

COMMAND LIGHT

SHADOW SERIES



Effective August 2021
This guide supersedes all previous versions

3842 Redman Drive
Fort Collins, CO 80524

MODEL COVERED:
SL422D SL442D

1-800-797-7974
www.CommandLight.com

THANK YOU

Please allow us to express a simple thank you for investing in a **COMMAND LIGHT** product. As a company, we are dedicated to producing the very best and most versatile flood lighting package available. We take great pride in the quality of our work and hope that you will find many years of satisfaction from the use of this equipment.

Should you have any problems with your product please do not hesitate to contact us.



3842 Redman Drive
Fort Collins, CO 80524

PHONE: 1-800-797-7974

FAX: 1-970-297-7099

WEB: www.CommandLight.com



DANGER

PERSONAL RESPONSIBILITY CODE

The member companies of FEMSA that provide emergency response equipment and services want responders to know and understand the following:

1. Firefighting and Emergency Response are inherently dangerous activities requiring proper training in their hazards and the use of extreme caution at all times.
2. It is your responsibility to read and understand any user's instructions, including purpose and limitations, provided with any piece of equipment you may be called upon to use.
3. It is your responsibility to know that you have been properly trained in Firefighting and/or Emergency Response and in the use, precautions, and care of any equipment you may be called upon to use.
4. It is your responsibility to be in proper physical condition and to maintain the personal skill level required to operate any equipment you may be called upon to use.
5. It is your responsibility to know that your equipment is in operable condition and has been maintained in accordance with the manufacturer's instructions.
6. Failure to follow these guidelines may result in death, burns or other severe injury.



Fire and Emergency Manufacturers and Services Association, Inc.
P.O. Box 147, Lynnfield, MA 01940 www.FEMSA.org

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Please take the time to read this manual before installing or operating the
COMMAND LIGHT SHADOW^{RTB}.
 Save this guide for future reference.

Contents

| | |
|--|--------------|
| Warranty | 4 |
| Breakage or Damage During Shipment | 5 |
| Product Safety Precautions | 6 |
| General Description and Specifications | 7 |
| Operation | 7 |
| Raising the light from the nested position..... | 7 |
| Returning the light to the nested position..... | 7 |
| Autopark Sequence..... | 8 |
| Installation | 9-11 |
| Installation Kit..... | 9 |
| Tools Required..... | 9 |
| Installation Notes..... | 10 |
| Location Requirements..... | 10 |
| Mounting..... | 11 |
| Holster Mounting..... | 11 |
| Electrical Wiring | 12 |
| 120/240 VDC, 220 (Euro) VDC..... | 12 |
| Warning Device Installation..... | 12 |
| Maintenance | 13 |
| Cleaning..... | 13 |
| Power Failure | 13 |
| Rotate to center..... | 13 |
| Retract the lower stage..... | 13 |
| Troubleshooting | 14 |
| Error Codes on Holster Circuit Board | 15 |
| Technical Specifications – Standard DC Model (SL422D, SL442D) | 16-17 |
| Specifications..... | 17 |
| Parts Lists - Exploded Views | 18-27 |
| Exploded View (Base)..... | 18-19 |
| Exploded View (Midplate)..... | 20-21 |
| Exploded View (Lamp Tree)..... | 22-23 |
| Backlight..... | 24-25 |
| Relay Box..... | 26-27 |
| Wiring Schematics | 28-33 |
| Relay Box..... | 28 |
| Holster Box..... | 29-30 |
| OPS Wireless Controller (VMUX/Wireless Systems)..... | 31 |
| Contact Switch..... | 32 |
| Rotation Assembly..... | 33 |



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COMMAND LIGHT 5 YEAR LIMITED WARRANTY

COMMAND LIGHT products* come with an industry leading 5-year warranty against any defects in materials and workmanship when used and operated for a period of five years. The responsibility of *COMMAND LIGHT* under this limited warranty is limited to the repair and replacement of parts found to be defective by *COMMAND LIGHT*.

Any parts damaged in shipping or by improper installation, overloading, abuse, or accident of any type or cause are not covered by this warranty. If equipment has been damaged in transit, a claim should be made against the carrier within three days, as we assume no responsibility for such damage.

If during this time period, you have any malfunctions not related to misuse, accident, neglect, or normal wear and tear, please take the following steps in order to have your light tower serviced under the *COMMAND LIGHT* warranty.

1. Contact us immediately for initial diagnosis at info@commandlight.com or **800-797-7974**; or if parts are needed contact parts@commandlight.com.
2. You will need to have immediate access to the light tower and the serial number. This process can be done by individuals with little mechanical ability. (Involves pushing buttons and telling us what the light tower is doing or not doing)
3. We then send parts (if needed) and have an authorized technician dispatched (if needed) with a written work authorization number and a base number of hours allotted to do repair. Hourly rates for service are to be determined at the time of authorization by *COMMAND LIGHT*, travel time is paid at a maximum of 50% of the authorized service rate.
4. We remain available for service support via phone, email, or video conference while the technician completes the repair, also to extend the original time allotted if additional issues arise. Immediate support cannot be guaranteed unless a time is scheduled prior to service.
5. Let us know when the repair is completed and reference the work authorization number. Email an invoice to info@commandlight.com or parts@commandlight.com. If you are unable to create an invoice email us for instructions for payment. Make sure any parts we have requested to be returned have been shipped back to the provided shipping address. If a return label is issued it must be used.

6. Finally, we will pay by mailing a check or crediting the account of the person, department, or company doing the repair. Payments will not be made until all requested parts have been returned.

Please contact us as soon as problems arise in order to execute our warranty. We must have knowledge of the issue and provide a work authorization in order to pay or reimburse labor or travel time.

Any unauthorized service voids this warranty. No work is authorized until written consent is provided by **COMMAND LIGHT**.

Contact Us Early — before any work is done — We'd love to help!

*Excludes light producing components (bulbs, lasers, LEDs) These components may come with their own manufacturer warranty. Contact us and we can help get it.

Breakage or Damage During Shipment

The transportation company is fully responsible for all shipping damage and will resolve problems promptly if you handle it correctly. Please read these instructions carefully.

Examine the contents of all shipping cases. If you find any damage, call your transportation agent at once and have them make a description on the freight or express bill describing the damage and the number of pieces. Then contact us and we will send you the original bill of lading. Also promptly contact the transportation company and follow their procedure for filing a claim. Each company will have a unique procedure to follow.

Please note, we cannot and will not enter claims for damages. If we a filed claim here, it would be sent to your local freight agent for verification and investigation. This time can be saved by you filing the claim directly. Every consignee is on the ground floor, in contact with the local agent who inspects the damaged goods, and thus, each claim can be given individual attention.

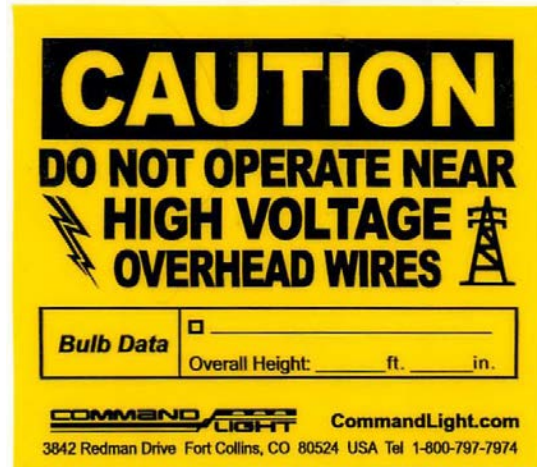
Since our goods are packed to comply with the regulations of all railroad, truck, and express companies, we cannot allow deduction from any invoice because of any damage, however, be sure to file your claim promptly. Our goods are sold F.O.B. factory. We take receipt from the transportation company certifying that the goods were delivered to them in good order and our responsibility ceases.

It is seldom that any breakage or damage occurs in any of our shipments and in no case will the customer be out any expense if they follow the above instructions.

Be sure to keep all damaged goods subject to examination of the truck or express company inspector, who may call on you sometime later. These damaged goods, of course, will belong to them, and they will inform you what to do with them. If you dispose of these damaged goods, your claim may not be paid.

Product Safety Precautions

- ⊙ Never operate the **COMMAND LIGHT SHADOW^{RTB}** near overhead high voltage power lines. The **COMMAND LIGHT SHADOW^{RTB}** is manufactured from electrically conductive materials.
- ⊙ Do not use the **COMMAND LIGHT SHADOW^{RTB}** for uses other than its intended purpose.
- ⊙ Do not move emergency vehicle with the light extended. Visually verify that the light is completely nested before moving vehicle.
- ⊙ Do not change light position while people are located within its operating envelope. There are numerous pinch points that can cause serious bodily injury.
- ⊙ Do not use a high-pressure washer or subject the light to high volumes of water when cleaning.
- ⊙ Never use the **COMMAND LIGHT SHADOW^{RTB}** as a lifting device or mobile arm.
- ⊙ Do not use a **COMMAND LIGHT SHADOW^{RTB}** that has been damaged or is not fully functional, including non-working indicator lamps.
- ⊙ Never hold any part of the **COMMAND LIGHT SHADOW^{RTB}** with a hand or foot while it is in motion.
- ⊙ The **COMMAND LIGHT SHADOW^{RTB}** has numerous pinch points. Keep loose clothing, hands and feet clear of moving parts.



General Description and Specifications

The **SHADOW^{RTB}** is designed to provide high intensity emergency scene lighting with quick precision. As with any electromechanical device, take precautionary steps to ensure safe operation.

| Model # | Description | Minimum Power Requirements |
|---------|-------------|----------------------------|
| SL422D | 2 x LED | 50 Amps, 12 VDC |
| SL442D | 4 x LED | 90 Amps, 12 VDC |

The vehicle provides power for the 12 VDC circuitry. A 15 Amp breaker is recommended. The umbilical corded control unit is powered via 12 VDC eliminating hazardous voltage levels within the hand held control box.

The **SHADOW^{RTB}** is manufactured to provide years of service with a minimum of maintenance.

Operation

Raising the light from the nested position



Using the control box, raise the lower stage. Control switches are of momentary action style and must be held in the “on” position to actuate the stages.

The **SHADOW^{RTB}** has an override system that precludes rotation of the lamp tree until the lower stage has elevated approximately 16" from the nested position. When the lower stage is below 16" the following conditions exist:

- Lamp Tree is prevented from rotating.
- All lights are turned off, including strobe light if equipped, regardless of light switch positions.
- Prevents the lower stage from moving down if lamp tree is not centered.



If the supply from the vehicle is marginal, position the **SHADOW^{RTB}** before turning on lights.

Returning the light to the nested position

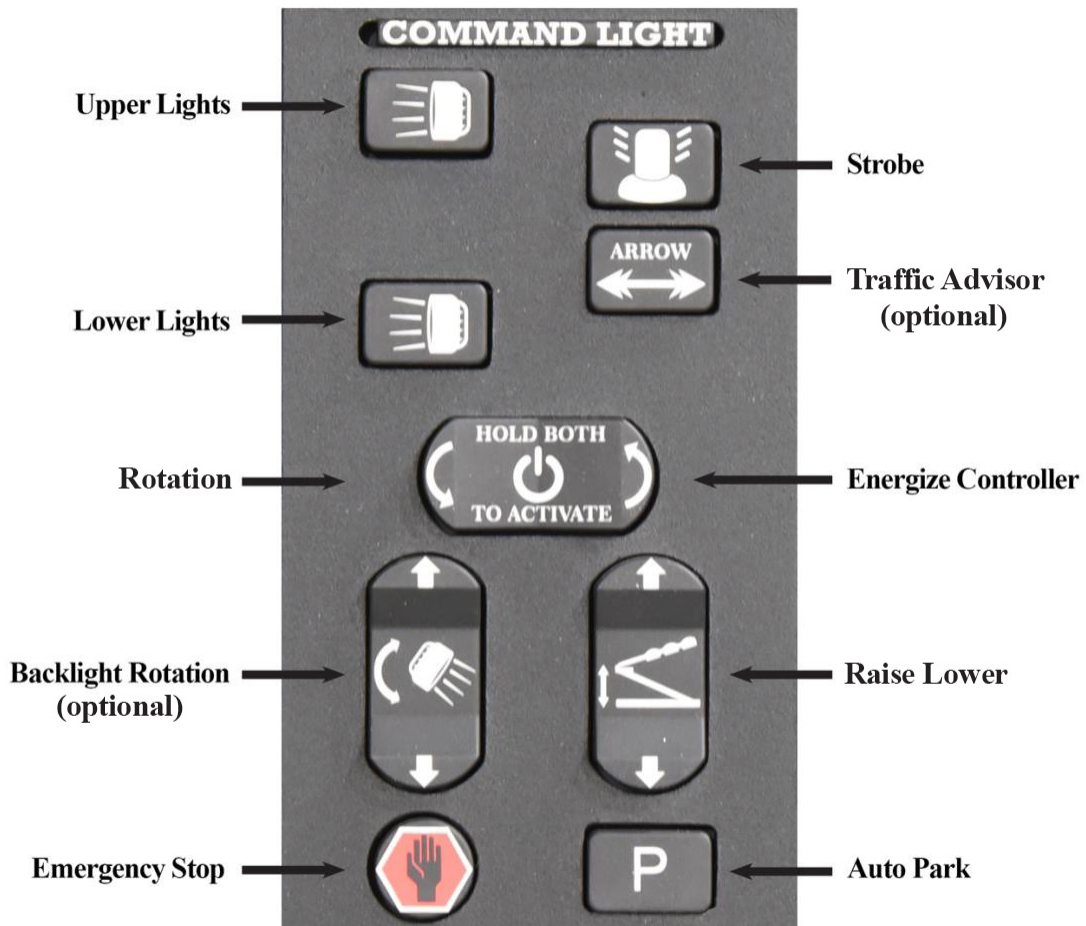
The **KNIGHT²** is equipped with an Autopark function as a standard feature. The “P” button on the control box initiates the Autopark sequence. Once initiated, the “Emergency Stop”  button indicator is illuminated. Pressing the “Emergency Stop”  button will cancel the Autopark sequence.

Autopark Sequence

Press green button on the controller once. It does not need to be held in position. The Autopark sequence begins:

1. “Emergency Stop”  light is illuminated.
2. Lamps are extinguished.
3. Upper stage begins rotation to the center position. If equipped with back light option, back light begins oscillation and returns to the home position.
4. Once upper stage is centered, rotation stops, lower stage begins retracting.
5. After lower stage has fully retracted, upper stage begins retracting. Upon upper stage retracting fully, “Emergency Stop”  light turns off.

Controller



Installation

The **SHADOW^{RTB}** must be installed by a designated installation facility or by an EVT certified Level FA4 Technician. All safety precautions must be thoroughly understood before installation. Please consult the factory for additional installation information assistance.

Improper installation can cause overheating of electrical power wires that could catch fire and void the warranty.

Ensure all wiring is properly protected with correct sized breakers and fuses before connecting to the power source.

DC powered light towers require a high current draw to provide high levels of lighting. Verify all connected electrical components are able to handle the load for this light tower as listed in the Technical Specifications on page 17.

If in doubt, contact Command Light at 1-800-797-7974 or info@commandlight.com.

Installation Kit

Included with the **SHADOW^{RTB}** is an installation kit. Verify that the kit contains the following items:

- | | |
|--|--|
| (1) 25 feet of 2GA-2 Conductor power cable | (1) 25 feet of 22GA-20 conductor cable |
| (1) Pre-wired HOLSTER BOX w/cover | (1) Handheld Controller |
| (1) Small hardware parts bag with: | |
| (4) mounting spacers | (4) 5/16-18 X 2 1/2" bolts |
| (4) 5/16-18 nylon lock nuts | (8) 5/16" flat washers |
| (4) large diameter flat washers | (2) 1/4-20 x 5/8" Phillips pan head machine screws |
| (4) 1/4" flat washers | (2) 1/4-20 nylon lock nuts |
| (1) 1/2" 90° sealing connector w/nut | |

Tools Required

Lifting device (crane, forklift, block and tackle, etc.)

Sling for lifting

Drill

2 1/64", 17/64" drill bits

Hole punch for metal with 7/8" and 15/16" diameter capacity

Phillips head screwdriver, #2

COMMAND LIGHT flat blade screwdriver (included with light)

7/16" and 1/2" combination wrenches and/or ratchet and 7/16" and 1/2" sockets

8" adjustable wrench

Tongue and Groove Pliers

Wire stripper or razor blade knife

Solder-less wire connector crimp tool

Silicone based gasket sealer, RTVTM recommended

Installation Notes

The **SHADOW^{RTB}** weighs approximately 75 pounds. Use mechanical assistance such as a forklift or crane to lift the light into installation position.

Use the provided fender washers under the mounting surface to distribute the weight load evenly.

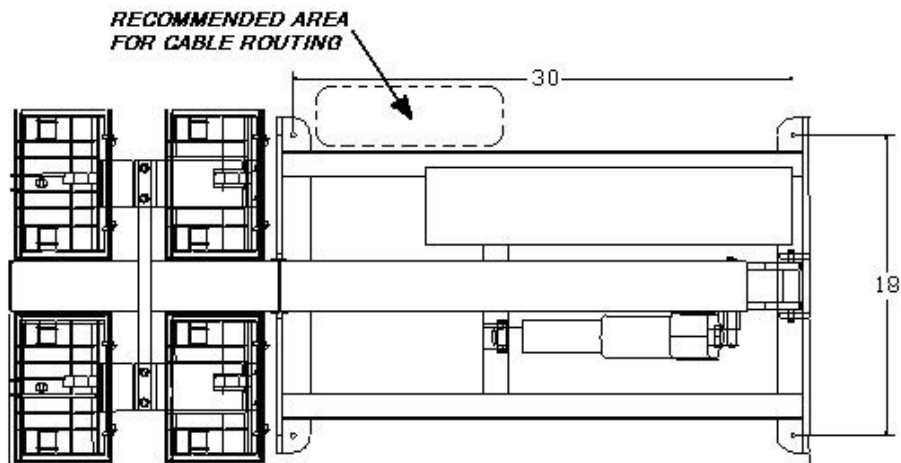
When routing the connecting electrical wires take care to avoid sharp bends, hot components or other hazards to the wire.

The **SHADOW^{RTB}** is not designed to be operated in a raised position while the vehicle is in motion.

The **SHADOW^{RTB}** includes warning circuit wiring to enable a warning device.

Location Requirements

The standard **SHADOW^{RTB}** can be mounted on any location that is 34" x 22". The surface should be flat or have only a slight crown. For a recessed installation allow for a minimum of 60" x 38". Consult with factory before construction of recessed installation. Verify all dimensions before installation to assure proper operation of light will not infringe on other installed components. For all other installations refer to the dimensional drawing on page 17 of this guide that represents your particular model of light. The drawings reflect the dimensions of the "working envelope" of a typical light. Endure sufficient clearances are incorporated in your installation to allow for variations (vehicle body flex, environmental conditions, future servicing needs, etc.)



Four mounting bolts are required. Additional holes may be drilled in the frame ends if necessary to clear obstructions.

Access holes for the power cord cabling should be in close proximity to the entrance box on the light. Installing the cords with a sweeping 90° or 180° bend will provide better results.

The control box holster should be mounted in an area shielded from the weather. Allow a minimum of 10" clearance above the control box holster mounting location for easy access to the controller.

Mounting

Place the provided spacers in the location of the light mounting holes. The spacers may be modified to conform to the contour of the mounting location.

Remove any obstructions below the mounting surface such as headliners.

Attach any necessary lifting attachments to the **SHADOW^{RTB}**. The center of gravity (balance point) is slightly below the rotation assembly.

Slowly lift the **SHADOW^{RTB}** and check for balanced lifting. Lower and make any necessary adjustments to the lift points.

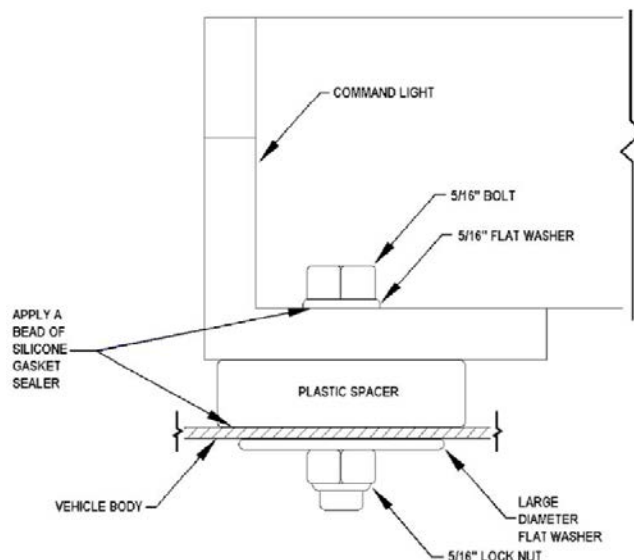
Lift and place the **SHADOW^{RTB}** into position above the spacers. Before placing the full weight of the light tower on the spacers, align spacers with the holes in the end frame castings.

Drill $\frac{21}{64}$ " holes in the mounting surface using the end casting holes as a template.

Fasten the light using the provided hardware. To assure a weather-tight installation apply a thin bead of silicone based gasket sealer to the base of the spacer and underside of bolt head.

Remove any lifting straps and devices from the **SHADOW^{RTB}**.

Locate and drill the wire feed holes.



Control Box Holster Mounting

Using the holster as a template, mark locations of holes.

Drill $\frac{17}{64}$ " mounting holes.

Drill any holes required to route the control wire from the control box to the **SHADOW^{RTB}**. Mount holster box with provided hardware.

Electrical Wiring

Please Note: Detailed internal wiring schematic for the light is found in the supplement pages found at the end of this document.

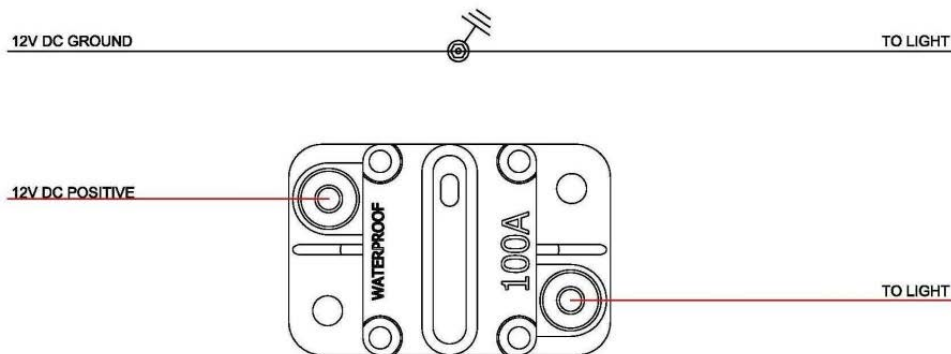
Run the control wire from the control box holster to the *SHADOW^{RTB}*.

Run the power wire from the breaker box or generator to the *SHADOW^{RTB}*. A 100 Amp breaker is recommended on DC models.

Make the control cable connections in the *SHADOW^{RTB}* relay box by matching each control wire to its same color on the connector block of the *SHADOW^{RTB}* relay box.

The *SHADOW^{RTB}* model SL442D comes pre-wired to connect to 12 VDC.

12 VDC



Warning Device Installation

The *SHADOW^{RTB}* nest sensor can be used to activate a warning device when the light is extended. Typically the vehicle will have a light or buzzer that activates when the compartment doors are open.

The connector for hooking up a warning device is located in the holster box that holds the control unit.

Maintenance

Cleaning

The *SHADOW^{RTB}* is constructed with corrosion resistant aluminum and stainless steel fasteners. To further enhance corrosion resistance all exposed surfaces receive a powder coated paint finish. To assure years of trouble free service periodically clean all external surfaces with a mild detergent solution and a gentle spray of water. **DO NOT USE A HIGH-PRESSURE WASHER**, which will force water into sensitive electric circuitry.

Lamp lenses may be cleaned with any commercially available glass cleaner.

The lower stage actuator is a sealed unit and does not require adjustment or lubrication. They also have a slip-clutch to compensate for minor stroke tolerances at the limits of its travel as well as internal limit switches. The actuator may produce a ratcheting sound at each end of the stroke which is normal. The actuator should not be made to ratchet excessively, this can lead to premature actuator clutch failure.

All pivot points on the *SHADOW^{RTB}* are self-lubricating thermal polymer. Periodic cleaning with a moisture displacing cleaner and soft bristle brush, without disassembly, to remove accumulated dirt and debris will minimize wear.

Power Failure

The *SHADOW^{RTB}* can be retracted manually if power to the unit is lost. If power loss is temporary, reestablishing power may be easier than manually retracting the light.

| |
|--|
| Disconnect power source from the <i>SHADOW^{RTB}</i> . |
|--|

Rotate to Center

Slowly apply pressure to the midplate to manually rotate to the centered position. Trying to rotate the midplate too quickly or with too much pressure can break the rotation motor shaft. Be certain that you rotate the midplate in the proper direction as the lamp tree can rotate only 350°.

Retract the Lower Stage

Locate the silver plug located on the actuator below the actuator's motor. Use the provided hex tool (6mm hex bit) to remove silver plug. Be sure to not lose this plug. Use the same hex tool inserted into the opening to drive the internal gears of the actuator. Be sure to replace the silver plug after this actuator is fully retracted.

Troubleshooting

| Problem | Possible Cause | Solution |
|--|--------------------------------------|--|
| Unit will not extend | No power to the unit | Check power input connections. Ensure 100 Amp input breaker has not been tripped. |
| | Incorrect installation | Refer to installation instructions. |
| Upper stage will not rotate | Lower stage not raised above 16" | Raise lower stage higher. |
| | Rotation motor failure. | Consult with factory. |
| Lights will not illuminate. | Lower stage not raised above 16" | Raise lower stage higher. |
| | Circuit breaker tripped. | Check circuit breaker at power supply. |
| | No power to the unit. | Check power supply operation/output. |
| Unit will not nest | Lamp tree not centered | Raise lower stage higher than 16". Center lamp tree (green light illuminated) |
| | Unit being operated on a slope >5°. | Level Truck. If problem persists, rotate lamp tree to center, using a pike pole, hold unit centered while lowering to nest position. |
| Autopark button must be held in to park unit | Faulty or stuck nest switch. | Check nest switch ground and operation. Rubber boot may have shrunk and is holding in switch. |
| | Water in electronics. | Remove moisture from ground points and electronics. Do not use a pressure washer to clean unit. |
| No lights or rotation | Check safety limit sensor, bad, etc. | Contact factory for replacement part. |
| Autopark is off Center | Center switch out of alignment. | Contact factory for replacement part. |



PWR AND ERROR LED GUIDE BOARD REV 5. MAIN BOARD 5.3, FIRMWARE 4

| | |
|---|---|
| <p>PWR ERROR</p> <p>ON OFF</p> | <p>READY TO GO</p> |
| <p>PWR ERROR</p> <p>OFF OFF</p> | <p>NO POWER AND/OR NO GROUND AT EITHER CBAT OR VBAT TERMINALS CHECK VBAT, CBAT, AND GND TERMINALS. SHOULD HAVE 12-18 VDC</p> <p>CHECK 2 AMP FUSE AT MAIN BOARD</p> |
| <p>PWR ERROR</p> <p>FLASH 1X PAUSE FLASH 2X PAUSE REPEAT ON</p> | <p>ERROR CODE 12 NO CBAT POWER AT 3 PIN GRAY CONNECTOR "CBAT" TERMINAL, COMMAND LIGHT IS NOT POWERED. CHECK FOR 12VOLTS AT GRAY 3 PIN CONNECTOR, TERMINAL CBAT.</p> |
| <p>PWR ERROR</p> <p>FLASH 1X PAUSE FLASH 3X PAUSE REPEAT ON</p> | <p>ERROR CODE 13 COMMUNICATION ERROR BETWEEN MAIN BOARD AND KEYPAD BOARD. CHECK ALL CAT 5 CONNECTIONS BETWEEN THE MAIN BOARD AND THE KEYPAD BOARD INCLUDING COIL CABLE.</p> |
| <p>PWR ERROR</p> <p>FLASH 1X PAUSE FLASH 4X PAUSE ON</p> | <p>ERROR CODE 14: WILL ONLY ERROR ON FIRST LOGIN ATTEMPT AND DOES NOT REPEAT. YOU MUST LOOK FOR THIS ERROR CODE AS YOU ARE TRYING TO LOGIN TO THE DEVICE. INDICATES THAT COMMAND LIGHT CONTROLLER DOES NOT HAVE CONTROL OF THE SYSTEM. - IF USING VMUX - CHECK GREEN 5 PIN CONNECTOR "VMUX IF" FOR 12 VOLT POWER AT THE "CTRL" TERMINAL. IF NO, CHECK VMUX DUAL CONTROL BOARD.</p> <p>IF NOT USING VMUX, ENSURE BLACK/WHITE WIRE IS TERMINATED INTO THE CTRL TERMINAL AND THAT THIS TERMINAL HAS 12VDC.</p> |

Technical Specifications – Standard DC Model (SL422D, SL442D)

Dimensions (with strobe and ½” mounting spacers) – May vary by model and options:

| | Height(Depth) | Length | Width |
|------------------------------|----------------------|---------------|--------------|
| Retracted | 8" | 54" | 34" |
| Extended | 52" | 56" | 34" |
| Recessed installation | 10" | 62" | 40" Minimum |

Weight: 75 pounds

Wiring:

| | | |
|-----------------------|--------------------|--------------|
| Main Power VDC | 2/2 SO cord | 25' provided |
| Control wiring | 22/20 PVC Jacketed | 25' provided |

Relay protection:

| | | | |
|--------|-------------|------|----------|
| Lights | Cole-Hersey | 3055 | 100 amps |
|--------|-------------|------|----------|

Current Draw / Power Requirements:

| Fixture | Average |
|------------------|----------------|
| 2 x 150 Watt LED | 12 VDC/40 amps |
| 4 x 150 Watt LED | 12 VDC/60 amps |
| 2 x 220 Watt LED | 12 VDC/50 amps |
| 4 x 220 Watt LED | 12 VDC/90 amps |

Lift actuators and rotation motor will cause higher current draw during use.

Motor Duty Cycle:

(All motors thermally protected, specifications are to thermal relay trip):

Lower stage 1:3 (90 seconds maximum per 5 minutes)

Rotation 5-6 Revolutions

Motor Speed:

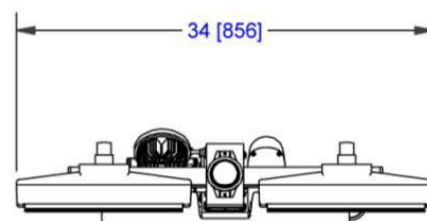
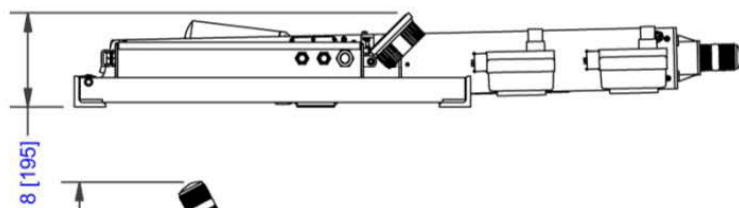
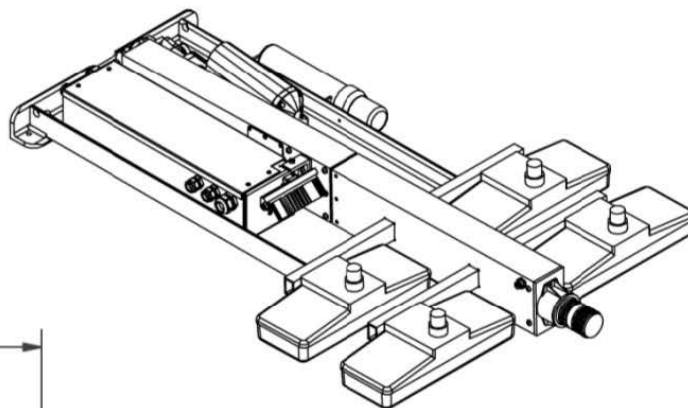
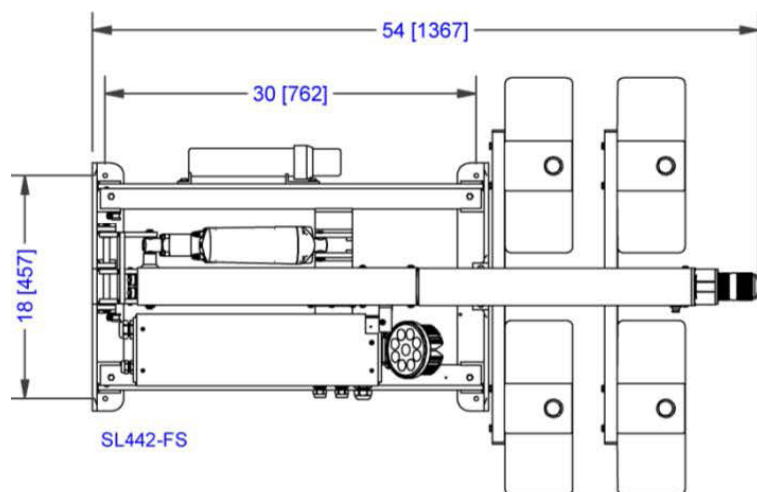
Lower stage 0.5 inches per minute 14 seconds to full extension

Rotation 2.75 RPM at lamp tree

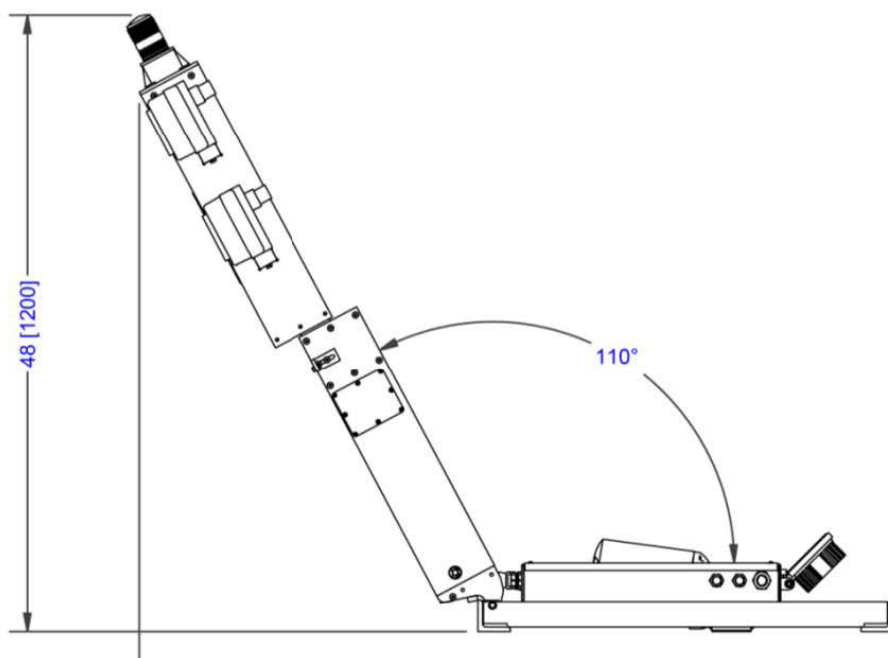
Operation:

Angle of vehicle 15° maximum incline

Specifications



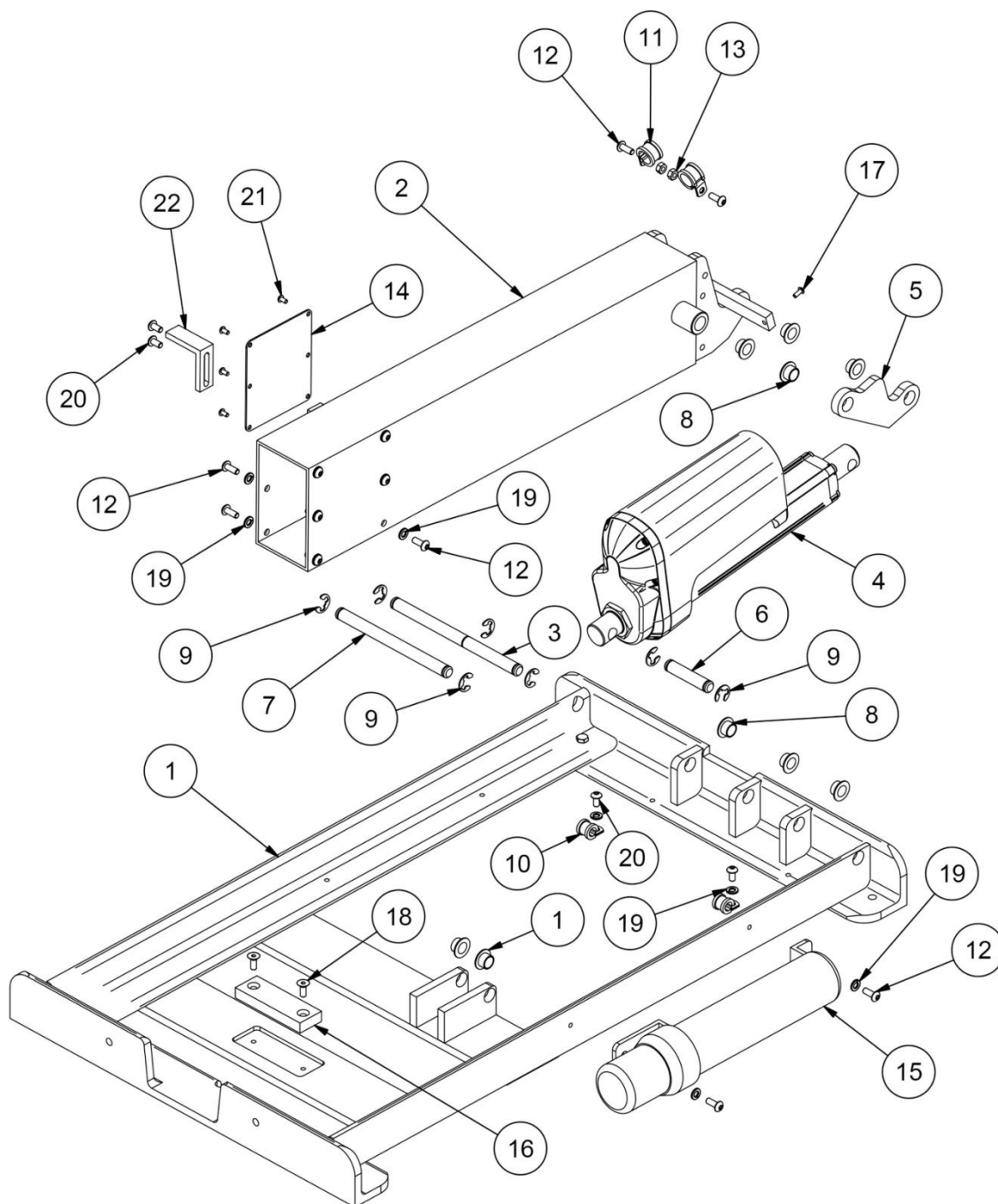
SHADOW RTB DIMENSIONS
MODEL SL442-FS



Parts List - (Base)

| PARTS LIST | | | |
|------------|-----|-------------|--|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | 178-01100 | FRAME,WELDMENT,SHADOW RTB |
| 2 | 1 | 178-02300 | ARM, MAIN LIFT, WELDMENT,SHADOW RTB |
| 3 | 1 | 178-01502 | PIN,LOWER,PIVOT,SHADOW RTB |
| 4 | 1 | 069-15411 | ACTUATOR,LINEAR,150MM,12VDC,LA36 |
| 5 | 1 | 178-01008 | ARM,TRAILING,LIFT,SHADOW RTB |
| 6 | 1 | 178-01501 | PIN,LOWER,ACTUATOR,SHADOW RTB |
| 7 | 1 | 178-01500 | PIN,UPPER,ACTUATOR,SHADOW RTB |
| 8 | 9 | 067-14200 | BEARING,FLANGED,IGLIDE,JFI-0809-06 |
| 9 | 7 | 069-15336 | E-Ring, 5133-50, .044T, SS |
| 10 | 2 | 065-13084 | CLAMP,LOOM,#4,SS |
| 11 | 2 | 065-12365 | CLAMP,LOOM,#6,SS |
| 12 | 16 | 069-01140 | SCREW,BH,HEX,6x1x16,SS |
| 13 | 2 | 069-01126 | Nut, MS, M6x1.00 |
| 14 | 1 | 178-02097 | COVER,ACCESS PANEL,LIFT ARM,SHADOW RTB |
| 15 | 1 | 065-15001 | CANISTER,DOCUMENT,BLACK |
| 16 | 1 | 178-04053 | PAD, NEST, SHADOW RTB |
| 17 | 1 | 069-01133 | SCREW,BH,HEX,M4x0.7x10,SS |
| 18 | 2 | 069-01114 | SCREW,FHSH,M6x1x16 |
| 19 | 16 | 034-11028 | WASHER,LOCK,SPRING,REGULAR, 1/4", SS |
| 20 | 4 | 069-01103 | SCREW,BH,HEX,6x1x12,SS |
| 21 | 6 | 034-13092 | SCREW,BH,HEX,M4x0.7x8,SS |
| 22 | 1 | 178-02099 | BRACKET, NEST SWITCH, SHADOW RTB |

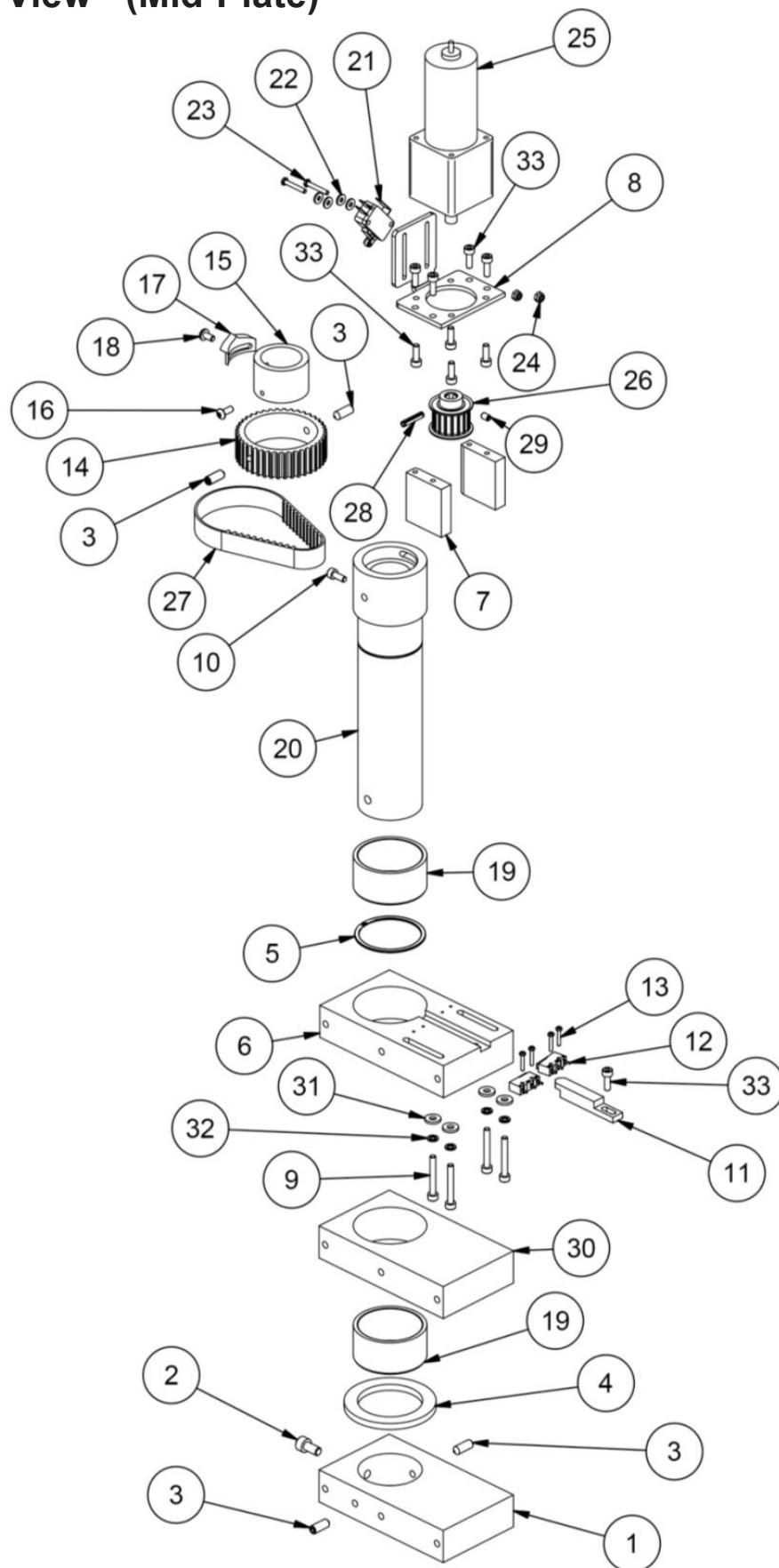
Exploded View - (Base)



Parts List - (Mid-Plate)

| PARTS LIST | | | |
|------------|-----|-------------|--|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | 178-03002 | PLATE, ROTATION DRIVEN, SHADOW RTB |
| 2 | 1 | 069-01103 | SCREW,SHCS,SHCS M6x1x12 |
| 3 | 5 | 034-13683 | SCREW,SH SET,M6x1.0 x 16mm,SS |
| 4 | 1 | 178-03010 | BEARING,THRUST,ROTATION,SHADOW RTB |
| 5 | 1 | 065-12382 | RING,SPIROLOX,2-TURN,WS-175 |
| 6 | 1 | 178-03001 | PLATE, ROTATION DRIVE, SHADOW RTB |
| 7 | 2 | 178-03006 | STANDOFF,MOTOR,ROTATION,SHADOW RTB |
| 8 | 1 | 178-04084 | MOUNT,MOTOR,ROTATION,SHADOW RTB |
| 9 | 4 | 034-13063 | SCREW,SHCS,SHCS M4x0.7x30 |
| 10 | 1 | 034-13066 | SCREW,SHCS,SHCS M4x0.7x10 |
| 11 | 1 | 178-03005 | STOP,ROTATION LIMIT,SHADOW RTB |
| 12 | 2 | 065-12383 | SWITCH,LIMIT,CHERRY,SPDT,5A,125V,SRTBL |
| 13 | 4 | 034-03070 | SCREW,PHP,2-56 UNCx0.5 |
| 14 | 1 | 178-03007 | LARGE PULLEY,MID PLATE,SRTBL |
| 15 | 1 | 178-03009 | CAM,ROTATION CENTER,SHADOW RTB |
| 16 | 1 | 069-01133 | SCREW,BH,HEX,M4x0.7x10,SS |
| 17 | 1 | 178-04077 | SWITCH,LIMIT,MIDPLATE,RTB |
| 18 | 1 | 034-13092 | SCREW,PPH,M4 X 8 |
| 19 | 2 | 065-12384 | BUSHING,BRONZE,1.753 x 2.004 x 1,SRTBL |

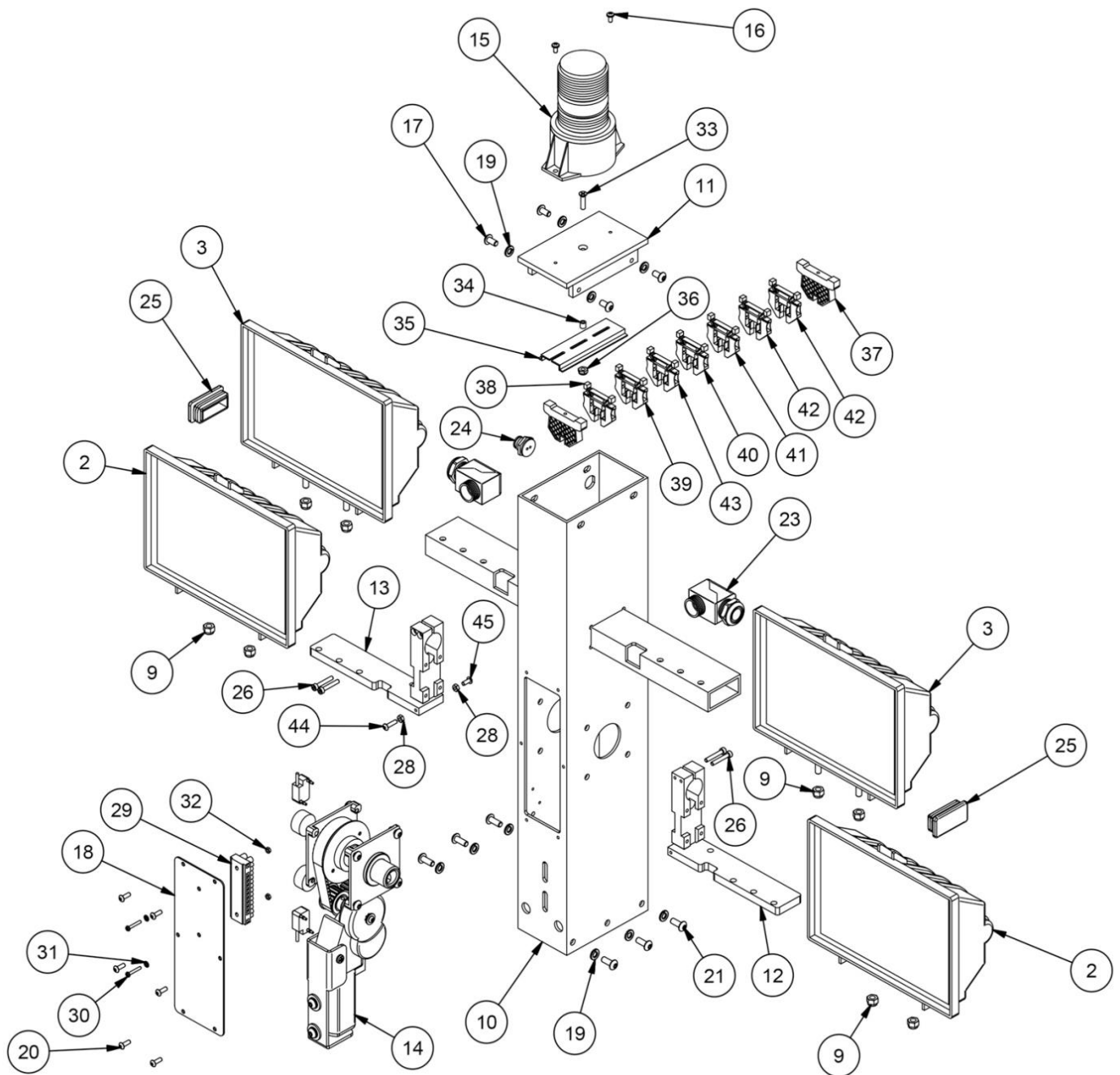
Exploded View - (Mid-Plate)



Parts List - (Lamp Tree)

| ITEM | QTY | PART NUMBER | DESCRIPTION |
|------|-----|-----------------|--|
| 2 | 2 | 178-445FIXT | LAMP,SUBASSEMBLY,BACKLIGHT,STD,SHADOW RTB |
| 3 | 2 | 178-445FIXT | LAMP,SUBASSEMBLY,FIXED,STD,SHADOW RTB |
| 9 | 8 | 034-11033 | NUT,NYLOCK, 1/4-20 UNC,SS |
| 10 | 1 | 178-04000 | TREE,BARE,WELDMENT,SHADOW RTB |
| 11 | 1 | 178-05100 | MOUNT, STROBE, SHADOW RTB, WELDMENT |
| 12 | 1 | 178-04017 | MOUNT,LEFT,BACKLIGHT,SHADOW RTB |
| 13 | 1 | 178-04018 | MOUNT,RIGHT,BACKLIGHT,SHADOW RTB |
| 14 | 1 | RTB_BL_Assembly | |
| 15 | 1 | 065-12867 | STROBE, PRE-WIRED, INDICATE COLOR |
| 16 | 2 | 034-13092 | SCREW,PPH,M4 X 8 |
| 17 | 4 | 069-01103 | SCREW,BH,HEX,6x1x12,SS |
| 18 | 1 | 178-04009 | COVER,ACCESS,LAMP TREE,SHADOW RTB |
| 19 | 10 | 034-11028 | WASHER,LOCK,SPRING,REGULAR, 1/4", SS |
| 20 | 6 | 069-01102 | SCREW,BH,HEX,4x0.7x12,SS |
| 21 | 6 | 069-01140 | SCREW,BH,HEX,6x1x16,SS |
| 23 | 2 | 065-12851 | STRAIN RELIEF,DOMED 90,SCR .39-.55,1/2 NPT,BLACK |
| 24 | 1 | 069-15392 | CONXALL, MINICON, 2 PIN, PANEL |
| 25 | 2 | 065-12373 | PLUG,FINISHING,1x2,SRT-BL,ROM CL |
| 26 | 4 | 034-13062 | SCREW,SHCS,SHCS M4x0.7x25 |
| 28 | 2 | 069-01125 | Nut, MS, M4x0.7 |
| 29 | 1 | 065-12827 | STRIP, BARRIER, 12 POLE |
| 30 | 2 | 034-13288 | SCREW,PHP,4-40 UNCx0.75 |
| 31 | 2 | 034-14283 | WASHER,LOCK,18-8SS,INTERNAL,#4 |
| 32 | 2 | 034-10902 | NUT,MS,HEX2,4-40UNC,SS |
| 33 | 1 | 034-10975 | SCREW,FHPMS,10-24 UNC x 3/4 in,SS |
| 34 | 1 | 078-03013 | SPACER,DIN RAIL,STROBE MOUNT |
| 35 | 1 | 069-01000 | RAIL, DIN, SLOTTED, 7.5MM X 35MM 4 in. |
| 36 | 1 | 034-13081 | NUT,NYLOCK,THIN, 10-24 UNC,SS |
| 37 | 2 | 065-10075 | BRACKET,END,DIN,DN-EB35 |
| 38 | 1 | 065-10069 | BLOCK,TERMINAL,DIN,DN-T10-BLACK |
| 39 | 1 | 065-10068 | BLOCK,TERMINAL,DIN,DN-T10-BLUE |
| 40 | 1 | 065-10073 | BLOCK,TERMINAL,DIN,DN-T10-WHITE |
| 41 | 1 | 065-10074 | BLOCK,TERMINAL,DIN,DN-T10-YELLOW |
| 42 | 2 | 065-10070 | BLOCK,TERMINAL,DIN,DN-T10-GREEN |
| 43 | 1 | 065-10068 | BLOCK,TERMINAL,DIN,DN-T10-BLUE/WHITE |
| 44 | 1 | 069-01134 | SCREW,BH,HEX,M4x0.7x16,SS |
| 45 | 1 | 069-01133 | SCREW,BH,HEX,M4x0.7x10,SS |

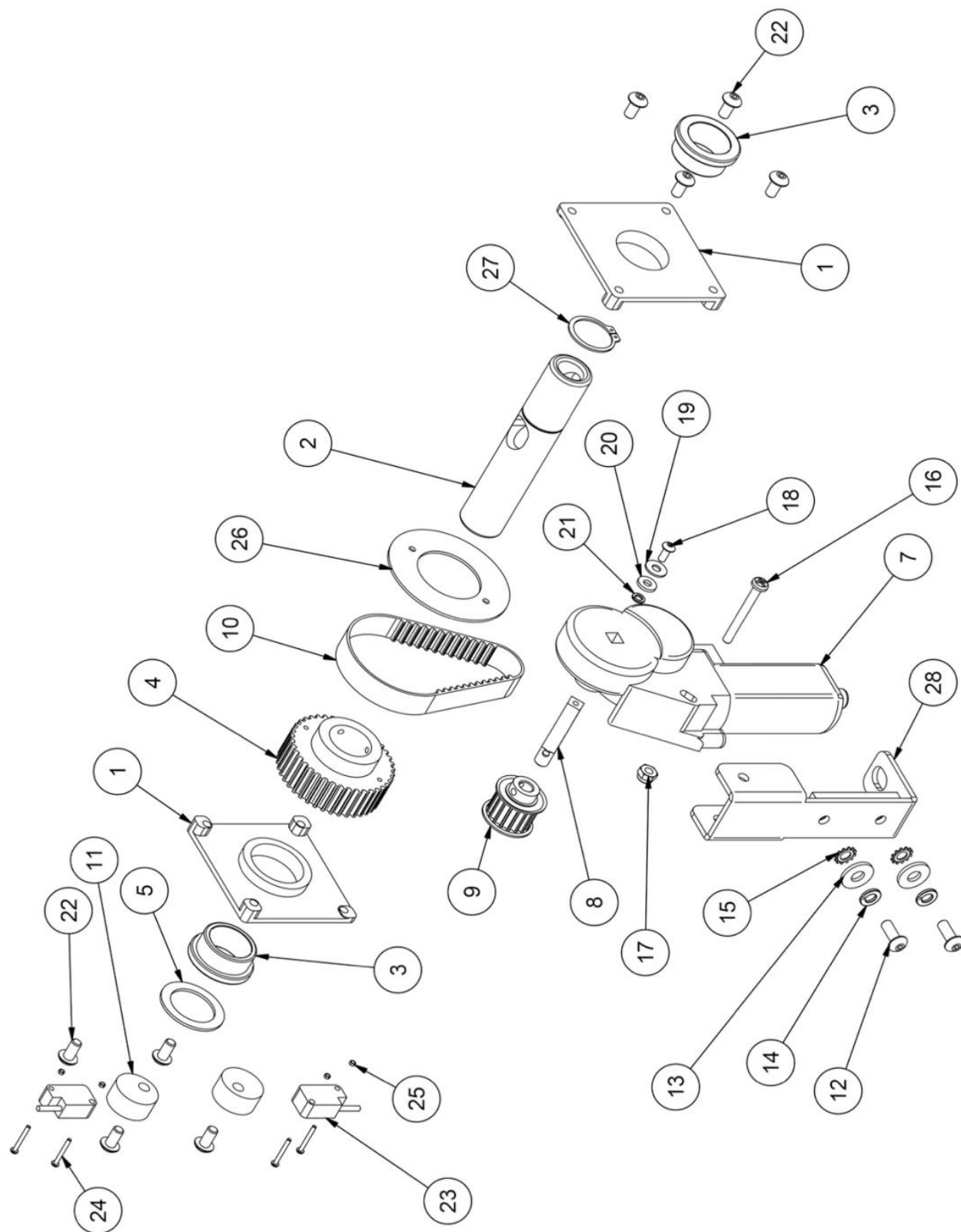
Exploded View - (Lamp Tree)



Parts List - (Backlight)

| PARTS LIST | | | |
|------------|-----|---------------------|--------------------------------------|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 2 | 178-04002 | SUPPORT,SHAFT,PIVOT,SHADOW RTB |
| 2 | 1 | 178-04004 | SHAFT,DRIVEN,SHADOW RTB |
| 3 | 2 | MFI-1620-10 | BUSHING,FLANGED,IGLIDE,MFI-1620-10 |
| 4 | 1 | 178-04003 | PULLEY,HTD,SRT BACK LIGHT,RAW |
| 5 | 1 | 178-04016 | SHIM,SPACER,BACKLIGHT,SHADOW RTB |
| 7 | 1 | 065-12374 | MOTOR,THRU HOLE,12 VDC |
| 8 | 1 | 178-04010 | SHAFT,STUB,DRIVE,SHADOW RTB |
| 9 | 1 | 065-12378 | PULLEY,HTD,P5mm,W15mm,G17,DF,B8mm |
| 10 | 1 | 065-12376 | BELT,HTD,P5mm,G55,SRT BL |
| 11 | 2 | 178-04007 | STOP,ROTATION,BACKLIGHT,SHADOW RTB |
| 12 | 2 | 069-01140 | SCREW,BH,HEX,6x1x16,SS |
| 13 | 2 | 034-11029 | WASHER,FLAT,USS, 1/4", SS |
| 14 | 2 | 034-11028 | WASHER,LOCK,SPRING,REGULAR, 1/4", SS |
| 15 | 2 | STD HARDWARE-IEW-52 | WASHER,LOCK,18-8SS,EXTERNAL,1/4in |
| 16 | 1 | STD HARDWARE-PHP-49 | SCREW,PHP,MS,10-24UNCx1-3/4,SS |
| 17 | 1 | 034-10981 | NUT,NYLOCK, 10-24 UNC,SS |
| 18 | 1 | 069-01133 | SCREW,BH,HEX,M4x0.7x10,SS |
| 19 | 1 | 034-11124 | WASHER,FLAT,FENDER, 10 X 11/16, SS |
| 20 | 1 | 034-10947 | WASHER,FLAT,SAE, #8, SS |
| 21 | 1 | 034-11175 | WASHER,LOCK,SPRING,REGULAR, #8, SS |
| 22 | 8 | 069-01103 | SCREW,BH,HEX,6x1x12,SS |
| 23 | 2 | 069-14160 | SENSOR,PROXIMITY,4-WIRE |
| 24 | 4 | STD HARDWARE--07 | SCREW,PHP,2-56 UNCx0.75 |
| 25 | 4 | STD HARDWARE-N-001 | NUT,MS,HEX1,2-56UNC,SS |
| 26 | 1 | 178-04024 | GUARD,BELT,BLIGHT,SHADOW RTB |
| 27 | 1 | 065-12380 | RING, RETAINING,1" STAINLESS STEEL |
| 28 | 1 | 178-04027 | MOUNT,MOTOR,DRIVE,AERIAL |

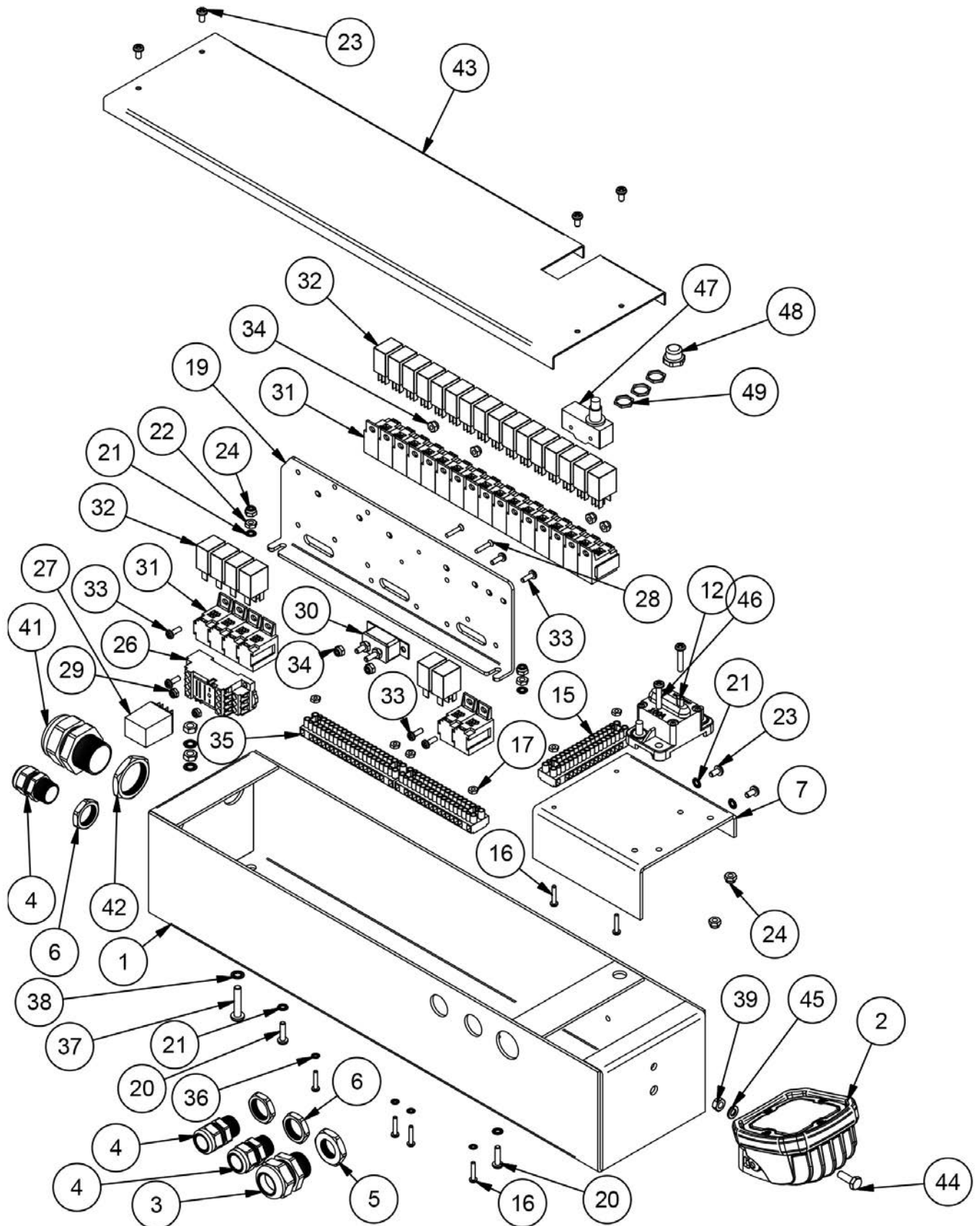
Exploded View - (Backlight)



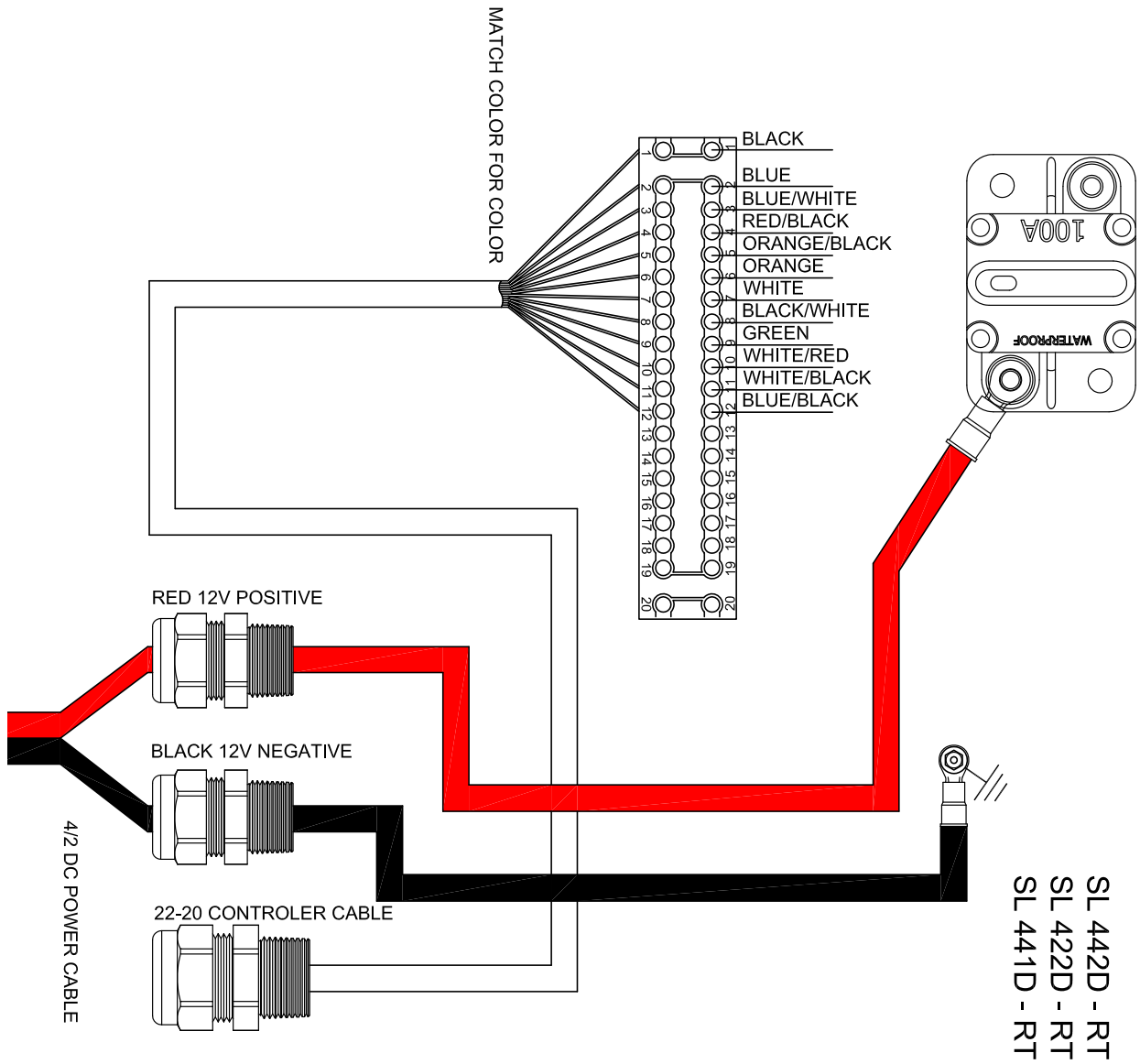
Parts List - DC Relay Box

| PARTS LIST | | | |
|------------|-----|-------------|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | 178-04075W | WELDMENT, RELAY BOX EXT., SHADOW RTB |
| 2 | 1 | 065-14784 | LOOKUP LIGHT,LED, KNIGHT,SHADOW |
| 3 | 2 | 065-12854 | STRAIN RELIEF,DOMED,SCR .51-.71,3/4 NPT,BLACK |
| 4 | 3 | 065-12852 | STRAIN RELIEF,DOMED,SCR .24-.47,1/2 NPT,BLACK |
| 5 | 2 | 065-12857 | LOCKNUT,NYLON,3/4 NPT,BLACK |
| 6 | 3 | 065-12856 | LOCKNUT,NYLON,1/2 NPT,BLACK |
| 7 | 1 | 178-04076 | BRIDGE, ELECTRICAL, RELAY BOX, RTB |
| 12 | 1 | 065-13507 | BREAKER,100 AMP,MANUAL RESET |
| 15 | 2 | 065-12828 | TERMINAL STRIP,16 POLE |
| 16 | 6 | 034-10919 | SCREW,PHP,6-32 UNCx0.75 |
| 17 | 6 | 034-11162 | NUT,MS,HEX2,6-32UNC,SS |
| 19 | 1 | 079-00005 | PLATE,RELAY MOUNT,ALL |
| 20 | 2 | 034-10966 | SCREW,PHP,10-24 UNCx0.75 |
| 21 | 6 | 034-10978 | WASHER,LOCK,18-8SS,INTERNAL,#10 |
| 22 | 2 | 034-13100 | NUT,MS,HEX2,10-24UNC,SS |
| 23 | 6 | 034-10961 | SCREW,PHP,10-24 UNCx0.375 |
| 24 | 6 | 034-10981 | NUT,NYLOCK, 10-24 UNC,SS |
| 26 | 1 | 065-14187 | RELAY SOCKET,3A,14 PIN,SRT BUILDS |
| 27 | 1 | 065-14186 | RELAY,BL,AUTO PARK,CL,SRT,MY2KDC12 |
| 28 | 2 | 034-11187 | SCREW,FHPMS,6-32 UNC x 3/4 in,SS |
| 29 | 2 | 034-13098 | NUT,NYLOCK, 6-32 UNC,SS |
| 30 | 1 | 065-13529 | BREAKER, 12V 20A, SINGLE POLE |
| 31 | 22 | 065-13730 | Socket, Single Pole, Relay |
| 32 | 22 | 065-13738 | RELAY, 12V, SINGLE POLE |
| 33 | 12 | 034-10939 | SCREW,PHP,8-32 UNCx0.5 |
| 34 | 12 | 034-10951 | NUT,NYLOCK, 8-32 UNC,SS |
| 35 | 1 | 065-12890 | STRIP, BARRIER, 20 POLE |
| 36 | 4 | 034-13682 | WASHER,LOCK,18-8SS,INTERNAL,#6 |
| 37 | 1 | 034-13690 | SCREW,PHP,1/4-20 UNCx1.25 |
| 38 | 3 | 034-10110 | WASHER,LOCK,18-8SS,INTERNAL,1/4in |
| 39 | 3 | 034-11112 | NUT,MS,HEX2,1/4-20UNC,SS |
| 41 | 1 | 065-12792 | STRAIN RELIEF,DOMED,SCR .71-.98,1 NPT,BLACK |
| 42 | 1 | 065-12791 | LOCKNUT,NYLON,1 NPT,BLACK |
| 43 | 1 | 178-04074 | COVER,RLY BOX,SHADOW RTB, EXTENDED |
| 44 | 1 | 034-11016 | SCREW,HH,1/4-20x3/4,SS |
| 45 | 1 | 034-11028 | WASHER,LOCK,SPRING,REGULAR, 1/4", SS |
| 46 | 4 | 034-10968 | SCREW,PHP,10-24 UNCx1 |
| 47 | 1 | 069-15360 | SWITCH, DOWN LIMIT / NEST / BL LIMIT |
| 48 | 1 | 065-12935 | BOOT,PUSHBUTTON,BLK,BACK LIGHTS |
| 49 | 3 | 069-15360 | NUT,SWITCH, DOWN LIMIT / NEST / BL LIMIT |

Exploded View - DC Relay Box

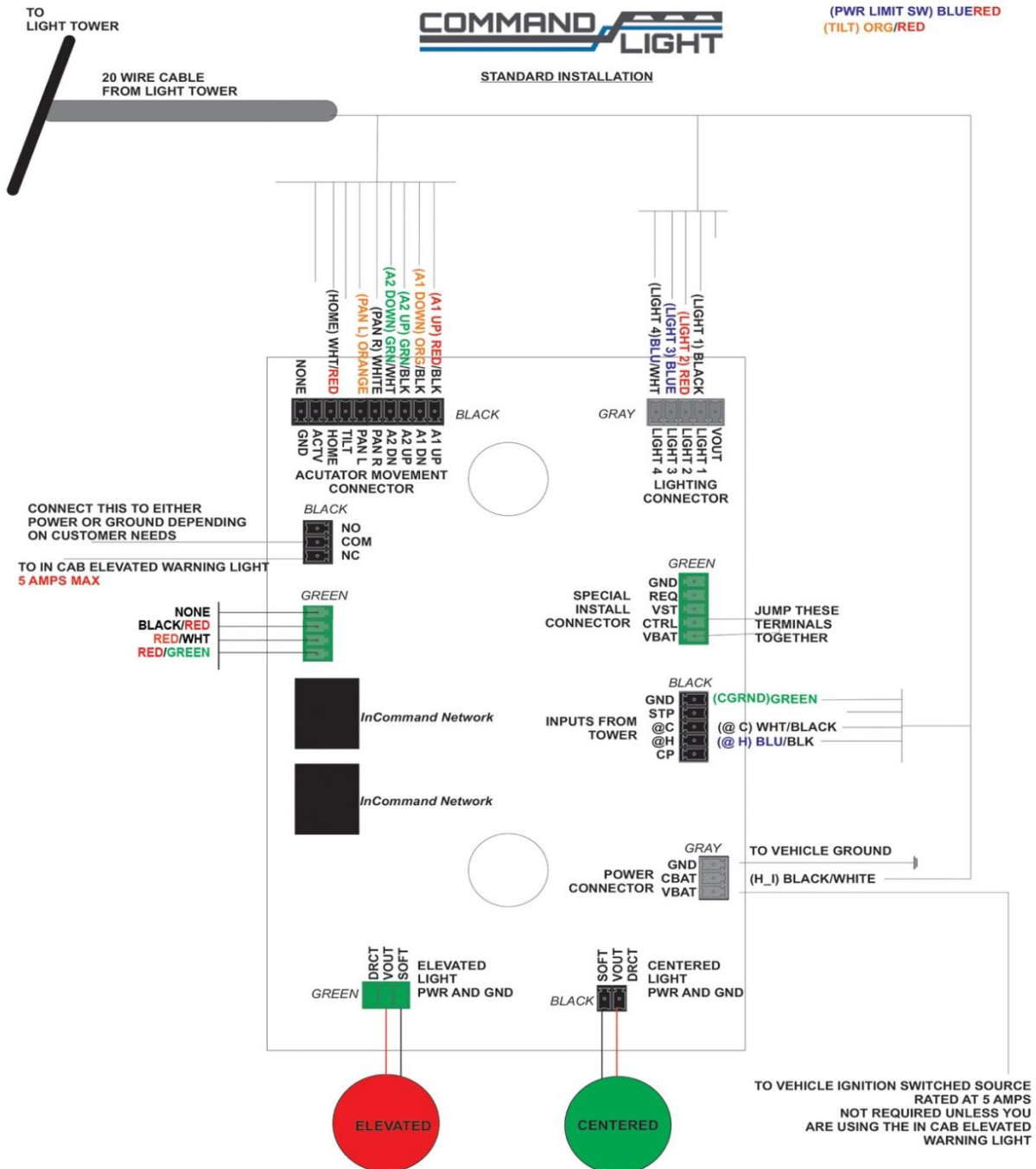


Wiring Schematics



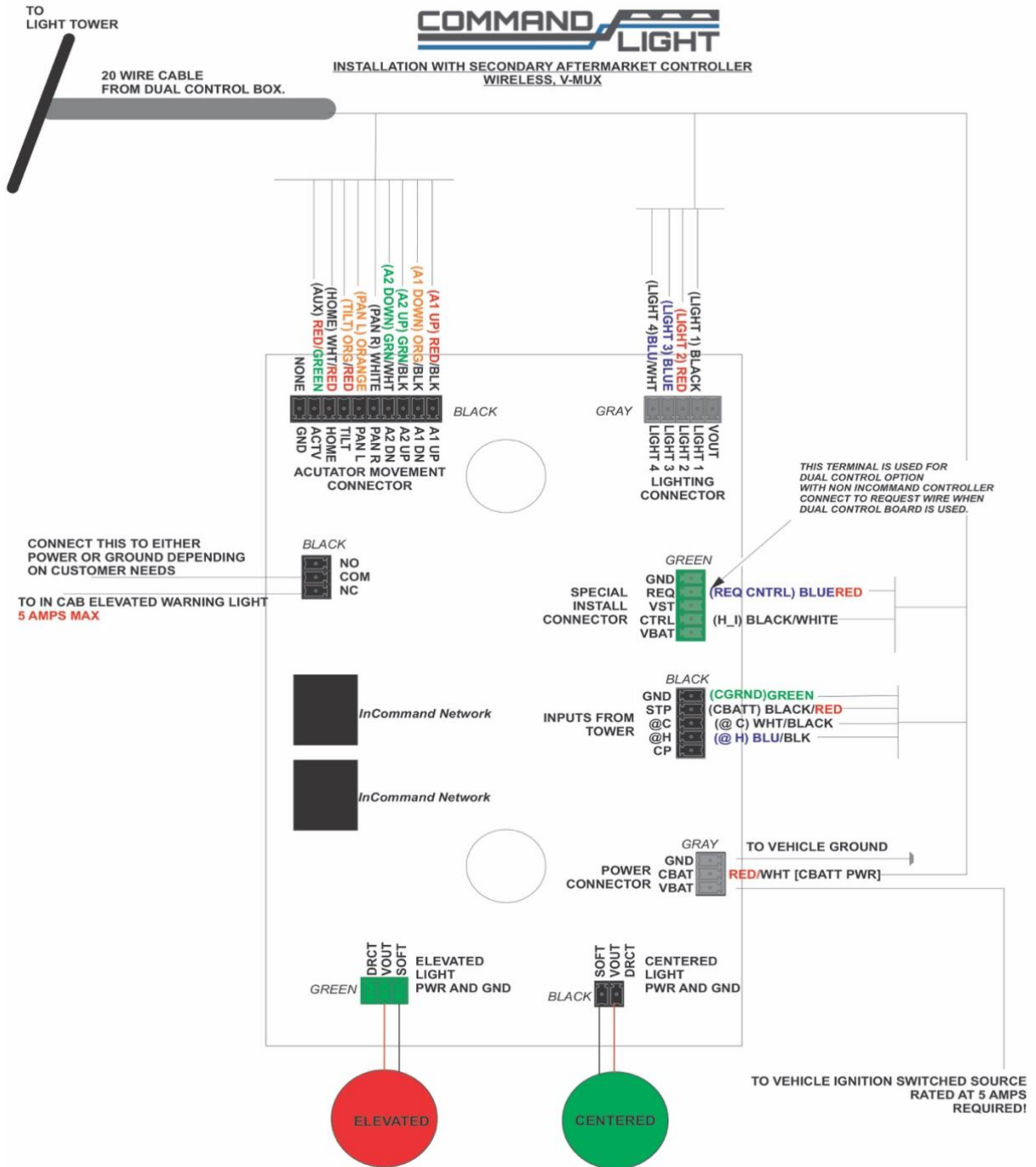
END USER HOOK-UP DIAGRAM

Holster Box



FOR USE WITH ALL SHADOW MODELS
MAIN BOARD REV SHADOW 5.4, DIAGRAM REV 1

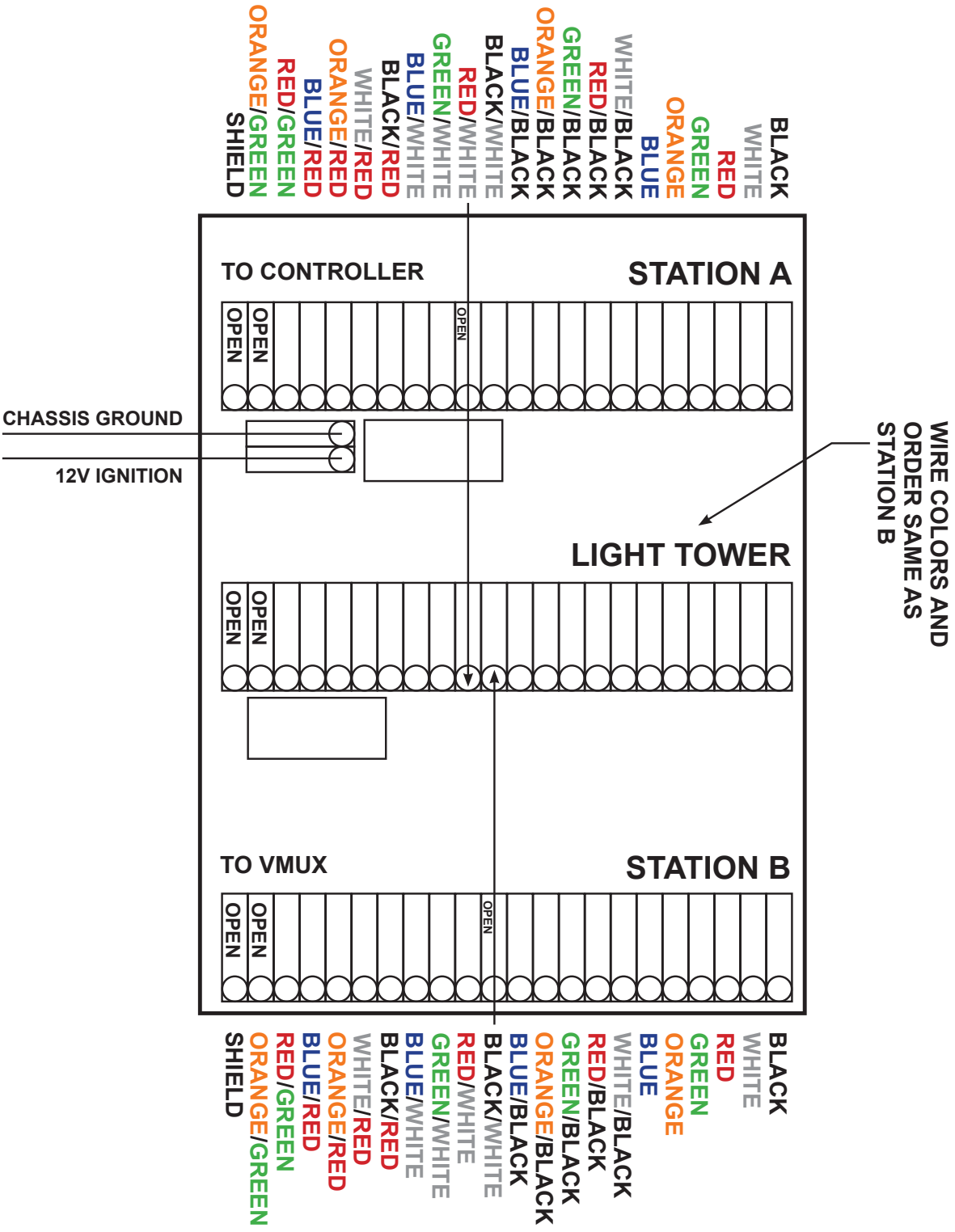
Holster Box



FOR USE WITH ALL COMMAND LIGHT MODELS
 MAIN BOARD REV 5.4, DIAGRAM REV 3

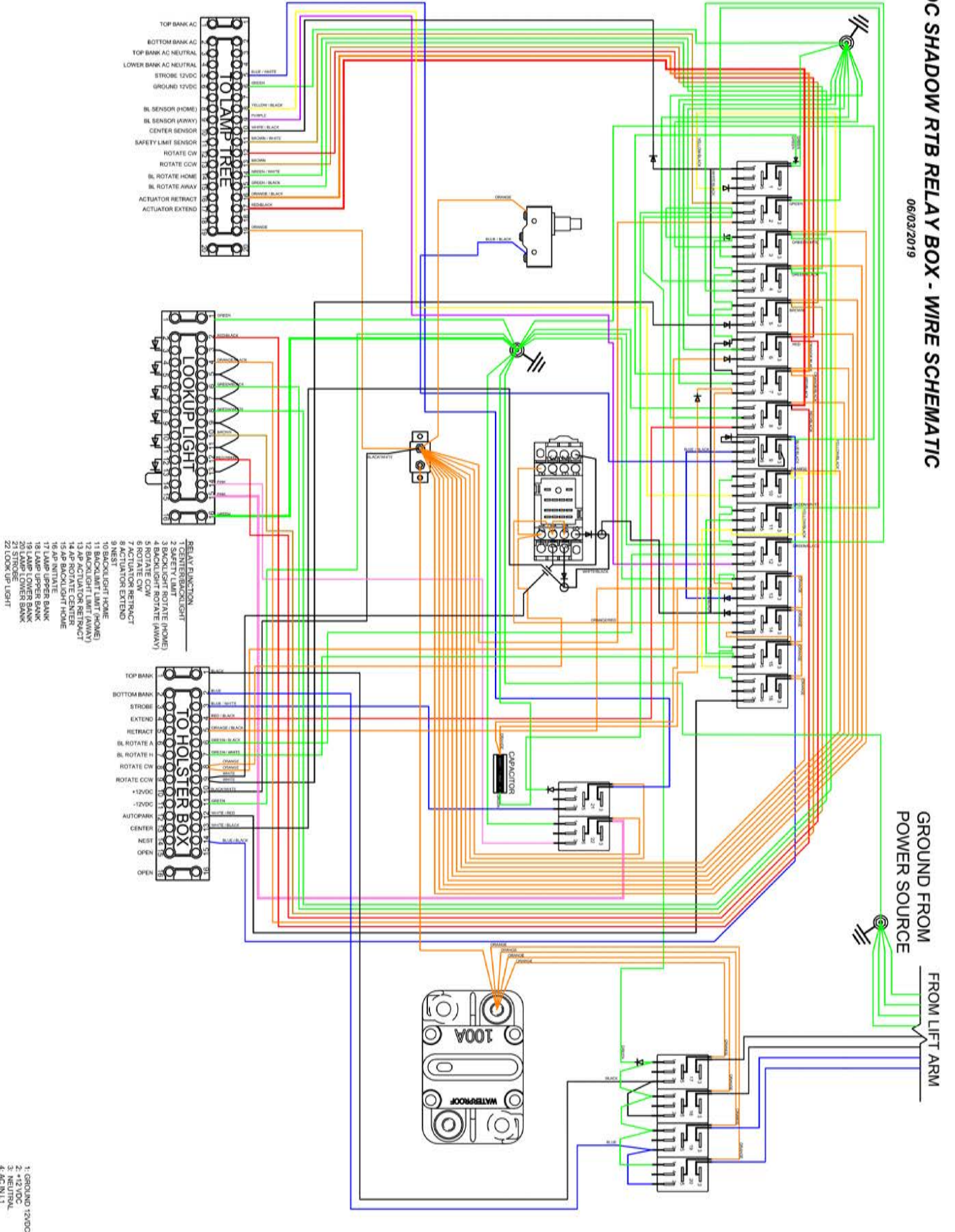
OPS WIRELESS CONTROLLER

STANDARD

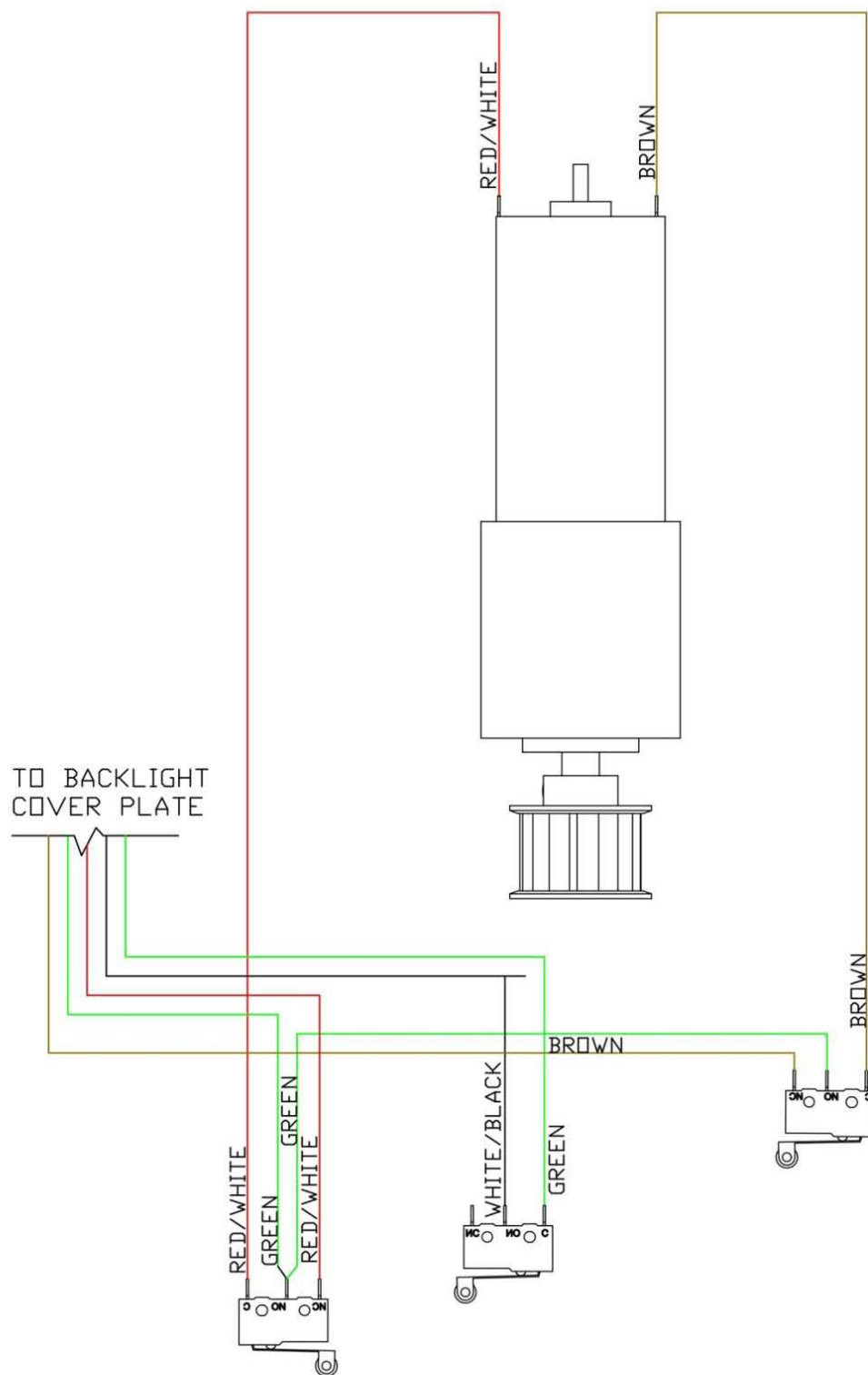


DC SHADOW RTB RELAY BOX - WIRE SCHEMATIC

06/03/2019



- 1. GROUND 12VDC
- 2. +12 VDC
- 3. NEUTRAL
- 4. AC IN L1
- 5. AC IN L2

SHADOW RTB
ROTATION ASSEMBLY