

## Combo Light parts list

### Landing Light components

Triple LED PCB, 132x120mm	1	<input style="width: 100%; height: 20px;" type="text"/>
Single LED PCB, hexagonal, 1x XHP35 LED	1	<input style="width: 100%; height: 20px;" type="text"/>
Spotlight lens, 8° beam	4	<input style="width: 100%; height: 20px;" type="text"/>
Spotlight lens holder 38mm	4	<input style="width: 100%; height: 20px;" type="text"/>
Pin Heatsink, 40mm diameter 70mm high	4	<input style="width: 100%; height: 20px;" type="text"/>
Anti-Decapitator (lens locator) rings	4	<input style="width: 100%; height: 20px;" type="text"/>
Diffuser disk, 20° beam	1	<input style="width: 100%; height: 20px;" type="text"/>

### Single LED PCB assembly parts

K1000-L06 / MS21047-L06	Double lug nutplate	1	<input style="width: 100%; height: 20px;" type="text"/>
MK1000-L06 / MS21071-L06	Single lug nutplate	2	<input style="width: 100%; height: 20px;" type="text"/>
MS20470 / AN470AD3-4 or -3.5	Universal head rivet	6	<input style="width: 100%; height: 20px;" type="text"/>
	14mm M2.5 Pan head stainless steel screw	8	<input style="width: 100%; height: 20px;" type="text"/>
	Heatsink plaster (glue) tube	1	<input style="width: 100%; height: 20px;" type="text"/>
MS51957-36	1.5" 6-32 Pan head stainless steel screw	1	<input style="width: 100%; height: 20px;" type="text"/>
MS51957-32	3/4" 6-32 Pan head stainless steel screw	2	<input style="width: 100%; height: 20px;" type="text"/>
	1.5" 0.031" Compression spring	1	<input style="width: 100%; height: 20px;" type="text"/>
	3D printed ABS angled spacer tube	3	<input style="width: 100%; height: 20px;" type="text"/>

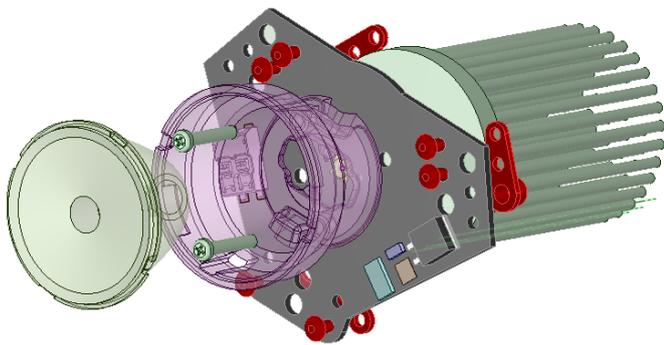
## The “Combo” light Assembly Instructions

Thank you for your purchase of our products!

Each individual LED spotlight draws approximately 1 amp and uses a collimator to focus the light into an 8° beam.

The Cree XHP35 LED produces 1200 lumens of light per spotlight. Each LED is driven with a linear power supply for simplicity and to eliminate intercom noise.

These lights may only be used with a 12 volt system.



### Landing light assembly

Attach the nutplates to the single spotlight board as shown. The additional rivet locations are for use with our other products.

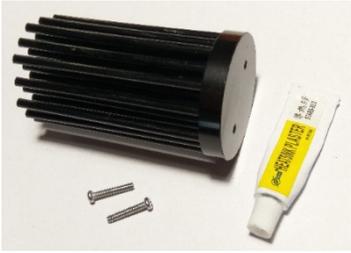
The circuit boards are made from 1.6mm thick aluminium and you may substitute countersunk or pull-rivets if you feel the need.

Be careful not to damage the LEDs and other components on the boards!



Next fit the lens holder onto the light board. Note that the holders have two tabs in their base. These fit into the small holes above and below the LED, and will locate the holder and lens in the optimum focal point for the LED.



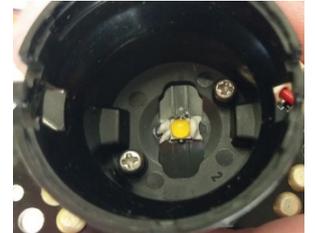


The small tube of heatsink plaster will contain enough glue for all of the heatsinks. Squeeze a small amount on the base of the heatsink and spread it out into a thin layer. The glue takes a full 24 hours to set, so you have plenty of time to work with the assembly.



Fit two M2.5 machine screws into the holes in the lens holder and attach the heatsink to the board. The screws should be done up 'tight enough' (that's a technical term!) by hand.

After ten minutes or so, if any glue oozes through the holes close to the LED, carefully remove it with a small screwdriver.



Place an Anti-Decapitator Ring™ inside the lens holder, shown here in red. It may be slightly oversized and not sit flat. This is OK! Developed by Flyleds in response to some customers damaging the LEDs (and we admit we've also done it ourselves), the Anti-Decapitator ring is designed to flex and it will guide the lens into the correct position in the following steps.

When the collimator lens is seated properly, the LED sits inside the hole at the base of the lens and it is completely enclosed by the lens. If you lock in one side of the lens and then try to lock in the other as demonstrated here, you will sideswipe and destroy the LED! Note that with the Anti-Decapitator ring in place this is now pretty hard to do...



The collimator lenses have four notches around their edges, but if you look and feel closely two of them are cut all the way through, while two of them have a tab that will lock the lens in place. *Please note the difference!*

- Rotate the PCB assembly so that the locking hooks on the black lens holders are at **east** and **west** positions.
- Hold the lens with the 'cut through' slots under your finger and thumb.
- Orient the lens directly above the holder, with your finger and thumb at the **north** and **south** positions.



As you lower the lens straight down into the holder you will observe the centre of the lens begin to change colour to yellow from the LED below. This indicates that the LED and lens are in alignment.

*If you don't see this colour change, stop!*

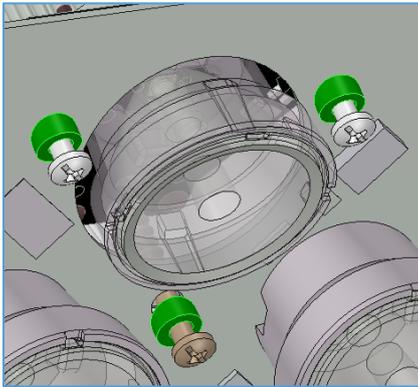
Using even pressure from two fingers from your other hand on the east and west sides of the lens, push the lens in gently until it clicks into place under the tabs at the left and right of the holder.

Simple really!

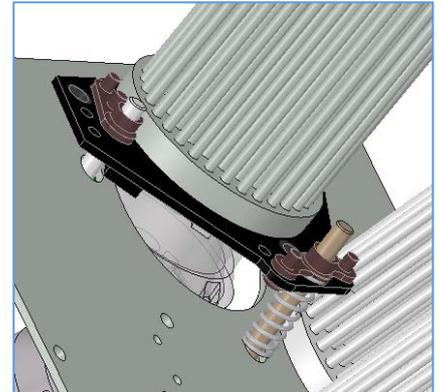
Rotate the assembly as required and repeat the steps above for the other LEDs.

## Assembling the Combo board

The Combo light was designed with tail dragger planes in mind, with the taxi light being able to tilt down up to 20° in comparison to the other spotlights. For nose draggers the independent spotlight can also be mounted in the same plane as the other three should you wish, although you may have to drill a new screw hole in the main board to accommodate the longer centre screw.



The longer 1 ½" screw is first fitted with an angled spacer before inserting it through the hole in the middle of the main board. Fit the compression spring and screw it into the spotlight. The two ¾" screw are located in the top two screw holes, and should also be fitted with two of the angled spacers supplied. Leave these screws loose until you get the whole assembly into the wing!



We replaced the HID lights in our RV-10 by removing the wingtips to provide easy access to both sides of the light.



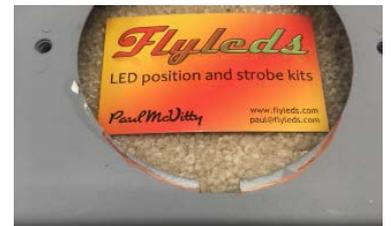
We attached the independent LED after the main board was fitted to the Duckworks mounting plate, which meant we didn't have to make any modifications to the existing metalwork or the Combo light itself. If you have the option to do this, removing the wingtip is 30 minutes well spent and makes life much easier!



One customer chose to fit the Combo light through the aperture in the leading edge. He has provided an example of how he enlarged the hole in his Duckworks mounting plate to allow room for the top heatsink, and in his situation to fit the board through the front cutout of the wing.



Held at the right angle to the light, you will observe that the circuit board traces form a 100mm diameter circle around the lights, while the rest of the perimeter of the board is vacant. Feel free to trim, drill or otherwise modify the outside area of the board if you feel the need!



## 20° diffuser

Finally, the supplied diffuser disk can be fitted to the taxi light in order to widen the light beam width. This clips into place via the 'cut through' slots that are located at the north and south edges of the collimating lens.

## Wiring the landing lights

The light boards have easy to use push-fit power connectors on them. Strip ¼" of insulation from the wire and simply push the wire home into the socket. It's not coming out!

Should you need to release the wire, push down on the tab above the wire using a small screwdriver and the wire can be pulled from the socket.

