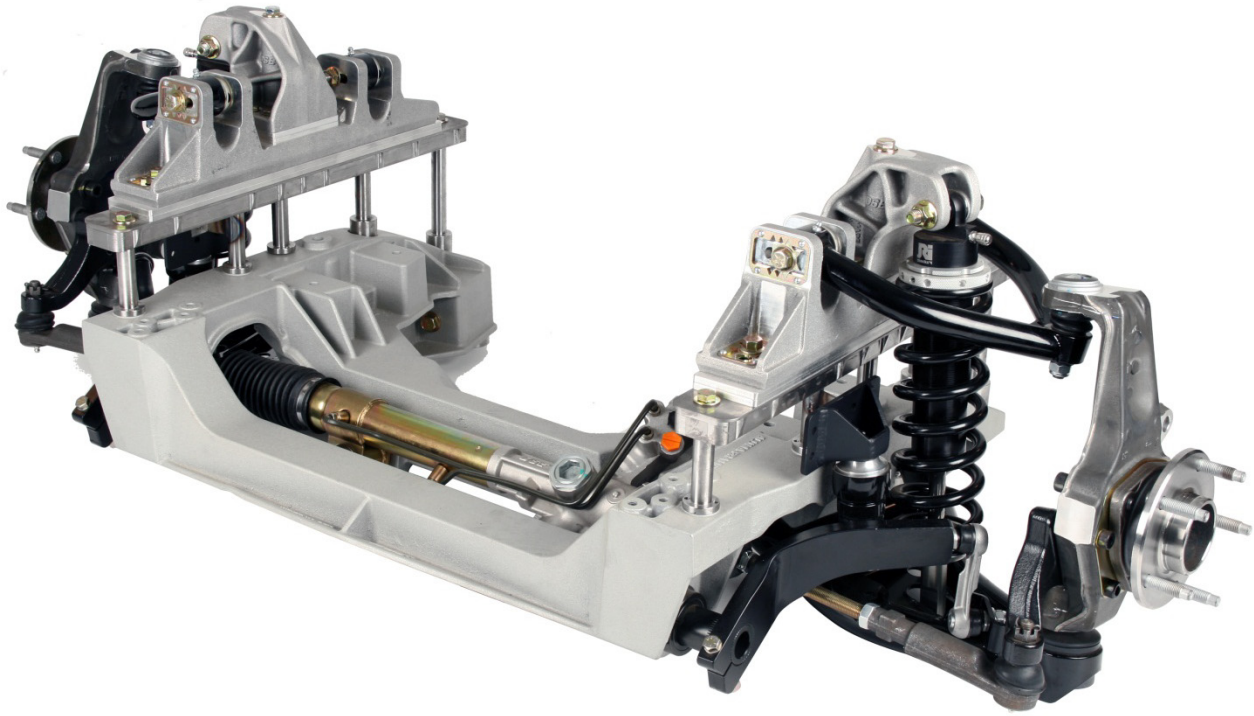
Detroit Speed, Inc.
ALUMA-Frame Front Suspension System
1964.5-1970 Ford Mustang
P/N: 032050



INTRODUCTION

All aluminum front suspension system for 1964.5 -1970 Mustangs featuring DSE's unique suspension geometry with 6" of suspension travel for the ultimate in ride and performance.

The DSE ALUMA-Frame Suspension System has been designed, engineered, and developed for the road and track. This system blends the benefits of current OEM technology and aftermarket performance into one product.

The DSE Mustang ALUMA-Frame has the following features:

- Unique cast aluminum cradle and mounting components resulting in a high strength to weight ratio and precise fitment
- Tubular upper and lower control arms
- Detroit Tuned rack and pinion steering
- Made in the U.S.A.
- DSE/JRi high performance monotube aluminum coilover shocks available in fixed valve, single adjustable, double adjustable, or remote canister double adjustable versions
- Splined anti-roll bar

- DSE's patent pending Speed-*LIGN* caster/ camber adjusters allow a wide range of adjustability to be made precisely and quickly without the need for additional components
- Utilizes forged aluminum uprights and hub packs with a Ford bolt pattern
- Can fit up to P265/35R18 tires on a 9" rim on early models and up to P295/35R18 tires on a 10.5" rim on later models with no fender modifications
- Retains stock framerails and inner fenders
- Engine mount kits available for Ford small block Windsor engines, Ford FE big block engines, Ford 4.6, 5.4, Coyote 5.0 modular engines, Boss 302 engines, and GM LS series engines

Specifications-DSE Mustang ALUMA-Frame Front Suspension	
Flange to Flange Distance (without rotors)	56.9"
Flange to Flange Distance (with rotors)	57.7"
Total Suspension Travel	6"
Ride Height*	1.0" ±1.0"
Static Camber	-0.5° ±.2°
Static Caster	8.0° ±.5°
Static Toe	0° ±.1°
Total Bumpsteer (28" toe span)	.070"
Turning Angle	27°
Ackerman Angle (@ 15° turning angle)	.875°
Spring Rate	400lb/in
Spring Free Length	10"

*Measured up from the bottom of the framerail to the center of the hub

Engine Fitment-DSE Mustang ALUMA-Frame Front Suspension				
Engine	**Mounting**	**Oil Pans**	**Headers**	**Comments**
Small Block Ford Windsor	Use DSE kit P/N: 060421	289 & 302 use Canton P/N: 15-640 or 15-644 rear sump pan 351W requires DSE P/N 060201 pan	TBD	Use Canton P/N 15-695 for pick-up tube
Big Block Ford FE	Use DSE kit P/N: 060422	Use Canton P/N: 15-874 rear sump pan	TBD	
4.6, 5.4 Modular	Use DSE kit P/N: 060420	Use Canton P/N: 15-794	TBD	Modular engines require removal of stock shock/spring towers. 5.4 engine requires brake booster/ master cylinder relocation
5.0 Coyote	Use DSE kit P/N: 060420	Use Canton P/N 15-737	DSE Headers P/N 061005	Modular engines require removal of stock shock/spring towers
GM LS Series	Use DSE kit P/N: 060423	LS1, 2, & 3 LS2/LS3 Corvette GM P/N: 12624617 4th Gen F-Body GM P/N: 12628771 Mast P/N: 401-111 Champ P/N: LS1000 LS7 Corvette Dry Sump Pan GM P/N: 12626225	TBD	

Accessory Components-DSE Mustang ALUMA-Frame Front Suspension	
Brakes	DSE offers Baer Brake kits
Rack & Pinion Fittings	High pressure: 9/16"-18 UNF Low pressure: 5/8"-18 UNF Fittings to adapt to -6 AN and complete hose kits are all available through DSE
Rack & Pinion Input Shaft	3/4"-36, Complete kits available through DSE

Wheel Fitment-DSE Mustang Front Suspension 1964.5-66					
Diameter (in)	**Width (in)**	**Backspacing (in)**	**Bolt Pattern/ Lug Nut Thread Pitch**	**Recommended Tire**	**Comments**
17	8.0	5.5	5 X 4.5" 1/2"-20 UNF	245/40R17	
	8.5	5.75		245/40R17	Maximum width recommended
18	8.0	5.5		245/35R18	
	8.5	5.75		245/35R18	
	9.0	6		265/35R18	Maximum width recommended

Wheel Fitment-DSE Mustang Front Suspension 1967-68					
Diameter (in)	**Width (in)**	**Backspacing (in)**	**Bolt Pattern/ Lug Nut Thread Pitch**	**Recommended Tire**	**Comments**
17	8.0	5	5 X 4.5" 1/2"-20 UNF	245/40R17	
	8.5	5.25		245/40R17	
	9.0	5.5		255/40R17	Maximum width recommended
18	8.0	5		245/35R18	
	8.5	5.25		245/35R18	
	9.0	5.5		255/35R18	
	9.5	5.75		265/35R18	
	10.0	6		275/35R18	Maximum width recommended

Wheel Fitment-DSE Mustang Front Suspension 1969-70					
Diameter (in)	**Width (in)**	**Backspacing (in)**	**Bolt Pattern/ Lug Nut Thread Pitch**	**Recommended Tire**	**Comments**
17	8.0	5	5 X 4.5" 1/2"-20 UNF	245/40R17	
	8.5	5.25		245/40R17	
	9.0	5.5		255/40R17	Maximum width recommended
18	8.0	5		245/35R18	
	8.5	5.25		245/35R18	
	9.0	5.5		255/35R18	
	9.5	5.75		265/35R18	
	10.0	6		275/35R18	
	10.5	6		295/35R18	Maximum width recommended

Wheel fitment based on a .400" rotor hat thickness

Fastener Torque Specifications – DSE Mustang ALUMA-Frame		
Application	**Torque (ft-lb)**	**Threads**
Cradle 7/16"-14 Mounting Bolts	65	
Cradle ½"-13 Mounting Bolts	70	
Cradle 3/8"-16 Mounting Bolts	30	
Lower Control Arm Mounting Bolts	65	
Rack and Pinion Mounting Bolts	75	Anti-Seize
Sway Bar Shaft Clamp Screw	14	Blue Loctite 242
Upper Control Arm Mount Bracket Bolts	50	
Coilover Mount 7/16"-14 Bolts	65	
Coilover Mount 5/16"-18 Bolts	25	
Sway Bar Link Nuts	45	Red Loctite 262
Upper Control Arm Mounting Bolts	35	Red Loctite 262
Upper Coilover Shock Mounting Bolts	70	
Lower Coilover Shock Bolts	70	
Sway Bar Arm Mounting Bolt	25	
Tie Rod End Jam Nut	45	
Upper Control Arm Ball Joint Stud Nut	40	
Lower Control Arm Ball Joint Stud Nut*	20 then turn an additional 180°	Red Loctite 262
Tie Rod End Stud Nut*	35	Anti-Seize
Wheel/Hub Bearing Mounting Bolts	95	Red Loctite 262
Steer Arm Mounting Bolts	60	Red Loctite 262
Front Brake Caliper Mounting Bracket Bolts	125	
Wheel Stud Nuts	100	
*Always tighten slotted nuts to line up with the cotter pin hole.		

IMPORTANT:

If the lower control arm ball joint stud needs to be serviced after the initial torque setting listed above for a coilover spring change, etc. use the following information to re-assemble the lower control arm and upright:

1. Before you remove the ball joint nut, make a line with a marker from the top of the nut down to the upright and then loosen the ball joint nut.

2. Upon re-assembly, torque the ball joint nut to 20 ft-lbs. and then tighten the nut until the line on the nut goes back to the line on the upright so it is back in the same location as the initial torque setting.

1. Prepare the vehicle.
    a) Remove the engine and the entire front suspension and steering, including the original tubular crossmember and steering box.

2. Prepare the framerails.
    a) Carefully cut out the original rear lower control arm/ engine mount brackets by drilling out and/or grinding the original spot welds. Cut around and leave the sections that go over the original tubular crossmember mounting nuts underneath the framerails. Leave the lower control arm front strut rod and anti-roll bar mounting brackets in place.

Figure 1

b) Remove the original strut towers by cutting them flush with the inner fenders. Additional clearance for the upper control arm will be needed at the rear of the openings. 29-1/2" rearward from the front core support make a vertical cut up from the framerail flange and blend into the original strut tower opening.

3. Mark the cradle hole mounting locations.
   a) Locate the DSE ALUMA-Frame cradle under the framerails with two 1/2"-13 x 1-1/2" flange bolts. The two larger holes in the cradle mount into the original tubular crossmember mounting nuts under the framerails. On later vehicles, the rear of the front lower control arm strut rod mounting brackets will need to be trimmed in order for the cradle to be put into position. Lightly snug the bolts so the cradle can be adjusted into the proper location.
   b) Check that the cradle mounts in the vehicle without interference; make clearance if necessary.
   c) Adjust the cradle position so it is located in the center of and square to the vehicle frame and lightly tighten the two mounting bolts to keep the cradle from moving.
   d) Note the position of the original anti-roll bar bracket mounting holes in relation to the mounting holes in the ALUMA-Frame. Due to loose production tolerances in these vehicles these holes may or may not line up properly. The holes in the original anti-roll bar bracket may need to be slotted or enlarged in order to mount to the ALUMA-Frame. If necessary, mark any required modifications to the anti-roll bar bracket mounting holes at this time.
   e) Mark the position of all of the eight cradle mounting holes on the bottom of the framerails with a transfer punch using the cradle as a template. Also mark the cradle position elsewhere so it can be put back into position later after the mounting holes have been drilled out.
   f) Remove the cradle so the mounting holes can be drilled.
   g) Enlarge the holes in the anti-roll bar bracket so the bolts can be installed in the ALUMA-Frame cradle if necessary.

4. Drill out the cradle hole mounting holes.
   a) Drill Ø15/64" pilot holes for a hole saw in the marked locations on the bottom of the rails.
   b) On the front mounting hole of each framerail use a Ø1-1/2" hole saw and only cut through the first layer of sheetmetal which is part of the anti-roll bar bracket. Do not cut through the framerail surface. Debur the cut areas.
   c) Drill out the front two mounting holes in the bottom of each framerail with a Ø3/4" hole saw. Use a Ø1-3/8" hole saw for the rear two crush tubes on either side on the bottom of the rails only. There are OEM crush tubes in the rear of the framerails that may need to be cut through and/or pried out of the way to make room for the ALUMA-Frame framerail crush tubes.
   d) Reinstall the cradle in the previously marked location and use the provided drill guide and Ø1/4" drill bit to drill pilot holes in the top surface of the framerails.
   e) Drill out the four locations in the top of each rail with a Ø3/4" hole saw.
   f) Place the framerail mounting adapter plates on top of the framerails and align with the mounting holes. There are left and right hand plates so be sure to put them on the correct side. The top side of each adapter has an "L" and an "R" marked at the front end of each plate. The front mounting hole is inboard of the other mounting holes. **NOTE:** The bottom sides of the framerail adapter plates have an angle cut into them to help relieve the inconsistencies of the factory framerails. There is a large radius at the outside edge at the top of the framerail as it rolls up to

the flange that would keep the framerail adapter plate from sitting flat on the framerail. You may need to make additional modifications to the bottom of the framerail adapter plate to make sure it sits level on the framerail as each vehicle can vary.

g) Insert the framerail crush sleeves (See Figure 2) through the holes in the bottom of the framerail and thread them into the framerail mounting adapter on the top framerail surface. All of the cradle mounting crush sleeves have clearance holes in them except for the ones for the coilover mounts. The crush sleeves with the threaded holes are for the coilover mounts and will be installed later. The front two crush sleeves in each rail are the same length and the two rear ones get progressively longer as the rail gets taller. Do not tighten the crush sleeves at this time. The purpose of this step is to check fitment; some of the holes may need to be modified slightly in order to get them all to line up.

Figure 2 – Crush Sleeve and Tool

h) Reinstall the cradle in its marked location. Check that the bolts install easily through the upper mounting plate, crush sleeve, and cradle mounting hole in all locations.
i) Once all of the cradle mounting crush sleeves are in position mark the location of the coilover mount crush sleeve on the top of the framerails using the holes in the framerail mounting adapters. Also mark the position of the upper framerail mounting adapters so they can be reinstalled in the same position.
j) Remove the cradle, framerail mounting adapters and crush sleeves. Drill out the holes for the coilover crush sleeves in the top of the framerails with a Ø3/4" hole saw.
k) Reinstall the framerail mounting adapters and crush sleeves in their previously marked locations. Using the drill guide in the center outboard hole for the coilover mounts and Ø1/4" drill bit drill pilot holes for the hole saw through the bottom of the framerails.
l) Cut through the first layer of sheetmetal only on the bottom of the rails with a Ø1-1/2" hole saw using the pilot holes that were drilled pin the previous step. Finish drilling out the holes for the coilover mount crush sleeves with a Ø3/4" hole saw.
m) Install the coilover mount crush sleeves to verify fitment; do not tighten them at this time.
n) Remove the framerail adapter mounting plates and crush sleeves.

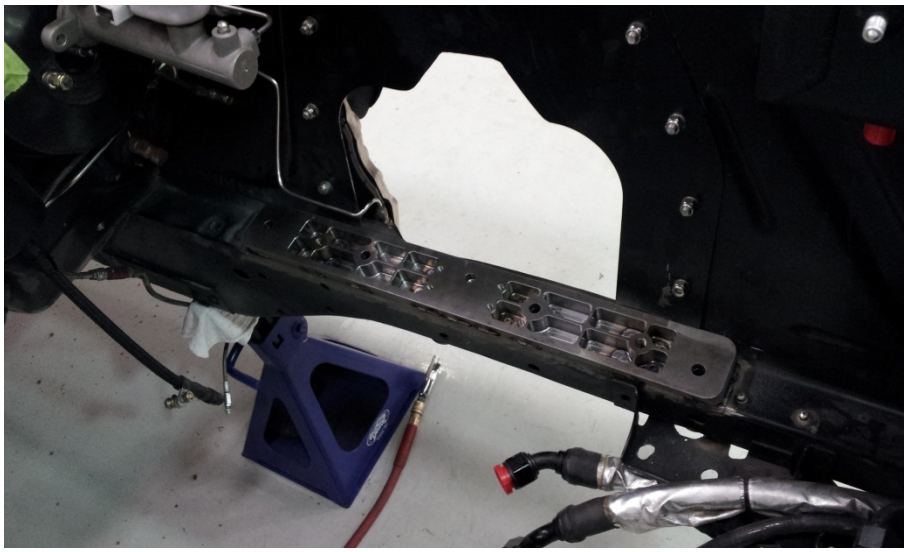


Figure 3: Welded Framerail Mounting Adapter

5. Final installation of the framerail mounting adapter plates and crush sleeves.
    a) Remove the paint and clean the top and bottom of the framerails to prepare them for welding.
    b) Paint the framerails with weld-through primer.
    c) Reinstall the framerail mounting adapters and crush sleeves in their previously marked locations. Do not fully tighten the crush sleeves at this time.
    d) Reinstall the cradle using all of the mounting bolts to verify everything lines up and the cradle is in the correct location. The mounting adapters and crush sleeves will need to be repositioned if they do not line up correctly.
    e) Once everything fits correctly with the cradle in the proper location, remove the cradle and tighten all of the crush sleeves down fully using the provided spanner wrench.
    f) Reinstall the cradle and check fitment one final time before welding the framerail mounting adapters and crush sleeves in place.
    g) Remove the cradle and weld the framerail mounting adapters and crush sleeves in place. Spot weld the framerail mounting adapters to the top of the framerail using the holes in the bottom of the pockets. Weld the ends of the framerail mount adapters and stich weld the inboard edge of the framerail mounting adapters to the top of the framerails. Weld around the outer flange of the crush sleeves attaching them to the bottom of the rails.
    h) Loosely install the ALUMA-Frame cradle. Do not torque down at this time.

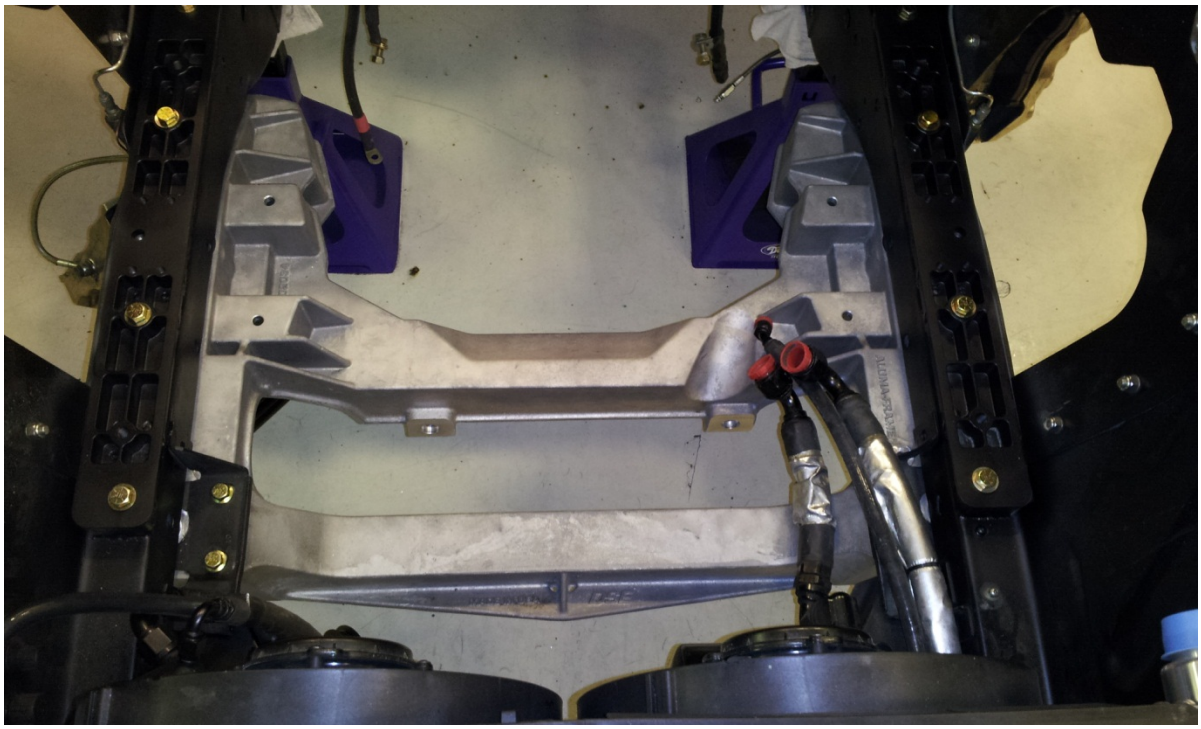


Figure 4: Installed ALUMA-Frame Cradle

6. Install the jounce bumper brackets.
    a) Place the jounce bumper brackets on the outside surface of the framerails against the bottom flange of the framerails. Place the center line of the jounce bumper brackets at a distance of 8-1/4" from the front edge of the Aluma-Frame as shown in Figure 5. The lower outboard flange of the framerails will need to be trimmed to make clearance for the jounce bumpers.

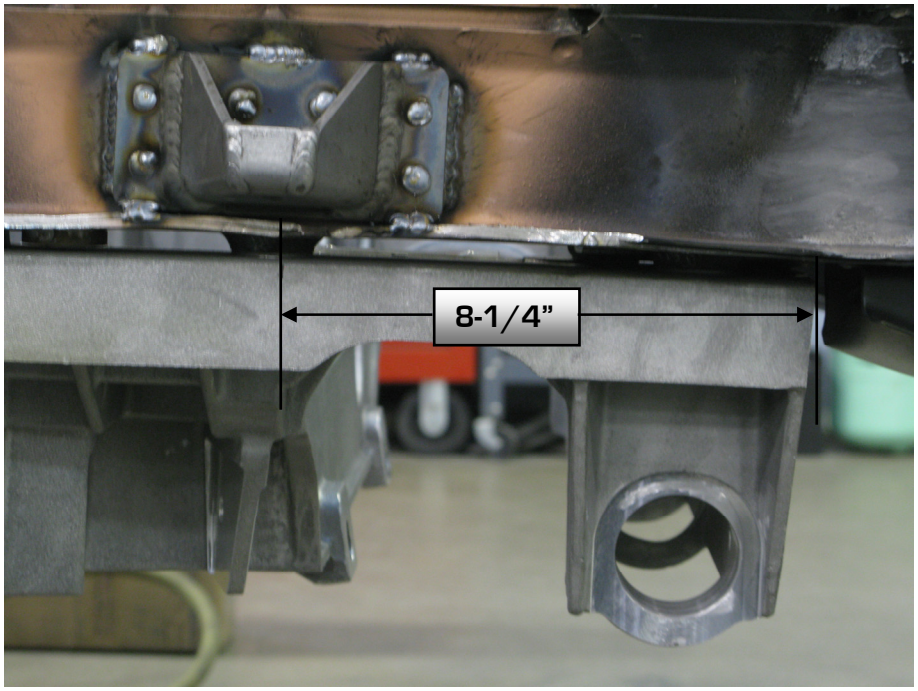


Figure 5: Jounce Bumper Bracket

    b) Mark the location of both jounce bumper brackets and remove the cradle to protect it from weld spatter.
    c) Weld the jounce bumper brackets to the framerails in their previously marked locations. Stitch weld around the perimeter of the brackets and plug weld through the holes in the brackets.
    d) Paint the framerails, framerail mount adapters, crush sleeves, and jounce bumper brackets.

7. Install lower control arm assemblies.
    a) Install the correct lower control arm (driver or passenger side). This is referenced by the bump stop pad being located on the forward tube of the control arm. See Figure 6.
    b) Install the lower control arms using the 1/2"-13 x 3-3/4" flange head bolts and flange locknuts. Install the front bolts from the rear with the nuts located towards the front of the vehicle and install the rear bolts from the front with the nuts located towards the rear of the vehicle. A rubber mallet may be required to get the arms in position.

8. Final installation of the ALUMA-Frame and jounce bumpers.
    a) Install the ALUMA-Frame cradle back in its marked location along with all of the attaching hardware. Lightly tighten the ½" fasteners first, then alternate front to rear from the center of the frame out. Tighten the fasteners in sequence a second time to about 70% of their final torque values and then tighten all of the fasteners in sequence to their final torque values.
    b) Install the jounce bumpers and spacers on the brackets.

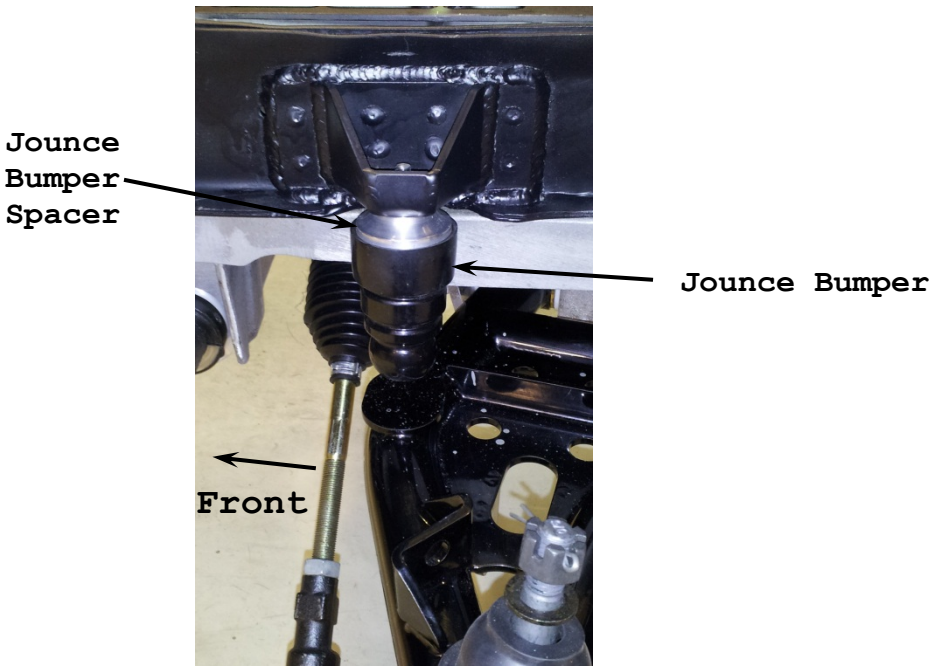


Figure 6: Lower Control Arm & Jounce Bumper

9. Install the rack and pinion assembly.
    a) Install the rack and pinion mounting spacers into the counterbores of the cradle rack mounts.
    b) Install the 9/16" USS flat washers on the 9/16"-18 x 4" bolts and insert them into the rack and pinion crush sleeves. Use anti-seize on the bolts.
    c) Install the rack and pinion into the frame using the 9/16"-18 flanged locknuts. Figure 7 shows the rack installed in the frame.

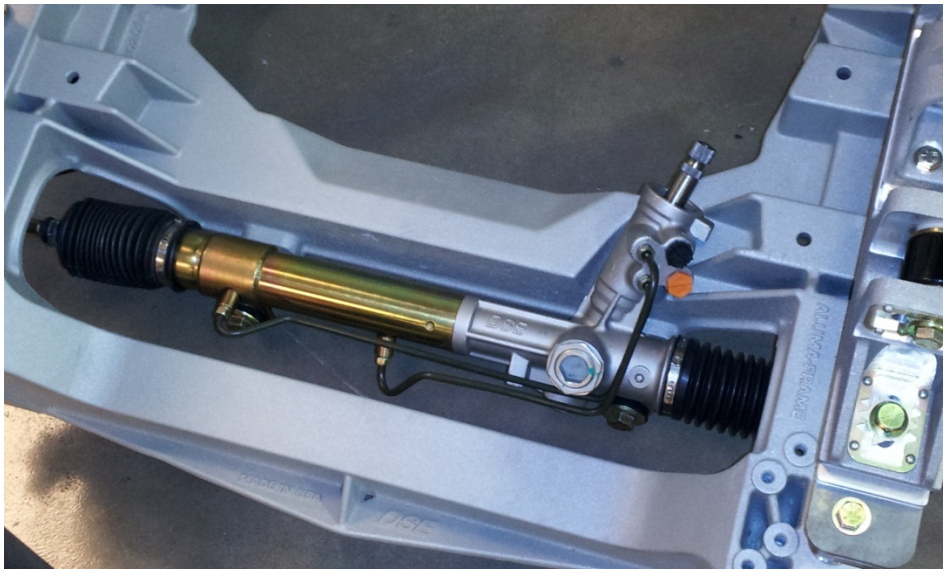


Figure 7: Installed Rack and Pinion

10. Install the anti-roll bar.

a) Slide the anti-roll bar through opening in the crossmember without the bushings installed. With the anti-roll bar in place, lubricate and then insert the Delrin bushings on both sides. Using a large socket or steel tube, fully install the Delrin bushings at this time. Center the anti-roll bar in the frame. Position the bar so that approximately 2.8" is protruding out from the bushing on each side. Refer to Figures 8 and 9 for bushing installation and for measuring reference.

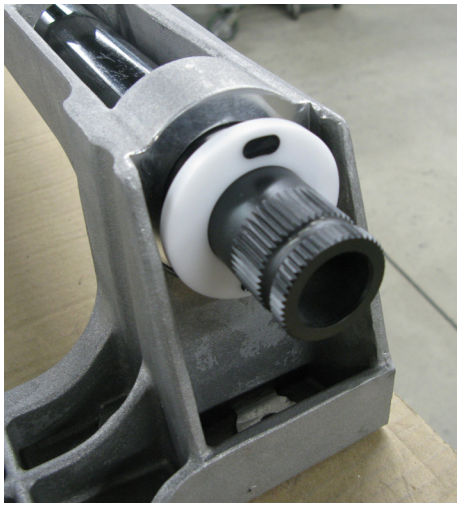


Figure 8: Installing the Delrin Bushing

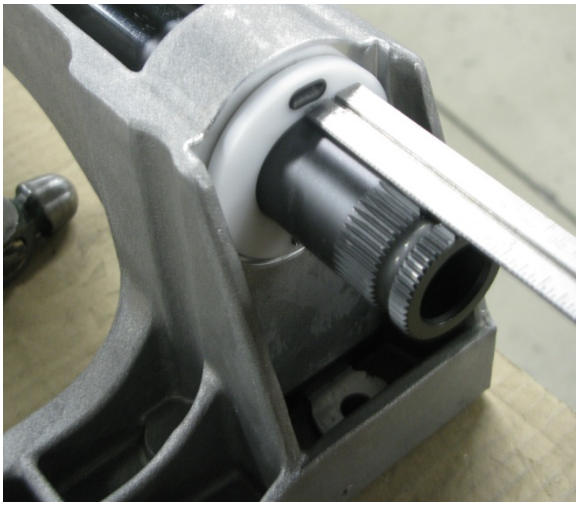


Figure 9: Measuring the Anti-Roll Bar

b) Install the anti-roll bar shaft clamps next. Loosen both Allen screws in the lock collar. Apply medium strength blue Loctite 242 to the threads and position the clamp onto the anti-roll bar. With the heads of the bolts accessible from the bottom, torque the bolts. **NOTE:** Be sure that the groove in the clamp is installed so that it points toward the center of the frame and the size marking is to the outside.

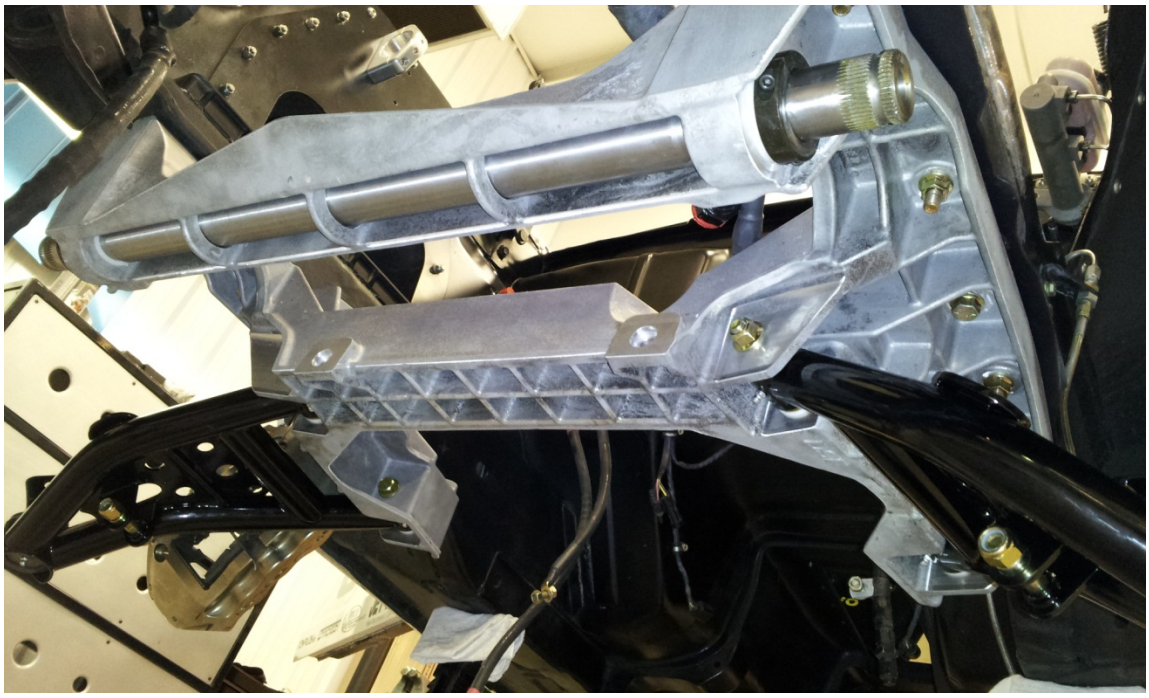


Figure 10: Installed cradle with lower control arms and anti-roll bar

11. Pre-assemble the Anti-Roll Bar End Links to the Anti-Roll Bar Arms
    a) Fully thread the anti-roll bar end link into the threaded hole on the end of the anti-roll bar arm. **NOTE:** It is critical to use high strength red Loctite 262 on the threads and torque. Figure 11 below shows the assembling of the anti-roll bar arm.

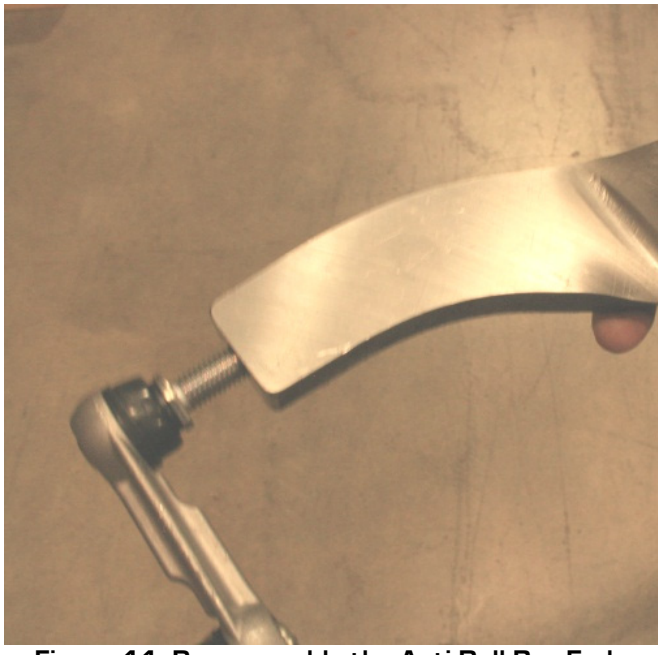


Figure 11: Pre-assemble the Anti-Roll Bar End Links

12. Install the upper control arm and coilover mount brackets
    a) Place two upper control arm bracket shims on top of each framerail adapter plate. Orient the shim so that all of the holes line up.
    b) Install Speed-*LIGN* adjusters in the front and rear mounting slots. The nominal caster setting is the "0" position on the adjusters located in the center groove of the Speed-*LIGN* frame.

c) Attach the upper control arm mount brackets with the 7/16"-14 x 2" flange bolts, but do not torque them down yet.
d) Place two shims under each coilover mount and install them on top of the upper control arm mount brackets using one 7/16"-14 x 8-3/8" flange bolt and four 5/16"-18 x 3-1/2" flange bolts. The coilover mount ears are angled towards the front of the vehicle when installed.
e) Torque the upper control arm mount bracket and coilover mount bolts.

13. Install each coilover assembly.
a) Before installing each coilover, it is necessary to build each assembly.

For the *base, non-adjustable shocks* please use the following steps to assemble each coilover shock:

(1) Assemble the coilover shock by removing the snap ring using a set of snap ring pliers to remove the upper spring seat as seen in Figure 12.
(2) Once the upper spring seat is removed you can install the spring over the end of the shock.
(3) With the spring in place, install the upper spring seat along with the snap ring as seen in Fig. 13.

Figure 12 – Removing the Snap Ring

Figure 13 - Snap Ring Installed

For the *adjustable shocks*, please use the following steps to assemble each coilover shock:

(1) Remove the upper spring seat from the retaining ring using a rubber hammer and moving it down off the upper shock mount as seen in Figure 14.
(2) Remove the retaining ring from upper shock mount and pass the upper spring seat over the upper shock mount as seen in Figure 15.
(3) Thread the spanner nut all the way to the bottom of the coilover shock and slide the coilover spring over the top of the upper shock mount.
(4) 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.

The coilover assembly in now complete and ready to be installed

Figure 14: Upper Seat and Retaining Ring

Figure 15: Installation of Retaining Ring

b) The shocks are installed with the body up and the shaft down. If the shocks have a Schrader valve face it outboard. If they have a remote canister orient the hose inboard. If they have a sweeper adjustment window position it towards the rear of the vehicle.
c) Insert the upper shock mount spacers in the upper shock bearing and slide it in position in the coilover mount. Secure with a 1/2"-13 x 3" hex flange bolt and 1/2"-13 flanged locknut.
d) Slide the lower bolt with the spacer through the eyelet and install the nut.

14. Install the Anti-Roll Bar Arms
    a) Push down on the lower control arm to make sure that the shocks are fully extended.
    b) Insert the anti-roll bar end link into the mounting bracket on the lower control arm on either the driver or passenger side. Slide the anti-roll bar arm onto the splines of the anti-roll bar. Install the nut and washer on the end link with high strength red Loctite 262.
    c) Repeat the installation process for the opposite side. Make sure that the anti-roll bar arms are "timed" properly (lined up with each other on the splines).
    d) With both sides installed, torque the anti-roll bar arm to anti-roll bar retaining bolts and the end link nuts.

15. Install the upper control arm assemblies.
    a) Obtain the proper Driver or Passenger side Upper Control Arm. They have "L" (Left, driver's side) or "R" (Right, passenger's side) stamped on the top of the ball joint mounts for identification.
    b) Install Speed-*LIGN* adjusters on the four 7/16"-14 x 3-1/2" flange bolts.
    c) Install the upper control arms; a rubber mallet may be required to get them in position. The nominal caster setting of the Speed-*LIGN* adjuster is 1/8" inboard offset in the first outboard adjuster frame groove. Install the bolts with high strength red Loctite 262 and position the arms so that the adjuster is located in the nominal location.
    d) Install the 7/16"-14 flanged locknuts on the bolts and torque to specifications.

16. Install the outer tie rod ends.
    a) Thread the outer tie rod ends onto the rack and pinion.
    b) When installing the tie rod ends, make sure they are equal distance on each side to center the steering. To verify, measure from the end of the threads to the edge of the jam nut. This measurement should be approximately 1" per side. Use anti-seize on the threads.
    c) Install the grease fittings into the tie rod ends.

17. Install the spindle assembly.
    a) Install the spindle to the upper control arm first.
    b) Torque the upper ball joint washer and nut.
    c) Place the spindle on the lower ball joint. **NOTE:** Turn and position the stud so the cotter pin locates from front to rear to ease installation.
    d) Tighten the lower ball joint nut to the appropriate torque setting and install the cotter pin. **NOTE:** It is critical to follow the torque procedure listed in the table on page 4 and to use high strength red Loctite 262 on the lower ball joint threads.
    e) Insert outer tie rod end into the steer arm and torque. Install the cotter pin.

18. The suspension is assembled at this point. Figure 16 shows a completed installation.

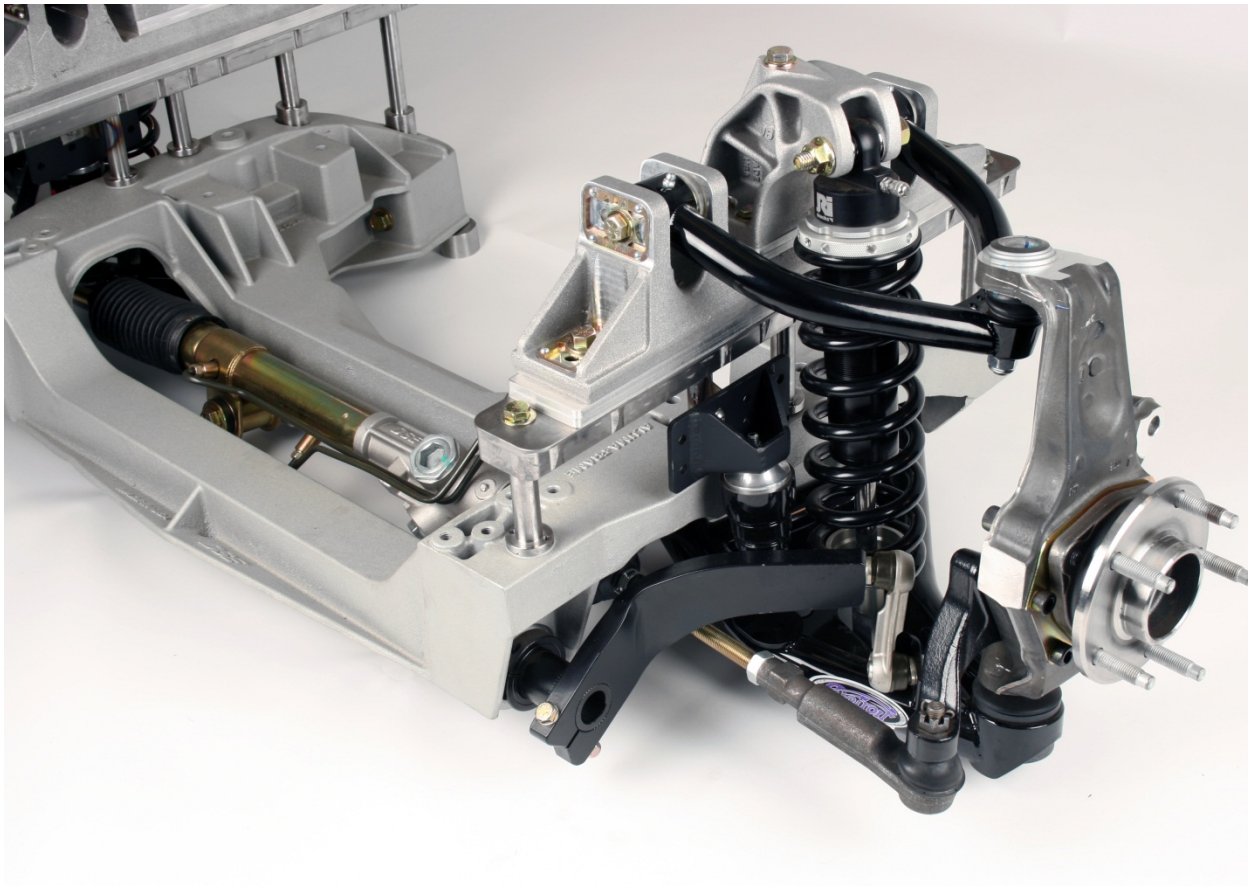


Figure 16: Fully Assembled View (Driver side, Front)

19. After the ALUMA-Frame is installed into the vehicle, the power steering hoses can be attached to the steering gear. Follow Figure 17 for the location of the pressure and return ports.

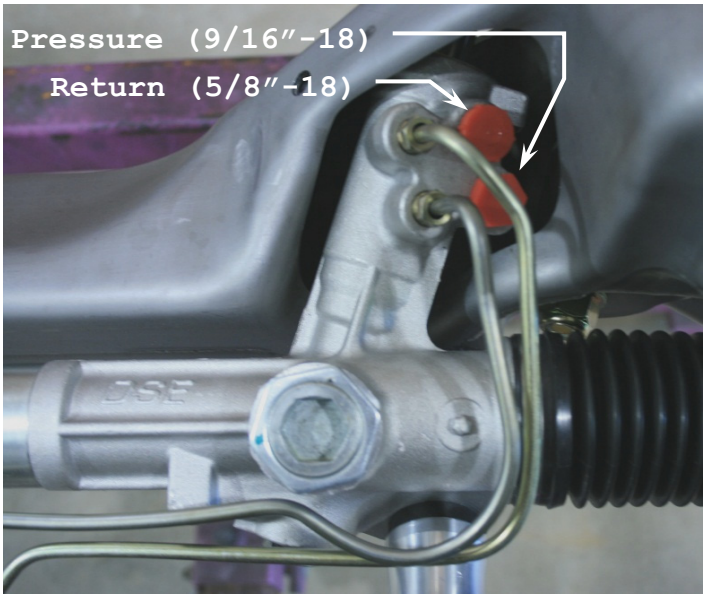


Figure 17: Pressure and Return Port Locations

20. Setting the vehicle ride height.
    a) With the vehicle assembled with all components installed, adjust the ride height as necessary. If needed, Detroit Speed has available an Adjustable Spanner & Adjustment Tool available as P/N: 031060 & 031061, a photo can be seen in Figure 18.

Figure 18: Shock Adjustment Tools

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

DSE 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 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 19 below

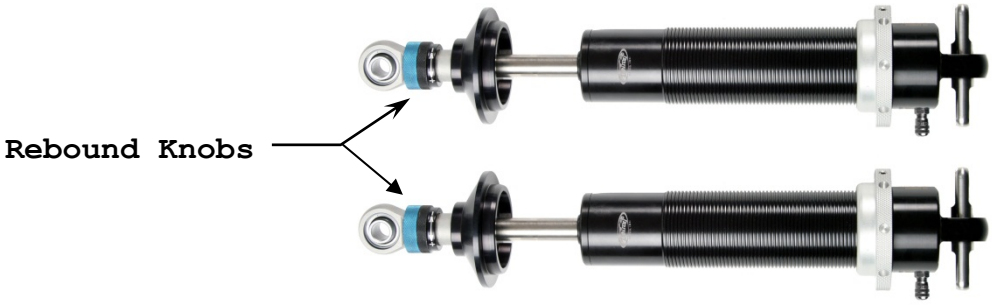


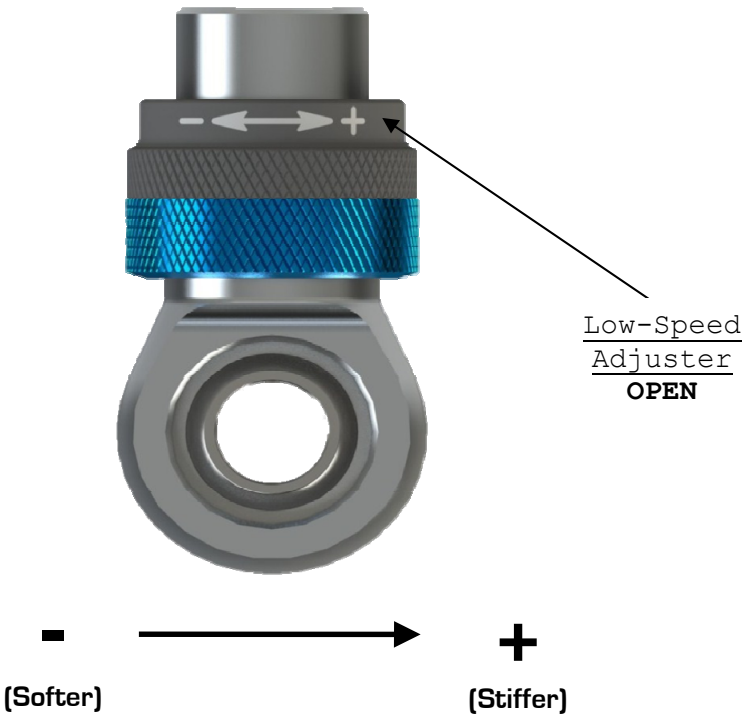
Figure 19: DSE Single Adjustment Shock

To return to the DSE recommended settings, turn the knob clockwise (+) to full damping. Once at full damping turn counterclockwise (-) to reach the recommended settings. Refer to Figure 19b for the rebound settings.

Rebound (Shaft Knob)..... 15 Open (counterclockwise, -)

Figure 19b – DSE Recommended Settings

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**

DSE Double Adjustable Shock Applications

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 20.

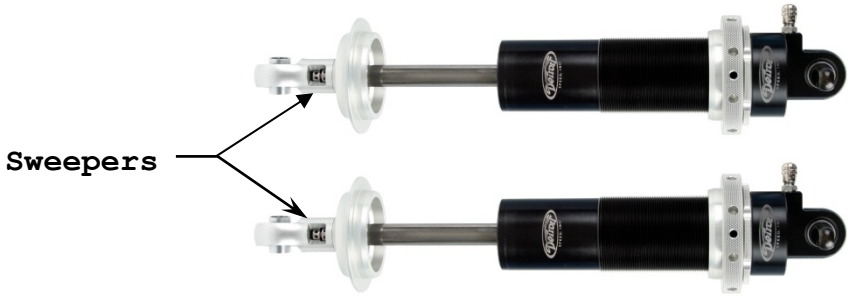


Figure 20: DSE Double Adjustable Shocks

When adjusting the low speed rebound start at full (+) position, when adjusting the high speed rebound start at full (-) position. To return to the DSE 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 20b for recommended settings.

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

Figure 20b – DSE Recommended Settings

DSE 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 21.

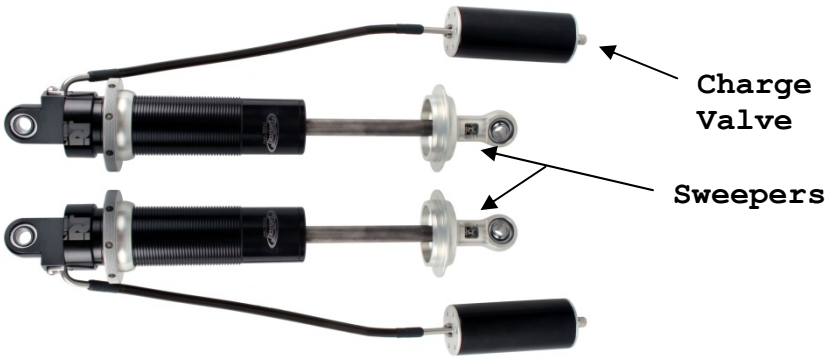


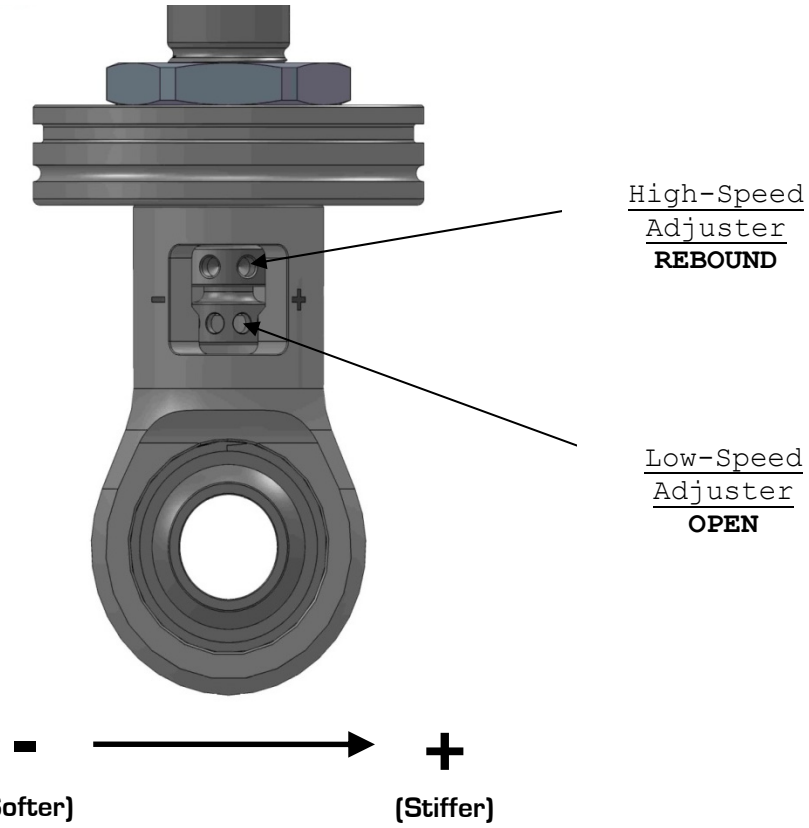
Figure 21: DSE Double Adjustable Shock with Remote Canisters

When adjusting the low speed rebound start at full (+) position, when adjusting the high speed rebound start at full (-) position. To return to the DSE 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 21b for recommended settings.

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

Figure 21b – Recommended Settings for DSE 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 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.

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 DSE, P/N: 032102. They are shown in Figure 22.

Figure 22 – Billet Aluminum Remote Canister Mounts

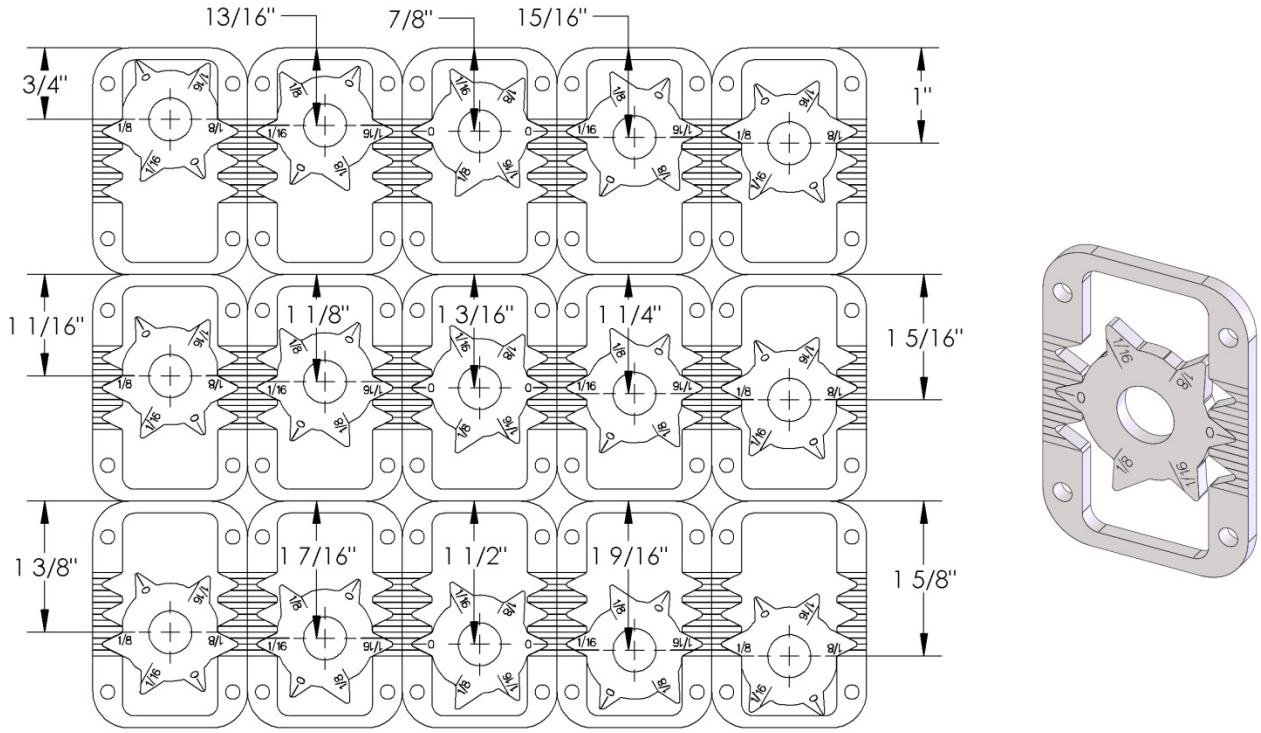
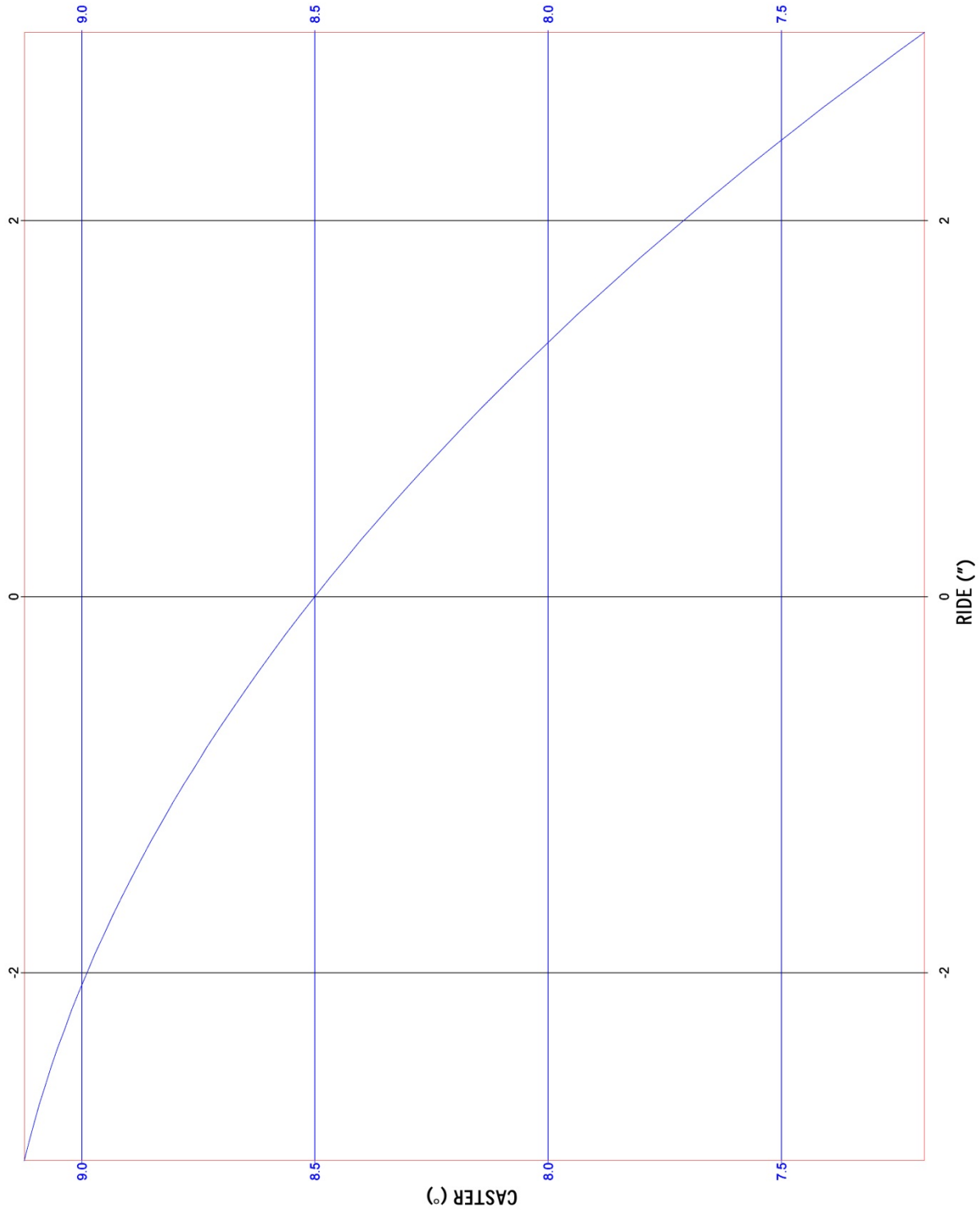
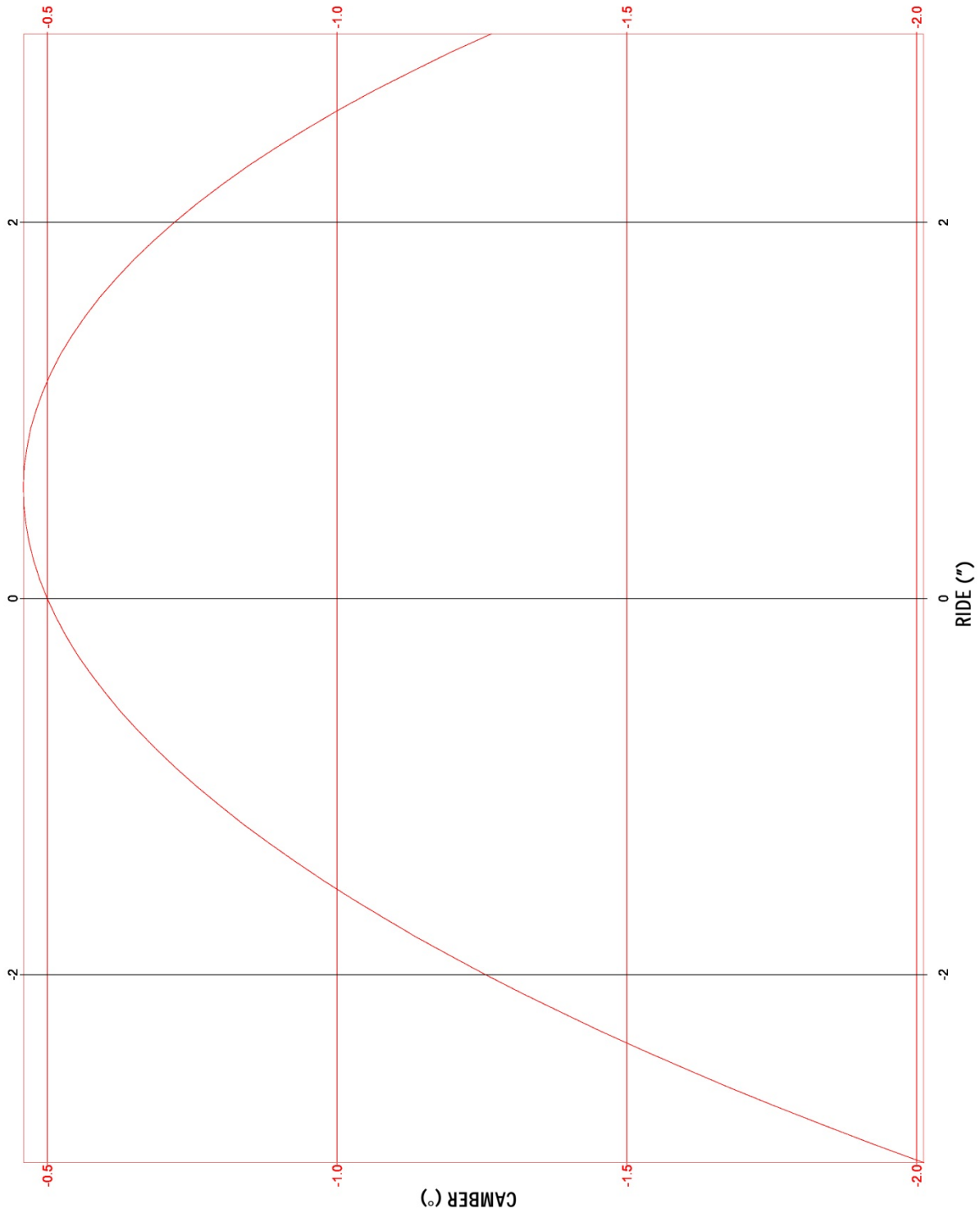


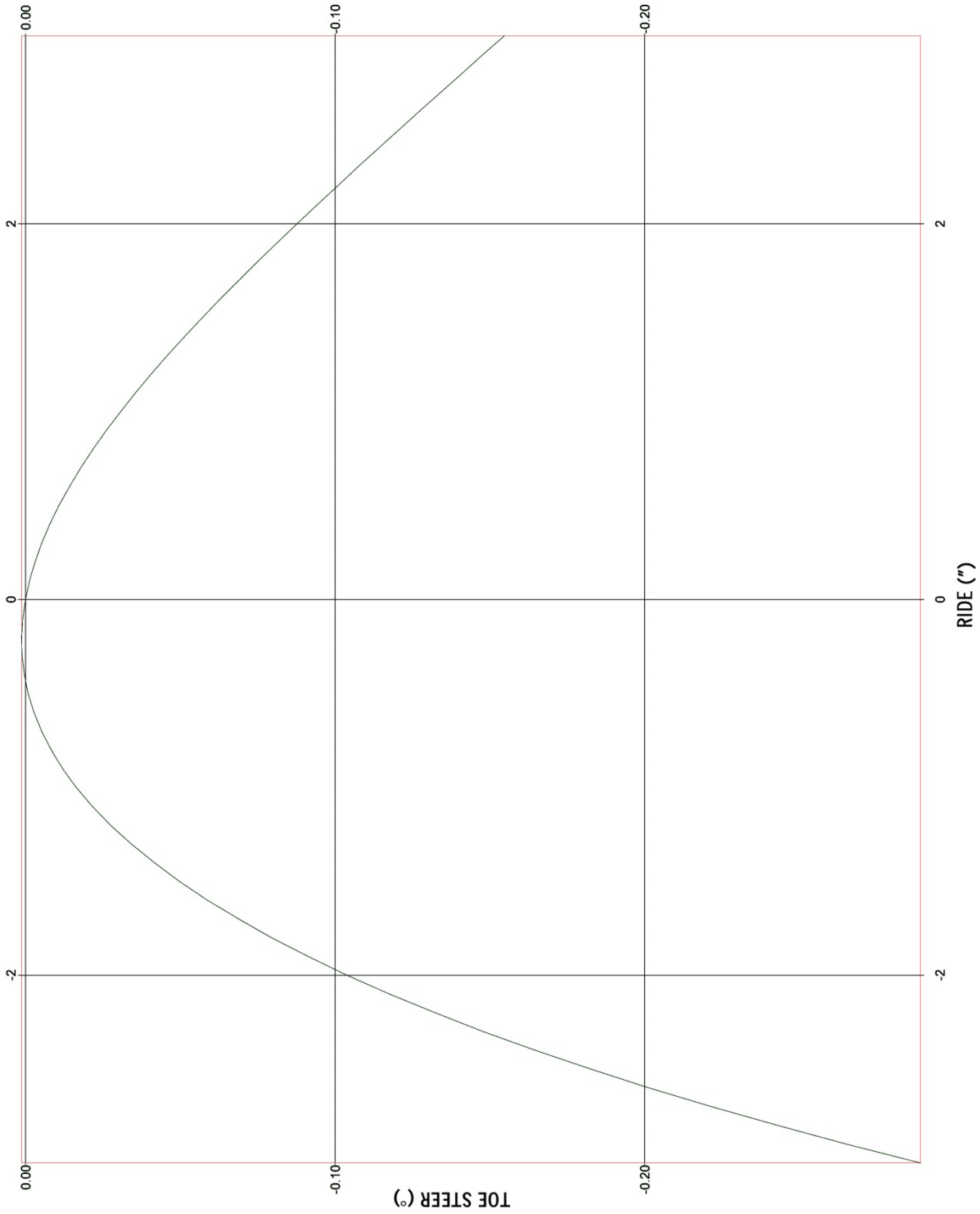
Figure 23: DSE Speed-*LIGN*

The DSE patent pending Speed-*LIGN* adjustment device allows quick, accurate, and repeatable adjustments to be made without needing any additional components. The Speed-*LIGN* adjuster consists of a notched outer frame which is attached to a frame with a slotted adjustment hole and the Speed-*LIGN* adjuster which locates a bolted component. The Speed-*LIGN* adjuster can be rotated to achieve five settings in increments of 1/16" (-1/8, -1/16", 0, +1/16", +1/8") for every notch in the outer frame. For example, a three notch adjuster would have fifteen settings 1/16" apart with a total of 7/8" of adjustment. Adjustments are simply made by loosening the attaching fastener enough so the DSE Speed-*LIGN* adjuster can be released from the notched frame and then moved to the desired notch/position. Once the fastener is tightened, the Speed-*LIGN* adjuster locks the fastener in the desired position in the slot. The Speed-*LIGN* adjuster and the notched frame are clearly marked so that the adjuster position can be read and recorded.

22. Have a professional alignment completed following the specifications given in the chart on Page 2.


9.0
8.5
8.0
7.5
2
0
-2
RIDE (")
CASTER (°)


-0.5
-1.0
-1.5
-2.0
2
0
-2
RIDE (")
CAMBER (°)



If you have any questions, please contact Detroit Speed, Inc. at (704) 662-3272.

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