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MAGAZINE

FLYING TUNA

NAILING THE LANDING, NOT THE DECK

AIRBUS *H135*

20 YEARS OF MAKING A DIFFERENCE

DISPELLING AVIATION INSURANCE MYTHS

PILOT HOUR MINIMUMS

UNDERSTANDING AIRWORTHINESS: PART III

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THE LAST BASTION OF AN OLD WARRIOR

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December Issue Cover:

Michael Rocks MacQueen flying an MD500C in the South Pacific from a Tuna boat.
Photo by Darvin "Pato" Edgardo Menez DeLa Cruz

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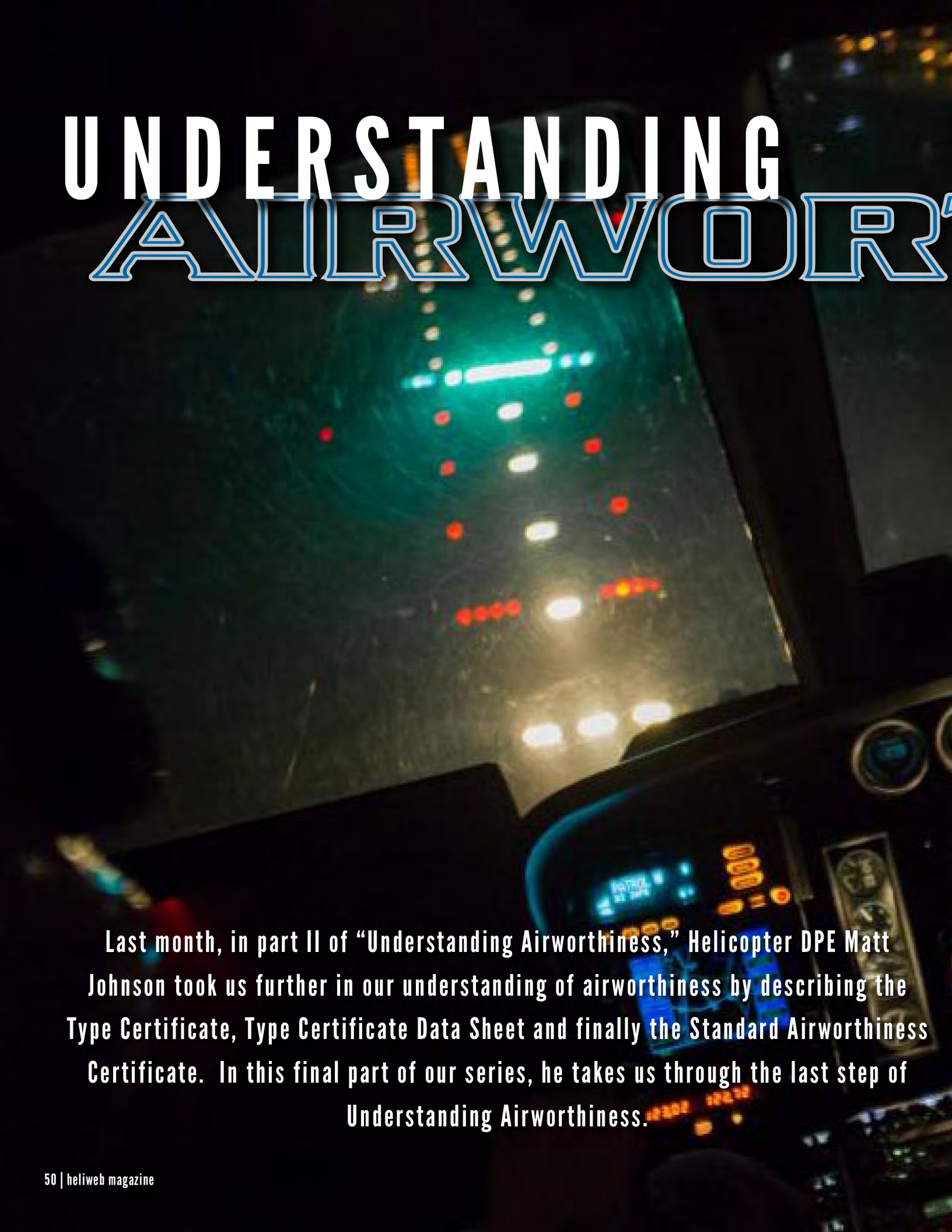
UNDERSTANDING AIRWOR



Last month, in part II of "Understanding Airworthiness," Helicopter DPE Matt Johnson took us further in our understanding of airworthiness by describing the Type Certificate, Type Certificate Data Sheet and finally the Standard Airworthiness Certificate. In this final part of our series, he takes us through the last step of Understanding Airworthiness.

THINESS
PART III

As we closed last month's article, we discussed FAR 91.7 – Civil Aircraft Airworthiness and the premise of one statement within that regulation laying the burden on us as Pilot-in-Command to determine that the aircraft is in fact in an airworthy condition. How exactly do we go about this? Is there a process for "making that call?" There is, and it doesn't have to be a complicated process.

Before you get your hands dirty
The preflight of your helicopter can be looked at as a 3-phase process. Phase I starts in the office where a thorough review of the maintenance records is undertaken.

In Part II of this series, we discussed the "Terms and Conditions" for the Standard Airworthiness Certificate to be effective (valid). Essentially, the maintenance records examination that you conduct is for the purpose of ensuring that the aircraft has been inspected and maintenance has been performed in accordance with the regulations. Including annual inspections, 100-hour inspections, etc. The maintenance required in the "instructions for continued airworthiness" will need to be met.

After finding that Phase I of your preflight is complete, and the records check phase has been found satisfactory it's time to move on to the aircraft for Phase II.

At the helicopter, we continue with our documents check; those documents that are required to be onboard the aircraft. Many people remember the necessary documentation by memorizing the "AROW" acronym. (a second "R" is added for Radio License for those traveling outside the US). The "A" is our infamous Airworthiness Certificate, "R" is registration, "O" is operating limitations and the "W" is for weight and balance. It should be noted that the registration is another often overlooked item as it must be renewed every three years by the owner.

The weight balance cited here is not the W&B that you and your instructor worked before a particular flight lesson but instead refers to that specific aircraft's unique weight and balance information including empty weights, moments, etc.

Now it's time for the dirty hands! The exception is for those that wear a good pair of preflight gloves (good on you!) The importance of a proper preflight is for another article, but it goes without saying a quality check of your helicopter is paramount.

We must ensure that our helicopter and its components and systems are working properly.

This includes an assortment of items that must be working, and the list varies if it is a daytime flight or one conducted at night hours. This specifically includes those items found in 91.205 of the regulations.

Also, one thing that must not be overlooked when conducting a pre-flight is that of additional equipment that must be in operable condition according to the flight manual of a particular helicopter. A good example is the Robinson R44, an extremely popular and reliable training aircraft. In addition to the required operable items listed in FAR 91.205 the R44 manual additionally requires that the Hydraulics, Governor, OAT, Alternator and Low Rotor RPM system must be working. (H-GOAL for those of you acronym lovers)

WHAT ABOUT DEFECTIVE ITEMS?

The focus of this series has been on airworthiness, and we have spent considerable time and explanation on the subject. We want to ensure that things are working correctly, the correct maintenance is being performed and that our aircraft is safe to operate. For this discussion, we are considering a basic helicopter operating under Part 91 regulations and not under Part 135 operating with an approved Minimum Equipment List (MEL)

So how do we handle broken or busted items we find on our helicopter? Is our aircraft grounded? Is it "unairworthy"?

The answer is – "it depends." FAR 91.213 is an entire regulation dedicated to "Inoperative instruments and equipment." It can become somewhat complicated for those unfamiliar with this section or how to handle defective items.

Here is a simple 4-pronged test you can use to determine if your helicopter is still airworthy after you found an inoperative item(s):

1. *Is the item required under 91.205?*
2. *Is the item required by the Flight Manual under limitation and Kinds of Operation?*
3. *Is the item required by an Airworthiness Directive?*
4. *Is the item one that creates a "safety of flight" concern?*
Simply stated, if the answer to any of the above is "YES" then it's time to call the mechanic.

If the inoperative item doesn't fall under one of the four items listed above you will find instructions on how to handle this deep into the 91.213 regulation.

An example would be a power outlet that you use to charge your iPad in flight; is an item like this required under the four previously mentioned conditions? Not likely, however, is it inoperative because of a bigger underlying electrical issue? This is where judgment comes into play.

SUMMARY

In this three-part series of articles on Understanding Airworthiness I have attempted to explain a relatively easy subject but one that is very often misunderstood. At the end of the day, you must remember that as a professional pilot (in-command,) you have a great deal of power (and weight on your shoulders) to make calls on airworthiness. Apply your knowledge, seek the assistance of other professionals and never be afraid to stop a flight before the skids leave the ground for an airworthiness issue.

Matt Johnson is a Helicopter FAA Designated Pilot Examiner, conducting Private through ATP level exams in numerous makes and models. His experience spans Air Medical, Law Enforcement, Flight Instruction, and ENG flying. Johnson is a three-time Master Instructor recipient, FAA Gold Seal Flight Instructor, USHST representative in the human factors group, and FAASTeam Representative for the Greater Cincinnati Ohio Region. Additionally, Matt is an Air-Medical Pilot flying a single-pilot IFR Helicopter in SW Ohio.