

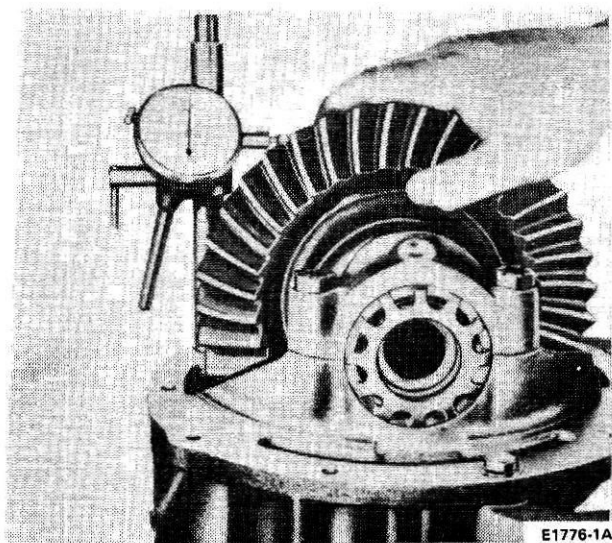


FIG. 15 Backlash Check—Typical

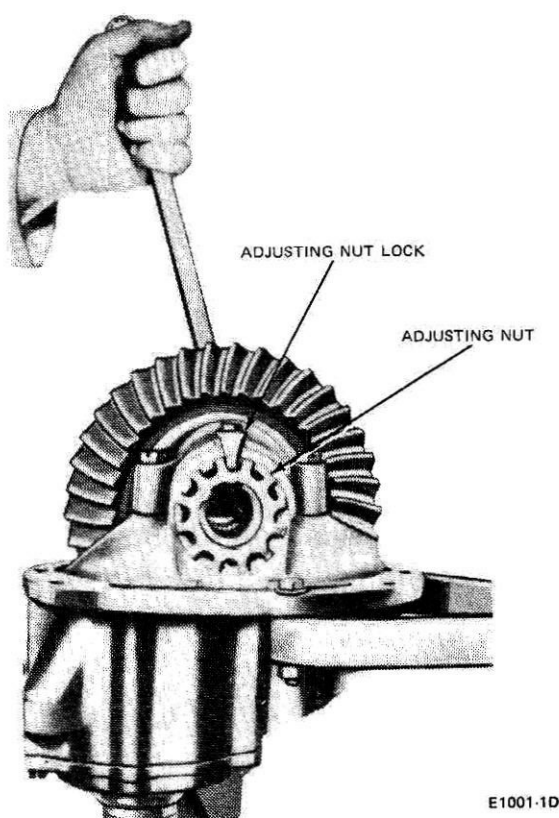


FIG. 16 Checking Gear Tooth Contact—Typical

Certain types of gear tooth contact patterns on the ring gear indicate incorrect adjustment. Noise caused by incorrect adjustment can often be corrected by readjusting the gears. Acceptable patterns and the necessary corrections are explained under Tooth Contact Pattern Check at the beginning of this Part.

Gear tooth runout can sometimes be detected by an erratic pattern on the teeth. However, a dial indicator should be used to measure the runout of the back face of the ring gear as shown in Fig. 17. If this runout exceeds specifications, disassemble the carrier and replace necessary parts as indicated in Part 15-02, Assembly and Disassembly.

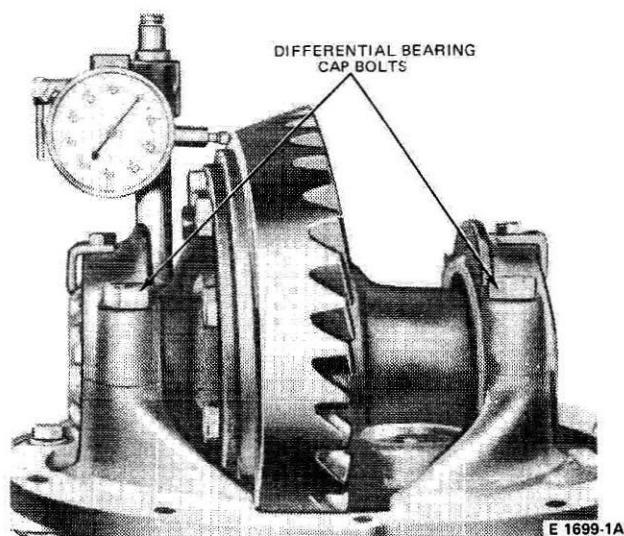


FIG. 17 Checking Ring Gear Runout—Typical

Loosen the differential bearing cap bolts, and then torque them to 25 ft-lb. Remove the adjusting nut locks. Carefully loosen one of the adjusting nuts to determine if any differential bearing preload remains. If any preload remains, the differential bearings may be re-used, provided they are not pitted or damaged.

INSPECTION AFTER DISASSEMBLY OF CARRIER (ALL AXLES)

Thoroughly clean all parts. Synthetic seals must not be cleaned, soaked or washed in cleaning solvents. Always use clean solvent when cleaning bearings. Oil the bearings immediately after cleaning, to prevent rusting. Inspect the parts for defects. Clean the inside of the carrier before rebuilding it. **When a scored gear set is replaced, the axle housing should be washed thoroughly and steam cleaned. This can only be done effectively if the axle shafts and shaft seals are removed from the housing. Inspect individual parts as outlined below.**

GEARS

Examine the pinion and ring gear teeth for scoring or excessive wear. **Extreme care must be taken not to damage the pilot bearing surface of the pinion.** The pattern taken during disassembly should be helpful in judging if gears can be re-used. Worn gears cannot be rebuilt to correct a noisy condition. Gear scoring is the result of excessive shock loading or the use of an incorrect lubricant. Scored gears cannot be reused. Examine the teeth and thrust surfaces of the differential gears. Wear on the hub of the differential gear can cause a chucking noise known as chuckle when the vehicle is driven at low speeds. Wear of splines, thrust surfaces, or thrust washers, can contribute to excessive drive line backlash.

BEARING CUPS AND CONE AND ROLLER ASSEMBLIES

Check bearing cups for rings, scores, galling, or excessively worn wear patterns. Pinion cups must be solidly seated. Check by attempting to insert a 0.0015-inch feeler between these cups and the bottoms of their bores.

When operated in the bearing cups, cone and roller assemblies must turn without roughness. Examine the roller ends for wear. Step-wear on the roller ends indicates that bearings were not preloaded properly, or that the rollers were slightly misaligned.

If inspection reveals either a worn bearing cup or a worn cone and roller assembly, **both parts should be replaced to avoid damage.**

DIFFERENTIAL BEARING ADJUSTING NUTS

Temporarily install the bearing caps and test the fit of the adjusting nuts in their threads. The nuts should turn easily when the caps are tightened to 25 ft-lb. The faces of the nuts that contact the bearing cups must be smooth and square. Replace the nuts or examine the threads in the carrier if their fit is not proper. Be sure that the bearing caps and adjusting nuts are on the side they were machined to fit. Observe the punch marks and scribe marks made during disassembly.

U-Joint Flange

Be sure that the ears of the flange have not been damaged in removing the drive shaft or in removing the flange from the axle. The end of the flange that contacts the front pinion bearing inner race, as well as the flat surface of the pinion nut counterbore, must be smooth. Polish these surfaces if necessary. Roughness aggravates backlash noises and causes wear of the flange and pinion nut—with a resultant loss in pinion bearing preload.

PINION RETAINER

Be sure that the pinion bearing cups are seated. Remove any chips or burrs from the mounting flange. Clean the groove for the O-ring seal and all lubricant passages. If the cups were removed, examine the bores

carefully. Any nicks or burrs in these bores must be removed to permit proper seating of bearing cups.

CARRIER HOUSING

Make sure that the differential bearing bores are smooth and the threads are not damaged. Remove any nicks or burrs from the mounting surfaces of the carrier housing.

DIFFERENTIAL CASE

Make sure that the hubs where the bearings mount are smooth. Carefully examine the differential case bearing shoulders, which may have been damaged when the bearings were removed. The bearing assemblies will fail if they do not seat firmly against the shoulders. Check the fit (free rotation) of the differential side gears in their counterbores. Be sure that the mating surfaces of the two parts of the case are smooth and free from nicks or burrs.

TRACTION-LOK DIFFERENTIAL PARTS

Inspect the clutch plates for uneven or extreme wear. The dog-eared clutch plates must be free from burrs, nicks or scratches which could cause excessive or erratic wear to the bonding material of the internally splined clutch plates. The internally splined clutch plates should be inspected for condition of the bond, bonding material, and wear. Replace the bonded plates if their thickness is less than 0.085 inch or if the bonded material is scored or badly worn. Inspect the bonded plate internal teeth for wear. Replace them, if excessive wear is evident. **Bonded plates should be replaced as a set only. Examine all thrust surfaces and hubs for wear. Abnormal wear on these surfaces can contribute to a noisy axle.**

SPECIAL TOOLS

Tool Number	Description	Tool Number	Description
Tool 6565 with Tool 4201-C bracket. T70P-4067-A	Flange Bearing Cup Runout Checker Differential Bearing Preload Adjuster	T57L-500-A T59L-4204-A, T65K-4204-A T66L-4204-A or Tool 44211-A	Bench Fixture For Carrier Overhaul Adapter For Traction-Lok Differential Check w/Torque Wrench

CE2316-2C

ATTACHING TORQUE SPECIFICATIONS

Description	Torque Ft-Lb
Driveshaft To Axle Companion Flange U-Bolt Nut All Vehicles Except Lincoln Continental, Continental Mark V, Fairmont, Zephyr, Versailles Lincoln Continental, Continental Mark V, Fairmont, Zephyr, Versailles	8 - 15 70 - 90

CE2588-2B

Integral Carrier Axle—Conventional

PART 15-02

Applies To Mustang/Pinto/Bobcat

SUBJECT	PAGE	SUBJECT	PAGE
DESCRIPTION	02-1	REMOVAL AND INSTALLATION (Cont'd.)	
DISASSEMBLY AND ASSEMBLY		Drive Pinion Oil Seal	02-3
Assembly of Axle	02-13	Installation of New Universal	
Differential Case	02-7	Joint Flange	02-5
Differential Case, Bearings and		Rear Axle Shaft, Wheel Bearing and	
Ring Gear	02-12	Oil Seal	02-2
Differential Case and Drive Pinion	02-7	Removal and Installation of the	
Disassembly of Axle	02-7	Original U-Joint Flange	02-5
Parts Repair or Replacement	02-8	SPECIFICATIONS	02-15
REMOVAL AND INSTALLATION		SPECIAL SERVICE TOOLS	02-16
Axle Housing	02-6		

CF2528-2A

DESCRIPTION

The rear axle assembly is an integral-type housing, hypoid design, with the centerline of the pinion set below the centerline of the ring gear (Fig. 1).

The semi-floating axle shafts are retained in the housing by bearing retainers at the axle housing outer ends.

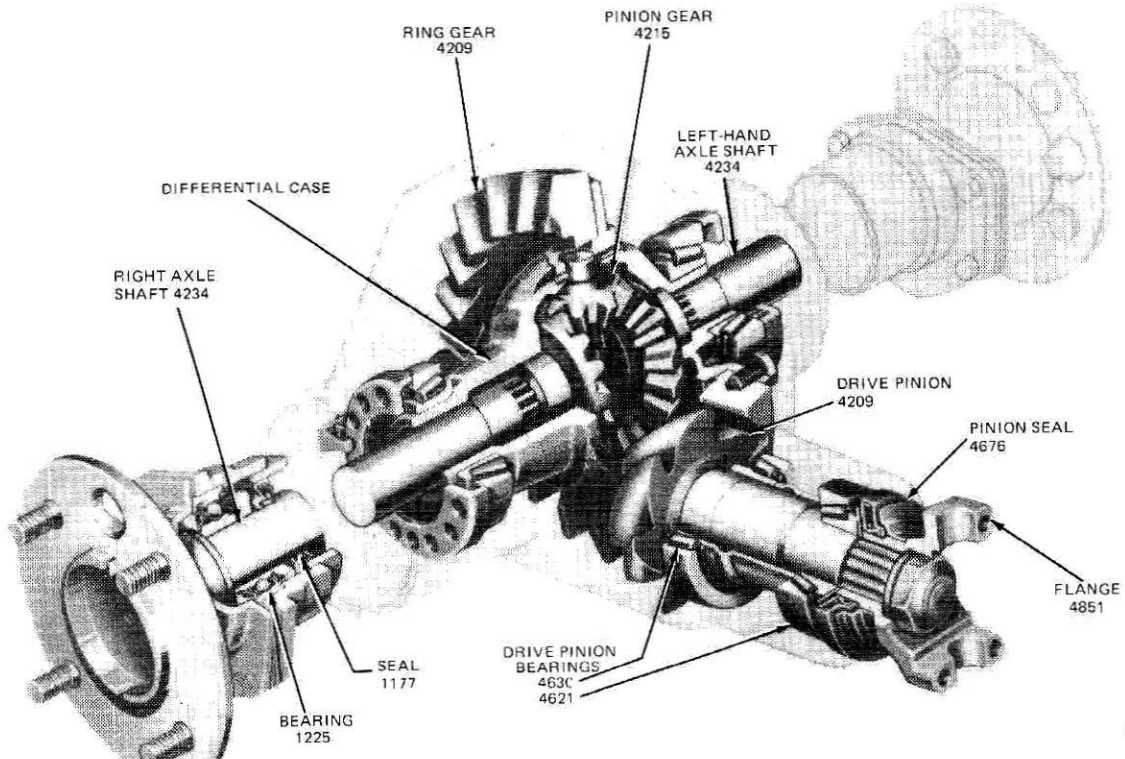
The differential assembly is mounted on two opposed tapered roller bearings. The bearings are retained in the housing by removable caps. Differential bearing preload and drive gear backlash is adjusted by nuts located behind each differential bearing cup.

The drive pinion assembly is mounted on two opposed tapered roller bearings. Pinion bearing preload

is adjusted by a collapsible spacer on the pinion shaft. Pinion and ring gear tooth contact is adjusted by shims between the rear bearing cone and the pinion gear.

A cover on the rear of the differential housing provides access for inspection and removal and installation of the differential assembly and drive pinion.

An identification tag is attached to one of the rear cover-to-housing retaining bolts (Part 15-01). It is important to use the axle model designation if necessary to obtain correct replacement parts.



E1905-2C

FIG. 1 Typical Rear Axle Assembly

REMOVAL AND INSTALLATION

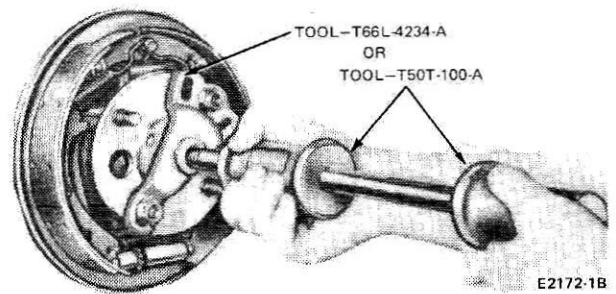
REAR AXLE SHAFT, WHEEL BEARING AND OIL SEAL

Removal and insertion of rear axle shafts must be performed with caution. The entire length of the shaft (including spline) up to the seal journal must pass through the seal without contact. Any roughing or cutting of the seal element during axle removal or installation will result in seal failure.

The rear axle shafts, wheel bearings, and oil seal can be replaced without removing the differential assembly from the axle housing. Removal of the wheel bearings from the axle shafts make them unfit for further use.

Removal

1. Remove the wheel cover, wheel and tire from the brake drum.
2. Remove the speed nuts that secure the brake drum to the axle housing flange, and then remove the drum from the flange.
3. Working through the hole provided in each axle shaft flange, remove the nuts that secure the wheel bearing retainer plate. Then pull the axle shaft assembly out of the axle housing (Fig. 2). Remove the brake backing plate and attach it to the frame rail with a piece of wire.
4. If the rear wheel bearing is to be replaced, loosen the inner retainer ring by nicking it deeply with a



E2172-1B

FIG. 2 Removing Axle Shaft

cold chisel in several places (Fig. 3). It will then slide off easily.

5. Remove the bearing from the axle shaft with the tool shown in Fig. 4. **Never apply heat to make it easier to remove the bearing retainer ring or the bearing. This will weaken the axle shaft bearing journal area.**
6. Whenever a rear axle shaft is replaced the oil seal must be replaced. Remove the seal with the tools shown in Fig. 5.

Installation

1. Inspect the machined surfaces of the axle shaft and the axle housing for rough spots or other