

**Steadicam JR  
Set-up and  
Operations Manual**  
volume two: *Operations Guide*

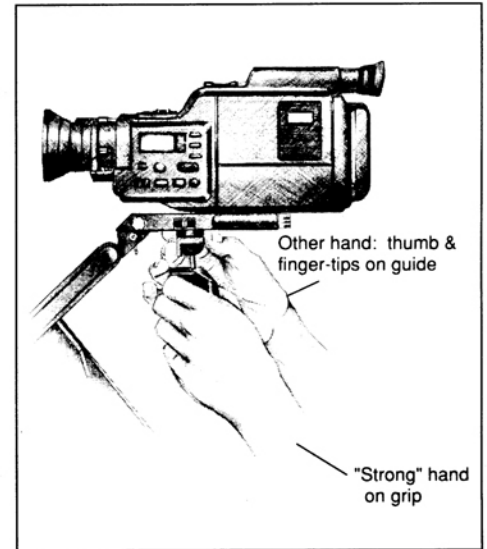
Sections 1-9 are contained in  
Volume 1: *Set-up Guide*

**10.1 Two-Handed Operating Position**

*This is the slickest, smoothest and easiest way to operate the Steadicam JR. The force to support it is isolated from the camera, and the force to aim it can be almost non-existent. The camera is poised and free to rotate on excellent bearings. What's more, it is highly inert! The combination will provide you with an entirely new sensation as you orient an object that acts as if it were floating in space. (Ignore the weight on your other hand, and you can almost believe it!) In any event, you must act like it's weightless, because any excess force from your "guide" hand will cause it to move. (see section 1. Introduction—How does the Steadicam work?)*

One hand (your choice) holds the grip and supports all the weight, but is isolated from the camera. You can't pan or tilt with it, and it has no influence on the camera's angle unless you bump the stage or upper spar.

The fingertips of the other hand lightly touch the guide when you want to change where it's pointing—otherwise, more or less leave it alone.



Diag. 1 Two-handed position

**CAUTIONS**

- HANDLE ONLY WORKS ONE WAY - HOLD WITH FINGERS ON GRAY SIDE. Holding handle backwards can cause damage.
- Avoid pinching your finger between the moving gimbal yoke and the bottom of the Guide. Keep fingertips either on the Grip or on the outer surface of the Guide.
- Avoid violent camera moves. It is possible for a strong operator to move a JR and camcorder at many times the acceleration of gravity, but mounting attachments on many camcorders are not strong enough, and might pull loose. We recommend not exceeding roughly 1.5 g's of vertical or horizontal acceleration. (That's somewhat faster than the speed of an object falling from your hand.)
- The Steadicam JR monitor is not waterproof. Cover with clear plastic wrap when using JR with "sport" camcorders, and avoid direct exposure to rain or spray.
- Avoid shooting in windy conditions as the JR's stability requires isolation from all external influences and its performance will degrade proportionately. Attempt to shield the camera with bodies or find the "lee" of a nearby structure.

**10.2 Isolated**

Remember that the Steadicam is both inert and free to rotate. This means that you must think ahead if you want it to start panning, and begin it early, with the smallest force possible. Also remember to stop the pan—the Steadicam obeys several of Newton's laws, such as the one about "remaining in motion". Use your fingers like drum brakes to stop a pan.

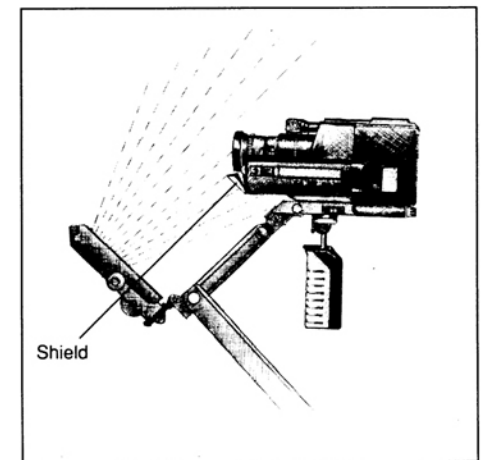
**10.3 Video controls**

**Color balance/brightness**

The JR monitor is a special LCD screen with a combined backlight and transreflective backing. The viewing surface has the same 17-layer anti-reflective coating used on the professional Steadicam. The result is the only LCD monitor which can be seen under all lighting conditions, including direct sunlight.

"Brightness", which is really the viewing angle for the LCD screen, is controlled by the green knob. We recommend adjusting the monitor so it looks best when your eye is perpendicular to the screen. Then just tilt the monitor for the best visibility at any boom height.

*If broad sky reflections are annoying, tilt the monitor until it is vertical and readjust brightness. This shifts the incident light angle below your viewing angle.*



Diag. 2 Shield color-balance sensor

**NOTE:** *Some cameras, such as the JVC, have a frosted color-balance sensor below the lens. In low light conditions, the light from the JR screen may make the camera think it is in fluorescent light and miscorrect the color balance of your videos. To prevent this, tape on a white cardboard or tinfoil shield, as shown, to keep the screen's light from falling on the sensor.*

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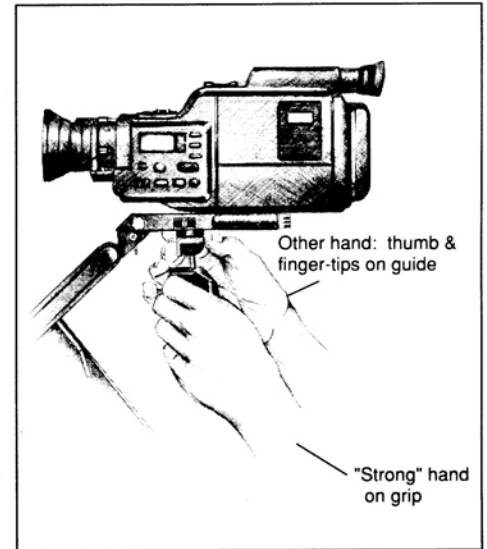
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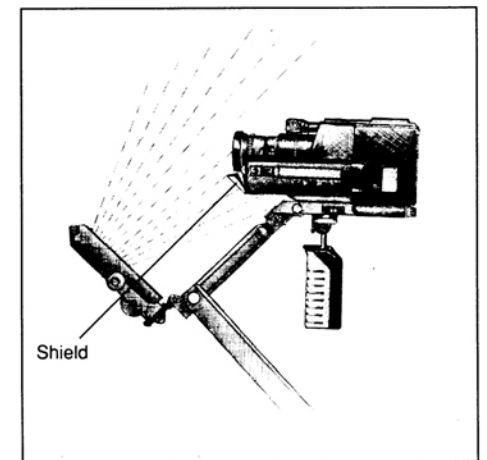
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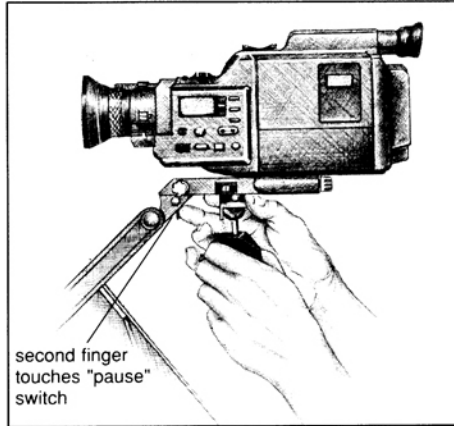
## Section 10: Hand Positions

### 10.4 Finger Position (clearance)

#### Pause control position

Here's a close look at the finger position for two-handed operating. Make sure that you don't bump the stage or the upper spar.

Note the use of the second finger for throwing the pause switch. It is located as close as possible to the c.g. of the JR in order to have the smallest influence on the camera. Practice until you can pause and un-pause quickly and lightly with no bump in your shot.



Diag.3 Finger position

### 10.5 One-Handed Operating Position

SLIDE up your hand on the grip, so that your second finger is just below the notch.

HOLD the grip strongly with your second, third and little finger. Your thumb and first finger can just reach the guide and contact it lightly and intermittently.

To pan, use your entire arm as a crank while you momentarily contact the guide with your fingers.

To tilt, use your entire arm as a lever, resetting its angle relative to the guide, as you change the first finger and thumb contact. (This is pretty esoteric stuff—check the video for this one!)

ONE-HANDED operating is of course useful when you need a free hand to open doors, etc., but it is also great for extending your reach, particularly for shots high over your head or for shooting way out to one side.

CORRECT TRIM is essential for both one- and two-handed operating - See Section 6.

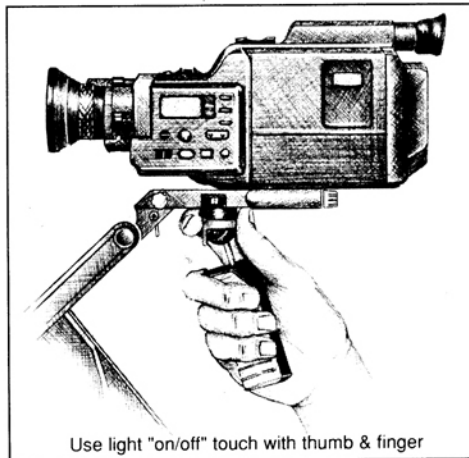
### 10.6 Body Clearances

LEARN how to avoid bumping your body or clothes with the battery compartment.

BEND your elbow out sideways to avoid hitting the JR as you boom up.

FLEX your wrists out of the way of the spars as you make extreme pans to either side.

Almost any contact with the lower spar can ruin a shot, but giving the Steadicam a bit of "flying room" will soon become instinctive. After a few days of practice you will find that you almost never bump into it.



Diag. 4 "One-handed" operation

## 11 Operating

It's like riding a bicycle - you never forget the "trick" of how to operate Steadicam—once you get it, you have it for life.

## Section 11: Operating

Trimming, however—the nuts-and-bolts technique of constantly tuning the camera's angle of balance—can easily be forgotten. Make sure you understand how to trim for any shot and do it often enough that it becomes second nature—as a pilot is always conscious of the trim of his aircraft.

### 11.1 Missionary Position

"Missionary" is what Steadicam operators have called this basic style since the earliest operating workshops in Rockport, Maine in 1980. It is defined as operating with the camera aimed roughly in the same direction as the forearm of your "guide" hand. Try it two-handed...

HOLD the grip with either hand, the guide with the other.

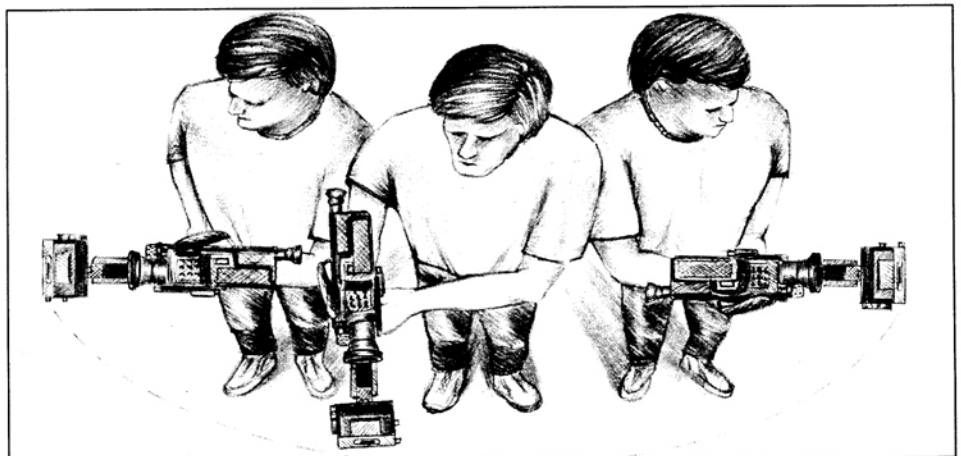
STAND with the camera facing ahead but don't hold it out in front of you. This is tiring and would make it harder to see the viewfinder!

SHIFT camera to either left or right, so the spar settles in beside your body. Either your "grip" or your "guide" hand will now cross in front of your body. Practice on both sides. See the Diagram for the range of Missionary camera angles. Be sure not to bump yourself with the battery.

STOP this demo video, turn on your camera and give it a try. The fastest way to get the "trick" is to walk rapidly for a city block or so. Trim the camera to hang level. Virtually let go with the "guide" hand unless the shot is a disaster. Let the camera look straight ahead or even sideways.

As you walk, gradually touch the guide more frequently, so it points where you want—until you learn to touch the guide almost constantly, without over-controlling, causing the camera to lurch from side-to-side.

MISSIONARY is for easy straight-ahead shots and shots looking to the side.



Diag. 5 Range of Missionary positions

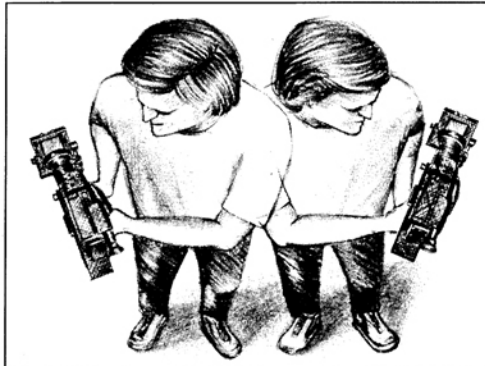
**Section 11: Operating**

**11.2 Don Juan Position**

The "Don Juan" was also named in 1980, and it's still what the 300 or so professional operators in 40 countries call the other major operating position. Don Juan is defined as operating with the camera aimed roughly in the direction as the forearm of your "guide" hand. Try it two-handed...

ASSUME the Missionary position...

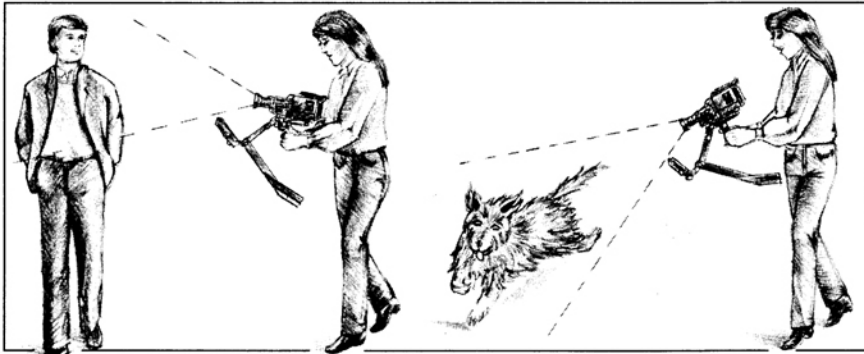
PAN the camera to the rear *without moving your body*. (See diagram). Flex the wrist inward to avoid bumping the spar. That's all there is to it. It is exactly like Missionary except the camera is pointed in the opposite direction and you must turn your head sideways to see the monitor. The camera is not connected to you, so it doesn't have to point the same way you're headed. Keep your head down as shown—it helps the widest area of your peripheral vision see the path ahead of you.



Diag. 6 "Don Juan" position

DON JUAN is for when you want to shoot backwards, but you also want to see where you're going. Following people is easy but can be boring. Shots that precede people are friendlier because you see their faces. Don Juan shooting helps you avoid bumping into things or falling down.

**11.3 Trimming for Shots**



Diag. 7 Trim fore/aft for basic tilt of shot

Operating Steadicam is radically different from almost every other human activity—including normal camera operating! It requires a number of unusual moves and techniques - such as trimming.

TRIMMING side-to-side is needed every time you unfold the JR and should be checked every few minutes so the JR hangs approximately level (check the bubble). The balance required is so fine that it can never be set permanently. The Steadicam's light fiber-composite construction and articulated moveable parts mean that it must be "tuned" from time to time.

TRIMMING fore-and-aft is needed between shots so the camera's attitude can help get your shot, rather than hurt.

—trim up to maintain headroom for tall people (way up for cathedral ceilings, etc.)

—trim down for shooting short people (way down for looking over balconies, etc.)

USE quick full turns of the trim knobs—it's a fine adjustment, and otherwise would take forever.

Steadicam stabilizes best when it's trimmed so that you can let go with the guiding hand and the camera will stay pointed where you want it. If it isn't trimmed, the camera must be forced to hold the shot you want, and will tilt up or down the moment you let go.

It is axiomatic that human beings cannot exert constant force—but they can exert no force—constantly! Your shots are more stable when you don't have to walk along holding the camera above or below the tilt angle it has been trimmed for.

**Note:** For shots that require you to tilt both up and down, we suggest that you trim for the most difficult part of the shot, and reduce bottom-heaviness by counter-clocking the "Z" trim with the guide. TRIMMING IS APPROXIMATE, NEVER PERFECT - Don't fuss with it. Get it roughly correct, and do your ultimate fine tuning with the guide.

**Warning:** Do not force trim knobs beyond end of travel.

**11.4 Boom Height**

The second essential technique for Steadicam is "booming". In many instances it is easier to control "headroom" on your subject by adjusting camera height rather than tilting.

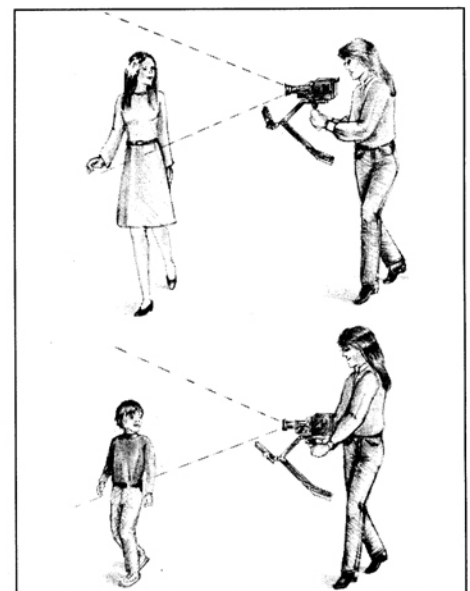
**NOTE: BOOMING MOVES DO NOT AFFECT THE ANGULAR ISOLATION OF THE CAMERA!**

BOOM high for shooting adults  
BOOM low for correct headroom for kids. This lets you see the world from a kid's perspective, rather than looking down on the top of their heads.

BOOM up as you approach your subject (instead of tilting) to maintain correct headroom.

BOOM UP AND DOWN if the height of the ground is changing between you and your subject. Example: You are following someone who steps off a curb. Boom down as they lower in your frame. Boom up when you step off the curb because your subject will appear to be rising in frame. Steadicam is an inert object and tilting rapidly is difficult. Booming is easy, because moving the "grip" hand has no effect on the camera's angle and can be done as quickly as you like.

**NOTE: YOUR FRAMING IS THE SUM OF THE TILT-ANGLE AND THE BOOM HEIGHT.** Experiment with different combinations. A low-angle shot (boomed low, tilted up) can be much more dramatic than the usual eye-level stuff. A high-angle shot (boomed up over your head, tilted down) looks great for the same reason. Experiment with raising and lowering the height of the camera and notice the effect that it has on your shot.



Diag. 8 Boom for high and low subjects

## Section 11: Operating

### 11.5 Folding Positions



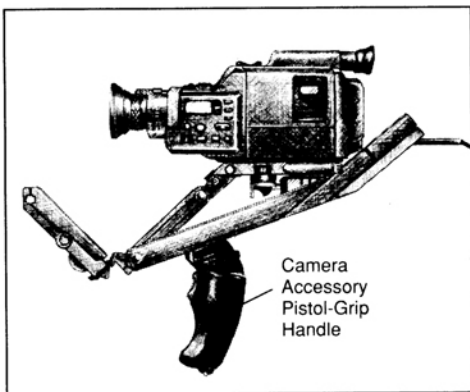
Diag. 9 Use either hand for shoulder-mode

FLYING-mode is when the JR is fully opened, with spars and monitor all the way against the stops. (Be sure the lower spar has clicked into the detent, when fully opened.)

SHOULDER-mode is when you raise the lower spar until it touches the camera, and open the "whale's tail". (Use either shoulder!) It helps to tilt up the whole unit as you lift the lower spar. This way the handle is led back automatically between the protective rails of the lower spar.

Shoulder Mode affords very comfortable telephoto shooting when you can't move around, such as in the stands or the audience. It is considerably more stable than hand-held for telephoto shooting, and you can add the accessory handle that is available for many cameras by screwing it to the forward tripod mounting hold on the JR. This provides easier control of zoom and pause for your camera and is even more comfortable.

The base of the JR features standard thread screw for easy compatibility with camera accessory pistol grip handles.



Diag 10 Shoulder mode

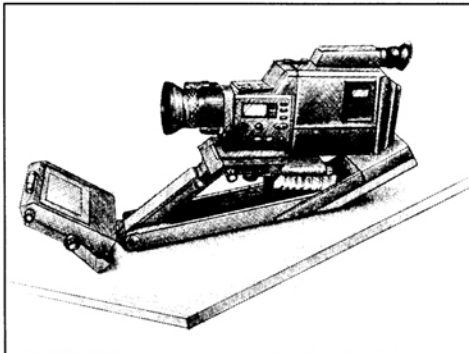
**NOTE:** Now you can use the heavy camera batteries in Shoulder Mode - Just remember to re-install the light ones before you "fly" the Steadicam again, or you will be violently out-of-balance. Also remember to fold up the whale's tail as it too will affect your trim.

**HOW DO YOU SET DOWN A STEADICAM JR?** Go into shoulder-mode. It's the quickest way to make your camera safe to set down on a table.

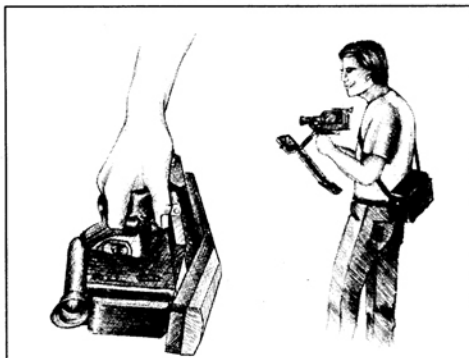
FOLDED—(travel) mode is like Shoulder-mode, but collapsed fully, with the monitor folded down flat. It makes a two-inch layer under your camera and you can comfortably walk around with it by simply holding the camera's side-strap. Remove the "Obie" light so you won't bump it into things and knock it off. (The light is useless outdoors anyway!)

The JR in folded-mode fits neatly into the soft, lightweight STEADICAM TRAVEL-BAG (optional), which is designed to be swung around behind you while you are actually shooting. The bag has compartments for 'Obie' light, spare tape and spare batteries.

**CAUTION:** Only gravity keeps the camera on your shoulder in shoulder mode. Hold the camera firmly for extreme tilt angles such as shooting over balconies.



Diag. 11 Fold to shoulder-mode for quick set-down



Diag. 12 Carry with camera strap in folded-mode

Diag. 13 Swing bag behind to operate

### 11.6 Quick "Z"

#### Re-trim to remove the light

RETRIM "Z" if you remove the "Obie" light. Counterclock the guide four or five turns to preserve the correct bottom-heaviness. Remember to do the opposite when re-mounting the light.

### 11.7 Fatigue

The Steadicam JR and camcorder weigh between four and six pounds depending on the weight of your camera. It acts weightless but of course it isn't and it can tire your "grip" arm fairly rapidly. Here are some tips to help with fatigue:

SHARE the load by also supporting the grip with the little finger of your "guide" hand.

REST the elbow of your grip hand on a chair arm, a table or your knee whenever you don't have to move the camera—you can easily fly up and away from these rest positions without any visible bump in your shot!

SHORTEN your moving shots—use cuts between a series of moving and static shots.

CHANGE hands to share the load. Practice changing hands safely to avoid dropping your camera. One way is to shift up your "grip" hand to the "one-handed" position, and release the grip as your other hand takes over.

HOLD the Steadicam as close to your body as possible - when shooting in either the Missionary or Don Juan position, hold it right beside you instead of out in front. Stand sideways to your shot whenever possible so you can hold it closer. Remember to be extra-careful not to bump the battery compartment against yourself when working close with the JR.

### 11.8 Making Shots Easier

#### Attention cycle, Level control

Good technique can make shots much easier to get - bad technique can make them nearly impossible. Here are some tips:

STAIR shots can be much easier and look great if you:

- trim to set basic angle for going up or down.

- boom up and down to make quick adjustments for headroom. (Your subject will rise and fall in your frame because you both cross landings at different times.)

- unscrew "Z" axis one turn to make camera less bottom heavy.

REACH with your arms instead of panning to make quick framing adjustments - Just as you should "boom" instead of trying to make adjustments with tilt. [see video @ 38:49]

START the camera first, then the body when beginning a move.

STOP the camera first, then the body when ending a move.

## Section 11: Operating

STATIC shots are easy if the camera is correctly trimmed so you can virtually let go of it with the guide hand. Stand comfortably, breathe normally, don't move your feet! Watch the edges of the frame to avoid motion. With practice your still shots can look like you used a tripod.

THINK ahead, pan early, try to keep the edges of walls and doorways just in frame as you turn corners.

DESIGN shots based on ideas - even bad ideas. There is no substitute for planning. Otherwise you are just moving and looking around at random.

DON'T CROWD your subject, except briefly - stay back as much as possible. Vary the size from a close-up (or over-the-shoulder), to a full-figure or a wide shot with your subject small in the frame. Perfectly stabilized shots can be unexciting, even boring, if you don't provide some variation.

USE your peripheral vision to see what's going on outside the frame; not only for navigating, but also to help you plan where your shot should go next.

ONE-HANDED operating can be quite comfortable and can allow you to reach higher with the camera and further out to the side. It is essential for opening doors, or for including yourself in a shot!

HAND-OFFS (passing the JR to another cameraperson) can be useful, but please practice and be careful not to drop the things in the process.

ATTENTION CYCLE is a technique that lets professional operators organize their concentration and squeak through all the simultaneous hazards and opportunities that make great Steadicam shots. Since framing is the least volatile element, due to the inertia of the Steadicam, one's attention can cycle between, for example, headroom, level (look at the bubble) navigating (watch out for the curb), and framing, etc. This can be quite absorbing! In addition, you must pick your moment to look from one element to another - check the bubble when framing is not changing radically and vice-versa, and through it all make sure your attention gets around to navigating in time to avoid the alligators! When you watch a Steadicam master at work with a seventy-pound rig on a difficult shot, you come away convinced that he or she has definitely earned the big salary.

LEVEL CONTROL - Trim will only provide a basic tendency for the camera to hang level side-to-side. It is up to you to keep your shots level by paying attention and controlling the guide. Here are some tips to help you manage this:

-CHECK the bubble whenever you are moving in a straight line - it will not be accurate when you are cornering.

-CONTROL the slight tendency of the lower spar to swing outward when you are cornering - imagine that you are holding a stick upright, and let your hand tell you if it's level.

-WATCH the screen to see that vertical objects such as door frames, appear vertical as they pass by the center of your screen. Note: verticals may not appear vertical at the sides of the screen if you are tilted at all up or down!

### 11.9 Vehicle Shots

*One of the best tricks for Steadicam is the stabilization of shots in vehicles. You can look smoothly at the world from virtually any conveyance, or you can look at your fellow passengers and see the true motions of the vehicle revealed by their motion in the foreground.*

TECHNIQUE is similar to normal Steadicam shooting except that long periods of vehicular acceleration can make even a slightly bottom-heavy JR begin to swing. (Humans don't get up to 50mph on foot!) The solution is to reduce bottom-heaviness even further by counter-clocking "Z" one or more turns and controlling level with the guide.

TWO-HANDED shooting with a light touch on the guide works well if you are securely seated and/or belted in.

HOLD ON with one hand and operate one-handed if there is any chance of falling off or hurting yourself. *Have a trial run without the JR, if possible, and make sure that your driver doesn't exceed the speeds you arrange beforehand. Cornering and braking can generate a lot of force. Don't exceed 1.5 "g's" of force on the grip and gimbal. The camera could disassociate itself from the JR due to the failure of its mounting surface.*

CLEAR space around you, so there is room for the JR to avoid bumping as the vehicle moves up, down and around you!

RELAX your arm to make it as flexible as "spring" as possible. Don't be alarmed if it seems to move up and down a lot. The JR is just obeying Newton and trying to stay at the same height above the center of the earth!

**WARNING: OPERATING STEADICAM REQUIRES CONCENTRATION—WE DON'T RECOMMEND USING THE JR ON HORSEBACK, SKIS, SKATEBOARDS, PARACHUTES, ETC.** *The distraction of operating increases the likelihood of accidents involving yourself and your equipment, as well as the people around you.*

## Section 12: Shooting Tips

### 12 Shooting Tips

**WARNING - STUNT SHOOTING AND LEAPING OVER CLIFFS WITH THE STEADICAM IS TEMPTING, BUT REMEMBER... "IT'S ONLY A MOVIE..."** *We don't advise trashing a thousand-dollar camera or breaking your leg—even for the Shot of the Century!*

#### 12.1 Wind

*Professional Steadicam operators get nervous when they hear a windy weather forecast. It is an "outside" influence that can make your camera hard to control. The only way to help the JR in wind is to shield the camera by using your body or someone else's, or by staying in the lee of buildings etc. When shooting directly into the wind, try to stand in front of large objects (or several people) to "backstop" the wind so it doesn't rush directly past your camera.*

#### 12.2 Shot Geography

**Telephoto, hand-held object, zooms R us**

*CONTROL the size and speed of foreground objects in your frame. Use your eyes. Really watch the monitor and make the dynamics of your frame as satisfying as your composition. The moving camera makes two-dimensional images appear to be three-dimensional. In the Advanced Art of Steadicam JR, (release date late 1990) which is the next installment of this videotape series on operating, see the section on "Continuity of Composition".*

EXPERIMENT with zooming-in to a mid-telephoto position. With a little care, you can make some amazing moves and shoot close and complimentary shots of people without having to be right on top of them.

*NOTICE how you can pass the JR right by people and they don't shy away as they might if you came at them with a camera covering your face. They understand that it's a hand-held object and that you have binocular vision, and aren't likely to bump into them - the result can be some wonderful pass-by shots.*

*ZOOM controls are not yet available for the JR. Any cable attached to the camera would unduly influence your shots (except in shoulder-mode). Cameras with infrared remotes, such as the Canon, can allow zooming if you let go with the guide hand momentarily, and Sony reportedly has a wireless remote in Japan. Meanwhile, remember—YOU ARE THE ZOOM—just pick a good focal length and use your legs to approach and depart!*

## Section 12: Shooting Tips

### 12.3 Under-arm Grip



Diag. 14 Under-arm operating position

(Not discovered in time to be covered on video)—see diagram for a new and very handy way of holding the camera in "Shoulder-mode." Simply rest the JR on your forearm and against your body as shown. This is quite comfortable and gets you a lower lens height than normal shoulder mode. It can be done either standing or sitting. Recommended as a way for younger children to safely hold your camcorder and shoot without needing to look through a viewfinder!

### 12.4 Hand-Focus

ND filter to shoot in dark, 'Obie' light

Shoulder-mode lets you "pull" focus by hand. Many of today's camcorder owners have never experienced the fun of hand-focusing fast-paced telephoto shooting! Use all your senses to determine the next move of your subject. Shoulder mode, particularly with your camera's accessory handgrip for zooming, allows you to use your free hand for control of the focus ring of your lens. Humans can still "pull focus" faster than most autofocus devices.

**NOTE:** Your Steadicam monitor may seem excessively bright when you are shooting from your seat in a dark auditorium and could annoy you as well as those around you. We suggest that you purchase a square of "ND" (neutral density) filter from a camera store and tape it in front of your screen. This is the only way you can "dim" the backlit screen to an acceptable level. (Try ND ".6" or ND ".9" filters).

**"OBIE" LIGHT (OPT.):** Named for actress Merle Oberon, invented by her cameraman Lucien Ballard, has proven to be a wonderful and essential part of the JR package. Since Steadicam tends to cruise in close proximity to people, the "Obie" gives you just enough beautiful illumination to properly expose eyes and faces without blowing out the true ambient lighting in the room. Try it at parties, and to "fill" people in the middle of typically lit rooms. (It is useless outdoors or in bright environments). aka "basher", "eyelight", "Steady Light", etc.

### 12.5 Use Arms to Isolate

RELAX your "grip" arm, and let it flex so you can sense the direct path for the camera, even if you are bouncing up and down on stairs or rough ground. Counter your body motions by booming up and down in the opposite direction. Practice flying the Steadicam smoothly above a railing or alongside a bannister as you climb stairs, so you can see in your monitor when you are successfully isolating the camera.

Diag. 15 "Fly" camera along straight line, remove bumps with arms.



### 12.6 Use Senses to Navigate

Seems obvious, doesn't it—what else are you going to use? Well we just want to remind you of a couple of senses—such as using your feet to find obstacles and identify doorways, etc. when you are backing up and shooting.

**CHECK** your auditory circuits now and then for voices saying things like "watch out!"

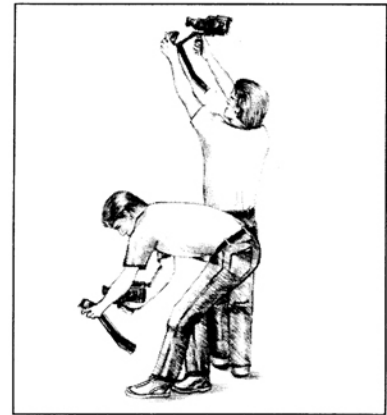
USE a "range" by memorizing the visual alignment of a near-background object with a far-background object (such as the edge of a chair lining up with a wall switch) just as you are about to back through a doorway. By definition, seeing such a visual alignment means you are on the exact same path every time.

**SCOUT** the terrain without the Steadicam, if possible, before you shoot, so you aren't unpleasantly surprised by the unexpected cliff, pit, low doorway or mad dog.

### 12.7 Shooting Overhead

Tilt the monitor! The monitor on the JR can be viewed at all boom heights because it has been specially mounted at its c.g., so you can tilt down when holding the JR high overhead; and tilt up when you are boomed low. In either case it provides the correct mini-effect on your camera's trim, as follows: When you shoot overhead, it will make the JR tilt slightly down. When you are shooting down near the floor, it will slightly bias the JR to tilt up!

When viewing the monitor at extreme angles, a "ghost" (solarized) image is often visible, and can be used for framing even when you cannot see the image directly. You can also adjust the "picture" control, or even the actual monitor angle, during a shot if you're careful.



Diag. 16 Adjust monitor angle for best visibility when boomed high or low.

### 12.8 Circling mid-telephoto

Establish pan rate and go with it! A good trick, not explained in the video, permits ultra-smooth telephoto shots circling 360° around, for example, a dancing couple. Try a mid-telephoto focal length such as 20mm. **Begin circling** at a distance that looks best. Note: You have now automatically established a "pan rate" which the JR will continue on its own if you let go of the guide. Continue circling, and use your walking speed to keep your subjects centered in frame! The camera will continue its slow pan - you just have to keep up!

## Section 13: Adding or Removing Accessories

### 13. Accessories

#### Adding or Removing Accessories

Once you have had some practice with the JR, you may wish to add accessories, like a wide angle adapter. There are some simple principles to keep in mind.

a. If you add weight above the balance point (the Gimbal) you must add weight below the balance point if you can't compensate by screwing in the Z axis trim.

b. If you add weight to the front, side or rear of the camera, you must compensate by trimming in the opposite direction.

The procedure for re-balancing after changing weight is essentially the same procedure you followed when first balancing.

First roughly correct the X-Y trim. If you added a wide angle adapter to the lens, shift the camera to the rear. If you add a larger camcorder battery to the back of the camera, shift the weight forward. If you add both at the same time, they may pretty well compensate for each other but you must still. . .

Correct the Z axis. If you added a large weight to the top\*, you may want to lower the Spar by changing the stop block. For a medium weight change, adding one or two weights to the Steadicam battery compartment may do the trick. For a minor weight change, raising the Gimbal with the Z axis trim control will be sufficient. If removing weight from the camera, correspondingly raise the stop block, remove weights, or raise the Stage.

**Tip. Should you remove the obie light, it takes 4 counterclockwise turns to correct Z axis to compensate.**

If you bring the weight of the camera over four pounds by the addition of accessories, you are exceeding the recommended capacity of the unit and will be putting excessive pressure on the stress points of the JR. Do so at your own risk.

### 14 Shooting Suggestions

Here are just a few shooting suggestions to help get your best shots using the Steadicam JR.

#### 14.1 Birthdays

Try sitting on the floor among very young children as they play around you. Relax and take the load off your arm by bracing your elbow on your knee. Watching both inside and outside your frame for the next good moments—remember you are free to move your camera nearly five feet from side to side with your arms without even getting up!

Try circling the birthday table, mid-telephoto. Once the kids get used to you you can cruise up on wonderful spontaneous moments, and the sound will be excellent because you aren't shooting from across the room.

Party games also look great with Steadicam—somehow you aren't as intimidating or as foolish a figure when the camera isn't blocking your face, and can be held out right into the middle of the action.

Intimate wide-angle shots from kid's eye-level can hold the birthday boy or girl and a number of friends in the frame at the same time, with the relative emphasis you select.

#### 14.2 Holidays

Christmas, Hanukkah, Easter and summer vacations all provide priceless opportunities for Steadicam shooting. Go caroling, hunt Easter eggs, run on the beach—document your life in a way that looks more like the movies and less like amateur night. Traveling shots made on professional dollies and cranes can look terrific, but the very bulk of the equipment makes intimacy difficult to achieve. You can have closeness as well as smoothness, and effortlessly be there for the moments that really count.

#### 14.3 Sports

Whether you're covering professional sporting events from the stands in shoulder-mode, or watching family contests or even shooting yourself carrying the ball, Steadicam offers some unique advantages. It can be moved with great speed, yet isn't massive enough to be dangerous. You have to remind yourself now and then to not pull too many "g's" as you follow the action right up to the basket!

## Section 14: Shooting Suggestions Section 15: Professional Uses

### 14.4 Travel

Family travel becomes a group activity again for the whole family when the person with the camcorder isn't left behind and isolated by the need to stand still with a camera stuck in front of their face. You can keep up, shooting what everybody sees as they see it, holding back just enough to let them enter your shots as you capture all the dialogue close up.

A camera which is mobile from within a group has a much more intimate and friendly feeling than one on the sidelines. Trains, cars and buses become magical platforms for seeing the world smoothly, instead of the bumpy vibrating embarrassments that plague subsequent screenings.

### 15 Professional Uses

The advent of Super VHS-C and Hi-8 formats have thrust camcorders into contention for some exciting pro and semi-pro uses. Cameramen who have spent their lives working with large camera crews are becoming fascinated with ultra-light cameras and their auto-color-balance, auto-iris, and auto-focus circuits that, if used intelligently, can deliver excellent results. The resolution is "broadcast quality" yet the small size encourages an entirely new style of shooting. Steadicam JR is the most compact and versatile way for the pros to get the smooth traveling shots they're used to.

#### 15.1 Weddings

Weddings have very seldom been photographed with moving cameras, except perhaps those involving hereditary monarchs, heads-of-state and film stars. Now we are beginning to see some spectacular shots from average-citizen-type weddings made with Steadicam JR.

Try walking up the side aisle, mid-telephoto, parallel with the bride and her father as they move up the center aisle. You will pass rank upon rank of wedding guests craning to see them - those near you are looking away from camera, those on the far side are looking toward you, and the bride and her Dad reappear between each row as the central motif of your shot, glowing and emotional in a way that could not otherwise be recorded.

The complimentary shot is of course the rush back down the aisle after the ceremony, wide angle, ahead of bride and groom as the well-wishers lean out to see them as you sweep by.

Try moving along the receiving line and shoot some 360° circles around the groom



### Section 15: Professional Uses

and the bride's mother dancing at the reception. Use your 'Obie' light to bring up couples on the floor. The possibilities are exciting.

#### 15.2 Impromptu Info. Films

Steadicam makes a versatile documentary tool. It is unintimidating, uninhibiting, and unobtrusive. Add its unparalleled mobility and its ability to stop motionless like a tripod, and you have a potent way to record or persuade or simply witness processes and events that may be too transitory for traditional methods of production. It has been suggested that Steadicam represents the potential "eyes" of a distant CEO in the hands of a trusty local manager, and that it may be to "desktop" video what the Macintosh was to desktop publishing!

#### 15.3 Real Estate Videos

Steadicam can make your real estate sales videos look more professional. Moving the camera provides a three-dimensional understanding of spaces, but it can easily be overdone...

Making effective real estate videos requires operating skill. We suggest that you practice extensively, shoot several houses and examine your playbacks before attempting to do this professionally.

**SLOW** well-planned moves can elegantly display the floor-plan and layout. **PANNING** slowly, without touching the guide, yields ultra-smooth view of rooms—and moving slowly around the perimeter enhances the effect.

**BOOMING** during slow pans allows coverage of high and low room details without needing to tilt, thus preserving the maximum isolation of the camera.

**PRACTICE EDITING** in the camera by using the pause switch after pans or moves begin, & before they're completed.

**TURN-ON** house lights, even in daylight. **SELECT** manual iris for your camera, if available, set to preserve interior exposure despite "hot" windows (only JVC currently has "intelligent" auto-iris which recognizes windows and preserves exposure of rooms). Select manual focus, set to at least 10' if your camcorder's auto-focus tends to wander (JVC again tops our informal survey). Rehearse and playback with auto-color-balance. If it doesn't make it try manual color-balance set to "indoor". This will yield a "film" look with the outdoors appearing bluish, and the interior lighting not excessively warm.

WIDE-ANGLE adaptors will make rooms appear closer to their true subjective size.

BRING a portable color TV to check playbacks of your shots.

### 16 Maintenance

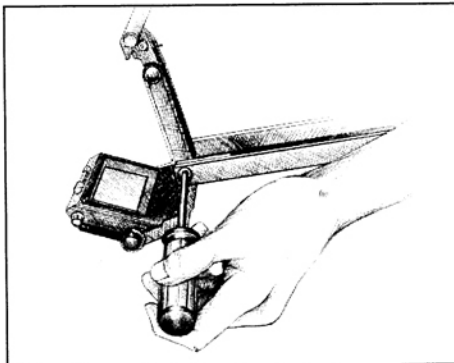
During normal operation the Steadicam JR should require minimal maintenance.

#### 16.1 Clean Monitor Screen

Avoid finger prints on the monitor - the anti-reflection coatings will not function if the screen is dirty! The screen can be cleaned (carefully) with glass-cleaning solutions such as Windex.

#### 16.2 Spar Tightness

Folding friction of upper and lower spars is preset at manufacture; however, if tightening becomes necessary, see diagram for how to accomplish this with a medium-size screwdriver. Do not over-tighten.



Diag. 17 Adjust spar friction with screwdriver only if needed (do not over-tighten)

### 17 Trouble Operating

If things aren't flying right, check out these areas.

#### 17.1 Yawing (rolling)

JR is probably excessively bottom-heavy, thus a too-rapid pendulum. Try counterclocking "z" until period of fall approaches two seconds. Once trimmed side-to-side, use light touch on guide to keep camera level.

#### 17.2 Erratic, Unsmooth

Excessive finger pressure on the guide—use light touch, let go if shot needs no correction.

### Section 16: Maintenance Section 17: Trouble Operating

#### 17.3 Off-Level

Trim side-to-side. If JR won't trim level, try changing camera mounting hole to the adjacent hole uphill on the JR mounting plate from the current one—then retrim—(See section 3.3).

#### 17.4 Won't Stay Trimmed

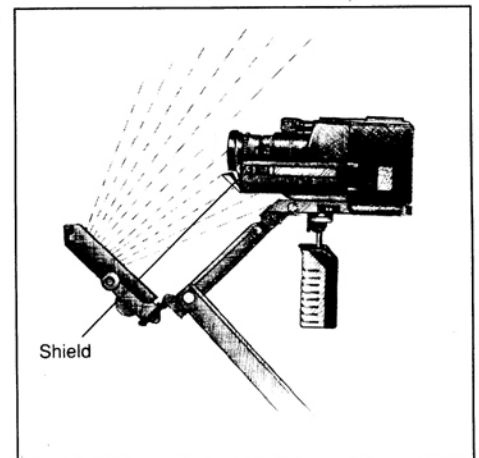
This may indicate that it isn't bottom heavy enough—clock "z" (screw-in) and check period of fall. Note: trim is not a cure-all—your guide hand must ultimately keep it level. Trim is not permanent.

### 18 Trouble: Elect./Mech.

Before pulling your hair out check out these areas.

#### 18.1 Bad Color

If color balance of your scenes appears contaminated and oddly warm, the fluorescent backlight from the monitor screen may be impinging on the camera's color-temperature sensor (frequently recognizable as a small frosted glass dome - low and in front on some cameras such as the compact JVC's. If this is the case, tape a simple tinfoil or white-cardboard shield on the front of the camera as shown to keep the screen light away.



Diag. 18 Shield color-balance sensor

#### 18.2 No Picture

Check store switch (should be on), or JR batteries (may be dead, replace with four fresh alkaline C-cells) - otherwise check battery contacts (may be dirty or bent and not making contact).

## Section 18: Trouble: Electrical and Mechanical

### 18.3 Picture Garbled

JR batteries low—try turning off 'Obie' light, as this will restore the image and permit considerably more viewing of just the monitor. Otherwise replace batteries. (The fresh set you thoughtfully brought with you should be good for nearly two hours with monitor and 'Obie', and up to seven hours with just monitor).

### 18.4 Vert. line in Monitor

Not to worry—this is an occasional artifact due to voltage spike from Obie light—it comes and goes.

### 18.5 Inadvertent pan/tilt/shake

Possible dirt in gimbal bearings — unscrew "Z" fully, remove guide, gimbal & grip, blow dry with "Dust-off" dry gas. Re-install. If this doesn't work, pack handle assembly carefully and send back to Cinema Products for service. (Use of JR in sandstorms, etc. not recommended!). Possible bent gimbal components - return handle assembly to factory for replacement —AVOID VIOLENT MOVES ABOVE 1.5 "G"!



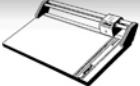








### 18.6 Guide Won't Lock

**(Guide rotates freely)**

Broken detent on guide - tape with electrical tape to temporarily prevent inadvertent rotation of guide during panning. Return to factory for replacement. AVOID ULTRA-VIOLENT PANNING MOVES.

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## Glossary of Steadicam Terms

- Attention Cycle**—sequential check of framing, level, navigating, etc., that helps Steadicam operators get tough shots.
- Basher**—fill light, aka "Obie", "Steady Light"—which is included with JR.
- Boom**—to smoothly raise or lower the entire JR and camera unit.
- Boom Height**—height at which you choose to carry the JR.
- Bottom Heaviness**—strength of camera's tendency to hang upright.
- Center-of-Gravity**—balance point of masses—used on video to mean "center of balance."
- c.g.**—center-of-gravity.
- Color Balance**—circuitry to make scenes look normal despite color of ambient light.
- Don Juan**—to-the-rear shooting position—lens aimed in opposite direction of forearm.
- Flying-Mode**—fully unfolded balanced mode which permits isolated, stable moving shots.
- Fore-and-Aft**—front-to-rear.
- Gimbal**—mechanism to provide angular isolation.
- Grip**—portion of handle below gimbal, for supporting and positioning camera.
- Guide**—portion of handle above gimbal, for aiming the camera.
- Hand-Focus**—manual control of focus for telephoto shoulder-mode shooting.
- Headroom**—space in frame above top of subject's head—allow less or none in close-ups.
- High-Angle Shot**—camera high, looking downward.
- Iris**—the aperture which controls the amount of light and/or brightness of shot.
- Locating Pin**—see "mounting pin".
- Low-Angle Shot**—camera low, looking upward.
- Make/Break Pause**—type of pause circuit in cameras that work with JR's built-in switch, mostly JVC or Panasonic.
- Missionary**—basic shooting position—lens aimed in similar direction as your forearm.
- Mounting Pin**—supplied pin to prevent camera rotation on stage.
- ND Filter**—neutral density, from camera store, used to dim JR screen for use in dark.
- Obie**—fill light—aka "basher"—named for actress Merle Oberon.
- Oil-Canning**—flexibility of bottom of camcorder resulting in less adherence to stage, potentially causing vertical vibration.
- Pan**—pivoting the camera horizontally, "looking around."
- Pause Switch**—to "pause" camera use light touch, third finger of "guide" hand.
- Period of Fall**—pendular "period" of camera - how slowly does it swing?
- Power-Saver**—circuit that automatically turns on monitor when it senses a video signal.
- Roll**—pivoting the camera around the lens axis—"seasick" horizon, i.e.: aileron trim for pilots.
- Shoulder-Mode**—semi-folded position for comfortable static shooting, as from audience.
- Stage**—platform for mounting the camera, includes micrometer trim adjustments.
- Steady Stand**—temporary support for initial balance of Steadicam JR. (tape it to table!).
- Stepper-Adapter**—accessory supplied to facilitate battery changes for JVC, Panasonic.
- Stop Blocks**—replaceable; sets lower spar angle for extra-light or extra-heavy cameras.
- Store Switch**—switch on lower spar stops current drain when JR is on shelf.
- Telephoto**—magnified end of zoom lens.
- Tilt**—pivoting the camera vertically — "looking up or down"
- Tongue**—additional surface on front of guide, helps tilting.
- Trim**—fine adjustment of JR balance fore-and-aft and side-to-side.
- Vehicle Shot**—use of Steadicam while being transported instead of walking.
- Wedge**—supplied rubber shock mount to brace front of camera body for JR.
- Whale's Tail**—fold-out brace for shoulder mode.
- "Z"-adjustment**—adjustment of gimbal position on "Z"-axis alters bottom heaviness.
- "Z"-axis**—vertical axis through center of gimbal.



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