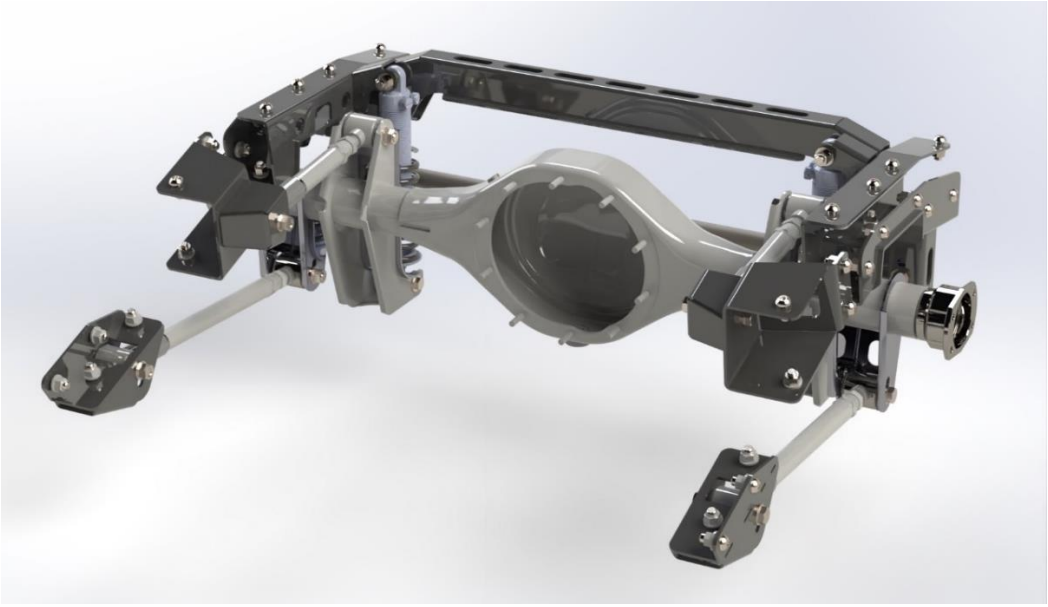
Detroit Speed
QUADRALink Rear Suspension
1982-2004 GM S10 Truck
P/N: 041758DS & 041759DS

The Detroit Speed QUADRALink is a great way to upgrade from a leaf spring rear suspension on your 1982-2004 S10. Detroit Speed's exclusive 4-link geometry design is uncompromised to achieve the best possible handling during all conditions. The patented "Swivel-Link" technology in combination with tuned high-durometer rubber bushings allow the suspension to fully articulate with smooth silent motion. This system utilizes a horizontal track bar that provides precise and effective rear axle lateral location during hard cornering. The track bar is adjustable for roll center control at various ride heights, and the rear cross-member adds strength and rigidity to the rear frame section.



PN: 041758DS Shown – Housing Sold Separately

IMPORTANT:

All work should be performed by a qualified welder and technician. Please read the complete set of instructions and fully understand all the steps involved before beginning the project. Always make sure to wear the appropriate safety equipment for the job and properly support the vehicle. If you have any questions before, during, or after the installation, feel free to contact Detroit Speed by phone at (704) 662-3272 or by email at tech@detroitspeed.com.

Item #	Description	Quantity
1	Quadralink Crossmember Assembly	1
2	Frame Notch Assembly, LH	1
3	Frame Notch Assembly, RH	1
4	Lower Link Frame Bracket Assembly, LH	1
5	Lower Link Frame Bracket Assembly, RH	1
6	Upper Link Frame Bracket Assembly, LH	1
7	Upper Link Frame Bracket Assembly, RH	1
8	Track Bar Axle Bracket*	1
9	Lower Link Axle Bracket*	2
10	Upper Link Axle Bracket Assembly LH*	1
11	Upper Link Axle Bracket Assembly RH*	1
12	Upper Swivel-Link Assembly	2
13	Lower Swivel-Link Assembly	2
10	Track Bar Assembly	1
11	Coilover Shock	2
12	Coilover Spring – 10" x 2.5"ID x 200 lbs.	2
13	Hardware Kit	1
14	Instructions	1
15	Frame Notch Template, LH	1
16	Frame Notch Template, RH	1

***Not Included with PN: 041759DS**

Hardware Kit Checklist – DSE Rear QUADRALink Kit			
Part Number	**Description**	**Quantity**	**Check**
200170DS	**Swivel-Link Hardware Kit**	**1**	
980104FS	M14-2 x 90 Flanged Hex Bolt 10.9 Clear Zinc	8	
960074FS	M14-2 Top Lock Nut 10.9 Clear Zinc	10	
980103FS	M14-2 x 80 Flanged Hex Bolt 10.9 Clear Zinc	2	
200175DS	**Coilover Shock Hardware Bag**	**1**	
980021FS	1/2"-20 x 3-1/2" L Hex Head Bolt	2	
980026FS	1/2"-20 x 2-1/2" L Hex Head Bolt	2	
960004FS	1/2"-20 Nylock Nut	4	
970037FS	1/2" SAE Washer	8	
99030475	Spacer .510 ID x .750 OD x 1.250 L Yellow Zinc	2	
200158DS	**C Notch Hardware Kit**	**1**	
950131FS	M12-1.75 x 30 BHCS 8.8 Clear Zinc	26	
960123FS	M12-1.75 Serrated Flanged Nut 8.8 Clear Zinc	28	
950159FS	M12-1.75 x 75 Hex Bolt 8.8 Clear Zinc	2	
9304228	Spacer ½ ID x ¾ OD x ¾ L Yellow Zinc	2	
030501DS	Jounce Bumpers	1	
200176DS	**Frame Bracket Hardware Bag**	**1**	
950131FS	M12-1.75 x 30 BHCS 8.8 Clear Zinc	16	
960123FS	M12-1.75 Serrated Flanged Nut 8.8 Clear Zinc	16	

Fastener Torque Specifications	
Application	**Torque (ft-lbs.)**
Frame Notch Assembly	50
Upper and Lower Link Frame Bracket Assembly	50
Swivel-Link and Track Bar Bolts	90
Swivel-Link and Track Bar Jam Nuts	50
Upper & Lower Shock Bolts	60

Considerations and Associated Parts:
Most S10s were equipped with 2-3/4" diameter axle tubes from the factory. The weld-in axle brackets included with 041758DS are designed to work with 3" diameter axle tubes. Detroit Speed also offers axle housings, shafts, and center sections for a complete bolt-in solution.

Available Rear Axle Components	
Description	**Part Number**
9" QL HSG TORINO BARE W/HW 82-04 S10	071043DS
9" QL HSG TORINO SATIN W/HW 82-04 S10	071543DS
9" QL HSG FLOATER BARE W/HW 82-04 S10	073043DS
9" QL HSG FLOATER SATIN W/HW 82-04 S10	073543DS
FN988 AXLE SHAFTS M12-1.5 TORINO 82-04 S10	070843DS
9" AXLE SHAFTS M12-1.5 TORINO 82-04 S10	070943DS
FN988 AXLE SHAFTS C6/7 FLOATER 82-04 S10	073843DS
9" AXLE SHAFTS C6/7 FLOATER 82-04 S10	073943DS

The uncompromised geometry of the Detroit Speed QUADRALink design necessitates an upper link location that is incompatible with the factory S10 fuel tank. It will be necessary to remove the factory fuel tank for this installation. Options exist for behind the axle fuel tank installation which require custom fuel filler fabrication. Detroit Speed offers a stainless steel baffled fuel tank as part number **080193DS.** The Detroit Speed fuel tank reuses factory mouting and fuel door location for a true bolt-in installation.

Installation:

1. Raise the vehicle on jack stands so that the frame is level with the ground. Remove the bed from the vehicle. You will also need to remove the exhaust to make installation easier.

2. Remove the factory shocks from both sides of the vehicle.

3. If the truck is equipped with the factory anti-wrap shock, complete steps 4 and 5. Otherwise, proceed to step 6.

4. Remove the factory anti-wrap shock from the axle and frame brackets.

5. Remove the factory anti-wrap shock and shock mount from the frame by removing the four bolts holding the bracket to the frame (**Figure 1**).

Figure 1 - Remove Factory Anti-Wrap Shock Mount

6. Trucks equipped with a factory evaporative canister will need to remove and relocate. Detroit Speed offers an evaporative canister relocation kit available as part number 080403DS.

7. Disconnect the factory rear brake hose from the frame mounted rear brake line (**Figure 2**).

Figure 2 - Disconnect Factory Rear Brake Hose

8. Remove the stock leaf springs, rear shackles, driveshaft, and rear axle from the frame.

9. Remove the factory fuel tank taking care to prevent fuel spills. The factory fuel tank will not be reused for this installation. Store the fuel tank away from the work area and protect against fuel vapors as there will be grinding completed in future steps.

10. Remove the factory front leaf spring mounts from the frame by removing the four factory rivets holding the mounts to the frame on both sides of the truck (**Figure 3**).

Figure 3 – Remove Front Mounts

11. Drill out the four factory mount rivet locations to a final drill size of 17/32" on both sides of the truck.

12. Remove the bottom front rivet from the gas tank crossmember and drill out this location to a final drill size of 17/32" (**Figure 4**).

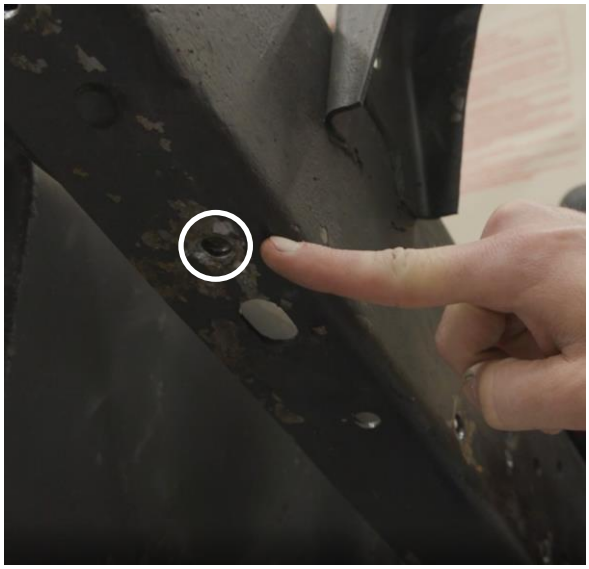


Figure 4 - Remove Fuel Tank Cross Member Rivet

13. Trucks with independent left and right rear shock brackets will remove the rear shock brackets on both sides of the frame by removing the 4 factory rivets attaching each bracket. Drill out these locations to a final drill size of 17/32" (**Figure 5**).

Figure 5 - Remove Rear Shock Mounts

14. Trucks with late shock crossmember must cut the forward portion of the shock mount on both sides of the frame. Using a straight edge, mark a horizontal line from the bottom side of the frame rail top flange. Remove the front portion of the crossmember below the marked line (**Figure 6**).

Figure 6 - Trim Late Shock Crossmember

15. Using a cut off wheel, remove the rear axle bump stop bracket from both sides of the frame (**Figure 7**).

Figure 7 – Remove Rear Axle Bumper Bracket

Layout Frame Notch Cuts:

16. With the rear frame rails level and well supported in front of and behind the axle, locate the centerline of the frame notch location on the side of the frame. From the center of the rear leaf spring bushing, measure forward 26". Mark this centerline location (Figure 5). **NOTE:** Make sure the tape measure is level when you mark this location.

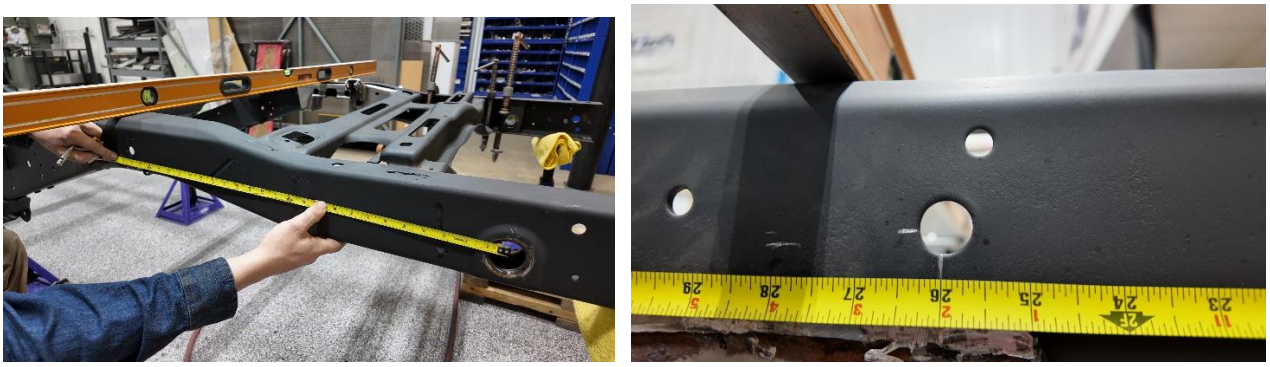


Figure 8 – Locate Notch Centerline

17. Use a straight edge and extend your centerline along the side of the framerail.

18. Using a long straight edge such as a 4 ft level across the top of both frame rails, measure down 2-3/8" and mark a horizontal line extending 3" forward and 3" rearward from the centerline marked in the previous step.

Figure 9 – Mark Notch Depth

19. Cut out the supplied frame notch template and fold a sharp 90 deg corner at the line marked fold line.

Figure 10 – Fold Notch Template and Place on Frame at 90 Degrees

20. Align the centerline of the template with the vertical centerline marked in step 16. Align the depth of the frame notch with the horizontal line marked in step 18 (**Figure 11**).

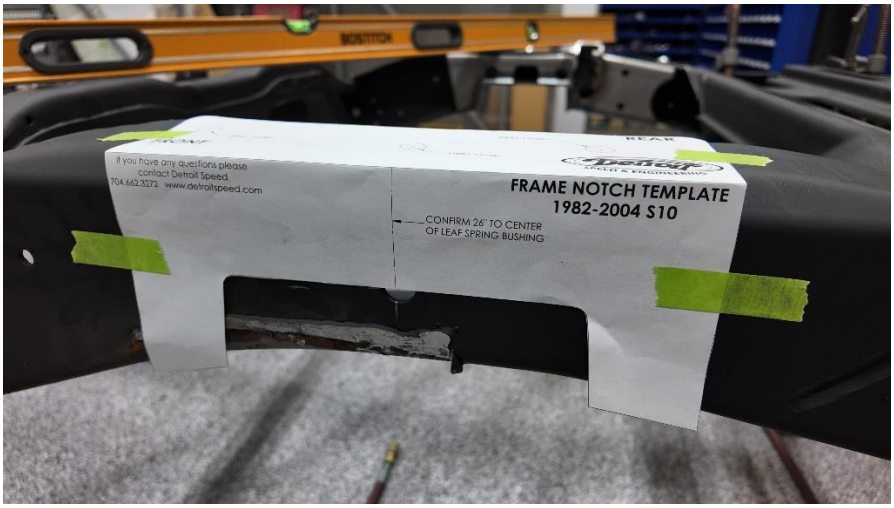


Figure 11 – Align Frame Notch Template with Marks

21. Use the template and trace the frame notch cutout onto the side of the framerail. Use a straight edge and transfer the cut lines to the bottom side of the framerail (**Figure 12**).

Cutting Frame Notch / Installing Notch Assemblies:

22. It is recommended to only work on one side of the frame at a time for frame notch cutting and installation to prevent the frame from sagging.

23. Use a center punch to mark the corners of the frame notch (**Figure 12**).

24. Use a ½" drill bit to drill the radiused corners of the frame notch profile (**Figure 12**).

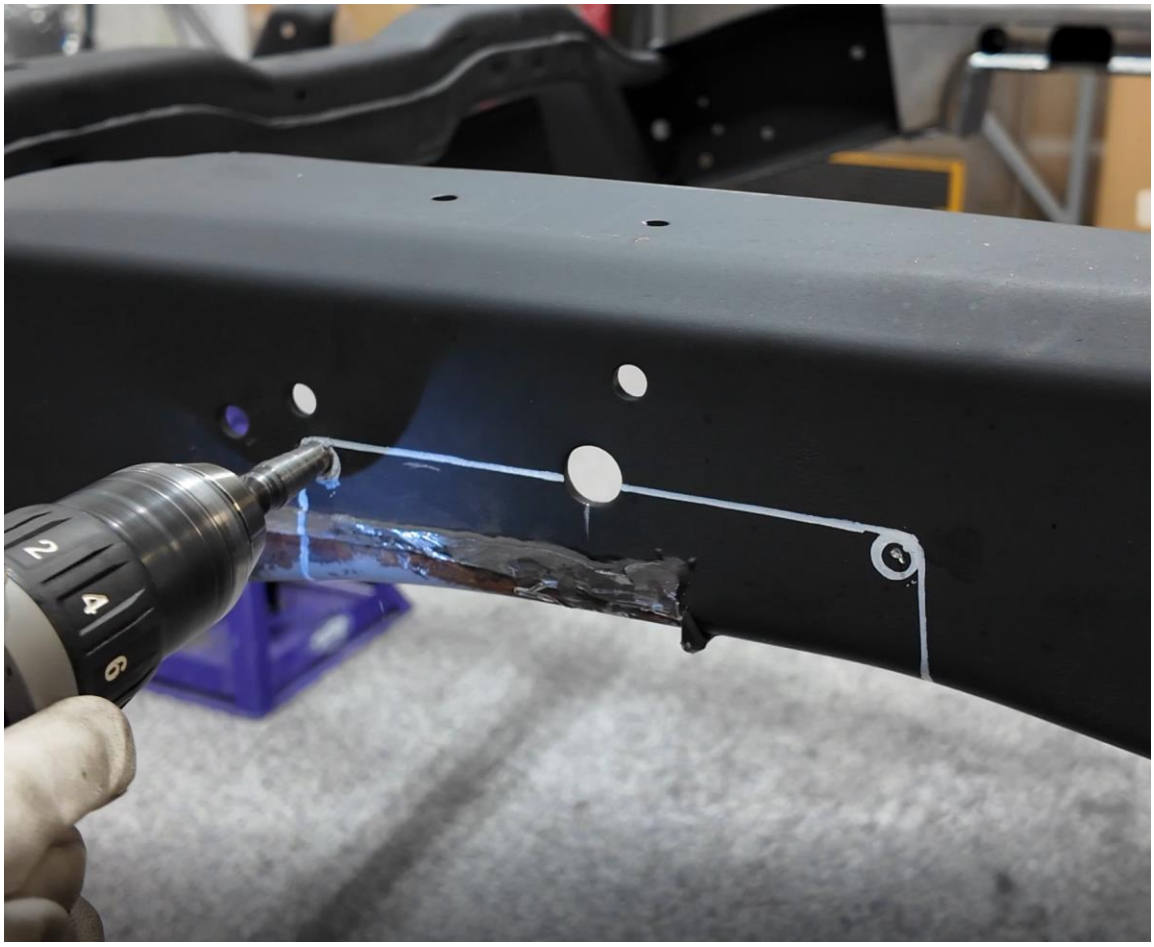


Figure 12 – Trace Frame Notch Cutout and Drill Corner Radius

25. Cut along the traced lines to notch the framerail. Grind all edges smooth (**Figure 13**).

Figure 13 – Notch Frame Rail

26. Locate the frame notch bracket assemblies from the kit. There is a left and right hand side bracket so make sure you use the correct bracket for the correct side of the frame. The left hand frame notch will have the track bar mount welded to the bottom side.

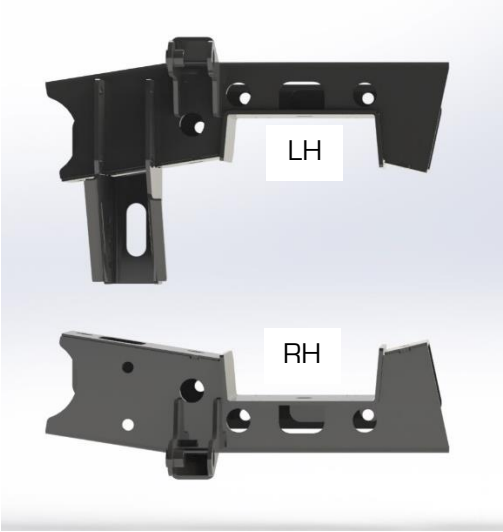


Figure 14 – Frame Notches

27. Test fit the frame notch assembly to the frame. Trim and grind any material away if needed so the frame notch assemblies fit tight to the frame rails.

28. Once the frame notch assemblies fit around the framerails, transfer punch the framerails using the frame notch assemblies as templates. There will be 12 locations to mark for M12 hardware for the top, bottom and outside frame rail for each side.

29. Remove the frame notch assembly and drill out all locations marked in the previous step the M12 hardware to a final drill size of 17/32" (**Figure 15**).

Figure 15 – Drill Holes for Frame Notch

30. Install the jounce bumper into the frame notch assembly at the C-notch using the provided 3/8"-16 Nylock nut and 3/8" washer and tighten (Figure 13).

31. Once all hole locations are drilled out and jounce bumper is installed, install the frame notch bracket assemblies to the frame using the provided M12 BHCS bolts and serrated flange nuts (Figure 11). Use anti-seize on the threads of the bolts.

    NOTE: Detroit Speed recommends painting all bare metal surfaces created by cutting, grinding, and drilling in previous steps before final installation. Torque hardware to 50 ft-lbs.

32. Repeat steps 16-31 for the opposite side of the frame.

Install Crossmember Assembly:

33. Slide the track bar crossmember assembly in between the frame rails. The crossmember will locate between the frame notch assemblies. **NOTE:** The track bar mount will be located on the driver side of the frame.

Figure 16 – Position Crossmember Assembly

34. Install the track bar crossmember to the frame by using the provided M12-1.75 x 75 hex head bolts and M12-1.75 serrated flanged nuts on the driver side and M12-1.75 x 30 BHCS and M12-1.75 serranted flanged nuts on the passenger side. Install the driver side hardware first and then the hardware on the passenger side, as those holes are slotted to allow for installation tolerance. Use anti-seize on the threads of the bolts. The bolts will need to be installed from back to front on the left hand side (Figure 16).

    NOTE: Torque hardware to 50 ft-lbs. Tighten BHCS on the passenger side first then move to the flanged HHCS on the driver side.

Install Lower Link Mounts:

35. Locate the lower link frame bracket assemblies from the kit. There is a left and right hand side bracket so make sure you use the correct bracket for the correct side of the frame.

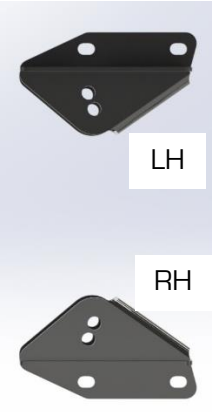


Figure 17 – Lower Link Brackets

36. Align the lower link frame bracket onto the frame using 3 existing hole locations. The front hole on bottom and side of the frame bracket will locate using the rearmost rivets from the factory leaf spring mount. The rear hole on the bottom of the frame bracket will locate using the rivet location from the fuel tank crossmember.

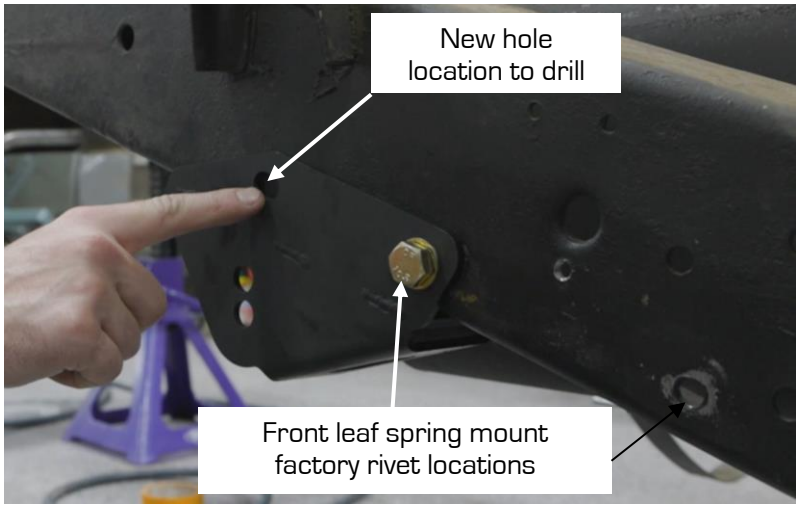


Figure 18 – Lower Link Frame Bracket (RH Shown)

37. With 3 bolts temporarily installed, use a transfer punch to mark the 4th bolt location for the lower link frame bracket. Once marked, remove the bracket and drill the hole to 17/32".

38. Reinstall the lower link frame bracket using M12-1.75 x 30 BHCS and M12-1.75 serranted flanged nuts. Use anti-seize on hardware and torque fasteners to 50 ft-lb.

39. Repeat steps 36-38 for the other side of the frame.

Install Upper Link Bracket:

40. Locate the upper link frame bracket templates from the kit. There is a left and right hand side template so make sure that the template is for the correct side of the frame. Cut along the indicated lines to remove templates from the 11x17 sheet. Cut out the holes that say "Align with factory rivet".

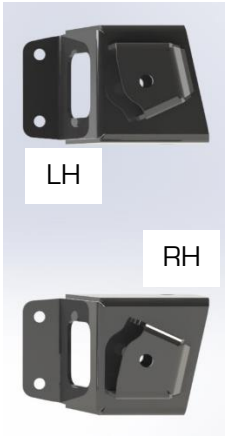


Figure 19 – Upper Link Brackets

41. Place the top template over the factory frame rivets in the fuel tank crossmember on the top flange of the frame. Use a center punch to mark the location of the new hole to be drilled. Drill this hole location to 17/32".

42. Place the bottom template over the factory frame rivets in the fuel tank crossmember on the bottom flange of the frame. Use a center punch to mark the location of the new hole to be drilled. Drill this hole location to 17/32".

43. Locate the upper link frame bracket assemblies from the kit. There is a left and right hand side bracket so make sure you use the correct bracket for the correct side of the frame.

44. Temporarily install the upper link frame bracket using 2 M12-1.75 x 30 BHCS and M12-1.75 serrated flanged nuts in the locations just drilled. With the bracket temporarily installed, use a transfer punch to mark 2 additional locations on the inside of the frame rail.

45. Remove the upper link frame bracket and drill the 2 marked hole locations to 17/32".

46. Reinstall the upper link frame bracket using M12-1.75 x 30 BHCS and M12-1.75 serranted flanged nuts. Use anti-seize on hardware and torque fasteners to 50 ft-lb.

47. Repeat steps 41-46 for the other side of the frame.

Figure 20 – Upper Link Frame Bracket

Axle Assembly:

48. Detroit Speed offers complete QUADRALink axle housing assemblies available as P/Ns 071043DS, 071543DS, 073043DS, or 073543DS as described on Page 3. If not using one of the Detroit Speed axle assemblies, prepare your rear axle tubes for the QUADRALink axle brackets from the kit.

    NOTE: The brackets are designed for 3" axle tubes. Remove all existing brackets from axle tubes and grind smooth for a clean finish.

49. Using **Figure 26** as a guide, locate and install the weld on axle brackets taking care to ensure that the housing ends remain straight during the welding and cooling process. Before fully welding link brackets ensure that the 2.45" L weld spacers are installed to maintain bracket spacing for easy link installation.

50. Send the axle to a qualified shop to have the housing ends welded (if necessary). Check the axle tubes and have them straightened (if necessary). At this point, fabrication work is complete so you can paint or powdercoat your rear axle housing.

51. Position the axle housing back underneath the vehicle. Install the upper and lower Swivel-Links to the frame bracket assemblies using the provided M14-2 x 90 L flanged head bolts and M14-2 flanged nuts (**Figure 21**).

    NOTE: There are two mounting holes in the lower axle bracket assemblies. Detroit Speed recommends using the upper set of mounting holes as this will be your nominal setting. Consult with **Figure 23** to determine desired lower link placement. Use anti-seize on the threads of the bolts. Do not torque at this time.

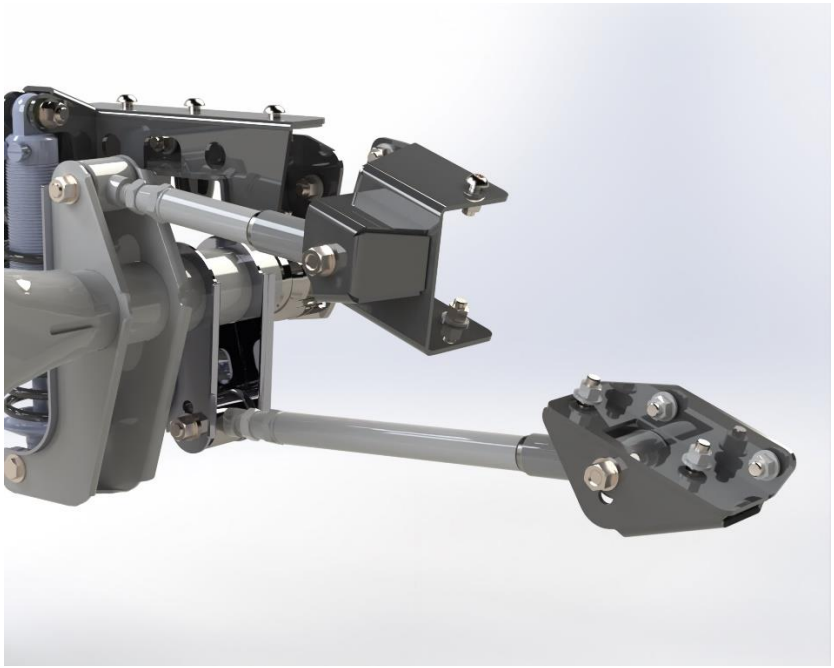


Figure 21 – Install Links into Frame Brackets

52. Install the upper and lower Swivel-Links into the rear axle brackets using the provided M14-2 x 90 L flanged head bolts and M14-2 flanged nuts on both sides of the vehicle (**Figure 21**).

    NOTE: There are two mounting holes in the lower axle bracket assemblies. Detroit Speed recommends using the upper set of mounting holes as this will be your nominal setting. Consult with **Figure 23** to determine desired lower link placement. Use anti-seize on the threads of the bolts. Do not torque at this time.

53. Use a floor jack to raise the rear axle so that the distance between the upper and lower shock mounting holes are 14.5" from center to center. This will be your nominal ride height.

54. Install the track bar into the track bar bracket on the LH frame notch assembly and then into the track bar axle bracket. Use the provided M14-2 x 80 L flanged hex head bolts and M14-2 flanged nuts (**Figure 22**). Use anti-seize on the threads of the bolts.

    NOTE: There are three mounting holes in the track bar bracket on the frame notch assembly and two mounting holes . Detroit Speed recommends using the middle location on the frame side and top location axle bracket. The track bar should be level at ride height. Torque all M14-2 hardware to 90 ft-lbs.

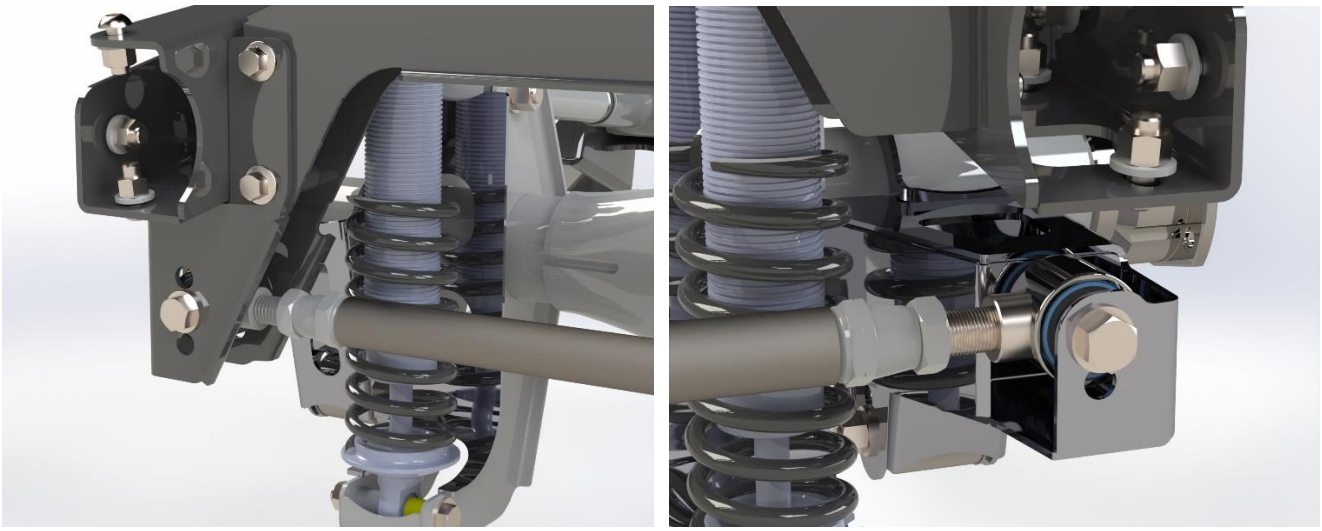


Figure 22 – Install Track Bar

NOTE: Instant center numbers are expressed as distance forward of rear axle centerline, then height above ground level. Nominal settings are in bold (**Figure 23**). Heights will vary with wheel sizes and ride height.

Tuning With Anti-Squat:

Anti-Squat [A.S] adjustments effect the amount of body squat caused by acceleration. Increasing A.S % transfers more acceleration forces through the suspension links instead of the coil springs, thus creating less body squat. Vertical loading of the tire also increases, which increases forward traction.

Lower Link Chassis Side	Lower Link Axle Side	Instant Center Fwd." / Ht."	Anti-Squat % (Short bed)
Top	**Top**	**60.5" / 10.2"**	**91%**
	Bottom	51.8" / 11.2"	117%
Bottom	Top	82.7" / 7.5"	49%
	Bottom	65.7" / 9.5"	78%

Figure 23 – Instant Center & Anti-Squat Settings

55. Next, it is necessary to build each coilover shock and spring assembly before installing them into the vehicle. Refer to the instructions included with your coilover shocks for assembly.

56. Install the provided 3/4" OD x 3/4"L upper shock spacer onto the provided 1/2"-20 x 2-1/2"L hex head bolt. Position the body side of the shock up to the upper shock mount. Apply anti-seize to the threads and install the bolt and spacer through the upper shock mount hole and through the monoball of the shock. Install the provided 1/2"-20 Nylock nut onto the bolt and tighten (**Figure 24**).

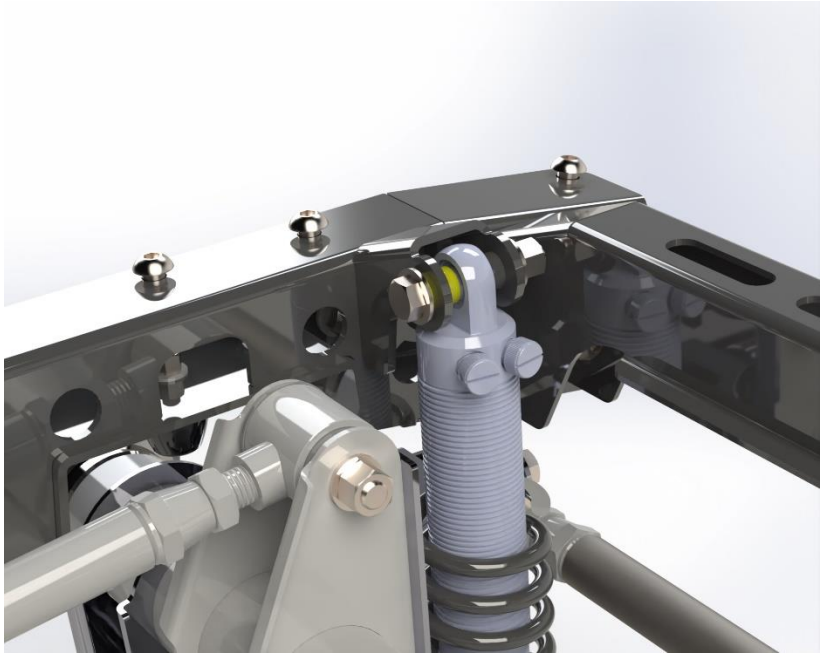


Figure 24 – Install Coilover Shock into Frame Mount

57. Install the provided 3/4" OD x 1-1/4"L lower shock spacers onto the provided 1/2"-20 x 3-1/2"L hex head bolts. Adjust the height of the rear axle and install the lower shock bolts and spacers through the lower shock mounts and through the monoball of the shocks. Apply anti-seize to the threads of the bolts and install the provided 1/2"-20 Nylock nuts and tighten (**Figure 25**).

    NOTE: Torque the upper and lower shock bolts to 60 ft-lbs.

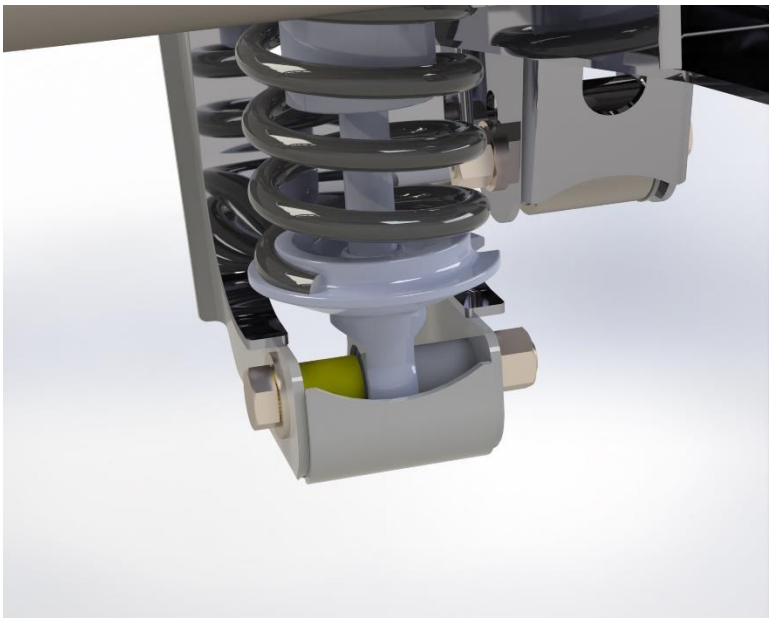


Figure 25 – Install Coilover Shock into Axle Bracket

58. Support the axle at ride height. Nominal ride height is 14.5" from center to center of the coilover shock mounting bolts. Check the axle position in the vehicle and adjust the links as necessary.

    NOTE: There can be no more than 2" of exposed threads on the end link (3/4" of thread engagement in the tube). This measurement does include the jam nut (Page 18).

59. The rear axle should be centered from side to side by adjusting the length of the track bar. The pinion angle should be level to the ground at nominal setting and adjusted with the upper links to your preference if necessary. The wheelbase should be measured and adjusted with the lower links.

    NOTE: 108" is the correct wheelbase for a short bed 1982-2004 S10.

60. Raise and lower the vehicle to verify that there is no interference. Now is a good time to re-install the exhaust system if necessary. Re-install the bed. Install the wheels and lower it onto the ground. Verify that the track bar is installed into the hole that places it closest to horizontal (nominal design is the lower hole in the bracket).

61. Confirm the rear axle position again and double check that all of the bolts and jam nuts are tightened to their respective torque specifications.

62. With the vehicle assembled with all the components installed, adjust the ride height as necessary. DSE does recommends cleaning the threads of the shocks. Once the threads are clean, DSE recommends applying dry bicycle chain lube to the threads of the shock body before adjusting the spanner nut and compressing the coilover spring. Allow the chain lube to dry before adjusting the spanner nut. If you have the non-adjustable shocks, the spanner nut has a pinch bolt that will need to be tightened before the vehicle is driven.

    WARNING: DO NOT ADJUST THE COILOVER ADJUSTING NUT WITHOUT THE VEHICLE RAISED OFF THE GROUND TO REMOVE THE WEIGHT OFF THE COILOVER SHOCKS. FAILURE TO FOLLOW THIS PROCEDURE WILL RESULT IN DAMAGED THREADS ON THE SHOCK BODY THAT CANNOT BE WARRANTIED.

If you have any questions before or during the installation of this product, please contact Detroit Speed at tech@detroitspeed.com or 704.662.3272

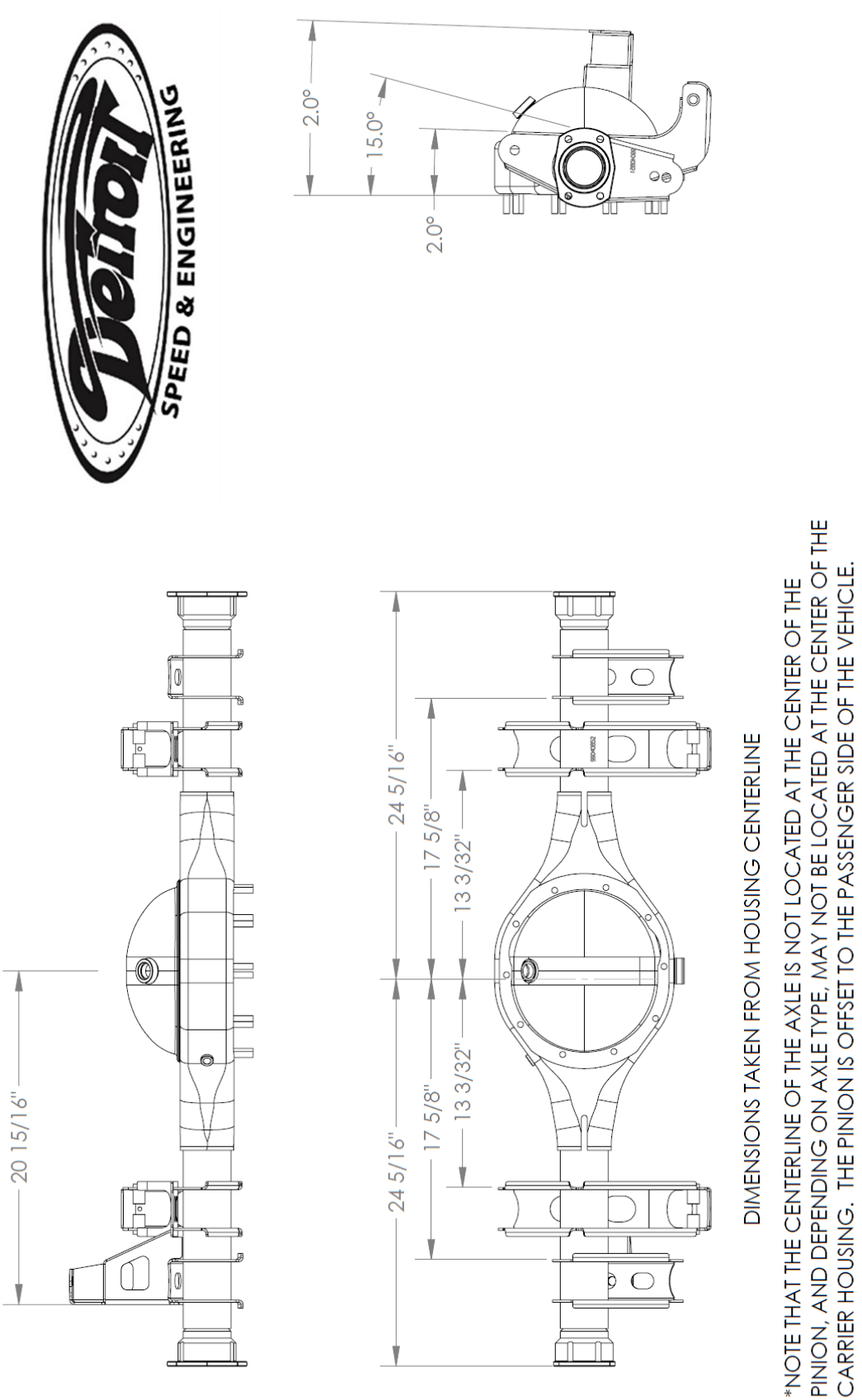


Figure 26 – 1982-2004 S10 Axle Bracket Location

Once again, we appreciate your business.
If you have any questions during the installation of this product, call (704) 662-3272

Detroit Speed
Swivel-Links

WARNING:

There can be no more than 2" of exposed threads on the end link (3/4" of thread engagement in the tube). This measurement does include the jam nut (see below).