

Annex 01

Example of ICA NVIS configuration appendix



APPENDIX A

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

'MANUFACTURER'S NAME'
MODEL 1234 HELICOPTERS WITH NVG/NVIS
COMPATIBLE LIGHTING SYSTEM

DOCUMENT # ICA 1234-01

APPLICABLE TO AIRCRAFT S/N: 56789, 56788

THE FOLLOWING KITS/STCS ARE REQUIRED TO BE INSTALLED IN THE ABOVE AIRCRAFT S/Ns AS A
PREREQUISITE TO THE NVG/NVIS COMPATIBLE LIGHTING SYSTEM INSTALLATION:

EXAMPLES:

- Inst Specterlight SX5 EASA approval 12345678 (validation of FAA
STC ST00910NW)
- Medical Interior and Medical Battery EASA approval 12345678
- LMN Medical Interior EASA approval 12345679
- Installation Rotor Disc Light TC Option
- Key ALPHA GIX 200 MFD EASA approval 12345668 (validation of FAA
STC ST00312NW)

'OPERATOR'S NAME' CONFIGURATION

SECTION 1 COCKPIT

(FIGURE 1)

(insert drawing/picture of cockpit + overhead/ slant console, with numbers for each light emitting equipment)

ITEM NO.	APPLICANT P/N	DESCRIPTION	ORIG EQUIP MFG	OEM PART NUMBER	MODEL NUMBER	QTY / SS	NOTES
1	1234	KL 165A VHF COMMUNICATION TRANSCEIVER/NAVIGATION RECEIVER	ALPHA	069-01033-0101	KX 165A	1	
2	5678	GNC 250XL RECEIVER	BETA	011-00295-00	GNC 250XL	1	
3	9012	KR 87 ADF RECEIVER	GAMMA	066-1072-04	KR 87	1	
4	9874	KN 62A DME	GAMMA	066-1068-01	KN 62A	1	
5	8745	KT 70 TRANSPONDER	POLLUX	066-01141-0101	KT 70	1	
6		ANNUNCIATOR, "ICS/ON"	ARCTURUS	LED-7A-14-KB-E05VM		1 (REF)	OEM NVG
7		RA-335 RAPPLICANTO ALTIMETER INDICATOR	THETA	7000839-923	RA-335	1 (REF)	OEM NVG
8		ENCODER ALTIMETER	BELLATRIX	3A67.32.20F.05.1.KR		1 (REF)	OEM
9		MAGNETIC COMPASS (5V)	DELTA	727-5026/04		1 (REF)	OEM NVG
10		MASTER CAUTION LIGHT	DELTA	720-9300/01.02		1 (REF)	OEM NVG
11		ANNUNCIATOR, "RCVRS/ON"	CASTOR	LED-7A-14-KB-E05VN		1 (REF)	OEM NVG
12		ANNUNCIATOR, "IDS FAN"	ARCTURUS	LED-50-17-SE-E05VW		1 (REF)	OEM NVG
13	6547	ELT REMOTE SWITCH	ARTEX	345-6196-04		1	SUPPLY MOD
14		CHRONOGRAPH CLOCK	DELTA	AT42510H SIRIO MOD # 727-0261/02	LC-2H	1 (REF)	OEM NVG
15	2313-07	NVIS ELP, VNE	APPLICANT			1	
15	2345-08	NVIS ELP, VNE	APPLICANT			1	ALT P/N
16		ANNUNCIATOR, "SPKR/ON"	BELLATRIX	LED-7A-14-KB-E05VP		1 (REF)	OEM NVG

ITEM NO.	APPLICANT P/N	DESCRIPTION	ORIG EQUIP MFG	OEM PART NUMBER	MODEL NUMBER	QTY / SS	NOTES
17		ANNUNCIATOR, "HOOK UTIL ARM"	ARCTURUS	LED-50-17-SE-E05VV		1 (REF)	OEM NVG
18		LOAD METER (5V LIGHTING)	SIGMA	210-095-05		1 (REF)	OEM NVG
19	2390-01	NVIS ELP, COLLECTIVE	APPLICANT			1	
20		ANNUNCIATOR, "RAD MSTR/ON"	SIGMA	LED-7A-14-KB-E05VQ		1 (REF)	OEM NVG
21	5623-01	NVIS ELP, COMPASS	APPLICANT			1	
22	4578-01	NVIS ELP, SWITCH	APPLICANT			1	
23		MASTER WARNING LIGHT	DELTA	720-9300/02.02		1 (REF)	OEM NVG
24	2222-02	NVIS ELP, FUEL	APPLICANT			1	
25	4567-01	NVIS ELP, SAS	APPLICANT			1	
26		IDS	LAMBDA	193860-113		2 (REF)	OEM NVG
27		HORIZONTAL SITUATION INDICATOR	AEROALPHA	520-4150-009		1 (REF)	OEM
28		VERTICAL SPEED INDICATOR	AEROALPHA	31230-1127		1 (REF)	OEM
29		SX-5 CTRL PANEL	SIRIO	723-5383/04		1 (REF)	OEM NVG
30		10.4 MULTIFUNCTION AIRCRAFT DISPLAY	TAU	AVDU-2650-55-32-USB		1 (REF)	OEM NVG
31	6915	AIRSPEED INDICATOR	BELLATRIX	1012297A01-00		1	
32	2314	KR 21 MARKER BEACON RECEIVER	SPHYNKS	066-1021-01	KR 21	1	HORIZONTAL
33		DUAL TACHOMETER INDICATOR	DELTA	15DA05A1937		1 (REF)	OEM
34	WSH-100	#6 FLAT WASHER	APPLICANT			6	OVERLAY MOUNT
35	SCR-100	SCREW, 6-32 X 1 ½" LONG PH	APPLICANT			6	OVERLAY MOUNT
36	SCR-101	SCREW, 6-32 X 1" LONG PH	APPLICANT			3	INSTR MOUNT
37		ANNUNCIATOR, "DH"	AEROALPHA	LED-50-17-SE-E07AC		1 (REF)	OEM NVG
38		PLT/CPLT CYCLIC GRIP	DELTA	727-1018/01.01		2 (REF)	OEM NVG

FIGURE 1 CONTINUED
 (SHEET X OF X)

ITEM NO.	APPLICANT P/N	DESCRIPTION	ORIG EQUIP MFG	OEM PART NUMBER	MODEL NUMBER	QTY / SS	NOTES
39		ATTITUDE INDICATOR	LAMBDA	129920-3		1 (REF)	OEM
40		PLT/CPLT ICS CONTROL PANEL	DELTA	723-4464/10		2 (REF)	OEM NVG
41	1559-07	NVIS ELP, PLT INST #1	APPLICANT			1	OVERLAY
42	4774-07	NVIS ELP, PLT INST #2	APPLICANT			1	OVERLAY
43	6335-07	NVIS ELP, PLT INST #3	APPLICANT			1	OVERLAY
44	WSH-103	#10 FLAT WASHER	APPLICANT			6	OVERLAY MOUNT
45	4587-01	SPACER, RAPPICANTO ALTIMETER INDICATOR	APPLICANT			1	RAD ALT MOUNT
46	4555	FLASHLIGHT	EPSILON	P2-07-0022-001		1	
47	5223	GOOSENECK	IOTA	723-1294-228		1	SUPPLY MOD
48	NUT-100	NUT, 5/16"-32, HEX, 1/2" D X 17/64" H	APPLICANT			1	GOOSENECK MOUNT
49	WSH-105	LOCKWASHER, 5/16"-32, (.031 THK)	APPLICANT			1	GOOSENECK MOUNT
50	SCR-111	SCREW, 4MM X .70 X 60MM LONG, PH	APPLICANT			6	OVERLAY MOUNT
51	ELC-222	CONNECTOR	APPLICANT			1 (REF)	COMPASS, SEE SCHEMATIC
52		LAPTOP	EPSILON	CF-19FDGAXCM	CF-19	1 (REF)	OEM
53		SAKSAFOAM CONTROL	TAU INDUSTRIES	SFF-004		1 (REF)	OEM
54	5500-01	SPACER, ATTITUDE INDICATOR	APPLICANT			1	ATTITUDE IND MOUNT
55	HDW-100	CABLE HOLDER	APPLICANT			1	USE W/ GOOSENECK
56	A-100	STRUCTURAL ACRYLIC ADHESIVE	APPLICANT			A/R	USE W/ CABLE HOLDER

FIGURE 1 CONTINUED
 (SHEET X OF X)

SECTION 2 CABIN LAYOUT

FIGURE 2

(insert drawing/picture of internal cabin layout, with numbers for each light emitting equipment)

TABLE

(insert Table as per section 1 detailing for each number the equipment characteristics as in Table per section 1)

SAMPLE

SECTION 3 EXTERNAL LIGHTING

FIGURE 3

(insert drawing/picture of external lighting configuration, with numbers for each light emitting equipment)

TABLE

(insert Table as per section 1 detailing for each number the equipment characteristics as in Table per section 1)

Annex 02

Example of NVIS RFM appendix



***This section provides one acceptable template for use as a
Rotorcraft Flight Manual Supplement (RFMS) NVIS Appendix.
Other formats may be acceptable.***

COVER PAGE

FLIGHT MANUAL APPENDIX XXXX

NOTE This Flight Manual Appendix must be inserted in Section XX, of the 'STCNAME' 'Helicopter model' NVIS Flight Manual

Applicable and mandatory for helicopters with the below listed serial numbers:

Serial Number

638, 693, 654, 660

END COVER PAGE

1. GENERAL.

The information contained herein supplements the information of the basic Flight Manual and the 'STCNAME' 'Helicoptermodel' NVIS Flight Manual ; for limitations, procedures, and performance data not contained in this appendix, refer to the basic Flight Manual and 'STCNAME' 'Helicoptermodel' NVIS Flight Manual.

2. LIMITATIONS.

For NVIS operation the tactical radios XXXX and YYYY must be switched off during T/O, approach and landing.

Enroute, the display must be off or dimmed to its lowest brightness.

For NVIS operation the dome light and GSM must be switched off.

The previously installed avionic radio ZZZ limitation is no longer applicable

Additional Approved NVGs are: Aykron model 3345

3. EMERGENCY AND MALFUNCTION PROCEDURES.

No change in the Flight Manual / 'STCNAME' 'Helicoptermodel' NVIS Flight Manual data.

4. NORMAL PROCEDURES.

4.1 PRE-TAKEOFF CHECK

XXXX– Set to OFF
(for NVIS operation only)

YYYY– Set to OFF
(for NVIS operation only)

Dome light – Off
(for NVIS operation only)

GSM – Off

4.2. CHECK ENROUTE

XXXX – Set to lowest brightness level,
as required

YYYY – Set to lowest brightness level,
as required

4.3. PRE-LANDING CHECK

XXXX– Set to OFF
(for NVIS operation only)

YYYY– Set to OFF
(for NVIS operation only)

5. PERFORMANCE

No change in the Flight Manual / 'STCNAME' 'Helicoptermodel' NVIS Flight Manual data.

6. WEIGHT AND BALANCE.

No change in the Flight Manual / 'STCNAME' 'Helicoptermodel' NVIS Flight Manual data.

7. SYSTEM DESCRIPTION

Consider adding drawings, or reference to configuration file having drawings.

If the change is made not by the original NVIS TC/STC holder, than consider adding drawings and explanation of the changes (in this example the previously existing avionic radio ZZZZ has been replaced with the new tactical radios XXXX and YYYY)

(This ends the section of one template for use as an RFMS.)

Annex 03

Example of Maintenance NVIS Inspection Checklist



INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

ANNEX 1

NVIS COMPATIBLE LIGHTING SYSTEM MAINTENANCE INSPECTION CHECKLIST

REV. IR XX/XX/XX

GENERAL

A. Objectives

1. Ensure aircraft cockpit, cabin, position lights are still NVG compatible after
 - a. STC holder specified inspection interval (ICA)
 - b. Maintenance to the aircraft instruments or cabin equipment that are NVG compatible.
 - c. Safety inspections (Company)

B. Overview

1. Three phases of evaluation
 - a. Daylight
 - 1) Ensure the pilot can read NVIS modified equipment in daylight and bright sunlight conditions
 - b. Night – Unaided
 - 1) Unaided means viewing the instrument panel by looking underneath the NVG when they are in the operational position.
 - c. Night – Aided
 - 1) Ability to see through the windscreen forward, right, and cross cockpit to the left/right.
2. Evaluators
 - a. NVG trained and qualified pilot
 - b. Maintainer or Maintenance QC/QA

I. REFERENCE DATA

Instructions:

1. Self-explanatory.

1. AIRCRAFT INFORMATION			
MAKE	MODEL	S/N	REGISTRATION #

2. EVALUATOR(S) INFORMATION		
NAME	COMPANY	TITLE

3. NVG(S) INFORMATION		
MANUFACTURER	MODEL	S/N

4. DRAWING INFORMATION (THE APPLICABLE FIGURES OF THE ICA APPENDIX SHOULD BE USED)			
ICA FIG #	REV	DATE	DESCRIPTION

II. CONFORMITY EVALUATION

Instructions:

1. Evaluate the aircraft installation to ensure that it conforms to the figures of the applicable Appendix to the ICA. Note any non-conformities or deviations found so that appropriate action can be taken to either (a) update the installed configuration to reflect the Appendix of the ICA or (b) update the Appendix of the ICA to reflect the installed configuration.

1. INSTALLATION DRAWING CONFORMITY	PASS	FAIL
The installed equipment configuration of the NVIS lighting system of the aircraft conforms with the figures in the applicable Appendix of the ICA		
NOTES:		

III. UNAIDED DAYLIGHT READABILITY EVALUATION

Instructions:

1. Ensure that lighting conditions reflect a clear, sunny day with relatively low sun angles (worst case).
2. Windows/doors should represent the operational configuration and windscreens should be clean.
3. Power up aircraft using ground power.
4. Evaluate the aircraft installation according to the applicable section of the 'STC HOLDER' NVIS Compatible Lighting System Evaluation Checklist, initialing the appropriate boxes and noting any failures.

5. For each failure, if any, determine a possible corrective action and state whether reevaluation will be necessary once the failure is corrected.

1. READABILITY EVALUATION	PASS	FAIL
Filtered displays and gauges are readable from both front seat positions with sunlight shining on display		
NOTES:		

2. NVIS RED EVALUATION	PASS	FAIL
Lights using NVIS Red are distinguishable as “red” compared to other lights on the instrument panel and are bright enough to capture pilot’s attention with sunlight shining on display		
NOTES:		

3. NVIS YELLOW EVALUATION	PASS	FAIL
Lights using NVIS Yellow are distinguishable as “amber/yellow” compared to NVIS Red lamps and are bright enough to capture the pilot’s attention with sunlight shining on display		
NOTES:		

4. UNIFORMITY EVALUATION	PASS	FAIL
Colors are uniform across the cockpit (i.e. there are not different shades of green, yellow, amber, or red that could lead to confusion)		
NOTES:		

IV. UNAIDED NIGHT READABILITY EVALUATION

Instructions:

1. Ensure that lighting conditions reflect a cloudy, moon-less night with very low light levels.
2. Windows/doors should represent operation configuration and windscreens should be clean.
3. Power up aircraft using ground power.
4. Evaluator must be familiar with aircraft power and dimming switch locations so that they can be activated during darkened conditions.
5. Evaluate the aircraft installation according to the applicable section of the 'STC HOLDER' NVIS Compatible Lighting System Evaluation Checklist, initialing the appropriate boxes and noting any failures.
6. For each failure, if any, determine a possible corrective action and state whether reevaluation will be necessary once the failure is corrected.

1. NVIS COMPATIBLE LIGHTING CONTROLS	PASS	FAIL
NVIS compatible lighting controls are easily identified and manipulated with one hand from both front seat positions		
NOTES:		

2. NVIS COMPATIBLE LIGHTING SWITCH	PASS	FAIL	N/A
If the NVIS compatible lighting is controlled through a different switch than the primary lighting, that switch is easily distinguishable from the primary lighting switch			
NOTES:			

3. NVIS COMPATIBLE LIGHTING ILLUMINATION	PASS	FAIL
NVIS compatible lighting illumination is balanced across all areas of the instrument panel		
NOTES:		

4. NVIS COMPATIBLE LIGHTING DESIGN	PASS	FAIL
NVIS compatible lighting design does not cause inadvertent action of controls		
NOTES:		

5. NVIS COMPATIBLE LIGHTING OVERLAYS	PASS	FAIL	N/A
If NVIS compatible lighting overlays are used, they do not obscure instrument or gauge markings, symbols, or numbers from both front seating positions			
NOTES:			

6. POST LIGHT ILLUMINATION EVALUATION	PASS	FAIL	N/A
Instruments and gauges illuminated with post lights are sufficiently illuminated so that the entire display is readable from both front seating positions and no distracting glare or reflections are present			
NOTES:			

7. WINDSCREEN/WINDOW GLARE/REFLECTIONS	PASS	FAIL
If the NVIS compatible lighting system is different than the primary lighting system, it does not cause more glare or reflections in the windscreen and windows of the cockpit than the primary lighting system		
NOTES:		

8. MAP/EMERGENCY/FLOOD LIGHT EVALUATION	PASS	FAIL
Map/emergency/flood lights do not shine into the pilot's		

eyes or cause reflections off instrument or gauge displays that shine into the pilot's eyes and do not cast shadows on portions of the instrument panel that obscure readability		
NOTES:		

9. NVIS RED EVALUATION	PASS	FAIL
Lights using NVIS Red are distinguishable as "red" compared to other lights on the instrument panel and are bright enough to capture pilot's attention		
NOTES:		

10. NVIS YELLOW EVALUATION	PASS	FAIL
Lights using NVIS Yellow are distinguishable as "amber/yellow" compared to NVIS Red lamps and are bright enough to capture the pilot's attention		
NOTES:		

11. UNIFORMITY EVALUATION	PASS	FAIL
Colors are uniform across the cockpit (i.e. there are not different shades of green, yellow, amber, or red that could lead to confusion)		
NOTES:		

12. DISPLAY DEFAULT BRIGHTNESS	PASS	FAIL
Displays that do not have filter overlays have default brightness (failure mode brightness) levels that do not interfere with pilot's ability to operate aircraft		

NOTES:

V. NVG AIDED NIGHT READABILITY EVALUATION

Instructions:

WARNING!

ONLY ACTIVATE NVGS UNDER NO-LIGHT CONDITIONS
TO PREVENT DAMAGE TO PHOTOTUBES

1. Ensure that lighting conditions reflect a no-light environment.
2. Verify NVGs are functioning properly and have no defects that would affect evaluation results.
3. Windows/doors should represent the operational configuration and windscreens should be clean.
4. Power up aircraft using ground power.
5. Evaluator must be familiar with aircraft power and dimming switch locations so that they can be activated during darkened conditions.
6. Evaluate the aircraft installation according to the applicable section of the NVIS Compatible Lighting System Evaluation Checklist, initialing the appropriate boxes and noting any failures.
7. For each failure, if any, determine a possible corrective action and state whether reevaluation will be necessary once the failure is corrected.

1. NVIS COMPATIBLE LIGHTING SYSTEM NIGHT EVALUATION						
NVIS INSTRUMENTS	NVIS AVIONICS	MAP / EMER / FLOOD LIGHTS	AFT COMPARTMENT LIGHTS	CAUTION/ WARNING LIGHTS	IR LEAKS PRESENT?	UNACCEPTABLE REFLECTIONS PRESENT?
OFF	OFF	ON	OFF	OFF		
ON	OFF	OFF	OFF	OFF		
ON	ON	OFF	OFF	OFF		
ON	ON	ON	OFF	OFF		
ON	ON	ON	ON	OFF		
ON	ON	ON	ON	ON		

NOTES:

2. DISPLAY DEFAULT BRIGHTNESS	PASS	FAIL
Displays that do not have filter overlays have default		

brightness (failure mode brightness) levels that do not cause "blooming" in the NVGs		
NOTES:		

VI. OVERALL EVALUATION RESULTS

Instructions:

1. Self-explanatory.

	The aircraft PASSES the overall evaluation.
	The aircraft FAILS the overall evaluation due to failed individual portions of the evaluation that will require reevaluation upon completion of required corrective actions (C/A).

VII. CERTIFICATION

Instructions:

1. Self-explanatory.

I hereby certify that the evaluation above was completed to the best of my ability and the results are accurate to the best of my knowledge.

EVALUATOR SIGNATURE

DATE

EVALUATOR SIGNATURE

DATE