



# Installation Instruction

# ROCKWELL COMMANDER

# 112

[www.aveoengineering.com](http://www.aveoengineering.com)

**TABLE OF CONTENTS**


<b>PART 0</b>	<b>MANUAL ADMINISTRATION</b>	<b>3</b>
0.1	DOCUMENT APPROVAL	3
0.2	AMENDMENT RECORD PROCEDURE	3
0.3	AFFECTED PAGES PROCEDURE	4
0.4	DISTRIBUTION LIST	4
<b>PART 1</b>	<b>INSTALLATION INSTRUCTION</b>	<b>5</b>
1.1	GENERAL	5
1.2	DESCRIPTION	5
1.2.1	NAVIGATION/POSITION AND ANTI-COLLISION LIGHTS	5
1.2.2	LANDING LIGHT	6
1.3	NAVIGATION/STROBE LIGHTS INSTALLATION – LEFT AND RIGHT	7
1.4	TAIL POSITION LIGHTS INSTALLATION – TAIL POSITION	12
1.5	ANTI-COLLISION LIGHT INSTALLATION	14
1.6	LANDING LIGHT INSTALLATION	16
1.6.1	NO LANDING LIGHTS AT MAIN GEAR	16
1.6.1.1	OPTION A – HERCULES DROP-IN	16
1.6.1.2	OPTION B – HERCULES JP 28VDC	18
1.6.1.3	OPTION C – THOR 36 DI 28VDC	19
1.6.2	LANDING LIGHTS AT MAIN GEAR INSTALLED	20
1.6.2.1	OPTION A – HERCULES DROP-IN	20
1.6.2.2	OPTION B – HERCULES JP 28V	22
1.6.2.3	OPTION C – THOR 36 DI 28VDC	23
<b>PART 2</b>	<b>COMPLIANCE DEMONSTRATION</b>	<b>24</b>

## Part 0 Manual Administration

### 0.1 Document Approval

This document has been established in accordance with an alternative procedure to DOA approved under EASA AP429.

This installation Instruction is applicable for all Rockwell Commander 112 aircraft.

Compiled by:  20. November 2020  
Petr Jaros  
Engineer, Aveo Engineering Group, s.r.o.

Approved by: \_\_\_\_\_ 20. November 2020  
Georg Hartl  
Head of DO, Aveo Engineering Group, s.r.o.

### 0.2 Amendment Record Procedure

The master copy of this document shall be kept electronically as a read only document under the control of Aveo Engineering Group, s.r.o. as Master Copy.

**ALL** amendments to this manual will initiate a raise of Issue.

The original issue will be identified by "**01**", and subsequent issues will be numbered sequentially from 02 to 99 in Table 01 - **Issue No.** column.

**ALL** Issues of this document will be approved by Head of DO.

Issue No.	Details	Date of issue	Affected pages
01	Initial Issue	10. Mar. 2017	ALL
02	Add landing light installation option B (not marked)	16. Feb. 2018	17 - 18
03	Add weight and balance update Add paragraphs to compliance demonstration	29. May 2018	11 19
04	Add new lights	20. Nov 2020	As marked
<b>Table 01: Record of Document Amendments</b>			

### 0.3 Affected Pages Procedure

ALL pages affected by ANY raise of issue of this document will be listed in Table 01 - **Affected Pages** Column.

The reason(s) for EACH raise of issue and the description of respective change will be provided in Table 01 - **Details** Column.

Changes from the previous issue are shown as follows:

- a) new text is highlighted with yellow shading: **new**
- b) deleted text is shown with yellow shading and a strike through: ~~deleted~~

### 0.4 Distribution List

As stated in 0.2 above; the master copy of this document shall be kept electronically as a read only document under the control of Aveo Engineering Group, s.r.o. as Master Copy.

All holders of copies of this Document will be recorded by listing in Table 02 – Distribution List.

Copy holders listed hereunder will be issued a copy of this document with sequential copy number as shown in Table 02 – Distribution List.

Copy No.	Holder
MASTER	Aveo Engineering Group, s.r.o.
Table 02: Distribution List	

## **Part 1 Installation Instruction**

### **1.1 General**

This installation is to be performed in accordance to common practice as described in FAR AC 43.13-2B Chapter 4 and in FAR AC 43.13 1B Chapter 11 Section 15 (Bonding) as published by FAA.

The installer is responsible to follow the installation instructions given in the latest revision of the following documents:

- FAR AC 43.13-2B Chapter 4
- FAR AC 43.13 1B Chapter 11 Section 15
- AVE-H30-001-IM
- AVE-WPS-64G-IM
- ~~AVE-POSW-54G-IM~~
- AVE-RBXP-001-IM
- AVE-PSPSYW-IM
- AVE-THD36-IM\_I01

All drawings applicable for this change are listed in the following document:

- AVE-MOD-011-DL, issue 02

The following appliances feature an ETSO authorization:

- AVE-WPSR-64G & AVE-WPSG-64G – ETSOA 21O.10053936
- AVE-RBXPR-001 – ETSOA 21O.10055069
- AVE-PSPSYW-T01 – ETSO 21O.10068603

The change is to be performed using the document AVE-MOD-011-MCS in the latest issue.

The aircraft manuals remain fully valid. For maintenance of the new lights follow the Aveo Installation Manuals referenced above.

### **1.2 Description**

This modification consists in the replacement of position, anti-collision and landing lights by lights of LED type.

#### **1.2.1 Navigation/Position and anti-collision lights**

All new position lights include also the strobe function.

Synchronization:

The strobe lights may be synchronized but the frequency of the strobes is so low that synchronization of the lights is not required.

In order to ensure synchronization function, the blue wires of each light to be synchronized have to be connected. Provided that additional wires are to be installed for this function, these must be installed along the wire bundle in which the lights power wires run. In case the function is not used the blue wires of each light are to be capped and stowed.

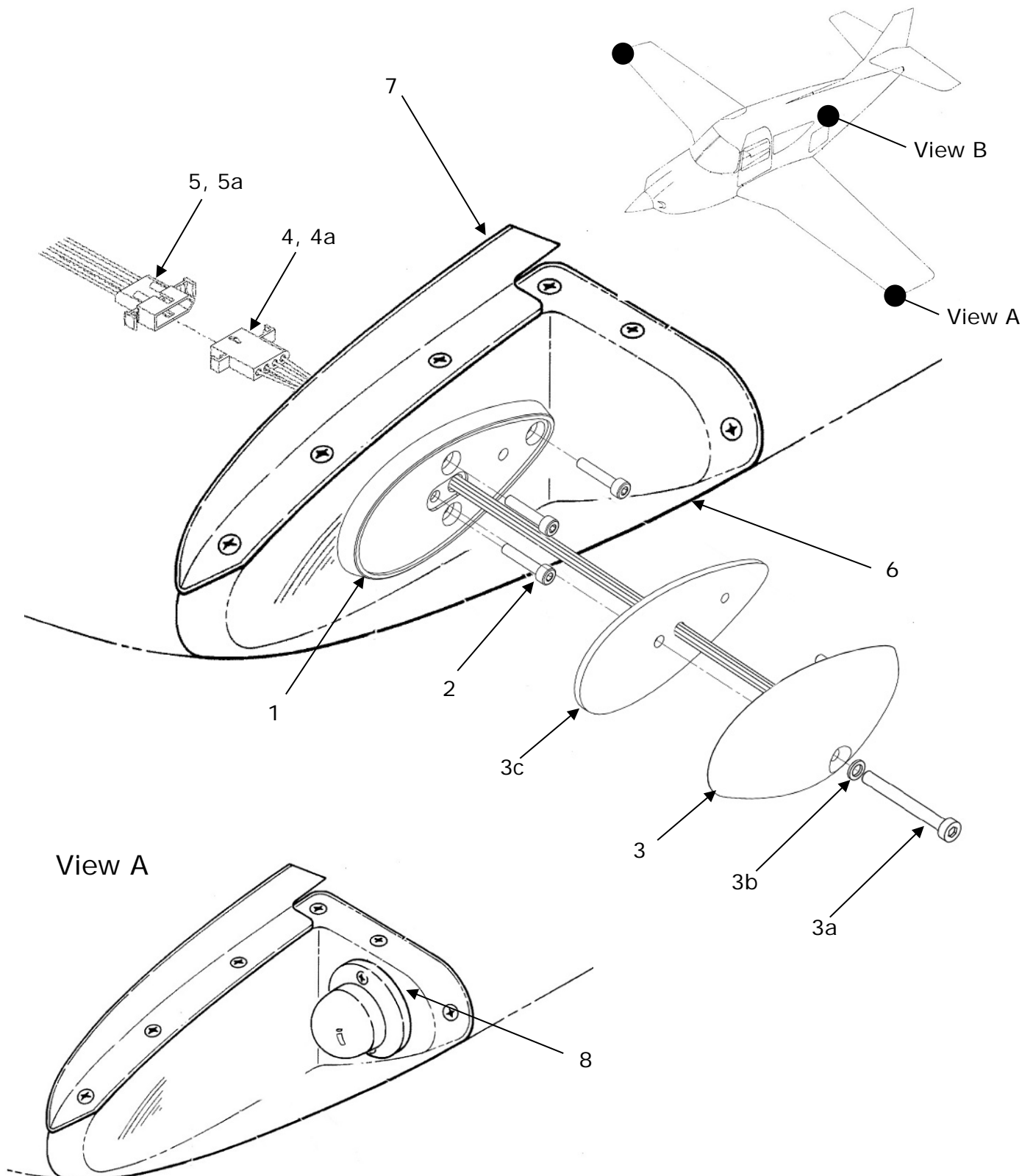
### **1.2.2 Landing light**

The Rockwell Commander 112 aircraft can be equipped with a landing light (narrow angle).

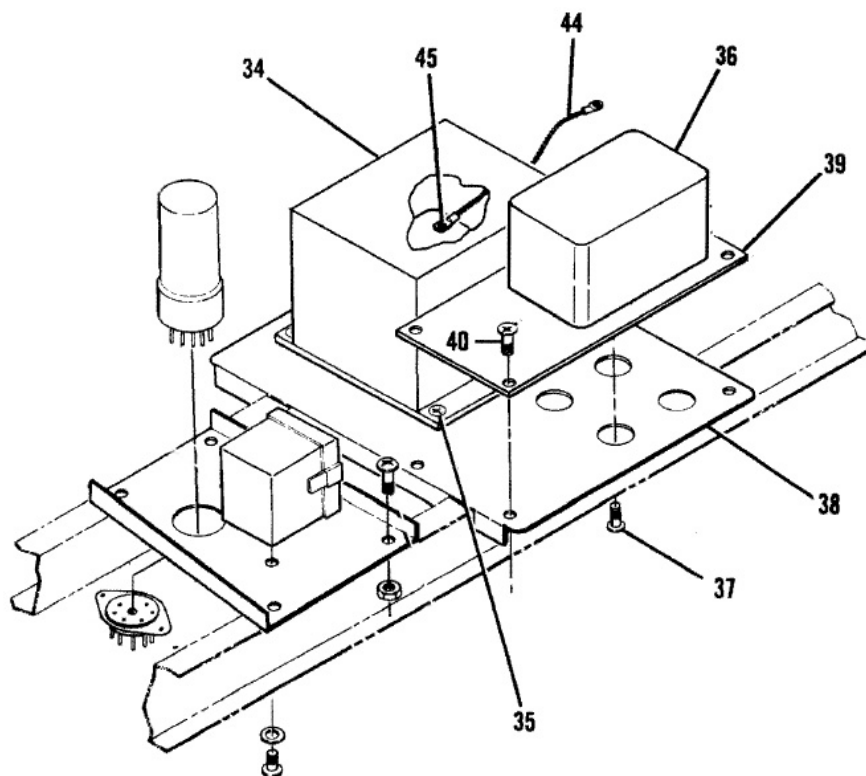
For replacement of the installed landing light, the same configuration can be used as was before modification. The change of configuration is not allowed.

### 1.3 Navigation/Strobe Lights Installation – Left and Right

Kit Number: RWC-01



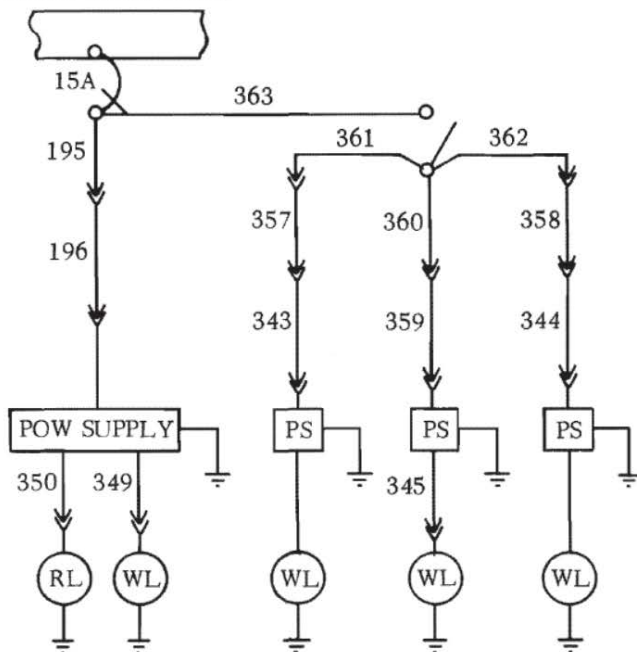
View B



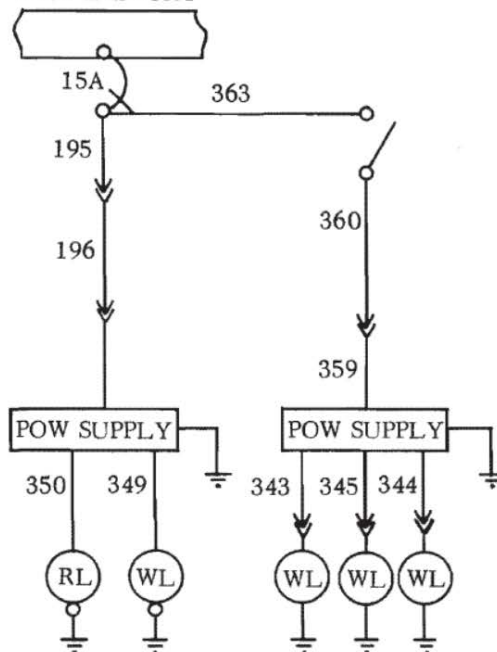


Wiring diagram before:

AERO FLASH CKT

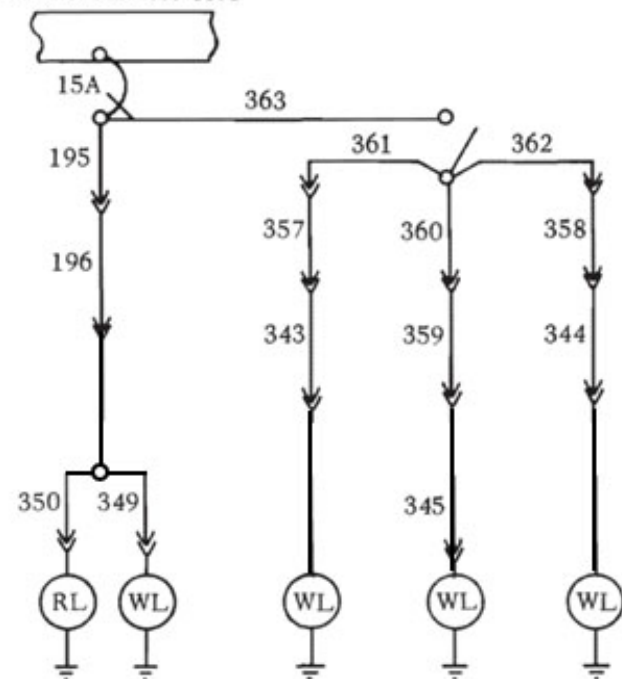


WHE LEN CKT



Wiring diagram after:

AERO FLASH CKT



WHE LEN CKT

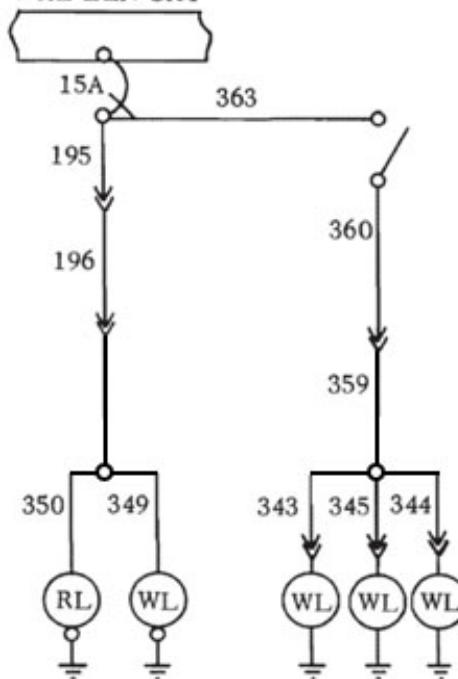


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		NAVIGATION LIGHTS INSTALLATION – RIGHT AND LEFT POSITION		
1	AVS-P000100175-A6C	Ultra Adapter M5		2
2	AVS-92200A146	Screw		6
3	AVE-WPSR-64G	Ultra Galactica Embedded Red		1
	AVE-WPSG-64G	Ultra Galactica Embedded Green		1
3a	AVS-79840905045	Screw		2
3b	AVS-OR00480190N70-DOA	O-ring		2
3c	AVS-P001290550-A1A	Gasket		2
4	03-09-1041	4-Pole Connector – Male		2
4a	02-09-2116	Pin		8
5	03-09-2041	4-Pole Connector – Female		2
5a	02-09-1117	Pin		8
-----				
6	42242-11	Lens, LH		1
	42242-12	Lens, RH		1
7	48110-1	Fence, Light, LH		1
	48110-2	Fence, Light, RH		1
-----				
	<b>View A</b>	Strobe light removal		
8 *A	A434-14	Light, Wing strobe (10402)		2
*J	X3RD	Light, Wing strobe (30467)		2
*H	30-0005-1	Light, Wing strobe (19565)		2
-----				
	<b>View B</b>			
34 *G	73140	Power Supply (30467)		1
*H	701295-5	Power Supply (19565)		1
35 *G	MS35206-245	Screw		4
*H	MS35206-246	Screw		4
*H	MS35338-42	Washer, Lock		4
36 *F	A1EB	Power Supply (30467)		1
*C,E	150-0015	Power Supply (30467)		1
37 *F	MS35206-245	Screw		4
*C,E	MS35206-246	Screw		4
*C,E	MS35338-42	Washer, Lock		4
38 *F	43501-3	Bracket, Power supply		1
39		Mounting plate		1
40	MS35206-230	Screw		4
44 *H	S-0370-1	Jumper		1

45	MS35206-245 AN960PD8 AN960-8 MS21044N08	Screw Washer Washer Nut		2 2 2 2
-----	-----	-----	-----	-----

**\*** *Optional installation and components*

*C Effective on Model 112TC & 112TCA, Serial numbers 13000 and subs.*

*E Effective on Model 112 & 112B, Serial numbers 381 and subs.*

*F Effective on Model 112, Serial numbers 188 thru 380.*

*G Effective on Model 112, Serial numbers 126 thru 499 and 112TC, Serial numbers 13000 thru 13149.*

*H Effective on Model 112, Serial numbers 500 and subs, and 112TCA, Serial numbers 13150 & subs.*

**NOTES**

1. Remove position light left and right hand side according to AMM
2. Remove strobe light (View A) according to AMM and cap the hole
3. Remove connectors and splice wiring as per AVE-WPS-64G-IM
4. Install complete light adapter plate item (1) using the fasteners item (2)
5. Install light using items (3) to (5) as described
6. Remove strobe power supplies (View B) item (34) and (36)
7. Change wiring to connect power supply lines in with lines out as per wiring diagram change
8. Update weight and balance by changing the moment by -142,5 inches lbs and the arm by -0,054 inches. The change of the empty weight is negligible. Alternatively an aircraft weighing can be performed.

**Remarks:**

If the aircraft is not already equipped with the strobe function this function cannot be installed through this change. A separate EASA approved modification is required for the introduction of the strobe function.

If the strobe function is not used the blue and the yellow wires described in the component installation manual are not used and therefore have to be capped and stowed.

If strobe function is used but not synchronized cap and stow the blue wire.

## 1.4 Tail Position Lights Installation – Tail Position

Kit Number: RWC-02

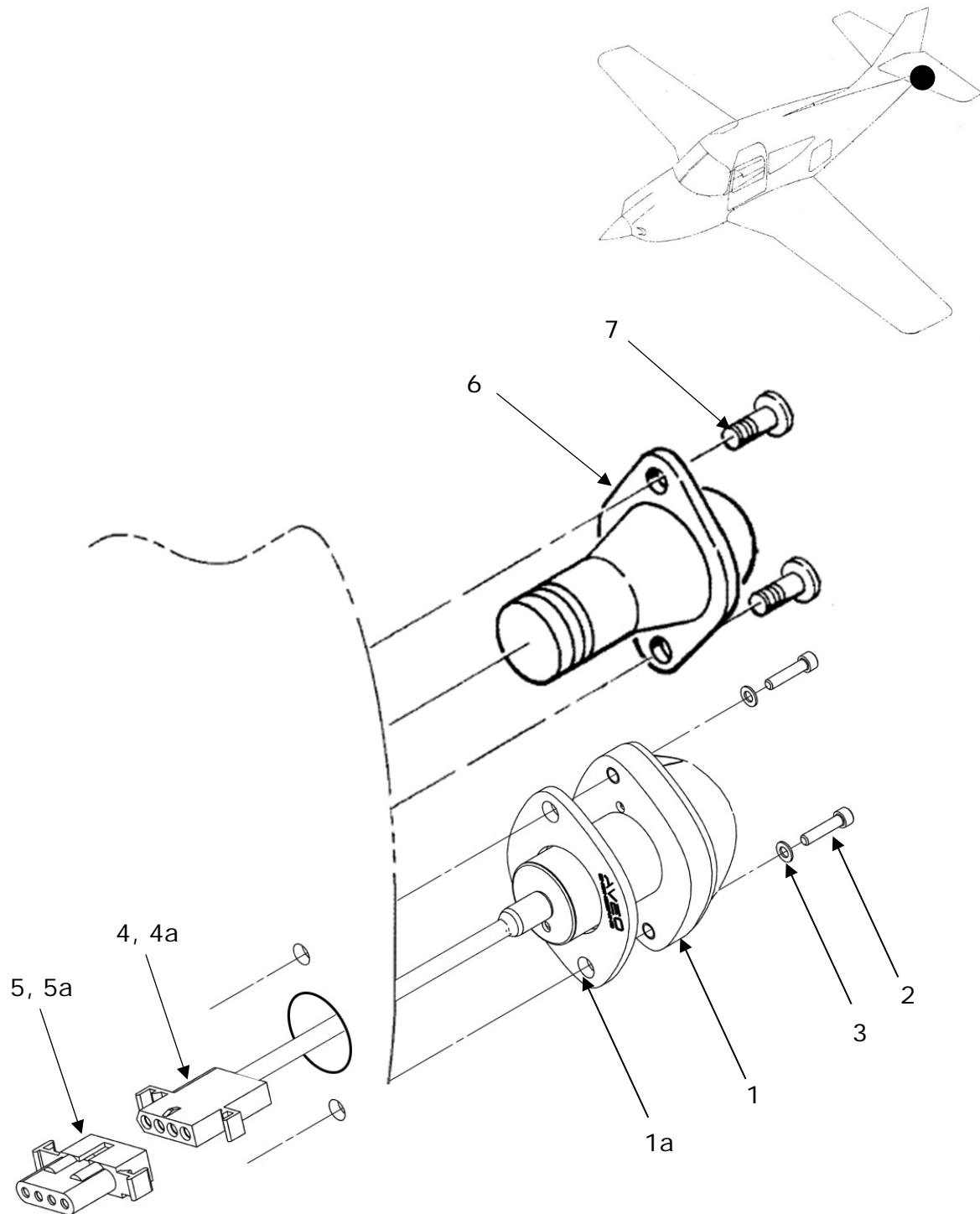


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		NAVIGATION LIGHTS INSTALLATION – TAIL POSITION		
1	AVE-PSPSYW-T01	PosiStrobe Titania		1
1a	AVS-P000105638-A10	Gasket		1
2	AVS-92196A152	Screw		2
3	AVS-17039903	Flat Washer – Nylon		2
4	03-09-1041	4-Pole Connector – Male		1
4a	02-092-116	Pin		4
5	03-09-2041	4-Pole Connector – Female		1
5a	02-09-1117	Pin		4
<hr/>				
6	A2064-12	Light, Navigation, aft (72914)		1
7	MS35206-230	Screw		2
	S-0311-916	Ring, Packing		1
	C8093-632-1	Nut (upper) (78553)		1
	C11087-632-1	Nut (lower) (78553)		1
<b>NOTES</b> <ol style="list-style-type: none"> <li>1. Remove strobe light according to AMM</li> <li>2. Remove position light item (6) and (7) according to AMM and cap the hole</li> <li>3. Remove connectors and connect wiring using connectors items 4 &amp; 5 as per AVE-PSPSYW-IM</li> <li>4. Install light item (1) using the fasteners item (2, 3) and gasket item (1a)</li> </ol>				

### Remarks:

If the aircraft is not already equipped with the strobe function this function cannot be installed through this change. A separate EASA approved modification is required for the introduction of the strobe function.

If the strobe function is not used the blue and the yellow wires described in the component installation manual are not used and therefore are not to be connected at the connector item 5 (aircraft side).

If strobe function is used but not synchronized, the blue wire is not connected at the connector item 5 (aircraft side).

## 1.5 Anti-collision Light Installation

Kit Number: RWC-03

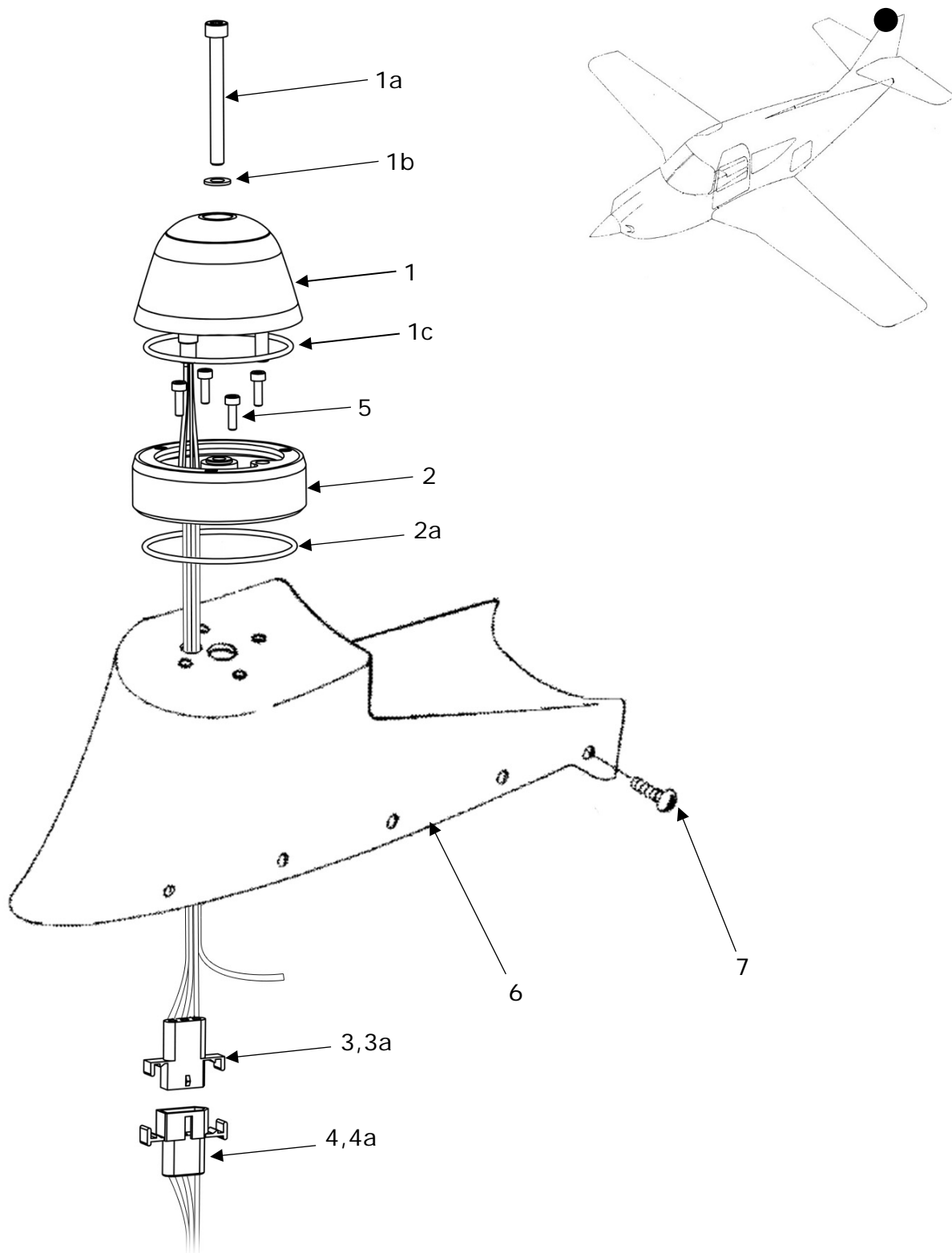


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		ANTI-COLLISION LIGHT INSTALLATION		
1	AVE-RBXPR-001	RedBaron XP Galactica Red		1
1a	AVS-79840905050	Screw		1
1b	AVS-170299005	Flat Washer – Nylon		1
1c	AVS-OR05300200N70-DOA	O-Ring		1
2	AVE-LARBUHS-01B	RedBaron Legacy Light Replacement Adapter		1
2a	AVS-OR05700200N70-DOA	O-Ring		1
3	03-09-1031	3-Pole Connector – Male		1
3a	02-09-2116	Pin		3
4	03-09-2031	3-Pole Connector - Female		1
4a	02-09-1117	Socket		3
5		Original fasteners		4
6	44300-3	Fin Tip Assy		1
7	AN525-832R6	Screw		10

#### NOTES

1. Remove complete anticollision light installation according to AMM
2. Remove connectors and splice wiring as per AVE-RBXP-001-IM. To do so gain access be removal of fin cap item (6) as per AMM
3. Install adapter item (2) using original fasteners item (5) on Fin Tip (6)
4. Install Fin Tip item (6) as per AMM
5. Install light item (1) using the fasteners item (1a)

#### Remarks:

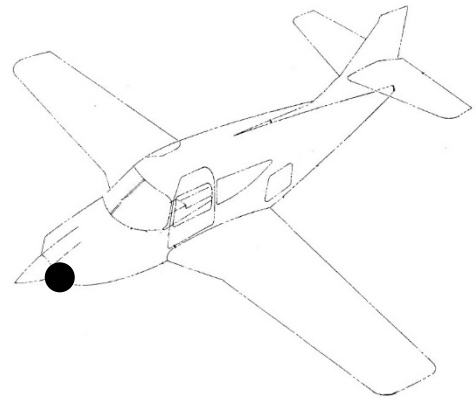
If the aircraft is not already equipped with the strobe function this function cannot be installed through this change. A separate EASA modification is required for the introduction of the strobe function.

If the strobe function is not used the blue and the yellow wires described in the component installation manual are not used and therefore are not to be connected at the connector item 5 (aircraft side).

If strobe function is used but not synchronized, the blue wire is not connected at the connector item 5 (aircraft side).

## 1.6 Landing Light Installation

### 1.6.1 No landing lights at main gear



#### 1.6.1.1 Option A – Hercules Drop-In

Kit Number: RWC-04

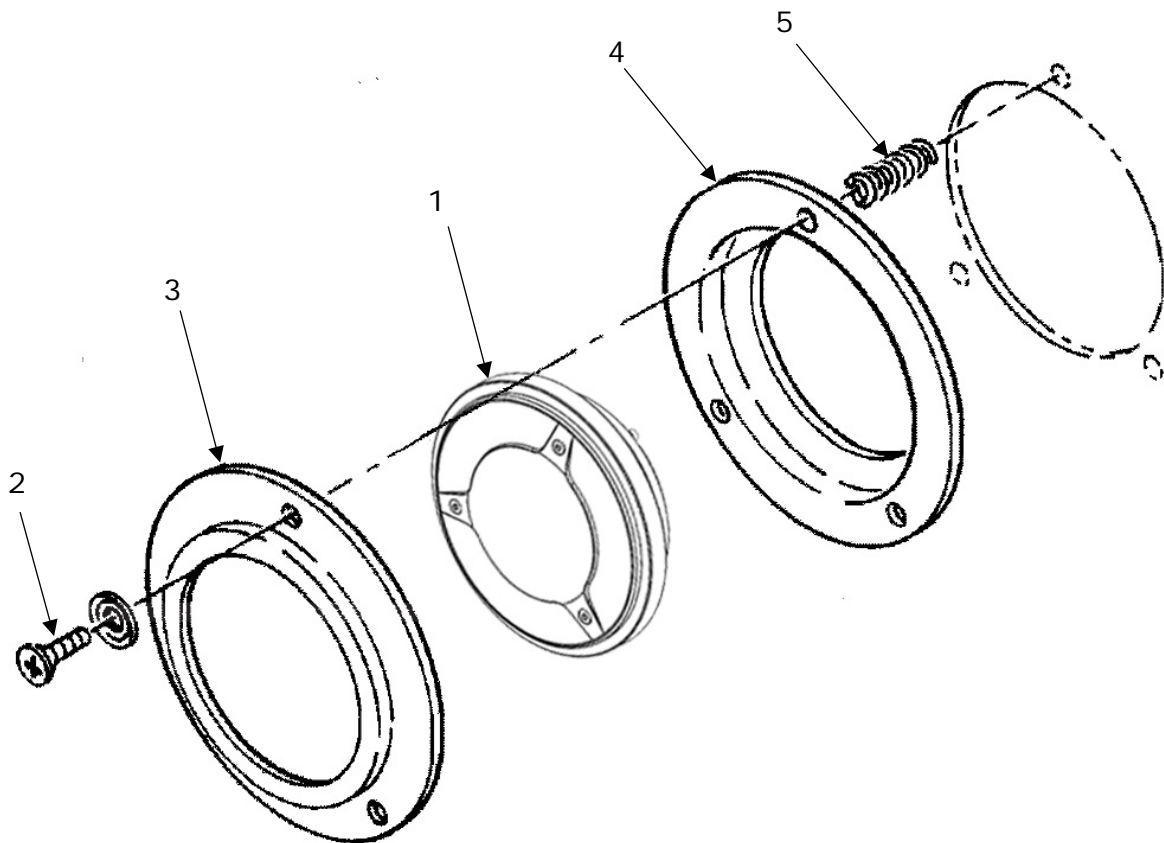




FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
1	AVE-H30TATSNL-TOA	LANDING LIGHT INSTALLATION Hercules Drop-In Landing		1
2	AN507-1032R20	Screw		1
3	46172-1	Retainer		1
4	46172-3	Retainer		1
5	LC-042G-6	Spring (84830)		3
<b>NOTES</b> <ol style="list-style-type: none"> <li>1. Remove light bulb according to AMM</li> <li>2. Attach wiring as per AMM, but consider light polarity.</li> <li>3. Install light item (1) according AMM using the OEM material items (2) to (5).</li> </ol>				

## 1.6.1.2 Option B – Hercules JP 28VDC

Kit Number: RWC-06

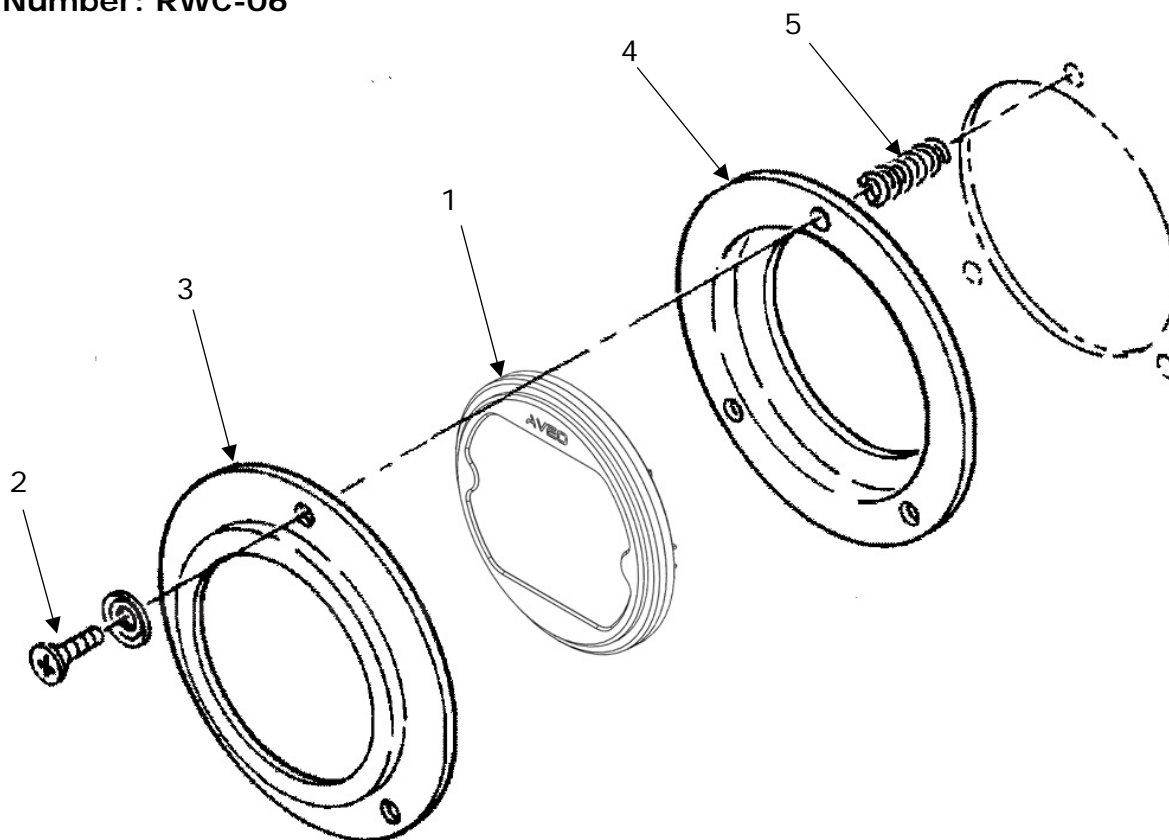


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
<b>1</b>	<b>AVE-HJPDOLW-DS2</b>	<b>Hercules JP 28V Landing</b>		<b>1</b>
2	AN507-1032R20	Screw		1
3	46172-1	Retainer		1
4	46172-3	Retainer		1
5	LC-042G-6	Spring (84830)		3

## NOTES

4. Remove light bulb according to AMM
5. Attach wiring as per AMM, but consider light polarity.
6. Install light item (1) according AMM using the OEM material items (2) to (5).

## 1.6.1.3 Option C – Thor 36 DI 28VDC

Kit Number: RWC-08

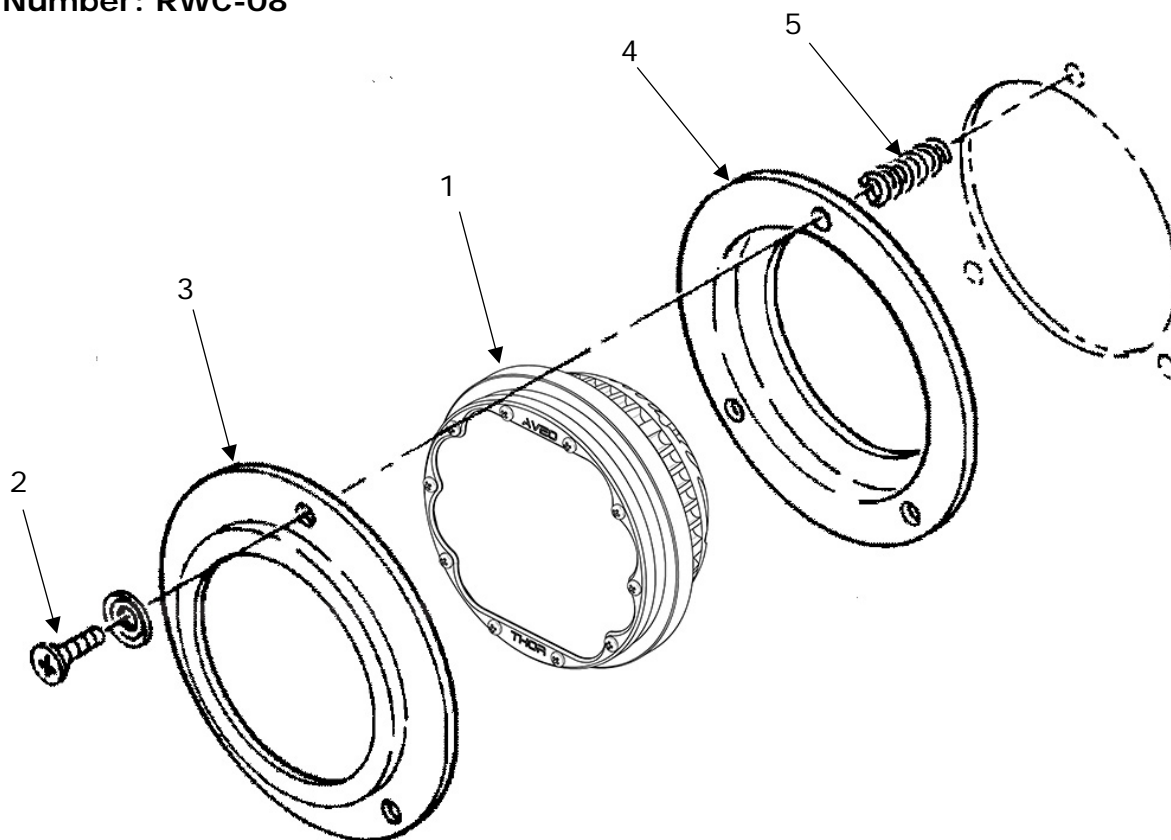
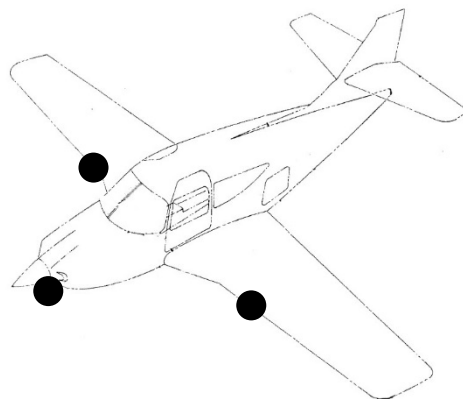


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
1	AVE-THD36LW-TD1	Thor 36 DI Landing 28VDC		1
2	AN507-1032R20	Screw		1
3	46172-1	Retainer		1
4	46172-3	Retainer		1
5	LC-042G-6	Spring (84830)		3

## NOTES

7. Remove light bulb according to AMM
8. Attach wiring as per AMM, but consider light polarity.
9. Install light item (1) according AMM using the OEM material items (2) to (5).

## 1.6.2 Landing lights at main gear installed



### 1.6.2.1 Option A – Hercules Drop-In

Kit Number: RWC-05

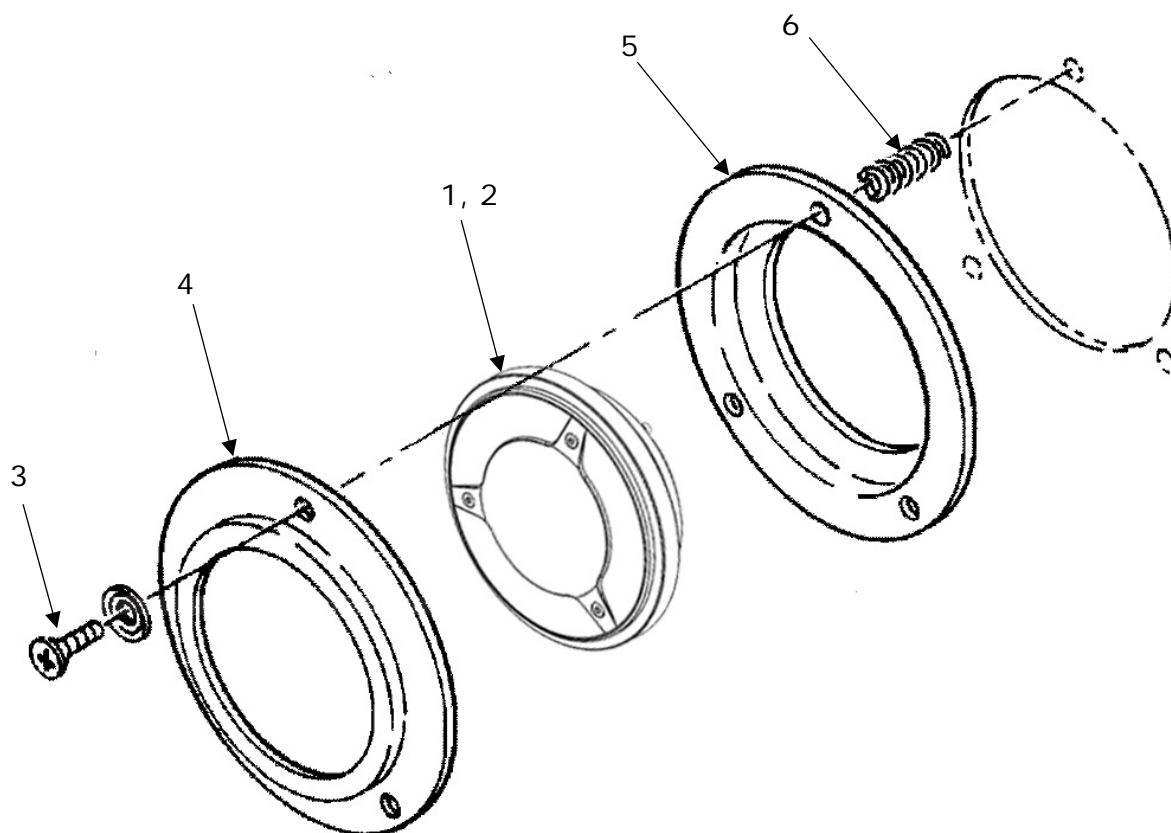


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		LANDING LIGHT INSTALLATION		
1	AVE-H30TATSNL-TOA	Hercules Drop-In Landing		2
2	AVE-H30TATSNT-TOA	Hercules Drop-In Taxi		1
3	AN507-1032R20	Screw		1
4	46172-1	Retainer		1
5	46172-3	Retainer		1
6	LC-042G-6	Spring (84830)		3

#### NOTES

1. Remove light bulbs according to AMM
2. Use pos. 2 for front location and pos. 1 at main landing gear.
3. Attach wiring as per AMM, but consider light polarity.
4. Install light item (1) or (2) according AMM using the OEM material items (3) to (6).

#### 1.6.2.2 Option B – Hercules JP 28V

Kit Number: RWC-07

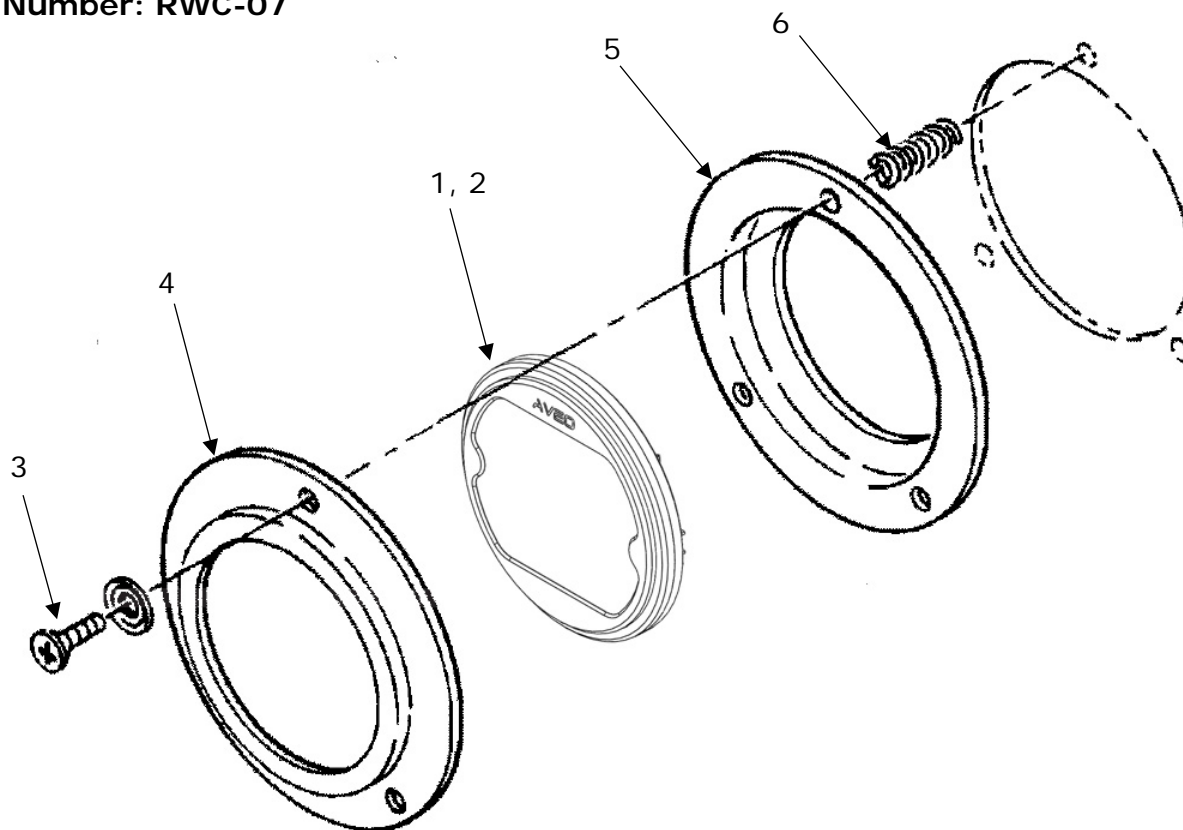


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		LANDING LIGHT INSTALLATION		
1	AVE-HJPDOLW-DS2	Hercules JP 28V Landing		2
2	AVE-HJPDOTW-DS2	Hercules JP 28V Taxi		1
3	AN507-1032R20	Screw		1
4	46172-1	Retainer		1
5	46172-3	Retainer		1
6	LC-042G-6	Spring (84830)		3

#### NOTES

- Remove light bulbs according to AMM
- Use pos. 2 for front location and pos. 1 at main landing gear.
- Attach wiring as per AMM, but consider light polarity.
- Install light item (1) or (2) according AMM using the OEM material items (3) to (6).

#### 1.6.2.3 Option C – Thor 36 DI 28VDC

Kit Number: RWC-09

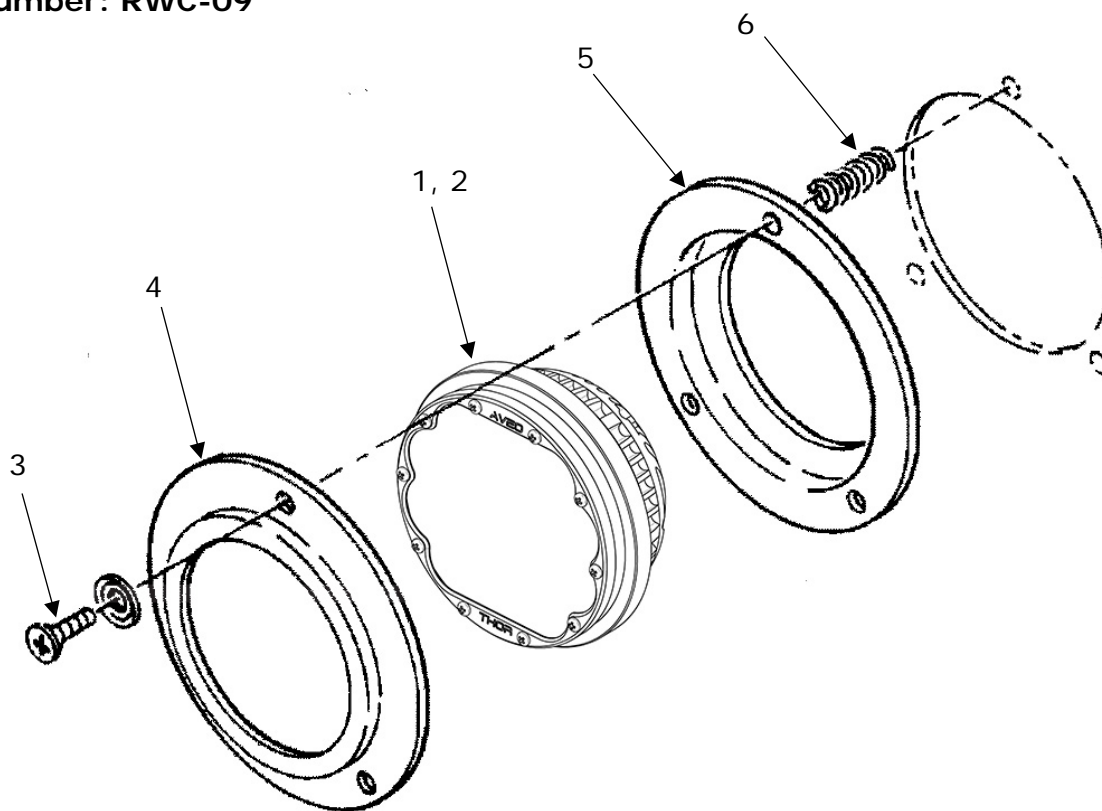


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		LANDING LIGHT INSTALLATION		
1	AVE-THD36LW-TD1	Thor 36 DI Landing 28VDC		2
2	AVE-THD36TW-TD1	Thor 36 DI Taxi 28VDC		1
3	AN507-1032R20	Screw		1
4	46172-1	Retainer		1
5	46172-3	Retainer		1
6	LC-042G-6	Spring (84830)		3

#### NOTES

9. Remove light bulbs according to AMM
10. Use pos. 2 for front location and pos. 1 at main landing gear.
11. Attach wiring as per AMM, but consider light polarity.
12. Install light item (1) or (2) according AMM using the OEM material items (3) to (6).

## Part 2 Compliance demonstration

This document is in relation to the certification program AVE-MOD-011-PFC . The compliance is demonstrated for the following certification specification:

Requirements	MoC	Statement of Compliance
CS 23.29 Empty weight and corresponding center of gravity	MoC 0 MoC 2	(a) – (b) The change in weight is below 1 lbs and therefore negligible but the center of gravity is to be corrected as stated in the installation instruction.
CS 23.301 Loads	MoC 0 MoC 1 MoC 2	(a) The structural statement demonstrates that the installations are by far above the required load factors. None of the installed structure is required for continuation of the flight. (b) and (c) are not affected as the change in mass and the deflections are not appreciable.
CS 23.609 Protection of structure	MoC 0	(a) All parts installed are verified to be suitable. The installation instruction requests the aircraft structure to be inspected for probable corrosion before installing the new lights. (b) Not applicable
CS 23.1301 Function and installation	MoC 0	(a) All navigation and anti-collision lights are ETSO certified. All landing lights are qualified according to RTCA DO160 as per AVE-H30-001-CCL or AVE-HJP-001-CCL, AVE-THD-001-CCL, (b) Not applicable. (c) All equipment is installed within their limits.
CS 23.1383 Taxi and landing lights	MoC 0	(a) The configuration of the original installation is not changed. (b) is not affected as the installation is not changed. (c) is improved as the new lights are brighter than the originally installed. (d) The landing light surface temperature is significantly lowered by this modification.
CS 23.1529 Instructions for Continued Airworthiness	MoC 0	The modification does not require any changes to the aircraft maintenance procedure which is clearly stated in §1.1 General.