

DIFFERENTIAL & AXLE SHAFTS

1991 Mazda Miata

1990-91 DRIVE AXLES
Differentials & Axle Shafts

B2200, B2600i, Miata, MPV, Protege 4WD, RX7, 929

NOTE: For models with independent suspension, see REAR AXLE SHAFTS (vehicles that are normally only FWD), or FRONT AXLE SHAFTS article in this section for axle shaft overhaul.

DESCRIPTION

An optional Limited Slip Differential (LSD) is available on Miata and RX7 models. Rear drive axles are retained in the housing by tapered bearings and bearing retainers at axle housing outer ends on B2200 and B2600i. Rear drive axle bearings on MPV 4WD are held in place by a pressed-on collar.

On front axle on B2600i (4WD) and MPV 4WD, and rear axle on Miata, Protege 4WD, RX7 and 929, drive axles use CV joints to connect differentials to drive hubs.

AXLE RATIO & IDENTIFICATION

See AXLE RATIO SPECIFICATIONS TABLE. To determine axle ratio, divide number of ring gear teeth by number of pinion teeth.

AXLE RATIO SPECIFICATIONS TABLE

Application	Number of Teeth Pinion/Ring Gear		Ratio
B2200	11/43	.....	3.91:1
B2600i			
(Front & Rear)	11/41	.....	3.73:1
Miata	N/A	.....	4.30:1
MPV (Front & Rear)			
A/T	10/41	.....	4.01:1
M/T	11/43	.....	3.91:1
Protege, 323 & 929	N/A	.....	N/A
RX7			
A/T (1)	11/43	.....	3.9:1 or 4.1:1
M/T			
Non-Turbo	N/A	.....	4.1:1 or 4.3:1
Turbo	N/A	.....	4.1:1

(1) - Non-Turbo convertible only.

LUBRICATION

CAPACITY

DIFFERENTIAL CAPACITY SPECIFICATIONS TABLE (1)

Application	Qts. (L)
B2200 (Front & Rear)	1.3 (1.2)
B2600i	
Front	1.6 (1.5)

Rear	1.8 (1.7)
Miata .....	.69 (.65)
MPV 2WD	1.6 (1.5)
MPV 4WD	
Front	1.8 (1.7)
Rear	1.6 (1.5)
Protege 4WD .....	.69 (.65)
RX7	
Non-Turbo	1.4 (1.3)
Turbo	1.5 (1.4)
929	1.4 (1.3)

(1) - Fill to lower edge of filler plug hole.

FLUID TYPE

DIFFERENTIAL LUBRICATION SPECIFICATIONS TABLE (1)

Application	Specification
Above 0°F (-18°C)	GL-5/SAE 90W
Below 0°F (-18°C)	GL-5/SAE 80W

(1) - Fill to lower edge of filler plug hole.

TROUBLE SHOOTING

See appropriate TRBL SHTN article in the TROUBLE SHOOTING Section.

REAR AXLE SHAFTS & BEARINGS REMOVAL & INSTALLATION

REMOVAL (B2200 & B2600I)

1) Raise and support vehicle. Remove rear wheels. Remove brake drum and shoes. Using a dial indicator, measure axle flange lateral movement. If bearing play is not within specification, bearing shim must be adjusted during installation. See END PLAY SPECIFICATIONS TABLE.

2) Disconnect brake line from wheel cylinder. Plug line openings. Disconnect parking brake cable. Remove backing plate retaining nuts. Remove axle shaft and backing plate as an assembly.

NOTE: On B2200 and B2600i, left axle bearing lock nut has left-hand threads.

3) Using Bearing Nut Wrench (49 0603 635A) and Shaft Holder (49 S120 645A), remove bearing lock nut from axle shaft. Remove bearing and bearing retainer from axle using Puller (49 S120 520A). Remove outer race from hub.

END PLAY SPECIFICATIONS TABLE (1)

Application	In. (mm)
B2200 & B2600i	
One Axle Installed .....	.026-.037 (.65-.95)
Both Axles Installed .....	.002-.010 (.05-.25)

(1) - Check at axle flange with dial indicator.

INSTALLATION

1) Press new oil seal and bearing outer race into bearing retainer. Coat bearing race and outer seal with grease. Tap inner oil seal flush with end of axle housing. Coat inner seal lip with grease.

2) Position brake backing plate onto axle shaft. Install spacer against backing plate with chamfer facing backing plate. Using Press Attachment (49 S120 748) and a press, install wheel bearing onto axle shaft. Standard press force is 4.6-6.7 tons (4200-6100 kg). If press fit force is too high or too low, replace the bearing collar or shaft.

3) Using Bearing Nut Wrench (49 0603 635A), install bearing lock nut to axle shaft and tighten to 145-217 ft. lbs. (196-245 N.m). Bend tab up into groove. Install one axle shaft into axle housing. Tighten backing plate nuts to specification. Install dial indicator on backing plate and check drive axle end play.

NOTE: Ensure end play for first drive axle is within specification before inserting second drive axle. Use shims to adjust end play if necessary.

4) To adjust end play, remove axle and insert appropriate size adjustment shim between axle hub and housing. End play for second drive axle installed should be set to normal end play clearance of .002-.010" (.05-.25 mm), with both axles installed.

5) Install parking brake cable, attaching pin and brake line. Install brake shoes and actuating hardware. Bleed brake system. Install wheel and tire.

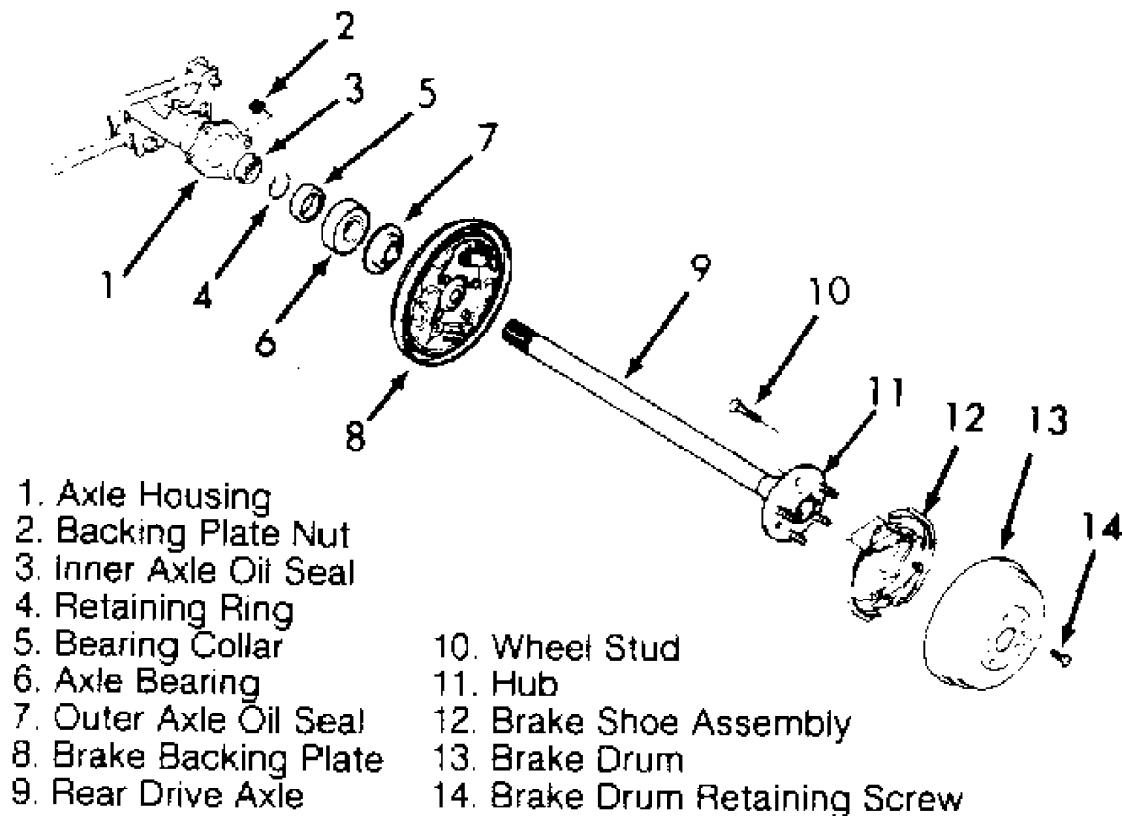
BEARING RETAINER SHIMS TABLE (B2200 & B2600i)

Part Number	Thickness In. (mm)
083 26 165 .....	.004 (.10)
083 26 166 .....	.006 (.15)
083 26 167 .....	.020 (.50)
083 26 168 .....	.030 (.75)

MPV 4WD

1) Raise and support vehicle. Remove rear wheels. Remove brake drum and shoes. Using a dial indicator, measure axle flange lateral movement. Replace bearing if play exceeds If bearing play exceeds .023" (.57 mm). Disconnect brake line from wheel cylinder. Plug line openings. Disconnect parking brake cable.

2) Remove backing plate retaining nuts. Remove axle shaft and backing plate as an assembly. Use puller or slide hammer to pull axle and bearing from axle housing. With axle removed, remove retaining ring and bearing collar. See Fig. 1.



90F09852

Fig. 1: Exploded View of Rear Drive Axle (MPV; Others Similar)
 Courtesy of Mazda Motors Corp.

3) To remove bearing collar, grind collar until a section of it is .020" (.5 mm) and cut through it with a chisel. Use a puller or press to remove bearing and brake backing plate. Check axle shaft for straightness. Maximum runout is .059" (1.5 mm).

4) Use a press to replace wheel studs (if necessary), never use a previously used wheel stud as a replacement. Lubricate seal lips before replacement. DO NOT lubricate bearing retainer collar before replacement. Use a press to install bearing collar. If press-fit of collar requires less than 2.7 tons (2699 kg.) replace collar or axle shaft. Reverse removal procedures to complete installation.

DIFFERENTIAL ASSEMBLY REMOVAL & INSTALLATION

REMOVAL (FRONT - B2600I & MPV 4WD)

1) Raise and support vehicle. Remove engine skid plate. Drain differential. On MPV 4WD, remove tie rod end and lower arm. Remove front axle shafts. See FRONT AXLE SHAFTS article. Mark drive shaft position, and remove drive shaft.

2) On B2600i, remove differential subframe mounting bolts and nuts. Remove differential, Remote Free Wheel (RFW) and subframe assembly from vehicle. Remove RFW assembly from right side of differential housing. Pull drive coupler from carrier. Remove differential carrier retaining bolts. Remove differential carrier.

3) On MPV 4WD, remove differential housing mounting bolts and mount at end of Remote Free Wheel (RFW) extension housing. Remove differential and extension housing from vehicle. Remove RFW assembly from right side of differential housing. Pull drive coupler from carrier. Remove differential carrier retaining bolts. Remove differential carrier.

INSTALLATION

To install, reverse removal procedure. See Fig. 2 or 3. Apply Sealant (8527 77 739) to carrier mating flange. Align marks made during removal. Refill differential with lubricant. Tighten all fasteners to specification. See TORQUE SPECIFICATIONS TABLE at end of article.

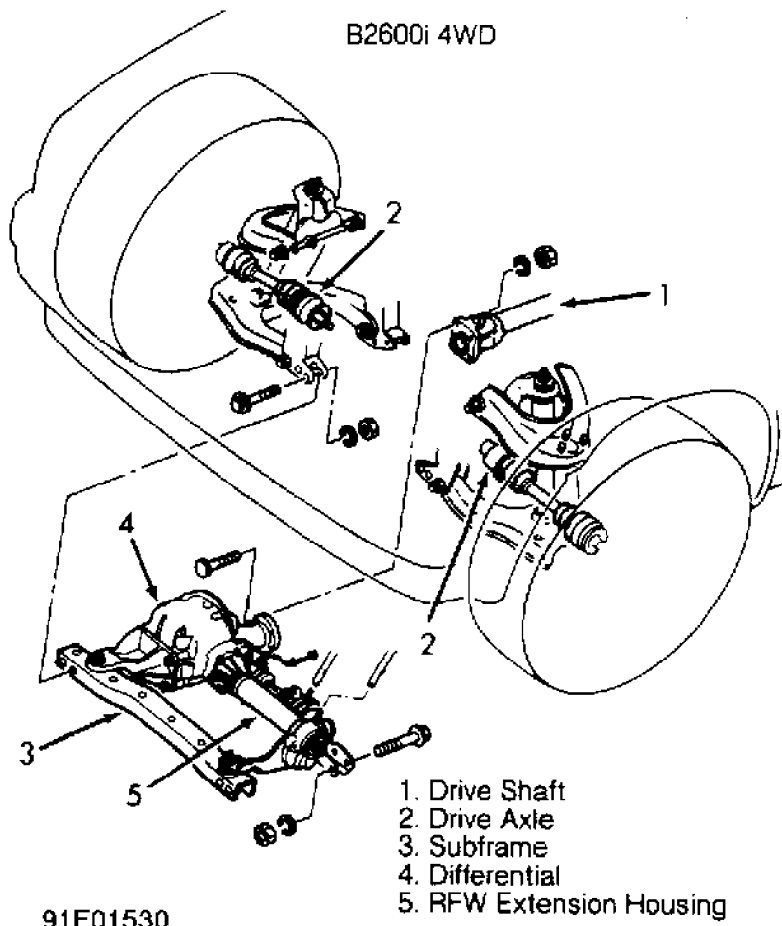
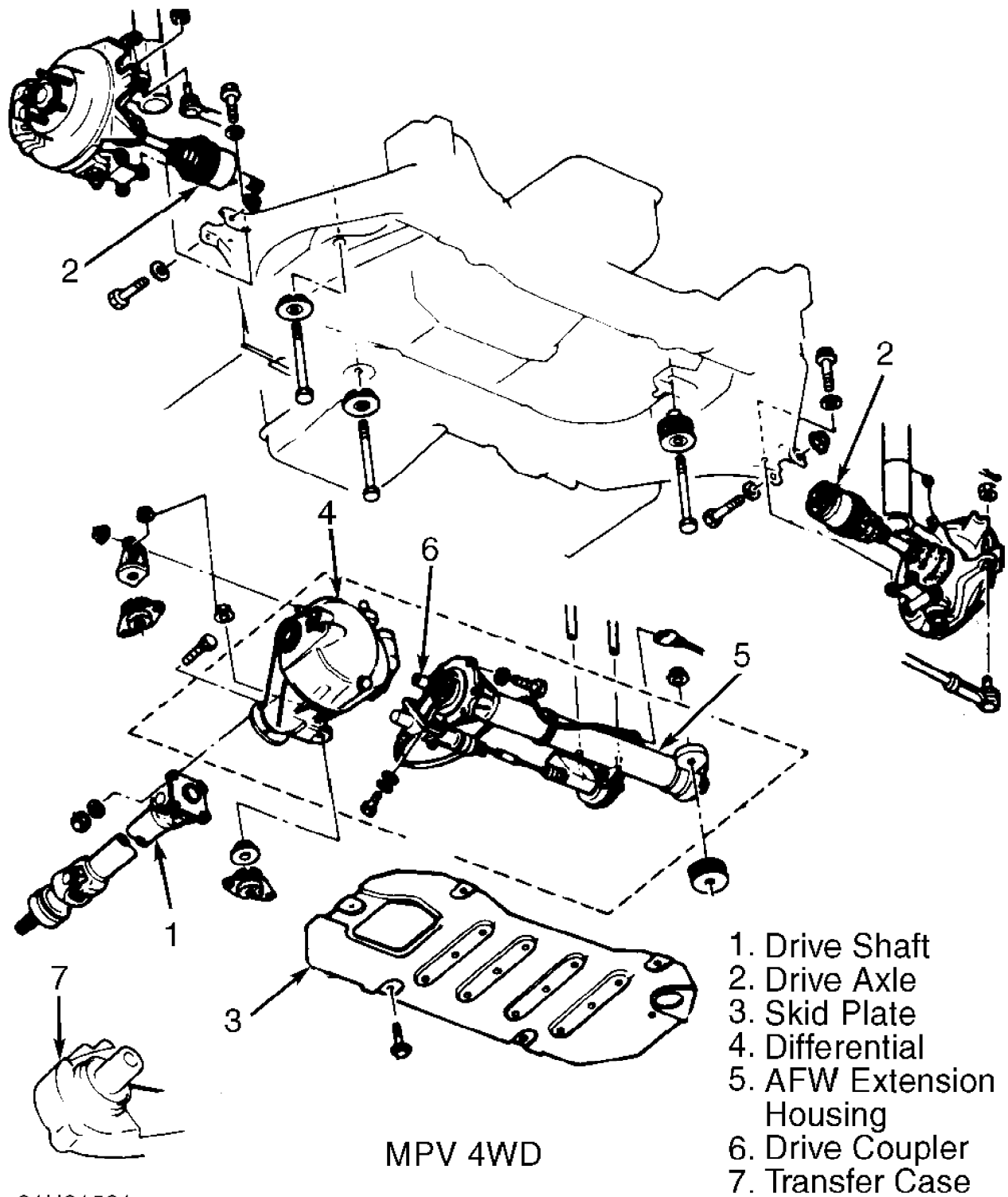


Fig. 2: Installing Front Differential (B2600i)
Courtesy of Mazda Motors Corp.



91H01531

Fig. 3: Installing Front Differential (MPV 4WD)
Courtesy of Mazda Motors Corp.

REMOVAL; REAR - B2200, B2600i, MPV 2WD, PROTEGE 4WD, RX7, 929

1) Raise and support vehicle. Drain differential. Mark drive axles and drive shaft positions. On B2200, B2600i and MPV, remove brake drum and drive axles. See REAR AXLE SHAFTS & BEARINGS REMOVAL & INSTALLATION in this article. On Protege 4WD, RX7 and 929, disconnect CV joint drive axles from differential assembly and wire aside.

2) On all models, mark flanges and disconnect drive shaft. Remove ABS sensor (if equipped). On RX7, remove rear exhaust system and differential mount on left side of pinion flange. Remove hanger mounts and allow left side to hang down. Disconnect sublinks and remove differential.

3) On Protege 4WD and 929 models, remove differential housing assembly-to-chassis mounting bolts. Remove differential housing assembly from vehicle. On all models, remove differential carrier-to-housing nuts. Remove differential carrier.

INSTALLATION

To install, reverse removal procedure. Apply Sealant (8527 77 739) to carrier mating flange. Align marks made during removal. Refill differential with correct type and amount of lubricant. Tighten all fasteners to specification. See TORQUE SPECIFICATIONS TABLE at end of article.

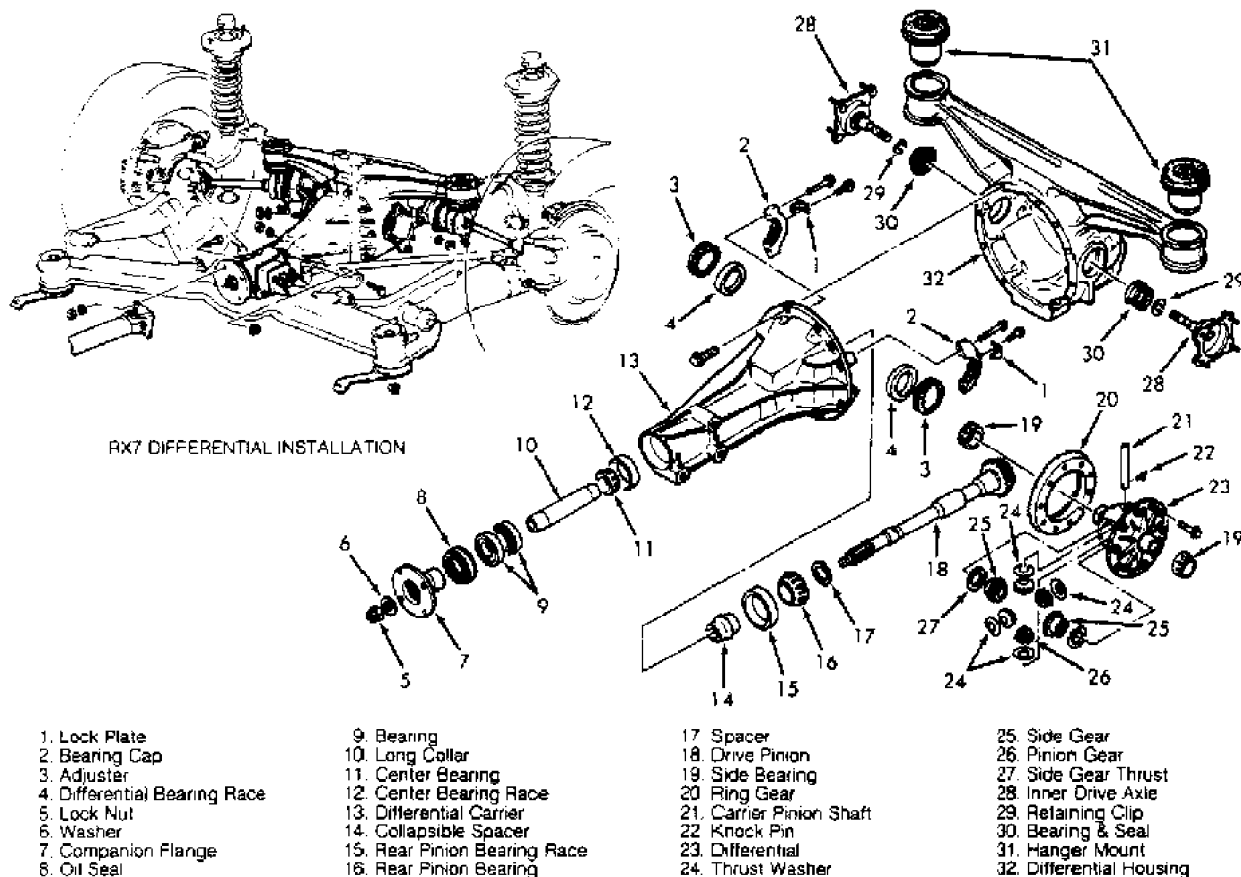


Fig. 4: Exploded View of Differential Assembly (RX7)
Courtesy of Mazda Motors Corp.

REMOVAL (MIATA)

1) Raise and support vehicle. Drain differential. Mark flanges and remove drive shaft. Note locations and disconnect wiring harness from Power Plant Frame (PPF). See Fig. 5.

2) Support transmission with a jack. Remove PPF bracket from rear transmission extension housing. Remove PPF-to-differential side bolts and pry out spacer. Remove PPF/differential mounting spacer. See Fig. 6. Install metric bolt (M14 X 1.5) into sleeve. See Fig. 7.

3) Twist bolt side-to-side while pulling bolt downward. Install a metric bolt (M6 X 1) into hole in housing block to hold sleeve and remove long bolt (M14 X 1.5). Remove short bolt (M6 X 1).

4) Remove PPF-to-transmission side bolts and remove PPF. Mark and disconnect CV joint drive axles from differential assembly and wire aside. Remove differential carrier-to-housing nuts. Remove differential carrier.

INSTALLATION

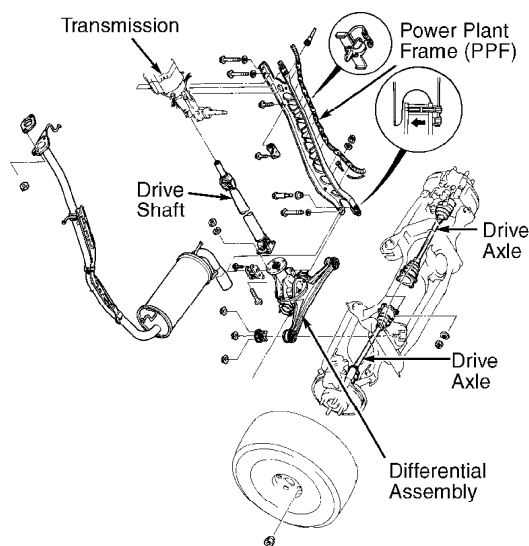
1) To install, reverse removal procedure. Apply Sealant (8527 77 739) to carrier mating flange. Align marks made during removal and install differential carrier. Install differential. Raise transmission until engine and transmission are level.

2) To install Power Plant Frame (PPF), position PPF in place. Install PPF/differential mounting spacer and tighten bolts to 27-38 ft. lbs. (37-52 N.m). Install PPF-to-transmission side mounting bolts and tighten.

3) Ensure sleeve is installed into PPF housing block. Install spacer and bolts. Ensure reamer bolt is installed into front hole and tighten. See Fig. 6.

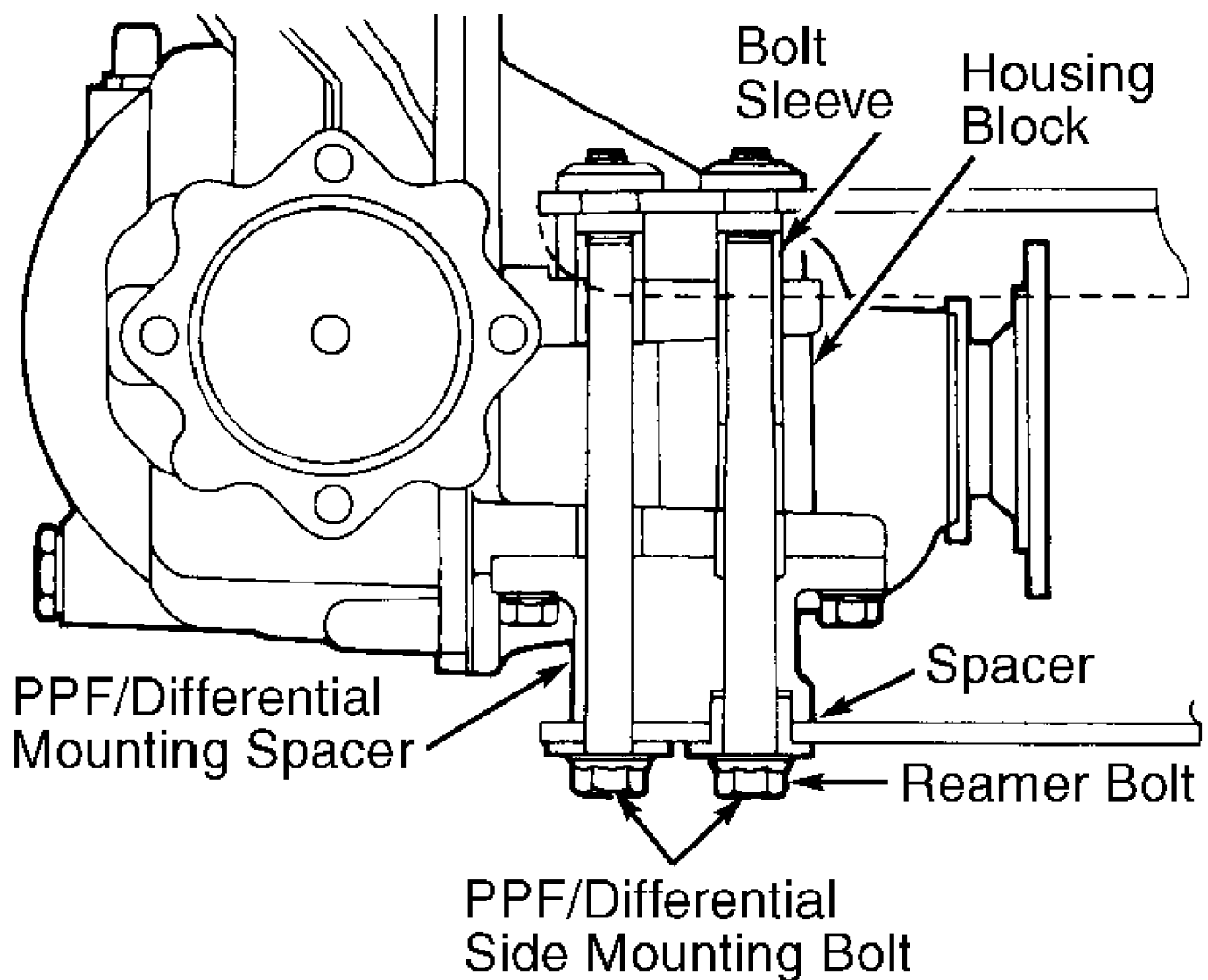
4) Install transmission-to-PPF bracket. Install remaining PPF bolts and tighten all bolts to specification. See TORQUE SPECIFICATIONS TABLE at end of article. To complete installation, reverse removal procedure.

NOTE: On Miata, front PPF-to-differential side mounting bolt is reamer bolt, which aligns power plant frame. See Fig. 6.



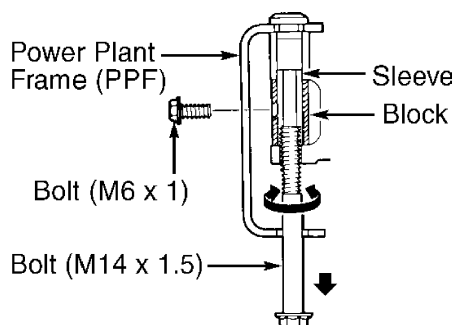
91J01527

Fig. 5: Exploded View of Differential Components (Miata)
Courtesy of Mazda Motors Corp.



91101838

Fig. 6: View of Power Plant Frame Components (Miata)
Courtesy of Mazda Motors Corp.



91C01524

Fig. 7: Removing Reamer Bolt Sleeve (Miata)
Courtesy of Mazda Motors Corp.

DISASSEMBLY OVERHAUL

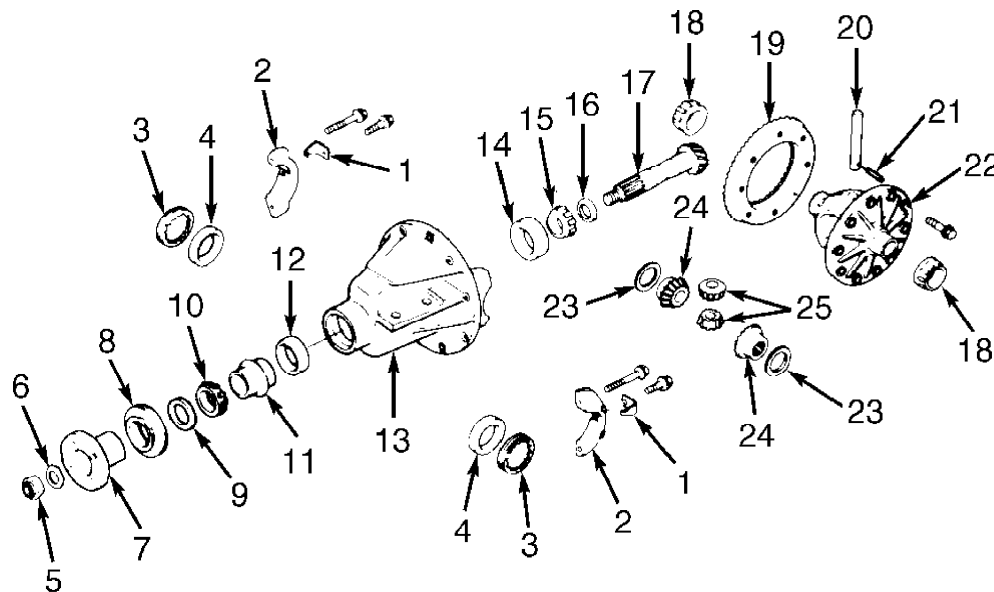
NOTE: Mark position of all components before disassembly.

DIFFERENTIAL HOUSING & DRIVE PINION

1) Mount carrier in repair stand. Mark side bearing caps for reassembly purposes. Remove adjuster lock plates. See Fig. 8.

2) Loosen side bearing and slightly back off adjusters. Remove bearing caps and adjusters. Withdraw differential assembly from carrier. Ensure side bearing races remain with their respective bearings.

3) Remove drive pinion lock nut. Remove companion flange using a gear puller. Remove drive pinion, spacer, rear bearing and collapsible spacer assembly from carrier. Remove oil seal and front bearing. Remove bearing outer races, using a drift and hammer in slots provided on inner lip (if necessary).



- | | |
|------------------------|--------------------------|
| 1. Lock Plate | 13. Differential Carrier |
| 2. Bearing Cap | 14. Bearing Race |
| 3. Adjuster | 15. Rear Bearing |
| 4. Side Bearing Race | 16. Spacer |
| 5. Lock Nut | 17. Drive Pinion |
| 6. Washer | 18. Side Bearing |
| 7. Companion Flange | 19. Ring Gear |
| 8. Oil Seal | 20. Pinion Shaft |
| 9. Spacer | 21. Knock Pin |
| 10. Front Bearing | 22. Differential |
| 11. Collapsible Spacer | 23. Thrust Washer |
| 12. Bearing Race | 24. Side Gear |
| | 25. Pinion Gear |

90E09856

Fig. 8: Exploded View of Typical Differential & Carrier Assembly
Courtesy of Mazda Motors Corp.

DIFFERENTIAL ASSEMBLY & RING GEAR

1) Using Puller (49 0839 425C), remove side bearings from gear case. Ensure side bearings are marked for reassembly purposes. Separate ring gear from gear case. On standard differentials, remove knock pin. Remove pinion shaft, pinion gears, thrust washers and side gears. See Fig. 8.

2) On Limited Slip Differentials (LSD) models, gradually loosen attaching screws until distance between left and right half of differential case is about 0.12" (3 mm). On all models, mark differential halves for reassembly reference.

3) Carefully separate differential halves. On LSD models, remove thrust washer, conical springs, friction plates, friction discs, pressure ring, side gears, carrier pinion (spider) gears and spider. See Fig. 9. Keep parts in order for reassembly.

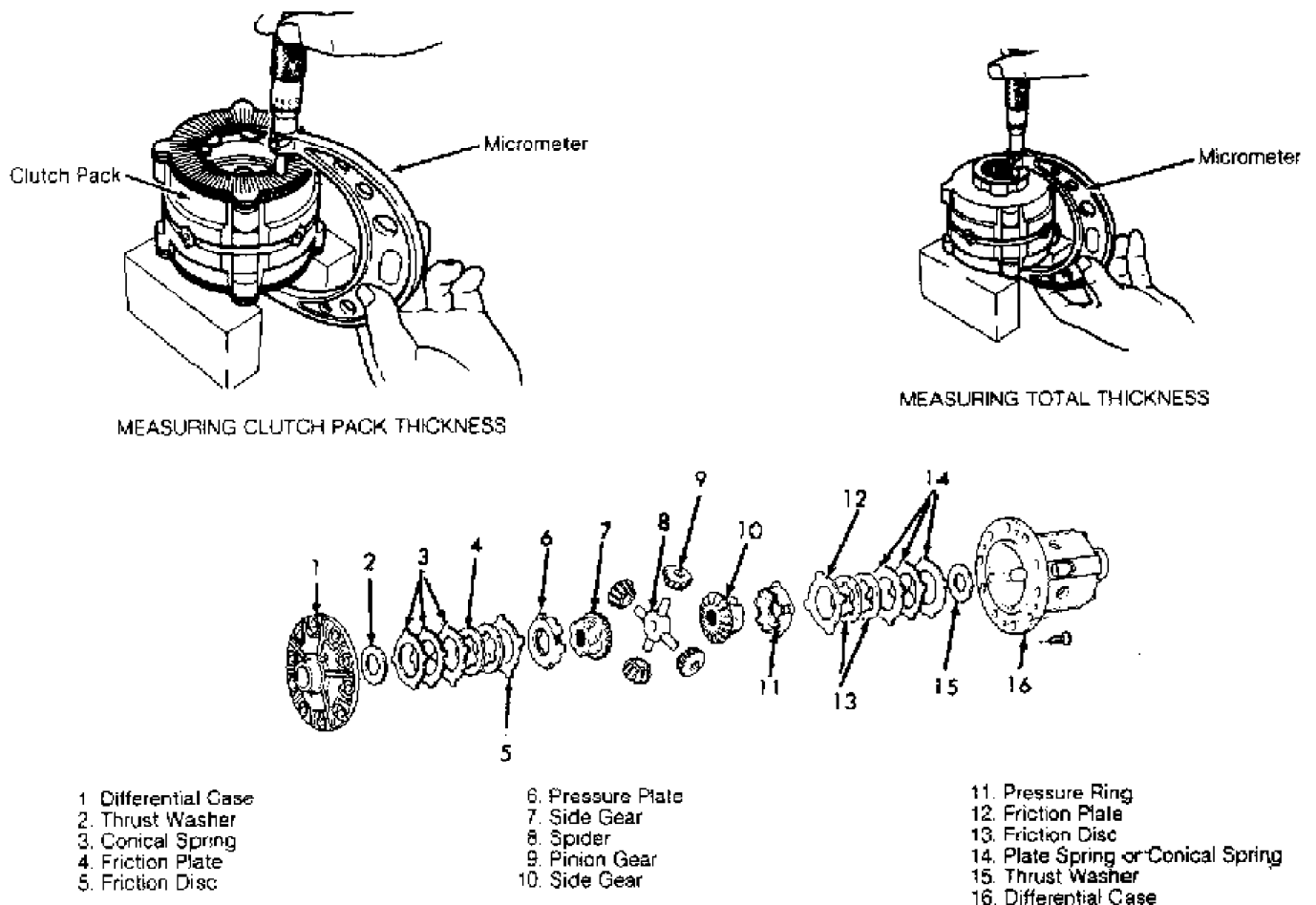


Fig. 9: View of Limited Slip Differential (LSD) Assembly (RX7)
Courtesy of Mazda Motors Corp.

REASSEMBLY & ADJUSTMENT OVERHAUL

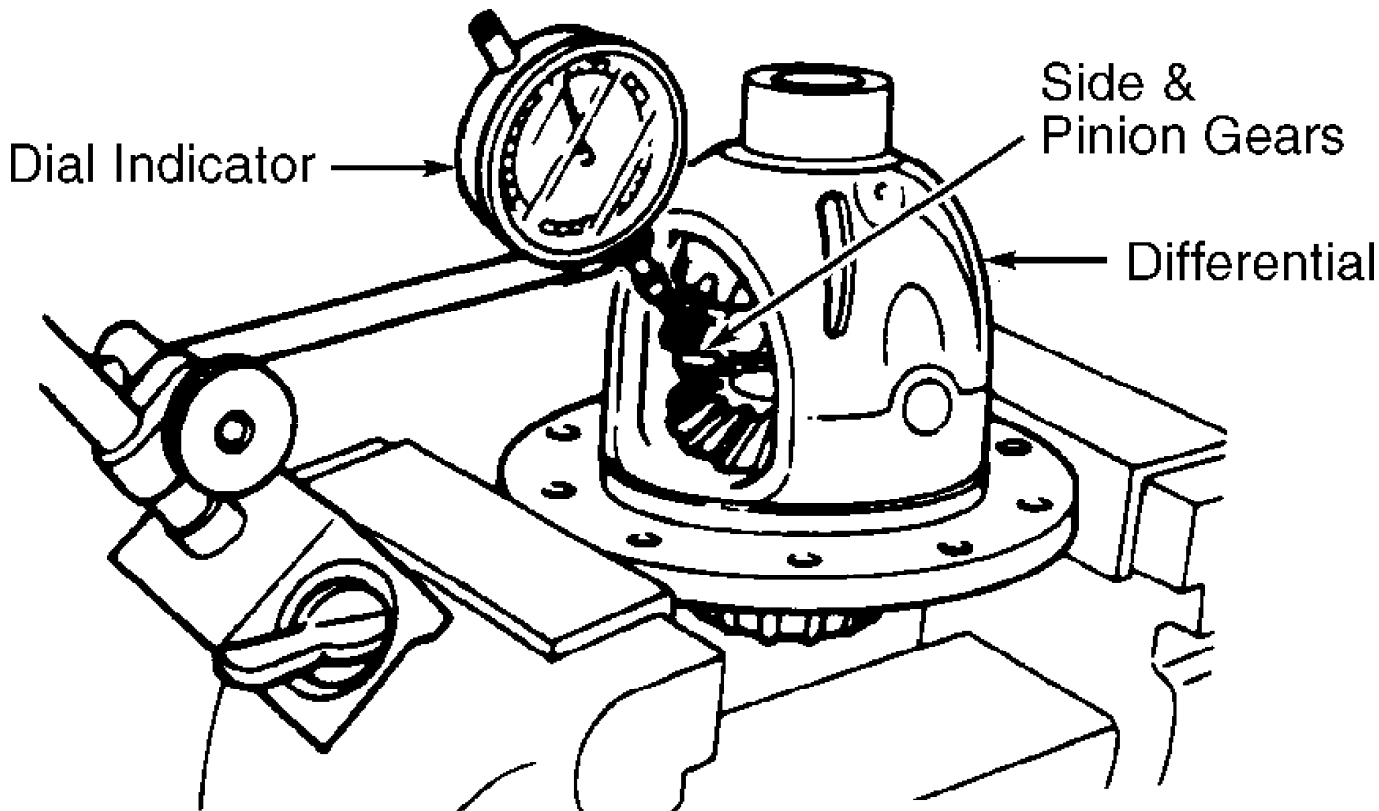
STANDARD DIFFERENTIAL

1) Install side gears, thrust washers, thrust block, pinion gears, pinion shaft and knock pin. Stake knock pin. Press side bearings onto differential assembly. Position a dial indicator against pinion gear. Secure one side gear. See Fig. 10.

2) Check side gear and pinion gear backlash. If backlash exceeds .004" (.10 mm), replace thrust washers. Apply locking compound to rear face of ring gear. Install ring gear and tighten ring gear retaining bolts to 51-61 ft. lbs. (69-83 N.m). See CARRIER PINION THRUST WASHER SPECIFICATIONS TABLE.

CARRIER PINION THRUST WASHER SPECIFICATIONS TABLE

Identifying Mark	Thickness In. (mm)
0 .....	.0787 (2.00)
05 .....	.0807 (2.05)
1 .....	.0827 (2.10)
15 .....	.0846 (2.15)
2 .....	.0866 (2.20)



91B01528
Fig. 10: Measuring Carrier Gear Backlash
Courtesy of Mazda Motors Corp.

LIMITED SLIP DIFFERENTIAL RX7

1) Check friction plate, disc and thrust washer thicknesses. See RX7 DIFFERENTIAL SPECIFICATIONS TABLE. Measure and record thickness of 6 plate springs.

2) Measure thickness of complete clutch pack excluding conical springs. See Fig. 9. Subtract conical spring thickness and complete clutch pack thickness from 3.583" (91.00 mm). Difference should be .004-.010" (.10-.25 mm).

3) If clearance is excessive, use oversize friction discs.

Oversize friction disc thickness is .0827" (2.10 mm). Measure thickness of side gears, pressure rings, spider, pinion gears and thrust washers in place. See Fig. 9.

4) Subtract thickness from 3.701" (94.00 mm). Difference should be .004-.016" (.10-.40 mm). If clearance is not as specified, install oversize thrust washers. See RX7 DIFFERENTIAL SPECIFICATIONS TABLE in this article.

5) Install parts in proper order. See Fig. 8. Before installing thrust washers, coat with grease. When installing conical springs, ensure concave side faces side gears. Align differential case and cover alignment marks. Apply locking compound to rear face of ring gear. Install ring gear and tighten ring gear retaining bolts to 51-61 ft. lbs. (69-83 N.m).

RX7 DIFFERENTIAL SPECIFICATIONS (LIMITED SLIP) TABLE

Application	In. (mm)
Friction Disc Thickness	
Standard .....	.079 (2.0)
Limit .....	.075 (1.9)
Friction Plate	
Standard .....	.079 (2.0)
Limit .....	.075 (1.9)
Oversize .....	.083 (2.1)
Thrust Washer	
Standard .....	.063 (1.6)
Limit .....	.055 (1.4)
Oversize .....	.071 (1.8)

PINION ASSEMBLY (B2200, B2600i, MIATA, PROTEGE 4WD & 929)

1) Using a press, install pinion bearing races in differential housing. Place original spacer, rear bearing and Bearing Collar (49 H027 001) onto Drive Pinion (49 8531 565). Secure collar with "O" ring. Install assembly into differential housing.

2) Install front bearing, Collar (49 8531 567 on 929 or 49 U027 001 on B2200 and B2600i), companion flange, washer and original drive pinion nut. See Fig. 11. Tighten flange nut so assembly can be turned by hand.

3) Place a dial indicator on Pinion Height Gauge (49 0727 570). Place pinion height gauge on a flat surface and zero dial indicator. Position Gauge Block on top of Drive Pinion (49 F027 001). See GAUGE BLOCK SELECTION TABLE in this article.

GAUGE BLOCK SELECTION TABLE

Application	Use Gauge Block No.
Front Differential	
B2600i & MPV 4WD	49 0305 555
Rear Differential	
B2200	49 0305 555
B2600i, Protege 4WD & 929	49 0660 555
Miata	49 N027 001

4) Set pinion height gauge on top of gauge block. Set dial indicator to measure distance to a point where side bearing sits. Measure lowest point. See Fig. 11. Measure both sides. Add both measurements together and divide sum by 2.

5) If measurement is not zero, replace pinion spacer. Spacers

are available in a range of .1213-.1366" (3.081-3.470 mm), in .001" (.03 mm) increments. Remove dummy pinion shaft. Press rear pinion bearing on pinion shaft.

6) Install pinion shaft, spacer, front bearing, collapsible spacer and companion flange in differential housing. DO NOT install pinion seal at this time. DO NOT exceed one ton force or collapsible spacer will be damaged.

7) Temporarily tighten drive pinion nut. Turn companion flange by hand to seat bearing. Tighten drive pinion nut to 94-130 ft. lbs. (128-177 N.m). Check pinion bearing preload, at drive pinion nut. See PINION PRELOAD SPECIFICATIONS TABLE. If pinion bearing preload is not as specified, replace collapsible spacer and recheck preload.

8) Remove drive pinion nut and companion flange. Install pinion seal. Apply oil to seal lip. Install companion flange. Using a new drive pinion nut, tighten nut to 94-130 ft. lbs. (128-177 N.m). Recheck pinion bearing preload.

PINION PRELOAD SPECIFICATIONS TABLE

Application	INCH	lbs. (N.m)
B2200 & 929	11.3-15.6	(1.3-1.8)
B2600i 4WD		
Front	11.3-15.6	(1.3-1.8)
Rear	7.8-12.2	(0.9-1.4)
Miata & Protege 4WD (Rear)	2.6-6.1	(0.3-0.7)
MPV 4WD		
Front	7.8-12.2	(0.9-1.4)
Rear	11.3-15.6	(1.3-1.8)
RX7		
Non-Turbo	7.8-12.1	(0.9-1.4)
Turbo	11.3-15.6	(1.3-1.8)

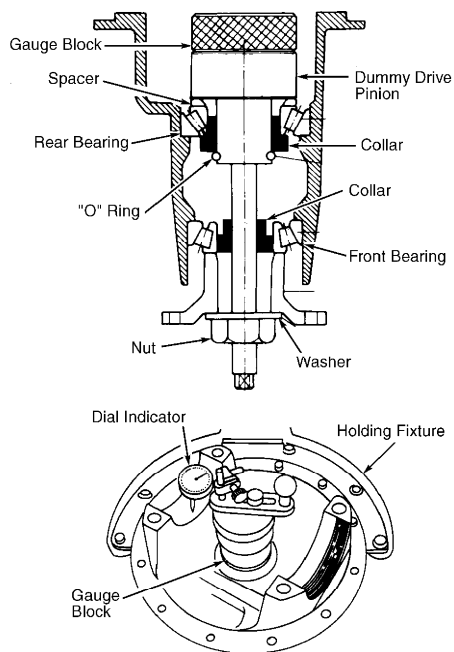


Fig. 11: Checking Pinion Installation & Position
Courtesy of Mazda Motors Corp.

PINION ASSEMBLY (RX7)

1) Using a press, install rear pinion bearing outer race in differential housing. Install center bearing outer race. Using original rear bearing spacer, install rear bearing on Setting Pinion (49 F027 001).

2) Position drive pinion in carrier and install center bearing, long collar and companion flange. Tighten pinion nut just enough so pinion can be turned by hand.

3) Place a dial indicator on Pinion Height Gauge (49 0727 570). Place pinion height gauge on a flat surface and zero dial indicator. Position Gauge Block (49 0305 555) on top of Setting Pinion (49 F027 001).

4) Set pinion height gauge on top of gauge block. Set dial indicator to measure distance to lowest point where side bearing sits. See Fig. 11. Measure both sides. Add both measurements together and divide sum by 2.

5) If measurement is not zero, replace pinion spacer. Spacers are available in a range of .1213-.1366" (3.081-3.470 mm) in .001" (.03 mm) increments. Remove setting pinion, select spacer and press rear pinion bearing on drive pinion shaft.

6) Install drive pinion, spacer, front bearing, collapsible spacer and companion flange in differential housing. DO NOT install pinion seal yet. Press center bearing onto drive pinion using Adapter (49 1243 465A). DO NOT exceed one-ton force or collapsible spacer will be damaged. Two different collapsible spacers are available, ensure correct one is used.

RX7 DRIVE PINION COLLAPSIBLE SPACERS TABLE

Application	Length In. (mm)
Non-Turbo	1.923-1.935 (48.85-49.15)
Turbo	2.238-2.250 (56.85-57.15)

7) Lubricate ends of long collar with grease and install. Using a press, install front bearing using Adapter (49 F027 009). Press fit with a 2-3 ton force. DO NOT install oil seal yet. Install companion flange and nut. Tighten drive pinion nut to 94 ft. lbs. (128 N.m). Turn companion flange by hand to seat bearing.

8) Pinion bearing preload at drive pinion nut should be 11.3-15.6 INCH lbs. (1.3-1.8 N.m). Adjust preload by tightening drive pinion nut. If correct preload cannot be obtained within drive pinion nut tightening range of 94-210 ft. lbs. (128-284 N.m), replace collapsible spacer and recheck preload.

9) Remove drive pinion nut and companion flange. Install pinion seal. Apply oil to seal lip. Install companion flange. Using a new drive pinion nut, tighten nut to specification established for correct preload.

CARRIER ASSEMBLY (ALL MODELS)

1) Position differential assembly into differential housing. Install side bearing adjusters. Position side bearing caps. Align marks made during disassembly. Install side bearing cap bolts. DO NOT tighten yet.

2) Tighten side bearing adjusters equally until adjuster contact bearing races. Mark ring gear in 4 locations, 90 degrees apart. Position a dial indicator against ring gear to check ring gear backlash.

3) Check backlash at all 4 locations. Tighten side bearing adjusters equally until backlash is .0035-.0043" (.09-.11 mm). Minimum backlash at any point is .002" (.05 mm). Difference between minimum

and maximum backlash at 4 measuring points should not exceed .0028" (.07 mm).

4) To set differential bearing preload, tighten adjustment screws equally until distance between measuring points on carrier bearing caps is within specification. See Fig. 12 and DIFFERENTIAL CARRIER DIMENSIONS TABLE.

5) Ensure backlash did not change when preload was set. Tighten side bearing cap bolts. Check ring gear tooth patterns. SEE GEAR TOOTH PATTERNS article in the DRIVE AXLE Section

DIFFERENTIAL CARRIER DIMENSIONS TABLE (1)

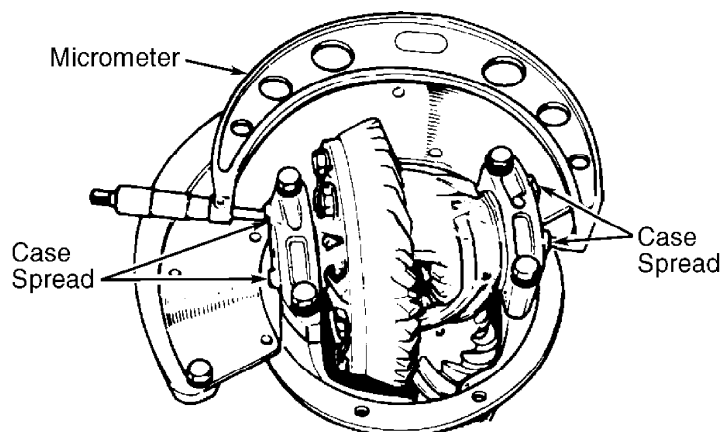
Application	In. (mm)
B2200 & B2600i	
"M" Differential	7.300-7.303 (185.43-185.50)
"P" Differential	8.048-8.051 (204.43-204.50)
Miata	5.885-5.913 (149.48-150.19)
MPV 4WD	
Front	7.275-7.303 (184.78-185.50)
Rear	8.022-8.051 (203.78-204.50)
Protege 4WD	
(Rear Differential)	5.910-5.913 (150.13-150.20)
RX7	
Non-Turbo	7.300-7.306 (185.43-185.59)
Turbo	8.048-8.051 (204.43-204.50)
929	8.023-8.051 (203.78-204.50)

(1) - See Fig. 12 for measuring point.

DIFFERENTIAL LUBRICATION SPECIFICATIONS TABLE (1)

Application	Specification
Above 0° F (-18° C)	GL-5/SAE 90w
Below 0° F (-18° C)	GL-5/SAE 80w

(1) - Fill to lower edge of filler plug hole.



91D01529
Fig. 12: Measuring Carrier Case Spread
Courtesy of Mazda Motors Corp.

TORQUE SPECIFICATIONS

1990 TORQUE SPECIFICATIONS (B2200 & B2600i) TABLE

Application	Ft. Lbs. (N.m)
Brake Pipe Union	10-16 (14-22)
Differential Assembly	
Differential Carrier-to-Axle Housing	17-20 (23-27)
Differential Carrier Bearings Cap Bolts	
"P" Series Differential	41-59 (56-80)
"M" Series Differential	27-38 (37-52)
Differential Carrier	
Bearings Lock Tab	13-19 (18-26)
Drive Pinion Lock Nut	94-130 (127-176) 90
Filler Plug	29-40 (39-54)
Ring Gear Retaining Bolts	51-61 (69-83)
Front Suspension & Differential	
Drive Shaft Companion Flange	20-22 (27-30)
Sub-Frame Mounting Bolts	69-85 (94-115)
Splash Shield	23-34 (31-46)
Rear Drive Axle	
Axle Bearing Lock Nut	145-217 (197-294)
Backing Plate Bolt	
2WD	72-87 (98-118)
4WD	65-80 (88-109)
Drive Shaft Companion Flange	20-22 (27-30)
Wheel Lug Nuts	
Standard Wheel	65-87 (88-118)
Styled Wheel	87-108 (118-146)

1991 TORQUE SPECIFICATIONS (B2200 & B2600i) TABLE

Application	Ft. Lbs. (N.m)
Brake Pipe Union	10-16 (14-22)
Differential Carrier-To-Housing Nuts ..	17-20 (23-27)
Differential Carrier Bearings Cap Bolts	
"P" Series Differential	41-59 (56-80)
"M" Series Differential	27-38 (37-52)
Differential Carrier Bearings	
Lock Plate Bolt	13-19 (18-26)
Drive Pinion Lock Nut	94-210 (127-284)
Drive Shaft Companion Flange Nuts	20-22 (27-30)
Filler Plug	29-40 (39-54)
Front Subframe Mounting Bolts	69-85 (94-115)
Rear Axle Bearing Lock Nut	145-217 (197-294)
Rear Backing Plate Bolt	
2WD	72-87 (98-118)
4WD	65-80 (88-109)
Ring Gear Retaining Bolts	51-61 (69-83)
Splash Shield Bolts	23-34 (31-46)
Wheel Lug Nuts	
Standard Wheel	65-87 (88-118)
Styled Wheel	87-108 (118-146)

TORQUE SPECIFICATIONS (MIATA)

1990 TORQUE SPECIFICATIONS (MIATA) TABLE

Application	Ft. Lbs. (N.m)
Differential Assembly	
Differential Carrier-to-Housing	17-20 (23-27)
Differential Carrier	
Bearings Cap Bolts	50-66 (68-90)
Differential Carrier Bearings	
Lock Tab	14-19 (19-26)
Differential Case Rear Mounts	
Drive Pinion Lock Nut	87-130 (118-176)
Inner Nut	61-72 (83-98)
Outer Nuts (2)	13-20 (18-26)
Filler Plug	29-40 (39-54)
Ring Gear Retaining Bolts	51-61 (69-83)
Power Plant Frame-to-Differential Mounting	
Spacer Bolt (Short)	27-38 (37-52)
PPF-to-Differential	
Side Mounting Bolts (Long)	77-91 (104-123)
PPF-to-PPF Bracket Bolt	27-40 (37-54)
Power Plant Frame-to-Transmission	
Side Mounting Bolts (Long)	77-91 (104-123)
Transmission-to-PPF Bracket Bolts ...	27-40 (37-54)

1991 TORQUE SPECIFICATIONS (MIATA) TABLE

Application	Ft. Lbs. (N.m)
Differential Carrier-To-Housing Nuts ..	17-20 (23-27)
Differential Carrier Bearings	
Cap Bolts	27-38 (37-52)
Differential Carrier Bearings Lock	
Plate Bolt	13-19 (18-26)
Differential Case Rear Mount Nuts	54-69 (73-94)
Drive Pinion Lock Nut	87-130 (118-176)
Inner Nut	61-72 (83-98)
Outer Nuts (2)	13-20 (18-26)
Drive Shaft Companion Flange Nuts	20-22 (27-30)
Filler Plug	29-40 (39-54)
Ring Gear Retaining Bolts	51-61 (69-83)
Power Plant Frame-To-Differential Mounting	
Spacer Bolt (Short)	27-38 (37-52)
PPF-To-Differential Bolts	
Side Mounting Bolts (Long)	77-91 (104-123)
PPF-To-PPF Bracket Bolt	27-40 (37-54)
Power Plant Frame-To-Transmission	
Side Mounting Bolts (Long)	77-91 (104-123)
Transmission-To-PPF Bracket Bolts ...	27-40 (37-54)
Wheel Lug Nuts	65-87 (88-118)

TORQUE SPECIFICATIONS (MPV 4WD)

1990 TORQUE SPECIFICATIONS (MPV 4WD) TABLE

Application	Ft. Lbs. (N.m)
Brake Pipe Union	10-16 (14-22)
Differential Assemblies	
Differential Carrier Bearings Cap Bolts	
Front Differential	27-38 (37-52)
Rear Differential	54-79 (73-107)

Differential Carrier		
Bearings Lock Tab	13-19	(18-26)
Differential Carrier-to-Housing	17-20	(23-27)
Drive Pinion Lock Nut	94-210	(127-285)
Filler Plug	29-40	(39-54)
Ring Gear Retaining Bolts	51-61	(69-83)
Front Axle Components		
Differential-to-Chassis Mounts	49-72	(66-98)
Drive Shaft Companion Flange	36-43	(49-58)
Extension Housing-to-Differential		
Housing	27-40	(36-54)
Lower Ball Joint-to-"A" Frame	75-101	(102-137)
Splash Shield	12-17	(16-23)
Rear Axle Components		
Axle Bearing Retainer Nuts	72-87	(98-118)
Brake Drum Retaining Screws	10-11	(14-15)
Drive Shaft Companion Flange	36-43	(49-58)

1991 TORQUE SPECIFICATIONS (MPV) TABLE

Application	Ft. Lbs. (N.m)	
Brake Pipe Union	10-16	(14-22)
Differential-To-Chassis		
Mount Nuts (4WD)	49-72	(66-98)
Differential Carrier Bearings Cap Bolts		
Front Differential	27-38	(37-52)
Rear Differential	54-79	(73-107)
Differential Carrier Bearings Lock		
Plate Bolt	13-19	(18-26)
Differential Carrier-To-Housing Nuts ..	17-20	(23-27)
Drive Pinion Lock Nut	94-210	(127-285)
Drive Shaft Companion Flange Nuts	36-43	(49-58)
Filler Plug	29-40	(39-54)
Lower Ball Joint-To-Control		
Arm Bolts (4WD)	75-101	(102-137)
Lower Ball Joint-To-Control		
Arm Nut (4WD)	94-127	(128-172)
Rear Axle Bearing Retainer Nuts	72-87	(98-118)
Rear Brake Drum Retaining Screws	7-11	(10-15)
RFW Extension Housing Mount		
Nut (4WD)	149-72	(66-98)
Ring Gear Retaining Bolts	51-61	(69-83)
Splash Shield Bolts (4WD)	12-17	(16-23)
Tie Rod End Nut (4WD)	43-58	(59-78)
Wheel Lug Nuts	65-87	(88-118)

1990 TORQUE SPECIFICATIONS (PROTEGE 4WD) TABLE

Application	Ft. Lbs. (N.m)	
Differential Assembly		
Differential Carrier		
Bearing Cap Bolts	27-38	(37-52)
Differential Carrier		
Bearing Lock Tab	14-19	(19-26)
Differential Carrier-to-Housing	17-20	(23-27)
Differential Case		
Front Mounts	33-50	(45-68)
Rear Mounts	80-97	(109-132)
Drive Pinion Lock Nut	87-130	(118-176)

Filler Plug	29-40	(39-54)
Ring Gear Retaining Bolts	51-61	(69-83)
Suspension & Mounts		
Drive Axle Inner CV Joint Nut	40-47	(54-64)
Drive Shaft Companion Flange	20-22	(27-30)
Front Mount	33-50	(45-68)
Lateral Link	46-55	(62-75)
Rear Mount	80-97	(109-132)
Stabilizer Bar	10-13	(14-18)
Trailing Link	69-86	(94-117)
Wheel Lug Nuts	65-87	(88-118)

1991 TORQUE SPECIFICATIONS (PROTEGE 4WD) TABLE

Application	Ft. Lbs. (N.m)	
Differential Carrier Bearing		
Cap Bolts	27-38	(37-52)
Differential Carrier Bearing Lock		
Plate Bolt	13-19	(18-26)
Differential Carrier-To-Housing		
Nuts	17-20	(23-27)
Differential Case		
Front Mounts	39-47	(53-63)
Rear Mounts	68-86	(93-116)
Drive Axle Inner CV Joint Nut	40-47	(54-64)
Drive Pinion Lock Nut	87-130	(118-176)
Drive Shaft Companion Flange Nuts	20-22	(27-30)
Filler Plug	29-40	(39-54)
Lateral Link Bolts	46-55	(62-75)
Ring Gear Retaining Bolts	51-61	(69-83)
Stabilizer Bar Bolts	31-43	(43-58)
Trailing Link Bolts	68-93	(93-126)
Wheel Lug Nuts	65-87	(88-118)

1990-91 TORQUE SPECIFICATIONS (RX7) TABLE

Application	Ft. Lbs. (N.m)	
Differential Carrier-to-Housing	17-20	(23-27)
Differential Carrier		
Bearing Cap Bolts (1)	54-79	(73-107)
Differential Carrier		
Bearing Cap Bolts (2)	50-66	(73-107)
Differential Carrier Bearing		
Lock Tab	13-19	(18-26)
Differential Case Front Hanger Nut ...	65-77	(88-104)
Differential Case Rear Mounts	54-69	(73-94)
Differential Ring Gear Bolts	51-61	(69-83)
Drive Axle Inner CV Joint Nut	40-47	(54-64)
Drive Pinion Lock Nut	94-210	(127-285)
Drive Shaft Companion Flange	36-43	(49-58)
Filler Plug	29-40	(39-54)
Ring Gear Retaining Bolts	51-61	(69-83)
Support Strut Mounting Bolt	54-69	(73-94)
Wheel Lug Nuts	65-87	(88-118)

(1) - 1990 Model.

(2) - 1991 Model.

1990-91 TORQUE SPECIFICATIONS (929) TABLE

Application	Ft. Lbs. (N.m)
ABS Sensor-to-Hub Support Bolt	12-17 (16-23)
Differential Carrier Bearing	
Cap Bolts	50-66 (68-90)
Lock Tabs	13-18 (18-24)
Differential Carrier-to-Housing	17-20 (23-27)
Differential Case	
Front Hanger Nut	69-86 (94-117)
Rear Mounts	69-86 (94-117)
Drive Axle Inner CV Joint Nut	40-47 (54-64)
Drive Pinion Lock Nut	94-130 (127-176)
Drive Shaft Companion Flange Bolts	36-43 (49-58)
Filler Plug	29-40 (39-54)
Ring Gear Retaining Bolts	51-61 (69-83)
Wheel Lug Nuts	65-87 (88-118)