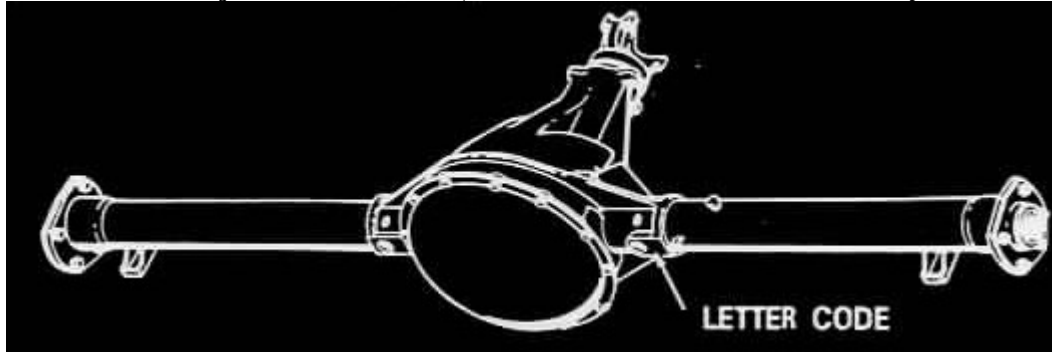


Axle Identification

Contributed By: Joe Schaefer (editor's note: from the AMC factory '74-'80 service manual)

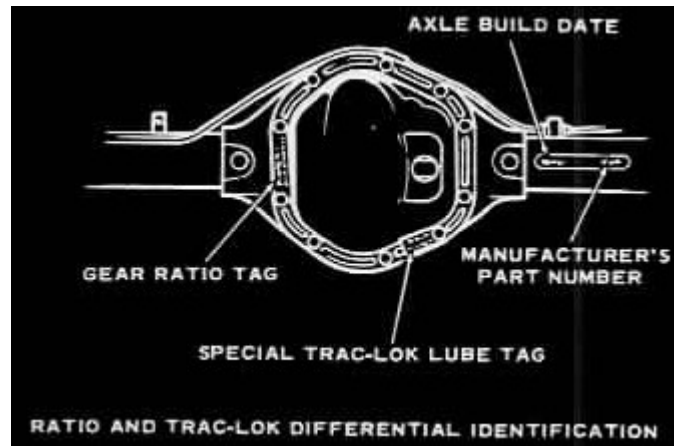
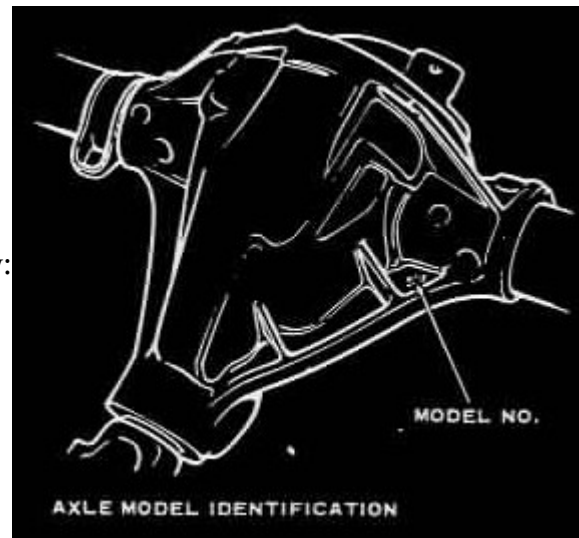


The Rear Axle illustrated above is manufactured by American Motors and can be identified as follows:

| | | |
|------------------|-----|---------------|
| 8 7/8" Ring Gear | LLD | WLD |
| 2.56:1 (16/41) | W | Nor Available |
| 2.73:1 (15/41) | AA | DD |
| 2.87:1 (15/43) | C | O |
| 3.07:1 (14/43) | X | Y |
| 3.15:1 (13/41) | B | P |
| 3.31:1 (13/43) | BB | CC |
| 3.54:1 (11/39) | A | N |
| 3.91:1 (11/43) | A | N |
| 4.10:1 (10/41) | L | M |

For Axles manufactured by sources other than American Motors see

Illustrations below:



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VIN Decoding - 1989-1992

Contributed By: Joe Schaefer

The 17 character/digit VIN is located on a plate mounted on the left side of the instrument panel at the base of the
The VIN is also found on an ID plate on the drivers side of the firewall in the engine compartment.

1st Digit - Manufacturing County

- 1- U.S.
- 2- Canada

2nd Digit - Manufacturer

- J- Jeep Corporation

3rd Digit - Type

- 4- MPV (Multi Purpose Vehicle)
- 6- Incomplete Vehicle

4th Digit - GVWR

- F- 4001-5000
- G- 5001-6000
- H- 6001-7000

5th Digit - Line

- S- Grand Wagoneer

6th Digit - Series

- 1- "S" (E)
- 2- Base (L)
- 3- Pioneer/Islander (M)
- 4- Sahara (H)
- 5- Laredo/Grand (P)
- 6- Eliminator (S)
- 7- Limited (X)

7th Digit - Body

- 5- 4-door Wagon
- or
- 8- 4-door Wagon

8th Digit - Engine

7- 5.9 Litre V-8

9th Digit - Check Digit

A number or letter.

10th Digit - Model Year

9- 1989 etc

11th Digit - Plant Location

J- Brampton

L- Toledo #1

P- Toledo #2

12th thru 17th Digit - Sequential Serial Number

Starts With 000,001

References:

Jeep Engine, Chassis, and Body Service Manual 25M888, 1989 JEEP Vehicles, copyright 1988
Jeep/Eagle Corporation

Parts Manual: W-1170-R2, Kaiser Jeep Corporation, 1967

Parts Manual: F-76072, AMC, Feb 1972

Parts Manual: F-75080, AMC, May 1980

Parts Manual: 89-81-374-084, AMC, May 1987

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A Few Words On Lift Kits

Contributed By: Michael E. Shimniok

Rancho makes a 2.5" lift for around \$590 total. Warranty on this is superb; parts that are in any way failing, get replaced, no questions asked. I don't think this includes the shocks. RS5000s run about \$145 and RS9000s are about \$240. You probably won't need a dropped pitman arm, sway bar extenders, or extended brake lines for this amount of lift. YMMV.

Superlift makes a 4" that comes with front springs, and your choice of rear blocks only, or add-a-leafs (short or long) and rear blocks. From \$390 to \$450. Shocks are around \$170. I'm told the warranty on this is reasonably good; defective or failing/failed parts are replaced after dealer verification. This doesn't include the pitman arm or the extended brake lines.

Skyjacker does an all-spring 4" lift "system" for around \$650. This does not include shocks, dropped pitman arm, or brake lines. Shocks available are Skyjacker Hydro for around \$120 or Nitro for \$140. Based on posts to the IFSJA list, this seems to be the most popular kit by far. Reports are that you probably want to go with the Hydros unless you can stand a very rough ride. There have been reports ranging from no bump-steer problems whatsoever, to noticable bump-steer even with the dropped pitman arm. Note that on more than a few trucks, this system gains 5-6" of actual lift.

Trailmaster does a 4" front spring, rear add-a-leaf + block for \$361. You have your choice of a long or short add-a-leaf. You can even go with just a block lift. Prices vary a little based on the type of lift you choose. Shocks run around \$170. Dropped pitman and brake lines are not included.

Rough country manufactures a 3" lift, your choice of blocks in the rear, or a full "system" of four springs. The front springs and rear block kit runs \$325. The full "system" runs \$525 at Rocky Suspension, but can be more elsewhere. The system includes Heckethorne Hydros.

Pro Comp (4wheel parts wholesalers) does a 4" lift and it runs pretty cheap, also, but you pay for that in terms of material (Taiwanese steel springs, according to what I was told by a local 4x4 shop) and difficulty with warranty, since it's proprietary to 4wph, also according to the shop. I would ask about the warranty on anything you buy and make absolutely certain that it isn't difficult to get replacements and that your local shop can handle the warranty work/paperwork/whatever, rather than being forced to ship this stuff to some factory somewhere.

It seems that all the kits include full bushings for any component being replaced (ie: front spring bushings if replacing front springs) which means you may want to upgrade your sway bar bushings. And while you're at it, if you're getting a sizeable lift, you might want quick disconnect sway bar extenders. Actually they come in stock sizes as well as lifted sizes. Contact JKS Manufacturing (or look in the back of 4x4 mags). If you get the Wrangler disconnect in the appropriate length, you're set. They come with grease fittings, greasable fluted poly bushings, and stainless steel parts (from the advert).

With any of these > 3" kits (maybe even those, too) a dropped pitman arm must be installed. These seem to run in the \$60-\$80 range. I believe SuperLift and TrailMaster make these, probably

others, too.

In some, maybe all cases, 4" lifts require longer brake hoses (sometimes included, sometimes not). AFAIK, for driveline alignment, at least one of these kits (Skyjacker) and probably all of them, include the necessary hardware to maintain proper alignment. You may find it necessary to move the shock mounts on the AMC 20 rear axle for the shocks to fit correctly; this can be done by a welding shop--or maybe even your local 4x4 shop.

A quality steering stabilizer might be a good idea. Those set you back anywhere in the \$35-\$50 range. Rancho, Superlift and presumably others manufacture singles or duals (not recommended unless you have very large tires, say in the 35" range) for our rigs.

There are a number of other options for lifting your trucks. Keep in mind that the theoretical goal of lifting is to enable you to mount larger tires, and to gain frame clearance (which we enjoy a great deal of thanks to the excellent design of our trucks--try looking under a Toyota 4-Runner or a late model Blazer sometime). Larger tires means higher differential clearance which equates to true clearance, although I have to admit that I personally have never hi-centered a diff, but have whacked rocker panels and trailer hitches dozens of times.

You can install a body lift (2"-3" seems common among members) to gain extra clearance without having to do a spring lift, but there are lots of other considerations with this method, making it more complicated. You need to worry about your fan in relation to the radiator. It is likely you'll need to fabricated extended linkages for the trans and/or the tcase. You may find wiring and other cables and lines a problem as well. I don't have much info on kits available for body lifts. Look in 4x4 magazines and see what you can find for companies that make body lift kits.

An option for lifting is a spring-over conversion in front, which requires some welding on the axles to swap some things around (I'm not sure of the actual procedure or what's involved). These expensive steps must be taken otherwise, you entirely lose camber in the front wheels, which means that the truck will wander around -dangerously- on the road. Not cool. Runs somewhere on the order of \$300 for the conversion. On the other hand, it gains you about 5" or so.

You can have springs fabricated. National Spring (in CA) is the only option I've ever heard. Apparently they do a fabulous job, tailoring the springs to your vehicle's weight and your requirements of lift, carrying capacity, and whatnot. It's a super-spendy option, though, far exceeding the cost of the Skyjacker system, just for the springs and bushings. You'll still need shocks, dropped pitman arm if you're going 4" or more, and brake lines.

You can also have springs rearched, which costs between \$200 and \$400 for all four springs. The disadvantage of rearching a set of stock springs to be higher than stock is a significantly rougher ride -- far more than a kit system, apparently. In addition, there have been reports of rearch jobs sagging prematurely, though that may depend more on whether you had soft-riding truck to start with, or a truck with heavier-duty springs.

Tapered lift blocks in the rear (for maintaining driveline alignment) run around \$40 including the u-bolts. You can have high grade custom u-bolts manufactured for \$10-20 each.

You can also find add-a-leafs for the rear, but they make the ride significantly stiffer than stock. They are inexpensive however, and you could combine them with rear blocks.

Shackle conversions seem to be a big no-no (depends on who you ask). Certainly don't exceed 1-2" increase, as any more could lead to them breaking which results in big ugly terrible things happening to your truck and the people in it when that happens.

As far as performance concerns, I would guess that a fabricated full spring set would give best articulation esp. if used with a sway bar disconnect. Next I would guess one of the quality lift "systems" with four springs. I suspect that blocks get you up in the sky but probably don't do much for articulation. It'd be interesting if we could get some comparison figures for 20 degree ramp travel between various kits. I have no idea which shocks would be best for off-road use, only that some members have found nitro (gas) shocks to provide a bone-jarring ride while the hydros were more livable.

I still haven't put a lift kit on my rig. I do have 31" tires that rub during extreme articulation off-road. I'm still debating on which kit I should get. My primary goal is to improve off-road frame and tire clearance as well as articulation (I have a Rover D90 to humiliate). But I don't want to sacrifice a great deal of comfort and I won't sacrifice drivability; I can live with a slightly stiffer ride, but bump-steer or wander is not acceptable.

Michael

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You can also have springs made to your spec at Deaver in Santa Ana or Alcan in Grand Junction - likely other places. There are stock replacement springs for the GW made by Dayton, available through regular retail channels. Replacement springs will very likely give you 2-3" of lift over the existing springs, without any "lift" as such. They offer multiple leaf counts for these springs, with commensurate higher weight ratings. IIRC the rear axle is spring over, and the cheaper kits give you two front springs and a block to go between the spring and axle pad in the rear. You could do the same thing with blocks using widely available aftermarket parts.

1: Blocks only work in back, so you have to have either new springs up front, or do a spring over (Closer to 7").

2: There are many different springs. Stay aware from Rough Country and Super Lift as their springs ride like rocks. SkyJacker arguably has the nicest riding springs, but they are also more costly. They also give closer to 5" of lift.

3: For a 4" lift, brake lines are advised, although it can be driven on the street without them if you need to buy the kit in stages.

4: Stock drive shafts are fine for only 4" of lift. Any more and you need either a custom front shaft, or you have to modify the exhaust and/or cross member. Rear shafts are fine up to about 7" of lift.

A good look for a grand waggy to me is a 4" lift with 31x10.50 tires. The tires are small enough that re-gearing is not required, it doesn't require lots of other mods, and the ride is decent.

I'm running a 3" Rough Country that was on the truck when I bought it. The Rough Country is ok but it does ride rough and I don't get near the articulation I know the truck is capable of. For my use and preference I'm looking at BJ's 4" kit w/ the extended brake lines. The 32's just barely clear with the 3" lift and I'd like a bit more clearance, but you can stuff 32's with a 3" lift just watch the back fenders they tend to rub a little.

CAM00026-1.jpg

<https://skyjacker.com/>

Transmission:

The **4L60E** (and similar **4L65E**) is a series of [automatic transmissions](#) from [General Motors](#). Designed for [longitudinal engine](#) configurations, the series includes 4 forward gears and 1 reverse gear. The 4L60E is the electronically commanded evolution of the [Turbo-Hydramatic 700R4](#), originally produced in 1982.

The 4L60E and 4L65E are built at [Toledo Transmission](#) in [Toledo, Ohio](#) and have also been built at Romulus Transmission in [Romulus, Michigan](#) and [Ramos Arizpe](#), Mexico.

The two transmissions cannot be differentiated from the outside. The 4L65E shares the same exterior parts but have stronger internals such as 5 pinion planets compared to 4 in the 4L60E. 4L60E uses a 6.5" depth bell with 6 bolts for non gen 3 LS applications and a 7" depth bell with 7 bolts for LS applications. The 4L65E/70E uses a 7" depth bell and 7 bolts.

They also have different input shafts and torque converters. 4L60E's uses a 298mm input shaft for non LS and a 300mm input shaft for LS applications. 4L65E/4L70E uses a 300mm input shaft and converter designed for LS applications only.

Gear ratios:

| 1 | 2 | 3 | 4 | R |
|-------|-------|-------|-------|-------|
| 3.059 | 1.625 | 1.000 | 0.696 | 2.294 |

4L60 and 4L60-E

The TH700R4 was renamed "4L60" ([RPO MD8](#)) following the new General Motors naming convention when the electronic version, 4L60E (RPO M30), was phased in as the 4L60 was being phased out. This happened in 1993 for trucks, vans, and SUVs, and 1994 for rear wheel drive passenger cars. In 1996, a bolt-on [bell housing](#) was phased in (along with a six-bolt tailhousing) for S-10 Trucks and S-10 Blazers and beginning in 1998 for all other applications. Beginning in 1998 a new 300mm torque converter with improved higher-capacity internals, 300mm style input shaft, and 300mm style pump was also introduced on models coupled to a Gen III Small Block. The 4L60E is rated to handle up to 360 ft·lb (490 N·m) of torque. It weighs 133 pounds without transmission fluid.[\[1\]](#)

The 4L60E family of transmissions use 2 shift solenoids, initially called Shift Solenoid A & Shift Solenoid B, later changed to comply with OBD II (On Board Diagnostics revision 2) regulations to 1-2 Shift Solenoid & 2-3 Shift solenoid. By activating and deactivating the solenoids in a predetermined pattern by the PCM, 4 distinct gear ratios can be achieved. The last 4L60Es were only used in the GM Vans in 2013, before being replaced by the 6L80E. The shift solenoid pattern, also sometimes referred to as solenoid firing order, is as follows;

Shift Solenoid Pattern

1-2 Solenoid 2-3 Solenoid

| | | |
|----------|-----|-----|
| 1st Gear | On | On |
| 2nd Gear | Off | On |
| 3rd Gear | Off | Off |
| 4th Gear | On | Off |

While controlled or partially controlled by the Powertrain Control Module (PCM), third gear is used as a failsafe gear and default operating gear during unexpected conditions. Without computer control, the transmission will automatically hydraulically shift from first gear into second gear based on input shaft RPM. Second gear is recommended for starts on snow and ice, as the available torque is lowered thus preventing wheel slip. The police package (9C1) B-body cars featured a First Gear Block Out (FGBO) Plate on the transmission housing to prevent drivetrain damage. The shift point for first to second gear is about 43 MPH (69 km/h) while second to third gear shift point is about 83 MPH (134 km/h) assuming a 3.08:1 differential and a 5,500 RPM engine speed limit.

Applications

- [Buick Rainier](#), 2004–2007
- [Buick Roadmaster](#), 1994–1996
- [Cadillac Escalade](#), 1999–2006
- [Cadillac Fleetwood](#), 1994–1996
- [Chevrolet Astro](#), 1993–2005
- [Chevrolet Avalanche](#), 2002–2008
- [Chevrolet S-10 Blazer](#), 1993–2005
- [Chevrolet Camaro](#), 1994–2002
- [Chevrolet Caprice](#), 1994–1996
- [Chevrolet C/K 1500/2500](#) (2500 with six-bolt axle pattern), 1993–1999
- [Chevrolet Colorado](#), 2004–2012
- [Chevrolet Corvette](#), 1994–2004
- [Chevrolet Express](#), 1996–2014
- [Chevrolet Impala SS](#), 1994–1996
- [Chevrolet S-10](#), 1993–2004
- [Chevrolet Silverado](#) 1500, 1999–2013
- [Chevrolet SSR](#), 2003–2006
- [Chevrolet Suburban](#) 1500, 1993–2008
- [Chevrolet Tahoe](#), 1995–2010[2]
- [Chevrolet TrailBlazer](#), 2002–2009
- [Chevrolet Van](#), 1993–1996
- [GMC Canyon](#), 2004–2012
- [GMC Envoy](#), 2003–2009
- [GMC Jimmy](#), 1993–2005
- [GMC Safari](#), 1993–2005
- [GMC Savana](#), 2003–2014
- [GMC Sierra](#) 1500/2500 (2500 with six-bolt axle pattern), 1993–2013
- [GMC Sonoma](#), 1993–2004
- [GMC Suburban](#) 1500, 1993–1999
- [GMC Yukon](#), 1992–2009
- [GMC Yukon XL](#) 1500, 2000–2008
- [GMC Vandura](#), 1993–1996
- [Holden Commodore](#) (VR, VS, VT, VX, VY, VZ, VE), 1993–2012

- [Holden Monaro](#), 2001–2006
- [Holden Caprice](#) (VR, VS, WH, WK, WL and WM), 1994–2008
- [Hummer H3](#)
- [Oldsmobile Bravada](#)
- [Pontiac Firebird](#), 1994–2002
- [Pontiac GTO](#), 2004 only
- [Saab 9-7X](#), 2005–2009
- [Isuzu Ascender](#), 2003–2008