

PHILIPS

VARI*LITE



20 June 2017

VL4000 Spot Luminaire Service Manual

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A Philips Group Company
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Dallas, Texas 75238 USA

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VL4000 Spot Luminaire Service Manual

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How To Obtain Warranty Service

A copy of the Vari-Lite 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), +1-214-647-7880, or entertainment.service@philips.com and request a Return Material Authorization (RMA) for warranty service. You will 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 unit in a secure shipping container or in its original packing box. Fill out the RMA form included at the end of this manual and place in shipping container along with a copy of your invoice (if available). Write the RMA number legibly on or near the shipping address label and return the unit, freight prepaid to:

Philips Vari-Lite
10911 Petal Street
Dallas, Texas 75238 USA
Attention: Warranty Service (RMA# _____)

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



Note: *When returning products to Philips Vari-Lite for repairs (warranty or out-of-warranty) from a country other than the USA, “Philips Lighting Controls Division”, must appear in the address block as the Importer of Record (IOR) on all shipping documentation, Commercial Invoices, etc. This must be done in order to clear customs in a timely manner and prevent returns.

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.

CE Declaration of Conformity

We, Philips Lighting B.V. 10911 Petal Street, Dallas, Texas 75238 USA, declare under our responsibility for the products:

Product Range	Professional Stage Luminaire
Product Code	VL4000 Spot

The designated products are in conformity with the essential requirements of the following European Directives and harmonized standards:

Low Voltage Directive (LVD), 2006/95/EC

EN 60589-2-17:1984+A1:1987+A2:1990 used in conjunction with 60598-1:2008/A11:2009

Electromagnetic Compatibility Directive (EMC), 2004/108/EC

EN 55022:2010, EN55024:2010

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 ELECTRICAL SHOCK, FIRE, EXPOSURE TO EXCESSIVE UV RADIATION, AND INJURY TO PERSONS CAN BE FOUND BELOW.

WARNING:

INSTRUCTIONS FOR CONTINUED PROTECTION AGAINST FIRE

1. VARI*LITE luminaires have been designed for use with specific lamp types. VL4000 Spot Luminaires is supplied with an Osram HTI 1500 D7/60 metal halide lamp or other lamps as approved by Vari-Lite. Installing another type of lamp not approved by Vari-Lite may be hazardous.
2. Luminaires may be mounted on any type of surface as long as mounting instructions are followed. See instructions detailed in this manual.
3. Note distance requirement from combustible materials or illuminated objects for VARI*LITE luminaires.

WARNING:

INSTRUCTIONS FOR CONTINUED PROTECTION AGAINST ELECTRICAL SHOCK

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

WARNING:

INSTRUCTIONS FOR CONTINUED PROTECTION AGAINST EXCESSIVE EXPOSURE TO UV RADIATION

1. Many VARI*LITE luminaires use a lamp that produces UV radiation. DO NOT look directly at lamp.
2. It is hazardous to operate luminaires without lens or shield. Shields, lenses, or ultraviolet screens shall be changed if they have become visibly damaged to such an extent that their effectiveness is impaired. For example, by cracks or deep scratches.

WARNING:

INSTRUCTIONS FOR PROTECTION AGAINST INJURY TO PERSONS

1. Exterior surfaces of the luminaire will be hot during operation. Use appropriate safety equipment (gloves, eye protection, etc.) when handling and adjusting hot equipment and components.
2. Luminaires will have a hot lamp when operating. Disconnect power and allow lamp to cool before replacing.
3. Arc lamps emit ultraviolet radiation which can cause serious skin burn and eye inflammation. Additionally, arc lamps operate under high pressure at very high temperatures. Should the lamp break, there can exist a danger of personal injury and/or fire from broken lamp particles being discharged.
4. Wear eye protection when relamping.
5. Appropriate safety equipment (gloves, eye protection) should be used when handling damaged lamps.
6. If lamp is touched with bare hands, clean lamp with denatured alcohol and wipe with lint-free cloth before installing or powering up the luminaire.
7. The lamp shall be changed if it has become damaged or thermally deformed.

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.

ARC LAMP CHARACTERISTIC CONSIDERATIONS

1. Arc lamps require a period of time to relight after a power interruption or a severe voltage dip. In some cases, the lamp will automatically relight after it has cooled depending on Lamp Power-Up State configuration setting.
2. Burning position is universal.

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 ELEKTROSCHOCK, FEUER, ÜBERHÖHTE UV-STRAHLUNG UND KÖRPERVERLETZUNGEN.

WARNUNG:

HINWEISE ZUM FEUERSCHUTZ

1. VARI*LITE -Scheinwerfer sind ausschließlich für den Einsatz mit bestimmten Lampentyps. Achten Sie auf den Lampentyp (Osram HTI 1500 D7/60 metal halide lamp), bevor Sie die jeweiligen Lampen ersetzen. Die Installation eines anderen Lampentyps kann gefährlich sein.
2. Scheinwerfer können auf jeder beliebigen Oberfläche montiert werden, solange Sie die Montageanweisungen befolgen. Detaillierte Hinweise finden Sie in diesem Handbuch.
3. Beachten Sie die Einhaltung des erforderlichen Sicherheitsabstandes der VARI*LITE -Scheinwerfer von brennbarem Material oder beleuchteten Objekten.

WARNUNG:

HINWEISE ZUM SCHUTZ GEGEN ELEKTROSCHOCK

1. VARI*LITE -Scheinwerfer eignen sich ausschließlich für trockene Standorte. Regen oder Feuchtigkeit können die Scheinwerfer 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:

HINWEISE ZUM SCHUTZ GEGEN ÜBERHÖHTE UV-STRAHLUNG

1. Viele VARI*LITE -Scheinwerfer verwenden die Lampentyp, der UV-Strahlen abgibt. SCHAUEN SIE NICHT direkt in die Lampe.
2. Es ist gefährlich, Leuchten ohne Linsen oder Blenden zu bedienen. Blenden, Linsen oder Ultraviolettsschirme müssen ausgetauscht werden, sofern deren Schutzwirkung durch sichtbare Beschädigung (z. B. Sprünge oder Schrammen) eingeschränkt ist.

WARNUNG:

HINWEISE ZUM SCHUTZ GEGEN KÖRPERVERLETZUNGEN

1. Bei Betrieb sind die Außenflächen der Scheinwerfer heiß. Verwenden Sie bei der Bedienung von aufgeheizter Apparatur die jeweils geeignete Sicherheitsausrüstung (Handschuhe, Augenschutz etc.).
2. Bei Betrieb der Scheinwerfer ist die Lampe heiß. Unterbrechen Sie die Stromzufuhr und lassen Sie die Lampe abkühlen, wenn Sie diese austauschen.
3. Bogenlampen senden ultraviolette Strahlen aus, die Hautverbrennungen und Augenentzündungen verursachen können. Der Betrieb von Bogenlampen erfolgt unter Hochdruck und bei hohen Temperaturen. Sollte die Lampe zerbrechen, besteht die Gefahr von Körperverletzung bzw. von Feuer, das von Lampenteilen ausgelöst werden kann.
4. Tragen Sie beim Austausch der Lampen einen Augenschutz.
5. Die geeignete Sicherheitsausrüstung (Handschuhe, Augenschutz) sollte beim Umgang mit beschädigten Lampen verwendet werden.
6. Wenn die Lampe mit bloßen Händen berührt wird, reinigen Sie sie mit denaturiertem Alkohol und einem flusenfreien Tuch, bevor Sie die Scheinwerfer installieren oder in Betrieb nehmen.
7. Wenn die Lampe beschädigt oder durch Hitzeeinwirkung deformiert ist, muß diese ausgetauscht 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.

BESONDERHEITEN VON BOGENLAMPEN

1. Bogenlampen benötigen eine gewisse Zeitdauer, um nach einem Stromausfall oder einem Spannungsgefälle wieder aufzuleuchten. In einigen Fällen wird die Lampe nach Abkühlung automatisch wieder aufleuchten, je nach der Systemkonfigurationseinstellung des Lampeneinschaltungsstatus.
2. Die Brennposition ist Universal.

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 DÉCHARGES ÉLECTRIQUES, LES INCENDIES, L'EXPOSITION EXCESSIVE AUX RAYONS UV ET TOUT AUTRE ACCIDENT POUVANT ENTRAÎNER DES BLESSURES.

AVERTISSEMENT:

DIRECTIVES POUR SE PROTÉGER CONTRE LES INCENDIES

1. Les luminaires VARI*LITE ont été conçus pour être utilisés uniquement avec certaines type de lampes. Vérifier le type de lampe (Osram HTI 1500 D7/60 metal halide lamp) avant de remplacer les lampes. L'installation d'un autre type de lampe peut poser un danger.
2. Les luminaires peuvent être fixés sur tout type de surface tant que les directives de montage sont respectées. Voir les explications détaillées dans ce guide.
3. Vérifier la distance à respecter entre les matériaux combustibles ou les objets illuminés et les luminaires VARI*LITE .

AVERTISSEMENT:

DIRECTIVES POUR SE PROTÉGER CONTRE LES DÉCHARGES ÉLECTRIQUES

1. Les luminaires VARI*LITE sont conçus pour une utilisation au sec uniquement. Une exposition à la pluie et à l'humidité risque d'endommager le luminaire.
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:

DIRECTIVES POUR SE PROTÉGER CONTRE UNE EXPOSITION EXCESSIVE AUX RAYONS UV

1. Plusieurs luminaires VARI*LITE utilisent une lampe qui produit des rayons UV. NE PAS fixer son regard sur la lampe.
2. L'utilisation des luminaires sans lentille ou blindage pose des risques. Tous blindages, lentilles ou écrans ultraviolet visiblement endommagés au point que leur efficacité en est affectée doivent être remplacés, par exemple s'il y a des fissures ou de profondes rayures.

AVERTISSEMENT:

DIRECTIVES POUR SE PROTÉGER CONTRE LES ACCIDENTS POUVANT ENTRAÎNER DES BLESSURES

1. Les surfaces externes du luminaire deviennent brûlantes quand l'appareil est en marche. Pour manœuvrer ou ajuster des appareils brûlants et leurs composants, se protéger suffisamment (gants, protection pour les yeux, etc.).
2. La lampe du luminaire est brûlante lorsqu'il est en marche. Débrancher le courant et attendre que la lampe ait refroidi avant de la remplacer.
3. Les lampes à arc émettent des rayons ultraviolets pouvant causer de graves brûlures sur la peau et une inflammation des yeux. De plus, les lampes à arc fonctionnent sous haute tension à de très hautes températures. Si la lampe se casse, les particules de la lampe cassée peuvent causer blessures et/ou incendie en s'éparpillant.
4. Se protéger les yeux pour remplacer la lampe.
5. Utiliser des appareils de protection appropriés (gants, protection des yeux) pour manier des lampes endommagées.
6. Si la lampe a été touchée avec des mains nues, la nettoyer avec de l'alcool dénaturé et l'essuyer avec un chiffon non-pelucheux avant d'installer ou de brancher le luminaire.
7. Si la lampe a été endommagée ou a reçu une déformation thermique, elle doit être remplacée.

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.

CONSIDÉRATIONS DES CARACTÉRISTIQUES DE LAMPES À ARC

1. Après une interruption de courant ou une baisse importante de voltage, les lampes à arc mettent du temps avant de se rallumer. Dans certains cas, la lampe se rallumera automatiquement après s'être refroidie. Cela dépend de la manière dont le système est réglé pour le statut de mise en marche de la lampe.
2. La position Brûler est Universelle.

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 CONTRAGOLPES DE CORRIENTE ELÉCTRICA, INCENDIO, EXPOSICIÓN EXCESIVA A RADIACIÓN ULTRA VIOLETA Y LESIONES A LAS PERSONAS SE PUEDE ENCONTRAR SEGUIDAMENTE:

ADVERTENCIA:

INSTRUCCIONES PARA PROTECCIÓN CONTINUA CONTRA INCENDIO

1. Las luminarias VARI*LITE han sido diseñadas para ser usadas solamente con algunas lámparas. Tome nota del tipo de lámpara (Osram HTI 1500 D7/60 metal halide lamp) antes de reemplazarla. Instalación de otro tipo de lámpara puede ser peligroso.
2. Las luminarias se pueden instalar en cualquier tipo de superficie siempre que se sigan las instrucciones de instalación. Vea las instrucciones detalladas en este manual.
3. Tome nota de los requerimientos de distancia de materiales combustibles u objetos iluminados para las luminarias VARI*LITE .

ADVERTENCIA:

INSTRUCCIONES PARA PROTECCIÓN CONTINUA CONTRA CHOQUE ELÉCTRICO

1. Las luminarias VARI*LITE están diseñadas solamente para lugares secos. La exposición a la lluvia o humedad pueden dañar la luminaria.
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:

INSTRUCCIONES PARA PROTECCIÓN CONTINUA CONTRA LA EXPOSICIÓN EXCESIVA DE RADIACIÓN ULTRA VIOLETA

1. Muchas luminarias VARI*LITE usan un tipo de lámpara que produce radiación UV. NO mire directamente a la lámpara.
2. Es peligroso operar luminarias sin lentes o protectores. Debe cambiar los protectores, lentes o pantallas ultravioletas si se aprecia que han sido dañadas, y que su efectividad pudiera estar deteriorada. Por ejemplo, si tuvieran rajaduras o raspaduras profundas.

ADVERTENCIA:

INSTRUCCIONES PARA PROTECCIÓN CONTRA LESIONES DE PERSONAS

1. Las superficies exteriores de las luminarias están calientes durante su operación. Use un equipo de seguridad apropiado (guantes, protección para los ojos, etc.) cuando haga ajustes en el equipo y componentes que están calientes.
2. Cuando las luminarias están en operación la lámpara estará muy caliente. Desconecte la energía y deje que la lámpara se enfríe antes de reemplazarla.
3. Las lámparas de arco emiten radiaciones ultravioletas que pueden ocasionar serias quemaduras a la piel e inflamación a los ojos. Además, las lámparas de arco operan a alta presión y muy alta temperatura. Si la lámpara se rompe, puede existir el peligro de lesiones al personal o un incendio ocasionado por las partículas de la lámpara rota que se caen.
4. Use protección para los ojos cuando vuelve a colocar una lámpara nueva.
5. Use un equipo de seguridad apropiado (guantes, protección para los ojos, etc.) cuando trabaje con lámparas dañadas.
6. Si toca la lámpara con las manos, limpie la lámpara con alcohol desnaturalizado y con tela sin pelusas antes de instalar o volver a conectar la luminaria.
7. Cambie la lámpara si está dañada o deformada termicamente.

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.

CONSIDERACIONES SOBRE LAS CARACTERÍSTICAS DE LA LÁMPARA DE ARCO

1. Las lámparas de arco requieren un período de tiempo para volver a iluminarse después de una interrupción de energía o de una severa caída de voltaje. En algunos casos, la lámpara se volverá a iluminar en forma automática después que se ha enfriado dependiendo de la configuración del sistema de energía de la lámpara.
2. La posición de encendido es universal.

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、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（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、高圧高温の状態ですべての光を放射します。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) 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もあります。
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 the VL4000 Spot Luminaire. The manual is intended for use by Vari-Lite personnel and Authorized VARI*LITE Service Centers and technicians only.



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	Source
VL4000 Spot Luminaire	20.9704.0001	1200W Short Arc



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

Additional Documentation

For complete installation and operation instructions, refer to the VL4000 Spot Luminaire User's Manual. This manual is only available in electronic (PDF) format:

- VL4000 Spot Luminaire User's Manual (02.9704.0002)

Note: The user's manual is available on the Philips Vari-Lite web site at www.vari-lite.com in the Product Downloads Section.

For more information regarding DMX512 systems, refer to the DMX512/1990 & AMX 192 Standards publication available from United States Institute for Theatre Technology, Inc. (USITT).

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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) was 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)

e-mail: entertainment.service@philips.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 S3K-001 (Series 3000 Luminaires 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 contains descriptions of luminaire features and components.

- **Features**
- **Components**



Features

Product Features

All VL4000 Spot Luminaires have the following standard features:

- **Color System:** A three filter CYM cross fading system capable of extremely smooth movements at both slow and fast speeds, and a variable CTO color temperature correction system.
- **Fixed Color Wheels:** Two opposing fixed color wheels each with five interchangeable color filters are capable of producing multi-color effects and variable wheel rotations.
- **Zoom Optics:** A 12-element 5:1 zoom optics system, covering a range from 9° to 47°.
- **Beam Size Control:** A mechanical iris provides continuous beam size control for rapid and smooth timed beam angle changes.
- **Shutter Control:** A four-blade shutter mechanism that allows the blades to be operated independently or in unison on two planes for a clear and crisp image. The entire mechanism can rotate 50° in either direction.
- **Rotating Gobo Wheels:** Two gobo wheels combine to each offer seven rotatable, indexable gobo positions and one open position.
- **Animation Wheels:** Two animation wheels each offer unique rotatable, indexable patterns with variable motion control from horizontal to vertical. Unique Dichro*Fusion pattern is chromatically tuned to provide endless color effects.
- **Rotating Prism:** Independent rotating and indexing 3-facet prism with variable deviation control.
- **Edge and Pattern Focus:** Variable beam focus to soften edges of gobos or spot. Remarkable depth of field capability allows morphing effects between gobo and animation wheels.
- **Variable Frost:** Independent variable frost glass with adjustable softness control.
- **Intensity Control:** Full field dimming designed for smooth timed fades as well as quick dimming effects.
- **Strobe:** High-performance dual blade strobe system capable of ultra-fast operation.
- **Pan and Tilt:** Smooth, time-controlled continuous motion by way of three-phase stepper motor systems.
 - Range: Pan - 540°, Tilt - 270°.
 - Accuracy: 0.3° resolution.
- **Weights:** Unit weighs (luminaire only, without accessories) 90 lbs (40.9 kg).
- **Spacing:** Unit hangs on 25 inch (635 mm) centers.
- **Operational Temperature:**
 - Standard Mode: -20° to +104° F (-29° to +40° C)
 - Studio Mode: -20° to +122° F (-29° to +50° C)
- **Control:**
 - DMX: Completely compatible with a wide variety of DMX512 consoles.
 - DMX Channels: 57 (Enhanced 16-bit mode) / 52 (16-bit mode).

- RDM Control: Completely compatible with a wide variety of RDM devices.
- Power Requirements: Standard AC power distribution from 200 - 240VAC, 50/60 Hz. The unit requires up to 11.0A depending on the AC supply voltage.
- Source: 1200W Short Arc Lamp, Philips MSR Gold FastFit.

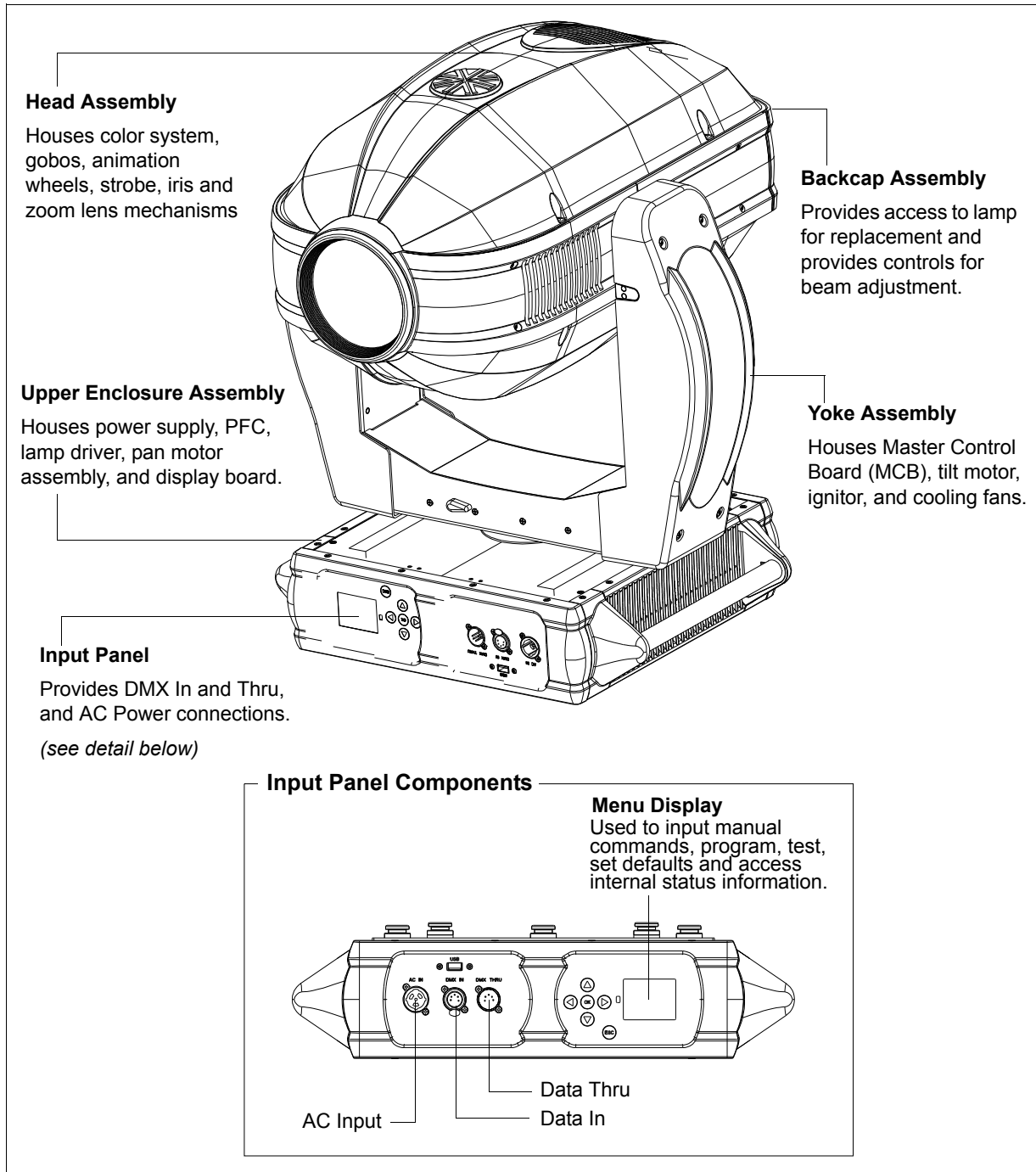
Technical Specifications

For additional technical specifications and information, please refer to VL4000 Spot Luminaire User's Manual (02.9704.0002) and the product specification sheet. These documents can be found in the product downloads section of the Vari-Lite web site at www.vari-lite.com.

Components

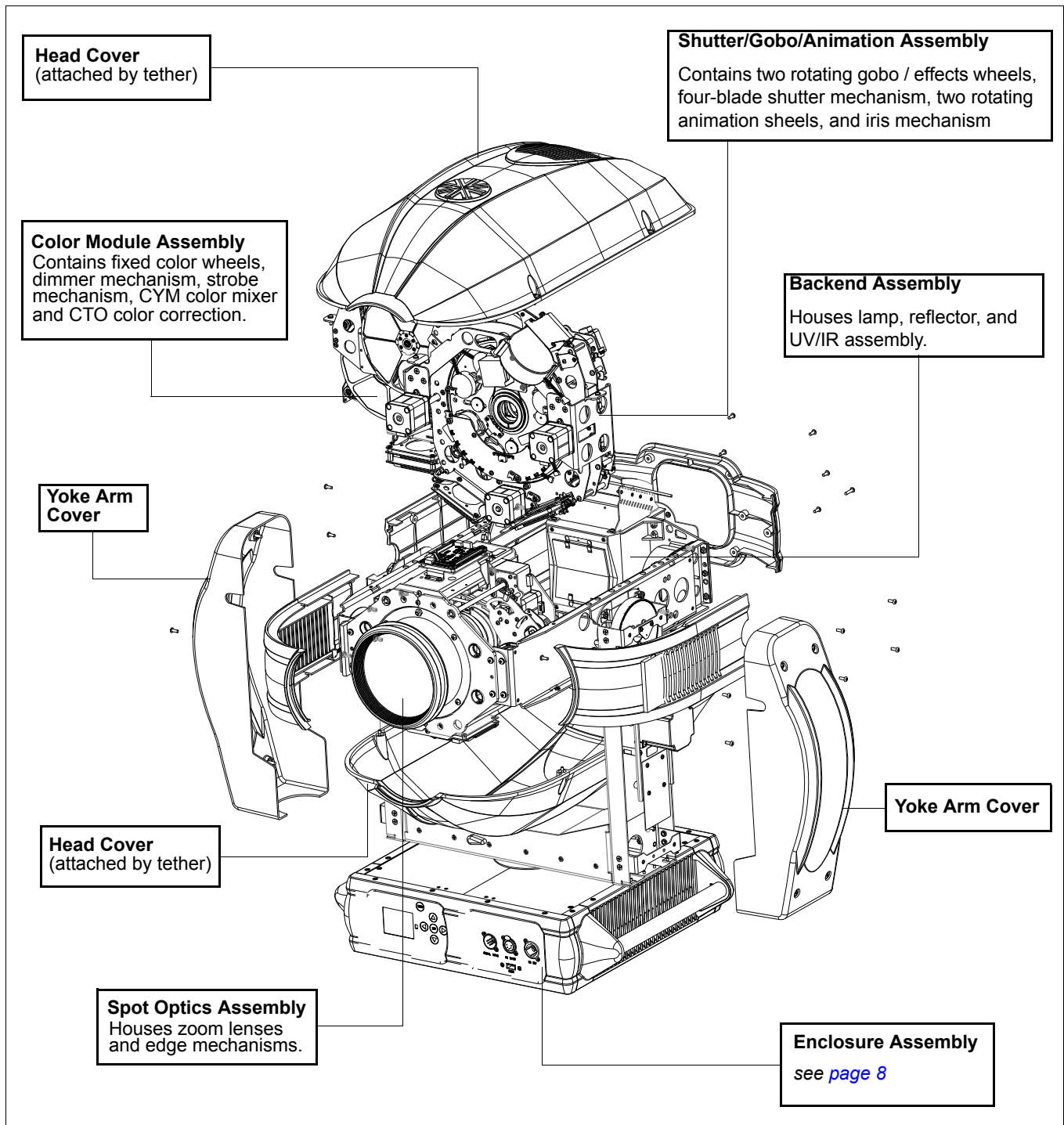
External Luminaire Components

The following illustration shows the external luminaire components and controls.



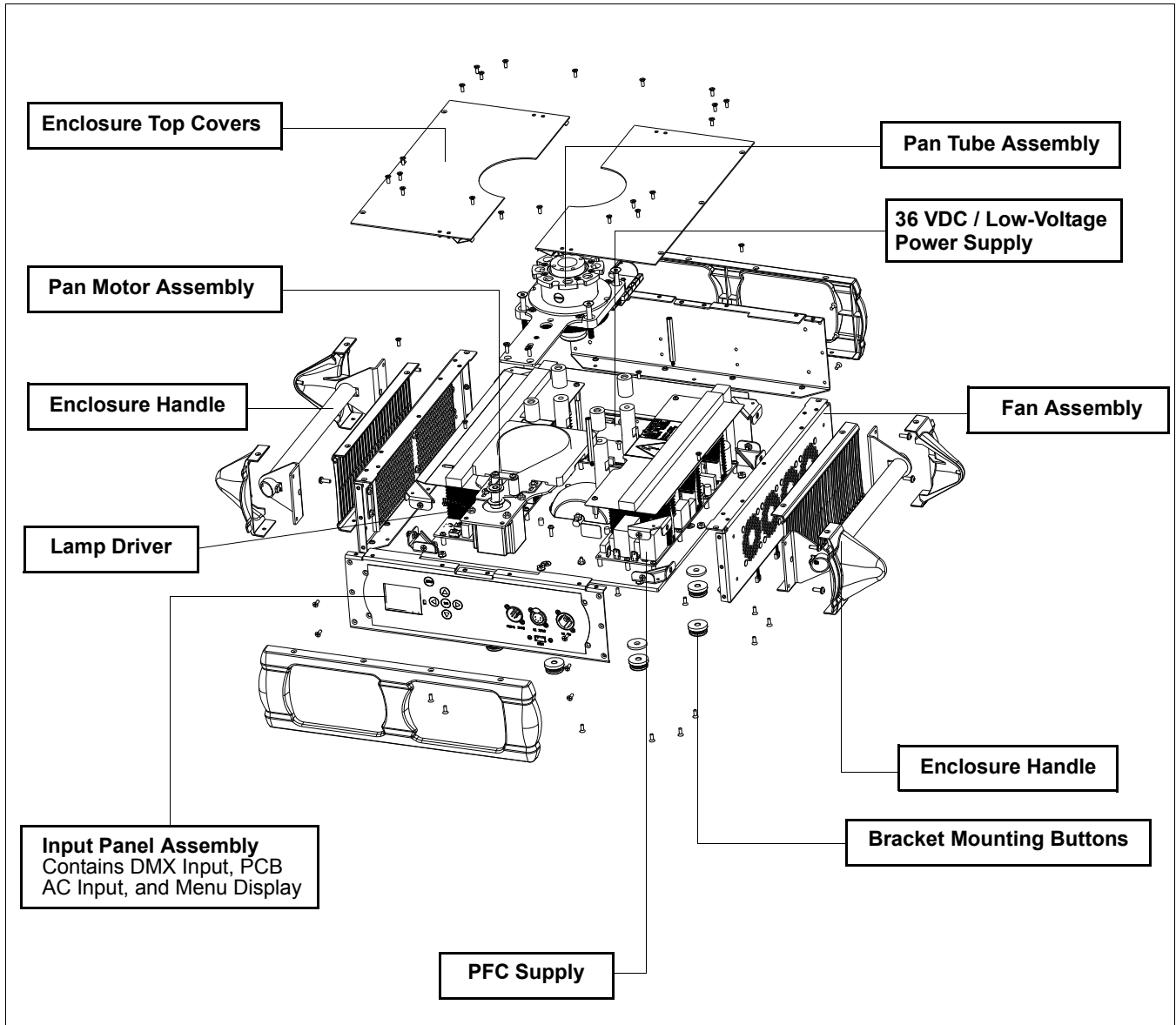
Head and Yoke Components

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



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.)



CHAPTER 2.

Maintenance & Service

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

- **Troubleshooting**
- **Routine Maintenance Procedures**
- **Service 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.



WARNING: Maintenance, repairs, and adjustments should only be performed by a qualified, factory-trained service technician at an Authorized VARI*LITE Service Center.



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Troubleshooting

Error Messages

If a problem occurs during luminaire calibration, at the end of the calibration sequence the Menu Display will cycle through any applicable error message(s) until the end of the list is reached. To review the error messages again, it will be necessary to access them using the **Status** function.

To access error messages:

- Step 1. Press [ESC].
- Step 2. Press [Up] / [Down] arrows until **Fixture** appears. Press [OK].
- Step 3. Press [Up]/ [Down] arrows to access **Status**. Press [OK]. (Display will now scroll through any error messages or display OK if no errors).

Table 2-1: Error Messages

Display	Meaning
OK	No Errors Found - All Sensors Responded Properly
Pan Sensor	Pan Sensor (Encoder) Error
Tilt Sensor	Tilt Sensor (Encoder) Error
Dimmer Sensor	Dimmer Sensor Error
Cyan Sensor	Cyan Color Sensor Error
Yellow Sensor	Yellow Color Sensor Error
Magenta Sensor	Magenta Color Sensor Error
CTO Sensor	CTO Sensor Error
Color Whl1 Sensor	Color Wheel 1 Sensor Error
Color Whl2 Sensor	Color Wheel 2 Sensor Error
Gobo Whl1 Sensor	Rotating Gobo Wheel 1 Sensor Error
Gobo 1 Index Sensor	Rotating Gobo Wheel 1 Indexing Sensor Error
Gobo Whl2 Sensor	Rotating Gobo Wheel 2 Sensor Error
Gobo 2 Index Sensor	Rotating Gobo Wheel 2 Indexing Sensor Error
Animation Whl1 Sensor	Animation Wheel 1 Sensor Error
Animation 1 Index Sensor	Animation Wheel 1 Indexing Sensor Error
Animation Whl2 Sensor	Animation Wheel 2 Sensor Error
Animation 2 Index Sensor	Animation Wheel 2 Indexing Sensor Error
Prism Sensor	Prism Mechanism Sensor Error
Prism Rotate Sensor	Prism Rotating Sensor Error
Prism Diverge Sensor	Prism Diverge Sensor Error
Frost Sensor	Frost Mechanism Sensor Error
Frost Adjust Sensor	Frost Adjustment Sensor Error
Zoom Sensor	Zoom Assembly Sensor Error

Troubleshooting Guide

If a problem is suspected, try recalibrating the luminaire to prompt an error message. If a problem is suspected, first try recalibrating the luminaire to prompt an error message (refer to “[Error Messages](#)” on page 10). The chart below provides possible causes and remedies for various error messages and/or symptoms.



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

Table 2-2: Troubleshooting Guide

Message	Symptom	Description	Possible Cause/Remedy
Lamp Power Douse	Lamp does not strike upon start-up	Lamp Off option is configured	- Reconfigure lamp startup option in Lamp config menu.
n/a	Lamp douses frequently	Lamp Douse	Fan failure... - check head and enclosure fans for proper operation. Ballast overheating... - operating within the specified ambient temperature? - check enclosure vents for debris / dirt. - check fan settings in menu. - check enclosure fans for proper operation. NOTE: Upon initial power up, ballast fans will run for a few seconds and then operate as needed. Enclosure vents must be clear of debris and dirt to allow proper airflow.
n/a	Lamp will not strike	Lamp Strike Failure	Lamp cutout switch disengaged... - check lamp cutout switches at lamp box and fan ducts. Bad lamp... - replace lamp. Low input voltage... - check input power (must be 200 to 240 VAC).
n/a	Luminaire behaves oddly	DMX Map Not Matched	Console library not set correctly... - check console library matches DMX map of luminaire.
n/a	Luminaire does not power up	No power	Circuit not energized... - verify circuit breaker (at source) is turned on. Not plugged in... - ensure A/C cable is connected to power source.
n/a	Self tests will not run or software download does not work from luminaire.	DMX Data Input	Detecting DMX data... - disconnect DMX input cable.
n/a	No response to DMX data	DMX Failure	DMX connector disconnected... - check DMX DATA IN connection.

VARI*LITE - VL4000 SPOT LUMINAIRE SERVICE MANUAL

Message	Symptom	Description	Possible Cause/Remedy
n/a	Erratic control of luminaire	DMX Termination	No DMX termination or termination not correct... - check for DMX terminator. - Luminaire DMX address does not match console patch.

Routine Maintenance Procedures



WARNING: As with any repairs or maintenance to VARI*LITE luminaires, service should only be performed by a trained and qualified service technician or at an Authorized VARI*LITE Service facility.

Lamp Removal and Installation



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



CAUTIONS & WARNINGS

- Wear cotton gloves or other covering while installing lamp. Touching lamp glass with bare fingers will leave oil and may cause the lamp to explode or reduce lamp life. If touched, use isopropyl alcohol and cotton cloth to thoroughly clean glass portion of lamp.
- Hot Lamp. Luminaire must remain powered on for 5 minutes after dousing lamp. Do not open for 5 minutes after switching off. Lampe chaude. Le luminaire doit rester en marche pendant 5 minutes après avoir éteindre la lampe. Ne pas ouvrir pendant 5 minutes après la coupure.
- Risk of exposure to excessive ultraviolet radiation. Do not operate without complete lamp enclosure in place or when lens is damaged. Risque d'exposition aux rayonnements ultraviolets excessifs. Ne pas faire fonctionner sans le boîtier complet de lampe mis en place ou lorsque l'objectif est endommagé.

To replace lamp:

- Step 1. Ensure power is completely removed from luminaire.
- Step 2. Set the luminaire head horizontally.
- Step 3. Engage tilt lock to secure luminaire head in position.
- Step 4. At back of luminaire, using #2 Phillips screwdriver, remove lamp socket cover by loosening the two quarter-turn captive screws. Note: lamp socket cover is connected with a safety tether.

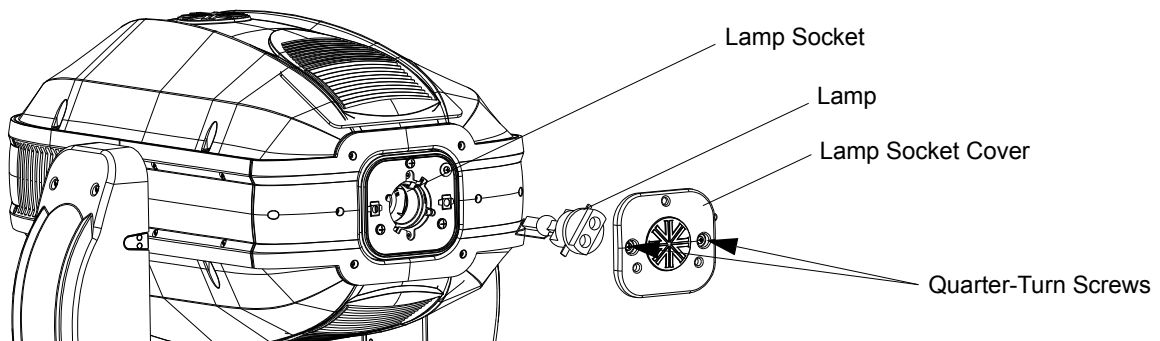


Figure 2-1: Lamp Socket Cover Removal

- Step 5. To remove lamp, grasp lamp base by hand, twist lamp counter-clockwise until lamp's tabs align with slots in lamp socket (see [Figure 2-2](#) on page 14 for more information), and remove lamp by pulling it straight out of socket.
- Step 6. Remove replacement lamp from shipping box.
- Step 7. As shown in [Figure 2-2](#), align replacement lamp tabs with lamp socket.

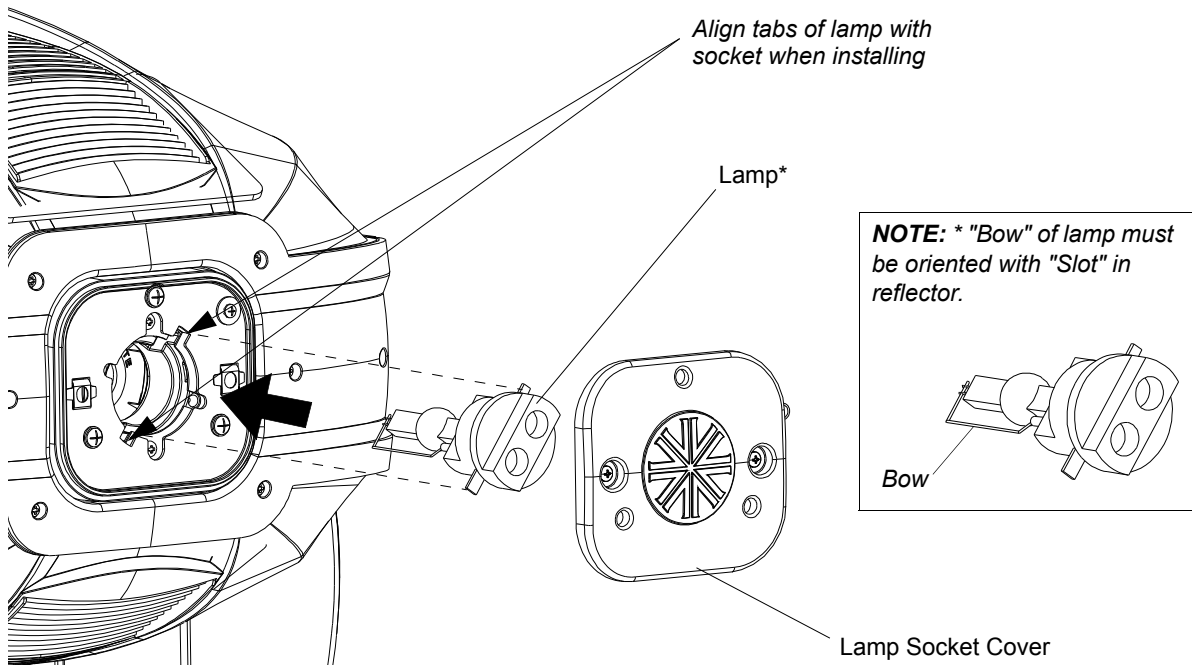


Figure 2-2: Lamp Installation

- Step 8. Install lamp fully into lamp socket, taking care not to touch lamp glass.
- Step 9. Turn lamp clockwise to seat lamp into socket. Lamp base should be aligned as illustrated in [Figure 2-3](#).

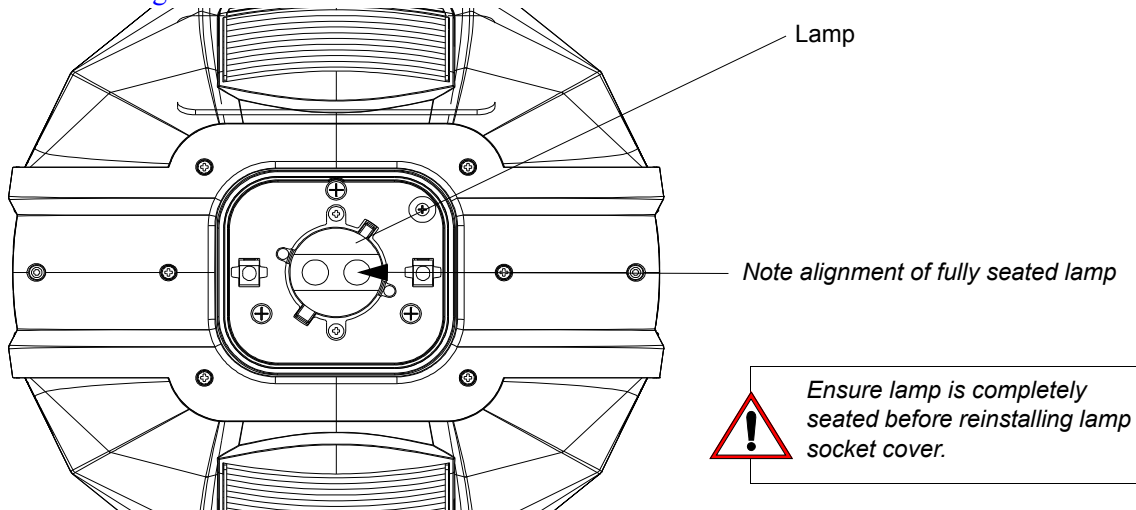


Figure 2-3: Installed Lamp

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

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

Step 12. Align lamp as needed.

Fixed Color Wheel Filter Removal and Installation

To remove and replace fixed color filters:

Step 1. Before removing power from luminaire, move Edge towards front of luminaire with control console or via luminaire menu system*.

Note: *With DMX removed, hold Left and Right arrow keys to move edge to front of luminaire.



WARNING: Remove power from luminaire and allow luminaire to cool completely before performing this procedure.

Step 2. Remove power from luminaire and allow luminaire to cool completely.

- Step 3. Depending on which color filter wheel you need to access, do the following:
- For Fixed Color Wheel 1 (closest to the rear of luminaire), remove head cover assembly as indicated in [Figure 2-4](#) by loosening four captive screws and lifting cover away from luminaire head. Note, head cover is attached by a safety tether.
 - For Fixed Color Wheel 2 (closest to the front of luminaire), remove head cover assembly as indicated in [Figure 2-4](#) by loosening our captive screws and lifting cover away from luminaire head. Note, head cover is attached by a safety tether.

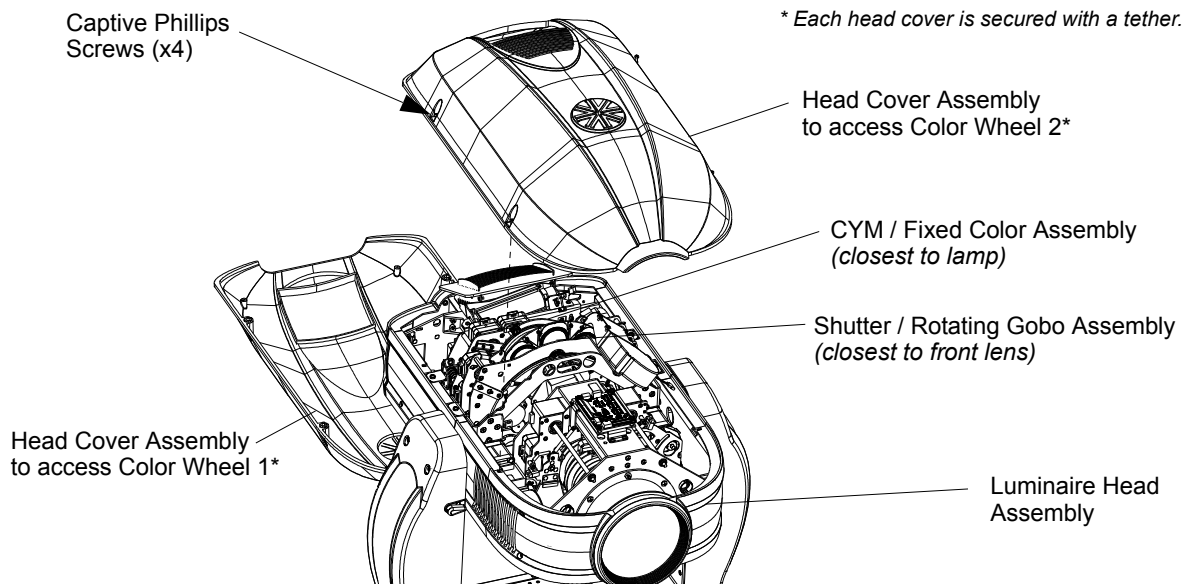


Figure 2-4: Replacing Fixed Color Filters



CAUTION: Wear protective gloves or other protective covering while handling filters to avoid leaving fingerprints. Filters are extremely fragile and can break if not handled carefully. If dirty, clean with isopropyl alcohol and a soft, lint-free cloth.

Note: For standard fixed color filters, refer to “Fixed Color Wheel 1” on page 30 or “Fixed Color Wheel 2” on page 31

- Step 4. At fixed color wheel, slowly rotate wheel by hand until filter to be removed is visible on assembly as shown in [Figure 2-5](#).
- Step 5. At filter to be removed, (1) press filter out of fixed color wheel with fingers and (2) guide filter up and away from fixed color wheel.

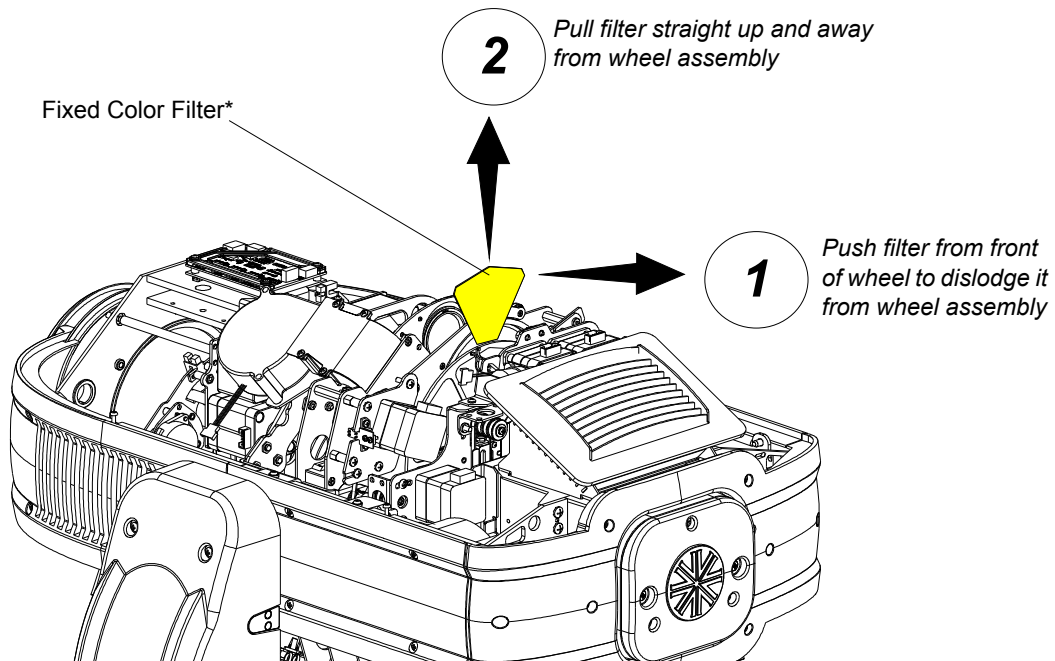


Figure 2-5: Removing Fixed Color Filters

Note: *Note RTV at the corners of the color filter. It will need to be removed and replaced. Be careful not to damage color filter when removing RTV. Refer to [Figure 2-6](#) on page 18 for additional information.

Step 6. Install replacement filter into slot. Note orientation of fixed color filter as indicated in Figure 2-6. Make sure filter is inserted and secured by fixed color wheel retaining clip as shown in Figure 2-6.

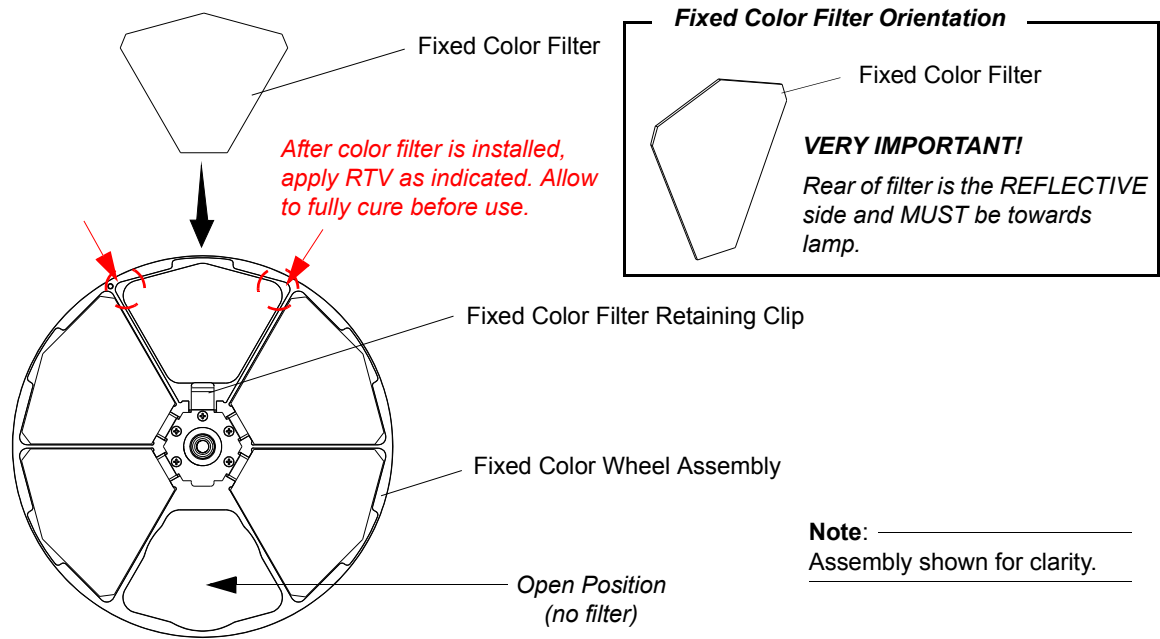


Figure 2-6: Installing Fixed Color Filters

Step 7. After filter is installed, reinstall head cover(s).

Rotating Gobo Removal and Installation



CAUTION: VL4000 Spot Luminaires accept glass gobos only. Use of metal gobos in these luminaires may damage gobo assembly and will void the luminaire warranty.

To remove and replace rotating gobos:

Step 1. Before removing power from luminaire, move Edge towards front of luminaire with control console or via luminaire menu system.



WARNING: Remove power from luminaire and allow luminaire to cool completely before performing this procedure.

Step 2. Remove power from luminaire and allow luminaire to cool completely.

Step 3. Depending on which rotating gobo wheel you need to access, do the following:

- a. For Rotating Gobo Wheel 1 (closest to the rear of luminaire), remove head cover assembly as indicated in [Figure 2-4](#) by loosening our captive screws and lifting cover away from luminaire head. Note, head cover is attached by a safety tether.
- b. For Rotating Gobo Wheel 2 (closest to the front of luminaire), remove head cover assembly as indicated in [Figure 2-4](#) by loosening our captive screws and lifting cover away from luminaire head. Note, head cover is attached by a safety tether.

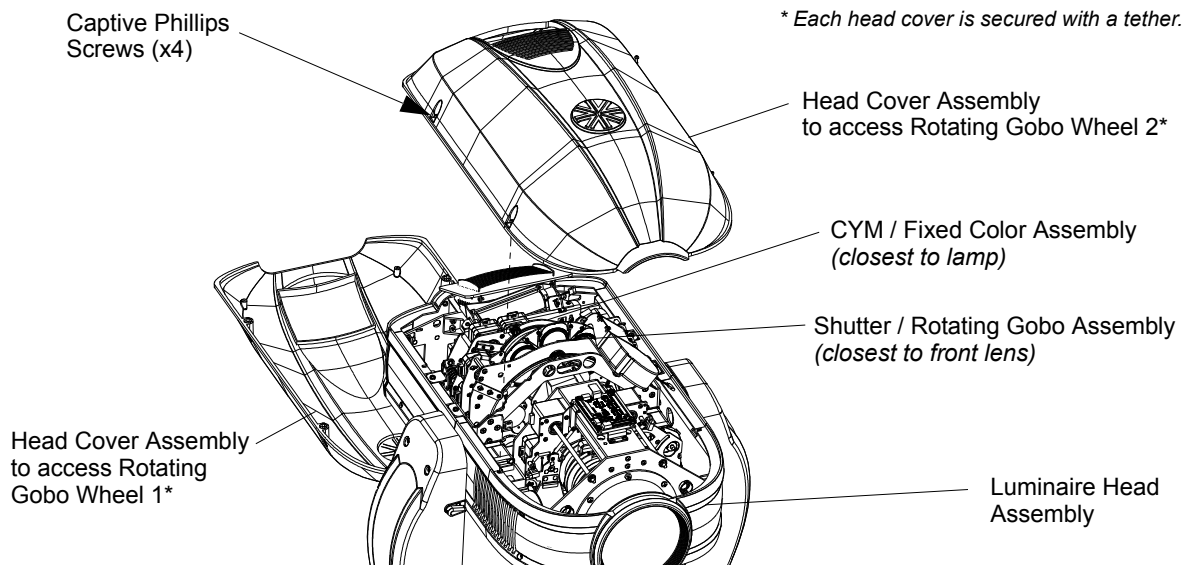


Figure 2-7: Replacing Rotating Gobos



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

Note: For the standard load of rotating gobos, refer to “Rotating Gobo Wheel 1” on page 32 or “Rotating Gobo Wheel 2” on page 33

- Step 4. At rotating gobo wheel, slowly rotate wheel by hand until gobo to be removed is visible on assembly.
- Step 5. Grip gobo assembly and pull away from center hub to disengage from sun gear. Then, lift off wheel..
- Step 6. **Before installing gobo assembly into rotating gobo wheel assembly**, make note of relationship between carrier and main gear slot as illustrated in [Figure 2-8](#).
- a. Align gobo assembly gear timing marks **WITH**...
 - b. Slot in main gear on gobo wheel assembly. You may have to rotating gear by hand for alignment.

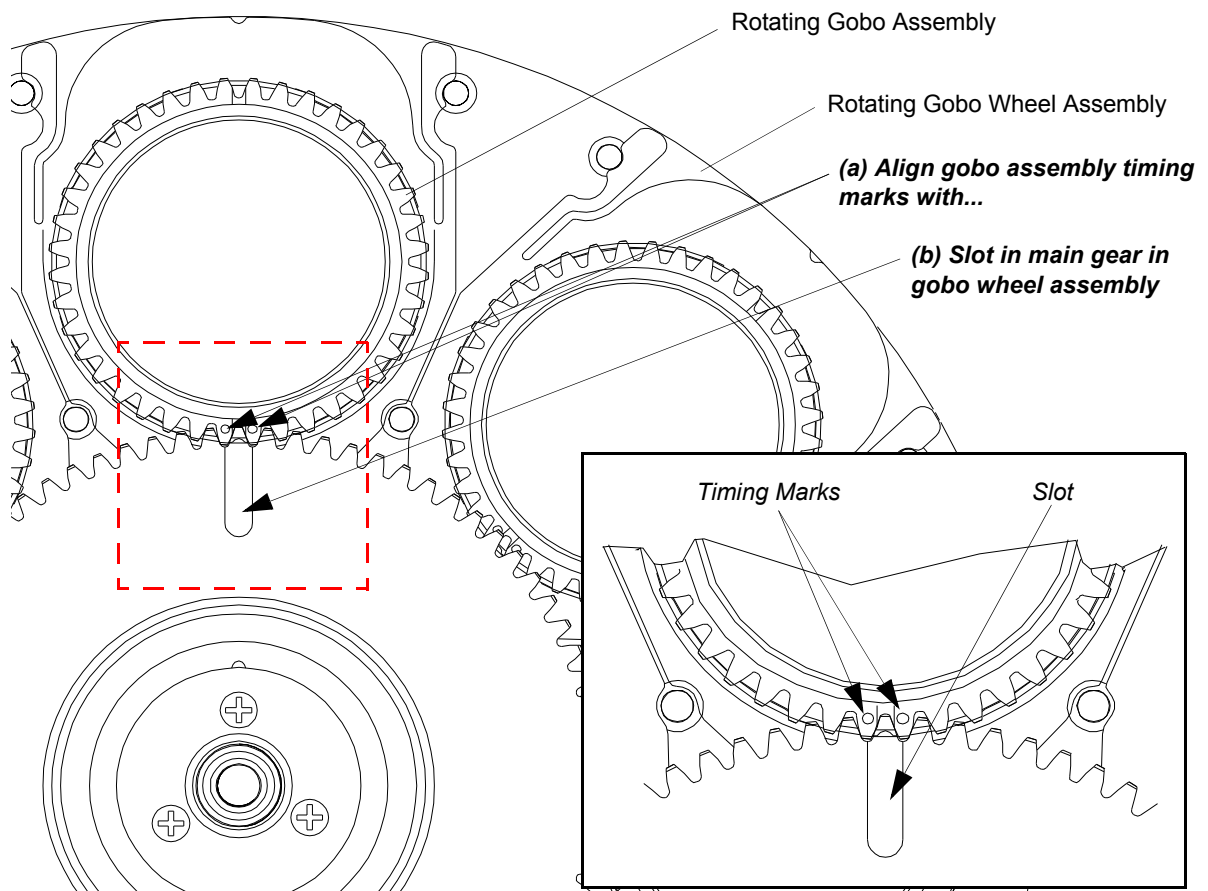


Figure 2-8: Rotating Gobo Wheel - Gobo Clocking

Note: Planet gear will align with sun gear every second (or every other) rotation of the planet gear.

- Continued Next Page -

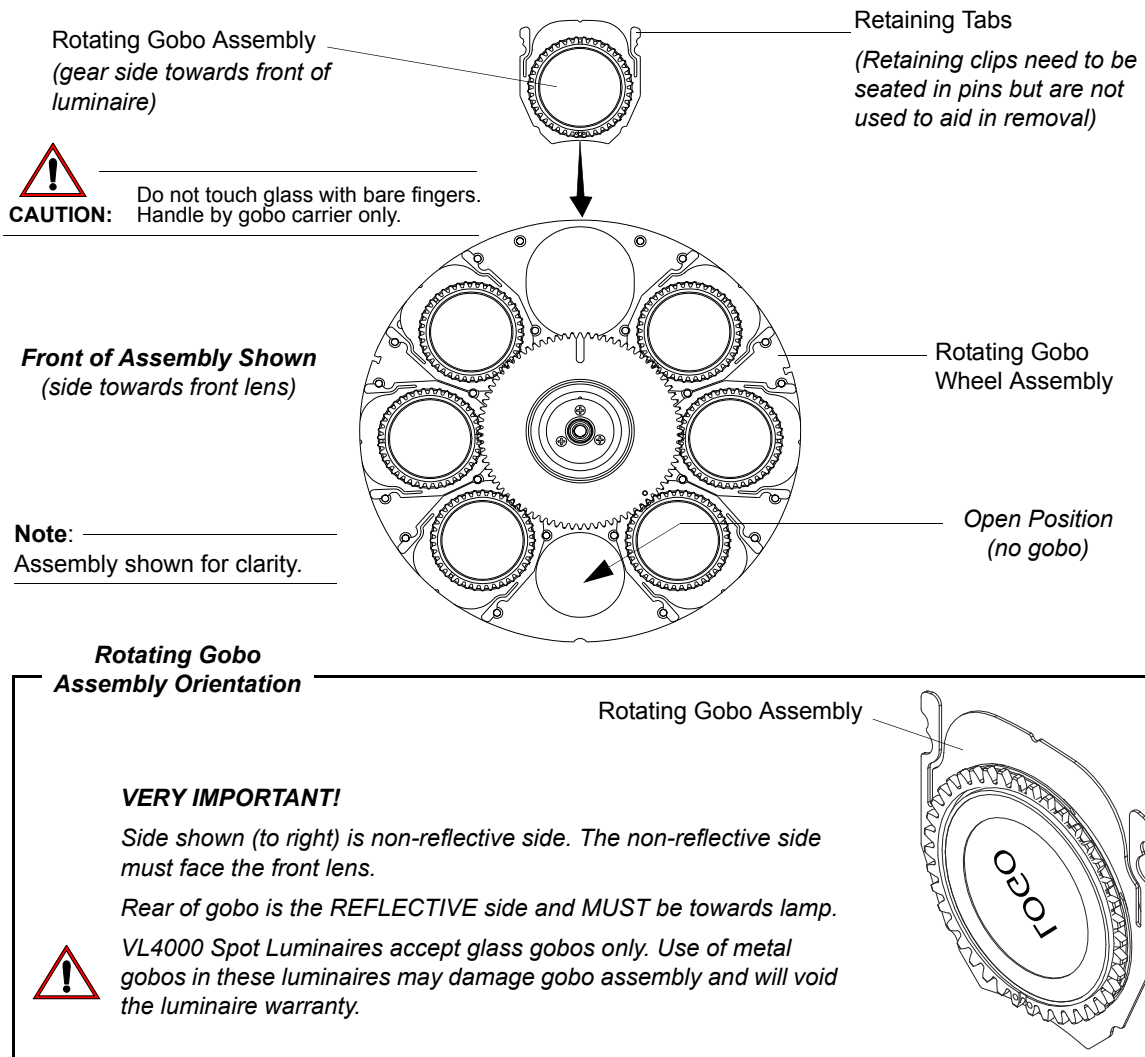


Figure 2-9: Rotating Gobo Wheel - Gobo Installation

- Step 7. After ensuring main gear slot and gobo assembly timing marks are properly aligned (as described in Step 7, install replacement rotating gobo assembly into gobo position. Note orientation of rotating gobo assembly as indicated in [Figure 2-9](#).
- Step 8. After rotating gobo assembly is installed, reinstall head cover(s).

Animation Wheels Removal and Installation

To remove and replace animation wheels:

Step 1. Before removing power from luminaire, move Edge towards front of luminaire with control console or via luminaire menu system.



WARNING: Remove power from luminaire and allow luminaire to cool completely before performing this procedure.

Step 2. Remove power from luminaire and allow luminaire to cool completely.

Step 3. Depending on which animation wheel you need to access, do the following:

- a. For Animation Wheel 1 (closest to the rear of luminaire), remove head cover assembly as indicated in [Figure 2-10](#) by loosening four captive screws and lifting cover away from luminaire head. Note, head cover is attached by a safety tether.
- b. For Animation Wheel 2 (closest to the front of luminaire), remove head cover assembly as indicated in [Figure 2-10](#) by loosening four captive screws and lifting cover away from luminaire head. Note, head cover is attached by a safety tether.

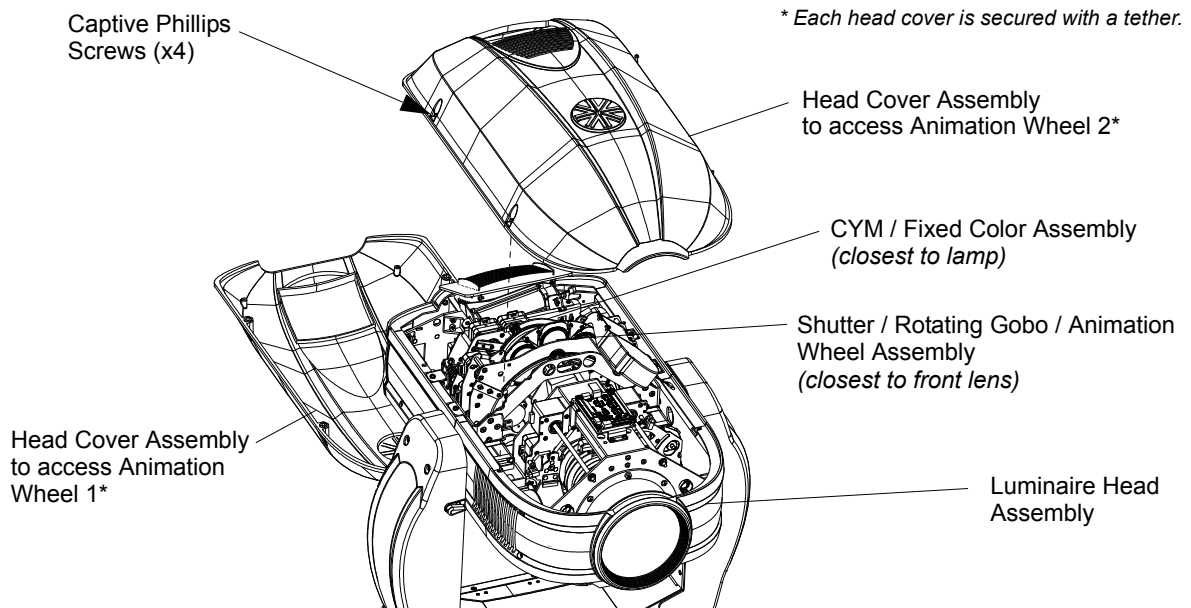


Figure 2-10: Replacing Animation Wheels



CAUTION: Wear protective gloves or other protective covering while handling animation wheels to avoid leaving fingerprints. If dirty, clean with isopropyl alcohol and a soft, lint-free cloth.

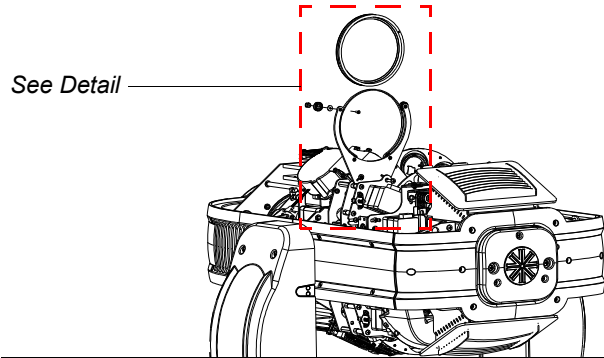
Note: For the standard load of animation wheels, refer to [“Animation Wheel 1 - Dichro*Fusion”](#) on [page 34](#) or [“DMX Operation”](#) on [page 35](#).

- Step 4. Loosen screw on bulkhead (also used as a stop) so animation arm can swing out.
- Step 5. Loosen idler pulley closest to motor.
- Step 6. Remove one screw from belt bearing on outside of frame.

CAUTION: Be careful not to lose belt bearing, washer, screw or post. These will be required for reassembly and installation.

- Step 7. Slip belt off of animation wheel. Remove wheel.

Note: _____
 Animation wheel 2 shown.
 Information same for both wheels.



Animation Wheel Assembly (Detail)

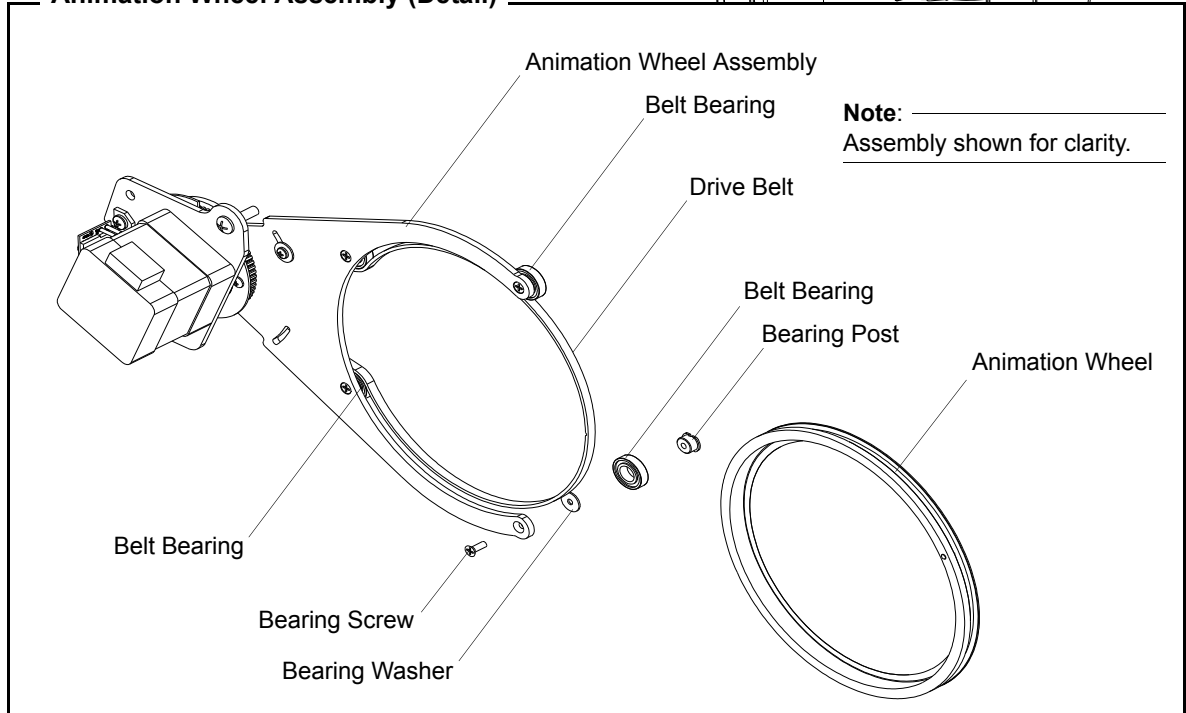


Figure 2-11: Animation Wheel Removal & Installation

- Step 8. Slip belt around new wheel. Seat on all three bearings.
- Step 9. Reassemble post onto bearing and washer. Hand tighten down with screw.
- Step 10. Swing animation arm back into beam area and hand tighten down bulkhead screw.
- Step 11. After animation wheel is installed, reinstall head cover(s).

Cleaning Optical Lenses and Filters



WARNING: Remove power from luminaire before performing maintenance.



WARNING: Acetone is a harsh cleaning agent and solvent. Acetone is very flammable. Please handle acetone according to manufacturer's safety instructions and precautions.

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

- **FRONT LENS:** Use a isopropyl alcohol with a soft, lint-free cloth to clean the front lens.
- **OPTICS/COLOR FILTERS/ GOBOS/ANIMATION WHEELS:** Use Acetone or Isopropyl Alcohol along with a soft, lint-free cloth to clean the optics/color filters.
- **REFLECTOR:** Use Acetone or Isopropyl Alcohol along with a soft, lint-free cloth to clean the reflector.



CAUTION: Do not continuously rub color filters or reflector - it may damage or remove the optical coating.

Service Procedures



WARNING: As with any repairs or maintenance to VARI*LITE luminaires, service should only be performed by a trained and qualified service technician or at an Authorized VARI*LITE Service facility.

Upper Enclosure Covers Removal

Vari-Lite Part No: 21.9704.0850 (Connector side and Display side)

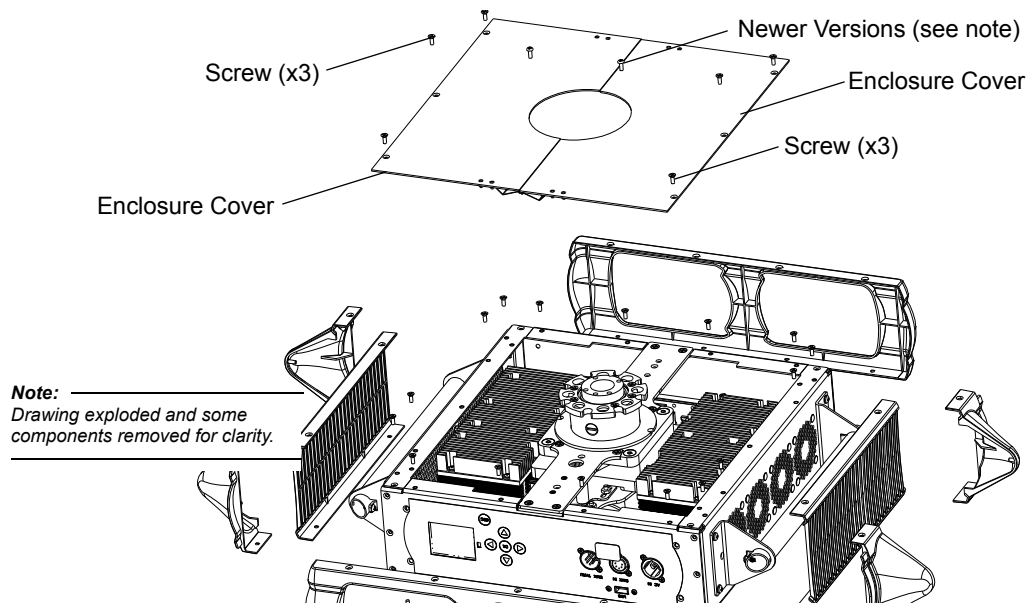
To remove the upper enclosure covers:



WARNING: Remove power from luminaire and allow luminaire to cool completely before performing this procedure. Failure to remove power from luminaire can result in serious injury or death!

Step 1. Remove power from luminaire.

Step 2. At each enclosure cover, remove 3 x 6-32 x 3/8" PFSS-B screws and remove covers by sliding away from pan tube.



Step 3. To replace, ensure cover latch springs fit under the center bracket supports and reinstall 3 x 6-32 x 3/8" PFSS-B screws.

Note: Newer fixtures have a screw in the center near pan tube of each cover. This screw is not tightened down tight. It has Loctite applied to screw and tightened until just flush with cover. You then have to tuck the cover under the screw when installing.

PFC Insulating Duct

Vari-Lite Part No: 10.9704.0874 (PFC Insulating Duct)

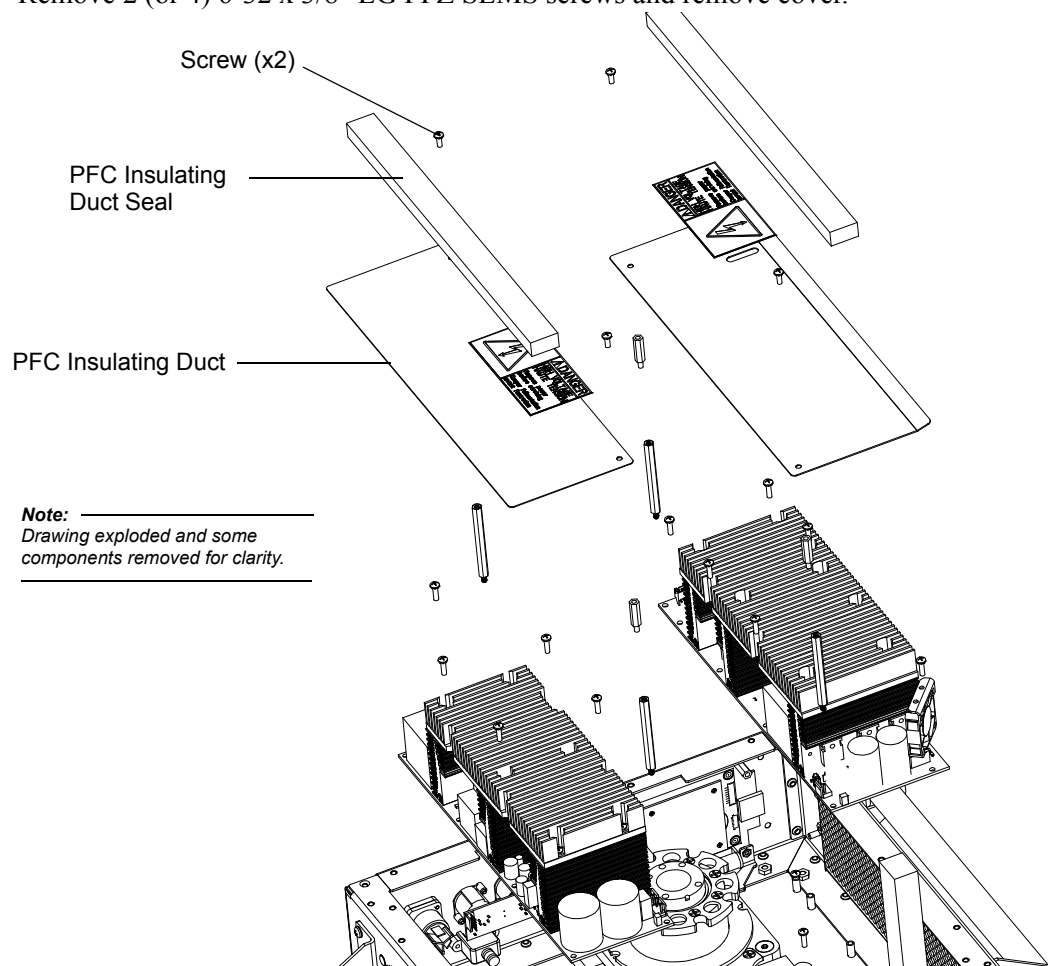
Vari-Lite Part No: 10.9704.1835 (Air Seal)

Note: There are two versions of the duct. Original version mounts with 4 screws. Current version mounts with only 2 screws.

Note: The top foam air seal is not part of the duct. If damaged, replace the air seal.

To remove PFC insulating duct:

- Step 1. Remove connector side upper enclosure cover following the procedure described in [“Upper Enclosure Covers Removal”](#) on page 25.
- Step 2. Remove 2 (or 4) 6-32 x 3/8" LG PPZ SEMS screws and remove cover.



- Step 3. Replace in reverse order.

Lamp Driver Insulation Duct Removal

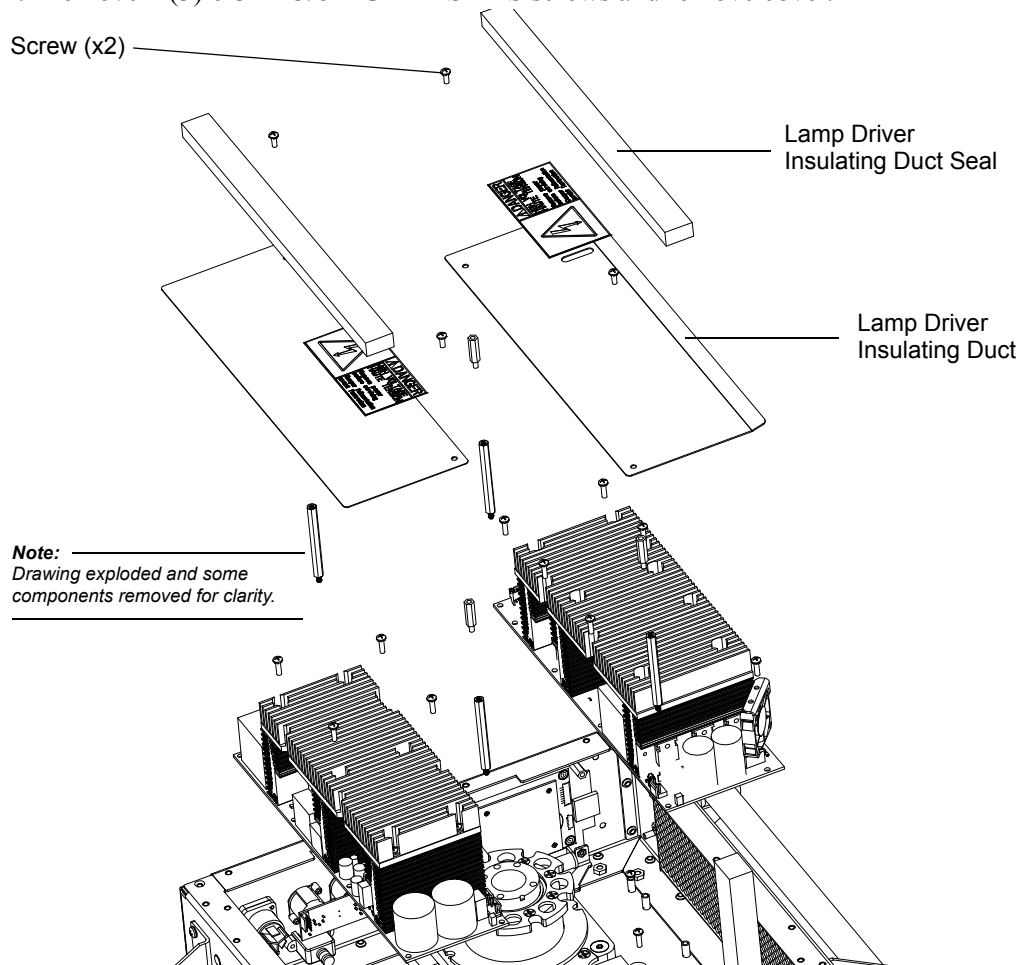
Vari-Lite Part No: 10.9704.1857 (Lamp Driver Insulation Duct)

Note: There are two versions of the duct. Original version mounts with 3 screws. Current version will mount with only 2.

Note: The top foam air seal is not part of the duct. If damaged, replace the air seal. Refer to “[Lamp Driver Insulation Duct Air Seal Replacement](#)” on page 28.

To remove lamp driver insulation duct:

- Step 1. Remove display side upper enclosure cover as following the procedure described in “[Upper Enclosure Covers Removal](#)” on page 25.
- Step 2. Remove 2 (3) 6-32 x 3/8" LG PPZ SEMS screws and remove cover.



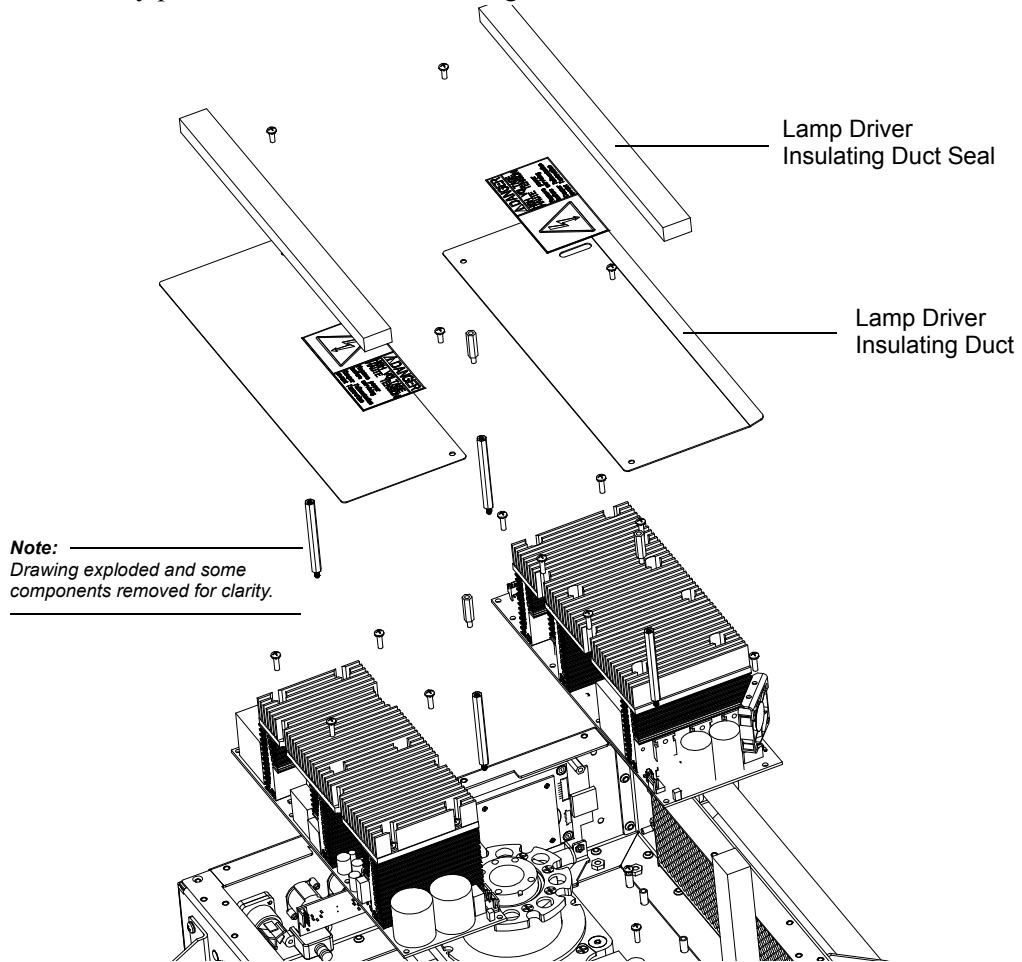
- Step 3. Replace in reverse order.

Lamp Driver Insulation Duct Air Seal Replacement

Vari-Lite Part No: 10.9704.1835 (Air Seal)

To replace lamp driver insulation duct air seal:

- Step 1. Remove required upper enclosure cover following the procedure described in “[Upper Enclosure Covers Removal](#)” on page 25.
- Step 2. Carefully peel off and remove remaining old air seal.



- Step 3. Remove adhesive backing from new air seal and install on the Insulation Duct.
- Step 4. Replace covers as described on page 25.

Main Control Board (MCB)

Vari-Lite Part No: 21.9704.0880

To remove MCB:

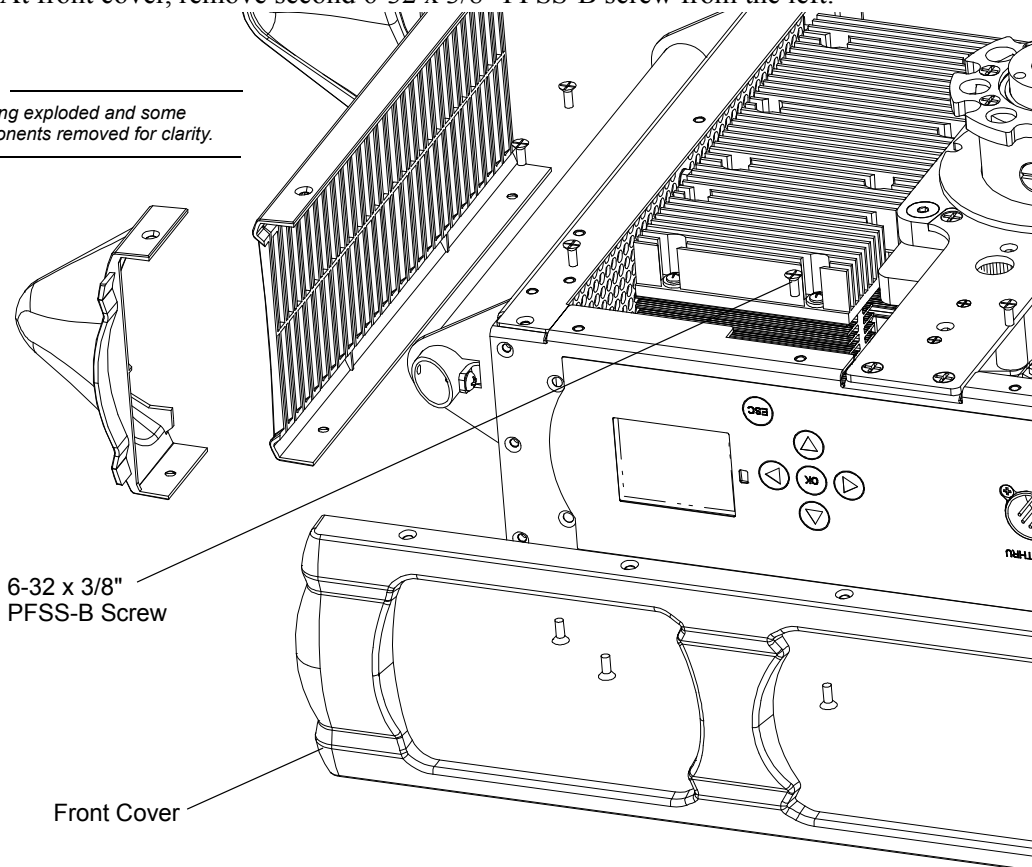
- Step 1. Remove display side upper enclosure cover following the procedure described in “Upper Enclosure Covers Removal” on page 25.
- Step 2. Remove Lamp Driver Insulation Duct following the procedure described in “Lamp Driver Insulation Duct Removal” on page 27.



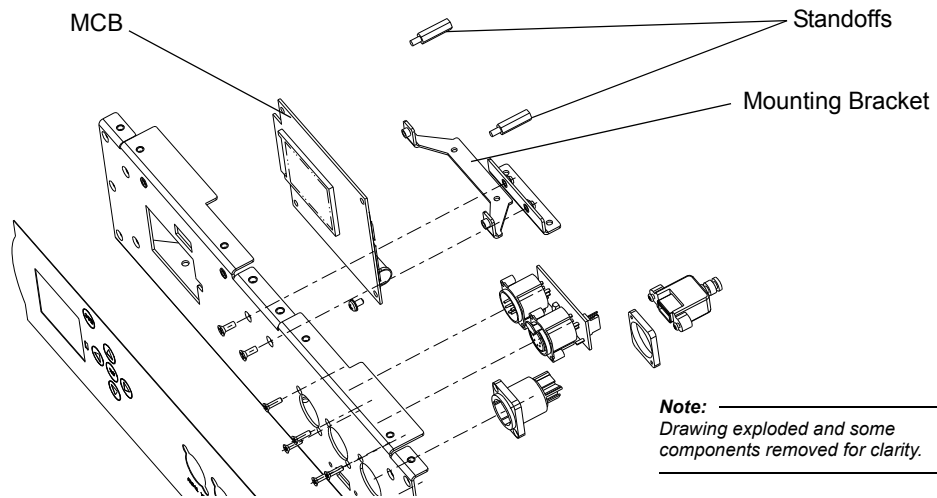
WARNING: Do not handle or ship the MCB with the battery installed.

- Step 3. Battery must be removed before proceeding. Remove battery from MCB. *See current version of Technical Notice TN-352 for more information on battery removal.*
- Step 4. At front cover, remove second 6-32 x 3/8" PFSS-B screw from the left.

Note:
Drawing exploded and some components removed for clarity.



Step 5. Using ¼" wrench, remove 2 x 6-32 x 13/16" Standoffs at MCB.



Step 6. Carefully tilt MCB in towards the lamp driver.

Step 7. At ribbon cable, release by lifting up the locking mechanism on outside of connector and remove ribbon cable from display part of MCB (note it is NOT installed in processor part).

Step 8. Disconnect remaining wiring from MCB, noting location.

Step 9. Lift MCB and mounting bracket from enclosure.

Step 10. Remove 2 x 6-32 x ¼" PPZ SEMS screws and remove MCB from MCB bracket mount.

Step 11. Replace in reverse order.

CAUTION: The Micro SD card inserted into the processor board. This card is part of the MCB assembly and should always remain with and be shipped with this card. Be careful to not unseat the card during installation.

Lamp Driver

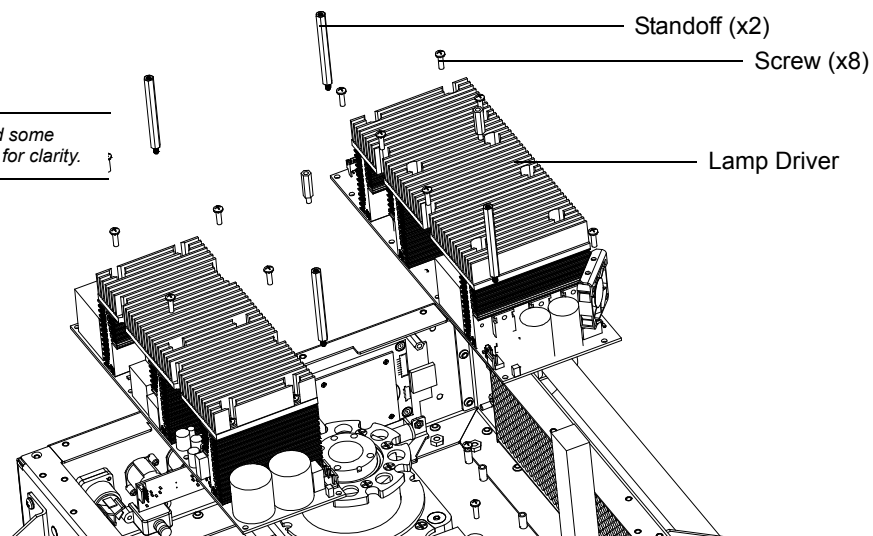
Vari-Lite Part No: 69.9704.1400

Note: There are two different versions of hardware mounting these Lamp Drivers. They QTY in () is for the older spot versions.

To replace the lamp driver:

- Step 1. Remove display side upper enclosure cover following the procedure described in “Upper Enclosure Covers Removal” on page 25.
- Step 2. Remove Lamp Driver Insulation Duct following the procedure described in “Lamp Driver Insulation Duct Removal” on page 27.
- Step 3. At lamp driver, disconnect COM wire to MCB.
- Step 4. At lamp driver, disconnect output wiring to igniter by removing 2 x 6-32 x ¼ PPZ screws with lock washers. Note, replacement lamp driver should come with these screws.
- Step 5. At lamp driver, disconnect DC input from PFC.
- Step 6. Using ¼" Nut driver, remove 2 (3) 2.5"+13/16" standoff assemblies.

Note: _____
 Drawing exploded and some components removed for clarity.



- Step 7. Remove 8 (7) 6-32 x ½" PPZ SEMS screws.
- Step 8. Angle lamp driver out of enclosure away from pan lock knob.
- Step 9. Replace in reverse order.
-

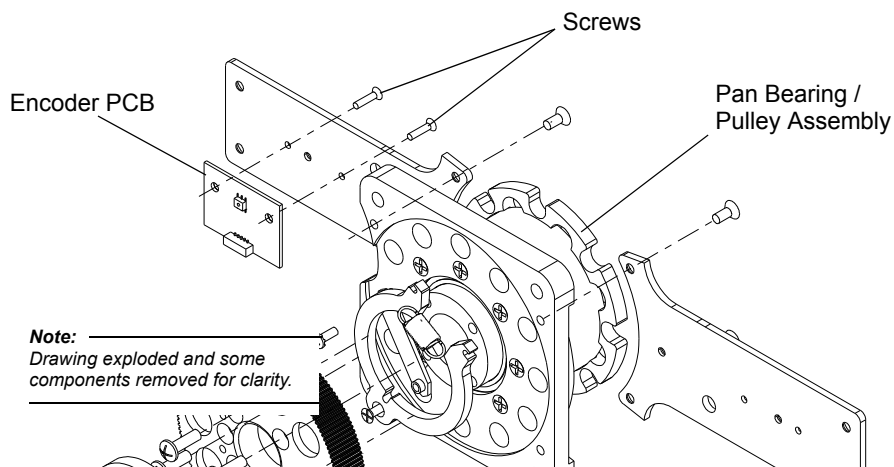
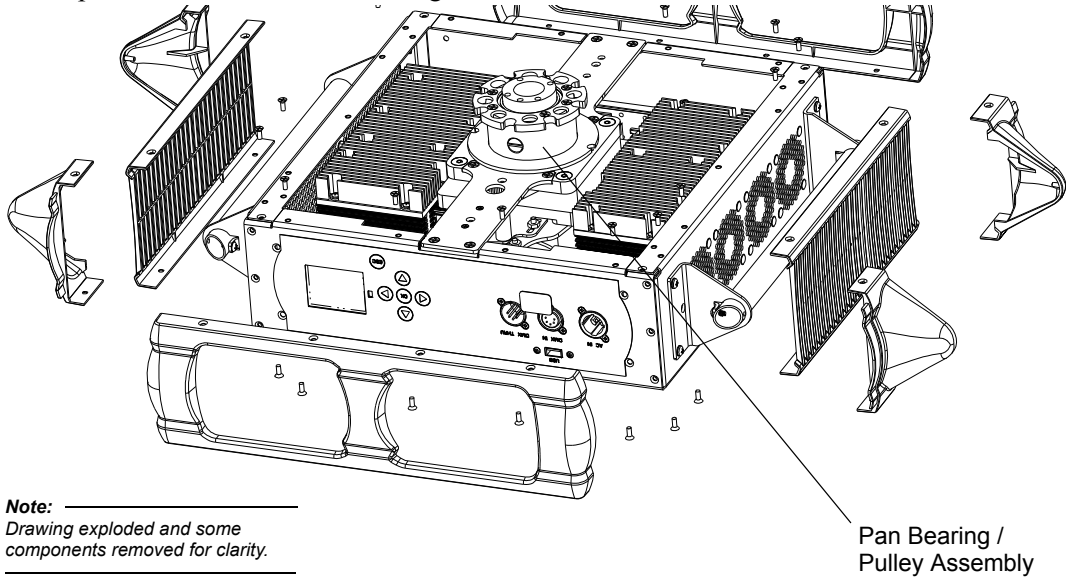
Note: Make sure lamp wires are routed under the PFC and that wires are not pinched. Ensure all screws are thoroughly tightened.

Pan Encoder PCB

Vari-Lite Part No: 17.9704.0910

To replace pan encoder PCB:

- Step 1. Remove both enclosure covers following the procedure described in “Upper Enclosure Covers Removal” on page 25.
- Step 2. At pan encoder, disconnect wiring harness.



- Step 3. Remove 2 x 4-40 x 1/4" PFZ screws and remove encoder.

- Step 4. Replace in reverse order.

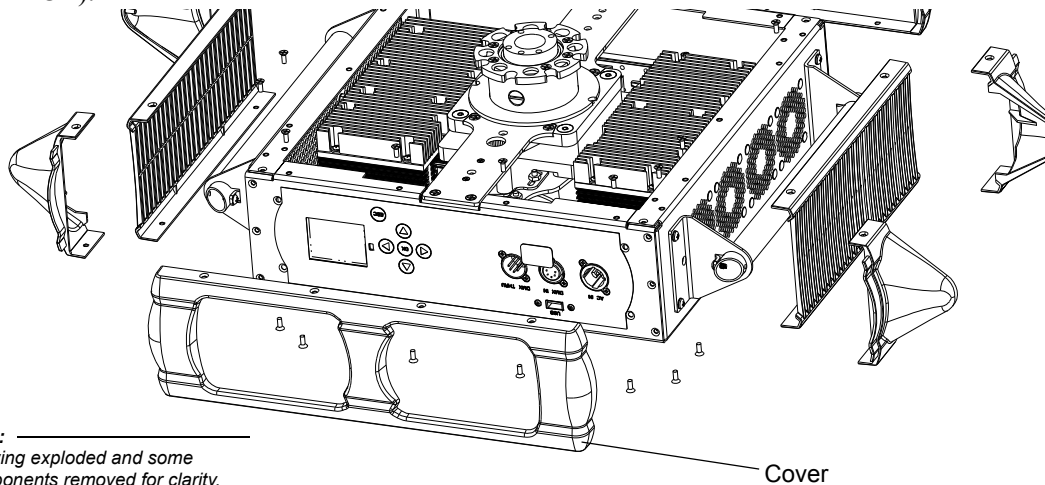
Pan Motor Assembly

Vari-Lite Part No: 22.9704.3820

Note: There are two different mounts for pan motor assemblies. On current versions, follow steps in this section. *If an older unit, that does not have a notch in motor mounting plate on lamp driver side, follow instructions to replace pan belt. See “Pan Belt” on page 44.*

To remove pan motor assembly:

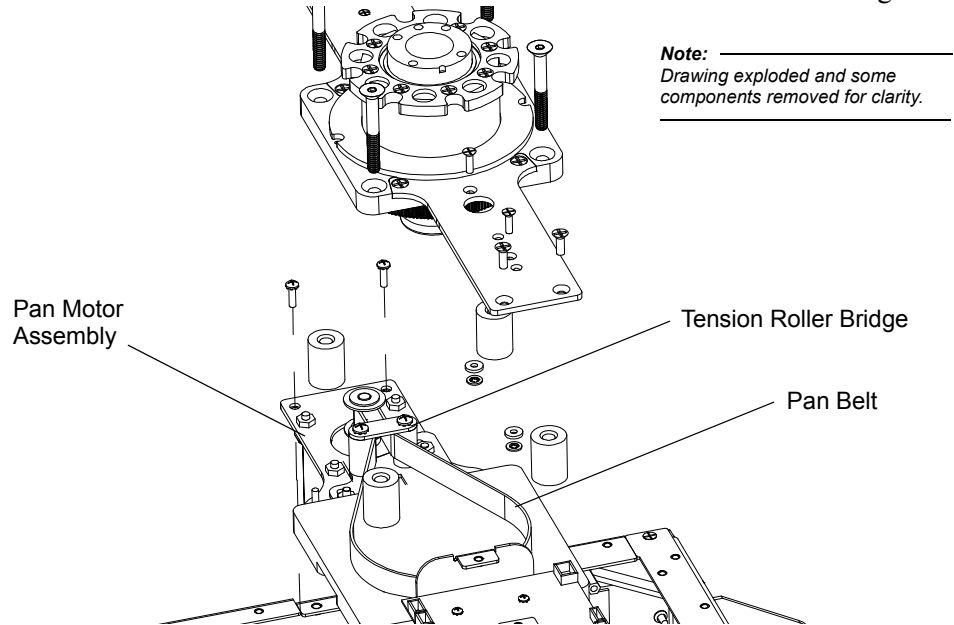
- Step 1. Remove both enclosure covers following the procedure described in “Upper Enclosure Covers Removal” on page 25.
- Step 2. Remove MCB following the procedure described in “Main Control Board (MCB)” on page 29.
- Step 3. Remove Lamp Driver following the procedure described in “Lamp Driver” on page 31.
- Step 4. Disconnect wiring from pan encoder.
- Step 5. At front cover, remove remaining 4 x 6-32 x 3/8" PFSS-B Screws (1 was removed to remove MCB).



Note:
Drawing exploded and some components removed for clarity.

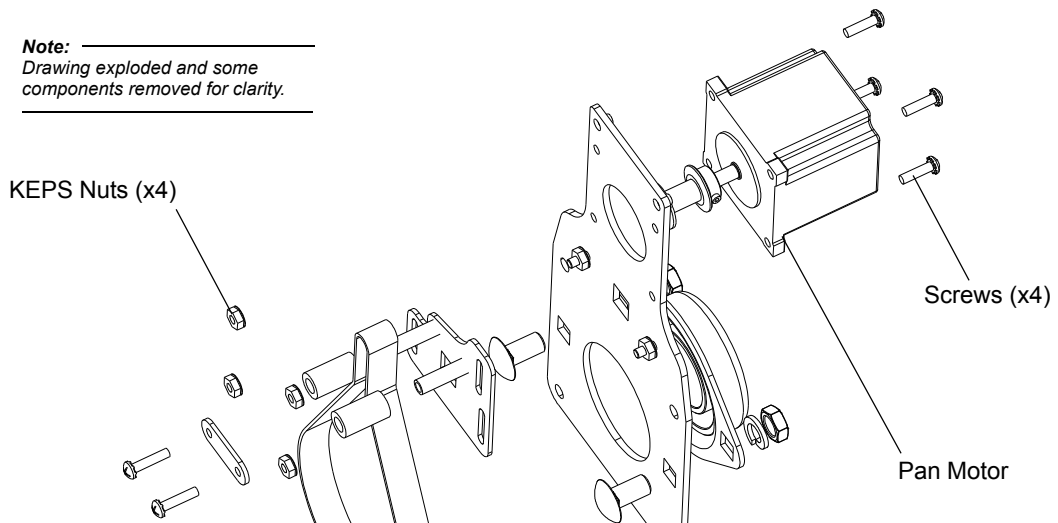
- Step 6. Gently pull front cover forward and remove 2 x 8-32 x 1/2" PFZ screws holding in bracket support.
- Step 7. Remove 2 x 8-32 x 1/2" PFZ screws mounting bracket support to pan tube assembly and remove bracket support.
- Step 8. Using 11/32" Nut driver, loosen 3 x #8 KEPS Nuts at belt tensioner and loosen pan belt tension.

Step 9. Remove 2 x 8-32 x 3/4" PPZ SEMS screws and remove belt tension roller bridge and rollers.



Step 10. Remove belt from between roller mounts on tensioner.

Step 11. At motor assembly, remove 4 x #8 KEPS Nuts and 4 x 8-32 x 5/8" PPZ SEMS screws. Use 90-degree screwdriver to hold screws if needed.



Step 12. Slide motor assembly to left, disconnect wiring and remove motor.

Step 13. Replace in reverse.

Note: To tension pan belt, slide tensioner toward the pan pulley. Set tension so that if pan is moved by hand, the belt does not slip on the drive pulley on motor. Too tight tension can damage motor shaft. If belt slips on drive pulley, this can damage belt

PFC

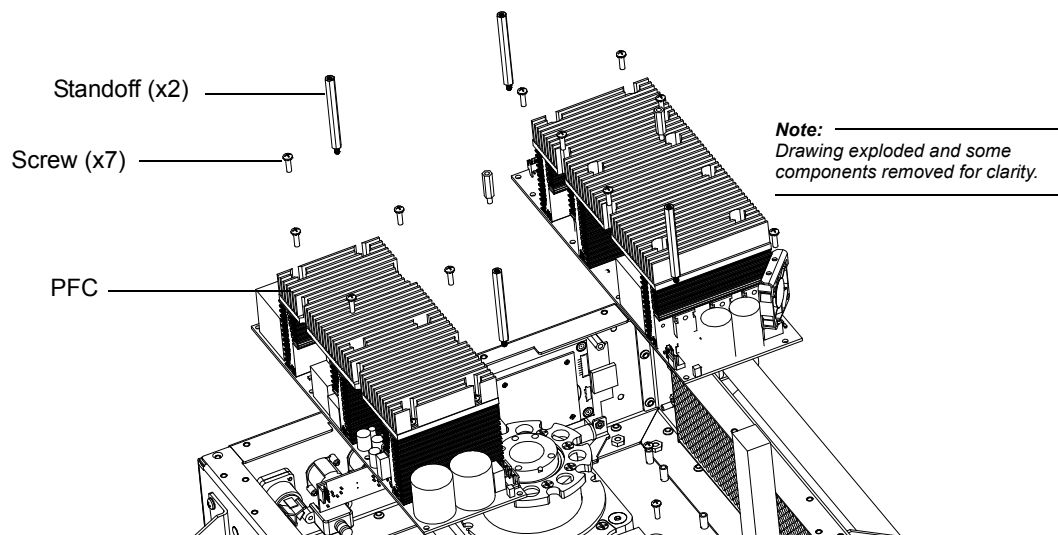
Vari-Lite Part No: 69.9704.2450

Note: There are two different versions of hardware mounting the PFC. They QTY in () is for the older spot versions.

To replace PFC:

- Step 1. Remove connector side upper enclosure cover following the procedure described in “[Upper Enclosure Covers Removal](#)” on page 25.
 - Step 2. Remove PFC insulating duct following the procedure described in “[PFC Insulating Duct](#)” on page 26.
 - Step 3. At PFC, disconnect AC input wiring and ground.
 - Step 4. At PFC, disconnect 2 x DC output wiring.
 - Step 5. Using ¼" nut driver, remove 2 (4) x 2.5"+13/16" standoff assemblies.
-

Note: There is a shield wire attached to standoff next to DC output for wiring going to Lamp Driver. This wire must be reinstalled in this position.



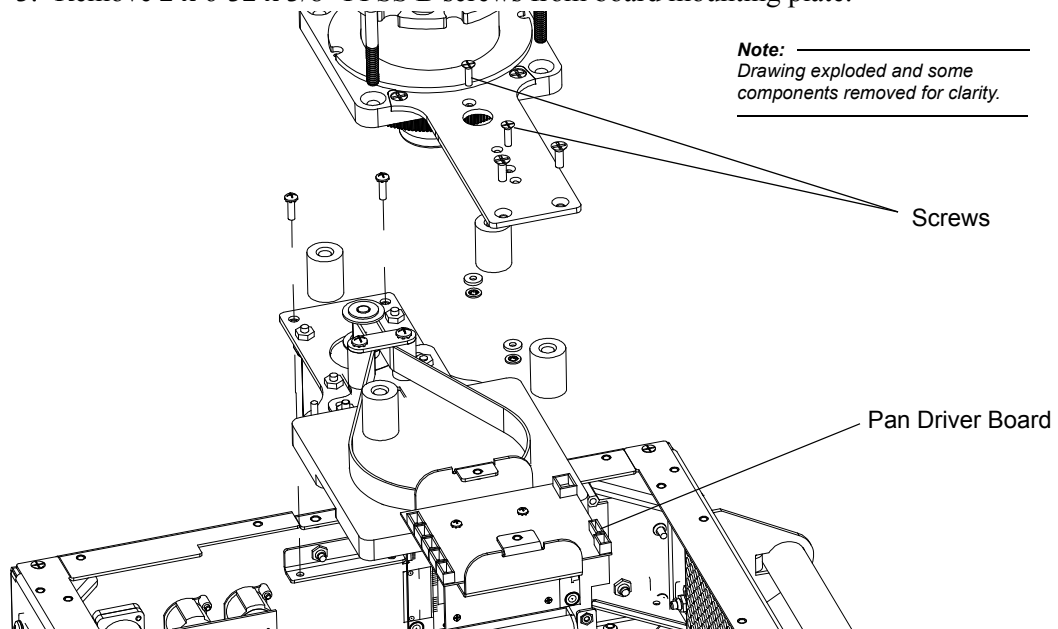
- Step 6. Remove 7 (5) X 6-32 X ½" PPZ SEMS screws.
- Step 7. Disconnect thermal sensor wire from PFC.
- Step 8. Angle PFC from enclosure away from pan lock knob.
- Step 9. Replace in reverse.

Pan Driver Board

Vari-Lite Part No: 24.9704.1907

To remove pan driver board:

- Step 1. Remove both upper enclosure covers following the procedure described in “[Upper Enclosure Covers Removal](#)” on page 25.
- Step 2. At pan driver board, disconnect all wiring from board.
- Step 3. Remove 2 x 6-32 x 3/8" PFSS B screws from board mounting plate.



- Step 4. Tilt board towards the PFC. At underneath, remove 2 x #4 KEPS nut and flat washer and remove cable saddle.
- Step 5. Tilt board towards lamp driver. At underneath, remove 1 x #4 KEPS nut and flat washer and remove cable saddle.
- Step 6. Then remove 1 x 4-40 x 5/8 PPZ SEMS screw and disconnect pan encoder shield wire
- Step 7. Remove other 3 x 4-40 x 5/8" PPZ SEMS screws and remove pan driver board. Note the placement of the 2 x Thermal pad*.

Note: *You must remove thermal pads from old driver board and install on replacement driver board.

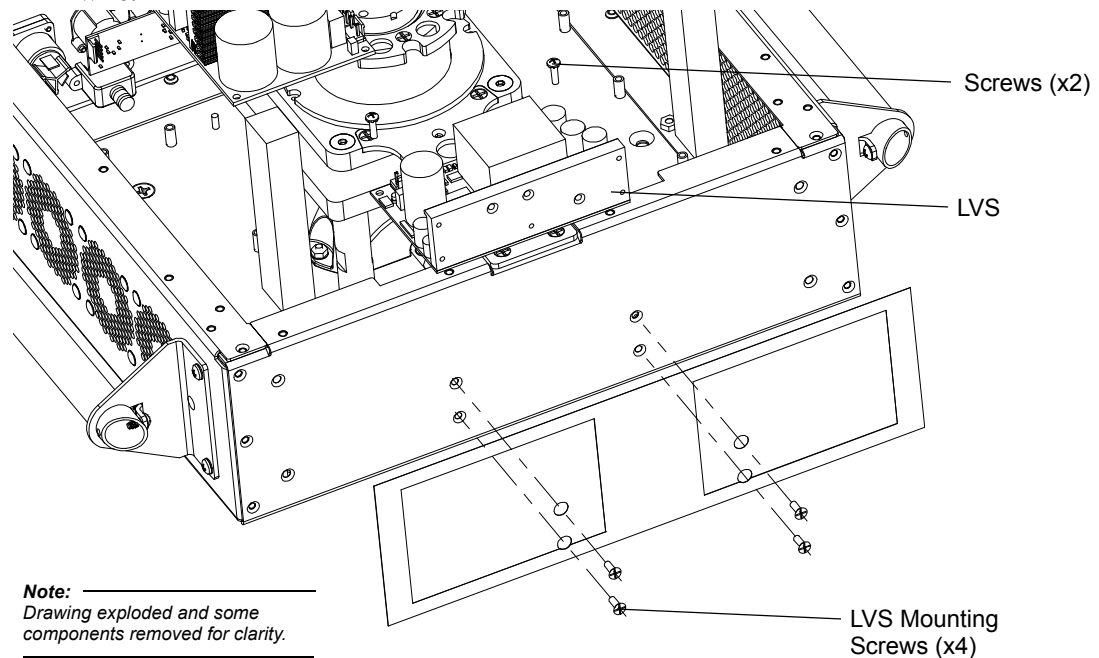
- Step 8. Replace in reverse order.

Low Voltage Supply (LVS)

Vari-Lite Part No: 69.9704.0300

To replace LVS:

- Step 1. Remove both upper enclosure covers following the procedure described in “Upper Enclosure Covers Removal” on page 25.
- Step 2. Remove pan driver board following the procedure described in “Pan Driver Board” on page 36.
- Step 3. Remove 4 x 6-32 x 3/8" PFSS-B screws from top side of rear cover.
- Step 4. Gently pull cover forward and remove 2 x 8-32 x 1/2" PFZ screws holding in bracket support.
- Step 5. Remove 2 x 8-32 x 1/2" PFZ screws mounting bracket support to pan tube assembly and remove bracket support.
- Step 6. Disconnect DC input wiring from PFC.
- Step 7. Disconnect DC output wiring.
- Step 8. At LVS, remove 2 x 6-32 x 1/2" PPZ SEMS screws. Note placement of shield and ground wire.



- Step 9. At side of enclosure, remove 4 x 6-32 x 3/8" PFSS-B screws* mounting LVS.

Note: * These screws have Loctite 242. Apply heat as needed. Reapply Loctite 242 when replacing.

- Step 10. Replace in reverse.

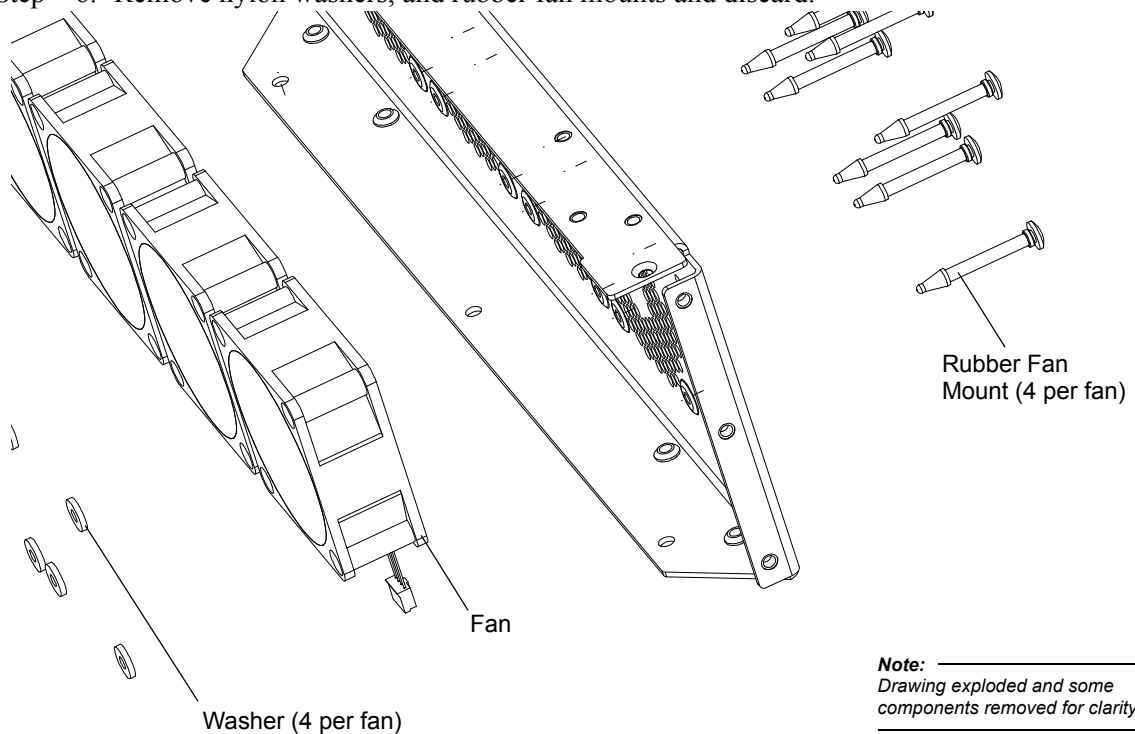
Upper Enclosure Fan

Vari-Lite Part No: 22.9704.1850

Note: *This part number is a service only item and differs from the drawing. It consists of all parts (fan, rubber fan mounts, and washers) needed to change one (1) fan in the upper enclosure. The upper enclosure has four (4) fans. Refer to note in “Side Mount Fan Assembly” on page 258 for additional information.*

To replace an upper enclosure fan (individual fan):

- Step 1. Remove PFC following the procedure described in “PFC” on page 35.
- Step 2. Remove 4 x 6-32 x 3/8" PFSS-B screws and remove side cover.
- Step 3. Disconnect wiring from pan driver board of fan to be replaced.
- Step 4. Noting placement of and cut any required cable ties.
- Step 5. At fan, using diagonal cutters, clip off ends of rubber fan mount.
- Step 6. Remove nylon washers, and rubber fan mounts and discard.



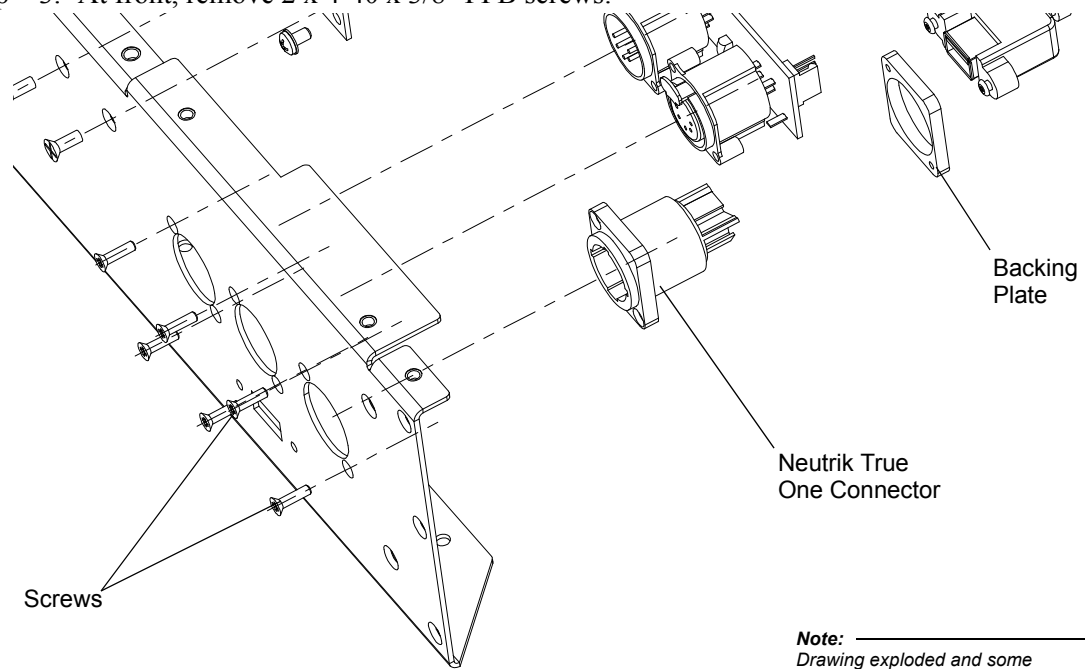
- Step 7. Remove fan assembly.
- Step 8. Install new fan assembly, which will come with 4 rubber fan mounts and nylon washers.
- Step 9. Clip off end of rubber fan mount after pulling through washers.
- Step 10. Replace cable ties.
- Step 11. Continue to replace in reverse from Step 4.

Neutrik True One AC Input Connector

Vari-Lite Part No: 25.9704.0830

To replace Neutrik True One AC input connector:

- Step 1. Remove connector side enclosure cover following the procedure described in “Upper Enclosure Covers Removal” on page 25.
- Step 2. Disconnect wiring from Neutrik True One connector.
- Step 3. At front, remove 2 x 4-40 x 3/8" PFB screws.



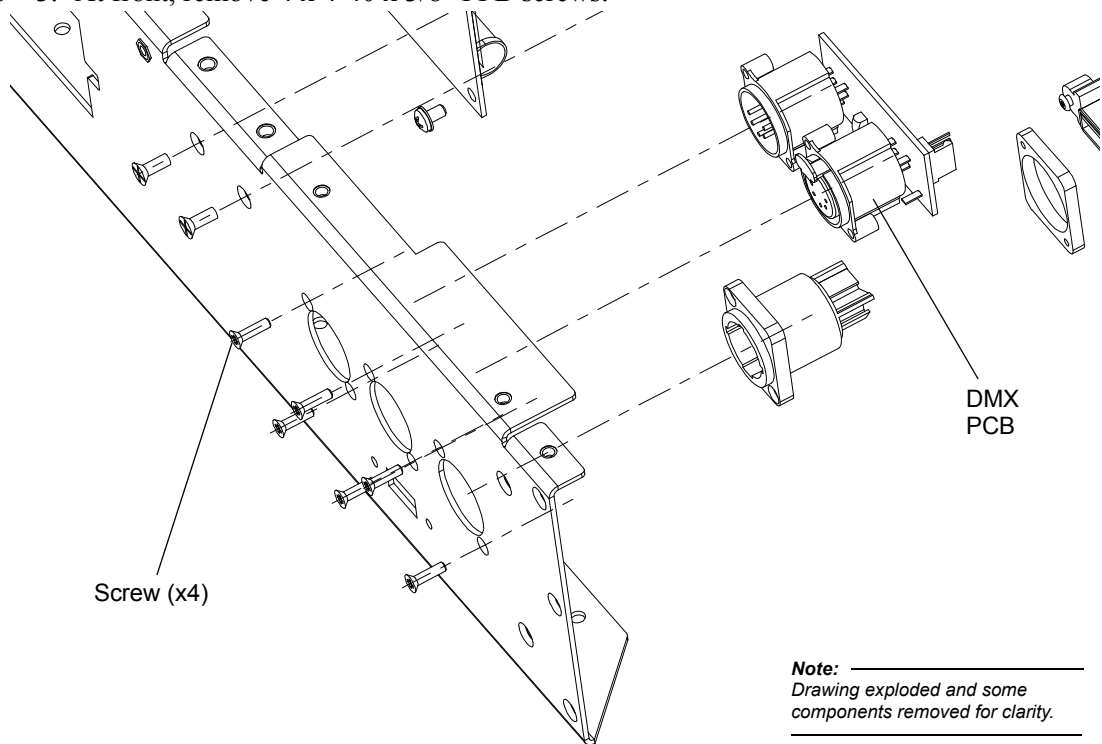
- Step 4. Inside enclosure, remove backing plate and set aside. It will be reinstalled with replacement connector.
- Step 5. Remove Neutrik True One connector.
- Step 6. Replace in reverse.

DMX PCB Assembly

Vari-Lite Part No: 24.9664.4895

To replace DMX PCB assembly:

- Step 1. Remove connector side enclosure cover following the procedure described in “[Upper Enclosure Covers Removal](#)” on page 25.
- Step 2. Disconnect wiring from DMX PCB.
- Step 3. At front, remove 4 x 4-40 x 3/8" PFB screws.



- Step 4. Remove DMX PCB.
- Step 5. Replace in reverse order.

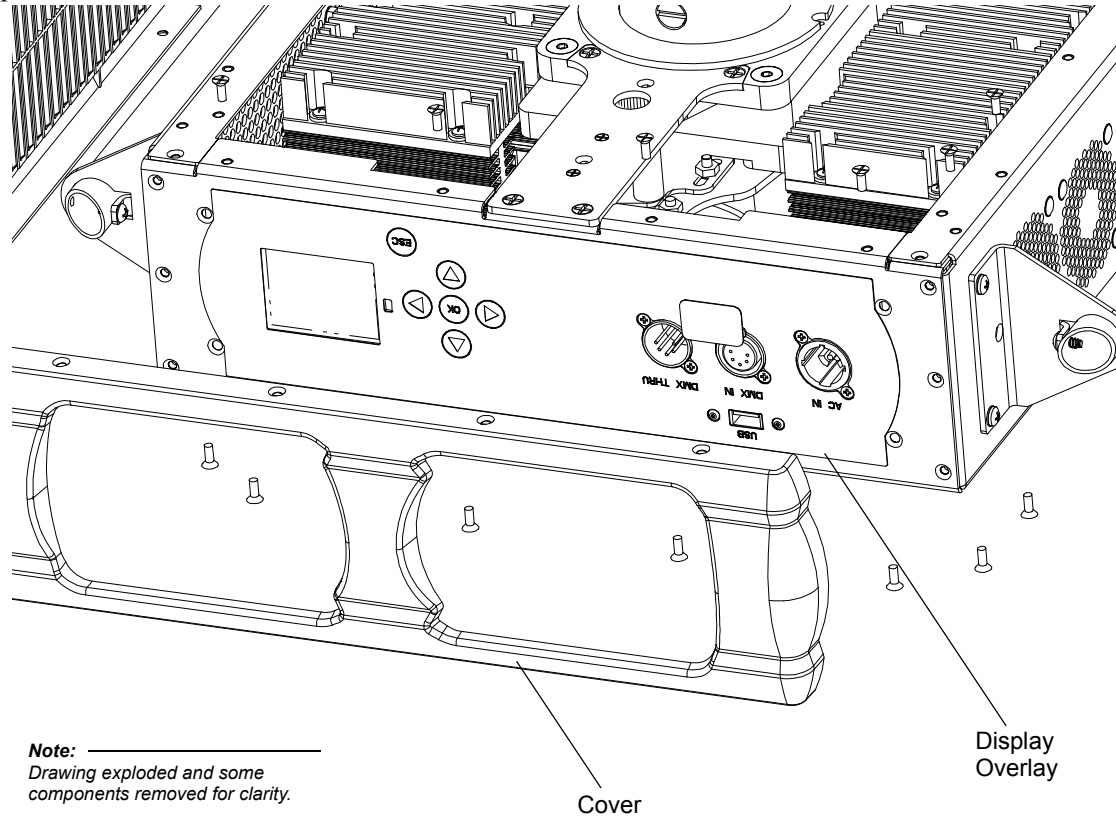
Display Overlay

Vari-Lite Part No: 11.9704.0846

To replace display overlay:

Step 1. Remove both enclosure covers following the procedure described in [“Upper Enclosure Covers Removal”](#) on page 25.

Step 2. Remove 8 x 6-32 x 3/8" PFSS-B screws and remove front cover.



Step 3. Disconnect ribbon cable from MCB (refer to information in [“Main Control Board \(MCB\)”](#) on page 29).

Step 4. Carefully peel off old display overlay.

Step 5. Ensure surface is clean.

Step 6. Peel backing from new overlay.

Step 7. Feed ribbon cable through opening and carefully apply overlay, ensuring to align all openings and press on firmly. *Make sure replacement overlay is flat - no trapped air bubbles.*

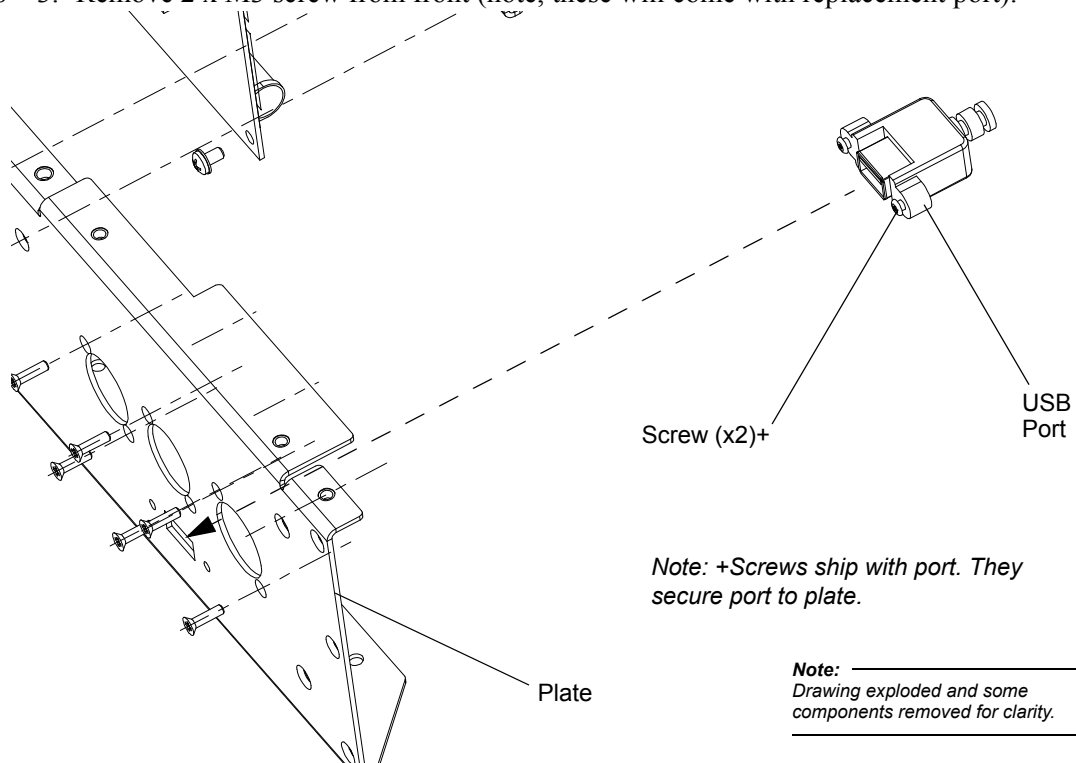
Step 8. Reassemble in reverse order.

USB Port

Vari-Lite Part No: 46.9704.0853

To replace USB port:

- Step 1. Remove both enclosure covers following the procedure described in “Upper Enclosure Covers Removal” on page 25.
- Step 2. Disconnect wiring from MCB (refer to information in “Main Control Board (MCB)” on page 29).
- Step 3. Remove 2 x M3 screw from front (note, these will come with replacement port).



- Step 4. Remove USB port.
- Step 5. Replace in reverse order.

Upper Enclosure Air Filters (To Clean or Replace)

Vari-Lite Part No: 10.9704.1842

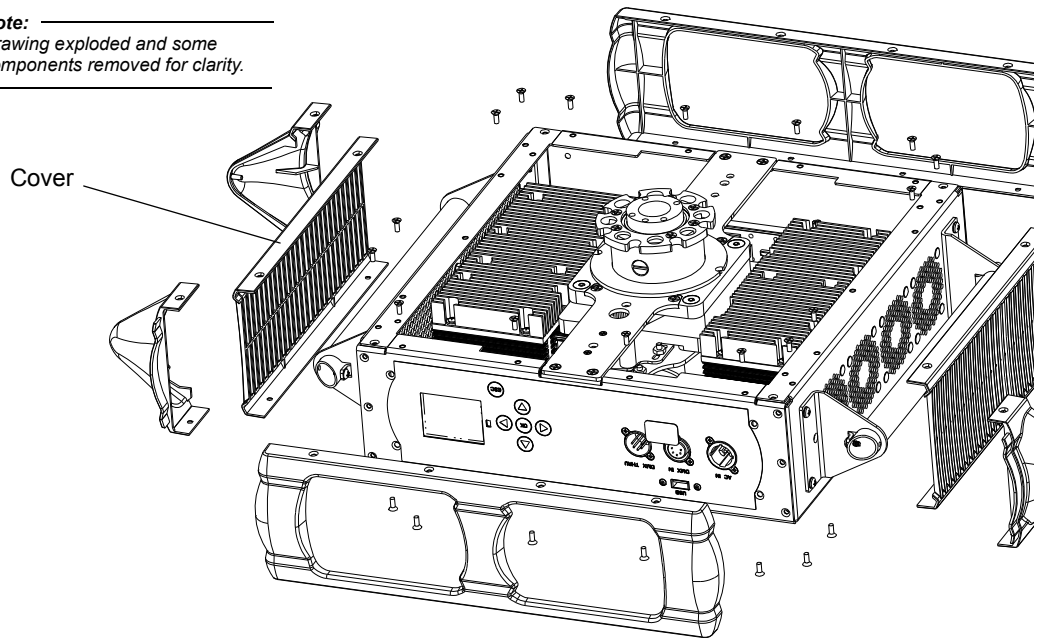
To remove, clean, and replace air filters:



WARNING: Remove power from luminaire and allow luminaire to cool completely before performing this procedure. Failure to remove power from luminaire can result in serious injury or death!

Step 1. At inlet side (opposite of fans), remove 4 x 6-32 x 3/8" PFSS-B screws and remove covers.

Note:
Drawing exploded and some components removed for clarity.



Step 2. Remove air filters.

Step 3. Clean with air or warm water.

Note: If filters are cleaned with warm water, allow filter to dry COMPLETELY before replacing.

Step 4. Replace in reverse order.

Pan Belt

Note: This procedure is also for old-style pan motor assemblies (with no notch) as described in “[Pan Motor Assembly](#)” on page 33.

Vari-Lite Part No: 54.9698.0224

To remove pan belt or old-style pan motor assemblies (with no notch):

Step 1. Remove the following:

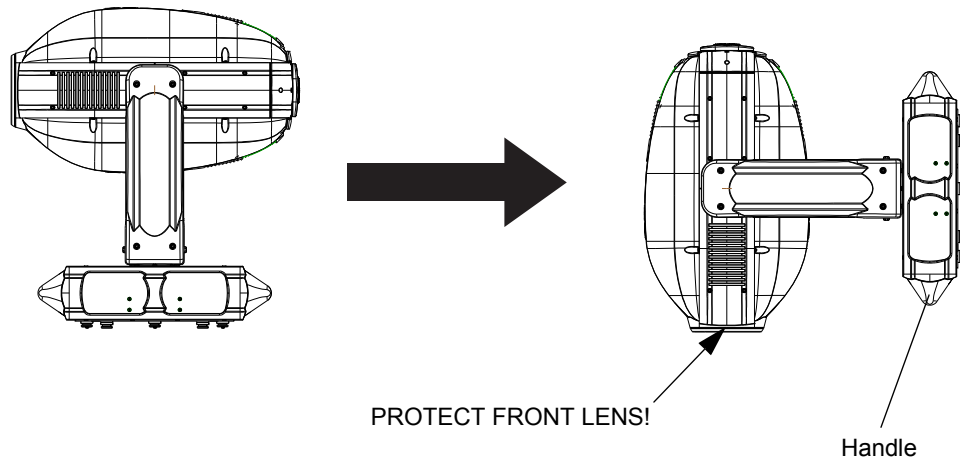
- a. PFC following the procedure described in “[PFC](#)” on page 35.
 - b. Lamp Driver following the procedure described in “[Lamp Driver](#)” on page 31.
 - c. Pan Driver Board (including mounting support) following the procedure described in “[Pan Driver Board](#)” on page 36.
 - d. Pan Motor Assembly following the procedure described in “[Pan Motor Assembly](#)” on page 33.
-

Note: Make sure to notate placement and routing of all wiring. All must be placed and routed the same.

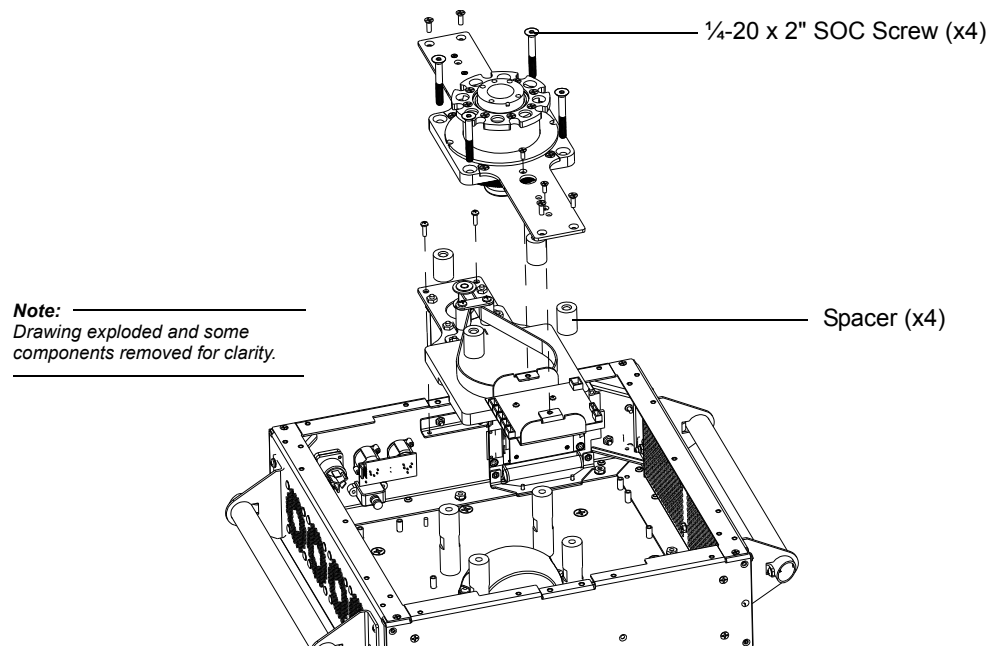
Step 2. Disconnect wiring from LVS output.

Step 3. Remove #8 KEPS nut securing ground wire to chassis

Step 4. While protecting the front lens, place fixture on bench front lens down. Lay yoke/enclosure over so enclosure rests on its handles.



Step 5. Rotate enclosure to access 1 of the 4 1/4-20 x 2" SOC screws.



Step 6. Using 5/32" Allen wrench, remove each screw and unthreaded spacer. Rotate the enclosure and remove all 4. **You must properly support the enclosure as you remove the last one!**

Step 7. Gently rock enclosure to loosen the pan tube from pan bearing on pan motor plate.

Step 8. Lay enclosure down as you pull wiring through pan bearing.

Step 9. Remove pan belt.

If you have an old, non-notched pan motor, continue disassembly:

Step 10. Remove 2 6-32 x 1/2" PPZ SEMS screws attaching pan assembly module to enclosure side rail.

Step 11. Lift entire assembly, with bearing and motor out of enclosure. Remove nuts and screws mounting motor and replace motor.

To install pan belt:

Step 1. Insert wiring through new belt and place belt on pan pulley.

Step 2. Feed wiring through pan bearing.

Step 3. Rotate the pan tube mounting plate, so the screw that holds then pan stop ball is facing the pan motor side.

Step 4. Lift enclosure so pan tube can insert into bearing.

Step 5. Insert one of the four 1/4-20 x 2" SOC screws and spacer. **DO NOT TIGHTEN!**

Step 6. Rotate around and start all four. **Make sure belt is INSIDE the spacers!**

Step 7. Once all four screws are started, work your way around and tighten them all.

Step 8. Then stand fixture on enclosure and reassemble remainder in reverse order of removal.

Yoke Arm Covers Removal

Vari-Lite Part No: 22.9704.0732 (Spot)

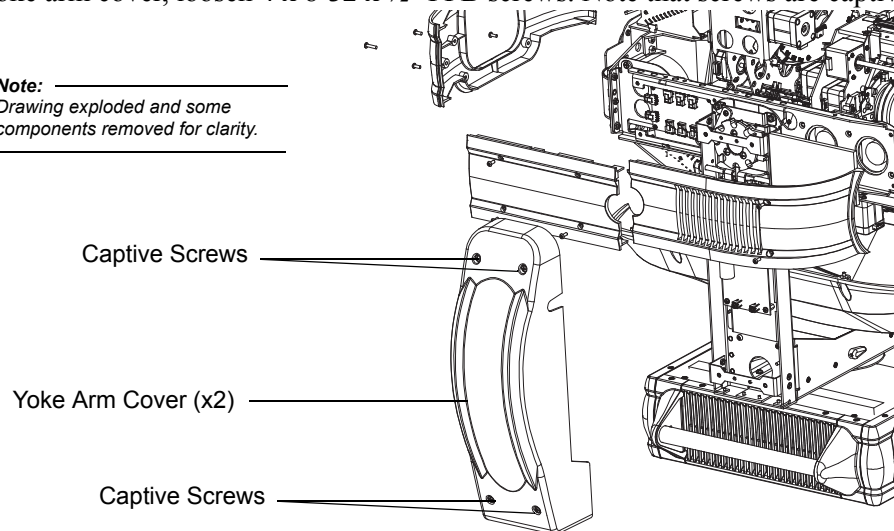
To remove yoke arm covers:



WARNING: Remove power from luminaire and allow luminaire to cool completely before performing this procedure. Failure to remove power from luminaire can result in serious injury or death!

Step 1. At yoke arm cover, loosen 4 x 8-32 x 1/2" PPB screws. Note that screws are captive to cover.

Note: _____
Drawing exploded and some
components removed for clarity.



Step 2. Remove yoke arm cover.

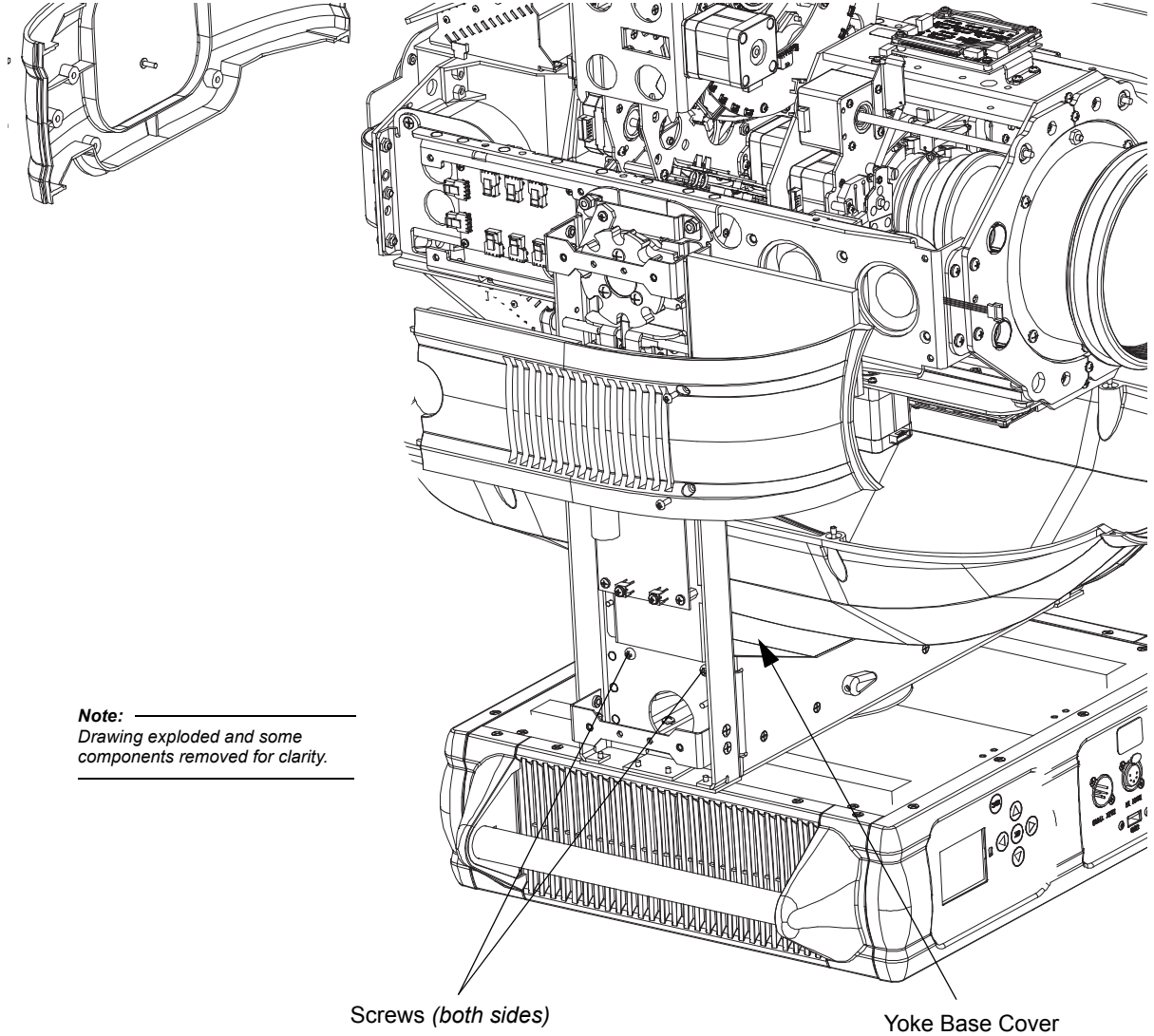
Step 3. Replace in reverse.

Yoke Base Cover

Vari-Lite Part No: 10.9704.1733

To remove yoke base cover:

- Step 1. Remove both yoke arm covers following the procedure described in “Yoke Arm Covers Removal” on page 46.
- Step 2. At each yoke side, remove 2 per side 8-32 x 5/16" PPZ screws and remove yoke base cover.



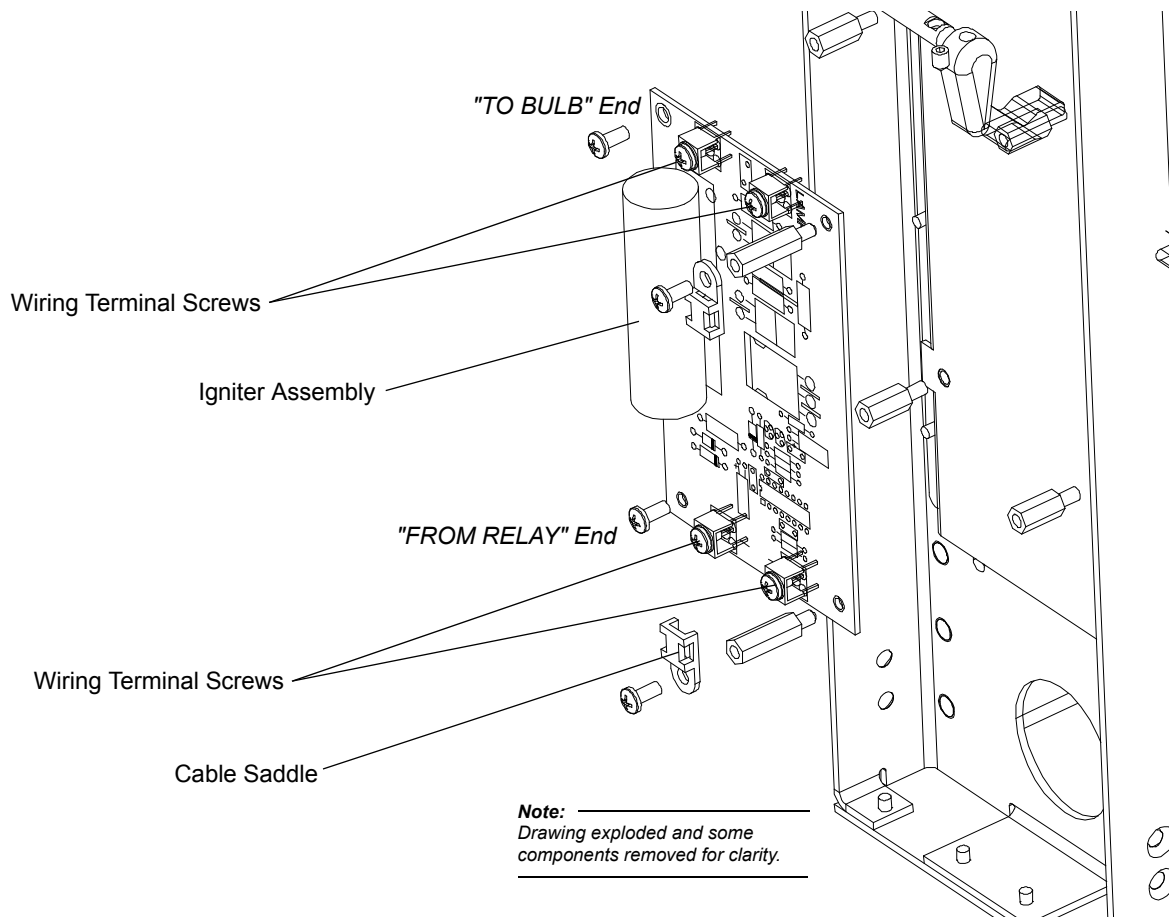
- Step 3. Replace in reverse.

Igniter Assembly

Vari-Lite Part No: 24.9704.1126

To replace igniter assembly:

- Step 1. Remove tilt lock side yoke arm cover following the procedure described in “Yoke Arm Covers Removal” on page 46.
- Step 2. At igniter, remove 4 x 6-32 terminal screws and remove input and output wiring. *Note these screws MUST be used to attach wiring. Save and use on replacement igniter.*



- Step 3. Remove 2 6-32 x 5/16" PPZ SEMS screws and remove two cable saddles.
- Step 4. Remove 2 6-32 x 5/16" PPZ SEMS screws and 2 x 1/4" HEX 6-32 x 0.75" Standoff and remove igniter.
- Step 5. Replace in reverse noting the following:
- Ensure to orient the igniter with the *TO BULB* terminals towards the tilt lock.
 - When installing the input wires on the *FROM RELAY* terminals, bias the wires away from the cable saddle.

Tilt Lock Arm Assembly

Vari-Lite Part No: 10.9704.1751 (Rod)

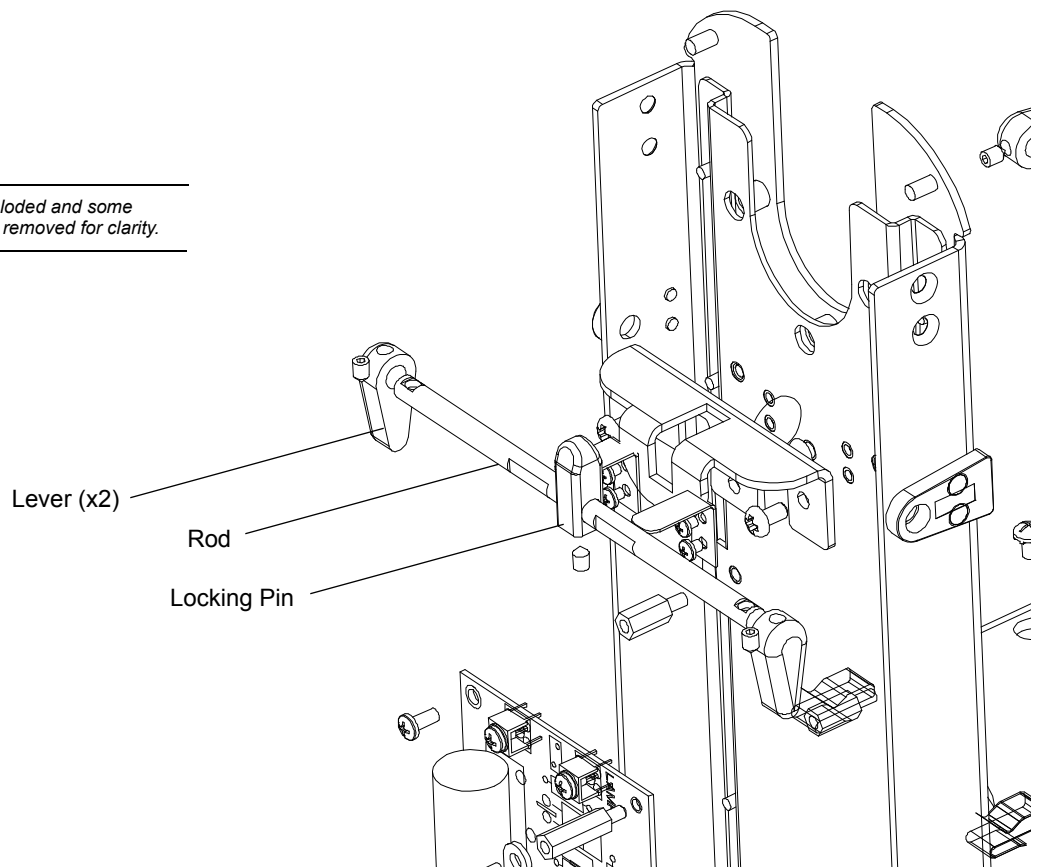
Vari-Lite Part No: 10.9704.0753 (Lever, x2)

Vari-Lite Part No: 10.9704.1752 (Locking Pin)

To replace tilt lock assembly or its parts:

- Step 1. Remove tilt lock side yoke arm cover following the procedure described in “[Yoke Arm Covers Removal](#)” on page 46.
- Step 2. Using a 5/64" Allen Wrench, remove 1 of the levers (10.9704.0753) by loosening the cone point set screw.

Note: _____
Drawing exploded and some components removed for clarity.



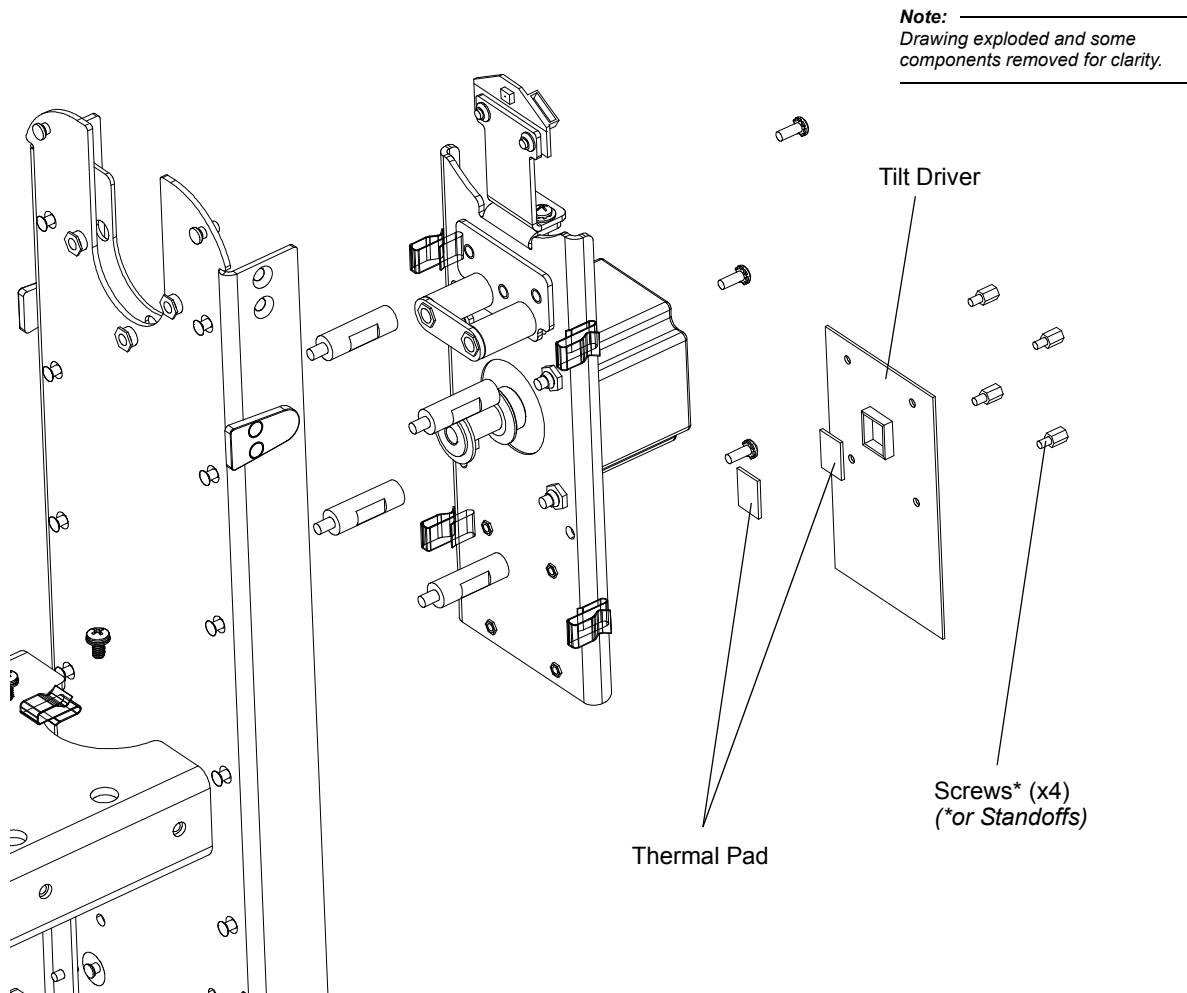
- Step 3. Loosen the cone point set screw in the locking pin.
- Step 4. Slide the rod out of yoke arm and locking pin.
- Step 5. Replace in reverse. Note there are holes in rod for set screws.

Tilt Driver

Vari-Lite Part No: 24.9704.1908

To replace the tilt driver:

- Step 1. Remove yoke arm cover opposite tilt lock following the procedure described in “Yoke Arm Covers Removal” on page 46.
- Step 2. Disconnect wiring from tilt driver.
- Step 3. Depending on the tilt driver type, do one of the following:
- Type 1** - Remove 4 x 4-40 x 1/4" PPZ Screws and remove board.
 - Type 2** - Using 3/16" Nut Driver, remove 4 x Standoff 3/16" HEX FF 0.25LG and remove board.



Note: If replacing tilt driver, be sure and move the thermal pad from older driver to new tilt driver.

- Step 4. Replace in reverse

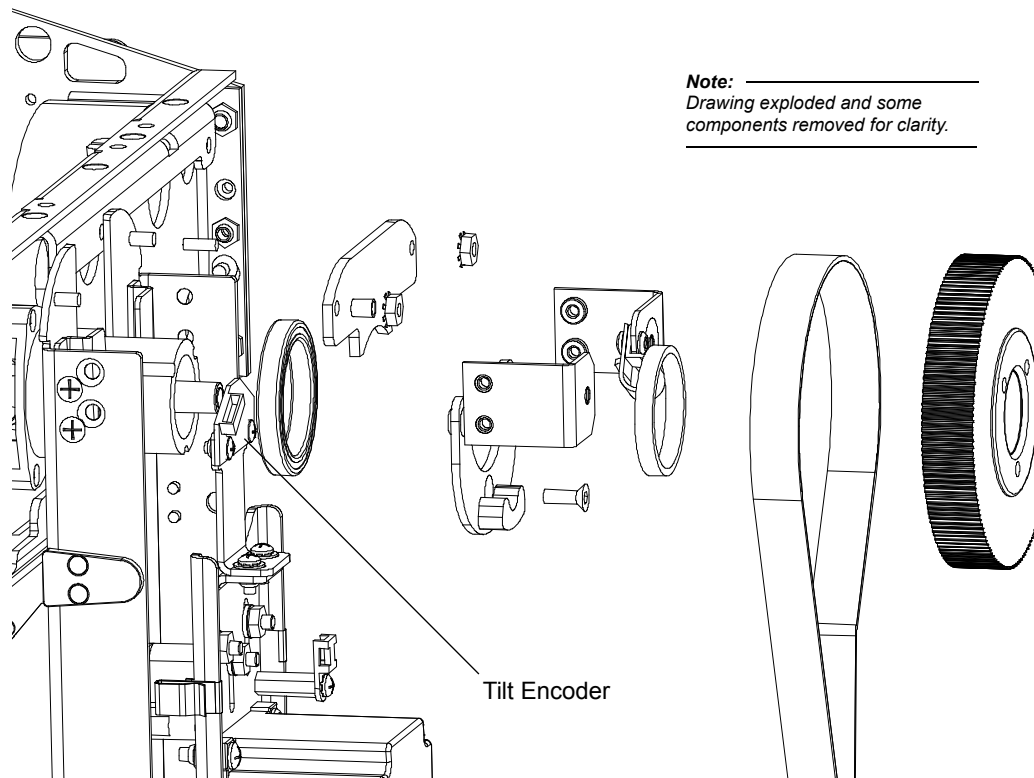
Tilt Encoder

Vari-Lite Part No: 17.9704.1911

Note: After performing this procedure, the tilt center position will need to be reset via the luminaire's menu system. Refer to the luminaire's user's manual for procedure.

To replace the tilt encoder:

- Step 1. Remove yoke arm cover opposite tilt lock following the procedure described in “[Yoke Arm Covers Removal](#)” on page 46.
- Step 2. Disconnect wiring from tilt encoder.
- Step 3. Remove 2 x 6-32 x 1/4" PPZ Screws and remove tilt encoder.



Note: On the new assemblies, the encoder position is adjustable. Ensure it is more than 1 mm away from the magnet.

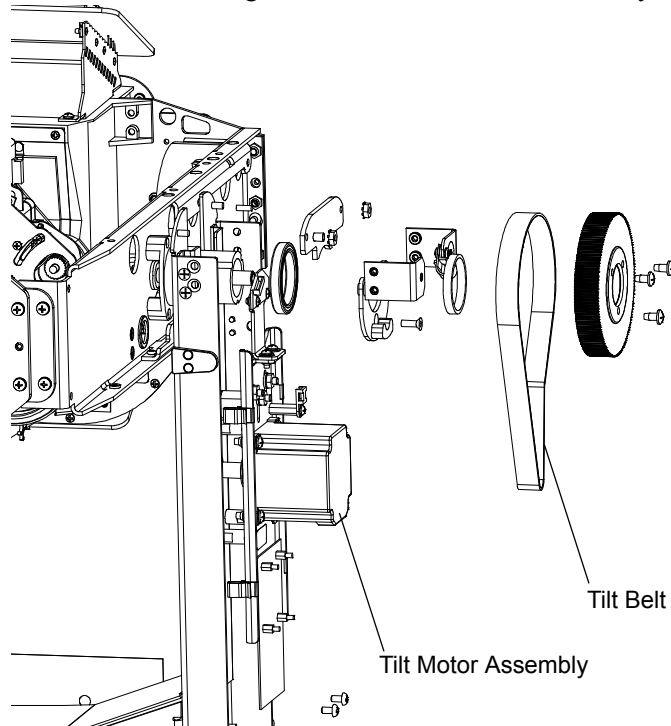
- Step 4. Replace in reverse.

Tilt Motor Assembly

Vari-Lite Part No: 21.9704.0764

To remove tilt motor assembly:

- Step 1. Remove yoke arm cover opposite tilt lock following the procedure described in “Yoke Arm Covers Removal” on page 46.
- Step 2. Disconnect wiring harness from tilt motor assembly.



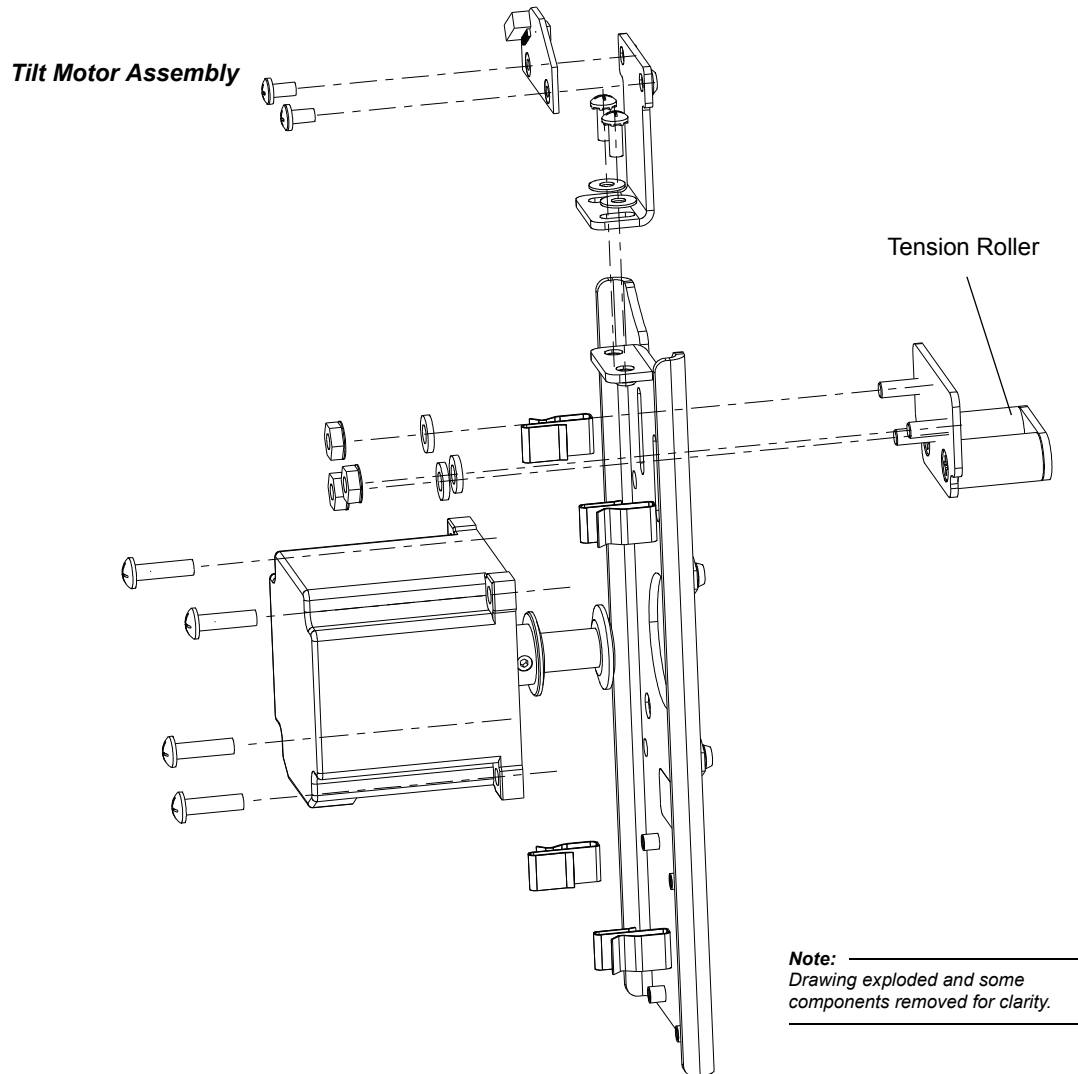
Note: _____
Drawing exploded and some
components removed for clarity.

- Step 3. Depending on the tilt motor assembly type, do one of the following:

a. **Type 1**

- 1) To loosen belt tension, loosen 8-32 PPB screw going into tension roller.
- 2) Slide roller towards outside of yoke arm to loosen tension.

- 3) Tighten screw to hold roller with loose tension.



b. Type 2

- 1) To loose belt tension, loosen 3 x #8 KEPS nuts and slide tensioner toward motor
- Step 4. Remove 4 x 8-32 x 5/8" PPB screws that mount motor.
- Step 5. Remove belt from pulley and pull motor assembly through tilt mount.
- Step 6. For reassembly, depending on the tilt motor assembly type:
- Type 1** - You will need to 'help' the spring set the belt tension by pulling the tension roller in towards the belt.
 - Type 2** - Slide the tensioner toward the tilt pulley. Make sure the rollers are even on both sides.
- Step 7. Replace in reverse order.

Tilt Belt

Vari-Lite Part No: 54.9698.0224

To remove and replace tilt belt:

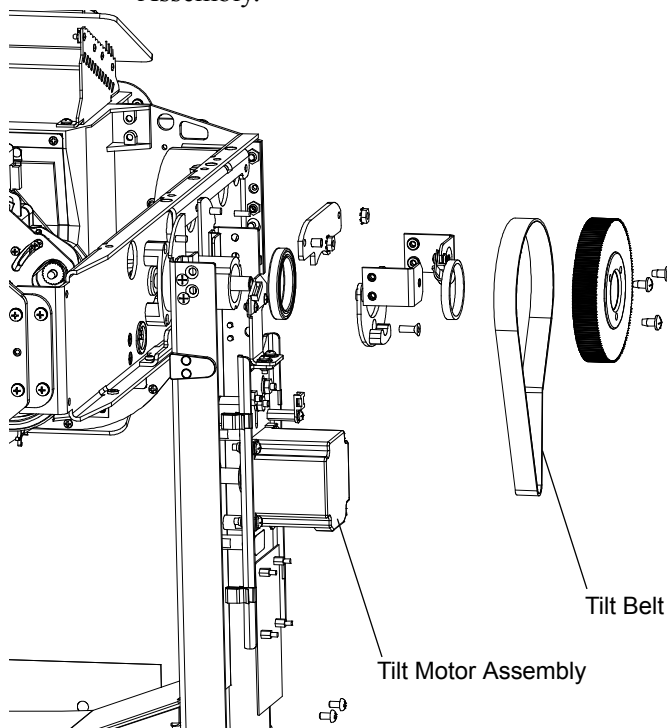
- Step 1. Remove yoke arm cover opposite tilt lock following the procedure described in “Yoke Arm Covers Removal” on page 46.
- Step 2. Disconnect wiring from tilt driver board, tilt motor, and tilt encoder.
- Step 3. Remove #6 KEPS Nut and remove ground bundle.
- Step 4. At COM wires, disconnect inline connectors.

Note: On some fixtures, you MAY have to remove the yoke base cover to access the inline connectors.

- Step 5. Depending on the tilt motor assembly type, do one of the following:

a. Type 1

- 1) To loosen belt tension, loosen 8-32 PPB screw going into tension roller.
- 2) Slide roller towards outside of yoke arm to loosen tension.
- 3) Tighten screw to hold roller with loose tension.
- 4) Remove 4 x 8/32 x 3/8" screws and 1 x 3/8" HEX Standoff and remove Tilt Motor Assembly.



Note: _____
Drawing exploded and some
components removed for clarity.

- 5) Remove 4 x 8/32 x 1/4" PFZ screws and remove yoke arm cover mount.

b. Type 2

- 1) To loose belt tension, loosen 3 x #8 KEPS nuts and slide tensioner toward motor.
- 2) Remove 4 x 6-32 x 3/8" PPZ SEMS screws and remove motor assembly

Step 6. Remove belt.

Step 7. Replace in reverse. Follow belt tension procedure as described in [“Tilt Motor Assembly” on page 52.](#)

Yoke Assembly

Vari-Lite Part No: 22.9704.0705

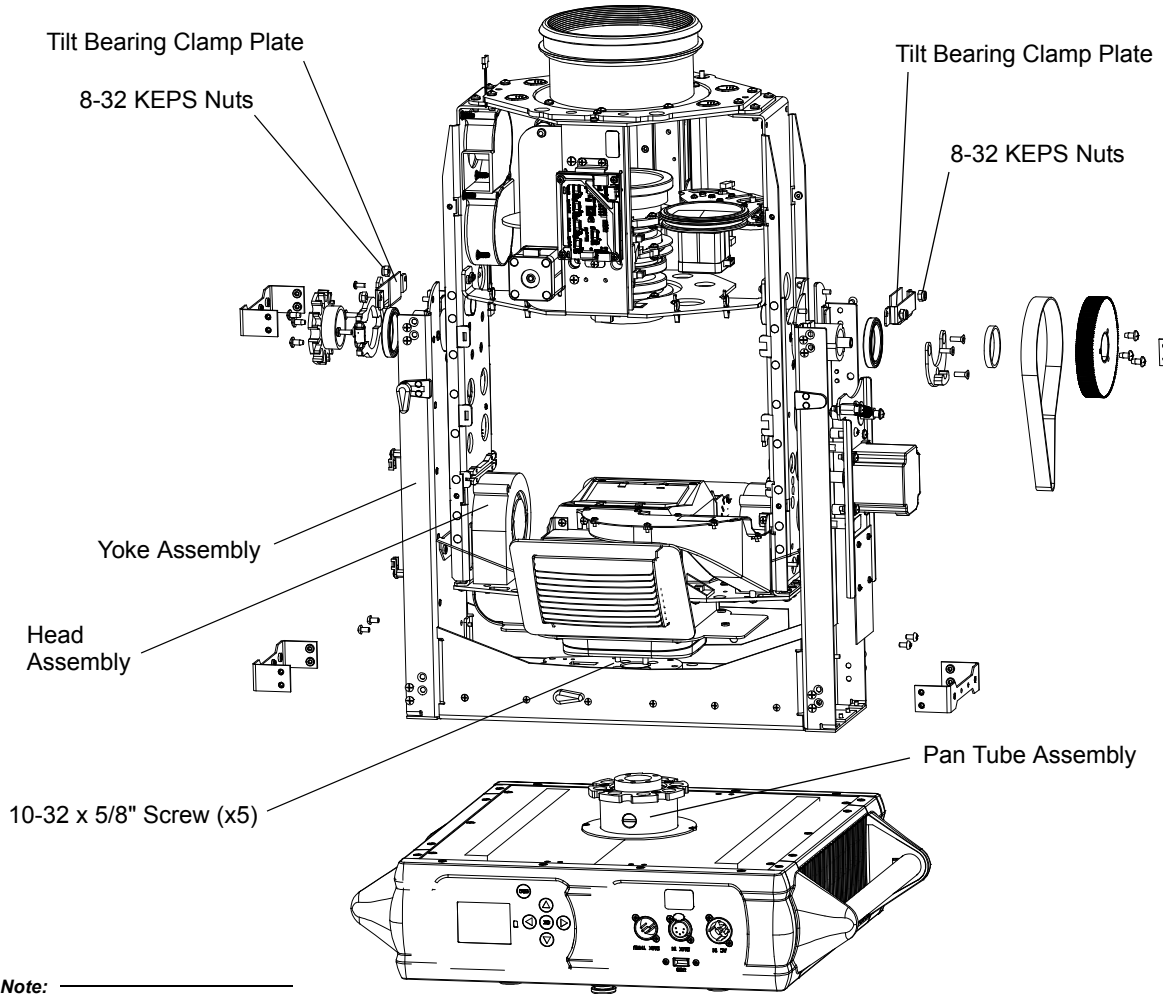
Note: This procedure is for replacing the yoke assembly only. You will transfer several parts to the replacement yoke assembly.

To replace the yoke assembly:

- Step 1. Remove both yoke arm covers following the procedure described in “[Yoke Arm Covers Removal](#)” on page 46.
- Step 2. Remove yoke base cover following the procedure described in “[Yoke Base Cover](#)” on page 47.
- Step 3. Remove tilt belt following the procedure described in “[Tilt Belt](#)” on page 54.
- Step 4. Remove igniter following the procedure described in “[Igniter Assembly](#)” on page 48.
- Step 5. Noting placement, cut cable ties securing wiring in inside of yoke under base cover, including the tilt driver power.
- Step 6. Remove both luminaire head covers following the procedure described in “[Luminaire Head Covers Removal](#)” on page 59.
- Step 7. Remove tilt lock side rail head cover following the procedures described in “[Front Side Rail Covers](#)” on page 60 and “[Rear Side Rail Cover Removal](#)” on page 61.
- Step 8. At power distribution board, disconnect 36Vdc input (white connector) and carefully pull back through tilt tube.

- *Continued next page* -

Step 9. At each side, remove 2 (4 total) 8-32 KEPS nut and remove tilt bearing clamp plate.

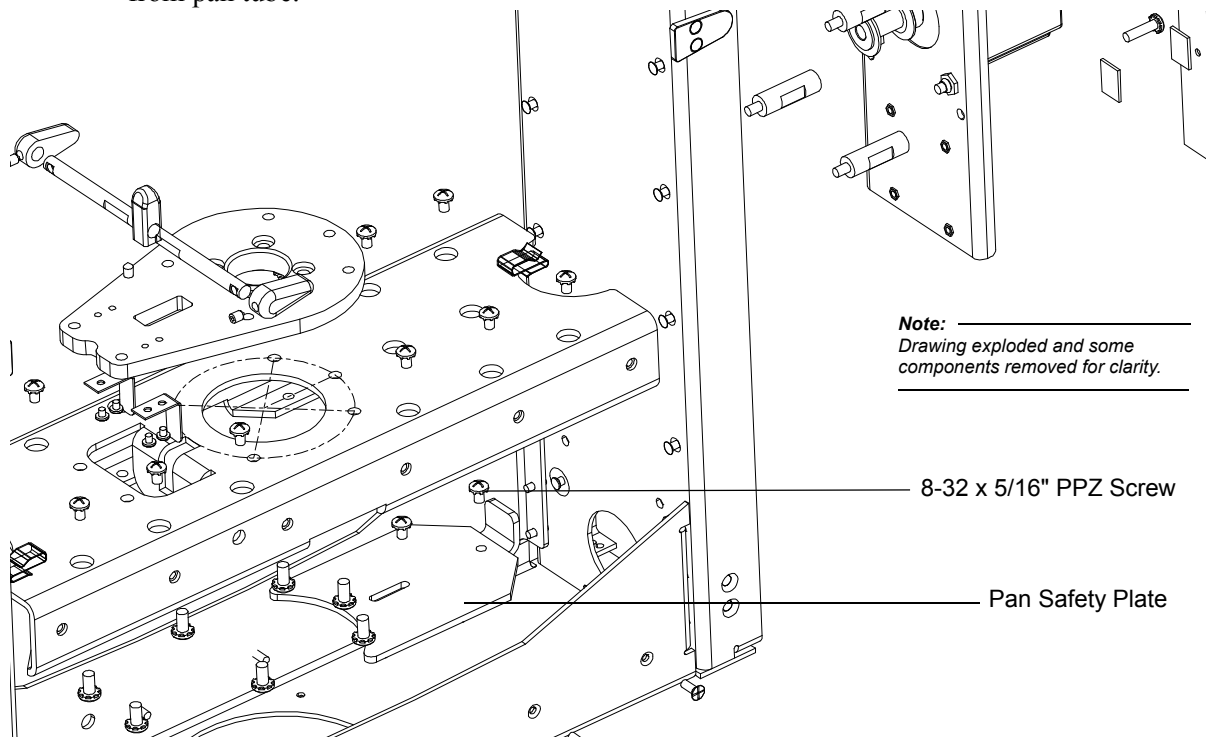


Note:
 Drawing exploded and some components removed for clarity.

Step 10. Carefully lift luminaire head from yoke assembly.

- Continued next page -

- Step 11. On inside of yoke at tilt motor side, remove 1 8-32 x 5/16" PPZ screw (nearest outside of yoke) and loosen 1 8-32 x 5/16" PPZ screw nearest pan tube and slide pan safety plate away from pan tube.



- Step 12. Remove 5 x 10-32 x 5/8" screws mounting yoke to pan tube.
- Step 13. Remove yoke from pan tube, pulling wiring through opening in yoke.
- Step 14. Transfer all remaining hardware from old yoke assembly to new yoke assembly.
- Step 15. Reassemble in reverse order.

Luminaire Head Covers Removal

Vari-Lite Part No: 22.9704.0670

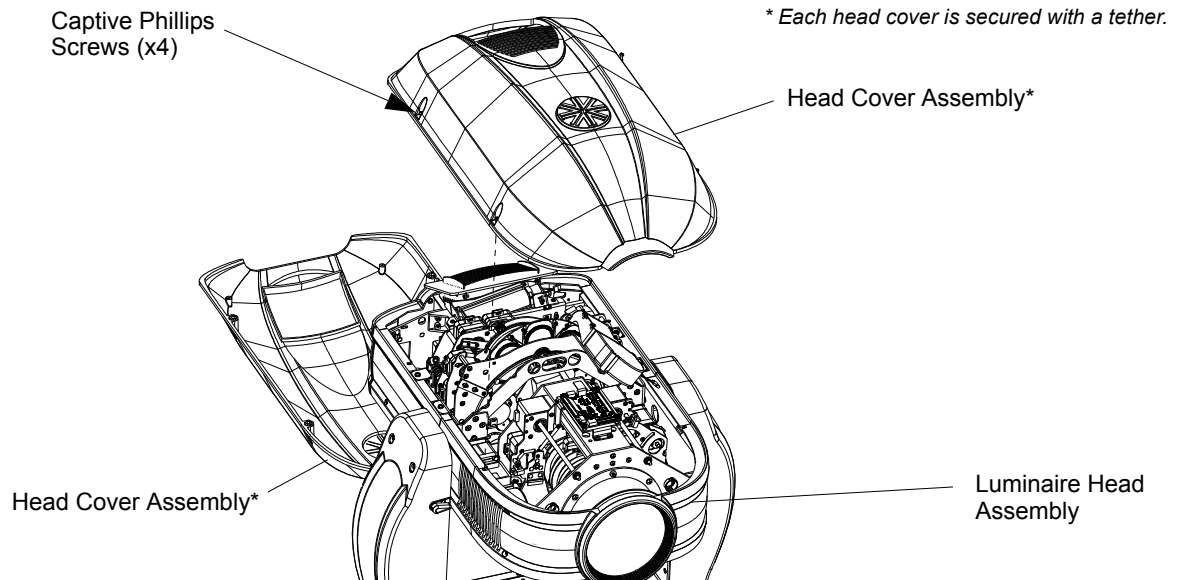


WARNING: Remove power from luminaire and allow luminaire to cool completely before performing this procedure. Failure to remove power from luminaire can result in serious injury or death!

Note: Top head cover is side with serial number on yoke. Or, if looking at lamp access, the side with 2 lamp optimization screws

To remove the luminaire head covers:

Step 1. Loosen 4 x 6-32 x 1/2" PPB Captive screws on each head cover.



Step 2. Remove tether from fixture and remove cover.

Step 3. Replace in reverse order.

Front Side Rail Covers

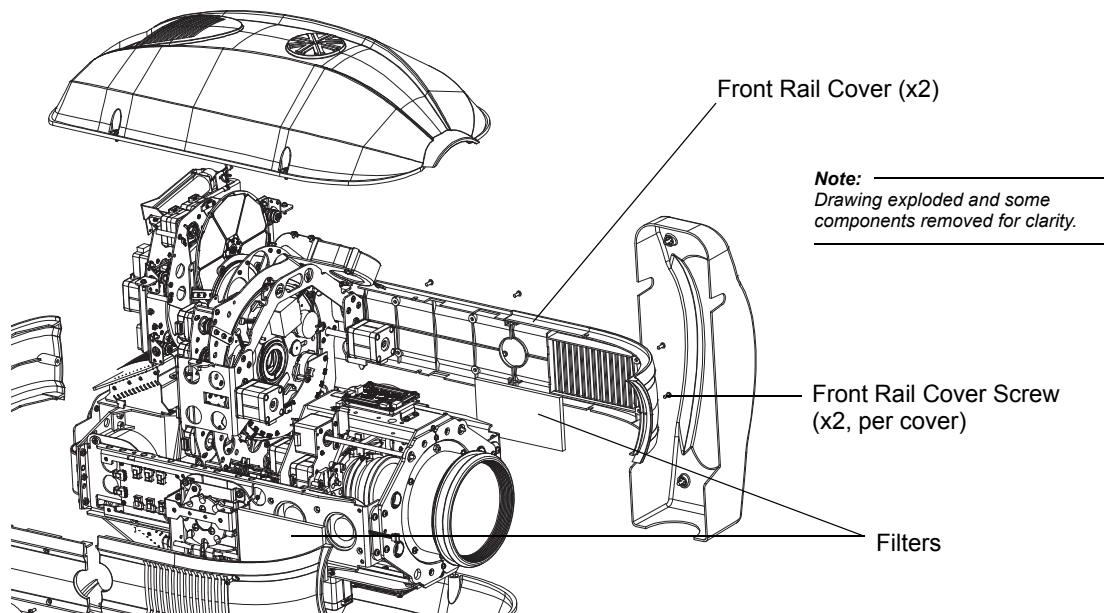
Vari-Lite Part No: 10.9704.0672

Input Air Filter

Vari-Lite Part No: 10.9704.0641

To remove front side rail covers and input air filters:

- Step 1. Remove both luminaire head covers following the procedure described in “[Luminaire Head Covers Removal](#)” on page 59.
- Step 2. Remove 2 x 6-32 x 3/8" PPB screws and remove cover/filter.



- Step 3. Clean filter with air or warm water OR replace with new.
-

Note: If filters are cleaned with warm water, allow filter to dry COMPLETELY before replacing.

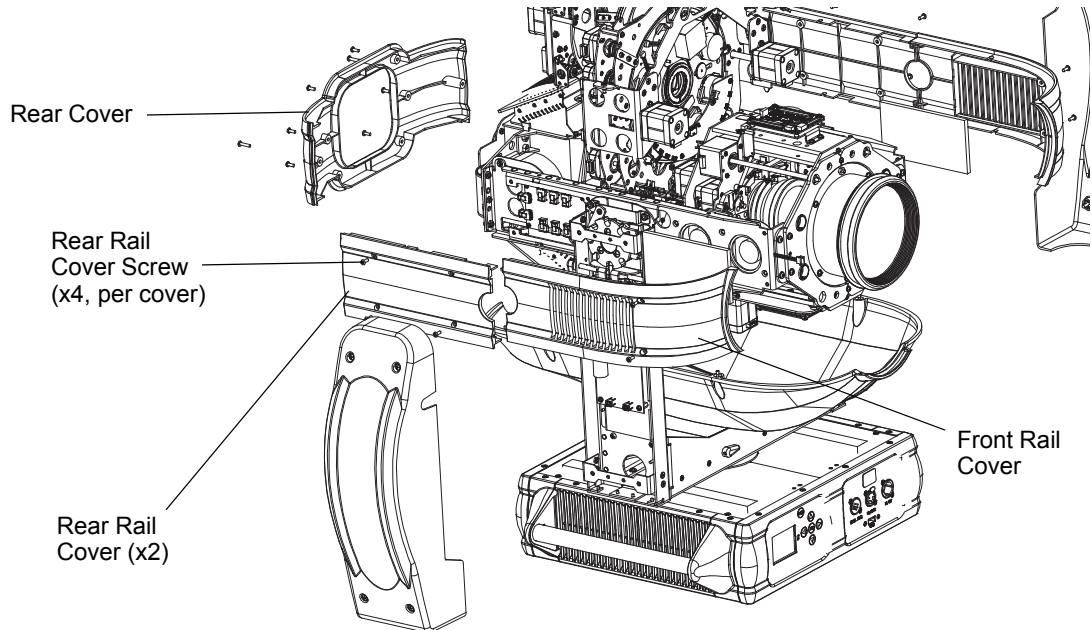
- Step 4. Replace in reverse order.

Rear Side Rail Cover Removal

Vari-Lite Part No: 10.9704.0673

To remove side rail covers:

- Step 1. Remove both head covers following procedure in “[Luminaire Head Covers Removal](#)” on [page 59](#).
- Step 2. Remove 4 x 6-32 x 3/8" PPB screws and remove cover.



Note: _____
 Drawing exploded and some components removed for clarity.

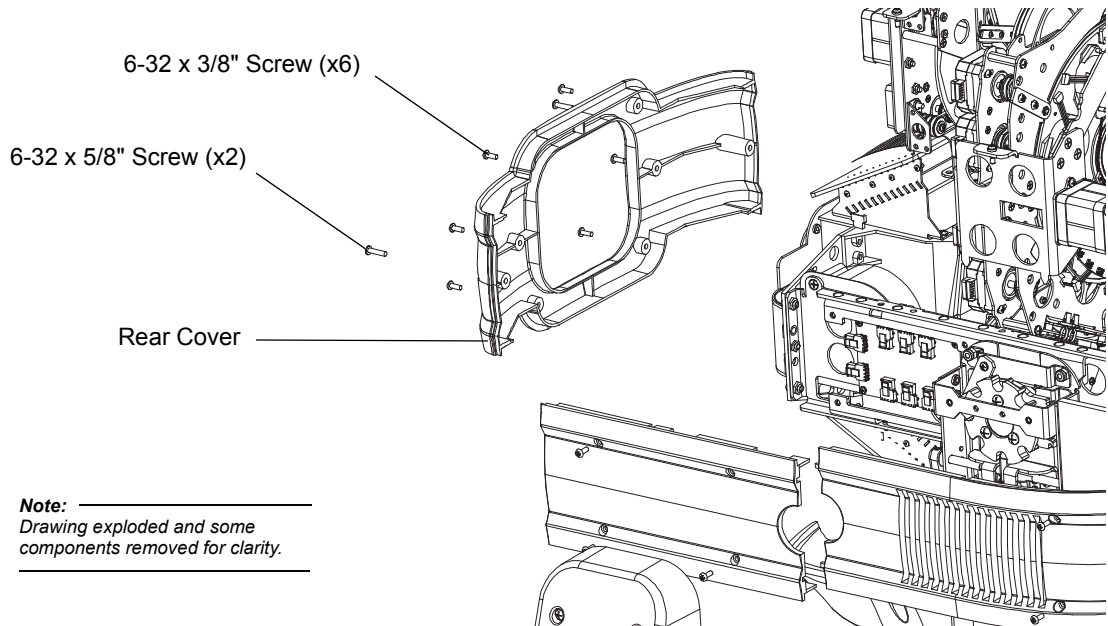
- Step 3. Replace in reverse. Be sure each is properly positioned flush to adjoining covers (front rail and rear covers).

Rear Cover Removal

Vari-Lite Part No: 10.9704.0671

To remove rear cover:

Step 1. Remove 2 x 6-32 x 5/8" PPB screws at outside and 6 x 6-32 x 3/8" PPB screws around inside.



Note:
*Drawing exploded and some
components removed for clarity.*

Step 2. Remove cover.

Step 3. Replace in reverse order.

Color Assembly Removal

Vari-Lite Part No: 21.9704.4400

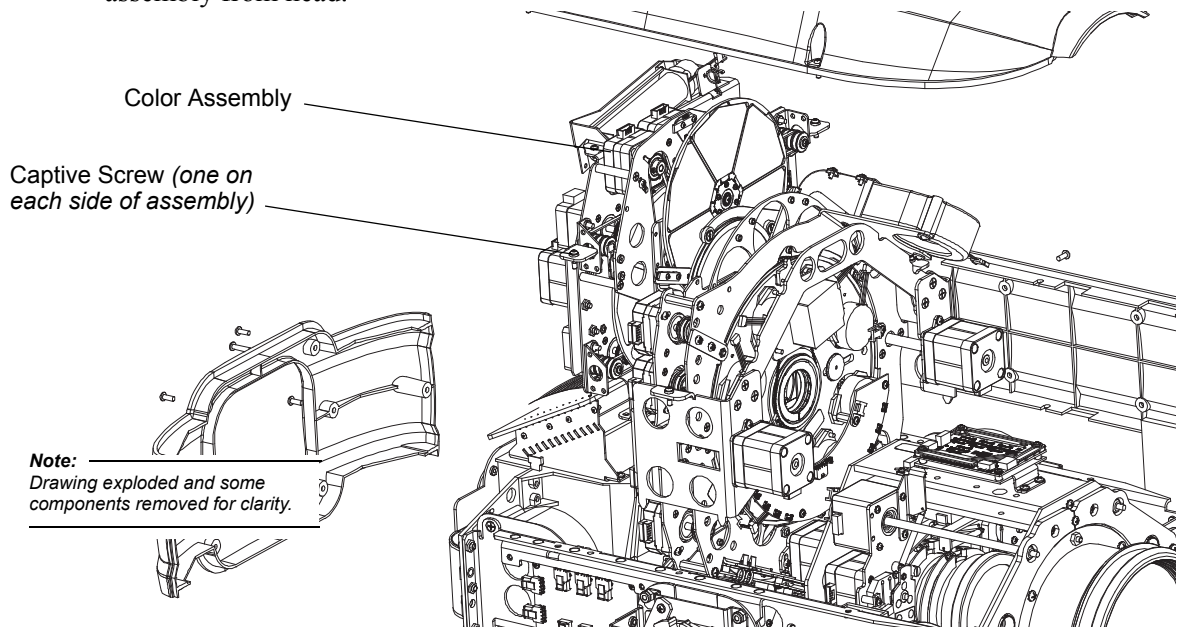
To remove color assembly:

- Step 1. Run the edge (focus) mechanism to the full forward (toward the lenses) position. This can be done using a console by sending a DMX value of 100% (65535 decimal) on the 16-bit edge channel. With DMX unplugged you can also use the manual menu to set the edge to 65535. Or with DMX unplugged you can press the left and right arrow keys for more than 2 seconds (upcoming software version). If motorized movement is not possible, rotate the manual adjusters on the lead screws to move the edge mechanism to the full forward position.



WARNING: Remove power from luminaire and allow luminaire to cool completely before performing this procedure. Failure to remove power from luminaire can result in serious injury or death!

- Step 2. Remove both luminaire head covers following the procedure described in “[Luminaire Head Covers Removal](#)” on page 59.
- Step 3. At driver boards A and B, disconnect DC power input and COM input. Remove wires from Kurly Loc cable ties.
- Step 4. Rotate head to opposite side. Loosen 2 x 6-32 x ½" PPB captive screws and slide color assembly from head.



Note: In the next step, tighten tilt lock side screws first during reassembly.

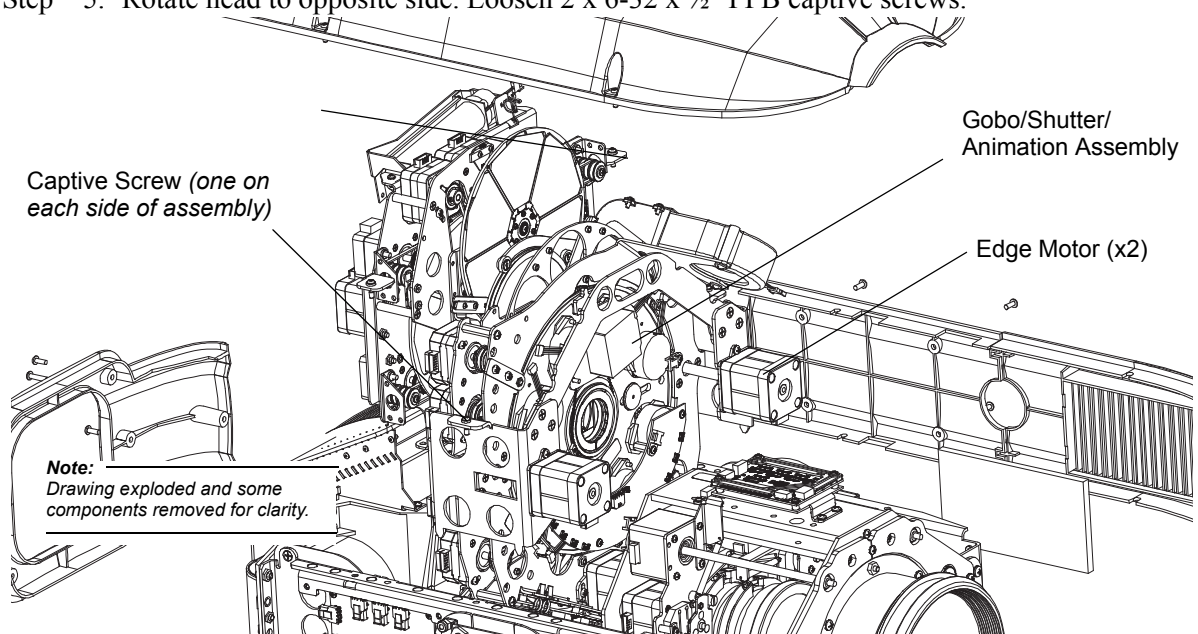
- Step 5. Replace in reverse order.

Gobo / Shutter / Animation Assembly Removal

Vari-Lite Part No: 21.9704.0200

To remove gobo assembly:

- Step 1. Remove color assembly following the procedure described in “Color Assembly Removal” on page 63.
- Step 2. At Driver Board C Kurly Loc cable tie, disconnect DC power to board C and shutter and COM into board C and out to board F.
- Step 3. At Driver Board D, disconnect DC power in and COM. Remove COM wires from Kurly Loc.
- Step 4. Disconnect wiring into 2 edge motors
- Step 5. Rotate head to opposite side. Loosen 2 x 6-32 x ½" PPB captive screws.



- Step 6. Carefully pull assembly toward you to clear mounting tabs. Then slide assembly down towards lamp to clear driver boards and remove assembly from head.

Note: During reassembly, tighten tilt lock side screws first.

- Step 7. Replace in reverse order.

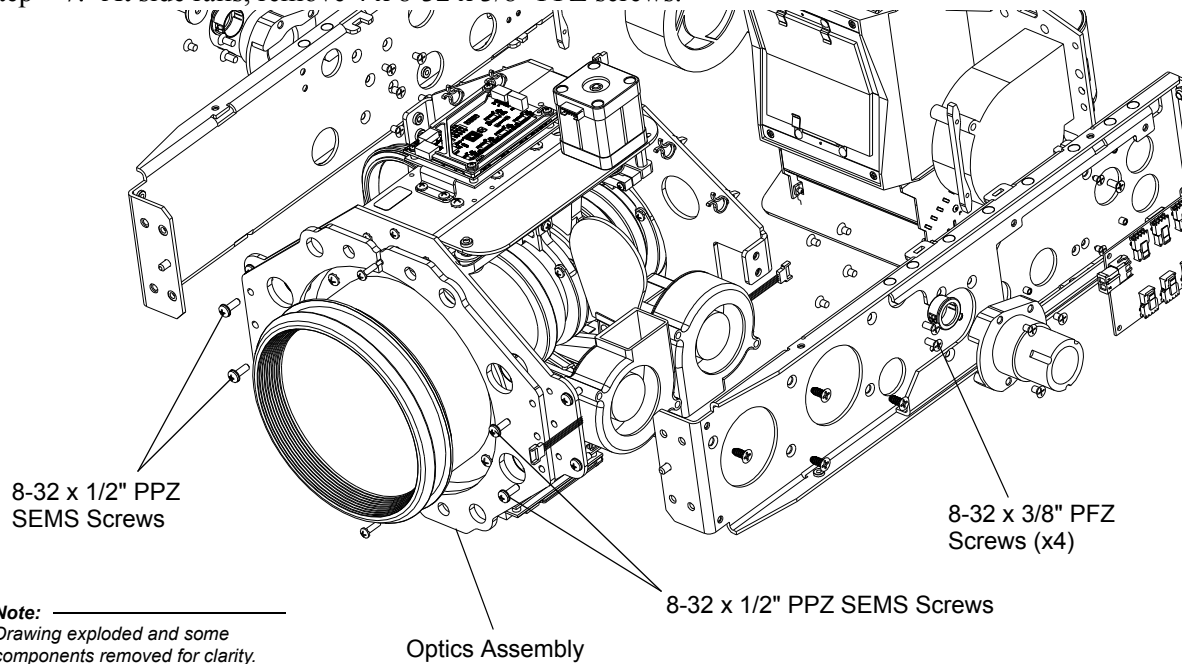
Optics Assembly Removal

Vari-Lite Part No: 21.9704.0150 (Initial Models)

Vari-Lite Part No: 21.9704.1150 (Models with Single Divergence)

To remove the optics assembly:

- Step 1. Remove both front side rail covers following the procedure described in “[Front Side Rail Covers](#)” on page 60.
- Step 2. Disconnect wiring into 2 edge motors.
- Step 3. At driver board E &F, disconnect DC power in and fan power.
- Step 4. Noting placement cut any cable ties holding DC power and fan power to other wiring.
- Step 5. Pull DC power out of any Kurly Loc cable ties.
- Step 6. Pull DC power and fan wires through hole with grommet insert.
- Step 7. At side rails, remove 4 x 8-32 x 3/8" PFZ screws.



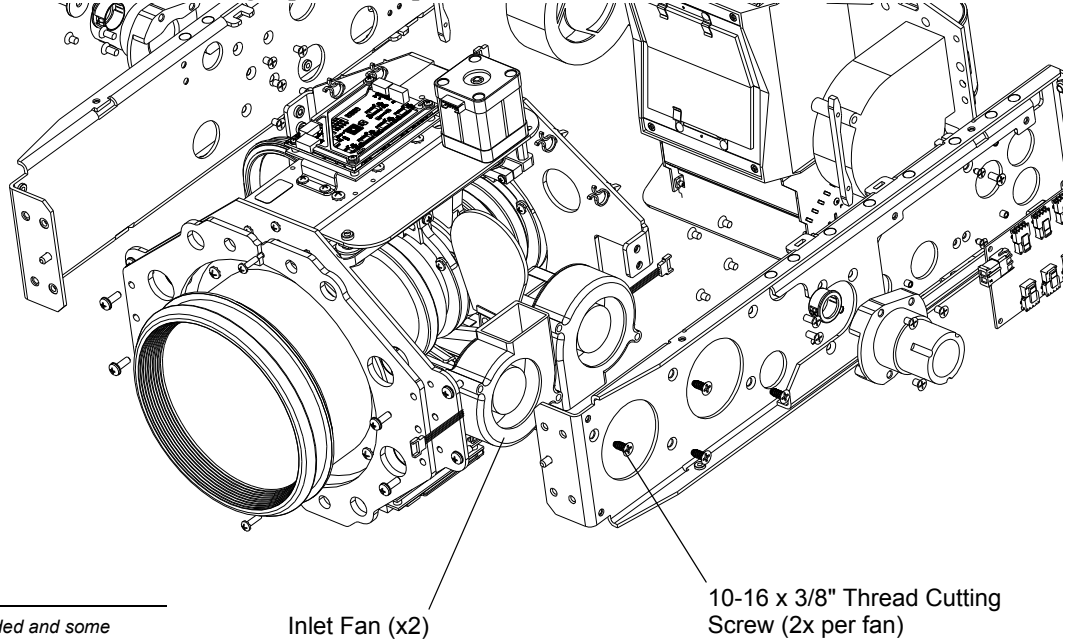
- Step 8. At front, remove 4 x 8-32 x 1/2" PPZ SEMS screws and remove optics.
- Step 9. Replace in reverse order.

Inlet Fan

Vari-Lite Part No: 23.9704.1002

To replace inlet fan:

- Step 1. Remove tilt lock side front side rail cover following the procedure described in “[Front Side Rail Covers](#)” on page 60.
- Step 2. Noting placement and cable ties cut during this step, disconnect the following wiring:
- Disconnect fan wiring from driver board.
 - Disconnect top fan from driver board F.
 - Disconnect bottom Fan from driver board E.
- Step 3. At fan to be removed, remove 2 x 10-16 x 3/8" thread cutting screws and remove fan. Note orientation of fan being replaced. Replacement fan must face same direction.



Note:
Drawing exploded and some components removed for clarity.

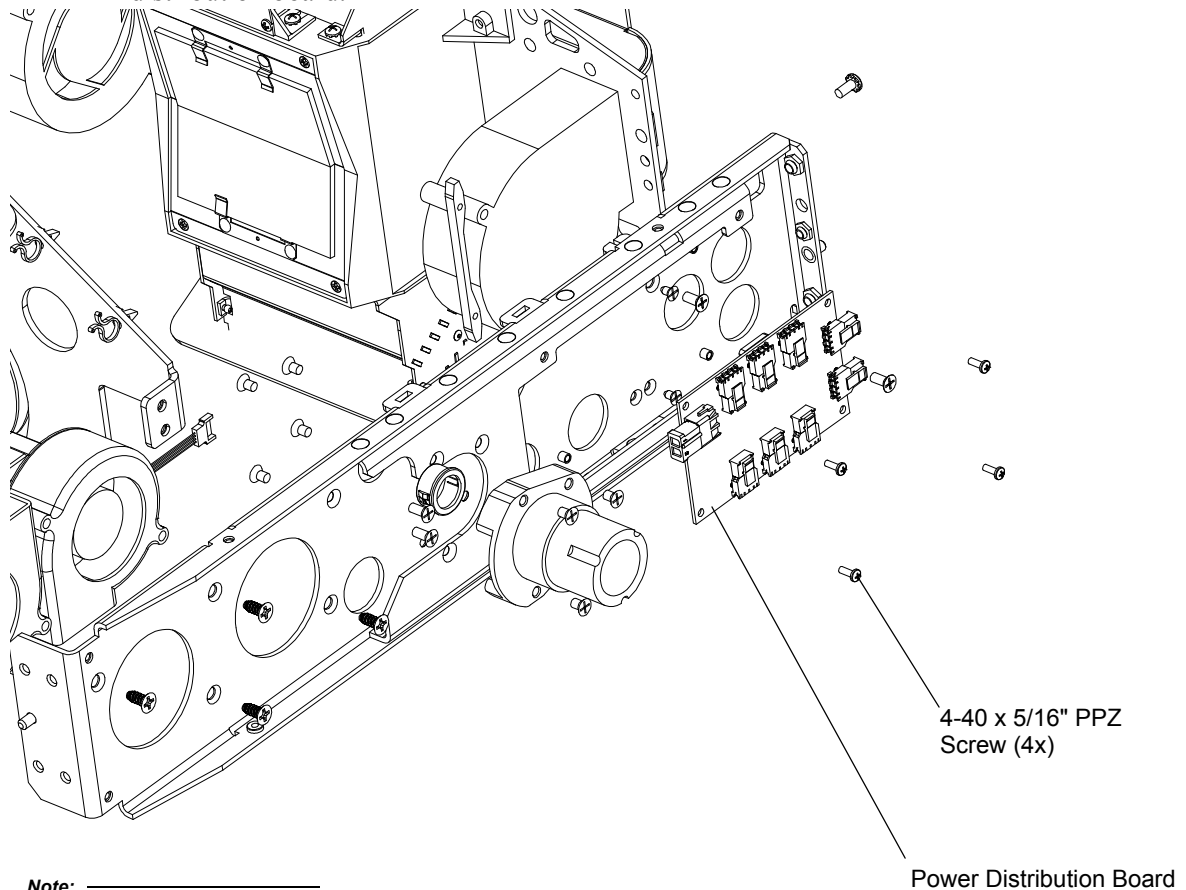
- Step 4. Replace in reverse order. Be sure to replace an cables ties cut during removal process.

Power Distribution Board

Vari-Lite Part No: 23.9704.2909

To remove power distribution board:

- Step 1. Remove tilt lock side rear side rail cover following the procedure described in “[Rear Side Rail Cover Removal](#)” on page 61.
- Step 2. At power distribution board, disconnect all wiring.
- Step 3. Remove 4 x 4-40 x 5/16" PPZ screws (noting ground connection) and remove power distribution board.



Note:
Drawing exploded and some
components removed for clarity.

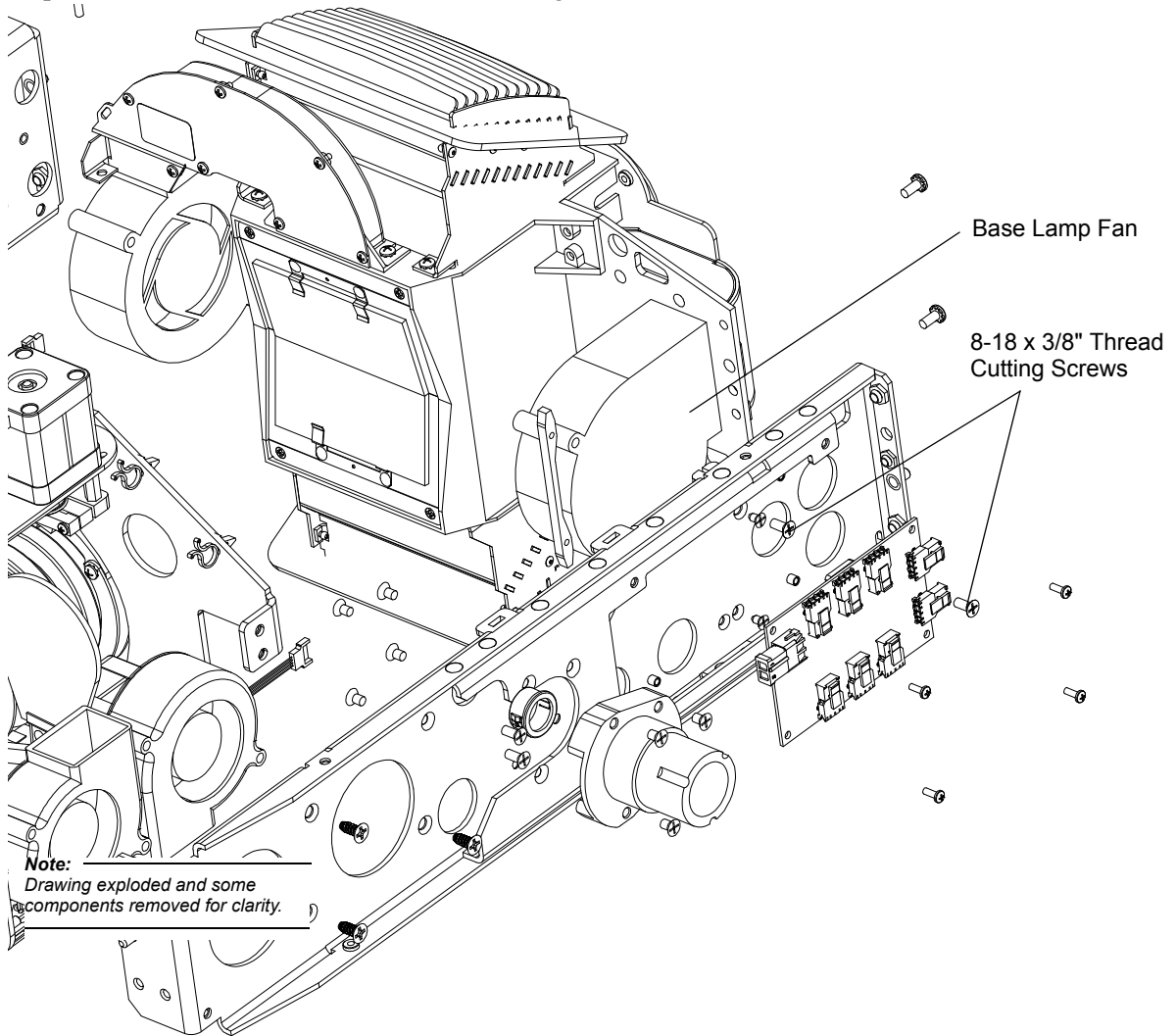
- Step 4. Replace in reverse order.

Base Lamp Fan

Vari-Lite Part No: 23.9704.0003

To replace base lamp fan:

- Step 1. Remove power distribution board following the procedure described in [“Power Distribution Board”](#) on page 67.
- Step 2. At fan, disconnect wiring harness.
- Step 3. Remove 2 x 8-18 x 3/8" thread cutting screws and remove fan.



- Step 4. Replace in reverse order.

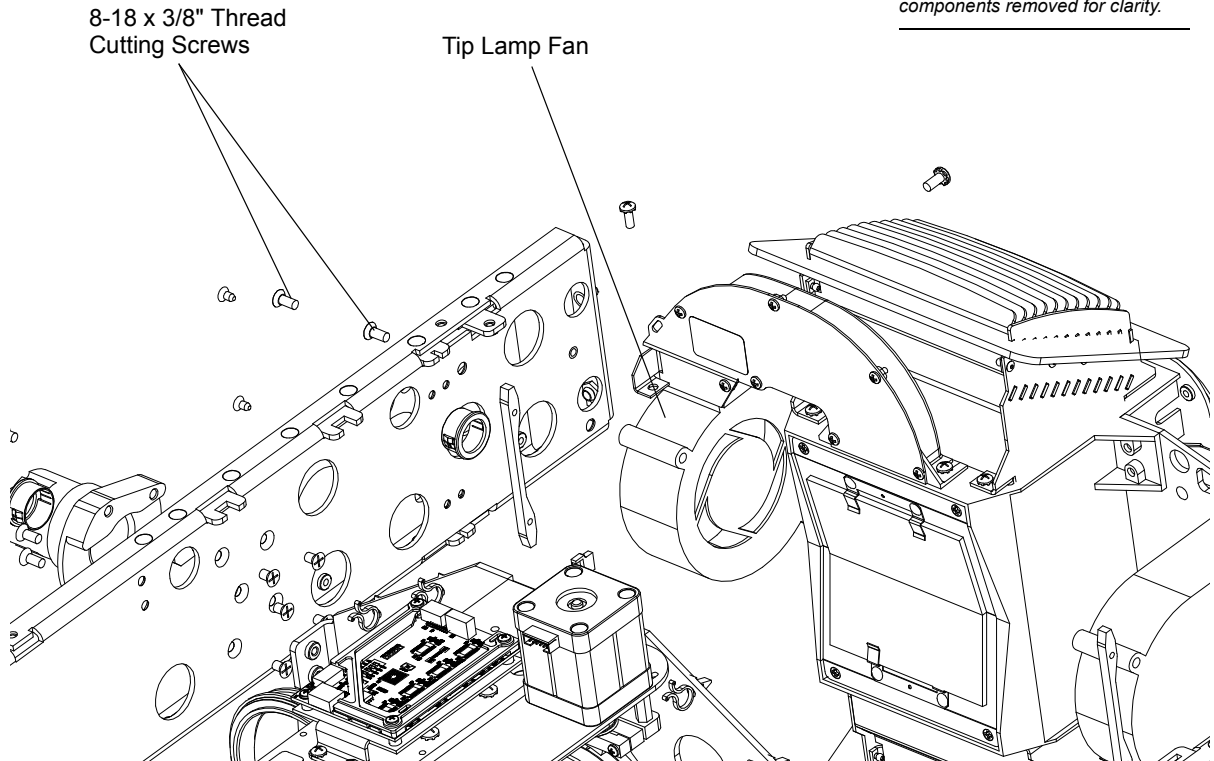
Tip Lamp Fan

Vari-Lite Part No: 23.9704.0003

To replace tip lamp fan:

- Step 1. Remove non tilt lock side rear side rail cover following the procedure described in “[Rear Side Rail Cover Removal](#)” on page 61.
- Step 2. At fan, disconnect wiring harness.
- Step 3. Remove 2 x 8-18 x 3/8" thread cutting screws and remove fan.

Note: _____
Drawing exploded and some components removed for clarity.



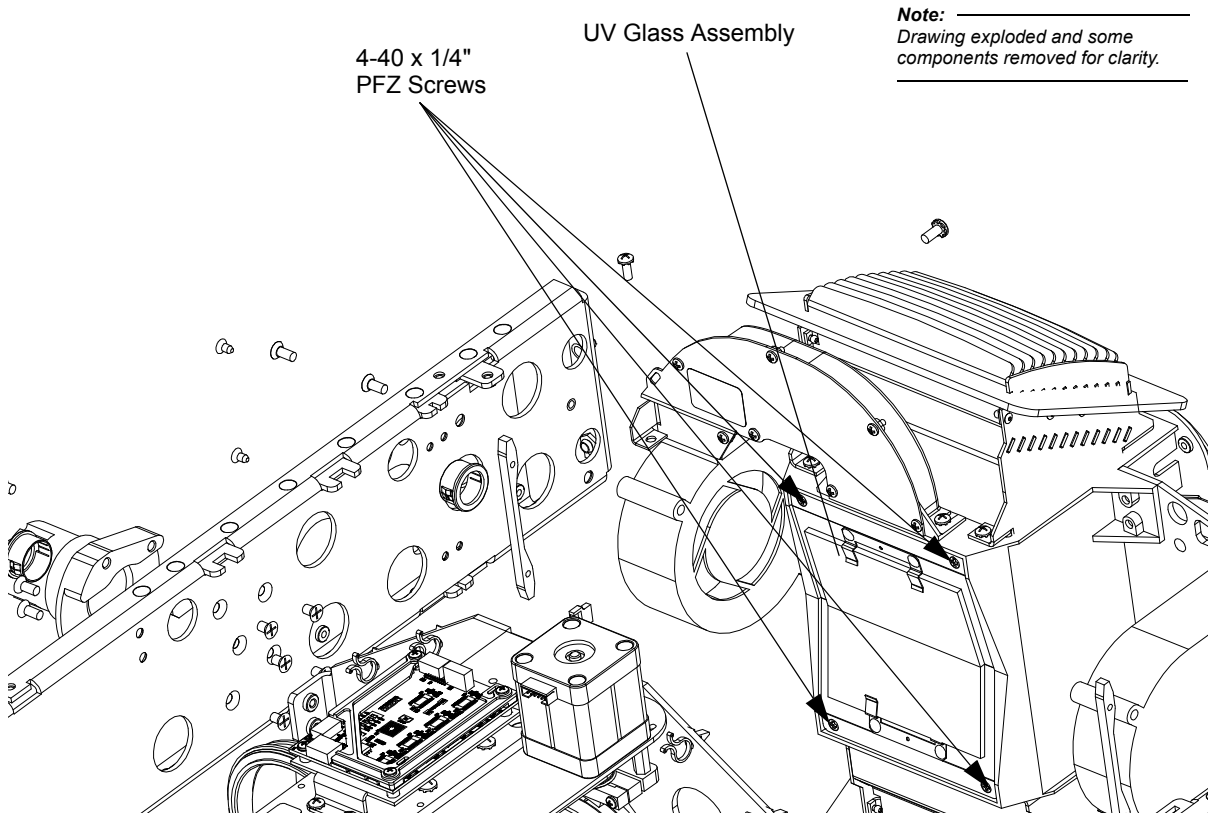
- Step 4. Replace in reverse order.

UV Glass Assembly

Vari-Lite Part No: 22.9704.0630

To replace UV glass assembly:

- Step 1. Remove color assembly following the procedure described in “Color Assembly Removal” on page 63.
- Step 2. Remove 4 x 4-40 x 1/4" PFZ screws and remove UV assembly.



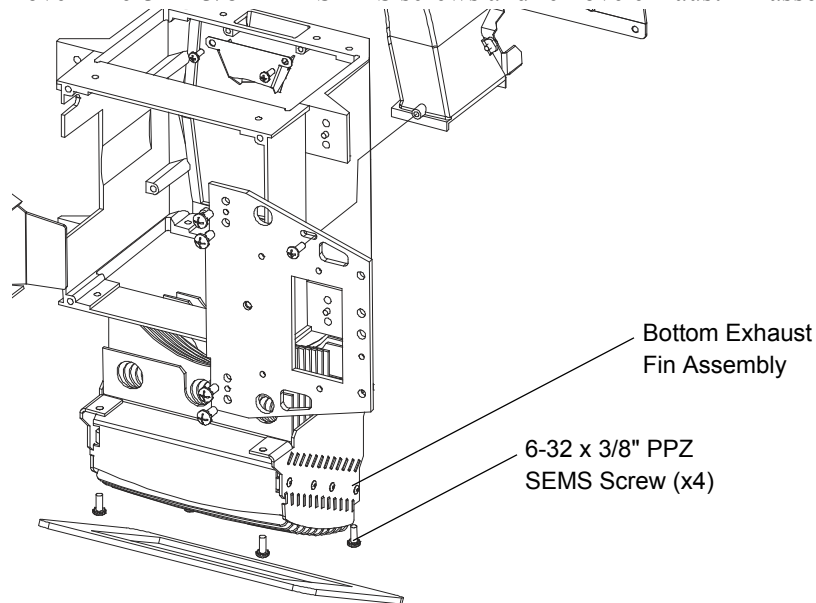
- Step 3. Replace in reverse. Be sure that replacement UV Glass assembly is clean and free of dirt, oil, and fingerprints.

Bottom Exhaust Fin Assembly

Vari-Lite Part No: 22.9704.1620

To remove bottom exhaust fin assembly:

- Step 1. Remove bottom head cover following the procedure described in “[Luminaire Head Covers Removal](#)” on page 59.
- Step 2. Remove color bulkhead assembly following the procedure described in “[Color Assembly Removal](#)” on page 63
- Step 3. Remove 4 x 6-32 x 3/8" PPZ SEMS screws and remove exhaust fin assembly.



Note: _____
Drawing exploded and some components removed for clarity.

- Step 4. Replace following procedure in reverse order.

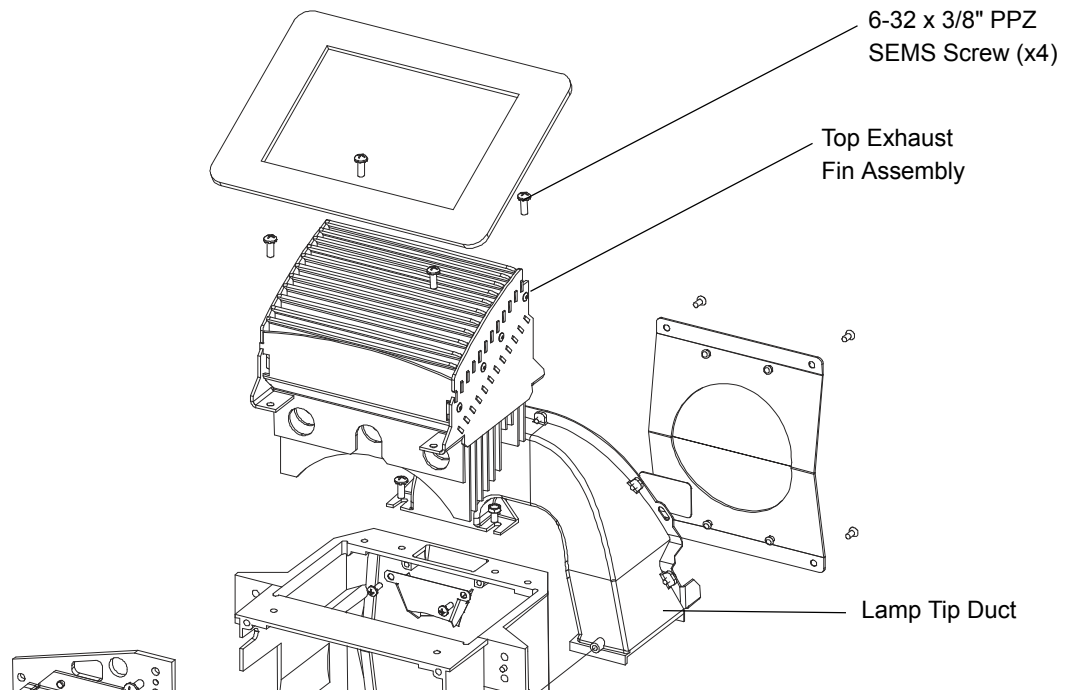
Top Exhaust Fin Assembly

Vari-Lite Part No: 22.9704.1620

To remove top exhaust fin assembly:

- Step 1. Remove top head cover following the procedure described in “[Luminaire Head Covers Removal](#)” on page 59.
- Step 2. Remove color bulkhead assembly following the procedure described in “[Color Assembly Removal](#)” on page 63
- Step 3. At tip fan duct, remove 1 x 6-32 x 3/8" PPZ plastic thread cutting screw and 1 x 6-32 x 3/8" PPZ SEMS screw. Refer to “[Tip Lamp Fan](#)” on page 69 for more information.
- Step 4. Loosen 1 x 6-32 x 3/8" PPZ SEMS screw and slide tip fan duct forward.
- Step 5. Remove 4 x 6-32 x 3/8" PPZ SEMS screws and remove exhaust fin assembly.

Note: _____
Drawing exploded and some components removed for clarity.



- Step 6. Replace following procedure in reverse order.

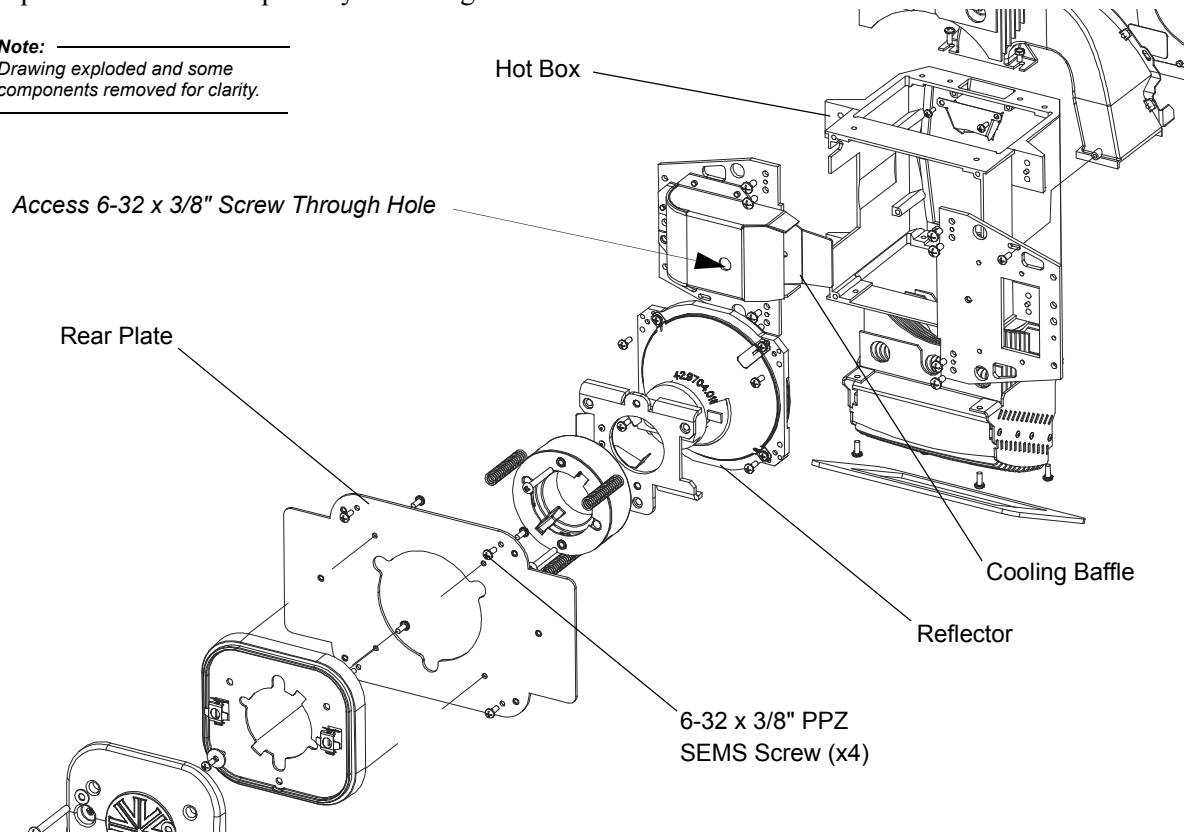
Reflector Assembly

Vari-Lite Part No: 21.9704.0619

To replace reflector assembly:

- Step 1. Remove lamp following the procedure described in “Lamp Removal and Installation” on page 13.
- Step 2. Remove rear cover following the procedure described in “Rear Cover Removal” on page 62.
- Step 3. Remove both exhaust fins following the procedures described in:
- “Bottom Exhaust Fin Assembly” on page 71 and,
 - “Top Exhaust Fin Assembly” on page 72.
- Step 4. Remove rear plate by removing 4 x 6-32 x 3/8" PPZ SEMS screws.

Note:
Drawing exploded and some components removed for clarity.



- Step 5. Loosen 1 x 6-32 x 3/8" screw inside lamp base duct (as indicated) and slide colling baffle into duct.
- Step 6. Remove 4 x 6-32 x 3/8" PPZ SEMS screws and remove reflector assembly from hot box.

Note: Orient so notched corner is in lower right hand corner with tip fan duct positioned on top. Before reassembly, be sure to clean any dirt, finger prints, etc. from reflector assembly.

- Step 7. Replace in reverse.

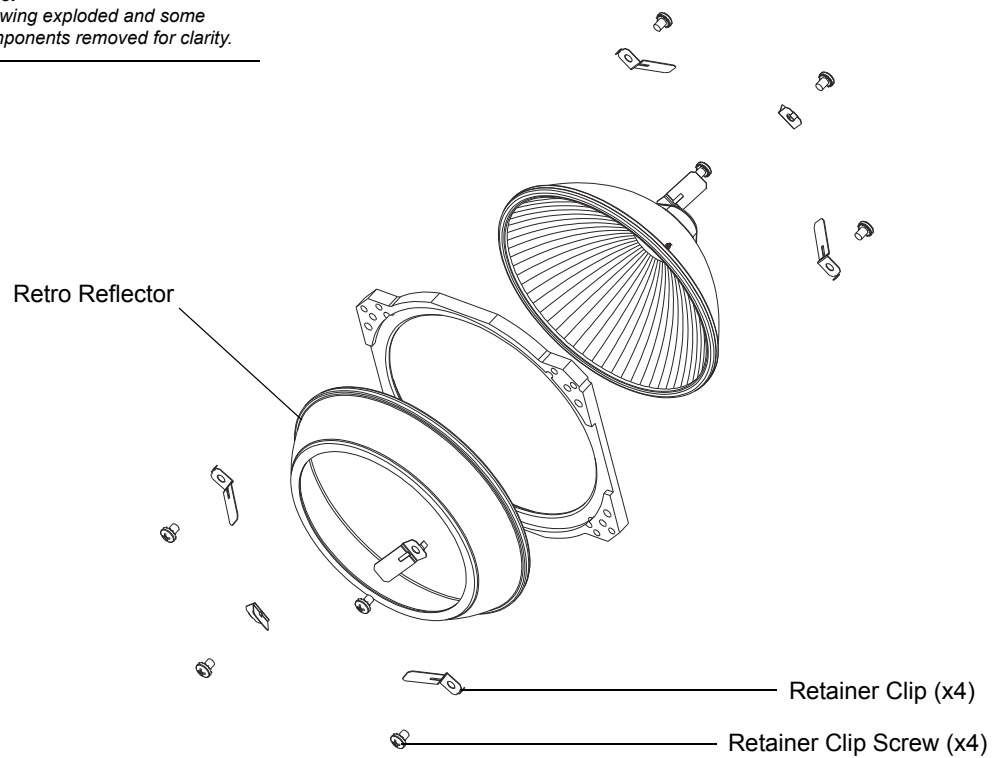
Retro Reflector Assembly

Vari-Lite Part No: 42.9704.0151

To replace retro reflector assembly:

- Step 1. Remove reflector assembly following the procedure described in “[Reflector Assembly](#)” on [page 73](#).
- Step 2. Loosen, but do not remove, 4 x 6-32 x 3/16" PPZ screws, pivot retainer clips and remove retro reflector assembly.

Note: _____
Drawing exploded and some components removed for clarity.



Note: Before reassembly, be sure to clean any dirt, finger prints, etc. from reflector assembly.

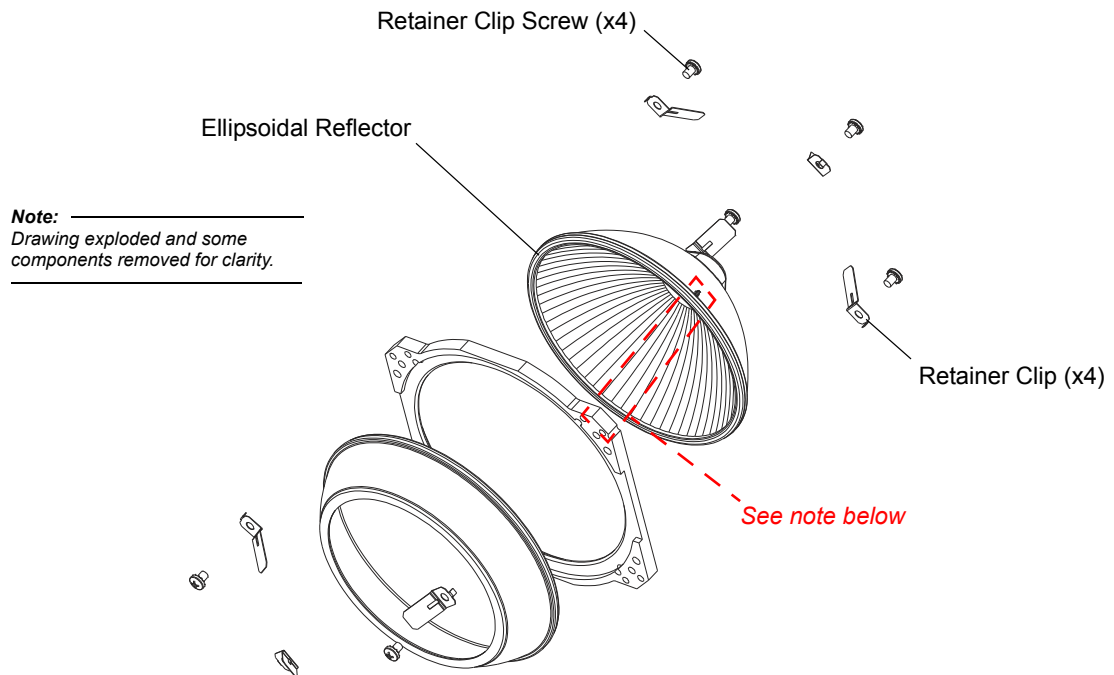
- Step 3. Replace in reverse.

Ellipsoidal Reflector

Vari-Lite Part No: 42.9704.0150

To replace ellipsoidal reflector:

- Step 1. Remove reflector assembly following the procedure described in “Reflector Assembly” on page 73.
- Step 2. Loosen 4 x 6-32 x 3/16" PPZ screws, pivot retainer clips and remove reflector.



Note: Align ridge on reflector with clip at notched position of assembly. This part changed. Older units have a tear drop cutout. Current models have just a slight elongation. These notes are for current reflector. For old reflector align mark to clip above the notched position of assembly (see drawings). Before reassembly, be sure to clean any dirt, finger prints, etc. from reflector assembly.

- Step 3. Replace in reverse order.

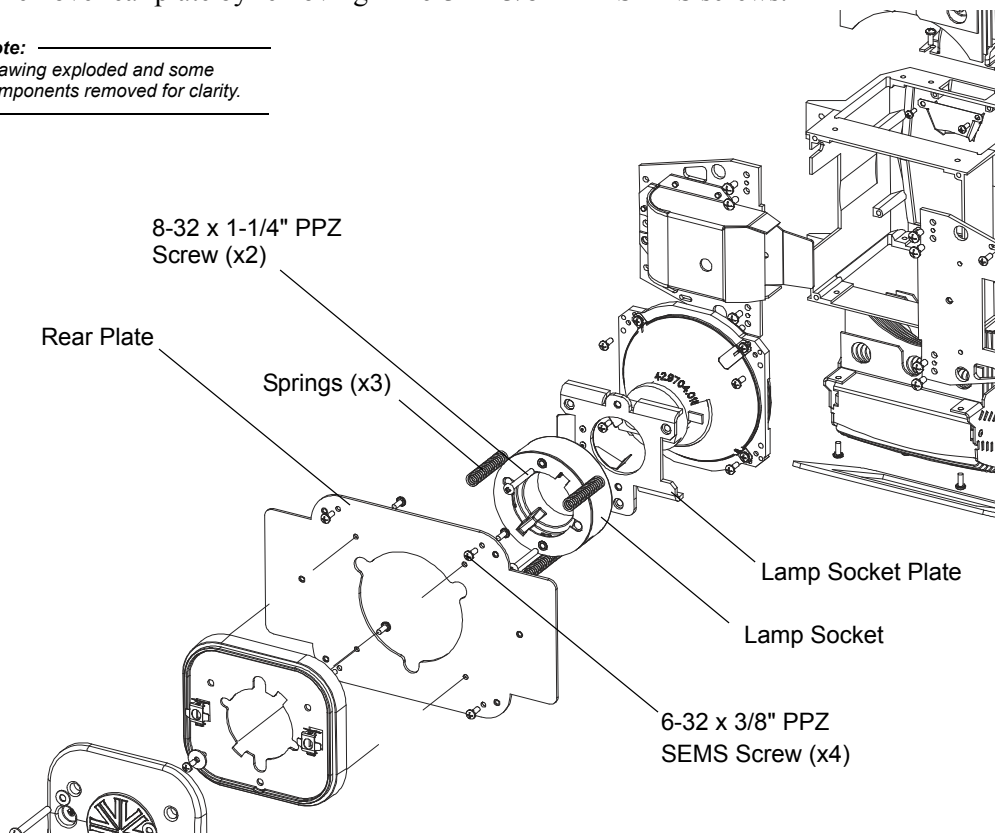
Lamp Socket

Vari-Lite Part No: 71.8101.0050

To replace lamp socket:

- Step 1. Remove lamp following the procedure described in “Lamp Removal and Installation” on page 13.
- Step 2. Remove rear cover following the procedure described in “Rear Cover Removal” on page 62.
- Step 3. Detach lamp cover door tether from back of luminaire head and set cover aside.
- Step 4. Remove rear plate by removing 4 x 6-32 x 3/8" PPZ SEMS screws.

Note: _____
Drawing exploded and some components removed for clarity.



- Step 5. Remove wiring from socket by loosening set screws inside socket.
- Step 6. Remove 3 x 10-32 x 2" PPB screws, washers, and springs holding lamp socket plate.
- Step 7. Noting orientation, remove 2 x 8-32 x 1 1/4" PPZ screws mounting socket*.

Note: *There should be two washers, one between socket and plate at each screw. If missing, replace with Vari-Lite part number 55.6517.0001.

- Step 8. Replace in reverse order.

Optics Assembly Components

Vari-Lite Part No: 21.9704.0150

Vari-Lite Part No: 21.9704.1150 (with single divergence)

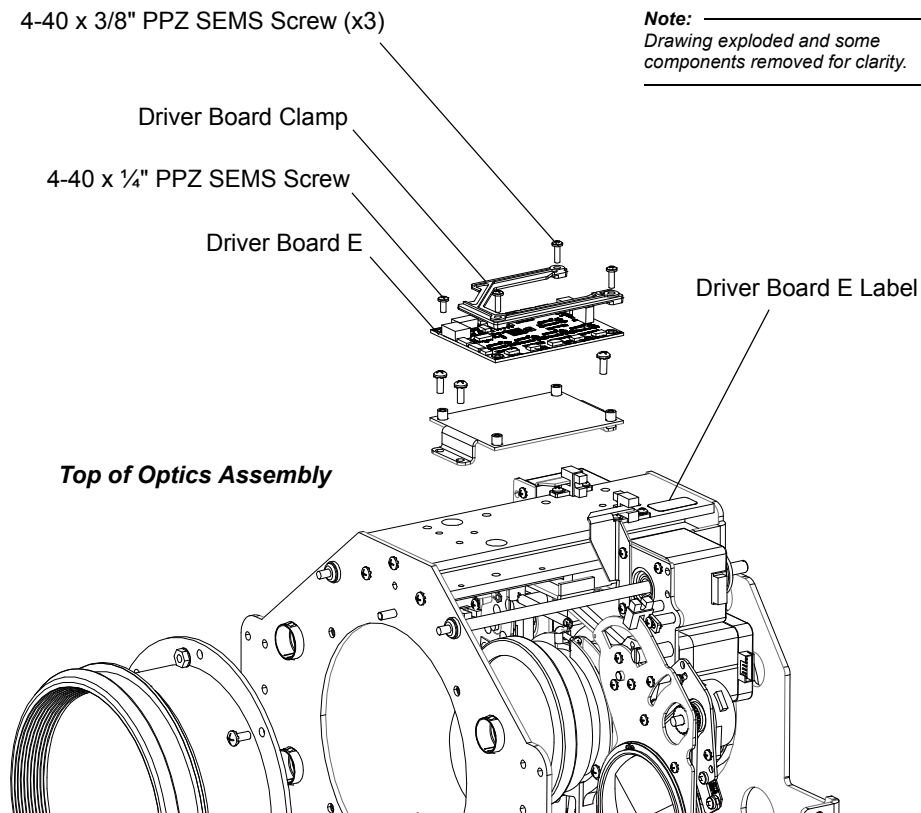
Note: The following procedures in this section may require the assembly removed from the luminaire. If indicated in the procedure, follow the removal instructions described in [“Optics Assembly Removal”](#) on page 65.

Driver Board E

Vari-Lite Part No: 24.9704.2901

To replace driver board E:

Step 1. Remove 3 x 4-40 x 3/8" PPZ SEMS screws that mount driver board clamp and remove clamp.



Step 2. Disconnect wiring:

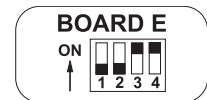
- Orange/Red/Black - 36 & 12 VDC
- COM in - Labeled OPT E

- c. Yellow/Black/Green/Blue - Bottom inlet fan
- d. Sensor 1 - 5
 - 1) 1 - ES1 P DIV - Prism Diversion Sensor
 - 2) 2 - ES2 P ARM - Prism Arm Sensor
 - 3) 3 - ES3 P ROT - Prism Rotate/Index Sensor
 - 4) 4 - ES4 F DIV - Frost Diversion Sensor (21.9704.0150 ONLY)
 - 5) 5 - ES5 F ARM - Frost Arm Sensor
- e. Motor 1 - 5
 - 1) 1 - FM1 P DIV - Prism Diversion Motor
 - 2) 2 - FM2 P ARM - Prism Arm Motor
 - 3) 3 - FM3 P ROT - Prism Rotate/Index Motor
 - 4) 4 - FM4 F DIV - Frost Diversion Motor (21.9704.0150 ONLY)
 - 5) 5 - FM5 F ARM - Frost Arm Motor

Step 3. Remove 1 x 4-40 x 1/4" PPZ SEMS screw and remove board.

Step 4. On replacement board, set dip switches as follows:

- a. DIP SW 1 OFF
- b. DIP SW 2 OFF
- c. DIP SW 3 ON
- d. DIP SW 4 ON



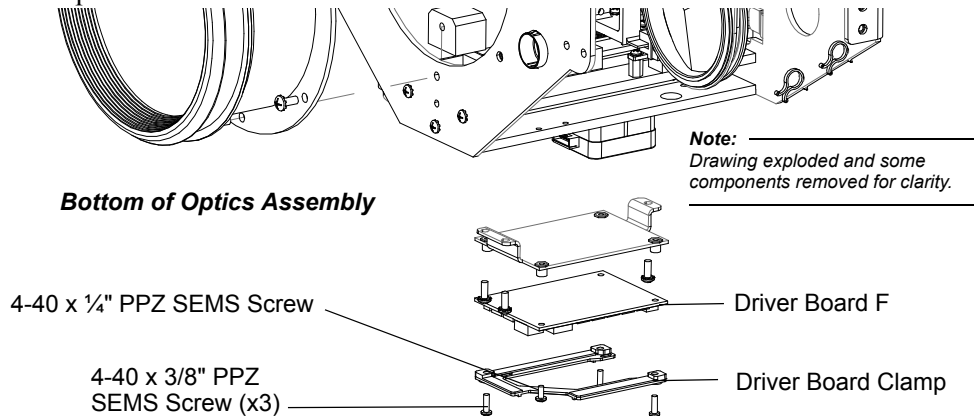
Step 5. Replace in reverse. Ensure wiring connections are fully seated into board.

Driver Board F

Vari-Lite Part No: 24.9704.2901

To replace driver board F:

- Step 1. Remove 3 x 4-40 x 3/8" PPZ SEMS screws that mount driver board clamp and remove clamp.

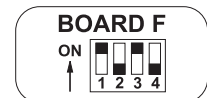


- Step 2. Disconnect wiring:
- Orange/Red/Black - 36 & 12 VDC
 - COM in and out - Labeled OPT F & OPT E (note, it does not matter which goes in which connector on board)
 - Yellow/Black/Green/Blue - Top inlet fan
 - Sensor 1 - 2
 - 1 - FS1 ZOOM - Zoom Lens Sensor
 - 2 - FS2 COMP - Compensation Lens Sensor
 - Motor 1 - 4
 - 1 - FM1 ZOOM - Zoom Lens Motor
 - 2 - FM2 COMP - Compensation Lens Motor
 - 3 - FM3 EDGE1 - Edge Motor 1
 - 4 - FM4 EDGE2 - Edge Motor 2

- Step 3. Remove 1 x 4-40 x 1/4" PPZ SEMS screw and remove board.

- Step 4. On replacement board, set dip switches as follows:

- DIP SW 1 ON
- DIP SW 2 OFF
- DIP SW 3 ON
- DIP SW 4 OFF



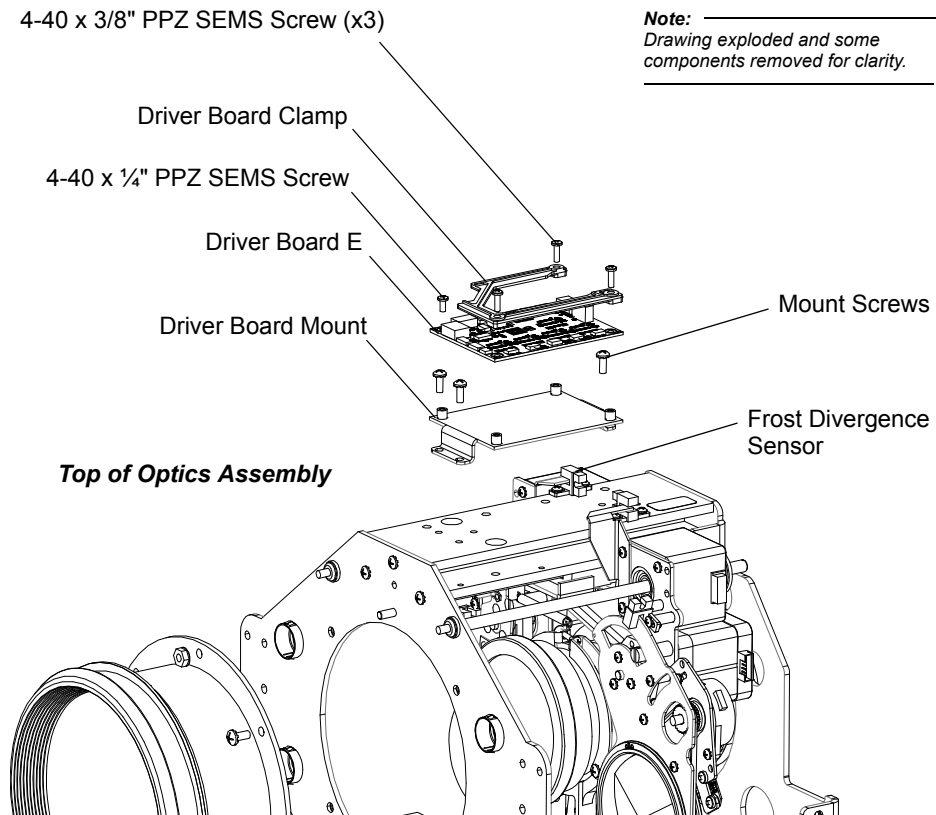
- Step 5. Replace in reverse. Ensure wiring connections are fully seated into board.

Frost Divergence Sensor

Vari-Lite Part No: 25.9678.0020 (on 21.9704.0150 ONLY)

To replace frost divergence sensor:

- Step 1. At sensor, disconnect inline wiring connector
- Step 2. At driver board E, remove 3 x 6-32 x 3/8" PPZ SEMS screws that hold driver board mount.
- Step 3. Move driver board mount to access 2 x 4-40 x 1/4" PPZ SEMS screws and remove.



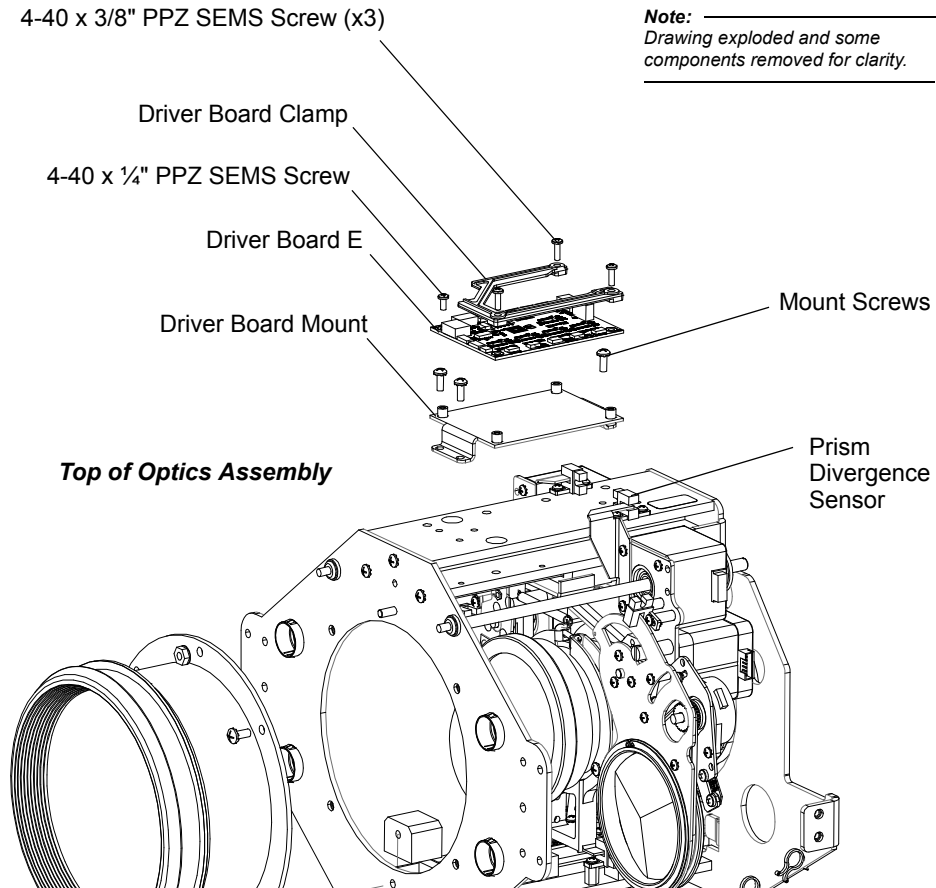
- Step 4. Remove sensor.
- Step 5. Replace in reverse order.

Prism Divergence Sensor

Vari-Lite Part No: 25.9678.0020

To replace prism divergence sensor:

- Step 1. At sensor, disconnect inline wiring connector.
- Step 2. At driver board E, remove 3 x 6-32 x 3/8" PPZ SEMS screws that hold driver board mount.
- Step 3. Move driver board mount to access 2 x 4-40 x 1/4" PPZ SEMS screws and remove.



- Step 4. Remove sensor.
- Step 5. Replace in reverse order.

Zoom or Compensation Sensor

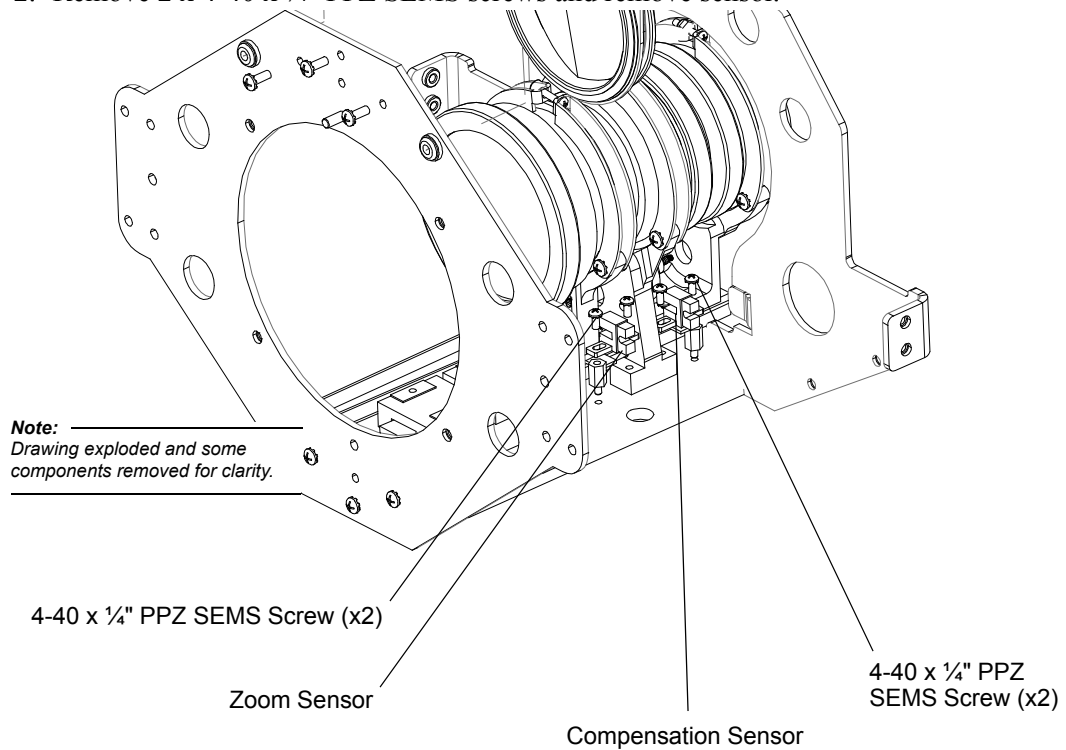
Vari-Lite Part No: 25.9678.0020

To replace zoom or compensation sensor:

Note: Refer to “VL4000 Zoom Spot Assembly” on page 171 for drawing.

Step 1. At sensor, disconnect inline wiring connector.

Step 2. Remove 2 x 4-40 x 1/4" PPZ SEMS screws and remove sensor.



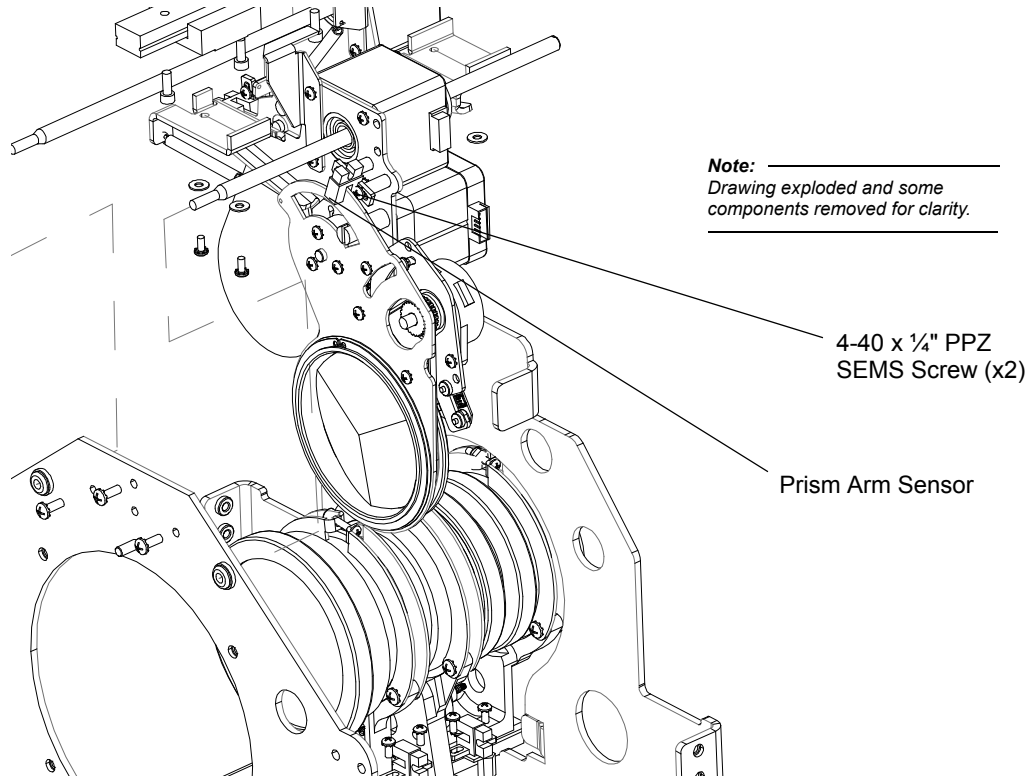
Step 3. Replace in reverse order.

Prism Arm Sensor

Vari-Lite Part No: 25.9678.0020

To replace prism arm sensor:

- Step 1. At sensor, disconnect inline wiring connector.
- Step 2. Remove 2 x 4-40 x 1/4" PPZ SEMS screws and remove sensor.



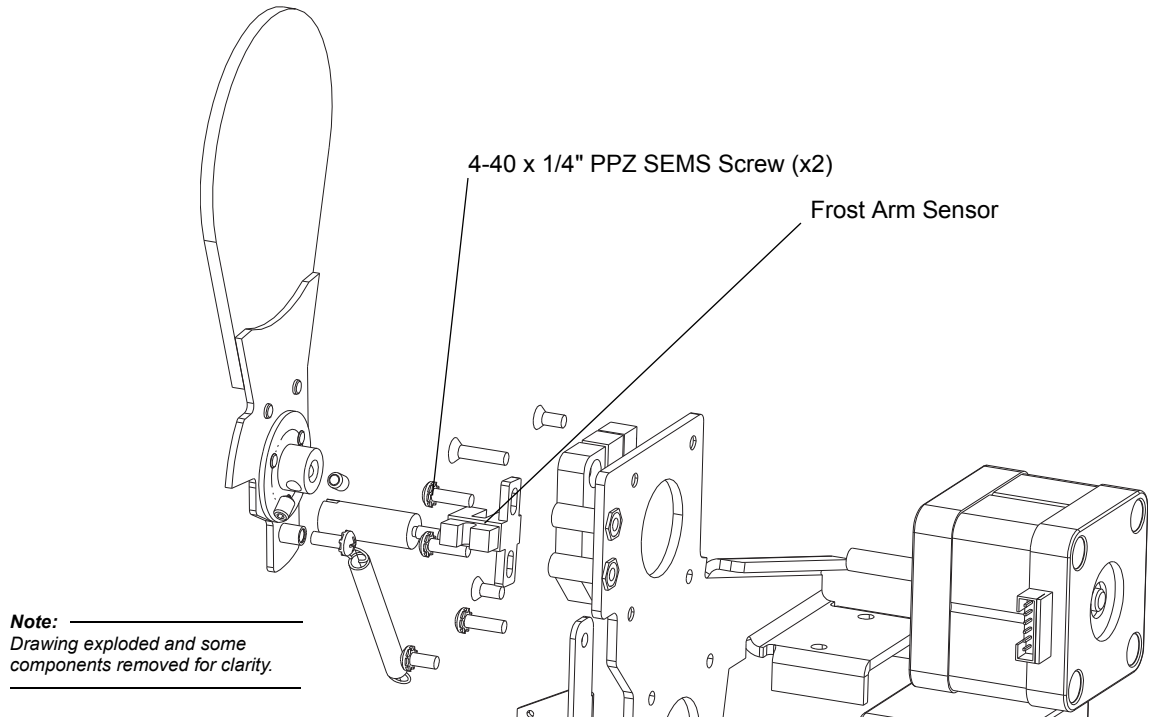
- Step 3. Replace in reverse order.

Frost Arm Sensor

Vari-Lite Part No: 25.9678.0020

To replace frost arm sensor:

- Step 1. At sensor, disconnect inline wiring connector.
- Step 2. Remove 2 x 4-40 x 1/4" PPZ SEMS screws and remove sensor.



- Step 3. Replace in reverse order.

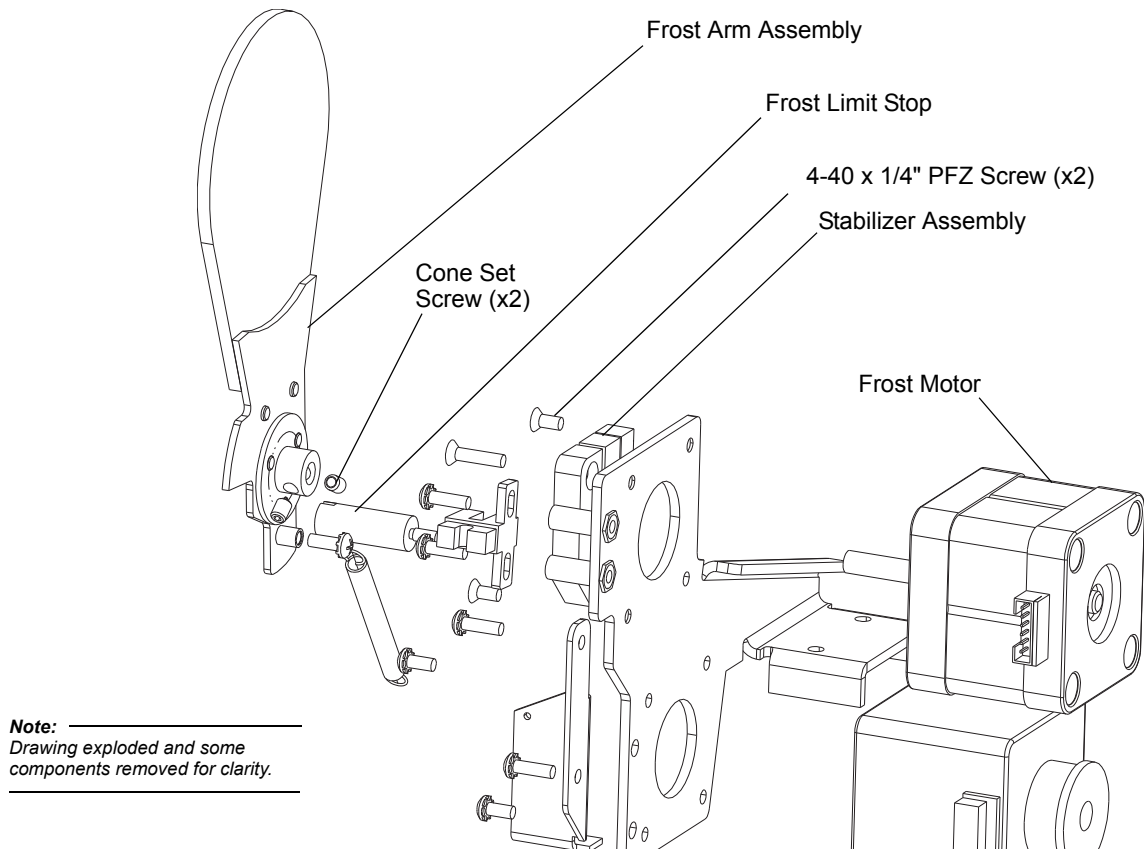
Frost Motor or Motor Stabilizer

Vari-Lite Part No: 44.9676.0117 (Frost Motor)

Vari-Lite Part No: 21.9698.0330 (Motor Stabilizer)

To replace the frost motor or motor stabilizer:

- Step 1. Loosen 2 x 6-32 x 3/16" cone set screws and remove frost arm (apply heat as necessary and reapply Loctite 242 when replacing).



- Step 2. Remove 1 x 4-40 x 1/2" PFZ screw and remove motor stabilizer*.

Note: * If just replacing the motor stabilizer, replace in reverse order - do not continue to next steps.

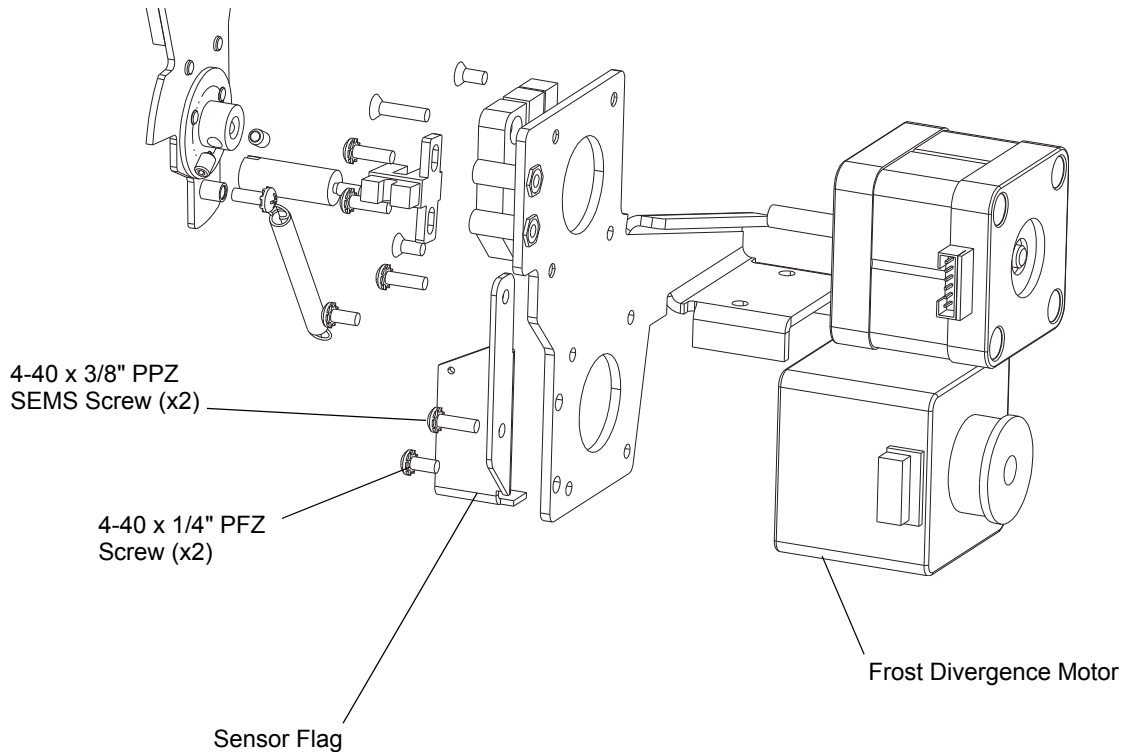
- Step 3. Disconnect wiring harness from motor assembly.
- Step 4. Remove 2 x 4-40 x 1/4" PFZ screws and 1 x frost limit stop (3 x 4-40 x 1/4" PFZ screws on single motor diversion).
- Step 5. Remove motor.
- Step 6. Replace in reverse. Refer to assembly notes in [“Frost Motor Assembly \(continued\)”](#) on page 180.

Frost Divergence Motor

Vari-Lite Part No: 44.9698.0147

To replace frost divergence motor:

- Step 1. At lead screw, remove 2 #8 KEPS nuts.
- Step 2. Using slot in end of lead screw, thread out of motor
- Step 3. Remove 2 x 4-40 X 3/8" PPZ SEMS screws from sensor flag and 2 x 4-40 x 1/4" PPZ SEMS screws and remove motor.



Note: _____
Drawing exploded and some components removed for clarity.

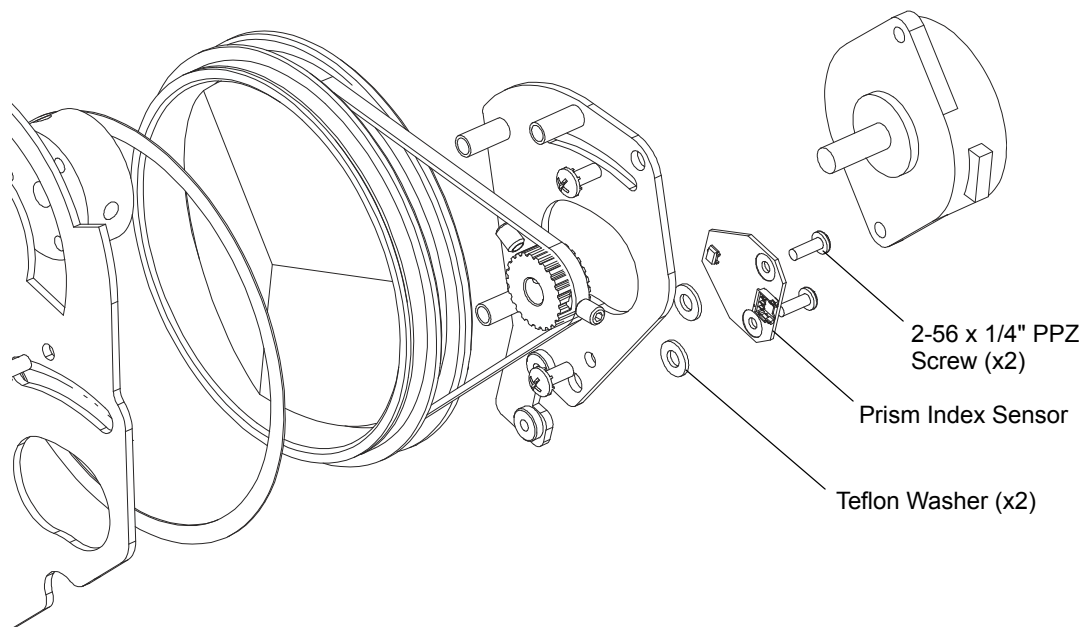
- Step 4. Replace in reverse.

Prism Index Sensor

Vari-Lite Part No: 17.9704.0904

To replace prism index sensor:

- Step 1. Disconnect wiring from sensor.
- Step 2. Remove 2 x 2-56 x 1/4" PPZ screws and remove sensor*.



Note: _____
Drawing exploded and some components removed for clarity.

Note: *There are 2 Teflon washers under sensor.

- Step 3. Replace in reverse.

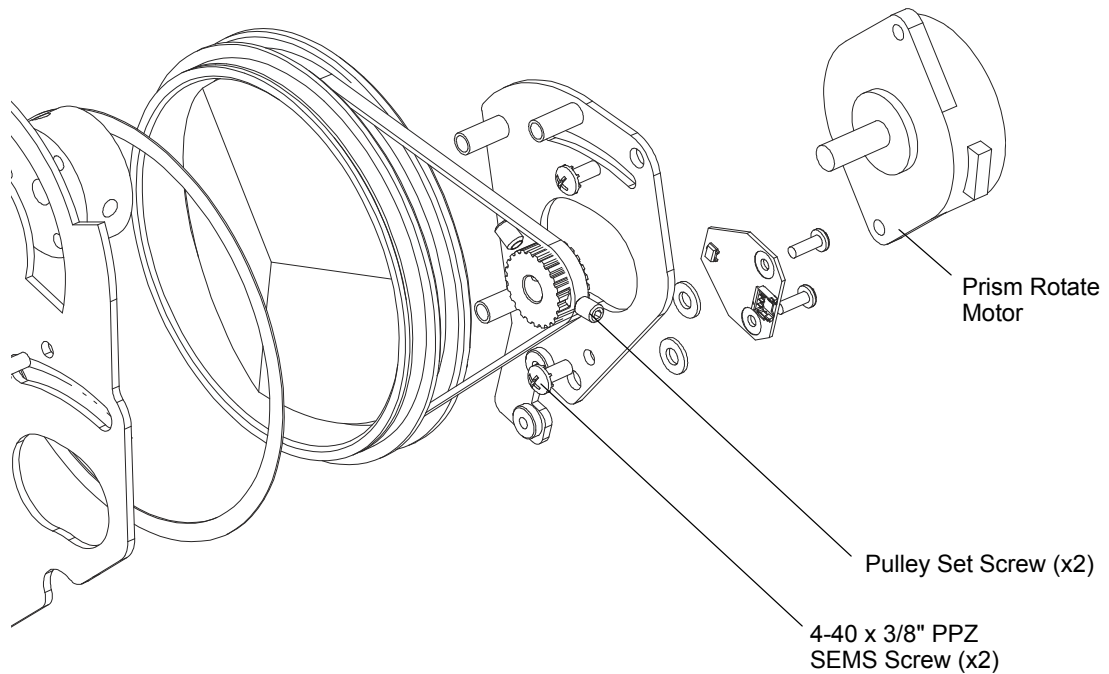
Prism Rotate Motor

Vari-Lite Part No: 44.9687.1218

To replace prism rotate motor:

- Step 1. Disconnect wiring.
- Step 2. Remove 2 x 4-40 x 3/8" PPZ SEMS screws.

Note: _____
*Drawing exploded and some
components removed for clarity.*



- Step 3. Remove motor.
- Step 4. Loosen 2 x 6-32 x 3/16" cone set screws and remove pulley.
- Step 5. Replace in reverse order.

Prism Arm Motor & Stabilizer

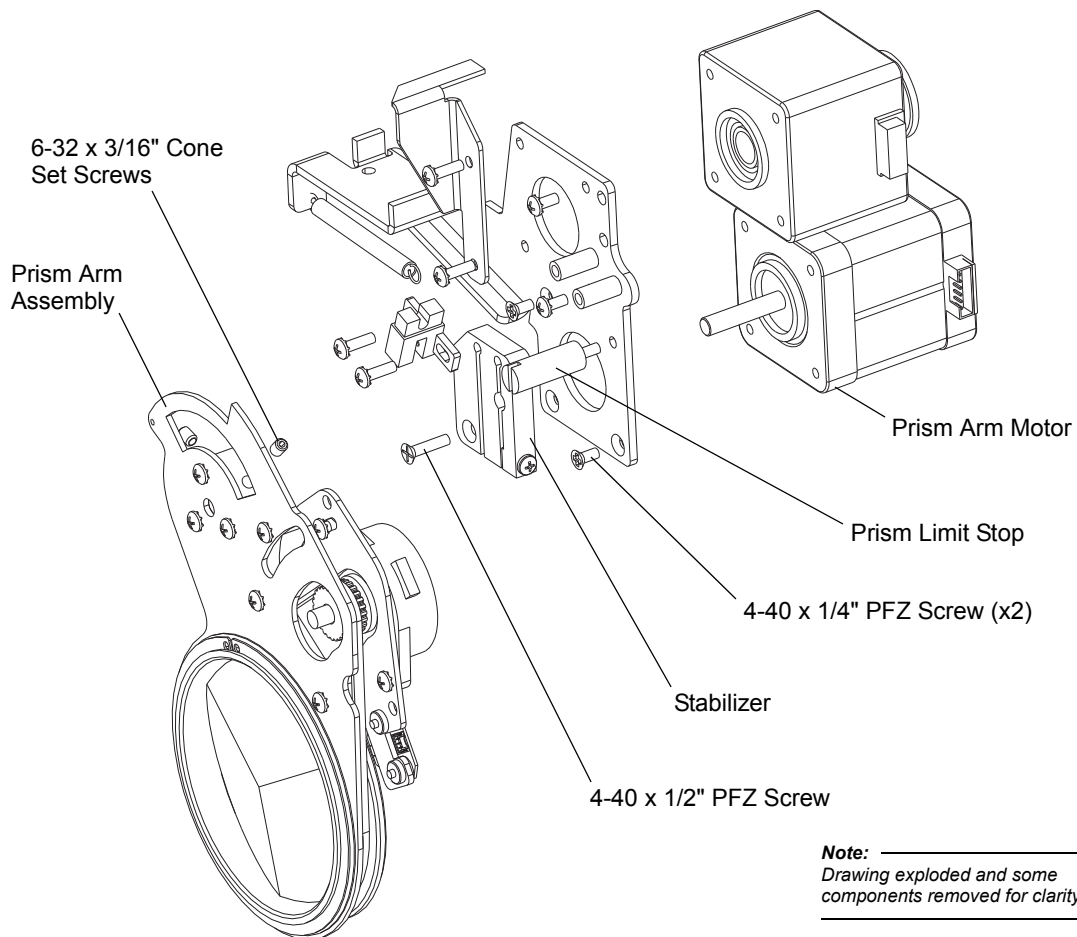
Vari-Lite Part No: 44.9698.1215 (Motor)

Vari-Lite Part No: 21.9698.0330 (Motor Stabilizer)

To replace the prism arm motor or motor stabilizer:

- Step 1. Disconnect wiring.
- Step 2. Remove prism arm assembly by loosening 2 x 6-32 x 3/16" cone set screws.
- Step 3. Remove 1 x 4-40 x 1/2" PFZ screw and remove stabilizer*.

Note: * If just replacing the motor stabilizer, replace in reverse order - do not continue to next steps.



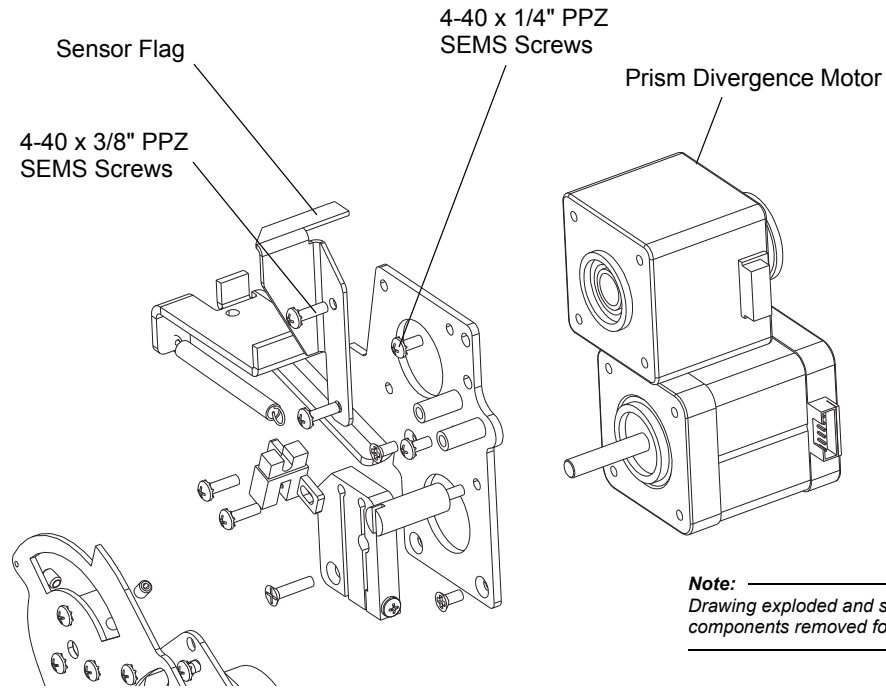
- Step 4. Depending on which type:
- Double Divergence:* Remove 2 x 4-40 x 1/4" PFZ screws and 1 x prism limit stop.
 - Single Divergence:* Remove 3 x 4-40 x 1/4" PFZ screws.
- Step 5. Remove motor.
- Step 6. Replace in reverse.

Prism Divergence Motor

Vari-Lite Part No: 44.9698.0147

To replace prism divergence motor:

- Step 1. Disconnect wiring.
- Step 2. At lead screw, remove 2 x #8 KEPS nut.
- Step 3. Using slot in end, thread lead screw out of motor.



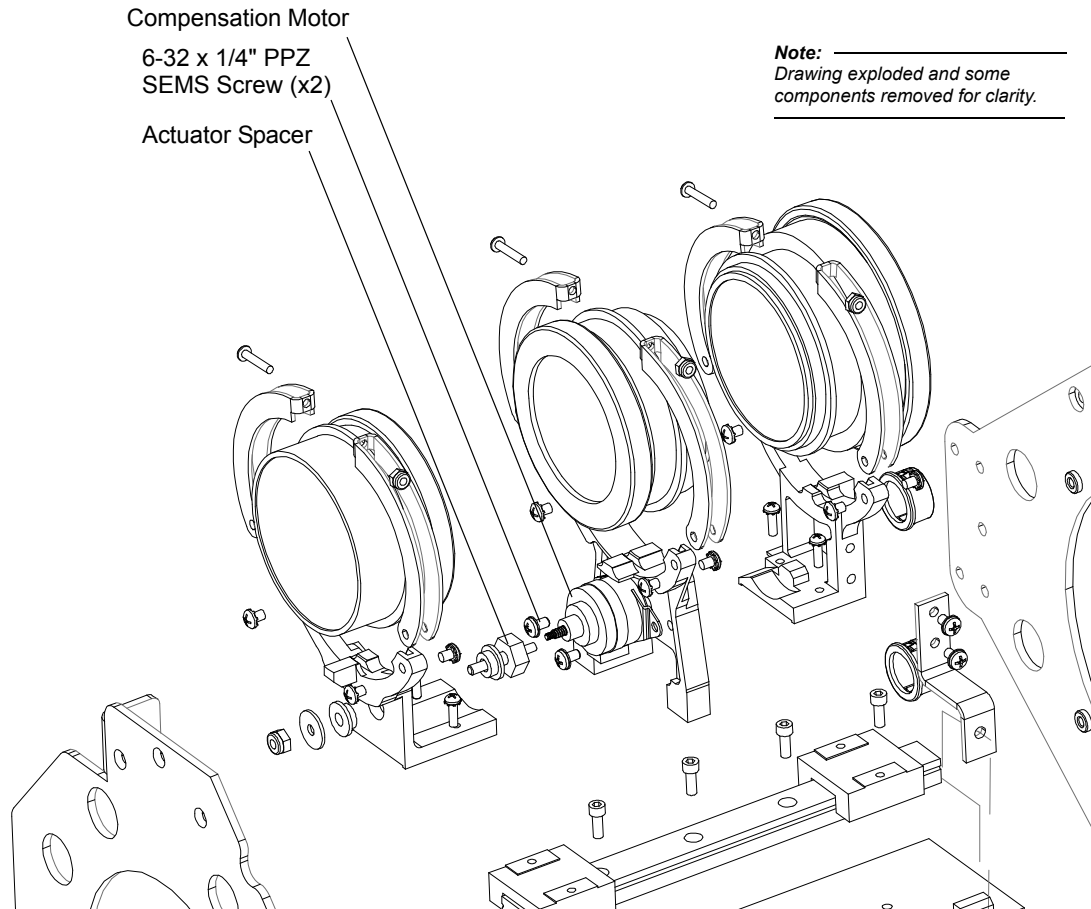
- Step 4. Remove 2 x 4-40 x 3/8" PPZ SEMS screws and remove sensor flag and 2 x 4-40 x 1/4" PPZ SEMS screws and remove motor.
- Step 5. Replace in reverse.

Compensation Motor

Vari-Lite Part No: 44.9686.0164

To replace compensation motor:

- Step 1. Disconnect wiring.
- Step 2. Apply localized heat of greater than 232 Degrees C (450 Degrees F) to joint of lead screw and actuator spacer to loosen thread lock (Loctite 272).



Note:
Drawing exploded and some
components removed for clarity.

- Step 3. Using flat blade driver, thread lead screw from actuator spacer.
- Step 4. Remove 2 x 6-32 x 1/4" PFZ SEMS screws and remove motor.

Note: When replacing, apply Loctite 272 to threads on lead screw before threading into spacer. **Allow 30 minutes to setup and 24 hours before using fixture.**

- Step 5. Replace in reverse.

Zoom Motor & Stabilizer

Vari-Lite Part No: 44.9698.1215 (Motor)

Vari-Lite Part No: 21.9698.0330 (Motor Stabilizer)

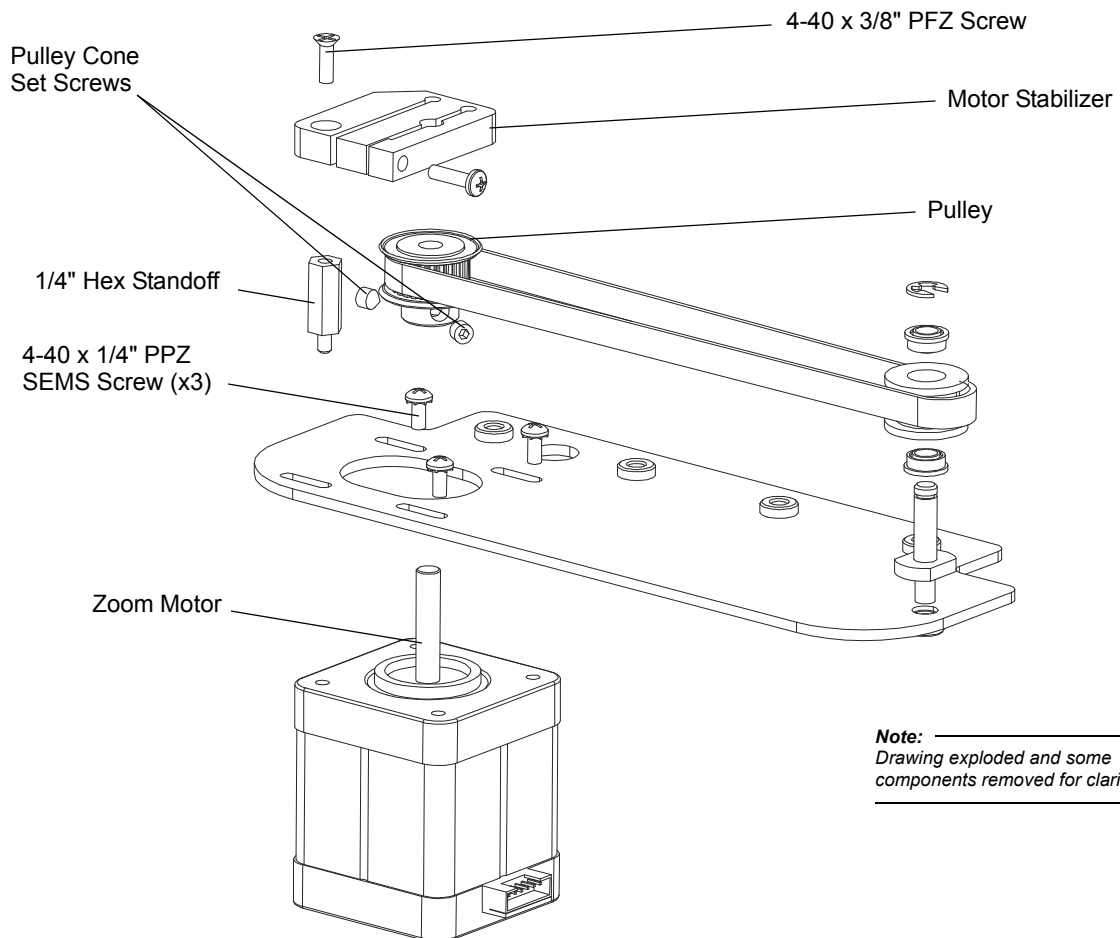
To replace the zoom motor or motor stabilizer:

Step 1. Disconnect wiring.

Step 2. Remove 1 x 4-40 x 3/8" PFZ screw and remove stabilizer*.

Note: * If just replacing the motor stabilizer, replace in reverse order - do not continue to next steps.

Step 3. Remove 1 x 1/4" Hex standoff and 3 x 4-40 x 1/4" PPZ SEMS screws.



Step 4. Remove belt from pulley and remove motor through bracket.

Step 5. Loosen 2 x 8-32 x 3/16" cone set screws and remove pulley.

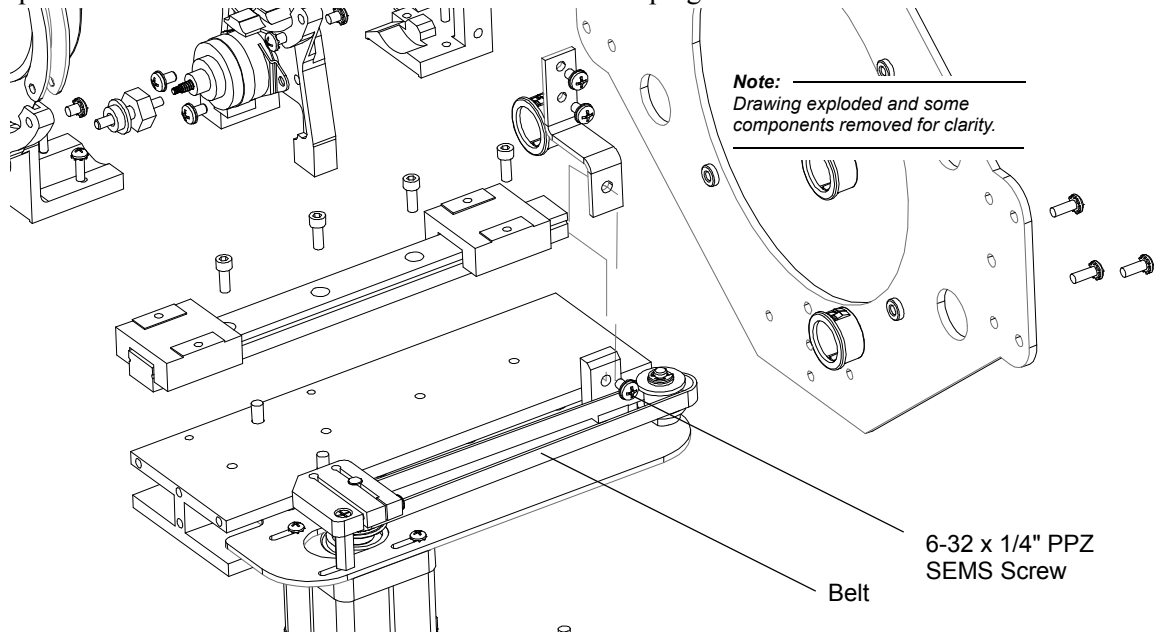
Step 6. Replace in reverse.

Zoom Belt

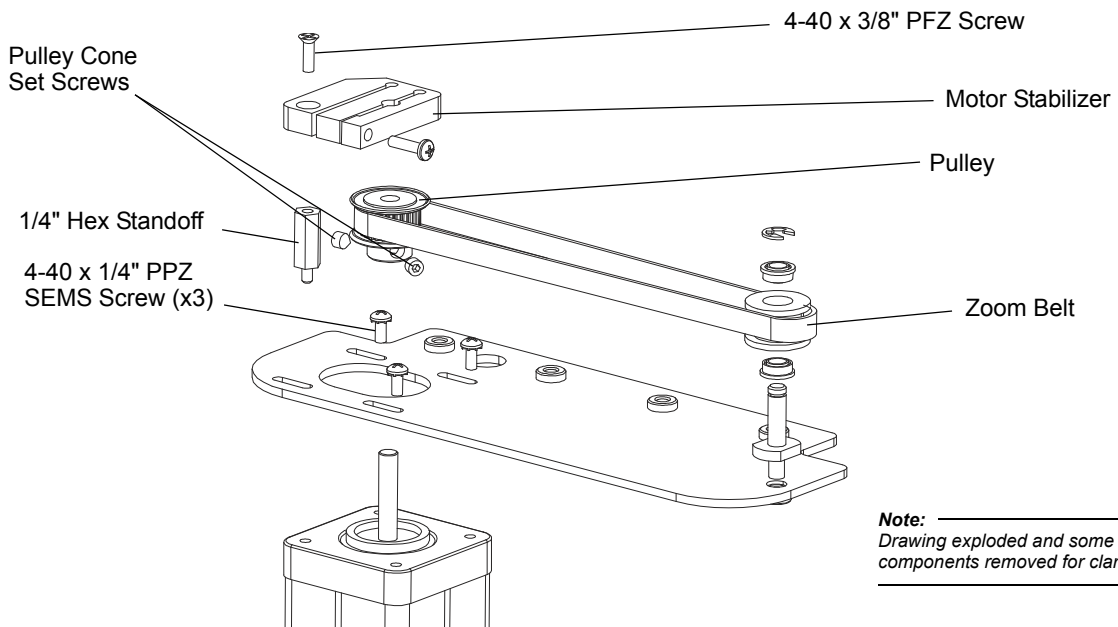
Vari-Lite Part No: 54.9704.0135

To replace the zoom belt:

Step 1. Remove 1 x 6-32 x 1/4" PPZ SEMS screw clamping belt to zoom lens.



Step 2. Remove 1 x 4-40 x 3/8" PFZ screw and remove stabilizer.



Step 3. Loosen 1 x 1/4" hex standoff and 3 x 4-40 x 1/4" PPZ SEMS screws and remove belt.

Step 4. Replace in reverse.

Gobo/Shutter/Animation Assembly Components

Vari-Lite Part No: 21.9704.0200

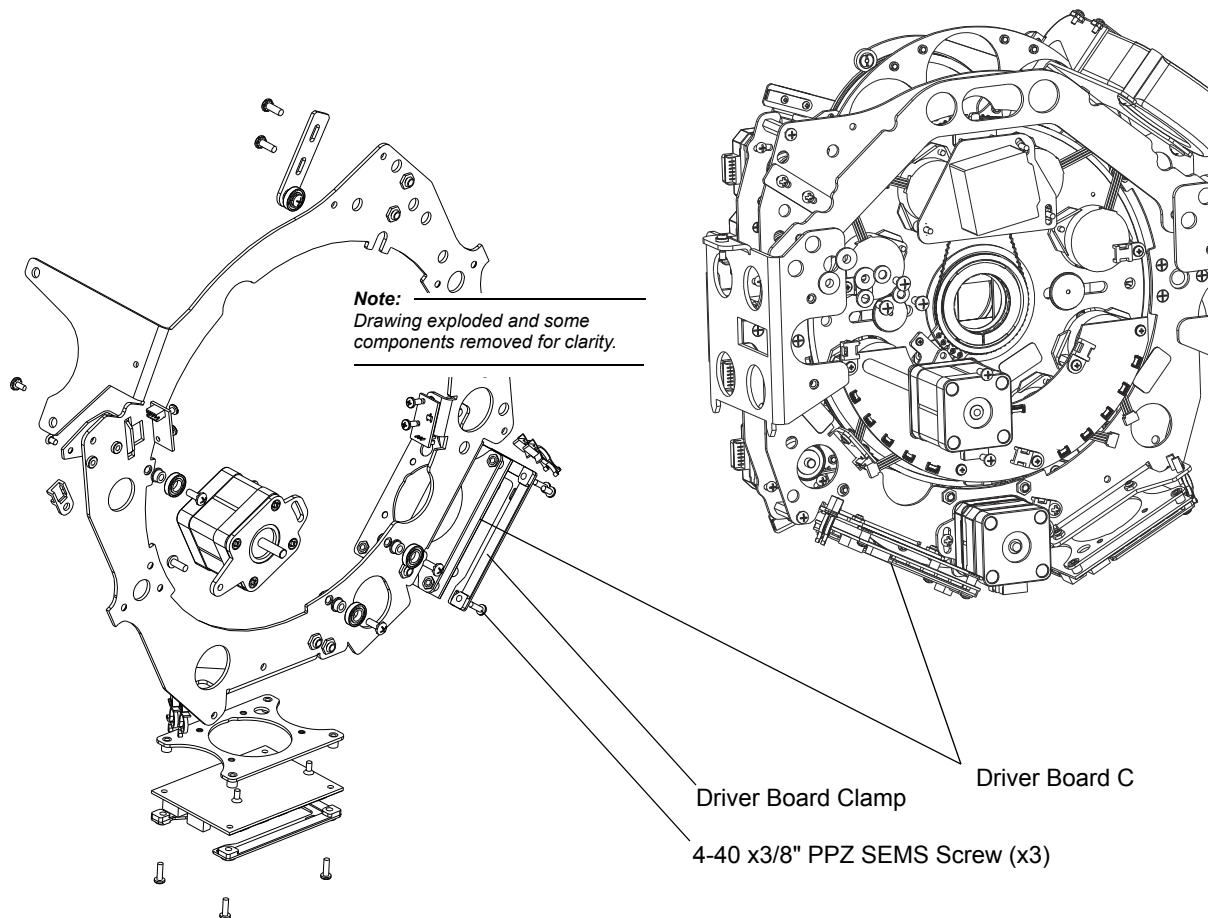
Note: The following procedures in this section may require the assembly removed from the luminaire. If indicated in the procedure, follow the removal instructions described in [“Gobo / Shutter / Animation Assembly Removal”](#) on page 64.

Driver Board C

Vari-Lite Part No: 24.9704.2901

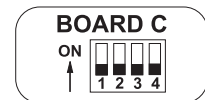
To replace driver board C:

Step 1. Remove 3 x 4-40 x 3/8" PPZ SEMS screws that mount driver board clamp and remove clamp.



Step 2. Disconnect wiring:
a. Orange/Red/Black - 36 & 12 VDC

- b. COM in and out - each labeled motor driver (note, does not matter which goes in which connector on board).
 - c. Sensor 1 - 5
 - 1) 1 - CS1 G INDEX 2 - Gobo Wheel 2 Index Sensor
 - 2) 2 - CS2 G ROT 2 - Gobo Wheel 2 Wheel Sensor
 - 3) 3 - CS3 G ROT 1 - Gobo Wheel 1 Wheel Sensor
 - 4) 4 - CS4 G INDEX 1 - Gobo Wheel 1 Index Sensor
 - 5) 5 - CS5 S ROT - Shutter Rotate Sensor
 - d. Motor 1 - 5
 - 1) 1 - CM1 G INDEX 2 - Gobo Wheel 2 Index Motor
 - 2) 2 - CM2 G ROT 2 - Gobo Wheel 2 Wheel Motor
 - 3) 3 - CM3 G ROT 1 - Gobo Wheel 1 Wheel Motor
 - 4) 4 - CM4 G INDEX 1 - Gobo Wheel 2 Index Motor
 - 5) 5 - CM5 S ROT - Shutter Rotate Motor
- Step 3. Remove 1 x 4-40 x 1/4" PPZ SEMS screw and remove board.
- Step 4. On replacement board, set dip switches as follows:
- a. DIP SW 1 OFF
 - b. DIP SW 2 OFF
 - c. DIP SW 3 OFF
 - d. DIP SW 4 OFF
- Step 5. Replace in reverse. Ensure wiring connections are fully seated into board.

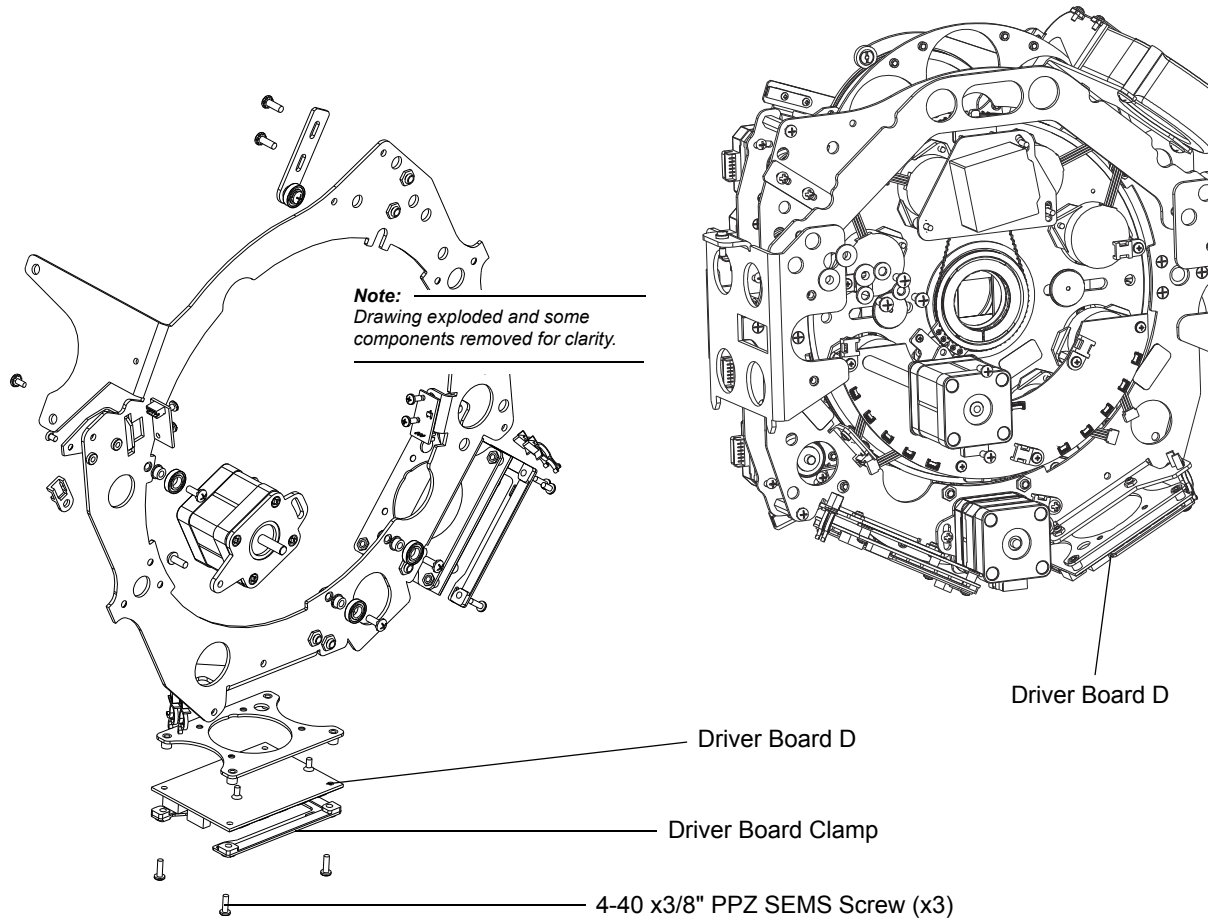


Driver Board D

Vari-Lite Part No: 24.9704.2901

To replace driver board D:

Step 1. Remove 3 x 4-40 x 3/8" PPZ SEMS screws that mount driver board clamp and remove clamp.



Step 2. Disconnect wiring.

- a. Orange/Red/Black - 36 & 12 VDC
- b. COM in and out - Labeled Driver Board and shutter (note, does not matter which goes in which connector on board)
- c. Red/Black/Orange/Brown - Gobo Fan
- d. Sensor 1 - 4
 - 1) 1 - DS1 FX INDEX 2 - Animation Wheel 2 Index Sensor
 - 2) 2 - DS2 FX INDEX 1 - Animation Wheel 1 Index Sensor
 - 3) 3 - DS3 FX ARM 1 - Animation Wheel 1 Arm Sensor
 - 4) 4 - DS4 FX ARM 2 - Animation Wheel 2 Arm Sensor

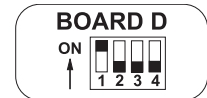
e. Motor 1 - 4

- 1) 1 - DM1 FX INDEX 2 - Animation Wheel 2 Index Motor
- 2) 2 - DM2 FX INDEX 1 - Animation Wheel 1 Index Motor
- 3) 3 - DM3 FX ARM 1 - Animation Wheel 1 Arm Motor
- 4) 4 - DM4 FX ARM 2 - Animation Wheel 2 Arm Motor

Step 3. Remove 1 x 4-40 x 1/4" PPZ SEMS screw and remove board.

Step 4. On replacement board, set dip switches as follows:

- a. DIP SW 1 ON
- b. DIP SW 2 OFF
- c. DIP SW 3 OFF
- d. DIP SW 4 OFF



Step 5. Replace in reverse. Ensure wiring connections are fully seated into board.

Shutter Driver Board (9 Way)

Vari-Lite Part No: 24.9704.1902

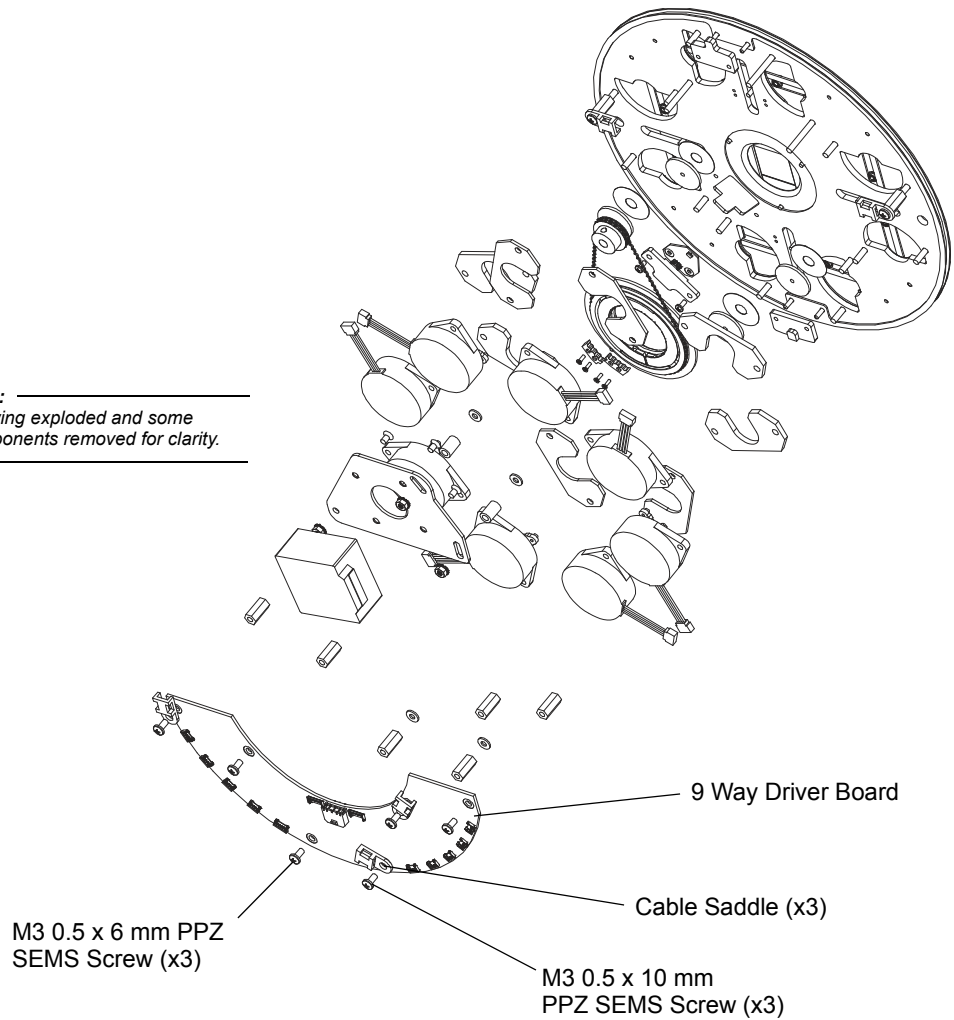
To replace shutter driver board (9 way):

- Step 1. Remove Gobo / Shutter / Animation Assembly following procedure in [“Gobo / Shutter / Animation Assembly Removal” on page 64.](#)
- Step 2. Disconnect wiring:
- a. Orange/Red/Black - 36 & 12 VDC
 - b. COM in and out - Labeled shutter (does not mater location, but works best in J11)
 - c. Motor 1 - 9
 - 1) 1 - M1 IRIS - Iris Motor
 - 2) 2 - M2 1A - Shutter 1A Motor
 - 3) 3 - M3 4B - Shutter 4B Motor
 - 4) 4 - M4 4A - Shutter 4A Motor
 - 5) 5 - M5 3B - Shutter 3B Motor
 - 6) 6 - M6 3A - Shutter 3A Motor
 - 7) 7 - M7 2B - Shutter 2B Motor
 - 8) 8 - M8 2A - Shutter 2A Motor
 - 9) 9 - M9 1B - Shutter 1B Motor

- Continued Next Page -

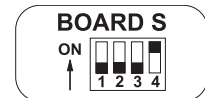
- Step 3. Remove 3 x M3 .5 x 10 mm LG, PPZ SEMS screws through cable saddles and 3 x M3 .5 x 6 mm LG, PPZ SEMS screws and remove board.

Note:
Drawing exploded and some components removed for clarity.



- Step 4. On replacement board, set dip switches as follows:

- a. DIP SW 1 OFF
- b. DIP SW 2 OFF
- c. DIP SW 3 OFF
- d. DIP SW 4 ON



Note: Original fixtures had an iris sensor that was never used in software. If present, this sensor and wire can either be reattached or removed completely from the fixture. Refer to Technical Notice TN-350 for additional information.

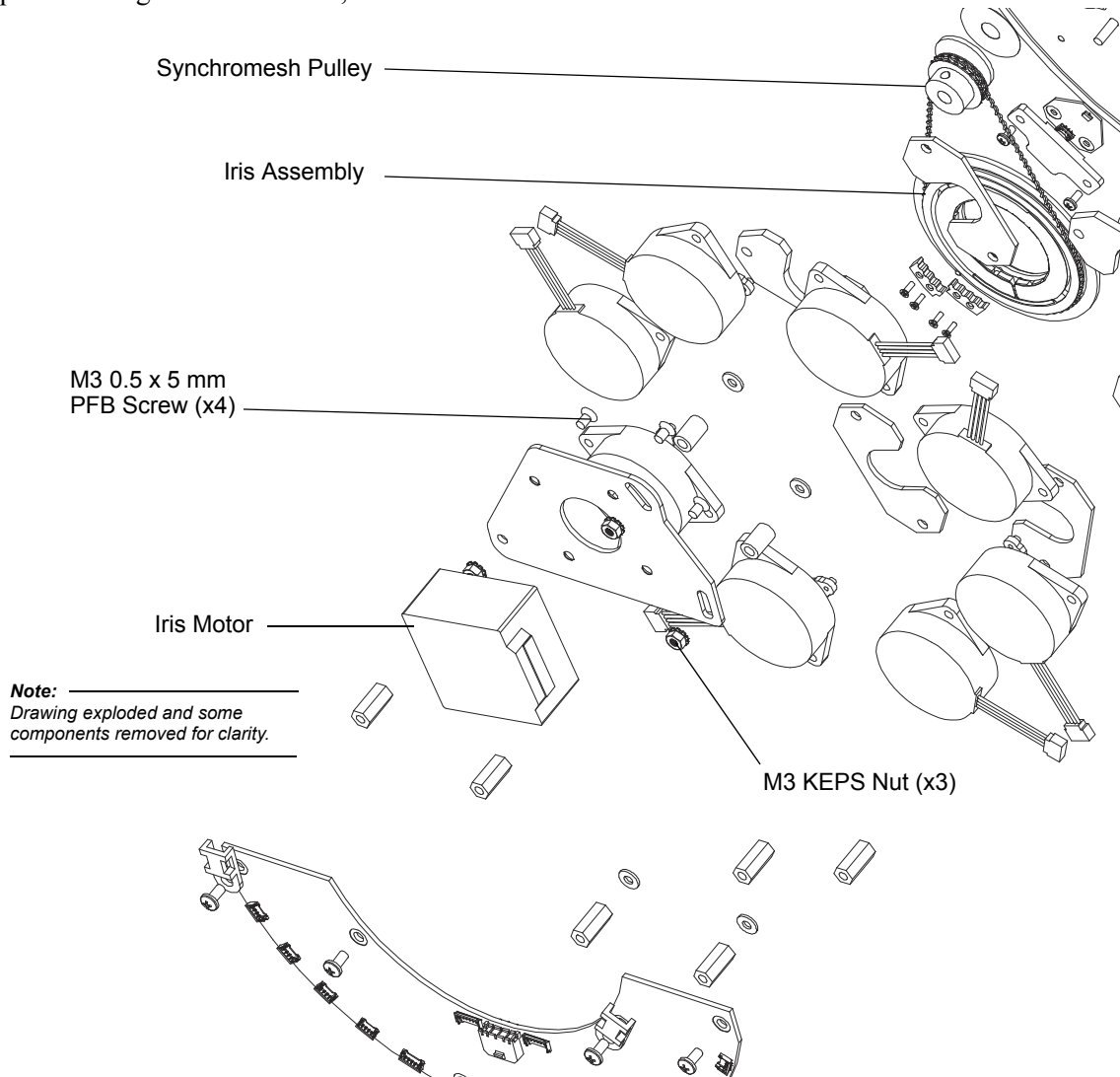
- Step 5. Replace in reverse. Ensure wiring connections are fully seated into board.

Iris Motor

Vari-Lite Part No: 44.9704.0208

To replace iris motor:

- Step 1. Remove Gobo / Shutter / Animation Assembly following procedure in “[Gobo / Shutter / Animation Assembly Removal](#)” on page 64.
- Step 2. Disconnect wiring harness from motor
- Step 3. Using 7/32" nut driver, remove 3 x M3 KEPS nuts.



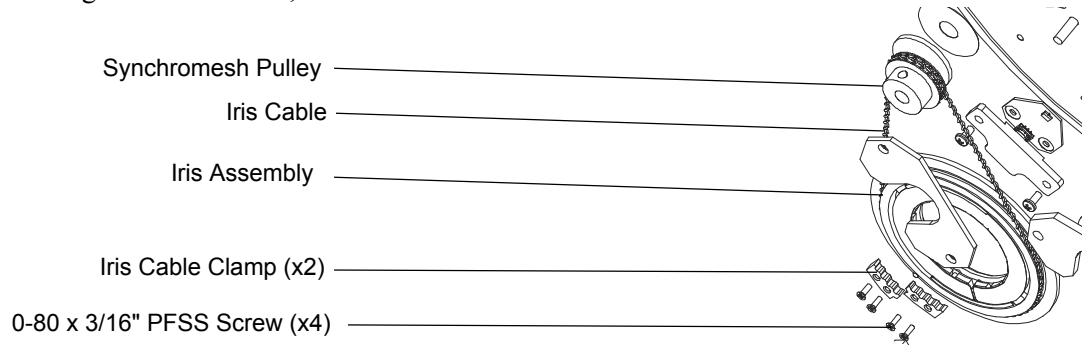
- Step 4. Lift iris motor mount from assembly.
- Step 5. Using 1/16" Allen, loosen set screw and remove synchromesh pulley.
- Step 6. Remove 4 x M3 .5 x 5mm LG PFB screws and remove motor.
- Step 7. Replace in reverse.

Iris Cable

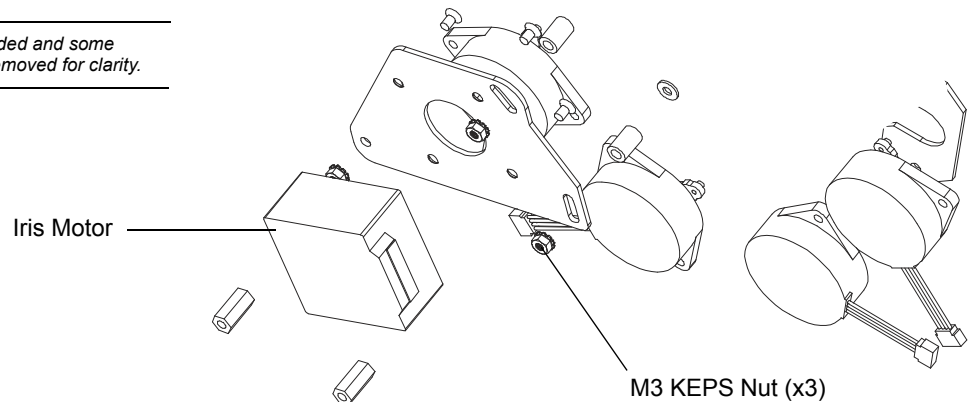
Vari-Lite Part No: 54.9704.0292 (x 10.5-inches)

To replace the iris cable:

- Step 1. Remove Gobo / Shutter / Animation Assembly following procedure in “[Gobo / Shutter / Animation Assembly Removal](#)” on page 64.
- Step 2. Disconnect wiring harness from motor.
- Step 3. Using 7/32" nut driver, remove 3 x M3 KEPS nuts.



Note: _____
 Drawing exploded and some components removed for clarity.



- Step 4. Lift Iris motor mount from assembly.
- Step 5. Remove 4 x 0-80 x 3/16" PFSS screws and remove clamps.
- Step 6. Remove cable.

Note: New cable is 1/4" longer than needed. Pull extra material out of clamp then snip off excess.

- Step 7. Replace in reverse.

Animation Wheel 1 & 2 Assembly

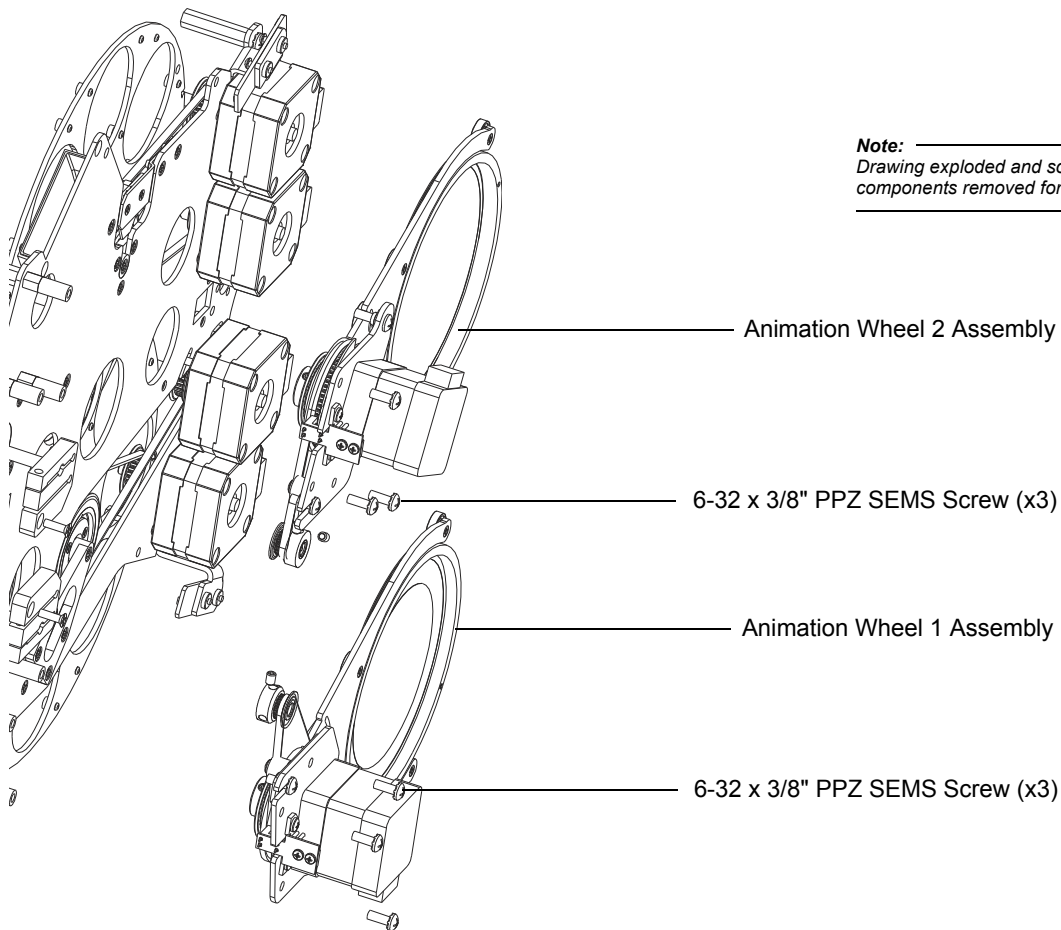
Vari-Lite Part No: 21.9704.0351 (Wheel #1)

Vari-Lite Part No: 21.9704.0352 (Wheel #2)

To replace animation wheels 1 and 2 assemblies:

Note: This procedure is for removing either animation wheel assembly. To remove and replace just the animation wheels, refer to [“Animation Wheels Removal and Installation”](#) on page 22.

- Step 1. Remove Gobo / Shutter / Animation Assembly following procedure in [“Gobo / Shutter / Animation Assembly Removal”](#) on page 64.
- Step 2. Disconnect wiring from index motor and sensor.
- Step 3. Remove 3 x 6-32 x 3/8" PPZ SEMS screws.



Note: _____
Drawing exploded and some components removed for clarity.

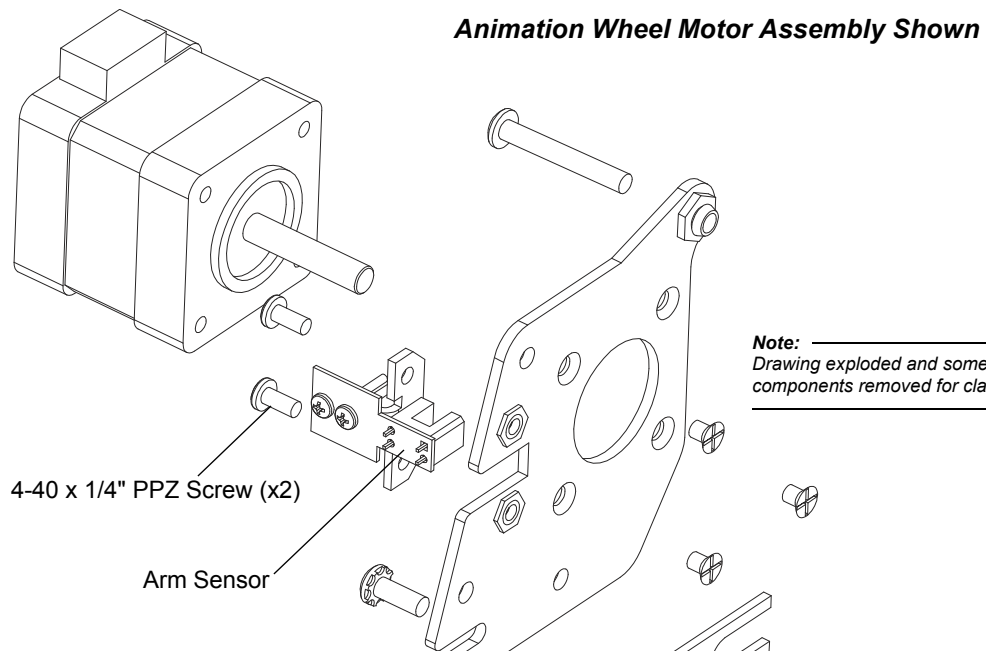
- Step 4. Remove assembly.
- Step 5. Replace in reverse.

Animation Wheel Arm Sensor

Vari-Lite Part No: 21.9687.2500

To replace animation wheel sensor:

- Step 1. Disconnect wiring harness from sensor.
- Step 2. Remove 2 x 4-40 x 1/4" PPZ SEMS screws and remove sensor.



- Step 3. Replace in reverse.

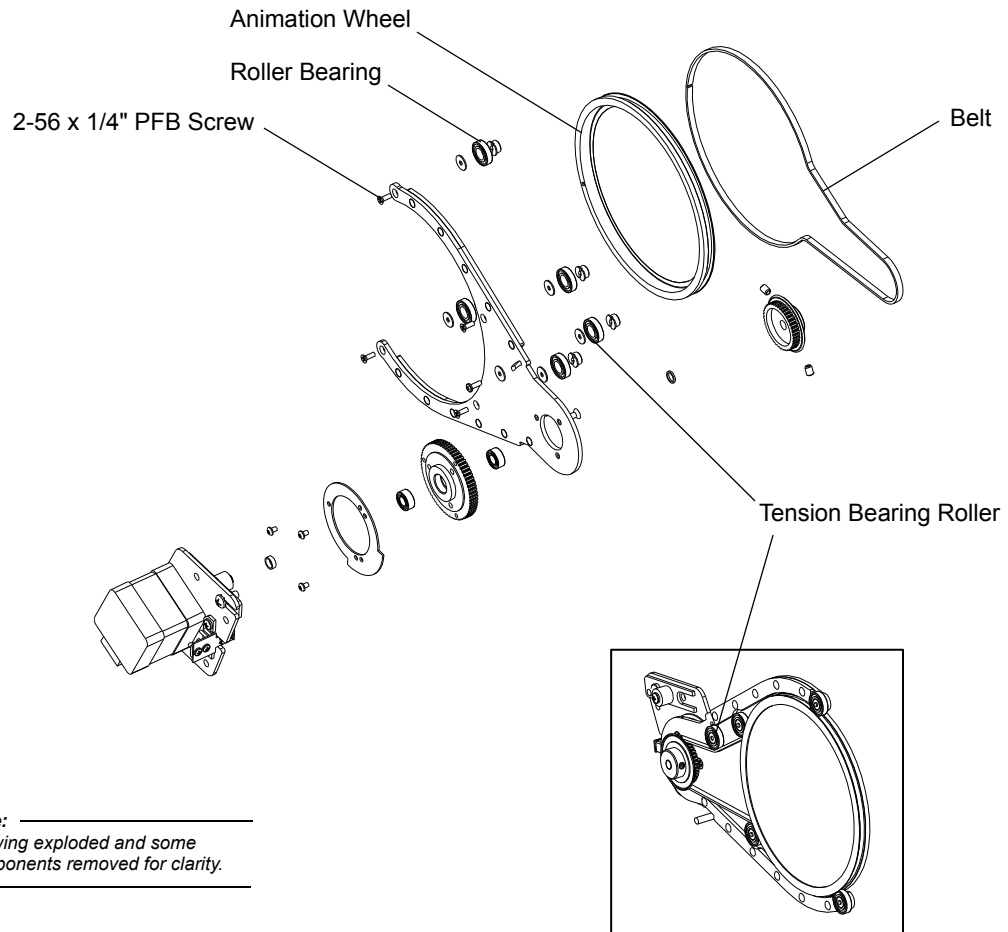
Animation Index Belt

Vari-Lite Part No: 54.9704.0392

Note: There are at least two different versions in the field.

To replace animation wheel index belt:

- Step 1. Remove animation wheel assembly following procedure in “[Animation Wheel 1 & 2 Assembly](#)” on page 102.
- Step 2. Remove 1 of the 2 roller bearings on outside edge by removing 1 x 2-56 x 1/4" PFB screws. Note, these have Loctite 242 and may require some heat to remove.
- Step 3. Loosen 1 x 2-56 x 3/16" PPZ screws in tensioning bearing roller.



- Step 4. Remove animation wheel.
- Step 5. Remove belt.
- Step 6. Replace in reverse.

Animation Index Motor & Arm Belt

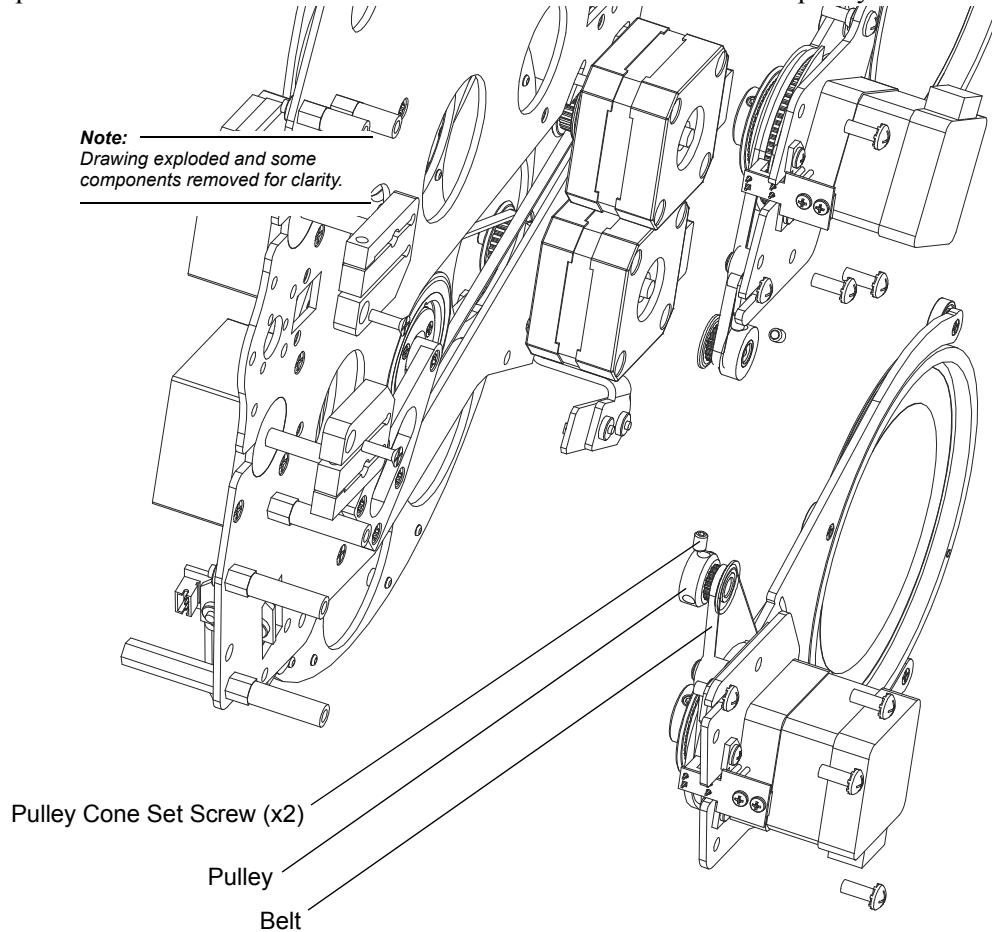
Vari-Lite Part No: 44.9704.1213 (Animation Index Motor)

Vari-Lite Part No: 54.9704.1390 (Arm Belt)

To replace the animation index motor or arm belt:

Step 1. Remove animation wheel belt following procedure in [“Animation Index Belt”](#) on page 104.

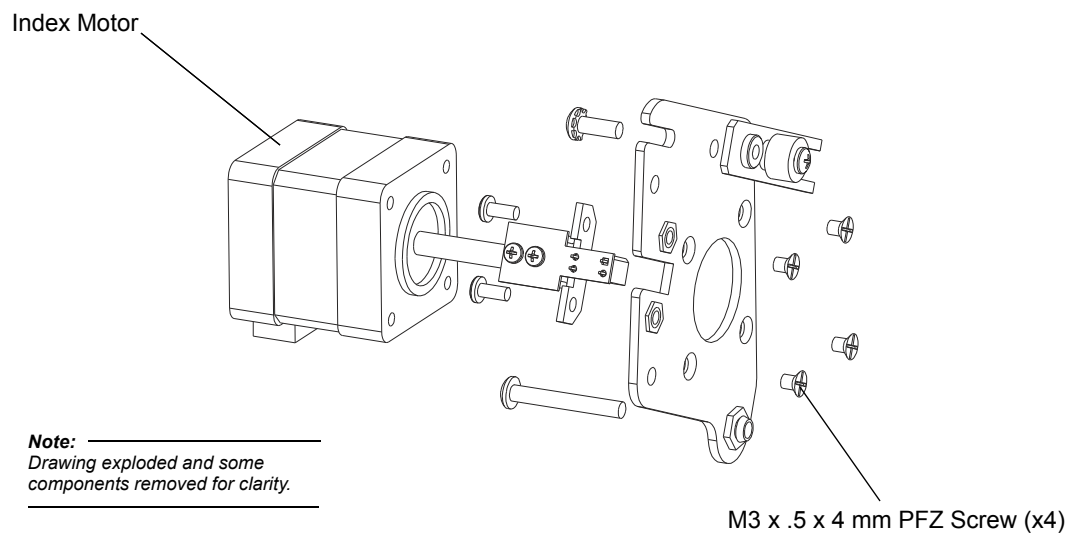
Step 2. Loosen 2 x 6-32 x 3/16" cone set screws and remove index pulley.



Step 3. Remove arm and belt from shaft.*

Note: *If just replacing belt, replace in reverse from here, do not continue to next steps.

Step 4. Remove 4 x M3 x .5 x 4 mm PFZ screws and remove motor.



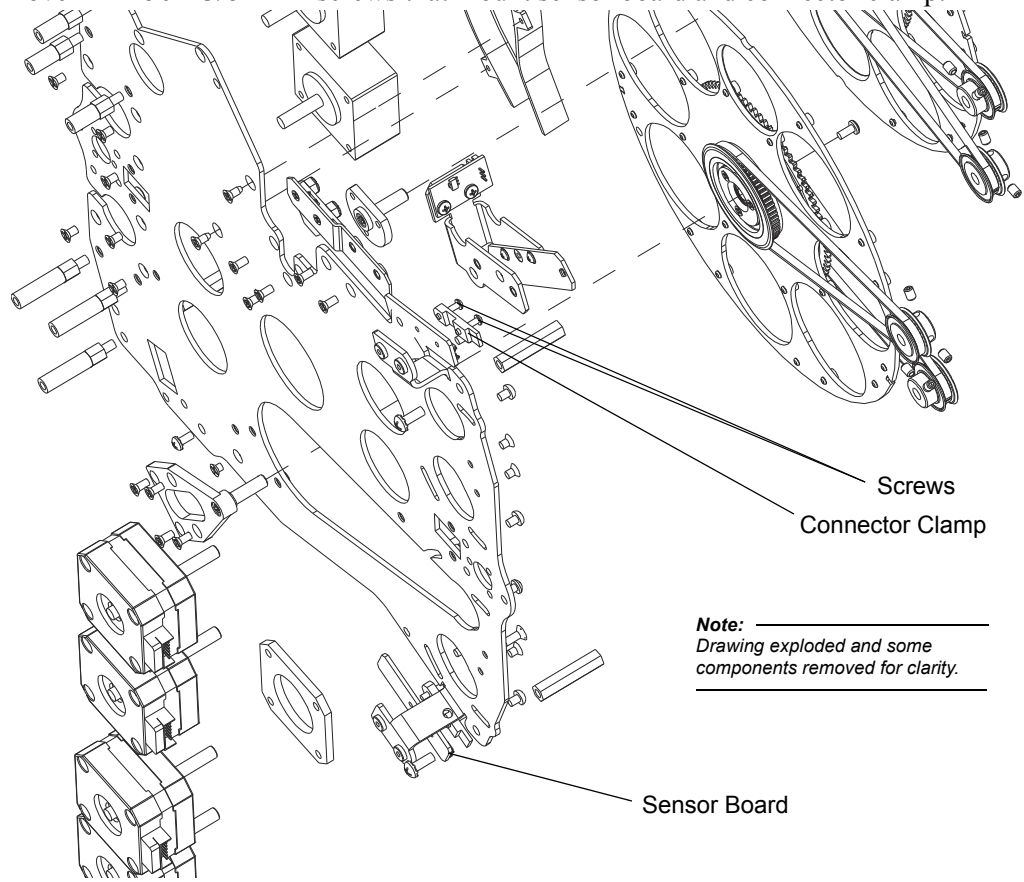
Step 5. Replace in reverse.

Animation Index Sensors

Vari-Lite Part No: 17.9704.0906 (x2)

To replace animation index sensors:

Step 1. Remove 2 x 2-56 x 3/8" PPZ screws that mount sensor board and connector clamp.



Step 2. Disconnect wiring from sensor.

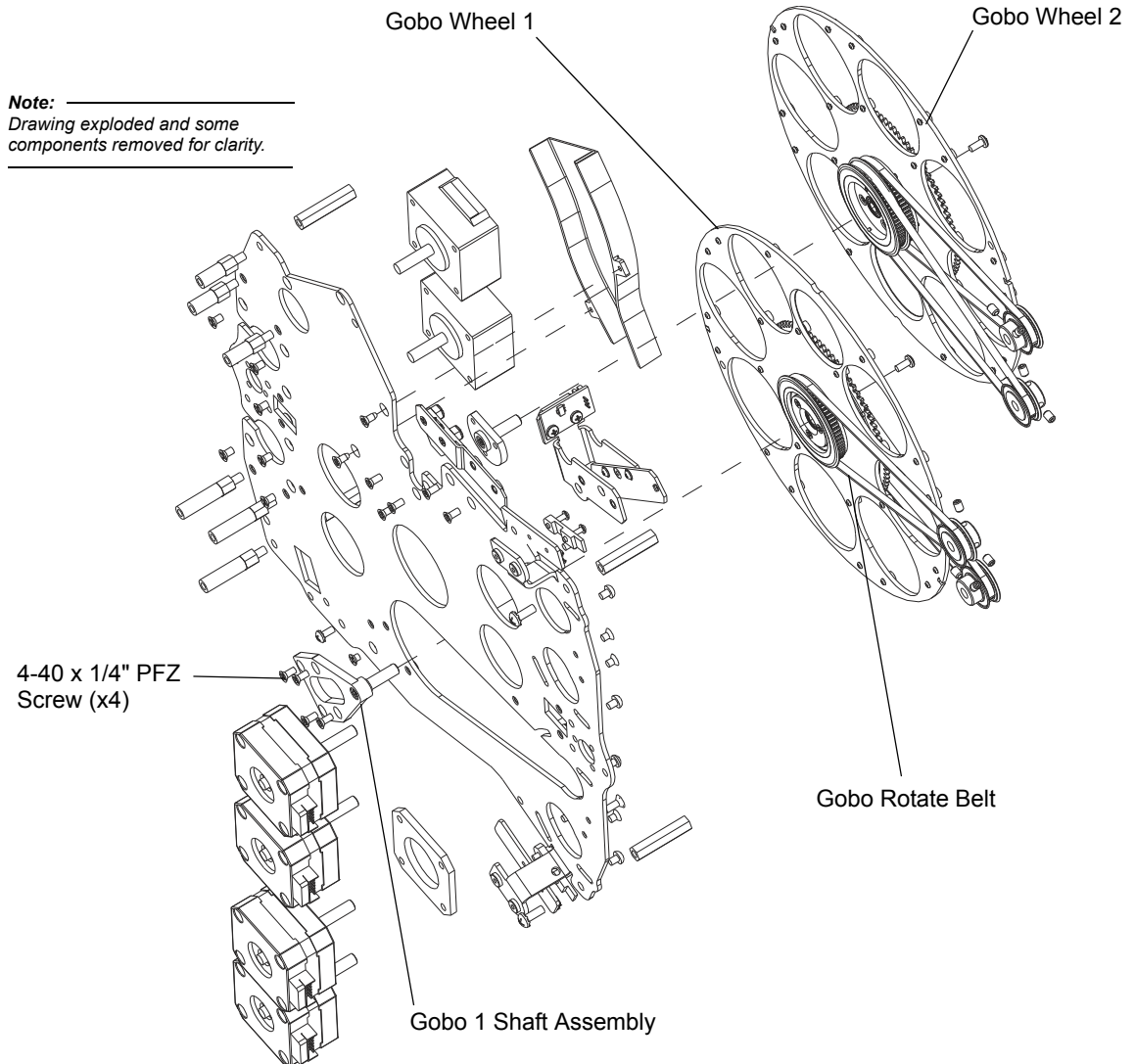
Step 3. Replace in reverse.

Gobo Wheel 1 Rotate Belt

Vari-Lite Part No: 54.9704.0290

To remove gobo wheel 1 rotate belt:

Step 1. Remove Gobo / Shutter / Animation Assembly following procedure in “[Gobo / Shutter / Animation Assembly Removal](#)” on page 64.



Step 2. Remove 4 x 4-40 x 1/4" PFZ screws from gobo 1 shaft assembly.

Step 3. Remove belt from drive pulley and slide around shaft assembly.

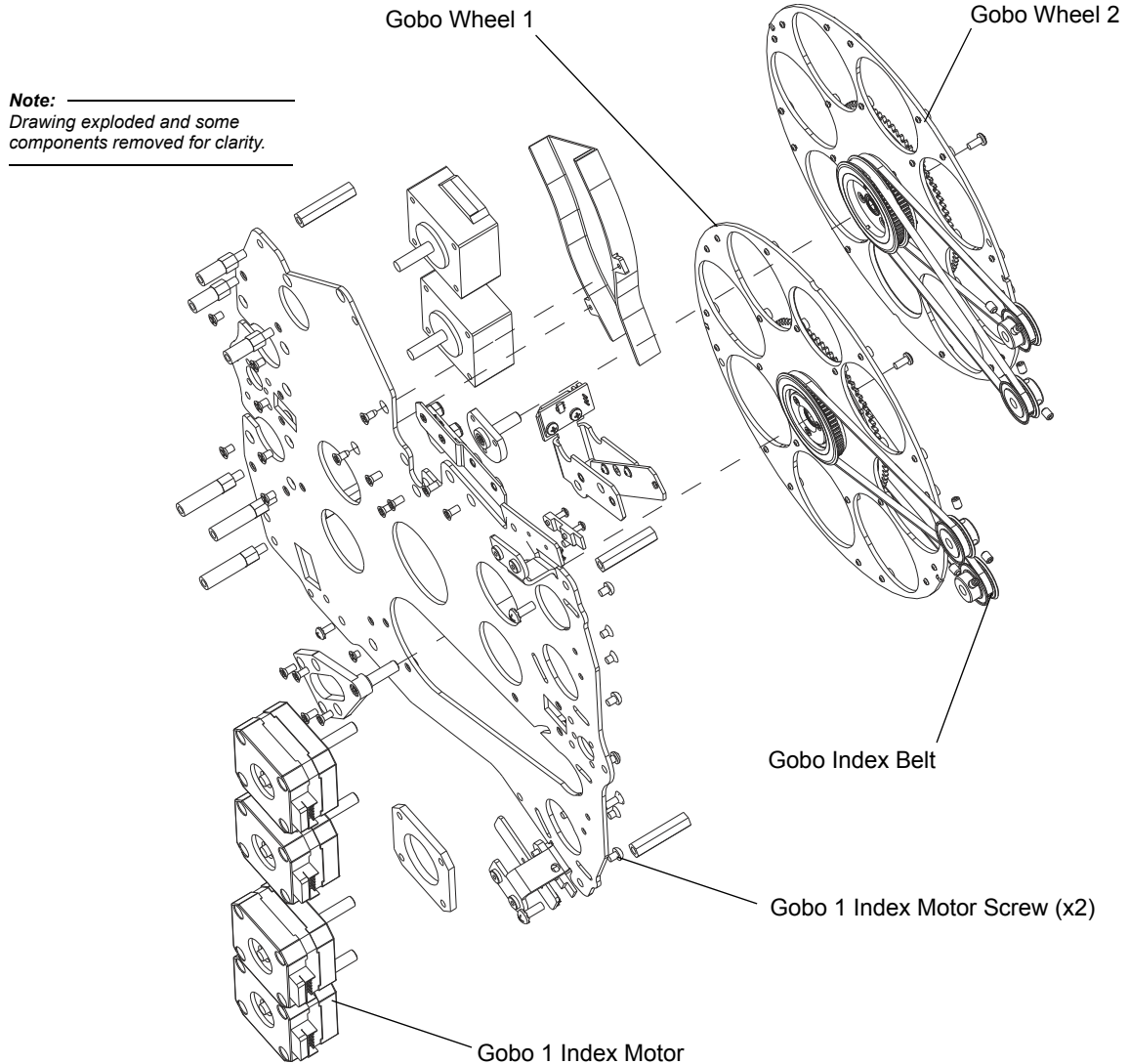
Step 4. Replace in reverse.

Gobo Wheel 1 Index Belt

Vari-Lite Part No: 54.9698.0002

To remove gobo wheel 1 index belt:

Step 1. Remove Gobo / Shutter / Animation Assembly following procedure in “[Gobo / Shutter / Animation Assembly Removal](#)” on page 64.



Step 2. Loosen 2 x M3 x .5 x 5mm PPB screws at index motor, remove belt from drive pulley.

Step 3. Slide belt out from sun gear.

Step 4. Replace in reverse.

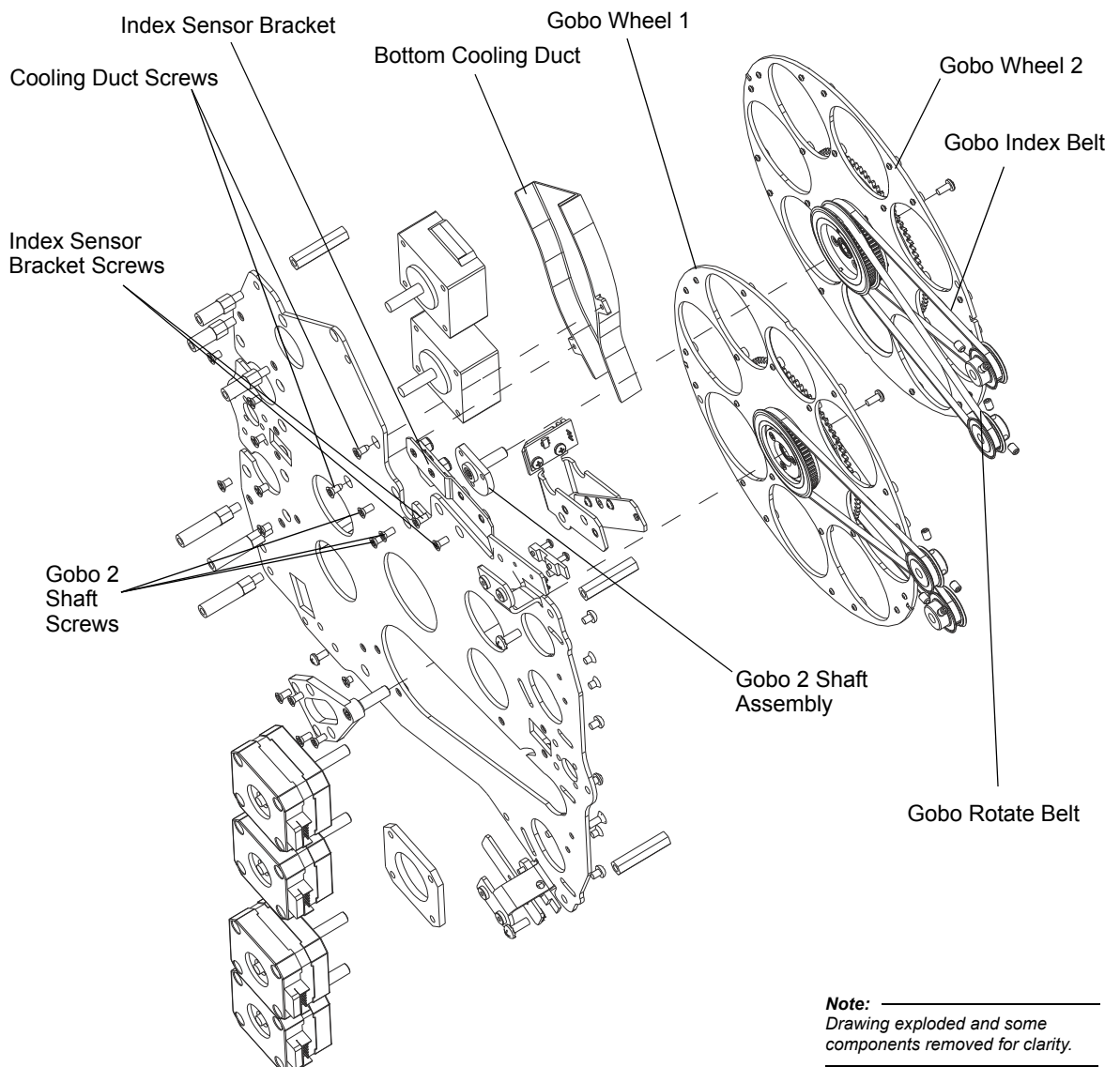
Gobo Wheel 2 Index Belt & Rotate Belt

Vari-Lite Part No: 54.9704.0290 (Index Belt)

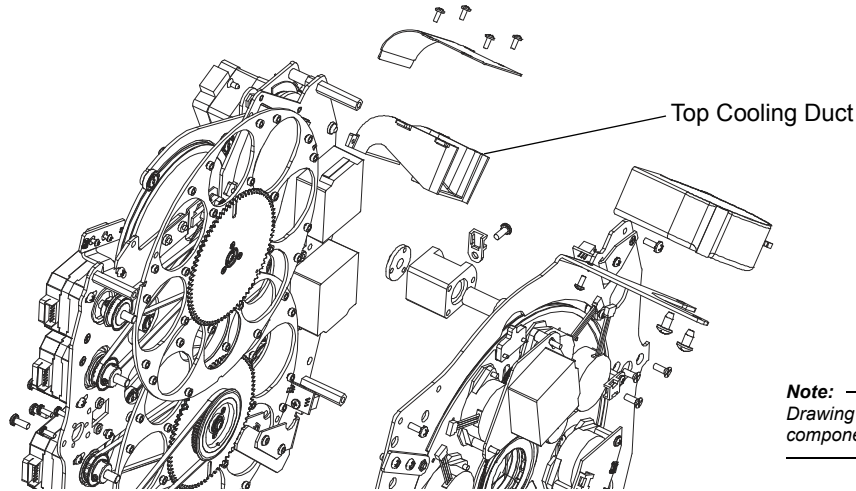
Vari-Lite Part No: 54.9698.0002 (Rotate Belt)

To replace gobo wheel 2 index belt or rotate belt:

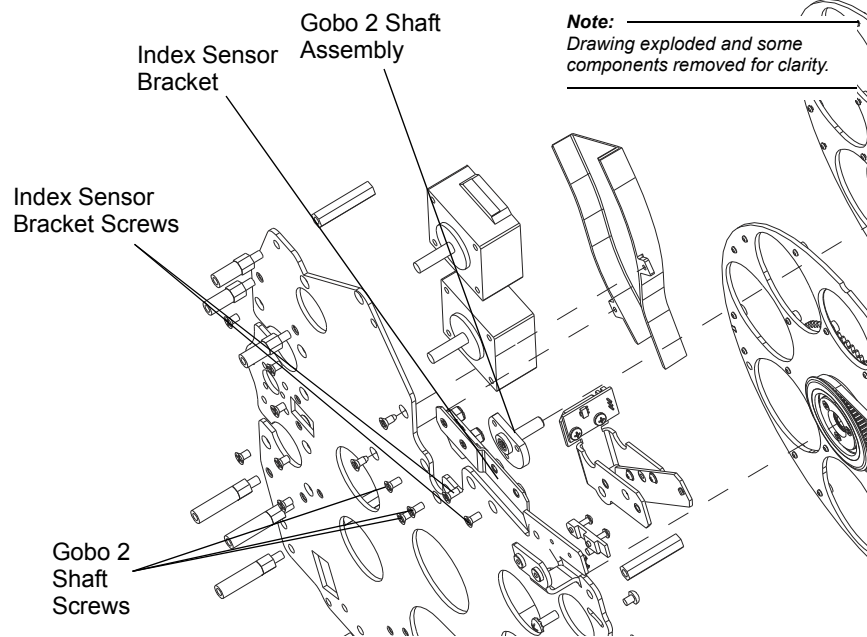
- Step 1. Remove Animation Wheel 2 assembly following procedure in [“Animation Wheel 1 & 2 Assembly”](#) on page 102.
- Step 2. Remove bottom cooling duct by removing 2 x 4-20 x 1/4" PFZ plastic thread cutting screws.



Step 3. Remove top cooling duct by removing 3 x 4-20 x 1/4" PFZ plastic thread cutting screws.



Step 4. At index sensor, remove 2 x 4-40 x 1/4" PFZ screws and remove index sensor bracket.



Step 5. Remove 3 x M3 x .5 x 5 mm PFB screws mounting gobo wheel 2 shaft assembly.

Step 6. Remove wheel assembly with belts.

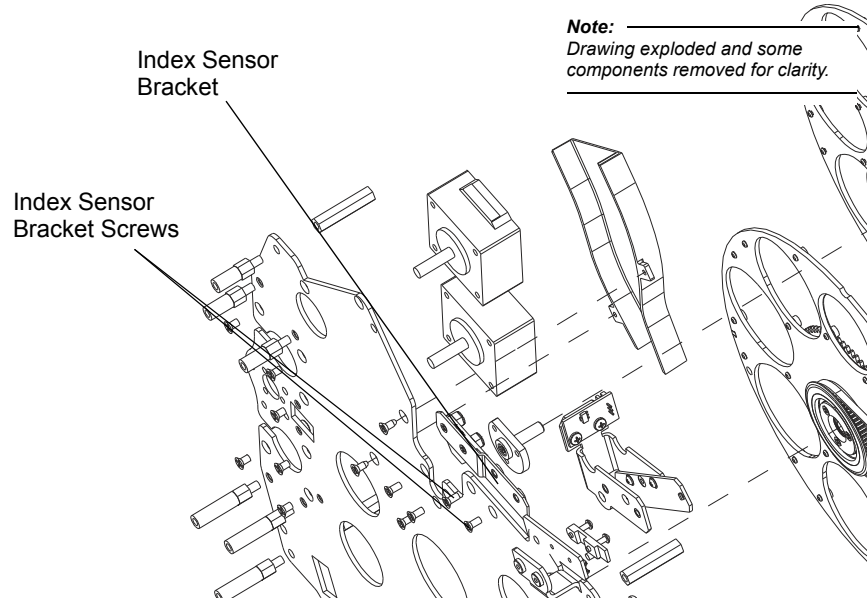
Step 7. Replace belt as required an assemble in reverse.

Gobo Wheel 2 Index Sensor

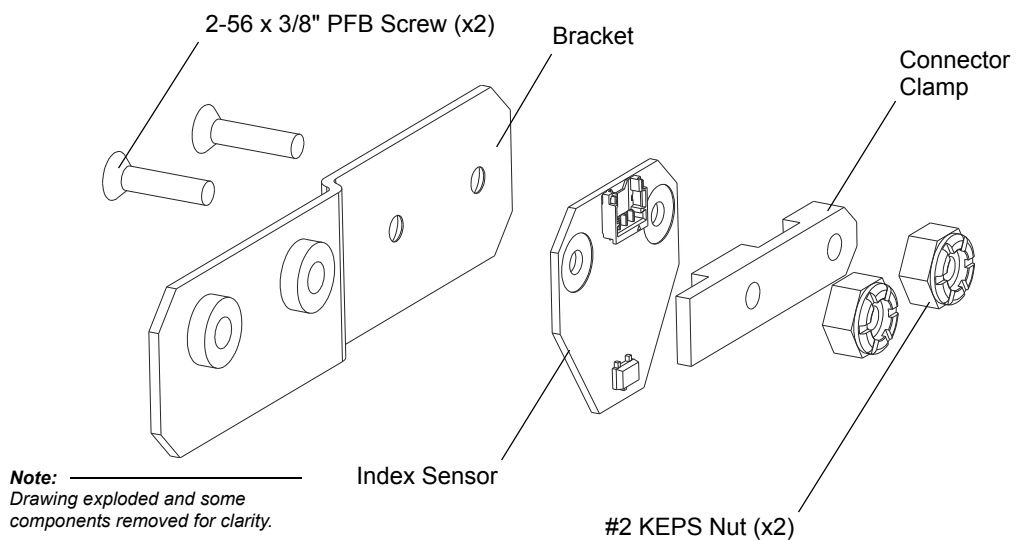
Vari-Lite Part No: 17.9704.0904

To replace gobo wheel 2 index sensor:

- Step 1. Remove Gobo / Shutter / Animation Assembly following procedure in “Gobo / Shutter / Animation Assembly Removal” on page 64.
- Step 2. At index sensor, remove 2 x 4-40 x 1/4" PFZ screws and remove index sensor bracket.



- Step 3. Remove 2 x 2-56 x 3/8" PFB screws and 2 x #2 KEPS nuts. Remove sensor and connector clamp.

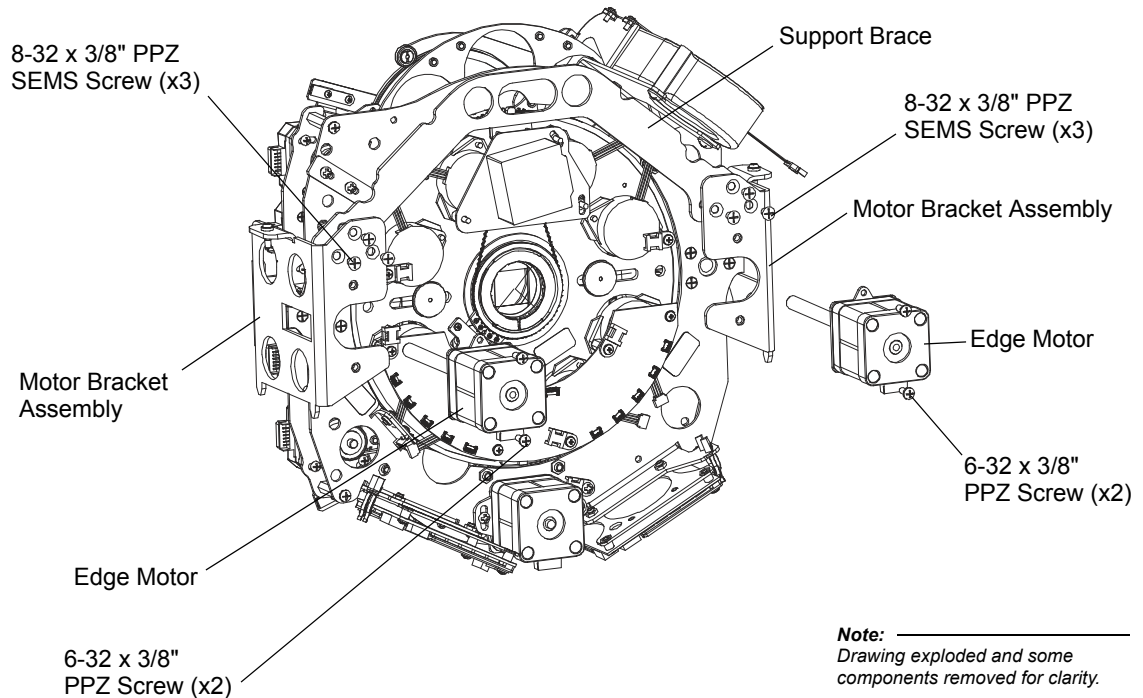


- Step 4. Disconnect wiring.
- Step 5. Replace in reverse.

Edge Motor Brackets and Support Brace Removal

To remove edge motor brackets and support brace:

- Step 1. Remove Gobo / Shutter / Animation Assembly following procedure in “Gobo / Shutter / Animation Assembly Removal” on page 64.
- Step 2. Remove 1 of the 2 motor assemblies:
- Remove 3 x 8-32 x 3/8" PPZ SEMS screws holding support brace to motor bracket assembly.
 - At motor, remove 2 x 6-32 x 3/8" PPZ screws holding motor to assembly.



- Step 3. Using manual adjuster, thread lead screw out of bracket until it can be lifted off, then continue to thread lead screw until it can be removed.

Note: If replacing edge motor assembly (21.9704.0255), replace in reverse from here - do not continue to next step.

- Step 4. If removing entire edge assembly at remaining motor, remove 2 x 6-32 x 3/8" PPZ screws holding motor to assembly.
- Step 5. Using manual adjuster, thread lead screw out of bracket until it can be lifted off, then continue to thread lead screw until motor can be removed.
- Step 6. Replace in reverse.

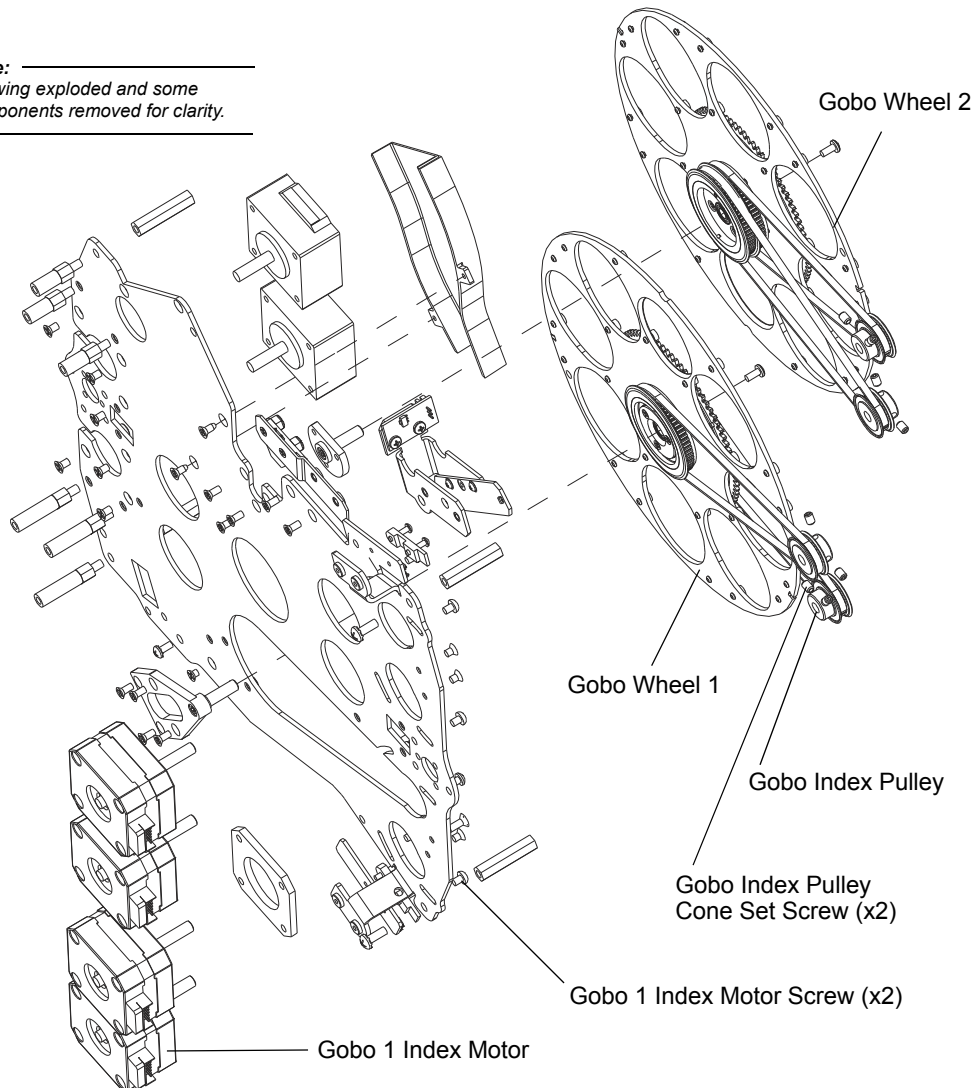
Gobo Wheel 1 Index Motor

Vari-Lite Part No: 44.9704.0217

To replace gobo wheel 1 index motor:

- Step 1. Remove Gobo / Shutter / Animation Assembly following procedure in “[Gobo / Shutter / Animation Assembly Removal](#)” on page 64.
- Step 2. Disconnect wiring.
- Step 3. Remove 2 x M3 x .5 x 5 mm PPB screws and 1 x M3 x .5 x 5 mm PFB screw and remove motor.

Note:
Drawing exploded and some components removed for clarity.



- Step 4. Loosen 2 x 6-32 x 3/16" Cone Set screw and remove pulley.
- Step 5. Replace in reverse.

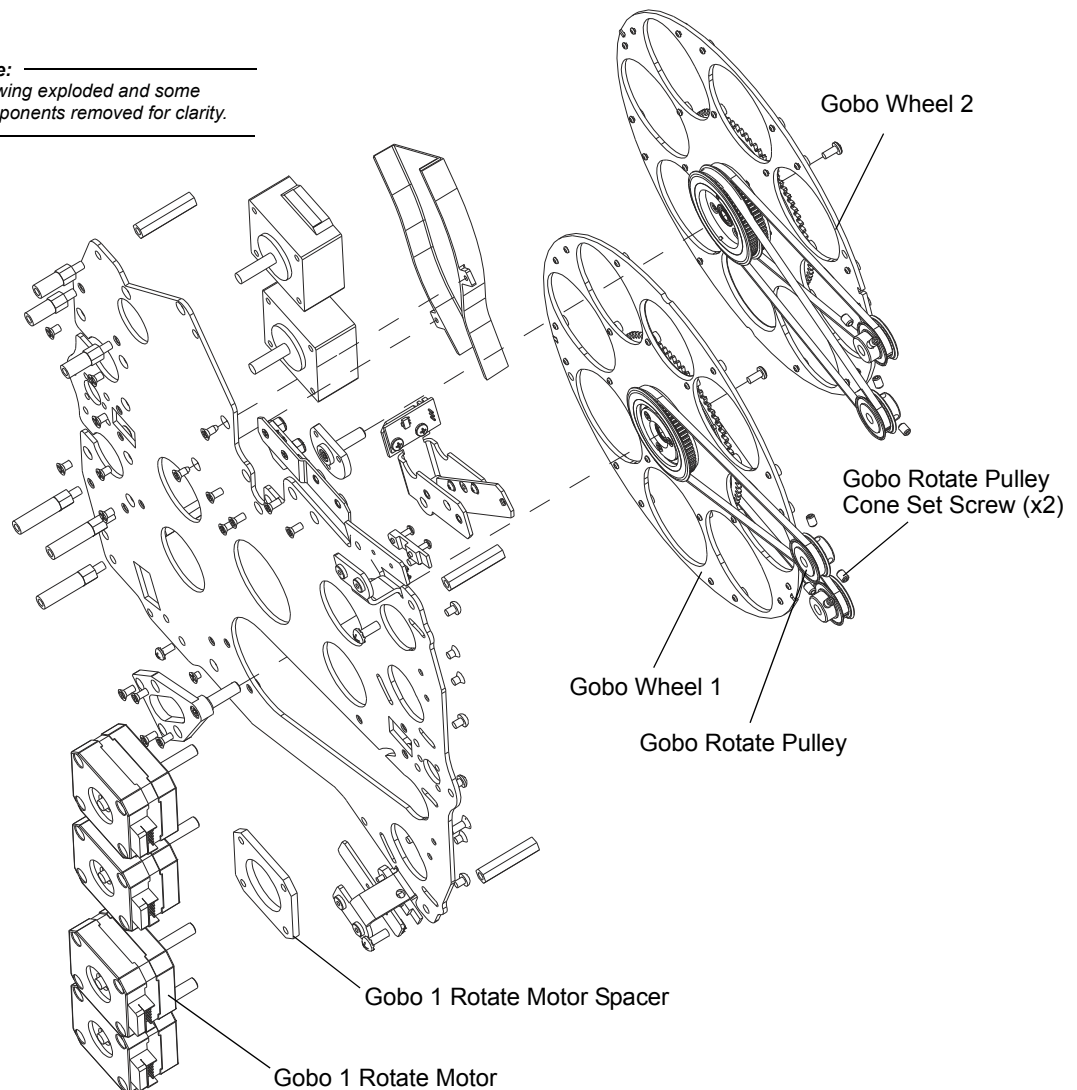
Gobo Wheel 1 Rotate Motor

Vari-Lite Part No: 44.9704.0217

To replace gobo wheel 1 rotate motor:

- Step 1. Remove edge assembly following procedure in [“Edge Motor Brackets and Support Brace Removal” on page 113.](#)
- Step 2. Disconnect wiring from motor.
- Step 3. Rotate shutter so hole aligns with mounting screw
- Step 4. Remove 2 x M3 x .5 x 8 mm PPZ screws and 1 x M3 x .5 x 8 mm PFZ screw and remove motor and spacer.

Note:
Drawing exploded and some components removed for clarity.



- Step 5. Loosen 2 x 6-32 x 3/16" cone set screw and remove pulley.
- Step 6. Replace in reverse order.

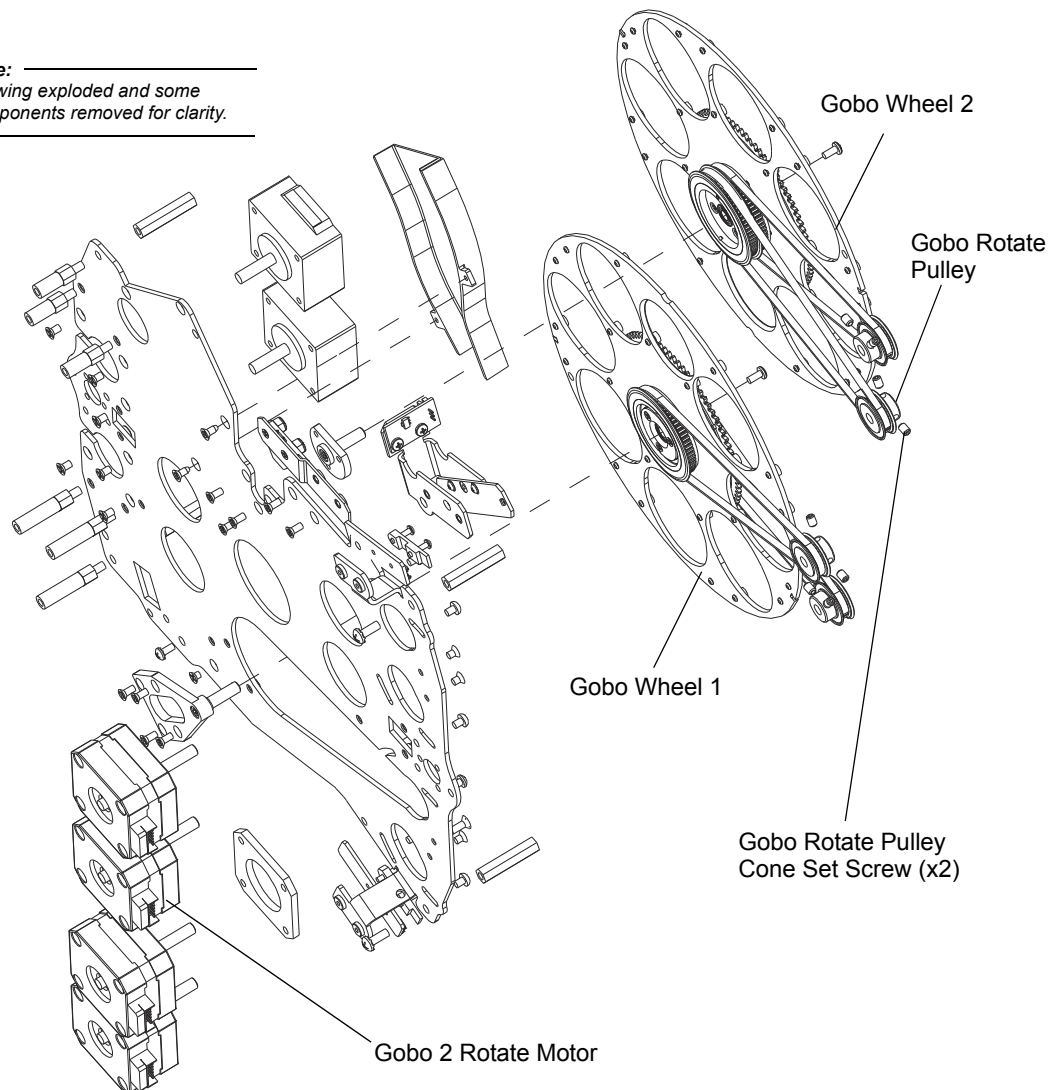
Gobo Wheel 2 Rotate Motor

Vari-Lite Part No: 44.9704.0217

To replace gobo wheel 2 rotate motor:

- Step 1. Remove edge assembly following procedure in “Edge Motor Brackets and Support Brace Removal” on page 113.
- Step 2. Disconnect wiring form motor.
- Step 3. Rotate shutter so hole aligns with mounting screw.
- Step 4. Remove 2 x M3 x.5 x 5 mm PPB screws and 1 x M3 x .5 x 5 mm PFB screw and remove motor.

Note:
Drawing exploded and some
components removed for clarity.



- Step 5. Loosen 2 x 6-32 x 3/16" cone set screw and remove pulley.
- Step 6. Replace in reverse order.

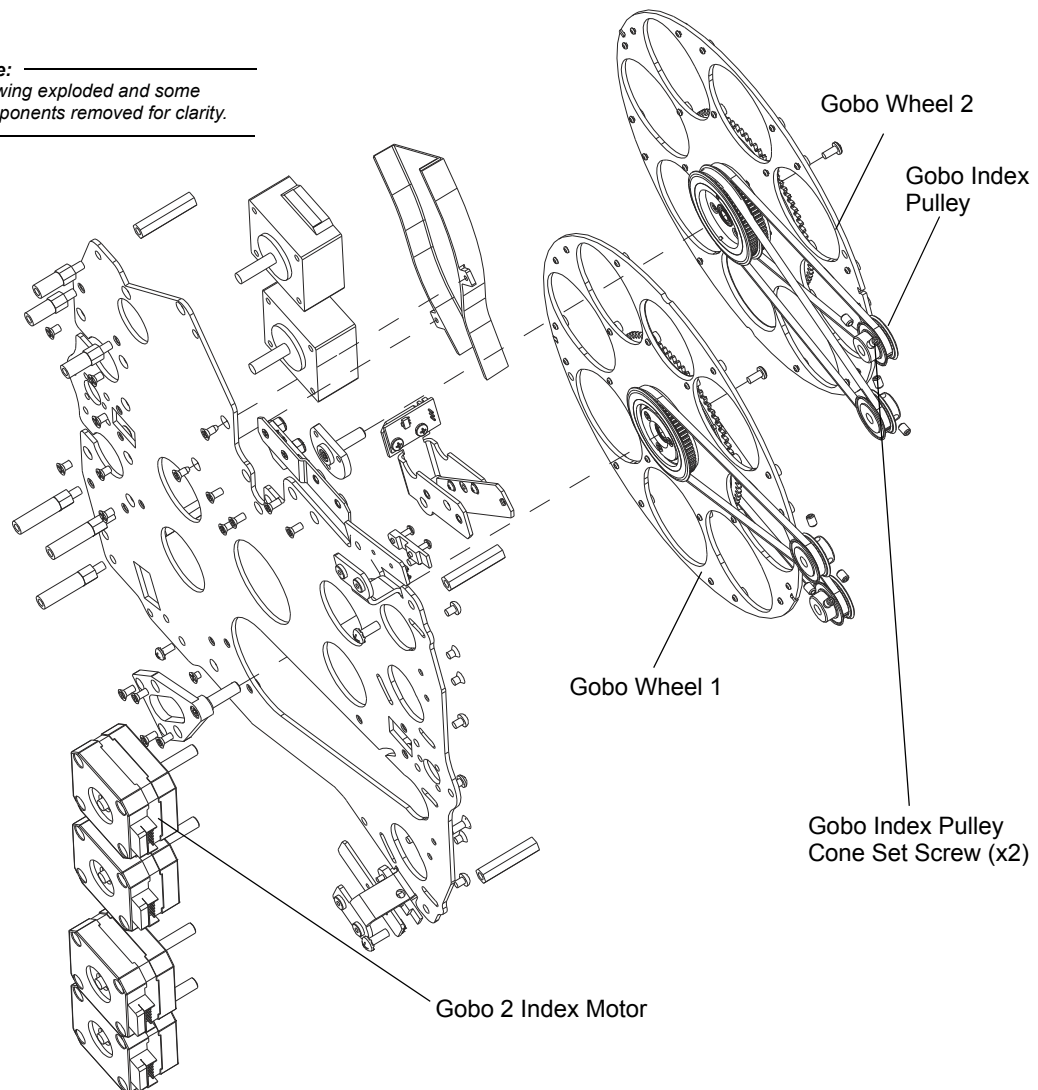
Gobo Wheel 2 Index Motor

Vari-Lite Part No: 44.9704.0217

To replace gobo wheel 2 index motor:

- Step 1. Remove Gobo / Shutter / Animation Assembly following procedure in “[Gobo / Shutter / Animation Assembly Removal](#)” on page 64.
- Step 2. Disconnect wiring.
- Step 3. Remove 2 x M3 x .5 x 5 mm PPB screws and 1 x M3 x .5 x 5 mm PFB screw and remove motor.

Note:
Drawing exploded and some components removed for clarity.



- Step 4. Loosen 2 x 6-32 x 3/16" cone set screw and remove pulley.
- Step 5. Replace in reverse.

Gobo Wheel 1 Index Sensor and Wheel 1 Rotate Sensor

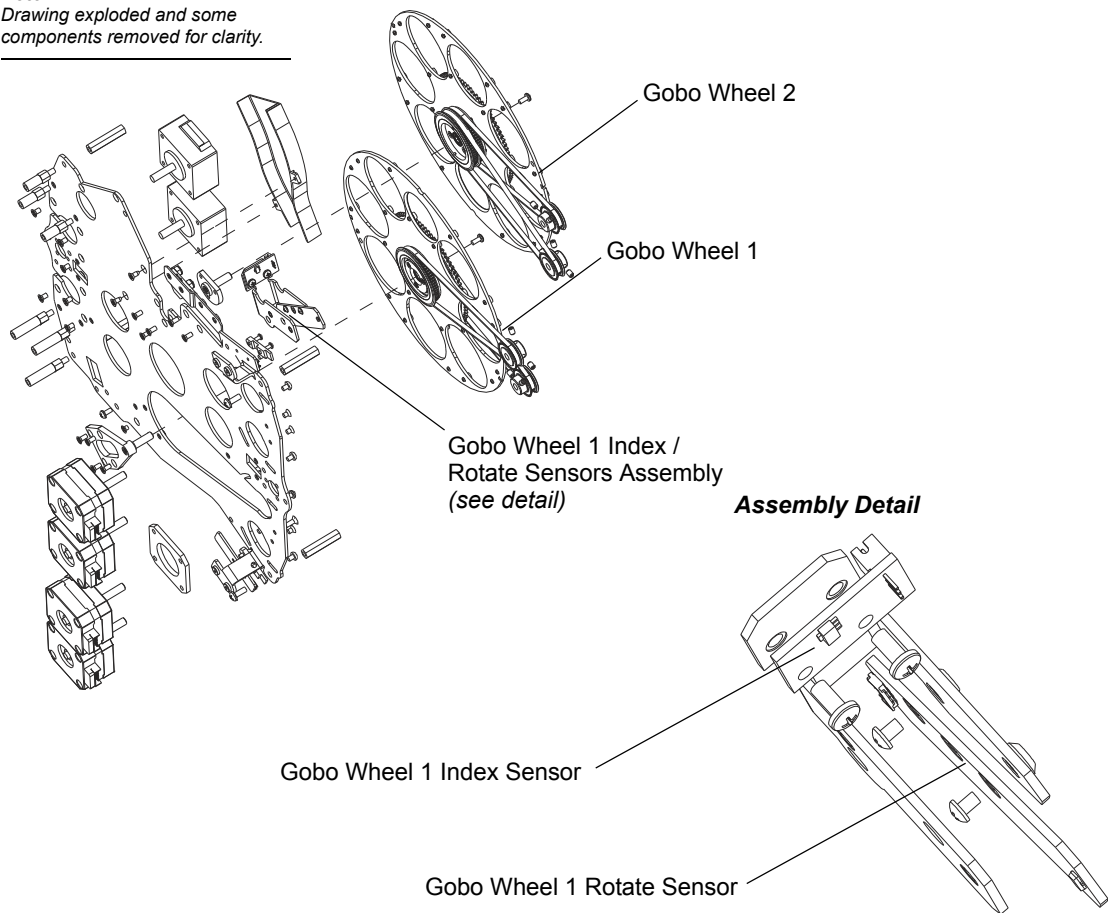
Vari-Lite Part No: 17.9704.0905 (Index Sensor)

Vari-Lite Part No: 24.9678.3240 (Rotate Sensor)

To replace gobo wheel 1 index sensor and rotate sensor:

- Step 1. Remove Gobo / Shutter / Animation Assembly following procedure in [“Gobo / Shutter / Animation Assembly Removal”](#) on page 64.
- Step 2. Disconnect wiring from both sensors.
- Step 3. Remove 1 x 4-40 x 1/8" PFZ and 1 x 4-40 x 1/4" PPZ screws and remove assembly.
- Step 4. Depending on sensor to be replaced:
- If replacing Index Sensor:* Remove 2 x 2-56 x 1/8" PPZ screws and remove sensor, replace in reverse.
 - If replacing Rotate Sensor:* Remove 2 x 4-40 x 1/4" PPZ screws and remove sensor, replace in reverse.

Note: _____
Drawing exploded and some components removed for clarity.



- Step 5. Replace assembly in reverse

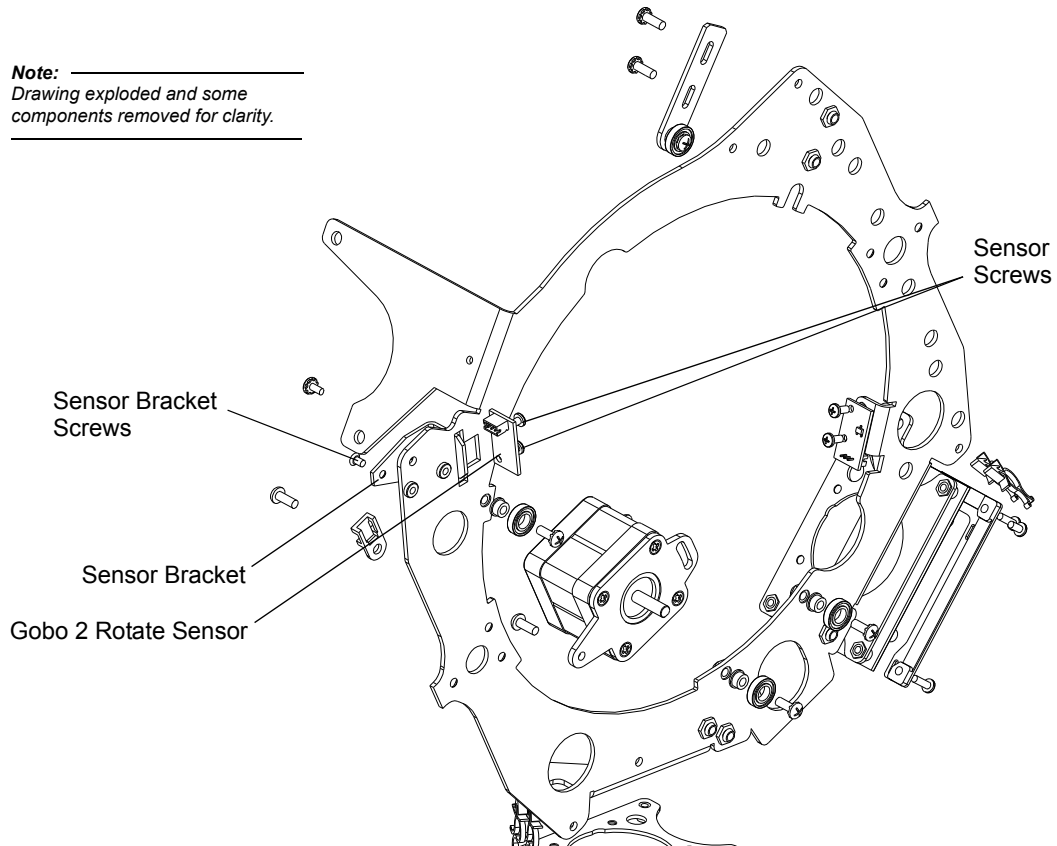
Gobo Wheel 2 Rotate Sensor

Vari-Lite Part No: 24.9678.3240

To replace gobo wheel 2 rotate sensor:

- Step 1. Remove Gobo / Shutter / Animation Assembly following procedure in “[Gobo / Shutter / Animation Assembly Removal](#)” on page 64.
- Step 2. Disconnect wiring from sensor.
- Step 3. Remove 1 x 4-40 x 1/8" PFZ and 1 x 4-40 x 1/4" PPZ screws from bracket.
- Step 4. Angle bracket out of assembly.

Note: _____
 Drawing exploded and some
 components removed for clarity.



- Step 5. Remove 2 x 4-40 x 1/4" PPZ screws and remove sensor.
- Step 6. Replace in reverse

Animation Arm Motors 1 or 2

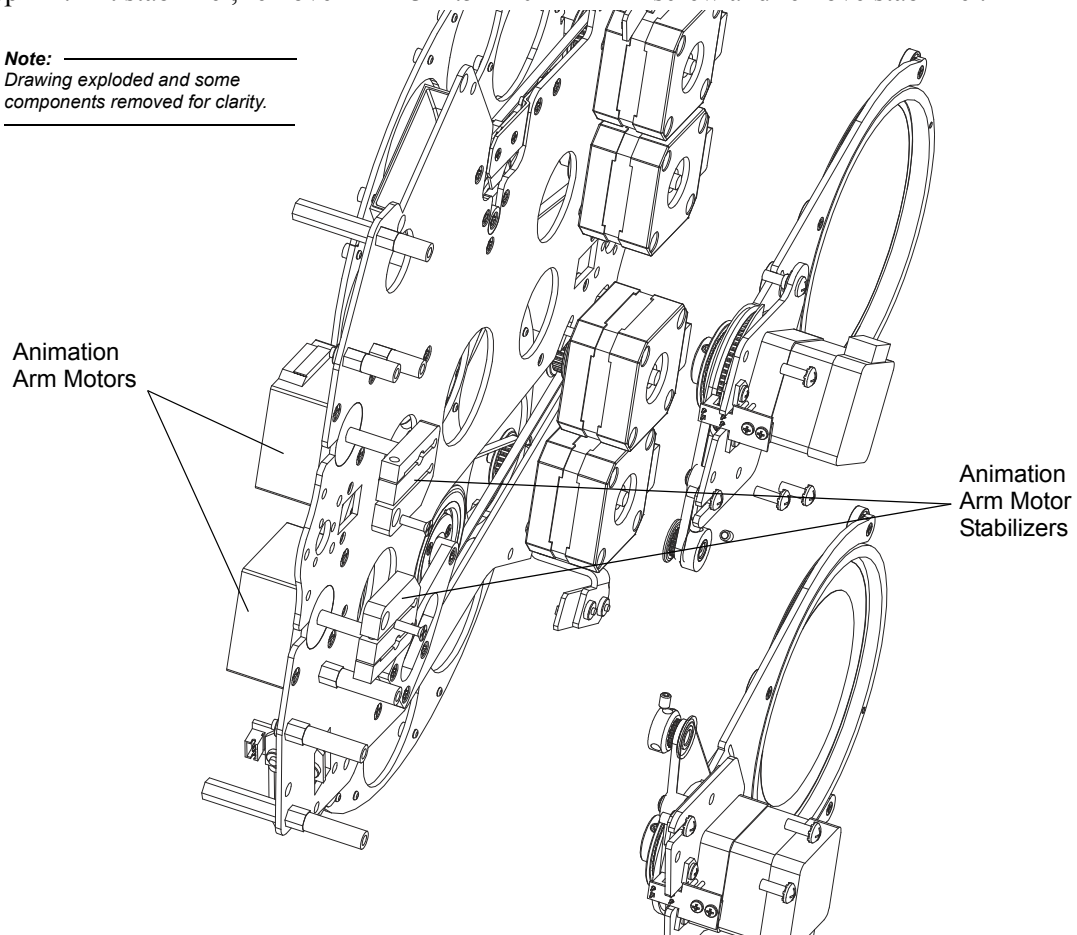
Vari-Lite Part No: 44.9704.0209 (Motor)

Vari-Lite Part No: 21.9698.0330 (Motor Stabilizer)

To replace animation arm motors 1 or 2:

- Step 1. Remove edge assembly following procedure in [“Edge Motor Brackets and Support Brace Removal”](#) on page 113.
- Step 2. Remove animation wheel assembly following procedure in [“Animation Wheel 1 & 2 Assembly”](#) on page 102.
- Step 3. At pulley, loosen 2 x 6-32 x 3/16" cone set screws and remove pulley.
- Step 4. At stabilizer, remove 1 x M3 x .5 x 10 mm PFZ screw and remove stabilizer.

Note:
Drawing exploded and some components removed for clarity.



Note: If just replacing stabilizer replace from here in reverse - do not continue to next step.

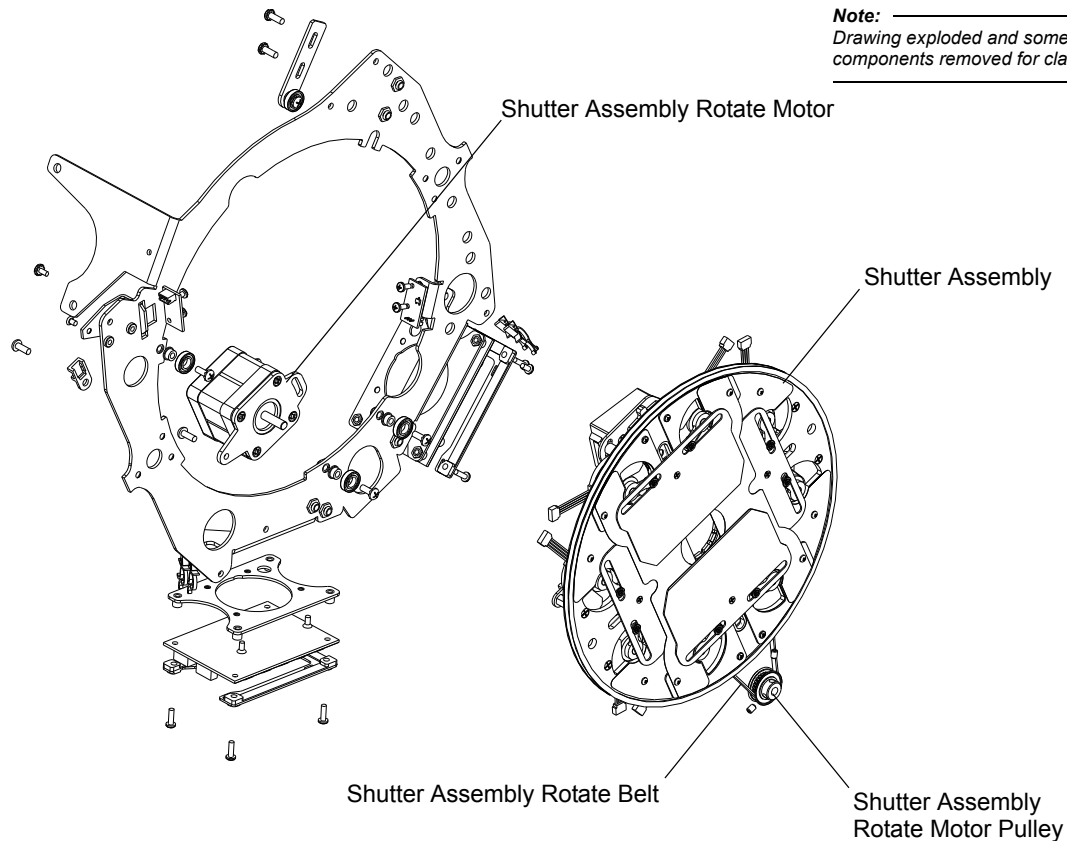
- Step 5. Disconnect wiring from motor.
- Step 6. Remove 3 x M3 x .5 x 5 mm PFB screws and remove desired motor.
- Step 7. Replace in reverse.

Shutter Assembly & Belt

Vari-Lite Part No: 21.9704.1510

Vari-Lite Part No: 54.9704.1570 (Belt)

- Step 1. Remove edge assembly following procedure in “Edge Motor Brackets and Support Brace Removal” on page 113.
- Step 2. At driver board, disconnect DC input (Orange/Red/Black) and COM (SHTTR).
- Step 3. Remove 1 x M3 x .5 x 10 mm PPZ screw with cable saddle holding wires disconnected above.
- Step 4. At rotate motor, loosen 1 x 6-32 x 3/8" PPZ screw and rotate motor to loosen belt.
- Step 5. At adjustable tension roller, loosen 2 x 6-32 x 3/8" PPZ SEMS screws and slide adjuster away from shutter.



- Step 6. Carefully lift shutter assembly, with belt, out of mechanism.

Note: *TIP FOR EASIER ASSEMBLY:* Pull the belt tight around the shutter mechanism. Using a cable tie or binder clip, hold belt tight to assembly. Insert shutter into rollers and set tension to hold shutter against rollers. Then remove clip or cable tie and use hook/pick to pull belt over pulley and set tension

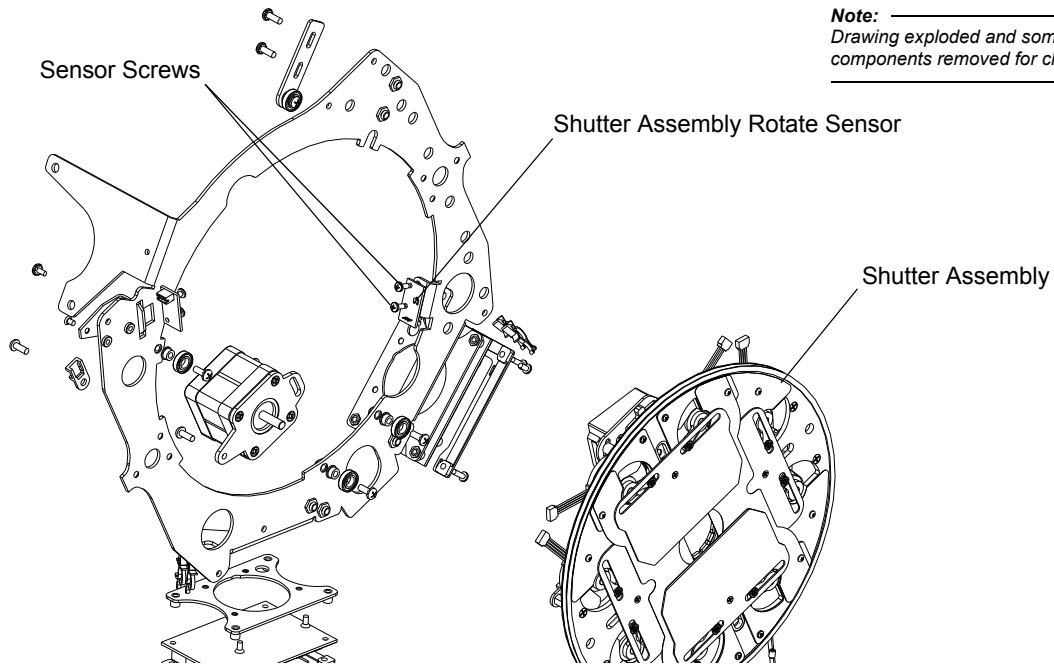
- Step 7. Replace in reverse.

Shutter Sensor

Vari-Lite Part No: 24.9678.3240

To replace shutter sensor:

- Step 1. Remove Gobo / Shutter / Animation Assembly following procedure in “[Gobo / Shutter / Animation Assembly Removal](#)” on page 64.
- Step 2. Disconnect wiring harness from sensor.
- Step 3. Remove 2 x 4-40 x 1/4 PPZ screws and remove sensor.



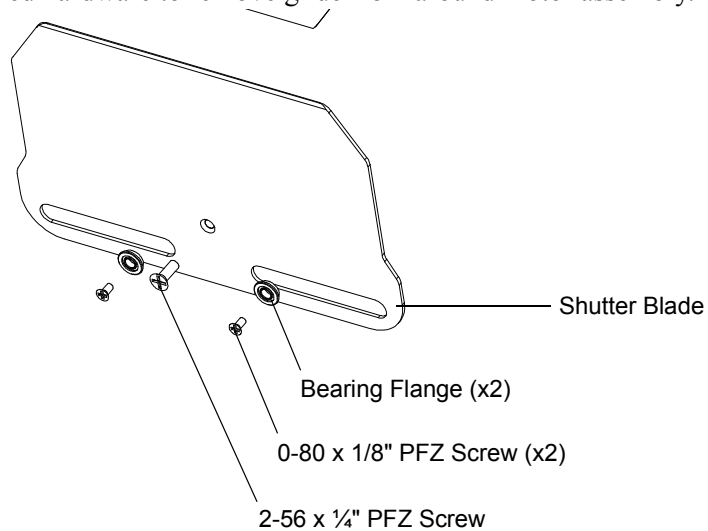
- Step 4. Replace in reverse.

Shutter Blade Motor

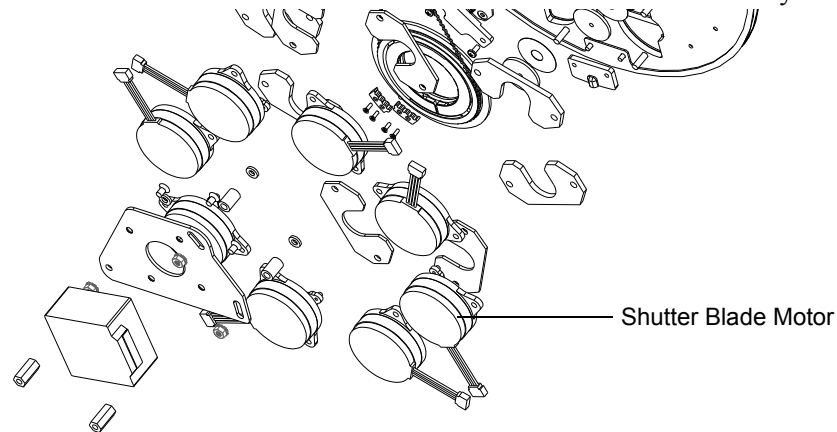
Vari-Lite Part No: 22.9704.1515

To replace shutter motor:

- Step 1. Remove Gobo / Shutter / Animation Assembly following procedure in [“Gobo / Shutter / Animation Assembly Removal”](#) on page 64.
- Step 2. Remove shutter blade by removing 1 x 2-56 x 1/4" PFZ screw through shutter into shutter pivot and remove pivot, keeping glide on pivot.
- Step 3. Remove 2 x 0-80 x 1/8" PFZ screws through bearing flanges and remove.
- Step 4. Remove shutter blade.
- Step 5. Remove required hardware to remove glide from around motor assembly.



- Step 6. Disconnect motor assembly wiring.
- Step 7. Remove 2 x M3 x .5 x 12 mm or 25 mm screws and remove motor assembly.



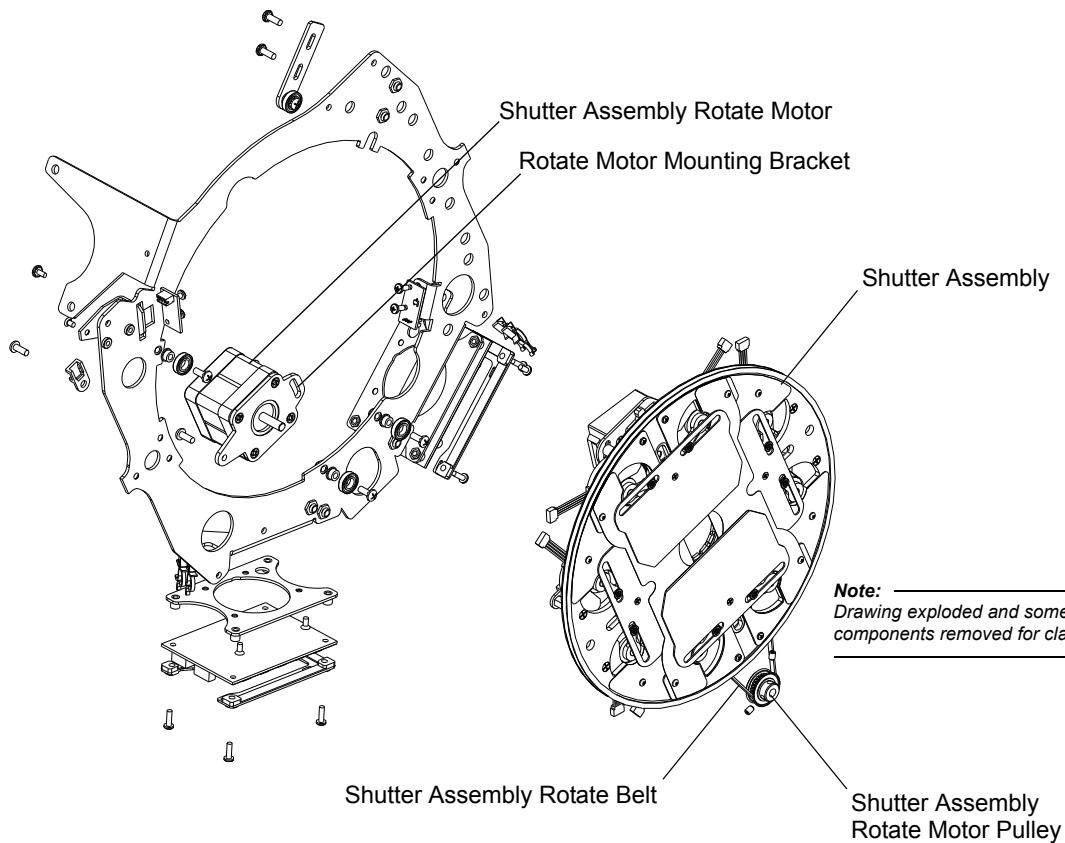
- Step 8. Replace in reverse.

Shutter Rotate Motor

Vari-Lite Part No: 44.9687.1209

To replace shutter rotate motor:

- Step 1. Remove Gobo / Shutter / Animation Assembly following procedure in “Gobo / Shutter / Animation Assembly Removal” on page 64.
- Step 2. Disconnect wiring from motor.
- Step 3. Remove 2 x 6-32 x 3/8" PPZ screws and remove motor assembly.
- Step 4. Loosen 2 x 6-32 x 3/16" cone set screw and remove pulley
- Step 5. Remove 4 x 4-40 x 1/4" PFZ screws and remove motor. Note orientation of connector to slotted part of mounting bracket.



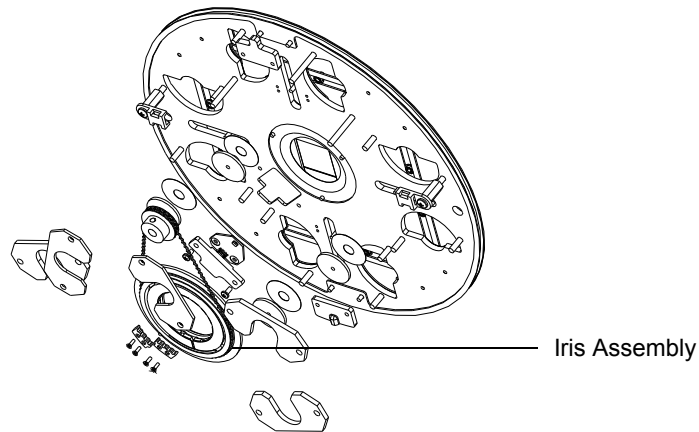
- Step 6. Replace in reverse

Iris Assembly

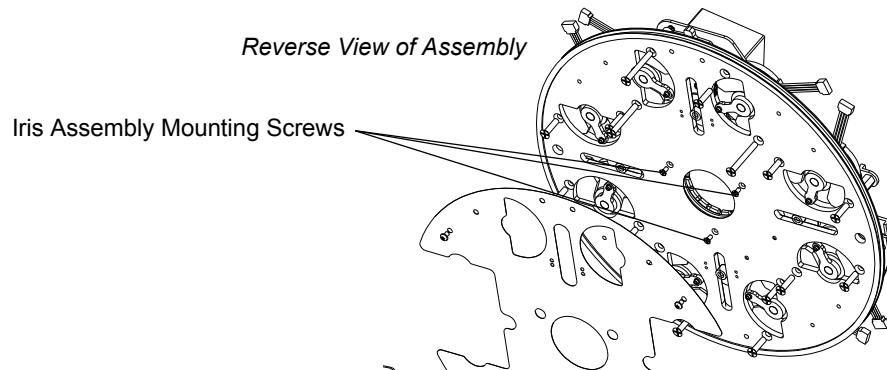
Vari-Lite Part No: 22.9704.0275

To replace iris assembly:

- Step 1. Remove Gobo / Shutter / Animation Assembly following procedure in “[Gobo / Shutter / Animation Assembly Removal](#)” on page 64.
- Step 2. Remove iris synchromesh cable following procedure in “[Iris Cable](#)” on page 101.
- Step 3. Remove 3 x M2 x .4 x 4 mm PFB screws and remove iris assembly.



Note: _____
 Drawing exploded and some
 components removed for clarity.



- Step 4. Replace in reverse.

Color Assembly Components

Vari-Lite Part No: 21.9704.4400

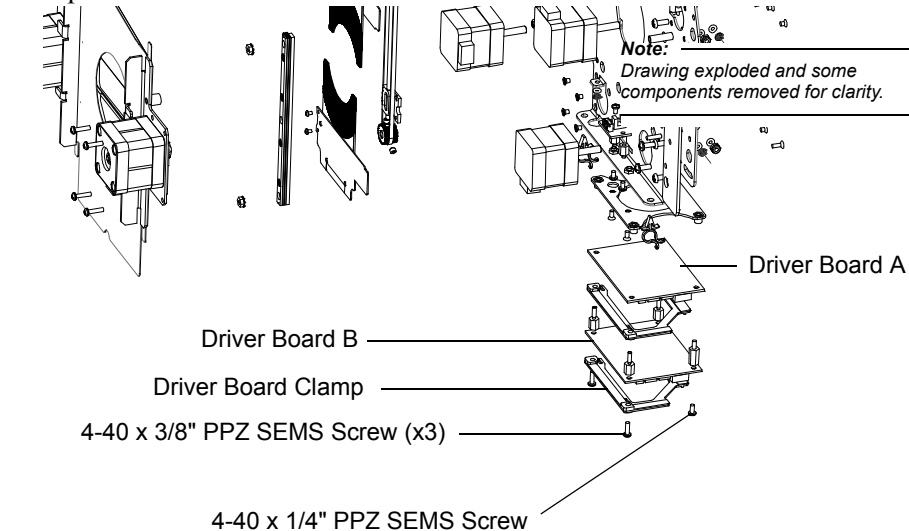
Note: The following procedures in this section may require the assembly removed from the luminaire. To remove the assembly follow the procedure described in “Color Assembly Removal” on page 63.

Driver Board B

Vari-Lite Part No: 24.9704.2901

To replace driver board B:

Step 1. Remove 3 x 4-40 x 3/8" PPZ SEMS screws that mount driver board clamp and remove clamp.



Step 2. Disconnect wiring:

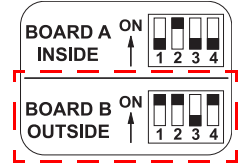
- a. Orange/Red/Black - 36 & 12 VDC
- b. COM in - Labeled CLR B (note, does not matter which goes in which connector on board)
- c. Red/Black/Yellow - Color Fan
- d. Sensor 1 - 4
 - 1) 1 - BS1 MAG - Magenta Sensor
 - 2) 2 - BS2 FIX 2 - Fixed Color Wheel 2 Sensor
 - 3) 3 - BS3 FIX 1 - Fixed Color Wheel 1 Sensor
 - 4) 4 - BS4 YEL - Yellow Sensor
- e. Motor 1 - 4
 - 1) 1 - BM1 MAG - Magenta Motor

- 2) 2 - BM2 FIX 2 - Fixed Color Wheel 2 Motor
- 3) 3 - BM3 FIX 1 - Fixed Color Wheel 1 Motor
- 4) 4 - BM4 YEL - Yellow Motor

Step 3. Remove 1 x 4-40 x 1/4" PPZ SEMS screw and remove board.

Step 4. On replacement board, set dip switches as follows:

- a. DIP SW 1 ON
- b. DIP SW 2 ON
- c. DIP SW 3 OFF
- d. DIP SW 4 ON



Step 5. Replace in reverse. Ensure wiring connections are fully seated into board.

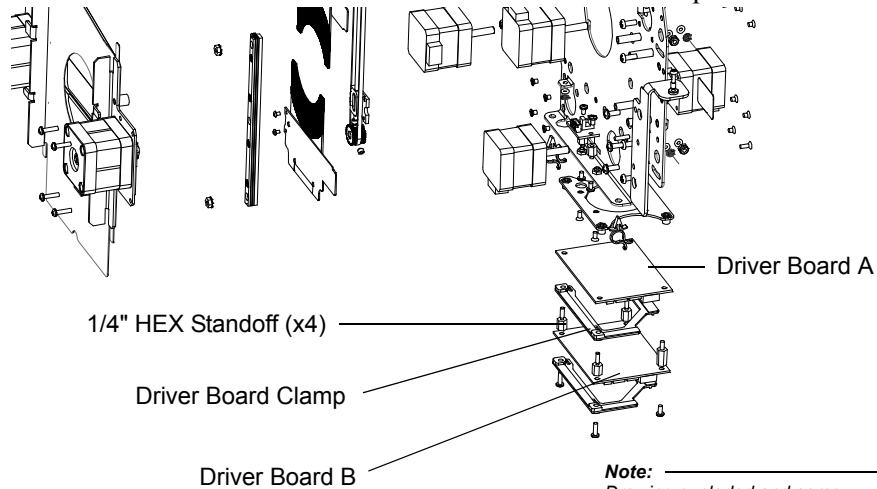
Driver Board A

Vari-Lite Part No: 24.9704.2901

To replace driver board A:

Step 1. Remove Driver Board B following procedure in “Driver Board B” chapter on page 126.

Step 2. Remove 3 x 1/4" HEX standoffs that mount driver board clamp and remove clamp.



Note: _____
Drawing exploded and some components removed for clarity.

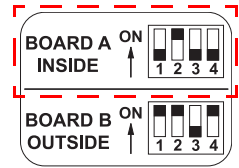
Step 3. Disconnect wiring:

- a. Orange/Red/Black - 36 & 12 VDC
- b. COM in and out - Labeled MTR DRVR & CLR A (note, does not matter which goes in which connector on board)
- c. Sensor 2 - 4
 - 1) 2 - AS2 CYAN - Cyan Sensor
 - 2) 3 - AS3 DIM - Dimmer Sensor
 - 3) 4 - AS4 CTO - CTO Sensor
- d. Motor 1 - 5
 - 1) 1 - AM1 STRB 2 - Strobe 2 Motor
 - 2) 2 - AM2 CYAN - Cyan Motor
 - 3) 3 - AM3 DIM - Dimmer Motor
 - 4) 4 - AM4 CTO - CTO Motor
 - 5) 5 - AM5 STRB 1 - Strobe 1 Motor

Step 4. Remove 1 x 1/4" HEX standoff and remove board.

Step 5. On replacement board, set dip switches as follows:

- a. DIP SW 1 OFF
- b. DIP SW 2 ON
- c. DIP SW 3 OFF
- d. DIP SW 4 OFF



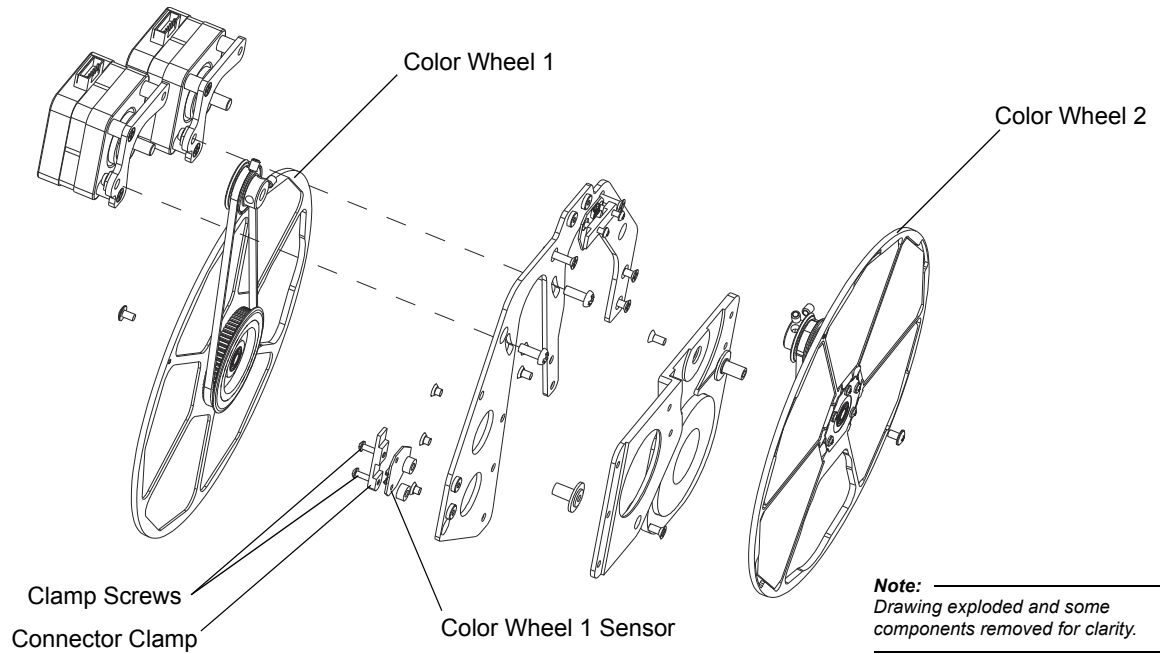
Step 6. Replace in reverse. Ensure wiring connections are fully seated into board.

Color Wheel 2 Sensor

Vari-Lite Part No: 17.9704.0904

To replace color wheel 2 sensor:

- Step 1. Remove color assembly following procedure in “Color Assembly Removal” on page 63.
- Step 2. Remove 2 x 2-56 x 3/8" PFZ screws and remove connector clamp.



- Step 3. Disconnect wiring.
- Step 4. Remove sensor.
- Step 5. Replace in reverse.

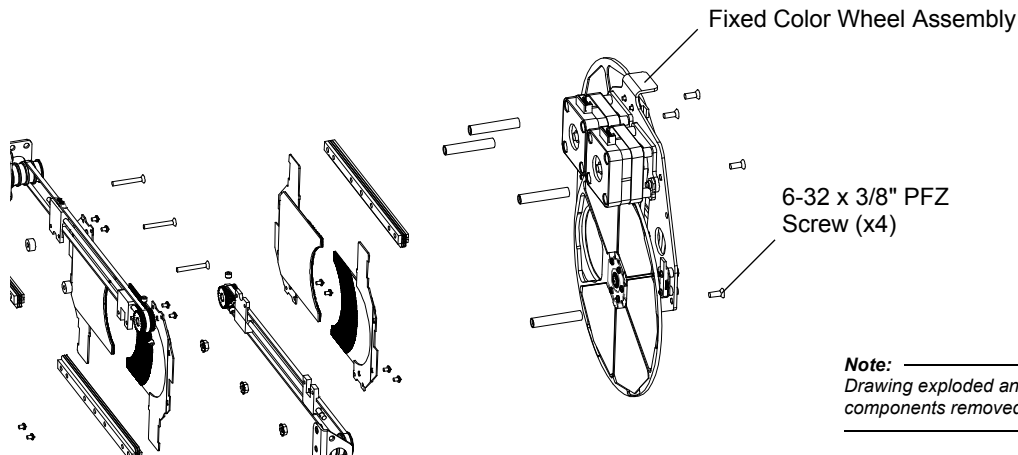
Fixed Color Wheel Assembly & Color Wheel 1 Sensor

Vari-Lite Part No: 21.9704.0415 (Fixed Color Wheel Assembly)

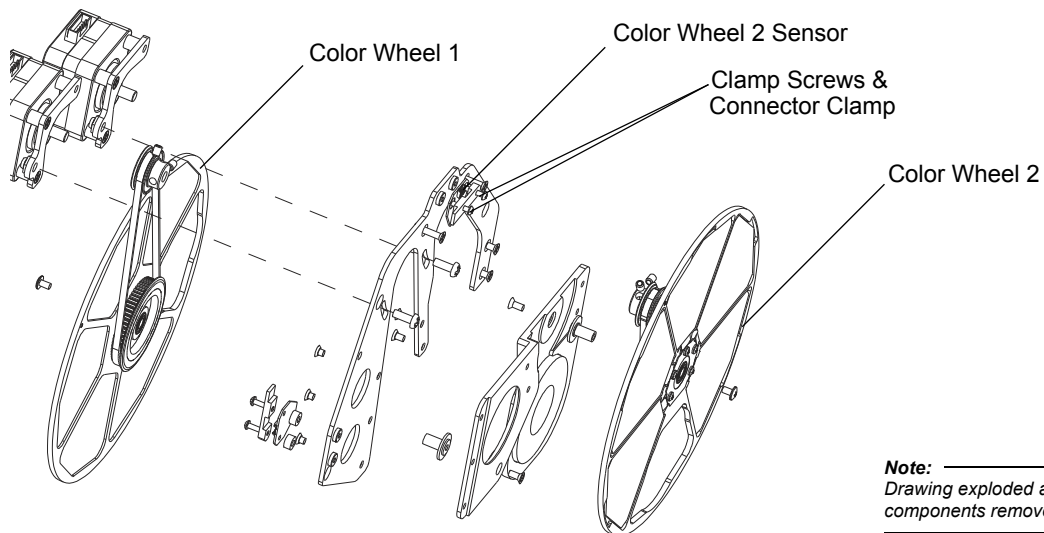
Vari-Lite Part No: 17.9704.0904 (Color Wheel 1 Sensor)

Replacing fixed color wheel assembly & color wheel 1 sensor:

- Step 1. Remove color wheel 2 sensor following procedure in “Color Wheel 2 Sensor” on page 130.
- Step 2. Disconnect wiring from motors.
- Step 3. Rotate wheel 2 so open hole gives access to remove 4 x 6-32 x 3/8" PFZ screws mounting assembly.



- Step 4. Being careful of Color Wheel 1 sensor, lift assembly. Noting placement of cable ties, cut cable ties as required.
- Step 5. Remove 2 x 2-56 x 3/8" PFZ screws and remove connector clamp, wiring, sensor, and spacers.



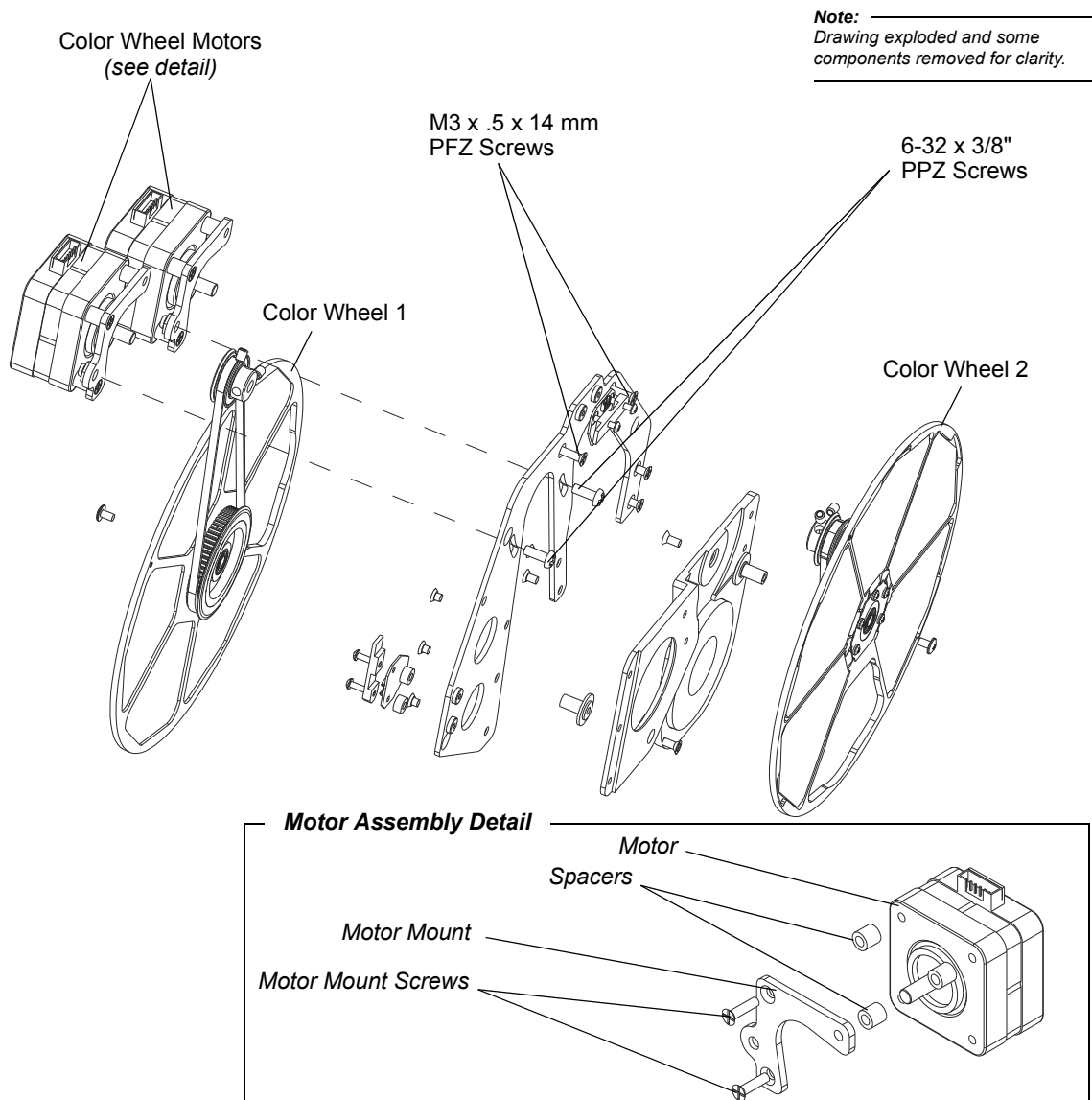
- Step 6. Replace in reverse.

Fixed Color Wheel 1 & 2 Motors

Vari-Lite Part No: 44.9704.0418

To remove fixed color wheel 1 motor or color wheel 2 motor:

- Step 1. Remove fixed color wheel assembly following procedure in “Fixed Color Wheel Assembly & Color Wheel 1 Sensor” on page 131.
- Step 2. Remove 1 x 6-32 x 3/8" PPZ screw through slot and 1 x M3 x .5 x 14 mm PFZ screw and remove motor assembly.
- Step 3. Loosen 2 x 6-32 x 3/16" cone set screw and remove pulley.
- Step 4. Remove 2 x M3 x .5 x 12 mm PFZ screws and spacers and remove motor from mount.



- Step 5. Replace in reverse.

Fixed Color Wheel 2 & Belt

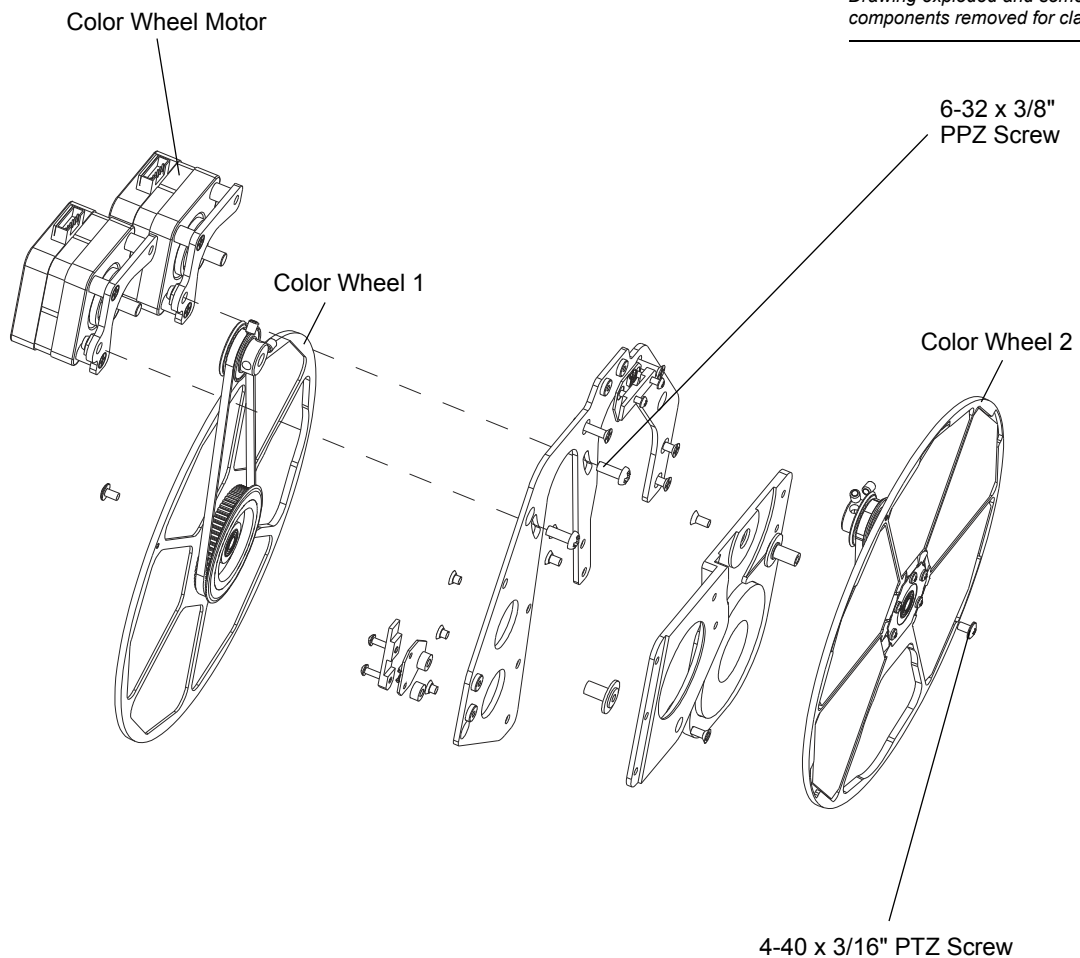
Vari-Lite Part No: 21.9704.0435 (Fixed Color Wheel 2)

Vari-Lite Part No: 54.9704.0390 (Belt)

To replace fixed color wheel 2 and belt:

- Step 1. Remove fixed color wheel assembly following procedure in “Fixed Color Wheel Assembly & Color Wheel 1 Sensor” on page 131.
- Step 2. Loosen 1 x 6-32 x 3/8" PPZ screw, slide motor and loosen belt.
- Step 3. Remove 1 x 4-40 x 3/16" PTZ screw and remove wheel & belt.

Note: _____
Drawing exploded and some
components removed for clarity.



- Step 4. Replace in reverse.

Fixed Color Wheel 1 & Belt

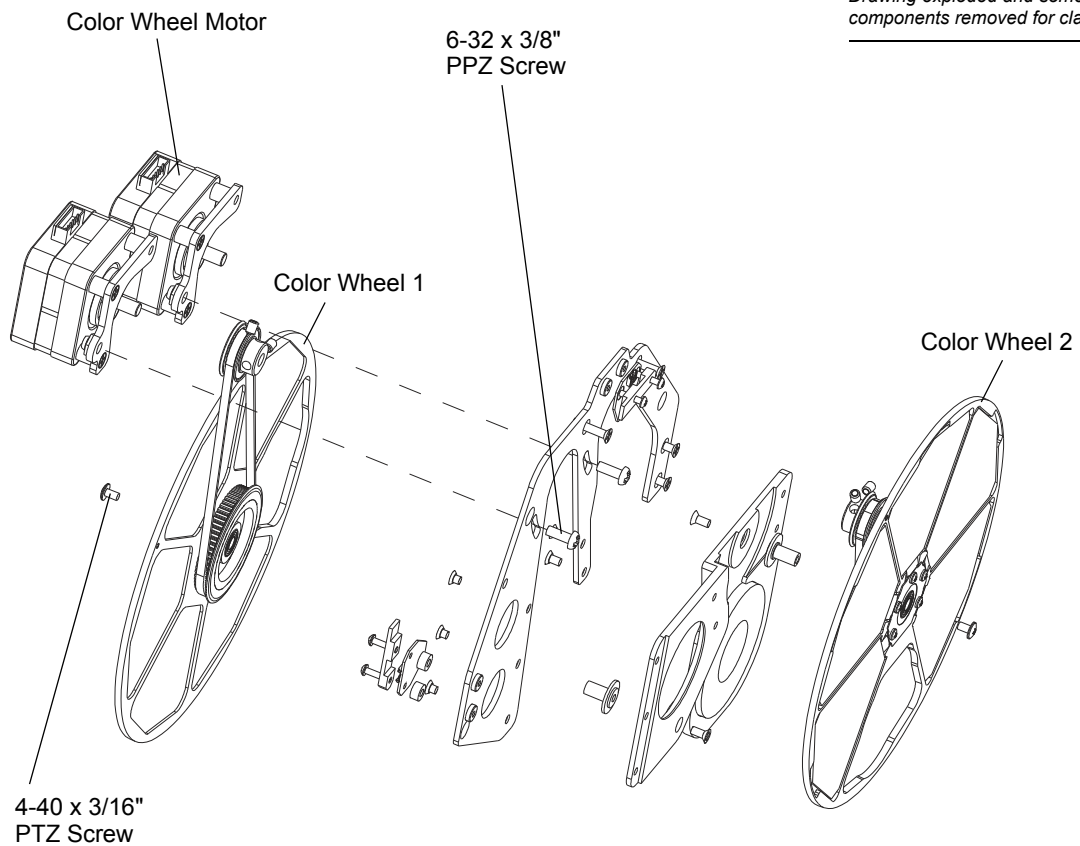
Vari-Lite Part No: 21.9704.0430 (Fixed Color Wheel 1)

Vari-Lite Part No: 54.9698.0002 (Belt)

To replace fixed color wheel 1 and belt:

- Step 1. Remove fixed color wheel assembly following procedure in “[Fixed Color Wheel Assembly & Color Wheel 1 Sensor](#)” on page 131.
- Step 2. Loosen 1 x 6-32 x 3/8" PPZ screw, slide motor and loosen belt.
- Step 3. Remove 1 x 4-40 x 3/16" PTZ screw and remove wheel & belt.

Note: _____
Drawing exploded and some
components removed for clarity.



- Step 4. Replace in reverse.

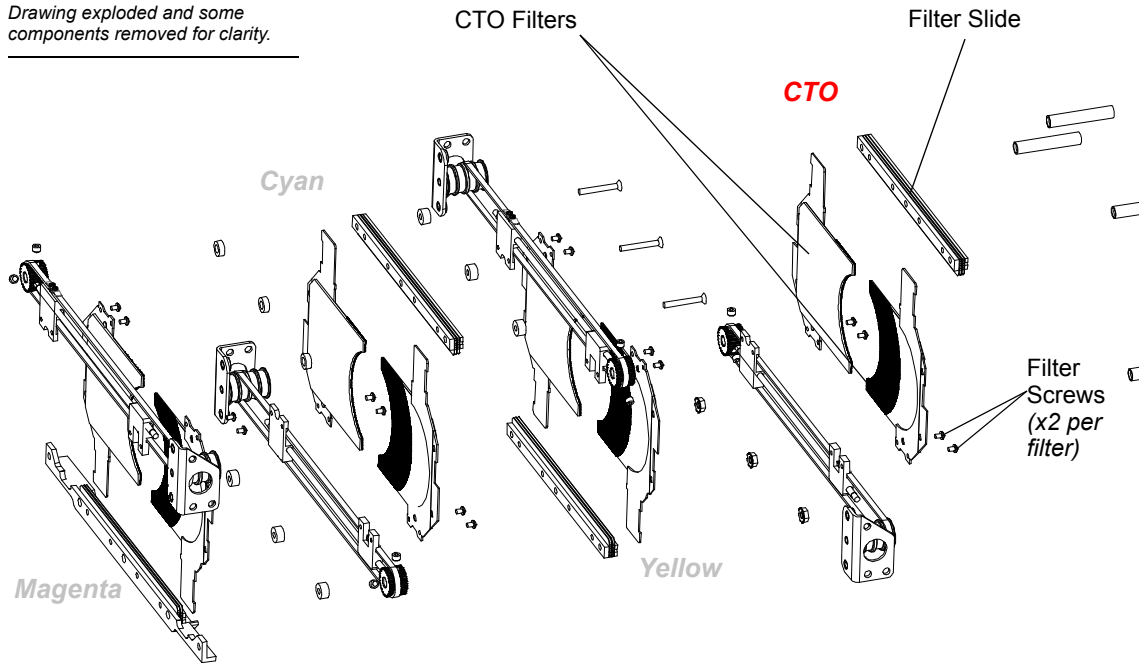
CTO Filters

Vari-Lite Part No: 22.9704.5478 (x2)

To replace CTO filters:

- Step 1. Remove fixed color wheel assembly following procedure in “Fixed Color Wheel Assembly & Color Wheel 1 Sensor” on page 131.
- Step 2. At top filter, remove 2 x 2-56 x 3/16" PPZ screws and lift filter from slide.
- Step 3. At bottom filter, remove 2 x 3-56 x 1/8" PPZ screws and lift filter from slide.

Note: _____
 Drawing exploded and some components removed for clarity.



- Step 4. Replace in reverse.

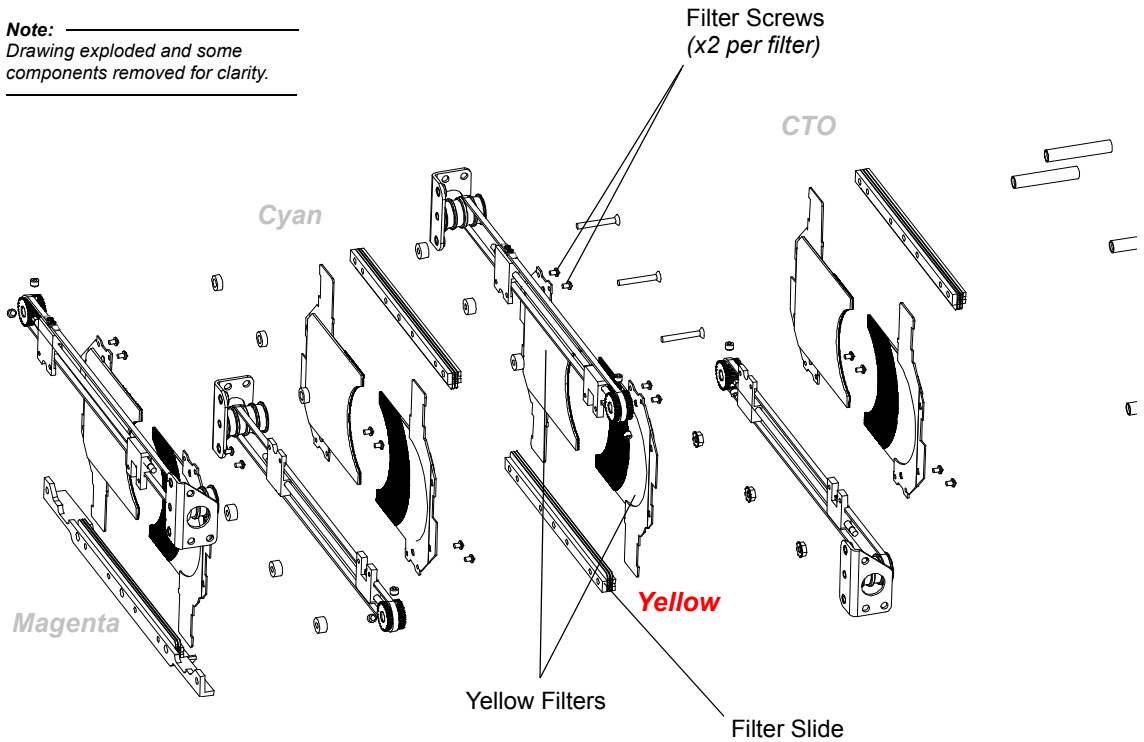
Yellow Filters

Vari-Lite Part No: 22.9704.5476 (x2)

To replace yellow filters:

- Step 1. Remove CTO filters following procedure in “CTO Filters” on page 135.
- Step 2. At top filter, remove 2 x 2-56 x 3/16" PPZ screws and lift filter from slide.
- Step 3. At bottom filter, remove 2 x 3-56 x 1/8" PPZ screws and lift filter from slide.

Note: _____
Drawing exploded and some components removed for clarity.



- Step 4. Replace in reverse.

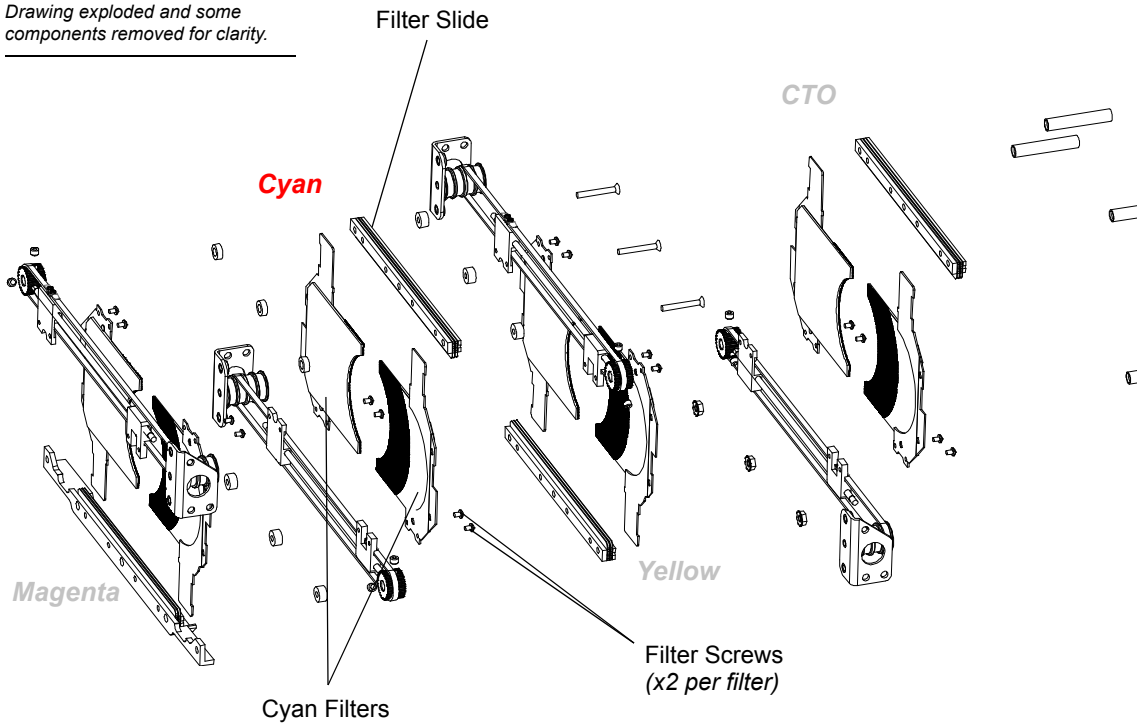
Cyan Filters

Vari-Lite Part No: 22.9704.5474 (x2)

To replace cyan filters:

- Step 1. Remove Yellow filters following procedure in “Yellow Filters” on page 136.
 Step 2. At top filter, remove 2 x 2-56 x 3/16" PPZ screws and lift filter from slide.
 Step 3. At bottom filter, remove 2 x 3-56 x 1/8" PPZ screws and lift filter from slide.

Note: _____
 Drawing exploded and some components removed for clarity.



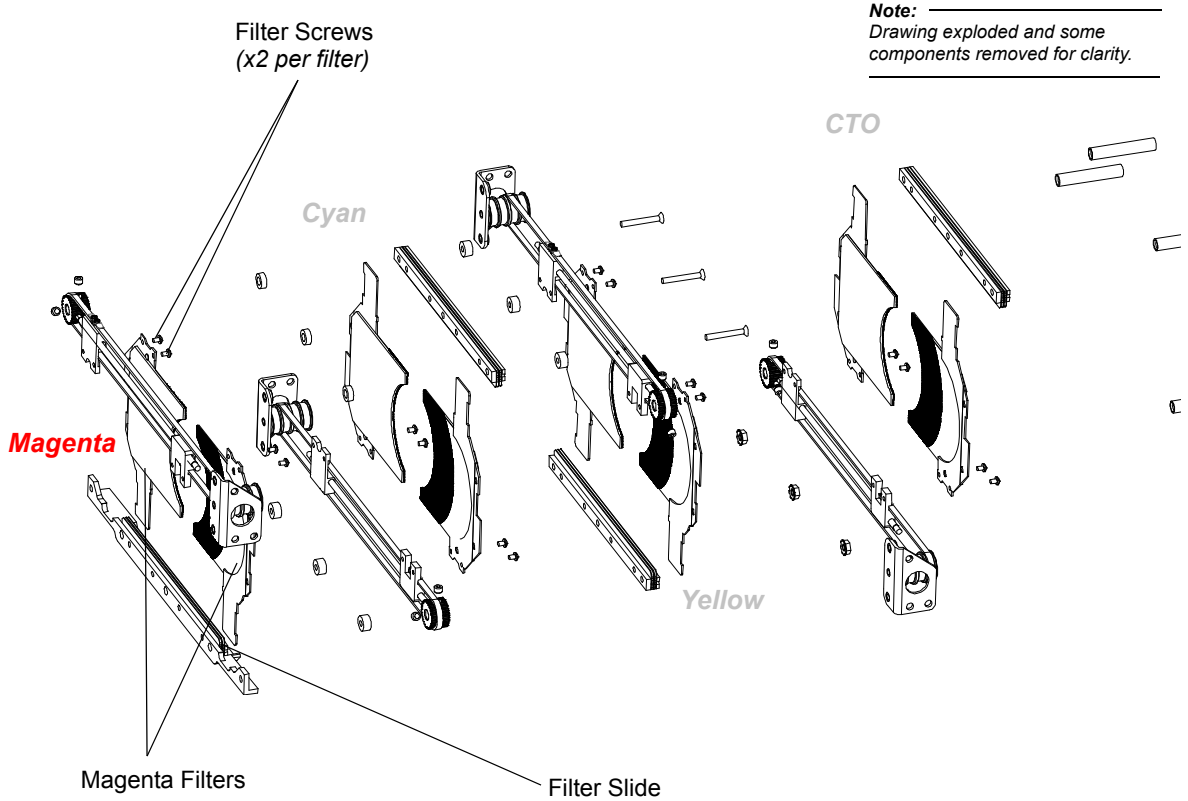
- Step 4. Replace in reverse.

Magenta Filters

Vari-Lite Part No: 22.9704.5472 (x2)

To replace magenta filters:

- Step 1. Remove Cyan filters following procedure in “Cyan Filters” on page 137.
- Step 2. At top filter, remove 2 x 2-56 x 3/16" PPZ screws and lift filter from slide.
- Step 3. At bottom filter, remove 2 x 3-56 x 1/8" PPZ screws and lift filter from slide.



- Step 4. Replace in reverse.

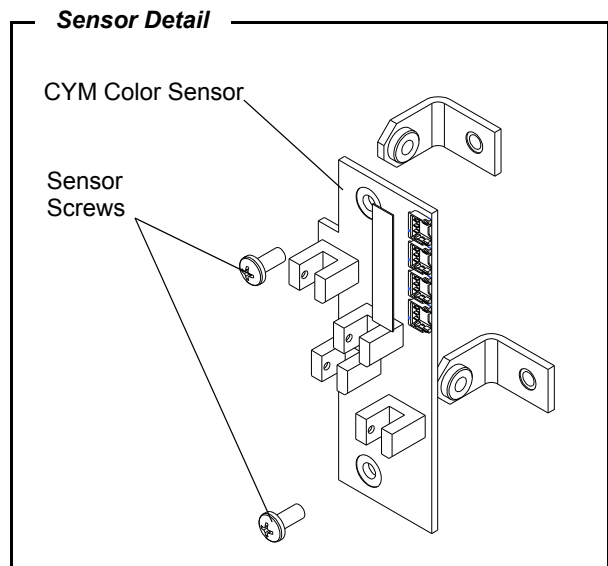
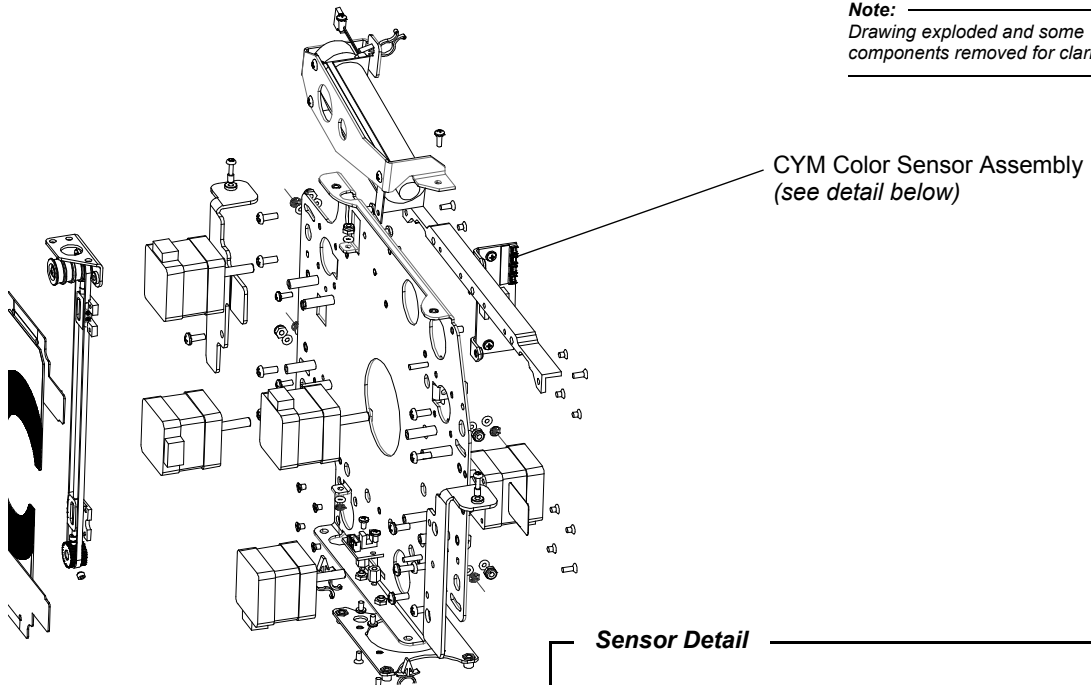
CYM Color Sensor

Vari-Lite Part No: 24.9704.0903

To replace CYM color sensor:

- Step 1. Remove fixed color wheel assembly following procedure in “Fixed Color Wheel Assembly & Color Wheel 1 Sensor” on page 131.
- Step 2. Disconnect wiring from CYM color sensor.
- Step 3. Remove 2 x 4-40 x 1/4" PPZ screws and remove sensor.

Note: _____
Drawing exploded and some
components removed for clarity.



- Step 4. Replace in reverse.

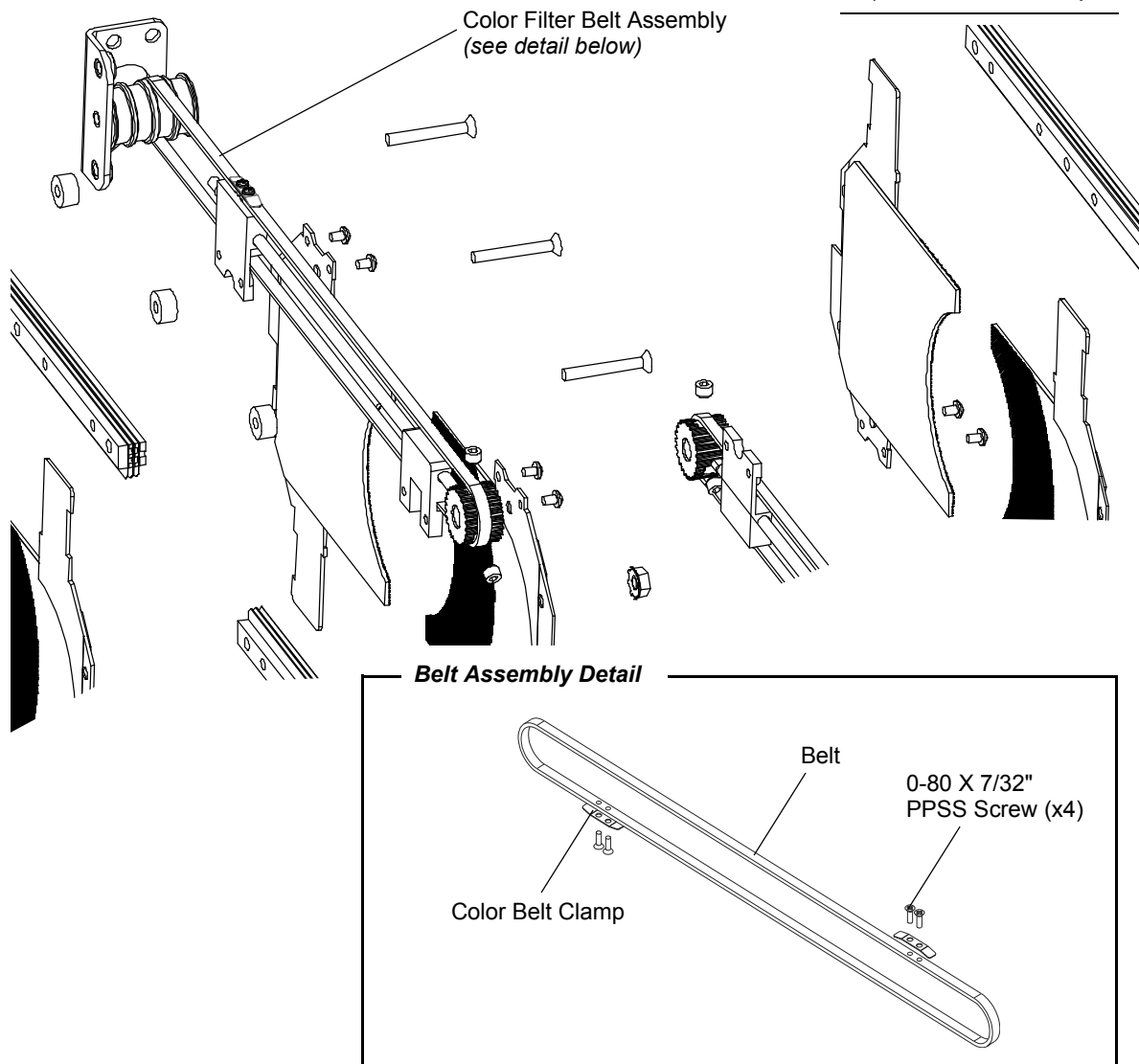
Color Filter Belt Assembly

Vari-Lite Part No: 21.9704.0412

To replace color filter belt assembly:

- Step 1. Remove required color filters following procedure in “CTO Filters” on page 135 or “Yellow Filters” on page 136 or “Cyan Filters” on page 137 or “Magenta Filters” on page 138.
- Step 2. Loosen belt tension by loosening 1 x 6-32 x 3/8" PPZ screws through slot and sliding roller.
- Step 3. At each slide, remove 2 x 0-80 x 7/32" PPSS (or PFS) screws and remove belt assembly.
Note, these screws and belt clamps will come with replacement belt.

Note: _____
Drawing exploded and some components removed for clarity.

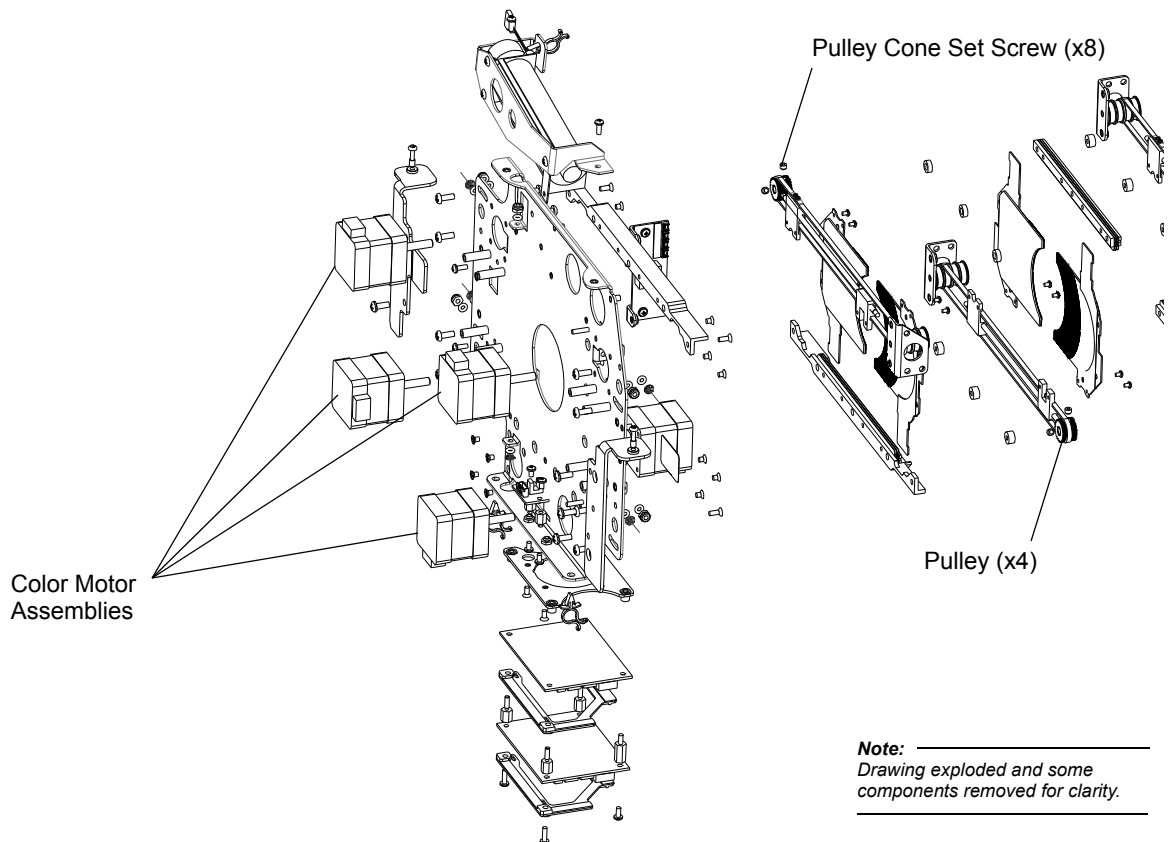


- Step 4. Replace in reverse.

Color Motor Assembly

44.9704.1213

- Step 1. Remove fixed color wheel assembly following procedure in “Fixed Color Wheel Assembly & Color Wheel 1 Sensor” on page 131.
- Step 2. Disconnect wiring from motor.
- Step 3. Loosen belt tension by loosening 1 x 6-32 x 3/8" PPZ screw through slot and sliding roller.
- Step 4. Remove 1 x M3 x .5 x 8mm PFZ screw and 3 x M3 x .5 x 5mm PFZ screw and remove motor.
- Step 5. Loosen 2 x 8-32 x .125" set screw and remove pulley.



- Step 6. Replace in reverse.

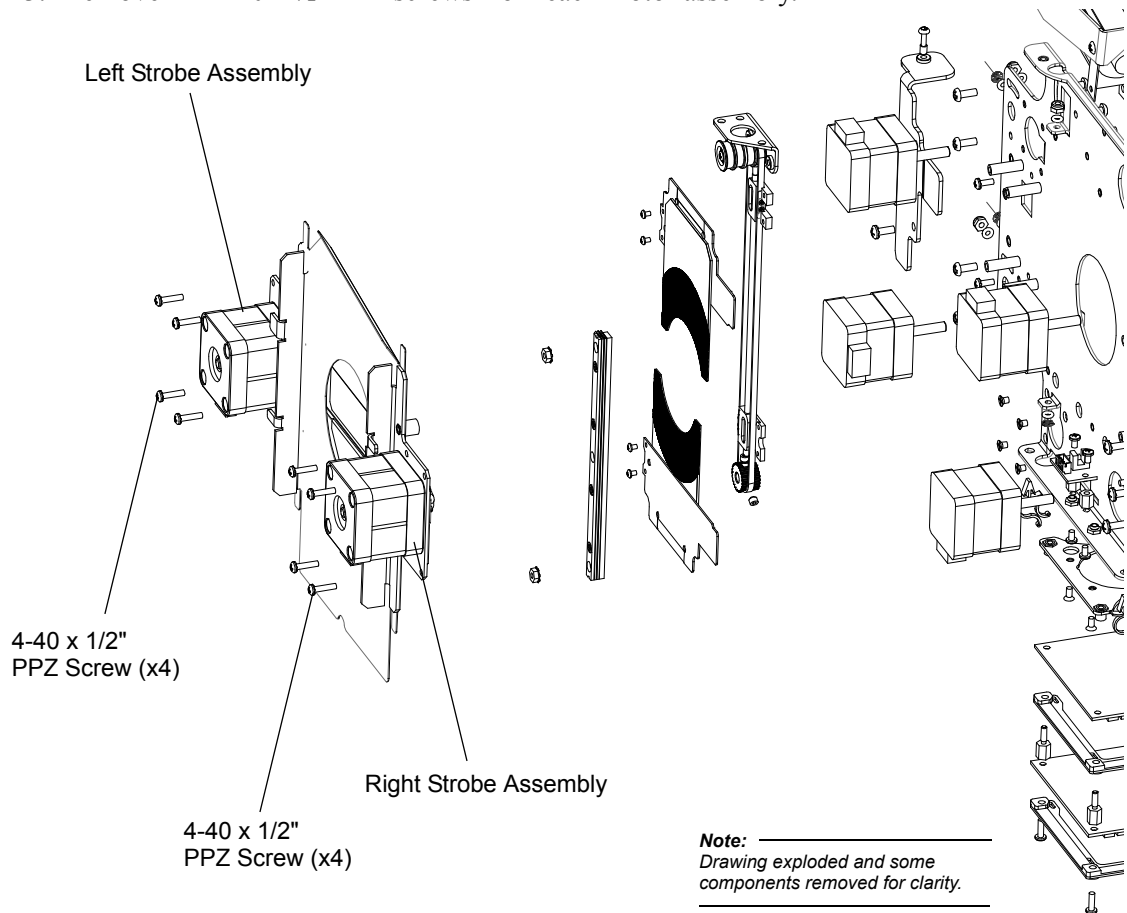
Strobe Assembly

Vari-Lite Part No: 21.9704.0431 (Left)

Vari-Lite Part No: 21.9704.0432 (Right)

To remove left and right strobe assemblies:

- Step 1. Remove color assembly following procedure in “Fixed Color Wheel Assembly & Color Wheel 1 Sensor” on page 131.
- Step 2. Disconnect wiring from strobe motors.
- Step 3. Remove 4 x 4-40 x 1/2" PPZ screws from each motor assembly.



Step 4. Carefully pull wiring from around motor.

Step 5. Lift both left and right assembly.

Note: The right assembly has light shield attached.

Step 6. Replace in Reverse order

Strobe Blades

Vari-Lite Part No: 22.9704.0453 (Left)

Vari-Lite Part No: 22.9704.0454 (Right)

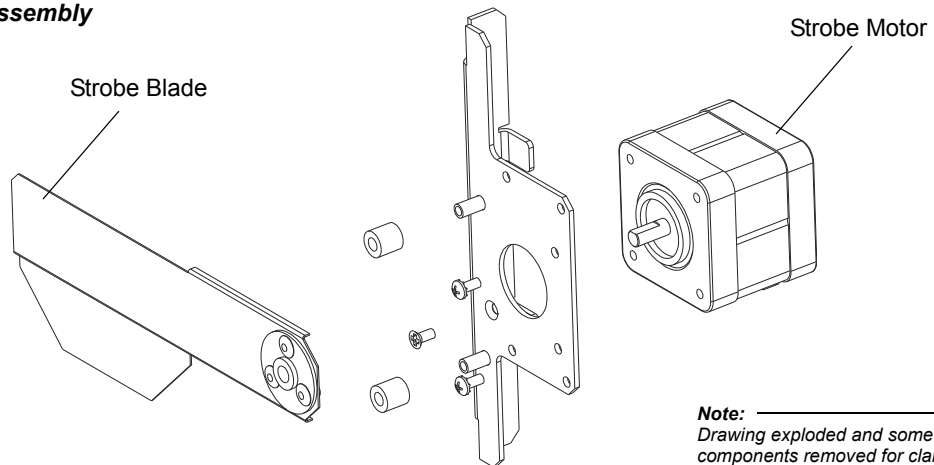
To replace the left or right strobe blades:

- Step 1. Remove strobe assembly following procedure in “[Strobe Assembly](#)” on page 142.
 Step 2. Mark location of existing blade against stop in closed position (straight out from motor)*.

Note: *If you do not mark, leave a gap of 0.060" for right, 0.035" for left between hub and motor.

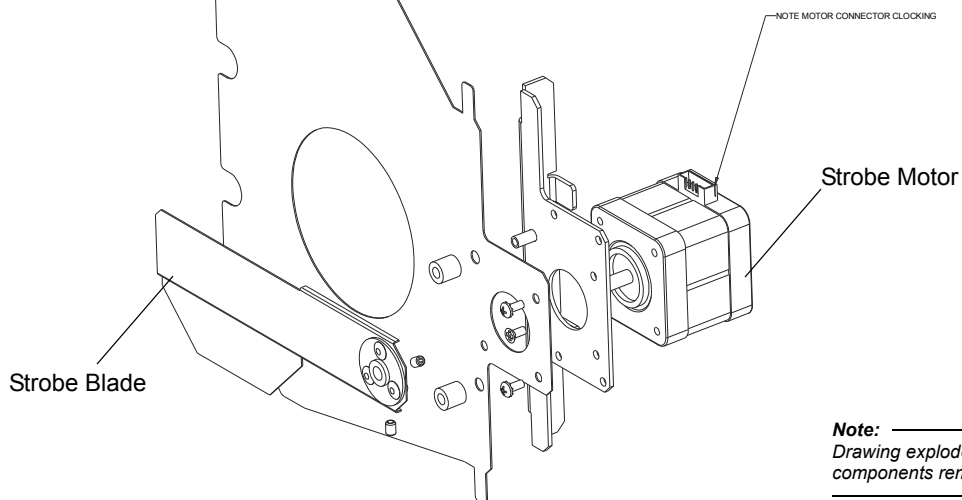
- Step 3. Loosen 2 x 6-32 x 3/16" cone set screw and remove blade assembly (note, replacement assembly comes with these screws).

Left Strobe Assembly



Note:
 Drawing exploded and some components removed for clarity.

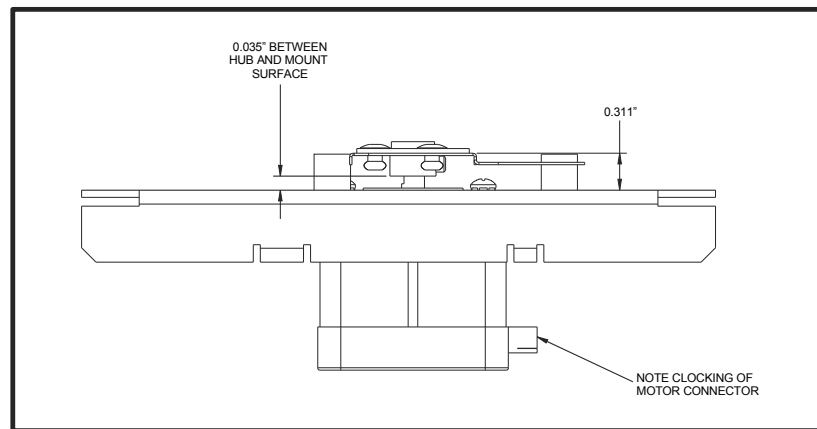
Right Strobe Assembly



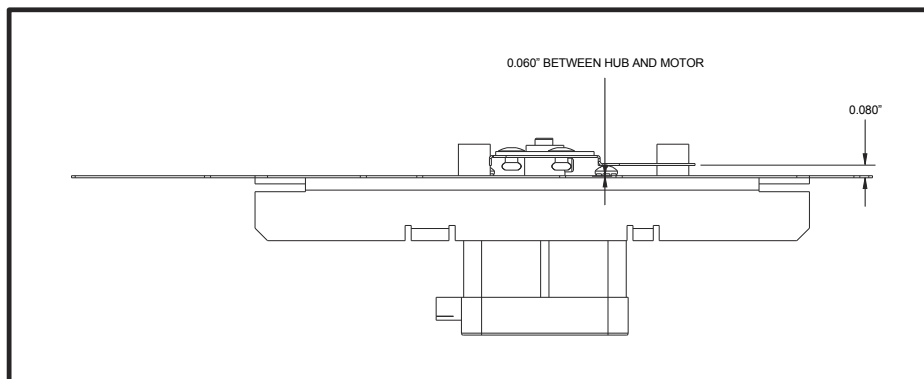
Note:
 Drawing exploded and some components removed for clarity.

- Step 4. Replace by following these sub steps in order:
- Power motor.
 - Place blade assembly on motor shaft.
 - Align to mark on stop in closed position as described in Step 2. OR, 0.060" for right, 0.035" for left gap between hub and motor.
 - Tighten set screws while holding blade against stop.

Left Strobe Assembly



Right Strobe Assembly



- Step 5. Continue reassembly in reverse.

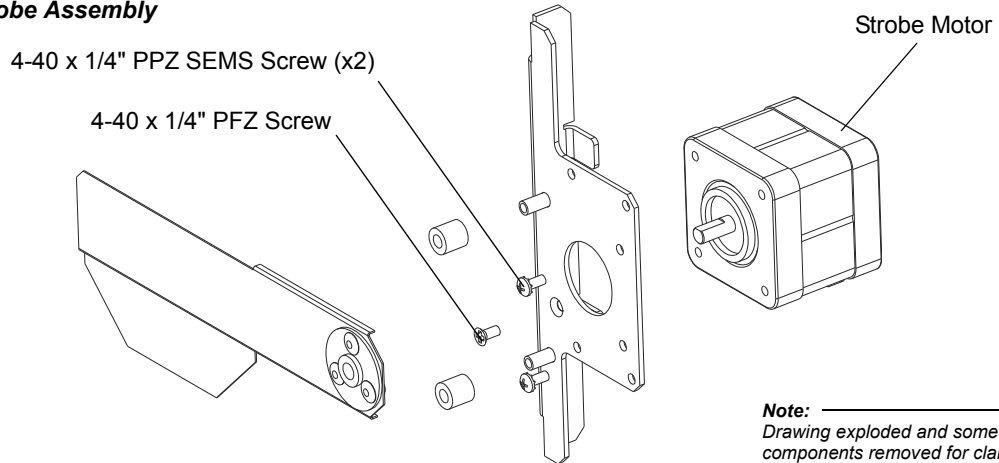
Strobe Motor

Vari-Lite Part No: 44.9687.1204

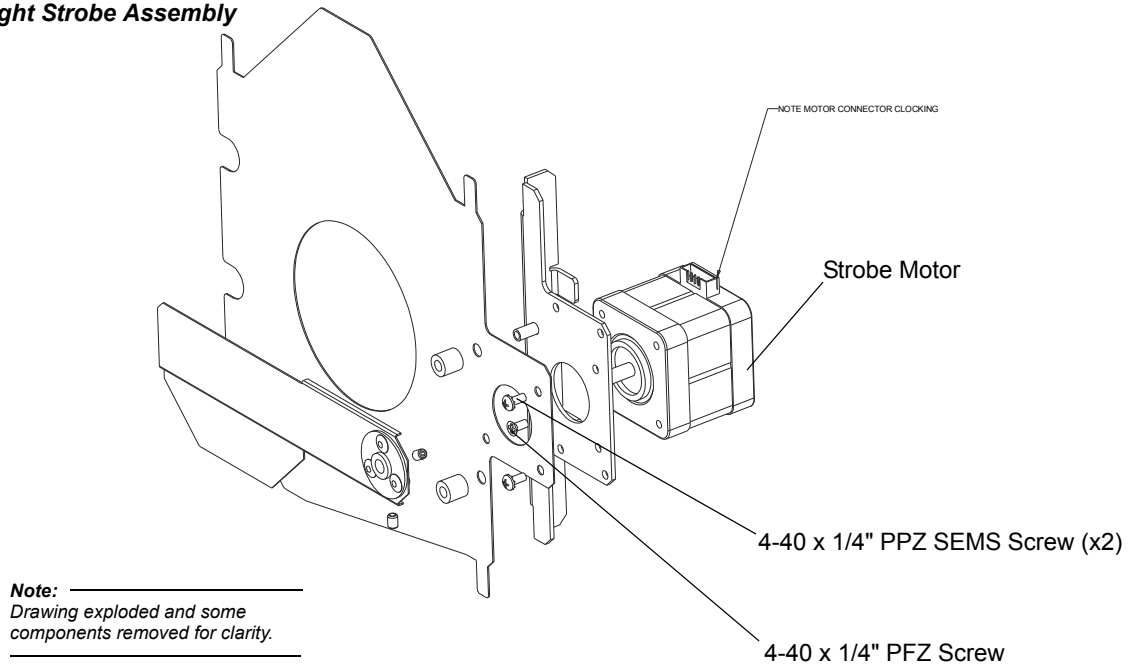
To replace strobe motor:

- Step 1. Remove strobe blade following procedure in “Strobe Blades” on page 143.
- Step 2. Remove 2 x 4-40 x 1/4" PPZ SEMS screws and 1 x 4-40 x 1/4" PFZ screw and remove motor, noting connector position in relation to bracket.

Left Strobe Assembly



Right Strobe Assembly



- Step 3. Replace in reverse.

Dimmer Flags

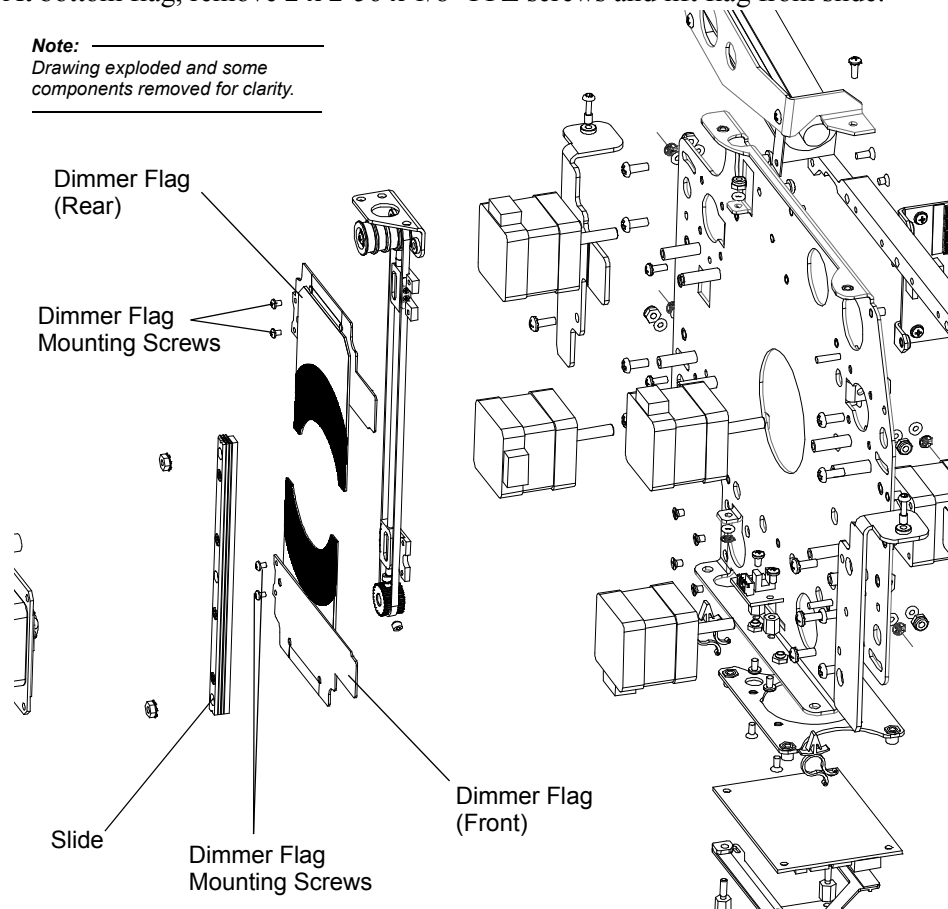
Vari-Lite Part No: 22.9704.5480 (Rear)

Vari-Lite Part No: 22.9704.5470 (Front)

To replace dimmer flags:

- Step 1. Remove strobe assembly following procedure in “[Strobe Assembly](#)” on page 142.
- Step 2. At rear flag, remove 2 x 2-56 x 3/16" PPZ screws and lift flag from slide.
- Step 3. At bottom flag, remove 2 x 2-56 x 1/8" PPZ screws and lift flag from slide.

Note:
Drawing exploded and some components removed for clarity.



- Step 4. Replace in reverse, ensuring that DARK SIDE of carriers face away from you.

Note: There may be washers added between flag and slide as required to prevent scraping. If using, make sure they do not stick out the edge of the slide.

Dimmer Belt

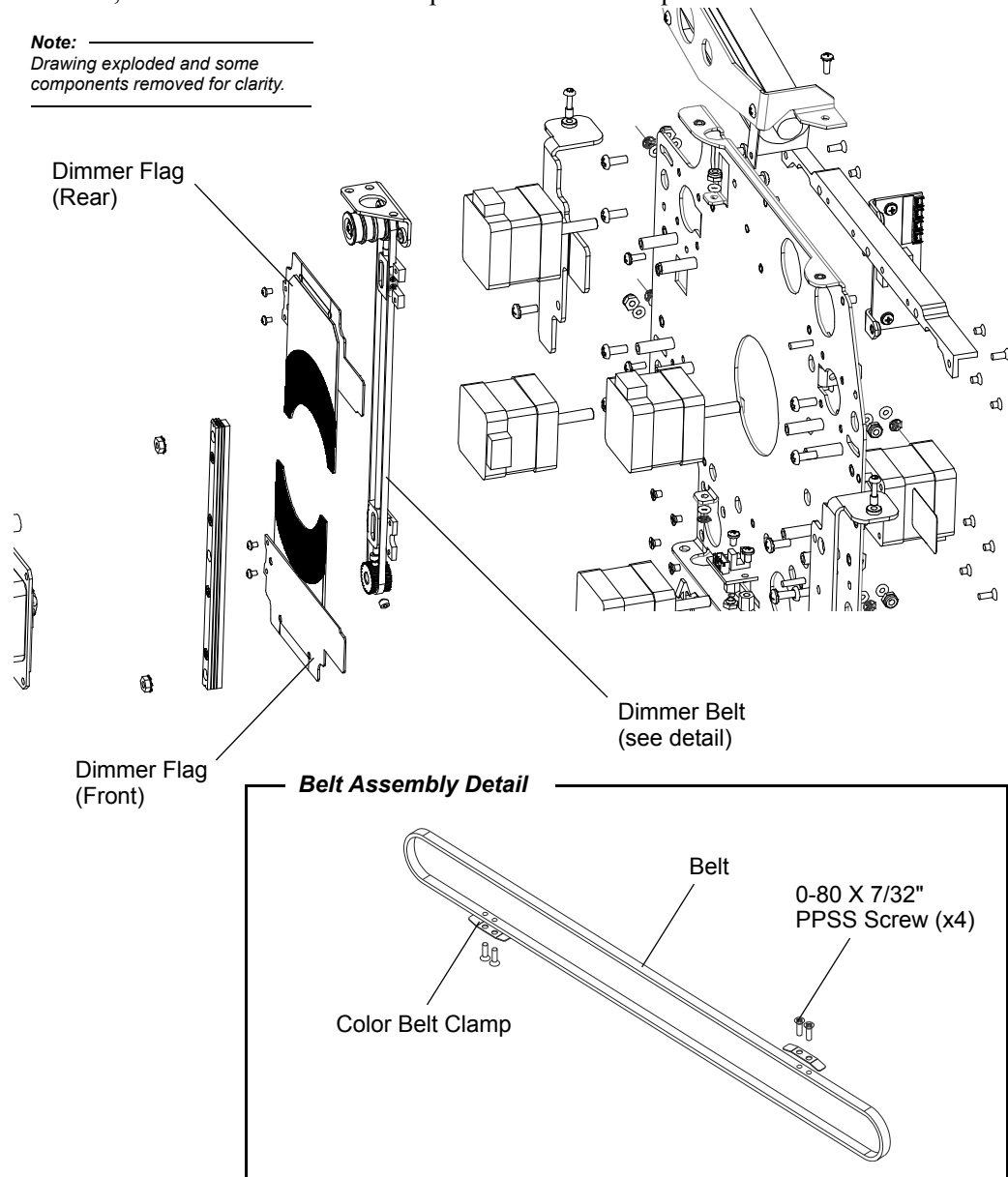
Vari-Lite Part No: 21.9704.0411

To replace dimmer belt:

- Step 1. Remove dimmer flags following procedure in “Dimmer Flags” on page 146.
- Step 2. Loosen belt tension by loosening 1 x 6-32 x 3/8" PPZ screws through slot and sliding roller.
- Step 3. At each slide, remove 2 x 0-80 x 7/32" PPSS (or PFS) screws and remove belt assembly.
Note, these screws and belt clamps will come with replacement belt.

Note:

Drawing exploded and some components removed for clarity.



- Step 4. Replace in reverse.

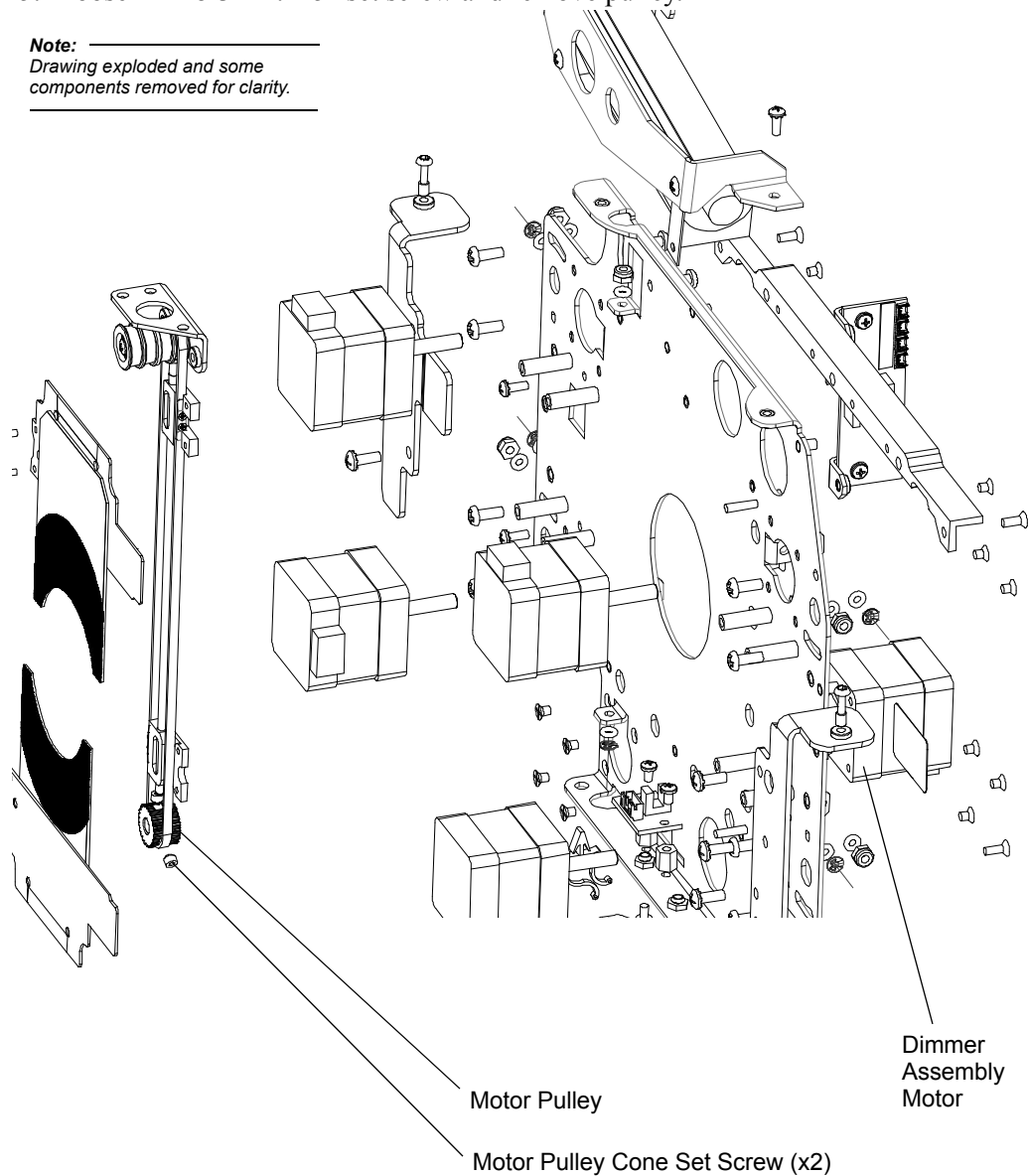
Dimmer Motor

Vari-Lite Part No: 44.9704.1214

To replace the dimmer motor:

- Step 1. Remove strobe assembly following procedure in “Strobe Assembly” on page 142.
- Step 2. Disconnect wiring from motor.
- Step 3. Loosen belt tension by loosening 1 x 6-32 x 3/8" PPZ screw through slot and sliding roller.
- Step 4. Remove 4 x M3 x .5 x 5mm PFZ screw and remove motor.
- Step 5. Loosen 2 x 8-32 x .125" set screw and remove pulley.

Note: _____
Drawing exploded and some
components removed for clarity.



- Step 6. Replace in reverse.

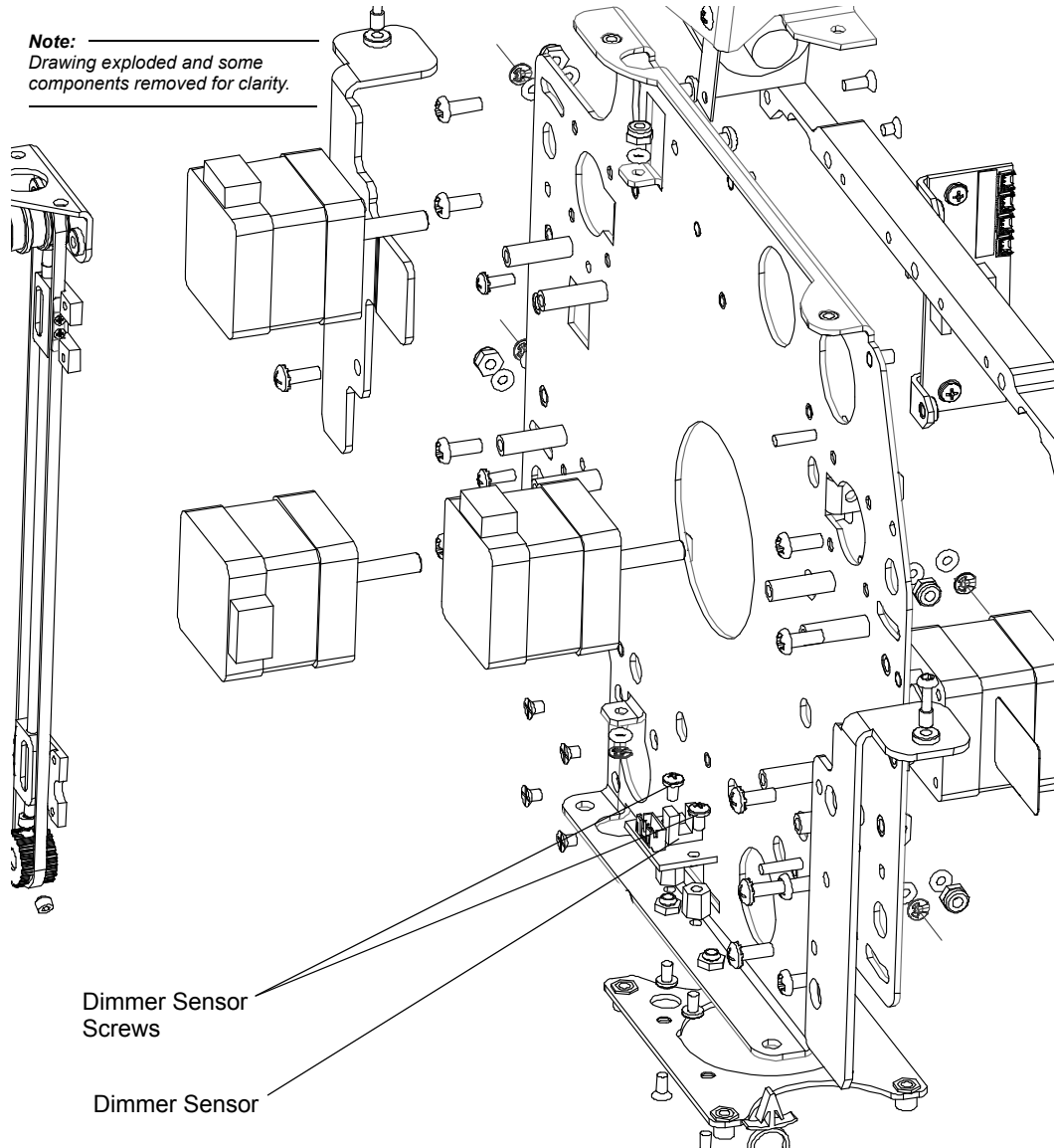
Dimmer Sensor

Vari-Lite Part No: 24.9698.1231

To replace the dimmer sensor:

- Step 1. Remove strobe assembly following procedure in “Strobe Assembly” on page 142.
- Step 2. Disconnect wiring from sensor.
- Step 3. Remove 2 x 4-40 x 3/16" PPZ screws and remove sensor.

Note:
Drawing exploded and some
components removed for clarity.



- Step 4. Replace in reverse.

Notes

CHAPTER 3.

Illustrated Parts Breakdown

This chapter contains illustrated parts breakdowns for all VL4000 Spot Luminaire assemblies.

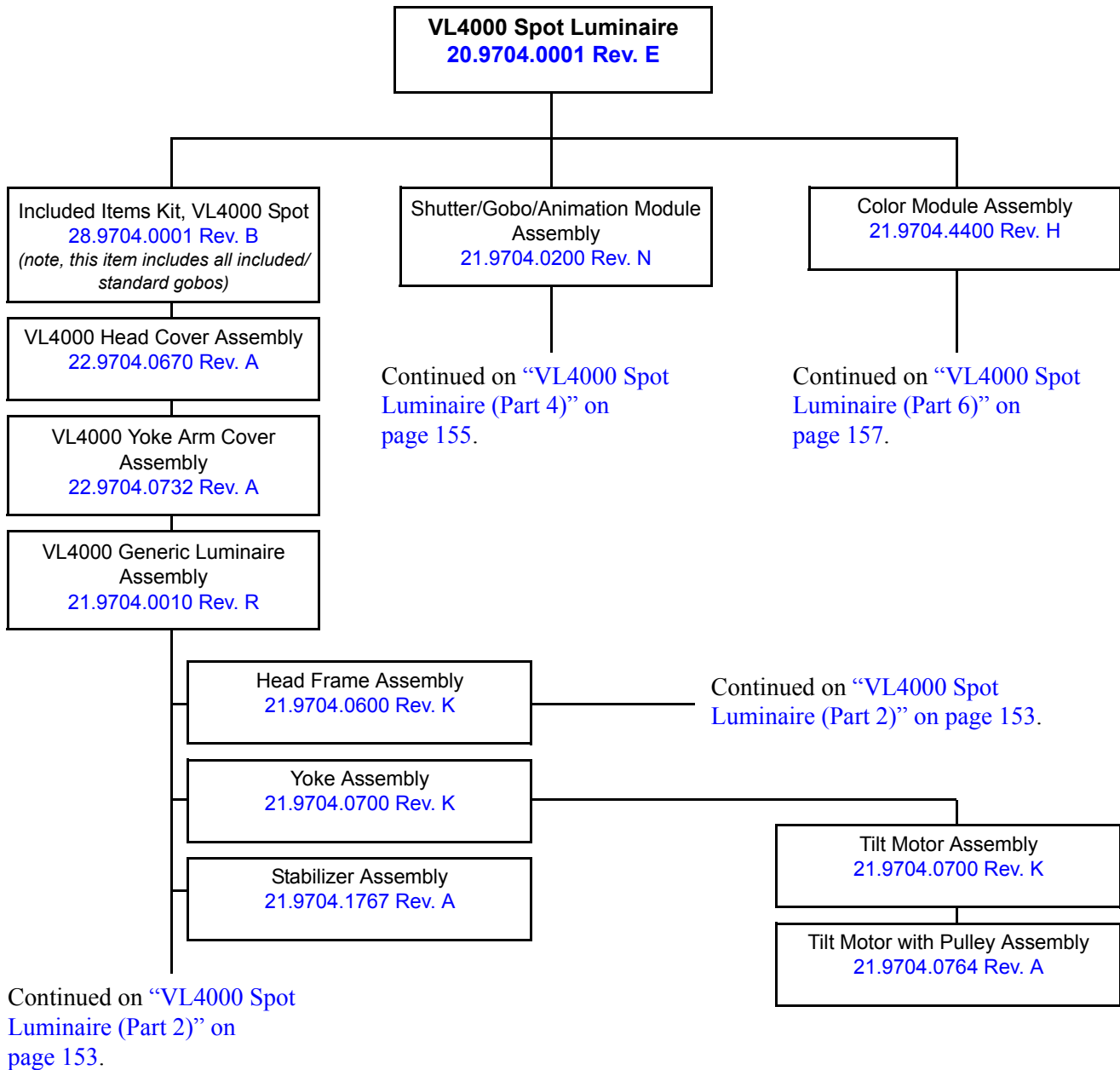
- **Drawing Trees**
- **Principle of Operation**
- **Top Assembly**
- **Head Assembly**
- **Yoke Assembly**
- **Enclosure Assembly**
- **Cable Assemblies**



SERVICE

Drawing Trees

VL4000 Spot Luminaire (Part 1)



NOTE: The drawing tree is for reference only. This section is not intended for direct parts ordering. Refer to the proper section within this manual for part numbers and descriptions.

Figure 3-1: VL4000 Spot Luminaire Subassembly Drawing Tree Part 1

VL4000 Spot Luminaire (Part 2)

NOTE: The drawing tree is for reference only. This section is not intended for direct parts ordering. Refer to the proper section within this manual for part numbers and descriptions.

Continued from “VL4000 Spot Luminaire (Part 1)” on page 152.

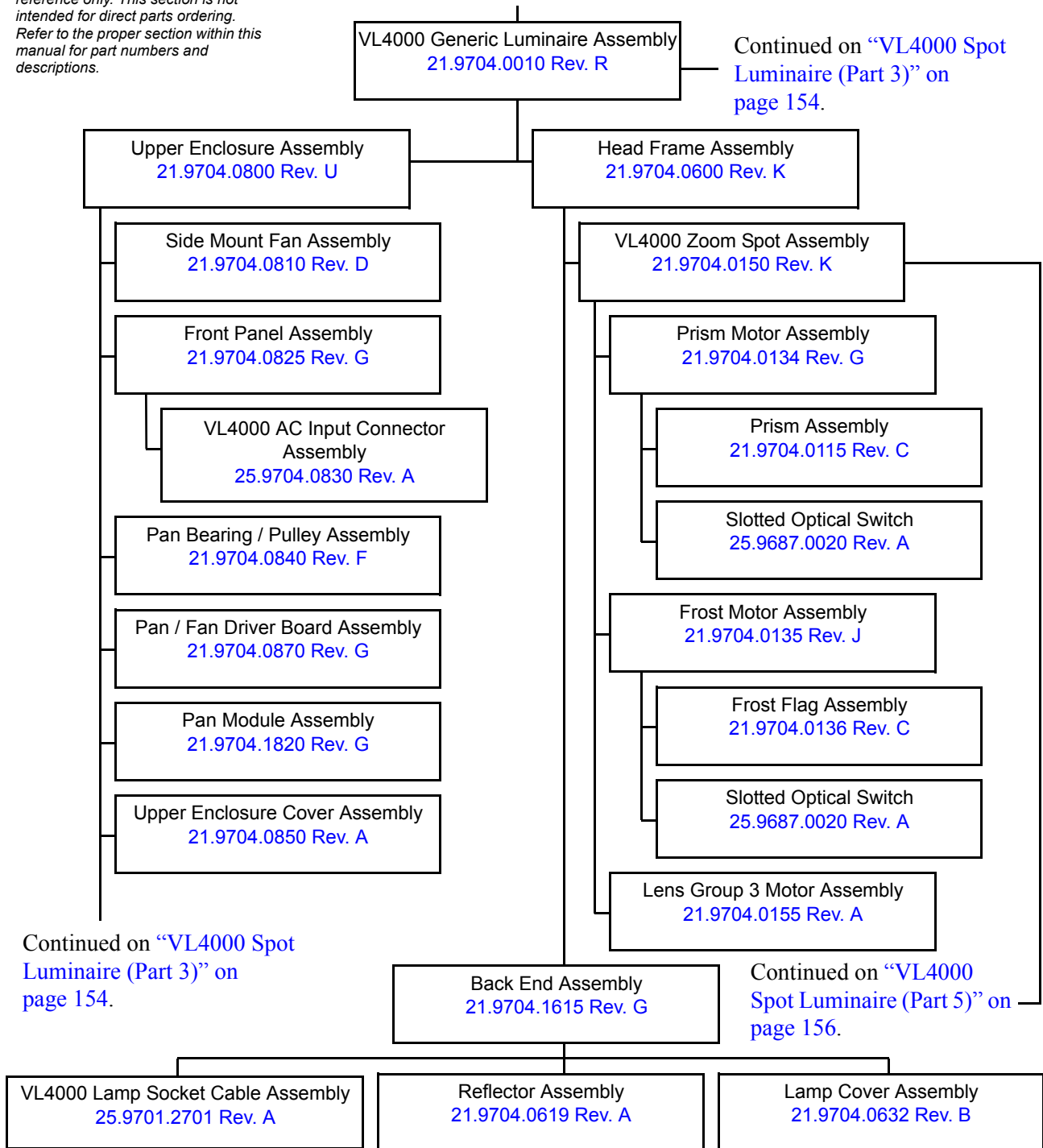
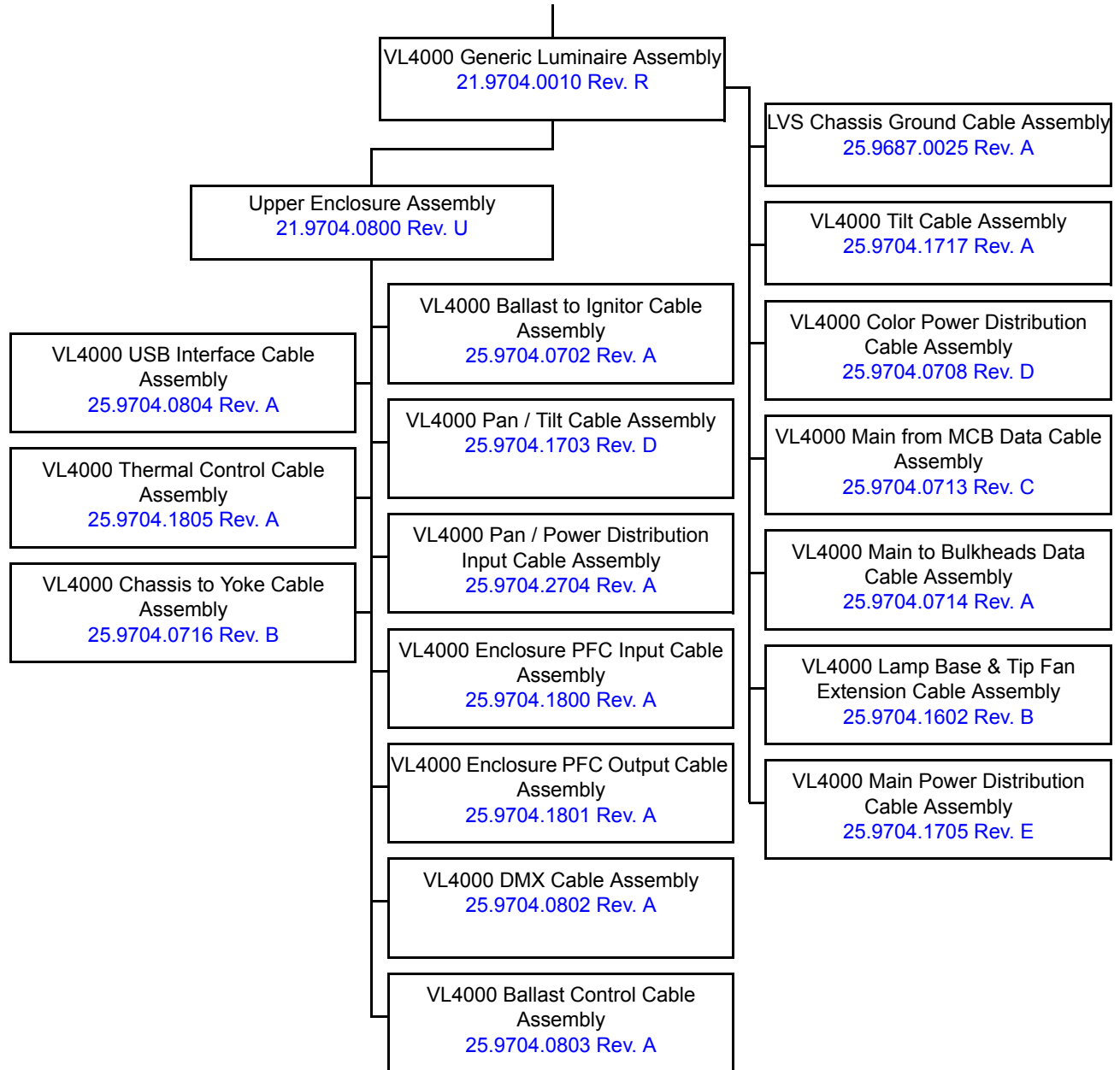


Figure 3-2: VL4000 Spot Luminaire Subassembly Drawing Tree Part 2

VL4000 Spot Luminaire (Part 3)

Continued from “VL4000 Spot Luminaire (Part 2)” on page 153.



NOTE: The drawing tree is for reference only. This section is not intended for direct parts ordering. Refer to the proper section within this manual for part numbers and descriptions.

Figure 3-3: VL4000 Spot Luminaire Subassembly Drawing Tree Part 3

VL4000 Spot Luminaire (Part 4)

Continued from “VL4000 Spot Luminaire (Part 1)” on page 152.

NOTE: The drawing tree is for reference only.
This section is not intended for direct parts
ordering. Refer to the proper section within this
manual for part numbers and descriptions.

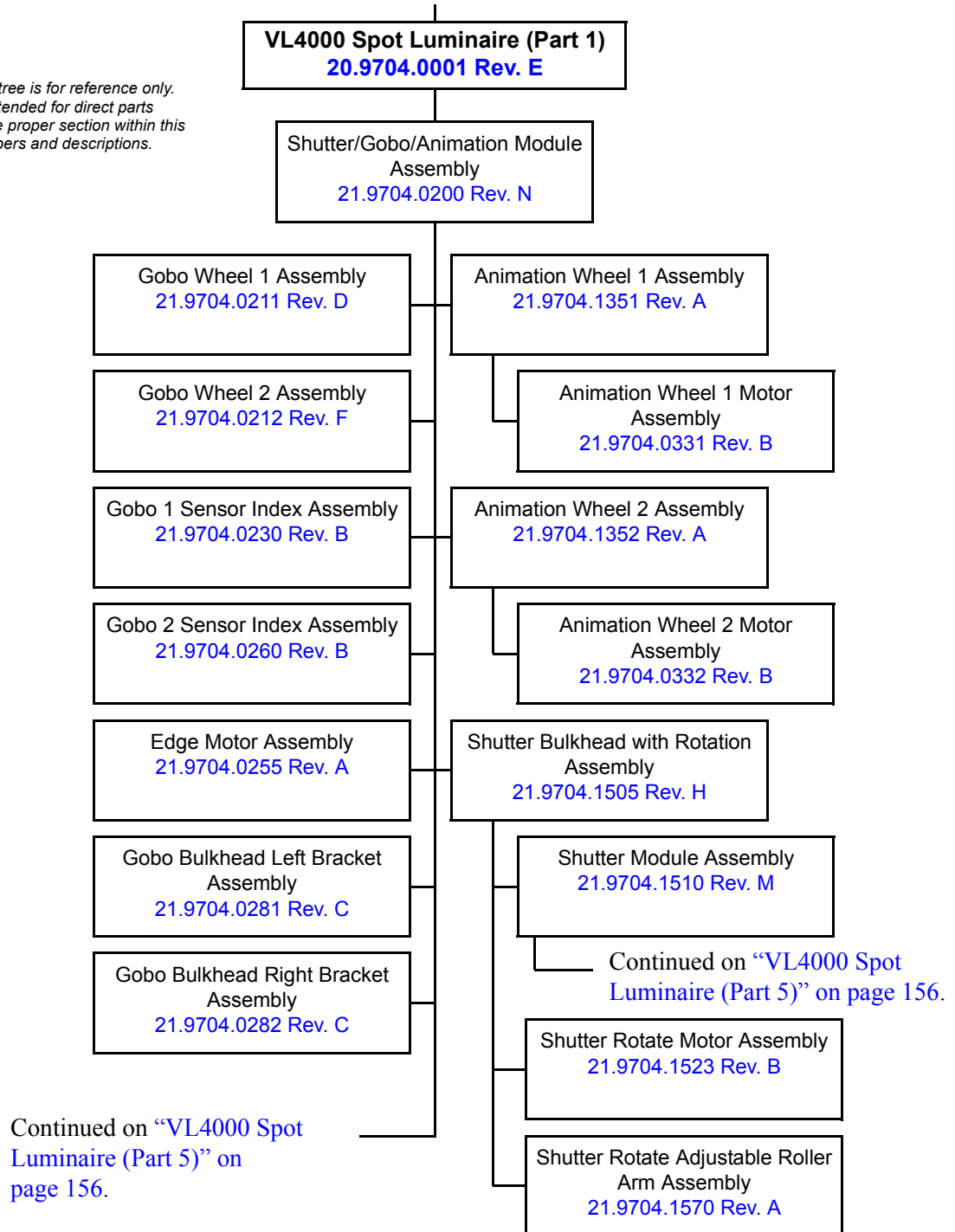
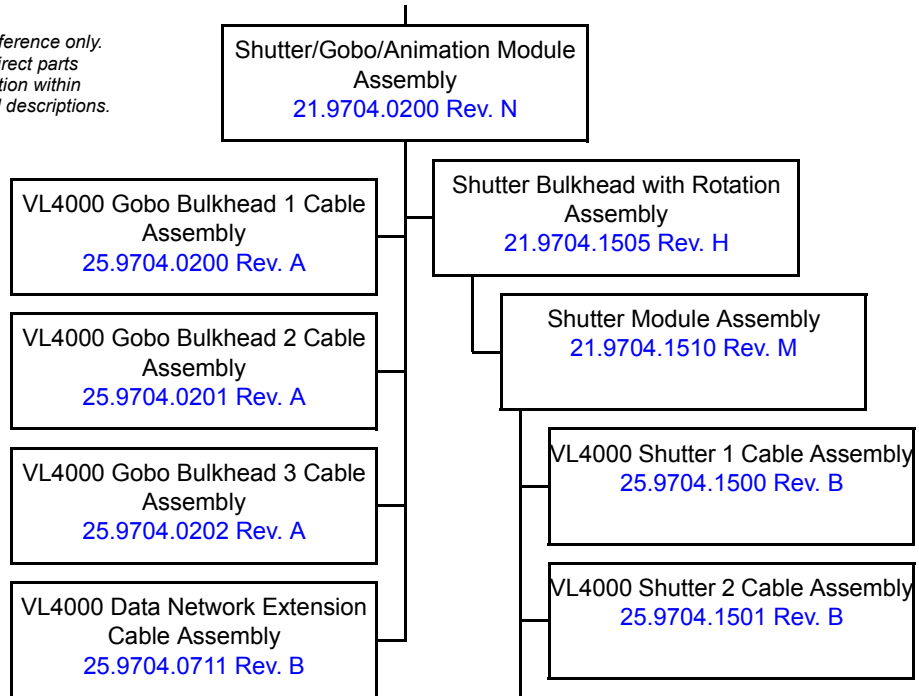


Figure 3-4: VL4000 Spot Luminaire Subassembly Drawing Tree Part 4

VL4000 Spot Luminaire (Part 5)

Continued from “VL4000 Spot Luminaire (Part 4)” on page 155.

NOTE: The drawing tree is for reference only. This section is not intended for direct parts ordering. Refer to the proper section within this manual for part numbers and descriptions.



Continued from “VL4000 Spot Luminaire (Part 2)” on page 153.

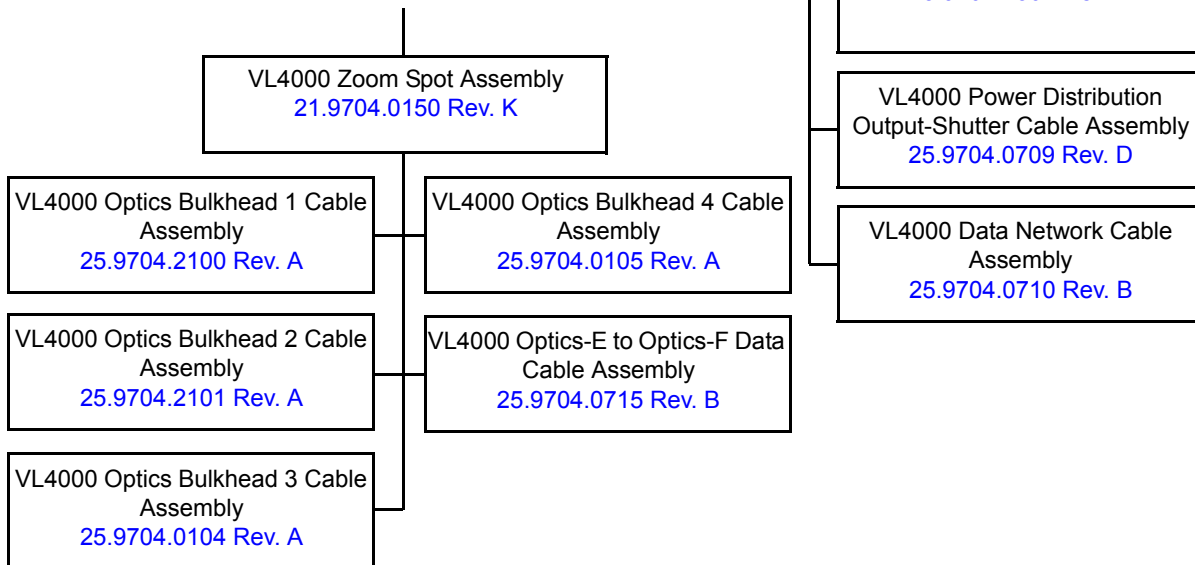


Figure 3-5: VL4000 Spot Luminaire Subassembly Drawing Tree Part 5

VL4000 Spot Luminaire (Part 6)

Continued from “VL4000 Spot Luminaire (Part 1)” on page 152.

NOTE: The drawing tree is for reference only. This section is not intended for direct parts ordering. Refer to the proper section within this manual for part numbers and descriptions.

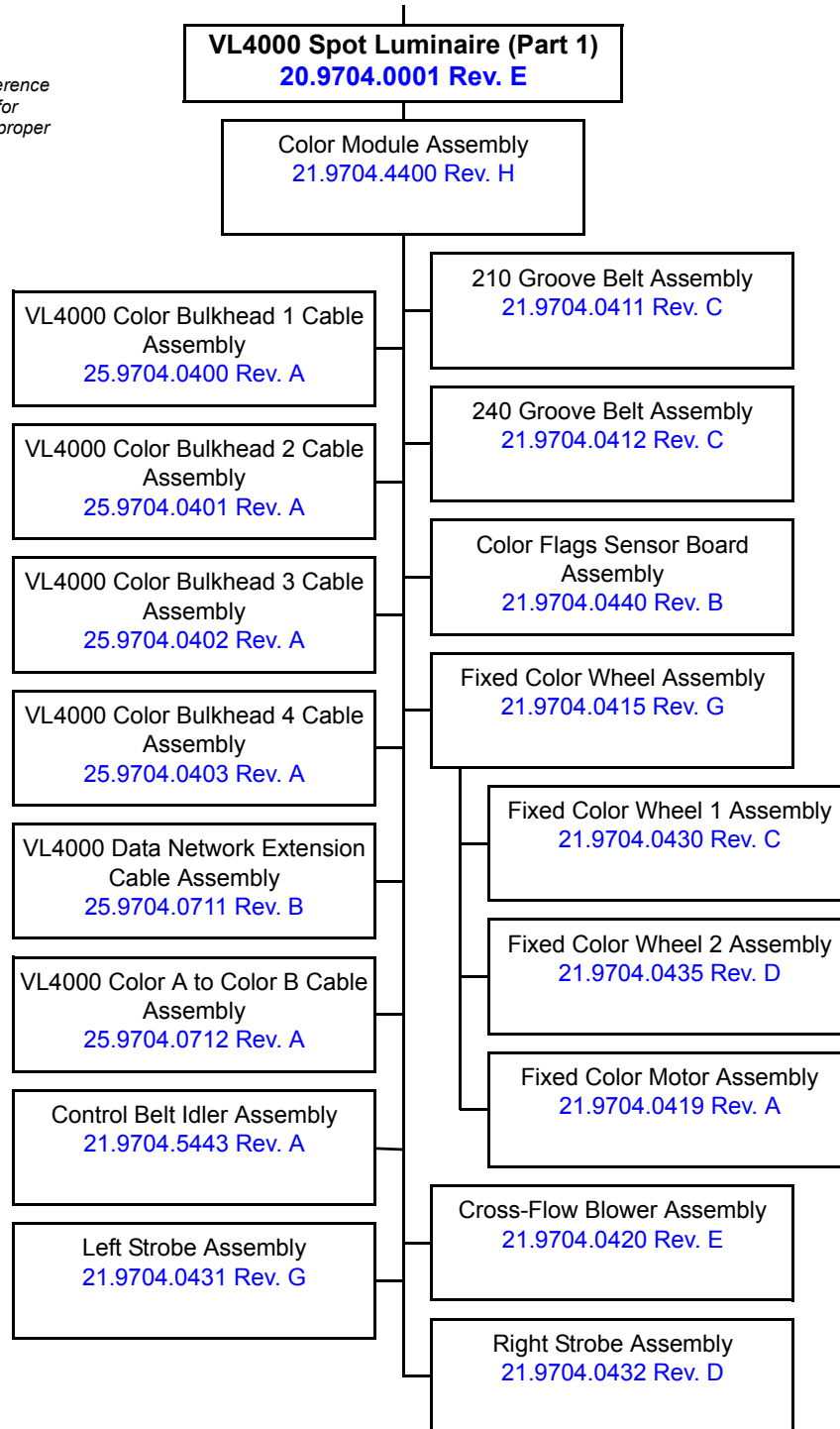
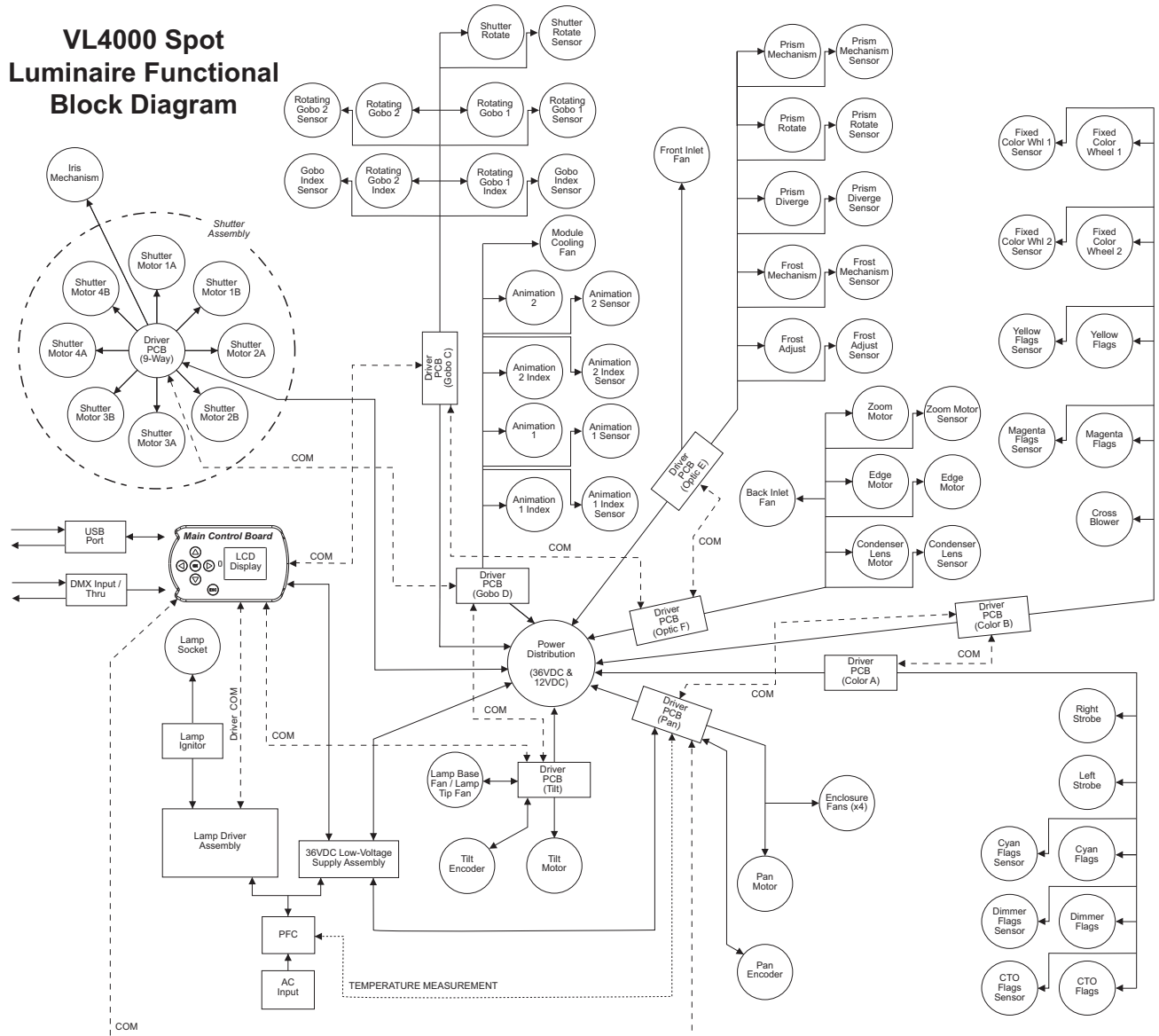


Figure 3-6: VL4000 Spot Luminaire Subassembly Drawing Tree Part 6

Principle of Operation

VL4000 Spot Functional Block Diagram



Note: Signal and driver lines shown for routing reference only. Lines shown are not representative of actual cable assemblies.

Top Assembly

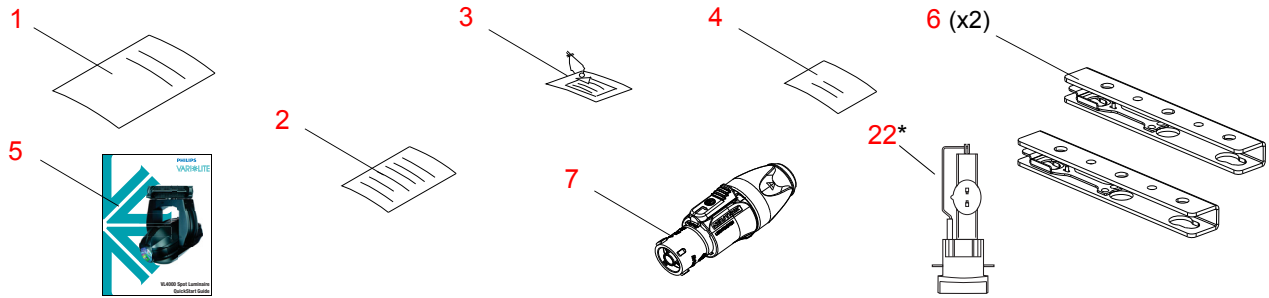
Included Items Kit, VL4000 Spot

28.9704.0001 Rev. B

Refer to [Figure 3-7](#).

No.	Item	Qty.	UM.	Description
1	02.8001.0002	1	EA	VARI-LITE QUALITY ASSURANCE CERT.
2	02.8052.0001	1	EA	CARD, LIMITED WARRANTY
3	02.8406.0001	1	EA	TAG, LAMP NOTICE
4	02.8700.0001	1	EA	CARD, PRODUCT REGISTRATION
5	02.9704.0001	1	EA	UNPACK/QUICK START SHEET, VL4000 SPOT
-	07.9686.0001	1	EA	CARDBOARD SHIPPING BOX (not shown)
6	22.9704.0835	2	EA	FAB ASSY, BRACKET TRUSS HOOK
7	25.9704.0862	1	EA	POWERCON, NEUTRIK NAC3FX (TRUE1)
8	41.9704.4421	1	EA	GOBO ASSY, ALPHA WAVES (POS 1-2)
9	41.9704.4422	1	EA	GOBO ASSY, LEAFY BREAKUP (POS 1-3)
10	41.9704.4423	1	EA	GOBO ASSY, NEURONS V2 (POS 1-4)
11	41.9704.5011	1	EA	GOBO ASSY, NIGHT SKY (POS 1-5)
12	41.9704.4425	1	EA	GOBO ASSY, BRICKED OUT (POS 1-6)
13	41.9704.8511	1	EA	GAG ASSY, ON THE ROCKS (POS 1-7)
14	41.9704.8506	1	EA	GAG ASSY, DROPLETS (POS 1-8)
15	41.9704.4411	1	EA	GOBO ASSY, CIRCLE OF EIGHTS (POS 2-2)
16	41.9704.4412	1	EA	GOBO ASSY, PUNCH CARD (POS 2-3)
17	41.9704.4413	1	EA	GOBO ASSY, VERTICAL BARS (POS 2-4)
18	41.9704.4414	1	EA	GOBO ASSY, LATTICE (POS 2-5)
19	41.9704.4415	1	EA	GOBO ASSY, WAVY TRIANGLE (POS 2-6)
20	41.9704.4416	1	EA	GOBO ASSY, DOT BUFFET (POS 2-7)
21	41.9704.4291	1	EA	GOBO ASSY, QUADCONE, RED (POS 2-8)
22	71.9704.1200	1	EA	LAMP, 1200 WATT, PHILIPS MSR GOLD FASTFIT

Included Items Kit, VL4000 Spot (continued)



<p>8</p> <p>Alpha Rays</p>	<p>9</p> <p>Leafy Breakup</p>	<p>10</p> <p>Neurons V2</p>	<p>11</p> <p>Night Sky</p>	<p>12</p> <p>Bricked Out</p>
<p>13</p> <p>On The Rocks Gag</p>	<p>14</p> <p>Droplets Gag</p>	<p>15</p> <p>Circle of Eights</p>	<p>16</p> <p>Punch Card</p>	<p>17</p> <p>Vertical Bars</p>
<p>18</p> <p>Lattice</p>	<p>19</p> <p>Wavy Triangle</p>	<p>20</p> <p>Dot Buffet</p>	<p>21</p> <p>Quadcone, Red</p>	

Figure 3-7: Included Items Kit, VL4000 Spot



Note: * = Do not handle lamp with bare hands. When handling, it is best to wear clean cotton gloves in order to keep the lamp's glass as dirt and grease free as possible.

VL4000 Spot Luminaire

20.9704.0001 Rev. E

Refer to [Figure 3-8](#)

No.	Item	Qty.	UM.	Description
1	10.9704.0641	2	EA	FILTER, FOAM, HEAD INLET
2	10.9704.0671	1	EA	HEAD COVER, REAR
3	10.9704.0672	2	EA	FRONT SIDE RAIL COVER
4	10.9704.0673	2	EA	HEAD COVER
5	21.9704.0010	1	EA	ASSY, GENERIC LUMINAIRE, VL4000
6	21.9704.0200	1	EA	ASSY, SHUTTER/GOBO/ANIMATION
7	21.9704.4400	1	EA	ASSY, COLOR MODULE
8	22.9704.0670	2	EA	VL4000 HEAD COVER
9	22.9704.0732	2	EA	VL4000 YOKE ARM COVER
10	28.9704.0001	1	EA	INCLUDED ITEM KIT, VL4000 SPOT (NOT SHOWN)
11	53.6543.0001	18	EA	SCREW, 6-32 X 3/8" PPB
12	53.6614.0001	2	EA	SCREW, 6-32 X 5/8" PPB

VL4000 Spot Luminaire (continued)

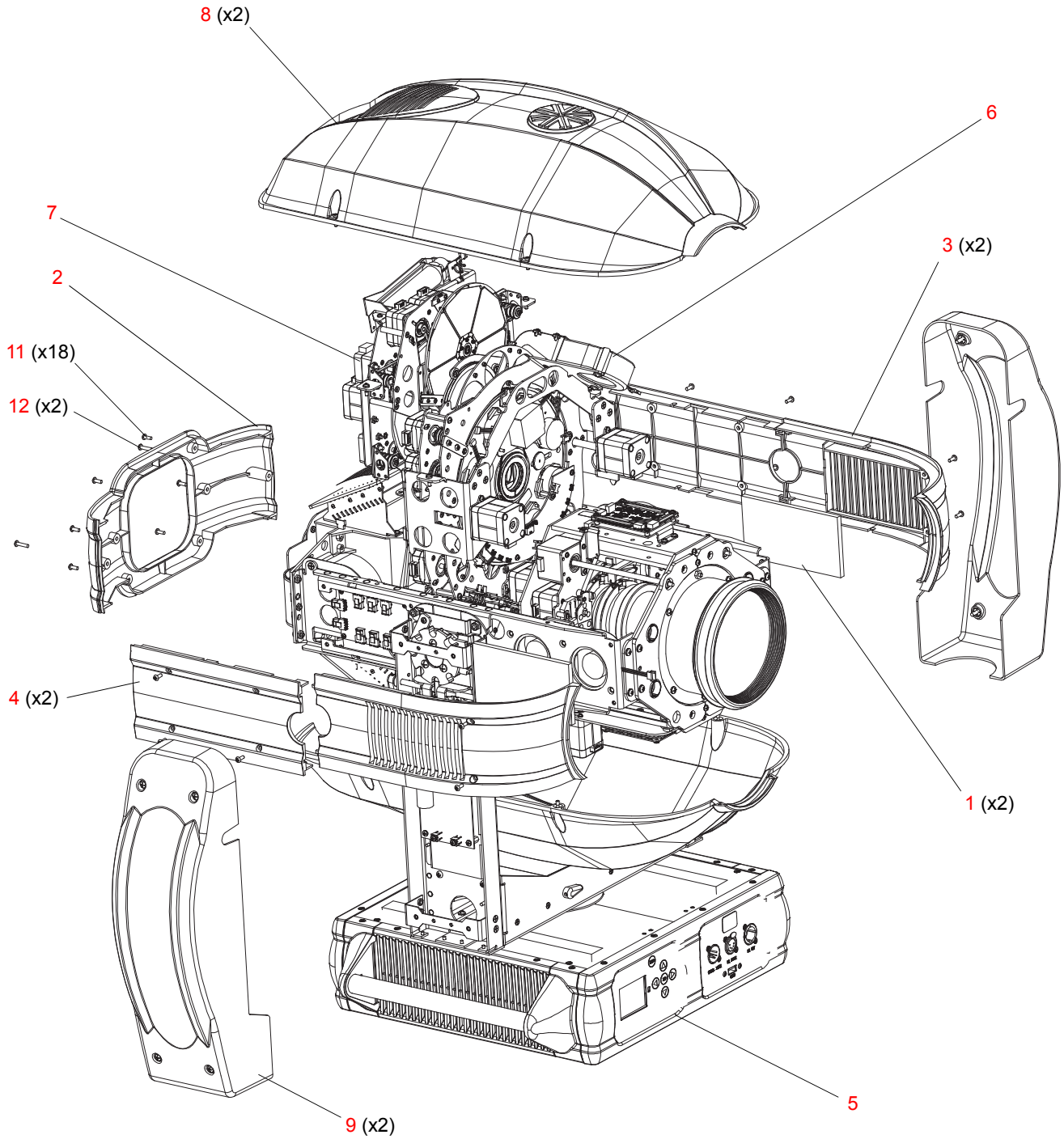


Figure 3-8: VL4000 Spot Luminaire

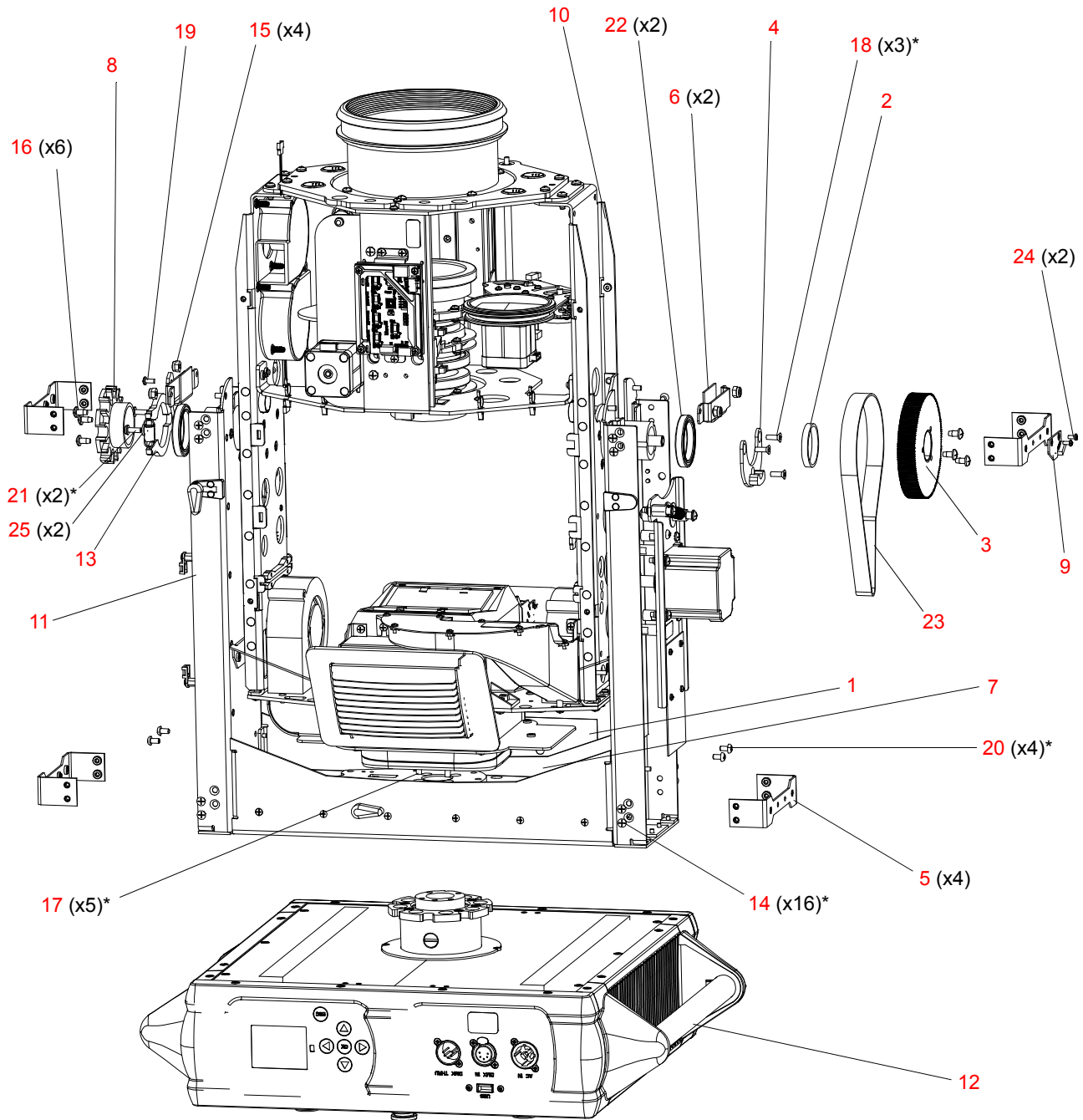
VL4000 Generic Luminaire Assembly

21.9704.0010 Rev. R

Refer to [Figure 3-9](#)

No.	Item	Qty.	UM.	Description
1	04.9704.0137	1	EA	LABEL, LAMP CHANGE, 1200W FASTFIT
2	10.9704.0706	1	EA	BEARING SPACER, SHORT
3	10.9704.0707	1	EA	PULLEY, DRIVEN, TILT
4	10.9704.0711	1	EA	TILT STOP
5	10.9704.0734	4	EA	COVER MOUNT, YOKE ARM
6	10.9704.1712	2	EA	TILT BEARING HOLDER
7	10.9704.1733	1	EA	COVER, YOKE BASE
8	10.9704.1742	1	EA	TILT LOCK CYLINDER
9	17.9704.1911	1	EA	SENSOR BOARD, TILT
10	21.9704.0600	1	EA	ASSY, HEAD FRAME
11	21.9704.0700	1	EA	ASSY, YOKE
12	21.9704.0800	1	EA	ASSY, UPPER ENCLOSURE, 1200W/1400W
13	21.9704.1767	1	EA	ASSY, STABILIZER
-	25.9687.0025	1	EA	CABLE ASSY, ENCLOSURE TO YOKE GND (not shown)
-	25.9704.1717	1	EA	CABLE ASSY, VL4000 TILT (NOT SHOWN)
-	25.9704.0708	1	EA	CABLE ASSY, VL4000 PWR DIST OUTPUT, COLOR (not shown)
-	25.9704.0713	1	EA	CABLE ASSY, VL4000 DATA, MAIN FROM MCB (not shown)
-	25.9704.0714	1	EA	CABLE ASSY, VL4000 DATA, MAIN TO BLKHDS (not shown)
-	25.9704.1602	1	EA	CABLE ASSY, VL4000 FAN EXT, LAMP BASE & TIP (not shown)
-	25.9704.1705	1	EA	CABLE ASSY, VL4000 PWR DIST OUTPUT, MAIN (not shown)
14	51-0369	16	EA	SCREW, 8-32 X 1/4" PFZ
15	53.2202.0008	4	EA	NUT, 8-32 HEX SS NYLON INSERT
16	53.5910.0375	6	EA	SCREW, 10-32 X 1/2", PPSS TYPE F
17	53.6517.0625	5	EA	SCREW, 10-32 X 5/8" PPZ
18	53.6521.0500	3	EA	SCREW, 8-32 X 1/2" SOCKET, FLATHEAD, ALLOY STEEL
19	53.6525.0001	1	EA	SCREW, 6-32 X 5/16" PPZ
20	53.6546.0002	4	EA	SCREW, 8-32 X 5/16" PPZ
21	53.6575.0010	2	EA	SCREW, 8-32 X 1/2" PPZ SEMS
22	54.9687.0250	2	EA	BEARING, 68072RS
23	54.9698.0224	1	EA	BELT, TIMING, S2M 210GRV 15MM WIDE URTH/KVLR
24	55.2203.0001	2	EA	SCREW, 4-40 X 1/4" PPZ
25	55.6503.0004	2	EA	WASHER, #8 FLAT ZINC

VL4000 Generic Luminaire Assembly (continued)



*APPLY LOCTITE 242 TO THREADS PRIOR TO INSTALLATION.

Figure 3-9: VL4000 Generic Luminaire Assembly

VL4000 Head Cover Assembly

22.9704.0670 Rev. A

Refer to [Figure 3-10](#)

No.	Item	Qty.	UM.	Description
1	10.9704.0670	1	EA	COVER, HEAD, TOP/BOTTOM
2	07.5049.0001	1	EA	LANYARD, NYLON COATED, 8" LG
3	53.5655.0250	1	EA	SCREW, #6 X 1/4" PPZ PLASTIC THD
4	53.6685.0500	4	EA	SCREW, #6-32 X 1/2" PPB CAPTIVE
5	55.2011.0003	1	EA	SNAP, SPRING 3/16" EYE DIA S

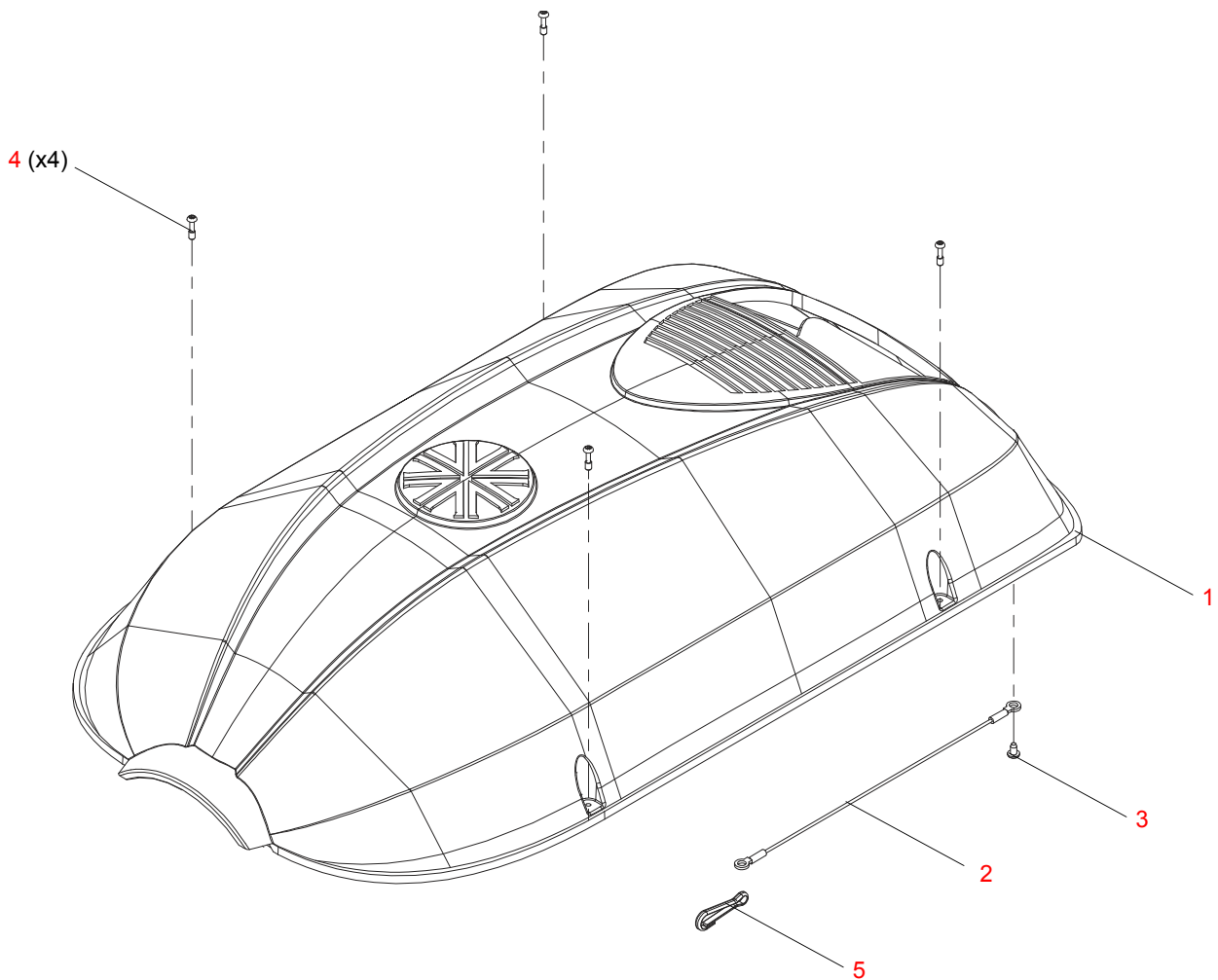


Figure 3-10: VL4000 Head Cover Assembly

VL4000 Yoke Arm Cover Assembly

22.9704.0732 Rev. A

Refer to [Figure 3-11](#)

No.	Item	Qty.	UM.	Description
1	53.2008.0008	4	EA	NUT, #8 PUSH
2	53.6521.0001	4	EA	SCREW, 8-32 X 1/2 PPB
3	10.9704.0732	1	EA	COVER, YOKE ARM

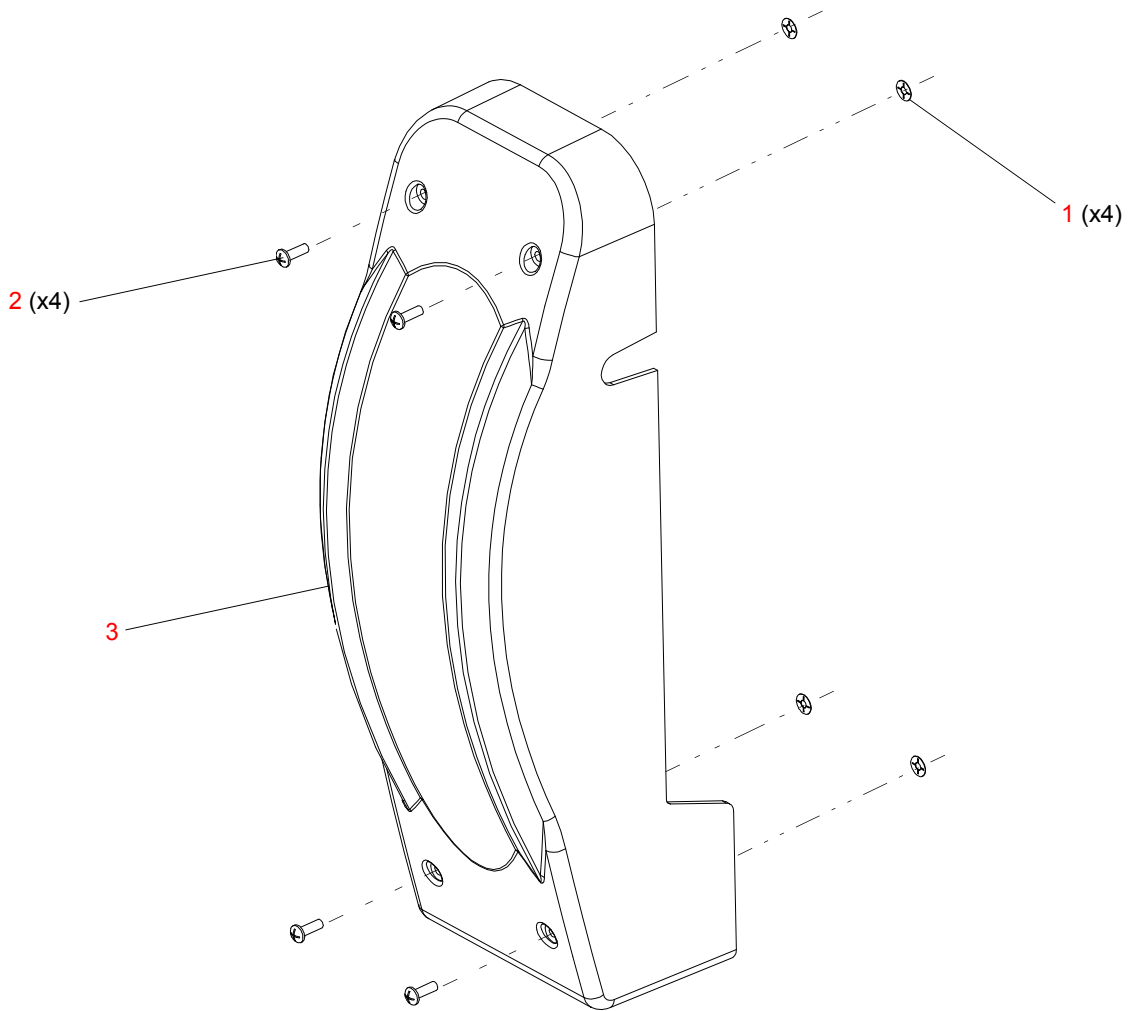


Figure 3-11: VL4000 Yoke Arm Cover Assembly

Stabilizer Assembly

21.9704.1767 Rev. A

Refer to [Figure 3-10](#)

No.	Item	Qty.	UM.	Description
1	10.9704.1762	1	EA	BRACKET, STABILIZER
2	10.9704.1757	1	EA	STABILIZER, TILT, 1.600" SHAFT DIA
3	53.6610.0003	1	EA	SCREW, 6-32 X 7/16" PPZ
4	55.6568.0075	1	EA	SPRING, EXTN, 0.375" OD, 1.0" LG 0.041" WIRE DIA

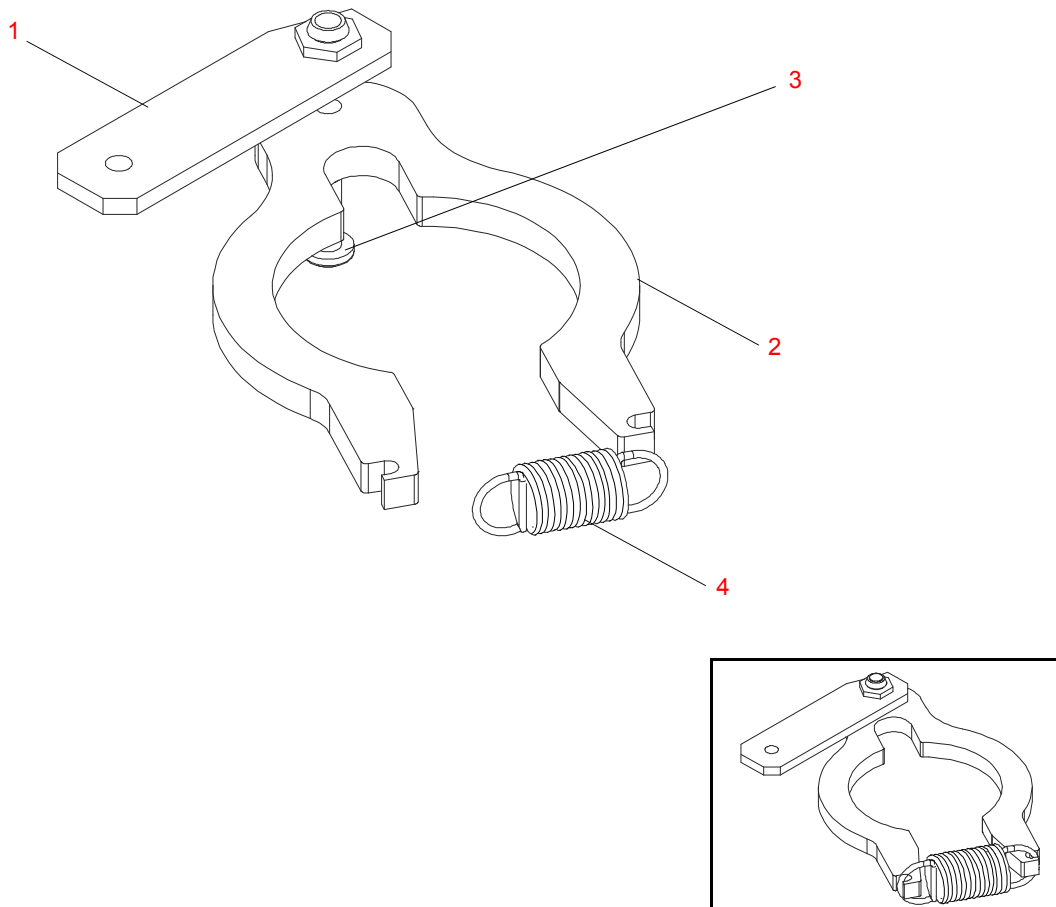


Figure 3-12: Stabilizer Assembly

Notes

Head Assembly

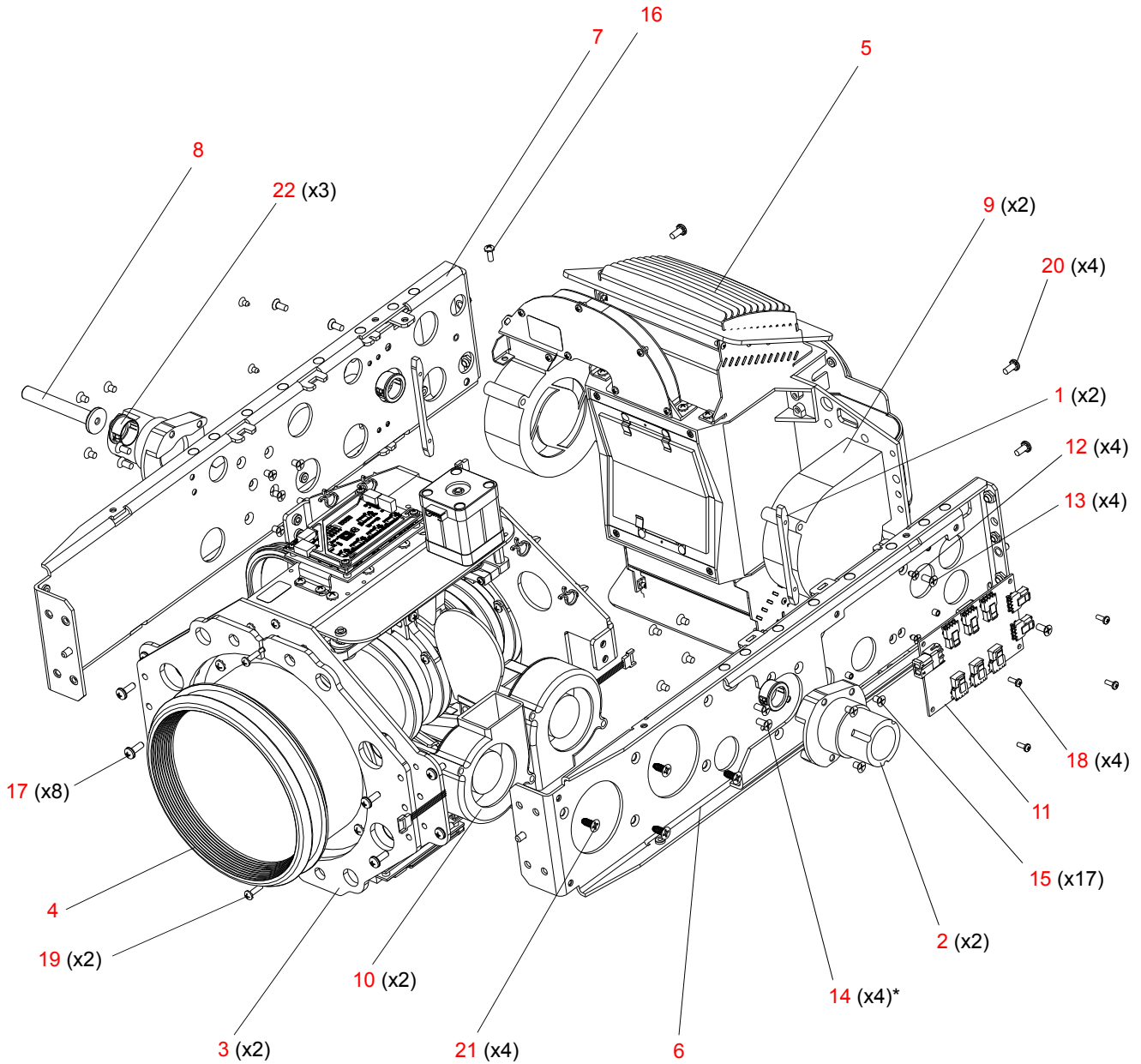
Head Frame Assembly

21.9704.0600 Rev. K

Refer to [Figure 3-13](#)

No.	Item	Qty.	UM.	Description
1	10.9704.0640	2	EA	GUIDE, MODULE, HEAD
2	10.9704.0701	2	EA	TILT TUBE
3	10.9704.1181	2	EA	COUNTERWEIGHT, FRONT, SPOT
4	21.9704.0150	1	EA	ASSY, ZOOM, VL4000 SPOT
5	21.9704.1615	1	EA	ASSY, BACK END
6	22.9704.0605	1	EA	ASSY, SIDE RAIL, RIGHT
7	22.9704.0608	1	EA	ASSY, SIDE RAIL, LEFT
8	22.9704.1629	1	EA	ASSY, VL4000 TILT MAGNET
9	23.9704.0003	2	EA	FAN ASSY, VL4000 LAMP TIP AND BASE
10	23.9704.1002	2	EA	FAN ASSY, VL4000 INLET AND GOBO
11	24.9704.2909	1	EA	BOARD, 12V REGULATOR/DISTRO
12	53.5655.0251	4	EA	SCREW, 6-20 X 1/4" PFZ THREAD FORMING
13	53.6528.0375	4	EA	SCREW, #8-18 X 3/8, TYPE B, PFZ
14	53.6545.0003	4	EA	SCREW, 8-32 X 3/8" PFZ
15	53.6552.0011	17	EA	SCREW, 8-32 X 1/4" PFZ
16	53.6558.0009	1	EA	SCREW, 6-32 X 3/8" LG PPZ SEMS
17	53.6575.0010	8	EA	SCREW, 8-32 X 1/2" PPZ SEMS
18	53.6596.0001	4	EA	SCREW, 4-40 X 5/16" PPZ
19	53.6613.0008	2	EA	SCREW, 6-32 X 1/2" PPZ SEMS
20	53.6682.0022	4	EA	SCREW, 8-32 X 3/8" PPZ SEMS
21	55.6576.0001	4	EA	SCREW, #10-16 X 3/8" TYPE B PPZ
22	55.6775.0011	3	EA	BUSHING, SNAP, 0.609ID, 0.75 MT HOLE, BLACK

Head Frame Assembly (continued)



*APPLY LOCTITE 242 TO THREADS PRIOR TO INSTALLATION.

Figure 3-13: Head Frame Assembly

VL4000 Zoom Spot Assembly

21.9704.0150 Rev. K

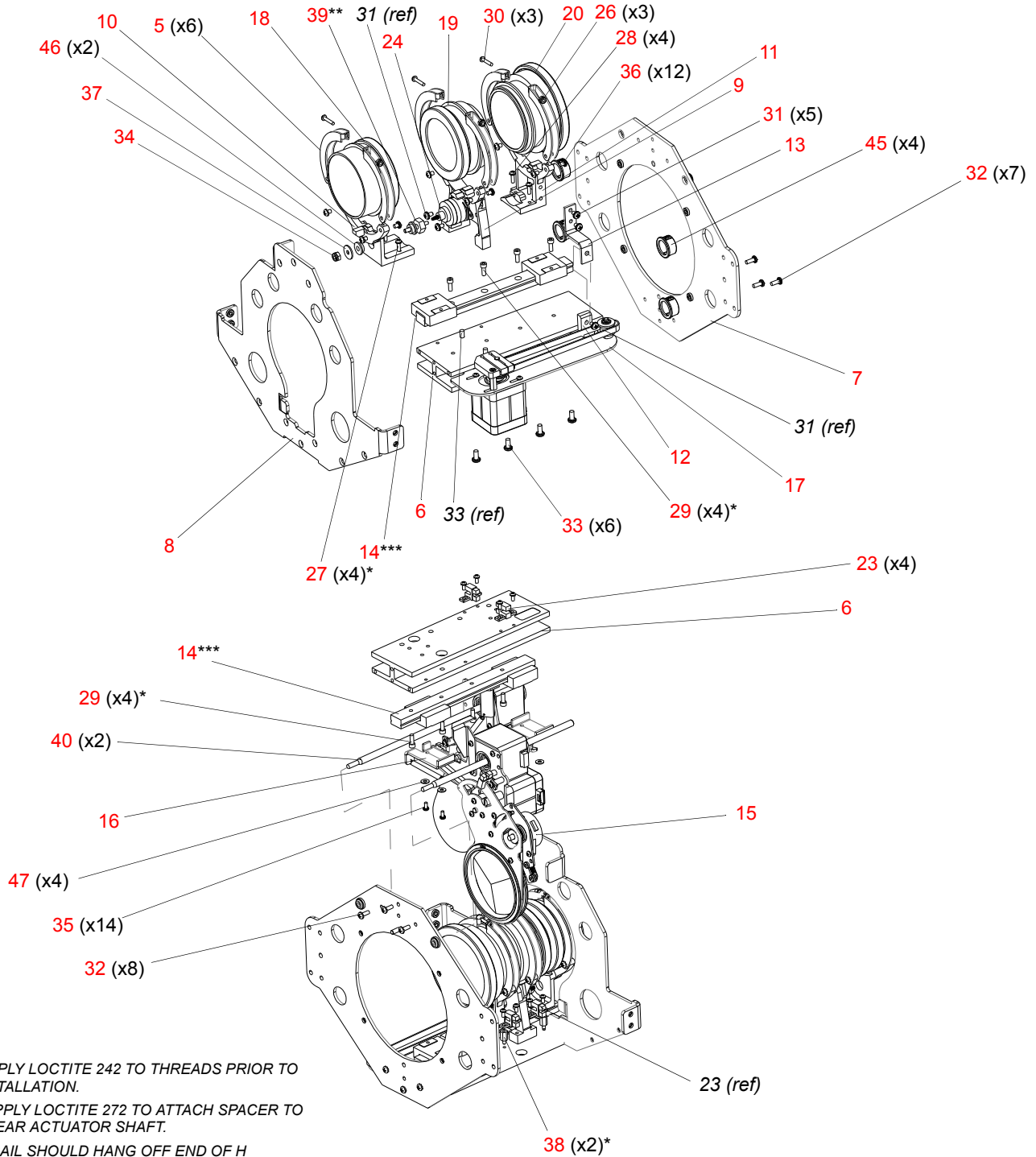
Refer to [Figure 3-14](#) and [Figure 3-15](#)

No.	Item	Qty.	UM.	Description
1	04.9704.0115	1	EA	DIPSWITCH LABEL, OPTICS BOARD E
2	04.9704.0116	1	EA	DIPSWITCH LABEL, OPTICS BOARD F
3	10.9704.0138	2	EA	MOUNT, DRIVER BOARD
4	10.9704.0139	1	EA	STOP, EOT, LENS G3
5	10.9704.0140	6	EA	HALF LENS HOLDER
6	10.9704.0180	2	EA	H EXTRUSION
7	10.9704.0181	1	EA	MOUNT, LENS GROUP 4
8	10.9704.0182	1	EA	REAR ASSY MOUNT SUPPORT
9	10.9704.0183	1	EA	FIX MOUNT, LENS GROUP 2
10	10.9704.0186	1	EA	MOUNT, LENS GROUP 1
11	10.9704.0187	1	EA	MOUNT, LENS GROUP 3
12	10.9704.0188	1	EA	CLAMP, BELT DRIVE
13	10.9704.0189	1	EA	BELT HOLDER, LENS GROUP 3
14	12.9704.0113	2	EA	RAIL AND CARRIAGE ASSY
15	21.9704.0134	1	EA	ASSY, PRISM MOTOR
16	21.9704.0135	1	EA	ASSY, FROST MOTOR
17	21.9704.0155	1	EA	ASSY, LENS GROUP 3 MOTOR
18	22.9704.0121	1	EA	GROUP 1 LENS TUBE ASSY
19	22.9704.0122	1	EA	GROUP 2 LENS TUBE ASSY
20	22.9704.0123	1	EA	GROUP 3 LENS TUBE ASSY
21	22.9704.0124	1	EA	GROUP 4 LENS TUBE ASSY
22	24.9704.2901	2	EA	PCB ASSY, 5-WAY MOTOR DRIVER
23	25.9687.0020	4	EA	SWITCH, SLOTTED, OPTICAL
-	25.9704.2100	1	EA	CABLE ASSY, VL4000 OPTICS, BULKHEAD CABLE 1 (NOT SHOWN)
-	25.9704.2101	1	EA	CABLE ASSY, VL4000 OPTICS, BULKHEAD CABLE 2 (NOT SHOWN)
-	25.9704.0104	1	EA	CABLE ASSY, VL4000 OPTICS, BULKHEAD CABLE 3 (NOT SHOWN)
-	25.9704.0105	1	EA	CABLE ASSY, VL4000 OPTICS, BULKHEAD CABLE 4 (NOT SHOWN)
-	25.9704.0715	1	EA	CABLE ASSY, VL4000 DATA, OPTICS-E TO OPTICS-F (NOT SHOWN)
24	44.9686.0164	1	EA	MOTOR, SPLIT LENS
25	53.2200.0008	1	EA	NUT, 8-32 KEPS SS
26	53.2202.0004	3	EA	NUT, 4-40 HEX SS NYLON INSERT

VARI*LITE - VL4000 SPOT LUMINAIRE SERVICE MANUAL

No.	Item	Qty.	UM.	Description
27	53.6513.0019	4	EA	SCREW, M3 X .5 X 5 MM PPB
28	53.6513.0032	4	EA	SCREW, M3 X .5 X 10 MM LG PPZ SEMS
29	53.6523.0001	8	EA	SCREW, 6-32 X 3/8" PPB
30	53.6537.0001	3	EA	SCREW, 4-40 X 5/8" PPB
31	53.6558.0007	5	EA	SCREW, 6-32 X 1/4" PPZ SEMS
32	53.6558.0009	21	EA	SCREW, 6-32 X 3/8" PPZ SEMS
33	53.6575.0009	11	EA	SCREW, 8-32 X 3/8" PPB SEMS
34	53.2002.0003	1	EA	NUT, 6-32 HEX ZINC, NYLON INSERT
35	53.6682.0002	14	EA	SCREW, 4-40 X 1/4" PPZ SEMS
36	53.6683.0015	12	EA	SCREW, 6-32 X 3/16" PPZ SEMS
37	55.6636.0003	1	EA	WASHER, 0.562" OD, 0.156" ID, 0.046" THK
38	55.6664.0002	2	EA	STANDOFF, 1/4" HEX, 4-40 X 0.375" LG, MF, Z ST
39	10.9704.1151	1	EA	SPACER, LINEAR ACTUATOR, G1
40	55.9704.0100	2	EA	SHAFT, LINEAR ACTUATOR
41	10.9704.0693	2	EA	CLAMP, CONN, 5 DRIVER BRD
42	53.6520.0001	6	EA	SCREW, 4-40 X 3/8" PPZ
43	55.2203.0001	2	EA	SCREW, 4-40 X 1/4" PPZ
44	55.6818.0002	4	EA	CABLE TIE, KURLY-LOC
45	55.6775.0011	4	EA	BUSHING, SNAP, 0.609 ID, 0.75 MT HOLE, BLACK
46	54.1261.0001	2	EA	BUSHING, LOW DAMP THTMOPLS, 0.189 ID
47	55.3301.0004	4	EA	WASHER, #4 FLAT SS

VL4000 Zoom Spot Assembly (continued)



*APPLY LOCTITE 242 TO THREADS PRIOR TO INSTALLATION.

**APPLY LOCTITE 272 TO ATTACH SPACER TO LINEAR ACTUATOR SHAFT.

***RAIL SHOULD HANG OFF END OF H EXTRUSION

Figure 3-14: VL4000 Zoom Spot Assembly (Part 1)

VL4000 Zoom Spot Assembly (continued)

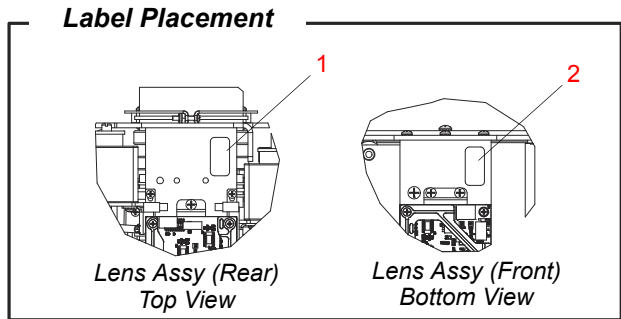
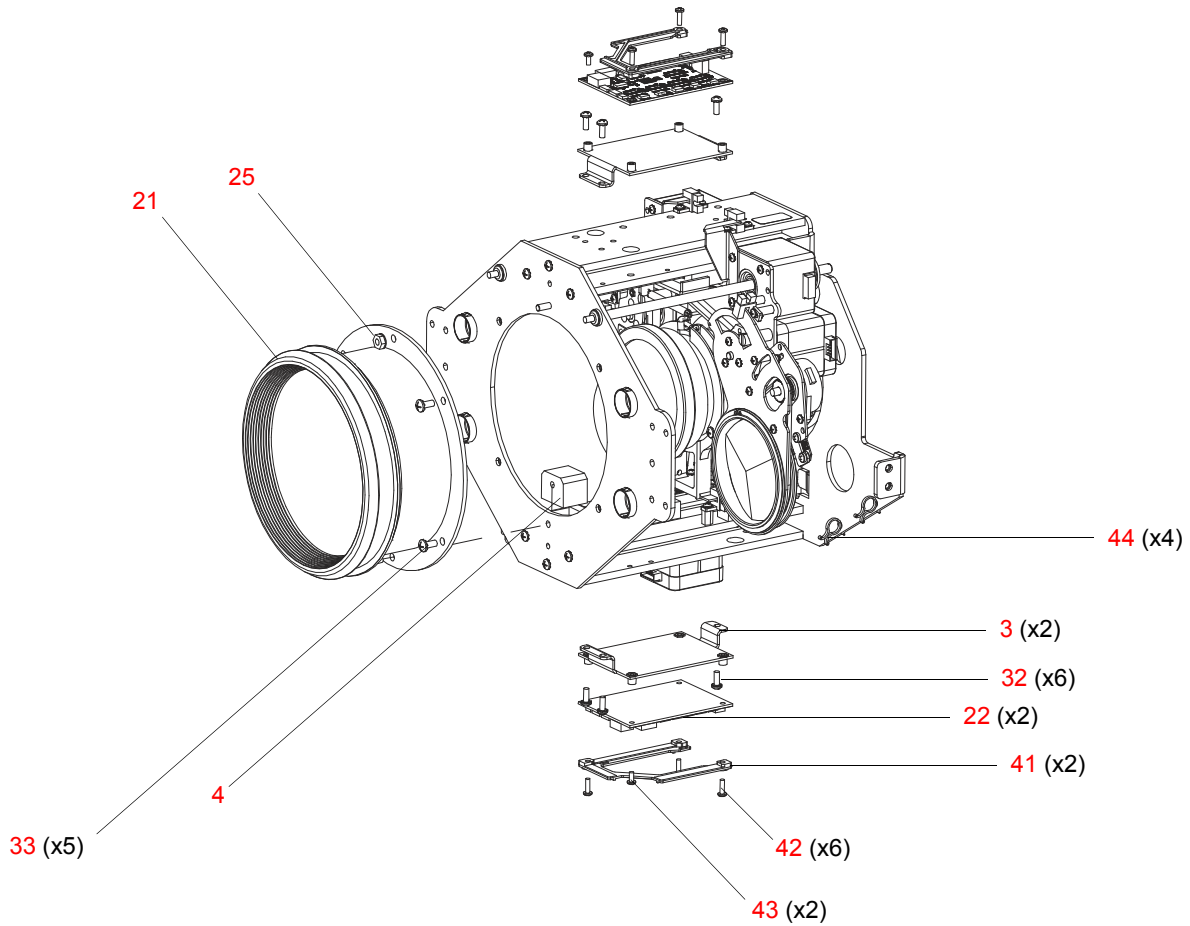


Figure 3-15: VL4000 Zoom Spot Assembly (Part 2)

Prism Motor Assembly

21.9704.0134 Rev. G

Refer to [Figure 3-16](#)

No.	Item	Qty.	UM.	Description
1	10.9704.0172	1	EA	PRISM/FROST LIMIT STOP
2	10.9704.0194	1	EA	MOUNT, PRISM ASSY
3	10.9704.0199	1	EA	HOMING FLAG, FROST
4	21.9698.0330	1	EA	ASSY, DAMPER, MOTOR SHAFT, 5MM
5	21.9704.0115	1	EA	ASSY, PRISM
6	25.9687.0020	1	EA	SWITCH, SLOTTED OPTICAL
7	44.9698.0147	1	EA	LINEAR MOTOR, SIZE 17
8	44.9698.1215	1	EA	MOTOR, SIZE-17, ZOOM
9	53.6520.0375	4	EA	SCREW, 4-40 X 3/8" PPZ SEMS
10	53.6536.0001	1	EA	SCREW, 4-40 X 1/2" PFZ
11	53.6559.0001	2	EA	SCREW, 4-40 X 1/4" PFZ
12	53.6578.0002	2	EA	SCREW, 6-32 X 3/16" SET CUP PT
13	53.6682.0002	2	EA	SCREW, 4-40 X 1/4" PPZ SEMS
14	55.6568.0130	1	EA	SPRING, EXTSN, 0.188OD 0.022WD 2.00 LG, MW

Prism Motor Assembly (continued)

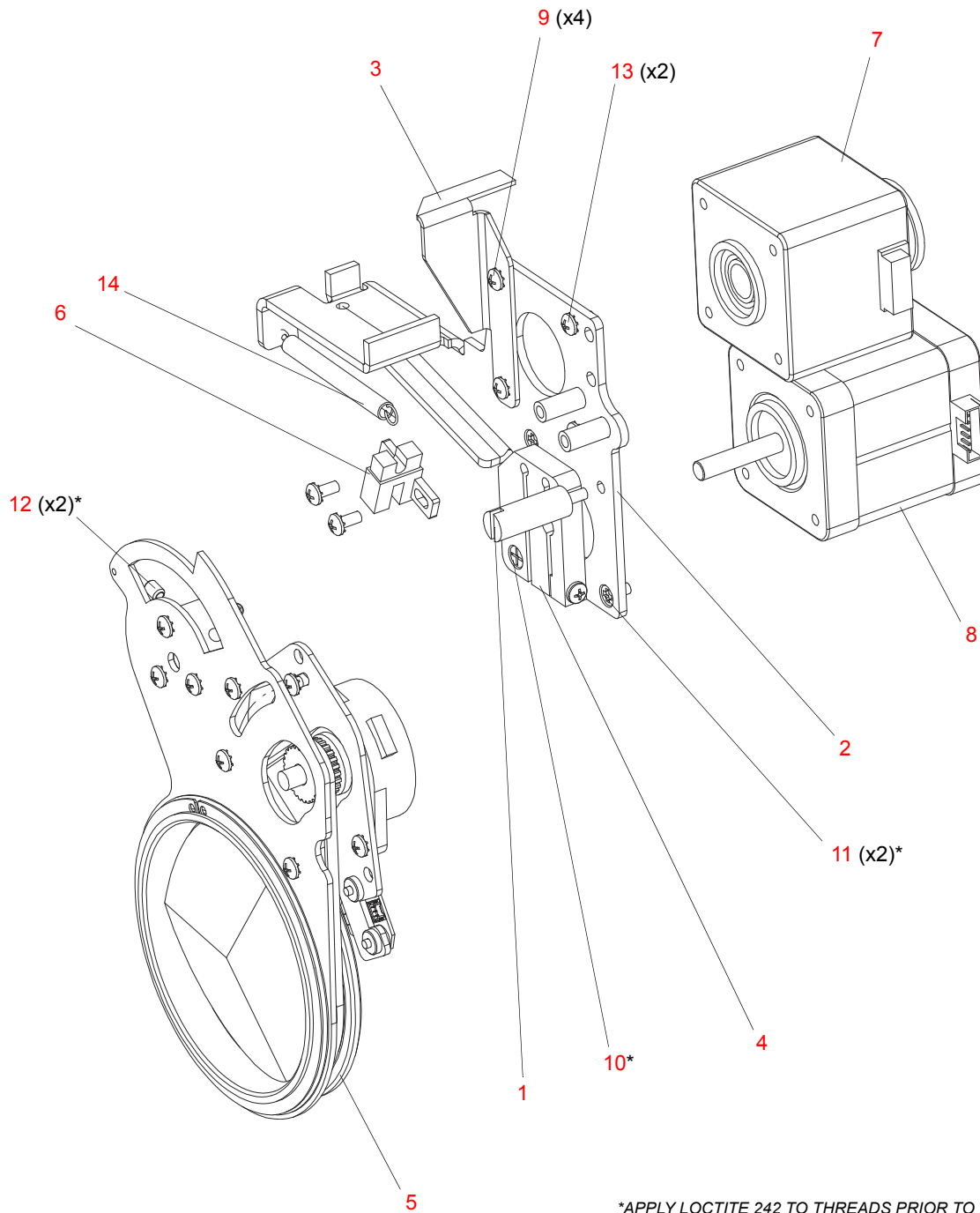


Figure 3-16: Prism Motor Assembly

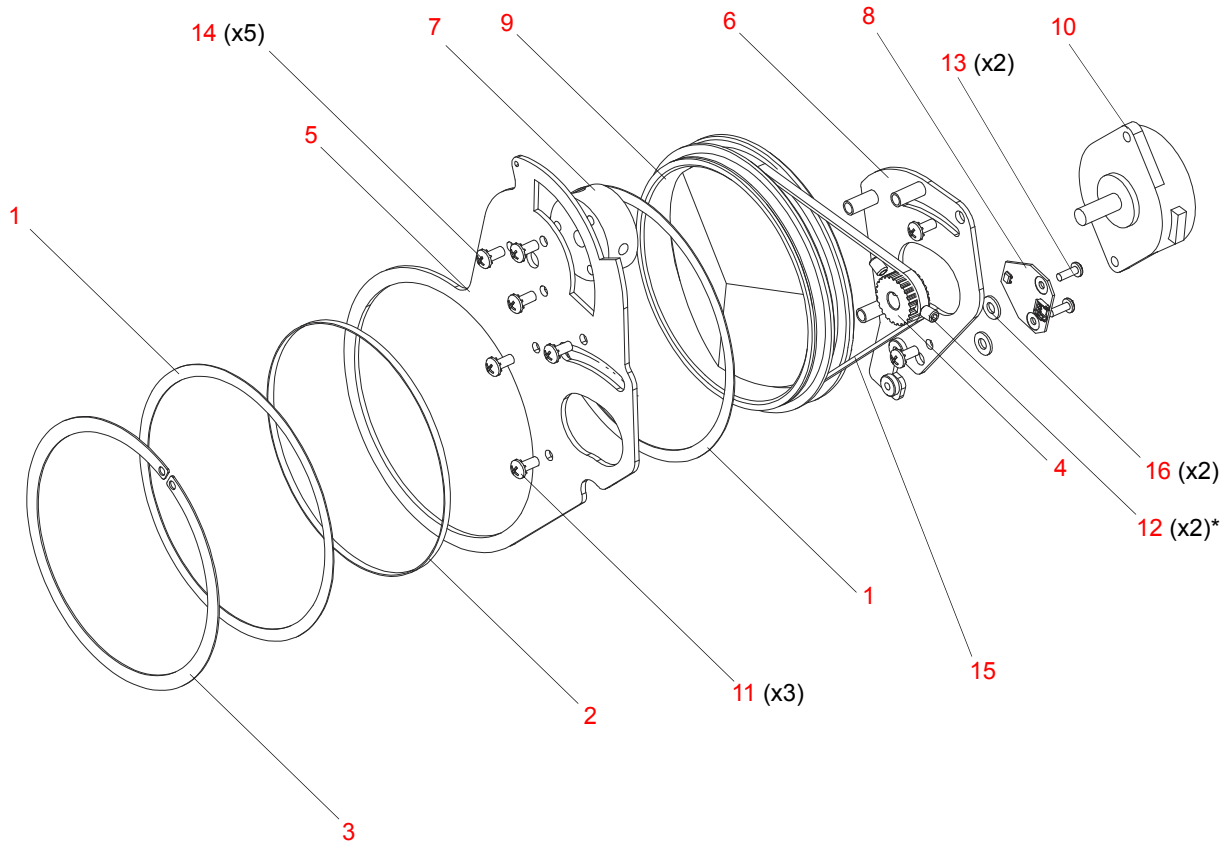
Prism Assembly

21.9704.0115 Rev. C

Refer to [Figure 3-17](#)

No.	Item	Qty.	UM.	Description
1	10.9698.0331	2	EA	SPACER, TEFLON, PRISM
2	10.9698.0332	1	EA	BEARING, BORE, TEFLON
3	10.9698.0334	1	EA	RETAINING RING, PRISM
4	10.9698.1468	1	EA	PULLEY, MOTOR, PRISM DRIVE
5	10.9704.0176	1	EA	PRISM ARM SHEET METAL
6	10.9704.0192	1	EA	MOUNT, PRISM MOTOR
7	10.9704.0193	1	EA	HUB, PRISM ARM
8	17.9704.0904	1	EA	PCB ASSY, WHEEL POSITION SENSOR
9	22.9704.0118	1	EA	ASSY, PRISM ROTATOR W/MAGNET
10	44.9687.1218	1	EA	MOTOR, SIZE 14, LO-PRFL, 0.9 DEG
11	53.6520.0375	3	EA	SCREW, 4-40 X 3/8" PPZ SEMS
12	53.6578.0002	2	EA	SCREW, 6-32 X 3/16" SET CUP PNT
13	53.6659.0002	2	EA	SCREW, 2-56 X 1/4" PPZ
14	53.6682.0002	5	EA	SCREW, 4-40 X 1/4" PPZ SEMS
15	54.2057.0003	1	EA	BELT, TIMING, MXL, 144 GRV, 0.125" WD, SIL/KVLR
16	55.6677.0050	2	EA	WASHER, 0.27" OD, 0.129" ID, 0.030" THK, TEFLON

Prism Assembly (continued)



*APPLY LOCTITE 242 TO THREADS PRIOR TO INSTALLATION.

Figure 3-17: Prism Assembly

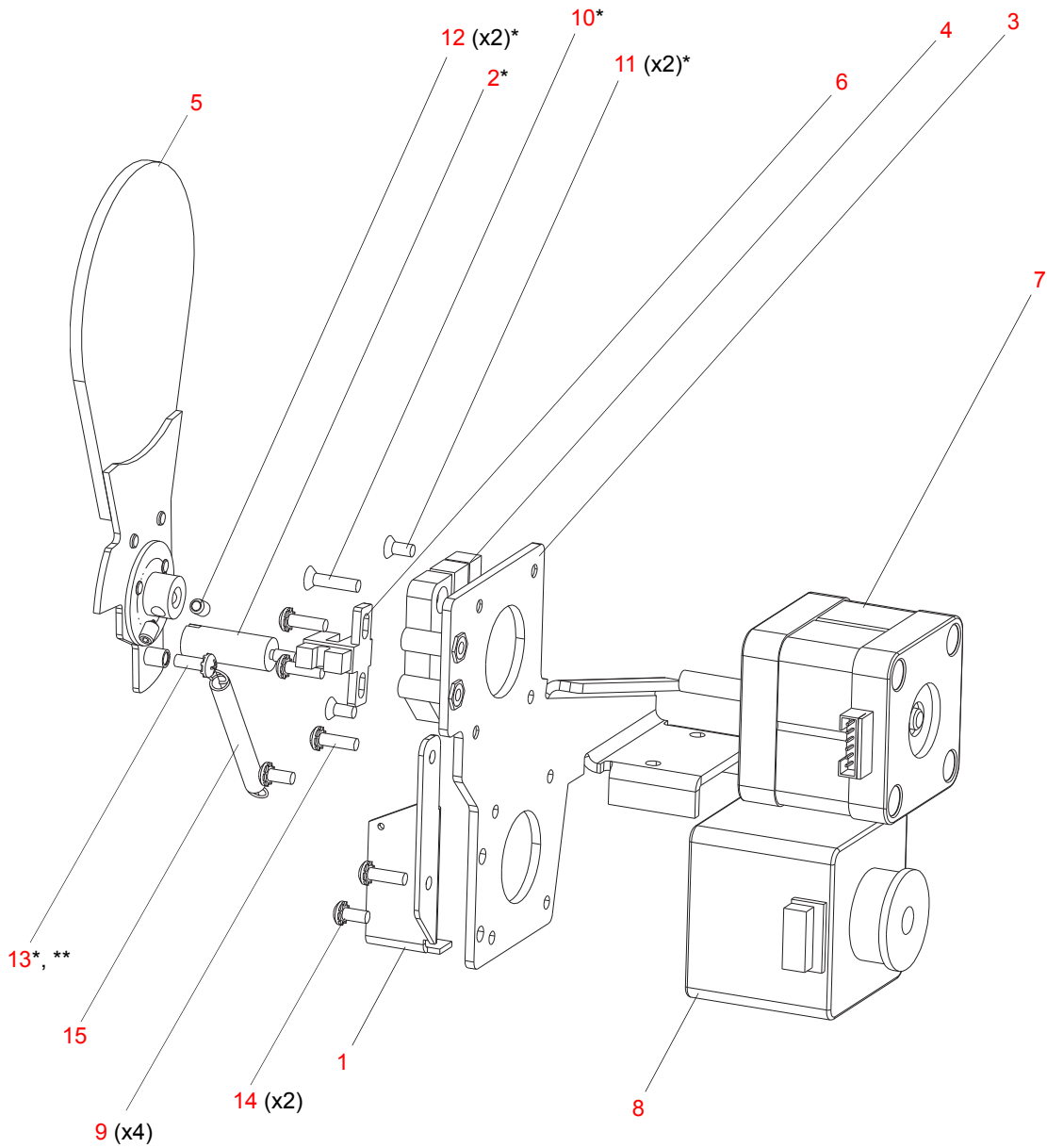
Frost Motor Assembly

21.9704.0135 Rev. J

Refer to [Figure 3-18](#)

No.	Item	Qty.	UM.	Description
1	10.9704.0145	1	EA	HOMING FLAG, FROST
2	10.9704.0172	1	EA	PRISM/FROST LIMIT STOP
3	10.9704.0195	1	EA	MOUNT, FROST FLAG
4	21.9698.0330	1	EA	ASSY, DAMPER, MOTOR SHAFT, 5MM
5	21.9704.0136	1	EA	ASSY, FLAG, FROST
6	25.9687.0020	1	EA	SWITCH, SLOTTED OPTICAL
7	44.9676.0117	1	EA	MOTOR, GOBO ROTATE/INDEX
8	44.9698.0147	1	EA	LINEAR MOTOR, SIZE 17
9	53.6520.0375	4	EA	SCREW, 4-40 X 3/8" PPZ SEMS
10	53.6536.0001	1	EA	SCREW, 4-40 X 1/2" PFZ
11	53.6559.0001	2	EA	SCREW, 4-40 X 1/4" PFZ
12	53.6578.0002	2	EA	SCREW, 6-32 X 3/16" SET CUP PT
13	53.6596.0002	1	EA	SCREW, 4-40 X 5/16" LG PPZ SEMS
14	55.6682.0002	2	EA	SCREW, 4-40 X 1/4" PPZ SEMS
15	55.6568.0130	1	EA	SPRING, EXTSN, 0.188OD 0.022WD 2.00 LG, MW

Frost Motor Assembly (continued)



*APPLY LOCTITE 242 TO THREADS PRIOR TO INSTALLATION.

**DO NOT THREAD SCREW IN ALL THE WAY IN. LEAVE SPACE FOR SPRING TO ROTATE FREELY.

Figure 3-18: Frost Motor Assembly

Frost Flag Assembly

21.9704.0136 Rev. C

Refer to Figure 3-18

No.	Item	Qty.	UM.	Description
1	10.9687.0223	1	EA	HUB, 5 MM SHAFT, 0.250" TALL
2	10.9704.0141	1	EA	FROST FLAG SHEET METAL
3	10.9704.0142	1	EA	FROST FLAG HOLDER CLIP
4	42.9704.1152	1	EA	GLASS, FROST
5	53.6530.0011	5	EA	RIVET, POP, 1/8" OD X 0.031-0.062 GR

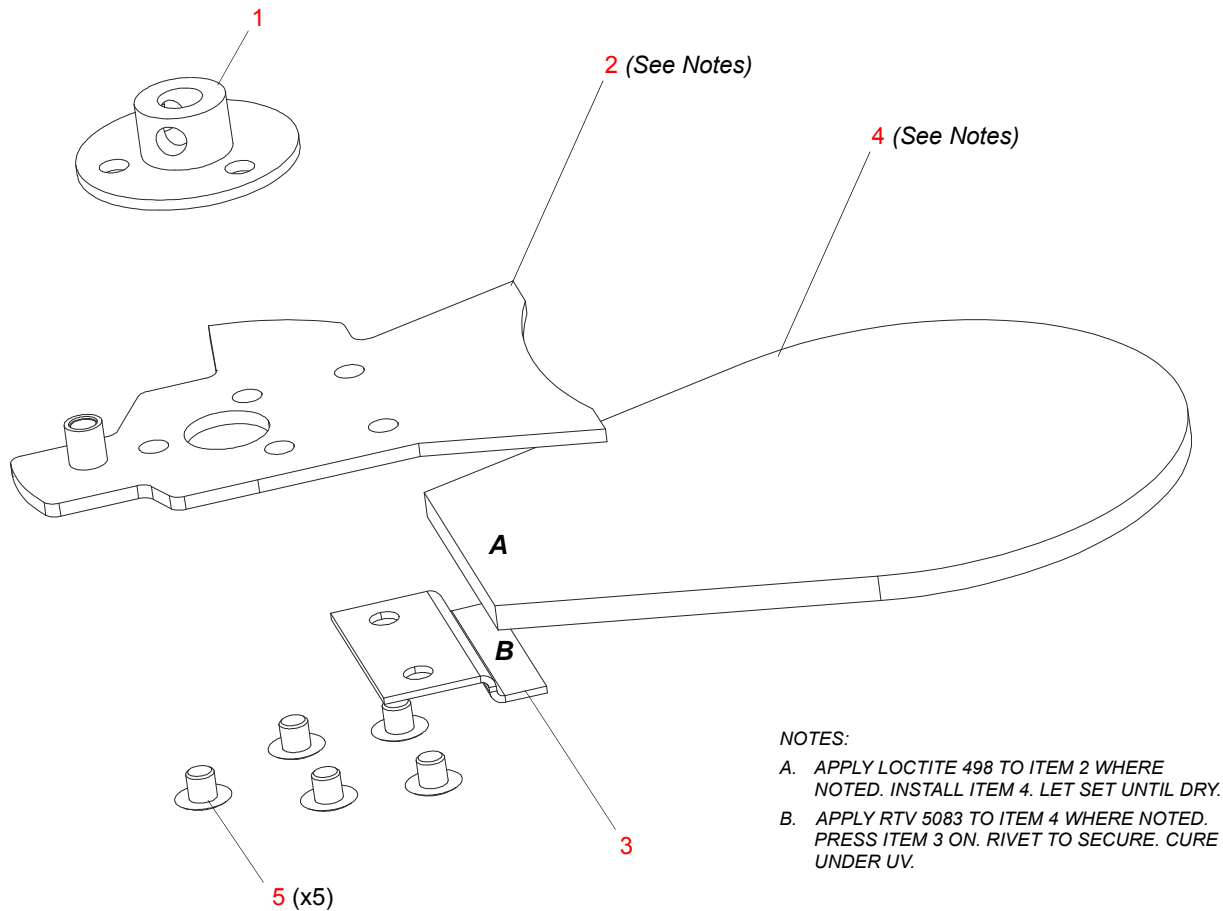


Figure 3-19: Frost Flag Assembly

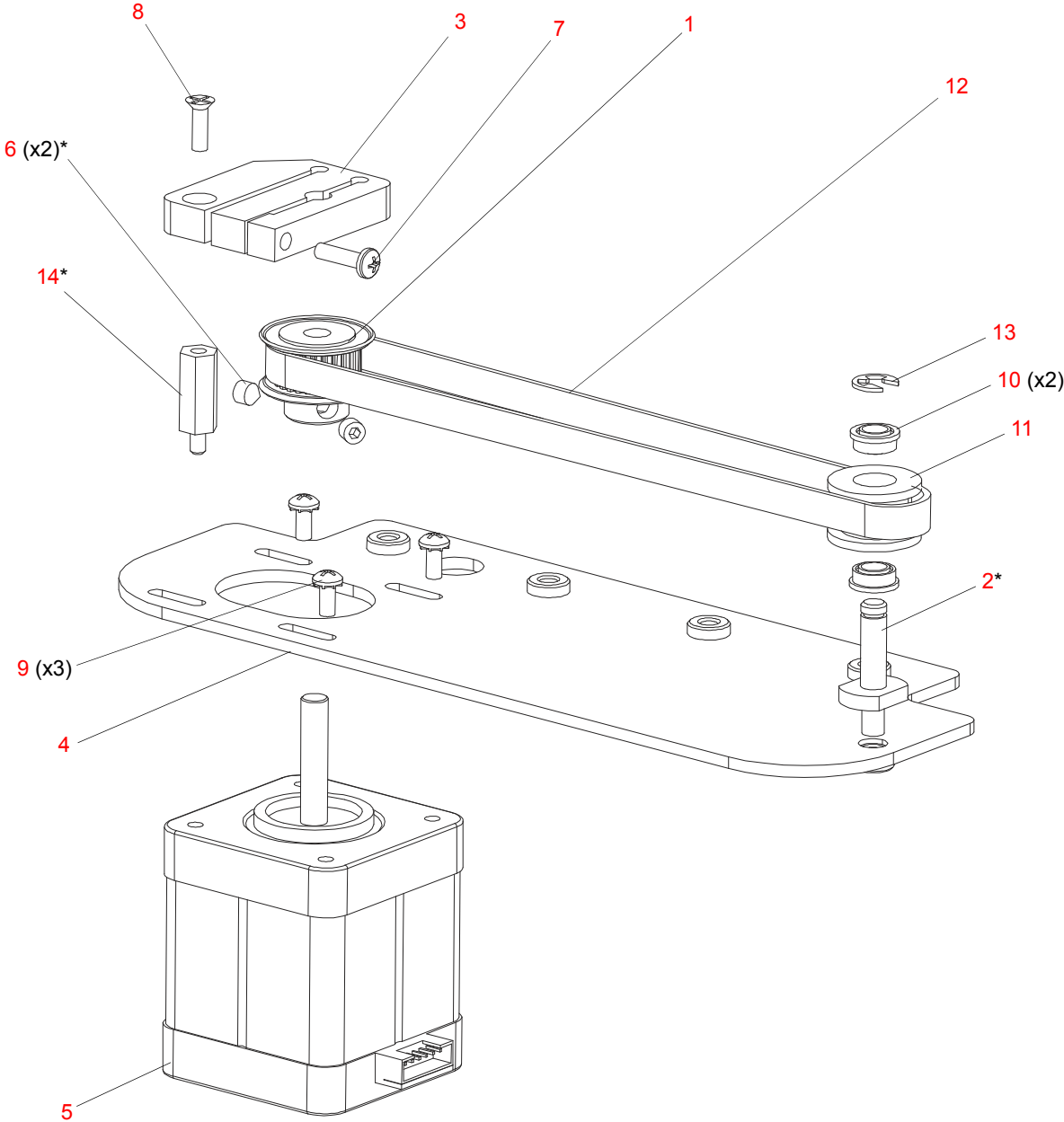
Lens Group 3 Motor Assembly

21.9704.0155 Rev. A

Refer to [Figure 3-16](#)

No.	Item	Qty.	UM.	Description
1	10.9663.1212	1	EA	MOTOR PULLEY WITH FLANGES
2	10.9678.1131	1	EA	FORWARD PULLEY SHAFT, BEARING
3	10.9698.0335	1	EA	DAMPER, MOTOR SHAFT 5 MM
4	10.9704.0185	1	EA	MOTOR PLATE, BELT DRIVE
5	44.9698.1215	1	EA	MOTOR, SIZE-17, ZOOM
6	53.5560.0187	2	EA	SCREW, SET 8-32 X 3/16" L
7	53.6520.0002	1	EA	SCREW, 4-40 X 7/16" PPZ
8	53.6599.0001	1	EA	SCREW, 4-40 X 3/8" PFZ
9	53.6682.0002	3	EA	SCREW, 4-40 X 1/4" PPZ SEMS
10	54.1262.0001	2	EA	BEARING, FLANGED, 0.1875" BORE
11	54.2053.0001	1	EA	MXT T BELT PULLEY, 20 GRV, 0.25" WD
12	54.9704.0135	1	EA	TIMING BELT, MXL, 155 TEETH, 0.1875" WD
13	55.2234.0001	1	EA	E-RING, 0.188" SHAFT DIA, CAR SP
14	55.6664.0003	1	EA	STANDOFF, 1/4" HEX, 4-40 X 0.593" LG, M-F, ZINC

Lens Group 3 Motor Assembly (continued)



*APPLY LOCTITE 242 TO THREADS PRIOR TO INSTALLATION.

Figure 3-20: Lens Group 3 Motor Assembly

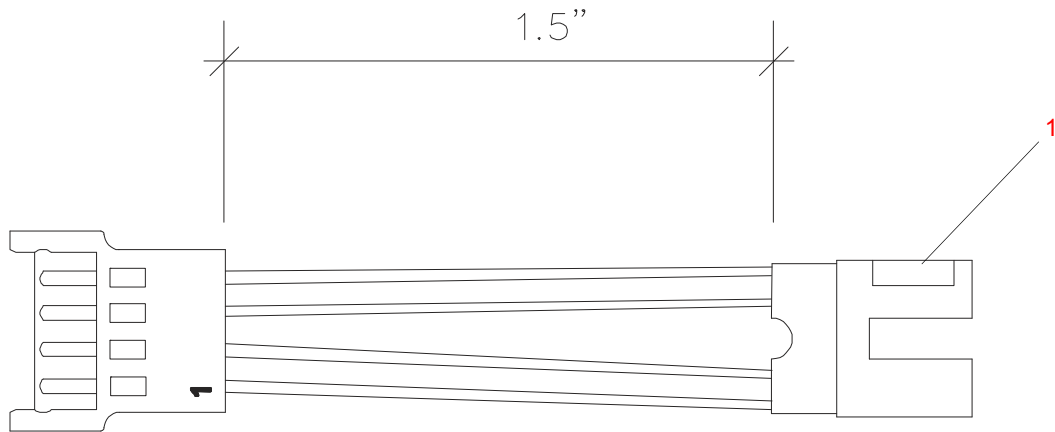
Slotted Optical Switch

25.9687.0020 Rev. A

Refer to [Figure 3-18](#)

Note: This part is only available as an assembly. Shown for reference only.

No.	Item	Qty.	UM.	Description
1	25.9687.0020	1	EA	SWITCH, SLOTTED OPTICAL



WIRE CHART		
CONNECTOR	SENSOR	DESCRIPTION
PIN 1	BLACK	IRED CATHODE
PIN 2	RED	IRED ANODE
PIN 3	GREEN	DETECTOR EMITTER
PIN 4	WHITE	DETECTOR COLLECTOR

Figure 3-21: Slotted Optical Switch

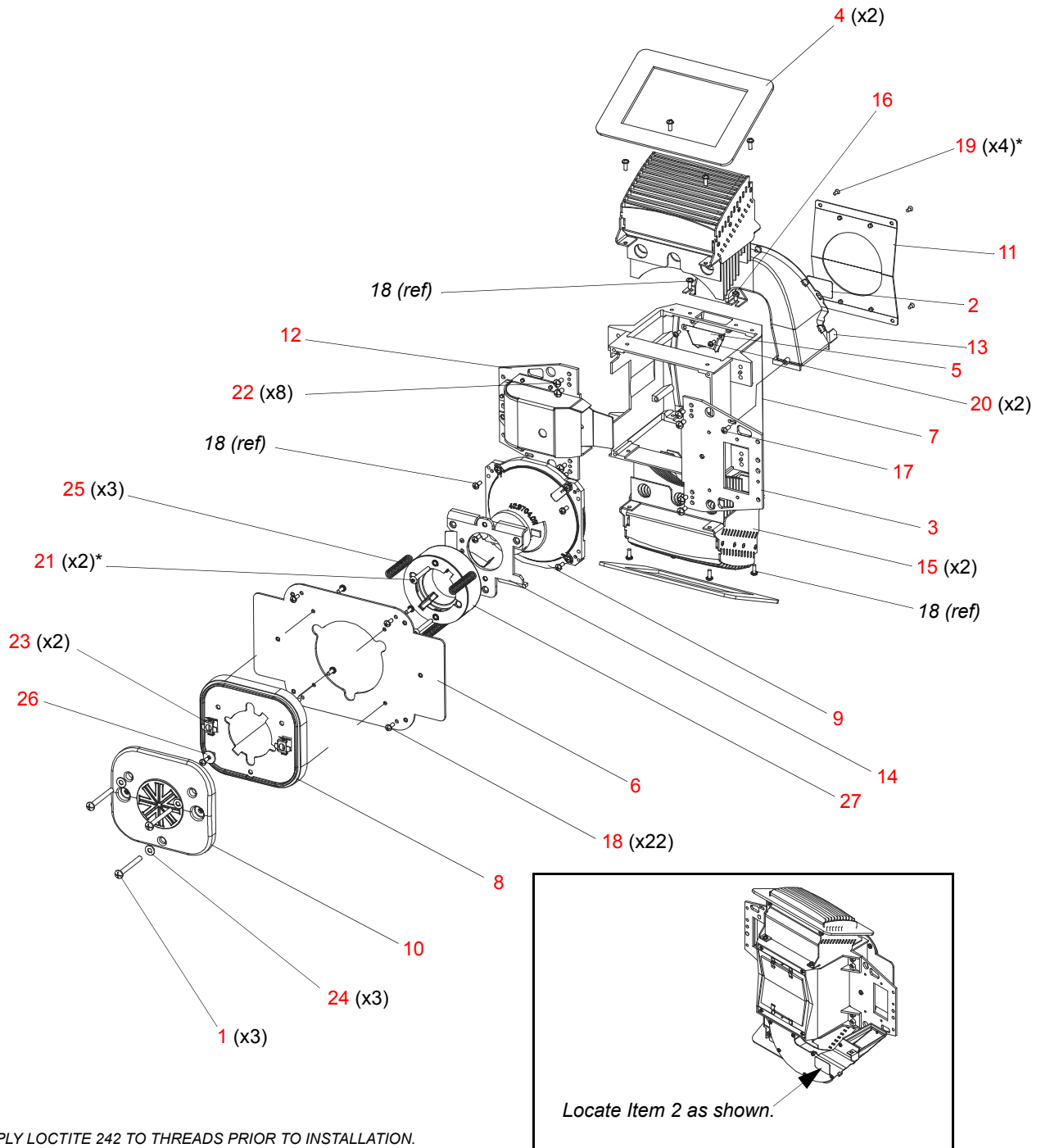
Back End Assembly

21.9704.1615 Rev. G

Refer to [Figure 3-22](#)

No.	Item	Qty.	UM.	Description
1	0-100071	3	EA	SCREW, PHMS, PH, 10-32 X 1.75", S, BO
2	04.9704.0401	1	EA	DIPSWITCH LABEL, COLOR BOARDS
3	10.9704.0613	1	EA	MOUNT, HOT BOX
4	10.9704.0628	2	EA	LIGHT SEAL, FIN ASSY
5	10.9704.1639	1	EA	DIVERTER, LAMP TIP
6	10.9704.2614	1	EA	PLATE, REAR
7	12.9704.0612	1	EA	HOT BOX, MACHINED CASTING
8	12.9704.1629	1	EA	EXTENSION, BACKCAP, MACHINED CASTING
9	21.9704.0619	1	EA	ASSY, REFLECTOR
10	21.9704.0632	1	EA	ASSY, LAMP COVER
11	22.9704.0630	1	EA	ASSY, UV GLASS
12	22.9704.0633	1	EA	ASSY, MOUNTED LAMP BASE DUCT
13	22.9704.0636	1	EA	DUCT ASSY, LAMP TIP
14	22.9704.1618	1	EA	ASSY, LAMP SOCKET PLATE
15	22.9704.1620	2	EA	FIN ASSY, EXHAUST, TRI-BEND
-	25.9704.2701	1	EA	CABLE ASSY, VL4000 LAMP SOCKET (NOT SHOWN)
16	53.6522.2500	1	EA	SCREW, 6-32 X 1/4" HEX MACH, ZINC
17	53.6558.0003	1	EA	SCREW, 6-32 X 3/8" PPZ PLASTIC THD
18	53.6558.0009	22	EA	SCREW, 6-32 X 3/8" LG PPZ SEMS
19	53.6559.0001	4	EA	SCREW, 4-40 X 1/4" PFZ
20	53.6596.0002	2	EA	SCREW, 4-40 X 5/16" LG PPZ SEMS
21	53.6622.0001	2	EA	SCREW, 8-32 X 1-1/4" PPZ
22	53.6682.0022	8	EA	SCREW, 8-32 X 3/8" PPZ SEMS
23	55.2233.2006	2	EA	DZUS RAPIER SNAP-IN RETAINER
24	55.6546.0004	3	EA	WASHER, TEFLON, 0.201" ID X 0.433" OD
25	55.6568.1750	3	EA	SPRING, CPRSN, 0.360" OD, 1.75" LG, 0.045" DIA SS
26	55.6636.0003	1	EA	WASHER, 0.562" OD X 0.156" ID X 0.046" THK ZINC
27	71.8101.0050	1	EA	LAMP SOCKET, BENDER AND WIRTH, PJGX50

Back End Assembly (continued)



*APPLY LOCTITE 242 TO THREADS PRIOR TO INSTALLATION.

Figure 3-22: Back End Assembly

Reflector Assembly

21.9704.0619 Rev. A

Refer to [Figure 3-23](#)

No.	Item	Qty.	UM.	Description
1	10.9704.0618	8	EA	CLIP, REFLECTOR MOUNT
2	10.9704.0617	1	EA	REFLECTOR MOUNT PLATE
3	42.9704.0150	1	EA	REFLECTOR, PRIMARY
4	42.9704.0151	1	EA	REFLECTOR, RETRO
5	53.6525.0188	8	EA	SCREW, 6-32 X 3/16" LG PPZ

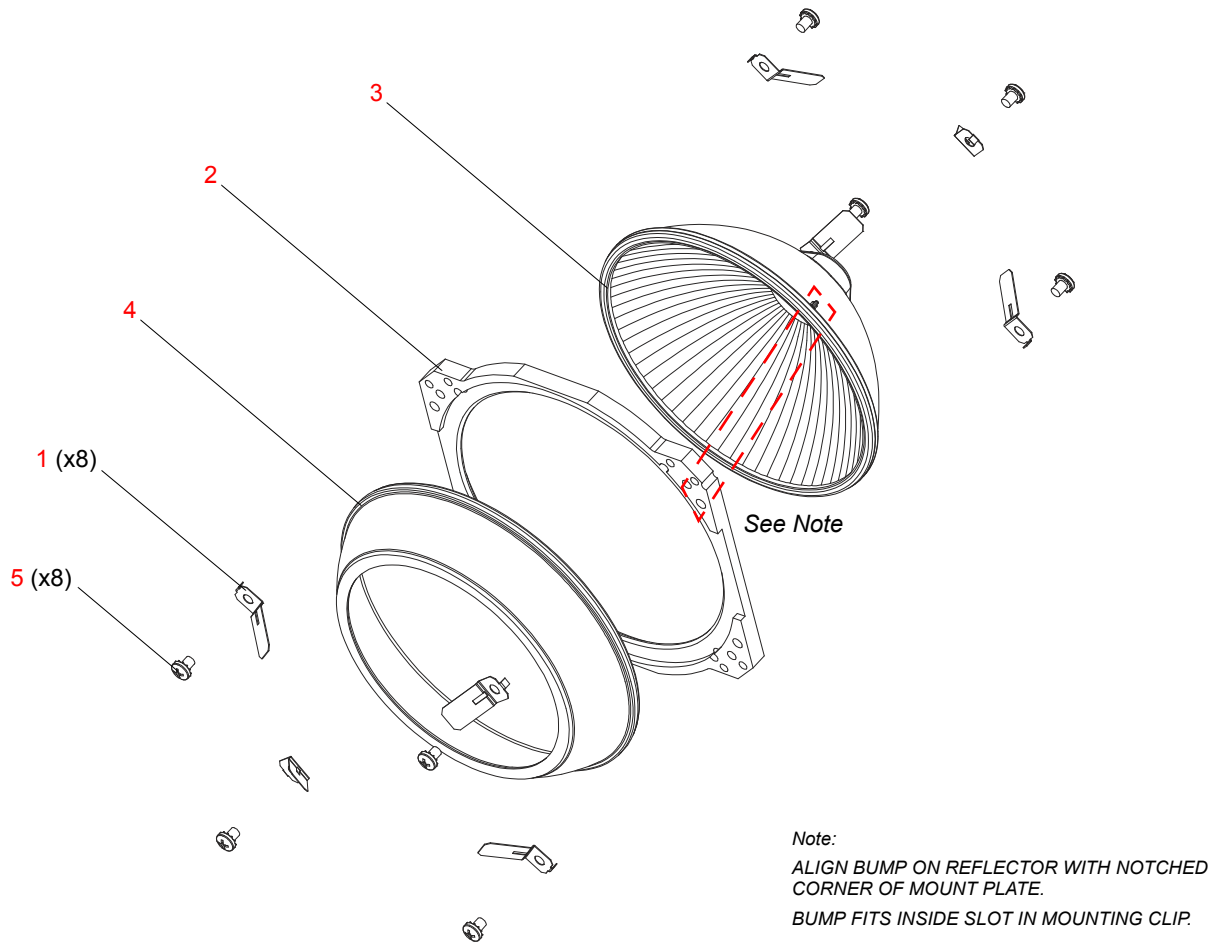


Figure 3-23: Reflector Assembly

Lamp Cover Assembly

21.9704.0632 Rev. B

Refer to [Figure 3-24](#)

No.	Item	Qty.	UM.	Description
1	10.9638.0233	1	EA	TETHER, REMOVABLE COVER
2	10.9704.1630	1	EA	HEAD COVER, LAMP SOCKET
3	53.5655.0250	1	EA	SCREW, #6 X 1/4" LG PLASTIC THREADING
4	55.2233.2003	2	EA	DZUS RAPIER, 1/4-TURN STUD RETAINER, 5 MM
5	55.2233.2005	2	EA	DZUS RAPIER, 1/4-TURN STUD, 5 MM, 12 MM LG

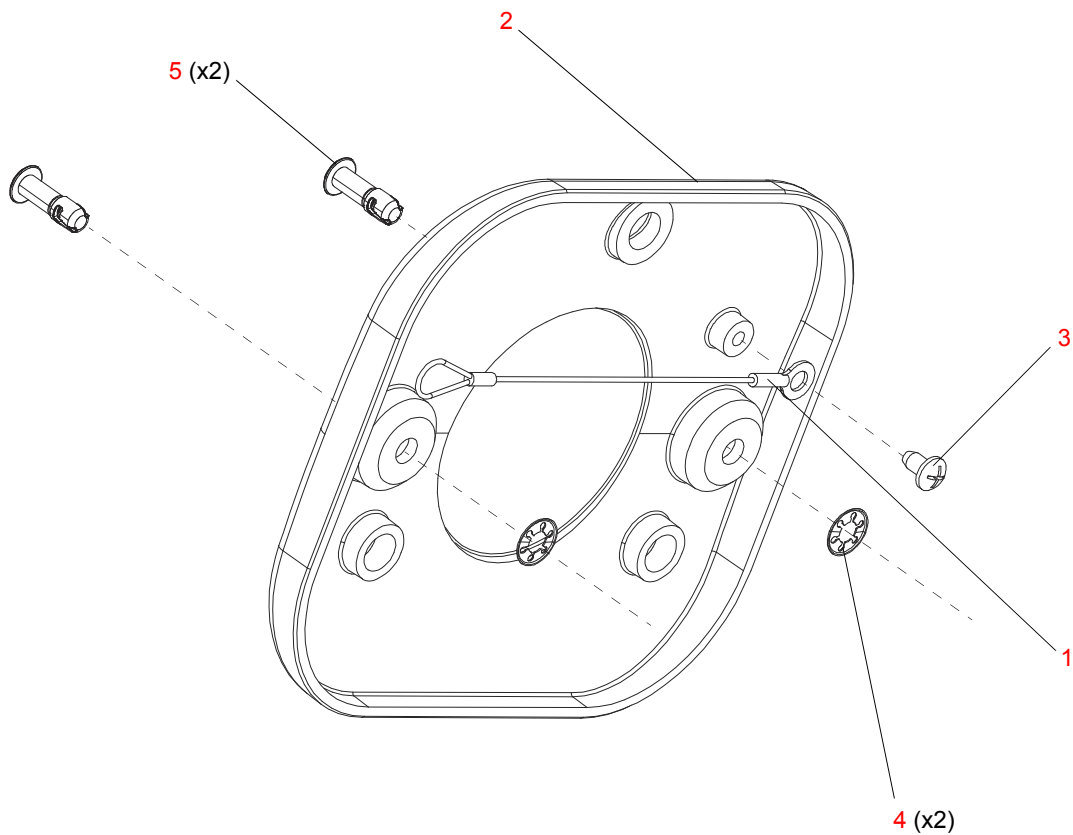


Figure 3-24: Lamp Cover Assembly

5mm Motor Shaft Damper Assembly

21.9698.0330 Rev. A

Refer to [Figure 3-25](#)

No.	Item	Qty.	UM.	Description
1	10.9698.0335	1	EA	DAMPER, MOTOR SHAFT, 5 MM
2	53.6604.0500	1	EA	SCREW, 4-24 X 1/2" PPB HI-LO

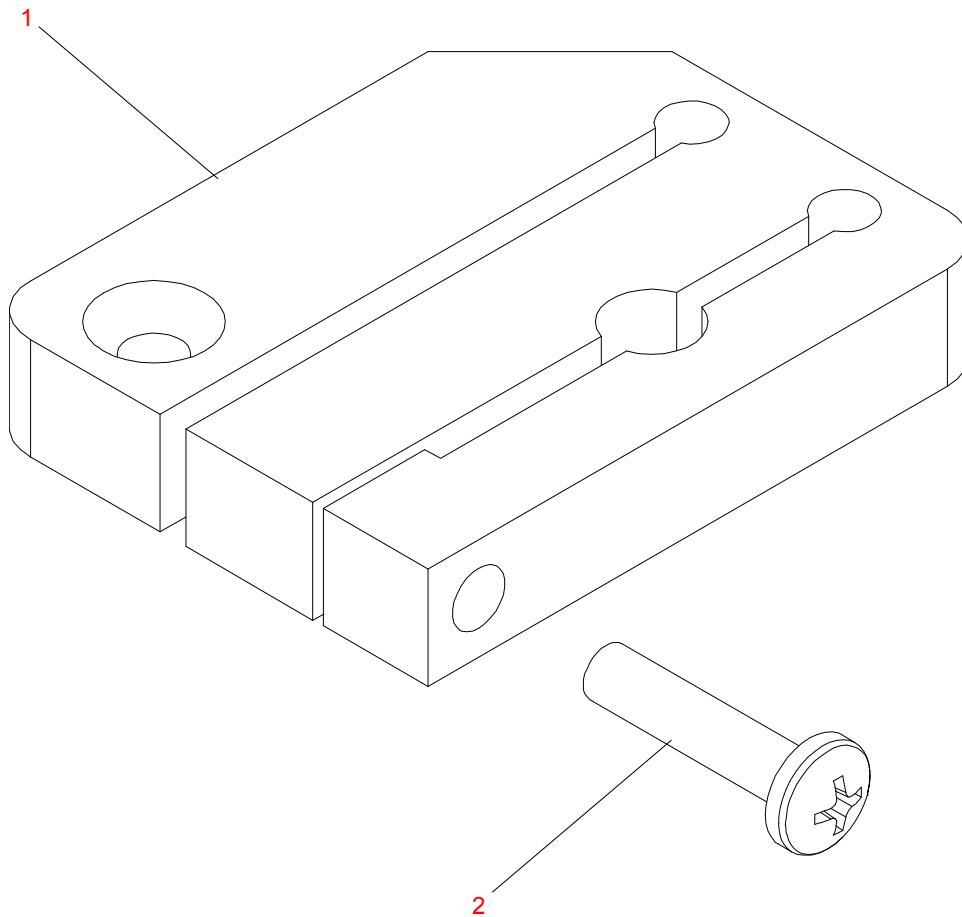


Figure 3-25: 5mm Motor Shaft Damper Assembly

Notes

Shutter/Gobo/Animation Module Assembly

21.9704.0200 Rev. N

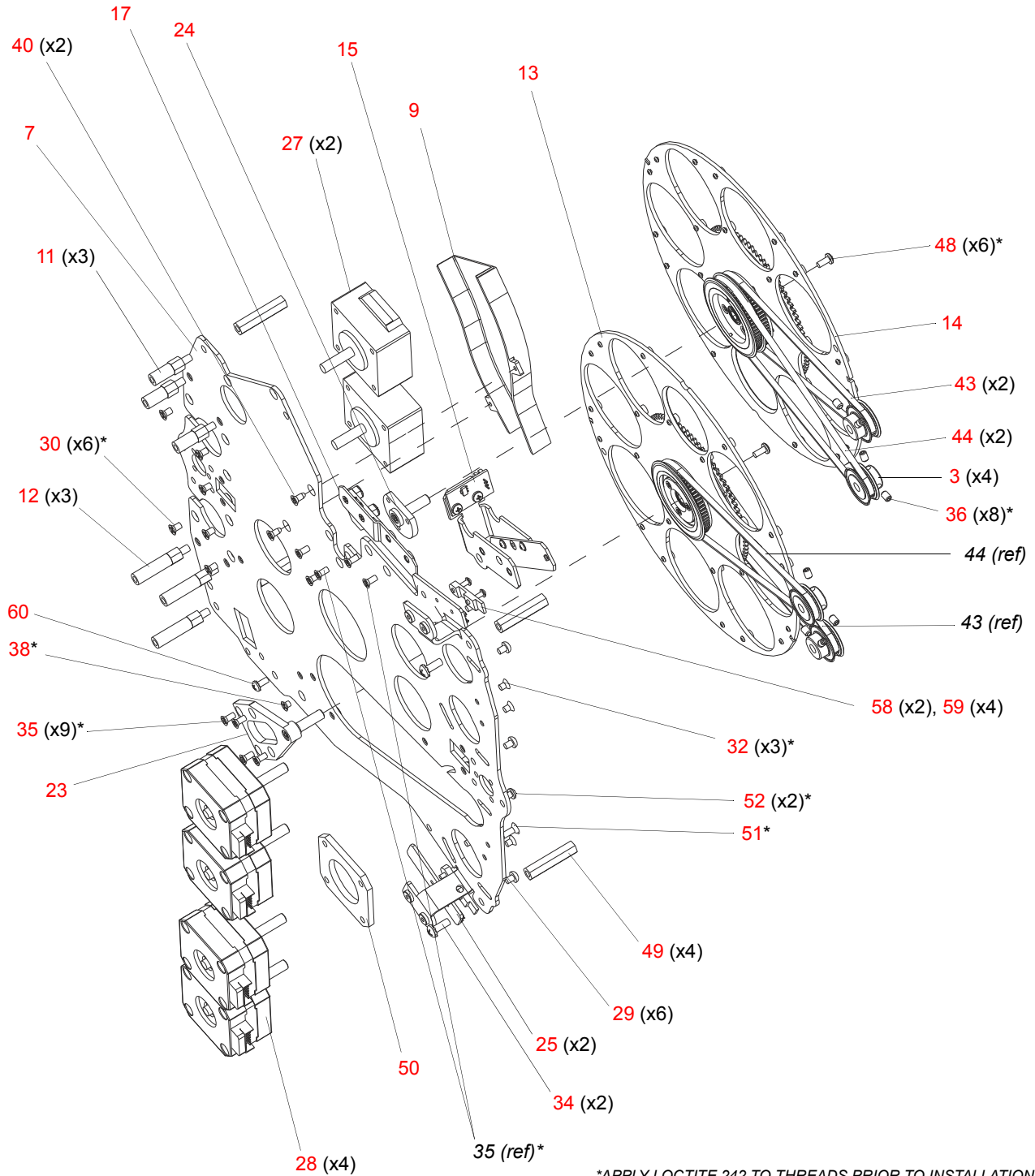
Refer to [Figure 3-26](#), [Figure 3-27](#), [Figure 3-28](#), and [Figure 3-29](#)

No.	Item	Qty.	UM.	Description
1	-	AR	EA	LOCTITE #242, REMOVABLE (<i>BY OTHERS</i>)
2	10.9698.0335	6	EA	DAMPER, MOTOR SHAFT, 5 MM
3	10.9704.0223	4	EA	DRIVE PULLEY, GOBO WHEEL
4	10.9704.0225	1	EA	GOBO BULKHEAD BRACE
5	10.9704.0231	2	EA	BLOCK SPACER, EDGE, GOBO BULKHEAD
6	10.9704.1233	2	EA	PULLEY 16 GROOVE, ANIMATION ARM DRIVE
7	10.9704.0245	1	EA	BULKHEAD, MIDDLE, GOBO MODULE
8	10.9704.0270	1	EA	COOLING DUCT, GOBO BULKHEAD, TOP
9	10.9704.0271	1	EA	COOLING DUCT, GOBO BULKHEAD, BOTTOM
10	10.9704.0272	1	EA	COVER, COOLING DUCT, GOBO BULKHEAD
11	10.9704.0323	3	EA	STANDOFF, ANIMATION MODULE, SHORT, #6-32
12	10.9704.0324	3	EA	STANDOFF, ANIMATION MODULE, LONG, #6-32
13	21.9704.0211	1	EA	ASSY, GOBO WHEEL 1
14	21.9704.0212	1	EA	ASSY, GOBO WHEEL 2
15	21.9704.0230	1	EA	ASSY, SENSOR, GOBO 1 INDEX
16	21.9704.0255	2	EA	ASSY, MOTOR, EDGE
17	21.9704.0260	1	EA	ASSY, SENSOR, GOBO 2 INDEX
18	21.9704.0281	1	EA	ASSY, BRACKET, LEFT, GOBO BULKHEAD
19	21.9704.0282	1	EA	ASSY, BRACKET, RIGHT, GOBO BULKHEAD
20	21.9704.1351	1	EA	ASSY, ANIMATION WHEEL 1
21	21.9704.0352	1	EA	ASSY, ANIMATION WHEEL 2
22	21.9704.1505	1	EA	ASSY, SHUTTER BULKHEAD, WITH ROTATION
23	22.9704.0261	1	EA	SHAFT ASSY, GOBO WHEEL 1
24	22.9704.0264	1	EA	SHAFT ASSY, GOBO WHEEL 2
25	17.9704.0906	2	EA	PCB ASSY, ANIMATION WHEEL INDEX
26	23.9704.0005	1	EA	FAN ASSY, VL4000 INLET AND GOBO
-	25.9704.0200	1	EA	CABLE ASSY, VL4000 GOBO BULKHEAD, CABLE 1
-	25.9704.0201	1	EA	CABLE ASSY, VL4000 GOBO BULKHEAD, CABLE 2
-	25.9704.0202	1	EA	CABLE ASSY, VL4000 GOBO BULKHEAD, CABLE 3
-	25.9704.0711	3	EA	CABLE ASSY, VL4000 DATA NETWORK EXTENSION
27	44.9704.0209	2	EA	MOTOR, SIZE 15, 5 X 17 MM SHAFT

VARI*LITE - VL4000 SPOT LUMINAIRE SERVICE MANUAL

No.	Item	Qty.	UM.	Description
28	44.9704.0217	4	EA	MOTOR, SIZE 17, 24 MM SHAFT, SHORT STACK
29	53.6513.0003	6	EA	SCREW, M3 X .5 X 4 MM LG, PPB, METRIC
30	53.6513.0008	6	EA	SCREW, M3 X .5 X 5 MM LG, PPB, METRIC
31	53.6513.0034	2	EA	SCREW, M3 X .5 X 10 MM LG, PFZ, METRIC
32	53.6513.0054	3	EA	SCREW, M3 X .5 X 4 MM LG, PFZ, METRIC
33	53.6575.0009	6	EA	SCREW, 8-32 X 3/8" PPZ SEMS
34	53.6558.0009	24	EA	SCREW, 6-32 X 3/8" PPZ SEMS
35	53.6559.0001	9	EA	SCREW, 4-40 X 1/4" PFZ
36	53.6578.0002	12	EA	SCREW, 6-32 X 3/16" SET CUP PNT
37	53.6596.0002	6	EA	SCREW, 4-40 X 5/16" PPZ SEMS
38	53.6601.0004	1	EA	SCREW, 4-40 X 1/8" PFZ UNDERCUT
39	53.6604.0002	5	EA	SCREW, 4-20 X 1/4" THREAD FORMING FOR PLASTICS
40	53.6604.0005	4	EA	SCREW, 4-40 X 1/4" PFZ SHEET METAL
41	53.6609.0001	6	EA	SCREW, 6-32 X 3/8" PFZ
42	53.9704.0004	2	EA	SCREW, 10-32 X 3/8" HI-LO PPZ THD FORMING
43	54.9698.0002	2	EA	BELT, TIMING, MXL, 150 GRV, 0.125" WD, URETH/KEV
44	54.9704.0290	2	EA	BELT, TIMING, MXL, 155 GRV, 0.125" WD, URETH/KEV
45	54.9704.0296	2	EA	BEARING, SLEEVE, FLNG, 0.314" ID, 0.439" OD, 1.00" LG, LUB BRNZ
46	54.9704.1390	2	EA	BELT, TIMING, MXL, 102 GRV, 0.125" WD, URETH/KEV
47	55.2178.0001	2	EA	CABLE ANCHOR POINT, #8 SCREW
48	55.2203.0001	6	EA	SCREW, 4-40 X 1/4" PPZ
49	55.9704.0002	4	EA	STANDOFF, 1/4" HEX, 6-32. 1.109" LG, FF, ALUM
50	10.9704.0249	1	EA	SPACER, MOTOR SIZE 15
51	53.6513.0023	1	EA	SCREW, M3 X 8 MM LG PFZ METRIC
52	53.6513.0024	2	EA	SCREW, M3 X 8 MM LG PPZ METRIC
53	55.6503.0004	6	EA	WASHER, FLAT, #8, ZINC
54	54.1261.0001	6	EA	BUSHING, LOW DAMP THROMPLS, 0.189" ID
55	04.9704.0203	1	EA	DIPSWITCH LABEL, GOBO BOARD C
56	04.9704.0204	1	EA	DIPSWITCH LABEL, GOBO BOARD D
57	04.9704.1501	1	EA	DIPSWITCH LABEL, SHUTTER BOARD
58	10.9704.0290	2	EA	CLAMP, CONNECTOR, SENSOR BOARD
59	53.6659.0003	4	EA	SCREW, 2-56 X 3/8" PPZ
60	53.6682.0002	1	EA	SCREW, 4-40 X 1/4" PPZ SEMS

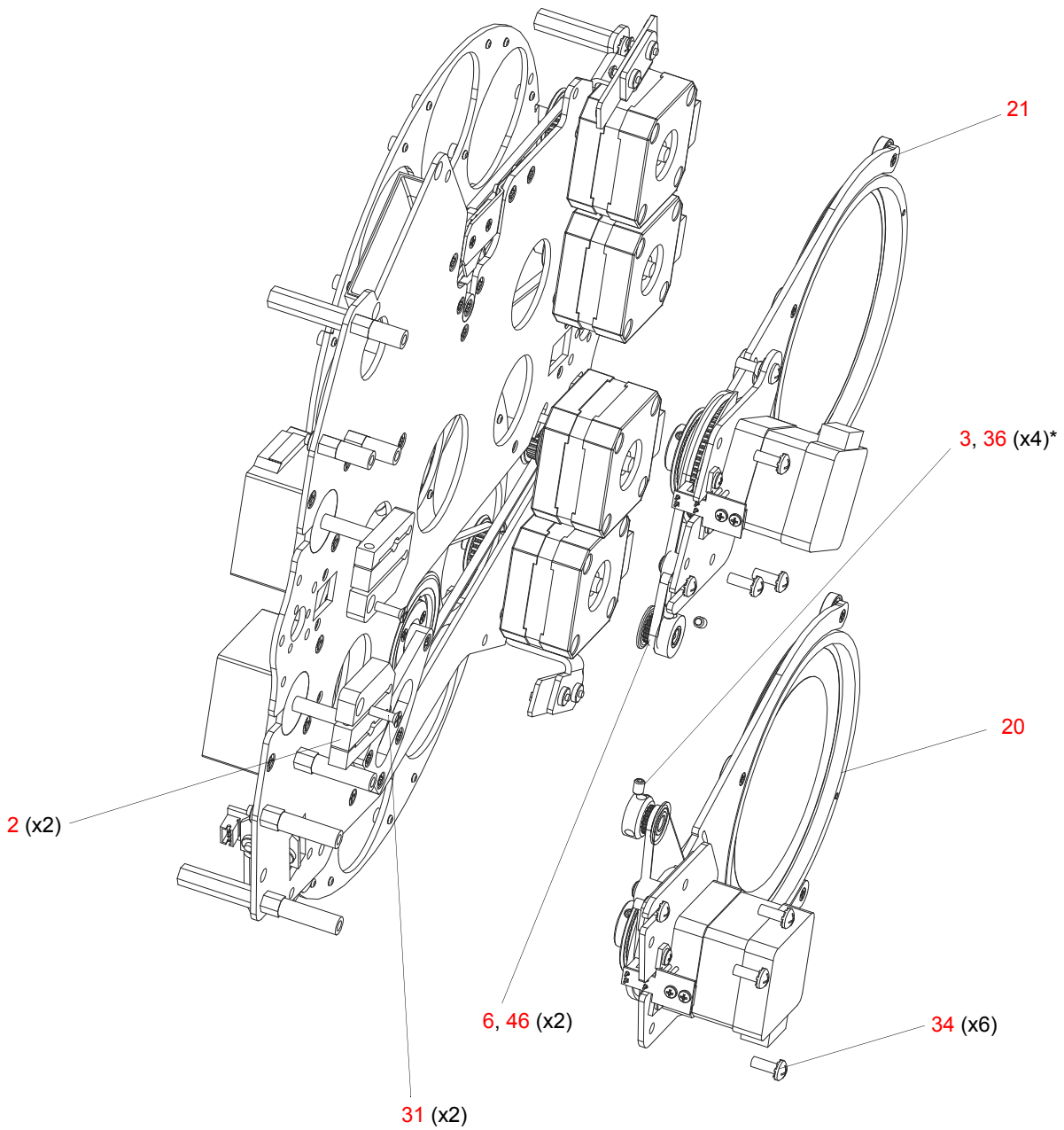
Shutter/Gobo/Animation Module Assembly (continued)



*APPLY LOCTITE 242 TO THREADS PRIOR TO INSTALLATION.

Figure 3-26: Shutter/Gobo/Animation Module Assembly (Part 1)

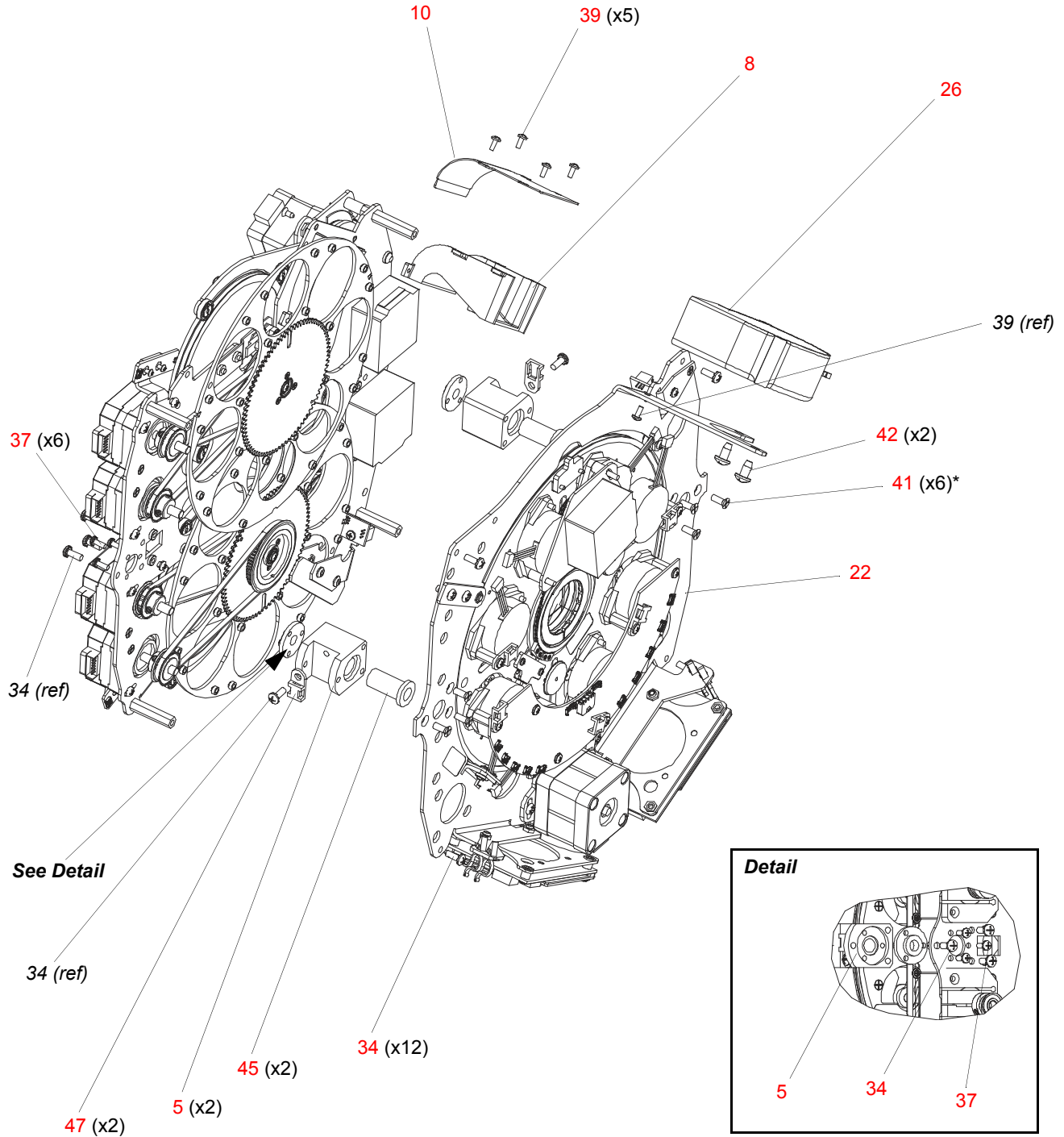
Shutter/Gobo/Animation Module Assembly (continued)



*APPLY LOCTITE 242 TO THREADS PRIOR TO INSTALLATION.

Figure 3-27: Shutter/Gobo/Animation Module Assembly (Part 2)

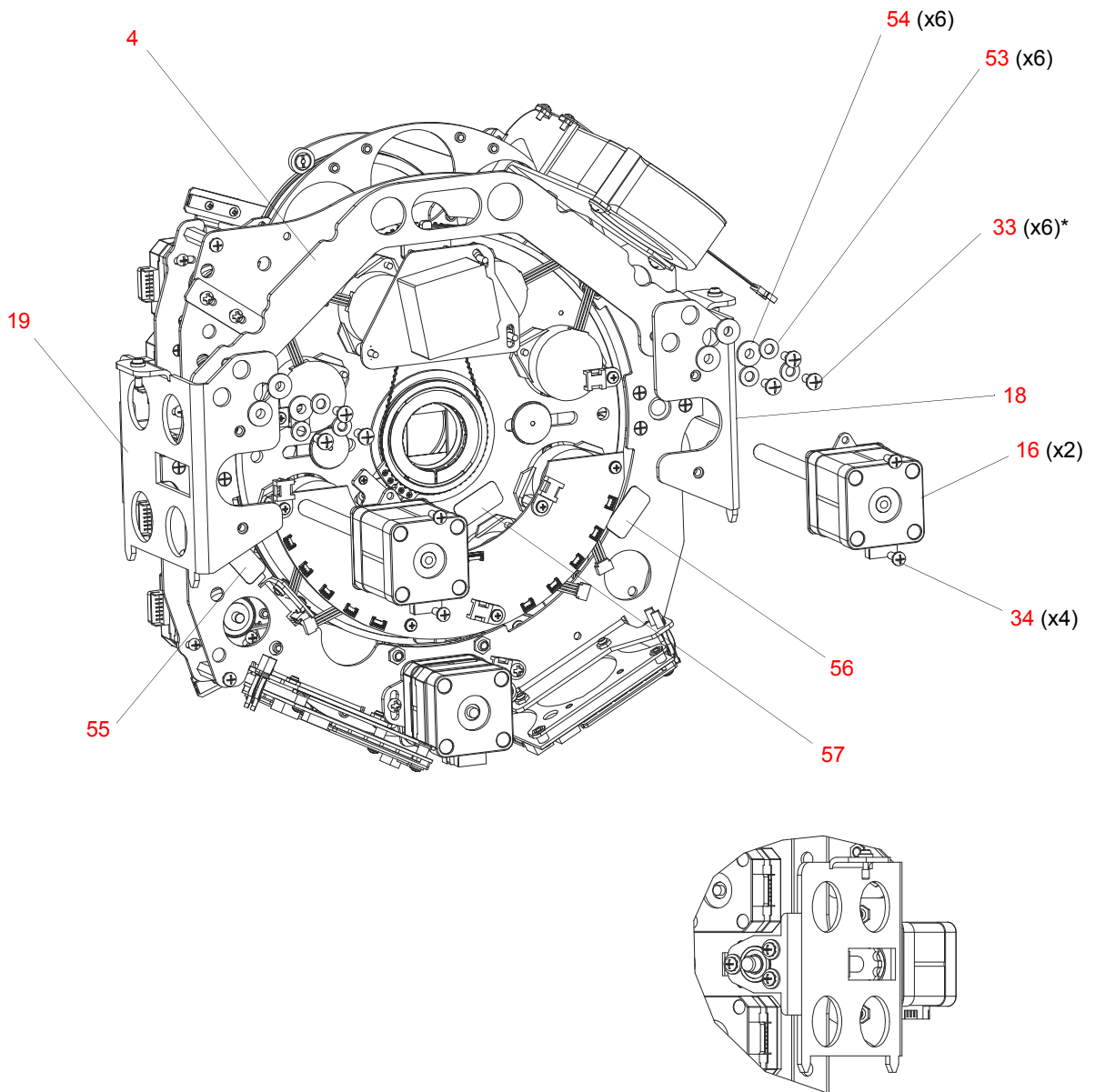
Shutter/Gobo/Animation Module Assembly (continued)



*APPLY LOCTITE 242 TO THREADS PRIOR TO INSTALLATION.

Figure 3-28: Shutter/Gobo/Animation Module Assembly (Part 3)

Shutter/Gobo/Animation Module Assembly (continued)



*APPLY LOCTITE 242 TO THREADS PRIOR TO INSTALLATION.

Figure 3-29: Shutter/Gobo/Animation Module Assembly (Part 4)

Gobo Wheel 1 Assembly

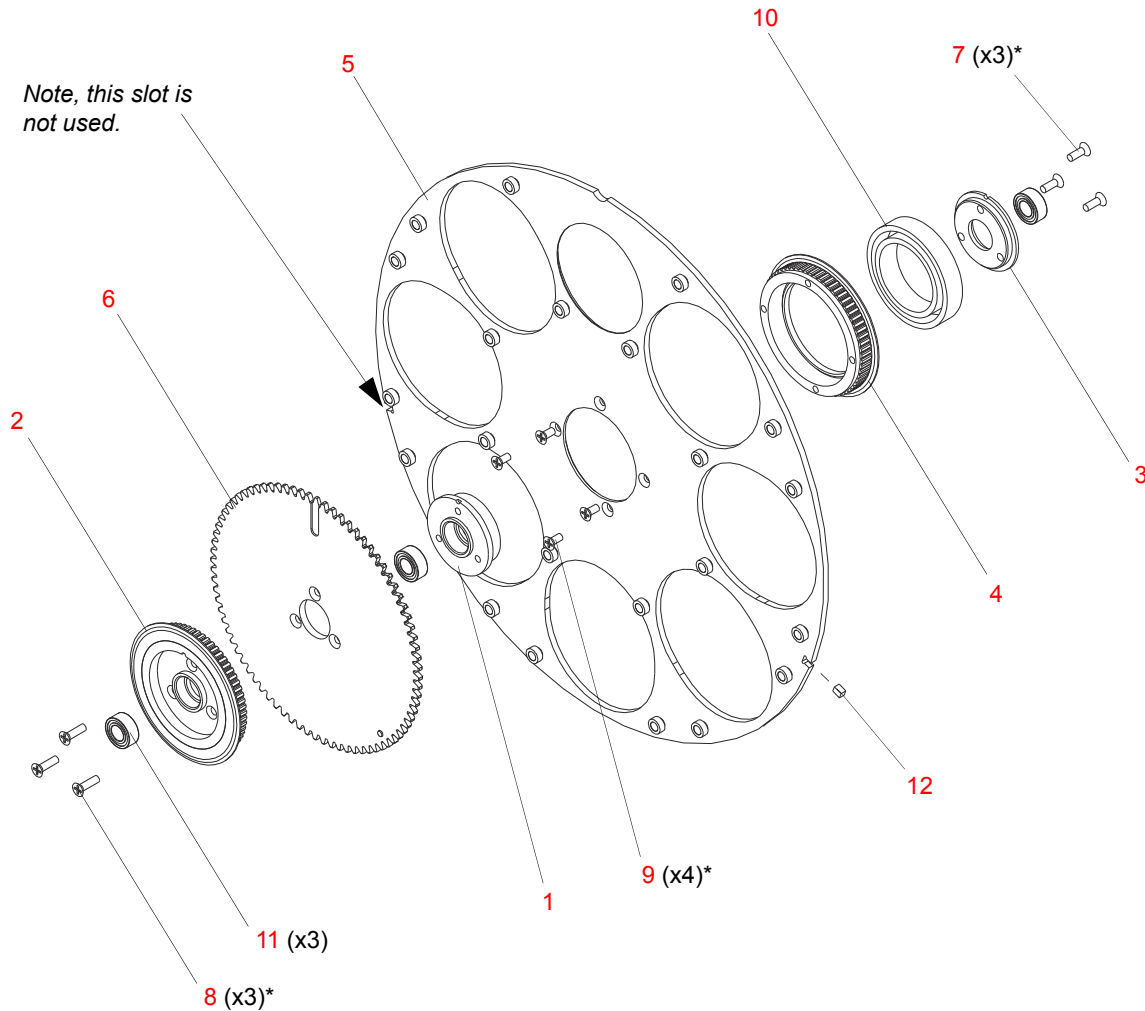
21.9704.0211 Rev. D

Refer to [Figure 3-30](#)

No.	Item	Qty.	UM.	Description
1	10.9704.0219	1	EA	HUB, GOBO WHEEL
2	10.9704.0228	1	EA	PULLEY, DRIVEN, GOBO WHEEL 1 INDEX
3	10.9704.0229	1	EA	CAP, HUB, GOBO WHEEL 1
4	10.9704.0236	1	EA	DRIVEN PULLEY, GOBO ROTATE
5	22.9704.0220	1	EA	PLATE ASSY, ROTATING GOBO WHEEL
6	22.9704.0222	1	EA	SUN GEAR, GOBO ROTATE WITH MAGNET
7	53.6659.0015	3	EA	SCREW, 2-56 X 1/4" PFB
8	53.6659.0023	3	EA	SCREW, 2-56 X 3/16" PFZ
9	53.6659.0027	4	EA	SCREW, 2-56 X 5/16" PFZ
10	54.1259.0014	1	EA	BEARING, TORQUE TUBE, 1.313 OD
11	54.9687.1253	3	EA	BEARING, NPB, MR105ZZK13
12	55.2256.0001	1	EA	MAGNET, 2:17 SMCO 2MM X 2MM X3MM
13	-	AR	EA	LOCTITE #242, REMOVABLE (<i>BY OTHERS</i>)
14	10.9678.0250	1	EA	MAGNET TAPE (NOT SHOWN)

Note: For included gobos, refer to [“Included Items Kit, VL4000 Spot”](#) on page 159.

Gobo Wheel 1 Assembly (continued)



Notes:

*APPLY ONE DROP OF LOCTITE (ITEM 13) TO SCREW THREADS DURING INSTALLATION.

CLEAN AREA AROUND MAGNET SLOT IN WHEEL THOROUGHLY WITH SOLVENT. INSTALL MAGNET (ITEM 12) INTO SLOT, SOUTH POLE FACING OUT, USING TAPE (ITEM 14). APPLY TAPE CENTERED ON MAGNET WITH LONG SIDE FOLDED EQUALLY OVER WHEEL EDGE. PRESS TAPE FIRMLY IN PLACE TO PROMOTE ADHESION BY RUBBING WITH A BLUNT TOOL.

WHEN INSTALLING GOBO/GAG CARRIER, TIME ASSEMBLY BY ALIGNING TIMING MARK ON SUN GEAR (ITEM 6) WITH HOLES ON PLANET GEAR. ROTATE SUN GEAR SO WHITE MARK IS VISIBLE, THEN INSTALL CARRIER SO TWO TEETH WITH HOLES MESH WITH WHITE TOOTH. REPEAT FOR ALL CARRIERS.

VERIFY THAT ASSEMBLY SPINS FREELY BY HOLDING SUN GEAR (ITEM 6) AND SPINNING THE PLATE/PLANETS AROUND WITH A FINGER IN THE OPEN HOLE OF THE PLATE (ITEM 5). THERE SHOULD BE NO DRAG IN THE ASSEMBLY.

INSTALL PULLEY (ITEM 2) AND GEAR (ITEM 6) TO ASSY LAST WHILE ALL THREE BEARINGS (ITEM 11) ARE ALIGNED ON AN AXLE SHAFT BEFORE TIGHTENING THREE SCREWS TO ENSURE ALIGNMENT.

Figure 3-30: Gobo Wheel 1 Assembly

Gobo Wheel 2 Assembly

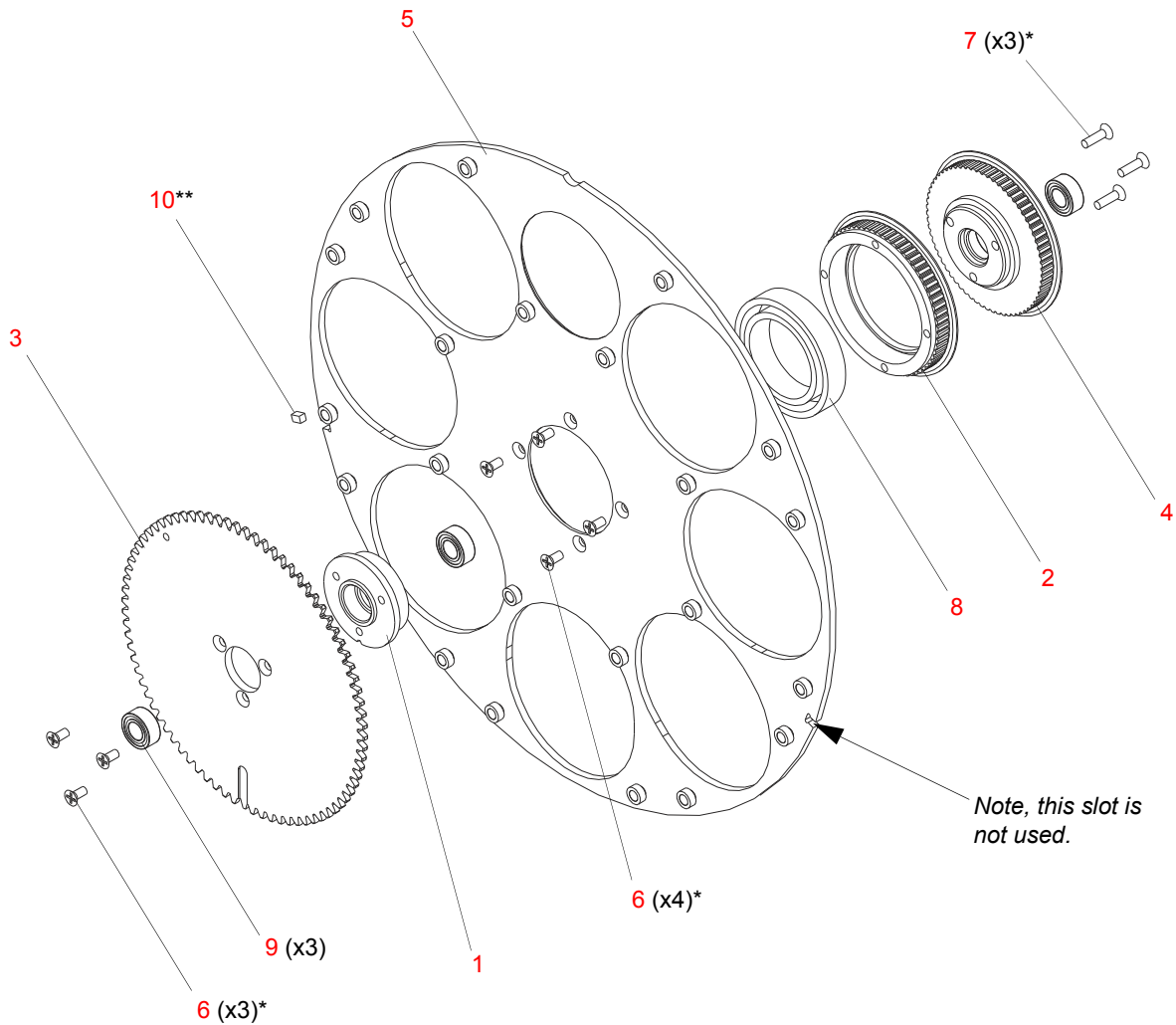
21.9704.0212 Rev. F

Refer to [Figure 3-31](#)

No.	Item	Qty.	UM.	Description
1	10.9704.0219	1	EA	HUB, GOBO WHEEL
2	10.9704.0236	1	EA	DRIVEN PULLEY, GOBO ROTATE
3	10.9704.1216	1	EA	SUN GEAR, GOBO ROTATE
4	22.9704.0207	1	EA	DRIVEN PULLEY WITH MAGNET, GOBO WHEEL 2 INDEX
5	22.9704.0220	1	EA	PLATE ASSY, ROTATING GOBO WHEEL
6	53.6659.0023	7	EA	SCREW, 2-56 X 3/16" PFZ
7	53.6659.0027	3	EA	SCREW, 2-56 X 5/16" PFZ
8	54.1259.0014	1	EA	BEARING, TORQUE TUBE, 1.313 OD
9	54.9687.1253	3	EA	BEARING, NPB, MR105ZZK13
10	55.2256.0001	1	EA	MAGNET, 2:17 SMCO 2MM X 2MM X3MM
11	-	AR	EA	LOCTITE #242, REMOVABLE (<i>NOT SHOWN - BY OTHERS</i>)
12	10.9678.0250	1	EA	MAGNET TAPE (NOT SHOWN)

Note: For included gobos, refer to [“Included Items Kit, VL4000 Spot”](#) on page 159.

Gobo Wheel 2 Assembly (continued)



Notes:

*APPLY ONE DROP OF LOCTITE (ITEM 13) TO SCREW THREADS DURING INSTALLATION.

**CLEAN AREA AROUND MAGNET SLOT IN WHEEL THOROUGHLY WITH SOLVENT. INSTALL MAGNET (ITEM 10) INTO SLOT, SOUTH POLE FACING OUT, USING TAPE (ITEM 12). APPLY TAPE CENTERED ON MAGNET WITH LONG SIDE FOLDED EQUALLY OVER WHEEL EDGE. PRESS TAPE FIRMLY IN PLACE TO PROMOTE ADHESION BY RUBBING WITH A BLUNT TOOL.

WHEN INSTALLING GOBO/GAG CARRIER, TIME ASSEMBLY BY ALIGNING TIMING MARK ON SUN GEAR (ITEM 1) WITH HOLES ON PLANET GEAR. ROTATE SUN GEAR SO WHITE MARK IS VISIBLE, THEN INSTALL CARRIER SO TWO TEETH WITH HOLES MESH WITH WHITE TOOTH. REPEAT FOR ALL CARRIERS.

VERIFY THAT ASSEMBLY SPINS FREELY BY HOLDING SUN GEAR (ITEM 1) AND SPINNING THE PLATE/PLANETS AROUND WITH A FINGER IN THE OPEN HOLE OF THE PLATE (ITEM 5). THERE SHOULD BE NO DRAG IN THE ASSEMBLY.

INSTALL PULLEY (ITEM 4) TO ASSY LAST WHILE ALL THREE BEARINGS (ITEM 9) ARE ALIGNED ON AN AXLE SHAFT BEFORE TIGHTENING THREE SCREWS TO ENSURE ALIGNMENT.

Figure 3-31: Gobo Wheel 2 Assembly

Gobo 1 Sensor Index Assembly

21.9704.0230 Rev. B

Refer to [Figure 3-32](#)

No.	Item	Qty.	UM.	Description
1	10.9704.0232	1	EA	GOBO WHEEL 1 SENSOR BRACKET
2	17.9704.0905	1	EA	PCB ASSY, GOBO 1 INDEX SENSOR
3	24.9678.3240	1	EA	BRD ASSY, GOBO POSITION
4	53.6659.0012	2	EA	SCREW, 2-56 X 1/8" PPZ
5	55.2203.0001	2	EA	SCREW, 4-40 X 1/4" PPZ

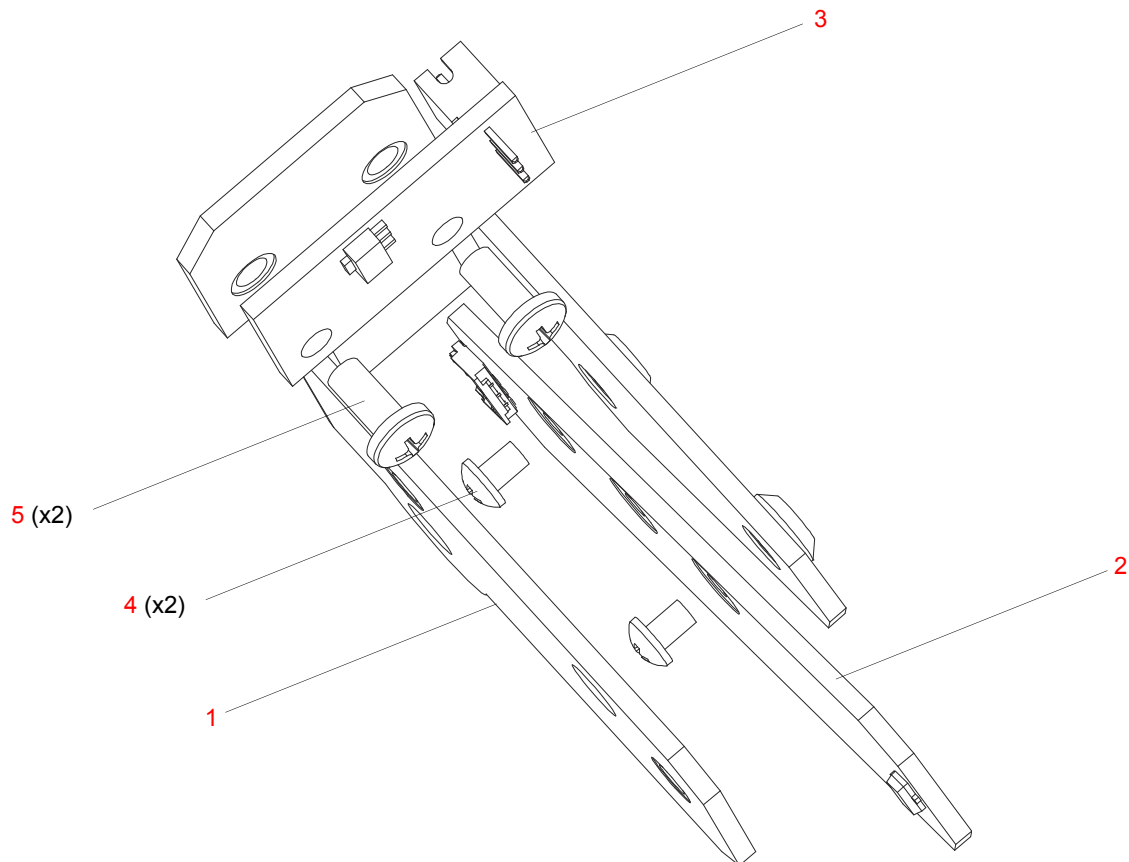


Figure 3-32: Gobo 1 Sensor Index Assembly

Gobo 2 Sensor Index Assembly

21.9704.0260 Rev. B

Refer to [Figure 3-33](#)

No.	Item	Qty.	UM.	Description
1	10.9704.0290	1	EA	CLAMP, CONNECTOR, SENSOR BOARD
2	10.9704.0253	1	EA	MOUNT, SENSOR BOARD, GOBO INDEX
3	53.2009.0006	2	EA	NUT, 2-56 HEX NYLON LOCK SS
4	17.9704.0904	1	EA	PCB ASSY, WHEEL POSITION SENSOR
5	53.6659.0014	2	EA	SCREW, 2-56 X 3/8" PFB

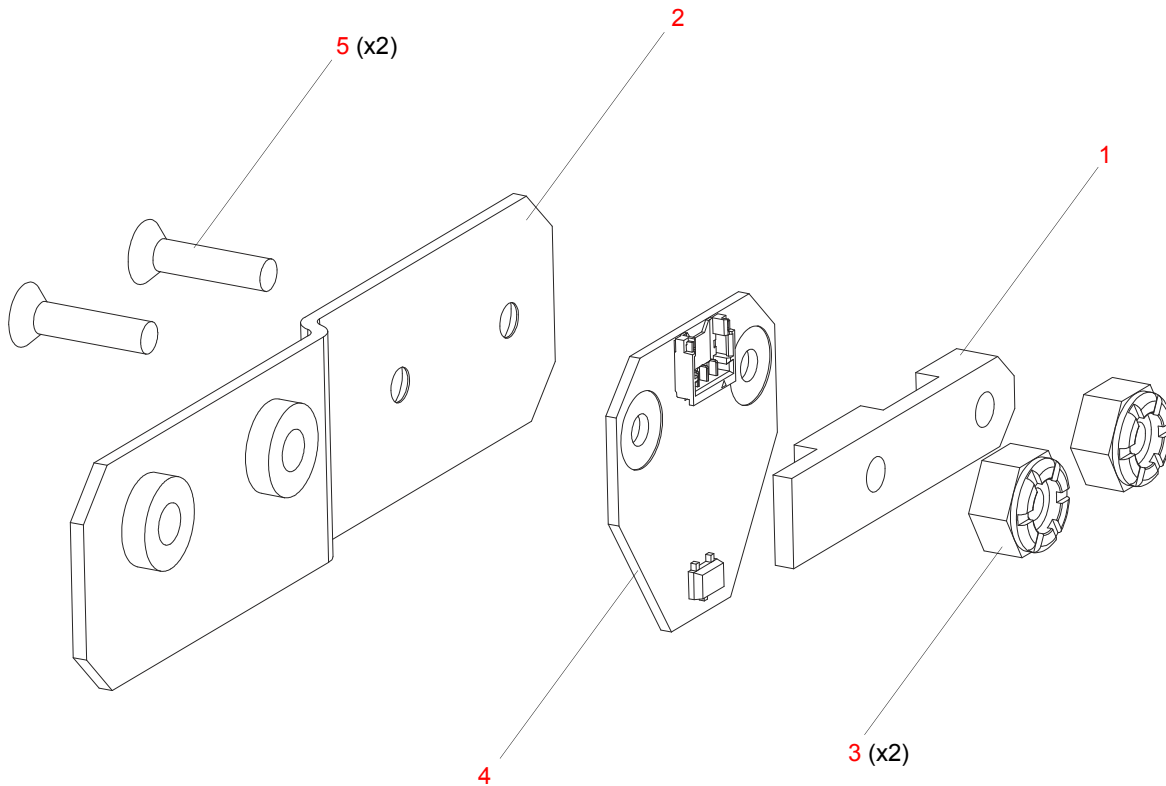


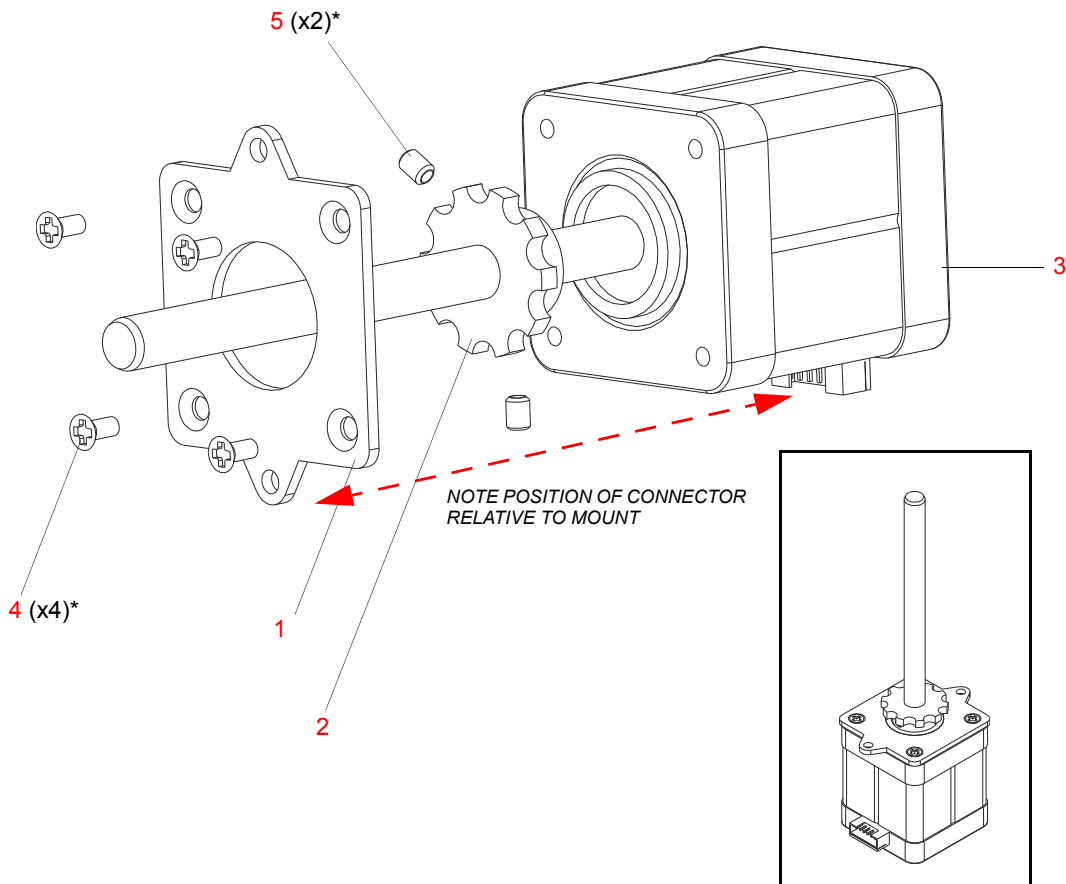
Figure 3-33: Gobo 2 Sensor Index Assembly

Edge Motor Assembly

21.9704.0255 Rev. A

Refer to [Figure 3-34](#)

No.	Item	Qty.	UM.	Description
1	10.9678.0330	1	EA	MOTOR ADAPTER PLATE
2	10.9704.0259	1	EA	KNOB, EDGE ACTUATION, MANUAL
3	44.9704.0208	1	EA	MOTOR, SIZE 17, FOCUS
4	53.6559.0001	4	EA	SCREW, 4-40 X 1/4" PFZ
5	53.6578.0002	2	EA	SCREW, 6-32 X 3/16" SET CUP PNT



*APPLY LOCTITE 242 TO THREADS PRIOR TO INSTALLATION.

Figure 3-34: Edge Motor Assembly

Gobo Bulkhead Left Bracket Assembly

21.9704.0281 Rev. C

Refer to [Figure 3-35](#)

No.	Item	Qty.	UM.	Description
1	10.9704.0251	1	EA	BRACKET, LEFT, EDGE MOTOR, GOBO BULKHEAD
2	53.6558.0009	3	EA	SCREW, 6-32 X 3/8" LG PPZ SEMS
3	53.6685.0500	1	EA	SCREW, 6-32 X 1/2 PPB CAPTIVE
4	54.9704.0295	1	EA	BEARING, NPB, MR105ZZK13
5	55.6528.0001	3	EA	WASHER, #6 FLAT ZINC

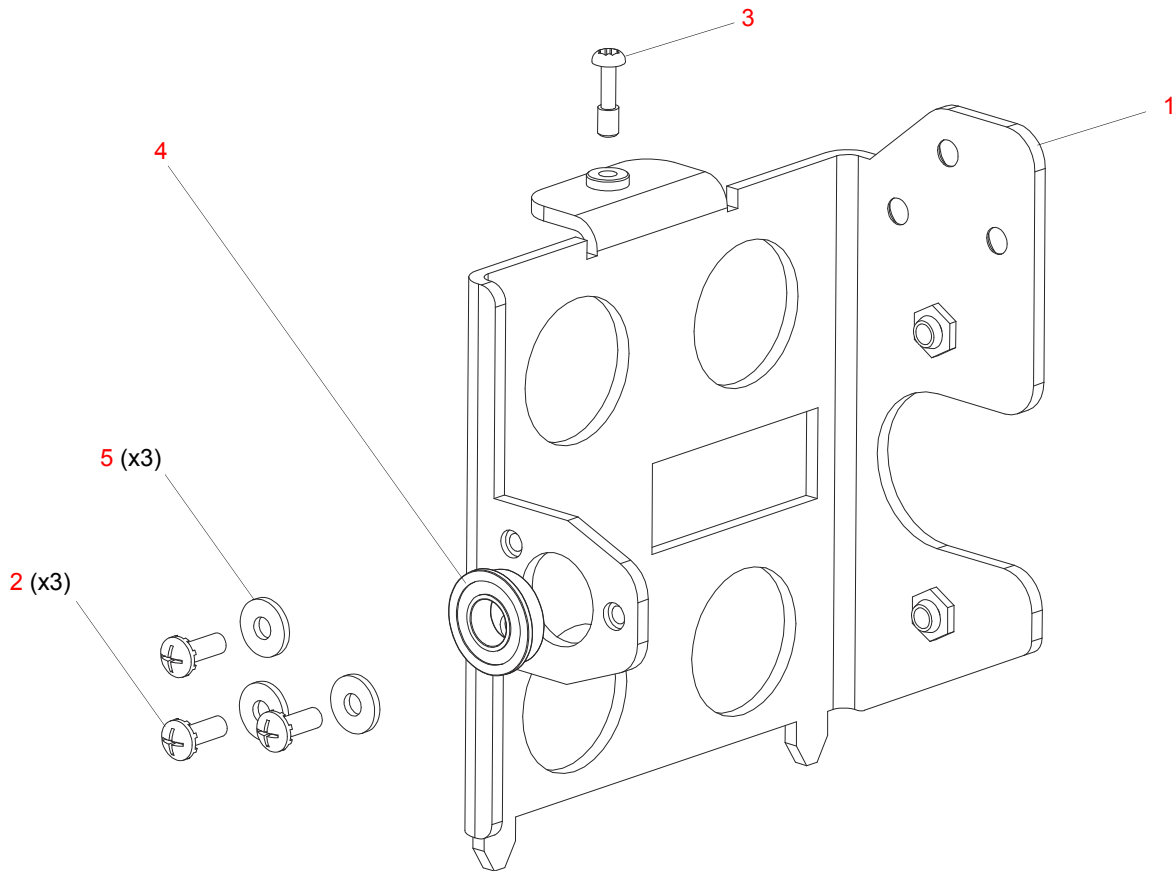


Figure 3-35: Gobo Bulkhead Left Bracket Assembly

Gobo Bulkhead Right Bracket Assembly

21.9704.0282 Rev. C

Refer to [Figure 3-36](#)

No.	Item	Qty.	UM.	Description
1	10.9704.0252	1	EA	BRACKET, RIGHT, EDGE MOTOR, GOBO BULKHEAD
2	53.6558.0009	3	EA	SCREW, 6-32 X 3/8" LG PPZ SEMS
3	53.6685.0500	1	EA	SCREW, 6-32 X 1/2 PPB CAPTIVE
4	54.9704.0295	1	EA	BEARING, NPB, MR105ZZK13
5	55.6528.0001	3	EA	WASHER, #6 FLAT ZINC

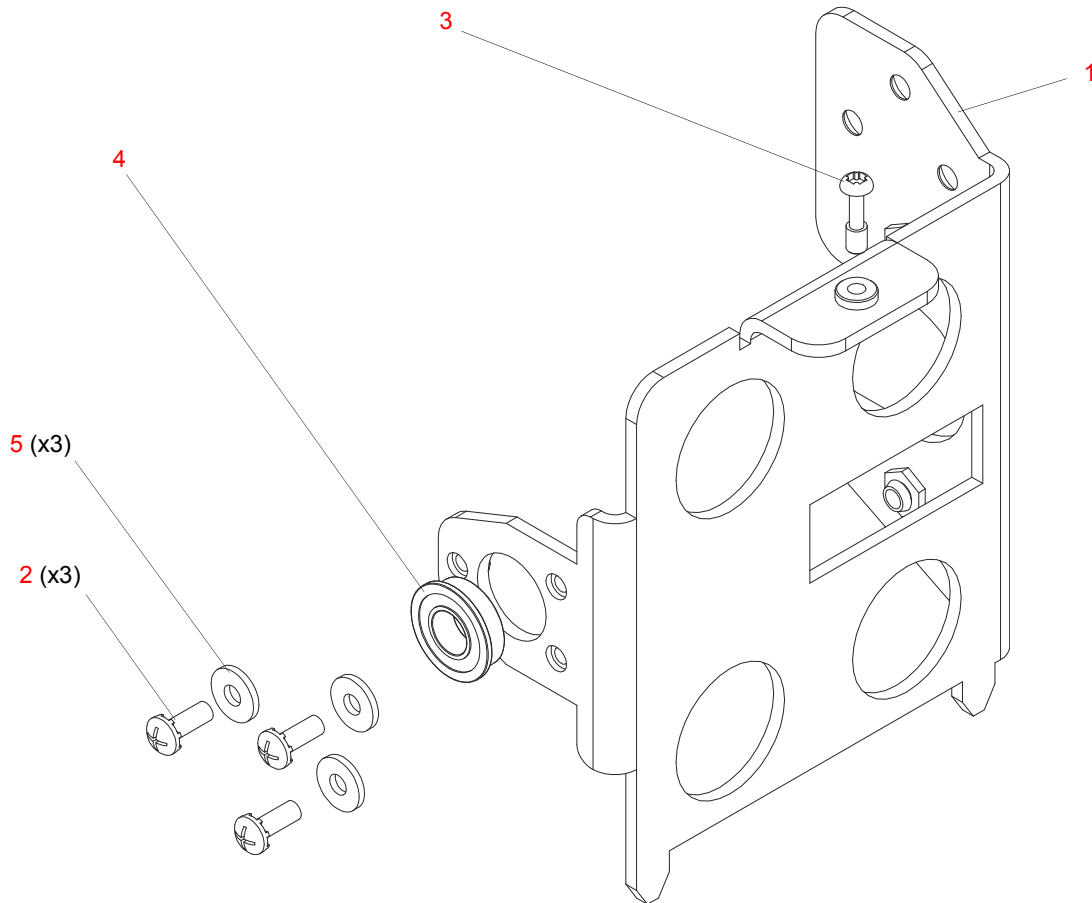


Figure 3-36: Gobo Bulkhead Right Bracket Assembly

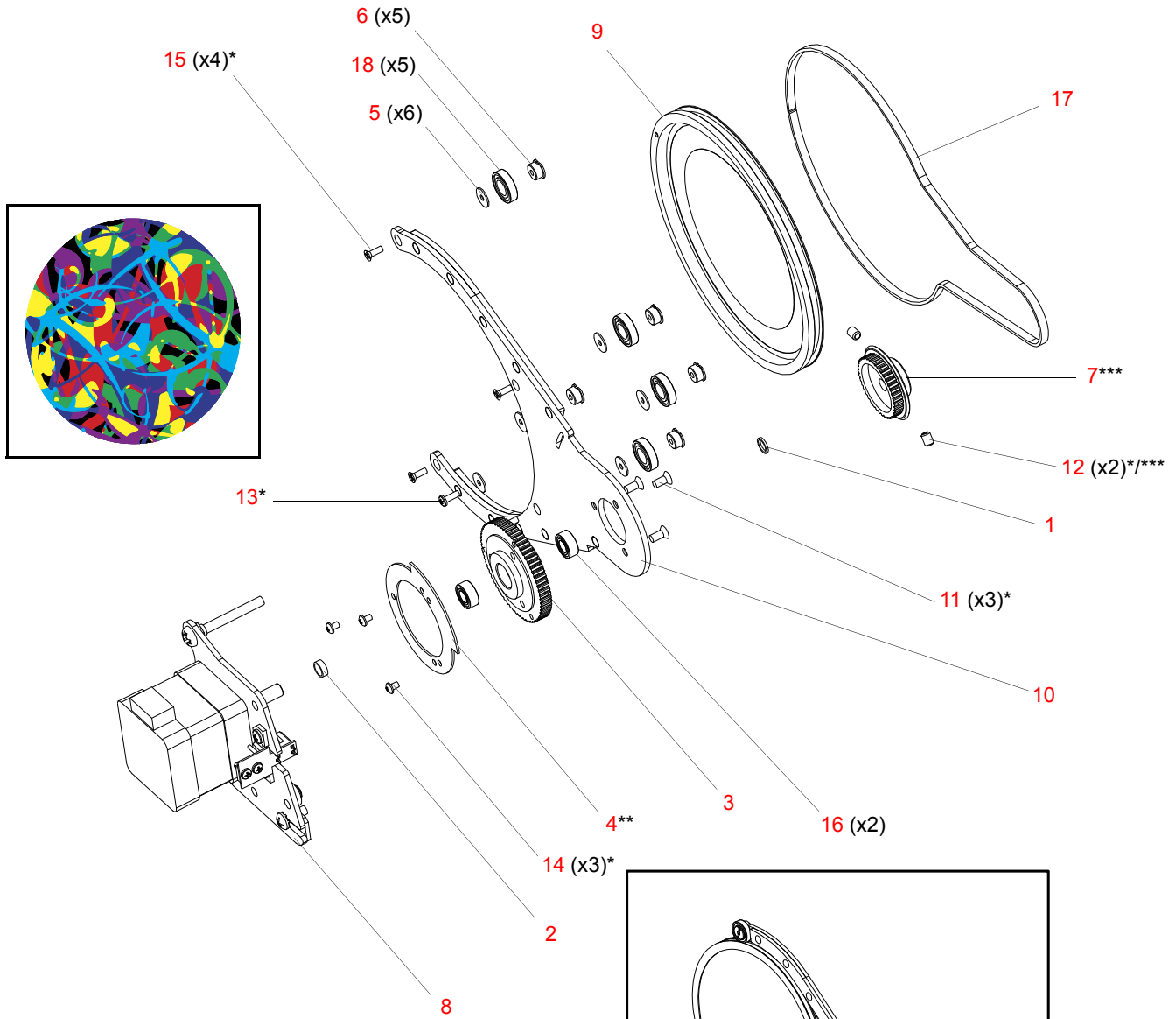
Animation Wheel 1 Assembly

21.9704.1351 Rev. A

Refer to [Figure 3-37](#)

No.	Item	Qty.	UM.	Description
1	10.9704.0240	1	EA	SPACER, 0.197" ID, 0.250" OD, 0.032" THK
2	10.9704.0248	1	EA	SPACER, 0.197" ID, 0.250" OD, 0.087" THK
3	10.9704.0313	1	EA	INDEX PULLEY, ANIMATION WHEEL
4	10.9704.0319	1	EA	FLAG, ANIMATION ARM
5	10.9704.0372	6	EA	SPACER, ROLLER, SHUTTER ROTATE
6	10.9704.0373	5	EA	SPACER, ROLLER, SHUTTER ROTATE
7	10.9704.1323	1	EA	DRIVE PULLEY, ANIMATION WHEEL
8	21.9704.0331	1	EA	MOTOR ASSY, ANIMATION WHEEL
9	22.9704.0341	1	EA	ASSY, COLOR ANIMATION
10	22.9704.1362	1	EA	ARM, ANIMATION WHEEL, BRACED
11	53.6559.0001	3	EA	SCREW, 4-40 X 1/4" PFZ
12	53.6578.0002	2	EA	SCREW, 6-32 X 3/16" SET CUP PNT
13	53.6659.0002	1	EA	SCREW, 2-56 X 1/4" PPZ
14	53.6659.0012	3	EA	SCREW, 2-56 X 1/8" PPZ
15	53.6659.0015	4	EA	SCREW, 2-56 X 1/4" PFB
16	54.9687.1253	2	EA	BEARING, NPB, MR105ZZK13
17	54.9704.0392	1	EA	BELT, TIMING, MXL, 225 GRV, 0.125" WD, SILICONE/KEV
18	54.9704.1575	5	EA	BEARING, SR188, 0.250" ID, 0.500" OP, 0.125" WD

Animation Wheel 1 Assembly (continued)



*APPLY ONE DROP OF LOCTITE TO SCREW THREADS DURING INSTALLATION.

**NOTE FLAG ORIENTATION.

***PRESS FIRMLY DOWN ON OUTSIDE PULLEY TO REMOVE ALL FREE SPACE IN PARTS STACK BEFORE TIGHTENING SET SCREWS IN OUTSIDE PULLEY. VERIFY THAT THERE IS NO AXIAL PLAY IN PARTS STACK AFTER SET SCREWS ARE TIGHTENED.

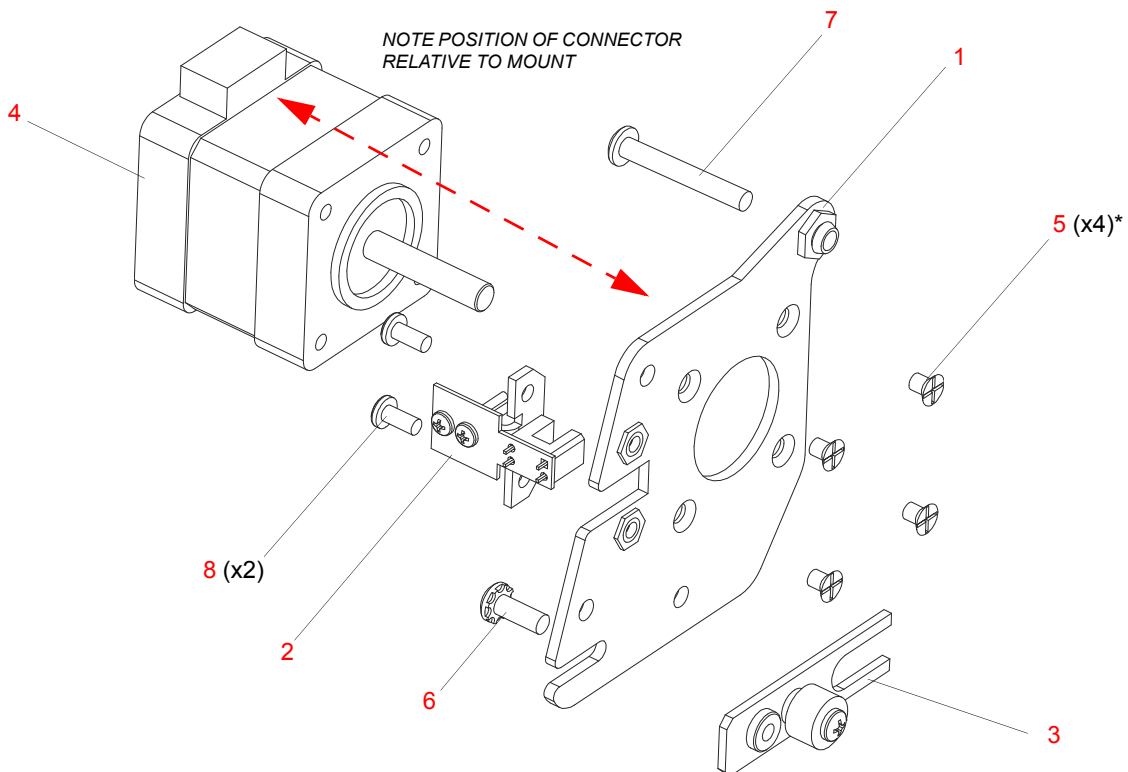
Figure 3-37: Animation Wheel 1 Assembly

Animation Wheel 1 Motor Assembly

21.9704.0331 Rev. B

Refer to [Figure 3-38](#)

No.	Item	Qty.	UM.	Description
1	10.9704.0309	1	EA	MOTOR MOUNT, ANIMATION WHEEL 1
2	21.9687.2500	1	EA	ASSY, SENSOR, COLOR BULKHEAD
3	21.9704.0239	1	EA	ASSY, TENSION ADJUST, ANIMATION WHEEL
4	44.9704.1213	1	EA	MOTOR, SIZE 14, SHAFT 24 MM LG
5	53.6513.0054	4	EA	SCREW, M3 X .5 X 4 MM LG PFZ METRIC
6	53.6558.0009	1	EA	SCREW, 6-32 X 3/8" LG PPZ SEMS
7	53.6571.0002	1	EA	SCREW, 6-32 X 1-1/4" LG PPB
8	55.2203.0001	2	EA	SCREW, 4-40 X 1/4" PPZ



*APPLY LOCTITE 242 TO THREADS PRIOR TO INSTALLATION.

Figure 3-38: Animation Wheel 1 Motor Assembly

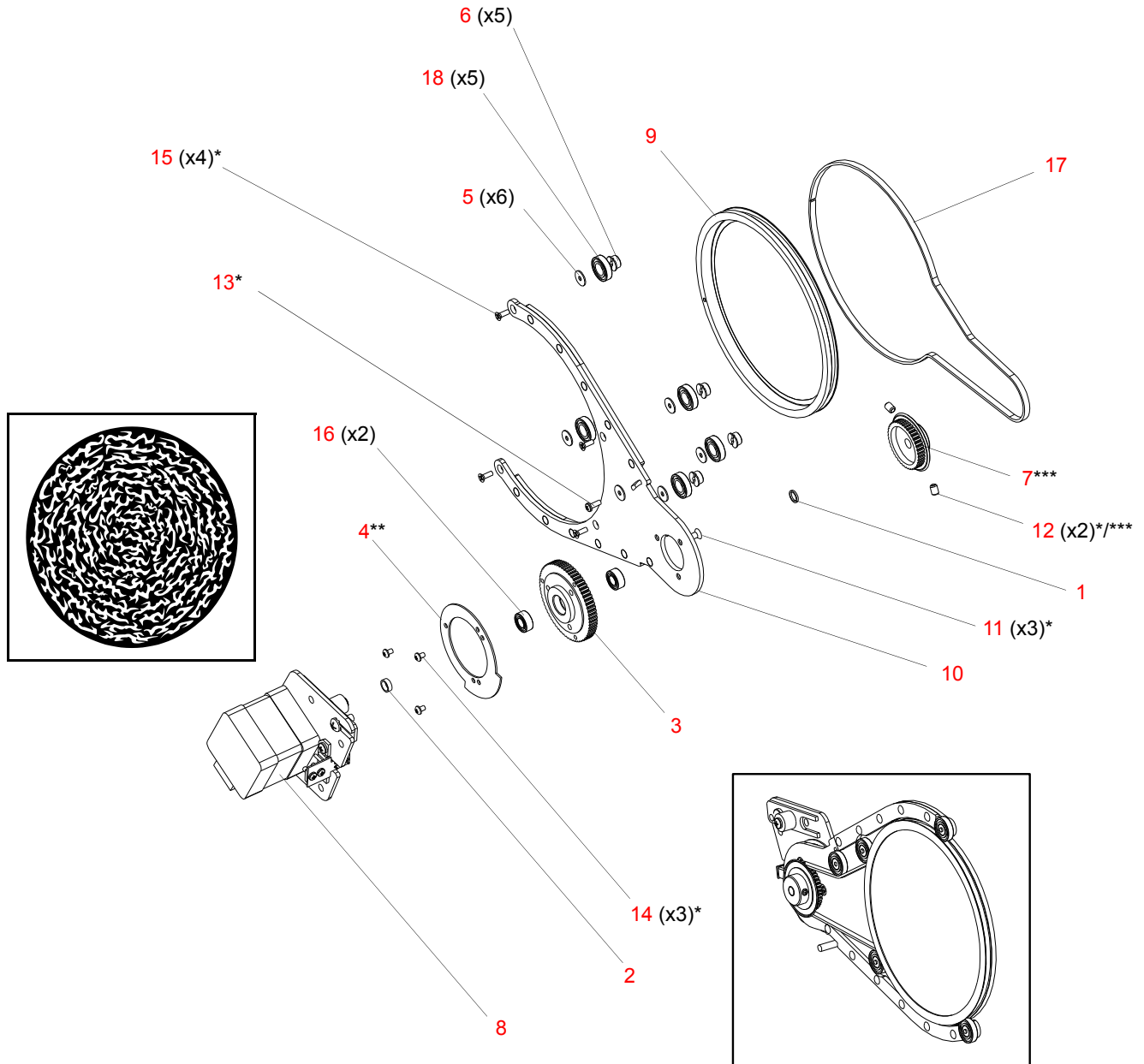
Animation Wheel 2 Assembly

21.9704.1352 Rev. A

Refer to [Figure 3-39](#)

No.	Item	Qty.	UM.	Description
1	10.9704.0240	1	EA	SPACER, 0.197" ID, 0.250" OD, 0.032" THK
2	10.9704.0248	1	EA	SPACER, 0.197" ID, 0.250" OD, 0.087" THK
3	10.9704.0313	1	EA	INDEX PULLEY, ANIMATION WHEEL
4	10.9704.0319	1	EA	FLAG, ANIMATION ARM
5	10.9704.0372	6	EA	SPACER, ROLLER, SHUTTER ROTATE
6	10.9704.0373	5	EA	SPACER, ROLLER, SHUTTER ROTATE
7	10.9704.1323	1	EA	DRIVE PULLEY, ANIMATION WHEEL
8	21.9704.0332	1	EA	MOTOR ASSY, ANIMATION WHEEL 2
9	22.9704.0342	1	EA	ASSY, FIRE/WATER ANIMATION
10	22.9704.1362	1	EA	ARM, ANIMATION WHEEL, BRACED
11	53.6559.0001	3	EA	SCREW, 4-40 X 1/4" PFZ
12	53.6578.0002	2	EA	SCREW, 6-32 X 3/16" SET CUP PNT
13	53.6659.0002	1	EA	SCREW, 2-56 X 1/4" PPZ
14	53.6659.0012	3	EA	SCREW, 2-56 X 1/8" PPZ
15	53.6659.0015	4	EA	SCREW, 2-56 X 1/4" PFB
16	54.9687.1253	2	EA	BEARING, NPB, MR105ZZK13
17	54.9704.0392	1	EA	BELT, TIMING, MXL, 225 GRV, 0.125" WD, SILICONE/KEV
18	54.9704.1575	5	EA	BEARING, SR188, 0.250" ID, 0.500" OP, 0.125" WD

Animation Wheel 2 Assembly (continued)



*APPLY ONE DROP OF LOCTITE TO SCREW THREADS DURING INSTALLATION.

**NOTE FLAG ORIENTATION.

***PRESS FIRMLY DOWN ON OUTSIDE PULLEY TO REMOVE ALL FREE SPACE IN PARTS STACK BEFORE TIGHTENING SET SCREWS IN OUTSIDE PULLEY. VERIFY THAT THERE IS NO AXIAL PLAY IN PARTS STACK AFTER SET SCREWS ARE TIGHTENED.

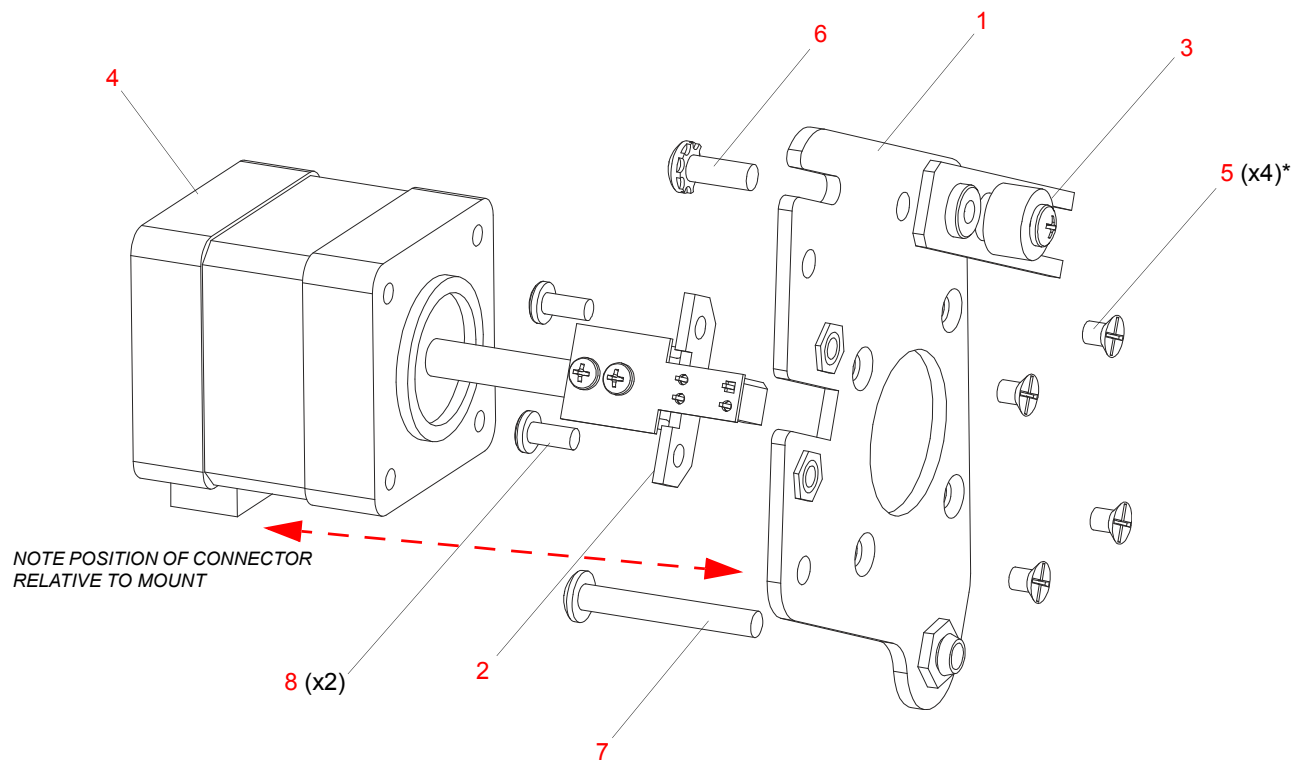
Figure 3-39: Animation Wheel 2 Assembly

Animation Wheel 2 Motor Assembly

21.9704.0332 Rev. B

Refer to [Figure 3-40](#)

No.	Item	Qty.	UM.	Description
1	10.9704.0308	1	EA	MOTOR MOUNT, ANIMATION WHEEL 2
2	21.9687.2500	1	EA	ASSY, SENSOR, COLOR BULKHEAD
3	21.9704.0239	1	EA	ASSY, TENSION ADJUST, ANIMATION WHEEL
4	44.9704.1213	1	EA	MOTOR, SIZE 14, SHAFT 24 MM LG
5	53.6513.0054	4	EA	SCREW, M3 X .5 X 4 MM LG PFZ METRIC
6	53.6558.0009	1	EA	SCREW, 6-32 X 3/8" LG PPZ SEMS
7	53.6613.0001	1	EA	SCREW, 6-32 X 7/8" PPZ
8	55.2203.0001	2	EA	SCREW, 4-40 X 1/4" PPZ



*APPLY LOCTITE 242 TO THREADS PRIOR TO INSTALLATION.

Figure 3-40: Animation Wheel 2 Motor Assembly

Shutter Bulkhead with Rotation Assembly

21.9704.1505 Rev. H

Refer to [Figure 3-41](#)

No.	Item	Qty.	UM.	Description
1	10.9704.0218	1	EA	SENSOR BRACKET, GOBO WHEEL 2
2	10.9704.0223	1	EA	DRIVE PULLEY, GOBO WHEEL
3	10.9704.0461	2	EA	MOUNT, DRIVER BOARD, COLOR BULKHEAD
4	10.9704.0693	2	EA	CLAMP, CONN, 5 DRIVER BOARD
5	10.9704.1573	3	EA	SPACER, SHUTTER, ROLLER
6	10.9704.2234	1	EA	BULKHEAD, FRONT, GOBO MODULE
7	21.9704.1510	1	EA	ASSY, SHUTTER MODULE
8	21.9704.1523	1	EA	ASSY, MOTOR, SHUTTER ROTATE
9	21.9704.1570	1	EA	ARM ASSY, ADJUSTABLE ROLLER, SHUTTER ROTATE
10	24.9678.3240	2	EA	BD ASSY, GOBO POSITION
11	24.9704.2901	2	EA	PCB ASSY, 5 WAY MOTOR DRIVER
12	53.6520.0001	6	EA	SCREW, 4-40 X 3/8" PPZ
13	53.6558.0001	3	EA	SCREW, 6-32 X 3/8" LG PPZ
14	53.6558.0009	5	EA	SCREW, 6-32 X 3/8" LG PPZ SEMS
15	53.6559.0001	4	EA	SCREW, 4-40 X 1/4" PFZ
16	53.6578.0002	2	EA	SCREW, 6-32 X 3/16", SET CUP PNT
17	53.6596.0002	1	EA	SCREW, 4-40 X 5/16" LG PPZ SEMS
18	53.6601.0003	1	EA	SCREW, 4-40 X 3/16" PFZ, UNDERCUT
19	54.9704.1570	1	EA	BELT, TIMING, MXL, 350 GRV, 0.125" WD, URETH/KEV
20	54.9704.1575	3	EA	BEARING, SR188, 0.250" ID, 0.500" OP, 0.125" WD
21	55.2178.0001	1	EA	CABLE ANCHOR MOUNT, #8 SCREW
22	55.2203.0001	6	EA	SCREW, 4-40 X 1/4" PPZ
23	55.6818.0002	4	EA	STANDOFF, 45-DEG NYLOC KURLY-LOK

Shutter Bulkhead with Rotation Assembly (continued)

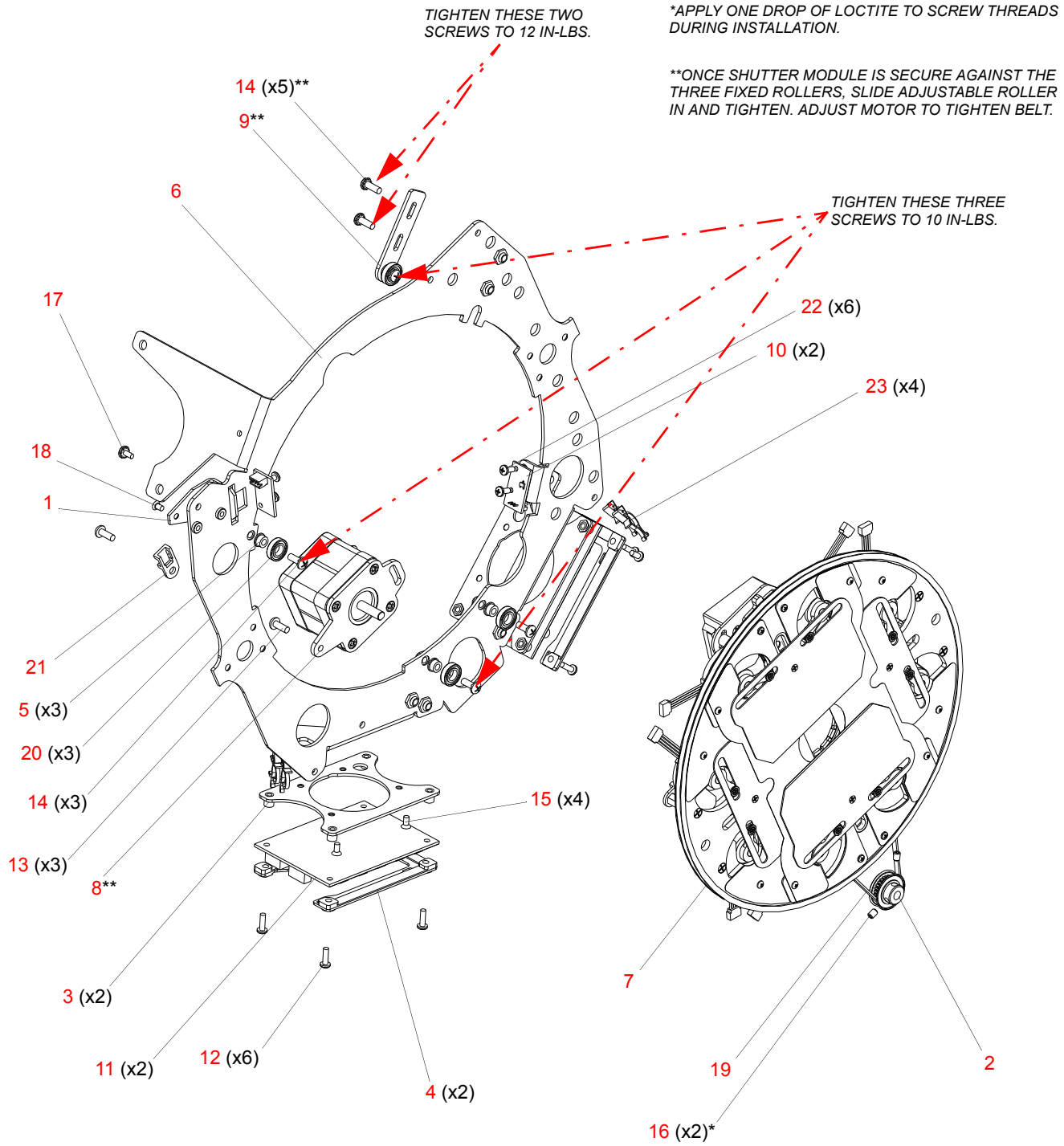


Figure 3-41: Shutter Bulkhead with Rotation Assembly

Shutter Module Assembly

21.9704.1510 Rev. M

Refer to [Figure 3-42](#) and [Figure 3-43](#)

No.	Item	Qty.	UM.	Description
1	1-290449-000	3	EA	NUT, KEPS, M3, S, ZP
2	10.9704.0254	1	EA	MOTOR MOUNT, IRIS, SIZE 15
3	10.9704.0273	2	EA	CLAMP, DRIVE CABLE, SYNCHROMESH
4	10.9704.0278	1	EA	DRIVE PULLEY, IRIS, SYNCHROMESH
5	10.9704.1526	2	EA	SHUTTER PIVOT, SHORT, PLANE 2
6	10.9704.1527	2	EA	SHUTTER PIVOT, TALL, PLANE 1
7	10.9704.1532	4	EA	GLIDE, SHUTTER PIVOT
8	10.9704.1535	1	EA	GLIDE SHEET, SHUTTER, BOTTOM
9	10.9704.1536	1	EA	GLIDE SHEET, SHUTTER, MIDDLE
10	10.9704.1537	4	EA	BLADE SPACER, SHUTTER
11	10.9704.1543	1	EA	ROTATE STOP, SHUTTER
12	10.9704.1544	4	EA	SPACER, SHUTTER MOTOR, SHORT
13	10.9704.1545	4	EA	SPACER, SHUTTER MOTOR, TALL
14	10.9704.1560	1	EA	BASE PLATE, SHUTTER
15	10.9704.1566	1	EA	HOLDER, IRIS SENSOR BOARD
16	12.9704.1562	2	EA	BLADE, SHUTTER, PLANE 2, COATED
17	12.9704.1564	2	EA	BLADE, SHUTTER, PLANE 1, COATED
18	17.9704.0904	1	EA	PCB ASSY, WHEEL POSITION SENSOR
19	22.9704.0280	1	EA	ASSY, IRIS WITH MAGNET
20	22.9704.1515	8	EA	MOTOR ASSY, SHUTTER
21	22.9704.1542	1	EA	ASSY, MAGNET HOLDER, SHUTTER ROTATE
22	24.9704.1902	1	EA	PCB ASSY, SHUTTER
-	25.9704.1500	1	EA	CABLE ASSY, VL4000 SHUTTER CABLE 1 (NOT SHOWN)
-	25.9704.1501	1	EA	CABLE ASSY, VL4000 SHUTTER CABLE 2 (NOT SHOWN)
-	25.9704.1502	1	EA	CABLE ASSY, VL4000 SHUTTER CABLE 3 (NOT SHOWN)
-	25.9704.0709	1	EA	CABLE ASSY, VL4000 PWR DIST OUTPUT-SHUTTER (NOT SHOWN)
-	25.9704.0710	1	EA	CABLE ASSY, VL4000 DATA NETWORK CABLE 3 (NOT SHOWN)
23	44.9704.0208	1	EA	MOTOR, SIZE 15, 5 X 17 MM SHAFT
24	53.6513.0008	4	EA	SCREW, M3 X .5 X 5 MM LG PFB, METRIC
25	53.6513.0029	13	EA	SCREW, M3 X .5 X 12 MM LG PFZ, METRIC
26	53.6513.0032	3	EA	SCREW, M3 X .5 X 10 MM LG PPZ SEMS

No.	Item	Qty.	UM.	Description
27	53.6513.0037	3	EA	SCREW, M3 X .5 X 25 MM LG PFZ, METRIC
28	53.6513.0042	3	EA	SCREW, M2 X .4 X 4 MM LG PFB, METRIC
29	53.6513.0063	5	EA	SCREW, M3 X .5 X 6 MM LG PPZ, METRIC
30	53.6650.0001	4	EA	SCREW, 2-56 X 5/16" PPZ
31	53.6659.0005	4	EA	SCREW, 2-56 X 1/4" PFZ
32	53.6659.0006	2	EA	SCREW, 2-56 X 3/16" PPZ
33	53.6659.0012	8	EA	SCREW, 2-56 X 1/8" PPZ
34	53.6661.0003	4	EA	SCREW, 0-80 X 3/16" LG PFSS
35	53.6661.0012	12	EA	SCREW, 0-80 X 1/8" LG PFSS
36	54.1209.0004	8	EA	BEARING, FLANGE, 0.093" ID X 3/16" OD, STAINLESS STEEL
37	55.2178.0001	5	EA	CABLE ANCHOR MOUNT, #8 SCREW
38	55.2204.0001	3	EA	WASHER, #4 NYLON
39	55.6506.0010	3	EA	SPACER, 1/4" RND, X 0.140" ID, 0.375" LG, ALUM
40	55.6677.0033	2	EA	WASHER, 0.281" OD, 0.125" ID, 0.032" THK
41	55.9704.0001	8	EA	STANDOFF, HEX, 6 X 13 MM, M3 THD, F/F, ALUM
42	-	-	-	-
43	-	-	-	-
44	-	-	-	-
45	54.9704.0292	10.5	IN	CABLE, SYNCHROMESH, 0.12" PITCH, 0.063" OD, SST/NYLON

Shutter Module Assembly (continued)

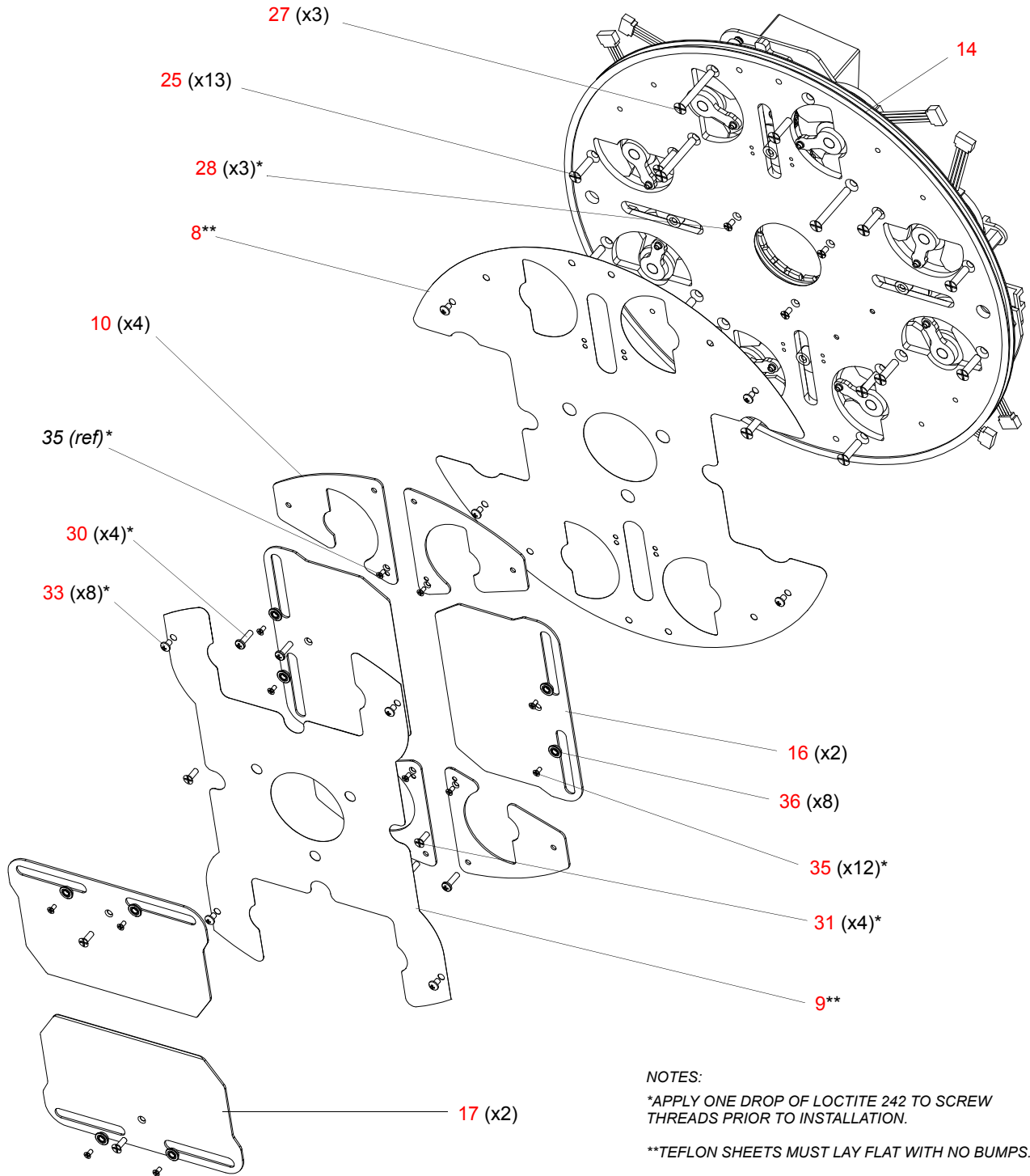


Figure 3-42: Shutter Module Assembly (Part 1)

Shutter Module Assembly (continued)

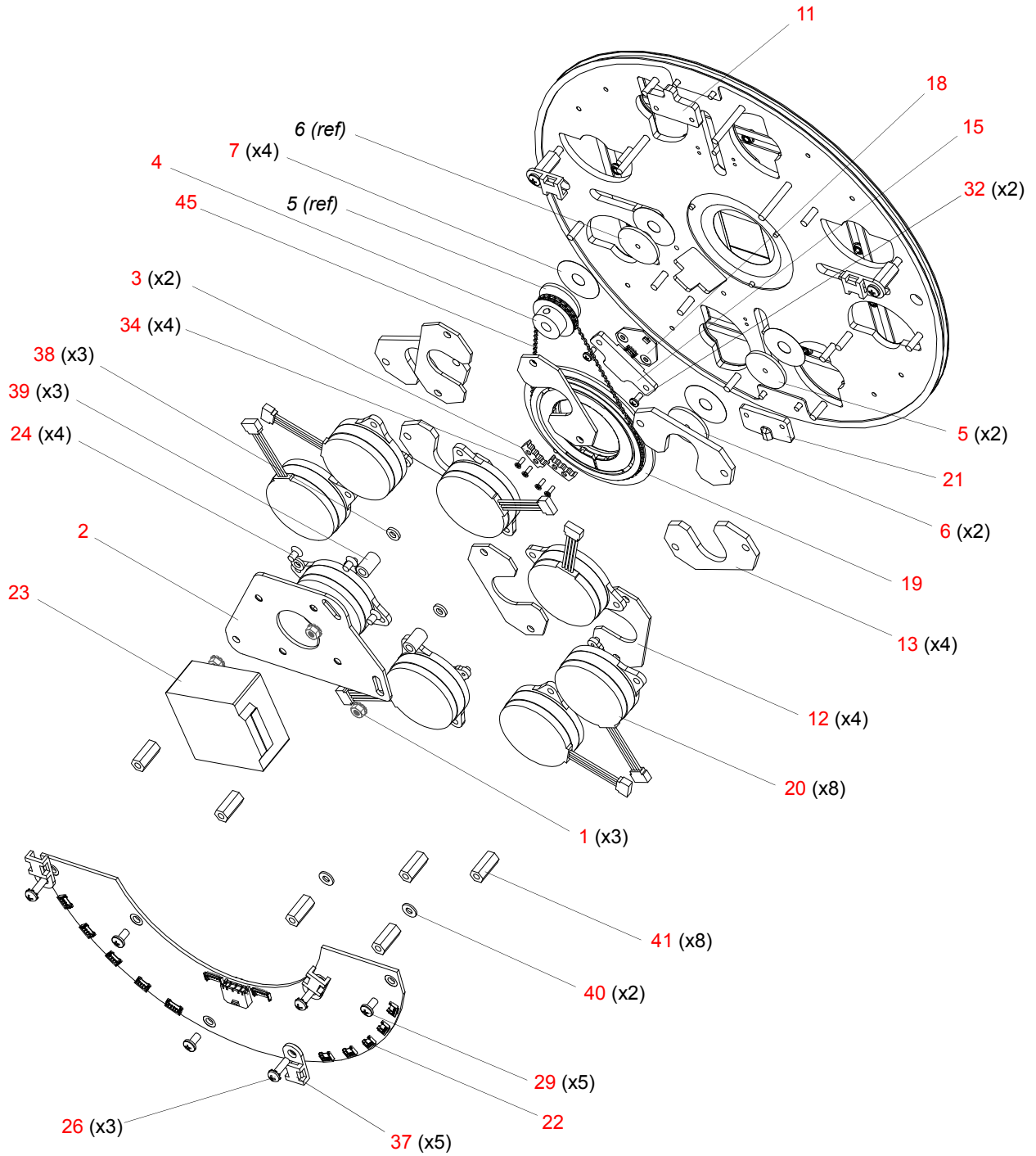


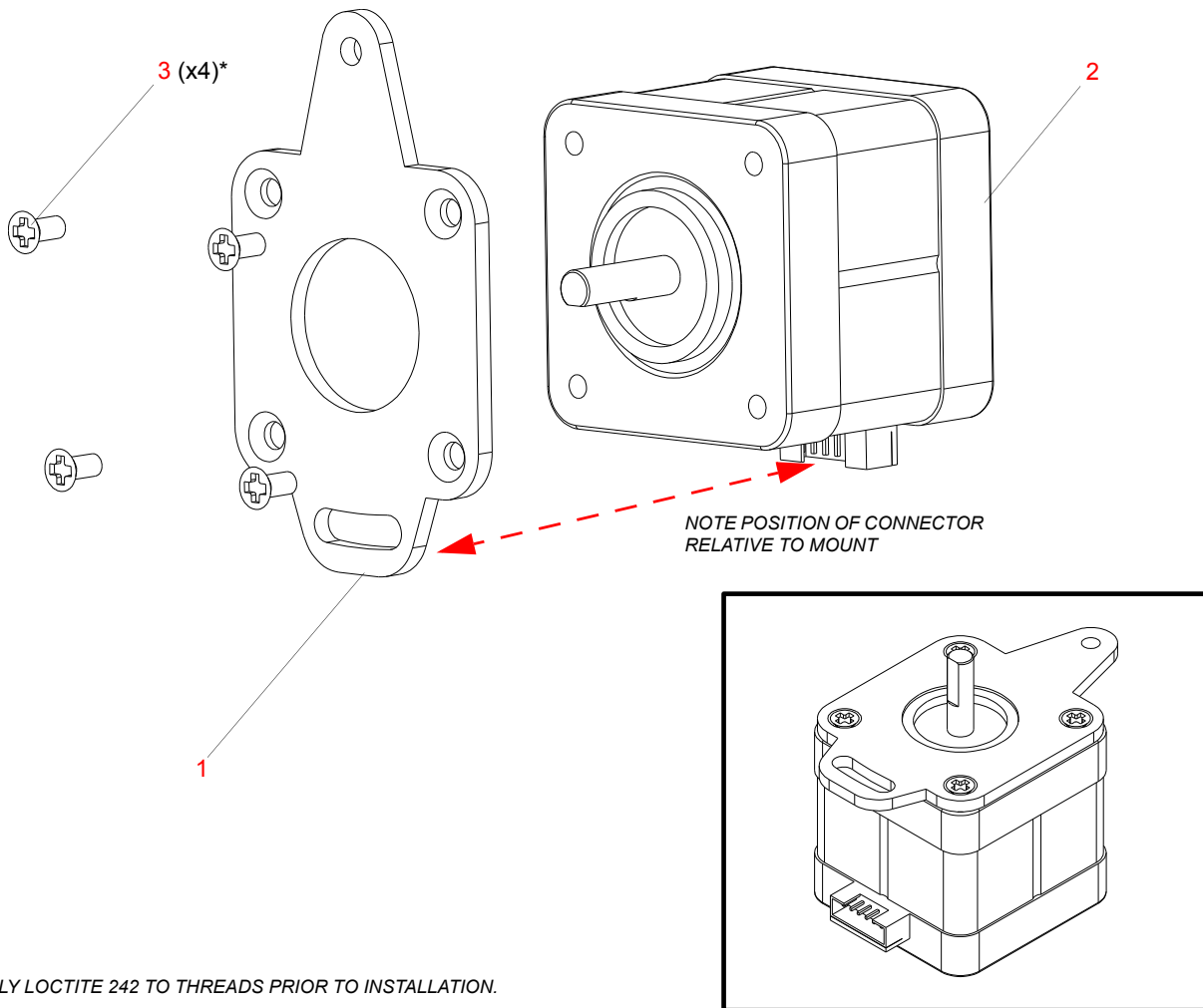
Figure 3-43: Shutter Module Assembly (Part 2)

Shutter Rotate Motor Assembly

21.9704.1523 Rev. B

Refer to [Figure 3-44](#)

No.	Item	Qty.	UM.	Description
1	10.9704.1521	1	EA	MOTOR MOUNT, ADJUSTMENT, SHUTTER ROTATE
2	44.9687.1209	1	EA	MOTOR, SIZE 17, SHAFT 0.70"
3	53.6559.0001	4	EA	SCREW, 4-40 X 1/4" PFZ



*APPLY LOCTITE 242 TO THREADS PRIOR TO INSTALLATION.

Figure 3-44: Shutter Rotate Motor Assembly

Shutter Rotate Adjustable Roller Arm Assembly

21.9704.1570 Rev. A

Refer to [Figure 3-45](#)

No.	Item	Qty.	UM.	Description
1	10.9704.1571	1	EA	ADJUSTMENT ARM, SHUTTER ROLLER
2	10.9704.1572	1	EA	SPACER, ADJUSTABLE ROLLER, SHUTTER ROTATE
3	53.6558.0009	1	EA	SCREW, 6-32 X 3/8" LG PPZ SEMS
4	54.9704.1575	1	EA	BEARING, SR188, 0.250" ID, 0.500" OD, 0.125" WD

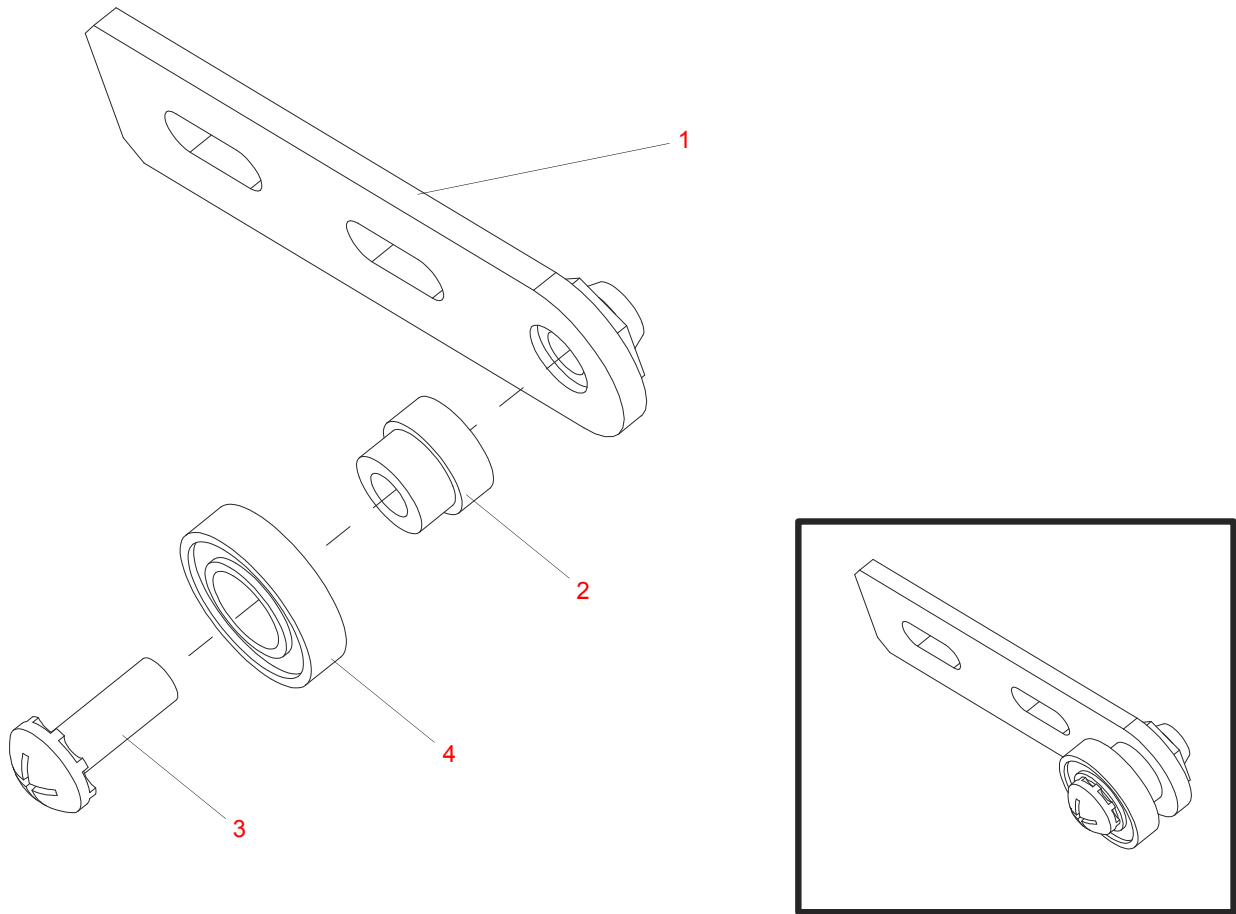


Figure 3-45: Shutter Rotate Adjustable Roller Arm Assembly

Notes

Color Module Assembly

21.9704.4400 Rev. H

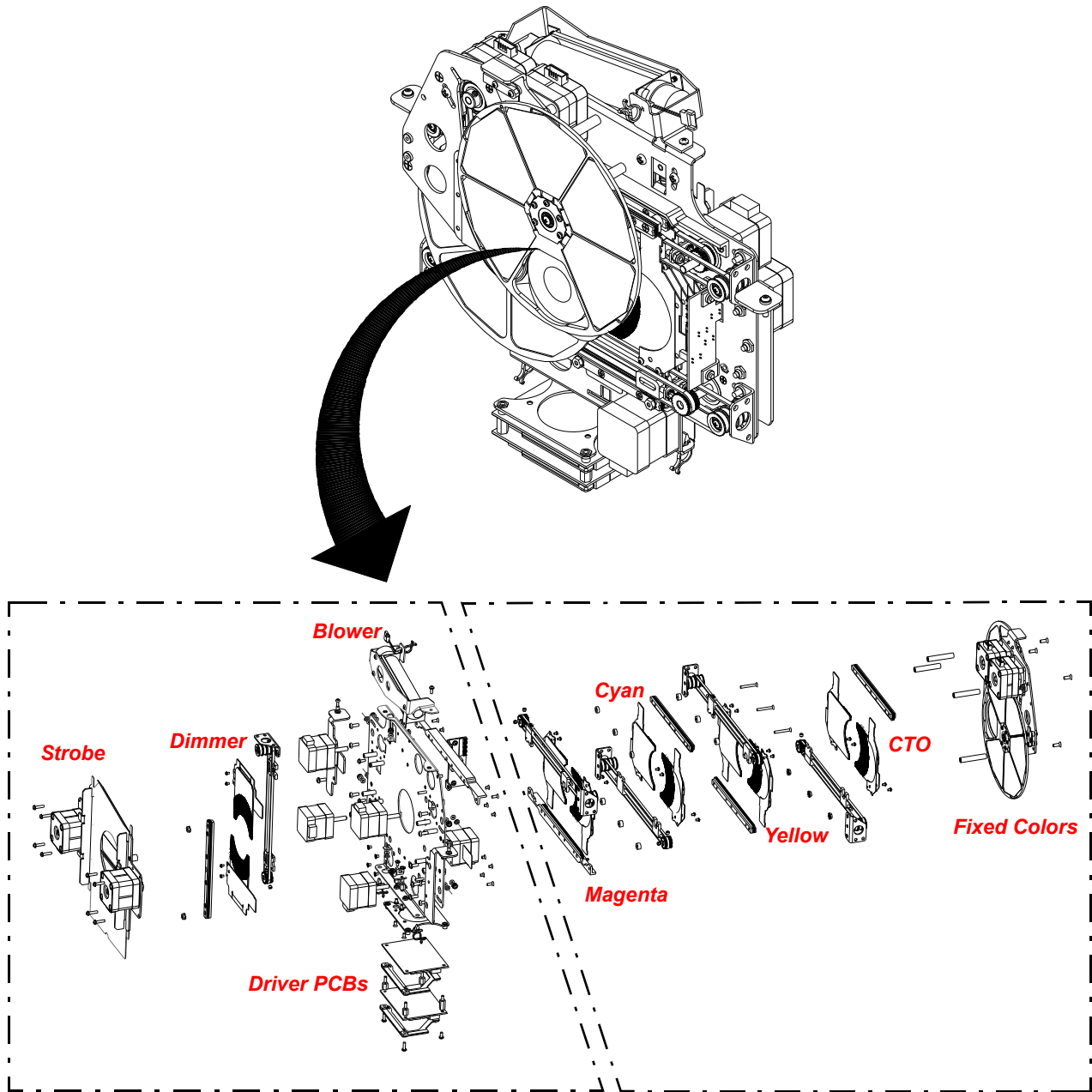
Refer to [Figure 3-47](#) and [Figure 3-48](#)

No.	Item	Qty.	UM.	Description
1	10.9704.0406	5	EA	GUIDE ROD, COLOR FLAG
2	10.9704.0407	5	EA	SLIDE, COLOR FLAG
3	10.9704.0408	5	EA	SLIDE, COLOR FLAG, OPPOSITE
4	10.9704.0410	5	EA	PULLEY, DRIVE, COLOR FLAG
5	10.9704.0434	4	EA	STANDOFF, BULKHEAD, FIXED COLOR WHEEL
6	10.9704.0451	1	EA	BRACKET, LEFT, COLOR BULKHEAD
7	10.9704.0452	1	EA	BRACKET, RIGHT, COLOR BULKHEAD
8	10.9704.0461	1	EA	MOUNT, DRIVER BOARD, COLOR BULKHEAD
9	10.9704.4417	6	EA	GLIDE SPACER, COLOR FLAG
10	10.9704.4418	3	EA	GLIDE STANDOFF, COLOR FLAG
11	10.9704.4438	1	EA	PLATE, COLOR MIX MODULE
12	21.9704.0411	1	EA	ASSY, BELT, 210GRV
13	21.9704.0412	4	EA	ASSY, BELT, 240GRV
14	21.9704.0415	1	EA	ASSY, FIXED COLOR WHEEL
15	21.9704.0420	1	EA	ASSY, CROSS-FLOW BLOWER, COLOR COOLING
16	21.9704.0431	1	EA	ASSY, STROBE, LEFT
17	21.9704.0432	1	EA	ASSY, STROBE, RIGHT
18	21.9704.0440	1	EA	ASSY, SENSOR BOARD, COLOR FLAGS
19	21.9704.5443	5	EA	ASSY, COLOR BELT IDLER
20	22.9704.4401	5	EA	ASSY, GLIDE, COLOR FLAG
21	22.9704.5470	1	EA	ASSY, DIMMER FLAG, FRONT
22	22.9704.5472	2	EA	ASSY, MAGENTA FLAG
23	22.9704.5474	2	EA	ASSY, CYAN FLAG
24	22.9704.5476	2	EA	ASSY, YELLOW FLAG
25	22.9704.5478	2	EA	ASSY, CTO FLAG
26	22.9704.5480	1	EA	ASSY, DIMMER FLAG, REAR
27	24.9698.1231	1	EA	PCB ASSY, SENSOR
28	24.9704.2901	2	EA	PCB ASSY, 5-WAY MOTOR DRIVER
-	25.9704.0400	1	EA	CABLE ASSY, VL4000 COLOR BLKHED CABLE 1 (NOT SHOWN)
-	25.9704.0401	1	EA	CABLE ASSY, VL4000 COLOR BLKHED CABLE 2 (NOT SHOWN)
-	25.9704.0402	1	EA	CABLE ASSY, VL4000 COLOR BLKHED CABLE 3 (NOT SHOWN)

VARI*LITE - VL4000 SPOT LUMINAIRE SERVICE MANUAL

No.	Item	Qty.	UM.	Description
-	25.9704.0403	1	EA	CABLE ASSY, VL4000 COLOR BLKHED CABLE 4 (NOT SHOWN)
-	25.9704.0711	1	EA	CABLE ASSY, VL4000 DATA NETWORK EXTENSION (NOT SHOWN)
-	25.9704.0712	1	EA	CABLE ASSY, VL4000 DATA CLR-A TO CLR-B (NOT SHOWN)
29	44.9704.1213	4	EA	MOTOR, SIZE 14, SHAFT 24 MM LG
30	44.9704.1214	1	EA	MOTOR, SIZE 14, SHAFT 0.50" LG
31	-	-	EA	-
32	53.2200.0004	6	EA	NUT, KEPS, #4-40
33	53.2202.0004	5	EA	NUT, 4-40 HEX SS NYLON INSERT
34	53.5558.0125	10	EA	SCREW, 8-32 X 0.125" SET SS
35	53.6513.0054	20	EA	SCREW, M3 X .5 X 4 MM LG PFZ METRIC
36	53.6520.0500	8	EA	SCREW, 4-40 X 1/2" PPZ SEMS
37	53.6536.0875	3	EA	SCREW, 4-40 X 1.00" PFZ
38	53.6558.0001	10	EA	SCREW, 6-32 X 3/8" PPZ
39	53.6558.0009	6	EA	SCREW, 6-32 X 3/8" PPZ SEMS
40	53.6559.0001	2	EA	SCREW, 4-40 X 1/4" PFZ
41	-	-	EA	-
42	53.6596.0002	4	EA	SCREW, 4-40 X 5/16" PPZ SEMS
43	53.6597.0001	4	EA	SCREW, 4-40 X 3/16" PPZ
44	53.6609.0001	4	EA	SCREW, 6-32 X 3/8" PFZ
45	53.6659.0012	20	EA	SCREW, 2-56 X 1/8" PPZ
46	53.6685.0500	2	EA	SCREW, 6-32 X 1/2" PPB, CAPTIVE
47	55.2203.0001	1	EA	SCREW, 4-40 X 1/4" PPZ
48	55.2234.0125	5	EA	E-RING, 0.125" ROD DIAM
49	55.6595.0028	2	EA	STANDOFF, 4-40, 1/4" HEX, 0.281" LG, F/F
50	55.6669.0022	1	EA	STANDOFF, 4-40, 1/4" HEX, 0.500" LG, M-F
51	55.7005.0005	10	EA	O-RING, SILICONE, DASH# 005, 7/64" ID, 15/64" OD
52	04.9704.0401	1	EA	DIPSWITCH LABEL, COLOR BOARDS
53	55.6818.0002	2	EA	CABLE TIE, KURLY-LOC
54	10.9704.0499	3	EA	STANDOFF, BOARD STACK, COLOR
55	53.6520.0001	3	EA	SCREW, 4-40 X 3/8" PPZ
56	10.9704.0693	2	EA	CLAMP, CONN, 5 DRIVER BOARD
57	10.9704.5418	3	EA	SPACER, 0.172" ID, 0.31" OD, 0.115" LG
58	22.9704.5401	1	EA	ASSY, GUIDE, COLOR FLAG STIFFENER
59	10.9704.5415	2	EA	GUIDE SUPPORT, COLOR FLAG, MAIN, STIFFENEER
60	53.6513.0023	4	EA	SCREW, M3 X 8 MM LG PFZ METRIC

Color Module Assembly (continued)

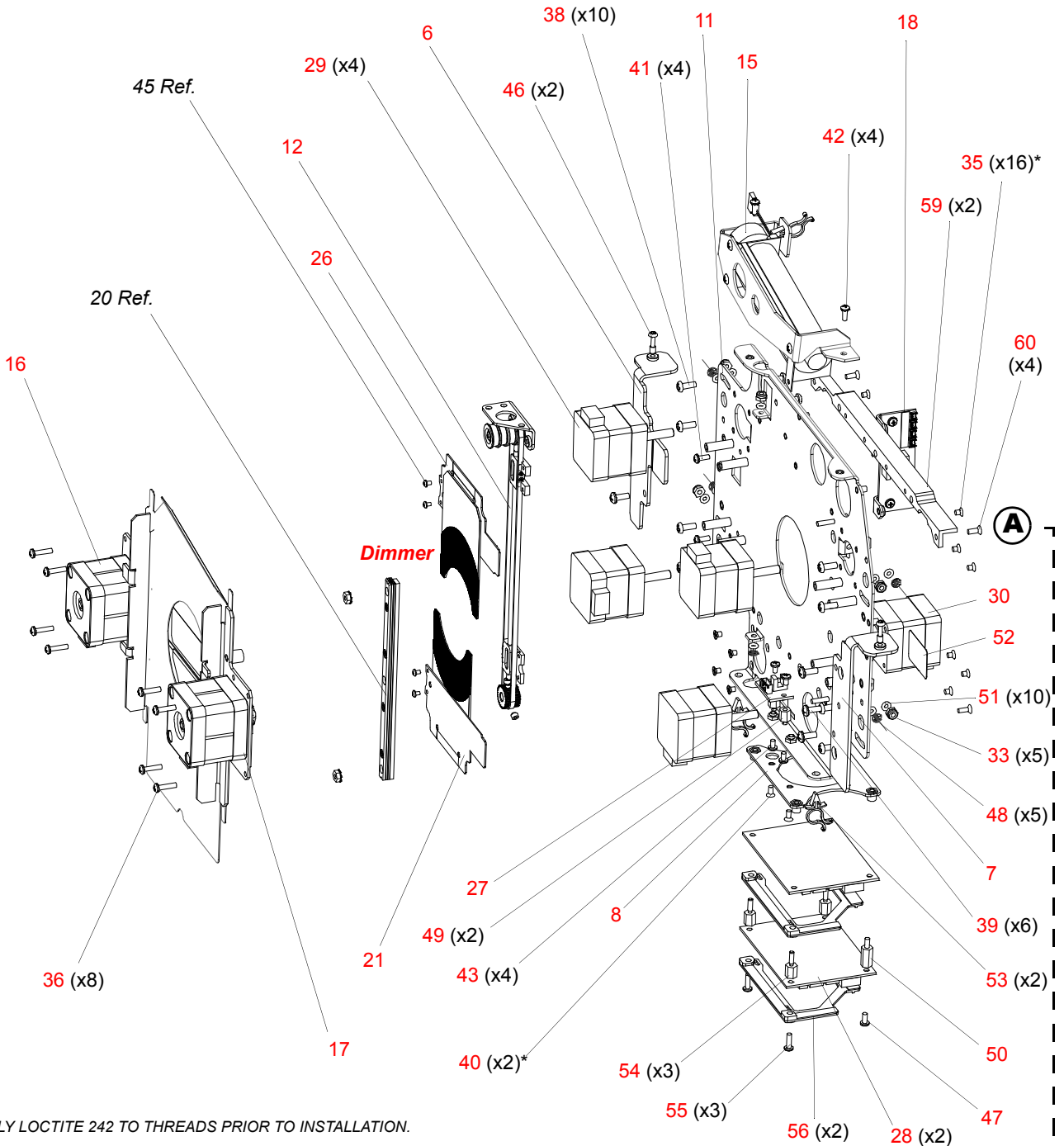


Refer to [Figure 3-47](#) on page 224 for this portion of the assembly.

Refer to [Figure 3-48](#) on page 225 for this portion of the assembly.

Figure 3-46: Color Module Assembly (Part 1)

Color Module Assembly (continued)



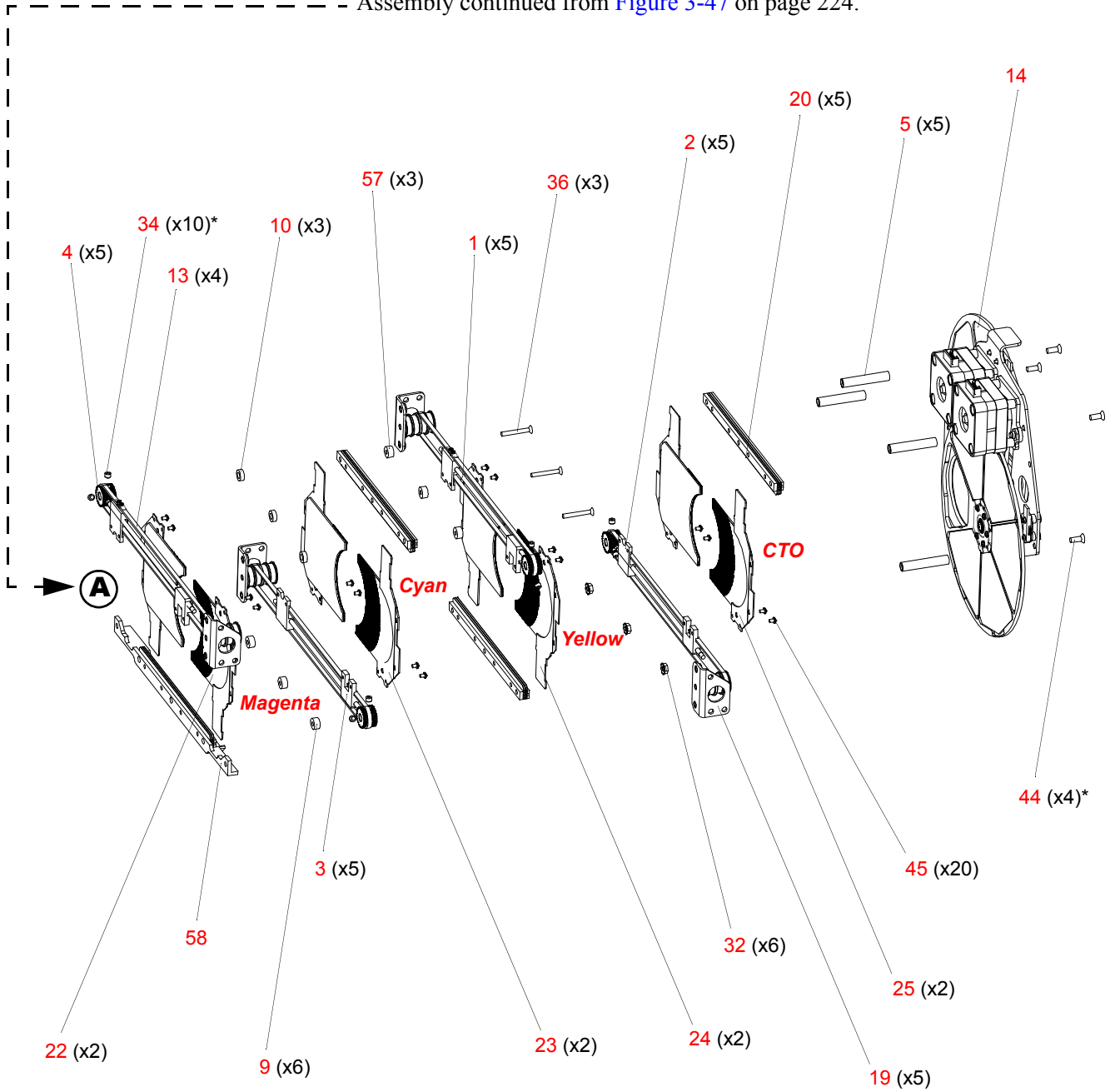
*APPLY LOCTITE 242 TO THREADS PRIOR TO INSTALLATION.

Refer to [Figure 3-48](#) on page 225 for remainder of assembly.

Figure 3-47: Color Module Assembly (Part 2)

Color Module Assembly (continued)

--- Assembly continued from [Figure 3-47](#) on page 224.



*APPLY LOCTITE 242 TO THREADS PRIOR TO INSTALLATION.

Figure 3-48: Color Module Assembly (Part 3)

210 Groove Belt Assembly

21.9704.0411 Rev. C

Refer to [Figure 3-49](#)

No.	Item	Qty.	UM.	Description
1	10.9704.0442	2	EA	CLAMP, COLOR BELT
2	53.6661.0733	4	EA	SCREW, 0-80 X 7/32" LG PPSS
3	54.9704.0401	1	EA	BELT, TIMING, MXL, 210 GRV, 125 WD, SIL/KEV

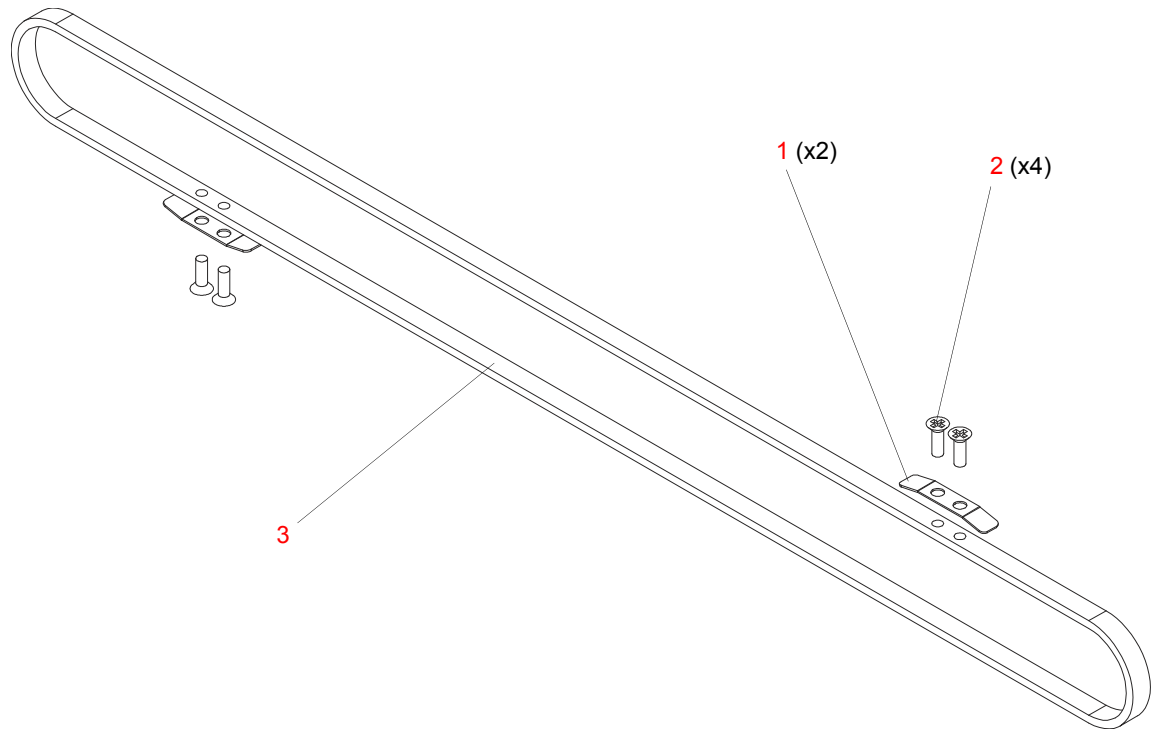


Figure 3-49: 210 Groove Belt Assembly

240 Groove Belt Assembly

21.9704.0412 Rev. C

Refer to [Figure 3-50](#)

No.	Item	Qty.	UM.	Description
1	10.9704.0442	2	EA	CLAMP, COLOR BELT
2	53.6661.0733	4	EA	SCREW, 0-80 X 7/32" LG PPSS
3	54.9704.0402	1	EA	BELT, TIMING, MXL, 240 GRV, 125 WD, SIL/KEV

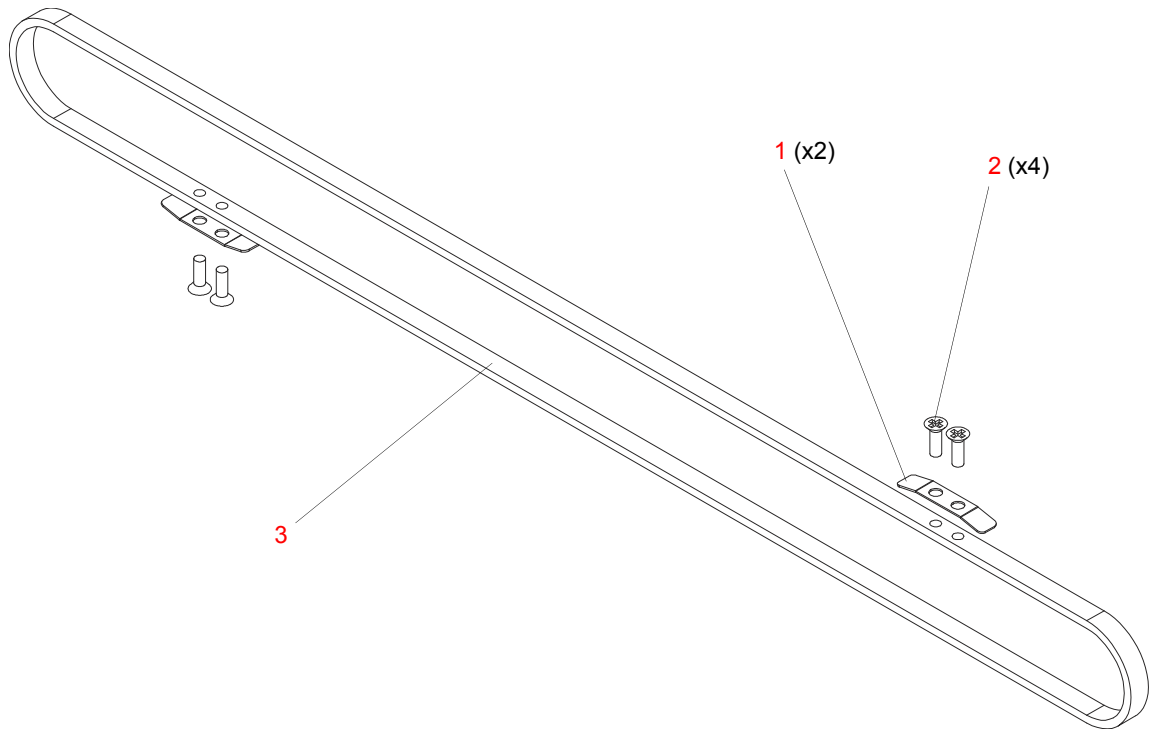


Figure 3-50: 240 Groove Belt Assembly

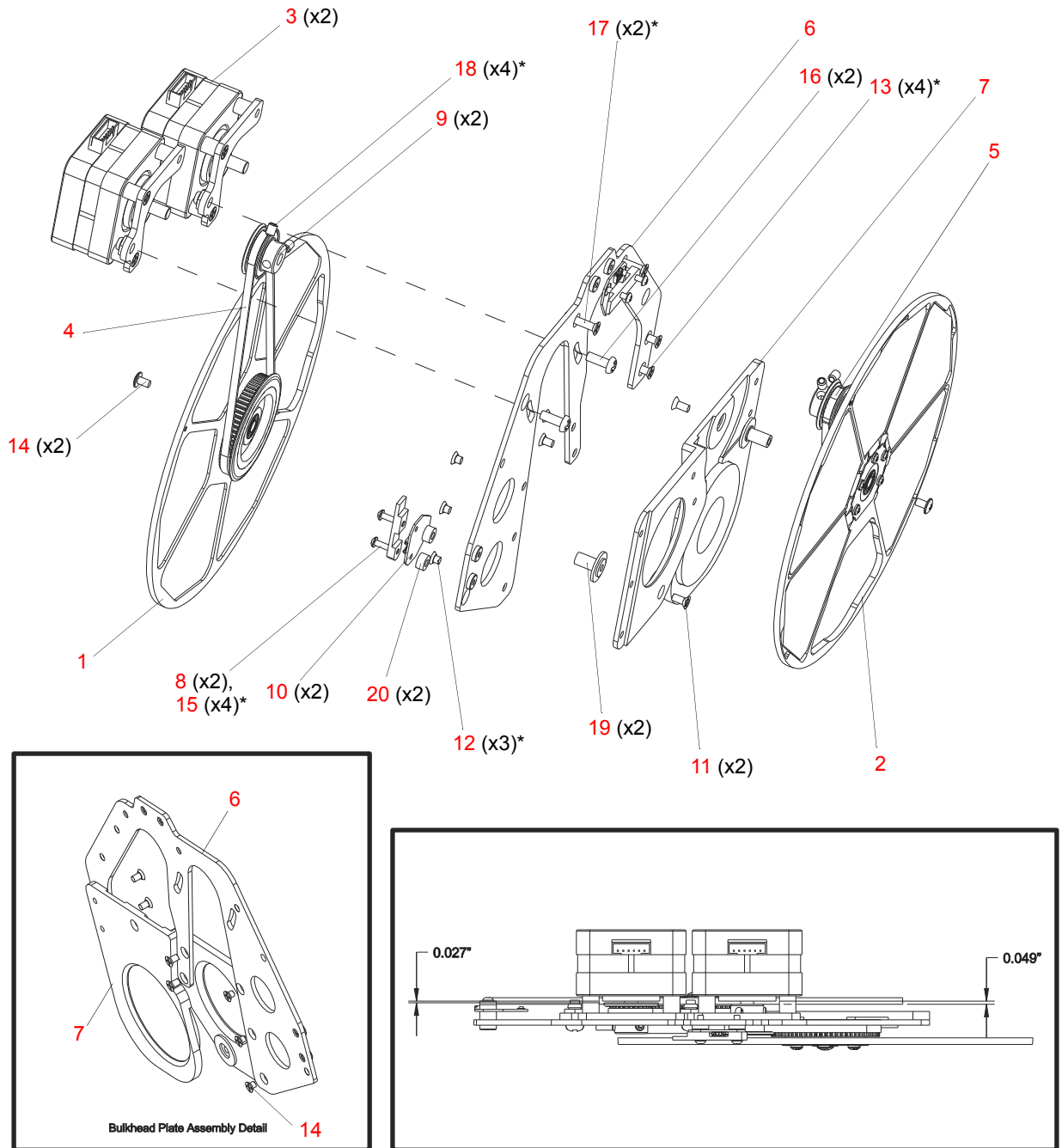
Fixed Color Wheel Assembly

21.9704.0415 Rev. G

Refer to [Figure 3-51](#)

No.	Item	Qty.	UM.	Description
1	21.9704.0430	1	EA	ASSY, FIXED COLOR WHEEL 1
2	21.9704.0435	1	EA	ASSY, FIXED COLOR WHEEL 2
3	21.9704.0419	2	EA	ASSY, MOTOR, FIXED COLOR
4	54.9698.0002	1	EA	BELT, TIMING, MXL, 150 GR 0.125" W URETH/KEV
5	54.9704.0390	1	EA	BELT, TIMING, MXL, 106 GR 0.125" W URETH/KEV
6	10.9704.0427	1	EA	BULKHEAD, FIXED COLOR WHEELS
7	22.9704.1430	1	EA	CER LENS ASSY, FIXED COLOR
8	10.9704.0290	2	EA	CLAMP, CONNECTOR, SENSOR BOARD
9	10.9704.0223	2	EA	DRIVE PULLEY, GOBO WHEEL
10	17.9704.0904	2	EA	PCB ASSY, WHEEL POSITION SENSOR
11	53.6559.0001	2	EA	SCREW, 4-40 X 1/4" PFZ
12	53.6601.0004	3	EA	SCREW, 4-40 X 1/8" PFZ, UNDERCUT
13	53.6601.0003	4	EA	SCREW, 4-40 X 3/16" PFZ, UNDERCUT
14	53.6601.0002	2	EA	SCREW, 4-40 X 3/16" PTZ
15	53.6659.0003	4	EA	SCREW, 2-56 X 3/8" PPZ
16	53.6558.0001	2	EA	SCREW, 6-32 X 3/8" PPZ
17	53.6513.0030	2	EA	SCREW, M3 X .5 X 14 MM LG PFZ METRIC
18	53.5559.0250	4	EA	SCREW, 6-40 X 0.25" CONE POINT
19	10.9704.0424	2	EA	SHAFT, FIXED COLOR WHEEL
20	55.6659.0012	2	EA	SPACER, #4 ID, 0.250" OD, 0.094" LG

Fixed Color Wheel Assembly (continued)



*APPLY LOCTITE 242 TO THREADS PRIOR TO INSTALLATION.

Figure 3-51: Fixed Color Wheel Assembly

Fixed Color Wheel 1 Assembly

21.9704.0430 Rev. C

Refer to [Figure 3-52](#)

No.	Item	Qty.	UM.	Description
1	10.9686.1478	1	EA	MAGNET, PLANET GEAR INDEX
2	10.9704.0425	1	EA	HUB, FIXED COLOR WHEEL
3	10.9704.0426	1	EA	PLATE, COLOR WHEEL
4	10.9704.1431	1	EA	SPRING PLATE, FIXED COLOR WHEEL
5	41.9704.0490	1	EA	FILTER, RED
6	41.9704.0491	1	EA	FILTER, DARK FUCHSIA
7	41.9704.0492	1	EA	FILTER, ORANGE
8	41.9704.0493	1	EA	FILTER, KELLY GREEN
9	41.9704.0494	1	EA	FILTER, CONGO BLUE
10	53.6659.0002	5	EA	SCREW, 2-56 X 1/4" PPZ
11	54.9687.1253	2	EA	BEARING, NPB, MR105ZZK13

Fixed Color Wheel 1 Assembly (continued)

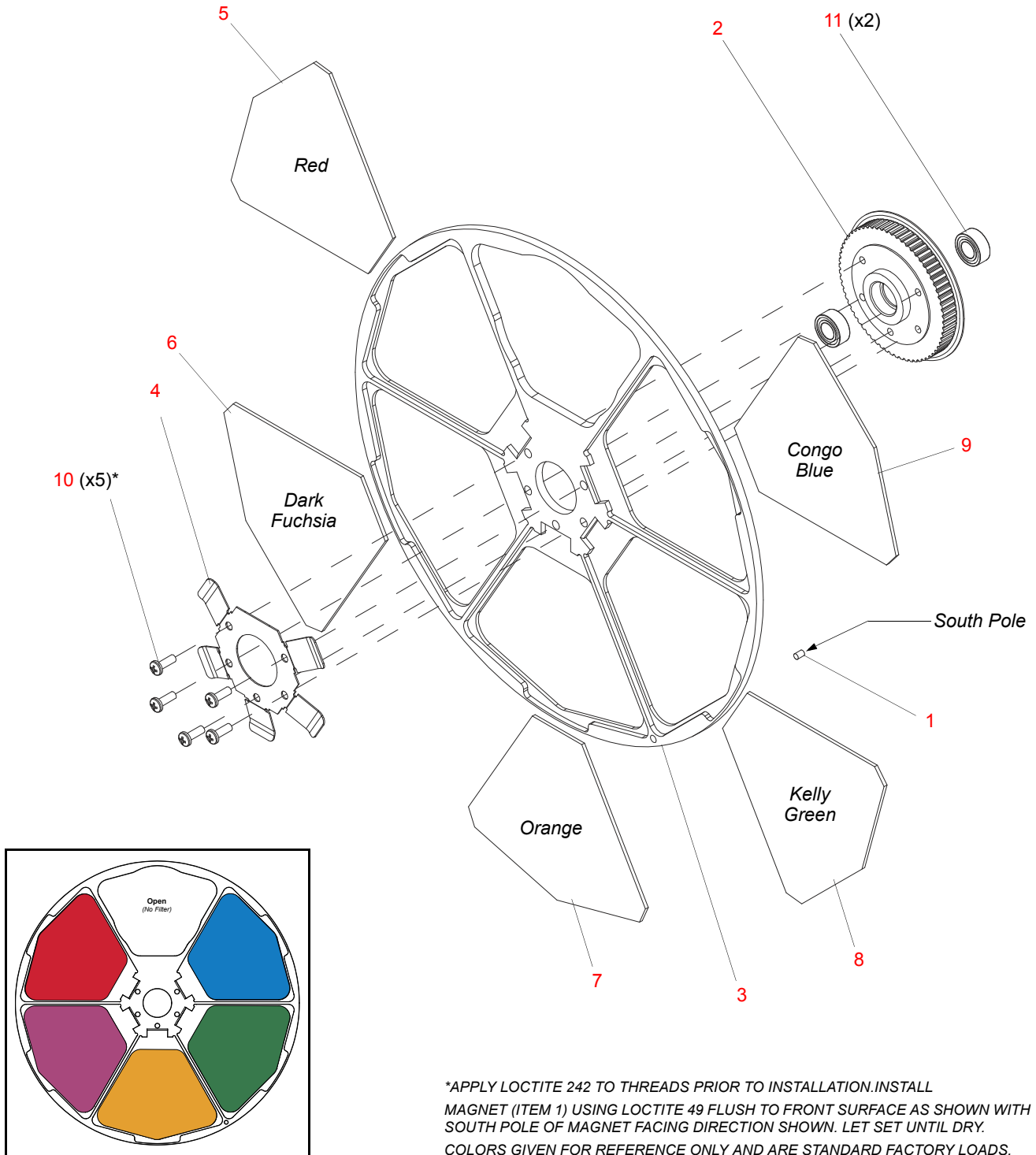


Figure 3-52: Fixed Color Wheel 1 Assembly

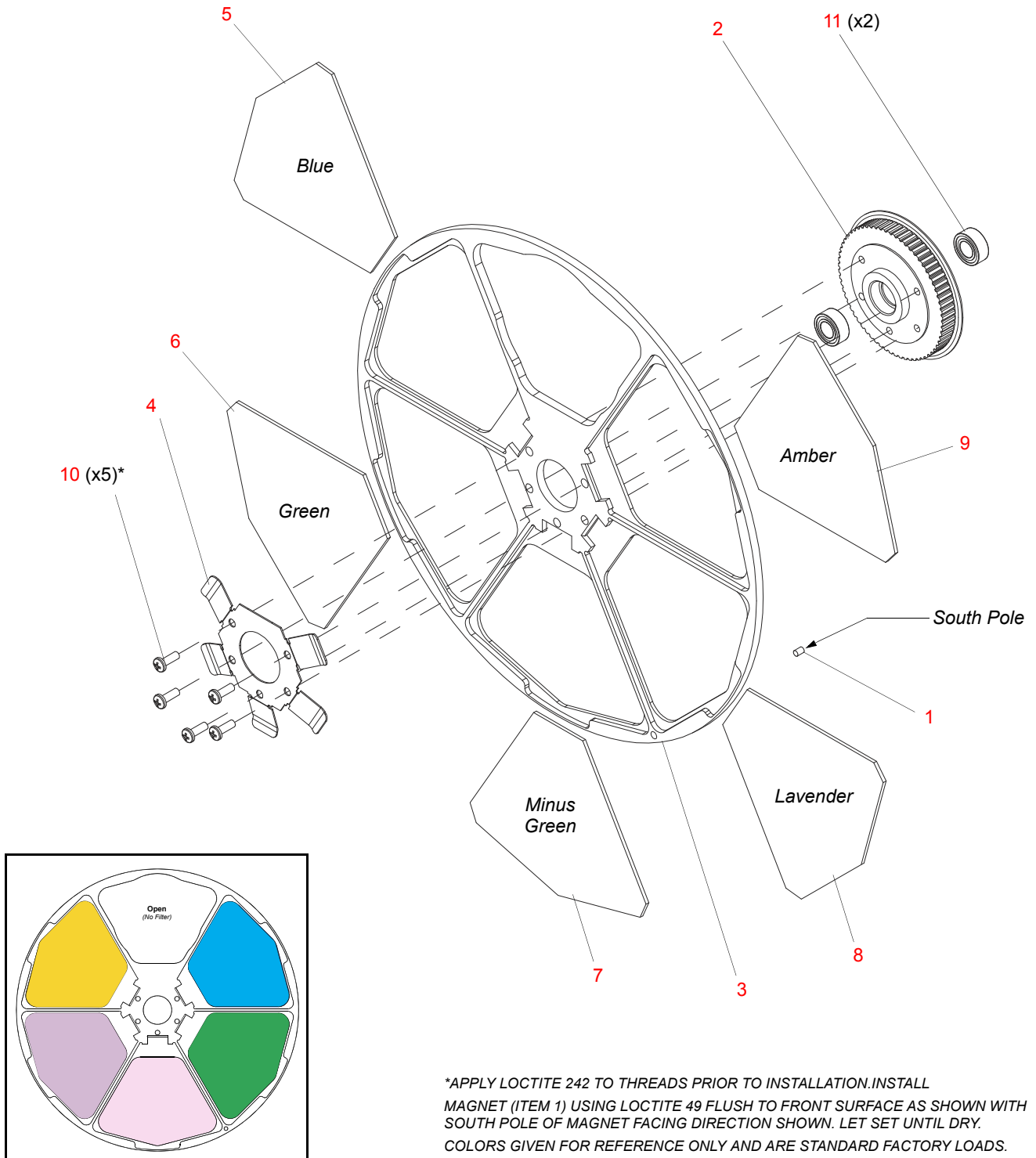
Fixed Color Wheel 2 Assembly

21.9704.0435 Rev. D

Refer to [Figure 3-53](#)

No.	Item	Qty.	UM.	Description
1	10.9686.1478	1	EA	MAGNET, PLANET GEAR INDEX
2	10.9704.0425	1	EA	HUB, FIXED COLOR WHEEL
3	10.9704.0426	1	EA	PLATE, COLOR WHEEL
4	10.9704.1431	1	EA	SPRING PLATE, FIXED COLOR WHEEL
5	41.9704.0495	1	EA	FILTER, BLUE
6	41.9704.0496	1	EA	FILTER, GREEN
7	41.9704.0489	1	EA	FILTER, MINUS GREEN
8	41.9704.0498	1	EA	FILTER, LAVENDER
9	41.9704.0499	1	EA	FILTER, AMBER
10	53.6659.0002	5	EA	SCREW, 2-56 X 1/4" PPZ
11	54.9687.1253	2	EA	BEARING, NPB, MR105ZZK13

Fixed Color Wheel 2 Assembly (continued)



**APPLY LOCTITE 242 TO THREADS PRIOR TO INSTALLATION. INSTALL MAGNET (ITEM 1) USING LOCTITE 49 FLUSH TO FRONT SURFACE AS SHOWN WITH SOUTH POLE OF MAGNET FACING DIRECTION SHOWN. LET SET UNTIL DRY. COLORS GIVEN FOR REFERENCE ONLY AND ARE STANDARD FACTORY LOADS.*

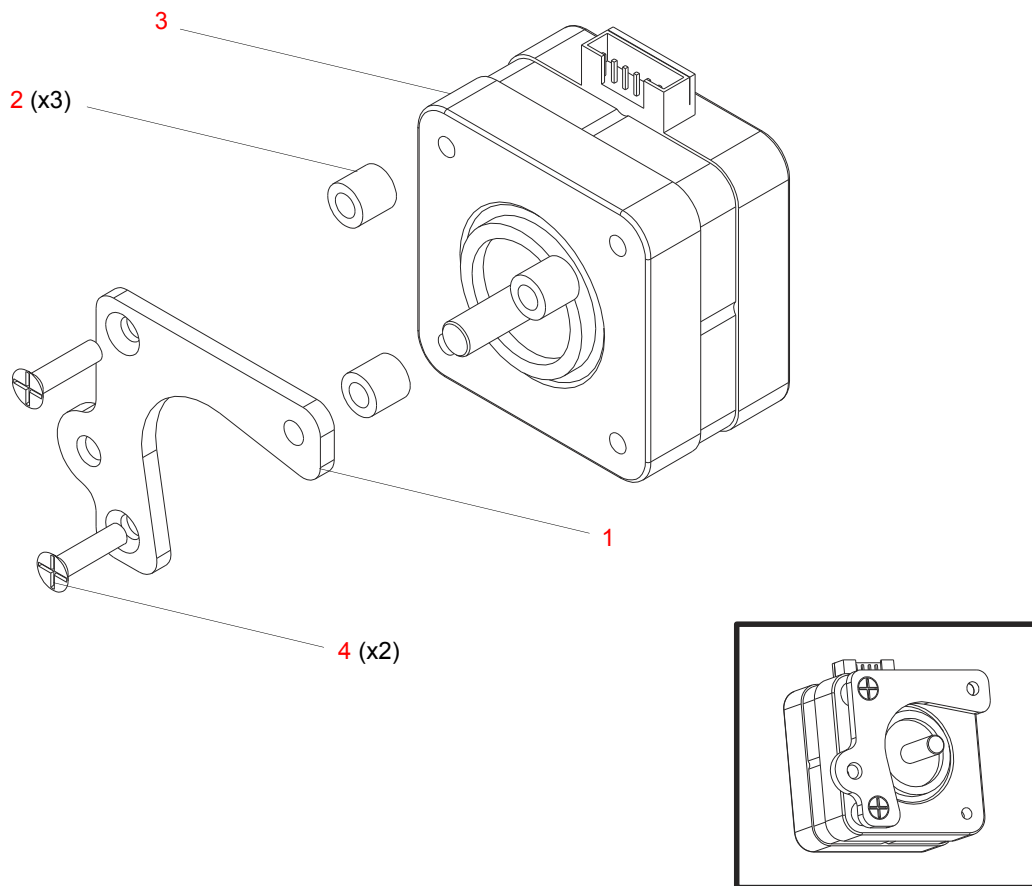
Figure 3-53: Fixed Color Wheel 2 Assembly

Fixed Color Motor Assembly

21.9704.0419 Rev. A

Refer to [Figure 3-54](#)

No.	Item	Qty.	UM.	Description
1	10.9704.0432	1	EA	PLATE, MOTOR ADJUST, FIXED COLOR
2	10.9704.0465	3	EA	SPACER, FIXED COLOR MOTOR
3	44.9704.0418	1	EA	MOTOR, SIZE 17, SHAFT 0.55"
4	53.6513.0029	2	EA	SCREW, M3 X .5 X 12 MM LG PFZ METRIC



*APPLY LOCTITE 242 TO THREADS PRIOR TO INSTALLATION.

Figure 3-54: Fixed Color Motor Assembly

Cross-Flow Blower Assembly

21.9704.0420 Rev. E

Refer to [Figure 3-55](#)

No.	Item	Qty.	UM.	Description
1	10.9704.0455	1	EA	MOUNT, BLOWER, COLOR
2	23.9704.1004	1	EA	FAN ASSY, VL4000 COLOR BULKHEAD BLOWER
3	53.6527.0187	3	EA	SCREW, 6-32 X 3/16" LG PPZ THD FORMING
4	55.6818.0002	1	EA	STANDOFF, 45-DEG, NYLOC KURLY-LOC

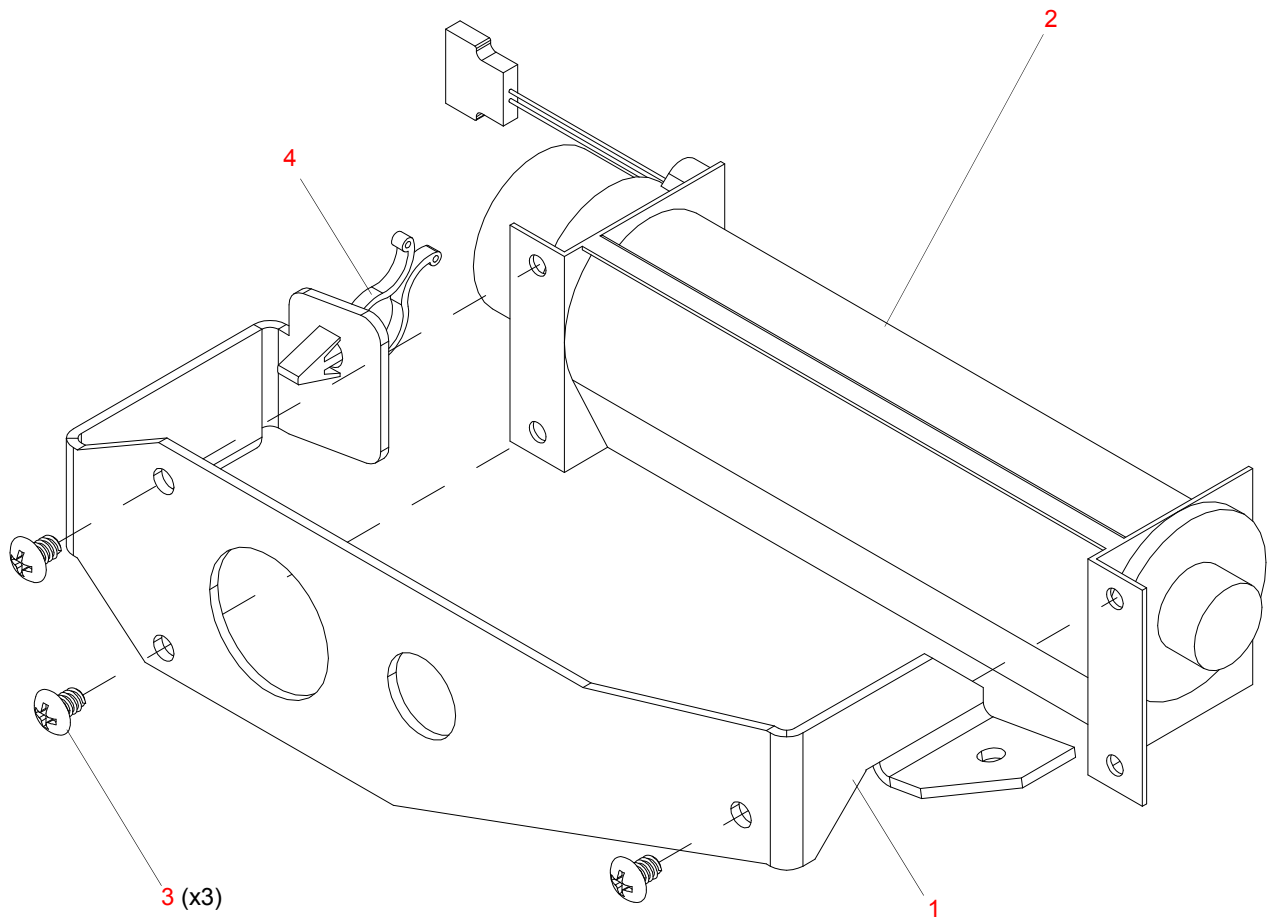


Figure 3-55: Cross-Flow Blower Assembly

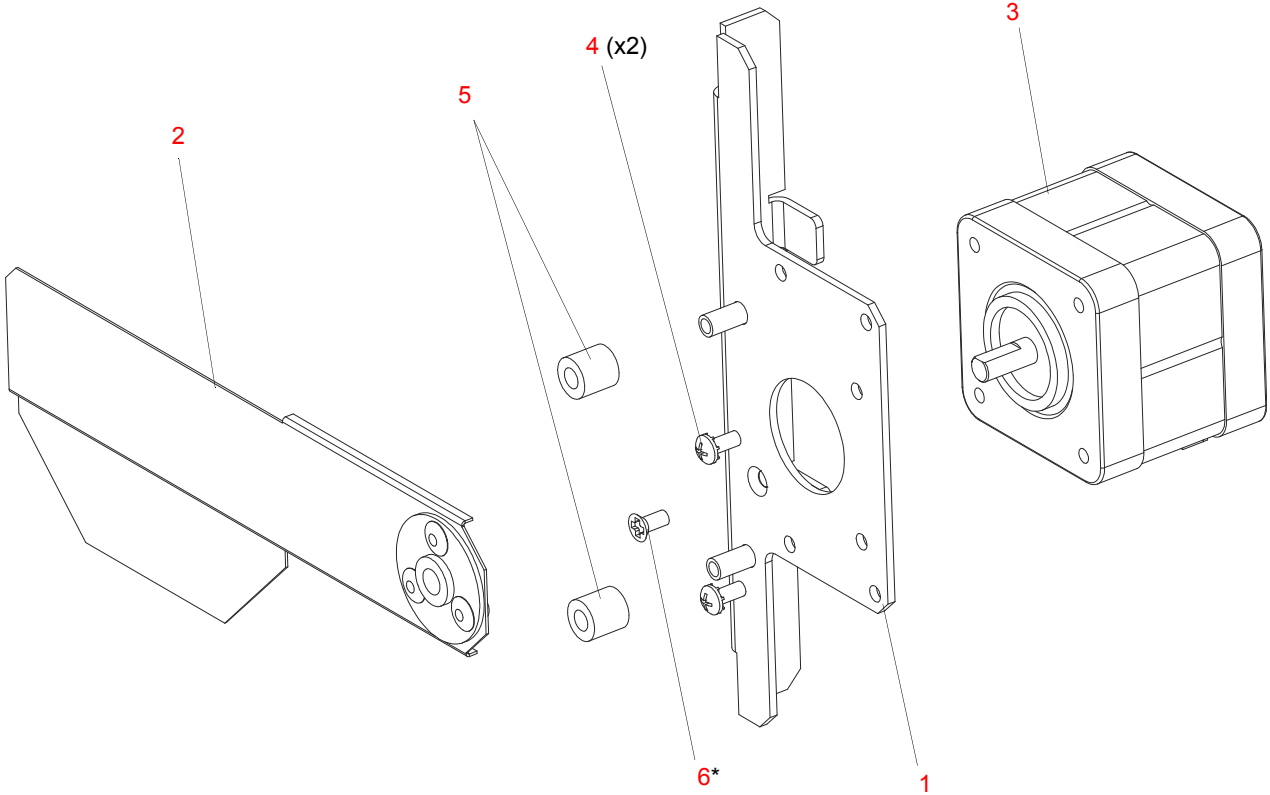
Left Strobe Assembly

21.9704.0431 Rev. G

Refer to [Figure 3-56](#)

No.	Item	Qty.	UM.	Description
1	10.9704.0420	1	EA	MOUNT PLATE, STROBE
2	22.9704.0453	1	EA	ASSY, STROBE BLADE
3	44.9687.1204	1	EA	MOTOR, SIZE 17, SHAFT 0.455"
4	53.6682.0002	2	EA	SCREW, 4-40 X 1/4" PPZ SEMS
5	55.6738.0005	0.625	IN	TUBING, SILICONE RUBBER, 4 MM ID, 8 MM OD, SOFT RED
6	53.6559.0001	1	EA	SCREW, 4-40 X 1/4" PFZ

Left Strobe Assembly (continued)



**APPLY LOCTITE 242 TO THREADS PRIOR TO INSTALLATION.*

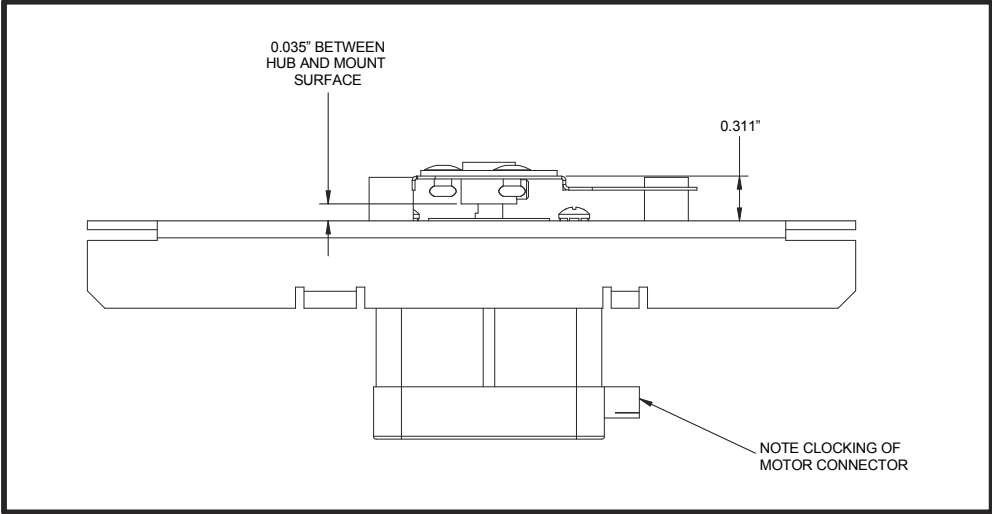


Figure 3-56: Left Strobe Assembly

Right Strobe Assembly

21.9704.0432 Rev. D

Refer to [Figure 3-57](#)

No.	Item	Qty.	UM.	Description
1	10.9704.0420	1	EA	MOUNT PLATE, STROBE
2	22.9704.0454	1	EA	ASSY, STROBE BLADE
3	44.9687.1204	1	EA	MOTOR, SIZE 17, SHAFT 0.455"
4	53.6559.0001	1	EA	SCREW, 4-40 X 1/4" PFZ
5	55.6738.0005	0.625	IN	TUBING, SILICONE RUBBER, 4 MM ID, 8 MM OD, SOFT RED
6	10.9704.1435	1	EA	LIGHT SHIELD, DIMMER BELT, FULL
7	53.6682.0002	2	EA	SCREW, 4-40 X 1/4" PPZ SEMS

Right Strobe Assembly (continued)

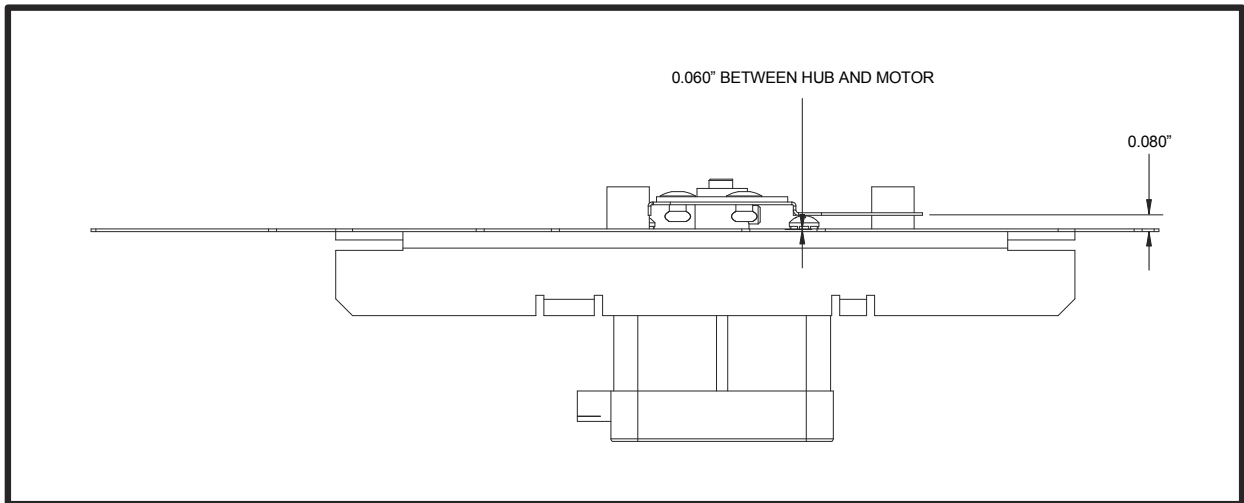
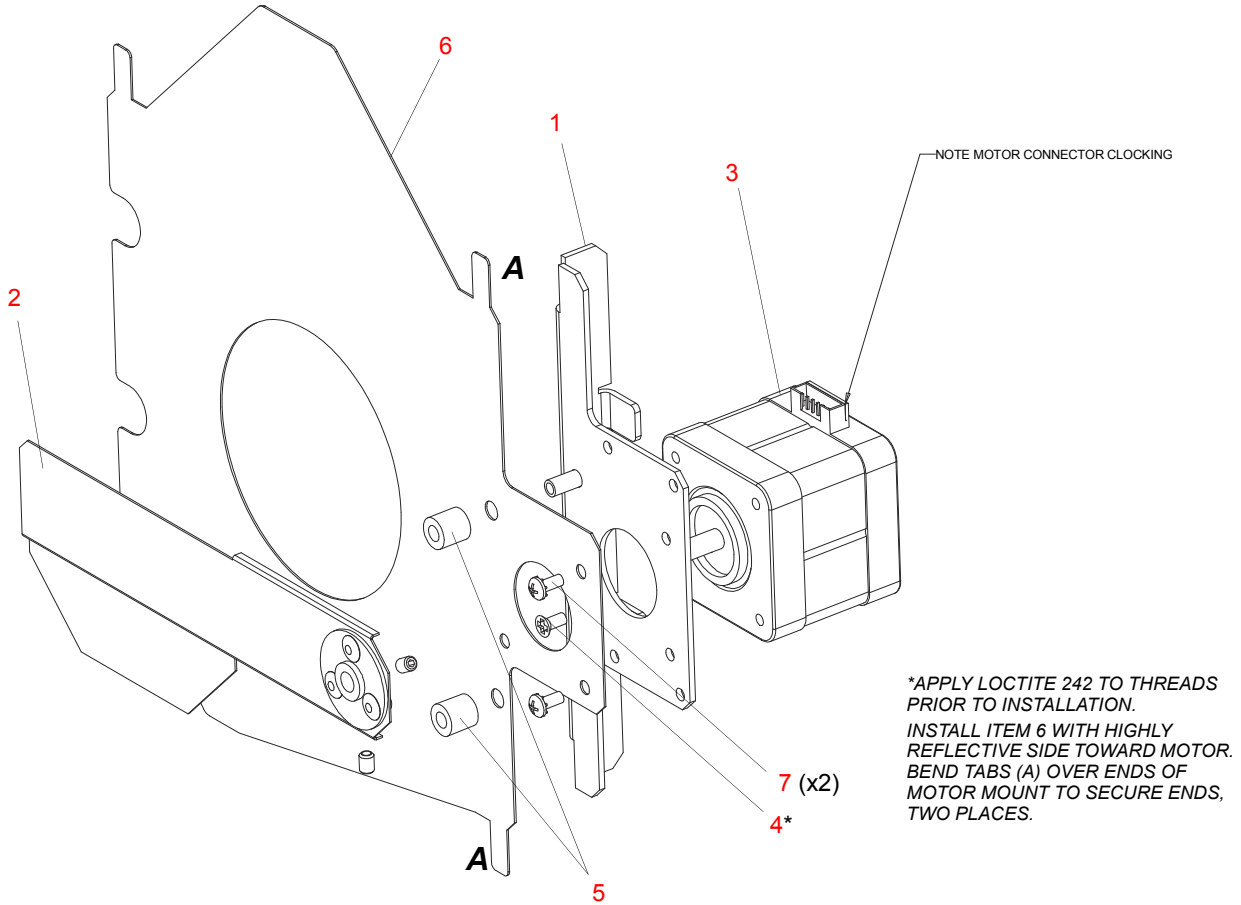


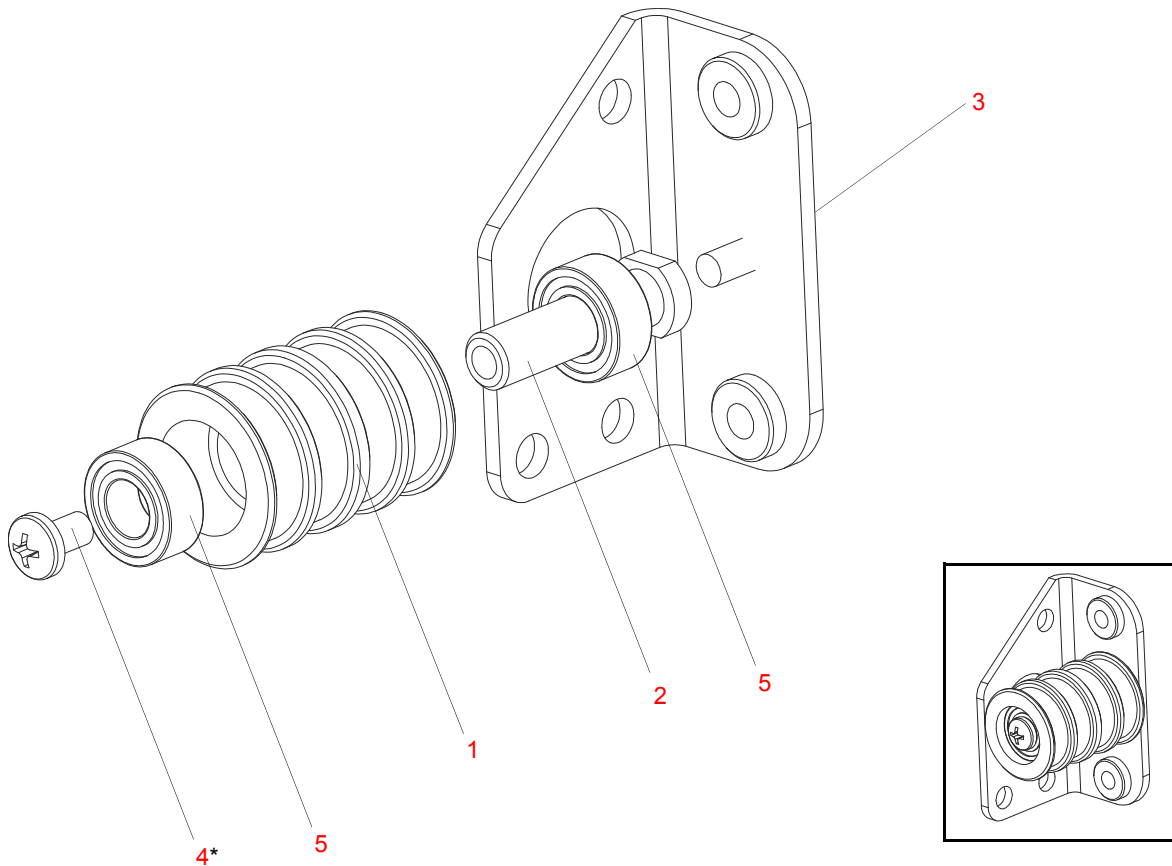
Figure 3-57: Right Strobe Assembly

Control Belt Idler Assembly

21.9704.5443 Rev. A

Refer to [Figure 3-49](#)

No.	Item	Qty.	UM.	Description
1	10.9704.5409	1	EA	IDLER PULLEY, COLOR FLAG
2	10.9704.5423	1	EA	IDLER SHAFT, PULLEY, COLOR BULKHEAD
3	10.9704.5428	1	EA	IDLER BRACKET, COLOR BULKHEAD
4	53.6597.0001	1	EA	SCREW, 4-40 X 3/16" PPZ
5	54.9687.1253	2	EA	BEARING, NPB, MR105ZZK13



*APPLY LOCTITE 242 TO THREADS PRIOR TO INSTALLATION.

Figure 3-58: Control Belt Idler Assembly

Color Flags Sensor Board Assembly

21.9704.0440 Rev. B

Refer to [Figure 3-49](#)

No.	Item	Qty.	UM.	Description
1	04.9704.0403	1	EA	LABEL, COLOR SENSOR BOARD
2	10.9704.0422	2	EA	MOUNT BRACKET, SENSOR BOARD
3	24.9704.0903	1	EA	PCB, QUAD COLOR OPTICAL SENSOR
4	55.2203.0001	2	EA	SCREW, 4-40 X 1/4" PPZ

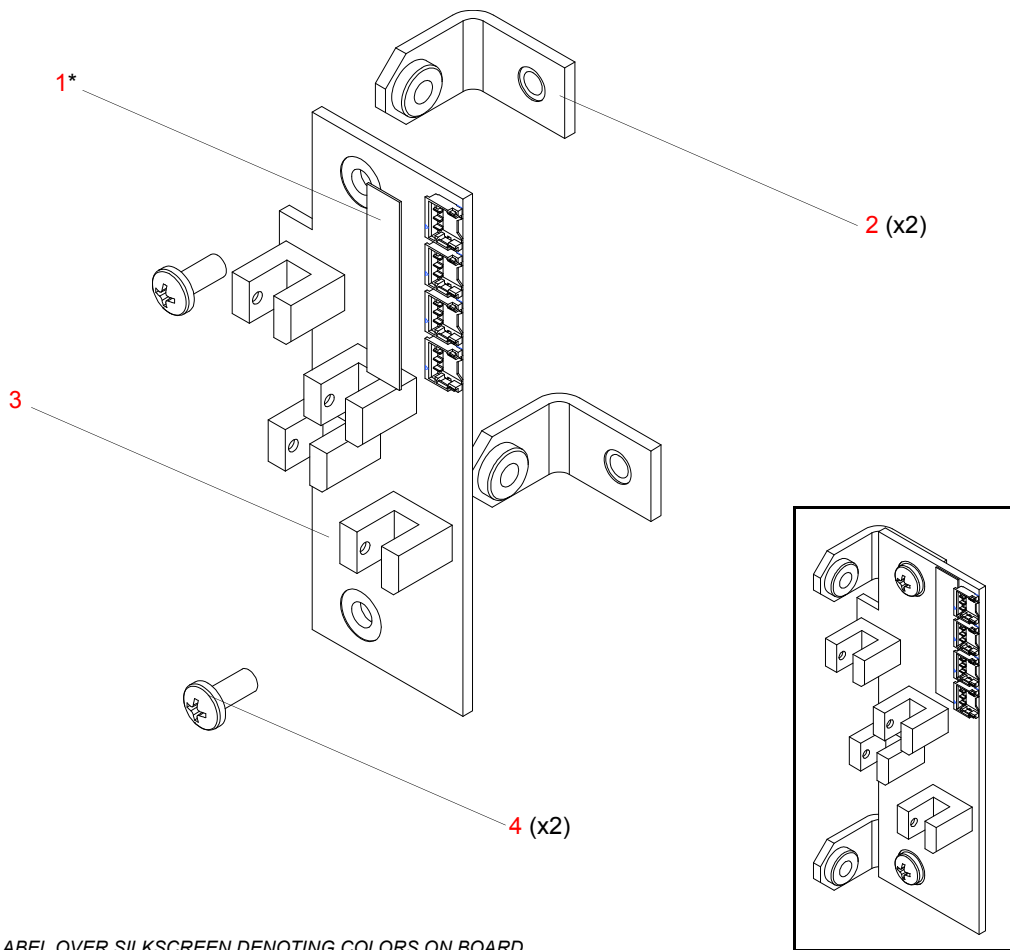


Figure 3-59: Color Flags Sensor Board Assembly

Notes

Yoke Assembly

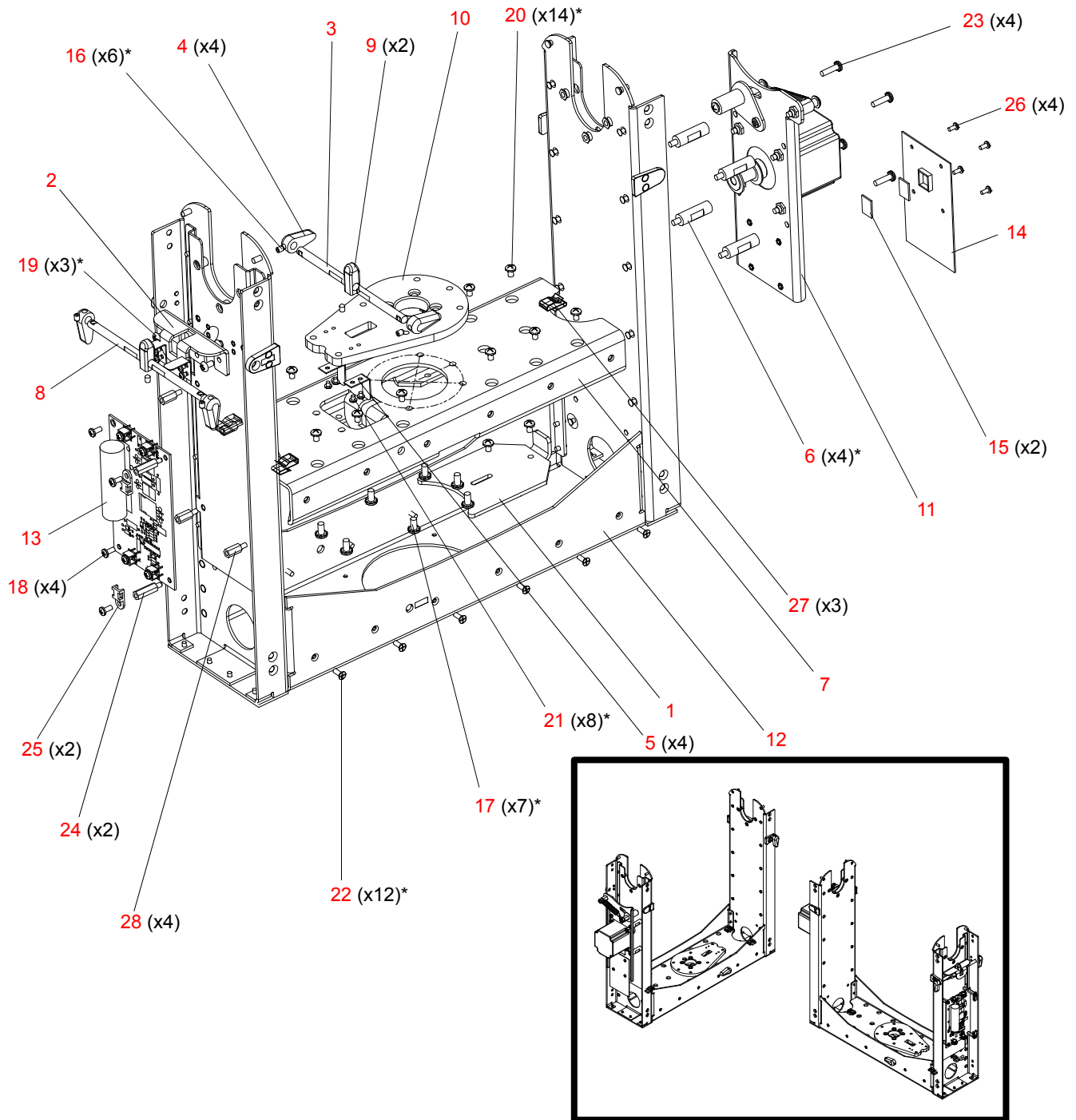
Yoke Assembly

21.9704.0700 Rev. K

Refer to [Figure 3-60](#)

No.	Item	Qty.	UM.	Description
1	10.9704.0736	1	EA	SAFETY PLATE, PAN
2	10.9704.0743	1	EA	BRACE, TILT LOCK
3	10.9704.0751	1	EA	ROD, PAN LOCK
4	10.9704.0753	4	EA	LEVER, PAN/TILT LOCK
5	10.9704.0754	4	EA	SPRING, PAN/TILT LOCK
6	10.9704.0768	4	EA	STANDOFF, TILT MOTOR
7	10.9704.1719	1	EA	BASE REINFORCEMENT, YOKE
8	10.9704.1751	1	EA	ROD, TILT LOCK, LONG
9	10.9704.1752	2	EA	LOCKING PIN, TILT LOCK
10	10.9704.1865	1	EA	ADAPTER, PAN TUBE
11	21.9704.0765	1	EA	ASSY, TILT MOTOR
12	22.9704.0705	1	EA	ASSY, YOKE FRAME
13	24.9704.1126	1	EA	PCB ASSY, IGNITOR, 1200W
14	24.9704.1908	1	EA	TILT MOTOR DRIVER
15	52-0406	2	EA	#THERM PAD, VO GAP PAD ULT-SOFT .45 X .625
16	53.5560.0250	6	EA	SCREW, SET 8-32 X 1/4" L
17	53.6517.0002	7	EA	SCREW, 10-32 X 3/8" PPB SEMS
18	53.6525.0001	4	EA	SCREW, 6-32 X 5/16" PPZ
19	53.6546.0002	3	EA	SCREW, 8-32 X 5/16" PPZ
20	53.6575.0008	14	EA	SCREW, 8-32 X 1/4" PPZ SEMS
21	53.6587.0001	8	EA	SCREW, 4-40 X 1/8" PPZ
22	53.6608.0001	12	EA	SCREW, 6-32 X 3/8" PFB
23	53.6682.0025	4	EA	SCREW, 8-32 X 5/8" PPZ SEMS
24	55.2132.0012	2	EA	STANDOFF, 1/4" HEX 6-32 X 0.75" L
25	55.2178.0001	2	EA	CABLE ANCHOR MOUNT, #8 SCREW
26	55.2203.0001	4	EA	SCREW, 4-40 X 1/4" PPZ
27	55.6597.0003	3	EA	CABLE CLIP, SELF RETAINING, 1/8" THK PNL
28	55.6669.0012	4	EA	STANDOFF, 4-40 X 5/8", 1/4 HEX SS, M-F

Yoke Assembly (continued)



*APPLY LOCTITE 242 TO THREADS PRIOR TO INSTALLATION.

Figure 3-60: Yoke Assembly

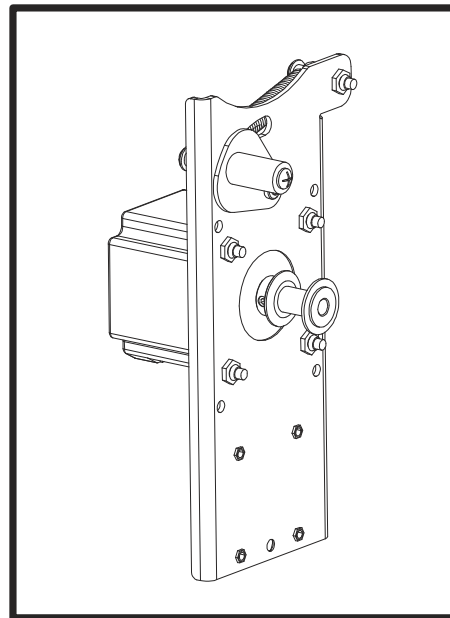
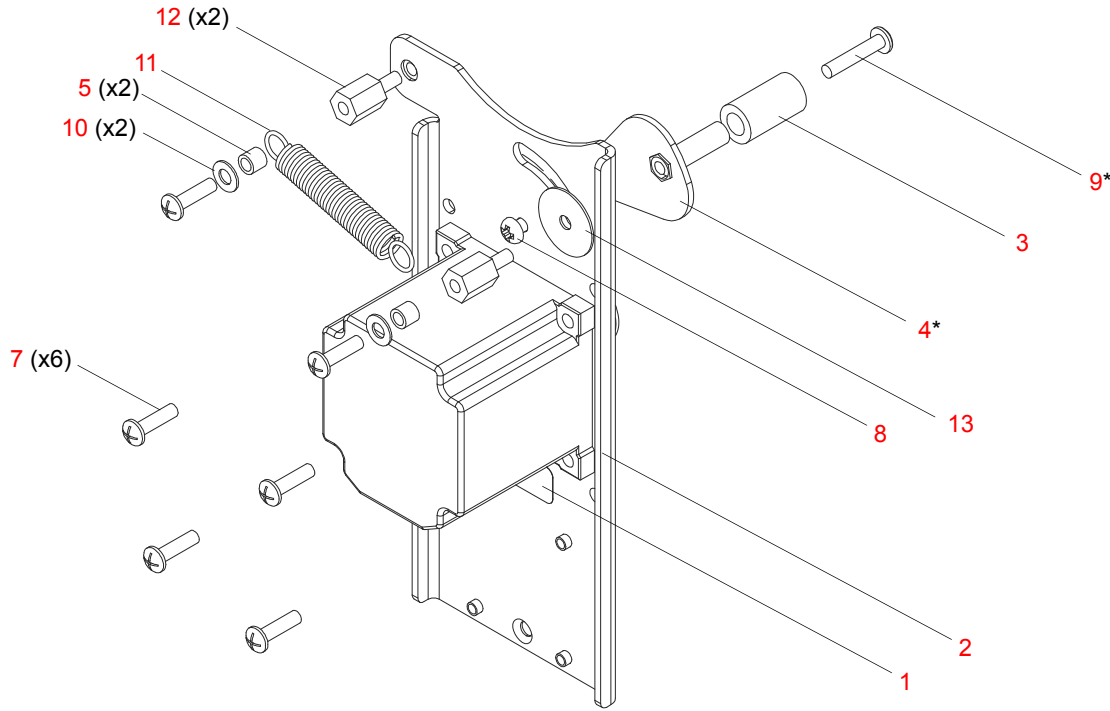
Tilt Motor Assembly

21.9704.0765 Rev. G

Refer to [Figure 3-61](#)

No.	Item	Qty.	UM.	Description
1	04.9704.0701	1	EA	DIPSWITCH LABEL, TILT BOARD
2	10.9704.0763	1	EA	TILT MOTOR PLATE
3	10.9704.0766	1	EA	ROLLER, TENSION ADJUST, TILT
4	10.9704.0769	1	EA	ADJUST, TILT MOTOR
5	10.9704.0845	2	EA	ALUMINIUM SPACER 7/32"
6	21.9704.0764	1	EA	ASSY, TILT MOTOR WITH PULLEY
7	53.6546.0001	6	EA	SCREW, 8-32 X 5/8" PPB
8	53.6546.0002	1	EA	SCREW, 8-32 X 5/16" PPZ
9	53.6575.0003	1	EA	SCREW, 8-32 X 7/8" PPZ
10	55.3301.0008	2	EA	WASHER, FLAT, #8 SS
11	55.6568.0148	1	EA	PAN/TILT SPRING TENSION
12	55.6616.0008	2	EA	STANDOFF, 3/8" HEX 8-32 THRD, 0.5" LG
13	55.6677.0035	1	EA	WASHER, 0.750" OD, 0.187" ID .0

Tilt Motor Assembly (continued)



*APPLY LOCTITE 242 TO THREADS PRIOR TO INSTALLATION.

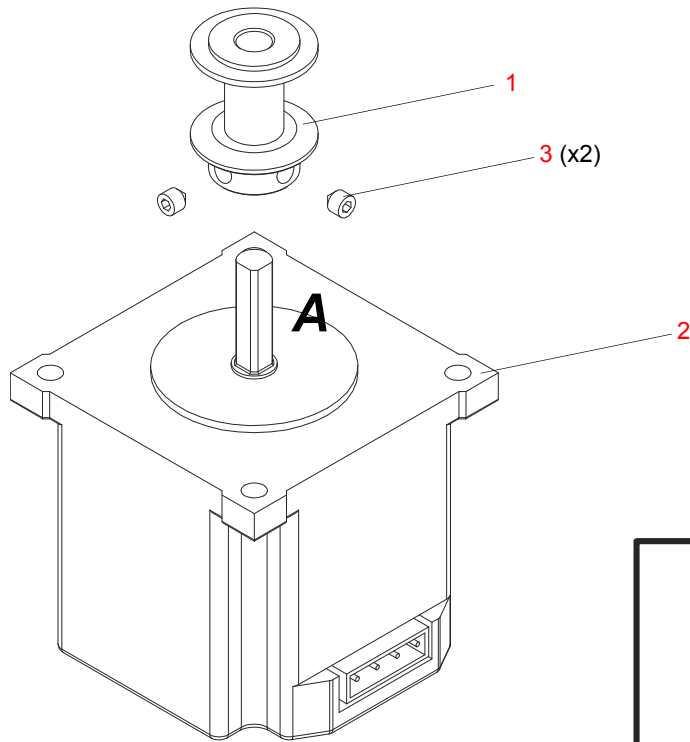
Figure 3-61: Tilt Motor Assembly

Tilt Motor with Pulley Assembly

21.9704.0764 Rev. A

Refer to [Figure 3-62](#)

No.	Item	Qty.	UM.	Description
1	10.9698.1749	1	EA	17T 2 MM TIMING PULLEY, WIDE BELT
2	44.9698.0680	1	EA	MOTOR, 3 PHASE SZ 23 HI-TRQ, MOONS
3	53.5560.0187	2	EA	SCREW, SET 8-32 X 3/16" L



NOTES:

- A. APPLY ONE DROP OF LOCTITE 603 (BY OTHERS) TO SHAFT. INSTALL ITEM 1 ONTO MOTOR SHAFT WITH A TWISTING MOTION TO ENSURE COMPLETE COVERAGE OF SHAFT WITH LOCTITE. MAKE SURE LOCTITE DOES NOT DRIP DOWN INTO MOTOR BEARING
- B. SET PULLEY AT HEIGHT SHOWN IN "PULLEY HEIGHT DETAIL." DIMENSION IS FROM RAISED CIRCLE ON MOTOR TO BOTTOM OF PULLEY.

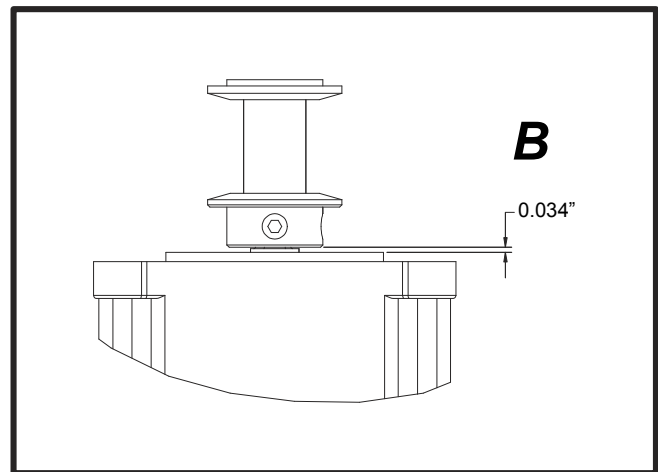


Figure 3-62: Tilt Motor with Pulley Assembly

Notes

Enclosure Assembly

Upper Enclosure Assembly

21.9704.0800 Rev. U



Note: For this assembly, there are several breakout drawings for clarity. Each drawing is preceded with a bill of materials (BOMs) for the parts of the section of the assembly shown.

Refer to the following BOMs and their associated drawings:

- [“Upper Enclosure Assembly - Part 1” on page 250.](#)
- [“Upper Enclosure Assembly - Part 2” on page 252.](#)
- [“Upper Enclosure Assembly - Part 3” on page 254.](#)
- [“Upper Enclosure Assembly - Part 4” on page 256.*](#)

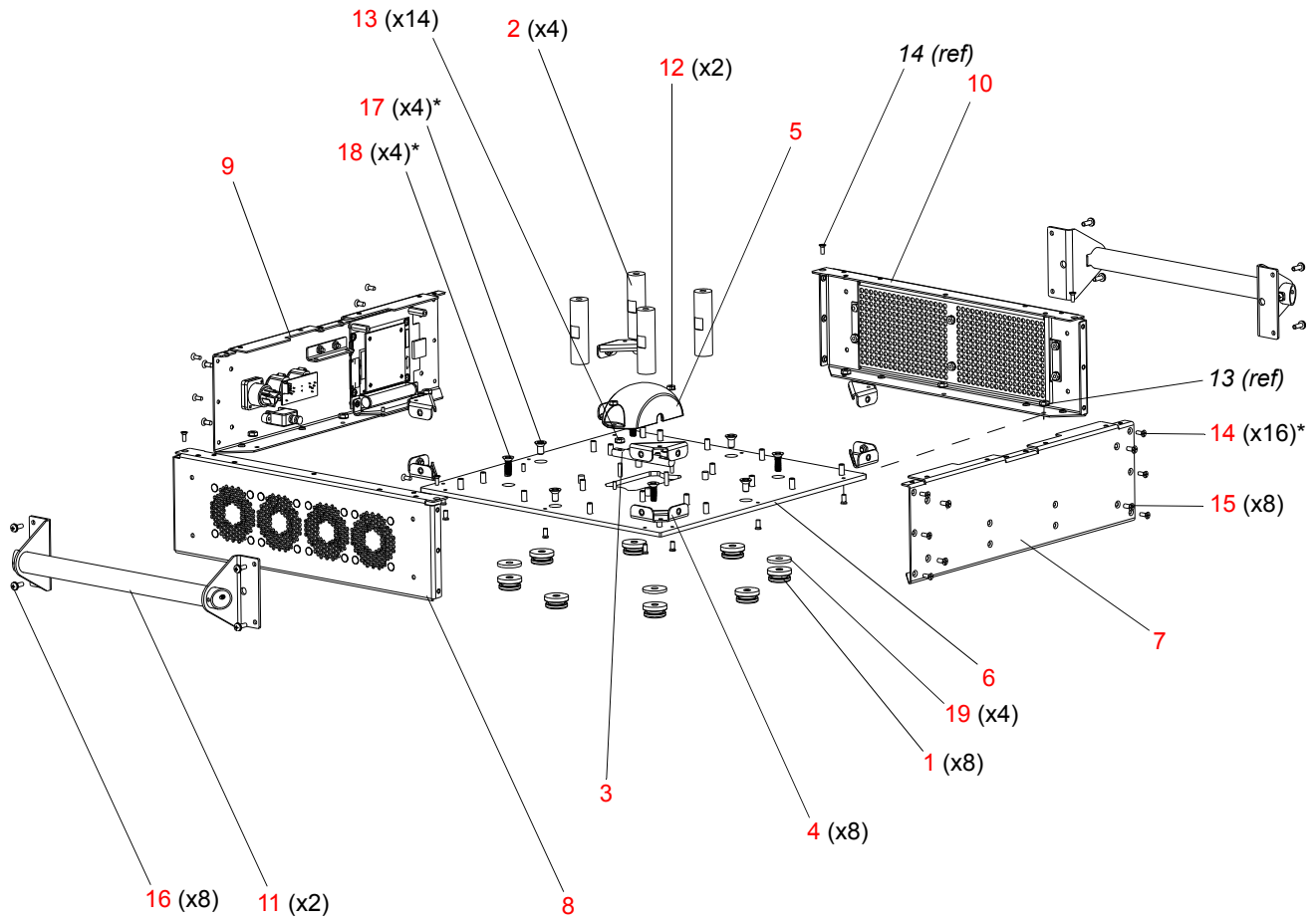
Note: *Cables associated with the Upper Enclosure Assembly are listed in this BOM for reference.

Upper Enclosure Assembly - Part 1

Refer to [Figure 3-63](#)

No.	Item	Qty.	UM.	Description
1	10.9687.0840	8	EA	MOUNTING BUTTON
2	10.9704.0802	4	EA	PAN MODULE, THREADED SPACER
3	10.9704.0829	1	EA	SAFETY HOOK
4	10.9704.0836	8	EA	REINFORCING BRACKET, RIGHT
5	10.9704.0851	1	EA	SAFETY HOOK COVER
6	10.9704.1811	1	EA	MAIN PLATE, UPPER ENCLOSURE
7	10.9704.1816	1	EA	LVS SIDE MOUNT WALL
8	21.9704.0810	1	EA	SIDE MOUNT, FAN ASSY
9	21.9704.0825	1	EA	UPPER ENCL FRONT PANEL ASSY
10	21.9704.2815	1	EA	SIDE MOUNT, FILTER HOLDER
11	22.9704.0830	2	EA	HANDLEBAR ASSY
12	53.2200.0006	2	EA	NUT, 6-32, KEP SS
13	53.2200.0008	14	EA	NUT, 8-32, KEP SS
14	53.5636.0375	16	EA	SCREW, 6-32 X 3/8" PFSS-B
15	53.6545.0008	8	EA	SCREW, 8-32 X 3/8" PFB, UNDERCUT
16	53.6575.0010	8	EA	SCREW, 8-32 X 1/2" PPZ SEMS
17	53.7017.0500	4	EA	SCREW, 1/4-20 X 1/2" PFZ
18	53.9704.0075	4	EA	SCREW, 1/4-20 X 3/4" PFZ
19	55.6636.0012	4	EA	WASHER, 1" OD X 9/32" ID X 0.12" THK, BLACK

Upper Enclosure Assembly - Part 1 (continued)



*APPLY LOCTITE 242 TO THREADS PRIOR TO INSTALLATION.

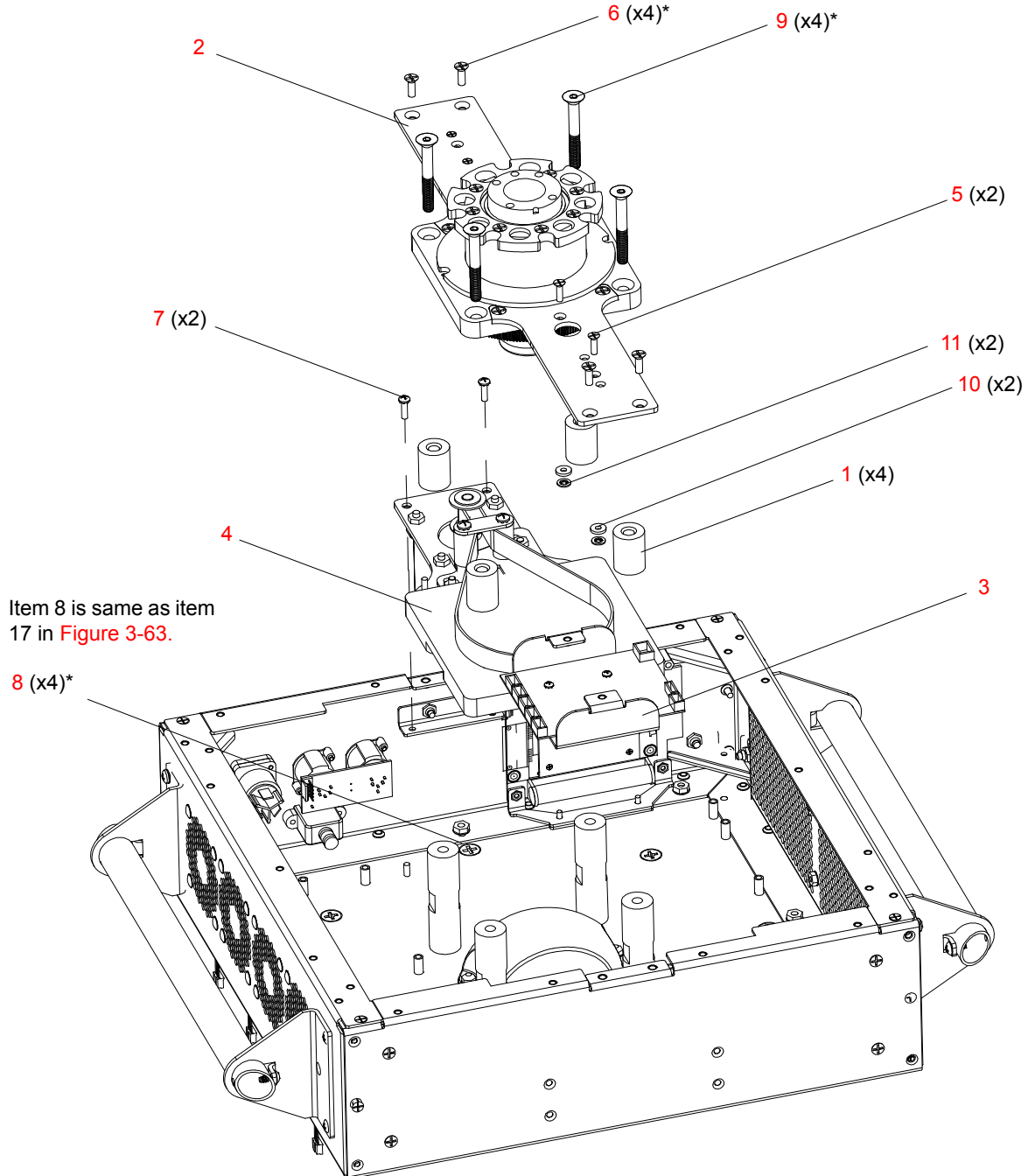
Figure 3-63: Upper Enclosure Assembly Part 1

Upper Enclosure Assembly - Part 2

Refer to [Figure 3-64](#)

No.	Item	Qty.	UM.	Description
1	10.9704.0804	4	EA	UNTHREADED SPACER
2	21.9704.0840	1	EA	PAN BEARING / PULLEY ASSY
3	21.9704.0870	1	EA	PAN / FAN DRIVER BOARD
4	21.9704.1820	1	EA	PAN ASSY MODULE
5	53.5808.0001	2	EA	SCREW, 6-32 X 0.50" LG FLAT PHIL NYLON
6	53.6552.0001	4	EA	SCREW, 8-32 X 1/2" PFZ
7	53.6613.0008	2	EA	SCREW, 6-32 X 1/2" PPZ SEMS
8	53.7017.0500	4	EA	SCREW, 1/4-20 X 1/2" PFZ
9	53.9704.0002	4	EA	SCREW, 1/4-20 X 2" ALLEN, FLATHEAD, BLACK
10	55.6538.0002	2	EA	WASHER, #6 NYLON, NATURAL
11	55.6879.0001	2	EA	WASHER, M4 RETAINING, FLAT, HIQ03R

Upper Enclosure Assembly - Part 2 (continued)



*APPLY LOCTITE 242 TO THREADS PRIOR TO INSTALLATION.

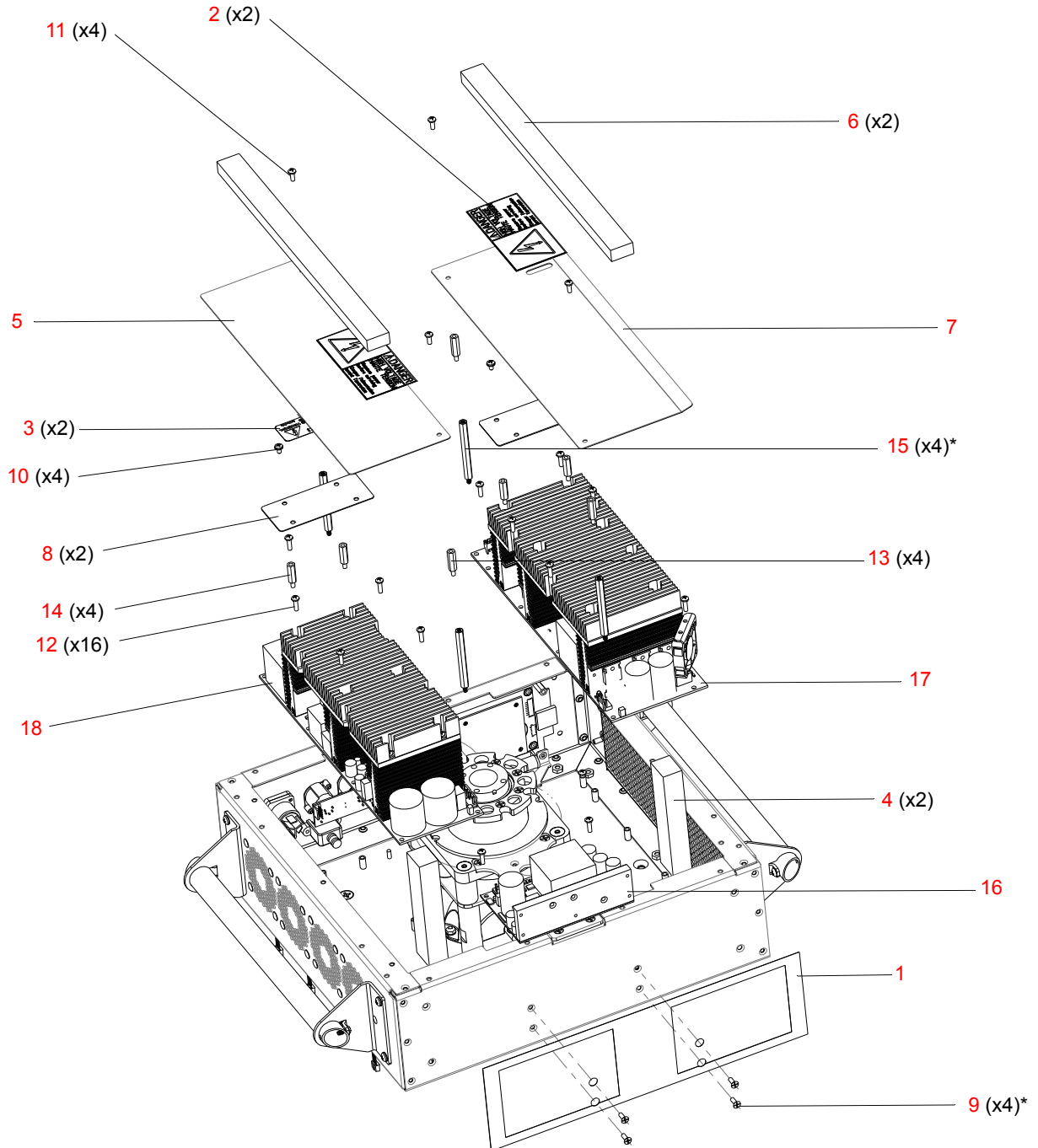
Figure 3-64: Upper Enclosure Assembly Part 2

Upper Enclosure Assembly - Part 3

Refer to [Figure 3-63](#)

No.	Item	Qty.	UM.	Description
1	04.9704.0145	1	EA	LABEL, VL4000 SERIES, WARNING AND COMPLIANCE
2	04.9704.0892	2	EA	LABEL, VL4000 BALLAST
3	04.9704.0893	2	EA	LABEL, BALLAST DANGER WARNING
4	10.9678.0896	2	EA	4.5-INCH AIR SEAL, UPPER ENCLOSURE
5	10.9704.0874	1	EA	INSULATING DUCT, PFC
6	10.9704.1835	2	EA	TOP FOAM AIR SEAL
7	10.9704.1857	1	EA	INSULATING DUCT, DRIVER SIDE
8	10.9704.2874	2	EA	HOLDER, BALLAST WARNING LABEL
9	53.5636.0375	4	EA	SCREW, 6-32 X 3/8" PFSS-B
10	53.6558.0007	4	EA	SCREW, 6-32 X 1/4" LG PPZ SEMS
11	53.6558.0009	4	EA	SCREW, 6-32 X 3/8" LG PPZ SEMS
12	53.6613.0008	16	EA	SCREW, 6-32 X 1/2" PPZ SEMS
13	55.2288.0001	4	EA	STANDOFF, MF 6-32 X 13/16" LG, 1/4 HEX
14	55.6658.0009	4	EA	STANDOFF, 1/4" HEX 6-32 0.75" LG MF
15	55.6658.2500	4	EA	STANDOFF, 6-32 X 2.5" LG, 14 HEX ZINC M-F
16	69.9704.0300	1	EA	36VDC, 300W LVS
17	69.9704.1400	1	EA	1200W/1400W LAMP DRIVER
18	69.9704.2450	1	EA	2035W PFC (1400W LAMP)

Upper Enclosure Assembly - Part 3 (continued)



*APPLY LOCTITE 242 TO THREADS PRIOR TO INSTALLATION.

Figure 3-65: Upper Enclosure Assembly Part 3

Upper Enclosure Assembly - Part 4

Refer to [Figure 3-64](#)

No.	Item	Qty.	UM.	Description
1	04.9704.1200	1	EA	LABEL, VL4000 SPOT PRODUCT ID
2	10.9704.1846	2	EA	UPPER ENCLOSURE, SIDE COVER, HI TEMP
3	10.9704.1847	4	EA	UPPER ENCLOSURE, SIDE ARM COVER, HI TEMP
4	10.9704.1849	2	EA	UPPER ENCLOSURE, FRONT/REAR COVER, HI TEMP
5	21.9704.0850	2	EA	UPPER ENCLOSURE COVER
6	53.5636.0375	38	EA	SCREW, 6-32 X 3/8" PFSS-B
7	53.6543.0001	2	EA	SCREW, 6-32 X 3/8" PPB
-	25.9704.0702	1	EA	CABLE ASSY, VL4000 BALLAST TO IGNITOR (NOT SHOWN)
-	25.9704.1703	1	EA	CABLE ASSY, VL4000 PAN/TILT (NOT SHOWN)
-	25.9704.2704	1	EA	CABLE ASSY, VL4000 PAN/PWR DISTRO INPTU W/ SHIELD (NOT SHOWN)
-	25.9704.1800	1	EA	CABLE ASSY, VL4000 PFC POWER INPUT (NOT SHOWN)
-	25.9704.1801	1	EA	CABLE ASSY, VL4000 ENCLOSURE PFC OUTPUT W/ SHIELD (NOT SHOWN)
-	25.9704.0802	1	EA	CABLE ASSY, VL4000 DMX (NOT SHOWN)
-	25.9704.0803	1	EA	CABLE ASSY, VL4000 BALLAST CONTROL (NOT SHOWN)
-	25.9704.0804	1	EA	CABLE ASSY, VL4000 USB INTERFACE (NOT SHOWN)
-	25.9704.1805	1	EA	CABLE ASSY, VL4000 THERMAL CNTRL (NOT SHOWN)
-	25.9704.0716	1	EA	CABLE ASSY, VL4000 CHASSIS TO YOKE GRND (NOT SHOWN)

Upper Enclosure Assembly - Part 4 (continued)

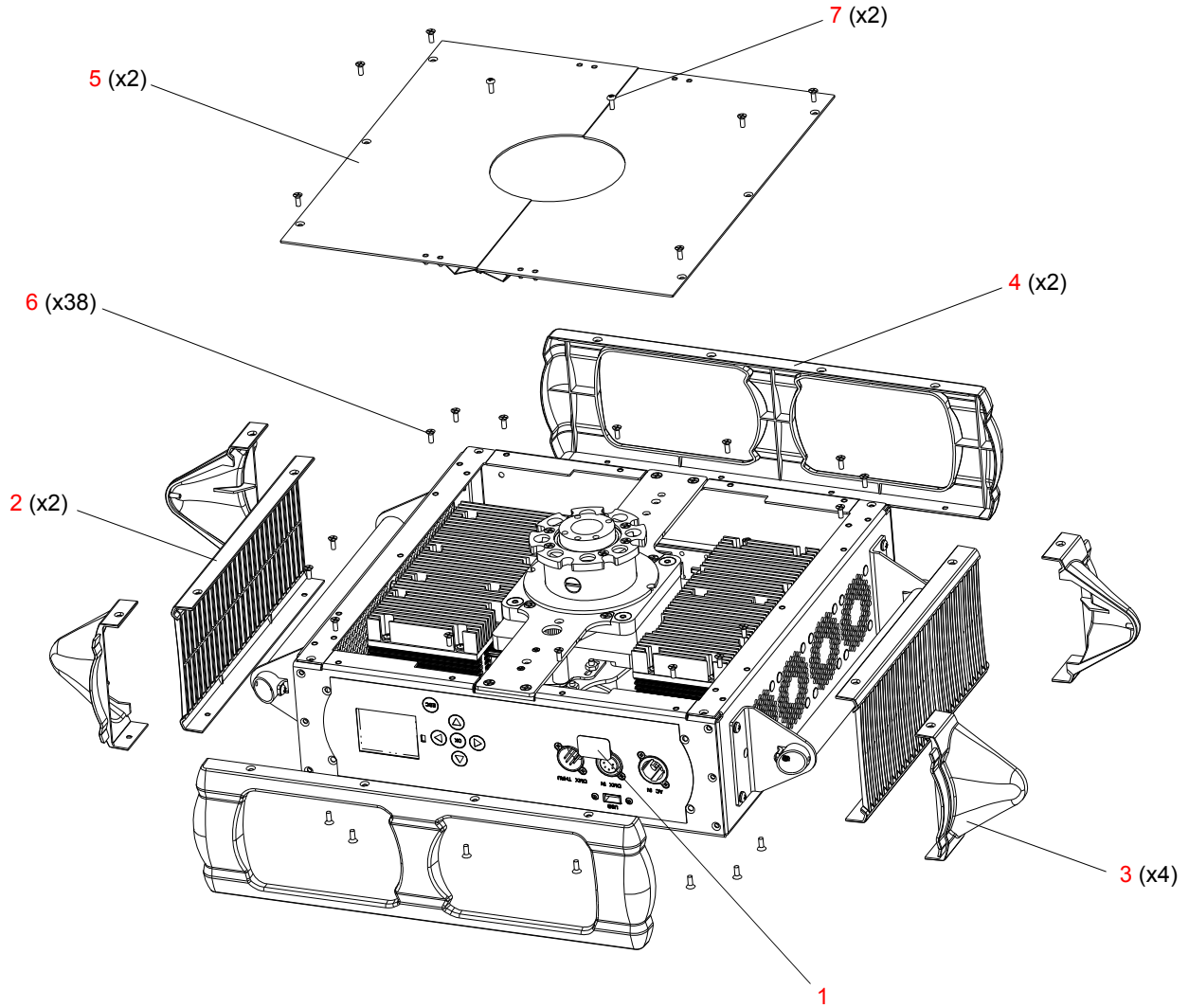


Figure 3-66: Upper Enclosure Assembly Part 4

Side Mount Fan Assembly

21.9704.0810 Rev. D

Refer to [Figure 3-67](#)

No.	Item	Qty.	UM.	Description
1	10.9704.1817	1	EA	UPPER ENCLOSURE SIDE WALL FAN MOUNT
2	23.9704.0001	4	EA	FAN ASSY, VL4000 ENCLOSURE* (SEE NOTE BELOW)
3	55.2270.0007	16	EA	RUBBER FAN MOUNT, FM-7
4	55.6538.0002	16	EA	WASHER, #6 NYLON, NATURAL

Note: *If replacing one (1) fan, order this part number 22.9704.1850. This is a replacement kit that includes one (1) 23.9704.0001, four (4) 55.2270.0007, and four (4) 55.6538.0002.

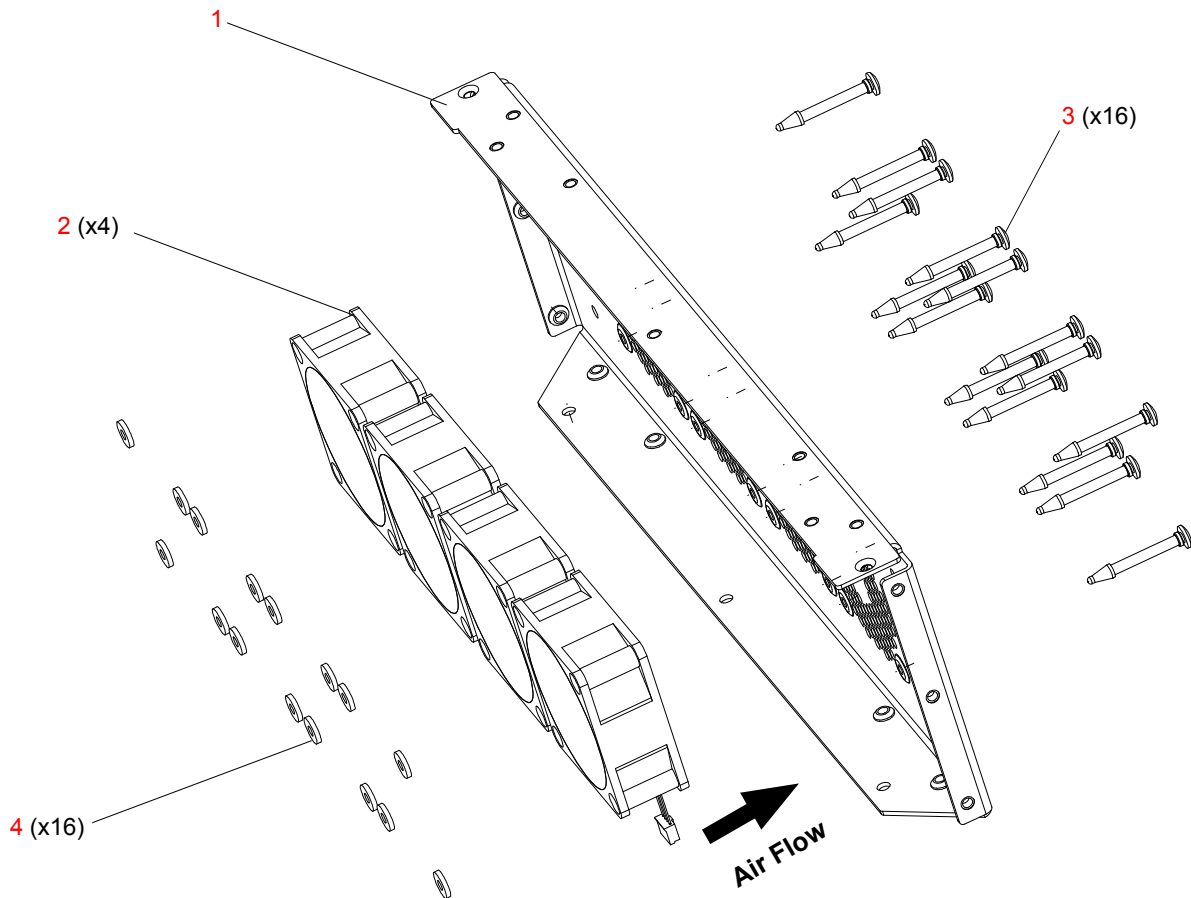


Figure 3-67: Side Mount Fan Assembly

Front Panel Assembly

21.9704.0825 Rev. G

Refer to [Figure 3-64](#)

No.	Item	Qty.	UM.	Description
1	10.9679.0850	1	EA	BACKING PLATE, NEUTRIK
2	11.9704.0846	1	EA	DISPLAY OVERLAY
3	10.9704.1815	1	EA	FRONT PANEL
4	21.9704.0880	1	EA	ASSY, MCB/DISPLAY
5	10.9704.0886	1	EA	MCB BRACKET MOUNT
6	10.9704.1826	1	EA	PAN ASSY, SUPPORT BRACKET
7	24.9664.4895	1	EA	PCB ASSY, DMX INPUT
8	25.9704.0830	1	EA	POWERCON, NEUTRIK AC INPUT CONNECTOR NAC3MPX
9	53.6598.0001	6	EA	SCREW, 4-40 X 3/8" PFB
10	53.6558.0007	1	EA	SCREW, 6-32 X 1/4" PPZ SEMS
11	53.5636.0375	2	EA	SCREW, 6-32 X 3/8" PFSS-B
12	55.2288.0001	2	EA	STANDOFF, MF 6-32 X 13/16" LG, 1/4 HEX
13	46-9704.0853	1	EA	USB PORT, PANEL MOUNT

Front Panel Assembly (continued)

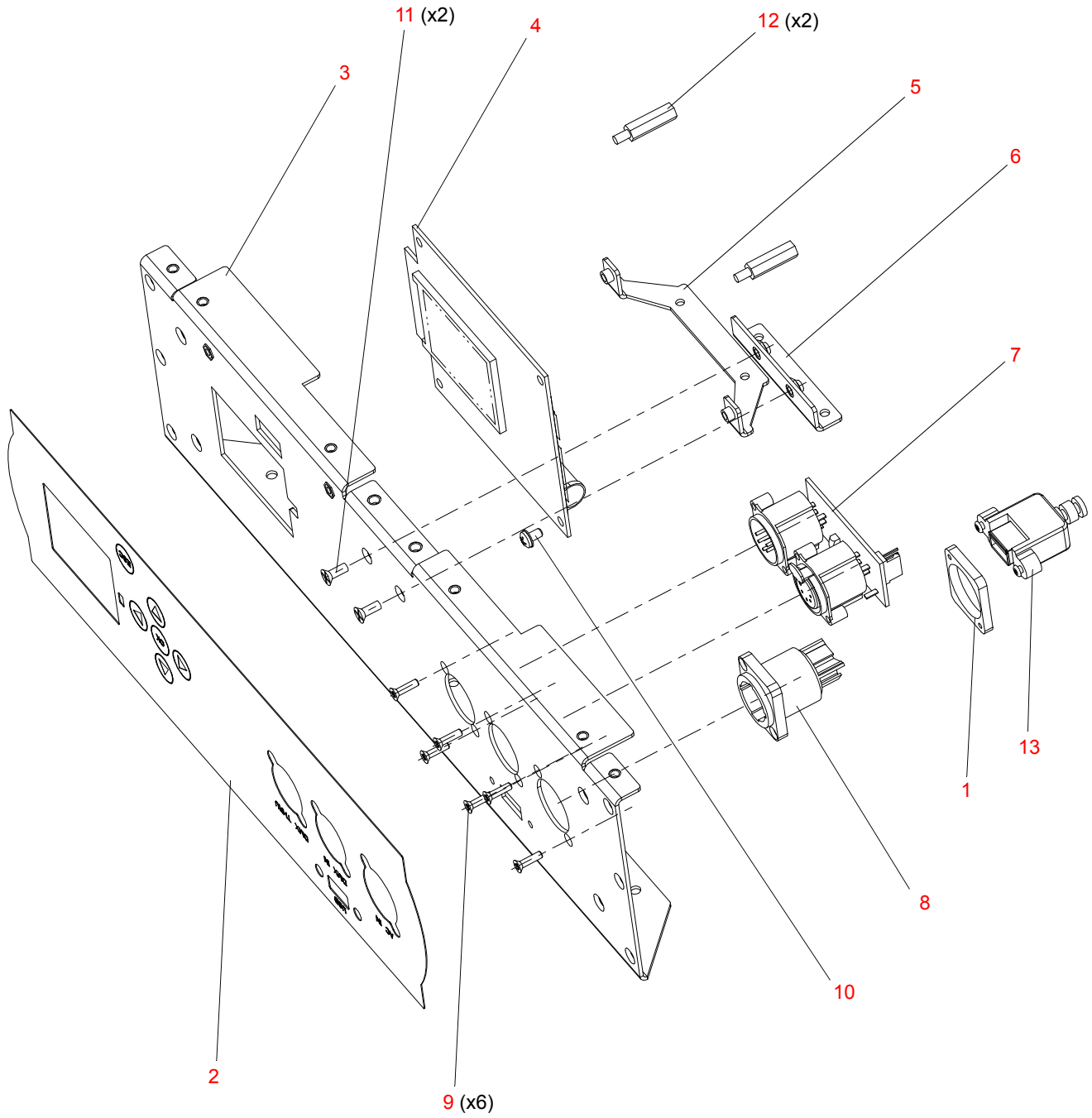


Figure 3-68: Front Panel Assembly

Side Mount Filter Holder Assembly

21.9704.2815 Rev. C

Refer to [Figure 3-69](#)

No.	Item	Qty.	UM.	Description
1	10.9704.1842	2	EA	AIR FILTER
2	10.9704.2819	1	EA	SIDE FILTER GRILL
3	10.9704.3818	1	EA	UPPER ENCLOSURE FILTER SIDE
4	53.2200.0006	6	EA	NUT, 6-32 KEP SS

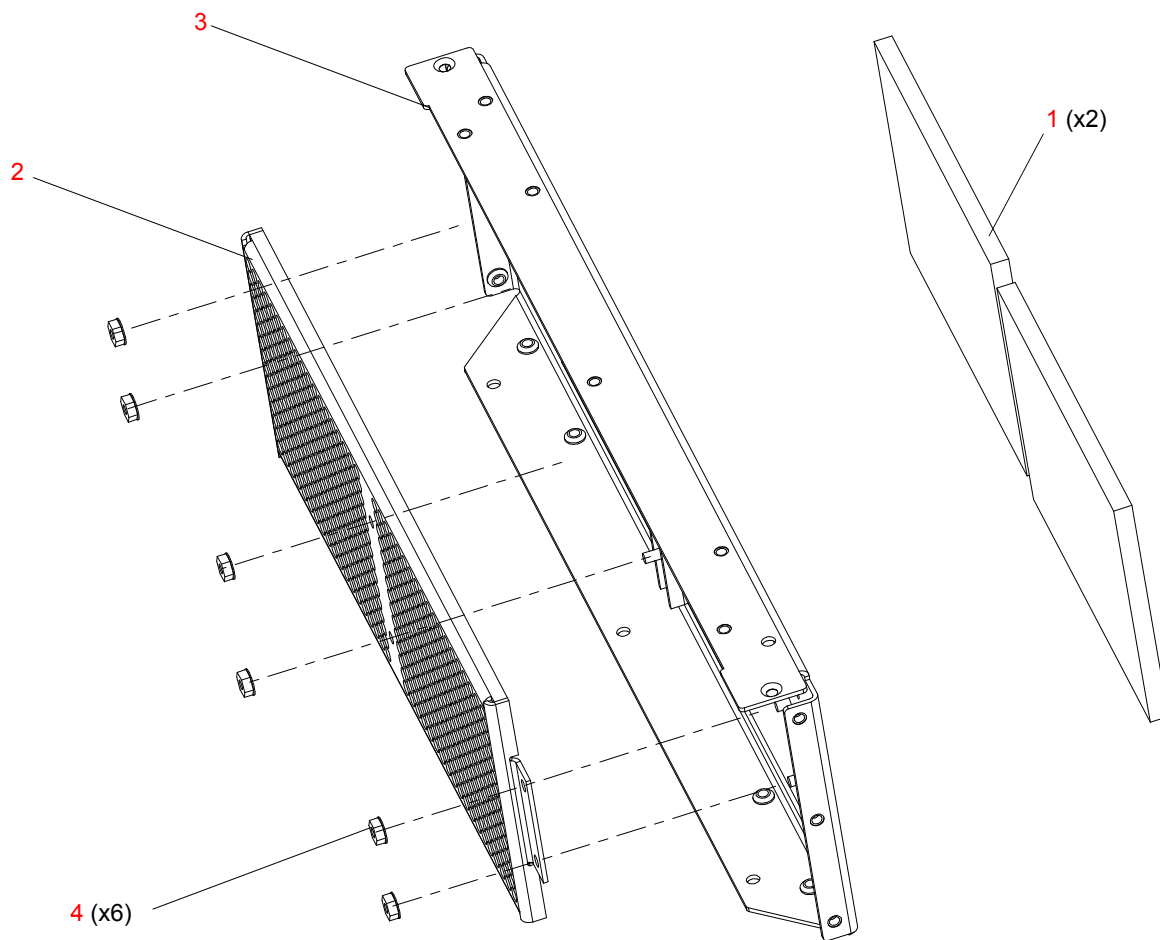


Figure 3-69: Side Mount Filter Holder Assembly

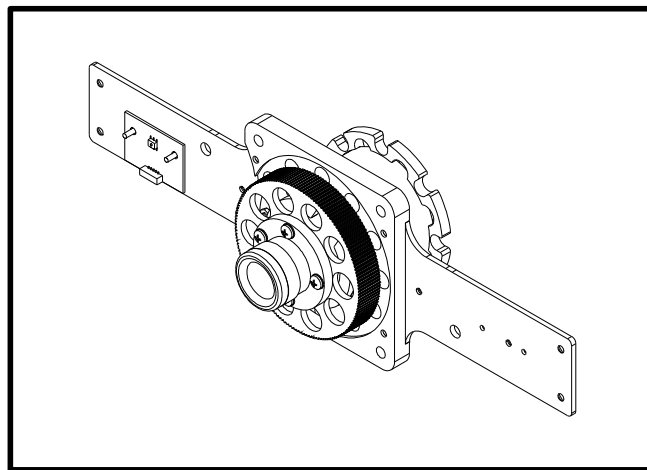
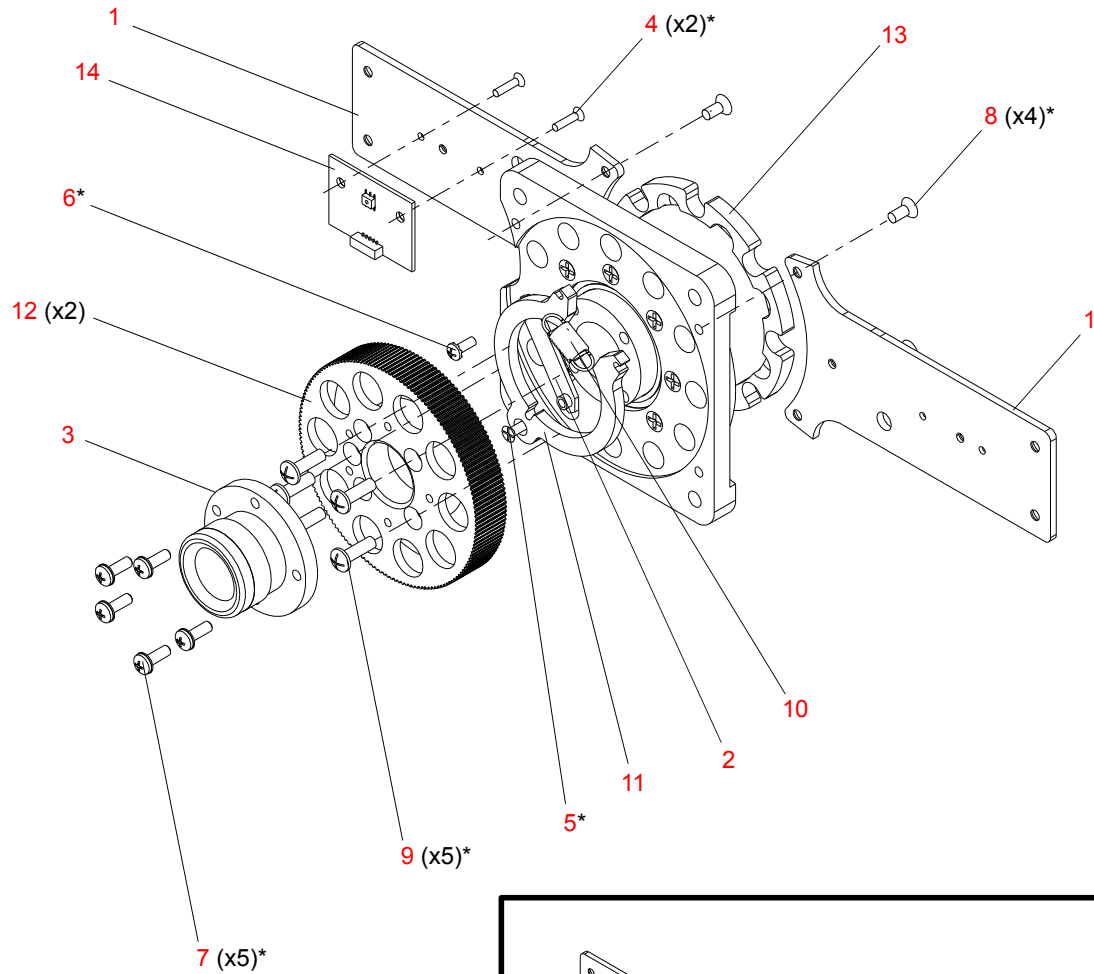
Pan Bearing / Pulley Assembly

21.9704.0840 Rev. F

Refer to [Figure 3-63](#)

No.	Item	Qty.	UM.	Description
1	10.9704.0863	2	EA	BRACKET SUPPORT
2	10.9704.4891	1	EA	BRACKET, STABILIZER, PAN
3	10.9704.1809	1	EA	EXTENSION, PAN TUBE
4	53.6536.0001	2	EA	SCREW, 4-40 X 1/2" PFZ
5	53.6609.0001	1	EA	SCREW, 6-32 X 3/8" PFZ
6	53.6558.0009	1	EA	SCREW, 6-32 X 3/8" LG PPZ SEMS
7	53.6575.0010	5	EA	SCREW, 8-32 X 1/2" PPZ SEMS
8	53.6545.0007	4	EA	SCREW, 8-32 X 3/8" PFB
9	53.6627.0001	5	EA	SCREW, 10-32 X 5/8" PPB
10	55.6568.0075	1	EA	SPRING, EXTSN, 1/2" FL, X 1/8" OD
11	10.9704.4890	1	EA	STABILIZER, PAN, 1.950" SHAFT
12	10.9704.1808	2	EA	TIMING PULLEY, 150 TOOTH
13	22.9704.4850	1	EA	VL4000 PAN TUBE ASSY
14	17.9704.0910	1	EA	VL4000 PAN TUBE ENCODER

Pan Bearing / Pulley Assembly (continued)



*APPLY LOCTITE 242 TO THE THREADS OF ALL SCREWS PRIOR TO INSTALLATION.

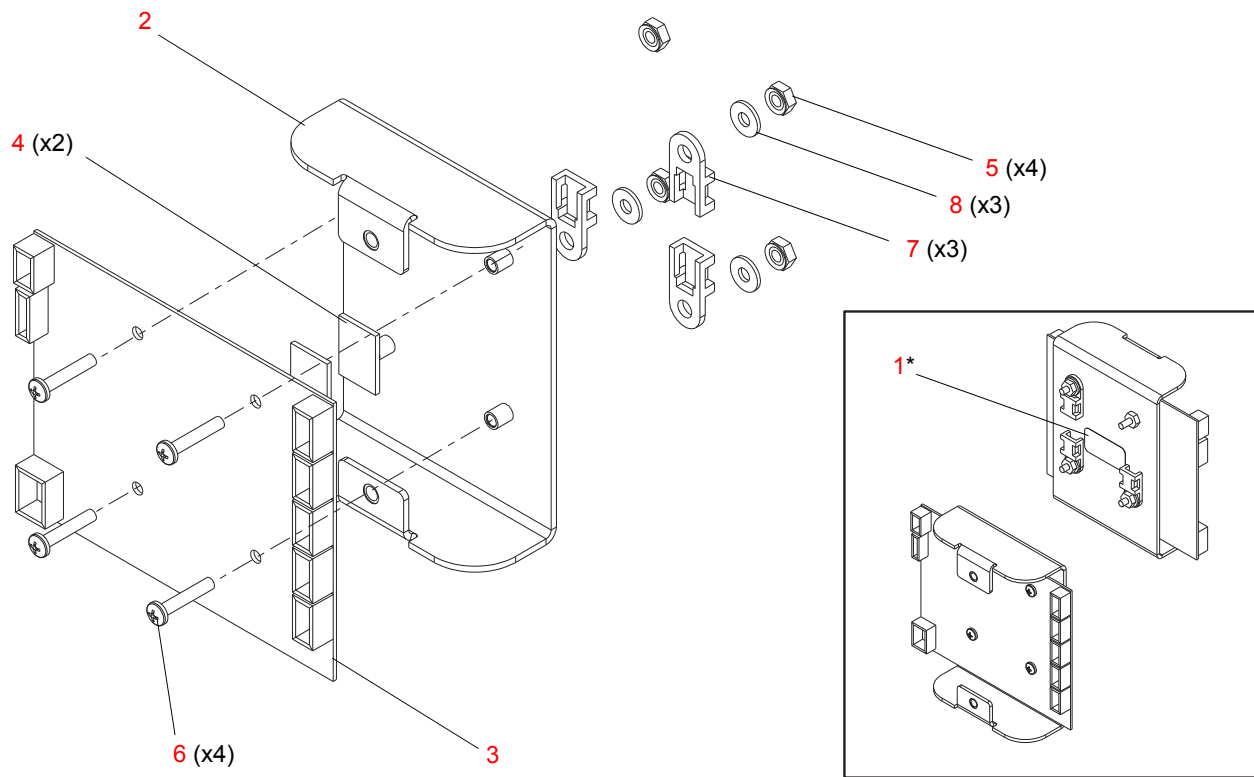
Figure 3-70: Pan Bearing / Pulley Assembly

Pan / Fan Driver Board Assembly

21.9704.0870 Rev. G

Refer to [Figure 3-67](#)

No.	Item	Qty.	UM.	Description
1	04.9704.0801	1	EA	DIPSWITCH LABEL, PAN BOARD
2	10.9704.2837	1	EA	SENSOR BOARD MOUNT PLATE
3	24.9704.1907	1	EA	PAN DRIVER BOARD
4	52-0406	2	EA	THERM PAD, VO GAP PAD ULT-SOFT, 0.45" X 0.625"
5	53.2003.0001	4	EA	NUT, 4-40 KEP ZINC PLATED
6	53.6519.0001	4	EA	SCREW, 4-40 X 5/8" PPZ
7	55.2178.0001	3	EA	CABLE ANCHOR MOUNT, #8 SCREW
8	55.6621.0001	3	EA	WASHER, #4 FLAT ZINC



*Apply label in location shown.

Figure 3-71: Pan / Fan Driver Board Assembly

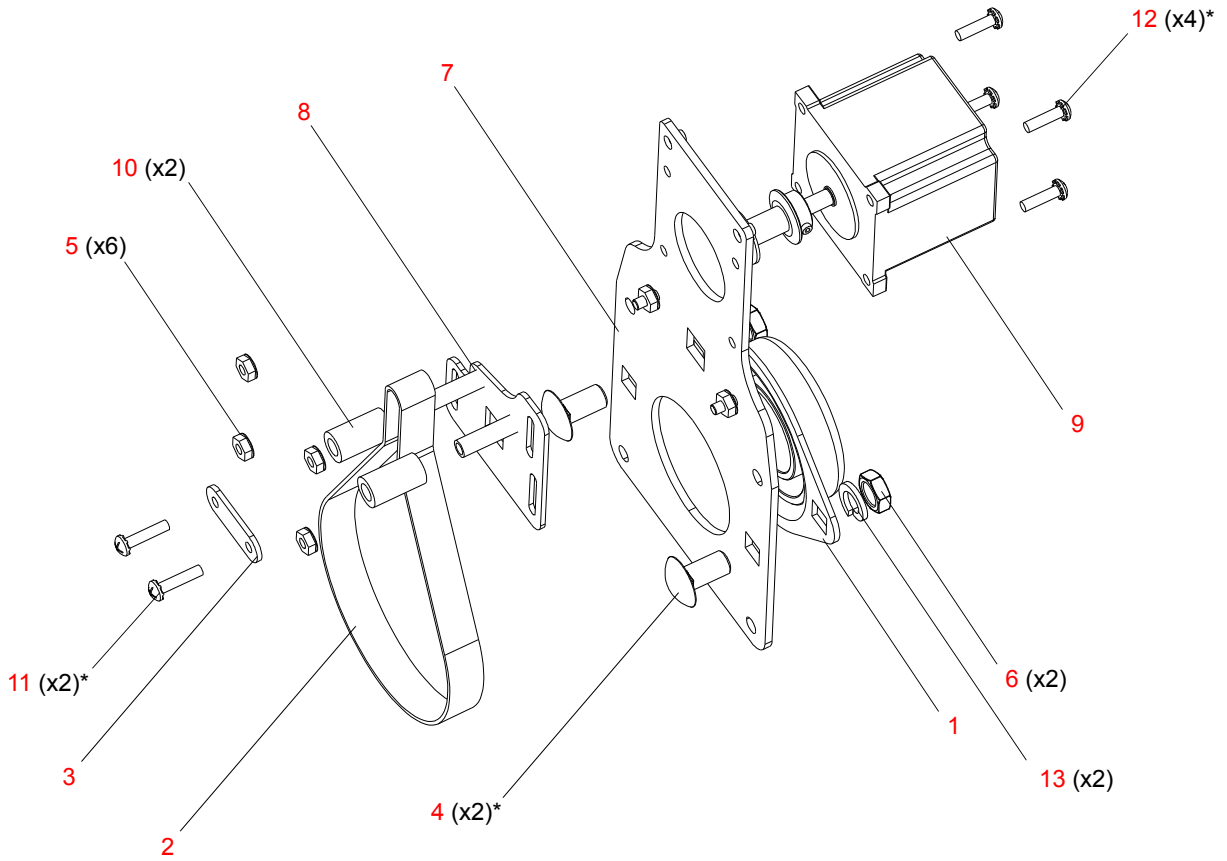
Pan Module Assembly

21.9704.1820 Rev. G

Refer to [Figure 3-72](#)

No.	Item	Qty.	UM.	Description
1	54.1255.0001	1	EA	BEARING ASSY, BLACK FLUSH MOUNT
2	54.9698.0224	1	EA	BELT, TIMING, S2M 210GRV 15 MM WIDE URTH/KVLR
3	10.9704.1867	1	EA	BRIDGE, BELT TENSION ROLLERS
4	53.6505.0022	2	EA	CARRIAGE BOLT, 3/8"-16 X 3/4"
5	53.2200.0008	6	EA	NUT, 8-32 KEPS SS
6	53.2019.0004	2	EA	NUT, 3/8-16 X 0.500" LG X HD GRADE 5 BLK
7	10.9704.3821	1	EA	PAN MOTOR, PLATE
8	10.9704.1866	1	EA	PLATE, BELT TENSION, PAN
9	22.9704.3820	1	EA	PULLEY / MOTOR ASSY
10	10.9704.0766	2	EA	ROLLER, TENSION ADJUST, TILT
11	53.6682.0026	2	EA	SCREW, 8-32 X 3/4" LG PPZ SEMS
12	53.6682.0025	4	EA	SCREW, 8-32 X 5/8" PPZ SEMS
13	53.6539.0001	2	EA	WASHER, 3/8" SPLIT LOCK

Pan Module Assembly (continued)



*APPLY BLUE LOCTITE TO THE THREADS OF ALL SCREWS PRIOR TO INSTALLATION.

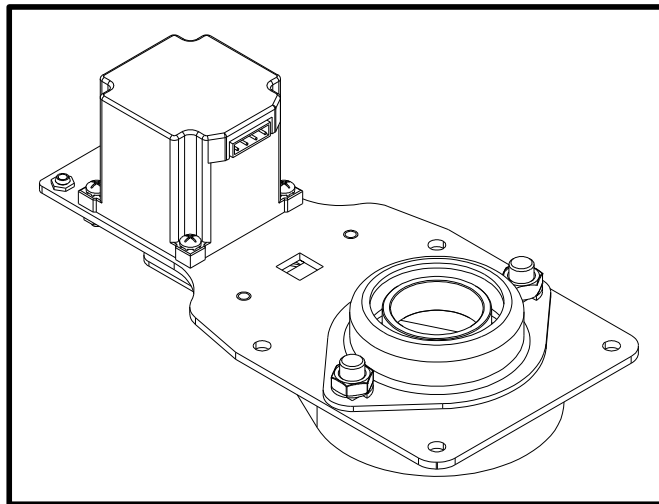


Figure 3-72: Pan Module Assembly

Upper Enclosure Cover Assembly

21.9704.0850 Rev. A

Refer to [Figure 3-73](#)

No.	Item	Qty.	UM.	Description
1	10.9704.0858	2	EA	COVER LATCH SPRING
2	53.2200.0004	4	EA	NUT, KEPS, 4-40
3	10.9704.0839	1	EA	UPPER ENCLOSURE COVER

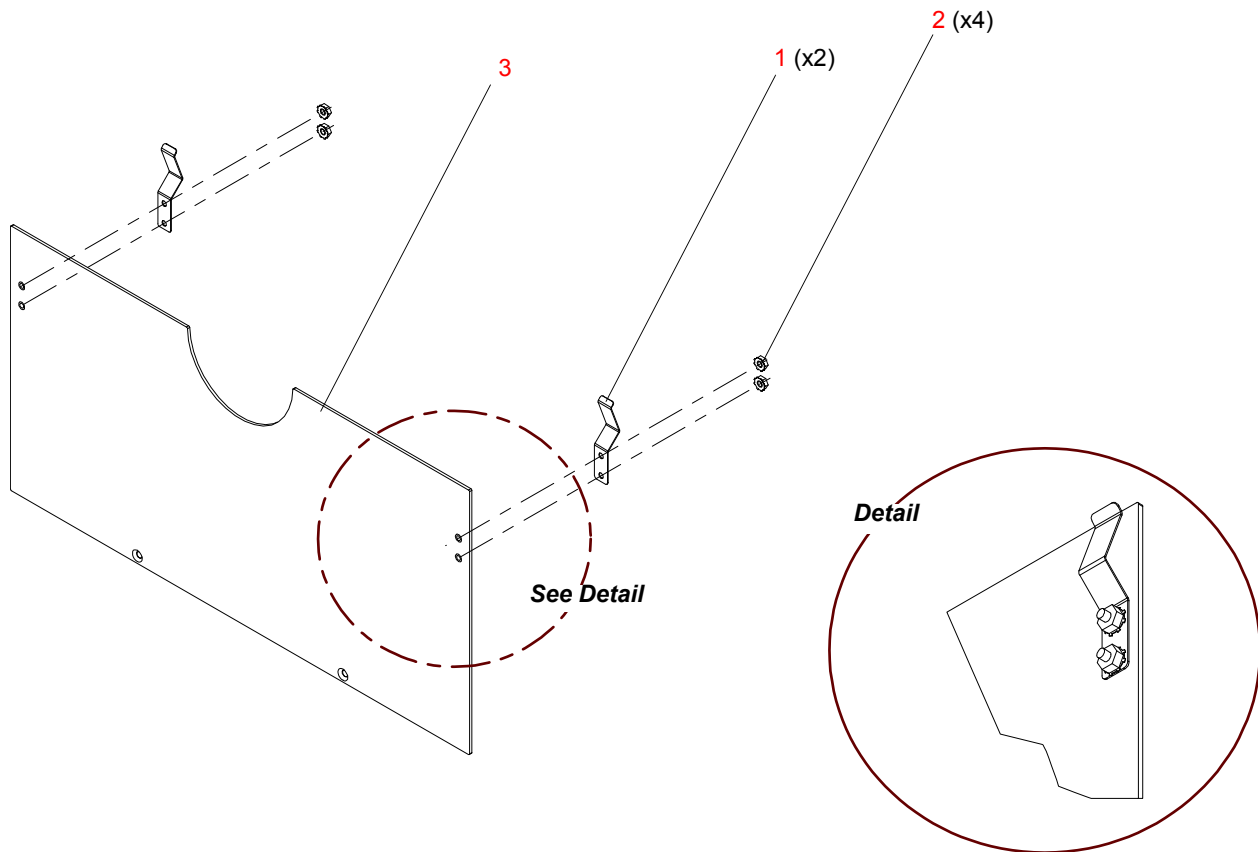


Figure 3-73: Upper Enclosure Cover Assembly

Notes

Cable Assemblies

LVS Chassis Ground Cable Assembly

25.9687.0025 Rev. A

Refer to [Figure 3-74](#)

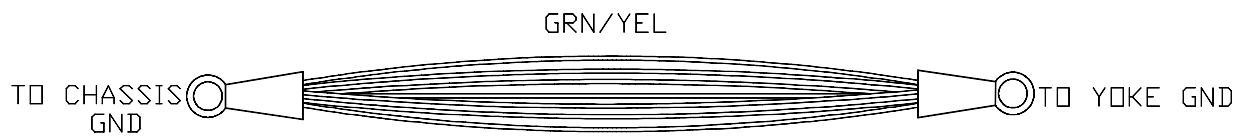


Figure 3-74: LVS Chassis Ground Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Pan / Tilt Cable Assembly

25.9704.1703 Rev. D

Refer to [Figure 3-75](#)

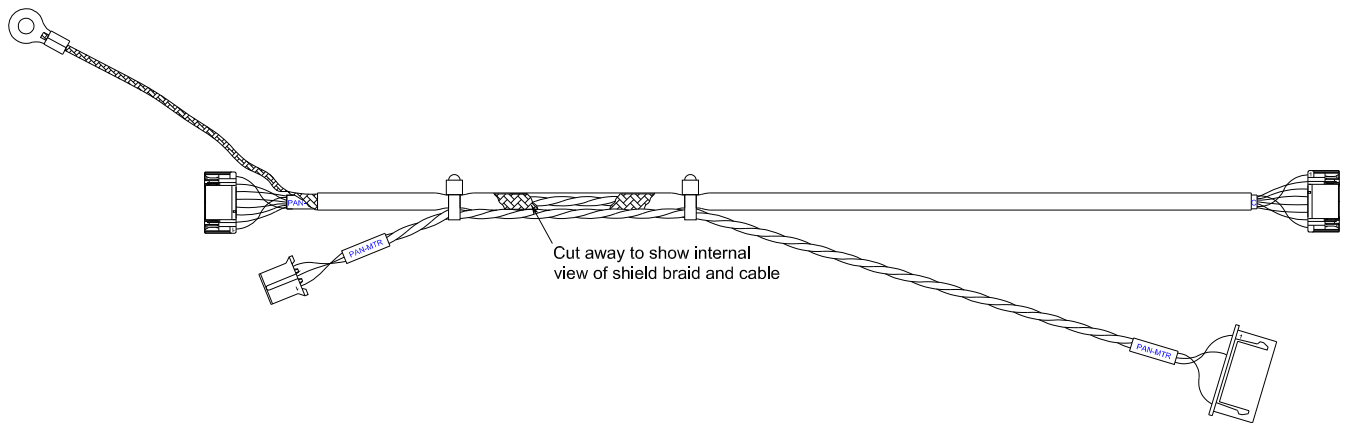


Figure 3-75: VL4000 Pan / Tilt Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Tilt Cable Assembly

25.9704.1717 Rev. A

Refer to [Figure 3-76](#)

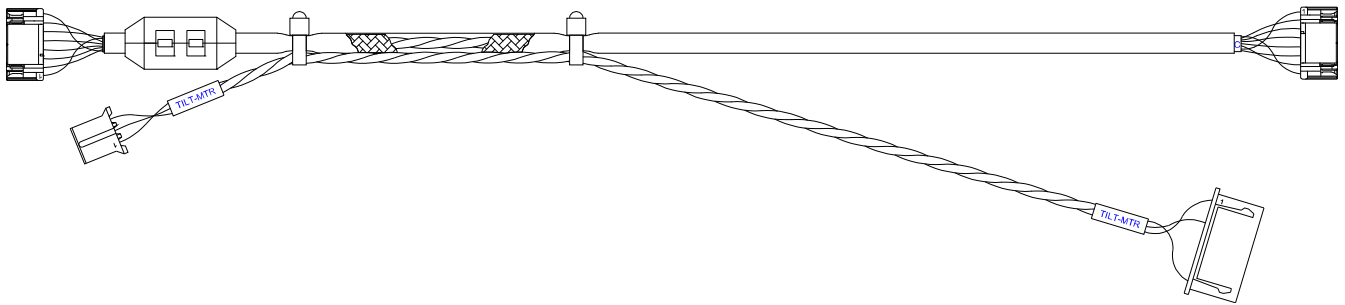


Figure 3-76: VL4000 Tilt Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Color Power Distribution Cable Assembly

25.9704.0708 Rev. D

Refer to [Figure 3-77](#)

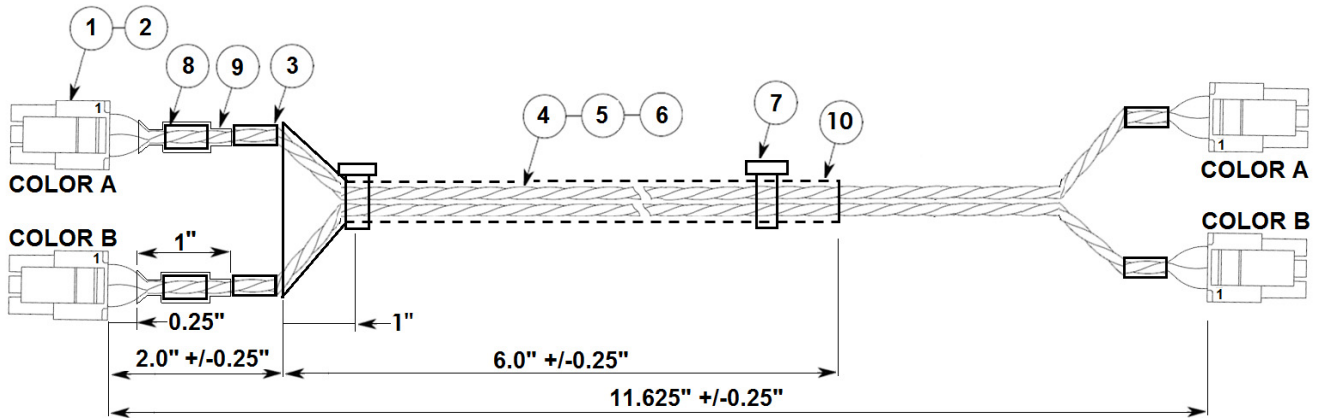


Figure 3-77: VL4000 Color Power Distribution Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Main from MCB Data Cable Assembly

25.9704.0713 Rev. C

Refer to [Figure 3-78](#)

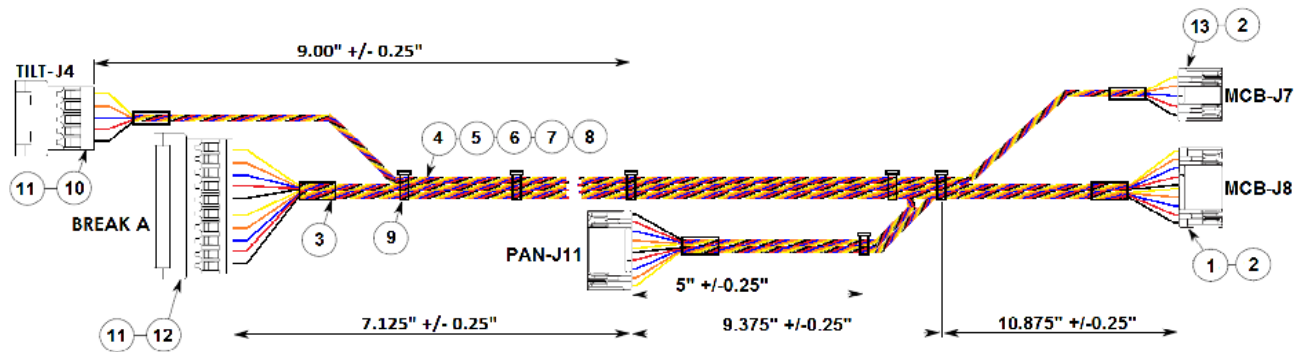


Figure 3-78: VL4000 Main from MCB Data Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Main to Bulkheads Data Cable Assembly

25.9704.0714 Rev. A

Refer to [Figure 3-79](#)

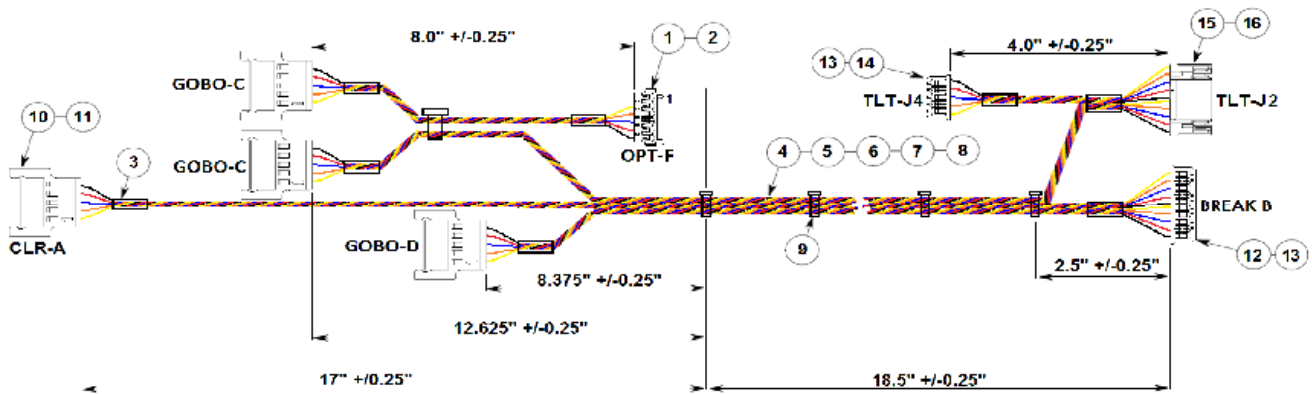


Figure 3-79: VL4000 Main to Bulkheads Data Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Lamp Base & Tip Fan Extension Cable Assembly

25.9704.1602 Rev. B

Refer to [Figure 3-80](#)

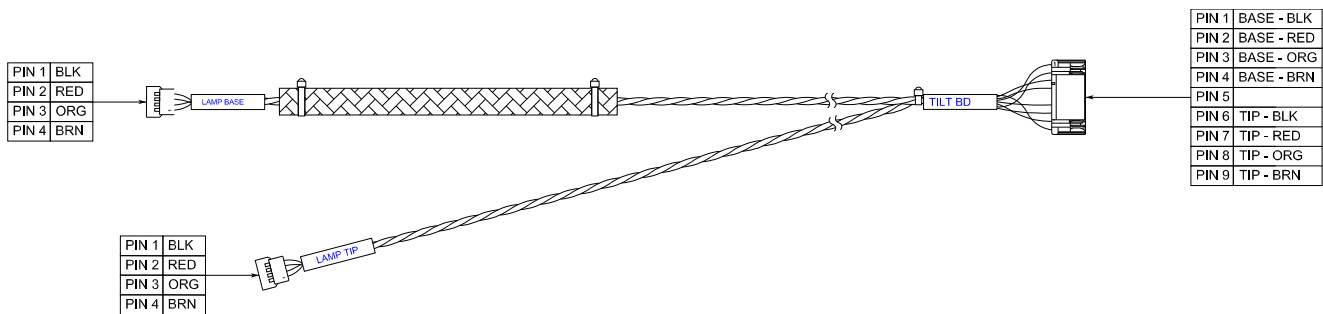


Figure 3-80: VL4000 Lamp Base & Tip Fan Extension Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Main Power Distribution Cable Assembly

25.9704.1705 Rev. E

Refer to [Figure 3-81](#)

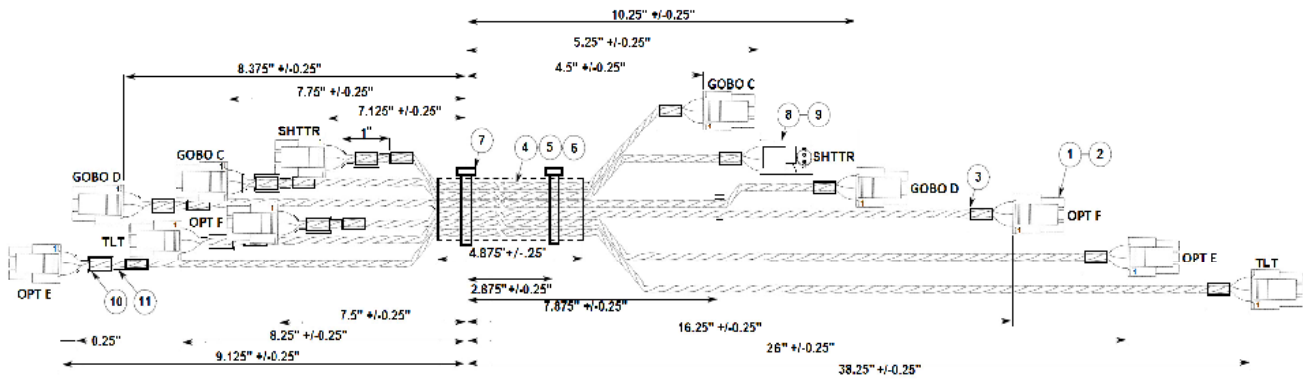


Figure 3-81: VL4000 Main Power Distribution Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Lamp Socket Cable Assembly

25.9701.2701 Rev. A

Refer to [Figure 3-82](#)

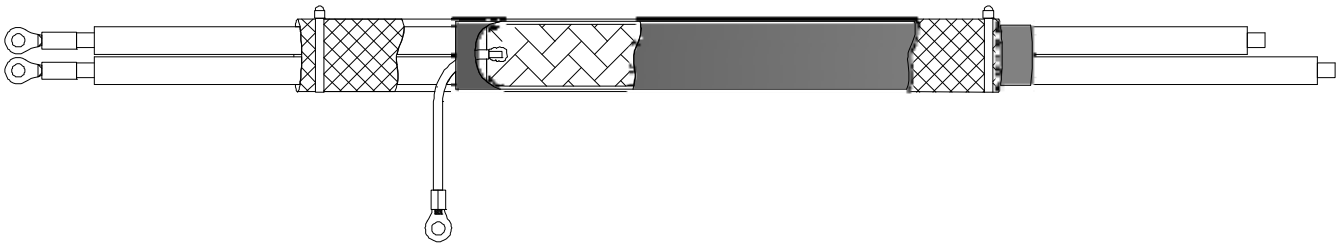


Figure 3-82: VL4000 Lamp Socket Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Gobo Bulkhead 1 Cable Assembly

25.9704.0200 Rev. A

Refer to [Figure 3-83](#)

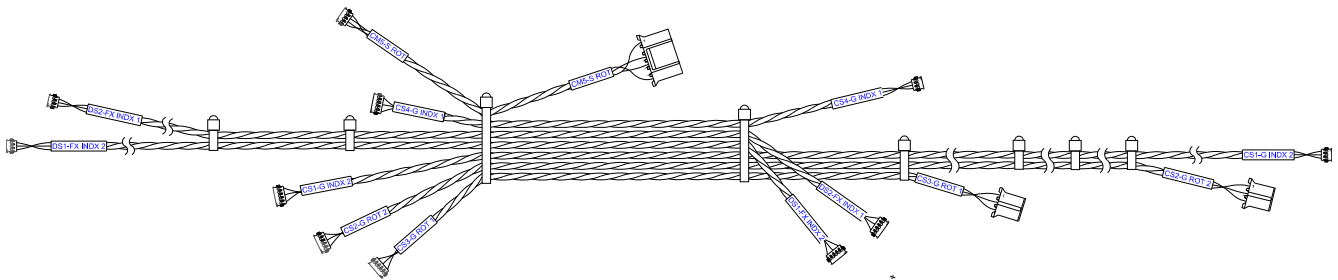


Figure 3-83: VL4000 Gobo Bulkhead 1 Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Gobo Bulkhead 2 Cable Assembly

25.9704.0201 Rev. A

Refer to [Figure 3-84](#)

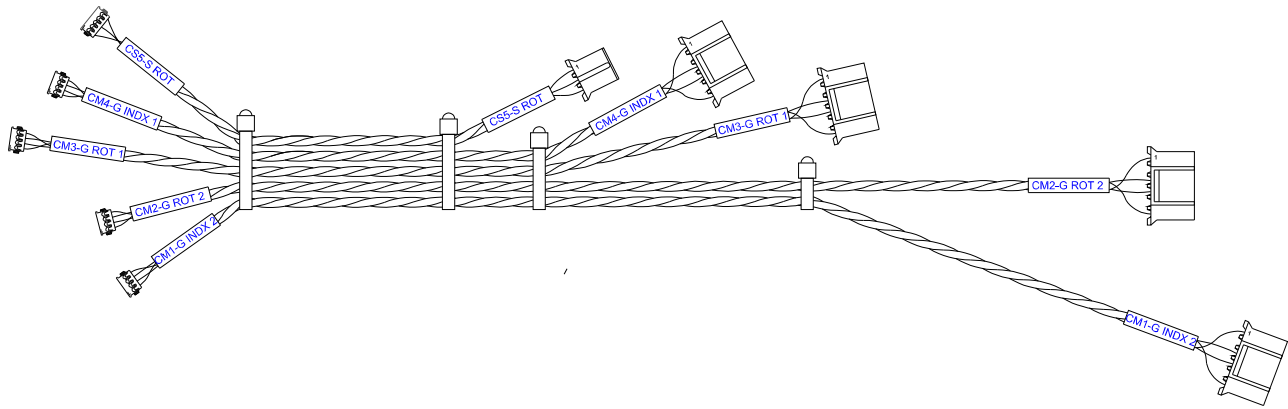


Figure 3-84: VL4000 Gobo Bulkhead 2 Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Gobo Bulkhead 3 Cable Assembly

25.9704.0202 Rev. A

Refer to [Figure 3-85](#)

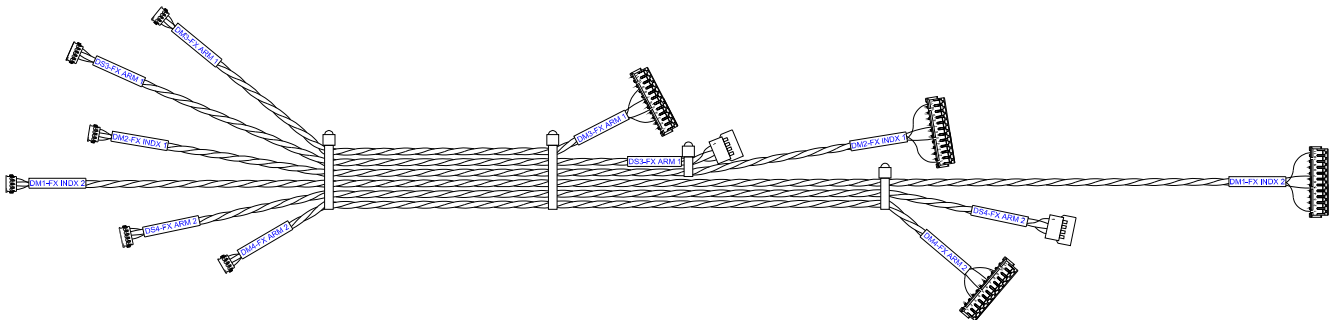


Figure 3-85: VL4000 Gobo Bulkhead 3 Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Data Network Extension Cable Assembly

25.9704.0711 Rev. B

Refer to [Figure 3-86](#)

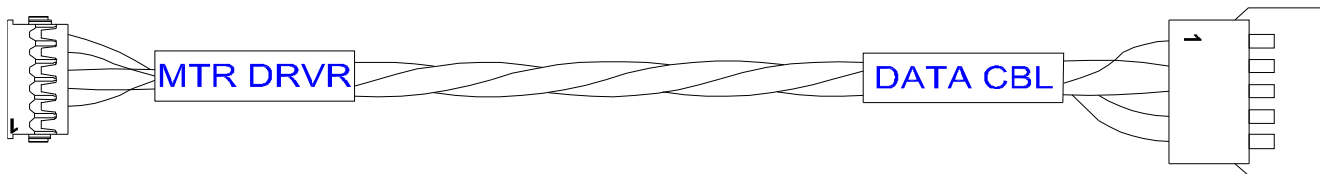


Figure 3-86: VL4000 Data Network Extension Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Shutter 1 Cable Assembly

25.9704.1500 Rev. B

Refer to [Figure 3-87](#)

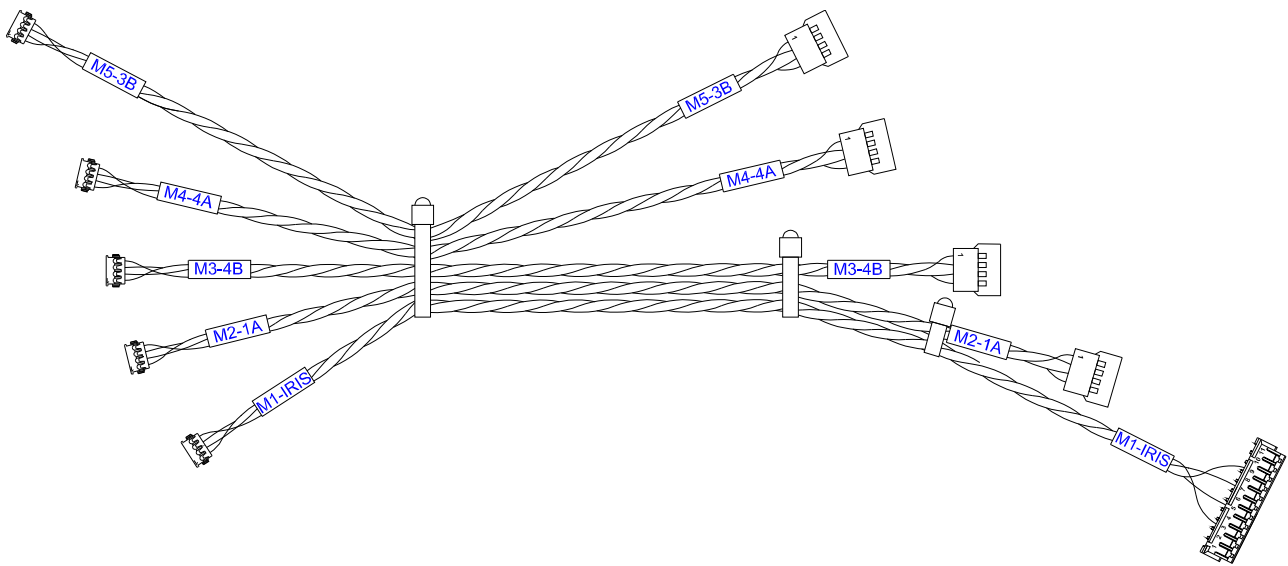


Figure 3-87: VL4000 Shutter 1 Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Shutter 2 Cable Assembly

25.9704.1501 Rev. B

Refer to [Figure 3-88](#)

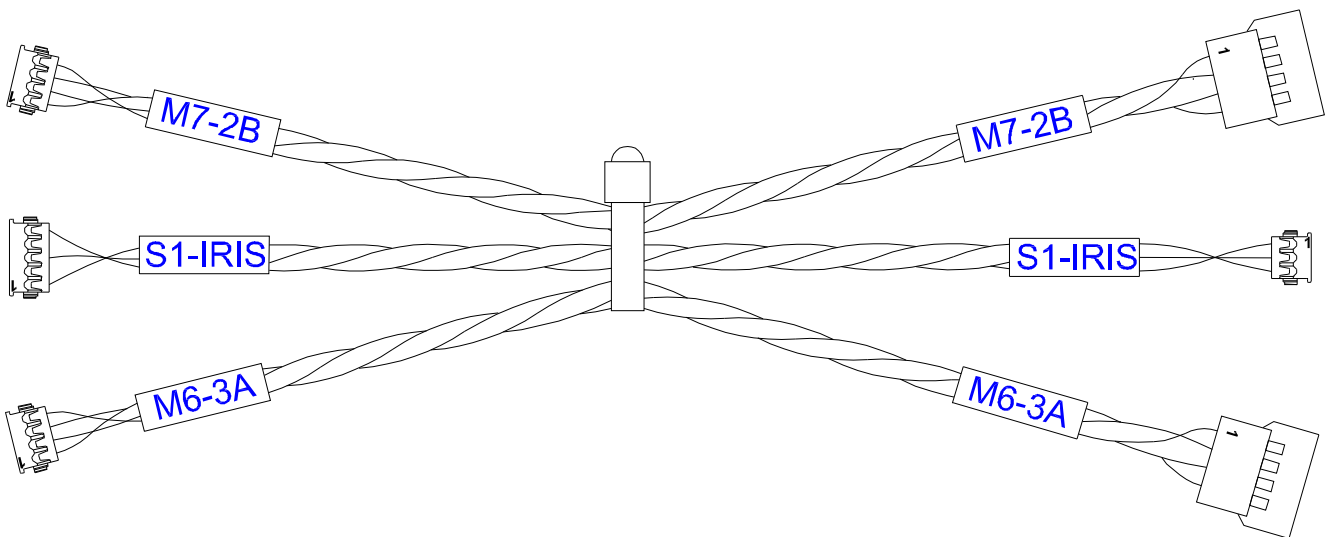


Figure 3-88: VL4000 Shutter 2 Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Shutter 3 Cable Assembly

25.9704.1502 Rev. A

Refer to [Figure 3-89](#)

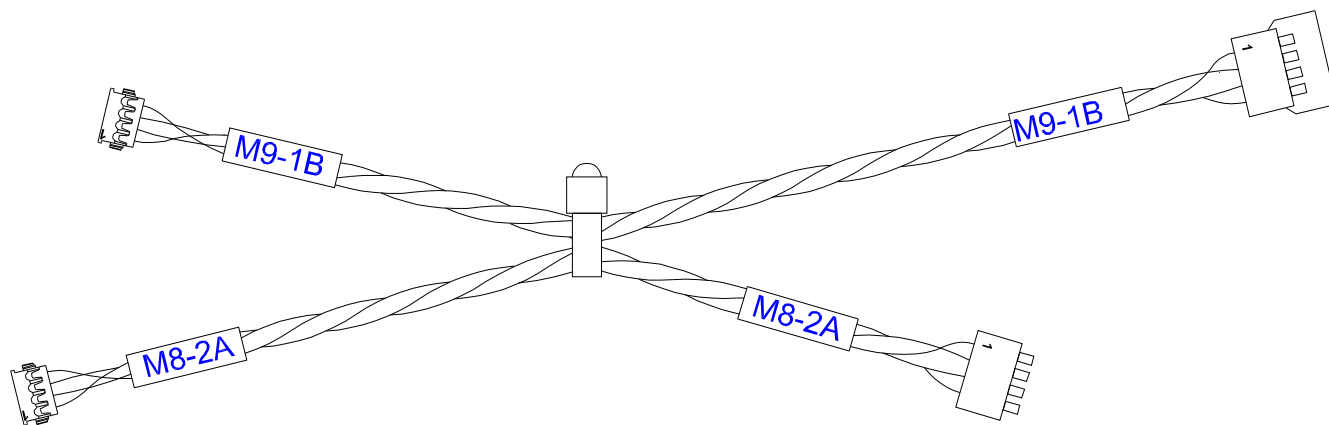


Figure 3-89: VL4000 Shutter 3 Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Power Distribution Output-Shutter Cable Assembly

25.9704.0709 Rev. D

Refer to [Figure 3-90](#)

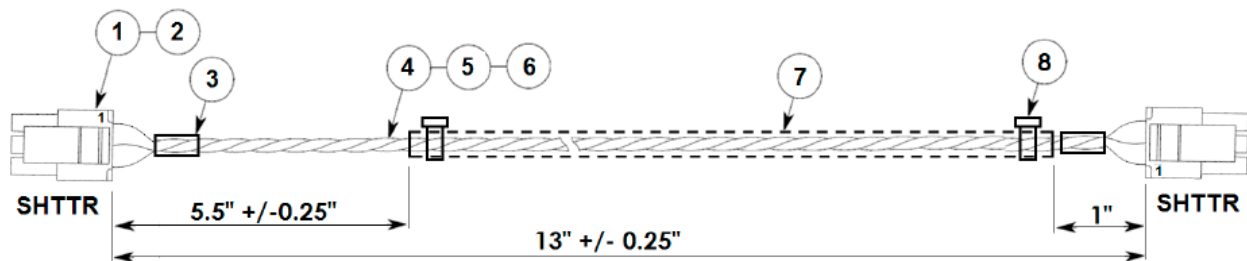


Figure 3-90: VL4000 Power Distribution Output-Shutter Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Data Network Cable Assembly

25.9704.0710 Rev. B

Refer to [Figure 3-91](#)

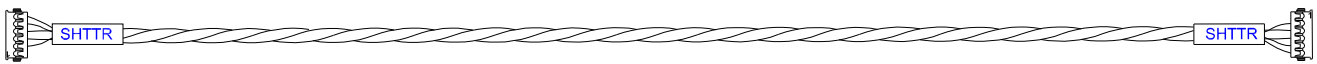


Figure 3-91: VL4000 Data Network Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Color Bulkhead 1 Cable Assembly

25.9704.0400 Rev. A

Refer to [Figure 3-92](#)

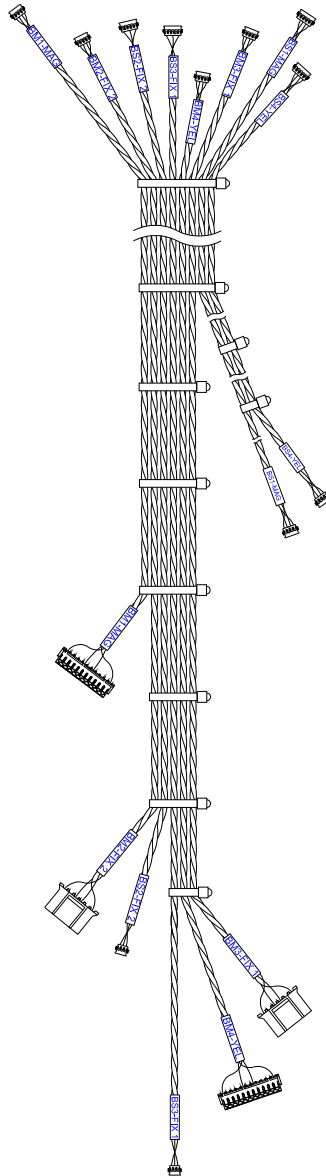


Figure 3-92: VL4000 Color Bulkhead 1 Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Color Bulkhead 2 Cable Assembly

25.9704.0401 Rev. A

Refer to [Figure 3-93](#)

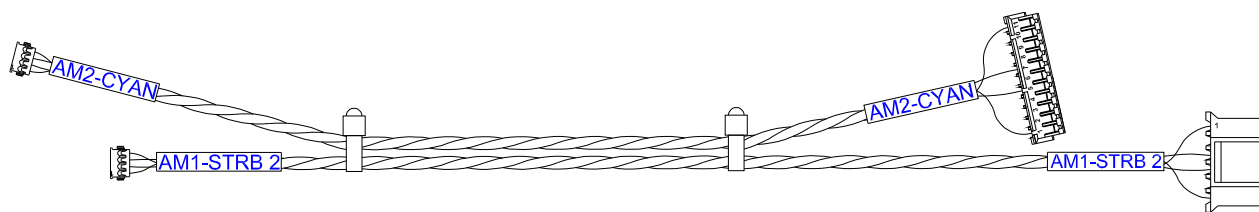


Figure 3-93: VL4000 Color Bulkhead 2 Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Color Bulkhead 3 Cable Assembly

25.9704.0402 Rev. A

Refer to [Figure 3-94](#)



Figure 3-94: VL4000 Color Bulkhead 3 Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Color Bulkhead 4 Cable Assembly

25.9704.0403 Rev. A

Refer to [Figure 3-95](#)

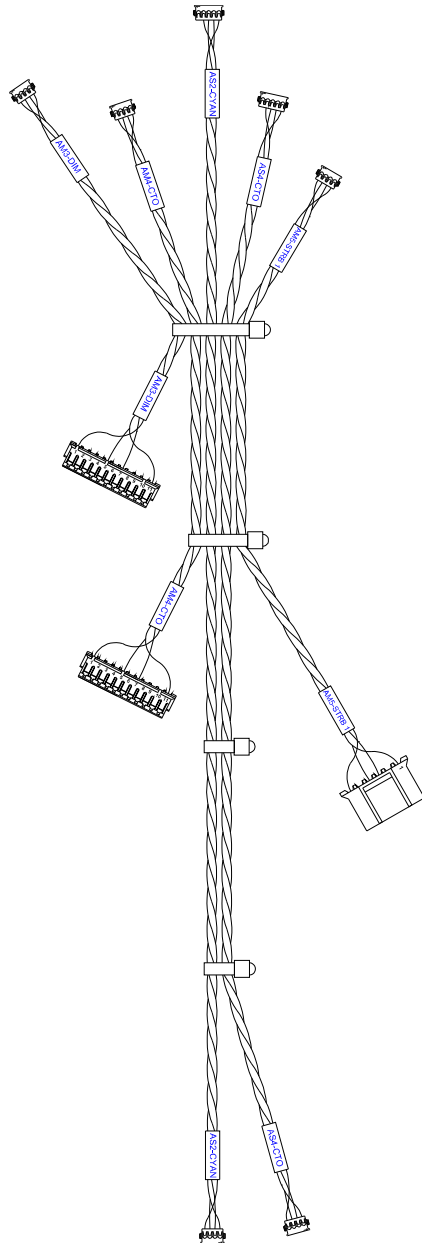


Figure 3-95: VL4000 Color Bulkhead 4 Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Color A to Color B Cable Assembly

25.9704.0712 Rev. A

Refer to [Figure 3-96](#)

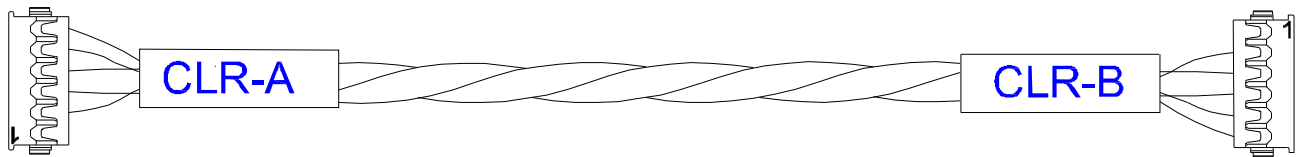


Figure 3-96: VL4000 Color A to Color B Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Ballast to Ignitor Cable Assembly

25.9704.0702 Rev. A

Refer to [Figure 3-97](#)

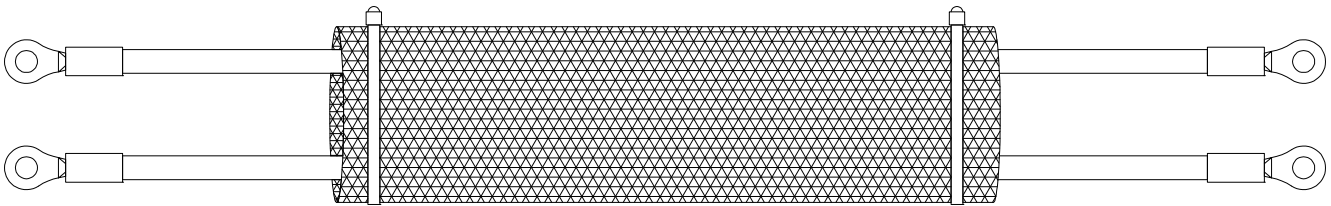
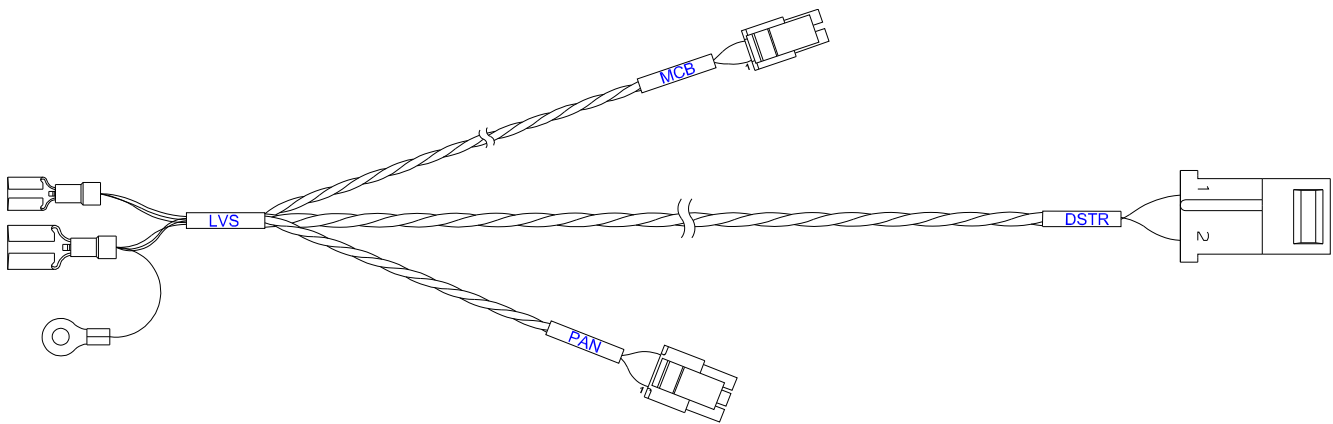


Figure 3-97: VL4000 Ballast to Ignitor Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Pan / Power Distribution Input Cable Assembly**25.9704.2704 Rev. A**Refer to [Figure 3-98](#)**Figure 3-98: VL4000 Pan / Power Distribution Input Cable Assembly**

Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Enclosure PFC Input Cable Assembly

25.9704.1800 Rev. A

Refer to [Figure 3-99](#)

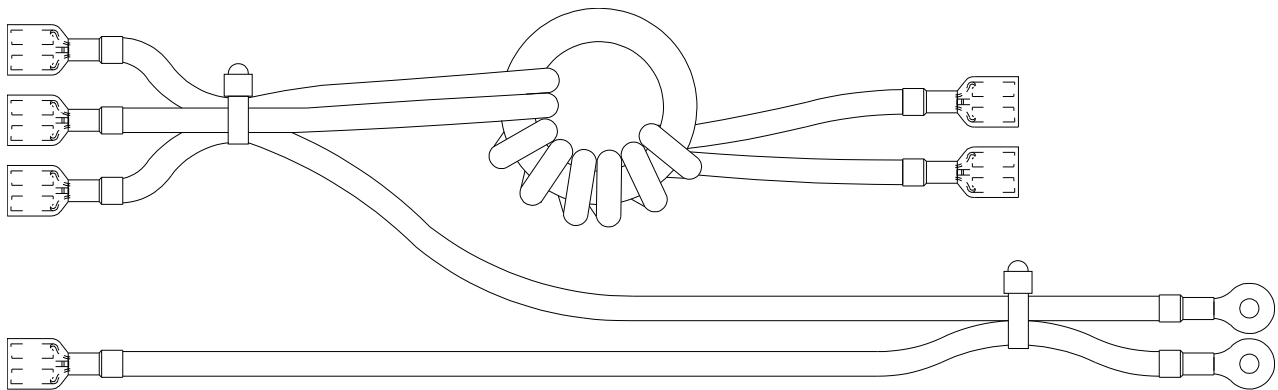


Figure 3-99: VL4000 Enclosure PFC Input Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Enclosure PFC Output Cable Assembly

25.9704.1801 Rev. A

Refer to [Figure 3-100](#)

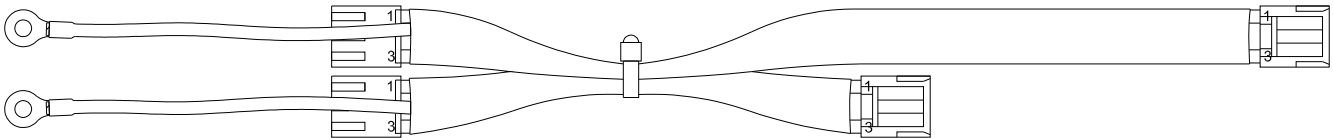


Figure 3-100: VL4000 Enclosure PFC Output Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 DMX Cable Assembly

25.9704.0802 Rev. A

Refer to [Figure 3-101](#)



Figure 3-101: VL4000 DMX Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Ballast Control Cable Assembly

25.9704.0803 Rev. A

Refer to [Figure 3-102](#)

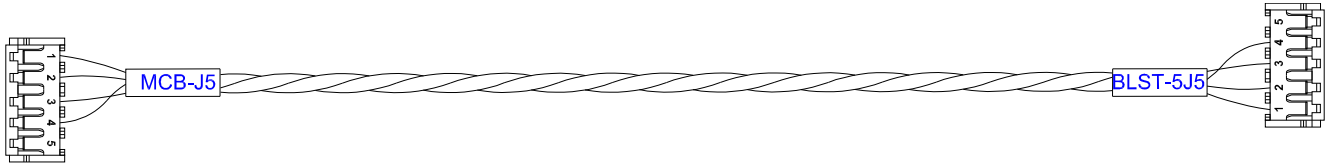


Figure 3-102: VL4000 Ballast Control Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 USB Interface Cable Assembly

25.9704.0804 Rev. A

Refer to [Figure 3-103](#)

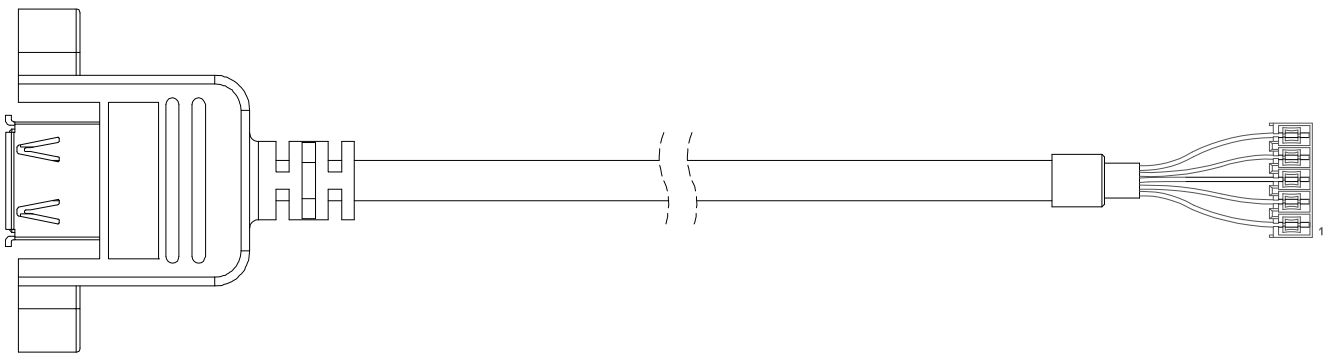


Figure 3-103: VL4000 USB Interface Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Thermal Control Cable Assembly

25.9704.1805 Rev. A

Refer to [Figure 3-104](#)

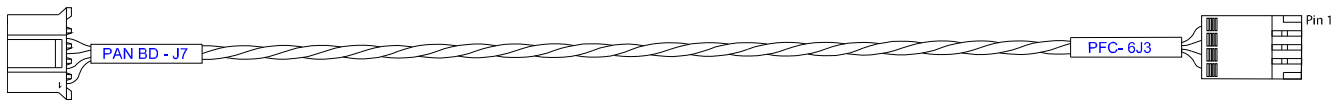


Figure 3-104: VL4000 Thermal Control Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Chassis to Yoke Cable Assembly

25.9704.0716 Rev. B

Refer to [Figure 3-105](#)



Figure 3-105: VL4000 Chassis to Yoke Cable Assembly

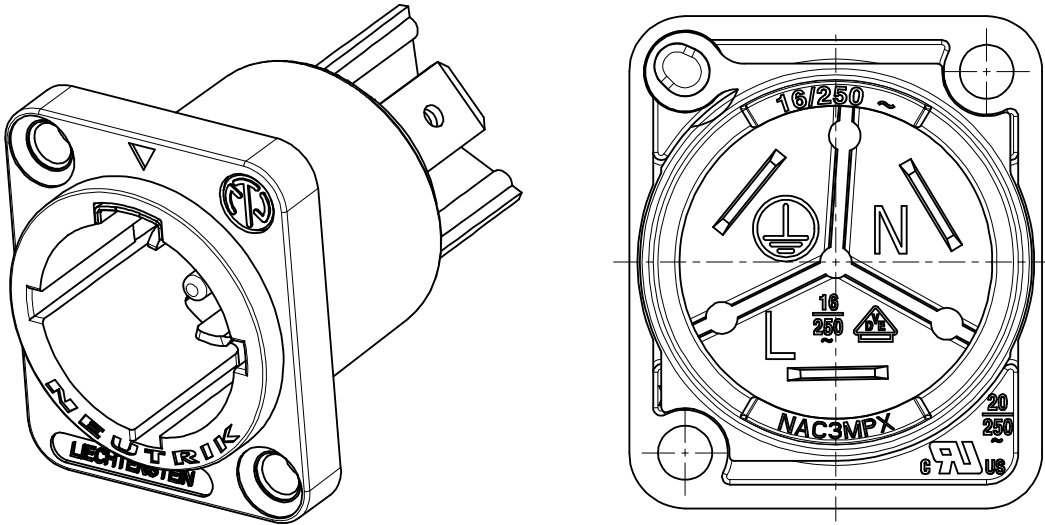


Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 AC Input Connector Assembly

25.9704.0830 Rev. A

Refer to [Figure 3-106](#)



NEUTRIK AG
powerCON NAC3MPX

Figure 3-106: VL4000 AC Input Connector Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Optics-E to Optics-F Data Cable Assembly

25.9704.0715 Rev. B

Refer to [Figure 3-107](#)

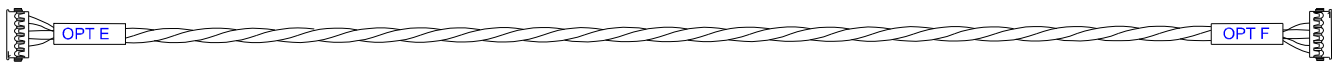


Figure 3-107: VL4000 Optics-E to Optics-F Data Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Optics Bulkhead 3 Cable Assembly

25.9704.0104 Rev. A

Refer to [Figure 3-108](#)

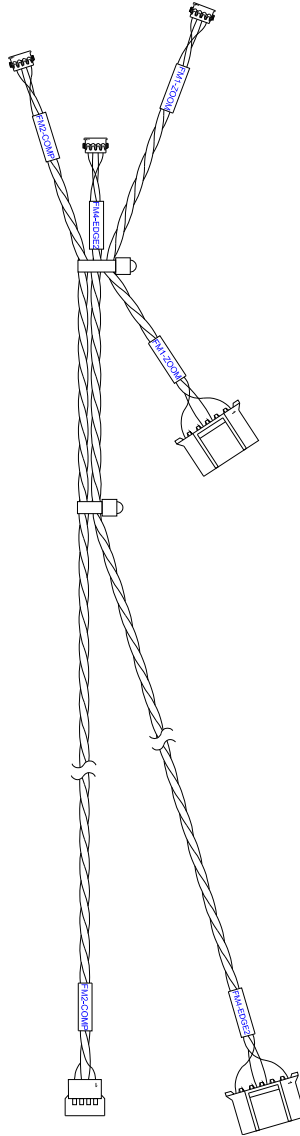


Figure 3-108: VL4000 Optics Bulkhead 3 Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Optics Bulkhead 4 Cable Assembly

25.9704.0105 Rev. A

Refer to [Figure 3-109](#)

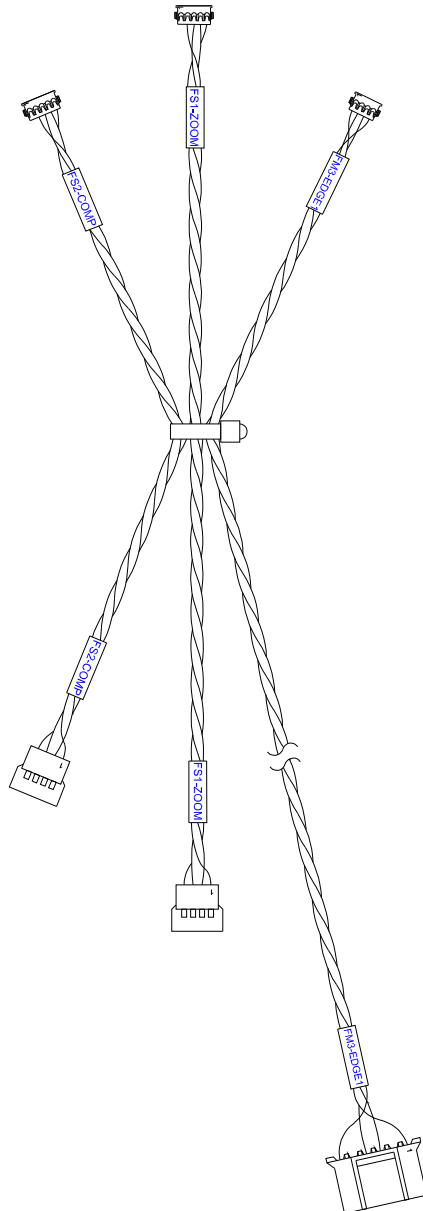


Figure 3-109: VL4000 Optics Bulkhead 4 Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Optics Bulkhead 1 Cable Assembly

25.9704.2100 Rev. A

Refer to [Figure 3-110](#)

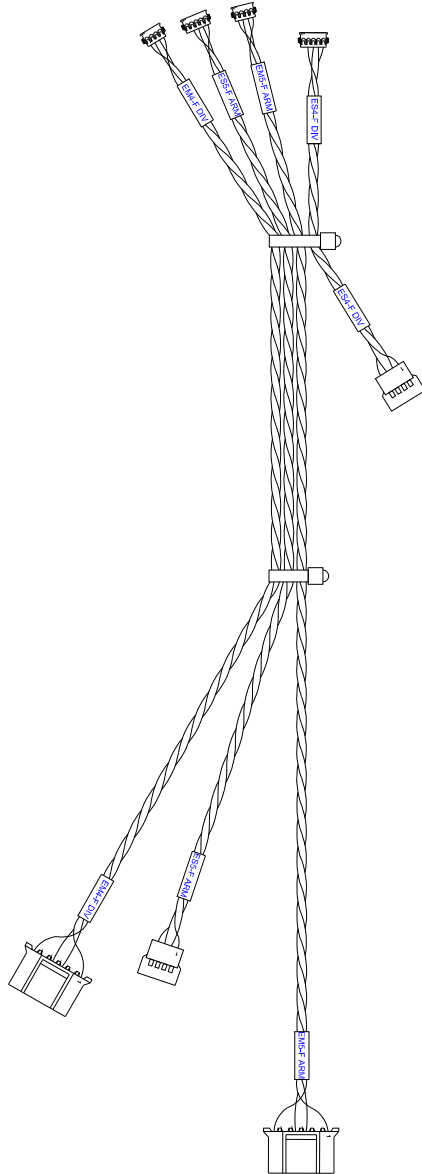


Figure 3-110: VL4000 Optics Bulkhead 1 Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

VL4000 Optics Bulkhead 2 Cable Assembly

25.9704.2101 Rev. A

Refer to [Figure 3-111](#)

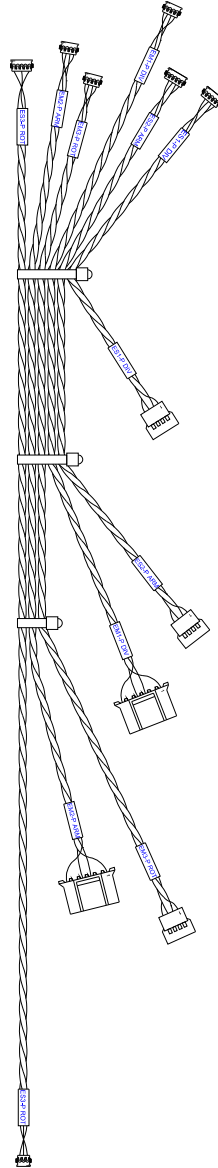


Figure 3-111: VL4000 Optics Bulkhead 2 Cable Assembly



Note: Cables are only available as complete assemblies. The information contained in this section is for reference only.

APPENDIX A.

Technical Notices & Bulletins

VL4000 Spot Luminaire

The following tables identify the current technical notices and bulletins associated with the VL4000 Spot Luminaire. These improvements have been incorporated into this manual (where applicable) and are available on the Vari-Lite web site at www.vari-lite.com. Please note that not all bulletins or notices are applicable to all versions of the fixtures included in this manual. Refer to each bulletin and notice for specific information and application.

Note: Check the Vari-Lite web site periodically for any technical notices or bulletins released after the publishing date of this manual.

Technical Notices

Technical Notice	Description
TN-229A	Powering Luminaires From Dimmer Circuits - NOT RECOMMENDED
TN-230	Dousing Lamps Before Shutting Off Power
TN-232A	Use of Third Party Parts or Accessories
TN-248	Specified and Approved Lamps for use in VARI*LITE Luminaires
TN-321	Luminaires Without Power Switches (Using Neutrik Power Connectors)
TN-338	Gobo Sizing Information for Various VARI*LITE Luminaires
TN-345	Safety Precaution & Operational Information for High-Wattage Luminaires
TN-348	VL4000 Spot Luminaire - Frost Assembly Movement
TN-350	VL4000 Spot Luminaire - Removal of the Iris Sensor Notification
TN-351	VL4000 Spot Luminaire - Driver Board LED Indicators Meaning
TN-352	VL4000 Spot Luminaire - MCB / Display Assembly Shipping - DO NOT SEND Battery

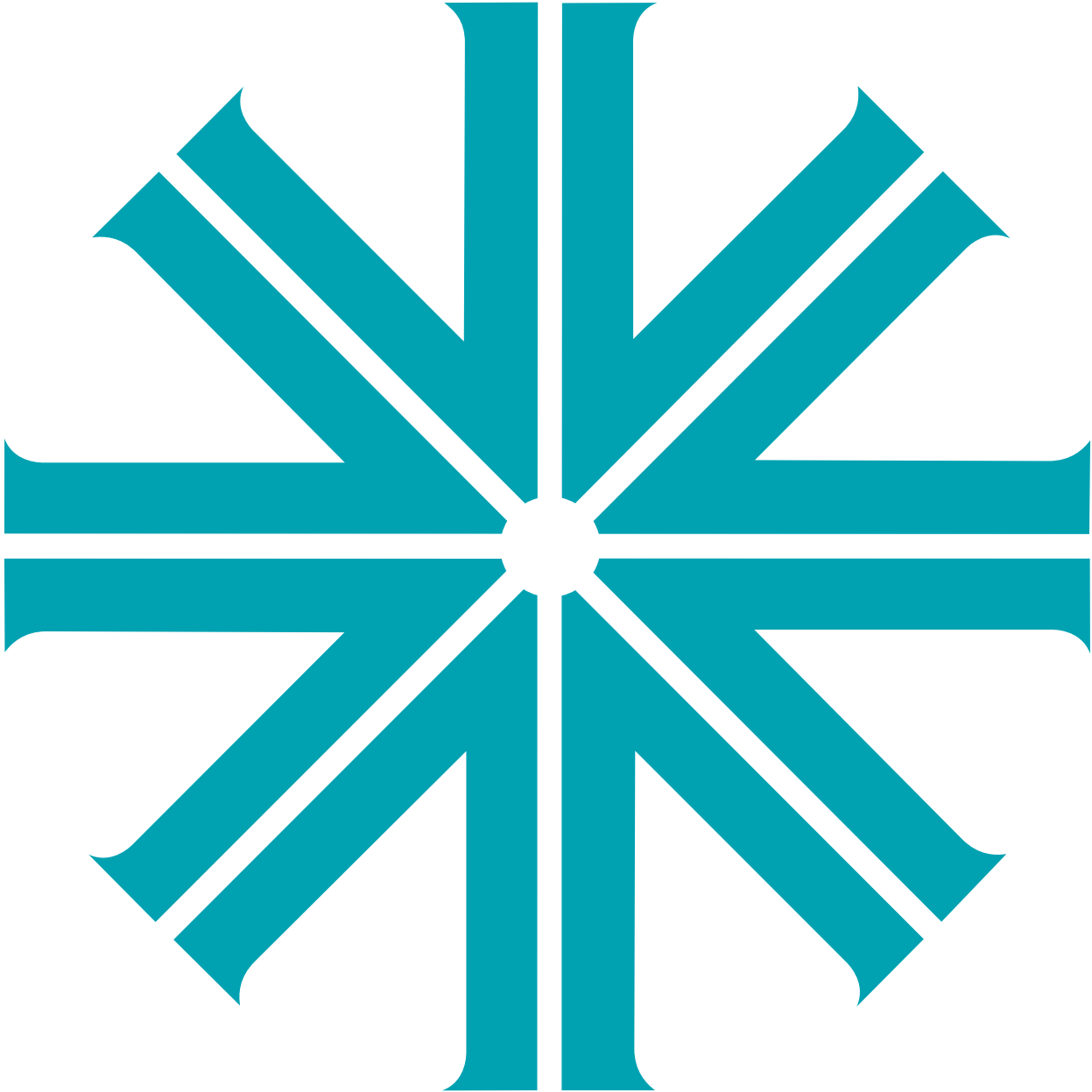
- Continued Next Page -

Technical Bulletins

Technical Bulletin	Description
LSW-078	New Software Version - VL4000 Spot Luminaire Software Release (VL4000_070814.bin)*
LSW-079	New Software Version - VL4000 Spot Luminaire Software Release (VL4000_081514.bin)*
LSW-081	New Software Version - VL4000 Spot Luminaire Software Release (VL4000_101314.bin)*
LSW-082	New Software Version - VL4000 Spot Luminaire Software Release (VL4000_011615.bin)*
LSW-084	New Software Version - VL4000 Spot Luminaire Software Release (VL4000_012615.bin)*
LSW-085	New Software Version - VL4000 Spot Luminaire Software Release (VL4000_022615.bin)*
LSW-088	New Software Version - VL4000 Spot Luminaire Software Release (VL4000_052615.bin)*
S4K-001	Tilt Bearing Holder Replacement Procedure & Part Number Change Notification

*Software and their associated technical bulletins are available in the PUBLIC product downloads section on the Vari-Lite web site.

Note: Vari-Lite reserves the right to remove software, technical bulletins, or technical notices at anytime without prior notice.



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Date: **20 June 2017** / Manual Part Number: **02.9704.0010 A**

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