

Manual



Service

VL2000™ Wash Luminaire

02.9671.0010



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Express yourself.

VARILITE*® - VL2000™ WASH LUMINAIRE SERVICE MANUAL**

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France Design Reg. No. 335132 - 335147;

Spain Patents No. 2090191; 2084289; 2082384; 2058071; 2020960; 0548328; Spain Utility Model No. 2031748; Spain Design Reg. No. 129596;

Japan Patents No. 2,059,669; 2,055,324; 2,002,168; 1,889,481; 1,770,241; 1,723,825; 1,683,007; 1,553,011; KR 206051; 181180; 76310; 47673; Japan Design Reg. No. 947552; 945436-1; 945436;

Korean Design Reg. No. 175178;

Mexico Patents No. 180148; 179138;

Taiwan Patents No. 78726; 66975; 65380; 63471; 40611; 28275;

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VL2000™ Wash Luminaire Service Manual

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VL2000™ Wash Luminaire Service Manual

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How To Obtain Warranty Service

A copy of the Vari-Lite, Inc. Limited Warranty was included in the shipping package for this VARI***LITE**® product.

To obtain warranty service, please contact customer service at 1-877-VARI-LITE (1-877-827-4548) or customerservice@vari-lite.com and request a Return Material Authorization (RMA) for warranty service. You need to provide the model and serial number of the item being returned, a description of the problem or failure and the name of the registered user or organization. If available, you should have your sales invoice to establish the date of sale as the beginning of the warranty period.

Once you obtain the RMA, pack the product in its original packing material along with a copy of your invoice (if available) and write the RMA number legibly on or near the shipping address label. Return the unit, freight prepaid to:

Vari-Lite, Inc.
10911 Petal Street
Dallas, Texas 75238
Attention: Warranty Service

As stated in the warranty, it is required that the shipment be insured and FOB our service center.

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Compliance Notice

FCC This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when this equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with Vari-Lite system, service, and safety guidelines, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his/her own expense.



Declaration of Conformity

We declare, under our sole responsibility, that this product complies with the relevant clauses of the following standards and harmonized documents:

Safety

EN 60950: 1999 Safety Standard for Information Technology Equipment

EMC

EN55022A: 1998 Radiated and Conducted Emissions

EN50082-1: 1997 Generic Immunity Standard

We certify that VARI**LITE* products conform to the protection requirements of European council directives: 73/23/EEC (LVD) and 89/336/EEC (EMC)

Manual Revision History

PAGE NUMBER	CHANGE NUMBER
Title Page - xiv	C
1 - 162	C

VERSION	DATE
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Rev A	05-June-02
Rev B	03-Oct-02
Rev C	24-Mar-2004

Safety Notice

It is extremely important to read ALL safety information and instructions provided in this manual and any accompanying documentation before installing and operating the products described herein. Heed all cautions and warnings during installation and use of this product.

Safety symbols used throughout this manual are as follows:



CAUTION advising of potential damage to product.



WARNING advising of potential injury or death to persons.

GENERAL INFORMATION PERTAINING TO PROTECTION AGAINST FIRE AND ELECTRICAL SHOCK.

WARNING:

INSTRUCTIONS FOR CONTINUED PROTECTION AGAINST FIRE

1. Replace fuses with same type and rating only.

WARNING:

INSTRUCTIONS FOR CONTINUED PROTECTION AGAINST ELECTRICAL SHOCK

1. VARI***LITE**® control consoles are designed for dry locations only. Exposure to rain or moisture may damage the console.
2. Disconnect power before servicing any VARI***LITE**® equipment.
3. Servicing to be performed by qualified personnel only.

WARNING:

RF INTERFERENCE

1. This is a Class A product. In a domestic environment this product may cause radio interference, in which case, the user may be required to take adequate measures.

Sicherheitshinweise

Es ist äußerst wichtig, ALLE Sicherheitsinformationen und -hinweise in diesem Handbuch und dem beiliegenden Informationsmaterial zu lesen, bevor Sie die hierin beschriebenen Produkte installieren bzw. bedienen. Halten Sie bei der Installation und dem Einsatz dieses Produkts alle Warnhinweise und Vorsichtsmaßnahmen ein.

Folgende Sicherheitssymbole werden in diesem Handbuch verwendet:



VORSICHT - weist auf möglichen Produktschaden hin.



WARNUNG - weist auf mögliche Körperverletzung und Lebensbedrohung hin.

NACHSTEHEND FINDEN SIE ALLGEMEINE HINWEISE ÜBER SICHERHEITSVORKEHRUNGEN GEGEN FEUER UND ELEKTROSCHOCK.

WARNUNG:

HINWEISE ZUM FEUERSCHUTZ

1. Ersetzen Sie Sicherungen nur mit Sicherungen vom gleichen Typ und gleicher Stärke.

WARNUNG:

HINWEISE ZUM SCHUTZ GEGEN ELEKTROSCHOCK

1. VARI**LITE*®-Konsole eignen sich ausschließlich für trockene Standorte. Regen oder Feuchtigkeit können die Konsole beschädigen.
2. Unterbrechen Sie die Stromzufuhr, bevor Sie mit der Arbeit an VARI**LITE*®-Geräten beginnen.
3. Die Geräte sollten nur von qualifiziertem Personal gewartet werden.

WARNUNG:

HF-INTERFERENZ

1. Es handelt sich um ein Produkt der Klasse A. In einer Wohnumgebung kann das Produkt Hochfrequenzstörungen verursachen. In diesem Fall müssen eventuell geeignete Maßnahmen getroffen werden.

Notes de sécurité

Avant de procéder à l'installation des produits décrits dans ce guide et de les mettre en marche, il est extrêmement important de lire TOUS les renseignements et TOUTES les directives de sécurité contenues dans ce guide ainsi que toute documentation jointe. Tenir compte de tous les avertissements et suivre toutes les précautions pendant l'installation et l'utilisation de cet appareil.

Les symboles de sécurité utilisés dans ce guide sont les suivants :



ATTENTION Ce symbole annonce que l'appareil risque d'être endommagé.



AVERTISSEMENT Ce symbole annonce qu'il y a risque d'accident grave ou même fatal.

CETTE SECTION CONTIENT DES INFORMATIONS GÉNÉRALES POUR SE PROTÉGER CONTRE LES INCENDIES ET LES DÉCHARGES ÉLECTRIQUES :

AVERTISSEMENT:

DIRECTIVES POUR SE PROTÉGER CONTRE LES INCENDIES

1. Ne remplacer les fusibles qu'avec ceux du même type, ayant les mêmes caractéristiques.

AVERTISSEMENT:

DIRECTIVES POUR SE PROTÉGER CONTRE LES DÉCHARGES ÉLECTRIQUES

1. Les consoles de commande VARI***LITE**® sont conçues pour une utilisation au sec uniquement. Une exposition à la pluie et à l'humidité risque d'endommager la console.
2. Débrancher l'appareil avant de procéder à la révision de tout matériel VARI***LITE**®.
3. Les révisions doivent être effectuées uniquement par des personnes qualifiées.

AVERTISSEMENT:

INTERFÉRENCE RF

1. Cet appareil est de Classe A. Dans un environnement domestique, cet appareil peut causer des interférences radio, et si c'est le cas, l'utilisateur peut avoir à prendre des mesures adéquates.

Aviso sobre Seguridad

Es muy importante leer TODA la información e instrucciones sobre seguridad que se indica en este manual así como en los documentos adjuntos antes de instalar y operar los productos descritos. Se debe prestar atención a todos los avisos y advertencias durante la instalación y uso de este producto.

Los símbolos de seguridad usados en este manual son los siguientes:



CUIDADO, indica posibles daños al producto.



ADVERTENCIA, indica posibles lesiones o muerte a las personas.

LA INFORMACIÓN GENERAL RELACIONADA A LA PROTECCIÓN CONTRA INCENDIO Y GOLPES DE CORRIENTE ELÉCTRICA:

ADVERTENCIA:

INSTRUCCIONES PARA PROTECCIÓN CONTINUA CONTRA INCENDIO

1. Reemplaze los fusibles solamente con los del mismo tipo y especificación.

ADVERTENCIA:

INSTRUCCIONES PARA PROTECCIÓN CONTINUA CONTRA CHOQUE ELÉCTRICO

1. Los controles de la consola de VARI**LITE*® están diseñados solamente para lugares secos. La exposición a la lluvia o humedad pueden dañar la consola.
2. Desconecte la energía antes de dar servicio a cualquier equipo de VARI**LITE*®.
3. El servicio debe ser realizado solamente por personal calificado.

ADVERTENCIA:

INTERFERENCIA RF

1. Este es un producto de Clase A. En el ambiente de la casa este producto puede ocasionar radiointerferencia, en cuyo caso, el usuario debe tomar las medidas adecuadas.

安全性に関する注意事項

ここに記載されている製品を取り扱う場合は、まず本マニュアルおよび付属のマニュアルの安全性に関する情報と説明をすべてお読みください。また、実際に本製品を取り付けたり使用する際には、すべての注意事項および警告に留意して作業してください。

本マニュアルでは、以下の安全マークを使用しています。



注意：製品に損傷を与える危険性があります。



警告：人身事故につながる危険性があります。

感電、火災、UV 放射に対する過度の露出、および人身事故を防ぐための一般的な情報については、以下の説明をお読みください。

警告：

火災の発生を防ぐためのヒント

1. VARI*LITE® 照明器具は、Philips および Osram の HID ランプを使用するように設計されています。ランプを交換する際は、ランプの種類（MSR400、MSR575HR など）を確認するようにしてください。他の種類のランプを取り付けると危険です。
2. 照明器具は、本マニュアルの指示に従って操作するかぎり、どのようなタイプの表面にでも取り付けることができます。詳細については、本マニュアルを参照してください。
3. ヒューズを交換する場合は、同じヒューズ（同じ種類、同じクラス）を使用してください。
4. VARI*LITE® 照明器具は、可燃性物質または他の光源から必要な距離だけ離して配置してください。

警告：

感電を防ぐためのヒント

1. VARI*LITE® 照明器具は、乾燥した環境で使用するよう設計されています。雨で濡れる場所や湿気の多い場所に取り付けると、照明器具が傷むことがあります。
2. VARI*LITE® 照明器具を修理点検する場合は、必ず先に電源を切ってください。
3. 照明器具の修理点検は、資格を持つ技師のみが行うようにしてください。

警告：

過度の UV 放射にさらされないためのヒント

1. VARI**LITE*® 照明器具の多くは、UV 放射を生ずる HID タイプのランプを使用しています。ランプを直視することは避けてください。
2. レンズまたはシールドを使わずに照明器具を点灯すると危険です。レンズ、シールド、紫外線画面は、ひび割れや深い引っかき傷などにより、その効力が損なわれるようになったら取り替えるようにします。

警告：

人身事故を防ぐためのヒント

1. 照明器具が点灯しているときは、その外側が熱くなります。熱くなった器具やコンポーネントを取り扱う際には、適切な防具（手袋や保護用眼鏡）を使用してください。
2. 照明器具が点灯しているときは、そのランプが熱くなります。ランプを交換する場合は、照明器具の電源を切り、ランプの温度が下がるまで待ってください。ランプの裏ぶたをあけると、遮断スイッチが働いて、ランプの電源が切れる場合があります。
3. アーク灯は紫外線を放射します。この紫外線によって、ひどい火傷を負ったり、目の炎症を起こすことがあります。さらに、アーク灯は、高圧高温の状態で光を発します。そのため、万一アーク灯が破損すると、飛び散った破片で人身事故や火災が発生する危険性があります。
4. 再点灯するときには、保護用眼鏡を着用してください。
5. 損傷したランプを取り扱う場合は、適切な防具（手袋や保護用眼鏡）を着用してください。
6. 手袋を着用せずに直接手でランプを触った場合は、変性アルコールを使ってランプをきれいにし、糸くずの出ない布で拭いてから照明器具を取り付け、電源を入れるようにします。
7. 傷がついたランプや熱によって変形したランプは取り替えてください。

警告：

RF 干渉

1. 本製品は Class A に分類されます。本製品は、家庭環境において無線干渉を起こす可能性があります。その場合、使用者は適切な処置を取らなければならないことがあります。

アーク灯の特性

1. 停電後または大きな電圧ディップ後にアーク灯を再点灯する場合は、しばらく時間をおくようにしてください。Lamp Power-Up State (L ON/ L OFF) システム設定によっては、温度が下がったときに自動的に再点灯される場合があります。
2. アーク灯は点光源です。

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Introduction

About This Manual

This manual provides descriptions, repair procedures, and illustrated parts breakdowns for all configurations of the VL2000™ Wash Luminaire. The manual is intended for use by Vari-Lite personnel and by Vari-Lite's customers/clients.



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

This manual covers the following models:

Model	Part Number
VL2000 Wash Luminaire	20.9671.0001

Note: Performing maintenance procedures contained in this manual may void the product warranty. Refer to the Vari-Lite, Inc. Limited Warranty card included in the shipping package for this VARI*Lite® product.

Additional Documentation

A support webpage for VL2000 series luminaires is available at www.vari-lite.com (follow the Support link).

A users manual is available for installation and operation of the VL2000 wash luminaire. This manual is available in both printed and electronic (PDF) formats.

- VL2000™ Wash Luminaire Users Manual (02.9671.0001).

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 assistance, 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(s) were purchased.

or

Contact an Authorized Service Center.

or

Contact the Vari-Lite Customer Service Department, 9am - 6pm CST Monday through Friday, at the following:

phone: 1-877-VARI-LITE (1-877-827-4548)

fax: 214.647.8038

email: customerservice@vari-lite.com

Additional Resources

For additional resources and documentation, please visit our website at: www.vari-lite.com and follow the Support link.

Technical Bulletins and Notices

Technical bulletins concerning the latest changes to VARI***LITE** equipment are issued from the Dallas, Texas USA office. They are documentation supplements that contain procedures for equipment upgrades, retrofits, and repairs not found in the existing manuals. Operator technical bulletins are also issued to document changes in control software. Technical bulletins are integrated into the appropriate equipment manuals as those manuals are revised. Bulletins are categorized by assembly or subassembly, and identified by a number such as V24-001 (VL24XX luminaire Technical Bulletin number 1).

Technical notices are also issued from the Dallas, Texas USA office. They are non-procedural documents that contain information regarding product support issues, current equipment problems, software bugs, and documentation corrections. All technical notices begin with the prefix TN and are numbered sequentially, such as TN-138 (Tech Notice number 138).

CHAPTER 1.

Description

This chapter provides an overview of luminaire features, components and operations.

- **Features**
- **Major Components**
- **Principles of Operation**



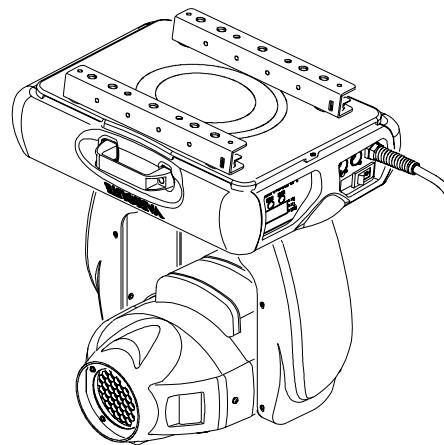
Features

Standard Features

The VL2000 wash luminaire features zoomable beam spreader optics, CYM color mixing, a separate fixed color wheel and a high performance dimmer/strobe mechanism.

The VL2000 wash luminaire contains the following standard features:

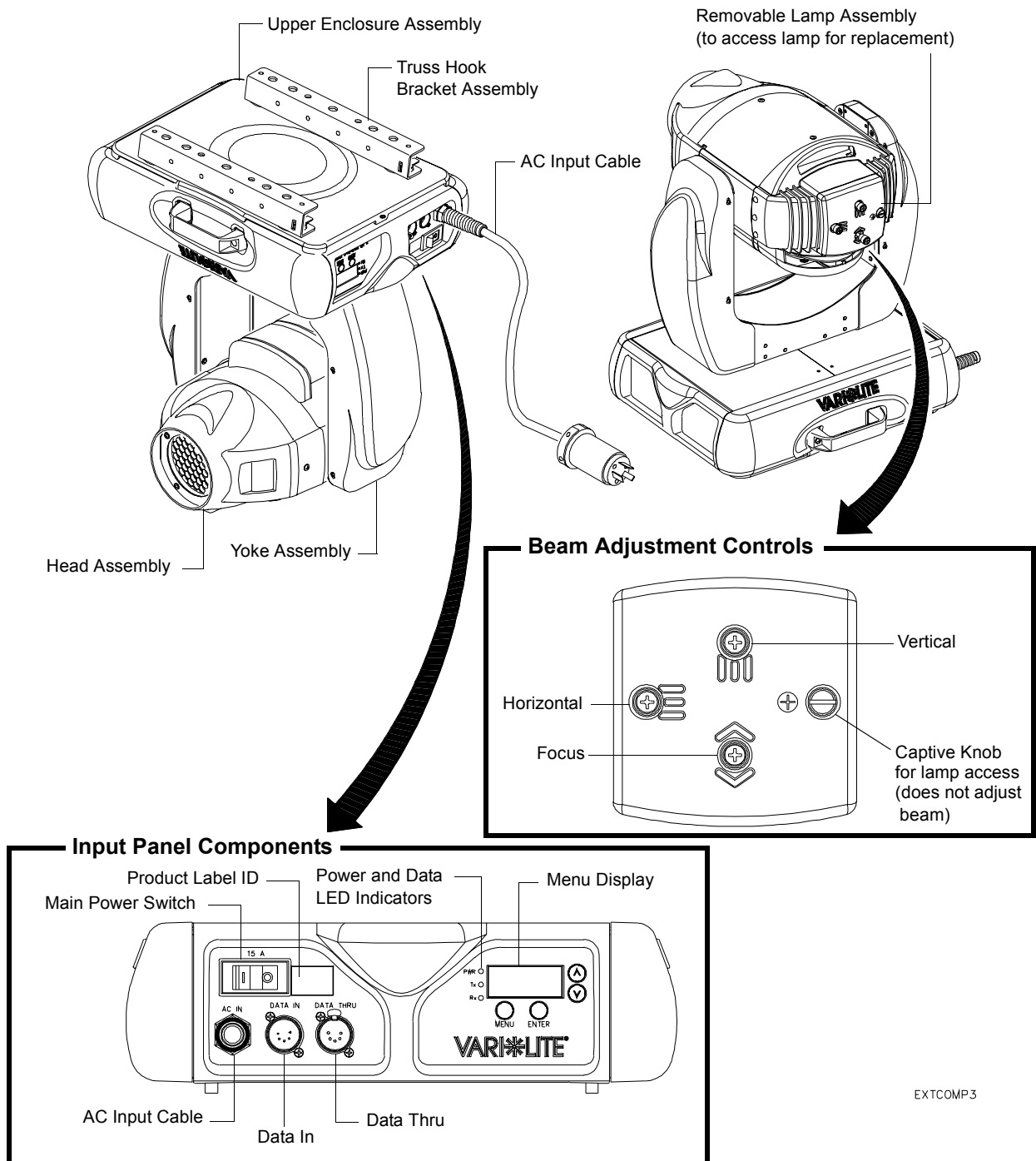
- DICHRO*TUNE™ radial color changer which employs enhanced dichroic color filters to produce smooth, full spectrum color crossfades. The mechanism allows independent cyan, magenta and amber color control.
- An internal mechanical douser which provides intensity control and strobing.
- An upper enclosure that houses the control electronics as well as a power factor corrected arc power supply or an SCR dimmer appropriate to the particular lamp source.
- Control by VARI*LITE systems or a wide variety of DMX-512 consoles without the need for additional interface equipment.
- Two easy-install truss hook brackets for versatile hanging configurations.
- 700W arc source.
- Zoomable beam spreader.



Major Components

VL2000 Wash Luminaire

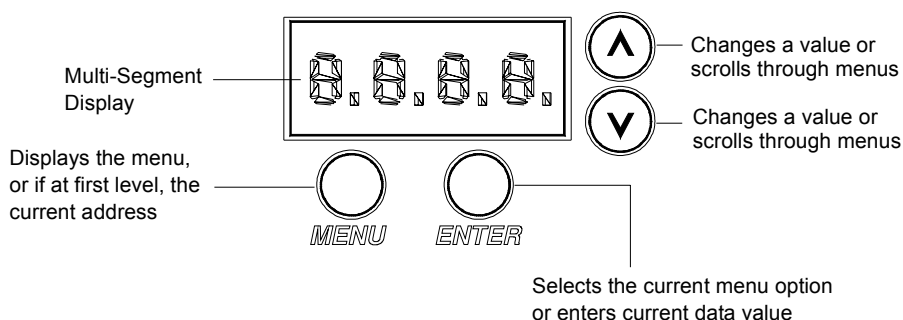
The following illustration shows the major luminaire components and controls.



Menu Display

The Menu System Display is used to access the menu system, which is a programmable set of commands used to address, operate, and test the luminaire.

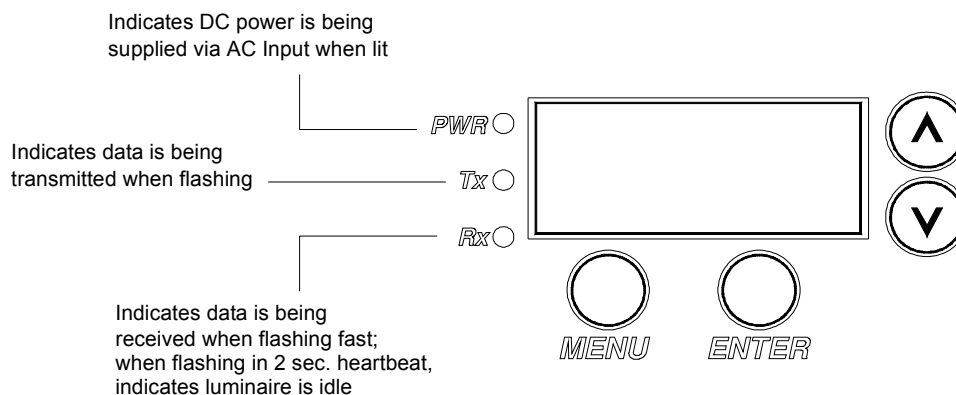
The menu system is controlled by four buttons. These buttons function as follows:



Note: Refer to the VL2000 Wash Luminaire User's Manual for more detailed instructions regarding display operation.

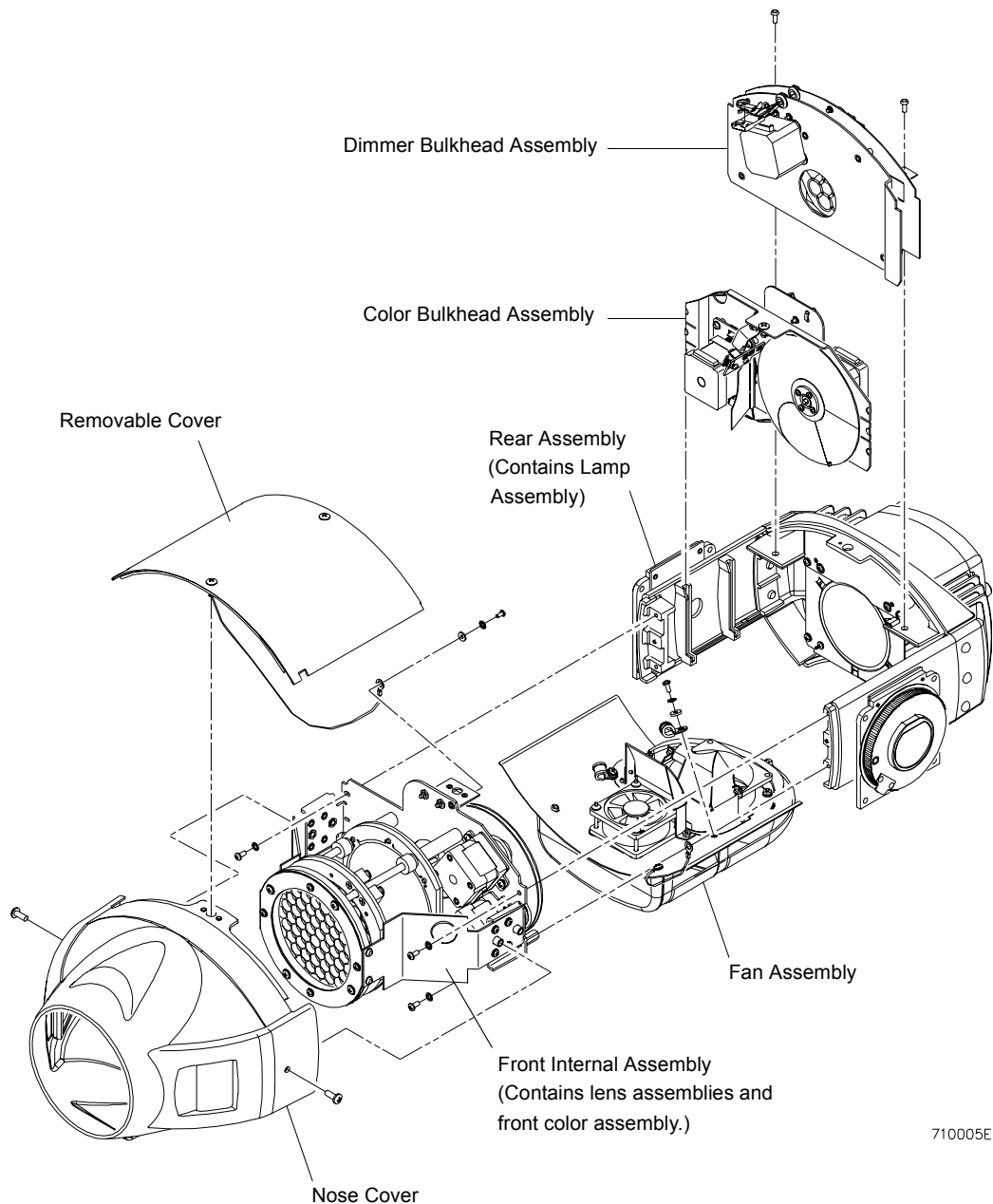
LED Indicators

The LED indicators report the status of power and data to the luminaire.



Head Components

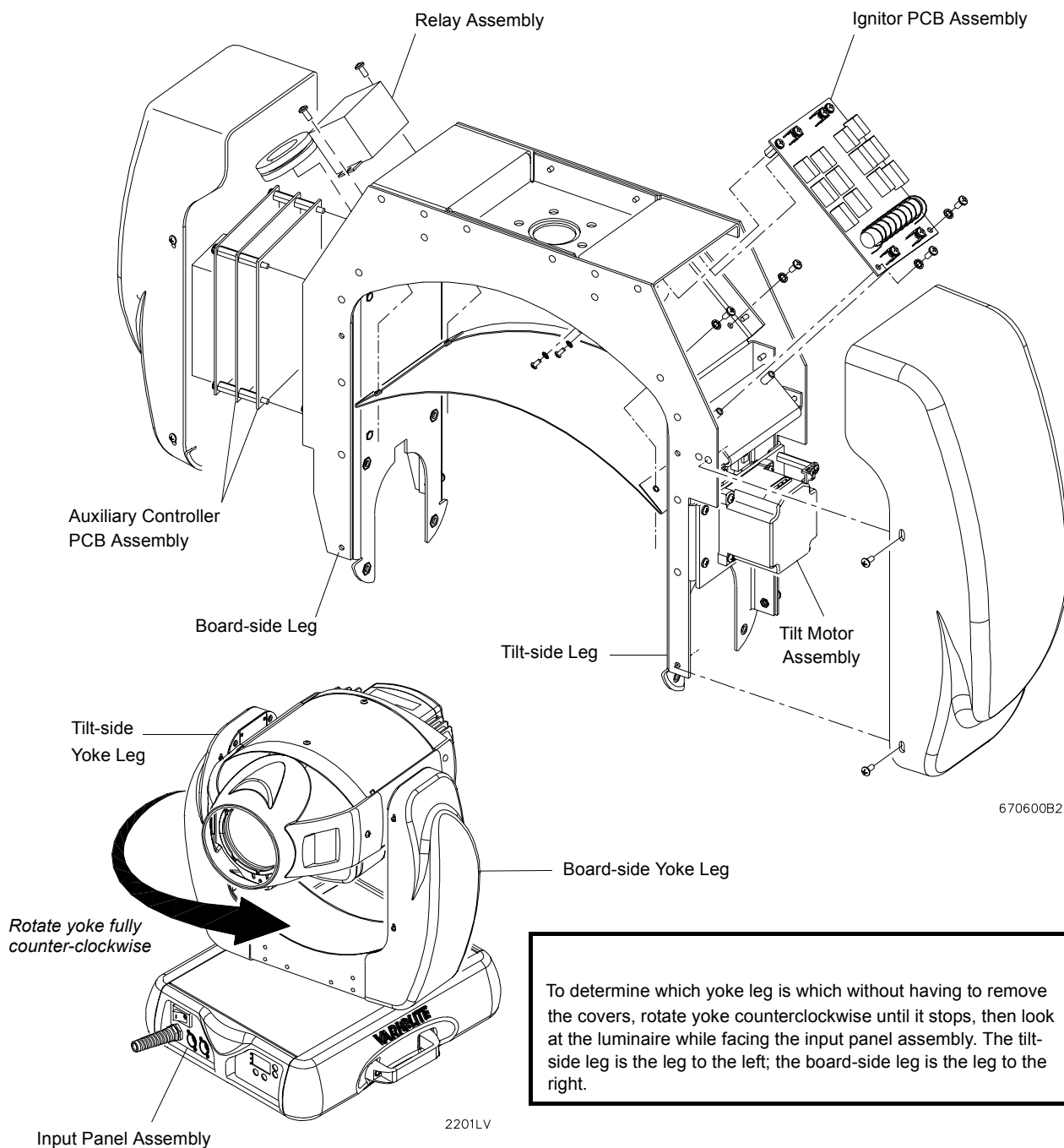
The following illustration shows the major sub-assemblies which are located in the luminaire head assembly.



710005E

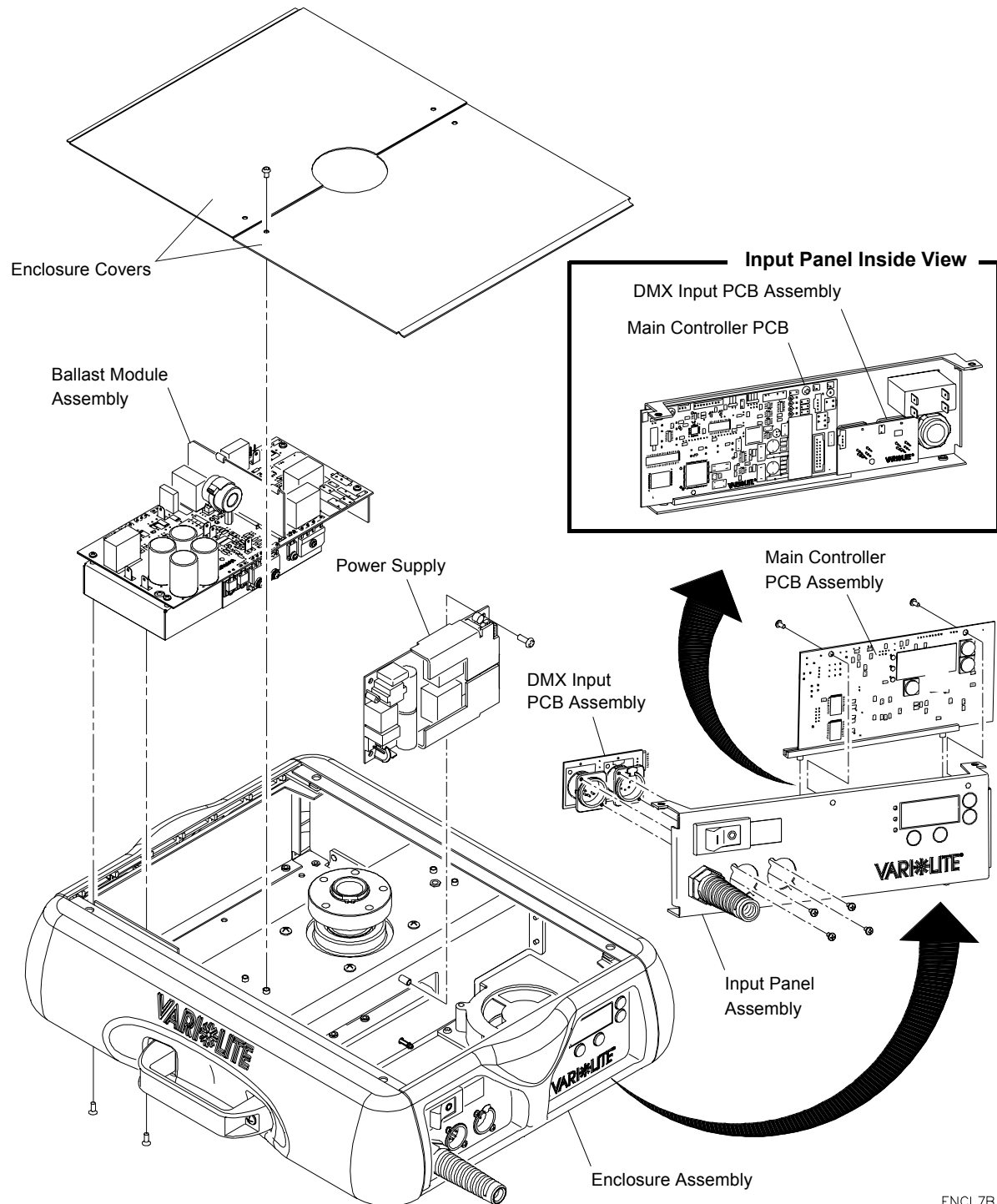
Yoke Components

The following illustration shows the major sub-assemblies which are located in the luminaire yoke assembly. (Head and enclosure not shown for clarity.)



Enclosure Components

The following illustration shows the major sub-assemblies which are located in the luminaire enclosure assembly. (Yoke and head assemblies not shown for clarity.)

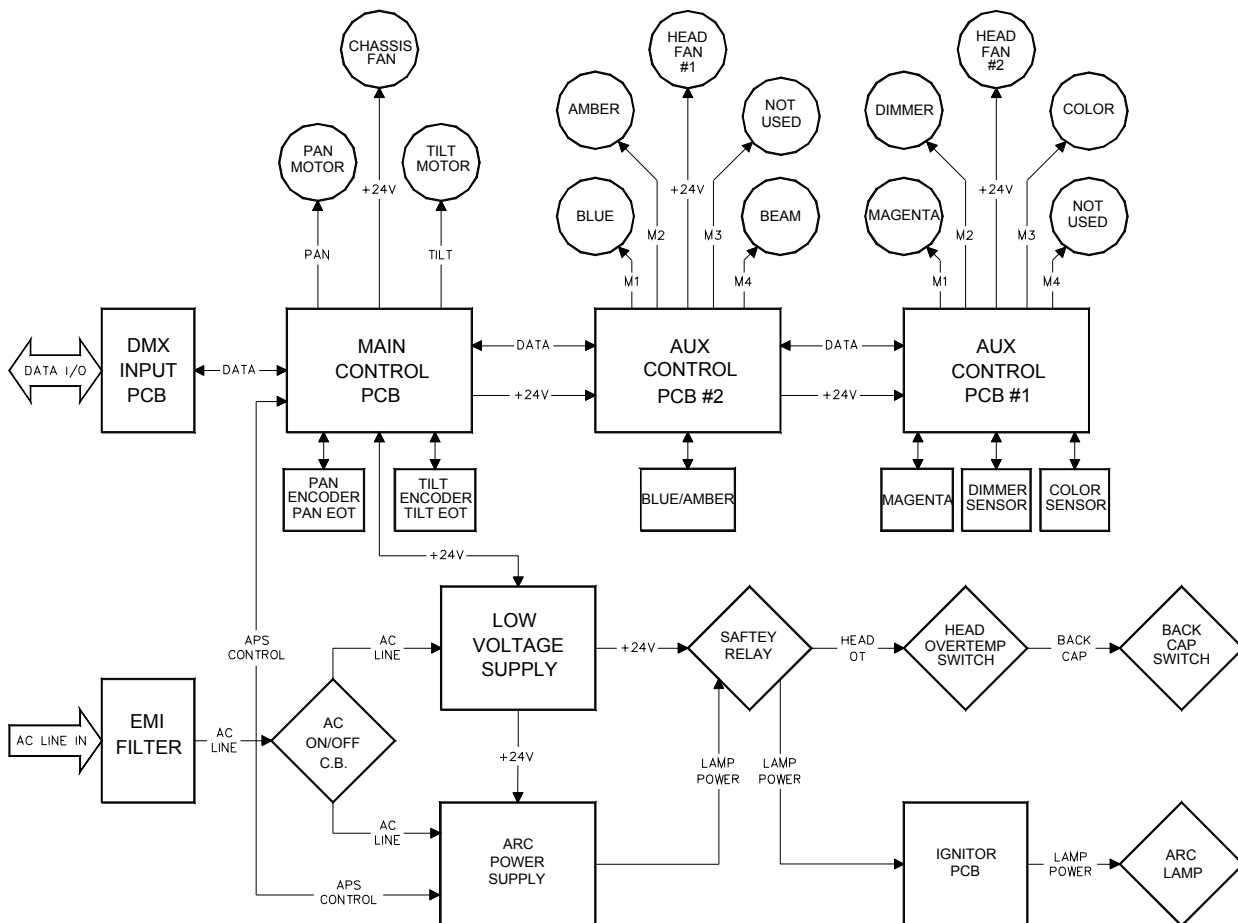


ENCL7B

Principles of Operation

Power and Data Flow Diagrams

The following diagram shows how data and power are distributed in the luminaire.



CHAPTER 2.

Maintenance

This chapter contains test, service, and standard maintenance procedures.

- **Testing**
- **Special Considerations**
- **Maintenance Procedures**



WARNING: All maintenance procedures are to be performed with power removed from the luminaire. Never remove cover or backcap while lamp is in operation.



Testing

Testing Software

Testing software is available in all Series 2000 luminaires through the luminaire's menu system **TEST** function.

For information on specific tests and test parameters, see the VL2000 Wash Luminaire User's Manual (VL Part no. 02.9671.0001).

When running tests on multiple luminaires, a loopback connector is required at the first luminaire in the link and a male termination connector is required at the last luminaire.

Note: After 10 seconds of inactivity, the menu display will change to the default state showing the address.

Move Disable

The **Move** option is available in the test menu. This allows for pan/tilt functions 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, **Move** will need to be enabled after testing.

Note: When setting the **Move** option to disable, luminaires linked by a loopback connector will have pan and tilt disabled for all the luminaires that are linked.

Lamp

The **Lamp** option is also available in the test menu. This option sets the lamp intensity to 100% and will adjust the diffusion to produce a tight beam. Pan/Tilt are disabled while using the **Lamp** option, and pan/tilt settings will be restored upon exit of the **Lamp** feature.

Note: When setting the **Lamp** option on luminaires linked by a loopback connector, pan and tilt will be disabled for all the luminaires that are linked.

To run tests:

- Step 1. Press [Menu].
- Step 2. Press [Up] / [Down] arrows until **TEST** appears. Press [Enter].
- Step 3. Use [Up] / [Down] arrows to select a parameter to test.
- Step 4. Press [Enter] to run test.
- Step 5. Press [Menu] to stop test at any time.

Special Considerations

Configuring Main Controller Board

When performing maintenance or troubleshooting procedures on Series 2000 luminaires, it may be necessary to configure the Main Controller Board (MCB) for installation. When moving an MCB from one luminaire another, different jumper configurations must be set correctly in order for the luminaire to operate.

The Main Controller Board (MCB) contains two blue jumpers.



CAUTION: Always use anti-static precautions when working with PCBs.

Programming Jumper - J1 (For Vari-Lite engineering use.)

The jumper at J1 is necessary and must be in the correct position in order for the luminaire to operate. DO NOT change the configuration of jumper J1 (**Figure 2-1**).

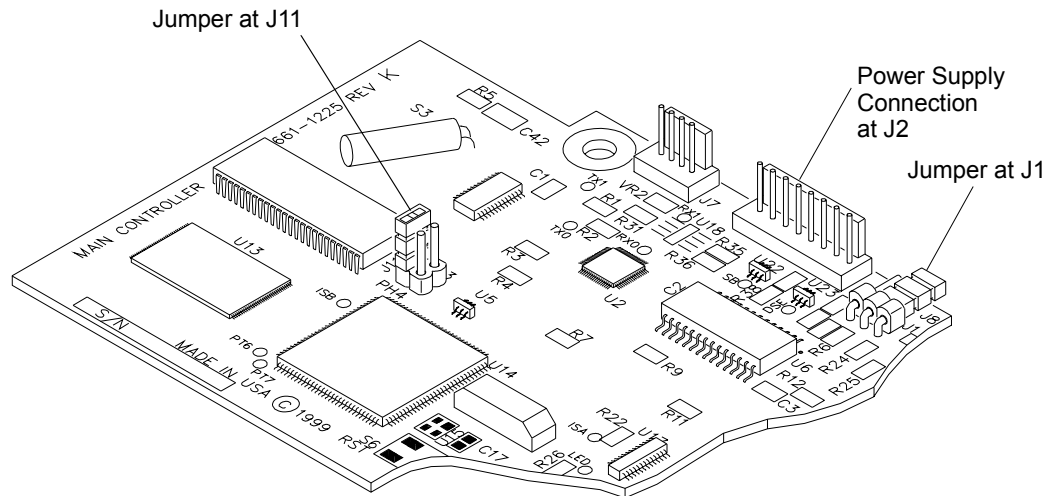


Figure 2-1: Jumper Locations on MCB

Luminaire Type Jumper - J11

The jumper at J11 configures the luminaire type between VL2000 spot, VL2000 wash and VL2416 wash. For VL2000 spot or VL2416 wash luminaires, it is fitted to non-active pins. (This inactive setting is the default or shipping configuration.) For VL2000 wash luminaires, it is fitted to the active pins.

Power Supply Connection - J2

The power supply connection at J2 sets the luminaire type according to the power supply output. (VL2416 wash luminaire - 1200W / VL2000 spot luminaire and VL2000 wash luminaire - 700W). If the power selection setting and the luminaire type setting jumper (J11) do not correspond, the luminaire will not operate properly.

Jumper Configuration

To configure jumper:

Determine which type luminaire the MCB is to be installed in, and configure jumper according to **Figure 2-2**.

Note: If luminaire will not calibrate or operate after MCB replacement, check jumper setting and download new software.

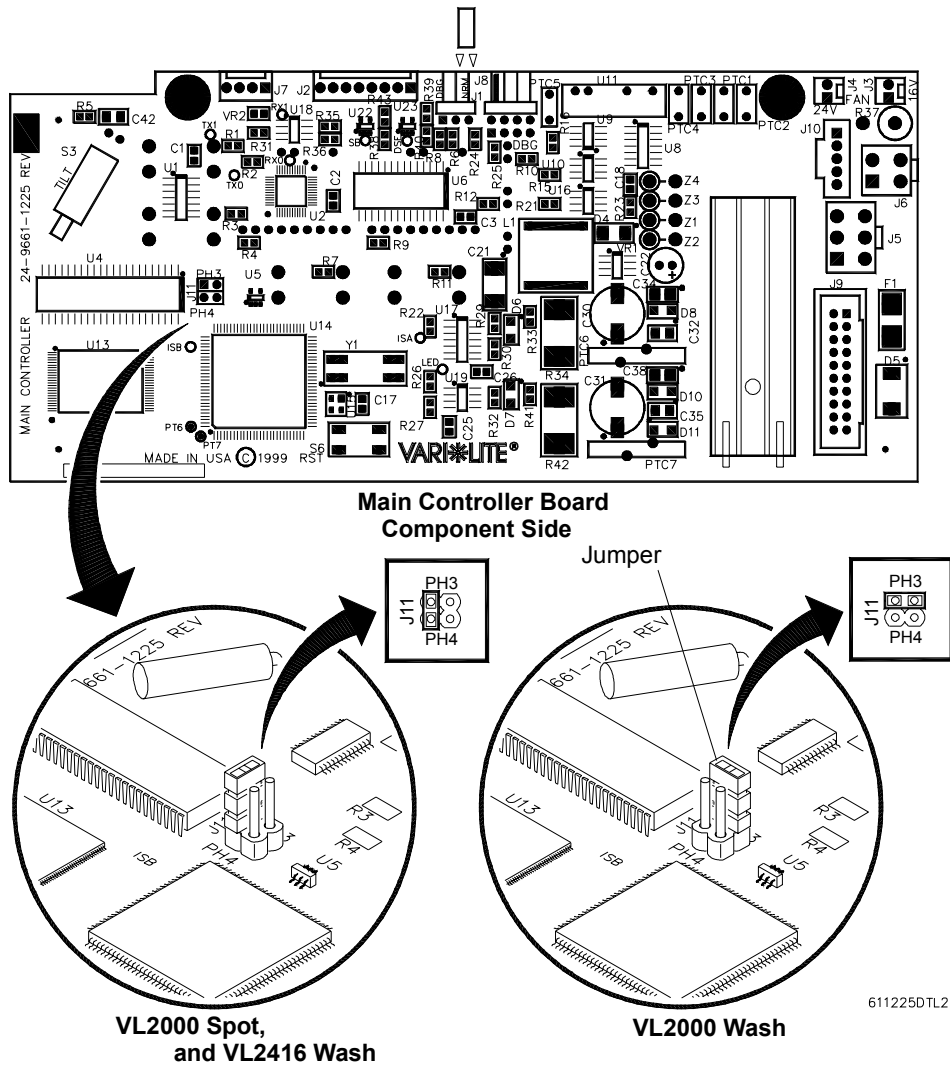


Figure 2-2: MCB Jumper Configuration.

Maintenance Procedures

Head Assembly

This section provides removal and replacement procedures for components found in the luminaire head assembly.

Lamp Replacement

Parts:

LAMP, 700 WATT ARC - PHILLIPS MSR700 (71.2528.0700)

Tools:

#2 Phillips Screwdriver,
Cotton gloves

To remove and replace lamp:

WARNING: All maintenance procedures are to be performed with power removed from the luminaire. Never remove covers or open front lens or backcap assemblies while lamp is in operation.

Step 1. Disconnect luminaire AC input cable from power source.



WARNING: Allow lamp to cool before replacing.

Step 2. At backcap, using screwdriver or fingers, turn captive knob until loose (**Figure 2-3**).

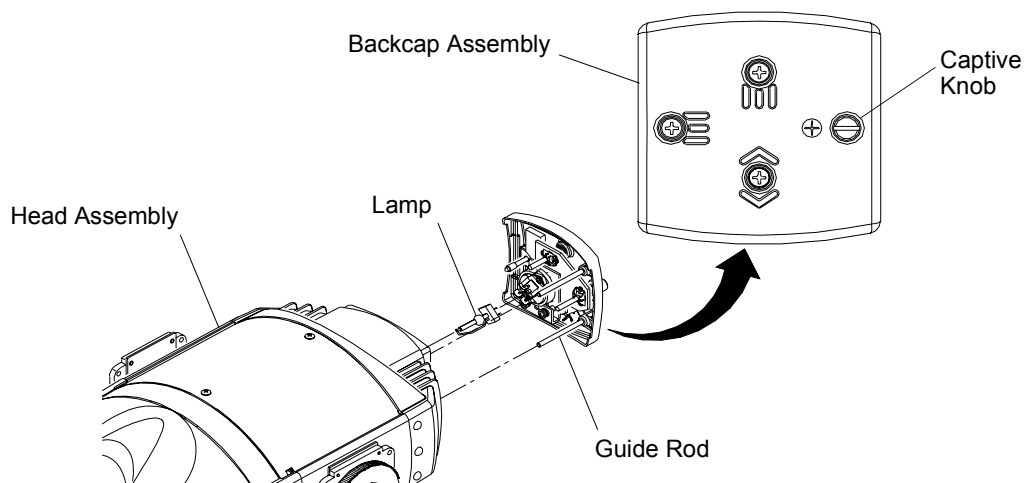


Figure 2-3: Lamp Replacement

Step 3. Slide backcap away from head assembly (it will remain attached by tether).



CAUTION: Wear cotton gloves or other covering while servicing lamp. Touching lamp glass with bare fingers will leave oil and cause the lamp to explode or burn out early. If touched, use alcohol to thoroughly clean glass.

Step 4. Remove lamp by pulling straight out of socket.

Step 5. Install new lamp, pressing firmly into socket.

Step 6. Align guide rods in guide holes and slide backcap into head assembly. Re-tighten captive knob.

Step 7. Align lamp. (Refer to next procedure.)

Align Lamp for Flat Field

The design of the optical system is based on a flat field. A flat field is one where there is no detectable hot spot.

After a new lamp is installed, it will be necessary to align the lamp to optimize the beam. Knobs located at the luminaire's backcap will allow adjustment.



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

To align lamp:

- Step 1. Using internal menus select **Lamp** test to set beam. Refer to VL2000 Wash Luminaire User's Manual for more information. (If using console, set intensity to 100% and adjust diffusion to produce a tight beam.)
- Step 2. Position beam on a white wall at a distance of 10' to 20'.
- Step 3. At backcap, using Vertical and Horizontal knobs, adjust hot spot to center of beam (**Figure 2-4**).
- Step 4. Using Focus knob adjust beam for flattest field.

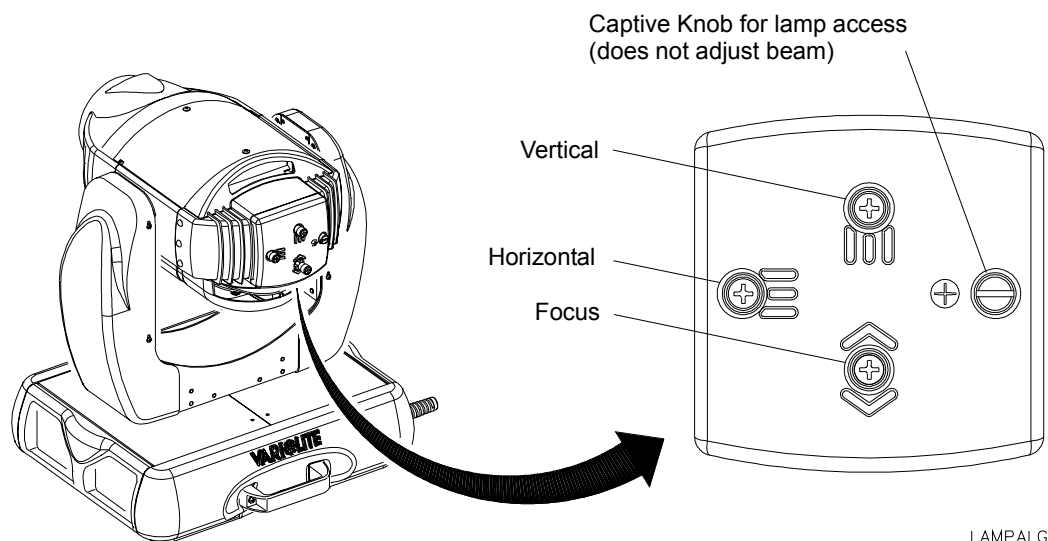


Figure 2-4: Aligning Lamp for Flat Field

Color Bulkhead Assembly Replacement

Parts:

BULKHEAD ASSEMBLY, COLOR (22.9671.0077)

Tools:

Screwdriver, #2 Phillips

To remove and replace color bulkhead assembly:



WARNING: All maintenance procedures are to be performed with power removed from the luminaire.

- Step 1. Disconnect luminaire AC input cable from power source.
- Step 2. At head cover, turn two captive screws one-quarter turn and remove cover (Figure 2-5). (It will remain attached by tether.)

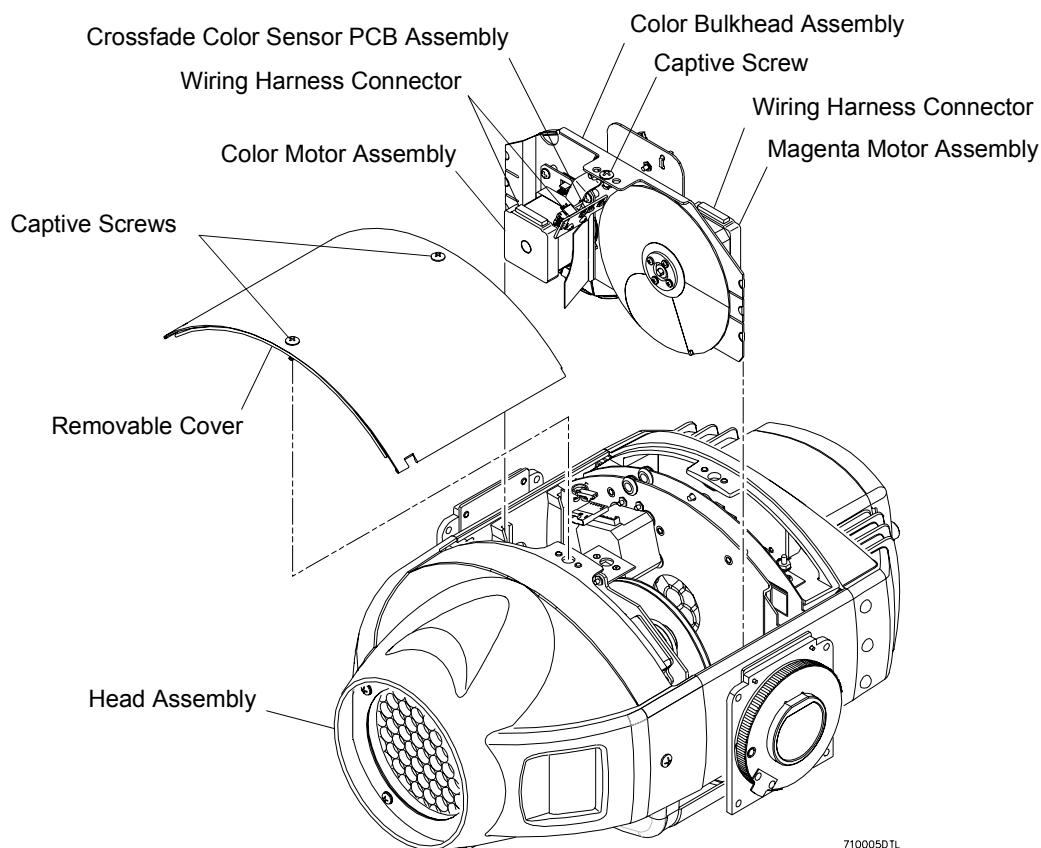


Figure 2-5: Color Bulkhead Assembly Replacement

- Step 3. At color bulkhead assembly, turn captive screw one-quarter turn to release bulkhead.

- Step 4. Slide color bulkhead assembly partially out of head assembly and disconnect wiring harness connectors from color motor assembly connector and color motor assembly sensor, magenta motor assembly connector, and two crossfade color sensor PCB assembly connectors.
- Step 5. Remove color bulkhead assembly from head assembly.
- Step 6. Install replacement assembly by performing Steps 2–5 in reverse order.

Color Filter Replacement

Parts:

Standard Color Filter, as required

Tools:

Screwdriver, #2 Phillips,
Cotton gloves

To remove and replace a standard color filter:



WARNING: All maintenance procedures are to be performed with power removed from the luminaire.

- Step 1. Disconnect luminaire AC input cable from power source.
- Step 2. At head cover, turn two captive screws one-quarter turn and remove cover (**Figure 2-5**).
- Step 3. Rotate wheel until color filter is accessible.



CAUTION: Do not touch filters with bare fingers. Wear cotton gloves or other covering while replacing.

- Step 4. Using fingers, pull color filter out of filter wheel assembly (**Figure 2-6**).

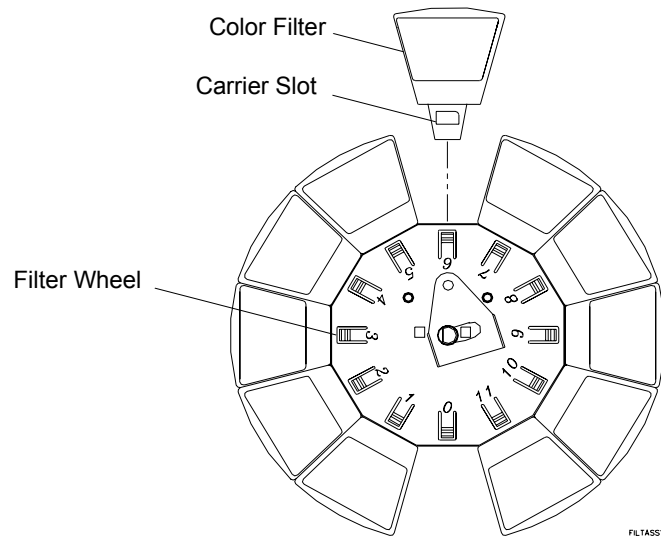


Figure 2-6: Color Filter Replacement

- Step 5. Noting proper orientation of carrier slot, insert new color filter into position and push fully into place.
- Step 6. Re-install color bulkhead assembly, as required, and re-install head cover.

Magenta Color Wheel Glass Assembly

Parts:

GLASS ASSEMBLY, MAGENTA COLOR WHEEL (21.9671.0161)

Tools:

Screwdriver, #2 Phillips

Cotton gloves

To remove and replace magenta color wheel glass assembly:



WARNING: All maintenance procedures are to be performed with power removed from the luminaire.

Step 1. Disconnect luminaire AC input cable from power source.

Step 2. Remove color bulkhead assembly. Refer to “Color Bulkhead Assembly Replacement” on page 18.



CAUTION: Do not touch glass with bare fingers. Wear cotton gloves or other covering while replacing.

Step 3. At color bulkhead assembly, remove four 4-40 X 3/16" PPZ screws, spacer, gasket, and spring, and remove glass assembly from bulkhead (**Figure 2-7**).

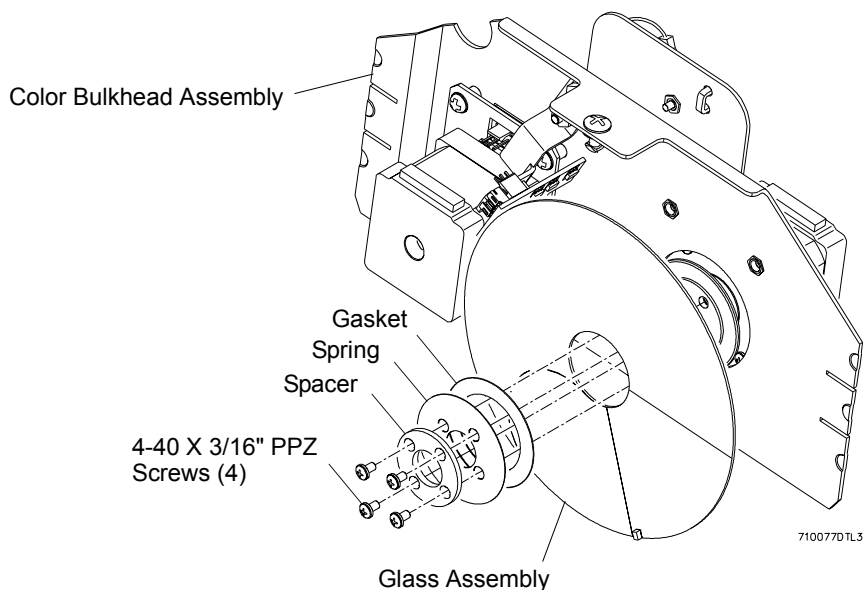


Figure 2-7: Magenta Color Wheel Glass Assembly Replacement

Step 4. Install replacement magenta color wheel glass assembly by performing Steps 2 and 3 in reverse order.

Crossfade Color Sensor PCB Assembly Replacement

Parts:

PCB ASSEMBLY, CROSSFADE COLOR SENSOR (24.9671.0175)

Tools:

Screwdriver, #1 Phillips

To remove and replace crossfade color sensor PCB assembly:



CAUTION: Always use anti-static precautions when working with PCBs.



WARNING: All maintenance procedures are to be performed with power removed from the luminaire.

- Step 1. Disconnect luminaire AC input cable from power source.
- Step 2. Remove color bulkhead assembly. Refer to “Color Bulkhead Assembly Replacement” on page 18.
- Step 3. At color bulkhead assembly, remove two 4-40 X 5/16" PPB screws, and remove crossfade color sensor PCB assembly from mounting bracket (**Figure 2-8**).

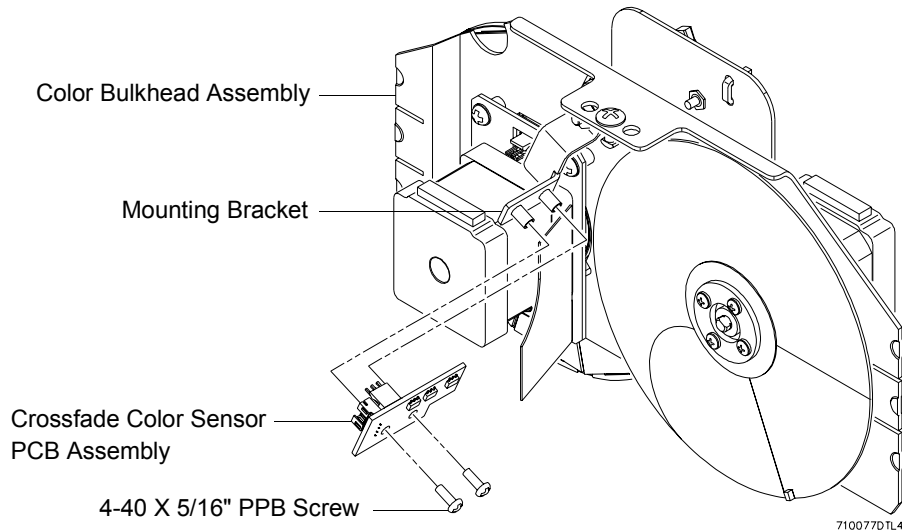


Figure 2-8: Crossfade Color Sensor PCB Assembly Replacement

- Step 4. Install replacement crossfade color sensor PCB assembly by performing Steps 2 and 3 in reverse order.

Dimmer Bulkhead Assembly Replacement

Parts:

DIMMER BULKHEAD ASSEMBLY (21.9673.0205)

Tools:

Screwdriver, #2 Phillips

To remove and replace dimmer bulkhead assembly:



WARNING: All maintenance procedures are to be performed with power removed from the luminaire.

- Step 1. Disconnect luminaire AC input cable from power source.
- Step 2. At head cover, turn two captive screws one-quarter turn and remove cover (**Figure 2-5**). (It will remain attached by tether.)
- Step 3. At dimmer bulkhead assembly, remove two 6-32 X 3/8" PPZ screws securing dimmer bulkhead assembly to rear assembly, and remove dimmer bulkhead assembly (**Figure 2-9**).

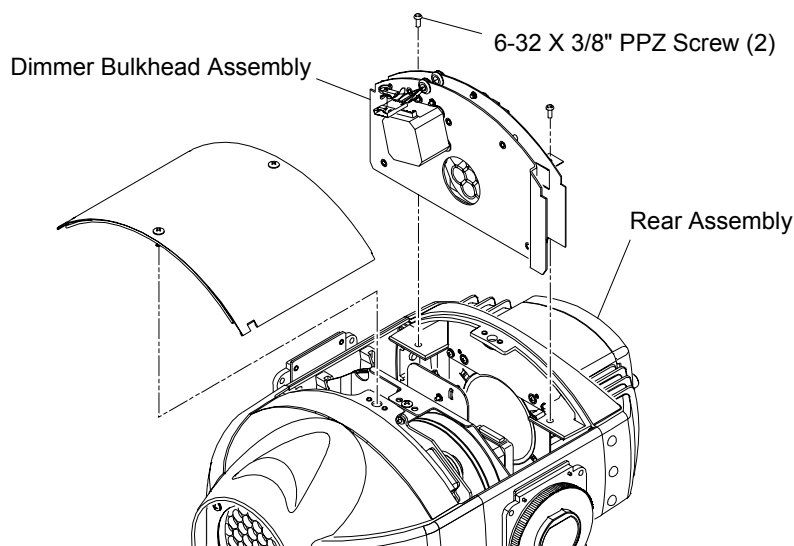


Figure 2-9: Dimmer Bulkhead Assembly Replacement

- Step 4. Disconnect wire connector from stepper motor.
- Step 5. Disconnect wires from thermal switch.
- Step 6. Slide dimmer bulkhead assembly from head assembly.
- Step 7. Install replacement dimmer bulkhead assembly by performing Steps 2–6 in reverse order.

Front Internal Head Assembly Replacement

Parts:

FRONT INTERNAL HEAD ASSEMBLY (21.9671.0006)

Tools:

Screwdriver, #2 Phillips, long handle

Screwdriver, #2 Phillips

To remove and replace front internal head assembly:



WARNING: All maintenance procedures are to be performed with power removed from the luminaire.

- Step 1. Disconnect luminaire AC input cable from power source.
- Step 2. Remove color bulkhead assembly. Refer to “Color Bulkhead Assembly Replacement” on page 18.
- Step 3. At front cover assembly, remove two 10-32 X 1/2" PPB screws, and remove front cover assembly (**Figure 2-10**).

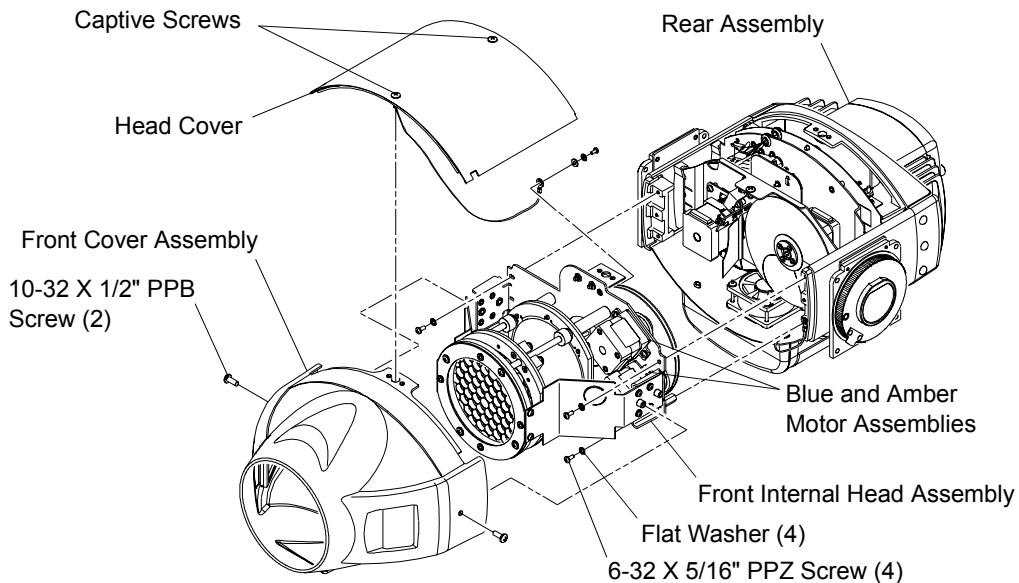


Figure 2-10: Front Internal Head Assembly Replacement

- Step 4. At head assembly, disconnect wire connectors from blue and amber motors.
- Step 5. Face head nose upward. At front of bulkhead, using #2 Phillips long handle screwdriver, remove four 6-32 X 5/16" PPZ screws and four #6 lock washers securing front assembly to rear assembly, and remove front assembly.
- Step 6. Install replacement front internal head assembly by performing Steps 2–5 in reverse order.

Blue/Amber Color Wheels Assembly Replacement

Parts:

ASSEMBLY, BLUE/AMBER COLOR WHEELS (21.9671.0150)

Tools:

Screwdriver, #1 Phillips

Screwdriver, #2 Phillips

Pick and hook tool

Cotton gloves

To remove and replace blue/amber color wheels assembly:



WARNING: All maintenance procedures are to be performed with power removed from the luminaire.

- Step 1. Disconnect luminaire AC input cable from power source.
- Step 2. Remove front internal head assembly. Refer to “Front Internal Head Assembly Replacement” on page 24.
- Step 3. At front of bulkhead, loosen four 8-32 X 3/8" PPZ screws to loosen tension on blue and amber motor assembly timing belts (**Figure 2-11**).

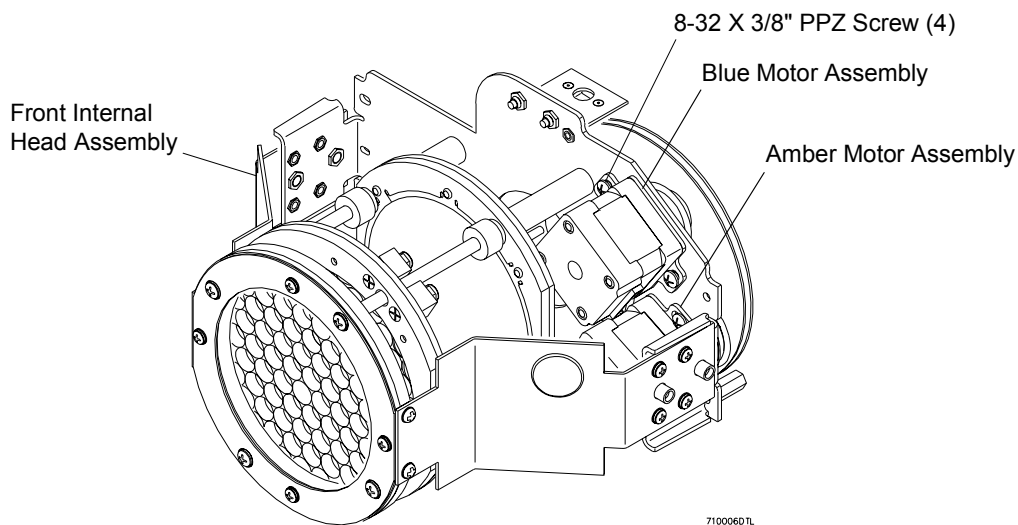


Figure 2-11: Loosening Tension on Timing Belts

Note: When removing timing belts from blue and amber color wheel pulleys, ensure belts remain in place on blue and amber motor pulleys.

- Step 4. Remove timing belts from blue and amber color wheel pulleys (**Figure 2-12**).

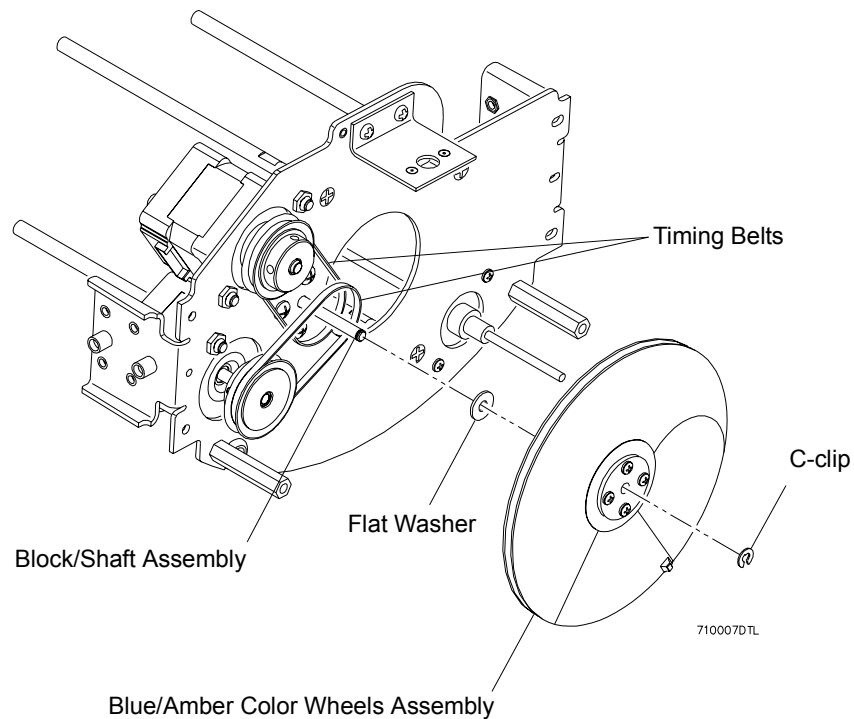


Figure 2-12: Blue/Amber Color Wheels Assembly Replacement

- Step 5. Using pick and hook tool, remove c-clip securing blue/amber color wheels assembly on block/shaft assembly.



CAUTION: Do not touch wheels with bare fingers. Wear cotton gloves or other covering while replacing.

- Step 6. Remove blue/amber color wheels assembly and flat washer from block/shaft assembly.
- Step 7. Install replacement blue/amber color wheels assembly by performing Steps 2–6 in reverse order.

Small Stipple Glass Replacement

Parts:

SMALL STIPPLE GLASS (12.9671.0408)

Tools:

Screwdriver, #2 Phillips

Cotton gloves

To remove and replace small stipple glass:



WARNING: All maintenance procedures are to be performed with power removed from the luminaire.

- Step 1. Disconnect luminaire AC input cable from power source.
- Step 2. At head cover, turn two captive screws one-quarter turn and remove cover (**Figure 2-10**). (It will remain attached by tether.)
- Step 3. At front cover assembly, remove two 10-32 X 1/2" PPB screws, and remove front cover assembly (**Figure 2-10**).



CAUTION: Do not touch glass with bare fingers. Wear cotton gloves or other covering while replacing.

- Step 4. Face head nose upward. At front of bulkhead, remove four 6-32 X 5/16" PPB screws and #6 lock washers securing diffuser glass retainer and small stipple glass to concave lens assembly, and remove retainer and glass (**Figure 2-13**).

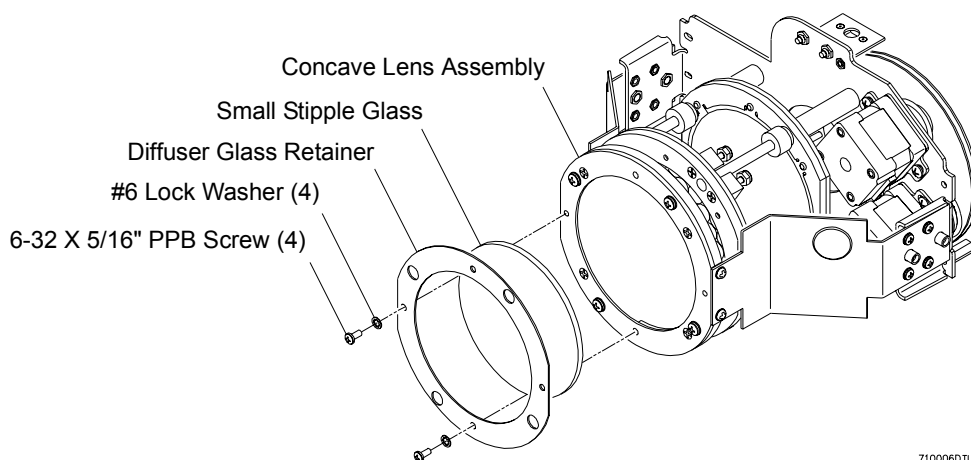


Figure 2-13: Small Stipple Glass Replacement

- Step 5. Install replacement small stipple glass by performing Steps 2–4 in reverse order.

Concave Lens Assembly Replacement

Parts:

ASSEMBLY, CONCAVE LENS (22.9671.0413)

Tools:

Screwdriver, #2 Phillips

Cotton gloves

To remove and replace concave lens assembly:



WARNING: All maintenance procedures are to be performed with power removed from the luminaire.

- Step 1. Disconnect luminaire AC input cable from power source.
- Step 2. Remove small stipple glass. Refer to “Small Stipple Glass Replacement” on page 27.
- Step 3. Remove four 6-32 X 3/16" PPB screws and four #6 lock washers securing concave lens assembly to lens support arm (**Figure 2-14**).

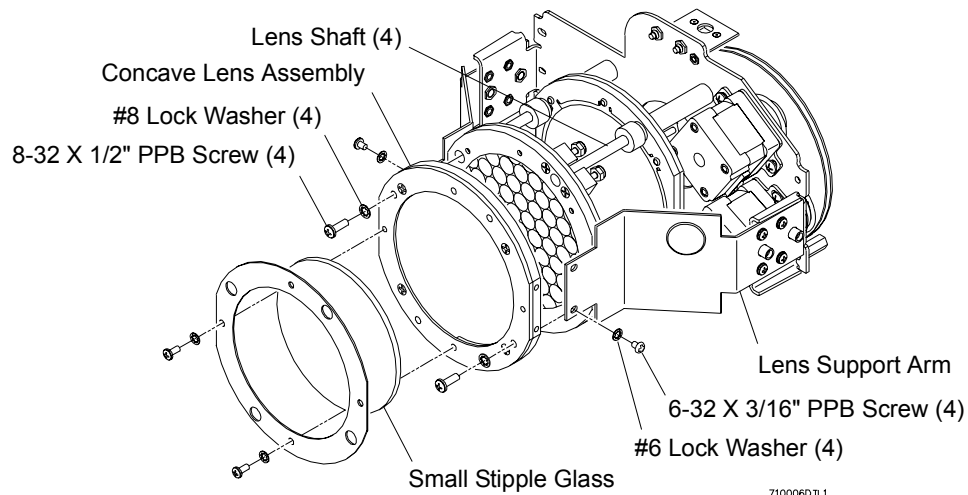


Figure 2-14: Concave Lens Assembly Replacement



CAUTION: Do not touch lens with bare fingers. Wear cotton gloves or other covering while replacing.

- Step 4. Remove four 8-32 X 1/2" PPB screws and four #8 lock washers securing concave lens assembly to lens shafts, and remove concave lens assembly.
- Step 5. Install replacement concave lens assembly by performing Steps 2–4 in reverse order.

Convex Lens Assembly Replacement

Parts:

ASSEMBLY, CONVEX LENS (22.9671.0414)

Tools:

Screwdriver, #2 Phillips
Allen wrench, 1/4"
Nutdriver, 1/4"
Cotton gloves

To remove and replace convex lens assembly:



WARNING: All maintenance procedures are to be performed with power removed from the luminaire.

- Step 1. Disconnect luminaire AC input cable from power source.
- Step 2. Remove small stipple glass. "Small Stipple Glass Replacement" on page 27.
- Step 3. Remove concave lens assembly. "Concave Lens Assembly Replacement" on page 28.
- Step 4. Using 1/4" nutdriver, remove one 4-40 KEPS nut on end of beam spreader motor assembly shaft (Figure 2-15).

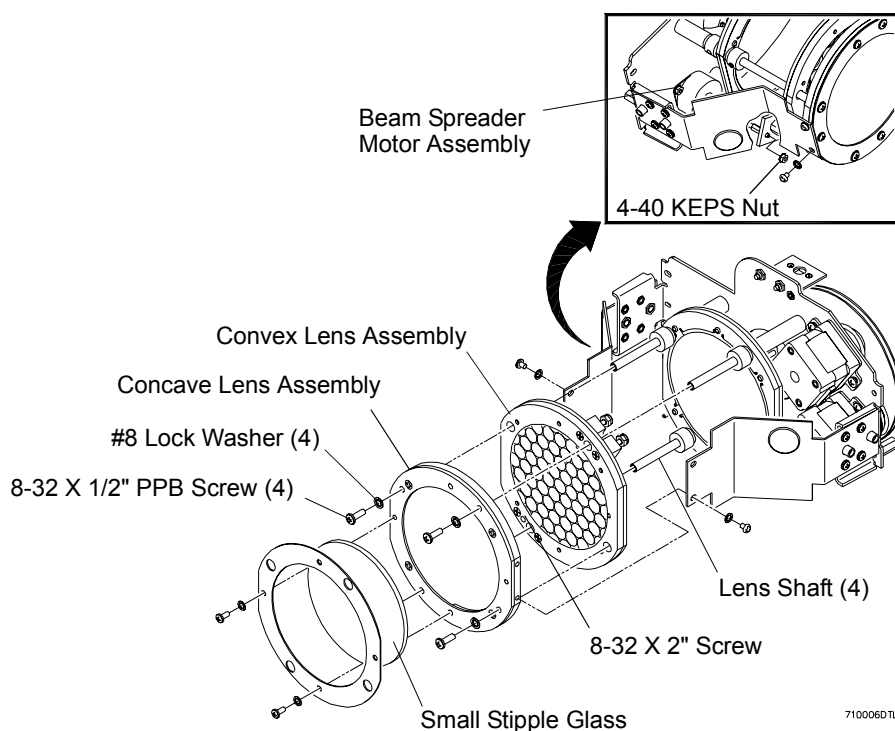


Figure 2-15: Convex Lens Assembly Replacement



CAUTION: Do not touch lens with bare fingers. Wear cotton gloves or other covering while replacing.

- Step 5. Remove convex lens assembly from lens shafts.
- Step 6. In replacement convex lens assembly, using 1/4" Allen Wrench, adjust 8-32 X 2" screw so that screw head is nearly flush with drive bushing plate to create a .020° gap between concave and convex lens assemblies.
- Step 7. Slide replacement convex lens assembly and then old concave lens assembly onto lens shafts.
- Step 8. Hold convex and concave lens assemblies together, and using #2 Phillips screwdriver, re-install four #8 lock washers and four 8-32 X 1/2" PPB screws, and tighten to keep lens assemblies aligned.
- Step 9. Re-install four 6-32 X 3/16" PPB screws and four #6 lock washers securing concave lens assembly to lens support arm.
- Step 10. Using 1/4" nutdriver, re-install one 4-40 KEPS nut on end of beam spreader motor assembly shaft.
- Step 11. Re-install small stipple glass. Refer to "Small Stipple Glass Replacement" on page 27.

100MM Condenser Lens Assembly Replacement

Parts:

100MM CONDENSER LENS (22.9671.0402)

Tools:

Allen wrench, 5/64"

Cotton gloves

Loctite, #242

To remove and replace 100MM condenser lens assembly:



WARNING: All maintenance procedures are to be performed with power removed from the luminaire.

- Step 1. Disconnect luminaire AC input cable from power source.
- Step 2. Remove small stipple glass. "Small Stipple Glass Replacement" on page 27.
- Step 3. Remove concave lens assembly. "Concave Lens Assembly Replacement" on page 28.
- Step 4. Remove convex lens assembly. "Convex Lens Assembly Replacement" on page 29.

Note: Before removing shaft collets, note orientation for use during re-installation.

- Step 5. Using 5/64 " Allen wrench, loosen eight setscrews (two each collet), and remove four shaft collets and four wave spring washers from lens shafts (**Figure 2-16**).



CAUTION: Do not touch lens with bare fingers. Wear cotton gloves or other covering while replacing.

- Step 6. Remove 100MM condenser lens assembly from lens shafts.
- Step 7. Slide replacement 100MM condenser lens assembly onto lens shafts.
- Step 8. Re-install four wave spring washers on lens shafts.
- Step 9. Re-install four shaft collets on lens shafts.

Note: Ensure wave spring washers are compressed before tightening shaft collet set-screws.

- Step 10. Slide shaft collet down on lens shaft until wave spring washer is compressed.

Step 11. Apply Loctite #242 to threads of setscrews, and using 5/64" Allen wrench, tighten setscrews to secure shaft collet to base of lens shaft.

Step 12. Repeat steps 10 and 11 for remaining three shaft collets.

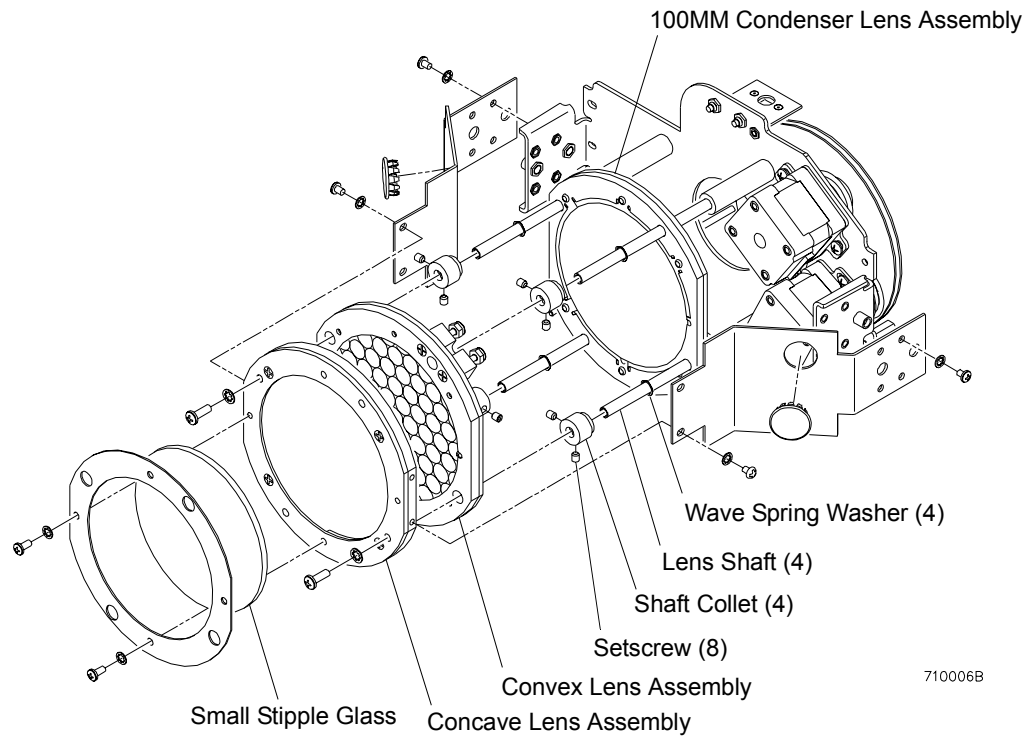


Figure 2-16: 100MM Condenser Lens Assembly Replacement

Step 13. Re-install convex and concave lens assemblies. “Convex Lens Assembly Replacement” on page 29.

Step 14. Re-install small stipple glass. Refer to “Small Stipple Glass Replacement” on page 27.

Beam Spreader Motor Assembly Replacement

Parts:

ASSEMBLY, MOTOR-BEAM SPREADER (22.9671.0468)

Tools:

Pliers, 3" channel lock
Screwdriver, #1 Phillips
Screwdriver, #2 Phillips
Wrench, open-ended, 1/3"

To remove and replace beam spreader motor assembly:



WARNING: All maintenance procedures are to be performed with power removed from the luminaire.

- Step 1. Disconnect luminaire AC input cable from power source.
- Step 2. Remove front internal head assembly. Refer to "Front Internal Head Assembly Replacement" on page 24.
- Step 3. Disconnect beam spreader motor assembly wire connector from motor harness cable assembly.
- Step 4. At beam spreader motor assembly, using 1/4" open-ended wrench and pliers, remove one 4-40 KEPS nut from end of motor shaft (**Figure 2-17**).

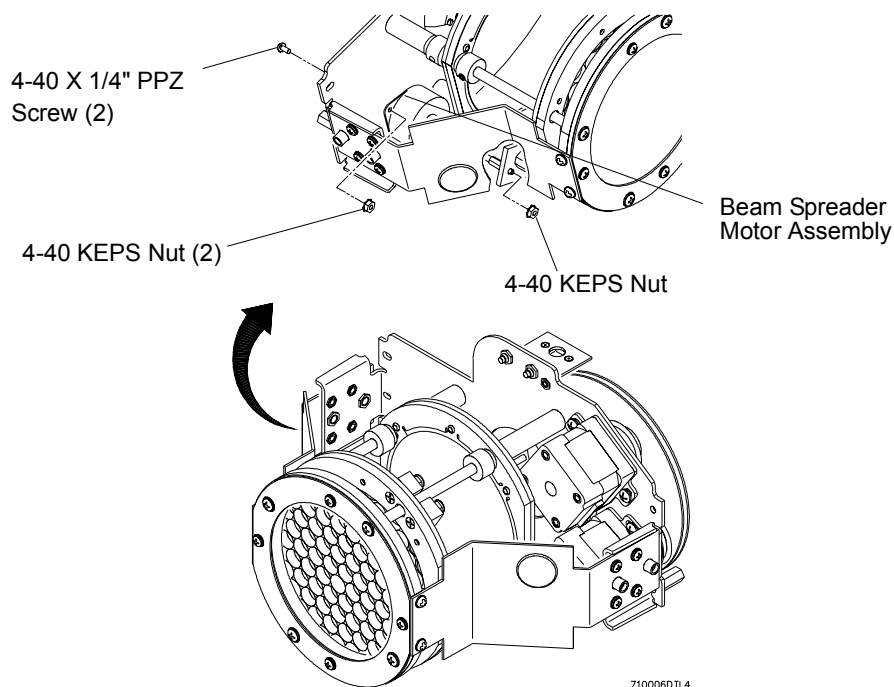


Figure 2-17: Beam Spreader Motor Assembly Replacement

- Step 5. Remove two 4-40 X 1/4" PPZ screws and two 4-40 KEPS nuts securing beam spreader motor assembly to bulkhead, and remove motor.
- Step 6. Install replacement beam spreader motor assembly in bulkhead.
- Step 7. Re-install two 4-40 X 1/4" PPZ screws and two 4-40 KEPS nuts securing beam spreader motor assembly to bulkhead, but do not tighten.
- Step 8. Using 1/4" wrench and pliers, re-install 4-40 KEPS nut on end of motor shaft.
- Step 9. Reconnect beam spreader motor assembly wire connector to motor harness cable assembly.
- Step 10. Re-install front internal head assembly. Refer to "Front Internal Head Assembly Replacement" on page 24.
- Step 11. Re-apply ac power.



CAUTION: Before applying power, be sure the luminaire is positioned so that the head and yoke can move freely without restriction.

- Step 12. Seat motor shaft by applying power to luminaire and allowing luminaire to cycle through calibration.
- Step 13. Tighten two 4-40 X 1/4" PPZ screws and two 4-40 KEPS nuts.
- Step 14. Re-install front cover assembly and head cover (**Figure 2-10**).

Yoke Assembly

This section provides removal and replacement procedures for components found in the luminaire yoke assembly.

Tilt Motor Replacement

Parts:

ASSY, TILT MOTOR (22.9661.0665)

Tools:

Screwdriver, #2 Phillips

Nutdriver, 1/4"

To remove and replace tilt motor assembly:



WARNING: All maintenance procedures are to be performed with power removed from the luminaire.

Step 1. Disconnect luminaire AC input cable from power source.

Step 2. At tilt-side leg, remove yoke leg cover by removing four 6-32 X 5/16" PPB screws (Figure 2-18). To find tilt-side leg, refer to page 9.

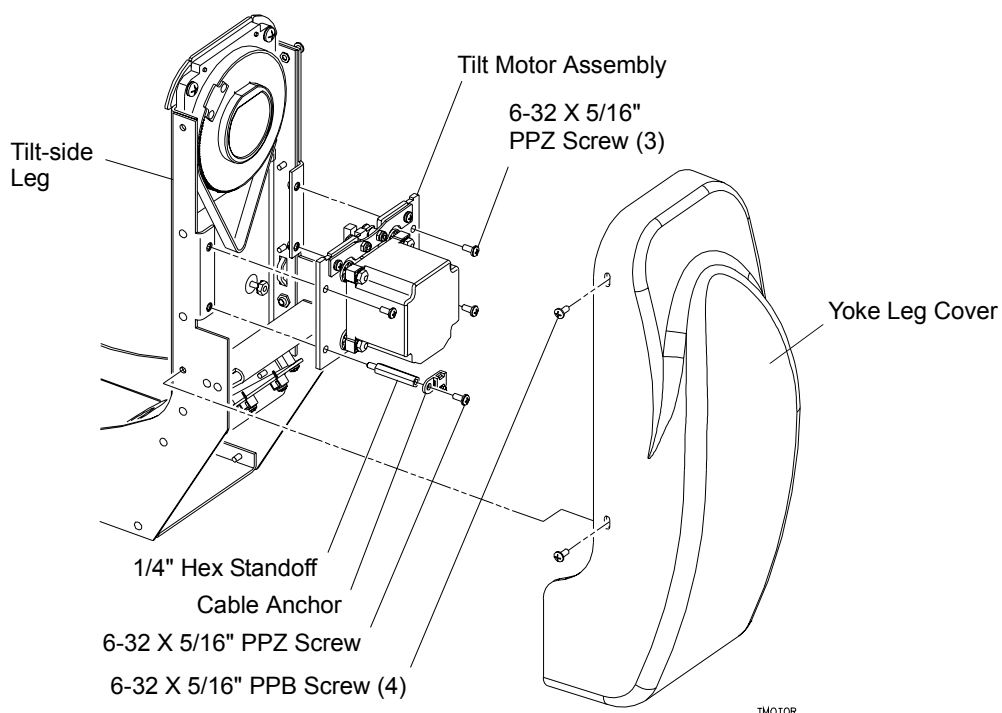


Figure 2-18: Tilt Motor Assembly Replacement

- Step 3. At pan/tilt encoder PCB (mounted behind tilt motor mounting plate), disconnect two cable connectors.
- Step 3. At tilt motor, disconnect motor wire connector.
- Step 4. At cable anchor/standoff, remove one 6-32 X 5/16" PPZ screw, and remove free cable. (Cable will still be attached by a cable tie to anchor.)
- Step 5. Using 1/4" nutdriver, remove 1/4" hex standoff.
- Step 6. Remove three remaining 6-32 X 5/16" PPZ screws securing tilt motor assembly to yoke leg, and remove tilt motor assembly while freeing pulley from timing belt.
- Step 7. Install replacement tilt motor assembly by performing Steps 2–8 in reverse order.

Auxiliary Controller PCB Assembly Replacement'

Parts:

PCB ASSY, AUX CONTROLLER (24.9661.1400)

Tools:

Screwdriver, #2 Phillips

Nutdriver, 1/4"

Wrench, open-ended, 1/4"

To remove and replace auxiliary controller PCBs:



CAUTION: Always use anti-static precautions when working with PCBs.



WARNING: All maintenance procedures are to be performed with power removed from the luminaire.

- Step 1. Disconnect luminaire AC input cable from power source.
- Step 2. At board-side leg, remove yoke leg cover by removing four 6-32 X 5/16" PPB screws. To find board-side leg, refer to page 9.
- Step 3. Remove counter weight assembly by removing four 6-32 X 5/16" PPZ screws and four #6 lock washers (**Figure 2-19**).
- Step 4. To remove auxiliary controller PCB 1, disconnect yoke cable assembly from first auxiliary controller PCB at J2 and main to aux/data and power cable at J5.
- Step 5. Using 1/4" nutdriver or open-ended wrench, remove 1/4" hex four standoffs and four #6 lock washers, and remove auxiliary controller PCB 1.

Note: A connector is installed between auxiliary controller PCBs 1 and 2. The connector may remain attached to auxiliary controller PCB 1 when it is removed.

- Step 6. If connector remains attached to auxiliary controller PCB 1 when PCB is removed, remove connector from auxiliary controller PCB 1.

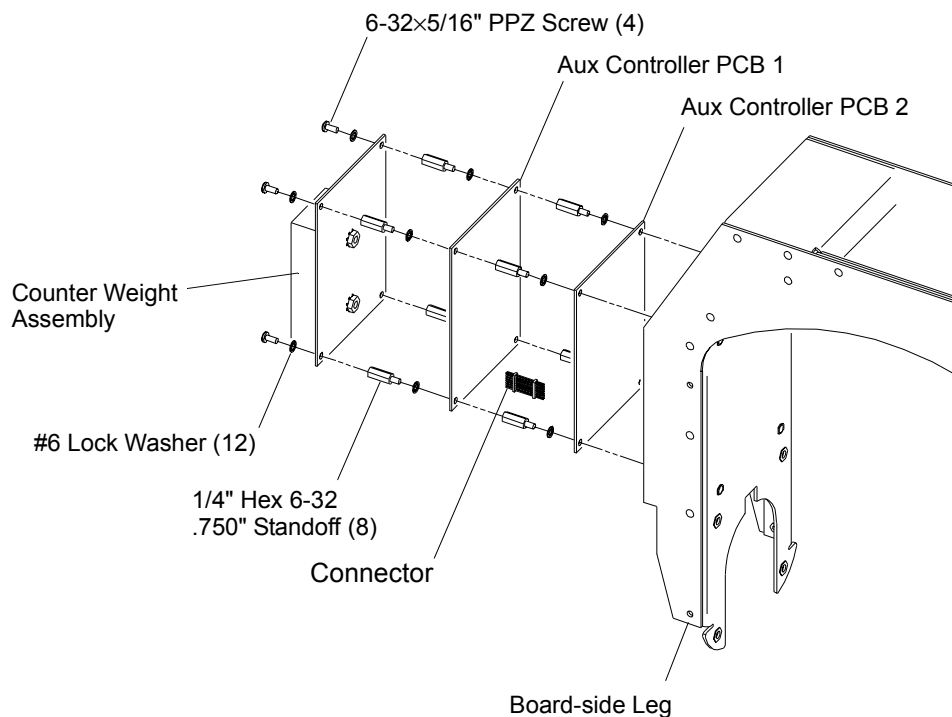


Figure 2-19: Auxiliary Controller PCB Replacement

- Step 7. Perform one of the following steps, as required:
- If auxiliary controller PCB 2 is being replaced, install connector in new auxiliary controller PCB 2 at J1.
 - If auxiliary controller PCB 2 is not being replaced re-install connector in auxiliary controller PCB 2 at J1.
- Step 8. To remove auxiliary controller PCB 2, disconnect yoke cable assembly from auxiliary controller PCB 2 at J2.
- Step 9. Using 1/4" nutdriver or open-ended wrench, remove next set of four 1/4" hex standoffs and #6 lock washers, and remove auxiliary controller PCB 2.
- Step 10. Perform the following steps, as required:
- Remove connector from auxiliary controller PCB 2 at J1.
 - Install connector on new auxiliary controller PCB 2 at J1.

Note: When installing auxiliary controller PCB 1, ensure pins of connector are seated correctly into connector J1 on back of PCB.

- Step 11. Install replacement assemblies by performing Steps 2–10 in reverse order.

Ignitor PCB Assembly Replacement

Parts:

PCB ASSY, IGNITOR (24.9661.1125)

Tools:

Screwdriver, #2 Phillips

To remove and replace ignitor PCB assembly:



CAUTION: Always use anti-static precautions when working with PCBs.



WARNING: All maintenance procedures are to be performed with power removed from the luminaire.

- Step 1. Disconnect luminaire AC input cable from power source.
- Step 2. At each yoke leg, remove yoke leg cover by removing four 6-32 X 5/16" PPB screws (**Figure 2-20**).

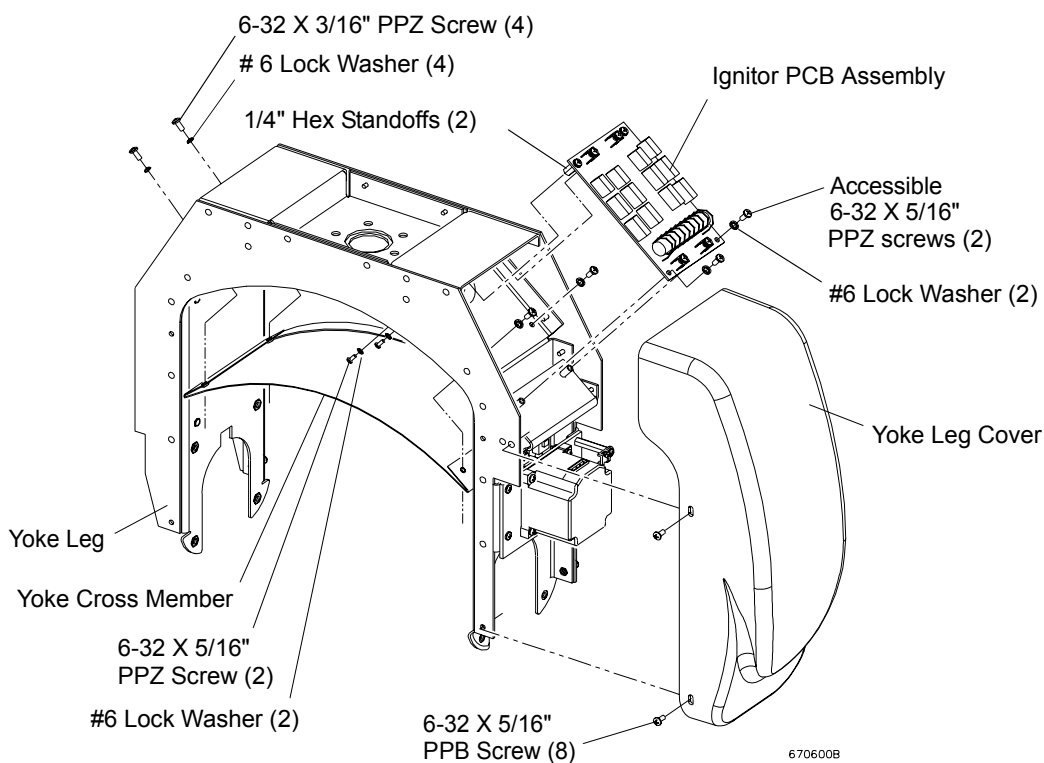


Figure 2-20: Ignitor PCB Assembly Replacement

- Step 3. At yoke cross member, using #2 Phillips screwdriver, remove four 6-32 X 3/16" PPZ screws and four #6 lock washers which secure cross member

cover to yoke, and remove cover. (These screws are accessible from inside yoke legs.)

- Step 4. At Ignitor PCB assembly, remove two accessible 6-32 X 5/16" PPZ screws and two #6 lock washers which secure ignitor PCB assembly to yoke leg.
- Step 5. At yoke cross member, remove two 6-32 X 5/16" PPZ screws and two #6 lock washers which secure ignitor PCB assembly 1/4" hex standoffs to yoke leg.
- Step 6. At ignitor PCB assembly, disconnect ignitor PCB assembly wires by removing four 6-32 X 1/4" PPZ screws and four #6 lock washers which secure wire ring terminals to PCB, and remove ignitor PCB assembly **Figure 2-21**).

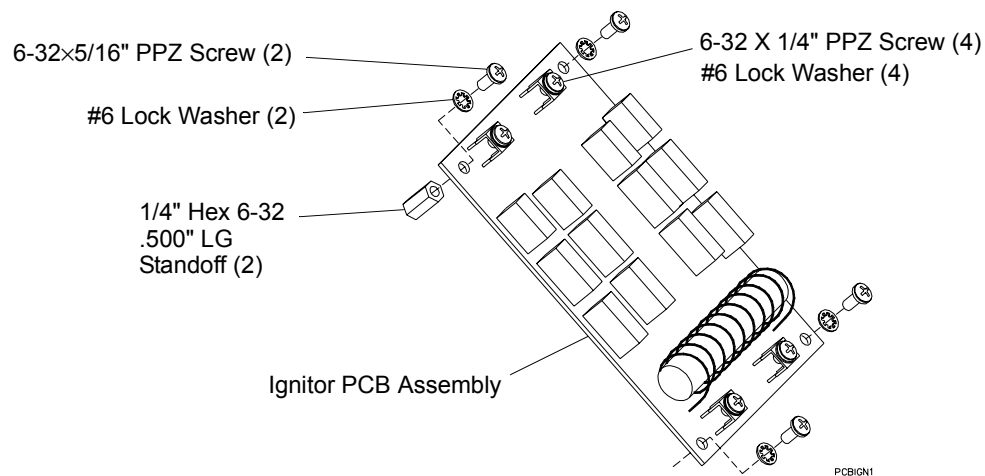


Figure 2-21: Ignitor PCB Assembly Wire Terminals and Standoffs Removal

Note: Install two standoffs removed from old ignitor PCB assembly in step 7 in same position on replacement ignitor PCB assembly.

- Step 7. Remove two 6-32 X 5/16" PPZ screw and two #6 lock washer (one each standoff) and remove two 1/4" hex standoffs from ignitor PCB assembly. Install hex standoffs in same position on replacement ignitor PCB assembly.
- Step 8. Install replacement ignitor PCB assembly by performing Steps 2–7 in reverse order.

Enclosure Assembly

This section provides removal and replacement procedures for components found in the luminaire enclosure assembly.

Removing Enclosure Covers

To gain access to enclosure components, it will be necessary to remove the top and bottom covers.

Tools:

Screwdriver, #2 Phillips

Allen Wrench, 3/16"

To remove and replace enclosure covers:



WARNING: All maintenance procedures are to be performed with power removed from the luminaire.

- Step 1. Using console or internal menus, run lens as far to the rear as possible.
- Step 2. Disconnect luminaire AC input cable from power source.
- Step 3. At each top enclosure cover, remove two 6-32 X 1/4" PPB screws, and remove cover (Figure 2-22).

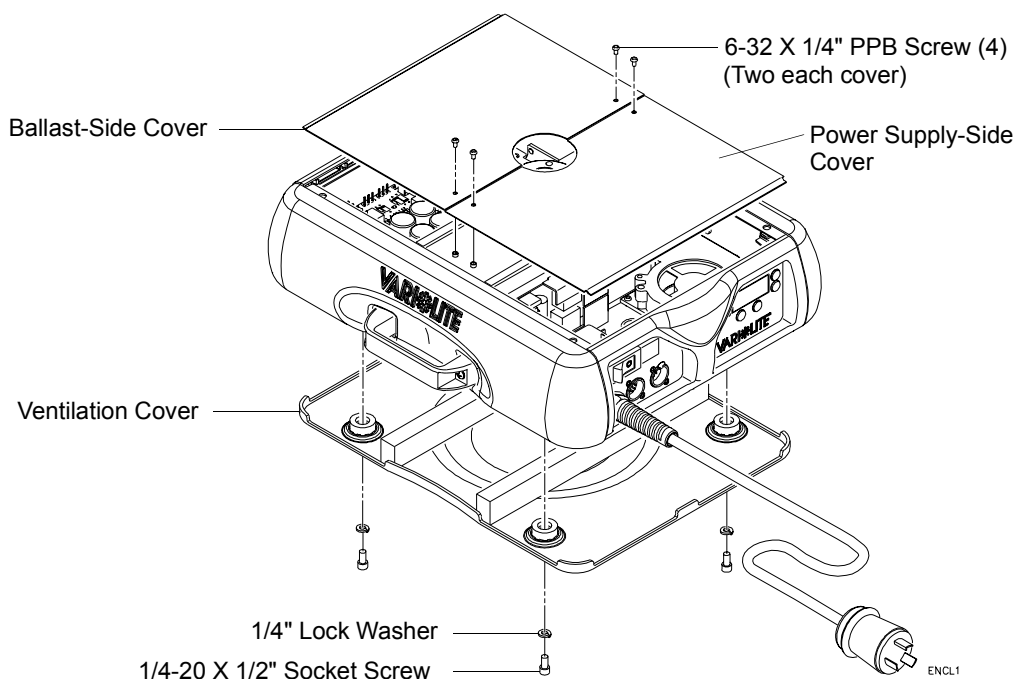
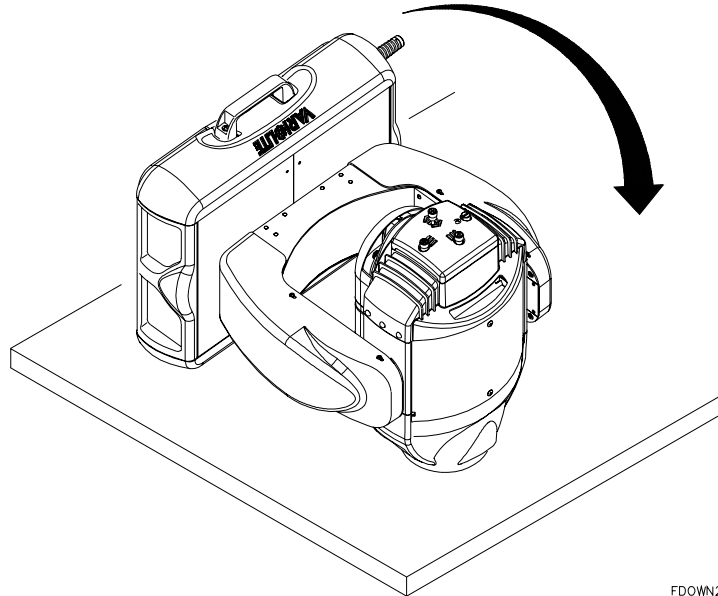


Figure 2-22: Removing Top and Bottom Enclosure Covers



CAUTION: Be careful not to damage lens during next step.

- Step 4. Carefully lay luminaire on its side, ensuring that lens does not come into contact with any surface (**Figure 2-23**).



FDOWN2

Figure 2-23: Laying Luminaire on Its Side

- Step 5. At bottom of enclosure, using 3/16" Allen wrench, remove four 1/4-20 X 1/2" socket screws and four 1/4" lock washers, and remove ventilation cover (**Figure 2-22**).
- Step 6. Return luminaire to upright position.

Power Supply Replacement

Parts:

POWER SUPPLY, 130W +24V/5.4A (12.3126.1103)

Tools:

Screwdriver, #2 Phillips, stubby

To remove and replace power supply:



CAUTION: Always use anti-static precautions when working with PCBs.



WARNING: All maintenance procedures are to be performed with power removed from the luminaire.

- Step 1. Disconnect luminaire AC input cable from power source.
- Step 2. At enclosure, remove power supply-side and ventilation covers. Refer to "Removing Enclosure Covers" on page 41.
- Step 3. At power supply, disconnect wiring at J1, J2, and GND.
- Step 4. At power supply, remove two 6-32 X 3/8" PPZ screws securing power supply PCB to standoffs (**Figure 2-24**).

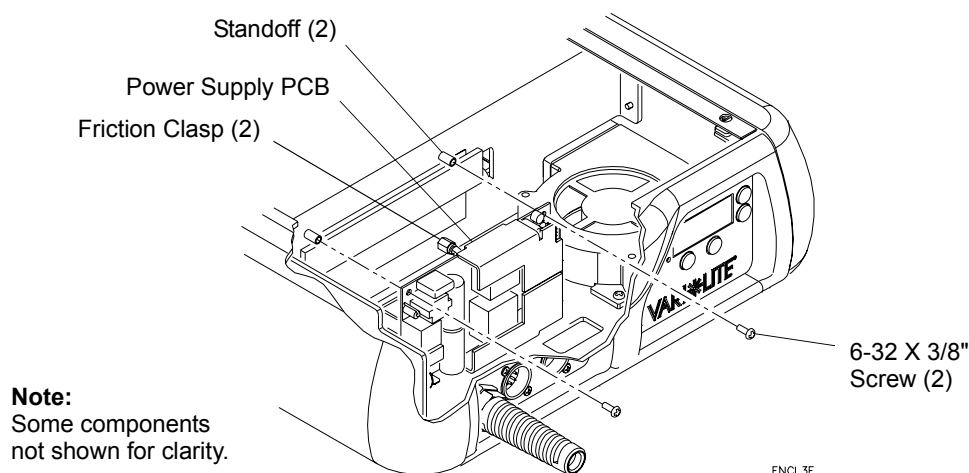


Figure 2-24: Power Supply Replacement

- Step 5. Free bottom of power supply PCB from two friction clasps, and remove power supply.
- Step 6. Install replacement power supply by performing Steps 2–5 in reverse order.

Ballast Module Assembly Replacement

Parts:

ASSY, BALLAST MODULE - 700W ARC POWER SUPPLY (23.9671.1250)

Tools:

Screwdriver, #2 Phillips

To remove and replace ballast module assembly:



CAUTION: Always use anti-static precautions when working with PCBs.



WARNING: All maintenance procedures are to be performed with power removed from the luminaire.

- Step 1. Disconnect luminaire AC input cable from power source.
- Step 2. At enclosure, remove ballast-side and ventilation covers. Refer to “Removing Enclosure Covers” on page 41.
- Step 3. Remove both handles by removing two 10-32 X 5/8" PPB screws at each.
- Step 4. Remove eight 6-32 X 3/8" PPZ screws and remove both side covers (**Figure 2-25**).

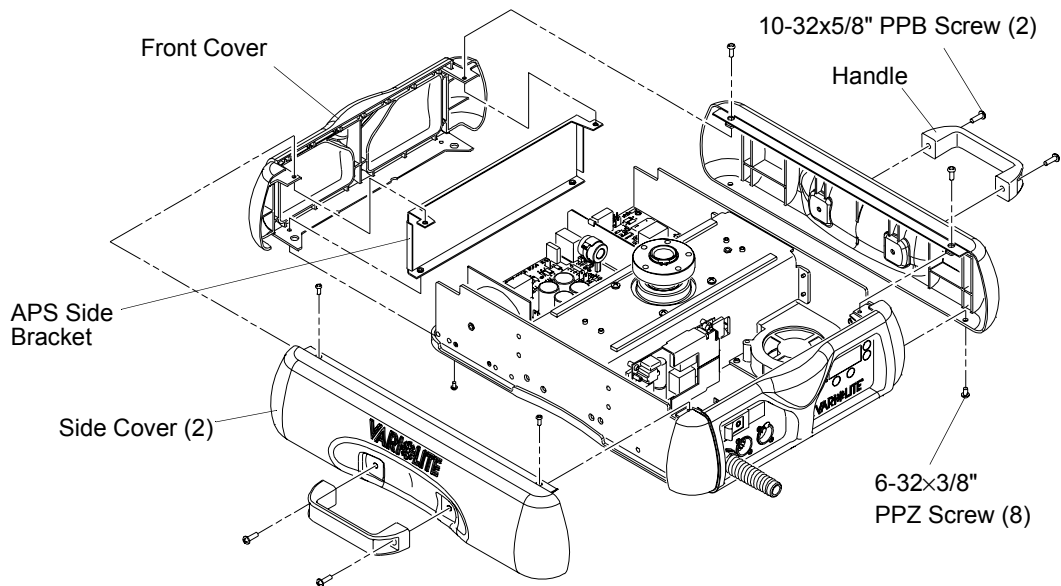


Figure 2-25: Accessing Ballast Module Assembly

- Step 5. At ballast-side of enclosure, remove front cover and APS side bracket.

Step 6. At ballast module assembly, disconnect wiring:

Location	Connector
J102	2-Pos Connector
J103	3-Pos Mate N Lok
J108	Red 1+ (Choke)
J109	Dark Blue 2- (Choke)
J110	Orange 3+ (Choke)
J111	Orange 4- (Choke)
J112	8-Pos MTA
J113	3-Pos MTA
J202	Lamp Wires (White)
J203	Lamp Wires (White)
J204	Red (Buck Choke)
J205	Blue (Buck Choke)

Step 7. Pull wires through ferrite core (Figure 2-26).

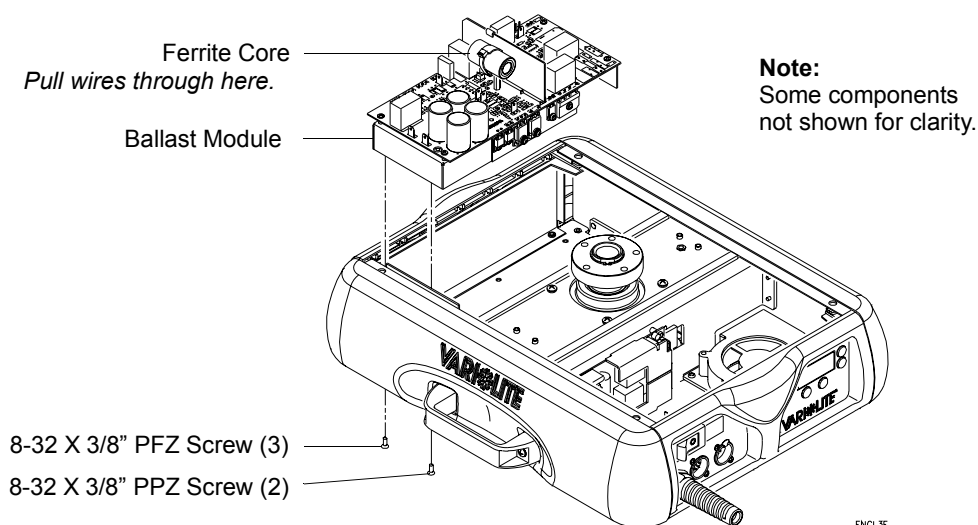


Figure 2-26: Ballast Module Assembly Replacement

Step 8. At bottom of enclosure, remove three 8-32 X 3/8" PFZ screws and two 8/32 X 3/8" PPZ screws which secure ballast module to enclosure.

Step 9. Remove ballast module.

Step 10. Install replacement assembly by performing Steps 2–9 in reverse order.

Pan Motor Assembly Replacement

Parts:

ASSY, PAN MOTOR (22.9661.0664)

Tools:

Screwdriver, #2 Phillips

To remove and replace pan motor assembly:



WARNING: All maintenance procedures are to be performed with power removed from the luminaire.

Step 1. Using console or internal menus, run lens as far to the rear as possible.

Step 2. Disconnect luminaire AC input cable from power source.



CAUTION: Be careful not to damage lens during next step.

Step 3. Carefully lay luminaire on its side, ensuring that lens does not come into contact with any surface (**Figure 2-23**).

Step 4. At enclosure, remove ventilation cover. Refer to “Removing Enclosure Covers” on page 41.

Step 5. At pan motor assembly, remove four 6-32 X 3/8" PPZ screws and four #6 lock washers (**Figure 2-27**).

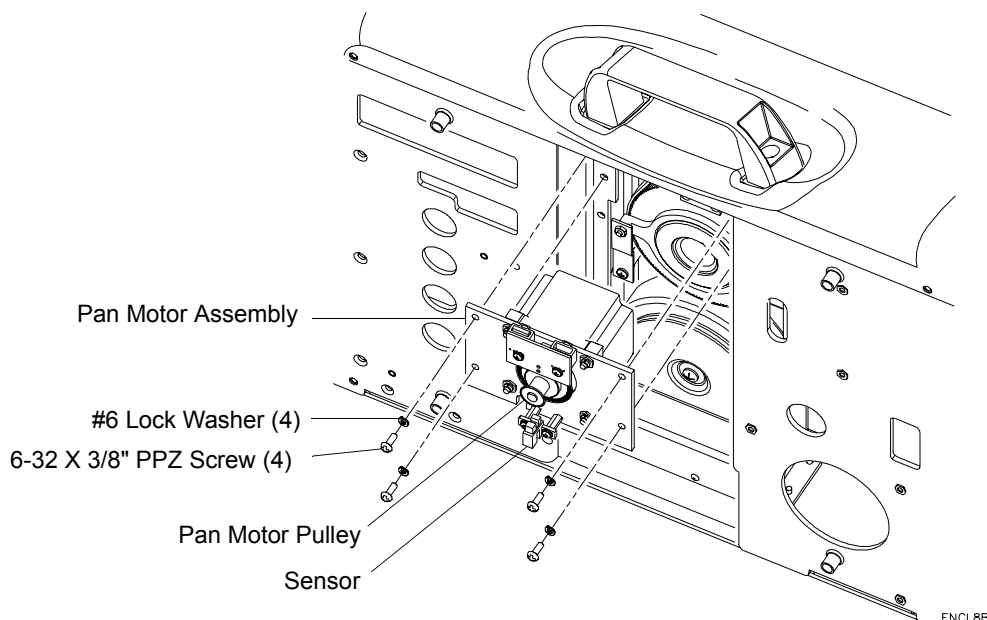


Figure 2-27: Pan Motor Assembly Replacement

Step 6. Slip belt off pan motor pulley.

Step 7. Pull pan motor assembly part way out of enclosure, and disconnect sensor and motor wire connectors.

Step 8. Remove pan motor assembly.



CAUTION: Ensure no wire will be pinched between mounting plates before securing replacement pan motor assembly with screws.

Step 9. Install replacement pan motor assembly by performing Steps 2–8 in reverse order.

Main Controller PCB Assembly Replacement

Parts:

PCB ASSY, MAIN CONTROLLER 3-PHASE (24.9661.1225)

Tools:

Screwdriver, #2 Phillips

To remove and replace main controller PCB assembly:



CAUTION: Always use anti-static precautions when working with PCBs.



WARNING: All maintenance procedures are to be performed with power removed from the luminaire.

- Step 1. Disconnect luminaire AC input cable from power source.
- Step 2. At enclosure, remove power supply-side and ventilation covers. Refer to “Removing Enclosure Covers” on page 41.
- Step 3. At main controller PCB, disconnect wiring.

Location	Connector
J2	8-Pos Red MTA
J3	2-Pos Blue MTA (Fan)
J5	6-Pos White Connector (dual row)
J6	4-Pos White Connector (dual row)
J7	4-Pos Red MTA
J9	20-Pos Black Connector (dual row)

- Step 4. At top of PCB, remove two 6-32 X 5/16" PPZ screws and remove PCB (Figure 2-28).

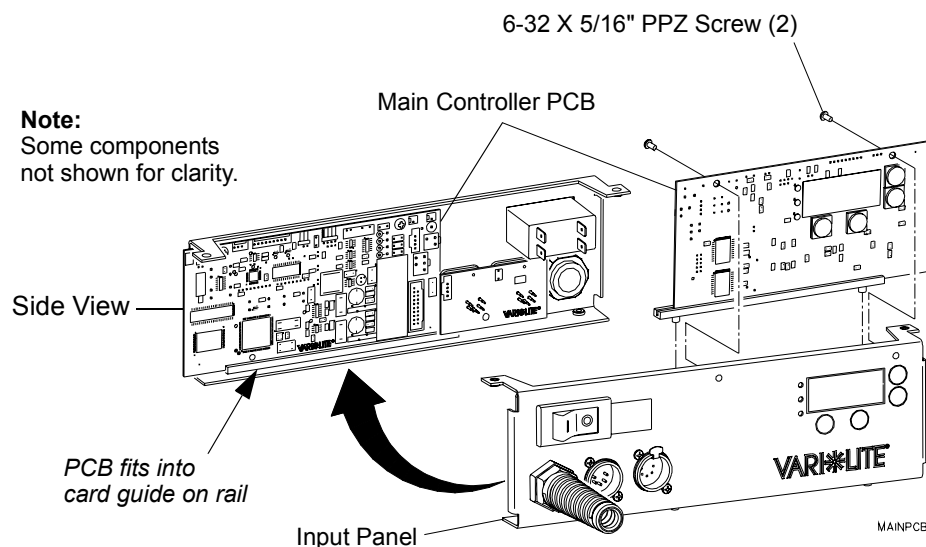


Figure 2-28: Main Controller PCB Assembly Replacement

- Step 5. Install replacement main controller PCB assembly by performing Steps 2–4 in reverse order. (Ensure that bottom of main controller PCB is fitted into card guide on rail.)

DMX Input PCB Assembly Replacement

Parts:

PCB ASSY, DMX INPUT (24.9661.1251)

Tools:

Screwdriver, #2 Phillips

To remove and replace DMX Input PCB assembly:



CAUTION: Always use anti-static precautions when working with PCBs.



WARNING: All maintenance procedures are to be performed with power removed from the luminaire.

- Step 1. Disconnect luminaire AC input cable from power source.
- Step 2. At enclosure, remove power supply-side and ventilation covers. Refer to “Removing Enclosure Covers” on page 41.
- Step 3. At DMX input PCB assembly, disconnect wiring connector at J3.
- Step 4. At connector panel, remove four M3 X 5MM PPB screws which secure DMX input PCB assembly to connector panel, and remove PCB assembly (Figure 2-29).

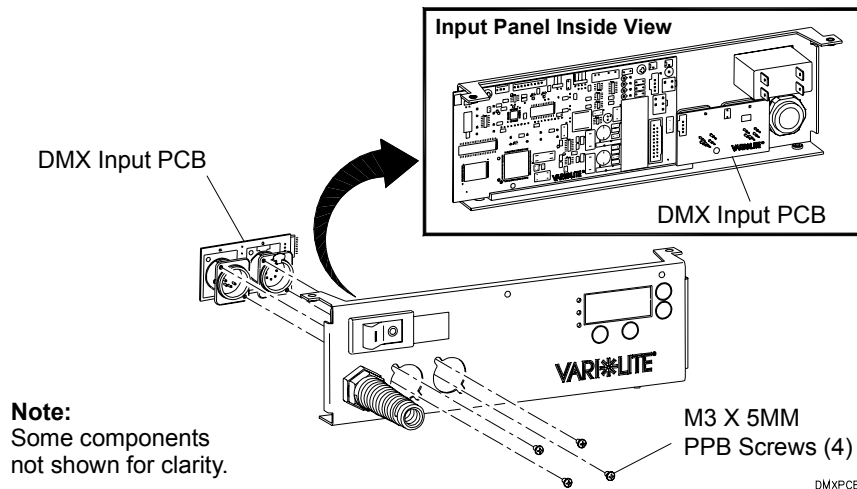


Figure 2-29: DMX Input PCB Assembly Replacement

- Step 5. Install replacement DMX input PCB assembly by performing Steps 2–4 in reverse order.

Cleaning Lens

Tools:

99% Isopropyl alcohol (commercial grade)
Clean, white, lint-free cloth
Cotton gloves

To clean lens:

WARNING: All maintenance procedures are to be performed with power removed from the luminaire.

Step 1. Disconnect AC input cable from power source.



CAUTION: Use caution when handling lens. Avoid touching or scratching optical surfaces.

Step 2. Apply a small amount of isopropyl alcohol to a clean, white, lint-free cloth.

Step 3. Clean lens by gently wiping with cloth.

Step 4. Repeat Step 3 several times, using a new clean cloth each time.

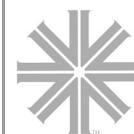
Notes

CHAPTER 3.

Illustrated Parts Breakdown

This chapter contains illustrated parts breakdowns for all VL2000 wash luminaire assemblies.

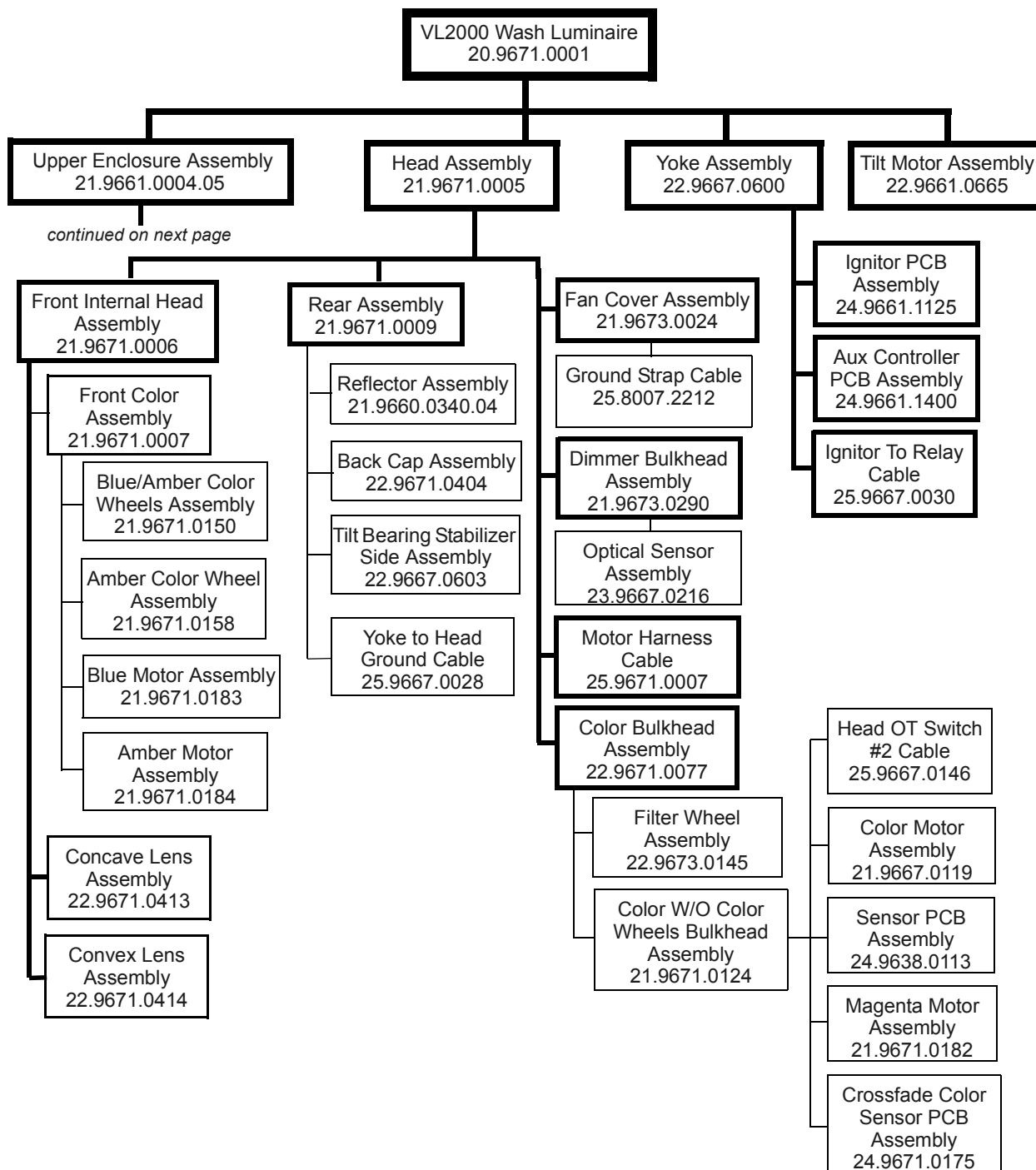
- **Drawing Tree**
- **Top Assembly**
- **Head**
- **Yoke**
- **Enclosure**
- **Cables**



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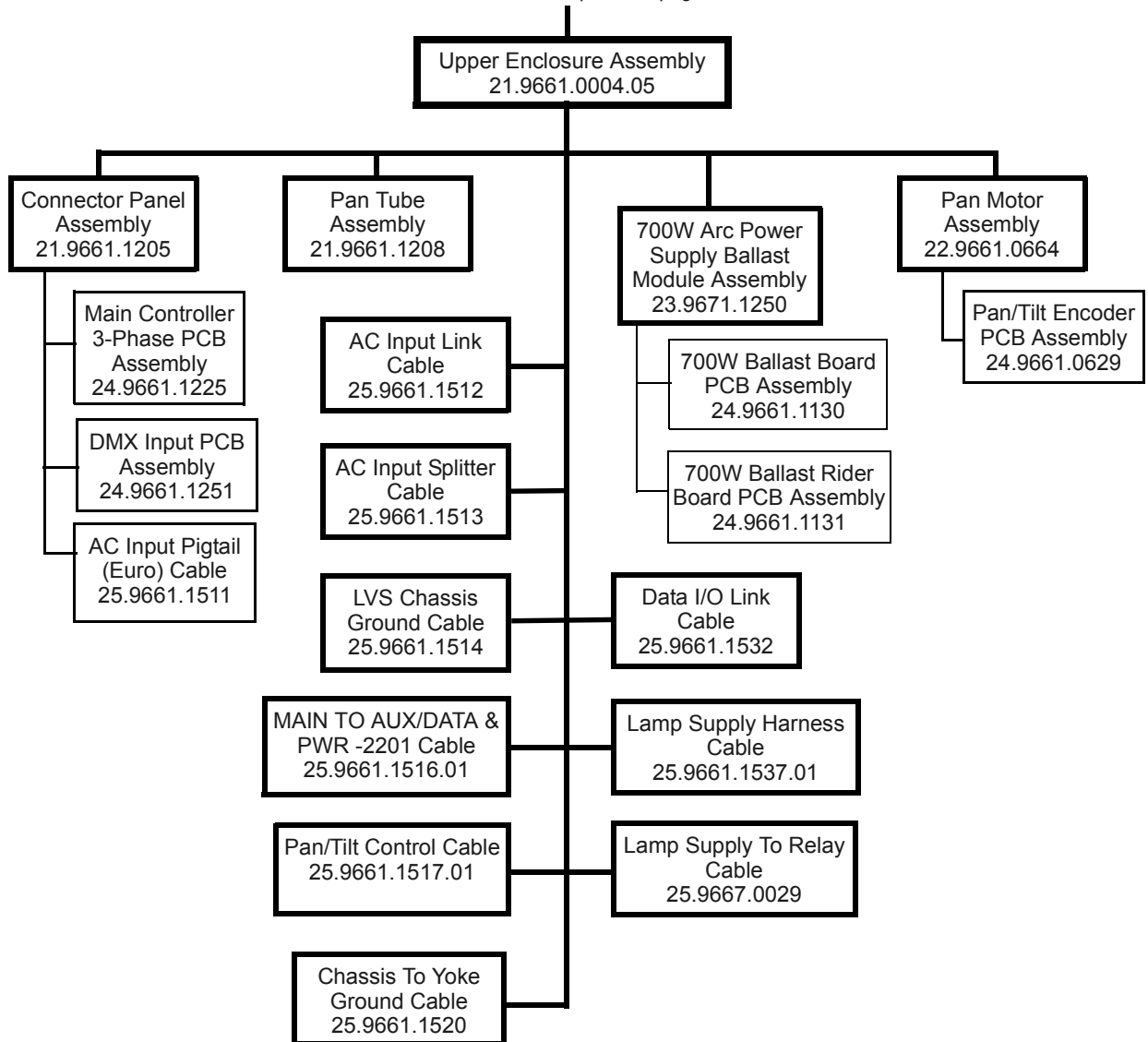
Drawing Tree

VL2000 Wash Luminaire (20.9671.0001)



VL2000 Wash Luminaire (20.9671.0001) (cont.)

continued from previous page



Top Assembly

Included Items Kit

28.9671.0001 Rev H

Refer to Figure 3-1.

No.	Item	Qty.	UM.	Description
1	02.8001.0001	1	EA	PRODUCT SUPPORT SHEET, VARI-LITE CUSTOMER SERVICE
2	02.8052.0001	1	EA	CARD, LIMITED WARRANTY (09-09-02)
3	02.8406.0001	1	EA	TAG, LAMP NOTICE (added 09-03-03)
4	02.8700.0001	1	EA	CARD, PRODUCT REGISTRATION - VL2000
5	02.9671.0002	1	EA	UNPACK/QUICK START SHEET, VL2000
6	07.9667.0035	1	EA	SHIPPING BOX, CARDBOARD - VL2000
7	08.2000.0001	1	EA	CD-ROM, VL2000 LUMINAIRE
8	22.9661.1636	2	EA	FAB ASSY, BRACKET TRUSS HOOK
9	71.2528.0700	1	EA	700 WATT SHORT ARC-PHILIPS MSR575HR LAMP

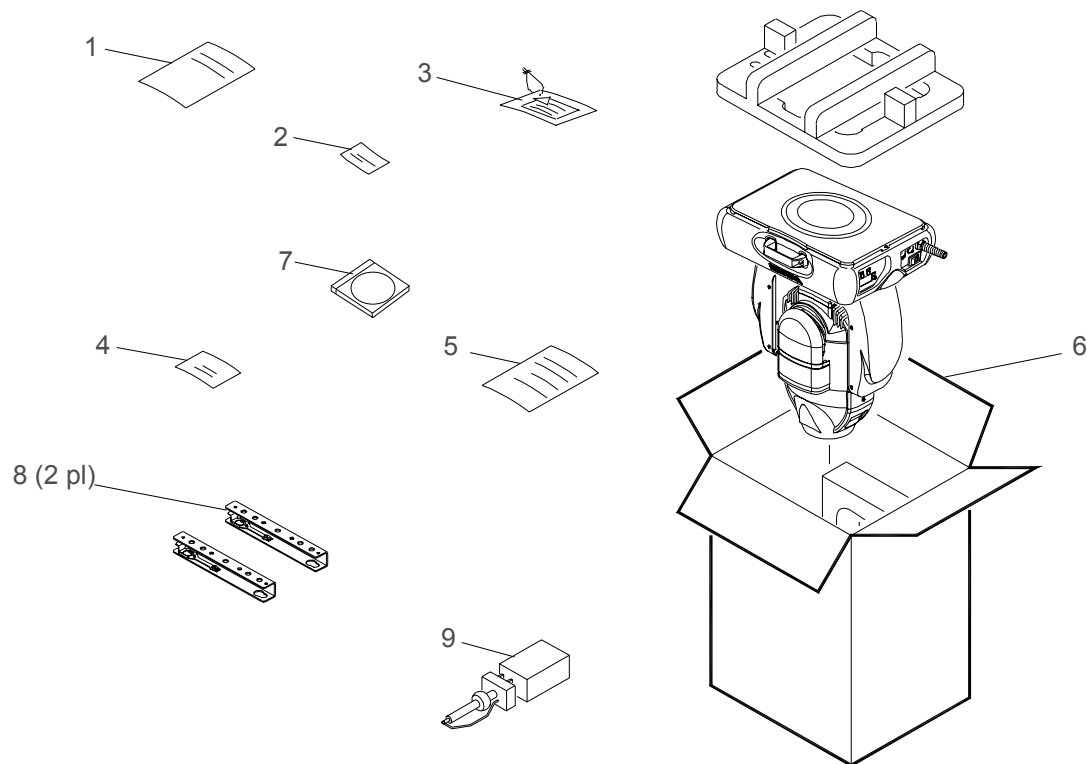


Figure 3-1: Included Items Kit

Top Assembly

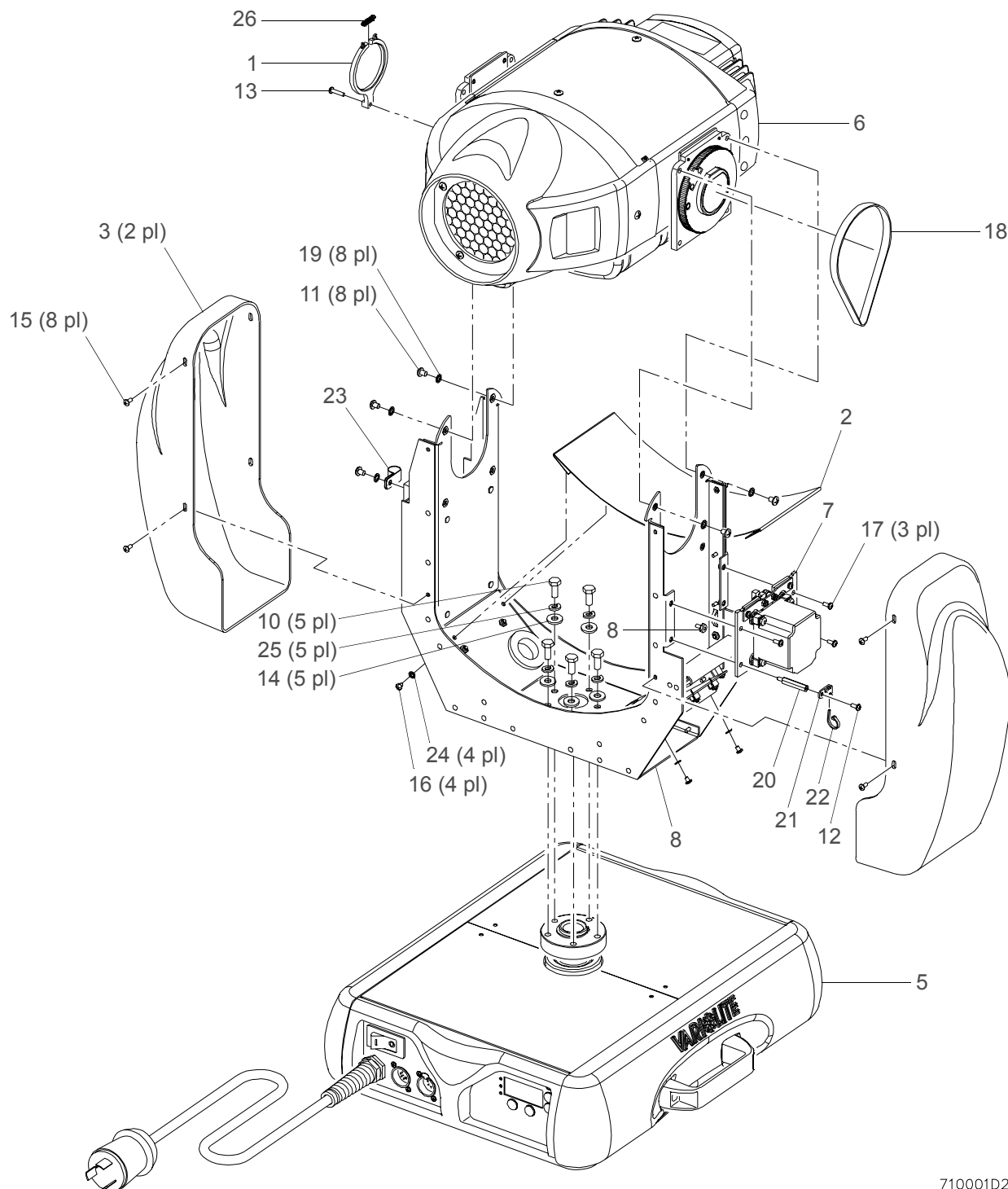
VL2000 Wash Luminaire

20.9671.0001 Rev D

Refer to Figure 3-2.

No.	Item	Qty.	UM.	Description
1	10.9628.0211	1	EA	STABILIZER, PAN/TILT
2	10.9667.0617	1	EA	HEAT SHIELD, YOKE CROSSMEMBER
3	10.9667.0632	2	EA	COVER, YOKE THERMOFORM
4	16.9671.0004	1	EA	LABEL LOCATION, VL2000 WASH LUMINAIRE
5	21.9661.0004.05	1	EA	ASSY, UPPER ENCLOSURE VL2202 700W
6	21.9671.0005	1	EA	HEAD ASSY
7	22.9661.0665	1	EA	ASSY, TILT MOTOR
8	22.9667.0600	1	EA	ASSY, YOKE
9	53.2002.0001	1	EA	NUT, 6-32 KEP ZINC PLATED
10	53.6505.0020	5	EA	BOLT, 1/4-28 X 3/4" HX GRD 8 ZINC PLT FULL THRD
11	53.6517.0001	8	EA	SCREW, 10-32 X 3/8" PPZ
12	53.6525.0001	1	EA	SCREW, 6-32 X 5/16" PPZ
13	53.6526.0001	1	EA	SCREW, 6-32 X 5/8" PPZ
14	53.6539.0008	5	EA	WASHER, 1/4" FLAT SS
15	53.6543.0001	8	EA	SCREW, 6-32 X 3/8" PPB
16	53.6608.0003	4	EA	SCREW, 6-32 X 3/16" LG PPZ (VL-1)
17	53.6610.0005	3	EA	SCREW, 6-32 X 7/16" PPB
18	54.2039.0001	1	EA	BELT, GT TIMING 2MM PITCH 182GRV 9MM WD NYL CVRD FBRGLS NEOP
19	55.2114.0001	8	EA	WASHER, #10 LOCK INT TOOTH
20	55.2132.0006	1	EA	STANDOFF, 1/4" HEX 6-32 1.188" LG M/F SS
21	55.2178.0001	1	EA	CABLE ANCHOR MOUNT, #8 SCREW MOUNTING
22	55.2186.0001	1	EA	CABLE TIE, .10" WD 4.00" LG SMALL
23	55.2191.0001	1	EA	CABLE CLAMP, 1/2" WIDE, 5/8" CABLE
24	55.6538.0001	4	EA	WASHER, #6 LOCK INTERNAL TOOTH
25	55.6549.0001	5	EA	WASHER, 1/4" SPLIT LOCK
26	55.6603.0001	1	EA	SPRING, SS 4.6#/IN. EXTENSION

VL2000 Wash Luminaire (cont.)



710001D2

Figure 3-2: VL2000 Wash Luminaire

Head

Head Assembly

21.9671.0005 Rev E

Refer to Figure 3-3.

No.	Item	Qty.	UM.	Description
1	21.9667.0023	1	EA	ASSY, FRONT COVER
-	10.9660.0332	2	EA	PANEL, VENT COVER
-	10.9660.0333	2	EA	FILTER, AIR FRONT COVER
-	12.9667.0020	1	EA	MACHINED, FRONT COVER
-	53.6534.0004	2	EA	RIVET, 3/32" OD POP 3/16 GRIP L STEEL
-	53.6633.0002	4	EA	SCREW, #4 X 3/8" PFZ SHT METAL
-	55.2233.0001	1	EA	RECEPTACLE, 1/4 TURN
2	21.9671.0006	1	EA	FRONT INTERNAL HEAD ASSY
3	21.9671.0009	1	EA	ASSY, REAR
4	21.9673.0024	1	EA	ASSY, FAN COVER
5	21.9673.0290	1	EA	DIMMER BULKHEAD ASSY
6	22.9667.0031	1	EA	ASSY, TOP COVER REMOVABLE
-	10.9638.0233	1	EA	TETHER, REMOVABLE COVER
-	10.9660.0710	1	EA	COVER, REMOVABLE
-	55.2233.0003	2	EA	RETAINER, PUSH-ON TYPE
-	55.2233.0008	1	EA	STUD, 1/4 TURN .495" L STEEL BLK ZINC
-	55.2233.0014	1	EA	STUD, 1/4 TURN .615" L STEEL BLK ZINC
7	22.9671.0077	1	EA	BULKHEAD ASSY, COLOR
	25.9671.0007	1	EA	CABLE ASSY, MOTOR HARNESS (not shown)
8	53.5604.0250	1	EA	SCREW, 4-40 X 1/4" PPSS BLK
9	53.6525.0001	4	EA	SCREW, 6-32 X 5/16" PPZ
10	53.6558.0001	4	EA	SCREW, 6-32 X 3/8" PPZ
11	53.6625.0001	2	EA	SCREW, 10-32 X 1/2" PPB
12	55.3301.0006	2	EA	WASHER, #6 FLAT SS
13	55.3303.0004	1	EA	WASHER, #4 LOCK INT. TOOTH SS
14	55.3303.0006	6	EA	WASHER, #6 LOCK INT. TOOTH SS
15	55.6596.0009	2	EA	CLAMP, CABLE 3/8" SS W/WHITE SILICONE CUSHION
16	55.6621.0001	1	EA	WASHER, #4 FLAT ZINC

Head Assembly (cont.)

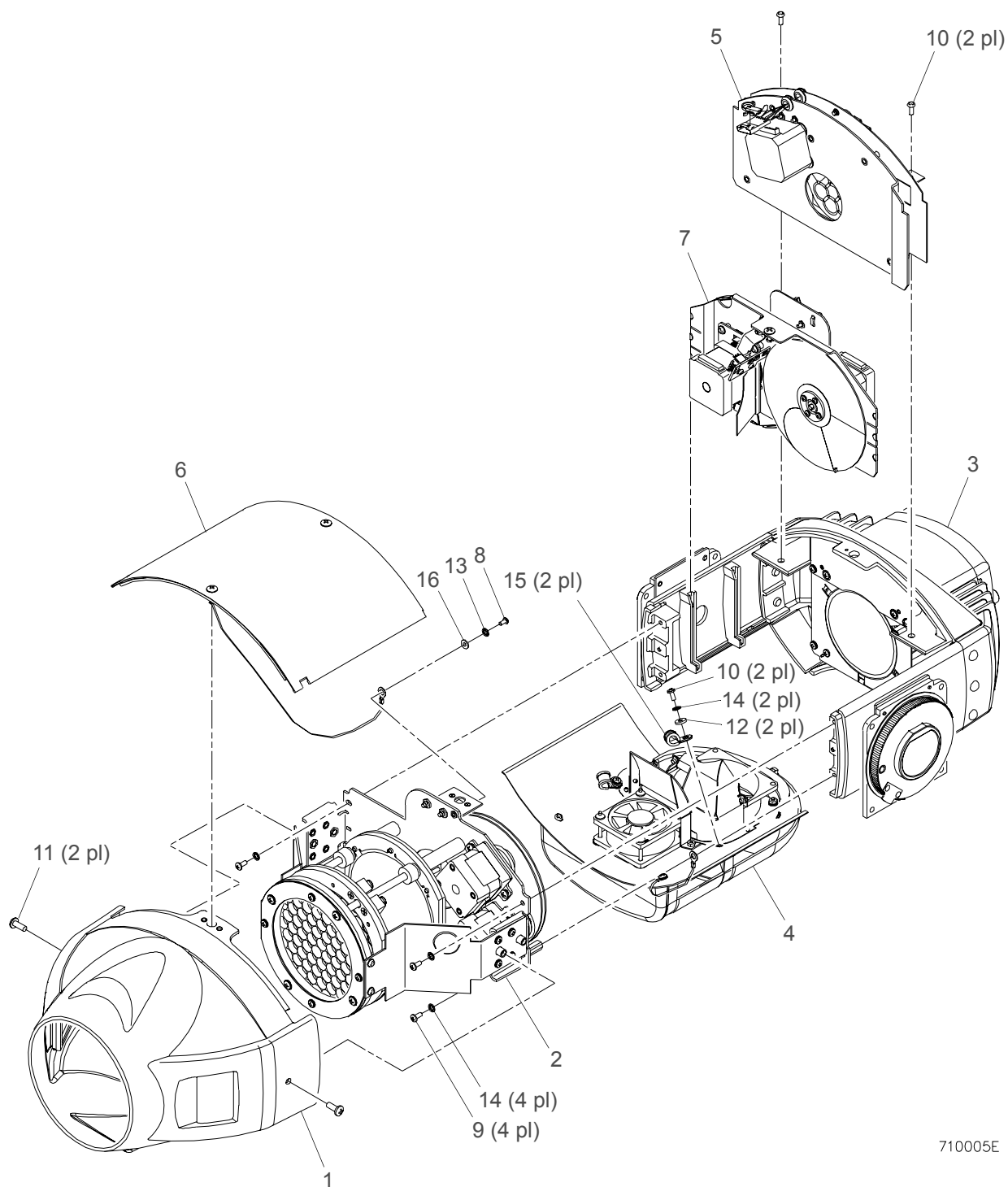


Figure 3-3: Head Assy

Front Internal Head Assembly

21.9671.0006 Rev E

Refer to Figure 3-4.

No.	Item	Qty.	UM.	Description
1	10.9671.0223	4	EA	SHAFT COLLET
2	10.9671.0313	2	EA	LENS SUPPORT ARM
3	21.9671.0007	1	EA	FRONT COLOR ASSY
4	21.9671.0492	1	EA	ASSEMBLY, FRONT LENS (added 11-08-02)
5	22.9671.0402	1	EA	100MM CONDENSER LENS
6	22.9671.0414	1	EA	ASSY, CONVEX LENS
7	53.2200.0004	1	EA	NUT, 4-40 KEPS SS
8	53.5558.0188	8	EA	SCREW, 8-32 X .188" SET SS BRASS TIP UNC-2A
9	53.6543.0003	4	EA	SCREW, 6-32 X 3/16" PPB
10	53.6552.0002	4	EA	SCREW, 8-32 X 1/2" PPB
11	53.6608.0003	8	EA	SCREW, 6-32 X 3/16" LG PPZ
12	55.3303.0006	12	EA	WASHER, #6 LOCK INT.TOOTH SS
13	55.6506.0019	4	EA	SPACER, 1/2" RND 1.844" LG .257" ID SS BLK
14	55.6520.0001	4	EA	WASHER, WAVE SPRING .265" ID .367" OD .006" THK 302SS
15	55.6662.0001	2	EA	HOLE PLUG, 3/4" BRASS W/BLK OXIDE

Front Internal Head Assembly (cont.)

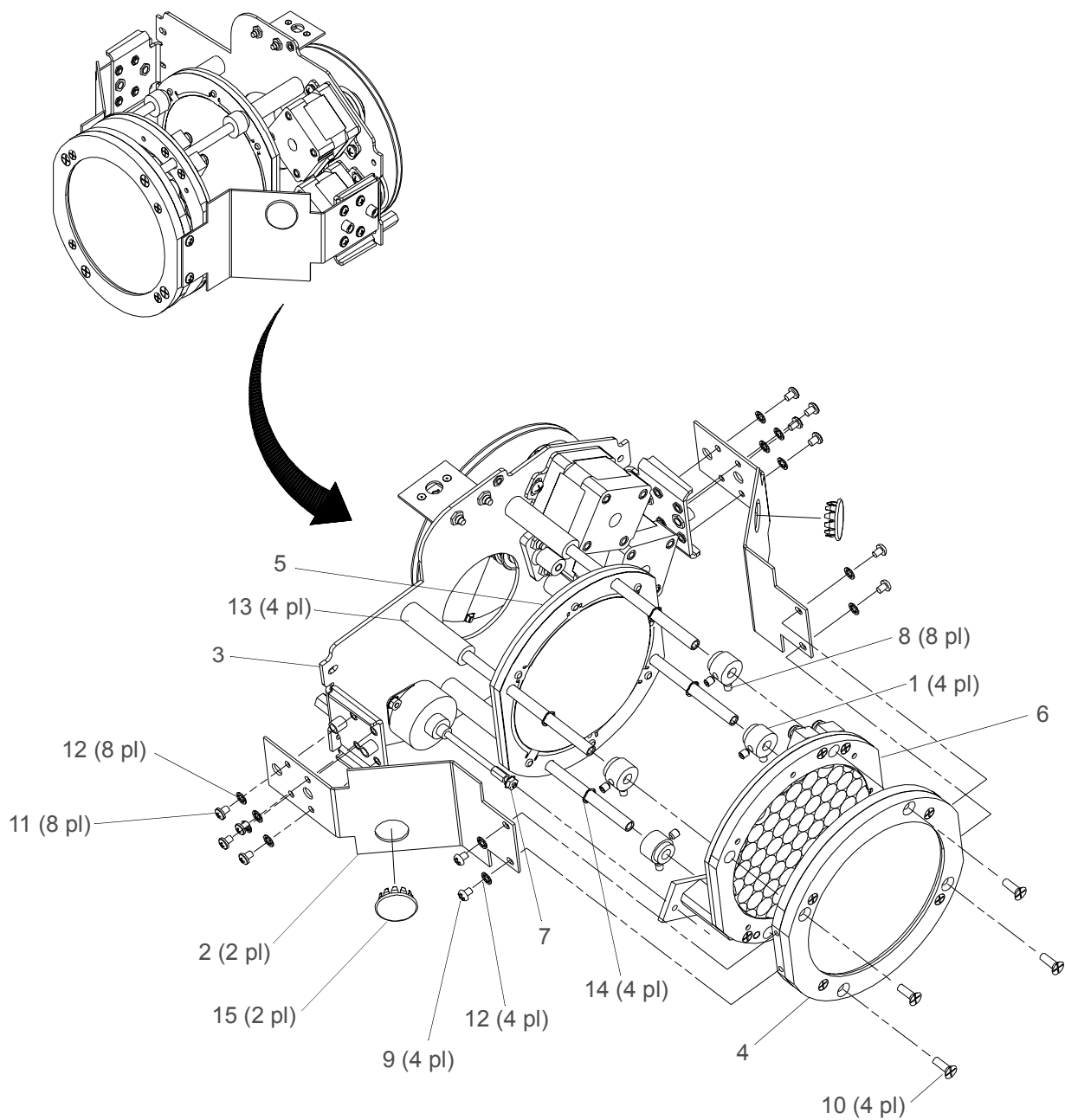


Figure 3-4: Front Internal Head Assembly

Front Color Assembly

21.9671.0007 Rev F

Refer to Figure 3-5.

No.	Item	Qty.	UM.	Description
1	10.9671.0219	4	EA	LENS SHAFT
2	10.9671.0347	1	EA	MOUNTING BRACKET, HEAD, FRONT
3	21.9671.0150	1	EA	ASSY, BLUE/AMBER COLOR WHEELS
4	21.9671.0173	1	EA	ASSY, BLOCK/SHAFT
-	10.9671.0171	1	EA	SHAFT, BLUE/AMBER COLOR WHEELS
-	10.9671.0172	1	EA	BLOCK, MOUNTING, SHAFT
5	21.9671.0183	1	EA	MOTOR ASSY, BLUE
6	21.9671.0184	1	EA	MOTOR ASSY, AMBER
7	22.9667.0337	1	EA	ASSY, 1/4 TURN MOUNTING BRACKET
8	22.9671.0468	1	EA	ASSY, MOTOR -BEAM SPREADER
-	44.9671.0467	1	EA	MOTOR, 1/4" LINEAR
-	52.6579.0004	1	EA	CONN, 4CIR PNL MT SGL ROW W/MTG EARS
-	52.8347.0001	4	EA	CONTACT, 24-30AWG MALE CRIMP
9	53.2200.0004	2	EA	NUT, 4-40 KEPS SS
10	53.6521.0001	5	EA	SCREW, 8-32 X 1/2" PPB
11	53.6545.0004	4	EA	SCREW, 8-32 X 3/8" PPZ
12	53.6558.0001	2	EA	SCREW, 6-32 X 3/8" PPZ
13	53.6687.0375	4	EA	SCREW, 8-32 x 3/8" LG UNDERCUT (changed 12-10-03)
14	54.2044.0001	2	EA	BELT, TIMING MXL .080" PITCH 93 TOOTH 1/8" WD
15	55.2203.0001	2	EA	SCREW, 4-40 X 1/4"PPZ
16	55.2234.0001	1	EA	E-RING, .188 SHAFT DIA. CAR SPR STL
17	55.6503.0001	2	EA	WASHER, #8 LOCK INT TOOTH
18	55.6578.0003	2	EA	STANDOFF, 5/16" HEX 8-32 1.500" LG FF ALUM
19	55.6677.0034	1	EA	WASHER, .500" OD .187" ID .045" THK FLAT TEFLON
20	55.6706.0001	1	EA	GROMMET, 9/32" ID 9/16" OD 1/4T SILICONE RED

Front Color Assembly (cont.)

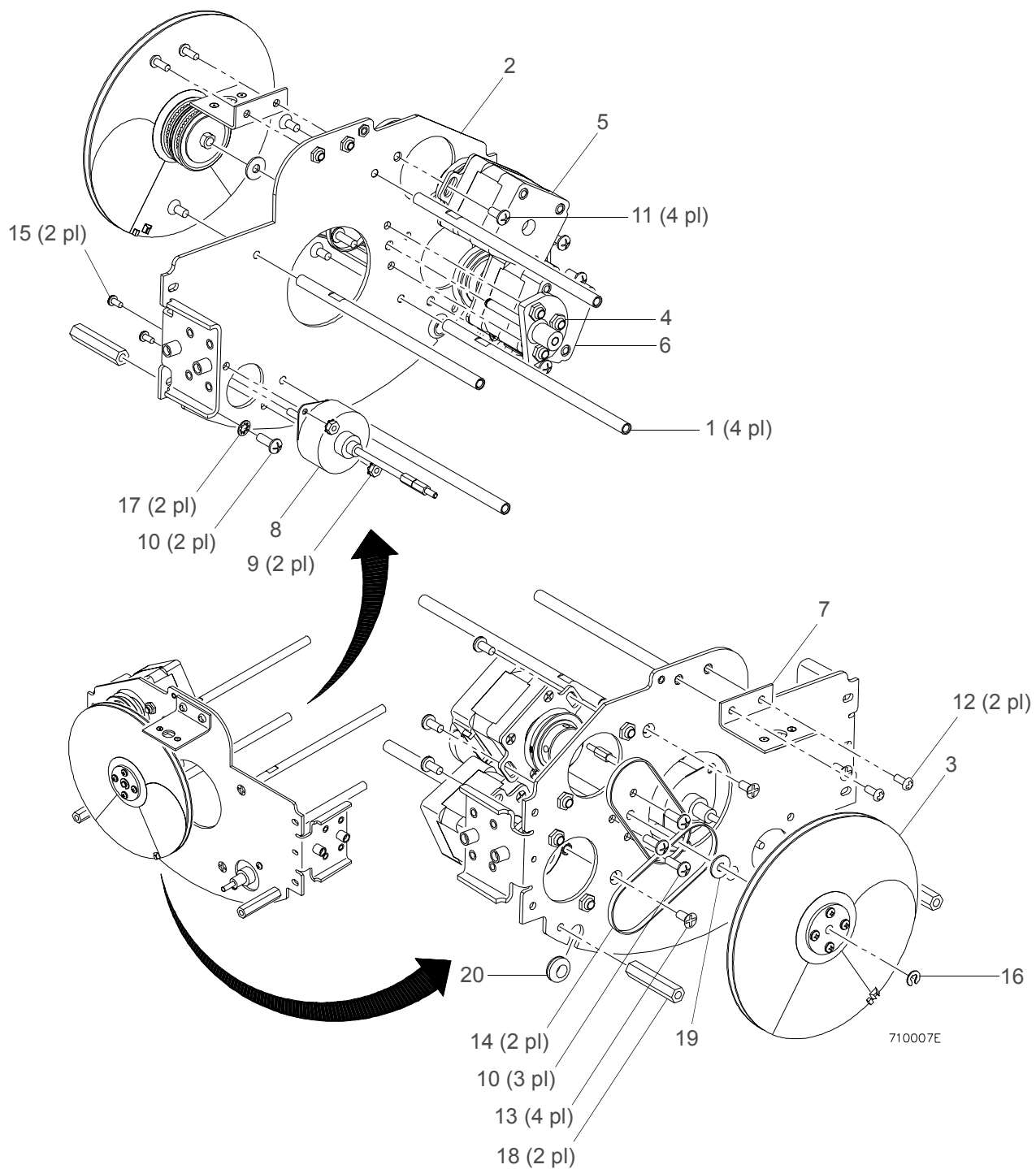


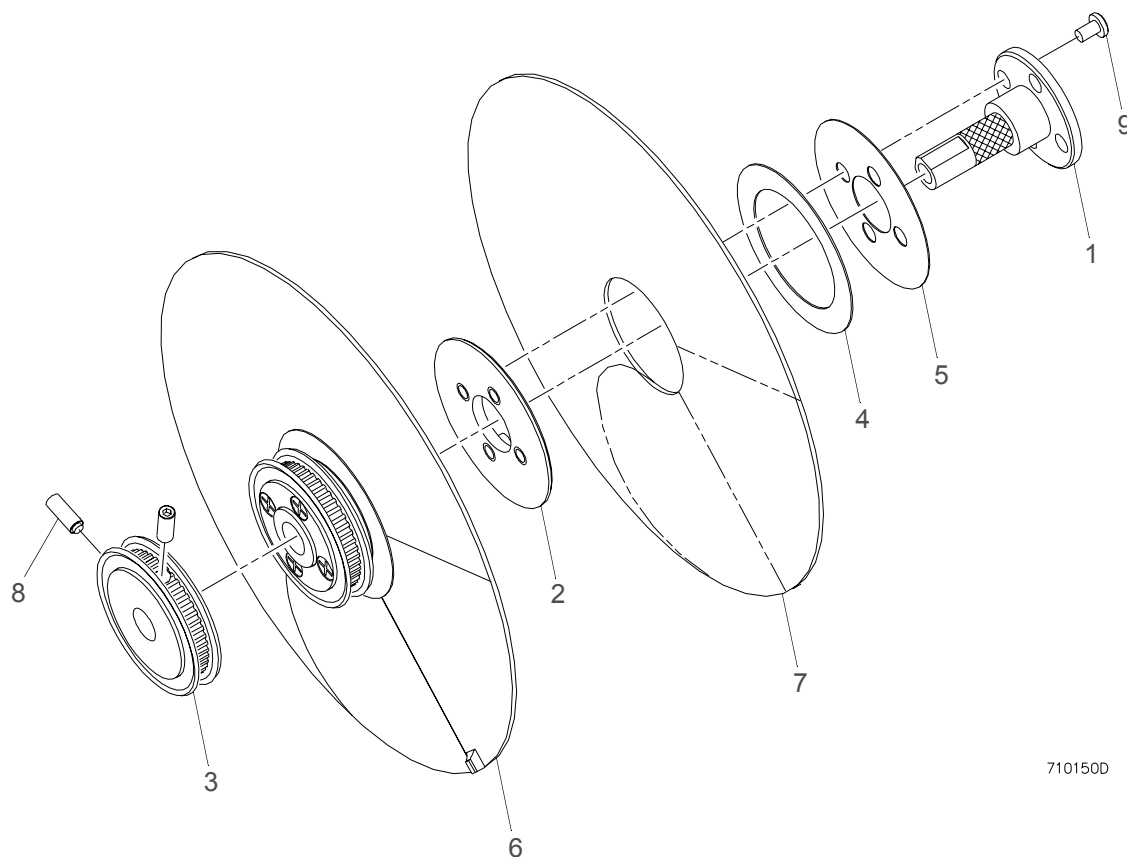
Figure 3-5: Front Color Assembly

Blue/Amber Color Wheels Assembly

21.9671.0150 Rev D

Refer to Figure 3-6.

No.	Item	Qty.	UM.	Description
1	10.9671.0190	1	EA	BUSHING, BLUE/AMBER
2	10.9671.0191	1	EA	HUB ASSY, BLUE WHEEL
3	10.9671.0194	1	EA	PULLEY, BLUE COLOR WHEEL
4	10.9671.0198	1	EA	GASKET, COLOR WHEELS
5	10.9671.0199	1	EA	SPRING, COLOR WHEELS
6	21.9671.0158	1	EA	ASSY, AMBER COLOR WHEEL
7	21.9671.0162	1	EA	GLASS ASSY, BLUE COLOR WHEEL
8	53.5558.0376	2	EA	SCREW, SET 6-32 X .375" HALF-DOG
9	53.6597.0001	4	EA	SCREW, 4-40 X 3/16" PPZ



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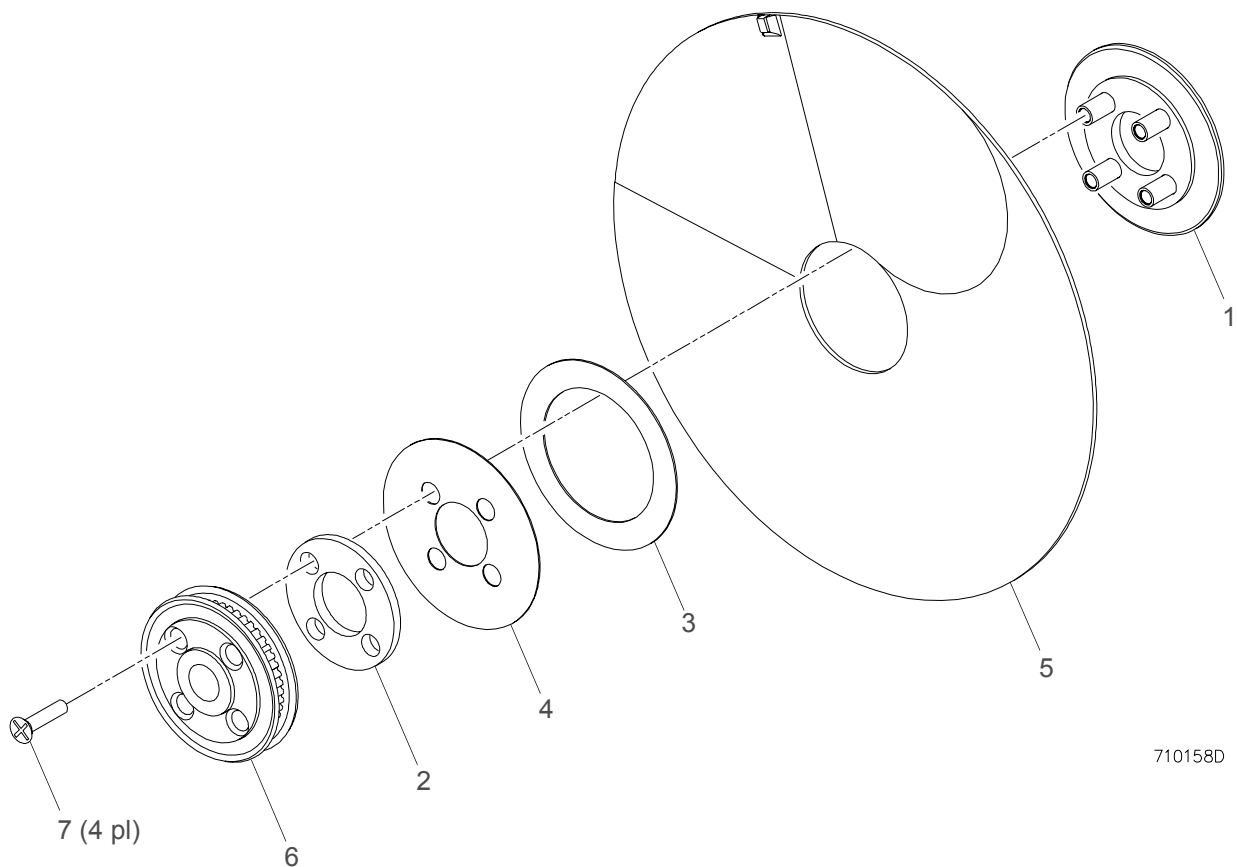
Figure 3-6: Blue/Amber Assembly

Amber Color Wheel Assembly

21.9671.0158 Rev D

Refer to Figure 3-7

No.	Item	Qty.	UM.	Description
1	10.9671.0192	1	EA	HUB ASSY, AMBER COLOR WHEEL
2	10.9671.0196	1	EA	SPACER, CLAMP
3	10.9671.0198	1	EA	GASKET, COLOR WHEELS
4	10.9671.0199	1	EA	SPRING, COLOR WHEELS
5	21.9671.0163	1	EA	GLASS ASSY, AMBER COLOR WHEEL
6	22.9671.0506	1	EA	PULLEY ASSY, AMBER COLOR WHEEL
7	53.6536.0001	4	EA	SCREW, 4-40 X 1/2" PFZ



710158D

Figure 3-7: Amber Color Wheel Assembly

Amber Color Wheel Pulley Assembly

22.9671.0506 Rev 0

Refer to Figure 3-8

No.	Item	Qty.	UM.	Description
1	10.9671.0193	1	EA	PULLEY, AMBER COLOR WHEEL
2	54.1251.0001	1	EA	BEARING, FLANGED 5/16" ID X 3/8" LG SINTERED BRONZE

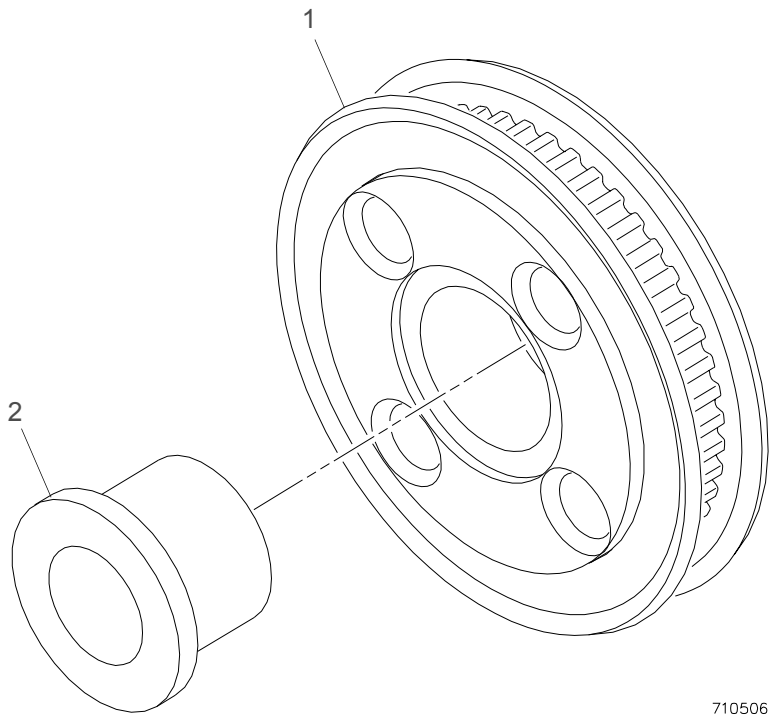


Figure 3-8: Amber Color Wheel Pulley Assembly

Blue Motor Assembly

21.9671.0183 Rev C

Refer to Figure 3-9.

No.	Item	Qty.	UM.	Description
1	10.9671.0187	1	EA	BRACKET, MOTOR ADJUSTABLE
2	44.5031.0001	1	EA	MOTOR, STEPPER 42MM X 40MM, 10 OHM CUSTOM WINDINGS
3	53.6513.0023	4	EA	SCREW, M3X 8MM LG PFZ METRIC
4	53.6558.1188	2	EA	SCREW, 6-40 X .188" SET CUPPED BLK OXIDE
5	54.1246.0001	1	EA	BORE REDUCER, 1/4" TO 5MM 5/8" LG
6	54.2042.0001	1	EA	PULLEY, TIMING .080 PITCH 48 TOOTH 1/8" WIDE

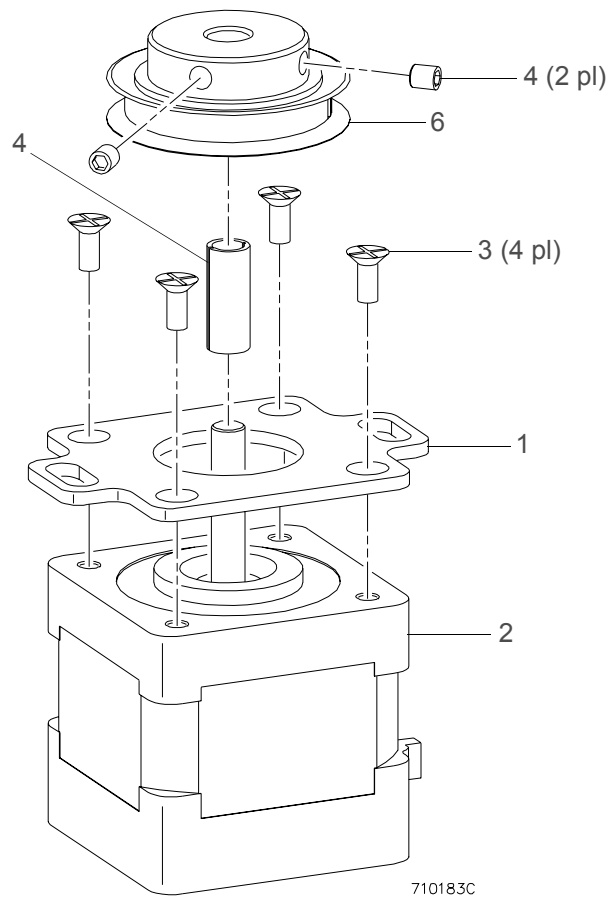


Figure 3-9: Blue Motor Assembly

Amber Motor Assembly

21.9671.0184 Rev C

Refer to Figure 3-10.

No.	Item	Qty.	UM.	Description
1	10.9671.0187	1	EA	BRACKET, MOTOR ADJUSTABLE
2	44.5031.0001	1	EA	MOTOR, STEPPER 42MM X 40MM, 10 OHM CUSTOM WINDINGS
3	53.6513.0023	4	EA	SCREW, M3X 8MM PFZ METRIC
4	53.6558.1188	2	EA	SCREW, 6-40 X .188" SET CUPPED BLK OXIDE
5	54.1246.0001	1	EA	BORE REDUCER, 1/4" TO 5MM 5/8" LG
6	54.2042.0001	1	EA	PULLEY, TIMING .080 PITCH 48 TOOTH 1/8" WIDE

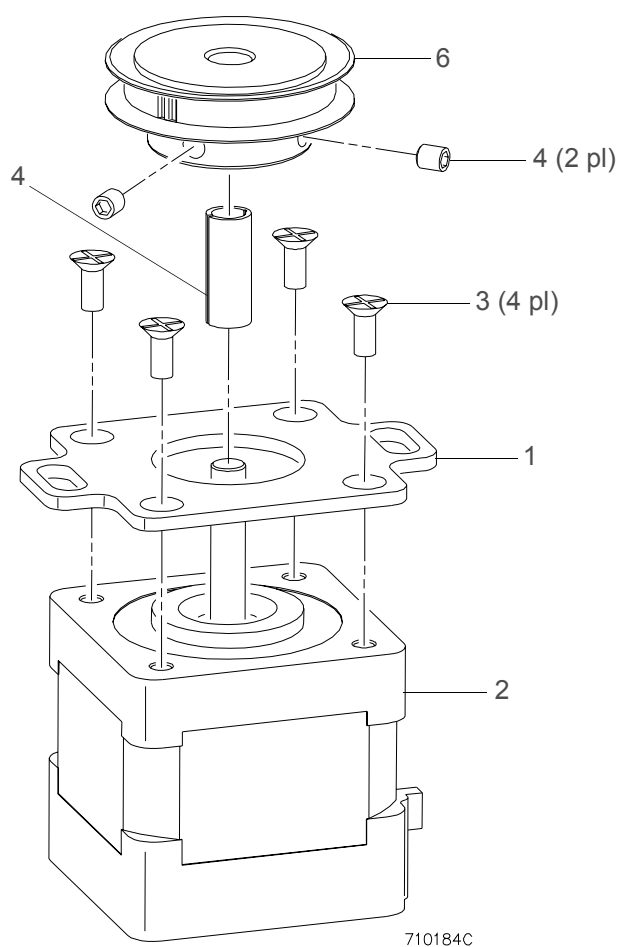


Figure 3-10: Amber Motor Assembly

Front Lens Assembly

21.9671.0492 Rev A

Refer to Figure 3-11.

No.	Item	Qty.	UM.	Description
1	10.9671.0409	1	EA	BACK CLAMP, CONCAVE LENS
2	10.9671.0421	2	EA	LENS GASKET
3	10.9671.0491	1	EA	FRONT CLAMP, CONCAVE LENS
4	12.9671.0418	1	EA	CONCAVE LENS, ARRAY SMALL MASKED
5	42.9671.0490	1	EA	LENS, FRONT STIPPLE
6	53.6611.0001	4	EA	SCREW, 6-32 X 1/2" PFB

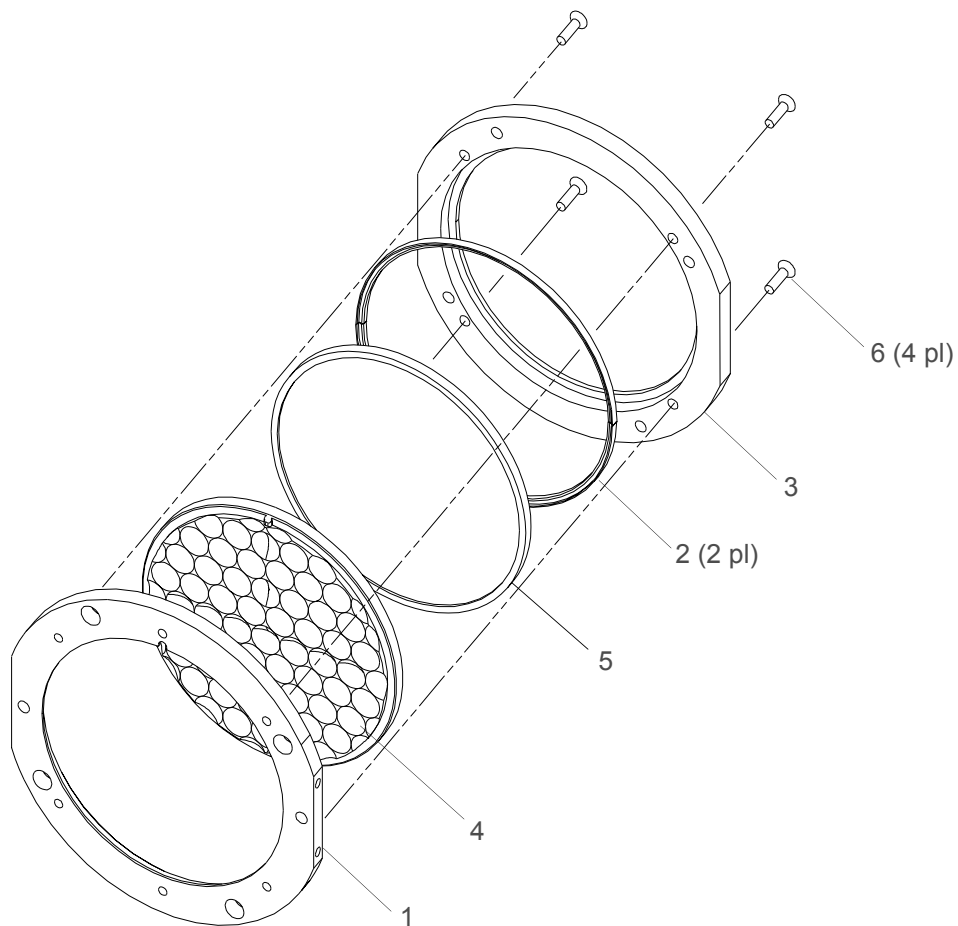


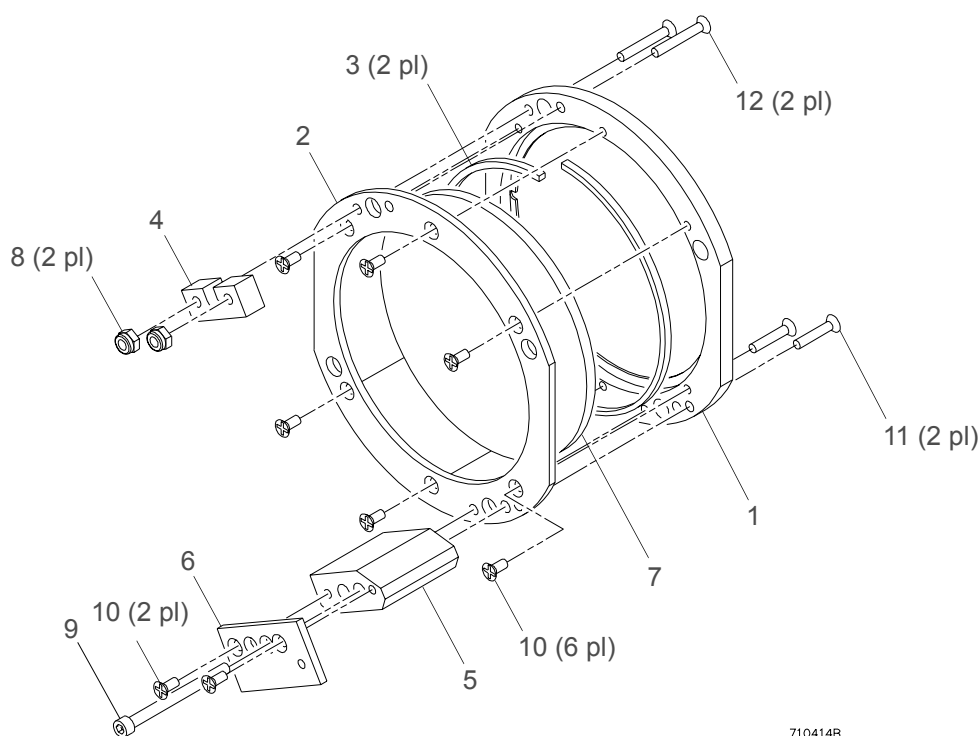
Figure 3-11: Concave Lens Assembly

Convex Lens Assembly

22.9671.0414 Rev B

Refer to Figure 3-12.

No.	Item	Qty.	UM.	Description
1	10.9671.0419	1	EA	FRONT CLAMP, CONVEX LENS
2	10.9671.0420	1	EA	BACK CLAMP, CONVEX LENS
3	10.9671.0421	2	EA	LENS GASKET
4	10.9671.0463	1	EA	BUSHING, CONVEX LENS SLOTTED
5	10.9671.0464	1	EA	BUSHING, CONVEX LENS DRIVE
6	10.9671.0465	1	EA	PLATE, DRIVE BUSHING
7	12.9671.0416	1	EA	MASKED, CONVEX LENS ARRAY SMALL
8	53.2202.0006	2	EA	NUT, 6-32 HEX SS NYLON INSERT
9	53.5808.2000	1	EA	SCREW, 8-32 X 2.00" LG SCSS CAP
10	53.6542.0001	8	EA	SCREW, 6-32 X 5/16" PFB
11	53.6608.0750	2	EA	SCREW, 6-32 X 3/4" LG PFB
12	53.6617.0002	2	EA	SCREW, 6-32 X 1" PFB



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Figure 3-12: Convex Lens Assembly

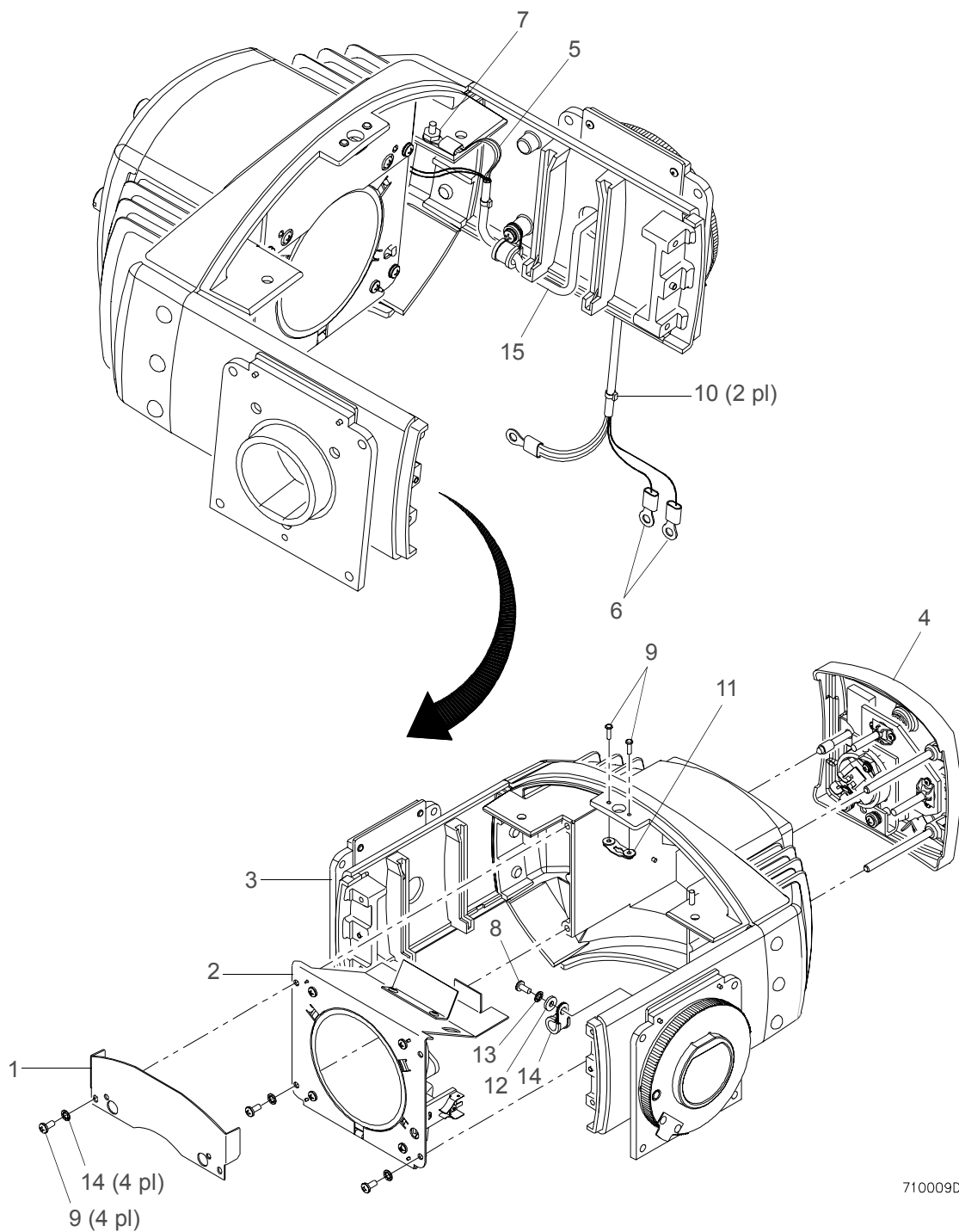
Rear Assembly

21.9671.0009 Rev D

Refer to Figure 3-13

No.	Item	Qty.	UM.	Description
1	10.9638.0052	1	EA	DAM, AIR, VL6
2	21.9660.0340.04	1	EA	ASSY, REFLECTOR -VL6/VL6B LUMINAIRE
3	22.9667.0036	1	EA	ASSY, TILT PULLEY/BEARING ASSY PRESS TO CASTING ASSY
4	22.9671.0404	1	EA	ASSY, BACK CAP
5	25.9667.0028	1	EA	CABLE ASSY, YOKE TO HEAD GND
6	52.8231.0005	2	EA	TERM, #6 RING 16-14AWG INS (LOOSE)
7	53.2002.0001	1	EA	NUT, 6-32 KEP ZINC PLATED
8	53.6525.0001	5	EA	SCREW, 6-32 X 5/16" PPZ
9	53.6534.0004	2	EA	RIVET, 3/32" OD POP 3/16 GRIP L STEEL
10	55.2186.0001	2	EA	CABLE TIE, .10" WD 4.00" LG SMALL
11	55.2233.0001	1	EA	RECEPTACLE, 1/4 TURN
12	55.3301.0006	1	EA	WASHER, #6 FLAT SS
13	55.3303.0006	5	EA	WASHER, #6 LOCK INT.TOOTH SS
14	55.6596.0009	1	EA	CLAMP, CABLE 3/8" SS W/WHITE SILICONE CUSHION
15	55.6699.0003	1.17	FT	SLEEVING, 1/2" NOM.DIA. POLY EXP BRAIDED

Rear Assembly (cont.)



710009D1

Figure 3-13: Rear Assembly

Tilt Pulley/Bearing Assembly

22.9667.0036 Rev F

Refer to Figure 3-14.

No.	Item	Qty.	UM.	Description
1	10.9667.0621	1	EA	SPACER FLANGE, TILT PULLEY
2	22.9667.0039	1	EA	ASSY, REAR CASTING & SIDE RAILS
3	22.9676.0086	3	EA	ASSY, TILT BEARING HOUSING
4	22.9667.0602	1	EA	ASSY, TILT PULLEY 150 TOOTH, 2MM PITCH
-	10.9667.0618	1	EA	TIMING PULLEY, 150 TOOTH 2MM PITCH 2.062 ID
-	10.9667.0620	1	EA	EOT FLAG, TILT - VL2201
-	53.6530.0004	2	EA	RIVET, 1/8" OD CSK .126-.250" CRB STL
-	55.6612.0023	1	EA	PIN, GRV .250"OD .500"LG STL ZINC PLTD

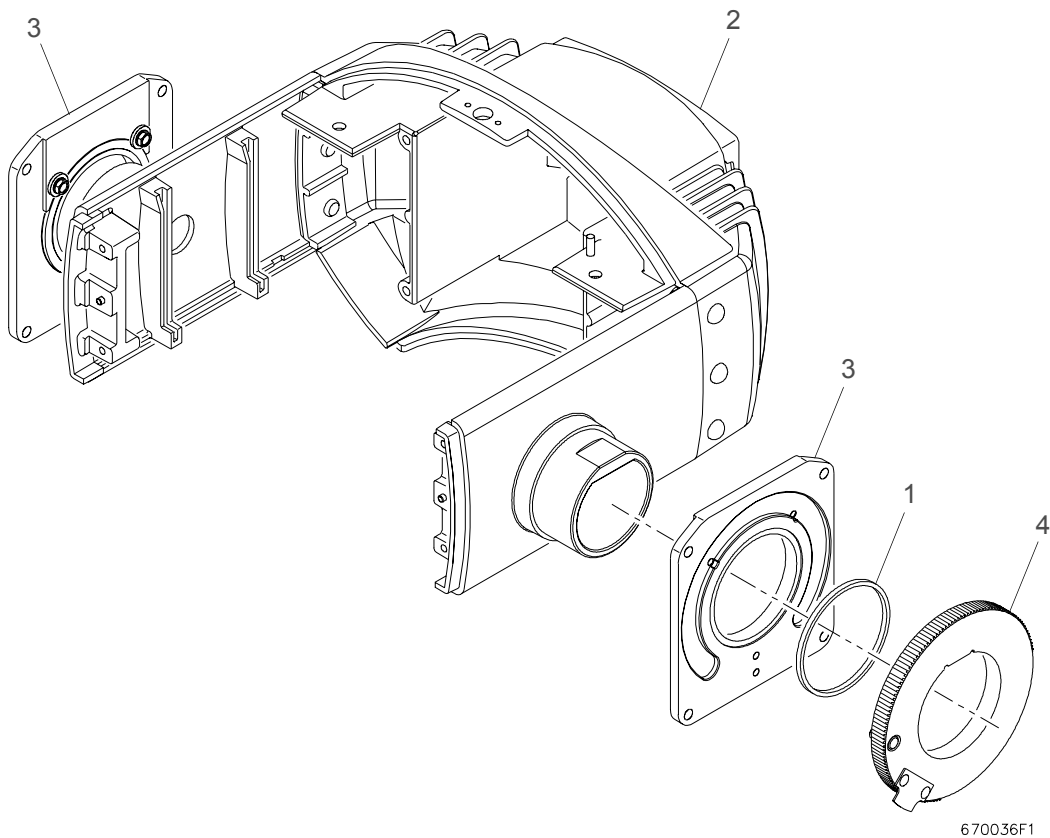


Figure 3-14: Tilt Pulley/Bearing Assembly

Tilt Bearing Housing Assembly

22.9676.0086 Rev 0

Refer to Figure 3-15

No.	Item	Qty.	UM.	Description
1	12.9676.0085	1	EA	HOUSING, TILT BEARING, MACHINED
2	53.6506.0001	1	EA	BEARING, TORQUE TUBE, 2.625 OD
3	53.6522.2500	3	EA	SCREW, 6-32 X 1/4 HEX MACH, UNSLOTTED, ZINC
4	55.3303.0006	3	EA	WASHER, #6 LOCK INT. TOOTH SS
5	55.6677.0006	3	EA	WASHER, .434 OD .156 ID .062 THK FLAT SS

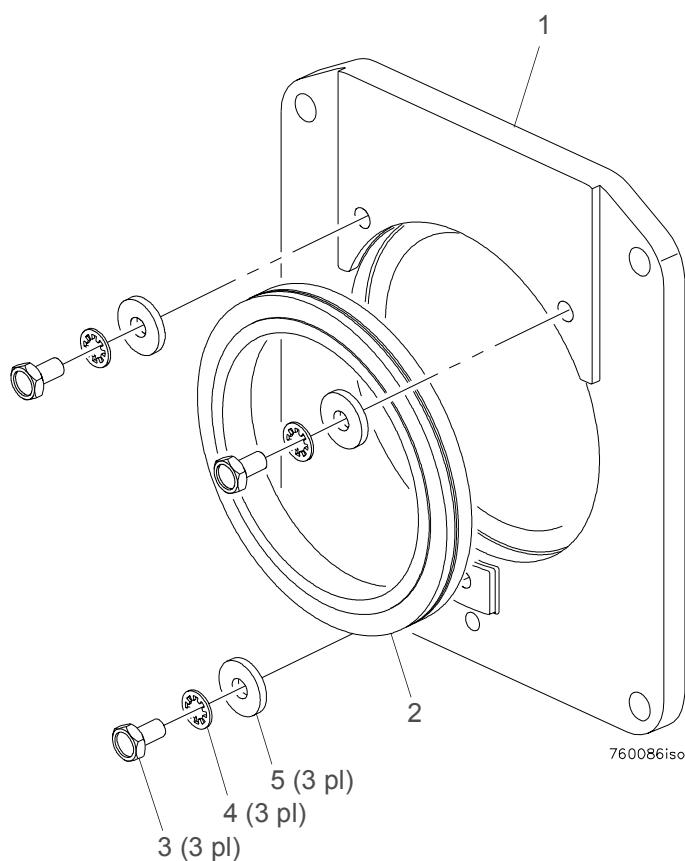


Figure 3-15: Tilt Bearing Housing Assembly

Reflector Assembly

21.9660.0340.04 Rev F

Refer to Figure 3-16.

No.	Item	Qty.	UM.	Description
1	10.9638.0057	4	EA	CLIP, MOUNTING, REFLECTOR
2	12.9660.0073	1	EA	ELLIPSOIDAL REFLECTOR W/ COATING
3	22.9673.0333	1	EA	MOUNT ASSY, REFLECTOR
4	22.9660.0338	1	EA	ASSY, DISCONNECT LAMP
-	10.9660.0335	1	EA	CONTACT, CONTACT DISCONNECT LAMP
-	10.9660.0336	1	EA	INSULATOR, DISCONNECT
-	53.6534.0365	2	EA	RIVET, 3/32"OD POP .365L .126-.250 GRIP AL5052
-	55.3301.0003	2	EA	WASHER, FLAT #2 AN, ID.099" X OD.250"
5	53.6525.0001	4	EA	SCREW, 6-32 X 5/16" PPZ
6	53.6599.0001	2	EA	SCREW, 4-40 X 3/8" PFZ

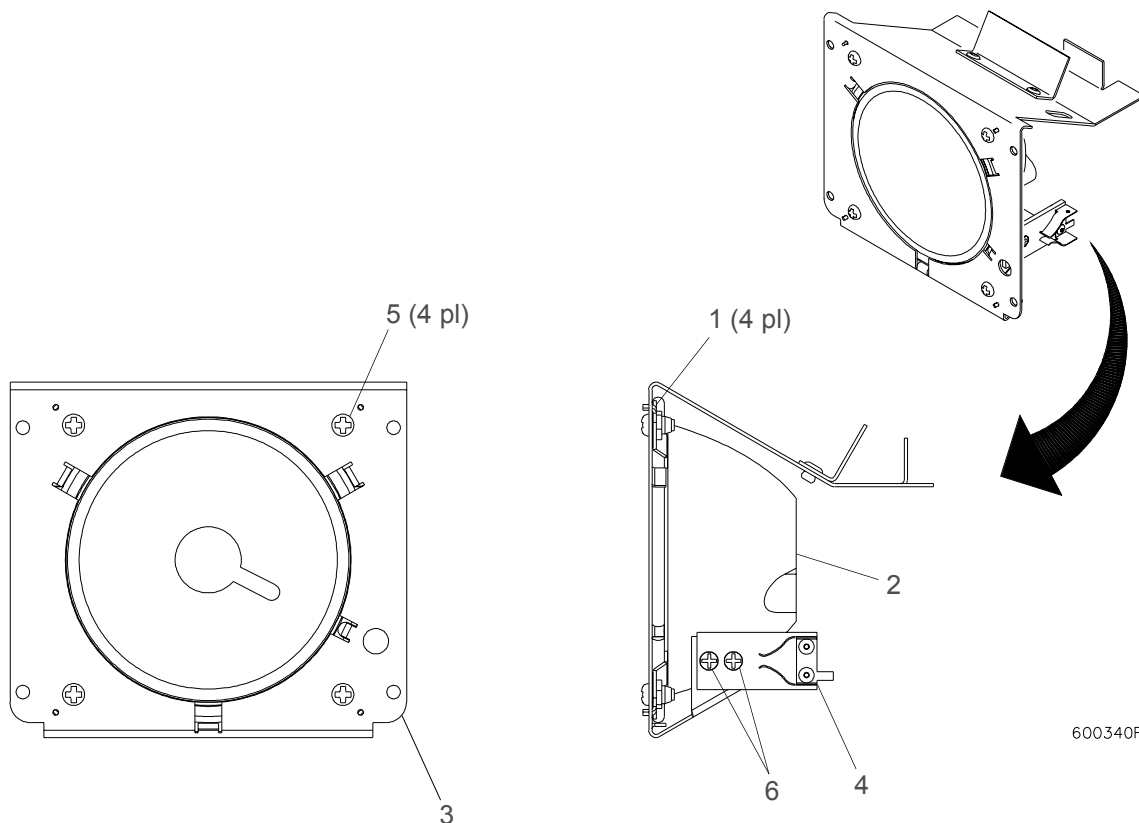


Figure 3-16: Reflector Assembly

Back Cap Assembly

22.9671.0404 Rev D

Refer to Figure 3-17.

No.	Item	Qty.	UM.	Description
1	10.9638.0117	3	EA	KNOB, KNURLED, VL6 BACK CAP/LAMP ASSY.
2	10.9638.0128	1	EA	BRACKET, IGNITOR CABLE
3	10.9638.0130	1	EA	SPRING, BULB WIRE SHEATH
4	10.9638.0164	1	EA	WASHER, FELT
5	10.9638.0188	1	EA	COUNTERWEIGHT
6	10.9667.0411	1	EA	LAMP CARRIAGE
7	10.9667.0412	1	EA	LAMP TILT PLATE
8	22.9638.0129	1	EA	TETHER, VL6 BACKCAP
9	22.9638.0265	1	EA	CASTING ASSEMBLY, BACKCAP, VL6
-	10.9638.0034	1	EA	CASTING, BACK CAP, VL6
-	55.6612.0005	2	EA	PIN, 3/16OD X 2 3/4L TYPE C LOW CARBON STEEL
10	25.9667.0413	1	EA	CABLE ASSY, GROUND -TILT PLATE
-	52.8311.0003	2	EA	TERM, RING #6 14-16AWG NON-INS. TAPE
-	73.7130.0002	0.21	FT	WIRE, 7/64" TUBULAR BRAID SILVER-PLATED
11	52.8231.0005	2	EA	TERM, RING #6 BLUE 16-14 AWG REEL PIDG
12	53.2200.0010	1	EA	NUT, 10-32 KEPS SS
13	53.2201.0010	2	EA	NUT, 10-32 HEX SS
14	53.5638.1250	1	EA	SCREW, 1/4-28 X 1 1/4" CAPTIVE
15	53.6519.0001	2	EA	SCREW, 4-40 X 5/8" PPZ VL-1
16	53.6525.0001	1	EA	SCREW, 6-32 X 5/16" PPZ
17	53.6526.0001	2	EA	SCREW, 6-32 X 5/8" PPZ
18	53.6534.0002	4	EA	RIVET, 3/32" OD POP 3/16 GRIP RNG ALUM
19	53.6539.0008	2	EA	WASHER, 1/4" FLAT SS
20	53.6539.0011	1	EA	SCREW, 10-32 X 2 1/4" PFBSS UNF-2A
21	53.6539.0012	2	EA	SCREW, 10-32 X 2" PFBSS UNF-2A
22	53.6546.0002	2	EA	SCREW, 8-32 X 5/16" PPZ
23	53.6593.0001	1	EA	SCREW, 10-32 X 1" PPB
24	54.1209.0002	1	EA	SWIVEL BEARING ASSY, .385 STUD LNTH
25	55.2134.0003	2	EA	PLATE, FLOATING NUT 10-32
26	55.2260.0208	1.92	FT	SLEEVING, FIBERGLASS 0.208 ID
27	55.3301.0006	3	EA	WASHER, #6 FLAT SS

No.	Item	Qty.	UM.	Description
28	55.3303.0004	2	EA	WASHER, #4 LOCK INT.TOOTH SS
29	55.6540.0001	2	EA	WASHER, #10 FLAT BRASS
30	55.6568.0017	1	EA	SPRING, CPRSN .480" OD 1.500" LG SS
31	55.6568.0036	2	EA	SPRING, CPRSN .360" OD .690" LG .032" WIRE DIA SS
32	55.6568.0048	1	EA	SPRING, CPRSN .480" OD 1.000" LG SS
33	71.2502.0003	1	EA	SOCKET, FASSUNG GY9.5 W/584MM LEADS

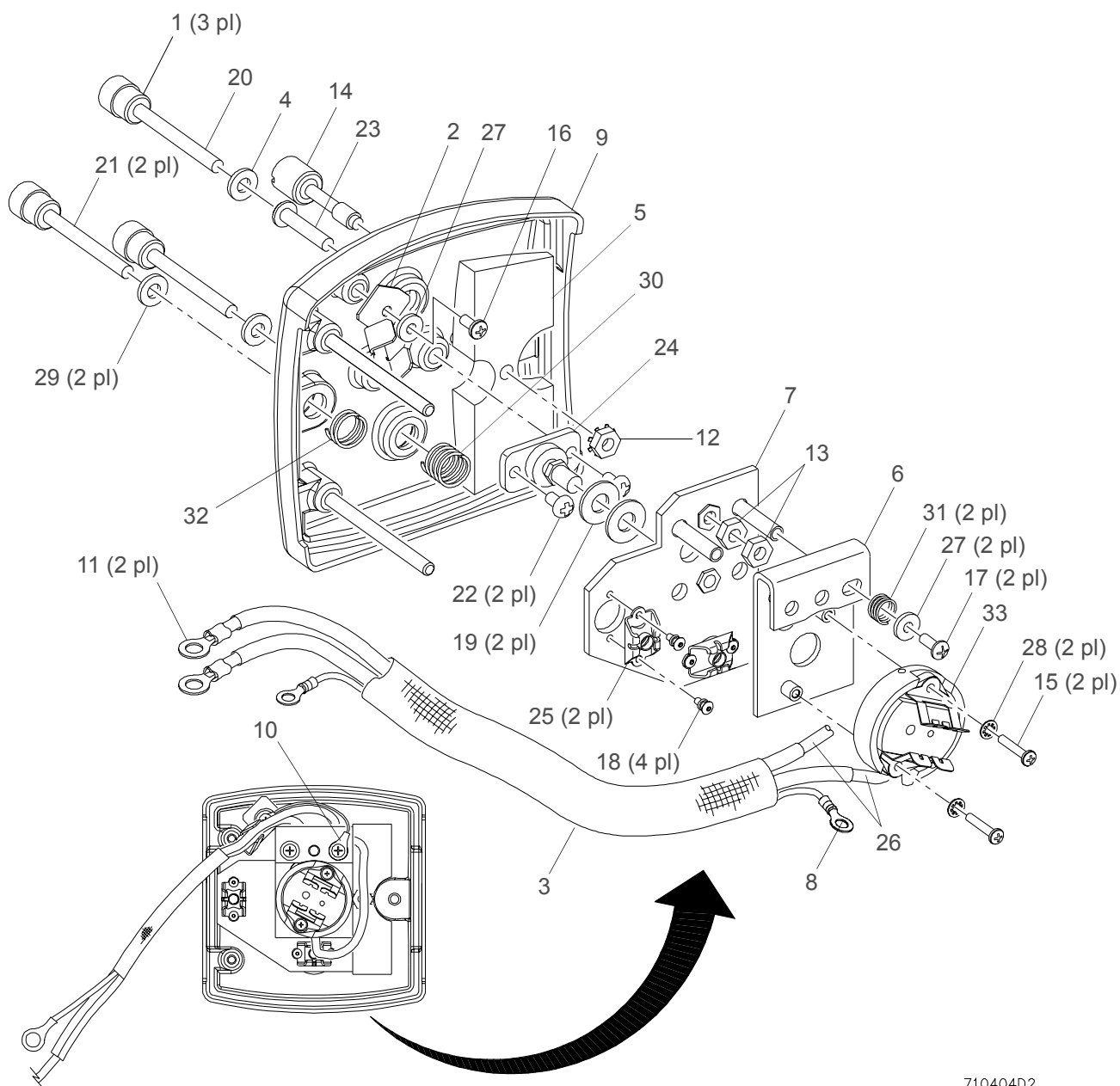


Figure 3-17: Lamp Assembly

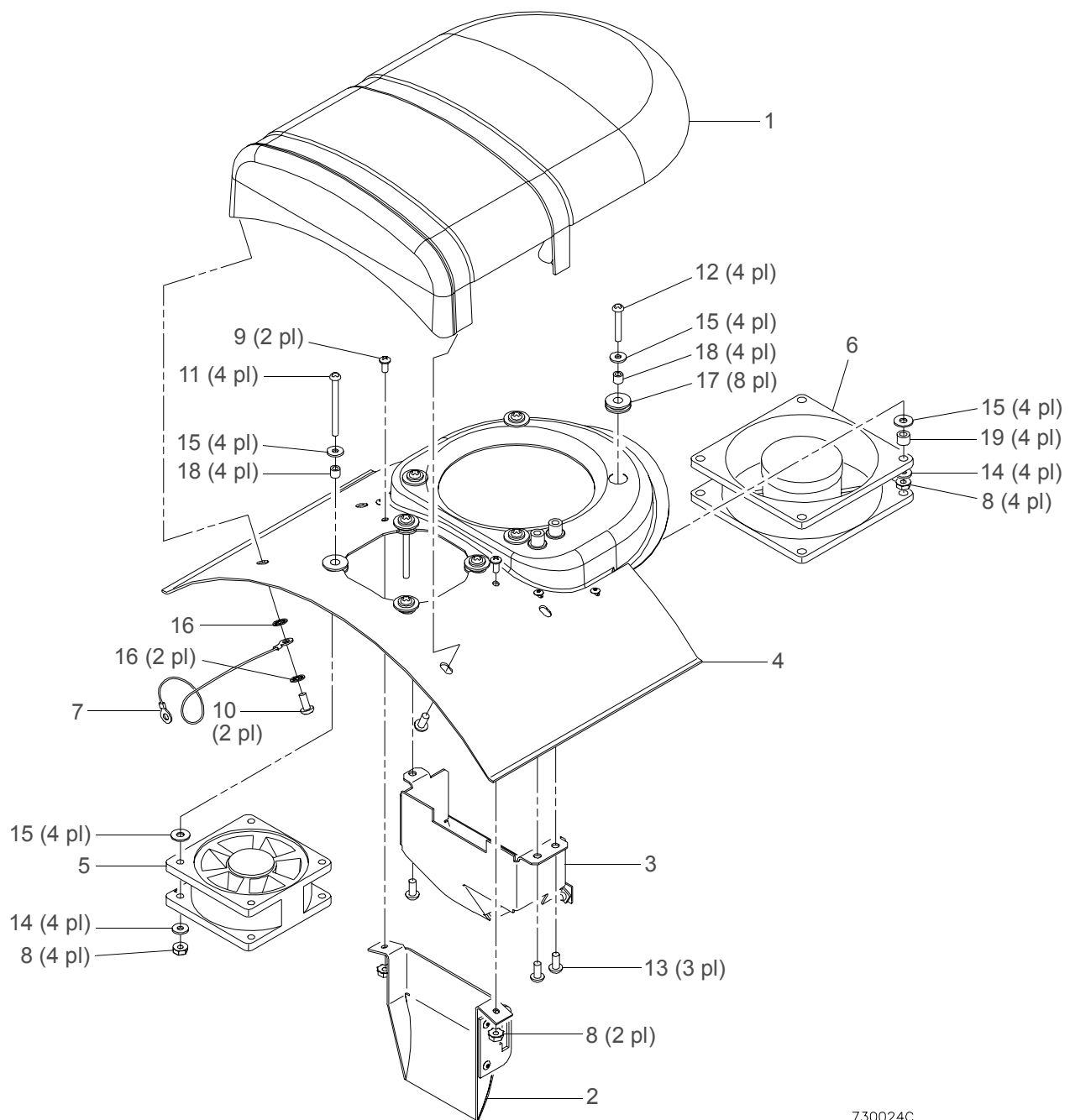
Fan Cover Assembly

21.9673.0024 Rev C

Refer to Figure 3-18.

No.	Item	Qty.	UM.	Description
1	12.9671.0192	1	EA	BAFFLE COVER, MOLDED, PLASTIC
2	21.9667.0510	1	EA	ASSY, FAN DUCT
-	10.9667.0511	1	EA	DUCT, SMALL FAN
-	10.9667.0512	1	EA	CABLE MOUNT, SMALL DUCT
-	53.6534.0002	2	EA	RIVET, 3/32" OD POP 3/16 GRIP RNG ALUM
3	21.9671.0058	1	EA	DUCT ASSY, FAN, LARGE
-	10.9671.0051	1	EA	LARGE FAN DUCT
-	10.9638.0056	1	EA	AIR DEFLECTOR, LARGE FAN
-	53.6534.0001	4	EA	RIVET, 3/32" OD POP 3/32 GRIP RANGE ALUM
4	22.9671.0148	1	EA	COVER ASSY, SLIDING, FAN MOUNT
-	10.9638.0061	1	EA	COVER, SLIDING
-	12.9671.0091	1	EA	MOUNT, FAN
5	23.9667.0025	1	EA	ASSY, 60MM FAN
-	40.7110.0006	1	EA	FAN, 60MM SQ X 25MM THK 24V HIGH VOLUME
-	52.8347.0001	2	EA	CONTACT, 24-30AWG MALE CRIMP
6	23.9673.0026	1	EA	ASSY, 80MM FAN
-	40.7113.0002	1	EA	FAN, +24V 80 X 80 X 25MM 39CFM
-	52.8347.0001	2	EA	CONTACT, 24-30AWG MALE CRIMP
7	25.8007.2212	1	EA	GND STRAP ASSY, #6 RING #6 RING 3" LG
	52.6579.0004	1	EA	CONN, 4CIR PNL MT SGL ROW W/MTG EARS (not shown)
8	53.2200.0004	10	EA	NUT, 4-40 KEPS SS
9	53.5604.0250	2	EA	SCREW, 4-40 X 1/4" PPSS BLK
10	53.6525.0001	2	EA	SCREW, 6-32 X 5/16" PPZ
11	53.6537.0001	4	EA	SCREW, 4-40 X 5/8" PPB
12	53.6556.0002	4	EA	SCREW, 4-40 X 3/4" PPB
13	53.6613.0001	3	EA	SCREW, 6-32 X 1/2" PPZ
14	55.3301.0004	8	EA	WASHER, #4 FLAT SS
15	55.6517.0001	16	EA	WASHER, .375" OD .150" ID .031" THK FLAT STEEL
16	55.6538.0001	3	EA	WASHER, #6 LOCK INTERNAL TOOTH
17	55.6579.0006	8	EA	GROMMET, 3/8" HOLE 3/16" ID 1/2" OD
18	55.6595.0004	8	EA	SPACER, 3/16OD X .171L X #4HOLE ALUM.
19	55.6659.0001	4	EA	SPACER, 1/4" RND 4 THRU 3/16" AL

Fan Cover Assembly (cont.)



730024C

Figure 3-18: Fan Cover Assembly

Dimmer Bulkhead Assembly

21.9673.0290 Rev D

Refer to Figure 3-19.

No.	Item	Qty.	UM.	Description
1	10.9621.0069	1	EA	NUT, LOCK, WHEEL SHAFT
2	10.9621.0102	1	EA	COLLET, LOCK, WHEEL SHAFT
3	10.9671.0039	1	EA	BLADE, DIMMER (changed 08-21-03)
4	10.9638.0151	1	EA	STABILIZER, MOTOR
5	10.9667.0291	1	EA	DIMMER BULKHEAD
6	21.9667.0293	1	EA	ASSY, UV DIMMER HEATSHIELD
	10.9673.0292	1	EA	DIMMER HEATSHIELD
	41.9637.0047	1	EA	MIRROR,UV BLOCKER
7	23.9667.0216	1	EA	ASSY, OPTICAL SENSOR
8	44.5029.0001	1	EA	MOTOR, STEPPER 42MM X 34MM
9	53.2005.0001	1	EA	NUT, 3/8-32 X 3/32T WHEEL
10	53.6513.0021	3	EA	SCREW, M3 X .5 X 8MM LG PPSS METRIC
11	53.6513.0029	1	EA	SCREW, M3 X .5 X 12MM PFZ METRIC
12	53.6600.0001	2	EA	SCREW, 4-40 X 5/16" PPB
13	53.6608.0003	2	EA	SCREW, 6-32 X 3/16"LG PPZ
14	53.6613.0001	4	EA	SCREW, 6-32 X 1/2" PPZ
15	55.2118.0003	2	EA	WASHER, .750" OD .380" ID .034" THK BELLV SPRN H-CARBON
16	55.3301.0004	2	EA	WASHER, #4 FLAT SS
17	55.3301.0006	3	EA	WASHER, #6 FLAT SS
18	55.6504.0001	4	EA	WASHER, #6 LOCK EXT TOOTH
19	55.6579.0005	4	EA	GROMMET, 3/8"HOLE 3/16"ID
20	55.6595.0004	3	EA	SPACER, 3/16OD X .171L X #4HOLE ALUM.
21	55.6603.0001	1	EA	SPRING, SS 4.6#/IN. EXTENSION
22	55.6818.0002	1	EA	KURLY-LOK, STANDOFF, 45 DEG, NYLON 6/6
23	74.1034.0001	1	EA	SWITCH, THERMAL 315 DEG F OPEN (changed 08-21-03)

Dimmer Bulkhead Assembly (cont.)

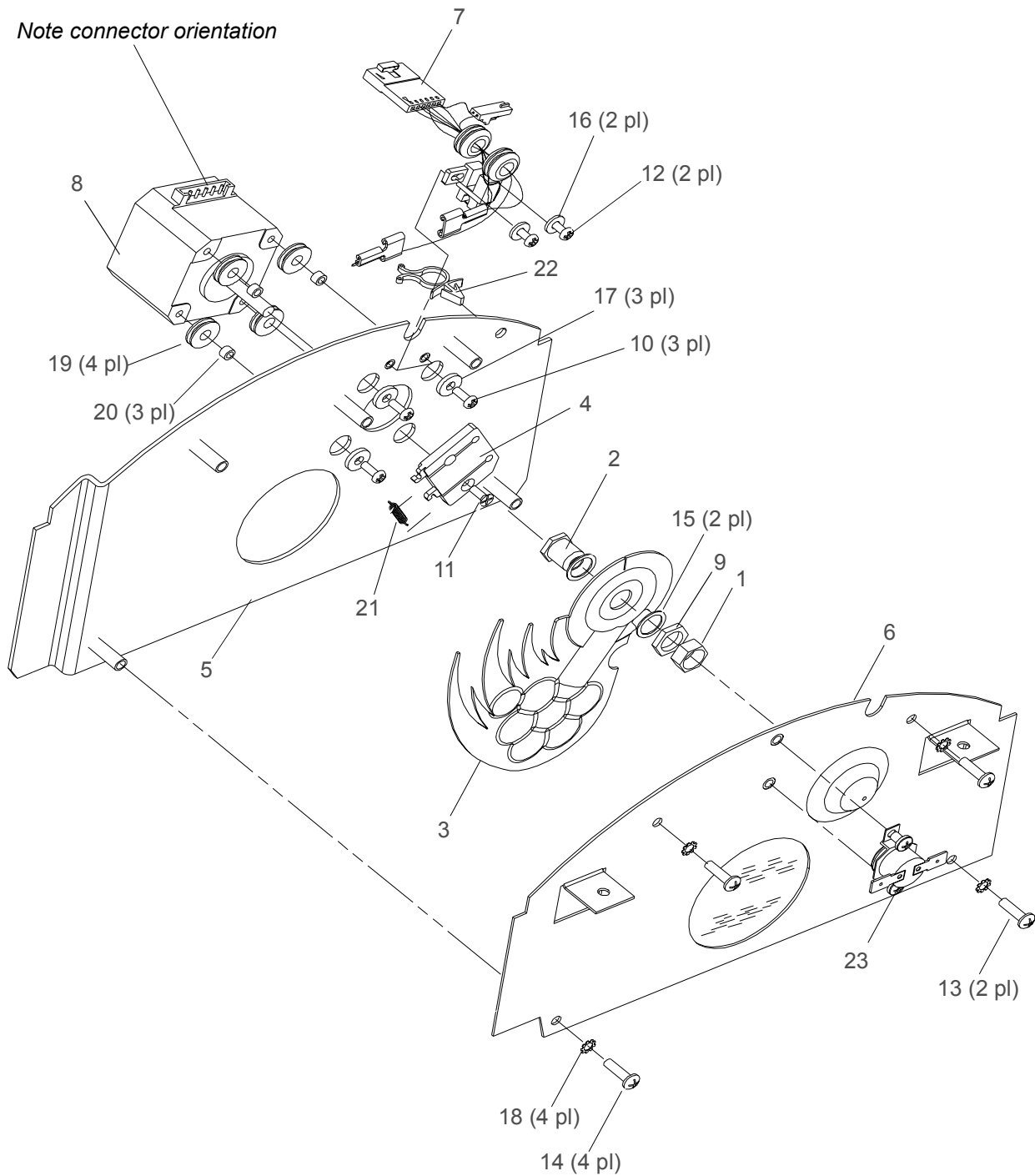


Figure 3-19: Dimmer Bulkhead Assembly

Optical Sensor Assembly

23.9667.0216 Rev C

Refer to Figure 3-20.

No.	Item	Qty.	UM.	Description
1	52.6523.0006	1	EA	CONN, HOUSING 6POS PLUG SHROUDED WIRE TO WIRE
2	52.6524.0002	1	EA	CONN, HOUSING 2POS RECEPTACLE
3	52.8346.0001	2	EA	CONTACT, 24-30AWG FEMALE CRIMP
4	52.8347.0001	6	EA	CONTACT, 24-30AWG MALE CRIMP
5	52.8371.0001	2	EA	RECEPT, FASTON 24-20AWG UNISUL TIN PLT BRS .250 X .032 TAB
6	55.6706.0001	2	EA	GROMMET, 9/32"ID 9/16"OD 1/4T SILICONE RED
7	73.6224.0005	1	EA	WIRE, 24AWG 600V 200C TFE GRN UL1213 CSA
8	86.7002.0003	1	EA	SWITCH, SLOTTED OPTICAL

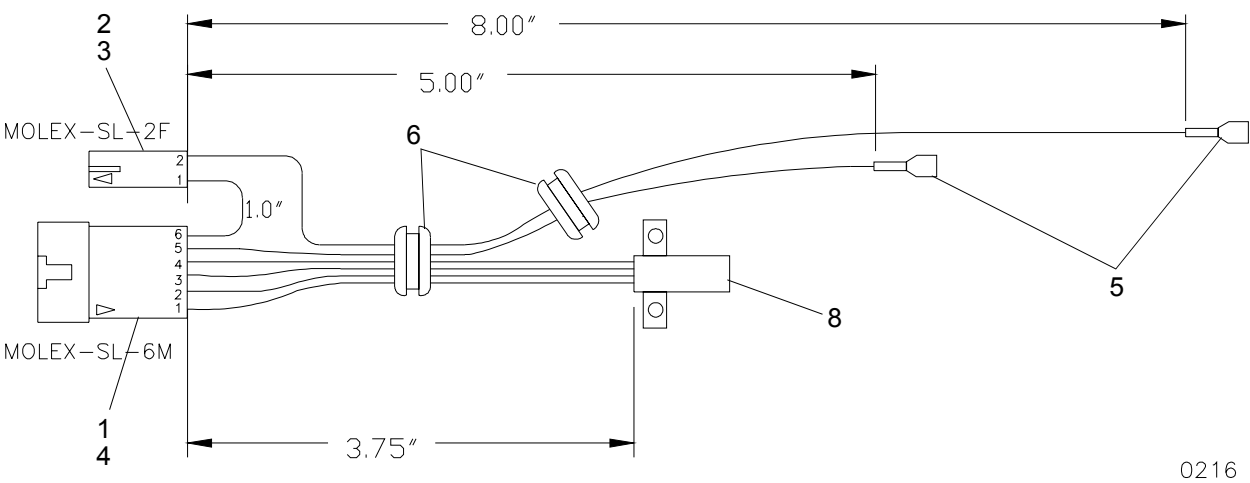


Figure 3-20: Optical Sensor Assembly

Color Bulkhead Assembly

22.9671.0077 Rev C

Refer to Figure 3-21.

No.	Item	Qty.	UM.	Description
1	10.9671.0121	1	EA	HEAT SHIELD, COLOR BULKHEAD
2	10.9671.0196	1	EA	SPACER, CLAMP
3	10.9671.0198	1	EA	GASKET, COLOR WHEELS
4	10.9671.0199	1	EA	SPRING, COLOR WHEELS
5	21.9671.0124	1	EA	BULKHEAD ASSY, COLOR W/O COLOR WHEELS
6	21.9671.0161	1	EA	GLASS ASSY, MAGENTA COLOR WHEEL
7	22.9673.0145	1	EA	ASSY, FILTER WHEEL
8	25.9667.0146	1	EA	CABLE ASSY, HEAD OT SWITCH #2
9	53.6522.0001	2	EA	SCREW, 6-32 X 1/4" PPZ
10	53.6597.0001	6	EA	SCREW, 4-40 X 3/16" PPZ
11	55.2186.0002	1	EA	CABLE TIE, .09" WD 3.750" LG TEFZEL
12	55.3303.0004	2	EA	WASHER, #4 LOCK INT. TOOTH SS
13	55.3303.0006	2	EA	WASHER, #6 LOCK INT. TOOTH SS
14	74.1089.0001	1	EA	SWITCH, THERMAL 15AMP 295 DEG F OPEN

Color Bulkhead Assembly (cont.)

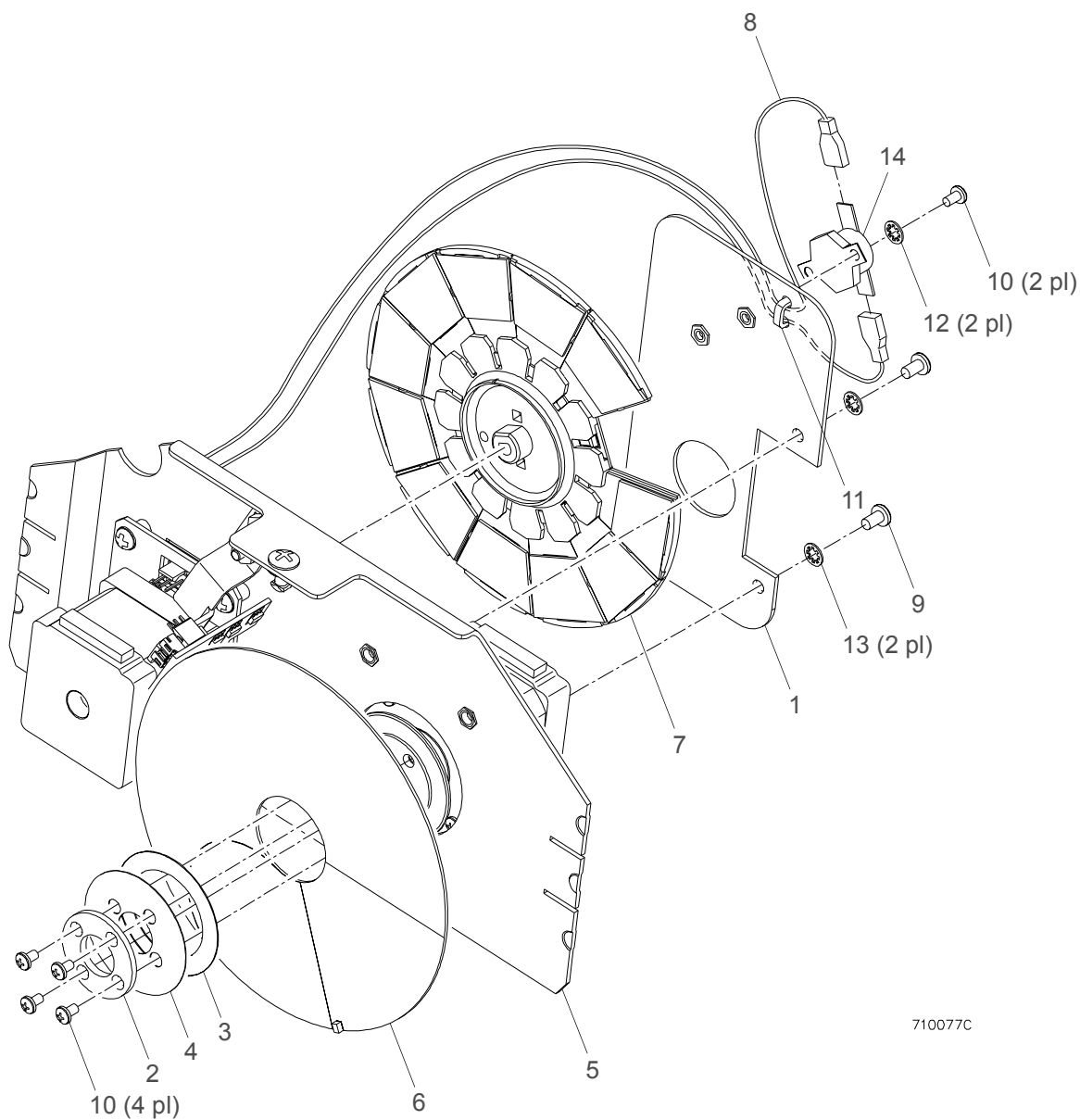


Figure 3-21: Color Bulkhead Assembly

Color W/O Color Wheels Bulkhead Assembly

21.9671.0124 Rev 0

Refer to Figure 3-22.

No.	Item	Qty.	UM.	Description
1	10.9671.0125	1	EA	LIGHT SHIELD, COLOR BULKHEAD
2	10.9671.0181	1	EA	BULKHEAD, COLOR
3	10.9671.0195	1	EA	BRACKET, MOUNTING SENSOR
4	21.9667.0119	1	EA	ASSY, COLOR MOTOR
5	21.9671.0182	1	EA	MOTOR ASSY, MAGENTA
6	24.9671.0175	1	EA	PCB ASSY, CROSSFADE COLOR SENSOR
7	53.2200.0006	2	EA	NUT, 6-32 KEPS SS
8	53.6522.0001	3	EA	SCREW, 6-32 X 1/4" PPZ
9	53.6558.0001	3	EA	SCREW, 6-32 X 3/8" PPZ
10	53.6600.0001	2	EA	SCREW, 4-40 X 5/16" PPB
11	55.2233.0003	1	EA	RETAINER, PUSH-ON TYPE
12	55.2233.0004	1	EA	STUD, 1/4 TURN OPR .415L STEEL ZINC
13	55.3303.0006	6	EA	WASHER, #6 LOCK INT. TOOTH SS

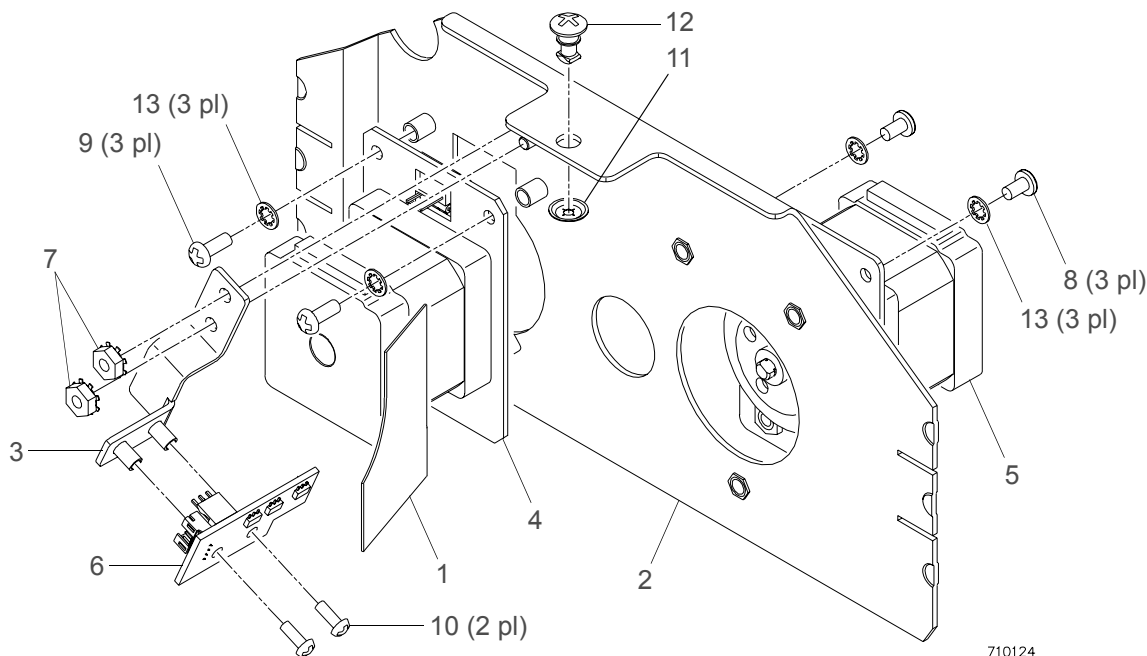


Figure 3-22: Color W/O Color Wheels Bulkhead Assembly

Color Motor Assembly

21.9667.0119 Rev D

Refer to Figure 3-23.

No.	Item	Qty.	UM.	Description
1	10.9621.0097	1	EA	STABILIZER, STEPPER, GOBO WHEEL
2	10.9667.0120	1	EA	COLOR MOTOR BULKHEAD
3	24.9638.0113	1	EA	PCB ASSY, SENSOR
4	44.9667.0116	1	EA	MOTOR, GOBO/COLOR WHEEL
5	53.6597.0001	2	EA	SCREW, 4-40 X 3/16" PPZ
6	53.6599.0001	1	EA	SCREW, 4-40 X 3/8" PFZ
7	55.2203.0001	3	EA	SCREW, 4-40 X 1/4" PPZ
8	55.3301.0004	1	EA	WASHER, #4 FLAT SS
9	55.6512.0001	2	EA	WASHER, #4 SPLIT LOCK
10	55.6568.0016	1	EA	SPRING, EXTSN .125" OD.500" LG .018" WIRE DIA SS

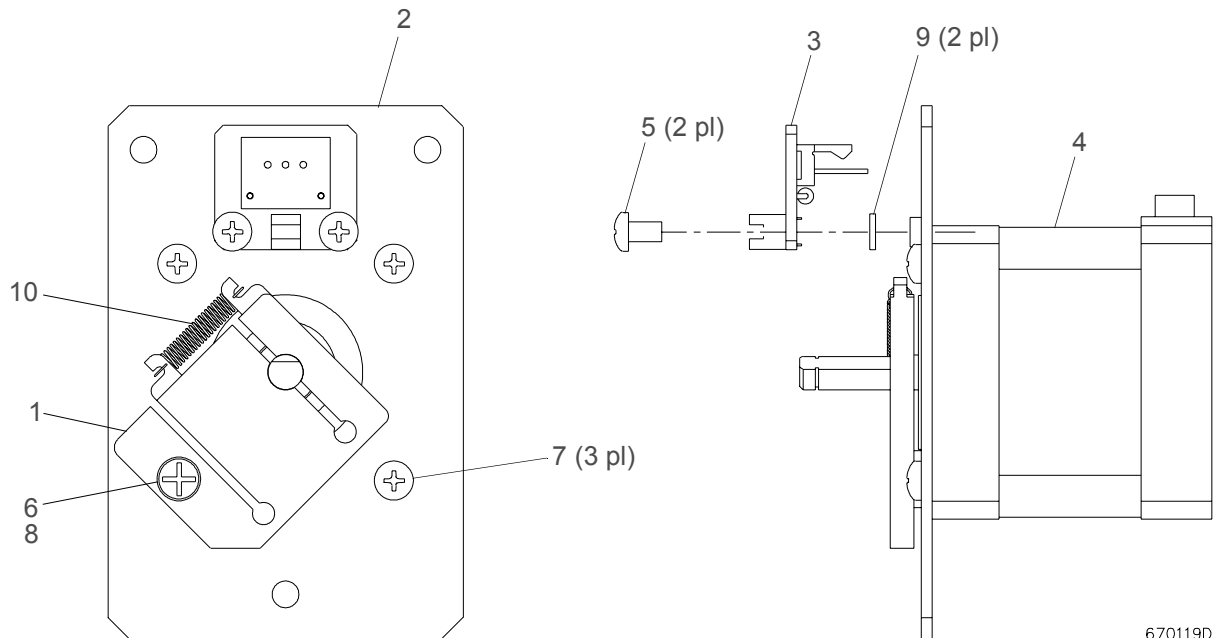


Figure 3-23: Color Motor Assembly

Sensor PCB Assembly

24.9638.0113 Rev B

Refer to Figure 3-24.

No.	Item	Qty.	UM.	Description
1	11.9638.0114	1	EA	PCB, SENSOR, VL6
2	52.6229.0001	1	EA	HEADER, 3POS MTA FRIC LOK STRT POST
3	60.1429.1503	1	EA	RES, 1/4W 5% 150.0 OHM CF
4	86.7004.0001	1	EA	SENSOR, OPTICAL, GP1S23

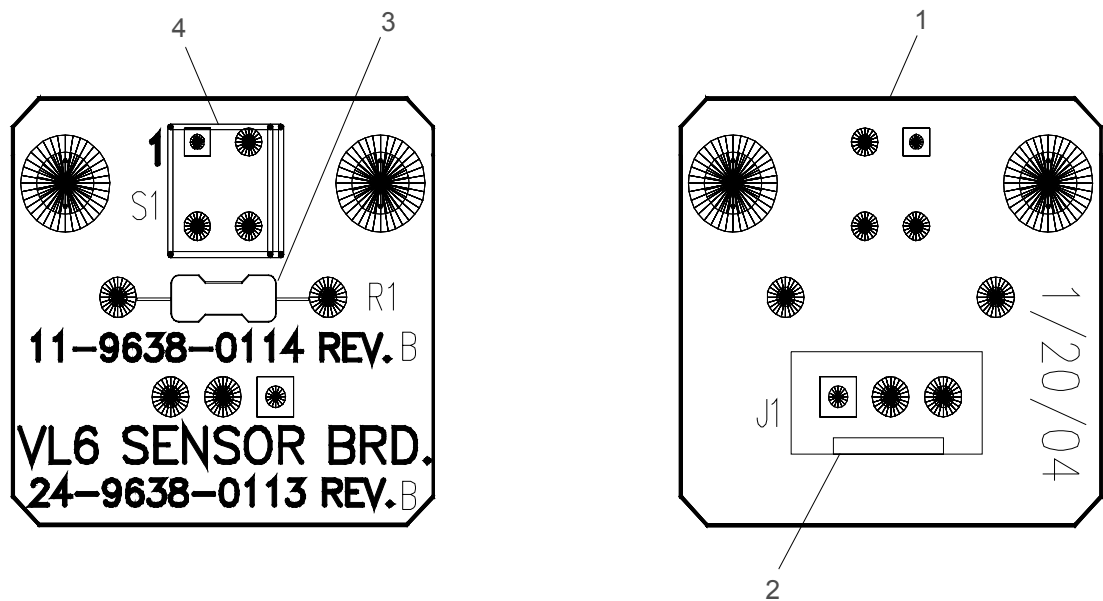


Figure 3-24: Sensor PCB Assembly

Magenta Motor Assembly

21.9671.0182 Rev A

Refer to Figure 3-25.

No.	Item	Qty.	UM.	Description
1	10.9671.0120	1	EA	MOTOR PLATE, MAGENTA COLOR WHEEL
2	10.9671.0185	1	EA	HUB, MAGENTA COLOR WHEEL
3	44.9667.0116	1	EA	MOTOR, GOBO/COLOR WHEEL
4	53.5554.0250	2	EA	SCREW, 4-40 X 1/4" LG SOCKET SET CUP POINT
5	55.2203.0001	4	EA	SCREW, 4-40 X 1/4" PPZ

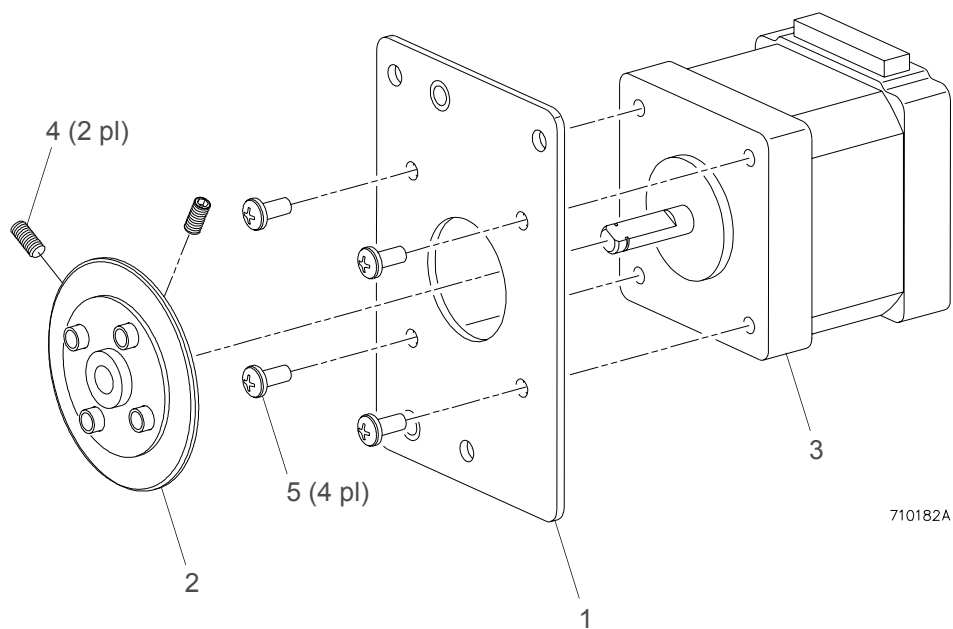


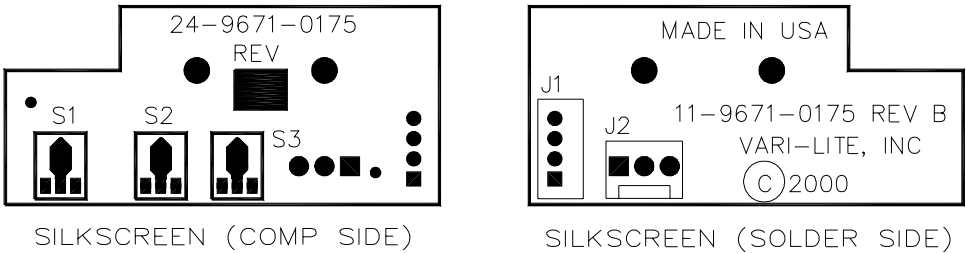
Figure 3-25: Magenta Motor Assembly

Crossfade Color Sensor PCB Assembly

24.9671.0175 Rev 0

Refer to Figure 3-26.

No.	Item	Qty.	UM.	Description	Ref.
1	11.9671.0175	1	EA	PCB, CROSSFADE COLOR SENSOR	
2	52.6229.0001	1	EA	HEADER, 3-POS MTA FRIC LOK STRT POST	J2
3	52.6447.0004	1	EA	HEADER, SHROUDED 4 POSITION	J1
4	86.7005.0001	3	EA	SENSOR, HALL-EFFECT A3141LLT SUR MT	S1-S3



710175

Figure 3-26: Crossfade Color Sensor PCB Assembly

Filter Wheel Assembly

22.9673.0145 Rev A

Refer to Figure 3-27.

No.	Item	Qty.	UM.	Description
1	22.9673.9143	1	EA	ASSY, FILTER WHEEL HUB AND CLIP
-	10.9638.0122	1	EA	CLIP, WHEEL RETAINER
-	22.9673.9142	1	EA	ASSY, COLOR WHEEL MARKED
-	53.6530.0002	1	EA	RIVET, 1/8" OD POP .-63-.125 GR. LENGTH
2	41.6006.0020	1	EA	ASSY, VL6 FILTER, MAGENTA (ST)
3	41.6006.0150	1	EA	ASSY, VL6 FILTER, PINK (ST)
4	41.6006.0240	1	EA	ASSY, VL6 FILTER, LIGHT RED (ST)
5	41.6006.0320	1	EA	ASSY, VL6 FILTER, BASTARD AMBER #1 (ST)
6	41.6006.0440	1	EA	ASSY, VL6 FILTER, ORANGE (ST)
7	41.6006.0540	1	EA	ASSY, VL6 FILTER, YELLOW (ST)
8	41.6006.0660	1	EA	ASSY, VL6 FILTER, GREEN (ST)
9	41.6006.0820	1	EA	ASSY, VL6 FILTER, LT.BLUE-GREEN (ST)
10	41.6006.0850	1	EA	ASSY, VL6 FILTER, BLUE (ST)
11	41.6006.0960	1	EA	ASSY, VL6 FILTER, LAVENDER (ST)
12	41.6006.0990	1	EA	ASSY, VL6 FILTER, UV (ST)

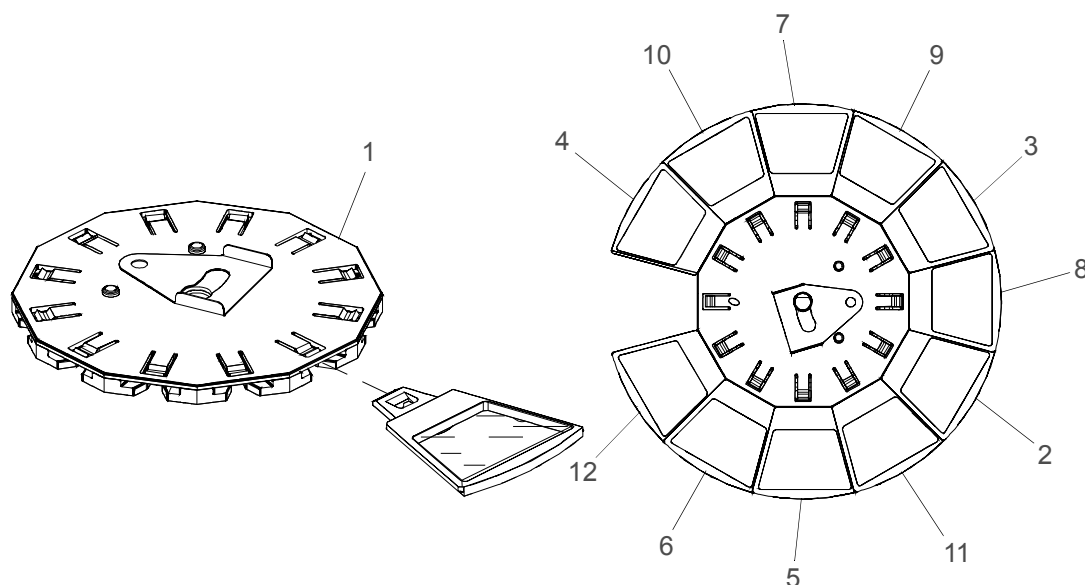


Figure 3-27: Filter Wheel Assembly

Notes

Yoke

Yoke Assembly

22.9667.0600 Rev F

Refer to Figure 3-28.

No.	Item	Qty.	UM.	Description
1	21.9667.0659	1	EA	ASSY, COUNTERWEIGHT -VL2201 YOKE
-	- 10.9667.0657	1	EA	PLATE, MOUNT -VL2201 YOKE COUNTERWEIGHT
-	- 10.9667.0658	1	EA	COUNTERWEIGHT, YOKE
-	- 53.2200.0010	2	EA	NUT, 10-32 KEPS SS
-	- 53.6514.0001	2	EA	SCREW, 10-32 X 1 1/4" PPB
2	22.9667.0605	1	EA	FAB ASSY, YOKE STRUCTURE
3	23.9650.3327	1	EA	ELEC ASSY, RELAY
-	- 04.9650.0044	1	EA	LABEL, RELAY WIRING -VL7
-	- 52.8271.0005	2	EA	RECP, FASTON 1/4" 16-14 AWG INS. (REEL)
-	- 66.4510.0002	1	EA	RELAY, 20A 250VAC DPDT UL/CSA/VDE
-	- 82.4307.4002	1	EA	DIODE, 1N4002 RECTIFIER
4	24.9661.1126	1	EA	PCB ASSY, SOLID STATE IGNITOR (added 04-02-03)
5	24.9661.1400	2	EA	PCB ASSY, AUX CONTROLLER
-	25.9667.0030	1	EA	CABLE ASSY, IGNITOR TO RELAY (not shown)
6	52.6498.0014	1	EA	CONN, 14-POS DUAL ROW 1.11" TH .650" .230"
7	53.6525.0001	12	EA	SCREW, 6-32 X 5/16" PPZ
8	55.3301.0006	2	EA	WASHER, #6 FLAT SS
9	55.6538.0001	18	EA	WASHER, #6 LOCK INTERNAL TOOTH
10	55.6541.0002	2	EA	GROMMET, 1" ID 1 3/4" OD 1 3/8" GRV DIA RUBBER
11	55.6583.0001	2	EA	STANDOFF, 1/4" HEX 6-32 .500" LG ALUM
12	55.6658.0009	4	EA	STANDOFF, 1/4" HEX 6-32 .750" LG MF SS
13	55.6669.0014	4	EA	STANDOFF, 1/4" HEX 6-32 5/8" LG MF SS

Yoke Assembly (cont.)

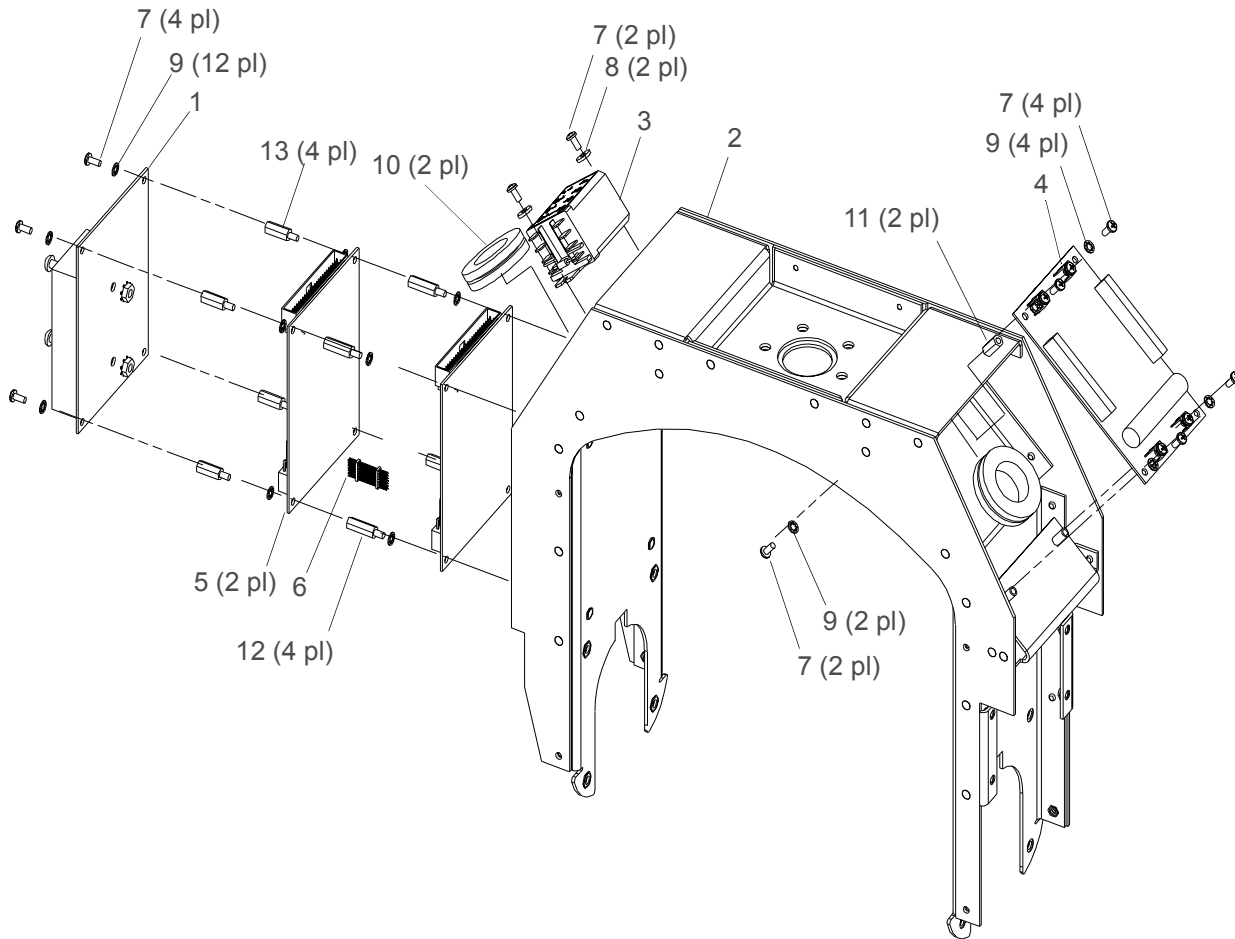


Figure 3-28: Yoke Assembly

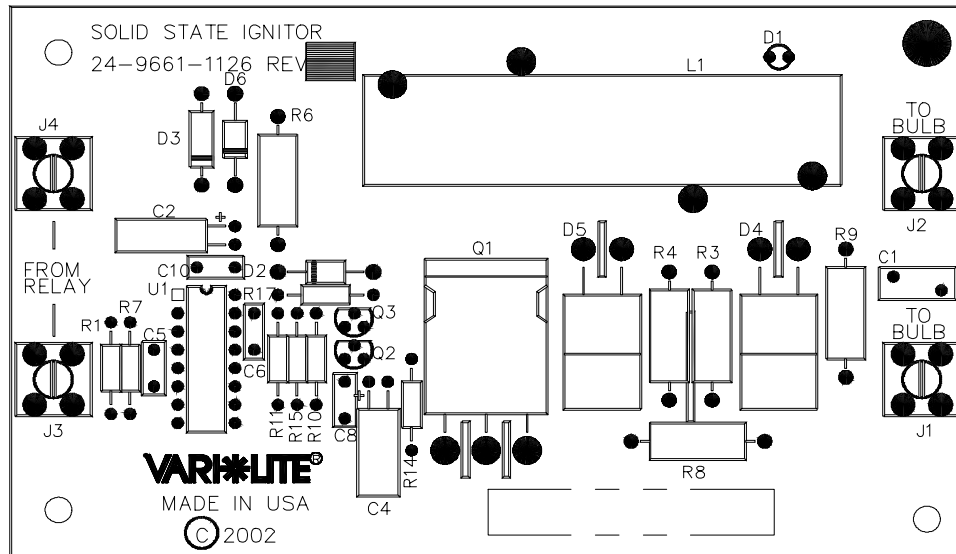
Ignitor PCB Assembly

24.9661.1126 Rev B (Formerly 24.9661.1125 Rev D)

Refer to Figure 3-29.

No.	Item	Qty.	UM.	Description	Ref
1	11.9661.1126	1	EA	PCB, IGNITOR	
2	52.8218.0002	4	EA	TERM, PC VERT MNT 6-32 SCREW 15A	J1-J4
3	60.1230.6493	1	EA	RESISITOR, 1/4W 1% 6.49K OHM	
4	60.1420.5104	1	EA	RESISITOR, 1/4W 5% 51.0K OHM	R1
5	60.1421.1205	1	EA	RESISITOR, 1/4W 5% 120.0K OHM	R7
6	60.1422.2001	1	EA	RESISITOR, 1/4W 5% 2.0K OHM	R15
7	60.1424.1005	1	EA	RESISITOR, 1/4W 5% 10.0K OHM	R17
8	60.1426.1003	1	EA	RESISITOR, 1/4W 5% 100.0K OHM	R10
9	60.1431.1007	1	EA	RESISITOR, 1/4W 5% 10.0K OHM	
10	60.3430.5104	1	EA	RES, 1W 5% 51.0K OHM, METAL OXIDE	R6
11	60.3430.5600	2	EA	RES, 1W 5% 5.6 OHM, METAL OXIDE	
12	60.3430.8205	2	EA	RES, 1W 5% 820.0K OHM, METAL OXIDE	R3, R4
13	62.3021.2101	1	EA	CAPACITOR, 100PF 200V RAD CER 10%	C6
14	62.3021.2330	1	EA	CAPACITOR, 330PF RAD CER 5%	C5
15	62.3023.0104	2	EA	CAPACITOR, 0.1UF 50V RAD CER 20%	C8, C10
16	62.3035.0102	1	EA	CAPACITOR, 1000PF 3KV 10% RAD CER	C1
17	62.4010.0106	1	EA	CAPACITOR, 10UF 50V RAD ALUM	C2
18	62.4010.0475	1	EA	CAPACITOR, 4.7UF 50V RAD ALUM	C4
19	68.9661.1117	1	EA	COIL, SOLID STATE IGNITOR	L1
20	71.2564.0001	1	EA	LIGHT, NEON, STD BRIGHTNESS	D1
21	80.2623.0001	1	EA	TRANSISTOR, 2N4401 NPN 40V	Q2
22	80.2623.0003	1	EA	TRANSISTOR, 2N4403 PNP 40V	Q3
23	80.2657.0001	1	EA	TRANSISTOR, BIMOSFET IXBH16N17	
24	82.4308.4937	1	EA	DIODE, 1N4937, FAST	D3
25	82.4332.0001	2	EA	DIODE, MUR8100E 1000V 8A	D4, D5
26	82.5351.0001	1	EA	DIODE, ZENER 20V 1W 5% DO-41	D2
27	82.5373.0001	1	EA	DIODE, ZENER 1N5955B 180V 3W	D6
28	83.3212.0001	1	EA	IC, MC14536B PROGRAMMABLE TIMER	U1

Ignitor PCB Assembly (cont.)



VIEWED FROM COMPONENT SIDE

Figure 3-29: Ignitor PCB Assembly

Aux Controller PCB Assembly

24.9661.1400 Rev G

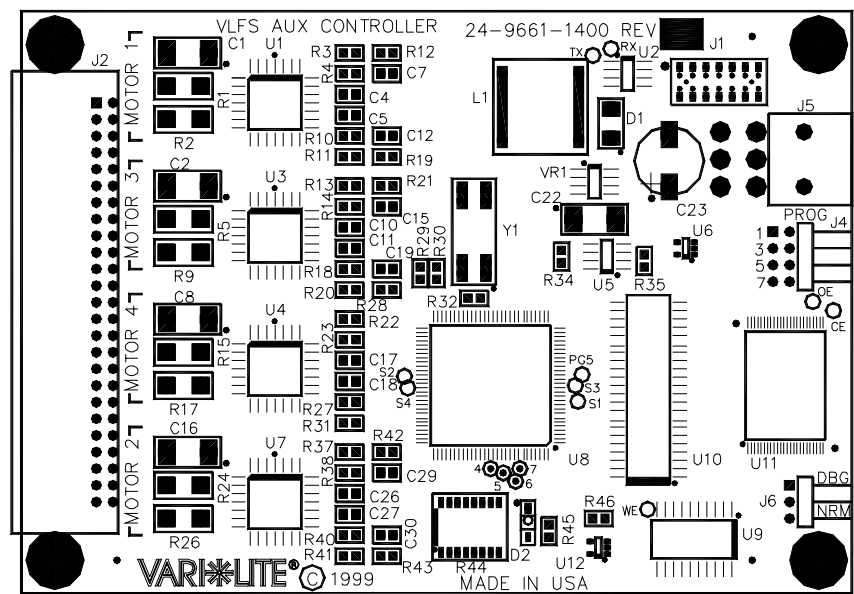
Refer to Figure 3-30.

No.	Item	Qty.	UM.	Description	Ref
1	11.9661.1400	1	EA	PCB, AUX CONTROLLER	
2	52.6399.0001	1	EA	JUMPER, PROGRAMMING	XJ6
3	52.6499.0007	1	EA	CONN, 14POS DUAL ROW 2MM SOCKET STRIP FEED THRU	J1
4	52.6578.0006	1	EA	HEADER, 6CIR RT ANG DUAL ROW W/PEGS TIN PLT	J5
5	52.6590.0003	1	EA	HEADER, 3PIN SGL ROW R/A .025" SQ PST	J6
6	52.6591.0008	1	EA	HEADER, 8PIN DBL ROW R/A .025" SQ PST	J4
7	52.6611.0010	1	EA	HEADER, 50POS DBL ROW SHROUDED .025SQ RT ANG	J2
8	60.3242.1000	8	EA	RES, 1W 1% 1.0 OHM WW SUR MT	R1, R2, R5, R9, R15, R17, R24, R26
9	60.9460.1003	2	EA	RES, .1W 5% 1.0 K 100V CHIP THICK FILM SMT0805	R29, R48
10	60.9460.1004	7	EA	RES, .1W 5% 10.0 K 100V CHIP THICK FILM	R30, R33-R36, R46, R47
11	60.9460.1802	2	EA	RES, .1W 5% 180.0 OHM 100V CHIP SUR MT	R7, R8
12	60.9460.3303	1	EA	RES, .1W 5% 3.3 K 100V CHIP THICK FILM	R45
13	60.9460.7505	1	EA	RES, .1W 5% 750.0 K 100V CHIP THICK FILM	R32
14	60.9461.1504	6	EA	RES, .1W 1% 15.0 K 100V CHIP THK FLM SMT0805	R6, R16, R22, R25, R31, R39
15	60.9461.2433	8	EA	RES, .1W 1% 2.43 K 100V CHIP THK FLM SMT0805	R4, R10, R14, R18, R23, R27, R38, R40
16	60.9461.7503	12	EA	RES, .1W 1% 7.5 K 100V CHIP THK FLM SMT0805	R3, R11-R13, R19- R21, RR28, R37, R41-R43
17	61.4817.1004	1	EA	RES NET, 10K .08W 50V 5% SUR MT	R44
18	62.3009.0472	4	EA	CAP, 4700PF 50V 10% MONO CER CHIP SUR MT	C5, C11, C18, C27
19	62.3009.0473	12	EA	CAP, .047UF 50V 10% MONO CER CHIP SUR MT	C3, C6, C7, C9, C12, C14, C15, C19, C25, C28-C30
20	62.4000.0105	14	EA	CAP, .1UF 50V 20% CER CHIP SUR MT Z5U EIA0805	C4, C10, C13, C17, C24, C26, C31-C38
21	62.4000.0200	2	EA	CAP, 20PF 50V 5% CER CHIP SUR MT COG EIA0805	C20, C21
22	62.4201.0106	4	EA	CAP, 10UF 35V 20% TANT ELECTRO CHIP SUR MT EIA-D	C1, C2, C8, C16

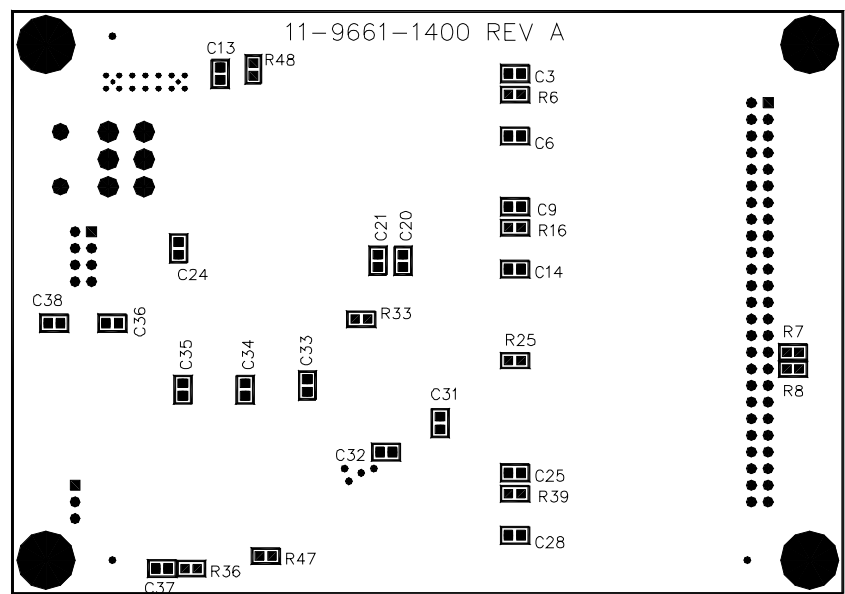
VARILITE*® - VL2000™ WASH LUMINAIRE SERVICE MANUAL**

No.	Item	Qty.	UM.	Description	Ref
23	62.4205.0107	1	EA	CAP, 100UF 10V 20% SUR MT	C22
24	62.4225.0107	1	EA	CAP, 100UF 35V 20% ALUM ELECTRO SUR MT	C23
25	64.4016.0506	1	EA	CRYSTAL, 16MHZ SUR MT	Y1
26	68.4566.0001	1	EA	INDUCTOR, 173UH PE-53819S LCI-37 SUR MT	L1
27	82.5325.0001	1	EA	DIODE, MBRS130LT3 SCHOTTKY SUR MT	D1
28	83.3163.0001	1	EA	IC, MC34164D-5 SENSING CIRCUIT UNDERVOLTAGE SURFACE MOUNT	U5
29	83.3173.0005	1	EA	IC, LM2594M-5 150KHZ 0.5A STEP-DOWN VOLTAGE REGULATOR	VR1
30	84.0068.0812	1	EA	IC, MC68HC812A4PV8 (UNPRGMMD) 16BIT MICROCONTROLLER	U8
31	84.4234.0002	1	EA	IC, RS485 TRANSCEIVER SUR MT SOIC PKG	U2
32	84.4263.0001	1	EA	IC, AD7302BR 8-BIT DAC 2.7-5.5V PARALLEL INPUT DUAL VOLTAGE OUTPUT	U9
33	84.4270.0001	1	EA	IC, NC7S08M5 SINGLE AND GATE SUR MT	U12
34	84.4285.0001	1	EA	IC, NC7S04M5 HS INVERTER	U6
35	85.3773.0001	4	EA	IC, STEPMOTOR DRIVER	U1, U3, U4, U7
36	87.7247.0001	1	EA	IC, AM29F200BT FLASH MEMORY 5V	U11
37	87.7302.00XX	1	EA	INSTALLER DISK SET, BURNER VL2000 LUMINAIRES	
38	88.8130.0001	1	EA	LED, GREEN SUR MT WATER CLEAR LENS (REEL)	D2

Aux Controller PCB Assembly (cont.)



TOP VIEW



BOTTOM VIEW

611400F

Figure 3-30: Aux Controller PCB Assembly

Enclosure

Upper Enclosure Assembly

21.9661.0004.05 Rev DD

Refer to Figure 3-31 and Figure 3-32.

No.	Item	Qty.	UM.	Description
1	04.9640.0374	1	EA	LABEL, P.E. GROUND
2	04.9661.1218.01	1	EA	LABEL, PATENT, VL2201/VL2400 SERIES LUMINAIRES
3	04.9673.0040	1	EA	LABEL, VL2202/VL2402
4	10.9640.0002	2	EA	PAD, CHOKE
5	10.9661.0670	1	EA	BRACKET, STABILIZER, SLOTTED
6	10.9661.0671	1	EA	BRACKET, STABILIZER, NO SLOT
7	10.9661.1258	1	EA	BRACKET, APS SIDE
8	10.9661.1354	1	EA	AIR SEAL, UPPER ENCLOSURE
9	10.9661.1358	1	EA	AIR SEAL, DUCT
10	10.9661.1360	1	EA	INSULATOR, BUCK CHOKE UPPER ENCLOSURE
11	10.9661.1361	1	EA	INSULATOR, CHOKE PFC UPPER ENCLOSURE
12	10.9673.1352	1	EA	DUCT, W/HOLE-UPPER ENCLOSURE AIR
13	69.3174.0130	1	EA	POWER SUPPLY, 130W +24V/5.4A @ 18CFM
14	12.9661.0657	1	EA	TILT DAMPER, 2400 YOKE STRUCTURE
15	12.9661.1236	2	EA	COVER, FRONT MACHINED
16	12.9661.1238	2	EA	COVER, SIDE MACHINED
17	21.9661.1205	1	EA	ASSY, CONNECTOR PANEL
18	21.9661.1208	1	EA	ASSY, PAN TUBE
19	21.9661.1254	1	EA	ASSY, COVER -VENTILATION
-	- 10.9661.1249	4	EA	POST, TRUSS HOOK
-	- 10.9661.1350	1	EA	COVER, VENTILATION -VL2000
-	- 10.9661.1357	2	EA	AIR SEAL, UPPER ENCLOSURE
-	- 54.1206.0015	4	EA	RING, RETAINING PRESS-ON 1" SHAFT
20	21.9661.1365	2	EA	ASSY, TOP COVER
21	21.9661.1210	1	EA	ASSY, PAN MOTOR
22	22.9661.1351	1	EA	FAB ASSY, UPPER ENCLOSURE
23	23.9661.1534	1	EA	FAN ASSEMBLY, HIGH SPEED
24	23.9671.1250	1	EA	ASSY, BALLAST MODULE-700W ARC POWER SUPPLY
	25.9661.1512	1	EA	CABLE ASSY, AC INPUT LINK (not shown)
	25.9661.1513	1	EA	CABLE ASSY, AC INPUT SPLITTER (not shown)
	25.9661.1514	1	EA	CABLE ASSY, LVS CHASSIS GND (not shown)

No.	Item	Qty.	UM.	Description
	25.9667.1516.01	1	EA	CABLE ASSY, MAIN TO AUX/DATA & PWR (not shown)
	25.9661.1517.01	1	EA	CABLE ASSY, PAN/TILT CONTROL -2201 (not shown)
	25.9661.1520	1	EA	CABLE ASSY, CHASSIS TO YOKE GND (not shown)
	25.9661.1532	1	EA	CABLE ASSY, DATA I/O LINK -VL2400 (not shown)
	25.9661.1551.01	1	EA	CABLE ASSY, LAMP SUPPLY HARNESS XPIQ (not shown)
	25.9667.0029	1	EA	CABLE ASSY, LAMP SUPPLY TO RELAY (not shown)
25	46.6004.0001	1	EA	MOUNTING DISC, METAL 90MM DIA
26	53.2002.0003	1	EA	NUT, 6-32 HEX ZINC NYLON INSERT
27	53.2200.0006	2	EA	NUT, 6-32 KEPS SS
28	53.6563.0001	1	EA	SCREW, 10-32 X 2" PPB
29	53.6517.0001	4	EA	SCREW, 10-32 X 3/8" PPZ
30	53.6543.0001	4	EA	SCREW, 6-32 X 3/8" PPB
31	53.6545.0003	3	EA	SCREW, 8-32 X 3/8" PFZ
32	53.6545.0004	2	EA	SCREW, 8-32 X 3/8" PPZ
33	53.6558.0001	17	EA	SCREW, 6-32 X 3/8" PPZ
34	53.6558.0010	4	EA	SCREW, 6-32 X 1/4" LG PPZ BLACK SEMS-EXT WSHR
35	53.6594.0003	1	EA	SCREW, 10-32 X 1-1/2" PPZ
36	53.6607.0001	4	EA	SCREW, 6-32 X 1/4" PPB
37	53.6608.0003	2	EA	SCREW, 6-32 X 3/16" LG PPZ
38	53.6609.0001	6	EA	SCREW, 6-32 X 3/8" PFZ
39	53.6610.0003	4	EA	SCREW, 6-32 X 7/16" PPZ
40	53.6614.0003	1	EA	SCREW, 6-32 X 5/8" PFZ
41	53.6617.0001	1	EA	SCREW, 6-32 X 1" PPB
42	53.6627.0001	4	EA	SCREW, 10-32 X 5/8" PPB
43	53.6653.0502	4	EA	SCREW, 1/4-20 X 1/2" LG SOC HD CAP ZINC
44	54.2039.0001	1	EA	BELT, GT TIMING 2MM PITCH 182GRV 9MM WD NYL CVRD FBRGLS NEOP
45	55.2030.0001	2	EA	PCB SUPPORT, 3/8" COMBO STACKING SPACER
46	55.2179.0003	1	EA	SADDLE, CABLE .75 X .75" 4WAY ADH BACK WHITE
47	55.2180.0002	0.17	FT	SPIRAL WRAP, 3/8" OD TEFLON
48	55.2267.0001	2.00	FT	RUBBER STRIP, SPONGE CLSD CELL 3/8" W 3/16" THK ADHV BACK
49	55.3303.0010	4	EA	WASHER, #10 .438" OD .040" THK SPLIT LOCK SS
50	55.6512.0006	2	EA	WASHER, #6 SPLIT LOCK SS
51	55.6549.0001	4	EA	WASHER, 1/4" SPLIT LOCK
52	55.6568.0046	1	EA	SPRING, BLUE EXTSN .120"OD .50"LG .020"WIRE DIA SS
53	55.6627.0001	8	EA	WASHER, #6 SPLIT LOCK
54	55.6677.0041	1	EA	WASHER, #10 .750" OD .203" ID .040" THK FLAT SS
	55.6695.0002	1	FT	HEATSHRINK, 3/8" ADHESIVE WALL (not shown)
55	55.6775.0009	1	EA	BUSHING, SNAP .750" ID 1" MT HOLE NYLON BLACK
56	10.9678.0846	2	EA	HANDLE, CAST, ENCLOSURE (changed 06-02-03)

VARILITE***® - VL2000™ WASH LUMINAIRE SERVICE MANUAL

No.	Item	Qty.	UM.	Description
57	67.4015.0001	1	EA	FILTER, EMI 16A 250V SINGLE PHASE
58	68.4580.0001	1	EA	CHOKE, PFC POTTED 700W APS
59	68.9661.1113	1	EA	CHOKE, BUCK 3.15MH, 4" CORE 12 AWG WIRE

Upper Enclosure Assembly (cont.)

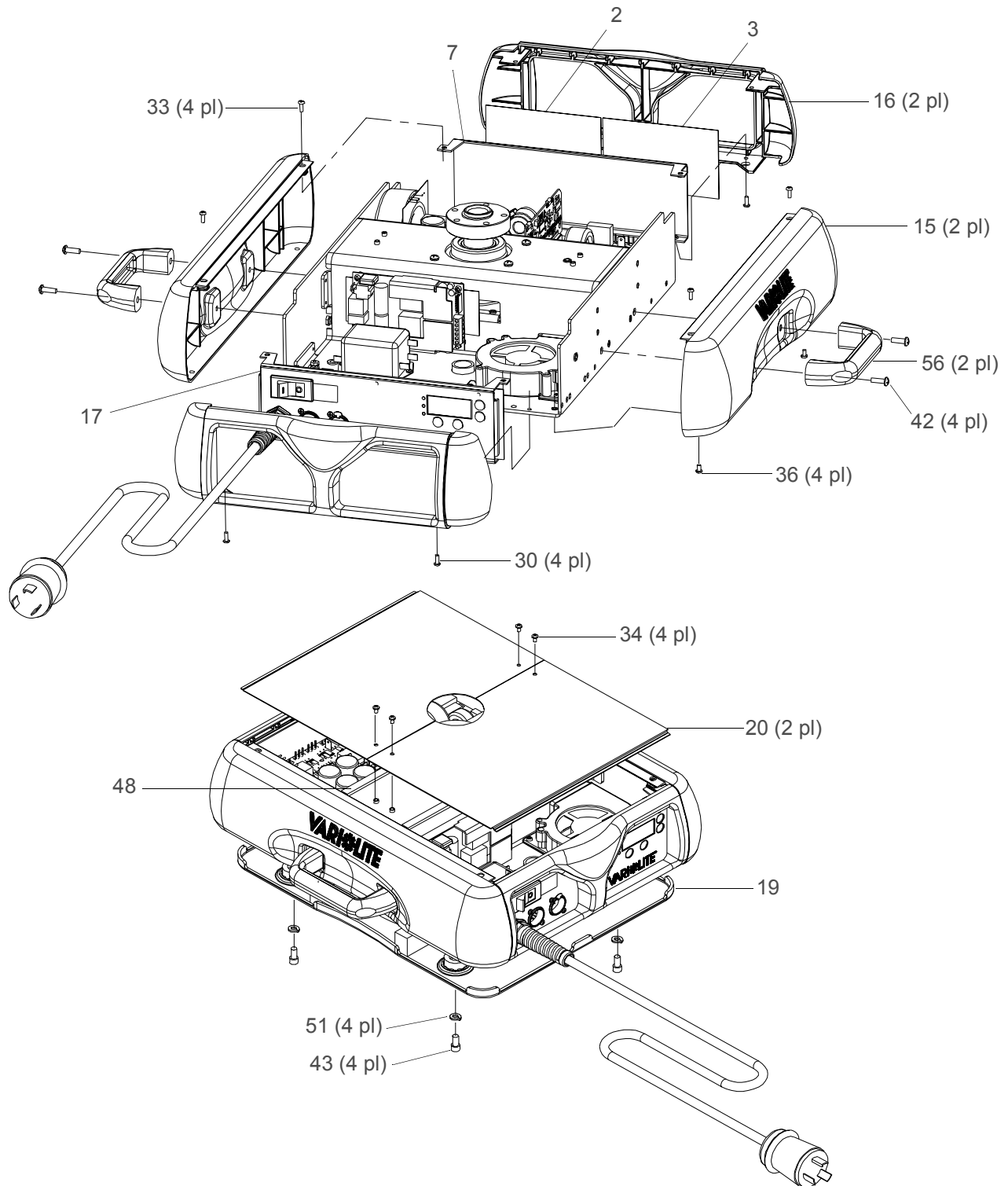


Figure 3-31: Upper Enclosure Assembly

Upper Enclosure Assembly (cont.)

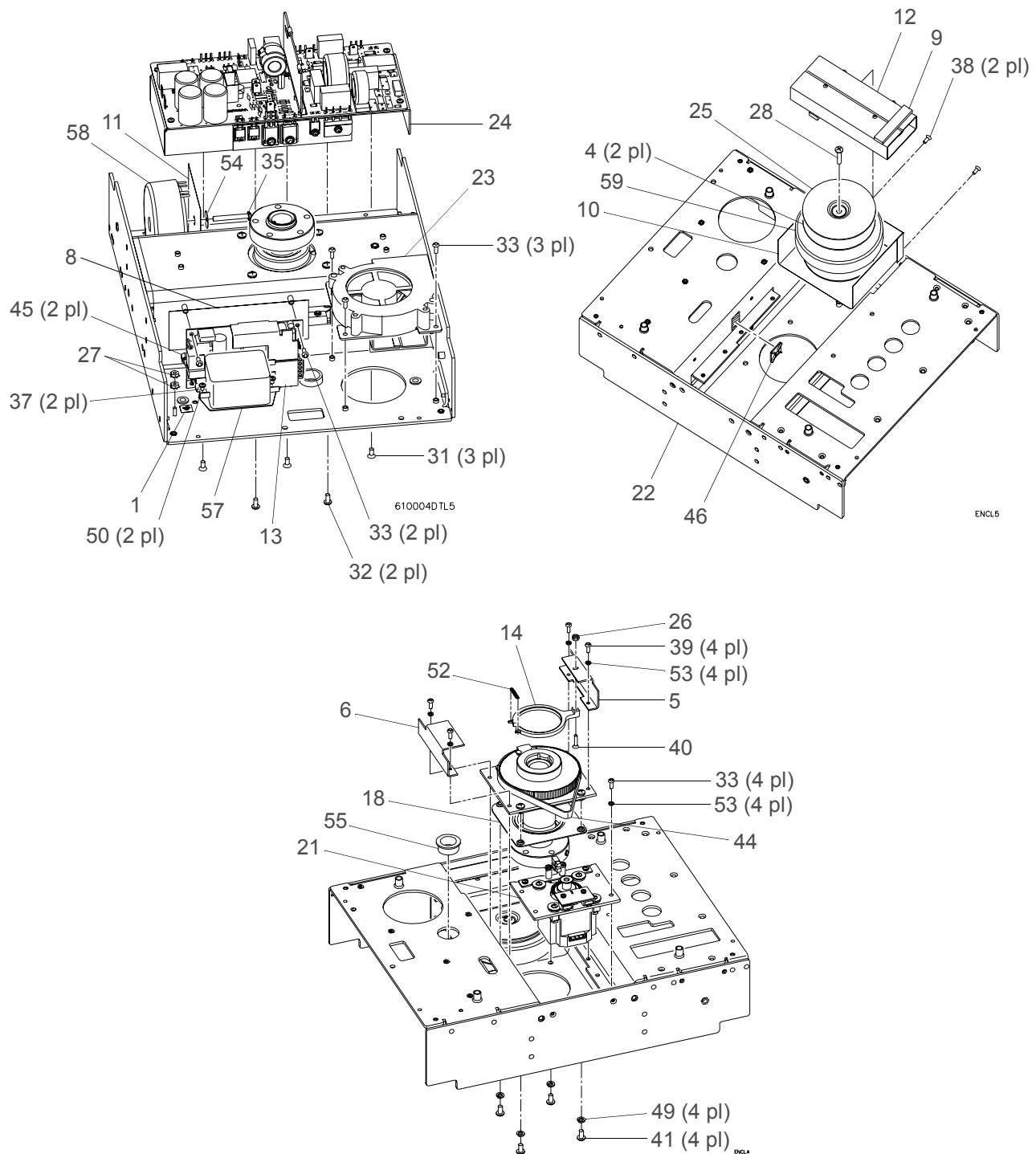


Figure 3-32: Upper Enclosure Assembly (bottom views)

Connector Panel Assembly

21.9661.1205 Rev E

Refer to Figure 3-33.

No.	Item	Qty.	UM.	Description
1	10.9661.1252	1	EA	LAYOUT, ENCLOSURE OVERLAY
2	10.9661.1259	1	EA	BRACKET, INPUT
3	24.9661.1225	1	EA	PCB ASSY, MAIN CONTROLLER 3-PHASE
4	24.9661.1251	1	EA	PCB ASSY, DMX INPUT
5	25.9661.1511	1	EA	CABLE ASSY, AC INPUT PIGTAIL (EURO) -VL8
6	53.6513.0019	4	EA	SCREW, M3 X 5MM LG PPB METRIC
7	53.6525.0001	2	EA	SCREW, 6-32 X 5/16" PPZ
8	55.2253.0001	1	EA	CARD GUIDE, SNAP-IN 6" LONG NYLON NATURAL
9	70.3744.1150	1	EA	C-BREAKER, 15.0A 240V HORIZ 1-0 NON-ILLUM

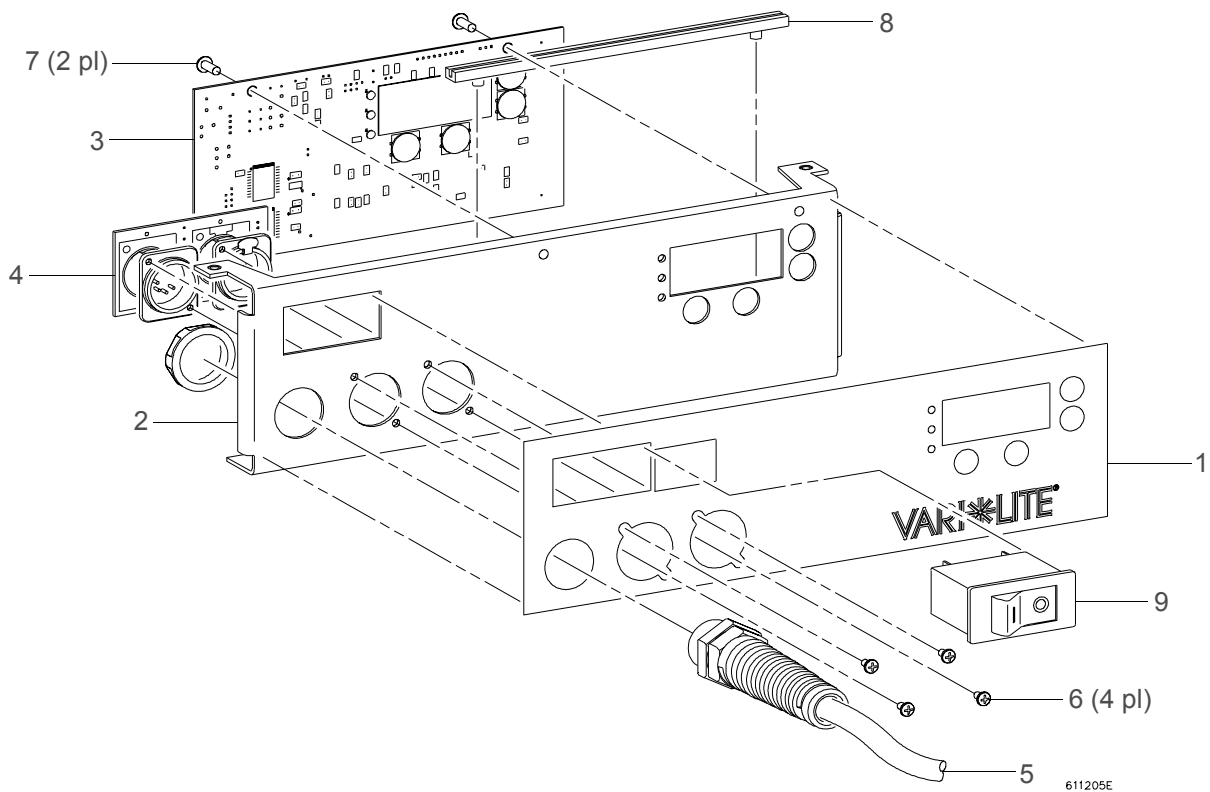


Figure 3-33: Connector Panel Assembly

Main Controller 3-Phase PCB Assembly

24.9661.1225 Rev R

Refer to Figure 3-34.

No.	Item	Qty.	UM.	Description	Ref
1	10.9661.1275	1	EA	HEATSINK, MAIN CONTROLLER	
2	11.9661.1225	1	EA	PCB, MAIN CONTROLLER 3PHASE	
3	52.6284.0001	1	EA	HEADER, 4POS MTA FRCT LOK STRT POST	J7
4	52.6296.0001	1	EA	HEADER, 8POS MTA FRCT LOK STRT POST	J2
5	52.6297.0001	2	EA	HEADER, 2PIN MTA FRCT LOK STRT POST	J3 & J4
6	52.6399.0001	1	EA	JUMPER, PROGRAMMING	XJ1 & XJ11
7	52.6583.0004	1	EA	HEADER, 4 CIR DUAL ROW W/O PEGS .165" CTRS	J6
8	52.6583.0006	1	EA	HEADER, 6 CIR DUAL ROW W/O PEGS .165" CTRS	J5
9	52.6592.0005	1	EA	HEADER, 5PIN SGL ROW VERT .1" PITCH SHROUDED	J10
10	52.6593.0004	1	EA	HEADER, 2PIN DBL ROW VERT MT 2X2 PIN .025" SQ PIN	J11
11	52.6615.0020	1	EA	CONN, HEADER 20POS DBL ROW SHROUDED STRAIGHT	J9
12	52.6628.0008	1	EA	HEADER ASSY, 8 POS RT ANG DBL ROW W/ HOLD-DOWN MOD	J8
13	52.6629.0003	1	EA	HEADER ASSY, 3 POS RT ANG SGL ROW W/ HOLD-DOWN MOD	J1
14	52.8390.0001	24	EA	CONTACT, SOCKET RND PLATED (AUGAT HOLTITE)	
15	53.5504.0187	2	EA	SCREW, 4-40 X 3/16" PPSS	
16	60.4500.4703	2	EA	RES, .1W 5% 4.7 K CHIP THK FLM SMT	R38 & R40
17	60.9460.1001	2	EA	RES, .1W 5% 10.0 OHM 100V CHIP THICK FILM	R39 & R43
18	60.9460.1003	7	EA	RES, .1W 5% 1.0 K 100V CHIP THICK FILM SMT0805	R16, R17, R23, R29, R31, R33 & R41
19	60.9460.1004	22	EA	RES, .1W 5% 10.0 K 100V CHIP THICK FILM	R1-R9, R11, R18, R19, R22, R24, R25, R30, R35, R36 & R44-R47
20	60.9460.5602	6	EA	RES, .1W 5% 560.0 OHM 100V CHIP THK FILM SUR MT	R10, R12-R15 & R21
21	60.9460.7505	1	EA	RES, .1W 5% 750.0 K 100V CHIP THICK FILM	R20
22	60.9461.1003	2	EA	RES, .1W 1% 1.0 K 100V CHIP THK FLM SMT0805	R27 & R28

No.	Item	Qty.	UM.	Description	Ref
23	60.9461.7323	2	EA	RES, .1W 1% 7.32 K 100V CHIP THK FLM SMT0805	R26 & R32
24	60.9471.0200	2	EA	RES, 2W 1% 0.2 OHM POWER METAL STRIP SUR MT	R34 & R42
25	62.2104.3826	1	EA	CAP, 82UF 35V RAD ALUM 6.3 X 15MM 20% LOW ESR	C22
26	62.4000.0105	19	EA	CAP, .1UF 50V 20% CER CHIP SUR MT Z5U EIA0805	C1-C14, C17-C20 & C24
27	62.4000.0200	4	EA	CAP, 20PF 50V 5% CER CHIP SUR MT COG EIA0805	C15, C16, C23 & C27
28	62.4003.0102	2	EA	CAP, 1000PF 50V 10% CER CHIP SUR MT X7R EIA0805	C43 & C44
29	62.4003.0104	6	EA	CAP, 0.1UF 50V 10% CER CHIP SUR MT X7R EIA0805	C25, C26, C36 & C39-C41
30	62.4005.0101	2	EA	CAP, 100PF 50V 10% CER CHIP SUR MT COG 0805	C28 & C29
31	62.4205.0107	1	EA	CAP, 100UF 10V 20% SUR MT	C21
32	62.4206.0105	2	EA	CAP, 1UF 16V 10% TANT CHIP SUR MT EIA-A	C33 & C37
33	62.4209.0224	2	EA	CAP, .22UF 50V 10% TANT CHIP SUR MT	C34 & C38
34	62.4210.0103	2	EA	CAP, .01UF 50V 10% MONO CER CHIP SUR MT	C32 & C35
35	62.4210.0104	1	EA	CAP, .1 UF 50V 10% CER CHIP SUR MT	C42
36	62.4225.0107	2	EA	CAP, 100UF 35V 20% ALUM ELECTRO SUR MT	C30 & C31
37	63.2032.0001	4	EA	VARISTOR, PTC 250V 145MA RADIAL TR250	PTC1-PTC4
38	64.4016.0506	1	EA	CRYSTAL, 16MHZ SUR MT	Y1
39	68.4566.0001	1	EA	INDUCTOR, 173UH PE-53819S LCI-37 SUR MT	L1
40	70.3738.0001	1	EA	FUSE HOLDER, F/FUSE 70.3738.1001	F1
41	70.3742.0002	1	EA	FUSE, POLY 60V MAX 40A MAX IH=.40A IT=.80A @ 20 DEG C	PTC5
42	73.7051.0001	1	EA	WIRE, 22AWG, BUSS (added 04-230-03)	R37
43	74.1047.0001	1	EA	SWITCH, KEY SUR MT	S6
44	74.1085.0001	4	EA	SWITCH, 12MM TACT MOM N/O	S1, S2, S4 & S5
45	74.1085.0011	4	EA	CAP, SWITCH 8MM SQ GREY -TL1100160Q	XS1, XS2, XS4 & XS5
46	74.1094.0001	1	EA	SWITCH, MERCURY TILT METAL TYPE	S3
47	75.7105.0805	6	EA	TVS, 6VOLT 0805 SMT	VR2-VR7
48	82.4322.0001	1	EA	DIODE, TVS ZENER 1.5SMC27AT3 27V 40A SMT	D5
49	82.5325.0001	1	EA	DIODE, MBRS130LT3 SCHOTTKY SUR MT	D4
50	82.5326.0001	6	EA	DIODE, DL4148CT RECTIFIER	D6-D11
51	82.5331.0001	4	EA	DIODE, P6KE13CA TVS ZENER 13V	Z1-Z4
52	82.5360.0001	2	EA	DIODE, BAV199LT1 SWITCHING 70V 215MA	D12 & D13
53	83.3173.0005	1	EA	IC, LM2594M-5 150KHZ 0.5A STEP-DOWN VOLTAGE REGULATOR	VR1

No.	Item	Qty.	UM.	Description	Ref
54	83.3189.0001	1	EA	IC, OPA2340VA OP AMP SINGLE SUPPLY RAIL TO RAIL	U19
55	84.0068.0812	1	EA	IC, MC68HC812A4PV8 (UNPRGMMD) 16BIT MICROCONTROLLER	U14
56	84.4234.0002	3	EA	IC, RS485 TRANSCEIVER SUR MT SOIC PKG	U18, U24 & U25
57	84.4264.0001	1	EA	IC, TC551664AJ 64K X 16 STATIC RAM	U4
58	84.4270.0001	1	EA	IC, NC7S08M5 SINGLE AND GATE SUR MT	U5
59	84.4288.0001	1	EA	IC, MAX6314US44D3-T MICROPROCESSOR RESET CIRCUIT	U15
60	84.4291.0001	1	EA	IC, ST16C550CQ48 UART RCVR/TRSMTR W/ 16 BYTE FIFO	U2
61	84.4305.0001	1	EA	IC, NC7SZ04M5 UHS INVERTER -SMT	U22
62	84.4306.0001	1	EA	IC, NC7SZ08M5 UHS 2-INPUT AND GATE	U23
63	84.7408.0014	1	EA	IC, 74AC14SC HEX INVERTER W/SCHMITT TRIGGER INPUT 14PIN SOIC	U1
64	84.7411.0007	1	EA	IC, HPR400 DC-DC CONVTR. 5V 3KV ISOLATED	U11
65	84.7426.0001	1	EA	IC, SN74HC04D HEX INVERTER	U17
66	85.5163.0001	1	EA	IC, LS7266R1-S ENCODER TO MICROPROCESSOR INTERFACE CHIP	U6
67	85.5164.0001	2	EA	IC, L6234PD THREE PHASE MOTOR DRIVER	U20 & U21
68	86.6105.0001	3	EA	IC, HCPL-0600 OPTO COUPLER SMD	U9, U10 & U16
69	87.7247.0001	1	EA	IC, AM29F200BT FLASH MEMORY 5V	U13
	87.7302.00XX	1	EA	INSTALLER DISK SET, BURNER VL2000 LUMINAIRES (not shown)	
70	88.8123.0002	1	EA	LED, YEL, HP, 1719	D3
71	88.8123.0003	2	EA	LED, GRN, HP, 1790	D1 & D2
72	88.8139.0002	2	EA	DISPLAY, INTELLIGNET ALPHA NUMERIC 0.54" H-EFF RED	U3 & U7
73	88.8140.0009	3	EA	LED MOUNT, .140" TALL NATURAL NYLON	XD1-XD3

DMX Input PCB Assembly

24.9661.1251 Rev D

Refer to Figure 3-35.

No.	Item	Qty.	UM.	Description	Ref
1	11.9661.1251	1	EA	PCB, DMX INPUT	
2	52.6525.0005	1	EA	HEADER, 5-POS RA SHROUDED .1" CTR	J3
3	52.6585.0005	1	EA	CONN, XLR 5PIN FEMALE PC MOUNT VERTICAL	J1
4	52.6586.0005	1	EA	CONN, XLR 5PIN MALE PC MOUNT VERTICAL	J2
5	62.3017.0102	1	EA	CAP, 1000PF 250V RAD CER DISC 20% Y-TYPE	C1
6	73.7046.0001	.16	FT	WIRE, 22 AWG STRND GREEN	

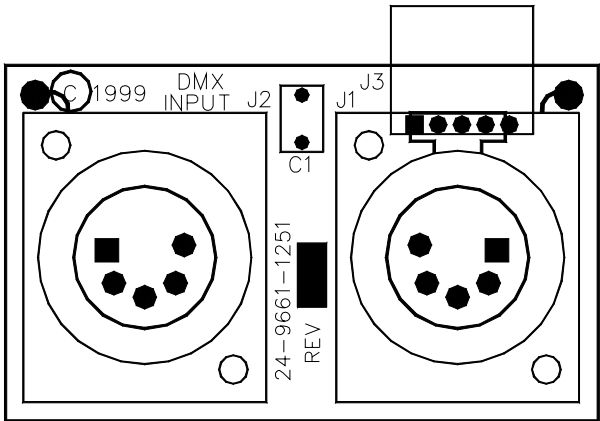


Figure 3-35: DMX Input PCB Assembly

Pan Tube Assembly

21.9661.1208 Rev K

Refer to Figure 3-36.

No.	Item	Qty.	UM.	Description
1	10.9661.1247	1	EA	TOGGLE STOP
2	10.9661.1290	1	EA	PAN TUBE
3	10.9661.1291	1	EA	FLANGE, PAN TUBE
4	21.9661.1207	1	EA	ASSY, PAN SUPPORT PLATE
-	- 10.9661.1297	1	EA	PLATE, PAN SUPPORT
-	- 55.2139.0003	1	EA	STANDOFF, 1/4" RND 8-32 .188"LG FF ALUM
5	21.9661.1212	1	EA	ASSY, PAN BEARING CUP, FLANGE SIDE
-	- 10.9661.0611.2	1	EA	PAN BEARING HOUSING
-	- 54.1244.0001	1	EA	BEARING, 1.25"BORE 2.2"WD CONRAD
6	22.9661.0601	1	EA	ASSY, PAN/TILT BEARING
-	- 10.9661.0611.1	1	EA	TILT BEARING HOUSING
-	- 54.1244.0001	1	EA	BEARING, 1.25" BORE 2.25"OD .500"WD CONRAD
7	22.9661.0607	1	EA	ASSY, DRIVEN PULLEY
-	- 10.9661.0650	1	EA	TIMING PULLEY, 150 TOOTH 2MM PITCH
-	- 10.9661.0655	1	EA	EOT FLAG
-	- 53.6530.0006	2	EA	RIVET, 1/8"OD POP .188-.250GL
-	- 55.6612.0022	1	EA	PIN, GRV .250"OD .625"LG STEEL
8	53.6517.0001	4	EA	SCREW, 10-32 X 3/8" PPZ
9	54.1206.0010	1	EA	RING, RETAINING 1.118" GRV DIA .056" GRV WD EXTERNAL
10	55.2123.0005	1	EA	SPRING, WAVE 1.62" OD 1.31" ID CAR STL
11	55.2152.0002	3	EA	SHIM, 1.500" OD 1.200" ID .024" THK SS
12	55.3301.0010	4	EA	WASHER, #10 FLAT
13	55.6612.0018	1	EA	PIN, GRV .250" OD 1.0" LG STL ZINC PLT
14	55.6677.0027	1	EA	WASHER, 1.75" OD 1.281" ID .015" THK FLAT NYLON

Pan Tube Assembly (cont.)

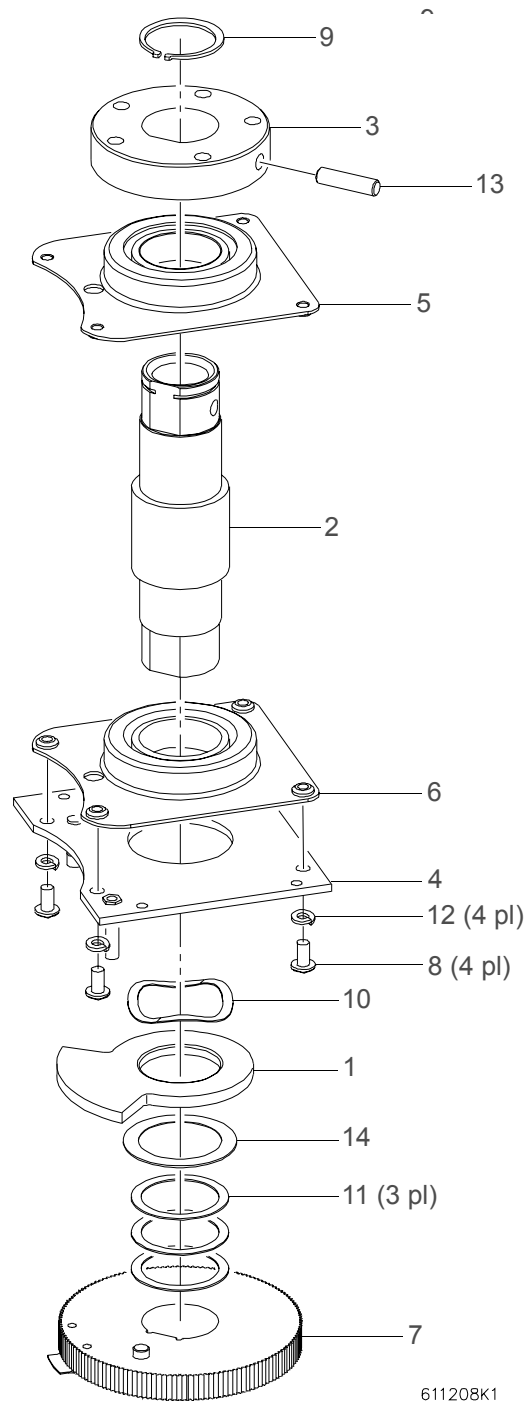


Figure 3-36: Pan Tube Assembly

Pan Motor Assembly

21.9661.1210 Rev F (Formerly 22.9661.0664 Rev E)

Refer to Figure 3-37.

No.	Item	Qty.	UM.	Description
1	10.9661.1298	1	EA	PLATE, TENSION ADJUST, PAN MOTOR
2	22.9661.0608	1	EA	ASSY, DRIVE PULLEY
-	- 10.9661.0640	1	EA	CODEWHEEL, 90 COUNT
-	- 10.9661.0649	1	EA	TIMING PULLEY, 2MM GT, 17 TOOTH
-	- 53.5561.0250	2	EA	SCREW, 6-40 X 1/4" SET CONE POINT
3	23.9661.1253	1	EA	ELEC ASSY, PAN EOT SENSOR
-	- 52.6524.0006	1	EA	CONN, HOUSING 6-POS RECEPTACLE
-	- 52.8346.0001	4	EA	CONTACT, 24-30 AWG FEMALE CRIMP
-	- 86.7002.0003	1	EA	SWITCH, SLOTTED OPTICAL
4	24.9661.0629	1	EA	PCB ASSY, PAN/TILT ENCODER
5	44.5034.0001	1	EA	MOTOR, STEPPER, 42 X 40 10 OHM
6	53.2203.0001	2	EA	SCREW, 4-40 X 1/4" PPZ
7	53.5506.0625	4	EA	SCREW, 6-32 X 5/8 " PPSS
8	55.6512.0001	2	EA	WASHER, #4 SPLIT LOCK
9	53.6520.0001	2	EA	SCREW, 4-40 X 3/8" PPZ
10	55.6621.0001	4	EA	WASHER, #4 FLAT ZINC
11	55.6669.0022	2	EA	STANDOFF, 1/4" HEX 4-40 .500" MF

Pan Motor Assembly (cont.)

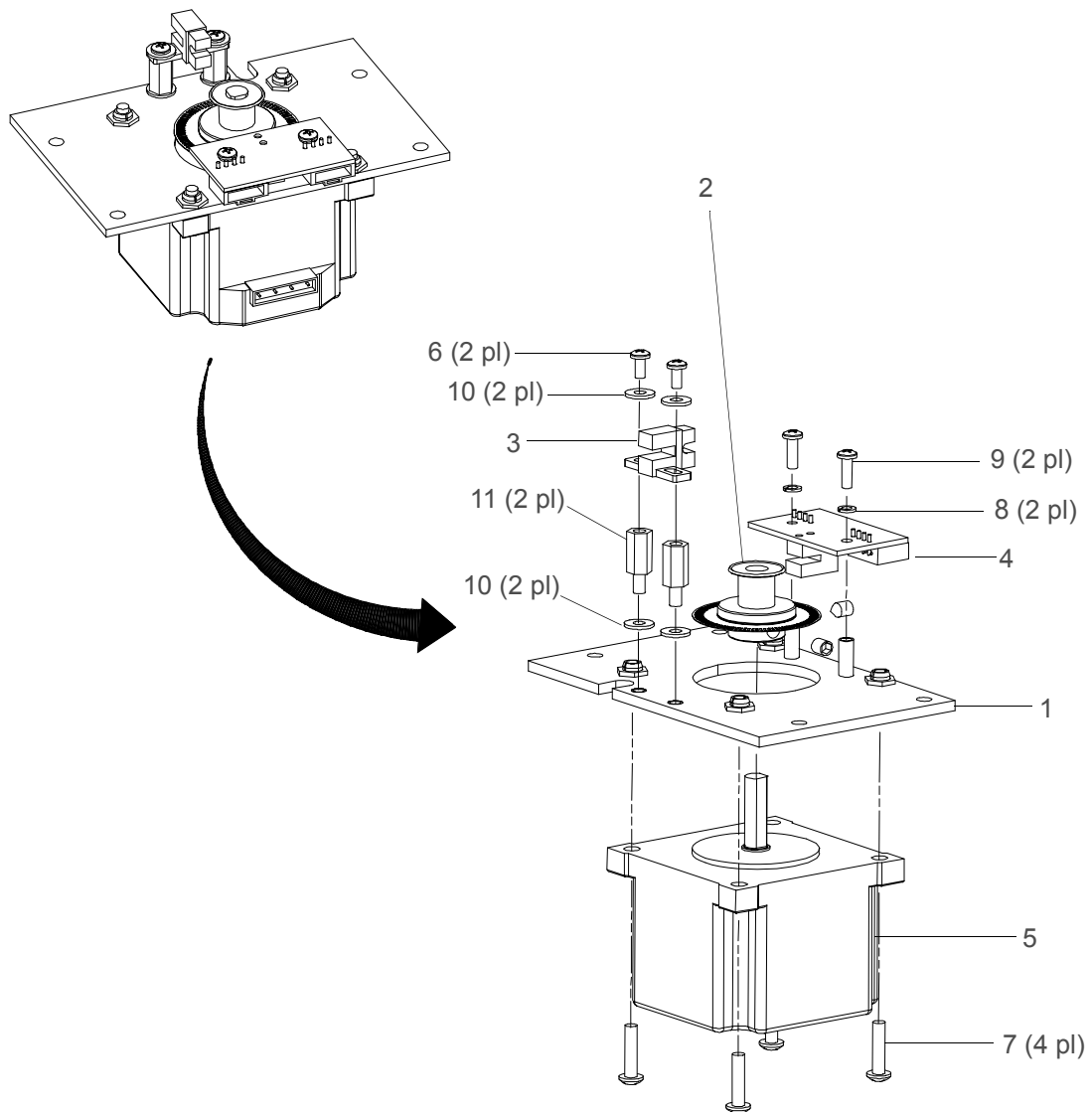


Figure 3-37: Pan Motor Assembly

Pan/Tilt Encoder PCB Assembly

24.9661.0629 Rev 0

Refer to Figure 3-38.

No.	Item	Qty.	UM.	Description	Ref																		
1	11.9661.0629	1	EA	PCB, ENCODER SENSOR																			
2	52.6613.0005	1	EA	HEADER, 5-POS SGL ROW SHROUDED LATCHING	J1																		
3	52.6613.0006	1	EA	HEADER, 6-POS SGL ROW SHROUDED LATCHING	J2 <tr> <td>4</td><td>60.9460.1802</td><td>2</td><td>EA</td><td>RES, .1W 5% 180.0 OHM 100V CHIP SUR MT</td><td>R1, R2</td></tr> <tr> <td>5</td><td>62.3009.0103</td><td>1</td><td>EA</td><td>CAP, .01UF 50V 10% MONO CER CHIP SUR MT</td><td>C1</td></tr> <tr> <td>6</td><td>86.7009.0001</td><td>1</td><td>EA</td><td>IC, GP1A70R OPIC PHOTOINTERRUPTER</td><td>S1</td></tr>	4	60.9460.1802	2	EA	RES, .1W 5% 180.0 OHM 100V CHIP SUR MT	R1, R2	5	62.3009.0103	1	EA	CAP, .01UF 50V 10% MONO CER CHIP SUR MT	C1	6	86.7009.0001	1	EA	IC, GP1A70R OPIC PHOTOINTERRUPTER	S1
4	60.9460.1802	2	EA	RES, .1W 5% 180.0 OHM 100V CHIP SUR MT	R1, R2																		
5	62.3009.0103	1	EA	CAP, .01UF 50V 10% MONO CER CHIP SUR MT	C1																		
6	86.7009.0001	1	EA	IC, GP1A70R OPIC PHOTOINTERRUPTER	S1																		

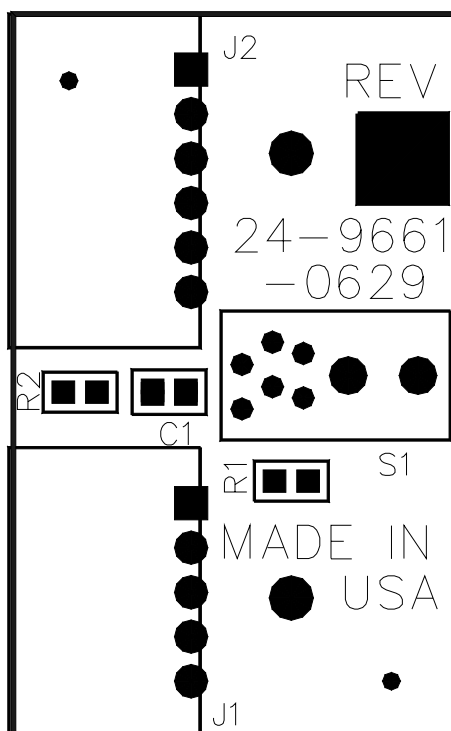


Figure 3-38: Pan/Tilt Encoder PCB Assembly

700W Arc Power Supply Ballast Module

23.9671.1250 Rev D

Refer to Figure 3-39.

No.	Item	Qty.	UM.	Description
1	06.6032.0009	1	EA	CABLE MARKER TIE, WHITE 19 X 7.4"
2	10.9661.1260	1	EA	HEAT SINK, LEFT 1200 WATT POWER SUPPLY
3	10.9661.1261	1	EA	HEAT SINK, RIGHT 1200 WATT POWER SUPPLY
4	10.9661.1262	1	EA	TOP, AIR DUCT 1200 WATT POWER SUPPLY
5	10.9661.1274	3	EA	INSULATOR, ELECTRICAL, TO-247
6	10.9661.1353	1	EA	CHANNEL, AIR APS
7	24.9661.1130	1	EA	PCB ASSY, 700W BALLAST BOARD
8	24.9661.1131	1	EA	PCB ASSY, 700W BALLAST RIDER BOARD
9	51.5006.0004	3	EA	INSULATOR, TO-220 ALUMINUIM OXIDE (4171)
10	51.5029.0001	7	EA	INSULATOR, TO-247 ALUMINUM OXIDE
11	53.6520.0002	6	EA	SCREW, 4-40 X 7/16" PPZ
12	53.6522.0001	5	EA	SCREW, 6-32 X 1/4" PPZ
13	53.6530.0007	2	EA	RIVET, 1/8" OD POP .063-.125GRP RG .265LG CSKH-AL5052
14	53.6609.0001	4	EA	SCREW, 6-32 X 3/8" PFZ
15	53.6616.0001	9	EA	SCREW, 6-32 X 3/4" PPZ
16	55.2178.0001	1	EA	CABLE ANCHOR MOUNT, #8 SCREW MOUNTING
17	55.6509.0001	3	EA	WASHER, SHOULDER (HEATSINK)
18	55.6528.0001	9	EA	WASHER, #6 FLAT ZINC
19	55.6537.0001	3	EA	WASHER, #4 LOCK INTERNAL TOOTH
20	55.6538.0001	10	EA	WASHER, #6 LOCK INTERNAL TOOTH
21	55.6621.0001	3	EA	WASHER, #4 FLAT ZINC
22	55.6658.0009	1	EA	STANDOFF, 1/4" HEX 6-32 .750" LG MF SS
23	55.6736.2500	0.11	FT	TUBING, TEFLON .053ID STD WALL 500V/MIL, FOR AWG #16
24	60.9244.0501	1	EA	RES, 30W 5% .05 OHM TO-220 POWER FILM
25	60.9245.0751	1	EA	RES, 30W 1% .075 OHM TO-220 POWER FILM
26	63.2047.0075	1	EA	THERMOSTAT, 75DEG C PCB MT CLOSE ON RISE
27	63.2047.0105	2	EA	THERMOSTAT, 105DEG C PCB MOUNT CLOSE ON RISE
28	67.4018.0001	1	EA	FERRITE, 26 X 28.5 X 13MM, CYLINDRICAL CORE
29	73.7051.0001	3	FT	WIRE, 22AWG BUSS
30	80.2628.0001	4	EA	TRANSISTOR, IXGH39N60BD1 IGBT 76A 600V
31	80.2647.0001	1	EA	TRANSISTOR, IXGH32N60C IGBT 32A 600V
32	80.2648.0001	2	EA	TRANSISTOR, IXFH32N50 POWER MOSFET 500V 32A TO-247
33	82.4323.0001	1	EA	DIODE, BRIDGE D25XB60 600V 25A SIP
34	82.5341.0001	2	EA	DIODE, DSEI30-06A FRED 25-37A T0-247 AD

700W Arc Power Supply Ballast Module (cont.)

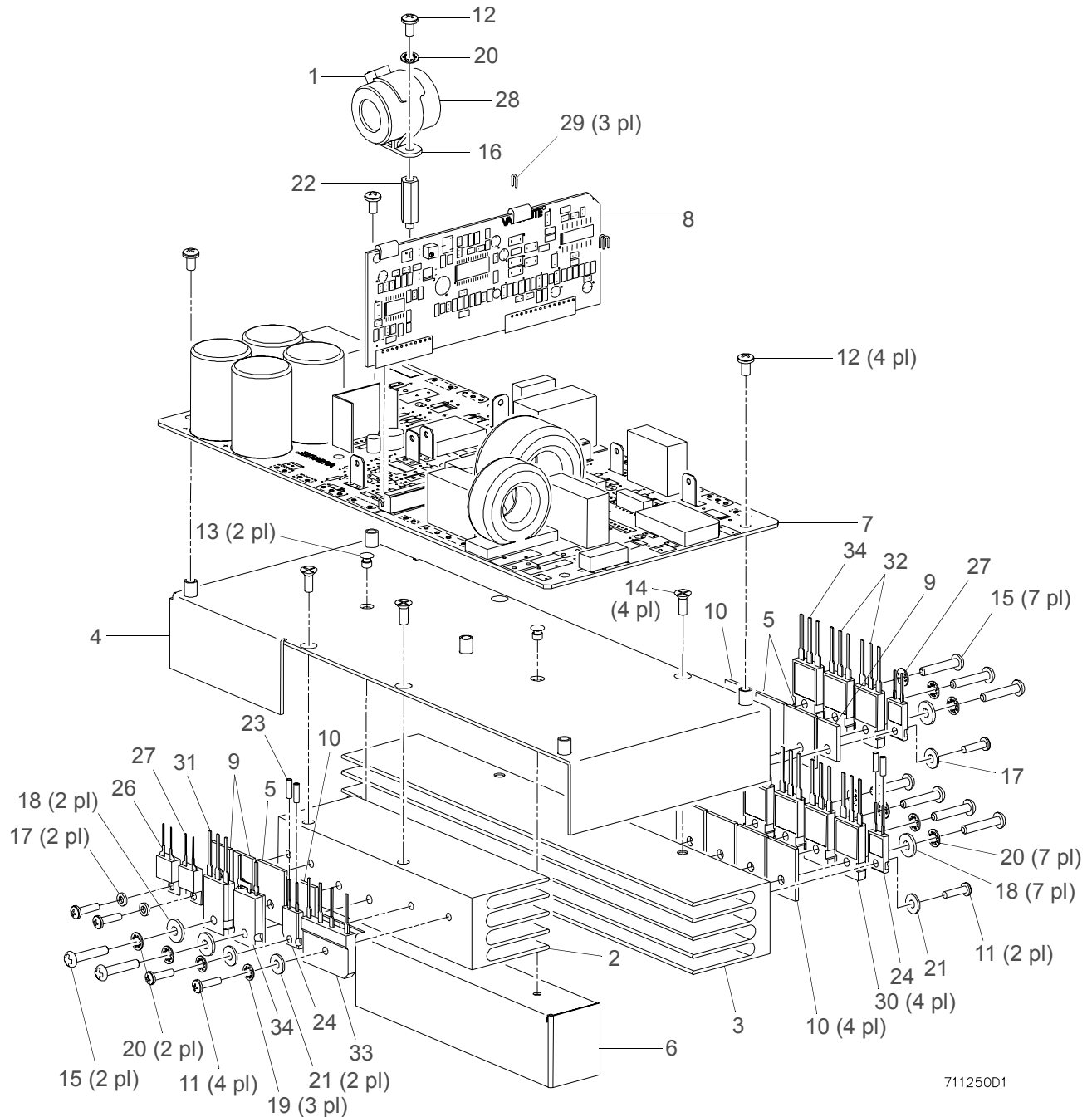


Figure 3-39: 700W Arc Power Supply Ballast Module Assembly

700W Ballast Board PCB Assembly

24.9661.1130 Rev C

Refer to Figure 3-40.

No.	Item	Qty.	UM.	Description	Ref
1	10.9661.1356	1	EA	GUIDE, APS RIDER PCB	
2	11.9661.1120	1	EA	PCB, 400/625W BALLAST BOARD	
3	51.5031.0001	1	EA	HEATSINK, TO-220 CLIP-ON ALUM BLACK ANODIZED PC MT	
4	52.6229.0001	1	EA	HEADER, 3POS MTA FRIC LOK STRT POST	J113
5	52.6261.0002	1	EA	HEADER, 2PIN MTA156	J102
6	52.6296.0001	1	EA	HEADER, 8POS MTA FRCT LOK STRT POST	J112
7	52.6370.0003	1	EA	HEADER ASSY, 3CIR SOCKET MNLOK FMLE	J103
8	52.6574.0012	1	EA	HEADER, 12CIR VERTICAL KK STYLE	J101
9	52.6574.0015	1	EA	HEADER, 15CIR VERTICAL KK STYLE	J201
10	52.8252.0001	8	EA	TERM, .250"TAB PC QUICK-FIT BRASS	J108-111& J202-205
11	52.8283.5202	1	EA	TEST POINT, PCB MT .052"HOLE RED GLASS BEAD	J106
12	52.8283.5210	1	EA	TEST POINT, PCB MT .052"HOLE BLK GLASS BEAD	J107
13	60.1230.1004	1	EA	RES, 1/4W 1% 10.0 K MF	R225
14	60.1230.1214	1	EA	RES, 1/4W 1% 12.1 K MF	R203
15	60.1230.4755	4	EA	RES, 1/4W 1% 475.0 K MF	R112, R113, R202 & R218
16	60.1230.7153	2	EA	RES, 1/4W 1% 7.15 K MF	R114 & R222
17	60.1230.8255	1	EA	RES, 1/4W 1% 825.0 K MF	R210
18	60.1231.5623	1	EA	RES, 1/4W 1% 5.62 K MF	R211
19	60.1420.2001	2	EA	RES, 1/4W 5% 20.0 OHM CF	R117 & R109
20	60.1420.3002	1	EA	RES, 1/4W 5% 300.0 OHM CF	R107
21	60.1420.4302	3	EA	RES, 1/4W 5% 430.0 OHM CF	R216, R224 & R221
22	60.1420.5101	4	EA	RES, 1/4W 5% 51.0 OHM CF	R212-R215
23	60.1420.5105	2	EA	RES, 1/4W 5% 510.0 K CF	R110 & R111
24	60.1420.7505	2	EA	RES, 1/4W 5% 750.0 K CF	R105 & R106
25	60.1421.1201	2	EA	RES, 1/4W 5% 12.0 OHM CF	R206 & R207
26	60.1421.4700	1	EA	RES, 1/4W 5% 4.7 OHM CF	R208
27	60.1421.6805	1	EA	RES, 1/4W 5% 680.0 K CF	R102
28	60.1422.1001	3	EA	RES, 1/4W 5% 1.0 K CF	R219, R220 & R223
29	60.1422.2001	1	EA	RES, 1/4W 5% 2.0 K CF	R119
30	60.1424.1502	1	EA	RES, 1/4W 5% 15.0 K CF	R104
31	60.1424.2004	1	EA	RES, 1/4W 5% 20.0 K CF	R108

No.	Item	Qty.	UM.	Description	Ref
32	60.1424.2702	2	EA	RES, 1/4W 5% 27.0 K CF	R103 & R118
33	60.1426.1003	2	EA	RES, 1/4W 5% 100.0 K CF	R226 & R227
34	60.1431.1007	1	EA	RES, 1/4W 5% 10.0 OHM	R217
35	60.3432.2004	2	EA	RES, 2W 5% 20.0 K MET OXIDE	R115 & R116
36	60.7440.1002	1	EA	RES, 5W 5% 100.0 OHM WW	R209
37	62.2110.0474	1	EA	CAP, .47UF 250V RAD METALLIZED POLYEST 15MM L.S. 10%	C219
38	62.2112.0337	4	EA	CAP, 330 UF 250V RAD ALUM 25MM X 30MM	C110-C113
39	62.2114.0107	1	EA	CAP, 100UF 50V RAD ALUM 10MM X 15MM 20%	C114
40	62.3007.0474	2	EA	CAP, .47UF 275VAC RAD SUPPRESSOR 10%	C101 & C102
41	62.3013.0105	2	EA	CAP, 1UF 630V RAD MET PLYPLN 10%	C201 & C204
42	62.3013.0474	1	EA	CAP, .47UF 630V RAD MET PLYPLN 10%	C105
43	62.3017.0102	4	EA	CAP, 1000PF 250V RAD CER DISC 20% Y-TYPE	C117, C118, C103 & C104
44	62.3017.0472	1	EA	CAP, 4700PF 250V RAD CER DISC Y-CLASS	C223
45	62.3021.2331	1	EA	CAP, 330PF 200V RAD CER 20% X7R	C203
46	62.3023.0104	12	EA	CAP, .1UF 50V RAD CER 20% Z5U	C109, C115, C120, C206, C209, C211, C214, C218, C220, C222, C225 & C226
47	62.3023.0333	1	EA	CAP, .33UF 50V RAD CER 20% Z5U	C106
48	62.3023.0473	3	EA	CAP, .47UF 50V RAD CER 20% Z5U	C107, C210 & C215
49	62.3027.0102	1	EA	CAP, 1000PF 1600V RAD POLYPROPYLENE .600" 10%	C205
50	62.3029.0333	1	EA	CAP, .033UF 1000V RAD POLYPROPYLENE .886" 10%	C216
51	62.4010.0106	1	EA	CAP, 10UF 50V RAD ALUM 4 X 11 MM 20%	C221
52	62.4010.0475	8	EA	CAP, 4.7UF 50V RAD ALUM 5 X 11 MM 20%	C108, C116, C119, C207, C208, C212, C213 & C217
53	63.2050.0001	1	EA	VARISTOR, METAL OXIDE 300V RMS 165J 775V CLAMP	VR101
54	63.2055.0001	2	EA	THERMISTOR, 12A 0.7 OHM NTC INRUSH CURRENT LIMIT	NTC101 & NTC102
55	68.4536.0002	1	EA	CHOKE, COMMON MODE FILTER 1.35MH 11A	L102
56	68.4577.0001	1	EA	INDUCTOR, CURRENT SENSE PE-51688	L201
57	68.9661.1112	1	EA	TRANSFORMER, GATE DRIVE	T201
58	68.9661.1115	1	EA	CHOKE, EMI DIFFERENTIAL	L101
59	70.3727.0002	2	EA	FUSE CLIP, 1/4" PC BOARD TINNED BRASS	XF101
60	70.3762.0020	1	EA	FUSE, 20A 250VAC VERY FAST ACT 1/4"X1 1/ 4" CERAMIC	F101
61	73.6016.0006	0.25	FT	WIRE, 16AWG 600V 105C PVC BLU UL1015	
62	80.2623.0001	2	EA	TRANSISTOR, 2N4401 NPN 40V 600MA	Q102 & Q203

No.	Item	Qty.	UM.	Description	Ref
63	80.2623.0003	3	EA	TRANSISTOR, 2N4403 PNP 40V 600MA TO-92	Q103, Q204 & Q211
64	80.2643.0001	2	EA	TRANSISTOR, MPSW63 1W PNP DARLINGTON 30V 500MA 1W TO-92	Q205 & Q210
65	82.4308.4937	5	EA	DIODE, 1N4937 FAST 600V 1A	D206-D210
66	82.4317.5819	1	EA	DIODE, 1N5819 RECTIFIER 40V 1A	D212
67	82.5318.0160	1	EA	DIODE, MUR160, 600V, 1A	D104
68	82.5322.0001	1	EA	DIODE, 1N4736A	D215
69	82.5323.0001	2	EA	DIODE, MUR460 600V 4AMP ULTRAFAST	D202 & D205
70	82.5349.0001	1	EA	DIODE, MBR1100 SCHOTTKY 1A 100V AXIAL LEAD RECTIFIER	D103
71	82.5351.0001	1	EA	DIODE, ZENER 20V 1W 5% DO-41 1N4747A	D102
72	83.3188.0001	1	EA	IC, LM317AT 3-TERM ADJUSTABLE REGULATOR	VR102
73	84.7427.0001	1	EA	IC, WPCO3R24S15L DC-DC CONVERTER 3W	U203
74	85.5120.0001	2	EA	IC, IR2110, 1/2 BRIDGE DRIVER	U201 & U202
75	86.6109.0001	1	EA	IC, OPTO COUPLER DUAL CHANNEL 8PIN DIP	U204

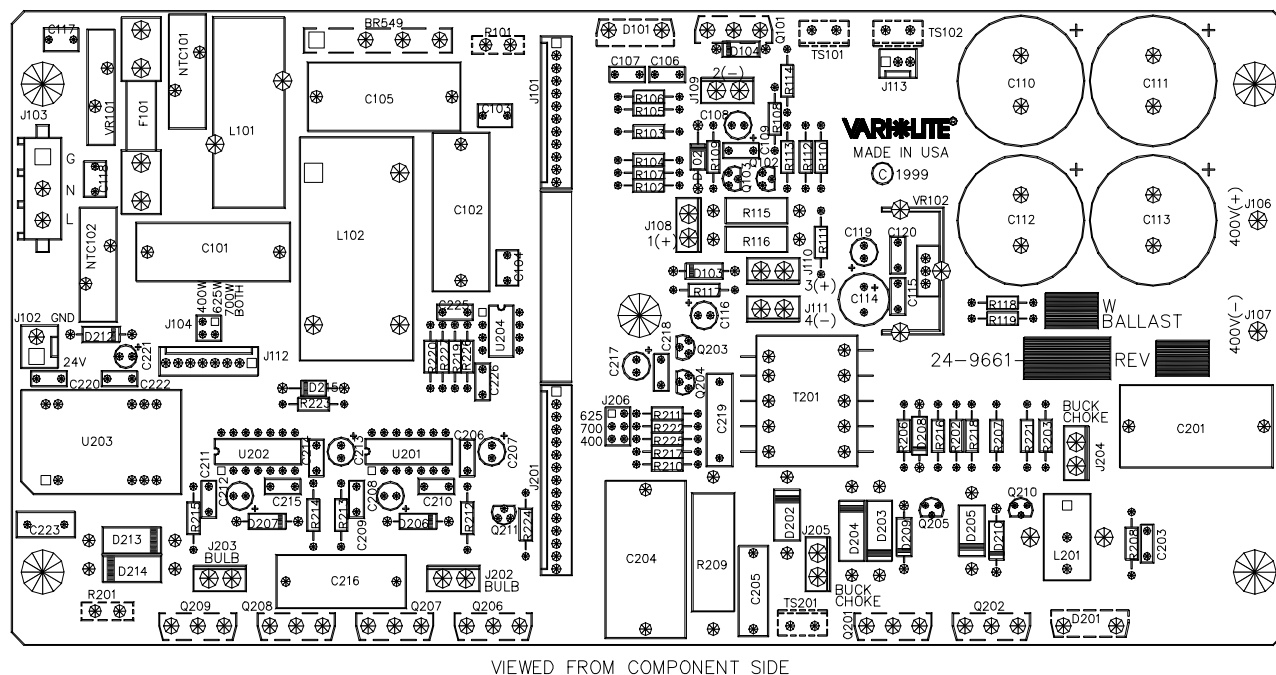


Figure 3-40: 700W Ballast Board PCB Assembly

700W Ballast Rider Board PCB Assembly

24.9661.1131 Rev b

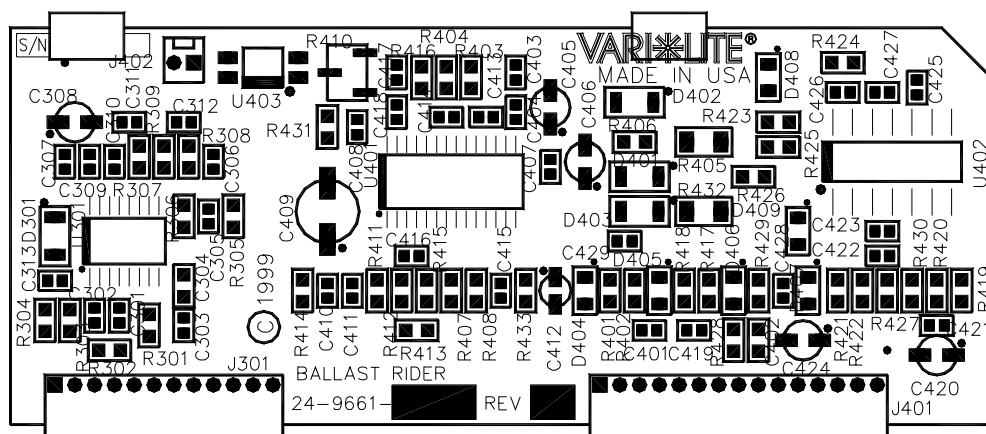
Refer to Figure 3-41.

No.	Item	Qty.	UM.	Description	Ref
1	10.9661.1355	2	EA	STABILIZING EXTRUSION, APS RIDER BD PCB	
2	11.9661.1111	1	EA	PCB, BALLAST RIDER	
3	52.6297.0001	1	EA	HEADER, 2PIN MTA FRCT LOK STRT POST	J402
4	52.6576.0012	1	EA	CONN, 12 CIR .100" PC BOARD	J301
5	52.6576.0015	1	EA	CONN, 15 CIR .100" PC BOARD	J401
6	60.0460.1004	1	EA	RES, 1/8W 5% 10.0 K THK FLM CHIP SUR MT EIA-1206	R401
7	60.9462.1003	2	EA	RES, 1/2W 5% 1.0 K 200V CHIP THK FLM SMT1206	R405, R432
8	60.9463.0000	1	EA	RES, 1/8W ZERO OHM 200V CHP THK FLM S-MT1206	R433
9	60.9463.1004	1	EA	RES, 1/8W 1% 10.0 K 200V CHP THK FLM S-MT1206	R306
10	60.9463.1005	1	EA	RES, 1/8W 1% 100.0 K 200V CHP THK FLM S-MT1206	R408
11	60.9463.1215	1	EA	RES, 1/8W 1% 121.0 K 200V CHP THK FLM S-MT1206	R407
12	60.9463.1474	2	EA	RES, 1/8W 1% 14.7 K 200V CHP THK FLM SMT1206	R301, R304
13	60.9463.1624	1	EA	RES, 1/8W 1% 16.2 K 200V CHP THK FLM S-MT1206	R412
14	60.9463.2004	1	EA	RES, 1/8W 1% 20.0 K 200V CHP THK FLM S-MT1206	R419
15	60.9463.2153	1	EA	RES, 1/8W 1% 2.15 K 200V CHP THK FLM SMT1206	R303
16	60.9463.2744	1	EA	RES, 1/8W 1% 27.4 K 200V CHP THK FLM SMT1206	R307
17	60.9463.7503	1	EA	RES, 1/8W 1% 7.50 K 200V CHP THK FLM SMT1206	R411
18	60.9463.9313	1	EA	RES, 1/8W 1% 9.31 K 200V CHP THK FLM S-MT1206	R420
19	60.9463.9315	1	EA	RES, 1/8W 1% 931.0 K 200V CHP THK FLM S-MT1206	R427
20	60.9464.1003	1	EA	RES, 1/8W 5% 1.0 K 200V CHP THK FLM S-MT1206	R406
21	60.9464.2003	1	EA	RES, 1/8W 5% 2.0 K 200V CHP THK FLM S-MT1206	R413

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No.	Item	Qty.	UM.	Description	Ref
22	60.9464.2004	9	EA	RES, 1/8W 5% 20.0 K 200V CHP THK FLM S-MT1206	R308, R309, R402, R417, R418, R424, R425, R426, R428
23	60.9464.2005	1	EA	RES, 1/8W 5% 200.0 K 200V CHP THK FLM S-MT1206	R422
24	60.9464.2703	1	EA	RES, 1/8W 5% 2.7 K 200V CHP THK FLM S-MT1206	R416
25	60.9464.3002	2	EA	RES, 1/8W 5% 300.0 OHM 200V CHP THK FLM S-MT1206	R403, R404
26	60.9464.3005	1	EA	RES, 1/8W 5% 300.0 K 200V CHP THK FLM S-MT1206	R429
27	60.9464.3604	1	EA	RES, 1/8W 5% 36.0 K 200V CHP THK FLM SMT1206	R423
28	60.9464.4703	2	EA	RES, 1/8W 5% 4.7 K 200V CHP THK FLM S-MT1206	R430, R431
29	60.9464.4704	1	EA	RES, 1/8W 5% 47.0 K 200V CHP THK FLM S-MT1206	R302
30	60.9464.7505	1	EA	RES, 1/8W 5% 750.0 K 200V CHP THK FLM S-MT1206	R421
31	60.9464.8204	1	EA	RES, 1/8W 5% 82.0 K 200V CHP THK FLM S-MT1206	R305
32	62.3009.0473	1	EA	CAP, .047UF 50V 10% MONO CER CHIP SUR MT	C417
33	62.4000.0102	1	EA	CAP, 1000PF 50V 5% CER CHIP MONO COG	C309
34	62.4000.0105	14	EA	CAP, .1UF 50V 20% CER CHIP SUR MT Z5U EIA0805	C305, C306, C307, C310, C312, C404, C407, C408, C419, C421, C422, C423, C426, C427
35	62.4000.0331	1	EA	CAP, 330PF 50V 5% CER CHIP SUR MT COG EIA0805	C413
36	62.4003.0102	3	EA	CAP, 1000PF 50V 10% CER CHIP SUR MT X7R EIA0805	C416, C418, C425
37	62.4003.0331	1	EA	CAP, 330PF 50V 10% CER CHIP SUR MT X7R 0805	C313
38	62.4003.0471	1	EA	CAP, 470PF 50V 10% CER CHIP SUR MT X7R 0805	C302
39	62.4004.0221	1	EA	CAP, 220PF 50V 20% CER CHIP SUR MT X7R EIA0805	C403
40	62.4004.0222	1	EA	CAP, 2200PF 50V 20% CER CHIP SUR MT X7R EIA0805	C415
41	62.4005.0101	3	EA	CAP, 100PF 50V 10% CER CHIP SUR MT COG 0805	C410, C411, C429
42	62.4005.0330	1	EA	CAP, 33PF 50V 10% CER CHIP SUR MT COG 0805	C428
43	62.4005.0470	1	EA	CAP, 47PF 50V 10% CER CHIP SUR MT COG 0805	C301

No.	Item	Qty.	UM.	Description	Ref
44	62.4006.0222	1	EA	CAP, 2200PF 50V 5% CER CHIP SUR MT X7R 0805	C401
45	62.4007.0474	2	EA	CAP, .47UF 50V 20% CER CHIP SUR MT Z5U 1210	C304, C402
46	62.4221.0105	1	EA	CAP, 1UF 50V 20% ALUM ELECTRO SUR MT	C412
47	62.4223.0475	5	EA	CAP, 4.7UF 50V ALUM ELECTRO SUR MT LOW ESR	C308, C405, C406, C420, C424
48	62.4224.0107	1	EA	CAP, 100UF 35V 20% AL ELEC 8MM DIA 105C S-MT	C409
49	63.2049.0001	1	EA	POT, 500 OHM CERMET 13 TRN SUR MT	R410
50	82.4327.0001	2	EA	DIODE, 1N5819M RECTIFIER GLASS MELF	D301, D403
51	82.5344.0001	1	EA	DIODE, GLL4740A ZENER	D401
52	82.5345.0001	1	EA	DIODE, GLL4736A ZENER	D402
53	82.5346.0001	6	EA	DIODE, LL4148 SMALL SIGNAL	D404-D409
54	83.3201.0001	1	EA	IC, LM293D DUAL OP-AMP/DUAL COMPARATOR 14PIN DIP	U402
55	83.3202.0001	1	EA	IC, LM258D DUAL DIFFERENTIAL	U404
56	85.5157.0001	1	EA	IC, UC2854ADW PREREGULATOR 16PIN SOIC	U301
57	85.5160.0001	1	EA	IC, UCC2305DW HID LAMP CONTROLLER	U401
58	86.6120.0001	1	EA	IC, LTV817S PHOTOCOUPLER SUR M	U403



VIEWED FROM COMPONENT SIDE

611131

Figure 3-41: 700W Ballast Rider Board PCB Assembly

Tilt Motor Assembly

22.9661.0610 Rev D (Formerly 22.9661.0665 Rev E)

Refer to Figure 3-42.

No.	Item	Qty.	UM.	Description
1	10.9661.1298	1	EA	PLATE, TENSION ADJUST, PAN MOTOR
2	22.9661.0608	1	EA	ASSY, DRIVE PULLEY
-	- 10.9661.0640	1	EA	CODEWHEEL, 90 COUNT
-	- 10.9661.0649	1	EA	TIMING PULLEY, 2MM GT, 17 TOOTH
-	- 53.5561.0250	2	EA	SCREW, 6-40 X 1/4" SET CONE POINT
3	23.9661.1253	1	EA	ELEC ASSY, PAN EOT SENSOR
-	- 52.6524.0006	1	EA	CONN, HOUSING 6-POS RECEPTACLE
-	- 52.8346.0001	4	EA	CONTACT, 24-30 AWG FEMALE CRIMP
-	- 86.7002.0003	1	EA	SWITCH, SLOTTED OPTICAL
4	24.9661.0629	1	EA	PCB ASSY, PAN/TILT ENCODER
5	44.5034.0001	1	EA	MOTOR, STEPPER, 42 X 40 10 OHM
6	53.2203.0001	2	EA	SCREW, 4-40 X 1/4" PPZ
7	53.5506.0625	4	EA	SCREW, 6-32 X 5/8 " PPSS
8	55.6512.0001	2	EA	WASHER, #4 SPLIT LOCK
9	53.6520.0001	2	EA	SCREW, 4-40 X 3/8" PPZ
10	55.6621.0001	4	EA	WASHER, #4 FLAT ZINC

Tilt Motor Assembly (cont.)

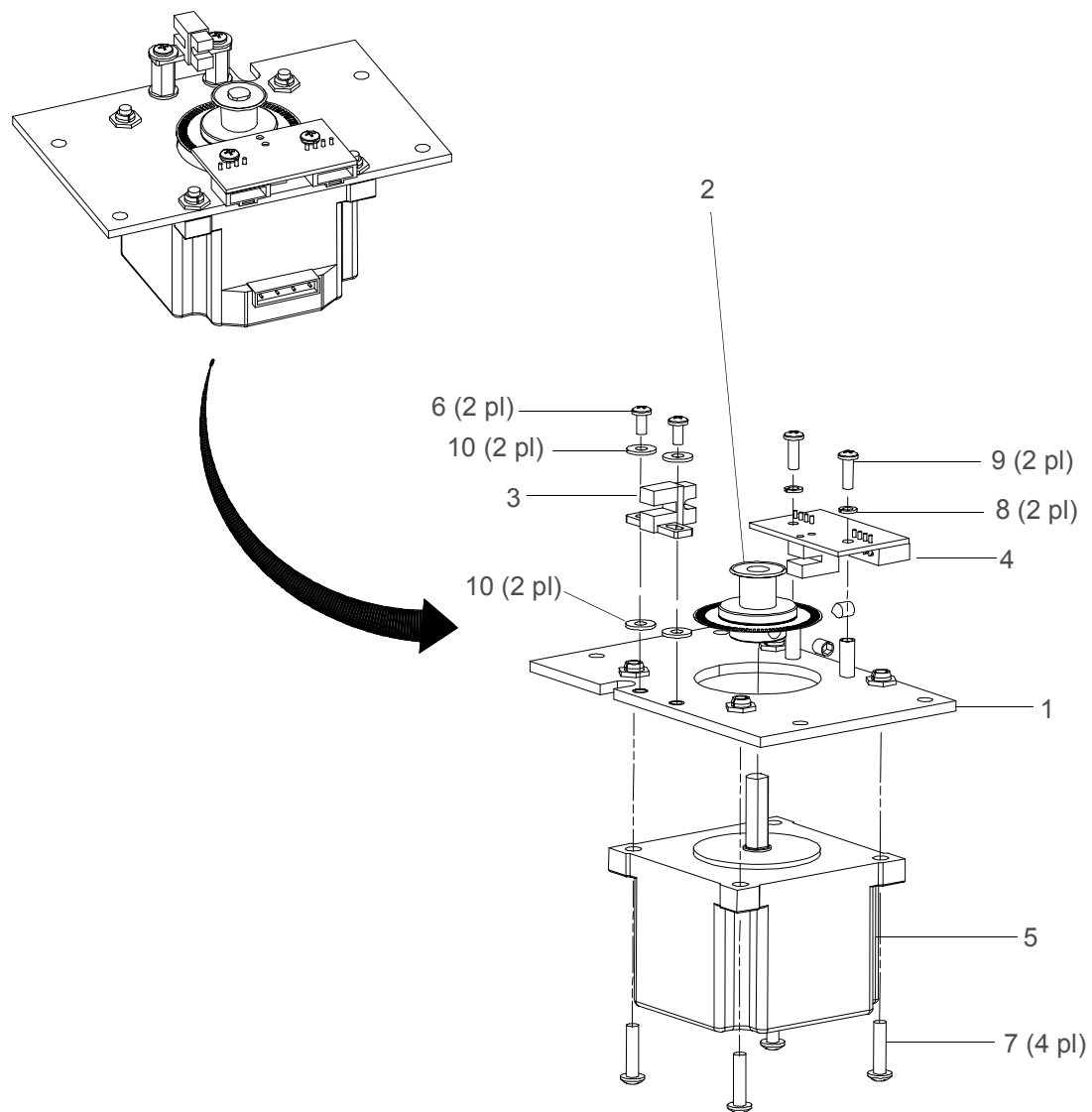


Figure 3-42: Tilt Motor Assembly

Cables

Ground Strap Cable Assembly

25.8007.2212 Rev 0

Refer to Figure 3-43.

No.	Item	Qty.	UM.	Description
1	52.8329.0001	2	EA	TERM, RING # 6 22-16 AWG NON-INS
2	73.7130.0002	0.33	FT	WIRE, 7/64" TUBULAR BRAID SILVER-PLATED

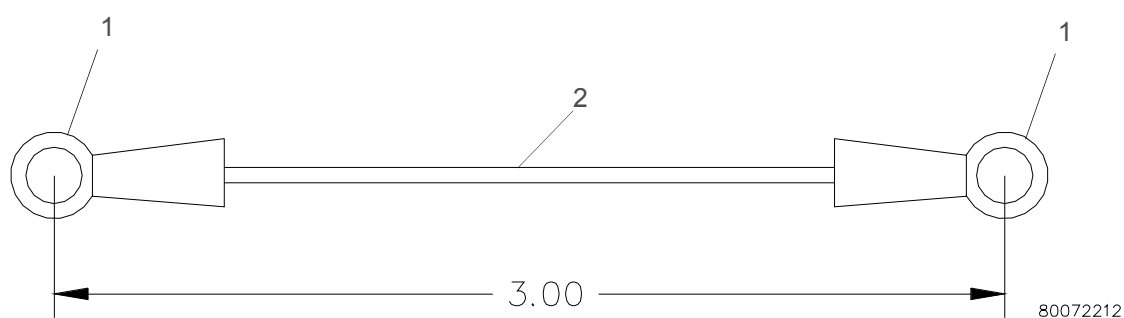


Figure 3-43: Ground Strap Cable Assembly

AC Input Pigtail (Euro) Cable Assembly

25.9661.1511 Rev D

Refer to Figure 3-44.

No.	Item	Qty.	UM.	Description
1	52.6274.2313	1	EA	STRAIN RELIEF, SKINTOP FLEX TYPE PG13 BLK
2	52.6401.2321	1	EA	CONN, PLUG "CE MARKED" 20A 250V TWIST-LOCK MALE LINE, 3-WIRE
3	52.8231.0005	1	EA	TERM, RING #6 BLUE 16-14 AWG REEL PIDG
4	52.8313.0001	2	EA	RCPT, FASTON 1/4" 18-14 AWG FLAG DBL CRP
5	55.2268.0187	0.92	FT	HEATSHRINK, 3/16" CLEAR KYNAR VDE UL 600V 150 DEG C
6	55.2268.0500	0.13	FT	HEATSHRINK, 1/2" CLEAR KYNAR VDE UL 600V 150 DEG C
7	73.9636.0153	4.0	FT	CORDAGE, 1.5/3 750V 60C EURO BLK HD-22 11MM OD

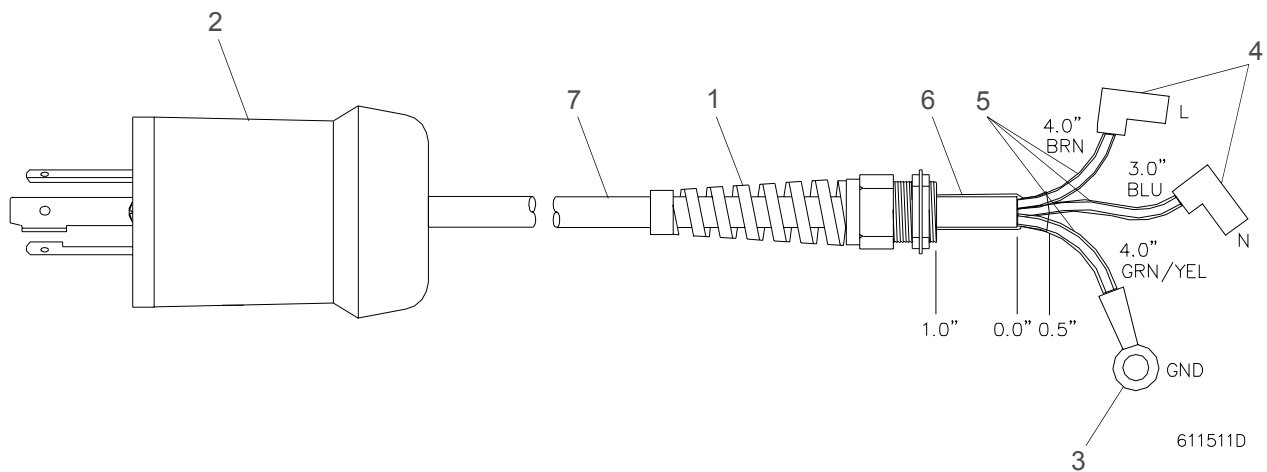


Figure 3-44: AC Input Pigtail (Euro) Cable Assembly

AC Input Link Cable Assembly

25.9661.1512 Rev B

Refer to Figure 3-45.

No.	Item	Qty.	UM.	Description
1	52.8312.0001	2	EA	RECP, FASTON 1/4" 18-14 AWG INSULATED VO
2	52.8313.0001	2	EA	RCPT, FASTON 1/4" 18-14 AWG FLAG DBL CRP
3	55.2186.0001	1	EA	CABLE TIE, .10" WD 4.00" LG SMALL
4	73.6016.0009	6	IN	WIRE, 16AWG 600V 105C PVC WHT UL1015
5	73.6016.0010	6	IN	WIRE, 16AWG 600V 105C PVC BLK UL1015

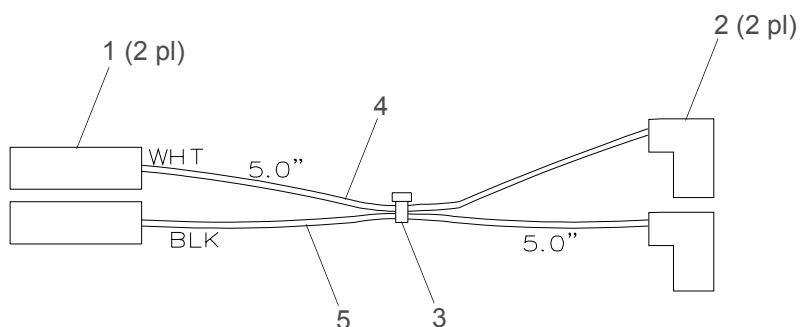


Figure 3-45: AC Input Link Cable Assembly

AC Input Splitter Cable Assembly

25.9661.1513 Rev C

Refer to Figure 3-46.

No.	Item	Qty.	UM.	Description
1	52.6231.0001	1	EA	PLUG HOUSING, MNLOK PLUG 3POS
2	52.6464.0003	1	EA	CONN HOUSING, SL-156 3 POS
3	52.8231.0005	1	EA	TERM, RING #6 BLUE 16-14 AWG REEL PIDG
4	52.8270.0001	2	EA	CONTACT PIN, 20-14 AWG MNLOK (REEL)
5	52.8312.0001	2	EA	RECP, FASTON 1/4" 18-14 AWG INSULATED VO
6	52.8314.0001	1	EA	CONTACT, GROUND PIN 20-14 AWG - MATENLOK
7	52.8323.0001	2	EA	CONTACT, CRIMP 18-22 AWG SL-156
8	55.2186.0001	3	EA	CABLE TIE, .10" WD 4.00" LG SMALL
9	55.6699.0003	1.50	FT	SLEEVING, 1/2" NOM.DIA. POLY EXP BRAIDED
10	73.6016.0009	1.75	FT	WIRE, 16AWG 600V 105C PVC WHT UL1015
11	73.6016.0010	1.75	FT	WIRE, 16AWG 600V 105C PVC BLK UL1015
12	73.6016.0504	0.42	FT	WIRE, 16AWG 600V 105C PVC GRN/YEL UL1015
13	73.6018.0009	0.42	FT	WIRE, 18AWG 600V 105C PVC WHT UL1015
14	73.6018.0010	0.42	FT	WIRE, 18AWG 600V 105C PVC BLK UL1015

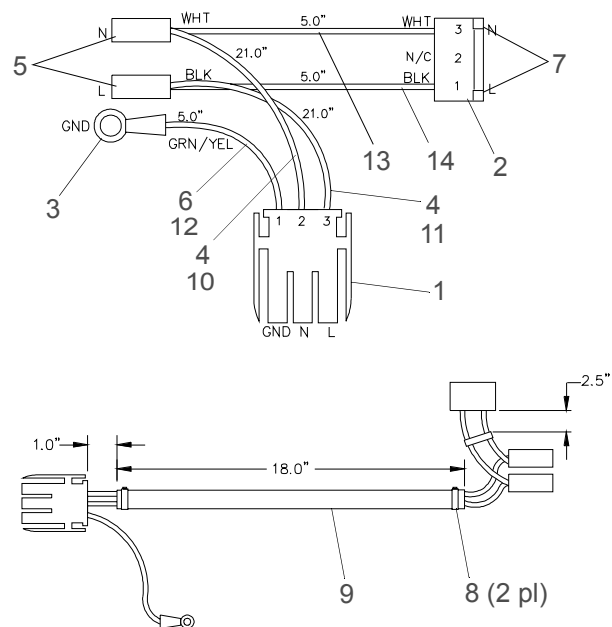


Figure 3-46: AC Input Splitter Cable Assembly

LVS Chassis Ground Cable Assembly

25.9661.1514 Rev A

Refer to Figure 3-47.

No.	Item	Qty.	UM.	Description
1	52.8231.0001	1	EA	TERM, RING #6 BLUE 16-14 AWG REEL PIDG
2	52.8271.0001	1	EA	FASTON RECEPT, 16-14 AWG (REEL)
3	73.3516.0504	3.5	IN	WIRE, 16 AWG 300V 105C PVC GRN/YEL UL1569

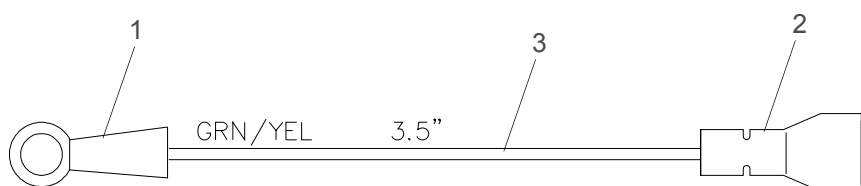


Figure 3-47: LVS Chassis Ground Cable Assembly

Main To Aux/Data & Power Cable Assembly

25.9667.1516.01 Rev - (Formerly 25.9661.1516.01 Rev B)

Refer to Figure 3-48.

No.	Item	Qty.	UM.	Description
1	52.6484.0006	2	EA	RECEPT, 6POS DUAL ROW MINI-FIT JR
2	52.8333.0001	8	EA	CONTACT, FEMALE 18-20 AWG REEL HCS (PWR)
3	52.8333.2228	4	EA	CONTACT, 22-28AWG FEM REEL GOLD MFJR (DATA)
4	55.2186.0001	2	EA	CABLE TIE, .10" WD 4.00" LG SMALL
5	55.6699.0003	2.50	FT	SLEEVING, 1/2" NOM.DIA. POLY EXP BRAIDED
6	73.5114.0406	2.67	FT	WIRE, 24AWG TWISTED PAIR PVC 300V 80C <YEL-BLU> UL106
7	73.7060.0001	5.33	FT	WIRE, 18AWG HIGH VOLT RED YOKE LAMP
8	73.7060.0002	5.33	FT	WIRE, 18AWG HIGH VOLT BLACK YOKE LAMP

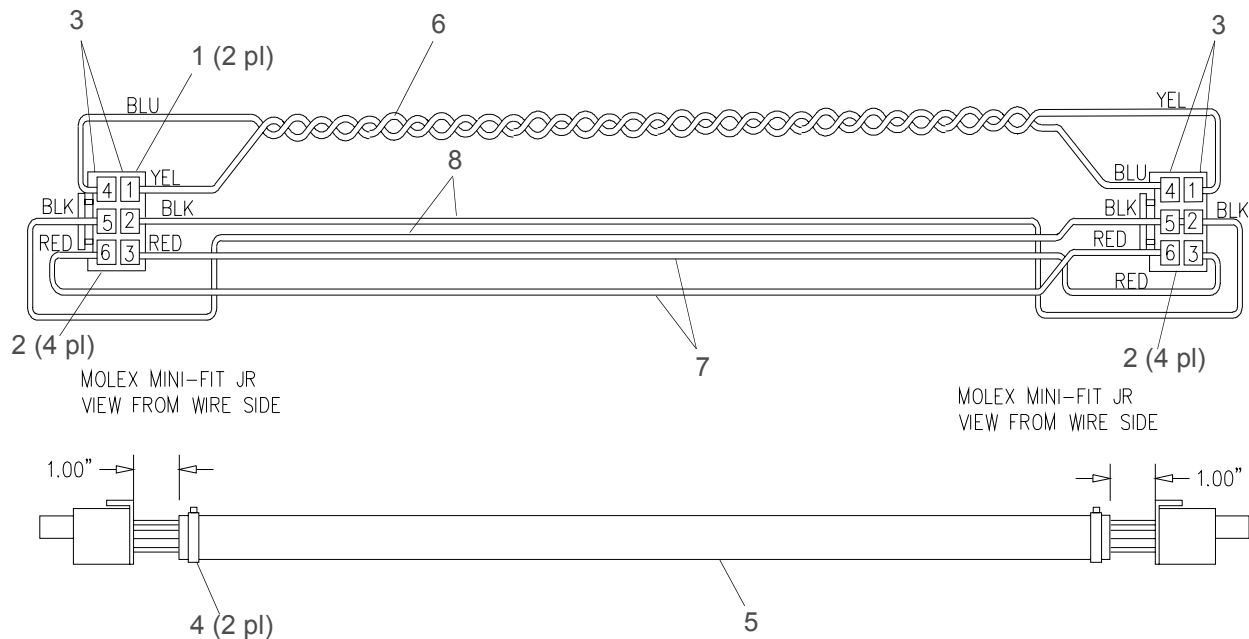


Figure 3-48: Main to Aux/Data & Power Cable Assembly

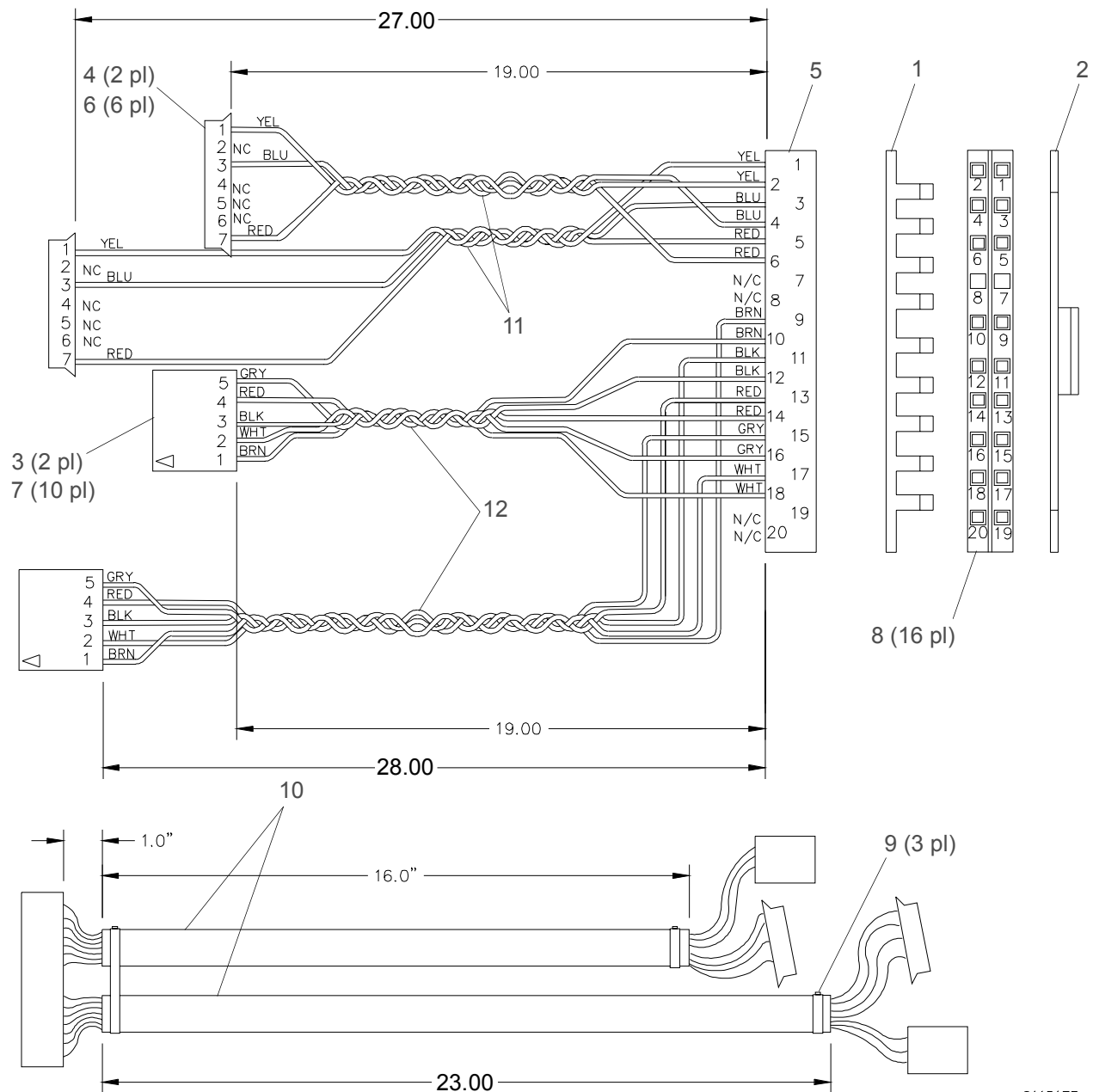
Pan/Tilt Control Cable Assembly

25.9661.1517.01 Rev E

Refer to Figure 3-49.

No.	Item	Qty.	UM.	Description
1	52.6211.0008	1	EA	COVER, BACK SHIELD/NON-SHIELD F/DBL ROW 20POS
2	52.6212.0008	1	EA	COVER, FRONT LATCH F/DBL ROW 20POS
3	52.6524.0005	2	EA	CONN, HOUSING 5POS RECEPTACLE
4	52.6588.0007	2	EA	CONN, HOUSING 7CIR DISCONNECTABLE CRIMP STYLE XH
5	52.6610.0008	1	EA	CONN, HOUSING 20POS DBL ROW UNLOADED
6	52.7007.0001	6	EA	CONTACT, 28-22AWG PHOSPHOR BRONZE TIN-PLT SXH
7	52.8346.0001	10	EA	CONTACT, 24-30AWG FEMALE CRIMP
8	52.8351.0002	16	EA	CONTACT, 26-22AWG RECEPTACLE MTE (REEL)
9	55.2186.0001	3	EA	CABLE TIE, .10" WD 4.00" LG SMALL
10	55.6699.0003	3.30	FT	SLEEVING, 1/2" NOM.DIA. POLY EXP BRAIDED
11	73.5119.0246	3.83	FT	WIRE, 24AWG 3COND TW 600V 200C <RED-YEL-BLU>UL1213
12	73.5121.0001	3.92	FT	CABLE, 24AWG 5COND TW 600V 200C PTFE TEF

Pan/Tilt Control Cable Assembly (cont.)



611517E

Figure 3-49: Pan/Tilt Control Cable Assembly

Lamp Supply Control Cable Assembly

25.9661.1518 Rev A

Refer to Figure 3-50.

No.	Item	Qty.	UM.	Description
1	52.6396.2208	2	EA	RECEPT, 8POS MTA100 W/POL TAB RED CLSD END
2	55.2197.0001	1.25	IN	HEATSHRINK, 3/8" BLACK
3	73.7028.0001	1.67	FT	CBL, 22AWG 8COND

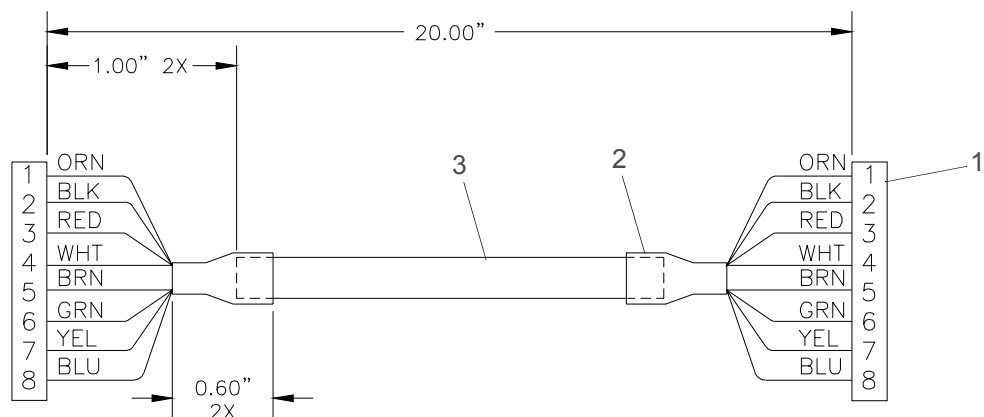


Figure 3-50: Lamp Supply Control Cable Assembly

Chassis To Yoke Ground Cable Assembly

25.9661.1520 Rev A

Refer to Figure 3-51.

No.	Item	Qty.	UM.	Description
1	52.8250.0001	2	EA	TERM, #8, RING, 10AWG
2	73.7089.0504	15.17	FT	WIRE, 22AWG 300V 200C TEF GRN/YEL UL1180



Figure 3-51: Chassis to Yoke Ground Cable Assembly

Lamp Supply OT/Not On Cable Assembly

25.9661.1531 Rev A

Refer to Figure 3-52.

No.	Item	Qty.	UM.	Description
1	52.6396.2202	1	EA	RECEPT, 2POS MTA100 W/POL TAB RED CLSD END
2	52.6396.2203	1	EA	RECEPT, 3POS MTA100 W/POL TAB RED CLSD END
3	52.6396.2204	1	EA	RECEPT, 4POS MTA100 W/POL TAB RED CLSD END
4	73.3522.0002	1.33	FT	WIRE, 22AWG 300V 105C PVC RED UL1569
5	73.3522.0005	1.33	FT	WIRE, 22AWG 300V 105C PVC GRN UL1569
6	73.3522.0009	1.67	FT	WIRE, 22AWG 300V 105C PVC WHT UL1569
7	73.3522.0010	1.67	FT	WIRE, 22AWG 300V 105C PVC BLK UL1569

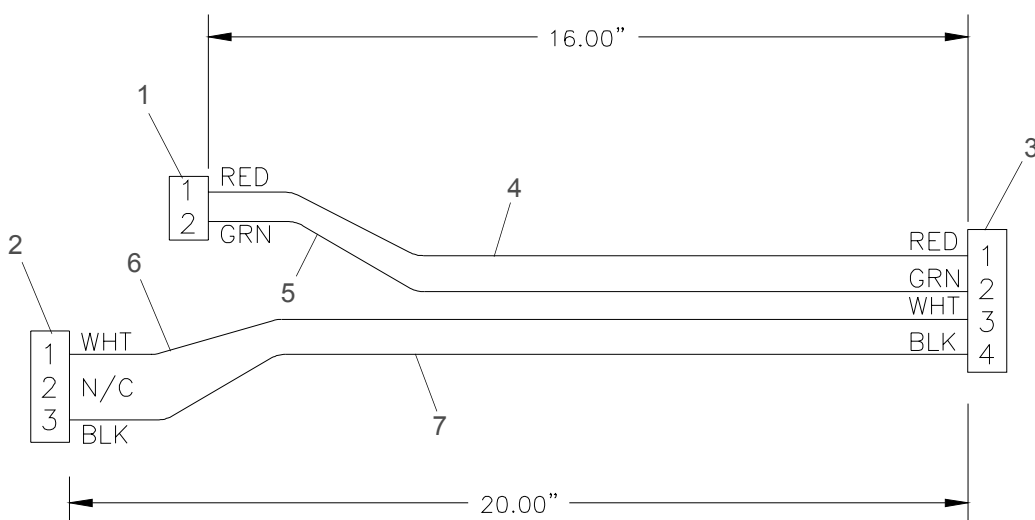


Figure 3-52: Lamp Supply OT/NOT On Cable Assembly

Data I/O Link Cable Assembly

25.9661.1532 Rev A

Refer to Figure 3-53.

No.	Item	Qty.	UM.	Description
1	52.6524.0005	2	EA	CONN, HOUSING 5POS RECEPTACLE
2	52.8346.0001	10	EA	CONTACT, 24-30AWG FEMALE CRIMP
3	55.2199.0001	0.10	FT	HEATSHRINK, 1/16" BLACK
4	55.2200.0001	0.08	FT	HEATSHRINK, 3/16" BLACK
5	73.7039.0001	0.33	FT	CBL, 22AWG STRND 4COND POLYPR INSUL

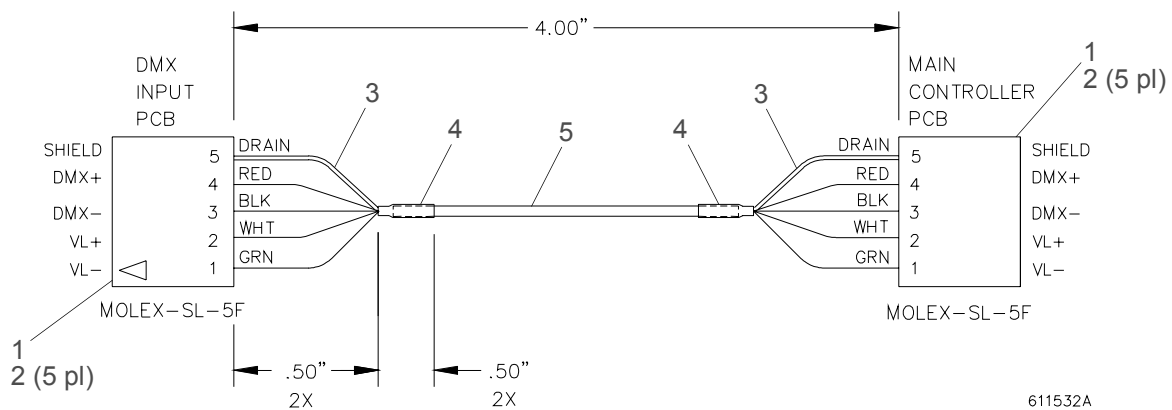


Figure 3-53: Data I/O Link Cable Assembly

DC Output Cable Assembly

25.9661.1543 Rev 0

Refer to Figure 3-54.

No.	Item	Qty.	UM.	Description
1	52.6464.0002	1	EA	CONN HOUSING, SL-156 2 POS
2	52.6484.0004	1	EA	RECEPT, 4 POS DUAL ROW MINI-FIT JR
3	52.8298.0002	3	EA	TERM, WIRE PIN 16-14AWG
4	52.8323.0001	2	EA	CONTACT, CRIMP 18-22AWG SL-156
5	52.8333.0001	2	EA	CONTACT, FEMALE 18-20 AWG REEL HCS
6	73.3518.0002	2.3	FT	WIRE, 18AWG 300V 105C PVC RED UL1569
7	73.3518.0010	2.3	FT	WIRE, 18AWG 300V 105C PVC BLK UL1569

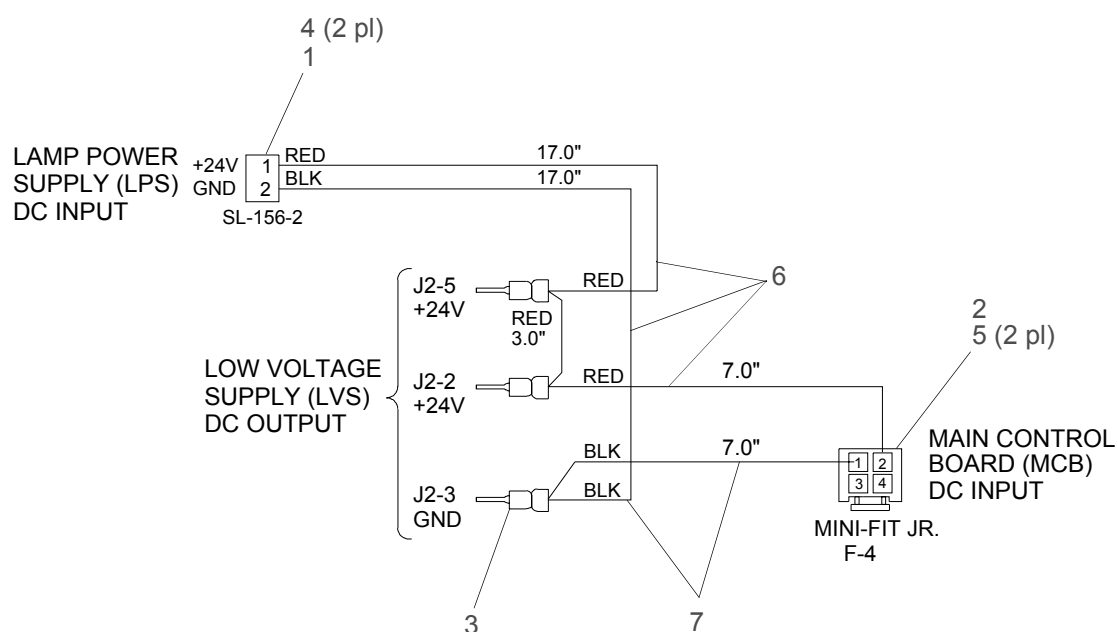


Figure 3-54: DC Output Cable Assembly

Lamp Supply Harness Cable Assembly

25.9661.1551.01 Rev 0 (Formerly 25.9661.1544.01)

Refer to Figure 3-55.

No.	Item	Qty.	UM.	Description
1	25.9661.1518	1	EA	CABLE ASSY, LAMP SUPPLY CONTROL
2	25.9661.1531	1	EA	LAMP SUPPLY OT/ NOT ON
3	25.9661.1550	1	EA	CABLE ASSY, DC OUTPUT-VLT130
4	55.2186.0001	2	EA	CABLE TIE, .10" WD 4.00" LG SMALL
5	55.6699.0003	.67	FT	SLEEVING, 1/2" NOM. DIA. POLY EXP BRAIDED

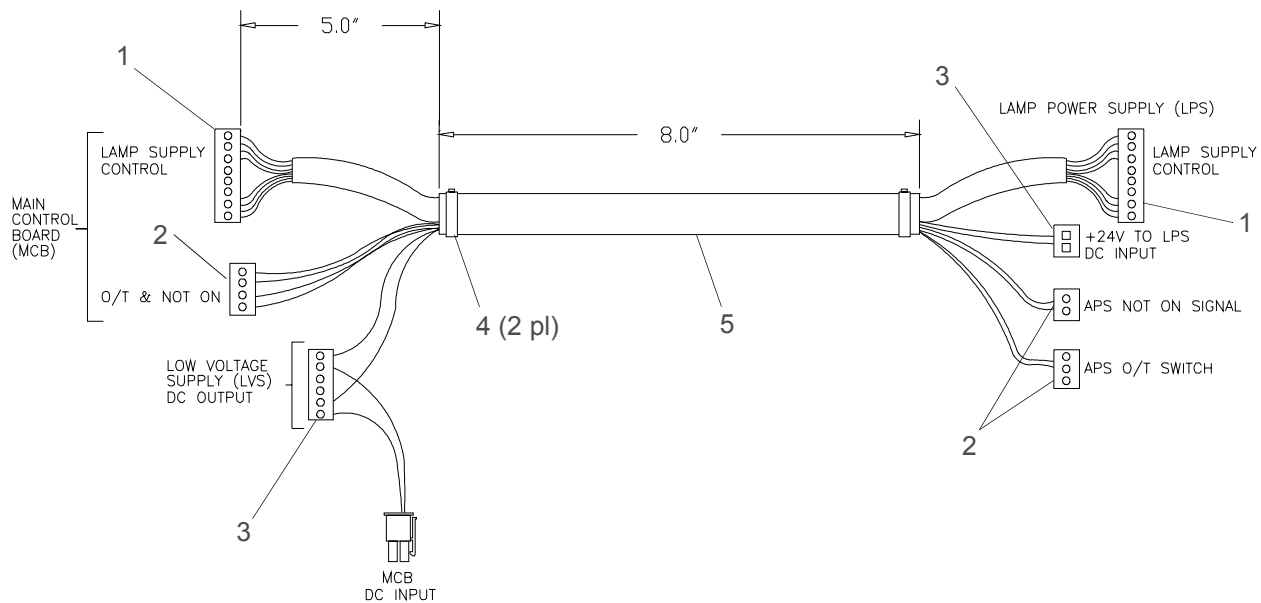


Figure 3-55: Lamp Supply Harness Cable Assembly

Motor Harness Cable Assembly

25.9671.0007 Rev D

Refer to Figure 3-56.

No.	Item	Qty.	UM.	Description
1	04.9671.0041.00	1	EA	LABEL SET, MOTOR HARNESS-2402
2	52.6211.0017	2	EA	COVER, BACK SHIELD/NON-SHIELD F/DBL ROW 50-POS
3	52.6212.0017	2	EA	COVER, FRONT LATCH F/DBL ROW 50-POS
4	52.6396.2403	2	EA	RECEPT, 3-POS MTA100 W/POL TAB 24AWG CLSD END
5	52.6467.0004	1	EA	CONN, FEM PLUG 4-POS 30-24 AWG CRIMP PHR
6	52.6467.0011	5	EA	CONN, FEM PLUG 11-POS 30-24 AWG CRIMP PHR
7	52.6467.0024	24	EA	CONTACT, SOCKET 30-24 AWG CRIMP (REEL) PH (JST)
8	52.6524.0004	2	EA	CONN, HOUSING 4-POS RECEPTACLE
9	52.6524.0006	1	EA	CONN, HOUSING 6-POS RECEPTACLE
10	52.6610.0017	2	EA	CONN, HOUSING 50-POS DBL ROW UNLOADED
11	52.8230.0002	2	EA	TERM, 1/4" FASTON 22-18 AWG
12	52.8271.0010	1	EA	RECEPT, FASTON 24-22 AWG NON-INSUL FITS .016" TAB 110SERIES
13	52.8346.0001	14	EA	CONTACT, 24-30 AWG FEMALE CRIMP
14	52.8351.0001	100	EA	CONTACT, 26-22 AWG RECEPTACLE MTE (LOOSE)
15	55.2186.0001	15	EA	CABLE TIE, .10" WD 4.00" LG SMALL
16	55.6699.0003	1	FT	SLEEVING, 1/2" NOM. DIA. POLY EXP BRAIDED
17	73.2624.0008	1.83	FT	WIRE, 24 AWG 600V 200C TEF GRY TYPE E
18	73.3524.0002	5.92	FT	WIRE, 24 AWG 300V 105C PVC RED UL1007
19	73.3524.0007	2.30	FT	WIRE, 24 AWG 300V 105C PVC VIO UL1007
20	73.3524.0009	2.21	FT	WIRE, 24 AWG 300V 105C PVC WHT UL1007
21	73.3524.0010	7.13	FT	WIRE, 24 AWG 300V 105C PVC BLK UL1007
22	73.5115.0246	4.83	FT	WIRE, 24 AWG 3 COND TW 300V 80C <RED-YEL-BLU> UL1061
23	73.5116.0123	17.5	FT	WIRE, 24 AWG 4 COND TW 300V 80C <BLK-BRN-RED-ORG> UL1061

Motor Harness Cable Assembly (cont.)

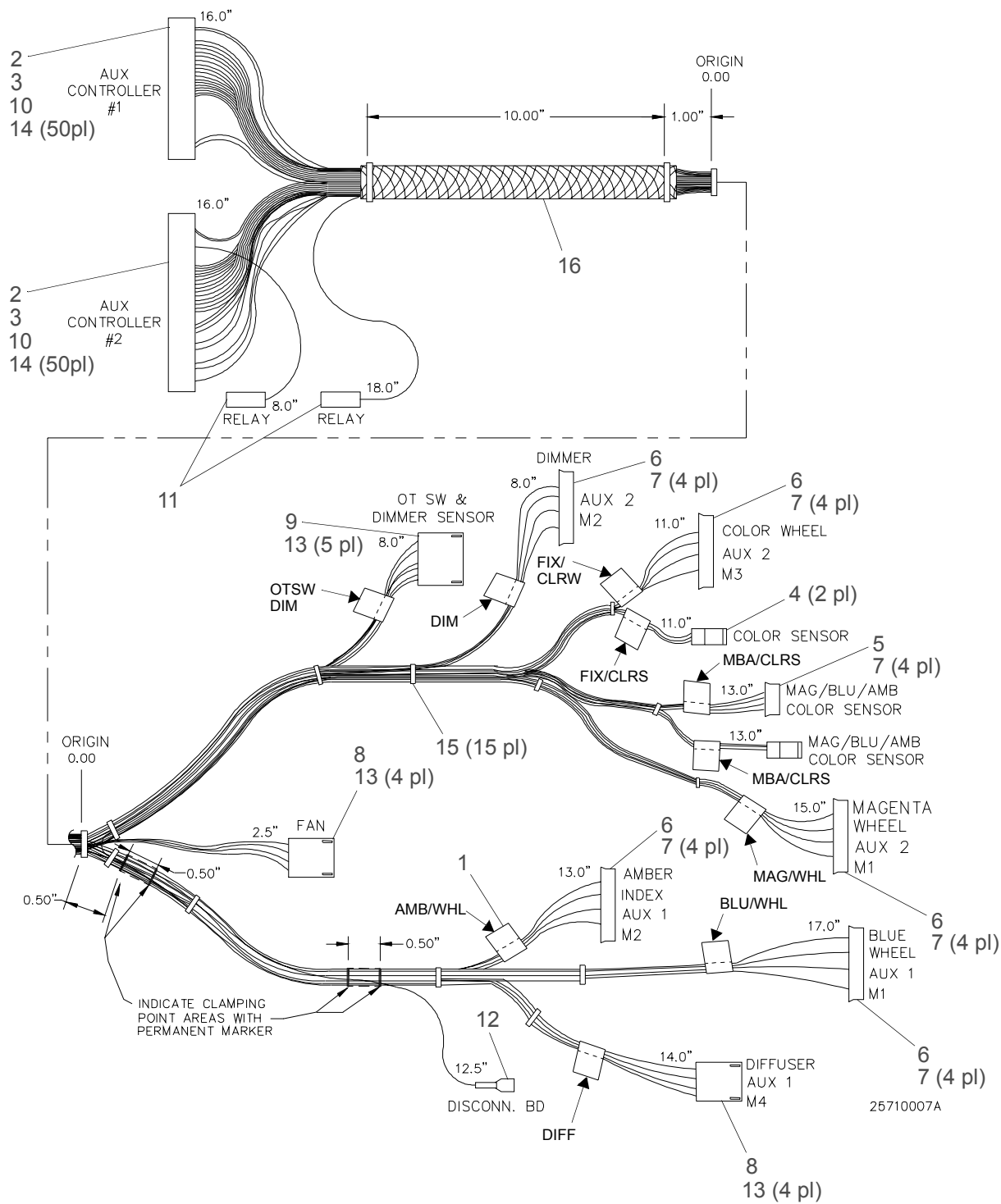


Figure 3-56: Motor Harness Cable Assembly

Yoke to Head Ground Cable Assembly

25.9667.0028 Rev 0

Refer to .Figure 3-57.

No.	Item	Qty.	UM.	Description
1	52.8250.0001	2	EA	TERM, #8 RING, 10AWG
2	73.7089.0504	14	FT	WIRE, 22AWG 300V 200C TER GRN/YEL UL1180

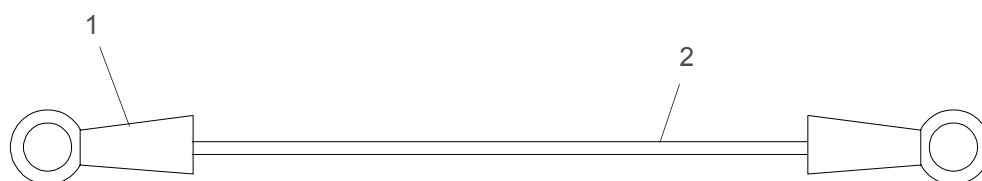


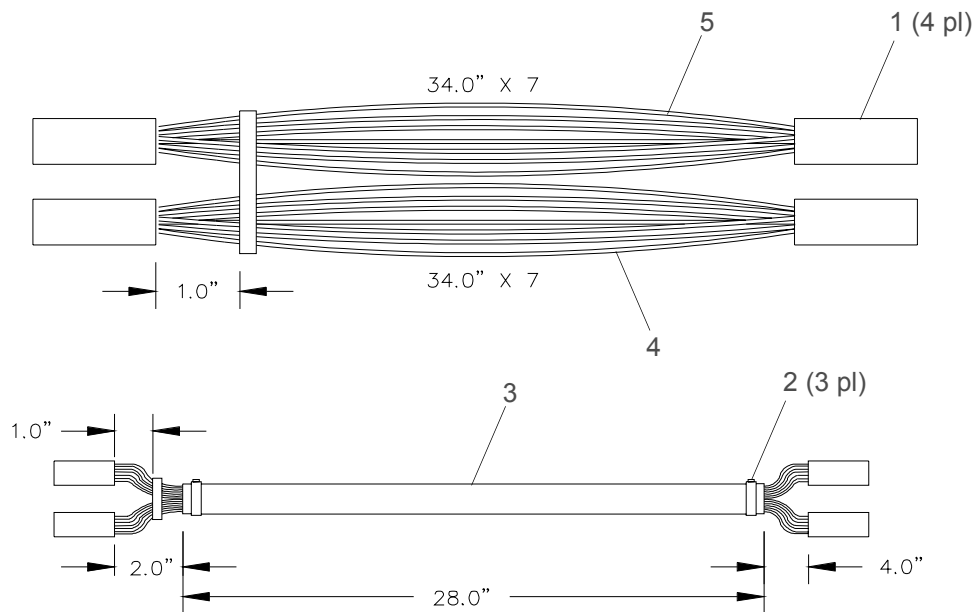
Figure 3-57: Yoke to Head Ground Cable Assembly

Lamp Supply To Relay Cable Assembly

25.9667.0029 Rev D

Refer to Figure 3-58.

No.	Item	Qty.	UM.	Description
1	52.8312.0001	4	EA	RECP, FASTON 1/4" 18-14 AWG INSULATED VO
2	55.2186.0001	3	EA	CABLE TIE, .10" WD 4.00" LG SMALL
3	55.6699.0003	2.33	FT	SLEEVING, 1/2" NOM.DIA. POLY EXP BRAIDED
4	73.7089.0000	19.83	FT	WIRE, 22AWG BLK 300V TEFLON STRANDED
5	73.7089.0009	19.83	FT	WIRE, 22AWG WHT TEFLON STRANDED



670029D

Figure 3-58: Lamp Supply to Relay Cable Assembly

Ignitor To Relay Cable Assembly

25.9667.0030 Rev A

Refer to Figure 3-59.

No.	Item	Qty.	UM.	Description
1	52.8231.0005	1	EA	TERM, RING #6 BLUE 16-14 AWG PIDG
2	52.8312.0001	1	EA	RECP, FASTON 1/4" 18-14 AWG INSULATED VO
3	73.7101.0009	1	FT	WIRE, 14AWG 15KV 150C SILICONE 41/30 STRANDING

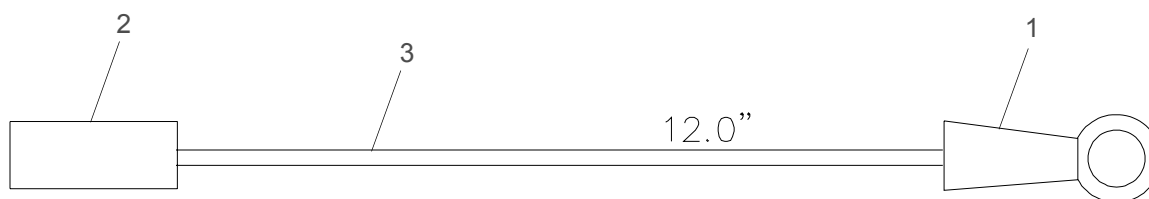


Figure 3-59: Ignitor To Relay Cable Assembly

Head OT Switch #2 Cable Assembly

25.9667.0146 Rev A

Refer to Figure 3-60.

No.	Item	Qty.	UM.	Description
1	52.6523.0002	1	EA	CONN, HOUSING 2POS PLUG SHROUDED WIRE TO WIRE
2	52.8347.0001	2	EA	CONTACT, 24-30AWG MALE CRIMP
3	52.8371.0001	2	EA	RECEPT, FASTON 24-20AWG UNISUL TIN PLT BRS .250 X .032 TAB
4	73.6224.0005	.55	FT	WIRE, 24AWG 600V 200C TFE GRN UL1213 CSA

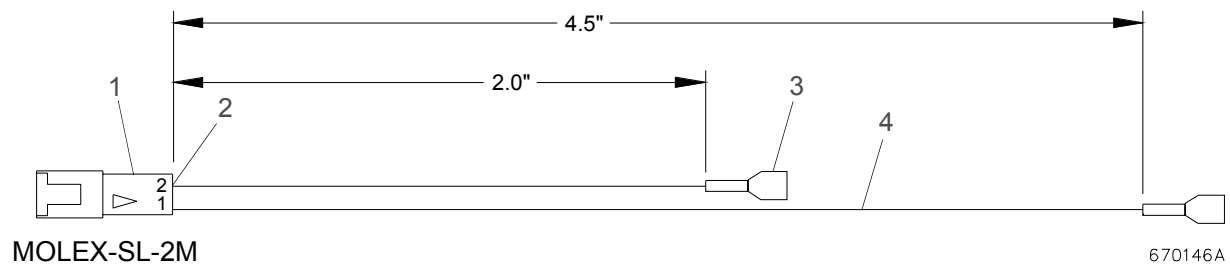


Figure 3-60: Head OT Switch #2 Cable Assembly

DC Output XPiQ Cable Assembly

25.9661.1550 Rev 0

Refer to Figure 3-61.

No.	Item	Qty.	UM.	Description
1	52.6434.1806	1	EA	CONN, 6 POS 18 AWG MTA-156 WO/TABS ORG RECPT
2	52.6464.0002	1	EA	CONN HOUSING, SL-156 2 POS
3	52.6484.0004	1	EA	RECEPT, 4 POS DUAL ROW MINI-FIT JR
4	52.8323.0001	2	EA	CONTACT, CRIMP 18-22 AWG SL-156
5	52.8333.0001	2	EA	CONTACT, FEMALE 18-20 AWG REEL HCS
6	73.3518.0002	2.00	FT	WIRE, 18 AWG 300V 105C PVC RED UL 1569
7	73.3518.0010	2.00	FT	WIRE, 18 AWG 300V 105C BLK UL 1569

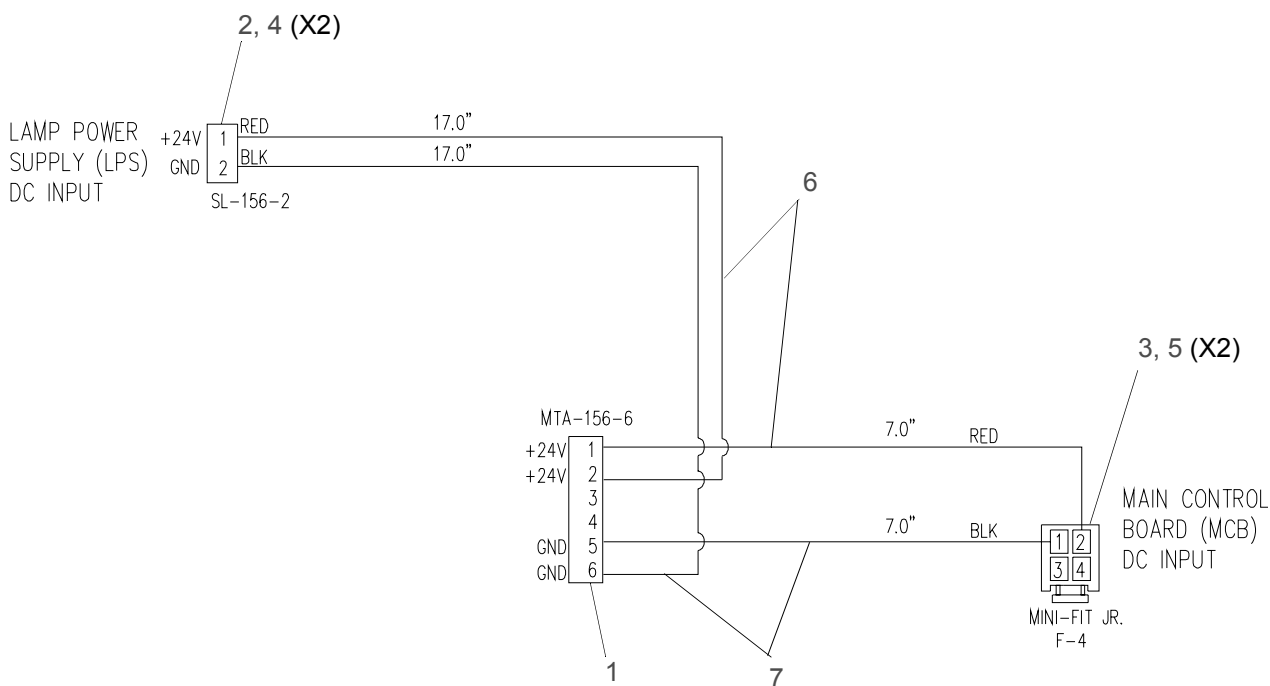


Figure 3-61: DC Output XPiQ Cable Assembly

APPENDIX A.**Technical Bulletins****VL2000 Wash Luminaire Technical Bulletin List**

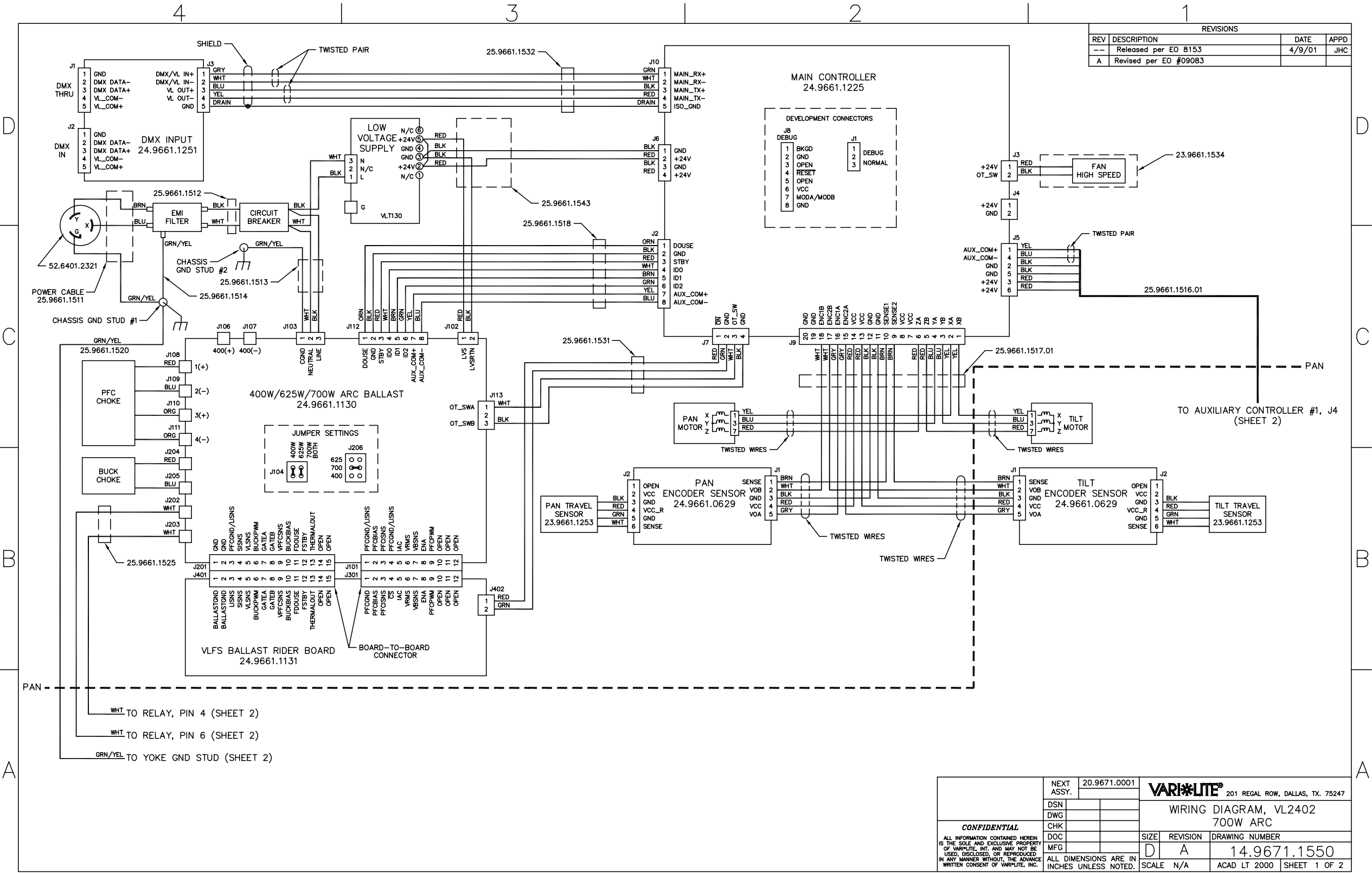
The following table identifies the current technical bulletins associated with the VL2000 wash luminaire. These improvements have been incorporated into this manual.

Technical Bulletin	Description
V24-008	Thermal switch upgrade.
S2K-012	Adding washers to sensors.
S2K-014	Modifying wire harness for installation of new style power supply.
S2K-015	Main Controller PCB jumper configuration.
S2K-016	Installation of capacitors for hot restarts.
S2K-017	Installation of washers for vertical hang positions.
S2K-018	Adding stabilizer brackets.
S2K-019	Pan bolt modification.
S2K-021	Changing two diodes on ignitor board.
S2K-022	Auxiliary PCB capacitor change.
S2K-023	Auxiliary card capacitor change to improve reliability.

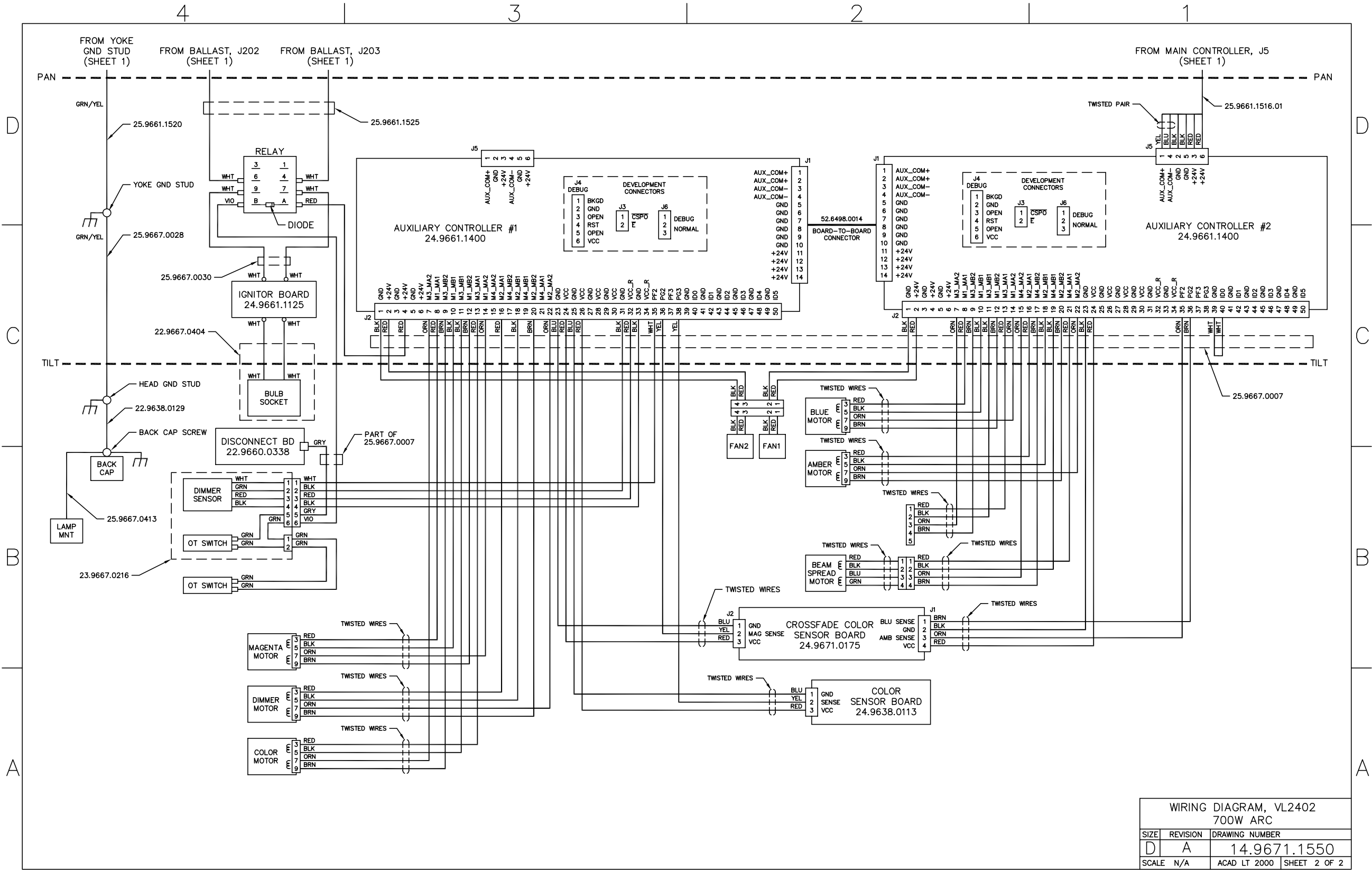
Technical Bulletins, Software Updates, support, and other information is available online at <http://www.vari-lite.com/Support/>. To request access to the password-protected support areas, please contact Vari-Lite Customer Service at 1-877-827-4548 or customerservice@vari-lite.com.

Notes

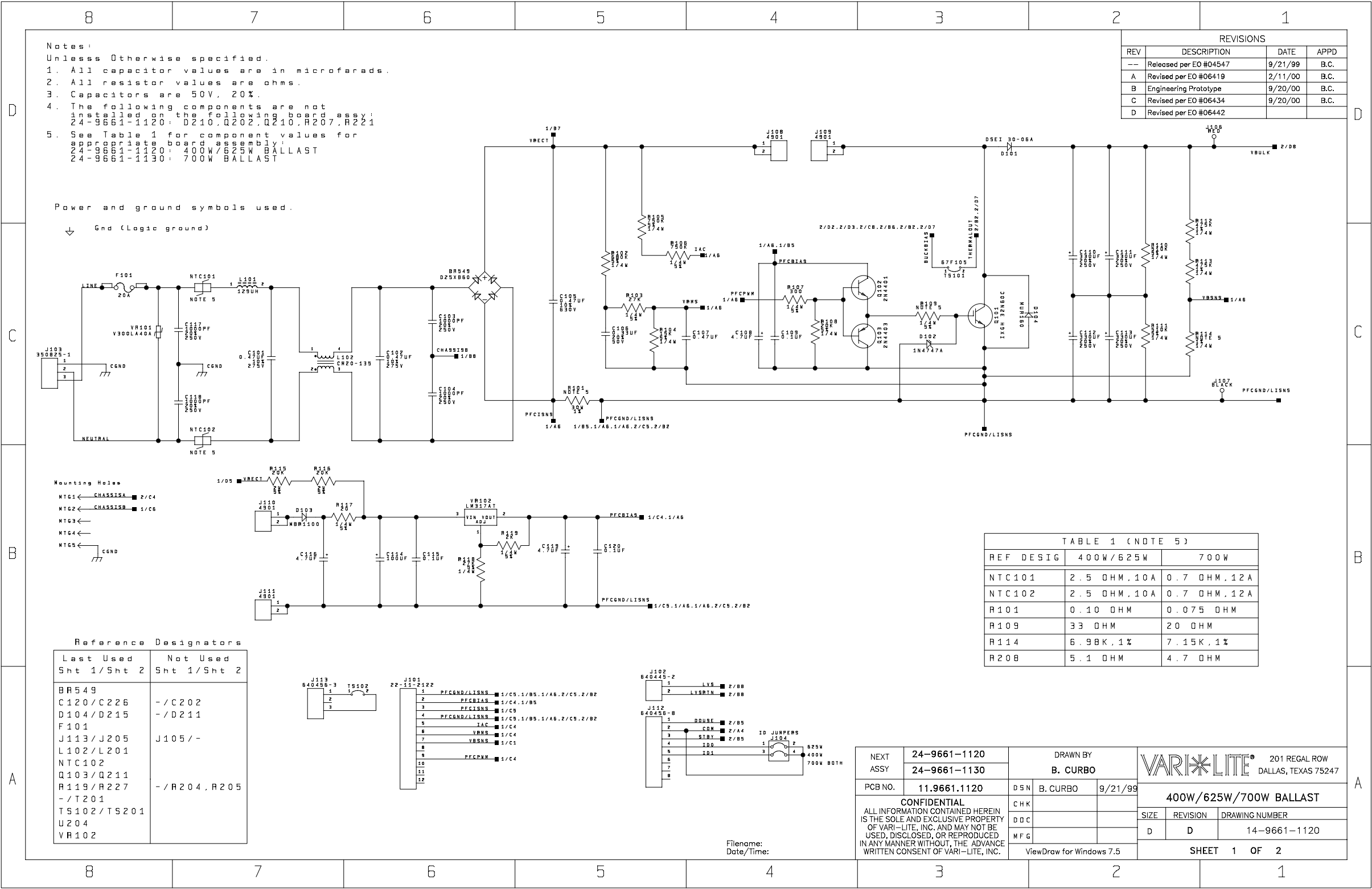
VL2000 Wash Luminaire Wire Diagram (Sheet 1)



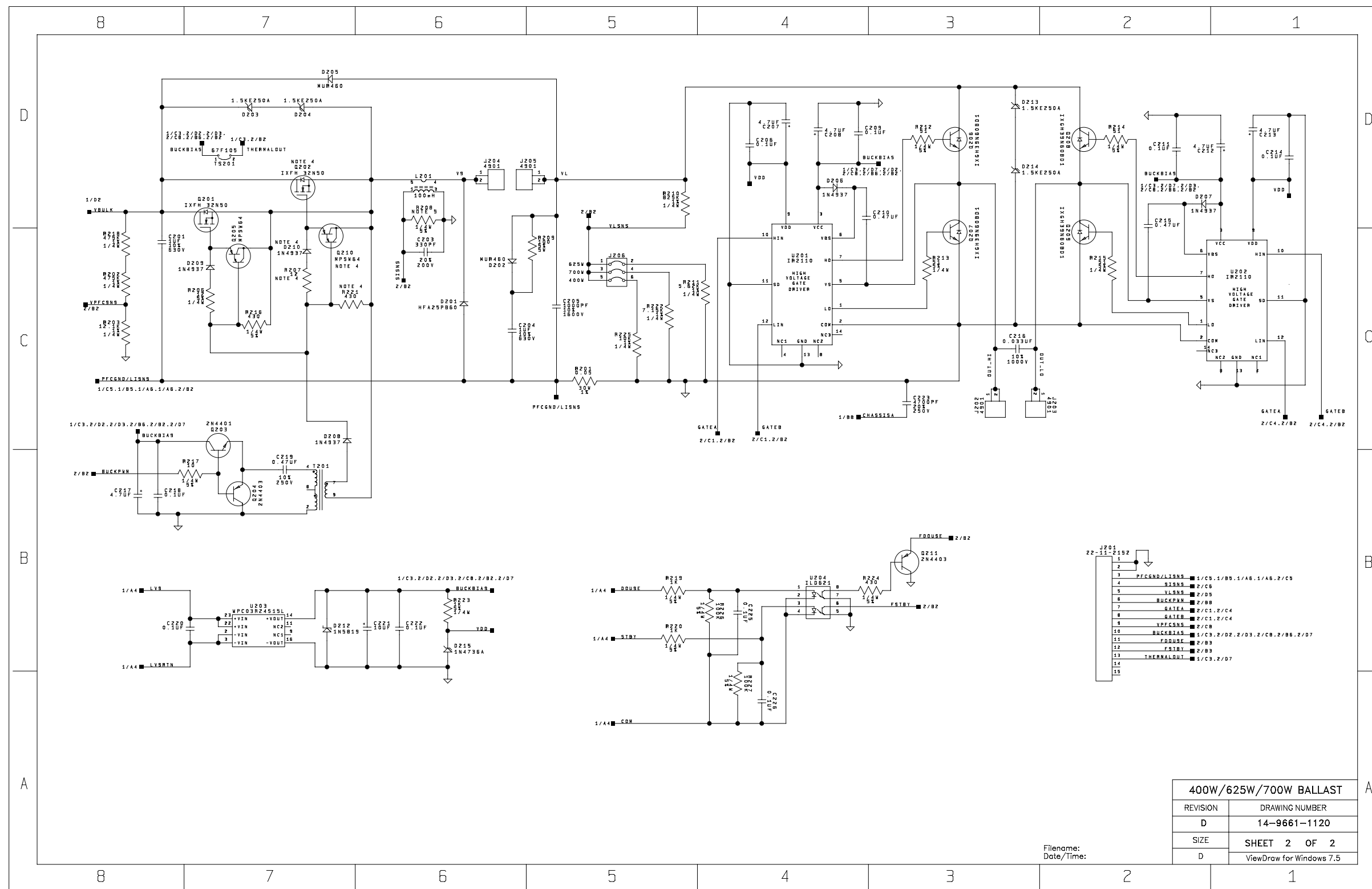
VL2000 Wash Luminaire Wire Diagram (Sheet 2)



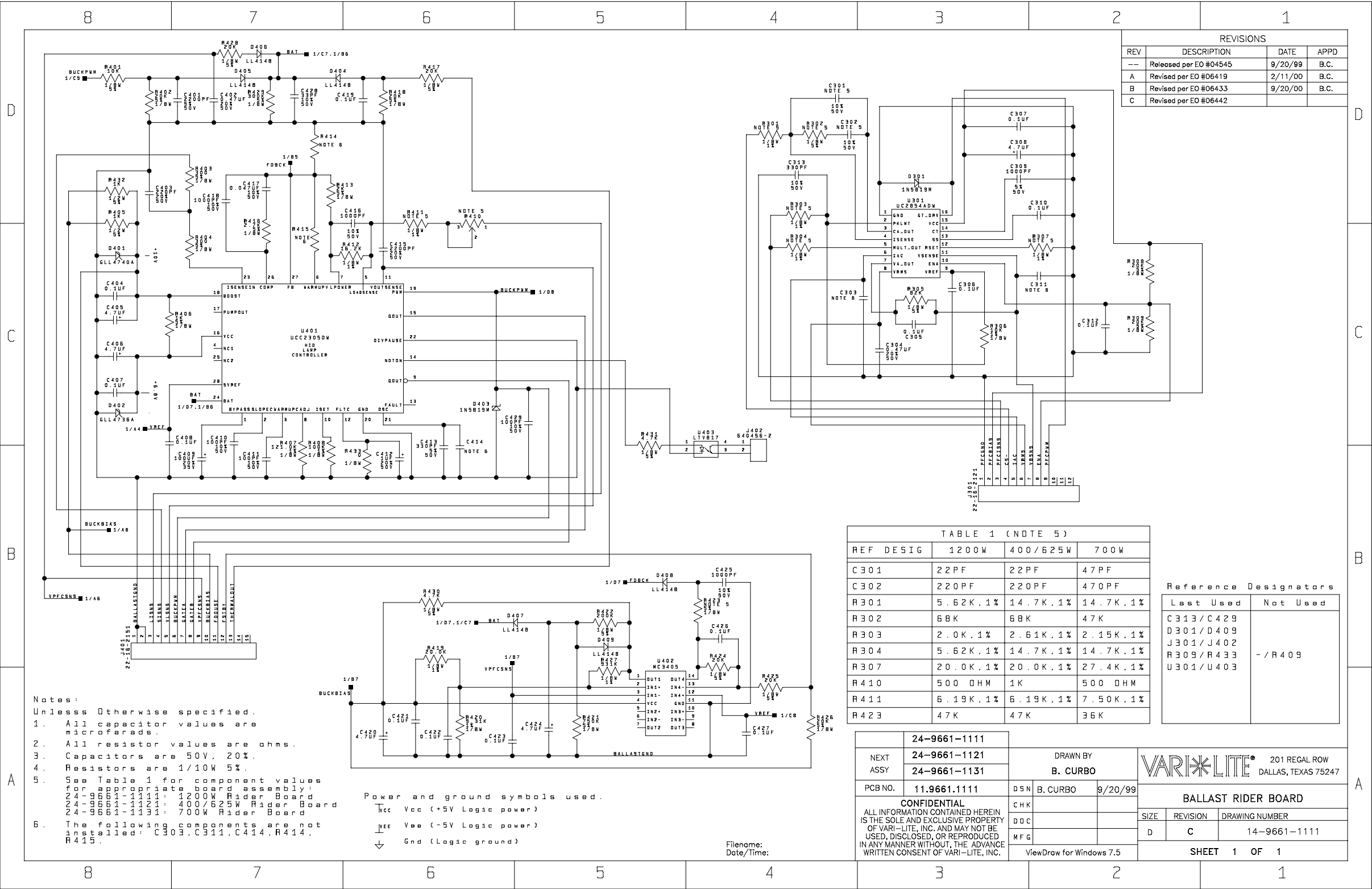
400W/625W/700W Ballast Schematic



400W/625W/700W Ballast Schematic (cont.)



Ballast Rider Schematic



Auxiliary Controller Schematic

8

7

6

5

4

3

2

1

D

C

B

A

Notes:

Unless Otherwise specified.

1. All capacitor values are microfarads.

2. All resistor values are ohms.

3. Capacitors are 50V, 20%.

4. Resistors are 1/10W 5%.

Power and ground symbols used.

T_{VCC}

Vcc (+5V Logic power)

T_{VEE}

Vee (-5V Logic power)

↓

Gnd (Logic ground)

Reference Designators

Last Used	Not Used
C38	
D2	
J6	J3
L1	
R48	
U12	
VR1	
Y1	

REVISIONS			
REV	DESCRIPTION	DATE	APPD
--	Released per EO #06402	9/29/99	T.W.
A	Revised per EO #06411	1/13/00	T.W.
B	Revised per EO #06440		

NEXT ASSY	24-9661-1400	DRAWN BY		VARI* <i>LITE</i> ® 201 REGAL ROW DALLAS, TEXAS 75247	
		T.E. WALSH			
PCB NO.	11.9661.1400	D S N	T.W.	9/29/99	AUXILIARY CONTROLLER
CONFIDENTIAL ALL INFORMATION CONTAINED HEREIN IS THE SOLE AND EXCLUSIVE PROPERTY OF VARI-LITE, INC. AND MAY NOT BE USED, DISCLOSED, OR REPRODUCED IN ANY MANNER WITHOUT THE ADVANCE WRITTEN CONSENT OF VARI-LITE, INC.		C H K			
		D Q C			
		M F G			
ViewDraw for Windows 7.5		SHEET 1 OF 3			

Filename: VLFS_AUX
Date/Time: 10-25-2000_10:55

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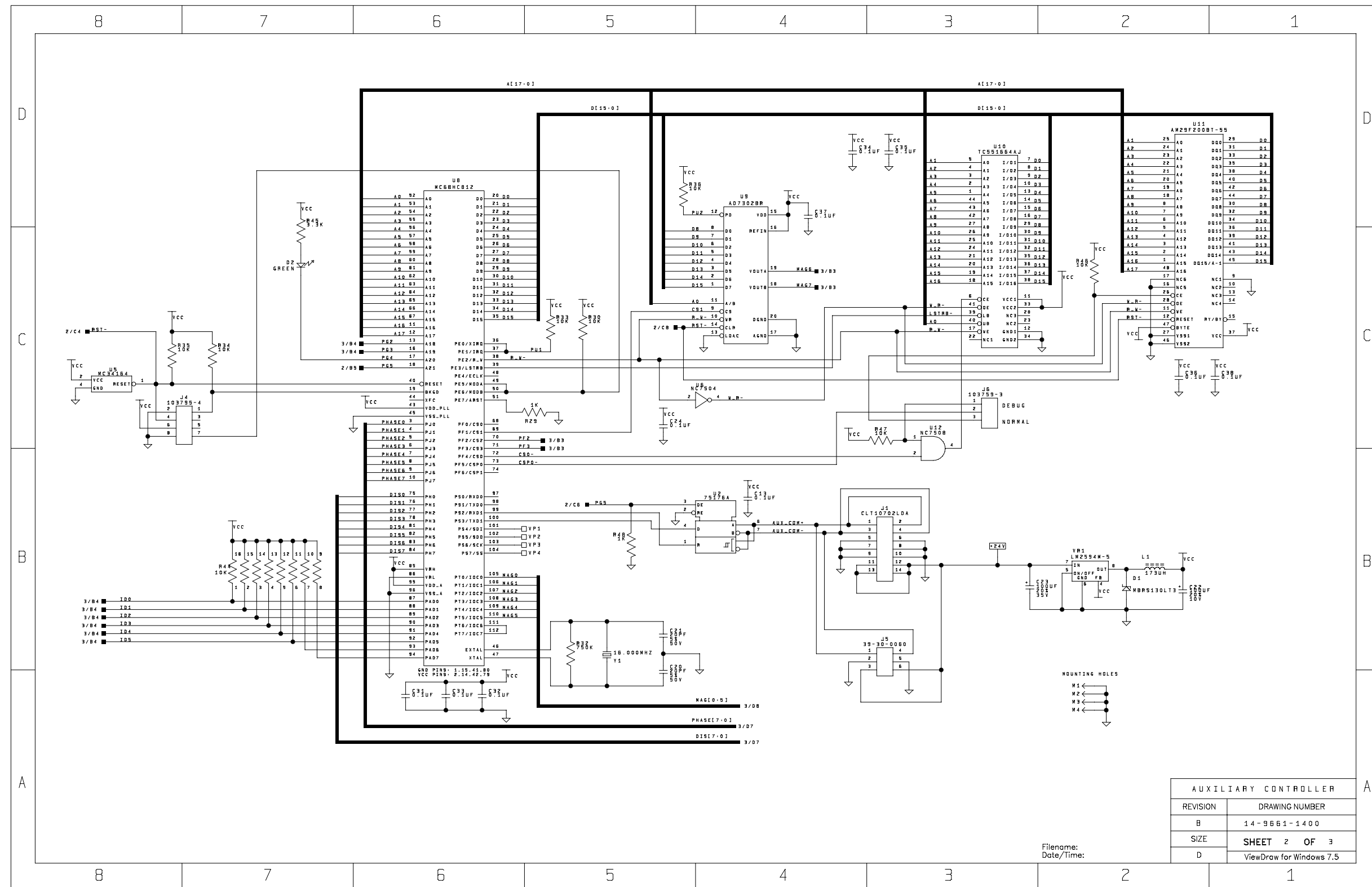
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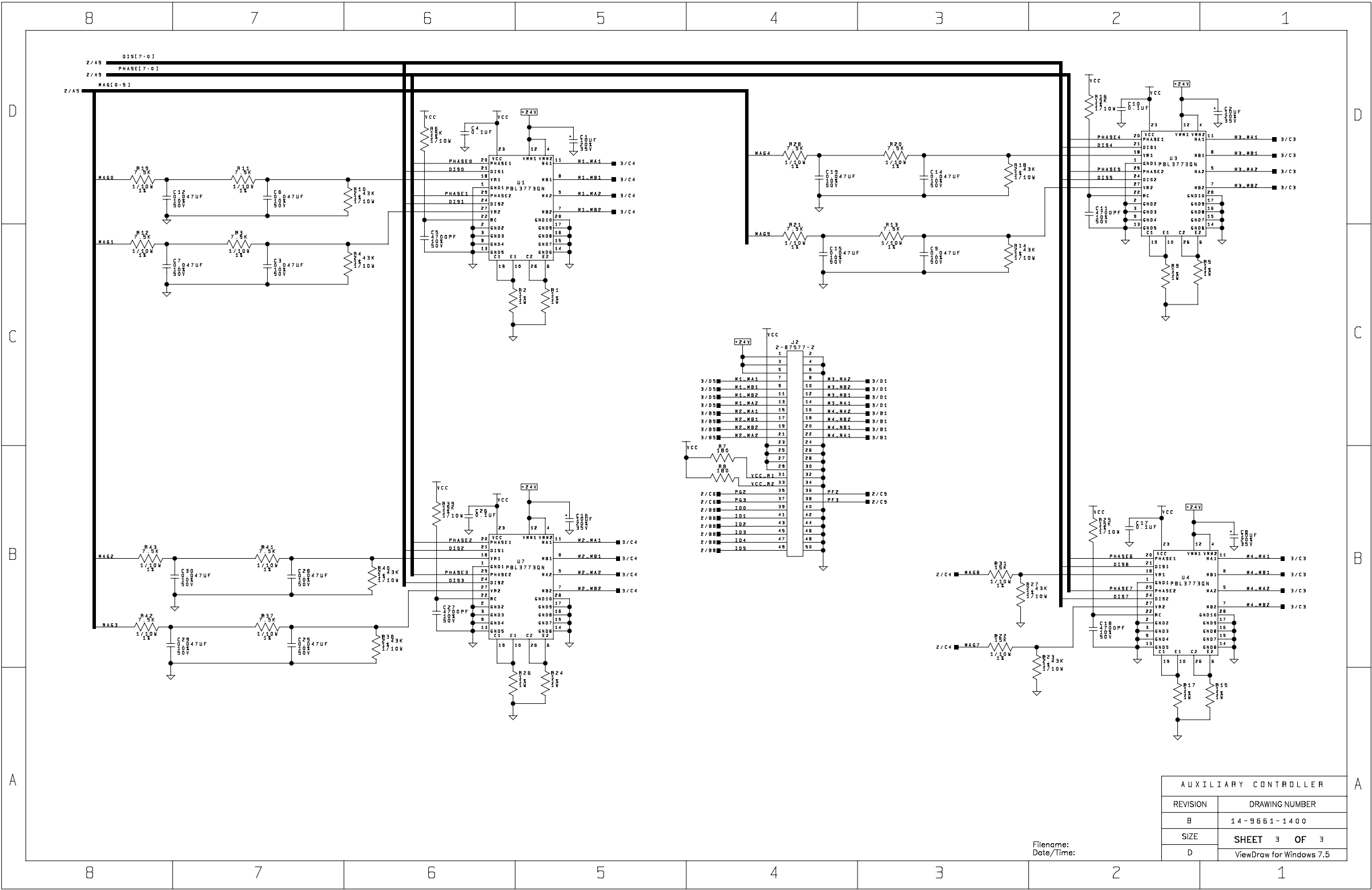
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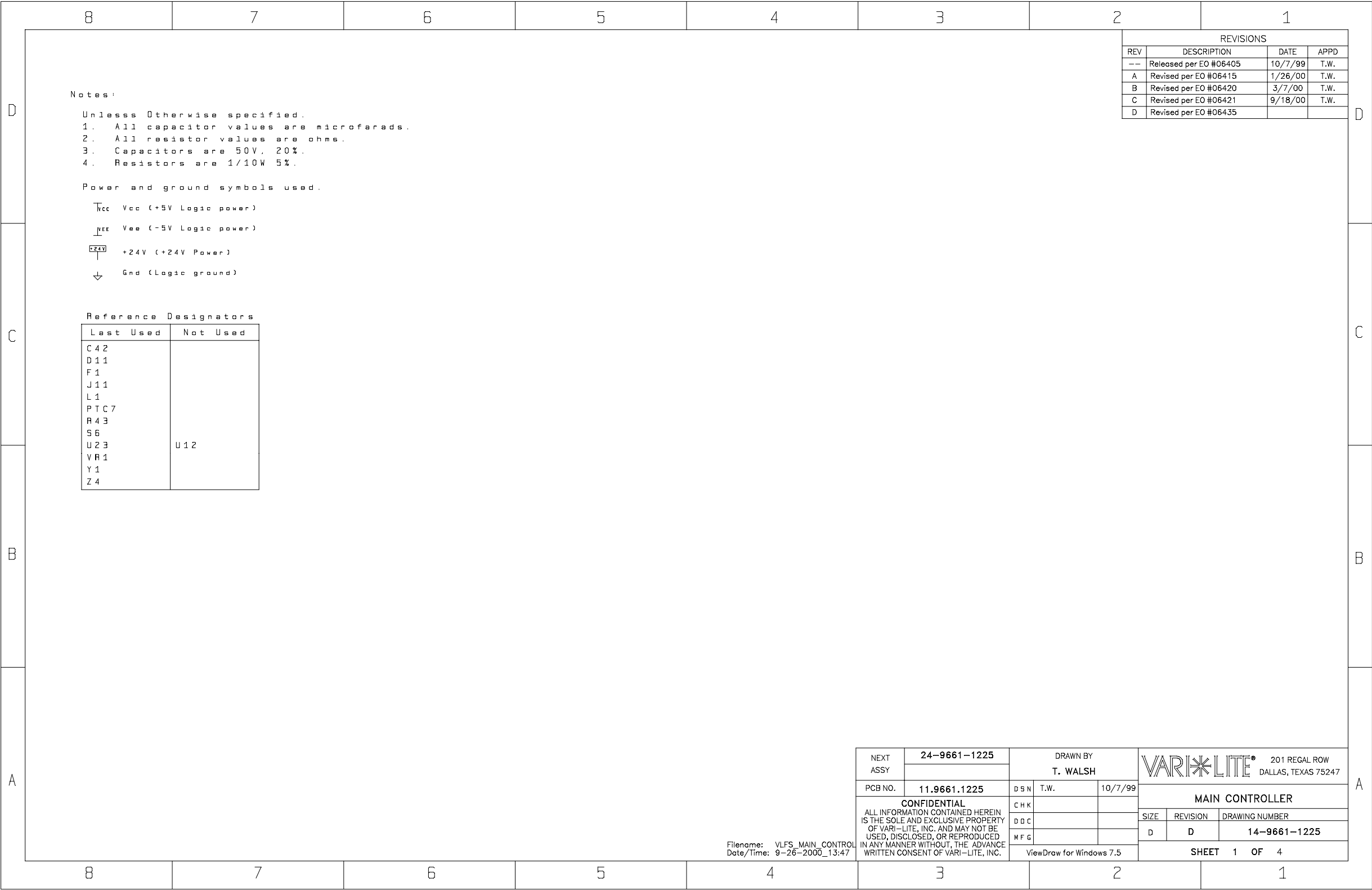
Auxiliary Controller Schematic (cont.)



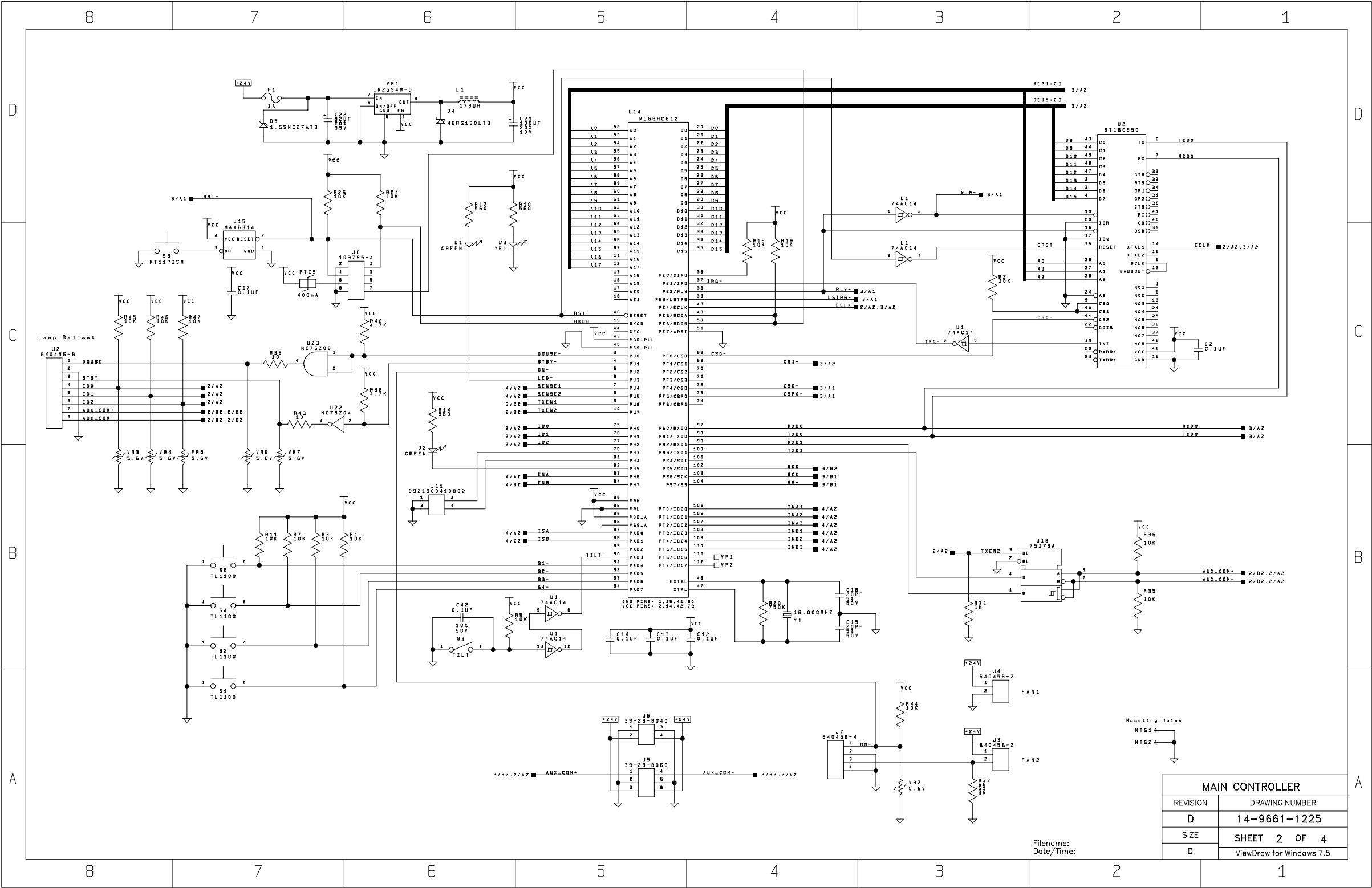
Auxiliary Controller Schematic (cont.)



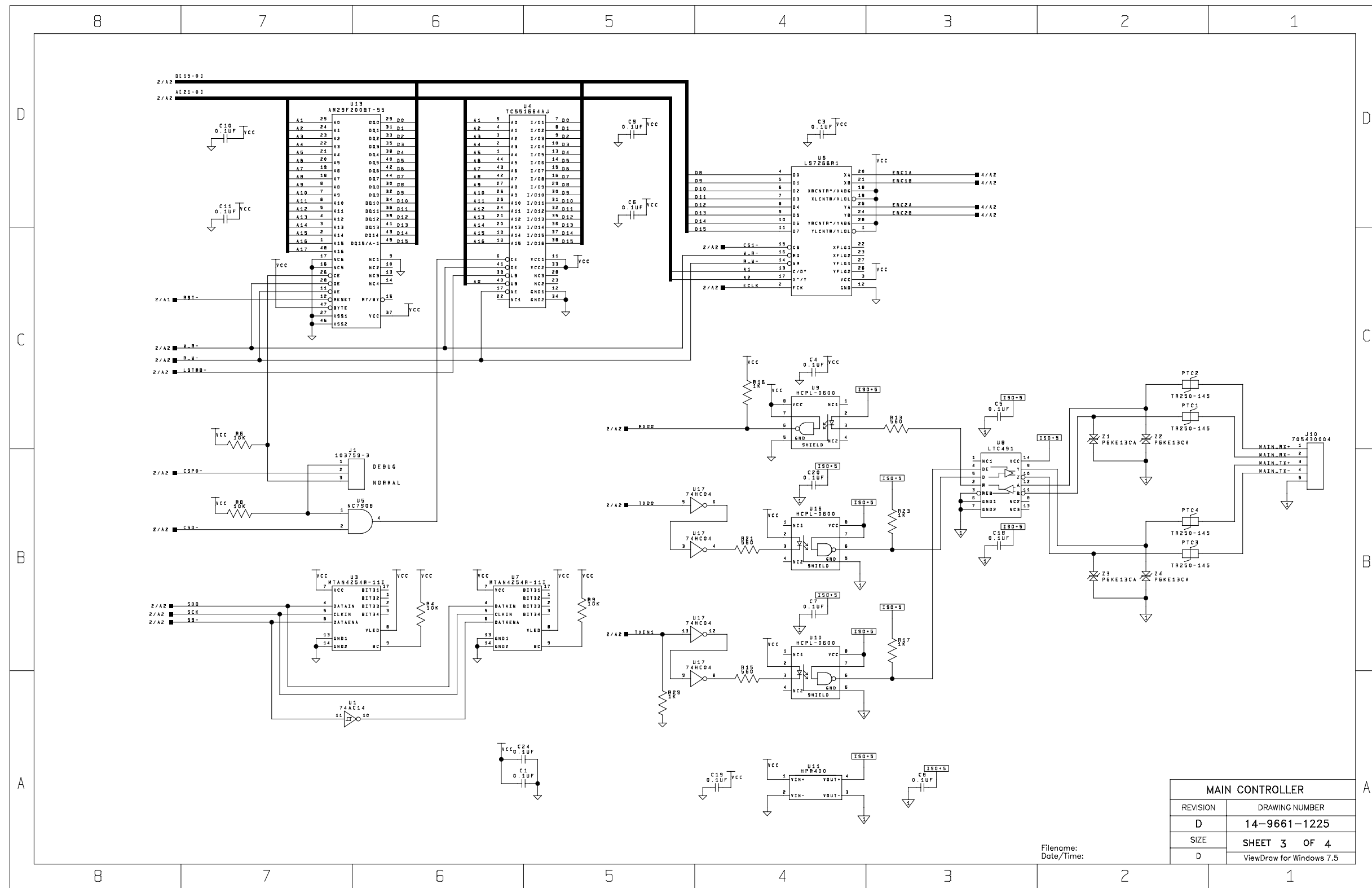
Main Controller Schematic



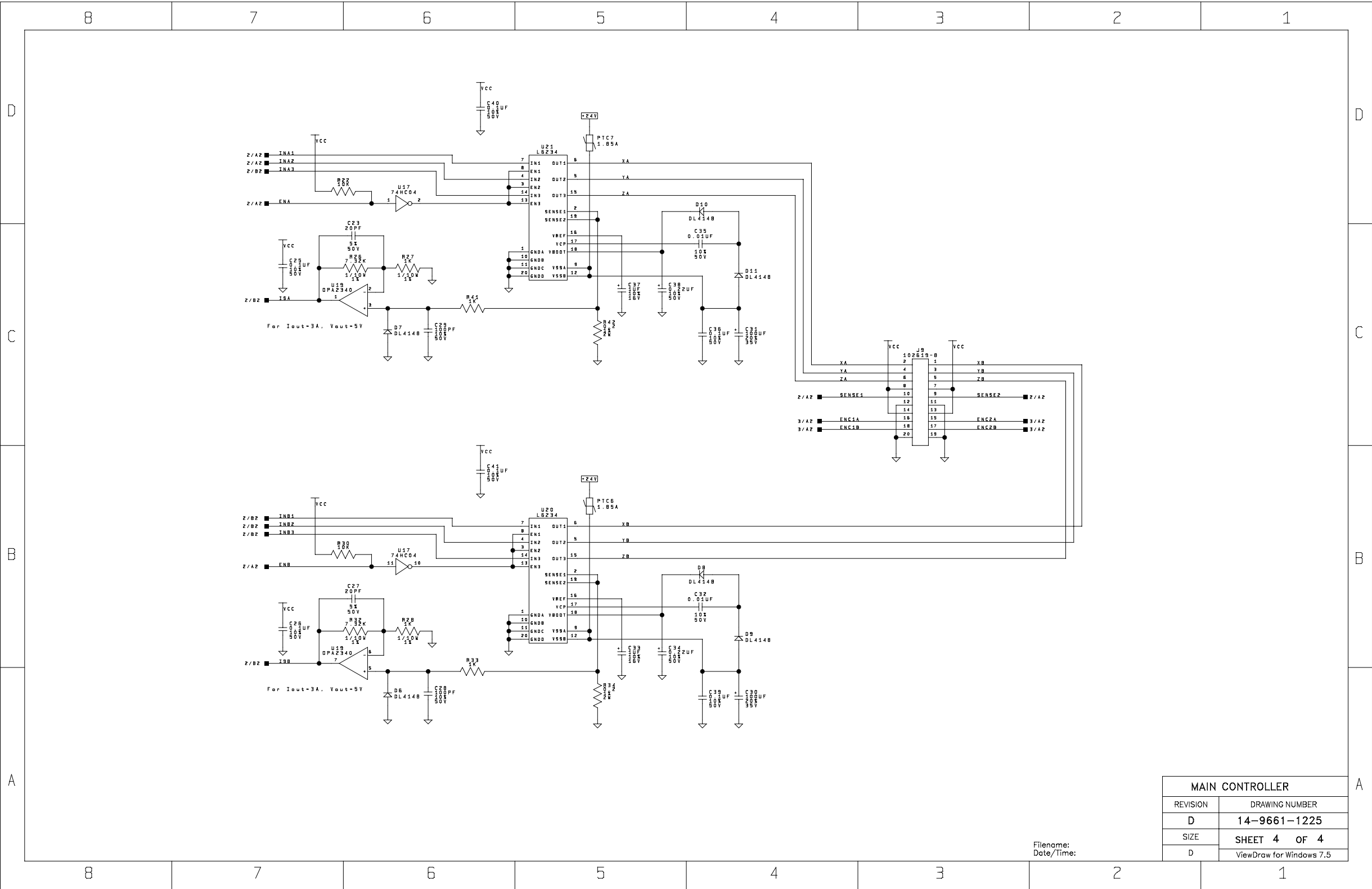
Main Controller Schematic (cont.)



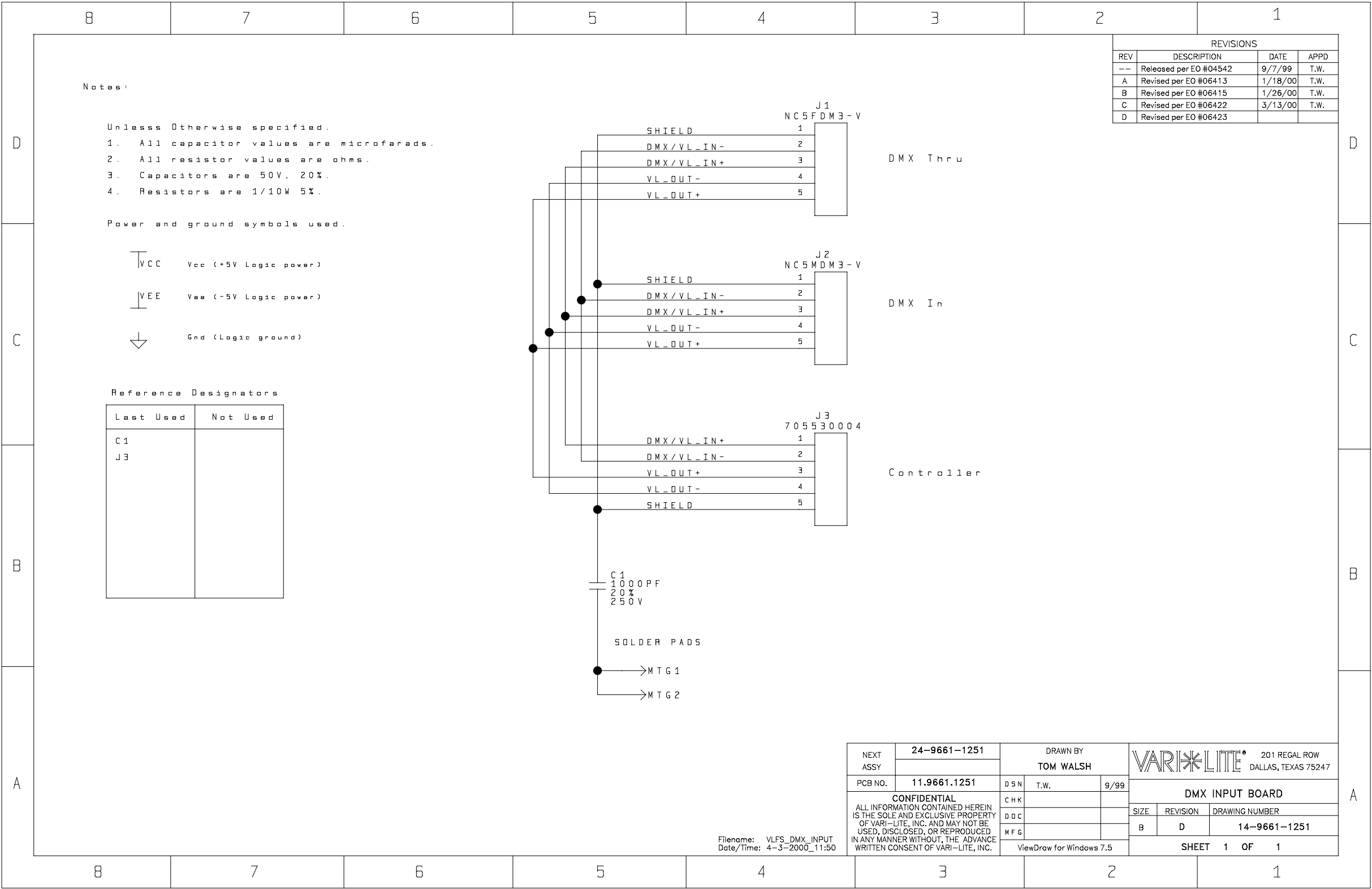
Main Controller Schematic (cont.)



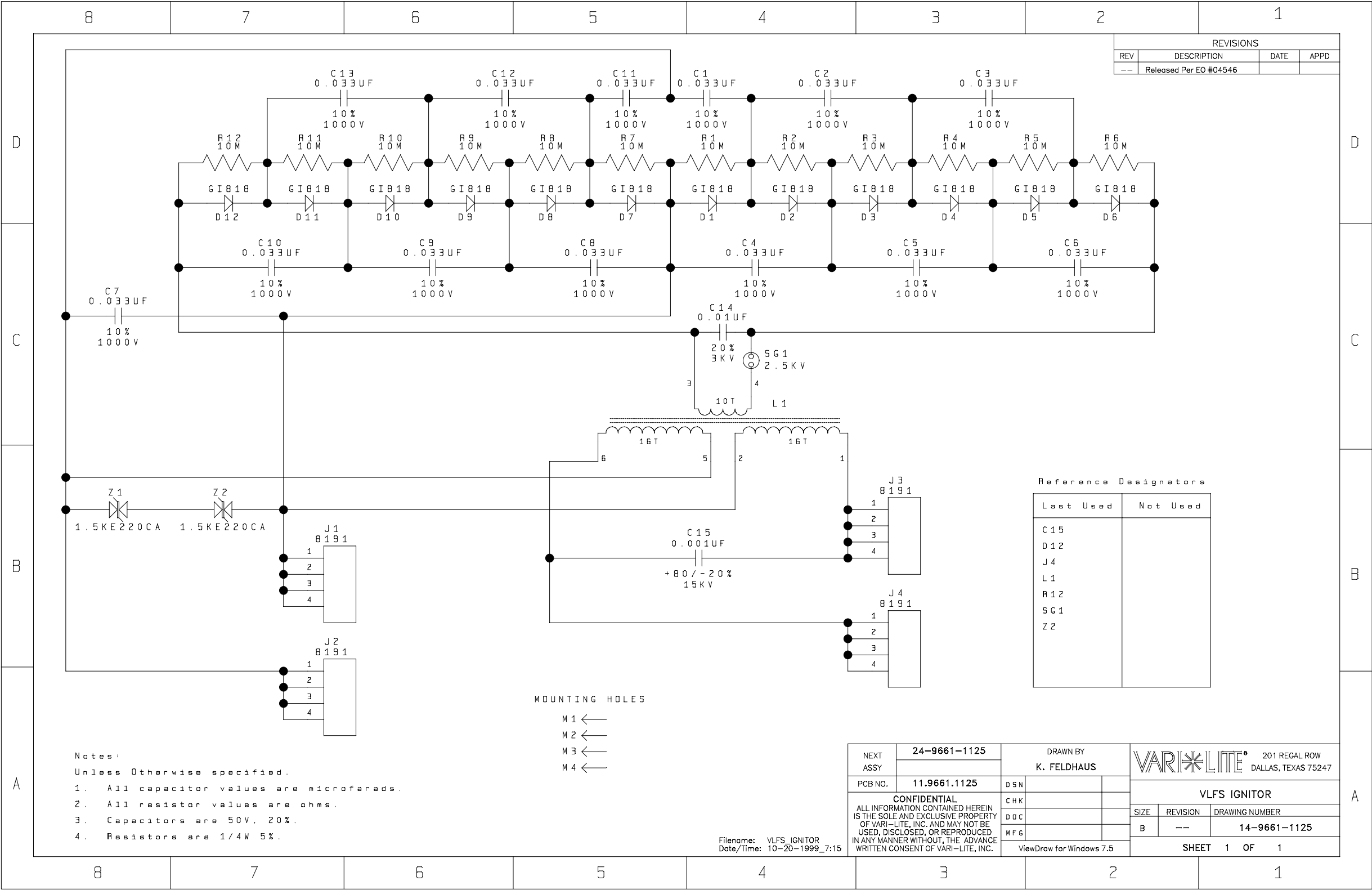
Main Controller Schematic (cont.)



DMX Input Schematic



Ignitor Schematic







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