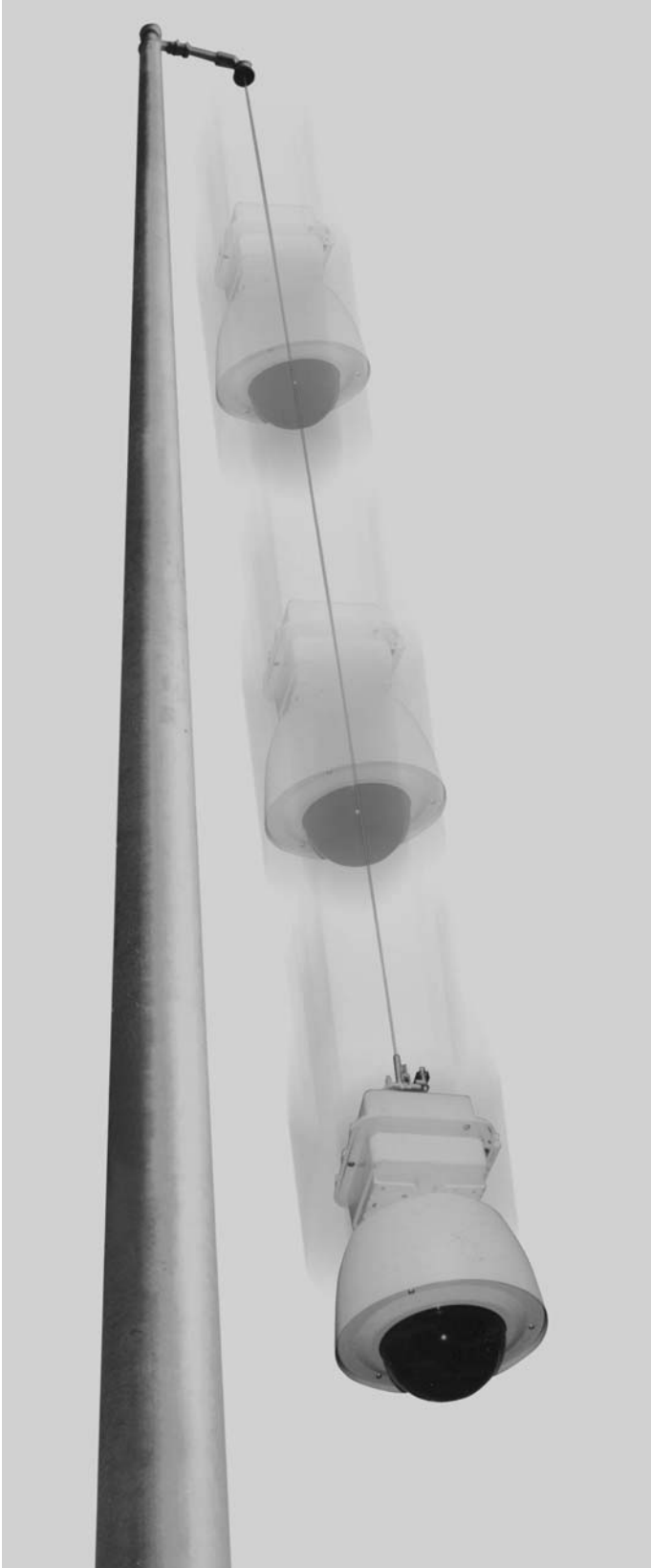


CAMERA LOWERING SYSTEMS



Camera Lowering Systems experience in lowering systems dates back to 1967. Their engineering and marketing and marketing know how has been a major force in the industry starting with their pioneering efforts in the development of the first raising and lowering High Mast system in the United States.

Realizing the need for this type of maintenance, they have perfected new lowering systems for indoor and outdoor applications at reduced cost; at the same time keeping the system simple and safer for maintenance people to operate.

Camera Lowering Systems lowering devices offer three major features:

- ◆ Safety
- ◆ Simplicity
- ◆ Value

New lowering systems offer fast, safe and easy maintenance of cameras and other devices in high or inaccessible areas. All servicing is done at ground level. Hazardous and time consuming high lift truck maintenance is eliminated. The efficiency of the higher mounting height need not present a problem in servicing the equipment.

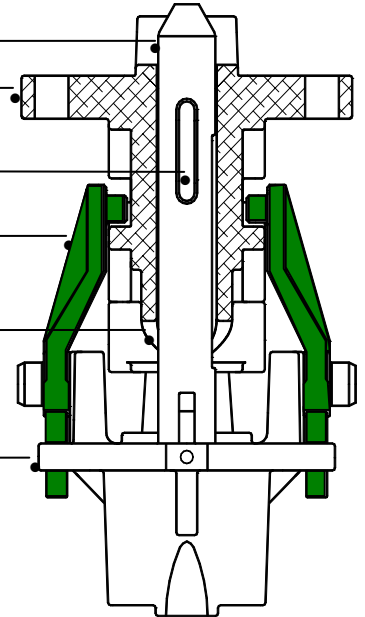
The use of higher mounting height results in fewer cameras and poles. This results in reduced installation costs and less power usage. These savings offset the cost of the lowering system. Cameras and other devices are lowered individually eliminating the need to lower massive lowering units that are complicated, expensive and heavy.

HOW IT WORKS

The heart of every camera lowering system is the **DISCONNECT UNIT**. Specially designed mechanical components assure precise alignment and positioning of the camera each time it is returned to its operating position after the camera has been serviced. A multi-contact connector intrinsically handles all the functions of the camera including power supply and video signal. Mechanical components, together with the connector, provide every **DISCONNECT UNIT** with the features required for operating surveillance cameras at the highest level available for lowering systems.

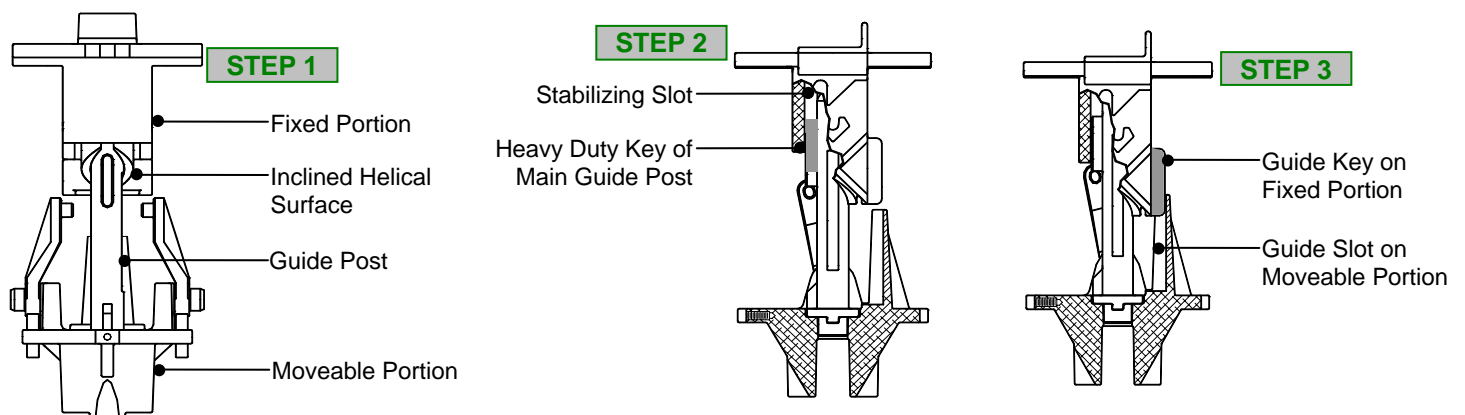
DISCONNECT UNIT

- Precision cast high strength stainless steel guide post.
- High strength cast aluminum upper fixed portion of disconnect unit with specially designed tracking guide system and support notches.
- Precision cast-in-place stainless steel heavy duty alignment key.
- Precision cast stainless steel support arms. Shown with the support pins secure in the 'L' notches of the tracking guide.
- Inclined helical guide surface. Engineered to provide smooth and precise interlocking between the tracking guide and the guide post.
- High strength cast aluminum lower moveable portion of disconnect unit.



Pivoting Support Arms — Twin supports (highlighted), precision cast in stainless steel, toggle as they move through a tracking guide to their final locked position. Once locked, they assure a balanced load without relying on cable tension, motor gearing, or braking devices.

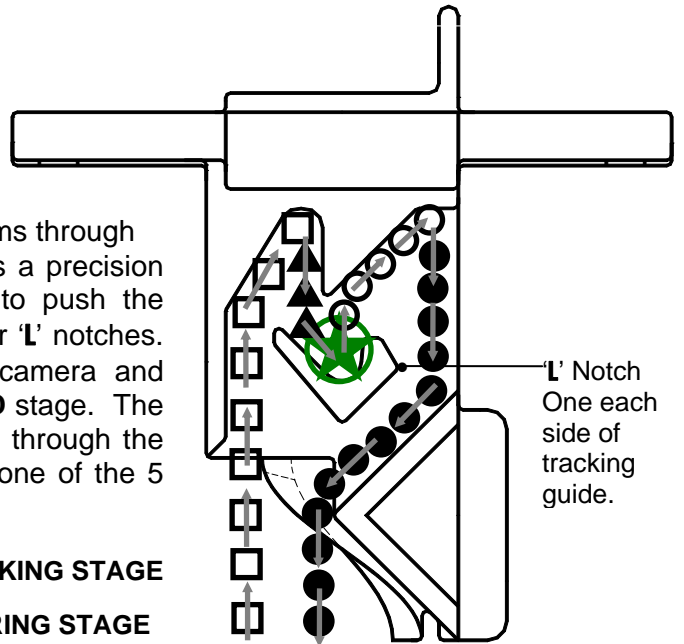
3-Way Stabilizing Guides — Prior to connector engagement, there are three stepped alignment and stabilizing guides integrated into the *Disconnect Unit*. **STEP 1:** A cast stainless steel guide post initially aligns the moveable portion with the upper fixed portion. With the aid of an inclined helical surface, the *Disconnect Unit* rotates into its preset position. **STEP 2:** A heavy duty key on the main guide post enters a stabilizing slot to stop rotation and align the support arms and connector. **STEP 3:** Offset at 180° to the main guide post key, a second key and slot engage to finalize alignment and stabilize the *Disconnect Unit* immediately before the pins and sockets of the connector engage.



THE 5 OPERATING STAGES OF THE DISCONNECT UNIT

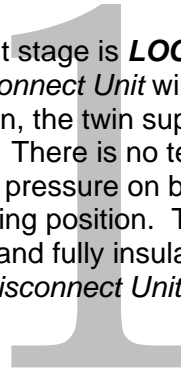
When lowering or raising a surveillance camera, there are 5 basic steps, or stages that the *Disconnect Unit* goes through.

The principal part responsible for moving the support arms through the 5 stages, is the **TRACKING GUIDE**. This guide is a precision cast series of angular surfaces strategically located to push the support arms in the required direction toward the center 'L' notches. The two L Notches support the entire load of the camera and components when the support arms are in the **LOCKED** stage. The drawing at right shows the path the support arms take through the tracking guide. Each shape of dot shown represents one of the 5 stages.

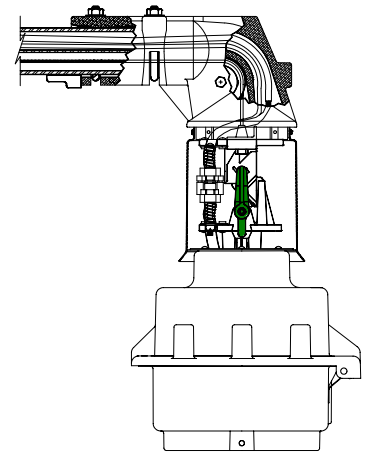


- RAISING STAGE
- ▲ LOCKING STAGE
- ★ LOCKED STAGE
- UNLOCKING STAGE
- LOWERING STAGE

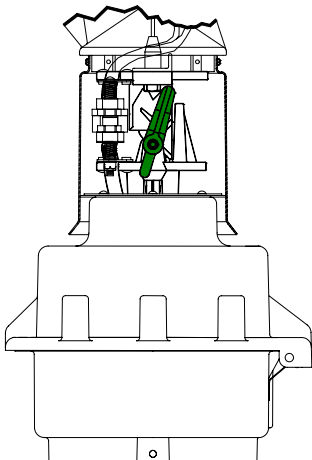
The first and most important stage is **LOCKED**. Generally, all aspects of the operation of the *Disconnect Unit* will begin and end in the locked stage. In the locked position, the twin support arms hold all the weight of the surveillance camera. There is no tension on the operating cable, no locking of gears, and no pressure on braking devices to hold the camera secure in its operating position. The electrical and signal contacts are fully engaged and fully insulated and all camera functions are operational when the *Disconnect Unit* is LOCKED.



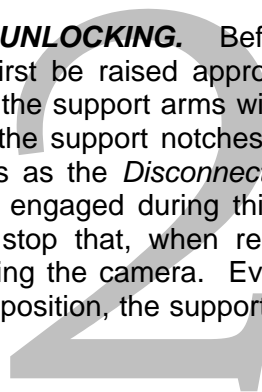
★ **LOCKED**



○ **UNLOCKING**

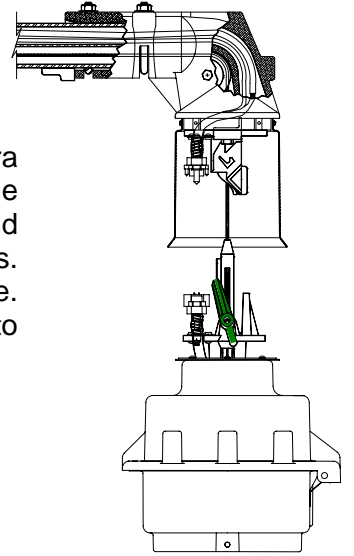


The second stage is **UNLOCKING**. Before lowering the camera, the *Disconnect Unit* must first be raised approximately 3/4 inch. During the slight raising operation, the support arms will be pushed to one side by the tracking guide to clear the support notches. Springs inside both halves of the connector compress as the *Disconnect Unit* is raised. Electrical and signal contacts are still engaged during this stage. Each *Disconnect Unit* has a built-in positive stop that, when reached, is an indication to the operator to begin lowering the camera. Every time the *Disconnect Unit* is raised from the 'locked' position, the support arms will move and unlock the *Disconnect Unit*.



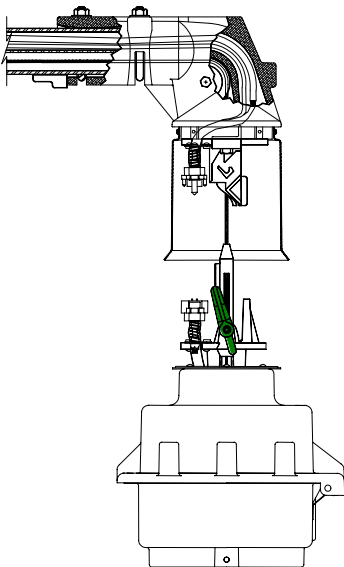
THE 5 OPERATING STAGES OF THE DISCONNECT UNIT

● LOWERING



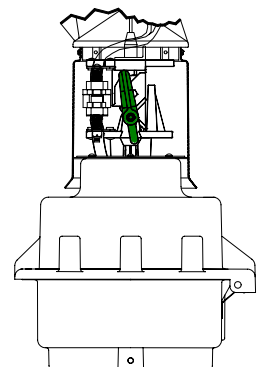
With the *Disconnect Unit* unlocked, **LOWERING** is the next stage. As the camera is lowered, the bottom portion of the *Disconnect Unit* begins to separate from the tracking guide and the top portion of the *Disconnect Unit*. Next, the electrical and signal connector disconnects followed by the coming apart of all stabilizing guides. All the weight of the camera and equipment now hangs from the control cable. There are no live electrical contacts to contend with as the camera is lowered to the desired height above the ground for maintenance. Cleaning and repair work can be accomplished at ground level.

□ RAISING



After maintenance to the camera, **RAISING** is the fourth of the operating stages. During this part, the camera and moveable portion of the *Disconnect Unit* are raised to the top. As the camera slowly approaches the upper portion of the *Disconnect Unit*, the control cable initially pre-positions the main guide post in the center hole of the tracking guide. With continued raising, the guide post centers itself in the tracking guide and rotates into its original orientation as the guide post's cast-in-place key follows the inclined helical surface of the tracking guide. Sustained raising of the camera will engage the next stabilizing key and guide slot of the *Disconnect Unit* as the support arms toggle through the tracking guide. Electrical and signal pins and sockets of the connector engage as the last step before the lower moveable portion of the *Disconnect Unit* reaches the very top. There is still tension on the control cable at this time and the camera is operational. Because there is still tension on the control cable and the *Disconnect Unit* is not locked in place, the system must **never** be left in the **RAISING** stage. Proceed to the final stage: **LOCKING**.

▲ LOCKING



The final phase of the 5 operating stages is **LOCKING**. During this stage, the camera must be lowered approximately 3/4 inch so that the support arms of the lower portion of the *Disconnect Unit* move toward the center 'L' notches of the tracking guide. Springs within the socket half of the connector that were compressed during the final part of the raising stage are now extending and exerting force on the pin half of the connector to assure complete isolation and insulation of the contacts. After the slight lowering operation, the support arms are secured in the 'L' notches. The *Disconnect Unit* is now in the **LOCKED** stage. The operating stages 1 through 5 may now be repeated over and over again with the camera returning to its original operating position each time. The operating stages of the *Disconnect Unit* must always begin and end with the *Disconnect Unit* in the **LOCKED** position.