

Detroit Speed
Front Coilover Conversion
1967-69 Camaro/Firebird, 1968-74 Nova
P/N: 030311DS & 030312DS

The Detroit Speed Front Coilover Conversion Kit is a direct bolt-in kit that provides excellent ride quality along with the adjustability of a coilover. The kit uses an aluminum body coilover shock featuring "Detroit Tuned" valving. All necessary parts are included in the kit. The kit allows the latest in coilover spring/shock technology to be bolted on to any 1967-69 Camaro/Firebird, 1968-74 Nova, bringing your classic's handling and ride into the 21st century. This conversion allows you to easily adjust ride height and spring rate to suit your driving needs.



Item	Description	Quantity
1	"Detroit Tuned" Coilover Shock	2
2	Coilover Spring Adjusting Nut	2
3	5/8" Flat Washer	4
4	Polyurethane Upper Shock Bushing	2
5	Polyurethane Lower Shock Bushing	2
6	5/8"-18 Upper Mounting Nylock Nut	1
7	Coilover Spring (550 lb./in or 650	2
8	Thrust Bearing	2
9	Thrust Washer	4
10	3/8"-24 x 1-1/2" L Hex Head Bolt	4
11	3/8"-24 Nylock Nut	4
12	3/8" AN Washer	4
13	DSE Spanner Tool	1
14	Instructions	1

Fastener Torque Specifications	
Application	Torque (ft-lbs.)
Coilover Shock Mounting Bolts	35 ft-lbs.
Upper Ball Joint	50 ft-lbs.

1. Chock the rear wheels and loosen the front lug nuts. Raise and support the front of the vehicle with jack stands under the frame. Remove the front wheels. Disconnect the front sway bar from the lower control arm.
2. Remove the existing shock from the vehicle. Remove the brake caliper and support it out of the way. Remove the brake rotor.
3. Support the lower control arm with a floor jack and separate the upper ball joint from the spindle. **CAUTION: The coil springs are under tension. The proper spring compressor must be used.** It is not necessary to separate the lower ball joint from the spindle. Remove the factory coil springs.
4. Assemble the coilover shock for installation in the vehicle. The coilover adjuster nut must be threaded all of the way to the bottom of the threads. Install a thrust washer followed by the roller bearing and then another thrust washer. Slide the black flat washer over the threaded portion of the shock along with the lower polyurethane shock bushing (Figure 1).

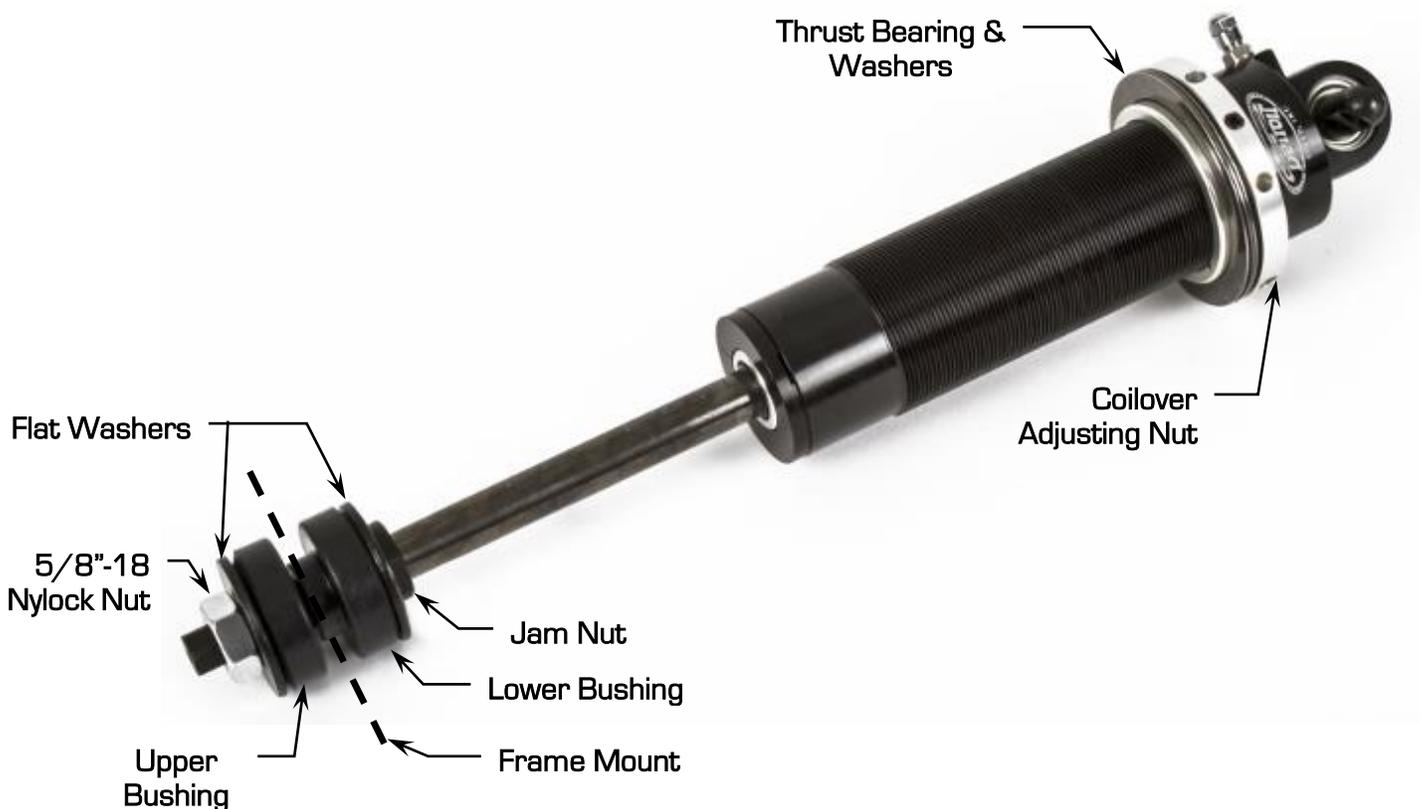


Figure 1 - Shock Assembly

5. If using Detroit Speed, factory or other aftermarket lower control arms, you will need to enlarge the original shock mounting holes to 3/8" holes. The DSE lower control arms have a 5/16"-18 weld nut that will need to be drilled out as shown in Figure 2 and 3 on the next page.

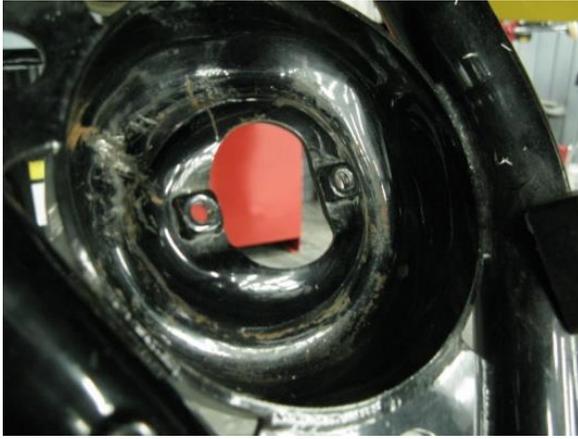


Figure 2 - 5/16"-18 Weld Nut



Figure 3 - 3/8" Thru Hole

6. It will be necessary to enlarge the stock shock pass through in the frame to accept the coilover shock and spring. This modification can be seen in Figures 4 and 5 below. Looking up from the bottom side of the frame rail, the material inside the circle drawn in Figure 4 is the section that needs to be removed. Figure 5 shows the modified shock pass through.



Figure 4 - Stock Shock Pass Through



Figure 5 - Modified Shock Pass Through

7. Before installation of the coilover shock, the hole size in the frame for the upper coilover shock mount must be opened up to 1" for the lower shock bushing. This can be done using a 1" drill bit or a Uni-Bit. **NOTE:** Use a grinding disc to make sure there are no sharp edges after opening up the upper shock mount hole. Failure to do this would result in the shock bushings to not seat properly (Figure 6).



Figure 6 - Remove Sharp Edges/Burrs

8. Slide the spring over the coilover shock. Place the shock assembly in the vehicle by angling the shock inward at the top and locating the spring in the upper locating ring in the frame. Turn the spring if necessary to locate the spring into the frame. Make sure the stem of the lower bushing passes through the upper shock mount in the frame (Figure 7).



Figure 7 – Lower Shock Bushing

9. Slide the upper shock bushing over the threaded shaft on the shock followed by the black flat washer. **NOTE:** You may need to radius the inboard bottom corner of the upper shock bushing. It can fit tight against the upper control arm gusset keeping the shock bushing from sitting flat against the upper shock mount. Start the 5/8"-18 Nylock Nut a few threads to hold the shock in place. Do not tighten at this time.
10. Insert the provided 3/8"-24 x 1-1/2" L hex head bolts through the lower shock tie bar. Raise the lower control arm to install the bolts through the lower control arm. **NOTE: The shock tie bar sits on top of the lower control arm.** Thread the 3/8"-24 Nylock nuts onto the bolts along with the 3/8" AN Washers. Torque the nuts to 35 ft-lbs.
11. Raise the lower control arm. Insert upper ball joint into the spindle. Using the original hardware, install the castle nut onto the upper ball joint and torque to 50 ft-lbs. If necessary, tighten further in order to insert the cotter pin. Make sure to bend the cotter pin after sliding it through the ball joint to make sure it does not slide out of the ball joint.
12. Tighten the 5/8"-18 Nylock Nut. To tighten, hold the hex portion of the shaft with a 1/2" box end wrench. **CAUTION: When tightening the 5/8"-18 Nylock Nut, failure to hold the shaft from turning too many times while under pressure can cause the inner shaft nut to loosen and fall off. This would result in sending the shocks back to be repaired at the customer's expense.**
13. Tighten the nut until the upper shock bushing starts to compress and turn the nut one additional turn. **NOTE: Do not over tighten the Nylock nut.**
14. Repeat steps 2 through 13 for the opposite side of the vehicle.
15. Re-install the brakes as well as the sway bar. Install the wheels and tires. With the vehicle on the ground, follow step 16 below to adjust the vehicle to the desired ride height.
16. Setting the Vehicle Ride Height

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.

- a. With the vehicle assembled with all components installed, adjust the vehicle ride height. 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. If you have the non-adjustable shocks, the spanner nut has a soft tip set screw that will need to be tightened before the vehicle is driven. **NOTE:** If the installer is not the owner/driver of the vehicle, make sure the owner is aware of this procedure.
- b. Detroit Speed does include a spanner tool (P/N: 031060DS) to adjust ride height however if you have the adjustable coilover shocks, DSE does offer an adjustment tool available as P/N: 031061DS if needed. A photo can be seen in Figure 8.



Figure 8 - Detroit Speed Spanner & Adjustment Tool

17. Once the car is adjusted to the desired ride height, have an alignment by a professional alignment shop performed at this point.
18. The installation of the coilover conversion with Non-Adjustable Shocks is now complete.

Detroit Speed Non-Adjustable Shocks



Figure 9 - Detroit Speed Non-Adjustable Shock

19. If the Single Adjustable, Double Adjustable or the Double Adjustable Remote Canister Coilovers were purchased as an upgrade, refer to the following information for adjustment procedures.

Detroit Speed Single Adjustable Shocks

To change from the recommended “Detroit Tuned” valving, adjustments can be made independently to the rebound setting. The rebound is controlled by the sweeper at the upper shock mount [Shock is mounted body side down]. The sweeper rotates clockwise (+) to increase the damping and counterclockwise (-) to decrease the damping. Refer to Figure 10a.



Figure 10a - Detroit Speed Single Adjustable Shock

To return to the Detroit Speed recommended settings, turn the sweeper clockwise (+) to full damping. Once at full damping, turn counterclockwise (-) to reach the recommended settings. Refer to Figure 10b for the rebound settings.

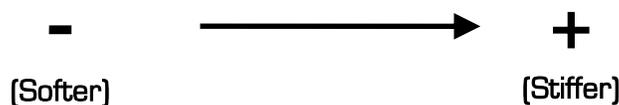
Rebound (Sweeper)..... 15 Sweeps (counterclockwise, -)

Figure 10b - Detroit Speed Recommended Settings

Adjuster Operation



Low-Speed
Adjuster
OPEN



- **Adjuster (60-64 Sweeps)**

The low-speed adjuster is a “clicker” style adjuster meaning that its adjustment is measured by detents located inside the shaft. There are 16 sweeps per one revolution of the sweeper. 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 sweeps 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

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 upper shock mount. The sweepers rotate clockwise (+) to increase the damping and counterclockwise (-) to decrease the damping. The sweepers can be seen in Figure 11a.



Figure 11a – 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 11b for recommended settings.

Low Speed Rebound [Sweeper].....	15 sweeps [counterclockwise](-)
High Speed Rebound [Sweeper].....	4 sweeps [clockwise](+)

Figure 11b – Detroit Speed Recommended Settings

Detroit Speed Double Adjustable Shocks w/Remote Canisters

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 upper shock mount. The sweepers rotate clockwise (+) to increase the damping and counterclockwise (-) to decrease the damping. Refer to Figure 12a.

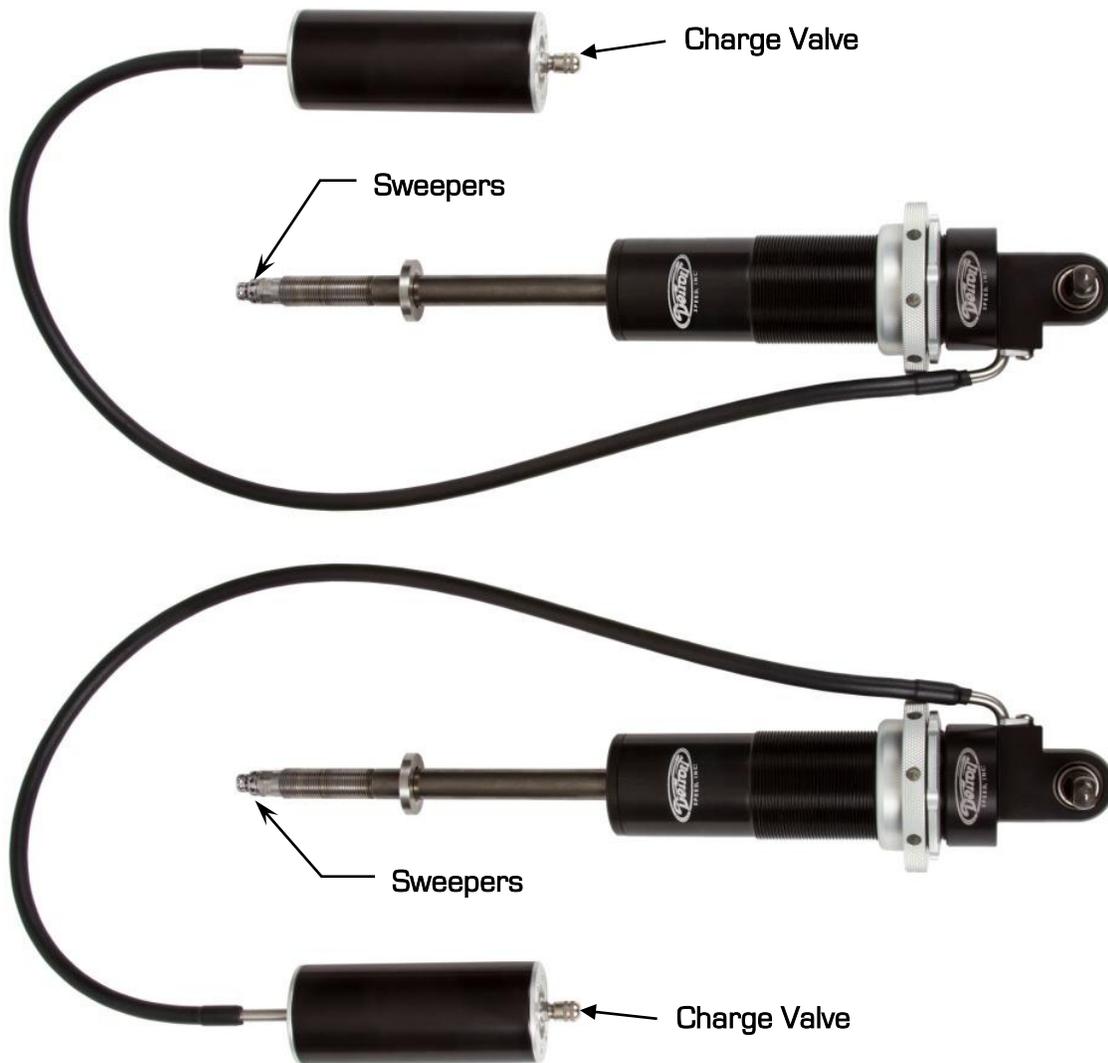


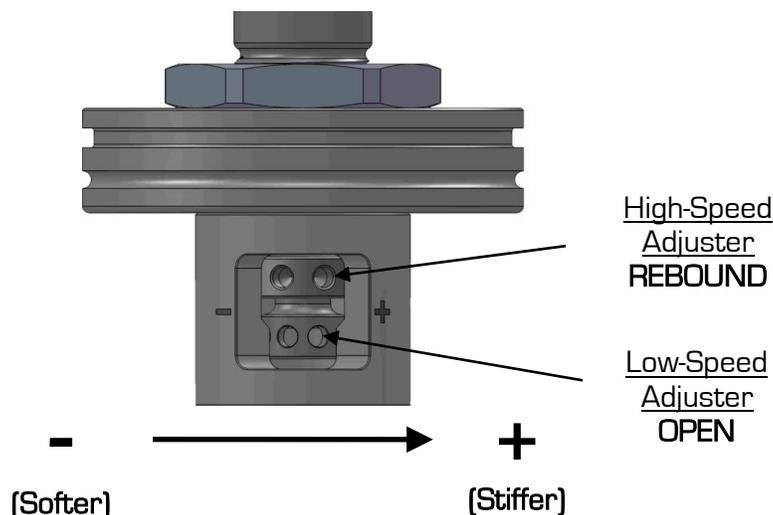
Figure 12a – Detroit Speed Double Adjustable Shock w/Remote Canister

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 12b for recommended settings.

- Low Speed Rebound [Sweeper]..... 15 sweeps [counterclockwise](-)
- High Speed Rebound [Sweeper]..... 4 sweeps [clockwise](+)

Figure 12b – Recommended Settings for Detroit Speed Double Adjustable Shocks

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 Sweeps)**

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.*

To aid in the installation of the reservoirs, we also offer a set of Billet Aluminum Remote Canister Mounts. The canister mounts are available exclusively through Detroit Speed, P/N: 032102DS. They are shown in Figure 13.



Figure 13 – Billet Aluminum Remote Canister Mounts

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