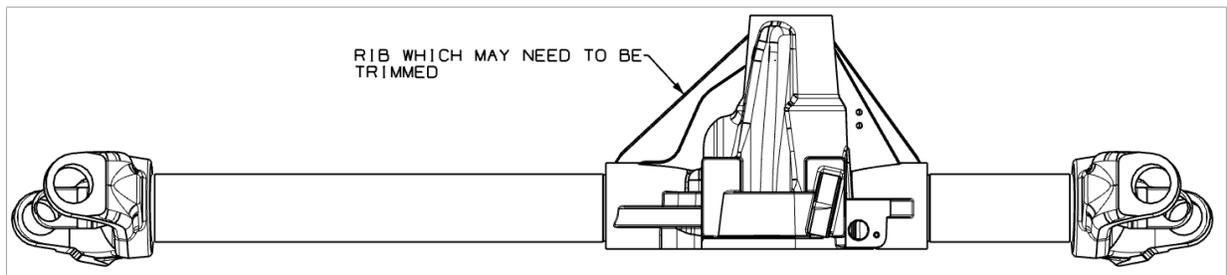


# ProRock 44 FAQ

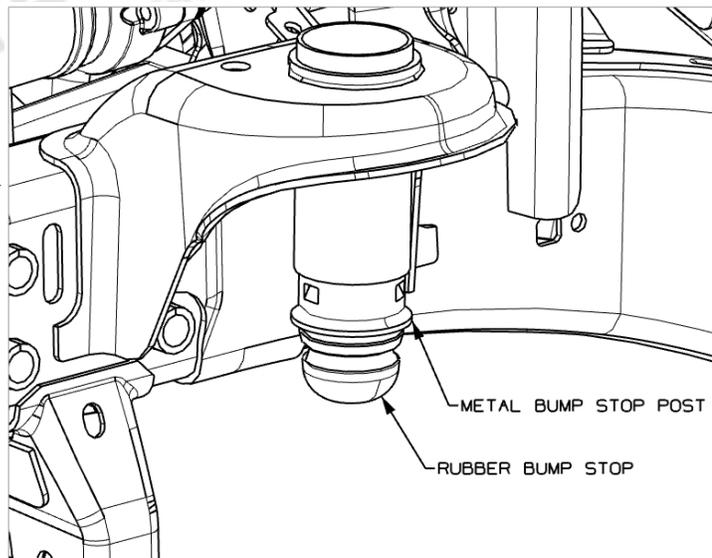
Revision: K – 01-10-11

## 1. What suspension lift kits is the JK ProRock 44 axle compatible with?

The ProRock 44 axle assembly has been engineered to be a direct replacement for a standard JK Rubicon 44 front axle. However, there are differences you will need to be aware of when planning your installation. The axle brackets on the ProRock 44 are custom brackets manufactured by Dynatrac. While they retain the factory locations for the necessary critical points they are slightly different in shape and size. The Dynatrac brackets are thicker and designed to withstand the rigors of off road use. Some suspension manufacturers will supply bolt on brackets which will relocate parts of the suspension, like the trackbar mount or perhaps the steering stabilizer. There may be some additional work required to mate the aftermarket relocation brackets to the Dynatrac axle housing.



In addition to the above it is also necessary to evaluate the amount of lift height and bump stop spacing which comes with your lift kit. The ProRock 44 pumpkin casting was optimized to work with lifted Jeeps. There have been some casting changes made in order to improve the rigidity of the ProRock 44 housing when compared to stock. One of these changes is a large rib which connects the pinion to the axle tube area of the casting on the passenger side of the pumpkin. There is a possible interference between this rib and the oil pan of a V6 JK at the full bump position. This problem is most obvious when attempting to install a ProRock 44 in a JK with stock suspension. The suspension will need to be cycled and the rib should be trimmed on the axle if necessary. When installing the axle on a modified suspension you will find much improved packaging. In order to fit a larger tire suspension kit manufacturers must include bump stop spacers which prevent the tire from making contact with the wheel well. This bump stop space leaves more room for the ribs on the pumpkin.



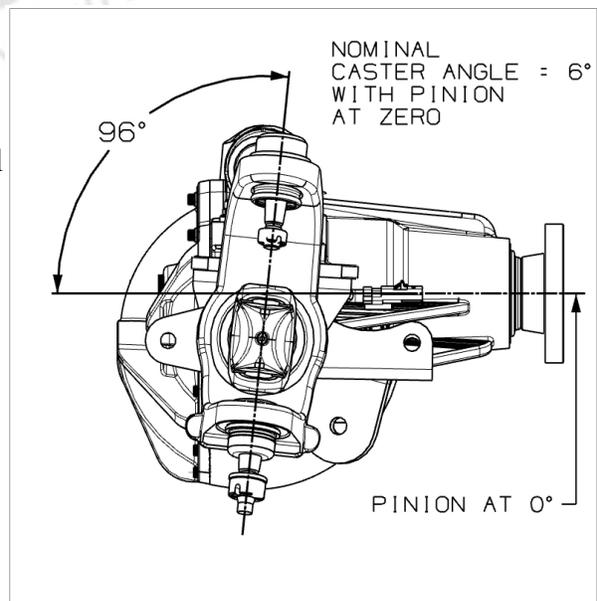
As a rule of thumb always cycle your suspension when installing a new axle. This will verify that there is ample clearance at all possible articulation positions. In order to cycle your suspension you will install the axle as normal, except for the springs. The springs are not installed during the cycling phase. They are installed as a finishing step when you are preparing to put the weight of the vehicle on the ground. The front axle will be moved to different test positions using a combination of jacks. You should have everything connected and installed except for the front springs. This includes items like brake lines, shocks, suspension links and even the driveshaft. When you cycle your suspension there are four primary test positions where you can examine the clearances. These are,

1. Full bump is the position where the front axle bump stop pad makes contact with both of the bump stop posts on the left and right side of the frame. You will need to remove the rubber bump stops which are designed to compress when the axle is coming up towards the frame. When the front end takes a very hard hit the the rubber bumps are designed to collapse and absorb some of the energy before the bump stop pad on the axle makes hard metal to metal contact with the bump stop post on the frame. This is the maximum up travel position, the point where metal to metal contact is established. Suspension manufacturing companies will supply bump stop extensions with your lift kit. You will need to make sure the proper bump stop extensions are installed when you cycle the suspension. Some companies extend the axle side bump stop pad and others extend the frame side post.
2. Full flex to the driver side. This is the maximum up travel position on the driver side and the maximum down travel position on the passenger side. The maximum down travel position is the point where the shock is fully extended. The maximum up travel position is the same as above and it will generally correspond to the point where the front shock is completely collapsed and there is very little chrome shaft visible. However, the absolute point of max up travel is the bump stop.
3. Full flex to the passenger side. This is the same as the above step but flexed to the opposite side.
4. Full droop with both of the shocks completely extended.

## 2. How much caster is built into the ProRock 44 axle for a JK?

When examining caster angle there are a couple key points to consider. The first is the relationship between the end forging king pin axis and the pinion centerline when viewed directly from the side of the axle, perpendicular to the wheel mounting plane. The king pin axis is the centerline formed by the two ball joints. Its just like a door hinge set at an angle. The pinion gear accepts power from the driveshaft and it has a centerline where it is supported by bearings inside the housing. The standard JK ProRock 44 axle has 6 degrees between the king pin axis and the pinion centerline. This matches the stock JK Rubicon D44 axle. Caster is measured relative to the vertical axis which would be normal to the ground level. When the pinion angle is zero, caster is equal to the angle between the kingpin axis and the pinion centerline.

Caster is generally configured between 4 and 8 degrees relative to the vertical axis, depending on vehicle configuration. As the pinion points up the caster is reduced.



Dynatrac is currently manufacturing the ProRock 44 Unlimited edition axle which includes more caster. These axles have 10 degrees of separation between the pinion and caster axis. They are configured for a nominal 7 degrees caster and 3 degrees pinion angle. The axle can be adjusted using the control arms between 6-8 degrees caster and 2-4 degrees at the pinion. Please see our supplemental document "JK ProRock 44: Choosing the Right Housing for My Jeep" available at the Dynatrac website for more information about the JK ProRock 44 Unlimited. This can be helpful if you are

running a big lift and need the additional angle. The pinion will point up towards the transfer case front output yoke without reducing caster to unsafe levels. When the pinion is rotated the upper and lower control arm mounts must follow the pumpkin while the spring perches need to stay level with the ground. The control arm mounts must roll up with the pinion because the driver side upper control arm mount is cast into the pumpkin. The track bar bracket, spring perches, shock mounts, and sway bar mounts will remain in the stock location while the pinion and control arm mounts rotate to the desired angle.

### **3. Why was the control arm eccentric eliminated from the JK ProRock 44 lower control arm mount?**

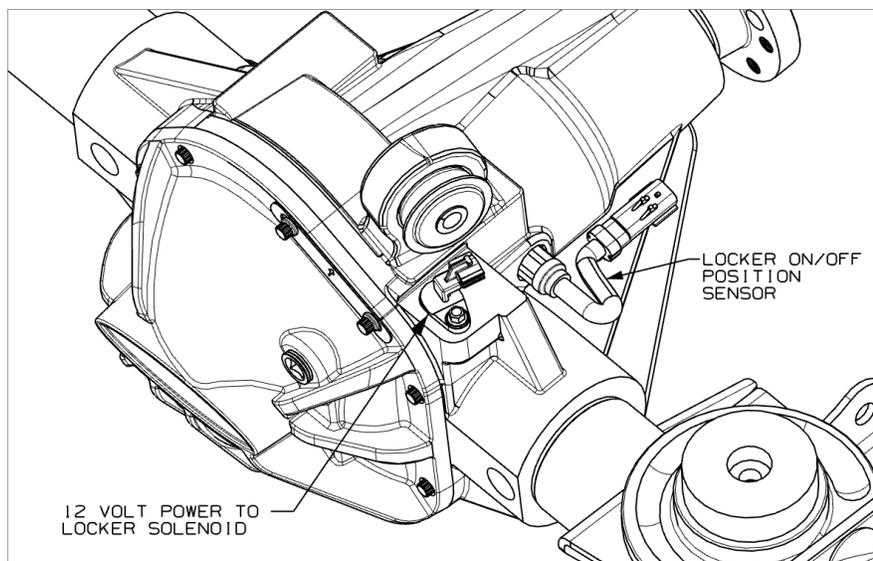
The ProRock 44 was designed with lifted Jeeps in mind. Generally speaking most of these Jeeps will have adjustable control arms which locate the front axle. The best way to adjust caster is with the control arms. The caster adjustment at the lower control arm bolt was removed in order to reduce complexity and improve reliability.

### **4. Will a JK electric locker work with my ProRock 44 housing?**

Yes, there are two different versions of the ProRock 44 pumpkin available. When ordering your axle simply request the housing which accepts the JK electric locker.

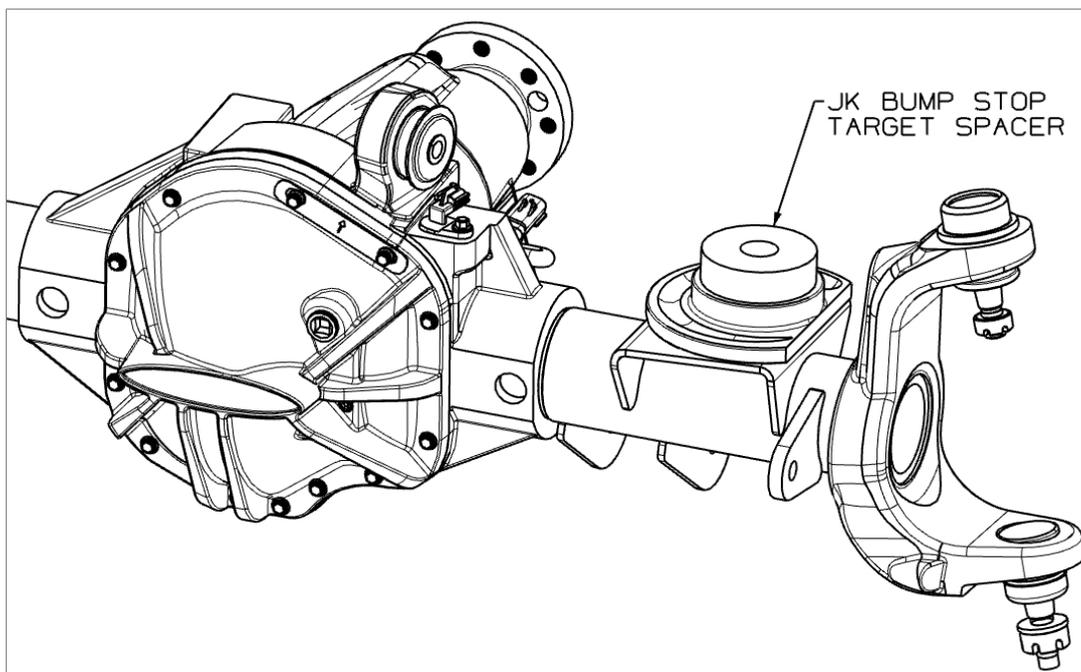
### **5. Is there a wiring harness available for the JK electric locker?**

Yes, Mopar is currently retailing a simple wiring harness designed to activate the JK electric locking differential. The part number is P5155359 and it is available through your local Jeep dealership. Dynatrac is an authorized Mopar dealer which can supply the harness. The stock JK wiring harness has two leads going through the pumpkin and into the locker. The wires going into the pumpkin nearest to the upper control arm mount are the power lines for the locker solenoid. These engage the locking device when 12V power is applied and release it when the power is removed. The other wiring leads are for the position sensor. This sensor is a switch which opens and closes as the locker is engaged and disengaged. It is not necessary for the locker to function properly and only serves as an indicator to a light on the dash. The Mopar wiring harness has omitted this sensor connector in favor of simplicity. TJ ProRock 44 axle housings are supplied with a plug at this sensor location to seal the housing.



## 6. Why does the JK version of the ProRock 44 have a white plastic bump stop spacer installed on the top of the coil seat?

The JK ProRock 44 housing shares a common coil seat with the TJ axle assemblies. From the factory, the JK bump stop target on the axle is taller than the one on the TJ axle. The Dynatrac bump stop target needs a 0.880" spacer to make up the difference and bring the bump stop target location back to stock. If you have a lift kit which includes a bump stop spacer you will need to stack both of the spacers up in series in order to establish the correct bump stop position.



## 7. Will the JK ProRock 44 work with a Hemi engine conversion?

Yes, the Hemi engine conversion is compatible with our axle design. The oil pan of the Hemi actually creates clearance when compared to the stock motor.

## 8. How much heavier is a ProRock 44 axle housing compared to stock?

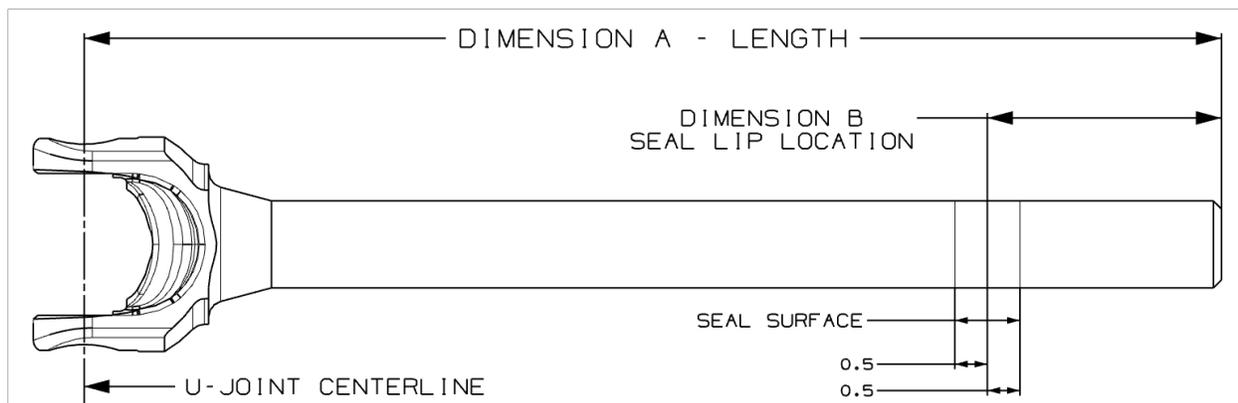
Here are a few sample numbers to consider. A stock JK housing is compared to the standard tube JK ProRock 44 and the extreme duty tube JK ProRock 44. The housings were weighed with differential cover, ball joints, and carrier bearing caps installed.

1. Stock JK axle housing = 93 lbs
2. Dynatrac JK ProRock 44 with standard tubes = 139 lbs
3. Dynatrac JK ProRock 44 with heavy duty tubes = 153 lbs.

## 9. What length axle shaft will I need for my ProRock 44 housing and where can I find them?

The ProRock 44 axle housing requires custom inner axle shafts, except for the JK electric locker version which uses stock shafts. Any of the custom axle shaft shops can make you a set for your axle housing. You'll need to order shafts with the following lengths depending on your housing. Different axle shops will configure the length of the seal surface in various ways. The seal surface location below is the distance from the tip of the shaft at the splines to the point where the seal lip will

touch the seal surface. It is generally good practice to extend the seal surface 0.5” left and right of where the lip touches. The shaft lengths are referenced from the u-joint centerline to the tip of the shaft at the splines.



Application	Side	U-Joint Size	A – Length	B – Seal Location
JK PR44 Electric Locker	Left	1350	19.764	4.238
JK PR44 Electric Locker	Right	1350	33.528	2.951
JK PR44 Conventional Locker	Left	1350	19.128	3.602
JK PR44 Conventional Locker	Right	1350	34.179	3.602
TJ PR44 Electric Locker	Left	1310	18.197	4.307
TJ PR44 Electric Locker	Right	1310	30.777	3.021
TJ PR44 Conventional Locker	Left	1310	17.492	3.602
TJ PR44 Conventional Locker	Right	1310	31.358	3.602

### 10. Will a 35 spline ARB work with the ProRock 44 conventional locker pumpkin?

Yes, in order to take advantage of a 35 spline locker in a ProRock 44 you will need a specific combination of locker parts. The standard 35 spline Dana 44 ARB, part number RD-109, is manufactured to fit 3.92 and up gears. It uses 3.92 and up gears which are manufactured in the thin configuration. The JK gears are thick gears and require a 3.73 and down carrier even though the ratio is numerically larger than 3.73. ARB part number RD-117 is a 3.73 and down carrier which is recommended for use in the ProRock 44. However, the RD-117 is a 30 spline locker. In order to use a 35 spline locker you will need the internal parts of a RD-109 in the body of a RD-117. As an alternative to purchasing two lockers and swapping around parts ARB offers a locker with this conversion already setup from the factory. It is the ARB RD-147 and it will fit our conventional style pumpkin with JK gears and 35 spline shafts.

In addition to this there is also a locker being manufactured by ARB which fits into the JK electric locker PR44 pumpkin. This locker part number is RD157. We do not approve this locker for use with OEM stock or Dynatrac JK 44 pumpkins. It will not setup correctly and we have tested it extensively with our ProRock 44 and also the stock JK 44 pumpkins. In both cases the locker fails to setup correctly and we do not recommend its use. The RD157 is not approved for use in JK 44 pumpkins by Dynatrac.

**11. Is the ProRock 44 available with a Dana 60 wheel end?**

Yes, the ProRock 44 is available with a Dana 60 wheel end. There are several advantages including larger axle shafts, u-joints, ball joints, and a true locking manual hub. These configurations are made to order and sold as a custom assembly. Please contact a Dynatrac sales representative for additional information.

**12. What width are the JK and TJ axle housings?**

The JK and TJ axle housings are engineered to be exactly the same width as the stock axles which came under their respective vehicles. Custom assemblies can be manufactured by Dynatrac, however, they will require a technical review with one of our sales staff.

**13. What size are the axle tubes on JK and TJ ProRock 44s?**

The axle tubes are 3" outside diameter with a 5/16" wall thickness. In addition, the ProRock 44 axle housings can also be ordered with a heavy wall tube upgrade which will improve the axle housing to a 3" O.D. with a 1/2" wall thickness.

**14. Can I order a turn key ProRock 44 which is already fully assembled and ready to bolt into my Jeep.**

Yes, Dynatrac can manufacture a ProRock 44 axle which is complete wheel end to wheel end. You won't need to supply any of the parts to complete assembly of the housing. Please contact a member of the sales team at Dynatrac for additional information.

**15. What gear set will work with a ProRock 44 axle housing?**

The Dynatrac ProRock 44 axle housing has been designed to work with high pinion JK Dana 44 gears. These "new generation" Dana 44 gears offer substantial improvements when compared to the traditional Dana 44 gears commonly available. They are stronger than previous generations and we feel this justifies engineering the ProRock 44 to accept them. All models of ProRock 44 use JK ring and pinion gears.

**16. Will a standard Dana 44 ARB or Detroit work with my ProRock 44 housing?**

Yes, Dynatrac is currently manufacturing a version of the ProRock 44 pumpkin which will accept a standard Dana 44 ARB or Detroit locker. You'll need to drill the ring gear bolt holes in the ARB or Detroit to size in order to match the larger ring gear bolt on a JK gear set. The JK uses a 7/16" ring gear bolt. The bolts are available from Dynatrac if necessary. In addition the locker should be a 3.73 and down model. The JK uses a thick ring gear which will correctly mate to the 3.73 and down lockers.

**17. Can I get a ProRock 44 axle with a half ton truck style wheel end and a locking hub?**

Yes, we have built ProRock 44 Axle assemblies with a traditional full size pickup Dana 44 steering knuckle, spindle and hub. These axle assemblies are sold as custom builds on a made to order basis. Please contact a member of the Dynatrac sales staff for additional information if you are interested in one of these assemblies.

## 18. How do the ProRock 44 axle tubes compare to sleeving a stock housing in terms of strength?

For comparison we will examine all of the different combinations of axle housings from stock JK to the strongest Dynatrac offering. For sake of comparison all of the numbers listed below are designed to be an apples to apples comparison. Everything has been benchmarked against the stock axle housing. In this way the stock axle housing becomes the base unit for measurement. The numbers below examine different performance metrics and relate them to the stock axle.

### Strength in Bending

*Note: Values greater than one indicate an improvement in bending strength. For example, the stock housing with a sleeve is 1.35 times as strong when compared to the stock housing without a sleeve.*

Stock JK Axle 2.5" OD x 0.25" = 1.0

Stock JK Axle with 2.0" OD x 0.25" sleeve on inside of tube = 1.35

Dynatrac JK Trail Series – Stock JK Pumpkin with re-tube to 2.75" OD x 0.375" = 1.79

Dynatrac ProRock 44 Standard Axle Tube 3.0" OD x 0.3125" = 2.13

Dynatrac ProRock 44 Extreme Duty Axle Tube 3.0" OD x 0.5" = 2.82

### Weight

*Note: Values greater than one correspond to an increase in weight. The ratios below show that the sleeve is one of the heaviest options.*

Stock JK Axle 2.5" OD x 0.25" = 1.0

Stock JK Axle with 2.0" OD x 0.25" sleeve on inside = 1.78

Dynatrac JK Trail Series Axle Housing Tube 2.75" OD x 0.375" = 1.58

Dynatrac ProRock 44 Standard Axle Tube 3.0" OD x 0.3125" = 1.49

Dynatrac ProRock 44 Extreme Duty Axle Tube 3.0" OD x 0.5" = 2.22

### Strength Per Pound Ratio

*Note: This metric compares the strength improvement to the weight increase. Obviously, adding strength will add weight, however, not every pound added leads to the same improvement in strength. Strength is a combination of material properties and geometry in this case. Adding material to the outside of the axle tube will result in a greater improvement of strength for the same weight of material added.*

Stock JK = 1.0

Stock JK with sleeve = 0.76

Dynatrac Trail Series JK Axle = 1.13

Dynatrac ProRock 44 Standard Axle Tube = 1.43

Dynatrac ProRock 44 Extreme Duty Axle Tube = 1.27

## 19. Can I use my aftermarket axle tube seals with the ProRock 44 housing to prevent dirt and mud from entering the exposed end of the axle tube near the u-joint?

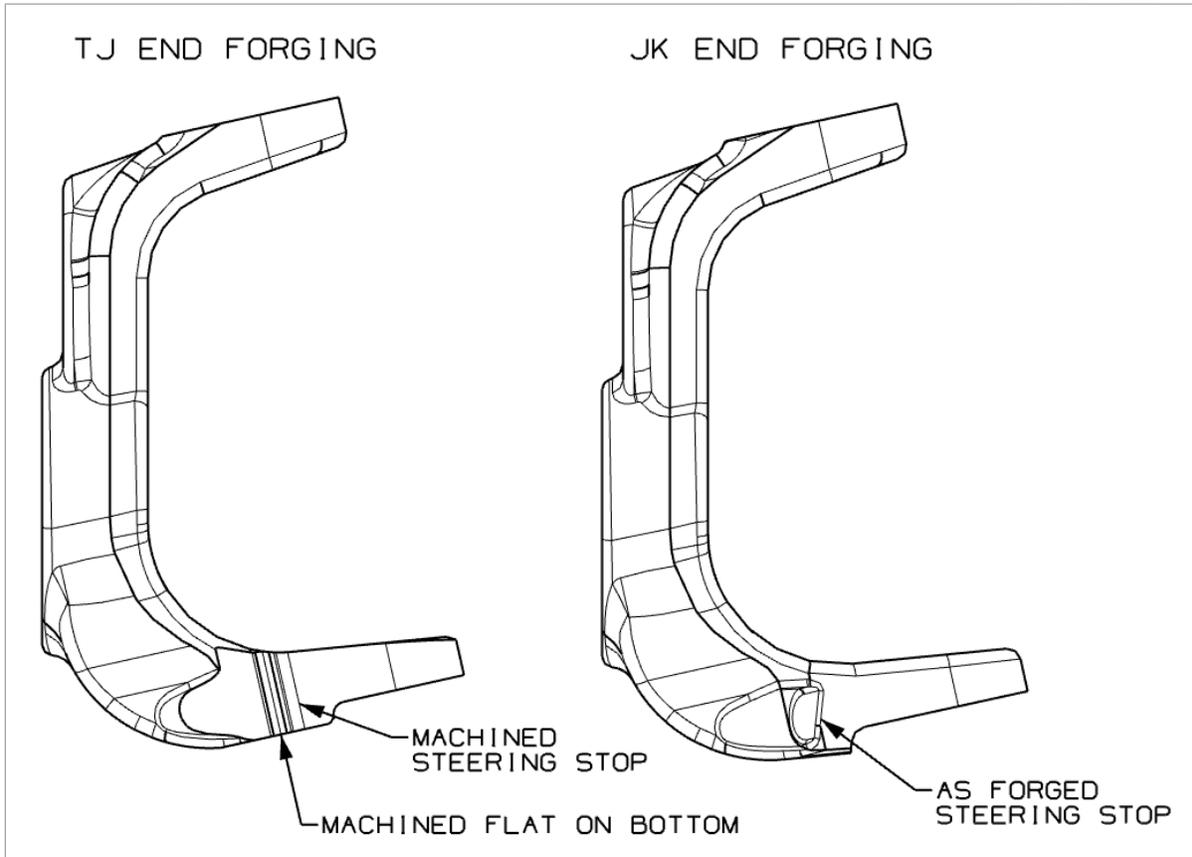
The inner axle tube seals are compatible with the extreme duty 3" x 0.5" thick axle tube option. They will not work with our standard axle tube assembly. A standard tube has an O.D. of 3" and a wall thickness of 0.3125" which will not yield the correct inside tube diameter to match the stock housing and work with the seals.

**20. What is the difference between a ProRock 44 housing machined for a conventional differential verse one for a JK electric locker?'**

Dynatrac manufactures the ProRock 44 pumpkins in two different configurations. One is optimized for a standard D44 locking differential and the other for the Jeep JK Rubicon electric locker. The carrier bearing outside diameter is different between the two axles. Also, the electric locker version has two access ports drilled to allow for wiring harness connections to the locker.

**21. What is the difference between a Dynatrac JK Pro Series end forging and a TJ Pro Series end forging?**

The JK part has forged steering stops while the TJ version has the steering stops machined into the forging. The TJ version also has a large flat area machined into the bottom next to the underside side of the lower ball joint bore. The JK and TJ versions do not share a common kingpin axis(SAI) relative to the centerline of the axle tube. The ball joint bores remain the same, however, the ball joints are not interchangeable. Each forging is specifically designed to be compatible with the stock wheel end.

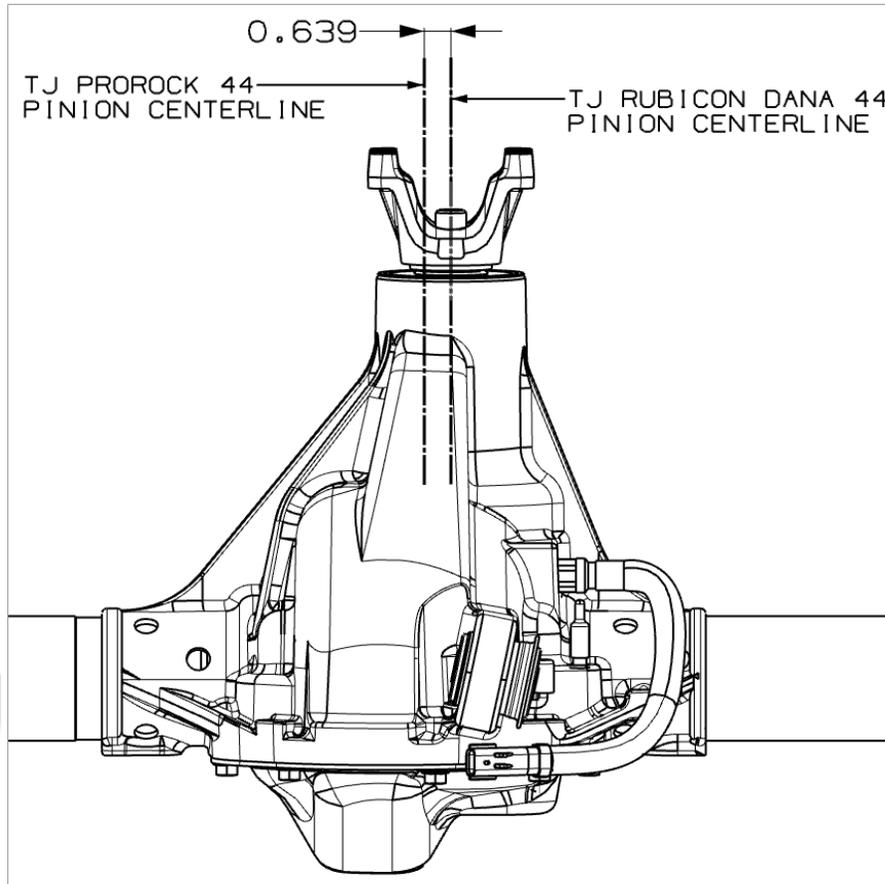


**22. Will the 1350 u-joint JK shafts work with my ProRock 44 TJ axle?**

No, they will not work with a TJ axle. The issue is the unit bearing on a TJ will not accommodate the longer yoke of the 1350 stub axle. The wheel end is large enough to swing a 1350 size u-joint but it will not work with the unit bearing. This is because the kingpin axis must also coincide with the center point of the u-joint cross. The u-joint centerline must be located on this line in order to prevent binding. With the stock TJ unit bearing and the correct u-joint position the 1350 shafts overlap with the unit bearing internals. At this point there isn't an easy upgrade to 1350 shafts with a stock TJ wheel end and unit bearing.

### 23. Can I reuse my TJ Rubicon D44 Axle shafts with a TJ ProRock 44 axle housing?

You can reuse the two outer stub axles which share a splined connection with the unit bearing. However, you will need to acquire new inner axle shafts. The TJ ProRock 44 axle assembly shares a common pumpkin casting with the JK ProRock 44 axle assembly. In order to retain the factory location of the upper control arm mount the centerline of the pumpkin is located in a slightly different spot than a standard TJ Rubicon 44. In turn the pinion is located closer to the passenger side of the car. If necessary Dynatrac can manufacture a custom assembly which maintains the stock pinion location and shaft compatibility. However, the upper control arm point will be translated towards the driver side of the car by 0.639". This may cause clearance issues with the upper control arms as the suspension cycles, depending on the configuration of the suspension and accessories in your jeep.



### 24. Can I use my TJ wheel end with a TJ ProRock 44 axle housing?

Yes, the ProRock 44 for a TJ was specifically designed to accommodate the TJ wheel end. This includes the ball joints, steering knuckle, and unit bearing. It features a much stronger, specifically designed, and machined end forging "C" which is compatible with the TJ wheel end.

### 25. Can I use JK ProSteer Ball Joints in a TJ ProRock 44 axle housing?

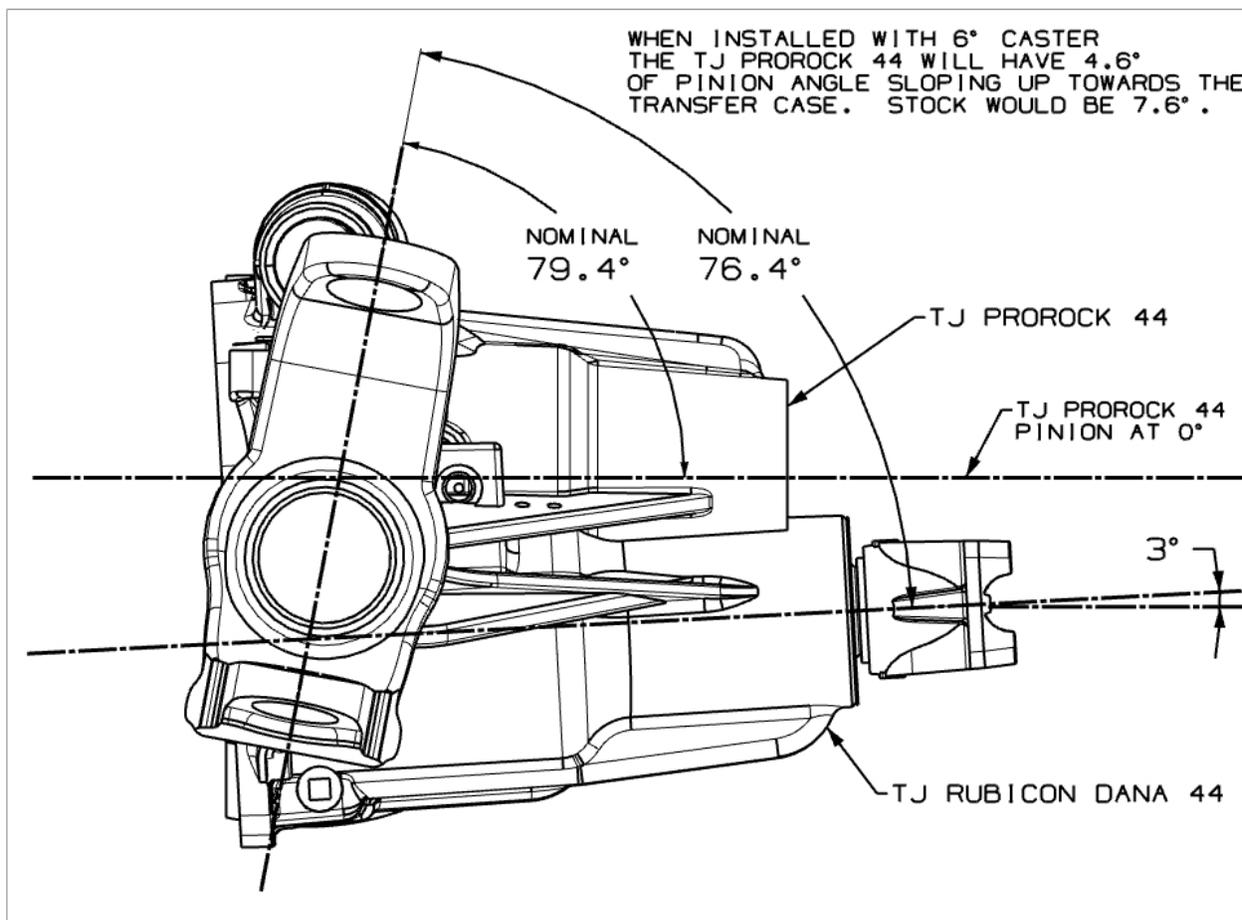
No, TJ and JK ball joints are not interchangeable. You must use TJ specific ball joints with the TJ ProRock 44 axle housing. The end forging design has been engineered to work with TJ parts. You can have a custom axle built with TJ suspension brackets and the JK end forging. This will allow you to use JK ball joints, steering knuckle, unit bearing, and 1350 JK axle shafts.

## 26. Can I get a ProRock 44 Axle for a CJ or YJ Jeep?

We are planning to offer a ProRock 44 configured for a CJ and YJ. However, they are not available yet and we do not have a product release date scheduled at this time.

## 27. How is the pinion angle and caster configured on a TJ ProRock 44 axle?

The TJ ProRock 44 axle housing is configured with 4.6 degrees of pinion angle when the caster is set to 6 degrees. This is 3 degrees less than stock, however, the high pinion gear set used in the ProRock 44 will generally compensate for the difference in angle.



## 28. Is the TJ ProRock 44 axle available in a configuration designed to accept a JK electric locker?

Yes, the TJ ProRock 44 axle assembly can be configured for a JK electric locker. The axle assembly will be exactly the same as a standard TJ ProRock 44 except for the pumpkin. In addition the TJ owner will also need a wiring harness in order to activate the locker. Mopar is currently retailing a wiring harness which will allow a JK electric locker to be used in a wide variety of vehicle applications. This includes TJ and JKs which came from the factory without the Rubicon option. For more information about this wiring harness see question #10 above.