

**SB3-1/SB3-2 and
SB2800 Series
Discreet Surveillance
Enclosures**

**Installation/
Operation Manual**

C426M-F (2/98)

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REVISION HISTORY

Manual #	Date	Comments
C426M	12/88	Original version.
C426M	7/90	Rev. A. Addendum added replacing various pages of the manual.
C426M	11/90	Rev. B. Incorporated Rev. A addendum and updated manual.
C426M	9/91	Rev. C. Added Electrical specifications and updated format.
C426M	8/92	Rev. D. Wiring Diagram Updated.
C426M	10/93	Rev. E. Updated to two column format; dropped turbosphere nomenclature.
C426M-F	3/95	Incorporated ECO 94-141 regarding model inclusion of the SB2801. Incorporated 24VAC warning label; updated wiring diagrams per ECO 94-558 and exploded assemblies in Part II of the manual. Updated entire manual to current format.
	8/96	Revised Section 1-9.0, Mechanical Parts List, regarding part numbers for domes.
	2/98	Revised Section 1-5.0, Care and Maintenance.

**INSTALLATION/OPERATION MANUAL
MODEL SB3-1/SB3-2 ENCLOSURES
SB2800 SERIES ENCLOSURES**

CAUTION

This device is designed to operate at 24 volts AC power. Input voltage must not exceed 28 volts or drop below 22 volts or else damage to the motors will occur. Should you need technical assistance, please call (800)289-9100

1-1.0 WARNINGS

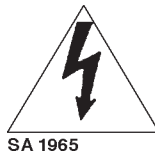
Prior to installation and use of this product, the following WARNINGS should be observed.

1. Installation and servicing should only be done by Qualified Service Personnel and conform to all Local codes.
2. Unless the unit is specifically marked as a NEMA Type 3, 3R, 3S, 4, 4X, 6, or 6P enclosure, it is designed for indoor use only and it must not be installed where exposed to rain and moisture.
3. The weight of the camera/lens and enclosure shall not exceed 20 lbs. — subject to specific pan/tilt unit.

4. Only use replacement parts recommended by PELCO.
5. After replacement/repair of this unit's electrical components, conduct a resistance measurement between line and exposed parts to verify the exposed parts have not been connected to line circuitry.
6. The installation method and materials should be capable of supporting four times the weight of the enclosure, pan/tilt, camera and lens combination.

The product bears the following marks:

This symbol indicates that dangerous voltage constituting a risk of electric shock is present within this unit.



This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.



CAUTION:
TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT REMOVE COVER. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

CAUTION:
RISK OF ELECTRIC SHOCK.
DO NOT OPEN.

Please thoroughly familiarize yourself with the information in this manual prior to installation and operation.

Part I – SB3-1/SB3-2 and SB2800 Series Enclosures

PREFACE: There are two parts to this manual. Part I covers the SB3-1, SB3-2, and SB2800 Series Dome Enclosures. Part II covers the PT2801000 Series pan/tilt assemblies which are used in the SB2800 Series Dome Enclosures. Please refer to the applicable sections of this manual when installing your system.

1-2.0 SCOPE

The information contained within this manual covers the installation and operation of the SB3-1/SB3-2 and SB2800 Series Discreet Surveillance Enclosures.

1-3.0 DESCRIPTION

The SB3-1/SB3-2 and SB2800 series are low profile discreet enclosures designed for ease of installation, relocation and service in standard 2' x 2' or 2' x 4' false ceiling grids. Available with a black opaque or mirrored lower dome, these domes combine concealed 355° surveillance (360° on SL models) with distortion-free viewing. The lower dome effectively conceals the camera while providing an inconspicuous viewing window with a light attenuation factor of one (1) f-stop for the black opaque dome and 2 f-stop light loss for the mirrored dome. There is, of course, no light attenuation factor for the SB2801 clear dome.

The dome and camera assembly rotate at a speed of 10 degrees/second on a balanced roller system for complete 355°/360° surveillance coverage. The back box is constructed of aluminum to meet fire code requirements for installation in open plenum ceilings. The SB3-1/SB3-2 and SB2800 will accept Pelco lenses up to 110 mm, increasing the flexibility of the system design and application.

To simplify installation even further, Pelco offers system packages with factory installed standard components from its regular product line. This dramatically reduces installation time and cost and assures the continued availability of replacement parts.

1-4.0 INSTALLATION

1-4.1 UNPACKING INSTRUCTIONS

Save the shipping carton and plastic packing, in case the unit has to be returned for credit or repair.

1-4.2 WIRING INSTRUCTIONS

SB2800 Series system packages include pan/tilt assemblies which are pre-wired for all control functions – pan/tilt, motorized zoom lens, camera power (24VAC) and video. All connections are made at the input connector, eliminating the need for wiring harnesses made in the field. Wire the control cable per Section 2-2.0, Part 2 and the referenced diagrams, or use factory assembled pretested cables C1906, C1906/PP, C1925, or C9125/PP.

1-4.3 INSTALLATION INSTRUCTIONS

Your dome is supplied in two ways; as a passive dome (SB3-1/SB3-2) for use as a dummy dome or with a fixed camera (utilizing the CM3000 mount), or with a factory installed pan/tilt assembly (SB2800 series models). To install the dome or dome system, perform the following steps (see Figure 1-2):

1. Handle the lower dome with care so as not to scratch or get fingerprints on the viewing window.
2. Mount the back box directly into a 2' x 2' false ceiling grid and make certain that the assembly sits flat on the grid.
3. Mount the camera/lens onto the optional fixed mount (CM3000) or pan/tilt assembly with the camera/lens centered on the tilt table. Hook up camera power, video and lens. Extend the lens to the maximum focal length and operate the pan/tilt to verify that there are no obstructions within the back box.

NOTE: When installing the enclosure in a 2' x 4' ceiling, cut the ceiling tile in half and install an additional "T" rail for support. If further support is required, install an eyebolt in the plywood base of the back box and run a guy wire to secure the surface.

- Attach the safety chain to the lower dome and make certain that the chain does not interfere with proper seating of the drive tab. (See Figure 1-1.)

CAUTION: Dome will shatter if dropped. Always operate with safety chain attached **Do not** rotate pan/tilt by hand. Rotate by controller only.

- Install the lower dome with viewing slot to the right of the camera/lens with the lens pointed towards you. Insert the rim of the dome into two of the rollers. Align the drive tab with the slot in the drive arm bracket. Press the dome against the rollers and gently deflect the dome until you are able to insert the rim into the final rollers. (See Figure 1-1.)
- Operate pan/tilt to verify that there are no obstructions within the back box or dome.

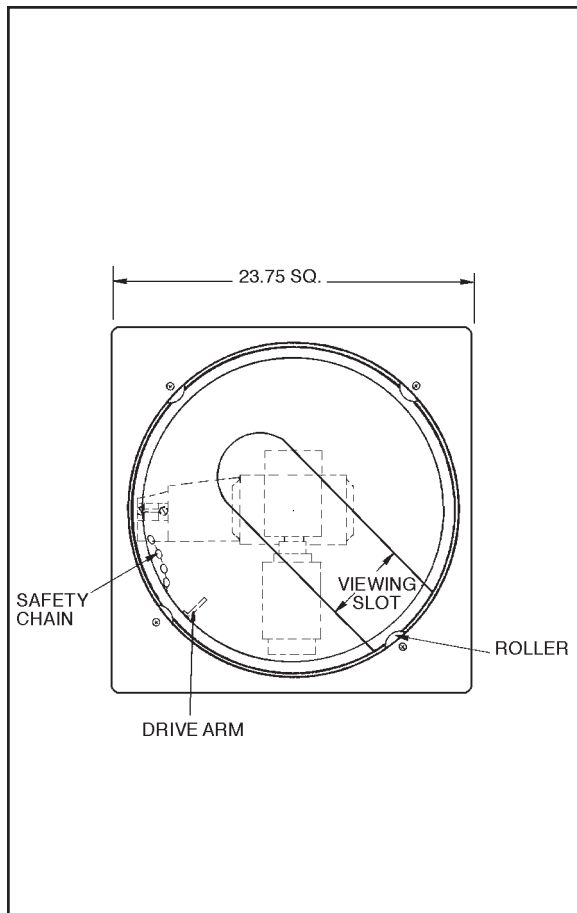


Figure 1-1. Inside View of Lower Dome

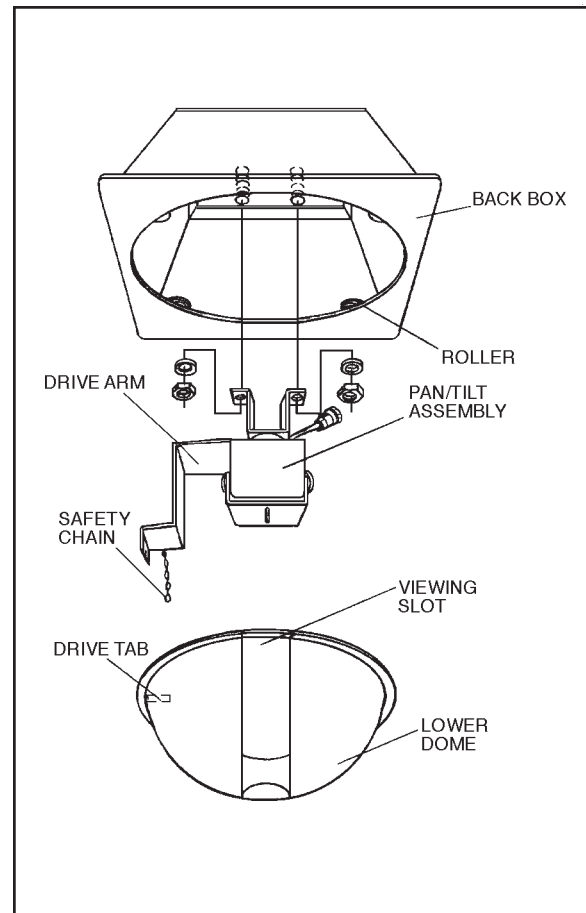


Figure 1-2. SB2800 System Installation

1-4.4 LIMIT/STOP ADJUSTMENTS

Refer to Section 2-2.3, Part 2 of this manual for limit adjustments.

1-5.0 CARE AND MAINTENANCE

Clean the acrylic lower dome as necessary to maintain a clear picture. Be careful not to scratch the surfaces of the dome.

Exterior Surface - Clean the dome's exterior surface with a nonabrasive cleaning cloth and cleaning agent that is safe for acrylic plastic. Either liquid or spray cleaner/wax suitable for fine furniture is acceptable.

Interior Surface (Except Chrome) - Clean the same as the exterior surface.

Interior Surface (Chrome) - The inside surface of a chrome dome is easily scratched. Use the following precautions to maintain the dome's surface.

- a. Always handle the dome from the outside of its circular flange.
- b. Never touch the coated inside surface. The acid in your fingerprints will eventually etch the coating if the fingerprints are not carefully removed according to the recommended cleaning procedure in item "e."
- c. If dust or other contaminants accumulate on the dome's interior, remove the debris with compressed air. Compressed air cans are available from photographic equipment or electronic supply dealers.
- d. If heavy residue accumulates and cannot be removed with air pressure, rinse with water and immediately dry with air pressure so that water spots will not remain. Avoid wiping the coated surface with direct hand pressure - it will easily abrade unless extreme care is taken. Once scratched, the dome cannot be recoated.
- e. If internal wiping is necessary, avoid hand rubbing. Instead, make a wick as follows:

Use a very soft paper towel. Roll a section into a tightly wound tube. Tear the tube in half, and wet the fuzzy end of the wick with a solution of

isopropyl alcohol diluted with water. Hold the dome with its opening facing downward and wipe the interior of the dome with the wet end of the wick. Use a circular motion, starting from the outside and spiraling into the center. Use a new wick for each two passes over the dome.

1-6.0 MODELS

SB3-1	Drop Ceiling Discreet Surveillance Enclosure with black opaque lower dome, all aluminum back box which mounts above the ceiling. (Camera mount not supplied. Use CM3000 mount.)
SB3-2	Same as SB3-1, except supplied with mirrored lower dome, 2 f-stop light loss.
SB2800	This system package includes the black opaque dome enclosure plus the PT2801000ASSY pan/tilt assembly, factory assembled inside the back box
SB2801	Same as SB2800 except supplied with clear dome slot
SB2800/PP	Same as SB2800 except supplied with preset position feedback pan/tilt assembly PT2801002ASSY
SB2800-2	Same as SB2800 except supplied with mirrored lower dome, 2 f-stop light loss.
SB2800-SL	Same as SB2800 except this package includes the PT2801002ASSY with 360° horizontal pan movement.
SB2800-SL/PP	Same as SB2800-SL except supplied with PT2801003ASSY pan/tilt assembly with 360° horizontal pan movement and preset position feedback.
SB2800SL-2	Same as SB2800-SL except supplied with mirrored lower dome, 2 f-stop light loss.

1-6.1 OPTIONS

C1906	Factory assembled, pretested 6 foot cable for use between Coaxitron receivers and inverted pan/tilt assemblies (SB2800, SB2801, SB2800-2, SB2800-SL, SB2800SL-2)
C1906/PP	Same as C1906 except for use with preset (PP) pan/tilt assemblies (SB2800/PP, SB2800-SL/PP)
C1925	Factory assembled, pretested 25 foot cable for use between Coaxitron receivers and inverted pan/tilt assemblies (SB2800, SB2801, SB2800-2, SB2800-SL, SB2800SL-2)
C1925/PP	Same as C1925 except for use with PP pan/tilts.
CM3000	Fixed camera mount for use with SB3-1 or SB3-2 enclosure.
SB3KIT	Hardware kit to field retrofit SB3-1 or SB3-2 domes with the following assemblies: PT2801000ASSY PT2801001ASSY PT2801002ASSY PT2801003ASSY

1-6.2 RECOMMENDED CONTROLS

The following controls are recommended for use with the TurboSphere System:

Coaxitron System 2000

A9000	Auto/Random Scan module for CX9024RX receivers (plug-in module)
CM7500 Series/ CM9500 Series	Coaxitron Matrix, System 7500 or System 9500, for use with SB2800/PP and SB2800-SL/PP enclosures.
CX900TLC	System test and receiver manual control board for CX9024RX receivers (plug-in module)
CX9024RX	Coaxitron receiver in weatherproof box for 24 VAC pan/tilts with power supply for pan/tilt, zoom lens, and 24 VAC camera power.
MPT9000CZ	Transmitter/control with pan/tilt joystick, zoom lens, and 4 accessory function controls. Desk top model.

Hardwire Short-Distance Controls for 24 VAC Pan/Tilts

MEH24DT	Desk top enclosure control module for 24 VAC camera on/off
MLZ6DT	Desk top zoom lens control module with auto/manual iris control
MPT24DT	Desk top joystick control module for 24 VAC pan/tilts
MPTA24DT	Same as MPT24DT except equipped with Auto/Random Scan operation

1-7.0 SPECIFICATIONS

The following specifications apply to the dome only. For detailed information on pan/tilt, refer to Section 2-10.0, Specifications.

MECHANICAL

Dome Drive: Dome rides on rollers and is driven by drive arm of pan/tilt

Max. Camera/Lens Length: 16.0 inches (40.64 cm)

GENERAL

Construction:
Back Box Aluminum

Faceplate White

Lower Dome Acrylic hemisphere with distortion free viewing window with light attenuation factor of 1 f-stop (SB3-1) or 2 f-stop (SB3-2); rotates with pan and tilt/camera/lens

Dimensions: See Figure 1-3

Ambient Temperature Range: 35° to 120°F (1.6° to 48.8°C)

Weight:
SB3-1/SB3-2 9 lbs (4.05 kg)

SB2800, SB2801
SB2800/PP 19 lbs (8.55 kg)

SB2800-SL,
SB2800-SL/PP 20 lbs 8 oz (9.36 kg)

Shipping Weight:
SB3-1/SB3-2 17 lbs (7.65 kg)

SB2800, SB2801
SB2800/PP 27 lbs 10 oz (12.20 kg)

SB2800-SL,
SB2800-SL/PP 28 lbs 8 oz (12.96 kg)

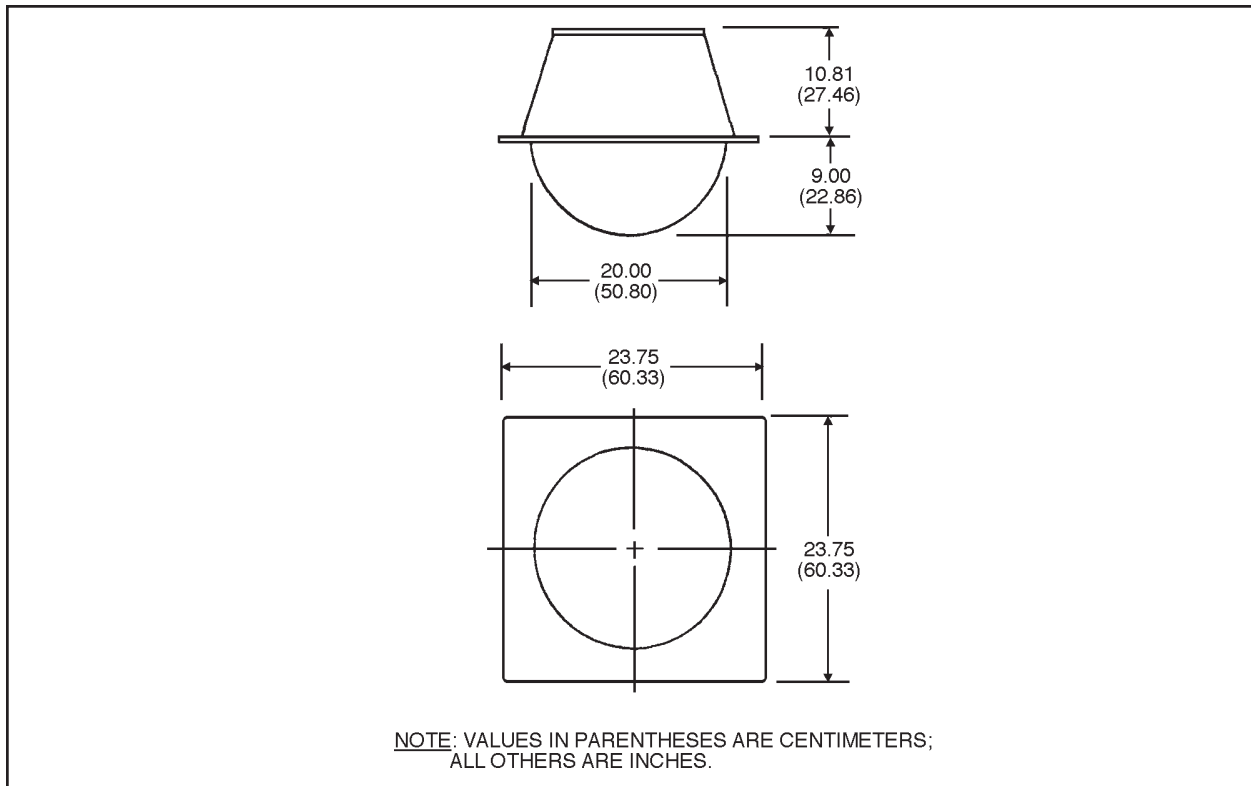


Figure 1-3. SB3-1/SB3-2 Dimension Drawing

1-8.0 EXPLODED ASSEMBLY DIAGRAM

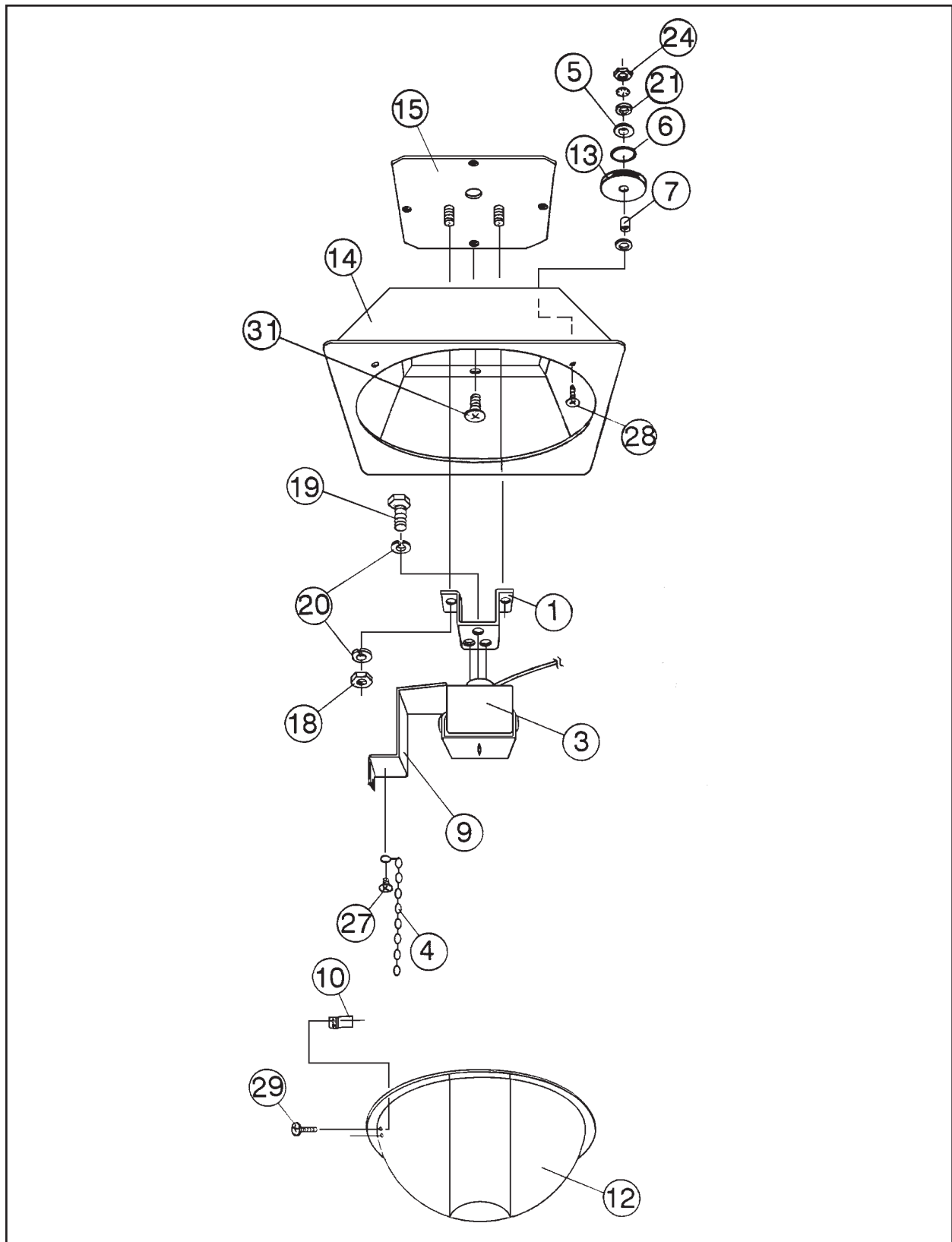


Figure 1-4. SB2800 Exploded Diagram

1-9.0 MECHANICAL PARTS LIST

The following parts list corresponds to the exploded diagram in Figure 1-4 of this manual.

Item No.	Quantity	Description	Part Number
1	1	Bracket	PM200C4000COMP
2	—	Not Used	—
3	1	Pan/Tilt Assembly	
		0-355° pan rotation (SB2800)	PT2801000ASSY
		0-360° pan rotation (SB2800-SL)	PT2801001ASSY
		0-355° pan rotation w/presets (SB2800/PP)	PT2801002ASSY
		0-360° pan rotation w/presets (SB2800-SL/PP)	PT2801003ASSY
4	1	Steel chain	SB2511000
5	8	Bushing	SB310005
6	4	O-Ring	SB310006
7	4	Spacer	SB310007
8	—	Not Used	—
9	1	Dome drive bracket	SB34105COMP
10	1	Dome drive tab	SB34006COMP
11	—	Not used	
12	1	Black opaque dome with smoked viewing area	SB32009COMP*
	1	Black opaque dome with clear viewing area	SB282006COMP*
	1	Chrome finish	SB32007*
13	4	Roller, Delrin, black	SB34020COMP
14	1	Back box assembly	SB3BB1000
15	1	Plate top, aluminum	SB3BB4001ACOMP
16	8	NP sleeving, PVC (not shown)	SLV16105N
17	—	Not Used	—
18	2	Nut, hex 1/4-20 cad	ZH1/4-20NUTCH
19	3	Bolt 1/4-20 x 5/8" hex cad	ZH1/420X.625CH
20	7	Washer, split lock 1/4" SS	ZH1/4LWSSL
21	4	Washer, flat #4	ZH115X209X32C
22	1	Lug ground (not shown)	ZH1416-6
23	—	Not used	
24	4	Nut, hex 4-40 SS	ZH4-40NUTSCH
25	—	Not used	
26	1	Screw, 4-40 x 1/4" Pan Phil, SS	ZH4-40X.250SPP
27	1	Screw, 4-40 x 3/8" Pan Phil, Blk	ZH4-40X.375BPP
28	4	Screw, 4-40 x 3/4" Pan Phil, SS	ZH4-40X.750SPP
29	2	Screw, 4 x 1/2" self tapping, Phil CAD	ZH4-SAX.500CPP
30	6	Washer, internal star #4, SS (not shown)	ZH4LWSIS
31	4	Screw, 8-32 Pan Phil, Blk	ZH8-32X.375BPP
32	1	Snap body for chain assembly (not shown)	SB2511001

* Part number is for dome only. To order a complete dome assembly, specify the part numbers SB34009COMP (smoked), SB284006COMP (clear), and SB34007COMP (chrome). These part number include items 4, 10, 12, and 32.

Note: Refer to Section 2-7.0, Part 2, for the exploded assembly drawing and parts list for the pan/tilt assembly.

Part II Pan/Tilt Assemblies

2-1.0 DESCRIPTION

The pan/tilt assembly is a “mini” light duty pan/tilt for loads up to 15 lbs and is factory pre-wired for all control functions (pan and tilt, motorized zoom lens, camera power (24 VAC), and video). All connections are made at the input connector, eliminating the need for wiring harnesses. This greatly reduces installation time, while increasing reliability and serviceability.

2-2.0 INSTALLATION

In order to insure proper wiring and system operation of all components, it is highly recommended that the pan/tilt and the associated control equipment be tested in your facility before field installation is attempted. Wire the control cable in accordance with Figures 2-1 through 2-3.

2-2.1 CONDUCTOR AND CABLE REQUIREMENTS

Conductors

The following are the conductor requirements:

SB2800/SB2801/ SB2800-SL	Pan/Tilt (5 plus ground), Lens (4), Camera AC (2)
SB2800/PP	Pan/Tilt (9 plus ground), Lens (8), Camera AC (2)
SB2800-SL/PP	Pan/Tilt (10 plus ground), Lens (8), Camera AC (2)

Cable Distances – Hard Wire Controls

The following cables distances are for hard wire controls:

Pan/Tilt Functions:

	<u>5 Conductors</u>	<u>6 Conductors*</u>
20 Awg	110 ft (33.53 m)	210 ft (64.01 m)
18 Awg	180 ft (54.86 m)	330 ft (100.58 m)
16 Awg	290 ft (88.39 m)	530 ft (161.54 m)

*Using 2 conductor motor common

Lens Functions:

22 Awg	600 ft (182.88 m)
20 Awg	1,000 ft (304.80 m)
18 Awg	1,500 ft (457.20 m)

Camera Power

2 Conductors (24 VAC)

Consult the camera manufacturer or factory for transformer power distances.

Cable Distances – Coaxitron

The following cable distances are for Coaxitron controls:

Up to a maximum of 750 feet on a single coax (RG59/U) from the receiver to the transmitter.

NOTE: To extend the distance to 3,000 feet on RG59/U coax, use the Pelco EA2000 Half Duplex Equalizing Amplifier.

2-2.2 WIRING

Cable distances should not exceed the distances specified in Section 2-2.1, Conductor and Cable Requirements. The following are some recommended common installation practices.

1. Always use jacketed stranded multi-conductor interconnecting cable between the control and the pan/tilt unit, with additional conductors than needed for future servicing and or additions.
2. Always use color-coded conductors for ease of wiring and to identify functions at a later date.
3. Keep a wiring diagram with the system for later use and reference.

When the pan/tilt assembly is mounted in the inverted position, the LEFT/RIGHT and UP/DOWN functions are reversed during operation. To correct this problem, reverse the LEFT/RIGHT functions in the control cable (pins 3 and 7) at the pan/tilt or control and the UP/DOWN functions (pins 5 and 6) at the pan/tilt or control.

NOTE: If you have purchased the C1906, C1906/PP, C1925 or C1925/PP factory pre-wired cables, correction for reversal of these functions has already been made in the cable. You do not need to reverse the pins for inverted mounting if you use the above mentioned cables with your pan/tilt.

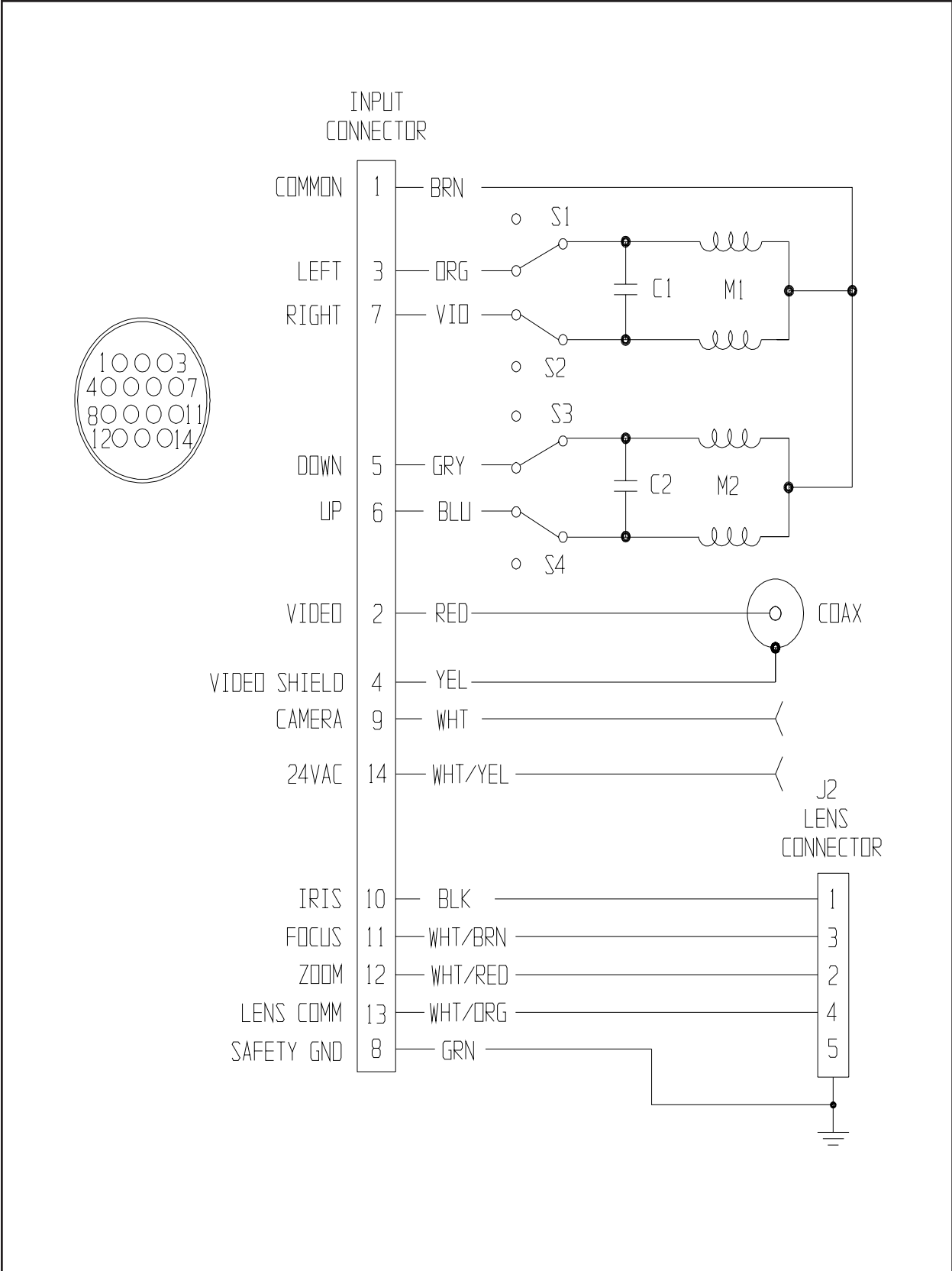
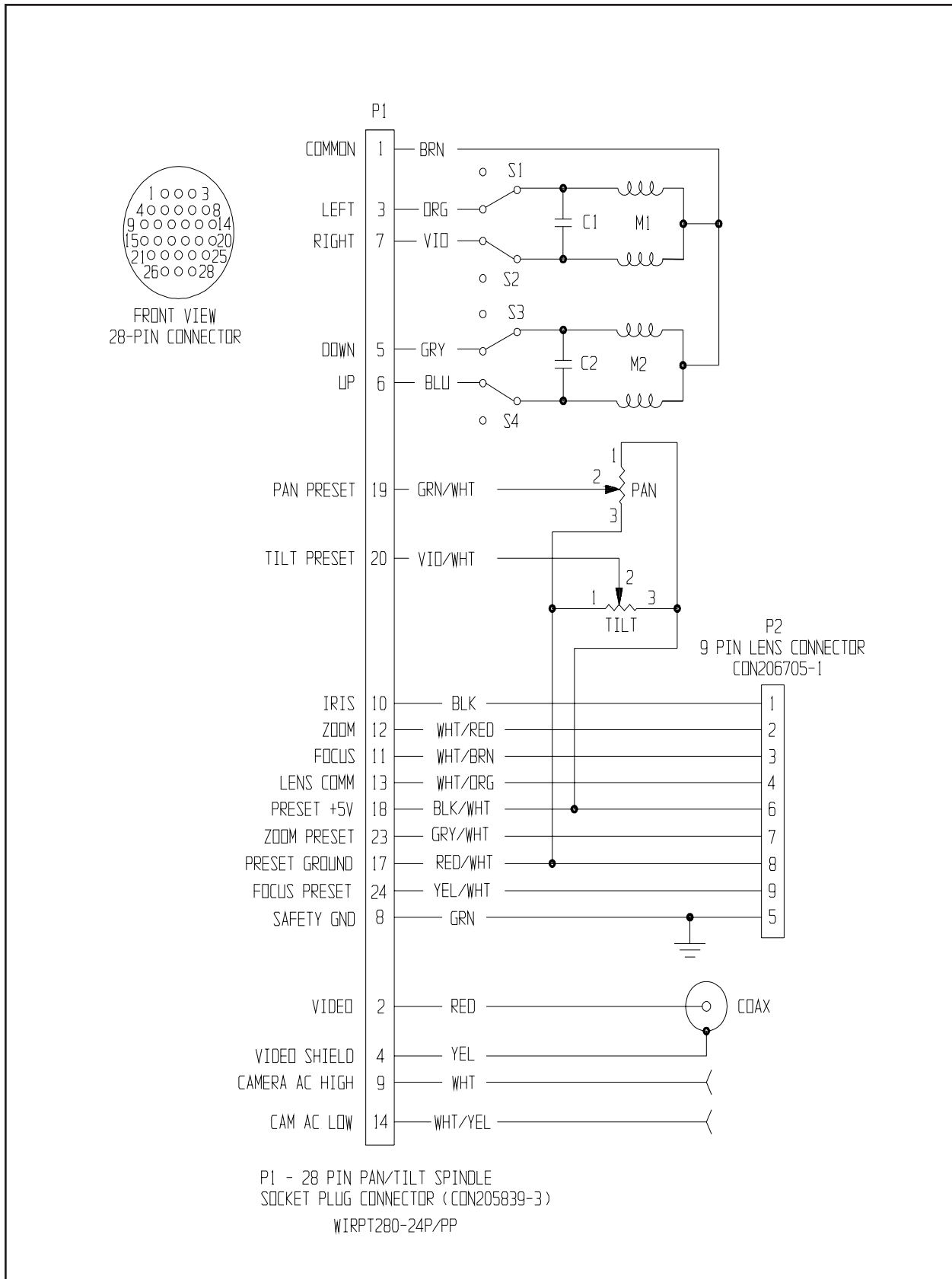


Figure 2-1. PT2801000ASSY/PT2801001ASSY Wiring Diagram



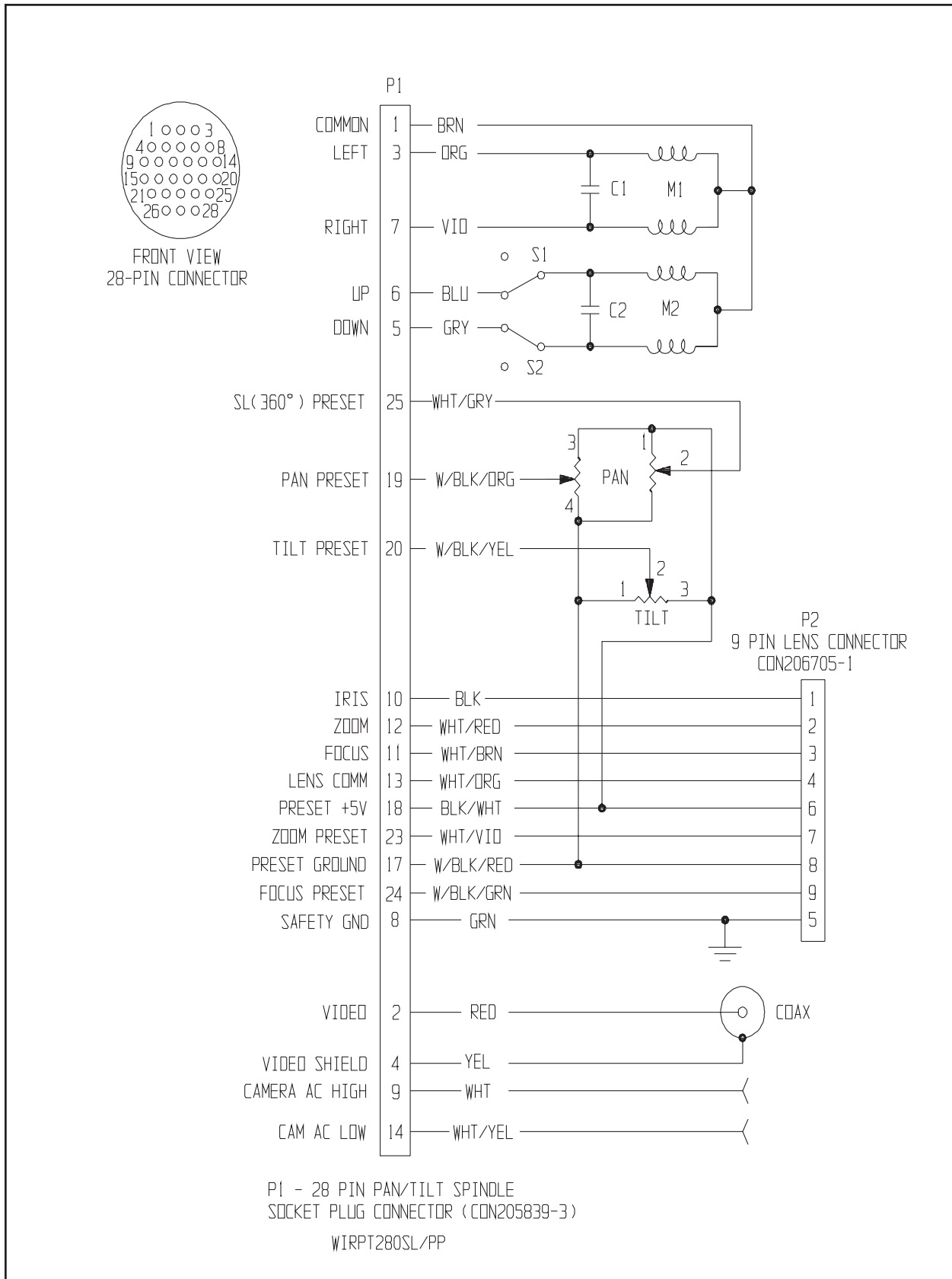


Figure 2-3. PT2801003ASSY Wiring Diagram

2-2.3 LIMIT/STOP ADJUSTMENTS

WARNING: Do not operate pan/tilt without limit stops. Do not remove or reposition fixed limit stop on the PT 2801000ASSY or PT2801002ASSY. **DAMAGE WILL OCCUR.**

NOTE: The PT2801001ASSY and PT2801003ASSY are not equipped with pan limit stops. (Disregard steps 1-5 below).

To set limit stops, perform the following steps (refer to Figure 2-4).

1. Loosen the pan limit stops.
2. Turn the control unit on. Pan the unit to the right until the desired right pan limit is reached.
3. Move the right pan limit stop until it touches the pan limit switch actuator. Move the stop a slight distance further against the actuator until it “clicks”, indicating opening of the limit switch. Lock the stop in place.
4. Pan the unit to the desired “left” position. Adjust the left pan limit stop as described in Step 3.
5. Pan left and right to both limit stops and check for exact positioning. Tighten both stops securely.

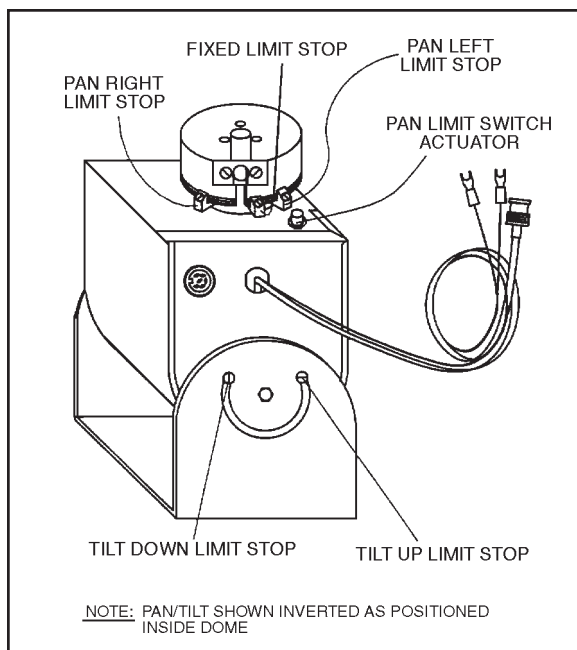


Figure 2-4 Limit Stops

6. Remove the cover plate from the left side of the tilt table. Loosen the limit stop screws and tilt the table, using the joystick, to the desired “up” position.
7. Move the “up” limit stop until it touches the tilt limit switch actuator and “clicks”. Lock the stop in place.
8. Tilt the table to the desired “down” position and set the stop in the same manner.
9. Tilt the table up and down and check for exact positioning. Tighten both stops securely. Replace the cover plate.

After the unit has been tested and stops aligned, turn off the control and disconnect the AC cord from the outlet. Remove the multiconductor cable from both the pan/tilt and control unit. This cable can then be used for installation by cutting the test cable and splicing the ends onto the installation cable at the job site. Splice the ends, color-to-color, onto the cable in the field, using the terminal blocks at each end.

NOTE: When wiring a system it is recommended that the multiconductor cable have extra conductors for future use.

2-3.0 OPERATIONAL TEST

2-3.1 CONTROL

Connect the cable assembly between the pan/tilt and the control unit. Plug the control unit into a 120 VAC outlet and switch the unit on.

Move the joystick to the UP position. Observing the “Front” label on the pan/tilt, the front of the tilt table should move up. Move the joystick to the DOWN position, and the front of the tilt table should move down. Releasing the joystick should allow it to return to center and the tilt table should immediately stop moving.

Move the joystick to the LEFT position and the complete top assembly should rotate counterclockwise. With the joystick moved to the RIGHT position, the unit will rotate clockwise.

Both the pan and tilt motors are protected from mechanical over-travel by electrical limits which stop the motors.

2-3.2 AUTO/RANDOM SCAN OPERATION

The PT2801000 will function in the Auto/Random mode with the addition of the appropriate Pelco control system. The PT2801000 has no additional limit switches or relays for auto scan operation and is, therefore, only compatible with current sensing auto/random type circuits employed in our control systems.

2-4.0 MAINTENANCE

2-4.1 RECOMMENDED EQUIPMENT AND TOOLS

1. Voltmeter or Ohmmeter
2. Allen Wrench Set
3. Wrench Set
4. Screw Driver, Flat Blade, Phillips Head
5. Pliers, Long Nose

2-4.2 SERVICE TIPS

Some common problems encountered with pan/tilt systems include mis-wiring, overloading, and not using the units for the correct application. Should a failure occur, it is recommended that the following procedures be used.

1. If the pan/tilt ceases to operate, turn the control unit off and remove the AC cord from the outlet.
2. Check the fuse in the control unit using either a voltmeter or ohmmeter. If open (blown), replace with the proper recommended fuse.
3. Replace the AC cord in the outlet and turn the control on. If the fuse continues to open (blow), turn the unit off.
4. Check the control cable between the control unit and pan/tilt for shorts, high resistance, or opens.
5. If the control cable is found to be good, replace the connector to the control unit, leave the connector off the pan/tilt, and replace the fuse.
6. Operate the control unit when it is disconnected from the pan/tilt. If the fuse continues to "blow" the fault is in the control. Refer to the appropriate service manual for the control being used.
7. Check the wiring harness in the pan/tilt for shorts.
8. If the wiring harness is found to be good, then the problem is internal to the unit; consult factory.

2-5.0 EXPLODED ASSEMBLY DIAGRAM (PARTS)

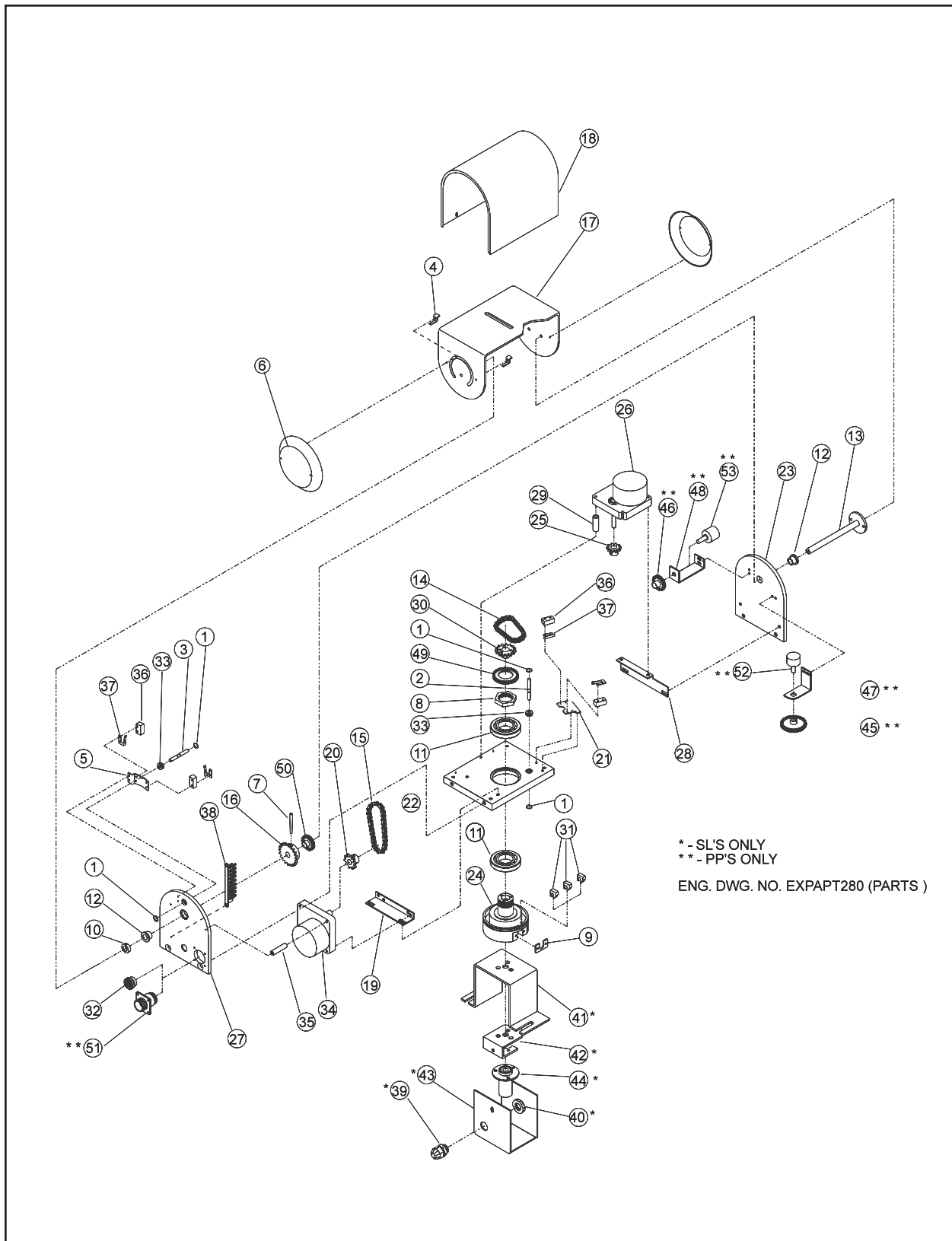


Figure 2-5. Pan/Tilt Exploded Assembly Parts Diagram

2-6.0 EXPLODED ASSEMBLY DIAGRAM (HARDWARE)

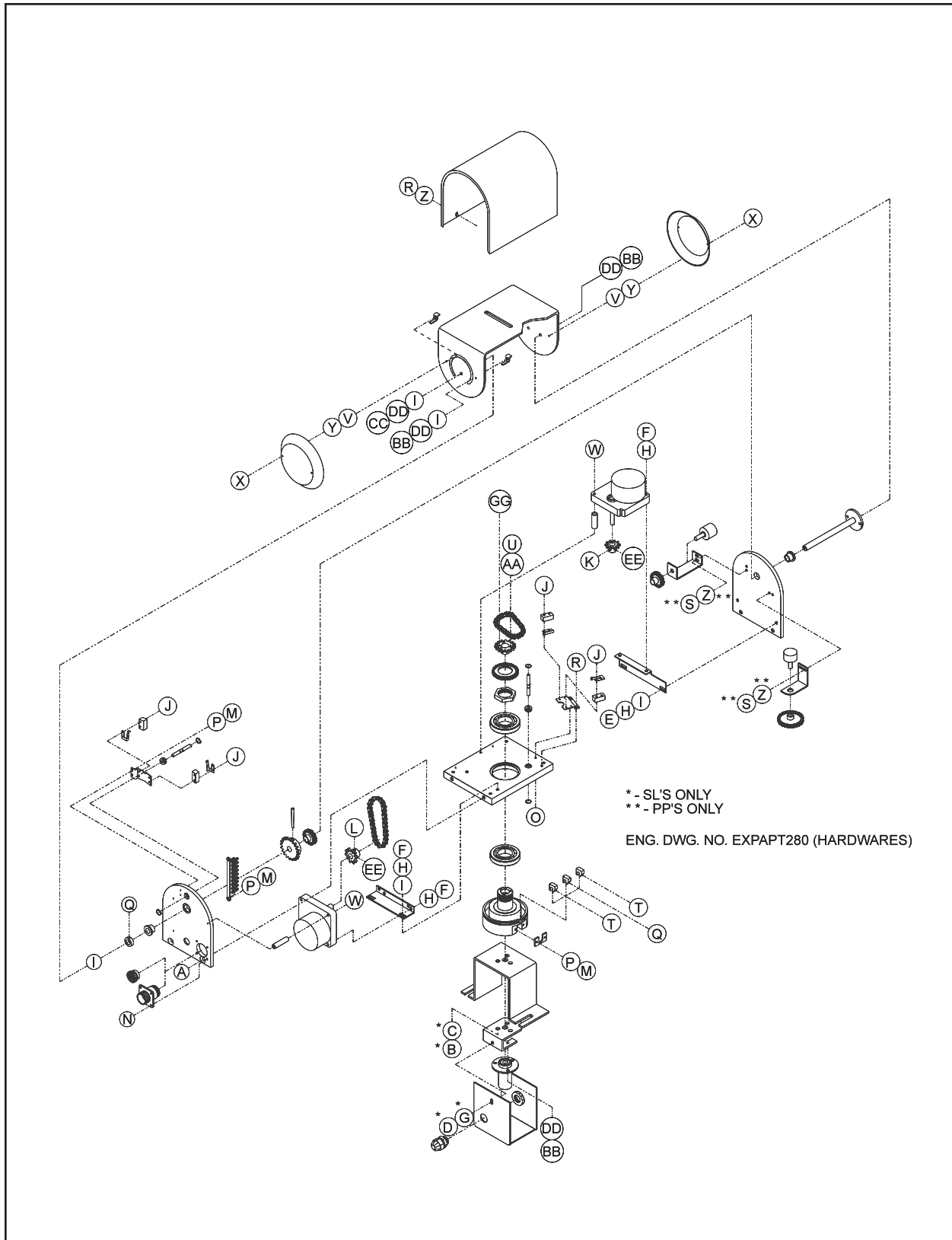


Figure 2-6. Pan/Tilt Exploded Assembly Hardware Diagram

2-7.0 MECHANICAL PARTS LIST (Pan/Tilt ASSY)

The following parts list corresponds to the exploded assembly diagram in Figure 2-5.

Item	Qty	Description	Part Number
1	4	Ring Snap #Q2-18	15510000
	2	Ring Snap #Q2-18 (SL)	15510000
2	1	Pin, Pan Limit (Non-SL)	1554049COMP
	1	Pin, Pan Limit (P/PP Only)	2804003COMP
3	1	Pin, Tilt Limit	1554049TCOMP
4	2	Tilt Limit Stop	1554050COMP
5	1	Bracket, Tilt Limit	1554052COMP
6	2	Cover Plate Tilt	1554053COMP
7	1	Pin, #1 X 1-1/4 Taper	17510000
8	1	Nut Spindle	25010002
9	1	Clamp Cable (SL Only)	2504007COMP
10	1	Spacer Tilt Collar	2504015COMP
11	2	Bearing Pan Spindle	2506000
12	2	Bearing Tilt FB68-31/4	2506001
13	1	Tilt Shaft Assembly	2701002COMP
14	1	Chain Assembly Pan	2701003COMP
15	1	Chain Assembly Tilt	2701004COMP
16	1	Sprocket, 25B20-3/8 W/SS	27012008
17	1	Tilt Table	2704003COMP
18	1	Cover	2704004COMP
19	1	Bracket, Pan Tilt Motor, Black	2704006COMP
20	1	Sprocket Motor	2704010COMP
21	1	Bracket, Pan Limit (Non-SL Only)	2704051COMP
22	1	Plate Bottom	2704100COMP
23	1	Side plate, Pan	270412COMP
24	1	Spindle	274105COMP
25	1	Sprocket, 25B15-3/8	28012010
	1	Sprocket, 25B13-3/8 (not shown)	28012011
26	1	Motor, Pan 2-RPM, 24 VAC	2804001COMP
27	1	Plate Side Tilt (Non PP)	2804002COMP
	1	Plate Side Tilt (PP)	2804102COMP
28	1	Bracket Pan Motor	2804012COMP
29	1	Spacer Pan Motor	2804013COMP
30	1	Sprocket Pan Spindle	2804019COMP
31	3	Limit Stop, Pan	5804006COMP
32	1	Connector, 6-Position, (SL and P Only)	CONMAB6100
33	2	Grommet, Neoprene	GRO2172N
	1	Grommet, Neoprene (SL)	GRO2172N
34	1	Motor, 24 VAC, 1-RPM	PS78001
35	1	Spacer, 5/16 Dia X 1.25 #10 Clear	SPA8548
36	4	Switch, Micro	SWI1SM1
	2	Switch, Micro (SL)	SWI1SM1
37	4	Switch Actuator W/Insulator	SWIJS138B
	2	Switch Actuator W/Insulator (SL)	SWIJS138B
38	1	Terminal Strip 7-pin (Non-PP)	TRS2007
	1	Terminal Strip 9-pin (PP Only)	TRS2009
39	1	UL, Gland SL-9	EH400010003
40	1	UL, Nut for EH400010003	EH400010004
41	1	Bracket, PM200C	M200C4000COMP
42	1	Bracket Slip Ring (SL/PP)	SL28004101COMP
	1	Bracket Slip Ring (P/PP)	SL28004001COMP
43	1	Cover, Slip Ring	SL28004100COMP
44	1	Ring, Slip for Preset (SL/PP)	250010000
	1	Ring Slip 24-inch Leads (SL)	28010000

2-7.0 MECHANICAL PARTS LIST (PAN/TILT ASSY) CONT.

Item	Qty	Description	Part Number
45	1	Gear, SP Delrin (SL/PP)	280010016
	1	Gear, 1.875 Plastic (P/PP)	PT250010002
46	1	Gear, SP Delrin	28010017
47	1	Bracket, Pot Pan (P/PP)	2804014COMP
	1	Bracket, Pot Pan (SL/PP)	2804117COMP
48	1	Bracket, Pot Pan	2804015COMP
49	1	Gear, Preset Pan Spindle	2804016COMP
50	1	Gear, Preset Tilt Shaft	2804020COMP
51	1	Connector, 28-position, (PP Only)	5804130COMP
52	1	Pot, Dual Arm Pre Res (SL/PP)	POTDARM010.0K
	1	Pot Precision, 10K (P/PP)	POT010.0K
53	1	Gear, 1.875 Plastic (P/PP)	POT10.0K

2-8.0 MECHANICAL HARDWARE LIST (PAN/TILT ASSY)

The following parts list corresponds to the exploded assembly diagram in Figure 2-6.

Item	Qty	Description	Part Number
A	4	Bolt, 1/4-20 X 5/8, Phil Flat SS	ZH1/420X.625SFS
B	3	Screw, 1/4-20 X 5/8, Hex C/S SS (SL Only)	ZH1/420X.625CH
C	3	Washer, Split Lock Medium (SL Only)	ZH1/4LWSSL
D	1	Screw, 10-32 X 3/8, Pan Phil SS (SL Only)	ZH10-32X.375SPP
E	2	Screw, 10-32 X 7/16, Socket Head C/S SS	ZH10-32X.437CS
F	6	Screw, 10-32 X 1/2, Socket Head C/S SS	ZH10-32X.500CS
G	1	#10 Internal Tooth Lock washer (SL Only)	ZH10LWSIS
H	8	Washer, Split Lock #10 SS Medium	ZH10LWSSL
I	8	Washer, Flat #10 SS	ZH204X436X60C
J	8	Screw, 2-56 X 4/16, Pan Phil SS	ZH2-56X.437SPP
	4	Screw, 2-56 X 4/16, Pan Phil SS (SL)	ZH2-56X.437SPP
K	1	Set Screw, 10/32 X 1/8, Socket Knurl Blk	ZH10-32X.187S
L	1	Set Screw, 10/32 X 3/16, Socket Knurl Blk	ZH3/8-24X.375SS
M	6	Screw, 4-40 X 1/4, Pan Phil SS	ZH4-40X.250SPP
N	4	Screw, 4-40 X 3/8, Pan Phil (PP Only)	ZH4-40X.375SPP
O	1	Screw, 4-40 X 5/8, Pan Phil SS	ZH4-40X.625SPP
P	6	#4 Internal Tooth Lock washer SS	ZH4LWSIS
Q	2	Set Screw, 6-32 X 3/16, Socket Knurl Blk	ZH6-32X.187S
R	4	Screw, 6-32 X 1/4, Pan Phil SS	ZH6-32X.250SPP
S	4	Screw, 6-32 X 3/8, Socket C/S SS	ZH6-32X.375CS
T	2	Screw, 6-32 X 3/8, Pan Phil SS	ZH6-32X.375SPP
U	3	Screw, 6-32 X 1/2, Socket C/S	ZH6-32X.500CS
V	4	Set Screw, 6-32 X 3/4, SS	ZH6-32X.750SS
W	2	Screw, 6-32 X 2, Pan Phil SS	ZH6-32X2.00SPS
X	4	Nut, 6-32, Acorn SS	ZH6-32NUTCA
Y	4	Nut, Hex, 6-32, SS	ZH6-32NUTSH
Z	7	#6 Internal Tooth Lock washer (PP Only)	ZH6LWSIS
	3	#6 Internal Tooth Lock washer (P Only)	ZH6LWSIS
AA	3	Washer, Split Lock, #6 SS Med	ZH6LWSSL
BB	6	Screw, 8-32 X 3/8, Pan Phil SS (SL Only)	ZH8-32X.375SPP
	3	Screw, 8-32 X 3/8, Pan Phil SS (P Only)	ZH8-32X.375SPP
CC	1	Screw, 8-32 X 5/8, Pan Phil SS	ZH8-32X.375SPP
DD	7	Washer, Internal Star (SL Only)	ZH8LWSIS
	4	Washer, Internal Star (P Only)	ZH8LWSIS
EE	1	Pin Roll, 3/32 X 1/2	ZHPIN3/32X1/2R
FF	1	Pin Roll, 3/32 X 1/2	ZHPIN3/32X3/4R
GG	1	Pin Dowel, 1/8 X 5/8, Harden Steel	1510001

2-9.0 MODELS

PT2801000ASSY	Mini light duty pan/tilt, 0-355° pan rotation, 24 VAC
PT2801001ASSY	Mini light duty pan/tilt with 360° pan rotation, 24 VAC
PT2801002ASSY	Same as PT2801000ASSY except with position feedback modification which allows pan/tilt to be automatically positioned to various preset positions
PT2801003ASSY	Same as PT2801001ASSY except with position feedback modification which allows pan/tilt to be automatically positioned to various preset positions

2-10.0 SPECIFICATIONS

MECHANICAL

Pan:	Movement in horizontal plane (at 10°/sec ±1°): PT2801000ASSY PT2801002ASSY—0-355° PT2801001ASSY PT2801003ASSY—0-360° circle
Tilt:	±90° movement in vertical plane at 3°/sec ±.5° (no load condition)
Maximum Load:	15 lbs (6.8 kg)

(Product specifications subject to change without notice.)



This equipment contains electrical or electronic components that must be recycled properly to comply with Directive 2002/96/EC of the European Union regarding the disposal of waste electrical and electronic equipment (WEEE). Contact your local dealer for procedures for recycling this equipment.

ELECTRICAL

Input Voltage:	24 VAC required for pan/tilt
Maximum Current:	2 amps per conductor (SL models only)
Power Requirements:	
Running:	
Pan	.31 amp (7.5 vA)
Tilt	.38 amp (9.2 vA)
Starting:	
Pan	.47 amp (11.2 vA)
Tilt	.56 amp (13.5 vA)
Connectors:	
Pan/Tilt	Amp CPC type (mate supplied), installed onto a pigtail exiting from the base of the unit (all functions — camera power, lens, video pan/tilt)
Lens	Hirschmann MAB6100
Video	BNC
Camera Power:	Spade lugs
Motors:	Two-phase induction type, continuous duty, instantaneous reversing
Limit Switches:	
Pan	5 amp,
Tilt	5 amp, External adjustment

GENERAL

Construction:	
Pan/Tilt	Aluminum

2-11.0 WARRANTY AND RETURN INFORMATION

WARRANTY

Pelco will repair or replace, without charge, any merchandise proved defective in material or workmanship for a period of one year after the date of shipment.

Exceptions to this warranty are as noted below:

- Five years on FT/FR8000 Series fiber optic products.
- Three years on Genex® Series products (multiplexers, server, and keyboard).
- Three years on Camclosure® and fixed camera models, except the CC3701H-2, CC3701H-2X, CC3751H-2, CC3651H-2X, MC3651H-2, and MC3651H-2X camera models, which have a five-year warranty.
- Two years on standard motorized or fixed focal length lenses.
- Two years on Legacy®, CM6700/CM6800/CM9700 Series matrix, and DF5/DF8 Series fixed dome products.
- Two years on Spectra®, Esprit®, ExSite™, and PS20 scanners, including when used in continuous motion applications.
- Two years on Esprit® and WW5700 Series window wiper (excluding wiper blades).
- Eighteen months on DX Series digital video recorders, NVR300 Series network video recorders, and Endura™ Series distributed network-based video products.
- One year (except video heads) on video cassette recorders (VCRs). Video heads will be covered for a period of six months.
- Six months on all pan and tilts, scanners or preset lenses used in continuous motion applications (that is, preset scan, tour and auto scan modes).

Pelco will warrant all replacement parts and repairs for 90 days from the date of Pelco shipment. All goods requiring warranty repair shall be sent freight prepaid to Pelco, Clovis, California. Repairs made necessary by reason of misuse, alteration, normal wear, or accident are not covered under this warranty.

Pelco assumes no risk and shall be subject to no liability for damages or loss resulting from the specific use or application made of the Products. Pelco's liability for any claim, whether based on breach of contract, negligence, infringement of any rights of any party or product liability, relating to the Products shall not exceed the price paid by the Dealer to Pelco for such Products. In no event will Pelco be liable for any special, incidental or consequential damages (including loss of use, loss of profit and claims of third parties) however caused, whether by the negligence of Pelco or otherwise.

The above warranty provides the Dealer with specific legal rights. The Dealer may also have additional rights, which are subject to variation from state to state.

If a warranty repair is required, the Dealer must contact Pelco at (800) 289-9100 or (559) 292-1981 to obtain a Repair Authorization number (RA), and provide the following information:

1. Model and serial number
2. Date of shipment, P.O. number, Sales Order number, or Pelco invoice number
3. Details of the defect or problem If there is a dispute regarding the warranty of a product which does not fall under the warranty conditions stated above, please include a written explanation with the product when returned.

Method of return shipment shall be the same or equal to the method by which the item was received by Pelco.

RETURNS

In order to expedite parts returned to the factory for repair or credit, please call the factory at (800) 289-9100 or (559) 292-1981 to obtain an authorization number (CA number if returned for credit, and RA number if returned for repair).

All merchandise returned for credit may be subject to a 20% restocking and refurbishing charge.

Goods returned for repair or credit should be clearly identified with the assigned CA or RA number and freight should be prepaid. Ship to the appropriate address below.

If you are located within the continental U.S., Alaska, Hawaii or Puerto Rico, send goods to:

Service Department
Pelco
3500 Pelco Way
Clovis, CA 93612-5699

If you are located outside the continental U.S., Alaska, Hawaii or Puerto Rico and are instructed to return goods to the USA, you may do one of the following:

If the goods are to be sent by a COURIER SERVICE, send the goods to:

Pelco
3500 Pelco Way
Clovis, CA 93612-5699 USA

If the goods are to be sent by a FREIGHT FORWARDER, send the goods to:

Pelco c/o Expeditors
473 Eccles Avenue
South San Francisco, CA 94080 USA
Phone: 650-737-1700
Fax: 650-737-0933

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