

# THE SCIENCE OF SURVIVAL

PRODUCT SUPPORT MANUAL

**RCL-100 LED //**

## Remote Control Searchlight System

Model No.: RCL-100 LED

Product No.: 1950, 1951, 1952, 1953

Y1-03-0321 Rev. C



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**PLEASE READ ALL WARNINGS, CAUTIONS AND NOTES CAREFULLY**

## **SECTION 1 - GENERAL**

The RCL-100 LED was specially designed for mariners who require a high intensity remote controlled searchlight that can stand up to the tough marine environment.

The RCL-100 LED Searchlight System contains a narrow beam searchlight that produces 220,000 peak candle power by combining a 9 LED array with unique optical quality reflectors.

The Searchlight (part numbers 1950, 1951 & 1953) can be electrically operated by remote control from the pilot area of the vessel using the URP-102 Point Pad™, URC-103 Master Controller, and interconnect cable supplied with the RCL-100 LED. Searchlights equipped with the URC-103 Master Controller have ACR's unique XRCiZ™ (exercise) feature. The XRCiZ™ feature routinely rotates the searchlight to keep the motors and drive mechanism freely running. The wired kit (Searchlight part number 1951) is supplied with the wired URP-102 Point Pad™ and the wired URC-103 Master Controller. The mobile kit (Searchlight part number 1953) is supplied with the wired URP-102 Point Pad™, the wired URC-103 Master Controller, and the Wi-Fi Remote Control Module.

## **SECTION 2 - SEARCHLIGHT**

The sleek design and modern construction of the Searchlight body makes it attractive for recreational and commercial vessels. The Searchlight is totally enclosed and is made of rugged aluminum alloy. It is water resistant if properly installed.

### **Mounting of the Searchlight**

Make sure the mounting area is clean and dry. The Searchlight can be mounted where desired, using appropriate length 3/16" diameter, stainless steel fasteners. Four (4) nylon shoulder washers are supplied with the RCL-100 LED Searchlight. The nylon washers prevent a galvanic reaction between the mounting hardware and the base of the Searchlight. Be sure these washers have been inserted in the base mounting holes and that the mounting base gasket is securely in place before bolting down. It is recommended that a thin coating of marine grade silicone rubber be applied to the top and bottom outside edges of the gasket to improve the water resistance of

the unit. When mounting, be sure that the Searchlight is able to rotate 360° without hitting any obstructions. For the drilling hole pattern, refer to the Searchlight Mounting Template supplied with the RCL-100 LED searchlight.



**DURING INSTALLATION OR OTHERWISE, DO NOT TURN THE LIGHT BY HAND, OR FORCE IT TO TURN MANUALLY AT ANY TIME. THE PLANET GEARS WILL BE STRIPPED.**



**CAUTION:** Do not mount the searchlight upside down. Moisture could enter the light through the unprotected neck section.

**NOTE:** The Searchlight should be left uncovered if the XRCiZ (exercise) feature is enabled.

## **SECTION 3 - URP-102 POINT PAD™**

### **Case Options**

The URP-102 Point Pad™ is supplied as a surface mount unit (see *Figure 3*). A flush mount option is provided (see *Figure 4*). To switch mounting options, unscrew the six (6) screws on the unit's back plate and remove the front cover. Fit the Point Pad™ with the flush mount cover, replace the back plate, and screw the unit back together.

### **Mounting of the Point Pad**

Both the surface mount and flush mount options require access to the backside of the mounting location. Make sure there are no obstructions behind the area where the switch is to be located (e.g. bulkheads, wires, plumbing, or hardware). Check in advance that the

coax cable from the Master Controller can be routed to this location. Generally, the Point Pad™ should be mounted in a protected area. Note that the Point Pad™ is water resistant, not waterproof.

Install the surface mount Point Pad™ by drilling 3 holes in the dashboard location using the Point Pad™ Surface Mount Template supplied with the searchlight (Part numbers 1950, 1951, & 1953). Mount the Point Pad™ to the dashboard using the gasket, washers and nuts supplied. Use a sealant around the bolt holes to protect from moisture intrusion.

When the flush mount option is selected, cut a rectangular hole in the dashboard location using the Point Pad™ Flush Mount Template supplied with the searchlight (Part numbers 1950, 1951, & 1953). Use the gasket, washers, nuts, and the two U-Clamps provided to secure the Point Pad™. Use a sealant around the cut out to protect from moisture intrusion.

### **Connecting to the Master Controller**

The Point Pad™ communicates with the Master Controller via standard television type RG-59 coaxial cable and F-type connectors (supplied with the light). The connector on the back of the Point Pad™ is located in the center of the panel for ease of installation. After the coax cable has been routed and the “F” connectors attached, screw the “F” connectors to the Master Controller and the Point Pad™.

Additional Point Pads™ (up to three Pads) may be used with one (1) Master Controller. A standard RG-59 television type "splitter" is used for each additional Point Pad™ (see *Figure 1*). Limit the total length of all coax cable used to 300 feet.

The URP-102 Point Pad™ is backwards compatible with all RCL-100/50 Searchlights.

|   |
|---|
| <p><b>NOTE:</b> The URP-102 Point Pad™ should not be used with the first generation URC-100 Master Controllers.</p> |
|---|

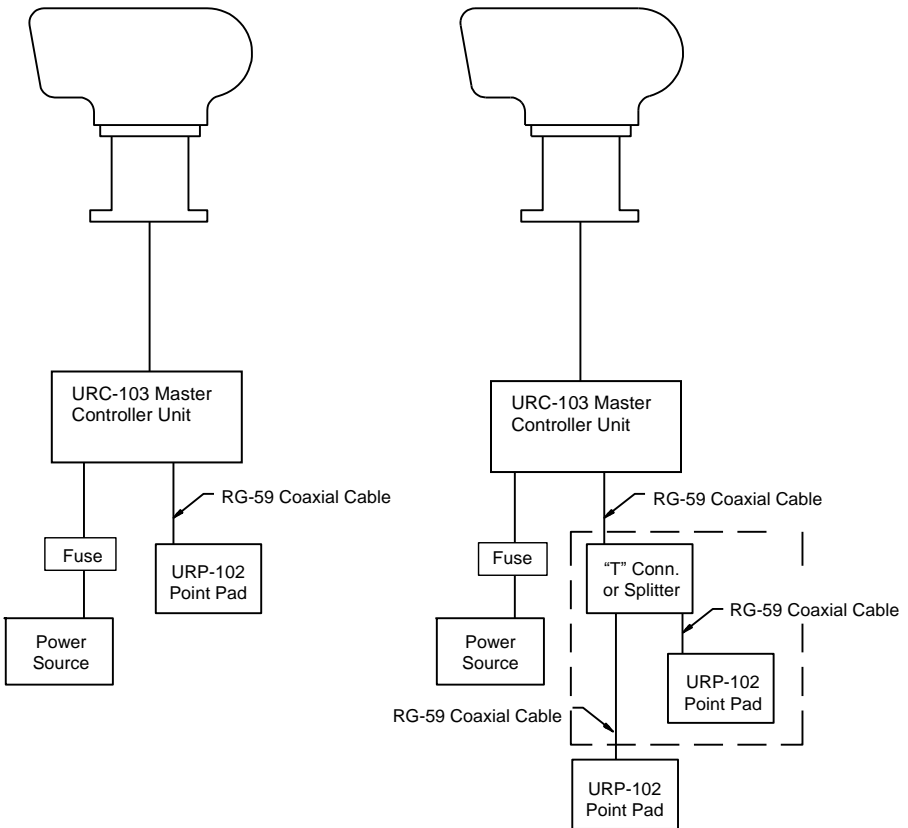
Please be aware of the following to ensure the searchlight works correctly after installation.

Vessel power to the Master Controller is connected as follows:

1. **BLUE IS NEGATIVE (-)**
2. **ORANGE IS POSITIVE (+)**

**BROWN, BLACK, WHITE, YELLOW, GREEN AND RED are CONTROL WIRES.** If **any** of these are wired to the vessel power, the unit will be irreparably damaged.

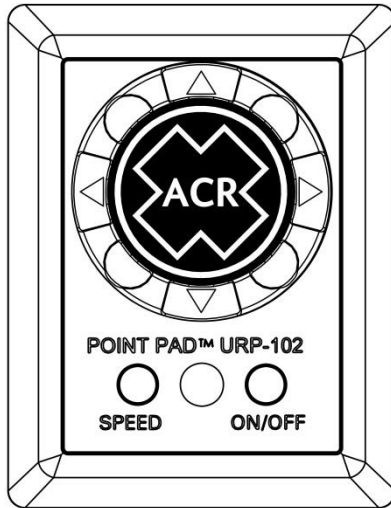
Damage as a result of incorrect wiring will not be warranted. ACR can evaluate the problem and ascertain whether the unit had a product failure or a breakdown due to incorrect wiring by the installer.



Single Point Pad™

Multiple Point Pads™

**Figure 1 - Point Pad™ Connection Block Diagram**

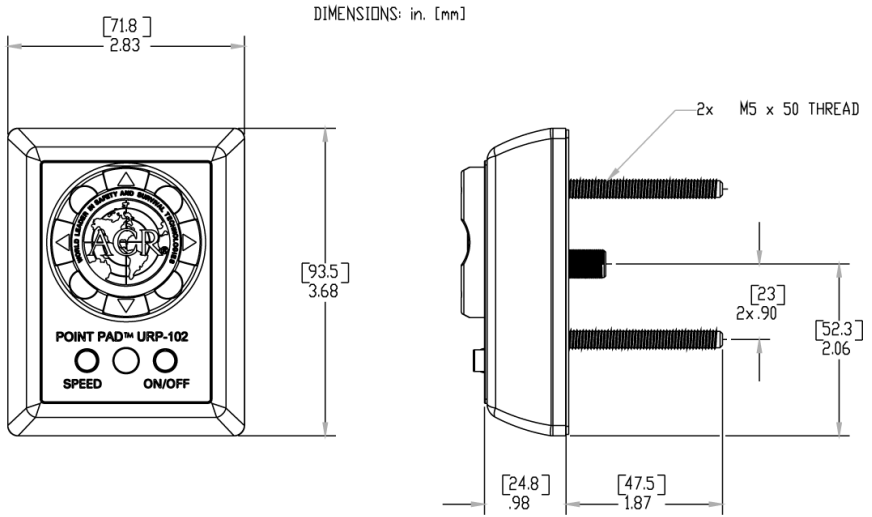


**Figure 2 - URP-102 Point Pad™ Functions**

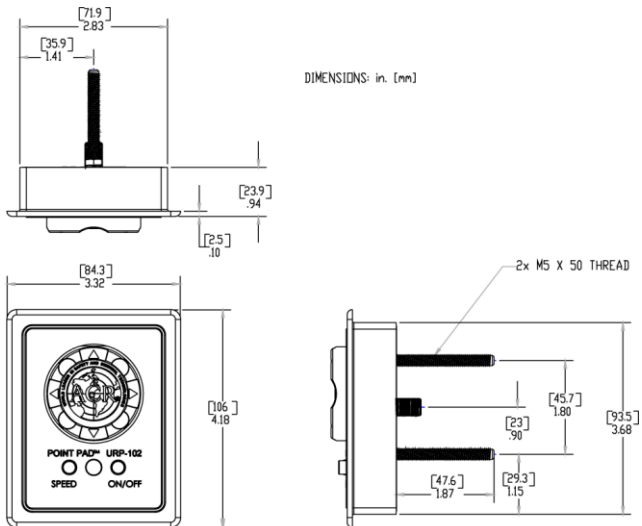
### **URP-102 Point Pad Functions**

- Press the ON/OFF button to turn the lights ON or OFF.
- Press the SPEED button to toggle between High and Low rotation speeds.
- Press the Right or Left Arrows to rotate the Searchlight in that direction.
- Press the Up or Down Arrows to raise or lower the Searchlight-beam.
- To activate the XRCiZ™ feature, press and hold the ON/OFF button for longer than 5 seconds. The green LED indicates XRCiZ™ feature is enabled.
- To deactivate the XRCiZ™ feature, Press and hold the ON/OFF button for longer than 5 seconds. The red LED indicates XRCiZ™ feature is disabled.
- An LED blinking red / green indicates that the XRCiZ™ feature is now “exercising” the Searchlight.

**NOTE:** XRCiZ™ feature for the RCL-100 LED is only available when paired with a URC-103 Master Controller.

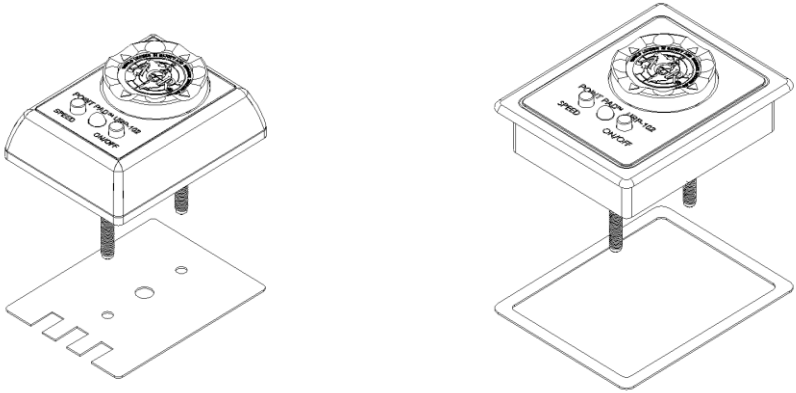


**Figure 3 - URP-102 Point Pad™ Surface Mount Case**



**Figure 4 - URP-102 Point Pad™ Flush Mount Case**





**Figure 5 - URP-102 Point Pad™**  
Surface Mount Case with gasket and Flush Mount Case with gasket

## **SECTION 4 - URC-103 MASTER CONTROLLER**

### **Mounting**

The Master Controller can be mounted in any position near the Searchlight that is protected from the weather. Check in advance that the coax cable from the Point Pad™ and the wiring harness from the Searchlight can be routed to this location. Mount the Master controller with the wires and coax facing down. Use an appropriate fastener for your mounting location. Use a sealant in fastener holes to prevent moisture intrusion.

### **General Wiring Scheme**

The RCL-100 has a unique wiring scheme. Special attention must be paid to the following chart. The Master Controller is supplied with an in-line fuse-holder on the Orange power lead. Use only 5 amp fuses in this fuse-holder. See Figure 6 for the Master Controller wiring diagram.



**WARNING:** Failure to follow this arrangement may damage components.

| Master Controller Wire | Searchlight Cable Wire | Power Source Lead    | Function   |
|------------------------|------------------------|----------------------|------------|
| ORANGE                 |                        | +12 VDC or +24 VDC** | Power      |
| BLUE                   |                        | (-ve) Ground         | Ground     |
| <b>Yellow</b>          | Yellow                 |                      | Lamp Power |
| <b>Green</b>           | Green                  |                      | Lamp Power |
| Red                    | Red                    |                      | Up         |
| White                  | White                  |                      | Down       |
| Black                  | Black                  |                      | Right      |
| Brown                  | Brown                  |                      | Left       |

**Table 1**



**WARNING:** The ORANGE wire must be fused with a 5 amp fuse in the Master Controller's in-line fuse-holder.

### **Wiring to Searchlight**

The RCL-100 Searchlight is supplied with a 15 foot integral wire harness. If you must lengthen the wire harness, use the same gauge wire to minimize the voltage drop. This is especially important for the ORANGE lamp power (+) and BLUE (-) lamp ground wires.

Following the wiring scheme shown in Table 1, use the supplied butt connectors to connect the Master Controller to the Searchlight.

### **Wiring to Point Pad™**

The RG-59 Coax cable is supplied without the “F” connectors attached for ease of routing. After the coax has been routed, strip the insulation and crimp the “F” connectors in place. Screw the “F” connectors to the Master Controller and the Point Pad™.

### **Wiring to Power Supply**

The power source must be a fused 12 VDC, 5-amp supply or 24 VDC, 5-amp supply. Following the wiring scheme in Table 1, use the supplied butt connectors to connect the Master Controller to the Power Source. Refer to Table 2 for proper wire size for connection of the input power lines.

| Wire Size | Maximum Cable Length |            |
|-----------|----------------------|------------|
|           | 12v System           | 24v System |
| #8 AWG    | 25 ft.               | 100 ft.    |
| #10 AWG   | 15 ft.               | 60 ft.     |
| #12 AWG   | 10 ft.               | 40 ft.     |

**Table 2**

**Function**

The URC-103 Master Controller is designed to perform up to six different duties on searchlights, winches, and other electrical devices. The Master Controller provides optimum voltage to ensure brightest performance and long lamp life, regardless of boat system voltage fluctuations. The Master Controller is compatible with devices requiring 12 VDC or 24 VDC operation.

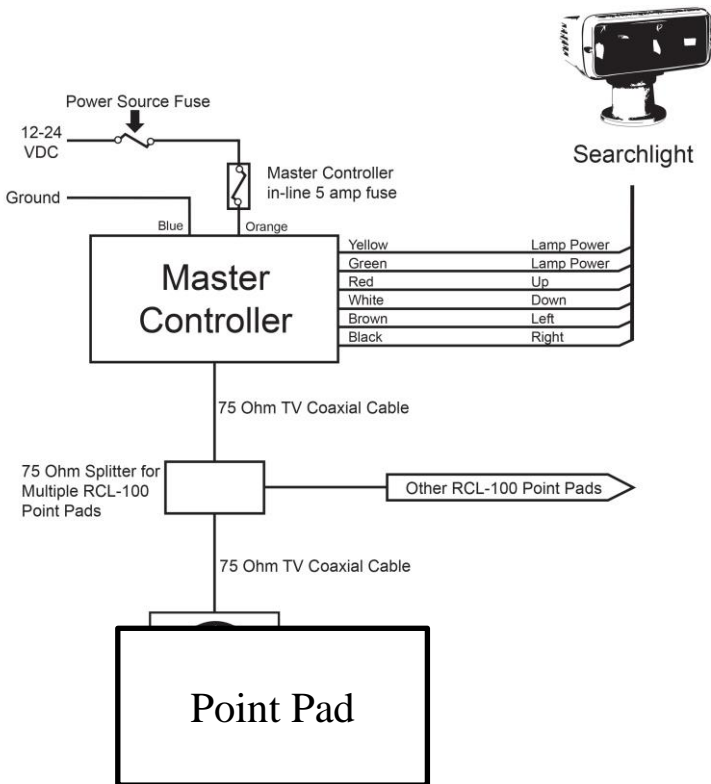
The URC-103 Master Controller has the unique XRCiZ™ feature. The XRCiZ™ feature routinely operates all moving parts in the Searchlight to keep the motors and drive mechanism freely running. Once activated, and every 30 days thereafter, the XRCiZ™ feature wakes up and operates the Searchlight. The Searchlight will rotate 360° in both directions and the reflectors will move to the full up and down positions. This feature keeps the Searchlight in peak working order when not in service for long periods of time.

To activate the XRCiZ™ feature, press and hold the Point Pad™ ON/OFF button for greater than 5 seconds. The green LED on the URC-103 Point Pad™ indicates that the XRCiZ™ feature is enabled. While enabled, The XRCiZ™ feature can be started outside of its 30-day cycle by pressing and holding the Speed button on the Point Pad™ for greater than 5 seconds.

While the XRCiZ™ feature is operating the Searchlight, pressing any Point Pad™ button will stop the current cycle and leave the Searchlight to follow any additional commands. To deactivate the XRCiZ™ feature, press and hold the Point Pad™ ON/OFF button for greater than 5 seconds. The Red LED on the URC-103 Point Pad™ indicates that the XRCiZ™ feature is disabled.

**NOTE:** The Searchlight should not be covered while the XRCiZ™ feature is enabled.

The Master Controller also has a searchlight motor timeout feature. If a Point Pad™ rotation switch (right or left) is continuously engaged for more than 50 seconds, the Master Controller will interrupt the operation until the Point Pad™ switch is disengaged. This feature will save the searchlight motor from burnout due to accidental activation. The elevation motor has similar features which will timeout in approximately 20 seconds.



**Figure 6 - URC-103 Master Controller Wiring Diagram** (Note: Wiring must be in accordance with this diagram, improper wiring will damage components)

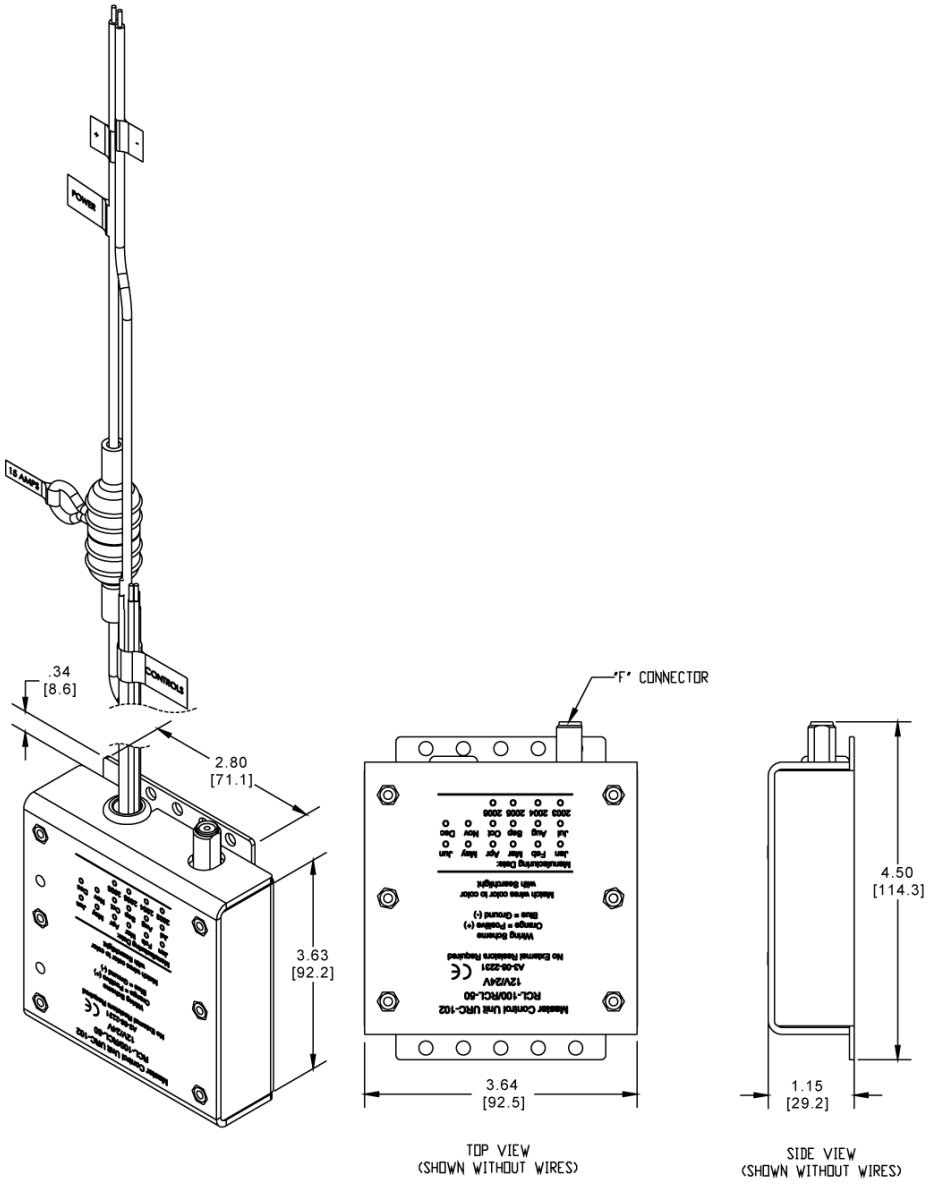


Figure 7 - URC-103 Master Controller

# APPENDIX A - RCL-100 LED SPECIFICATIONS (with URC-103 Controller)

| Specification                    | 12V or 24V                               |
|----------------------------------|--|
| Rated voltage (Volt)             | 12 - 24 VDC                              |
| Rated current (A)                | 5 A maximum                              |
| Applicable lamp                  | 9 LED Array                              |
| Peak beam candle power (candela) | 220,000                                  |
| Beam spread (degrees)            | Horizontal 7°,<br>Vertical 5°            |
| Elevation angle (degrees)        | Up 9°, Down 17°                          |
| Turning angle (degrees)          | 360°                                     |
| Elevation speed                  | 2.8° per second                          |
| Turning speed                    | Fast 31° per second, Slow 20° per second |
| Weight                           | 8.5lbs (4 kg)                            |
| Interconnect cable               | 15ft (4.57m)                             |

\*All specifications are nominal values

# APPENDIX B - USER REPLACEABLE PARTS

## ACR/RCL-100 LED

| Item Number | Description           | Quantity | ACR Part Number |
|-------------|-----------------------|----------|-----------------|
| 1           | Front Glass           | 1        | HRMK 1300       |
| 2           | Front Frame           | 1        | HRMK 2101       |
| 3A          | Window Weather Strip  | 1        | HRMK 1201       |
| 3B          | Screw M4x18           | 2        | HRMK 1600       |
| 3C          | Washer M408           | 2        | HRMK 9301       |
| 4           | Gasket of front frame | 1        | HRMK 2200       |
| 6           | Protection Cover      | 1        | HRMK 2102       |
| 7           | O-Ring #594           | 1        | HRMK 2202       |
| 9           | Shoulder Washer       | 4        | A1-05-0660-24   |
| 10          | Base Housing          | 1        | HRMK 2103       |
| 11          | Head Housing          | 1        | HRMK 2100       |
| 12          | LED Module complete   | 1        | C6800197        |

## APPENDIX C - PRODUCT COMPONENTS

**Product No. 1951** - RCL-100 LED 12-24 V Searchlight - Installation Kit includes:

| Description                                 | Quantity | ACR Part Number |
|---|----------|-----------------|
| Searchlight, RCL-100 LED, 12-24 V           | 1        | A3-06-2952      |
| Kit, Nylon Washers (4)                      | 1        | A3-06-1940      |
| Connector, "F"                              | 2        | A1-03-0220      |
| Cable, Coaxial                              | 15ft     | A2-07-0002-6    |
| Master Controller, URC-103                  | 1        | A3-06-2231-2    |
| Connector, "In-Line"                        | 8        | A1-03-0222      |
| Point Pad™, URP-102 with Surface Mount Case | 1        | A3-06-2230      |
| Case, Flush Mount                           | 1        | A1-18-1875-2    |
| Gasket, Surface Mount                       | 1        | A1-25-0140-1    |
| Gasket, Flush Mount                         | 1        | A1-25-0140-2    |
| U Clamp                                     | 2        | A1-17-1366      |
| Nuts, Nylon-lock                            | 2        | A1-05-0776      |
| Washers                                     | 2        | A1-05-0777      |
| Warranty Card                               | 1        | A1-20-1019      |
| Product Support Manual                      | 1        | Y1-03-0321      |
| Mounting Templates                          | 1        | Y1-03-0138-1    |

## APPENDIX D - ACCESSORY COMPONENTS

**Product No. 19494** - URC-103 Master Controller Installation Kit includes:

| Description                          | Quantity | ACR Part Number |
|--------------------------------------|----------|-----------------|
| Master Controller, URC-103           | 1        | A3-06-2231-2    |
| Connector, "In-Line"                 | 8        | A1-03-0222      |
| Instruction Sheet, Master Controller | 1        | Y1-06-0314      |

**Product No. 1928.3** - URP-102 Point Pad™ Installation Kit includes:

| Description                                 | Quantity | ACR Part Number |
|---|----------|-----------------|
| Point Pad™, URP-102 with Surface Mount Case | 1        | A3-06-2230      |
| Case, Flush Mount                           | 1        | A1-18-1875-2    |
| Gasket, Surface Mount                       | 1        | A1-25-0140-1    |



|                               |   |              |
|-------------------------------|---|--------------|
| Gasket, Flush Mount           | 1 | A1-25-0140-2 |
| U Clamp                       | 2 | A1-17-1366   |
| Nuts, Nylon-lock              | 2 | A1-05-0776   |
| Washers                       | 2 | A1-05-0777   |
| Adapter Plate, Flush mount    | 1 | A1-18-1871   |
| Adapter Plate, Surface mount  | 1 | A1-18-1892   |
| Instruction Sheet, Point Pad™ | 1 | Y1-06-0179   |
| Mounting Templates            | 1 | Y1-03-0138-1 |

**Product No. 1929.1** - Wiring Kit RCL-50 / 100 series searchlights includes:

| Description    | Quantity | ACR Part Number |
|----------------|----------|-----------------|
| Connector, "F" | 2        | A1-03-0220      |
| Cable, Coaxial | 15ft     | A2-07-0002-6    |

**Product No. 9282.3** – URP-102 Point Pad™ Secondary Station Installation Kit includes:

| Description                                 | Quantity | ACR Part Number |
|---|----------|-----------------|
| Point Pad™, URP-102 with Surface Mount case | 1        | A3-06-2230      |
| Case, Flush Mount                           | 1        | A1-18-1875-2    |
| Gasket, Surface Mount                       | 1        | A1-25-0140-1    |
| Gasket, Flush Mount                         | 1        | A1-25-0140-2    |
| U Clamp                                     | 2        | A1-17-1366      |
| Nuts, Nylon-lock                            | 2        | A1-05-0776      |
| Washers                                     | 2        | A1-05-0777      |
| Adapter Plate, Flush mount                  | 1        | A1-18-1871      |
| Adapter Plate, Surface mount                | 1        | A1-18-1892      |
| Splitter, 2-Way Signal                      | 1        | A1-03-0235      |
| Screw, #6                                   | 2        | A1-05-0614      |
| Cable, Coaxial                              | 15ft     | A2-07-0002-6    |
| Connector, "F"                              | 4        | A1-03-0220      |
| Instruction Sheet, Point Pad™               | 1        | Y1-06-0179      |
| Mounting Templates                          | 1        | Y1-03-0138-1    |