

S O U T H W E S T R E S E A R C H I N S T I T U T E

Department of Quality Assurance
Calibration Laboratory

CERTIFICATE OF CALIBRATION

Issued to: DIV20 B51 KRISTI MEYER

Device No: 2866

Manufacturer: MOORE

Model: 30 PSI

Nomenclature: PRESSURE GAUGE

Serial Number: 356306

SwRI No: NONE

Cal interval 12 Mo.

Remarks

Accuracy: +/- .5 PSI

Procedure: SWRI

ENVIRONMENT

Temperature:

Humidity:

Location: SWRI BLDG. 145

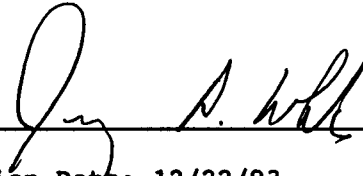
CONCLUSION

Tolerance/Remarks: Received into the system, introduced or reactivated

Room Temperature.

Calibration was in accord with requirements of MIL-STD-45662A. Measurements are traceable to the National Institute of Standards and Technology. Inspection and test data are on file and available for inspection.

Signed



Calibration Date: 12/22/93

Cal interval: 12 Months

Record Number: 00013021

Next Calibration Due: 12/22/94

S O U T H W E S T R E S E A R C H I N S T I T U T E

Department of Quality Assurance
Calibration Laboratory

Device Serial No: 356306

Calibration Date: 12/22/93

STANDARDS

Standard No: 1554 Manufacturer: AMETEK

Model: RK-300

Nomenclature: DEADWEIGHT TESTER

Serial No: 82167

Cal.Due: 03/26/94

Cal.Rec.No: 00010846

SOUTHWEST RESEARCH INSTITUTE

**Department of Quality Assurance
Calibration Laboratory**

**CERTIFICATE OF CALIBRATION
12/19/94**

Issued to: KRISTI MEYER
Manufacturer: MOORE
Nomenclature: PRESSURE GAUGE
Serial Number: 356306

DIV20 ,B51

Asset Number: 002866
Model Number: 30 PSI
SwRI Capital Number:

ENVIRONMENTAL CONDITIONS

Temperature: 68.0F

Relative Humidity: 75 %

CALIBRATION INFORMATION

Location: B184
Procedure Number: SWRI
Remarks: 10PSI READ 10.1, 20PSI READ 20.0, 30PSI READ 30.0.

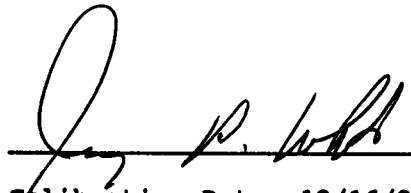
Technician: 7213
Accuracy: +/- .5 PSI
Received IN Tolerance

Calibration was in accordance with requirements of MIL-STD-45662A. Measurements are traceable to the National Institute of Standards and Technology. Inspection and test data are on file and available for inspection.

STANDARDS USED FOR CERTIFICATION

Asset #	Serial #	Mfg	Model #	Nomenclature	Cal Date	Int.	Cal Due
001554	82167	AMETE	RK-300	DEADWEIGHT TESTER	02/18/94	12	02/18/95

Certified by :



Certificate#: 16025

Calibration Date: 12/16/94
Interval: 12 months
Next Calibration Due: 12/16/95

SOUTHWEST RESEARCH INSTITUTE
Department of Quality Assurance
Calibration Laboratory

CERTIFICATE OF CALIBRATION
02/14/96

Issued to: RON GREEN DIV20 ,B57
Manufacturer/Model: MOORE/30 PSI
Nomenclature: PRESSURE GAUGE
Serial Number: 356306
Asset Number: 002866
Notes:

ENVIRONMENTAL CONDITIONS

Temperature: 72.0F

Relative Humidity: 26%

CALIBRATION INFORMATION

Procedure Number: SWRI
Remarks: SEE ATTACHED DATA SHEET

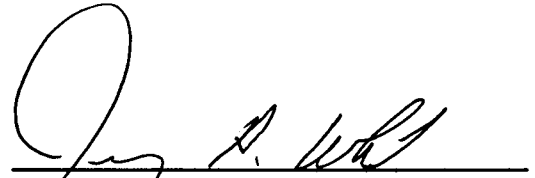
Accuracy: +/- .5 PSI
Received IN Tolerance

Calibration was in accordance with requirements of MIL-STD-45662A. Measurements are traceable to the National Institute of Standards and Technology. Inspection and test data are on file and available for inspection.

STANDARDS USED FOR CERTIFICATION

Asset #	Serial #	Mfg	Model #	Nomenclature	Cal Date	Int.	Cal Due
004163	340119	MENSO	5000	FIELD PRESSURE STANDARD	12/06/95	3	03/06/96

Certified by :



Calibration Date: 02/12/96
Interval: 12 months
Next Calibration Due: 02/12/97

Certificate #: 20196

CALIBRATION CONTINUATION SHEET

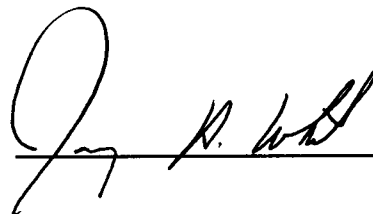
Cert. #: 20196

REMARKS

Dial reading	Pressure increasing	Pressure decreasing
30	29.820	xxxx
25	24.844	24.901
20	20.003	20.050
15	14.890	19.940
10	9.756	9.790
5	4.636	4.655

Page 2 of 2 Pages

Certified by:



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

WORK ORDER

CERTIFICATE # 24259 ASSET # 002066 DATE 07 FEB 97

ITEM DATA:
Manufacturer Moore Products Co. Model 3189.6
Description PRESSURE GAUGE Serial # 35096
Accessories _____

ACTION REQUESTED MI

CUSTODIAN Dir. 20, Ron Green

Turned in by: Melissa Phone 2012

CHARGE # 70-9998-001 Date Required _____

INSTRUMENT USED ON: NUCLEAR DOD NASA GLP SPPE
 OTHER _____

COPY OF CALIBRATION CERTIFICATE Yes No

CONDITION RECEIVED: _____ Out of tolerance, repaired to specifications
_____ In tolerance, minor adjustments/repairs made
 In tolerance, no adjustments/repairs
_____ Out of tolerance, adjusted to specifications
_____ Received into system, introduced or reactivated
_____ Calibration internal
_____ Realibility code

SWRI CALIBRATION LAB
(210) 522-5215
CAL 12 FEB 96 BY Jaw
DUE 24 FEB 97 ID 2866
SN 356306
24259

ACTION TAKEN: (Calibration/Repair/Parts) 5 point Cal

CAL ENVIRONMENT:
Temperature 70°F Humidity 36 %RH

CALIBRATED/REPAIRED:
By CMWend Cal Procedure 7033K6-4-427-1
Date 2-10-97 Accuracy Grade A 18-22
Cal Interval 12 mo Time to complete: _____
Next Cal due 2-10-98 Cal 1.5 hr Repair _____
Standards used (Asset#) 4163 5242

DATE COMPLETED 2-11-97
DATE PICKED UP 14/2/97 PICKED UP BY Melissa Hill

PRESSURE CALIBRATION CHECK FORM

Date 2-10-97 Work Order 24259 Technician DMW

A) Unit Under Test Gage Pan Green 20-5708-661
 Manufacturer Moore Model _____ Serial No. 356306
 Asset No. 2866 Range 0-30 psig Uncertainty Grade A 1% - 2%
 (Unc/4) ± 0.25%

B) Calibration Standard (1) Dig Ind
 Manufacturer Mensor Model 5014 Serial No. 340119A
 Asset No(s). 4163 Uncertainty ± 0.01%

C) Calibration Standard (2) N/A
 Manufacturer _____ Model _____ Serial No. _____
 Asset No. _____ Uncertainty _____

Env: Room Temp. 70°F Humidity 36% Baro Press. 29.42" Hg
 Conversion Factor(s) N/A

STANDARD UNITS: <u>PSIG</u> AS FOUND	INCREASING UNITS: <u>PSIG</u>	DECREASING UNITS: <u>PSIG</u>	TOLERANCE	
			MIN	MAX
6	6.3	6.3	5.7	6.3
12	12.2	12.3	11.7	12.3
18	18.2	18.2	17.7	18.3
24	24.1	24.2	23.7	24.3
30	30.2	↗	29.7	30.3
IN TOL				
AS DELIVERED				

NOTES:

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

WORK ORDER

CERTIFICATE # 28585 ASSET # 00866 DATE 11 Feb 98

ITEM DATA:

Manufacturer Mario Model 31876 0-30 psi 1308
Description pressure gauge Serial # 356306
Accessories _____

ACTION REQUESTED Cal

CUSTODIAN Don Giblin

Turned in by: Melissa Hill Phone 2012

CHARGE # 10 CH 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 _____

- CONDITION RECEIVED: _____ (F) Out of tolerance, repaired to specifications
_____ (G) In tolerance, minor adjustments/repairs made
 (J) In tolerance, no adjustments/repairs
_____ (K) Out of tolerance, adjusted to specifications
_____ (S) Received into system, introduced or reactivated

ACTION TAKEN: (Calibration/Repair/Parts) 5 Point Cal

SwRI CALIBRATION LAB
(210) 522-5215
CAL 2-10-97 BY CMW
DUE 2-10-98 ID 2866
SN 356306

CAL ENVIRONMENT:

Temperature 72°F Humidity 42 %RH

CALIBRATED/REPAIRED:

By MMW Cal Procedure CLCP-PI-001
Date 2-16-98 Accuracy Grade A (1% - 2%)
Cal Interval 12mo Reliability Code: _____
Next Cal due 2-16-99 Cal Time 1.5 Repair Time _____
Standards used (Asset#) 4163

DATE COMPLETED _____
DATE PICKED UP Melissa Hill PICKED UP BY o/s

28585

PRESSURE CALIBRATION CHECK FORM

Date 2-16-98 Work Order 28585 Technician JM Went
 Inst Cust. Ron Green Ext _____ Charge # 20-0751-006 time 1.5

A) Unit Under Test Moore Pressure Gage
 Model _____ Serial No. 356306 Asset No. 2866
 Range 0-30 Uncertainty Grade A (1%-2%) Std Unc _____
(rect)

B) Calibration Standard (1) Mensor Dig ind
 Model 5014 Serial No. 4163 Asset No. 4163
 Uncertainty ±0.03 psi (rect) 340119A Std Unc _____

C) Calibration Standard (2) N/A
 Model _____ Serial No. _____ Asset No. _____
 Uncertainty _____ Std Unc _____
 Comb Unc (rss B&C) 0.03 psi TUR (A Unc/Comb Unc) 10/1

If less than 4:1, Total combined calibration Unc (kXrss) _____
 k= _____ Explanation _____
 Env: Room Temp. 72°F Humidity 42% Baro Press. 29.16" Hg
 Conversion Factor(s) N/A

STANDARD	INCREASING	DECREASING	TOLERANCE: ±0.3/0.6	
UNITS: PSIG	UNITS: PSIG	UNITS: PSIG	UNITS: PSIG	
AS FOUND			MIN	MAX
6	6.3	6.3	5.4	6.6
12	12.2	12.2	11.7	12.3
18	18.1	18.1	17.7	18.3
24	24.1	24.2	23.4	24.6
30	30.1	30	29.4	30.6
AS DELIVERED				



Southwest Research Institute
6220 Culebra Road
San Antonio, TX 78238
Department of Quality Assurance
Calibration Laboratory

Certificate of Calibration

18 February 1998

Issued to: RON GREEN DIV20 B57
Manufacturer/Model: MOORE PRODUCTS CO. 0-30 PSI
Description: PRESSURE GAUGE
Serial Number: 356306
Asset Number: 002866

Environmental Conditions

Temperature: 72.00 Deg. F Humidity: 42 % RH

Calibration Information

Calibration was in accordance with requirements of MIL-STD-45662A and ANSI/NCSL Z540-1-1994. Measurements are traceable to the National Institute of Standards and Technology (NIST). This report may not be reproduced except in full without written approval of the originator. Inspection and test data are on file and available for inspection.

The uncertainty of the calibration was sufficient to determine that the instrument met the manufacturer's specifications.

Calibration Date: 16 Feb 98 Calibration Procedure: CLCP-PI-001

Interval: 12 months

Next Calibration Due: 16 Feb 99 Received: In Tolerance

Remarks:

Standards Used

Asset	MFR	Model	Description	Serial No.	Due Cal
004163	MENSOR	5014	FIELD PRESSURE STANDARD (3	340119A	18 Mar 98

Signed: *[Signature]*

Title: *[Signature]*

LAST PAGE OF REPORT
Total Pages Printed: 1

Certificate # 28585

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

WORK ORDER

CERTIFICATE # 33156 ASSET # 2866 DATE 03 FEB 99

ITEM DATA:

Manufacturer MOORE PRODUCTS Model 0-30 PSI
Description PRESSURE GAUGE Serial # 356306
Accessories _____

ACTION REQUESTED _____

CUSTODIAN DIV 20 RON GREEN

Turned in by: _____ Phone _____

CHARGE # 20-04 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:
- _____ (F) Out of tolerance, repaired to specifications
 - _____ (G) In tolerance, minor adjustments/repairs made
 - (J) In tolerance, no adjustments/repairs
 - _____ (K) Out of tolerance, adjusted to specifications
 - _____ (S) Received into system, introduced or reactivated

33156

ACTION TAKEN: (Calibration/Repair/Parts) 5 Point Cal

2-16-98

SWRI CALIBRATION LAB
(210) 522-5215
CAL 2-16-98 BY GMW
DUE 2-16-99 ID 2866
SN 356306

CAL ENVIRONMENT:
Temperature 68 °F Humidity 41 %RH

CALIBRATED/REPAIRED:
By GMW Cal Procedure CLCP-P1-001
Date 2-3-99 Accuracy Grade A
Cal Interval 12mo Reliability Code: _____
Next Cal due 2-3-00 Cal Time 1.5 Repair Time _____
Standards used (Asset#) 4163

DATE COMPLETED 2-3-99
DATE PICKED UP 2/4/99 PICKED UP BY Richard Hill

WORK ORDER 37916

Date Received 2/3/99

Asset No. 002866 Manufacturer MOORE PRODUCTS Model 0-30 PSI
 Description PRESSURE GAUGE Serial Number 356306
 Accessory Received/Required NONE
 Div/CC ID NONE Accessory to Asset No. N/A Accuracy GRADE A
 Div/CC DIV20 Location B57 Custodian RON GREEN Tel. 5305
 Charge/Project No. 20.01402.861 Proprietary/Confidential DATE REQUIRED ROUTINE
 Work Requested CALIBRATION
 Receiving Inspection O.K.
 Delivered By DWAYNE Tel. 2012

WORK HISTORY

Date	Start Time	Stop Time	Notes

Small Cal Lab BY: JMW
 CAL: 000000 DUE: 03/03/99
 AN: 000000 SN: 356306

PARTS

Part Name	Part Number	Cost	Failure Description

WORK SUMMARY

Failure Description _____
 Repair Action _____
 Cal Procedure CCCP-P1-001 Jun 99 Temp 68 F Hum 40 %
 Tech [Signature] Cal Hrs. 1.5 Repair Hrs. _____ Part Cost _____
 Action Taken Cal In Tol, ADJUSTED
 Standards Used 4163
 Date Cal 2-28-00 Int. 12 Mo. Date Due 2-28-00 Reliability Code _____
 Date Picked Up 03/07/00 Picked Up By Dwayne Hillbashi

37916

PRESSURE CALIBRATION CHECK FORM

Date 2-3-99 Work Order 33156 Technician AM Wood
 Inst Cust. Ron Green Ext _____ Charge # 20-0751-006 time 1-5

A) Unit Under Test Moore Press Gage
 Model _____ Serial No. 356306 Asset No. 2866
 Range 30 psi Uncertainty Comb A Std Unc _____

B) Calibration Standard (1) Mensor
 Model 5014 Serial No. 340119A Asset No. 4113
 Uncertainty ±0.03 psi Std Unc _____

C) Calibration Standard (2) N/A
 Model _____ Serial No. _____ Asset No. _____
 Uncertainty _____ Std Unc _____
 Comb Unc (rss B&C) 0.03 TUR (A Unc/Comb Unc) 10/1

If less than 4:1, Total combined calibration Unc (kXrss) _____
 k= _____ Explanation _____
 Env: Room Temp. 68°F Humidity 41% Baro Press. 29.97 ^{amw} 28.98 ^{HL}
 Conversion Factor(s) N/A

STANDARD	INCREASING UNITS: PSI	DECREASING UNITS: PSI	TOLERANCE: ± 0.3/0.6	
			MIN	MAX
AS FOUND				
6	6.3	6.3	5.4	6.6
12	12.2	12.2	11.7	12.3
18	18.1	18.1	17.7	18.3
24	24.2	24.2	23.4	24.6
30	30.2	30.2	29.4	30.6
AS DELIVERED				



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

3 February 1999

Issued to: RON GREEN DIV20 B57
Manufacturer/Model: MOORE PRODUCTS 0-30 PSI
Description: PRESSURE GAUGE
Serial Number: 356306
Asset Number: 002866

This certifies the above item was calibrated in compliance with MIL-STD-45662A and ANSI/NCSL 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.

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. Degrees Fahrenheit Humidity: 41 % RH

Calibration Date: 3 Feb 99 **Calibration Procedure:** CLCP-PI-001 1997

Condition as Received: IN TOLERANCE

Condition as Released: IN TOLERANCE

Remarks:

Mack Wood / Technician



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

28 February 2000

Issued to: RON GREEN DIV20 B57
Manufacturer/Model: MOORE PRODUCTS 0-30 PSI
Description: PRESSURE GAUGE
Serial Number: 356306
Asset Number: 002866

This certifies the above item was calibrated in compliance with MIL-STD-45662A and ANSI/NCCL 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: 40 % RH


Calibration Date: 28 Feb 00 **Calibration Procedure:** CLCP-PI-001 JUN99

Condition as Received: IN TOLERANCE

Condition as Released: IN TOLERANCE, ADJUSTED

Remarks:

Approved by:




Jim Patterson, Supervisor, or Walt Hill, Metrologist

Certificate # 37916

m:\a2la.rpt Rev date 14 Dec 99

Measurements performed by:



Mack Wood, Technician

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