Installation Instructions:**Right-Rear UCA Tower Extension – TJ Wranglers**

Kit Part Numbers	**Nth23041**
Applications	Jeep TJ Wrangler and Unlimited models including Rubicon package
Assumptions Equipment that must be present on your vehicle for this product to fit and work properly	Nth23040 is installed and LCA holes are re-drilled using Nth20290
	+3.0" to +6.0" of suspension lift is installed on the Jeep.
	At least 3.0" of bumpstop spacing has been added to the rear suspension.
	An original production TJ axle is being used.
	The stock right-rear upper control arm tower bracket is still intact on the stock axle housing. (Repaired towers or non-factory brackets will not fit properly)
	Adjustable rear upper control arms of sufficient length for setting pinion angle will be required (must safely extend to 16.5")
Required Tools and Equipment (in addition to common hand tools)	Drill and bits up to ½"
	Floor Jack and Jack Stands

Please take the time to read these instructions completely before beginning – they are long because we want you to get the installation right the first time for best performance with no unnecessary delays.

Notice: This kit is designed for use on a TJ Wrangler that has elevated ride height and modified rear suspension geometry that raises the control arm points at the axle ends. Any vehicle with a raised center of gravity (c.g.) has lower handling limits than it did in stock form and handling behavior will be different due to changes in suspension geometry, etc. This product is one of several that must be used together to correct geometry for suspension lift heights from +3" to +6" over stock. This product contributes to proper handling but cannot assure it because of all the other products required and factors involved. As with any product that modifies your vehicle's suspension, it is the responsibility of the owner/driver to make the time and effort to become familiar with the altered behavior of the vehicle (in a safe location!) after installation, make changes to driving habits (and/or further modify the vehicle) if needed, and control and advise others that may drive the vehicle thereafter.

Step 0: Nth° Suspension System Installations. If you are installing this product as part of a *complete* Nth° Suspension system, refer to the master system installation instruction for direction on the most efficient order of product installations – coordinating the install of several products will significantly reduce overall time and effort required. The master instructions will help guide you through configuring this product properly for your specific system and your system should include the required complimentary equipment to assure that this product performs properly and reliably.

Step 1: Unpack boxes; Check contents against the packing list; Verify parts are in good condition. Be especially sure that you have the right parts for your application!

Step 2: Read, Understand, and Plan for all of the following instruction steps before beginning! Do not disassemble vehicle unless all parts are present and all tools and facilities required are available. Do not start or attempt this product installation if you are unsure of your abilities or do not have the resources listed above. If applicable, be sure to have all welding done by a certified person, and check/set all specified torques with a torque wrench…too tight is not just right!!

Step 3: Disconnect Right-Rear Upper Control Arm (RRUCA). Since you are installing this kit in conjunction with Nth23040, you may have left the RRUCA connected to hold the axle while completing install of that kit. Once that kit is installed and the LRUCA is reinstalled/reconnected to the appropriate new holes in the Trackbar/LRUCA bracket, you may disconnect the RRUCA to allow installation of this kit. Note: if you are changing your RUCAs at this time also, remove the old arm completely.

Installation Instructions:**Right-Rear UCA Tower Extension – TJ Wranglers**

Step 4: Position Extension Bracket to stock RRUCA tower. The new extension bracket slips over the stock bracket from behind as shown in **figure 1**. Line up the lowest holes on either side of the new bracket with the original RRUCA holes on the axle tower. You will notice that the new bracket has two half-circle holes in it just behind the lower holes – these are to clear the 'dimples' on the side of the stock tower. You may need to spread the new bracket a bit before attempting to get it around the stock tower. You should spread it just enough so that you can tap the new bracket over the dimples and 'snap' into place. Don't spread it too much since it needs to 'come back to square' once it's on.

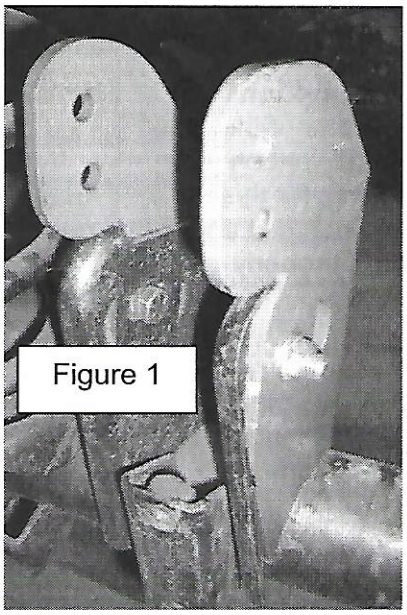
Figure 1

Step 5: Bolt Extension Bracket to stock tower. Now the the bracket is in place, use the two 3/8" bolts and locknuts and the four smallest washers to bolt the bracket to the original RRUCA holes in the stock tower. The third connection will require drilling a ½" hole in the back side of the stock tower to line up with the hole in the extension bracket – you can drill directly through the bracket to assure proper alignment of the new hole. Use the two largest supplied washers with the ½" bolt & nut to finish securing the extension. Your extension installation should now look like **figure 2**.

Step 6: Connect RRUCA to extension bracket. The new extension is wider inside than the original tower by approximately .300" (about 5/16"), but the stock-type upper control arm bushing's inner metal tube is only 2.00" wide. Do not attempt to 'squeeze' the extension bracket down to make up the difference! Instead, use the three remaining washers ('middle' size) to 'shim' both sides of the bushing tube (it doesn't matter what side gets two washers vs. one – just don't put them all on the same side). The three additional washers should be just enough that you can slip everything together easily, but fit close enough that the bolt will tighten well. It is helpful to tape the washers to the side of the bushing or to the inside of the bracket in line with the holes you're going to use (leaving tape in the connection will not affect anything.)

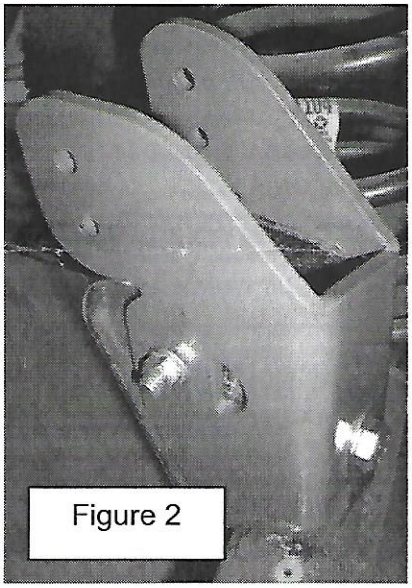
Figure 2

Step 7: Attach Right-Rear Upper Control Arm. If you are installing either the Nth14000 Handling Improvement Kit or an Nth° ShortArm suspension system that does *not* use a Stinger™, you will connect your left-rear upper control arm (LRUCA) to one of the two sets of holes that are above the original LRUCA holes that are now occupied by short 3/8" bolts holding the tower and brace in place.

To determine which set of LRUCA holes is correct for your installation, consult the table below. Note you must be using adjustable upper control arms to set correct pinion angle for use with a 'CV' rear driveshaft (this and the Nth23040 kits are not designed for use *without* a CV rear drive shaft; Nth° recommends using our Nth20011 adjustable upper arms that are designed for the proper length range and can be adjusted on the vehicle without disconnecting either end). Note that you MUST have performed the lower control arm redrilling/relocation using Nth20290 before installing the upper arms as specified below – if you have not redrilled and relocated the lower arms yet, do that first and do not drive the vehicle between redrilling and installing this kit because your rear suspension geometry will be incorrect until both are completed!

Frame-end of rear LCAs	Axle-end of rear LCAs	New UCA hole position
Not redrilled; using conventional short LCAs w/ future plan to use LongArms		Lower
Redrilled 1-1/8" lower with Nth drill template for conventional LCAs	Redrilled 1-5/8" higher	Upper

Lowered 1-3/4" via GyroJoint ShortArm subframes (Nth-SAG-TJ)	using Nth drill template.	Upper
Not-applicable due to use of non-Nth LongArm suspension		Lower

Once your LRUCA is located to the correct holes, install and tighten the original/stock UCA bolt, then tighten the three bolts holding the brace (one 3/8" and two ½"). The completed setup should look similar to **figure 3** (shown with LRUCA in upper hole).

Possble Issues and Solutions:

Clunk or 'Pop' when taking off or at start of braking. On your test drive, bumps and cornering are useful, but you should first concentrate on listening for noises from loose bolts, etc. during acceleration and braking in both forward and reverse. If you hear a 'pop' noise each time you change direction (forward to reverse or vice-versa), there is a bolt somewhere in the new assemblies that is not tight enough – recheck them all, but start with the stock UCA bolts as they are the most likely source of the noise.

Big Thump over Big Bump. If you hear loud 'thumps' when the rear suspension compresses while going over large bumps, the tower (or more likely the Driver's tower Nth23040) may be hitting the floor. This cannot occur if you are using the minimum 3" of bumpstop spacing that is called for under 'assumptions' at the top of these instructions. If your bumpstop spacing is insufficient, add enough to prevent either 23040 or Nth23041 from contacting the floor before driving the Jeep any further.

Mild Knock/Clunk over Moderate Bumps. If you hear noises while going over moderate bumps, the tower may be hitting your tailpipe. The tower extension is designed for maximum clearance to 'miss' the stock exhaust tailpipe, but can depend on both your pinion angle and your rear axle position. Generally for lifts up to +6.0", the pinion angle needed on short-wheelbase TJs will not result in the tower hitting the exhaust before the differential cover hits the fuel tank skid. If you do have contact in this area, do NOT cut material from the tower, instead find out why the exhaust is out of position and correct that – trimming the tower will void any warrantee on this kit! If you have adjustable control arms, moving the rear axle forward slightly can help correct this problem.

Installation Instructions: **Rear Trackbar Tower Extension for TJ Wranglers**

Kit Part Numbers	**Nth23040**
Applications	Jeep TJ Wrangler and Unlimited models including Rubicon package
Assumptions Equipment that must be present on your vehicle for this product to fit and work properly	+3.0" to +6.0" of suspension lift is installed on the Jeep.
	At least 3.0" of bumpstop spacing has been added to the rear suspension.
	An original production TJ axle is being used.
	The stock rear track bar tower bracket is still intact on the stock axle housing. (Axles with repaired towers or non-factory brackets will likely not fit properly)
	The stock rear track bar is being used. Other track bars will work only if they can achieve the stock eye-eye length of 32.5" and are made to fit the stock mounting points.
	If not using an Nth° Stinger™, adjustable rear upper control arms of sufficient length for setting pinion angle will be required (must safely extend to 16.5")
	A double-cardan (aka 'CV') rear driveshaft is installed.
Required Tools and Equipment (in addition to common hand tools)	T55 Torx bit
	5/16" Allen key or bit
	Floor Jack and Jack Stands
	Hacksaw or equivalent (if also using Nth23030 Spring Relocators)

Please take the time to read these instructions completely before beginning – they are long because we want you to get the installation right the first time for best performance with no unnecessary delays.

Notice: Due to limitations of the stock vehicle's design, this product does not restore the track bar (aka panhard rod) to a level position at static ride height. Consequently, asymmetrical handling behavior will be present, as well as lateral shifting of the axle through the suspension's range of travel – with correct installation these realities will be minimized to acceptable levels. This product is designed to provide correct roll center position for suspension lift heights from +3" to +6" over stock, which contributes to proper handling but cannot assure it because of all the other factors involved. As with any product that modifies your vehicle's suspension, it is the responsibility of the owner/driver to make the time and effort to become familiar with the altered behavior of the vehicle (in a safe location!) after installation, make changes to driving habits (and/or further modify the vehicle) if needed, and control and advise others that may drive the vehicle thereafter.

Step 0: Nth° Suspension System Installations. If you are installing this product as part of a *complete* Nth Degree Suspension system, refer to the master system installation instruction for direction on the most efficient order of product installations – coordinating the install of several products will significantly reduce overall time and effort required. The master instructions will help guide you through configuring this product properly for your specific system and your system should include the required complimentary equipment to assure that this product performs properly and reliably.

Step 1: Unpack boxes; Check contents against the packing list; Verify parts are in good condition. Be especially sure that you have the right parts for your application!

Step 2: Read, Understand, and Plan for all of the following instruction steps before beginning! Do not disassemble vehicle unless all parts are present and all tools and facilities required are available. Do not start or attempt this product installation if you are unsure of your abilities or do not have the resources listed above. If applicable, be sure to have all welding done by a certified person, and check/set all specified torques with a torque wrench…too tight is not just right!!

Step 3: Remove existing/stock track bar. Your TJ may still be using the original T55 Torx-head bolt at the axle end of the rear track bar – and it is likely installed from the rear and will require lowering the axle to allow it's removal. Once the axle-end bolt is removed, remove the frame-end bolt and pull the track bar out of the pocket at the axle end (**figure 1**) and leave it out of the vehicle for now.

Installation Instructions:**Rear Trackbar Tower Extension for TJ Wranglers**

Coordinated Step: If you are also installing the Nth° Shock Shifter™ (Nth23100), you can install the upper brackets now – while the track bar is out of the way to drill the passenger side frame hole.

Step 3 Alternate: Remove existing track bar with extension bracket If your TJ already had a conventional extension bracket installed, disconnect the track bar from it and remove the extension. You may leave the bar attached to the frame and tie it up to the frame out of the way until the end of this installation.

Step 4: Pre-assemble trackbar tower and clevis. This kit can be configured for +3.0", +4.5", or +6.0" Nth° suspension systems. If using this kit with a different suspension lift, choose the configuration that is closest to your suspension lift height. The difference is in the position and orientation of the clevis bracket (silver) to the main tower. There are six holes in the 'back side' of the tower bracket – consult **figure 2** for the correct orientation according to your lift height. Note that for 3.0" lifts, the clevis is oriented with the holes for the trackbar down, while the other two configurations have the holes biased upward.

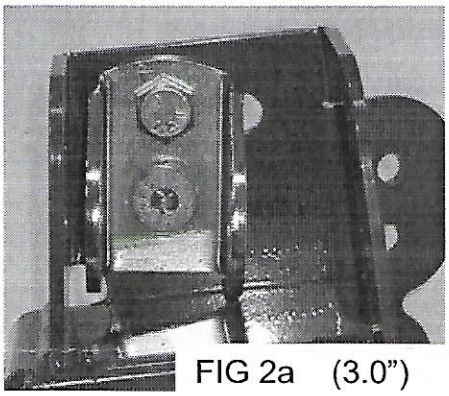

FIG 2a (3.0")

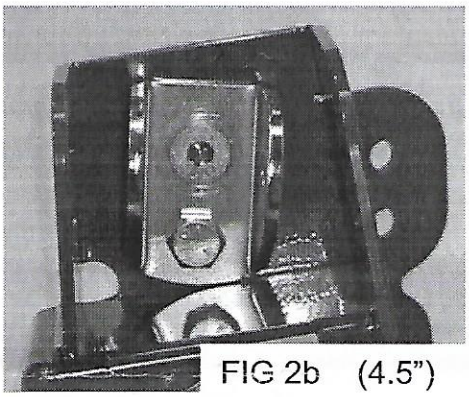

FIG 2b (4.5")

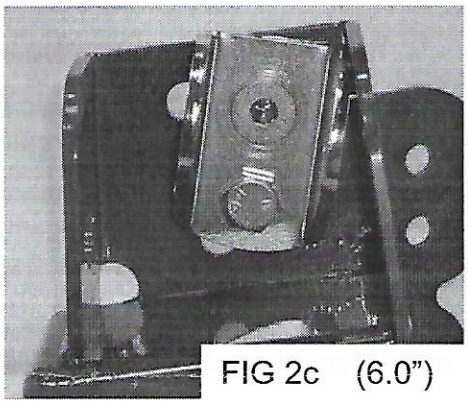

FIG 2c (6.0")

Once you have chosen the correct setup, insert the appropriate bolts through the back wall of the clevis (the face with two holes) from the 'inside' to the outside (some clevises will have one countersunk hole – be sure to use the provided 'flat head' bolt in that hole). Now guide the two protruding bolts into the appropriate holes in the tower bracket as shown in **figure 3**, making sure to have the clevis oriented correctly as shown in figure 2. With the clevis and bolts now in place, put the backing plate over the two bolts and add a locking nut to both bolts. Tighten them just snug for now.

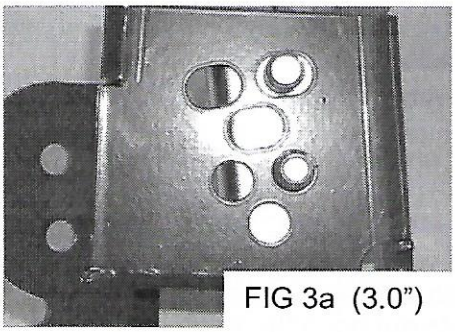

FIG 3a (3.0")

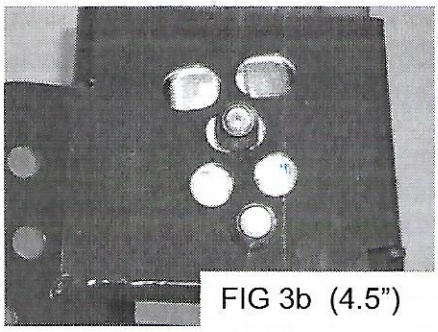

FIG 3b (4.5")

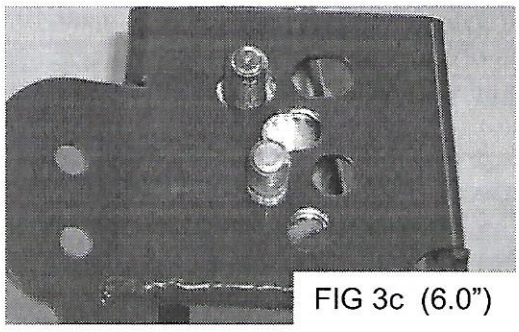

FIG 3c (6.0")

Step 5: Attach Tower Assembly to Axle. First, place the tower bracket over the stock tower as shown in **figure 4** – the bracket will straddle the tower with the front tab resting just outside of the outboard wall of the LR upper control arm bracket; the other end of the tower will extend down to straddle the axle tube. There is a large cut-out to clear the hard brake line that goes to the left-rear wheel – make sure that the line clears through this notch. To loose-assemble the three connections for the tower, use one of the short ½"x1.0"L bolts, two washers, and a locknut on the back (through the stock track bar hole) – put the

bolt in through from the back of the tower bracket to maximize clearance to the fuel tank/skid (**figure 5**). Next, (for Nth° suspensions or the Nth14000: Handling Improvement Kit – see **figure 6**) attach the front tab to the outboard side of the LR UCA bracket using one of the supplied 3/8" bolts, *three* washers, and locknut – the third washer should be slipped between the tab and the outboard side of the stock bracket for proper alignment. For other lift kit brands where the original LR UCA is still occupying the bracket, re-use the original UCA bolt to also include the tower bracket tab (**figure 7**). Finally, insert the u-bolt from under the axle tube up through the tower bracket as shown in **figure 8** and secure with two 3/8" washers and locknuts. Once all connections are in place you may tighten them.

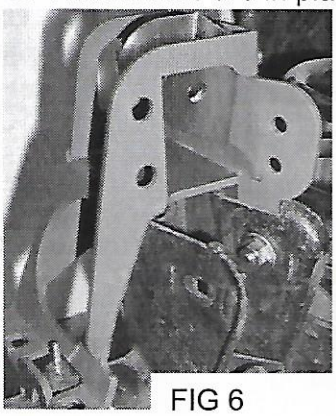
FIG 6

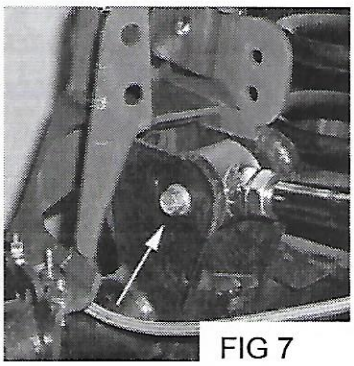
FIG 7

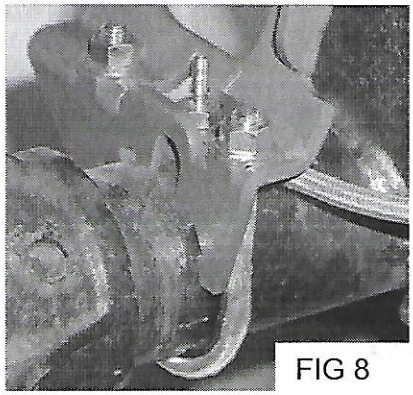
FIG 8

Step 6: Final Adjustment of Tower Clevis. You may now re-attach the track bar to the original frame hole on the passenger side now. If your vehicle is equipped with either Nth23030 (rear spring relocators) or Nth23100 (Shock Shifters), you should use the torx-head bolt that was originally on the axle end. The bolt should be inserted from the rear of the vehicle side and tightened with the original (non-flag type) nut. If using Nth23030, cut off the excess bolt length to assure that the spring cannot catch on the bolt.

Before attempting to attach the axle-end of the track bar to the new tower, make sure your axle's pinion angle is set correctly via either your Nth° Stinger™ or the right-rear upper control arm (RRUCA, using Nth23041 – in which case the LRUCA should not be installed for now.)

Drop the axle-end of the track bar into the silver clevis that you pre-installed to the tower bracket in step 4. If using the stock trackbar and it does not want to drop into the clevis because they are not aligned 'square', confirm that you have the clevis in the correct set of tower holes. If you are in the correct holes, use a prying tool to rotate the bracket in its slotted hole until it allows the track bar to 'drop in'. At this point you should temporarily lift the track bar back out of the clevis and perform final tightening of the two clevis bolts, taking care not to re-rotate the clevis while tightening. You cannot install the track bar for good until after the next step.

Step 7: Install Tower Brace. The remaining bracket in the kit is used only with Nth° Suspensions or the Nth14000: ShortArm Handling Improvement Kit – if your rear upper control arms are still attached to the original axle brackets, you will not be able to use this bracket. Position the bracket on the front of the main bracket and loose-assemble the brace to the tower with the two ½"x1.0"L bolts, nuts and washers. Add a 3/8" bolt, two washers, and locknut to the hole that lines up with the inboard side of the stock LRUCA tower, but again only 'loose assemble' them for now as shown in **figure 9** (shows old brace version).

If you are using an Nth° Stinger™ on your rear axle, you will have a 'bridge' over the rear differential casting that the tower brace is resting against. If your Stinger is relatively new, it will have a hole on the side in the upper-driver-side corner that should roughly line up with the hole in tab at the end of the brace – if it doesn't, you'll need to drill one. On Dana35 axles, you need to use several extra washers to fill the gap between the brace and the Stinger's bridge (Dana 44's should be roughly flush without washer/spacers). Use the last 1/2" bolt and nut – plus any spacer washers needed on your application - then

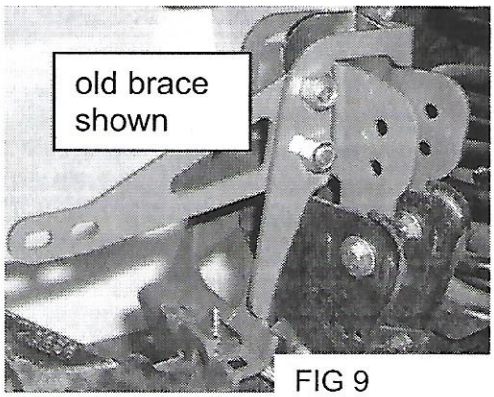

FIG 9

tighten all four fasteners that you've assembled to the brace (one 3/8" and three ½"). **Figure 10** shows the finished installation on a Dana35 axle (with spacer washers).

Step 8: Attach Track Bar to Tower Clevis. With the brace installed, you can now drop the track bar into the clevis for the final time. If the track bar bushing and tower clevis holes don't line up side-to-side, you will need to pry or pull them into alignment manually (or with a helper or a ratchet strap). Once aligned, insert the original frame-end bolt from whichever side is possible (for the +6.0" position, you must insert from the front side), then add the original 'flag nut' and tighten. **Figure 11** shows an example installation.

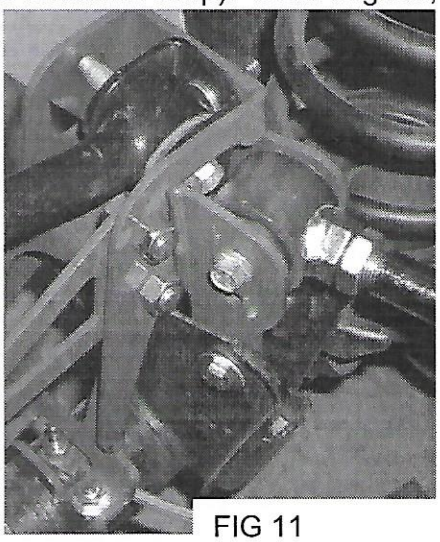
FIG 11

Step 9: Attach Left-Rear Upper Control Arm. This step applies only if you have either an Nth° ShortArm suspension system that does *not* use a Stinger™ or the Nth14000: Short-Arm Handling Improvement Kit. To perform this step, you *must* also have and use the Nth23041 kit to elevate the RRUCA attachment in a similar manner – refer to separate instructions Nth30123. You will connect your left-rear upper control arm (LRUCA) to one of the two new sets of holes that are above the original LRUCA holes that are holding the bracket and brace to the stock tower.

To determine which set of LRUCA holes is correct for your installation, consult the table below. Note you must be using adjustable upper control arms that can extend longer than stock to set correct pinion angle. We recommend our adjustable rear upper arms (Nth20010 or Nth20011) as they are designed for the proper length range and can be adjusted on the vehicle without disconnecting either end. Once your LRUCA is located to the correct holes, install and tighten the original/stock UCA bolt, then tighten the three bolts holding the brace (one 3/8" and two ½"). The completed setup should look similar to **figure 11** (shown with LRUCA in upper hole).

Frame-end of rear LCAs	Axle-end of rear LCAs	New UCA hole position
Not redrilled; using conventional short LCAs (i.e. future plan for LongArms)	Redrilled 1-5/8" higher using Nth° drill template (Nth20290) - This MUST be done to use the raised UCA holes!!	Lower
Redrilled 1-1/8" lower with Nth° drill template for conventional LCAs		Upper
Lowered 1-3/4" via Nth° GyroJoint™ ShortArm kit (Nth14000) or similar		Upper
Not-applicable due to use of non-Nth° LongArm suspension		Lower

Step 10: Test Drive and 'Debugging' Tips.

> Warning: If your vehicle is still using rear upper control arms and the LRUCA has been relocated to one of the higher hole-sets in the last step, then you *must* now also complete installation of kit Nth23041 before you can test drive the vehicle.

Possble Issues and Solutions:

Clunk or 'Pop' when taking off or at start of braking. On your test drive, bumps and cornering are useful, but you should first concentrate on listening for noises from loose bolts, etc. during acceleration and braking in both forward and reverse. If you hear a 'pop' noise each time you change direction (forward to reverse or vice-versa), there is a bolt somewhere in the new assemblies that is not tight enough – recheck them all, but start with the stock UCA bolts as they are the most likely source of the noise.

Big Thump over Big Bump. If you hear loud 'thumps' when the rear suspension compresses while going over large bumps, the tower may be hitting the floor. (This cannot occur if you are using the minimum 3" of bumpstop spacing that is called for under 'assumptions' at the top of these instructions.) If your

bumpstop spacing is insufficient, add enough to prevent the trackbar tower from contacting the floor before driving the Jeep any further.

Mild Knock/Clunk over Moderate Bumps. If you hear noises while going over moderate bumps, the tower may be hitting your fuel tank skid plate. This kit is designed for enough clearance to 'miss' most known aftermarket skid plates, but this depends on both your pinion angle and your rear axle position. Generally for lifts up to +6.0", the pinion angle needed on short-wheelbase TJs will not result in the tower hitting the tank skid before the differential cover does. If you do have contact in this area, do NOT cut material from the tower, instead trim the tank skid – trimming the tower will void any warrantee on the this kit! If you have adjustable control arms, you may also move the rear axle forward slightly to correct this problem.

Rubbing/Scraping Noises. If you hear 'rubbing' noises while going over bumps, it may be the track bar rubbing on the fuel tank skid in the area above the differential cover. If this is the case, your rear axle is set too far rearward and should be moved forward. This kit is designed for use with the stock TJ rear track bar and will allow the stock bar to clear the stock fuel tank skid and all known aftermarket skids with ample clearance just like on a stock TJ. If you are using an aftermarket rear track bar, it may not be bent to the same profile as the stock bar and could be source of the interference problem. Nth° always recommends using the stock track bar as it has superior construction and provides the ultimate in reliability - because it is a one-piece solid steel forging with no welds to fail or tubes to buckle.