

Detroit Speed
C10 SpeedMAX Front Suspension
1967-87 GM C10 Truck
P/N: 032080 through 032083

The Detroit Speed C10 SpeedMAX front suspension is designed to improve the handling and performance of your 1967-87 GM C10 Truck while lowering the front ride height. This 100% bolt-on front suspension system can be installed at the stock location or one inch forward for improved wheel/fender alignment. Body panels and the engine do not need to be removed for installation. This system features "Detroit Tuned" power rack and pinion steering, forged in the USA DSE aluminum uprights featuring 5 x 5" or 5 x 4-3/4" dual bolt pattern modern hub pack wheel bearings. DSE "Detroit Tuned" aluminum body coilover shocks/springs allow spring rate tuning and ride height adjustment. This system includes tubular upper and lower control arms with Delrin bushings and stainless-steel cross shafts featuring caster tuner bushings.



PN: 032082 Shown - 1973-87 C10

IMPORTANT:

All work should be performed by a qualified technician. Please read the entire set of instructions and fully understand all of 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@detroitsspeed.com.

Item #	Description	Quantity
1	Cradle Assembly	1
2	Upper Control Arm Mount Bracket, LH and RH	2
3	Coilover Mount, LH and RH	2
4	Power Rack and Pinion Assembly	1
5	Steering Shaft Frame Rail Reinforcement	1
6	Sway Bar Bracket, LH and RH	2
7	1-1/8" OD Sway Bar	1
8	Lower Control Arm Assembly, LH and RH	2
9	Upper Control Arm Assembly, LH and RH	2
10	Upright Assembly, LH and RH	2
11	Engine Mount Bracket, LH and RH	2
12	Coilover Shock	2
13	Coilover Spring	2
14	Instructions	1

Specifications - Detroit Speed C10 SpeedMAX	
Total Suspension Travel	6"
Ride Height*	0.4" ± 1.0"
Installed Shock Length**	15.0"
Static Camber	-0.5° ± 0.2°
Static Caster***	+7.0° ± 0.5°
Static Toe	0.0° ± 0.1°
* Measured from bottom of frame rail to center of the hub. When raising the ride height from nominal, the center of the hub may drop below bottom of frame rail.	
** Measured from center of shock bolt to center of shock bolt.	
*** As vehicle rake increases, caster decreases.	

1973-87 C10 Wheel & Tire Fitment Suggestions					
Diameter (in.)	Width (in.)	Backspacing (in.)	Lug Nut Thread Pitch	Recommended Tire Size	Comments
Stock Inner Fender					
18	9	5.25	1/2"-20	275/45R18	Deep Lug Nuts Required
19				275/40R19	
20				275/35R20	
Modified or No Inner Fender					
18	11	6.50	1/2"-20	295/45R18	Deep Lug Nuts Required
19				295/40R19	
20				305/35R20	

NOTE: Minimum wheel diameter of 17" with an inside wheel diameter of at least 16.250" will be required.

Caution: Some brake applications will not work with 17" wheels. Flush mount valve stems may also be required on wheels with a behind the center valve location.

1973-87 C10 SpeedMAX Front Suspension			
Engine	Mounting	Oil Pans	Steering Coupler
Small Block Chevy	Stock type mounts & brackets	Stock or Aftermarket	DSE PN: 092531
Big Block Chevy			
LS	Hooker Blackheart LS Swap Kit w/Standard Mounts	Holley PN: 302-2 or 302-3 Holley PN: 302-15	

NOTE: Required parts for the C10 SpeedMAX front suspension include a new steering coupler kit (DSE PN: 092531) as well as new front brakes. OE-style GMT800 truck new front brake upgrades are recommended below. Aftermarket front brake systems are also available through Baer and Wilwood for the C10 SpeedMAX.

OE-style Brake Recommendations:

Front Caliper, RF	Raybestos FRC11713N
Front Caliper, LF	Raybestos FRC11714N
Front Brake Pads	Raybestos EHT1363H
Brake Hose	Raybestos BH38102 (Use on 1967-72 applications)
Brake Hose, RF	Raybestos BH 38065 (Use on 1973-87 applications)
Brake Hose, LF	Raybestos BH 38066 (Use on 1973-87 applications)
Brake Rotor, 13"	Detroit Speed 050403

Baer Brake System Part Numbers:

4301586	Pro+ 13" rotor (R, B, or S for caliper color)
4301587	Pro+ 14" rotor (R, B, or S for caliper color)
4301588	Extreme+ 14" rotor (R, B, or S caliper color)

Wilwood Brake System Part Numbers:

140-16781	Superlite 6 piston caliper, 13.06" slotted rotor, black powder coat
140-16781-D	Superlite 6 piston caliper, 13.06" drilled & slotted rotor, black powder coat
140-16781-DR	Superlite 6 piston caliper, 13.06" drilled & slotted rotor, black powder coat
140-16781-R	Superlite 6 piston caliper, 13.06" slotted rotor, red powder coat
140-16780	Aerolite 6 piston caliper, 14.25" slotted rotor, black powder coat
140-16780-D	Aerolite 6 piston caliper, 14.25" drilled & slotted rotor, black powder coat
140-16780-DR	Aerolite 6 piston caliper, 14.25" drilled & slotted rotor, red powder coat
140-16780-R	Aerolite 6 piston caliper, 14.25" slotted rotor, red powder coat

Fastener Torque Specifications – Detroit Speed C10 SpeedMAX Front Suspension			
Application	Thread Size	Torque (ft-lb)	Threads
Crossmember Mounting Bolts	1/2"-20	85	Anti-Seize
Upper Control Arm Mount Bracket/ Engine Mount Bracket Bolts	7/16"-20	58	Anti-Seize
Lower Engine Mount Bracket Bolts	3/8"-16	28	Anti-Seize
Upper Control Arm Cross-shaft Mounting Nuts	1/2"-20	75	Anti-Seize
Coilover Mount Bracket Bolts	7/16"-20	58	Anti-Seize
Rack and Pinion Mounting Bolts	M16-2.0	180	Blue Loctite 242
Lower Control Arm Mounting Bolts	9/16"-18	95	Anti-Seize
Sway Bar Frame Mount Bracket Bolts	7/16"-20	45	Anti-Seize
Sway Bar Bushing Bracket Bolts	3/8"-16	28	Blue Loctite 242
Sway Bar Shaft Clamp Screw	1/4"-28	14	Blue Loctite 242
Sway Bar Link Nuts	M12-1.75	53	Anti-Seize
Coilover Shock Mounting Bolts	1/2"-20	60	Anti-Seize
Upper Control Arm Ball Joint Stud Nut*	1/2"-20	60	None
Lower Control Arm Ball Joint Stud Nut*	5/8"-18	100	None
Outer Tie Rod End Stud Nut*	M12-1.25	44	None
Outer Tie Rod End Jam Nut	M14-2.0	55	None
Wheel Hub Bearing/Steer Arm Mounting Bolts	M14-1.5	133	Red Loctite 262
Front Brake Caliper Mounting Bracket Bolts	M14-2.0	129	Red Loctite 262
Wheel Stud Nuts	1/2"-20	100	None

* Always tighten slotted nuts to line up with the cotter pin hole when applicable.

Hardware Kit Checklist - Detroit Speed C10 SpeedMAX Front Suspension

Part Number	Description	Quantity	Check
200083	Crossmember/UCA Mount Bracket Hardware Kit	1	
980040FS	1/2"-20 x 1-1/4"L Hex Head Bolt, Yellow Zinc	6	
980058FS	1/2"-20 x 3"L Hex Head Bolt, Yellow Zinc	4	
960004FS	1/2"-20 Nylock Nut, Yellow Zinc	6	
970037FS	1/2" SAE Flat Washer, Yellow Zinc	12	
950042FS	7/16"-20 x 1-1/4"L Hex Head Bolt, Yellow Zinc	14	
960050FS	7/16"-20 Nylock Nut, Yellow Zinc	14	
970042FS	7/16" SAE Flat Washer, Yellow Zinc	28	
200084	Upper Control Arm Hardware Kit	1	
960004FS	1/2"-20 Nylock Nut, Yellow Zinc	4	
970037FS	1/2" SAE Flat Washer, Yellow Zinc	4	
920009FS	1/8" Thick 1/2" Slot Body Shim	20	
200085	Coilover Hardware Kit	1	
980026FS	1/2"-20 x 2-1/2"L Hex Head Bolt, Yellow Zinc	4	
960004FS	1/2"-20 Nylock Nut, Yellow Zinc	4	
970037FS	1/2" SAE Flat Washer, Yellow Zinc	6	
980127FS	7/16"-20 x 1-1/2"L Hex Head Bolt, Yellow Zinc	4	
950042FS	7/16"-20 x 1-1/4"L Hex Head Bolt, Yellow Zinc	2	
960050FS	7/16"-20 Nylock Nut, Yellow Zinc	6	
970042FS	7/16" SAE Flat Washer, Yellow Zinc	12	
200086	Steering Rack Hardware Kit	1	
950137FS	M16-2 x 100 Flanged Hex Head Bolt, Clear Zinc	2	
960110FS	M14-1.5 Jam Nut, Clear Zinc	2	
980027FS	3/8"-16 x 1"L Hex Head Bolt, Yellow Zinc	2	
960053FS	3/8"-16 Nylock Nut, Yellow Zinc	2	
970023FS	3/8" SAE Flat Washer, Yellow Zinc	4	
200088	Sway Bar Hardware Kit	1	
980132FS	7/16"-20 x 2-1/2"L Hex Head Bolt, Yellow Zinc	2	
950042FS	7/16"-20 x 1-1/4"L Hex Head Bolt, Yellow Zinc	2	
960050FS	7/16"-20 Nylock Nut, Yellow Zinc	4	
970042FS	7/16" SAE Flat Washer, Yellow Zinc	8	
950027FS	3/8"-16 x 3/4"L Hex Head Bolt, Yellow Zinc	4	
970023FS	3/8" SAE Flat Washer, Yellow Zinc	4	
960081FS	M12-1.75 Prevailing Torque Flanged Nut, Clear Nut	4	
200089	SBC Engine Mount Hardware Kit	1	
980053FS	3/8"-16 x 1-1/4"L Hex Head Bolt, Yellow Zinc	4	
960066FS	3/8"-16 Prevailing Torque Flanged Nut, Yellow Zinc	4	
970023FS	3/8" SAE Flat Washer, Yellow Zinc	4	
9303298	Lower Control Arm Hardware Kit	1	
980034FS	9/16"-18 x 3-3/4"L Hex Head Bolt, Yellow Zinc	4	
960022FS	9/16"-18 Nylock Nut, Yellow Zinc	4	
970020FS	9/16" SAE Flat Washer, Yellow Zinc	8	

Installation:

1. Raise the vehicle on jack stands so that the frame is level with the ground. Remove the front wheels from the vehicle (Figure 1).



Figure 1 - Remove Wheels

2. Remove the front sway bar from the lower control arms if equipped by removing the factory 3/8" hardware (Figure 2). Remove the sway bar from the frame.

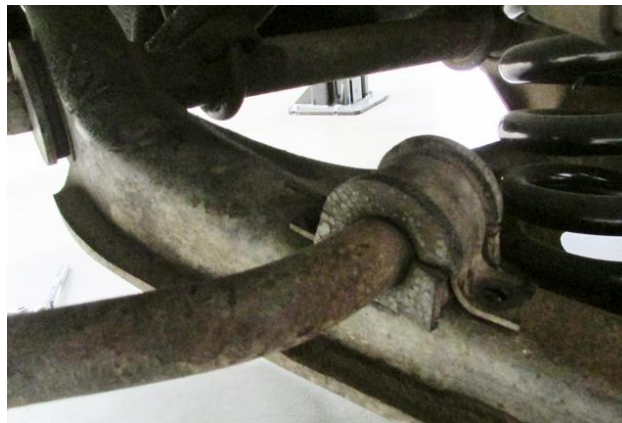


Figure 2 - Remove Sway Bar

3. Place a floor jack under the lower control arm and remove the shocks from the vehicle (Figure 3). Remove the floor jack so the upper control arm sits on the jounce bumper on the frame. Remove the upper shock mount stud from the frame rail.



Figure 3 - Remove Shocks

4. Remove the brake hose from the brake caliper on both sides of the vehicle. **NOTE:** Push a piece of rubber hose in the brake hose fitting to keep it from leaking (Figure 4).



Figure 4 - Remove Brake Hose

5. Remove the brake hose bracket from the upper control arm so it is free from the suspension on both sides of the vehicle. Move the brake hoses away from the suspension. (Figure 5).

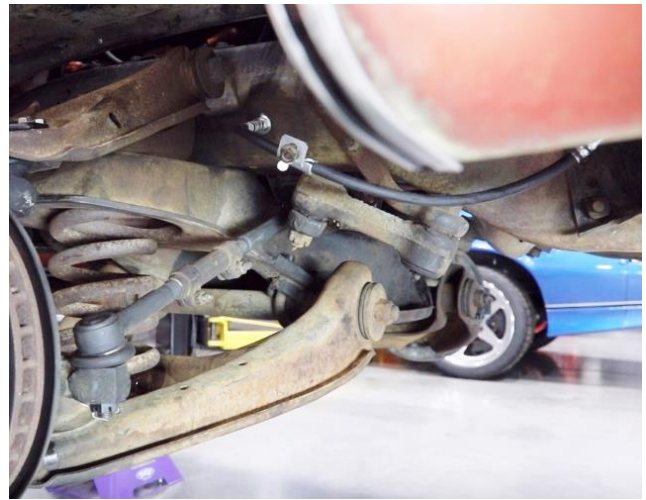


Figure 5 - Remove Brake Hose From Suspension

6. Remove the fasteners holding the idler arm to the outside of the frame rail. Push the idler arm away from the frame rail (Figure 6).

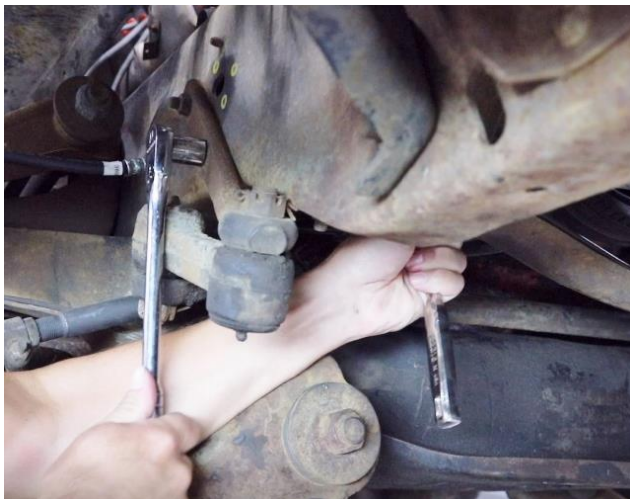


Figure 6 - Remove Idler Arm

7. Remove the pitman arm nut from the steering box. Use a pitman arm puller to remove the pitman arm from the steering box (Figure 7).

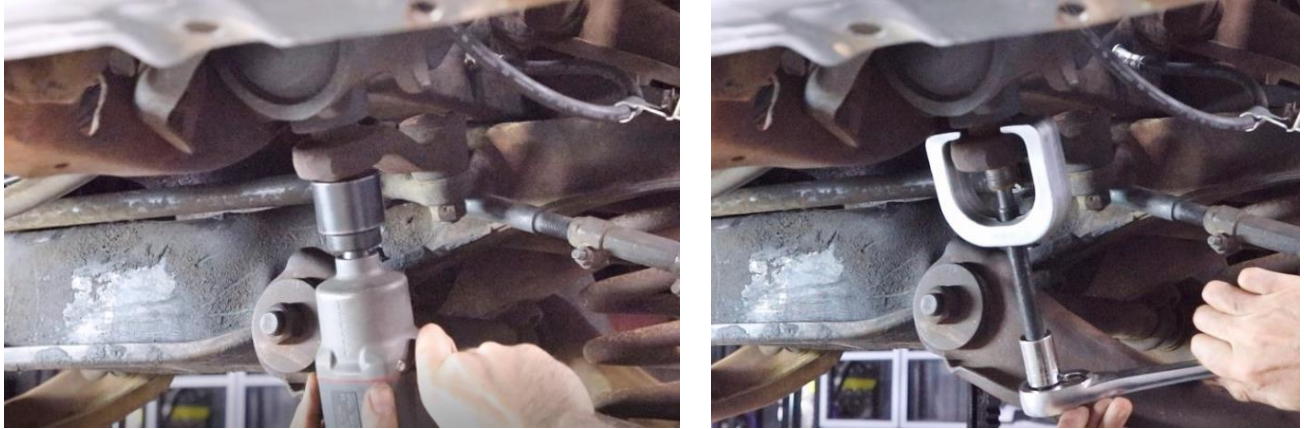


Figure 7 - Remove Pitman Arm

8. From the front side of the factory cradle, remove the engine mount hardware and remove the bolts from the back side of the cradle on both sides of the vehicle (Figure 8).



Figure 8 - Remove Engine Mount Hardware

9. Use an engine hoist to lift the engine up out of the engine mounts. Place a jack stand underneath the vehicle towards the back of the engine. Lower the engine back down so the oil pan rests on a block of wood placed on the jack stand so that the engine mounts are free from the engine stands on the cradle (Figure 9).



Figure 9 - Raise Engine

10. Remove the two bolts on top of the frame rail holding the engine stands in place on both sides of the frame rail (Figure 10).



Figure 10 – Remove Upper Engine Bracket Hardware

11. Remove the two bolts on the bottom side of the cradle, inboard of the upper spring mount holding the engine stands in place. Remove these bolts from both sides of the frame (Fig. 11).

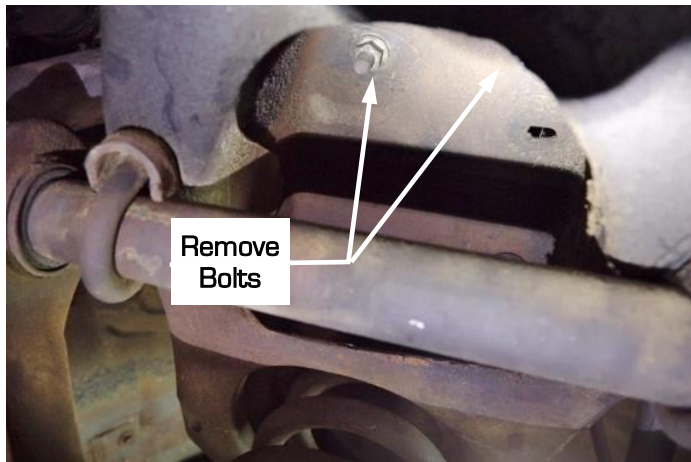


Figure 11 – Remove Lower Engine Bracket Hardware

12. Drop the engine mount brackets down and out of the cradle (Figure 12). If the engine mounts are old and worn out DSE recommends replacing them.



Figure 12 – Remove Engine Mount Brackets

13. Next, remove the bolt holding the fuel line clamp to the cradle (Figure 13).



Figure 13 - Remove Fuel Line Clamp

14. Locate and remove the three bolts on each side of the cradle holding it to the frame rails. Use a wrench on the top side of the cradle to hold the flange nuts and remove the bolts (Figure 14).



Figure 14 - Remove Cradle Hardware

15. Locate the two lower bolts on the inside of the frame rail that hold the upper control arm bracket to the frame. Remove these two bolts from the welded nut inserts on the upper control arm brackets on both sides of the vehicle (Figure 15).

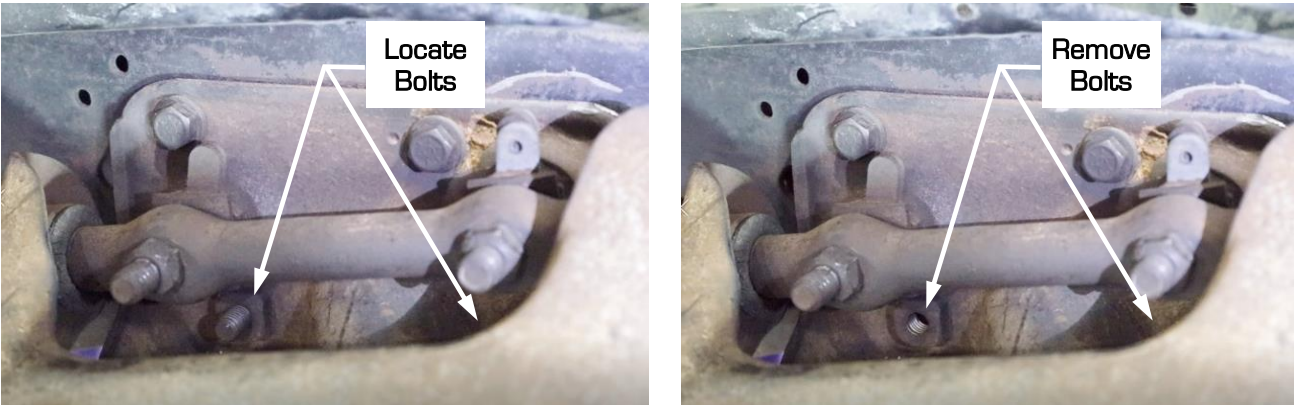


Figure 15 - Remove Lower Upper Control Arm Bracket Bolts

16. Place a floor jack underneath the cradle and lift up the cradle slightly so there is no tension on the frame rails (Figure 16).



Figure 16 - Prepare to Remove the Cradle

17. Remove the remaining two bolts on each side of the frame rail that are left in the upper control arm mount brackets (Figure 17).



Figure 17 - Remove Upper Control Arm Bracket Bolts

18. With all the hardware removed, slowly lower the floor jack down. Make sure that nothing is still attached to prevent the cradle from being removed from the vehicle. Lower the floor jack and roll the cradle out from underneath the vehicle (Figure 18).



Figure 18 - Remove the Factory Cradle

19. Loosen the pinch bolt from the rag joint. Pry the rag joint off the steering gear (Figure 19).

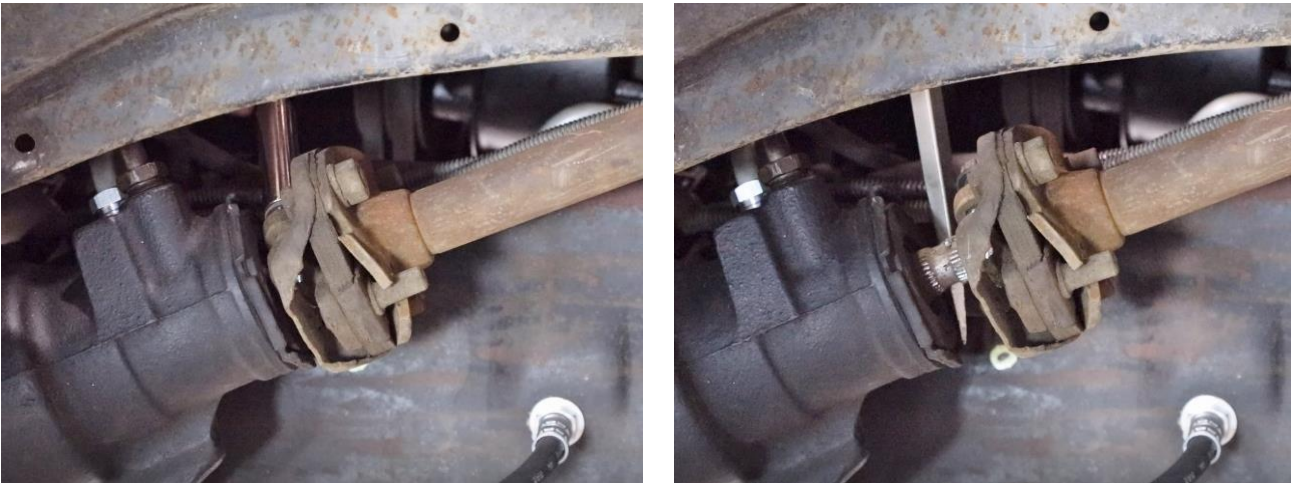


Figure 19 - Remove the Rag Joint

20. Remove the pressure and return power steering lines from the steering gear by loosening the fittings with a wrench (Figure 20). Plug the lines and steering gear to keep them from leaking.



Figure 20 - Remove Power Steering Lines

21. Loosen the steering gear bolts from the inside of the frame rail (Figure 21).



Figure 21 - Loosen Steering Gear Bolts

22. Remove the bolts from the steering gear while holding the steering gear to keep it from falling to the ground (Figure 22). **CAUTION:** You may want someone to help you remove the heavy steering gear.



Figure 22 – Remove Steering Gear

23. Remove the hardware holding the steering coupler to the steering column. Remove the steering coupler from the vehicle by pulling it off the end of the steering column (Figure 23). **NOTE:** You may need to use a hammer to tap it off the end of the column.



Figure 23 – Remove Steering Coupler

24. Next, you will need to notch the top frame rail to allow the steering shaft to be connected to the rack and pinion. Locate the provided steering shaft frame rail reinforcement. This will be used as a template to notch the top frame rail.

25. Install the frame rail reinforcement to the top of the frame rail using pre-existing holes to locate the reinforcement. Use the provided 3/8"-16 x 1"L hex head bolts, Nylock nuts and washers and tighten the reinforcement to the frame rail.

26. Use a scribe to trace the oval shape in the reinforcement bracket to the top side of the frame rail. Remove the reinforcement and cut this shape into the frame rail. Grind the edges smooth for a clean finish (Figure 24 on the next page). **NOTE:** The steering shaft reinforcement bracket will be installed later when you install the steering shaft (DSE PN 092531).



Figure 24 - Notch Frame Rail

27. Use a floor jack to position the DSE cradle assembly under the vehicle. Line the frame rail mounting holes (Figure 25) in the cradle up with the mounting holes in the frame.

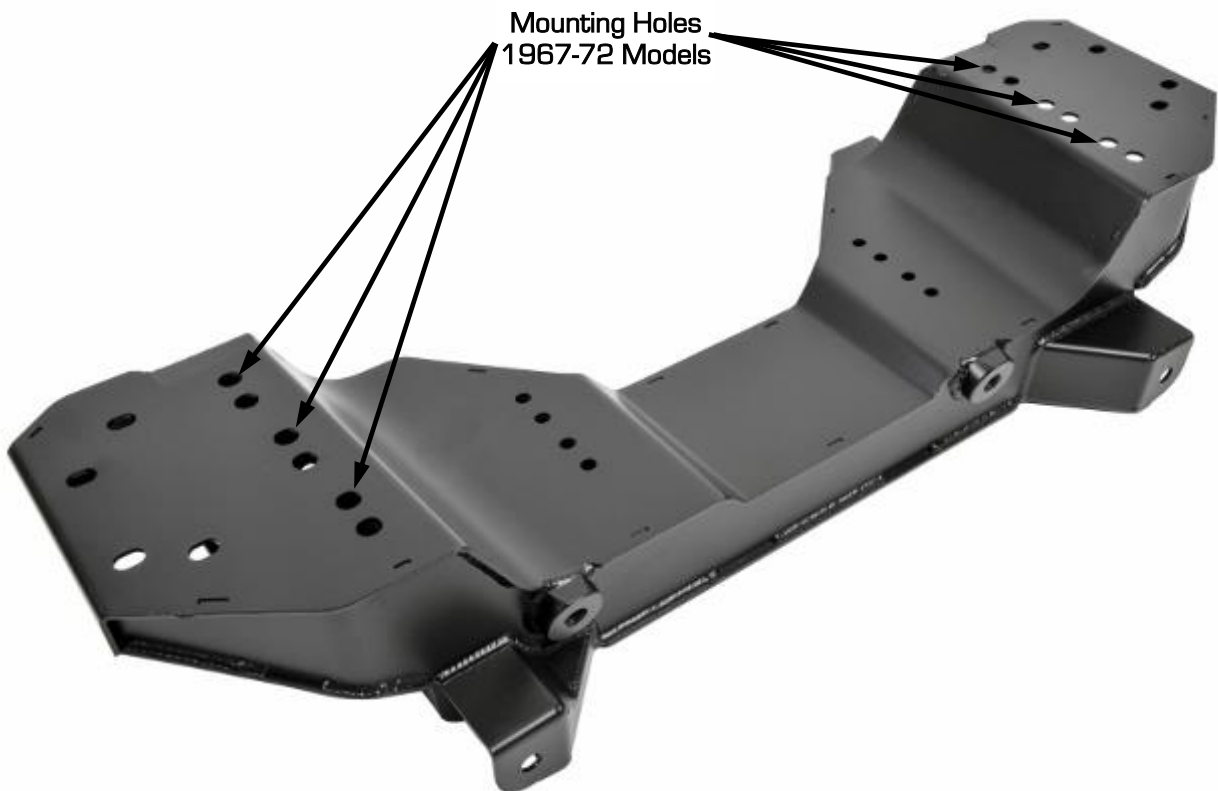


Figure 25 - DSE Cradle Assembly

28. Install the provided six sets of 1/2"-20 x 1-1/4"L hex head bolts, washers and Nylock nuts to position the cradle to the frame. Use anti-seize on the threads of the bolts. Lightly snug the hardware but do not fully tighten yet. **NOTE:** There are two sets of mounting holes in the cradle. Use the forward set of holes to maintain the stock wheel base. This is recommended for 1973-87 applications. Use the rearward set of holes to move the front axle forward by 1". This is recommended for 1967-72 applications.

29. Next, locate the left and right hand side upper control arm mount brackets (Figure 26).



Figure 26 - Upper Control Arm Mount Brackets

30. Place two of the provided 1/2"-20 x 3"L hex head bolts through the flat side of the upper control arm mount brackets. The head of the bolt will lock into the hex head hole so the threads of the bolts pass through the weld bushings on the other side of the brackets (Figure 27).



Figure 27 - Install Upper Control Arm Bolts

31. Place the correct side upper control arm mount brackets on top of the cradle assembly outboard of the frame rails. The flat side with the head of the hex bolt will sit against the outboard frame rail and the bottom of the bracket will sit on top of the cradle.

32. Place two of the provided 7/16"-20 x 1-1/4"L hex head bolts and washers through the row of holes closest to the frame on the upper control arm mount brackets so they pass through the cradle assembly. Use anti-seize on the threads of the bolts. Use the provided 1/2"-20 Nylock nuts and washers to loosely install the brackets to the cradle on both sides of the vehicle. Do not tighten the hardware at this time.

33. Place four of the provided 7/16"-20 x 1-1/4"L hex head bolts and washers through the outboard side of the upper control arm brackets on both sides of the vehicle. There should be four open holes that will allow the bolts to pass through the control arm bracket and frame rail. Do not install the Nylock nuts and washers at this time.

34. Next, locate the left and right hand engine mount brackets. The slotted hole on the brackets will be towards the front of the vehicle when installed against the inside of the frame rail. Position the brackets on the threads of two of the the 7/16"-20 bolts towards the front of the vehicle that were installed in the previous step. These are the bolts that were installed through the upper control arm mount brackets and the frame rail. One of the bolts will pass through the slotted holes in the engine mount brackets.

35. Place the provided 7/16"-20 Nylock nuts and washers on all eight bolts on the inside of the frame rail on both sides of the vehicle. Use anti-seize on the threads of the bolts. Do not tighten the hardware at this time.
36. Install the provided 3/8"-16 x 1-1/4"L hex head bolts and washers through the lower engine mount brackets and into the cradle assembly. Use anti-seize on the threads of the bolts. Place the provided 3/18"-16 prevailing torque flanged nuts and washers on the threads of the bolts. Access the bolts through the windows in the bottom side of the cradle assembly. Do not tighten the hardware at this time.
37. Next, square up the cradle assembly to the frame rails. Place the two of the provided 7/16"-20 x 1-1/2"L hex head bolts and washers through the outboard row of holes in the upper control arm brackets on both sides of the vehicle. Do not install the 7/16" Nylock nuts and washers at this time.
38. Now that all the hardware has been located in the cradle assembly to the frame, you can tighten and torque all the hardware. Torque the 1/2"-20 hardware to 85 ft-lbs. Torque the 7/16"-20 hardware to 58 ft-lbs. Torque the 3/8"-16 hardware to 28 ft-lbs.
39. Next, locate the upper control arms. There is not a left and right hand side upper control arm as they can be installed on either side of the vehicle. Place the cross-shafts on the control arms onto the 1/2"-20 x 3"L bolts that have been installed into the hex head bolt holes in the upper control arm mount brackets from **Step 30**.
40. Place the provided 1/2"-20 Nylock nuts and 1/2" washers onto the threads of the upper control arm bolts on both sides of the vehicle. Use anti-seize on the threads of the bolts. If you have installed the cradle assembly in the stock location to maintain the stock wheelbase, install four of the provided 1-1/8 x 1/8 thick body shims on each of the upper control arm bolts. If you have installed the cradle assembly to move the front axle forward, install five of the provided 1-1/8 x 1/8 thick body shims on each of the upper control arm bolts.
41. Tighten the upper control arms to the brackets keeping the shims in place. Torque the 1/2"-20 upper control arm cross-shaft mounting nuts to 75 ft-lbs.
42. Next, locate the coated cast steel upper coilover mounts (Figure 28). There is a "L" and "R" cast into these parts to determine the left and right hand side. Place the upper coilover mount on the outboard side of the frame rail so it sits on the top of the upper control arm bracket. The "L" and "R" will face the rear of the vehicle when installed correctly.



Figure 28 - Upper Coilover Mounts

43. Remove the 7/16"-20 x 1-1/2"L hex head bolts and washers that were placed in the outside row of the upper control arm brackets from **Step 37**.

44. Line up the top inboard hole on the coilover mounts with the hole on the top flange of the upper control arm brackets. The bottom two holes will line up with the outboard set of holes on the upper control arm brackets. **NOTE:** The coilover mounts will sit outboard of the upper control arm cross shafts. If you are using the factory inner fenders, they may need to be modified to allow for clearance to the upper coilover mounts (Figure 29).



Figure 29 - Modify Inner Fender

45. Place two of the provided 7/16"-20 x 1-1/2"L hex head bolts and washers through the bottom of the coilover mounts, through the upper control arm brackets, and through the cradle assembly on both sides of the vehicle.
46. Install one of the provided 7/16"-20 x 1-1/4"L hex head bolts and washers through the top inboard hole of the coilover mounts and through the top flange of the upper control arm brackets on both sides of the vehicle.
47. Use anti-seize on the threads of the bolts and install the provided 7/16"-20 Nylock nuts and washers on all six bolts and tighten. Torque the 7/16" hardware to 58 ft-lbs.
48. Next, remove the engine mounts from the original engine mount brackets that were removed in **Step 12**. Install them on the DSE engine mount brackets installed on the DSE cradle assembly in **Step 34**. **NOTE:** DSE recommends replacing your engine mounts if they are old and worn out.
49. Lower the engine down and install the original hardware that was removed in **Step 8** through the engine mounts and the brackets bolted to the engine.
50. Next, locate the sway bar bracket assemblies and the sway bar frame mount brackets (Figure 30). These will need to be assembled by placing the frame mount tabs inside the sway bar brackets. The holes in the frame mounts will line up with the slotted holes in the sway bar brackets. Install the provided 7/16"-20 x 2-1/2"L hex head bolts and washers through the slotted hole in the sway bar brackets to hold the frame mounts in place.



Figure 30 - Sway Bar & Frame Mount Brackets

51. The open hole on the sway bar bracket will be mounted to the front lower control arm bolt. Identify which sway bar bracket assembly will be for the left and right hand side of the vehicle (Figure 30 above). The sway bar brackets will offset to the outboard side of the vehicle when installed.
52. Place one of the provided lower control arm 9/16"-18 x 3-3/4"L hex head bolts and washers through each of the sway bar brackets assemblies. Remove one of the crush tubes from the lower control arm mount bushings. Place the crush tube in the front lower control arm mount in the cradle assembly.
53. Install the sway bar assembly and hardware through the front lower control arm mount and crush tube. Install the provided 9/16"-18 Nylock nut and washer on the threads of the bolt. Tighten the hardware so the sway bar bracket assembly can be moved by hand. Repeat this process for the opposite side of the vehicle.
54. Position the sway bar bracket assembly so it is square to the bottom of the frame rail. Use a right angle scribe to locate the hole on the frame mount to the frame rail. Remove the sway bar bracket by removing the front lower control arm bolt. Repeat this process for both sides of the vehicle.
55. Center punch both scribed hole locations on the frame rail. Drill through both hole locations in the frame rail to a final drill size of 15/32". **NOTE:** It is recommended that pilot holes be drilled first before drilling the 15/32" holes.
56. Next, install the provided M16-1.5 and M18-1.5 fittings into the ports in the steering rack. Tighten them using a 3/4" wrench however make sure you do not overtighten the fittings.
57. Next, install the outer tie rods onto the rack and pinion. Thread the provided M14-1.5 jam nuts onto both ends of the inner tie rods on the rack and pinion using anti-seize on the threads. Install the outer tie rods onto the inner tie rods up to the jam nuts.
58. Before the rack and pinion is installed, you can verify the rack is centered on the bench before it is installed. Turn the rack all the way to one side and mark the housing where the pre-marked line on the input shaft lands. Turn the rack all the way in the other direction and count the turns in the opposite direction. Mark the housing where the pre-marked line on the input shaft lands. Turn the rack back in the opposite direction 1/2 the number of turns. The pre-marked line on the input shaft and the rack housing should line up and fall in between your two marks on the housing (Figure 31).



Figure 31 - Center the Rack & Pinion

59. Position the rack and pinion to the front side of the cradle assembly. Install the provided M16-2.0 x 100 flanged head hex bolts into the threaded steering rack mounts in the cradle. Use medium strength blue Loctite 242 on the threads of the bolts and torque them to 180 ft-lbs.

60. Next, remove the frame mounts from the sway bar brackets by removing the 7/16"-20 hex head bolts. Install the frame mount brackets to the frame rail using the holes that were drilled in **Step 55**. Use the provided 7/16"-20 x 1-1/4"L hex head bolts, Nylock nuts and washers to bolt the frame mounts to the frame rails. Use anti-seize on the threads of the bolts. Make sure the mounts are square to the frame rails and torque the hardware to 58 ft-lbs.
61. Install the provided sway bar frame mount crush sleeves in between the tabs of the frame mount so the holes line up. **NOTE:** You may need to spread the tabs on the frame mount brackets to install the crush sleeves.
62. Re-install the 7/16"-20 x 2-1/2"L bolts with washers through the sway bar brackets, frame mounts and the crush sleeves on both sides of the vehicle. Make sure the sway bar frame mount tabs slide in between the sway bar brackets.
63. Install the 7/16"-20 Nylock nuts and washers onto the threads of the bolts. Use anti-seize on the threads of the bolts. Do not tighten at this time.
64. Next, identify the left and right hand lower control arm. The sway bar endlink bracket on the lower control arms will be towards the front of the vehicle when installed. Re-install the bushing crush tube that was removed in **Step 52**.
65. With the lower control arm positioned to the mounts in the cradle assembly, install the sway bar bracket assembly and provided 9/16"-18 x 3-3/4"L hex head bolt and washer through the front lower control arm mount.
66. Install the other 9/16"-18 x 3-3/4"L hex head bolt and washer through the rearward lower control arm mount. Install the provided 9/16"-18 Nylock nuts and washers onto the threads of the bolts. Use anti-seize on the threads of the bolts.
67. Torque the 7/16"-20 sway bar bracket bolts to 45 ft-lbs. Torque the 9/16"-18 hardware to 95 ft-lbs. Repeat this process for the other lower control arm on the opposite side of the vehicle.
68. Next, install the sway bar to the sway bar mounting brackets. Use the provided Super Grease to lubricate the inside of the polyurethane bushings (Figure 32).



Figure 32 - Lubricate Bushings

69. Spread the polyurethane bushings so they fit around the sway bar (Figure 33). Locate the bushings as close to the bends on the sway bar as possible.



Figure 33 - Install Bushings

70. Place the sway bar bushing brackets over the bushings on the sway bar. Position the sway bar to the mounting brackets on the cradle assembly.
71. Install the provided 3/8"-16 x 3/4"L hex head bolts and washers through the sway bar bushing brackets. Use medium strength blue Loctite 242 on the threads of the bolts and thread them into the weld nuts on the sway bar brackets. Torque the 3/8"-16 hardware to 28 ft-lbs.
72. Next, it will be necessary to assemble each coilover shock and spring before installing them into the vehicle. For the non-adjustable shocks, please use **Steps 73 through 75** to assemble each coilover shock. For the adjustable shocks, please use **Steps 76 and 77** to assemble each coilover shock.
73. Remove the white plastic from the spanner nut and loosely install the provided bolt into the spanner nut (Figure 34). Install the spanner nut over the top of the shaft side of the shock with the flat surface up and thread the spanner nut all the way to the bottom.



Figure 34 - Spanner Nut

74. Place one of the provided spring bearings (Figure 35) over the shock and onto the spanner nut followed by the coilover spring and then another spring bearing.



Figure 35 - Spring Bearing

75. Place the spring perch over the top of the shock and onto the coilover spring and bearing. Place the retaining ring over the shock and locate the ring into the groove. Press the spring perch up onto the retaining ring so it locks in place (Figure 36 & 37). Thread the spanner nut up to the spring so it stays in place on the shock. Skip to **Step 78**.



Figure 36 - Spring Perch & Retaining Ring



Figure 37 - Install Spring Perch

76. Remove the spring seat from the retaining ring using a rubber hammer. Move it down off the shock mount (Figure 38). Remove the retaining ring from the shock mount and pass the spring seat over the shock mount (Figure 39).



Figure 38 – Removing the Upper Spring Seat



Figure 39 – Upper Spring Seat & Retaining Ring

77. Thread the spanner nut all the way to the bottom of the coilover shock and slide the coilover spring over the top of the shock mount. Install the spring seat back over the top of the shock mount and re-install the retaining ring back onto the shock mount. Press the spring seat up onto the retaining ring so it locks in place. Thread the spanner nut up to the spring so it stays in place on the shock.
78. Place the provided tapered spacers on both sides of the monoball at the body side of the shock. Place the coilover shock and spring assembly up to the cast steel upper shock mount. The shock assembly will pass in between the upper control arm tubes, body side up.
79. Place the body side of the shock with the tapered spacers into the upper shock mount. Install the provided 1/2"-20 x 2-1/2"L hex head bolt and washer through the upper shock mount, tapered spacers and monoball. Use anti-seize on the threads of the bolt and install the provided 1/2"-20 Nylock nut and washer. Tighten the hardware however do not torque at this time.
80. Raise the lower control arm assembly so the lower shock mount in the lower control arm reaches the shaft side mount on the shock. Place the provided 1/2"-20 x 2-1/2"L hex head bolt through the provided 1/2" ID x 3/4" OD x 5/8"L steel bushing.
81. Install the 1/2"-20 x 2-1/2"L hex head bolt and steel bushing through the back side of the lower control arm shock mount and monoball. Use anti-seize on the threads of the bolt and install the 1/2"-20 Nylock nut and washer. Torque the shock mount hardware to 60 ft-lbs. Repeat this process for the opposite side of the vehicle.
82. Next, install the sway bar end links to the lower control arms. Install one end of the end link to the mounting bracket on the lower control arm. The end link will be installed with the stud pointing to the front of the vehicle.
83. Install the provided M12-1.75 prevailing torque flanged nut on the end link stud using anti-seize on the threads of the stud. Repeat this process for the opposite side of the vehicle. Torque the lower flanged nuts to 53 ft-lbs.
84. Connect the sway bar to the end link by passing the stud through the mounting hole in the sway bar. The end link stud will be installed with the stud pointing to the rear of the vehicle.
85. Install the provided M12-1.75 prevailing torque flanged nut on the end link stud using anti-seize on the threads of the stud. Repeat this process for the opposite side of the vehicle. Torque the upper flanged nuts to 53 ft-lbs.

86.Center the sway bar in the vehicle. Separate the split lock collars into two pieces. Place them around the sway bar so they are tight against the inside of the sway bar bushings on both sides of the vehicle. Re-assemble using medium strength blue Loctite 242 on the threads of the bolts and torque to 14 ft-lbs.

87.Next, locate the left and right hand side upright corner assemblies (Figure 40). The steering arms will point towards the front of the vehicle when installed.



Figure 40 - RH Upright Assembly

88.Remove the castle nut, washer and cotter pin from the lower control arm ball joint stud. Place the upright assembly over the lower ball joint stud on the lower control arm. Install the castle nut and washer onto the ball joint stud to hold the upright in place and tighten. Do not torque at this time. Repeat this process for the opposite side of the vehicle.

89.Remove the castle nut and cotter pin from the upper control arm ball joint stud. Move the upper control arm down so the upper ball joint stud passes through the mounting hole in the upright. Install the castle nut onto the ball joint stud and tighten. Do not torque at this time. Repeat this process for the opposite side of the vehicle.

90.Remove the castle nut and cotter pin from the outer tie rods. With the wheel hubs parallel to the frame rail, adjust the outer tie rods so the ball joint will install into the steering arm mounting hole. Make sure both sides are adjusted equal distance on each side to center the steering. Install the castle nuts onto the outer tie rods. Do not torque at this time.

91.Next, torque the upper ball joint nut to 60 ft-lbs. and then the lower ball joint nut to 100 ft-lbs. Make sure the slot in the castle nut lines up with the cotter pin hole. Install both cotter pins. Repeat this process for the opposite side of the vehicle.

92.Torque the outer tie rod castle nut to 44 ft-lbs. Make sure the slot in the castle nut lines up with the cotter pin hole. Install the cotter pin. Repeat this process for the opposite side of the vehicle.

93.The DSE C10 SpeedMAX front suspension is assembled at this point. Figure 41 shows a completed installation. Double-check to ensure that all installed components are tight and torqued correctly. **NOTE:** Be sure to lubricate all points on the front frame with quality chassis grease.



Figure 41 - Completed Installation

94. Re-install the brakes per the manufacturer's instructions. Re-install the wheels and lower the vehicle to the ground. Torque the wheels to the manufacturer's specifications.
95. Once the vehicle is set on the ground, settle the suspension by jouncing both the front and rear by hand by pressing down on the body and rolling the vehicle back and forth. Check the ride height at this point and adjust as necessary. Raise the vehicle up on jack stands and adjust the ride height by turning the coilover spanner nut with the suspension in full droop. Detroit Speed does include a spanner tool to adjust ride height. **NOTE:** Whenever you are setting the vehicle ride height, DSE recommends disconnecting the sway bar from the vehicle.
- 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.**
96. Before adjusting the ride height, DSE recommends cleaning the threads of the shock. 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.
97. Once the ride height has been adjusted properly, lock the spanner nut in place. If you have the non-adjustable shocks, tighten the set screw in the spanner nut to the shock body. If you have the adjustable shocks, tighten the lock ring to the spanner nut so they lock together in place.
98. Have a professional alignment completed following the specs given in the chart on Page 2. Installation is now complete.
99. If the upgrade was purchased for the single or double adjustable shocks, refer to the appropriate sections below for adjustability.

Detroit Speed Single Adjustable Shock Applications

To change from the recommended "Detroit Tuned" valving, adjustments can be made independently to the rebound setting. The rebound is controlled by the blue adjuster knob at the upper shock mount (Shock is mounted body side down). The knob rotates clockwise (+) to increase the damping and counterclockwise (-) to decrease the damping. Refer to Figure 42a.

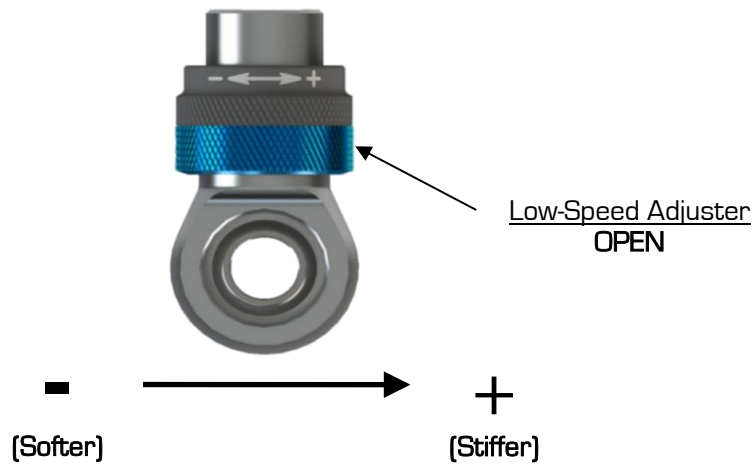


Figure 42a- Detroit Speed Single Adjustable Shock

To return to the Detroit Speed recommended settings, turn the knob clockwise (+) to full damping. Once at full damping, turn counterclockwise (-) to reach the recommended settings. Refer to Figure 42b for the recommended starting setting.

Rebound (Shaft Knob) 20 Open (counterclockwise, -)
Figure 42b - DSE Recommended Setting

Adjuster Operation



- **Adjuster (60-64 Clicks)**

The low-speed adjuster is a “clicker” style adjuster meaning that its adjustment is measured by detents located inside the blue adjuster knob. There are 16 clicks per 1 revolution of the knob. It uses a right-hand thread in its operation which means as you increase low-speed, the adjuster will move up on the eyelet. The recommended change for an adjustment is 8 clicks at a time. The low-speed adjuster’s reference position is **full stiff** (closed, or all the way up) and referred to -0 (-0 = full stiff, -64 = full soft).

- **Tuning Notes**

- **Racetrack**

- For more grip, soften the damping.
- For increased platform control, stiffen the damping.

- **Street**

- For a more comfortable ride, soften the damping

***DO NOT FORCE KNOB WHEN IT STOPS TURNING, YOU MAY DAMAGE THE ADJUSTER AND INTERNAL HARDWARE**

Detroit Speed Double Adjustable Shocks

To change from the recommended “Detroit Tuned” valving, adjustments can be made independently to both the high and low speed settings. The rebound is controlled by the sweepers at the lower shock mount. The sweepers rotate clockwise (+) to increase the damping and counterclockwise (-) to decrease the damping. Refer to Figure 43a.



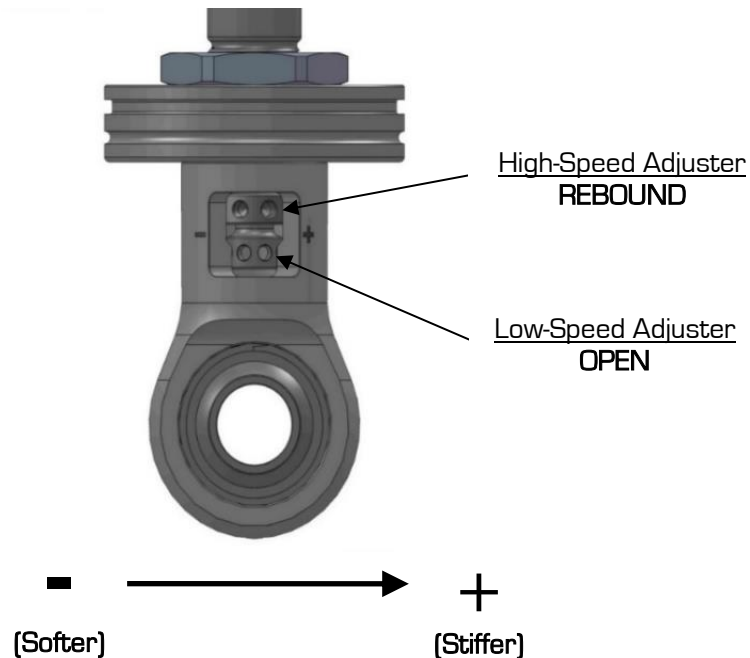
Figure 43a – Detroit Speed Double Adjustable Shock

When adjusting the low speed rebound start at full (+) position, when adjusting the high speed rebound start at full (-) position. To return to the Detroit Speed recommended settings turn the sweeper clockwise (+) to full damping for the low-speed setting, and counterclockwise (-) to full damping for the high-speed setting. Once at full damping, turn counterclockwise (-) for the low-speed setting, and clockwise (+) for the high-speed setting to reach the recommended settings. Refer to Figure 43b for recommended starting settings.

Low Speed Rebound (Sweeper)..... 20 sweeps (counterclockwise, -)
 High Speed Rebound (Sweeper)..... 2 sweeps (clockwise, +)

Figure 43b – Detroit Speed Recommended

Adjuster Operation



- High-Speed Adjuster (12 Sweeps)**
 The high-speed adjuster is a “sweep” style adjuster meaning that its adjustment is measured by the location of the adjuster in the eyelet window. It uses a left-hand thread in its operation which means; as you increase high-speed, the adjuster will move down in the window*. The high-speed adjuster’s reference position is **full soft** and referred to as +0 (+0 = full soft, +12 = full stiff).
- Low-Speed Adjuster (25 Clicks)**
 The low-speed adjuster is a “clicker” style adjuster meaning that its adjustment is measured by detent grooves located inside the high-speed shaft. It uses a right-hand thread in its operation which means; as you increase low-speed, the adjuster will move up in the window. The low-speed adjuster’s reference position is **full stiff** and referred to -0 (-0 = full stiff, -25 = full soft).

**The low-speed adjustment does not change when adjusting the high-speed.*

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

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