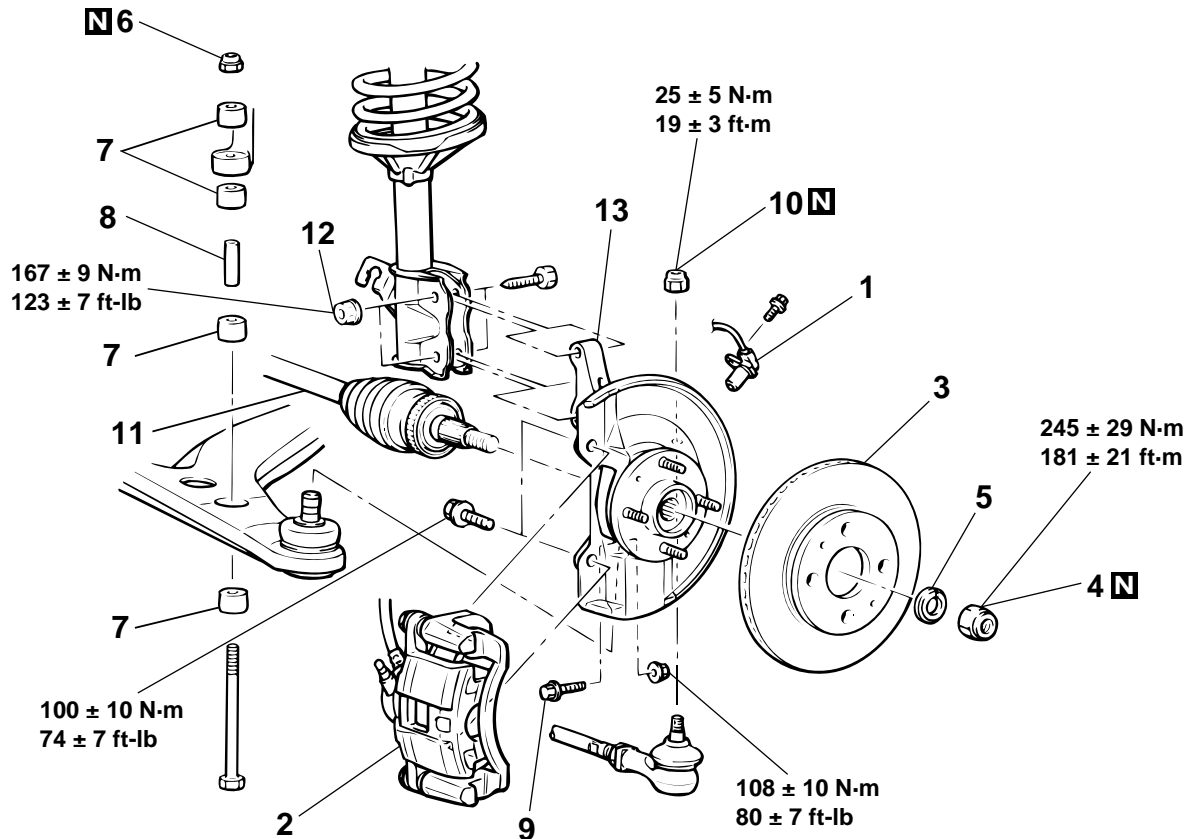
# FRONT AXLE HUB ASSEMBLY

## REMOVAL AND INSTALLATION

M1261001700405

### Post-installation Operation

Check the Dust Cover for cracks or damage by pushing it with your finger.



AC209505AD

### REMOVAL STEPS

1. FRONT ABS SENSOR <VEHICLES WITH ABS>
- <<A>> 2. CALIPER ASSEMBLY
- <<B>> 3. BRAKE DISC
- <<C>> >>B<< 4. DRIVESHAFT NUT
- >>B<< 5. WASHER
- >>A<< 6. SELF-LOCKING NUT (STABILIZER BAR CONNECTION)
- >>A<< 7. STABILIZER RUBBER

### REMOVAL STEPS (Continued)

8. COLLAR
9. LOWER ARM CONNECTING BOLT
- <<D>> 10. SELF-LOCKING NUT (TIE ROD END CONNECTION)
- <<E>> 11. DRIVESHAFT
12. NUT ( STRUT TO HUB AND KNUCKLE CONNECTION)
13. HUB AND KNUCKLE

### Required Special Tools:

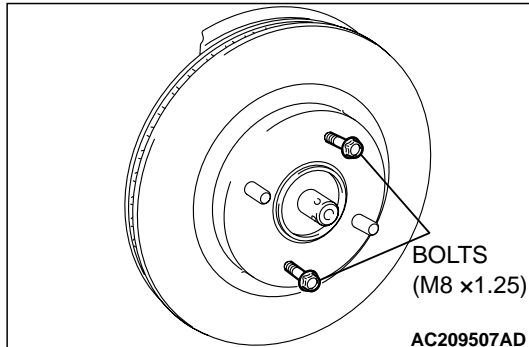
- MB990241: Axle shaft puller
- MB990242: Puller Shaft
- MB990244: Puller Bar
- MB991354: Puller Body
- MB990767: End Yoke Holder
- MB991897: Ball Joint Remover

**REMOVAL SERVICE POINTS****<<A>> CALIPER ASSEMBLY REMOVAL**

Secure the removed caliper assembly with wire, etc.

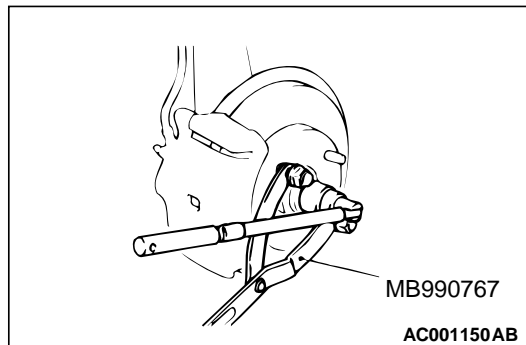
**<<B>> BRAKE DISC REMOVAL**

If the brake disc is seized, install a M8 × 1.25 bolts as shown, and remove the disc by tightening the bolts evenly and gradually.

**<<C>> DRIVESHAFT NUT REMOVAL****⚠ CAUTION**

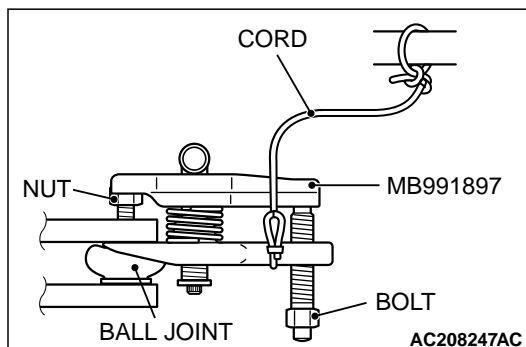
Do not apply pressure to wheel bearing by the vehicle weight to avoid possible damage when driveshaft nut is loosened.

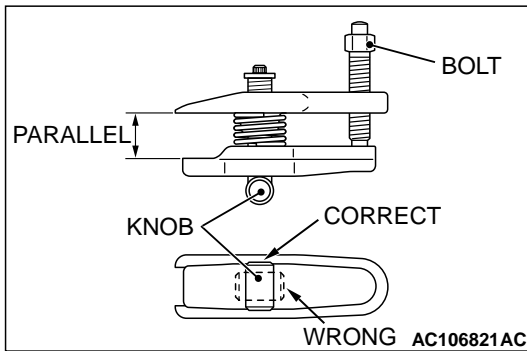
Use special tool MB990767 to fix the hub and remove the driveshaft nut.

**<<D>> SELF-LOCKING NUT (TIE ROD END CONNECTION) REMOVAL****⚠ CAUTION**

- Do not remove the nut from the ball joint. Loosen it and use the special tool to avoid possible damage to ball joint threads.
- Hang the special tool with a cord to prevent from falling.

1. Install special tool MB991897 as shown in the figure.





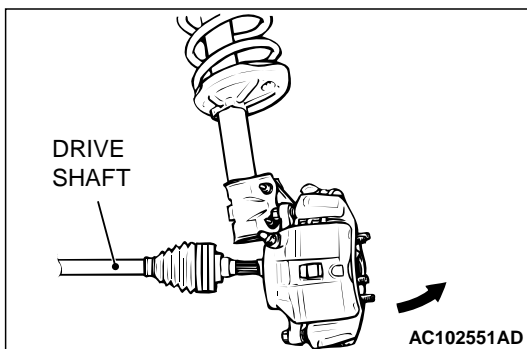
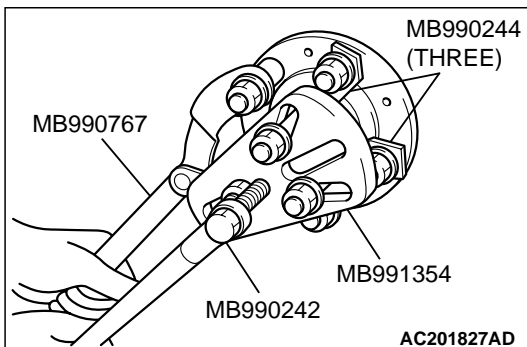
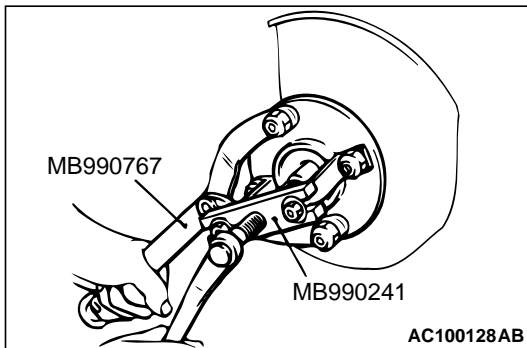
2. Turn the bolt and knob as necessary to make the jaws of special tool MB991897 parallel, tighten the bolt by hand and confirm that the jaws are still parallel.

*NOTE: When adjusting the jaws in parallel, make sure the knob is in the position shown in the figure.*

3. Tighten the bolt with a wrench to disconnect the tie rod end.

### <<E>> DRIVESHAFT REMOVAL

1. Use special tools MB990241 and MB990767 <Vehicles without center bearing>, MB990242, MB990244, MB991354 and MB990767 <Vehicles with center bearing> to push out the driveshaft from the hub and knuckle.



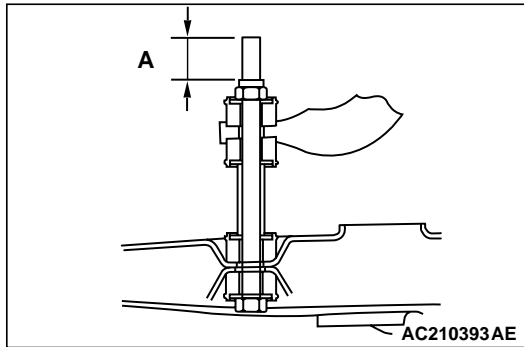
2. Withdraw the drive shaft from the hub by pulling the bottom of the hub and knuckle towards you.
3. Hang the drive shaft on the vehicle body with a rope.

## INSTALLATION SERVICE POINT

## &gt;&gt;A&lt;&lt; STABILIZER RUBBER/SELF-LOCKING NUT (STABILIZER BAR CONNECTION) INSTALLATION

Install the stabilizer rubber and collar as shown in the figure, and tighten the self-locking nut so that the protruding length of the stabilizer bar mounting bolt protruding part meets its standard value (A).

**Standard value (A):  $22 \pm 1.5$  mm ( $0.87 \pm 0.06$  inch)**



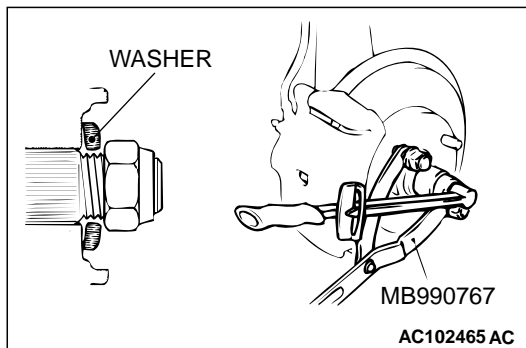
## &gt;&gt;B&lt;&lt; WASHER/DRIVESHAFT NUT INSTALLATION

**⚠ CAUTION**

**Before securely tightening the driveshaft nuts, make sure there is no load on the wheel bearings. Otherwise wheel bearing will be damaged.**

1. Be sure to install the driveshaft washer in the specified direction.
2. Using special tool MB990767, tighten the driveshaft nut to the specified torque.

**Tightening torque:  $245 \pm 29$  N·m ( $181 \pm 21$  ft·lb)**



## INSPECTION

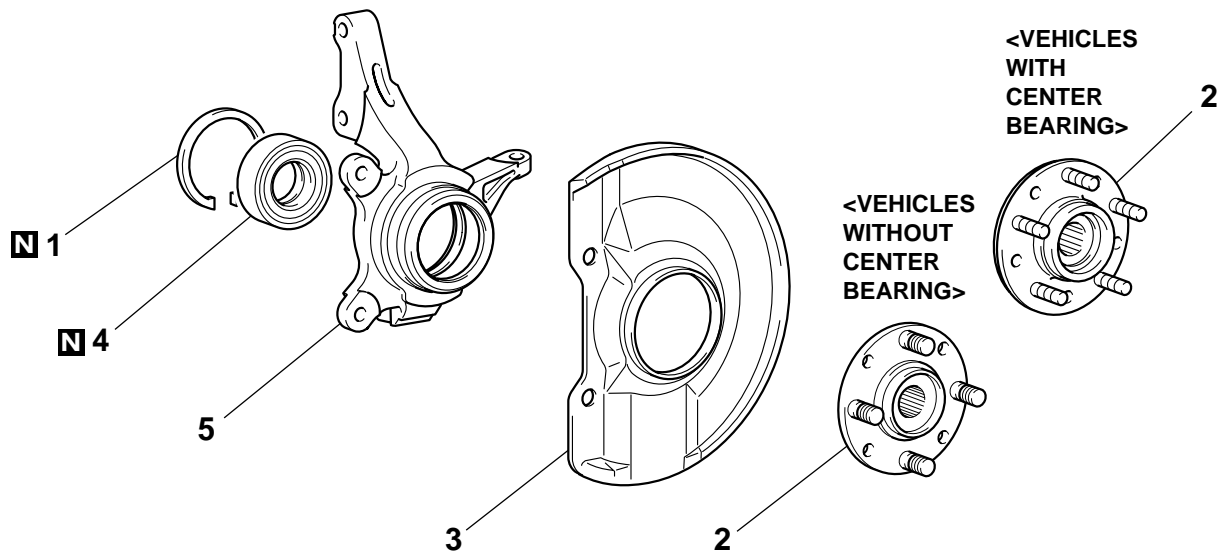
M1261001800112

- Check the hub for cracks and spline for wear.
- Check the oil seal for damage.
- Check the knuckle for cracks.
- Check for defective bearing.

*NOTE: If the meshing of the wheel bearing outer race and the knuckle, or of the wheel bearing inner race and the hub, is loose, replace the bearing or damaged parts.*

## DISASSEMBLY AND ASSEMBLY

M1261001900227



AC303659 AD

### DISASSEMBLY STEPS

<<A>>

1. SNAP RING

2. HUB

3. DUST COVER

<<B>>

4. WHEEL BEARING

5. KNUCKLE

### ASSEMBLY STEPS

>>A<<

5. KNUCKLE

4. WHEEL BEARING

1. SNAP RING

3. DUST COVER

2. HUB

>>B<<

• HUB STARTING TORQUE CHECK

>>C<<

• HUB END PLAY CHECK

### Required Special Tools:

- MB990326: Preload Socket
- MB990685: Torque Wrench
- MB990810: Side bearing puller
- MB990933: Installer Adapter
- MB990935: Installer Adapter
- MB990938: Bar

- MB991000: Spacer
- MB991017: Front Hub Remover and Installer
- MB990883: Rear Suspension Bushing Arbor
- MB990890: Rear Suspension Bushing Base
- MB991050: Base (B)
- MB991056 or MB991355: Knuckle arm bridge

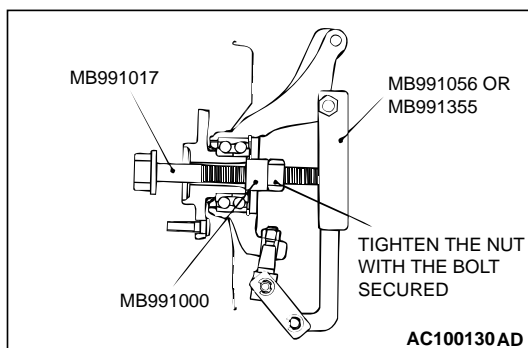
## DISASSEMBLY SERVICE POINTS

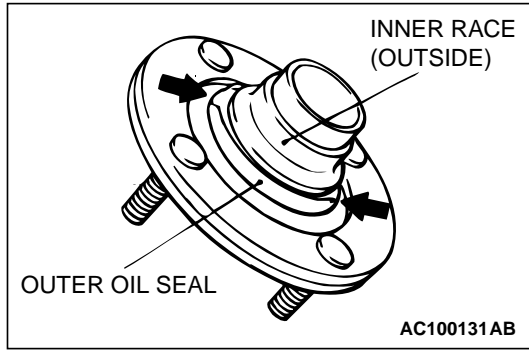
### <<A>> HUB REMOVAL

#### ⚠ CAUTION

When the hub has been removed, always replace the wheel bearing with a new part because wheel bearing frictional surface will be damaged when removing the hub.

Use special tools MB991017, MB991056 or MB991355, MB991000 to pull out the hub from the knuckle.

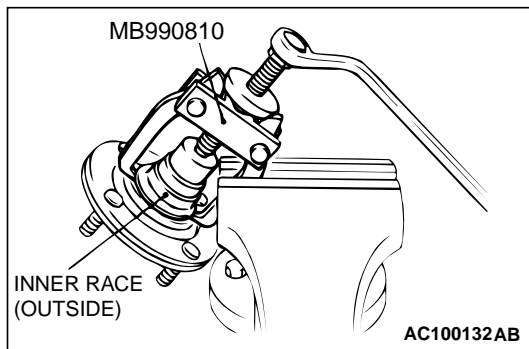


**<<B>> WHEEL BEARING REMOVAL**

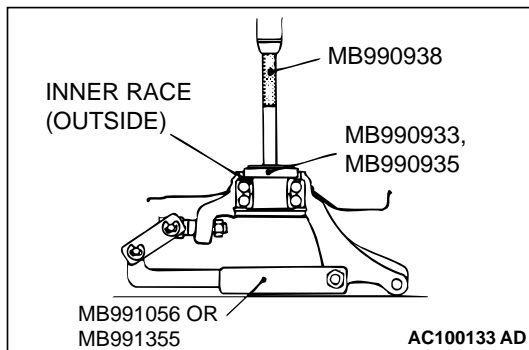
1. Crush the oil seal in two places so that the tabs of the special tool will be caught on the wheel bearing inner race (outside).

**⚠ CAUTION**

**When removing the inner race (outside) from the hub, be careful not to let the hub drop.**



2. Remove the wheel bearing inner race (outside) from the front hub by using special tool MB990810.



3. Install the inner race (outside) that was removed from the hub to the wheel bearing, and then use special tools **MB990933** <Vehicles without center bearing: LL, L>, **MB990935** <Vehicles without center bearing: M, SPORT, Vehicles with center bearing>, **MB990938**, **MB991056** or **MB991355** to remove the wheel bearing.

## REASSEMBLY SERVICE POINTS

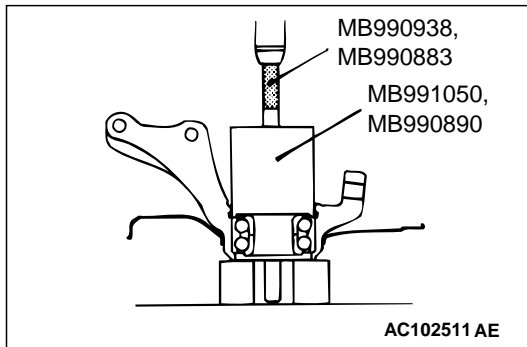
### >>A<< WHEEL BEARING INSTALLATION

1. Fill the wheel bearing with multipurpose grease.
2. Apply a thin coating of multipurpose grease to the knuckle and bearing contact surfaces.

#### CAUTION

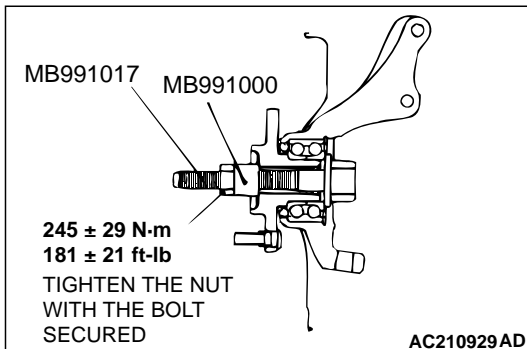
**Press the outer race when pressing-in the wheel bearing. Otherwise the wheel bearing will be damaged.**

3. Press-in the bearing by using special tools MB990938, MB991050 <Vehicles without center bearing: LL, L>, MB990883, MB990890 <Vehicles without center bearing: M, SPORT, Vehicles with center bearing>.



### >>B<< HUB STARTING TORQUE CHECK

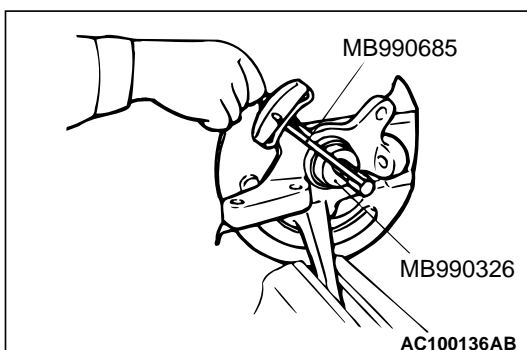
1. Tighten special tools MB991000 (MB990998) and MB991017 to the specified torque, and then press the hub into the knuckle.
2. Rotate the hub in order to seat the bearing.

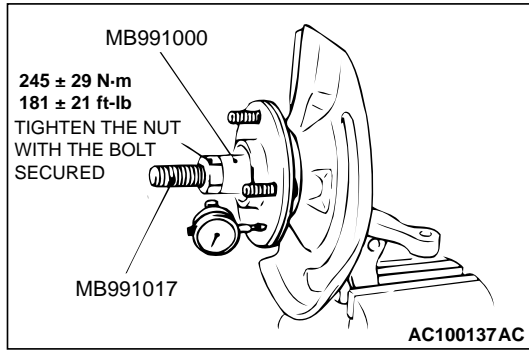


3. Measure the hub starting torque by using the special tools MB990326 and MB990685.

**Limit: 1.8 N·m (16 in-lb)**

4. The starting torque must be within the limit and, in addition, the hub rotation must be smooth.



**>>C<< HUB END PLAY CHECK**

1. Measure to determine whether the end play of the hub is within the specified limit or not.

**Limit: 0.05 mm (0.002 inch)**

2. If the starting torque and hub end play are not within the limit range while the nut is tightened to  $245 \pm 29 \text{ N}\cdot\text{m}$  ( $181 \pm 21 \text{ ft}\cdot\text{lb}$ ), the bearing, hub and/or knuckle have probably not been installed correctly. Replace the bearing and re-install.

**INSPECTION**

M1261002000023

- Check the front hub and brake disc mounting surfaces for galling and contamination.
- Check the knuckle inner surface for galling and cracks.
- Check for defective bearing.



# DRIVE SHAFT ASSEMBLY

## REMOVAL AND INSTALLATION

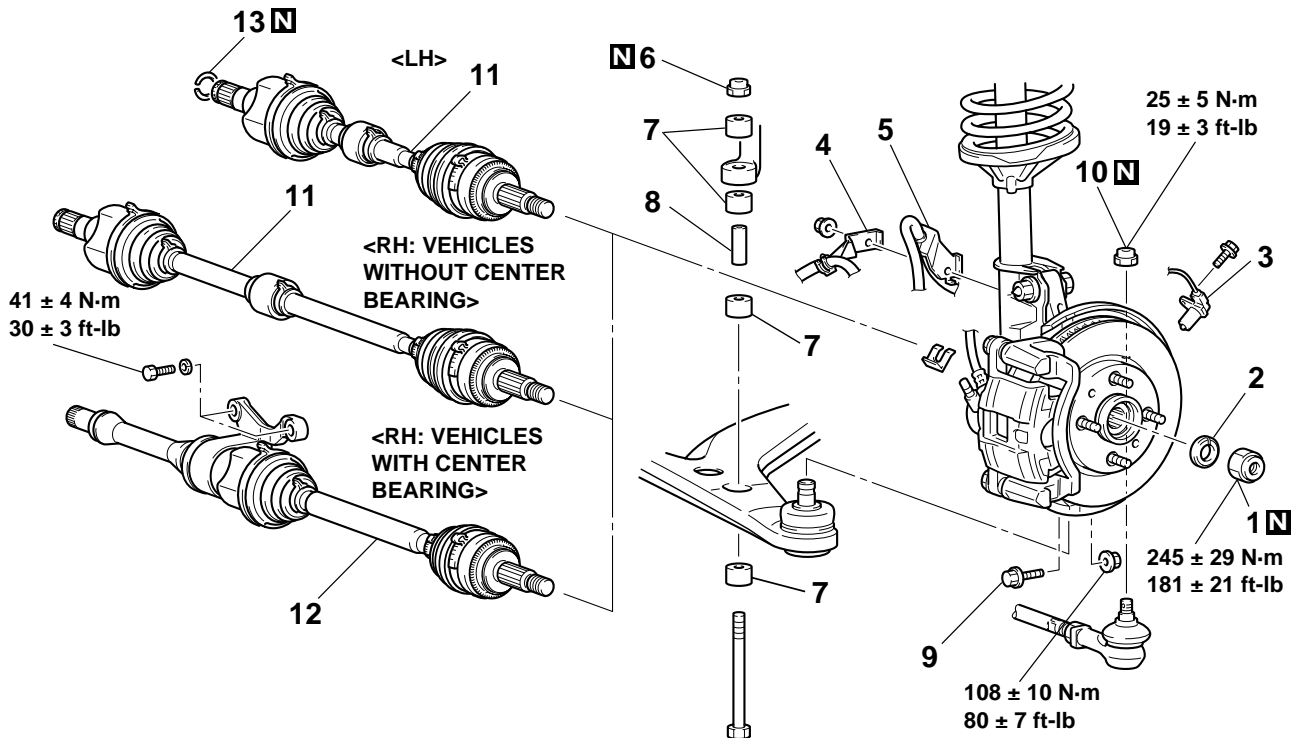
M1261003500452

### CAUTION

- For vehicles with ABS, do not strike the ABS rotors installed to the BJ outer race of driveshaft against other parts when removing or installing the drive shaft. Otherwise the ABS rotors will be damaged.
- For vehicles with ABS, be careful not to strike the pole piece at the tip of the front ABS sensor with tools during servicing work.

### Post-installation Operation

- Check the Dust Cover for cracks or damage by pushing it with your finger.



<<A>>		REMOVAL STEPS	
>>C<<	1.	DRIVESHAFT NUT	<<B>>
	2.	WASHER	
>>B<<	3.	FRONT ABS SENSOR	
	4.	FRONT ABS SENSOR BRACKET	
>>B<<	5.	BRAKE HOSE BRACKET	<<C>> >>A<<
	6.	SELF-LOCKING NUT (STABILIZER BAR CONNECTION)	
>>B<<	7.	STABILIZER RUBBER	<<C>> >>A<<

### REMOVAL STEPS (Continued)

- COLLAR
- LOWER ARM CONNECTING BOLT
- SELF-LOCKING NUT (TIE ROD END CONNECTION)
- DRIVESHAFT
- DRIVESHAFT AND INNER SHAFT ASSEMBLY
- CIRCLIP

### Required Special Tools:

- MB990241: Axle Shaft Puller
- MB990242: Puller Shaft
- MB990244: Puller Bar
- MB991354: Puller Body
- MB990767: End Yoke Holder
- MB991460: Plug
- MB991017: Front Hub Remover and Installer
- MB991000: Spacer
- MB991897: Ball Joint Remover

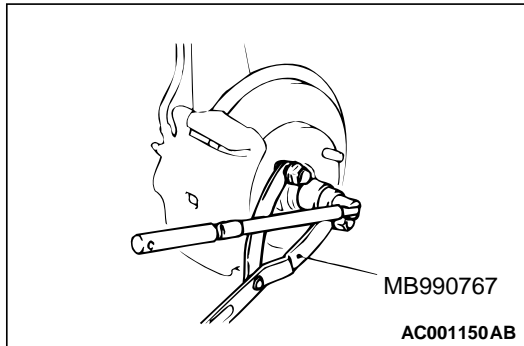
## REMOVAL SERVICE POINTS

## &lt;&lt;A&gt;&gt; DRIVESHAFT NUT REMOVAL

**⚠ CAUTION**

Do not apply pressure to the wheel bearing by the vehicle weight to avoid possible damage when the driveshaft nut is loosened.

Use special tool MB990767 to fix the hub and remove the driveshaft nut.

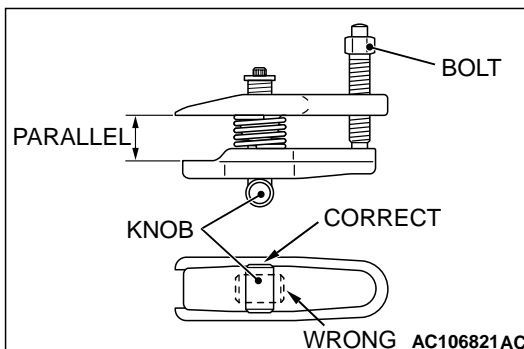
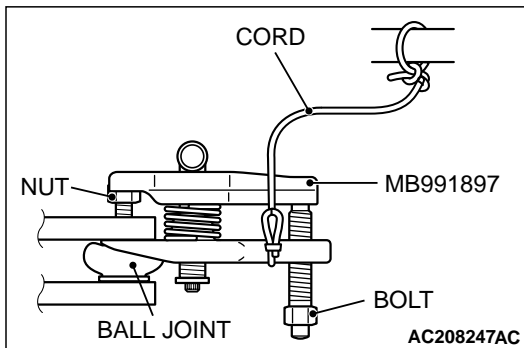


## &lt;&lt;B&gt;&gt; SELF-LOCKING NUT (TIE ROD END CONNECTION) REMOVAL

**⚠ CAUTION**

- Do not remove the nut from the ball joint. Loosen it and use the special tool to avoid possible damage to the ball joint threads.
- Hang the special tool with code to prevent them from falling.

1. Install special tool MB991897 as shown in the figure.



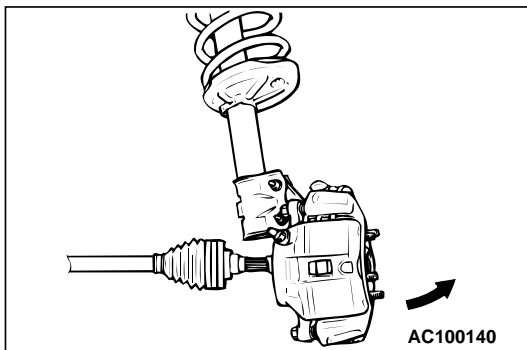
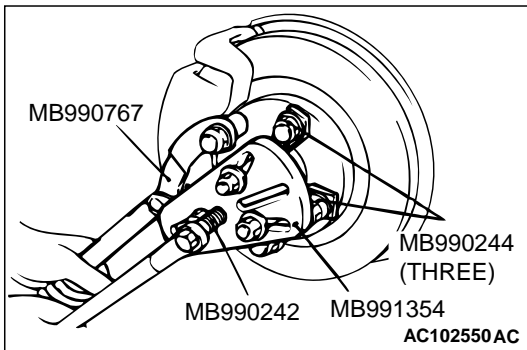
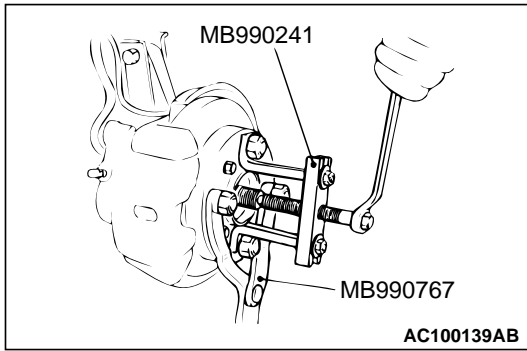
2. Turn the bolt and knob to adjust the insert arms of special tool in parallel, tighten the bolt by hand and confirm that the insert arms are parallel.

*NOTE: When adjusting the insert arms in parallel, turn the knob in the direction shown in the figure.*

3. Tighten the bolt with a wrench to disconnect the ball joint.

<<C>> DRIVESHAFT/DRIVESHAFT AND INNER SHAFT  
ASSEMBLY REMOVAL

1. Use special tools MB990241 and MB990767 <Vehicles without center bearing>, MB990242, MB990244, MB991354 and MB990767 <Vehicles with center bearing> to push out the driveshaft from the hub and knuckle.

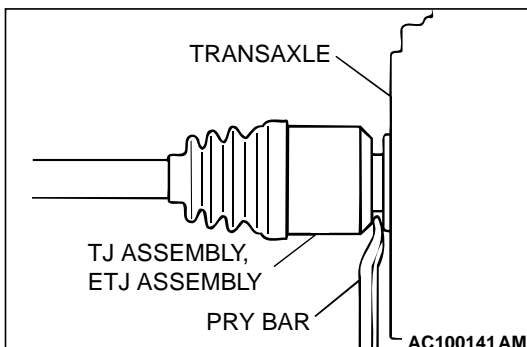


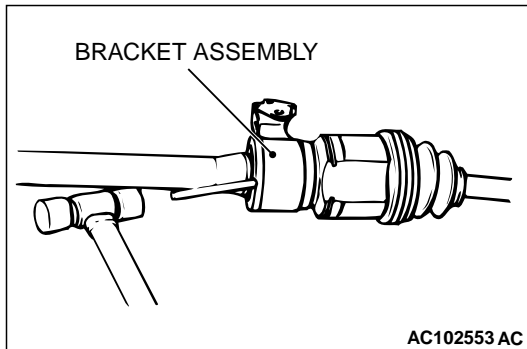
2. Remove the driveshaft from the hub by pulling the bottom of the brake disc towards you, and then remove the hub retaining bolts.

**⚠ CAUTION**

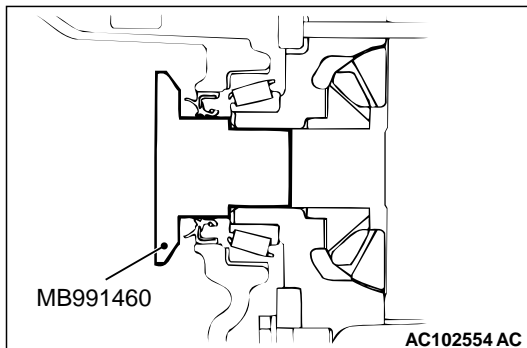
- Do not pull on the driveshaft; doing so will damage the TJ, ETJ; be sure to use the pry bar.
- When pulling the driveshaft out from the transaxle, be careful that the spline part of the driveshaft does not damage the oil seal.

3. Remove the driveshaft from the transaxle by the following procedure. Insert a pry bar between the transaxle case and the driveshaft, and then pry the driveshaft from the transaxle.

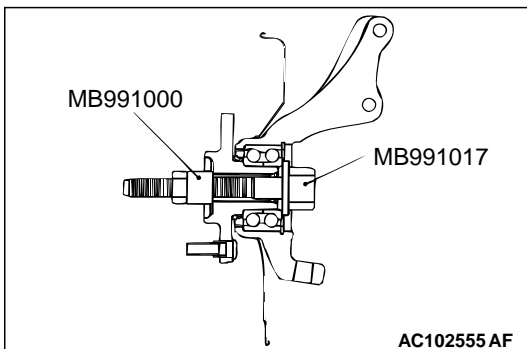




4. If the inner shaft is hard to remove from the transaxle, strike the bracket assembly lightly with a plastic hammer and remove the inner shaft.



5. Use special tool MB991460 to prevent the entry of foreign material into the transaxle case.

**⚠ CAUTION**

Do not apply pressure to the wheel bearing by the vehicle weight to avoid possible damage when the drive shaft is removed. If, however, vehicle weight must be applied to the bearing in moving the vehicle, temporarily secure the wheel bearing by using special tools MB991017 and MB991000.

## INSTALLATION SERVICE POINTS

### >>A<< DRIVESHAFT INSTALLATION

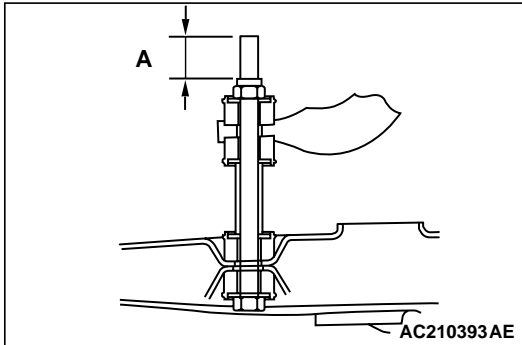
#### CAUTION

Do not damage the oil seal of the transaxle by the driveshaft spline.

### >>B<< STABILIZER RUBBER/SELF-LOCKING NUT (STABILIZER BAR CONNECTION) INSTALLATION

Install the stabilizer rubber and collar as shown in the figure, and tighten the self-locking nut so that the protruding length of the stabilizer bar mounting bolt protruding part meets its standard value (A).

**Standard value:  $22 \pm 1.5$  mm ( $0.87 \pm 0.06$  inch)**



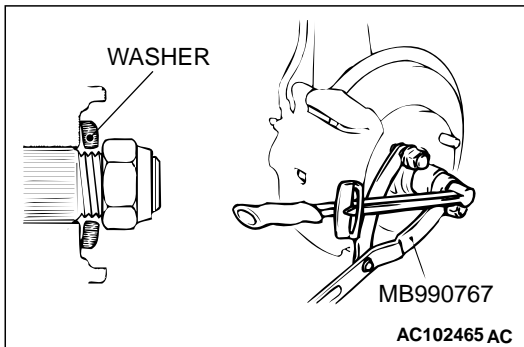
### >>C<< WASHER/DRIVESHAFT NUT INSTALLATION

1. Be sure to install the driveshaft washer in the specified direction.

#### CAUTION

Before securely tightening the driveshaft nuts, make sure there is no load on the wheel bearings. Otherwise the wheel bearing will be damaged.

2. Using special tool MB990767, tighten the driveshaft nut.



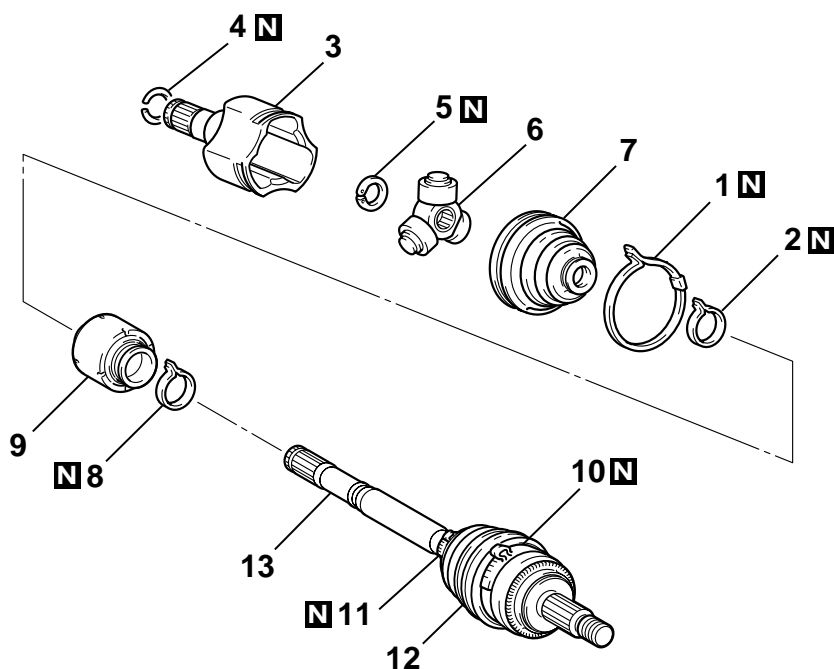
## DISASSEMBLY AND ASSEMBLY

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## &lt;VEHICLES WITHOUT CENTER BEARING&gt;

**CAUTION**

- For vehicles with ABS, be careful not to damage the ABS rotor, which is attached to the BJ outer race during disassembly and reassembly.
- Never disassemble the BJ assembly except when replacing the BJ boot.



<p>GREASE FOR BJ    GREASE FOR TJ</p>		
BJ BOOT REPAIR KIT	TJ REPAIR KIT	TJ BOOT REPAIR KIT

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**DISASSEMBLY STEPS**

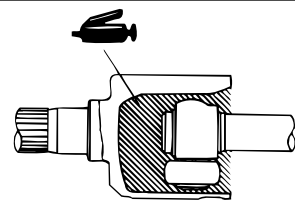
- >>C<< 1. TJ BOOT BAND (LARGE)  
 >>C<< 2. TJ BOOT BAND (SMALL)  
 <<A>> >>B<< 3. TJ CASE  
 4. CIRCLIP  
 5. SNAP RING  
 <<A>> >>B<< 6. SPIDER ASSEMBLY  
 <<B>> >>A<< 7. TJ BOOT  
 >>A<< 8. DAMPER BAND

**DISASSEMBLY STEPS**

- >>A<< 9. DYNAMIC DAMPER  
 10. BJ BOOT BAND (LARGE)  
 11. BJ BOOT BAND (SMALL)  
 12. BJ BOOT  
 13. BJ ASSEMBLY

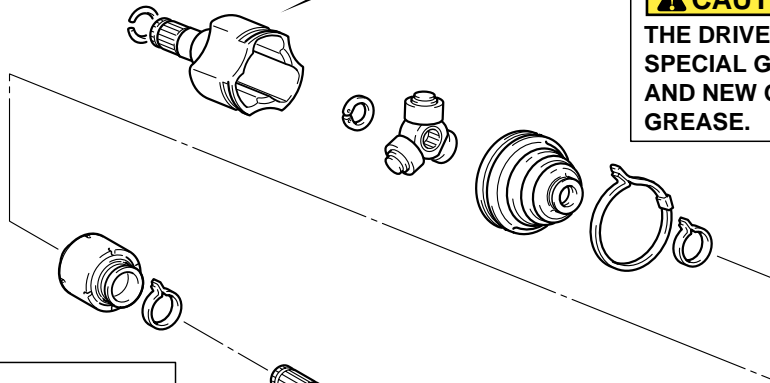
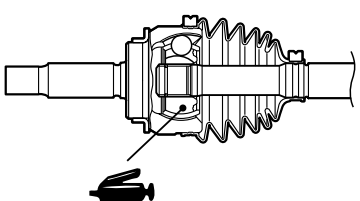
NOTE: BJ: Birfield Joint, TJ: Tripod Joint

## LUBRICATION POINTS



**GREASE: REPAIR KIT GREASE**  
**AMOUNT USED: <LL, L> LH: 145 – 10 g (5.1 – 0.3 oz), RH: 130 – 10 g (4.6 – 0.3 oz), <M, SPORT> 120 – 10 g (4.2 – 0.3 oz)**

**⚠ CAUTION**  
 THE DRIVE SHAFT JOINT USES SPECIAL GREASE. DO NOT MIX OLD AND NEW OR DIFFERENT TYPES OF GREASE.

**GREASE: REPAIR KIT GREASE**  
**AMOUNT USED: 95 – 10 g (3.4 – 0.3 oz)**

**⚠ CAUTION**  
 THE DRIVE SHAFT JOINT USES SPECIAL GREASE. DO NOT MIX OLD AND NEW OR DIFFERENT TYPES OF GREASE.

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**DISASSEMBLY SERVICE POINTS****<<A>> TJ CASE/SPIDER ASSEMBLY REMOVAL****⚠ CAUTION**

**Do not disassemble the spider assembly.**

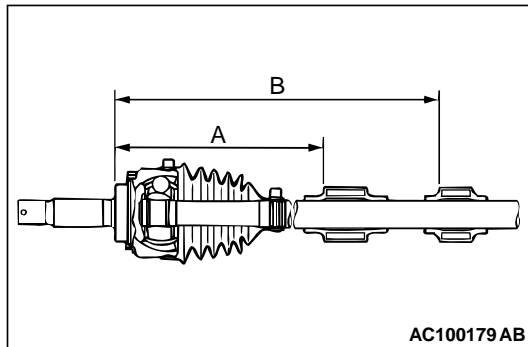
1. Wipe off grease from the spider assembly and the inside of the TJ case.
2. Clean the spider assembly if water or foreign material is observed.

**<<B>> TJ BOOT REMOVAL**

1. Wipe off grease from the shaft spline.
2. When reusing the TJ boot, wrap plastic tape around the shaft spline to avoid damaging the boot.

**REASSEMBLY SERVICE POINTS****>>A<< DYNAMIC DAMPER/DAMPER BAND/TJ BOOT INSTALLATION**

1. Install the dynamic damper in the position shown in the illustration.

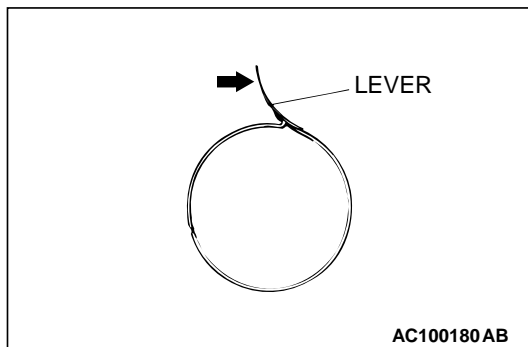


ITEM	A (LH SIDE) mm (inch)	B (RH SIDE) mm (inch)
LL, L	223 ± 3 (8.8 ± 0.12)	428 ± 3 (16.9 ± 0.12)
M, SPORT	230 ± 3 (9.1 ± 0.12)	415 ± 3 (16.3 ± 0.12)

**⚠ CAUTION**

- There should be no grease adhered to the rubber part of the dynamic damper.
- Be careful not to confuse the damper band with the TJ boot band (small). Locate the identification numbers stamped on the band levers.

ITEM	IDENTIFICATION NO.
Damper band	8382
TJ boot band	E687



2. Secure the damper bands.
3. Wrap plastic tape around the shaft spline, and then install the TJ boot band (small) and TJ boot.



>>B<< SPIDER ASSEMBLY/TJ CASE INSTALLATION

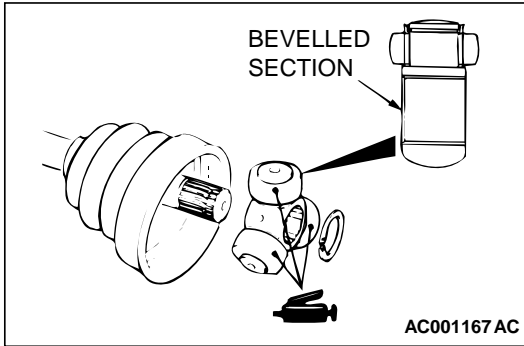
**CAUTION**

- The driveshaft joint use special grease. Do not mix old and new or different types of grease.
- If the spider assembly has been cleaned, take special care to apply the specified grease.

1. Apply the specified grease furnished in the repair kit to the spider assembly between the spider axle and the roller.

**Specified grease: Repair kit grease**

2. Install the spider assembly to the shaft from the direction of the spline bevelled section.



**CAUTION**

The driveshaft joint use special grease. Do not mix old and new or different types of grease.

3. After applying the specified grease to the T.J. case, insert the driveshaft and apply grease again.

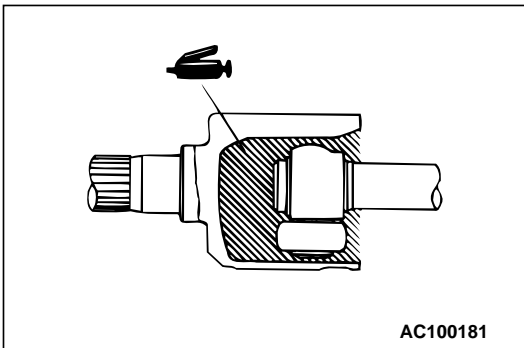
**Specified grease: Repair kit grease**

**Amount to use:**

<LL, L> LH:  $145 \pm 10$  g ( $5.1 \pm 0.3$  oz), RH:  $130 \pm 10$  g ( $4.6 \pm 0.3$  oz)

<M, SPORT>  $120 \pm 10$  g ( $4.2 \pm 0.3$  oz)

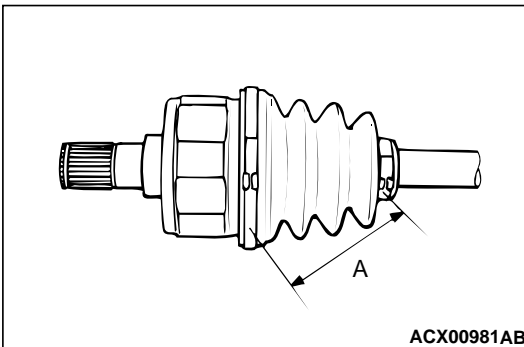
*NOTE: The grease in the repair kit should be divided in half for use, respectively, at the joint and inside the boot.*



>>C<< TJ BOOT BAND (SMALL)/TJ BOOT BAND (LARGE) INSTALLATION

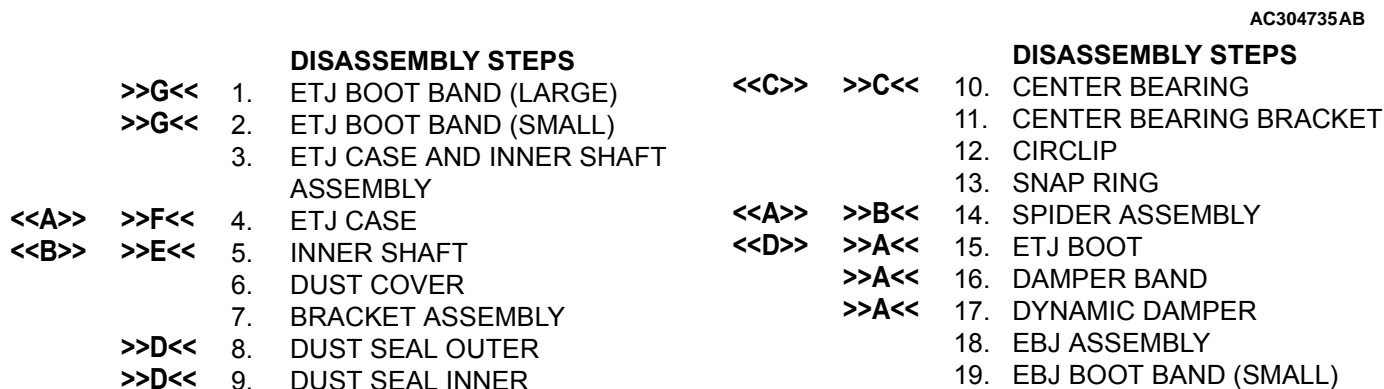
Set the T.J. boot bands at the specified distance in order to adjust the amount of air inside the T.J. boot, and then tighten the T.J. boot bands securely.

**Standard value (A):  $85 \pm 3$  mm ( $3.3 \pm 0.12$  in)**



**⚠ CAUTION**

- For vehicles with ABS, be careful not to damage the ABS rotor, which is attached to the EBJ outer race during disassembly and reassembly.
- Never disassemble the EBJ assembly except when replacing the EBJ boot.



**DISASSEMBLY STEPS**

20. EBJ BOOT BAND (LARGE)
21. EBJ BOOT

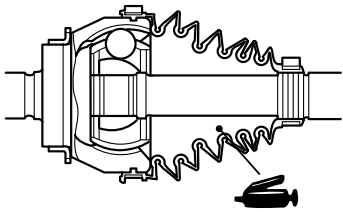
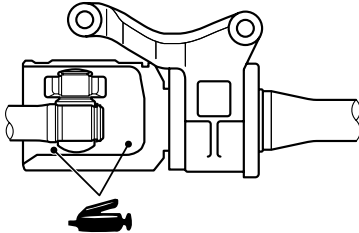
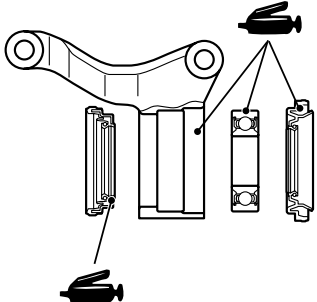
**NOTE:**

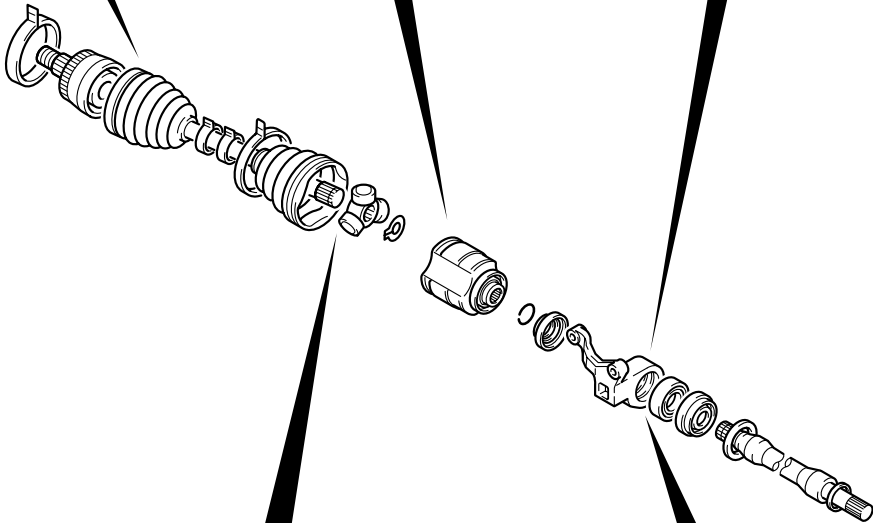
- *ETJ: Eco type Tripod Joint*
- *EBJ: Eight Ball fixed Joint*

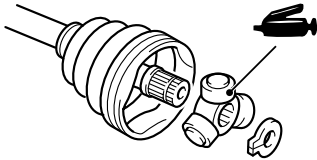
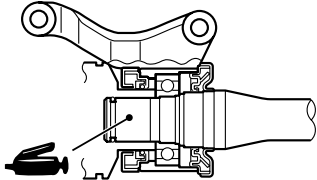
**Required Special Tools:**

- MB991248 or MD998801: Inner Shaft Remover
- MB990810: Side Bearing Puller
- MB990930: Installer Adapter
- MB990932: Installer Adapter
- MB990934: Installer Adapter
- MB990938: Bar (snap-in type)
- MB990890: Rear Suspension Bushing Base
- MB991172: Inner Shaft Installer Base
- MB991561: Boot Band Crimping Tool

LUBRICATION POINTS

		
<p>GREASE: REPAIR KIT GREASE AMOUNT USED: 100 ± 10 g (3.5 ± 0.3 oz)</p>	<p>GREASE: REPAIR KIT GREASE AMOUNT USED: &lt;LH&gt; 130 ± 10 g (4.6 ± 0.3 oz), &lt;RH&gt; 120 ± 10 g (4.2 ± 0.3 oz)</p>	<p>GREASE: REPAIR KIT GREASE AMOUNT USED: DUST SEAL INNER: 14 - 20 g (0.5 - 0.7 oz) DUST SEAL OUTER: 8 - 12 g (0.3 - 0.4 oz)</p>
<p><b>⚠ CAUTION</b> THE DRIVE SHAFT JOINT USES SPECIAL GREASE. DO NOT MIX OLD AND NEW OR DIFFERENT TYPES OF GREASE.</p>	<p><b>⚠ CAUTION</b> THE DRIVE SHAFT JOINT USES SPECIAL GREASE. DO NOT MIX OLD AND NEW OR DIFFERENT TYPES OF GREASE.</p>	



 <p>GREASE: REPAIR KIT GREASE</p>	 <p>GREASE: REPAIR KIT GREASE</p>
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## DISASSEMBLY SERVICE POINTS

### <<A>> ETJ CASE/SPIDER ASSEMBLY REMOVAL

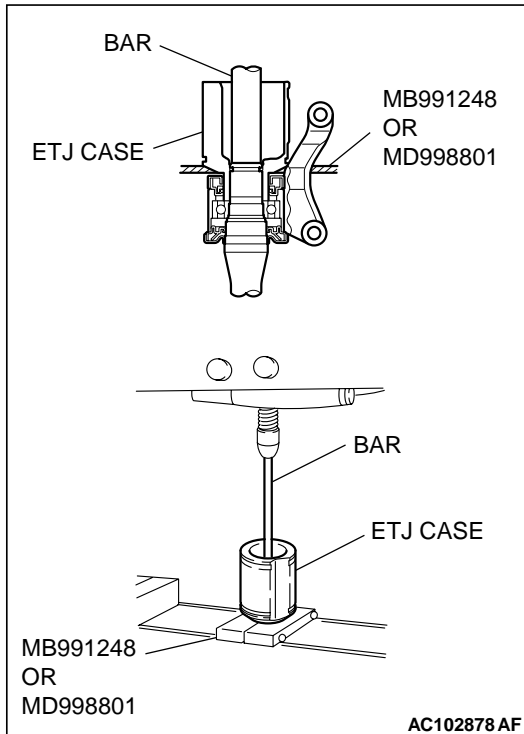


**Do not disassemble the spider assembly.**

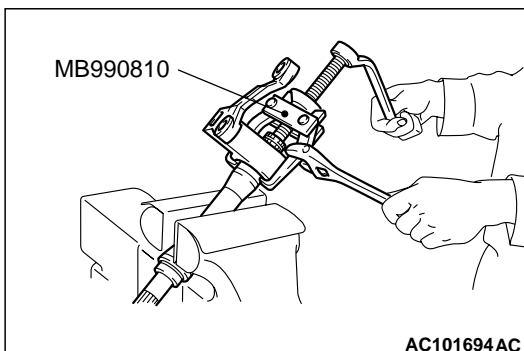
1. Wipe off grease from the spider assembly and the inside of the ETJ case.
2. Clean the spider assembly if water or foreign material is observed.

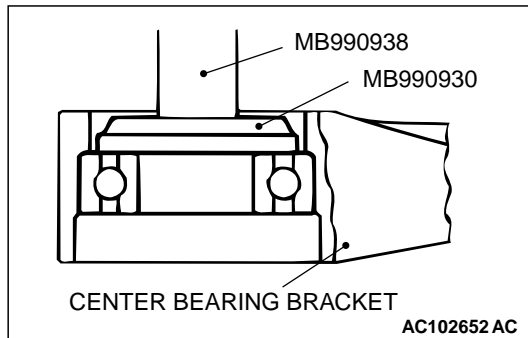
### <<B>> INNER SHAFT REMOVAL

1. Use special tool MB991248 or MD998801 to remove the inner shaft assembly from the ETJ case.



2. Use special tool MB990810 to remove the center bearing bracket from the inner shaft.



**<<C>>CENTER BEARING REMOVAL**

Use special tools MB990938 and MB990930 to remove the center bearing from the center bearing bracket.

**<<D>> ETJ BOOT REMOVAL**

1. Wipe off grease from the shaft spline.
2. When reusing the ETJ boot, wrap plastic tape around the shaft spline to avoid damaging the boot.

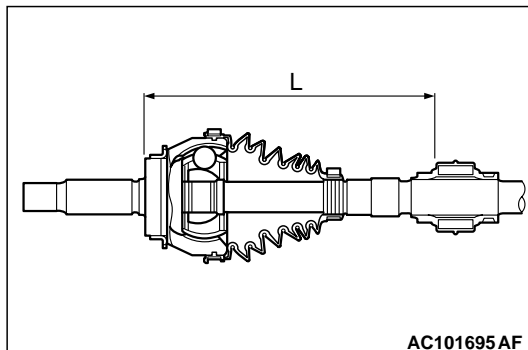
**ASSEMBLY SERVICE POINTS****>>A<< DYNAMIC DAMPER/DAMPER BAND/ETJ BOOT INSTALLATION****⚠ CAUTION**

There should be no grease adhered to the rubber part of the dynamic damper.

1. Install the dynamic damper in the position (L) shown in the illustration.

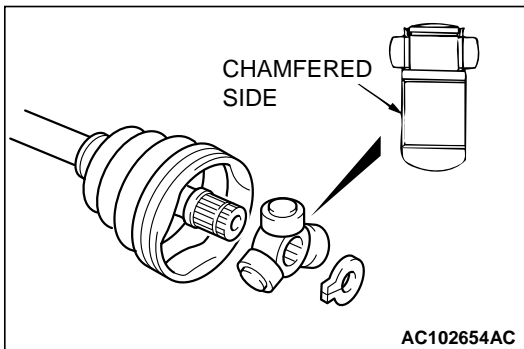
**L: 230 ± 3 mm (9.1 ± 0.12 inches)**

2. Secure the damper bands.
3. Wrap plastic tape around the shaft spline, and then install the ETJ boot band (small) and ETJ boot.

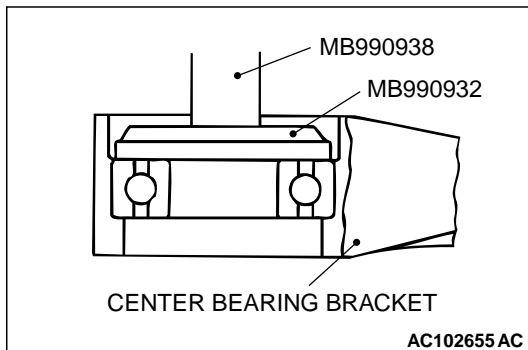
**>>B<< SPIDER ASSEMBLY INSTALLATION****⚠ CAUTION**

- The drive shaft joint use special grease. Do not mix old and new or different types of grease.
  - If the spider assembly has been cleaned, take special care to apply the specified grease.
1. Apply the specified grease furnished in the repair kit to the spider assembly between the spider axle and the roller.

**Specified grease: Repair kit grease**



2. Install the spider assembly to the shaft from the direction of the spline chamfered side.



### >>C<<CENTER BEARING INSTALLATION

Use special tools MB990938 and MB990932 to press-fit the center bearing into the center bearing bracket.

### >>D<<DUST SEAL INNER/DUST SEAL OUTER INSTALLATION

#### CAUTION

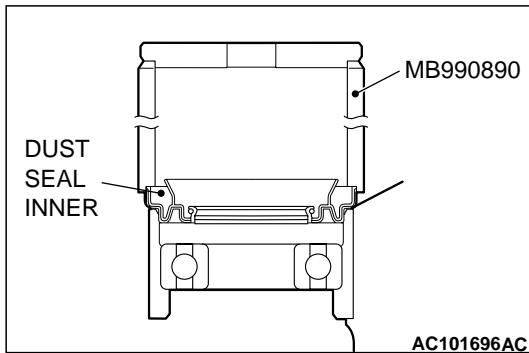
When applying grease, make sure that it does not adhere to anything outside the lip.

1. Apply the specified grease to the rear surface of all dust seals.

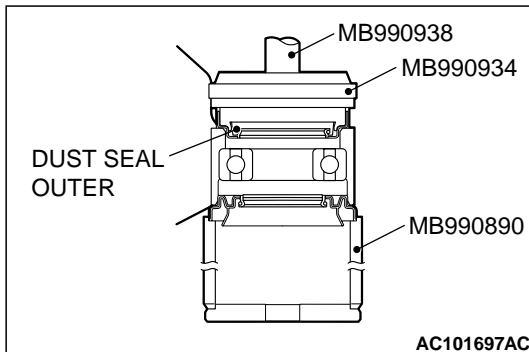
**Specified grease: Repair kit grease**

**Amount used (Dust seal inner): 14 – 20 g (0.5 – 0.7 ounce)**

**Amount used (Dust seal outer): 8 – 12 g (0.3 – 0.4 ounce)**

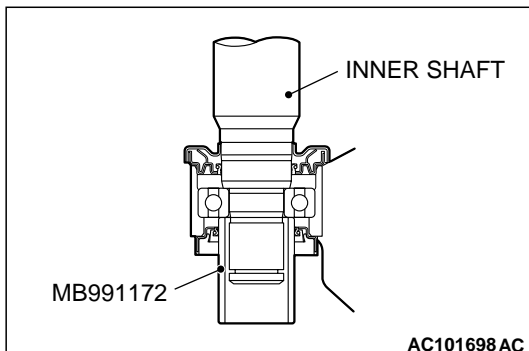


2. Use special tools MB990890, MB990938, and MB990934 to press the dust seals into the center bearing bracket until they are flush with each other.
3. Apply repair kit grease to the lip of each dust seal.



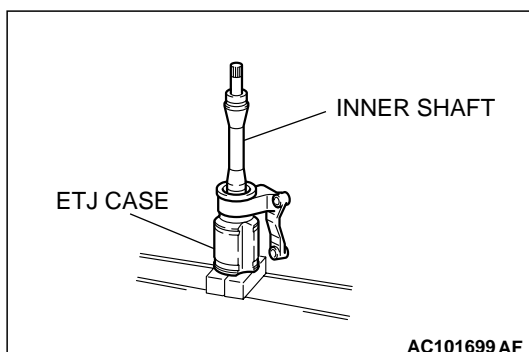
## >>E<<INNER SHAFT INSTALLATION

1. Use special tool MB991172 to hold the center bearing inner race, and then press-in the inner shaft.



2. Apply repair kit grease to the inner shaft spline, then press fit it into the ETJ case.

*NOTE: When press-fitting the inner shaft into the ETJ case, apply a thin coat of repair kit grease to the dust seal outer lip part and the outside edge of the ETJ axial part.*





## >>F<<ETJ CASE INSTALLATION

### CAUTION

The drive shaft joint use special grease. Do not mix old and new or different types of grease.

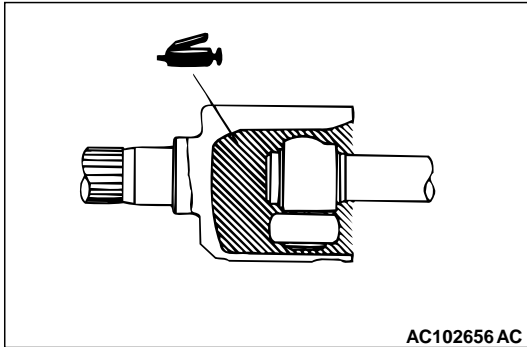
After applying the specified grease to the ETJ case, insert the drive shaft and apply grease again.

**Specified grease: Repair kit grease**

**Amount to use <LH>:  $130 \pm 10$  g ( $4.6 \pm 0.3$  ounces)**

**Amount to use <RH>:  $120 \pm 10$  g ( $4.2 \pm 0.3$  ounces)**

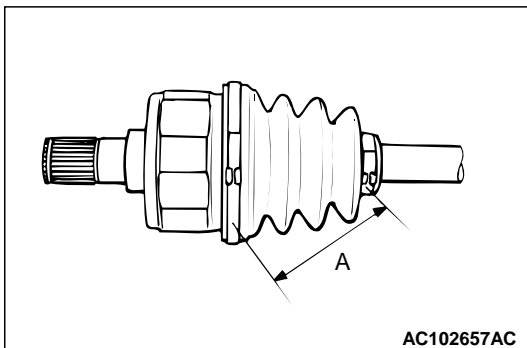
*NOTE: The grease in the repair kit should be divided in half for use, respectively, at the joint and inside the boot.*



## >>G<< ETJ BOOT BAND (SMALL)/ETJ BOOT BAND (LARGE) INSTALLATION

Set the ETJ boot bands at the specified distance in order to adjust the amount of air inside the ETJ boot, and then tighten the ETJ boot band (small), ETJ boot band (large) securely.

**Standard value (A):  $80 \pm 3$  mm ( $3.15 \pm 0.12$  inches)**



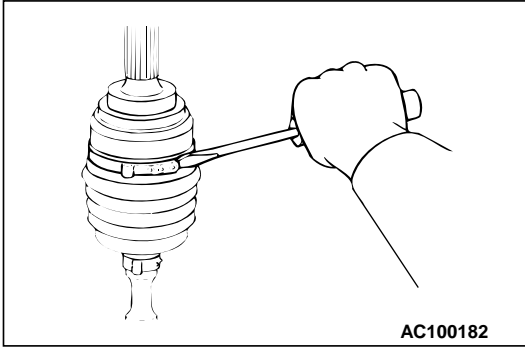
## INSPECTION

M1261003800185

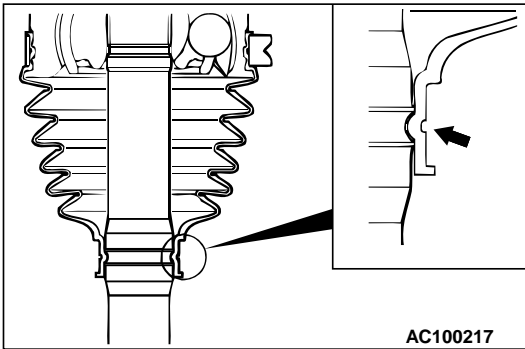
- Check the driveshaft for damage, bending or corrosion.
- Check the driveshaft spline part for wear or damage.
- Check the spider assembly for roller rotation, wear or corrosion.
- Check the groove inside TJ case or ETJ case for wear or corrosion.
- Check the dynamic damper for damage or cracking.
- Check the boots for deterioration, damage or cracking.
- Check the dust cover for damage or deterioration.

**BJ/EBJ BOOT (RESIN BOOT) REPLACEMENT**

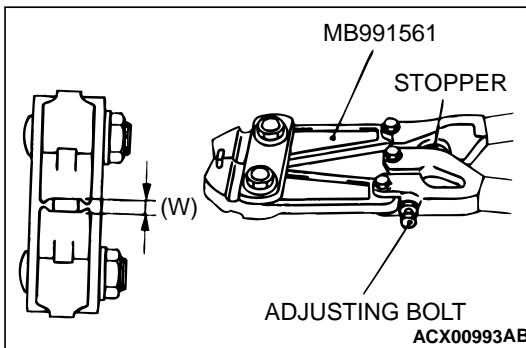
M1261005200402



1. Remove the boot bands (large and small).
- NOTE: The boot bands cannot be re-used.*
2. Remove the BJ/EBJ boot.
3. Wrap a plastic tape around the shaft spline, and assemble the boot band and resin boot.



4. Align the center groove on the BJ/EBJ boot small end with the shaft groove.



5. Turn the adjusting bolt on special tool MB991561 so that the size of the opening (W) is at the standard value.

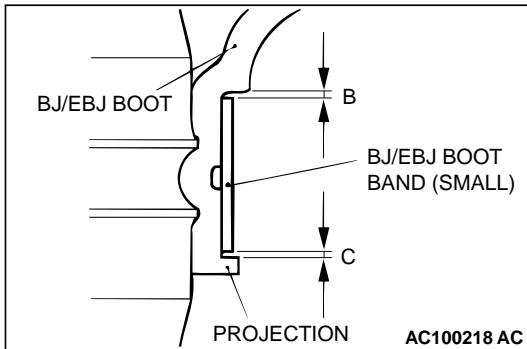
**Standard value (W): 2.9 mm (0.11 inch)**

**<If it is larger than 2.9 mm (0.11 inch)> Tighten the adjusting bolt.**

**<If it is smaller than 2.9 mm (0.11 inch)> Loosen the adjusting bolt.**

*NOTE: The value of W will change by approximately 0.7 mm for each turn of the adjusting bolt.*

*NOTE: The adjusting bolt should not be turned more than once.*

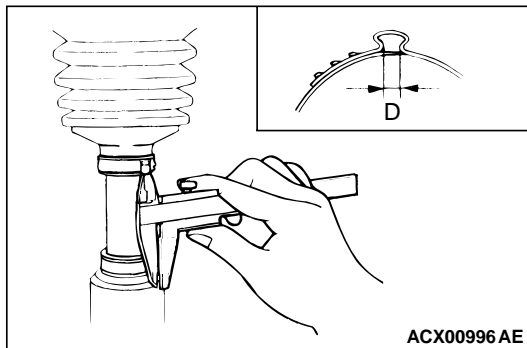
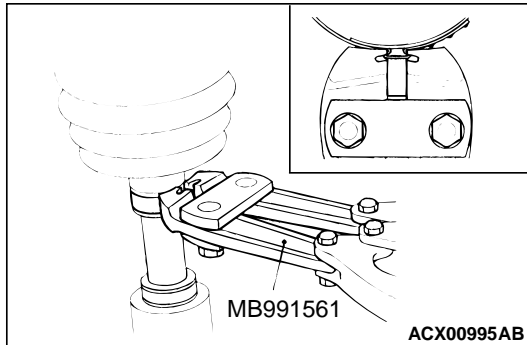


6. Position the BJ/EBJ boot band (small) so that there are even clearance at either end (B and C).

**⚠ CAUTION**

- Secure the driveshaft in an upright position and clamp part of the boot band to be crimped securely in the jaws of the special tool MB991561.
- Crimp the boot band until the special tool MB991561 touches the stopper.

7. Use the special MB991561 tool to crimp the boot band (small).



8. Check that the crimping amount (D) of the boot band is at the standard value.

**Standard value (D): 2.4 – 2.8 mm (0.10 – 0.11 inch)**

**<If the crimping amount is larger than 2.8 mm (0.11 inch)>**

Readjust the value of (W) in step 5 according to the following formula, and then repeat the operation in step 7.

$$W = 5.5 \text{ mm (0.22 inch)} - D$$

Example: If D = 2.9 mm (0.11 inch), then W = 2.6 mm (0.10 inch).

**<If the crimping amount is smaller than 2.4 mm (0.10 inch)>**

Remove the BJ/EBJ boot band, readjust the value of (W) in step 5 according to the following formula, and then repeat the operations in steps 6 and 7 using a new BJ/EBJ boot band.

$$W = 5.5 \text{ mm (0.22 inch)} - D$$

Example: If D = 2.3 mm (0.09 inch), then W = 3.2 mm (0.13 inch).

9. Check that the boot band is not sticking out past the place where it has been installed. If the boot band is sticking out, remove it and then repeat the operations in steps 6 to 8 using a new boot band.

**⚠ CAUTION**

The driveshaft joint uses special grease. Do not mix old and new or different types of grease.

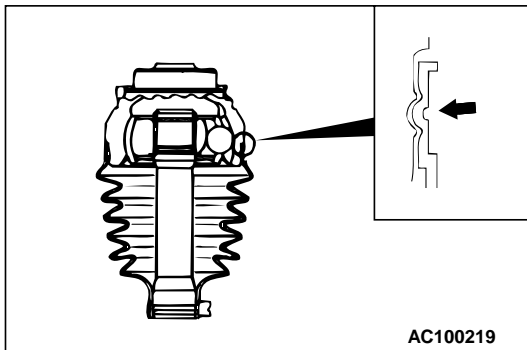
10. Fill the inside of the boot with the specified amount of the specified grease.

**Specified grease: Repair kit grease**

**Amount to use (BJ):  $95 \pm 10$  g ( $3.4 \pm 0.3$  oz)**

**Amount to use (EBJ):  $100 \pm 10$  g ( $3.5 \pm 0.3$  oz)**

11. Align the center groove on the BJ/EBJ boot big end with the shaft groove.

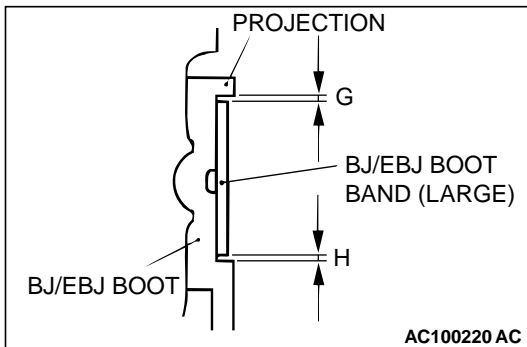


AC100219

12. Follow the same procedure as in step 5 to adjust the size of the opening (W) on the special tool so that it is at the standard value.

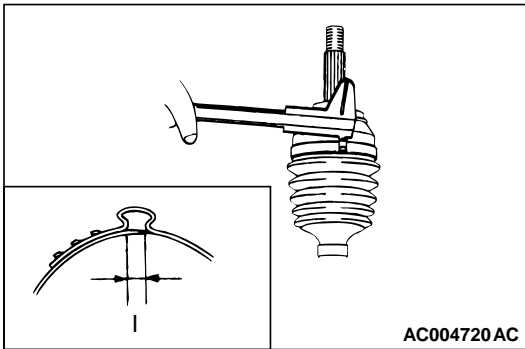
**Standard value (W): 3.2 mm (0.13 inch)**

13. Position the BJ/EBJ boot band (large) so that there are even clearance at either end (G and H).



AC100220 AC

14. Use the special tool MB991561 to crimp the B.J. boot band (large) in the same way as in step 7.



15. Check that the crimping amount (I) of the boot band is at the standard value.

**Standard value (I): 2.4 – 2.8 mm (0.10 – 0.11 inch)**

**<If the crimping amount is larger than 2.8 mm (0.11 inch)>**

**Readjust the value of (W) in step 12 according to the following formula, and then repeat the operation in step 14.**

**$W = 5.5 \text{ mm (0.22 inch)} - I$**

**Example: If  $I = 2.9 \text{ mm (0.11 inch)}$ , then  $W = 2.6 \text{ mm (0.10 inch)}$ .**

**<If the crimping amount is smaller than 2.4 mm (0.10 inch)>**

**Remove the BJ/EBJ boot band, readjust the value of (W) in step 12 according to the following formula, and then repeat the operations in steps 13 and 14 using a new BJ/EBJ boot band.**

**$W = 5.5 \text{ mm (0.22 inch)} - I$**

**Example: If  $I = 2.3 \text{ mm (0.09 inch)}$ , then  $W = 3.2 \text{ mm (0.13 inch)}$ .**

16. Check that the boot band is not sticking out past the place where it has been installed. If the boot band is sticking out, remove it and then repeat the operations in steps 13 to 15 using a new boot band.

## SPECIFICATIONS

## FASTENER TIGHTENING SPECIFICATIONS

M1261005400310

ITEM	SPECIFICATION
Caliper assembly bolt	100 ± 10 N·m (74 ± 7 ft-lb)
Center bearing bracket bolt	41 ± 4 N·m (30 ± 3 ft-lb)
Driveshaft nut	245 ± 29 N·m (181 ± 21 ft-lb)
Front strut nut	167 ± 9 N·m (123 ± 7 ft-lb)
Lower arm ball joint nut	108 ± 10 N·m (80 ± 7 ft-lb)
Tie rod end nut	25 ± 5 N·m (19 ± 3 ft-lb)

## GENERAL SPECIFICATIONS

M1261000200322

ITEM				SPECIFICATION
Front axle hub bearing		Type		Double row angular contact bearing
Driveshaft	Joint type	Vehicles without center bearing	Outer	Birfield joint
			Inner	Tripod joint
		Vehicles with center bearing	Outer	Eight ball fixed joint
			Inner	Eco type tripod joint

## SERVICE SPECIFICATIONS

M1261000300437

ITEM		STANDARD VALUE	LIMIT
Wheel bearing end play mm (in)		—	0.05 (0.002)
Wheel bearing rotation starting torque N·m (in-lb)		—	1.8 (16)
Protruding length of stabilizer bar mounting bolt mm (in)		22 ± 1.5 (0.87 ± 0.06)	—
Setting of TJ boot length mm (in)		85 ± 3 (3.3 ± 0.12)	—
Setting of ETJ boot length mm (in)		80 ± 3 (3.15 ± 0.12)	—
Opening dimension of the special tool (MB991561) mm (in)	When the BJ/EBJ boot band (small) is crimped	2.9 (0.11)	—
	When the BJ/EBJ boot band (large) is crimped	3.2 (0.13)	—
Crimped width of the BJ/EBJ boot band mm (in)		2.4 – 2.8 (0.10 – 0.11)	—

## LUBRICANTS

M1261000400434

ITEM		SPECIFIED LUBRICANT		QUANTITY
TJ boot grease	LL, L	Repair kit grease	LH	145 ± 10 g (5.1 ± 0.3 oz)
			RH	130 ± 10 g (4.6 ± 0.3 oz)
	M, SPORT	Repair kit grease		120 ± 10 g (4.2 ± 0.3 oz)
BJ boot grease		Repair kit grease		95 ± 10 g (3.4 ± 0.3 oz)
ETJ boot grease		Repair kit grease	LH	130 ± 10 g (4.6 ± 0.3 oz)
			RH	120 ± 10 g (4.2 ± 0.3 oz)
EBJ boot grease		Repair kit grease		100 ± 10 g (3.5 ± 0.3 oz)