Inspectie Verkeer en Waterstaat
Ministerie van Infrastructuur en Milieu

Proposed Maintenance Directive

NL-2011-002

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Caution
This Maintenance Directive is issued by the Minister of Infrastructure and the Environment in accordance with the Aviation Act 2001 (Wet Luchtvaart), Article 3.22. Maintenance Directives affect aviation safety. These are regulations which require immediate attention. No person may operate an aircraft to which a Maintenance Directive applies, except in accordance with the requirements thereof, unless otherwise agreed with the Authority of the State of Registry (EC2042/2003, M.A.201 and M.A.302).

THIS MAINTENANCE DIRECTIVE IS PUBLISHED BY THE CAA-NL: • Acting as Airworthiness Authority (ICAO Annex 8) as the State of Registry	
Type Approval Holder's Name	All
Supersedure	Supersedes OAL 1976-01/9 dated 31 October 2007
Subject	**Periodic functional check requirements**
Manufacturer(s)	All
Applicability	All Dutch registered aircraft, as further specified in appendix A
TCDS number	All
Reason	This directive is issued in order to ensure that as a minimum, specific functional checks of systems critical to safety are periodically carried out. This directive revises and supersedes OAL 1976-01/9, in order to 1. ensure compliance with weighing requirements as agreed within ICAO Airworthiness Manual Doc 9760 (AN/967) Volume I, 4.2 of Appendix C to chapter 5; 2. more specifically require the 406 MHz ELT to be included in the radio identification equipment check. 3. ensure compliance with Part-M and Part-66; 4. provide answers to frequently asked questions; 5. complete the replacement of Onderhoudsaanwijzingen Luchtvaartmaterieel (OAL´s) by Maintenance Directives (MD´s).
Effective date	[TBD: 14 days after final MD issue date]
Compliance	As of 15 months after the effective date of this MD: - all AMP's shall comply with this MD; - the requirements of this MD shall apply. Before the effective date, compliance with this MD is optional, but compliance with OAL 1976-01/9 may be demonstrated by demonstrating compliance with this MD.
Appendix A	Periodic functional check requirements
Appendix B	Acceptable Means of Compliance and Guidance Material

Appendix A: Periodic functional check requirements

1. The design holders' instructions for continuing airworthiness prevail over this MD. Only if the design holder does not specify any requirements for periodic functional check of the specific systems, then the requirements in this MD apply.

2. The applicable periodic functional check requirements specified in Table 1 below must be incorporated into the Aircraft Maintenance Programme (AMP). Table 2 provides the associated instructions.

3. One-time variation of the intervals is allowed; refer to MD NL-2011-001 for instructions.

4. Standard aviation regulations apply to the performance of the periodic functional checks, including authorisation and record requirements, except that for MLA's and amateur built aircraft these periodic functional check tasks have to be performed by appropriately certified organisations or authorised persons.

5. Where the periodic functional check requirements relate to specific components that are not fixed to the aircraft, e.g. in balloons, the certificate of release to service shall include reference to the part number and serial number of these components.

6. The periodic functional check requirements as specified in Table 1 apply to the mandatory equipment only.

Table 1:

System	Maximum interval	Applicability	Instruction (Table 2)
Pitot-static, including instruments	24 months	Aircraft with non-MSG-3 AMP's [1)]	1
Radio navigation	24 months	Aircraft with non-MSG-3 AMP's [1)]	2
Radio identification	24 months	Aircraft with non-MSG-3 AMP's [1)]	3
Magnetic compasses and magnetic compass systems	24 months	Aircraft with non-MSG-3 AMP's [1)]	4
Aircraft Weight and Balance	48 months	Aircraft not operated under Commercial Air Transport [2)], except powered parachutes	5

[1)] Note that this MD also applies to aircraft with an MSG-3 AMP where the Design Holder refers to national regulations for periodic functional check requirements of these systems.

[2)] For Commercial Air Transport the OPS regulations contain requirements for periodic weighing.

Table 2:

Ref.	Instructions
1	Functional check and leak check of *a)* Barometric altimeter. In accordance with the design holder's instructions, or, in absence thereof, in accordance with FAR Part 43 Appendix E, Section E43.1. *b)* Speed indication systems. In accordance with the design holder's instructions, or, in absence thereof, in accordance with the calibration instructions provided by the component manufacturer. In absence of design holder's instructions for the leak check, AC43-13 chapter 12-58, resp. 12-59 may be used.
2	Functional check in accordance with the design holder's specifications and instructions.
3	Functional check in accordance with the design holder's specifications and instructions.
4	Check that the accuracy complies with the design holder's specifications and adjust as necessary. Record the compass inaccuracies that remain after adjustment on a compass deviation card. The deviation card must be placed at the compass location. If the use of specific systems has a significant effect on compass readings, then this must be accounted for. In absence of design holder's specifications, AC43-13 chapter 12-37 may be used. The check requires a designated area on the airport. Contact the airport for information about these areas.
5	Aircraft weighing to be performed to determine operational empty weight and centre of gravity, per TC-holder's instructions. In absence thereof, AC43-13 chapter 10 may be used.

Appendix B: Acceptable Means of Compliance and Guidance Material

1. GM - Explanation of AMC and GM

a) Acceptable Means of Compliance (AMC)
By complying with the AMC the corresponding requirement is considered complied with. Deviations may be accepted by CAA-NL, provided that the applicant demonstrates that an equivalent level of safety is obtained.

b) Guidance Material (GM)
Information contained in Guidance Material is non-mandatory.

2. GM – Non-mandatory systems

This MD only mandates certain checks on certain mandatory equipment. It should be noted, however, that pilots normally expect all equipment installed in the aircraft to function properly, unless advised otherwise.

3. AMC – Functional check in-situ or off-wing

The checks required by this MD are intended to be performed on-aircraft, to ensure that the complete system functions within specification. If however, one chooses to perform functional checks on specific equipment off-aircraft, possible inaccuracies of the remainder of the system need to be considered, as well as possible negative effects of the removal and installation. For pitot-static systems, the latter means that at least a leak check should be performed after re-installation.

4. AMC – Instructions for transponder functional check

Functional checking of the transponder is required, as part of the radio identification equipment check. For this transponder testing, please follow the instructions in EASA SIB 2011-15, Appendix 1, which are provided to minimise the hinder such testing causes to air traffic control, with the following amendments for tests in FIR Amsterdam:

a) Instead of contacting the local air traffic control unit as indicated in paragraph b of this appendix, the ATC The Netherlands Operational Helpdesk should be contacted:
Tel: + 31 (0)20 406 2201 0700 – 1830 LT on weekdays
0700 – 1700 LT during weekends
Fax: + 31 (0)20 406 3672
Email: ops_helpdesk@lvnl.nl

b) Instead of changing the Aircraft Identification (Flight ID) to the first 8 characters of the name of the company conducting the tests, as indicated in paragraph d of this appendix, the Flight ID should not be changed, to prevent the risk of error in resetting it.

5. AMC – Instructions for Electronic Locator Transmitter (ELT) functional check

For test instructions, see http://www.cospas-sarsat.org. Although many ELTs in the 406 to 406.1 MHz band have self test functions that emit a recognisable test pulse that would not result in Search and Rescue teams being deployed, these transmissions do require satellite processing time. Therefore, live unshielded testing of ELT's should not take place, to prevent COSPAS-SARSAT system problems to process distress calls. For performing functional tests, the following options exist:

a) For ELTs that can be removed from the aircraft (e.g. Survival ELTs and Automatic Portable ELTs) the operator can remove the ELT from the aircraft and test it in either a shielded room or a shielded bag. Shielded ELT test bags can be obtained from most ELT manufacturers.
b) For ELTs that cannot be removed from the aircraft (or those which the operator wishes to test in situ) an antenna cap should be used to prevent the ELT transmission from going beyond the aircraft. Antenna caps can be obtained from either an antenna manufacturer or, in some cases, from the ELT manufacturer. Operators may also use self-manufactured antenna caps provided that they can be shown to prevent transmission from the aircraft.
c) Some ELTs have test functions that do not actively transmit on the emergency frequencies or which send codes that are not recognised by the COSPAS-SARSAT satellites. In these cases live testing can be performed as long as the operator can demonstrate that it will not cause an interaction with any of the SAR services. In all cases, procedures for testing ELTs should be based on the manufacturer's recommended testing practices and, where applicable, should be performed using their recommended test equipment unless this would result in unshielded testing.

6. AMC – Instructions for magnetic compass compensation

a) In case the use of specific aircraft systems causes large compass deviations and flights are foreseeable with the systems ON and with the systems OFF, then separate compass deviation tables should be produced with the systems ON and with the systems OFF.
b) More detailed guidance information is provided in CAA-UK CAP 562 Civil Aircraft Airworthiness Information and Procedures, Book 2 , Leaflet 34-20.
c) Designated compass compensation areas should be treated by maintenance providers in the same way as special equipment requiring calibration for the performance of maintenance. This means that the maintenance provider should verify that standards are met. CAA-UK CAP 562 Civil Aircraft Airworthiness Information and Procedures, Book 2, Leaflet 34-10, provides useful guidance.
d) Besides the periodic functional check requirement, compass accuracy should also be verified in any of the conditions listed in AC43-13 chapter 12-37 under (a):
(a) When the accuracy of the compass is suspected.
(b) After any cockpit modification or major replacement involving ferrous metal.
(c) Whenever a compass has been subjected to a shock; for example, after a hard landing or turbulence.
(d) After aircraft has passed through a severe electrical storm.
(e) After lighting strike.
(f) Whenever a change is made to the electrical system.
(g) Whenever a change of cargo is likely to affect the compass.
(h) When an aircraft operation is changed to a different geographic location with a major change in magnetic deviation.
(i) After aircraft has been parked on one heading for over a year.
(j) When flux valves are replaced.

7. AMC – Appropriately approved persons and organisations

Note that in all cases, certifying staff must have the appropriate aircraft or group rating endorsed on the license/authorization and must ensure having at one's disposal all tools, equipment and documentation necessary and be able to demonstrate being competent to perform the tasks.

Minimum authorisation requirements:

a) For aircraft with an EASA Certificate of Airworthiness or EASA Permit to Fly:

	Large or CAT	Commercial Operations**	Non-CAT ELA1, excl. Sailplanes	Sailplanes (CS-22)	Other
pitot-static	Part-145	M-F	B1 or B2	ZVT, A	M-F
radio navigation	Part-145	M-F	B2	ZVT, C	M-F
radio identification	Part-145	M-F	B2	ZVT, C	M-F
Compass, direct reading	Part-145	M-F	B1 or B2	ZVT, C or A*	M-F
Compass systems, remote reading	Part-145	M-F	B2	nvt	M-F
weighing	Part-145	M-F	B1	ZVT, A	M-F
		or Part-145	or M-F or Part-145	or M-F or Part-145	or Part-145

* With specific task endorsement

** As defined in Basic Regulation EC 216/2008 Article 3, when the operator is required to hold a certificate for such operations, ref. M.A.201(i)

In which:

B1	Part-66 AML of Category B1
B2	Part-66 AML of Category B2
CAT	Commercial Air Transport
ELA1 (aircraft)	Aircraft compliant with the ELA1 aircraft definition in EC 2042/2003 article 2
Large (aircraft)	Aircraft compliant with the Large aircraft definition in EC 2042/2003 article 2
M-F	Maintenance Organisation Approval per EC 2042/2003 Annex I (Part M), Subpart F
Part-145	Maintenance Organisation Approval per EC 2042/2003 Annex II
ZVT	Zweefvliegtechnicus: holder of a Dutch sailplane maintenance licence, in accordance with article 1205a of the Dutch Regeling Onderhoud Luchtvaartuigen

b) For aircraft referred to in Annex II of the Basic Regulation:

Amateur built aircraft
Amateur built aircraft fall under Annex II of the Basic Regulation, EC No. 216/2008. An amateur builder is the person who built the aircraft, but is not necessarily the designer of the aircraft type. An amateur builder may install the systems and instruments, but the maintenance specified in this MD must be performed by appropriately certified persons or organisations. These persons and organisations are not required to have the particular amateur built aircraft on their approved scope, as long as they are endorsed with a license or organisation approval to perform these tasks on technically similar aircraft.

Microlight aircraft (MLA)
MLA are defined in the "Regeling MLA's" and fall under Annex II of the Basic Regulation, EC No. 216/2008. In general, there are no qualification requirements for anyone performing MLA maintenance, except that the maintenance specified in this MD must be performed by appropriately certified persons or organisations. These persons and organisations are not required to have the MLA on the scope, as long as they are endorsed with a license or organisation approval to perform these tasks on technically similar aircraft.

Aircraft other than Amateur Built and Microlight Aircraft:

	Sailplanes	ELA1, excl. Sailplanes	Other
All systems and tasks referred to in this MD	ZVT or 1318C	AML-NL or 1318C	1318C

Notes:
1. AML-NL is either a Part-66 AML with an endorsement for PH-registered aircraft referred to in Annex II of the Basic Regulation , EC 216/2008, or a license issued by CAA-NL in accordance with the Dutch Regeling Onderhoud Luchtvaartuigen.
2. 1318C refers to article 1318C of the Dutch Regeling Onderhoud Luchtvaartuigen.
3. For more details regarding the ZVT and AML-NL requirement, see the corresponding columns in the table under a) above.