

NOTICE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

N 8900.152

National Policy

Effective Date:
4/29/11

Cancellation Date:
4/29/12

SUBJ: Special Emphasis Inspection of Night Vision Imaging System Lighting Installations

1. Purpose of This Notice. This notice provides guidance to inspectors who have oversight responsibility of air carriers equipped with a Night Vision Imaging System (NVIS) and are assigned operations specification (OpSpec) paragraph D093, Helicopter Night Vision Goggle Operations (HNVGO) Maintenance Program. (See Appendix B, Sample OpSpec D093, Helicopter Night Vision Goggle Operations (HNVGO) Maintenance Program.) This guidance contains the instructions to perform the inspections of the NVIS lighting installation, the NVIS documentation, and maintenance requirements of the approved installation. Additionally, this guidance will introduce a revision to OpSpec D093, capturing the maintenance and installation data for the NVIS and night vision goggles (NVG). An NVIS Aircraft Inspection Job Aid, which inspectors can use as a guide, is included in Appendix A, Night Vision Imaging System Aircraft Inspection Job Aid.

2. Audience. The primary audience for this notice includes principal maintenance inspectors (PMI), principal avionics inspectors (PAI), and geographic inspectors assigned to Title 14 of the Code of Federal Regulations (14 CFR) part 135 air carriers maintaining NVIS equipped aircraft as referenced in OpSpec D093. The secondary audience includes Flight Standards branches and divisions in the regions and headquarters.

3. Where You Can Find This Notice. You can find this notice on the MyFAA employee Web site at https://employees.faa.gov/tools_resources/orders_notices/. Inspectors can access this notice through the Flight Standards Information Management System (FSIMS) at <http://fsims.avs.faa.gov>. Operators may find this information on the Federal Aviation Administration (FAA) Web site at <http://fsims.faa.gov>.

4. Background. Aviation Safety (AVS) personnel have recently completed an assessment of NVIS equipped air carriers. The assessment concluded that a significant number of air carriers conducting NVG operations have not been maintaining NVIS equipment in accordance with the instructions for continued airworthiness (ICA) issued with the NVIS Supplemental Type Certificate (STC). Additionally, reviews of several air carriers' OpSpec D093 have shown that the term "night vision device" was not clear. The term "night vision device" was intended to include all necessary equipment that is installed or modified as part of the entire NVIS, not just the NVGs. FAA Order 8900.1, Flight Standards Information Management System (FSIMS),

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Volume 4, Chapter 7, Section 4, Night Vision Imaging Systems, subparagraph 4-1128F3), states “The reliability of the NVIS and safety of flight operations is dependant on the operators adhering to the instructions for continued airworthiness (ICA).” The NVIS lighting ICAs and the NVG maintenance document are required to be listed in OpSpec D093. Part 135, § 135.413 requires air carriers to maintain their aircraft in an Airworthy condition, and 14 CFR part 119, § 119.5(l) requires air carriers to operate their aircraft in accordance with the air carrier certificate and appropriate OpSpecs.

5. Action. The inspector must perform the NVIS lighting installation inspections as described within this notice. The NVIS Aircraft Inspection Job Aid is provided to guide the inspector during the inspection. The inspections are limited to a visual inspection of the aircraft records and the installation of the NVIS lighting. Additionally, the inspector must verify that the operator has performed compatibility assessments on all subsequent alterations (e.g., additional instrumentation, lighting, etc.) that were incorporated after the installation of the NVIS STC. This inspection consists of four sections as outlined in the attached job aid in Appendix A: Preparation, Records Review, Aircraft Inspection, and Closure.

Note: The inspector should not remove panels or disassemble the cockpit, cabin, and interior and/or exterior lighting.

a. Preparation. The inspector should contact the operator and schedule a time to perform the inspection. Collect the following documents for review:

- OpSpec A050, Helicopter Night Vision Goggle Operations (HNVGO).
- OpSpec D093, Helicopter Night Vision Goggle Operations (HNVGO) Maintenance Program.
- Management specification (MSpec)/OpSpec D095, Minimum Equipment List (MEL) Authorization.
- STC limitations and conditions.
- Download NVIS-related FAA Form 337, Major Repair and Alteration (Airframe, Powerplant, Propeller, or Appliance), from the electronic document retrieval system (EDRS) II database located in the Safety Performance Analysis System (SPAS).
- Applicable maintenance manuals, ICAs, and operators inspection programs.
- NVIS alteration documentation.
- Other alteration documentation that could affect NVIS compatibility.
- Master Minimum Equipment List (MMEL) Policy Letter 127, Night Vision Imaging Systems (NVIS), if available.
- Original Equipment Manufacturer (OEM)-manufactured NVIS documentation.
- Flight manual and equipment list.
- OEM and STC holder Service Bulletins (SB).

b. Records Review. The inspector must verify that the documents collected in the preparation phase are the correct documents for the aircraft being inspected. Also, verify if any modifications were accomplished after the installation of the NVIS STC. If modifications were performed after the NVIS STC, ensure that the operator has documentation verifying that a

compatibility evaluation was performed. Refer to the “Limitations and Conditions” section of the STC for the aircraft being inspected. The STCs may have varying requirements. Review applicable SBs. SBs are not regulatory unless the following situations apply:

- If an Airworthiness Directive (AD) incorporates by reference all or a portion of a SB;
- If the SB is part of the FAA-approved Airworthiness Limitations Section (ALS) of the manufacturer’s manual or type certificate (TC);
- If an FAA-approved inspection such as an Approved Aircraft Inspection Program (AAIP) or Continuous Airworthiness Maintenance Program (CAMP) incorporates SBs directly or by reference; or
- If the certificate holder’s OpSpecs list SBs as an additional maintenance requirement.

c. Aircraft Inspection. Visually inspect the aircraft NVIS lighting configuration against the ICA drawings. During the visual inspection, verify the following:

- Instrument panel modification.
- Lower console modifications.
- Overhead panel modifications.
- Internal cockpit and cabin lighting sources (e.g., map lights, utility lights, aft cabin ceiling lights, etc.).
- External lighting sources (e.g., position lights, strobe lights, search lights, etc.).
- Installed equipment with light emitting sources (e.g., medical equipment, infrared imaging systems, hoists, telecommunication equipment, etc.).

Note: Carry-on equipment is not required to be depicted on the drawings.

d. Closure. The inspector will debrief the operator about discrepancies found during the NVIS inspection. Inform the operator of MMEL PL-127 if they are unaware of this global change. The inspector must document all discrepancies found during the NVIS inspection in the comments section of the Program Tracking and Reporting Subsystem (PTRS) record. The PMI/PAI and program managers must confirm this action (i.e., inspecting and reporting of discrepancies) is complete by entering it into the PTRS no more than 180 days from the effective date of this notice. A PTRS entry must be created for each aircraft listed in OpSpec D093.

- Use PTRS Code 4634/6634 (SURV/OPR/INSP NIT VISN IMG SYS).
- Enter “N8900.152” (this notice number) in the “National Use” field.

6. Additional Information. Global extensions will not be granted to this notice. However, requests for extensions beyond 180 days will be considered on a case-by-case basis. The extension request may be submitted by memorandum, e-mail, or letter to the regional division manager. Each Regional Office (RO) will determine whether or not to grant the extension. A copy of the extension request, along with the region’s response, must be forwarded to the General Aviation Branch, AFS-350. Aircraft previously inspected for NVIS lighting installation configuration may not require re-inspection if:

- All discrepancies found on the aircraft were documented and corrected;

- The PTRS code reflects 4634/6634 (SURV/OPR/INSP NIT VISN IMG SYS); and
- This notice number is entered in the “National Use” field in the PTRS entry.

7. Disposition. We will permanently incorporate the information in this notice in FSIMS before this notice expires. Direct questions concerning technical data to the appropriate Aircraft Certification Office (ACO) as indicated on the applicable STC. Additional information is available at the following:

- Seattle ACO: 425-917-6524.
- Denver ACO: 303-342-1080.
- Rotorcraft Certification Office (RCO): 817-222-5170.
- Aircraft Evaluation Group (AEG): 817-222-5269.
- NVIS/NVG Web pages:
 - <https://employees.faa.gov/org/linebusiness/avs/offices/afs/workshops/>.
 - https://www.faa.gov/aircraft/air_cert/design_approvals/rotorcraft/nvis/.

for



John M. Allen
Director, Flight Standards Service

Appendix A. Night Vision Imaging System Aircraft Inspection Job Aid

Purpose. This job aid provides guidance for inspecting Night Vision Imaging System (NVIS) equipped aircraft, to assess the quality of maintenance, configuration control, and the degree of compliance with the operator's maintenance procedures on in-service aircraft.

Procedural Guidance.

- Notice N 8900.152, Special Emphasis Inspection of Night Vision Imaging System Lighting Installations.
- Safety Alert for Operators (SAFO) 10022, Maintenance of Night Vision Imaging Systems (NVIS).
- Federal Aviation Administration (FAA) Aircraft Maintenance Division, AFS-300, memorandum, National Assessment of Aircraft Equipped with Night Vision Imaging Systems and Operators authorized Operations Specification D093, dated December 3, 2010.
- Master Minimum Equipment List (MMEL) Policy Letter 127, Night Vision Imaging System (NVIS).
- Operations specifications (OpSpecs) A050, Helicopter Night Vision Goggle Operations (HNVGO); D072, Aircraft Maintenance—Continuous Airworthiness Maintenance Program (CAMP) Authorization; D073, Approved Aircraft Inspection Program (AAIP); D085, Aircraft Listing; D093, Helicopter Night Vision Goggle Operations (HNVGO) Maintenance Program; and management specification (MSpec)/OpSpec D095, Minimum Equipment List (MEL) Authorization.

Program Tracking and Reporting Subsystem (PTRS) Activity Code: 4634/6634.

Section 1—Preparation. Contact the operator and schedule a time to perform the inspection, if possible. Collect the following documents for review:

- OpSpec A050.
- OpSpec D093.
- MSpec/OpSpec D095.
- Supplemental Type Certificate (STC) limitations and conditions.
- Download NVIS-related FAA Form 337, Major Repair and Alteration (Airframe, Powerplant, Propeller, or Appliance), from the electronic document retrieval system (EDRS) II database located in the Safety Performance Analysis System (SPAS).
- Applicable maintenance manuals, instructions for continued airworthiness (ICA), and operators inspection programs.
- NVIS alteration documentation.
- Other alteration documentation that could affect NVIS compatibility.
- MMEL PL-127, if available.
- Original Equipment Manufacturer (OEM)-manufactured NVIS documentation.
- Flight manual and equipment list.
- OEM and STC holder Service Bulletins (SB).

Section 2—Records Review.

| Item | Complete Yes/No, or Not Applicable | Task | Description |
|-------------|---|---|---|
| 1 | | Maintenance/Inspection Programs | Review the operator maintenance/inspection program to determine if it includes NVIS ICA procedures. If so, ensure the program contains all the applicable data to maintain the NVIS-modified aircraft (e.g., configuration drawings, ICA with appendices, etc.). |
| 2 | | Flight Manual/NVIS Flight Supplement | Review the FAA-approved NVIS flight manual and/or flight manual supplement as identified in the STC data and equipment list. |
| 3 | | ICAs | If the ICAs are not incorporated in the maintenance program, review the NVIS ICAs. |
| 4 | | Night Vision Goggle (NVG) Serviceability/Inspection | Review the records for NVG daily check, preflight check and 180-day inspection of the NVIS goggles. Reference NVG maintenance procedures as applicable. Note: These requirements should be included in OpSpecs A050 and D093. (e.g., The requirements for check/inspection are found in the Rotorcraft Flight Manual Supplement (RFMS) or the ICAs) |
| 5 | | MEL Usage for NVIS Modified Aircraft | Review the operators approved MEL procedures. Determine if MMEL PL-127 has been incorporated. Note: Standard MMEL supplemental lighting privileges do not apply to NVIS modified cockpits/cabins. |

| Item | Complete Yes/No, or Not Applicable | Task | Description |
|------|------------------------------------|---------------------------------------|---|
| 6 | | Aircraft Permanent Records | <p>Review the applicable FAA Form 337, the STC “Limitations and Conditions” section, and aircraft record entries for the NVIS modification (i.e., flight log, logbook, work orders).</p> <p>Note: In some cases, there may be multiple entries.</p> |
| 7 | | Post-NVIS STC Modifications | <p>Verify any subsequent aircraft modifications to the cockpit, cabin or aircraft exterior involving a light emitting or reflecting device were properly evaluated in accordance with the Limitations and Conditions section of the STC.</p> <p>Note: Any alteration, major or minor, could adversely affect NVIS compatibility.</p> |
| 8 | | Airworthiness Directives (AD) and SBs | <p>Review applicable ADs, Original Equipment Manufacturer (OEM) SBs, and STC holder SBs for compliance.</p> <p>Note: Ensure the operator has a process to obtain STC holder SBs.</p> |
| 9 | | Aircraft records/Approved data | <p>If possible, obtain copies or photographs of any documents with potential concerns for later evaluation by the appropriate office. These may be needed to resolve findings.</p> |

Section 3—Aircraft Inspection.

| Item | Complete Yes/No, or Not Applicable | Task | Description |
|------|------------------------------------|------------------------|---|
| 1 | | Instrument Readability | <ul style="list-style-type: none"> • Survey cockpit/cabin in daylight conditions. • Confirm all gauges/instruments are easily readable. • All colors on the gauges/instruments are easily identified. • Filters are not cracked, crazed, faded, or clouded by condensation. |

| Item | Complete Yes/No, or Not Applicable | Task | Description |
|------|------------------------------------|----------------------------|---|
| | | | <ul style="list-style-type: none"> • Filtered electronic displays are easily readable at daylight brightness settings. • Caution and warnings are easy to see. • Filters are installed properly. |
| 2 | | Instrument Panel | Verify that instrument panel modifications are installed in accordance with the approved data (e.g., configuration exactly matches installation drawings, ICA, etc.). |
| 3 | | Lower Console | Verify that lower console(s) modifications are installed in accordance with the approved data (e.g., configuration exactly matches installation drawings, ICA, etc.). |
| 4 | | Overhead Panel | Verify that overhead panel modifications are installed in accordance with the approved data (e.g., configuration exactly matches installation drawings, ICA, etc.). |
| 5 | | Internal Aircraft Lighting | Verify that all internal cockpit and cabin lighting sources such as map lights, utility lights, aft cabin ceiling lights, etc., are modified in accordance with the approved data (e.g., configuration exactly matches installation drawings, ICA, etc.). |
| 6 | | External Lighting | Verify that all external lighting sources such as position lights, strobe lights, and search lights are modified in accordance with the approved data (e.g., configuration exactly matches installation drawings, ICA, etc.). |
| 7 | | Installed Equipment | Verify that installed equipment with light emitting sources such as medical equipment, infrared imaging systems, hoists, telecommunication equipment, etc., are modified in accordance with the approved data (e.g., configuration exactly matches installation drawings, ICA, etc.). (Carry-on equipment is not required to be depicted on the drawings). |

| Item | Complete Yes/No, or Not Applicable | Task | Description |
|------|------------------------------------|---------------------|--|
| 8 | | Design Deficiencies | If deficiencies are found with NVIS filtration and NVIS lighting for installed equipment that could affect aircraft operation. (See Section 4, Item 4 for more information (i.e., safety issues).) |
| 9 | | Photos | Document the aircraft configuration with photos. These photos should document multiple angles depicting all equipment that emits or reflects light. It is recommended to take these photos with power applied to the aircraft. |

Section 4—Closure.

| Item | Complete Yes/No, or Not Applicable | Task | Description |
|------|------------------------------------|---------------------------------|--|
| 1 | | Disposition Findings | Analyze findings to determine the area of responsibility (e.g., operator, modifier, or Aircraft Certification Office (ACO)/STC holder). Include any documents and photographs obtained during the inspection. |
| 2 | | Debrief Operator | Debrief deficiencies to the operator or appropriate personnel. |
| 3 | | PTRS Entry | Document activities in the PTRS database. PTRS Activity Code 4634/6634 (SURV/OPR/INSP NIT VISN IMG SYS) |
| 4 | | ACO Notification (if necessary) | Provide documentation of any type design deficiencies to the responsible ACO. Details should include at a minimum: <ul style="list-style-type: none"> • Inspector name and contact information. • Date of inspection. • PTRS number. • Aircraft make/model, tail number, and serial number. • NVIS STC number. • Applicable drawing number(s), revision levels, dates, and zones. • Equipment part numbers. • Short description of the service difficulty. |

| Item | Complete Yes/No, or Not Applicable | Task | Description |
|------|------------------------------------|-----------------|---|
| | | | <ul style="list-style-type: none"> • Detailed photos of the deficiencies. |
| 5 | | Task Completion | <p>Followup options can include:</p> <ul style="list-style-type: none"> • Appropriate enforcement action when analysis of findings disclose improper maintenance. • Written notification to the operator/program manager of the necessary changes. • Communication with the certificate-holding district office (CHDO)/International Field Office (IFO) by the geographic unit finding deficiencies. |

Appendix B. Sample OpSpec D093, Helicopter Night Vision Goggle Operations (HNVGO) Maintenance Program

The certificate holder is authorized to conduct Helicopter Night Vision Goggle Operations (HNVGO) under the limitations and provisions of 14 CFR part 135 and operations specification paragraph A050, Helicopter Night Vision Goggle Operations (HNVGO), of these operations specifications using the aircraft listed in the following table. The Night Vision Imaging System (NVIS) includes the approved installed equipment and night vision goggles (NVG). The NVIS and NVGs used to conduct HNVGO shall be maintained in accordance with the maintenance documents listed in the table. The NVGs are not aircraft specific.

Table 1—Authorized NVIS and NVG Maintenance Documents

| Aircraft Registration Number | Aircraft Serial Number | Aircraft M/M/S | STC Number | Maintenance Document for Aircraft NVIS | Maintenance Document for Night Vision Goggles |
|------------------------------|------------------------|----------------|------------|--|---|
| | | | | | |