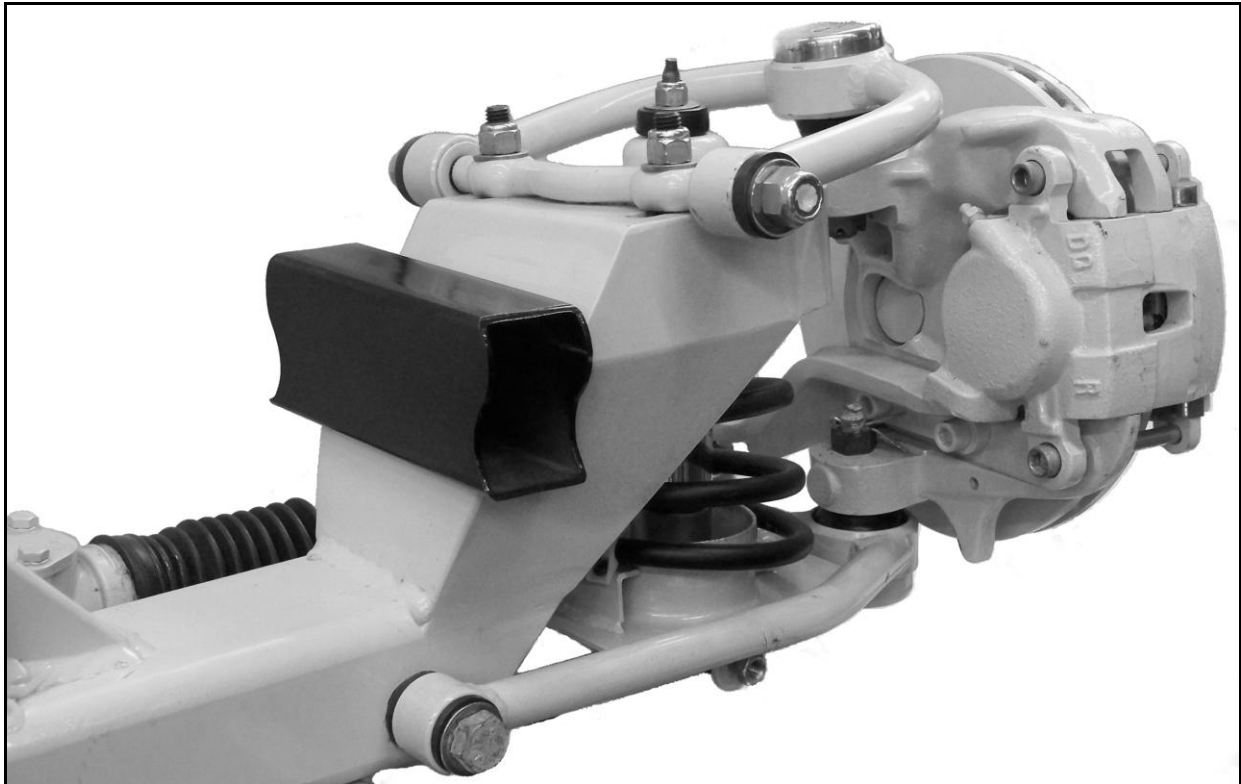




by



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INSTRUCTIONS FOR AFFORDABLE IFS

01) The most important thing to be done **BEFORE** removing the old suspension is to locate the correct front axle centerline. The very best way to do this is to note whether the original wheels are properly centered in the fender and then adjust as necessary. Since an original leaf spring will alter the wheelbase by changing length as the weight is loaded and unloaded you should be ready to adjust your front axle position for best final appearance. Once you have determined the front axle location use a plumb-bob or a level held vertically to mark that position on the side of the frame rails.

If the suspension and fenders are not in place other methods can be used. On Fords, find the spring pin locating hole on the crossmember and square that line across the chassis. Most Mopars and Chevys will have an axle bumper that locates the axle centerline. An old trick of extending the wheelbase 1/2" often makes the tires look better in the fender of a lowered hot rod.

02) Find the original radiator mount positions and mark/record their fore and aft position, height in relation to the frame rail, and distance apart. This will prove critical later when the stock crossmember is removed.

The frame rails must now be boxed using 1/8" thick steel and extending forward 6" ahead of the axle centerline and 4"-6" inches to the rear of the firewall mount.

03) Simulate the car's final stance by setting your frame on a 3-degree forward rake as measured in the center of the frame (half the wheelbase). Stock front crossmembers are almost always removed but you can trim it to clear the new one and retain it if you wish. It may add some extra strength but create bolt access issues at the same time. Prior to removing the original crossmember tack cross braces to the top and bottom of the frame to hold its shape and dimensions.

Use a clamp or jack to hold the new crossmember assembly tight to the bottom of the frame, centering the main 3" x 4" beam on your axle centerline. That main beam should be level side to side and within 1-degree of level front to back. It's perfectly acceptable to adjust the crossmember fit to the bottom of the frame and weld up a small gap in getting the assembly leveled. When it's positioned correctly weld the new assembly to the frame rails all around inside and out.

04) Reestablish the position of the radiator mounts next as these will determine the fit of your grill shell and hood. Use the marks and dimensions you took before the stock crossmember was removed. We supply tabs for Ford and GM cars, but most Mopars do better with a section of 1" x 2" x .120 tube you supply and weld in place across the frame rails to mount the radiator. If there is any doubt as to the mount height a little too low is better than too high as you can always shim the radiator to get the hood fit perfected.

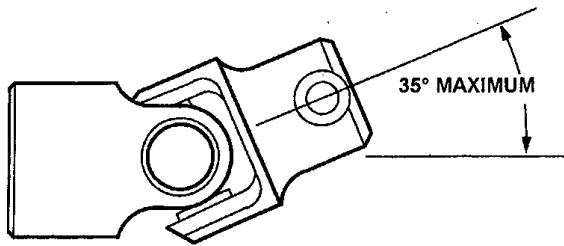


(1929-33 Chevy shown)

05) Install the rack and pinion to the rear of the crossmember bringing it up **UNDER** the tabs welded to the main 3" x 4" beam. **NOTE: The tie rods on the rack are the correct length for the stock height spindle option but will need to be trimmed 1/2" on each side for the drop spindle option.** This is a good time to connect the rack to your steering column using proper U-joints and technique. The rack accepts a 9/16"-26 spline U-joint (same as a Mustang II manual rack). Use another joint at the base of your column and come under the left-hand engine mount with a 3/4" diameter solid shaft. In rare cases a third U-joint may be helpful to get around an exhaust system, but most fit well with 2 joints. When welding the shaft to the joints be sure the joint pins are in phase and attach your ground cable to the shaft so that heat and electric power does not pass thru the U-joint needle bearings. Properly finished MIG welds are sufficiently strong, with TIG welding being stronger and cleaner appearing. Let the parts cool slowly in still air.

U-joint Angles of Operation

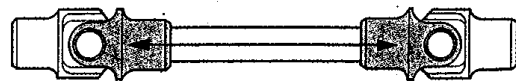
The Borgeson 16 series u-joints will operate smoothly up to 35°. The 16 series double u-joints will operate smoothly up to 70°. The u-joints must not be altered in any way. Pin and block style u-joints will operate at 30° smoothly.



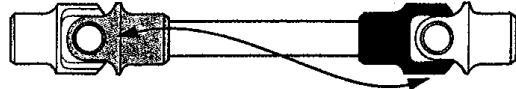
U-Joint Orientation

When two joints are used on a shaft, the forks of the yokes closest to each other should be in line, or "in phase." Premature wear or binding can result if the u-joints are not phased properly. Sometimes if the u-joints are at a severe angle, even if they are phased correctly, a hard spot in the steering may occur for no apparent reason. If this happens, index the u-joints two or three splines in one direction. The hard spot should disappear or be minimized.

CORRECT PHASING



INCORRECT PHASING



06) Begin installing the suspension components with the upper control arms. Insert the mushroom headed bolts up through the slots in the shock tower. Set the upper arm cross shaft over the bolts and add the nuts. Put the shaft in the center of the slots and tighten them just snug for now.

07) Now comes the part that causes more trouble than any other part of the job. **IT IS IMPOSSIBLE TO PROPERLY FINALIZE THE SPRING TRIM UNTIL ALL THE WEIGHT IS ON THE CAR.** Rather than fighting with a spring on an unloaded chassis we suggest that you use the 1-1/2" long x 3/4" ID spacer we supplied on the shock absorber. Covering the exposed shock shaft with that spacer will turn the shock into an incompressible strut that will support the car while you are working on it and removing it later when you finalize the spring trim.

We supply a custom Fat Man 4-cylinder coil spring for use with small block engines. Once **ALL** the weight is in place on the car you can install the spring. Be sure that the flat end of the spring is on top and the open wound end at the bottom with the tail being outboard near the ball joint as in the picture on the next page. We want the lower control arm to be level in order to get the shock in the center of its travel. If you do need to trim the springs to get the lower control arms level trim them a half coil at a time. Each half coil will drop the car about 1". Use an abrasive cut off wheel to trim the spring...never a torch of any kind!



When installing the lower control arm tighten the Nyloc nut just a half turn past where the washer stops turning. **DO NOT** overtighten the bushings. Injection molded Delrin bushings are supplied and **ONLY** silicone-based lubricants can be used. Oil based grease and WD40 will chemically react with the Delrin bushings and quickly destroy them. Install the spindles next with the steering arms pointing to the rear ignoring the L and R cast on them.

Install the ball joint castle nuts per normal practice and grease the ball joints. Greasing the ball joints helps to preserve the shape of the rubber ball joint boots.

08) Add the rotors and calipers using normal practices. Chevy pattern brakes use the races and bearings as they are from the supplier. Ford bolt pattern kits use 1986-94 Aerostar/1983-94 Ranger 2WD rotors which require that you remove the bearing races they are supplied with and replace them with the A-6 and A-34 bearings **AND RACES**. Slip the supplied spindle adaptor ring onto the spindle (chamfer inward) before installing the rotor. This ring shortens the bearing spacing so your rotor sits correctly on the spindle. A National 352541 seal (NAPA part number 19745) is used to complete the change to Ford pattern. Be sure to use a plate rather than just a hammer to install the rotor grease seals.

Calipers and pads install normally (be sure that the bleeder screws are on top). These calipers use a GM metric banjo bolt and work well with 1985 Riviera brake hoses or any aftermarket hoses set up for metric fasteners. If you wish to relocate the hose routing the gateway in the caliper body can be reground to a different angle.

09) Block hugger or Ram's horn type exhaust manifolds will work best.

10) Fender braces on 1932 Fords and 1929-33 GM cars will fit as is. Model As will need the frame mount for their braces moved forward so that the old front hole is now used for the rear hole and new matching holes drilled to finish. Most Mopars have a large fender brace that mounts to the frame rail right where the new suspension is placed, so they get trimmed to clear and a new mounting tab fabricated and welded to this new shock tower.

11) Outer tie rod ends are 1980-85 Chevy Citation - Moog ES-2111R. Upper ball joints are 1976 Volare - Moog K-772, and lower ball joints are 1978-87 Monte Carlo – Moog K6145T. Use a good alignment shop and have them use these specs: 1/8" toe in, 1/2-degree positive camber, and 2-degrees positive caster.