

# TT1200A

## Digital Turbine Temperature Tester



### General Information

The Barfield TT1200A is our latest Digital Turbine Temperature Test Set. It is microprocessor based, completely self-contained, battery powered unit housed in a new high visibility ruggedized enclosure. Designed with sufficient accuracies and range to be able to test the newest digital and glass cockpit indicators with simplicity of operation, direct reading, and multi-function versatility.

The TT1200A is specifically designed to accomplish all requirements for testing the aircraft Chromel-Alumel (K type) turbine temperature measuring systems. The Test Set can measure resistances down to 0.001W, measure insulation up to 200 MW, perform indicator run-outs with a resolution of .1oC or 1oC and a range of 1372oC, and can also display the equivalent oF or millivoltages and may be used as a master indicator as well.

The TT1200A exceeds all of the operational capabilities of the popular Barfield TT1000A and includes many new features like: microprocessor based, backlit alphanumeric display, user prompts, oF and millivoltage display, temperature range to 1372°C, 4 resistance and 4 insulation ranges and power comes from common "C" batteries for all functions.

### Specifications

#### TEMPERATURE MEASUREMENT

Range: -200 to 1372 °C  
Accuracy: ± 0.3 °C (Typ at 25 °C)

#### RESISTANCE MEASUREMENT

20W: 0 - 19.999W 0.001W increments  
200W: 0 - 199.99W 0.01W increments  
2KW: 0 - 1.9999KW 0.1W increments  
20KW: 0 - 19.999KW 1W increments  
Accuracy: ± 0.05 % of reading ± 2 counts

#### INSULATION MEASUREMENT

200KW: 0 - 199.9KW 0.1KW increments  
2MW: 0 - 1.999MW 1KW increments  
20MW: 0 - 19.99MW 10KW increments  
200MW: 0 - 199.9MW 1001KW increments  
Excitation: 45 VDC  
Accuracy: ± 5 % of reading ± 2 counts

OPERATING TEMP: -10 to 50 °C

Specifications Subject To Change



### Features

- Microprocessor based
- Calibration Date available from display with User Alerts to approaching Cal Date
- Backlit 16 Character Alphanumeric Display - With User Prompts
- True 4-Wire Resistance Measurements
- Has °C, °F, and equivalent millivoltage displays
- Powered from long lasting C cell batteries with Auto-Off feature to conserve batteries
- Timed measurement with Display Hold feature for Resistance and Insulation functions - No need to hold push button depressed

### Dimensions

	In.	cm.
Height	7.0	17.8
Width	11.0	27.9
Depth	10.0	25.4
	Lbs.	kg
Weight	7.3	3.3



# Turbine Temperature Specifications

## TEMPERATURE MEASUREMENT

	<b>2312G</b>	<b>TT1000A</b>	<b>TT1200A</b>
<b>RANGE</b>	-20 to 1000°C	0 to 1000°C certified -60 to 1160°C extended	0 to 1200°C certified -200 to 1372°C extended
<b>ACCURACY</b>	±5°C between 600-900°C ±10°C elsewhere	Typical Measurement error at 25°C ambient: Less than ±1°C	Typical Measurement error at 25°C ambient: Less than 0.3°C

## LEAD RESISTANCE MEASUREMENT

	<b>2312G</b>	<b>TT1000A</b>	<b>TT1200A</b>
<b>20Ω RANGE AND RESOLUTION</b>	N/A	0-19.99 Ω in 0.01 Ω increments	0-19.999 Ω in 0.001 Ω increments
<b>200Ω RANGE AND RESOLUTION</b>	N/A	0-199.9 Ω in 0.1 Ω increments	0-199.99 Ω in 0.01 Ω increments
<b>2KΩ RANGE AND RESOLUTION</b>	N/A	N/A	0-1.9999K Ω in 0.1 Ω increments
<b>20KΩ RANGE AND RESOLUTION</b>	N/A	N/A	0-19.999K Ω in 1 Ω increments
<b>2312G LEAD RESISTANCE RANGE*</b>	2312G-8 7.8 to 8.2 Ω 2312G-15 14.5 to 15.5 Ω	N/A	N/A
<b>ACCURACY</b>	±0.02 Ω at 15 Ω ±0.1Ω at 8 Ω	±0.1% of reading ±0.01 Ω (20 Ω) ±0.1% of reading ±0.1 Ω (200Ω )	±0.05% of reading ±2 counts

\* The 2312G-X is designed for a single system resistance thus the unit has a limited lead resistance range. The 2312G-X also has Rx1 and Rx10 ranges with an accuracy of ±10%.

## INSULATION MEASUREMENT

	<b>2312G</b>	<b>TT1000A</b>	<b>TT1200A</b>
<b>200KΩ RANGE AND RESOLUTION</b>	N/A	N/A	0-199.9K Ω in 0.1KΩ increments
<b>2MΩ RANGE AND RESOLUTION</b>	N/A	0-1.999M Ω in 1KΩ increments	0-1.999M Ω in 1KΩ increments
<b>20MΩ RANGE AND RESOLUTION</b>	N/A	N/A	0-19.99M Ω in 10KΩ increments
<b>200MΩ RANGE AND RESOLUTION</b>	N/A	N/A	0-199.9M Ω in 1001K Ω increments
<b>2312G RANGE &amp; RESOLUTION</b>	2.5K to 1M	N/A	N/A
<b>ACCURACY</b>	10% of reading	3% of reading ±1K Ω	±5% of reading ±2 counts
<b>EXCITATION</b>	45V	45V	45V

## OTHER SPECIFICATIONS

	<b>2312G</b>	<b>TT1000A</b>	<b>TT1200A</b>
<b>SYSTEM RESISTANCE RANGE</b>	Single system resistance of 8, 15, 16, 22, or 25 Ω	Variable resistance between 2 Ω to 25 Ω	Variable resistance between 2 Ω to 25 Ω
<b>OPERATING TEMPERATURE</b>	0 TO 50°C	0 TO 50°C	-10 TO 50°C

# Turbine Temperature Tester Comparison



DISPLAY CHARACTERISTICS	2312G	TT1000A	TT1200A
ANALOG METER.	S	-	-
3.5 DIGIT DIGITAL DISPLAY	-	S	-
4.5 DIGIT DIGITAL DISPLAY	-	-	S
TEMP. SIMULATION/MEASUREMENTS IN Deg. C	-	S	S
TEMP. SIMULATION/MEASUREMENT IN mV	-	-	S
SYSTEM LEAD RESISTANCE COMPATIBILITY			
SPECIFIC LEAD RESISTANCES (8, 15, 16, 22, 25 OHM)	S	-	-
ALL LEAD RESISTANCE SYSTEMS, EXCEPT 16 OHM	-	S	S
MEASUREMENT RANGE AND RESOLUTION			
RESISTANCE to 100 Ohms.	S	-	-
RESISTANCE to 200 Ohms	-	S	-
RESISTANCE to 20K Ohms	-	-	S
HIGHEST RESISTANCE RESOLUTION IS 0.01 Ohms	S	S	-
HIGHEST RESISTANCE RESOLUTION IS 0.001 Ohms	-	-	S
INSULATION to 1 MEGOHMS.	S	-	-
INSULATION to 2 MEGOHMS.	-	S	-
INSULATION to 200 MEGOHMS.	-	-	S
HIGHEST INSULATION RESOLUTION IS 1K Ohms.	S	-	-
HIGHEST INSULATION RESOLUTION IS 100 Ohms	-	-	S
TEMP. RANGE TO 1000 DEGREES CERTIFIED	S	S	-
TEMP. RANGE TO 1200 DEGREES CERTIFIED	-	-	S
TEMP. RESOLUTION 1 Deg. C	S	S	S
ACCURACY			
RESISTANCE ACCURACY OF +/- 10% OF READING	S	-	-
RESISTANCE ACCURACY OF +/- 0.1% +/- 0.1 Ohm.	-	S	-
RESISTANCE ACCURACY OF +/- 0.05% +/- 2 COUNTS	-	-	S
INSULATION ACCURACY OF +/- 5% OF READING	S	-	-
INS. ACCURACY OF +/- 3% OF READING +/- 1K Ohm	-	S	-
INS. ACCURACY OF +/- 5% OF READING +/- 2 COUNTS	-	-	S
TEMP. MEAS. ACCURACY OF +/- 10 Deg. C	S	-	-
TEMP. MEAS. ACCURACY OF +/- 1 Deg. C.	-	S	-
TEMP. MEAS. ACCURACY OF +/- 0.3 Deg. C.	-	-	S
OPTIONS AND OTHER FEATURES			
CAN BE USED AS A MASTER INDICATOR	-	S	S
AUTOMATIC COLD JUNCTION COMPENSATION	-	S	S
FRONT PANEL BATTERY ACCESS	-	-	S
GENERAL ELECTRIC CF6-80 SERIES ADAPTER	-	O	O
GENERAL ELECTRIC CF6-6, -50 SERIES ADAPTER	-	O	O
MILLIVOLTAGE DOUBLED SYSTEM MOD	-	O	-
MILLIVOLTAGE DOUBLED SYSTEM ADAPTER CABLE	-	-	O

S = STD. FEATURE   O = OPTION   - = N/A

# Turbine Temperature Tester Adapter Cables



## General Information

The adapter cables in conjunction with the TT1200 or TT1000A permits resistance, insulation measurement and indicator tests of aircraft equipped with General Electric CF6-6, CF6-50 and CF6-80 series engines. These specialized adapter cables permit convenient access to the engine thermocouple harnesses by connecting directly to the existing engine connectors eliminating the need for pin to pin probing.

With these OEM approved packages the user can quickly and efficiently test the entire indicating system. Each package provides for connections at multiple points in the system and permits indicator testing, system resistance measurements, individual thermocouple lead resistance measurements and insulation testing, all to be accomplished through a convenient switching scheme.

When an adapter harness is purchased separately, the TT1000A or TT1200 being used must be returned to Barfield for modification and/or calibration with the new harness. The TT1000A must have a DIN connector (Option A) for interfacing with the adapter cable and a 2K W insulation range (Option B) added. A DIN plug is added to the standard alligator clipped cable so the modified TT1000A is still useful on other turbine engines. The TT1200 does not require modification but the existing unit must be returned so the adapter harness and tester can be calibrated together.

## Ordering Information

G.E. Engine	TT1000A & CABLE SYSTEM	TT1200 & CABLE SYSTEM	TT1000A CABLE ONLY	TT1200 CABLE ONLY
CF6-80A, A1, C2	102- 00902	102- 00922	101- 00902	101- 0922
CF6-6 & CF6-50	102- 00903	102- 00923	101- 00903	101- 0923



**102-00902 Adapter Cable**



**102-00903 Adapter Cable**