Xenon strobe controller replacement kit

Parts bag:

|	
Green screw terminal block	1
White AMP connector	4
Female socket pins, PCB mount	12
Mounting spacers	4

Controller board assembly

1: Follow the assembly instructions given in the guide **Part 2: Building the Controller Board**. Your controller board is the same basic layout, just a little oversized in comparison! Come back to this guide when you're done.
The DB15 connector can be installed on the board even though it won't (or shouldn't need to) be used.

2: Open the supplementary parts bag. Insert the green screw terminal block oriented as shown below.
Turn the board over and solder one pin, and then check that the terminal block is still sitting flush to the PCB. Solder the remaining pins.
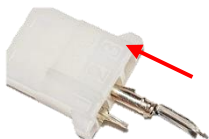
3: Holding the female socket pins by the pointy end, insert three socket pins into the bottom of the white AMP connectors. We find it easier to push the pins half way in by hand, and then gently push the assembly down on the bench to click and lock the pins into place. These things are sharp! If you're working at the dining room table try not to leave any holes in it…

4: Insert a completed AMP connector into the Power In position on the PCB, taking note to match the orientation of the socket with the outline marked on the board.
Note the ridge on the connectors identifying pin 1.
Solder one pin in place and check that the connector is still standing reasonably straight on the PCB. The socket body will sit slightly above the PCB.
If required reheat the pin to re-orient the connector, then solder the remaining two pins.
Repeat for the Left, Right, and Tail AMP connectors.

Mounting the completed controller board

5: The PCB has the same footprint and mounting holes as a Whelen HDACF xenon strobe power supply. If your power supply was a different shape or had different mounting holes, drill new holes in the board as required to match the existing fastener locations in your plane. The board size and shape may also be altered as needed.

6: Fit the completed controller board to your plane, keeping the bottom of the circuit board clear of any metalwork.
We have supplied four spacers that can be used if needed to elevate the board to avoid short circuits.

7: Plug in the existing strobe wiring harness cables. Secure/clamp the cables nearby to minimise flex movement, preventing subsequent future issues with solder joint failures of the AMP pins.

8: If the shields for your strobe cables are already adequately connected to airframe ground then there is no need to change your existing arrangements. Alternatively two of the green terminal block locations (as marked) may be used as a ground connection for the cable shields.

The electronics may be covered using a Hammond 1591XXS series box. There are also files to 3D print boxes available on the Info page of our website.

The Original kit
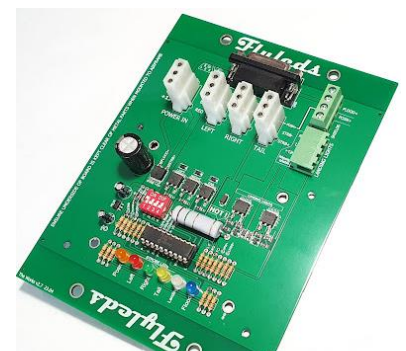
The Works kit

Wingtip wiring

The following steps assume your exsting shielded strobe cable has RED/BLACK/WHITE wires connected to pins 1/2/3 respectively in the white plugs at the controller board end. Substitute accordingly if you have different wire colours.

Note that the green plugs are wired in mirror image of each other on the left and right sides of the plane.
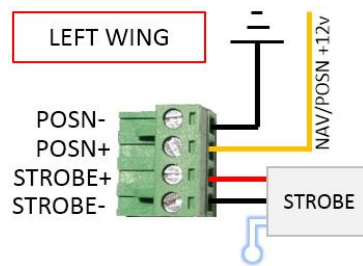
9: Connect the red and black wires from the shielded cable as shown here. The white wire is not used and should be insulated (but see also step 12b below).

10: Add the power wire from your existing Nav/ Position light circuit as represented here in orange.
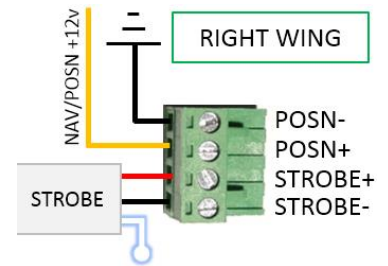
The Position light circuit (only) may be grounded locally at the wingtip, or you can use the shield wire from the grey strobe cable as a ground wire instead. If you are not using the cable shield for this task it should be cut short and insulated and not connected to anything else.

> Note that there is no *Strobe Ground* wire or terminal in the Flyleds system. The controller board flashes the strobes by intermittently connecting each STROBE- (minus) wire to ground. The STROBE- wire, or the TAIL- wire, **must not** be connected to ground as this will result in the strobes being permanently jammed on.

Tail light wiring

11: Connect the red and black wires in your existing shielded tail strobe cable to the white and black wires respectively on the tail light.
* Ensure that the two wires from the tail light are **only** connected through to the Flyleds controller board.
* Any extra ground connections you choose to add will damage the light!
* Insulate and *do not connect* the cable shield to anything at the tail light end.
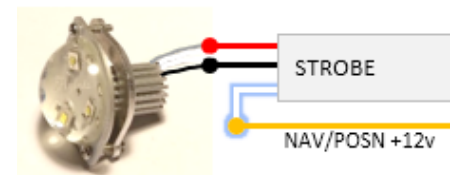
Tail light Nav/Position mode enable

12: The Flyleds controller board also needs to be connected to your plane's Nav/Position light circuit so it knows when to energise the Flyleds tail light to act as a position light.
The adapter board can use Pin 3 (white wire) on any of the AMP connectors for this purpose.

Choose one of the following methods:

A: (Easy) The existing Position light +12v power out at the tail (represented above by the orange wire) can be sent back to the controller board via the spare white wire within the shielded cable as shown in the diagram above. Join and insulate the two wires.

B: (Easy) Make this connection at one wingtip instead. Add the spare white wire from the shielded strobe cable to the (orange) wire in the POSN+ screw terminal, as shown here.

C: (Harder!) Run a new 20AWG wire directly from the NAV/POSN switch on the panel through to the controller board location. Terminate this wire into the POSN+ terminal in the green terminal block.
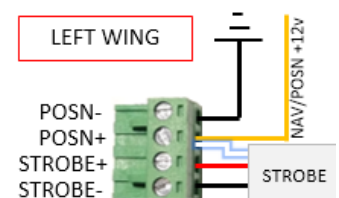
Pin 9 Input

Pin 9 of the controller board DB15 connector is also present at the green terminal block. For The Original kit this terminal is marked W/W and it activates a wigwag (slow flash) mode for the strobe LEDs. For The Works kit it activates the Flood mode, which illuminates the strobe LEDs at low power for additional light when taxiing.
Please refer to the System Installation guide for further information.