



Redline II Tele-foul Replacement Foul Sensor  
PN 90019 & 90020  
redlineII.doc Dec 2005

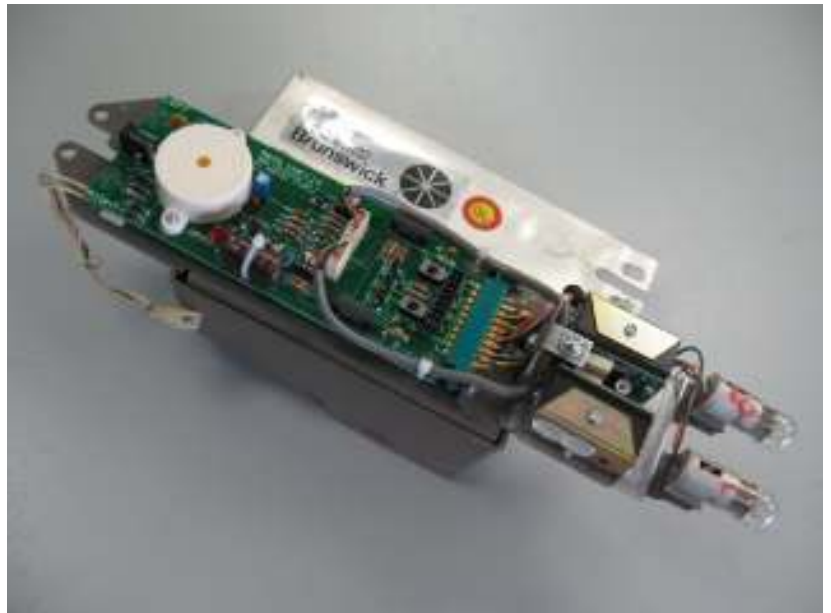
## Installation Guide

Congratulations on purchasing a new Redline II Astroline foul light upgrade kit.

This Kit is easy to install and will give you many years of reliable service. It uses the same dependable state of the art microprocessor technology as our legendary Redline foul lights.

The kit consists of,

- a) One Redline II dual foul controller board.
- b) Two Optical Heads.
- c) Two Sensor cables.
- d) Two tie wraps.
- e) One Dual Head mount.
- f) One #8-32 Screw & washer.



## **Before you begin!**

The Redline II upgrade kit will only function properly if the existing transformer, fuse, light bulbs and associated wiring are in proper operational condition. Also take a moment to check the condition of the reflector; a cracked or severely scuffed reflector will significantly impede reliable operation.

Please take a moment to check that these components are in good order.

Should the existing unit be damaged, it can be sent to

In Canada

Joystick Scoring Limited  
1621 McEwen Drive, #40  
Whitby, Ontario  
L1N 9A5  
Tel 905 432 2832

In the USA

KMR Scoring Services  
296 Bannard Avenue,  
Tonawanda, NY  
14150-6218  
Tel 716 863 9872

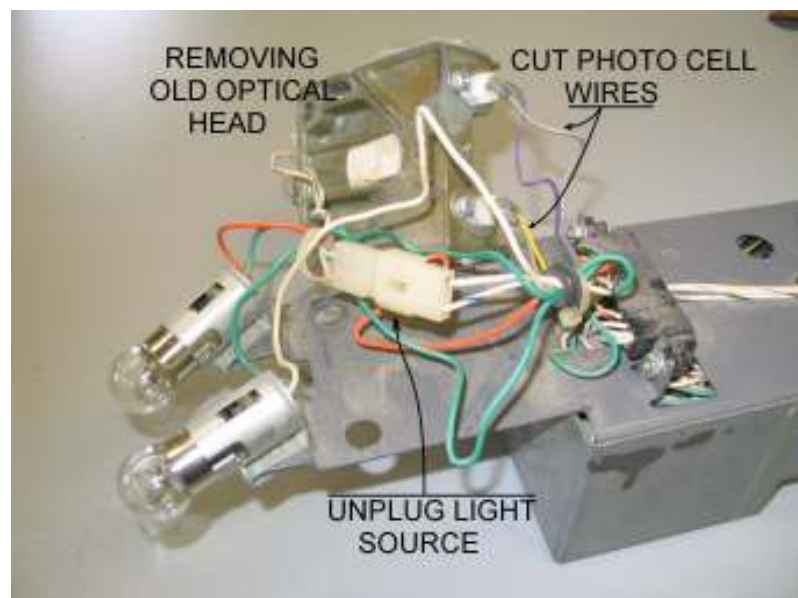
A minimal charge will apply, dependent on the nature of the repair.

Once proper operation of the existing unit is verified you can proceed.

## **Step 1/ Removal of Old Components**

Remove the old circuit board, and then remove the screws holding the old optic head assembly (the light and photocell unit).

Once the 3 screws holding it in place have been removed, carefully follow all of the wires coming from the unit to where they are soldered to the edge connector for the circuit board. These wires must be cut short to prevent accidental shorting to the case or other wiring. Use extreme caution not to accidentally cut wires that do not go to the optic head assembly.



## **Step 2/ Install the New Optical Assembly**

The new optical assembly consists of two sensing heads pre-mounted on a specially designed swivel bracket. The entire unit is pre-assembled and is simply mounted in place of the old optical assembly with the two #8 X 1" screws and the 10-32 X 1/2" screws supplied in the kit.

The most obvious difference is that each lane has its own sensing head mounted with 2 #4 screws and can be individually adjusted to aim properly at the reflectors. This will make any adjustments much easier.



## **Step 3/ Install the Controller Board**

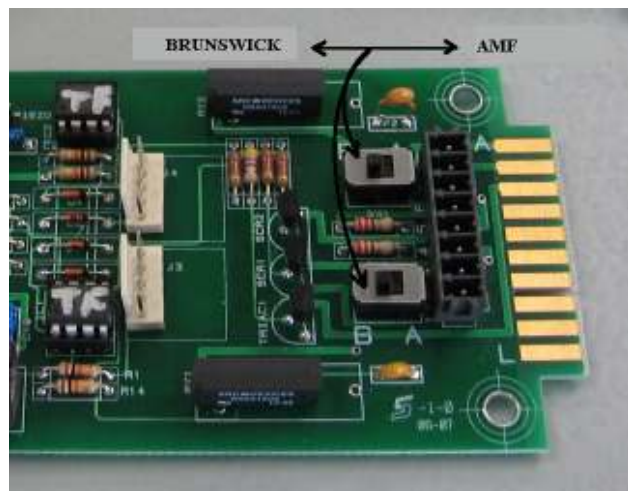
The new board is simply plugged into the old edge card connector. Then the sensing head cables are plugged into the appropriate sockets on the board. Be careful to get the orientation correct and not to bend any pins on the connector.

The board features two switches which allow you to select the type of scoring system that is connected to the foul lights. Simply set them to either AMF (AL & AR position) or for Brunswick (BL & BR position).



AMF scoring systems require voltage output to signal the scoring system and Brunswick requires a switch closure to signal the scoring system.

In cases where an AMF scoring system was previously functioning with the old boards, select the Brunswick position (frequently a signal converter had already been installed with the scoring system).

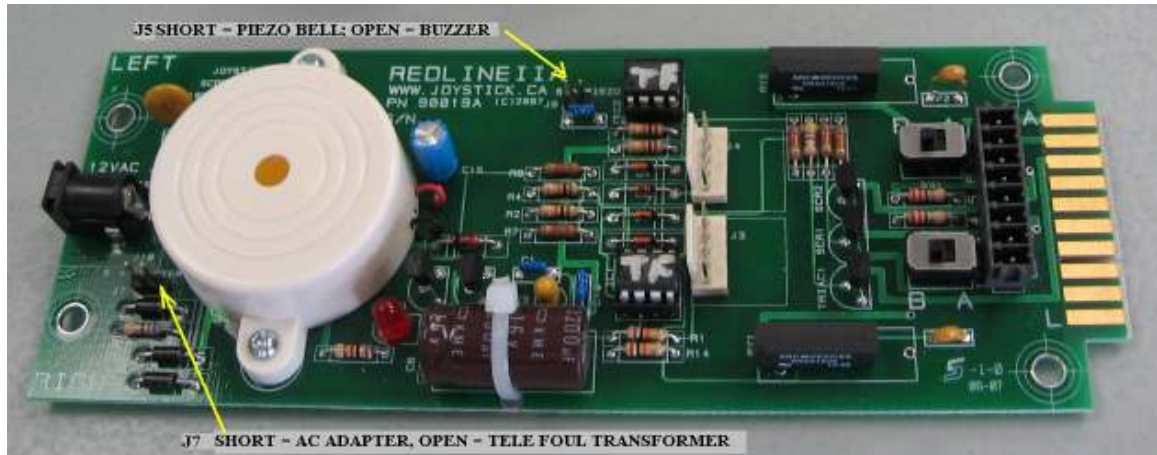


#### **Step 4/ Turn it on!**

This is the best part! If everything is correct the red indicator lights will be off. They will turn on when the beam is broken. Check for proper alignment by covering half of the reflector. This will reduce the signal and if the sensor is aimed properly, it will continue to function.

Once you are satisfied with the beam alignment, make sure all screws are tight, and replace the covers. Take extra care that the wires do not get pinched or caught anywhere.

The unit is shipped with a shunt in J5. This will select the built in Piezo Bell. Removing the shunt will make the unit use the old buzzer.



You are now ready to enjoy your new trouble free Redline II foul light upgrade!

#### **Tele-Foul Indicator Lights**

The old Tel-e-Foul unit has 2 resistors that are in series with the number 90 foul indicator bulbs. If these are burnt out, the new unit will not light the foul indicators, although it will still send fouls to the scoring system and buzz.

These resistors are easily replaced with 10 ohm 5 watt resistors that can be ordered from Joystick Scoring Limited. The picture shows the resistors with a red circle around the suspect components. These resistors usually just burn out and you will have no indicator light at all, although they certainly cause the lamp to go dim too. Their value is easily checked with an ohm meter.

The foul board can also cause the lights to go dim. In that case it is probably easier to upgrade the whole unit. You can however verify that the board is bad by switching it with a neighboring unit to see if the problem goes away.

