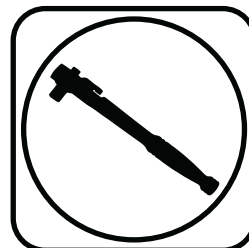




Part # 12099598 - 1964-1966 Ford Mustang Front TruTurn System



Recommended Tools



1964-1966 Ford Mustang TruTurn System Installation Instructions


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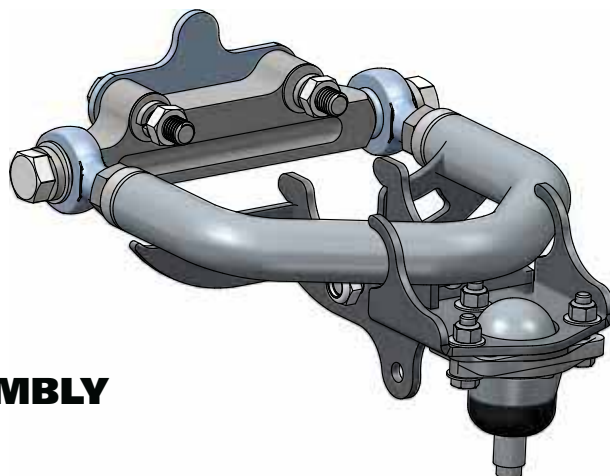
Mini-Starter required to clear TruTurn Centerlink Adapter (not Included).
The OEM Front Brakes will not work with this kit. (See Page 7 for details)

 This spindle is designed to be used with ridetech hub bearing kit #12129501. The hub bearing kit utilizes a 3/4" retaining bolt and t-washers to hold the bearing together. **Failure to use the bolt/t-washer setup will result in immediate bearing failure.**

 The crossmember brace is not compatible with Shelby steering components. The longer pitman and idler arms may cause interference.

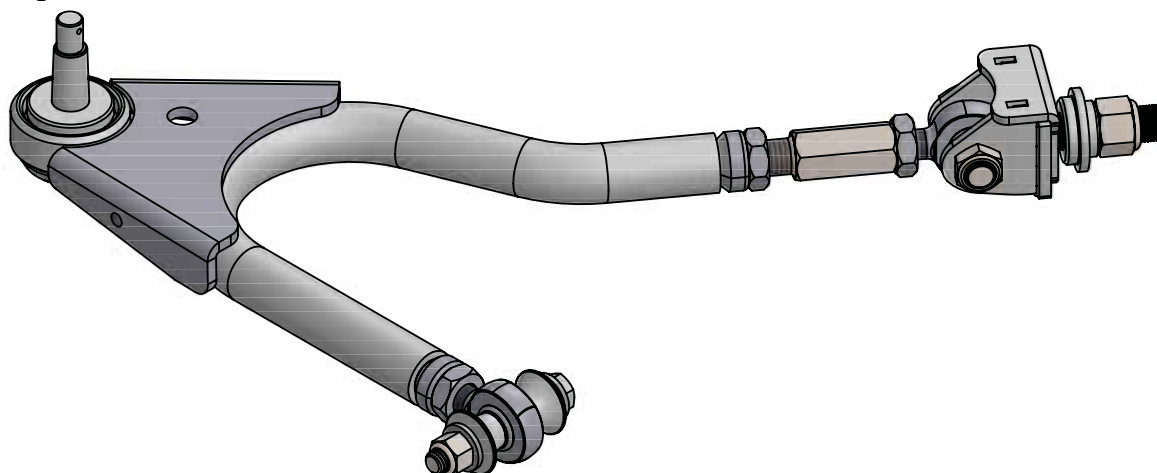


Major Components AssembledIn the box



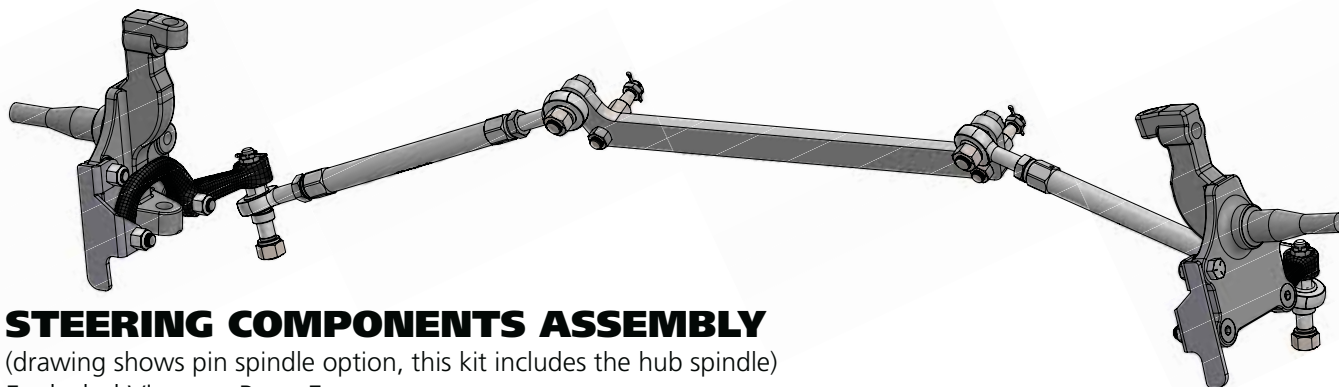
DRIVER UPPER CONTROL ARM ASSEMBLY

Exploded View on Page 3



DRIVER LOWER CONTROL ARM ASSEMBLY

Exploded View on Page 4



STEERING COMPONENTS ASSEMBLY

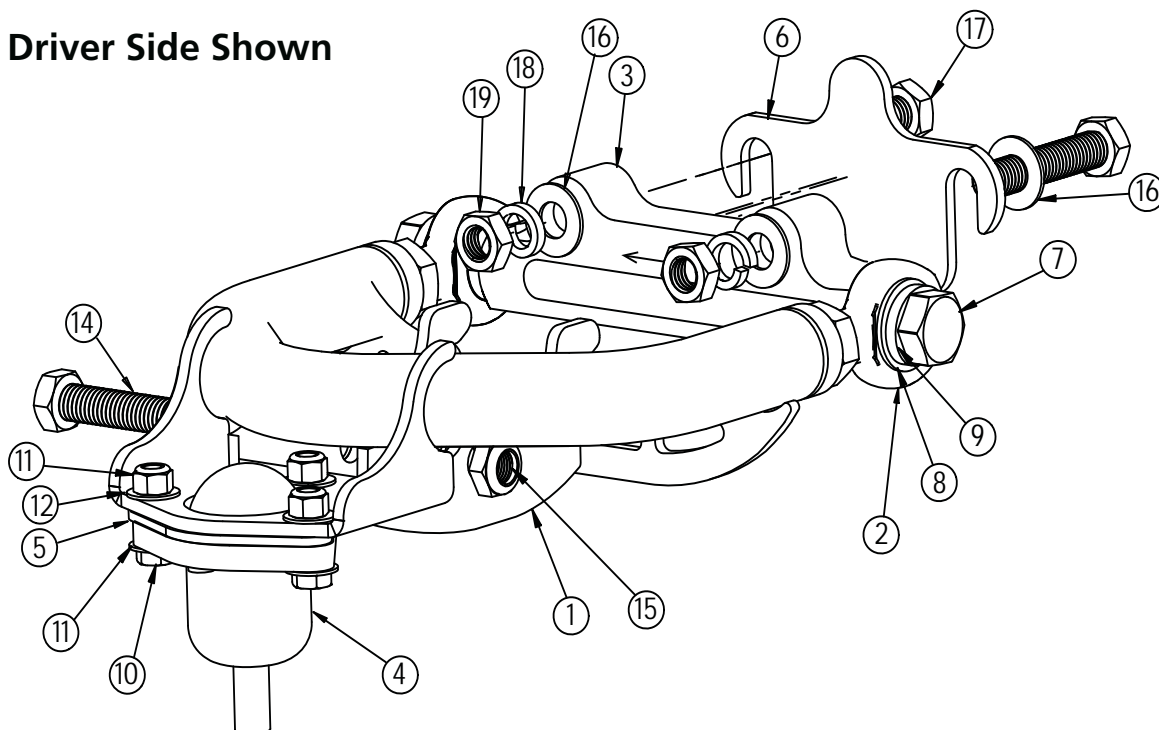
(drawing shows pin spindle option, this kit includes the hub spindle)
Exploded View on Page 5



Upper Control Arm ComponentsIn the box

Item #	Part Number	Description	QTY
1	90002339	Driver Upper Control Arm (Shown)	1
1	90002340	Passenger Upper Control Arm	1
2	90001589	Heim End	4
3	90009967	Upper Cross Shaft	2
4	70010866	Ball joint Assembly - Proforged # 101-10083	2
5	90002633	Ball joint Spacer	2
6	90002341	3/16" Alignment Shim	2
7	99621002	5/18"-18 x 1 3/4" Hex Bolt	4
8	99623001	5/8" SAE Flat Washer	4
9	99623002	5/8" Split Lock Washer	4
10	99311002	5/16"-18 x 1 1/4" Hex Bolt	6
11	99312003	5/16"-18 Nylok Nut	6
12	99313002	5/16" SAE Flat Washer	12
13	90002067	Shock Bearing Spacers	4

Driver Side Shown



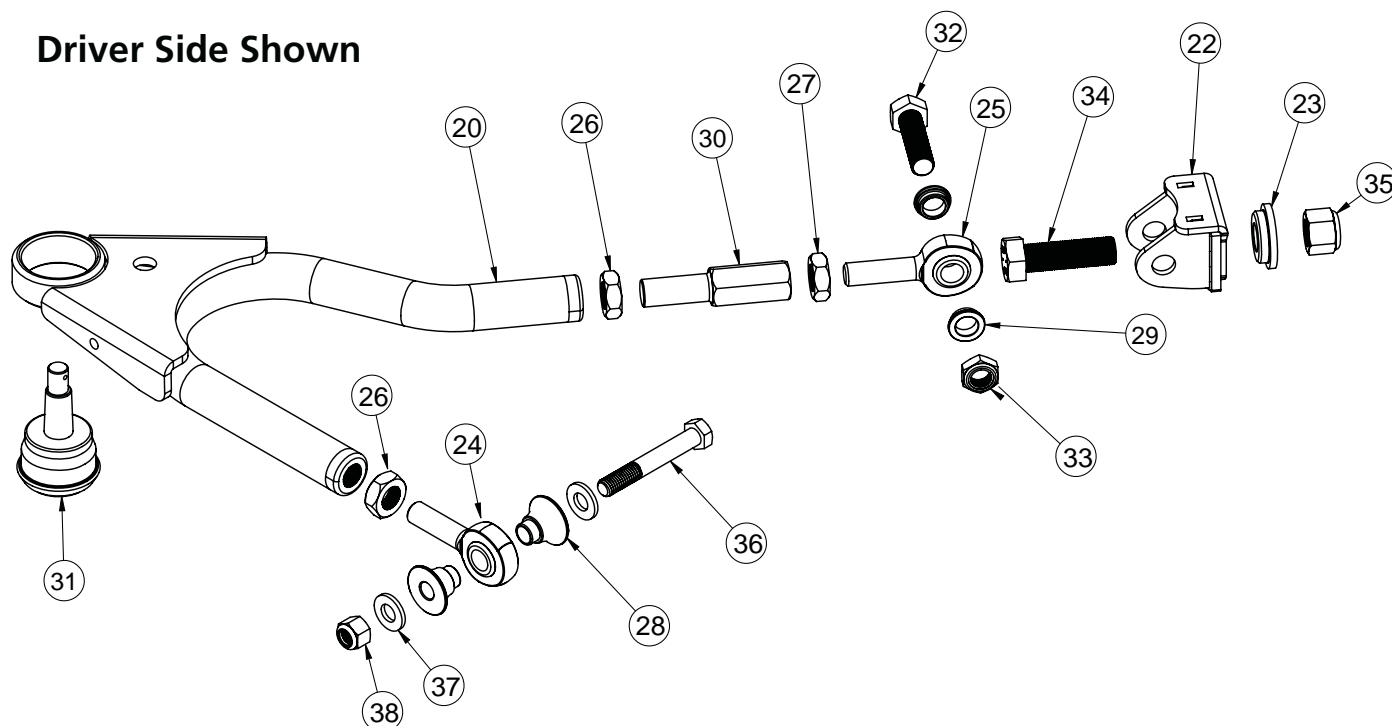
NOTE: DISCARD THE BALL JOINT NUT INCLUDED WITH THE BALL JOINT KIT. A NEW BALL JOINT NUT IS SUPPLIED IN THE HARDWARE KIT.



Lower Control Arm ComponentsIn the box

Item #	Part Number	Description	QTY
20	90003221	Driver Lower Control Arm (Shown)	1
21	90003222	Passenger Lower Control Arm	1
22	90003223	Strut Rod Frame Bracket Assembly	2
23	90003228	Frame T-Bushing	2
24	90001589	3/4"-16 x 5/8" Bolt Heim End - RH	2
25	90001591	3/4"-16 x 5/8" Bolt Heim End - LH	2
26	99752004	3/4"-16 Jam Nut - RH	4
27	99752006	3/4"-16 Jam Nut - LH	2
28	90002338	Frame Heim Spacer - 1/2" ID x 1.00" Long	4
29	90003225	Strut Rod Bracket Heim Spacer - 5/8" ID x .320" Long	4
30	90002582	Heim End Double Adjuster	2
31	90000898	Lower Ball joint - Proforged # 101-10013	2

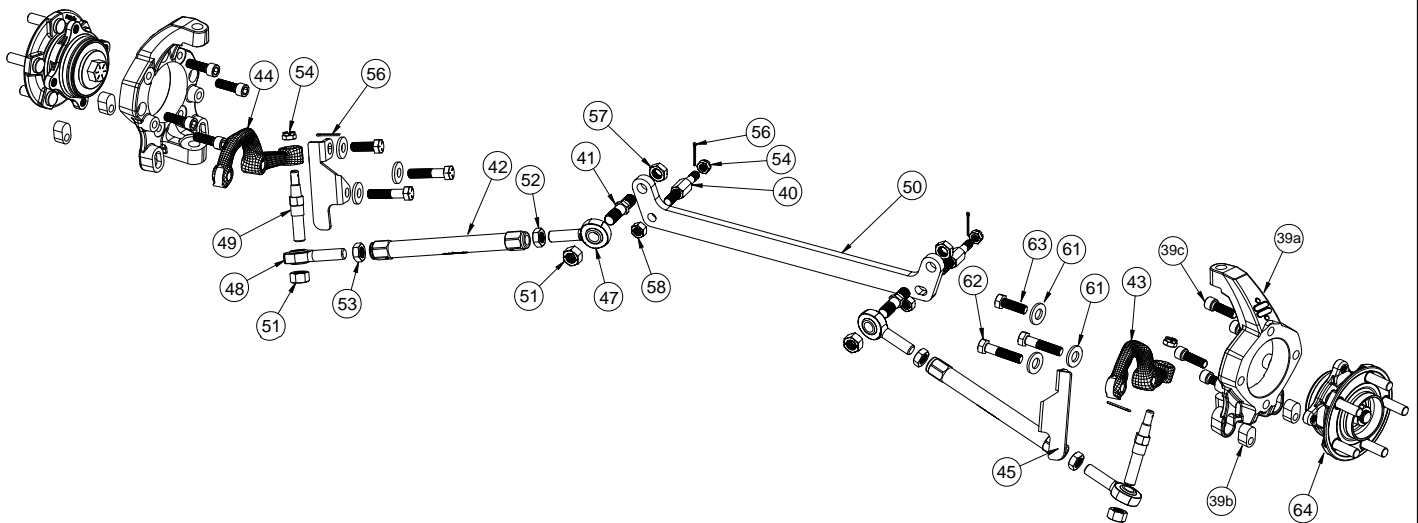
Driver Side Shown





TruTurn Steering ComponentsIn the box

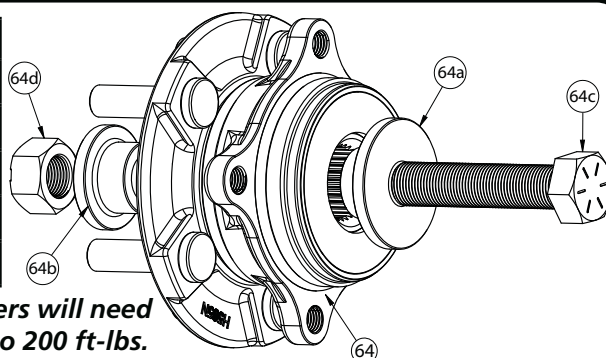
Item #	Part Number	Description	QTY
39	11009311	Ridetech Hub Spindle	1 pr
39a	70015751	Hub Spindle	2
39b	90003535	Steering Arm Threaded Slug	4
39c	99121018	M12-1.5 x 40mm Socket Head Cap Screw	8
40	90002345	Drag Link Stud	2
41	90002351	Inner Tie Rod Stud	2
42	90002346	Tie-Rod Adjuster	2
43	90002347	Driver Steering Arm	1
44	90002348	Passenger Steering Arm	1
45	90002349	Bolt On Steering Stop - Driver	1
46	90002350	Bolt On Steering Stop - Passenger	1
47	90001582	Heim End - 5/8"-18 x 5/8" Bolt - RH Thread	2
48	90001590	Heim End - 5/8"-18 x 5/8" Bolt - LH Thread	2
49	90009931	Outer Tie Rod Stud	2
50	90002344	Centerlink Adapter	1





This system includes 2015-2023 S550 Mustang rear hubs. If replacing these in the future, the 3/4" retaining bolt and t-washers must be installed into the new hub. This hardware needs to be torqued to 200 ft-lbs. **Failure to do will result in immediate bearing failure.**

Item #	Part Number	Description	QTY
64	70013663	Hub Bearing (Moog 512517)	1
64a	90003508	Top T-Washer	1
64b	90003509	Bottom T-Washer	1
64c	99751006	3/4"-16 x 3 1/2" Bolt	1
64d	99752005	3/4"-16 Lock Nut	1



If replacing the hubs in the future, the center bolt and t-washers will need to be installed in the new hub. Torque the 3/4" bolt and nut to 200 ft-lbs.

Brake Bracket ComponentsIn the box

Item #	Part #	Description	QTY
65	90003539	Caliper Bracket - Driver	1
	90003540	Caliper Bracket - Passenger (Not Shown)	1

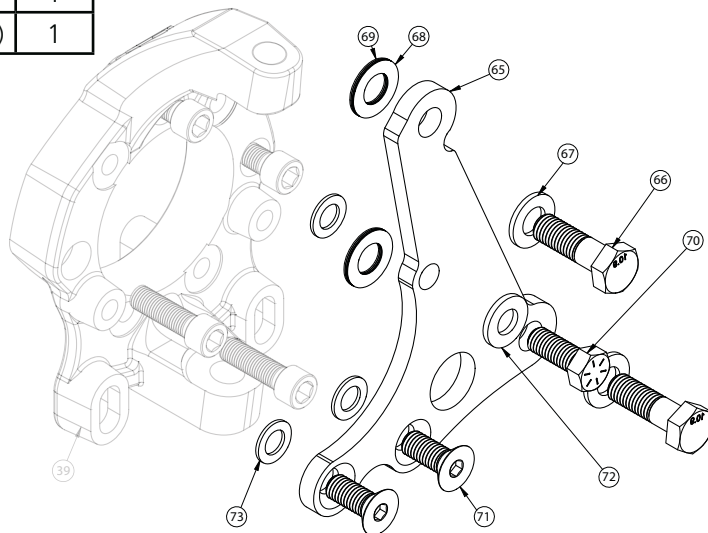


Figure 1

Hardware ListIn the box (Kit # 99010227)

Item #	Part Number	Description	QTY	Item #	Part Number	Description	QTY
BRACKET TO CALIPER				BRACKET TO SPINDLE			
66	99121005	M12-1.75 X 30mm Hex Bolt	4	70	99501062	1/2"-13 x 1 1/4" Hex Bolt	2
67	99123002	M12 Flat Washer	4	71	99501075	1/2"-13 x 1 1/4" FHSCS	4
SHIM PACK				72	99503014	1/2" SAE Flat Washer	2
68	99503018	Shim .016" thick, 1/2" ID	8	73	99503017	Shim .063" thick, 1/2" ID	6
69	99503019	Shim .032" thick, 1/2" ID	8				



Hardware Shown in DiagramsKit# 99010164

ITEM #	Shock To Upper Control Arm	QTY	ITEM #	Steering Linkage	QTY
14	99501005 1/2"-13 x 3 1/2" bolt GR8	2	51	99622003 5/8"-18 TOP LOCK NUT	4
15	99502009 1/2"-13 Nylok Nut GR8	2	52	99800003 5/8"-18 RH Jam Nut	2
16	99503014 1/2" SAE Flat Washer GR8	4	53	99800002 5/8"-18 LH Jam Nut	2
	Upper Control Arm To Car		54	99432005 7/16"-20 Castle Nut	2
16	99503014 1/2" SAE Flat Washer GR8	8	55	99433002 7/16" SAE Flat Washer	2
17	99501050 1/2"-13 x 2 1/2" bolt GR8	4	56	99952002 3/32" Cotter Pin	2
18	99503015 1/2" SPLIT LOCK WASHER, GR8	4		Draglink Adapter	
19	99502021 1/2"-13 HEX Nut GR8	4	54	99432005 7/16"-20 Castle Nut	2
	Upper Ball Joint To Spindle		55	99433002 7/16" SAE Flat Washer	4
	99502017 1/2"-20 Castle Nut	2	56	99952002 3/32" Cotter Pin	2
	Heim End Coupler		57	99622005 5/8"-18 THIN mechanical locking nut	2
26	99752004 3/4-16 Jam Nut	2	58	99502010 1/2"-20 Mechanical Locking Nut	2
27	99752006 3/4-16 LH Jam Nut	2	59	99501053 1/2"-13 x 1 1/2" Hex Bolt GR8	2
	Heim End To Strut Rod Frame Bracket		60	99502009 1/2"-13 Nylok Nut GR8	2
32	99621031 5/8-18 X 2 1/4" Hex Bolt Gr8	2	61	99503014 1/2" SAE Flat Washer GR8	2
33	99622006 5/8-18 Thin Nylok Nut	2		Spindle To Steering Arm	
	Strut Rod Frame Bracket To Car		61	99503014 1/2" SAE Flat Washer	4
34	99751005 3/4-16 X 2" Hex Bolt Gr8	2	62	99501026 1/2-13 X 2 1/4" Hex Bolt Gr8	4
35	99752001 3/4-16 Nylok Nut Gr8	2		Steering Stop	
	Lower Control Arm To Car		61	99503014 1/2" SAE Flat Washer	2
36	99501005 1/2-13 X 3 1/2" Bolt GR8	2	63	99501052 1/2-13 X 1" Hex Bolt Gr8	2
37	99503001 1/2" SAE Flat Washer	4			
38	99502001 1/2-13 Nylok Nut	2			

Getting Started.....

Congratulations on your purchase of the Ridetech TruTurn System. This System has been designed to give your Mustang excellent handling along with a lifetime of enjoyment. Some of the key features of the TruTurn System: Ball joint angles have been optimized for the lowered ride height, eliminated rubber bushings to get rid of bushing deflection and provide free suspension movement through the entire range of travel. The geometry has been optimized for excellent handling, driveability and minimal bump steer.

Note: These control arms are designed for use with the Ridetech CoilOvers and the MuscleBar swaybar. **The factory shocks and springs or the factory sway bar will not fit these arms.**

Mini-Starter required to clear TruTurn Centerlink Adapter (not Included).

Brake Kits

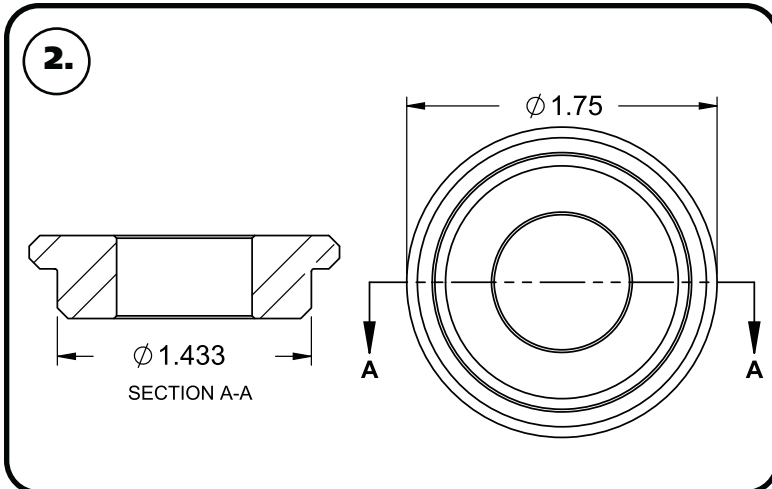
The Hub Bearing used in this kit is a 2015-2022 S550 Mustang hub bearing. It has a 5 on 4 1/2" bolt pattern for the wheel mounting. The studs of the hub bearing are 14mm.

The Caliper Brackets included in this kit are designed to use 2015-2022 S550 Front rotors and caliper/caliper brackets. Any brake kit designed for the 2015-2022 Mustang should fit this kit.

1. Remove the entire front suspension from the car including the centerlink, idler arm, and pitman arm. Refer to a Factory Service Manual for the proper method. The control arms, spindles, and steering linkage will all be replaced with the TruTurn package.



Installing Strut Rod T-Bushing



2. This kit includes a t-bushing for the strut rod bushing factory hole.



3. Test fit the t-bushing in your car's strut rod mount to help determine if the strut rod hole needs buffed out. The t-bushing is installed from the front side of the car.



4. Insert 3/4"-16 x 2" bolt in the strut rod frame bracket. The head of the bolt needs to be on the side of the bracket with the 2 mounting ears.



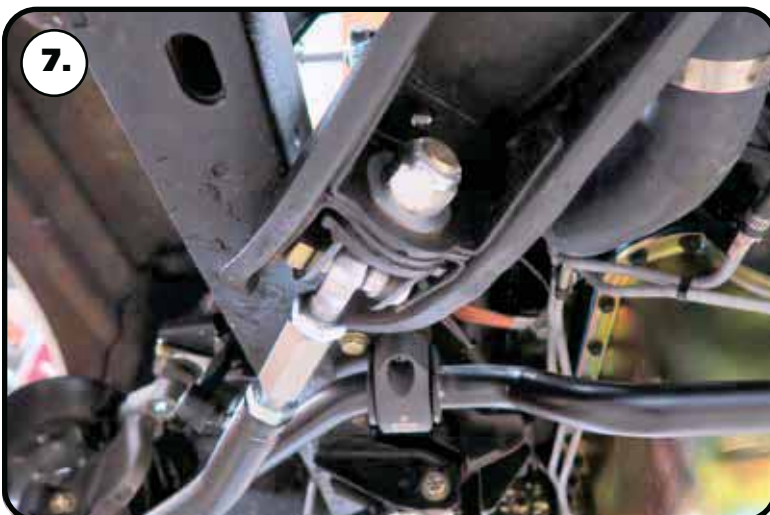
Installing Lower Control Arm



5. With the 3/4"-16 x 2" bolt installed in the bracket, attach the bracket to the front heim of the control arm with the flat side of the bracket on the same side as the ball joint pin. The bracket is installed with a 5/8" ID x .320" spacer on each side of the heim. The spacers need to be installed with the small outside diameter against the heim end. Align the holes of the bracket with the through holes of the spacers and heim. Install a 5/8"-18 x 2 1/4" bolt through the aligned holes. Install a 5/18"-18 thin nylok nut on the threads of the bolt and torque to 45 ftlbs.



6. Insert the 3/4" bolt of the strut rod adapter bracket through the center hole of the t-bushing. The t-bushing and threads of the bolt should be to the front of the car.



7. Install a 3/4"-16 nylok nut on the threads of the bolt sticking through the t-bushing. Torque to 120 ftlbs.



Installing Lower & Upper Control Arm



8. Install the 2 aluminum spacers into the rod end that goes into the factory control arm pivot. Slip the control arm into the factory frame mount.



9. Align the factory holes with the control arm through hole. Install a 1/2" flat washer on a 1/2"-13 x 3 1/2" hex bolt. Insert the bolt/washer through the aligned holes. Install a 1/2" flat washer and 1/2"-13 nylok nut on the threads of the bolt. Torque to 75 ftlbs.



10. Bolt the upper StrongArm to the body using 1/2"-13 x 2 1/2" bolts, flat washers and lock washers. The ARROW points to the front of the vehicle. A shim is supplied and may need to be installed between the body and the arms to achieve proper alignment. The arms are preset at the factory so the alignment should be close, but the vehicle must be aligned before driving.

Note: The upper arm mounting holes on many cars have been redrilled 1" lower. This is done to improve the handling. Our cross shaft has the drop built into it; **make sure to use the factory mounting holes.**



Upper Control Arm & Spindle Installation



11. Install a 1/2" flat washer, 1/2" split lock washer, and 1/2"-13 nut on the threads of the 2 bolts sticking through into the engine compartment. Torque to 75 ftlbs.



12. Install the spindle on the lower ball joint pin. Torque the ball joint castle nut to 65 ftlbs and tighten to align the cotter pin holes. Install the cotter pin in the ball joint pin hole and bend the ends of the cotter pin to hold it in place. Install the grease zerk supplied with the ball joint.



13. *DISCARD THE BALL JOINT NUT THAT IS SUPPLIED IN THE BALL JOINT KIT. A NEW 1/2"-20 CASTLE NUT IS SUPPLIED IN THE HARDWARE KIT.* Install the spindle on the upper ball joint pin. THREAD THE 1/2"-20 CASTLE NUT SUPPLIED IN THE HARDWARE KIT ON THE THREADS OF THE BALL JOINT PIN. Torque the ball joint castle nut to 50 ftlbs and tighten to align the cotter pin holes. Install the cotter pin in the ball joint pin hole and bend the ends of the cotter pin to hold it in place. Install the grease zerk supplied with the ball joint.



Hub Bearing Installation



14. The Hub is attached to the spindle using (4) M12-1.50 x 40 SHCS. Apply RED Loctite to each of the mounting bolts. Insert them into the correct holes and Torque to 99 ftlbs.



The steering arms will **NOT** get attached to the knuckle until the brakes are attached. Refer to the caliper bracket instructions for proper assembly.

Getting Started.....

These brackets are designed around OEM 2015-2022 S550 Mustang brakes. Aftermarket brakes that are designed for these cars will also fit this spindle.

Caliper Bracket Installation

Caliper bracket and brake mounting will differ depending on the brake kit being used.

We recommend mocking up the brakes with clean dry threads before applying any loctite to the hardware. The brake bracket kits include shims for mounting the caliper brackets and calipers. The caliper brackets will use 1/2" ID .063" thick shims. This kit includes 2 different thicknesses of shims for caliper mounting, .016" and .032" thick.

The next steps will cover the installation of caliper brackets on the Ridetech spindle. ***Again, mock up the brake kits with clean dry threads before using any loctite on the hardware.*** We are showing the installation of the caliper bracket with the spindle off the car so it can be shown clearly.



15. Lay a .062" thick, 1/2" ID shim on each of the caliper brackets (3) mounting holes.



Caliper Bracket Installation



16. The caliper brackets are side specific. They have a D & P stamped in them. Lay the correct side caliper bracket on top of the shims, aligning the mounting holes with the mounting holes of the bracket. The counter sunk holes should facing up.



17. Insert a 1/2"-13 x 1 1/4" flat head socket cap screw in each of the lower mounting holes. Install a 1/2" flat washer on a 1/2"-13 x 1 1/4" hex bolt and insert it in the upper mounting hole. Tighten the hardware to 75 ft-lbs.



18. Install the rotor on the hub. Thread some lug nuts on the threads of the hub to hold the rotor tight on the hub.



Caliper Bracket Installation



19. The OEM caliper bracket will bolt to the spindle mount. Install a M12 flat washer on each of (2) M12-1.75 x 30mm hex bolts. Insert the bolts through the caliper bracket. Line the caliper mount up with the hardware and thread in the bolts.



20. You can use feeler gauges to measure the distance between the caliper bracket and rotor to make sure the bracket is centered as much as possible. If the caliper mount is tighter on the back side, put shims on the caliper bracket/spindle. If the caliper bracket is tighter on the front side, put shims between the caliper bracket/caliper mount. After you are happy with the fitment, the hardware will need to red loctite and torqued. Torque the 1/2" bracket to spindle hardware to 80 ft-lbs. Torque the M12 hardware to 69 ft-lbs.

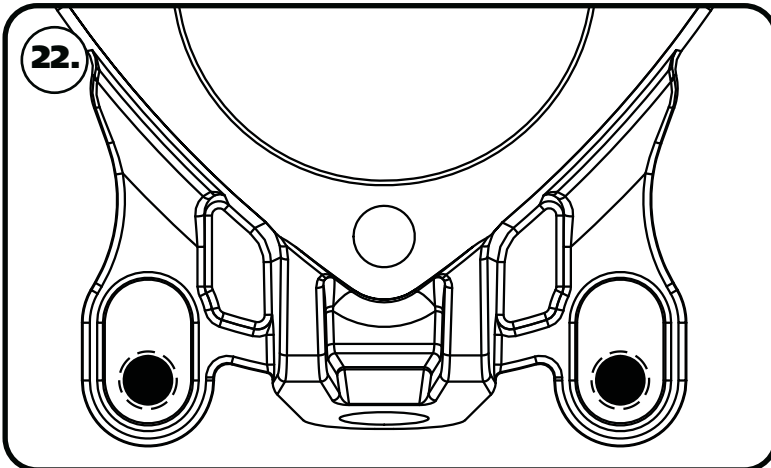
Note: If you are installing aftermarket brakes, refer to the brake kit instructions for measuring the caliper placement.



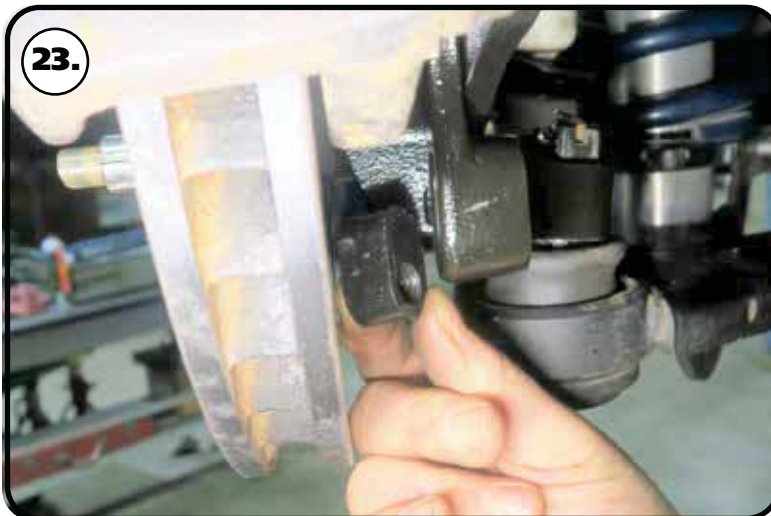
21. Install the brake pads and caliper.



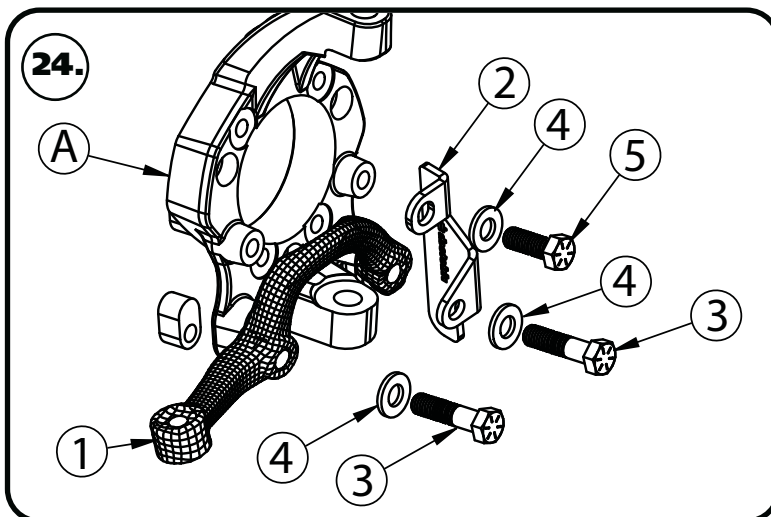
Steering Arm Installation



22. The threaded steering arm inserts can be mounted in 2 different positions. **Image 22** illustrates the correct position for the installation on your vehicle. This position is what we determined to be the best with Ridetech suspension.



23. Insert the steering arm slugs into the spindle with the threads to the bottom of the spindle,



24. Attach Steering Arm(1) and Steering Stop(2) to Spindle(A). The Steering Arm and Stop are attached to the spindle using [2] 1/2"-13 x 2 1/4"(3) & [1] 1/2"-13 x 1"(5) hex bolts and [3] 1/2" SAE Flat Washers(4). The Steering Arm is positioned with the Tie Rod End pointing to the rear of the car and toward the engine. The Steering Stop is attached to the front mounting bolt of the steering arm and also attaches to the inner surface of the spindle in the top hole. Use the 1/2"-13 x 2 1/4" bolts with a flat washer in the steering arm. The 1/2"-13 x 1" bolt with a washer, attaches the top of the steering stop to the inner surface of the spindle. Use Red Loctite (Supplied in the Kit) on the bolts and torque to 80 ftlbs. Verify that the bolts are sticking through the slugs.



Centerlink Adapter Installation

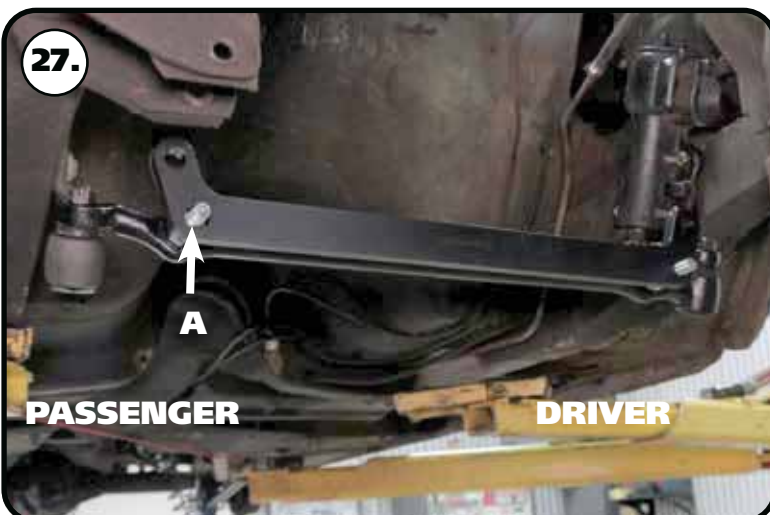


25. The studs with the long hex on them will get installed into the factory centerlink with the taper going into the centerlink, a 7/16" castle nut is used to attach it to the centerlink. The straight shank will point to the front of the car.

Note: It may be necessary to install 7/16" washers under the castle nut to get the cotter pin engaged properly.



26. Torque the nuts to 35 ftlbs and tighten as needed to align cotter pin. Install cotter pin and bend the ends.



27. The centerlink bracket has one attachment hole [A] that is slotted. This is to accommodate the variations in manufacturing and machining processes, as well as any wear that may have occurred to the original centerlink over time. The slot goes on the passenger side centerlink adapter stud.



Centerlink Adapter Installation

28.



28. Install the 1/2"-20 mechanical locking nuts and torque to 50 ftlbs.

29.



29. The studs with the short hex get installed into the centerlink adapter. The short side goes into the adapter attached with the 5/8"-18 thin top lock nut, with the long side of the stud pointing forward.

30.



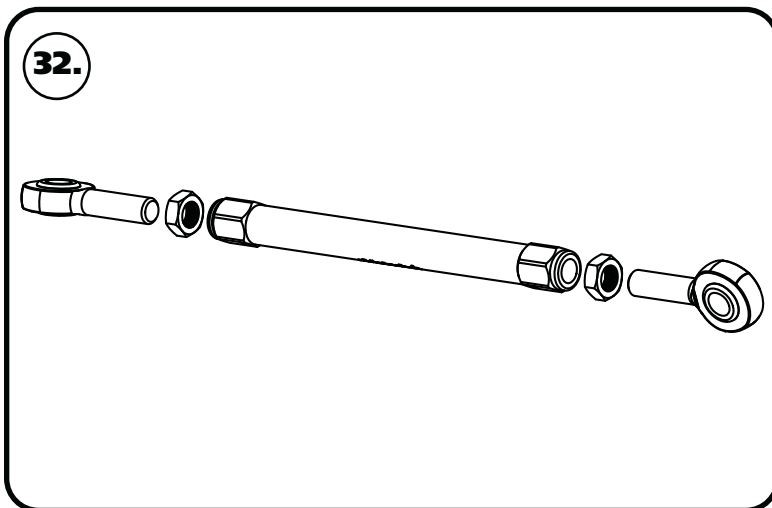
30. Install the 5/8"-18 **THIN** mechanical locking nut on the threads of the stud sticking through the centerlink adapter and torque to 45 ftlbs.



Tie Rod Assembly & Installation



31. Install the stud with the round flange into the steering arm with the taper going into the steering arm. Torque the nuts to 35 ftlbs and tighten as needed to align cotter pin hole and install cotter pin.



32. The tie rod adjuster has 2 threads in it; 5/8" - 18 RH & 5/8" - 18 LH. The 5/8" - 18 LH thread is marked with a groove on the outside of the adjuster. The tie rod can now be assembled to a center to center length of 14 1/4" to start with, having equal amount of threads on both ends. These aluminum adjusters have a left hand thread on one end and a right hand thread on the other. You should use anti seize when threading the heim ends into the adjuster. **FOR YOUR SAFETY, THE TIE ROD & HEIM NEED A MINIMUM OF 15/16" OF THREAD ENGAGEMENT INTO THE TIE ROD ADJUSTER.**



33. Install one end of the tie rod onto the stud of the centerlink adapter. Install a 5/8" - 18 mechanical locking nut on the threads of the stud and torque to 45 ftlbs.



Tie Rod Installation



34. Install the outer end of the tie rod on the steering arm stud.



35. Install a 5/8"-18 mechanical locking nut. Torque to 45 ftlbs.

36. Double check that you have tightened all hardware to the proper torque. If you are going to install the Ridetech MuscleBar, now is a good time to do it.

Suggested Alignment Specs:

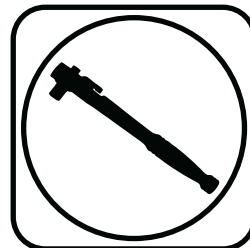
Camber:	Street: -.5 degrees
Caster:	Street: +3.0 to + 5.0 degrees
Toe:	Street: 1/16" to 1/8" toe in



Part # 12099551 - 1964-1965 Mustang Crossmember Brace



Recommended Tools



64-66 Mustang Crossmember Brace Installation Instructions

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Page 21..... Included Components and Installation

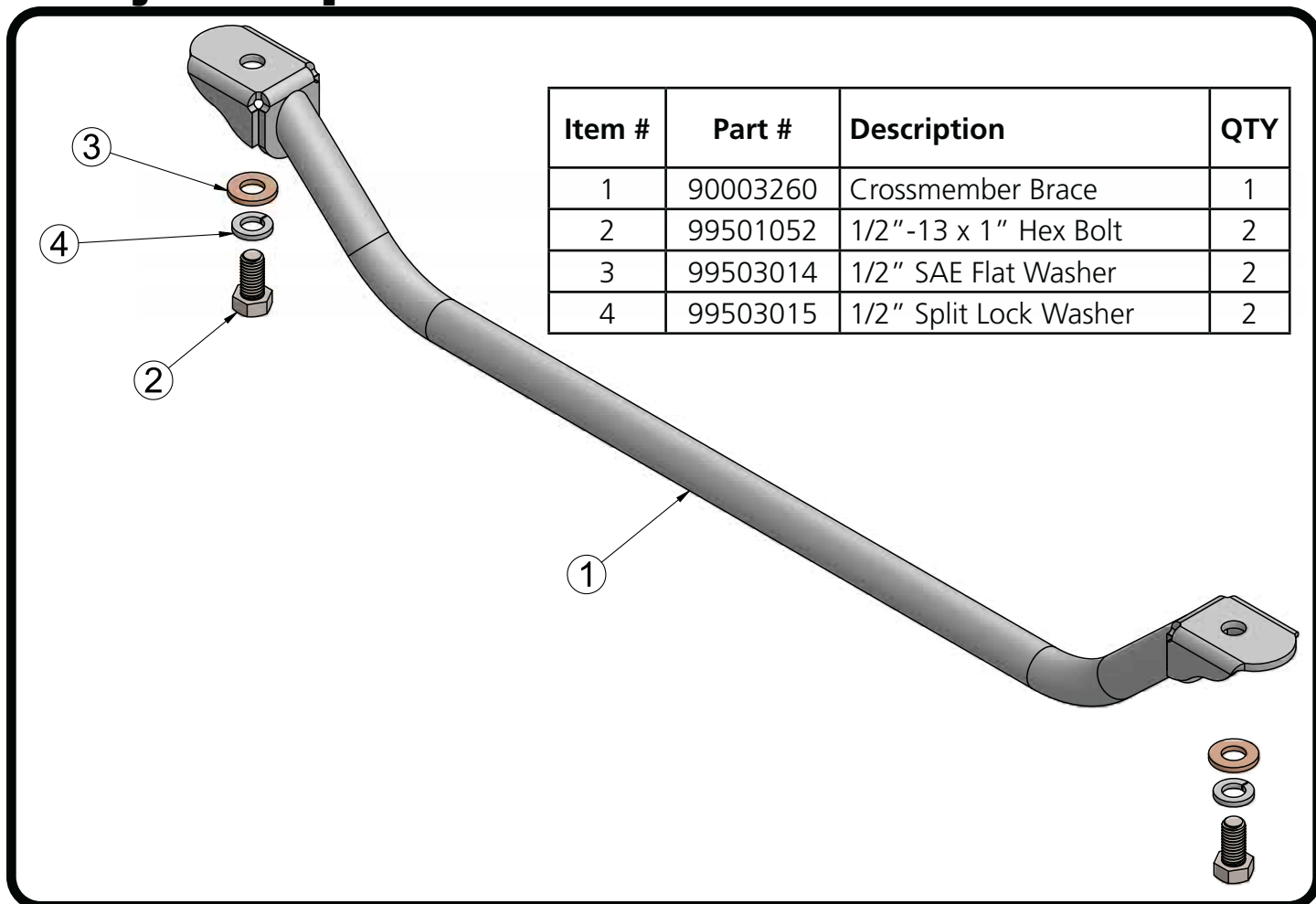


This crossmember brace is not compatible with Shelby steering components.
The longer pitman and idler arms may cause interference.

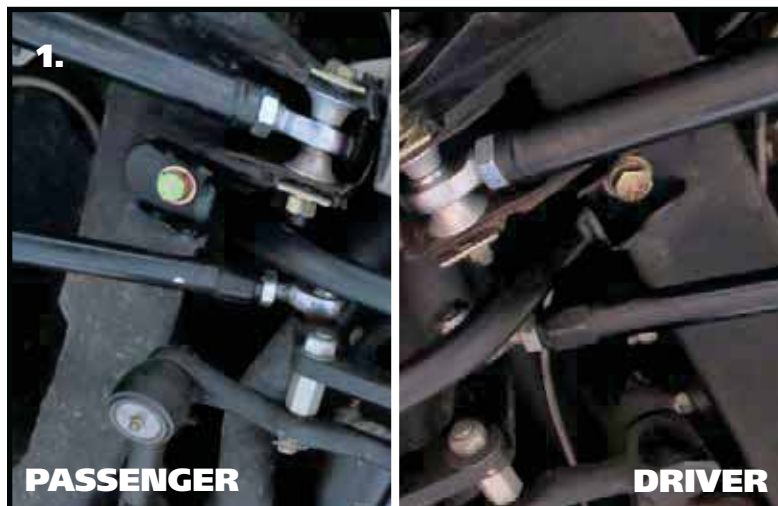




Major ComponentsIn the box



Brace Installation



1. The new suspension brace bolts in place of the original brace. Install a 1/2" split lock washer & 1/2" flat washer on each of (2) 1/2"-13 x 1" bolt. Position the crossmember brace at the factory location, behind the lower control arm mount. The bottom of the cross member should angle to the front of the car. Align the mounting holes of the crossmember with the mounting holes in the frame rails. Install a bolt/washer in each of the mounting holes. Torque the crossmember hardware to 50 ftlbs.