

## MOPAR 8.75" REAR DIFFERENTIAL INFORMATION

**Sure Grip** is the performance type of differential that enables both rear tires to turn under power for better launch traction.

**Sure Grip is the Chrysler name for a limited slip differential.** It was optional on the 8-3/4" axles, 1958-1974. Two styles were used.



**1958-1969 used the Dana Power-Lok (# 2881487).** This unit utilized clutches for the differential locking action. The Power-Lok can be rebuilt using kit # 2070845 (Mopar Performance [MP] # P4529484). In this assembly, axle driveshaft end thrust is taken by the thrust block assembly (replacement # 2881313). This Sure Grip appeared in the '741' and '742' differential assemblies. The axle bearings are: 25590 (Timken cone), and 25520 (Timken cup), (Chrysler numbers 1790523 and 696403). The Dana Power-Lok can be recognized by its bolt-together assembly, bolts around the side

opposite the ring gear, and multiple openings exposing the cross shafts.



**1969-1974 used the Borg Warner Spin Resistant (# 2881343).** This unit utilized a spring-preloaded cone friction arrangement for the locking action. Axle end thrust is taken by the cross shaft. This Sure Grip appeared in '489' assemblies and 70 and later '741'/'742' assemblies. The differential axle bearings are: LM 104912 (Timken cone), and LM 104949 (Timken cup), (Chrysler numbers 2852729 and 2852728). The Borg Warner Spin Resistant unit can be recognized by its lack of bolts on the side opposite the ring gear (like the Dana), and two openings exposing the preload springs. **Borg Warner sold this**

**design to Auburn Gear who currently offers the replacement Sure Grip assemblies.**



**Non-Sure Grip differentials can be identified by the large openings in the differential exposing the differential (aka. spider) gears.** There are no springs or clutches.

### **Sure Grip Interchange Notes:**

The two Sure Grip types can be interchanged between the carriers if the matching differential axle bearings are retained. The outside diameter of the cups is the same between the '741'/'742' and the '489'; the inner cone differs. **The Sure Grip differential can be used as a direct replacement for the non-Sure Grip within the carrier/bearing limits previously noted.**

## Universal Joint Yokes



**The 8-3/4" axle was offered with two sizes of cross & roller style universal joint.** These are referred to as the '7260' (2-1/8" yoke ID) and the '7290' (2-5/8" yoke ID). Most Imperials and some C-bodies used a different universal joint. The '1330' type joint was used on Imperials and others with a constant velocity joint. The '1330' uses outside snap rings instead of the inside snap rings used by the '7269' and '7290'. The cap diameter for the '7260' is 1.078". The cap diameter for the '7290' is 1.126". The '1330' style joint cap diameter is 1.063".

**There are four different yokes that have been used with the 8-3/4" axle for the '7260' and '7290' style**

**universal joints.** The '741'/'742' assemblies used a coarse spline (10 splines) drive pinion. Most of the aftermarket gears also use this coarse spline yoke mount. There is a small yoke for the '7260' and a larger one for the '7290'. The '489' assembly used a fine spline (29 splines) yoke. Note: during the phase-in period of 69-71 for the '489' unit, there were several permutations of pinion size and yoke availability. 69-70 '489' units may be equipped with a coarse (10) spline pinion, particularly for the '7290'. There are two yokes for the '7260' and '7290' universal joints with fine (29) splines. Two additional yokes were used for the '1330' style universal joint in constant velocity applications, one for 10 splines and one for 29 splines.

### Interchange Notes:

7260, 7290, 1330 yokes may be interchanged if the spline count is the same.

Note: the 9-1/4" axle (73-up) uses the same fine spline yokes as the 8-3/4" fine spline units (29 splines).

## STRENGTH CONSIDERATIONS



### Ring Gear & Pinions

The 1-3/8" '741' pinion is the weakest. It is still a capable unit in most moderate power, moderate traction street applications. For high torque applications with high traction tires, the 1-3/4" or 1-7/8" should be considered.

**The 1-7/8" '489' is supposedly the strongest.** Although the stem tapers down along its length, it appears inherently stronger from a pinion stem perspective and the inherent strength of the fine splines (OEM gears).

The 1-3/4" '742' has a larger rear pinion bearing yielding greater strength in this area. The 1-3/4" shares yoke mount diameter and mounting nut with the 1-3/8".

For perspective, the 7-1/4" has a 1-3/8" pinion, the 8-1/4" has a 1-5/8" pinion, the 9-1/4" (70s) has a 1-7/8" pinion.

## Sure Grips

The Dana Power-Lok is inherently stronger and provides better, equal torque transmission to both axles. Its locking capability is also proportionate to the applied torque. The Borg Warner unit is weaker, but is a more versatile unit for practical street applications in inclement traction periods. The Dana unit is the better of the stock sure grips for racing applications and has clutch rebuild kits available. An updated cone-type sure grip unit is available from Auburn Gear with 30% increased torque carrying capacity over the old version. Lockers and spools are also available from various sources.

## SERVICE PARTS INFORMATION

**Most replacement parts for the 8-3/4" axle are still available.** Some items not available are new Dana Power-Lok assemblies, most OEM gears, most carrier housings and complete differentials and housings. A revised version of the cone-type Sure Grips is available from Auburn Gear. The Power-Lok clutch kits are available from MP and other sources. Gear sets (typically performance oriented ratios) are available from MP and the aftermarket for the '489' and '742'. Bearings and seals are readily available.

### Some sources

Mopar Direct Connection - Performance dealers, Dodge & Chrysler Parts dealers.  
Moser Engineering, 1616 Franklin St, Portland IN, 47371 (219-726-6689).  
Reider Racing, 12351 Universal Dr., Taylor MI, 48180 (313-946-8672).  
Aftermarket Parts Stores for general replacements, i.e. Seals, bearings, etc.

## SELECTED PARTS REFERENCE

Numbers listed for reference, some may be superseded or discontinued, some variances among models/years may occur. Reference factory or replacement parts catalogs for exact replacement details.

Universal Joint Item (Detroit ref.)	Items Chrysler (OEM or MP)	Precision (Moog)	Dana (Spicer)	TRW (Federal-Mogul)
7260 joint	4364400	315G	5-1306X	20030, 20030P
7290 joint	4057025	316	5-1309X	20059, 20059P
Combination *	---	347	---	20226
1330 joint	2533202	354	5-213X	20064, 20064P
7260 strap kit	P4120468	318-10	2-70-38X	20704
7290 strap kit	P4120469	492-10	2-70-28X	20705

\* This is a combination of the 7260 and 7290 universal joints to allow mating of the two styles.

### Yokes

3432485 -> 29 spline 7260 (2-1/8" ID), also P4529481  
3432487 -> 29 spline 7290 (2-5/8" ID), also P4529483  
3004872 -> 10 spline 7260 (2-1/8" ID), also P4529480

P4529482 -> 10 spline 7290 (2-5/8" ID), replaces 2808384, 3004873  
 2931813 -> 10 spline 1330, for constant velocity, ie. Imperial.  
 3432489 -> 29 spline 1330, for constant velocity, ie. Imperial.  
 1556556 -> pinion washer, concave, 3/16" thick, 13/16" hole diameter.  
 2070117 -> pinion washer, concave, 3/16" thick, 15/16" hole diameter.  
 1795175 -> pinion washer, flat, 3/32"thick, 13/16" hole diameter.  
 1795173 -> pinion nut, 3/4"-16 thread, 1-1/4" hex.  
 6027323 -> pinion nut, 3/4"-16 thread, 1-1/8" hex.  
 6028041 -> pinion nut, 7/8"-14 thread, 1-1/4" hex.

**Sure Grip Items**

**Mopar Sure Grip axle additive - 4318060** (Friction modifier for clutches when using standard axle fluid & Helps keep the rear whine or chatter down)

**Dana Power-Lock thrust block set - 2881313**

**Repair Kit, Dana Power-Lok - P4529484 (replaces 2070845)**

Note: there may be no repair kit for the Borg Warner/Auburn unit, but the internal cones have been remachined by others to successfully restore performance.

**Shim Package**

1-3/4" pinion -> P4452027  
 1-7/8" pinion -> P4452026

**Ring Gear Bolts**

P4529486 -> 71 and later (also 4131255, pkg. of 10)  
 P5249163 -> 70 and earlier

**Note:** the 71 and later bolts may be installed in the earlier units by drilling a shoulder relief in the attachment holes.

**Gaskets, Seals**

<b>Position</b>	<b>Chrysler</b>	<b>National</b>	<b>C/R</b>	<b>Fel-Pro</b>
Axle inner seal	4796698	8695S	15460	---
Axle outer seal	2404216	8704S	19000	---
Axle flange, foam	2070933	see flange kit	see flange kit	55032
Axle flange, shim	2881314	see flange kit	see flange kit	---
Carrier gasket	1673367	---	---	RDS 65833
Pinion seal, 1-7/8	2931862	5126	18708	---
Pinion seal, 1-3/4	2931862	7216	18912	---
Pinion seal, 1-3/8	2931862	8515N	18708	---
Yoke repair sleeve	---	99187	99187	---

**Bearings**

<b>Position</b>	<b>Cup/Cone, Timken, BCA</b>	<b>Notes:</b>
Differential, side	LM 104949/LM 104912	70-74, Borg Warner
Differential, side	25590/25520	57-69, Dana
Pinion, front	M88048/M88010	1-7/8"
Pinion, front	HM89443/HM89410	1-3/4"
Pinion, front	M88048/M88010	1-3/8"

Pinion, rear	M804049/M804010	1-7/8"
Pinion, rear	M803149/M803110	1-3/4"
Pinion, rear	HM89446/HM89410	1-3/8"
Axle, outer	BCA A-7	65-74
Axle, outer	C/R BR7	65-74

Axle bearing service kit: Chrysler # 3683966, one axle.  
 BCA differential kit: 1-7/8", # RA-301, 1-3/4", # RA-300.  
 BCA axle mounting flange repair kit: Left # A-7-LK, Right # A-7-RK.  
 C/R axle mounting flange repair kit: Left # A7-LK, Right # A7-RK.  
 Vent bolt - Chrysler # 4032798  
 Spring mounting pads (perches) - Chrysler # P4120074  
 '489' collapsible spacer (pinion bearing preload) - Chrysler # 2931687  
 Mopar gear lubricant - 4318058  
 Mopar wheel bearing lubricant - 4318064

**Notes:**

- 1) Normal 8-3/4" axle shaft outer bearings require packing with grease as they are not lubricated by the gear oil.
- 2) When utilizing **Rear Disc Brake Upgrade** you will need the Timken or Green sealed outer bearing assemblies and grind down axles about 1/4" or more each to handle the removal of side axle adjuster and drum back plates. Be sure to follow the instructions in your rear disc brake kit.
- 3) The above is for 8.75" differential and is not to be confused with the 7.25", 8.25" or Dana differentials.

**Compilation by Ron Mayes 10-2012** The above information on MOPAR 8.75" Sure Grip and related axle information is from several sources that I utilized on my 68 Dodge Charger Restomod. I have the 742 differential case with Borg Warner style Sure Grip fitted with 3.23 Gear. Rick Aldrup and I discovered the many differences of the changeover to rear disc brake kit from drum brake and the lack of information available. Interesting that we were one of the first to get a kit from the brake upgrade provider and we generated a lot of feedback to enable the disc brake kit provider to change their instruction page from a few to many pages by the time we were done with the project. The Right Stuff people were very good in providing needed spacers and technical help when needed. I hope this helps you as a reference in your project. Ron