

3: SYSTEM INSTALLATION

The controller board can be mounted anywhere convenient inside your plane, such as under a seat, behind the instrument panel, or in place of a conventional strobe pack.

When wired correctly, radio or intercom noise will not be an issue.

The plastic standoffs supplied simply push and click into place, and can be squeezed to release the board. You need to drill 4.5mm or 3/16" holes in your plane.

Power:

- 12 volt systems only.

Position LEDs:

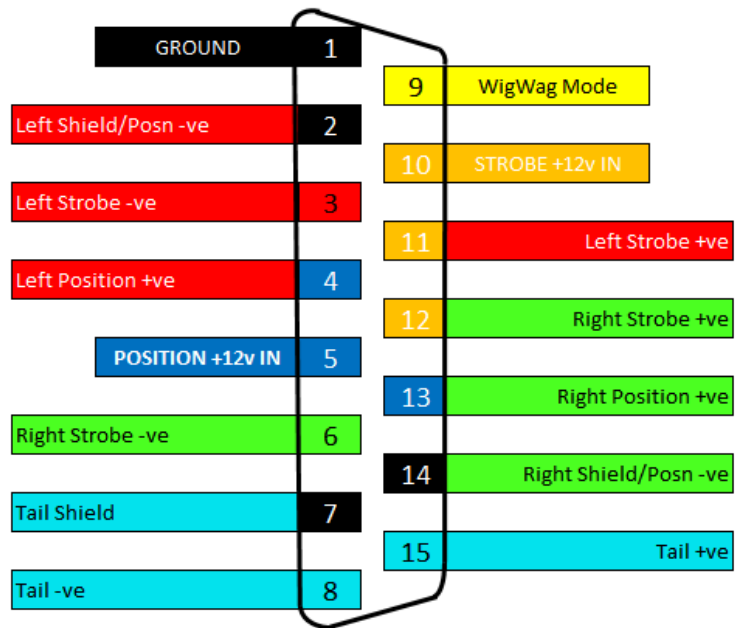
- ~1 amp current draw per wing, ¼ amp for the tail light.

Strobe/WigWag LEDs:

- 6 amp peaks, 3 amps average strobe system current.

Circuit Protection:

- Power for the **Strobe/Wigwag** circuit must be supplied via a **7.5 or 10 amp** fuse or circuit breaker, using normal un-shielded 18-20 AWG wire.
- Power for the **Position/Navigation** circuit must be supplied via a **5 amp** fuse or circuit breaker, using normal un-shielded 18-20 AWG wire.

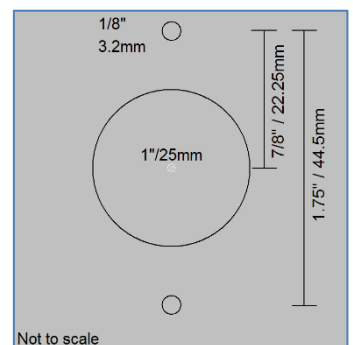


Bench testing a Flyleds kit may only be performed with a 12 volt battery or a **regulated** power source of no greater than 15 volts. A 9 volt smoke alarm battery also works very well! **Do not** use a battery charger without a battery in circuit as well, as its output voltage can float significantly higher than this which may cause damage.

Tail Light Mounting

The optional Flyleds tail lights are supplied with a laser cut bronze coloured mounting bracket and two M3 stainless steel screws. The bracket provides a sturdy method of mounting your tail light to the fiberglass on the tail of your plane.

Drill the mounting screw holes and a 1 inch clearance hole in the rudder fairing. The bracket may then be permanently fixed into position *inside* the fairing using an adhesive or bonding method of your choice.



STROBE LIGHTS:

The Strobe LED circuits will only work when *both* the **STROBE+** and **STROBE-** wires from each wing and the tail connect back to the Flyleds Control Board. +12 volts is sent out to the strobe LEDs whenever Strobe power is applied. The strobe LEDs are then flashed when the controller board switches the STROBE- wires to ground.

Note there is no wire at the wings called Strobe Ground! Do not make any extra ground connections to the strobes.

When strobed, each wing draws approximately 6 amps of current for the duration of each flash. This is a very fast rise- and fall-time current, which has a small potential to cause radio or intercom noise. To eliminate the possibility of noise, we recommend running the **Strobe** circuit to the wings and the tail using shielded wire.

18 to 22 AWG, 2 3 or 4 core shielded wire may be used. In this (current driven) application 22AWG works perfectly.

WigWag Mode:

When power is applied to *both* Strobe and WigWag inputs the Strobe LEDs will alternate slowly between left and right sides. If you are a daytime only flyer without landing lights the slow flashes are more visible to others than short strobe flashes. Be seen, be safe!

POSITION LIGHTS:

The Controller Board simply provides a convenient way to distribute +12v in from the panel switch out to each of the three position lights, by using the same shielded wires as the strobes. If you have already run power wires for the position lights out to each wing you may continue to use them, as the position lights will not generate any radio or intercom noise. However the control board will need to be connected to this circuit as well, so that it knows to operate the Flyleds tail light at reduced power in position mode.

The wing **Position** LEDs *may* be grounded either locally at the wing, or via the controller board using the **L shield** (pin 2) and **R shield** (pin 14) connections, such as when using shielded cable for the strobes.

(Normally the shield should not be used to carry current, but in this application it works just fine.)

KIT TAIL LIGHT:

The Kit version of the Tail Position/Strobe light **relies** on the large resistor on the Flyleds Controller Board for current limiting.

- **This model Tail Position/Strobe light *must only* have both + and – wires connected back to pins 15 and 8 of the Controller Board.**
- The Controller Board operates the tail light at ~10% power when the Position Light switch is on, and sends it 100% power for each strobe flash.



We leave the choice of a connector (or not!) at the tail light up to you. The shield in the cable to the tail light should be grounded at the controller board end only. **At the tail end insulate the shield and do not connect it to anything.**

PLEASE NOTE! Connecting this tail light to a 12 volt source, even for a 'quick test', will result in one brief flash of light followed by the total destruction of the device!

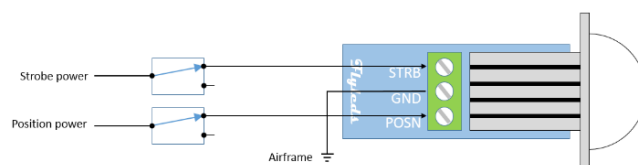
You *may* use a square 9 volt battery to test the Kit Tail light and/or the wiring to it, as this type of battery can only deliver a limited amount of current.



STAND-ALONE TAIL LIGHT:

If you have purchased our Stand-Alone tail light with the integrated circuit board, wire it directly to your Strobe and Position light switches on the panel, and ground it locally at the tail. Do not connect it to the Controller Board.

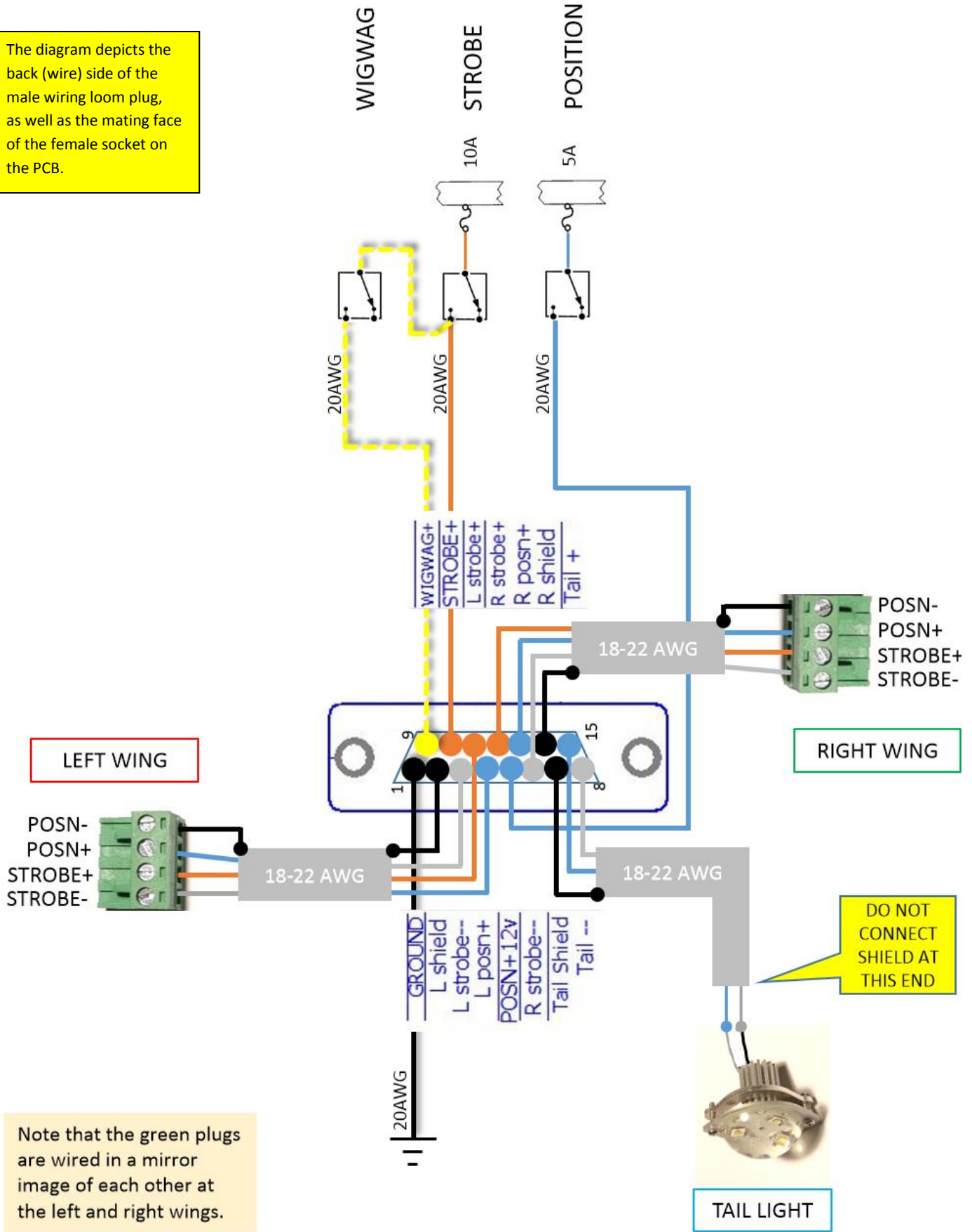
Yes, you can test this one with 12 volts!



SYSTEM WIRING DIAGRAM- new wiring

This diagram shows the simplest method of connecting the wing boards to the controller, using a single three wire shielded cable out to each wingtip. The tail light should be connected using two wire shielded cable. The optional WigWag mode requires power on both Strobe and WigWag inputs to activate.

The diagram depicts the back (wire) side of the male wiring loom plug, as well as the mating face of the female socket on the PCB.



Note that the green plugs are wired in a mirror image of each other at the left and right wings.

DO NOT CONNECT SHIELD AT THIS END

SYSTEM WIRING DIAGRAM- reusing existing wiring

If you are replacing a conventional xenon strobe system this diagram shows how you can reuse the existing shielded wires, as well as the standard unshielded Position/Nav light wires as represented by the orange lines below.



* The position lights (only) may be grounded locally at the wingtip.

* In order to fit 20 AWG crimp pin connectors, peel a few strands off 18AWG wire to reduce its size.

* Note that we now sell a plug and play adapter kit to facilitate retrofitting a Whelen strobe power supply with the Flyleds controller board. See the website for more details.

* The controller board also needs to be connected to the position light circuit so it can energise the tail strobe at low power to act as a position light. This can be achieved by running a wire directly from the NAV/POSN panel switch to the controller Pin 5 (POSN +12v) or, the existing position light +12v power out at the tail or a wingtip could be sent back to the controller board via a spare wire within the shielded cable, as shown by the white wire from the tail light to Pin 5.

