

Drive Axles

CHRYSLER CORP. - 7 1/4" RING GEAR

Aspen, Volare,
LeBaron, Diplomat

NOTE - Some models use other units. See Chrysler Corp. 8 1/4" & 9 1/4" Ring Gear, or Sure-Grip Differential in this section.

DESCRIPTION

Semi-floating, hypoid gear type with differential carrier integral with rear axle housing. All components can be inspected, removed and serviced without removing complete axle assembly from vehicle. **CAUTION** - Should rear axle become submerged in water, lubricant must be changed immediately to avoid possibility of early axle failure resulting from contamination of lubricant by water drawn into vent hole.

AXLE RATIO & IDENTIFICATION

The 7 1/4" drive axle is available in four gear ratios and is easily identified by the nine bolt cover. Gear ratio identification is stamped on a small metal tag which is attached under one of the cover screws.

Axle Ratio Identification

Axle Ratio	Pinion Gear	No. Of Teeth	Ring Gear
2.47-1	19	47	47
2.76-1	17	47	47
2.94-1	16	47	47
3.23-1	13	42	42

REMOVAL & INSTALLATION

AXLE SHAFTS & BEARINGS

1) Remove wheel and drum. Disconnect brake line at wheel cylinder. Work through axle shaft flange to remove retainer nuts. Using suitable puller tool (SP-3266) remove axle shaft. Remove brake assembly and axle shaft oil seal from housing.

CAUTION - Do not use heat to remove bearing or collar.

2) Position axle shaft bearing retaining collar on a heavy vise. Using a chisel, cut deep grooves into retaining collar at 90° intervals. Drive collar off shaft. To install reverse removal procedures.

NOTE - Any time axle assembly is serviced, and axle shaft is loosened or removed, both brake support plate gaskets and inner axle shaft oil seal must be replaced.

REAR AXLE ASSEMBLY

Raise car and support body at front of rear springs. Block brake pedal in the "UP" position. Remove rear wheels and disconnect hydraulic flex line. Disconnect parking brake cable and propeller shaft. Remove spring "U" bolts and shock absorbers. Remove rear axle assembly. To install, reverse removal procedure.

PINION FLANGE & OIL SEAL

1) Raise vehicle on hoist and make scribe marks on propeller shaft universal joint, drive pinion flange and end of pinion stem. Disconnect propeller shaft and secure in upright position.

2) Remove wheels and brake drums to prevent any drag. Measure pinion bearing preload by rotating pinion with an

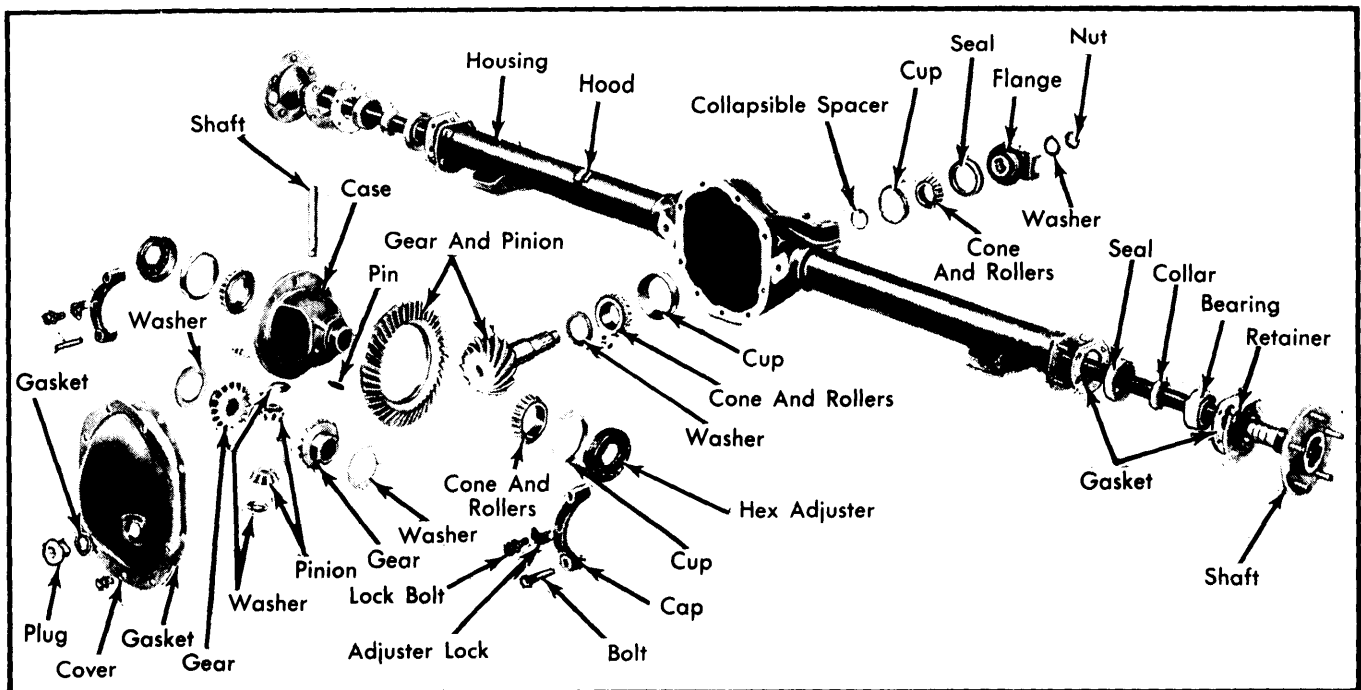


Fig. 1 Exploded View of Chrysler Corp. 7 1/4" Rear Axle Assembly

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INCH pound torque wrench. Rotate pinion through several revolutions and record torque. Using suitable tool (C-3281), hold companion flange and remove drive pinion nut and Belleville washer. Remove flange.

3) Lower rear of vehicle to prevent lubricant leakage. Remove pinion oil seal. Inspect flange for damage. Repair if necessary. Using suitable tool (C-4002), install new pinion oil seal. Seal is properly installed when seal flange contacts housing flange face. Outside diameter of seal is pre-coated with a special sealer so no sealing compound is required.

4) Position flange on pinion stem matching scribe marks. Install Belleville washer (convex side of washer out), and pinion nut. Make sure bearing rollers are properly seated.

5) Using a torque wrench, measure pinion bearing preload, continue tightening pinion nut and checking preload until preload is at original setting.

6) Under no circumstances should preload be more than 10 INCH lbs. over original setting. **CAUTION** – Under no circumstances should the pinion nut be backed off to lessen preload. If desired preload is exceeded, a new collapsible spacer must be installed and nut retightened until proper preload is obtained. In addition, the universal joint flange must never be hammered on, or power tools used.

OVERHAUL

Disassembly – **NOTE** – Overhaul may be accomplished without removing complete axle assembly. Sideplay and runout checks are to be made during disassembly for use during reassembly. Axle shafts are removed as previously discussed.

1) Drain fluid from housing, then remove cover and clean interior of differential. Position a screwdriver between left side of axle housing and differential case flange. Using a prying motion, determine if side play is present. **NOTE** – There should be no side play. Using a dial indicator mounted to housing, measure drive gear runout by turning drive gear several complete revolutions. Mark drive gear and differential case at point of maximum runout. **NOTE** – If runout exceeds .005", differential case may be damaged.

2) Remove drive pinion nut and washer. Using a suitable tool (C-452 & C-3281) remove drive pinion flange, and remove drive pinion oil seal. Mark axle housing and differential bearing caps for relocation. Remove adjuster lock from each bearing cap and loosen bolts, but do not remove bearing caps. Insert suitable tool (C-4164) through axle tube on each side and loosen hex adjuster. Remove bearing caps, adjusters and differential assembly using extreme caution. **NOTE** – Differential bearing caps must be kept with their respective bearing cones.

NOTE – To remove drive pinion or front pinion bearing cone, pinion stem must be driven rearward out of bearing. This will damage bearing rollers and cup, so new cone and cup assembly must be installed.

3) Discard collapsible spacer. Using a brass drift and hammer, remove front and rear bearing cups from housing. Using suitable adapter tools (293-P and C293-40), remove rear pinion bearing cone from drive pinion stem. Remove shim from drive pinion and record thickness.

4) Remove drive gear bolts. Using a brass drift, tap drive gear from differential case. If drive gear runout was excessive, install case into carrier housing, install pedestal caps and bolts.

NOTE – Drive gear bolts have left hand thread.

5) Using a dial indicator mounted to housing, check case for runout, maximum runout should not exceed .003". Remove case assembly from carrier and drive pinion shaft lock pin out of case from drive gear side.

6) Remove pinion shaft, rotate side gears until pinions appear at case window. Remove pinions, side gears and thrust washers, using puller, remove differential bearing cones.

Reassembly – 1) Lubricate all parts when assembling and adjusting. Install thrust washers on differential side gears and position gears in case. Place thrust washers on both differential pinion gears. Mesh pinion gears with side gears, having pinion gears exactly 180° apart.

2) Rotate side gears to align pinion gears and washers with pinion shaft hole in case. Install differential pinion shaft and align lock pin hole in differential case. Install lock pin in differential case from drive gear side. Using suitable stone, relieve sharp edge of chamfer on inside diameter of ring gear.

3) Heat ring gear with heat lamp or by immersing gear in hot water or oil. Temperature should not exceed 300°F. **NOTE** – Do not use a torch. Using pilot studs to align gear to case, install new drive gear bolts through case flange and into drive gear.

4) Place unit on soft jawed vise and alternately tighten bolts. Using arbor press and suitable tools (C-3716-A and handle C-4171), install differential bearing cones.

CAUTION – Do not exert pressure against bearing cage as damage will result.

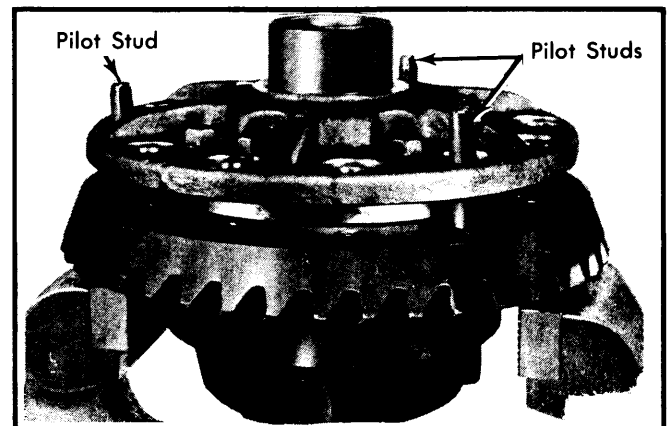


Fig. 2 Using Pilot Studs to Locate Case to Heated Ring Gear

Pinion Bearing Cup Installation – 1) Pinion gauge tool set (C-3715-L) is used to install drive pinion bearing cups as well as to determine pinion depth of mesh. Start both drive pinion bearing cups into axle housing.

2) Place rear spacer (SP-3244) on tool and place front pinion bearing cone on centralizing sleeve. Then place tool sleeve, centralizing washer and nut on tool. Hold compression sleeve

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from turning and tighten nut. This will draw pinion bearing cups into axle housing cup bores.

3) Permit tool to turn several revolutions during tightening operation, this will permit bearing rollers to align. Leave tool in carrier for determining depth of mesh.

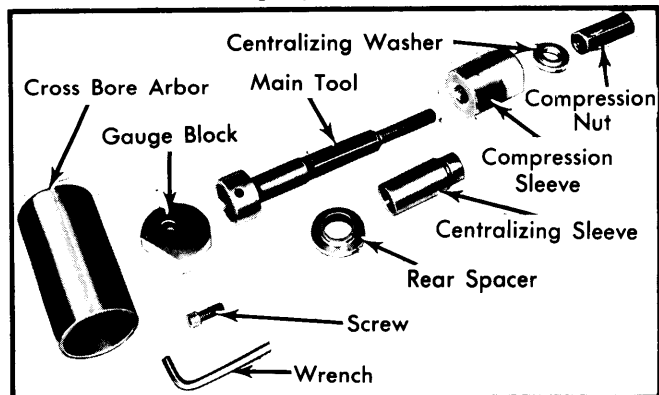


Fig. 3 Chrysler Corp. Pinion Gauge Tool Set C-3715-L

Pinion Setting Kit (C-3715-L) - 1) With main tool left in housing after installing drive pinion bearing cups, loosen tool nut and retighten until 15-25 INCH lbs. of turning torque is reached. Attach gauge block to main tool using Allen screw.

2) Position cross bore arbor in axle housing differential bearing seats. Install bearing caps. Tighten cap bolts lightly.

3) Select rear pinion bearing mounting shim which will fit between cross bore arbor and gauge block. Fit must be snug but not tight. If mark on Pinion head is plus (+), select a shim that many thousandths thinner for installation.

4) If mark on pinion has a minus (-), select a shim that many thousandths thicker for installation. Treat other pinion markings in a similar manner. Spacers are available in .001" increments from .020" to .038".

Pinion Installation & Bearing Preload - **NOTE** - Pinion bearing mounting shims are chamfered on one side and must be installed on pinion stem with chamfered side toward pinion head.

1) Place shim and rear bearing cone on pinion stem and using suitable tool (C-3717), press bearing on pinion stem. Lubricate bearing cones with rear axle lubricant and insert drive pinion and bearing assembly up through axle casting. Install collapsible spacer followed by front bearing cone on pinion stem. Install companion flange using suitable tool (C-3718). **NOTE** - Use care not to collapse spacer during installation. Remove tool and flange.

2) Install drive pinion oil seal using suitable tool (C-4002) until seal flange contacts housing flange face. Support pinion in carrier, reinstall companion flange.

3) Remove tools and install Belleville washer (convex side up) and pinion nut. Hold companion flange with suitable tool (C-3281) and tighten nut until no end play can be detected. Continue tightening nut and checking preload with an INCH lb. torque wrench until pinion bearing preload is 15-30 INCH lbs. Final nut torque must be above 210 ft. lbs.

NOTE - If installing NEW front pinion bearing and original rear bearing, correct preload is 10 INCH lbs. greater than tear down reading. Under no circumstances should pinion nut be

backed off if desired preload is exceeded. A new spacer will be required and pinion nut tightened until proper preload is reached.

Differential Bearing Preload & Ring & Pinion Backlash Adjustment - 1) Set pinion bearing preload in normal manner then install differential assembly with bearing caps and adjusters. On 7 1/4" axles, be sure that adjusters are turned outboard as far as possible. Differential bearings and adjuster threads must be liberally lubricated with axle oil.

2) Check alignment of adjuster threads then tighten top cap screws on right and left sides to 10 ft. lbs. Tighten bottom cap screws finger tight until head is just seated on bearing cap. Using Tool C-4164 (or equivalent), check each adjuster to make sure that it rotates freely, then turn both adjusters in until bearing freeplay is eliminated with some drive gear backlash (approximately .010"), existing between drive gear and pinion.

3) Seat bearing rollers. **NOTE** - To assure accurate adjustment changes and to maintain gear mesh index, bearings must be seated by turning drive pinion one half turn in each direction five to ten times, each time adjuster is moved.

4) Install dial indicator and find point of minimum backlash checking at four positions approximately 90° intervals around drive gear. Rotate gear to position with least backlash and mark index so that all backlash readings will be taken with same teeth mesh.

5) Loosen right adjuster and tighten left adjuster until backlash is .003-.004", with each adjuster tightened to 10 ft. lbs. Seat bearing rollers and tighten bearing cap screws to 45 ft. lbs.

6) Tighten right adjuster to 70 ft. lbs. and seat rollers at same time until torque remains constant at 70 ft. lbs. **NOTE** - Maintain specified adjuster torque to obtain accurate backlash and preload settings. Backlash should be .004-.006". If backlash does not meet specifications, increase torque on right adjuster and seat rollers until correct backlash is obtained.

7) Tighten left adjuster to 70 ft. lbs. and seat bearings at same time until torque remains constant.

8) Install adjuster locks and torque lock screws to 90 inch lbs.

AXLE ASSEMBLY SPECIFICATIONS

Application	Specification
Drive Gear & Pinion Backlash	① .004-.006"
Pinion Bearing Preload	② 15-30 INCH lbs.
Drive Gear & Case Runout	.005" (Max.)
①	- At Point of minimum backlash.
②	- Turning torque.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs.
Differential Bearing Bolts	45
Drive Gear-to-Case Bolts	55
Drive Pinion Flange Nut	210 (Min.)
Carrier Cover Bolts	250 INCH lbs.
Axle Shaft Retainer Nuts	35
Propeller Shaft Bolts (Rear)	170-200 INCH lbs.
Spring "U" Bolt Nuts	45 (Max.)
Wheel Stud Nuts	85
Shock Absorber Stud Nuts (Lower)	50