Section 4 Airworthiness

14-3-4-1 AIRWORTHY OR UNAIRWORTHY? The term “airworthiness” or one of its derivatives is not defined in Title 49 of the United States Code (49 U.S.C.) or Title 14 of the Code of Federal Regulations (14 CFR). Nevertheless, a clear understanding of its meaning is an essential tool for the compliance program. Airworthiness is a concept that represents the substance of two of the most fundamental safety regulations: 14 CFR part 43, § 43.15(a) and 14 CFR part 91, § 91.7(a).

A. Airworthiness. Since “airworthiness” is not defined in the revised 49 U.S.C., Subtitle VII, Part A, or in 14 CFR part 11, a clear understanding of its meaning is essential in conducting a violation investigation. A review of case law relating to airworthiness reveals two conditions that must be met for an aircraft to be considered “airworthy.” These conditions are:

1) The aircraft must conform to its type design (certificate). Conformity to type design is considered attained when the required and proper components are installed and they are consistent with the drawings, specifications, and other data that are part of the type certificate (TC). Conformity would include applicable Supplemental Type Certificates (STC) and field-approved alterations.

2) The aircraft must be in condition for safe operation. This refers to the condition of the aircraft in relation to wear and deterioration; such conditions could be skin corrosion, window delamination/crazing, fluid leaks, tire wear, etc.

B. Regulatory Background.

1) Section 43.15(a) states that each person conducting a 100-hour, annual, or progressive inspection required by part 91 must perform those inspections in such a manner as to determine whether the aircraft meets all applicable airworthiness requirements.

2) Section 91.7(a) states that no one may operate a civil aircraft unless it is airworthy.

C. National Transportation Safety Board (NTSB) Decisions. The example below clearly expresses the view that an aircraft is airworthy only if it is capable of a safe operation and it conforms to its TC.

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1 Recently, a definition was added to 14 CFR part 3, § 3.5, which is in general agreement with the content in this section: “Airworthy means the aircraft conforms to its type design and is in a condition for safe operation.” However, the applicability of the definition is limited to persons making record entries as described in part 3 only, and excludes 14 CFR part 43 records.
1) In this case, the issue was whether the pilot had violated § 91.7(a) by operating an aircraft that was not in an airworthy condition. The respondent had taxied the aircraft into a mud hole, causing the propeller to strike the ground. As a result, one blade was bent and the other was nicked. Upon restarting, the engine ran smoothly, so the pilot did not consider the damage to be significant. The pilot decided to give the aircraft a test flight and found that there was no unusual engine vibration or other indication of malfunction. The pilot then operated the aircraft from Nevada to Kansas to New York to Pennsylvania, and to several locations in Florida.

2) Upon hearing the case after a subsequent investigation revealed the damage and the violation, the examiner held that the damage to the propeller caused it to be unairworthy and sustained the Federal Aviation Administration (FAA) allegation that the respondent had violated § 91.7(a). The examiner’s findings were based on the theory that an aircraft is airworthy if it conforms to its type certification, but that it is not airworthy if its original design and specifications are altered without FAA approval.

3) The concept of airworthiness expressed in this case must be considered to be the correct one because it is the one which best lends itself to effective enforcement. It is supported clearly by some NTSB precedents and is reinforced by the framework of 49 U.S.C. and the practical operation of the FAA itself. The concept that an aircraft need only be capable of a safe operation to be airworthy cannot be applied effectively because it places too much discretion in the individual pilot or mechanic, safety being a subjective value.

D. Additional Interpretations. A careful study of 49 U.S.C. indicates that the term airworthiness should be interpreted in the manner that it has been in the example above.

1) Title 49 U.S.C. § 44704(d)(1) allows the registered owner of an aircraft to apply for an airworthiness certificate. If the FAA finds that the aircraft conforms to the TC for that aircraft and determines, after inspection, that the aircraft is in condition for safe flight, the FAA issues the airworthiness certificate.

2) The statutory language in § 44704(d)(1) clearly establishes that two tests be applied in determining whether the owner of an aircraft should be granted an airworthiness certificate. First, the aircraft must conform to the TC for that aircraft. Then, if that condition is met, the aircraft must be inspected to determine that it is in a condition which will permit its safe operation.

3) The very term “airworthiness certificate” implies that an aircraft granted such a certificate is “airworthy.” Therefore, an aircraft denied such a certificate is not airworthy. The plain meaning of § 44704(d)(1) indicates that 49 U.S.C. intended that an aircraft should not be considered to merit the issuance of an airworthiness certificate unless it conforms to the TC applicable to it. Therefore, it can be argued that 49 U.S.C. established the concept of airworthiness to mean, “…conforms to its type certificate and, after inspection, is in condition for safe operation.”

4) The practical operation of the FAA should also be considered in determining which concept of airworthiness is most appropriate. If the term airworthy were interpreted to mean only to be in a condition for safe flight, at times it would be unreasonably difficult, if not
impossible, to enforce the regulations which turn upon the meaning of that term. In order to prove that a pilot operated an unairworthy aircraft or that a mechanic certified an unairworthy aircraft as airworthy, the FAA sometimes would be required to undertake an extensive test-flight program of an aircraft that did not conform to the applicable TC.

5) Moreover, if airworthy meant only to be in a condition for safe flight, it would render the entire airworthiness certification procedure meaningless. Title 49 U.S.C. provides for the issuance of a TC, a certificate that includes the type design as dictated by the type certification data in the aircraft’s operating limitations and any other conditions or limitations prescribed in the applicable regulations. Title 49 U.S.C. specifies that the TC is to be referred to in determining whether an aircraft should be granted an airworthiness certificate. However, if an aircraft need only be capable of safe flight to be considered airworthy, after the original airworthiness certificate is issued, any mechanic could modify a particular aircraft in any manner that pleased the mechanic and the aircraft would be presumed to be airworthy unless the FAA could prove that the modification was in some way detrimental to the aircraft’s flight characteristics or structural strength.

E. Conclusion. To be airworthy, an aircraft must conform to its TC as well as be in a condition for safe operation. A word of caution is necessary, however, if this concept of airworthiness is to be applied effectively in enforcement cases. Where the evidence clearly shows the aircraft is not in a condition for safe operation, the NTSB will normally sustain a finding that the aircraft was unairworthy. However, even if the aircraft is not in conformance with the TC, the NTSB will probably not sustain a finding that the aircraft was unairworthy unless the evidence also shows it was unsafe for flight. More detailed evidence is required about the TC and the way the aircraft improperly deviates from the TC in order to sustain a finding of unairworthy based on nonconformance alone.

14-3-4-3 through 14-3-4-17 RESERVED.