

# INSTRUCTIONS

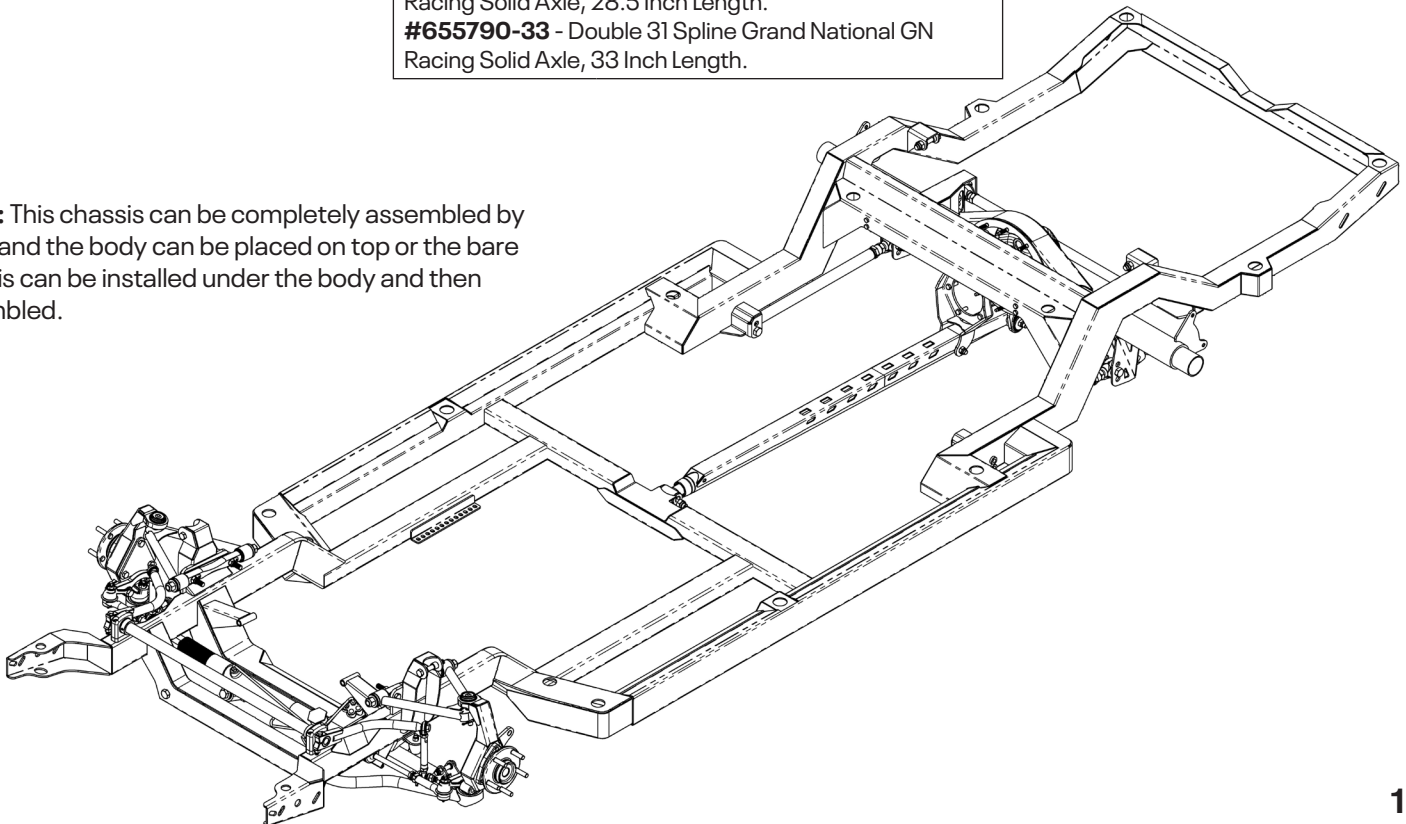
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## 350-950 - G-Comp™ 1968-72 GM A-Body Frame/Performance Chevelle Chassis

| Kit Contents                                                                                                                                                                                                                                                                                 |                                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| P/N                                                                                                                                                                                                                                                                                          | Description                       |
| 350029.2                                                                                                                                                                                                                                                                                     | Floater Components                |
| 3501100                                                                                                                                                                                                                                                                                      | G-Comp X Edition Spindle Uprights |
| 350207                                                                                                                                                                                                                                                                                       | Hub Bolt Kit                      |
| 350350                                                                                                                                                                                                                                                                                       | X-Edition HD Front Hub            |
| 350501                                                                                                                                                                                                                                                                                       | G-Comp 34" HD Sway Bar            |
| 350900.6                                                                                                                                                                                                                                                                                     | Hardware, Front 1968-72           |
| 350900.8                                                                                                                                                                                                                                                                                     | Front Sway Bar Kit                |
| 350903                                                                                                                                                                                                                                                                                       | Upper Control Arms                |
| 350904                                                                                                                                                                                                                                                                                       | Lower Control Arms                |
| 350950.1                                                                                                                                                                                                                                                                                     | Chevelle Torque Arm               |
| 350950.11                                                                                                                                                                                                                                                                                    | Sway Bar Assembly                 |
| 350950.12                                                                                                                                                                                                                                                                                    | Hardware Kit, Rear                |
| 350950.6                                                                                                                                                                                                                                                                                     | Chassis, Torque Arm               |
| 350950.8                                                                                                                                                                                                                                                                                     | Panhard Bar                       |
| 91035010                                                                                                                                                                                                                                                                                     | G-Comp Steering Arm               |
| 91035341                                                                                                                                                                                                                                                                                     | New T-Bird Power Rack             |
| 91616769.103                                                                                                                                                                                                                                                                                 | Torque Arm                        |
| 91616769.6.1                                                                                                                                                                                                                                                                                 | Assembly Trailing Arm             |
| <b>Note:</b> Rear axles are not included. To complete the assembly, both lengths are required:<br><b>#655790-28.5</b> - Double 31 Spline Grand National GN Racing Solid Axle, 28.5 Inch Length.<br><b>#655790-33</b> - Double 31 Spline Grand National GN Racing Solid Axle, 33 Inch Length. |                                   |

**NOTE:** This chassis can be completely assembled by itself, and the body can be placed on top or the bare chassis can be installed under the body and then assembled.



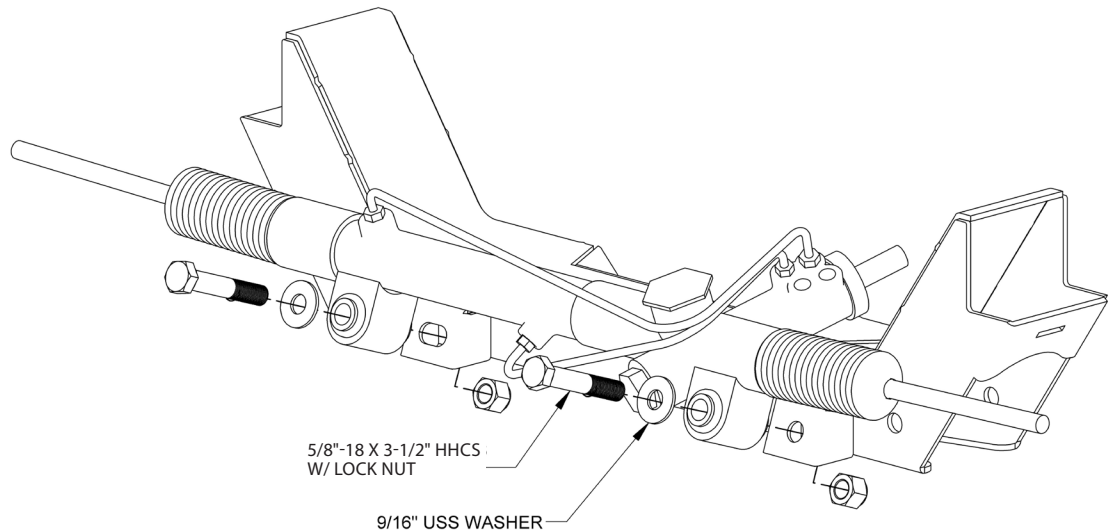
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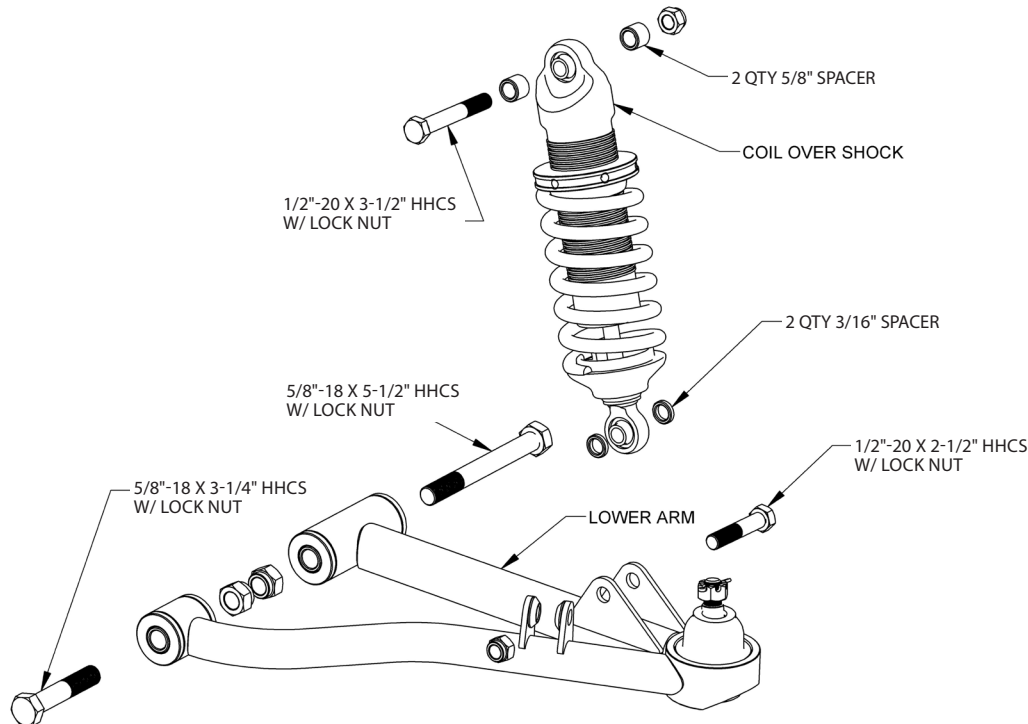


## Front Suspension Assembly

**1.** Begin by installing the steering rack as shown, using the two 5/8"-18 x 3-1/2" bolts, washers and lock nuts.



**2.** Install the lower control arms into the crossmember. Align the control arm bushings with the lower control arm holes in the crossmember. The front bolts, 5/8"-18 x 3-1/4", are to be installed from the front side. The rear bolts are 5/8"-18 x 5-1/2" and are to be installed from the rear. Install the 5/8"-18 lock nuts as shown. Install the lower control arm bump stops to the subframe using the supplied 3/8" nuts as shown.



**NOTE:** Shock/spring shown in illustration is not included.

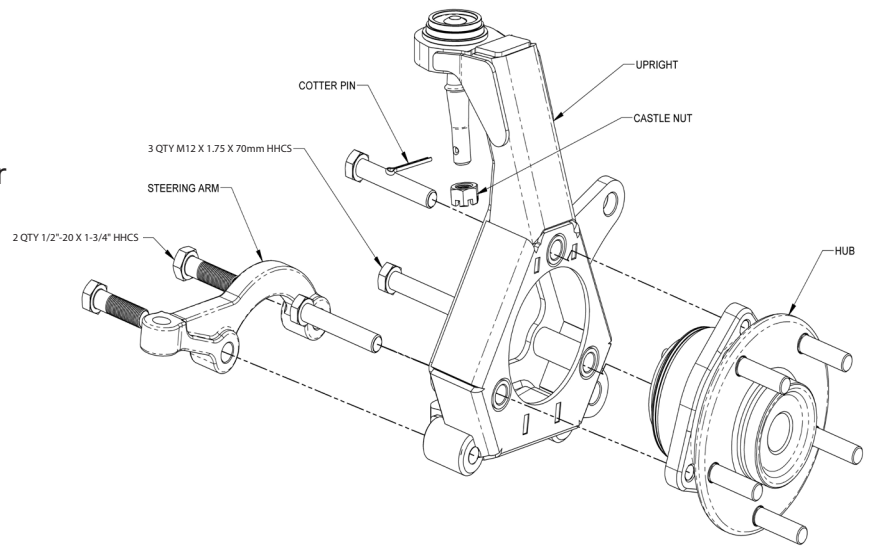
**3.** Install the upper control arms. Install the upper control arm by rotating the cross shaft so the caster shim pockets are facing the center of the vehicle. Mount the upper control arms using the 1/2"-20 x 2-3/4" bolts and lock nuts. Install the bolts through the subframe, cross shaft, and caster shims. Secure with 1/2"-20 lock nuts. Please note, 3" long bolts are provided to accommodate 3/8" or thicker camber shims to achieve more camber. Camber shims will be installed later when doing final alignment on the completed suspension.

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**4.** Install the uprights and steering arms. Install the upright onto the lower ball joint stud. Install and tighten the supplied castle nut. Repeat with the upper ball joint and install the upper and lower cotter pins. Bolt the steering arms to the spindles using the 1/2"-20 x 1-3/4" bolts. **NOTE:** Make sure to use Loctite on the threads.



**5.** Install the hubs. The Corvette style hubs included with this kit use metric hardware, including metric lug nuts. Use the supplied M12 metric bolts to secure the hubs to the uprights using Loctite. The fit of the hub into the upright is a close tolerance fit. It may be required to remove any paint or powder coating from the inner bore of the upright before assembly.

**6.** Install the outer tie-rod ends and jam nuts onto the inner tie-rods of the rack. Thread both tie-rod ends on equally. Attach the tie-rod ends to the steering arms using the castle nuts and cotter pins supplied with the tie-rod ends. Final alignment will be done after assembly is complete.

**NOTE:** Coilovers are not included with the G-Comp™ kit. G-Comp front suspensions are designed for use with coilovers featuring a 12" mounted length and an 8" spring (choose the appropriate spring rate for your application). This kit is designed to use shocks with a 4" stroke and a 10" compressed length, with shock ends that use 1/2" bearings and a 1" mounting width. Below are our recommendations:

## Front Shocks:

- Part #1061340SRBT - AFCO Non-Adjustable Coilover Shocks w/o Spring, 14 Inch Ext, 5/8 Bushing
- Part #1063845PTCZ - AFCO 12 Inch Single Adjustable Pro-Touring Coil-Over Shock for G-Comp
- Part #100205 - AFCO 12 Inch Double Adjustable Front Coil-Over Shock for G-Comp

**7.** Install the Coilover shocks (Not Included). Assemble the coilover by installing the threaded adjusting collar onto the threaded shock body. Adjust the collar all the way to the end of the threads. Place the spring over the shock body and install the spring cup onto the shock. Using the 1/2"-20 x 2-1/2" bolts and two 3/16" wide spacers, install the shock into the lower mount on the control arm as shown and secure with a 1/2"-20 lock nut. Install the 1/2"-20 x 3-1/2" upper shock bolts and 5/8" wide spacers, placing one spacer on each side of the shock bearing. Secure with a 1/2"-20 lock nut.

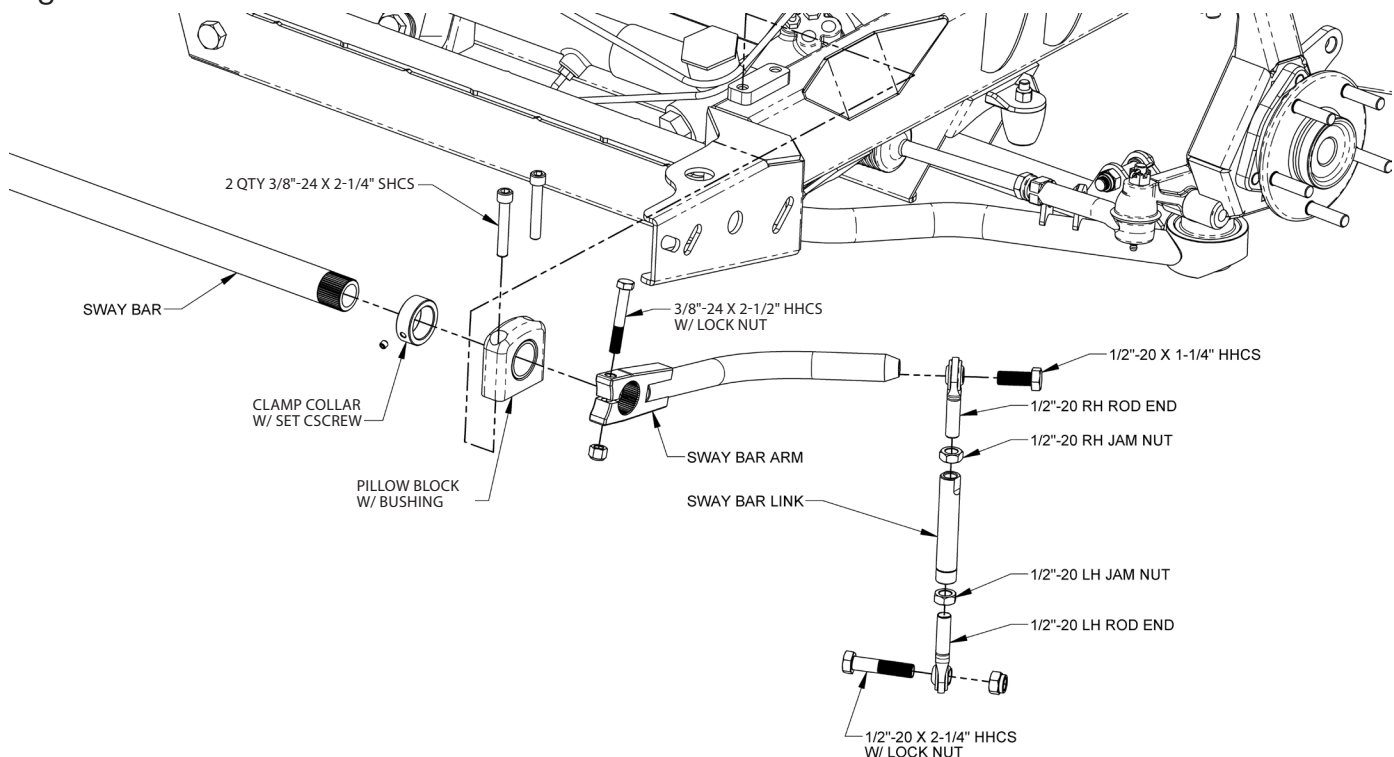
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**8. Sway bar assembly:** Press the bushings into the aluminum pillow blocks and install the pillow blocks to the front crossmember with the bushing shoulder to the inside. Use the four 3/8"-16 x 2-1/4" socket head cap screws to secure the pillow block to the subframe. Before fully tightening the bolts, slide the sway bar through the bushings, installing the two clamp collars to the inside of both pillow blocks. Now, tighten the 3/8" socket cap screws. Center the sway bar between the pillow blocks. Slide one clamp collar up against the bushing shoulder in the pillow block and tighten the set screw. Slide the second clamp collar up to the opposite bushing in the pillow block leaving about .075" of side clearance between the clamp collar and the bushing. Tighten the set screw.

**NOTE:** A nickel is about .075" thick and can be used as a spacer between the clamp collar and the bushing to provide the proper side clearance. Slide the sway bar arms onto the splined ends of the sway bar aligning them flush with the end of the bar. Make sure they are parallel or "clocked" to one another then tighten the 3/8"-24 x 2-1/2" pinch bolts and lock nuts. Assemble the sway bar links as shown, leaving roughly 1/4" of threads showing on rod end joints. Use the 1/2"-20 x 1-1/4" bolts to secure the sway bar link to the sway bar arm. Mount one of the lower links into the bracket on the lower control arm using a 1/2"-20 x 2-1/4" bolt and secure it with the 1/2"-20 lock nut. Leave the bolt out of the lower link on one side at this time. The second bolt/nut will be installed after the ride height is set and the car is setting on level ground. This will ensure that there is no preload on the sway bar at ride height.



**9. Install the brake kit (Not Included - Sold Separately)** to the upright per the instructions included with your brake kit.

**NOTE:** Below are our recommendations. The Economy kit is best suited to mild street driving, while the Wilwood kits are better suited for performance:

- Part #3502001 - Economy C7 Disc Brake Kit for G-Comp™ X Spindles (Solid Rotor/Raw Finish Caliper)
- Part #8351408921D - Wilwood 140-8921-D FNSL6R Front Disc Brake Kit (Drilled Rotor/Black Caliper)
- Part #8351408921D - Wilwood 140-8921-D FNSL6R Front Disc Brake Kit (Drilled Rotor/Red Caliper) **4**

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**10.** Alignment. The lower control arms should be level with all the weight on the car. To adjust the ride height, take the weight off the suspension and turn the threaded adjusters on the bottom of the coil over shocks. Turning the adjusters clockwise will raise the ride height. Once the ride height has been set, place the car back down on level ground. Adjust the free rod end on the sway bar link so that it lines up with the bracket in the lower control arm. Keep adjusting the rod end until the remaining 1/2"-20 x 2-1/4" bolt will slide through easily and secure it with the 1/2"-20 lock nut. Set the alignment to the following initial settings:

**Caster = 5°**

**Camber = Street: Negative .25°-.5°**

**Race: Negative 1.5°-3.0°**

**Toe = 0" - 1/8" Toe Out**

**11.** Caster adjustments are made by changing the caster inserts. The caster inserts are identified with numbers indicating the distance of the hole from the center of the insert in 1/8" increments.

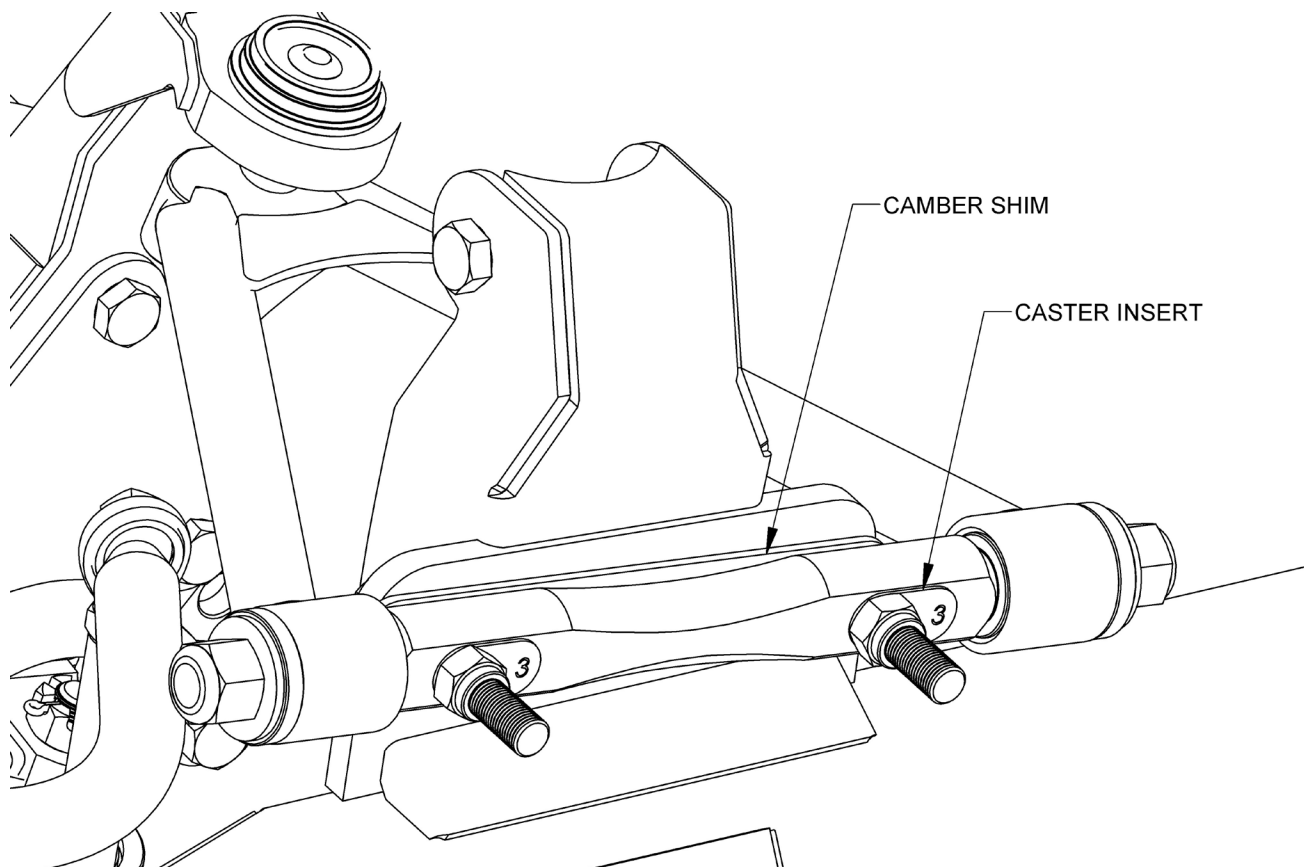
**#1 = 1/8"**

**#2 = 1/4"**

**#3 = 3/8"**

The inserts can be reversed to move the hole in front of or behind center for a total range of 3/4".

**12.** Camber is adjusted using the included A-arm shim plates. Additional shim plates can be purchased separately if desired under Speedway Part # 917-21005. These are available in thicknesses ranging from 1/8" to 1/2" and can be stacked as required to get the desired dimension.



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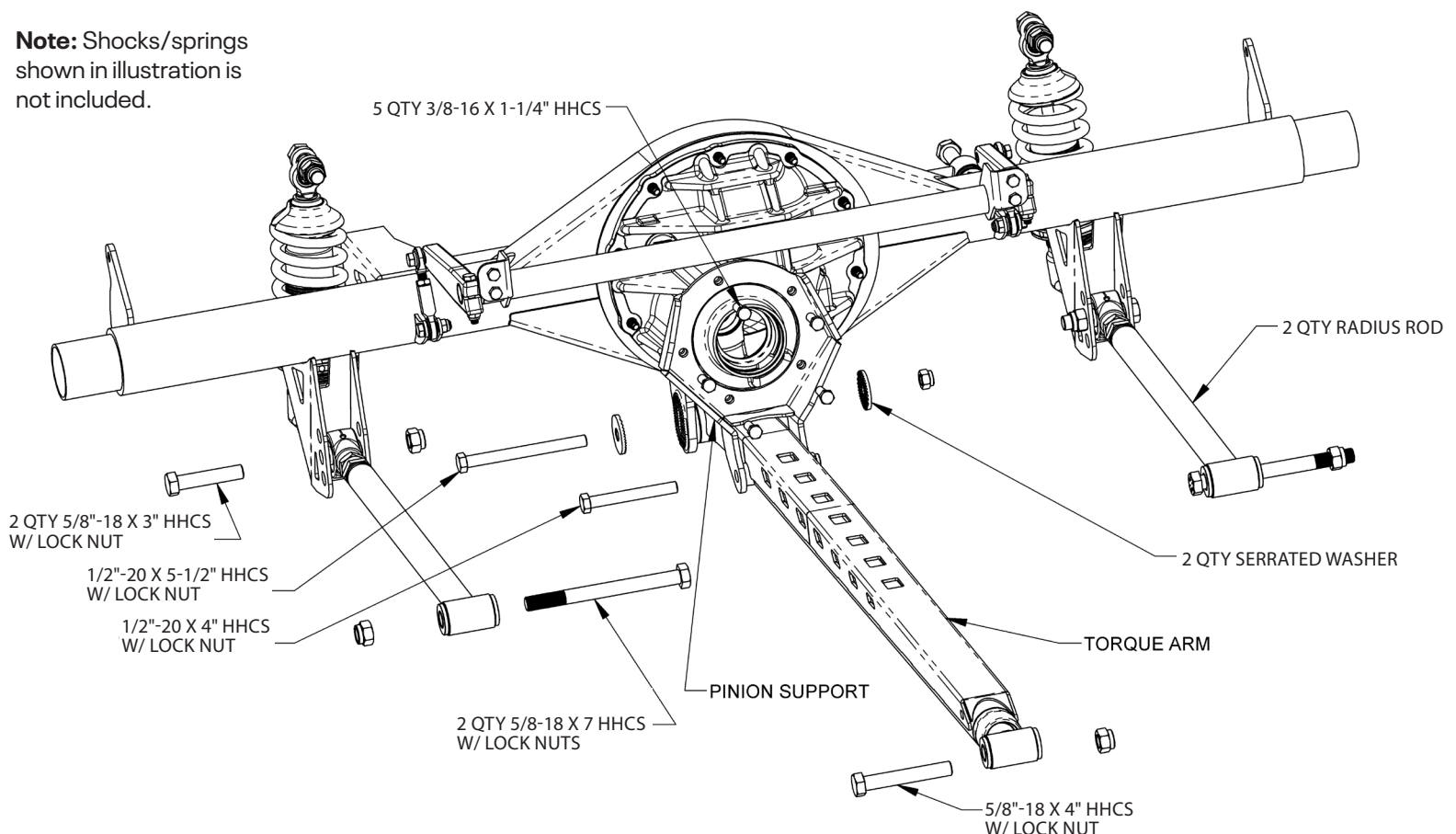
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## Rear Suspension Assembly

- 1. Installing Trailing Arms:** Assemble trailing arms leaving the jam nut loose. Bolt the welded end of the trailing arms to the front mount sleeves using the supplied 5/8"-18 x 7" bolt and locknut as shown below.
- 2. Rearend Housing Install:** Install the third member assembly (Not Included) into the rearend housing. Remove the 3/8" bolts attaching the pinion support to the third member carrier housing. Attach the pinion support mount onto the pinion support using the supplied 3/8"-16 x 1-1/4" bolts. Apply Loctite and tighten. Place the rearend housing on stands under the car at the approximate ride height location. Start with the trailing arms at 23-1/8" long; these can be adjusted later to square the chassis and center the rear end in the wheel wells. Attach the swivel end of the trailing arms to the lower housing brackets using the supplied 5/8"-18 x 3" bolts and lock nuts. Arms should be approximately level at ride height.
- 3. Installing the Torque Arm:** Press the wiper seal into the groove at the end of the torque arm. Slide the torque arm pivot into the end of the torque arm. Attach the torque arm to the housing using the supplied 1/2"-20 x 5-1/2" bolt, serrated washers and lock nut. Attach the torque arm to the pinion support mount using the supplied 1/2"-20 x 4" bolt and lock nut. Attach the torque arm pivot to the front cross tube mount using the supplied 5/8"-18 x 4" bolt and lock nut.

**Note:** Shocks/springs shown in illustration is not included.

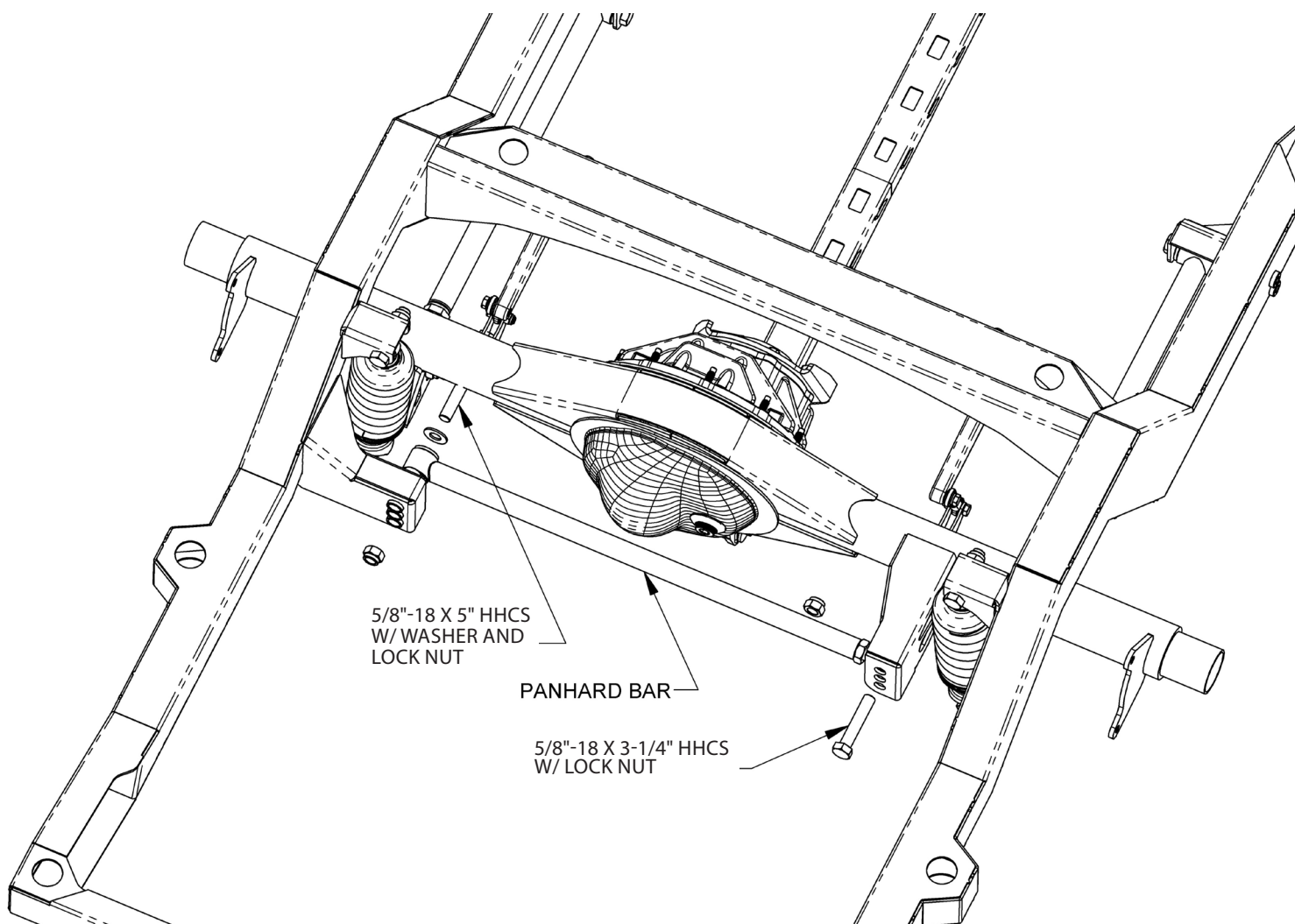


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**4. Installing the Panhard Bar:** Assemble Panhard bar, leaving the jam nut loose. Center to center dimension should be 27" as a starting point. Attach the Panhard bar to the rearend housing using the supplied 5/8"-18 x 3-1/4" bolt and lock nut. Attach the Panhard bar to the rear chassis mount using the supplied 5/8"-18 x 5" bolt, washer and lock nut. **NOTE:** There are three possible locations for each end of the Panhard bar. As a starting point, use the mounting holes that put the Panhard bar level with the ground at ride height and just below axle centerline. This will vary depending on the desired final ride height.

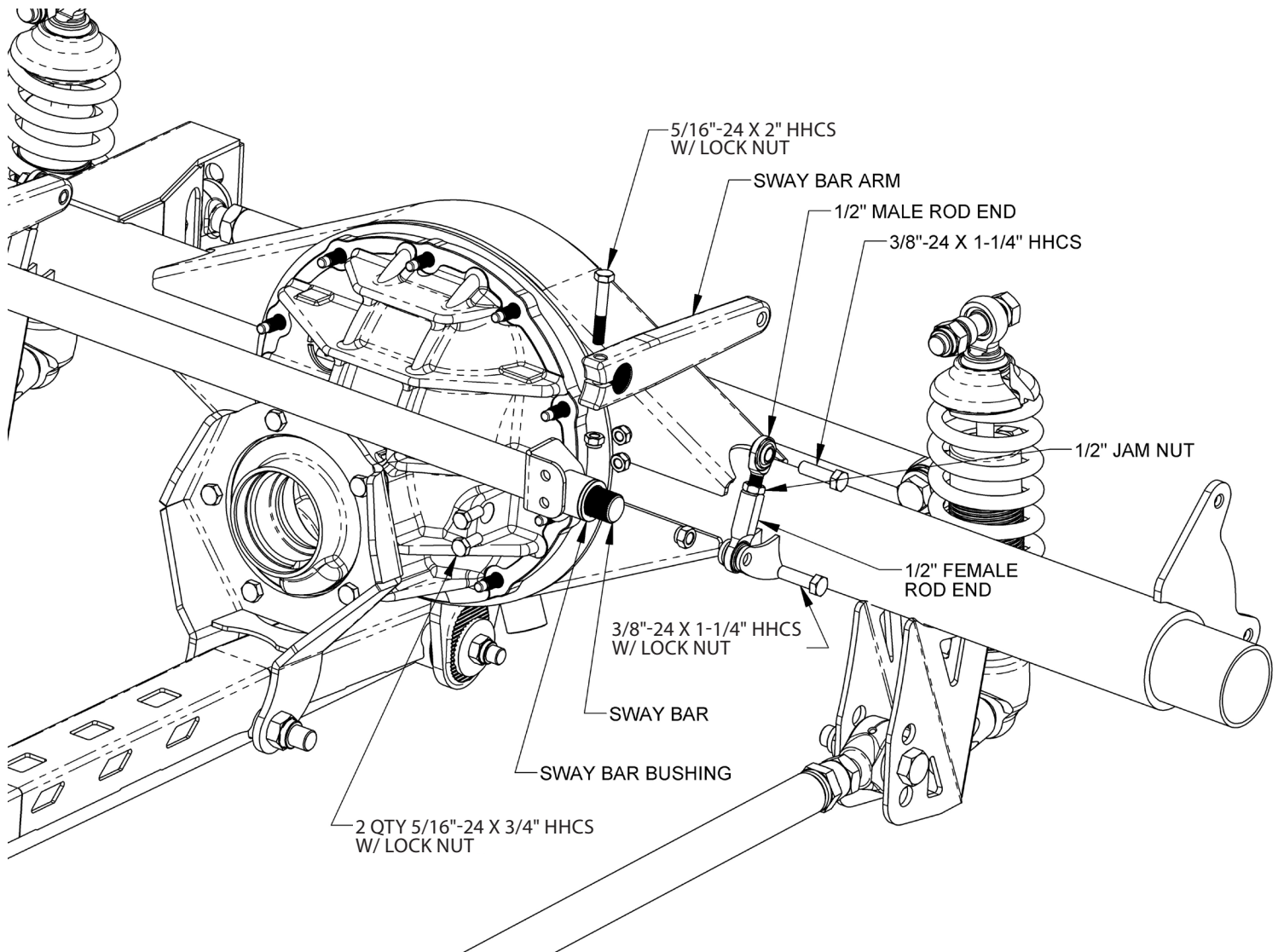


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**5. Install Sway Bar:** Press the sway bar bushings into the sway bar housing tube by lightly tapping them into place with a rubber mallet (be sure the bushings are going in straight). With the bushings in place, slide the sway bar into the housing. Bolt the sway bar tube assembly up inside the rear crossmember using the 5/16"-24 x 3/4" bolts and lock nuts as shown. Slide one of the sway bar arms onto the splined portion of the sway bar so it sits flush with the end of the bar. Install the 5/16-24 x 2" bolt and lock nut onto the arm and tighten. Install one of the male rod ends onto the outside of the arm using a 3/8-16 x 1-1/4" bolt. Now thread the jam nut and female rod end onto the male rod end leaving roughly 1/4" of threads showing. Attach the female rod end to the rear end housing tabs using 3/8-24 x 1-1/4" bolt and lock nut. Assemble the opposite side in the same manner. Note: Once the vehicle is fully assembled and sitting on level ground, it is a good idea to disconnect one side of the sway bar links and adjust the length of the rod ends until there is no pre-load and the holes line up perfectly.



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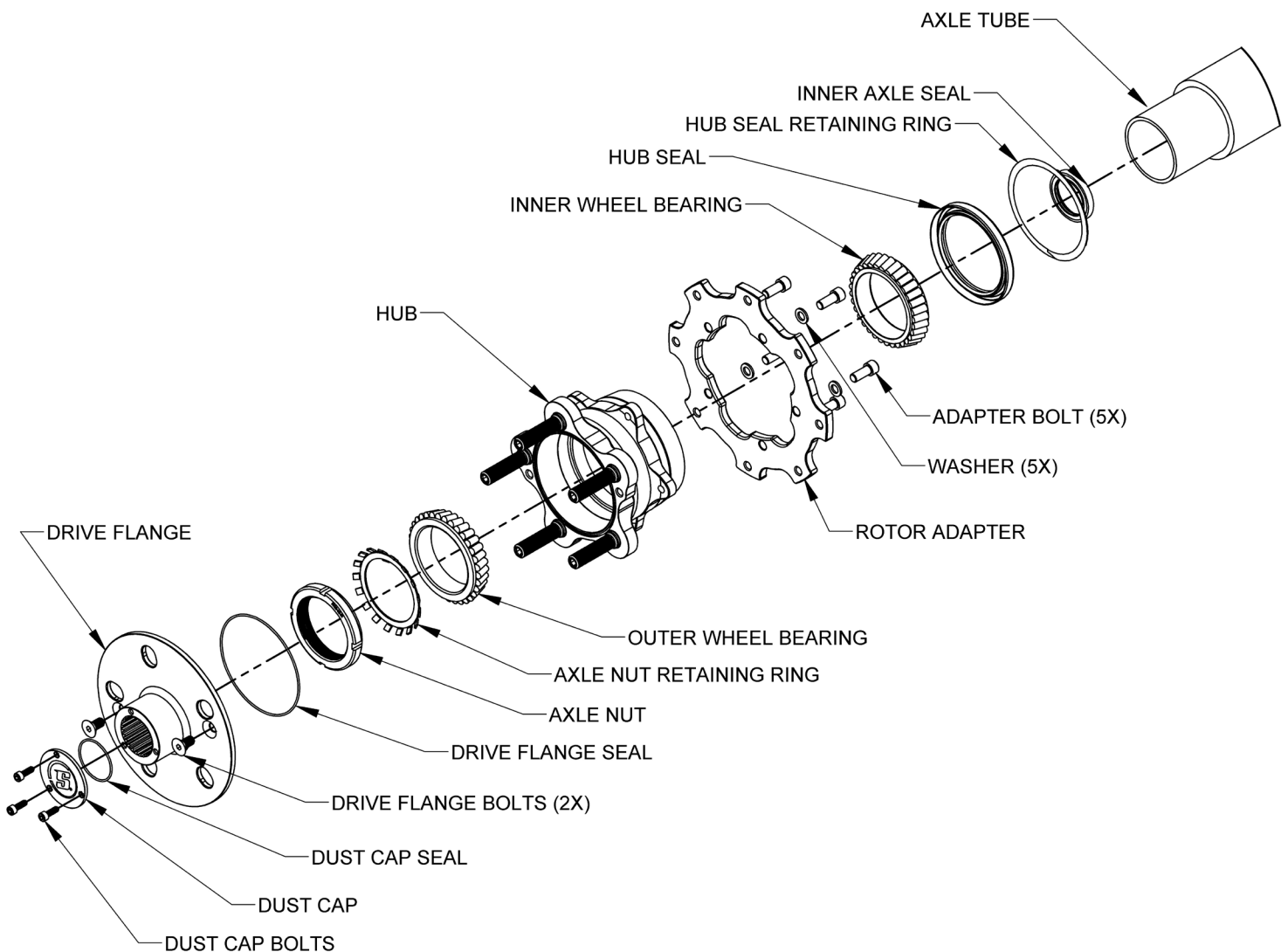
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**6.** Now is a good time to fully assemble the rear end by installing hubs, axles, and rear brake kits (Not Included) that can be installed at this point. Assemble the hub as shown, packing the wheel bearings with high-quality grease. Do not over-torque the axle nut. Tighten the axle nut and spin the hub a dozen or so rotations, then back it off two full turns and retighten until it just starts to get snug. At this point, the hub should spin freely with little to no resistance and no endplay in the bearing. Bend the tab on the lock ring into the groove on the axle nut to prevent loosening. The floater rear axle housing includes caliper brackets that accept calipers with a 5.25" mounting spacing, such as the Wilwood Dynalite, and floater rear hubs accept 12.19" x 0.81" brake rotors with an 8 x 7.00" bolt pattern, such as the Speedway Motors Pro-Lite. Combine this caliper and rotor combo with Wilwood BP-10 Brake Pads for a complete rear brake setup. For more extreme applications, consider the G-Comp™ X Rear Brake Kit that includes 4-piston Wilwood Dynalite calipers and aggressive brake pads.

Below is our recommendation:

- Part #3501501-PL-RED - G-Comp X Style Rear Brake Kit, Plain Rotor, Red Caliper



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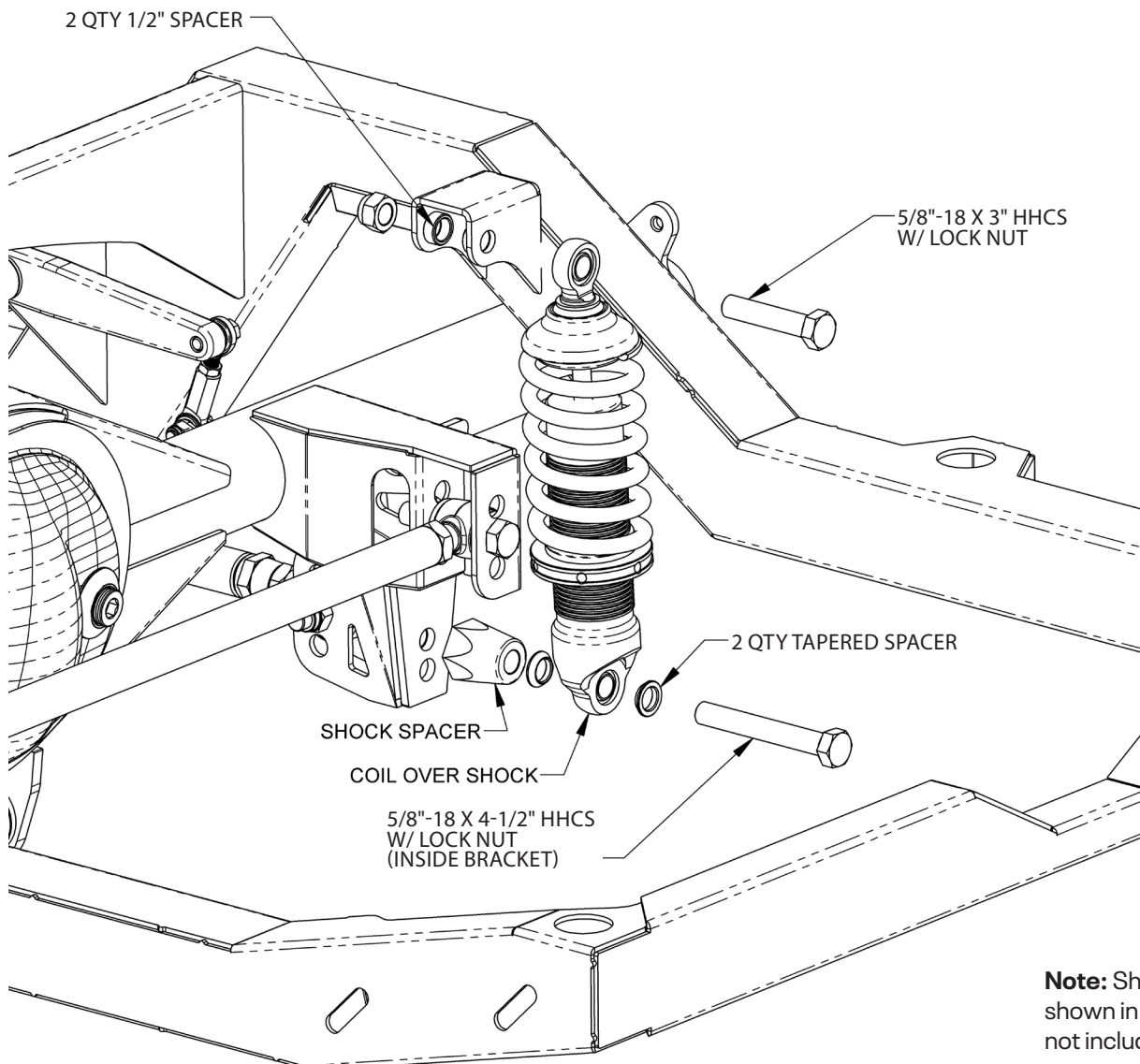
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**7.** Install the coilover shocks. To install the shock, first use a 5/8"-18 x 4-1/2" bolt, spacers, and a lock nut to secure the lower end of the shock to the rearend housing as shown. The remaining 5/8"-18 x 3" bolts, 1/2" thick spacers, and lock nuts are used to install the top of the shocks into the rear mounts. Note: This kit is designed to use 4" stroke shocks with a compressed length of 10" and an extended length of 14". Shock ends should be 5/8" bearings with a 9/16" mounting width. Rear shock length and spring rate will depend on how you set the car up (ride height, vehicle weight, ride stiffness, etc.).

The shock and spring package below is a good starting point:

- Part #1061340SR5T - AFCO 1340SR5T Non-Adjustable Coilover Shocks w/o Spring 14 Inch Ext, 5/8 Inch Bearing
- Part #10628B - AFCO 2-5/8 Inch Coil-Over Spring, 8 Inch, Black (Choose Appropriate Rate)



**Note:** Shock/spring shown in illustration is not included.

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**8.** Fully assemble chassis, fill the rear end with fluid and install wheels and tires. Grease trailing arm heim joints and torque arm pivot.

**9.** Alignment: Lower the car onto the ground and confirm desired ride height. Adjust ride height if necessary by raising the car and spinning the adjusting collar on the coil-over. Adjust the pinion angle by lowering or raising the rear torque arm bolt within the slot. This is accomplished by loosening the bolt enough to disengage the serrations on the washers. Once you have reached your desired pinion angle, tighten the remaining torque arm hardware. Designed wheelbase is 112" and can be adjusted to center tires in wheel wells by adjusting the length of the rear radius rods. Once the ride height has been set, make sure the rear end is centered in the car body and check your rear end alignment. Adjust if necessary and check for free movement to avoid binding in the torque arm. **NOTE:** This can be difficult to do accurately and a professional alignment is recommended. This method will get you close enough to drive the vehicle to an alignment shop for a professional alignment.

## Need Help with This Product?

Talk to one of our Tech Support Agents:

Mon–Fri, 8am – 5pm (CST)

**U.S.:** 800.979.0122

**Canada:** 855.313.9180

**International:** 1.402.323.3200