

INCH-POUND

A-A-59881

12 Jan 2011

## COMMERCIAL ITEM DESCRIPTION

## TESTER, EXHAUST GAS TEMPERATURE CIRCUIT

The General Services Administration has authorized the use of this commercial item description (CID), for all federal agencies.

1. Scope. This commercial item description (CID) covers the requirements for a portable, self contained tester that checks thermocouples, thermal switches, and continuous wire fire detection systems. The tester simulates operating conditions of the units under test (UUT).

## 2. SALIENT CHARACTERISTICS.

2.1 General. The exhaust gas temperature circuit tester (EGTCT) shall be a user-friendly unit capable of testing the correct operation of thermocouples, thermal switches and continuous wire fire and overheat detection loops. The tester shall be capable of simulating actual operating conditions by supplying a controlled heat to the thermocouples, thermal switches and fire loops. The tester shall be capable of heating probes to an operator controlled temperature and controlling the temperature of the probes using a temperature control function to National Institute of Standards and Testing traceable standards. The tester shall monitor probe temperature and thermocouple output characteristics in order to determine whether the thermocouple is defective. The tester shall test thermal switches by bringing switches to the control temperature and allowing the switch to actuate (open or close) depending on its normal operating position. The tester shall test fire loops by applying a controlled temperature to the loop and monitoring cockpit indications.

2.2 Physical characteristics. The EGTCT shall not weigh more than 50 pounds. The preferred configuration will have the main container the approximate size of commercial airline carry-on luggage. The nominal physical characteristics are:

LENGTH	9.700	INCHES NOMINAL
HEIGHT	14.000	INCHES NOMINAL
WIDTH	12.000	INCHES NOMINAL

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2.3 Measuring and indicating devices. All measuring and indicating devices shall have a degrees Fahrenheit (F) scale and degrees Celsius (C) for measuring temperature.

2.4 Power. The EGTCT shall operate on power sources of 115 VAC 50 to 400 Hz or 230 VAC 50 to 400 Hz and shall have protection against the inadvertent application of the incorrect power source. The EGTCT shall have a 20 amp maximum rating at both 115 VAC and 230 VAC and shall have ground fault protection at both the 115 VAC and the 230 VAC.

2.4.1 Steady-state conditions. The EGTCT shall operate and maintain the specified performance and accuracy within a steady-state voltage tolerance band of  $\pm 10$  percent and within a steady-state frequency tolerance band of  $\pm 5$  percent with no detrimental effect on equipment performance.

2.4.2 Transient-state conditions. The EGTCT shall not experience alterations of characteristics due to transient-state conditions lasting up 100 milliseconds when recovery to the steady-state conditions is within 5 seconds. Operation for transient-state conditions which persist longer than 5 seconds shall be as required for interruption of source power.

2.4.3 Grounding. The EGTCT shall include all of the necessary equipment and provisions for proper grounding of the unit.

2.5 Electromagnetic interference (EMI). The EGTCT shall be in accordance with the following radiated emission and susceptibility requirements of MIL-STD-461: RE102 and RS103.

2.6 Operating environment. The EGTCT shall capable of operating with relative humidity at or less than 90%.

2.6.1 Operating temperature. The EGTCT shall be capable of operating from 0 °F to 122 °F ambient temperature.

2.7 Thermocouples. The thermocouples shall be K-type, not integral to the heater blanket, and be accurate to within  $\pm 5$  °F when assembled to a 50 foot length. The tips shall be welded.

2.7.1 Connecting wires. All connecting wires and leads shall be designed to eliminate air leak paths, i.e., fused and non-porous insulation and covers, during vacuum bagging operations. All wires shall have stress relieves at the stress points.

2.8 Display panel. Displays and indicators are visible outdoors in sunlight without hoods or special screens and indoors under less than 20 to more than 100 foot candles of illumination at the face of the instrument when viewed at an angle of 45 degrees or less from the plane of instrument face.

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2.9 Housing. The EGTCT shall be housed in a ruggedized case that shall prevent damage during operation and transportation.

2.9.1 Identification plate. An identification plate in accordance with MIL-STD-130 shall be securely attached to the EGTCT in a readily accessible location. The identification plate shall contain the following information: nomenclature, part number, serial number, date of manufacture, manufacturer's name, Commercial and Government Entity (CAGE) code, date of warranty expiration, and National Stock Number (NSN). The EGTCT and any of its components for which the Government's unit cost is more than \$5,000, is serially managed, or 16 September 2010 D-3 the procuring agency determines is mission essential, shall have Unique Identification (UID) (also known as Item Unique Identification (IUID)) information permanently affixed on or near the respective identification plate(s), marked in accordance with MIL-STD-130. UID information shall be included as both a bar code and human readable markings.

2.10 Calibration. The EGTCT shall not require calibration more than once every year and it shall not require any special equipment, rooms or chambers to accomplish the calibration. The mean time to calibrate shall be 2 hours or less. Calibration standards shall be traceable to NIST.

2.11 Component protection. All space in which work is performed during operation, service, and maintenance shall be free of hazardous protrusions, sharp edges, or other features which may cause injury to personnel. All rotating and reciprocating parts and all parts subject to high operational temperatures or subject to being electrically energized, that are of such nature or so located as to be hazardous to personnel, shall be guarded or insulated to eliminate the hazard.

2.12 Foreign object damage (FOD). All loose metal parts, such as pins or connector covers, shall be securely attached to the EGTCT with wire ropes or chains. "Dog tag" style beaded chains shall not be provided. Removable panels, if provided, shall be attached with captive fasteners.

2.13 Special tools. The design of the item shall minimize the requirement for special tools. All special tools shall be provided with, and stored on, the EGTCT.

2.14 Workmanship. The EGTCT, including all parts and accessories, shall be constructed and finished in a thoroughly workmanlike manner. Workmanship objectives shall include freedom from blemishes, defects, burrs and sharp corners and edges; accuracy of dimensions, surface finish, and radii of fillets; thoroughness of welding, painting, and riveting; marking of parts and assemblies; and proper alignment of parts and tightness of assembly fasteners.

2.14.1 Bolted connections. Bolt holes shall be accurately punched or drilled and shall be deburred. Threaded fasteners shall be tight and shall not work loose during testing or service usage.

2.14.2 Riveted connections. Rivet holes shall be accurately punched or drilled and shall be deburred. Rivets shall be driven with pressure tools and shall completely fill the holes. Rivet

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heads shall be full, neatly made, concentric with the rivet holes and in full contact with the surface of the component.

2.14.3 Cleaning. The EGTCT shall be thoroughly cleaned. Loose, spattered, or excess solder; welding slag; stray bolts, nuts, and washers; rust; metal particles; pipe compound; and other foreign matter shall be removed during and after final assembly.

### 3. REGULATORY REQUIREMENTS.

3.1 Recycled recovered materials. Recycled, recovered, or environmentally preferable materials shall be used to the maximum extent possible provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs. The offeror/contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with paragraph 23.403 of the Federal Acquisition Regulation (FAR).

3.2 Green Procurement Program. Green Procurement Program (GPP) is a mandatory federal acquisition program that focuses on the purchase and use of environmentally preferable products and services. GPP requirements apply to all acquisitions using appropriated funds, including services and new requirements. FAR 23.404(b) applies and states the GPP requires 100% of EPA designated product purchase that are included in the Comprehensive Procurement Guidelines list that contains recovered materials, unless the item cannot be acquired: a) competitively within a reasonable timeframe; b) meet appropriate performance standards, or c) at a reasonable price. The prime contractor is responsible for ensuring that all subcontractors comply with this requirement.

### 4.0 PRODUCT CONFORMANCE PROVISIONS

4.1 Product conformance. The products provided shall meet the salient characteristics of the CID, conform to the producer's own drawings, specifications, standards, and quality assurance practices and be the same product offered for sale in the commercial market. The Government reserves the right to require proof of such conformance prior to first delivery and thereafter as may be appropriate. Proof of conformance may include, but shall not be limited to the performance of operational tests, lab tests, modeling and simulation and delivery of reports and data from these tests.

4.2 Product sample. A product sample may be required, for examination and testing to determine whether it provides acceptable form, fit, function and suitability for use. If a product sample is required, shipping instructions will be provided.

4.3 Testing, analysis, examination, and certifications. The requirements of this CID shall be verified through testing, analysis, and certification.

#### 4.3.1 Certifications and Analysis.

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**TABLE 1: Certifications and analysis**

<b><u>Paragraph</u></b>	<b><u>Required Certification or Analysis</u></b>
2.7.1 <u>Connecting wires</u>	Contractor certification of compliance with 2.7.1
2.10 <u>Calibration</u>	Contractor certification of compliance with 2.10. Contractor shall provide calibration schedule.
2.11 <u>Component protection</u>	Contractor certification of compliance with 2.11
2.12 <u>Foreign object damage (FOD)</u>	Contractor certification of compliance with 2.12
2.13 <u>Special Tools</u>	Contractor certification of compliance with 2.13
2.14 <u>Workmanship</u> (including sub-paragraphs)	Contractor certification of compliance with 2.14 and sub-paragraphs

4.3.2 Physical characteristics measurement. A first production EGTCT shall be measured to demonstrate compliance with 2.2.

4.3.3 Measuring and indicating devices test. A first production EGTCT shall be visually inspected to demonstrate compliance with 2.3.

4.3.4 Power test. A first production EGTCT shall be tested to demonstrate compliance with 2.4 and all sub-paragraphs of 2.4.

4.3.5 Operating environment test. A first production EGTCT shall be tested to demonstrate compliance with 2.6 and sub paragraphs.

4.3.6 Electromagnetic interference test. A first production EGTCT shall be tested in accordance with MIL-STD-461: RE 102 and RS 103 to demonstrate compliance with 2.5.

4.3.7 Thermocouples. A first production EGTCT shall tested to demonstrate compliance with 2.7.

4.3.8 Display Panel. A first production EGTCT shall tested to demonstrate compliance with 2.8.

4.3.9 Housing. A first production EGTCT shall be inspected to demonstrate compliance with 2.9 and all sub-paragraphs.

## 5. PACKAGING.

5.1 Preservation, packing, and marking. Preservation, packing, and marking shall be as specified in the contract or order.

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## 6. NOTES

### 6.1 Source of documents.

6.1.1 Department of Defense and Federal documents. Military Specifications, Standards, and Handbooks referenced herein may be obtained at <https://assist.daps.dla.mil/online/> or available from the Standardization Documents Order Desk, 700 Robbins Ave, Bldg 4, Section D, Philadelphia, PA 19111-5094.

6.1.2 FAR. FAR and DFARS may be obtained from the Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954. Electronic copies of the FAR may be obtained from <https://www.acquisition.gov/far/> . Electronic copies of the DFARS may be obtained from <http://www.acq.osd.mil/dpap/dars/dfars/index.htm> .

### 6.2 Key Words

Portable  
Self contained  
User-friendly unit

## MILITARY INTERESTS:

Custodians:  
Air Force – 84

Preparing Activity:  
Air Force – 84

Reviewers:  
Air Force – 99

Agent:  
Air Force – 99

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