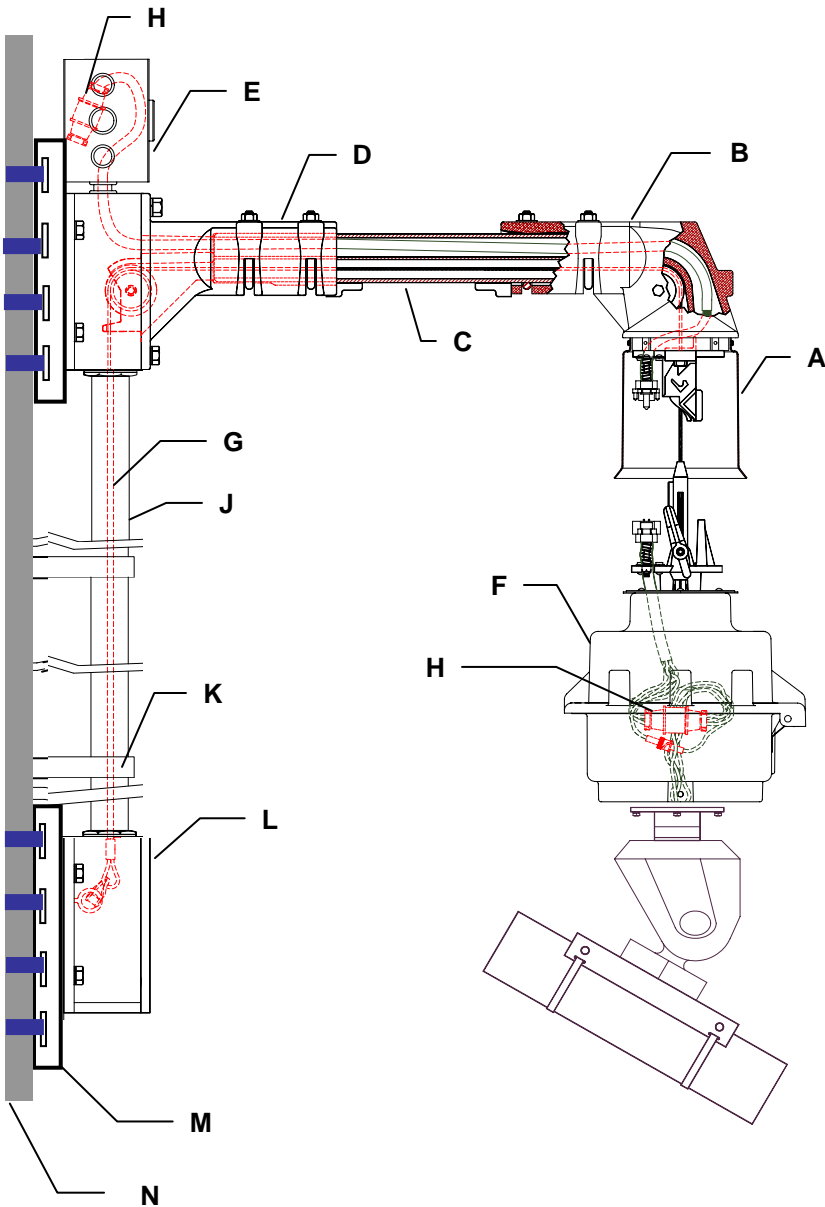


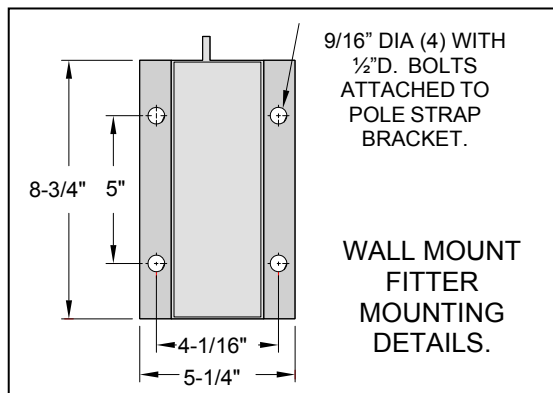
Design **CEPM-16HD-XX**

Arm and Disconnect Unit for External Pole Mount for Surveillance Cameras



- A. ELECTRICAL AND SIGNAL DISCONNECT UNIT WITH MULTI-PIN CONNECTOR.
- B. DISCONNECT UNIT FITTER WITH PULLEY AND U-BOLT MOUNTING.
- C. DIVIDED PIPE ARM: 2-3/8 IN. O.D. SEPARATES CONTROL CABLE AND ELECTRICAL/SIGNAL WIRES.
- D. POLE MOUNTED FITTER WITH PULLEY HOUSING AND MOUNTING BRACKET FOR STRAP MOUNTING TO POLE (STRAPS BY OTHERS)
- E. ELECTRICAL CONNECTION BOX (BY OTHERS)
- F. CAMERA CONNECTION BOX PROVIDED WITH STABILIZING WEIGHTS. EASY OPEN SWING DOWN DESIGN PERMITS QUICK ACCESS TO SIGNAL WIRES FROM CAMERA ASSEMBLY. FEATURES UNIVERSAL MOUNTING FOR ALL CAMERA TYPES AND PAN/TILT UNITS.
- G. CONTROL CABLE CONSTRUCTED OF 5/32 INCH DIA. STAINLESS STEEL 7X19 CABLE.
- H. ELECTRICAL/SIGNAL WIRES & CONNECTOR (BY OTHERS). OPTIONAL 1 PCE ELECT/SIGNAL CABLE FROM DISCONNECT UNIT TO BASE, PROVIDED BY CLS.
- J. 1" CONDUIT (BY OTHERS).
- K. CONDUIT CLAMPS EVERY 10-12FT. (BY OTHERS).
- L. CAST ALUMINUM SECURITY LOCKING BOX. (LOCK BY OTHERS).
- M. STAINLESS STEEL MOUNTING BRACKETS WITH SLOTS FOR STRAPPING TO POLE OR OTHER STRUCTURE.
- N. WOOD POLE (BY OTHERS).

OPTIONAL: POWDER COAT PAINTED FINISH.



Specifications and Ordering Information

SYSTEM SPECIFICATIONS Design CEPM is comprised of the following major assemblies:

ELECTRICAL DISCONNECT UNIT ♦ **CAMERA CONNECTION BOX** ♦ **DISCONNECT UNIT FITTER** ♦ **CONTROL CABLE**
NON-ROTATING DIVIDED PIPE ARM ♦ **WALL MOUNTED FITTER** ♦ **WALL CONNECTION BOX** ♦ **SECURITY LOCKING BOX**
♦ **ELECTRICAL AND SIGNAL SUPPLY WIRES AND CONNECTORS**

ELECTRICAL DISCONNECT UNIT

3-WAY TRACKING GUIDE AND SUPPORT: Constructed of precision cast high strength aluminum alloy 356-T6. A permanently fixed position piece incorporating a special tracking guide system permitting the moveable portion of the *Disconnect Unit* to align in the same position every time the system is operated thereby eliminating the need to re-orientate the camera. Twin high strength notches secure the load of the *Lower Contact Assembly* and camera and work with the tracking guide system to assure stability.

MULTI-CONTACT CONNECTOR: Connector assembly is modular for easy installation and retrofit requirements. A self-aligning and self-adjusting mechanical system comprised of two principal assemblies:

UPPER CONTACT HALF housing up to 29 socket contacts. Incorporates spring assisted polymer contact body with precision machined guideposts. Socket contact body has integral guide posts for precise contact alignment.

LOWER CONTACT HALF housing up to 29 pin contacts. Comprised of spring assisted polymer contact body with precision machined guidepost receivers. Pin contact body aligns with guideposts of integral socket body guideposts.

DISCONNECT UNIT COVER: One piece hydro-spun heavy gauge stainless steel.

GUIDEPOST: Constructed of precision cast high strength stainless steel. Utilizes cast-in-place guide bar for precise alignment of *Lower Contact Assembly* with the fixed portion of the *Disconnect Unit*.

TWIN TRACKING SUPPORT ARMS: Made of precision cast high strength stainless steel. Dual arms provide balanced stability of the *Disconnect Unit*. When locked in the *3-Way Tracking Guide and Support* notches, the *Twin Tracking/Support Arms* hold the weight of the camera and camera components and removes all tension from the *Control Cable*.

LOWER CONTACT ASSEMBLY: Constructed of precision cast high strength aluminum alloy. Features cast-in-place guide that mates with the fixed portion of the *Disconnect Unit* to aid in tracking and stability. All hardware used on the *Lower Contact Assembly* as well as the entire *Disconnect Unit* is corrosion resistant stainless steel.

CLOSURE RING AND SEALING GASKET: Spun aluminum construction with attached extra flexible polymer sealing gasket provides weather-tight seal between *Lower Contact Assembly* and *Disconnect Unit Cover*.

DISCONNECT UNIT FITTER

Cast of heavy-duty aluminum alloy to fit 2-3/8 inch outside diameter *Divided Pipe Arm*. Fitter designed to completely isolate moving *Control Cable* from the electrical and signal wires. A molybdenum impregnated nylon pulley provides high strength and low resistance for the moving *Control Cable* thereby increasing the life of the cable. Pulley uses permanently lubricated bearing.

DIVIDED PIPE ARM

A 2-3/8 inch O.D. steel pipe with galvanized finish standard. Divided entire length to keep *Control Cable* and electrical/signal wires separate. Arm is position aligned non-rotating type4 incorporating interlocking positioning keys.

WALL MOUNTED FITTER

Heavy duty cast aluminum alloy to fit 2-3/8 inch O.D. *Divided Pipe Arm*. Utilizes cast-in-place cable stop to prevent cable connections from entering pulley. Pulley is molybdenum impregnated nylon. Two U-bolt pipe clamps rigidly hold the *Divided Pipe Arm*. Fitter designed to bolt directly to pole top.

CONTROL CABLE

Stainless steel 5/32-inch diameter 7 x 19 construction cable.

CAMERA CONNECTION BOX

Two piece cast aluminum extra heavy construction. Adaptable to all brands of cameras (see "Ordering Information"). Large capacity splicing compartment for camera power and signal leads and connectors. Designed for easy camera mounting. Features two piece construction with lower box hinging feature for easy access to wiring. All stainless steel hardware.

WALL CONNECTION BOX

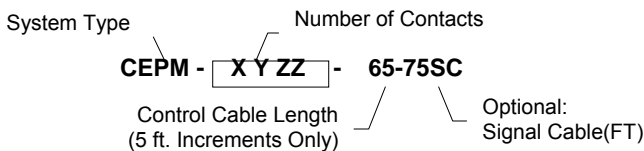
NEMA 4 painted steel box (optional fiberglass). Terminal block available for electrical and signal wire terminations.

SECURITY LOCKING BOX

Cast aluminum security locking box with gasketed cover.

ORDERING INFORMATION

NOTE: TO ASSURE PROPER MOUNTING, THE TYPE AND BRAND OF CAMERA OR CAMERA ACCESSORY MUST BE SPECIFIED WHEN ORDERING.

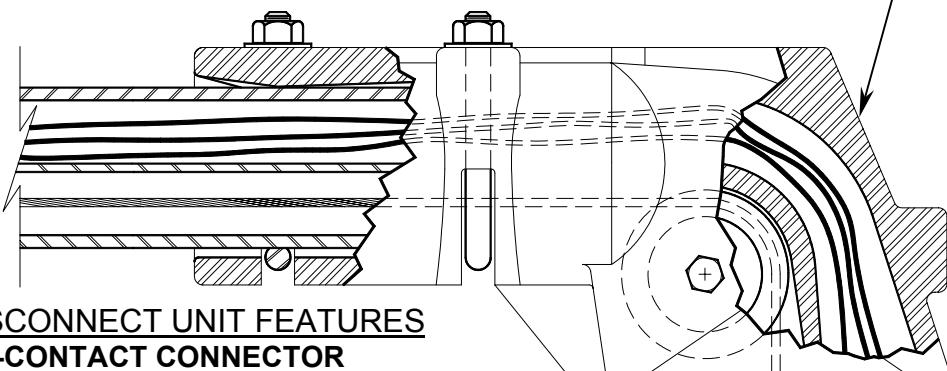


Contact **CAMERA LOWERING SYSTEMS** for specific catalog number codes required for your application.

- Design **CEPM** is shipped assembled and prewired.
 - Lowering Tool Ordered Separately.
 - Cameras, camera components, supply cords, wires, conduits, and special connectors by others unless otherwise specified herein.
- SYSTEM DESIGNED SPECIFICALLY FOR USE WITH CAMERAS AND RELATED EQUIPMENT ONLY.

NOT FOR LIFTING PEOPLE OR THINGS OVER PEOPLE.
SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

EDU-16HD ELECTRICAL DISCONNECT UNIT

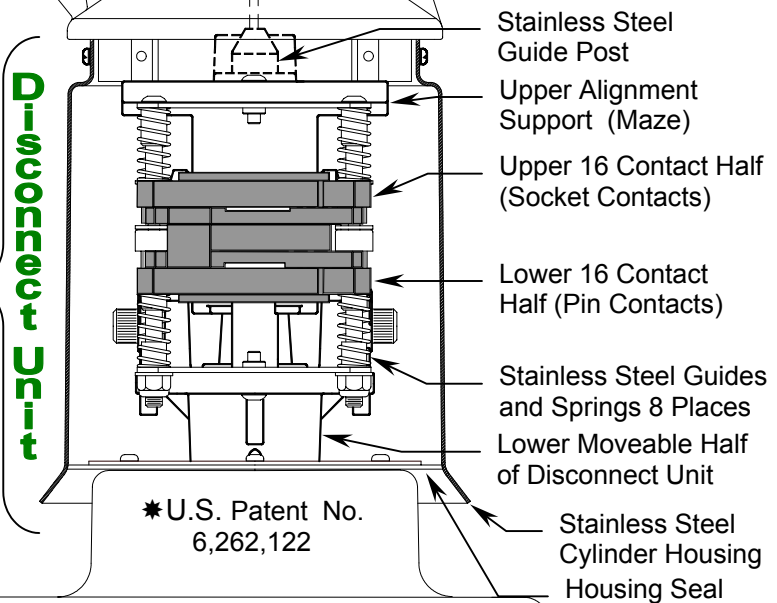


MOUNTING FITTERS
Cast aluminum alloy. Completely isolates the moving control cable from the signal cable. Molybdenum filled nylon pulley has sintered bronze permanently lubricated bearing for maintenance free life. This insures their use for dirty atmosphere and corrosive environments.

Outdoor Model: (Shown)
For 2-3/8" O.D. Galv. pipe. Tower, pole, & wall mtg.
Indoor Model: Has upper flange for surface mtg.

DISCONNECT UNIT FEATURES

***MULTI-CONTACT CONNECTOR**
Precision mating upper (socket half of connector) and lower (pin half of connector) portions aided with stainless steel spring assisted guides. Connector provides 16 electrical and signal contacts to handle the wide variety of cameras and components in today's marketplace. Both halves of connector spring assisted to minimize environmental vibrations and provide continuous resistant forces to maintain connector closure and help in ejecting of connector halves during the unlocking sequence of the disconnect unit. Connector halves designed as separate modules for easier removal and replacement should changes be needed for camera and component equipment upgrades. Connector is self-aligning and self-adjusting and is environmentally sealed. All contacts are copper with MIL SPEC **gold plating**. Socket contacts have beryllium copper springs that assure constant contact with pins.



DISCONNECT UNIT

*U.S. Patent No. 6,262,122

Stainless Steel Guide Post
Upper Alignment Support (Maze)
Upper 16 Contact Half (Socket Contacts)
Lower 16 Contact Half (Pin Contacts)
Stainless Steel Guides and Springs 8 Places
Lower Moveable Half of Disconnect Unit
Stainless Steel Cylinder Housing
Housing Seal

STRUCTURAL COMPONENTS

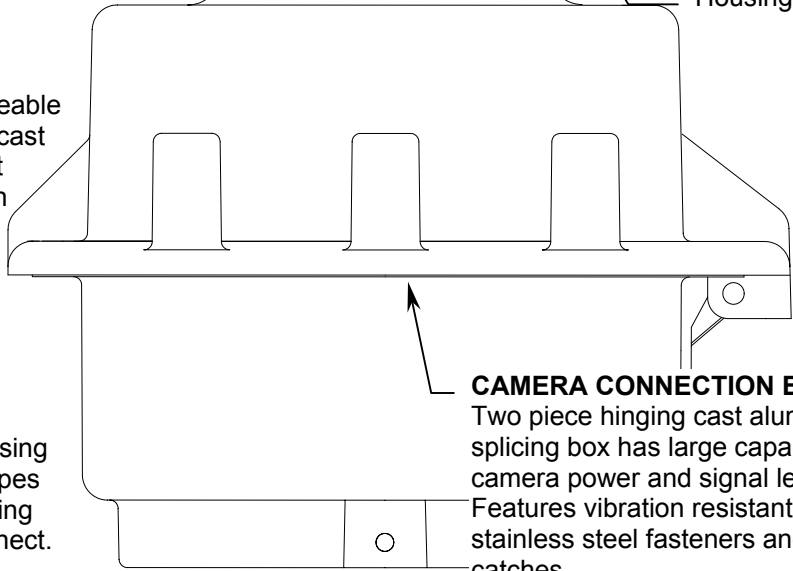
Upper alignment support and lower moveable half of disconnect unit are high strength cast aluminum alloy 356-T6. Main guide post and structural support arms are precision cast stainless steel.

CYLINDER HOUSING

Standard housing is hydrospun heavy gauge stainless steel. Painted finish to match surrounding system and camera is optional.

HOUSING SEAL

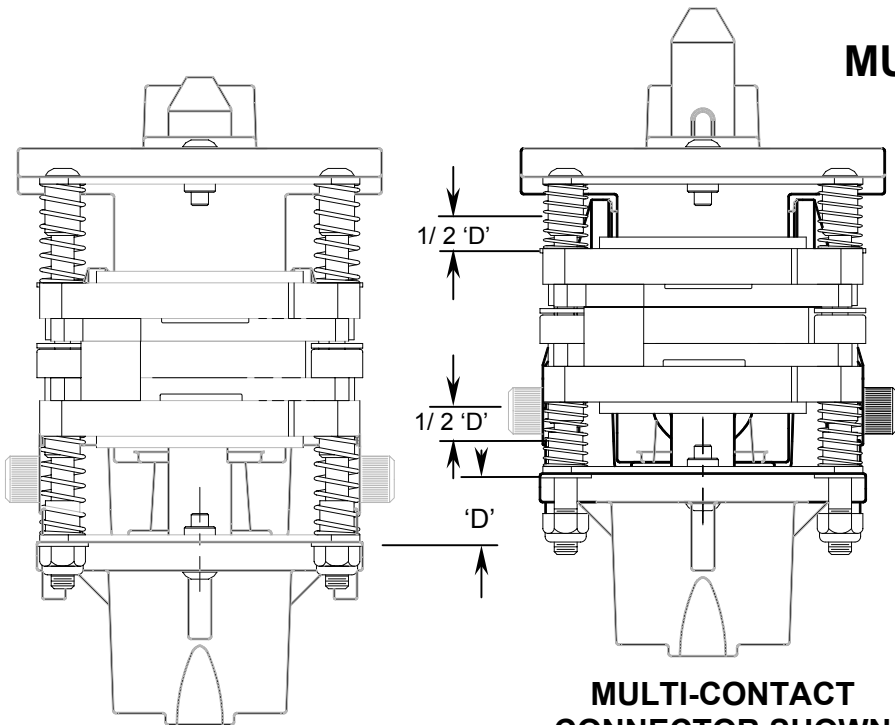
Flexible environmental seal at lower housing opening is standard neoprene. Seal swipes and conforms to interior of cylinder housing during all operating stages of the disconnect unit.



CAMERA CONNECTION BOX
Two piece hinging cast aluminum splicing box has large capacity for camera power and signal leads. Features vibration resistant 1/4 turn stainless steel fasteners and safety catches.

16HD-HEAVY DUTY ELECTRICAL DISCONNECT UNIT FOR MULTI-FUNCTION CAMERAS

OPERATION OF THE MULTI-CONTACT CONNECTOR



**MULTI-CONTACT
CONNECTOR SHOWN
IN LOCKED POSITION**

**MULTI-CONTACT
CONNECTOR SHOWN
IN LOCKING OR
UNLOCKING POSITION**

Distance 'D' is the total distance that the disconnect unit must travel to lock and unlock. This unique design (patented) by Camera Lowering Systems provides spring-assisted upper and lower portions of the connector that splits the total travel distance in half, thereby equalizing the retaining forces required to assure a uniform seal. Because the upper half (the socket contacts) and the lower half (the pin contacts) float within the disconnect unit, the connector is isolated from vibrations that would affect signal discontinuity.

LOCKED POSITION

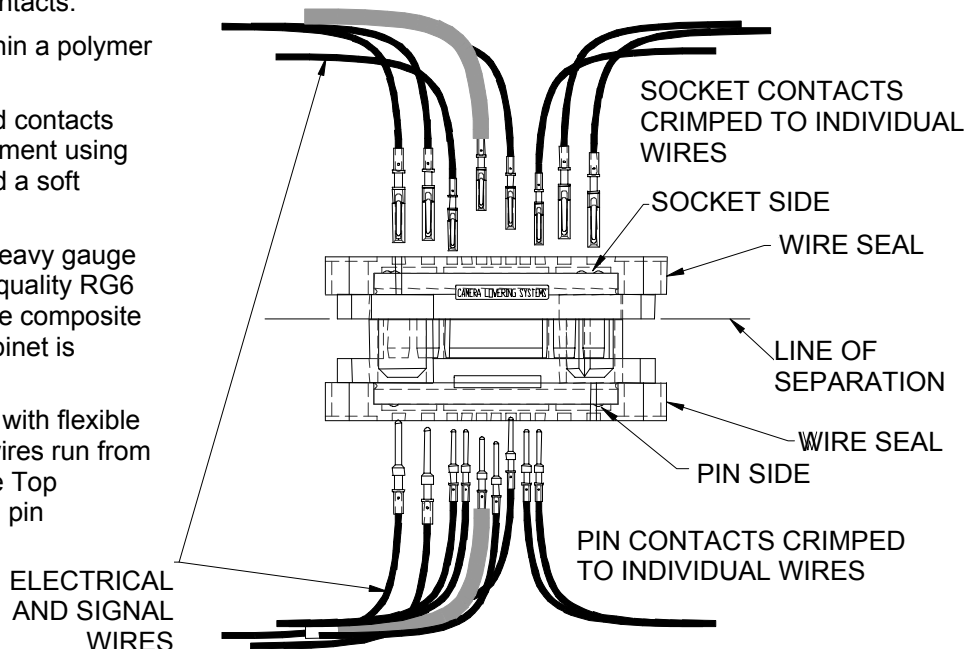
When the disconnect unit is in the locked position, the multi-contact connector has all contacts engaged. Springs are slightly compressed to provide equal and constant pressure against the two halves to maintain an environmental seal.

LOCKING POSITION & UNLOCKING POSITION

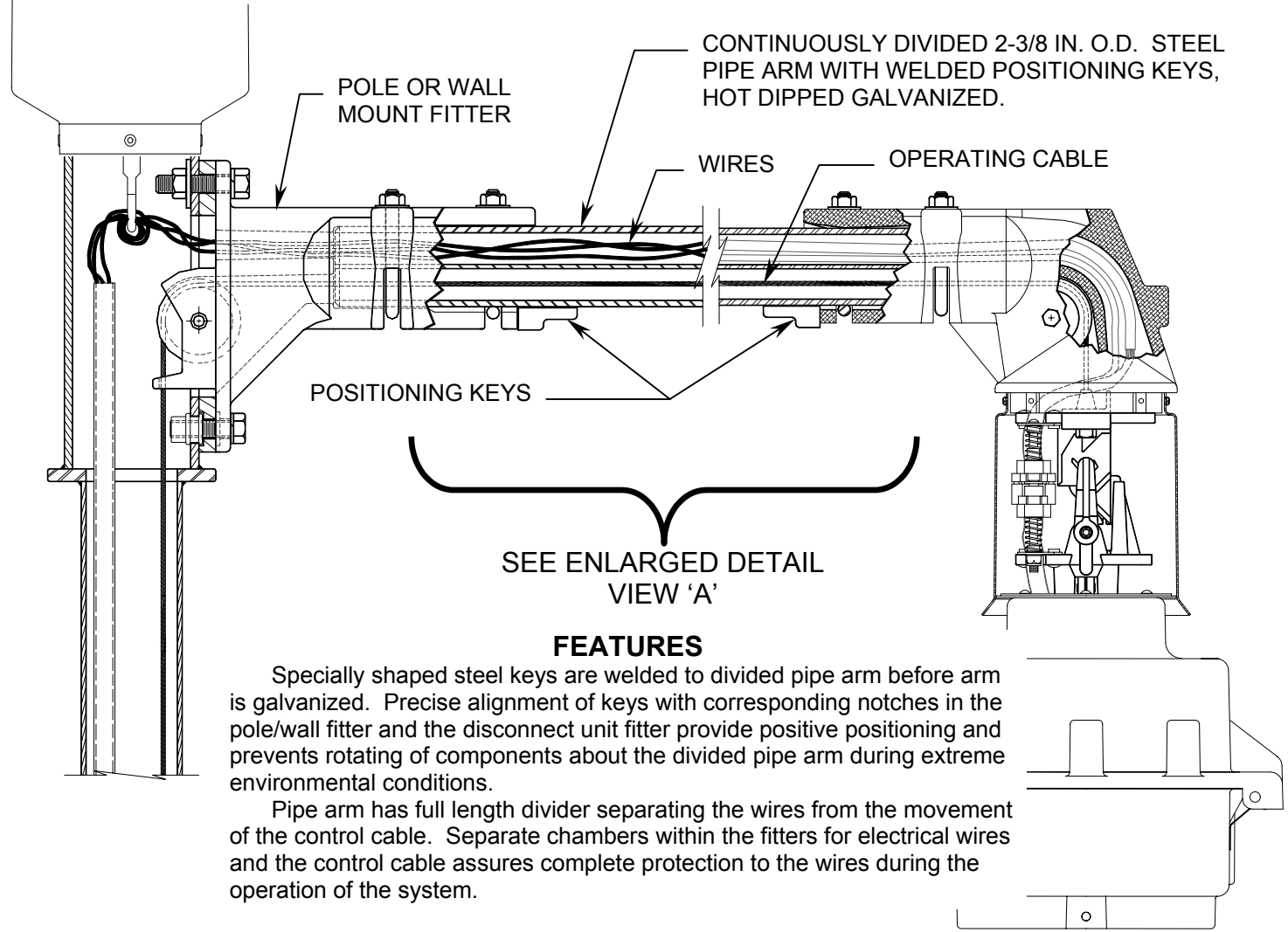
During the operation to lock or unlock the disconnect unit, the springs of both halves of the connector compress in equal proportions and stainless steel

CONTACTS AND WIRES

- Twin connectors provide 16 Heavy Duty 12gge gold plated over copper electrical contacts.
- Contacts are securely contained within a polymer body.
- Upper and lower groups of wires and contacts are sealed from the external environment using glandular seals around the wires and a soft gasket at the line of separation.
- Wires are 16 conductor composite heavy gauge electrical and signal wires with high quality RG6 coax. (See cable specs). A one-piece composite cable from disconnect unit to the cabinet is available.
- Optional wires: Sixteen 14gge wires with flexible hypalon jacket. The upper portion wires run from socket half of disconnect unit to Pole Top Junction Box. Bottom half runs from pin connector to Camera Junction Box.



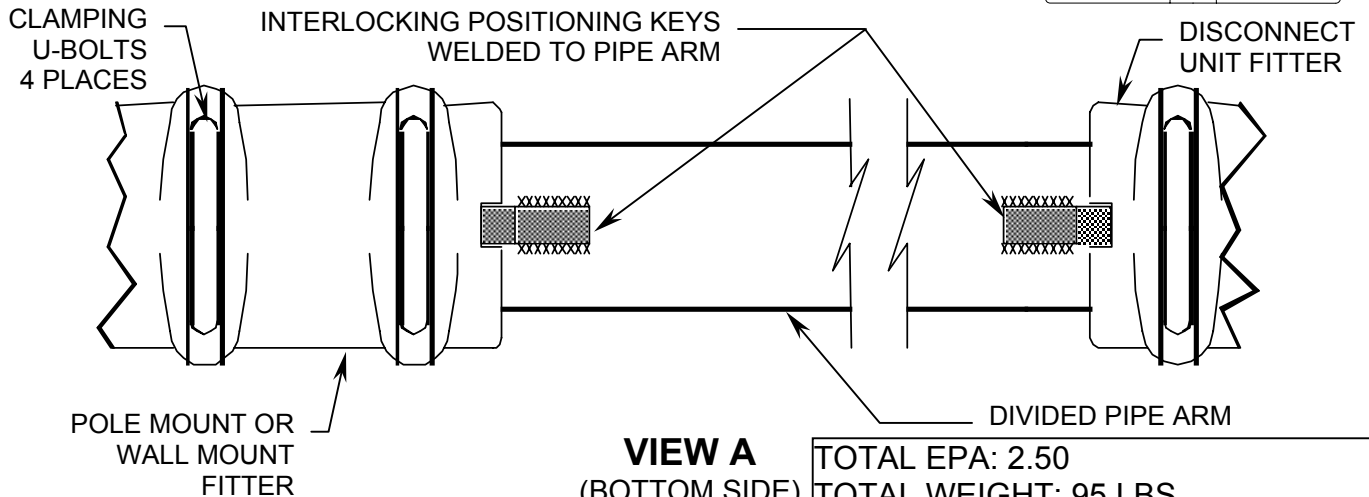
INTERLOCKING ARM & FITTERS
PROVIDES POSITIVE NON-ROTATING POSITIONING
OF PIPE ARM FOR ALL OUTDOOR
POLE AND WALL MOUNTED LOWERING SYSTEMS



FEATURES

Specially shaped steel keys are welded to divided pipe arm before arm is galvanized. Precise alignment of keys with corresponding notches in the pole/wall fitter and the disconnect unit fitter provide positive positioning and prevents rotating of components about the divided pipe arm during extreme environmental conditions.

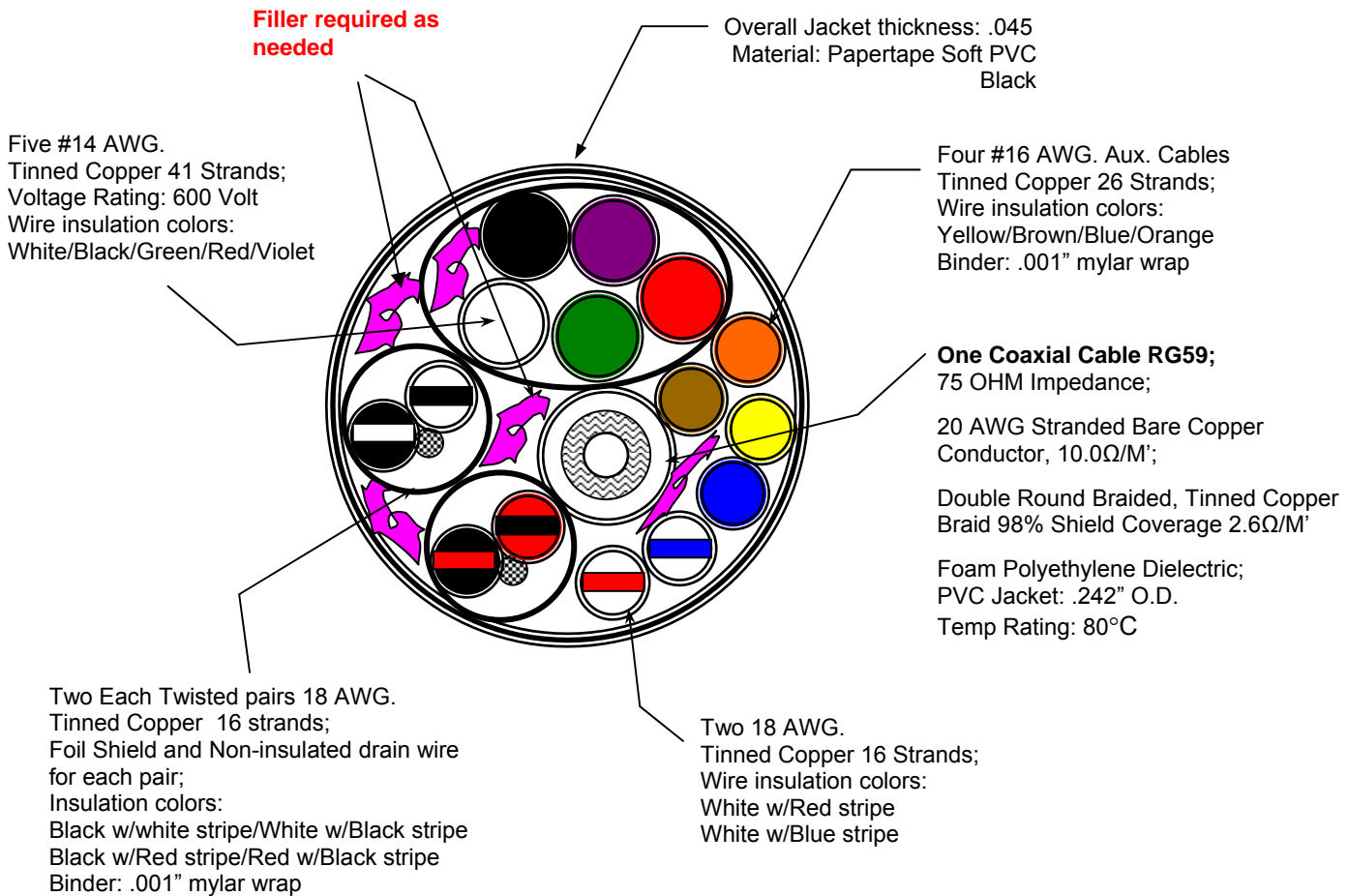
Pipe arm has full length divider separating the wires from the movement of the control cable. Separate chambers within the fitters for electrical wires and the control cable assures complete protection to the wires during the operation of the system.



VIEW A
(BOTTOM SIDE)

TOTAL EPA: 2.50
TOTAL WEIGHT: 95 LBS
(includes arm, disconnect unit, pole and camera junction boxes, & camera)

Composite Signal Cable containing:
 1-RG59 COAX with #20 AWG Stranded Center Conductor
 1-#18 AWG TWISTED PAIR WITH DRAIN IN FOIL SHIELD
 1-#18 AWG TWISTED PAIR WITH DRAIN IN FOIL SHIELD
 2-#18 AWG AUXILIARY CABLES
 4-#16 AWG AUXILIARY CABLES
 5-#14 AWG POWER CABLES
 CABLE LENGTH PER ASSEMBLY: **AS REQUESTED**



NOTES

- VOLTAGE RATING FOR 14 AWG WIRE INSULATION: 600 V.
- TEMPERATURE RATING: 80° C UL 1015
- JACKET MATERIAL: .045 thick soft PVC
- FILLERS A MUST AND WRAPS AS REQUIRED.
- PART NUMBER '663-224-RG59-16' PRINTED ON OUTSIDE OF JACKET.

16HD DISCONNECT UNIT FOR MULTI-FUNCTION CAMERAS

OPERATION OF THE MULTI-CONTACT CONNECTOR

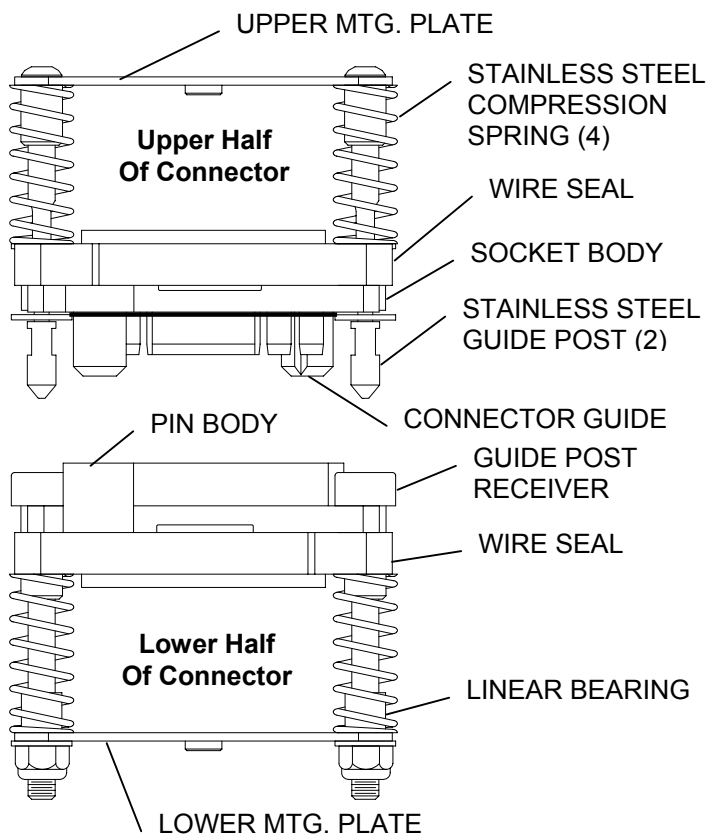
guide posts move through linear bearings as the support arms of the disconnect unit move into the proper position within the tracking guide. Electrical and signal contacts remain fully engaged and the camera is still operational.

RAISING POSITION

The connector assembly utilizes precision machined stainless steel guides to align the two halves of the connector. These are used in addition to the 3-way guides of the disconnect unit. A set of alignment posts built into the connector halves serve as the final guides to assure that all pin and socket contacts are perfectly lined up before engagement.

LOWERING POSITION

As the disconnect unit begins to unlock, the springs expand and the guide posts begin to separate. The last parts of the connector to disengage are the electrical and signal contacts. Any ground wires or shielding use a longer pin contact to assure that they are the very last to disengage before the camera is lowered for servicing.

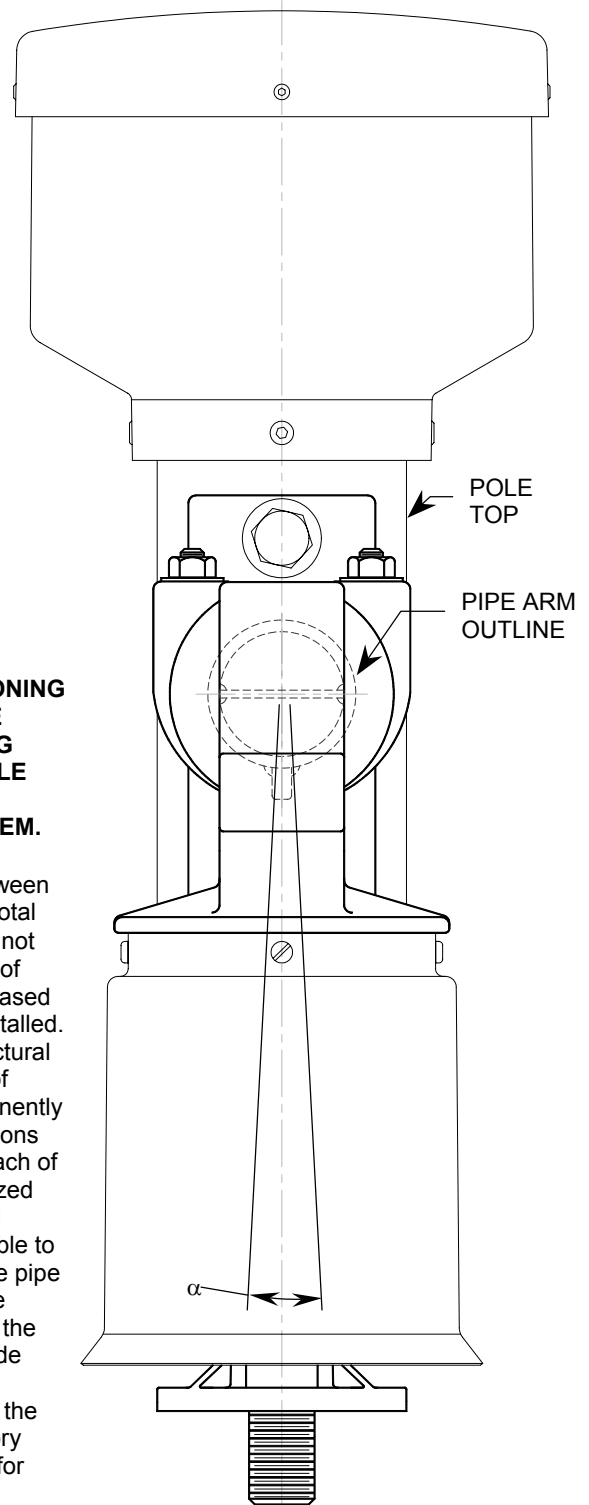
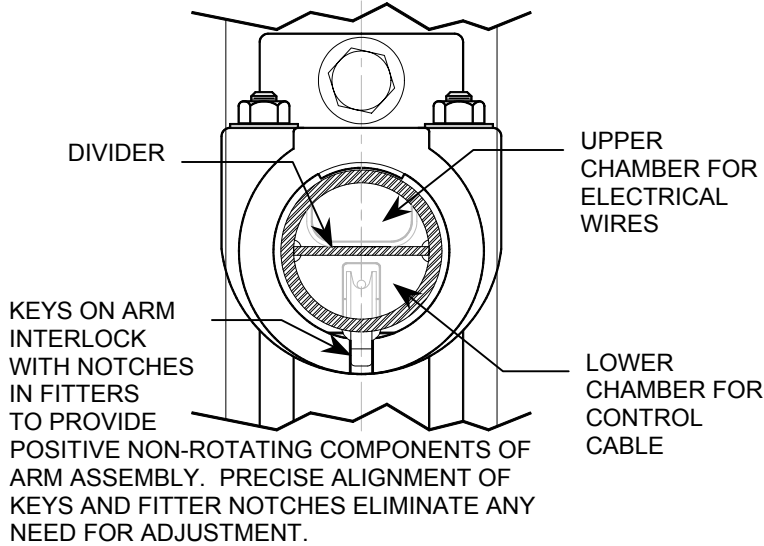


ELECTRICAL DISCONNECT UNIT (EDU) SPECIFICATION GUIDE

- ❖ The coaxial and electrical disconnect unit shall meet or exceed sine vibration tests of 3.5 g's within the frequency range of 5-60 Hz in all three axes for minimum of six 5-minute cycle each axes. It shall meet or exceed random vibration tests of frequency range 60-1000 HZ at .025 g2/Hz applied for 30 minutes in each of the three axes. It shall have results to exhibit no signal or electrical discontinuities greater than 10 microseconds. Tests applicable to Electrical Disconnect Unit and attached components.
- ❖ The EDU shall have a 3-way tracking guide and support. It shall be constructed of precision cast high strength aluminum alloy 356-T6. A permanently fixed position piece incorporating a special tracking guide system permits the moveable portion of the *Disconnect Unit* to align in the same position every time the system is operated, thereby eliminating the need to re-orientate the camera. The Electrical Disconnect Unit shall have twin high strength notches securing the load of the *Lower Contact Assembly* and camera.
- ❖ The MULTI-CONTACT Connector assembly shall be modular for easy installation and retrofit requirements. All pin and socket contacts shall be insertable and removable. The connector shall have a maximum of 16 copper alloy C14500, size 12 contacts (.095" Dia.) rated at 35 Amps with gold plating per MIL-G-45204. All hardware shall be corrosion resistant stainless steel. It shall have a self-aligning and self-adjusting mechanical system comprised of two principal assemblies:
 - Two UPPER CONTACT HALVES* shall house the socket contacts. It shall incorporate spring assisted polymer contact body with precision-machined guideposts. The socket contact body shall have integral guideposts for precise contact alignment.
 - Two LOWER CONTACT HALVES* shall house the pin contacts comprised of spring assisted polymer contact body with precision-machined guidepost receivers. The pin contact body aligns with guideposts of integral socket body guideposts.
- ❖ The EDU cover shall be a one-piece hydro-spun heavy gauge stainless steel. The unit shall have a guidepost constructed of precision cast high strength stainless steel. It shall utilize a cast-in-place guide bar for precise alignment of *Lower Contact Assembly* with the fixed portion of the *EDU*.
- ❖ Connector blocks in pole top junction box and camera junction box are provided by others.

INTERLOCKING ARM & FITTERS
PROVIDES POSITIVE NON-ROTATING POSITIONING
OF PIPE ARM FOR ALL OUTDOOR
POLE AND WALL MOUNTED LOWERING SYSTEMS

ARM CROSS SECTION



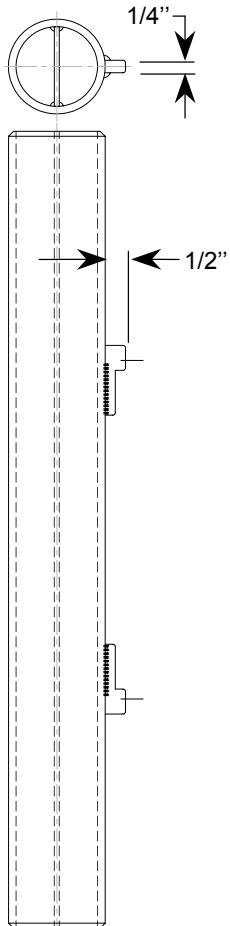
DETAILS OF FEATURES

NOTE: WHEN THE INTERLOCKING POSITIONING KEYS OF THE ARM ASSEMBLY ARE MATED WITH THE CORRESPONDING NOTCHES IN THE FITTERS, THE POLE SHAFT MUST BE PLUMB FOR THE PROPER OPERATION OF THE SYSTEM.

ANGLE α : The angle α shown in the END VIEW is based on mechanical tolerances between mating parts and should not exceed a total of $1/2^\circ$. This deviation from plumb will not affect the operation of the components of the arm assembly. All tolerances are based on the pole shaft being plumb when installed.

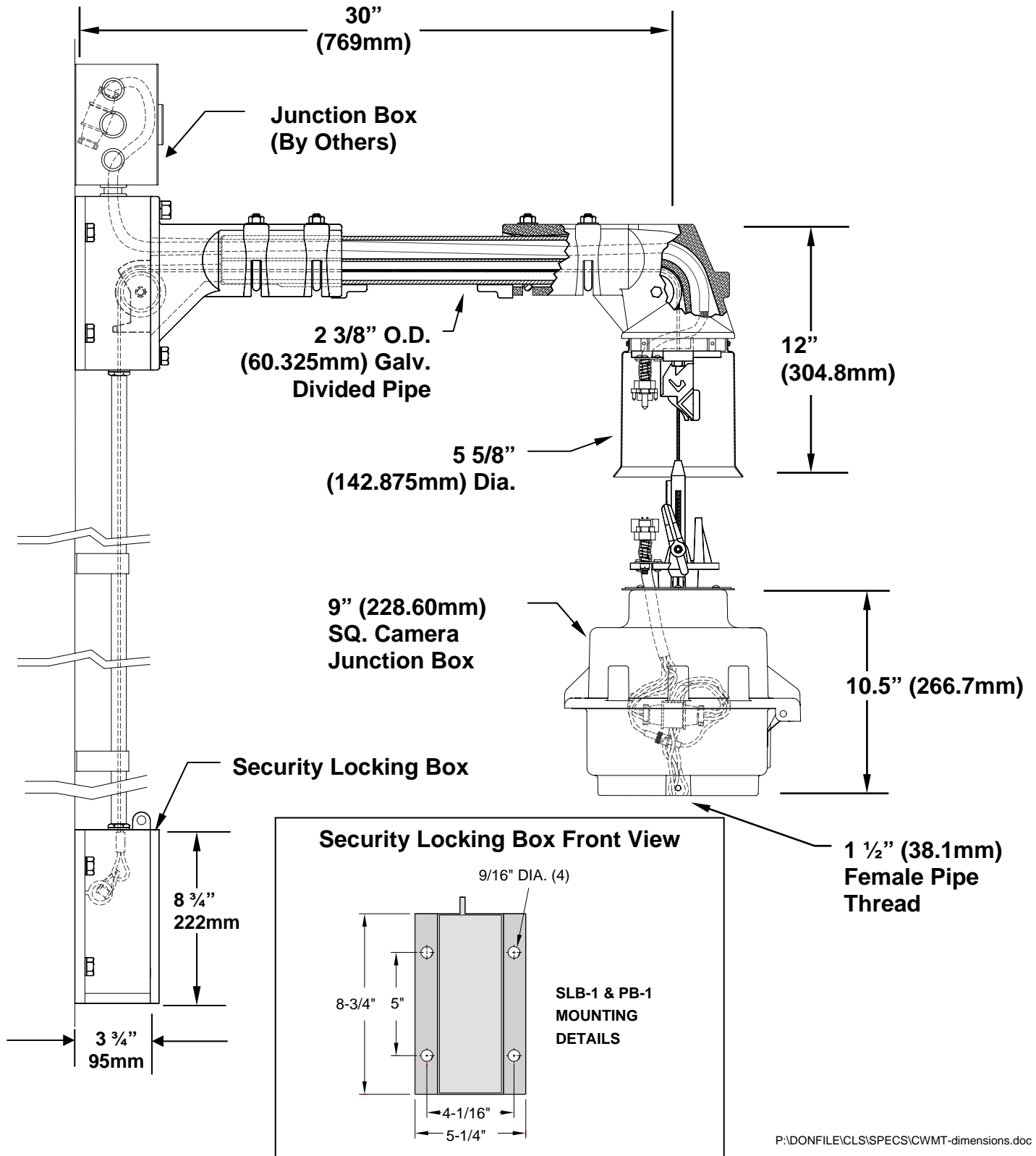
PIPE ARM: (See Fig. 1) Constructed of 2 inch structural steel pipe having an outside diameter of 2-3/8 inch. Positioning keys are permanently welded to the pipe arm at precise positions that align with notches in the ends of each of the fitters. Arm finish is hot dip galvanized after all welding is completed. Optional finishes over the galvanizing are available to match the color of the pole. Ends of the pipe arm bottom out against the inside of the fitters a small fraction of an inch before the keys bottom out in the notches to provide a secure fit.

The pipe arm is installed complete with the rest of the arm components at the factory and is pre-wired to eliminate any need for adjustment in the field.

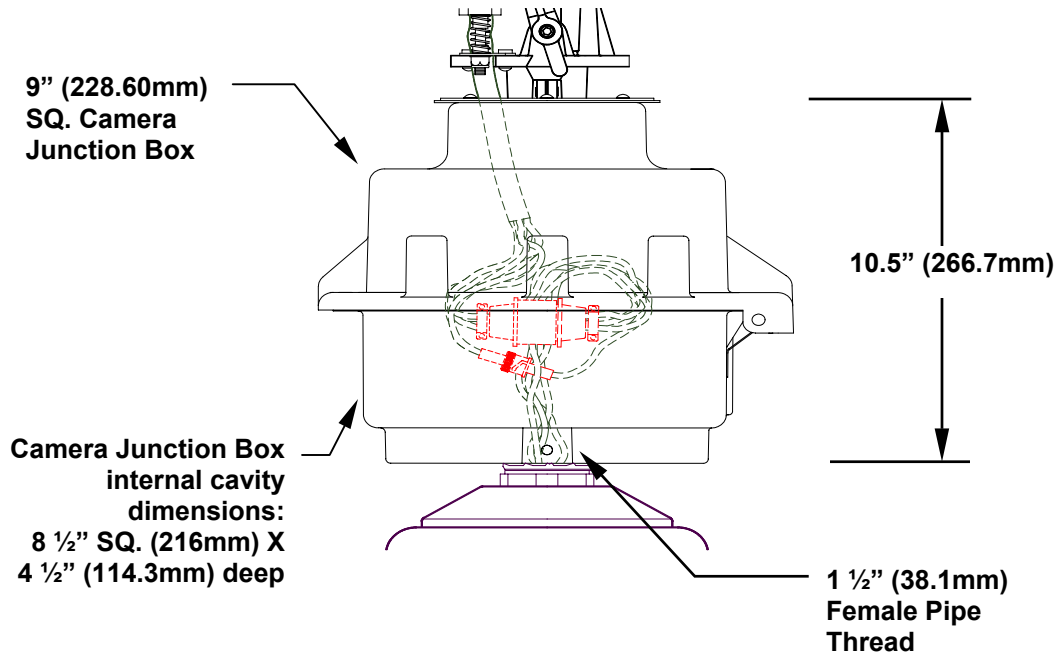


END VIEW

Fig. 1



Design **CDP-16HD** **SERIES**
Camera Junction Box Specifications



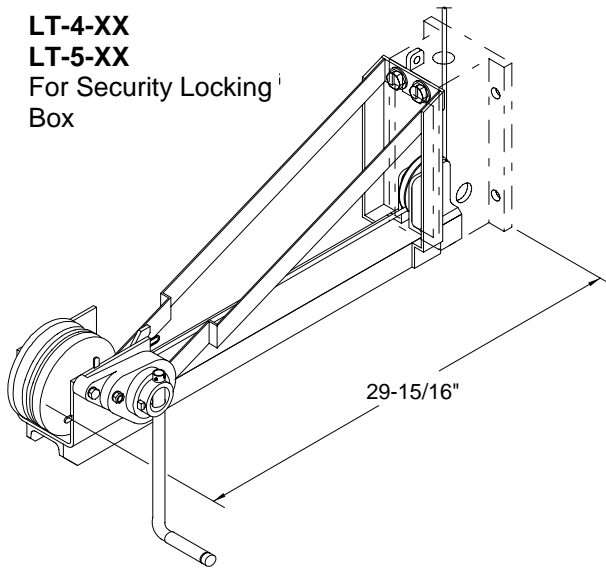
The Camera Junction Box shall be a two piece design for easy camera mounting.

- Both sections shall be made of corrosion resistant cast aluminum.
- The top half shall be mounted and gasketed to the bottom of the disconnect unit. It shall extend into the cylinder of the disconnect unit and designed to repel water
- Inside the top half, it shall have provision to mount additional weights for lightweight cameras or other equipment.
- All parts shall be made of extra heavy construction.
- The Camera Connection Box shall be adaptable to all brands of cameras.
- The two piece construction shall feature a lower box that hinges down for easy access to wiring. It shall contain a large capacity-splicing compartment for camera power, signal leads, and connectors.
- All hardware shall be made of stainless steel.

LT-4-DRI LOWERING TOOL WITH DRILL AND CONTROL CABLE ASSEMBLIES

All gear boxes and lowering tools are of heavy duty design to provide reliability, long life, and ease of operation. They incorporate solid steel heat treated gears for maximum durability and strength. All are equipped with a special automatically actuated disc brake for better load holding ability and the prevention of the load free wheeling. They are essential for lifting operations. Available for permanent installation or portable use indoors or outdoors for wall mounting, tower mounting, or pole mounting. Each system is custom tailored to work with required load and operation of the raising and lowering specifications.

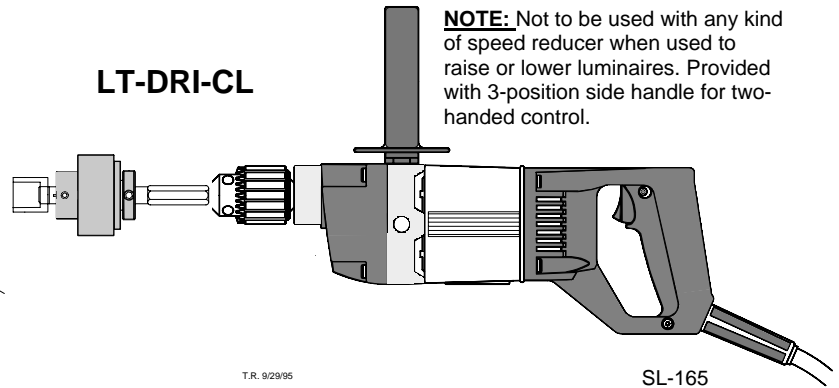
LT-4-XX
LT-5-XX
For Security Locking
Box



Specifications on Lowering Tool

- Tool mounts on Security Locking Box
- Fabricated from heavy gauge steel w/black powder coat finish.
- The winch has a primer base coat followed by an enamel finish coat. Excellent resistance to corrosion.
- Oil impregnated bronze bushings and sealed ball bearings.
- All hardware is made out of stainless steel.
- Frame bolts to pole handhole with 1/2" bolt.
- The winch has a 3:1 Gear reduction to reduce the effort required to raise and lower the assembly.
- Winch comes with heavy-duty disk brake to afford greater load holding ability. This provides a positive locking mechanism to secure cable and keep from freewheeling.
- For drum capacity, see different models below.
- **Cable:** Equipped 1/8" 7x19 stainless steel aircraft cable.
- **Dimensions:** 29"L.x8"W. With handle, 12"W.
- **Weight:**34LBS.

LT-DRI-CL



NOTE: Not to be used with any kind of speed reducer when used to raise or lower luminaires. Provided with 3-position side handle for two-handed control.

T.R. 9/29/95

SL-165

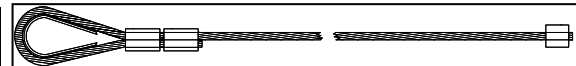
Drill Motor Specifications

- Drill is 1/2" double insulated, heavy duty, reversible, variable speeds, with 'D' handle.
- Chuck size is 1/2" key chuck with key.
- Electrical-Nom. 5 amp universal motor 115v.AC
- Torque-Develops nominal 170 lbs.-in.
- Speed/HP-.5 H.P. No load speed of 350 RPM
- Overall length is 15-1/8"
- Weight: Approx. 7lbs. 6oz.

Overload Clutch Specifications

- Lubricated ball indent-totally enclosed-adjustable torque limiting.
- Coil spring type. Varied quantities depending on torque range. Torque range: 60 to 300 lb./in.
- Winch drive is 1-1/8" hex socket with 1/2" sq. drive.
- Max. operating speed is 350 RPM
- Dimensions of clutch: 1 1/2"Dia., 1 5/8"L. Overall, 8 1/2"L
- Hub shaft: 3/8" sq. w/spring loaded pin (clutch end).
- Socket shaft: 3/8" sq. w/spring loaded retaining pin.
- Open-end wrench type torque-adjusting nut. Snap ring tool included with clutch.
- Clutch weight: 2 lbs.

| Catalog # (with Lowering Tool cable length) | Min Load Lbs. | Drum Capacity | Max Load Lbs. |
|---|---------------|---------------|---------------|
| GB-2P-XX (portable) | 18 | 125 ft. | 300 |
| LT-1R-XX (round poles) | 16 | 125 ft. | 300 |
| LT-2R-XX (round poles) | 18 | 250 ft. | 300 |
| LT-1S-XX (square poles) | 16 | 125 ft. | 300 |
| LT-4-XX (wall, tower, ceiling) | 16 | 125 ft. | 300 |
| LT-5-XX (wall, tower, ceiling) | 18 | 250 ft. | 300 |



Cable Assembly for LT-4,LT-5, & GB-2P

Made of 316 Stainless Steel 5/32"-7x19 preformed cable. Minimum breaking strength of 2400 lbs. Looped and crimped to accept cable connector. Other end has crimped on copper stop. Camera cable assembly is also looped and crimped with connecting link to connect to Lowering Tool cable.

* All Camera Lowering Systems gear boxes and lowering tools are designed for material handling usage only.

* Not for lifting people, or things over people.

* Specifications subject to change without notice.