

PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

Perry Johnson Laboratory Accreditation, Inc., has assessed the Laboratory of:

***Aeroframe Airepairs
3914 Willow Lake Blvd
Memphis, TN 38118-704***

(Hereinafter called the Organization) and hereby declares that Organization is accredited in accordance with the recognized International Standard:

ISO/IEC 17025: 2005

This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (as outlined by the joint ISO-FLAC-IAF Communiqué dated January 2009):

***Calibration of Equipment used for Dimensional, Electrical, Pressure, Temperature,
Torque, Force, Compression and Time Measurements
(As detailed in the supplement)***

Such testing and/or calibration services shall only be offered at or from the address given above. This Accreditation is granted subject to the system rules governing the Accreditation referred to above, and the Organization hereby covenants with the Accreditation body's duty to observe and comply with the said rules.

For PJLA:

The validity of this certificate is mandated through ongoing surveillance.

Tracy Szerszen
President/Operations Manager

Perry Johnson Laboratory
Accreditation, Inc. (PJLA)
26555 Evergreen, Suite 1325
Southfield, Michigan 48076

Initial Accreditation Date:

July 15, 2003

Issue Date:

July 28, 2009

Expiration Date:

July 27, 2011

Accreditation No.

59185

Certificate No.

L09-74

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Certificate of Accreditation: Supplement

Aeroframe Airepairs
3914 Willow Lake Blvd
Memphis, TN 38118-7040

Accreditation is granted to this facility to perform the following calibrations:

Mechanical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	BEST MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	REMARKS
Positive Pressure Oil Free	0 MPa to 6.895 MPa (0 psi to 1 000 psi)	0.05 % of Reading	Fluke 700P08 w/ Fluke 702
Positive Pressure	103.4 kPa to 34.48 MPa (15 psi to 5 000 psi)	0.12 % of Reading	Ashcroft 1305D
	34.48 MPa to 137.9 MPa (5 000 psi to 20 000 psi)	0.45 Mpa (65 psi)	WIKA 332.30
Torque	0.564 9 N·m to 5.649 N·m (5 lbf·in to 50 lbf·in)	0.58 % of reading + 0.001 N·m (0.58 % of reading + 0.01 lbf·in)	CW/CCW Armstrong 64-622
Torque	11.3 N·m to 113 N·m (100 lbf·in to 1 000 lbf·in)	0.58 % of reading + .1 N·m (0.58 % of reading + 1 lbf·in)	CW/CCW CDI 10002-I-ETT
Torque	81 N·m to 813 N·m (60 lbf·ft to 600 lbf·ft)	0.58 % of reading + 0.1 N·m (0.58 % of reading + 0.1 lbf·ft)	CW/CCW CDI 6004-F-ETT
Compression Only	4.54 mg to 22.68 mg (10 lb to 50 lb)	0.29 % of reading + 1 LSD	Omega LC1001-50k with DP41-S

Time & Frequency

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	BEST MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	REMARKS
Frequency / Time	0.01 Hz to 10 kHz	25 parts per 10^6 + 1 mHz	Fluke 5500A-SC300
	10 kHz to 200 MHz	25 parts per 10^6 + 15 mHz	

Electrical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	BEST MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	REMARKS
Temperature Thermocouple Type B	600 °C to 1 820°C	From 0.30 °C to 0.44 °C From min. to max. of range	Fluke 5500A-SC300
Temperature Thermocouple Type C	0 °C to 2 316°C	From 0.26 °C to 0.84 °C From min. to max. of range	
Temperature Thermocouple Type E	-196 °C to 1 000°C	From 0.14 °C to 0.50 °C From min. to max. of range	

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Temperature Thermocouple Type J	-196 °C to 1 200°C	From 0.14 °C to 0.27 °C From min. to max. of range	Fluke 5500A-SC300
Temperature Thermocouple Type K	-196 °C to 1 372°C	From 0.16 °C to 0.40 °C From min. to max. of range	
Temperature Thermocouple Type L	-196 °C to 900°C	From 0.17 °C to 0.37 °C From min. to max. of range	
Temperature Thermocouple Type N	-196 °C to 1 300°C	From 0.18 °C to 0.40 °C From min. to max. of range	
Temperature Thermocouple Type R	0 °C to 1 767°C	From 0.33 °C to 0.57 °C From min. to max. of range	
Temperature Thermocouple Type S	0 °C to 1 767°C	From 0.36 °C to 0.47 °C From min. to max. of range	
Temperature Thermocouple Type T	-196 °C to 400°C	From 0.14 °C to 0.63 °C From min. to max. of range	
Temperature Thermocouple Type U	0 °C to 600°C	From 0.27 °C to 0.56 °C From min. to max. of range	
Temperature RTD Pt 395, 100 Ω	-196 °C to 800°C	From 0.05 °C to 0.23 °C From min. to max. of range	
Temperature RTD 3926, 100 Ω	-196 °C to 630°C	From 0.05 °C to 0.12 °C From min. to max. of range	
Temperature RTD Pt 3916, 100 Ω	-196 °C to 630°C	From 0.04 °C to 0.25 °C From min. to max. of range	
Temperature RTD Pt 385, 200 Ω	-196 °C to 630°C	From 0.04 °C to 0.16 °C From min. to max. of range	
Temperature RTD Pt 385, 500 Ω	-196 °C to 630°C	From 0.04 °C to 0.11 °C From min. to max. of range	
Temperature RTD Pt 385, 1000 Ω	-196 °C to 630°C	From 0.03 °C to 0.23 °C From min. to max. of range	
Temperature RTD Pt Ni 385, 120 Ω	-80 °C to 260°C	From 0.08 °C to 0.14 °C From min. to max. of range	
Temperature RTD Cu 427, 10 Ω	-100 °C to 260°C	0.3 °C	
AC Voltage 10 Hz to 500 kHz	1.0 mV to 32.999 mV	From (0.15 % of output + 20 μ V) to (1 % of output + 60 μ V) From min. to max. of range	

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AC Voltage 10 Hz to 500 kHz	33 mV to 329.999 mV	From (0.05 % of output + 20 μ V) to (0.7 % of output + 330 μ V) From min. to max. of range	Fluke 5500A-SC300
	0.33 V to 3.299 99 V	From (0.03 % of output + 60 μ V) to (0.5 % of output + 3 300 μ V) From min. to max. of range	
AC Voltage 10 Hz to 100 kHz	3.3 V to 32.999 9 V	From (0.04 % of output + 600 μ V) to (0.24 % of output + 17 000 μ V) From min. to max. of range	Fluke 5500A-SC300
AC Voltage 45 Hz to 20 kHz	33 V to 329.999 V	From (0.05 % of output + 6.6 mV) to (0.09 % of output + 33 mV) From min. to max. of range	Fluke 5500A-SC300
AC Voltage 45 Hz to 10 kHz	330 V to 1 020 V	From (0.05 % of output + 80 mV) to (0.20 % of output + 500 mV) From min. to max. of range	Fluke 5500A-SC300
AC Voltage 0 kHz to 100 kHz	0 kV to 40 kV peak AC	5.8 % of reading	Fluke 80K-40 w/ Fluke 187
DC Voltage	0 mV to 32.999 99 mV	From (0.005 % of output + 5 μ V) to (0.006 % of output + 3 μ V) From min. to max. of range	Fluke 5500A-SC300
	33 V to 329.999 9 V	0.005 5 % of output + 500 μ V	
	330 V to 1 020.000 V	0.005 5 % of output + 1500 μ V	
DC Voltage	1 kV to 20 kV	2.3 % of reading	Fluke 80K-40 w/ Fluke 187
	20 kV to 35 kV	1.2 % of reading	
	35 kV to 40 kV	2.3 % of reading	
Capacitance	10 ⁻⁵ pF to 1.111 10 μ F	0.012 % of reading	1620-A General Radio

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Capacitance	0.33 μ F to 1.1 mF	From (0.25 % of output + 1 nF) to (1 % of output + 300 nF) From min. to max. of range	Fluke 5500A-SC300
Inductance	0 H to 9.999 H	2.3 % of reading + 0.5 μ H	IET LS-400
Inductance	10 mH	0.012 % of reading	General Radio 1482-H
Resistance	0 k Ω to 32.999 9 k Ω	From (0.012 % of output + 0.006 Ω) to (0.009 % of output + 0.6 Ω) From min. to max. of range	Fluke 5500A-SC300
	33 k Ω to 3.299 99 M Ω	From (0.011 % of output + 6 Ω) to (0.015 % of output + 55 Ω) From min. to max. of range	
	3.3 M Ω to 330 M Ω	From (0.011 % of output + 6 Ω) to (0.015 % of output + 55 Ω) From min. to max. of range	
Resistance	1 000 M Ω to 10 000 M Ω	1.2 % of reading	Victoreen RX-1M-1 (set of 5)
AC Current 10 Hz to 10 kHz	0.029 mA to 0.329 99 mA	From (0.13 % of output + 0.15 μ A) to (1.3 % of output + 0.15 μ A) From min. to max. of range	Fluke 5500A-SC300
	0.33 mA to 3.299 9 mA	From (0.1 % of output + 0.3 μ A) to (0.6 % of output + 0.3 μ A) From min. to max. of range	
	3.3 mA to 32.999 mA	From (0.09 % of output + 3 μ A) to (0.6 % of output + 3 μ A) From min. to max. of range	
AC Current 10 Hz to 10 kHz	33 mA to 329.99 mA	From (0.09 % of output + 30 μ A) to (0.6 % of output + 30 μ A) From min. to max. of range	Fluke 5500A-SC300

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AC Current 10 Hz to 5 kHz	0.33 A to 2.199 99 A	From (0.1 % of output + 300 μ A) to (0.75 % of output + 300 μ A) From min. to max. of range	Fluke 5500A-SC300
AC Current 45 Hz to 1 kHz	2.2 A to 11 A	From (0.06 % of output + 2 000 μ A) to (0.33 % of output + 2 000 μ A) From min. to max. of range	Fluke 5500A-SC300
AC Current 45 Hz to 65 Hz	11 A to 1 000 A	0.29 % of reading	Fluke 5500A-SC300 w/ coil
AC Current 0 kHz to 300 kHz	11 A to 1 000 A	0.29 % of reading + 0.01 A	Empro 1000A shunt w/ Agilent 34401A
DC Current	0 A to 11 A	From (0.013 % of output + 0.05 μ A) to (0.06 % of output + 330 μ A) From min. to max. of range	Fluke 5500A-SC300
DC Current	11 A to 1 000 A	0.29 % of reading	Fluke 5500A-SC300 w/ coil
DC Current	11 A to 1 000 A	0.29 % of reading + 0.01 A	Empro 1000A shunt w/ Agilent 34401A

1. Remarks: This column shall include pertinent information about the calibration of the Measured Instrument or parameter. The information should include the type of standards used and any pertinent information about the measurement method. This column is not to be used for commercial advertisement of laboratory services.