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Installation Notes: #86002-R Race Series +2" L/T Kit

Factory manual is recommended for removal and re-installation of all factory components.

Place vehicle securely on jack stands. Make sure the front wheels are not contacting the ground.
Chock both rear wheels of the vehicle to secure it from rolling back.
Remove the front wheels and tires.

(Before you start disassembly)
-Make sure the vehicle is secure and ready to work on.
-The vehicle suspension should be at max extension.
-Disconnect the negative (-) battery terminal at the battery. (Reason- you will be working close to the air bag sensors and welding on the vehicle.)

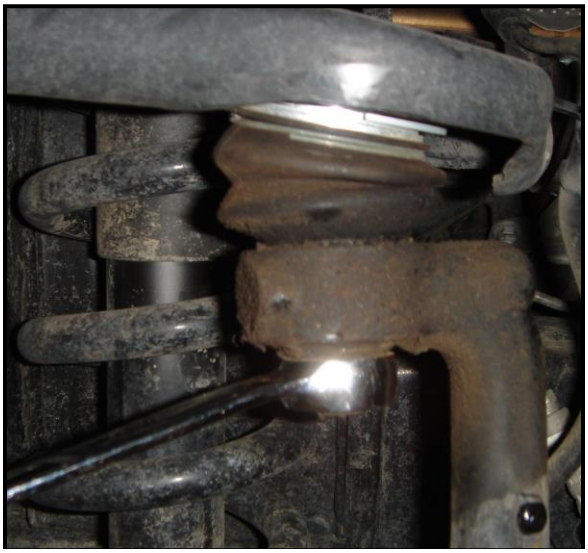
Step 1: Remove the factory lower skid plates by removing the 4 12mm bolts.

Step 2: (Factory sway-bar removal) Loosen the sway-bar end links from the spindle. Disconnect the 4 14mm bolts from the bushing area on the bottom of the frame. Weave the sway-bar and end links between the frame and lower strut pieces. (This process may be easier if you remove the end links from the sway-bar.)

Step 3: (Differential oil drain- To remove and install front 4wd axles)
Locate the factory diff drain plug and loosen the plug using a 12mm allen Wrench or socket. . Drain out about a ½ qt. to keep the diff from leaking once The axles are removed. If the gear oil is dark and smells, now would be a good time to change it.
(DO NOT remove the axles at this time. Removal is explained in step 7.)

Step 4: (Rubber apron removal)
Locate the factory aprons on each side of the vehicle and remove the plastic clips. (These items can be reinstalled once the complete kit has been installed.)

Step 5: (Spindle removal) Disconnect the ABS wire from the ABS sensor at the lower portion of the stock spindle. Remove the hardware from all brackets holding the ABS wire and brake lines to the spindle. Using a 17mm socket remove the front brake calipers and securely place out of your working area. Next loosen the tie-rod jam nuts from each tie-rod end using a 22mm wrench. Remove the cotter pins from both outer tie-rods ends at the spindle. Loosen the 19mm nut on the tie-rod at the spindle. Strike the steering arm portion of the spindle just above the tie-rod to loosen the tapered fit. If striking the spindle does not work you can use a "pickle fork" (using a "pickle fork" may damage the rubber tie rod boot). Let both tie-rods hang free and out of your working area. Using a chisel or flat putty knife and a hammer tap around the outer edge of the hub cover to remove. Once the hub cover has been removed undo the cotter pin and remove hardware. Loosen both 4wd axles nuts on each side using a 35mm socket. (These are usually very tight and an impact gun is useful for removal.) Loosen the lower ball-joint cradle from the spindle using a 19mm socket on both bolts. (Leave the bolts loose until the upper ball-joint nut has been loosened.) Use a 19mm wrench or socket to loosen the upper ball-joint nut at the top of the spindle. Strike the top portion of the spindle under the ball-joint to loosen the tapered fit. If striking the spindle does not work you can use a "pickle fork" (using a "pickle fork" may damage the rubber ball joint boot) Carefully lift and remove the spindles. (You may have to tap on the 4wd axle to loosen the splines in the hub bearing. Be careful not to damage the threads on the end of the axle shaft.)

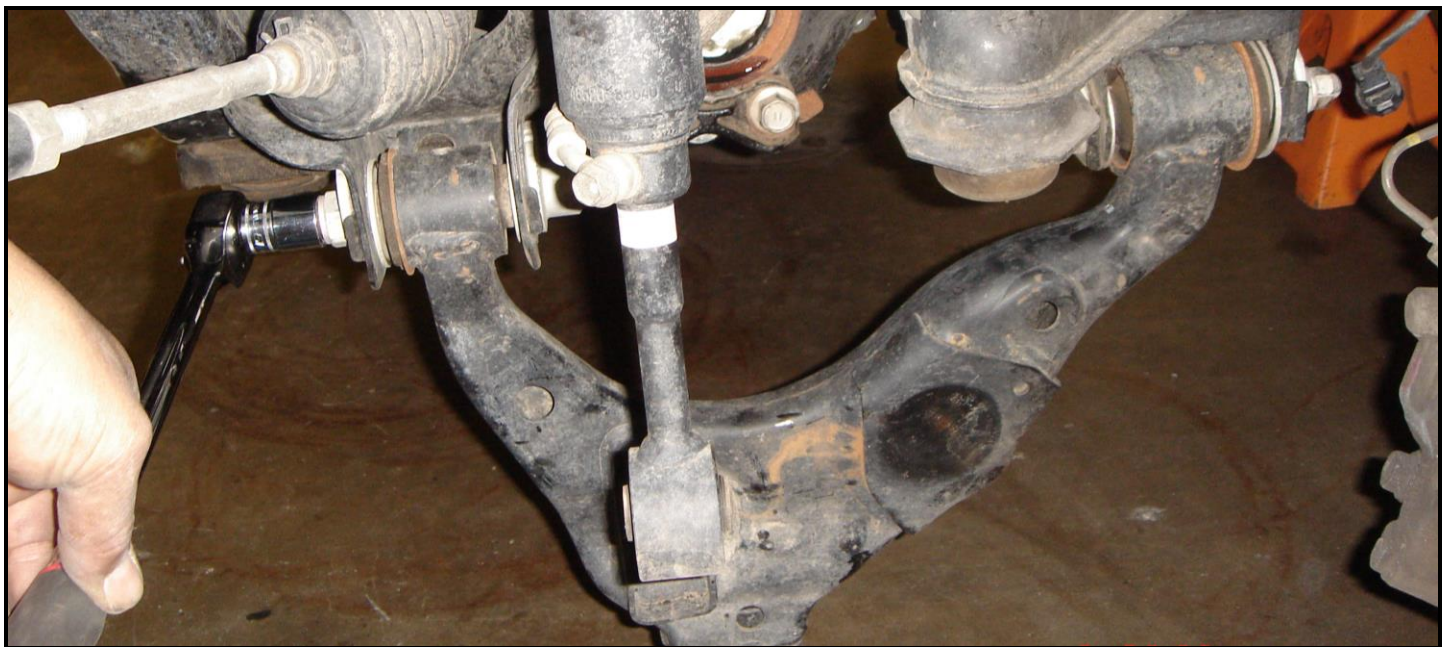


Step 6: (Upper Control arm removal) Using a 19mm wrench and socket loosen the upper cross shaft bolt and remove. (You may need to bend the wheel apron out of the way to remove the bolts.) On the driver side inner wheel apron remove the bolt holding the wire harness. Remove any other sensors from both aprons that might be obstructing the bolt from removal.

Step 7: (4wd axle removal) Start by using a brass drift or pry bar and tap on the inner cv-joint to release the inner retaining clip. Tapping on the inner joint where the factory grooves in the CV housing is recommended. Once the retainer clip has been released, remove the axle. Make

sure you mark which one is right and which was left (DO NOT SWAP SIDES.) (refer to extended axle instructions for proper installations.)

Step 8: (Lower arm removal) Using a 19mm socket and wrench loosen both lower cam bolts. Let the control arms hang down and remove the front and rear cam hardware. With the hardware removed, Remove the control arms from the frame.

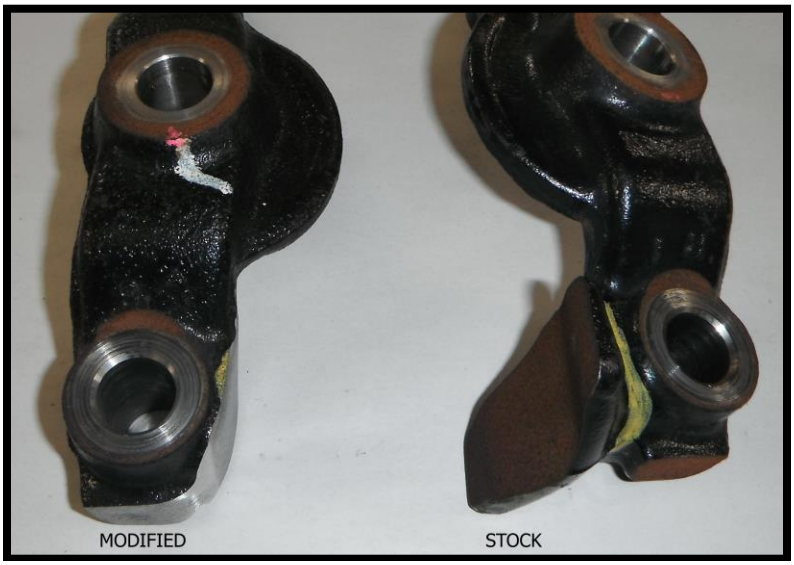


Step 9: (Prep, Weld and Brake line removal and install and cradle prep) With the lower arms removed it is highly recommended to clean and weld the outsides of the lower cam tabs. (This will insure that they will not bend. Total Chaos also offers replacement lower cam tab gussets part #'s 59860, 59860-10fj, 59960) If using the factory bump stops remove them from the

frame. Remove the paint from the area where the bump stop was in order to weld. Thread the factory bump stop into the bump stop extension provided in the kit. There should be a small piece of the bump stop stud sticking through the extension. Hold the bump stop with added extension up to the frame. Center bump stop as close to factory location as possible and tack in two areas. Weld in spaces around area as much as possible.

Remove the factory brake line clips from all mounts frame side and spindle side. Loosen the bottom brake line fitting at the caliper then at the top of the frame. Install the new brake lines provided in this kit. Before tightening the fittings make sure the line is not contacting anything that might damage the line. Snug down both lines at this time.

Steering stops must be trimmed off of the lower ball joint cradle or severe damage to the new lower control arm will result. At full lock turn there may still be some minimal contact between the modified ball joint cadle and the new lower control arm, this is normal.



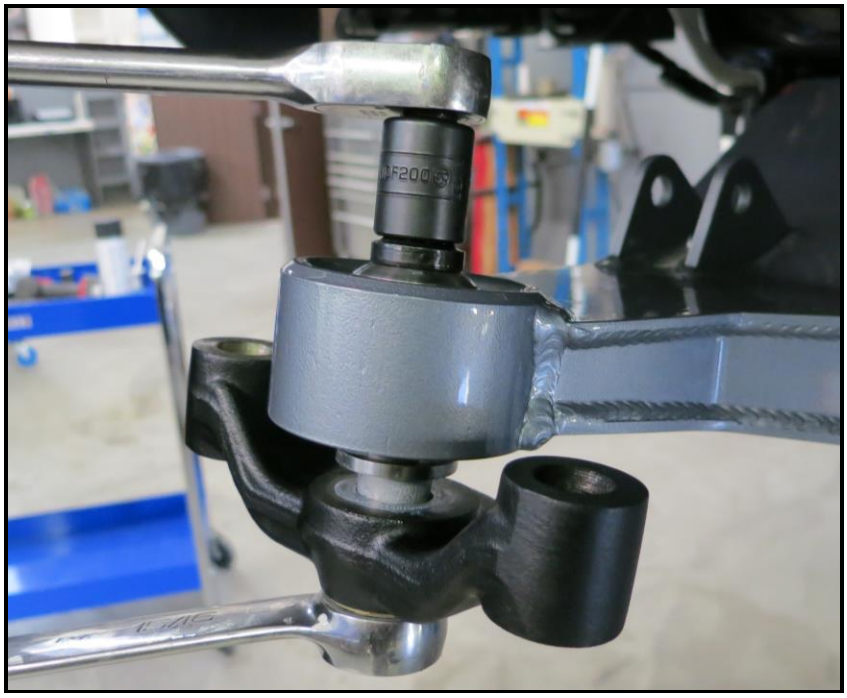
The area where the lower hi-misalignment spacer mounts to the ball joint cradle will also need to be modified. Grind the cradle as shown to properly clearance it for the lower control arm at full bump.

Bump stop spacer welded on and painted, reinstall the factory rubber bump stop into the threaded hole in the spacer.

Cycle the suspension once this has been modified and the bump stop spacers have been installed to check for clearance.

Step 10: (Installing the lower control arm) Before installing lower control arms you may need to bend lower arm tabs out slightly for easier fitment. With the welded areas painted (cam adjusters.) Grease the bushing face and tab face before installing arm into tabs. Use the factory hardware, center the alignment cams and snug down all at this time.

- **Step 11:**
- Install misalignment spacers in lower control arm (small spacer on top and tapered misalignment on bottom).
- Slide 5/8” 12point bolt through misalignment spacers.
- Install onto modified ball joint cradle.
- Install 5/8” washer and c-lock nut, torque to 100 Ft/lbs., 135-NM.

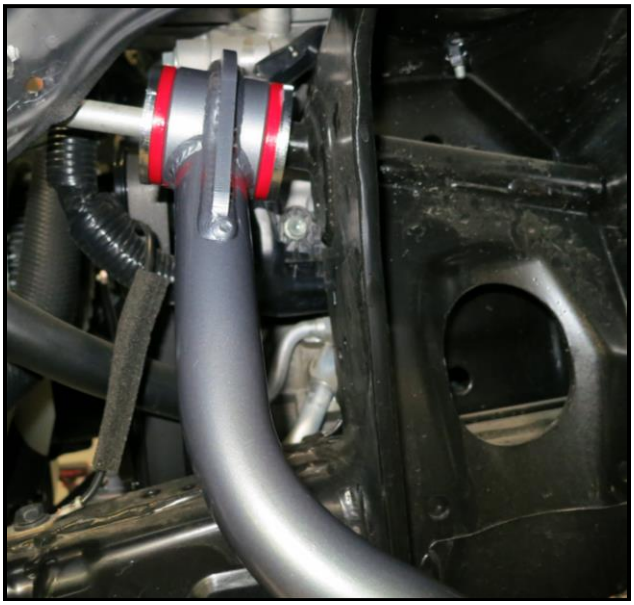


Step 12: (4wd axle installation) For ease of installation make sure the lower arms are pointing down and out of the way. Grease the inner and outer dust seals. Place a small amount of grease on each end of the axle splined areas. Place the inner axle shaft into the diff housing, rotate the axle till the splines line up. While holding the outer CV give the axle a good shove towards the diff to seat the retaining clip. If the axle does not seal all the way against the seal you may need to tap it in lightly. Install the outer CV nut then tap on the CV joint till it seats against the seals. (A dead blow or plastic hammer is recommended in order to not damage the axle threads.)

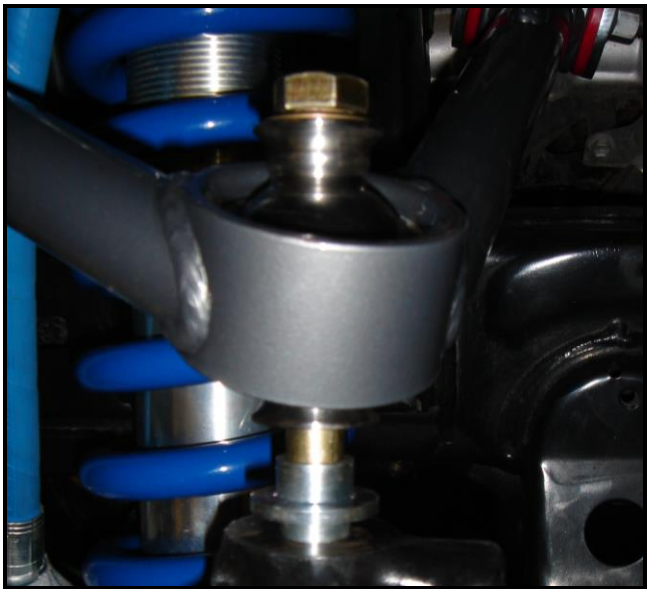
Step 13: (Shock Installation) Before installing the shocks make sure the fittings and reservoir are facing the front of the vehicle. Place the top portion of the shock into the coil tower on frame. Line up the bolt pattern and thread in the supplied 3/8" bolts and washers (torque

shock bolts and nuts to 35 ft/lbs. 47-NM). (Repeat this procedure for the other side of the vehicle). Swing lower control up and install supplied ½" bolt through lower shock and mount.

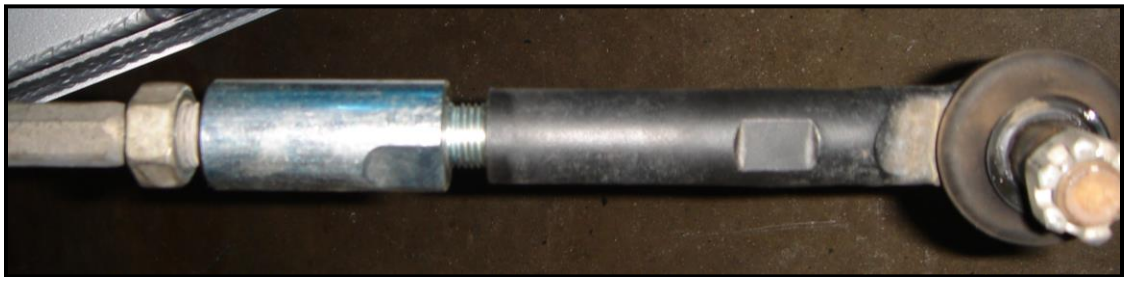
Step 14: (Upper control arm installation) (it is recommended to bend the sheet metal apron to ease upper arm bolt installation.) Start install of control arm by greasing the bushing face on both sides of the control arms. Place the control arm in upper mount with pivot gussets facing up and the bent tube facing forward (the pivot gussets also have part numbers on them that notate the side of the vehicle that arm is for.) Using the supplied Washers slide the bolt from front to rear of the vehicle. Make sure the washers are on each side of the bushings. (Torque nut to 85 ft/lbs. 115-NM) (Repeat process on other side.)



Step 15: (Spindle installation) While holding the spindle up slide the 4wd axle through the bearing/ turning the hub to insure proper spline alignment. Lower the spindle till the ear of the spindle rests on top of the lower uni-ball adapter. Using the stock 16mm bolts thread them through ball joint cradle then into the spindle. (Leave these bolts finger tight for now). Using a floor jack under the ball joint cradle, carefully jack up lower control arm about 2" being careful to not lift vehicle off of the jack stands. Next lower the upper control arm down to the top of the spindle, using the proper mis-alignment spacers top and bottom. Install the upper 9/16" bolt through the upper control arm mis-alignments, then through the spindle, using the 9/16" washer and nut provided. With the spindle on the suspension tighten all hardware. Now lower the jack returning the suspension to full droop and remove the jack. (Torque the upper 9/16" bolt to 100 ft/lbs 135-NM, 2 lower 19mm bolts to 118 ft/lbs 160-NM and the axle nut torque to 174 ft/lbs 235-NM). Tighten the axle nut, install the keeper over the nut and install a new cotter pin. Install the axle hub cap and tap to seat in place.



Step 16: (Tie-rod extension install) Remove the stock outer tie-rod end from the inner tie-rod. Install tie-rod extension provided onto outer tie-rod using anti-seize and tighten all the way. Thread onto the inner tie-rod (Do not tighten at this time, An alignment will need to be done.) Place ball joint end into spindle and secure with the factory castle nut. (Torque nut to 75ft/lbs 101-NM and install new cotter pin.)



Step 17: (Caliper and brake line install) Place the rotor over the hub bearing, slide caliper and brake pads over the rotor. Push caliper on until the mounting holes are lined up. Tighten caliper to the spindle using factory hardware. (Torque caliper bolts to 91 ft/lbs 123-NM). mount all factory brake line brackets using factory hardware. Make sure supplied clips with the brake lines are installed on both ends. Refer to vehicle repair manual for brake bleeding procedures.

Step 18: (ABS wire routing) Make sure the ABS wire takes the stock path to the ABS plug. Mounting the ABS wire to the inside of the upper arm is recommended. Tie-wrap the ABS wire in two locations on the straight tube of the upper control arm. From this point route the wire just like factory. Check to make sure the ABS plug is inserted all the way and be make sure that the ABS wire is free from obstruction and potential damage.

Step 19: (Limit strap weld on clevis mount installation) When placed on a vertical surface the supplied limit strap mount has angle built into it. Be sure that when the mount is welded onto the frame that the bottom of the mount is facing at an outward angle. Place the limit strap mount as close to the top of the frame as possible and also as close to the rear of the coil bucket as possible (keep in mind that you have to weld the outside of both sides of the

mount.) Mark the area that will be welded and remove all paint and debris the surrounding area. Once paint is removed tack the limit strap mount into place. After double checking placement, it is recommended to cover the CV boots and any other delicate parts with a welding blanket before welding. Weld as much surface as possible, wait for welds to cool then paint.

(After install is complete) (Shocks installed) Adjust the limit straps so that there is a ¼" gap between the high mis-alignment space and the uni-ball cup on the upper control arm. (Take measurement at full droop) Limit straps will stretch over time and will need to be adjusted periodically to prevent damage to the shock and uni-ball components.

Step 20: (Coil-over reservoir weld on mounts) Start by routing reservoir under the upper control arm facing forward on the vehicle. Make sure the hose itself is not coming in contact with anything that will damage the hose or fittings. Hold the reservoir along the front frame section in a place where you can still charge the shock reservoir. Weld in res. mounts in desired areas suitable for the manufacturer of the reservoir shock.

Finished install Picture

Step 21: (Reminders)

*** Bleed front brakes after installation.**
Check for fluid leaks and spongy pedal

*** Charge both front shocks reservoirs .(contact shock manufactures for PSI)**
Make sure shocks are at max extension before charging.

Using a tape measure set toe 1/8" to 3/16" toed in on the front and lock down jam nuts before driving.
(This will allow you to test drive and get to the alignment shop)

*** Re-torque should be done after 500 to 1000 miles.**

*** Torque all lug nuts before driving.**

*** Do a visual on Complete install before driving!!**

- **Get an alignment from a qualified shop that has long travel knowledge.**

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PART #86002-R

2" Race Series Long Travel Kit:
2003-2009 4Runner | 2003-2009 GX 470 | 2007-2009 FJ Cruiser

Box:1

PART #	DESCRIPTION	QTY
86201L	Upper A-Arm: Left +2"	1
86201R	Upper A-Arm: Right +2"	1
10034TCF	1"- 3/4" Hi-misalignment Spacer TCF	2
100916	1"- 9/16" Hi-misalignment Spacer	2
86340	Brakeline: 13.5" for 2" L/T Kit: 07+ FJ	2
33301	Brakeline Clip	4
99015-2	Chromoly Tie Rod Extension: 15mm for +2" L/T Kit	2
68610	Bump Stop Spacer: 3/4" x 2"	2
69610	Bump Stop Spacer: 1/4" x 1 3/4"	2
10251	Bolt: 9/16"- 18 x 5" GRADE 8 (Zinc)	2
12203	Washer: 9/16" AN (gold zinc)	2
30004	Tapered Spindle Adapter: 9/16" ID	2
12204	Washer: 9/16" SAE (gold zinc)	2
11202	Nut: 9/16"- 18 C-lock (Zinc)	2
69620	Washer: Upper Arm 2 1/4" x 3/16" x 9/16" ID	8
10005	Zerk Fitting: 1/4"- 28 90 degree	4
FK-WSSX16T-1	1" Uniball Stainless w/ PTFE Liner	2
30604	Snap Ring 1" Uniball	2
60684	Bushing Universal Half - Urethane: Red	8
69120	Inner Sleeve: Upper A-Arm	4
69611	11" Limit Strap - Triple Layer	2
69618	Adjustable Limit Strap Clevis	2
69619	Weld-on Clevis Mount	2
59204	Reservoir Tab	4

Box:2

PART #	DESCRIPTION	QTY
86212L	Lower A-Arm: Left +2" - RACE Series	1
86212R	Lower A-Arm: Right +2" - RACE Series	1
10141	Bolt: 5/8"- 18 x 4.00" - 12 pt Head | Black |	2

10058C	1"- 5/8" Hi-misalignment Spacer CUSTOM	2
100584RN	Tapered Adapter: Lower A-Arm	2
12103	Washer: 5/8" AN (gold zinc)	2
11102	Nut: 5/8"- 18 C-lock (Zinc)	2
10005	Zerk Fitting: 1/4"- 28 90 degree	4
10025	Bolt: 1/2"- 20 x 2.50" GRADE 8 (Zinc)	2
10030	Bolt: 1/2"- 20 x 3" GRADE 8 (Zinc)	2
12003	Washer: 1/2" AN (gold zinc)	8
11001	Nut: 1/2"- 20 Nylock (Zinc)	4
WSSX16T-1	1" Uniball Stainless w/ PTFE Liner	2
30604	Snap Ring 1" Uniball	2
60293	Bushing Universal Full - Urethane: Red - 1.25" ID	6
60685	Bushing Universal Half - Urethane: Red - 1.25" ID	2
68608	Inner Sleeve: Lower A-Arm Front - 1.250" OD	2
68609	Inner Sleeve: Lower A-Arm Rear | 05 Taco - 1.250" OD	2