

Long Mode

Long Mode Operating

Long mode operating presents some wonderful opportunities and hazards. Unusual lens heights, both high and low, is the principal allure of long mode operating.

The Ultra²'s tool-free clamps make it easy to extend or compress the integral post system, and also to configure the monitor and battery to best advantage for the shot. The tilt head makes long mode operating practical.

Most operators are used to working with relatively short sleds. As the telescoping posts are extended, new factors must be taken into consideration. Viewing, clearances, increased inertia, inertial imbalances, static and dynamic balance, and flexing are key issues.

Increasing the lens height by extending the telescoping post may be the only way to get the lens height you need. It may also get you better viewing of the monitor or a needed increase in tilt and roll inertia – or all three!



The standard “drop time test” that is typically used to determine bottom heaviness should be ignored.



Instead of using a drop test, tilt the Steadicam with your operating hand and note how much force is required to tilt the sled. Compare this force to your normal length sled's feel. Accelerate the rig and note the pendular action. Again, adjust the bottom heaviness accordingly, depending on the requirements of the shot.



The operator dynamically balances a long sled using the same procedures as with a shorter sled. The trial and error method is fairly quick. However, because there are so many possible configurations with the Ultra², spin balancing for each one can be time consuming and unproductive. Use the Ultra² Dynamic Balance Spreadsheet to virtually discover how to get your rig into dynamic balance under various conditions.

Very long sleds have a lot of inertia in tilt and roll. It takes time and effort to tilt or roll — and time and effort to stop a movement you’ve started. Although the sled may be harder to get off-level, it’s also harder to get it back to level once you’ve strayed.

With the monitor fully in — which might be desirable for quick panning — the pan axis will feel very light compared to the tilt or roll axis. To make the sled feel more “normal” (or inertially balanced in all three axes), extend the monitor fully and extend the battery for dynamic balance. Extending the monitor and battery adds a lot of inertia in the pan axis.

A long post configuration adds lots of inches to the bottom of the sled. Operators tend to pay attention to the lens, and they may be surprised when that other part of the sled strikes something on the set. Panning the camera when a long sled is angled up or down requires that both ends of the sled move in great arcs. This spatial translation of masses is very hard to control.



The usefulness of any long mode sled is greatly enhanced by the addition of an integral tilt head and a motorized stage. Use the tilt head to keep the rig more vertical, reducing the spatial translations, and, at the same time, reducing clearance problems between the sled and objects on the set.

Use the tilt head to keep the sled in dynamic balance — always a plus.

In the most expanded high mode, the bottom of the sled can be as much as 46 inches below the gimbal.

The operator also needs to get used to the increased distance from the monitor to the lens.



Tip: Avoid violent moves with long sleds. The stresses can be very large.

Attempting a long mode pan:



with a tilt head



without a tilt head

Without a tilt head and the lens angled up or down, precise panning becomes nearly impossible, due to the huge and odd spatial translations of the sled. The faster the pan, the worse it gets. The camera is tilted 20 degrees up in both cases.