

GLIDECAM®

GOLD SLED™



MANUAL

Setup and Operations Guide

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Camera Power Connector (#1)

Receptacle on Glidecam: Custom Interface #JBXEA1G03FCSDS or Lemo #ECG1B303CLM
 Plug for Mating Cable: CIT #JBXFD1G03MCSD or Lemo #FGG1B303CLCD)

Pin#

- 1 +24volts
- 2 Ground
- 3 +12volts

Accessory Power Connectors (#3)

For Follow Focus Power, High Speed bases etc.

Receptacle: CIT #JBXEA1G02MCSDS or Lemo #ECG1B302CLM

Plug for Mating Cable: CIT #JBXFD1B02MCSDS or Lemo #FGG1B302CLCD

Pin#

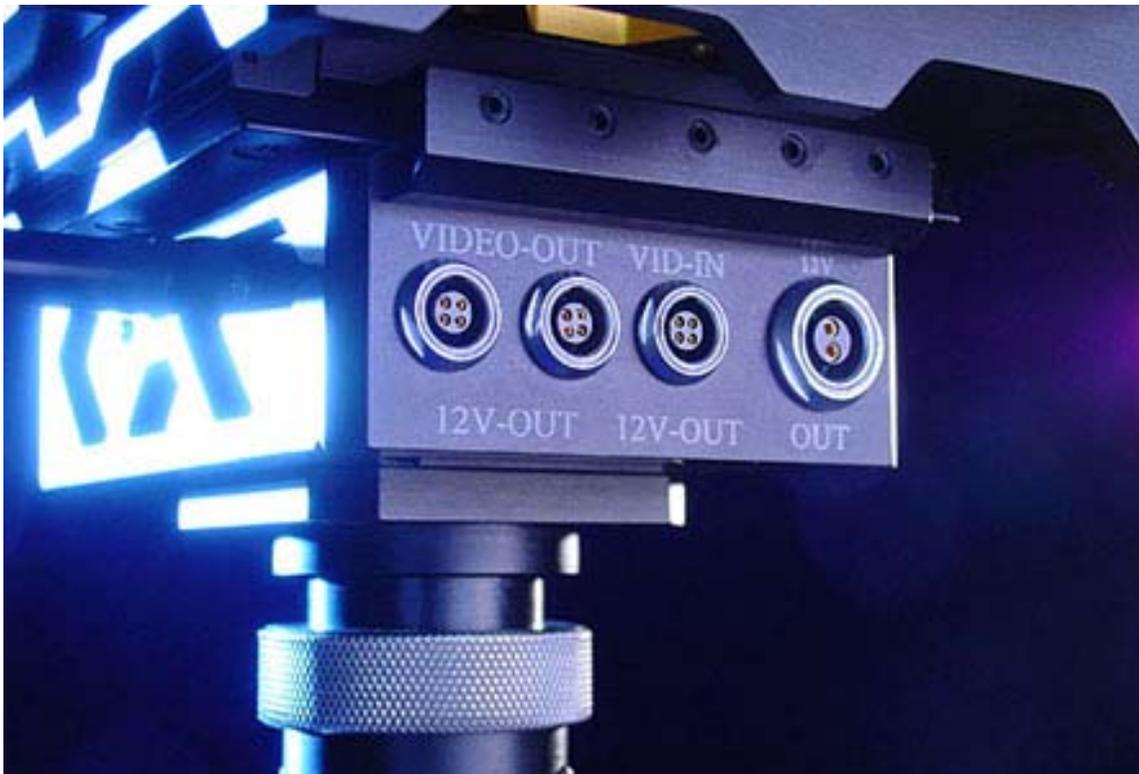
- 1 Ground
- 2 +12volts

Video Only In/Out Connector (#2)

BNC 50 ohm

Pin#

- Center Video
- Ring Video Ground



Accessory Power Connectors (#4)

For Follow Focus Power, High Speed bases etc.

Receptacle: CIT #JBXEA1G02MCSDS or Lemo #ECG1B302CLM

Plug for Mating Cable: CIT #JBXFD1B02MCSDS or Lemo #FGG1B302CLCD

Pin#

- 1 Ground
- 2 +12volts

Video/Power Connector Plugs (# 5, 6, 6a)

For Monitors, Transmitters, Video IN and OUT, etc.

Receptacle: CIT# JBXEA0G04FCSDS or Lemo #ECG0B304CLM

Plugs for Cable: CIT #JBXFD0G04MCSDS or Lemo #FGG0B304CLCD

Pin#

- 1 Ground
- 2 +12 volts
- 3 Video
- 4 Video Ground



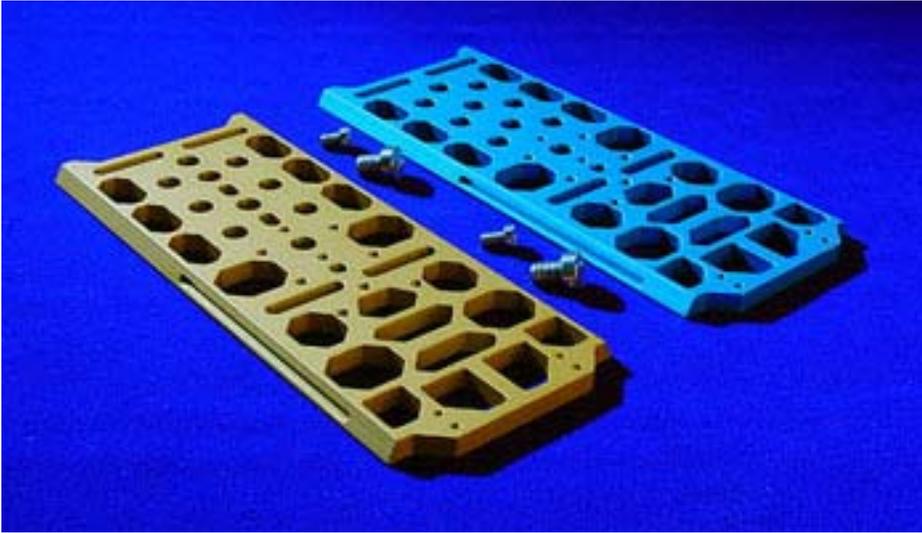
Post Connector

Receptacles: CIT #JBXEA3G10FCSDS or Lemo #ECG3B310CLM

Plugs for Cable: CIT #JBXFD3G10MCSDS or Lemo #FGG3B310CLAD

Pin#

1	Ground, Camera Power	Black
2	+12 V Camera Power	Red
3	+24V Camera Power	Orange
4	+12V Aux Power	Green
5	Ground, Aux Power	White
6	Video Ground #1	Shield on Yellow
7	Video #1	Yellow
8	Video #2	Blue
9	Video Ground #2	Shield on Blue
10	No connection	



Glidecam Gold Sled Camera Plates (Video / Film)



9 Pin Lemo Central Post cable



Video/Power Connector Plugs (#s a, f)

For Monitors, Transmitters, Video IN and OUT, etc.

Receptacle: CIT# JBXEA0G04FCSDS or Lemo #ECG0B304CLM

Plugs for Cable: CIT #JBXFD0G04MCSDS or Lemo #FGG0B304CLCD

Pin#

- 1 Ground
- 2 +12 volts
- 3 Video
- 4 Video Ground

Video Only In/Out Connector (#G on diagram)

BNC 50 ohm

Pin#

- Center Video
- Ring Video Ground

Cam Batt CB/ Cam Batt CB#2 / Aux Batt (#s h, i, j)

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1) INTRODUCTION

Congratulations on your purchase of the Glidecam Gold Sled.

The new Glidecam Gold Sled™ holds any video or film camera weighing from 13 to 38 pounds. The Gold Sled incorporates sophisticated engineering and precision machining to make it lightweight and strong. It is designed with the same look and aesthetics as the Glidecam Gold Arm and Vest. The Gold Series sled is available with one of the various daylight viewable, LCD monitors that we also sell (call us for details). The black parts of the Glidecam Gold Sled are anodized black with certain parts hard coated black.

The Base of the Glidecam Gold Sled has a three NP-1 style battery system that delivers 12 volts to the base (for the monitor) and delivers either 12 or 24 volts (switchable) to the head for use with video or film cameras. The Base incorporates one BNC Video out connector, one 12/24 volt power switch, three circuit breakers and two 4-pin “Lemo” style OB304 video/12 volt power out connectors. The Glidecam Gold Sled monitor mounting bracket can be rotated 180 degrees, with no-tools adjustment so the monitor is viewable during low mode operation.

The precision, x-y adjustable Head assembly utilizes low friction “Teflon” which is incorporated into its hard coat finish. The Head assembly’s back panel has a 3-pin “Lemo” 1B303 style with switchable 12/24 volt power, BNC video in, and a 2 pin “Lemo” 1B302 style with 12 volt out. The front panel has a 2-pin “Lemo” 1B302 style with 12 volt out, two 4-pin “Lemo”OB304 style with video/power out and one 4-pin “Lemo” OB304 video/power in connectors. The head also has a custom designed video distribution amp installed for clear video signals. The Head also incorporates a drop in style dovetail camera plate for quick front to back balance. Very, fine tuning, ergonomic knobs control front to back and side to side balance adjustments.

The Sled’s “no-tools” precision Gimbal is made to top of the line quality. The Gimbal incorporates 4 bearings inside the handle to yoke connection (the tilt axis). There are 2 bearings on each side of the yoke, providing 4 bearings for the roll axis. There are 2 central main bearings for the pan axis. This doubles the Gimbal’s thrust capacity and creates less than a .0002” deflection off true center. All Gimbal parts are machined within .0005” accuracy and are hard coat black. A very tight knurling has been machined onto the Gimbal Tube to improve handling. An easy to replace soft foam covers the handle grip.

The Sled has a “no-tools” Telescoping Center Post. The top and bottom of the Post both have “no-tools”, 90-degree rotation, quick release connectors (bayonet style). This allows the Head and the Base of the Sled to be removed quickly. The custom, shielded, wire coil assembly inside the post has 8-pin “Lemo” style connectors on both ends for quick disconnect. The Center Post also incorporates an alignment pin as part of the “no-tools” clamp that controls the extension of the Telescoping Post. This pin keeps the upper and lower posts in alignment so the Head and Base of the Gold Sled are always parallel to each other.

NOTE: You will need a common Film Industry "C" STAND (also known as a Century Stand, or Grip Stand), or a Film Industry LIGHT STAND so that later during the BALANCING procedures and operation of the Glidecam GOLD SLED you will have something to attach and park your GOLD SLED SLED onto. The "C" STAND or LIGHT STAND needs to terminate with a standard 5/8" diameter STUD on its uppermost riser. The STAND must also be of Film Industry quality in the sense that it must be rugged and made of steel etc. Do not attempt to use a light weight aluminum light stand, like the ones that are often sold at local amateur photography stores.

NOTE: Whenever you attach ANYTHING to the BASE PLATFORM, be it a BATTERY, or MONITOR etc. make sure that it is attached so that it can not shift or move in place when the GOLD SLED is in operation. If something that is attached to the GOLD SLED SLED shifts during operation, it could throw the system out of balance, possibly causing unstable results.

When it comes to choosing a BASE PLATFORM configuration, one should take into account the general principle that: **The lighter the load on the top section of the Camera Mounting Assembly (the Sled), the less counterweight required to counterbalance the Sled.** In other words, if you reduce the weight of the CAMERA PACKAGE attached to the top of the Sled, you'll need less COUNTERWEIGHT at the bottom of the Sled, (i.e. monitor and battery) thereby making the whole System lighter and more comfortable to use.

You can reduce the weight of your CAMERA PACKAGE in several ways. First, the Camera you choose to use with your GOLD SLED should be as light as possible. For instance, if you can choose between shooting with a Camera that weighs 26 pounds, and a Camera that weighs 18 pounds, then definitely shoot your footage with the 18 pound camera, given of course that the lighter Camera will be able to fulfill your projects needs. Shooting with certain Film Formats and Tape Formats seems, at present, to sort of dictate which camera weight you will be dealing with. An example being most of the Betacam and Betacam SP camcorders. For now, they tend to weigh in around 15 pounds. In the 35mm and 16mm Film Camera market there is a much wider range of camera weights available.

If you are unable to choose which Camera to shoot with, then you should at least try to lighten the overall weight of your CAMERA PACKAGE. You can reduce the CAMERA'S weight by select a lightweight PRIME LENS (preferably a wide angle lens) instead of a longer and heavier TELEPHOTO or ZOOM LENS. Still another way to lighten the CAMERA PACKAGE is to remove any part of the camera's VIEW FINDER SYSTEM that you will not be needing. Most Betacam Cameras have completely detachable VIEWFINDERS. One could even lighten the load by using only a 20 minute tape or a 100 foot load of film, but this is not at all necessary, for the weight gained from shooting with a 100 foot load instead of 400 is too small to be of any real concern.

Also it should be NOTED that moving the MONITOR AND BATTERIES closer to the CENTRAL SUPPORT POST reduces the CAMERAS PANNING INERTIA, or in other words, moving the monitor and battery closer to the POST, will allow you to PAN your CAMERA quicker. Moving the monitor and battery away from the POST, increases PANNING INERTIA, thereby smoothing out, or causing the PANNING motion to be slower.

2) MOUNTING YOUR VIDEO OR MOVIE CAMERA

NOTE: If your camera comes with, or if you have, a quick release BALANCE PLATE for your camera, then attach the BALANCE PLATE to the GOLD SLED's CAMERA PLATE first, and then simply attach your camera to the BALANCE PLATE.

To mount your video camera, camcorder or movie camera to the CAMERA MOUNTING PLATE start by finding your cameras approximate center of gravity. To do this you will need a round pen, pencil or 1/4" dowel etc. and some white camera tape. Assuming your using a pencil, place the pencil on top of a flat work table. Next, place your camera base onto the pencil so that the pencil length runs perpendicular to the camera length. Now, with your hands supporting your camera, slide the camera base forward or backwards over the pencil until the camera can be balanced on the pencil. When you find the approximate point of balance of your camera use a bit of camera tape to mark this spot on the left side of your camera. Now place the pencil on the work table so it is parallel with the camera length, and then slide the camera side to side on the pencil until you find the approximate point of balance and then mark this spot on the back of your camera. These two tape marks now give you a fairly close indication as to the center of gravity of your camera.

Now that you have located the approximate center of gravity of your camera, mount your camera to the CAMERA MOUNTING PLATE by first placing your CAMERA upside down on your lap. Then **align** the **center** of the CAMERA MOUNTING PLATE with the point on your camera base where the two white camera tape marks would intersect if you where to draw imaginary lines through them. Next move the CAMERA PLATE so one of its center 1/4" or 3/8" SLOTS is aligned with the center of gravity of your CAMERA. Now take note of the slot in the CAMERA PLATE that is nearest to the MOUNTING HOLE on the base of your CAMERA, for this will be the slot you will use to bolt the CAMERA and PLATES together.

Later during the balancing procedure, you might have to move the mounting hole on your camera to a different SLOT on the CAMERA MOUNTING PLATE to obtain better balance. This is one of the reasons there is more than one SLOT in the CAMERA MOUNTING PLATE. The other reason for different SLOTS is to allow all sorts of different cameras to fit on top of the Glidecam GOLD SLED.

Now you will have to pick out one of the CAMERA MOUNTING BOLTS provided so you can bolt your camera to the CAMERA MOUNTING PLATE.

Next insert the correct CAMERA MOUNTING BOLT(s) into the SLOT(s) you have chosen on the CAMERA MOUNTING PLATE, and then screw the CAMERA MOUNTING BOLT into the base of your camera until the camera and CAMERA MOUNTING PLATE are bolted firmly together. (NOTE: do not overtighten, for in doing so you could pop out the metal threaded insert that is in the mounting hole of your camcorder.)

Next place your assembled Glidecam GOLD SLED on a **flat level surface** in an upright position. Now carefully slide the combined CAMERA MOUNTING PLATE and CAMERA into the MID PLATE of the Gold Head.

NOTE: If your camcorder comes with, or if you have a quick release BALANCE PLATE for your camcorder, then attach the BALANCE PLATE to the GOLD SLED's CAMERA PLATE first, and then simply attach your camera to the BALANCE PLATE.

Given you have followed the previous instructions correctly, you should now have your camera securely attached to the top of the Glidecam GOLD SLED.

3) BALANCING YOUR GLIDECAM GOLD SLED

BALANCING THE HORIZONTAL AXIS

NOTE: You will need a common Film Industry "C" STAND (also known as a Century Stand, or Grip Stand), or a Film Industry LIGHT STAND so that during the BALANCING procedures and operation of the Glidecam GOLD SLED you will have something to attach and park your GOLD SLED onto. The "C" STAND or LIGHT STAND needs to terminate with a standard 5/8" diameter STUD on its uppermost riser. The STAND must also be of Film Industry quality in the sense that it must be rugged and made of steel etc. Do not attempt to use a light weight aluminum light stand, like the ones that are often sold at local amateur photography stores. (A "C" STAND is not included with your GOLD SLED PACKAGE.)

Now that your Glidecam GOLD SLED is assembled properly, and your CAMERA is securely attached to the top of the SLED, you can now test the SLED's HORIZONTAL BALANCE. The objective in obtaining correct HORIZONTAL BALANCE for the SLED is to allow the CAMERA to remain level during operation, given you are not applying either a PAN, TILT or ROLL type of hand pressure to the SLED. In other words, if the SLED is horizontally BALANCED correctly, then the CAMERA will remain level, and the CENTER POST will remain VERTICAL unless you intentionally position the SLED otherwise, and if the SLED is horizontally BALANCED correctly it will always return to a level and vertical position after you release any PAN, TILT or ROLL hand pressure on the SLED.

The best way of adjusting the SLED's HORIZONTAL BALANCE is to move the CENTER of GRAVITY of the CAMERA. This can be accomplished by either repositioning the CAMERA on the CAMERA PLATE, or by adjusting the position of the CAMERA MOUNTING PLATFORM with the CAMERA on it. Another way to adjust the SLED's HORIZONTAL BALANCE is to move the front to back, or side to side position of the MONITOR, or BATTERY on the SLED's BASE PLATFORM.

The Glidecam GOLD SLED can be BALANCED by one person, but if you have an assistant, then by all means have them assist you in this operation.

Before you can check and then correctly adjust the HORIZONTAL BALANCE of the SLED you will need to first attach the **DYNAMIC BALANCE AND DOCKING BRACKET** to the top 5/8" diameter stud on your "C" STAND or LIGHT STAND.

On the DYNAMIC BALANCE AND DOCKING BRACKET the 5/8" diameter stud side of the BRACKET is used in the DYNAMIC BALANCE procedures (the horizontal and vertical balance procedures), and the "horse shoe" shaped receptacle side of the BRACKET is used for DOCKING or parking your GOLD SLED when it is not in use.

NOTE: Whenever you use the DYNAMIC BALANCE AND DOCKING BRACKET make sure that the end of it that you are using is aligned over one of the legs on the STAND that it is attached onto. The reason for this is to ensure that the STAND does not fall over when the DYNAMIC BALANCE AND DOCKING BRACKET is in use with the full weight of the CAMERA and SLED on it.

When setting up the STAND be sure to set the STAND up on a **flat and level** surface. You will also need to raise the top riser on the STAND up high enough so that when the SLED is on the BRACKET which is attached to the STAND that the BASE of the SLED does not touch the STANDS LEGS. The height of the STAND's upper riser should be high enough to raise the GOLD SLED so that when the SLED is in its upright vertical position, its BASE does not hit the STANDS LEGS even if the SLED is tilted all the way forwards or backwards. If however, you raise the STAND's upper riser, and consequently the GOLD SLED, too high off the ground you will cause the STAND to be too top heavy. That is, unstable enough to cause the STAND to fall over if bumped etc. Which brings us to the point of using **SANDBAGS** to weigh down the legs of the STAND to make everything more stable during all of the **BALANCING** procedures which follow. If you do not have **SANDBAGS**, or something similar, then be very careful not to knock everything over.

Given that you have followed the earlier procedures for setting up the BASE with **MONITOR AND BATTERIES** etc. and attaching your **CAMERA** to the **SLED** correctly, you should now find the **SLED** set up so that the **CAMERA** is aligned lengthwise with the **BASE PLATFORM**, and that the lens of the **CAMERA** is facing the **FRONT** end of the **BASE**.

Given you have the **DYNAMIC BALANCE AND DOCKING BRACKET** securely attached to your **STAND**, you can now securely place the **SLED** onto the **DYNAMIC BALANCE AND DOCKING BRACKET**. To do this, securely place the bottom end of the **GIMBAL HANDLE** (the curved tube portion of the **GIMBAL ASSEMBLY**) onto the 5/8" diameter stud that is facing up on one of the ends of the **DYNAMIC BALANCE AND DOCKING BRACKET**. Placing the **SLED** onto the **DYNAMIC BALANCE** end of the **BRACKET** will set the **SLED** up so you can now easily tell if the **SLED** is balanced correctly on its **HORIZONTAL AXIS**.

Before you place the **SLED** onto the **DYNAMIC BALANCE AND DOCKING BRACKET** to test for correct **HORIZONTAL BALANCE**, you should make sure the **GIMBAL TUBE** is **securely** in place on the **SLED's CENTRAL SUPPORT POST**. When you receive the **SLED**, the **GIMBAL TUBE** should already be securely attached at its highest position on the **CENTER POST**. If the **GIMBAL TUBE** is not on the **POST** as described above, then adjust it so that it is. Adjusting the height of the **GIMBAL TUBE** on the **CENTRAL SUPPORT POST** changes the **VERTICAL BALANCE** of the **UNIT**, but for now you should leave, or set the **GIMBAL TUBE** at its highest position on the **CENTER POST**. You will learn more about setting the **VERTICAL BALANCE** in the next section. Also, when you place the **SLED** onto the **DYNAMIC BALANCE AND DOCKING BRACKET** be sure to align the **SLED** so that the length of the **CAMERA** is perpendicular with the length of the **DYNAMIC BALANCE AND DOCKING BRACKET**.

NOTE: Be extra careful when placing the SLED onto the DYNAMIC BALANCE AND DOCKING BRACKET, for if the SLED is top heavy, the SLED might quickly turn upside down causing possible damage to the SLED and/or yourself. Because this is a potential hazard, you should hold tightly onto the SLED until you are sure that it is not going to move suddenly or flip over. Only then should you gently release the SLED so it hangs freely on the DYNAMIC BALANCE AND DOCKING BRACKET.

Remember, the GOLD SLED is only designed for camera packages weighing from 13 to 38 pounds. If your SLED is found to be top heavy at this point then, either your camera is too heavy for the SLED, or the GIMBAL TUBE is not set at its highest position on the CENTER POST, or the EXTENSION POST is not in its fully extended position, or you do not have enough WEIGHT on the BASE PLATFORM. If you do not have enough WEIGHT on the BASE PLATFORM, then recheck the BASE to see if all the MONITOR AND BATTERIES are in place, or if you have not yet attached a BATTERY and MONITOR to the BASE, then do so now.

Often your CAMERA, or more appropriately your CAMERA PACKAGE, can actually weigh more than you think it does. Try weighing your camera to see if it is over the 38 pound weight limit of the system. Your CAMERA MANUAL may give you your camera's weight, but it might not be giving you the correct weight of your camera, given you include its onboard battery, tape or film load, accessories like additional lenses, balance plate, lights, microphones or matte boxes etc.

Also, when checking the HORIZONTAL BALANCE of the SLED make sure you let the SLED hang freely on the DYNAMIC BALANCE AND DOCKING BRACKET. In other words, don't touch it with your hands when judging it for correct balance. If the SLED is balanced correctly on its HORIZONTAL AXIS, then it will be level and upright, with the CENTER POST in a virtually perfect VERTICAL position.

If the SLED leans to the right, then you will have to position the MID PLATE over to the left a bit. If the SLED still leans to the right, then position the MID PLATE more to the left. If the SLED is leaning to the left, then move the MID PLATE to the right.

If you find that you cannot get the LEFT to RIGHT AXIS balanced with this method then try remounting your camera to a different SLOT in the CAMERA MOUNTING PLATE. Try a SLOT either to the left, or to the right of where your camera is currently mounted. This will move the camera weight to a different point on your CAMERA PLATE.

Now you can go about balancing the SLED's FRONT to BACK AXIS. If your SLED tilts to the front, then you will have to position the CAMERA PLATE back a bit. If the SLED still tilts to the front, then position the CAMERA PLATE more to the back. If the SLED is tilting to the back, then position the CAMERA PLATE to the front.

If you find that you cannot get the FRONT to BACK AXIS balanced with this method then try remounting your camera to a different SLOT on the CAMERA MOUNTING PLATE. Try a SLOT either to the front or to the back of where your camera is currently mounted. This will move the camera weight to a different point on your CAMERA PLATE. Once you achieve correct HORIZONTAL BALANCE for the FRONT to BACK AXIS you can tighten the BOLTS that control the movement of the CAMERA PLATE. After adjusting the front to back balance as mentioned above you might have to go back and readjust the left to right balance again to obtain really fine balance of the whole system.

You can also reduce the speed in which a PANNING motion can take place with the SLED, by moving the monitor and battery further away horizontally from the CENTRAL SUPPORT POST on the BASE PLATFORM. In other words, to increase PANNING (vertical camera axis rotation) INERTIA move the MONITOR AND BATTERIES to the outer edge of the BASE, because this will have the effect of expanding the mass of the SLED horizontally. Moving the MONITOR AND BATTERIES closer to the CENTER POST will decrease the PANNING INERTIA.

You can use your eyes to judge for correct HORIZONTAL BALANCE, or you can use a BUBBLE LEVEL (carpenter level etc.) to ensure that the SLED has correct HORIZONTAL BALANCE. When using a BUBBLE LEVEL or other similar device to judge the SLED's HORIZONTAL BALANCE, you should realize that large and heavy CARPENTER LEVELS will effect the BALANCE of the SLED. The effect it has on the SLED'S BALANCE will vary dependent on where the LEVEL is placed. For best results you should use only a small LEVEL and affix it to the BASE PLATFORM so that its weight is, as it were, permanently added to the SLED, or you can use a LEVEL only temporarily on the SLED given that it is not very heavy and that you place it as close to the center of the BASE as possible. You can also use the LEVEL on the CAMERA if you find this works better for you. **In the end, how level the footage viewed through the viewfinder or MONITOR looks is obviously the most important result of all these BALANCE tests and procedures.**

NOTE: Later after you adjust the SLED's VERTICAL BALANCE you will have to go back and readjust the HORIZONTAL BALANCE again in order to obtain really fine balance of the whole system. This is not always necessary, but you should check the HORIZONTAL BALANCE again to make sure it is correct. **NOTE: The HORIZONTAL BALANCE of the SLED becomes less sensitive, as the SLED becomes increasingly bottom heavy. And conversely, the HORIZONTAL BALANCE becomes very sensitive, as the SLED progresses towards correct VERTICAL BALANCE.**

BALANCING THE VERTICAL AXIS

Now that your SLED is HORIZONTALLY BALANCED, it's VERTICAL AXIS can now be tested and properly BALANCED. The objective in obtaining correct VERTICAL BALANCE for the SLED is to allow the CAMERA and SLED to remain level during operation, given you are not applying either a PAN, TILT or ROLL type of hand pressure to the SLED, and most importantly that the SLED's CENTER POST remain vertical even if you are walking, running, or turning while the GOLD SLED is in operation. In other words, if the SLED is vertically BALANCED correctly, then the CAMERA will remain level, and the CENTER POST will remain VERTICAL unless you intentionally position the SLED otherwise. If the SLED is not vertically BALANCED properly, then it will swing about or pendulum when you walk, run or turn.

Again, if the VERTICAL BALANCE is set correctly you will be able to move about quickly, as well as start or stop moving suddenly, and still have the CENTRAL SUPPORT POST remain VERTICAL. **The best way to adjust the SLED's VERTICAL BALANCE is to change the VERTICAL position of the GIMBAL TUBE on the CENTRAL SUPPORT POST.** Other ways to adjust the SLED's VERTICAL BALANCE are to either add, or subtract WEIGHT from the BASE PLATFORM, or to either extend, or contract the SLED's EXTENSION POST. All of these methods has the effect of altering the position of the SLED's CENTER of GRAVITY along its VERTICAL AXIS.

NOTE: The basic procedures for holding and operating the GOLD SLED during the VERTICAL BALANCE procedures are basically the same as those in the HORIZONTAL BALANCE section, so please be sure you have read that section carefully before going any further.

To correctly set the SLED'S VERTICAL BALANCE you will have to make sure that the SLED is setup on the STAND as described earlier, and that the SLED's HORIZONTAL BALANCE is correct, or close to correct. Also, before you can properly set the SLED's VERTICAL BALANCE, you must first adjust the position of the GIMBAL TUBE so the SLED hangs in "NEUTRAL BALANCE". NEUTRAL BALANCE is when the SLED's CENTER of GRAVITY is positioned at the center of the main

BEARING on the GIMBAL TUBE. If the SLED is setup so it is in NEUTRAL BALANCE it will no longer be BOTTOM HEAVY or TOP HEAVY. Instead it will be evenly BALANCED so that if you position the SLED so the Center Post is horizontal it will basically stay in this position. Again if the SLED was BOTTOM HEAVY and you TILTED it horizontally, it would swing back to a VERTICAL position.

Now TILT the CENTRAL SUPPORT POST forward 90 degrees so that it is in a HORIZONTAL position. The CAMERA LENS should be pointing down at the ground if you have done this correctly. Now **very, VERY carefully** loosen the LOCKING COLLAR at the bottom of the GIMBAL TUBE, while at the same time tightly and **SECURELY** holding onto the center of the CENTRAL SUPPORT POST with one of your hands so that the CENTRAL POST doesn't fall through or change its basic position within the GIMBAL TUBE when the CLAMP is loosened. Also, be sure that the GIMBAL TUBE CLAMP or LOCKING COLLAR is fully unlocked before you move the position of the GIMBAL TUBE on the CENTER POST. **Remember the SLED is very heavy, so be extra careful when following this procedure.**

At this point you will need to carefully and gently shift the CENTRAL SUPPORT POST within the GIMBAL TUBE until the SLED hangs in NEUTRAL BALANCE. You will know when you have set the SLED in NEUTRAL BALANCE, because the CENTER POST will be HORIZONTAL, that is parallel with the floor given the floor is level, and the SLED will seem to suddenly float in a HORIZONTAL position. You might have to slide the CENTER POST back and forth within the GIMBAL TUBE a bit to find the exact center of gravity. Once this is done, **tighten** the LOCKING COLLAR on the GIMBAL TUBE so the GIMBAL TUBE is very securely fastened to the CENTER POST again.

Now that the SLED is NEUTRALLY BALANCED, write down, mark with white camera tape, or take note of the position that the top, or bottom of the GIMBAL TUBE is in by using the GUIDE SCALE MARKINGS that are laser etched onto the upper portion of the CENTER POST. **It has been found that a favorable condition for normal operation of the SLED can be obtained by raising the GIMBAL TUBE position 1/2" above this noted position and then tightly locking it thereon.** This position should provide the SLED with the correct amount of BOTTOM HEAVINESS for proper operation. Each line on the GUIDE SCALE MARKINGS is about 1/8" apart, so you will need to raise the GIMBAL TUBE on the CENTRAL SUPPORT POST by four lines. The lines are numbered to make this easier.

NOTE: Always make sure that the GIMBAL TUBE is very, very tightly secured in place before using the system. . You may want to switch out the kip handle on the gimbal tube for a socket head to verify a tight fit.

It should be noted however, that this position on the CENTRAL POST might not be ideal for your SLED, given the possibility of various camera weights and or shooting preferences. **NOTE: You should therefore always retest the SLED'S VERTICAL BALANCE by testing the SLED as described later in this section.**

It should be also be noted that the SLED will always require a little bit of BOTTOM HEAVINESS to operate properly, because the SLED will always need to stay, or return to a VERTICAL position. Think of the SLED like a children's "seesaw" that is designed to operate VERTICALLY instead of HORIZONTALLY.

Now that you know the position which allows the SLED to hang in NEUTRAL BALANCE, and the position which will create the appropriate amount of bottom heaviness for the SLED, you can take the SLED off the DYNAMIC BALANCE AND DOCKING BRACKET and place it on the ground in an upright position. With the SLED on the ground it is easier to now unlock the GIMBAL TUBE CLAMP

and set the GIMBAL TUBE in the correct position on the CENTER POST. This procedure can be done while the SLED is still attached to the DYNAMIC BALANCE AND DOCKING BRACKET, but it is a lot safer and easier to do this with the SLED on the ground. If you have an assistant helping you then adjusting the GIMBAL position while the SLED is on the BRACKET becomes a lot easier.

THE SLED ARC TEST: Another way of checking your SLED to see if its vertical balance is correct is to perform a sled arc test. To do this first make sure that your SLED is correctly connected to the DYNAMIC BALANCE end of the DYNAMIC BALANCE AND DOCKING BRACKET. To do the SLED ARC TEST simply grab hold of the back battery end of the SLED's BASE PLATFORM and pull the BASE up and back until the SLED'S CENTRAL SUPPORT POST is now horizontal. Now carefully let go of the BASE PLATFORM and count how many seconds it takes for the SLED to then swing back to VERTICAL. If the SLED is vertically balanced properly then it should take about THREE SECONDS for this to happen. Count your seconds with the words "one thousand one, one thousand two" etc. for accuracy. Adjust the GIMBAL POSITION until it takes only three seconds for the sled's center post to swing in an arc from horizontal to vertical. NOTE: Be careful when doing the ARC TEST for you do not want your camera or sled to bang into the "C" STAND.

If all is proper the SLED should now be balanced correctly on its VERTICAL AXIS.

USING THE EXTENSION POST

The Glidecam GOLD SLED comes with an EXTENSION POST that allows you to expand or contract the overall length of the SLED's CENTRAL SUPPORT POST. Changing the length of the CENTRAL SUPPORT POST effectively changes the CENTER OF GRAVITY of the SLED. When the EXTENSION POST is in an extended position it expands the mass of the SLED. When the EXTENSION POST is in a contracted position it contracts the mass of the SLED. If your SLED is still TOP HEAVY even with the GIMBAL positioned high on the CENTER POST, then extending the EXTENSION POST could work towards bringing the correct amount of bottom heaviness to the SLED. If your SLED is still too BOTTOM HEAVY even though the GIMBAL is positioned lower than you would like on the CENTER POST, then contracting the EXTENSION POST could work towards bringing the correct amount of bottom heaviness to the SLED.

It should be understood that expanding the mass of the SLED by extending the EXTENSION POST allows you to reduce the amount of COUNTERWEIGHT required to correctly set the VERTICAL BALANCE on your SLED, thereby making the whole SLED lighter, or allowing you to use less weight to counterbalance a heavy camera. Therefore, **you MIGHT need to extend the EXTENSION POST to its fully expanded position if you have a very heavy CAMERA, such as any CAMERA above the weight of 35 pounds.** You might also want to extend the EXTENSION POST given you find it more comfortable to operate your SLED with less overall weight on it. This could come about because you wish to lighten the load for prolonged use of the SLED.

BALANCING THE VERTICAL AXIS WHEN IN MOTION

In order to test the VERTICAL BALANCE of the SLED while you are in motion you will need to read the section called "HANDLING YOUR GLIDECAM GOLD SLED" before going any further. The reason for this is that you need to be all suited up with the SUPPORT VEST, GOLD ARM, and SLED on to test the VERTICAL AXIS while you are in motion. You should also read the "BALANCING THE VERTICAL AXIS" section before going any further.

To test the BALANCE of the SLED's VERTICAL AXIS when in motion, hold the SLED with your left hand very lightly holding onto the CENTER POST just below the GIMBAL, and use your right hand to hold onto the curved GIMBAL HANDLE. Make sure that the CAMERA is aiming forward, then walk **briskly** forward. As you walk briskly forward, observe the BASE PLATFORM and CENTRAL SUPPORT POST. If the SLED swings or pendulums away from the **upright** VERTICAL position it was just in at the moment you moved forward, then the SLED is not balanced correctly. The SLED's CENTER POST should remain vertical during this movement, if it is balanced properly.

Another way to test for correct VERTICAL BALANCE is to walk briskly forward with the SLED, and then stop suddenly. If the SLED swings or pendulums away from the **upright** VERTICAL position it was just in at the moment you stopped, then the SLED is not balanced correctly.

This type of "movement test" applies also to running, or turning around quickly with the SLED. Again, if the SLED is balanced properly, then any body movement like running or turning will not effect the basic upright and vertical position of the SLED.

NOTE: As mentioned earlier, the **quickest and easiest way to achieve correct VERTICAL BALANCE is to move the position of the GIMBAL TUBE either up, or down on the CENTRAL SUPPORT POST. Remember, you will need to move the GIMBAL TUBE down if the SLED is too BOTTOM HEAVY, or move the GIMBAL TUBE up if the SLED is too TOP HEAVY. However, if the SLED is too BOTTOM HEAVY, then you might want to first try contracting the EXTENSION POST to reduce BOTTOM HEAVINESS, before you attempt to lower the GIMBAL TUBE on the CENTER POST.**

NOTE: Always make sure that the GIMBAL TUBE is very, very tightly secured in place before using the system. You may want to switch out the kip handle on the gimbal tube for a socket head to verify a tight fit.

After you have readjusted the position of the GIMBAL on the CENTER POST, or either extended, or contracted the EXTENSION POST, or added or subtracted WEIGHT from the SLED's BASE as mentioned in the previous procedures, you should RETRY the "in motion" VERTICAL BALANCE tests as mentioned above until the SLED is properly BALANCED. This procedure might have to be repeated to find the right position for the GIMBAL TUBE etc.. The numbered GUIDE SCALE MARKINGS on the upper portion of the CENTRAL SUPPORT POST are designed to allow you to incrementally adjust the position of the GIMBAL TUBE, and to allow you to take note and reset the GIMBAL TUBE to any given position in the future.

Also, after adjusting the VERTICAL BALANCE you might have to go back and readjust the HORIZONTAL BALANCE again in order to obtain really fine balance of the whole system. This is not always necessary, but you should check the HORIZONTAL BALANCE again to make sure it is correct. **NOTE: The HORIZONTAL BALANCE of the SLED becomes less sensitive, as the SLED**

becomes increasingly bottom heavy. And conversely, the HORIZONTAL BALANCE becomes very sensitive, as the SLED progresses towards correct VERTICAL BALANCE.

NOTE: After you have BALANCED both the SLED's HORIZONTAL and VERTICAL AXIS, you should then park or dock the SLED onto the DOCKING end of the DYNAMIC BALANCE AND DOCKING BRACKET. To do this make sure that you set the DOCKING end of the BRACKET so that it is aligned over one of the STAND's legs. You can now slide the Gore Lock, which should be attached to the central post above the gimbal, into position locking the sled into the Docking Bracket.

If all is proper the SLED should now be docked in such a way that later after you have put the SUPPORT VEST and SUPPORT ARM on you will be able to connect the end of the SUPPORT ARM to the GIMBAL HANDLE without having to bend over to pick the SLED up. In other words, you should adjust the height of the STAND so that the DYNAMIC BALANCE AND DOCKING BRACKET is just a little below shoulder height, or whichever height ends up working best for you.

4) HANDLING YOUR GLIDECAM GOLD SLED

NOTE: Please make sure that you read the following sections over before you actually put the VEST, SUPPORT ARM, and SLED onto your body. Even though the sections are written from the point of view that you are actually following the procedures as you read them, this is not really the case. So read the sections first, and then use the system.

Before you can operate and handle the GLIDECAM GOLD SLED you must learn the correct sequence of putting the GOLD SLED system onto your body. This sequence is rather simple and obvious, but it is nonetheless important. Whenever you use the GLIDECAM GOLD SLED you should always put the SUPPORT VEST on first, then attach the SUPPORT ARM onto the VEST, and then connect the SLED to the end of the SUPPORT ARM. More information on this follows.

Also, it is often best to set up, or make adjustments to the SLED, VEST, or SUPPORT ARM when you are not wearing the SUPPORT VEST, for the VEST can restrict you body's movements.

HEALTH WARNING: Operating and handling your GLIDECAM GOLD SLED requires that you are in good health and that you do not suffer from back problems. If you suffer from back problems, then do not use the GOLD SLED for it could cause severe injury to your already problematic back.

CONNECTING THE SLED TO THE SUPPORT ARM

Now given that the GOLD SLED is properly setup and BALANCED and parked on the DOCKING end of the DYNAMIC BALANCE AND DOCKING BRACKET, and given that you have the SUPPORT VEST on properly with the SUPPORT ARM connected to it, you can now attach the SLED onto the SUPPORT ARM.

When you connect the SLED to the SUPPORT ARM you are actually connecting the bottom of the curved GIMBAL HANDLE to the ARM POST. Since the SLED is DOCKED on the BRACKET that is attached to the top of your GRIP STAND etc. it should now be very easy to just walk up to the docked SLED, and simply slide the top of the ARM POST into the bottom receiving socket that is on the bottom of the GIMBAL HANDLE. Make sure that the ARM POST goes all the way into the GIMBAL HANDLE's receiving socket before you undock the SLED from the DOCKING end of the BRACKET. You might

have to adjust the height of the DOCKING BRACKET so it is at a height which makes it easy for you to connect the ARM to the GIMBAL HANDLE. The best height is a height that allows you to not have to crouch or bend over to get the ARM and GIMBAL HANDLE connected. Try setting the BRACKET just below the height of your shoulder. This height works quiet well for most people.

NOTE: When you undock the SLED from the BRACKET you will suddenly feel all the weight of the GOLD SLED system on you. Be extra CAREFUL at this point. Having all this added weight on you can take quite a bit of getting use to. Again, be very careful of your back. At this point you should not wander to far from the sled DOCKING area, for you might suddenly feel the need to take the SLED off, and if you are not near the DOCKING BRACKET you will have to place the SLED onto a table or the floor, and in doing so you could injure you back. It will soon become obvious to you that the use of the DOCKING STATION is mainly to make it easier on your back.

At this point you should have the SLED attached to the end of the SUPPORT ARM. Make sure that you never let go of the ARM in such a way that it swings completely out in front of your body. If the ARM is allowed to be fully extended in front of you, you will feel the full load of the system on your back, which will needlessly fatigue you. If the ARM does get away from you and swing all the way out in front of you, then instantly grab hold of the rigid UPPER ARM and pull it towards your body, and then grab hold of the spring operated FOREARM and also bring it back into your control. **Again, don't let the ARM swing out of control in front of your body, doing so could cause serious injury.**

5) OPERATING THE GLIDECAM GOLD SLED

Given that you now have the Glidecam VEST, ARM and SLED correctly setup and on your body, you can now begin to learn how to shoot smooth shots with the system.

The GOLD SLED can be used equally well by either left handed, or right handed operators. When you operate the Glidecam GOLD SLED you will need to use your RIGHT HAND to hold onto the curved GIMBAL HANDLE, and your LEFT HAND to hold onto the area just below the GIMBAL TUBE on the CENTRAL SUPPORT POST. For reference we shall call the HAND that holds onto the curved GIMBAL HANDLE the HOLDING HAND, and we shall call the HAND that holds onto the CENTRAL SUPPORT POST just below the GIMBAL TUBE the GUIDING HAND.

When your RIGHT HAND is on the GIMBAL HANDLE it is being used to control the position of the SUPPORT ARM in front of your body. It is your right HOLDING HAND that moves the SUPPORT ARM up or down, in and out, or side to side.

When your LEFT HAND is on the CENTER POST it is being used to control the orientation of the CAMERA by controlling the position of the SLED. It is your left GUIDING HAND that moves the SLED in a way which causes the CAMERA to TILT, PAN, or ROLL.

Your left GUIDING HAND should **lightly** hold or touch the CENTER POST **just below** the CENTRAL BEARING on the GIMBAL TUBE. The reason for this is to have your GUIDING HAND positioned as close to the CENTER of GRAVITY of the SLED as possible. If you were to GUIDE the SLED with your LEFT HAND say 6" below the GIMBAL TUBE then it would be very difficult to not cause the SLED to inadvertently TILT, PAN or ROLL.

NOTE: Make sure that your GUIDING HAND and/or wrist do not touch the GIMBAL's MAIN BEARING ASSEMBLY and/or YOKE during shooting, for doing so can cause unstable shooting.

And again, always make sure that your GUIDING HAND holds lightly onto the CENTER POST and that you do not grab the CENTER POST in a way that would cause the SLED to not float freely. In other words do not try to hold up any of the SLED's weight by holding tightly onto the CENTER POST. Obviously it is all right to apply enough pressure to the CENTER POST to cause the SLED to TILT, PAN or ROLL.

When shooting you will be using your GUIDING HAND to gently or rapidly guide the CAMERA in the direction you wish to shoot. It is the GUIDING HAND that controls the PANNING, TILTING and ROLLING of the SLED. You can guide or hold the SLED so as to shoot upside-down (given you balance the SLED for this), sideways, low near the ground, overhead or angled as in a Dutch shot.

You should also realize that the quality and smoothness of your TILTS, PANS and ROLLS will depend on how well you learn to control the CENTER POST and SUPPORT ARM. Again, since the SLED is in essence floating freely, slight twitches of the GUIDING HAND can cause twitches in your shots. With heavier cameras this is not so much of a problem, and it is not a problem with lighter cameras after you get use to shooting with the SLED.

The GLIDECAM GOLD SLED is designed to work best only when the CAMERA OPERATOR is using their HOLDING HAND and their GUIDING HAND to hold and control the ARM and SLED. If you try to operate the SUPPORT ARM with just your HOLDING HAND, the camera may drift or pan away from

its original position. Also, without the GUIDING HAND in place, you will be unable to control the direction of the camera. It is possible however, to use just your GUIDING HAND while it is guiding the CENTER POST to control both the SLED and ARM at the same time, but this is not recommended.

As a reference in learning the best positions to use your SLED, you should think of your waist like a clock, with your navel being at 12 o'clock, your center back at 6 o'clock, your left hip at 9 o'clock, and your right hip at 3 o'clock.

For most shooting situations you will want to place the CENTER POST of the SLED on your left side at, or between the 9 and 11 o'clock positions. If you need to move through a narrow hallway, or doorway, then you might need to move the SLED in front of you to the 11 or 12 o'clock position. You can change the position of the SLED during shooting by simply using your right HOLDING HAND to move the end of the ARM and consequently the SLED to the position you desire.

A typical shot might start with the SLED in the 10 o'clock position, with the SLED close to your body, then as you travel through a doorway you would move the SLED to the 11 or 12 o'clock position, with the SLED away from your stomach, and when you clear the door frame you might return the SLED to the 10 o'clock position, with the SLED close to your body. During a typical shot you might also boom the FOREARM up and/or down depending on the framing requirements of the shot.

When the SLED is in front of you, you will need to keep it far enough away from your body so you don't end up bumping your legs into it. When the SLED is by the left side of your body you should try to keep it as close to your body as possible without either the SLED, or the ARM touching you. The reason to keep the SLED as close to your body as possible during most shooting is to reduce the amount of fatigue on your body and back. When the SLED is near to your own body's center of gravity it becomes a lot easier to shoot for longer periods of time. Also, when you move the SLED away from your body you might find it easier on your back if you lean backwards a bit. This can be especially true with heavier cameras.

It is possible to shoot smooth shots with your GOLD SLED with the ARM and SLED in a wide variety of positions, but the above mentioned positions are generally best for most shooting situations. After you get accustomed to using the GOLD SLED you will inevitably find SLED positions that work best for you.

NOTE: Always keep the SLED as VERTICAL as possible during shooting, except for when you intentionally want the SLED to be TILTED, PANNED, or ROLLED.

NOTE: The main concern when shooting with the GOLD SLED is to be aware of your shooting frame's HORIZONTAL ALIGNMENT. One of the main things which can make a shot look unstable is when the CAMERA appears to be tipping over to either its left, or right side. This tipping motion is also called ROLL. ROLL is very different from a PAN, or a TILT, because when a CAMERA is PANNED and TILTED its frame's HORIZONTAL ALIGNMENT is not effected.

So therefore, with the exception of an intentional SLED ROLL, virtually all of your shots should be executed in a way that is completely free of SLED ROLL. SLED ROLL is very much like CAMERA ROLL, except that with SLED ROLL the center of rotation is within the GIMBAL. CAMERA ROLL is when a CAMERA rotates around the axis that runs through the center of the lens' length.

Also, when shooting with the GOLD SLED you do not always have to have the CAMERA facing in the same direction that your body is facing. Sometimes it is a lot easier, and a lot more comfortable to have

the SLED angled so that the side of the BASE PLATFORM and CAMERA are either diagonal, or parallel with the front of your torso. This type of SLED alignment allows you to have the SLED even closer to your body, thereby reducing fatigue. You will of course need to walk or move at an angle if you wish to use this type of SLED alignment, while the SLED and CAMERA are moving in a forward direction from their point of view. You can even turn the SLED around, and shoot with the CAMERA looking over your shoulder even though you are walking forwards, or if you wish you can walk forwards and shoot sideways etc. You will probably have to rotate or adjust the orientation of the either the CAMERA, or the MONITOR for over the shoulder shots etc. Whenever you reposition the direction of the CAMERA on the CAMERA MOUNTING PLATE, or whenever you alter the position of any item on the SLED such as the MONITOR or WEIGHTS, then you will most likely need to readjust the SLED's HORIZONTAL BALANCE and possibly even the SLED's VERTICAL BALANCE.

NOTE: Also important is the position or angle of the GIMBAL HANDLE in relation to the end of the SUPPORT ARM's FOREARM. As a reference in learning the best angles to use your GIMBAL HANDLE, you should think of the GIMBAL HANDLE as a hand on a clock, with the 12 o'clock position being the location of the SLED's CENTER POST given that the GIMBAL HANDLE was pointing straight out in front of the FOREARM. If the GIMBAL HANDLE was in the 6 o'clock position then it would be pointing at the SUPPORT ARM's ELBOW HINGE.

For most shooting situations you will want to angle the GIMBAL HANDLE so the SLED's CENTER POST is at, or between the 12 and 3 o'clock positions. It is these positions which will allow you to hold the ARM close to your body and still have the SLED positioned comfortably. When moving through a narrow doorway it is often best to set the GIMBAL HANDLE at the 3 o'clock position.

It is possible to shoot smooth shots with your GOLD SLED with the GIMBAL HANDLE at a wide variety of angles, but the above mentioned positions are generally best for most shooting situations. After you get accustomed to using the Glidecam GOLD SLED you will inevitably find GIMBAL HANDLE positions that work best for you.

Operating the Glidecam GOLD SLED for extended periods of time can easily tire your arms and/or back etc. If fatigue sets in while shooting you should either place the SLED as close to your own body's center of gravity, so that the weight of the system is easier to carry, or you should park the SLED on the DOCKING BRACKET and then rest between takes. If you are not near the DOCKING BRACKET and feel the need to put the SLED down, then try to place the SLED onto a work table etc. If you have to place the SLED on the ground, then be sure to bend with you legs and not your back. And again, when placing the SLED on the ground be extra careful of your back. Remember that you can set the "KICK-STANDS" on the BASE of the SLED in their open position when the SLED is resting on level, or near to level ground.

NOTE: EVERY TIME YOU USE THE GLIDECAM GOLD SLED ALWAYS LOOK THE SYSTEM OVER COMPLETELY BEFORE YOU ACTUALLY USE IT. THE REASON FOR THIS PRE-SHOOT INSPECTION IS TO UNSURE REASONABLE SAFETY FOR BOTH THE OPERATOR AND THE EQUIPMENT. WHEN INSPECTING THE SYSTEM LOOK TO SEE IF ALL THE CLIPS THAT HOLD THE SUPPORT ARM TOGETHER, AND THE VARIOUS CONNECTORS, FASTENERS AND STITCHING ARE ALL IN PROPER WORKING ORDER. ONLY WHEN YOU ARE SURE THAT THE SYSTEM IS WORKING CORRECTLY SHOULD YOU THEN USE THE GOLD SLED. AGAIN, THIS PRE-SHOOT INSPECTION SHOULD BE DONE EVERY TIME YOU USE THE GOLD SLED.

When handling and operating your Glidecam GOLD SLED should always avoid violent moves. Violent movements could cause damage to the GOLD SLED or cause your camera to pull loose off the CAMERA

PLATE. We recommend that you do not exceed 2 G's of acceleration when handling and operating your Glidecam GOLD SLED. Also, the Glidecam GOLD SLED is not intended for use under water, nor does it work under water. The GOLD SLED is not waterproof, so avoid direct exposure to rain or water spray. Also the BEARINGS are not sand and dirt proof, so avoid getting dirt or sand into them. The GOLD SLED is not arctic weather proof and if used in extreme cold the bearings could cease to operate. (See Bearing Maintenance)

SHOOTING STYLES

For **NORMAL SHOOTING**, hold the GLIDECAM GOLD SLED with your GUIDING HAND at the point just below the CENTRAL BEARING on the GIMBAL TUBE as mentioned in previous sections. This placement of the GUIDING HAND will allow you to slowly or rapidly PAN or TILT your camera, while still producing smooth and shake free images. It is this position that will allow you to shoot smooth shots when walking or running with the SLED. **NOTE:** Make sure that your GUIDING HAND and/or wrist do not touch the GIMBAL's MAIN BEARING ASSEMBLY and/or YOKES during shooting, for doing so can cause unstable shooting.

For **UNCONVENTIONAL SHOTS**, like ones that require aiming the camera either straight up or down, sideways, or angled as in a Dutch type shot, you can try holding the SLED with your GUIDING HAND on a LOWER portion of the CENTRAL SUPPORT POST. With your hand in this position your GUIDING HAND will have a greater degree of control over the SLED while shooting at strange angles etc. It is this position that might allow you the smoothest shots when shooting very erratic shots, like shots simulating the point of view of someone who is drunk, or shots where you are trying to simulate the point of view of a bird flying through a house etc.

Also, the GUIDING HAND positions for shooting NORMAL or UNCONVENTIONAL shots can be interchanged in the middle of a shooting sequence.

PROFESSIONAL USAGE

If you are going to use the Glidecam GOLD SLED to shoot professional footage, and you plan on incorporating them into a short film, a feature length movie, or some sort of commercial, industrial or video project, then we suggest that you have an assistant help you, and we suggest that you plan your shots out in advance, and rehearse the camera movement a few times before shooting. Don't forget that the motion of what you are shooting, be it actors, cars, etc., should be taken into consideration when you rehearse and shoot the scene. Careful staging and blocking of all elements involved in the shoot will go a long way in making your footage look professional. Again, the use of an assistant is very important. An assistant can help setup and maintain the equipment, and is very important for safety. A typical example of the need for an assistant is when you are shooting when walking backwards. In a case as this you would need the assistant to guide you to make sure you did not hit any obstacles etc.

SELF TRAINING TECHNIQUES: One of the best ways to train yourself to shoot perfectly smooth and accurate shots using your Glidecam is to use some removable adhesive tape to place a reference cross (not an "X") on a wall. Make the cross big enough so that even when you are 40 feet or so away from it you can still see it on your video monitor. Next, make a small cross with tape on your video monitor screen. With both of these reference crosses in place you can now walk towards or away from the cross on the wall while using the cross on your monitor to accurately align your shots. Think of the cross on your monitor as similar to the crosshairs on a rifle targeting scope. When you are able to approach or

move away from the cross on the wall at any speed and from any angle etc. and still keep the two crosses aligned, then you will know you have mastered this shooting technique. Another great training technique is to place a long tape line on the floor and then practice always being able to keep the Sled aligned over the line. This type of shooting combined with the cross on the wall and monitor training will allow you to shoot shots that as smooth and linear as a dolly shot. Another training technique is to put up either a straight, or diagonal length of string so that you can follow the path of the string with your Sled.

You should also be aware that learning to achieve beautifully smooth, shake-free footage with you Glidecam GOLD SLED takes practice and patience. Trying to rush things will most likely cause unprofessional results. You can think of the GOLD SLED in a way much like your first time trying to ride a bicycle. It seems difficult at first, but you soon master the balancing skills required to use it. (See also the section called SHOOTING TIPS.) Remember, practice makes perfect.

VIDEO TAP

For those of you who plan on using the GOLD SLED with film cameras, you may wish to either rent, or purchase a device known as a VIDEO TAP or VIDEO ASSIST. This type of device allows you to view what you are shooting on an electronic MONITOR. These VIDEO TAPS can be connected to most professional cinema cameras by attachment to the camera's viewfinder optics. The VIDEO TAP is in essence a little video camera that converts the image in the camera's viewfinder into a video signal that can then be connected to a MONITOR. It is best to use a wireless VIDEO TAP with the GOLD SLED.

REMOTE CONTROL FOLLOW FOCUS DEVICES etc.

The Glidecam GOLD SLED does not come with a REMOTE CONTROL FOLLOW FOCUS DEVICE, but you can purchase or rent one from a professional camera equipment supplier. A typical REMOTE CONTROL DEVICE will allow you to control

the CAMERA'S focus, iris, zoom, and camera on/off capabilities via a wireless transmitter and receiver. It is also possible to use hard wired remote control devices with the GOLD SLED, though it is not recommended.

6) SHOOTING TIPS

When shooting with the GOLD SLED it is best to wear sneakers on your feet, as opposed to boots or dress shoes. Wearing sneakers, or similar footwear when shooting will help make your shots smoother and will cause less noise during shooting. Also the way that you walk or slowly run with the GOLD SLED can also have an effect on how smooth your footage

turns out. When walking or running, try to keep your feet low when you lift them, and avoid placing your feet down hard. In other words you can create a much smoother running motion by simply walking very quickly, and taking bigger strides.

Another method for achieving smooth PANS is to rotate (pan) your whole body instead of trying to PAN the SLED using your GUIDING HAND. This type of body movement will give your PANS a fuller,

more dynamic movement, because the center axis of the PAN is no longer coming from the center of the CAMERA or SLED, but is instead coming from the center of your body.

NOTE: It is best to always wear protective KNEE PADS when operating your Glidecam. Use the type of KNEE PADS that are used in the roller blade, in-line skating sports world, for they are very rugged. Wearing KNEE PADS will help to protect your knees in the advent that you fall forward, and falling on your knees with the combined weight of your body and your Glidecam system could very seriously damage your knees, so please behave like a professional and wear knee pads.

NOTE: Never run very fast with the GOLD SLED, for if you were to fall down while running you could seriously injure yourself, as well as damage your equipment.

THE USE OF A WIDE ANGLE LENS CONVERTER

If you have a common consumer camcorder or an old movie camera you will probably discover that the widest setting on the zoom lens is not very wide, or that the prime lens that comes with your camera is not very wide. You might find that this wide setting, or regular lens is not adequate enough to give you the type of camera movement look like those produced by professional Hollywood dollies, cranes and stabilizers. To achieve this kind of look you will have to either place a wide angle prime lens on your camera or place a **wide angle lens converter** on the front of your existing camcorder or camera lens. There are several types and brands available, ranging from approximately a .7x to a .35x factor. The use of a wide angle lens or converter helps improve and enhance the look of moving footage so much that we highly recommend you use one on your camera when shooting.

QUICK RELEASE AND BALANCE PLATES

Available from camera equipment suppliers are different types of QUICK RELEASE or BALANCE PLATES for your camera. You can attach one of these to the top of the CAMERA MOUNTING PLATE and then attach your camera to the BALANCE or QUICK RELEASE PLATE. It should be noted that adding weight to the top of the SLED, or increasing the height of the camera from the CAMERA MOUNTING PLATE will require you to use either more COUNTERWEIGHTS on the BASE PLATFORM making the whole system heavier, or will require you to raise the GIMBAL TUBE on the CENTRAL POST to achieve correct VERTICAL BALANCE.

7) WARNINGS

Please make sure that you are very careful when picking up and putting down the Glidecam GOLD SLED SLED. The GOLD SLED SLED can end up having considerable weight when in use and could cause injury to your back if you are not cautious when using it. Be sure to bend your legs, instead of your back when lifting the SLED up, or when placing the SLED down. **If you have lower back problems, or have had prior back injuries then you should not use the GOLD SLED.** Again, if you use the GOLD SLED please make sure you do so carefully. You might want to consider using a store bought back brace or back support pad around your back and waist, to give your back some extra support.

You should also make sure that you are very careful when using the GOLD SLED at night or in low light conditions. Do not make the mistake of focusing so much on what you are shooting that you trip over something, or wander into something dangerous like a body of water or automobile traffic. If you do end up using the GOLD SLED around water, then be very, very careful that you do not fall into the water.

Always have at least two assistants with you if you use your Glidecam around water. Even though the foam padded VEST portion of the GOLD SLED can act like a flotation device, it will not help you float in water if the SLED and ARM are still attached to it. If you do find yourself in water, then immediately remove the Glidecam from your body and get to safety. Also, never place your fingers etc. into the open sections of the SPRING ARM.

NOTE: It is best to always wear protective KNEE PADS when operating your Glidecam. Use the type of KNEE PADS that are used in the roller blade, in-line skating sports world, for they are very rugged. Wearing KNEE PADS will help to protect your knees in the advent that you fall forward, and falling on your knees with the combined weight of your body and your Glidecam system could very seriously damage your knees, so please behave like a professional and wear knee pads.

NOTE: Never run very fast with the GOLD SLED, for if you were to fall down while running you could seriously injure yourself, and/or damage your equipment.

NOTE: EVERY TIME YOU USE THE GLIDECAM GOLD SLED ALWAYS LOOK THE SYSTEM OVER COMPLETELY BEFORE YOU ACTUALLY USE IT. THE REASON FOR THIS PRE-SHOOT INSPECTION IS TO UNSURE REASONABLE SAFETY FOR BOTH THE OPERATOR AND THE EQUIPMENT. WHEN INSPECTING THE SYSTEM LOOK TO SEE IF ALL THE CLIPS THAT HOLD THE SUPPORT ARM TOGETHER, AND THE VARIOUS CONNECTORS AND FASTENERS ARE ALL IN PROPER WORKING ORDER. ONLY WHEN YOU ARE SURE THAT THE SYSTEM IS WORKING CORRECTLY SHOULD YOU THEN USE THE GOLD SLED. AGAIN, THIS PRE-SHOOT INSPECTION SHOULD BE DONE EVERY TIME YOU USE THE GOLD SLED.

8) MAINTENANCE

Bearing Maintenance: The integrally shielded BALL BEARINGS on your Glidecam GOLD SLED are made of hardened steel alloy. If after some period of time your BEARINGS don't turn smoothly, you can oil them lightly. We recommend that you use very little oil. Very little, because this is all that is needed, and anything more than a little will end up coming out of the bearing and onto the rest of your Glidecam GOLD SLED. The shields on the BEARINGS protect the BEARINGS from dirt and sand etc. However, even with these shields in place, direct contact with sand or other debris could render the BEARINGS inoperative. So avoid contaminates of this nature when ever possible. To apply oil to a bearing, you will have to apply between the races of the bearing and its shields.

Cleaning: Do not use solvents or harsh cleaners of any kind on your Glidecam GOLD SLED. If the GOLD SLED becomes dirty, use only a cloth or sponge with water to rub the GOLD SLED clean. Harsh cleaning products could dissolve the GOLD SLED's paint or ruin labels etc.

10) WARRANTY

For ninety (90) days from the date of shipment, we will repair or replace your Glidecam GOLD SLED, free of charge, in the event of a defect in materials or workmanship (the shipment date appears on your purchase receipt) that occurs during normal use in accordance with the Glidecam GOLD SLED'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, or lack of reasonable care of the Glidecam GOLD SLED, or service by anyone other than us. There are no express warranties except as listed herein. This warranty gives you specific legal rights and you may also have other rights that vary from state to state.

WE ARE NOT LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THE GOLD SLED SYSTEM 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 NINETY (90) DAY 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: Glidecam Industries, Inc. 23 Joseph Street Kingston, MA 02364, and explain the problem.

DO NOT SEND THE GOLD SLED TO US WITHOUT FIRST OBTAINING A RETURN AUTHORIZATION NUMBER.

GLIDECAM GOLD CONNECTOR LIST

Camera Power Connector:

Receptacle on Glidecam: Custom Interface #JBXEA1G03FCSDS or Lemo #ECG1B303CLM

Plug for Mating Cable: CIT #JBXFD1G03MCSD or Lemo #FGG1B303CLCD)

Pin#

3	+24volts
4	Ground
5	+12volts

Accessory Power Connectors:

For Follow Focus Power, High Speed bases etc.

Receptacle: CIT #JBXEA1G02MCSDS or Lemo #ECG0B304CLM

Plug for Mating Cable: CIT #JBXFD1B02MCSDS or Lemo #FGG0B304CLCD

Pin#

3	Ground
4	+12volts

Video Only In/Out Connector

BNC 50 ohm

Pin#

Center	Video
Ring	Video Ground

Video/Power Connector Plugs

For Monitors, Transmitters, Video IN and OUT, etc.

Receptacle: CIT# JBXEA0G04FCSDS or Lemo #ECG0B304CLM

Plugs for Cable: CIT #JBXFD0G04MCSDS or Lemo #FGG0B304CLCD

Pin#

4	Ground
5	+12 volts
6	Video
7	Video Ground

Post Connector

Receptacles: CIT #JBXEA3G10FCSDS or Lemo #ECG3B310CLM

Plugs for Cable: CIT #JBXFD3G10MCSDS or Lemo #FGG3B310CLAD

Pin#

10	Ground, Camera Power	Black
11	+12 V Camera Power	Red
12	+24V Camera Power	Orange
13	+12V Aux Power	Green
14	Ground, Aux Power	White
15	Video Ground #1	Shield on Yellow
16	Video #1	Yellow
17	Video #2	Blue
18	Video Ground #2	Shield on Blue
	No connection	

GLIDECAM GOLD CABLE LIST

PART #	DESCRIPTION	LENGTH	MSRP
CAMERA POWER CABLES			
6070G	Arriflex 12 Volt Camera Power (BL, 3, 2C, SR1/2)	15	85
6077G	Arriflex 24Volt Camera Power (435, 535,635,765, and Victor Duncan Movicam Arri 24V Cam Pwr, with Right Angle Arri connector	22	155
6077RG		22	175
6095G	Aaton 16mm Camera Power	20	110
6097G	Aaton 35mm Camera Power	21	110
6010G	Panavision Camera Power	22	145
6015G	Panavision Elaine/Millennium (also some "Lightweight" Panavisions)	18	100
6040G	Movicam Camera Power	22	85
6101G	Video Camera Power (all 12V 4pin XLR)	22	85
6030G	SL35 Camera Power	15	105
6275	Gold Post Cable, spare	42	250
MONITOR CABLES			
6260G	Monitor Power Cable (12Volts to 4pin XLR)	24	85
6261	Monitor "Y" Cable, XLR Pwr and BNC Video	24	125
6263	Transvideo Monitor Video/Power	24	90
6266	Nebtek Pro Monitor Video/Power	24	90
6270	Marell/PRO/TB6 Monitor, 8 pin	24	120
6272	Monitor Power/Video to Tinned Leads	24	65
VIDEO TRANSMITTER, VIDEO TAP & JUMPER CABLES			
6050G	BNC to BNC Jumper: Flexi Push-Pull	19	75
6055G	BNC to BNC Ultralight	19	65
6130G	Modulus Video and Power	18	85
6120G	Coherent Video and Power	18	125
6125G	Avalon Video and Power	18	120
6100G	Sony Video Tap, Video Out, Power In	21	110
6110G	Seitz Video Tap, Video Out, Power In	21	100
6103G	CEI Color IV Tap, Vid Out, Power In	21	95
6104G	CEI Color V Tap, Vid Out, Power In	21	115
6032G	SL35 Video Tap, Video Out, Power In	21	85
6028G	Pana Elaine Video Tap, Vid Out, Pwr In	21	110
WIRELESS FOLLOW FOCUS CABLES			
6760G	Bartech BFD 12 Volt Power	24	95
6606G	Genio 12 Volt Power	18	95
6571G	Preston MDR1/2 Power	5	125
6108G	VFX 12 VoltPower	12	115
6735G	Fox 12 Volt Power	10	105

