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JCAB Circular No. 1-314

Director, Airworthiness Division
Aviation Safety and Security Department
Japan Civil Aviation Bureau
Ministry of Land, Infrastructure, Transport
and Tourism

Subject: Guidelines on the Preparation of Type Certificate Data Sheets

1. Purpose

This circular provides the guidance on the development of type certificates data sheets (hereinafter referred to as “TCDS”) for type certified aircraft in Japan.

2. Definition

The TCDS is the part of the Type Certification (TC) which documents the conditions necessary to meet the airworthiness and environmental requirements as specified in the Civil Aeronautics Regulations (Ministry of Transport Ordinance No. 56 of 1952) Annex 1, 2 and 3.

3. Submission of TCDS and Associated Documents

The applicant is required to submit to Japan Civil Aviation Bureau (JCAB) a copy of draft TCDS in Japanese as well as in English, accompanied by the aircraft specifications and the relevant chapters of the aircraft flight manual, etc. that support the each entry of the TCDS, prior to the final type certification board meeting or the issuance of the integrated statement of compliance, whichever comes first. It is preferable that the drafts be submitted in electronic files (Word documents).

4. Format of TCDS

The paper size of the TCDS is A4 defined in JIS (Japan Industrial Standards), formatted 40 characters (equivalent to 80 characters in English) by 40 lines in portrait orientation, and with suitable margins on both sides to facilitate binding. The specific format of TCDS to provide the certified aircraft type data is shown below. In this regard, see the format samples in the appendices to keep the uniformity of TCDS (Appendix-I and Appendix-II).

(translated on April 23, 2021)

(1) TCDS title box

As the heading of the TCDS, provide a TCDS title box as specified below in the upper right-hand corner of page 1 of the TCDS (see Appendix-I and Appendix-II for details).

- TCDS title box -

(i) TCDS number (which is identical with the TC number)
(ii) TCDS revision number
(iii) The name of the person or organization of TC holder
(iv) All of the approved models (in ascending order)
(v) TCDS issue date

(2) Revision box

Provide a revision box that shows the revision status of the TCDS at the bottom of the first page (see Appendix-I and Appendix-II for details)

- Revision box (Japanese) -

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- Revision box (English) -

Page No.	1	2	3	4
Rev. No.	4	1	4	—

(3) Title

Provide the title of the TCDS in the center of the first page (see Appendix-I and Appendix-II for details).

[Example]

Japanese: 「型式証明データシート第〇〇号」

English: “TYPE CERTIFICATE DATA SHEET NO. 〇〇”

(4) The name of the person or organization of applicant and residential address or address of principal office

The information should agree exactly with that shown on the application for TC.

(5) Type certificate holder record

Provide a history of the holder of the type certificate, covering the original holder and any subsequent holders.

[Example]

Japanese: 1999/1/1 型式証明第〇〇号は、□□□社から△△△社に譲渡された。

English: □□□ Corporation transferred TC 〇〇 to △△△ Corporation on January 1, 1999.

(6) Model and airworthiness category

Include the model, airworthiness category and date of approval as they appear on the type certificate (see Appendix-I and Appendix-II for details).

[Example]

Japanese: ○○○式□□□型 (飛行機輸送T類) 昭和 49 年 6 月 19 日

English: Model □□□ (Transport Category Airplane), approved June 19, 1974

(7) Variant models

In including the variant models developed by changing the original model design in the TCDS, clearly state the suitability of each new model (variant model) under its heading by describing the differences from the previous models.

5. Information Required for Each Model Aircraft

Each of the items listed herein appear in the TCDS exactly as entitled. Where several models are included under the same TC, items are repeated under each section with the exception of the mean aerodynamic chord and control surface movements, etc., which, if common to all models, may be listed under "Data Pertinent to All Models." Detailed information for each item may be referenced if that information is maintained in a document (e.g. aircraft flight manual) approved by the Minister of Land, Infrastructure, Transport and Tourism or JCAB.

(1) Engine

Show the name of the manufacturer, the Type Approval (TA) number, and the complete model designation for all engines which are approved to install. Show the number of installed engines, if two or more engines are installed.

(2) Fuel

Show the minimum fuel grade to be used, and list approved alternate fuels for engines which are approved to use. Include the minimum fuel grade and list approved alternate fuels where optional engines are included.

(3) Engine Limits

Show the maximum continuous and takeoff limits of the installed engine(s) (e.g., fuel manifold pressure, EPR (engine pressure ratio), r.p.m. and power or thrust output.) The limits may be less than, but must never exceed, the approved rating for that engine. Any reduction may be dictated by other aircraft requirements. In the case of altitude engines, i.e., supercharged engines, the limits for sea level and for maximum operating altitude

should be also included. If the limits change with altitude, include a statement regarding variation between altitudes.

(4) Propeller and Propeller Limits

Show the name of the manufacturer, the JCAB TA number, TC or TC equivalent certification number in the state of propeller manufacture and the model designation for each propeller which the manufacturer has obtained approval together with the propeller limits and any operating restrictions peculiar to the propeller or propeller-engine combination.

- (i) Show the static r.p.m. limits and diameter limits for fixed-pitch propellers. If the Type Inspection Record (TIR) indicates in a given case that the r.p.m. limits are 2200-2350, the TCDS indicates as follows: "Static r.p.m. at permissible throttle setting, not over 2350, not under 2200. No additional tolerance permitted."
- (ii) Show the diameter limits and blade angle settings (feathering, high, low, and reverse, as applicable) for adjustable, two-position, controllable, and automatic propellers. The applicable static r.p.m. limits (with tolerances) may also be shown if considered desirable. The diameter limits should include both the maximum and minimum allowable limits for repairs with the notation: "No further reduction permitted."
- (iii) Additional information is required in certain circumstances such as:
 - (a) The model designation of both the hub and the blades when propeller blades are not an integral part of the hub.
 - (b) When interchangeable blades are approved, include the listing of other eligible blades. (Reference may be made to a separate list.)
 - (c) The reference blade station at which the angle is measured for propellers. This enables the blade angle setting to be varied.

(5) Rotor Speed Limits

Include helicopter rotor speed limitations, power on and power off.

(6) Transmission Torque Limits

Include helicopter transmission torque limits.

(7) Airspeed Limits

Show all pertinent airspeed limits in km/h. If knot values are obvious, they may be shown in brackets. Include information to indicate whether the airspeed limits are indicated or calibrated airspeeds. The terminology for each speed is the same as that used in the

Airworthiness Inspection Manual under which the aircraft is type certificated.

(8) Center of Gravity (C.G.) Range

The C.G. ranges approved are given as forward and aft limits in mm (rounded to one decimal place) from the datum. If inch values are obvious, they may be shown in brackets. Where the landing gear is retractable, values should be given in terms of landing gear extended and a statement added to that effect. Include the moment change in kg-m (the corresponding inch-lbs values may be shown in brackets) due to the retracting of the landing gear. No specific standard for presentation can be set in the case of aircraft where the C.G. limits vary with loaded weight.

(9) Empty Weight C.G. Range

If an empty weight C.G. range exists, include it in the same manner as (8). If no range exists, the condition is indicated by inserting the word "none" after the heading. Include a full explanation when the C.G. range is affected by items of equipment. Include the following statement, with the wording modified to suit the individual case, where an empty weight C.G. range is established.

Example: "When the empty weight C.G. falls within the range given, complete computations of critical forward and aft C.G. positions are unnecessary. Range is not valid for nonstandard arrangements."

(10) Datum

The datum, designated by the applicant, is a definite, unmistakable, and unchangeable point. It is defined in such a manner that it may be readily identified.

(11) Leveling Means

Include the description of the means provided for leveling the aircraft with information for location and accessibility of a leveling point. The leveling point is always a definite, unmistakable, and unchangeable point.

(12) Maximum Weights

Include all pertinent maximum weights such as ramp, landing, takeoff, zero fuel (must show if fuselage fuel is included as part of zero fuel weight), zero oil gross weights. Include engine out ferrying operation weight, if available. If the explanatory material appears cumbersome, it may be included in a note which is cross-referenced under the item.

(13) Minimum Crew

Include the minimum crew required for normal operation when established under the TC.
Identify pilot-in-command station location.

(14) Number of Seats

The following are some of the design considerations which may limit the number of seats:

- (a) The passenger capacity of transport category aircraft may be limited by either the emergency exit requirements, oxygen requirements (when applicable, i.e., above 25,000 ft.), or the structural strength of the floor. Other considerations may also be applicable. For example, cabin attendants are not included in the maximum number of passengers.
- (b) Indicate the number of seats and the moment arms of the seats for aircraft other than transport category. The seat moment arms are ordinarily those of the occupants of the seats rather than the seats. The occupant's C.G. may be assumed at a point 215.9 mm (8.5 inches) forward and 266.7mm (10.5 inches) above the intersection of the seat back and the seat bottom with the upholstery compressed approximately the same as when the seat is occupied. Ordinarily, the moment arms of adjustable seats are given for the mean or average location, but where the C.G. range is critical, the extreme positions may be defined.
- (c) Show the number of seats if the aircraft is approved for cargo only as: “無し。(貨物専用機).” When preparing TCDS in English, state “None. Approved for cargo only.”

(15) Maximum Baggage

Show the maximum capacity and moment arm of each baggage compartment, and list the floor loading densities, as appropriate.

(16) Fuel Capacity

Indicate the total capacity of each fuel tank installed in the aircraft and its moment arm. List the amount of usable and unusable fuel with a reference to see the appropriate Note for the requirement to add the unusable fuel to the certificated empty weight of the aircraft.

(17) Oil Capacity

Same considerations as fuel capacity in the preceding section.

(18) Maximum Operating Altitude

Include the maximum operating altitude, when appropriate.

(19) Control Surface Movements

Include the total travel in each direction of each movable control surface on the aircraft.

This information is included as a convenience to JCAB approved maintenance organizations, as well as JCAB and is not intended to prescribe control movements as an item of inspection unless a specific statement to that effect is included. Where the flight characteristics of the aircraft require close tolerance on the control movements, it is necessary to have a method of measuring the movements such that the individual using the information may make accurate measurement. In such cases, it is generally satisfactory to list the maximum movements in terms of mm (optionally with the corresponding inch value shown in brackets) from some well-defined point rather than in degrees. Specify the point of measurement when degrees are used. If the description of the maximum movement or the specified means of measuring control surface movement is too complicated to be included in the TCDS, a reference may be made to a JCAB accepted maintenance manual or JCAB approved drawing that specifies the maximum movement and method of measurement.

(20) Manufacturer's Serial Numbers

Include the manufacturer's serial numbers for each aircraft under a particular model. If the aircraft is being manufactured under more than one manufacturer, the serial numbers should be separated according to manufacturer.

(21) Import Requirements

For imported aircraft, describe the document used by the state of manufacture in certifying that the individual aircraft conforms to the Japanese requirements and is in a condition for safe operation.

(22) Certification Basis

- (a) Define the Civil Aeronautics Regulations Annex 1 with its revision date, as well as the Airworthiness Inspection Manual with its revision date and revision number thereof, as applied for TC. Furthermore, define any exemption, equivalent level of safety, special conditions as well as any special additional requirements set by JCAB, where applicable. When including variant models developed by changing the original model design, specify the certification basis on each model.
- (b) If the manufacturer has obtained a type certificate through an agent, include the name of the person or the organization and residential address or address of principal office of the agent.
- (c) Indicate where compliance with ditching provision and ice protection criteria for aircraft has been demonstrated.
- (d) Include whether any noise standards have been applied. If not, state "not applicable." Otherwise, include the chapter of Civil Aeronautics Regulations Annex 2 with its

revision date and number thereof as applied. When applying Civil Aeronautics Regulations Annex 2, a note should be added to state that the regulations applied are identical to the corresponding chapter of Annex 16 Volume I of the Convention on International Civil Aviation.

Example: Chapter 5 of Civil Aeronautics Regulations Annex 2 (Ministry of Transport Ordinance No. 67 as of October 1, 1997)

Note: The above standards are identical to the Chapter 8 of Annex 16 Volume I of the Convention on International Civil Aviation.

- (e) In the case of engine emissions (excluding carbon dioxide), include whether engine emission standards, i.e. fuel venting and gaseous emissions, have been applied. If no such standards have been applied, state “not applicable”. Otherwise, include the chapter of Civil Aeronautics Regulations Annex 3 with its revision date and number thereof as applied. When applying Civil Aeronautics Regulations Annex 3, a note should be added to state that the regulations applied are identical to the corresponding part of Annex 16 Volume II of the Convention on International Civil Aviation.

Example: Chapter 1 of Civil Aeronautics Regulations Annex 3 (Ministry of Transport Ordinance No. 24 as of April 1, 1997)

Note: The above standards are identical to Part 2 of Annex 16 Volume II of the Convention on International Civil Aviation.

- (f) In the case of engine emissions (limited to carbon dioxide), include whether CO₂ emission standards have been applied. If no such standards have been applied, state “not applicable”. Otherwise, include the chapter of Civil Aeronautics Regulations Annex 4 with its revision date and number thereof as applied. When applying Civil Aeronautics Regulations Annex 4, a note should be added to state that the regulations applied are identical to the corresponding part of Annex 16 Volume III of the Convention on International Civil Aviation.

Example: Civil Aeronautics Regulations Annex 4 (Ministry of Transport Ordinance No. 31 as of April 1, 2019)

Note: The above standards are identical to Part 2 of Annex 16 Volume III of the Convention on International Civil Aviation.

- (g) Include the TC number and date issued. (initial certification).

- (h) Include the date of application for the TC.

(23) Production Basis

When a manufacturer manufactures a type-certified aircraft based on a certificate specified in Article 20 Paragraph 1 Subparagraph 2 of the Civil Aeronautics Law or, in the case of a foreign aircraft, one based on a certificate granted by the state of manufacture,

mention that fact. If such a certificate has been cancelled, clearly indicate the period over which it was valid, along with the serial numbers of aircraft manufactured and completed the post-manufacturing inspection during the certification was valid.

If the aircraft is being manufactured under a licensee of the TC holder, the licensee's name should be listed along with the aircraft serial numbers produced by the licensee.

(24) Equipment

In the introduction to this chapter, use the following statement:

"The basic required equipment as prescribed in the applicable Civil Aeronautics Law or the Civil Aeronautics Regulations must be installed in the aircraft for certification." and include the items described below.

Do not list on the TCDS the optional items of equipment, except engines and propellers for which the aircraft manufacturer obtains approval. Similarly, equipment approved by anyone other than the TC holder must not be included.

- (i) Essential equipment
- (ii) Any additional equipment, special equipment and alternative equipment identified to be necessary for TC. Also include the parts lists (equipment lists) for each aircraft that have been submitted by the manufacturer.

(25) Notes

- (a) Avoid the overuse of notes whenever possible. Include pertinent explanatory material with the item to which it refers. If it is impractical to include the explanatory material with the item to which it refers because of its length or complexity, the information may be included in a separate note. In this case, the pertinent items would include a reference to the note.
- (b) Indicate the material which is found in the note when a note is referenced. An example of cross-reference would be the following notation inserted after the fuel capacity:
"See NOTE 1 for data on weight and balance."
- (c) With regard to weights and center of gravity locations, provide a detailed note containing information verified under TC.
- (d) If any required placard on the operating limitations is not listed in the aircraft flight manual, it should be listed in the note.
- (e) Include the note to refer to the Instructions for Continued Airworthiness for service life limits on components, required inspections and inspection intervals.
- (f) Information on special aircraft "X".
- (g) Any other information deemed necessary.

6. Revision of TCDS

(1) Triggers for revision

TCDS should be revised in any of the following cases:

- (i) The holder of the TC concerned obtains a type certificate for a valiant model aircraft which belong to an existing type model.
- (ii) The aircraft design of the type concerned undergoes a change (major change).
- (iii) A need for a revision arises due to a change in standards.
- (iv) The TC is transferred to someone else.
- (v) The holder of the TC applies for a revision.
- (vi) In cases where JCAB recognizes a need of a revision

(2) Revision procedure

The revision procedure should conform to sections 3 to 5 of this circular. In case where the TC holder changes, the new holder of the TC should prepare a draft revision.

(3) Other

Mark the revised parts of the text (lines) with a black vertical line drawn along the right-side margin.

7. Miscellaneous Provisions

Notwithstanding the provisions of this circular, TCDS may be handled in a different manner when the Director of the Aircraft Engineering and Certification Center found necessary.

Supplementary Provisions

1. This circular shall apply as of October 1, 2005.

Supplementary Provisions (June 30, 2011)

1. This circular shall apply as of July 1, 2011.

Supplementary Provision (June 28, 2019)

1. This circular shall apply as of July 1, 2019

Supplementary Provisions (December 13, 2019)

1. This circular shall apply as of December 13, 2019. However, if no CO₂ emission standards are applied, the provisions then in force shall remain applicable until December 31, 2019.

Any questions and opinions, etc. relating to this circular should be directed to the following:
Aircraft Engineering and Certification Center, Airworthiness Division, Aviation Safety and

Security Department, Japan Civil Aviation Bureau, Ministry of Land, Infrastructure, Transport
and Tourism

Nagoya Airport, Toyoba, Toyoyama, Nishi Kasugai, Aichi Prefecture 480-0202

TEL 0568-29-1985

FAX 0568-29-1990

Appendix-I (1/2)

TCDS Example Form (Japanese)

国土交通省
航空局

TCDS の番号
TCDS の改訂番号
型式証明を保有する者の氏名又は名称
承認を受けた型式名
TCDS の承認日

型式証明データシート第〇〇号

我が国の航空法及び同法施行規則の耐空性要件を満足するものとして、ここに型式証明第〇〇号の航空機に関するデータシートを発行する。

型式証明の所有者	氏名又は名称	〇〇〇社
	住所	〇〇〇

来歴（所有者）

1.〇〇〇式〇〇〇型（例．飛行機 輸送T類 平成〇〇年〇〇月〇〇 日承認）

- (1) 発動機
- (2) 燃料
- (3) 発動機限界
- (4) プロペラ及びプロペラ限界
- (5) 回転翼速度限界
- (6) トランスミッション・トルク限界
- (7) 対気速度限界
- (8) 重心位置範囲
- (9) 空虚重量時の重心位置範囲
- (10) 機軸基準位置
- (11) 水平基準位置

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- (12) 最大重量
- (13) 最小乗組員数
- (14) 座席数
- (15) 最大荷物搭載重量
- (16) 燃料容量
- (17) 滑油容量
- (18) 最大運用高度
- (19) 操舵範囲
- (20) 製造者の製造番号
- (21) 輸入要求事項
- (22) 型式証明基準
- (23) 製造基準
- (24) 装備品
- (25) 注記

- (12) Maximum Weights.
- (13) Minimum Crew.
- (14) Number of Seats.
- (15) Maximum Baggage.
- (16) Fuel Capacity.
- (17) Oil Capacity.
- (18) Maximum Operation Altitude. (When appropriate)
- (19) Control Surface Movements.
- (20) Manufacturer's Serial Numbers.
- (21) Import Requirements.
- (22) Certification Basis.
- (23) Production Basis.
- (24) Equipment.
- (25) Notes.