

SUSPENSION - REAR (AWD & FWD)

1994 Mitsubishi 3000GT

1994 SUSPENSION

Chrysler Corp./Mitsubishi Rear - AWD & FWD

Dodge; Stealth

Mitsubishi; Diamante, 3000GT

DESCRIPTION

NOTE: Diamante, Stealth and 3000GT may be equipped with Electronically Controlled Suspension (ECS). The suspension remains the same, but it is electronically controlled. For testing and diagnosis information on electronically controlled suspension, see appropriate ELECTRONIC article in SUSPENSION section below

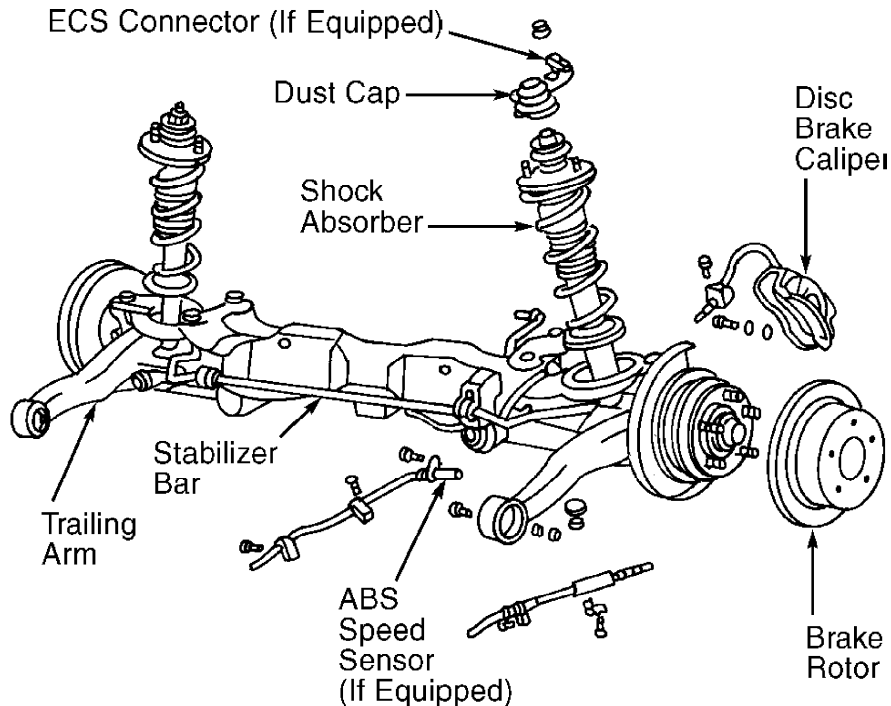
- * SUSPENSION - ELECTRONIC (for Diamante)
- * SUSPENSION - ELECTRONIC (for Stealth and 3000GT)

Diamante, Stealth FWD & 3000GT FWD

Rear suspension system is multi-link type with hydraulic shock absorbers, coil springs and stabilizer bar. See Fig. 1.

Stealth AWD & 3000GT AWD

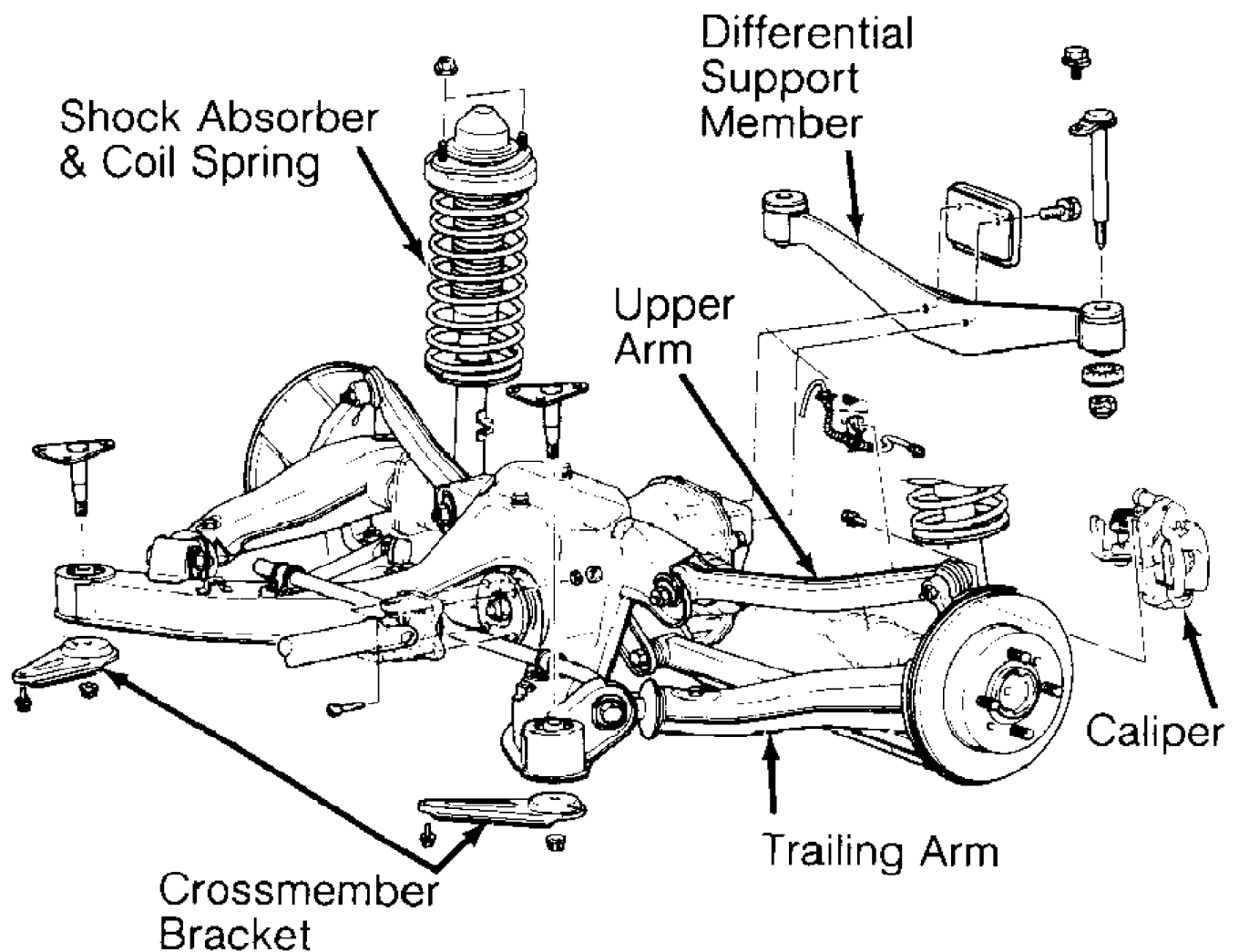
Rear suspension system is an independent, double-wishbone type. System consists of upper and lower suspension arms, shock absorbers, coil springs and stabilizer bar. See Fig. 2.



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Fig. 1: Exploded View Of Rear Suspension (Diamante, Stealth FWD & 3000GT FWD)

Courtesy of Mitsubishi Motor Sales of America



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Fig. 2: Exploded View Of Rear Suspension (Stealth AWD & 3000GT AWD)
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

1) Raise and support vehicle. Remove rear wheel assembly. Remove brake disc or drum if necessary. Measure axle shaft end play using dial indicator. See AXIAL END PLAY & ROTARY SLIDING RESISTANCE SPECIFICATIONS table.

2) If end play exceeds limit, retighten wheel bearing nut or companion flange nut (if equipped) to specification. See appropriate TORQUE SPECIFICATIONS table. DO NOT back off wheel bearing nut more than 15 degrees to align cotter pin holes (if equipped). Recheck end play. If end play exceeds limit, replace wheel bearings.

3) Check rotary sliding resistance. Attach a spring scale to hub bolt. Measure rotary sliding resistance by pulling spring scale at a 90-degree angle to hub bolt. Note measurement when hub begins to rotate. See AXIAL END PLAY & ROTARY SLIDING RESISTANCE SPECIFICATIONS table. If resistance exceeds limit, remove and inspect wheel bearings. Replace wheel bearings as needed.

AXIAL END PLAY & ROTARY SLIDING RESISTANCE SPECIFICATIONS TABLE

Application	End Play In. (mm)	Rotary Resistance Lbs. (kg)
Stealth AWD & 3000GT AWD ..	.031 (.79)	2.6 (1.2)
Stealth FWD & 3000GT FWD ..	.002 (.05)	7.0 (3.1)

BALL JOINT CHECKING

Control Arm Ball Joint & Stabilizer Link Ball Joint

1) Raise and support vehicle. Remove wheel. Disconnect stabilizer bar from control arm (if needed). Loosen selected ball joint nut. Using Steering Linkage Puller (MB991113-01), separate ball joint from mating component. 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	17-78 (2-9)
Stabilizer Link Ball Joint	15-28 (1.7-3.2)

REMOVAL & INSTALLATION

REAR SUSPENSION ASSEMBLY

Removal (Diamante, Stealth FWD & 3000GT FWD)

1) Remove trunk side trim. Raise and support vehicle. Remove wheel assembly.

2) On models equipped with disc brakes, remove caliper and disc assembly. See Fig. 1. On all models, remove cotter pin, lock cap, lock nut, washer and outer bearing (components vary between applications). Remove hub assembly or brake drum assembly (depending on application). Remove dust cover (if equipped).

3) Disconnect and remove rear speed sensor (if equipped). Disconnect parking brake cable from brake assembly and torsion axle and arm assembly. Remove brake assembly. Disconnect brake hose. Remove brake hose bracket from torsion axle and arm assembly.

4) Remove dust cap from top of shock assembly. See Fig. 1. On all models, slightly raise torsion axle and arm assembly using a floor jack. Remove upper and lower shock absorber mounting nuts. Remove shock absorber. Disconnect lateral rod from body. Remove trailing arm bolts. Lower jack, and remove rear suspension assembly from vehicle.

Inspection

Check axle beam, lateral rod and trailing arm for deformation and damage. Check rubber bushings for deterioration, cracks and

unusual wear.

Installation

1) If trailing arm bushing needs replacing, remove bushing using Bushing Press (MB991045). Remove lateral rod bushing using Driver (MB990947-01) and Adapters (MB990847-01 and MB990845-01).

2) Press in new arm bushing from beveled side of housing. Ensure slots in bushing face front-to-rear. Press in new lateral rod bushing using driver. Ensure bushing protrudes equally on both sides.

3) To complete installation, reverse removal procedure. Bleed brakes, and check wheel bearings. See WHEEL BEARING under ADJUSTMENTS & INSPECTION. Tighten all fasteners to specification. See TORQUE SPECIFICATIONS (FWD) table. Check wheel alignment.

Removal (Stealth AWD & 3000GT AWD)

1) Remove trunk room trim. Remove center exhaust pipe and main muffler.

2) Remove shock absorber upper mounting nuts. On vehicles with electronically controlled suspension, disconnect electrical connector and remove cap from top of shock.

3) Remove brake tube bracket bolt. Disconnect parking brake. Remove caliper lock pin. Rotate caliper upward, and remove caliper assembly and brake disc. Secure caliper assembly aside using wire. Cover guide pin with cloth.

4) On Stealth and 3000GT with 4-wheel steering, disconnect pressure tubes, feed, suction and return lines. Remove power cylinder tie rod coupling nut. On models with anti-lock brakes, disconnect electrical harness connectors.

5) On all models, mark drive shaft flange and differential flange for installation reference. Disconnect drive shaft, and secure it using wire. Support differential using transmission jack, and remove self-locking nuts.

6) Remove differential support member. Remove crossmember bracket. Lower transmission jack slightly, and remove parking brake cable and rear speed sensor bolts. Remove cable band. Remove rear speed sensor connector and "O" ring (if equipped).

CAUTION: Ensure drive shaft does not bend excessively. Due to weight being handled, 3 people are required to lower suspension assembly.

7) Move suspension assembly toward rear of vehicle, and slowly lower suspension assembly. DO NOT contact stabilizer bar and drive shaft. Support lower arm using a wooden block to protect dust shield.

Inspection

Check crossmember for cracks and other damage. Inspect all components for damage and unusual wear. Replace components as necessary.

Installation

To install, reverse removal procedure. Ensure reference marks align when installing drive shaft. Tighten all suspension fasteners to specification with vehicle on ground and suspension unloaded. See appropriate TORQUE SPECIFICATIONS table. Check wheel alignment. See WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in WHEEL ALIGNMENT section.

SHOCK & STRUT ASSEMBLIES

Removal

1) Remove trunk side trim or shock/strut access cover.

2) Raise and support vehicle. Remove wheel assembly. Support lower arm assembly using jackstands. On models with electronically controlled suspension, disconnect electrical connector from top of shock and remove actuator.

CAUTION: On models with spring assisted shock absorbers, DO NOT remove center strut rod nut until spring is compressed.

3) On all models, remove dust cap from top of shock assembly. Raise lower arm assembly using a jack. Remove mounting nuts, and disconnect upper strut mount from body. Disconnect shock from lower arm or knuckle assembly. Lower jack, and remove shock assembly from vehicle.

Inspection

Check shock for oil leakage, abnormal noise and poor function. Check coil spring for bending and weakness. Check rubber parts for deterioration and cracks. Check suspension arm and spindle for cracks and deformation.

Installation

To install, reverse removal procedure. Tighten all fasteners to specification. See appropriate TORQUE SPECIFICATIONS table. Check wheel alignment. See WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in WHEEL ALIGNMENT section.

STABILIZER BAR

Removal (Diamante, Stealth & 3000GT AWD)

1) Raise and support vehicle. Support rear suspension assembly using a transmission jack. Remove self-locking nuts and crossmember brackets. Remove bracket bolt for parking brake cable and speed sensor cable (if equipped).

2) Remove stabilizer bar bracket and bushings. Remove stabilizer link nut. Remove lower joint cups and stabilizer rubber (if applicable). Remove stabilizer link-to-stabilizer bar nut, and remove stabilizer link. Lower transmission jack slightly, and remove stabilizer bar.

Inspection

1) Check bushings for wear and deterioration. Check stabilizer bar, stabilizer link and all bolts for damage and wear. Check ball joint dust cover for cracks. Replace components as necessary.

2) If replacing ball joint dust cover, remove clip ring and dust cover. Pack new dust cover with grease. Wrap stud threads using vinyl tape, and install dust cover. Secure cover using clip ring.

3) Check stabilizer link ball joint starting torque. Deflect ball joint stud from side to side several times. Install 2 nuts on ball joint. Measure ball joint starting torque using INCH-lb. torque wrench.

4) Starting torque should be 15-28 INCH lbs. (1.7-3.2 N.m). If starting torque exceeds specification, replace link. If ball joint starting torque is less than specification, ball joint may be reused unless it has drag and excessive play.

Installation

To install, reverse removal procedure. When installing stabilizer link, hold link using wrench and tighten nut until distance from end of bolt to edge of nut is within specification. See STABILIZER LINK SPECIFICATIONS table. Tighten all remaining fasteners to specification. See appropriate TORQUE SPECIFICATIONS table.

STABILIZER LINK SPECIFICATIONS TABLE

Application	Distance In. (mm)
Diamante, Stealth & 3000GT20-.28 (5.1-7.1)

TRAILING ARM

Removal (Diamante, Stealth AWD & 3000GT AWD)

1) Disconnect parking brake cable end. Remove bracket for parking brake cable and speed sensor cable (if equipped). Remove rear brake assembly, and suspend caliper using wire. Remove brake disc.

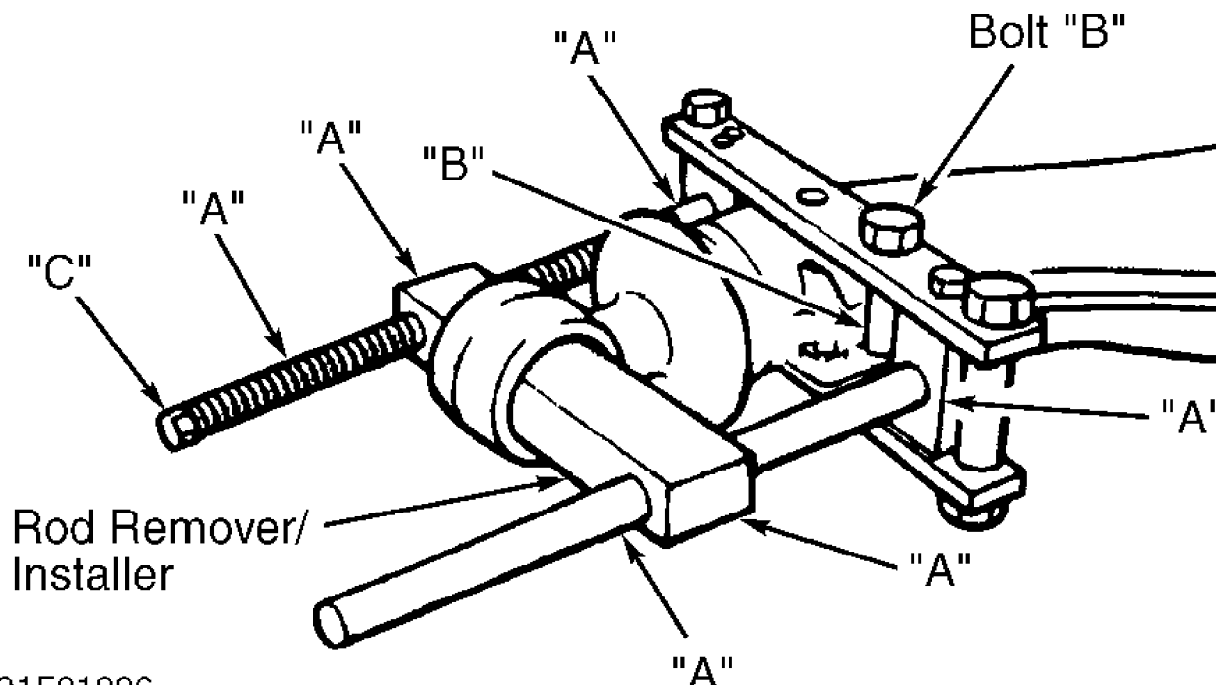
2) Disconnect axle shaft from axle shaft companion flange. Hold hub using Yoke Holder (MB990767-01), and remove companion flange-to-axle shaft nut. Remove companion flange. Remove rear speed sensor and "O" ring (if equipped). Loosen upper and lower arm ball joint nuts, and disconnect ball joints.

3) Remove trailing arm installation nut and bolt. Disconnect shock absorber from trailing arm. Remove trailing arm. Check trailing arm and bushing for cracks, deterioration and wear. Replace components as necessary.

Disassembly

1) Using Bushing Arbor (MB990849) and Base (MB990646), remove bushing. Remove connecting rod bolt and nut. Install Rod Remover/Installer (MB991254) on trailing arm.

2) Apply lubricant to sliding areas marked "A" in figure. See Fig. 3. Install bolt "B" to trailing arm at point shown. Turn threaded shaft "C" on remover/installer to remove connecting rod.



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Fig. 3: Removing Connecting Rod From Front Trailing Arm (Diamante, Stealth AWD & 3000GT AWD)

Courtesy of Mitsubishi Motor Sales of America

Reassembly

If trailing arm bushing needs replacement, use bushing arbor and base to install new bushing. Press fit bushing until bushing outer pipe edge is flush with lower arm pipe edge. To complete reassembly, reverse disassembly procedure. Apply soapy water to rubber portion of connecting rod.

Installation

To install trailing arm, reverse removal procedure. Tighten all fasteners to specification. See appropriate TORQUE SPECIFICATIONS table. Check wheel alignment. See the WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in WHEEL ALIGNMENT section.

UPPER & LOWER ARMS

NOTE: Coil springs have color marks for spring identification and load classification. When replacing springs, ensure markings are correct for appropriate vehicle.

Removal (Diamante, Stealth AWD & 3000GT AWD)

Loosen upper arm ball joint nut, and disconnect upper arm ball joint. Remove upper arm bolt and arm. Loosen lower arm ball joint nut, and disconnect lower arm ball joint. Hold stabilizer link using a wrench, and remove stabilizer link nut. Disconnect link from lower arm. Remove lower arm bolt, and remove lower arm.

Inspection

1) Check bushing for wear and deterioration. Check upper and lower arms for bends and breakage. Check ball joint dust covers for cracks. Check all bolts for wear and damage. Replace components as necessary.

2) Check ball joint starting torque. Deflect ball joint stud side to side several times. Install 2 nuts on ball joint. Using INCH-lb. torque wrench, measure ball joint starting torque. Starting torque should be 17-78 INCH lbs. (2-9 N.m). If starting torque exceeds specification, replace arm. If ball joint starting torque is less than specification, ball joint may be reused unless it has drag and excessive play.

Installation

1) If ball joint dust cover needs replacement, remove dust cover and apply grease to lip and inside of new dust cover. Install dust cover using Installer (MB990800). Ensure dust cover is fully seated.

2) If lower arm bushing needs replacement, use Bushing Arbor (MB991246), Bushing Ring (MB991245) and Base (MB990847) to remove and install bushing. Press fit bushing until bushing outer edge is flush with lower arm edge.

3) To complete installation, reverse removal procedure. When installing stabilizer link, hold link using a wrench and tighten nut until distance from end of bolt to edge of nut is as specified. See STABILIZER LINK SPECIFICATIONS table under STABILIZER BAR. Tighten upper and lower arm nuts to specification. See appropriate TORQUE SPECIFICATIONS table. Check wheel alignment. See WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in WHEEL ALIGNMENT section.

WHEEL BEARING

Removal (Disc Brakes - FWD)

1) Raise and support vehicle. Remove wheel assembly. Remove speed sensor (if equipped). Disconnect parking brake cable and brake hose. Remove tube bracket. Remove brake disc and caliper assembly.

2) Support caliper aside. Remove hub cap, wheel bearing nut and washer (if equipped). Remove rear hub assembly. Replace rear hub assembly as unit. Separate speed sensor rotor (if equipped).

Installation

To install, reverse removal procedure. Tighten wheel bearing nut to specification. See TORQUE SPECIFICATIONS (FWD) table. Check wheel bearings. See WHEEL BEARING under ADJUSTMENTS & INSPECTION.

Removal (Disc Brakes - AWD)

1) Raise and support vehicle. Remove wheel assembly. Remove speed sensor (if equipped). Remove brake caliper assembly and brake disc. Separate companion flange from axle shaft. Remove companion flange nut and washer.

2) Remove companion flange and axle shaft assembly. Remove rear speed sensor rotor (if equipped). Remove outer bearing and dust cover from axle shaft. Remove inner bearing and oil seal using Driver (MB990938-01) and Adapter (MB990928-01).

Installation

To install, reverse removal procedure. Install inner bearing using Driver (MB990938-01) and Adapter (MB990931-01). Use Seal Installer (MB990799-01) for oil seal and dust cover. Press outer bearing onto axle shaft. Check wheel bearings. See WHEEL BEARING under ADJUSTMENTS & INSPECTION.

Removal (Drum Brakes - FWD)

Raise and support vehicle. Remove wheel assembly. Remove hub cap. Remove wheel bearing nut or cotter pin, lock cap, lock nut and tongued washer (components vary among models). Remove outer wheel bearing race. Remove hub assembly or brake drum. Remove inner oil seal and bearing. Remove bearing races using a brass drift.

Installation

To install, reverse removal procedure. Replace hub assembly with integral bearings as unit. Install races using Driver (MB990938-01) and Adapter (MB990926-01 or MB990928-01). Install oil seal using driver and Adapter (MB990929-01 or MB990938-01). Check wheel bearings. See WHEEL BEARING under ADJUSTMENTS & INSPECTION.

Removal (Drum Brakes - AWD)

1) Raise and support vehicle. Remove wheel and brake drum. Remove axle shaft from axle shaft companion flange. Hold axle shaft using Axle Holder (MB990767), and remove companion flange retaining nut. Remove companion flange. Using slide hammer, remove axle shaft.

2) Using Bearing Puller/Installer (MB990560) and hydraulic press, remove outer wheel bearing and dust cover from axle shaft. If necessary, remove inner arm to access inner bearing. See REAR SUSPENSION ASSEMBLY under REMOVAL & INSTALLATION. Remove oil seal from inside of inner arm. Using Bearing Remover/Installer (C-3893), remove inner bearing from arm.

Installation

1) Using Bearing Remover/Installer (C-3893), install inner bearing in arm. Using Seal Installer (MB990799), install seal in inner arm, with concave side facing outward.

2) Coat seal lip with grease. Install dust cover. If backing plate was removed, apply semi-drying sealant to flange area of inner arm. Install backing plate. Tighten bolts to specification. See TORQUE SPECIFICATIONS (AWD) table.

3) Using Dust Cover Installer (MB990799), install dust cover on axle shaft. Concave side of dust cover must face splined end of axle shaft. Using bearing puller/installer and press, install bearing

on axle shaft, with seal surface facing toward flange side of axle shaft.

4) Install axle shaft in inner arm. Install companion flange and new flange nut. Using axle holder, tighten nut to specification. See TORQUE SPECIFICATIONS (AWD) table. Check axle shaft end play. See WHEEL BEARING under ADJUSTMENTS & INSPECTION. To complete installation, reverse removal procedure.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE (FWD)

Application	Ft. Lbs. (N.m)
Backing Plate-To-Arm Bolt	36-43 (49-58)
Ball Joint Nut (All Styles)	21 (28)
Caliper Bolt	36-43 (49-58)
Hub/Bearing-To-Knuckle Bolt	54-65 (74-88)
Lateral Rod (1)	58-72 (79-98)
Lower Arm-To-Crossmember Nut (1)	65-80 (88-109)
Lower Arm-To-Knuckle Nut	72 (98)
Shock Absorber-To-Arm Nut Or Bolt (1)	58-72 (79-98)
Shock Absorber-To-Body Bolt Or Nut (1)	29-36 (39-49)
Shock Absorber-To-Insulator Nut	14-18 (19-25)
Stabilizer Bar Frame Bracket Bolt	7-10 (9-14)
Stabilizer Link Ball Joint Nut	28 (39)
Toe Control Arm-To-Crossmember Nut (1)	65-80 (88-109)
Trailing Arm-To-Frame Bolt (1)	101-116 (137-157)
Trailing Arm-To-Knuckle Nut (1)	87-101 (118-137)
Upper Arm-To-Knuckle Nut (1)	72 (98)
Upper Arm Frame Bracket Nut	28 (39)
Upper Arm-To-Frame Bracket (1)	41 (57)
Wheel Bearing Nut	181 (245)
	INCH Lbs. (N.m)
Brakeline Nut	106-142 (12-16)
Dust Shield Bolt	89-124 (10-14)
Hub Assembly-To-Speed Sensor Rotor Bolts	89-124 (10-14)
Load Sensing Proportioning Valve Bracket Nut	89-124 (10-14)
Speed Sensor Bolts	89-124 (10-14)
(1) - Tighten with vehicle at normal operating height and no load.	

TORQUE SPECIFICATIONS TABLE (AWD)

Application	Ft. Lbs. (N.m)
Axle Shaft-To-Axle Shaft Flange Nut	40-47 (54-64)
Axle Shaft End Nut	145-188 (197-260)
Axle Shaft-To-Differential Nut	22-25 (30-34)
Brake Assembly Bolt	36-43 (49-58)
Brake Tube Bracket-To-Shock Absorber Bolt	12-19 (16-26)
Center Exhaust Pipe-To-Front Pipe Bolt	22-29 (30-39)
Companion Flange-To-Hub Nut Stealth & 3000GT	188-217 (260-300)

Crossmember Bracket-To-Body Bolt	51-61	(69-83)
Crossmember Bracket-To- Crossmember Bolt	80-94	(109-127)
Differential Carrier-To- Support Member Bolt	58-72	(79-98)
Differential Support-To-Body Nut	80-94	(109-127)
Lower Arm Ball Joint Nut Stealth & 3000GT	54-64	(73-87)
Lower Arm-To-Crossmember Nut (1) Diamante	65-80	(88-109)
Stealth & 3000GT	101-116	(137-157)
Muffler-To-Pipe Bolt Diamante	29-36	(39-49)
Stealth & 3000GT	22-29	(30-39)
Shock Absorber-To-Arm Bolt	65-80	(88-109)
Shock Absorber-To-Body Nut	29-36	(39-49)
Stabilizer Link-To-Stabilizer Bar Nut	25-33	(34-45)
Tie Rod End Nut	42	(58)
Trailing Arm-To-Crossmember Nut (1) Stealth & 3000GT	145-174	(197-236)
Upper Arm Ball Joint Nut Stealth & 3000GT	54-64	(73-87)
Upper Arm-To-Crossmember Nut (1)	101-116	(137-157)

INCH Lbs. (N.m)

Speed Sensor Bolts	89-124	(10-14)
Stabilizer Bar Bracket Bolt	89-124	(10-14)

(1) - Tighten with vehicle at normal operating height and no load.
