AXLE

YEAR: 1964-1974

GROUP: 3-523

CAST & YOKE - TYP - BODY NRGR Pinion Dia/Size/Shaft

<table>
<thead>
<tr>
<th>YEAR</th>
<th>BODY</th>
<th>CAST &amp; YOKE</th>
<th>SIZE</th>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1964</td>
<td>5.56</td>
<td>5.56 in.</td>
<td>5.56</td>
<td>5.56</td>
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<tr>
<td>1965</td>
<td>5.56</td>
<td>5.56 in.</td>
<td>5.56</td>
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<tr>
<td>1966</td>
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<tr>
<td>1967</td>
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<td>1969</td>
<td>5.56</td>
<td>5.56 in.</td>
<td>5.56</td>
<td>5.56</td>
</tr>
</tbody>
</table>

NOTE: The 3 Digit axle Build code's in this book are found on 1964-1964 Lynch Road Plant Fender Tag! The build code numbers can be found in yellow, on the left (driver side) axle tube on all Chrysler built axles (Exp: 9, 95). The 9 3/8" DANA 60 axle is identified with a strip of white tape, on the left tube and the Assembly Part Number stamped in red ink. Found on 1969 and newer DANA 60 Axles.

The 1964-1967 DANA 60 Axle is readily identified by a double bolted to the axle at the rear of the differential, and on the carrier. 10" Rear Drum Brakes are found with 27" tires or 10" Drum Brakes, with the exception of A31 & A32, and 10 Studs-Frt. Tapered Package. Differential and Carriers have a metal tag bolted to them giving the axle ratio.

1958 and older axles used clutch type Sure Grip axles, and may be identified by a Tag attached to the carrier mounted gates which reads "USE LIMITED SLIP DIFFERENTIAL LUBE ONLY". 1970 and newer axles used cone clutch type Sure-Grip axles, and can be identified by orange paint around the Oil Filter plug, or 1970 & newer by orange paint dab applied below Raio Color Code.

The 8.75" Axle (prior to 1969) will have Tag which reads "USE LIMITED SLIP DIFFERENTIAL LUBE ONLY" at 11" O-Clock, and Ratio Tag at 1" O-Clock. 1964-1967 DANA 60 Axle has a U0.5" tooth axle shaft. There is usually a white paint marking on one side of the axle drive Pinion Flange (Oem Companion Flange). LH Axle Nuts were used last used in the 1970 Model Year!

1970 and older A-Bodies used the 0.5" diameter bolt pattern. 1970-76 A-BODY w/Drum = 0.5", All others w/Disc = 0.5". All A-Bodies used the 0.5" diameter bolt pattern through 1976. All B, E, and F Bodies, and 67-76 B-Body used the 0.5" diameter wheel bolt pattern.
Original tan marks on 780 & 781 torsion bars. This chart shows factory specified markings for E and B-body bars:

- 1857774.5 Orange
- 1857776.7 Green
- 1857778.9 Aluminum
- 1857780.1 Brown

Note: right side (even number) bars carried ONE paint mark, and left side (odd number) carried TWO.

Several favorites that we use consistently: for a clear, no-color preservative, Mopar’s MP-50 is excellent. It comes in an aerosol can and actually dries to touch overnight. MP-50 is what we use on fresh plated bolts also. If you want a little brown color like the waxy cosmoline added to original parts we use Eastwood Heavy Duty Anti Rust. It also comes in an aerosol can. This product also works great on brake drums, 8-3/4” differential housings, etc. This is also what we use on lower control arms that were not originally painted black. The more coats you spray the darker it gets.

The product that we use most is regular 90W140 gear oil. We have a 5 gallon bucket that parts are dipped in, the excess wiped off and then placed on a drip tray. Regardless of what most people think, the gear oil will virtually dry over a period of time. My restored parts usually sit for several months awaiting assembly, and by that time there is only a slight oil film. We also, at times, use a brown heavy wheel bearing grease—the old stringy type. We apply the tube with a shop towel then wipe off the excess which leaves a thin coating of grease. Of all the methods this last one does catch the most dust, but it is simple to wipe off. That is the best part of leaving parts natural. If any dirt or rust appears, you simply wipe it off or take a small wire brush to it. Relube the part and it’ll be as good as the day it left the shop. None of the above products will damage painted or plated surfaces. With “cast iron” paint, it is almost impossible to spray paint on a suspension part without the overspray getting everywhere. You also don’t have to worry about scratching paint or damaging the part during assembly. But the bottom line is: it is absolutely correct, authentic. Which of
'71 E-body crayon marks on differential cover. Filler plug is natural. The sure grip tag under the filler plug is unpainted and the bolt has an orange daub of paint on the head. The ratio tag at the 7 o'clock position is painted semi-gloss black as is the rest of the housing.

Undercoat pattern used on the '70 B-body course, is our goal.

Most original black suspension brackets and small parts are dipped in paint instead of being sprayed. For instance, the torsion bars were dipped in a thick, high-gloss black epoxy paint. When you look at an original car the drips on the torsion bars are very pronounced. To be authentic in your restoration you should duplicate this. Place each end of the torsion bars on saw horses and take gloss black acrylic enamel in a wax squirt bottle, and coat the bars two or three times to achieve the desired effect. As long as you don't rotate the bar you can coat as many times as you see fit and the drips will be more pronounced each time. It will look like the original part did.

Authentic!

Other small parts are dipped in black also. The lower leaf spring retaining plates (with the shock studs on them) are dipped in gloss black paint as is the bracket that attaches to the floor pan and also holds the rear brake hose. When parts are dipped, they have an almost washed look to them as the paint is thicker on the lower edges and around bolt holes, and very thin in other areas. We usually thin the paint about 25% to achieve the proper look.

Some black finishes need to have the gloss reduced on them. This is achieved by adding a flattening agent to the paint. Typically we add 25% to 33% flattening compound to black acrylic enamel. We use PPG's Ditzler paint (Ditzler was Chrysler's primary paint supplier in the '60s). This mixture may not result in the right gloss with other brands of paint. The Ditzler black paint is DAR 9000 and the flattening agent is DX 265. The flattening compound should be included in the total of the paint's weight. Have the flattener added at the paint store and shaken well. Thin the paint about before dipping the parts in it. We square gallon can with the top off that is used for dipping. Pour the

Continued
Restoring and detailing the strongest Chrysler differential of the musclecar era

The Mighty Dana 60: An Overview

By the time the Street Hemi made its debut in 1966, Chrysler knew if they were to install the monster race-bred mill in front of the A833 four-speed transmission, they had better back it up with a super heavy-duty rear and capable of withstanding copious amounts of torque. They also knew that many of their customers that ordered this combo would inevitably put in some "track time" with their new steeds. The answer? The bulletproof Dana 60.

Not all Hemi cars had the truck-bred Dana rear as standard equipment. TorqueFlite automatic-equipped Hemi (and 440) vehicles came with the Chrysler-built 8 1/4 rear as standard equipment, with the option of a 4.10:1 Dana (69-71) just a pencil mark away on the order sheet. The four-speed Street Hemi cars (as well as 68-72 440 four-speed models), received the Dana 60 as standard equipment, actually as a necessary option that you had to take and pay for. One exception was the '69 M-code 440-6 Road Runners and Superbees, which came only with a Dana 60 stuffed with 4.10:1 gears, regardless of the transmission type. There were optional dealer-installed ratios as well. This article will deal only with what was available and installed from the factory, and the accompanying chart (Fig. 1) will explain the various Dana codes used throughout the years.

Details on Restoring a Dana Assembly

Regardless of type, I remove the differential and springs as an assembly. The differential is carefully steam cleaned or pressure-washed and photographed. Typically, these differentials have inspection marks, tags, stampings, and so on to document and color match. For a concours restoration, all of these things will need to be duplicated later, so I go over the rear to look for clues on the brakes, housing, pumpkin and peripheral parts, and document details as carefully as possible (Fig. 2).

Once done, the rear is disassembled and I place all the hardware and parts into boxes and mark them. I have a box for the leaf spring removal, separate boxes for the left and right brake assemblies, and another one for the rest of the external housing. The whole time, I still photograph and make notes. I also check the date code of the differential, which is stamped into the tube (Fig. 3). With the differential now disassembled, we send it to RediStrip.
Pinion snubber, and brake backing plates for derusting. While these parts are getting derusted, we clean and inspect the internal differential components and rebuild or replace the mechanical parts as needed.

Once we have the housing back, the first thing we do is paint it. The factory never applied primer to the assembly prior to painting, which resulted in flaking after the first few years. To prevent this, we first apply black primer to the axle tube area; dry it by resting on the spring perches. All of the original Dana's we have seen have a fairly glossy finish, so to duplicate it, we use acrylic enamel as the factory did originally.

We are ready to reassemble all the components. First the gears, axles, and brake backing plates are attached to the housing using new seals and gaskets. Using the pictures we took earlier as a guide, we can reapply the markings with acrylic enamel paint that we color-matched during the documentation process. We have stamps made of the original number stamping and apply that with the proper color acrylic enamel. The font style remained consistent through the years. The axle strap is installed as well, and I finish installing the brake lines, hoses, brakes, and paper and metal tags (Fig. 8). Attention to detail is a major part of any component or subassembly rebuild; once back in the car, you should have an original-looking differential still capable of handling all of the power the Chrysler engineers could throw at it!

Remember, the little things make a restoration exceptional. If the attention to detail and correctness are used throughout the restoration on every part of the car, whether you think anyone will ever see it or not, your car can compete with the nation's best forever, because correct is correct, today or 10 years from now.

Stay tuned as we continue to apply Roger Gibson's restoration philosophy to the "Save The Fish" 'Cuda in upcoming issues.

MEMORIZE THESE POINTS

- Do not start by steam cleaning or pressure washing a thing until you have photographed every detail you can.
- Take care to protect or remove any paper tags or labels before cleaning.
- Match the paint colors to be duplicated later.
- Label all parts containers with notes on what the part is and where and how it goes back on.
- Take a lot of notes along the way.
DEALING WITH DANAS

Once you clean off the axle assembly, many markings become evident, depending on the year, axle ratio, and body style. On the rear cover you may find an X or maybe a pair of Xs with a circle around one (Fig. 2A). We have noticed what appears to be the number S on the differential housing cover on some ’71s, we later determined that this is actually the letter E and denotes the usage on E-Body cars. If you look under the Dana counterbore, you may find more markings such as X’s and/or paint daubs (Fig. 2B). Once you remove the pinion snubber, you may have some more marks to document as well. Another thing to cover is the plastic plug (what we call the Dana plug), which is on the left (driver) side area of the cast differential housing locating the rear of the car. Typically, we have seen these in blue and red. It’s a plastic plug and usually has the manufacturer’s name on it.

The paper axle strap was used from 1968 to 1971. The entire part number appears on it (Fig. 3A). The axle code number is the last 3 digits of this part number, which you will also find on the buildings. This three-digit number will also appear rubber stamped on the axle tube (Fig. 3B). The exception is the ’69 C-code cars—see the usage chart. It is also a good idea to have a close look at the backing plates, because usually there are inspection marks on those as well. The ’71 cars used a different emergency brake cable system from those in previous years. The complete assemblies typically had the emergency cables taped to each axle tube during storage (awaiting installation). When the unit was installed on the car, the line workers would pull the cables away, ripping the tape. We have documented many ’71 Dana-equipped cars, that still have these bands of tape around the axle tubes. We most typically see a large W on the oil inspection plug on the rear cover; other variations may exist. The U-joint strap on the Dana (and large yoke 8.25” rears) was typically not coded and had an X on it as well (Fig. 3C). The cover bolts were a flanged head design. A lot of the ones we have seen on original cars have a small E on the head center.
### Dana 60 Axle Usage and Codes

<table>
<thead>
<tr>
<th>Model</th>
<th>Year</th>
<th>Code</th>
<th>Body Style</th>
<th>Axle Ratio</th>
<th>Drum Size</th>
<th>Notes/Axe Package</th>
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</thead>
<tbody>
<tr>
<td>1966</td>
<td>194</td>
<td>B</td>
<td>3.54:1</td>
<td>11&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1967</td>
<td>934</td>
<td>B</td>
<td>3.54:1</td>
<td>10&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1968</td>
<td>966</td>
<td>B</td>
<td>3.54:1</td>
<td>11&quot;</td>
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<td>1969</td>
<td>968</td>
<td>B</td>
<td>3.54:1</td>
<td>10&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1969</td>
<td>969</td>
<td>B</td>
<td>3.54:1</td>
<td>11&quot;</td>
<td>A33</td>
<td></td>
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<tr>
<td>1970</td>
<td>970</td>
<td>B</td>
<td>3.54:1</td>
<td>10&quot;</td>
<td>A33</td>
<td></td>
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<tr>
<td>1971</td>
<td>971</td>
<td>B</td>
<td>3.54:1</td>
<td>10&quot;</td>
<td>A33</td>
<td></td>
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<tr>
<td>1972</td>
<td>972</td>
<td>B</td>
<td>3.54:1</td>
<td>11&quot;</td>
<td>A33</td>
<td></td>
</tr>
</tbody>
</table>

* Notes

The Axle Code number above will appear on the axle (stamp) and the broadcast sheet. It will also appear on the fender tag of '69-'72 vehicles assembled at the Lynch Road Assembly Plant. The code is the last three digits of the part number, which is printed on the paper strap on the axle. The paper axle straps were used from 1968-'71.

* "Axle Packages" Explained

A33 - (1969-'72) - Truck Pak.
A34 - (1969-'70) - Super Track Pak.
A35 - (1971) - Super Track Pak.

### Engine Swap Kits - No K-member Changes

<table>
<thead>
<tr>
<th>Engine Swap Kits</th>
</tr>
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<tbody>
<tr>
<td>A32, A33, A34</td>
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</table>

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There are a lot of detail items here. The brake backing plates are not painted black; they were phosphate coated. We will use Cosmoline on many natural unfinished parts, such as the brake drums, the pinion snubber, and the axle flanges. Care must be taken not to get too much of the preservative on rotating parts. If put on too thick, it will fly off, making a mess of the wheels and other components. The axle tags are installed at the 5 and 7 o'clock positions. The axle ratio tag goes on the left (driver) side and the "Use Limited Slip Diff. "Lube Only" tag goes on the right. On some years the bolt head that the "Lube" tag goes under is treated to a paint dunk. Not shown but worth mentioning is, all ’86-’87 and some ’88 Dana rears had an additional drain plug on the bottom of the carrier housing. The ’78-’71 axles oil had the cover plug only. All assemblies have a rear axle vent on the top, just to the left of the center opening. It also mounts the brake tee block to the axle tube. You can see the extra ripped tape on the axle shafts on the restored ’71 model year E-Body Dana in our lead shot.
DEALING WITH DANAS

We use black primer for a number of reasons. One is that after 30-plus years of service, most of the axles' tubes are rusty and pitted. We primed the tubes fairly heavy to fill the pits. We then sand the area and reglue as necessary to smooth any pitting. Originally, the edge of the flange to about 3 inches inward was epoxied off and didn't get any paint. This is usually the worst area on the tube for rust and pitting. To repair the pitting, we prime and paint up to the backside of the flange and mask off the edges and the face. The cast-iron section receives only a light coat of primer for the paint to adhere to. You do not want to lose any of the original porosity with this much primer there. The reason for using primer in black is to safeguard against any of the inevitable chips and scratches that can occur when bedding the U-bolts back on. You do not want to see gray or red primer show through if this happens. The internals are reinstalled and the back cover is also primed.
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