



ROBINSON
HELICOPTER COMPANY

Installation Instruction

ROBINSON

R22, R44 and R66 SERIES

Part 0 Manual Administration


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0.2 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 Robinson helicopter R22, R22alpha, R22 Beta, R22 Mariner, R44, R44 II and R66 series.

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0.3 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

ALL raises of issue will be given a sequential Alphabetic Issue Ident sequentially from 01 to 99 in Table 01 - **Issue No:** Column– Initial Issue of Document will be “01”

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

Issue No.	Details	Date	Effected Pages
01	Initial Issue	25.May 2016	ALL
02	Addition of R22, R44a and R66 Addition of corrosion note Anticollision light option B limited to 28V systems Addition option C removal power supply Part 2 added to document (not marked)	19.Sep. 2016	Several as marked 16 20
03	Change R44a to R44 II and missing R22 models Change DL issue Change wiring diagram	27.Sep.2016	3 & 18 5 18
04	Hardware change, new gasket added and new wiring diagram Addition of Hercules JP Addition of Thor LLP Addition of PosiStrobe Titania Addition of connectors	13.May.2025	5, 10-22 9, 10 13, 14 17, 18 15, 22
Table 01: Document Amendment Record Table			

0.4 Effected Pages Procedure

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

The reason(s) for ALL raise of issue and description of change due to raise of issue will be provided for ALL raises of issue in Table 01 - *Details* Column.

Changes from the previous issue are highlighted by **YELLOW HIGHLIGHTING** over new content. AND **YELLOW HIGHLIGHTING** AND CROSSING OUT of deleted content.

Example (~~CROSSING OUT~~)

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 in the latest revision of:

- FAR AC 43.13-2B Chapter 4
- FAR AC 43.13 1B Chapter 11 Section 15
- AVE-H30TATSN-IM
- AVE-WPS-64G-IM
- AVE-RBXP-001-IM
- AVE-RBCRW-001-IM
- AVE-PSPSYW-IM
- AVE-HJPDO-IM
- AVE-THDLLP-IM_I01

All drawings applicable for this change are listed in the Drawing List:

- AVE-MOD-001-DL, issue 03

The following appliances feature an ETSO authorization:

- AVE-WPSR-64G & AVE-WPSG-64G – ETSO 21O.10053936
- AVE-RBXPR-001 – ETSO 21O.10055069
- AVE-RBCRW-001 – ETSO 21O.10053491
- AVE-PSPSYW-T01 – ETSO 21O.10068603

The change is to be performed using the document AVE-MOD-001-MCS in the latest issue.

The aircraft modified according to this instruction may not be released back to service without the EASA design approval certificate being provided.

1.2 Continued Airworthiness

The aircraft manuals remain fully valid. The inspection intervals and the procedures of the aircraft override the general statements in the component manuals as listed under §1.1.

For inspection of the new lights themselves follow the procedure of the Aveo Installation Manuals referenced above.

1.3 Description

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

1.3.1 Position and anti-collision lights

The new position lights all also include the strobe function. Also two options for the anti-collision lights can be installed. The RedBaron XP Galactica offers only the red anti-collision light while the RedBaron combo HISL can be operated either as red beacon or white strobes.

As not all R22, R44 and R66 helicopter are already equipped with the strobe function (white strobe) in addition to the red beacon, this function may be added with this modification.

Hence the following optional installations can be done with this modification:

For helicopter with strobe function already installed:

- Position lights including strobe + Beacon red (RedBaron XP)
- Position lights including strobe + Beacon red including strobe (RedBaron HISL)

For helicopter without strobe:

- Position lights without strobe + Beacon red (RedBaron XP)
- Additional switch and wiring change + Position lights including strobe + Beacon red (RedBaron XP)
- Additional switch and wiring change + Position lights including strobe + Beacon red including strobe (RedBaron HISL)

Synchronization:

The position lights and the RedBaron HISL may be synchronized but the frequency of the strobes is so low that synchronization of the lights is not required.

For the synchronization function the blue wires of each light to be synchronized have to be connected. If for this function additional wires are to be installed then these must be installed along the wire bundle in which the lights power wires run. If the function is not used the blue wire at each light is to be capped and stowed.

1.3.2 Taxi- and landing lights

The R22, R44 and R66 is basically equipped with a taxi light (wide angle lens) and a landing light (narrow angle) in the forward belly fairing. Some helicopter have two landing lights (narrow angle) instead of the combination taxi-/landing light and some helicopter are additionally equipped with two landing lights near the aft landing gear attachment. This modification allows replacing all four lights with the same configuration as it is installed. A configuration change is not allowed.

1.4 Landing Light Installation forward

1.4.1 Option A – Hercules Drop-In

Kit Number:

Option A-1 : RBS-06

Option A-2 : RBS-09

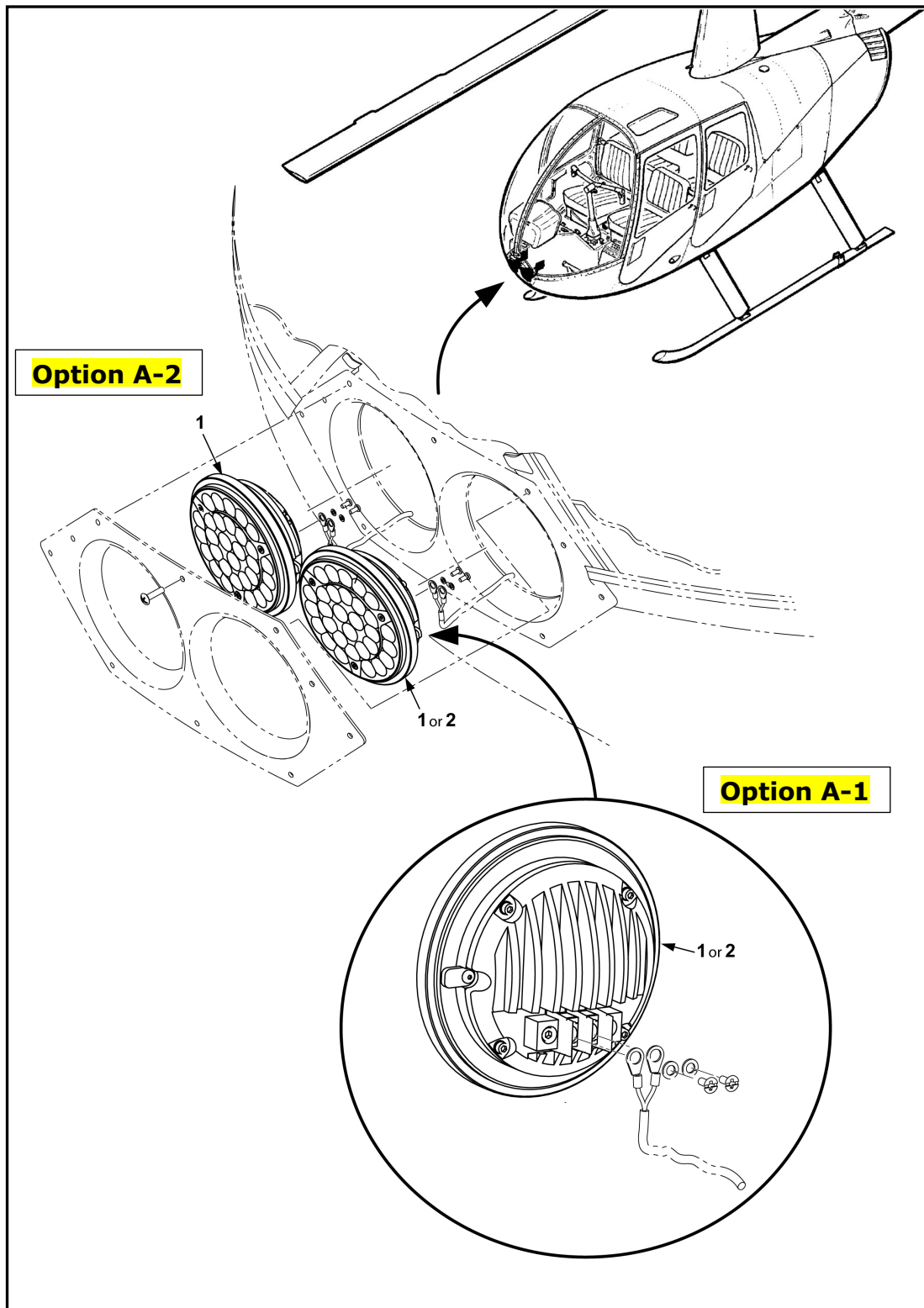


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		LANDING LIGHTS INSTALLATION		
1	Option A-1 AVE-H30TATSNL-T0A Mod(1)	Hercules Drop-In Landing		2
1	Option A-2 AVE-H30TATSNL-T0A Mod(1)	Hercules Drop-In Landing		1
2	AVE-H30TATSNT-T0A Mod(1)	Hercules Drop-In Taxi		1
NOTES				

Remarks:

1. It is to be checked by the installer before the modification whether Option A-1 or A-2 is installed on the aircraft. For a change in configuration e.g. 2 landing lights into 1 landing and 1 taxi light requires an additional EASA change.
2. Inspect the installation area for corrosion and correct according to AMM if required
3. Remove existing connector and replace as indicated. Verify polarity of wires before connection (ref. to AVE-H30TATSN-IM).

1.4.2 Option B – Hercules JP 9-36VDC

Kit Number:
Option B-1 : RBS-10
Option B-2 : RBS-11

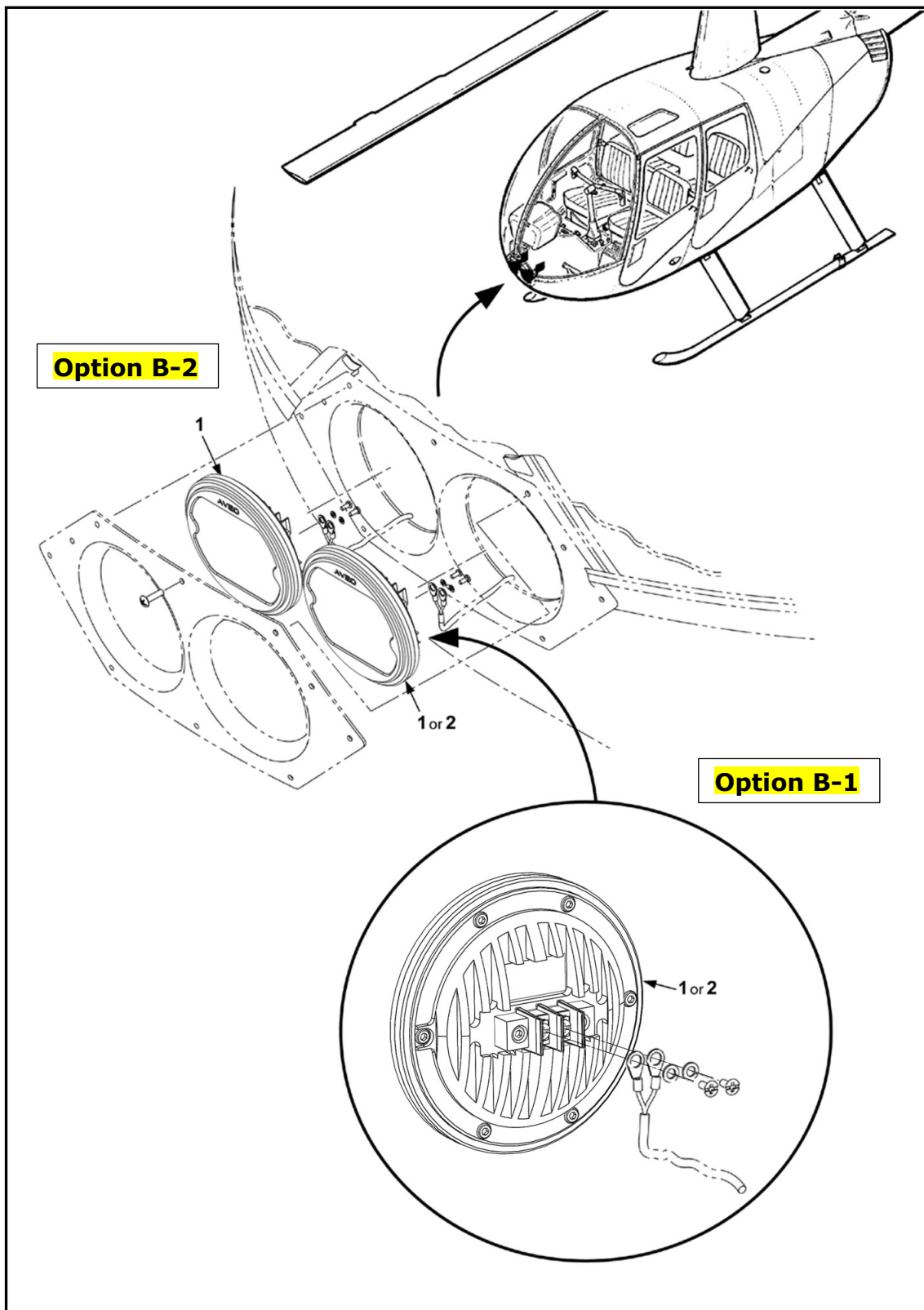


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		LANDING LIGHTS INSTALLATION		
1	Option B-1 AVE-HJPDOLW-DS3	Hercules JP Landing (9-36VDC)		2
1	Option B-2 AVE-HJPDOLW-DS3	Hercules JP Landing (9-36VDC)		1
2	AVE-HJPDOTW-DS3	Hercules JP Taxi (9-36VDC)		1
NOTES				

Remarks:

1. It is to be checked by the installer before the modification whether Option B-1 or B-2 is installed on the aircraft. For a change in configuration e.g. 2 landing lights into 1 landing and 1 taxi light requires an additional EASA change.
2. Inspect the installation area for corrosion and correct according to AMM if required
3. Remove existing connector and replace as indicated. Verify polarity of wires before connection (ref. to AVE- HJPDO-IM).

1.5 Landing Light Installation aft

1.5.1 Option A – Hercules LLP - Landing

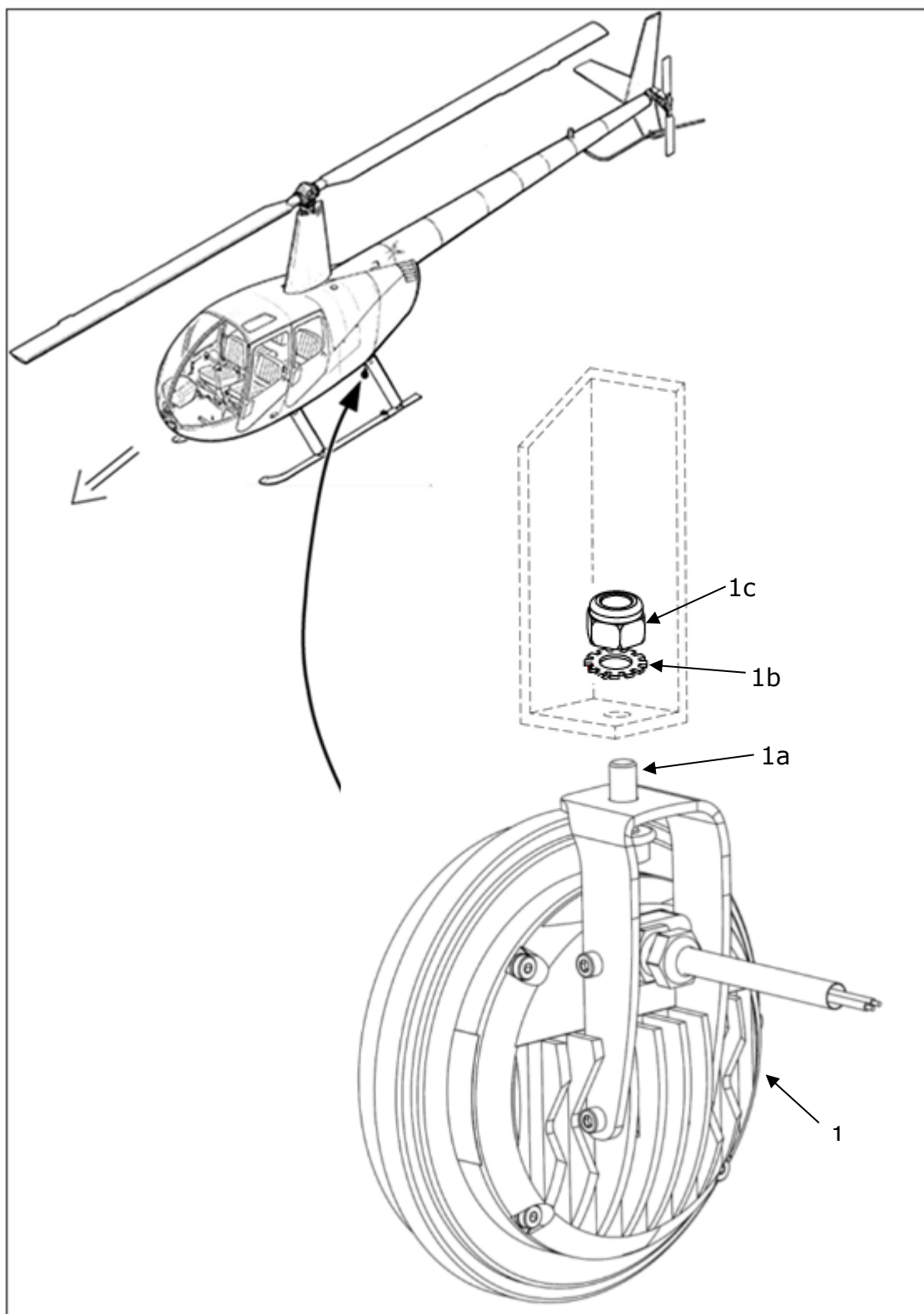
Kit Number: RBS-08

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		LANDING LIGHT INSTALLATION		
1	AVE-H30-W-012 Mod(1)	Hercules LLP - Landing		2
1a	AVS-17450906	Washer 6,4x11x0,7 DIN 6798		2
1b	AVS-14920906	Nut M6, DIN 985		2
1c	AVS-69211906016	Screw M6x16 DIN 6921		2
NOTES				

Remarks:

1. Inspect the installation area for corrosion and correct according to AMM if required
2. Adjust light along flight direction (+/- 5°)
3. Item 1c is to be installed using bolt adhesive Loctite 2400.
4. Connect light wires to the A/C wiring (ref. to AVE-H30TATSN-IM).

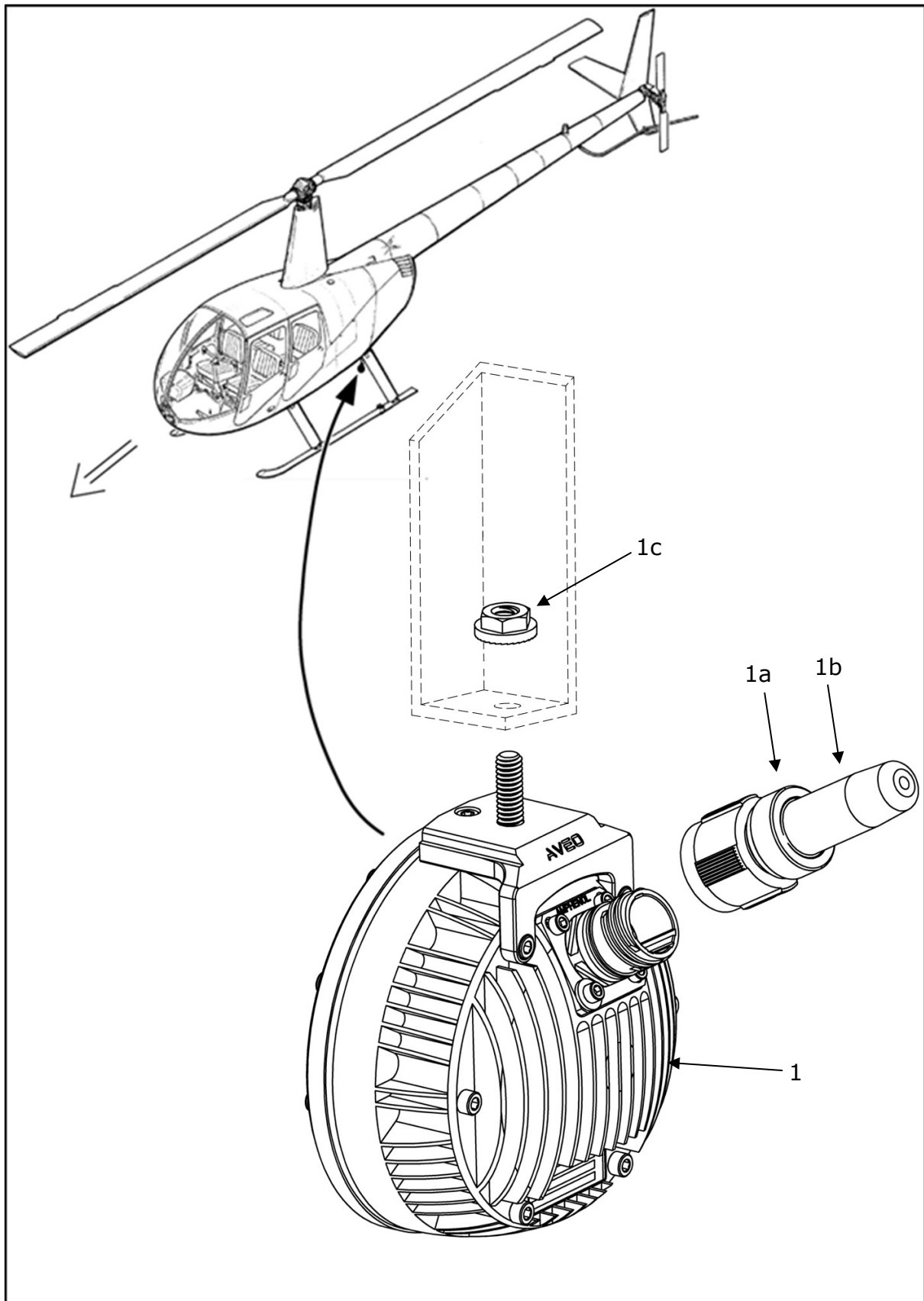
1.5.2 Option B – Thor LLP - Landing**Kit Number: RBS-12**

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		LANDING LIGHT INSTALLATION		
1	AVE-TH36LW-TD52	Thor LLP - Landing		2
1a	D38999/26WB2SN	Connector		2
1b	10-552681-119	Cable clamp		2
1c	AVS-93776A421	Nut UNC#1/4-20 Thread, Serrated Flange Locknut		2
NOTES				

Remarks:

1. Inspect the installation area for corrosion and correct according to AMM if required
2. Adjust light along flight direction (+/- 5°)
3. Item 4 is to be installed using bolt adhesive Loctite 2400.
4. Install connector delivered with light to the A/C wiring (ref. to AVE-THLLP-IM_I01.pdf).

1.6 Navigation Lights Installation – Left and Right

Kit Number: RBS-01

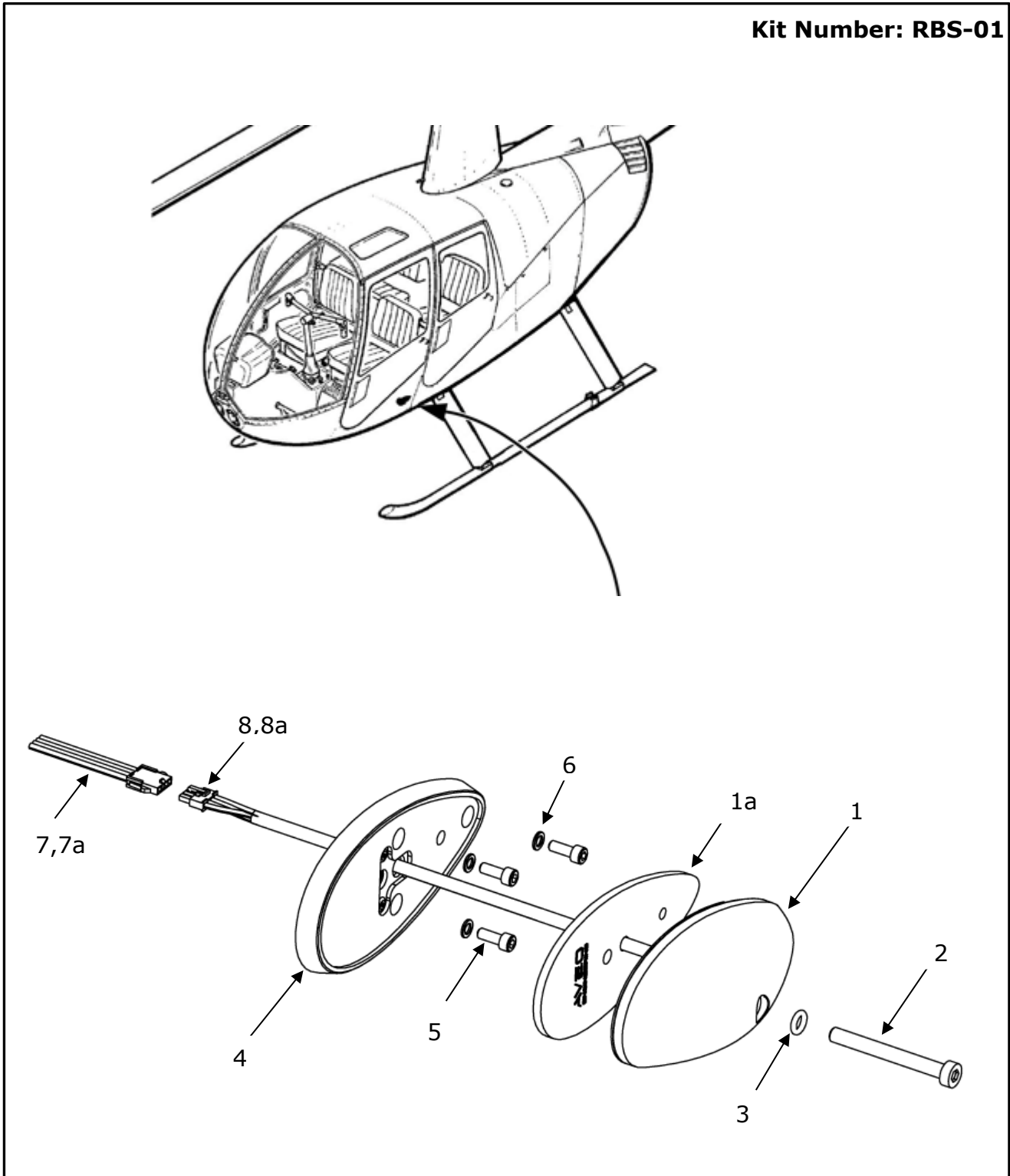


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
1	AVE-WPSG-64G Mod(4)	Ultra Galactica Embedded Green		1
	AVE-WPSR-64G Mod(4)	Ultra Galactica Embedded Red		1
1a	AVS-P001290550-A1A	Gasket		2
2	AVS-79840905045	Screw M5x45mm, DIN 7984		2
3	AVS-OR00480190N70-D0A	O-Ring 4.8 x 1.9mm, Din 3771		2
4	AVS-P000100175-A6C	Ultra Adapter M5		2
5	AVS-92196A152	Socket Head Screw, 6-32 x 7/8"		6
6	AVS-91475A020	Split Lock Washer, #6		6
7	03-09-1041	4-Pole Connector		2
7a	02-09-1117	Contact		8
8	03-09-2041	4-Pole Connector		2
8a	02-09-2116	Contact		8
NOTES				

Remarks:

Inspect the installation area for corrosion and correct according to AMM if required

If the aircraft is not already equipped with the strobe function this function can be installed through this change by following the instructions in § 1.9. The lights are to be connected as described in manual AVE-WPS-64G-IM.

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.

1.7 Navigation Lights Installation – Tail Position

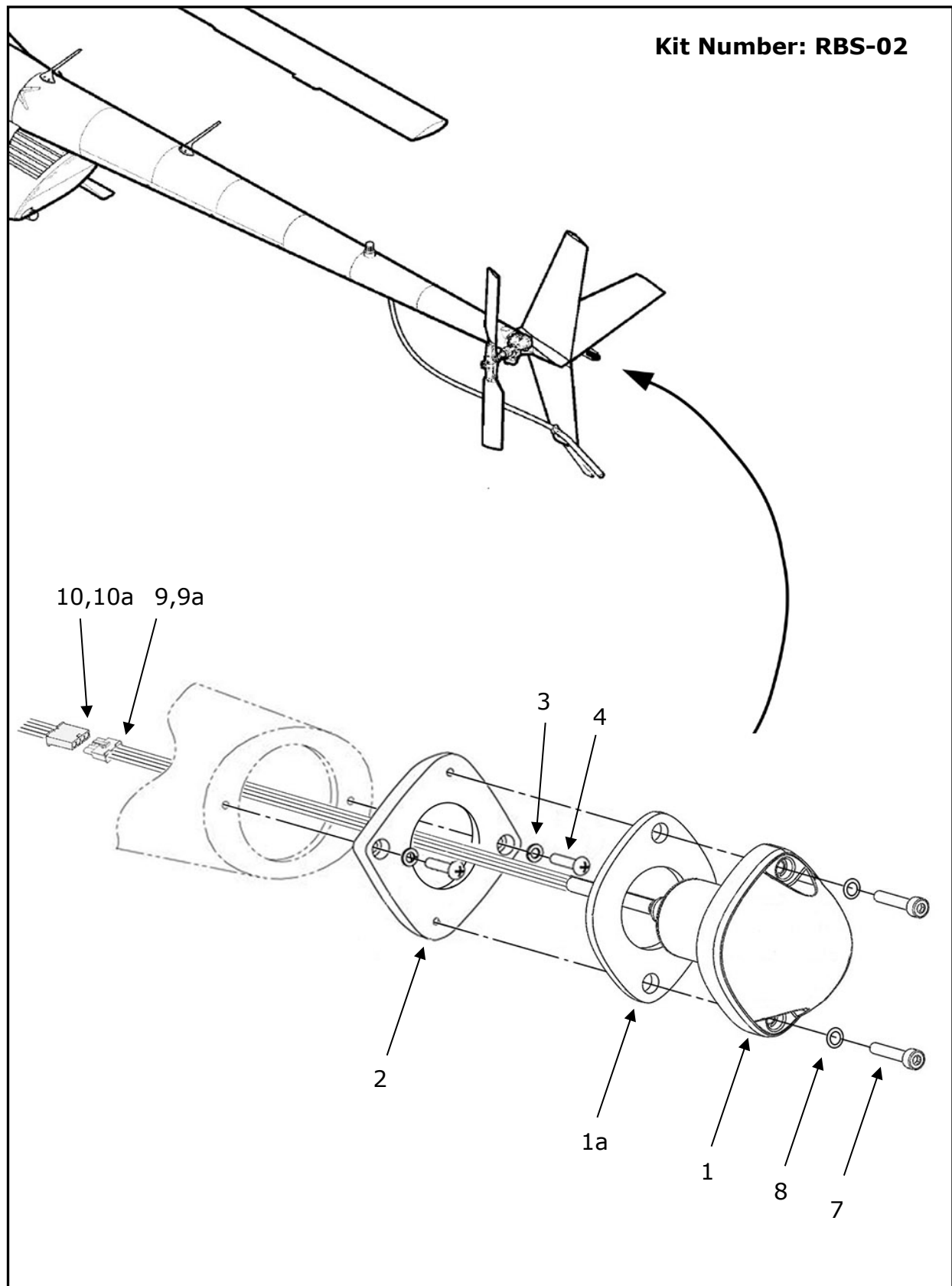


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		NAVIGATION LIGHTS INSTALLATION – TAIL POSITION		
1	AVE-PSPSYW-T01	PosiStrobe Titania		1
1a	AVS-P000105638-A10	Gasket		1
2	AVS-P000105639-A6A	PosiStrobe Adapter		1
3	AVS-91475A018	Split Lock Washer, #4		2
4	AVS-91400A114	Philips Rounded Head Screw, 4-40 x 5/8		2
7	AVS-92196A151	Socket Head Cup Screw, 6-32 x 3/4		2
8	AVS-90295A359	Flat Washer – Nylon, #4		2
9	03-09-1041	4-Pole Connector		1
9a	02-09-1117	Contact		4
10	03-09-2041	4-Pole Connector		1
10a	02-09-2116	Contact		4
NOTES				

Remarks:

Inspect the installation area for corrosion and correct according to AMM if required

If the aircraft is not already equipped with the strobe function this function can be installed through this change by following the instructions in § 1.9. The lights are to be connected as described in manual AVE-PSPSYW-IM.

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.

1.8 Anti-Collision Light Installation

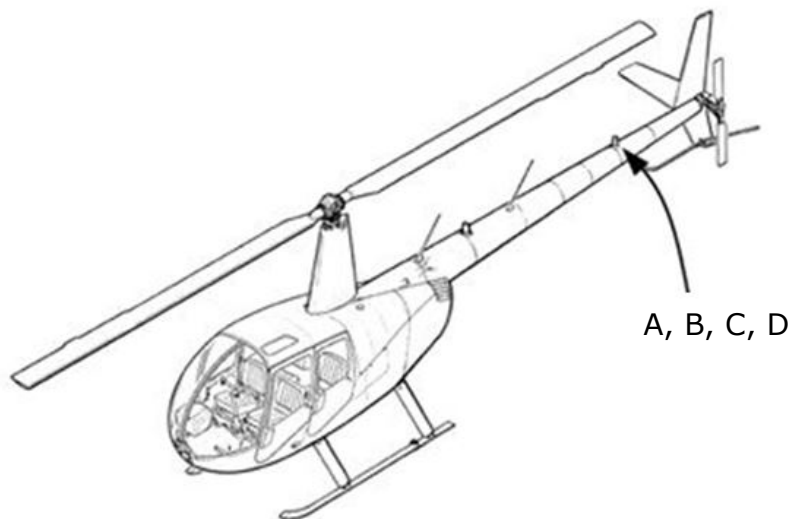
Kit Number:

Option A: RBS-03

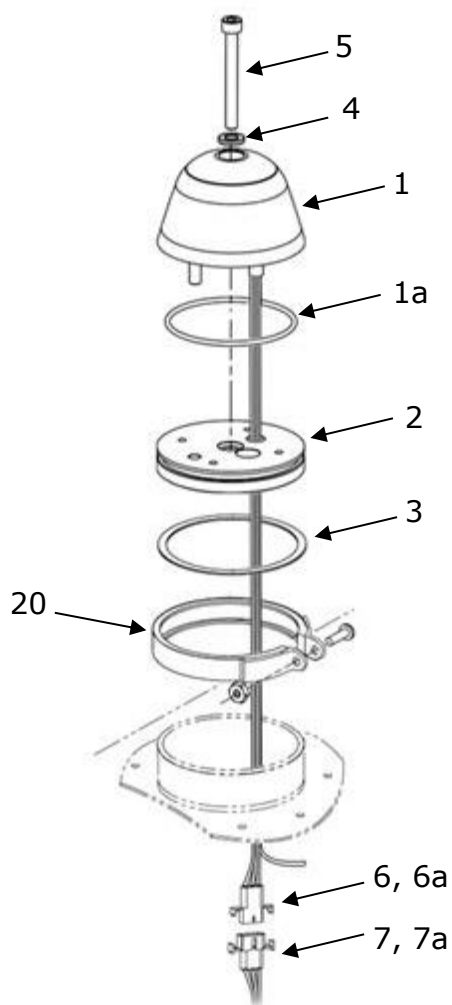
Option B: RBS-04

Option C: RBS-05

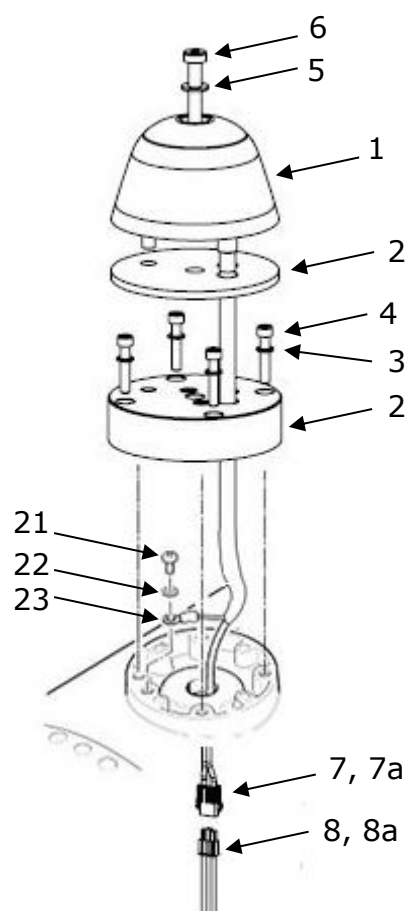
Option D:



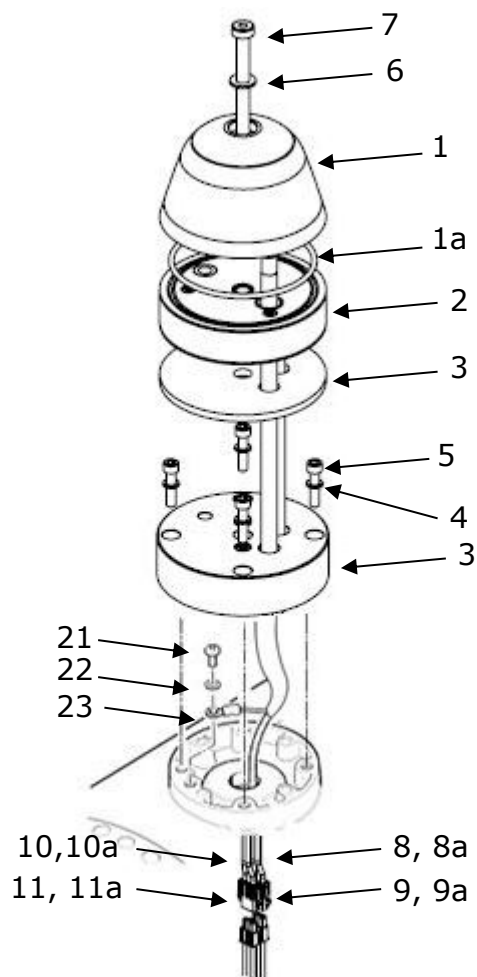
Option A:



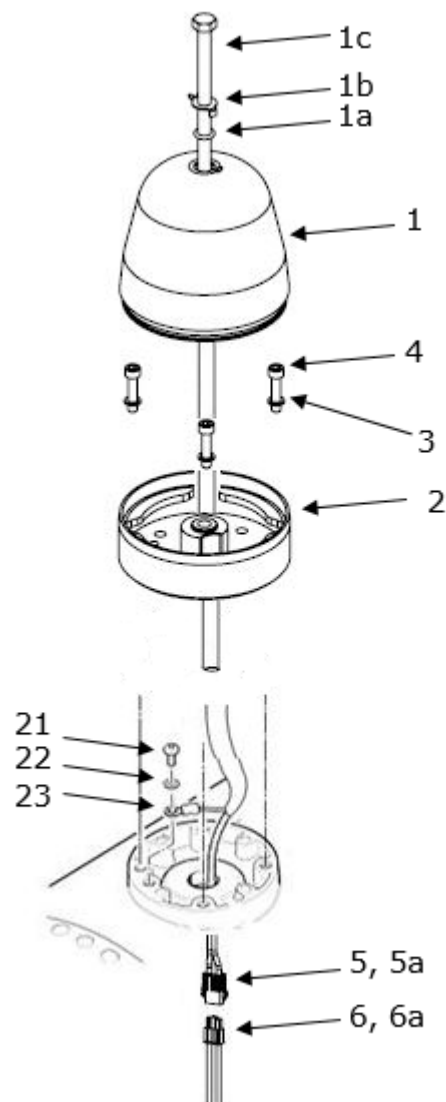
Option B:



Option C:



Option D:



**Removal Power
 Supply**

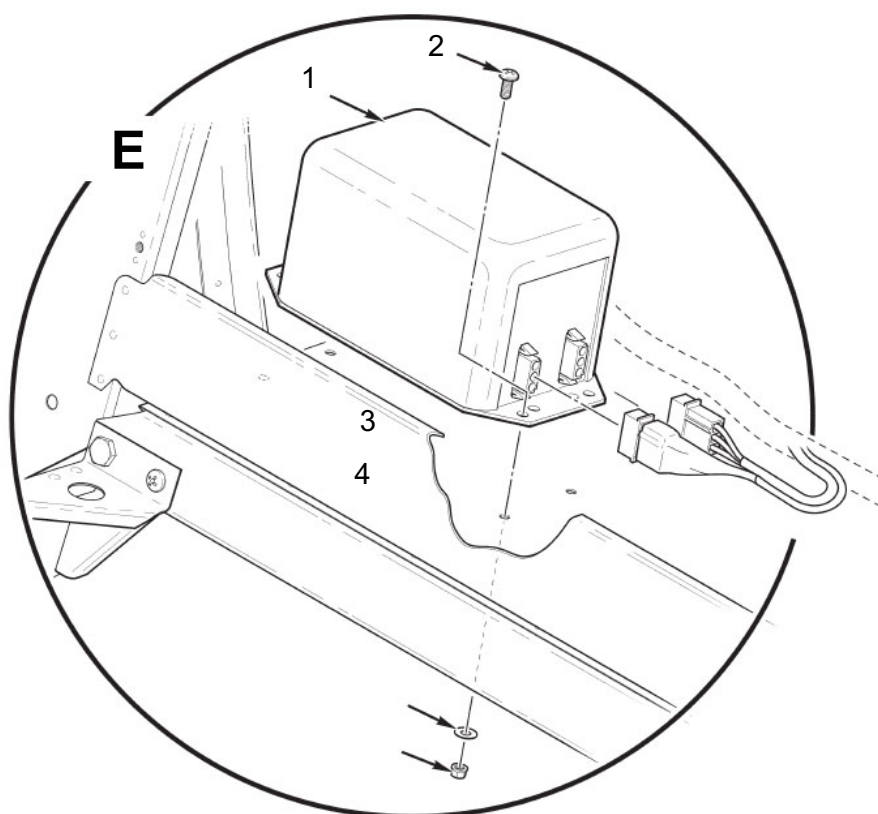


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		ANTI-COLLISION LIGHT INSTALLATION		
	Option A			
1	AVE-RBXPR-001 Mod (1)	RedBaron XP Galactica Red		1
1a	AVS-OR05300200N70-D0A	O-ring 53x2mm, DIN 3770		1
2	AVS-P000600099-A60	RB XP- RBC HISL Adapter		1
3	AVS-P000100878-A10	Gasket		1
4	AVS-170299005	Washer M5, DIN 125		1
5	AVS-79840905050	Screw M5x50mm, DIN 7984		1
20	01-0450685-00	Nylon Clamp Ring		1
6	03-09-1031	3-Pole Connector		1
6a	02-09-1117	Contact		3
7a	03-09-2031	3-Pole Connector		1
7a	02-09-2116	Contact		3
	Option B			
1	AVE-RBXPR-001 Mod (1)	RedBaron XP Galactica Red		1
2	AVS-A020600150-A60	RedBaron XP Adapter		1
3	AVS-92146A540	Split lock Washer #6		4
4	AVS-92196A151	Socket Head Cap Screw #6-32x3/4		4
5	AVS-170299005	Washer M5 DIN 125		1
6	AVS-79840905050	Screw M5x50mm, DIN 7984		1
7	03-09-1031	3-Pole Connector		1
7a	02-09-1117	Contact		3
8	03-09-2031	3-Pole Connector		1
8a	02-09-2116	Contact		3

	Original Parts			
21	MS35206-227	Original Fasteners		1
22	NAS620-6L	Original Fasteners		1
23	B260-2	Terminal		1
	Option C			
1	AVE-RBXPR-001 Mod (1)	RedBaron XP Galactica Red		1
1a	AVS-OR05300200N70-D0A	O-Ring 53x2,0 mm, DIN 3771		1
2	AVE-IRDACMI-M01	IR Donut XP		1
3	AVS-A020600150-A60	RedBaron XP Adapter		1
4	AVS-92146A540	Split lock Waher #6		4
5	AVS-92196A151	Socket Head Cap Screw #6-32x3/4		4
6	AVS-170299005	Washer M5 DIN 125		1
7	AVS-A7984565	Screw M5x65mm		1
8	03-09-1031	3-Pole Connector		1
8a	02-09-1117	Contact		3
9	03-09-2031	3-Pole Connector		1
9a	02-09-2116	Contact		3
	Original parts			
21	MS35206-227	Original Fasteners		1
22	NAS620-6L	Original Washer		1
23	B260-2	Terminal		1
	Option D (28V system only)			
1	AVE-RBCRW-001 Mod(3)	RedBaron Combo HISL		1

1a	AVS-OR00500150N70-D0A	O-Ring 5x1,5 mm, DIN 3771		1
1b	AVS-MS9276-09	Key Washer M5		1
1c	AVS-SCM00570HHS-D0A	Screw M5x70 mm, DIN 933		1
2	AVS-A090103450-A60	RedBaron Combo HISL Adapter		1
3	AVS-92146A540	Split lock Washer #6		3
4	AVS-92196A148	Socket Head Cap Screw #6-32x1/2		3
5	03-09-1041	4-Pole Connector		4
5a	02-09-1117	Contact		1
6	03-09-2041	4-Pole Connector		4
6a	02-09-2116	Contact		1
<hr/>				
	Original parts			
21	MS35206-227	Original Fasteners		1
22	NAS620-6L	Original Washer		1
23	B260-2	Terminal		1
<hr/>				
	Option E* (R22, R44 only)	REMOVING POWER SUPPLY BOX		
1	A708-1*	Strobe Power Supply		1
2	MS27039C0806*	Screw		4
3	NAS1149FN816P*	Washer		4
4	MS21042L08*	Nut		4
<hr/>				
NOTES * For earlier R22, R44s. * Option D: RedBaron Combo HISL AVE-RBCRW-001 is supplied with Adapter AVS-P000103452-A60 (Drawing number 0103452) instead of original mounting socket (Drawing number 0100831).				

Remarks:

Inspect the installation area for corrosion and correct according to AMM if required

Option C can be used on aircraft with 28V system only!

Option D: Earlier versions have a separate power supply for the anti-collision light. In

this case the power supply must be removed. The connectors are to be removed and wires spliced according to standard practice:

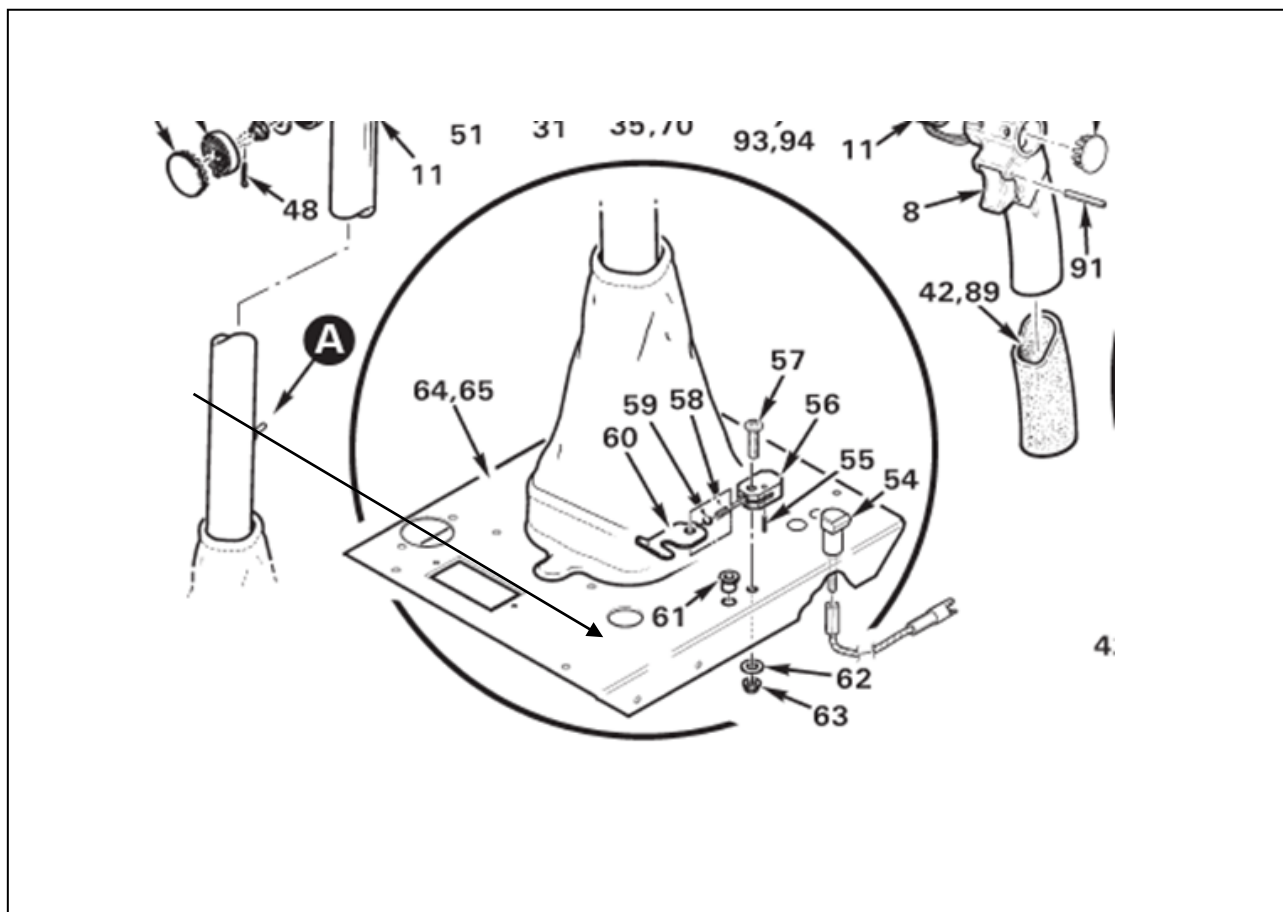
- Wire 106 connected to red wire
- Wire 136 (GND) connected to black wire
- Clear wire to be capped and stowed

If the aircraft is not already equipped with the strobe function this function can be installed through this change by following the instructions in § 1.9. The lights are to be connected as described in manuals AVE-RBXP-001-IM or AVE-RBCRW-001-IM depending on which option is to be installed.

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.

1.9 Addition of strobe function (not R66)

For helicopter which are not already equipped with the strobe function this function can be integrated using the following modification instruction. All R66 are already equipped with the strobe function and so this section is applicable only for R22 (all models), R44 II and R44.

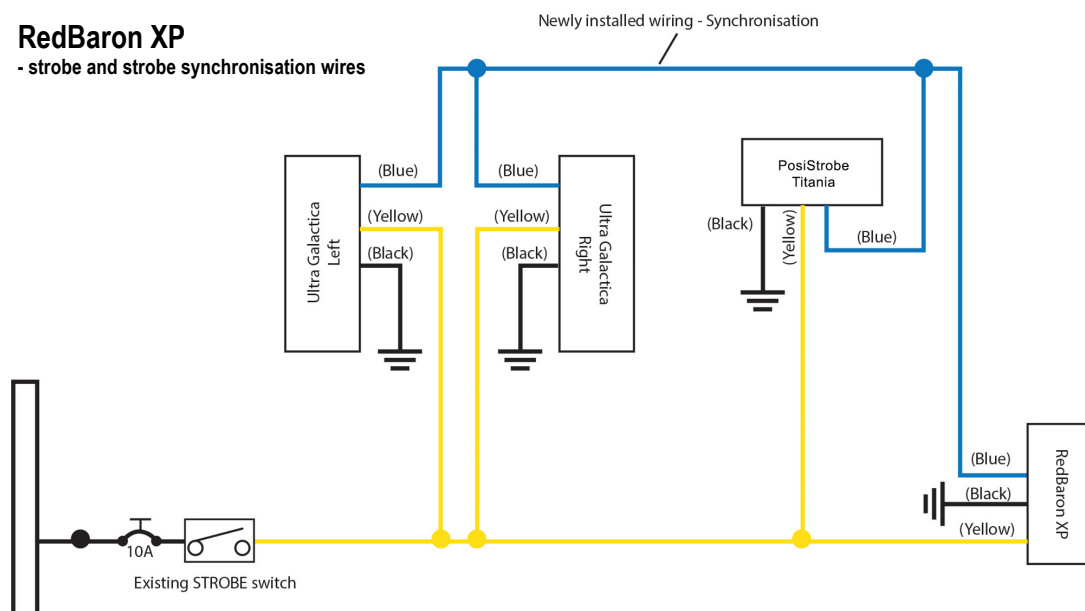


Wiring Diagrams

NOTE:
 FOR INSTALLATION OF LIGHTS
 REFER TO MANUALS ACCORDING
 TO § 1

RedBaron XP

- strobe and strobe synchronisation wires



RedBaron Combo HISL

- strobe and strobe synchronisation wires
 - additional strobe switch

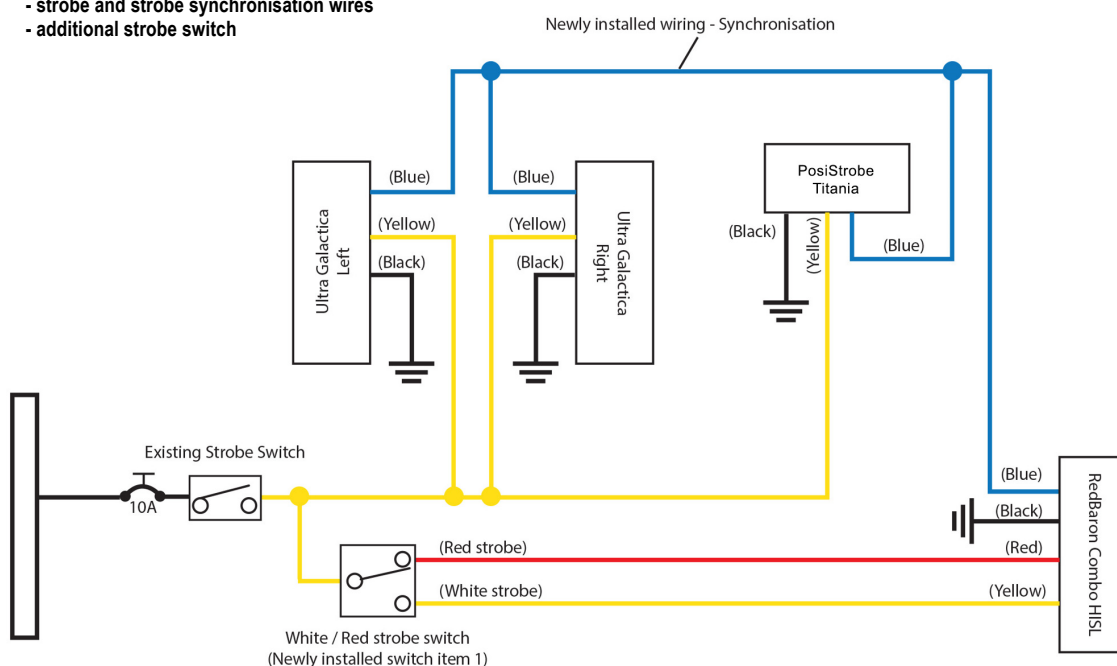


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		STROBE FUNCTION INSTALLATION		
1 64/65	AVS-PSHDP25S332-000 AVS-P-000600040-000	NKK Switch S332 Existing Base Panel (Modification)		1
NOTES				

Remarks:

To install the strobe light function:

1. Loosen the existing base panel as per maintenance manual chapter 8 and secure it.
2. Modify base panel according to drawing 0600040 and mark modified part with defined placard.
3. Take care that all sharp edges are removed and no scarf can remain on the A/C.
4. Install NKK Switch S332 (item 1) into the modified base panel (P/N AVS-P000600040-000. The switch is to be labeled "OFF" and "Strobe White" to show the strobe mode.
5. Install the base panel according to Maintenance manual chapter 8.
6. Wiring is to be performed according to the wiring diagram. If the strobes are to be synchronized then the blue wires of the position lights and the anti-collision light must be connected. If the lights shall not be synchronized the blue wires of the different lights are to be capped and stowed.
The additional wires are to be installed along the wire bundle with the wires for the position and anti-collision lights.

Part 2 Compliance demonstration

This document is in relation to the certification program AVE-STC-001-PFC.
The compliance is demonstrated for the following certification specification:

Requirements	MoC	Statement of Compliance
CS 27.609 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 27.1301 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. (b) Only one optional switch may be installed an label is defined herein. (c) All equipment is installed within their limits.
CS 27.1383 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 27.1529 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.