

# Installation Instructions



6" Performance Suspension System 1999–2006 GM 4WD K1500 P/U & SUV

Fabtech Motorsports 4331 Eucalyptus Ave. Chino, CA 91710 Tech Line 909-597-7800 Fax 909-597-7185 Web www.fabtechmotorsports.com



## 6" 1999-2006 GM 4WD K1500 FTS21000BK / FTS21001BK / FTS21002BK / FTS21003BK PARTS LIST

	FTS21000BK	99-06 Box 1 of 2 All MODELS
Qty	Part #	Description
1	FT20027	Diff Drop bracket (Pass)
1	FT20028	Diff Drop bracket (Drv)
1	FT20034BK	Skid Plate
1	FT20707	Hardware
2	FT20040	Sway Bar links
2	FT20206	CV Spacers
1	FT20403	Hdwr Sub-Assembly Kit
1	FTS10013D	Spindle – Driver side
1	FTS10013P	Spindle - Passenger side

	FTS21003BK	2000-05 SUV Box 2 of 2
Qty	Part #	Description
1	FT20021BK	Front Crossmember
1	FT20022BK	Rear Crossmember
2	FT20054BK	Impact Strut Rear Mount
2	FT20023BK	Impact Strut
1	FT20055	Hardware Kit
2	FT20052BK	Torsion Bar Mount

	FT20403	Hdwr Sub-Assembly Kit
Qty	Part #	Description
1	FT1044	Bushing Kit Impact Strut
2	FT21000i	Instruction Sheet
2	FT90084	Bushing Kit Sway Bar
1	FT90085	Bushing Kit Diff.
1	FT90086	Bushing Kit Torsion Bar
1	FTAS12	Sticker
1	FTREGCARD	Reg. Card
2	FT60235	Bump stop
2	37000005052	3/8" SAE Flat Washer
2	37160003052	3/8-16 Nylock Nut

	FTS21001BK	1999 P/U only Box 2 of 2
Qty	Part #	Description
1	FT20021BK	Front Crossmember
1	FT20022BK	Rear Crossmember
1	FT20048BK	Impact Strut Rear Mount 1999 only
2	FT20599BK	Impact Strut 1999 only
2	FTBK5	5" Blocks
4	FT1500U-3	U Bolts
2	FT20024	Add a Leafs
2	CB-06X5	Center Pin Bolt
2	37240003952	Center Pin Nuts
2	FT20025	Rear Bump stop Spacers
1	FT20039	Hardware Kit
2	FT20144BK	Torsion Bar Bracket
1	FT916H	U Bolt Hardware

	FTS21002	2000-06 P/U Box 2 of 2
Qty	Part #	Description
1	FT20021BK	Front Crossmember
1	FT20022BK	Rear Crossmember
2	FT20054BK	Impact Strut Mount
2	FT20023BK	Impact Strut
2	FTBK5	5" Blocks
4	FT1500U-3	U Bolts
1	FT916H	U Bolt Hardware
2	FT20024	Add a Leafs
2	CB-06X5	Center Pin Bolt
2	37240003952	Center Pin Nuts
2	FT20025	Rear Bump stop Spacers
1	FT20039	Hardware Kit
2	FT20144BK	Torsion Bar Bracket

### NOTE- SUV Models Require FTS1599-2 Rear Kit to complete installation

DO NOT ALTER THE FINISH OF THESE COMPONENTS, EXAMPLE- CHROMING, ZINC PLATING OR PAINTING. CHANGING THE FINISH CAN CAUSE STRUCTURAL FATIGUE OF COMPONENTS.

#### SUSPENSION SYSTEM MUST BE INSTALLED WITH FABTECH SHOCK ASBORBERS

SUSPENSION SYSTEM WILL NOT WORK ON VEHICLES EQUIPPED WITH FACTORY AUTO RIDE SUSPENSION

	FT20707
Qty	Description
2	5/8-11x 5-1/2" Bolt
2	5/8-11x 4-1/2" Bolt
4	5/8-11 Steel Lock Nut
8	5/8" SAE Flat Washer
2	3/8"-16 Nyloc Lock Nut
1	9/16-12 x 5" Bolt
1	9/16-12 x 4"
2	9/16-12 x 1-3/4"
4	10mm x 1.5 x 60mm
8	9/16" SAE Flat Washer
4	10mm Flat Washer
4	9/16-12 Steel Lock Nut
2	1/4-20 x 3/4" Bolt
2	1/4" SAE Flat Washer
2	1/4" Split Lock Washer

	ET20055
	FT20055
Qty	Description
4	7/16-14 x 3-1/2" Bolt
2	1/2-13 x 1-1/4" Bolt
4	7/16-14 x 1-1/4" Bolt
8	7/16-14 Nyloc Lock Nut
2	1/2-13 Steel Lock Nut
16	7/16" SAE Flat Washer
4	1/2" SAE Flat Washer
2	9/16-12 x 3" Bolt
2	9/16-12 Steel Lock Nut
4	9/16" SAE Flat Washer

FT20707	
Description	
1/2-13 X 3 Button Head	
10mm x 1.5 x 70mm	
10mm Flat Washer	
Thread lock Compound	
1/2-13 x 1-1/4" Bolt	
1/2-13 Steel Lock Nut	
1/2" SAE Flat Washer	
7" Zip Tie	

	FT20039
Qty	Description
4	7/16-14 x 3 1/2' Bolt
2	1/2-13 x 1-1/4" Bolt
4	7/16-14 x 1-1/4" Bolt
8	7/16-14 Nyloc Lock Nut
2	1/2-13 Steel Lock Nut
16	7/16" SAE Flat Washer
4	1/2" SAE Flat Washer
8	7/16-14 x 1-1/4" Bolt
8	7/16-14 Steel Lock Nut
16	7/16" SAE Flat Washer
2	10mm-1.5 x 25mm
2	10MM Split Lock Washer

#### TOOL LIST: (NOT INCLUDED)

- FLOOR JACK & JACK STANDS
- ASSORTED METRIC AND S.A.E SOCKETS, & WRENCHES
- LARGE C CLAMP OR C CLAMP VISE GRIPS
- DIE GRINDER WITH CUTOFF WHEEL OR SAWZALL
- TORSION BAR REMOVAL TOOL
- TORQUE WRENCH

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VEHICLES THAT WILL RECEIVE OVERSIZED TIRES SHOULD CHECK BALL JOINTS, TIE RODS ENDS AND IDLER ARM EVERY 2500-5000 MILES FOR WEAR AND REPLACE AS NEEDED

## CHECK ALL PARTS INCLUDED IN THIS KIT TO THE PARTS LIST ABOVE BEFORE BEGINNING INSTALLATION OF THE KIT. IF ANY PIECES ARE MISSING, CONTACT FABTECH AT 909-597-7800

READ ALL INSTRUCTIONS THOROUGHLY FROM START TO FINISH BEFORE BEGINNING INSTALLATION! IF THESE INSTRUCTIONS ARE NOT PROPERLY FOLLOWED, SEVERE FRAME, DRIVELINE AND / OR SUSPENSION DAMAGE MAY RESULT.

NOTE- PRIOR TO THE INSTALLATION OF THIS SUSPENSION SYSTEM A FRONT END ALIGNMENT MUST BE PERFORMED AND RECORDED. DO NOT INSTALL THIS SYSTEM IF THE VEHICLE ALIGNMENT IS NOT WITHIN FACTORY SPECIFICATIONS. CHECK FOR FRAME AND SUSPENSION DAMAGE PRIOR TO INSTALLATION. THIS SUSPENSION SYSTEM DOES NOT REQUIRE WELDING FOR INSTALLATION. DO NOT WELD ANY OF THESE COMPONENTS.

THE INSTALLATION OF THIS SUSPENSION SYSTEM SHOULD BE PERFORMED BY TWO PROFESSIONAL MECHANICS.

VERIFY DIFFERENTIAL FLUID IS AT MANUFACTURES RECOMMENDED LEVEL PRIOR TO KIT INSTALLATION. INSTALLATION OF THE KIT WILL RE-POSITION THE DIFFERENTIAL AND THE FILL PLUG HOLE MAY BE IN A DIFFERENT POSITION. (FOR EXAMPLE, IF THE MANUFACTURE RECOMMENDS 3 QUARTS OF FLUID, MAKE SURE THE DIFF HAS <u>3 QUARTS OF FLUID</u>. CHECK YOUR SPECIFIC MANUAL FOR CORRECT AMOUNT OF FLUID.

## FRONT SUSPENSION INSTRUCTIONS:

- Disconnect the negative terminal on the battery. With the vehicle on level ground set the emergency brake and block the rear tires. Jack up the front end of the truck and support the frame rails with jack stands. <u>NEVER</u> <u>WORK UNDER AN UNSUPPORTED VEHICLE!</u> Remove the front tires.
- 2. Locate the torsion bar adjusting cams and threaded bolts. Measure exposed threads of torsion bar adjusting bolts and record for reinstallation. Mark torsion bars indicating driver and passenger. Using a torsion bar removal tool unload the torsion bars and remove the crossmember and bars. Retain the hardware for reinstallation. NOTE- Do not attempt to unload or remove torsion bars without the proper torsion bar tool. Torsion Bars are under extreme spring load.
- 3. Remove the sway bar link ends from the sway bar and lower control arm and discard.
- 4. Remove the stock shocks and discard.
- 5. Remove the stock lower rubber bump stops from the frame and discard.
- 6. Disconnect the tie rod ends from the steering knuckle by striking the knuckle to dislodge the tie rod end. Use care not to damage the tie rod end when removing. SEE PHOTO BELOW



- 7. Unplug the ABS brake connection from the frame and control arm. Remove the brake hose bracket from the steering knuckle. Remove the caliper from the rotor and place above the upper control arm during this portion of the installation.
- 8. Remove the wheel stud clips and discard. Remove brake rotor from the steering knuckle. Remove bearing cover, axle nut, washer, axle shaft and hub bearing and retain parts and hardware for reinstallation.

- 9. Disconnect CV axles from differential housing and remove.
- 10. Remove the upper and lower ball joint nuts. Disconnect the upper and lower ball joints from the steering knuckle by striking the knuckle with a large hammer next to each ball joint on the knuckle to dislodge the ball joints. Use care not to hit the ball joints when removing. Retain nuts and discard knuckle. SEE PHOTO BELOW



- 11. Remove the lower control arms from the frame and retain the hardware for reinstallation.
- 12. Remove front factory differential skid plate and splash shield and discard. Retain hardware for front crossmember installation.
- 13. Disconnect front driveshaft from differential housing and retain bolts and u joint clamps for reinstallation.
- 14. Disconnect the electrical connection including the two retaining clamps and the vacuum line from differential housing.
- 15. Remove the differential rear crossmember and discard. Remove differential housing assembly from vehicle. Retain hardware for reinstallation.
- 16. Locating the factory rear differential crossmember mount on the driver side mark and cut the "L" mount flush from the side of frame pocket with a Sawzall or Die Grinder. SEE PHOTO ON NEXT PAGE.



17. Locate the mounting bushing eye on the upper front side of the differential housing and mark the housing with a cut line smooth to the housing. Using a sawzall cut the entire ear off the housing. SEE PHOTOS BELOW AND IN NEXT COLUMN.









18. On the driver side of the differential housing, above the rear bushing mount mark and cut/grind with a sawzall/die-grinder the aluminum fins vertically upward to allow housing to sit into new crossmember mount. SEE PHOTO BELOW AND ON NEXT PAGE.









Photo shown with aluminum fins cut & sanded

19. On 2006 model trucks the differential has a small area (boss) that needs to be sanded down level with the mounting flange to allow the supplied FT20028 Drv. Diff bracket to fit flush against the diff. Using a die grinder with a sanding disc, sand the differential as shown in the following pictures. USE CARE TO NOT SAND TO FAR, YOU WILL ONLY NEED TO APPROX. <sup>1</sup>/4". SEE PHOTOS BELOW AND ON NEXT PAGE.



**Before Sanding** 





After Sanding

- 20. Locate the C shaped Fabtech differential bracket and install bushings and sleeve in bracket from Bushing Kit FT90085.
- 21. Place differential bracket to the differential housing and remove the appropriate 4 housing bolts. Bracket should be positioned with the bushing eye to the top side of the housing. Using provided the 10mm x 1.5 x 60mm bolts and washers in hardware kit FT20707 attach the differential bracket to housing and torque to 30 lbs. using thread lock compound. Note- Some leakage of the differential oil is normal during this process. Recheck and fill diff housing oil once differential is mounted in vehicle. SEE PHOTO BELOW.

Diff Housing Bracket



22. Locate and install the Fabtech rear crossmember into the factory lower control arm pockets using the stock hardware and torque to 90lbs. Locate and install the Fabtech urethane bump stops to the angled portion of the crossmember using the 3/8" nuts from Hardware Kit FT20026 and torque to 15lbs SEE PHOTO IN NEXT COLUMN.



23. Locate and install the Fabtech Passenger side Diff bracket to the bottom of the factory mount with the wide end of the bracket to front of the vehicle using the stock hardware. Torque to 70lbs. SEE PHOTO BELOW.



24. Place the differential housing into the rear crossmember using 9/16"-12 x 4" bolt, nut and washers on the driver side and 9/16"-12 x 1-3/4" bolts, nuts and washers on the passenger side from hardware kit FT20707, leave loose. SEE PHOTO ON NEXT PAGE.



25. Locate and install the Fabtech front crossmember into the factory lower control arm pockets using the stock hardware, leave loose. Locate the access hole on the bottom of the crossmember to thread the factory bolts into the factory skid plate bolt holes. Leave loose. SEE PHOTO BELOW



26. Position the front differential urethane bushing mount into the front crossmember tabs. Locate and install the differential skid plate around the differential housing bushing using 27. 9/16"-12x5" bolt, nut and washers from hardware kit FT20026. Torque to 70lbs. SEE PHOTO BELOW



- 28. Torque the rear driver side diff bushing bolt to 70lbs and passenger side diff bushing bolts to 70lbs.
- 29. Install the lower control arms into the new crossmembers using the 5/8" x 5-1/2" and 5/8" x 4-1/2" bolts nuts and washers from hardware kit FT20707. Torque to 125lbs.
- 30. Using  $\frac{1}{2}$ " x 1-1/4" Bolt, nut and washers attach the rear of the skid plate to the bottom of the rear crossmember and torque to 70lbs.
- 31. Torque the front crossmember frame pocket bolts to 125lbs and the bottom bolts to125lbs.
- 32. Locate the steering knuckle FTS10013D for the driver side. Attach the upper control arm to the new knuckle using the factory hardware and torque to 35LBS. Attach the lower control arm to the knuckle using the stock hardware and torque to 70 lbs.
- 33. On 2005-2006 models the dust shield will need to be trimmed as shown below. Using a die grinder with a cut off wheel make a straight cut allowing clearance for the caliper. SEE PHOTO ON NEXT PAGE.



- 34. Reinstall the hub bearing assembly using the stock hardware and torque flange bolts to 125lbs. Reinstall brake rotor and caliper. Torque caliper bolts to 30lbs.
- 35. Re-route the brake hose to the steering knuckle using the factory steel guide clamp to the back of the steering knuckle and attach with <sup>1</sup>/4" x 3/4" bolt and washer from Hardware kit FT20707. Torque to 10LBS. Check to make sure that the brake hose is routed as to allow full turning radius to the steering without tire or suspension component contact. Route the ABS line to the front leg of the upper control arm next to the brake hose. Using provided plastic tyraps secure line and hose to the upper control arm away from the tire and wheel. SEE PHOTO BELOW



- 36. Reinstall axle shaft through new knuckle and torque axle nut to 150 lbs. and install bearing cover.
- 37. Locate and install the Fabtech CV spacers between the CV axle and the differential housing using 10mm x 70mm bolt and washer from Hardware kit FT20707 with the provided thread lock compound and torque to 55 lbs. in a cross pattern. SEE PHOTO IN NEXT COLUMN.



- 38. Reattach the vacuum hose and electrical plug to the diff.
- 39. Reattach the driveshaft to the differential yoke using the stock hardware and torque to 19lbs. Re attach the tie rod ends to the steering knuckle. Torque to 45 ft. lbs.
- 40. Locate and install the Fabtech sway bar link ends with the provided urethane bushings and washers using <sup>1</sup>/<sub>2</sub>" x 3" Button-head bolts from Hardware kit 20038. Torque to 10lbs. SEE PHOTO BELOW



41. Locate and install front shocks using the stock hardware and torque the upper mount to 15lbs and lower to 55lbs.

#### Impact Strut Crossmember Mount instructions for 1999 Models ONLY-

- 42. Locate and install rear impact strut crossmember mount on the outside of the frame rails, forward of the transmission crossmember. The outer flat portion of the new crossmember should be positioned over the two factory frame holes on each side of the frame with the bar sweeping rearward. Using 7/16" x 1-1/4" bolts, nuts and washers from Hardware kit 20038 torque to 45lbs.
- 43. Locate and install the FT1044 bushings into the Impact Strut bars. Attach the Impact Struts into the tabs on the back side of the lower control arm crossmember and rearward to the Impact Strut crossmember using 7/16" x 3-1/2" bolts, nuts and washers from Hardware kit FT20038. Torque to 45lbs. NOTE- On 1999 models there will be two ½" bolts, nuts and washers left over from this installation and can be discarded.

## Impact Strut Crossmember Mount instructions for 2000-2006 Models-

44. Locate and place the Impact Strut mounts to the bottom of the transmission crossmember aligning the three factory holes to the mounts. Using 7/16" x 3-1/2" bolts and ½" x 1-1/4" bolts, nuts and washers from Hardware attach the mount to the crossmember and torque the 7/16" bolts to and the ½" bolts to 45lbs. SEE PHOTO BELOW



45. Locate and install the bushings and sleeves into the Impact Strut bars. Attach the Impact Struts into the tabs on the back side of the lower control arm crossmember and rearward to the Impact Strut mounts using 7/16" x 3-1/2" bolts, nuts and washers from Hardware. Torque to 45lbs.

#### Resume installation for all models-

46. Locate the torsion bar drop down mounts and install bushings and sleeves. Placing the Fabtech mount with the bushing eye directly below the factory torsion bar bushing eye, clamp to the mount to the bottom and side of the frame. Locate the center of each hole, center punch the frame and drill out frame to 7/16" diameter. Attach torsion bar mounts using 7/16" x 1-1/4" bolts, nuts and washers. Torque to 65lbs. Repeat same procedure for the opposite side. SEE PHOTO BELOW



- 47. Re install the driver and passenger side torsion bars with the factory torsion bar crossmember installed into the new Torsion Bar mounts using the factory hardware and torque to 70lbs.
- 48. Set Torsion Bar adjusters to the recorded thread measurement from the disassembly.
- 49. Install front tires and wheels. Torque lug nuts to wheel manufacturers specifications.

## REAR P/U SUSPENSION INSTRUCTIONS:

(See Instructions from FTS1599-2 for rear SUV's)

- 50. Jack up the rear end of the vehicle and support the frame rails with jack stands. Supporting the rear differential remove and discard the rear shocks, u bolts and blocks. Lower axle down slowly. Use care not to over extend the brake hose.
- 51. Clamp the leaf spring in the middle of the spring and remove the center bolt. SEE PHOTO ON NEXT PAGE.



- 52. Separate the springs and install the provided add a leaf with the new center bolt in a pyramid pattern smallest on the bottom graduating to the longest on top. The factory flat overload leaf should remain on the bottom of the pack. Clamp the spring and tighten the center bolt as not to leave a gap between the springs. Cut the thread of the bolt smooth with the nut. The nut should be on the top of the leaf spring pack.
- 53. .Locate and install the rear lift blocks with the provided short center pin on the bottom of the block, to the axle. The short end of the block should face to the front of the vehicle. Using the provided U bolts, nuts and washers align axle, lift blocks, and springs and torque to U Bolts to 90lbs. SEE PHOTO BELOW.



54. Remove rear bump stop mounts and save hardware. Remove the bump stops from the mounts. Using a die grinder with a cutoff wheel, cut the locating tab off of the bottom of the metal retainer. Locate FT20025 bump stop spacers and install to the factory bumpstops. Using the supplied 10mm x 25mm bolt and lock washer, attach the spacer to the bump stop mount using the factory hardware. Torque to 20lbs. Reinstall factory rubber bumps stop to the bottom of the new bracket. SEE PHOTOS BELOW AND NEXT PAGE.





- 55. Install new Fabtech shocks (not included with this kit) with the factory hardware and torque 65lbs. **Note = check bolt on brake line tab,may need to be trimmed to clear shock body.**
- 56. Recheck all bolts for proper torque. Recheck brake hoses and lines for proper clearances.
- 57. Check the fluid in the front differential and fill if need with factory specification differential oil.
- 58. Install tires and wheels and torque lug nuts to wheel manufacturers specifications. Turn front tires left to right and check for appropriate tire clearance. Note- Some tires may require trimming of the front plastic bumper valance.
- 59. Check front end alignment and set to factory specifications. Re-adjust headlights.

**RETORQUE ALL NUTS, BOLTS AND LUGS AFTER 50 MILES AND PERIODICALLY THEREAFTER**. For technical assistance call: 909-597-7800

### **Product Warranty and Warnings-**

Fabtech 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 Fabtech 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.

Take apart 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 Lifetime Warranty.

Fabtech does not warrant any product for finish, alterations, modifications and/or installation contrary to Fabtech's instructions. Alterations to the finish of the parts including but not limited to painting, powdercoating, 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.

Fabtech 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. Fabtech front end Desert Guards may impair the deployment or operation of vehicles equipped with supplemental restraining systems/air bag systems and should not be installed if the vehicle is equipped as so.

Fabtech makes every effort to ensure suspension product compatibility with all vehicles listed in the catalog, but due to unknown auto manufacturers production changes and/or inconstancies by the auto manufacturer, Fabtech cannot be responsible for 100% compatibility, including the fitment of tire and wheel sizes listed. The Tire and Wheel sizes listed in Fabtech's catalog are only a guideline for street driving with noted fender trimming. Fabtech is not responsible for damages to the vehicle's body or tires.

Fabtech's obligation under this warranty is limited to the repair or replacement, at Fabtech 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. Fabtech is not responsible for damages and/or warranty of other vehicle parts related or non related to the installed Fabtech 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 Fabtech.

Fabtech suspension components must be installed as a complete system including shocks as shown in our current catalog. All warranties will become void if Fabtech 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. Fabtech does not warrant products not manufactured by Fabtech.

Installation of Fabtech 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 Fabtech products with the consumer prior to purchase.

Fabtech reserves the right to supercede, discontinue, change the design, finish, part number and, or application of parts when deemed necessary without written notice. Fabtech is not responsible for misprints or typographical errors within the catalog or price sheet.

Instruction Sheet Part #- FT21000i

11/7/13 JP