

FIGS Engineering Installation Guide

Rear Lower Control Arms (MEGA ARMS)

GEN 2 IS AND GEN 3 GS

IS300 Gen2 GS Similar

Rev C

DISCLAIMER

Attention: This part is designed for OFF-ROAD use only. This product has not been certified by the DOT for highway use and purchaser accepts all risk associated with the installation as use of this product on a motor vehicle. This document is a general guide for the intended use of these parts as in no way an expression of warranty and or liability on the part of FIGS Engineering or any of its subsidiaries. Products are offered “as is” and the end consumer will accept all liability related to their use and installation.

Kit Components

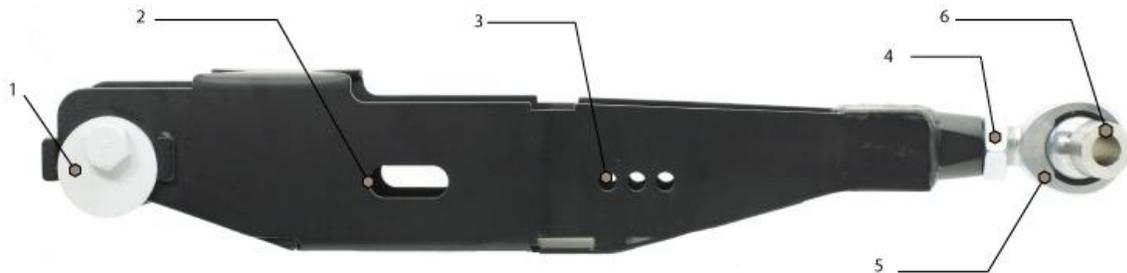
This Kit includes the following:

<p>1-Set (2) Welded Sheet metal arm assemblies with female threaded end EE/Sport/SuperSport MEGA- Plain flat sides (no shock/sway adjustment on IS300 and 2GS). RACE MEGA- Dimpled sides , adjustable shock leverage and sway leverage</p>	<p>2-Sets (4) High Misalignment Rod-End spacers. 1-Set(2) Camber eccentric bolts, washers and lock washers with nut. (IS300 and 2GS models will use stock eccentric bolts)</p>
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1-Set (2) PTFE Lined Alloy Spherical Rod End Bearings. 2-PIECE-FXM MOTOsports rod ends (FIGS) 3-PIECE PRECISION RACE (FK BEARING)	1-Set(2) Rubber Rod End Boot (OPTIONAL) These are only suggest for extreme offroad cases and require more maintenance.
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Arm Anatomy

FIGS suspension arms have a few key features described below. The usage of these features depends on the individual goals for the vehicle's suspension and ride-height. Ultimately, you will need to decide which mounts will suit your needs best. Recommendations are made based on the most typical application of a 2" lowered ride height and a static camber setting of -1.2 degrees.



1. Hub Eccentric Bolt: Cam adjustment for on-vehicle Camber. **CAUTION! DO NOT ROTATE A FULL REVOLUTION. THE CAM BOLT IS INTENDED TO STOP AT FULL ADJUSTMENT, BUT NOT ROTATE COMPLETELY. DO NOT FORCE OR DAMAGE WILL OCCUR.**
2. Shock Mount: Slotted for shock angle adjustment and ease of shock installation. Shock should mount so that piston is centered in spring. For coilovers that tolerate higher angles of misalignment, this mounting location can be used to fine tune spring advantage (effective spring leverage.) For an effective higher spring rate, mount towards the hub, for lower mount towards the subframe.
3. Sway endlink mount: Mount Sway link such that it is as close to vertical as possible when suspension is loaded (vehicle back on the ground.)
4. Jam nut: when Arm length offset is adjusted, tighten jam nut to lock rod end position.
5. Rod End: Spherical bearing that mounts to the subframe. Provides free locating of the rear suspension and replaces the stock rubber bushing.
6. Precision Spacers: SUS303 High-Misalignment Spacers adapt the rod end diameter to the stock 14mm bolt.

Before Installation

Before you start the installation you will need the following tools:

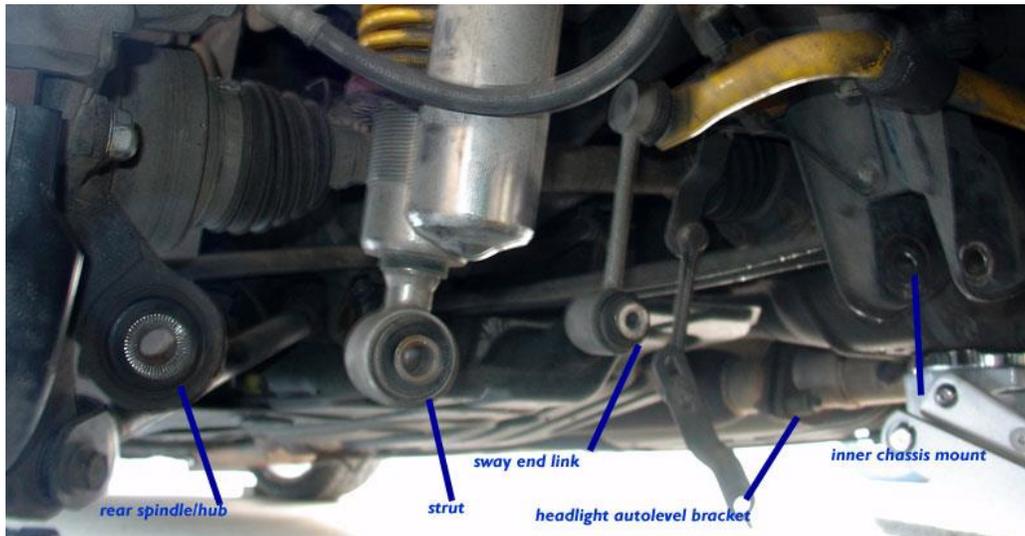
<p>Sockets- 19mm standard 19mm deep 17mm impact 14mm standard 21mm standard 21mm impact</p>	<p>Ball joint service tools- Required for toe link removal. This could also be an air hammer with a pointed tip. Pickle forks are not recommended as they damage the grease boots.</p>	<p>Torque Wrench with 20ft-lb and 75 ft-lb ranges.</p>
<p>Box end wrenches- 19mm 17mm 14mm 7/16"</p>	<p>½" Pointed chisel-(optional) for positioning mounting locations and hole alignment assistance</p>	<p>Adjustable wrenches with 1.25" range adjustment jam nut tightening.</p>
<p>Small bottle jack- for position arms for sway link mounting</p>	<p>Rubber mallet- for fine positioning and removal of factory arms.</p>	<p>Alignment tools- A full alignment will be necessary after the installation of these parts however a "sight" alignment is possible prior to transport to an alignment shop. Mason String and a level can be utilized for sight aligning the rear to the front.</p>

Installation

1. Find a flat level surface to work on the vehicle.
2. The first part of the installation should be to note your existing alignment settings. This can be via sight-lining the face of the rear wheels to the front wheels or similar reference on the body of the car or wheel well. This will be an important reference for after the installation to approximate the alignment prior to taking in for a complete rack alignment. Note Camber, Toe and relative strut and sway link angles while the vehicle is flat on the ground.
3. **Chock both front wheels to prevent any movement. Jack rear of vehicle up and place on jack stands.** Make sure that vehicle is **absolutely stable** as the rear of the vehicle will be elevated

- during the installation. For easiest installation and removal of the rear sway links, both rear wheels will need to be off the ground at some point to release tension on the rear sway bar.
4. Unbolt the Factory control arms starting from the spindle/hub and moving towards the inner mount. Releasing the hub will cause the factory strut to push the arm slightly. If strut bolt will not come out readily apply pressure on the arm to allow the strut tension to release. Always unthread bolts to free them and do not hit the end with a hammer as it may damage the threads. Remove Sway end link bolts and chassis inner mount.
 5. Remove the toe link as this will allow free movement of the hub and easier installation.
 6. Your suspension elements are now freely hanging as shown in the picture below. The mounting of the FIGS rear control arms is done from the inside out but you should skip the sway end link at this time as it will require a mounting hole selection, which could be iterative and require the secondary jack to cycle the suspension. Assemble inner chassis mount, then strut mount (choose inner mount initially), then the hub/spindle. Static: Optionally you may leave the inner chassis mount loose to “hold” the arm position if adjustments are needed. The bolt must be tightened and torqued after final adjustment of the rod end.

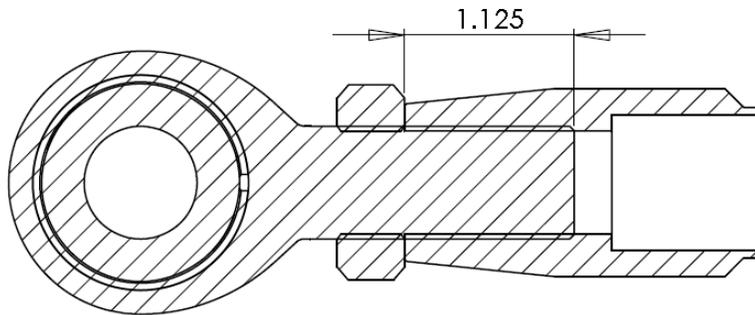
Free-Hanging Suspension Components (is300 shown)



7. After the installations steps, the installed arms will look like the picture below: (IS-F installed)

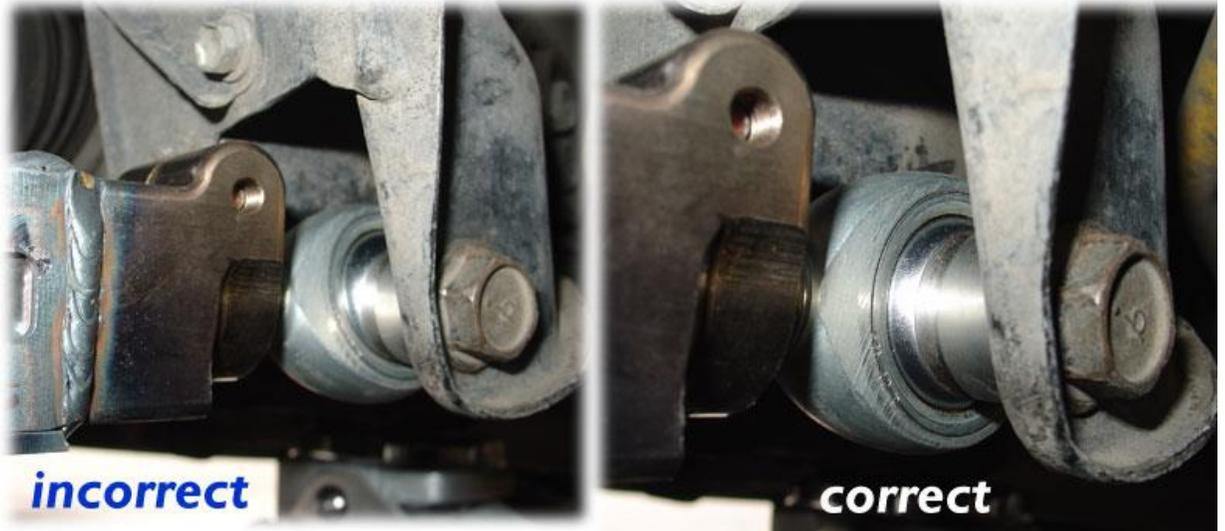


8. **NOTE on THREAD ENGAGEMENT** : The Jam nut must be tightened to hold the rod end in position and the minimum thread engagement is 1.25". This is the minimum amount of safe thread engagement to ensure maximum force rating on both the rod end and the control arm as a whole. The Min thread engagement is depicted below. If more adjustment is required contact us for a grade 8 nut instead of a jam nut for more support.



SECTION B-B

9. At this point the inner rod end should be aligned such that the ball and races are vertical and not off-axis. These are stock photos of a prior version of MEGA arm, but the same principle applies.



10. Set the Jam nut to ensure the rod end does not turn. Note if more adjustment is required this will need to be dismantled to adjust.
11. Mounting the sway end link will require a jack on the bottom of the spindle/hub to raise the arm slightly until the sway link lines up with the preferred hole.



12. There are 3 mounting locations for the sway link and the selection of the mount depends on several parameters. If the vehicle is extremely lowered and the factory endlink is used, you may use the outmost mount to reduce sway bar peload. Otherwise choose the mount that offers the best sway bar endlink angle, favoring the most vertical.

13. The next selection will dictate how much influence the sway will have on the suspension travel. More vertical, the sway will act directly with suspension travel. More off-angle, it will act less initially and more directly under full compression. This may be more desirable depending on shock and spring selection as well as damper settings. Through various combinations, it will be possible to create different non linear suspension behaviors to suit the driver. A good initial setting is to keep the sway vertical with respect to the arm. Note the picture below; the sway link would be vertical if it were moved one link to the right. This is shown at two different droop heights to demonstrate the change in this angle during travel. The link will move towards the inner mount as the suspension compresses. The lower the suspension, the more outward the sway link should be mounted. In order to reduce preload on the factory sway endlink, FIGS offers adjustable linkages to allow a neutral sway bar orientation when the suspension is at rest. This will both prolong sway bar bushing life and reduce unnecessary stress on the sway bar itself. Sway bars behave best when they have a long range of travel and centering this travel is important to getting predictable suspension behavior.
14. Final sway mount and auto headlight leveling bracket. Install the bracket as shown. The location holes are only on the required side for these holes. The two upper mounts use the first two of the lower mounts as alignment holes.
15. Eccentric adjustments. **CAUTION! DO NOT ROTATE A FULL REVOLUTION. THE CAM BOLT IS INTENDED TO STOP AT FULL ADJUSTMENT, BUT NOT ROTATE COMPLETELY. DO NOT FORCE OR DAMAGE MAY OCCUR.**



16. Tighten all Bolts to factory torque spec. Re-install toe link.
17. **Alignment:** Car must be aligned and we suggest the following guidelines for the rear. These are per side.

Toe	Camber
+0.00 degrees to +0.05 degrees	-1 to -1.2 Degrees street/ -1.8 /-2.2 for Track

For most alignments the MEGA arms should serve to correct camber and toe functions and deliver a predictable bump map and reduce tire wear. For more extreme handling and lowering conditions, FIGS Toe Links may be required. These may be purchased separated and allow finer adjustment of bump steering characteristics.

INSPECTION AND MAINTENANCE

Inspect all parts after 10 miles, 100 miles and then inspection should take place every 10000 miles to ensure proper alignment of rod end and integrity of parts, tension on jam nuts. If any symptoms manifest themselves while driving, stop vehicle as soon as possible and inspect all connections. If the vehicle is involved in any type of collision, inspect part thoroughly to insure all components are not damaged before use. Adjust settings as suspension requirements change. Rod ends have a permanent PTFE (Teflon) Lining and should not require maintenance. If arms are finished and the finish should show signs of deterioration, the parts should be removed and a recoated to avoid destruction oxidation (rust) from affecting the part's performance. We suggest using Dry PTFE coating in spray or liquid form and coating as much of the arm as possible to shed road debris.

No warranty is expressed or implied on these parts due to normal wear. Rod ends will wear out, however we have designed these components with the highest grade parts available providing the most favorable long-term wear characteristics in the industry. Parts are used at the risk of the purchaser and all inspection, installation and communication is the sole liability of the purchaser. FIGS Engineering shall warranty parts for issues related to craftsmanship or materials on a limited case-by-case basis and the discretion of FIGS Engineering for a period of 90 days from the date of purchase.

Replacement parts can be sourced from FIGS Engineering through email or phone contact.

FIGS Engineering
Wheat Ridge CO 80403
(303) 949-5729
contact@figsengineering.com
www.figsenineering.com