

SERVICE BULLETIN NO. OSB817-067

I. TECHNICAL DETAILS

1.1 Category:

Optional

1.2 Airplanes affected:

G 109B all S/N

1.3 Time of Compliance:

On holders discretion

1.4 Subject:

ATA-Code: 33-40 Exterior Lighting
Optional Retrofit of LED Lights

1.5 Reason:

On customer request, the replacement of all exterior lights by WHELEN LED-lights is approved. Only a full replacement is approved, mixed combinations with original exterior lights are not applicable.

This Service Bulletin is intended to provide information for the optional installation of LED lighting. The configuration of the aircraft is affected by this Service Bulletin.

1.6 Concurrent documents:

Corresponding Aircraft Maintenance Manual

1.7 Approval Note:

The technical content of this document is approved under the authority of EASA Design Organization Approval No. EASA.21J.030.

These information or instructions relate to change no. OÄM817-038 which has been approved under the authority of EASA Design Organisation Approval No. EASA.21J.030.

1.8 Accomplishment/ Instructions

Note: The AMM references in this Service Bulletin are for RAF Vigilant aircraft. For other aircraft, use the corresponding AMM.

Part A (Landing Light):

- 1.8.1 Ensure that the aircraft is safe for parking, refer to AP 101G-1101-1 Chap. 8.
- 1.8.2 Make the aircraft electrically safe, refer to AP 101G-1101-126 Chap.55 Paragraph 8.
- 1.8.3 Remove the upper and lower cowling.

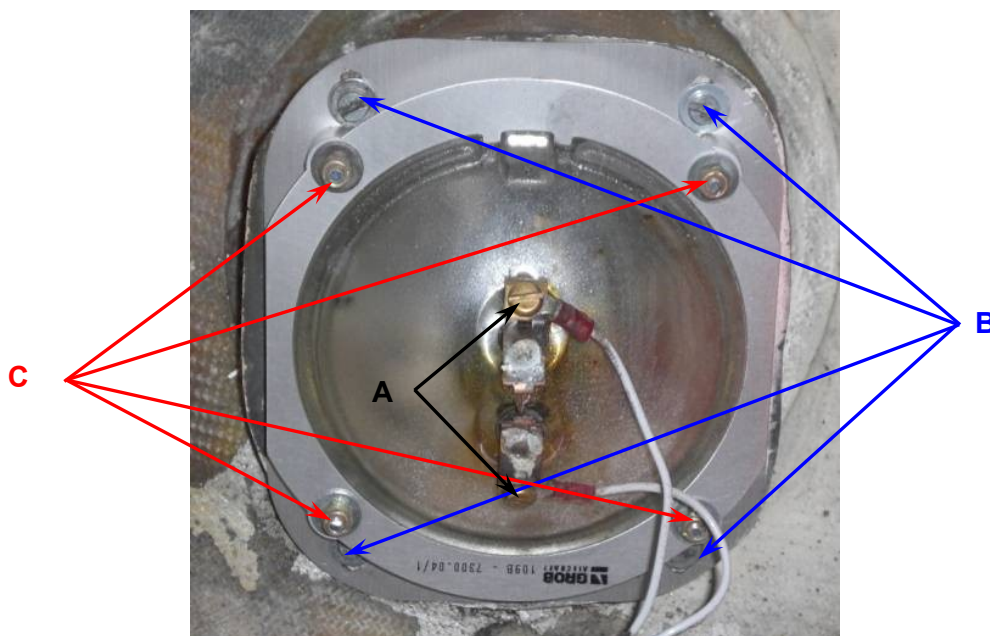


Figure 1 Assembly of original landing light

- 1.8.4 Remove the two terminal screws (refer to Figure 1, item A) and discard them. Release the electrical loom.
- 1.8.5 Remove and keep the four slotted screws (refer to Figure 1, item B) that attach the landing light to the cowling. Remove the landing light from the cowling.
- 1.8.6 Remove and keep the four screws, spacers and nuts (refer to Figure 1, items C) that attaches the clamps to the landing light.
- 1.8.7 Remove the original landing light.

- 1.8.8 Assemble the clamps with the new LED landing light (Item 1 of List 2.2). Turn the rear metal plate by 90° counter clockwise to align with the key of the landing light. Use the four screws, spacer of step 1.8.6 with new nuts (Item 15 of List 2.2). Refer to Figure 2.



Figure 2 Assembly of LED Landing Light

- 1.8.9 Install the assembly to the cowling with the four screws of step 1.8.5. Make sure that the "TOP"-Note on the front of the glass is at the top.
- 1.8.10 Connect the electrical connectors to new landing light (cable LA 25E16 to the "+14V" pole and LA 26E16N to the "GND" pole).
- 1.8.11 Install the upper and lower cowling to the aircraft.

Part B (Position/Anti Collision Lights):

1.8.12 Do the steps 1.8.13 thru 1.8.31 on the two wings to exchange the left and right wingtip Position/Anti Collision Lights.

1.8.13 Remove the cover of the position light at the wingtip. Keep all the screws (refer to Figure 3, item A).

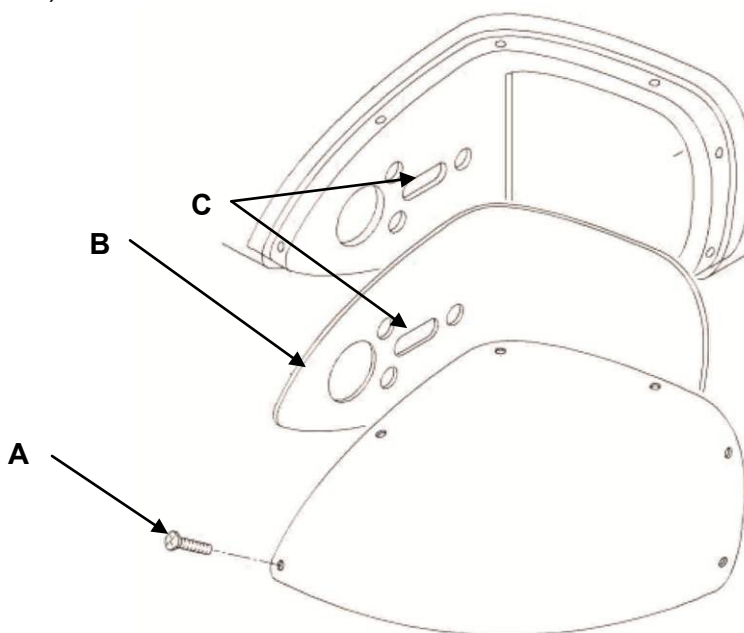


Figure 3 Wingtip

1.8.14 Remove the retainer mounting screw from the original Position/Anti Collision Light (refer to Figure 4) and release the light. Remove and keep all the 3 screws from light base plate. Carefully remove the Position/Anti Collision Lights assembly and disconnect both electrical connectors.

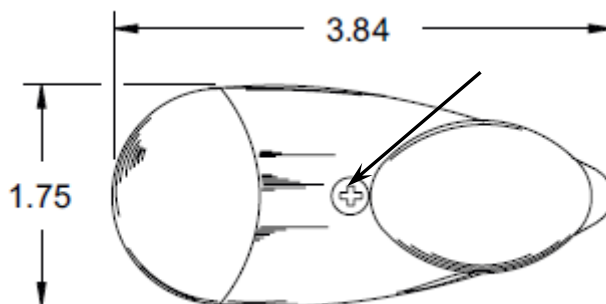


Figure 4 View to the original Position/Anti-Collision Light

1.8.15 Carefully remove and keep the reflector from wingtip (refer to Figure 3, item B).

1.8.16 Carefully remove the remaining adhesive from the reflector and the wingtip.

- 1.8.17 Remove all electrical connections (two or three, depending on the power supply type) at Strobe Power Supply which is located inside the wing behind the reflector.
- 1.8.18 Remove the two nuts at the strobe power supply plate (refer to Figure 5, item A).
- 1.8.19 Remove the two ring terminal that attaches the wires to the bolts. Lift the power supply together with the plate over the two bolts and pull it out. Refer to Figure 5, blue arrows. Carefully remove the power supply unit from the wing through the access hole.

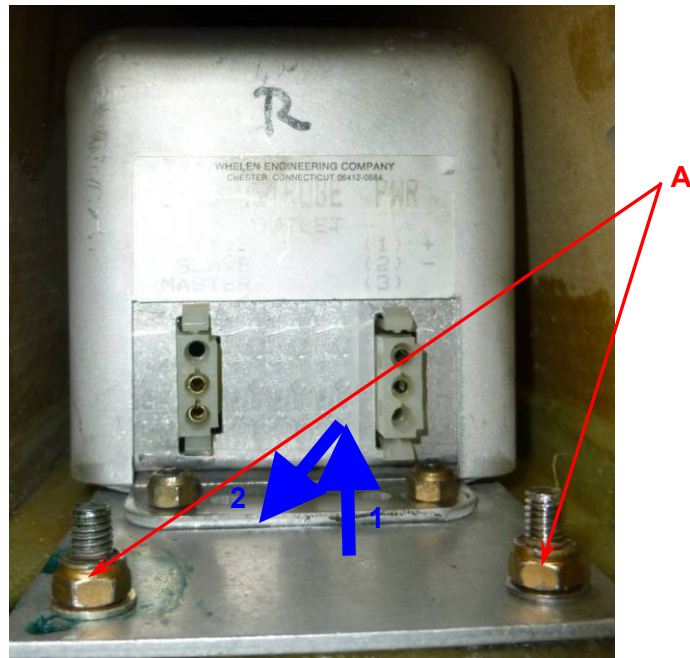


Figure 5 Steps to remove Strobe Power Supply, type with 2 connectors shown

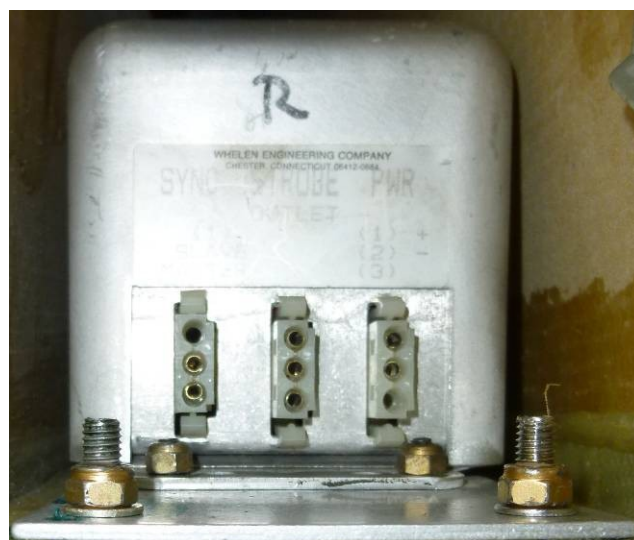


Figure 6 Power Supply with 3 connectors

- 1.8.20 Discard the Power Supply with the mounting plate and all loose cables.

- 1.8.21 Cut the two ring terminals from the wires that were attached to the bolt of the power supply. Strip the two cables. Crimp a Pin (Item 9 of List 2.2) to the cable from the shield of the power connection and insulate it with a plug (Item 5 of List 2.2). Crimp a Socket (Item 11 of List 2.2) to Cable from 4LA-a connection and insulate it with a receptacle (Item 7 of List 2.2).
- 1.8.22 If necessary to reduce free cable length, use cable ties (Item 19 of List 2.2), refer to Figure 7.

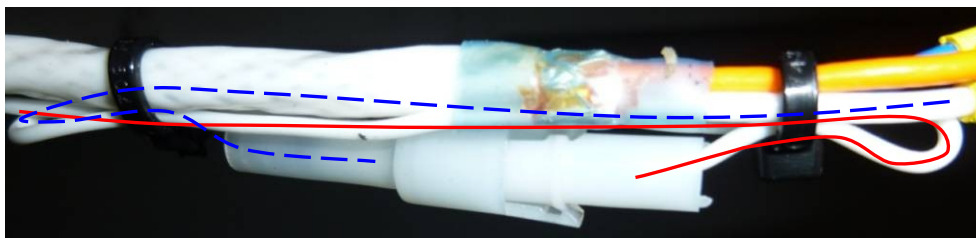


Figure 7 Shield-ground connection at wingtip.

- 1.8.23 If there are 3 connectors at the strobe power supply (refer to Figure 6), continue as follows:
- Right wing: Cut the connectors from cables LA 39JR16, LA 40JR16N and LA 49JR16.
Left wing: Cut the connectors from cables LA 35JL16, LA 36JL16N and LA 47JL16.
 - Strip the cables, crimp Pin (Item 10 of List 2.2) onto each cable and pin it into Plug (Item 6 of List 2.2), refer to Table 1.

Cable right wing (24LA-a)	Cable left wing (23LA-a)	Pin
LA 39JR16	LA 35JL16	1
LA 40JR16N	LA 36JL16N	2
LA 49JR16	LA 47JL16	3

Table 1 Connection of Cables

- 1.8.24 Make sure to have access to the two connectors after installation of the reflector.
- 1.8.25 Bond the removed reflector to wingtip with silicone sealant (Item 18 of List 2.2).
- 1.8.26 Connect the new Position/Anti-Collision Lights to the connectors of the aircraft:
- Right wing: Green Position Light, P/N 109B-9431 (Item 2 of List 2.2)
 - Left wing: Red Position Light, P/N 109B-9432 (Item 3 of List 2.2).

1.8.27 Disassemble the new Position/Anti Collision Lights:

- Remove the Phillips head screw (Figure 8, item A) and the lens retainer. Carefully remove the lens from the light assembly.

Caution: Do not touch the LEDs with fingers or sharp objects. This can cause damage to the unit.

- Remove and keep the three Phillips head screws that attach the baseplate to the light assembly (Figure 8, item B). Remove the light assembly (Figure 8, item C) from the baseplate (Figure 8, item D).

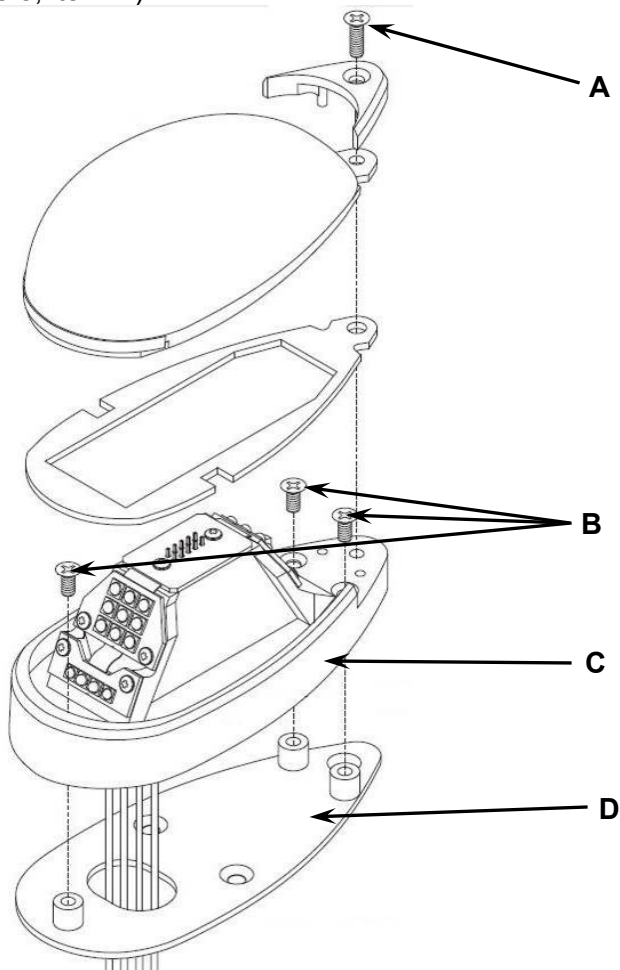


Figure 8 Structure of wingtip Position/Anti-Collision Lights

1.8.28 Attach the baseplate to the wingtip with the three screws of the original baseplate.

1.8.29 Attach the light assembly to the baseplate with the three screws. Make sure that all leads are clear of any obstructions. Make sure that the drain hole points down.

1.8.30 Install the lens and the lens retainer to its installed location. Make sure that the lens and the retainer are fully and properly installed. Attach the Phillips head screw and tighten it.

1.8.31 Install the cover of the wingtip, refer to Figure 3.

Part C (Tail Light):

- 1.8.32 Remove the tailplane, refer to AP 101G-1101-1 Chap. 8 Paragraph 11
- 1.8.33 Remove the Rudder, refer to AP 101G-1101-1 Chap. 17 Paragraph 9.
- 1.8.34 Remove the elevator and the elevator trim control rod, refer to AP 101G-1101-1 Chap. 19.
- 1.8.35 Remove all electrical connections at the rear Strobe Power Supply on the vertical stabilizer.
- 1.8.36 Remove the two nuts at strobe power supply. Lift the power supply together with the plate over the two bolts and pull it out.
- 1.8.37 Carefully remove the power supply unit from the vertical stabilizer through the access hole.
- 1.8.38 If there are 3 connectors at the strobe power supply, continue as follows:
 - Cut the connectors from the cables LA 42K16 and LA 43K16N and LA 50K16.
 - Strip the end of the cables. Crimp the sockets (Item 12 of List 2.2) on each cable and pin it into the receptacle (Item 8 of List 2.2), refer to Table 2)

Cable	Pin
LA 42K16	1
LA 43K16N	2
LA 50K16	3

Table 2 New connection of 15LA-A Connector

- 1.8.39 Connect the receptacle 15LA-b to the plug 15LA-a.
- 1.8.40 Attach all cables with the cable clamp, washer and a new self-locking nut (Items 13 to 16 of List 2.2) to the upper bolt. Refer to Figure 9.



Figure 9 Connection of cables and attachment of loose cables to bolt with clamp

- 1.8.41 If necessary to reduce free cable length attach the connectors 15LA-a and 15LA-b to the aircraft frame. Use cable ties (Item 19 of List 2.2), refer to Figure 10.



Figure 10 Connectors tied to aircraft frame

- 1.8.42 Remove and discard the original tail light with the two self-tapping screws from the rudder.
- 1.8.43 Connect the new tail position/anti-collision light (Item 4 of List 2.2) to the electrical connections at the rudder.
- 1.8.44 Discard the two original attaching screws of the light.
- 1.8.45 Attach the new tail light to the vertical stabilizer with 2 new self-tapping screws (Items 17 of List 2.2). Make sure that the arrow on the label points up. Make sure that all leads are clear of any obstructions. Seal the light base to aircraft, use silicone sealant (Item 18 of List 2.2). Do not seal the drain hole or the back of the unit.
- 1.8.46 Do a rudder balancing to make sure that the weight and moment is within the limits, refer to AMM.
- 1.8.47 Install the elevator and the elevator trim control rod, refer to AP 101G-1101-1 Chap. 19.
- 1.8.48 Install the Rudder, refer to AP 101G-1101-1 Chap. 17 Paragraph 10.
- 1.8.49 Install the Tailplane, refer to AP 101G-1101-1 Chap. 8 Paragraph 9.
- 1.8.50 Do a function / interference test, refer to Appendix 1.
- 1.8.51 Do an aircraft weighing.
- 1.8.52 Release aircraft into service according to national requirements.

1.9 Repetitive Actions

None

II. PLANNING INFORMATION

2.1 Weight and CG

The weight and balance of the aircraft is affected. An aircraft weighing has to be performed.

2.2 Material and Availability

Item	P/N	Description	Qty. / A/C
1	01-0771424-10	PLED1L Landing Light	1
2	109B-9431	RH Wingtip LED Green	1
3	109B-9432	LH Wingtip LED Red	1
4	109B-9433	Tail LED Light	1
5	1-480350-0	Plug (1-pole)	2
6	1-480305-0	Plug (3-pole)	2*
7	1-480349-0	Receptacle (1-pole)	2
8	1-480303-0	Receptacle (3-pole)	1
9	163558-2	Pin (size #22)	2
10	163307-2	Pin (size #16)	6*
11	163557-2	Socket (size #22)	2
12	163306-2	Socket (size #16)	3
13	DIN3016-1-D1-10x12-W4-NBR	Cable Clamp	1
14	DIN 985-M5-A2	Self-locking Nut	1
15	DIN 985-M4-A2	Self-locking Nut	4
16	DIN 9021-5.3 A2	Washer	1
17	DIN 7981-A2-2.9x25	Screw, Self-Tapping	2
18	Commercial, e.g. GS513057	Silicone sealant	As req.
19	Commercial, e.g. GS510009	Cable Tie	As req.

*) Only needed when there are three connectors at Strobe Power Supply.

2.3 Special Tools

N/A

2.4 Labor costs

N/A

2.5 Reference documents

N/A

2.6 Credit

N/A

III. REMARKS

The instructions in paragraph 1.8 have to be accomplished and certified in the logbook by authorized staff:

- in EASA countries according to Article 5 VO EG 2042/03 (VO EG 1056/2008) Appendix III – Part 66
- in non-EASA countries according to national regulations with respect to maintenance.

If you have sold your aircraft in the meantime, we kindly ask you to forward this information to the new owner and to provide us with the name and address of the new owner as well as with the respective serial number.

For questions and assistance please contact:

	Product Support,
phone:	+49 8268 998105
fax:	+49 8268 998200
e-mail:	productsupport@grob-aircraft.com

APPENDIX 1: FUNCTION / INTERFERENCE TEST

1 Test exterior LED-Lights	
1.1. Landing Light	
Set the Landing Light Switch to "On".	
Visually check if the landing light is on.	
Set the Landing Light Switch to "Off".	
1.2. Position Lights	
Set the "Position Light" switch to "On".	
Visually check that the left position light is on. Make sure that the light is red/white.	
Visually check that the right position light is on. Make sure that the light is green/white.	
Visually check that the tail position light is on.	
Set the "Position Light" switch to "Off".	
1.3. Anti Collision Lights	
Set the "Anti Collision Light" switch to "On".	
Visually check that the left anti collision light flashes.	
Visually check that the right anti collision light flashes.	
Visually check that the tail anti collision light flashes.	
Visually check that all anti collision lights flash at the same time.	
Set the "Anti Collision Light" switch to "Off".	
1.4. Interference Check	
Set all exterior light switches to "On".	
Check all avionics systems for interference from this installation.	
Set all exterior light switches to "Off".	