joystick SCORING
www.joystick.ca

Redline II Tele-foul Replacement Foul Sensor
PN 90019A& 90021

new redlineII upgrade kit.doc Feb 2018

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) One Dual Head mount.
e) One #8-32 Screw

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
6-470 King Street West, unit 140
Oshawa, On
Tel 905 432 2832

In the USA

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

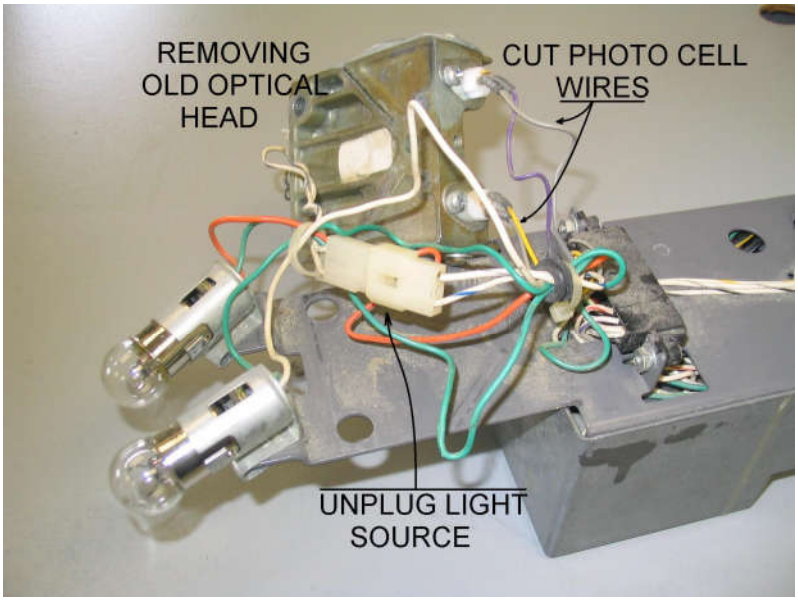
A minimal charge will apply, dependent on the nature of the repair.

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

Step 1/ Removal of Old Components

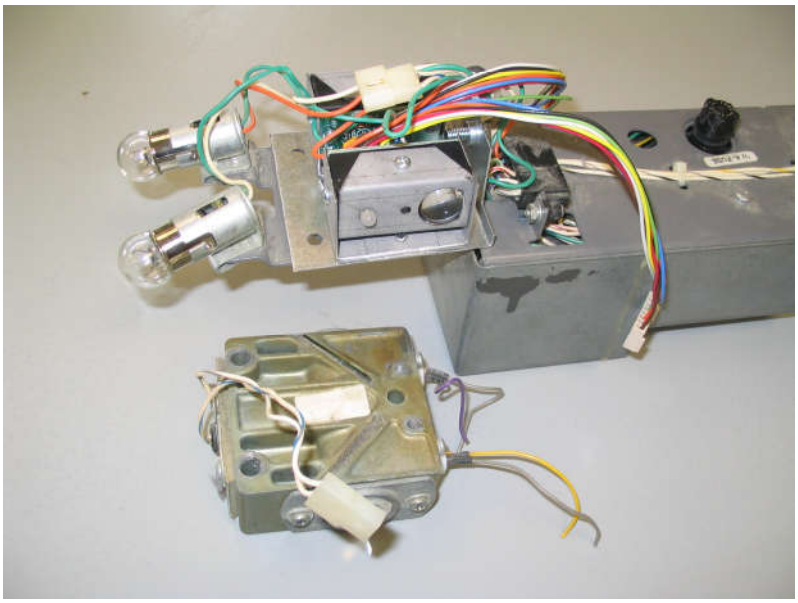
Remove the old circuit board, and then remove the screws holding the old optic head assembly (the light and photocell unit).

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

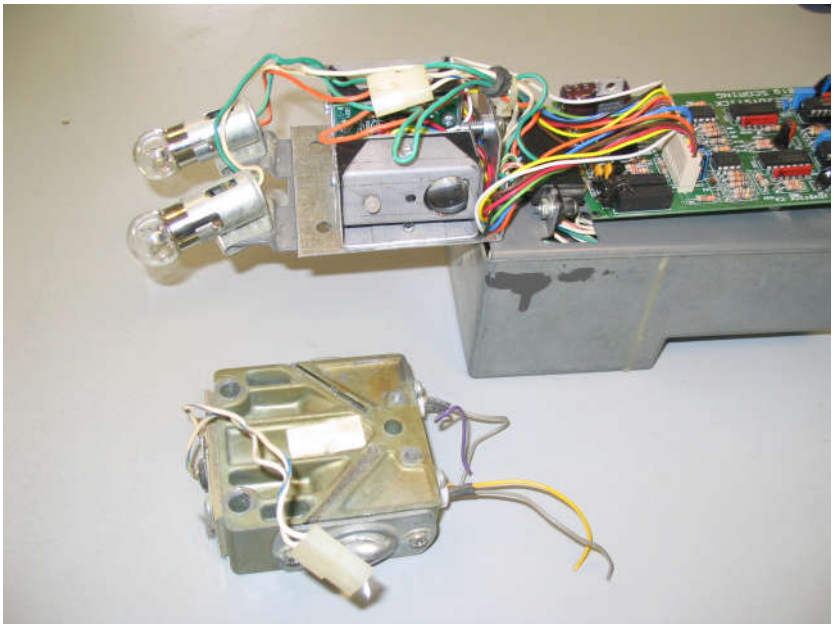
The new optical assembly consists of two sensing heads pre-mounted on a specially designed swivel bracket. The entire unit is pre-assembled and is simply mounted in place of the old optical assembly with 10-32 screw supplied.



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.

There is a locking nut between both sensors that can be gently tightened once both sensors are properly aligned with the reflectors.

The sensors have a single red light that is off when they "see" the reflector. Sometimes covering half the reflector makes it easier to get proper alignment and then uncovering them when you are satisfied. This insures the beam is "sees" all of the reflector properly.



Step 3/ Install the Controller Board PN90019A

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.

PN90019A settings

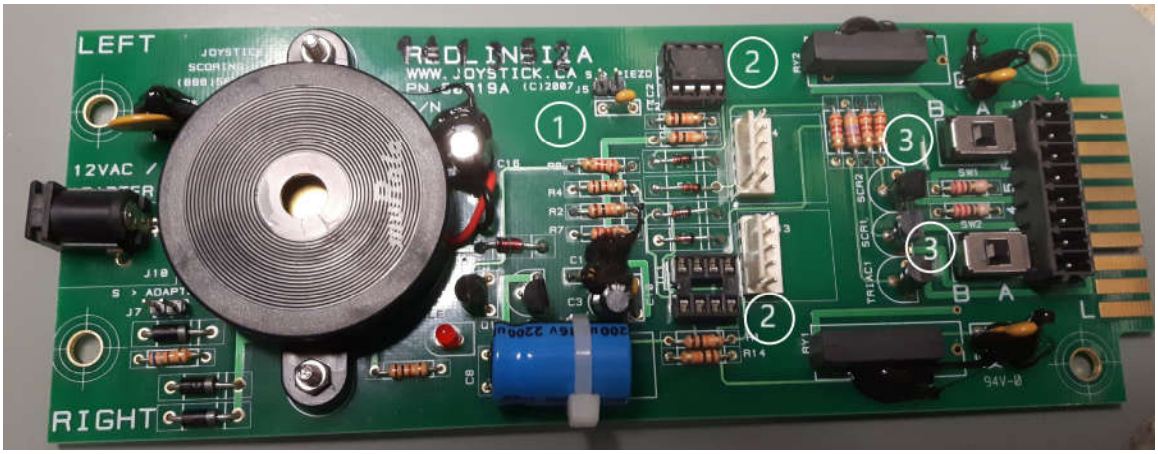
In the picture of the new board, note that there are two switches (circled item 3) in the photo of the foul controller board below which allow you to select the type of scoring system that is connected to the foul lights. Simply set them to either AMF (A position) or for Brunswick (B position).

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).

Inserting a shunt int J5 (circled item 1) will disable the old buzzer and turn on the board's own piezo bell.

When running the board in single lane mode, the foul controller chip must be inserted into the appropriate 8 pin dip socket, IC1 & IC2 (circled items 2) for either left or right lane operation. Note that the PIC78F508 is polarity sensitive (note the notch at one end of the PIC78F508 chip must correspond to the notch on the board ident). Please use caution when moving the PIC78F508 chip in order to avoid bending pins or exposing it to static discharge while out of the socket.



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.

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

Extra help!
Below is the schematic for the foul light wiring. A frequent source of problems are the 10 ohm 3 Watt resistors in series with the #90 foul indicator bulbs. If the bulbs are good and they don't light up when there is a foul these resistors may need replacing. You will note that connection A for the old photo cells is no longer used.