Lens height and the telescoping post

Just how high or low a lens height can you get?

As a rough estimate, in high mode you should be able to get a lens height of about 7.5 feet. If you are tall or using a light camera, a lens height of 8.5 to 9.5 feet is not impossible.

Maximum lens height

To get the maximum possible lens height with any camera:

- Extend the bottom two sections (posts #3 and #4)
- Fully lower the monitor all the way down on its section (post #4).
- Position the gimbal at the top of its section (post #2).
- Raise the camera from the gimbal by extending the upper section (post #1) until the rig is in static balance. The lighter the camera, the more you can extend it from the gimbal and raise the lens. An assistant is useful for this operation, or grab the battery with your legs as shown.

To gain additional gimbal and lens height, use one of the provided long arm posts in the arm and also position the socket block as high as you can on your vest.

If you can carry additional weight, add it to the bottom of the sled via the integral dovetail. Then raise and rebalance the camera.

This arrangement of components creates the maximum distance between the counterweights (battery, electronics, and monitor) and the gimbal (the pivot or balance point), which enables you to push the camera c.g. as far as possible from the gimbal.

But how high can one get the lens?

Alas, the answer isn't easy. The exact lens height you can achieve with the Ultra^2 depends on your height, the camera weight, and how much additional weight you are willing to carry at the bottom of the sled.

A useful accessory: specially made stainless steel rods that fit perfectly inside the battery rods. The two rods weigh .75 pounds and screw tightly into place. The low position help keep the sled shorter (or the gimbal lower) and the battery in slightly as well.

Lens Height – Camera Weight and the Facts of Life

Using a heavy camera makes it hard to gain a lot of additional lens height via the telescoping posts. Using a BL IV or similar very heavy camera will be frustrating. And it's heavy!

If you want to get a really high or low lens height, you must use a lighter camera.

The maximum theoretical lens height that one can achieve with the Ultra^2 is about 48 inches (122 cm) up from the gimbal. You first set the gimbal at the bottom of post 2 with the rig fully expanded. Place the monitor as low as it can go and flip the battery downwards. This gimbal placement generates a lens height of about ten feet 5 inches (320cm), but it requires a very, very light camera, and/or a very heavy counterweight, and/or a clever use of Antlers™ as an additional counterweight as shown in the photo (with an original Ultra).

Establishing the primary gimbal height range with the shortest post in the arm.

Note that the operator can reach higher with his operating hand, but the arm can't reach any higher. Do this with the arm attached to the socket block at its lowest practical point on the vest, and with the shortest possible arm post. This will generate your primary range of gimbal heights. You may find it useful to have someone measure this range of lens heights.

Lens Height — High Mode

Normal range for high mode with short arm post. Range is different if operator is taller or shorter.

The range of the G-70 arm is 32 inches. If, while wearing the rig, you stretch up a bit while booming up and scrunch a little while booming down, the boom range is about 34-35 inches.

You can change your lens heights in many ways

The basic tools are: raising the socket block, using longer arm posts, using an F-bracket, making the sled shorter or longer, flipping to low mode, and any combination of these techniques. Each technique has its advantages and disadvantages; it's up to you to decide which technique works best for the shot.

One easy way to shift the arm's boom range is to raise the socket block on the vest. It's not a big change (3.5"), but it might be just enough and there's no real operating penalty or compromise.

Another easy way to raise lens heights is to use a different length post in the arm. The longest post you should use is 12 inches. A longer post will put huge stresses on the arm, and you can't reach higher and operate at the gimbal anyway.

You can also extend the telescoping post and balance the rig with the camera further from the gimbal. How much of an increase in lens height you get depends on how heavy the camera is, and how much weight you are willing to add to the bottom of the sled. This mode is often called “super-high mode” or “long high mode.” It depends on the level of hype you want to use.

Heavy cameras in long mode (high or low) will be disappointing. There is very little additional lens height for a huge increase in sled length. Light cameras are Steadicam friendly in many, many ways.

Sleds longer than 6 feet are impractical to carry, don’t fit through doorways, limit boom ranges, and are hard to control.

Low high mode

We can use the F-bracket in high mode to lower the range of lens heights. It’s sometimes called “low high mode.” How low we go is often a function of how low we can reach.

Lens Height — Low Mode

Low mode and long low mode radically change the range of lens heights we achieve.

We typically use the F-bracket to bring the arm back into a proper relationship with the sled so we can pan, tilt, and make switches without hitting the camera. A longer post from the F-bracket to the gimbal is impractical. Even with the shortest possible post, one cannot reach the gimbal at the bottom of the G-70 arm’s range. A longer post only lowers the maximum height you can reach.

In low mode, we typically raise the socket block and add longer posts to raise the range of heights and restore the full boom range of the arm. If we don’t use these techniques while in low mode, we cannot reach the gimbal at the bottom end of the arm’s range, and therefore we are wasting precious boom range.

A long post in “normal length” low mode may make the arm interfere with the sled again, so you must test how long a post you can use.

Very long low mode configurations don’t require an F-bracket for clearance. Not using an F-bracket is just another easy way of raising the range of lens heights.