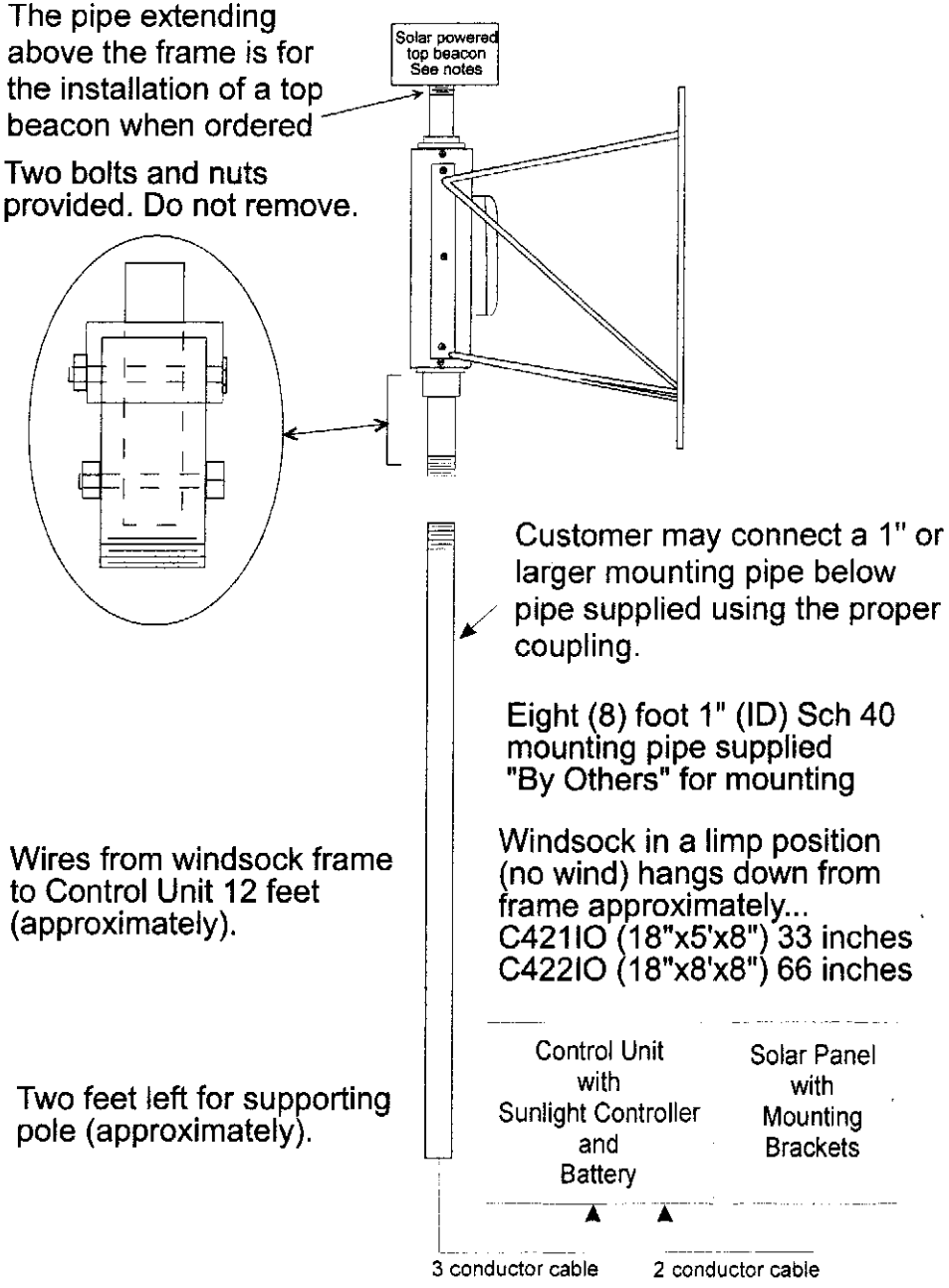
LIGHTED WINDSOCK FRAME with SOLAR PANEL

Model 740LWF, 740SPCU, (optional 740LWF-CTB)



FRAME INSTALLATION GUIDE - TOP BEACON

READ ALL INSTRUCTION BEFORE ATTEMPTING INSTALLATION

1. The wiring to the Solar Panel and Control Unit is always installed in the windsock frame support pipe.
   The Model 740LWF-CTB lighted windsock frame is supplied with a solar powered top beacon and does not require any enternal power. This item is only supplied when ordered as a Model 740LWF-CTB. Consult factory for details.
2. Install the mounting pile and Control Unit as shown.
3. Connect the wires coming from the LED light assembly to the connection terminals marked "load". Black wire ground or negative (-), red wires positive (+).
   Note: If a third wire (white) is supplied coming from the Windsock this wire is for changing the lights flash patterns. This wire is normally OPEN and only momentarily connected to +12VDC power to change the flash pattern/s. See attached Whelen data sheet for details. Consult factory.
4. All wires must enter the bottom of the Control Unit through the supplied compression fitting. Tighten fitting after wiring is complete.
5. Check all wiring is correct and secure before securing Control Units cover.

Changing Windsock Flash Patterns - 15 patterns available

1. With LED's active connect white flash pattern wire to +12 volts for more than 1 second will cause the lighthead to cycle through the flash patterns. When the desired pattern is displayed, allow it to run for more than 5 second. This pattern is selected.
   This feature is not available for all windsock LED lights or top beacons.

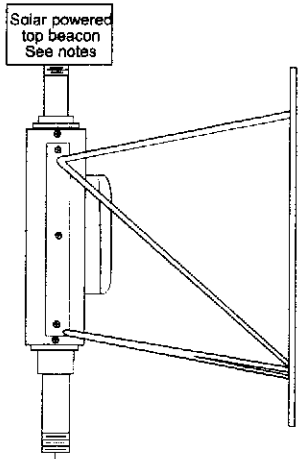
BDS SYSTEMS INC.
939 NATHANIEL TRAIL • WARWICK, PA 18974

DRAWN	DATE	LIGHTED WINDSOCKS INSTALLATION (Mech/Elect)	
KLB	1/8/06		
APPD	DATE		REV
RBB	7/1/13	LWF+SPCU2_2.des	

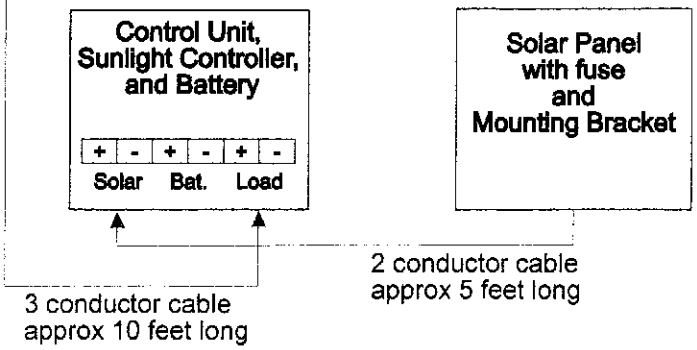
NO SCALE

215-345-0436

LIGHTED WINDSOCK FRAME
Model 740LWF



SOLAR POWERED CONTROL UNIT
Model 740SPCU



FRAME INSTALLATION GUIDE

READ ALL INSTRUCTION BEFORE ATTEMPTING INSTALLATION

1. The solar panel surface must not be damaged. Do not damage any part of the solar panel as a damaged solar panel will not operate properly.
2. Install the solar panel using the straps or U-bolts provided. For best charging installation, the solar panel should face in a true South direction (In northern latitudes), or true North (in southern latitudes) - towards the sun. Adjust the panels direction and tile for best charging operation. Check with local authorities for complete information. Solar panel mechanical installation attached.
3. Install the Control Unit using the manufactures mounting tabs and as close as possible to the solar panel. All writing must enter the bottom of the Control Unit through the compression fitting. Inspect mounting of solar panel and Control Unit.
4. Connect wiring inside the Control Unit as follows:
   (a) First connect the battery to the proper terminals on the SL-10 Solar Controller. (Plus wire to + terminal of battery, negative wire to - terminal of battery)
   (b) Next connect the solar panel to the proper terminal on the Solar Controller. (Red wire to fuse wire that is connected to terminal marked +, black wire to terminal marked -). Fuse 3 amps.
   (c) Last connect the light (load) to the proper terminals on the Solar Controller. (Red wire to the terminal marked +, black wire to the terminal marked -).
5. BDS has set the On/Off time in the Control Unit as follows: ON at sunset, OFF at sunrise. (The "D/D" setting is dusk to dawn). See Solar Controller manual for other setting.
6. BDS has set the LED light assembly for Steady Burn - On continuously. Other flash patterns are available but will use more battery power. See instructions.
7. During installation or service do not leave the cover/door open or unprotected. Secure all loose items and inspect when complete.
8. A third wire (white) is provide from the LED light assembly for changing the flash patterns. Momentarily connecting this white wire to +12 volts will change the flash pattern. Do not leave this wire connected. See instructions. Consult factory.
9. Top extension above the windsock frame is for a top beacon when ordered. Consult factory.

IMPORTANT

Complete information on the Solar Controller used in this unit can be viewed at:
http://www.morningstarcorp.com (SL - 10L - 12V)

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DRAWN KLB	DATE 9/15/08	LIGHTED WINDSOCKS INSTALLATION (Electrical)	
NO SCALE	APPD RBB	DATE 7/1/13	LWF+SPCU2+3.des	REV

215-345-0436

BDS 740LWF – Solar Powered Systems - Light Settings

740LWF (Lighted Windsock Frame) Field Programmable Flash Patterns

Fifteen (15) different patterns are available. These flash patterns are as follows.

1. Steady burn. Lights ON continuously when power is supplied. BDS default setting.
2. SignalAlert™ - 75fpm and 150fpm - preceded with a microburst flash followed by a specified
   a. 75fpm, 325ms ON time/OFF time
   b. 150fpm, 200ms ON-time/OFF time.
3. SingleFlash - 375fpm, 150fpm, 75fpm and 15fpm - single flash patterns.
   a. 375 is ON for 80ms, OFF for 80ms in a repeated pattern.
   b. 150 is ON for 200ms, OFF for 200ms in a repeated pattern.
   c. 75 is ON for 500ms, OFF for 300ms in a repeated pattern.
   d. 15 is ON for 2 seconds, OFF for 2 seconds (50% duty cycle) in a repeated pattern.
4. DoubleFlash - 150fpm and 75fpm - double flash burst
   a. 150fpm followed by an OFF time (150-400ms,).
   b. 75fpm followed by an OFF time (75-350ms).
5. CometFlash® - a burst of 4 light impulses, followed by an OFF time of 350ms.
6. ActionFlash™ - a pattern that repeats a mix of two CometFlash® burst followed by 4 SingleFlash patterns.
7. ModuFlash™ - a sweeping (rising and falling effect) pattern of increasing intensity followed by decreasing intensity.
8. ComAlert™ - a pattern that mixes a combination of CometFlash® and SignalAlert™ for a unique warning pattern.
9. ActionScan™ - scans through all of the above patterns (except steady burn) separated by a series of single flashes.
10. SignalAlert™ - Steady Burn pattern preceded with a SignalAlert™ micro burst flash.

740SPCU (Solar Powered Control Unit) Field Selectable ON and OFF Settings

The controller maybe field set to ten (10) different lighting control settings when power is applied to the LED light assembly. Applying power to the lights for a shorter time will conserve battery power. The different control settings are:

SETTINGS		LED's LIGHT OPERATION	
OFF	DAY=OFF	Sunset = OFF	Sunrise = OFF (Lights are always OFF)
2	Day =OFF	Sunset = ON for 2 Hrs	Then OFF
4	DAY=OFF	Sunset = ON for 4 Hrs	Then OFF
6	DAY=OFF	Sunset = ON for 6 Hrs	Then OFF
8	DAY=OFF	Sunset = ON for 8 Hrs	Then OFF
10	DAY=OFF	Sunset = ON for 10 Hrs	Then OFF
3/1	DAY=OFF	Sunset = ON for 3 Hrs	Then OFF, Then ON 1 Hr. before Sunrise
4/2	DAY=OFF	Sunset = ON for 4 Hrs	Then OFF, Then ON 2 Hrs. before Sunrise
6/2	DAY=OFF	Sunset = ON for 6 Hrs	Then OFF, Then ON 2 Hrs. before Sunrise
D/D	DAY=OFF	Sunset = ON	Sunrise = OFF (ON dusk to dawn). BDS default setting.

Some top beacons are shipped loose and not attached to the lighted windsocks frames support pipe. If this is the case install the top beacon as follows:

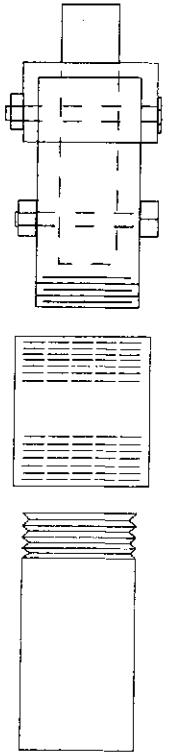
1. The 740LWF-CTB is supplied with a threaded mounting base plate. Thread this base plate on to the lighted windsocks support pipe. Check that the unit is tight and secure. See instruction shipped with the unit.

740LWF-CTB (Carmanch Model A650 Aviation Marking Light Solar Powered)

This top beacon has many different flash patterns. BDS supplied this unit with Red LED's, clear lens, ON/OFF switch and a steady burn flash code of 001. Other flash patterns (codes) can be field set. The battery can be field replaced. Consult factory for other info. www.morningstarcorp.com

LIGHTED WINDSOCK FRAME

Mounting Pipe Hardware

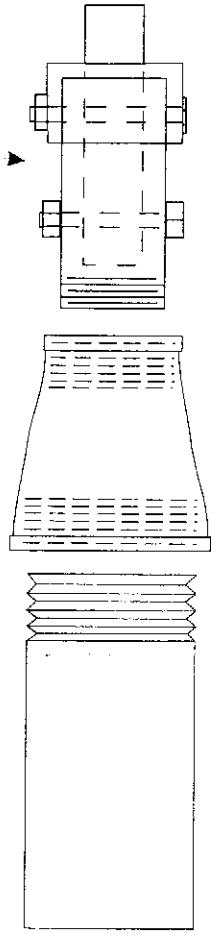


Windsock frame 1" (ID) mounting pipe connection. Supplied by BDS Systems.

1" coupling supplied "By Others".

1" support pipe supplied "By Others"

Using a coupling



1 ½ " X 1" reducer coupling shown. Supplied "By Others"

1 ½" support pipe supplied "By Others"

Using a reducer

NOTES

1. The above is a guide for installing a BDS lighted windsock frame assembly. The installer must decide whether to use a 1" or larger support pipe for the installation. Everything below the shown pipe connect must be supplied "By Others".
2. The wiring cable that supplies power to the windsock frame and top beacon when ordered is not shown in this drawing. Support for the bottom support pipe is "By Others".
3. The BDS supplied 1" (ID) threaded connection has a 1.315 nominal outside diameter.
4. Galvanized schedule 40 pipe available at plumbing supply houses, Home Depot or Lowes stores is quite suitable.

NO SCALE

BDS SYSTEMS INC.

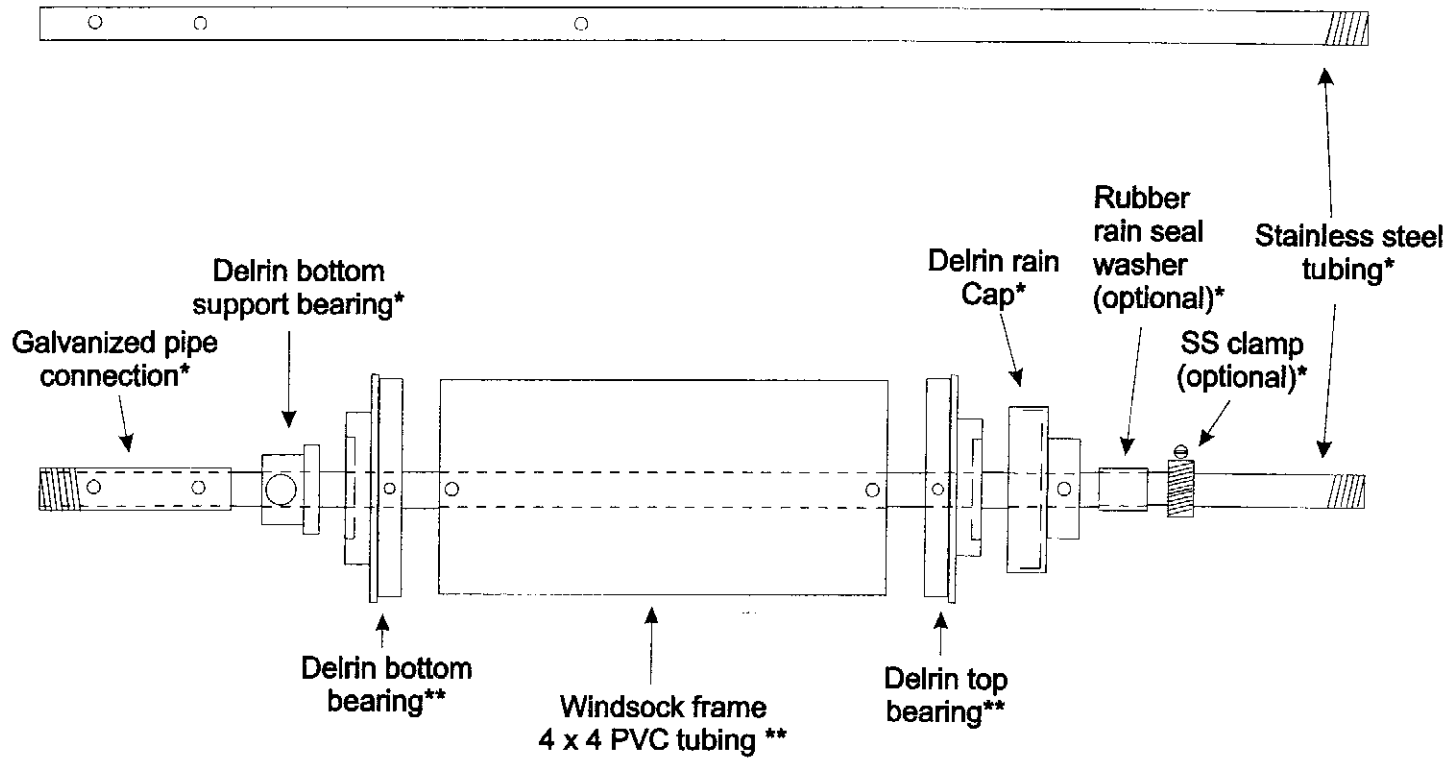
939 NATHANIEL TRAIL • WARWICK, PA 18974

DRAWN	DATE	LIGHTED WINDSOCKS INSTALLATION (Mech)	
KLB	1/20/09		
APPD	DATE	LWFpipeCon1.dsf	REV
RBB	7/1/13		A

215-345-0436

BDS WINDSOCK FRAME ASSEMBLY

(Exploded parts view)



Notes

1. Windsock frame support rods and windsock mounting ring not shown.
2. Miscellaneous screws / bolts not labeled. All parts not shown.
3. Center support tubing shown separately and with parts assembly.
4. Items with single asterisk (*) are stationary and do not move.
5. Items with double asterisk (**) rotate with the direction of the wind.
6. Electronics inside the tubing and LED light assembly not shown.
7. All Delrin parts white. All SS parts 304 stainless unless noted.

NO SCALE

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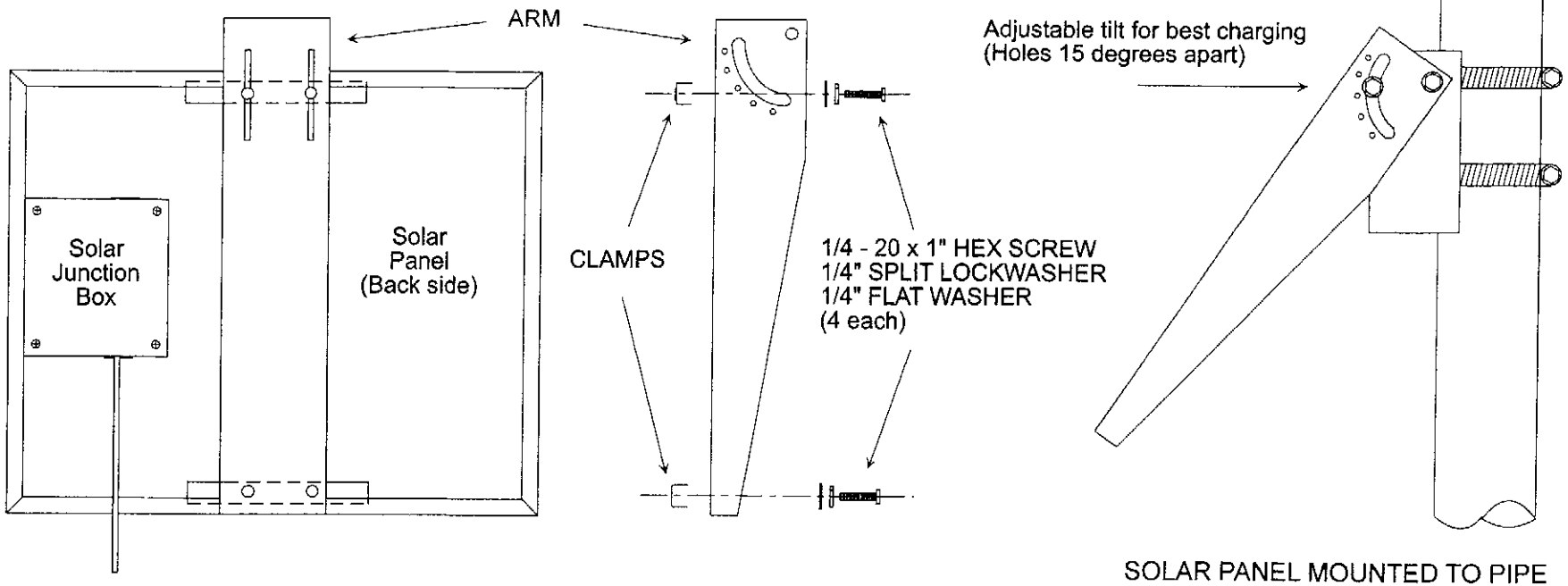
DRAWN	DATE		
KLB	10/10/11	Windsock frame assembly	
APPD	DATE		REV
RBB	7/1/13	LWF740partsview.dsf	

www.bdssystems.com/700d.html

215-345-0436

SOLAR PANEL MECHANICAL INSTALLATION



SOLAR PANEL MOUNTED TO PIPE
with two adjustable pipe band clamps

NOTES

1. Study all drawings and be comfortable with installation before proceeding.
2. Mount saddle bracket to pole with two adjustable pipe band clamps, Feed thru slots in bracket. Mount bracket with "Nutsert" facing "UP". Mounting saddle will adjust to a 1" to 3 1/2" pipe. Make sure saddle is secure and facing in correct charging direction.
3. Lay solar panel face down on a clean, soft, flat surface for mounting adjustable arm.
4. Assemble two clamps to arm assembly as shown. Do not tighten.
5. Position arm assembly over center of solar panel pushing bottom clamps all the way down into frame and loosely tighten bottom clamp.
6. Next push upper clamp into top of frame and loosely tighten. Inspect arm assembly is straight and then tighten all screws. Power cable from solar junction box should be facing down as shown on drawing.
7. Attach arm assembly to saddle bracket as shown using four (4) screws (2 each side) with lock washers and flat washers.
8. Tilt solar panel assembly for best charging angle them tighten all screws and inspect.

NO SCALE

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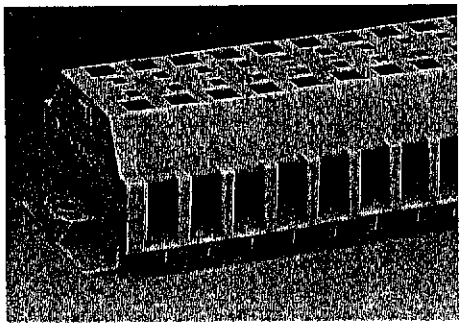
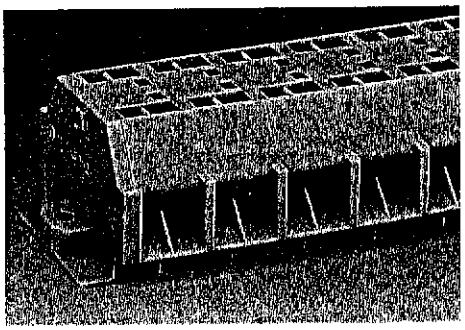
DRAWN	DATE	SOLAR POWERED LIGHTED WINDSOCKS	
KLB	1/8/06		
APPD	DATE	LWF+SPCU3.dsf	REV
RBB	1/8/06		

215-345-0436





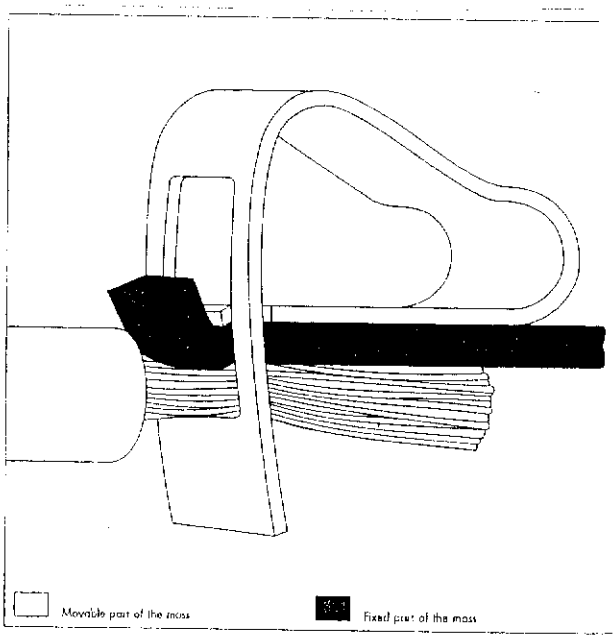
The WAGO CAGE CLAMP® Connection for Solid, Stranded and Fine-Stranded Wires

Vibration and shock resistant

Due to the best possible use of the material characteristics the CAGE CLAMP® spring has very little mass in relation to the high force produced.

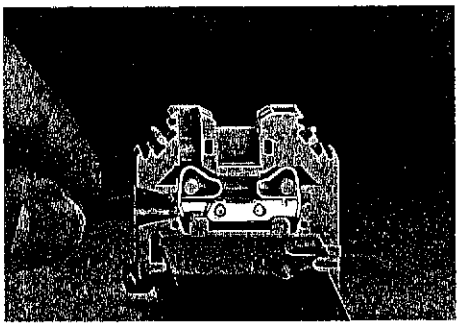
Additionally, the mass of the spring, the clamped wire and the current bar are divided such that resonances do not occur.

The interaction of these factors results in a connection which has high resistance to vibration and shock, as confirmed in many approval tests. Vibration and shock neither result in conductor damage nor in a measurable contact interruption.

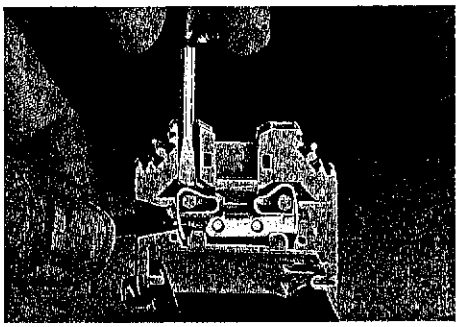


Side-entry:

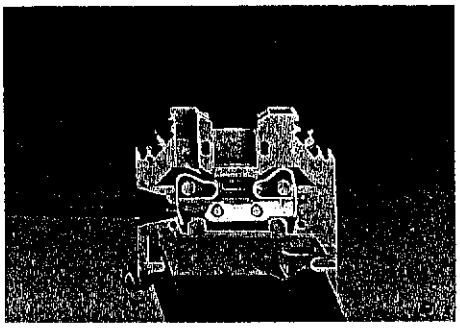
Depression of the CAGE CLAMP® spring from the front, wire entry from the side.



1. Stripped wire is introduced just before the clamping unit.



2. The CAGE CLAMP® spring is pressed down and the wire is introduced into the clamping unit immediately.



3. The CAGE CLAMP® spring is released – the conductor is automatically clamped.

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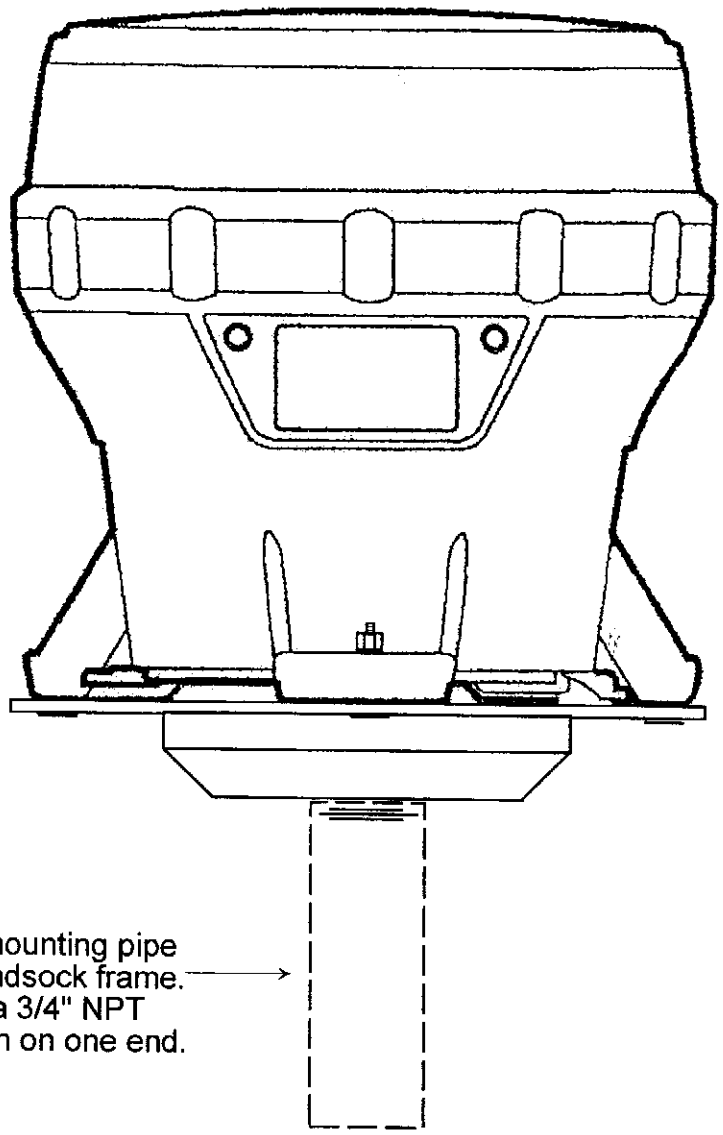
215-345-0436, bruce@bdssystems.com

Carmanah Model A650 Aviation / Obstrustion Marking Light with BDS support mounting assembly



Support mounting pipe part of windsock frame. Pipe has a 3/4" NPT connection on one end.

NOTES

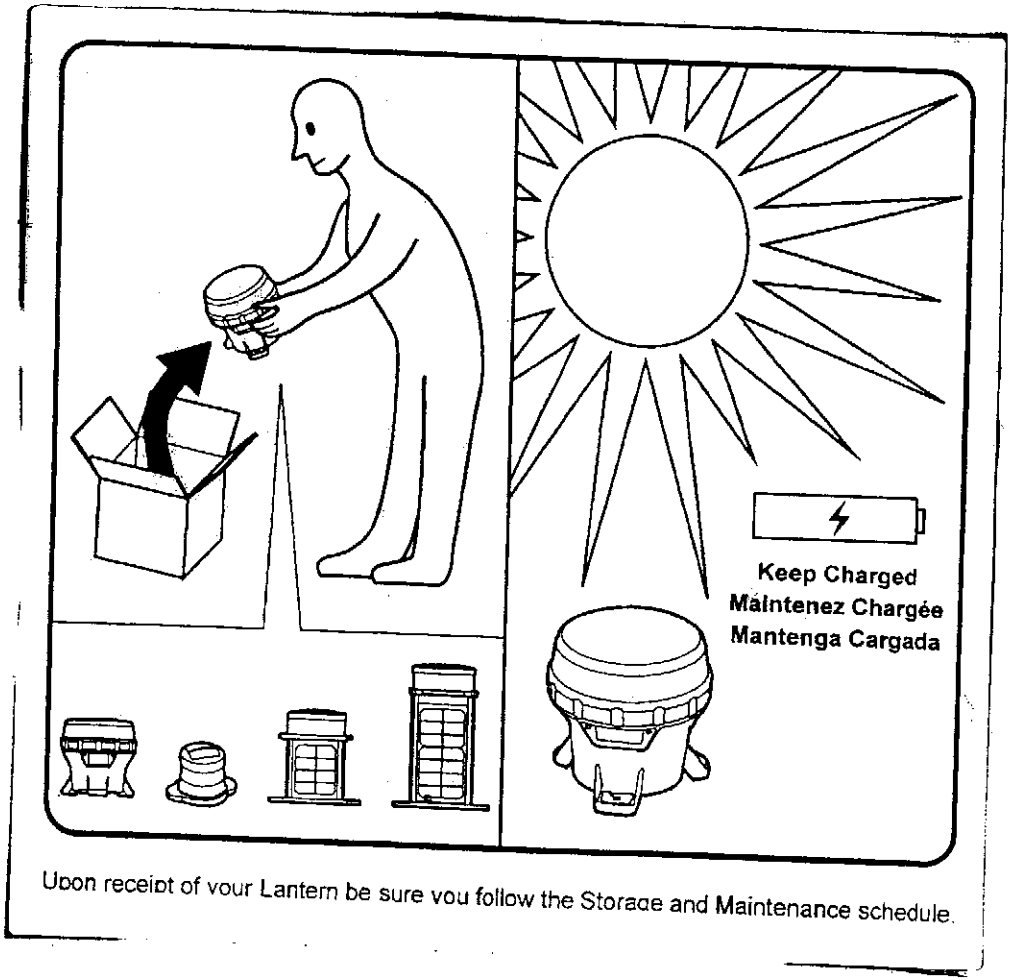
1. The Carmanah A650 is solar powered with red LED's. The solar panel is on top of assembly. Red LED's standard. Other colors available.
2. The light assembly must be screwed on to top pipe extending above the windsock frame.
3. This unit has been factory set to the following flash code. (Steady Burn)
   Flash code: 001, Steady Burn (Std)
   Many other flash codes are available such as:
   Flash code: 079, 2 seconds ON, 2 seconds OFF
   Flash code: 078, 1 second ON, 1 second OFF
   Flash codes can be field changed. See below.
4. Support mounting pipe must be mounted securely to prevent damage to assembly.
   Three (3) 10-32 X 1" SS machine screws
   Three (3) 10-32" SS Nylon lock nuts.
   Three (3) SS flat washers installed under locknuts.
5. Do not drop or damage the assembly during installation.
6. BDS always furnishes the A650 with a clear lens with red LED's. If green or another color is required specify color of light required.
7. Read manufactures User Manual for complete instructions found at:
   www.carmanah.com/Products/Aviation_Obstruction/A650.aspx select "User manual" or
   www.carmanah.com/LinkClick.aspx?fileticket=pEuMWA80B5M%3d&tabid=275
8. Visit: www.bdssystems.com/DSC_0184L.jpg

NO SCALE

BDS SYSTEMS INC.
939 NATHANIEL TRAIL • WARWICK, PA 18974

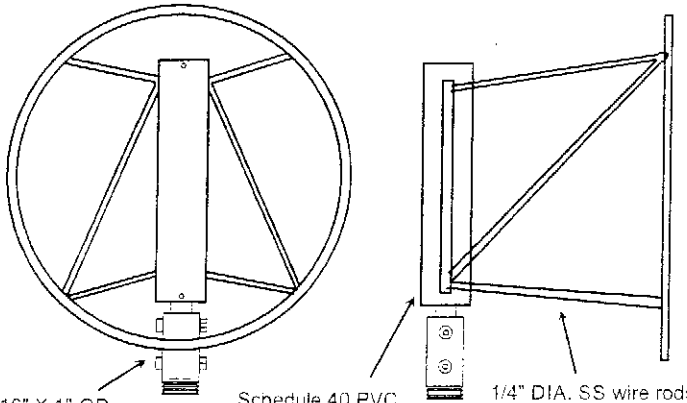
DRAWN	DATE	
KLB	3/2/10	Carmanah Aviation Light with BDS mount assembly
APPD	DATE	REV
RBB	3/2/10	LWFTB_cam3.dsf

215-345-0436

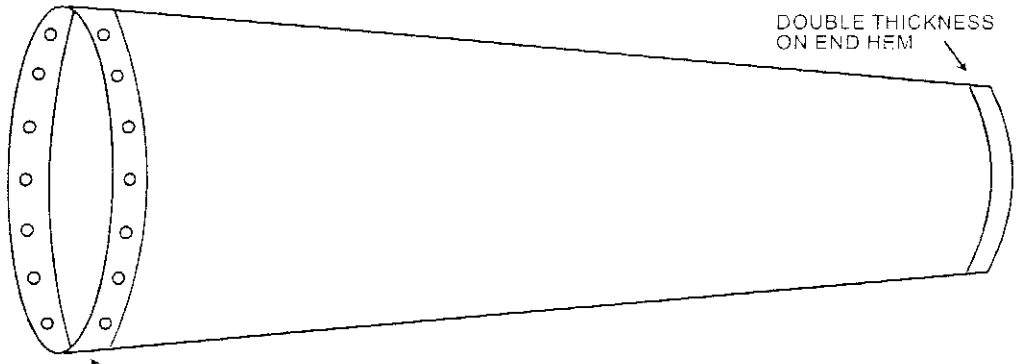


Upon receipt of your Lantern be sure you follow the Storage and Maintenance schedule.

FRAME ASSEMBLY (Non-lighted)

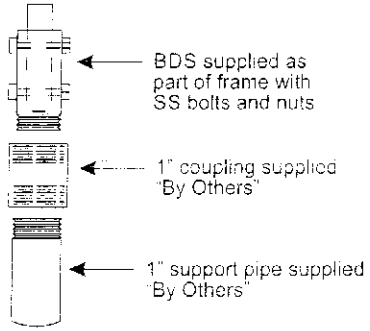


WINDSOCK

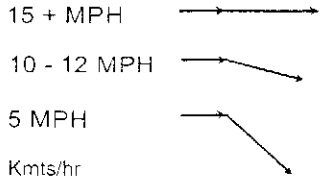


FRAME INSTALLATION (B18 frame shown. B24 / B36 similar)

1. Bottom frame connection supplied with a 1" NPT SS pipe nipple for easy installation. (details shown at right)
2. Install on 1" or larger support pipe using proper couplings supplied "By Others". Check all screw connections. Recommend 6' or longer support pipe.
3. Install windsock on frame using self-locking nylon ties.
4. No parts to lubricate or service. No part will rust or corrode.
5. Windsock should be installed in an open free air space - not near fans, stacks or other locations which will result in unreliable wind readings.



WINDSOCK ANGLE & APPROXIMATE WIND SPEED



Miles/hr X 1.609 = Kmts/hr

NOTES

(a) All standard International Orange (nylon), other materials available
(b) Windsocks are FAA approved
(c) Frames all Stainless Steel or non-corrosive parts. No parts to rust. No ball bearings - Delrin bearings. No maintenance
(d) Order frames and / or windsocks by model / part number/s
(e) All pricing in US dollars. Shipping FOB Warwick, PA USA
(f) Self-locking weather-resistant nylon black ties are supplied when windsock & frame are ordered together on the same order.
(g) Letters & designs printed on windsocks - consult BDS Systems
(h) 18' lighted windsock frames standard. 24" and 36" available
(i) Lighted windsocks visit www.bdssystems.com
(j) All items made in the USA
(k) Inches X 2.540 = cm Feet X 0.3048 = mts
(l) Cm X 0.3937 = inches Meters X 3.281 = feet

FRAMES

MODEL
WF18
WF18
WF24
WF36
WF36

WINDSOCKS

PART NO.	MAT'L (Nylon)	MOUTH (IN)	BODY (LENGTH)	TAIL (OUT)
C421-IO	INT'L ORANGE	18"	5' 0"	8"
C422-IO	INT'L ORANGE	18"	8' 0"	8"
C423-IO	INT'L ORANGE	24"	8' 0"	12"
C425-IO	INT'L ORANGE	36"	10' 0"	12"
C427-IO	INT'L ORANGE	36"	12' 0"	12"

Pricing and specifications subject to change without notice.

NO SCALE

BDS SYSTEMS INC.
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DRAWN	DATE		
KLB	11/23/15	FRAMES & WINDSOCKS	
APPD	DATE		REV
RBB	2/24/17	WINDS17.des	

In this new drawing (WINDS17.dgs) the frames model labeling has been changed to better reflect the frames description. No change in pricing.

215-345-0436

BDS SYSTEMS INC.

939 NATHANIEL TRAIL • WARWICK, PA 18974

Thank you for choosing BDS Systems.
After you have installed the lighted windsock we would appreciate it if you could take some digital pictures of the installation and email them to us. Please let us know the location details and purpose of the installation.
Our email address is: bruce@bdssystems.com

Thank you.

Bruce Balderson
BDS Systems Inc.
939 Nathaniel Trail
Warwick, PA 18974-6147 USA
215-345-0436, web site: www.bdssystems.com

File:InstPictures.dsf