



GLIDECAM® **X-10™**



MANUAL

Set-up and Operations Guide

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Customer Service Line 1-781-585-7900

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#I INTRODUCTION

Congratulations on your purchase of a Glidecam X-10 Camera Stabilization System.

In order to use the X-10 system, it is best to have a basic understanding of how the system works in advance. So please make sure you read this section before trying to setup and operate the X-10 Camera Stabilization System.

The X-10 Camera Stabilization System is designed to allow you to walk, run, go up and down stairs, shoot from moving vehicles and travel over uneven terrain without any camera instability or shake, when used with the GLIDECAM XR-SERIES or GLIDECAM HD-SERIES (not included). The GLIDECAM XR-SERIES and GLIDECAM HD-SERIES are generally used as hand-held camera stabilizers; however, they can also be used with the X-10, and when they are, they are referred to as a SLED. The SLED carries your camera and is attached to the end of the SPRING-LOADED SUPPORT ARM, which, in turn, is attached to the GLIDECAM SUPPORT VEST.

When using the GLIDECAM XR-SERIES or GLIDECAM HD-SERIES in hand-held mode, your arm is carrying the weight of the SLED. However, when the XR-SERIES or HD-SERIES are used with the X-10, it is the X-10'S SPRING-LOADED SUPPORT ARM that carries the weight of the SLED. Because of this, you will now be able to shoot for extended periods of time, whereas before, the stress associated with hand holding the SLED reduced your shooting time.

While the X-10 is in essence a very simple device, its simplicity doesn't lend ease in answering that often asked question, "how does it work?" To answer this question completely would require delving into Newtonian Physics and Classical Mechanics. We would have to explain - center of gravity displacement, inertia, reduced friction and angular motion reduction etc. However, a quick answer reveals the X-10 works by "isolating" your body's motion from your camera, while your camera is balanced in an isolated and relatively motionless state.

The X-10 requires practice and understanding to achieve professional looking results. We highly recommend that the user read this manual thoroughly before setting up and operating the X-10. Doing so will save you time, and will minimize the risk of damage to your camera or the X-10. It is important to perform and follow the Setup and Operation's procedures in the proper sequence, so as to avoid both frustration and a possible accident.

If you need technical assistance, you can page our Technical Support Line at 1-508-830-1414, between the hours of 10:00 AM and 5:00 PM, Eastern Standard Time, Monday through Friday. We're sure that once you have your X-10 up and running, you will find years of enjoyment with it.

#2 QUICK SETUP

Since you will be using your X-10 with either a GLIDECAM HD-SERIES or GLIDECAM XR-SERIES (hereafter referred to as the SLED), you should make sure that your SLED is already setup and properly balanced. Please see the GLIDECAM HD-SERIES or GLIDECAM XR-SERIES Manual for details regarding proper SLED setup and balancing procedures.



Figure 1



Figure 2

Included is a X-10 HD DOCKING BRACKET, which allows you to park your SLED while it is not in use. Securely attach and tighten the DOCKING BRACKET onto the 5/8" RECEIVING PIN of an INDUSTRY-STANDARD C-STAND (Not Included) as in figures 1 and 2.

It is always best to park your SLED on the provided HD DOCKING BRACKET, as in figure 3. However, if you do not currently have a C-STAND, it is acceptable to park your SLED on a TABLE TOP and therefore not use the DOCKING BRACKET.



Figure 3

When you park your SLED onto the HD DOCKING BRACKET, make sure that the SLED'S HANDLE is facing directly outwards as in figure 3. By parking your SLED this way on the HD DOCKING BRACKET, it will be easily accessible to you when it comes time to put the SLED onto the end of the SUPPORT ARM.

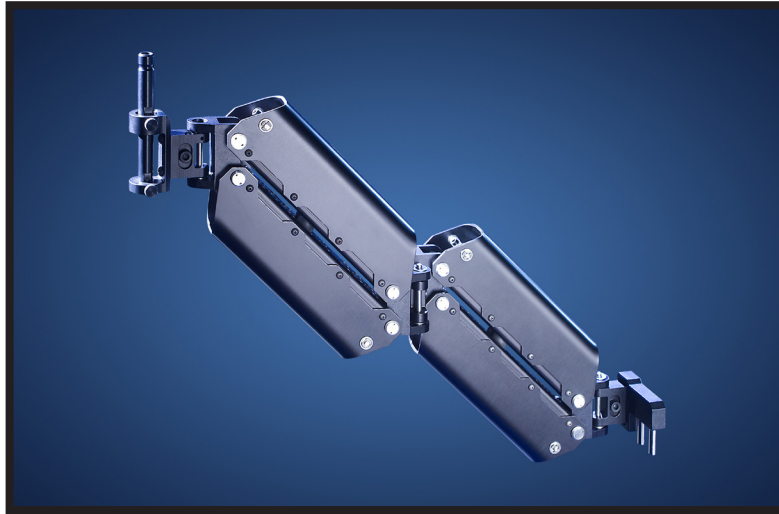


Figure 4

The X-10'S SUPPORT ARM (figure 4) comes configured with two EXTENSION SPRINGS, which are already installed. These SPRINGS are also preset to their weakest LOAD SETTING. Later, in the CONFIGURATION SECTION, we will discuss how to make adjustments to the arm in detail. For now, leave the SPRINGS in the SUPPORT ARM at their factory setting.

Now, install the BLACK ARM POST into the ARM POST CLAMP at the end of the SUPPORT ARM, as in figures 5 and 6.



Figure 5



Figure 6

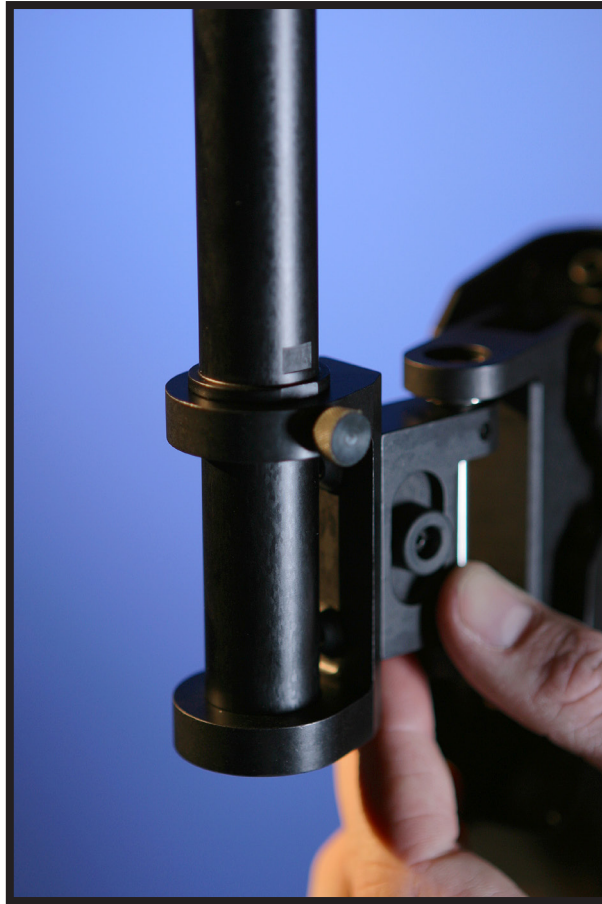


Figure 7

Tighten the ARM POST into the ARM POST CLAMP, making sure to align the NOTCHES in the ARM POST so that they face the TIGHTENING SCREW as shown in figure 7. Do not OVER TIGHTEN this PLASTIC TIGHTENING SCREW, for this could damage the THREADS. The reason that the TIGHTENING SCREW is made of plastic is so that it will not scratch the ARM POST.



Figure 8



Figure 9

Put the GLIDECAM SUPPORT VEST on next. Adjust the STRAPS on the VEST until the VEST fits you comfortably; however, make sure that the VEST is not on too loosely, for it needs to bear the combined weight of the SUPPORT ARM and SLED. Also, you should take note that if you are planning on walking up and down stairs or walking over uneven terrain, that you should make sure that the very bottom of the vest is not positioned so low on your torso that it inhibits your legs from moving up and down fully.

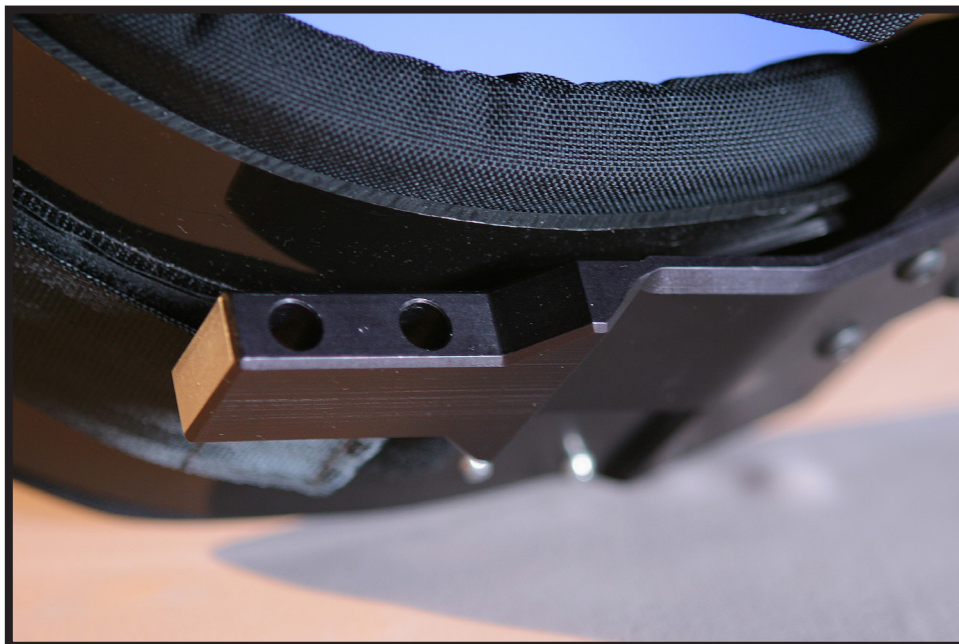


Figure 10

Connect the X-10 SUPPORT ARM to the GLIDECAM SUPPORT VEST. First, note the location of the two RECEIVING HOLES in the ARM CONNECTOR BAR shown in figure 10. Next, carefully align and guide the two STEEL PINS located on the back end of the RIGID ARM down into the two RECEIVING HOLES as in figure 11. Make sure that the arm is fully inserted into the RECEIVING HOLES as in figure 12.

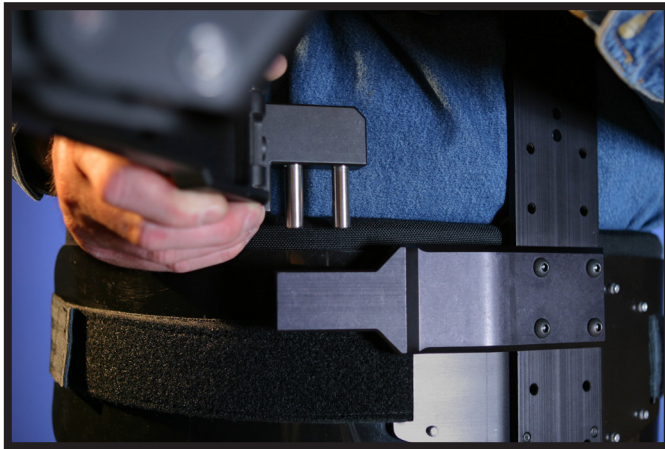


Figure 11



Figure 12

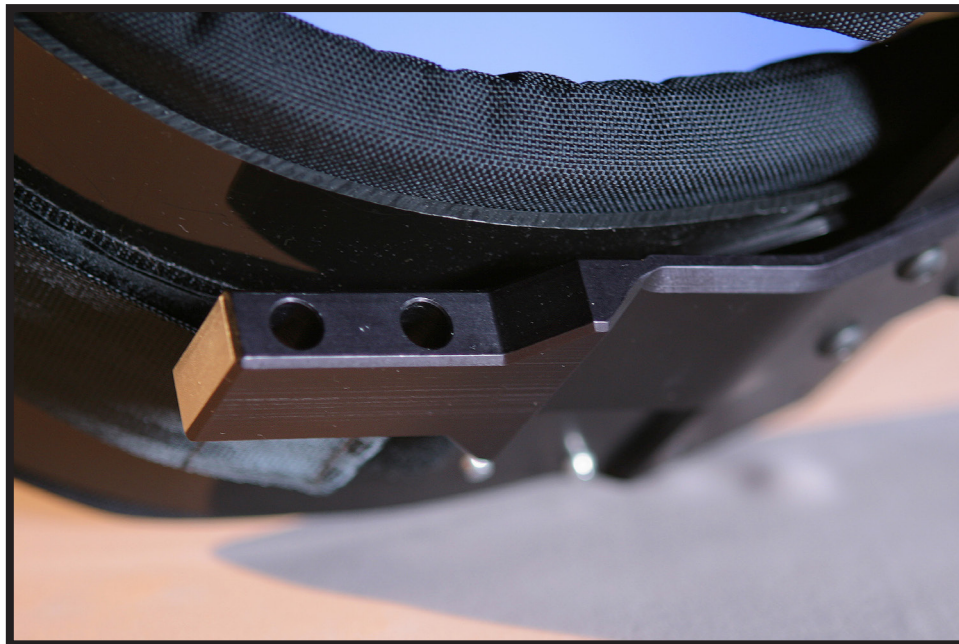


Figure 13

If everything has been done properly so far, you should now have the SUPPORT ARM attached to the VEST, as in figure 13.

CHANGE TO LEFT HAND OPERATION

If you choose to change the Glidecam X-10 Arm from the factory set right hand operation to left hand operation, you will need to follow the instructions in your operator vest section and then you will need to remove the 4 screws that attach the 2-pin block to the pre-arm and then rotate the 2-pin block 180 degrees, then reinstall the screws from the opposite side. Now you can push the 2-pin block into the vest block on the bridge plate and you are set up for left handed operation.



Figure 14



Figure 15

You can now attach the SUPPORT ARM to the SLED by carefully aligning and guiding the ARM POST all the way into the bottom of the SLED HANDLE as in figures 14 and 15. After you have done this, hold onto the SLED HANDLE firmly so that as you carefully lift the SLED straight up and out of the DOCKING BRACKET, you can make sure that the weight of the SLED is in the control of your ARM and not the SPRING-LOADED SUPPORT ARM. Now gradually let the SUPPORT ARM take over the job of holding the weight of the SLED. If your SLED is too heavy for the SUPPORT ARM at its current LOAD SETTING, the weight of the SLED will angle the SUPPORT ARM downwards. If your SLED is too light for the SUPPORT ARM at its current LOAD SETTING, the SLED will angle the SUPPORT ARM upwards.

If your SLED is the correct weight for the SUPPORT ARM at its current LOAD SETTING, the ARM will remain level as in figure 16.



Figure 16

If your SLED is **too heavy** for the SUPPORT ARM, in the ARM'S current factory setting, you will need to increase the SPRING TENSION of the ARM by following the procedures outlined in the ADJUSTING THE LOAD SETTINGS OF YOUR SUPPORT ARM section of this manual.

If your SLED is **too light** for the SUPPORT ARM, in the ARM'S current factory setting, you will need to decrease the LOAD CAPACITY of the ARM by removing one of the SPRINGS as outlined in the REMOVING THE SPRINGS FROM YOUR SUPPORT ARM section of this manual.



Figure 17

The X-10 is designed to work best when the system is operated with the SLED positioned directly in front of you, as in figures 17 and 18. This position allows you a clear view of either the LCD MONITOR on your camcorder or the LCD MONITOR on the BASE PLATFORM of your SLED.

NOTE: This picture actually show the GLIDECAM SMOOTH SHOOTER; however, the GLIDECAM X-10 should be positioned in the same way.



Figure 18

Also, you should note that when using the SLED in HAND-HELD mode, you were instructed to firmly hold onto the HANDLE. This was due to the fact that you had to support the entire weight of the system in your hand. However, now that the X-10 SUPPORT ARM is holding the weight of the system, holding the HANDLE gently, as in figure 18, yields superior results.

NOTE: This picture actually show the GLIDECAM SMOOTH SHOOTER; however, the GLIDECAM X-10 should be positioned in the same way.

#3 ADJUSTING THE LOAD SETTINGS OF YOUR SUPPORT ARM

In order to change the LOAD SETTING of the SUPPORT ARM, you will need to either change the SPRING TENSION within the ARM, or add or remove a SPRING from the ARM. Both of these changes can be made using the supplied ALLEN WRENCHES (not included).

When you receive your X-10, it comes configured with both SPRINGS already installed and set to their weakest SPRING TENSION setting.

In order to adjust the SPRING TENSION in the SUPPORT ARM, you must first make sure that the SLED is not on the end of the ARM and that the ARM is not attached to the VEST. You must also make sure that the ARM is not under load and that it is angled upwards.



Figure 19

To increase or decrease the SPRING TENSION within the ARM, you will need to either lengthen or shorten the SPRING with an ALLEN WRENCH as shown in figures 19 and 20.

NOTE: This picture actually show the GLIDECAM SMOOTH SHOOTER; however, the GLIDECAM X-10 should be setup in the same way.



Figure 20

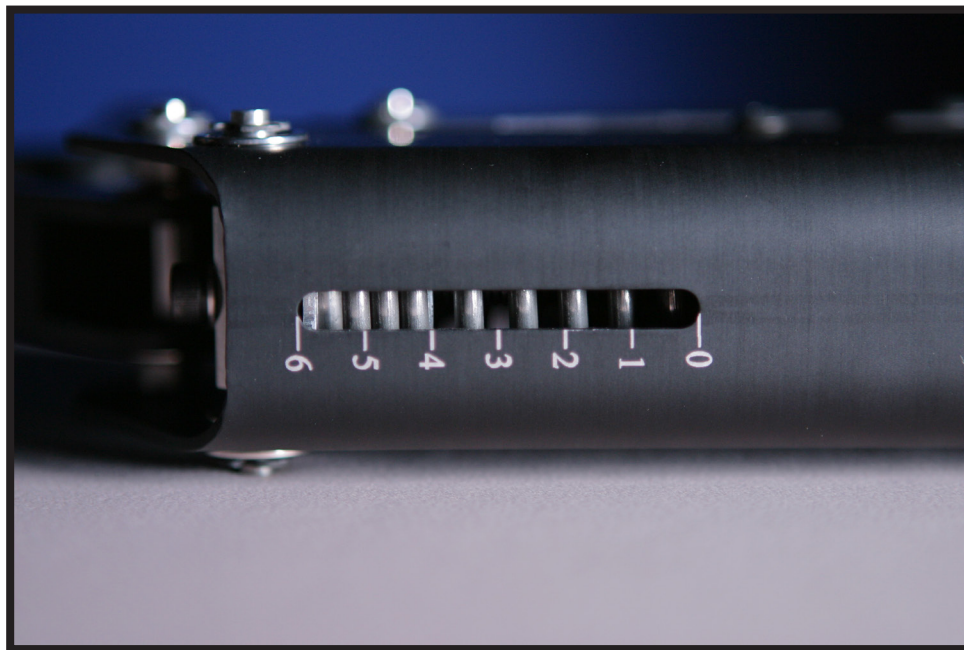


Figure 21

NOTE: Figures 20 and 21 show the GLIDECAM SMOOTH SHOOTER; however, the GLIDECAM X-10 should be setup in the same way.

When you change the length of the SPRINGS, you will be able to see their positions change in the GUIDE SCALE WINDOWS located on the top and bottom of the SUPPORT ARM (figure 21).

The MARKINGS next to the GUIDE SCALE WINDOWS indicate the different LOAD SETTINGS. You can set the SPRINGS from 0 to 6 and anywhere in between, with 0 being the weakest, and 6 being the strongest.

If your SLED is **too heavy** for the SUPPORT ARM, you will need to increase the SPRING TENSION of the ARM. If your SLED is **too light** for the SUPPORT ARM, you will need to decrease the SPRING TENSION of the ARM. Additionally, you may need to either add or remove a SPRING from the SUPPORT ARM to either increase or decrease the ARM'S load-carrying capacity. Your goal in making these adjustments is to support the weight of the SLED while the ARM remains level, as shown in figure 16.

When you use the SUPPORT ARM with only one SPRING in it, it can hold a maximum load of **9 pounds** at its strongest setting. When you use the SUPPORT ARM with two SPRINGS in it, it can hold a maximum load of **18 pounds** at its strongest setting. It should be pointed out that the maximum loads above refer to the weight of your CAMERA and SLED combined, and not just the weight of your CAMERA alone.

NOTE: The X-10 SUPPORT ARM is optimized to take advantage of the principle that the more inert a camera system is, the more stable it is. In other words, the heavier your camera or combined camera and SLED are, the more stable your resulting footage will be. So therefore you should always try to use the X-10 SUPPORT ARM at its maximum LOAD CAPACITY for a given SPRING combination. In practice, this optimization will occur when a 9-pound SLED is used with only one SPRING installed in the arm, or when an 18-pound SLED is used with two SPRINGS installed in the arm.

We have provided **STEEL WEIGHT PLATES** (not shown) with the X-10 so that you may use them to increase the total weight of your SLED. This is so that the combined weight of your CAMERA and SLED can equal approximately 9 pounds when used with one SPRING in the ARM, or 18 pounds when used with two SPRINGS in the ARM.

In addition to the STEEL WEIGHT PLATES, we have also provided one black, lightweight ARM POST. Shown in figure 22.



Figure 22

#4 REMOVING THE SPRING FROM YOUR SUPPORT ARM



Figure 23

In general, when using a GLIDECAM HD-2000, you will achieve superior stabilization with only one SPRING installed in the SUPPORT ARM. When using a GLIDECAM HD-4000, you will achieve superior stabilization with two SPRINGS installed in the SUPPORT ARM.

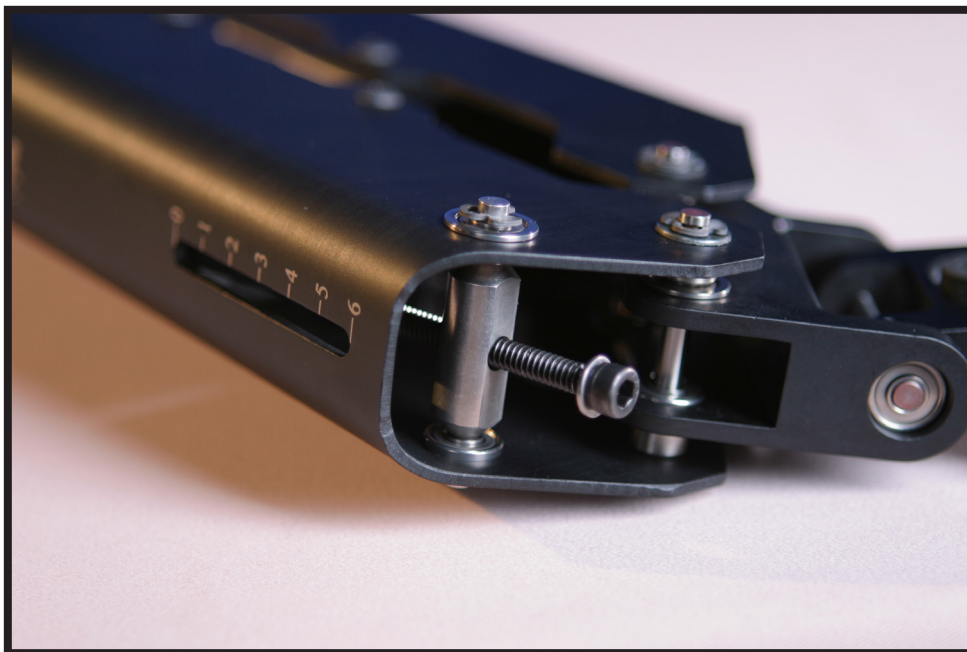


Figure 24



Figure 25

In order to remove or install either of the SPRINGS in the SUPPORT ARM, you must first make sure that the SLED is not on the end of the ARM and that the ARM is not attached to the VEST. You must also make sure that the ARM is not under load and that it is angled upwards. With the ARM angled upwards, you can easily remove the ADJUSTER BOLT or BOLTS as shown in figures 23-25.

With both ADJUSTER BOLTS removed, you can now angle the SUPPORT ARM downwards, thereby allowing you easy access to each SPRING'S RETAINING BOLT as in figure 26.

NOTE: You will not be able to angle the SUPPORT ARM downwards if one of the ADJUSTER BOLTS remains attached to the SPRING. Both ADJUSTER BOLTS must be removed for the ARM to be angled downwards.

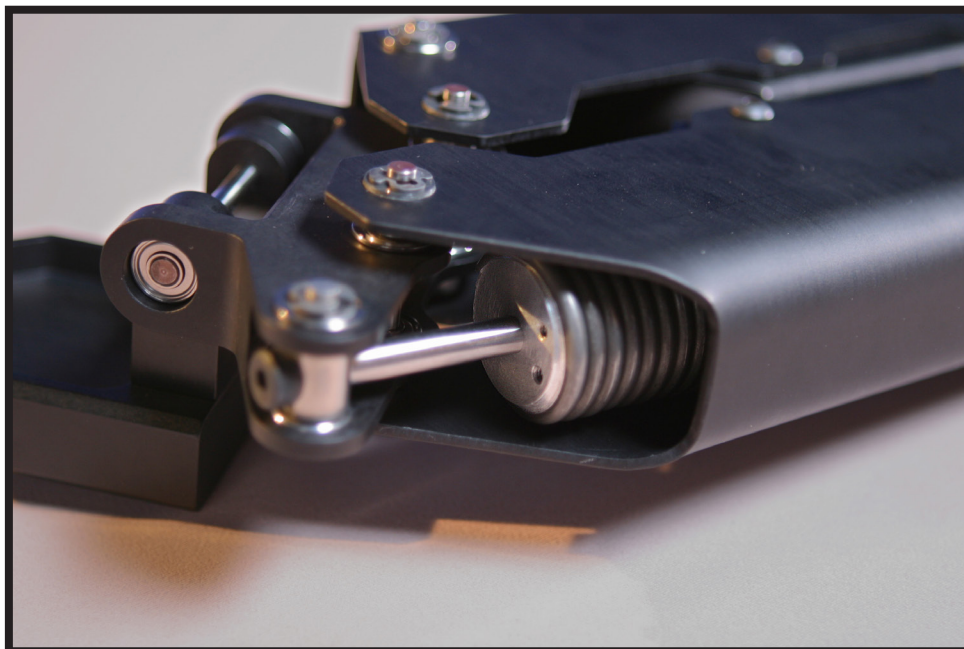


Figure 26

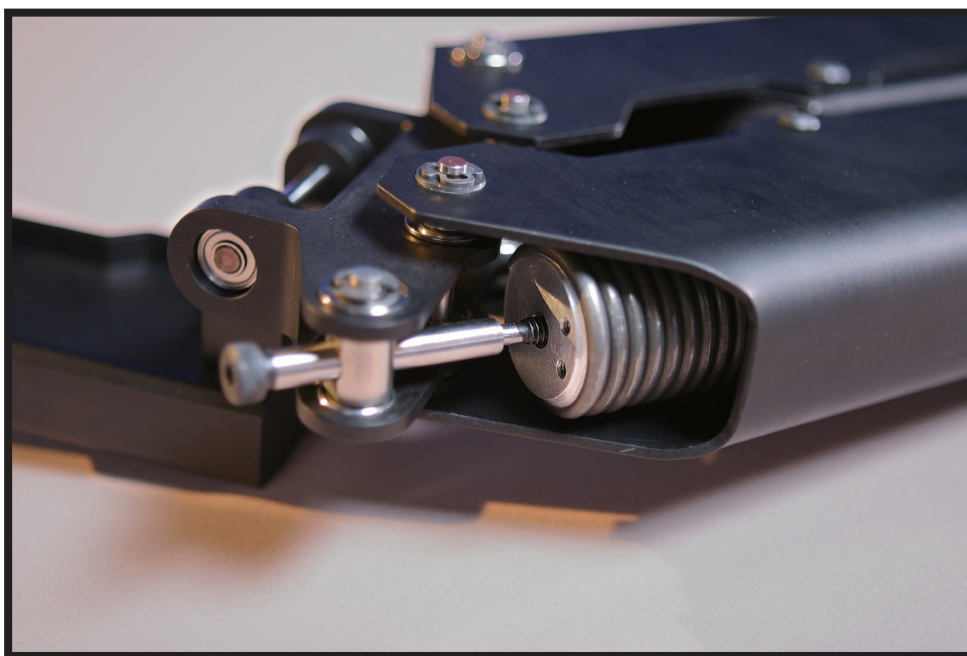


Figure 27

With the ARM angled downwards, you can now easily remove the RETAINING BOLT or BOLTS as shown in figures 26 and 27.



Figure 28

Now that the ADJUSTER BOLTS and RETAINING BOLTS are disconnected from each end of the SPRING, you will be able to slide the SPRING out of the SUPPORT ARM as shown in figure 28.

#5 INSTALLING THE SPRINGS INTO YOUR SUPPORT ARM



Figure 29

When installing the SPRINGS into the SUPPORT ARM, you need to pay close attention to the alignment of the ANTI-SPRING ROTATOR that is attached to the end of each SPRING as shown in figure 29.



Figure 30

Make sure the SUPPORT ARM is angled downwards so you can easily install the SPRINGS. Also, when inserting a SPRING into the SUPPORT ARM, make sure that the ANTI-SPRING ROTATOR end of the SPRING is aligned as in figure 30.



Figure 31

Insert the SPRING into the SUPPORT ARM, and thread the RETAINING BOLT into the end of the SPRING as in figure 31.

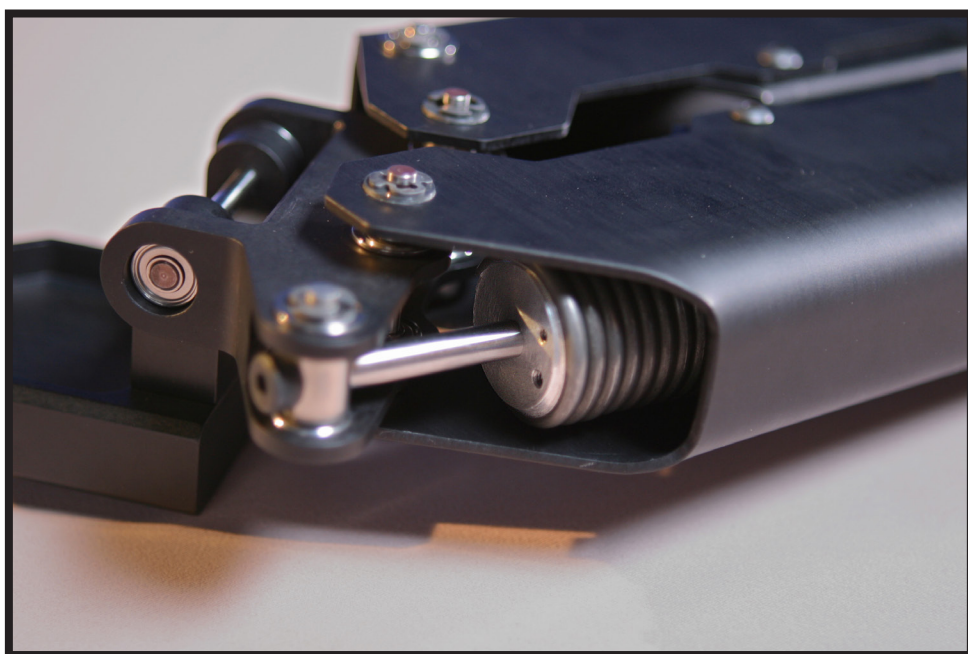


Figure 32

Use one of the ALLEN WRENCHES to firmly tighten the RETAINING BOLT into the back of the SPRING as in figure 32.

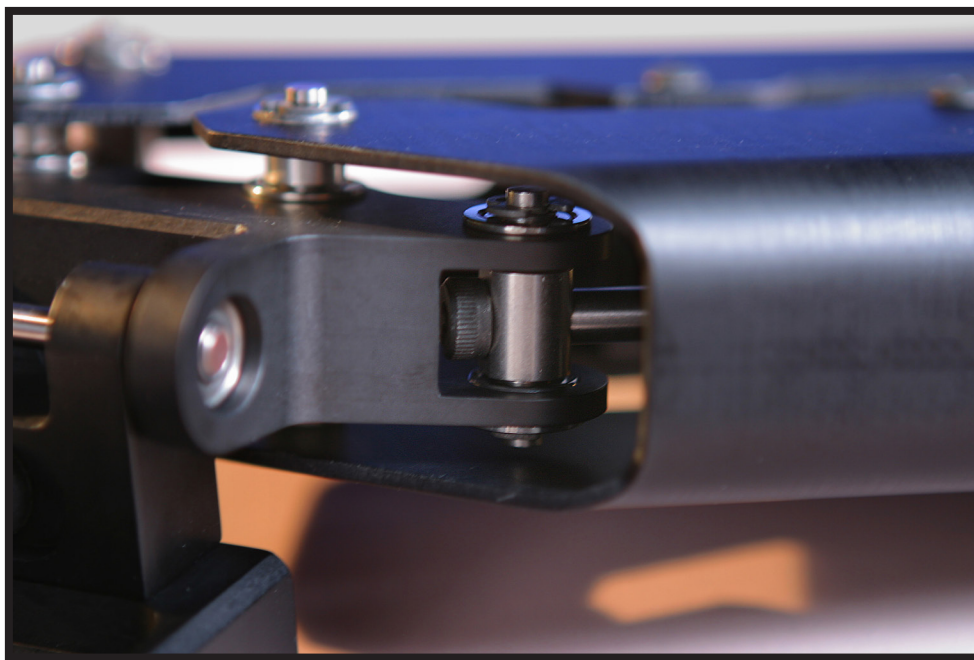


Figure 33

Now that the SPRING is connected to the RETAINING BOLT, angle the SUPPORT ARM upwards, taking care that the HEAD of the RETAINING BOLT does not hit any part of the ARM as in figure 33.

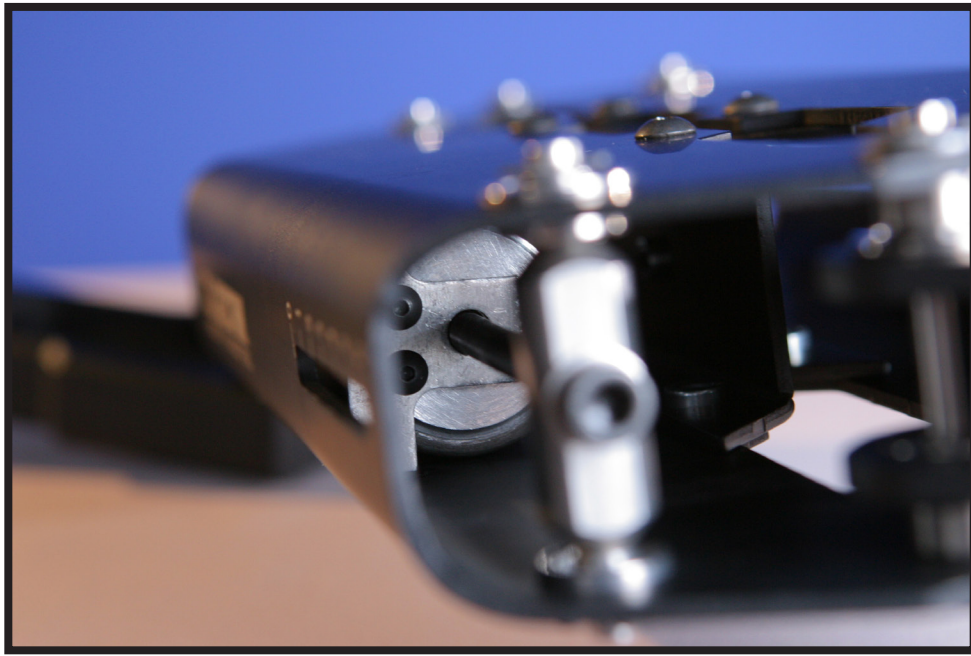


Figure 34

With the SPRING inside the SUPPORT ARM and the ARM angled upwards, manually connect an ADJUSTER BOLT so that it threads into the center of the SPRING as shown in figure 34. Using an ALLEN WRENCH, rotate the ADJUSTER BOLT clockwise until the SPRING reaches at least the position marked “0” on the GUIDE SCALE WINDOW.

NOTE: When installing two SPRINGS into the SUPPORT ARM, you will need to make sure that both RETAINING BOLTS are installed first, before you will be able to connect either of the ADJUSTER BOLTS.

#6 PROFESSIONAL USAGE

If you are using the X-10 to shoot professional looking shots, and you plan on incorporating them into a short movie or some sort of commercial project, we suggest that you preplan the shot out in advance, perhaps rehearse the move a few times before shooting, and that you use an assistant to help you during complex shots. This will give you optimum results and will make your movies look more professional.

Good luck with your shooting.

#7 MAINTENANCE

Bearing Maintenance - The main bearing on your X-10 is attached to the Central Support Post about two inches down from the top. It is metal and is partially enclosed by the Bearing Assembly. If after some period of time your bearing doesn't turn smoothly, you can oil it lightly. We recommend that you use very little oil. Very little, because this is all that is needed, plus anything more than a little will end up coming out of the bearing and onto the rest of your X-10. Light oil may also be used (5-20 weight or 5-30 weight) if needed on the yoke and handle bearings.

#8 SAFETY PRECAUTIONS

Absolutely do not allow a fully loaded arm to swing out and away from you, doing so will put a lot of stress and torque on the arm to vest connection components and potentially cause damage to you and camera gear.

Do not place your fingers inside the arm as they can get caught in the arm stop areas. Don't let an unloaded arm swing about as it may hit you or someone near you.

#9 WARNINGS

You should make sure that you are very careful when using the X-10 at night or in low light conditions. Do not make the mistake of focusing so much on what you are shooting that you trip or fall over something, or wander into something dangerous like a swimming pool or automobile traffic, and be extra careful when shooting on stairs etc. These cautions pertain to daytime shooting as well.

Storage - If you are going to store your X-10 for a long period of time then please store the unit upright in a dry or low to normal humidity area whenever possible. If you are unable to find an environment like this, then we suggest you store the unit in an air tight plastic container or bag. Standing the unit upright helps to alleviate stress on the system.

Cleaning - Do not use solvents or harsh cleaners of any kind on your X-10. If the unit becomes dirty, use only a cloth or sponge with water to gently rub the unit clean

#10 WARRANTY

For 1 year from the date of shipment, we will repair or replace your X-10, free of charge, in the event of a defect in materials or workmanship (the shipment date appears on your purchase receipt) which occurs during normal use in accordance with the X-10's instruction manual. Shipping, packing, and insurance costs to and from the factory are your responsibility. This limited warranty extends only to the original purchaser, and you will need your purchase receipt. This warranty does not cover, by way of example, damage caused by products not supplied by us or damage resulting from mishandling in transit, accident, misuse, vandalism, neglect, modification, lack of reasonable care (or commercial use, including rentals to others) of the X-10 or service by anyone other than us. There are no express warranties except as listed above. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

WE ARE NOT LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THE UNIT OR ARISING OUT OF ANY BREACH OF THIS WARRANTY. ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO THE WARRANTY PERIOD.

To obtain service during (or after) the warranty period: Contact **Glidecam Industries' Customer Service** Department by calling **1-781-585-7900** or write to us at: **23 Joseph Street, Kingston, MA 02364** and explain the problem.

**DO NOT SEND THE UNIT TO US WITHOUT FIRST OBTAINING A RETURN
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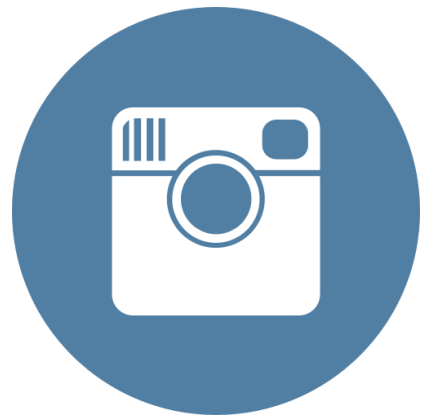
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