

## SUSPENSION - FRONT (FWD)

1994 Mitsubishi 3000GT

1994 SUSPENSION

Chrysler Corp./Mitsubishi Front - FWD

Dodge; Stealth

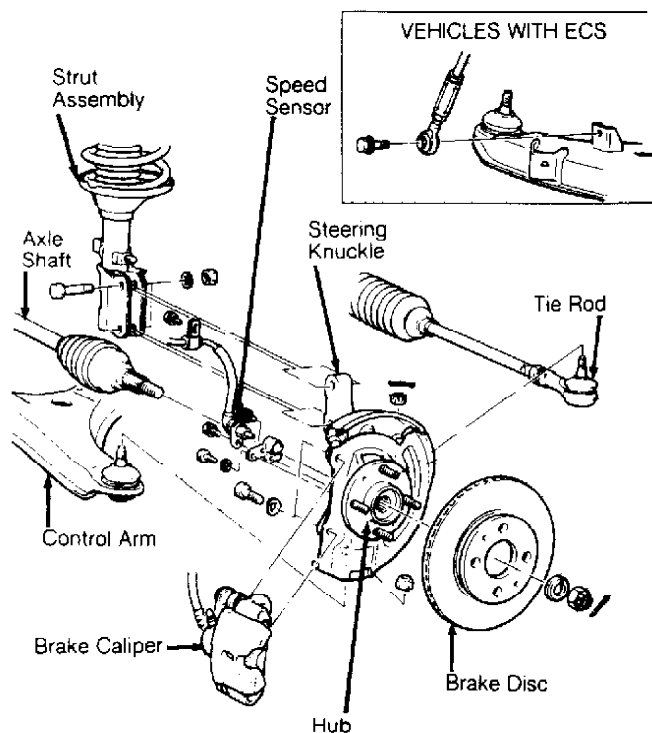
Mitsubishi; Diamante, 3000GT

### DESCRIPTION

Front suspension consists of a MacPherson hydraulic strut assembly, steering knuckle, control arm, ball joint and stabilizer bar. See Fig. 1.

On Diamante, Stealth and 3000GT models equipped with Electronically Controlled Suspension (ECS), hydraulic struts are electronically controlled. For testing and diagnosis information on electronically controlled suspension, see appropriate ELECTRONIC article in SUSPENSION section below.

- \* SUSPENSION - ELECTRONIC (for Diamante)
- \* SUSPENSION - ELECTRONIC (for Stealth and 3000GT)



93C00325

Fig. 1: Exploded View Of Front Suspension (All Models)  
Courtesy of Mitsubishi Motor Sales of America

### ADJUSTMENTS & INSPECTION

## WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES

NOTE: See WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in WHEEL ALIGNMENT section.

### WHEEL BEARING

#### Axial Play Inspection

1) Wheel bearings are not adjustable. To inspect bearings, raise and support vehicle. Remove wheel assembly. Remove brake caliper. Remove brake disc from hub (if necessary).  
2) Attach dial indicator at right angle to hub. Move hub in and out, and measure axial play. Check bearings or hub assembly if movement exceeds specification. See WHEEL BEARING AXIAL PLAY SPECIFICATIONS table.

WHEEL BEARING AXIAL PLAY SPECIFICATIONS TABLE

Application	In. (mm)
Diamante, Stealth & 3000GT .....	.002 (.05)

### BALL JOINT CHECKING

#### Upper Control Arm Ball Joint

1) Raise and support vehicle. Remove wheel. Loosen ball joint nut. Using Steering Linkage Puller (MB991113-01), separate ball joint from steering knuckle. Install nut on ball joint stud. Move stud from side-to-side. Replace ball joint if side play is present.

2) Using INCH-lb. torque wrench, rotate ball joint and note starting torque. Replace ball joint if roughness is felt when rotating ball joint or if starting torque exceeds specification. See BALL JOINT STARTING TORQUE SPECIFICATIONS table.

#### Lower Control Arm Ball Joint, Compression Arm Ball Joint & Stabilizer Link Ball Joint

1) Raise and support vehicle. Remove wheel. Disconnect stabilizer bar from control arm (if needed). Loosen ball joint nut. Using Steering Linkage Puller (MB991113-01), separate ball joint from steering knuckle. Install nut on ball joint stud. Move stud from side-to-side. Replace ball joint if side play is present.

2) Using INCH-lb. torque wrench, rotate ball joint and note starting torque. Replace ball joint if roughness is felt when rotating ball joint or if starting torque exceeds specification. See BALL JOINT STARTING TORQUE SPECIFICATIONS table.

BALL JOINT STARTING TORQUE SPECIFICATIONS TABLE

Application	INCH Lbs. (N.m)
Control Arm Ball Joint	
Diamante .....	87-190 (10-21.5)
Stealth & 3000GT .....	86-191 (9.7-21.6)
Stabilizer Link Ball Joint .....	15-28 (1.7-3.2)

## REMOVAL & INSTALLATION

### COMPRESSION ARM & BALL JOINT

#### Removal

Raise and support vehicle. Remove wheel(s). Loosen ball joint nut. Using Steering Linkage Puller (MB991113-01), separate ball joint from steering knuckle. Remove compression arm bushing mounting bolts. Remove control arm.

#### Inspection

1) Check ball joint dust cover for damage. Check control arm for bending and cracks. Check ball joints. See BALL JOINT CHECKING under ADJUSTMENTS & INSPECTION. Replace ball joint if defective.

2) Inspect compression arm bushing for cracks and deterioration. Replace arm if bushing if damaged. If ball joint dust cover replacement is necessary, remove dust cover from ball joint. Apply grease to lip and inside of dust cover. Install dust cover using Dust Cover Installer (MB990800). See DUST COVER INSTALLER APPLICATION table. Ensure dust cover is fully seated.

### LOWER CONTROL ARM & BALL JOINT

#### Removal

1) Raise and support vehicle. Remove wheel(s). Disconnect stabilizer bar from control arm (if necessary). Loosen ball joint nut. Using Steering Linkage Puller (MB991113-01), separate ball joint from steering knuckle.

2) Remove control arm bushing or clamp (if equipped). Loosen control arm mounting nuts. Remove control arm.

#### Inspection

1) Check ball joint dust cover for damage. Check control arm for bending and cracks. Check ball joints. See BALL JOINT CHECKING under ADJUSTMENTS & INSPECTION. Replace ball joint if defective.

2) Inspect control arm bushings for cracks and deterioration. Replace bushings if damaged. See LOWER CONTROL ARM BUSHINGS under REMOVAL & INSTALLATION.

3) If ball joint dust cover replacement is necessary, remove dust cover from ball joint. Apply grease to lip and inside of dust cover. Install dust cover using dust cover installer. See DUST COVER INSTALLER APPLICATION table. Ensure dust cover is fully seated.

#### DUST COVER INSTALLER APPLICATION TABLE

Application	Dust Cover Installer
Diamante, Stealth & 3000GT .....	MB990799-01

#### Installation

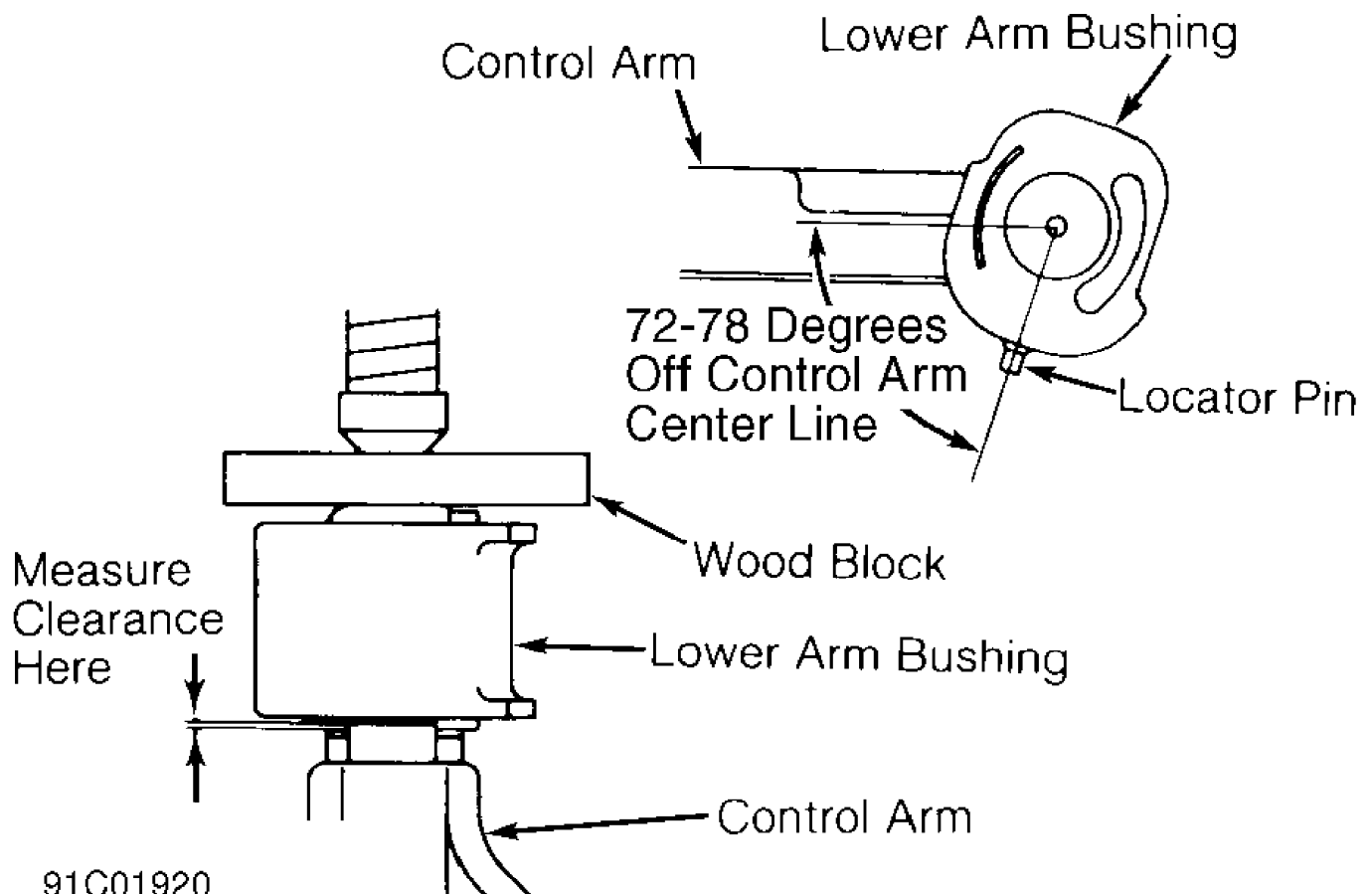
1) Install control arm to crossmember. Ensure control arm is not twisted. Install control arm mounting bolt, bushings and clamp (if equipped). Connect stabilizer bar to control arm (as necessary).

2) To complete installation, reverse removal procedure. Install new self-locking nuts (if used). Lower vehicle and tighten all bolts to specification. See TORQUE SPECIFICATIONS.

### LOWER CONTROL ARM BUSHINGS

#### Removal & Installation

Information is not available from manufacturer.



91C01920

Fig. 2: Positioning Lower Control Arm Bushing For Installation  
 Courtesy of Mitsubishi Motor Sales of America

## STABILIZER BAR

### Removal (Diamante)

1) Raise and support vehicle. On FWD models, remove front exhaust pipe and disconnect centermember(s). On AWD models, remove left crossmember, transfer case and bracket.

2) On all models, remove stabilizer link mounting nuts. Note location of bushings. Remove stabilizer link, cups and bushings (if equipped). Remove stabilizer bar mounting brackets. Remove stabilizer bar and bushings. Remove bushings from stabilizer bar.

### Inspection

1) Check for bent stabilizer bar. Inspect all bushings for wear and deterioration. Check stabilizer link ball joint dust cover (if equipped) for cracks. Check bolts for damage and wear. Replace damaged parts as necessary.

2) If vehicle is equipped with a stabilizer link, check stabilizer link ball joint(s) starting torque. See BALL JOINT CHECKING under ADJUSTMENTS & INSPECTION. Replace stabilizer link if ball joint starting torque exceeds specification.

### Installation

1) If stabilizer link ball joint dust cover needs replacing, remove clip ring and dust cover. Pack ball joint with grease. Apply grease to lip and inside of new dust cover. Install dust cover. See DUST COVER INSTALLER APPLICATION table under LOWER CONTROL ARM & BALL JOINT. Install clip ring. Ensure clip ring ends are perpendicular to

link axis line.

2) To install stabilizer bar, reverse removal procedure. Install bushings securely in brackets.

3) Tighten all stabilizer bar fasteners with vehicle at normal riding height. See TORQUE SPECIFICATIONS.

#### Removal (Stealth & 3000GT)

1) Raise and support vehicle. Remove transfer case and bracket. Remove stabilizer links.

2) Note location of brackets and bushings. Remove stabilizer bar mounting brackets. Remove stabilizer bar and bushings.

#### Inspection

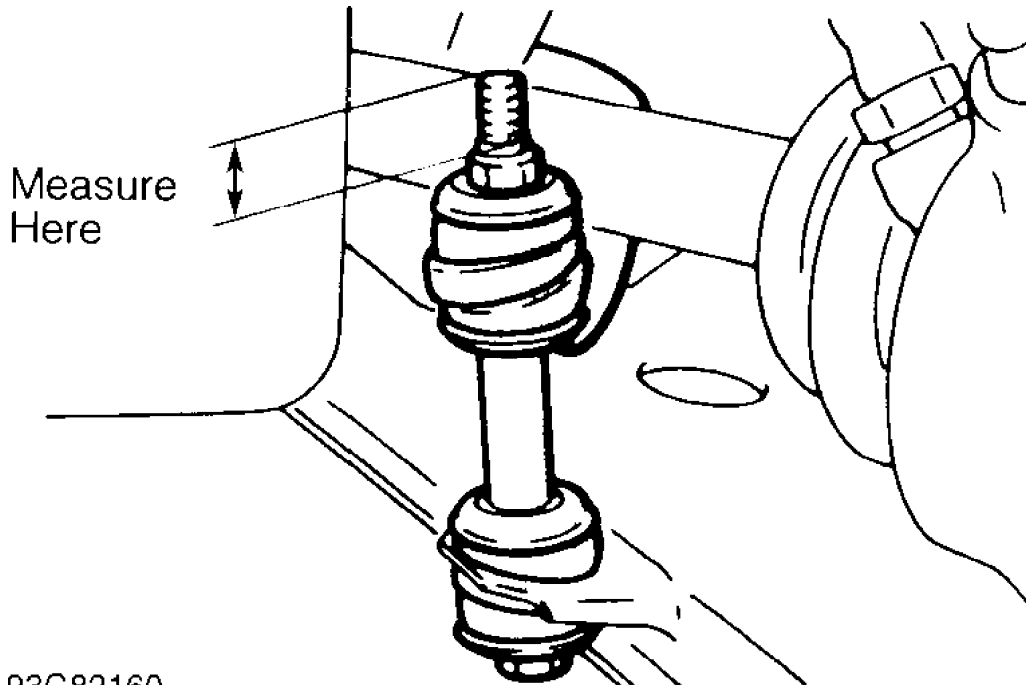
1) Check for bent or damaged stabilizer bar. Inspect all bushings for wear and deterioration. Check stabilizer link ball joint dust cover for cracks. Replace damaged parts as necessary.

2) Check stabilizer link ball joint(s) starting torque. See BALL JOINT CHECKING under ADJUSTMENTS & INSPECTION. Replace stabilizer link if ball joint starting torque exceeds specification.

#### Installation

1) If stabilizer link ball joint dust cover needs replacing, remove clip ring and dust cover. Pack ball joint with grease. Apply grease to lip and inside of new dust cover. Install dust cover. See DUST COVER INSTALLER APPLICATION table under LOWER CONTROL ARM & BALL JOINT. Install clip ring. Ensure clip ring ends are perpendicular to link axis line.

2) To install stabilizer bar, reverse removal procedure. Position stabilizer brackets so they are inside marked area of stabilizer bar. See Fig. 3. Tighten all fasteners to specification. See TORQUE SPECIFICATIONS.



93G82160

Fig. 3: Tightening Stabilizer Bar Link Nut (Typical)  
Courtesy of Mitsubishi Motor Sales of America

#### Removal

1) Remove cotter pin, and loosen axle shaft nut. Raise and support vehicle. Remove wheel assembly. Remove axle shaft nut. Remove brake caliper, and wire aside. Do not allow caliper to hang from brake hose.

2) Remove brake disc from hub (if possible). Remove front speed sensor (if equipped). Disconnect stabilizer bar from control arm (as necessary). Support control arm. Disconnect damper fork (if equipped). Disconnect lower ball joint and tie rod end from steering knuckle. Disconnect compression arm ball joint (if equipped). Install puller on hub.

3) Tighten puller, and separate axle shaft from hub. Separate steering knuckle from strut. Remove knuckle/hub assembly from vehicle. Separate hub from steering knuckle (if required). See WHEEL BEARINGS under REMOVAL & INSTALLATION.

#### Installation

To install, reverse removal procedure. Install washer on axle shaft, with raised area toward axle shaft nut. Tighten bolts to specification. See TORQUE SPECIFICATIONS. Tighten axle shaft nut to specification with vehicle on ground.

### STRUT ASSEMBLY

#### Removal

1) Raise and support vehicle. Remove front wheels. Separate brake hose bracket and speed sensor bracket (if equipped) from strut. Support lower control arms. Remove strut assembly-to-steering knuckle bolts.

2) On Diamante, Stealth and 3000GT with ECS, remove ECS connector and cap from top of strut. On all models, place punch mark on a upper strut mounting stud and on inner fender adjacent to stud for reassembly reference. Remove upper strut mounting nuts. Remove strut assembly carefully to avoid damaging actuator on struts (if equipped).

#### Installation

To install, reverse removal procedure. Ensure strut assembly and steering knuckle mating surfaces are clean. Tighten fasteners to specification. See TORQUE SPECIFICATIONS.

### WHEEL BEARINGS

CAUTION: DO NOT use hammer to remove hub. Bearings may be damaged during removal.

#### Installation

1) Use handle and appropriate race installer and base. Install bearing races. Ensure races are fully seated. Install brake disc on hub. Tighten bolts to specification. See TORQUE SPECIFICATIONS. Pack wheel bearings with grease. Install outer bearing onto knuckle.

2) Apply grease to seal lip and hub contact surface. Install outer seal in steering knuckle using seal installer. Install outer seal until seal is even with steering knuckle end surface.

3) Install inner bearing in steering knuckle. Using Hub Remover/Installer (09517-21500), mount hub on steering knuckle. See Fig. 4. Tighten axle shaft nut to 144-188 ft. lbs. (195-255 N.m).

4) Rotate hub to seat bearing. Using an INCH-lb. torque wrench, measure hub starting torque. Starting torque should be 11 INCH lbs. (1.2 N.m) or less. See Fig. 4. Check axial play. See WHEEL BEARING AXIAL PLAY SPECIFICATIONS table under ADJUSTMENTS & INSPECTION.

5) If axial play exceeds specification, check assembly procedure. Install inner seal until seal contacts bearing outer race. Coat seal lip surface with grease. Reverse removal procedure to install remaining components.

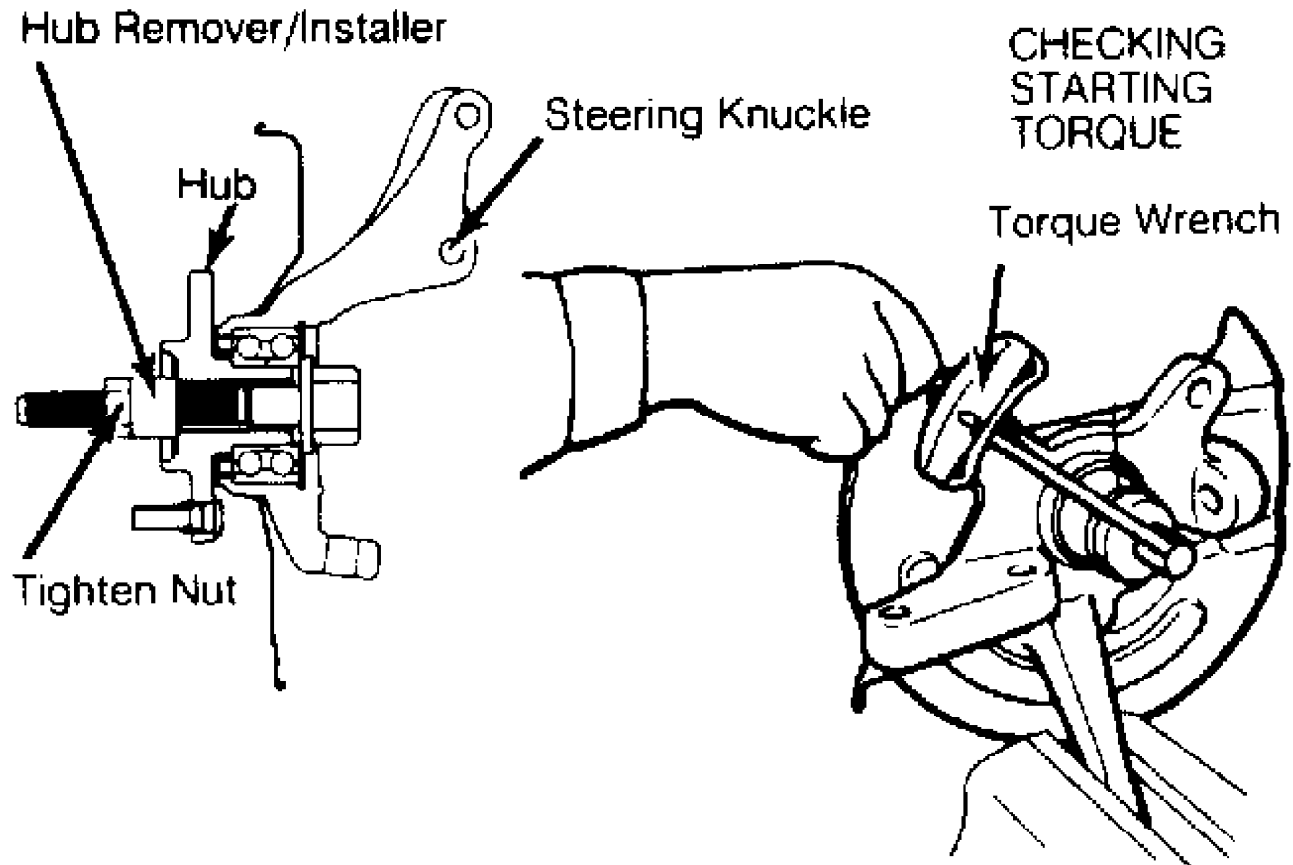


Fig. 4: Installing Hub & Checking Bearing Starting Torque (All Models)

Courtesy of Mitsubishi Motor Sales of America

#### Removal (Stealth & 3000GT AWD)

Raise and support vehicle. Remove wheel assembly. Remove axle shaft nut cotter pin. Apply brakes and remove axle shaft nut and washer. Remove brake caliper and support with wire. Remove brake disc. Unbolt and remove hub/bearing assembly.

#### Inspection

Check hub for cracks and spline for wear. Rotate hub and check for binding or rough rotation. Install Remover/Installer (MB990998) in hub/bearing assembly. Tighten nut to 145-188 ft. lbs. (200-260 N.m). Using an INCH-lb. torque wrench, measure hub/bearing starting torque. See Fig. 4. Starting torque should be 16 INCH lbs. (1.8 N.m). Replace hub/bearing assembly if starting torque is not within specification.

#### Installation

To install, reverse disassembly procedure. Tighten axle shaft nut to 166 ft. lbs. (230 N.m) with brakes applied. Install new cotter pin.

#### Removal (Except Stealth & 3000GT AWD)

1) Remove steering knuckle. See STEERING KNUCKLE under REMOVAL & INSTALLATION. Secure steering knuckle in vise. Using Hub Remover/Installer (MB990998) and Puller (MB991056), separate hub from knuckle. See Fig. 5.

2) Remove oil seal from hub. Remove axle shaft seal from steering knuckle. See Fig. 6. Remove snap ring from knuckle. Using press, Bearing Remover/Installer (C-4628) and Knuckle Bridge (MB991056), remove bearing from knuckle. Flatten oil seal to allow puller jaws to lock in behind inner wheel bearing race. See Fig. 7. Remove inner race.

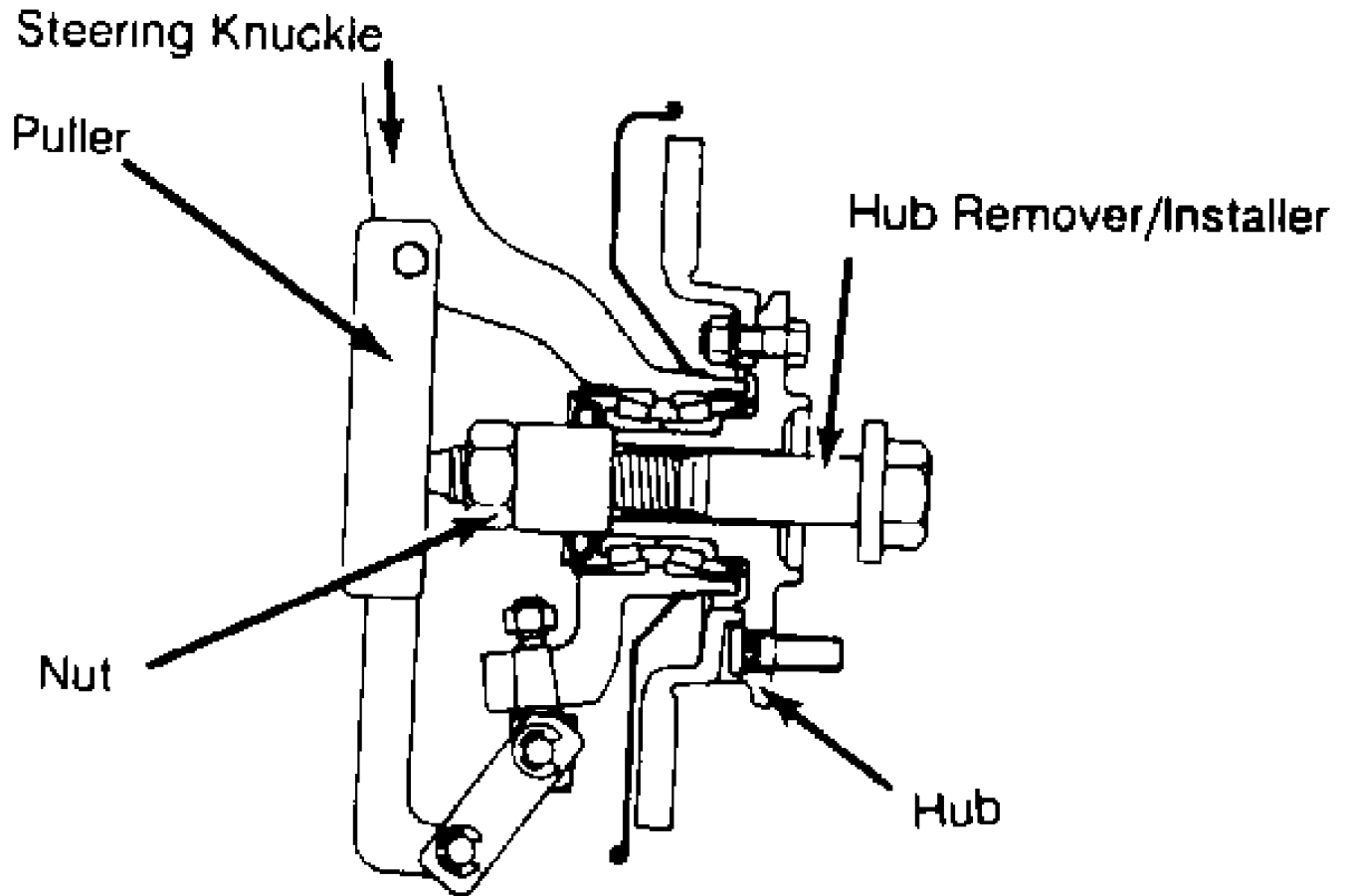


Fig. 5: Removing Hub From Steering Knuckle  
Courtesy of Mitsubishi Motor Sales of America

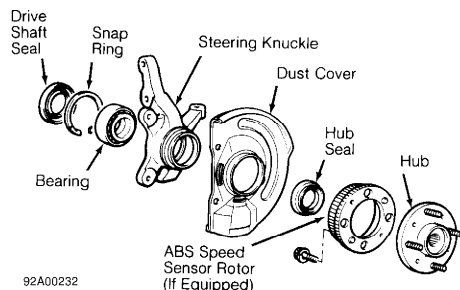
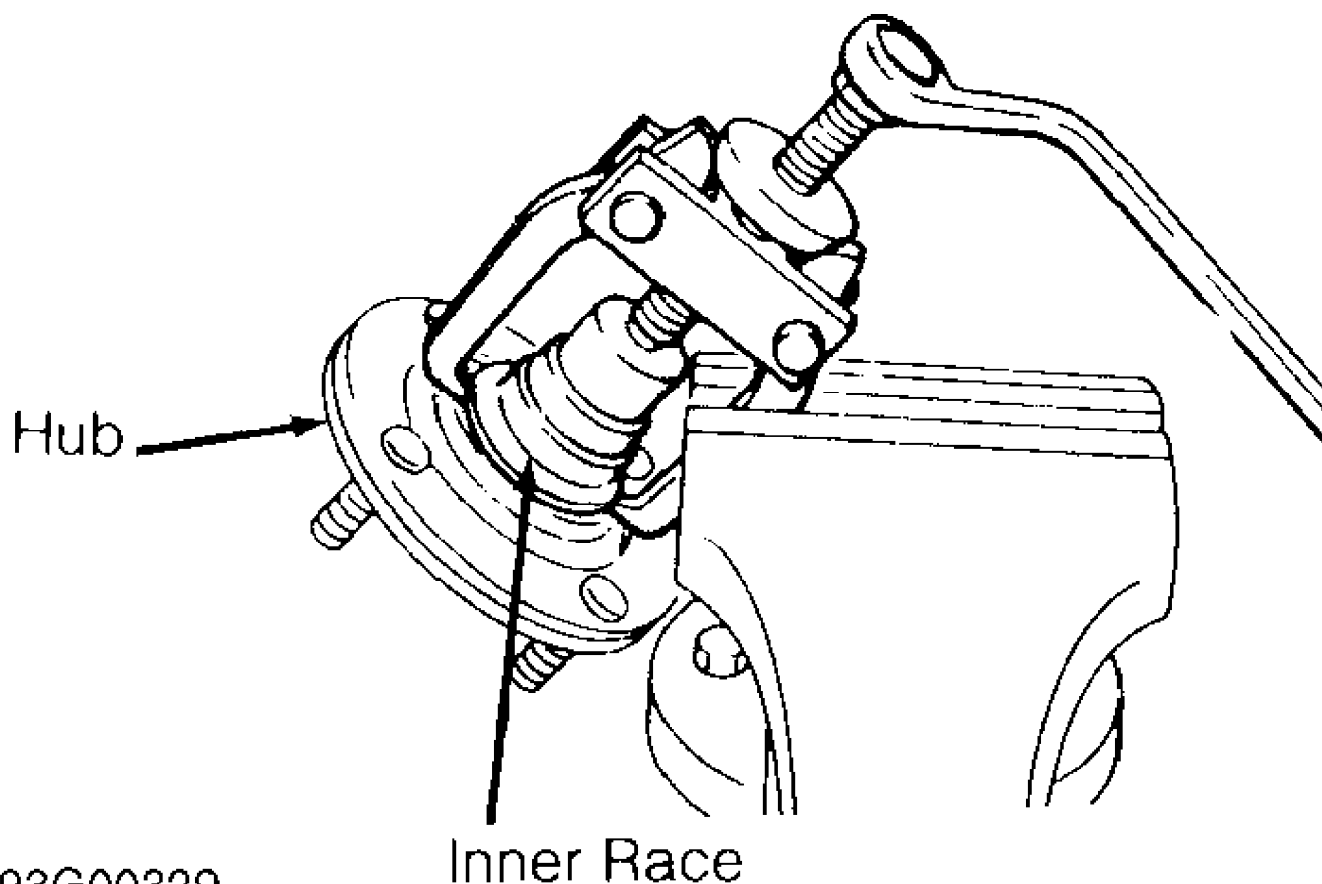


Fig. 6: Exploded View Of Steering Knuckle & Hub (Except Stealth & 3000GT AWD)  
Courtesy of Mitsubishi Motor Sales of America





**93G00329**

**Inner Race**

Fig. 7: Removing Inner Race From Hub  
Courtesy of Mitsubishi Motor Sales of America

#### Installation

1) Pack bearing with grease. Coat steering knuckle and bearing contact areas with grease. Using press and bearing remover/installer, install bearing.

2) Install snap ring. Using Bearing and Oil Seal Installer (C-3893), install hub seal until seal is even with steering knuckle surface. Apply grease to hub seal lip. Place hub on steering knuckle.

3) Using Hub Remover/Installer (MB990998), install hub on steering knuckle. Tighten nut to 144-188 ft. lbs. (195-255 N.m). Rotate hub to seat bearing. Using an INCH-lb. torque wrench, measure bearing starting torque. See Fig. 4.

4) Starting torque should be 16 INCH lbs. (1.8 N.m) or less. Rotation roughness must not be felt. Install steering knuckle in vise. Install dial indicator, with stem resting against hub surface. Check hub axial play.

5) Hub axial play should not exceed specification. See WHEEL BEARING AXIAL PLAY SPECIFICATIONS table under ADJUSTMENTS & INSPECTION. If starting torque or hub axial play are not to specifications, check component installation. Remove hub remover/installer.

6) Apply grease to bearing and inside of steering knuckle. Using Seal Installer (C-3972-A) and Handle (C-4171), install axle shaft seal until seal contacts snap ring. To complete installation, reverse removal procedure.

#### **TORQUE SPECIFICATIONS**

# TORQUE SPECIFICATIONS TABLE

Application	Ft. Lbs. (N.m)
Axle Shaft Nut .....	144-188 (195-255)
Brake Disc-To-Hub Nut .....	36-43 (49-58)
Caliper Assembly-To-Knuckle Bolts .....	58-72 (79-98)
Compression Arm Ball Joint Nut .....	43-51 (58-70)
Compression Arm Mounting Bolt .....	60 (81)
Damper Fork Pinch Bolt .....	75 (102)
Damper Fork-To-Lower Control Arm Bolt .....	64 (87)
Hub/Bearing-To-Knuckle .....	76 (105)
Lower Ball Joint-To-Knuckle Nut .....	43-52 (58-71)
Lower Control Arm Bushing Bracket-To-Body Bolt	
Diamante .....	51 (70)
Stealth & 3000GT	
Short Bolt (1) .....	58-72 (79-98)
Long (Clamp Mounting) Bolt .....	72-87 (98-118)
Lower Control Arm Bushing Bracket-To-Body	
Self-Locking Nut	
Stealth & 3000GT .....	25-34 (34-46)
Lower Control Arm-To-Crossmember Bolt (1)	
Diamante .....	72-87 (98-118)
All Others .....	78 (106)
Lug Nut	
Stealth & 3000GT .....	87-101 (118-137)
Diamante .....	65-80 (88-108)
Roll Stopper Mounting Bolts	
Front .....	22-29 (30-39)
Rear .....	33-43 (45-58)
Stabilizer Bar	
Bracket-To-Crossmember Bolt .....	22-30 (30-41)
Stabilizer Link Mounting Nuts	
Diamante .....	29 (39)
Stealth & 3000GT .....	25-33 (34-45)
Strut-To-Body Mounting Nut	
Diamante .....	29-36 (39-49)
All Others .....	33 (45)
Strut-To-Insulator Lock Nut	
Stealth & 3000GT .....	56 (78)
Diamante .....	43-51 (58-69)
Strut-To-Steering Knuckle Bolt	
Diamante .....	65-76 (88-103)
Stealth & 3000GT .....	65-76 (88-103)
Tie Rod-To-Knuckle Nut .....	21 (29)
Upper Ball Joint Nut .....	20 (27)
Upper Control Arm Shaft-To-Body Mounting Nut .....	62 (84)
Upper Control Arm Pivot Bolt .....	41 (57)

(1) - Fastener should be temporarily tightened, and then fully tightened when installation is completed and vehicle is unladen.