Installation instructions for our Spring Loaded, selectable, Adjustable & multi-function "COBRA VENOM ULTIMATE STEERING"

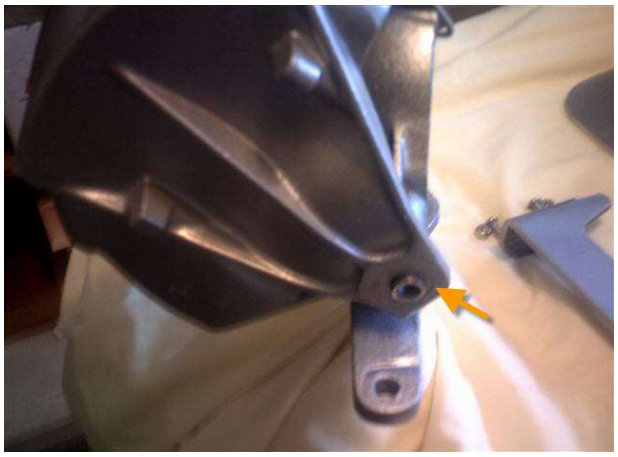
The steering that puts YOU in control

Step 1:

Place the controls in the forward position to lift the reverse gates allowing for easier access to the nozzles during the installation process.

Step 2:

You will be installing one fin at a time, starting with the right hand side of the nozzle. Remove the bolt that holds the right side of reverse gate to the nozzle. Take note of the small stainless bushing located in the hole where the bolt was taken from; be sure this bushing is in place when attaching the steering fins.



Note arrow indicates the bushing.

Step 3:

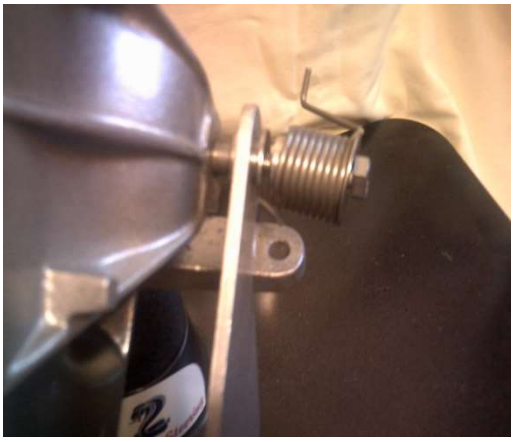
Locate the right side fin that has the writing on the outside surface when being held up to the right side of the nozzle.

This picture shows the correct parts and correct sequence for placing those parts onto the long hex bolt listed as **#1**, next is the large thin flat washer listed as **#2**, place that washer on the bolt, next is the large spacer listed as **#3**, place that spacer on the bolt, next is the spring listed as **#4**, carefully place the spring over the spacer on the bolt insuring the two spring arms are pointing in the direction shown in the picture "TOWARD THE NOZZLE".

Next is the flat washer listed as **#5**, place this flat washer on the bolt, next is the spacer listed as #**6**, place this spacer on the bolt, "Important note", the spacer for the fins are thinner ".218" than the spacers used on the side force stabilizers".250"- take care to install the proper spacers in their proper places! Next place the right side

fin listed as #7 with the writing facing out and the large part down. Next you need to place the second washer listed as **#8**on the bolt.

You are now ready to install the right side fin with the spring, washers etc.



Take note to insure that the small original factory bushing for the reverse gate as previously mentioned is in place when installing the parts.

It is highly recommended that you use thread locking compound when installing the hex bolt into the nozzle. Regular removable type should be fine.

Once the bolt and all corresponding parts are installed and the fin mounted it should swing freely. An installation tip “note that each flat washer has a side with curved edges and a side without, place each washer with the curved edge against the fin as it will allow for smoother movement.

(One more picture of the right side fin being installed to show the spring is not loaded yet. Note this picture shows a metal reverse gate, these units are compatible with the metal or plastic reverse gates.)

Step 4:

Remove the left side factory bolt from the reverse hood, again taking care not to lose the small reverse hood bushing as shown in this picture.

Step 5:

Locate the large button cap bolt labeled **#1**, place a small washer labeled **#2** onto the bolt, next place the spacer labeled **#3** and the and the left fin labeled #4 followed by the final washer labeled **#5**.

Install the parts taking care that the small original bushing is in its place in the reverse hood and again use thread locking compound when installing this bolt.

Now you should have 2 free moving fins on the nozzle.

This picture shows the proper sequence of parts for the left fin installation using the new plastic reverse hood bolt, flat washer, bushing, fin, second flat washer and the original factory bushing for the reverse hood.

You will note that the fins should move freely and appear to be slightly loose as intended at this point in the process.

Attached is a view of the center parts of the spring loaded steering system. These parts are very important as they serve several vital functions. The part labeled #7 in this picture is the actuator.

The actuator attaches the two fins together to stabilize them to resist flexing, plus it allows for separate fin adjustment when being used in the all time assist mode.

In the all time mode the actuator holds the fins down when it makes contact with the water exiting the nozzle, just the opposite of how it lifts the fins in the part time up at speed mode. Note in the up at speed mode the actuator must be set on the top holes of the fins ONLY. The actuator also serves as a stop to limit the depth of the fins for various adjustments when operated in the down mode ONLY. This stop works in conjunction with part #5, “the new side force stabilizer”.

This part stabilizes the fins when making turns so that they can direct the water efficiently without side flexing or bending under pressure.

It also works as a reverse gate stop in hard power reversing to reduce the stress on the reverse cable. This feature is even more important with the advent of plastic reverse gates as it can reduce forces placed on those parts.

The side force stabilizer serves many functions. It is a very important part of this system and it “MUST BE INSTALLED CORRECTLY”!

The steering system should never be operated without a side force stabilizer.

Step 6:

Next is attaching the actuator to the fins. The actuator has 2 holes on each end that correspond with the line of similar size holes on each fin. The actuator must be installed initially with the end ears down and the fingers facing toward the nozzle. After the initial installation is completed you may then choose different settings for the fins. There are numerous holes to choose from on each fin. These will allow several choices of depth while operating the steering in the down all time assist mode.

For proper installation we will begin with the actuator being mounted in the top holes with the fingers facing in and the ears down. As shown in the bottom left hand picture on the previous page.

First locate 4 small button cap bolts and corresponding nylock nuts. Listed as parts #8 and # 9

Align the holes in the actuator with the top two holed in the right side fin, place the bolts from the outside and attach the nylock nuts on the inside of the actuator, do this on the left side fin also.

Once the bolts are tight the fins should move freely up and down as they are now attached to each other.

Step 6: Part 2

Now that the two fins are interconnected via the actuator it is time to load the spring. This spring was custom designed for simplicity.

Rotate the longer spring arm clockwise, pulling it out just enough to go past the steering arm and flip the end over the top of the fin. See pictures below.

The spring can be loaded and unloaded without the need of any tools.

With the spring loaded you will notice the fins have a very different feel to them and we are ready for the next step in the process.

No load on the spring loading the spring

Spring in proper operating position

Installing the side force stabilizer correctly

This part #5 shown in the picture on the left is designed to bolt on to the bottom of the nozzle without the need to drill any holes or modify the existing factory parts. It is marked with" this side up" to insure that the fingers are aimed down for proper operation. This particular stabilizer will work on all Yamaha jet boat nozzles up to 2014 model years. The picture on the right shows the two different style Yamaha jet nozzles, with the first one numbered 1 depicting the early stabilizer mounted on a 2014 and earlier nozzle. Number 2 in the right picture shows the newer style stabilizer also mounted on the 2014 and earlier nozzle. Number 3 in the right picture shows a new style stabilizer mounted on the 2015 style nozzle. This was shown in order to demonstrate the newer style stabilizer is compatible with all the steering nozzles whereas the older stabilizer will not fit the 2015 or newer nozzles.

Number 4 on the left hand picture is a custom stainless steel bushing, although they resemble the bushings used on the fins, these are thicker to allow for some very necessary play in the stabilizer and for that reason they must be kept separate and only used for the side force stabilizer installation. If you should accidently mix them up, simply place the bushings side by side on a flat even surface and the thicker ones for the stabilizer will be very obvious. The side force stabilizer has play built in. Removing the play at the bolt could bind up the nozzle, causing the nozzle to be difficult to turn or cause the bolt to come loose. If you check your nozzles you will discover the factory has play built in at the bolts where the nozzles pivot.

Step 1remove the bottom factory bolt that attaches the nozzle to the pump. Locate #1 the short hex bolt in your kit. #2 is a special thick flat washer, #3 is a thin spacer. #4 is a bushing similar to the ones used in the fin installation.

#6 is the original factory bushing that was removed with the original bolt. Take care to install this bushing as it must be placed back in its original position when the side force stabilizer is attached.

Simply place the flat washer#2 on the hex bolt#1 and place the bushing#4 on the bolt also. Now place the thin spacer#3 on the bolt. Install this into the opening on the side force stabilizer#5 add the factory bushing#6. Be sure to use thread locking compound on the bolt threads.

Now check that the stabilizer has a small amount of play or a slight looseness to it, if so it is installed correctly. Do not over tighten the bolt, do not remove the free play at the bolt.

Note on the 2015 and newer nozzles you will need to slide the stabilizer onto the nozzle by holding it with the correct side up and then sliding it on the nozzle using the small cutouts that are in the inner part of the opening. See next page for a picture.

Now test the action of the fins by raising them and releasing them several times. They should move freely with some side play for good measure.

You now have the system installed on a nozzle. For twin engines, simply repeat these steps. After the installation is complete check the free movement of the reverse and the nozzles, they should move exactly as they did prior to the installation.

This system is multi-functional, when the actuator is set with the fingers toward the nozzle you have the fins set to operate at all times, plus being spring loaded for safety. However If you prefer to have the fins down only at slow speeds for docking assistance etc. setting them to ride up automatically at faster speeds you simply reverse the actuator and have the fingers facing out away from the nozzle and pointed down, be sure to set the actuator on the top holes of the fins only, this will also change the angle of the actuator and allow it to rise up once it reaches a speed above no wake mode. When in the up at speed mode do not set the actuator in any other position, do not stagger the fins.

The variable function feature along with the spring loaded option and the numerous adjustments provide you with the most options ever offered for enhanced jet steering.

On twin engine boats when setting this system in all time mode you may also try the staggered fin setting by raising the two outer fins at various settings and keeping the two inner fins all the way down. This allows you to adjust the amount of high speed influence the added steering provides. You may find this method a more effective way of improving slow speed handling while receiving exactly the amount of extra high speed and low speed assistance you require.

For safety reasons, you should always remove the boat from the water when making any adjustments to the steering. Or performing any other work under the rear deck!

The all NEW COBRA VENOM ULTIMATE, born from over a decade of experience, now offering you the most versatile steering assistance ever available for your Yamaha jet boat from any place at any price!

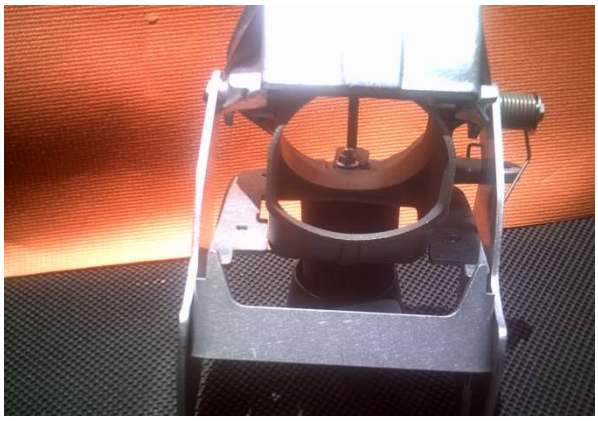
Above pictures show the steering actuator positioned for full time assistance.

"PLEASE NOTE". We are happy to show you how we have improved the feature for the fins when rising up at speed. The left hand picture shows the new adjustment holes to accommodate setting the actuator to lift the fins at planning speed. Note the fingers of the actuator are pointed up while the bottom bolt of the actuator utilizes the new second top hole. This new feature makes changing from all time assistance to part time assistance easier. No more reversing the actuator, simply remove the bottom bolts rotate the actuator up and install the bolts into the extra top holes. This change does several things to improve this function. The first obvious benefit is an easier transition from full time steering to part time steering. Next since we have removed the actuator from the water below the nozzle we have decreased the resistance thus increasing the speed required for the fins to rise up, this prolongs the time of the fins in the

water for more help at low speed. Additionally we repositioned the depth of the actuator to leave a small amount of the fins in contact with the water at planning speeds, approximately 1 inch of the fins remain connected to the water to provide feedback and a slightly quicker response to the helm .

The top picture on the left shows the newer 2013 plastic reverse hood. COBRA STEERING systems are compatible with both types of reverse hoods metal or plastic as well as the new 2015 nozzles. The picture on the left shows the reverse hood resting on the reverse stop. This benefits both the reverse hood and the reverse cable by taking some of the load when operating in reverse.

The lower picture shows the earlier metal reverse hood , plus it shows the new up at speed setting for the actuator, fingers up fins rise up at speed, fingers down fins stay down at speed.



This photo shows in red the small amount of fin that will remain in contact with the water when the fins rise up at speed.

This picture shows the fins staggered. While in the down all the time mode. This is an option for twin engine boats where the operator wants to reduce the amount of high speed assistance without eliminating it all together. Setting the outer fin up on both nozzles will accomplish this. The higher you set the outer fin, the less exposure and therefore the less effect it will have at planning speeds. On single engine boats the fins

can be set to rise up at speed or stay down at any of 5 different settings. Keep in mind when the boat is off plane the fins are submerged for more influence. 

This picture shows the new improved settings with the actuator set to the fullest effect to stay down at speed. Note the progression of holes can be utilized to set the fins higher for less effect if desired.