

## **2010 Camaro And Newer Live Axle Package Assembly Instructions**



### **5th Gen Camaro M9 Live Axle Pkg.**

#### **Part# 7H9FDR**

**\*\* Be sure to retain all packaging until after installation is complete\*\***

**\*\*No parts may be returned if they are not in original packaging  
or have been modified or damaged\*\***

The following instructions are for the Moser Engineering rear sub frame package for the 2010 & up Camaro's.

This kit was designed to be use for racing purposes where the independent rears won't hold up to the higher horsepower outputs of today's modern engines especially when power adders are used.

This kit is of modular design and requires above average fabrication & welding skills. There is welding that needs to be done to complete this project that should only be done by a qualified welder.

These Instructions are supplied as a guideline for assembly and require that you supply a clean and safe working environment to avoid damage to yourself, others, your new

components or your car. If you have any questions during the installation of this product you can contact Moser Engineering and talk to any of our qualified technicians.

## **\*Safety precautions should be followed at all times!\***

### **Assembly Instructions**

This package is designed to replace the entire independent rear cradle assembly. It requires the removal of the exhaust, fuel tank & lines, interior, insulation & assorted sheet metal cross members & bracing to allow for the installation of this package.

Aftermarket fuel system, driveshaft, shocks, exhaust, brakes and other assorted parts will be required to complete this project. Everything with the exception of the fuel system is available from Moser Engineering.

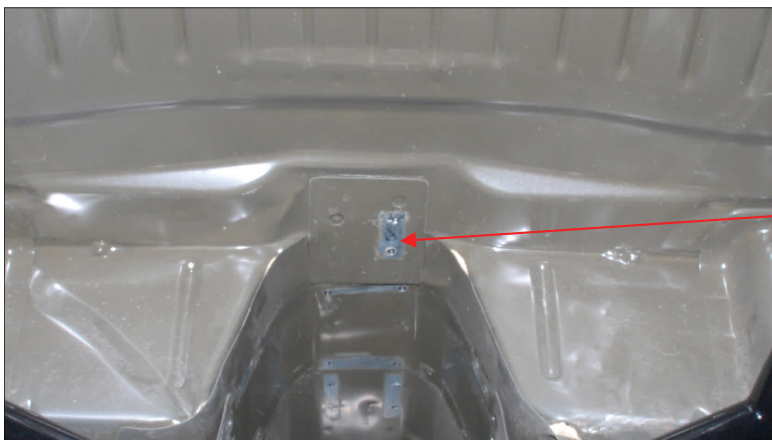
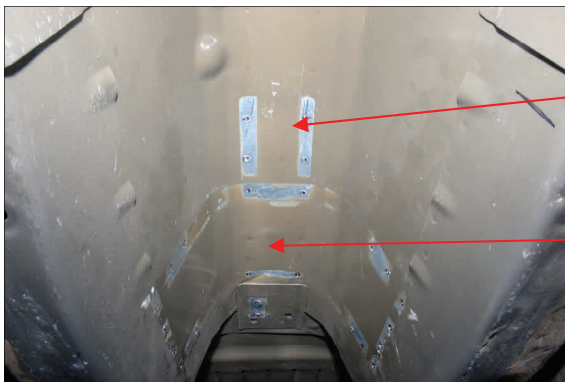
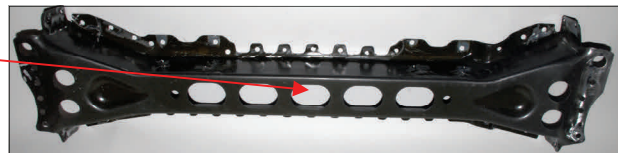
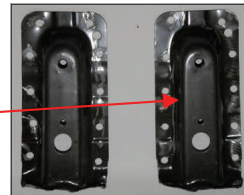
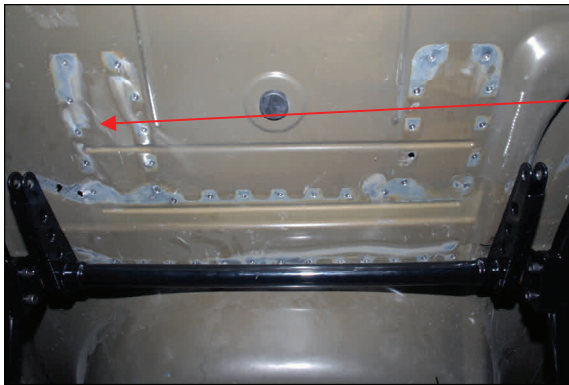
This must be done on a hard, level surface. The car needs to be supported on all 4 corners so that the rear cradle assembly and associated parts can be removed without interference. It's recommended that the car be level from front to back & side to side.

The cross member for the forward torque arm mount needs the adapter plates welded in to the sub frame rails.

Remove the seats, carpet and any insulation that may burn as a result of cutting or welding that may be done.

At this point remove the exhaust, driveshaft, fuel tank, lines, complete cradle assembly & the charcoal assembly.

***There are 6 sheet metal pieces that need to be removed to facilitate the installation of the sub frame assembly.***



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They consist of the upper cross member, charcoal canister brackets, e-brake cable guide & the tunnel support bracket. It's recommended to use a spot weld drill to remove these pieces.

The removal of these pieces should be enough in itself to allow for the installation of the sub frame assembly. Do to inconsistencies in assembly by the manufacturer, there may need to be some "hammer work" to allow for minor clearance issues.



Push the 2 oillite bushings into the bushing mounts making sure they slide freely into the mounts. Lightly grease the inside of the bushings with bearing grease. Slide the bushing assemblies onto the anti roll with the thrust surface of the bushing facing in. The bushing assembly must slide onto the anti roll freely, it may be necessary to sand any powder coat or paint off the ends of the anti roll to allow the bushing assemblies to rotate freely on the ends of the anti roll bar.

Bolt the anti roll assembly to the top of the sub frame assembly using the supplied 4, 3/8"x3/4" socket head cap screws & 3/8" lock washers. This assembly must be installed before the sub frame is installed into the frame.

Install the sub frame into the chassis using the supplied 4,M16-2x40 bolts & lock washers and 2,M10-1.5 bolts and lock washers. The new sub frame assembly bolts to the 6 existing cradle mounts. As stated before, there may be a need to do some "hammer work" to allow for minor clearance issues.

The front cross member installs between the sub frame rails 25 1/4" to the back edge of the adapter plates from the front edge of the front cups on the rear sub frame assembly. It will be necessary to remove any paint or undercoating to allow for proper fit of the adapter plates to the sub frame rails. There needs to be 4 1" holes drilled to allow for clearance of the weld nuts on the back of the adapter plates to the sub frame rails. Measure forward 1 1/4" and 4 3/4" from the 25 1/4" mark, measure up 1 5/16" on each corresponding mark. Drill a 1" hole at the intersection of each mark. Use a step drill or 1" hole saw to complete this project.

At this point install the cross member assembly in between the sub frame rails to allow for welding the adapter plates to the sub frame rails. Loosely attach one of the adapters to one end of the cross member using the supplied 4,7/16"x 1 1/2" bolts and lock washers. Hold the other opposing adapter against the sub frame rail and slip the cross member into position for welding.

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Double check the cross member assembly is at 25 ¼" to the back of the adapters on both sides and tack weld. This assembly welded in completely once all clearance issues on the front of the torque arm are met.

Install the 4 heim assemblies into each end of the control arms and then install the control arm bushings into the heims.



Using 2 ½"x3" bolts, flat washers and top lock nuts, install the control arms into the forward control arm mounts on the sub frame. (2<sup>nd</sup> hole up is a good starting point for the sub frames with adjustable mounting points.)

The panhard assembly attaches to the sub frame next. Start by threading the ½" LH and RH jam nuts onto the LH and RH moly heim joints. Thread the jam nuts onto the heim joints so that ¼" of thread is sticking out past the jam nut. Thread the heim joints into the corresponding ends of the panhard rod. It may be necessary to chase the ends of the panhard rod with a tap to allow for the heim joints to thread in freely. Make sure you use an anti seize lubricant on the end of all of the heim joints included in this kit! Use one of the ½"x2 ¼ bolts, mis-alignment spacers flat washers and lock nut to attach one end of the panhard rod to the 2 tabs on the upper left hand sub frame rail. (The taper on the mis-alignment washers face towards the heim joint to allow for freedom of movement).

## **\*Safety precautions should be followed at all times!\***

The anti roll adjusters attach to the anti roll arms next. Install the 4, 7/16" jam nuts, 2 LH and 2 RH onto the corresponding heim joints. Thread the nuts on so that 3/4" of thread stick out past the jam nuts. Apply anti seize lubricant to the heim joint threads and thread each joint into the ends of the threaded aluminum adjusters until the nut seats against the adjusters. Using 2 of the 4, 7/16"x1 1/4" bolts, flat washers and lock nuts, attach the RH threaded ends to the anti roll arms.

Mount the shocks, springs down, to the upper shock mounts using 2 of the 4 1/2"x2 1/4" bolts, washers and lock nuts, making sure the dampener adjustment is pointing towards the opening in the top of the mount. Attach the upper mounts to the car using the 8, M10-1.5x35 bolts and washers. The mounts are left and right handed, make sure the adjusting hole is towards the rear and the contour of the mounting surface is towards the outside.



At this point it's time to install the housing assembly into the car. It will be easier to maneuver it under the vehicle less axles and brakes. 12 bolt rears will be ready to go, 9" housings will at least need the center section installed. Set the housing under the car on jack stands close to it's final location. It may be necessary to move the housing up or down, forward or backward to complete this step. Attach the control arms to the housing control arm mounts using the 2, 1.2"x3" bolts, washers and top lock nuts. (on brackets with multiple adjustments, start with the bottom holes).

Attach the anti roll adjusters to the housing mounts using 2, 7/16"x1 1/4" bolts washers and lock nuts.

Attach the panhard rod to the panhard mount on the housing using the 1/2"x1 1/4" bolt, mis-alignment bushing and washer. Slip the washer on the bolt, the mis-alignment bushing on the bolt, taper up and insert the whole thing through the heim joint and thread into the panhard mount.

If you are using a 12 bolt you'll need to install the torque arm housing adapter using the 4, 1/2"x1 1/2" coarse thread bolts and locking washers. It's highly recommended to use Red Locktite on these bolts.

The torque arm has a 9' long, 1" OD tube that slides in and out of the front of the torque arm that allows for rear suspension movement without binding. It's important this "slider" is kept lubricated at all times. There is a grease zerk on the torque arm for this. Thread a 3/4" jam nut all the way onto the 5/8"x3/4" moly heim joint. Apply anti seize to the threads and thread the heim joint fully into the slider. Tighten the jam nut against the slider.

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The rear of the torque arm uses 2,3/4"x3/4" solid rod ends and a pinion angle adjuster that has a male left hand thread and a female right hand thread. Thread the right hand jam nuts onto the solid rod ends and the left hand jam nut onto the pinion angle adjuster. Make sure 7/8" of thread is sticking out past the jam nut on all 3 pieces.

Apply anti seize to the threads on all three pieces. Insert the pinion adjuster into the bottom rear tube adapter on the torque arm until the jam nut just touches. Thread one solid rod end into the pinion adjuster until the jam nut seats. Thread the second solid rod end into the top tube adapter on the rear of the torque arm.

Attach the torque arm to either the housing (M-9) or the torque arm adapter (12 bolt) using the 2,3/4"x2 3/4" bolts, washers and lock nuts.

The front of the torque arm attaches to the forward torque arm mount that's welded to the front cross member using the 5/8"x2 3/4" bolt, flat washers, safety washers and top lock nut. The safety washers go on each side of the heim joint, narrow side toward the heim joint to allow for freedom of movement during the suspension travel.

Start with the assembly in the second hole up from the bottom. Once the torque arm is in place, check the clearance between the front end of the torque arm and the jam nut on the slider. This clearance should be at a minimum of 1/2". Ideally the flats on the slider should be fully exposed. If all needs are met, weld the adapter plates to the sub frame rails.



The lower shock mounts attach approximately mid point on the adjustable housing mounts. There are 2 left hand brackets and 2 right hand brackets. One each attach to each of the adjustable housing mounts.

The shocks attach using 2,1/2"x2 1/4" bolts, washers and nuts. Depending on the width of the lower shock bearing, spacers may be needed to make up for the clearance between the mount and shock bearing.

The panhard rod centers the rear end/wheels and tires in their respective openings. At ride height, lengthen the bar to move the rear end to the right of the car, shorten to move it to the left. Once everything is centered, tighten the jam nuts to secure.

Install the axles, brakes and misc. accessories to complete this project. Don't forget gear oil!

**Please remember all final adjustments can't be done until the car is complete.**

**When finished making adjustments, make sure all the jam nuts and lock nuts are securely tightened!**

The car must be complete to start making any final adjustments. Oil, gas, water and driver must be in the car. The tires need to be set at the correct pressure.

Set the shock ride height first. Set to the recommended ride height per the manufacturer's recommendations. If that's not available, set the shock at 60 percent compression. The spring seat should be at mid point of the threaded adjuster.

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At this point the control arm should be set level. This may be done by raising or lowering the lower adjustable shock mount on the housing. On sub frames and housings with adjustable control arm mounts the mounting points of the control arms can be raised or lowered to achieve a level control arm. Double check tire clearance at this point and make any adjustments to achieve proper clearance.

The pinion angle should be set at 1 degree more than the engine angle. For instance if the engine is at a 3 degree downward tilt to the rear, the pinion should be set at 2 degrees up in the front. The pinion and the drive train centerlines should be parallel under power. Increasing pinion angle increases "hit" to the rear tires.

The anti roll arm controls body roll at launch and braking. Typically anti roll adjustments will start at neutral or no preload and go as high as one full revolution in length to keep the front end level at launch. Setting up the anti roll so the car launches straight and lifts the wheels evenly is done by increasing or decreasing the length of the anti roll adjusters.

Shock dampening should be set to manufacturers recommended specs. Loosen or tighten dampening as needed. Body roll can also be controlled by tightening compression on the right side and tightening extension on the left side.

Torque arm adjustments are made after initial runs are made. Raising the front of the torque arm it it's front mount increases rear lift, lowering the torque arm increases front end lift.

In conclusion, all of the above recommended specs will be determined by the actual "combination". Tires, converter and engine power will determine actual final adjustments.





[WWW.MOSERENGINEERING.COM](http://WWW.MOSERENGINEERING.COM) 260.726.6689





## Material List

### ANTI-ROLL HARDWARE



<b>CFF1507X</b>		Brass bushings	2
<b>737306XX</b>	7/16-20 TOP LOCK NUT	Top lock nuts	4
<b>718874XX</b>	7/16"x 1 1/4" NF	Bolts	4
<b>723909XX</b>	3/8-24 X 3/8 SHCS	Socket head cap screws	4
<b>733816XX</b>	7/16 FLAT WASHER ZINC	SAE flat washers	4
<b>7716JNLX</b>	7/16" LH	Jam nuts	2
<b>7716JNRX</b>	7/16" RH	Jam nuts	2
<b>7716SHJL</b>	7/16" LH	Mild steel heims	2
<b>7716SHJR</b>	7/16"RH	Mild steel heims	2
<b>C1000032</b>	5/8" hex	Anti roll adjusters	2

### LOWER CONTROL ARM HARDWARE



<b>718918XX</b>	1/2-20 X 3" GR 8 HEX HEAD BOLT ZINC	Bolts	4
<b>737308XX</b>	1/2" NF	Top lock nuts	4
<b>733817XX</b>	1/2" SAE	Flat washers	8
<b>C1000037</b>	Alum cones	Control Arm Bushing	8
<b>73416MHJ</b>	5/8" X 3/4" -16 RH	Moly Heim Joint RH	2
<b>73416MHJL</b>	5/8" X 3/4" -16 LH	Moly Heim Joint LH	2
<b>73416JNR</b>	3/4" - 16	Jam nut RH	2
<b>73416JNL</b>	3/4" - 16	Jam nut LH	2

### TORQUE ARM HARDWARE



<b>7651400X</b>		Pinion angle adjuster	1
<b>73416SRE</b>	3/4"x 3/4"	Solid rod end	2
<b>718993XX</b>	3/4"-16 x 2.75"	Bolts	2
<b>733803XX</b>	3/4" SAE	Flat washers	4
<b>737570XX</b>	3/4"	Nylock nuts	2
<b>718315XX</b>	5/8" NFx 2 3/4"	Bolts	1
<b>733802XX</b>	5/8" SAE	Flat washers	2
<b>737569XX</b>	5/8"	Nylock nuts	1
<b>7SW58AX</b>	5/8"	Safety washer	2
<b>73416JNL</b>	3/4"	Jam nut LH	1
<b>73416JNR</b>	3/4"	Jam nut RH	2
<b>73416MHJ</b>	5/8"x 3/4"	Moly heim	1

## Material List

### PANHARD HARDWARE



<b>71220HJR</b>	1/2" RH	Moly heim joint	1
<b>71220HJL</b>	1/2" LH	Moly heim joint	1
<b>71220JNR</b>	1/2" RH	Jam nut	1
<b>71220JNL</b>	1/2" LH	Jam nut	1
<b>733817XX</b>	1/2" SAE	Flat washer	2
<b>718911XX</b>	1/2" NFx 1 1/4"	Bolt	1
<b>718915XX</b>	1/2" NFx 2 1/4"	Bolt	1
<b>737577XX</b>	1/2" NF	Top lock nut	1
<b>C1AA574-B</b>	1/2"	Mis alignment bushings	2

### UPPER SHOCK MOUNT HARDWARE



<b>70128773</b>	M10-1.5x 35	Bolts	8
<b>738405XX</b>	M10	Flat Washers	8
<b>718915XX</b>	1/2"NFx 2 1/4"	Bolts	2
<b>737577XX</b>	1/2" NF	Nylock Nuts	2
<b>733817XX</b>	1/2" SAE	Flat Washers	4

### ADJUSTABLE LOWER SHOCK MOUNT



<b>765-1450X</b>	Only for M9 app	Lower shock mounts	2PR.
<b>718836XX</b>	3/8"NFx 1 1.4"	Bolts	4
<b>737304XX</b>	3/8"NF	Top Lock Nuts	4
<b>733815XX</b>	3/8" SAE	Flat Washers	8
<b>718915XX</b>	1/2"NFx 2 1/4"	Bolts	2
<b>737577XX</b>	1/2"NF	Nylock nuts	2
<b>733817XX</b>	1/2" SAE	Flat Washers	4

## Material List

### FRONT CROSSMEMBER



<b>715159XX</b>	7/16"x 1 1/2" NC
<b>8716LW</b>	7/16"
<b>718315XX</b>	5/8"x 2 3/4" NF
<b>7SW58AX</b>	5/8" ID
<b>733802XX</b>	5/8" SAE

Crossmember Bolts	4
Lock Washers	4
Front Torque Arm Bolt	1
Safety Washers	2
Flat Washers	2



### SUB FRAME



<b>711103288</b>	M16-2 x 40
<b>738632XX</b>	M10- 1.5 x 40
<b>733630XX</b>	5/8"
<b>740384XX</b>	M10

SHCS bolts	4
Bolts	2
Lock washers	4
Lock washers	2



### HOUSINGS

**7H9FDR**

**MOSER M9 FABRICATED HOUSING**



Notes: