



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 Add option C for attachment anticollision light Change wiring diagram	15.Nov.2016	3 & 18 5 17 18
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**)

0.5 Distribution List

As stated in 0.3 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 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 in the latest revision of:

- 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-RBCRW-001-IM

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

- AVE-MOD-001-DL, issue 02

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

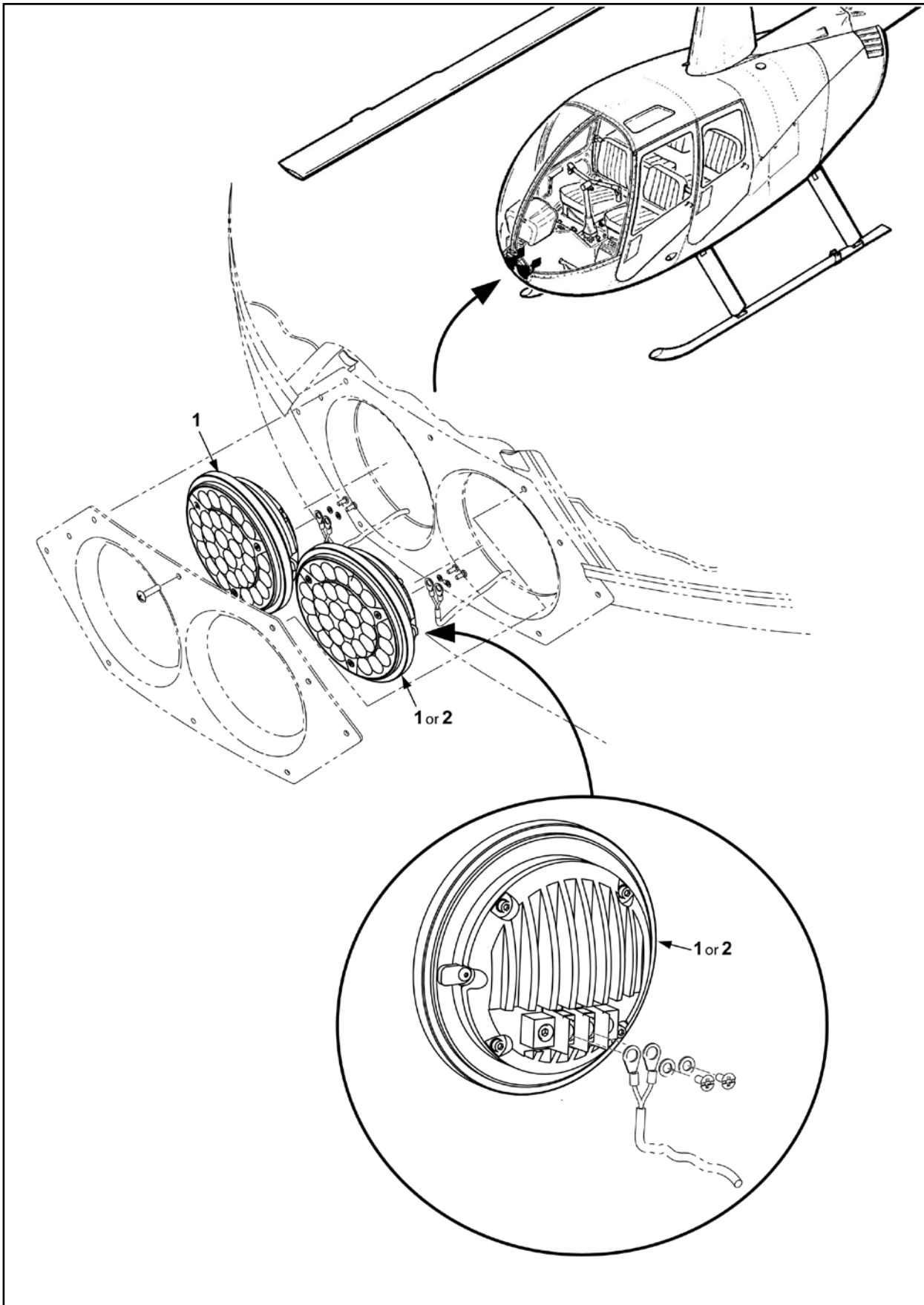


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
1	Option A AVE-H30TATSNL-T0A	Hercules Drop-In Landing		2
	Option B AVE-H30TATSNL-T0A	Hercules Drop-In Landing		1
2	AVE-H30TATSNT-T0A	Hercules Drop-In Taxi		1
NOTES				

Remarks:

1. It is to be checked by the installer before the modification whether Option A or B 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-H30-001-IM).

1.5 Landing Light Installation aft

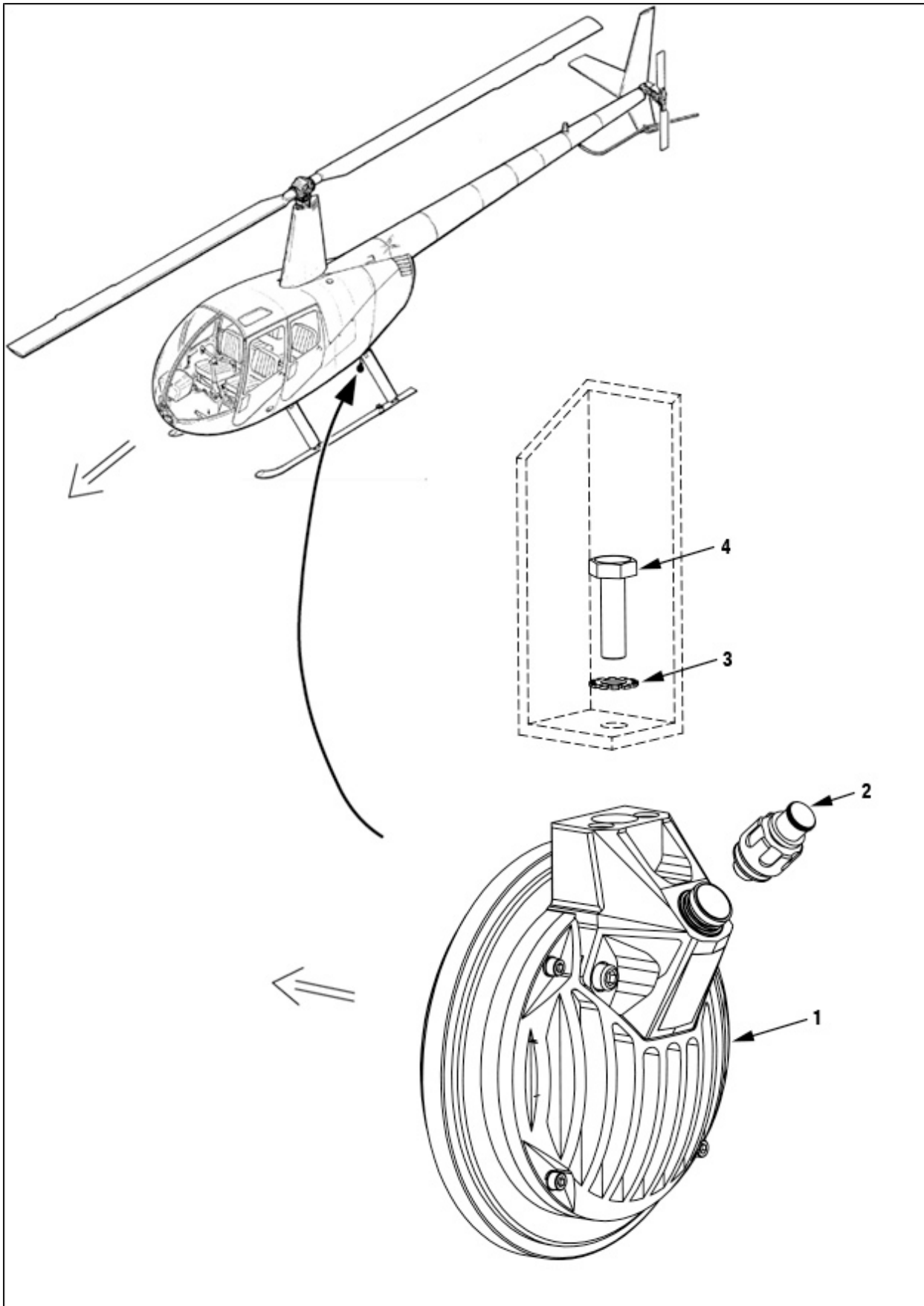


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		LANDING LIGHT INSTALLATION		
1	AVE-H30-W-002	Hercules LLP		2
2	1M.302.XLCT	Connector LEMO FGN.1M.302.XLCT		2
3	AVS-WAU1451DLES-U0A	Washer #1/4 Lock With External Tooth Thickness .030"		2
4	AVS-SCC0844HAS-C0A	Screw #1/4-20 x 1-3/4" UNC HHCS		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-H30-001-IM).

1.6 Navigation Lights Installation – Left and Right

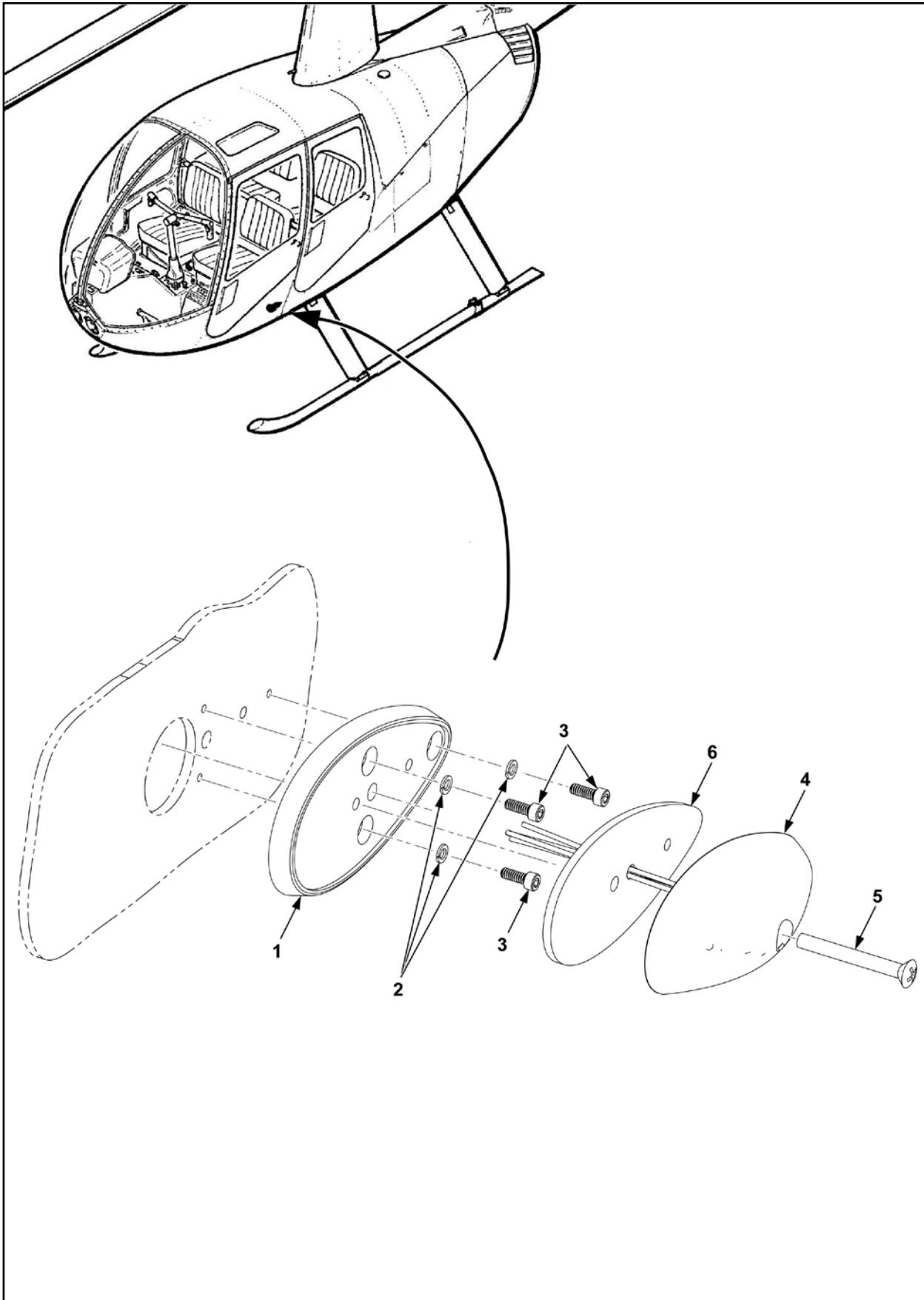


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		NAVIGATION LIGHTS INSTALLATION – RIGHT AND LEFT POSITION		
1	AVS-P000100175-A60	Ultra Adapter M5		2
2	AVS-WAU0612ESS-U0A	Washer #6 Split Lock		6
3	AVS-SCC0510CAS-C0A	Screw #6-32 x 3/8" SHCS		6
4	AVE-WPSR-64G AVE-WPSG-64G	Ultra Galactica Embedded Red Ultra Galactica Embedded Green		1
5	AVS-P000102114-A30	Mounting Screw M5 x 40		2
6	AVS-P001290550-A1A	Gasket		2
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 § 1.7. 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

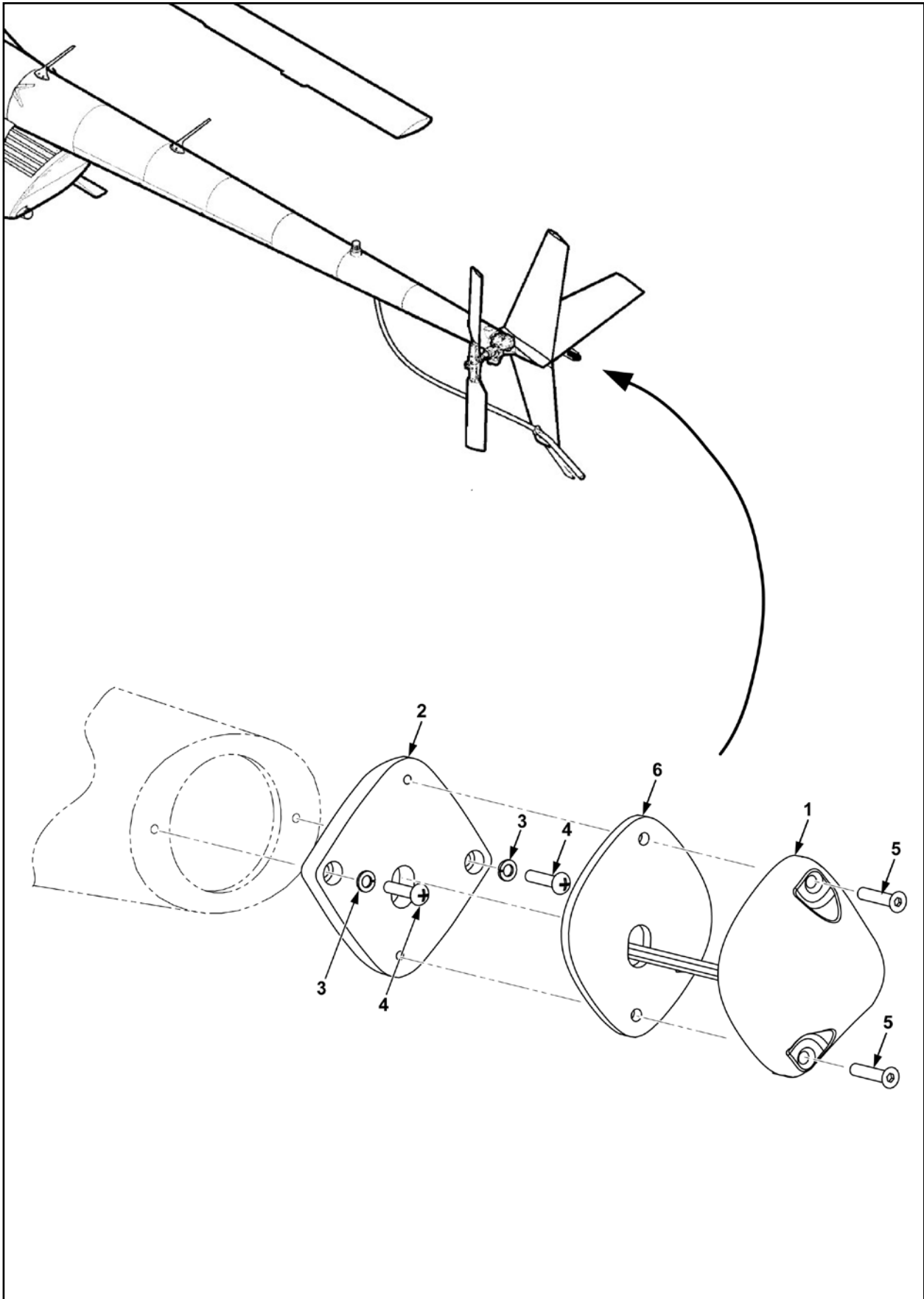


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		NAVIGATION LIGHTS INSTALLATION – TAIL POSITION		
1	AVE-POSW-54G	PosiStrobe CP		1
2	AVS-P000100157-A6A	PosiStrobe Adapter		1
3	AVS-WAU0611CSS-U0A	Washer #4 Split Lock		2
4	AVS-SCC0313BPS-C0A	Screw #4-40 x 1/2" BHCS		2
5	AVS-SCC0315FAS-C0A	Screw #4-40 x 19/32" FHSCS		2
6	AVS- P000103402-A1A	Gasket		1
NOTES				

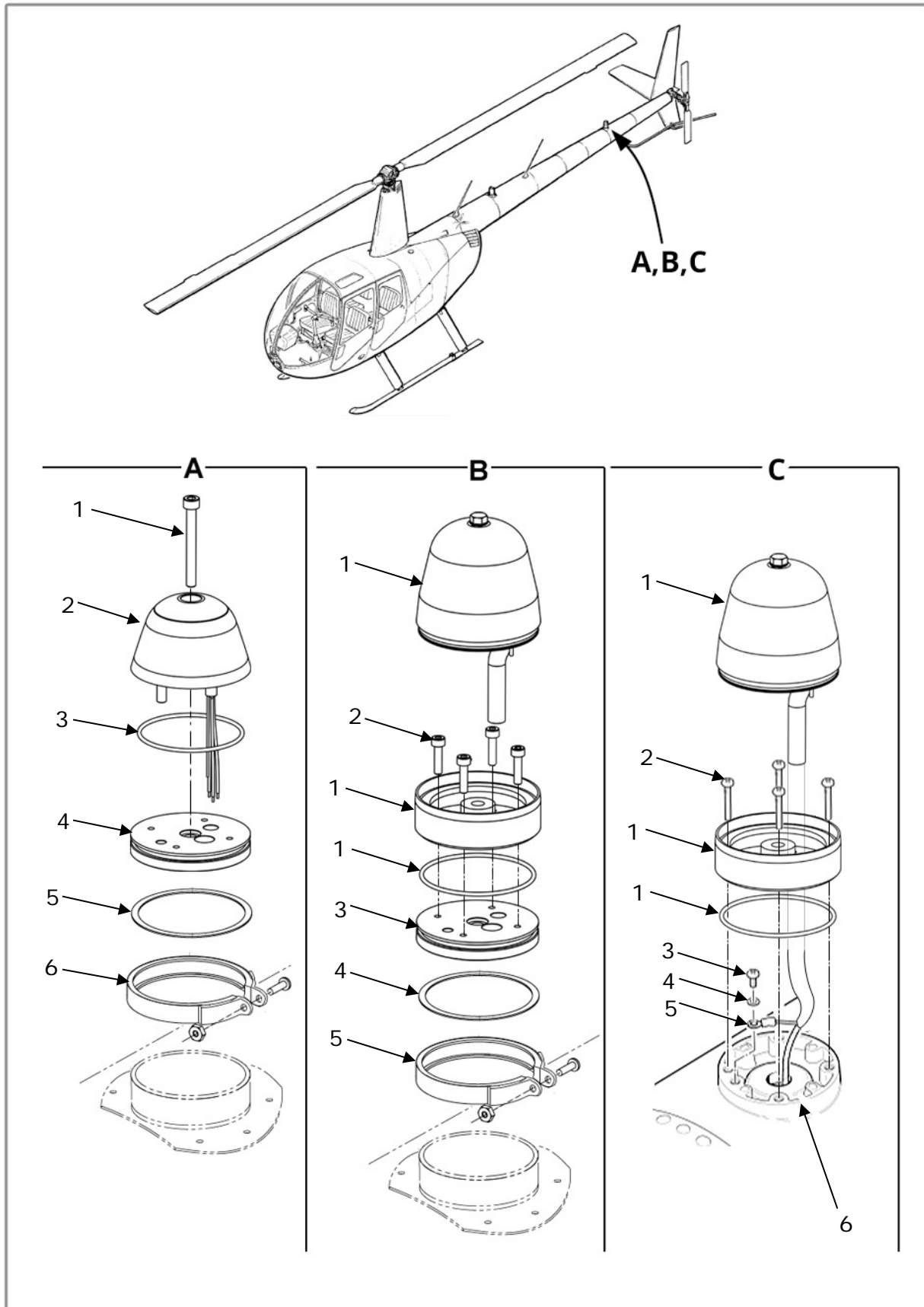
Remarks:

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 § 1.7. The lights are to be connected as described in manual AVE-POSW-54G-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



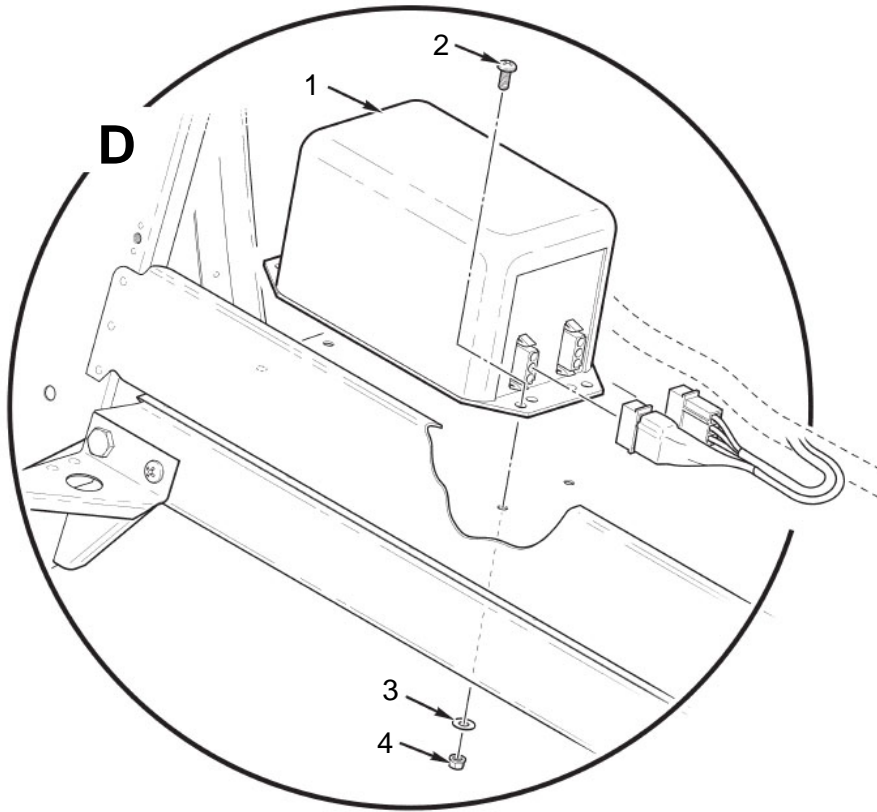


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
		ANTI-COLLISION LIGHT INSTALLATION		
A	Option A			
1	AVS-P000102111-A3A	Hex Socket Metric Screw Assy		1
2	AVE-RBXPR-001	RedBaron XP Galactica		1
3	AVS- OR05302N70-D0A	O-ring		1
4	AVS- P000600099-A60	RB XP-HISL ADAPTER Adapter		1
6	AVS-P000100878-A10	Gasket		1
7	19-250094-000	WRM-25, Ring Clamp		1
B	Option B (28V system only)			
1	AVE-RBCWR-001	RedBaron Combo HISL		1
2	AVS-SCM04008HAS-D0A	Screw		4
3	AVS- P000600099-A60	RB XP-HISL ADAPTER		1
4	AVS-P000100878-A10	Gasket		1
5	19-250094-000	WRM-25, Ring Clamp		1
C	Option C (28V system only)			
1	AVE-RBCWR-001	RedBaron Combo HISL		1
2	MS35206-234	Original Fasteners		4
3	MS35206-227	Original Fasteners		1
4	NAS620-6L	Original Washer		1
5	B260-2	Terminal		1
6	MS35489-15	Original Grommet		1
D	Option D* (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
NOTES * For earlier R22, R44s.				

Remarks:

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

Option B and 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:

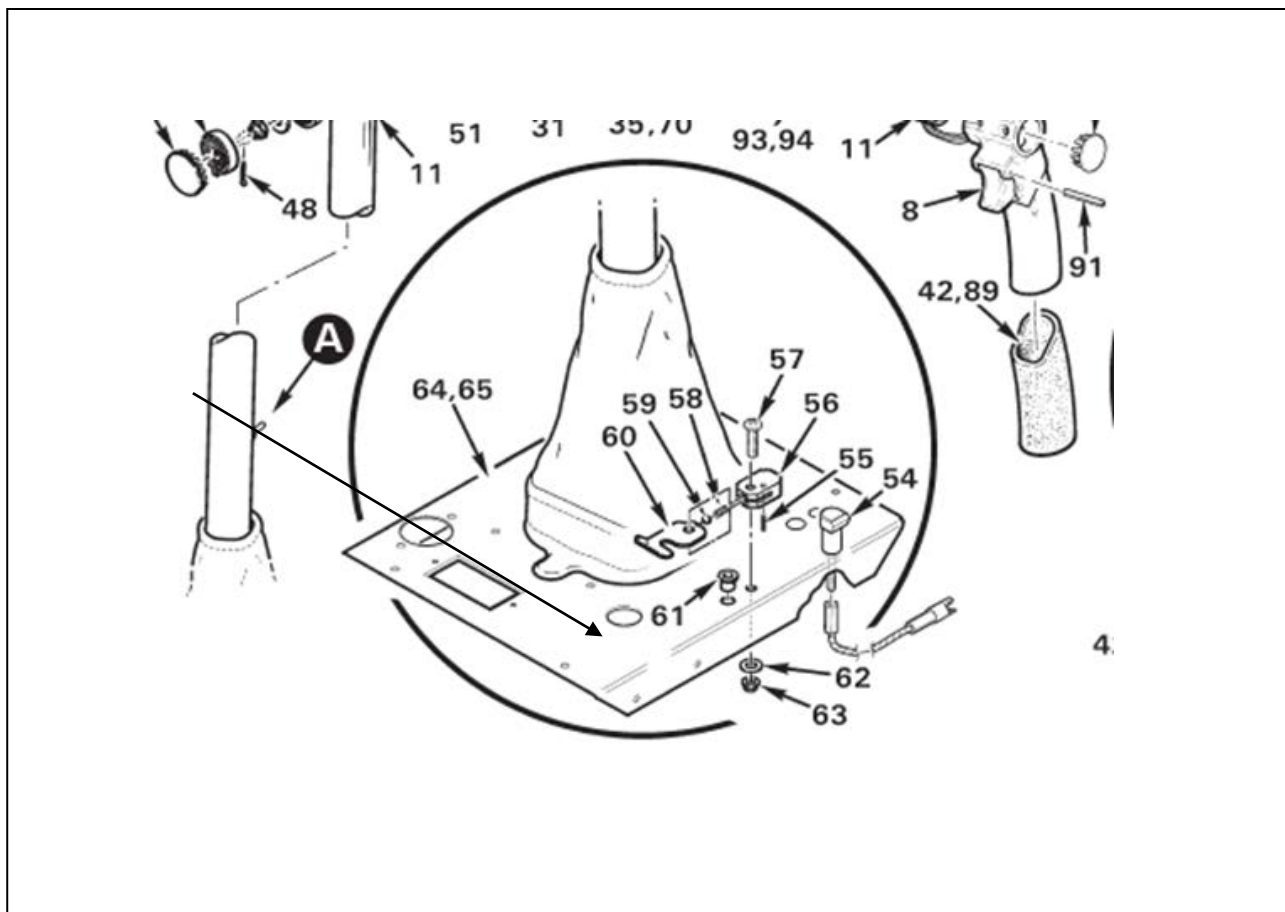
- Wire 106 connected to red wire
- Wire 136 (GND) connected to black wire
- Clear wire to be capped and stowed

If the aircraft is not already equipped with the strobe function this function can be installed through this change by following the instructions in § 1.8. 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 Diagram

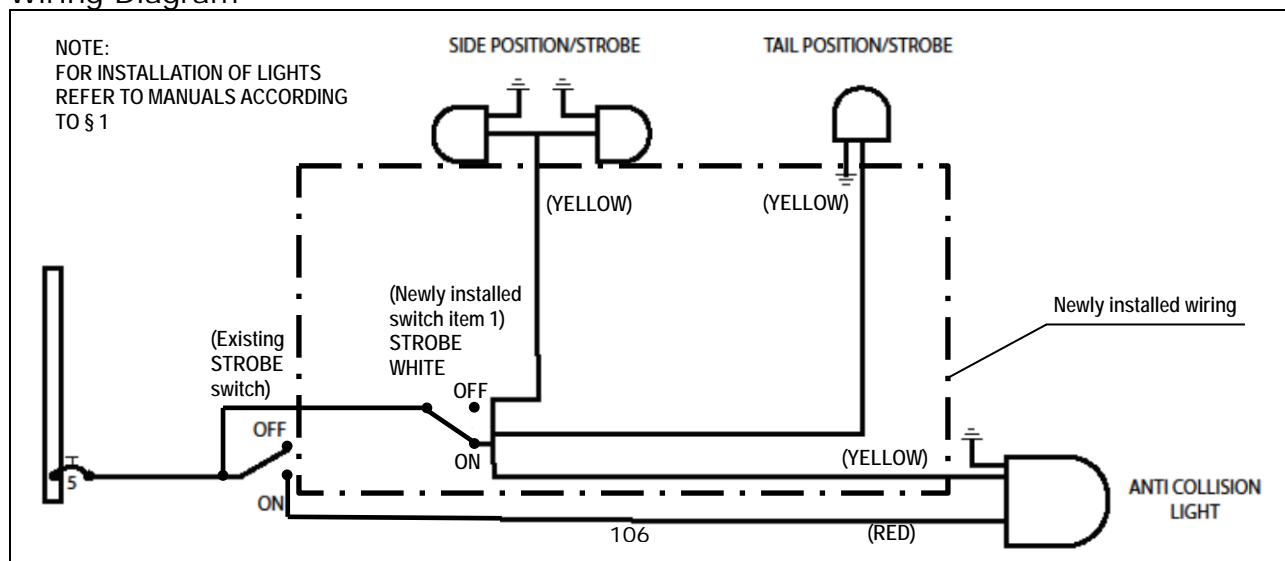


FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION	PARTS AVAIL	QTY PER ASSY
1 64/65	AVS-PSHDP25S332-000 AVS-P-000600040-000	STROBE FUNCTION INSTALLATION NKK Switch S332 Existing Base Panel (Modification)		1
NOTES				

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 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 anticollision 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. (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.