

**SUBMISSIONS**

of

**SENIOR AND JUNIOR COUNSEL**

on behalf of

**AIRBUS HELICOPTERS (DEUTSCHLAND)**

in causa

**FATAL ACCIDENT INQUIRY**

into the deaths of

Gary Louis Arthur and Others

8 April – 18 July 2019, Glasgow

[1] The Inquiry heard evidence over 31 days between 8 April and 18 July 2019 in relation to the crash of the helicopter registered as G-SPAO on 29 November 2013 at the Clutha Bar, Glasgow, resulting in the deaths of all 3 crew and 7 individuals on the ground. Submissions on behalf of Airbus Helicopters (Deutschland) ('AHD' or the 'manufacturer'), the manufacturer of the aircraft, are outlined below with reference to the Consolidated List of Issues before the Inquiry ('Issues') and with reference to the statutory questions posed by sections 26(2)(a)-(g) and (4) of the Inquiries into Fatal Accidents and Sudden Deaths etc (Scotland) Act 2016 ('the 2016 Act').

**The legal framework**

[2] Brief submissions fall to be made on the proper legal framework within which any determination should be made and, in this regard, AHD adopt the submissions made by the Crown. In particular, AHD wholly endorses the position advanced by the Crown that the findings and conclusions of the AAIB in its investigation into the G-SPAO accident should be adopted by the Inquiry.

[3] Further, AHD seek to highlight certain fundamental principles of the applicable law relating to the conduct of Inquiries under the 2016 Act, principally that it is not the function

of a Fatal Accident Inquiry to determine civil or criminal liability<sup>1</sup>; it is not appropriate for the Inquiry to make a finding of fault or to apportion blame between any persons who might have contributed to the death; and the standard of proof at any Inquiry is the civil standard, namely the balance of probabilities<sup>2</sup>.

[4] Lastly, whilst the Issues before the Inquiry as contained in the Consolidated List prepared by the Crown, and agreed by parties, is a useful document in terms of setting out the proposed particular areas of evidence to be explored, the sole matters upon which the Sheriff must make a determination are those matters as set out in the statutory questions posed by section 26(2) of the 2016 Act<sup>3</sup> and, accordingly, submissions on behalf of AHD have been framed with reference to that legislation.

### **Paragraph 1 of Issues**

#### **Sections 26(2)(a) of the 2016 Act: when and where the deaths occurred**

[5] For the purposes of formal submissions under this subsection, reference is made to the first joint minute of agreement of evidence. Findings reflective of those facts are invited for the purposes of section 26(2)(a) of the 2016 Act.

### **Paragraph 2 of Issues**

#### **Section 26(2)(b): when and where any accident resulting in the deaths occurred**

[6] G-SPAO crashed through the roof of the Clutha Bar, Glasgow at approximately 2222 hours on 29 November 2013. Reference is made to the first joint minute of agreement of evidence. Findings reflective of those facts are invited for the purposes of section 26(2)(b) of the 2016 Act.

### **Paragraph 3 of Issues**

#### **Section 26(2)(c): the cause or causes of the death**

[7] Reference is made to the first joint minute of agreement. Findings reflective of those facts are invited for the purposes of section 26(2)(c) of the 2016 Act.

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<sup>1</sup> Inquiries into Fatal Accidents and Sudden Deaths etc (Scotland) Act 2016, sec 1(4)

<sup>2</sup> sec 20(3) of 2016 Act

<sup>3</sup> sec 26(1) of the 2016 Act

#### **Paragraph 4 of Issues**

##### **Section 26(2)(d): the cause or causes of any accident resulting in the death**

[8] Both engines in the aircraft flamed out sequentially whilst G-SPAO was airborne as a result of fuel starvation in the supply tanks. Examination of the aircraft following the accident found approximately 76 kg of fuel in the main tank and approximately 0.4 kg of fuel in the left (number 1) supply tank. No measurable amount of fuel was recovered from the right (number 2) supply tank. The transfer pumps became switched off, either simultaneously or in sequence, at some point along the aircraft's flight path heading west from Dalkeith. From that point, the transfer of fuel from the main tank to the supply tanks ceased, leaving only fuel in the supply tanks available to the engines.

[9] Examination of the aircraft following the accident found the whole of the fuel transfer system to be intact and unblocked. The transfer pumps between the main tank and the supply tanks ran correctly when powered electrically and tested. Testing of fuel sensors on the aircraft showed that all sensors, including low fuel warning thermistors from the supply tanks, had been capable of working correctly prior to the accident. There was no evidence to indicate that the aircraft's Caution and Advisory Display ('CAD') had not been operating correctly. There was no water contamination found in the samples of fuel taken from the main tank and no traces of water found in the fuel system.

[10] As a result of fuel starvation, due to the transfer pumps becoming, and remaining, switched off, the right engine flamed out, with the left engine then suffering a flame out approximately 32 seconds later.

#### *Management of fuel*

[11] It is submitted that the evidence before the Inquiry did not conclusively demonstrate any explanation as to why both the forward and aft fuel transfer pumps became switched off and, importantly, remained switched off. Reference is made to the conclusions of the AAIB in its testing, the manufacturer's flight trials and the evidence of Mark Prior. However, regardless of the question of whether conditions existed to generate F FWD PUMP and F AFT PUMP yellow cautions as a result of dry running, it is submitted that the important point which is demonstrated on the evidence is that they, in fact, became switched off and remained switched off for the remainder of the flight on returning from Dalkeith to Glasgow. The reason for the pumps becoming, and remaining, switched off for the remainder of the accident flight was not established on the evidence.

[12] What is known, however, is that there was no evidence of any defect within the CAD. On the contrary, the post-accident testing referred to above suggested otherwise. That being so, when the transfer pumps were switched off during the accident flight, the CAD would have registered and indicated: (i) the fact that the transfer pumps had been switched off (3 minutes later), and remained off for the remainder of the flight; and (ii) a fuel yellow caution, once the supply tanks decreased below a pre-programmed threshold, which would have had to be acknowledged by the pilot. Moreover, it is known to a reasonable degree of certainty from the non-volatile memory of the aircraft's systems that, as G-SPAO approached Bothwell, a series of visual red LOW FUEL warnings (and associated aural warnings) began, with each one being physically acknowledged by Captain Traill. The evidence on that point derives from the conclusions of the AAIB and was unchallenged before the Inquiry. It is submitted that the reason for the pilot, on receipt and acknowledgement of those repeated LOW FUEL warnings, failing to follow the check listed actions prescribed by in the manufacturer's flight reference cards was not established on the evidence.

#### *Treatment of LOW FUEL warnings*

[13] It is submitted that the evidence from pilots before the Inquiry as to the procedure to be followed in the event of a LOW FUEL warning was clear. The evidence of pilots reflected a general understanding that a LOW FUEL warning was too important to take a chance with and common sense would take over, even in the event of contrary indications being presented on the CAD (though there is no evidence of any such indications during the accident flight of G-SPAO). The evidence of Captain Andrew Rooney falls to be distinguished on that matter: he was the only pilot before the Inquiry who postulated that one option on receipt of a LOW FUEL warning, if a pilot were in doubt about its veracity, would be simply to fly on in the face of unresolved conflict and confusion on the matter. Fortunately, his evidence in this regard stood out as a remarkable outlier, with no independent or support, or even echo, in the rest of the evidence. All other pilots were consistent in their position to the Inquiry as to the procedure to be followed on receipt of a LOW FUEL warning, including, if the condition persisted, to land the aircraft within the prescribed ten minutes and that the procedure was mandatory and taught in ground school training. That evidence is unsurprising, and reassuring. Were the evidence of Captain Rooney to be accepted as reflecting a widespread attitude then that would be problematic: the lack of sense in continuing to fly in the face of a LOW FUEL warning is palpable. Further, and again with the exception of Captain Rooney, the evidence of pilots before the Inquiry reflected a general understanding that the fuel contents indication system and the low fuel warning system operated independently from each other and that that was a matter also covered in ground school training.

*Possibility of pilot confusion of transfer pump and prime pump switches*

[14] Reference is made to paragraph 4.8 of the Crown submission. There was no evidence that both prime pumps had been selected on during the accident flight.<sup>4</sup> Further, the combined evidence from pilots before the Inquiry was to the effect that they had never confused the prime pump switches with the transfer pump switches, nor were they aware of such an error ever having been made by any other pilot. Had the prime pumps been switched on inadvertently, a new caution with flashing bars would have been generated on the CAD and highlighted by the master caution light until physically acknowledged by the pilot, beyond which the CAD would have continued to display the condition as a caution (but no longer with flashing bars) until such time as the prime pumps were switched off. Professor Polly Dalton advanced the view that such errors occur<sup>5</sup>, but her conclusion in this regard failed to take cognisance of the combined position of trained and experienced pilots, as put forward in evidence and, indeed, as had been outlined in the available police statements. It is clear that expert opinion can be offered only on the basis of a factual matrix established by evidence, otherwise any such opinion evidence will be little more than speculation and will be evidentially worthless. It is submitted that the evidence given by Professor Dalton takes the statutory considerations before the Inquiry no further forward and that no weight should be given to it. Further, there being no evidence that any pilot switching error might have occurred during the G-SPAO accident flight, it follows that there is no evidence of any issue with the design or layout of switches, such as might contribute to any such possible error.

*Water contamination and possibility over-reading of fuel contents*

[15] Evidence was led to explore the possibility of an over-reading of the fuel contents indication system on the accident flight. Reference is made to the statements by the Crown in paragraphs 4.9.6 - 4.9.13 of its submissions. Following investigation into the G-NWEM incident, it was discovered that water inside the fuel tanks, when emulsified with fuel, could enter the space between the concentric tubes of the fuel sensor and, once precipitated, that water would remain trapped in the sensor as globules or droplets of water which were too large to then exit the sensor. The presence of such water could then interfere with the output frequency generated by the sensor and cause an over-reading of the fuel level. For emulsification to occur, there needed to be free water in the system. Reference is made to Crown production 1419<sup>6</sup> which showed the process and movement of a water and fuel emulsion through the fuel system. If emulsification occurred, the resultant emulsion would

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<sup>4</sup> AAIB 3/2015, Crown Production 327 at para 1.12.2; Day 9 pg 137 per Holger Mendick; Day 30 per Mark Prior

<sup>5</sup> Day 31, pgs 14 - 15, 122 - 123 per Polly Dalton; Crown Production 1320 at para 5.4.1

<sup>6</sup> Crown Production 1419 Answers by Holger Mendick to Crown questions at pg 16

be present in the supply tanks and would run back to the main tank, due to the overflow and, through time, would be diluted over the fuel system.

[16] The AAIB examined the inside of the fuel tanks on G-SPAO and no water was found. Fuel samples taken from the main tank were tested and found to be free from water contamination. No fuel was available to be tested from the supply tanks. In the opinion of Holger Mendick, had there been an emulsion in the fuel system on the accident flight, there would have been some water droplets remaining and some traces of water should have been found post-accident. Given the absence of any water found by the AAIB, it is submitted that no emulsifying event took place on G-SPAO during the accident flight and that, accordingly, there was no evidence of any over-reading of the fuel contents generated by any water contamination of a fuel sensor through that process.<sup>7</sup> Further, there was no evidence of an over-reading of the fuel contents generated by any other process prior to take-off or during the flight, and the fuel usage calculation undertaken by AHD and confirmed by Mark Prior shows that the fuel present in the main tank at the time of the accident was consistent with the 400 kg amount on board before take-off.<sup>8</sup>

#### *Cause of accident*

[17] All that can be known is that which is properly vouched for in evidence, namely and in particular, that: (i) the LOW FUEL warnings for both supply tanks activated, were physically acknowledged, and repeated with further acknowledgment and, thereafter, continued to be illuminated on the warning unit for the remainder of the accident flight; (ii) the transfer pumps remained off and were not switched back on following the occurrence of the LOW FUEL warnings, thus stopping transfer of available fuel from the main tank to the supply tanks; (iii) there was no indication of any concern or mention of any problem in the pilot's communication with air traffic control, even during the last communication at 2219<sup>9</sup>; (iv) no action was taken by the pilot to land the aircraft within ten minutes in accordance with the requirements of the flight reference cards; (v) as a result of fuel starvation, both engines flamed out; and (vi) approximately 76 kg of fuel was found in the main tank post-accident. It is submitted that, on the evidence, the explanation for these facts was not established and that any attempt to provide an explanation can only be an exercise in pure speculation.

[18] Indeed, this is acknowledged by the AAIB in its analysis surrounding the investigation into the accident to G-SPAO in its conclusion that "the investigation could not establish why

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<sup>7</sup> Day 7 at pgs 94- 98 per Holger Mendick

<sup>8</sup> Day 31 at pgs 25- 26 per Mark Prior; Crown Production 1340 at para 6.2.2

<sup>9</sup> AAIB 3/2015 at pg 73, para 2.1.1

a pilot with over 5,500 flying hours flying experience in military and civil helicopters, who had been a Qualified Helicopter Instructor and an Instrument Rating Examiner, with previous assessments as an above average pilot, did not complete the actions detailed in the *Pilot's Checklist Emergency and Malfunction Procedures* for the LOW FUEL 1 and LOW FUEL 2 warnings” (para 2.1.2, page 78).

[19] Reference is made to the findings and conclusion of the AAIB in its report (Crown production 327). Findings reflective of the matters therein are suggested for the purposes of section 26(2)(d) of the 2016 Act.

### **Paragraph 5 of Issues**

#### **Section 26(2)(e): any precautions which (i) could reasonably have been taken; and (ii) had they been taken, might realistically have resulted in the death, or any accident resulting in the death, being avoided**

[20] Findings under section 26(2)(e) require to have a causal aspect to them. This section of the 2016 Act has replaced the statutory question posed by section 6(1)(c) of the 1976 Act and it is submitted that the considerations applicable to the earlier legislation in this regard are the same as those applicable under the 2016 Act, as far as the question of causation is concerned.

[21] It is generally accepted that the expression “might have been avoided” envisages not a “probability” but a real or lively possibility that the death might have been avoided by the reasonable precaution.<sup>10</sup> The possibility that the death or deaths might realistically have been avoided by the reasonable precaution requires to be one of substance and genuine potential, rather than a mere fanciful possibility: as set out in the Explanatory Notes to the 2016 Act “a precaution might realistically have prevented a death if there is a real or likely possibility, rather than a remote chance, that it might have so done.”<sup>11</sup>

[22] Further, it is the precaution itself which is required to be reasonable. As stated by Sheriff Principal Lockhart QC in his determination in the Inquiry into the deaths at Rosepark Care Home:

*“The question of reasonableness is directed to the precaution which is identified. The issue is not whether an individual or organisation behaved in a reasonable or*

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<sup>10</sup> Carmichael, (ibid.) para 5-75

<sup>11</sup> Explanatory Notes to 2016 Act, para 72

*unreasonable way, but whether or not there is a precaution which is a reasonable one and which might have made a difference.”<sup>12</sup>*

[23] The Crown submission considers the question of whether or not the manufacturer could have included within the fuel contents indication system a caution or warning that both transfer pumps were switched off.<sup>13</sup> The Crown highlight that, when both transfer pumps are switched off, the supply tanks will begin to drain of fuel until the FUEL caution illuminates, followed by the LOW FUEL warnings and this was indeed the case in G-SPAO.

[24] There is in fact, however, an additional and important caution presented to a pilot in such circumstances, to which no reference has been made by the Crown in its submissions on this point. Once a transfer pump has become switched off, the CAD continues to display the F PUMP FWD or F PUMP AFT caution, or both if both pumps are switched off.<sup>14</sup> The only means by which that fuel pump caution would disappear would be for the pilot to turn the transfer pumps back on again. Unless and until that occurs, this additional caution remains on the CAD. Thus, a pilot flying with transfer pumps switched off will always have an indication to that effect displayed on the CAD to inform him of that fact. This additional caution was introduced specifically to avoid the scenario of an inadvertent transfer pump switch-off by a pilot.<sup>15</sup> The Crown’s position on the point is otherwise endorsed but the additional fuel pump transfer caution is a significant feature and one which cannot be overlooked.

[25] With reference to paragraph 5.3 of Issues, G-SPAO was fitted with Test-Fuchs pumps which can run dry longer than the aircraft can remain in continuous operation. Consequently, although that type of pump needed to be turned off in the event of blockage, it did not need to be turned off solely account of dry running in order to protect it from possible damage. The EC135 flight manual nonetheless mandates pilots to switch transfer pumps off when the pumps run dry for 3 continuous minutes and a caution appears on the CAD (accompanied by flashing bars and illumination of the master caution light). Holger Mendick explained to the Inquiry that the reason for maintaining a uniform and consistent instruction in the EC135 flight manual on that matter was due to the fact that not all aircraft in the EC135 worldwide fleet were fitted with Test-Fuchs pumps. Some aircraft were fitted with Globe pumps which did not have the same dry running capability and could become damaged if allowed to run dry

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<sup>12</sup> Rosepark Inquiry 2010 GWD 35- 713 per Sheriff Principal Lockhart QC

<sup>13</sup> Consolidated List of Issues at para 5.1

<sup>14</sup> Day 9 at pgs 9 and 128- 129 per Holger Mendick; Day 9 at pg 204 per Rene Nater

<sup>15</sup> Day 8 at pg 151 per Holger Mendick



during a flight. Mr Mendick highlighted that a pilot would not know which type of pumps were fitted on whichever EC135 he was flying and that to have two sets of instructions as to management of the pumps, depending on which type were fitted, had the potential to give rise to unnecessary confusion.<sup>16</sup> It was important, Mr Mendick advanced, that emergency procedures should be clear and not compromised by a pilot being required to identify the serial number of the aircraft he was flying.<sup>17</sup> It is submitted that the manufacturer's position on that is logical and that consistency in approach on the matter reduces the scope for confusion.

[26] Whilst the "run dry" caution has been removed as a feature on the latest versions of the EC135 which are fitted with Helionix software, no similar modification has been made retrospectively to software on those models already fitted with Test-Fuchs pumps because there was never any issue raised with the manufacturer about pilots experiencing problems with pump switching and, consequently, such modification was unnecessary.<sup>18</sup> Indeed, there was no evidence from any pilot before the Inquiry that management of transfer pump switches had ever presented any particular difficulty to them or that they were even aware that not all EC135s have the same make and model of pump. The uniform instruction that the pilot turn off a transfer pump upon the appearance of a caution on the CAD, even with Test-Fuchs pumps, did not create the potential for any safety issue because: (i) the pilot would be expected to continue to monitor his fuel indications; (ii) wherever fuel remained in the main tank, he would continue to see such fuel on the main tank indication on the CAD while at the same time seeing the supply tanks deplete; (iii) in time, he would see a FUEL caution on the CAD (highlighted by flashing bars on the CAD and illumination of master caution light until physically acknowledged); and (iv) later he would see visual LOW FUEL warnings on the warning unit accompanied by an aural warning.<sup>19</sup> Further, whilst the pumps were switched off, the CAD would continue to display the F PUMP FWD and F PUMP AFT cautions to inform the pilot of that fact.

[27] The AAIB noted that, up until the accident to G-SPAO, the EC135 had accumulated more than three million flying hours and there had not previously been a reported instance of fuel starvation.<sup>20</sup>

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<sup>16</sup> Day 7 at pgs 98- 101 per Holger Mendick

<sup>17</sup> Day 8 at pg 143 per Holger Mendick

<sup>18</sup> Day 7 at pg 101 and day 8 at pg 157 per Holger Mendick

<sup>19</sup> Day 8 at pgs 142- 147 per Holger Mendick

<sup>20</sup> AAIB report 3/2015, Crown Production 327 at para 1.18.2.2

[28] Beyond that, the Crown’s position on the matters considered in paragraph 5 of Issues is endorsed. In particular, it is submitted that none of the matters set out in paragraph 5 of Issues could, or should, be considered as a reasonable precaution. Further, it is submitted that there is no basis on the evidence for the Inquiry to conclude that any of those measures under consideration, had they been in place, could realistically have prevented the deaths.

[29] Accordingly, it is proposed that the Inquiry make no findings in relation to AHD under section 26(2)(e).

### **Paragraph 6 of Issues**

#### **Section 26(2)(f): any defects in any system of working which contributed to the death or any accident resulting in the death**

[30] From the perspective of AHD, it is submitted that there was no evidence led demonstrative of any defect in any system of work, such as could be considered causative of the accident, in terms of the 2016 Act. The answers put forward by the Crown in response to paragraph 6 of Issues are adopted.

[31] In these circumstances, no findings under this section 26(2)(f) are proposed on behalf of AHD.

### **Paragraph 7 of Issues**

#### **Section 26(2)(g): Any other facts which are relevant to the circumstances of the death**

[32] The wording of section 26(2)(g) of the 2016 Act, whilst giving the Sheriff wide scope, nonetheless provides that the facts found must be “relevant to the circumstances of the death”. Under the 1976 statutory regime for the investigation of sudden deaths in Scotland, it has been suggested that this means the circumstances of the death as they may affect the public interest<sup>21</sup> and it is submitted that the same considerations apply to the statutory question posed by section 26(2)(g) of the 2016 Act.

[33] As regards the matters set out in paragraph 7 of Issues, reference is made to Crown production 1422 which sets out the updated response from AHD to the safety actions set out by the AAIB in its report. The answers put forward by the Crown to Paragraph 7 of Issues are adopted, with additional comment on the matters outlined below.

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<sup>21</sup> Carmichael, (ibid) para 5-77 on sec 6(1)(e) of Fatal Accidents and Sudden Deaths Inquiry (Scotland) Act 1976

*Avionics on latest versions of the EC135*

[34] The omission of the dry-run caution has been introduced on EC135 (H135) and EC145 (H145) aircraft equipped with the new Helionix avionics suite. On these helicopters - which are all fitted with Test-Fuchs pumps - there is no flight manual requirement to switch off the fuel transfer pumps when the main tank is empty. The change is not proposed for the predecessor EC135 fleet as: (i) the existing fuel pump caution signal does not differentiate between a dry running pump and pump blockage; and (ii) as the Globe pumps, which do not have the improved dry-running capability, are still in many EC135s, it is important all the pumps, regardless of type, are managed consistently and in same manner by the flight manual.

*Modified fuel sensor*

[35] A modified version of the fuel sensor was designed and put into service following the discovery that water globule contamination could, in certain circumstances, produce erroneous outputs which, in turn, could cause fuel mis-indications. Reference is made to paragraphs 1.16.2 and 1.16.3 of the AAIB report 3/2015 (Crown Production 327).

[36] The modified sensor has large cut-outs in the bottom area to enable any possible water which found its way inside to freely drain away. The modified sensor was certified by EASA at the beginning of 2018 and has been available to customers from 16 March 2018. The modified sensor was not ready to enter service earlier as the design process was complex and had generated a number of prototypes and further development had been needed to get it right.<sup>22</sup> As regards the take-up level of the new modified sensor kits, as at end of April 2019, around 40 kits had been sold to customers, from around 1000 aircraft which could be retro-fitted with new versions of the sensor.<sup>23</sup> First in-service feedback has been positive.<sup>24</sup> It is submitted that the relatively low level of fleet customer take-up of the new design of sensor suggests that the issue the modification was designed to address is not widely experienced by operators.

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[37] The manufacturer's flight reference cards, as at the date of the accident flight, set out the mandatory procedure to be followed by pilots in the event of a LOW FUEL warning,

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<sup>22</sup> Day 7 at pgs 61- 62 per Holger Mendick; Day 10 at pg 148 per Christian Bernhardt

<sup>23</sup> Day 10 at pg 148 per Christian Bernhardt

<sup>24</sup> Crown Production 1422, pg 2

including to check both transfer pump switches were on and to land within 10 minutes if the warning persisted.<sup>25</sup> The flight reference cards have been amended by AHD to put beyond any possible residual doubt that the LOW FUEL warning overrules the fuel quantity indication.<sup>26</sup> It is submitted that the evidence before the Inquiry reflected that the steps as set out in the pilot's checklist as at the date of the accident were suitably clear as to the procedure to be followed.

#### *Modification to transfer pump switches*

[38] Modification to the transfer pump switches has been made by the manufacturer since the accident to G-SPAO. The modified transfer pump switches now have a bulkier shape and require the double action of pulling the switches out before moving them down in order for them to be switched off. From July 2019, the retro-fit of the new version switch has been available to EC135 operators. It is submitted that, not only was there no evidence before the Inquiry that the pilot on the accident flight had, as a matter of fact or legitimate inference, confused the transfer pump switches with the prime pump switches, or any other switches, but also the evidence in fact reflected that confusion of transfer pump switches with prime pump switches is not generally an issue amongst pilots. In these circumstances, it is submitted that the modification, whilst possibly of assistance, is not one of necessity. In its report, the AAIB did not propose that any modification of the switches should be considered by the manufacturer.

#### *EASA/CAA*

[39] In addition, it should be noted that EASA, the European level aviation safety authority, and the CAA, the UK aviation safety authority, both have responsibilities and powers of investigation and safety monitoring and were both part of the safety recommendations element of the AAIB's investigation of the accident. It is relevant to note that the safety actions taken by AHD after the accident in relation to development and introduction of a modified sensor and modified the transfer pump switches were AHD initiatives which had not been required by the CAA and/or EASA, despite both bodies' safety work in relation to the accident.

[40] Whilst the manufacturer has adopted and implemented the Safety Actions considered by the AAIB in its report, it is submitted that the fact of these steps having been taken is not, of itself, relevant to the circumstances of the deaths in terms of section 26(2)(g) of the Act.

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<sup>25</sup> AAIB 3/2015, Crown Production 327, at Appendix A (e-pg 118) and Crown Production 67

<sup>26</sup> AAIB 3/2015 at Appendix E (e-pg 143) and Crown Production 251

[41] Accordingly, it is submitted that no findings fall to be made under section 26(2)(g) in relation to AHD.

### **Recommendations under section 26(4) of the 2016 Act**

[42] The 2016 Act gives the Sheriff discretion to make recommendations as to “the prevention of similar deaths in the future” and these are “the taking of reasonable precautions, the making of improvements to, or introduction of, a system of working, or the taking of any other steps, which might realistically prevent future deaths in similar circumstances.... There must be a real or likely possibility that the matters recommended may prevent other deaths in similar circumstances, rather than a remote chance that a similar death in the future might be prevented.”<sup>27</sup>

[43] It is respectfully submitted that, on the evidence insofar as it relates to the manufacturer, there are no matters that would usefully be addressed by any recommendation of this sort, particularly having regard to the requirement that any such recommendation should be aimed at the ‘real or likely possibility’ of preventing deaths in similar circumstances in the future.

[44] Accordingly, AHD endorses the position of the Crown and proposes that no recommendations fall to be made in relation to AHD, in terms of section 26(4) of the 2016 Act.

### *Conclusion*

[45] For itself and on behalf of its representatives at the Inquiry, Airbus Helicopters (Deutschland) extends its sincere condolences to each of the families and friends of those who tragically died as a result of the accident to G-SPAO.

Roddy Dunlop Q.C  
and  
Emma Toner, Advocate,  
Advocates’ Library,  
Parliament House,  
Edinburgh  
30 July 2019

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<sup>27</sup> Explanatory Notes to the 2016 Act