

**PT480
Legacy® Series
Pan/Tilts**

**Maintenance/
Service Manual**

C343SM (12/98)

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REVISION HISTORY

| Manual | Date | Comments |
|---------------|-------------|-------------------|
| C343SM | 12/98 | Original version. |

1.0 GENERAL

1.1 IMPORTANT SAFEGUARDS AND 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. The weight of the camera/lens and enclosure shall not exceed 20 lb (9.07 kg) – subject to specific pan/tilt unit.
3. Only use replacement parts recommended by Pelco.
4. 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.
5. The installation method and materials should be capable of supporting four times the weight of the enclosure, pan/tilt, camera and lens combination.

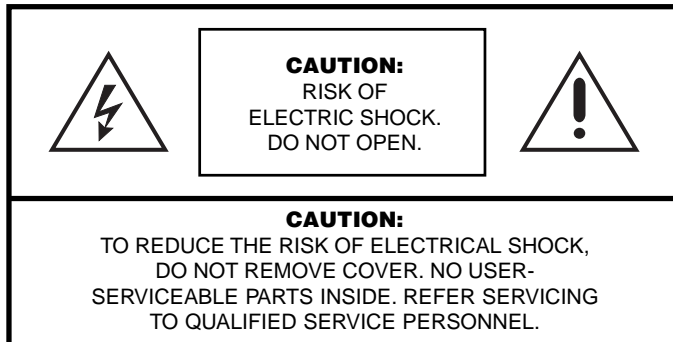
The product and/or manual may bear the following marks:



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.



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

2.0 DESCRIPTION

The PT480 Legacy® Series pan/tilt units are designed for medium-duty, indoor/outdoor use.

Only the EH4700L Legacy® Series environmental enclosures can be mounted on the pan/tilt units. Pelco's RediLINK™ connector makes it simple and quick for you to install an enclosure. The weight of the enclosure with camera and lens must not exceed 20 pounds (9.07 kg).

You can easily remove the clamshell covers from the sides of the pan/tilt units to access all internal parts without having to remove the camera enclosure. This makes it easy to service the units and to adjust the pan and tilt limit stops.

2.1 MODELS

The PT480 Series consists of the following models:

| | |
|---------------|--|
| PT480P | Medium-duty, indoor/outdoor pan/tilt, 120 VAC. |
| PT480P/PP | PT480P with preset positioning capabilities. |
| PT480-SL | PT480P with 360° pan rotation. |
| PT480SL/PP | PT480SL with preset positioning capabilities. |
| PT480-24P | Medium-duty, indoor/outdoor pan/tilt, 24 VAC. |
| PT480-24P/PP | PT480-24P with preset positioning capabilities. |
| PT480-24SL | PT480-24P with 360° pan rotation. |
| PT480-24SL/PP | PT480-24SL with preset positioning capabilities. |

3.0 MAINTENANCE

If you need to remove the enclosure, protect the RediLINK™ connector area against moisture, dust, dirt, etc. Failure to do so could result in a bad connection. Also, damage to the pan and tilt unit or enclosure could occur when power is turned on.

The following servicing should be done every six months with average use.

1. Remove the PT480's outer casing.
 - a. Remove the Phillips screw on each side of the pan and tilt unit.
 - b. Place your hands under the cover halves. Exert a strong, upward force to release the covers from their internal latching devices.
 - c. Pull the cover halves away from the pan and tilt unit. Set the covers down or hang them by the eyelets inside the covers. (The wire and hook on which to hang the covers is not provided.)
2. Inspect the gaskets around the cover, tilt shaft, and spindle for damage.
3. Refer to Figure 1. It shows the parts locations of the tilt assembly. Look for similar orientations of parts when adjusting the pan assembly.
4. Check the backlash adjustment.

Backlash is the slack or binding in a pan and tilt base mount. Determine backlash by lifting the maintenance assembly, grasping the base, and wiggling it. There should not be any play or binding between the gear (A) and worm drive (B). Play or binding indicates a backlash problem.

 - One backlash problem involves a worm and worm gear connection loose enough to cause slipping or tight enough to cause binding.
 - The second involves a too-loose or too-tight chain, usually causing symptoms similar to the worm and worm gear problem—slipping or binding.

- a. Verify that the worm drive (B) is fully seated in the worm gear (A). If it is not:
 - (1) Locate the worm-driven gear for either the pan or the tilt motor linkage. Loosen the three hex screws (F) holding the worm in place, but leave enough thread in place to hold the assembly on the mount.
 - (2) Using your thumbs, gently move the worm forward or pull the assembly back from the worm gear to either tighten or loosen the gear spacing to the worm gear. Move the base of the pan and tilt to check the adjustment.
 - (3) If you get movement in the base, press a finger down in the middle of the worm assembly. If you get no movement in the base, use your thumb and forefinger to pull the worm assembly back until you get movement.
 - (4) When the spacing is correct, tighten the hex screws. Start with the middle screw to ensure proper spacing.
 - (5) Remove the screw (C) in the gear train nut (D).
 - (6) Tighten the gear train nut to remove any play.
 - (7) Line up the hole in the gear train nut with the nearest hole in the gear train bracket (E).
 - (8) Replace the screw.
 - b. Refer to Figure 1. Adjust chain tension, if needed:
 - (1) Locate the pan or tilt motor on the assembly. Loosen the hex screws (H) that hold the motor to its mounting bracket. Depending on which motor assembly you are adjusting, there will be either three (pan) or four (tilt). (Only two screws are shown in Figure 1.)
 - (2) Using a screwdriver, pry the motor down (at G) to tighten for the correct chain tension. (You should not be able to freely move the motor with your finger, nor should it be so tight that it will not move at all as this usually leads to binding.)
 - (3) Tighten the hex screws.
 - c. Using a controller, you should now be able to move the PT480 without looseness or binding. If you have any problems, contact Pelco's Technical Support Department.
5. Lubricate the chains. Use a Teflon chain lubricant, such as TriFlon™.
 6. Replace the covers.
 - a. Grasp one cover half in each hand and position the covers on each side of the pan and tilt unit.
 - b. Bring the two cover halves together, aligning the two pins in one cover half with the mating holes in the other cover half.
 - c. When the cover halves are together, press downward to force the covers into their latches.
 - d. Replace the screws in the covers.

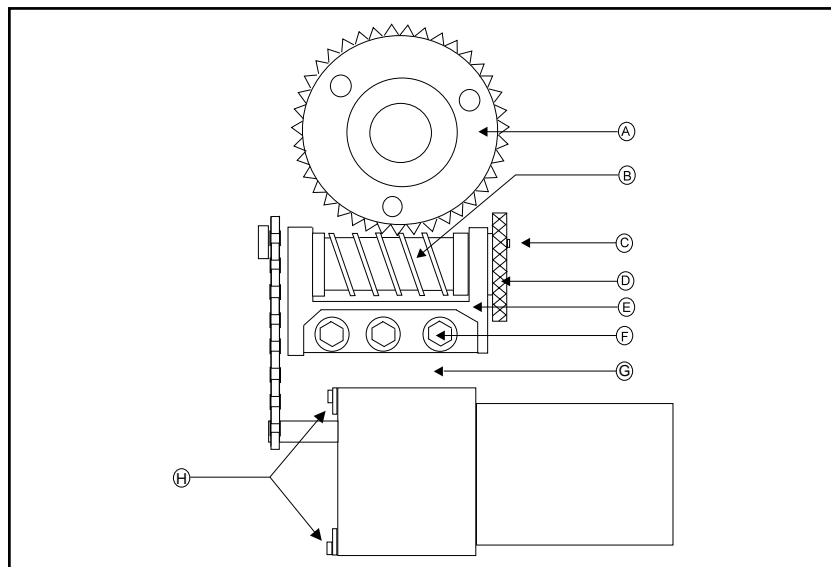


Figure 1. Pan and Tilt Adjustments

4.0 WIRING DIAGRAMS

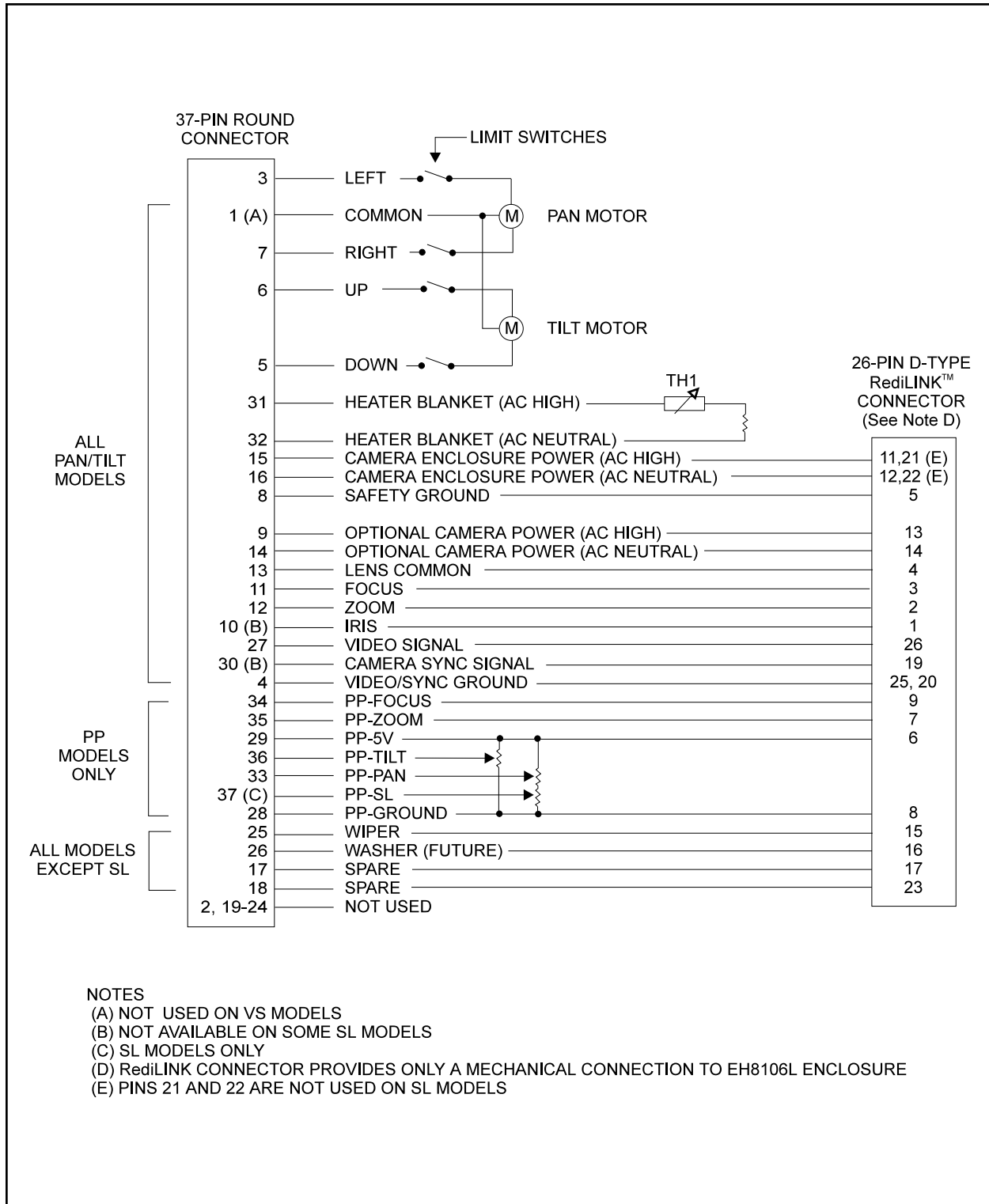


Figure 2. PT480 Series Wiring Diagram

5.0 EXPLODED ASSEMBLY DIAGRAMS

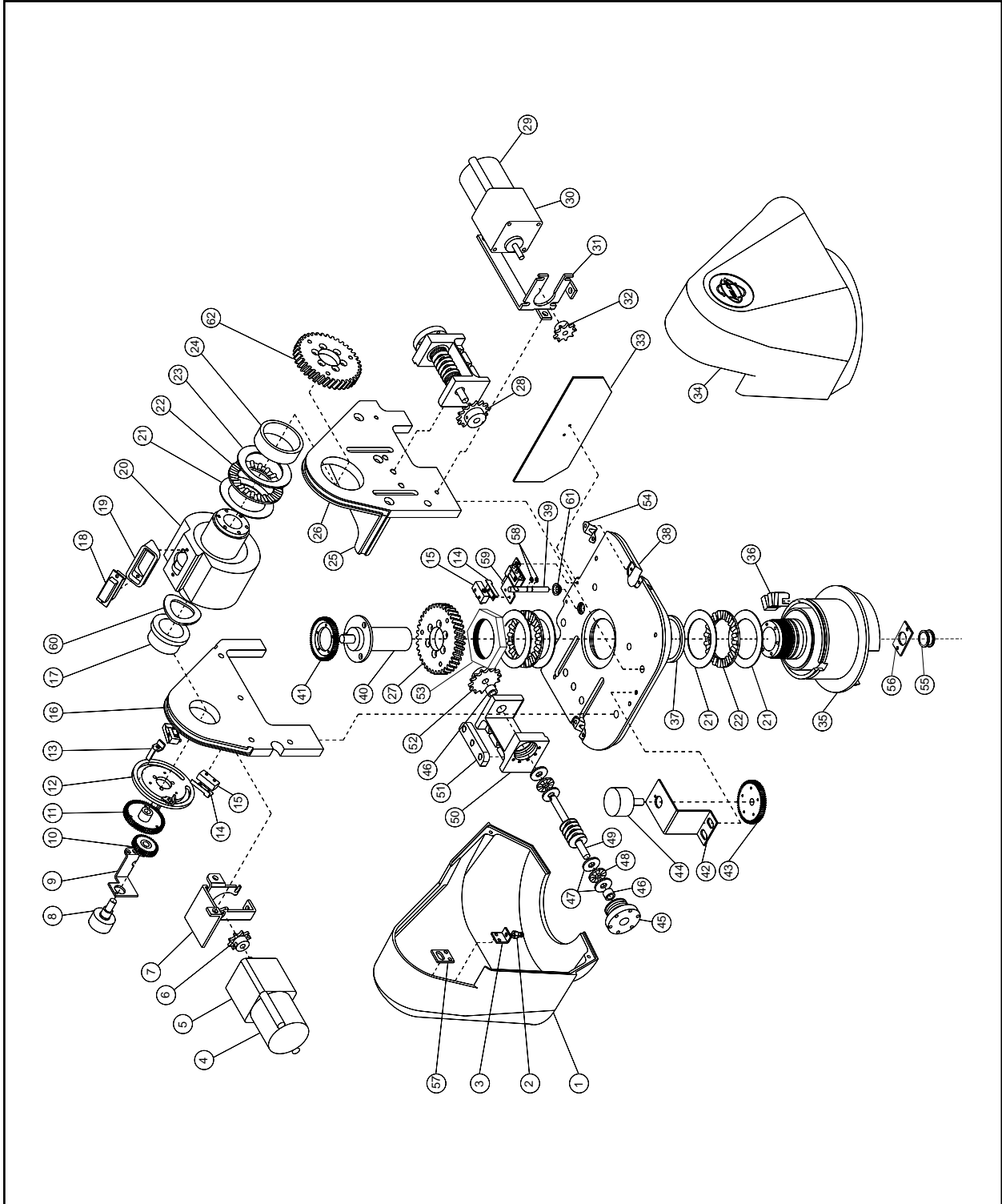


Figure 3. Exploded Assembly Diagram of Mechanical Parts

Table A. Mechanical Parts List (Figure 3)

| Item | Quantity | Description | Part Number |
|------|----------|-------------------------------------|------------------|
| 1 | 1 | Cover, pan side | 9044016COMP |
| 2 | 2 | Ball stud | PT180410000 |
| 3 | 2 | Ball stud bracket | 9044011COMP |
| 4 | 1 | Pan motor, 24 VAC | 9048000 |
| | | Pan motor, 120 VAC | 9048010 |
| 5 | 1 | Pan motor gearhead | 9048002 |
| 6 | 1 | Pan motor sprocket | 90010023 |
| 7 | 1 | Pan motor bracket | 9044009COMP |
| 8 | 1 | Tilt preset potentiometer | POTP010.0K* |
| 9 | 1 | Tilt potentiometer bracket | 9044014COMP* |
| 10 | 1 | Gear, 40 teeth | 9004018COMP* |
| 11 | 1 | Gear, 52 teeth | 28010016* |
| 12 | 1 | Tilt limit ring | 9004012COMP |
| 13 | 2 | Tilt limit stop | 1554050COMP |
| 14 | 4 | Actuator, with insulator | SWIJS138B |
| | 2** | | |
| 15 | 4 | Switch | SWI1SM1 |
| | 2** | | |
| 16 | 1 | Upright, pan side | 9044002COMP |
| 17 | 1 | Bushing, pan side | PT250010004 |
| 18 | 1 | 26-pin, subminiature, D-type socket | COND226S |
| 19 | 1 | Tilt shaft connector guide | 9004015COMP |
| 20 | 1 | Tilt shaft feed-through | 9004000COMP |
| 21 | 5 | Thrust washer, .030" | 90010002 |
| 22 | 3 | Thrust bearing | 90010001 |
| 23 | 1 | Thrust washer, .060" | 90010024 |
| 24 | 1 | Bronze bushing | 90010006 |
| 25 | 1 | Cross-brace uprights | 9044008COMP |
| 26 | 1 | Upright, tilt side | 9044001COMP |
| 27 | 1 | Worm gear, 40 teeth | 9001009 |
| | | | 9004024COMP*** |
| | | | 9004025COMP**** |
| 28 | 1 | Sprocket | 90010022 |
| 29 | 1 | Tilt motor, 24 VAC | 9048000 |
| | | Tilt motor, 120 VAC | 9048010 |
| 30 | 1 | Tilt motor gearhead | 9048001 |
| 31 | 1 | Tilt motor bracket | 9044010COMP |
| 32 | 1 | Sprocket | 90010023 |
| 33 | 1 | Circuit board assembly, 24 VAC | PCB9041120ASSY |
| 34 | 1 | Cover, tilt side | 9044017COMP |
| 35 | 1 | Pan spindle | 9004030COMP |
| 36 | 3 | Pan limit stop | 5804006COMP***** |
| 37 | 1 | Bronze bushing | 90010029 |
| 38 | 1 | Base | 9044007COMP |
| 39 | 1 | Pan limit stop | 1554049COMP***** |
| 40 | 1 | Slip ring | 250010000*** |
| | | | 28010000***** |
| 41 | 1 | Preset gear, pan spindle | 9004017COMP*** |
| | | | 9004022COMP**** |
| 42 | 1 | Pan potentiometer bracket | 9004008COMP |
| 43 | 1 | Gear, 56 teeth | 90010020* |
| 44 | 1 | Pan preset potentiometer | POTDARM010.0K*** |
| | | | POTP010.0K**** |
| 45 | 2 | Gear train nut | 9004009COMP |
| 46 | 4 | Bronze bushing | 5806005 |
| 47 | 8 | Thrust washer | 5806003 |
| 48 | 4 | Thrust bearing | 5806002 |
| 49 | 2 | Worm | 90010008 |

* PP models only
 ** All SL models

*** SL/PP model only
 **** Non-360° PP models

Continued on next page

Table A. Mechanical Parts List (Continued)

| Item | Quantity | Description | Part Number |
|------------------------------------|------------------|--|------------------------|
| 50 | 2 | Gear train bracket | 9004005COMP |
| 51 | 1 | 3-position bar nut | 9004006COMP |
| 52 | 1 | Sprocket | 90010022 |
| 53 | 1 | Pan spindle nut | 9004019COMP |
| 54 | 2 | Ball stud receiver | 90010030 |
| 55 | 1 | Grommet, 3/8" ID | GRO2175 |
| | | Grommet, 1/4" ID | GRO2170** |
| 56 | 1 | Wire clamp | 9004020COMP***** |
| | | | 9004021COMP** |
| 57 | 2 | Eyelet service bracket | 9004023COMP |
| 58 | 2 | Snap ring | 15510000***** |
| 59 | 1 | Pan limit switch bracket | 1554051COMP***** |
| 60 | 1 | Wave spring | 90010017 |
| 61 | 1 | Grommet | GRO2172N***** |
| 62 | 1 | Worm gear | 90010009 |
| The following items are not shown: | | | |
| 63 | 1 | Pan chain assembly, 22 pitch | 9041006ASSY |
| 64 | 1 | Tilt chain assembly, 28 pitch | 9041005ASSY |
| 65 | 1 | 2-position plastic connector | CON640428-2 |
| 66 | 6 | 3-position plastic connector | CON640428-3 |
| 67 | 1 | 6-position plastic connector | CON640428-6 |
| 68 | 2 | Cover labels | LBL19000 |
| 69 | 1 | Dust protector, 26-pin, subminiature, D-type socket | 90010025 |
| 70 | 1 | 37-pin connector plug (installed on cable) | CON206305-1 |
| 71 | 37 | Connector pins | CON66400-1 |
| 72 | 1 | Cable connector clamp | CON206138-1 |
| 73 | 1 | 37-pin connector socket assembly (loose equipment) Includes 37-position housing, boot, sockets, cable clamp | CONA37S |
| | * PP models only | *** SL/PP model only | ***** Not on SL models |
| | ** All SL models | **** Non-360° PP models | ***** SL model |

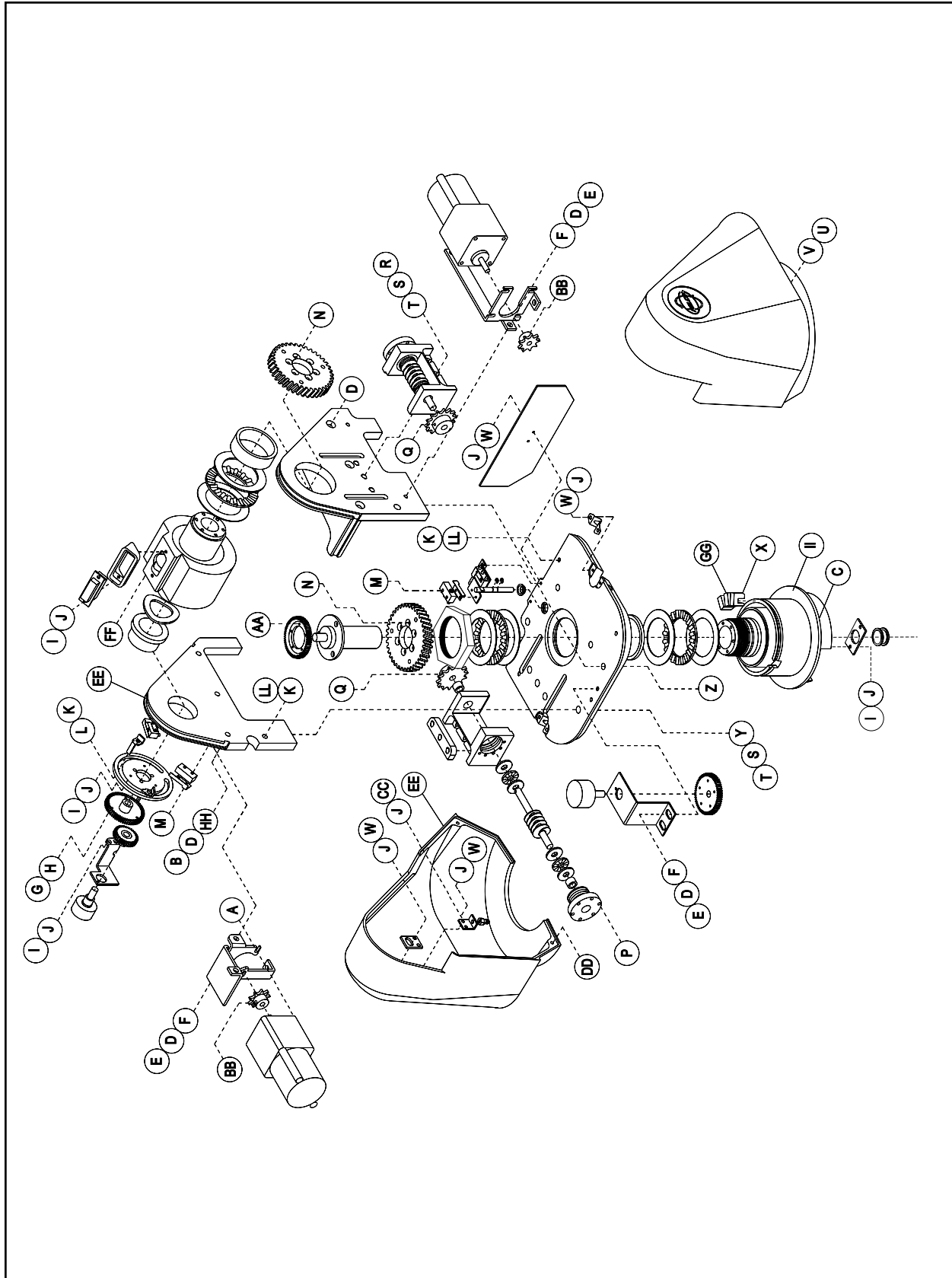


Figure 4. Exploded Assembly Diagram of Hardware

Table B. Hardware Parts List (Figure 4)

| Item | Quantity | Description | Part Number |
|------|----------|--|----------------------------------|
| A | 8 | Motor mount hardware | Supplied with motor and gearhead |
| B | 3 | Allen screw, 10-32 x .625-inch | ZH10-32X.625CS |
| C | 1 | Spindle mount gasket | 90010012 |
| D | 11 | Flat washer, #10 | ZH204X436X60C |
| E | 8 | Allen screw, 8-32 x 3/8-inch | ZH8-32X.375CS |
| F | 8 | Split lock washer, #8 | ZH8LWSSL |
| G | 3 | Screw, 2-56 x 3/8-inch, pan head, Phillips | ZH2-56X.375SRS |
| H | 3 | Internal star washer, #2 | ZH2LWSIS |
| I | 9 | Screw, 4-40 x 3/8-inch, pan head, Phillips | ZH4-40X.375SPP |
| J | 25 | Internal star washer, #4 | ZH4LWSIS |
| K | 4 | Screw, 8-32 x 1/4-inch, pan head, Phillips | ZH8-32X.250SPP |
| L | 2 | Internal star washer, #8 | ZH8LWSIS |
| M | 8 | Screw, 2-56 x 7/16-inch, pan head, Phillips | ZH2-56X.437SPP |
| N | 12 | Screw, 6-32 x 1/2-inch, flat head, Phillips | ZH6-32X.500SPS |
| O | 3 | Screw, 10-32 x 1/2-inch, flat head, Phillips | ZH10-32X.500CFS |
| P | 2 | Screw, 4-40 x 5/8-inch, pan head, Phillips | ZH4-40X.625SPP |
| Q | 2 | Roll pin | ZHPIN3/32X3/4R |
| R | 6 | Allen bolt, 1/4-20 x 1/2-inch | ZH1/420X1.50SS |
| S | 8 | Flat washer, 1/4 | ZH260X562X65C |
| T | 8 | Split lock washer, 1/4 | ZH1/4LWSSL |
| U | 2 | Screw, 10-32 x .875-inch, gray | ZH10-32X.875GRY |
| V | 2 | Thread sealing washer | PS3010002 |
| W | 14 | Screw, 4-40 x .250-inch, pan head, Phillips | ZH4-40X.250SPP |
| X | 2 | Screw, 6-32 x .375-inch, pan head, Phillips | ZH6-32X.375SPP |
| Y | 2 | Allen bolt, 1/4-20 x 3/4-inch | ZH1/420X.750SS |
| Z | 3 | Bolt, 1/4-20 x 3/4-inch, flat head, Phillips | ZH1/420X.750SFS |
| AA | 1 | Self-tapping screw, 6-32 | ZH6-SAX.250CPP |
| BB | 2 | Roll pin | ZHPIN3/32X3/8R |
| CC | 2 | Allen screw, 4-40 x .250-inch | ZH4-40X.250SS |
| DD | 2 | Dowel pin | 90010004 |
| EE | 1 | Cover gasket | 90410011 |
| FF | 1 | Tilt shaft gasket | 90010014 |
| GG | 1 | Set screw, 6-32 x 3/16-inch | ZH6-32X.187S |
| HH | 3 | Split lock washer, #10 | ZH10LWSSL |
| II | 1 | Spindle cover gasket | 90010003 |
| LL | 2 | Cable clamp | ZH8913 |

6.0 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 CC3651H-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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