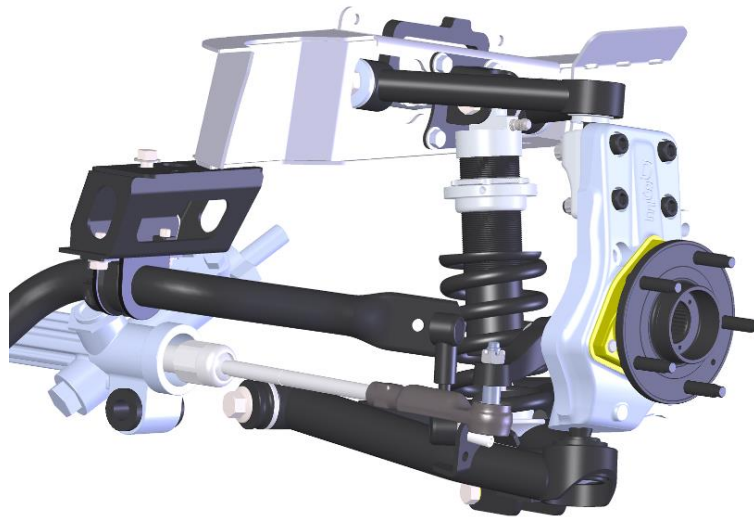


Detroit Speed
SLA Conversion Kit
1979-93 Ford Mustang
P/N: 032096DS, 032096-SDS, 032096-DDS

Detroit Speed's Short Long Arm (SLA) Suspension Conversion redefines Fox Body handling with a no-compromise double wishbone design. This system replaces the outdated factory suspension with modern geometry, increased strength, and race-proven adjustability, delivering premium fit, finish, and performance.



Kit Contents

Item #	Description	Quantity
200168DS	Forged Aluminum Hubpack Upright Box	1
200163DS	Lower Control Arm Box	1
200161DS	SLA Conversion Box	1
031423DS	Front Anti-Roll Bar Kit	1
031137PDS	Coilover Springs - 8" x 500 in/lbs.	2
031056DS	Non Adjustable Coilover Shocks [032096DS]	2
031057DS	Single Adjustable Coilover Shocks [032096-SDS]	
031058DS	Double Adjustable Coilover Shocks [032096-DDS]	
F501-354	Fox Body SLA Instructions	1

Coilover Shock dependent on part # purchased

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.

Specifications - Detroit Speed Fox Body SLA	
Total Suspension Travel	7"
Ride Height*	4.4" ± 1.0"
Installed Shock Length**	13.5" ± .625"
Static Camber	-0.5° ± 0.2° [Street Use] -1.5° ± 0.5° [Track Use]
Static Caster***	+8.0° ± 0.5°
Static Toe	1/16" Toe In to 1/8" Toe Out
* Measured vertically from bottom of frame rail to center of the hub. Hubcenter is below frame rail	
** Measured from center of shock bolt to center of shock bolt.	
*** For additional Caster Tuning Range, use DSE PN 031731DS.	

Wheel & Tire Fitment Suggestions					
Diameter (in.)	Width (in.)	Backspacing (in.)	Lug Nut Thread Pitch	Recommended Tire Size	Comments
With DSE Fender Apron Panels					
18	10	6.5	1/2"-20	275/35 R18	Fender Lip Modifications required
19				275/30 R19	
Without DSE Fender Apron Panels					
18	9	6	1/2"-20	265/35R18	
19				265/30R19	

Hardware Kit Checklist			
Part Number	Description	Quantity	Check
200160DS	Upright Brake Hardware Kit	1	
950150FS	M12-1.75 x 45mm Flanged Hex Head Bolt	4	
960071FS	M16-2.0 Flanged Nut - Prevailing Torque	2	
200162DS	SLA Hardware Kit	1	
980058FS	1/2 -20 x 3" L Hex Head Bolt	2	
980002FS	1/2 -20 x 2-3/4" L Hex Head Bolt	4	
980026FS	1/2 -20 x 2-1/2" L Hex Head Bolt	2	
960004FS	1/2 -20 Nylock Nut	8	
970037FS	1/2 SAE Washer	8	
980071FS	3/8 -16 x 1" L Flanged Hex Head Bolt	8	
980145FS	9/16 -18 x 1 1/2" L Hex Head Bolt	4	
960022FS	9/16 -18 Nylock Nut	4	
970020FS	9/16 SAE Washer	8	
9304228	3/4" OD x 1/2" ID x 3/4" L Steel Bushing	2	
9303237	3/4" OD x 1/2" ID x 1/2" L Steel Bushing	2	
200164DS	Lower Control Arm Hardware Kit	1	
950149FS	5/8 -11 x 4-1/2" L Flanged Hex Head Bolt	4	
960118FS	5/8 -11 Nylock Nut	4	
99030718	Aluminum Bushing Spacer - Black Anodized	4	
200166DS	Front Sway Bar Hardware Kit	1	
980073FS	7/16"-14 x 1" L Hex Head Bolt	4	
960017FS	7/16"-14 Nylock Nut	4	
970042FS	7/16" SAE Washer	8	
980027FS	3/8"-16 x 1" L Hex Head Bolt	4	
970023FS	3/8" SAE Washer	4	

Fastener Torque Specifications – Fox Body SLA Conversion		
Application	Torque (ft-lb)	Threads
K Member Hardware (9/16-18 Bolts)	95	Anti-Seize
Lower Control Arm Mounting Bolts	95	Anti-Seize
Upper Control Arm Bolts	65	Anti-Seize
Shock Mount Hardware (3/8-16)	45	Anti-Seize
Coilover Shock Mounting Bolts (1/2-20)	65	Anti-Seize
Anti-Roll Bar Bushing Bracket Mounting Bolts	25	Anti-Seize
Anti-Roll Bar Split Lock Collar Screw	15	Blue Loctite 242
Anti-Roll Bar Relocation Bracket	45	Anti-Seize
Anti-Roll Bar Endlink	45	Anti-Seize
Lower Ball Joint Stud Nut	120	
Upper Ball Joint Stud Nut	40	
Tie Rod End Stud Nut*	35	Anti-Seize
Wheel/Hub Bearing Mounting Bolts	95	Red Loctite 272
Upright Ball Joint Boss Bolts	95	Red Loctite 272
Front Brake Caliper Mounting Bracket Bolts	85	Blue Loctite 242
Wheel Stud Nuts	100	

*Tighten Further to align castle nut with cotter pin hole

K Member Specification

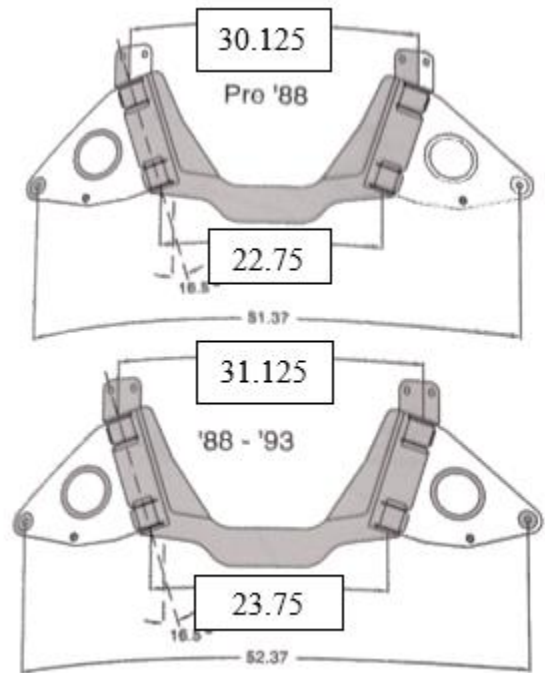
Ford produced three versions of the Fox Body K Member during the production run from 1979-93. Measure the Center to Center distance of the lower control arm mounting holes to determine your k member.

The Detroit Speed SLA Geometry is optimized for use with '88-'93 K members

For a 1987 or older vehicle, It is recommended to source a replacement from an '88-93!

NOTE: '88-93 4 Cylinder cars are known to use the Pre '88 spec K member

NOTE: *NOT PICTURED* – 1984-86 SVO Mustang K member, measure 23” / 29.5” The Detroit Speed SLA is NOT compatible with these K members



Disassembly:

1. Prepare the vehicle; Remove all factory front suspension and any component that hinders access to the front sheet metal. Remove factory brake and fuel lines, these will not be reused, and require replumbing to complete installation
2. K member and engine removal is recommended for ease of installation.
NOTE: The installation can be performed with both components installed, but access is limited. Photos are shown with a disassembled vehicle for photo clarity
3. Gain access to the fender aprons, Remove the battery and the battery tray from the vehicle (Figure 1).



Figure 1 - Gain Access to sheet metal

NOTE: to take full advantage of the improved steering geometry of the SLA, Detroit Speed recommends installed 010508DS Fender Apron Panels to improve tire clearance

NOTE: You will need to relocate the battery in the vehicle after the SLA conversion kit has been installed.

4. Remove K member mounting bolts and clips.



Figure 2 - K Member Mounting Hardware

Installation:

5. Locate the front Kmember mounting hole on the bottom side of the frame rail. Using a square, draw a reference line at the center of the hole. Extended this line to the outside face of the framerail. This line will be reference for further measurements.

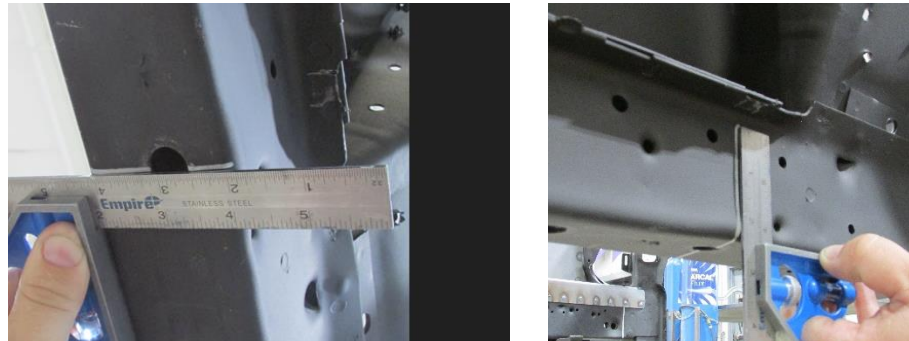


Figure 3 - Layout Reference Line

- Measure forward $9\frac{3}{4}$ " from the reference line at the base of the frame rail, place a mark. Measure 9 " forward, $2\frac{1}{2}$ " above base of rail and place a mark. Connect the marks to create the front cut line

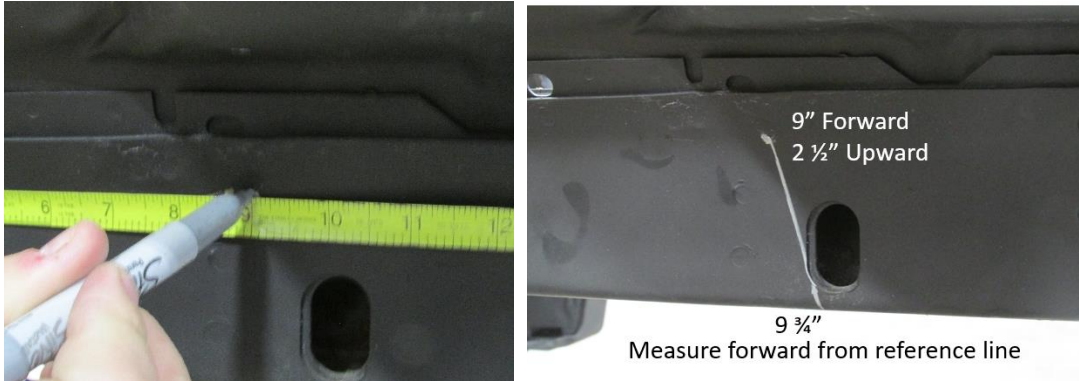


Figure 4 - Layout front cut line

- Layout the upper cut line, $4\frac{1}{2}$ " above the bottom of the frame rail

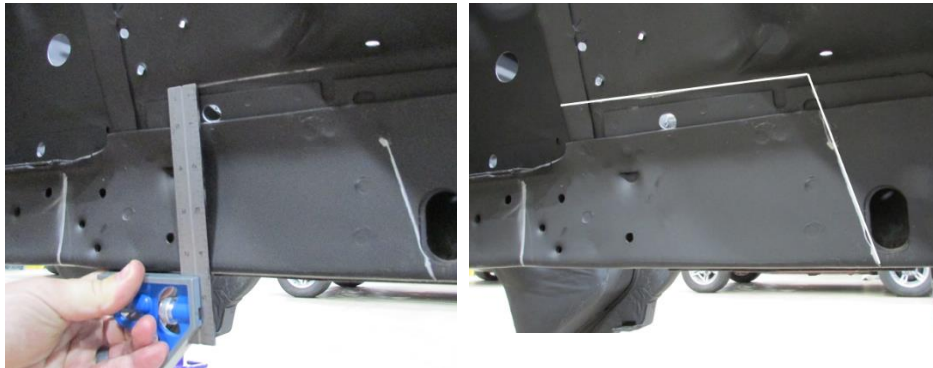


Figure 5 - Layout Upper Cut Line

- Remove sheet metal gusset at frame rail to lower rail intersection. Remove spot welds by drilling thru the outermost layer of sheet metal. Cut thru the stitch weld and sheet metal as shown. NOTE: A Hammer/Chisel can be use to separate the spot welds.

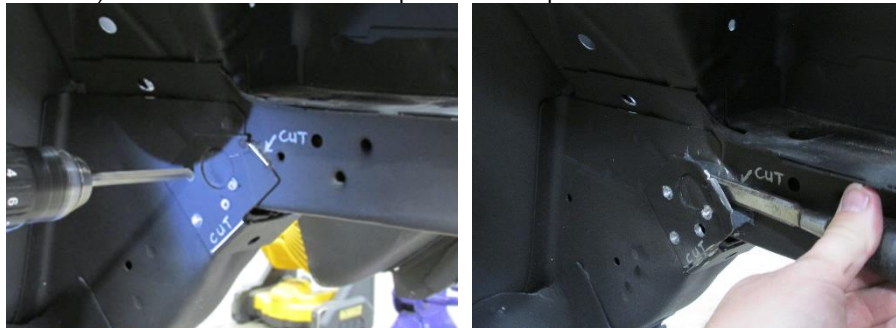


Figure 6 - Remove Sheet Metal Gusset

- Layout the Lower Cut Line $1/8$ " Above the bottom surface of the frame rail.

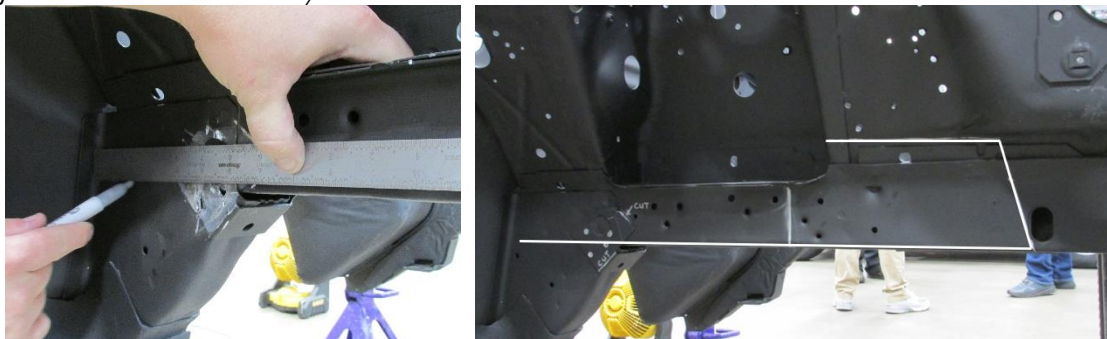


Figure 7 - Cut Line Layout

10. Begin removing the center section of rail shown. A combination of drilling spot welds and cutting is needed for removal.

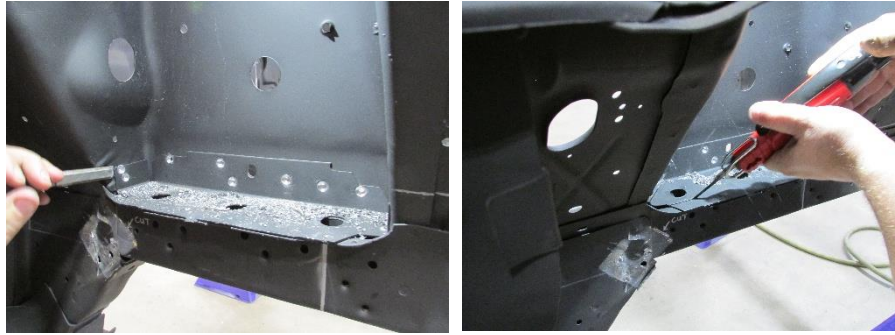


Figure 7 - Being Cutting Sheet Metal

11. Cut the outer frame rail sheet metal and remove to gain more access to the spot welds holding the top sheet metal. Remove these in two pieces to expose the sheet metal crush tubes

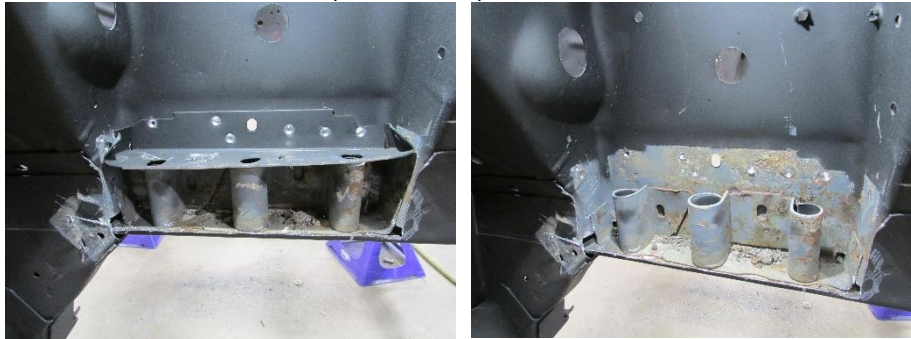


Figure 8 - Remove top and outer sheet metal

12. Remove the sheet metal crush tubes by drilling thru the spot welds. Drill the entire way thru these spot welds. These holes will be used as plug weld later in installation.
NOTE: Vise Grips or Large pliers can be used to grab and twist these pieces to pop the spot welds. These remove in 2 pieces.

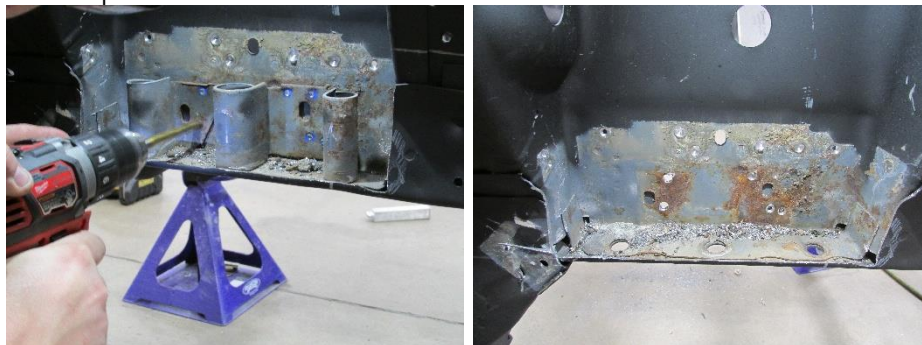


Figure 9 - Remove sheet metal crush tubes

13. Drill 1/4" holes on the inside of the cut lines in the 3 locations shown. This will transfer the cut line location to the inside of the fender aprons.

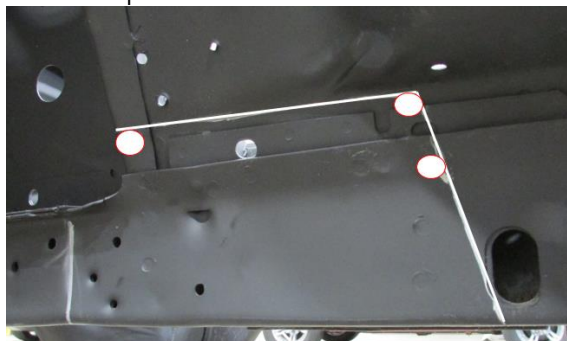


Figure 9 - Transfer Cut Line Location

14. Layout Cutline on inside of engine bay. Measure forward from the strut tower 5 3/4" and place a mark against the inner flange of the frame rail. Connect this line to the outside edge of the holes drilled in the previous step. Drill a 1/4" hole at the corner of the layout

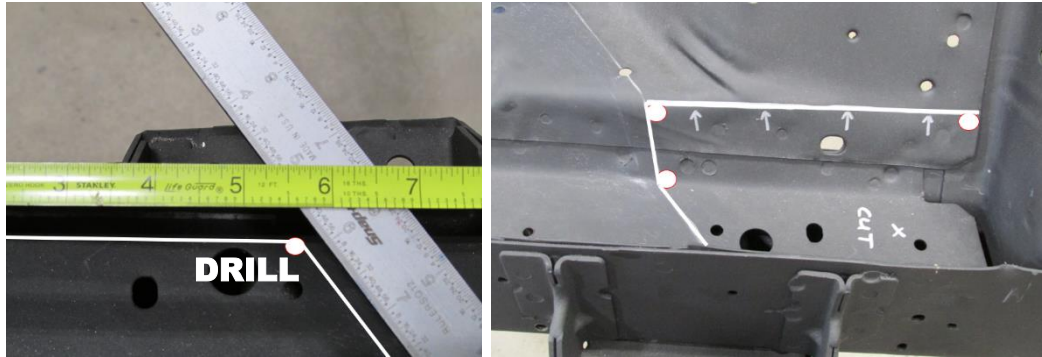


Figure 9 - Top Rail Cut Line

15. From the topside of the vehicle, remove the single layer of sheet metal creating the top of the frame rail. Using a body saw, allow the blade to follow the edge of the inner flange.



Figure 10 - Remove material

16. From the outside of the vehicle. Cut along the lines layed out in step 7 Remove the out layers of material. Transfer the cut line along the inside of the strut tower. Make a vertical cut along the inner edge of the strut tower, and remove the vertical strut tower material.

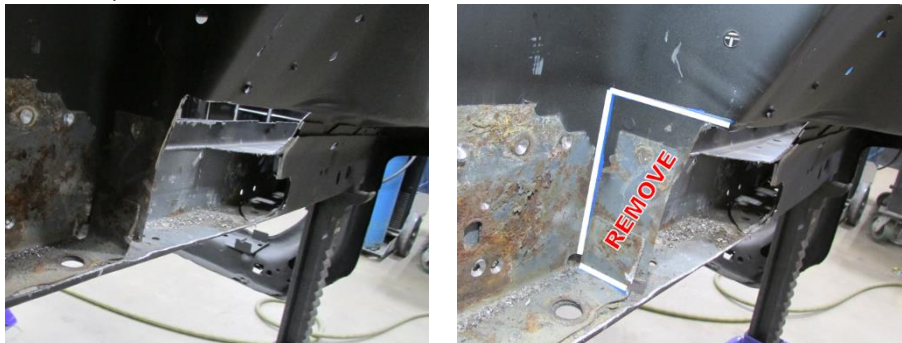


Figure 11 - Remove outer rail and strut tower material

17. From the topside of the vehicle, remove the single layer of sheet metal creating the top of the frame rail behind the shock tower. Using a body saw, allow the blade to follow the edge of the inner flange.



Figure 12 - Remove material

18. From the outside of the vehicle. Layout a cut line 3" above the floor of the frame rail, transfer this line to the outer arpon. a vertical cut along the inner edge of the strut tower, and remove the vertical strut tower material.



Figure 13 - Remove rear outer rail and strut tower material

19. Grind edges of sheet metal flush to create a flat surface on the bottom and inner frame rail surface.



Figure 14 - Clean up cut edges

20. At the rear lower rail, grind at a 45 degree angle to expose a small airgap between outer gusset and lower rail face. This will allow for full weld penetration of the DSE Frame Insert



Figure 15 - Prepare sheet metal

21. Begin Fitting the DSE Frame Insert, addition grinding may be required to fully install the insert. Install the front edge of the insert first, then rotate into position. Cut a slot for the insert to fit into as shown. Align the insert with the factory k member mounting holes by using the provide mounting bolts.

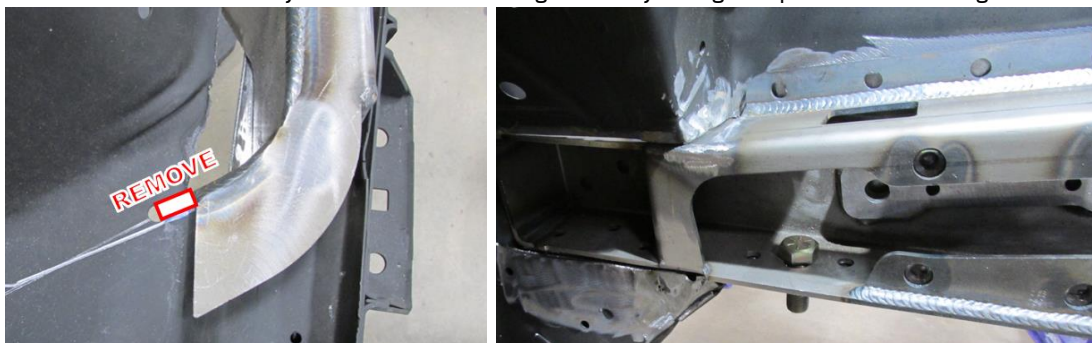


Figure 16 - Test Fit and align Frame Insert

22. With the frame insert fitted, clamp against the inner rail. Use a 1/2" transfer punch to mark the center of the upper control arm mounts. Transfer the front edge of the insert to the lower frame rail.

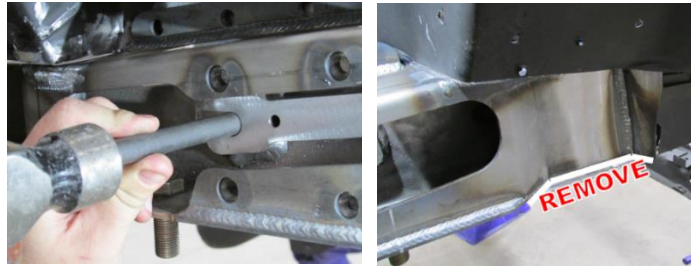


Figure 17 – Transfer Control Arm Mounting Holes

23. Remove the frame insert, Drill a 1 1/4" hole in the location marked for the upper control arm. Cut out the material marked at the front of the insert. Layout holes for plug welds and drill to 5/16"

NOTE: Ensure that plug weld holes do not line up directly with sway bar mount, it is recommended to drill from the inside of the vehicle

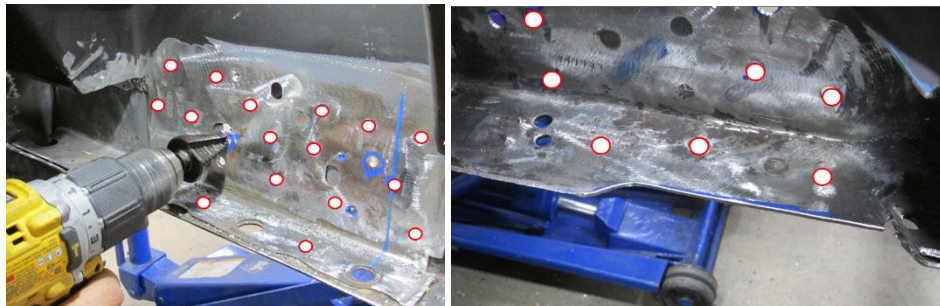


Figure 18 – Drill plug weld holes

24. If Installing Detroit Speed Fender Apron Panels [PN 010508DS], It is recommended to fit those panels at this time. Follow the instructions included in the 010508DS kit for full details.

25. Reinstall the frame insert, Aligning it with the mounting bolts. Clamp the insert against the inner and bottom surface of the factory rail. Begin welding the insert, plug weld all holes and seam weld the bottom of the insert.

NOTE: spray weld thru primer on bare metal of chassis and insert before welding.

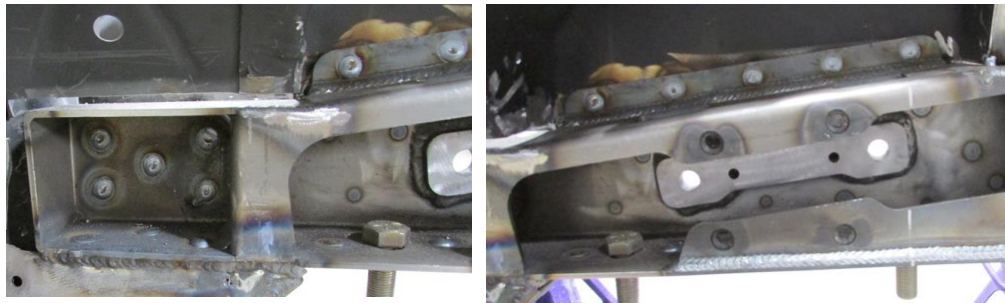


Figure 19 – Begin Welding Insert

26. Install the gusset plate onto the outside of the frame rail. Plug weld the inner holes and seam weld the outside plate. Fill plug weld holes on the inner surface of the rail from the engine bay.

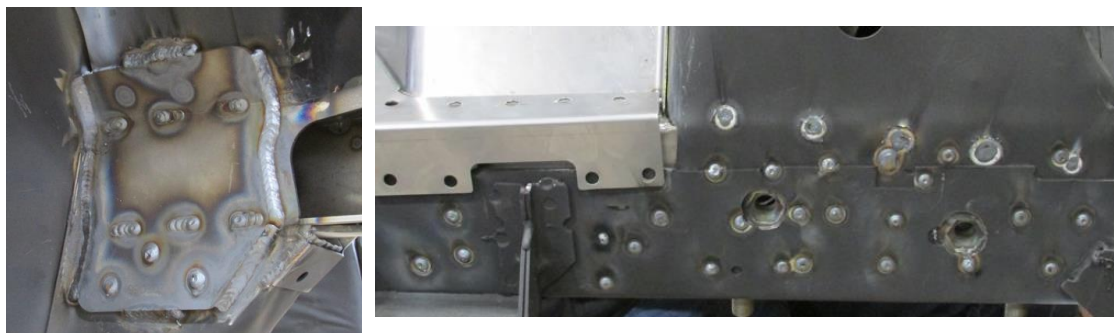


Figure 20 – Weld Gusset Plate and Inner Rail Plug Welds

27. From the inside of the engine, weld the seams as shown.

NOTE: If installing without a DSE fender apron kit, fabricate a filler piece to fill the gap between the frame insert and fender apron.

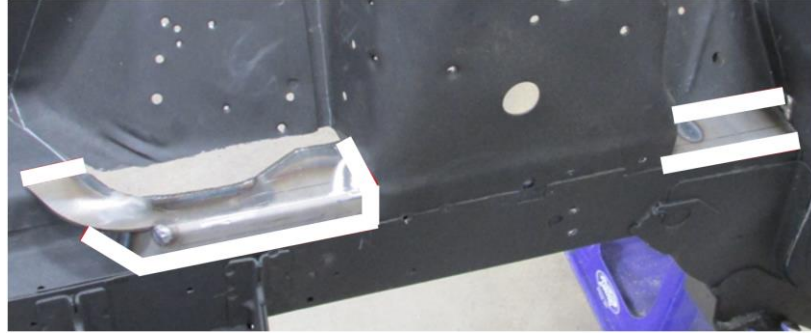


Figure 21 - Weld Seams

28. Prepare and paint the frame insert after welding. It is recommended to apply seam sealer to edges to protect against moisture getting into any unwelded seams.

Modify Kmember:

29. Modify the factory KMember to provide clearance for the coilover shock. With the K Member loosely installed in place, transfer the edge of the frame rail onto the kmember. Remove material as shown

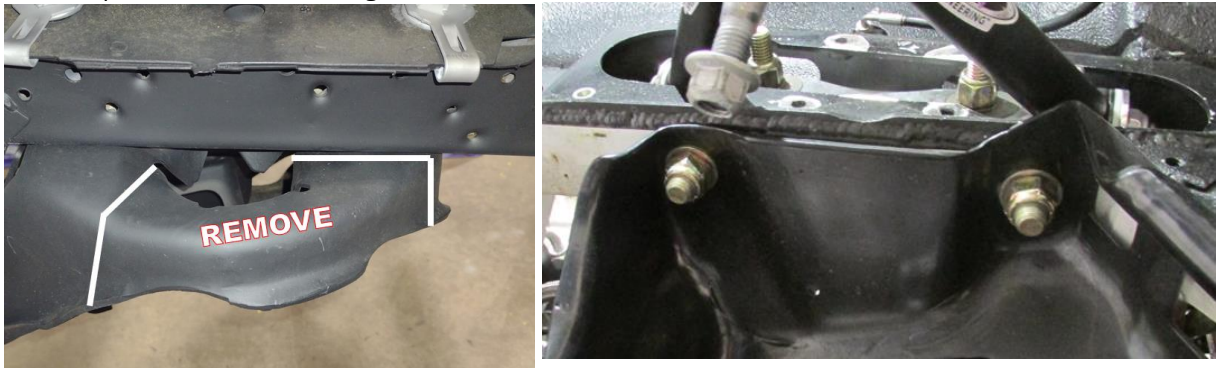


Figure 22 - Modify Factory K Member

Assembly:

30. Locate the Lower Control arm, Lubricate the face of the Delrin bushings with a light coating of grease. Install the 5/8-11 x 4 1/2" bolts from front to rear to hold the control arm for the next step.

31. Remove one bolt and a time and install the provided anodized aluminum spacers on the front side of the lower control arm bushings

NOTE: factory k members may require spreading the width of the bushing area. It is common for the control arm to be overtorqued, causing the k member to squeeze inward.

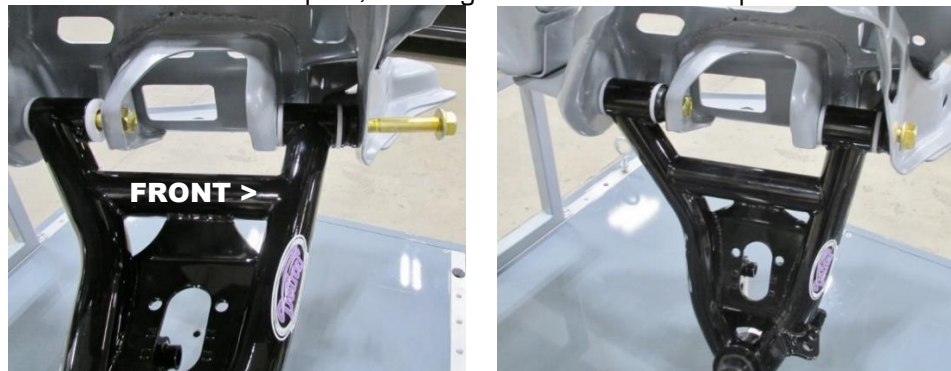


Figure 23 - Locate Lower Control Arm

32. Install (2) 1/2-20 x 2 3/4" Hex Head Bolts into the frame insert from the inside of the engine bay. Fully seat the hex head into the hex insert of the rail insert.



Figure 24 - Upper Control Arm Mounting Holes

33. Install the upper control arm into the frame insert, Caster Tuner Inserts face the outside of the vehicle. Insert (2) 1/4" Camber Shims from the top side of the insert. Install 1/2 SAE washers and 1/2-20 Nylock Nuts onto the upper control arm bolts. Torque to 65 ft lbs.

NOTE: Fintal Camber will be set during front end alignment.

NOTE: For further Caster Adjustment, Caster Tuner Kit PN 031731DS



Figure 25 - Install Upper Control Arm

34. Place the correct upright assembly onto the lower control arm ball joint stud. Thread the included flange nut onto the lower ball joint to keep the upright assembly in place. Insert the Upper Ball Joint Stud in the upright and install Nut.

Torque Lower Ball Joint to 120 ft lbs; Upper Ball Joint to 40 ft lbs

NOTE: The steer arm on the corner assembly will be pointing towards the front of the vehicle.

NOTE: Use an Allen Key to prevent the upper ball joint stud from spinning while tightening the ball joint nut.

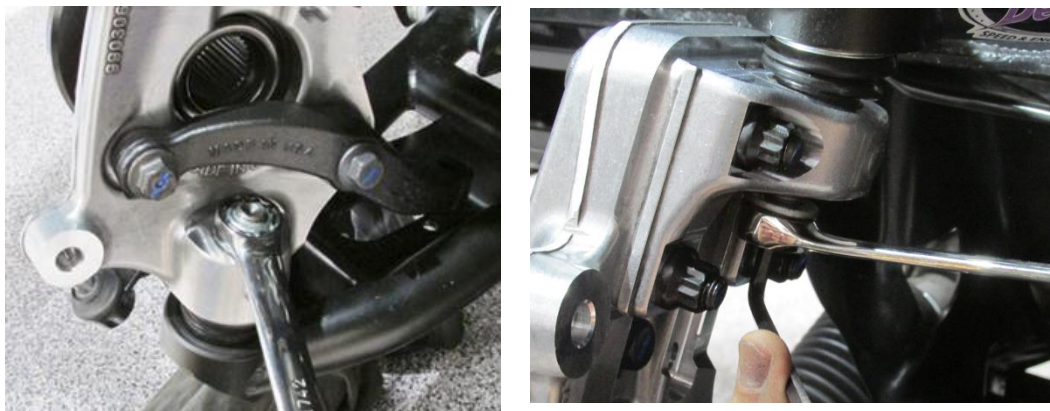


Figure 26 - Install Upright Assembly

35. Install the outer tie rod into the steer arm on the upright and tighten the castle nut. Torque the castle nut to 45 ft-lbs. plus additional torque to align and install the cotter pin. Trim the cotter pin as needed..

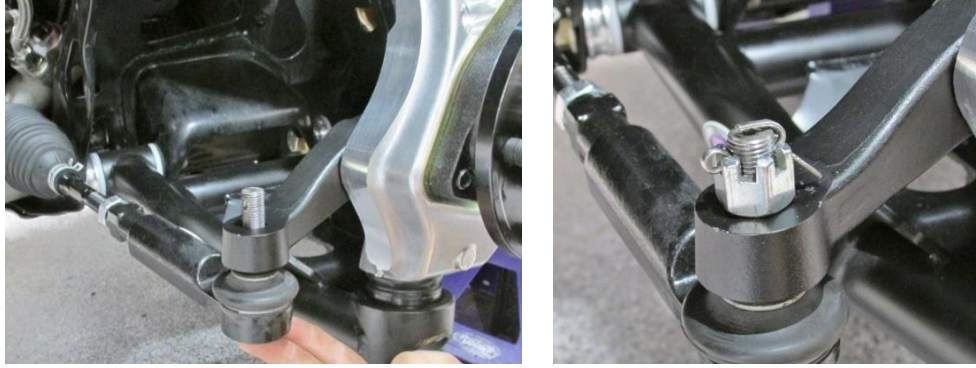


Figure 27 - Install Outer Tie Rod

36. Assemble the Coilover Shock / Spring. Remove the upper spring seat from the retaining ring using a rubber hammer and moving it down off the upper shock mount. Remove the retaining ring from the shock eyelet and pass the upper spring seat over the eyelet



Figure 28 - Removing the Upper Spring Seat & Retaining Ring

37. Thread the spanner nut to the bottom of the coilover shock and install the Torrington bearing set on each shock by installing one thrust washer, followed by the roller bearing and then another thrust washer. DSE recommends using high pressure grease between the roller bearing and thrust washers.



Figure 29 - Torrington Bearing Set

38. Slide the coilover spring over the top of the upper shock mount. Install the upper spring seat back over the top of the upper shock mount and re-install the retaining ring back onto the upper shock mount. Press the upper spring seat up onto the retaining ring so it locks in place. Adjust the spanner nut to take away any slack in the spring. Further preload will be added once installed.

39. Install the provided 3/4" OD x 1/2"L steel bushing onto the provided 1/2"-20 x 2 1/2"L hex head bolt. Install the Upper Coilover Mount onto the body of the coilover shock. Ensure the schrader valve (Nitrogen Fill) faces away from the shock mount. Install The bolt from the opposite side of the weld bushing. Apply anti-seize to the threads and install the provided 1/2"-20 Nylock nut and washer, Torque to 65 ft-lbs.
- NOTE:** There are 2 shock bolt spacers, the shorter spacer goes with the upper shock mount.
- NOTE:** The Upper Shock Mount is Stamped "L" or "R" for identification.



Figure 30 - Assemble Upper Shock Mount

40. Install the assemble coilover shock into the vehicle. Insert the assembly from the rearward side of the vehicle thru the upper control arm. Raise above the upper control arm, then align with slotted hole in lower control arm.

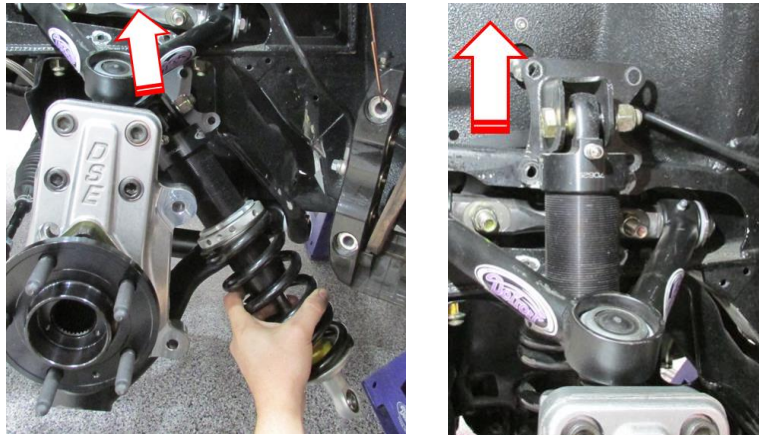


Figure 31 - Insert Shock Into Vehicle

41. Lower the Assembly into place, ensuring the lower eyelet of the shock locates into the lower control arm. Install the (4) 3/8-16 Flanged Bolts into the upper shock mount. Torque to 45 ft lbs



Figure 32 - Install Upper Shock Mount

42. Install the lower coilover mount bolt into the lower control arm. Slide the provided 3/4" OD x 3/4"L steel bushing onto the provided 1/2"-20 x 3"L hex head bolt. Install The bolt from the front of the control arm, thru the shock mounts and shock eyelet. Apply anti-seize to the threads and install the provided 1/2"-20 Nylock nut and washer, Torque to 65 ft-lbs.

NOTE: There are 2 shock bolt spacers, the longer spacer goes with the lower shock mount.



Figure 33 - Lower Shock Mount

43. Install the Anti Roll Bar onto the vehicle. For Full details, follow the instructions provided in the 031423DS Kit

44. Install the endlink into the anti roll bar and lower control arm. Torque Hardware to 45 ft lbs.

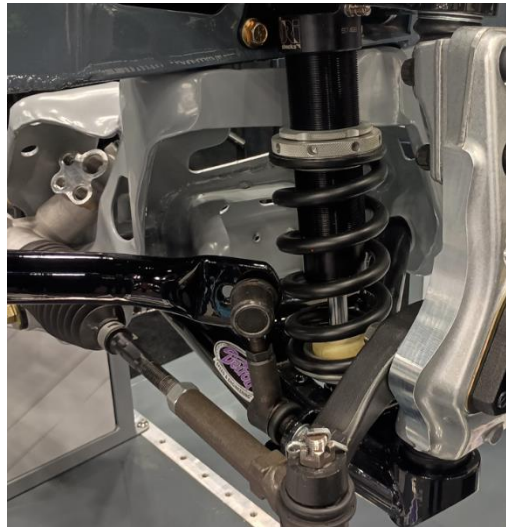


Figure 34 - Install Roll Bar and Endlink

45. Install your front brake kit per the manufacturers' instructions. Use the provided M12-1.75 x 45mm flanged head hex bolts to attach the calipers to the DSE uprights with OE Brake Calipers. Torque to 85 ft lbs with Blue Loctite

46. Plumb your brake system from the master cylinder to the front calipers, and bleed the brake system.

47. Using the provided spanner tool, preload the front coil spring. Adjust Ride height by raising or lowering the amount of preload on the spring.



Figure 35 - DSE Spanner & Adjustment Tools

48. Front Suspension Assembly is now complete. ensure that all components are torqued to the proper spec. Lubricate all grease points with a high quality chassis grease.

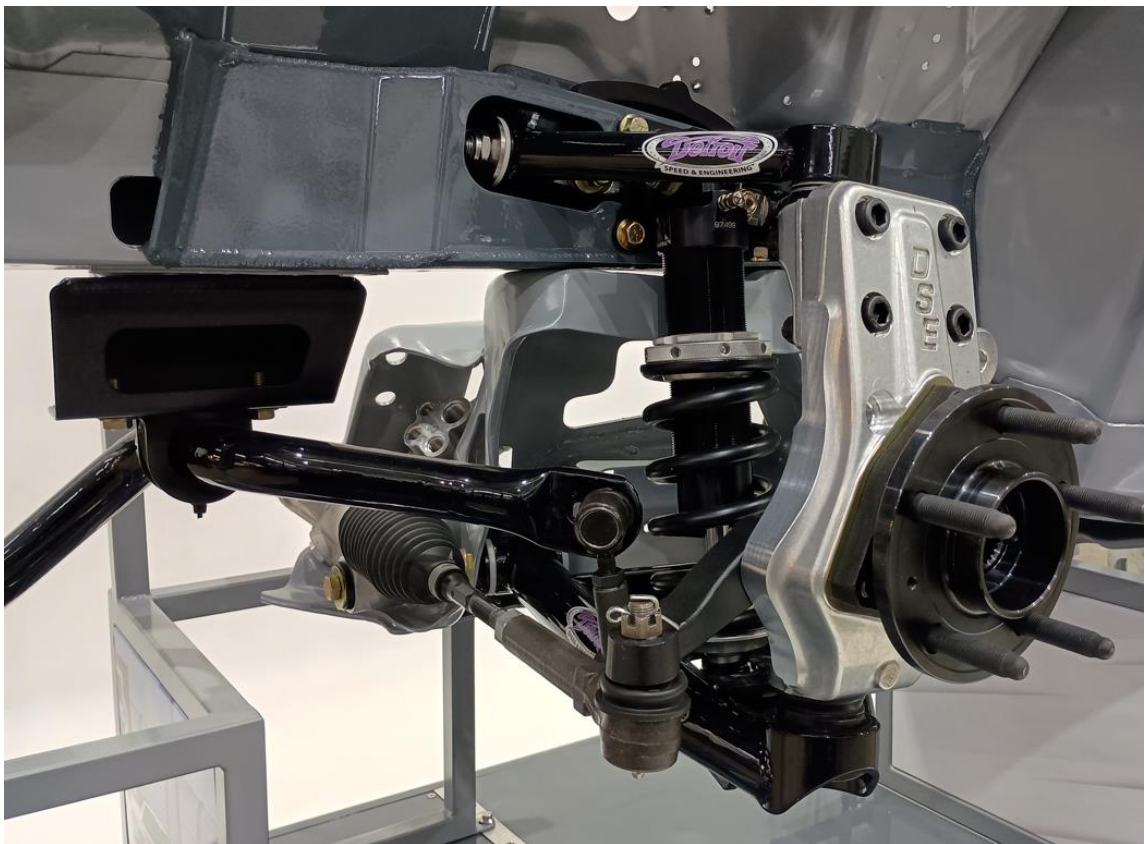


Figure 36 - Completed Installation

49. Front End Alignment is required before the vehicle can be driven. Follow Alignment specs provided on page 2.

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

Legal Disclaimer: *Detroit Speed is not liable for personal, property, legal, or financial damages from the use or misuse of any product we sell. The purchaser is solely responsible for the safety and performance of these products. No warranty is expressed or implied.*

Detroit Speed – Fox Body Hubpack Upright

Brakes:

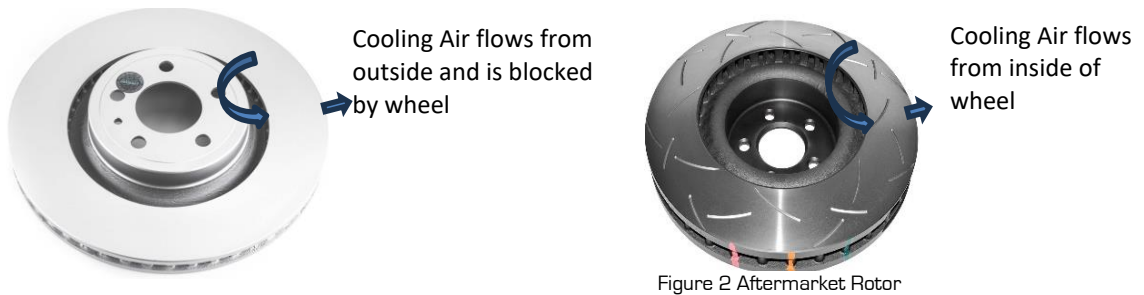
Front brakes are **required** parts for the DSE Fox Body Upright.

OE-style Ford S550 (2015-2020) front brakes are available.

Aftermarket front brake systems are also available through Baer and Wilwood.

OE-style Brake Options		
Rotor Size	14" "GT" Brakes	15" "Brembro Brakes"
Search Recommendation	2015-2020 Ford Mustang, 4 Piston "GT" Brakes	2015-2023 Ford Mustang, 6 Piston "Brembo" Brakes
Front Caliper, LH	Motorcraft BRCF564	Motorcraft BRCF431
Front Caliper, RH	Motorcraft BRCF563	Motorcraft BRCF430
Rotors/Brake Pads	Customer Preference	Customer Preference
Wheel Requirements	18" Minimum Wheel Diameter, 17.25" Minimum Inner Diameter	19" Minimum Wheel Diameter, 18.25" Minimum Inner Diameter

NOTE: For Track use, Detroit Speed has found best performance with aftermarket rotors that channel cooling air from the inside of the rotor. OE Ford rotors pull air from outer face and do not provide sufficient cooling for track oriented brake pads.



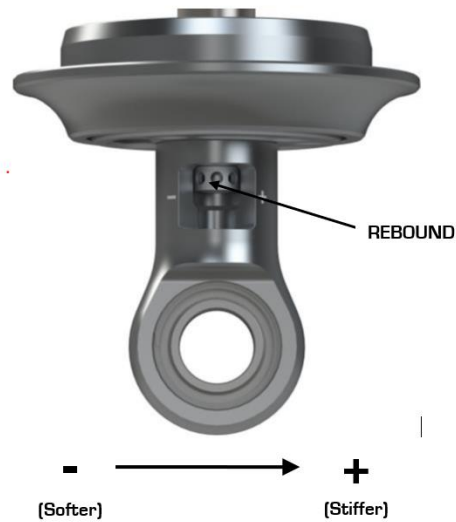
Detroit Speed Single Adjustable Shock Applications

Detroit Speed Single Adjustable shocks allow for adjustment to the rebound setting. The rebound is controlled by the sweeper at the lower shock mount (Shock is mounted body side up).



Detroit Speed Single Adjustable Shock

Adjuster Operation



Adjustments are documented from the "Full Stiff" Position.

Turn the sweeper clockwise (+) to full damping.

Once at full damping, count sweeps counterclockwise (-) to reach the recommended settings.

Detroit Speed Single Adjustable Shock Tuning	
Nominal Setting	-8 sweeps [counterclockwise]
Street Tuning	Increase rebound to improve response over bumps Decrease rebound to improve ride quality
Track Tuning	Increase rebound for more platform control Decrease rebound to improve grip

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

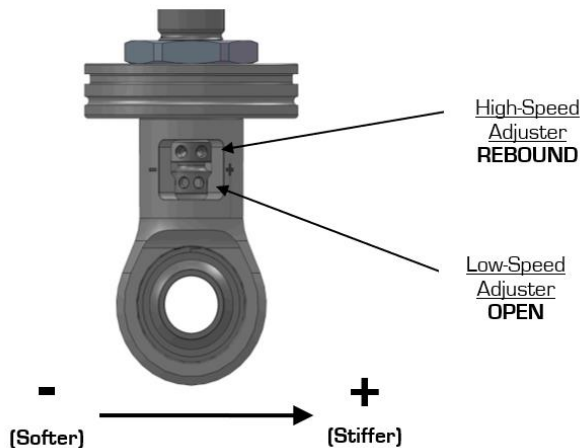
Detroit Speed Double Adjustable Shock Applications

Detroit Speed Double Adjustable shocks allow for independent adjustments to the high and low speed rebound settings. The rebound is controlled by the sweepers at the lower shock mount. (Shock is mounted body side up).



Detroit Speed Double Adjustable Shock

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 as -0 (-0 = full stiff, -25 = full soft).

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

Detroit Speed Double Adjustable Shock Tuning (Front Suspension)		
	Low Speed Rebound	High Speed Rebound
Nominal Setting	-12 sweeps [counterclockwise]	+ 4 sweeps [clockwise]
Street Tuning	Increase to slow weight transfer Decrease to improve ride quality	Increase to improve response over bumps
Track Tuning	Increase to slow weight transfer Decrease to improve weight transfer	Increase to settle car on rough pavement or curbing

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