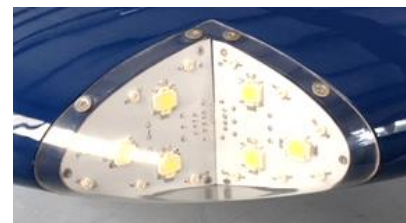


## Flyleds ACM Strobe Controller Board Installation



Advanced Flight Systems/Dynon supplies their Advanced Control Module or ACM as a component of their aircraft instrument panel wiring range. Along with many other features, the ACM provides power ports to drive:

- Landing lights
- Taxi lights (ACM-ECB version)
- Position (nav) lights
- Strobe lights.



This guide shows you how to install a **Flyleds** lighting kit using our new ACM controller board.

### Aircraft Rear connector

Most of the fuselage wiring for your plane originates from the Aircraft Rear connector. The Flyleds ACM control board is placed in between the Aircraft Rear connector and the wiring harness out to the fuselage. This allows the board to reconfigure the Strobe Sync wires to work with the Flyleds position and strobe light kits.

The control board **passes through** all other connections unaltered, including the Pitot Heat, ELT, and the EFIS digital switch inputs. The Landing Light circuits are also passed through unaltered, so the ACM's airspeed-based automatic wigwag function continues to operate as expected.

Indicator lights are provided for the Landing lights, Pitot Heat power, and Position and Strobe light circuits.

### Installation

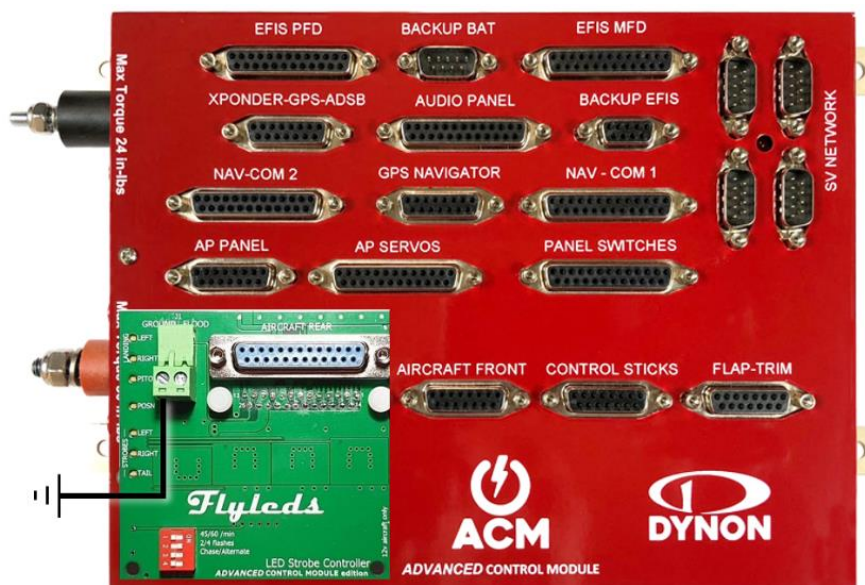
The Flyleds ACM Control board simply plugs into the **Aircraft Rear** DB25 connector on the ACM.

The wiring in the Aircraft Rear harness remains unchanged and plugs into the relocated blue DB25 connector marked Aircraft Rear on the Flyleds ACM Controller Board.

Two mounting feet have been provided to use in the bottom corners of the controller board. They have adhesive pads that are optional to use.

Two 4-40 thumbscrews are used to secure the Flyleds controller board to the ACM's DB25 connector.

Two ½" long #4-40 screws will also substitute here.



### Flyleds Ground

The green terminal block includes a ground connection point.

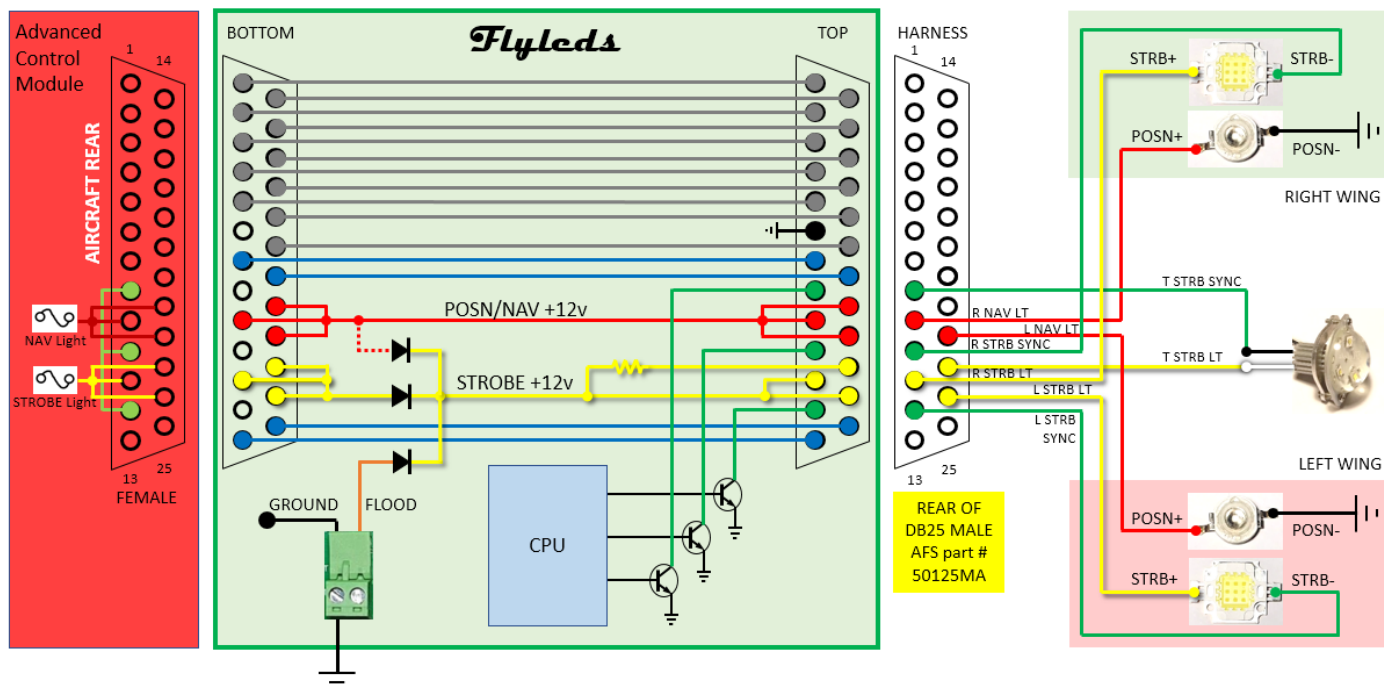
**This ground connection is essential for the operation of the Flyleds position and strobe lights system.**

- Use a suitable length of 18 AWG wire and terminate the other end with a ring terminal. Connect this end to a suitable ground point nearby, for example under one of the ACM mounting screws to the sub-panel, or at the same screw as the ACM's ground point. It carries an average current under 5 amps.

## System Overview

The diagram shows how power is routed through the Flyleds controller board. Note that almost all of the circuits from the Aircraft Rear connector are connected straight through the Flyleds board.

Refer to **57850 Aircraft Rear Harness** diagrams in the ACM Installation Manual for further details on those circuits.



When the **Position/Nav light** switch is turned on, the ACM sends +12 volt power to the wingtip position lights via the **red** wires. The Flyleds CPU also energises the tail light at 10% power.

When the **Strobe** switch is turned on, the ACM sends +12 volt power to the wingtip strobe LEDs and tail light via the **yellow** wires.

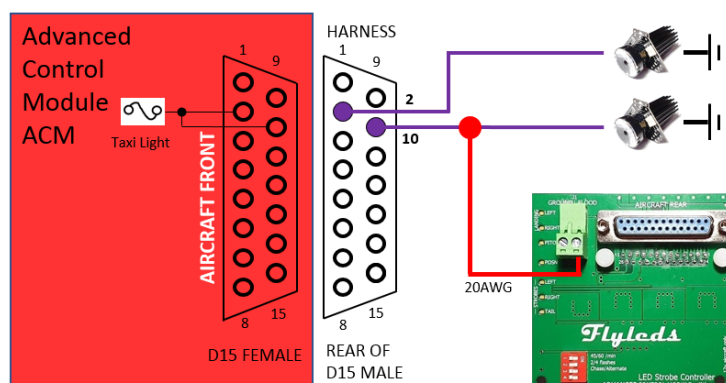
The ACM internally connects pins 8, 10 and 12 so as to connect the strobe sync wires together, which suits strobe lights supplied by Van's Aircraft. The Flyleds controller board instead reconfigures these pins on the harness side.

The Flyleds controller board intermittently switches the *negative* leads of the strobe LEDs (**green** wires) to ground with the transistors shown above to turn on the left, right and tail strobes and make them flash in turn.

## Flyleds Flood light function

The Flyleds ACM Controller also incorporates an *optional* Flood function that will light up the **strobe LEDs** at reduced power to illuminate the area around the wingtips and tail for better situational awareness. This function should be used in addition to regular taxi lights.

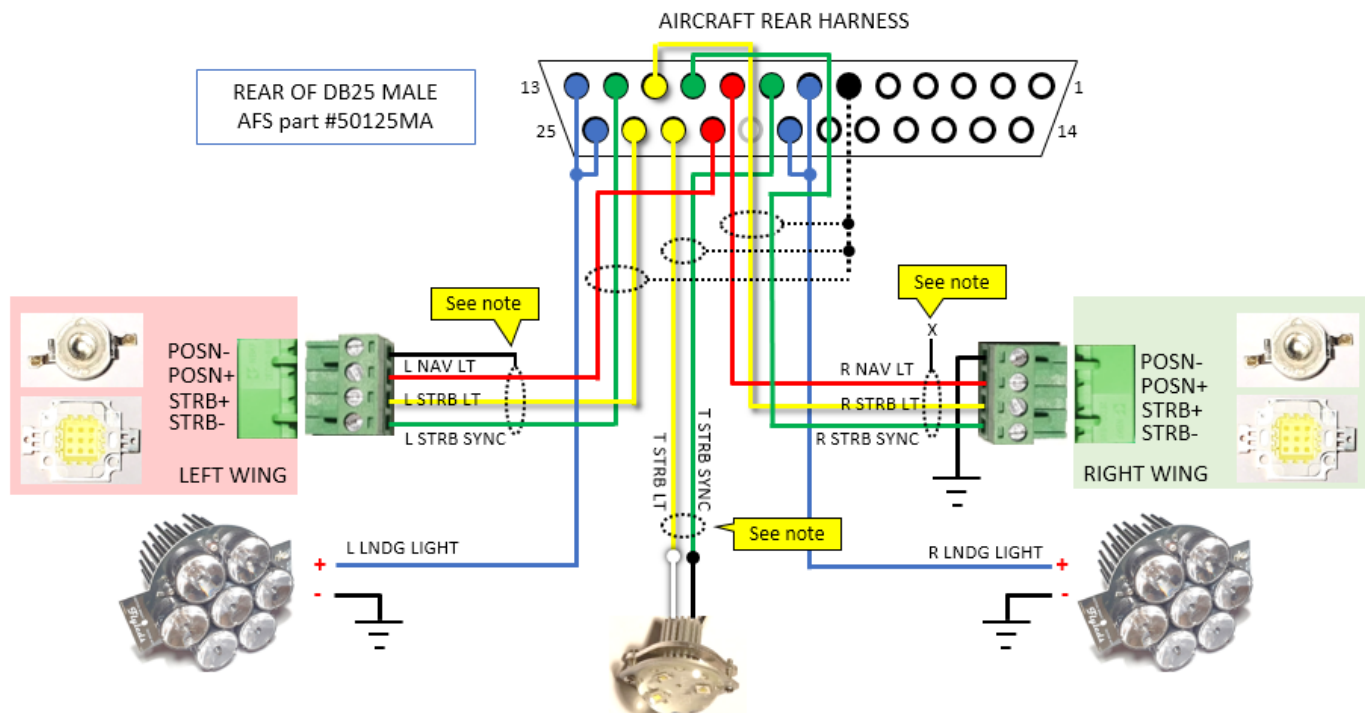
On the electronic fuse ECB version of the ACM a single 10 amp power circuit is provided for taxi lights on **Pins 2 and 10** of the **Aircraft Front** Connector.



- Using a 12" length of 20AWG wire, splice into one of the Taxi light output wires (pins 2 and 10) from the **Aircraft Front** harness and connect the other end to the Flyleds FLOOD input, as shown by the red line in the diagram.
- Note that the Strobes have priority over the Flood light function.  
If the taxi lights are turned on at the same time as the strobes, the strobe LEDs will continue to flash.  
When the Strobe panel switch is turned off the strobe LEDs will automatically begin to operate in Flood mode.

## AFS 57850 Aircraft Rear wiring harness detail

Follow the wiring diagram as shown to connect the Flyleds Position and Strobe lights to the Aircraft Rear Harness connector. **Note that the green plugs are wired in a mirror image of each other at the left and right wings.**



- We recommend using shielded cable for neatness and convenience, however individual wires may also be used. You can use your choice of 22 to 18 AWG wire. We use 22AWG in our harness kits. The brightness is the same.
- The Position light circuit (POSN-) may use a cable shield as the earth return, as per the example shown with the left wing, **or** they may be grounded locally at the wing as shown at the right wing. **Choose only one method!** In the right wing example, insulate and do not connect the shield to anything at the wingtip end.
- The cable shields can be connected together and terminated on pin 6 of the Aircraft Rear connector.
- The Strobe circuits **must only** have both Strobe+ and Strobe- connected back to the controller board as shown. Do not connect Strobe- to ground. Doing so will cause the strobe LEDs to stay on continuously and not flash.
- The ACM rear harness connector provides two 5 amp capable pins for both left and right landing lights.
  - If you are installing **The Works, Combo or Quad Spot** lights a single 18 AWG wire may be used for the run to the landing lights. At the ACM end trim out 4 or 5 strands to allow the wire to fit into a 20 AWG crimp pin.
  - If you are installing the **Seven Stars** lights use 16 or preferably 14 AWG wire out to the lights. Splice two 6" long 20 AWG wires to the larger wire at the ACM end and terminate them into the two pins provided for each of the landing light circuits, pins 13 & 25 for left, and 7 & 20 for right.
- Ground Flyleds landing lights locally at the wing ends. There is no need to run this ground wire back to your firewall common ground point. Flyleds lights do not generate any headset noise! By exception, if you have a magnetometer in a wing, ground the landing lights for that wing at the wing root instead. The magnetic fields generated in the power and ground wires will cancel each other out, keeping the magnetometer oblivious and happy.
- Not shown in the diagram above are the wires for the taxi light circuits in each wing. (See previous page).
- The Flyleds Kit version tail light **must only** have both of its wires connected back to the controller as shown in the diagram above.
  - If shielded cable is used, at the tail light end insulate and **do not connect the shield to anything**.
  - Do not** ground the tail light.
  - Do not connect this model tail light directly to 12 volts**, even for testing. You will be buying a new one if you do! You *may* use a square 9 volt battery for testing purposes.



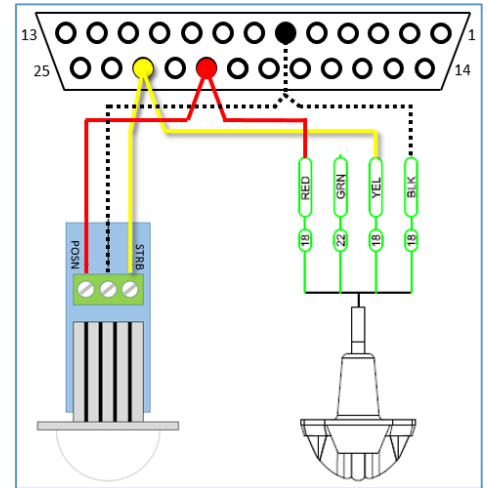


If you are using a Van's tail light or a Flyleds Stand Alone tail light, wire it as shown at right. Yellow is Strobe+, Red is Position+. The light may be grounded locally or via the cable shield if used. Note that the green sync wire on the Van's light is not used.



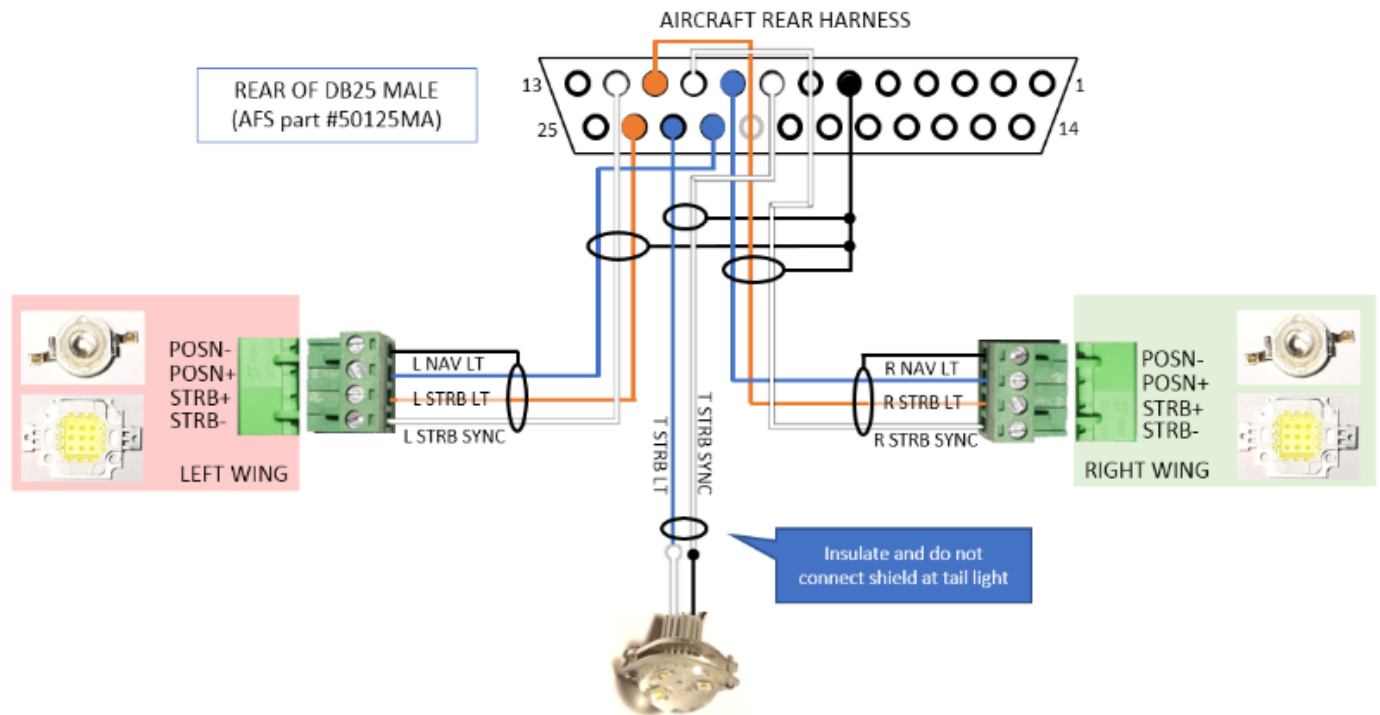
At the top of the controller board the solder pad marked "T" should be clear of solder, and the link beside it should be cut or not present.

(This link combines both Position and Strobe light power on ACM pin 23 to suit the Flyleds kit version tail light. If the link is present with these other type of tail lights, turning the Navs switch on will turn the tail Strobe mode on as well.)



## ACM Controller wiring diagram using typical M27500 shielded cable wire colors

The color scheme shown here also corresponds with the wiring diagrams in other Flyleds installation guides.



## Cable shields

The cable shields should all be joined together and connected to pin 6 in the Aircraft Rear connector. Either use individual heat shrink shield terminators, or make pigtails for each one as shown below and join them together.

