INSTRUCTIONS

INDEPENDENT FRONT SUSPENSION SYSTEM
(Includes Front Sway Bar Installation Instructions)

FOR AMC MUSCLE CARS:
1968-70 AMX
1968-74 / JAVELIN
1967-69 REBEL / AMBASSADOR
1967 MARLIN
1964-69 AMERICAN / ROGUE
1970-83 GREMLIN, HORNET, SPIRIT, CONCORD

Revised: 6-1-2013
Installation Instructions
AMC Independent Front Suspension Systems

IFS System Contents
- Tubular K-Member (1)
- Upper Control Arms Assembled with Racing Ball Joints (2)
- Lower Control Arms Assembled with Ball Joints (2)
- Viking Coil Over Shocks (2)
- Coil Over Springs (2)
- New Forged Spindles (2)
- New Flaming River Manual Steering Rack (1)
- Steering Rack Bushings (4)
- Double D Steering Shaft and Fittings
- Rod End Kit
- Steering Arms (2)
- Upper Coil Over Mounts (2)
- All New Grade 8 Hardware
- Sway Bar Kit (If Ordered)
- Brake Kit (If Ordered)
- Powdercoat (If Ordered)
Thank you for purchasing a world-class Control Freak Suspensions© Independent Front Suspension System (IFS) manufactured in Winter Springs, Florida. We believe this system is the best available at any price. As with any aftermarket performance product, this system is recommended for off road use only.

This system is typically subjected to uses that exceed its mechanical limits, so there is no warranty, expressed or implied. Blue Moon Services LLC and its Control Freak Suspensions brand cannot control how this product is installed or used. By purchasing this product you are assuming all risks associated with its installation and use and agree to possessing appropriate skills for its installation and use. Blue Moon Services LLC and its Control Freak Suspensions brand, our vendors and suppliers will not be held responsible, liable or accountable for any injury, damage, loss, penalties or fines that occur, directly or indirectly, from the installation and use of this product.

Please note that while installation is relatively easy for those with mechanical skills and moderate experience, novices should employ a professional for installation. Fit is guaranteed on vehicles that are unmolested…that is cars that have not suffered any chassis or front end damage. Such damage can bend or alter the unitized body or chassis, making installation more difficult and may require chassis adjustment.

Many of the components, such as the control arms, ball joints and coil over shocks, have already been assembled for you.

Read all of the instructions before starting installation.

IMPORTANT NOTES:

1. Installation of this K-Member system is relatively easy. We use many of the same factory bolt holes that hold the stock K-Member/Engine Brace in place. The hardware we supply is all new Grade 8 fasteners, but hold on to the original hardware. You never know when you may need it.

2. Some parts are threaded to receive bolts. Be careful not to cross thread the bolt into these machined parts. We are not responsible for any cross threaded parts.

3. The custom polygraphite bushings we use on the control arms and engine mounts are readily available from Control Freak Suspensions. While we do not expect these items to wear out, replacements are available.

4. Installation of this IFS system does not require an aftermarket oil pan. However, if you wish to put an aftermarket pan on your engine, we recommend the Canton Oil Pan (Part #15-554) and matching Oil Pickup (Part #15-555). These parts are available directly from Canton or through Control Freak Suspensions. Milodon also has similar oil pans.
5. Installation of this system into a **1964-1969 American requires a custom oil pan** available only through Control Freak Suspensions. Part # is ACC-554CF and includes oil pickup with the pan.

6. It is recommended that the engine and transmission are removed for this installation. At a minimum, employ an engine bridge above the motor to suspend it in place prior to removing the lower engine brace and stock front suspension.

7. Use extra caution in jacking and stabilizing the vehicle for this installation. A lift is highly recommended.

**What Else Do I Need?**

American vehicles will need an aftermarket oil pan. See Notes 4 and 5 above. Just about everything else is included in the purchase price. Our options for most AMC vehicles include Wilwood brakes, sub-frame connectors, multi-link rear coil over suspension systems, sway bar kits, custom headers, steering columns and steering wheels and aftermarket performance radiators made for us by AFCO Racing. Ask about all of our AMC go-fast stuff.

**Unpacking the I.F.S.**

Your I.F.S. system arrives in a large sealed carton wrapped in blue plastic on a pallet. Some parts may be assembled. Please note that any attached bolts are not torqued to specification. The control arm ball joints are also loose, if they are installed. These instructions will aid you through the installation process. If you ordered brakes with your system, the brake kit has its own set of instructions as provided by the manufacturer. Other parts/systems you may have ordered will also have their own instructions.

Once the pallet is unwrapped and box contents emptied, study any hand tightened components prior to taking apart. Take pictures to aid you in later assembly. The ball joints are not torqued to specifications. If you remove the ball joints for any reason, be certain to hand start the threads when reassembling and use anti-seize lubricant. We will not warranty cross-threaded ball joints.

Once all components are removed from the packaging, you are ready to begin installation.

**Preparing for I.F.S. Installation**

1. Remove original front suspension assembly, steering box and steering linkage. If you are using a lift, with the help of a few friends and tall jacks, you can remove the whole front suspension system as a unit. Be careful…it is heavy and bulky. Make certain that you leave the steering shaft connected to the steering column. Just disconnect it from the steering gear box in order to remove the box.

2. On some cars, there is a small sheet metal shield below the upper control arms that is held in place with a few sheet metal screws. Remove the shields.
3. Now is the perfect time to clean up the vehicle underside and engine bay of debris, oil or other unsightly elements.

4. Examine the front rails on the car. Over the years, the vehicle may have been incorrectly jacked up in some areas which can slightly “mushroom” or otherwise move the rails slightly out of line. This is an opportunity to straighten or adjust the rails prior to putting the cage in place. Please note that the tolerances to which 1960’s unified body vehicles were manufactured often varied by as much as ¼” on each side. Our cage mounts are designed to accommodate slight deficiencies.

5. If you have a manual transmission vehicle, you will need to trim the bracket holding the pivot ball for the clutch rod. Mark the bracket and cut as shown in the pictures above. Reinstall the cut bracket with the original bolts.

**Installation of the I.F.S.**

1. With the assistance of a helper, place the K-Member up to the rails. Push upwards so the mount holes line up. You will be using the six bolts provided to mount the cage to the chassis using the three factory holes. NOTE: The cage for the American requires drilling a new front mount hole. You have been provided with a ¾” x 2-1/2” steel sleeve that will be inserted into the ¾” hole you will drill as the front mounting hole. The sleeve will prevent crushing of the rail when the bolt is torqued down.

2. Once in place, hold the cage in place with the aid of a helper or a jack. Loosely install the six bolts. The front hole is either 5/16” or 3/8”, the middle hole is ½” fine thread and the rear hole is a ½” or 7/16” through hole using the 6” bolt inserted from the bottom. Center the cage by lining up the square tube mounts to the chassis rail. Torque to spec as provided on the back page of this booklet.

3. With the K-Member in place, locate the left and right upper coil over mount plates. Depending on your vehicle and IFS system, the upper coil over mounting plates will differ:
For most Trunnion vehicles (1969 and earlier), each plate has a set of tabs that slide into the upper control arm mounting location. There is no left or right plate. They are universal. Put the plate into place and run two upper control arm bolts through the tabs to hold the plate in place. With a 3/8” drill bit, drill through the frame rail using the existing holes as a guide. Once through, install the pillow block bracket on the driver side and the flat bar on the passenger side with the provided 3/8” bolts, washers and Nylock nuts. Now drill the upper holes and install the bolts, washers and nuts. NOTE: Ambassador has a 3/16” thick shim that slips between the upper part of the mount and shock tower.

The American uses a plate with ears but there is a left and right side. Each is marked.

For Non Trunnion vehicles (1970 & later), there is a left and right upper coil over mounting plate. You will notice the plate has five holes with one of them being out of line with the others. This is an alignment hole with an existing bump-stop bolt on the chassis. Mount the plate to the bolt to align. Once aligned, drill the holes with a 3/8” drill bit. Drill through the frame rail using the existing holes as a guide. Once through, install the pillow block bracket on the driver side (as shown) and the flat bar on the passenger side with the provided 3/8” bolts, washers and Nylock nuts. Now drill the upper holes and install the bolts, washers and nuts.

Tighten the passenger side bolts, but leave the driver side slightly loose so the pillow block bracket can be adjusted when installing the steering shafts later on. Install the ¾” x ¾” Heim Joint provided into the pillow block bracket and hand tighten the nuts. You will need to adjust this later on.

While not necessary, you can stitch weld the plates into place after they are properly aligned. This completes installation of the K-Member to the chassis. You are now ready to install the suspension components.

4. Locate left and right Lower Control Arms. Ball joints installations require anti-seize compound on the screw-in ball joint threads. WE DO NOT WARRANTY CROSS-THREADED BALL JOINTS. The lower control arms are not universal. The coil over mounting tabs on the top of the lower control arms go towards the rear of the vehicle. The Control Freak Sticker (if applied) is designed to face forward. Place each control arm in place and install the supplied bolts. Snug the bolts but do not torque them yet.
NOTE: Some of the mounts may appear a little tight when installing a part with a bushing installed. You must grease the outside of the bushing and work into place. You may need to use a rubber mallet to assist you.

5. Locate the left and right Upper Control Arms. Each has a small stamped “L” or “R” on the face of the ball joint sleeve. It is visible through the powder coat. “R” refers to the passenger side and “L” refers to the driver side. The letters will be right side up when installed. If the letters are upside down, the arms are incorrectly installed. If a Control Freak sticker is placed on the arm, it faces forward. Howe Racing ball joints have not been installed. Coat the ball joint sleeve with anti-seize compound and carefully hand screw the ball joint into the spindle. Once seated, torque to specification on the last page of this booklet. WE DO NOT WARRANTY CROSS-THREADED BALL JOINTS. Each upper control arm is held in place with two bolts. Install the bolts and snug them, but do not yet torque the bolts.

6. Unpack each Wilwood Pro Spindle with steering arm. There is no left or right spindle. Install the lower control arm into the spindle first. Place the ½” supplied spacer onto the ball joint followed by the castle nut. Hand tighten the castle nut on the lower ball joint. Next install the upper ball joint into the spindle. Place the 1/4” supplied spacer onto the ball joint followed by the castle nut. and hand tighten the castle nut. Repeat on the other side of the car. Once both spindles are in place, torque the castle nuts to the specs located on the back page of this booklet. Install the cotter pins once the castle nuts are torqued.

7. Attach the appropriate steering arm assembly to each spindle on the inside face. The steering arm should face forward. Make sure you install the small rubber boots on the top and bottom of the rod end before attaching to the spindle. Torque to the specifications on the last page of this booklet. You will not that you received extra washers with the steering arm bolt kit. The extra washers can be used to shim the steering arm inboard, if necessary. Also, you will notice there is a gap on one of the bolt holes, between the steering arm and spindle. That is for the brake caliper bracket. Different manufacturers make different thickness brackets. The extra washers are also for filling the gap, if needed.

8. Unpack each coil over shock and install, adjustment valve-side down. Prior to
installation, and after installing the spring, you will screw the coil over adjustment nut up until snug and hand tightened. This is a perfect starting point for setting ride height. Install the lower mount first and torque the bolt to spec as provided on the back page of this booklet.

With the aid of a jack placed under the spindle and lower control arm, align the upper coil over hole to the hole in the upper coil over mount. Install the bolt and torque to the bolt to spec as provided on the back page of this booklet. Now you can torque all of the upper and lower control arm mounting bolts to the specs provided on the back page of this booklet.

9. Install the left and right steering arms to the appropriate spindles with the supplied bolts. Torque to the specs on the last page of this booklet.

10. Place the Rack & Pinion into position, making certain the bushings have been greased and installed, and the steel sleeve is greased and placed in the bushings. Place the rack up to the installed K-Member mounts. Torque to spec as provided on the back page of this booklet. It is important to center the rack at this point. Turn the pinion all the way to the left and then count the number of turns while turning to the right. The center is half of the turns. Set the rack in the centered position before attaching any of the rod ends.

For RHD Australian Systems, please go to instructions on Page 12.

11. The pictures below indicate how the offset steering rack bushings should be inserted and indexed for both power and the manual rack & pinion. The indexing is important in order to ensure there will not be any bump-steer in the system.
12. Install the jam nuts and steering tie rod adjusters onto the steering arms if not already attached. Thread the rod ends into the steering tie rod adjuster if not already done, and connect to the spindle-mounted steering arm on each side. The threaded steering rods of the rack and pinion may need to be trimmed at this point. For power rack, trim ¾” off each of the threaded ends. For manual steering, trim 5/8” off each end. Once trimmed, hand tighten the steering arms adjusters as these bolts will be loosened to do a final alignment. Once an alignment is completed, torque to spec as provided on the back page of this booklet. For Power Steering Hose & Fitting Installation, See Page 12.

13. Install the appropriate splined steering joint onto the rack and pinion steering stub shaft. This is usually Flaming River part # FR1709DD. Cut the supplied steering shaft to length so it attaches to the steering joint and goes through the pillow block and attaches to the double ¾” DD to ¾” DD joint (Flaming River Part # FR1794). The second steering joint goes from the double ¾” DD to ¾” DD joint (Flaming River Part # FR1794) to the factory ¾” DD steering Shaft. You will have to determine where this shaft needs to be cut to accommodate the new connections. Look, we all know men are experts on estimating and measuring, but for this next step it is a great idea to MEASURE THREE TIMES and cut once. And when you make the cut, leave a little bit extra just in case. You can always cut material away but you cannot put it back on. The length of each of these pieces varies from vehicle to vehicle.

14. If you have purchased the Power Steering system for your suspension system, it will install similarly to the manual rack and pinion. Of course, you will have to run high and low pressure hoses to the steering pump.

15. **If you have purchased the optional front sway bar kit, now is the time to install it. If not, skip to Step 16.** Get the sway bar kit parts together and lay them out on the floor. You will have two (2) large brackets in black powdercoat, four (4) small ¾” long spacers, four (4) 5-inch x 7/16” bolts with nuts and washers, a coated sway bar, two (2) steel sway bar brackets with red bushing, two end link sets already put together, four (4) short 3/8” bolts with nuts and washers, and two tubes of bushing grease.

Place the brackets over the front rail with two spacers on the inside of each rail. Line up the existing holes in the chassis and feed the long bolts through the bracket and spacers through to the other side and attach washer and nut on each. Snug them down but do not torque yet. Place the sway bar into position and under each bracket. Attach the steel sway bar brackets with bushings to the bar and then align the holes for the short, 3/8” bolts, washers and nuts. Be sure that the bushings are lubricated with
the supplied gel, and that the bar is centered. Now attach the end links to the bar ends and through the hole in the lower control arm plate.

Once the end links are in place, tighten all bolts.

16. You can now install brakes and wheels. Use the brake manufacturer instructions to complete the installation. If using large brakes, be certain your wheels will clear the calipers. We recommend using wheels that are 17” in diameter or greater in order to clear large disc brakes (12”, 13” & 14” rotors) which may have been supplied as an option with this IFS unit. Make certain to measure for correct spacing on your wheels.

**You are responsible for determining the correct wheel size and backspacing for your application.**

17. Before lowering the vehicle to the ground, be certain you have tightened all of the bolts except for the steering rod ends which should only be hand tight. The alignment folks will take care of tightening those. You can now make adjustments for a visual alignment only. A final alignment can only be accomplished once the vehicle is completed and has all of its components in place.

18. When you are ready for a final alignment, our recommended alignment specifications are listed below. Depending on the type of driving you will be doing, specifications will change.

19. Street specifications are:

   a. Caster: +1 to +3 Degrees. This is dictated by driver feel and what you are most comfortable with. We recommend 1.5 to 2 degrees of positive caster.

   b. Camber: -0.125 to -0.250 degrees. Our preference has been -0.125 degrees. Any more than -.500 degrees may result in premature wear on tires.

   c. Toe: 0 to 1/16”

20. Make certain all jam nuts are secured.

21. Recheck all fasteners for proper torque.

We strongly recommend that all fasteners are re-torqued at between 50 and 75 miles of driving. Your Alignment should also be re-checked after re-torquing all fasteners. Drive carefully.

Congratulations. You have just completed installation of your Independent Front Suspension system.
POWER RACK & PINION SYSTEMS

For those with the power steering option, plumbing and correct hookup is essential. Your kit came with all of the plumbing necessary to hook it all up.

Your **plumbing** kit includes:

- Two (2) O-ring metal hose ends in 14mm and 16mm sizes (without the clamp) and O-ring already in place.
- Two sections of FTPE high pressure, pre-assembled, stainless braided line with fittings attached. One is 20” and the other is 12”.

Follow these easy steps to install the hoses:

1. Lightly lubricate the small O-ring and the threads on each fitting with a little power steering fluid.
2. The fittings are different sizes and can only be installed one way. The smaller is the high pressure side and the larger is the return line. Insert the fittings into the appropriate port being careful not to tear or damage the O-ring of small Teflon seal. Hand tighten.
3. These fittings are designed to allow the hose ends to swivel while maintaining a good seal, so be careful not to over-tighten the fittings. These should be torqued to 10-20 ft-lbs…NO TIGHTER. Tightening beyond this point will strip the threads and/or cause the connections to fail. Swivel and tube movement is normal and does not indicate a loose fitting.
4. Before attaching the hoses to the fittings, lubricate the threads on the fittings with a light oil, such as power steering fluid.
5. If you are using our power steering pump with integrated reservoir, attach the long hose to the bottom fitting on the power rack (smaller hole) and run it to the fitting on the top rear of the power steering pump (high pressure output). Attach the shorter hose to the top fitting on the power rack (larger hole) and attach the other end to the fitting on the outside of the reservoir (low pressure return). DO NOT OVERTIGHTEN THESE FITTINGS.
6. Fill the reservoir with power steering fluid. Once you start the vehicle, turn the steering wheel left to right and back several times. This allows the fluid to flow into the system. Open the reservoir and add fluid as needed.
AUSSIE RHD SYSTEMS

For those with Australian-built vehicles with right hand drive (RHD) systems, your IFS would come with a RHD system. This system consists of the following:

1. Flaming River Straight Arrow RHD Rack & Pinion with billet aluminum pinion housing
2. Two steering rack mounting brackets: One with a bushing & sleeve and the other a billet U-shaped bracket
3. A special steering mount plate already welded to the IFS cage
4. One pillow block and bracket designed for the RHD system
5. Steering U-joints from Flaming River
6. All necessary hardware

Assembly Procedure

1. Slide the right boot off the rack as shown. A new strap has been included for reinstallation.
2. Attach the rear part of the right-side bracket to the welded plate on the cage.
3. Now, loosely attach the left-hand steering bracket to the steering rack as shown. While holding the rack in position, attach it to the left cage mount with the provided 9/16” bolt and washer.
4. Loosely attach the front u-shaped part of the right side bracket.
5. That’s it. Now go back to Step 11 and complete the installation.
## Independent Front Suspension Torque Specifications

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>TORQUE SPECIFICATION</th>
<th>SPECIAL INSTRUCTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>K-Member to Chassis – Three bolts on each side</td>
<td>50 ft/pounds for ½” Bolts (35 ft/pounds for the small front bolt)</td>
<td>High Strength Thread Locker</td>
</tr>
<tr>
<td>Upper Coil Over Mount Through Bolts</td>
<td>40 ft/pounds</td>
<td></td>
</tr>
<tr>
<td>Spindle to Ball Joints</td>
<td>40 ft/pounds</td>
<td></td>
</tr>
<tr>
<td>Lower Control Arm to Cage</td>
<td>60 ft/pounds</td>
<td>Med. Strength Thread Locker</td>
</tr>
<tr>
<td>Upper Control Arm to Chassis</td>
<td>60 ft/Pounds</td>
<td></td>
</tr>
<tr>
<td>Steering Rack Frame Mounts</td>
<td>30 ft/pounds</td>
<td>Med. Strength Thread Locker</td>
</tr>
<tr>
<td>Steering Arm to Tie Rod</td>
<td>35 ft/pounds</td>
<td></td>
</tr>
<tr>
<td>Upper Coil Over Mount</td>
<td>40 ft/pounds</td>
<td>Med. Strength Thread Locker</td>
</tr>
<tr>
<td>Lower Coil Over Mount</td>
<td>40 ft/pounds</td>
<td>Med. Strength Thread Locker</td>
</tr>
<tr>
<td>Bolt-On Steering Arm</td>
<td>40 ft/pounds</td>
<td>High Strength Thread Locker</td>
</tr>
<tr>
<td>Howe Racing Ball Joint to Upper Control Arms</td>
<td>40 ft/pounds</td>
<td>Anti-Seize</td>
</tr>
<tr>
<td>Lower Screw In Ball Joint to Lower Control Arms</td>
<td>60 ft/pounds</td>
<td>Anti-Seize</td>
</tr>
</tbody>
</table>
Disclaimer of Warranty
& Return Policy

THE PURCHASER IS RESPONSIBLE FOR DETERMINING THE
SUITABILITY OF ANY AND ALL PRODUCTS MANUFACTURED
BY BLUE MOON SERVICES LLC

Purchaser understands and recognizes that racing parts equipment and services provided
by, manufactured and/or sold by Blue Moon Services LLC d/b/a Control Freak
Suspensions, are subject to varied conditions due to the manner in which they are
installed and used. Purchaser further recognizes and agrees that suitability of any part
sold or manufactured by Blue Moon Services LLC d/b/a Control Freak Suspensions for a
particular application is the purchasers decision and that the purchaser is not relying on
the skill or judgment of Blue Moon Services LLC d/b/a Control Freak Suspensions
regarding suitability of any product or service. Blue Moon Services LLC d/b/a Control
Freak Suspensions makes no warranties whatsoever, expressed or implied, oral or written
to purchasers. There is no warranty of merchantability made to purchasers with regard to
off road, racing and racing equipment. All systems are custom products and made to
order, and cannot be returned or exchanged, nor will any refunds be granted. All deposits
are forfeited once the product is in production.

Liability is limited to repair or replacement of defective parts to original purchaser. Blue
Moon Services LLC d/b/a Control Freak Suspensions is not liable for any consequential
damages, expenses or injury arising from the use, misuse, or improper installation of any
product manufactured or sold by Blue Moon Services LLC d/b/a Control Freak
Suspensions. Blue Moon Services LLC d/b/a Control Freak Suspensions reserves the
right to make changes in design or add to or improve its product without incurring any
obligation to install the same on any products previously manufactured. This warranty
shall not apply to any product which has been repaired or altered in any way so as in our
judgment to affect its performance; nor which has been subject to misuse, abuse,
negligence or any other occurrence beyond the control of Blue Moon Services LLC d/b/a
Control Freak Suspensions.
Control Freak Suspensions™
A Product of Blue Moon Services LLC
1101 Oak Lane, Suite 1031
Winter Springs, Florida 32708
(407) 696-2772
(888) 325-6462 Toll Free
(407) 696-6216 Fax