

MASTER Installation Guide: LongArm Suspensions - TJ Wrangler

Susp. System Numbers and Applications	Nth01501 / 01510	+4.5" system for Jeep TJ Wrangler / Unlimited
	Nth01601 / 01610	+6.0" system for Jeep TJ Wrangler / Unlimited
	Nth01604	+6.0" Stretched-wheelbase system for TJ Wranglers
System Sub-Kits included each has its own packing list and many have separate stand-alone instructions (Nth301xx). NOTE: Boxes and Sub-Kits may have been consolidated for shipping. See the packing list with your invoice for a summary of individual box names for your specific order.	Nth1400x	Long Arm GyroJoint™ kit for TJ (wheelbase specific)
	Nth1404x or 1405x	Tummy Tucker™ center skid plate (application specific)
	Nth141xx	Stinger™ center-mounted rear torque arm (wheelbase specific)
	Nth242xx	Slider™ axle skid or Universal Stinger mount (axle specific)
	Nth20400	Track bar kit – Front, for TJ Wranglers
	Nth23040 or Nth29000	Track bar relocation kit – Rear, for TJ Wranglers OR Full-replacement Weld-on Track Bar Tower
	Nth23030 or 23050	Rear Spring relocation kit for TJ Wranglers or for stretch sys.
	Nth21011 / 21012	Springs pair – Front, for TJ Wrangler (+3.0" / +4.5" lift)
	Nth21021 / 21022	Springs pair – Rear, for TJ Wrangler (+3.0" / +4.5" lift)
	Nth21701	Coil Spring Spacers for Late coil Jeeps (+2")
	Nth21802 / 21803	Bump Stop Spacer kit for TJ +4.5" / +6.0" suspension systems
	Nth25000	Drop Pitman Arm, type 1
	Nth23100	Shock Shifter™ rear shock relocation brackets (n/a for stretch)
	Nth20521	Lightning Rod™ swaybar Disconnects for TJ Wranglers
	Nth20801 / 20802	Rear Stabilizer End Links – Straight type, (height specific)
	Nth80003	Brake Lines for Late Jeeps – Front, 21" long
	Nth80004	Brake Line for Late Jeeps – Rear, 24" long
	NOTE: If you have chosen to delete any sub-kit(s) from the normal system content, the remaining portion of this system may not fit or function properly with components not made by Nth° – it is up to you to determine what will work or not!	
Assumptions Equipment that must be present on your vehicle for this system to fit and work properly	No other suspension-related products are being used to further alter ride height, etc.	
	TJ transmission and transfer-case models (others can work with DIY components)	
	TJ frame with original, unmodified front and rear spring seats and cross-members.	
	TJ axles with original, unmodified brackets (aftermarket axles and/or aftermarket brackets may work but will likely require modifications – you must be able to use an Nth Stinger model that fits your rear axle model!)	
	Shocks of the appropriate length for your suspension height – see chart in Appendix.	
	A double-Cardan (aka 'CV') rear driveshaft has been installed.	
Required Tools and Equipment (beside common hand tools)	Vehicle lift and tall stands (or a floor jack and jackstands - labor times will be longer.)	
	Metal cutting, grinding, and welding equipment	
	Pitman Arm puller	
	See Separate Instructions for each sub-kit to verify all tools needed.	

This Master Installation Guide is written to cover the installation of a *complete* Nth° Suspension System by 'connecting' the instructions for the individual sub-kits in an order that will make the overall installation as fast and efficient as possible. You should gather the instructions (*all of which have their own part numbers* Nth301xx) for the sub-kits to refer to them as directed here. It is assumed that the work is being done on a vehicle lift in a well-equipped automotive service facility by one or two technicians (some work may be done in parallel as noted to speed overall installation time.) If not using a lift, expect the install to take longer due to 'logistics hassles' such as re-placing jack stands, etc. plus 'access issues' due to being close to the floor.

It is also assumed that before this installation begins, the vehicle is complete and drivable and that all other chassis and driveline components (steering, transmission, t-case, axles, etc.) that are currently part of the vehicle will be re-used. If you are also changing other components at the same time as this suspension system, most can be conveniently substituted during this installation, but any special

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'adaptation' issues that arise will need to be identified and addressed by the installer at the appropriate stage of the process and are not covered or referenced here.

Notice: Each Nth° Suspension System is a collection of 'sub-kits' (that are also available separately) that have been matched together to create a completely integrated package for the purpose of enhancing a vehicle's off-road mobility with minimal compromises to its on-road use. One key aspect to creating greater mobility on uneven terrain is increasing ground clearance – therefore an effect of this suspension system is an increase in the 'ride height' of the Jeep (that is further increased by the larger diameter tires it will accommodate). Increasing ride height raises the vehicle's center of mass (or gravity - often called "c.g."), and as with any similar product, the vehicle's handling limits will decrease and handling behavior may change due to changes in suspension geometry, etc.

While this Nth° Suspension System is designed to minimize many of the negative effects of a raised c.g., the ride, handling, and performance of your specific vehicle also depends on many other factors/products that are not part of this system package – including steering components, tires, wheels, shocks, and the effect on c.g. location from other items that have been changed or added to your vehicle. Consequently, Nth Degree Mobility makes no warrantee as to the safety, suitability, or reliability of a vehicle equipped with this system for any purpose or use. Also, as with any stock or modified vehicle, proper regular maintenance of these components by the owner/operator is required to assure correct and dependable suspension function for the remaining life of the vehicle.

It is the sole responsibility of the owner/driver(s) of this modified vehicle to make the time and effort to become familiar with its altered behavior after installation (under safe conditions), make changes to driving habits or other components if needed, and control and advise others that may drive the vehicle after modification with this system. Nth° also recommends taking steps to assure that your vehicle's overall combination of specific parts produces a safe and reliable dynamic behavior that will not also endanger other people or property.

Step 0: Survey shipment. Identify each box by its external product label and match it to your shipping invoice to make sure *before proceeding* that you appear to have all necessary boxes for your system. Note that some kits come in multiple boxes, others may be consolidated into larger boxes, and that boxes may get separated from each other during shipping and arrive on different days.

Step 1: Unpack sub-kit boxes; Check and Inventory contents against their packing lists; Verify parts are in good condition. Be especially sure that for application-specific sub-kits, you have the *right* kits for your vehicle before beginning!

Step 2: Read, Understand, and Plan for the *entire* system installation before beginning! Use this master instruction guide to sequence the steps for installing the various sub-kits. There are many steps for different sub-kits that can be coordinated with other sub-kit steps to minimize unnecessary time and effort or un-do/re-do backtracking. You should gather all of the instructions from the various sub-kits that have them so that you can familiarize yourself with them before proceeding in the order outlined below. Though switching back and forth from different sub-kits may seem haphazard, keep in mind that each sub-kit's instructions were written as if that kit were the *only* item being installed on an otherwise complete-and-running Jeep. This master guide capitalizes on this 'modular approach' to instructions by directing you to the already-written sub-kit instructions in an efficient order for a total system installation.

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. Be sure to have all welding done by a qualified person, and check/set all specified torques with a torque wrench...too tight is not just right!!

Please take the time to read all 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 or costly mistakes.

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PHASE I: Dismantle Existing Suspension and Build 'Center Chassis' Area Obviously you must 'tear down' before you can 'build up', so that of course comes first - then the real work begins: The preparations to the middle area of the Jeep to accept the new longer arms. This phase involves almost all of the 'fabrication' elements of the installation, so it's the messy 'less fun' work and represents a good half of the labor. It doesn't start to look like much progress has been made until near the end, but things will all 'come together' faster in the second and third phases.

Step I-1: Remove Rear Axle. Since the majority of any vehicle's handling behavior is determined by the design of the rear suspension, this system involves more modification/installation work to the rear suspension than the front. To speed work on both the frame and rear axle (especially with two people working in parallel), it is actually faster and easier to remove the entire rear axle from the vehicle. To do this, make sure the vehicle's weight is off the axle and disconnect the driveshaft, brake and vent hoses, and park brake cables (at body bracket) first, then completely remove the shocks and stabilizer end links. At this point the axle can be dropped far enough to remove the springs, then finally remove the track bar and the four upper and lower control arms – be sure to save and keep track of the hardware you remove as much of it will be re-used later. You may discard the springs, shocks, control arms, end links, brake hose and drive shaft, but will re-use the other parts.

Step I-2: Dismantle Front Suspension. While the front axle does not need to be completely removed from the vehicle, you will partially disconnect it and reconnect it to the long arms in the next step (LAG-TJ installation). Those steps will be easier if the front suspension is fully dismantled and the front axle is sitting mostly 'free' of the Jeep, though still under it since most things will be changed before the end of the overall system installation anyway. At the point near the end of the next stage (LAG-TJ installation) when you are ready to cut off the front LCA brackets, also do the following:

- disconnect the drag link from the pitman arm (or remove steering completely if changing it out).
- remove the front shocks and discard
- remove the front track bar and discard
- remove the front brake hoses and discard
- remove the front springs and discard
- The front driveshaft may remain connected (at this point it will be the *only* thing still connected).

NOTE: If two people are working on this project, the labor can be divided into separate, parallel activities if one does the remainder of Phase I (excluding final rear arm installation) while the other does Stage II to speed overall install time.

Step I-3: Install LongArm Subframes (Nth14002/14003) and Tummy Tucker™ kits. This is the largest and most involved kit in this system. As directed by the Subframe instructions (Nth30100), it will be done in coordination with installation of the Tummy Tucker™ center skid (instructions Nth30115 or 30116). You will postpone the step for connecting the rear longarms to the rear axle and the installation of the Stinger™ until Phase III after other rear axle work is done.

Coordinated Installs: As also noted in the Subframe instructions, if you need to install a transfer case Slip Yoke Eliminator (SYE) product or are changing transmission or transfer cases completely, do it during the before completing the Subframe/TT install in this step.

- If you purchased a 'Stretch System', skip Step I-4 and follow Step I-5b; for all others follow perform Steps I-4 and I-5a.
- If you purchased the optional JounceShock kit, skip Step I-6.

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Step I-4: Install Shock Shifter upper brackets (Nth23100). Install the SS upper brackets according to their instruction steps. Installation at this time will be most convenient while the rear axle and track bar are out of the way.

Step I-5a: Install Rear Spring Relocators (Nth23030). Follow the instructions for the relocator kit (Nth30110), however for your full-Nth° system you will NOT use the 2.5" diameter bumpstop spacers that come with the relocators – go to step I-6 for bumpstop spacer installation.

Step I-5b: Stretch Systems ONLY: Install Rear Suspension Relocation Brackets (Nth23050). Remove the stock spring seats and trackbar bracket from the frame using your preferred tools – when doing final sanding of the area, also sand the paint off the frame where the new brackets will go. Follow the rest of the separate instructions (Nth30____) for these brackets.

Step I-6: Install rear-upper BumpStop Spacers. Full Nth° long-arm systems use two of the 3.0" diameter spacers that are part of either Nth21802 or Nth21803 kit depending on your system height. Note that the counterbore in the spacers is not relevant in this case and can be positioned either up or down. See Appendix A for the correct total spacing that should be installed at this time.

PHASE II: Rear Axle Modifications and Pre-Assembly. Many things can be done most easily while the rear axle is out from beneath the vehicle. While they can be performed in any order, it's best to do the 'messy' parts first, then paint touch-up, then add/assemble the bolt-on parts.

Step II-1: Remove Shock brackets and prepare for new SS lower brackets. This is part of the Nth23100 Shock Shifter instructions (Nth30112): Using the method/tools of your choice, completely remove the lower shock brackets from the axle tubes, then sand the tubes smooth. Be careful not to gouge or cut into the axle tube and repair it if you do. You will wait to install the new SS axle brackets until after the axle is back under the Jeep and connected to the suspension links, but while it is easy now, you should sand the paint off of the axle tubes in the area where the new brackets will attach – see the figures in the SS instructions for guidance on where to sand.

Step II-2: Re-drill stock LCA brackets. Refer to the Nth20290 Redrill Template instructions (Nth30127) for guidance and pictures of how to use the provided re-drill template to locate and drill new holes for the arms to attach to. Also follow the steps for trimming the excess lower portions of the bracket sides as well as clearance on the top surface of each bracket.

Step II-3a: Remove Track Bar / LRUCA bracket. If you opted for the weld-on track bar tower (Nth29000 - required on stretch systems), you should cut off the original tower bracket now, but be sure to leave the small swaybar mounting bracket in front of it intact as it will be re-used.

Step II-3b: Remove Right-Rear Upper Control Arm (RRUCA) bracket. Removal of this bracket is required for tailpipe routing on stretch systems, but is optional for regular systems. Since it will serve no purpose with this system, you can choose between 'clean' or 'easy/fast'.

Step II-4: Install Slider™/Stinger™ combo or Universal Stinger kit. Follow the instructions for your models – using any provided shims that may be required with your specific Slider/Stinger combination. You may install the Stinger boom to the Slider/Base now, so that all you will need to do when the axle is reinstalled is hook the Stinger's link bracket to the back of the Tummy Tucker.

Step II-5: Install new rear brake hose (Nth25101). Attach the junction-block end to the axle tube using the original breather tube fitting 'combo' bolt, then reconnect the axle-mounted hard lines to each side

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fitting on the block. When tightening the block, avoid touching the ferrule where the hose enters the block – if you pry on it, you may damage the line and cause a leak that will require a new hose.

Step II-6: Install rear track bar tower/brace (Nth23040). Skip this step if you are using the optional weld-on track bar tower (Nth29000: required for Stretch Systems, optional for all others – you will weld it on in Step III-6b),. The instructions provided with this kit (Nth30114) kit will guide the correct configuration of your tower and it's clevis for your suspension's 'lift' height, as well as mounting it to your axle's stock track bar tower. You can pre-install the tower-to-bridge brace, but leave it loose until the Stinger boom is installed later.

Step II-7: (+6.0" systems ONLY): Drill Spring Seats. For 6" systems, part of the bumpstop spacing will be attached to the axle. To prepare for this, drill a 3/8"+ in the center of the raised area in the middle of each spring seat.

PHASE III: Rear Suspension Assembly. Now that the center portion is completed and the rear axle pre-modified and assembled, you are ready to put the rear suspension together. The slow and difficult parts of the install are mostly behind you now...you're about halfway done.

Step III-1: Re-place Rear Axle. After completing Phase II, your rear axle should now look similar to figure __, and is ready to be re-positioned under the Jeep. Perform the following steps in order:

Step III-2: Attach Rear LongArms (box Nth20103 or 20104). With the axle roughly back in position, connect each new rear arm to the modified LCA brackets on the axle using the original hardware.

Step III-3: Install 'CV' Rear Drive Shaft. If it was not previously installed, you can now install your rear driveshaft – it must have a double-Cardan (aka 'CV') joint at the t-case to work properly with this system.

CAUTION: If you are installing an Nth01600 system (6" on SWB TJ), Nth° recommends using a driveshaft with a 'clearanced' CV joint to make sure that the CV joint cannot be over-angled. If you're using an existing 'shaft, check that the driveshaft turns without bind when the rear axle is hanging from the shocks. If you have bind and want to keep the shaft, you will need either shorter shocks or a limiting strap(s) to make sure it 'lives'. Make sure it's right *before* you hit the trail!

Step III-4: Set Rear Axle in Final Position. Now elevate the rear axle to about the correct ride height for your system and set the correct approximate ride height by measuring from the underside of the rear spring relocation brackets to the round seat on the axle (measure to the left or right of the raised center 'strike surface', not at the front or back edges). The measurement for +4.5" systems should be about 10-1/8" and for +6.0" systems about 11-5/8". You should also adjust the Stinger to set the rear pinion angle (see Stinger instructions for details).

Step III-6a: Re-install Rear Track Bar (if using Nth23040) to the original frame bracket hole (or new bracket on stretch systems) and the tower bracket on the axle. For bolt-on trackbar towers, consult the instructions (Nth30114) for tips and pictures; for weld-on towers, follow Step III-6b.

Step III-6b: Install Weld-on Rear Track Bar Tower (Nth29000) Refer to the instructions (Nth30128) for positioning and welding this bracket in the proper location on your axle.

Step III-7: Position/Weld new Shock Shifter Axle Brackets. Next, follow the procedure in the Shock Shifter instructions (Nth30112) for modifying and pre-installing the rear shocks and using them to position the new brackets on the rear axle for welding. After tacking the brackets in place, you should disconnect

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the shocks from the new brackets for final welding, then paint the brackets but do not re-attach the shocks yet.

NOTE: If you are using all Nth°-recommended parts (i.e. a full Nth° system and Nth-recommended shock part numbers for your application), you will not need to check clearances, etc. in Step III-9 and may choose to delay this step until after the springs are holding the Jeep up (Step III-10).

Step III-8: Connect Rear Brake Hose. You already installed the new rear brake hose to the axle in Phase II; it can now be connected to the original hard line along the driver-side frame rail. As was mentioned at that time, this connection will not be attached to a metal bracket any longer and should be zip-tied to the other fuel-related hard lines nearby – the hard line should be slightly re-bent by hand so that it can be positioned approximately directly above the original LRUCA frame bracket where it will clear the left-rear long arm.

Stretch systems should not require any extra modifications, but you may elect to use a 3/16" x 6" long pre-made brake line and coupler from your local auto parts store to extend the frame line to allow more 'slack' in the hose.

Step III-9: Check Rear Suspension Up/Down-travel Clearances. Because the rear springs are not yet installed, now is the most convenient time to cycle the rear axle all the way up and down to confirm several common clearance concerns, etc. To fully evaluate the suspension, you should also connect the rear shocks to the axle now so that you can confirm shock clearance issues too, but they will need to be disconnected again for the next step. Consult Appendix I for guidance on correct shock lengths and bumpstop spacing for your installation.

Step III-10: Install Rear Springs & Bumpstop Spacers or JounceShock™ Kit. (If you purchased the optional JounceShock kit, follow those instructions for installing the rear units in conjunction with the rear springs and skip this step). Lower the axle down until you can fit the rear springs around the bumpstops/spacers on the rear spring relocater brackets, then maneuver them over the axle seats. The

If you are installing a 6" system, you were supplied additional 3.0" diameter spacers that must be bolted to the axle seats. Because the lower spring pigtails are smaller than these spacers, they must be inserted into the springs from the top before they are installed, then once the springs are in place, they can be bolted to the axle using the bolts provided (an open-end wrench can reach the nuts from the front side of the axle tube) – make sure the counterbore is facing up toward frame so the 2" bolts will be long enough. Once secured, these spacers will also act as retainers that will keep the springs from 'loosing track' of the axle during 'max. droop' as can happen with certain long-travel shocks. *You must use **both** the frame and axle-side spacers for a correct installation!*

orientation of the Nth° progressive-rate rear springs is specific because one 'pigtail' is larger than the other (unlike stock or other aftermarket springs). The larger-than-normal pigtail has an inside diameter that measures about 3.25" at it's smallest and must be positioned as the top so that it will fit over the upper bumpstop spacers that were installed in step I-5.

Step III-11: Connect Shocks to New Axle Brackets. Raise the axle until you can re-connect the rear shocks to the new SS axle brackets and do so, then raise it further, but stop short of taking all of the load off of your rear frame support points.

Step III-12: Install Rear Stabilizer End Links. Unlike the stock links, your new longer links will be attached to *inboard* side of the bar ends (this is done to provide clearance to the rear long arms), and to the 'tab' at the inboard-front corner of the rear spring relocater brackets that you installed in step I-5 (this

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rocks the bar up/back to keep the ends above the higher-clearance long-arms). Prepare the links by inserting a bushing into each end of each link using some soapy water and a mallet. Next, place one ½" USS washer on each of the four factory shoulder bolts – these will cause the link bushings to compress and 'lock' onto the bolts when tightened. Attach each link to a spring relocater using the original flag nut. Next attach the lower ends to the *inboard* side of the stabilizer bar ends. Before bolting the links to the stabilizer bar, add two 3/8" fender washers between the bushing and bar, then add the original locking nut and tighten. To provide adequate clearance for the longarms, you will need to cut the extra threads off the bolts next to the locking nut.

The rear suspension should now be complete except for final tightening and adjustments

PHASE IV: Front Suspension Assembly Completion: At this point the front axle should already be held in place by (only) the front LongArms, and possibly the front driveshaft is also still in place. The remaining steps are fairly easy and fast...you're in the final phase.

Step IV-1: Install Spring Spacers (Nth21701). Begin by removing each stock jounce bumper (yellow on most TJ's, black on '04-'06 models) by prying/twisting it out of the steel 'cup', then unbolt the cup itself, and finally slide the stock spring isolator (rubber ring) down and off the 'tower'. All long-arm systems include a pair of roughly 2" tall urethane spring spacers – place one on each tower with the 'lip' facing down, then replace the stock isolator under it – they should hold themselves in place for the next step.

Step IV-2: Install Front portion of Bump Stop Spacer kit (Nth21802/21803) or JounceShock™ Kit. (If you purchased the optional JounceShock kit, follow those instructions for installing the front units). For bumpstop spacing, each system uses spacers at both on the axle and the frame to set the proper amount of axle/wheel uptravel. Place all 2.0" diameter spacers that were provided above the stock bumpstop 'cup' using the longer M10 bolts provided (there may be more than one 'puck' for each side). Also install the 3.0" diameter spacers on the axle by first drilling out the 'dimple' in the middle of each

NOTE: Rubicon TJ front axles have a ½" thick steel disc welded on top of the axle seats. You may elect to leave it in place and drill/tap it for the spacer, but you cannot omit the provided axle spacers unless you run very short front shocks. An alternative is to grind the short welds and remove the disc to allow normal installation of the provided spacers.

spring seat with a 5/16" bit, then mount the spacers using the self-tapping bolts provided (these bolts have 'cuts' through the threads near the tips of the bolts). Refer to Appendix 1 for the correct spacing that should have been included with your system depending on what lift height you chose.

Step IV-3: Install Front Track bar kit (Nth20400). Follow the separate instructions for this kit and set it up according to your planned suspension height.

Step IV-4: Install new Pitman Arm (Nth25000). Change out the stock pitman arm for the drop-type pitman arm provided. Use caution when working with a pitman arm puller – leave the large nut on the sector shaft but loose during pulling to prevent the arm from flying once it releases. When installing the new arm, be sure to align the four master splines in the same way that the old pitman came off – do not turn the steering wheel when the pitman arm is off or you will lose track of 'center' and could ruin your 'clockspring' inside the steering column!

Step IV-5: Install new Front Brake Hoses (Nth80003). Change the front brake hoses to the longer braided stainless steel ones provided. Note that unlike the stock hoses, the new ones go directly up from the banjo bolt on the caliper, not rearward. Be sure to use the included new brass seal-washers on both sides of the block. Assuming the rear brake system is already hooked up as well, you may set up the brakes for gravity bleeding now if desired.

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Step IV-6: Install Lightning Rod™ Disconnects (Nth20521). Follow the kit instructions (Nth30147).

Step IV-7: Check Front suspension Up/Down-travel Clearances. Before you install the front springs, now is a good time to cycle the front suspension to confirm that everything clears each other – especially at full uptravel. Depending on how you have your Jeep supported at this point, either raise the axle or lower the Jeep until the bumpstops on top of the axle are fully compressing the bumpers themselves into their cups – checking for interference issues as you get close. The main area to check is the clearance of the front differential cover to the new front trackbar brace. Also, now is a good time to install and check that your front shocks will fit and not ‘bottom out’ before the axle reaches this position (you will need the shocks at least disconnected at the bottom to get the springs next). If anything is not right, correct it and recheck it before continuing.

Step IV-8: Install Front Springs. Actual installation of the front springs should be easy at this stage if the swaybar disconnects, steering, and shocks are all NOT hooked up to the axle. Simply lower the front axle on the longarms and be careful not to overextend the brake lines. Slip each spring over the bumpstop on the frame end and then drop the non-pigtail lower end over the spring seat/bumpstop on the axle, then rotate each until the end of the wire is at the end of the stamped spring seat, then allow the Jeep to rest on the springs. If your TJ was equipped with spring retainers on one or both springs, reinstallation will be easiest just before you put full weight on the springs. If your TJ did NOT come with retainers, Nth° highly recommends adding them (p/n 52005917, available at Jeep dealership) to keep the springs from rotating out of position when fully flexed/unloaded. All original TJ axles have the holes for mounting retainers, but if yours did not come with them, the hole closest to each spring will need to be tapped to M8. Finally, (re)connect the shocks, steering linkage, and swaybar disconnects to complete the front suspension.

PHASE V: Alignment, Final Torques, Test Drive, and Debugging: If all steps up to this point have been completed fully and correctly, this phase should be quick and painless. Keep in mind that to achieve the level of suspension refinement that was designed into this system, you must take the time to check the fit and function of every part of your suspension through all possible motions.

Step V-1: Full Chassis Alignment. If you are not performing this installation at a location with a computerized alignment machine, you may do a ‘rough alignment’ by eye and tape-measure for now as outlined below (It is assumed that you understand the terminology used.) This will allow you to drive the vehicle to an alignment shop for final adjustments. If these procedures are done carefully, in most cases only minor adjustments will be required when doing the computerized alignment, so you may proceed with the test drive and debugging steps now and usually not have to do them again after alignment.

Step V-2: Final Torques. This will normally be performed during the computerized alignment, so if that is being delayed until later, just make sure all fasteners are reasonably tight for now.

Step V-3: Test Drive(s) and Debugging. There is much more to a true ‘shakedown test drive’ than a genteel ‘cruise around the block’ if you want to find out now – instead of later when it’s not convenient – whether your now-extensively-modified vehicle chassis has issues that require attention and correction. Of course you want to listen for clunks, rattles, and the like, but you should also be carefully searching for handling issues and other performance problems. This is a “test-fix-repeat” cycle that you should continue until you are satisfied that all issues stemming from the installation of this system have been resolved. If you commit to doing this well now, your new suspension will deliver countless years of trouble free service with only regular maintenance and inspections - see the appendix for a summary of maintenance procedures and recommended intervals.

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Appendix 1: Bumpstop Setup and Shock Applications

Consult the table below to confirm the proper combination/location of the bumpstops for your system. Note that all bumpstop spacers that are used on the 'frame side' are intended to be installed above the stock bumpstop 'cup' and use the original yellow or black bumper in that cup – longer bolts are provided. All axle-mounted spacers require drilling a hole in the center of the axle seat's "strike surface" in the center of the spring. For proper function of your suspension and to protect your shocks from damage, you should use the spacers that were provided for your lift height and match the shock lengths accordingly.

Shock lengths are not arbitrary – they must be matched to the ride height and bumpstop positions of your vehicle. The fully compressed length of your shocks must be shorter than the distance between the mounting points when the axle is fully compressing the bumpstops. Nth° has researched the dimensions for proper shock fitment and provides the chart below as a guide for choosing correct-length shocks for each of the suspension systems covered by these instructions. Keep in mind that this information is valid ONLY if using the complete Nth° suspension system including the intended bumpstop spacing, rear spring relocators, and shock shifters (all of which affect what shocks will fit or not).

Front	Nth01500 and 01510 (+4.5")	Nth01600 and 01610 (+6.0")
Bumpstop Spacing – Frame side	(1) 2"Dia x 2"High puck per side	(1) 2"Dia x 2"High puck + (1) 2"Dia x 1"High puck per side
Bumpstop Spacing – Axle side	(1) 3"Dia x 2"High puck per side	(1) 3"Dia x 2"High puck per side
Shock compressed length max. (from underside of frame tower to underside of bottom bar pin).	17.25"	18.25"
Rear (Requires using the rear spring seat relocators)		
Bumpstop Spacing – Frame side	(1) 3.0"Dia x 2"High puck + (1) 2.5"Dia x 1"High puck / side	(1) 3.0"Dia x 2"High puck / side
Bumpstop Spacing – Axle side	None	(1) 3.0"Dia x 2"High puck / side
Stabilizer End Links (RSEL)	9.5" center-center length	11.0" center-center length
Shock compressed length max. (assumes Nth° Shock Shifters are installed correctly).	14.50"	15.50"

Note: Make sure that your front shocks do not allow your front brake lines to overextend on full droop. If your front shocks can extend past about 29.5", you may need to relocate the top end of the hoses downward on the frame by drilling and tapping a new, lower hole in the frame.