

# 86409



## 2007-2013 8" TOYOTA TUNDRA 4WD BASIC KIT

### Component Box 1 86408-1

- 1) Front X Member
- 1) Rear X Member
- 1) Left Compression Strut
- 1) Right Compression Strut
- 2) Sway Bar Drops
- 2) Strut Spacers

### Component Box 2 86408-2

- 1) Skid Plate
- 1) LH Front Bump Stop
- 1) RH Front Bump Stop
- 1) LH Rear Bump Stop
- 1) RH Rear Bump Stop
- 4) 9/16 X 14 X 2.5 U-Bolts
- 2) Block 5.25" Tapered
- 2) Inside Coil Strut Spacers
- 1) 1.25" X 5" Long spacer
- 1) Hardware Kit

### Component Box 3 86408-3

- 1) Left Spindle
- 1) Right Spindle
- 4) 18mm X 2.5 70mm Bolts

### Hardware Bag 1

- 2) 7/8 X 6 Bolts
- 2) 7/8 Nuts
- 4) 7/8" Cam Plates
- 2) 18mm X 2.5 150mm Bolts
- 8) 18mm Washers
- 2) 18mm 2.5 Nuts
- 4) 18mm Cam Plates
- 1) 1/2" 8 Bolt
- 2) 1/2" X 6 Bolts
- 3) 1/2" Nuts
- 6) 1/2" Washers

### Hardware Bag 2

- 4) 10mm 1.25 20mm Bolts
- 4) 10mm 1.25 Nylock Nuts
- 4) 5/16" X 1 Bolts
- 4) 5/16 Nuts
- 8) 5/16 Washers
- 7) 3/8-1 Bolts
- 12) 3/8 Nuts
- 19) 3/8 Washers
- 4) 7/16-1 1/2 Bolts
- 2) 7/16-3 1/4 Bolts
- 6) 7/16" Nylock Nuts
- 8) 7/16 Washers
- 4) Brake Line Brackets
- 8) 9/16" Nylock Nuts
- 8) 9/16" Washers



**IMPORTANT! 18" OR LARGER WHEELS MUST BE USED IN CONJUNCTION WITH THIS LIFT KIT! THE STOCK WHEELS CANNOT BE REUSED.**

**Introduction:**

**This installation requires a professional mechanic!**

- \* We recommend that you have access to a factory service manual for your vehicle to assist in the disassembly and reassembly of your vehicle. It contains a wealth of detailed information.
- \* Prior to installation, carefully inspect the vehicle's steering and driveline systems paying close attention to the tie rod ends, ball joints, wheel bearing preload, pitman and idler arm. Additionally, check steering-to-frame and suspension-to-frame attaching points for stress cracks. The overall vehicle must be in excellent working condition. Repair or replace all worn or damaged parts!
- \* Read the instructions carefully and study the illustrations before attempting installation! You may save yourself a lot of extra work.
- \* Check the parts and hardware against the parts list to assure that your kit is complete. Separating parts according to the areas where they will be used and placing the hardware with the brackets before you begin will save installation time.
- \* Check the special equipment list and ensure the availability of these tools.
- \* Secure and properly block vehicle prior to beginning installation.
- \* ALWAYS wear safety glasses when using power tools or working under the vehicle!
- \* Use caution when cutting is required under the vehicle. The factory undercoating is flammable. Take appropriate precautions. Have a fire extinguisher close at hand.
- \* Foot pound torque readings are listed on the Torque Specifications chart at the end of the instructions. These are to be used unless specifically directed otherwise. Apply thread lock retaining compound where specified. Please note that while every effort is made to ensure that the installation of your FTS lift kit is a positive experience, variations in construction and assembly in the vehicle manufacturing process will virtually ensure that some parts may seem difficult to install. Additionally, the current trend in manufacturing of vehicles results in a frame that is highly flexible and may shift slightly on disassembly prior to installation. The use of pry bars and tapered punches for alignment is considered normal and usually does not indicate a faulty product. However, if you are uncertain about some aspect of the installation process, please feel free to call our tech support department at the number listed on the cover page. We do not recommend that you modify the FTS parts in any way as this will void any warranty expressed or implied by the FTS Suspension.

**Important!**

Tire and wheel choice is crucial in assuring proper fit, performance, and the safety of your FTS equipped vehicle. For this application, an 18" wheel not to exceed 9" in width with a maximum backspacing of 5 1/2" or a 20" wheel not to exceed 9" in width with a maximum backspacing of 6" must be used. Additionally, a quality tire of radial design, not exceeding 35" tall X 12.5" wide is recommended. Please note that the use of a 35" X 12.5" tire may require the removal of the front inner fender mud flaps (front and rear). Violation of these recommendations will not be endorsed as acceptable by FTS and will void any and all warranties either written or implied.

**DISSASSEMBLY**

- 1) Ensure that your work space is of adequate size and the work surface is level. Place the vehicle in park. Disconnect the negative battery cable from the battery. Place your floor jack under the front cross member and raise vehicle. Place jack stands under the frame rails behind the front wheel wells and lower the frame onto the stands. Remove the jack and place the vehicle back in gear, set the emergency brake, and place blocks both in front of and behind the rear wheels. Remove the front wheels.
- 2) Remove the skid plate from the vehicle and discard. Save these bolts for skid plate
- 3) Work on one side of the vehicle at a time.
- 4) Using the appropriate tool, remove the outer tie rod end nut.

- 5) Unbolt the front brake line brackets from the frame. Save the bolts for reinstallation
- 6) Unclip and unbolt the ABS line from the back of the knuckle Unbolt the anti-lock brake sensor from the hub. Unbolt the upper brake line bracket from the knuckle.
- 7) Remove the brake caliper from the rotor and secure them clear from the work area. **DO NOT** let the caliper hang by the brake line or damage may result.
- 8) Remove the front rotor from the front hub.
- 9) Remove the dust cap from the hub. Remove the cotter pin and retaining nut from the center of the bearing hub.
- 10) Unbolt the (4) bolts holding the hub flange to the knuckle and remove the hub and backing plate. Discard backing plate. Save the hub for reinstallation.

**NOTE: You will not be able to remove the bolts from the hub assembly after the hub is removed from the knuckle.**

- 11) Unbolt the sway bar end links from the lower A-arm. Unbolt the sway bar frame mount brackets and remove the sway bar. Save the parts and hardware for reuse.
- 12) Support the knuckle and remove the upper ball joint nut from the knuckle.
- 13) Remove the (2) bolts from the lower ball joint bracket.
- 14) Remove the knuckle from control arm assembly.
- 15) Unbolt and remove the factory strut assembly from the vehicle. Save the hardware for reuse.

**NOTE: The lower A-arm bolts may need to be loosened in order to release pressure on the strut.**

- 16) Unbolt and remove the lower A-arm from the vehicle.
- 17) Remove the front bump stops from the frame. Save the bump stop for reinstallation.

**NOTE: Be sure to support the CV axles before removing the lower A-arm. DO NOT allow the axles to hyperextend or damage to the bearings might result.**

- 18) Repeat steps 4 through 17 on the remaining side of the vehicle.
- 19) Unbolt the front driveshaft from the differential. Secure the driveshaft up and out of the work area.
- 20) Unclip all electrical wiring, vacuum lines and vent lines from the differential.
- 21) Support the differential with a jack and unbolt the rear mount differential mount. This bracket will be reused.
- 22) Unbolt the (2) front differential mount bolts from the front cross members. Carefully remove the differential from the vehicle.

- 23) Raise the rear cross member into the rear frame mounting pockets and hang in place using the supplied bolts and cam block off plates
- 24) Use the rear cross member as a template for marking the frame for cutting.
- 25) Use the driver side edge of the rear cross members lip to mark the frame for the inside edge of the cut.
- 26) Measure 6" from previously applied cut mark toward the driver side of the vehicle. Make sure the measurement is square and mark a line around the frame for the outer edge of the cut.
- 27) Remove the rear cross members to allow access for cutting the frame.
- 28) Using a suitable cutting tool, (abrasive cutoff wheel, Sawz-all, etc.) cut the frame along the previously marked lines. After cutting the section out of the frame, clean the area thoroughly and paint the exposed metal with a good quality paint.
- 29) Install the front cross members into the front mounting pockets using the supplied 7/8" X 6" bolts and cam block off plates.
- 30) Install the rear FTS supplied bump stop brackets using the 3/8 x 1" bolts and 10mm x 1.25 bolts.
- 31) Install the previously removed OE bump stop on to the front bump stops supplied using the 10mm-1.25 supplied nut and washers.
- 32) Install the front FTS bump stop bracket to the front x member 3/8" X 1" bolts through the side mounting holes and 10mm x 1.25 bolts to attach the upper mounting hol to the frame. Be sure that the heads of the bolts are facing toward the outside of the cross members.
- 33) Unbolt the OE vacuum hard line bracket from the differential. Save OE bolt for reinstallation.
- 34). Support the CV axles and carefully raise the differential assembly into place.  
**NOTE: DO NOT allow the axles to hyperextend or damage to the bearings might result.**
- 35) Using the factory differential mounts, Install the 1/2 x 6" bolt threw the factory differential mount then into the FTS front x member. Torque to 75ft-lbs.
- 36) Install the rear cross members into the rear frame mounting pockets using the supplied 18mm-2.5 X 160mm bolts and cam block off plates.
- 37) Reinstall the differential vacuum bracket using the previously removed OE bolt.
- 38) Install the previously removed OE bump stop into the rear bump stops using the supplied nut and washers
- 39) Install the rear FTS bump stop bracket to the front x member 3/8" X 1" bolts through the side mounting holes. Be sure that the heads of the bolts are facing toward the outside of the cross members.
- 40) In order to accommodate the new differential position, pull the vacuum line down and reconnect.
- 41) Reconnect all the differential electrical plugs.
- 42) Reattach the front driveshaft and torque the OE nuts to 65 ft. /lbs.

- 43) Install the lower A-arms into the front and rear cross members mounting pockets. Secure using the OE cam bolts.
- 44) Torque all cross members and differential bolts to factory specs.
- 45) Torque the 7/8" front cross members mounting bolts to 275 ft. /lbs.

**STEP 46-54 ONLY FOR 8" KIT ONLY**

**CAUTION: The coil is under extreme pressure and severe bodily injury may occur if the coil spring is disassembled without using a coil spring compressor.**

- 46) WITH THE STRUT SPACERS: Scribe an index mark on the top of the OE coil spring to the upper strut mounting plate.
- 47) Compress the coil spring on the strut assembly with a suitable coil spring compressor so that the coil spring has about 3/8" play in the strut and remove the upper strut isolator retaining nut.  
  
NOTE: Do not use an impact gun to remove the retaining nut. It will damage the strut shaft.
- 48) Remove the OE coil spring isolator from the upper strut mounting plate. Save the isolator for reuse.
- 49) Carefully remove the coil spring from the strut.
- 50) Using a utility knife cut the protective boot off of the strut assembly. Discard the boot.
- 51) Install the lower strut spacer as shown.
- 52) Reinstall the compressed coil spring onto the strut assembly using the reference marks as a guide.
- 53) Re-attach the upper strut mount plate using the OE hardware. Torque the upper strut mounting plate retaining nut to 20 ft. /lbs.
- 54) Decompress the coil spring on the strut assembly. Make sure that the spring is seated correctly into the strut assembly and aligned with the previously scribed index mark on the upper strut mounting plate
- 55) Attach the new strut spacer (Driver and Pass) to the top of the shock using the OE hardware. Torque to 47 ft. /lbs. Fit the strut assembly and spacer into the stock mounting locations. Fasten using the supplied hardware on the top
- 56) Install the OE bolt through the lower strut mount and a-arm. Torque to 150 ft. /lbs.
- 57) Repeat 46-56 on opposite side
- 58) Support the lower A-arms and position the new knuckle in place. Slide the CV axle through the knuckle from the rear and attach the knuckle to the upper ball joint. Torque to 67 ft. /lbs.
- 59) Install a new cotter pin.
- 60) Secure the knuckle to the lower ball joint bracket using the (2) supplied 18mm-2.5 x 70mm mounting bolts. Apply thread locking compound to the bolts. Torque the bolts to 180 ft. /lbs.

61) Both sides of the vehicle install the OE hub onto the CV axles and into new knuckles. **(DO NOT REUSE FACTORY BACKING PLATE)**

**DO NOT REUSE FACTORY BACKING PLATE WILL CASE SENSOR ISSUES AND RUBBING ON ROTOR TO CALIPER BRACKET**

62) Attach the previously removed OE retaining nut to the end of the CV shaft. Torque to 275 ft. /lbs. Install a new cotter pin, reattach the dust cap.

63) Install the front rotors on to the front hubs.

64) Reinstall the brake calipers to the new knuckle using the previously removed OE bolts. Torque to 80 ft. /lbs.

65). Bolt the anti-lock brake wiring sensor to the hub. Reroute the ABS line and secure the line to the threaded hole on the back of the new knuckle ABS wire retaining bolt.

66) Insert from the top and secure the tie rod end to the knuckle and torque to 67 ft. /lbs. Install a new cotter pin

67) Install the front brake line drop brackets with the short side up, to the original brake line mounting hole in the frame. Secure using the previously removed OE bolt.

68) Bolt the brake line bracket to the new drop bracket using the supplied 5/16" X 1" bolts and hardware

69) Reattach the upper OE knuckle brake line bracket to the new knuckle using the OE bolt.

70) Install the sway bar drop brackets to the original sway bar mounting holes in the frame, with the offset facing toward the front of the vehicle, using the OE bolts. Torque to 55 ft. /lbs.

71) Reinstall the sway bar to the new sway bar drop brackets using the supplied 7/16" X 1 1/4" bolts and hardware. Leave hardware loose at this time.

72) Reattach the OE sway bar end links to the lower A-arm using the OE hardware.

73) Torque the sway bar mounting hardware according to OEM spec. Torque the sway bar end link to lower A-arm bolts to 85ft. /lbs.

74) Install the compression struts using 7/16" X 3 1/4" bolts and hardware.

75) On both sides of the vehicle, check the routing of the brake lines and the ABS wire harnesses. There must be no pinching, rubbing, or stretching of either component. Use zip ties to secure these items to the steering components. At full droop, cycle the steering from lock to lock while observing the reaction of these components. Reposition them if needed

76) Install FTS skid plate using the factory hardware in the front and the supplied 3/8 x 1 bolts and into the rear x member.

77) Reinstall the wheels and lower the vehicle to the ground. Torque the lug nuts according to the wheel manufacturer's recommendations.

78) With the truck on the ground center the lower A-arm cam bolts and torque to 145 ft./lbs.

79) Center the steering wheel and lock it in place. Set the toe by adjusting the tie rod ends properly.

- 80) Lock the outer tie rod ends by tightening the OE jam nuts
- 81) Reconnect the negative battery cable to the battery
- 82) Recheck all hardware for proper installation and torque at this time.

**IMPORTANT! BE SURE TO BRING THE VEHICLE IMMEDIATELY TO A REPUTABLE ALIGNMENT SHOP TO BE ALIGNED!**

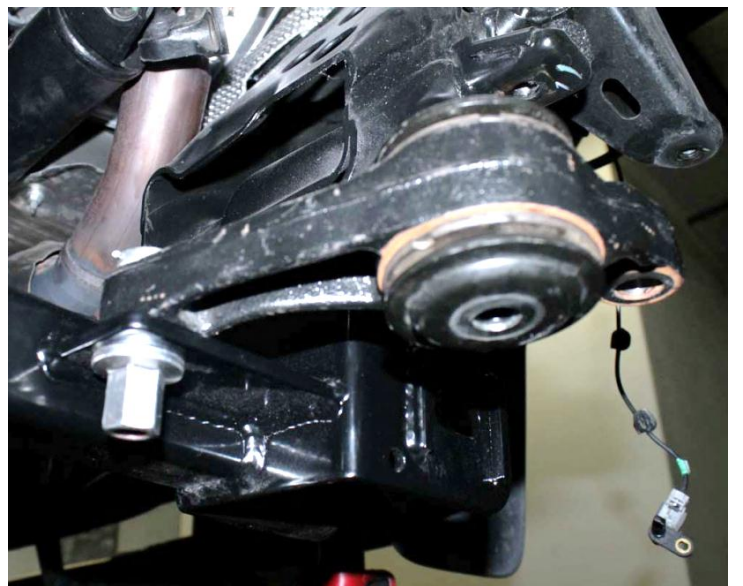
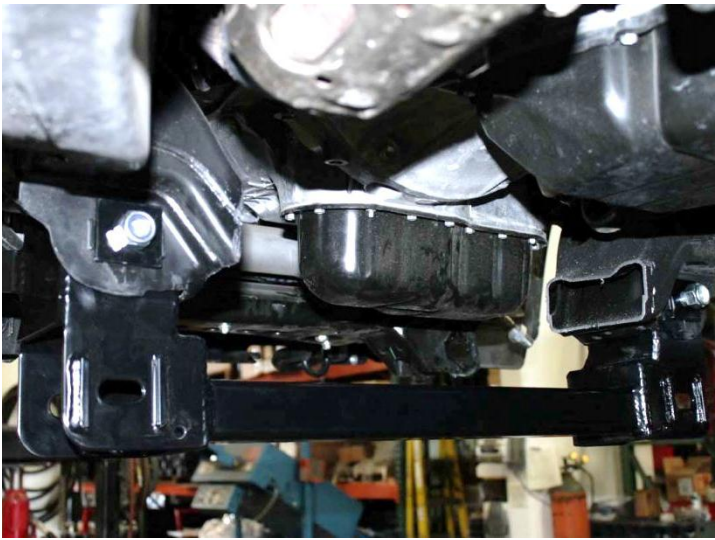
Rear Installation:

- 1) Block the front tires and raise the rear of the vehicle. Support the frame with jack stands forward of the rear springs.
- 2) Remove the rear wheels.
- 3) Remove the shocks on both sides of the vehicle. It may be necessary that you slightly raise the axle to unload the shocks for removal.
- 4) Unclip the ABS line from the charcoal canister bracket. Leave the zip ties in place.  
**NOTE: It may be necessary to carefully bend the bracket down.**
- 5) Unbolt the emergency brake cable bracket from the rear axle.
- 6) Support the rear axle with a floor jack and remove the U-bolts on the driver side. Loosen the U-bolts on the passenger side and carefully lower the rear axle.
- 7) Install the lift block, with the pin offset toward the front of the vehicle, making sure the pins are fitted into the holes on the spring perch. Use your floor jack to raise the axle to the spring making sure the pin on the leaf spring fit into the holes on the new lift block.
- 8) Secure the assembly with the U-bolts and new hi-nuts and washers from hardware pack. Do not torque the U-bolts at this time.

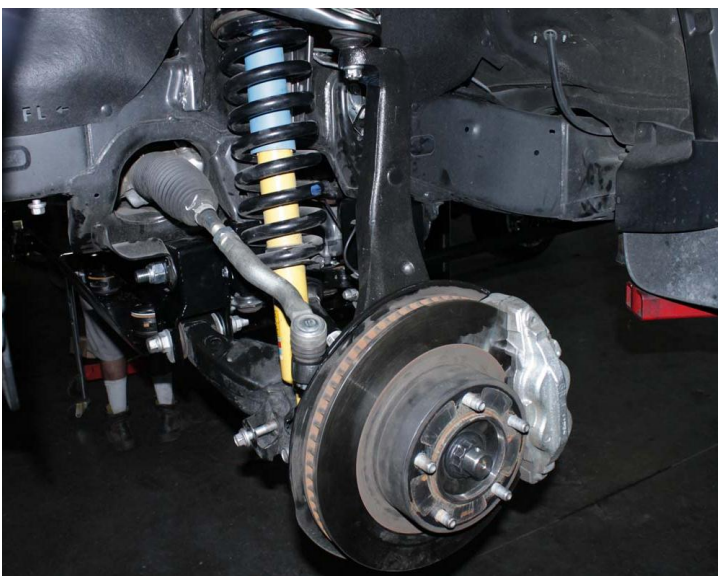
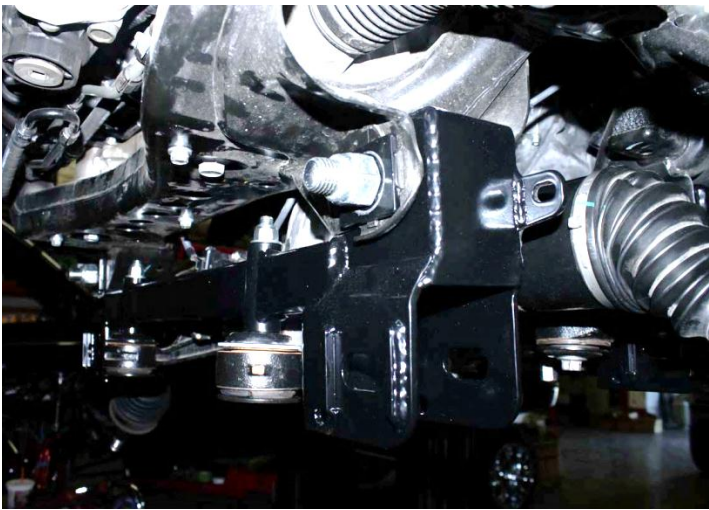
**NOTE: Make sure the block sits flush on the axle perch.**

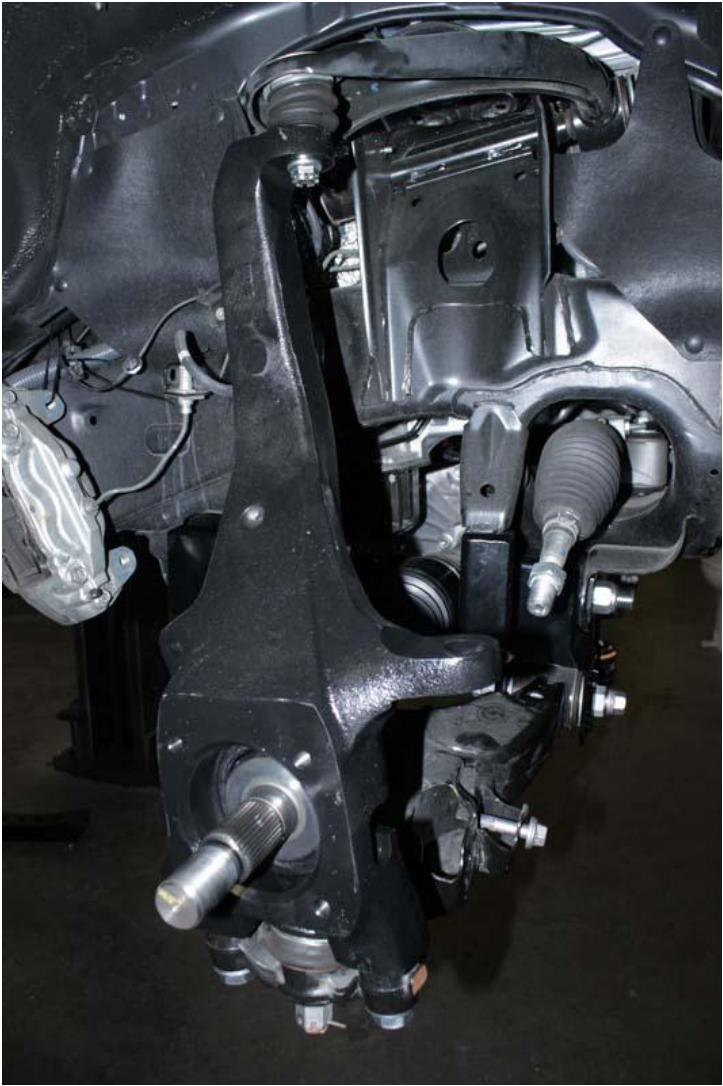
- 9) Repeat the installation on the other side of the vehicle.
- 10) When the installation of the remaining side is complete, torque the U-bolts to 105-110 ft. /lbs.
- 11) Install the new shock absorbers using the previously removed OE lower bolts. Torque this hardware to 74 ft. /lbs.
- 12) Check all hardware at this time to ensure that everything is tight. Check for adequate clearance on all repositioned brake lines and emergency brake cables. Make sure you check with the suspension fully extended, and compressed.
- 13) Reinstall the wheels and lower the vehicle to the ground. Torque the lug nuts according to the wheel manufacturer's recommendations.

Thank You for choosing Full Throttle Suspension  
Tech support 559-271-8685 or send email to [fts.dwgs@gmail.com](mailto:fts.dwgs@gmail.com)

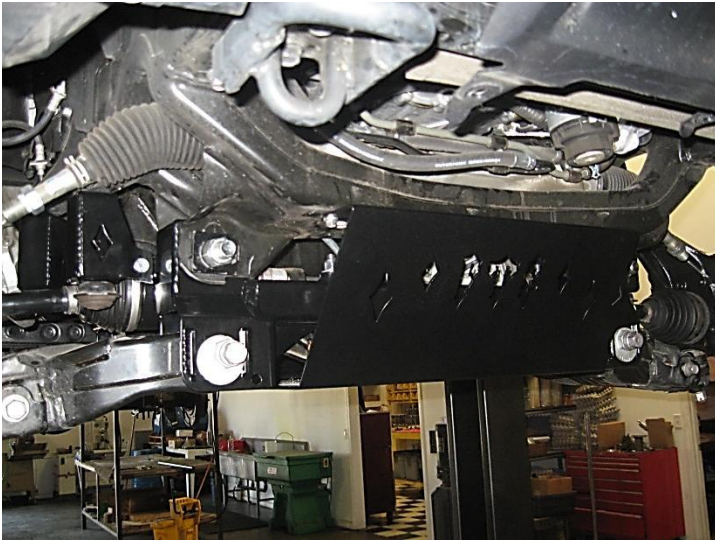








**ONLY INSTALL THIS SPACER  
FOR THE 8" KIT**



## Product Warranty and Warnings-

FTS provides a Limited Lifetime Warranty to the original retail purchaser who owns the vehicle, on which the product was originally installed, for defects in workmanship and materials.

The Limited Lifetime Warranty excludes the following FTS items; bushings, bump stops, ball joints, tie rod ends, limiting straps, cross shafts, heim joints. These parts are subject to wear and are not considered defective when worn. They are warranted for 60 days from the date of purchase for defects in workmanship.

Reservoir shocks are considered a serviceable shock with a one year warranty on leakage only. Service seal kits are available separately for future maintenance. All other shocks are covered under our Limited Warranty.

FTS does not warrant any product for finish, alterations, modifications and/or installation contrary to FTS instructions. Alterations to the finish of the parts including but not limited to painting, powder coating, plating and/or welding will void all warranties. Some finish damage may occur to parts during shipping which is considered normal and is not covered under warranty.

FTS products are not designed nor intended to be installed on vehicles used in race applications or for racing purposes or for similar activities. (A "RACE" is defined as any contest between two or more vehicles, or any contest of one or more vehicle against the clock, whether or not such contest is for a prize). This warranty does not include coverage for police or taxi vehicles, race vehicles, or vehicles used for government or commercial purposes. Also excluded from this warranty are sales outside of the United States of America.

Installation of most suspension products will raise the center of gravity of the vehicle and will cause the vehicle to handle differently than stock. It may increase the vehicle's susceptibility to a rollover, on road and off road, at all speeds. Extreme care should be taken to operate the vehicle safely at all times to prevent rollover or loss of control resulting in serious injury or death.

FTS makes every effort to ensure suspension product compatibility with all vehicles listed in the catalog, but due to unknown auto manufacturer's production changes and/or inconsistencies by the auto manufacturer,

FTS cannot be responsible for 100% compatibility, including the fitment of tire and wheel sizes listed. The Tire and Wheel sizes listed in FTS's catalog are only a guideline for street driving with noted fender trimming. FTS is not responsible for damages to the vehicle's body or tires.

FTS's obligation under this warranty is limited to the repair or replacement, at FTS option, of the defective product only. All costs of removal, installation or re-installation, freight charges, incidental or consequential damages are expressly excluded from this warranty. FTS is not responsible for damages and/or warranty of other vehicle parts related or non-related to the installed FTS product. This warranty is expressly in lieu of all other warranties expressed or implied. This warranty shall not apply to any product that has been subject to accident, negligence, alteration, abuse or misuse as determined by FTS.

FTS suspension components must be installed as a complete system including shocks as shown on our current website. All warranties will become void if FTS parts are combined and/or substituted with other aftermarket suspension products. Combination and/or substitution of other aftermarket suspension parts may cause premature wear and/or product failure resulting in an accident causing injury or death. FTS does not warrant products not manufactured by FTS.

Installation of FTS product may void the vehicles factory warranty; it is the consumer's responsibility to check with their local vehicle's dealer for warranty disposition before the installation of the product.

It is the responsibility of the distributor and/or the retailer to review all warranties and warnings of FTS products with the consumer prior to purchase.

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