

## DATA ITEM DESCRIPTION

**Title:** User's Manual for Gas Turbine Engine Steady-State and Transient Performance Presentation for Digital Computer Programs

**Number:** DI-TMSS-81515C

**Approval Date:** 20150519

**AMSC Number:** F9546

**Limitation:** No

**DTIC Applicable:** No

**GIDEP Applicable:** No

**Preparing Activity:** 11

**Project Number:** TMSS-2015-005

**Applicable Forms:** N/A

**Use/relationship:** This Data Item Description (DID) provides the method for presentation of gas turbine engine calculated steady-state and transient performance using computer programs. It also provides for the presentation of parametric gas turbine data including performance, weight and dimensions computed by digital computer programs. The information is intended to facilitate calculations by the program user without unduly restricting the method of calculation used by the program supplier.

- a. This DID contains the format, content and intended use of information for the data resulting from the work task described in the Society of Automotive Engineers (SAE) Aerospace Standard 681 and SAE Aerospace Standard 755 (SAE documents can be obtained at <http://www.sae.org/>).
- b. This DID is related to DI-MSSM-81966, "Gas Turbine Engine Steady State and Transient Performance Presentations for Computer Programs" (DI-MSSM-81966 can be obtained at <http://quicksearch.dla.mil>).
- c. DI-TMSS-81515C supersedes DI-TMSS-81515B and DI-IPSC-81490.

### Requirements:

1. Reference Documents. The applicable issue of the documents cited herein, including their approval dates and dates of any applicable amendments, notices, and revisions, shall be as specified in the contract.
2. Format. Contractor format is acceptable.
3. Content. The User's Manual shall contain the information required by SAE Aerospace Standard 681. In addition, the User's Manual shall contain the following:
  - 3.1. A detailed explanation of the performance calculation process for each engine component, including an index of all subroutines in the model including explanations of their purpose, and identification of the function of each programming variable and array element, detailed explanations of the derivations of all empirical functions used in the model, and the rationale for all reference values used for normalized parameters.
  - 3.2. An identification of any limits on the values of input parameters.
  - 3.3. Accurate graphic component performance maps of the fans, compressors, turbines, and exhaust nozzles simulated in the model.
  - 3.4. A detailed description of the major engine control loops, the hierarchy of the loops, the control limits, and graphs of all engine control schedules represented in the model.

End of DI-TMSS-81515C

**DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.**