

NOTICE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION

N 8110.116

National Policy

Effective Date:
08/18/14

Cancellation Date:
08/17/15

SUBJ: Notes used in Type Certificate Data Sheets (TCDS)

1. Purpose of this Notice. This notice clarifies the purpose and authority of the notes in the type certificate data sheet (TCDS) and provides additional guidance for aircraft certification office (ACO) and directorate staffs and oversight offices to write these notes.

2. Audience. We have written this notice for all Flight Standard Service (AFS) inspectors, Aircraft Certification Service (AIR) aviation safety engineers (ASE), aviation safety inspectors (ASI), flight test pilot (FTP) and the FAA Academy instructors in Oklahoma City.

3. Where to Find This Notice. You can find this notice at MYFAA Employees website: https://employees.faa.gov/tools_resources/orders_notices and on the Regulatory and Guidance Library (RGL) website: <http://rgl.faa.gov>.

4. Action. This notice will be in effect immediately and must be followed as of the issuing date by ACOs, including FAA offices that manage TC holders such as directorate staffs and oversight offices. Compliance with this notice is required for any new or revised TCDS issued after 60 days from the issuing date of this notice. This directive will be incorporated into a future revision of FAA Order 8110.4D, *Type Certification*.

5. Background.

a. Definition. Title 14 of the Code of Federal Regulations (14 CFR) 21.41 states that the TCDS is part of a type certificate (TC) along with the type design, the operating limitations, the applicable regulations with which the FAA finds compliance, and any other conditions or limitations prescribed for the product. Order 8110.4 further explains that the TCDS provides concise definition of a type-certificated product as produced by the original equipment manufacturer.

b. Problem. Due to the lack of understanding the regulatory value of the TCDS, including its notes, and inadequate instructions in Order 8110.4C, many notes in existing TCDS are improperly written. This notice will explain the importance of the TCDS and its notes. It also provides more detailed instructions to help Directorates and ACO in how to

write a proper TCDS notes. Responsible offices can also use instructions in this notice to correct existing errors in the TCDS.

c. Issuance of Airworthiness Certificate. The United States Code 49 U.S.C. § 44704(d) states that there are two conditions that must be met for issuance of an airworthiness certificate.

(1) An aircraft must conform to its TC. An aircraft conforms to its TC when its configuration and the installed components are as described in the drawings, specifications, and other data that are part of the TC, including all supplemental type certificates (STCs), applicable airworthiness directives (AD), and field-approved alterations incorporated into the product; and

(2) The aircraft must be in a condition for safe operation.

d. 14 CFR 21.183 Issue of standard airworthiness certificates for normal, utility, acrobatic, commuter, and transport category aircraft; manned free balloons; and special classes of aircraft. In this section, the regulations make reference to conformity to type design (as opposed to TC). The TCDS contains approved data that is derived from the type design that is essential for determining airworthiness. To help in determining and maintaining the product's airworthiness, the FAA also includes critical recommended, acceptable or reference data in the TCDS. In these cases, the data should be stated as such.

e. Regulatory Authority of the Notes Section in the TCDS.

(1) In accordance with Order 8110.4, the TCDS is an FAA document that records the type certification data of a product (e.g., control surface movement limits, and operating limitations, placards, weight and balance, etc.) that may also be available in the AFM, RFM, or maintenance manual. 14 CFR 21.41 is the regulatory authority behind the TCDS. This rule defines the TCDS as having the same regulatory status as the type design, the operating limitations and the regulations applicable to the product.

(2) The regulations do not segregate the TCDS to a main section and a notes section. For clarification purpose, the FAA has elected to make the distinction on the TCDS in order to standardize the presentation of data. This formatting does not imply that the regulatory status of the notes section is less important than the main section of the TCDS.

6. Supplemental Instructions to Order 8110.4.

a. General.

(1) When preparing a note in the TCDS, you are providing certification data or information with which the associated product must comply in order to maintain its airworthiness certification.

(2) All requirements in the notes must be corroborated by a regulation or substantiated by test data, computation or common industry standards. Optional or recommended data should be clearly stated as such. For example:

*“**Recommended** maintenance inspection intervals are published in GE Maintenance Manual SEI-580 for CF34-1A/-3A/-3A2, GE Engine Manual SEI-756 for CF34-3A1/-3B1 and GE Service Manual SEI-780 for CF34-3A1/-3B.”*

(3) Include applicable explanatory material with the item to which the note refers. If it is impractical to include the explanatory material with its applicable item because of its length or complexity, the information may be included in a separate note. In this case, the applicable items would include a cross reference to the note. For example:

*“Model F-28A, F-28C, F-28F, 280C, 280F, and 280FX Helicopters are eligible for installation of a cargo hook in accordance with Enstrom drawing 28-22000 for the transportation of external cargo. . . **See NOTE 6** for portions of Part 6 of the Civil Air Regulations considered inappropriate for restricted category operations at gross weights between 2,350 and 2,600lbs.”*

(4) When referring to a note, explain what the note discusses. The following note is an example of a cross-reference inserted after the fuel capacity, for example:

“See NOTE 1 for data on weight and balance.”

(5) Use extreme care in choosing the language in a note. Many difficulties have arisen in the past because of misinterpreted notes. Examine material carefully to ensure that the meaning is unmistakable. For example:

“Note 5: Major structural repairs must be accomplished in accordance with FAA approved Cirrus Design repair methods or other methods approved by the FAA.”

The intent of this note is to say major repairs must be accomplished in accordance with the Cirrus repair methods (normally a structural repair manual). But a reader could interpret this as a general reminder that major repairs must be accomplished by methods approved by the FAA, whether they are Cirrus repair methods or not. This note would be clearer to read:

Note 5: Major structural repairs must be accomplished in accordance with ~~FAA approved Cirrus Design repair methods~~ structural repair manual number XXXX (or Title of the Manual, repair method) or other methods approved by the FAA.

In this note, the word “**FAA approved**” in front of “...Cirrus Design repair methods” is unnecessary as long as the repair methods cited in this TCDS become approved data. The

TCDS includes essential data applicable to a specific product, the identification of the data such as the manual number or the title of the document must be stated.

(6) Do not include requirement that is non-regulatory in the notes. For example: *“This aircraft shall be maintained in accordance with the BHT-427 Maintenance manual.”* This note implies that BHT-427 is the only source for maintaining the aircraft, and conflicts with 14 CFR 43.13(a) which states *“Each person performing maintenance . . . shall use methods . . . or other methods acceptable to the administrator.”*

(7) Avoid unnecessarily repeating general FAA procedures in the note. General regulatory requirements covered by the type certification process do not have to be repeated in notes. For example:

“Any change to the type design of this helicopter by means of an amended type certificate (ATC), supplemental type certificate (STC), or amended STC, requiring instructions for continued airworthiness (ICA’s) must be submitted through the project aircraft certification office (ACO).”

This note is unnecessary. Because it is only a reminder for a change in type design general procedure; it is not data specific to a particular product.

(8) Avoid notes that can be interpreted as FAA general policy. For example:

“Reuse of parts and assemblies that have been involved in an accident is not permitted unless approved by FAA Engineering.”

(9) Do not include marketing information in the note of the TCDS. For example: Do not write:

*“Model F-28C, 280C, F-28F, 280F, and 280FX helicopters are eligible for the installation of **Air Cruiser** inflatable floats, P/N D-24780 in accordance with Enstrom drawing 28-17326.”*

“Air Cruiser” is a trade name of one company that manufactures the inflatable floats. Remove this trade name from the Note. The materials and method of the float installation are included in Enstrom drawing number 28-17326.

Revise the sentence to read:

“Model F-28C, 280C, F-28F, 280F, and 280FX helicopters are eligible for the installation of inflatable floats in accordance with Enstrom drawing 28-17326.”

(10) For a note related to material in general, only refer to the material name, type, industrial or governmental specifications. Avoid referring to a specific brand name if possible. For example:

“Anti-icing additives, conforming to AIR 3652 of MIL-I 27686 D or E (JP-4/JP-8) or to MIL-I85470 (JP-5) or equivalent are approved for use in the fuel in amounts up to 0.15 % by volume.”

(11) If a specific brand name material needs to be listed, then you must state that an equivalent material is also may be approved. For example:

“SOHIO BIOBOR JF biocide additive is approved for use in fuel at a concentration not exceeding 270 PPM. Use of other, equivalent material, may be approved by the FAA.”

b. Standardization of Notes in TCDS for Aircraft.

(1) Reserve NOTE 1 for the “weight and balance note” as required by 14 CFR 23.23, 23.25, 23.29, 23.31, 25.23, 25.25, 25.27, 25.29, 25.31, 27.25, 27.27, 27.29, 27.31, 29.25, 29.27, 29.29, or 29.31 as applicable. Use this note for weight and balance data, equipment lists, and loading instructions. It is standardized, except for special considerations about weight and balance. An example of a special consideration is information on unusable fuel, system fuel and oil, variations in center of gravity (C.G.) ranges, or removable ballast. The standardized part of this note follows:

“A current weight and balance report, including a list of equipment included in the certificated empty weight and loading instructions when necessary, must be provided for each aircraft at the time of original certification. This is in accordance with 14 CFR xx.xx.”

(2) Reserve NOTE 2 for information pertaining to the required placards. Include the following statement:

“All placards required by either FAA Approved Airplane Flight Manual, the applicable operating rules, or the Certification Basis must be installed in the airplane”.

Make reference to the appropriate regulation, as applicable (for example, 14 CFR 91.9, 23.1541 thru 23.1567, 25.1541 thru 25.1563, 27.1541 thru 27.1565, and 29.1541 thru 29.1565).

If the airplane was certified prior to the requirement for an AFM or RFM and does not have an AFM or RFM with placards, then list the placards that were required by the aircraft’s

certification basis in NOTE 2. The listing should contain both the wording of the placard and the placard's location.”

(3) Reserve NOTE 3 for reference to the Instructions for Continued Airworthiness (ICA).

(a) The note related to ICA (see 14 CFR 23.1529, 25.1529, 25.1729, 27.1529, 29.1529) should address the methodology; avoid referring to a specific facility or company. Avoid language promoting a TC holder or their suppliers as the sole source for maintenance or overhaul.

(b) It is contrary to 14 CFR parts 43 and 21 to include a note that all repairs or modification schemes must be approved by the TC holder prior to FAA approval.

(c) For import products only, add a statement in NOTE 3 to reflect how service information will be handled, including a reference to where the service information can be found (manual service document, service bulletin.) Do not reference a specific facility or company.

c. Standardization of Notes in TCDS for Engines.

(1) Due to differences in certification data between aircraft and engines, Order 8110.4 allows the data and notes to be arranged differently for engines.

(2) Basic Data (Notes Section). The basic data that needs to be included in the form of notes can vary considerably between model, series or manufacturers. However, try to uniformly assign notes that are generally common to most engines. Other notes and content may be structured according to the data that needs to be presented for a given engine model. Figure 1 contains typical engine TCDS notes.

Figure 1. Typical Notes Applicable to Engines

Notes Applicable to All Engines

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| Note 1. | <p>Engine ratings are based on a calibrated test stand, under the conditions specified by the engine TC holder. For example:</p> <ol style="list-style-type: none"> (1) Sea level static standard day conditions. (2) No customer bleed or customer power extraction. (3) Inlet and exhaust configurations as specified; or ideal (no losses). (4) Fuel specification or heating value. (5) Relative humidity. (6) No internal anti-ice bleed (turbine engines). (7) Tractor or pusher installation (reciprocating engines). |
| Note 2. | <p>Maximum or minimum permissible temperatures or temperature limits.</p> <p>For turbine engines:</p> <ol style="list-style-type: none"> 1. Turbine inlet, interstage, or exhaust gas, as applicable. <ol style="list-style-type: none"> 1.1. Takeoff (five minutes) and maximum continuous. 1.2. Maximum transient for acceleration. 1.3. Maximum transient for starting. 2. Over temperature limits if applicable. 3. Other temperature limits as applicable (e.g., ambient, external component). <p>For reciprocating engines:</p> <ol style="list-style-type: none"> (1) Maximum cylinder head temperature at rated power. (2) Maximum exhaust gas or turbine inlet temperature for turbocharged engines at rated power. (3) Maximum oil inlet temperature. (4) Other temperature limits as applicable (e.g., ambient, external component). |
| Note 3. | Fuel inlet and oil pressure limits (minimum and maximum). |
| Note 4. | Describe accessory drive and mounting provisions. Data should include such items as drive identification, direction of rotation, speed ratio, maximum power extraction and torque, overhang moment, etc., in table format for mounted accessories. Example accessories are: starter, generator, alternator, tachometer, propeller governor, and hydraulic pump. Customer-supplied and engine type design accessories should be so noted. |
| Note 5. | Model description; list differences, similarities and special characteristics for each model relative to the base model. |
| Note 6. | List accessories, components or system assemblies that are provided as part of the engine type design, but have traditionally been approved at the installation level, and that may have specific aircraft level requirements to meet. |
| Note 7. | List accessories, components or system assemblies that are not part of the engine type design, but have been shown to be compatible with the engine model under its certification basis. |
| Note 8. | Special anti-icing or de-icing requirements. |
| Note 9. | Engine mount system provisions. |
| Note 10. | Describe power boost, injection or augmentation systems and limits as applicable. |
| Note 11. | Special installation requirements (e.g., inlet foreign object protection, lightning protection, electromagnetic interference (EMI), thrust reverser installation, icing protection, criticality level of software, part 34 emissions standards, extended operations (ETOPS) eligibility, time limited dispatch limitations (TLD), exhaust gas temperature (EGT) shunting, tractor/pusher installations, specific aircraft installation eligibility, etc.) as applicable. |

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| Note 12. | Manufacturer's service bulletins or other instructions covering matters of special interest. Carefully use language to avoid promoting TC holder monopoly. Cite relevant regulation to support FAA approval of the service bulletin or instruction. |
| Note 13. | Special operating procedures or limitations (e.g., periodic run-up or minimum idle in icing conditions; time limit for negative-g operation; 10 minute use of takeoff rating for engine inoperative condition, etc.). |
| Note 14. | Special repair or overhaul limitations, if any. |
| Note 15. | Identify applicable installation, maintenance and overhaul manuals. |
| Note 16. | Import requirements statement for foreign manufactured engines. |
| Note 17. | Identify document(s) listing life limited part information. |
| Note 18. | Military model information (difference from civil aviation model). |

Additional Notes Applicable to Turbine Engines

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| Note 19. | Maximum permissible main rotor and output shaft speeds. |
| Note 20. | Maximum allowable output/propeller shaft torque limit at torque meter/sensor. |
| Note 21. | Describe bleed air extraction provisions and maximum permissible bleed air extraction and related operating conditions. |
| Note 22. | Rotor disk integrity and rotor blade containment (where special requirements apply). |

Additional Notes Applicable to Reciprocating Engines

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| Note 19. | Horizontal or vertical installation (rotorcraft). |
| Note 20. | Center of gravity tabulation (if not shown in body of TCDS). |
| Note 21. | Vibration damper provision limitations. |

7. Implementation.

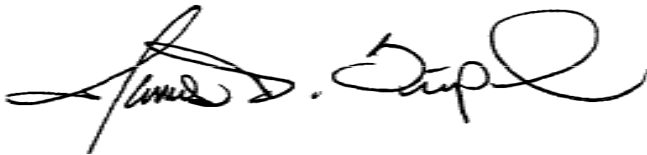
a. Instructions in this notice are applicable to new or revised TCDS published 60 days from the effective date identified on page 1 of this notice. All AIR certificate management offices responsible for developing new or revising existing TCDS's (i.e., ACO, Aviation Safety Oversight Offices, and directorates) will follow these instructions. In addition, the following will be accomplished to address problems with existing TCDS notes:

b. When encountering a suspected improper written note in the TCDS, AFS inspectors or offices may submit to the responsible certificate management office a request to revise the TCDS suspected of containing improper note(s) or errors. The certificate management office will evaluate the request and respond to the requester, within 30 days regarding any action to be taken.

(1) If the request for change is not substantiated and the notes in the TCDS are determined appropriate, the responsible office will provide an explanation to the submitter.

(2) If the certificate management office confirms that the TCDS note(s) are in conflict with any regulation, they will revise the TCDS. A plan to correct the conflict must be completed within 90 days from the date that the request for change was received.

(3) If the certificate management office concludes that the TCDS note(s) do not conflict with any regulation, but are determined to be ambiguous, subject to interpretation or contain format errors, they may be revised on a schedule acceptable to the certificate management office, which may include at time of next revision.



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