



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

**ORDER
8110.121**

National Policy

Effective Date:
10/15/2015

SUBJ: Type Certificate Data Sheet (TCDS) Notes

1. Purpose. This order clarifies the purpose and authority of the notes used in a TCDS and provides additional guidance and instruction for Aircraft Certification Offices (ACOs), directorate staffs, and oversight offices in the preparation of TCDS notes. It also explains the importance of a TCDS and its notes, and provides detailed instructions to assist directorates and ACOs in the preparation of correctly written TCDS notes. Responsible offices can also use the instructions in this order to correct existing errors in a TCDS.

a. This order does not change any policy established by Federal Aviation Administration (FAA) Order 8110.4, *Type Certification*, or other orders. This order addresses the writing of notes in a TCDS. It provides guidance to ensure that these notes do not conflict with regulations and avoid confusion and ambiguity.

b. This order provides additional instructions for Aircraft Certification Service (AIR) aviation safety engineers (ASEs) on how to write TCDS notes when preparing a TCDS. Flight Standards Service (AFS) aviation safety inspectors (ASIs) should refer to FAA Order 8620.2 for instructions related to applicability and enforcement of manufacturers' data.

2. Audience. The primary audience is all ASEs in AIR, and the secondary audience is all ASIs in AFS, flight test pilots, and FAA Academy instructors.

3. Where to Find This Order. You can find this order on the MyFAA Employee website at https://employees.faa.gov/tools_resources/orders_notices, and on the Regulatory and Guidance Library (RGL) website at <http://rgl.faa.gov>.

4. Compliance Date. This order is effective when signed. All ACOs, including FAA offices that manage type certificate (TC) holders, such as directorate staffs and oversight offices, must implement the procedures contained in this order as of the effective date. Compliance with this order is required for any new TCDS or any TCDS being revised after the effective date of this order. This order will be incorporated into the next revision of FAA Order 8110.4.

5. Background.

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

b. Problem.

(1) Several current TCDS notes are written incorrectly. Misinterpretation of the regulatory values in a TCDS, its notes, and FAA Order 8110.4's instructions may contribute to errors in the TCDS. For example, a common misinterpretation is that a TCDS specifies regulatory requirements only in the main body, and that the notes are intended to contain reminders and information for convenience.

(2) Some TCDS notes are poorly written and contradict the regulations. For example, notes have specified that all repairs must be approved by the TC holder, which contradicts 14 CFR parts 43 and 21. This inconsistency has led FAA personnel to incorrectly assume that the notes section is not regulatory in nature. This order clarifies that the entire TCDS, including the notes section, is regulatory. This order also clarifies that certain notes should not be included in a TCDS, such as general reminders that are not specific to any particular product models included in the TCDS.

c. Issuance of Airworthiness Certificate. The aircraft must meet two conditions to receive an airworthiness certificate, as defined in Title 49 of the United States Code (49 U.S.C.) 44704(d):

(1) The 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 (STC), applicable airworthiness directives, and field-approved alterations incorporated into the product.

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

d. Conformity to Type Design.

(1) The existing TCDS notes often contain references to FAA-approved data, FAA-accepted data, or reference data that is derived from the type design. This data may be essential for determining airworthiness pursuant to 14 CFR 21.183(h)(1).

(2) FAA-approved data includes the airworthiness limitations that may be a part of the instructions for continued airworthiness (ICA) or contained in aircraft flight manuals or aircraft flight manual supplements. FAA-accepted data includes maintenance manuals, which are considered to be ICA that are not approved. FAA airworthiness standards have required ICA for new design approvals since October 14, 1980 (amendments 23-26, 25-54, 27-18, 29-20, 31-82, 33-9, and 35-5). Also additional, retroactive ICA requirements have been imposed for certain types of aircraft in specific kinds of operations (such as large transport airplanes in air carrier operations). We do not use the original certification basis to determine if ICA are required. Instead, we use the date of the application for design approval. TCDS developed before the requirement for ICA may contain information that is critical for maintaining the airworthiness of the product but not necessarily considered FAA-approved data under today's standard.

(3) It is necessary, when revising TCDS under the provisions of this order, to clarify the importance of TCDS notes on the continued airworthiness of the product. Therefore, new or newly revised TCDS notes must be identified as critical, recommended, acceptable, or reference data.

e. Importance of the TCDS in Airworthiness Certification. 49 U.S.C. 44704(d) and 14 CFR 21.183(h)(1) require that an aircraft must conform to its TC or its type design to receive an airworthiness certificate. The FAA-certified data in the TCDS, including the note section, are the basis for the airworthiness certification process.

f. Regulatory Authority of the TCDS Notes Section.

(1) 14 CFR 21.41 is the regulatory authority that governs TCDS notes. A TCDS is an FAA document that records the type certification data of a product (such as control surface movement limits, operating limitations, placards, and weight and balance) that may also be available in the flight manual or maintenance manual in accordance with FAA Order 8110.4. The TCDS has the same regulatory status as the type design, operating limitations, and regulations applicable to the product.

(2) 14 CFR 21.41 does not separate a TCDS into a main section and a notes section. However, for clarification purposes and to standardize the presentation of data, the FAA has elected to separate the TCDS into a main section and a notes section. This clarified 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 FAA Order 8110.4.

a. General.

(1) When you are preparing a note in a TCDS, you are providing certification data or information with which the associated product may have to comply to maintain its airworthiness certification. Be very careful when you use any word that implies a mandatory requirement.

(2) Any note that is mandatory or dictates a course of action must be supported by, and consistent with, FAA regulations. Optional, acceptable, or recommended data should be clearly identified 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 with a cross-reference. 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 2,600 lbs.”

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

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

(5) Use extreme care in choosing the language in a note.

(a) Issues have arisen in the past due to misinterpreted notes. Examine material carefully to ensure the meaning is clearly defined. The following is an example of an unclear note:

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

(b) In the example above, the note’s meaning is not clear. The note intends to convey that major repairs must be accomplished in accordance with the Cirrus repair methods (normally a structural repair manual). However, the reader could interpret this note as a general reminder that major repairs must be accomplished by methods approved by the FAA, whether they are Cirrus repair methods or not. To clearly define the note, it should be written as follows:

“Note 5: Major structural repairs must be accomplished in accordance with Cirrus structural repair manual number XXXX (or [Title of the Manual] repair method) or other methods approved or accepted by the FAA.”

(c) The words “FAA-approved” in front of “Cirrus Design repair methods” are not needed because the repair methods cited in this TCDS become approved data. A 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 the non-regulatory requirements in the notes.

(a) For example:

“This aircraft shall be maintained in accordance with the BHT-427 maintenance manual.”

(b) In the example above, 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 the methods . . . or other methods . . . acceptable to the Administrator.” This note may be corrected by revising it to read as follows:

“This aircraft shall be maintained in accordance with the BHT-427 maintenance manual, or other methods approved or accepted by the FAA.”

(7) Avoid repeating general FAA procedures in the notes.

(a) General regulatory requirements that are covered by the type certification process do not have to be repeated in the notes. For example:

“Any change to the type design of this helicopter by means of an amended type certificate (TC), supplemental type certificate (STC), or amended STC, requiring instructions for continued airworthiness (ICA) must be submitted through the project Aircraft Certification Office (ACO).”

(b) In the example above, this note is unnecessary. It is merely 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 notes.

(a) The following is an example of an incorrect note:

*“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.”*

(b) “Air Cruiser” is a trade name of one company that manufactures the inflatable floats. Do not include the trade name in the note. The materials and method of the float installation are included in Enstrom drawing number 28-17326.

(c) The following is an example of a correct note:

“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, and 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, you must state that an equivalent material may also 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.” Use this note for weight and balance data, equipment lists, and loading instructions. This note is standardized, except for special considerations about weight and balance (such as information on unusable fuel, system fuel and oil, variations in center of gravity ranges, or removable ballast). The standardized part of this note is as 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 requirement is in accordance with 14 CFR xx.xx.”

(2) Reserve Note 2 for information pertaining to the required placards.

(a) Include the following statement:

“All placards required by either the FAA-approved [Aircraft] Flight Manual, the applicable operating rules, or the certification basis must be installed as specified.”

(b) Make reference to the appropriate regulation, as applicable.

(c) If the aircraft was certified before the requirement for a flight manual and does not have a flight manual with placards, list the placards that were required by the aircraft’s certification basis in Note 2. The listing should contain both the exact language of the placard and the placard’s location.

(3) Reserve Note 3 for reference to the ICA.

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

(b) It is contrary to 14 CFR parts 43 and 21 to include a note stating that all repairs or modification schemes must be approved by the TC holder before 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 (such as in a manual service document or 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, FAA 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 manufacturer. 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 below contains typical engine TCDS notes.

Figure 1. Typical Notes Applicable to Engines

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 (5 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.

Figure 1. Typical Notes Applicable to Engines (continued)

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) as applicable.
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).
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

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

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 order are applicable to new TCDS or TCDS undergoing revision and published on or after the effective date identified in paragraph 4 of this order. All AIR Certificate Management Offices (CMOs) responsible for developing new or revising existing TCDS (that is, ACOs, Aviation Safety Oversight Offices, and directorates) must follow these instructions.

b. In addition, when encountering what is suspected to be an improperly written note in a TCDS, ASIs in AFS, or anyone following the guidance contained in this order, may submit to the responsible CMO a request to revise the TCDS. The CMO will evaluate the request and respond to the requester no later than 90 days regarding any action to be taken.

(1) If the CMO deems the request for change to be unsubstantiated, and determines that the notes in the TCDS are appropriate, it will provide an explanation to the submitter.

(2) If the CMO confirms that the TCDS notes *conflict* with any regulation or guidance contained in this order, it will revise the TCDS. A plan to correct the conflict must be completed no later than 120 days from the date that the request for change was received.

(3) If the CMO concludes that the TCDS notes *do not conflict* with any regulation or guidance contained in this order, but are ambiguous, subject to interpretation, or contain format errors, the notes may be revised on a schedule acceptable to the CMO, and the revised notes may be included in the TCDS at the time of the next revision.



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Acting Manager, Design, Manufacturing, &
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Appendix A. Acronyms

14 CFR	Title 14 of the Code of Federal Regulations
49 U.S.C.	Title 49 of the United States Code
ACO	Aircraft Certification Office
AFS	Flight Standards Service
AIR	Aircraft Certification Service
AIR-100	Design, Manufacturing, & Airworthiness Division
ASE	Aviation Safety Engineer
ASI	Aviation Safety Inspector
ATC	Amended Type Certificate
CMO	Certificate Management Office
FAA	Federal Aviation Administration
ICA	Instructions for Continued Airworthiness
STC	Supplemental Type Certificate
TC	Type Certificate
TCDS	Type Certificate Data Sheet

Appendix B. Administrative Information

1. Distribution. This order is distributed to all AIR headquarters offices and directorates, all ACOs, all Manufacturing Inspection Offices, all Manufacturing Inspection District Offices, all Manufacturing Inspection Satellite Offices, all CMOs, all Flight Standards District Offices, and the Aircraft Certification Branch at the FAA Academy.

2. Background. The guidance in this order originated from Notice N8110.116, *Notes in Type Certificate Data Sheets (TCDS)*. The information in this order will be incorporated in the next revision of FAA Order 8110.4.

3. Delegation of Authority. The Design, Manufacturing, & Airworthiness Division (AIR-100) is responsible for issuing, revising, or cancelling the material in this order.

4. Deviations. Adherence to the procedures in this order is necessary for uniform administration of this directive material. AIR-100 must approve any deviations from this guidance material. If a deviation becomes necessary, the FAA employee involved must ensure that the deviations are substantiated and documented and must get their supervisor's concurrence. The deviation must be submitted to AIR-100 for review and approval. Title 28 of the United States Code (28 U.S.C.) 2679 defines the limits of Federal protection for FAA employees.

5. Suggestions for Improvement.

a. Please forward all comments on deficiencies, clarifications, or improvements regarding this order to:

Aircraft Certification Service
Administrative Services Branch, AIR-510
ATTN: Directives Management Officer
800 Independence Avenue, S.W.
Washington, DC 20591

b. FAA Form 1320-19, Directive Feedback Information, is located in appendix C of this order for your convenience. If you require an immediate interpretation, please contact AIR-100 at 9-AWA-AVS-AIR100-Coord/AWA/FAA; however, you should also complete FAA Form 1320-19 as a followup to the conversation.

6. Records Management. Refer to FAA Order 0000.1, *FAA Standard Subject Classification System*; FAA Order 1350.14, *Records Management*; or your office Records Management Officer (RMO)/Directives Management Officer (DMO) for guidance regarding the retention or disposition of records.

Appendix C. FAA Form 1320-19, Directive Feedback Information



U.S. Department
of Transportation
**Federal Aviation
Administration**

Directive Feedback Information

Please submit any written comments or recommendations for improving this directive, or suggest new items or subjects to be added to it. Also, if you find an error, please tell us about it.

Subject: FAA Order 8110.116

To: Directives Management Officer at 9-AWA-AVS-AIR-DMO@faa.gov

(Please check all appropriate line items)

- An error (procedural or typographical) has been noted in paragraph _____ on page _____.
- Recommend paragraph _____ on page _____ be changed as follows:
(attach separate sheet if necessary)
- In a future change to this directive, please include coverage on the following subject
(briefly describe what you want added):

Other comments:

I would like to discuss the above. Please contact me.

Submitted by: _____ Date: _____

FTS Telephone Number: _____ Routing Symbol: _____

FAA Form 1320-19 (10-98)