


<b>EASA</b>	<b>NOTIFICATION OF A PROPOSAL TO ISSUE AN AIRWORTHINESS DIRECTIVE</b>	
	<b>PAD No.: 15-117</b>	
	<b>Date: 08 September 2015</b>	
<p>Note: This Proposed Airworthiness Directive (PAD) is issued by EASA, acting in accordance with Regulation (EC) No 216/2008 on behalf of the European Community, its Member States and of the European third countries that participate in the activities of EASA under Article 66 of that Regulation.</p>		
<p>In accordance with the EASA Continuing Airworthiness Procedures, the Executive Director is proposing the issuance of an EASA Airworthiness Directive (AD), applicable to the aeronautical product(s) identified below. All interested persons may send their comments, referencing the PAD Number above, to the e-mail address specified in the 'Remarks' section, prior to the consultation closing date indicated.</p>		
<b>Design Approval Holder's Names:</b> As listed in Appendix 1 of this AD		<b>Type/Model designation(s):</b> As listed in Appendix 1 of this AD
TCDS Numbers:	As listed in Appendix 1 of this AD	
Foreign AD:	None / Not applicable	
Supersedure:	None	
<b>ATA 25</b>	<b>Equipment / Furnishings – Personal Carrying Device Systems – Identification / Replacement</b>	
Manufacturer(s):	<p>AgustaWestland S.p.A.(formerly Agusta S.p.A), Bell Helicopter Textron Inc. (formerly Bell Helicopters, Inc.), Bell Helicopter Textron Canada, Airbus Helicopters (formerly Eurocopter, Eurocopter France, Aerospatiale, Sud Aviation, Sud-Est Aviation), Airbus Helicopters Deutschland GmbH (formerly Eurocopter Deutschland GmbH, Messerschmidt-Bölkow-Blohm), American Eurocopter, Enstrom Helicopter Corporation, Erickson-Air-Crane (formerly Sikorsky), Kaman Aerospace, Kamov Joint Stock Company (JSC), MD Helicopters, Inc. (formerly McDonnell Douglas Helicopter Systems, Schweizer Aircraft, Hughes Helicopters), S.E.I. Servizi Elicotteristici Italiani S.p.A. (formerly Breda Nardi S.p.A.), Sikorsky Aircraft Corporation (including formerly Schweizer Aircraft, Hughes Helicopters).</p>	
Applicability:	<p>All helicopters, as identified in Appendix 1 of this AD, equipped with a hoist and/or cargo hook approved for human external cargo (HEC) operations, utilising a simple personnel carrying device system (PCDS) – see Note 2 of this AD.</p>	
Reason:	<p>It has come to the attention of the Agency that, on rotorcraft registered in EASA Member States, a large number of simple PCDSs (such as single harnesses) do not have an airworthiness approval. As a consequence, it cannot be assured that the PCDSs meet the necessary design and safety standards and are being maintained in an acceptable way.</p> <p>This condition, if not corrected, could lead to PCDS failure, possibly resulting in injury to an external PCDS occupant.</p> <p>For the reasons described above, this AD requires a one-time inspection of all PCDSs, the removal from service of all PCDSs that do not meet the established</p>	

	safety standards, an amendment of the applicable Rotorcraft Flight Manual (RFM) and revision of the approved Aircraft Maintenance Programme (AMP) to ensure adequate maintenance of PCDSs.
Effective Date:	[TBD: 14 days after final AD issue date]
Required Action(s) and Compliance Time(s):	<p>Required as indicated, unless accomplished previously:</p> <p>Note 1: EASA Certification Specification (CS) and equivalent US Federal Aviation Regulation (FAR) Parts 27.865(c)(2) and 29.865(c)(2), dealing with external loads, specify that for rotorcraft-load combinations in HEC operations, a reliable, approved, PCDS must be used.</p> <p>Note 2: For the purpose of this AD, a PCDS is defined as a device or system that has the structural capability and features needed to transport persons external to the rotorcraft during HEC operation. The elements connecting the PCDS to a cargo hook or hoist and the elements attaching hoist operators to the cabin inside the helicopter, are considered to be part of the PCDS. A simple PCDS, or PCDS of simple design, is defined as a safety harness or a rescue triangle carrying no more than 2 persons. A PCDS could be attached directly to the hoist hook, or to the cargo hook via means of a rope system.</p> <p><b>Note 3: For the purpose of this AD, an acceptable PCDS either: (1) has an airworthiness approval, or (2) meets the standards as specified in EC Directive 89/686/EEC and corresponding EN standards for the respective PCDS components and meets the criteria as specified in Appendix 4 of this AD.</b></p> <p>(1) <b>Within 36 months after the effective date of this AD, accomplish the actions as specified in paragraphs (1.1) and (1.2) of this AD.</b></p> <p>(1.1) <b>Inspect and review the available documentation associated with each PCDS in use to determine whether it is an acceptable PCDS as defined in Note 3 of this AD.</b></p> <p>(1.2) <b>Remove from service any PCDS for which it cannot be confirmed that it meets the standards as referenced in Note 3 of this AD.</b></p> <p>(2) <b>Within 3 months after the effective date of this AD, amend the applicable RFM to incorporate the operational instructions as specified in Appendix 2 of this AD. Inform all flight crew of these operational instructions and, thereafter, operate the helicopter accordingly.</b></p> <p><b>The above required documentation revisions can be accomplished as specified in paragraph (2.1) or (2.2) of this AD.</b></p> <p>(2.1) <b>Inserting a copy of Appendix 2 of this AD into the applicable RFM.</b></p> <p>(2.2) <b>Revising the RFM by inserting pages provided by the design approval holder for the PCDS installation, containing those same instructions.</b></p> <p>(3) <b>Within 36 months after the effective date of this AD, revise the approved AMP to incorporate the instructions and limitations as specified in Appendix 3 of this AD.</b></p> <p><b>Note 4: For affected helicopters registered in Europe, complying with the approved AMP is required by Commission Regulation (EU) No 1321/2013, Part M.A.301, paragraph 3.</b></p> <p>(4) <b>After [insert date: 36 months after the effective date of this AD], it is allowed to use any PCDS on any helicopter, provided that, prior to installation and use, it is verified that the PCDS is an acceptable PCDS, as defined in Note 3 of this AD.</b></p>
Ref. Publications:	None.

Remarks:	<ol style="list-style-type: none"> <li>1. This Proposed AD will be closed for consultation on 06 October 2015.</li> <li>2. Enquiries regarding this PAD should be referred to the Safety Information Section, Certification Directorate, EASA. E-mail: <a href="mailto:ADs@easa.europa.eu">ADs@easa.europa.eu</a>.</li> <li>3. For any question concerning the technical content of the requirements in this PAD, please contact (as applicable): <ul style="list-style-type: none"> <li>AgustaWestland S.p.A., Customer Support, Via del Gregge 100, 21015 Lonate Pozzolo (VA), Italy. Telephone + 39 0331 664600, Fax + 39 0331 664684 E-mail: <a href="mailto:custserv@agustawestland.com">custserv@agustawestland.com</a>.</li> <li>Airbus Helicopters – Aéroport de Marseille Provence, 13725 Marignane Cedex, France. Telephone +33 (4) 42 85 97 97, Fax +33 (4) 42 85 99 66; E-mail <a href="mailto:Directive.technical-support@airbus.com">Directive.technical-support@airbus.com</a>.</li> <li>Airbus Helicopters Deutschland GmbH, Industriestrasse 4, 86607 Donauwörth, Federal Republic of Germany. Telephone + 49 (0)151-1422 8976, Fax + 49 (0)906-71 4111.</li> <li>Bell Helicopter Textron Canada, Engineering Department, 12800 rue de l'Avenir, Mirabel, Québec J7J 1R4, Canada Telephone +1 450-971-6500, Fax +1 450-437-6382.</li> <li>Bell Helicopter Textron, Inc., P.O. Box 482, Fort Worth, Texas 76101, United States of America (USA), Telephone +1 817-280-3391, Fax +1 817-280-6466. Publications for both BHTC and BHTI types are available at <a href="http://www.bellcustomer.com/bulletins.cfm">www.bellcustomer.com/bulletins.cfm</a>.</li> <li>Enstrom Helicopter Corporation, 2209 22nd Street, Menominee, Michigan 49858, USA. Telephone +1 906-863-1200, Fax +1 906-863-6821 Website <a href="http://www.enstromhelicopter.com">www.enstromhelicopter.com</a>.</li> <li>Erickson Air-Crane Inc., 3100 Willow Springs Rd., P.O. Box 3247, Central Point, Oregon 97502, USA. Telephone +1 541-664-5544, Fax +1 541-664-2312 E-mail <a href="mailto:cerickson@ericksonaircrane.com">cerickson@ericksonaircrane.com</a>.</li> <li>Kaman Aerospace Corporation, Old Windsor Rd., P.O. Box 2, Bloomfield, Connecticut 06002-0002, USA. Telephone +1 860-242-4461, Fax +1 860-243-7047 Website <a href="http://www.kamanaero.com">www.kamanaero.com</a>.</li> <li>Kamov Joint Stock Company, Russian Federation, Moscow region, Lubertsy 8th of March street, 8a Telephone +7 495-994-48-00, 700-31-41 Fax +7 495-700-33-04, 700-30-71 E-mail <a href="mailto:market@kamov.ru">market@kamov.ru</a>. website <a href="http://www.kamov.ru/en/">www.kamov.ru/en/</a>.</li> <li>MD Helicopters Inc., Attn: Customer Support Division, 4555 East McDowell Road, Mail Stop M615, Mesa, Arizona 85215-9734, USA. Telephone +1 800-388-3378, Fax +1 480-346-6813, Website <a href="http://www.mdhelicopters.com">www.mdhelicopters.com</a>.</li> <li>Mecaer Aviation Group S.p.A., Via dell'Artigianato V Traversa, 1, 63076 Monteprandone (AP) - Italy. Telephone +39 0735 7091, Fax +39 0735 709 369 E-mail: <a href="mailto:caw@mecaer.com">caw@mecaer.com</a>.</li> <li>Philippine Aerospace Development Corporation (PADC), PADC Hangar 2, General Aviation Area, Domestic Road, Pasay City, Philippines 1300 Telephone + 632 853-0556, or +632 852-3471, Fax +632 853-7756 E-mail <a href="mailto:info@padc.com.ph">info@padc.com.ph</a>.</li> </ul> </li> </ol>
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	<p>Robinson Helicopter Company, 2901 Airport Drive, Torrance, California 90505, USA. Telephone +1 310-539-0508, Fax +1 310-539-5198. Website/E-mail <a href="#">Technical Support</a>.</p> <p>Sikorsky Aircraft Corporation, Commercial Product Support, 6900 Main Street, P.O. Box 9729, Stratford, Connecticut 06497-9129, USA. Telephone +1 203-416-4299, E-mail <a href="mailto:sikorskywcs@sikorsky.com">sikorskywcs@sikorsky.com</a>.</p> <p>Wytwórnia Sprzętu Komunikacyjnego (WSK) "PZL-Świdnik" S.A. Al. Lotników Polskich 1, 21-045 Świdnik, Poland Telephone +48 81 468 09 01, or +48 81 751 20 71 Fax +48 81 468 09 19, or +48 81 751 21 73.</p>
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## Appendix 1 – Affected helicopters

Design Approval Holder	Type(s) and Model(s) (all serial numbers)	TCDS (numbers)
AgustaWestland S.p.A.	A109 (all models), AW109SP, A119, AW119MKII, AB139, AW139, AB204B, AB205A-1, AB206A, AB206B, AB212, AB412, AB412EP, AS-61N, AS-61N1, AW169, AW189 and EH101 (all models)	EASA.R.509, EASA.R.006, EASA.R.510, EASA.R.114, EASA.R.140, EASA.R.005, EASA.R.012 and EASA.R.013, Italy A 270 and A 150
Airbus Helicopters	AS 350 and EC 130 (all models), AS 355 (all models), EC 120 B, EC 155 B and B1, EC 175 B, SA 315 B, SA 316 B, SA 316 C, SE 3160, SA 319 B, AS 332 (all models), EC 225 LP, SA 330 J, SA 341 G, SA 342 J, SA 365 (all models), AS 365 N2, AS 365 N3, SA 366 G1, SA 3180, SA 318 B and SA 318 C	EASA.R.105, EASA.R.002, EASA.R.008, EASA.R.146, EASA.R.150, EASA.R.124, EASA.R.508, EASA.R.123 and EASA.R.125
Airbus Helicopters Deutschland GmbH	BO 105 (all models), EC135 and EC635 (all models) and MBB-BK 117 (all models)	EASA.R.009, EASA.R.010 and EASA.R.011
Bell Helicopter Textron Canada	206 (all models), 407, 222 (all models), 230, 427, 429 and 430	EASA.IM.R.512 and EASA.IM.R.506 Canada H-88 and H-103
Bell Helicopter Textron, Inc.	204B, 205A-1, 212, 412, 412EP, 214B, 214B-1 and 214ST	USA H1SW, H4SW and H10SW
Enstrom Helicopter Corporation	280 (all models), 480 (all models) and F-28 (all models)	USA H1CE
Erickson Air-Crane	S-64F	EASA.IM.R.003
Kaman Aerospace	K-1200	EASA.IM.R.103
Kamov JSC	Ka-32A11BC	EASA.IM.R.133
MD Helicopters, Inc.	369 (all models), 500N, 600N and MD900	USA H3WE and H19NM
Mecaer Aviation Group S.p.A.	NH-300C, NH-500D and AMD500N	EASA.R.143 and EASA.R.144
Philippine Aerospace Development Corp.	P-BO 105 C and P-BO 105 S	PH 1
Robinson Helicopter Company	R22 (all models), R44, R44 II and R66	EASA.IM.R.507, EASA.IM.R.120 and EASA.IM.R.121
Sikorsky Aircraft Corporation	269 (all models), S-58 (all models), S-61 (all models), S-76 (all models) and S-92A	EASA.IM.R.131, EASA.IM.R.113 and EASA.IM.R.001, USA 1H11 and 1H15
WSK PZL Swidnik S.A.	SW-4, PZL W-3A and PZL W-3AS	EASA.R.100 and EASA.R.007

## Appendix 2 – Operational Instructions

Before each HEC operation, inspect the PCDS for effects of ageing due to environmental factors (sunlight, temperature, water immersion, exposition to chemical products, etc.) and, if any defects are found, replace the PCDS.

If the acceptable interface means is not fully detailed in appropriate documentation (e.g. RFM), before a PCDS is used on the helicopter, the compatibility of the attachment means to the hoist hook or cargo hook (as applicable) should be verified. This is in order to check for the risk of inadvertent release of the load from the hoist hook (so called “roll out”) and/or jamming.

Verify that the following information is visible on the PCDS labelling:

- Manufacturing date
- Life limit date (If lower than any existing one marked on the PCDS)
- Manufacturer's identification
- Part Number
- Serial Number or unique identification of the PCDS
- Operational approval reference (if applicable)
- Authorised load in kg
- Authorised number of persons
- Any other limitation not recorded in the manufacturer labelling

Note: The installation of a label in addition to that provided by the PCDS manufacturer may be required.

## Appendix 3 – Maintenance Instructions

Interval / Limit	Task
24 months	For each PCDS in the operator's inventory, verify that the maximum load applied to each component between the carried person(s) and the hook is conservatively estimated. This can be accomplished in accordance with the instructions of Appendix 4 of this AD.
As applicable	Include PCDS and PCDS components' life limits
12 months	Detailed inspection of PCDS (including rope systems, as applicable) to check if there are any visible defects or alterations
As applicable	Record HEC operations and inspections for each individual PCDS (including rope systems, as applicable), identifying the related operational limitations such as maximum load, life limit and inspection interval
12 months	Test the ingress/egress of the PCDS into the helicopter cabin

## Appendix 4 – Static Strength Substantiation

All possible service load cases (including asymmetric load distribution) are to be considered. There must be no deformation of components that could allow release of the carried person(s). Components and details added to the EN approved equipment (such as splicing, knots, stitching, seams, press fits, etc.) or the materials used (textiles, composites, etc.) that might reduce the strength of a product or could (in combination) have other detrimental effects are to be considered.

The minimum ultimate load (ULmin) to be substantiated is defined as follows:

$$UL_{min} = M * n * j * j_f * K * g \text{ (units are Newtons)}$$

Where:

- M is the total mass of the PCDS equipment/component and persons restrained by the part being substantiated. (This is equivalent to the working load rating of a EN.) The mass of each person should be assumed to be 100 kg. If the carried person(s) or their task require the personal carriage of heavy items (backpacks, tools, fire extinguishers, etc.), these must be accounted for in the total mass M in addition to the person's mass.
- n is the helicopter manoeuvring limit load factor and must be assumed = 3.5
- j is the ultimate load factor of safety for all parts = 1.5
- K is an additional safety factor for textiles = 2.0 (see Note (1) below)
- j<sub>f</sub> is an additional fitting factor = 1.33 applying to all joints, fittings etc.
- g is acceleration due to gravity = 9.81 m/s<sup>2</sup>

The resulting values to ensure compliance with the strength requirements of this AD are:

- ULmin for metallic elements with fitting factor (needed for all joints and fittings) = 7Mg (a value of 10Mg may be required - see Note 2 below)
- ULmin for textiles (webbing, ropes etc.) with fitting factor: = 14Mg (see Note(1))

ULmin values are to be compared to the strength of the PCDS components already substantiated according to EC Directive 89/686/EEC and corresponding EN-Standards or EC Directive 2006/42/EC, Annex I, Art. 6.

Where ULmin is greater than the EC directive/EN requirements, a static test to not less than ULmin is necessary. The test load must be sustained for three minutes. In addition, there must be no detrimental or permanent deformation of metallic components at 3.5Mg.

### Note (1) - safety factor for textiles

EC Directive 2006/42/EC, Annex I, Art. 6. recommends a safety factor of 14 (2 \* 7) for textiles applied to the working load (equivalent to 14M above) for equipment lifting humans, whereas for a rescue harness EN 1497 requires a static test load of not less than the greater of either 15kN or 10 times the working load. In consideration of this difference, for each textile component within the PCDS certificated to one of the following ENs, the value of K may be reduced, such that ULmin is not less than 10Mg where M is not more than 150kg:

- For harnesses: EN 361, EN 1497 or EN 12277A, EN 813 or EN 12277C
- For belts / straps / lanyards: EN 354

This allowance is not applicable to ropes.

Furthermore, to allow this reduced value of ULmin and to address potential deterioration of textiles due to environmental and other hidden damages, the life limitation must not exceed 5 years (or the life indicated by the PCDS manufacturer if less than 5 years) and an annual detailed inspection of the general condition of the harness.

### Note (2) - Fatigue

No specific fatigue substantiation is necessary for each part of the PCDS that is either:

- Certificated in accordance with the applicable EN for which the allowable working load is not exceeded by the mass M.
- Substantiated for static strength as described above with ULmin not less than 10Mg.