

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

WORK ORDER

WORK ORDER # 36547 ASSET # 007631 DATE 26 Oct. 99

ITEM DATA:

Manufacturer Edwards Model 035717000
Description Strain gage Serial # 995000341
Accessories _____

ACTION REQUESTED cal

CUSTODIAN DW 20, Anne Marie Lejeune

Turned in by: _____ Phone 0218

CHARGE # JO, 01400, 161 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-PI-001 Jun 99
Date 11-3-99 Accuracy +0.2%
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] Anne-Marie LEJEUNE

36547

WORK ORDER 40302

RUSH

Date Received 8/24/00Asset No. 007631 Manufacturer EDWARDSModel D35727000Description STRAIN GAUGESerial Number 995000241Accessory Received/Required NONEDiv/CC ID NONEAccessory to Asset No. N/ADiv/CC DIV20Location T1Custodian ANNE MARIE LEJEUNE Tel. 6212Charge/Project No. 20.01402.461

Proprietary/Confidential

Date Required ROUTINEWork Requested CALIBRATIONReceiving Inspection OKDelivered By ANNE MARIE LEJEUNETel. 6212

WORK HISTORY

Date	Start Time	Stop Time	Notes

SwRI Cal-Lab By: mw
 CAL: 11/03/99 DUE: 05/03/00
 AN: 007631 SN: 995000241

Limited Cal:
 500 to 1000 mbar

11/03/99

PARTS

Part Name	Part Number	Cost	Failure Description

40302

Cab # 3492
 office 6212

WORK SUMMARY

Failure Description _____

Repair Action _____

Cal Procedure CLCP-PI-001, 6/99 Temp 67 F Hum 45 %Tech [Signature] Cal Hrs. 25 Repair Hrs. _____ Part Cost _____Action Taken [Signature]Standards Used 2079Date 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

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:** 995000241
Asset Number: 7631 **User ID Number:** n/a
Last Calibration: Nov 03, 1999
Date Received for Service: Aug. 24, 00 **Work Order Number:** 40302
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	60.1	60.1	2
	250	309.5	59.5	"
	500	559.2	59.2	"
	750	808.8	58.8	"
	1000	1058.0	58.0	"

Reviewed by *Walt Kie*



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 D35727000
Description: STRAIN GAUGE
Serial Number: 995000241
Asset Number: 007631

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: LIMITED CALIBRATION

Remarks: CALIBRATION LIMITED TO THE RANGE 500 TO 1000 MBAR

Approved by:

Jim Patterson, Supervisor, or Walt Hill, Metrologist

Certificate # 40302

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 444042326

Arrived 2/8/01

Asset No. 007631 Manufacturer EDWARDS

Model D35727000

Instrument Type/Class STRAIN GAUGE

Serial No. 995000241

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

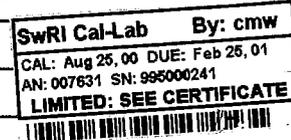
Delivered By / Telephone MELISSA HILL X 2636

IN4CAL

Special Instructions _____

WORK NOTES

Date	Hours	Remarks/Notes
		<u>Cal Lim to range 500-1000 mPa</u>



444042326

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 [Signature] Totals Cal Hours 2 Repair Hours _____ Parts Cost _____

Standards Used 2079

Date Picked Up 2-21-01

Picked Up By [Signature]

PRESSURE INDICATOR CALIBRATION DATA SHEET

WORK ORDER #: 444042326 DATE: 2/12/01 TECH. *[Signature]*

UUT: Edwards absolute pressure gauge

ASN: 7631 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

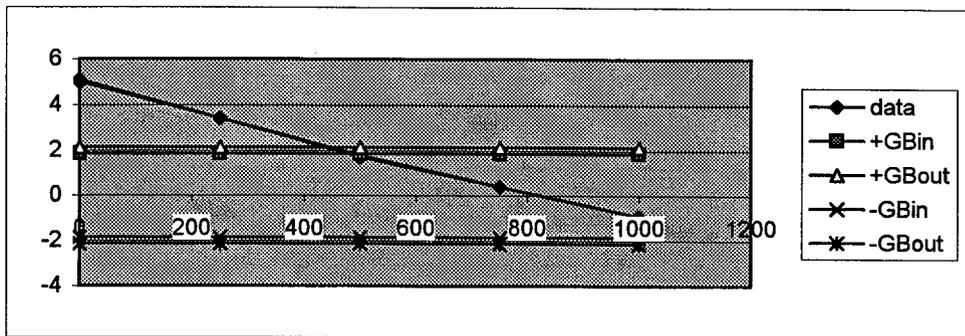
CALIBRATION STANDARD

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	5	5	0.139732	1.860268	2.139732		F
250	253.4	3.4	0.139732	1.860268	2.139732		F
500	501.8	1.8	0.139732	1.860268	2.139732	P	
750	750.4	0.4	0.139732	1.860268	2.139732	P	
1000	999.1	-0.9	0.139732	1.860268	2.139732	P	
750	750.4	0.4	0.139732	1.860268	2.139732	P	
500	501.7	1.7	0.139732	1.860268	2.139732	P	
250	253.4	3.4	0.139732	1.860268	2.139732		F
0	5.1	5.1	0.139732	1.860268	2.139732		F



*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 D35727000
Description: PRESSURE TRANSDUCER
Serial Number: 995000241
Asset Number: 007631
Work Order Number: 444042326

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.

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: 68.0 Degrees Fahrenheit Humidity: 36 % RH

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

Condition as Received: WITHIN LIMITED CALIBRATION

Condition as Released: LIMITED CALIBRATION

Remarks: CALIBRATION LIMITED TO THE RANGE: 500 TO 1000 MBAR

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

1 00000 0000 0000 0000 0000 0000 0000

Arrived 10/8/01

Work Order **444045514**

Asset No. 007631 Manufacturer EDWARDS

Model D35727000

Instrument Type/Class PRESSURE TRANSDUCER

Serial No. 995000241

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 X2636

Melissa Hill

The above is correct for the work requested.

WORK NOTES

Date Hours Remarks/Notes

9-12-01 Does not meet mfr's specs below 50umB

SwRI Cal Lab By: cmw
CAL: Feb 12, 01 DUE: Aug 12, 01
AN: 007631 SN: 995000241
LIMITED: SEE CERTIFICATE

Date Hours Part Name Part Number Failure Description Cost

Date	Hours	Part Name	Part Number	Failure Description	Cost

WORK SUMMARY

Failure Description _____

Repair Action _____

Calibration Procedure _____

Temp 68 F

Hum. 38 %

Tech CMW

Totals Cal Hours 2

Repair Hours _____

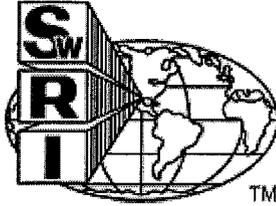
Parts Cost _____

Standards Used 2079, 3220

Date Picked Up 10-31-01

Picked Up By [Signature]

45514



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 D35727000
Description: PRESSURE TRANSDUCER
Serial Number: 995000241
Asset Number: 007631
Work Order Number: 444045514

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.

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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: LIMITED CALIBRATION

Condition as Released: LIMITED CALIBRATION

Remarks: CALIBRATION LIMITED TO THE RANGE 500 TO 1000 MBAR

Approved by:

Walt Hill, Supervisor
Institute Calibration Laboratory

Measurements performed by:

Mack Wood, Technician