

SOUTHWEST RESEARCH INSTITUTE
Department of Quality Assurance
Calibration Laboratory • 522-5215

WORK ORDER

WORK ORDER # 36548 ASSET # 207630 DATE 26 Oct. 99

ITEM DATA:

Manufacturer Edwards Model 035726000
Description Strain gage Serial # 995000176
Accessories _____

ACTION REQUESTED cal & test

CUSTODIAN Dr. Jo Anne Marie Lejeune

Turned in by: _____ Phone _____

CHARGE # 20,01409 461 Date Required _____

INSTRUMENT USED ON: (DOD/NASA) (NUCLEAR) (GLP) (SPPE) (ISO)
 OTHER _____

COPY OF CALIBRATION CERTIFICATE (Yes) (No)

NEW WORK Yes No If yes, an evaluation shall be made to verify capabilities.

By _____ Date _____

Work involves proprietary/confidential information or equipment (Yes) (No)

CONDITION RECEIVED: Out of tolerance
 In tolerance
 Damaged (Contact customer)
 Contact _____ Date _____
 Received into system, introduced or reactivated

ACTION TAKEN: (Calibration/Repair/Parts) Cal

CAL ENVIRONMENT:
Temperature 68 °F Humidity 38 %RH

CALIBRATED/REPAIRED:
By [Signature] Cal Procedure CCCP-71-001 Jun 79
Date 11-3-99 Accuracy ±0.2% FS
Cal Interval 6 mo Reliability Code _____
Next Cal Due 5-3-00 Cal Time 2h Repair Time _____
Standards used (Asset #) 2079

DATE COMPLETED 11-3-99

DATE PICKED UP 11-4-99 PICKED UP BY [Signature]

Joanne Marie
LEJEUNE

36548

WORK ORDER 40303 **RUSH**

Date Received 8/24/00

Asset No. 007630 Manufacturer EDWARDS Model D35726000
 Description STRAIN GAUGE Serial Number 995000176
 Accessory Received/Required NONE
 Div/CC ID NONE Accessory to Asset No. N/A
 Div/CC DIV20 Location T1 Custodian ANNE MARIE LEJEUNE Tel. 6212
 Charge/Project No. 20.01402.461 Proprietary/Confidential _____ Date Required ROUTINE
 Work Requested CALIBRATION
 Receiving Inspection OK
 Delivered By ANNE MARIE LEJEUNE Tel. 6212

WORK HISTORY

Date	Start Time	Stop Time	Notes

SwRI Cal-Lab By: mw
 CAL: 11/03/99 DUE: 05/03/00
 AN: 007630 SN: 995000176

PARTS

Part Name	Part Number	Cost	Failure Description

WORK SUMMARY

Failure Description _____
 Repair Action _____
 Cal Procedure CLCP-PI-001, 6/99 Temp 68.4 F Hum 45 %
 Tech [Signature] Cal Hrs. 2.5 Repair Hrs. _____ Part Cost _____
 Action Taken Cal
 Standards Used 2079
 Date Cal 8-25-00 Int. 6 Mo. Date Due 2-25-01 Reliability Code _____
 Date Picked Up 28 August 2000 Picked Up By [Signature] A.M. Lejeune

40303

SOUTHWEST RESEARCH INSTITUTE

6220 CULEBRA ROAD • POST OFFICE DRAWER 28510 • SAN ANTONIO, TEXAS, 78228-0510 • TEL (210) 522-5215 • FAX (210) 522-3692

To: Anne Marie Lejuene, Div 20, T1
From: Jim Patterson, Institute Calibration Laboratory Supervisor
CC: Rodney Weber, Institute Quality Assurance Manager
Date: Aug. 25, 00
Subject: Out-of-tolerance Notice

The purpose of this notice is to alert you of a condition, which could have caused erroneous measurements. The as-found readings are provided for your evaluation to determine if the instrument had any impact on your operations and if further action is required. If we can be of assistance, please contact the Calibration Laboratory at 522-5215.

Manufacturer: Edwards **Model:** D35726000
Description: Absolute Press Gage **Serial Number:** 995000176
Asset Number: 7630 **User ID Number:** n/a
Last Calibration: Nov 03, 1999
Date Received for Service: Aug. 24, 00 **Work Order Number:** 40303
Service Requested: Calibrate, item reactivated

Remarks:

AS-FOUND DATA

PARAMETER OR FUNCTION	APPLIED OR NOMINAL VALUE	INSTRUMENT READING	INSTRUMENT ERROR	INSTRUMENT TOLERANCE
Absolute Pressure	mBar	mBar	mBar	+/- mBar
	0	39.0	39.0	2
	250	291.8	41.8	"
	500	545.0	45.0	"
	750	798.2	48.2	"
	1000	1051.0	51.0	"

Reviewed by Wendy Kirk



Southwest Research Institute
6220 Culebra Road
San Antonio, TX 78238
(210) 522-5215
Department of Quality Assurance
Calibration Laboratory



Certificate #
0972-01

Certificate of Calibration

25 August 2000

Issued to: ANNE MARIE LEJEUNE DIV20 T1
Manufacturer/Model: EDWARDS D35726000
Description: STRAIN GAUGE
Serial Number: 995000176
Asset Number: 007630

This certifies the above item was calibrated in compliance with MIL-STD-45662A and ANSI/NC SL Z540-1-1994. The results of this calibration relate only to the individual item as described above. Standards used in this calibration, described in the referenced calibration procedure with associated uncertainties or tolerances, are traceable to the National Institute of Standards and Technology (NIST). Supporting documentation relative to traceability is on file and available for examination upon request. This certificate is not to be reproduced, except in full, without the written approval of the Southwest Research Institute Department of Quality Assurance Calibration Laboratory.

This laboratory is accredited by the American Association for Laboratory Accreditation (A2LA) and the results of this calibration certificate were determined in accordance with the terms of accreditation unless stated otherwise below.

The uncertainty of the calibration was sufficient to determine that the item met the manufacturer's published specifications unless stated otherwise below.

Ambient Conditions: Temperature: 67.0 Degrees Fahrenheit Humidity: 45 % RH

Calibration Date: 25 Aug 00 **Calibration Procedure:** CLCP-PI-001, 6/99

Condition as Received: OUT OF TOLERANCE

Condition as Released: IN TOLERANCE

Remarks:

Approved by:

Jim Patterson, Supervisor, or Walt Hill, Metrologist

Certificate # 40303

m:\a2la.rpt Rev date 22 May 00

Measurements performed by:

Mack Wood, Technician

SOUTHWEST RESEARCH INSTITUTE

Calibration Laboratory

WORK ORDER

Processed by RCRUZ at 10:13:00AM on 2/8/01



Work Order 444042325

Arrived 2/8/01

Asset No. 007630 Manufacturer EDWARDS

Model D35726000

Instrument Type/Class STRAIN GAUGE

Serial No. 995000176

Accessory No. Calibration Procedure CLCP-PI-001, 6/99

Location T1

Div/Client DIV20

Custodian ANNE MARIE LEJEUNE

Mail Stop T1

Tel. 6212

Charge/Project No. 20.01402.461

Delivered By / Telephone MELISSA HILL X 2636

IN4CAL

Special Instructions _____

WORK NOTES

Date	Hours	Remarks/Notes
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

SwRI Cal-Lab	By: cmw
CAL: Aug 25, 00 DUE: Feb 25, 01	
AN: 007630 SN: 995000176	

REPAIR PARTS

Date	Hours	Part Name	Part Number	Failure Description	Cost
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

WORK SUMMARY

Failure Description _____

Repair Action _____

Calibration Procedure _____

Temp 68 F Hum 36 %

Tech *CMW* Totals Cal Hours 2 Repair Hours _____ Parts Cost _____

Standards Used 2079

Date Picked Up 2-21-01

Picked Up By *By M. Hill*

444042325

PRESSURE INDICATOR CALIBRATION DATA SHEET *

WORK ORDER #: 444042325 DATE: 2/8/01 TECH. *[Signature]*

UUT: Edwards absolute pressure gauge

ASN: 7630 LRP: 0 URP: 1000 UNITS: 8 mBar

RESOLUTION: 0.05 REPEATABILITY: 0 Grade n/a

TOLERANCE +/-% : 0.2 zero (y/n) y SPAN: 1000

Grade tol 0.2 0.2

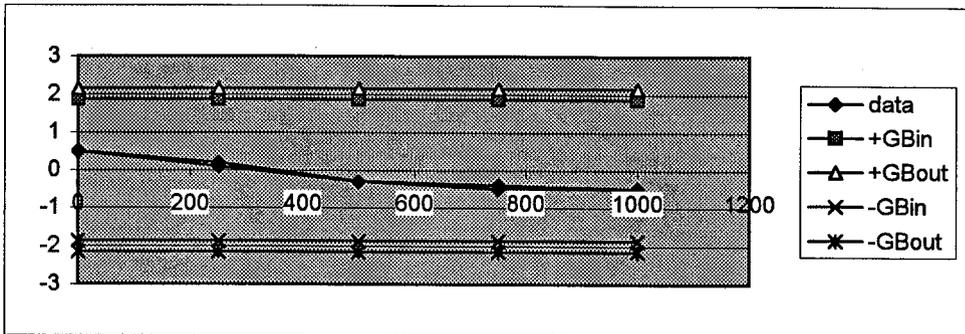
CALIBRATION STANDARD

ASSET #: 2079 MFR: mensor tolerance 0.137895 units

UNCERTAINTY BUDGET @ F.S.			
description	value	divisor	std unc
UUT resolution	0.05	1.73205	0.028868
UUT repeatability	0	1	0
Calibration standard	0.137895	1.73205	0.079614
combined uncertainty			8.5E-02
expanded uncertainty	k = 1.65		1.4E-01

DATA tolerance 2

INPUT	READING	ERROR	UNCERT	GBin	GBout	PASS	FAIL
0	0.5	0.5	0.139732	1.860268	2.139732	P	
250	250.1	0.1	0.139732	1.860268	2.139732	P	
500	499.7	-0.3	0.139732	1.860268	2.139732	P	
750	749.6	-0.4	0.139732	1.860268	2.139732	P	
1000	999.5	-0.5	0.139732	1.860268	2.139732	P	
750	749.5	-0.5	0.139732	1.860268	2.139732	P	
500	499.7	-0.3	0.139732	1.860268	2.139732	P	
250	250.2	0.2	0.139732	1.860268	2.139732	P	
0	0.5	0.5	0.139732	1.860268	2.139732	P	



*Instructions on Sheet 3



Southwest Research Institute
6220 Culebra Road
San Antonio, TX 78238
(210) 522-5215
Department of Quality Assurance
Calibration Laboratory



Certificate #
0972-01

Certificate of Calibration

12 February 2001

Issued to: ANNE MARIE LEJEUNE DIV20 T1
Manufacturer/Model: EDWARDS D35726000
Description: PRESSURE TRANSDUCER
Serial Number: 995000176
Asset Number: 007630
Work Order Number: 444042325

This certifies the above item was calibrated in compliance with MIL-STD-45662A and ANSI/NCSL Z540-1-1994. The results of this calibration relate only to the individual item as described above. Standards used in this calibration, described in the referenced calibration procedure with associated uncertainties or tolerances, are traceable to the National Institute of Standards and Technology (NIST). Supporting documentation relative to traceability is on file and available for examination upon request. This certificate is not to be reproduced, except in full, without the written approval of the Southwest Research Institute Department of Quality Assurance Calibration Laboratory.

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The uncertainty of the calibration was sufficient to determine that the item met the manufacturer's published specifications unless stated otherwise below.

Ambient Conditions: Temperature: 68.0 Degrees Fahrenheit Humidity: 36 % RH

Calibration Date: 9 Feb 01 **Calibration Procedure:** CLCP-PI-001, 6/99

Condition as Received: IN TOLERANCE

Condition as Released: IN TOLERANCE

Remarks:

Approved by:



Walt Hill, Supervisor
Institute Calibration Laboratory

Measurements performed by:



Mack Wood, Technician

SOUTHWEST RESEARCH INSTITUTE

Calibration Laboratory

WORK ORDER

Received by RCRUZ, 10/8/01 4:24:36PM



Arrived 10/8/01

Work Order **444045512**

Asset No. 007630 Manufacturer EDWARDS

Model D35726000

Instrument Type/Class PRESSURE TRANSDUCER

Serial No. 995000176

Accessory No. Calibration Procedure CLCP-PI-001, 6/99

Location T1

Div/Client DIV20

Custodian ANNE MARIE LEJEUNE

Mail Stop T1

Tel. 6212

IN4CAL

Special Instructions ONE TIME CALIBRATION.

Notify before making adjustments or repairs. (Provide measurement readings ()

Charge/Project No. 01402.461 1.20

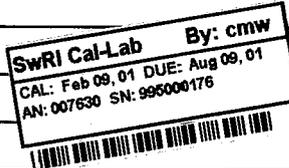
Requested By / Telephone MELISSA HILL / 2636

The above is correct for the work requested.

WORK NOTES

CALIBRATION OVERDUE

Date	Hours	Remarks/Notes
	<u>2-9-01</u>	



Date	Hours	Part Name	Part Number	Failure Description	Cost

WORK SUMMARY

Failure Description _____

Repair Action _____

Calibration Procedure _____

Temp 68F

Hum. 38 %

Tech AMC

Totals

Cal Hours 2

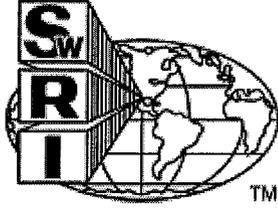
Repair Hours _____

Parts Cost _____

Standards Used 2079, 3220

Date Picked Up 10-31-01

Picked Up By Ray M. Zell



Southwest Research Institute
6220 Culebra Road
San Antonio, TX 78238
(210) 522-5215
Department of Quality Assurance
Calibration Laboratory



Certificate #
0972-01

Certificate of Calibration

12 October 2001

Issued to: ANNE MARIE LEJEUNE DIV20 T1
Manufacturer/Model: EDWARDS D35726000
Description: PRESSURE TRANSDUCER
Serial Number: 995000176
Asset Number: 007630
Work Order Number: 444045512

This certifies the above item was calibrated in compliance with MIL-STD-45662A and ANSI/NCSL Z540-1-1994. The results of this calibration relate only to the individual item as described above. Standards used in this calibration, described in the referenced calibration procedure with associated uncertainties or tolerances, are traceable to the National Institute of Standards and Technology (NIST). Supporting documentation relative to traceability is on file and available for examination upon request. This certificate is not to be reproduced, except in full, without the written approval of the Southwest Research Institute Department of Quality Assurance Calibration Laboratory.

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The uncertainty of the calibration was sufficient to determine that the item met the manufacturer's published specifications unless stated otherwise below.

Ambient Conditions: Temperature: 68.0 Degrees Fahrenheit Humidity: 38 % RH

Calibration Date: 12 Oct 01 **Calibration Procedure:** CLCP-PI-001, 6/99

Condition as Received: IN TOLERANCE

Condition as Released: IN TOLERANCE

Remarks:

Approved by:

Walt Hill, Supervisor
Institute Calibration Laboratory

Measurements performed by:

Mack Wood, Technician

SOUTHWEST RESEARCH INSTITUTE

Calibration Laboratory

WORK ORDER

Received by RCRUZ, 4/9/02 11:07:00AM



Arrived 4/9/02

Work Order **444048091**

Asset No. 007630 Manufacturer EDWARDS

Model D35726000

Equipment Type PRESSURE TRANSDUCER

Serial No. 995000176

Accessory No.

Interval 6 M

Calibration Procedure CLCP-PI-001, 6/99

Location T1

Div/Client DIV20

Custodian ANNE MARIE LEJEUNE

Mail Stop T1

Tel 6212

IN LINE

Special Instructions ONE TIME CALIBRATION.

Notify before adjustments or repairs. () Provide data with certificate Certificate Typ _____

Charge/Project No. 014 02.461 1.20

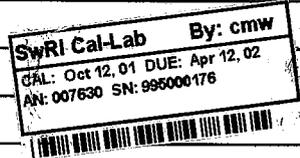
Requester/ Telephone MALISSA HILL

This information is correct for the work requested.

WORK NOTES

Date Hours Remarks/Notes

_____ Oct 12, 01 _____
_____ PCL/K.L _____
_____ _____
_____ _____
_____ _____



Date	Hours	Part Name	Part Number	Failure Description	Cost
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

444048091

WORK SUMMARY

Failure Description _____

Repair Action _____

Tech CMW Cal Hrs. 1 Repair Hrs _____ Parts Cost _____ Temp 68 F Hum. 39 %

Standards Used 2079

Date Picked Up 5/1/02

Picked Up By Melissa Hill

PRESSURE INDICATOR CALIBRATION DATA SHEET *

WORK ORDER #: 444048091 DATE: 4/17/02 TECH. C. M. Wood

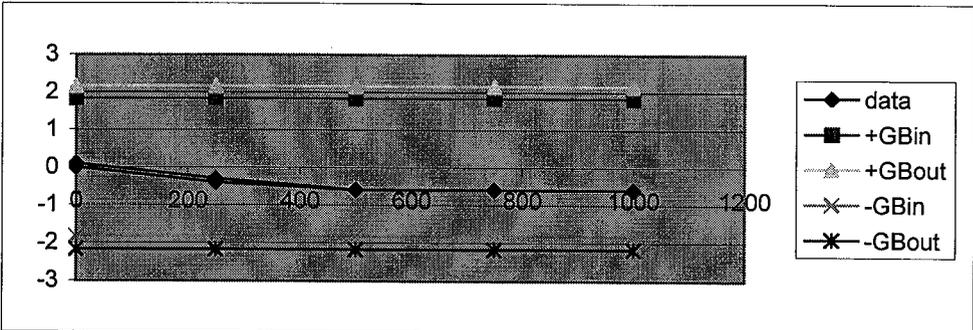
UUT: Mfr: Edwards Model: D35726000 Serial No. 5000176 Units Code
 ASN: 7630 LRP: 0 URP: 1000 UNITS: Bar 8
 RESOLUTION: 0.1 REPEATABILITY: 0 Grade n/a
 TOLERANCE +/-% : 0.2 zero (y/n) y SPAN: 1000 1000
 Grade tol 0.2 0.2 Analog or Digital? (a or d): d

CALIBRATION STANDARD Setability: 0.0002
 ASSET #: 2079 MFR: mensor tolerance 0.137895 Bar

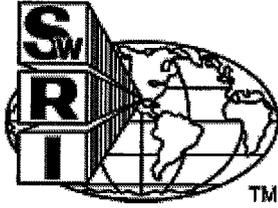
UNCERTAINTY BUDGET @ F.S.			
description	value	divisor	std unc
UUT resolution	0.05	1.73205	0.028868
UUT repeatability	0	1	0
Calibration standard	0.137895	1.73205	0.079614
Cal Std Setability	0.0002	1.73205	0.000115
combined uncertainty			8.5E-02
expanded uncertainty	k = 2		1.7E-01

TAR= 14.5
 TUR= 11.8

DATA tolerance 2							
INPUT	READING	ERROR	UNCERT	GBin	GBout	PASS	FAIL
0	0.1	0.1	0.169372	1.830628	2.169372	P	
250	249.7	-0.3	0.169372	1.830628	2.169372	P	
500	499.4	-0.6	0.169372	1.830628	2.169372	P	
750	749.4	-0.6	0.169372	1.830628	2.169372	P	
1000	999.4	-0.6	0.169372	1.830628	2.169372	P	
750	749.4	-0.6	0.169372	1.830628	2.169372	P	
500	499.4	-0.6	0.169372	1.830628	2.169372	P	
250	249.6	-0.4	0.169372	1.830628	2.169372	P	
0	0	0	0.169372	1.830628	2.169372	P	



*Instructions on Sheet 3



Southwest Research Institute
6220 Culebra Road
San Antonio, TX 78238
(210) 522-5215
Department of Quality Assurance
Calibration Laboratory

Certificate of Calibration

17 April 2002

Issued to: ANNE MARIE LEJEUNE DIV20 T1
Manufacturer/Model: EDWARDS D35726000
Description: PRESSURE TRANSDUCER
Serial Number: 005000176
Asset Number: 007630
Work Order Number: 444048091

This certifies the above item was calibrated in compliance with MIL-STD-45662A and ANSI/NC SL Z540-1-1994. Standards used in this calibration, described in the referenced calibration procedure with associated uncertainties or tolerances, are traceable to the National Institute of Standards and Technology (NIST). Supporting documentation relative to traceability is on file and is available for examination upon request. This certificate is not to be reproduced, except in full, without the written approval of the Southwest Research Institute Department of Quality Assurance Calibration Laboratory.

The uncertainty of the calibration was sufficient to determine that the item met the manufacturer's published specifications unless stated otherwise below.

Ambient Conditions: Temperature: 68.0 Degrees Fahrenheit Humidity: 39 % RH

Calibration Date: 17 Apr 02 **Calibration Procedure:** CLCP-PI-001, 6/99

Condition as Received: SEE ATTACHED DATA

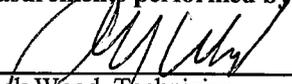
Condition as Returned: SEE ATTACHED DATA

Remarks:

Approved by:


Walt Hill, Metrology Group Leader
Institute Calibration Laboratory

Measurements performed by:


Mark Wood, Technician