VARI☀LITE

VL6000 Beam Luminaire
Users Manual

Notes

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Introduction

About This Manual

This manual provides necessary information regarding safety, installation, operation and routine maintenance for VARI✳LITE VL6000 Beam Luminaire. Familiarizing yourself with this informat on will help you to get the most out of your product.

⚠ **WARNING:** It is important to read ALL accompanying safety and installation instruc ions to avoid damage to the product and potential injury to yourself or others.

This manual covers the following model:

Model	Part Number	Lamp Type
VL6000 Beam Luminaire	20.9708.0001	1500W S o Arc, hilips MSR Gold FastFit

Notes:

- For complete product description, features, and spe ifications, refer to "Technical Specifications" on page 81.

- For power requirements, refer to "Current vs. V ltage" on page 16.

- VL6000 Beam Luminaire accepts gla s gobos only. Use of metal gobos will void the luminaire's warranty.

Additional Documentation

Note: Performing maintenance procedures may void the product warranty. Refer to the Vari-Lite Limited Warranty card included in the product shipping package for more information.

For more information on installing DMX512 control systems, the following publication is available for purchase from the United States Institute for Theatre Technology (USITT), "Recommended Practice for DMX512: A Guide for Users and Installers, 2nd edition" (ISBN: 9780955703522) USITT Contact Information:

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> Syracuse, New York 13210-1844 USA
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> Web Site: www.usitt.org

Text Conventions

The following styles and meanings are used thr u hout this manual:

Style	Meaning
[Button]	Front p nel button. Example: Press [ESC].
[Up] / [Down] arrows	P ess either [Up] or [Down] arrow button at Menu Display.
LAMP	LCD Menu Display read-out. Example: Press [Up] / [Down] arrows until LAMP appears.

Customer Service

Our Goal

At Vari-Lite, we are committed to providing you the highest quality in customer service. Our comprehensive resources are available to help your business succeed and ensure you get the full benefit of being a Vari-Lite customer. Whether your needs are telephone troubleshooting assistanc product training or technical service, our full-time staff of experienced professionals are on hand to provide support.

How to Reach Us

For assistance in your area, call the dealer from which your product was purchas d

or Contact an Authorized Service Center

or Contact the Vari-Lite Customer Service Department, 7am - 6pm CST Monday through Friday, at the following:

> phone: 1-877-VARI-LITE (1-877-827-4548 or 1-214-647-7880
>
> e-mail: entertainment.service@philips com

Additional Resources

For additional resources and documentation, please visit ur website at www.philips.com/ entertainmentlighting and follow the Support link

Notes

CHAPTER 1.

Description

This chapter contains descriptions of luminaire features and components, along with   l t of accessories which are available.

- **Features**

- **Components**

Features

Overview

VL6000 Beam Luminaire feature highlights:

Note, truss hooks shown are sold separa ely. Truss and pipe by others.

Fixed Color Wheels

Three fixed color wheels each with six color filters are capable of producing multi-color effects and variable wheel rotations. Less saturated colors allow for limited color mixing, which can be easily accessed from the console.

Rotating Gobo Wheel

One gobo wheel to offer seven rotatable, indexable gobo positions and one open position.

Edge and Pattern Focus

Variable beam focus to soften edges of gobos or iris.

Frost

Independent frost glass for softness control.

Intensity Control

Full field dimming designed for smooth t med fades as well as quick dimming effects.

Strobe

High-performance dual blade strobe sy tem capable of ultra-fast operation.

Pan and Tilt

Smooth, time-controlled c ntinuous motion by way of three-phase stepper motor systems.

- Range: Pan - 540 Tilt - 240°.
- Accuracy 0.3° resolution.

Weights

Unit weighs (uminaire only, without accessories) 61.5 lbs (28 kg).

Spacing

Unit hangs on 24.5 inch (662 mm) centers.

Operational Temperature

 4° to +122° F (-20° to +50° C)

IP22 Rating

This fixture is designed to have limited water protection in the instance of light rain. It is NOT designed to run exposed to water for long periods of time. Users should check for water inside the fixture after exposure to water.

⚠️ **Note:** This fixture is ONLY rated IP22 ONLY when hanging or sitting with the enclosure oriented no more that 15° from horizontal. Improper use of the fixture in wet conditions will void the luminaire warranty.

Figure 1-1: Luminaire hung within 15° rom Horizontal

IP22 Rating is defined as follows:

First digit: Solid particle protection

The first digit indicates the level of protection hat the enclosure provides against access to hazardous parts (e.g., electrical conductors, moving par) and the ingress of solid foreign objects.

Tabl 1-1: IP Rating First Digit

Level Sized	Ef ective Against	Description
2	12.5 mm	Fingers or similar objects

Second digit: Liquid ingress protection

The second digit indica es the level of protection that the enclosure provides against harmful ingress of water.

Table 1-2: IP Rating Second Digit

Level & Protection	Effective Against	Description
2 - Dripping Water when tilted at 15°	Vertically dripping water shall have no harmful effect when the enclosure is tilted at an angle of 15° from its normal position. A total of four positions are tested within two axes.	Test duration: 2.5 minutes for every direction of tilt (10 minutes total) Water equivalent to 3 mm rainfall per minute

Cooling

Forced-air cooling.

DMX Channels

23 Channels (16-Bit Mode).

Note: For complete information, refer to, "VL6000 Beam Luminaire Channel Mapping" on page 38

RDM Control

Completely compatible with a wide variety of RDM devices. For RDM implementation see, "VL6000 Beam Luminaire RDM Parameter IDs" on page 42.

Menu System

Full color LCD with battery powered control.

Mounting Position

The luminaire can be mounted and operated in any orientation. For spacing requirements, refer to Figure B-1 on page 81.

Warning.

Risk Group 2

Caution: Possibly Hazardous optical radiation emitt d from this product.
Do not stare at the operating light source.

The luminaire should be positioned so that prolonged staring into the luminaire at a distance closer than 294 m is not expected.

Control

- DMX: Completely compatible with a wide variety of DMX512 consoles.
- DMX Channels: 23 (16-bi mode)
- RDM Control: Comp etely compatible with a wide variety of RDM devices.

Power Requirements:

Standard AC pow r distribution from 200 - 240VAC, 50/60 Hz. The unit requires up to 11A depending on the AC suppl voltage.

Note: *For a breakdown of total luminaire current draw, see "Current vs. Voltage" on page 16.

Components

Included Items

The following illustration shows all items included with the luminaire:
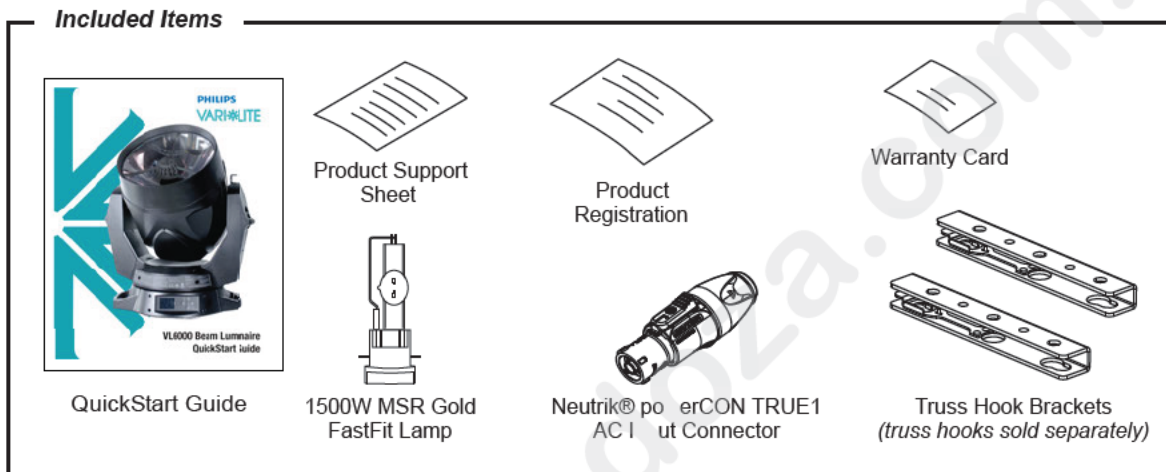
Figure 1-2: VL6000 Beam Luminaire Included Items

Replacement Items Accessories

The following optional and/o replacement items can be ordered directly from your Authorized VARI∗LITE Dealer. When ordering, please order by the Vari-Lite part number.

Vari-Lite Part N	Accessory
PCT1BE	AC Input Cable, Neutrik® powerCON® True1 with Bare End (no connector), 1 Meter
PC1GTL208	AC Input Cable, Neutrik® powerCON® True1 with Twist Lock (Male), 250V, 1 Meter
PCT1GP	AC Input Cable, Neutrik® powerCON® True1 with Stage Pin (Male), 1 Meter
PEGASUS	Luminaire Programming Software
22.9620.0194	Safety Cable Assembly
25.9661.0057	DMX Termination Connector Assembly
55.6840.0001	Truss Hook, Mega-Clamp, Round and Square
55.6841.0001	Truss Hook, Mega-Claw for 2" Round Tube
71.9708.1500	1500W Philips MSR Gold Fast-Fit*

*For approved lamp types, see the latest version of Philips Entertainment Lighting technical notice TN-248 in the product downloads section on the Vari-Lite web site, www.philips.com/entertainmentlighting.

Luminaire Components

Below is a brief description of the major components and sub assemblies of the VL6000 Beam Luminaires.

Major Components

Mounting Brackets -

For hanging the fixture. Hooks are sold separately and pipe shown by others

Yoke Assembly -
Houses tilt motor and routes cables to / from head and enclosure assemblies.

Enclosure Assembly -
Houses ballast, menu system, pan motor, and AC input connection, and DMX512 connections.

See detail below.

Luminaire Head Assembly -
Houses lenses, gobos, fixed color filters, strobe, reflector, and lamp.

Note, truss hooks shown are separately. Truss and pipe by others.

Enclosure Assembly Details

Input Panel -

See "Power" on page 14 and "Connecting Data and Power" on page 28 for more information.

Menu System -

See "Menu Operation" on page 54 for more information.

Figure 1-3: Major Components

Sub Assemblies

Head Covers

*Each head cover is hel   n place
with four captive scre s an
tether.*

**Lamp / Reflector
Assembly**

Gobo Assembly

Strobe Assembly

Optics Assembly

1500W Lamp**

Lamp Cover

T lt ock

⚠ **CAUTION:** *Pan and tilt
locks must be disengaged
before powering and
operating luminaire.

Pan Lock*

*NOTE: ** 1500W Philips MSR Gold FastFit
lamp running at 1500W.*
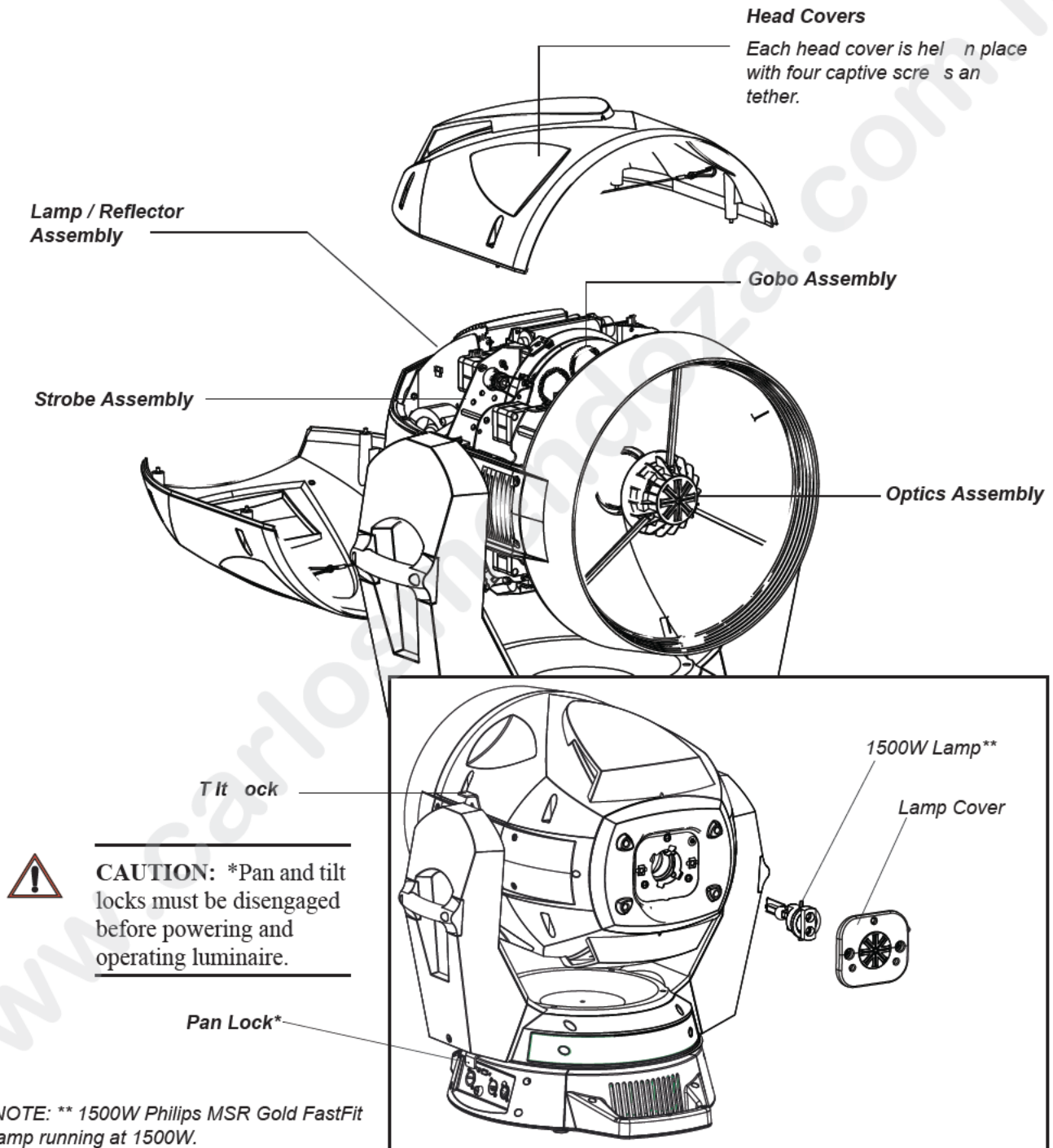
Figure 1-4: Sub Assemblies

Notes

CHAPTER 2.

Installation

This chapter contains instructions for installation of the luminaire. It includes connectin power and data, along with instructions for powering up the luminaire for the first time and addr ssing it within your system.

- **Power and Data Cabling Requirements**

- **Installation Procedures**

- **Powering Up**

- **Addressing**

- **Transporting**

Power and Data Cabling Requirements

Power

The luminaire requires standard AC power distribution from 200-240 VAC, 50/60 Hz. Current required depends on the AC supply voltage and product model. Refer to for all models covered in this manual.

⚠️ **Note:** The mating Neutrik® powerCON® True1 connector is supplied, however yo will need to purchase or construct a cable appropriate for your application. Available power input cables is found in .
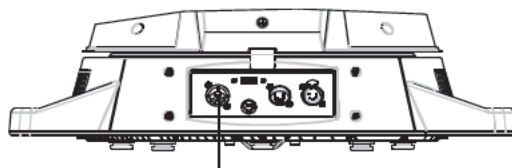
AC Pow r In ut
3-P le Ne tr k® powerCON® True1 for AC Input Power
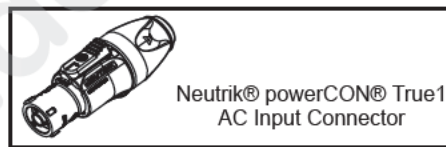
Neutrik® powerCON® True1
AC Input Connector

Figure 2 1: Power Connector

Depending on the application the luminaire's AC input cable may require a different connector. If required, install a new conne tor meeting your requirements using the following wire color code reference:

Wire*	Connection
Green/Yellow	AC Ground
Blue	AC Neutral
Brown	AC Line

* International (Harmonized) Standard

WARNING: DO NOT connect to three-phase service in countries with 240 volt power.

For single-phase power at 208 to 240 volts RMS:

Connection	Pin
AC Neutral	X
AC Line	Y
Ground (Earth)	G

For three-phase power at 208 volts RMS:

Connection	Pin
Phase 1	X
Phase 2	Y
Ground (Earth)	G

WARNING: It is not recommended to power any VARI✳LITE luminaire from a dimmer - even in 'NONDIM' mode. Dimmer and non-dim modules are not suitable sources of power because their output modifies the AC wave form. This m   work for a short time, but will eventually result in power problems, luminaire mis-operation   d/or failure and may void the luminaire's warranty.

Current vs. Voltage

Table 2-1, VL6000 Beam Luminaire - Current vs. Voltage (1500W Lamp*) provides the luminaire's current draw at specific voltages. Total Luminaire Current is calculated with the lamp on and all motors sequencing.

⚠ **WARNING:** It is the responsibility of the user to adequately protect supply source with a correct s ze and type circuit breaker and not overload circuits. **AVERTISSEMENT:** Il est de la respons bilité de l'utilisateur de protéger adéquatement la source d'alimentation avec une taille correcte et l disjoncteur de type et surchargez pas les circuits.*

Table 2-1: VL6000 Beam Luminaire - Current vs. Voltage (1500W Lamp*)

AC Voltage @ 60Hz	Total Luminaire Current (Motor + Lamp Current)
200V	10.5A
210V	10 1A
220V	9.7A
230V	3A
240V	8.9A

Note: *1500W Philips MSR Gold FastFit lamp (ra ed for 1200-1600W operation) running at 1500W.

⚠ **WARNING:** It is not recommended   power any VARI∗LITE luminaire from a dimmer - even in 'NONDIM' mode. Dimmer and non im modules are not suitable sources of power because their output modifies the AC wave form This may work for a short time, but will eventually result in power problems, luminaire mis-operation and/or failure and may void the luminaire's warranty.

Data Cables
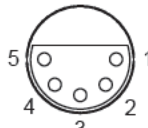
The luminaire is equipped with two, 5-pin XLR connectors for DATA IN and DATA THRU (out) applications. DATA IN requires a 5-pin, female XLR connector and DATA THRU requires a 5-pin male XLR connector. When purchasing or constructing data cables, it is important that not only the correct cable type be used, but also quality cable to ensure a reliable DMX512 system. Your cabling should meet the following USITT DMX specification requirements:

· Suitable for use with EIA485 (RS485) operation at 250k baud.

· Characteristic impedance 85-150 ohms, nominally 120 ohms.

· Low capacitance.

· Two twisted pairs.

· Foil and braid shielded.

· 24 AWG min. gauge for runs up to 1000 feet (300m).

· 22 AWG min. gauge for runs up to 1640 feet (500m).

Note: Microphone type cables and other general purpose, two core audio or signal cables are not suitable for use with DMX512.

Refer to the USITT Recommended Practice for DMX512 guide for additional information regarding DMX512 systems. How to obtain a copy is detai ed in

The XLR 5-pin connectors should be wired as follows:

Pin/Wire Code to XLR Connectors						
Data Thru Cable Pinout	**Pin 1**	**Pin 2**	**Pin 3**	**Pin 4**	**Pin 5**	Data In Cable Pinout
Male Conn.	Fo l & Bra ded Shield	1st conductor of 1st twisted pair Data (-)	2nd conductor of 1st twisted pair Data (+)	1st conductor of 2nd twisted pair Data (-)	2nd conductor of 2nd twisted pair Data (+)	Female Conn.

Recommended Cable Types/Manufacturers

These are only a few of the suitable cable types. Any quality EIA485, twisted pair, 120 ohm, shielded cable will also work.

Type	Pairs	ZΩ*	Jacket	AWG	Use	Temp F)
Belden Cables						
1215A	2	150	PVC	26	IBM Type 6 Office cable	75
1269A	2	100	PTFE	22 (Solid)	High Temp, Plenum cable	200
8102	2	100	PVC	24	UL2919	80
8132	2	120	PVC	28	UL2919	80
8162	2	100	PVC	24	UL2493	60
82729	2	100	PTFE	24	High Temp, Plenum cable	200
88102	2	100	PTFE	24	High Tem Plenum cable	200
89696	2	100	PTFE	22	High T m , Plenum cable	200
89729	2	100	PTFE	24	H h Temp, Plenum cable	200
89855	2	100	PTFE	22	Hi h Temp, Plenum cable	200
9729	2	100	PVC	24	UL2493	60
9804	2	100	PVC	28	UL2960	60
9829	2	100	PVC	4	UL2919	80
9842	2	120	PVC	24	UL2919	80
Proplex Cables						
PC224P	2	110	P lyure-thane	22	Heavy Duty and Portable	105
PC224T	2	110	PVC	22	UL2464	105
PC226T	3	1 0	PVC	22	UL2464	

* Characteristic Impedance

Termination Connector

A XLR terminat on connector is required at the last luminaire (or "far end of the line") to pr vent signal reflections. Signal reflections may cancel out the signal t ce tain line lengths, resulting in errors. The terminator is also necessary for software downloads and running tests on multiple luminaires. To construct your own connector, you will need the following components:

5-pin, male XLR connector.

• Two 1/4W 5% 120 ohm resistors.

Solder resistors across pins 2 & 3, and 4 & 5
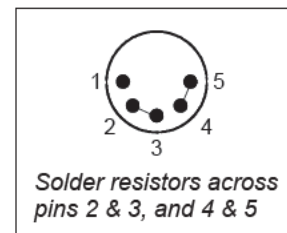
Note: A male termination connector is available as an accessory from Vari-Lite . See "Replacement Items/Accessories" on page 9.

Installation Procedures

Installing Lamp

In the event the lamp was packed separately during shipment, follow the procedure in this section. For lamp removal and replacement, refer to

⚡ **WARNING:** Disconnect fixture before relamping. Déconnectez le projecteur avant qu le changement de lampe.

⚠ ## CAUTIONS & WARNINGS

- Wear cotton gloves or other covering while installing lamp. Touching lamp glass with bare fingers will leave oil and may cause the lamp to explode or reduce lamp li e. If touched, use isopropyl alcohol and cotton cloth to thoroughly clean glass portion of amp.

- Hot Lamp. Luminaire must remain powered on for 5 minu es after dousing lamp. Do not open for 5 minutes after switching off. Lampe chaude. Le luminaire doit rester en marche pendant 5 minutes après avoir éteindre la lampe. Ne pas ouvrir pendant 5 minutes après la coupure.

- Risk of exposure to excessive ultraviolet radiati n. Do not operate without complete lamp enclosure in place or when lens is damaged. Risque d'exposition aux rayonnements ultraviolets excessifs. Ne pas faire fonctionner sans le oîtier complet de lampe mis en place ou lorsque l'objectif est endommagé.

To install lamp:

Step   1.   Ensure power is complete y removed from luminaire.

Step   2.   Remove lamp f m shipping box.

Step   3.   Set the lumin ire head horizontally.

Step   4.   Engage tilt lo k to secure luminaire head in position.

Step   5.   At ba k of luminaire, using #2 Phillips screwdriver, remove lamp socket cover by loosening the two quarter-turn captive screws. Note: lamp socket cover is connected with a safety tether.
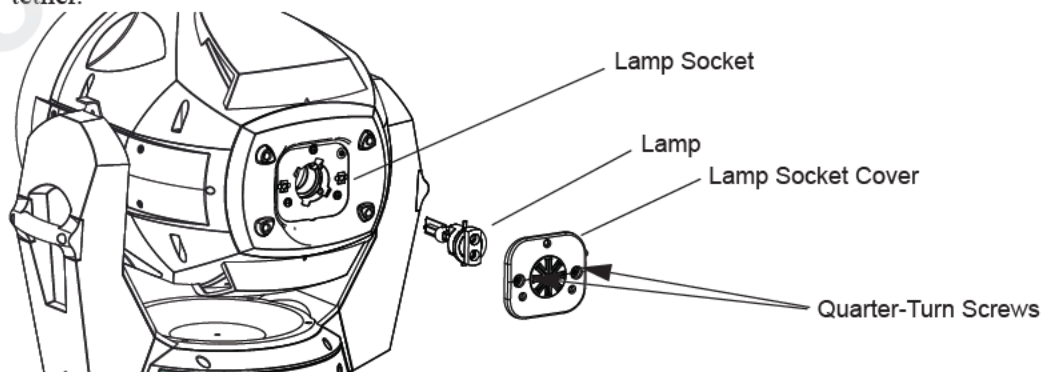
Figure 2-2: Lamp Socket Cover Removal

Step   6.   As shown in Figure 2-3, align lamp tabs with lamp socket.
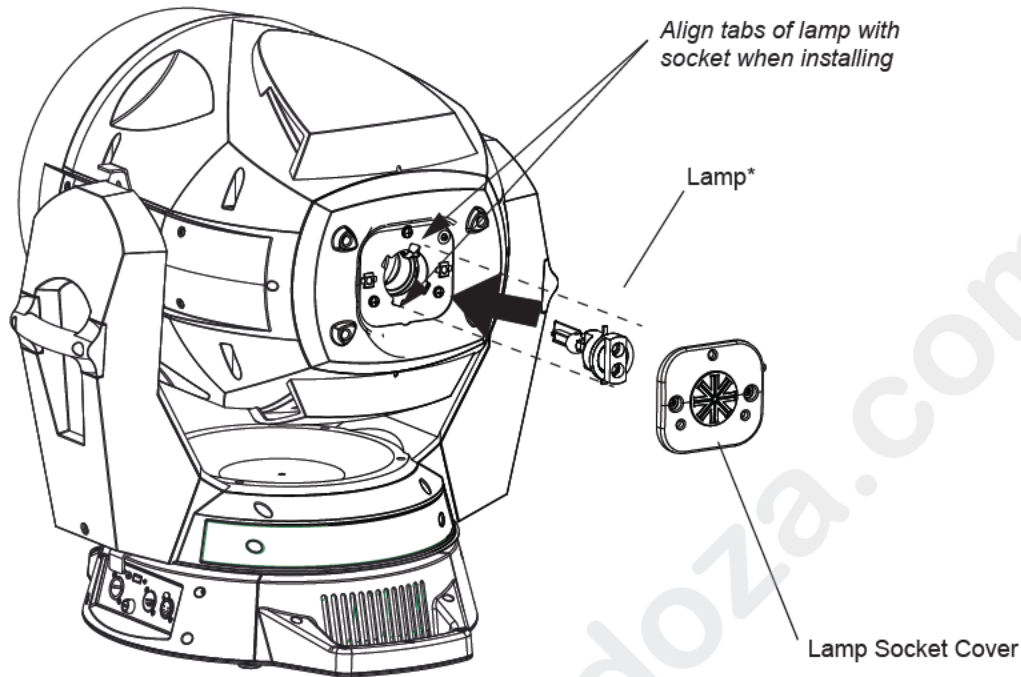
Figure 2-3: Lamp Installation

Step   7.   Install lamp fully into lamp socket taking care not to touch lamp glass.

Step   8.   Turn lamp clockwise to seat lamp into socket. Lamp base should be aligned as illustrated in Figure 2-4.
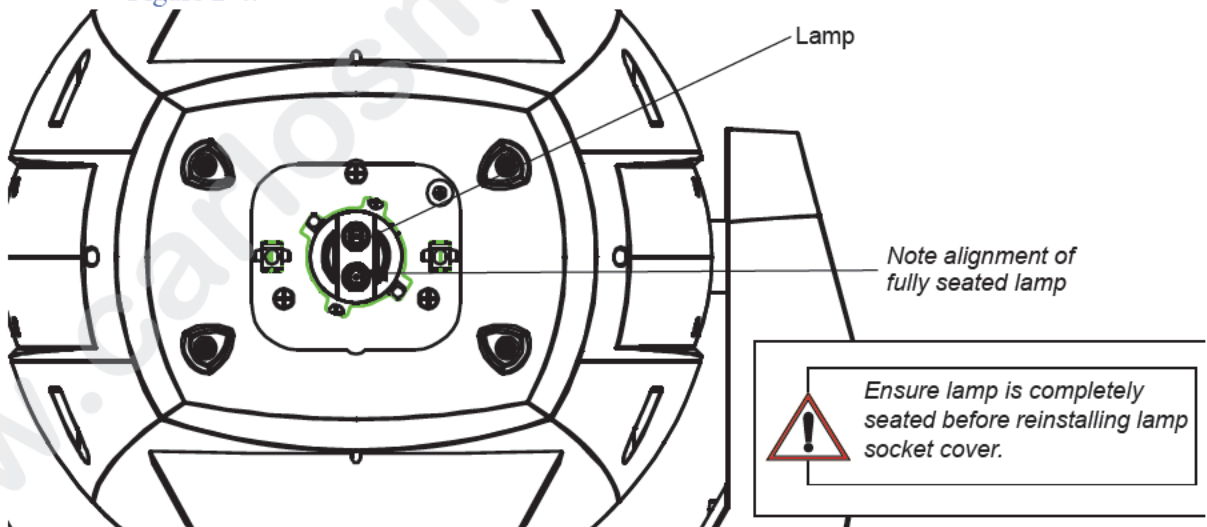
Figure 2-4: Installed Lamp

Step   9.   Reinstall lamp socket cover. Make sure safety tether is completely encapsulated within lamp socket cover.

Step 10.   Disengage tilt lock to allow luminaire head to move freely.

Step 11.   Align lamp as described in "Align Lamp For Maximum Beam Irradiance" on page 21.

Align Lamp For Maximum Beam Irradiance

After a new lamp is installed in the luminaire, it will be necessary to align the lamp to optimize the beam.

WARNING: Backcap and alignment screws will be HOT during lamp operation. Wear gloves and/or use tools to prevent burns.

To align lamp:

Step   1. Set intensity to 100%.

Step   2. Position beam on a white wall at a distance of 10 to 20 feet.

Step   3. If frost is in beam, use console or internal luminaire menu contro s to emove. Focus to a hard edge. Be sure that beam-size iris is completely opened.

Step   4. Using three alignment screws (as indicated with Red Arrows in Figure 2-5) adjust hot spot to center of beam.

Step   5. Check color uniformity as follows:

   a.   Check color uniformity as follows:

   b.   a. Position 60% Cyan or 60% Magenta f lter i beam.

   c.   b. Verify that hot spot is centered (if l mp s misaligned, color will be concentrated to one side of beam). If hot spot is not entered, readjust lamp using lamp alignment screws.
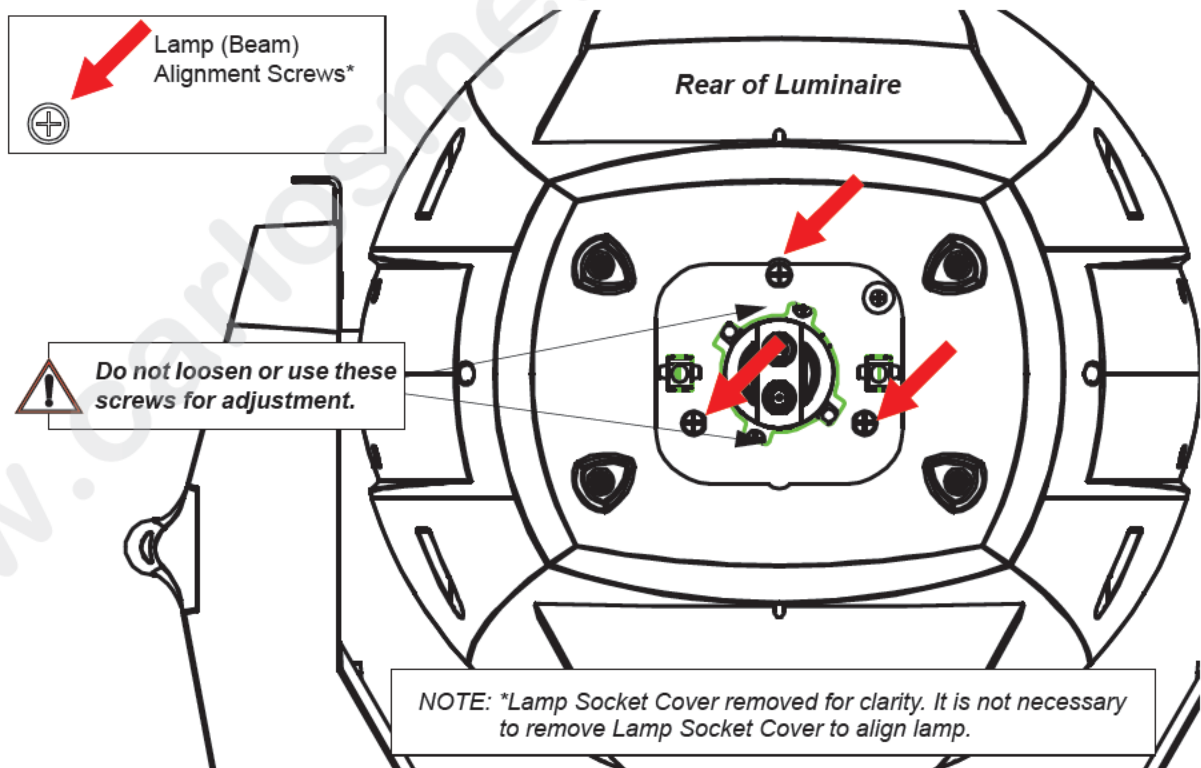
Figure 2-5: Lamp Alignment Screws

⚠️ **CAUTION:** To prevent overheating, maintain a distance of 8.0mm between lamp and rear aluminum housing as illustrated in Figure 2-6. **ATTENTION:** Pour éviter une surchauffe maintenir une distance de 8.0mm entre le lampe et le couverture arriére comme illustré dans Figure 2-6.

8.0mm

SECTION SIDE-SIDE
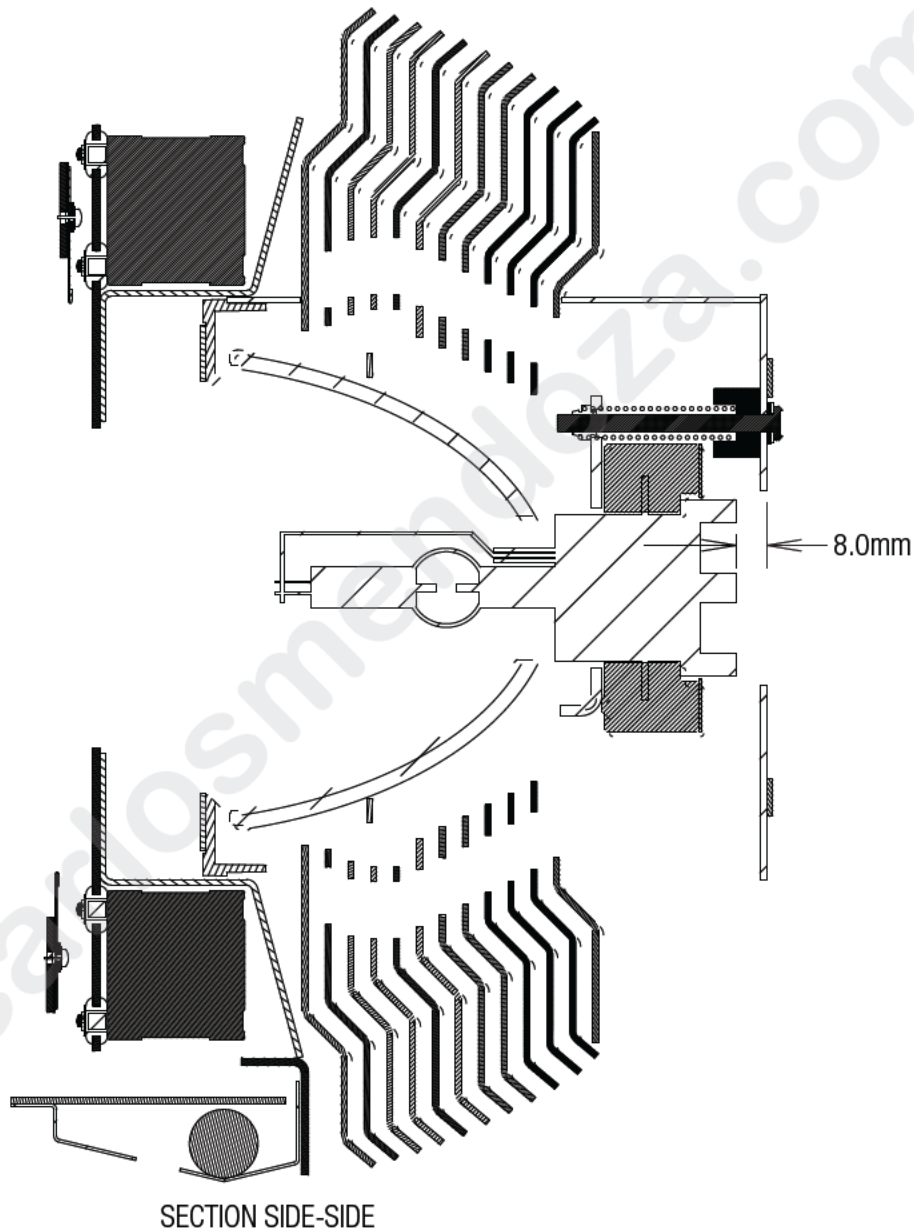
Figure 2-6: Lamp Adjustment

Hanging the Luminaire

The VL6000 Beam Luminaire can be hung horizontally or vertically from any structure designed to work with the type of load created by this moving luminaire. Two mounting truss hooks or other mounting hardware are required. Many compatible truss hooks are available from different manufacturers for your particular needs.

A minimum of two hooks per luminaire is required. If mounting method does not use trus h oks, two attachment points, per luminaire, are required.

Install mounting hardware and brackets:

Step   1. Install truss hooks (also refer to "Truss Hook Hardware (by others)" on page 23) for additional information) on two provided truss hook brackets as required as shown in Figure 2-7.

Mega Claw Truss Hook
(not provided)

Example Truss Hook Installation

Mount Bracket

Truss Hook Hardware
(not provided)
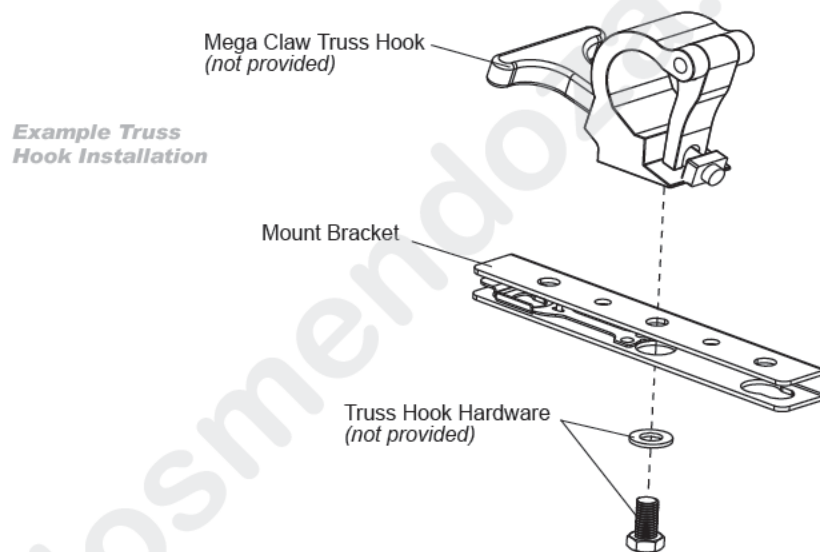
Figure 2-7: Truss Hook Installation

Note: Various types of truss hooks can be used. The Mega Claw truss hook (as shown in the example above) as well as many other standard hooks, can be ordered separately.

Truss Hook Hardware (by others)

When installing hanging hooks on mounting brackets, Vari-Lite strongly recommends the use of a Belleville washer *(by others, Figure 2-8 shows examples)* when installing a truss hook or claw as shown in Figure 2-7.

The Belleville washer's size should be approximately 0.505-inch (inner diameter) by 1.00-inch (outer

Figure 2-8: Belleville Washer Examples

diameter). Belleville washers are available in various thicknesses and any of the following thicknesses (0.035-inch, 0.043-inch, 0.050-inch, 0.073-inch) are acceptable for the application described herein.

The washer serves two purposes:

- To spread out the load. When a washer IS NOT used, the bolt head *(without a washer)* concentrates the load in a smaller area, creating focused stress on the steel bracket, making premature failure possible. A steel washer is recommended to spread this load over a larger surface area.

- To keep the bolt in place. The recommended Belleville washer maintains tension in he bo ted assembly and prevents it from vibrating loose.

If a Belleville washer is not available, a regular flat washer measuring in diamete of 1 nch (minimum) can be used in conjunction with a suitable split lock washer situated between the b lt head and flat washer.

Step   2. Determine required configuration of bracket installation. Brackets may be installed in many different orientations as shown in Figure 2-9 on page 25.

Step   3. While pulling up on locking mechanism release, fit keyed holes onto raised mounting buttons at bottom of enclosure. Slide forward and re ease locking mechanism to lock in place. Ensure brackets are locked securely.

⚡ **WARNING:** Ensure that the bracket locking mechanism is fully seated after the bracket is installed on the luminaire. **AVERTISSEMENT:** Assurez-vous que le mécanisme de support de verrouillage est complètement inséré après le support est installé sur l'appareil.

Example Truss Hook and Mounting Hardware *(not included, sold separately)*
Mount Bracket*
Raised Mounting Buttons (8 each)

Fit bracket's keyed hole and locking mechanism over raised mounting buttons and slide forward to lock.

Lockin Mechanism

Locked

Mount Bracket

Locking Mechanism

Keyed Hole

Press up to install or release

Bracket Orientation

Brackets

Example Bracket Orientations

Figur 2-9: Installing Brackets on Luminaire Enclosure

Installing in Tru s:

Step 1. U ing wo people, lift luminaire into mounting position.

Step 2. Secure in place with truss hook. Ensure truss hook hardware that locks hook in place (e.g. wing bolt) is properly tightened and that luminaire is fully supported.

S ep 3. Attach safety cable (as required) as follows (refer to Figure 2-10 on page 26):

    a. Loop safety cable at least once around safety cable anchor point rod.

    b. Loop safety cable at least once around truss/pipe and secure around pipe.

> ⚠️ **Safety Cable:** *Recommended for hanging installations. May be required by local codes. Safety cable is sold separately.*
> **Câble de sécurité:** *Recommandé pour les installations pendaison. Peut être exigé par les codes locaux. Câble de sécurité est vendu séparément.*

Safety Cable Anchor Point
(see note)

24.5"
(62.2 cm)

23.8"
(60.5 cm)

23.8
(60 5 cm)

25.9"
(65.9 cm)

Note, truss hook shown are sold separately. Truss and pipe by others.

Safety Cable Anchor Point

NOTE: *The safety cable anchor point is tested and is in compliance of the following safety standards:*
- IEC / EN 60598-2-17.6.6
- UL1573

Figure 2-10: Safety Cable Installation / Luminaire Hanging

Step   4. Make sure tilt and pan locks are disengaged so luminaire moves freely.

Step   5. Connect power and data cables according to procedure given in "Connecting Data and Power" on page 28.

When hanging the luminaire in a side hang position, orient the enclosure as shown in Figure 3. Natural convection and the designed direction of the inlet and exhaust cooling fans dictate that the inlet should be closest to the floor and the exhaust should be towards the ceiling. This eliminates the possibility of

one luminaire blowing exhaust air into the inlet of the luminaire next to it when the luminaires are side-by-side.
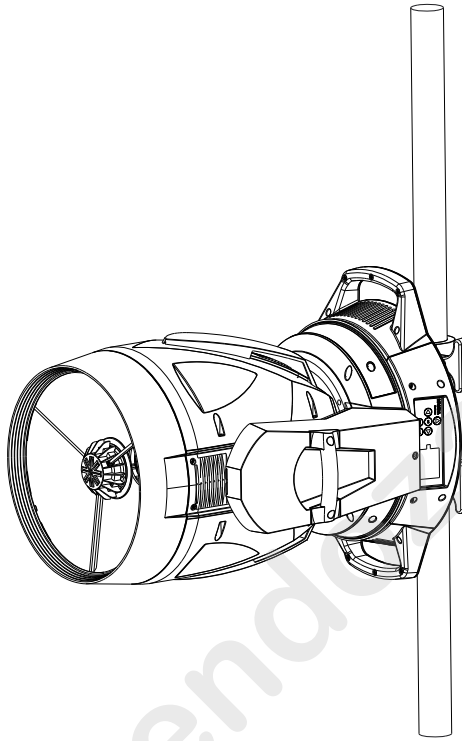
Figure 3: Side Hang Orientation

If the luminaires are stacked on top of one another in a side hang, a 45° enclosure orientation with the fan inlet closest to the floor i pr ferred. Refer to Figure 4.

These two orientations in a ide hang have the extra benefit of a stiffer pan interface in the luminaire.

REAR VIEW
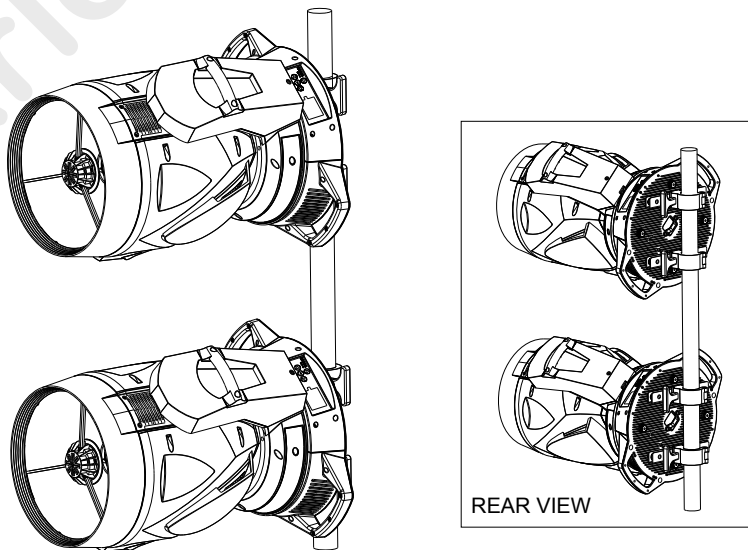
Figure 4: Dual Fixture Side Hang Orientation

Floor Mounting the Luminaire

All luminaires included in this manual are designed to sit directly on its base in a floor installation application. When used in this type of application, be sure to leave enough space around the luminaire to allow proper, uninterrupted airflow for cooling and movement.

Connecting Data and Power

A maximum of 32 luminaires may be connected in any one DMX data link.

Note: This maximum limit applies to the luminaire "daisy chain" only. Your system or console may require fewer luminaires on a single data link path. Consult your console documentation for more information.

To connect power and data:

Step 1. Connect data cable from console to first luminaire in chain at DATA IN connector.

Step 2. If required, connect additional data cables from DATA THRU connectors to DATA IN connectors of remaining luminaires in line

Step 3. At last luminaire in link, install male termination connector at DATA THRU connector. (Luminaires and other devices on the same DMX chain may not function properly without termination.)
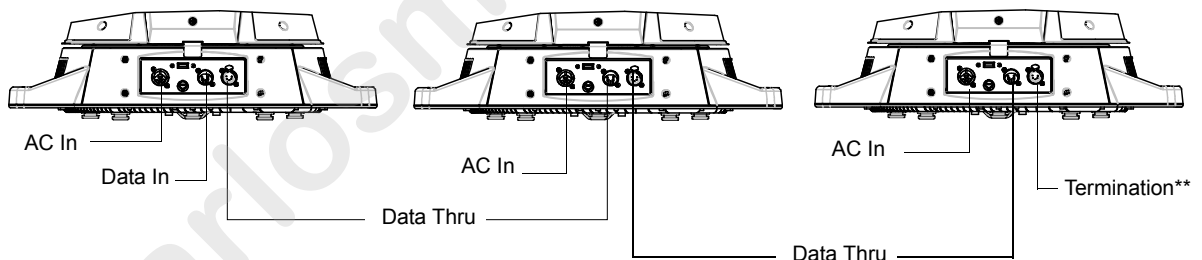
VL6000 Beam Luminaire Channel Requirements*		
DMX512 Channels	**Description**	**Menu Display**
23 Channels	16-Bit Mode *(default)*	16

**DMX terminator required for last fixture on DMX line.

Figure 2-1: Data Link

Step 4. Connect AC Input Cable connector to power input source.

Step 5. Dress AC input and data cables and secure them so that they will not interfere with luminaire head and yoke movement.

Powering Up

Power-Up Procedure

When the luminaire is powered up for the first time, the default setting is enabled and the lamp wi l remain off. When AC power is applied, the luminaire will immediately begin a calibration sequence that steps it through full pan and tilt movements. The internal color and beam mechanism will also move through a full range of motion. After calibration, the luminaire head will either st p at ts "home" position (which positions the pan axis at mid-rotation and the head parallel to the yo e w th the lens pointing away from the luminaire enclosure) or move to its current DMX-defined pos tion if DMX data is present. All internal mechanisms also move to their "home" or DMX defined positions.

⚠ **CAUTION:** Before applying power, be sure the luminaire is hung (or positioned), and the pan and tilt locks are disengaged, so that the head and yoke can move freely wi hou estriction.

To power up:

Step   1. At each luminaire, apply power connecting the pow r cable to the unit.

Step   2. Luminaire will automatically step through cali ration and stop at "home" position (only if DMX is not present).

Addressing

Program Starting Address

The address setting for DMX console controlled systems is entered using the Menu Display (refer o "Menu Operation" on page 54). The luminaire retains the DMX address even if power is removed.

Note: Refer to your console operating instructions for specific information regarding s addressing requirements.

DMX Address

To set, edit, and save a DMX address:

Step   1. Press [ESC].

Step   2. Press [Up] / [Down] arrows until Address appears. P ess [OK].

Step   3. Use [Left] and [Right] arrow buttons to scroll through all digits.

Step   4. Once at desired digit, use [Up] and [Down] rows to change highlighted digit.

Step   5. Once digit is set, use [Left] and [Right] arrow buttons to set other digits in DMX address.

Step   6. Once all digits are set in DMX addr s, pr ss [OK] to set.

Step   7. DMX will display and is saved

Program Starting Address Without Calibrating Luminaire

It is possible to bypass he c libration sequence and go directly to the Menu Display programming in order to pre-program n address setting.

Program starting address without calibrating luminaire:

•   While powering up luminaire, press and hold [ESC].

•   When display changes from "Starting" to the DMX address, program address as in Program Star ing Address above.

⚠ **No e:** The luminaire will require a reset to restore control.

Program starting address in Battery Mode:

•   To activate menu in Battery Mode when the fixture is not connected to a power source, press [OK] and [ESC] together. The LCD screen will come on. Address the fixture as described above. The LCD screen will shut off after one minute of inactivity.

Transporting

Overview

When shipping or transporting VARI✻LITE Luminaires, Vari-Lite recommends that the luminaire(s) be sufficiently protected against any (including, but not limited to) shock, vibration, drops jarring, exposure to the environment, etc.

Failure to sufficiently protect any VARI✻LITE luminaire during shipping or transporta ion will result in damage and void the luminaire's warranty. Vari-Lite will not be respons ble for any shipping damage or breakage of any product under any circumstances. Vari-Lite will not b responsible for any third party case manufacturer's cases.

Note: As with all automated luminaires, proper handling and suitabl p otective shipping cases should be used when transporting fixtures to reduce the risk of damage. For more information, please refer to Philips Entertainment Lighting technical notice (TN-235) "Trans ortation and Shipping Case Requirements" in the "Support" area of the Vari-Lite web site

Transportation and Shipping Case Requirements

Cases to transport VARI✻LITE luminaires should meet the following loading requirements:

- Luminaire head, yoke, and enclo u   sub-assemblies shall be equally supported and constrained where no one sub-assembly (hea   yoke, or enclosure) fully supports the entire mass of the luminaire.

- The interior of the case s all be of high quality and uniform density foam. The foam shall be of the same type and density t roughout as to equally and uniformly support loading at every contact surface.

- The case shal , when laid on any of its six (6) surfaces, maintain the loading requirements outlined above.

- All cases no meeting the aforementioned loading requirements, with wheels, shall have markings on the exterior of the case that the unit is to be transported on it wheels only (e.g. "Case must be transported and remain [at all times] on its wheels").

27 April 2017

CHAPTER 3.

Operation

This chapter contains instructions for operating the luminaire using DMX control and f r updating the internal software.

- **Color Control & Gobos**

- **DMX Operation**

- **RDM Parameter IDs**

- **Updating Software**

Color Control & Gobos

Fixed Colors

The following is a brief description of each color control and gobo projection capabilities

Fixed Color Wheel 1

Fixed Color Wheel 1 holds six color filters and has one open space as illustrated in Fi ure 3-1. Note, the open space will not accommodate a filter.

Wheel 1: 100% Magenta, Blue, 60% Magenta, Flesh Pink, 30% Magenta, Green
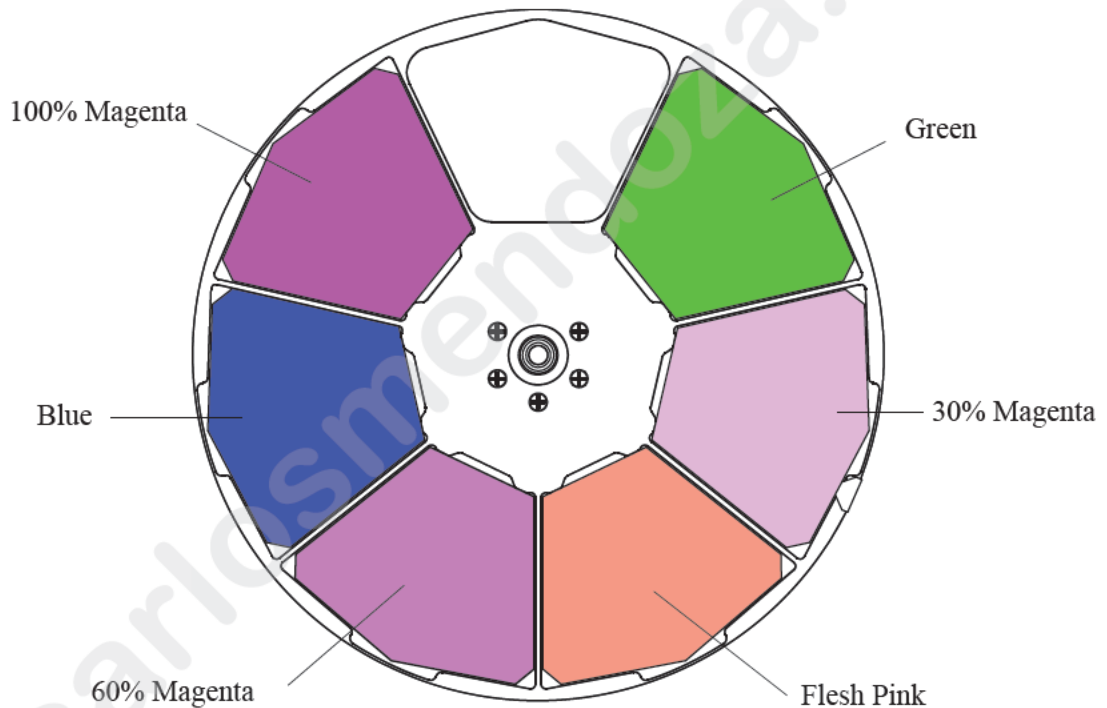
NOTE C lors show for illustrative purposes only. Actual colors will differ.

Figure 3-1: VL6000 Beam Luminaire Fixed Color Wheel 1

Fixed Color Wheel 2

Fixed Color Wheel 2 holds six color filters and has one open space as illustrated in Figure 3-2. Note, the open space will not accommodate a filter.

Wheel 2: 100% Cyan, Dark Fuchsia, 60% Cyan, CTO, 30% Cyan, Red

100% Cyan

Red

Dark
Fuchsia

30% Cyan

60% Cyan

CTO
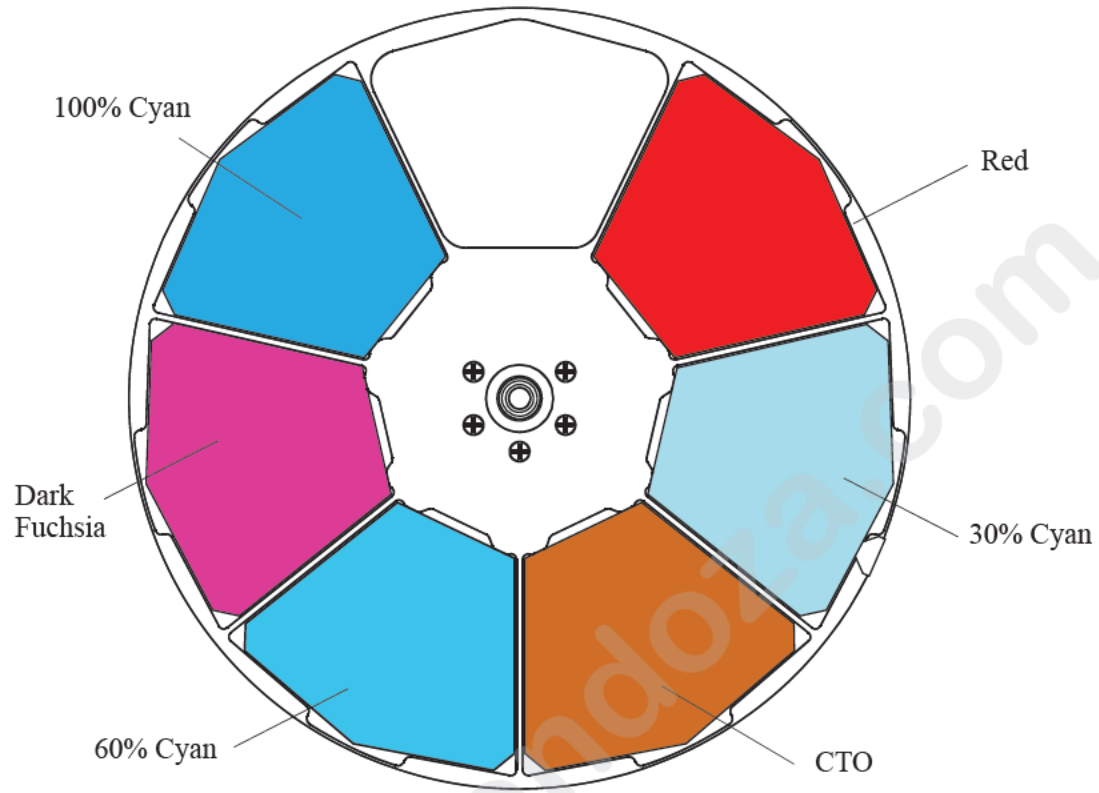
NOTE: Colors show for illustrative
purposes only. Actual colors will differ.

Figure 3-2: VL6000 Beam Luminaire Fixed Color Wheel 2

Fixed Color Wheel 3

Fixed Color Wheel 3 ho ds ix color filters and has one open space as illustrated in Figure 3-2. Note,
the open space will no accommodate a filter.

Wheel 3: 100% Ye low, ½ CTO, 60% Yellow, Meadow Green, 30% Yellow, Congo Blue
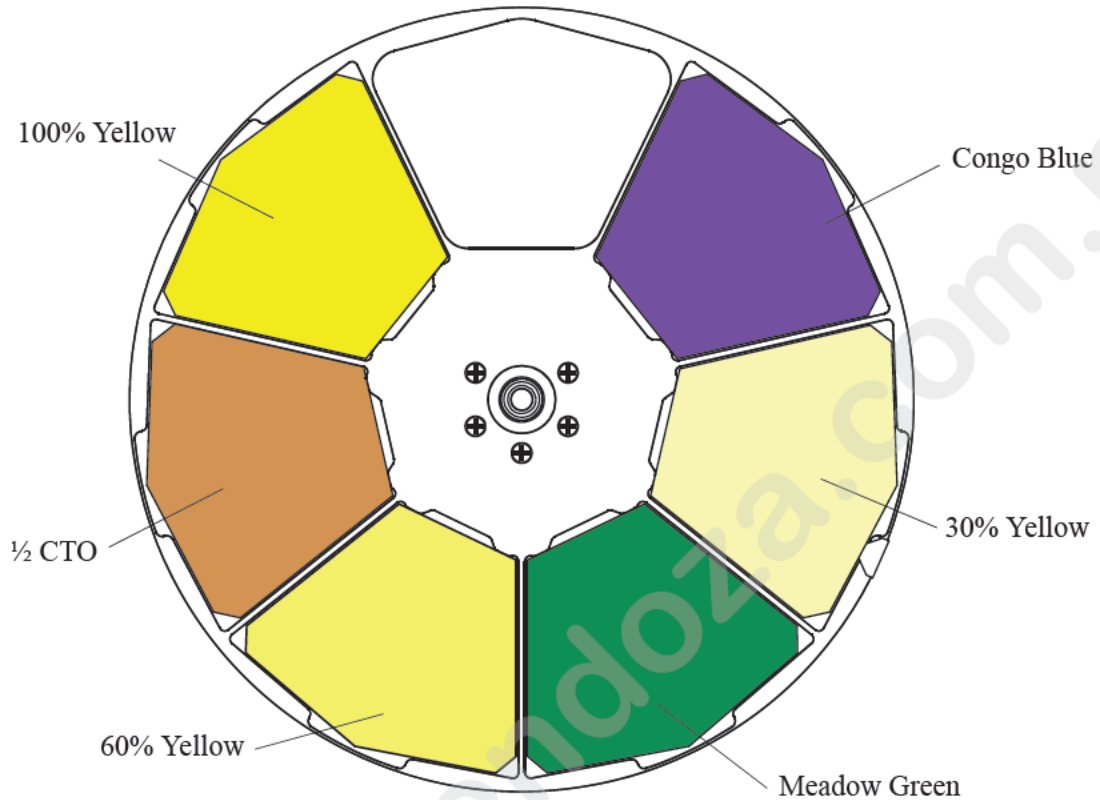
NOTE: Colors show for illustrative purposes only. Actual colors will differ.

Figure 3-3: VL6000 Beam Luminaire Fixed Color Wheel 3

Gobos

Each luminaire cont ins e rotating gobo wheel. This rotating gobo wheel offers seven rotatable, indexable gobo positions and one open position.

> ⚠️ **CAUTION** VL6000 Beam Luminaires accept glass gobos only. Use of metal gobos in these luminaires may damage gobo assembly and will void the luminaire warranty.

Note: For all available patterns and their associated numbers, refer to VARI✳IMAGE System page on the Vari-Lite web site or contact your local regional sales manager or Authorized VARI✳LITE Dealer.

Rotating Gobo Wheel 1

Standard load rotating gobos for Rotating Gobo Wheel 1 are shown in Figure 3-4 and described in Table 1, "Rotating Gobo Wheel 1 - Standard Effects and Positions".

Table 1: Rotating Gobo Wheel 1 - Standard Effects and Positions

Position	Gobo	Gobo Part Number
0 (Open)	None	None
1	Circle of Ovals	41.9708.6011
2	Medium Triangle	41.9708.4009
3	Chopped	41.9708.4428
4	Tri Cone	41.9708.6008
5	Ballz	41.9708.444
6	Blades	41.9708.4430
7	4-Hole Ray	41.9708.4002
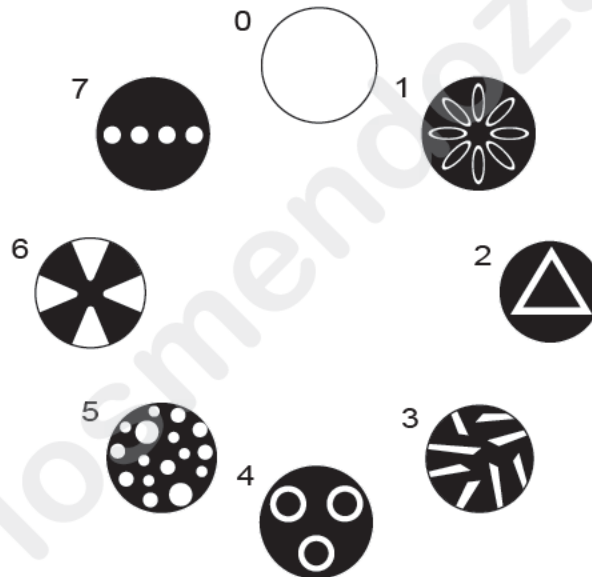
Figure 3-4: Rotating Gobo Wheel 1 - Standard Gobo Load

DMX Operation

VL6000 Beam Luminaire Channel Mapping

These tables assume a DMX start address of 1. When a different starting address is used, this address becomes channel 1 function and other functions follow in sequence.This section contains the DMX channel map for the VL6000 Beam Luminaire.

- • "16-Bit Channel Mapping" *(starting below)*
- • "Fixture Shutdown" on page 41.

16-Bit Channel Mapping

Table 2 provides DMX channel mapping of the DMX512 control values when the VL6000 Beam Luminaire is in 16-Bit DMX mode.

Table 2: VL6000 Beam Luminaire 16-Bit DMX Channel Mapping

DMX Channel	Parameters	Range (DMX)	Range (%)	Default Value*	Description / Operation
1	Intensity	0 - 255	0 - 100%	0	8 bit control of Fixture Intensity from 0 - 100%
2	Pan High Byte	0 - 65535	0 - 100%	32767	16-bit linear control of pan from 0° to 540°.
3	Pan Low Byte				
4	Tilt High Byte	0 - 65535	0 - 100%	32 67	16-bit linear control of tilt from 0° to 240°.
5	Tilt Low Byte				
6	Edge	0 - 255	0 - 100%		8-bit linear control of edge functions.
7	Color Wheels Macro / Presets	0 - 255	0 - 100%	0	8-bit linear control of all three Color Wheel Presets / Macros ***See Channel 8 for options.*** 0 = Open or Uses Color Wheel 1-3 channels. 1 = TBD 2 = TBD 3 = TBD 4 = TBD 5 = TBD
8	Color Wheels Transition Control	0 - 255	0 - 100%	0	0 = Idle 1 - 255 = Cloak Transition Generator Slow to Fast 1 = Fastest Time 255 = 10 Second
9	Color Wheel 1	0 - 255	0 - 100%	0	8-bit control of Color Wheel 1. ***See Channel 10 for options.*** 0-18 = OPEN 19-54 = MAGENTA 100% (Center at DMX 36) 55-91 = DARK BLUE (Center at DMX 73) 92-128 = MAGENTA 60% (Center at DMX 109) 129-165 = FLESH PINK (Center at DMX 146) 166-202 = MAGENTA 30% (Center at DMX 182) 203-239 = GREEN (Center at DMX 218) 240-255 = OPEN
10	Color Wheel 1 Control	0 - 255	0 - 100%	0	Used as a control channel for different movement options of Color Wheel 1 0-5 = Linear Movement using shortest (quickest) path. 6-10 = Linear Movement using normal (longest) path. 11-15 = Wheel Spin Forward (Fast to Slow) 16-20 = Wheel Spin STOP 21-25 = Wheel Spin Reverse (Slow to Fast) 26-56 = Color Shake Quickest Path (Slow to Fast) 57-87 = Color Shake Normal Path (Slow to Fast) 88-255 = Reserved Values.

Table 2: VL6000 Beam Luminaire 16-Bit DMX Channel Mapping

DMX Channel	Parameters	Range (DMX)	Range (%)	Default Value*	Description / Operation
11	Color Wheel 2	0 - 255	0 - 100%	0	8-bit control of Color Wheel 2. ***See Channel 12 for options.*** 0-18 = OPEN 19-54 = CYAN 100% (Center at DMX 36) 55-91 = DARK FUSHIA (Center at DMX 73) 92-128 = CYAN 60% (Center at DMX 109) 129-165 = CTO (Center at DMX 146) 166-202 = CYAN 30% (Center at DMX 182) 203-239 = RED (Center at DMX 218) 240-255 = OPEN
12	Color Wheel 2 Control	0 - 255	0 - 100%	0	Used as a control channel for different movement options of Color Wheel 2. 0-5 = Linear Movement using shortest (quickest) path. 6-10 = Linear Movement using normal (longest) path. 11-15 = Wheel Spin Forward (Fast to Slow) 16-20 = Wheel Spin STOP 21-25 = Wheel Spin Reverse (Slow to Fast) 26-56 = Color Shake Quickest Path (Slow to Fast) 57-87 = Color Shake Normal Path (Slow to Fast) 88-255 = Reserved Values
13	Color Wheel 3	0 - 255	0 - 100%	0	8-bit control of Color Wheel 3. ***See Channel 14 for options.*** 0-18 = OPEN 18-54 = YELLOW 100% (Center at DMX 36) 55-91 = ½ CTO 65% (Center at DMX 73) 92-128 = YELLOW 60% (Center at DMX 109) 129-165 = MEADOW GREEN (Center at DMX 146) 166-202 = YELLOW 30% (Center at DMX 182) 203-239 = CONGO BLUE (Center at DMX 218)
14	Color Wheel 3 Control	0 - 255	0 - 100%	0	Used as a control channel for different movement options of Color Wheel 3. 0-5 = Linear Movement using shortest (quickest) path. 6-10 = Linear Movement using normal (longest) path. 11-15 = Wheel Spin Forward (Fast to Slow) 16-20 = Wheel Spin STOP 21-25 = Wheel Spin Reverse (Slow to Fast) 26-56 = Color Shake Quickest Path (Slow to Fast) 57-87 = Color Shake Normal Path (Slow to Fast) 88-255 = Reserved Values
15	Gobo Wheel 1	0 - 255	0 - 100%	0	8-bit control of Gobo Wheel 1. ***See Channel 18 for options.*** 0-5 = Open-No Gobo 6-10 = Gobo 1 (Circle of Ovals) Index 11-15 = Gobo 2 (Medium Triangle) Index 16-20 = Gobo 3 (Chopped) Index 21-25 = Gobo 4 (Tri Cone) Index 26-30 = Gobo 5 (Ballz) Index 31-35 = Gobo 6 (Blades) Index 36-40 = Gobo 7 (4-Hole Ray) Index 41-45 = Open-No Gobo 46-50 = Gobo 1 (Circle of Ovals) Rotate 51-55 = Gobo 2 (Medium Triangle) Rotate 56-60 = Gobo 3 (Chopped) Rotate 61-65 = Gobo 4 (Tri Cone) Rotate 66-70 = Gobo 5 (Ballz) Rotate 71-75 = Gobo 6 (Blades) Rotate 76-80 = Gobo 7 (4-Hole Ray) Rotate 81-85 = Open-No Gobo 86-90 = Gobo 1 (Circle of Ovals) Rotate with Mega Stepping 91-95 = Gobo 2 (Medium Triangle) Rotate with Mega Stepping 96-100 = Gobo 3 (Chopped) Rotate with Mega Stepping 101-105 = Gobo 4 (Tri Cone) Rotate with Mega Stepping 106-110 = Gobo 5 (Ballz) Rotate with Mega Stepping 111-115 = Gobo 6 (Blades) Rotate with Mega Stepping 116-120 = Gobo 7 (4-Hole Ray) Rotate with Mega Stepping 121-255 = Reserved Values

Table 2: VL6000 Beam Luminaire 16-Bit DMX Channel Mapping

DMX Channel	Parameters	Range (DMX)	Range (%)	Default Value*	Description / Operation
16 17	Gobo 1 Rot/Index High Byte Low Byte	0 - 65535	0 - 100%	0	16-bit control of index and rotation of gobo wheel 1. 0-32756 = Rotate Fast to Slow 32757-32780 = Rota ion STOP 32781-65535 = Rotate Slow to Fast
18	Gobo Wheel 1 Control	0 - 255	0 - 100%	0	Used as a control channel for different movement optio for Gobo Wheel 1 (Channel 15) 0-5 = Gobo Selection using shortest (quickest) pa 6-10 = Gobo Selection using normal (longest) path. 11-20 = Reserved Values 21-50 = Wheel Spin Forward (Fast to Slow 51-60 = Wheel Spin STOP 61-90 = Wheel Spin Reverse (Slow to Fa t) 91-120 = Gobo Shake Quickest Pa h (Slow to Fast) 121-150 = Gobo Shake Normal Path ow to Fast) 151-180 = Gobo Twist Quickest Path (Slow to Fast) 181-210 = Gobo Twist N rm l Path (Slow to Fast) 211-255 = Reserved V ues
19	Iris	0 - 255	0 - 100%	0	Controls Iris me ha ism from open (DMX 0) to Full (DMX 255)
20	Frost	0 - 255	0 - 100%	0	C ntrols rost mechanism from open (DMX 0) to Full (DMX 255)
21	Strobe Speed	0 - 255	0 - 100%	0	C ntro Strobe rate from slowest (DMX 0) to fastest (DMX 255)
22	Strobe Control	0 - 255	0 - 100%	0	C ntrol Channel for strobing functions 0-5 = Open 10 = Closed 11-15 = Normal Strobe 16-20 = Random Strobe 21-25 = Random Sync 26-255 = Reserved Values
23	Luminaire Control	0 - 255	0 - 100%	0	Control Channel used for full fixture set ings, lamp controls, and miscel-laneous modes. Set descreet value of desired effect, wait >3 seconds, then set value to 0 (Idle). 0-5 = Idle (Default) 6-10 = Full Luminaire ReCal-Also Used to Wake fixture up from shut-down 11-15 = Lamp ON 16-20 = Lamp OFF 21-25 = Fixture Shutdown 26-30 = Display-Menu ON 31-35 = Display-Menu OFF 36-40 = ReCal Position 41-45 = ReCal Color 46-50 = ReCal Gobo 51-55 = ReCal Beam 56-60 = ReCal Dimmer/Strobe 61-65 = Reset Fixture to Defaults 66-70 = Full Luminaire Reboot. This command will douse lamp and reset all processors in fixture, then ReCal all parameters. 71-75 = Fixture Status On/Off. This command will enable the display to show fixture status for 5 min. After this time, displays will return to default configuration. Repeating the command in less than 5 minutes will behave as a toggle. 76-80 = Dimmer Snap Off (default) 81-85 = Dimmer Snap On 86-90 = Pan / Tilt Normal (Default) 91-95 = Pan / Tilt Fast 95-255 = Reserved Values

Notes:

Default Values: *Denotes recommended console default settings

Fixture Shutdown

This command will turn the lamp OFF, disable all motors, and stop the luminaire from functioning until either a Full Luminaire ReCal command or Lamp ON command is sent. When in the shutdown state, the luminaires menu will display **SHUTDOWN**.

Note: The luminaire's cooling fans will continue to run for 5 minutes after the shutdown command is sent. After 5 minutes the luminaire fans will shutdown. A power cycle will also clear the shutdown state.

RDM Parameter IDs

VL6000 Beam Luminaire RDM Parameter IDs

The following tables outline and describe all the RDM parameters IDs associated with VL6000 Beam Luminaires.

Table 3: VL6000 Beam Luminaire RDM Product Parameters ID

Model ID	Manufacturer	Model Description	Product Category
0x0030	Philips Entertainment Lighting	VL6000 Beam Lu inaire	0x0100

Table 4: VL6000 Beam Luminaire RDM UID

UID					
MSB of ESTA 56H	LSB of ESTA 4CH	MSB of Serial	Seco Byte of Serial	Third Byte of Serial	LSB of Serial

Table 5: VL6000 Beam Luminaire RDM Parameters IDs

Get Allowed	Set Allowed	RDM Parameter ID	Value	Comment	Implemented
		Cate ory - Network Management			
		DISC_UNIQUE_BRANCH	0x0001		
		DISC MUTE	0x0002		
		DISC_UN_MUTE	0x0003		
		PROXIED_DEVICES	0x0010		
		PROXIED_DEVICES_COUNT	0x0011		
		COMMS_STATUS	0x0015		
		Category - Status Collection			
		QUEUED_MESSAGE	0x0020		■
■		STATUS_MESSAGES	0x0030		■
■		STATUS_ID_DESCRIPTION	0x0031		■
	■	CLEAR_STATUS_ID	0x0032		■
		SUB_DEVICE_STATUS_REPORT_THRESHOLD	0x0033		
		Category - RDM Information			
		SUPPORTED_PARAMETERS	0x0050	*Support required only if supporting Parameters beyond the minimum required set.*	

Table 5: VL6000 Beam Luminaire RDM Parameters IDs

Get Allowed	Set Allowed	RDM Parameter IDs	Value	Comment	Implemented
		PARAMETER_DESCRIPTION	0x0051	*Support required for Manufacturer-Specific PIDs exposed in SUPPORTED_ PARAMETERS message.*	
		Category - Product Information			
■		DEVICE_INFO	0x0060		■
		PRODUCT_DETAIL_ID_LIST	0x0070		
■		DEVICE_MODEL_DESCRIPTION	0x0080		■
■		MANUFACTURER_LABEL	0x0081		■
■	■	DEVICE_LABEL	0x0082		■
		FACTORY_DEFAULTS	0x0090		
		LANGUAGE_CAPABILITIES	0x00A0		
		LANGUAGE	0x00B0		
■		SOFTWARE_VERSION_LABEL	0x00C0		■
■		BOOT_SOFTWARE_VERSION_ID	0x00 1		■
■		BOOT_SOFTWARE_VERSION_LABEL	0 00C		
		Category - DMX512 S up			
■	■	DMX_PERSONALITY	00E0		■
■		DMX_PERSONALITY_DESCRIPTION	0x00E1		■
■	■	DMX_START_ADDRESS	0x00F0		■
■		SLOT_INFO	0x0120		■
■		SLOT_DESCRIPTI	0x0121		■
■		DEFAULT_SLOT_VA UE	0x0122		■
		Category - Sensors 0x02xx			
		SENS DE I ITION	0x0200		
		SENSOR_VALUE	0x0201		
		R CORD_SENSORS	0x0202		
		Category - Dimmer Settings 0x03xx - FUTURE USE			
		Category - Power / Lamp Settings 0x04xx			
■		DEVICE_HOURS	0x0400		■
■		LAMP_HOURS	0x0401		■
■		LAMP_STRIKES	0x0402		■
■	■	LAMP_STATE	0x0403		■
■	■	LAMP_ON_MODE	0x0404		■
■		DEVICE_POWER_CYCLES	0x0405		■
		Category - Display Settings 0x05xx			
■	■	DISPLAY_INVERT	0x0500		■
■	■	DISPLAY_LEVEL	0x0501		■
		Category - Configuration 0x06xx			
■	■	PAN_INVERT	0x0600		■
■	■	TILT_INVERT	0x0601		■

Table 5: VL6000 Beam Luminaire RDM Parameters IDs

Get Allowed	Set Allowed	RDM Parameter IDs	Value	Comment	Implemented
■	■	PAN_TILT_SWAP	0x0602		■
		REAL_TIME_CLOCK	0x0603		
Category - Control 0x10xx					
	■	IDENTIFY_DEVICE	0x1000		■
	■	RESET_DEVICE	0x1001		■
		POWER_STATE	0x1010		
		PERFORM_SELFTEST	0x1020		
		SELF_TEST_DESCRIPTION	0x1021		

Updating Software

PEGASUS Software

Application

With the USB Upload Cable (part number **PEGASUS**, sold separately) and the PEGASUS Softwar (downloaded from our web site), you can connect any USB 2.0 compatible port on a compu er to a chain of up to 32 Philips Entertainment Lighting luminaires in order to update the lumina re software.
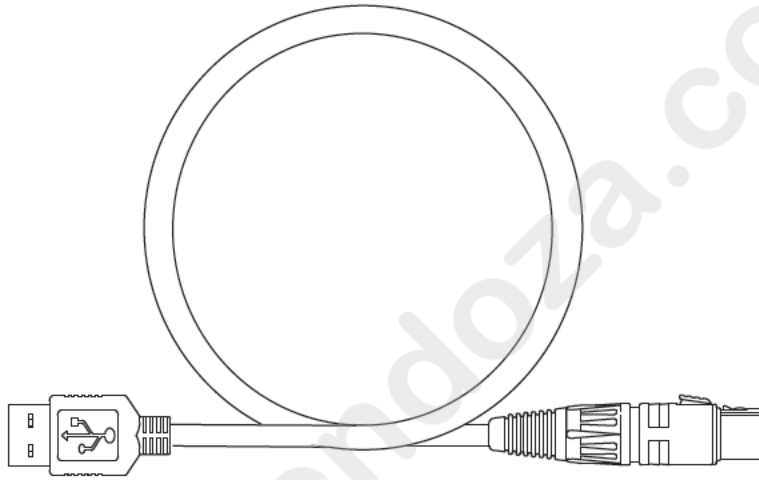
Figure 3-5: USB Upload Cable *(sold separately)*

Note: PEGASUS Software is compati le with previous versions of the VARI✳LITE USB Upload Cable (25.9600.0001).

Computer Requirements

- PC running Windows. Although the programming kit software is not directly compatible with Macintosh computers, it does run with some Windows emulators.

- An avai able USB 2.0 compatible port on your computer.

- Internet access the Vari-Lite web site (www.philips.com/entertainmentlight-ing) to download the PEGASUS Software.

No e: Internet access is only required to download the PEGASUS Software and product firmware files. Internet access is not required to use the program.

Installing PEGASUS Software

To install the PEGASUS Software:

Step 1. As described in "Computer Requirements" , visit the Vari-Lite web site and download PEGASUS Software ZIP File.

Step   2. Unzip file to a folder on your computer.

Step   3. Double click on pegausinstall.msi icon.

Step   4. Follow all prompts in program's installation wizard.

Step   5. Insert USB Upload Cable *(sold separately)* into a USB 2.0 compatible port on your computer.

WARNING: Do not use a USB hub, always connect directly to a USB port on your comp ter.

Step   6. When prompted by Windows for upload cable USB driver, use browser wind w to point to "USB Driver" folder that came with PEGASUS Software and press OK.

Step   7. After USB cable is ready to use, proceed to next step.

Note: Refer to ""Upload Cable LED Status Messages" " about the three-color LED on the XLR end of the cable.

Troubleshooting

Upload Cable LED Status Messages

Table 6: USB Upload Connector LED Colors

XLR LED Status	Meaning
Continuous **Red**	Do not use the cable to download software; contact customer service for assistance.
Continuous **Purple**	Driver software is not installed.
Continuous **Blue** with **Purple** pulse every five seconds.	Cable is ready, but data is not being transmitt d.
Flashing **Blue** (twice per second)	Data is being transmitt d.

LED
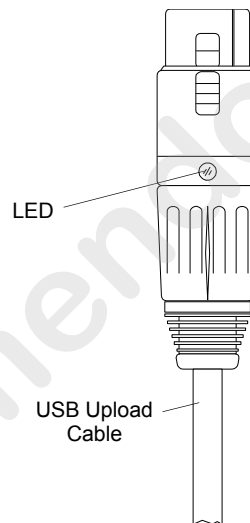
USB Upload Cable

Figure 3-6: USB Upload Cable

Upload Cable Warning (Error) Message

If you see a warning message (as shown in Figure 3-7) on your compu er screen and the USB Upload Cable is properly connected to USB 2.0 ompatible port on your computer, it may not be detected by your computer.

- Disconnect USB Upload Cable from computer and reconnect.

- Reinstall USB Upload Cable Driver as described in, "Installing PEGASUS Software" .

If either of the these do not resolve the error message, you may have a defective Upload Cable. Contact customer service at 1.214.647.7880 or entertainment.service@philips.com for assistance.

Warning	☒
No USB-DMX Interface found!	
Please install the Driver or plug in the USB-DMX Cable.	
OK	
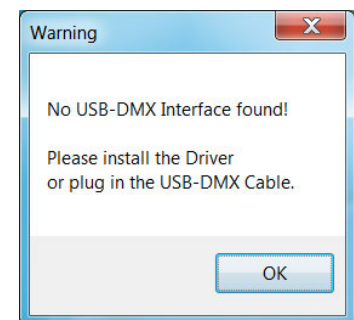
Figure 3-7: Upload Cable Error Message

Installing or Updating Luminaire Firmware

Luminaire firmware, for the VL6000 Beam Luminaire can be loaded via PEGASUS or via the USB port. This section describes both methods.

USB Upload via USB Port

To upload luminaire software to a luminaire using a USB Flash drive.

Step 1. On a computer connected to the Internet, download the luminaire software f om he

VARI-lITE web site. *Save the downloaded .bin file to the root directory on a USB f ash drive (not supplied, by others). Do not store the .bin file in any folder on the USB lash drive.*

Step 2. Insert USB flash drive into luminaire's USB port.

Step 3. Press [ESC].

Step 4. Press [UP] / [DOWN] arrows until **Fixture** appears   ress [OK].

Step 5. Press [UP] / [DOWN] arrows until **USB** appears Pres [OK].

Step 6. Press [UP] / [DOWN] arrows until **USB Upload** ppears. Press [OK].

Step 7. The display will show download progress

Note: To determine software version at lumin ire, see "Verify software version at luminaire:" on page 50.

Using PEGASUS Uploader

When luminaires are data linked together, you can program up to 32 luminaires at the same time; refer to "Connecting Data and Power" on page 28. To program more than 32 luminaires (or devices), program them in b tches of 2 or less.

⚠ ## Important Notes & Warnings:

• *DMX Dat mu t be disconnected before uploading software to luminaires. Do not merge firmware fi es w th DMX signals.*

• *You can upload multiple firmware files to a variety of luminaires that are data linked together. Each m d l of Vari-Lite luminaire recognizes its own software and only downloads the appropriate file.*

• *Do not use a USB hub, always connect directly to a USB port on your computer.*

To install or update luminaire firmware using PEGASUS upload cable:

⚠ **Note:** DMX Data must be disconnected before uploading software to luminaires. Do not merge firmware files with DMX signals.

Step 1. Visit Vari-Lite web site (www.philips.com/entertainmentlighting) and download product firmware you wish to update.

Step   2.   Unzip firmware file you downloaded to a folder on your computer.

Step   3.   Insert USB Upload Cable *(sold separately)* into a USB 2.0 compatible port on your computer *(do not use a USB hub)*.

Step   4.   Double click on PEGASUS Software shortcut on your desktop.

Step   5.   When application opens:

a.   Select Vari-Lite for luminaire type (as shown in Figure 3-8.).
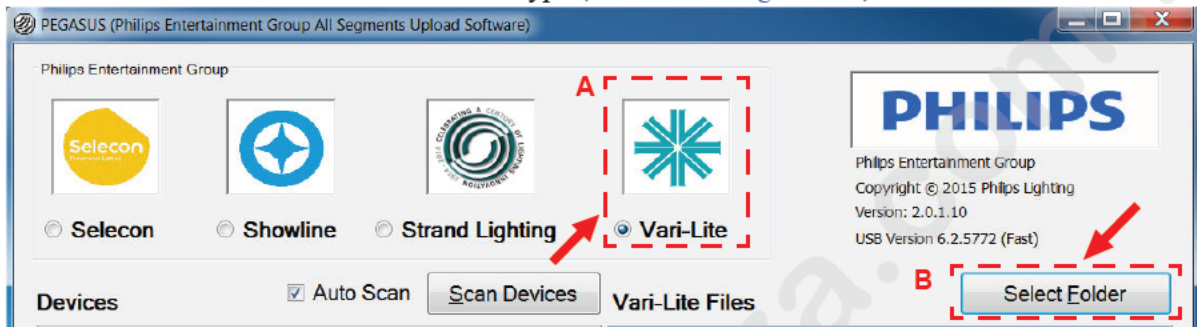
Figure 3-8: PEGASUS Software Selection Screen

b.   As indicated in Figure 3-8, click on Select Folder button to open browser window.

Step   6.   In browser window, navigate to folder where Vari-Lite firmware was extracted.

a.   Click on any file in folder.

b.   Click Open button on bottom of scre n.

Step   7.   Click on bin file for luminaire to be updated (for example, VL6000_101716.bin) as highlighted in Figure 3-9.

NOTE: Select High Speed option when uploading to 16 or less luminaires.
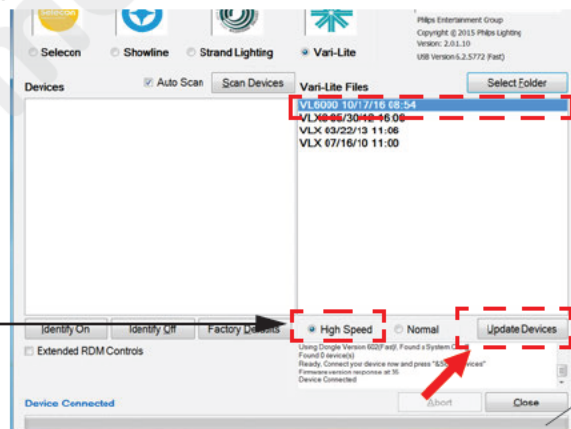
Progress Bar

Figure 3-9: bin File Selection

tep   8.   As indicated in Figure 3-9, click on Update Devices to start upload.

a.   During upload, PEGASUS and luminaire screens will display a progress bar showing upload status.

b.   Once progress bar shows completed on computer screen, wait approximately one minute before moving to next step. *Note, The progress bar on luminaire LCD display may continue for a short time after computer progress bar shows completed.*

      c.   Once the firmware upload is complete, the VARI❋LITE luminaire(s) will automatically recalibrate.

Step   9.   Close PEGASUS Software using Close button at bottom of program screen.

Note: You can confirm the software version in the luminaire menu.

Transferring Software From Luminaire to Luminaire

It is possible to transfer specific software versions between luminaires. As in the case of installing new software versions, multiple luminaires can be programmed at the same time if th y ar data linked together (refer to "Connecting Data and Power" on page 28), however a maximum f 32 luminaires can be updated at once.

Hardware Requirements

Data cables used in this process must have two twisted pairs and a sh eld. It is also recommended that cables meet all other USITT DMX specification requirements R fer to "Data Cables" on page 17.

A DMX termination connector is used in this process. Refer to page 18 for more information regarding the construction of this connector.
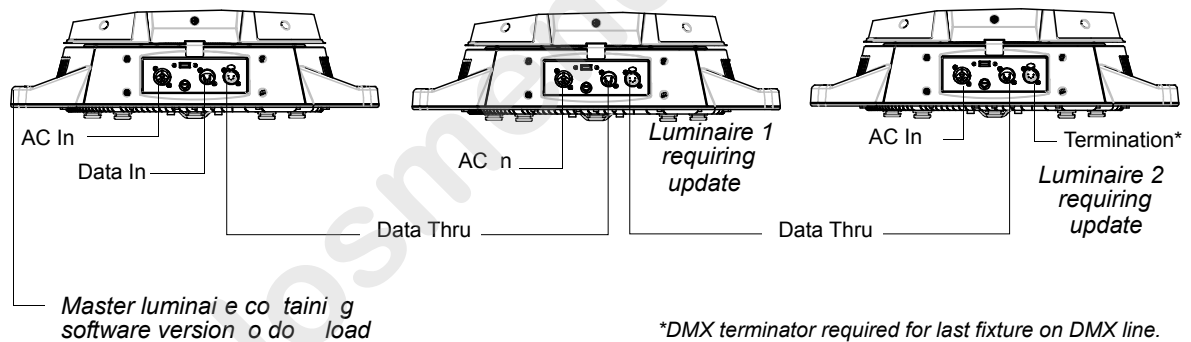
Figure 3-10: Software Transfer Setup

Transfer Procedure

This p ocedure is used to transfer software versions between luminaires.

Step   1.   At last luminaire, install DMX termination connector into DATA THRU XLR connector.

Step   2.   At master luminaire (first in chain) Menu Display, press [ESC].

 tep   3.   Press [Up] / [Down] arrows until Fixture appears. Press [OK].

Step   4.   Press [Up] / [Down] arrows until Crossload Software appears. Press [OK].

Step   5.   OK? will be displayed. Press [OK] to accept.

Step   6.   The status bar will show download progress.

Verify software version at luminaire:

Step   1.   At Menu Display, press [ESC].

Step   2.   Press [Up] / [Down] arrows until Fixture appears. Press [OK].

Step   3.   Press [Up] / [Down] arrows until Version appears. Press [OK].

The first half of the version will be displayed as a date (MM/DD/YY). For example, 03/18/17 (March 18, 2017).

Press [Enter] to display second half of version. This will be displayed as a time (HH:MM). (For example, 16.36 = 4:36 pm).

CHAPTER 4.

Menu System

This chapter contains instructions for operating the luminaire using the Menu Display f ature.

- **Menu Operation**

- **Self Tests**

- **USB Logging**

Menu Operation

LCD Display and Menu System

The VL6000 Beam Luminaire's LCD Display and Menu System provides local control for accessing the following fixture's settings:

• Address – to set the DMX address

• Configure – various parameter settings, set luminaire ID

• DMX – change the map, view incoming DMX, invert pan/tilt

• Fixture – fixture status, recalibrate, reboot, software version, view fixtures ho rs, service, etc.

• Manual – manual control of parameters

• Test – test functions of parameters

The menu system is controlled at the Menu Display available at the enclosure input panel. If there are multiple luminaires in a system, any settings or changes would need to be made at each LCD Menu as desired.

Menu Controls

The menu system is controlled by an OK (Enter), ESC (Escape), and four Arrow (◁ △ ▽ ▷) buttons. These buttons function are shown in Figure 4-1

LCD Menu Proximity Sensor
Automatically enables the menu display (turn on the backlight) as you reach for the front pan l.

Arrow Keys (Up/Down/Left/Right)
Menu Navigation / Data Selection

LCD Display
Displays all a and Luminaire et ings

ESC (Escape)
Used to Access Main Menu Parameters, Exit, or Return to Previous Menu Item

OK (Enter) Button
To Select or Change a Setting or Data Value
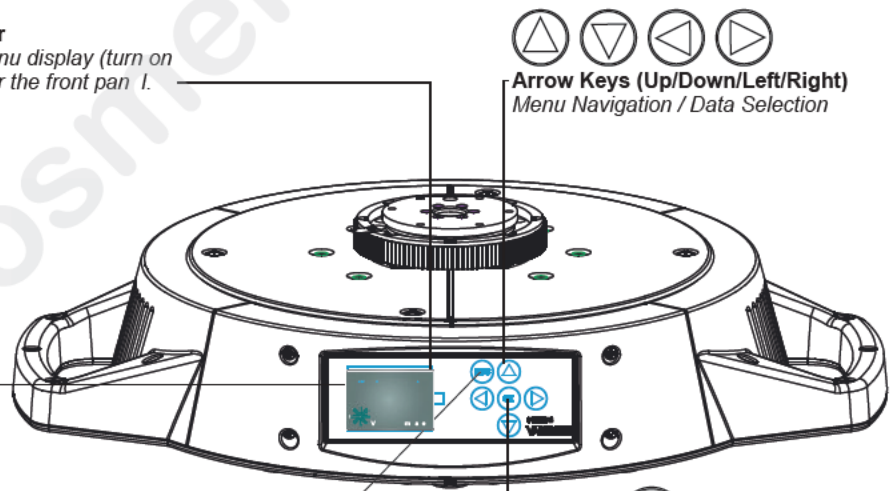
Figure 4-1:   Menu Control

LCD Display and Menu System Operation

The LCD Display Menu system consists of several categories. Use the Menu Buttons to access and make changes to the menu items. When the desired menu item is reached, press the desired Menu Button to display the menu options and to navigate and configure the menu options as required.

To navigate and access menu settings/selections:

Step   1. Make sure unit is powered and turned on.

Step   2. Press [ESC] to access menu categories.

Step   3. Use four Arrow ($\triangleleft \triangle \triangledown \triangleright$) buttons to navigate through the various options and settings.

Step   4. Once menu item is reached, press [OK] to access the menu item parameters

Step   5. Make changes to parameters as desired.

Step   6. Press OK [Enter] button to accept changes.

DMX Address

To set, edit, and save a DMX address:

Step   1. Press [ESC].

Step   2. Press [Up] / [Down] arrows until Address app ars. Press [OK].

Step   3. Use [Left] and [Right] arrow buttons to s roll through all digits.

Step   4. Once at desired digit, use [Up] and [Down] arrows to change highlighted digit.

Step   5. Once digit is set, use [Left] and Right] arrow buttons to set other digits in DMX address.

Step   6. Once all digits are set in DMX address, press [OK] to set.

Step   7. DMX address will display and is saved.

Other LCD Display Features

LCD Menu Battery Operation

The LCD menu system utilizes a battery powered system for operation when the luminaire is not connected to power. The primary purpose of this mode is to allow basic setup and configuration of the luminaire.

To enable the battery operation of the menu system:

Step 1. Press and hold [ESC] and [OK] for two seconds.

Step 2. Once enabled, the menu will function as normal.

Note: Any commands that require full power (calibrate, lamp strike, etc.) will be ignored while the menu system is in battery operation mode.

Step 3. To exit battery mode, press and hold [ESC] and [OK] for two seconds. *Note, luminaire will automatically exit this mode after one minute of inactivity.*

Status Bar

The Status Bar (as illustrated in Figure 4-2) is p   ent t all times and displays luminaire operational information of the luminaire. The Status Bar contains the following information:

- LAMP – indicates current lamp tate   ON or OFF.

- SHDN – indicates shutdown t me in hours NO indicates NO shutdown me.

Figure 4-2: LCD Display Status Bar

- ERRORS – Displays a number indicating the total amount of current errors. When errors are present, messag s w ll ppear in Red text. When no errors are present, NO will display.

- ADDR – Displays the current DMX address for the fixture. NOTE, when the fixture does not detect a DMX input signal, the DMX address text will display in Red text.

LCD Menu Proximity Sensor

The LCD menu system uses a proximity sensor to automatically enable the menu display (turn on the ba klight) as you reach for the front panel. If the display is off, it will turn on when your hand is within a few inches of the display. *Note, when the luminaire is not connected to power and the LCD menu is operating on battery, this proximity sensor is disabled.*

Menu Tree

are graphical representations of the menu system.

Address - value (1 thru 489)

Configure — Lamp — Power — On*
                              └ Off
              — Power Up — Lamp Off*
                          — Lamp On
                          └ Cal On
              — Lamp Hours — # of hours
              └ Reset Lamp Hours — Are you sure?

       — Pan / Tilt — Movement — Enable
                                └ Disable
       — Head Motors — Movement — Enable
                                 └ Disable
       — Display — Orientation — Auto
                                — Up
                                └ Down
                 └ On Time — Auto
                           — 30 Sec
                           — 5 Min
                           — 10 Min
                           └ On
       — Cloud Search — Enable
                        └ Disable
       — Reset Defaults — Are you sure?
       └ Change Luminaire ID — ######

Fixture — Status — Fixture OK...*or display a list of errors encountered during calibration process or operation.*
       — ReCalibrate Fixture — Are you sure?
       — ReBoot Fixture*** — Are you sure?
       — Luminaire ID — #####
       — Software Version — MM/DD/YY — HH:MM
       — Fixture Hours — XXXXXX Hours
       — Crossload Software — Send
                             └ Sending Version XX/XX/XX XX:XX
                                └ Crossload Complete
       — Service# — Diagnostics — Ballast Info
                                — Fan Check
                                — Board Check
                                └ Debug
       └ USB — Update OS
             — Log File — Download
                         └ Reset
             — Save Config
             └ Restore Config

Notes:
*CTG=Cloaked Transition Generator
*Factory default setting.
**Channel and Dimmer information displayed simultaneously.
***Reboots entire fixture including processor.

DMX — Data** — Ch 1 - Intensity XXX (Value)
                 Ch 2 - Pan High Byte XXX (Value)
                 Ch 3 - Pan Low Byte XXX (Value)
                 Ch 4 - Tilt High Byte XXX (Value)
                 Ch 5 - Tilt Low Byte XXX (Value)
                 Ch 6 - Edge XXX (Value)
                 Ch 7 - Color Presets/ Splits/ Active
                 Ch 8 - CTG
                 Ch 9 - Col Whl 1 XXX (Value)
                 Ch 10 - Col Whl 1 Ctrl XXX (Value)
                 Ch 11- Col Whl 2 XXX (Value)
                 Ch 12- Col Whl 2 Ctrl XXX (Value)
                 Ch 13- Col Whl 3 XXX (Value)
                 Ch 14- Col Whl 3 Ctr XXX (Value)
                 Ch 15- Gobo Whl XXX (Value)
                 Ch 16- Gobo 1 Indx High XXX (Value)
                 Ch 17- Gobo 1 Indx Low XXX (Value)
                 Ch 18- Gobo 1 Ctrl XXX (Value)
                 Ch 19- Iris XXX (Value)
                 Ch 20- Frost XXX (Value)
                 Ch 21- Strobe Speed XXX (Value)
                 Ch 22- Strobe Ctrl XXX (Value)
                 Ch 23- Luminaire Ctrl XXX (Value)

       — Pan/Tilt — Swap Pan/Tilt — Off*
                                   └ On
                  — Invert Pan — Off*
                                └ On
                  └ Invert Tilt — Off*
                                 └ On
       └ DMX Map — 16-bit Enh*
                  └ 16-bit

Figure 4-3: Menu Tree Part 1

Continued from previous page:

Manual
- Intensity ——————— Value 0 - 255
- Pan ——————— Value 0 - 65535
- Tilt ——————— Value 0 - 65535
- Edge ——————— Value 0 - 65535
- Programming Control —— Value 0 - 255
- Color Presets ——————— Value 0 - 255
- CTG ——————— Value 0 - 255
- Color Wheel 1 ——————— Value 0 - 255
- Col Wheel 1 Control —— Value 0 - 255
- Color Wheel 2 ——————— Value 0 - 255
- Col Wheel 2 Control —— Value 0 - 255
- Color Wheel 3 ——————— Value 0 - 255
- Col Wheel 3 Control —— Value 0 - 255
- Gobo Wheel 1 ——————— Value 0 - 255
- Gobo 1 Index/Rotate —— Value 0 - 65535
- Gobo 1 Control —— Value 0 - 255
- Iris ——————— Value 0 - 255
- Frost ——————— Value 0 - 255
- Strobe Speed ——————— Value 0 - 255
- Strobe Control ——————— Value 0 - 255

Test
- ALL Test ——— Running 'ALL TEST'
- Pan/Tilt ——— Running 'PAN/TILT TEST'
- Dimmer ——— Running 'DIMMER TEST'
- Strobe ——— Running 'STROBE TEST'
- Color Wheel 1 —— Running 'COL WHL 1 TEST'
- Color Wheel 2 —— Running 'COL WHL 2 TEST'
- Color Wheel 3 —— Running 'COL WHL 3 TE T'
- Gobo 1 ——— Running 'GOBO 1 TE
- Iris ——— Running 'IRIS TEST
- Edge ——— Running 'EDGE TE T'
- Frost ——— Running 'FROST TES

Figure 4-4: Menu Tree Part 2

Menu System Functions

Table 4-1: Menu System Chart

1st Level	2nd Level	3rd Level	4th Level	5thLevel
Address *DMX Address*	**XXX** *DMX Address value 1 to 512*			
Configure *System Configuration*	**Lamp** *Lamp Options*	**Power**	**ON** (default)	
			OFF	
		Power Up *Lamp Power-up State*	**Lamp OFF** (defaul *Lamp Off*	
			Lamp ON *L mp On*	
			Cal ON	
		Lamp Hours *Lamp Hours Used*	**XXXX** *Cumulative # f O ration Hours*	
		Lamp Strikes *Number of Lamp Strikes Performed*	**X XX** *Cumulative # of Lamp Strikes*	
		Reset Lamp Hours *Resets Lamp Hour Counter*	**Are you sure?** *Resets Lamp Hour Counter to 0000*	*Confirmation that reset has been executed*
	Pan/Tilt *Pan and Tilt Options*	**Movement** *Position Recovery*	**Enable**	
			Disable	
		Speed *Pan / Tilt movemen speed*	**Auto**	
			Normal	
			Reduced	
	Head Motors	**Moveme t**	**Enable**	
			Disable	
	Display *Display / Menu Illumination*	**Or ntation**	**Auto** *Flips to enclosure position*	
			Up	
			Down	
		On Time	**30 Seconds** *OFF in 30 seconds*	
			5 Minutes *OFF in 5 minutes*	
			10 Minutes *OFF in 10 minutes*	
			ON *ON indefinitely*	
	Reset Defaults *Reset luminaire to default settings?*	**Are you sure?**	*Confirmation that reset has been executed*	
	Change Luminaire ID	**######** *Sets Luminaire ID Number*		

Table 4-1: Menu System Chart (Continued)

1st Level	2nd Level	3rd Level	4th Level	5thLevel
DMX *DMX Data and Pan/Tilt Mode*	**DATA** *Note: Channel and Dimmer information displayed simultaneously*	**Ch 1 - Intensity XXX (Value)** **Ch 2 - Pan High Byte XXX (Value)** **Ch 3 - Pan Low Byte XXX (Value)** **Ch 4 - Tilt High Byte XXX (Value)** **Ch 5 - Tilt Low Byte XXX (Value)** **Ch 6 - Edge Byte XXX (Value)** **Ch 7 - Color Presets/Splits/Actives Byte XXX (Value)** **Ch 8 - CTG** **Ch 9 - Color Wheel 1 Byte XXX (Value)** **Ch 10 - Color Wheel 1 Ctrl XXX (Value)** **Ch 11 - Color Wheel 2 XXX (Value)** **Ch 12 - Color Wheel 2 Ctrl (Value)** **Ch 13 - Color Wheel 3 XXX (Value)** **Ch 14 - Color Wheel 3 Ctrl (Value)** **Ch 15 - Gobo Whl 1 XXX (Value)** **Ch 16 - Gobo 1 Indx High XXX (Value)** **Ch 17 - Gobo 1 Indx Low XXX (Value)** **Ch 18 - Gobo 1 Ctrl XXX (Value)** **Ch 19 - Iris XXX (Value)** **Ch 20 - Frost XXX (Value)** **Ch 21 - Strobe Speed XXX (Value)** **Ch 22 - Strobe Control XXX (Value)** **Ch 23 - Luminaire Ctrl XXX (Value)**		
	Pan/Tilt *Pan/Tilt Options*	**Swap** Pan / Tilt *Swap Pan & Tilt operation*	**OFF** (default)	
			ON	
		Invert Pan *Inverts Pan operation*	**OFF** (default)	
			ON	
		Invert Tilt *Inverts Tilt peration*	**OFF** (default)	
			ON	
	DMX Mode *Sets DMX Mapping Mode*	**16-b t En** *16 Enha ced DMX Mode (default)*		
		** bit** *16 t DMX Mode*		

Table 4-1: Menu System Chart (Continued)

1st Level	2nd Level	3rd Level	4th Level	5thLevel
Fixture *Displays fixture information, condition or downloads new software*	**Status** *Status/Error Display*	**Fixture OK** *. . . Or displays a list of errors encountered during calibration process or operation.*		
	ReCalibrate Fixture *Recalibrate (re-homes) all mechanical parameters of the fixture*	**Are you sure?**	*Confirmation that recalibration has been executed*	
	ReBoot Fixture *Reboots entire fixture including processor*	**Are you sure?**		
	Luminaire ID *Displays luminaire's ID number*	**######**		
	Software Version *Current software installed in fixture*	**XX/XX/XX** *Software Version Date*	**XX:XX** *Software Versi n Time*	
	Fixture Hours *Fixture Hours On (powered)*	**XXXXXX** *Hours*		
	Crossload Software *Download (send) fixture's software to other connected fixtures.*	**Send**	**Sending Version** **XX/XX/XX XX:XX** *Sending Software Version Date / Time*	**Crossload Complete**
	Service *For use by authorized service technicians only.*	**Diagnostics**	**Fan Check**	
			Board Check	
			Sensor Check	
			Debug	
	USB	**Upda e S**	**List of Files** *OR* **No Card Inserted**	
		Lo File	**Download**	
			Reset	
Manual *Manual Commands* *Note: Manual is Disabled if DMX512 signal is present.*	**Intensity** **Pan** **Tilt** **Edge** **Color Preset** **CTG** **Col Whl** **Col Wh 1 Ctr** **Col Whl 2** **Col Whl 2 Ctrl** **Col W 3** **l W l 3 Ctrl** **Gobo Whl 1** **Gobo 1 Index** **Gobo 1 Ctrl** **Iris** **Frost** **Strobe Speed** **Strobe Control** **Luminaire Control**	*Value 0 - 255* *Value 0 - 65535* *Value 0 - 65535* *Value 0 - 255* *Value 0 - 255* *Value 0 - 255* *Value 0 - 255* *Value 0 - 255* *Value 0 - 255* *Value 0 - 255* *Value 0 - 255* *Value 0 - 255* *Value 0 - 255* *Value 0 - 65535* *Value 0 - 255* *Value 0 - 255* *Value 0 - 255* *Value 0 - 255* *Value 0 - 255* *Value 0 - 255*		

For Service Settings and USB menu descriptions, refer to the following:

- "USB Logging" on page 64 (for Log File)

- "Installing or Updating Luminaire Firmware" on page 48 (for Update OS)

Table 4-1: Menu System Chart (Continued)

1st Level	2nd Level	3rd Level	4th Level	5thLevel
Test* *System Test* *Note: Test is Disabled if DMX512 signal is present.*	**ALL Test** **Pan/Tilt** **Dimmer** **Strobe** **Color Wheel 1** **Color Wheel 2** **Color Wheel 3** **Gobo 1** **Iris** **Frost**	*Running 'ALL TEST'* *Running 'PAN/TILT TEST'* *Running 'DIMMER TEST'* *Running 'STROBE TEST'* *Running 'COL WHL 1 TEST'* *Running 'COL WHL 2 TEST'* *Running 'COL WHL 3 TEST'* *Running 'GOBO 1 TEST'* *Running 'IRIS TEST'* *Running 'FROST TEST'*	*Press [Menu] to stop tests*	

Self Tests

Running Parameter Tests

The luminaire is capable of running self tests by using the TEST menu functions. For complete detai
and values for each test refer to "Diagnostic Tests" on page 64.

When running tests on multiple luminaires, a DMX termination connector is required at th last
luminaire in the link. (Refer to page 18 for more information regarding the construction of this
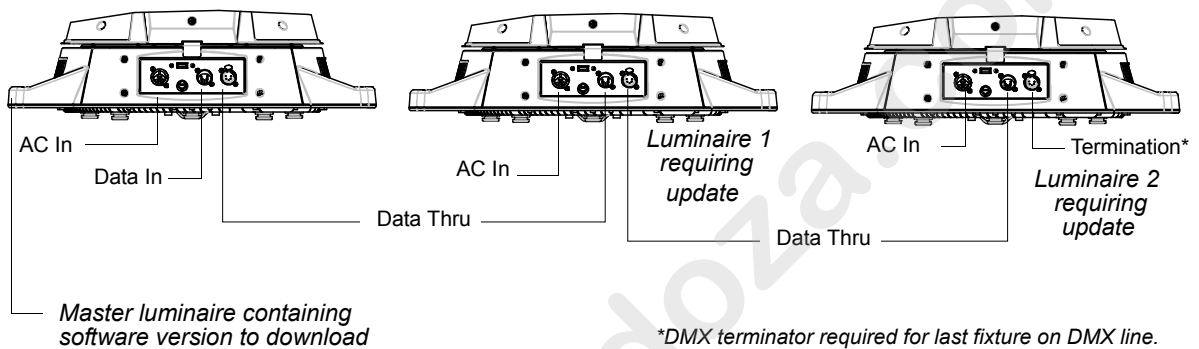connector.).

AC In

Data In

*Luminaire 1
requiring
update*

AC In

Data Thru

AC In

Termination*

*Luminaire 2
requiring
update*

Data Thru

*Master luminaire containing
software version to download*

*DMX terminator required for last fixture on DMX line.

Figure 4 5: Te t Setup

To run tests:

Step   1. Press [ESC].

Step   2. Press [Up] / [Down] arrows until Test appears. Press [OK].

Step   3. Use [Up] / [Down] arrows to select a parameter to test. Refer to "Menu System Functions"
on page 59 for a complete list of test parameters which can be chosen.

Step   4. Press [OK] to u test.

Step   5. Press [ESC] to st p test at any time.

Note: Connected uminaires may not respond on the first action (may delay) of the master luminaire.

Movement Disable

The Movement option allows pan and tilt to be disabled so that the luminaire can be placed in any
position for testing without movement occurring. In order to regain full control of the luminaire,
Movement will need to be enabled after testing.

Note: When using the Movement option, pan and tilt will be disabled for all the luminaires that are
linked.

To set movement option:

Step   1. Press [ESC].

Step   2. Press [Up] / [Down] arrows until Config appears. Press [OK].

Step   3. Press [Up] / [Down] arrows until Pan/Tilt appears. Press [OK].

Step   4. Movement will be displayed. Press [OK].

Step   5. Use [Up] / [Down] arrows to select Enable or Disable. Press OK] to select.

Diagnostic Tests

The following diagnostic tests are available in the test menu. Press [Menu] at any im   to stop test.

Test Descriptions

Test Name	*Display*
ALL Test	Running 'ALL TEST'
Pan/Tilt	Running 'PAN/TILT TEST'
Dimmer.....................	Running 'DIMMER TEST'
Strobe......................	Running 'STROBE TEST
Color Wheel 1	Running 'COL WHL 1 TEST'
Color Wheel 2	Running 'COL WHL 2 TEST'
Color Wheel 3	Running 'COL WHL 3 TEST'
Gobo 1	Running 'GOBO 1 TEST'
Iris	Running IRIS TEST'
Edge........................	Running 'EDGE TEST'
Frost........................	Running 'FROST TEST'

USB Logging

The VL6000 Beam Luminaire stores error messages in a log file within the luminaire. This information alo g with specific luminaire settings can be saved as a .csv *(comma-separated values)* file to a USB la h drive connected to the USB port.

To save the current log file to a USB Flash Drive:

Step   1. Insert a USB flash drive *(not supplied, by others)* into luminaire's USB port.

Ste   2. Press [ESC].

Step   3. Press [UP] / [DOWN] arrows until **Fixture** appears. Press [OK].

Step   4. Press [UP] / [DOWN] arrows until **USB** appears. Press [OK].

Step   5. Press [UP] / [DOWN] arrows until **USB Log** appears. Press [OK].

Step   6. Press [UP] / [DOWN] arrows until **DOWNLOAD** appears. Press [OK].

Step   7. Once the download is complete, the display will read "**Reset Current Lum error log file?**" Press [OK] to reset or [ESC] to exit.

Step   8. Press [OK] to clear the current log file in the luminaire or [ESC] to keep it.

The .csv log file on the USB Flash Drive can be read via any computer system. The file name will be as follows: 4KSxxxxx.csv (the xxxxx will be the unique luminaire ID of the fixture). Each log file contains labels and values as shown in Table 5 on page 66.

Table 5: .csv Log File Information

Parameter	Example Information	Meaning
Model	VL6000 Beam Luminaire	The fixture model
Fixture Hours	142	The total of number of hours the fixture has been operating
DMX Address	1	Current DMX address of the fixture as set by t e us r
RDM UID	56:4c:2f:0:7:2a	Refer to "RDM Parameter IDs" on pag 2 for formation
Luminaire ID	1834	Current luminaire identification number
Software Version	1/6/2015	Current softw e versi n loaded in the fixture
DMX Map	16-bit	C rent DMX mode setting *(16 bit)*
Swap Pan/Tilt	No	Current pan and tilt setting
Invert Pan	No	Current pan operation setting
Invert Tilt	No	Current tilt operation setting
Lamp Power Up	amp Off	Current Lamp Power Up option setting *(Lamp Off, Lamp ON, or Cal On)*
Lamp Level	Standard	Current operating mode of the fixture *(Standard)*
Lamp Strikes	518	Total number of lamp strikes initiated by the fixture
Lamp Hours	140	Total number of lamp hours since the last lamp hour reset
F xture our	Error Type(s)	Lists any errors and their associated fixtures hour *(in example shown, a pan error occurred at fixture hour 138)*
138	Pan no sensor	

APPENDIX A.

Maintenance

This appendix provides instructions for performing routine maintenance which may be necessary during the life of the luminaire.

- **Equipment Handling**

- **Troubleshooting**

- **Routine Maintenance**

WARNING: All maintenance procedures are to be performed with power completely removed from the luminaire. Also, allow at least of five minutes cooling time before opening covers. Never remove covers or lamp cover assembly while lamp is in operation.

Equipment Handling

Below are some basic tips and information on handling luminaires and their associated components.

Locations/Use

VARI✲LITE luminaires are designed for dry locations only. Exposure to rain or moisture (including, but not limited to, fog machines, misters, etc.,) may damage luminaire.

Lamps

Servicing

- When handling a lamp, hold it by the ceramic base while wearing cotton gloves or finger cots. Do not touch the glass envelope (bulb). If you touch the glass with bare fingers, immediately wipe off any fingerprints with isopropyl alcohol.

- Use care when removing and replacing covers of luminaire and cleaning reflectors. Any jarring can undo the optical alignment of the lamp.

- Hot Lamp. Luminaire must remain powered on for 5 minutes after dousing lamp. Do not open for 5 minutes after switching off. Lampe chaud Le luminaire doit rester en marche pendant 5 minutes après avoir éteindre la lampe Ne pas ouvrir pendant 5 minutes après la coupure.

- Risk of exposure to excessive ultraviolet radiation. Do not operate without complete lamp enclosure in place or when lens damaged. Risque d'exposition aux rayonnements ultraviolets excessifs. Ne pas faire fonctionner sans le boîtier complet de lampe mis en place ou lorsque l'objectif est endommagé.

Heat

When lamps are lit, the interior of the luminaires becomes very hot. To aid in the airflow circulation within the luminaires, after dousing the lamps, wait 5 minutes before removing power to the luminaires. This will provide enough time for the equipment fan to cool off the unit. Users should wait until the unit is cool to the touch before servicing or handling.

Note: Also, refer to for additional information.

Lamp Life

- When operating arc lamps, allow luminaires to operate for at least 3 minutes. It takes about 3 minutes for the fill components (mercury and halogen-metal compounds) in the lamp tubes to vaporize completely. If the lamps are switched off earlier than 3 minutes, the fill components are partially vaporized. The inadequately vaporized fill components and the electrode material (tungsten) are deposited in the areas of the lamp tubes that have remained cool. As a result, the lamp tubes blacken prematurely and reduce the service life of the lamps.

• If the luminaire will be dimmed out for more than two hours, the lamp should be doused.

Solid State Electronics

Electrostatic Discharge (ESD)

Electrostatic discharge (ESD) presents a significant danger to solid state electronic components (semiconductor devices and PC board assemblies). Static electricity can build on a variety of common objects (including people) simply by handling or moving. ESD rarely results in immediate failure of a component, but shows up later as an intermittent problem or severely reduces the life of the component. All VARI*LITE equipment uses solid state electronics and appropriate precautions to protect them should be observed when servicing.

Printed Circuit Boards (PCBs)

All PC boards should be shipped in electrostatic shielding bags. When handling PC boards or components, devices such as conductive mats and conductive wrist straps should be used whenever possible. If these precautionary devices are not available, handling of PC boards and components should be avoided.

CAUTION: Black foam (used to package solid state electronics) should never be used for packing batteries or put in contact with PC boards which contain batteries.

Troubleshooting

Error Messages

If a problem occurs during luminaire calibration, at the end of the calibration sequence the Menu Display will cycle through any applicable error message(s), one at a time until the end of the list is reached. To review the error messages again, it will be necessary to access them using th Sta s function. Also, the VL6000 Beam Luminaire stores error messages in a log file within he l minaire. The log file can be downloaded from the fixture's USB port as described in "USB L gging" on page 64.

To access error messages:

Step 1. Press [ESC].

Step 2. Press [Up] / [Down] arrows until Fixture appears. Press [OK

Step 3. Press [Up]/ [Down] arrows to access Status. Press [OK]. (Display will now scroll through any error messages or display OK if no errors).

Table A-1: Error Messages

Display	Meaning
OK	No Errors Fou d - All Sensors Responded Properly
Pan Sensor	Pan Sens r (Encoder) Error
Tilt Sensor	Ti Se sor (Encoder) Error
Tilt Encoder	T Enc der Error
Dimmer Sensor	immer Sensor Error
Color Whl1 Sensor	Color Wheel 1 Sensor Error
Color Whl2 Sensor	Color Wheel 2 Sensor Error
Color Whl3 Sensor	Color Wheel 3 Sensor Error
Gobo Whl1 Sensor	Rotating Gobo Wheel 1 Sensor Error
Gobo 1 Index Senso	Rotating Gobo Wheel 1 Indexing Sensor Error

Troubleshooting Guide

If a problem is suspected, first try recalibrating the luminaire to prompt an error message. The chart below provides possible causes and remedies for various error messages and/or symptoms.

⚠ **CAUTION:** Some troubleshooting is included for reference only. Performing remedies may void product warranty. Refer to the Vari-Lite Limited Warranty card included with the product.

Table A-2: Troubleshooting Guide

Message	Symptom	Description	Possible Cause/Remedy
Lamp Power Douse	Lamp does not strike upon start-up	Lamp Off option is configured	- Reconfigure lamp startup option in Lamp config menu.

Message	Symptom	Description	Possible Cause/Remedy
n/a	Lamp douses frequently	Lamp Douse	Fan failure... - check head and enclosure fans for proper operation. Ballast overheating... - operating within the specified ambient temperature? - check enclosure vents for debris / dirt. - check fan settings in menu. - check enclosure fans for proper operation. NOTE: Upon initial power up, ballast fans will run for a few seconds and then operate as needed. Enclo ure ents must be clear of debris and dirt to allow p op r airflow.
n/a	Lamp will not strike	Lamp Strike Failure	Lamp cutout switch disengaged... - check lamp cutout switches at amp ox and fan ducts. Bad lamp... - replace lamp. Low input voltage... - check input power (must b 00 to 240 VAC). Fan failure... - check head and en losure fans for proper operation.
n/a	Luminaire behaves oddly	DMX Map Not Matched	Console library not et correctly... - check c nsole library matches DMX map of luminaire.
n/a	Luminaire does not power up	No power	Circuit not ene g zed... - v rify c cuit breaker (at source) is turned on. ot p gg d in... nsure A/C cable is connected to power source.
n/a	Self tests will not run or software download does not work from luminaire.	DMX Data Input	Det cting DMX data... - disconnect DMX input cable.
n/a	No response to DMX data	DMX Failure	DMX connector disconnected... - check DMX DATA IN connection.
n/a	Erratic control of luminaire	DMX Terminati	No DMX termination or termination not correct... - check for DMX terminator. - Luminaire DMX address does not match console patch.

Routine Maintenance

Lamp Removal and Installation

⚡ **WARNING:** Disconnect fixture before relamping. Déconnectez le projecteur avant que le changement de lampe.

⚠ ## Cautions and Warnings

- Wear cotton gloves or other covering while installing lamp. Touching lamp glass with bare fingers will leave oil and may cause the lamp to explode or reduce lamp life. If touched, use isopropyl alcohol and cotton cloth to thoroughly clean glass portion of lamp

- Hot Lamp. Luminaire must remain powered on for 5 minut s afte dousing lamp. Do not open for 5 minutes after switching off. Lampe chaude. Le luminaire d it rester en marche pendant 5 minutes après avoir éteindre la lampe. Ne pas ouvrir pend nt 5 minutes après la coupure.

- Risk of exposure to excessive ultraviolet radiation Do not operate without complete lamp enclosure in place or when lens is damaged. Ris ue d exposition aux rayonnements ultraviolets excessifs. Ne pas faire fonctionner sans le boî ier complet de lampe mis en place ou lorsque l'objectif est endommagé.

To replace lamp:

Step   1. Ensure power is completely removed from luminaire.

Step   2. Set the luminaire head oriz ntally.

Step   3. Engage tilt lock to sec re luminaire head in position.

Step   4. At back of lumin ire, using #2 Phillips screwdriver, remove lamp socket cover by loosening the two q art r-turn captive screws. Note: lamp socket cover is connected with a safety tether.
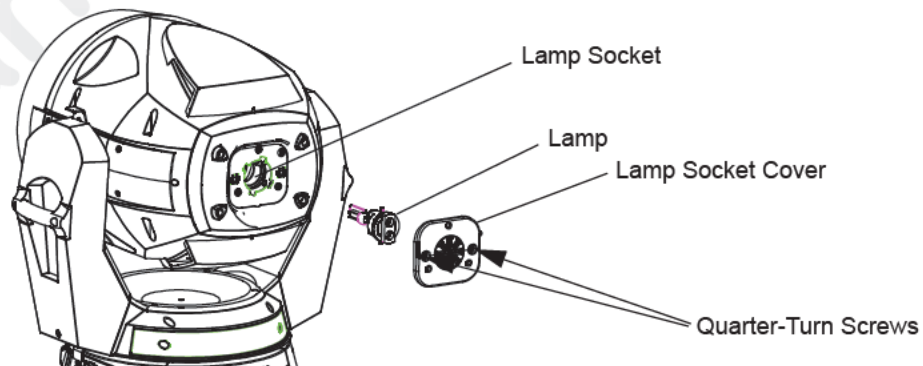

Figure A-1: Lamp Socket Cover Removal

Step   5. To remove lamp, grasp lamp base by hand, twist lamp counter-clockwise until lamp's tabs align with slots in lamp socket (see Figure A-2 on page 73 for more information), and remove lamp by pulling it straight out of socket.

Step 6. Remove replacement lamp from shipping box.

Step 7. As shown in Figure A-2, align replacement lamp tabs with lamp socket.
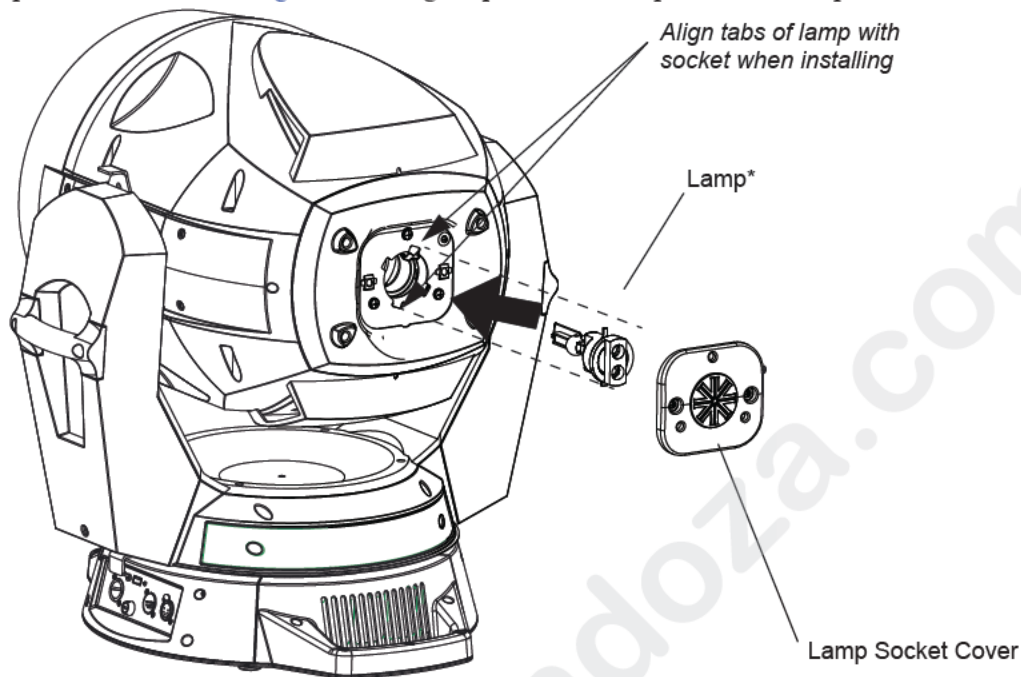
Figure A-2: Lamp Installation

Step 8. Install lamp fully into lamp socket, taking care not to touch lamp glass.

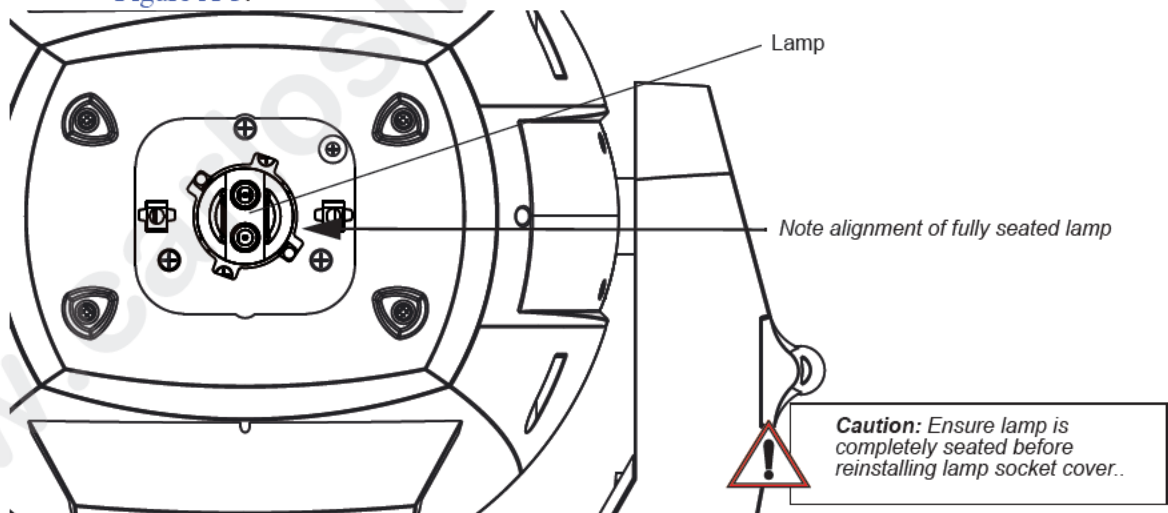Step 9. Turn lamp clockwise to seat lamp into socket. Lamp base should be aligned as illustrated in Figure A-3.

Figure A-3: Installed Lamp

Step 10. Reinstall lamp socket cover. Make sure safety tether is completely encapsulated within lamp socket cover.

Step 11. Disengage tilt lock to allow luminaire head to move freely.

Step 12. Align lamp as described in "Align Lamp For Maximum Beam Irradiance" on page 21.

Fixed Color Wheel Filter Removal and Installation

Fixed color wheel filters in the VL6000 are glued into the color wheel. Filters cannot be removed and installed while bulkhead is in the fixture.

Rotating Gobo Removal and Installation

⚠ **CAUTION:** VL6000 Beam Luminaires accept glass gobos only. Use of metal gobos in these luminaires may damage gobo assembly and will void the luminaire warranty

⚡ **WARNING:** Remove power from luminaire and allow luminaire to   ol completely before performing this procedure.

To remove and replace rotating gobos:

Step 1. Remove power from luminaire.

Step 2. Remove head cover assembly as indicated in b   loosening four captive screws and lifting cover away from luminaire head.

Note: Note: head cover is attached by a safety tether.
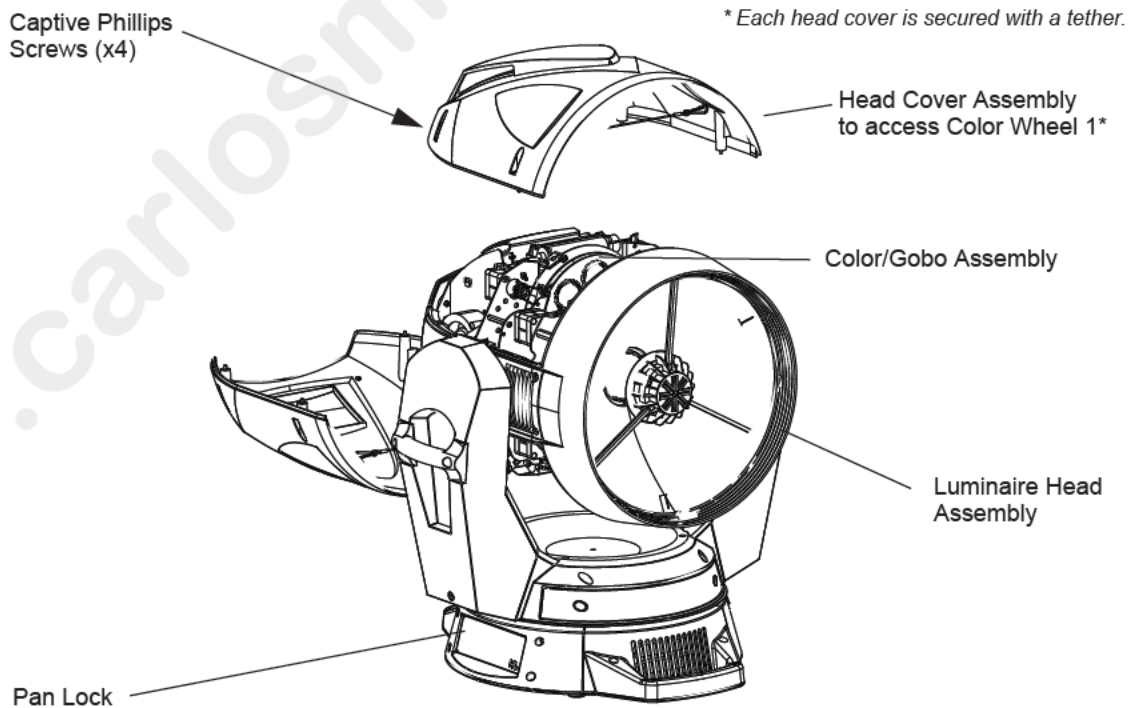

Figure A-4: Replacing Rotating Gobos

Step   3.   At rotating gobo wheel, slowly rotate wheel by hand until gobo to be removed is visible on assembly.

Step   4.   Carefully remove spring. Use pliers to help lift spring if necessary. Remove gobo glass.
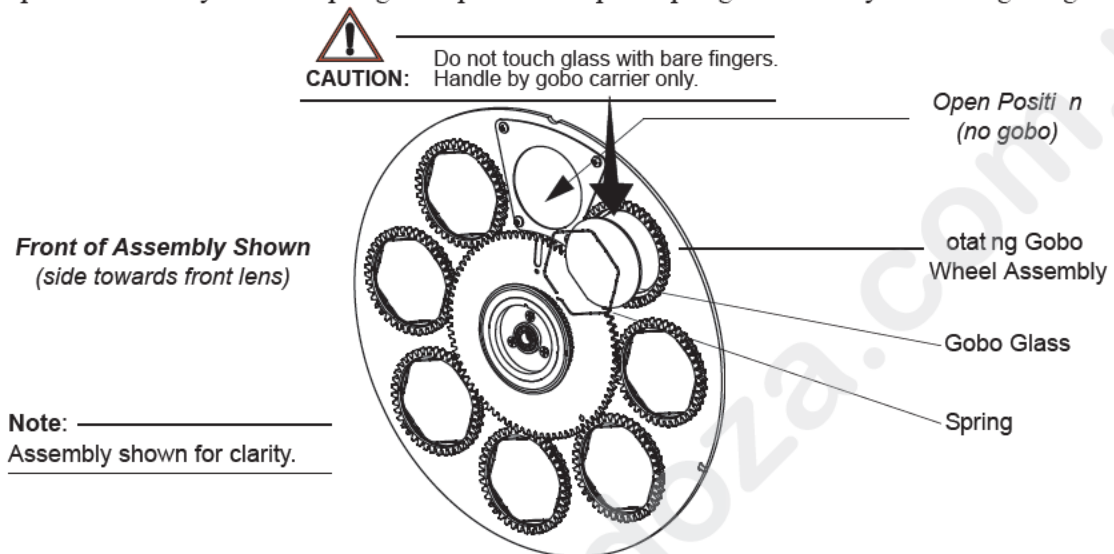
CAUTION: Do not touch glass with bare fingers. Handle by gobo carrier only.

Front of Assembly Shown
(side towards front lens)

Open Positi n
(no gobo)

otat ng Gobo
Wheel Assembly

Gobo Glass

Spring

Note:
Assembly shown for clarity.

Figure A-5: Rotating Gobo Wheel Gobo Installation

Step   5.   To install new gobo:

     a.   Align flat of glass to flat in carri r.

     b.   Replace spring. Ends of spring should be on carrier flat. Confirm that all corners of spring are secured in gr ove.
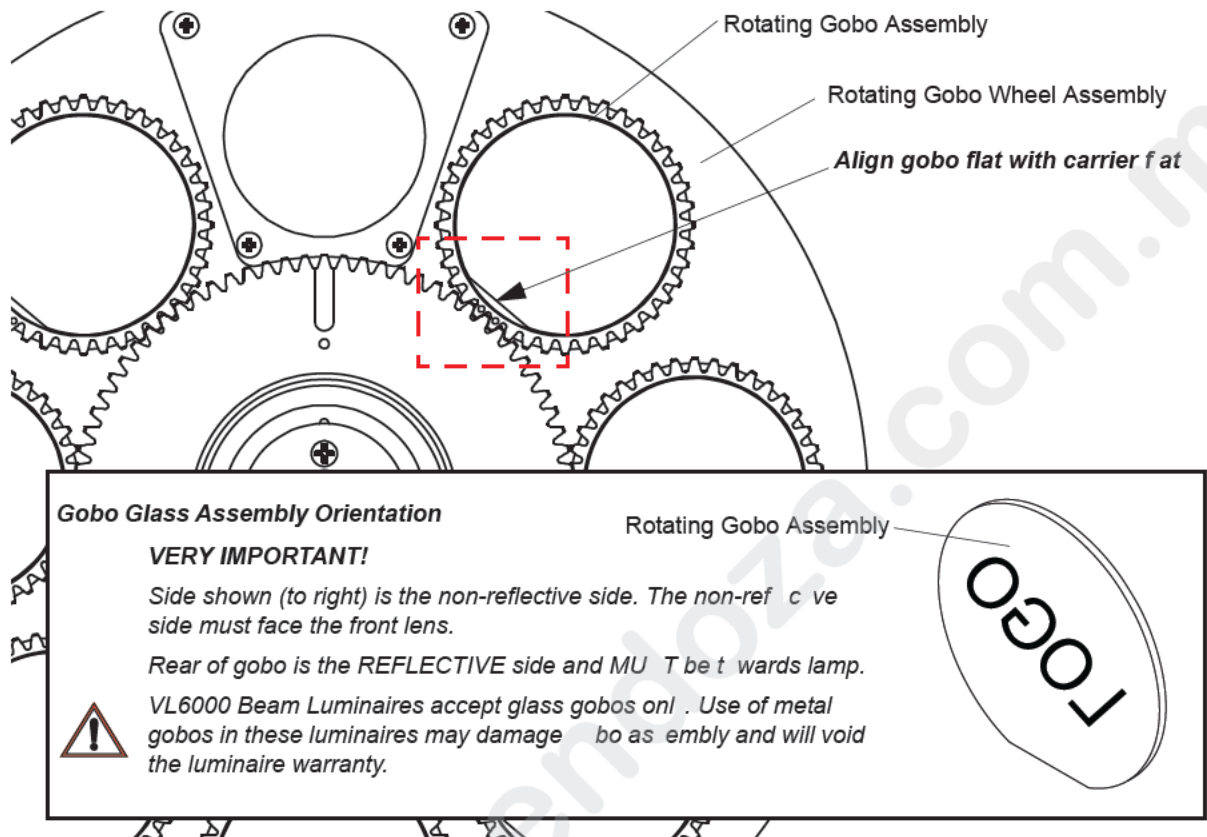
Gobo Glass Assembly Orientation

VERY IMPORTANT!

Side shown (to right) is the non-reflective side. The non-ref c ve side must face the front lens.

Rear of gobo is the REFLECTIVE side and MU T be t wards lamp.

VL6000 Beam Luminaires accept glass gobos onl . Use of metal gobos in these luminaires may damage bo as embly and will void the luminaire warranty.

Figure A-6: Alig Gobo Flat to Carrier Flat

⚠ **CAUTION:** Wear protective glov s or other protective covering while handling gobos to avoid leaving fingerprints. If dirty, clean with isopropyl alcohol and a soft, lint-free cloth.

Note: For the standard load of rotating gobos, refer to "Rotating Gobo Wheel 1" on page 36 or "Rotating Gobo Wheel 1 - Standard Gobo Load" on page 37

Step 6. After gobo is installed, reinstall head cover(s).

Cleaning Optical Lenses and Filters

WARNING: Remove power from luminaire before performing maintenance.

WARNING: Acetone is a harsh cleaning agent and solvent. Acetone is very flammable. Pl se h ndle acetone according to manufacturer's safety instructions and precautions.

CAUTION: Never use glass cleaners containing ammonia as they will damage t e ptical coatings.

The front lens, optics/color filters, and reflector may require cleaning after extended use.

- FRONT LENS: Use a isopropyl alcohol with a soft, lint-free cl th t clean the front lens.
- OPTICS/COLOR FILTERS/ GOBOS: Use Acetone or Isopr pyl Alcohol along with a soft, lint-free cloth to clean the optics/color filters.
- REFLECTORS: Use Acetone or Isopropyl Alcohol a ong with a soft, lint-free cloth to clean the reflectors.

CAUTION: Do not continuously rub color fil ers r reflectors - it may damage or remove the optical coating.

CAUTION: Take special care whe cle ning the front lens and reflectors. Failure to do so can damage the IP22 rated seals and ffect he alignment of the optics.

To access the front of the lens g oup, the primary reflector, and secondary reflector for cleaning, follow these steps in o der. Refer to Figure A-7.

Step 1. Disconnect luminaire from power source and place luminaire on sturdy flat surface.

Step 2. Remov both head covers by loosening four captive screws per cover with #2 Phillips screwdriver.

Step 3. Remove both front inlet covers and associated air filters by removing 2 x 6-32 3/8" PPB SEMS screws per cover. This step must be completed before removing the front lens assembly.

Step 4. Clean air filters with mild soap and warm water. Ensure filters are dry before reinstalling.

tep 5. Remove front lens assembly by removing the 8 x 6-32 3/8" PPZ SEMS screws from inside.

Step 6. Remove the spider assembly by removing the 3 x 6-32 3/8 PFZ screws.

The front of the lens group, the primary reflector, and the secondary reflector can now be accessed for cleaning.
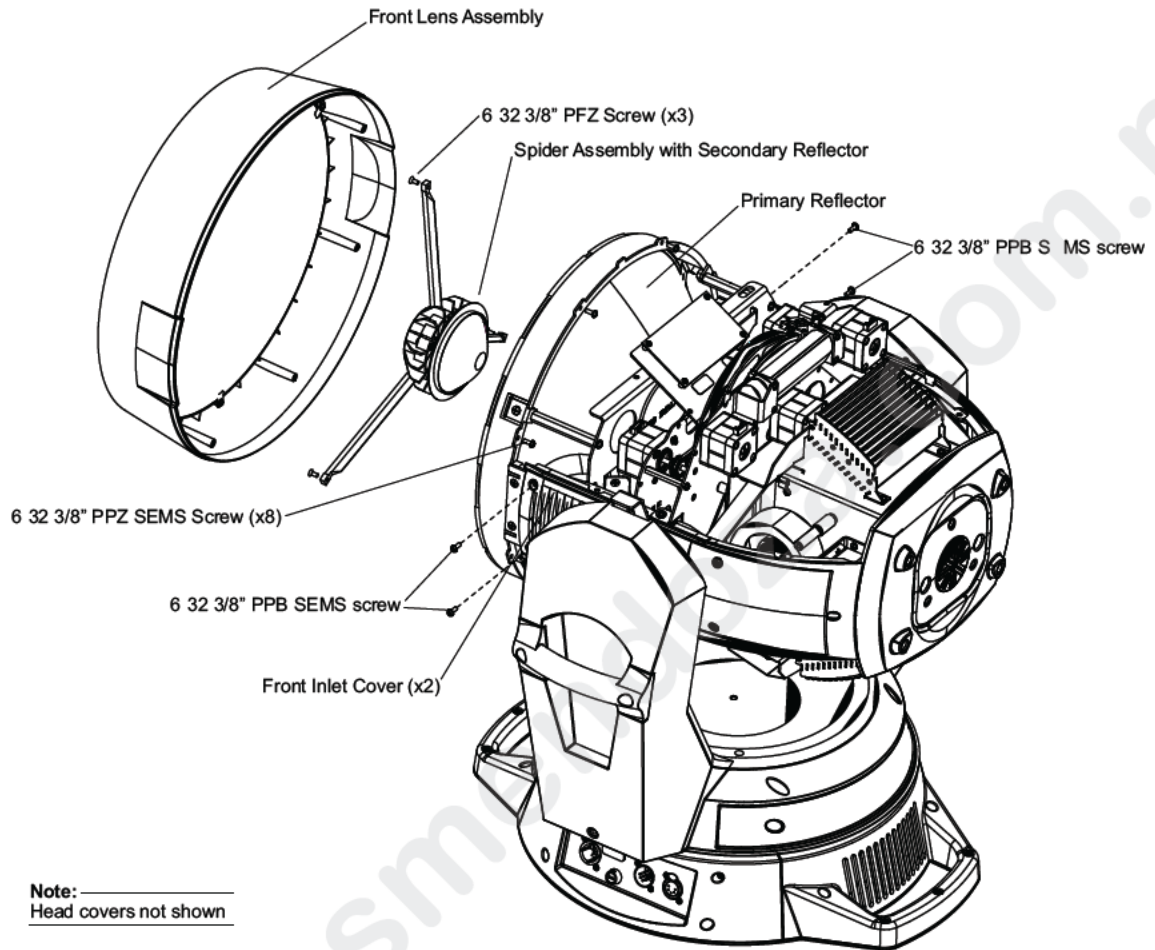
Front Lens Assembly

6 32 3/8" PFZ Screw (x3)

Spider Assembly with Secondary Reflector

Primary Reflector

6 32 3/8" PPB S MS screw

6 32 3/8" PPZ SEMS Screw (x8)

6 32 3/8" PPB SEMS screw

Front Inlet Cover (x2)

Note:
Head covers not shown

Figure A-7: Remove Parts for Cleaning

Once cleaning is omplete, replace parts and screws in order as follows:

Step   1.   Install he spider assembly and secondary reflector. One of the spider legs aligns with the V in th logo at the center of the secondary reflector. The leg must install in the slot centered b tween the yokes. See Figure A-8 for correct alignment.
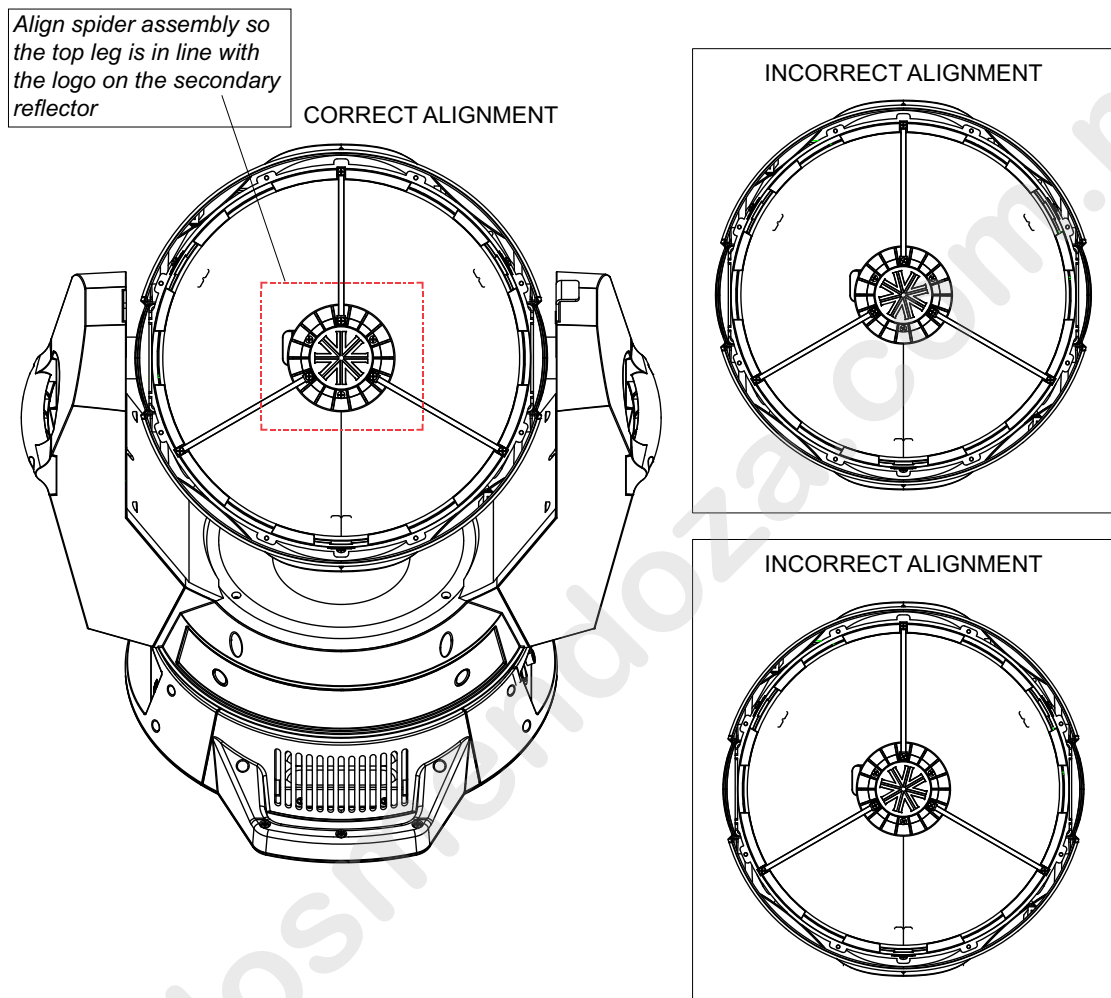
Figure A-8: Spider Alignment

Step   2. Install he front lens. There are three tabs inside the front lens. Figure A-9 shows the correct
           alig ment of the front lens. Ensure that the tabs do not rest on top of the spider assembly
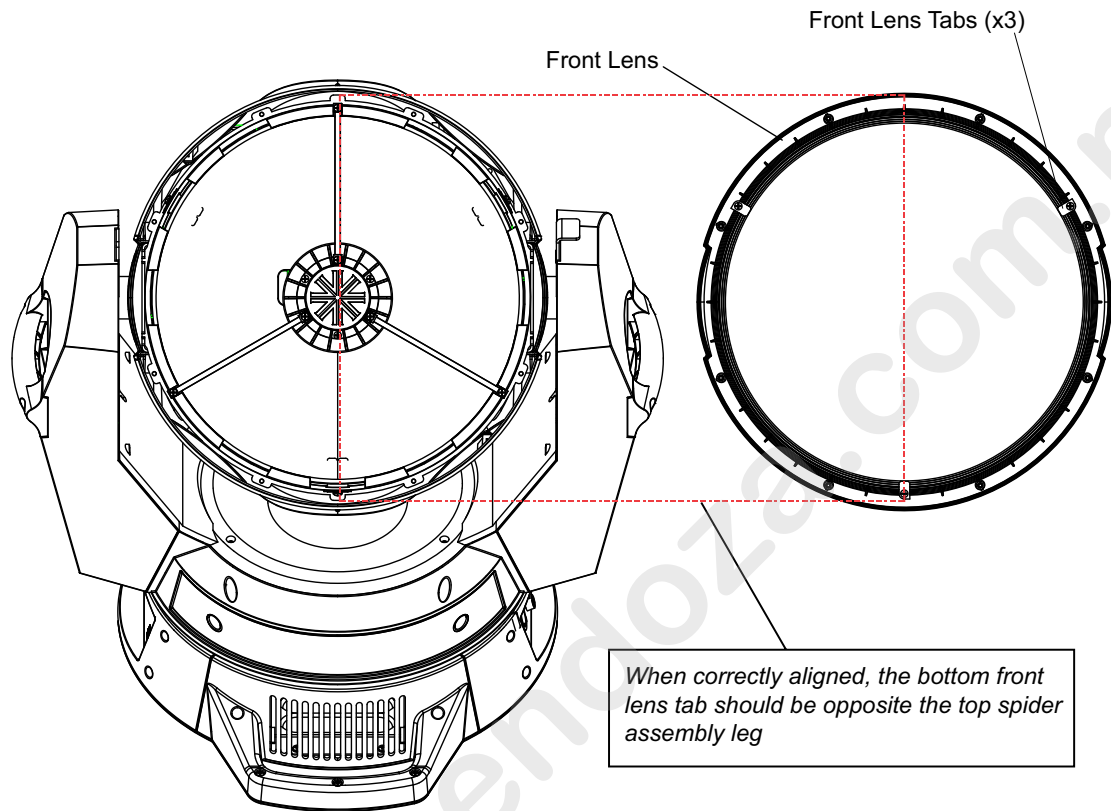   legs.

Front Lens Tabs (x3)

Front Lens

When correctly aligned, the bottom front lens tab should be opposite the top spider assembly leg

Figure A-9: Front Lens Installation

Step 3. Install the two inlet covers. Ensure the filter in installed inside the cover. Make sure the gasket on the front len is tucked inside this cover and not rolled. If gasket comes loose from cover, it shou d be replaced.

Step 4. Install head overs and test luminaire.

APPENDIX B.

Technical Specifications

Note: Vari-Lite reserves the right to change details of design, materials and finishes. Specifi ations are subject to change without notice. Some features may be the result of future software updates. Vari-Lite automated lighting equipment is made in the USA.

Mechanical

Fixed Color Wheels

Three fixed color wheels each with six color filters are capable of producing a multi-color effect and variable wheel rotations. Less saturated colors allow for limited color mixing, which can be easily accessed from the console.

Rotating Gobo Wheel

One gobo wheel to offer seven rotatable, indexable gobo positions and one open position.

Edge and Pattern Focus

Variable beam focus to soften edges f gobos or iris.

Frost

Independent frost glass for softnes control.

Intensity Control

Full field dimming designed fo smooth timed fades as well as quick dimming effects.

Strobe

High-performance dual blade strobe system capable of ultra-fast operation.

Pan and Tilt

Smooth, time-controlled continuous motion by way of three-phase stepper motor systems.

- Range Pan - 540°, Tilt - 240°.
- Accuracy: 0.3° resolution.

Weights

Unit weighs (luminaire only, without accessories) 61.5 lbs (28 kg).
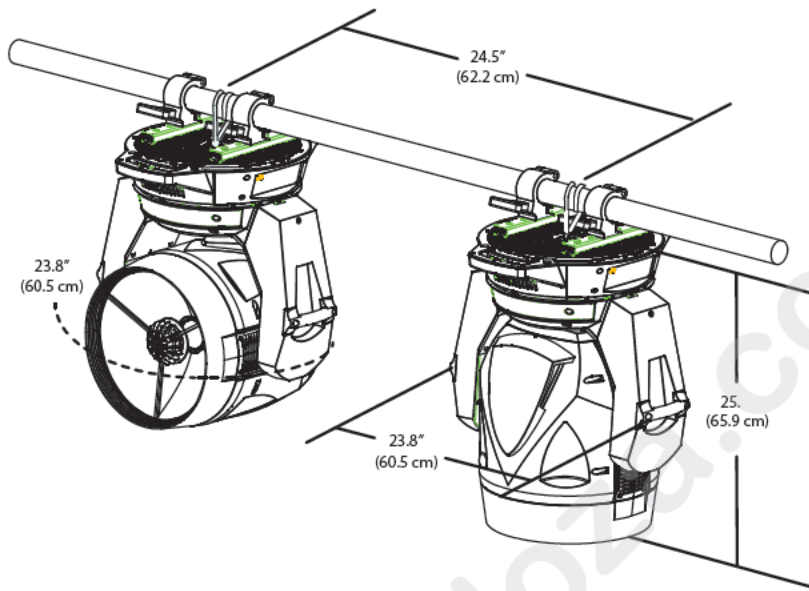
Spacing

Unit hangs on 24.5 inch (662 mm) centers.

Figure B-1: Luminaire Hanging & Spacing Requirements

Optical

⚠️ **Note:** VL6000 Beam Luminaires accept glass gobos only. Use of metal gobos in these luminaires may damage gobo assembly and will void the luminaire warranty.

Edge and Pattern Focus

Variable beam focus to soften edges of gobos.

Source

1500W Philips MSR Gold FastFit lamp running at 1500W.

Reflector

Precision faceted, elliptical glass reflector system with dichroic cold mirror coating.

Color Temperature

6000K

Fixture Output

56,000 lumens

Intensity Control

Full field dimming designed for smooth timed fades as well as quick dimming effects. It also features a high-performance dual blade strobe system capable of ultra-fast operation.

Operational

Power Requirements

Standard AC power distribution from 200 - 240VAC, 50/60 Hz. The unit requires up to 11A depending on the AC supply voltage.*

Note: *For a breakdown of total luminaire current draw at different voltages, see "Current Voltage" on page 16.

Operational Temperature

-33°F to 122°F (-20°C to 50°C)

IP22 Rating

This fixture is designed to have limited water protection in the instanc of light rain. It is NOT designed to run exposed to water for long periods of time. Users should check for water inside the fixture after exposure to water.

⚠️ **Note:** This fixture is ONLY rated IP22 ONLY when hanging or sitting with the enclosure oriented no more that 15° from horizontal. Improper use of the fixt re in wet conditions will void the luminaire warranty.
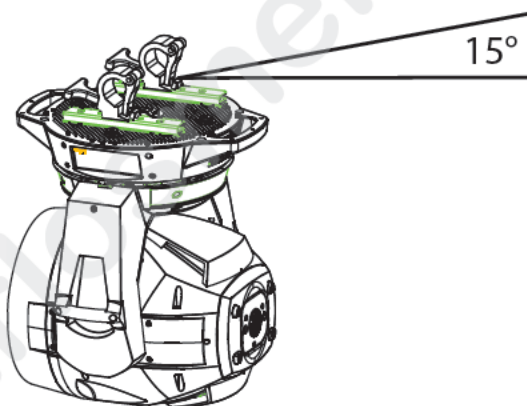
Figure B-2: Luminaire hung within 15° from Horizontal

IP22 Rating is defined as follows:

Fi t digit: Solid particle protection

The first digit indicates the level of protection that the enclosure provides against access to hazardous parts (e.g., electrical conductors, moving parts) and the ingress of solid foreign objects.

Table B-1: IP Rating First Digit

Level Sized	Effective Against	Description
2	> 12.5 mm	Fingers or similar objects

Second digit: Liquid ingress protection

The second digit indicates the level of protection that the enclosure provides against harmful ingress of water.

Table B-2: IP Rating Second Digit

Level & Protection	Effective Against	Description
2 - Dripping Water when tilted at 15°	Vertically dripping water shall have no harmful effect when the enclosure is tilted at an angle of 15° from its normal position. A total of four positions are tested within two axes.	Test duration: 2.5 minutes for every direction of tilt (10 minutes total) Water equivalent to 3 mm rainfall per minute

Cooling

Forced-air cooling.

Control

Control by DMX512 protocol. Compatible with a wide variety of DMX512 consoles.

DMX Channels

23 Channels (16-Bit Mode).

Note: For complete information, refer to, "VL6000 Beam Luminaire Channel Mapping" on page 38.

RDM Control

Completely compatible with a wide variety of RDM devices. For RDM implementation see, "VL6000 Beam Luminaire RDM Parameter IDs" on page 42.

Menu System

Full color LCD with battery powered control.

Mounting Position

The luminaire can be mounted and operated in any orientation. For spacing requirements, refer to Figure B-1 on page 82.

CAUTION:

Possibly Hazardous optical radiation emitted from this product.
Do not stare at the operating light source.

The luminaire should be positioned so that prolonged staring into the luminaire at a distance closer than 294 m is not expected.

Risk Group 2

VARI*LITE