

S197 MUSTANG WATTS LINK INFORMATION and INSTALLATION INSTRUCTIONS





OWNER'S INFORMATION and INSTALLATION INSTRUCTIONS

Our products are manufactured to the highest quality standards. To insure your complete satisfaction, please follow these simple steps: The Shelby American (SA) WATTS LINK is made to fit unaltered or undamaged frame rails.

1) Read the entire Owner's Manual and Installation Instructions before you begin installation. The Owner's Manual included with your products has been designed to make the installation of your SA WATTS LINK straight forward and trouble free.

2) Thoroughly inspect the contents of the box and check against the parts list. If you are missing a part, call the number listed below within 15 days of purchase. Proof of purchase is required to have any parts replaced.

3) Experience working with cars is required. If you are not sure of the installation procedures, consult a qualified mechanic.

4) In the unlikely event you are not completely satisfied with the product, please contact us immediately. Please make yourself aware of the return policy and follow our time frame and procedures for returns closely.

5) SA will honor the following 30 Day return policy. Proof of purchase from SA is required. You must have an order number before returning any products or parts for any reason. Parts will not be returned to you without an order number. SA will accept return suspension products if you are dissatisfied for any reason. Defective parts are replaceable through SA.

OUR PLEDGE TO ASSIST YOU

Contact SA Tech Support staff for additional help and installation tips, if needed.

PREPARATION FOR INSTALLATION

1) Installation will be easier if you have a drive on car lift. The next alternative is secure drive on ramps.

2) Tools you will need:

- Drive on car lift (preferred)
- Level (digital preferred)
- Floor jack
- Rubber Mallet
- Wrenches and sockets

- Jackstands
- Drive on ramps
- Standard tape measure
- Large crescent wrench
- 1 1/4", 1 1/8", 3/4" 9/16", 15 mm & 18 mm sockets &wrenches

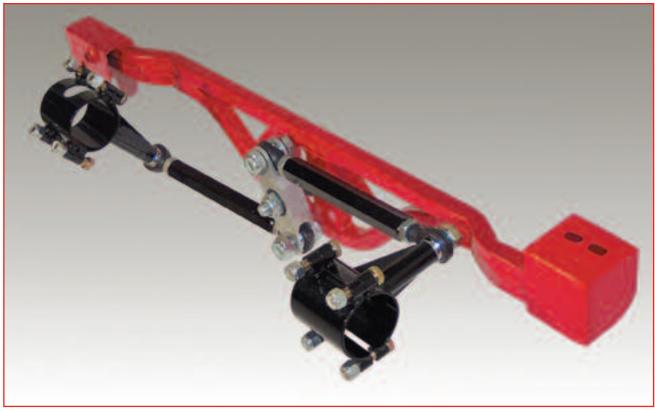
INTRODUCTION

In a few short hours you can greatly improve your Mustang's handling with the SAWatts Link.

The SA WATTS LINK is one of many suspension parts in the rear of your car. If you have suspension or brake problems after installation of our Watts Link, these conditions probably existed prior to the installation. Inspect your cars suspension system to installation of the SA Watts Link.

Maintenance your SA Watts Link is important. At first, check the SA Watts Link for tightness at 25 and 100 miles. Then, as often as your scheduled oil change or after every race or track day.



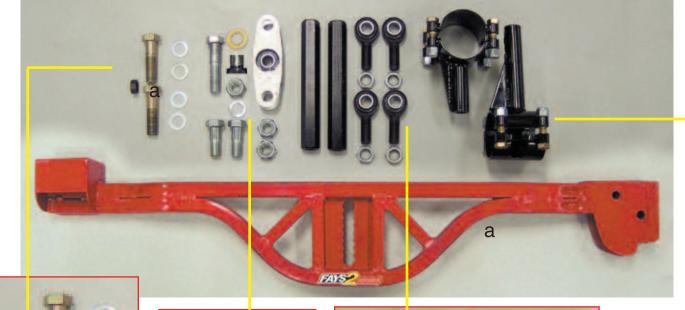


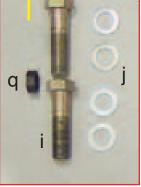




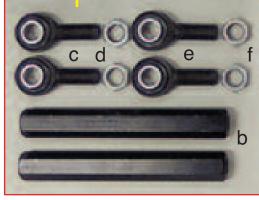
WARNING! DO NOT ATTACH TIE DOWN STRAPS TO THE SHELBY Watts Link. DO NOT AT ANY TIME USE THE SHELBY Watts Link AS A TIE DOWN BRACKET FOR YOUR CAR.

PARTS LIST







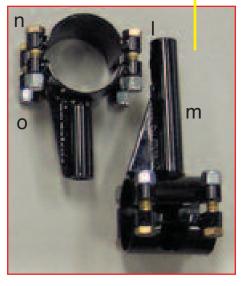






- a. (1) watts frame
- 2a.(1) The 7 part billet aluminum watts frame also includes two each: 10MM-1.5x408.8 bolts, flatwashers and lock washers
- b. (2) watts bars
- c. (2) 3/4" x 16 R rod ends
- d. (2) 3/4" x 16 R jam nuts
- e. (2) 3/4" x 16 L rod ends
- f. (2) 3/4" x 16 L jam nuts
- g. (2) 3/4 x 1.75 x 16 bolts
- h. (2) 3/4 x 16 nyloc nuts
- i. (2) 3/4" x 16 x 3 rod end bolts
- j. (4) 3/4" machine washers

- k. propeller assembly:
 - 1 billet propeller
 - 2 2 bearings
 - 3 Snap ring
 - 4 (2) 3/4" machine washers
 - 5 (1) 3/4" H.D. flat washer
 - 6 () 1 Hat bushing
 - 7 (1) 3/4 x 10 x 3 00 bolt
 - 8 (1) 3/4 x 10 nyloc nut
- I. drivers side axle tube mount
- m. passengers side axle tube mount
- n. (8) 7/16 axle clamp bolts
- o. (8) 7/16 lock nuts
- q. (1) 3/4 x 1/4 bushing



INSTALLATION INSTRUCTIONS

The watts link propeller in your kit is assembled with non-locking nuts to aid in setting your adjustments and fitting the rod ends and center bolt.

When you have finalized your adjustments replace the three non-locking the three nylocs using blue thread lock1) RAISE VEHICLE

You must raise the car to a level high enough to enable you to work under the rear axle. A drive on car lift is preferred. If you raise the rear of the car only, be sure to securely block the front wheels so the car cannot roll.

THINK SAFETY FIRST !!!!! ALWAYS USE CAUTION WHEN RAISING THE CAR

WARNING!!! Always use approved automotive jack stands to support the car. Perform all work on a level concrete surface with the jack stands underneath the frame rails of the car. **NEVER** depend on a floor jack to support the car!!!

2) REMOVAL OF FACTORY COMPONENTS

2a) Remove the factory panhard bar and panhard support bar. Set the nuts and bolts aside for re-use. It may be necessary on some models to loosen the sway bar mounts to gain access to these nuts and bolts.



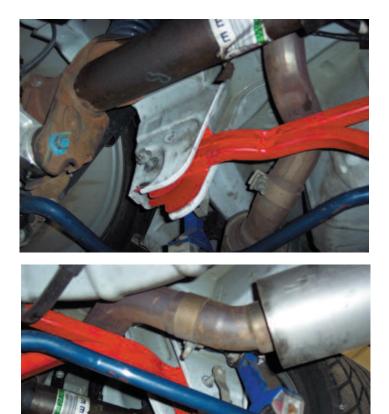




3.INSTALLATION OF THE F2S WATTS LINK FRAME WORK

3a) Install the SA Watts Link frame-work by sliding the frame work into the passengers side channel where you removed the factory panhard bar and support. This is best done by sliding the frame work horizontally from the drivers side to the passenger side rather than from the bottom up.

3b) Insert both bolts through the passenger side of the SA Watts Link frame-work into the factory holes and install the nuts but do nut tighten completely at this time.





NOTE: Do to slight variations in the Mustang chassis assembly and welding at the factory it may be necessary to grind some clearance in the passenger side chassis holes. If this appears to be the case, you are welcome to call us for guidance.

3c) Insert the two bolts through the drivers side SA Watts Link frame-work into the factory frame holes and tighten but do not torque at this time. The SA Watts Link frame-work should now be secure but not torqued to the cars chassis.

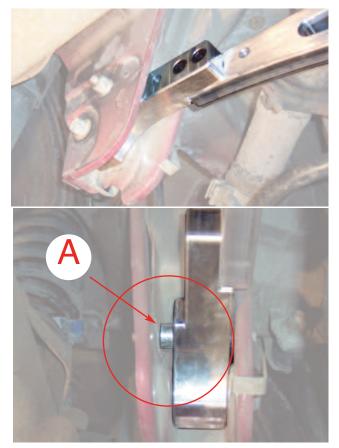




INSTALLATION OF THE F2S WATTS LINK BILLET FRAME WORK

3d Install the SA billet Watts Link frame-work by sliding the frame work into the passengers side channel where you removed the factory panhard bar and support. This is best done by sliding the frame work horizontally from the drivers side to the passenger side rather than from the bottom up.

3e) Position the aluminum spacer between the watts frame and Mustang channes as indicated in picture **A** so that the upper bollt passes through it.





NOTE: Do to slight variations in the Mustang chassis assembly and welding at the factory it may be necessary to grind some clearance in the passenger side chassis holes. If this appears to be the case, you are welcome to call us for guidance.

3e) Insert both bolts through the passenger side of the SA Watts Link frame-work into the factory holes and install the nuts but do nut tighten completely at this time (use blue thead locker).

3f) Insert the two bolts (with the flat and lock washers supplied) through the drivers side SA Watts Link frame-work into the factory frame holes and tighten but do not torque at this time. The SA Watts Link frame-work should now be secure but not torqued to the cars chassis (use blue thead locker).





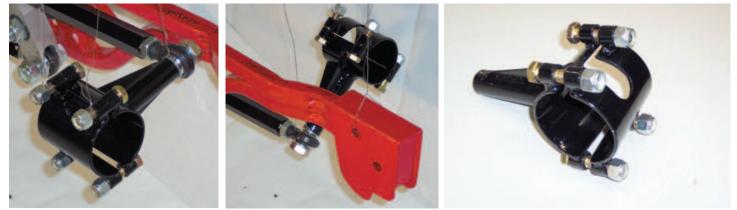


NOTE FOR INSTALLATION OF THE SHELBY AMERICAN WATTS LINK AXLE TUBE MOUNTS ON SOME 2011, 2012 AND 2013 MUSTANGS

SOME 2011, 2012 AND 2013 MUSTANGS HAVE THE AXLE TUBE BREATHER ON THE DRIVERS SIDE VERSES THE PASSENGER SIDE AS SHIPPED ON MOST 2005 THROUGH 2011 MUSTANGS. IF THIS ISTHE CASE WITH YOUR MUSTANG, YOU WILL NEED TO SWITCH THE LONG AXLE TUBE CLAMP TO THE DRIVERS SIDE AND THE SHORT CLAMP TO THE PASSENGER SIDE. THIS CHANGE WILL ALSO CAUSE THE PROPELLER TO BE POSITIONED AT 11:30 AND 5:30 WHEN VIEWED FROM THE REAR OF THE CAR.

4.INSTALLATION OF THE SA WATTS LINK AXLE TUBE MOUNTS

4a) There are two axle tube mounts. The drivers side has a shorter threaded tube and the passenger side has a longer threaded tube with a slot cut into the non tube half which will be positioned around the axle tube breather.



Drivers side axle tube mount.

Passenger side axle tube mount.

4b) Position the drivers side axle tube mount around the axle tube so that it points to the rear at the 9 o-clock position as shown at right. Snug the nuts and bolts but leave them loose enough so you can slide the axle tube mount from side to side and rotate it on the axle tube. You will tighten the bolts and nuts later.



4c) Next position the passenger side axle tube mount so that it points to the rear and downward at about the 4 0-clock position. Snug the nuts and bolts but leave them loose enough so you can slide the axle tube mount from side to side and rotate it on the axle tube. You will note that the axle tube mounts movement is limited by the slot which fits around the axle tube breather.

You will tighten the bolts and nuts later.

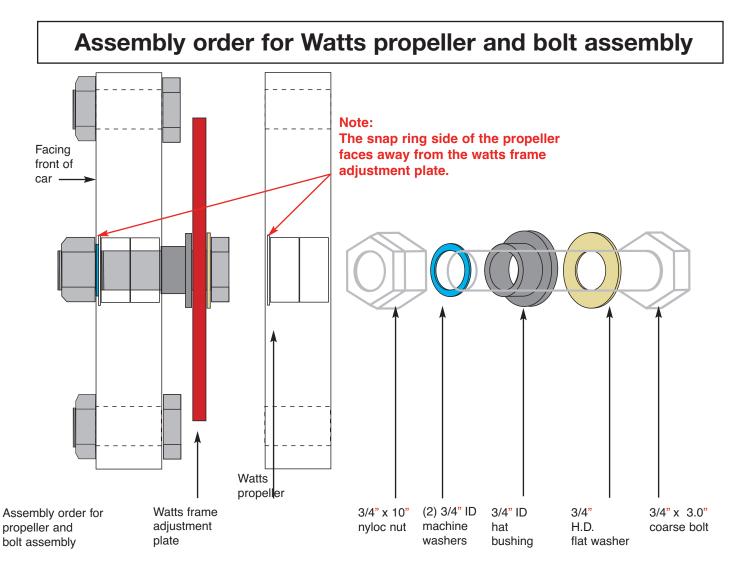


5 .INSTALLATION OF THE F2S WATTS LINK BARS

5a) Begin this step of the installation by positioning the propeller assembly into the center hole on the watts frame center adjustment plate. The correct order for the assembly is shown in the illustration below. This position may need to be moved for final adjustment, but starting in the center hole will get you close.

NOTE:

The adjustment plate is slotted to accommodate different ride heights of various cars depending on modifications made by the owner. Also once you have installed the complete FAYS2 Watt Link assembly and driven your car you may want to adjust this center propeller bolt up or down to dial in more or less roll steer. See our web site at www.fays2.net for more information on watts link theory and geometry.



5b) The picture below demonstrate how the watts propeller assembly will be positioned on the frame-work. This picture has a watts bar attached but you will not have a bar on it at this time.

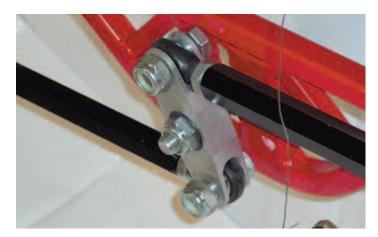


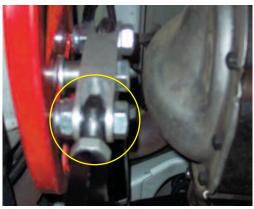
Note:

This picture shows the propeller bolt facing towards the rear of the car. This is an acceptable positioning of the bolt if your clearance needs require it. 5c) Secure a watts bar in each end of the propeller using a $3/4 \times 1.75 \times 16$ bolt. Attach a $3/4 \times 16$ nyloc to the bolt in the bar going to the drivers side (the top bar) and tighten at this time. Position the bar between the rod ends so that only two threads are showing on the rod end at the axle clamp end. You should not have the jam nuts tightened on the rod ends at this time because you will still need to make adjustments in the bar lengths.

NOTE: Because the axle can move from side to side when the panhard bar is removed or when the suspension is hanging or when the car is lowered, be sure to center the axle under the chassis before positioning the axle clamps.

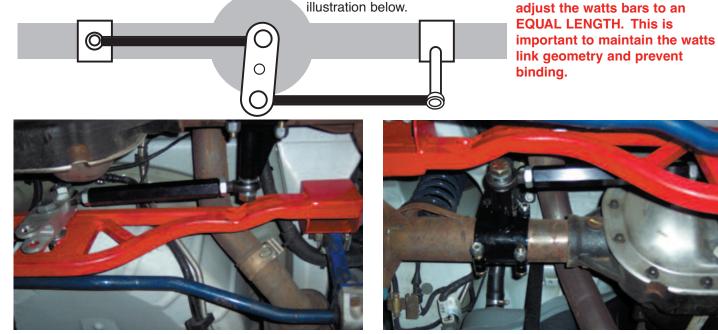
NOTE: As you assemble the watts propeller with the bars and rod ends, be aware that when tightened, the rod end should be position in the center of the propeller arms as shown. This is to allow the maximum movement without interference. When you finally do tighten the jam nuts be careful to not let the rod end rotate out of position.





5d) Now attach the other end of the bar to the drivers side axle tube mount using the 3/4 x 3 x 16 grade 8 bolt. Assemble with a 3/4 machine washer on either side of the rod end and thread into the axle tube mount snugly but do not torque at this time. The 1/4 inch spacer may be necessary for correct alignment on either axle clamp.

5e) At this time adjust the drivers side axle tube mount so that the watts bar is parallel to the axle and the ground and the propeller is between 12 and 1 o-clock at the top and between 6 and 7 o-clock at the bottom when viewed from the back of the car. Ideally the axle tube mount threaded tube should be at the 9 o-clock position. It may be necessary to move the propeller center pivot bolt up or down at this time to get the watts bar parallel to the axle. If you find the bar is close but not parallel at the 9 o-clock position you can add some weight to the trunk or raise the cars chassis slightly to get the bar parallel. See pictures and **NOTE: It is very important to**



Drivers side from front of car

Drivers side from rear of car

This next adjustment is critical to the operation of the Watts geometry.

5f) Next connect the other watts bar to the lower propeller arm using a $3/4 \times 1.75 \times 16$ bolt. Attach a $3/4 \times 16$ nyloc to the bolt in the bar going to the passenger side (the bottom bar) and tighten at this time. Center the bar between the rod ends so that an equal amount of threads are showing at each end. You should not have the jam nuts tightened on the rod ends at this time because you will still need to make adjustments in the bar lengths.

5g) This bar also must be parallel to the axle housing and to the other bar when installed. **Use your level.** If not, rotate the the passenger side axle tube mount angle so that the bar is as close to parallel as you can get it. We have supplied you with one spacer if you need additional length. See illustrations below.

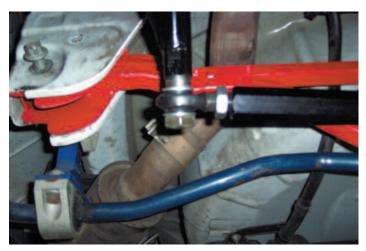
5h) When you have the bar positioned correctly, tighten the jam nuts securely keeping the rod ends perpendicular to the bolts securing them.

5i) Now remove this bar and adjust the drivers side bar to the **EXACT** same dimensions and tighten its jam nuts also. (See illustration on page 10)

5j) Reconnect the drivers side bar to the drivers side axle tube mount. You will probably have to slide this axle tube mount to the left or right to get the $3/4 \times 3 \times 16$ bolt to thread in easily.

5h) Now torque all bolts and nuts as specified.

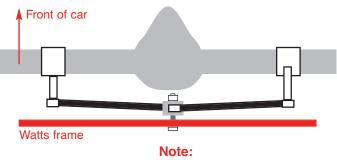
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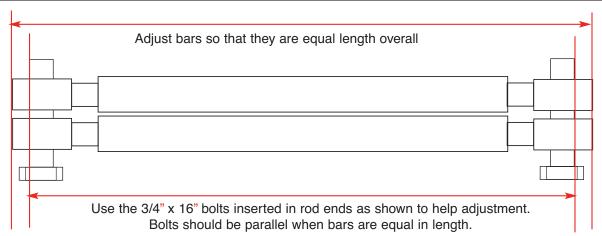






When viewed from below the differential the watts bars can have a slight angle toward the front of the car provided both bars are equal angles and length.

Suggested method of adjusting Watts bars to equal length.



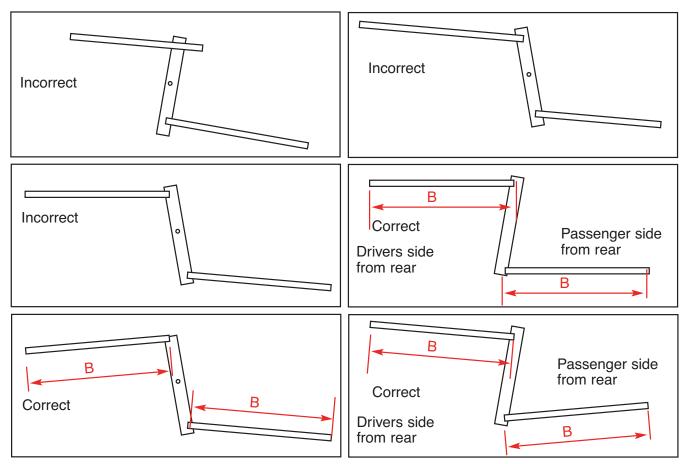
NOTE: Because the watts link principle works on geometry and not binding, wedging or leverage it is important that you adjust the bars so that they will rotate with very little pressure with your hand. This will take only a very slight turn of the bar (with the jam nuts loosened) to accomplish.

Then retighten the jam nuts as specified earlier

NOTE: It is also very important to adjust the watts bars to an EQUAL LENGTH. This is important to maintain the watts link geometry and prevent binding.

NOTE: See illustrations below for correct and incorrect alignment of bars.





<u>NOTE: Because the axle can move from side to side when the panhard bar is removed or when the suspension is</u> hanging or when the car is lowered, be sure to center the axle under the chassis before positioning the axle clamps. PAGE 10

TORQUE VALUES

(4)	3/4" x 16 jam nuts
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(2) 3/4" fine thread nyloc nuts

(1) 3/4" coarse thread nyloc nut

(2) 3/4° x 16 rod end bolts

(8) Axle tube mount nuts

80 FT. LBS. 80 FT. LBS. 100 FT. LBS. 80 FT. LBS. 50 FT LBS

Re torque factory bolts and nuts to factory specs. Use blue thread locker on all threads!

NOTE: It is very important to adjust the watts bars to an EQUAL LENGTH. This is important to maintain the watts link geometry and prevent binding.

CONGRATULATIONS!

You have purchased and installed the SA Watts Link assembly. Even if you make no other suspension modifications you will notice an improvement in your Mustang's handling and responsiveness. Additional improvements to spring rates and shocks will be maximized with the SA Watts Link assembly installed. Make a one to two mile test drive at moderate speeds and recheck all the nuts and bolts and alignment of the Watts bars. At regular intervals, such as 25, 50 and 100 miles, recheck all nuts bolts and alignment of the Watts bars.

WARNING!

DO NOT ATTACH TIE DOWN STRAPS TO THE SHELBY Watts Link. DO NOT AT ANY TIME USE THE SA Watts Link AS A TIE DOWN BRACKET FOR YOUR CAR.

OUR PLEDGE TO ASSIST YOU

Please contact our Tech Support Staff for additional help and tips if needed. Our technicians will respond to your message as soon as possible. Our business hours are anytime we answer the phone Monday through Sunday from 8:00am to 5:00pm CST.

WARNING:

SHELBY AMERICAN takes no responsibility for your participation in high speed or competitive driving events.

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