Second Generation Camaro Owners Group - Camaro Rear Axle Information & Restoration

This section contains information related to the identification, description and restoration of the rear axle on the Second Generation Camaro.

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Camaro Rear Axle Information

The 1970 rear end differs from the 1971-1981 rear end. In 1970 the rear end was built in both 10 and 12 bolt versions. In 1971, GM instituted a standardized "corporate" rear axle. This rear end was available in a 10 bolt version only. The 1970 12 bolt version will bolt into any second generation Camaro and quite often is done so in high power applications.

Description

- Three piece housing includes integral cast iron differential carrier and housing with pressed in and welded steel tubes.
- Semi-floating forged and heat-treated axle shafts. Wheel drive flange is forged integral with the axle. Axles are the same length for both sides.
- Differential carrier contains hypoid overhung pinion and ring gear. Drive pinion supported by two taper roller bearings.
- Rear Suspension - Salisbury rear axle with multiple leaf springs.
- Staggered shocks, right side shock is located in front of axle tube and the left shock is located behind the axle tube. This controls wheel hop.
- Leaf Springs - All leaf springs were 5-leaf design, 56" long, 2.5" wide.

Physical Dimensions

	1970 10 bolt	1970 12 bolt	Corporate
Bolt Diameter	3/8"	3/8"	7/16LH
Ring Gear Dia	8.20"	8.875"	8.50"
Pinion Dia.	1.438"	1.625"	1.625"
Axle Splines	28	30	28

The following dimensions are consistant across all 3 style rear ends.

- Axle tube flange to axle tube flange: 55.25"
- Between centerlines of spring seats: 45 3/8"
- Axle shaft length: 30 5/32"

Camaro Rear Axle Identification & Decoding

Identify the gear ratio, the build date, the plant where it was assembled the work shift when it was assembled, and positraction source - if equipped. This number is stamped on the forward facing passenger side axle tube (on 2nd generation) and forward facing drivers side axle tube (on 3rd gen) camaros. It'll usually be about 3 inches away from the carrier housing (center section of rear end housing).

Close up of 1971 Z28 Axle code stamping

This stamp can be difficult to locate on an 30+ year old axle due to layers of paint, undercoating, grease, and dirt. It may be necessary to partially strip the forward face of the passenger side axle over the middle third of the length in order to locate and discern the characters. A razor blade and/or putty knife, fine wire brush, and cleaning solution may be needed tools in this search.

1970 Axle code example: COZ 01 01 G E
(COZ = Ratio, 01 = Month, 01 = Day of month, G = Plant, E = positraction source)

1971+ Rear Axle Code example: CB G 112 1 E
(CB = Ratio, G = Plant, 112 = 112th day of year, 1 = shift, E = Positraction Source)

1970 Camaro Axle Codes | View Selected Axle Code

Assembly Plant Codes

Plant	Code	Plant	Code
Buick	B	Warren, MI	W
Buffalo	C	Oldsmobile	O
Cadillac	D	Pontiac	P
Detriot Gear & Axle	G	Pontiac/Canada	M
GM of Canada	K		

Shift: D or 1 = Day shift | N or 2 = Night shift

Positraction Source/Code:

- = No positraction	G = Chevrolet G&A Positraction Carrier
D = Dana Positraction Differential	O = Oldsmobile Positraction Carrier
E = Eaton Positraction Differential	W = Warren/Warner Motive

Positraction Casting Numbers
Due to the possible confusion with gear ratio descriptions... a HIGHER number is a LOWER gear.
In the below examples, 2.73:1 & down = 2.41, 2.56, etc... which is actually a HIGHER gear ratio.

8.2" 10 bolt			8.5" "Corporate"			12 bolt		
Casting #	**Series**	**Gearing**	**Casting #**	**Series**	**Gearing**	**Casting #**	**Series**	**Gearing**
ED32118	2	2.73:1 & down	410408N	3	2.73:1 & up	ED32088	2	2.73:1 & down
EDB30116	3	3.08:1 & up	410409N	2	2.56:1 & down	30140PM1	3	3.08:1 to 3.73:1
						EDB30174	4	3.90:1 & up

Rear Housing Casting Date

Example: D141 - (D = Month, 14 = Day, 1 = Last digit of year (1971)).

Month: A = Jan, B = Feb, C = Mar, D = Apr, E = May, F = Jun G = July, H = Aug, I = Sep, J = Oct, K = Nov, L = Dec

Camaro Ring & Pinion Gears

Axle Ratio	Tooth Combination
2.56:1	41,16
2.73:1	41,15
3.07:1	43,14
3.08:1	40,13
3.08:1	37,12
3.31:1	43,13
3.36:1	37,11
3.42:1	41,12
3.55:1	39,11
3.73:1	41,11
4.10:1	41,10
4.11:1	37,9

Above photo: Notice the "15 41" on the ring gear - this rear end is a 2.73 ratio.

Inspecting/Rebuilding/overhauling a rear end.

Rear ends are pretty durable. Assuming yours isn't obviously broken, you can overhaul it yourself.

It's not necessary to remove the rear end in order to repair it. It does make it easier to clean and paint if it's removed, but this is up to you. You'll need a slide-hammer for this job too.

Remove the cover & drain the fluid. Inspect the gears for wear & damage. Pull the axles and inspect. Remove brakes. Use slide hammer to remove seals & bearings. Replace seals & bearings. Reinstall axles. Fill rear end with quality fluid, including posi-suppliment if this is a posi rear end.

Inspect brake lines. Suspension pieces.

If anything major is wrong during inspection, then you can decide to bring it to a shop.

If you have problems or major damage to the carrier or gears your best bet is to have the whole rear end assembly serviced by a professional shop. To set up rear end gears correctly requires experience usually, along with patience and special tools. If you do it wrong, you'll ruin everything really quickly and need to have it repaired again. IF a pro sets it up, it'll probably be done right and run a long time, and a good shop will stand behind their work if there is a problem with it (assuming you didn't brutalize the thing).

You can either Remove the assembly and bring it to a pro or bring the whole car down to a pro.

Camaro Driveshaft Information

General Description

Composition: Straight tube, 2.75" (OD), 0.065 wall thickness.

Length (C/L of u-joints): All transmissions - 49.2" (1970)
Length (C/L of u-joints): 3spd manual - 48.55", 4 speed and automatic - 48.0" (1973, 1974)
Length (C/L of u-joints): All transmissions - 48.55" (1977)
Length (C/L of u-joints): All - 48.55", Z28 w/4 speed - 48.0" (1980)

Driveshaft Identification stripes

1970 - 74 (M20,M21,M22) 4 Speed Cars had 2 Stripes. Brown and Light Blue.
1970 - 74 T400 Automatic Cars had 2 Stripes. White and Yellow

The First Stripe is located 6 1/2 inches from the Front of the Driveshaft. This is taken from the Weld mark. The Stripes are 3/4 inches wide and the Light Blue Stripe is first a 3/4" Gap and then the Brown Stripe. This is for a 4 Speed Car.

Camaro Driveshaft Restoration

The driveshaft in the 2nd gen Camaro is a natural steel color.
Driveshafts can go bad for several reasons including worn out u-joints, being bent or out of balance. When they go bad, you'll have a vibration while driving the car, or in extreme cases, you'll "get stuck" when the driveshaft is violently pitched out from under the car.

Your best bet is to pull the driveshaft and take it to a driveshaft shop to have it balanced. If it's ok, they'll give it back to you and you can clean it up & reinstall it. If the driveshaft is not ok, the shop will fix it and then give it back to you.

Since u-joints are cheap, replace them with new ones before re-installing the driveshaft.

The driveshaft is held into the rear end yoke with 2 straps or cups. Undo the bolts and then use a lever or prybar to move the rear u-joint out of the yoke. Then slide the front yoke out of the transmission tailshaft and remove the unit from under the car.

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