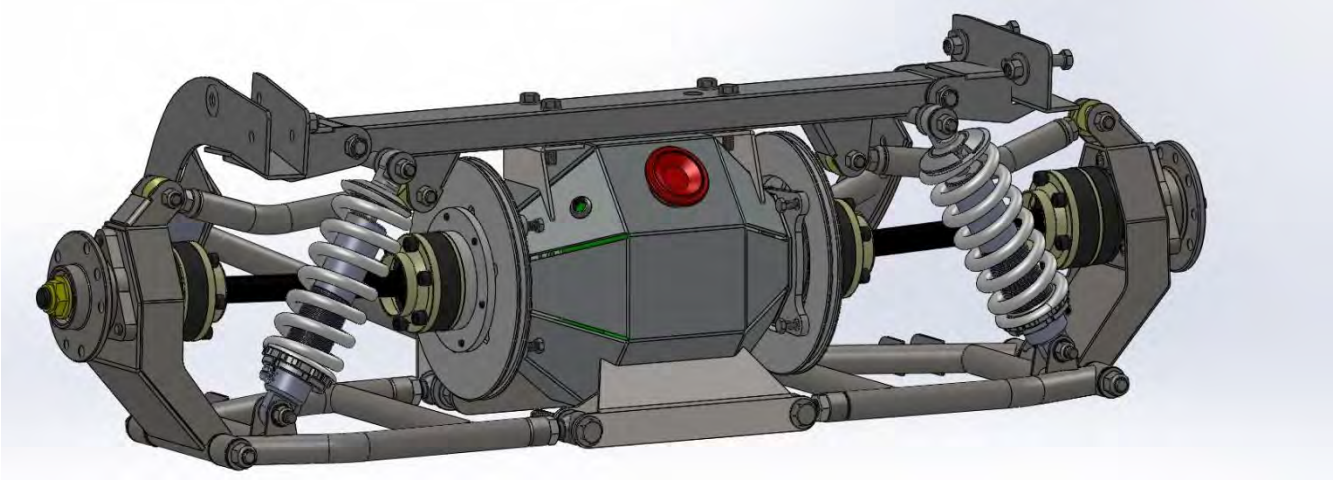
INSTALLATION INSTRUCTIONS

68-74 CHEVROLET NOVA

(NVR-301)

INDEPENDENT REAR SUSPENSION



Please read these instructions *completely*
before starting your installation.

Assemble suspension on vehicle before powder-coating to ensure proper fitment, and to make modifications if necessary.

PARTS LIST

1) Bolt-In Top Crossmember
2) 1 ¼"Adjustable Lower Control Arms
2) Adjustable Shocks
1) Rear End Housing
1) 3rd Member
1) Tie Bar (Rear)
1) Pinion Crossmember
2) Strut Rods
2) Caliper Mounting Plates
2) Bolt-In Saddle (Optional)
2) Bolt-In Sub Frame Connectors
2) Outer Uprights
2)1 ¼" Adjustable Upper Links
2)Chrome Springs
2) Stub Axles w/ Bearings
1) Pinion Mounting Plate
2) Bearing Assemblies
2) CV Joint Axles
2) Rotor Adapters
2) Brake Rotors
8) ¾ OD 2" Weld In Frame Slugs
2) ¾ OD 2 ½" ID Weld In Frame Slugs

HARDWARE PACKAGE

CV Joint Axles
12) M10 x 1.5 x 80MM Bolt
12) M10 Split Lock Washer

Rotors
12) 5/16-24 x ¾" Button Head Bolt
12) 5/16 Split Lock Washer

Top Crossmember
4) M-12 x 25 MM Washer
4) ½-13 x 2 ½" Bolt
2) 5/8-18 x 4 ½" Bolt
2) 5/8-18 Nylock Jam Nut
2) 5/8 Washer

Pinion Plate Assembly
5) 3/8-16 x 1 ¼" Bolt
5) 3/8 SAE Washer

Saddles
16) ½" Washer
8) ½-13 Nylock Nut
2) ½-13 x 3 ½" Bolt
6) ½-13 x 3" Bolt

Lower Control Arms
2) 5/8-11 x 3 ½" Bolt
2) 5/8-11 X 5" Bolt
4) 5/8 Washers

Coil Over Shocks
2) ½-13 x 6 ½" Bolt
2) ½-13 x 2 ½"Bolt
4) ½-13 Nylock Nut
4) ½" Washer

Outer Uprights
8) Rod End Spacer
4) ½-13 Nylock Nut
4) ½-13 x 2 ½" Bolt
6) M12 x 60MM Bolt
6) M12 x 25MM Washer

Calipers
10) 3/8 Double Threaded Stud
10) 3/8-16 Nylock Nut
4) 3/8-24 x 1 1/8" Bolt
4) .031" Shim Washer
4) .015" Shim Washer

Strut Rods
4) ½-13 x 2 ½ Bolt
4) ½-13 Nylock Nuts

3rd Member
10) 3/8 Double Threaded Stud
10) 3/8-16 Nylock Nuts
10) 3/8 AN Washers

You are about to install your HEIDTS suspension system. The HEIDTS I.R.S. kits are designed so all that is taken care of for you. Just follow the instructions step by step, reading each step completely, and in a very short time your car will be sitting on the nicest riding I.R.S. kit available.

1) Begin your installation by jacking up your vehicle and supporting it on sturdy jack stands. The stands must be placed on the flat section of the frame rails close to the front and rear body mounts. Remove the rear wheels and shocks. Disconnect the brake lines, emergency brake Lines and leaf springs. Remove rear end assembly as shown in **Figure 1.**

Figure 1

2) After the rear end housing, leaf springs and shocks are removed, remove the factory bump stops and anything else in the frame rail area where the saddles will be installed. Clean the frame rails after everything is removed. **See Figures 2 and 3**.

Figure 2

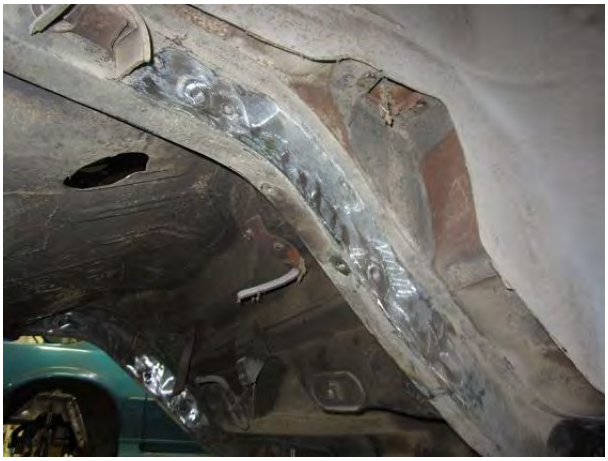


Figure 3

3) Insert the IRS Saddles onto the rear frame rails. Measure from the center of the rear leaf spring mount to the end of the saddle 25”. Use a mallet to set the saddle on the frame rails so there are minimal to no gaps. **See Figures 4-8**. An optional cut out for the upper link is shown in Figure 8. The cutout can be done at this time. (Drivers Side Shown)

Figure 4

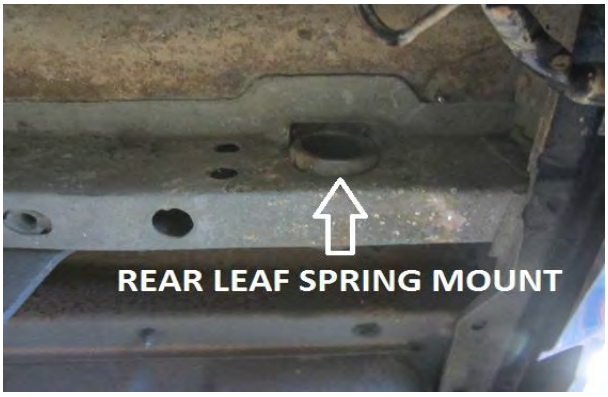


Figure 5

Figure 6

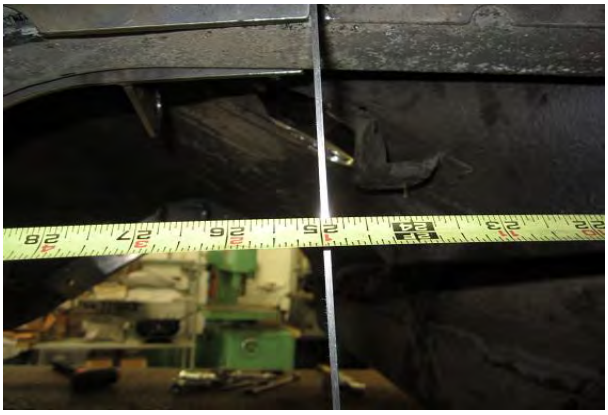


Figure 7

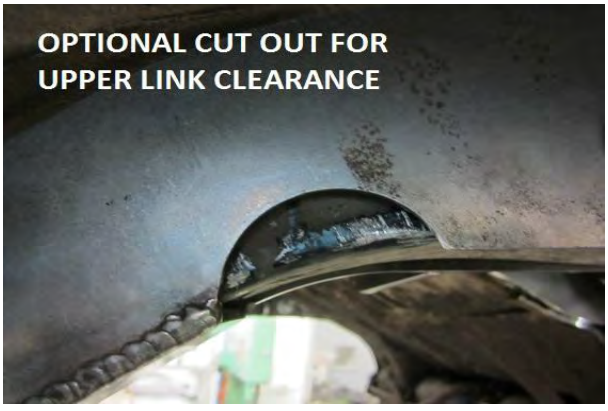


Figure 8

4) With the saddles in the correct location, center punch the holes to the frame rails. There are three holes on each side. Once all holes are center punched, mark with a sharpie around the punches for more visibility. Remove the saddles and pilot drill all center punched holes 1/8". Step up the drill sizes to 1/4", 3/8" and final drill 1/2" all sixteen holes. **See Figures 9-11**.

Figure 9

Figure 10

Figure 11

5) Step 5 is **optional**. Flip to the last page if you are interested; otherwise proceed to the next step.

6) Steps 6 and 7 will be for the holes in the trunk area for crossmember and shock hardware to be inserted and removed. Open the truck and pull the carpet back until half of the truck is exposed. The vertical measuring point will be where the trunk area starts to flatten out.
Drivers Side: Measure 15 ¼" from the back of the front side of the trunk area as shown in **Figures 14 and 15**. Measure 7 ¾" from the inner wheel well. Mark intersecting lines with a sharpie. **See Figures 14-17**.

Passenger Side: Measure 13 ¾" back from the front side of the trunk area as shown in **Figures 18 and 19**. Measure 8 ¾"from the inner wheel well. Mark the intersecting lines with a sharpie. **See Figures 20 and 21**.
Center punch where the lines intersect. The center to center distance on the center punched marks should be around 28 ½" to 28 ¾". **See Figures 14-21**.

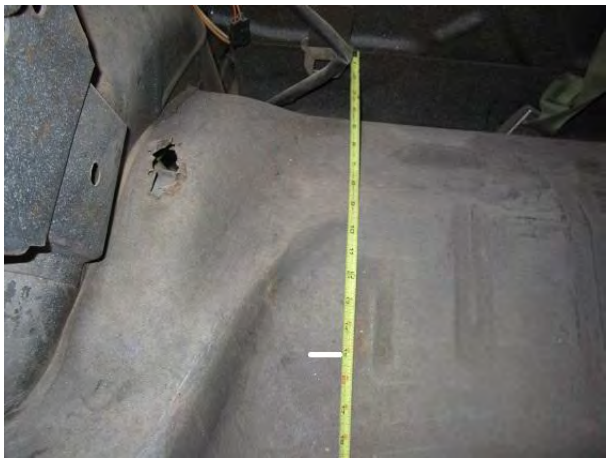


Figure 14

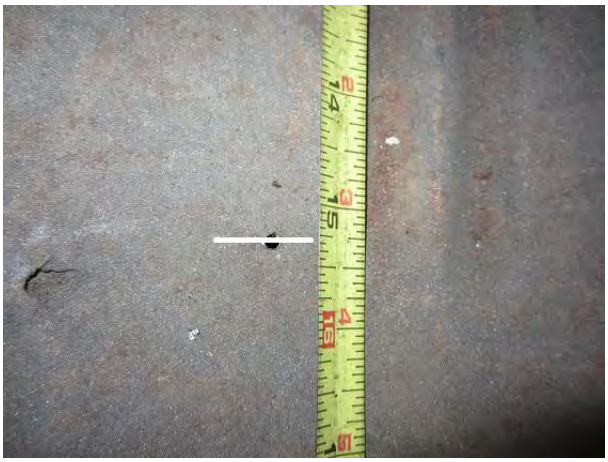


Figure 15

Figure 16

Figure 17

Figure 18

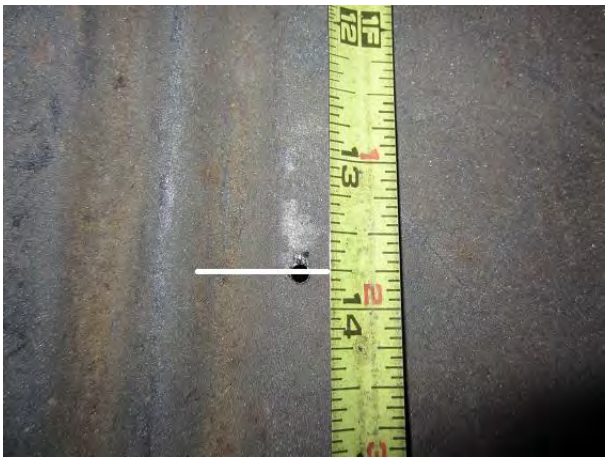


Figure 19

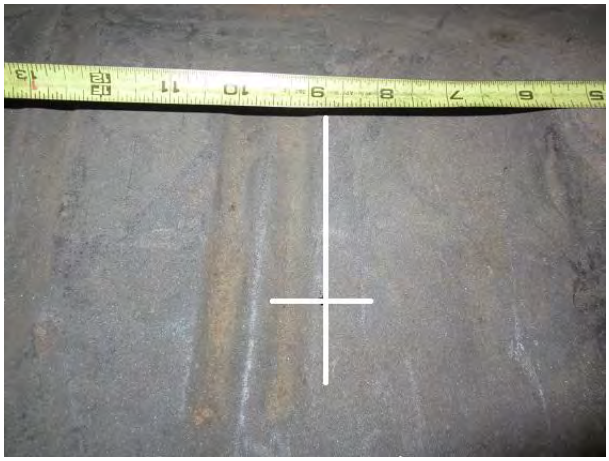


Figure 20

Figure 21

7) Use a 2 ¾" – 3" hole saw with a center point drill to create the holes in the trunk area. A barrel sander may be needed to ground the holes for bolt clearance. **See Figures 22-26.**

Figure 22

Figure 23

Figure 24

Figure 25

Figure 26

8) At this point the rear end housing can be assembled. Install the stub axle seals into the housing ends. Use a suitable sealant and insert the seals into the housing ends, with lips of the seal pointing inward until they bottom out on the shoulder of the bore. A seal installation tool will ensure that the seals are installed square. **See Figures 27-29**.

Figure 27

Figure 28

Figure 29

9) The studs can be installed next. The 1 ½" double threaded studs will be installed in the axle flanges and the 2" studs will be used for the 3rd member. Place the studs in a vice with the teeth of the vice covered to prevent damage to the threads. Using a wrench thread on the 3/8" nylock nut until the elastic goes past the threads. For the 2" studs the nylock nut is installed on the less threaded end of the stud. **See Figures 30 and 31**.

Figure 30

Figure 31

10) Install the 3RD member using the 3/8 x 2" double threaded studs, nylock nuts and gold AN washers. Install using the Ford 9" 3rd member gasket and or gasket sealer. If installing your own you will need a 31 spline unit. Use thread locker on the studs. **Torque studs to 40 ft-lbs**.

11) The front pinion plate can be installed after the 3rd member is installed. Uninstall the five front bolts from the pinion retainer. Install the pinion mounting plate on the pinion carrier as shown in Figure 34, using the 3/8-16 x 1 ¼" grade 8 bolts and washers. Use thread locker on the bolts. **Torque the 3/8 bolts 35-40 ft-lbs**. **See Figures 32 and 33**.

Figure 32

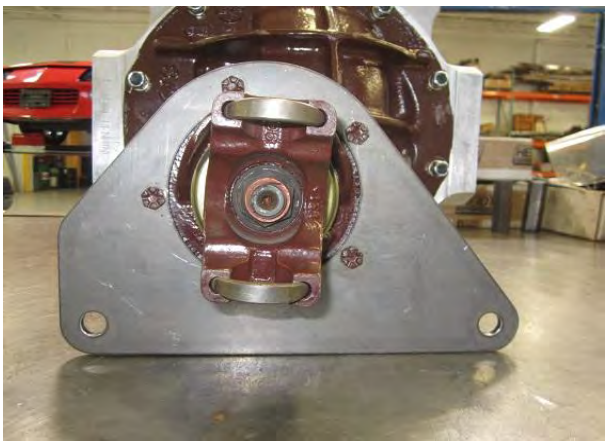


Figure 33

12) Install the stub axle into the housing using white grease on the splines for ease of installation. The longer stub axle goes into the passenger side. Slide the stub axle into the housing until the bearing bottoms out. Install the caliper plates using the 1 ¾" double threaded studs with the previously installed nylock nuts and washers. The machined sides of the plates face the housing. **Torque 3/8 studs to 50 ft-lbs**. **See Figures 34 and 35**.

Figure 34

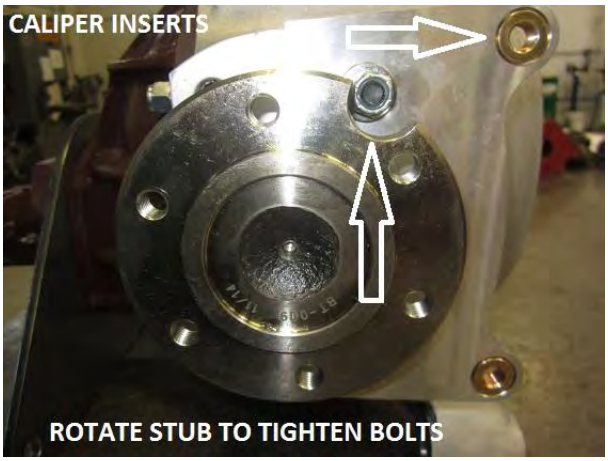


Figure 35

***** If using parking brakes, the caliper mounting plates will be installed in place of the front plates. *****

13) Install the drain plug on the bottom of the housing and the vent on top. Use anti seize on the plug and vent. **See Figures 36-39**.

Figures 36-39

14) Install the top cross member onto the rear end housing using four ½-13 x bolts and 12 MM washers. **Torque to 70 ft-lbs**. **See Figure 40.**

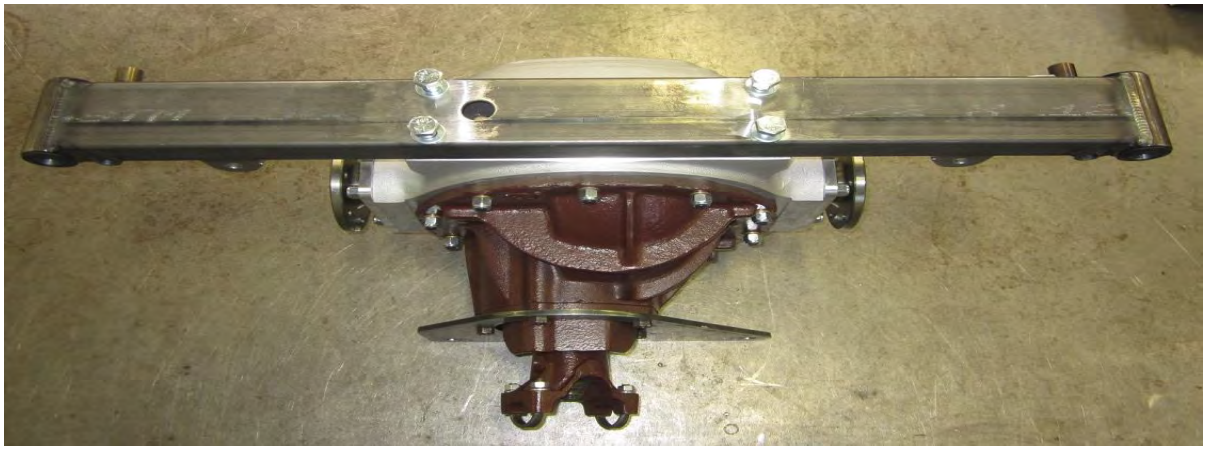


Figure 40

15) Assemble the brake rotor to the aluminum hub using the 5/16-24 x ¾" button head bolts and lock washers. Use thread locker on the bolts. Pay close attention to the arrow on the rotor. That arrow determines the rotation of the rotor. **Torque bolts to 15 ft-lbs**. **See Figures 41-43**.

Figures 41-43

16) Install the frame saddles as shown in **Figure 44** using the ½-13 x 3" bolts, washers and nylock nuts. If bolts will not install correctly carefully chase the hole or sleeve. DO NOT tighten

the front four bolts until the front pinion support is installed. The small hole on the bottom of the saddle is used for the factory bump stop bolt. **See Figures 44 and 45**.

Figure 44

Figure 45

17) Use a trans jack, floor jack or anything suitable to lift the rear end housing for this next step. Extra personal help is recommended. Lift the housing until the cross member bushings are in line with the mounts on the frame saddles. Using the previously hole sawed hole in the trunk send the 5/8-18 x 4 ½" bolt through the saddle mount and cross member. DO NOT tighten. **See Figure 46**.

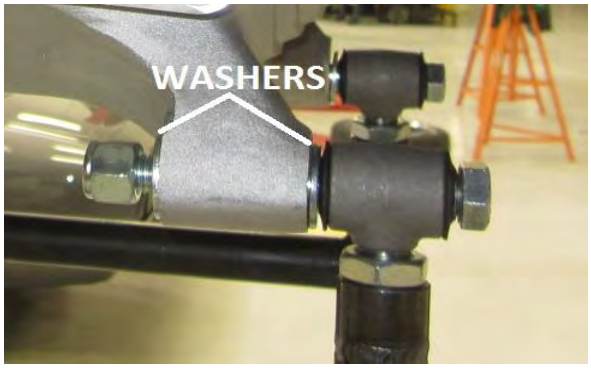
Figure 46

18) Install the front pinion support using the front bolts of the frame saddles. DO NOT tighten bolts. **See Figures 47-51**.

Figure 47

Figure 48

19) Install the lower control arms using the 5/8-11 x 3 ½" bolts and nylock nuts for the front and 5/8-11 x 5" bolts, washers and nylock nuts for the rear. The washers on the rear will be installed contacting the rear end housing. Install the rear tie bar as shown in **Figure 65**. Thread adjusters out a few turns. DO NOT tighten 5/8 bolts. DO NOT tighten jam nuts until alignment is done. **See Figures 44-46**.



Figures 49-51

20) Install the outer bearing assemblies using the six 12MM x 60MM bolts and washers. If bearing assembly does not seat without applying pressure, carefully open the hole using a

barrel sander. Use thread locker on the 12MM bolts. Install the outer uprights using the 5/8-11 x 10 ½" bolts, washers and nylock nuts. DO NOT tighten. **Torque bolts to 65 ft-lbs**. **See Figures 52-55.**

Figure 52

Figure 53

Figure 54

Figure 55

21) Apply grease to the splines of the CV joint axles. Install the axles into the bearing assemblies until the CV joint axle bottoms out. Place the nut back onto the threads and DO NOT tighten.

Place the brake rotor onto the stub axle aligning the holes as close as possible. Raise the lower control arm and outer upright until the CV joint axle holes align with the holes of the brake rotor and the stub axles. Use the twelve M10 x 1.50 x 80MM Grade 8 bolts and split lock washers to fully install the CV joint axle and rear brake rotor to the axle stub. Use thread locker on the bolts. Tighten the bolts to **57 ft-lbs**. Also, verify the pre-assembled bolts on the outer CV joint are also **torque to 57 ft-lbs**. **See Figures 56-61**.

Figure 56

Figure 57

Figure 58

Figure 59

Figure 60

Figure 61

22) Install the rod end spacers on the rod ends and install the upper link as shown in **Figures 62 and 63** using the ½-13 x 2 ½" bolts and nylock nuts. DO NOT tighten the jam nuts until car is aligned. **See Figures 62 and 63**.

Figure 62

Figure 63

23) Install the brake caliper brackets as shown in **Figures 64-66**. Use thread locker on the 3/8-24 x 1 1/8" grade 8 bolts and shim washers. Use the shim washers to space the caliper so the brake pads sit equal distance from the brake rotor. Use thread locker on the caliper bolts. Thread the bolts into the caliper brackets. Spread the end of the cotter pin in **Figure 64**. **Torque bolts to 20 ft-lbs**. **See Figures 64-66.**

Figure 64

Figure 65

Figure 66

24) Install the pre assembled coil over shocks using the ½-13 x 6 ½" bolts, washers and nylock nut. Use the hole sawed hole in the trunk for the placement of this bolt. Use the ½-13 x 2 ½" bolt and nylock nut for the lower mount on the lower control arm. **See Figures 67 and 68**.

Figure 67

Figure 68

25) With the IRS installed, use an angle finder and a floor jack under the pinion support to level the top cross member with the side rail of the car. Once the top cross member is level tighten the bolts of the top crossmember, saddles and pinion support.

26) Install the plates in the trunk over the hole sawed holes for bolt placement. Use the holes of the plate as a template. Drill the holes to 1/8" and install the self tap screws to secure the plate to the trunk floor. **See Figures 69 and 70**.

Figure 69

Figure 70

27) **Torque the nuts on the CV Joint Axles to 100 ft-lbs**. Use a 36 MM socket for this. DO NOT use an impact. **See Figures 71 and 72**.

Figure 71

Figure 72

28) Install the subframe connectors as shown in **Figure 73**. Slide the front of the subframe connector under the body mount of the front subframe. Align the slot on the rear of the connector with the stock leaf spring pocket. Use a mallet to push the sub frame connector in the correct location in needed. Center punch the six ½" holes of the subframe connector to the frame. **See Figures 73 and 74.**

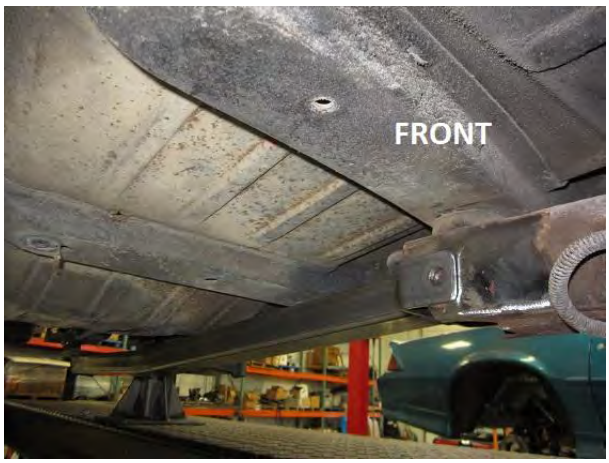


Figure 73

Figure 74

29) With the subframe connectors in the correct location, center punch the holes to the frame rails. There are four holes on each side. Once all holes are center punched, pilot drill all center punched holes 1/8". Step up the drill sizes to 1/4", 3/8" and final drill 1/2" all six holes. **See Figures 75-78**.

Figure 75

Figure 76

Figure 77

Figure 78

30) Install the subframe connecters using the ½-20 x 1" bolts, washers and nylock nuts for the front and the ½-13 x 3 ½" bolts, washers and nylock nuts for the rear. Use the 3/8-16 x 1 ¼" bolts and washers on the bottom. **See Figures 79 and 80.**

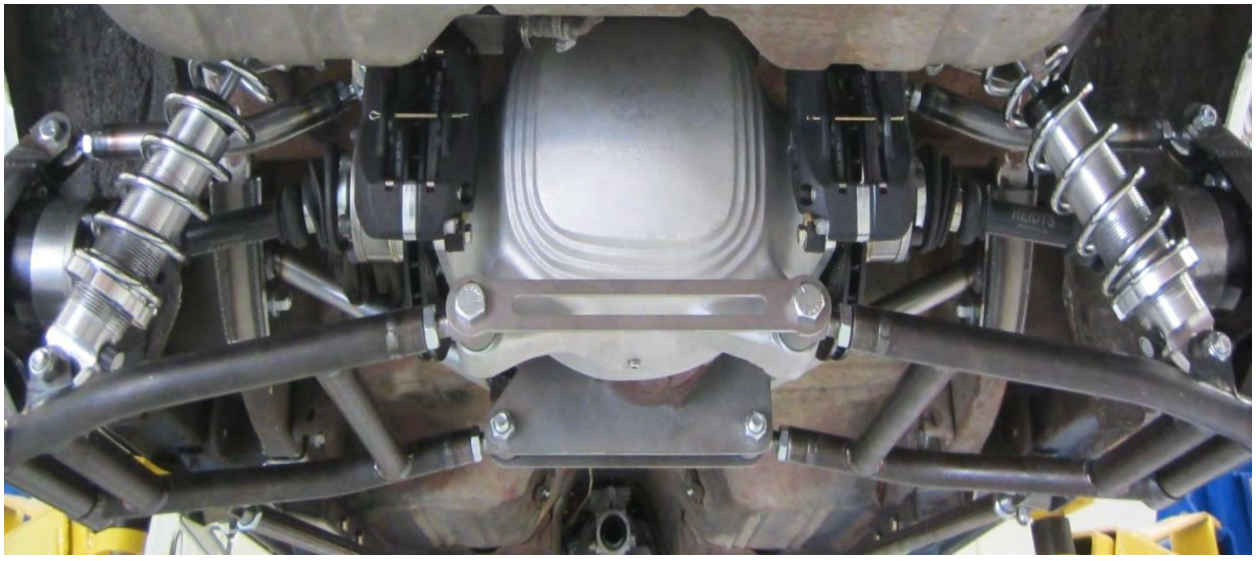
Figure 79

Figure 80

31) Attach the adjustable forward struts to the subframe connectors and the lower control arms using the ½-13 x 2 ½" bolts and nylock nuts. Make sure the threads of the shoulder bolts face to the ground. The threaded end of the adjuster gets installed to the lower control arm. DO NOT tighten jam nuts until alignment is done. **See Figures 81 and 82**.

Figure 81

Figure 82



Lastly, you are ready to set the alignment of your vehicle. Be sure to do so with the arms and shocks set at ride height (the lower control arms should be 1 to 2 degree going downhill towards the wheels). The toe and camber settings are done with the adjusters in the upper and lower control arms. Adjusters are screwed in or out an equal amount to change the camber. Just be sure that both sides have equal camber settings, or the car will tend to pull to one side and have uneven tire wear.

Alignment Specifications:

Camber: 0° - .5° Negative

Toe: 0 - 1/16 Toe-In

Since you are now to the point where you have a finished, running car (we hope!) it is time to test drive it. After a few hundred miles, double check the ride height and the alignment. The springs may have settled, which would change the ride height and the camber setting. Readjust the ride height before changing the alignment. After this initial setting period, the springs and bushings should have pretty much taken their final set, so you should be on your way to many miles of cruising in style.

5) ***Optional****

To strengthen the factory frame rails, the saddle holes can be drilled to 3/4" and the sleeves can be inserted in the holes. The inserted sleeves need to be ground or machined flush to the frame rails. Use ¾" OD x .120" wall ERW or mild steel tubing for the sleeves. Fully weld the sleeves in the frame rails and clean away debris so the saddles have a snug fit. **See Figures 12 and 13.**

Figure 12

Figure 13