

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 B57 NARASI SRIDHAR

Device No: 2415

Manufacturer: MOORE

Model: 15 PSI

Nomenclature: PRESSURE GAUGE

Serial Number: 1593009

SwRI No: NONE

Cal interval 12 Mo.

Remarks

Accuracy: MFGR

Procedure: MFGR

ENVIRONMENT

Temperature: 0    Humidity: 0    Location: SWRI BLDG 145

CONCLUSION

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

Standard Reading:	Unit Under Test:
5 psi	4.5 psi
10 psi	9.5 psi
15 psi	14.5 psi

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: 06/09/93

Cal interval: 12 Months

Record Number: 00011500

Next Calibration Due: 06/09/94

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: 1593009

Calibration Date: 06/09/93

STANDARDS

Standard No: 1554    Manufacturer: AMETEK

Model: RK-300

Nomenclature: DEADWEIGHT TESTER

Serial No: 82167

Cal.Due: 03/26/94

Cal.Rec.No: 00010846

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 B57 RON GREEN

Device No: 2415

Manufacturer: MOORE

Model: 15 PSI

Nomenclature: PRESSURE GAUGE

Serial Number: 1593009

SwRI No: NONE

Cal interval 12 Mo.

Remarks

Accuracy: MFGR

Procedure: MFGR

ENVIRONMENT

Temperature:

Humidity:

Location: SWRI DIV04 BLDG. 145

CONCLUSION

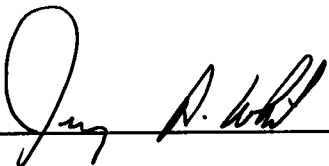
Tolerance/Remarks: Received in tolerance, no adjustments made

Room Temperature.

Standard Reading:	Unit Under Test:
15 psi	15.0 psi
10 psi	9.9 psi
5 psi	4.9 psi
0 psi	0 psi

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: 06/16/94

Cal interval: 12 Months

Record Number: 00014383

Next Calibration Due: 06/16/95

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: 1593009

Calibration Date: 06/16/94

STANDARDS  
-----

Standard No: 1554    Manufacturer: AMETEK

Model: RK-300

Nomenclature: DEADWEIGHT TESTER

Serial No: 82167

Cal.Due: 02/18/95

Cal.Rec.No: 00013739

**SOUTHWEST RESEARCH INSTITUTE**

**Department of Quality Assurance  
Calibration Laboratory**

**CERTIFICATE OF CALIBRATION  
06/21/95**

Issued to: **RON GREEN**                      **DIV20**                      **,B57**  
Manufacturer: **MOORE**  
Nomenclature: **PRESSURE GAUGE**  
Serial Number: **1593009**  
Notes:

Asset Number: **002415**  
Model Number: **15 PSI**  
  
SwRI/Div. I.D. #: **NONE**

**ENVIRONMENTAL CONDITIONS**

Temperature: **65.0F**

Relative Humidity: **65%**

**CALIBRATION INFORMATION**

Procedure Number: **MFGR**  
Remarks:                      **ERROR IS LESS THAN +/-0.25PSI**

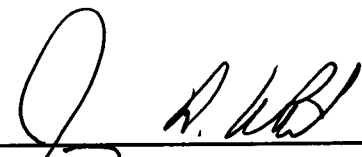
Accuracy:                      **MFGR SPECS**  
Received IN                      **Tolerance**

**Calibration was in accordance with requirements of MIL-STD-45662A.  
Measurements are traceable to the National Institute of Standards and Tech-  
nology. 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	03/02/95	12	03/02/96

Certified by :

  
\_\_\_\_\_  
Calibration Date: **06/20/95**  
Interval: **12 months**  
Next Calibration Due: **06/20/96**

Certificate#: **17778**



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Department of Quality Assurance  
Calibration Laboratory • 522-5215

WORK ORDER

CERTIFICATE # 24260 ASSET # 002415 DATE 07 Feb. 97

ITEM DATA:

Manufacturer Mono Products Co Model 3189-5

Description pressure gauge Serial # 1593009

Accessories \_\_\_\_\_

ACTION REQUESTED cal

CUSTODIAN Div. 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 20 Feb 97 BY AW  
DUE 20 Feb 98 ID 2415  
SN 1593009

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

CAL ENVIRONMENT:  
Temperature 70°F Humidity 37%RH

CALIBRATED/REPAIRED:  
By AW Cal Procedure T033K6-4-427-1  
Date 2-10-97 Accuracy Grade A  
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 Fier

24260







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. 0-15 PSI  
Description: PRESSURE GAUGE  
Serial Number: 1593009  
Asset Number: 002415

## 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: 

Title: 

LAST PAGE OF REPORT  
Total Pages Printed: 1

Certificate # 28587

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

**WORK ORDER**

CERTIFICATE # 28587 ASSET # 002415 DATE 11 FEB 98

ITEM DATA:

Manufacturer Moo... Model 91001 31875 0.15-150  
Description pressure gauge Serial # 1593009  
Accessories \_\_\_\_\_

ACTION REQUESTED Cal

CUSTODIAN Div. 10 Ken Green

Turned in by: Melissa 11.11 Phone 2012

CHARGE # 20-011 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 2415  
SN 1593009

CAL ENVIRONMENT:  
Temperature 72 °F Humidity 42 %RH

CALIBRATED/REPAIRED: By AM Ward Cal Procedure CLCP-PI-001  
Date 2-16-98 Accuracy Grade A (1% - 2%)  
Cal Interval 12 mo Reliability Code: \_\_\_\_\_  
Next Cal due 2-16-99 Cal Time 1.5 Repair Time \_\_\_\_\_  
Standards used (Asset#) 4163

DATE COMPLETED \_\_\_\_\_  
DATE PICKED UP 02/10/98 PICKED UP BY Melissa Ni

28587

## PRESSURE CALIBRATION CHECK FORM

Date 2-16-98 Work Order 28587 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. 1593009 Asset No. 2415  
 Range 0-15 psi Uncertainty Grade A (1%-2%) Std Unc \_\_\_\_\_  
(rect)

B) Calibration Standard (1) Mensor Dig ind  
 Model 5014 Serial No. 4463 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) 5/1

If less than 4:1, Total combined calibration Unc (kXrss) \_\_\_\_\_  
 k= \_\_\_\_\_ Explanation \_\_\_\_\_  
 Env: Room Temp. 72°F Humidity 42 Baro Press. 29.17419  
 Conversion Factor(s) N/A

STANDARD	INCREASING	DECREASING	TOLERANCE: ±0.15/0.3	
UNITS: PSIG	UNITS: PSIG	UNITS: PSIG	UNITS: PSIG	
AS FOUND			MIN	MAX
3	3.0	3.0	2.7	3.3
6	5.9	6.0	5.85	6.15
9	8.9	8.9	8.85	9.15
12	11.9	11.9	11.7	12.3
15	15.0	15.0	14.7	15.3
<del>F.A.T.O.L.</del>				
AS DELIVERED				

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

WORK ORDER

CERTIFICATE # 33158 ASSET # 2415 DATE 02 FEB 99

ITEM DATA:

Manufacturer MOORE PRODUCTS Model 15 PSI  
Description PRESSURE GAUGE Serial # 1593009  
Accessories \_\_\_\_\_

ACTION REQUESTED \_\_\_\_\_

CUSTODIAN DIV 20 RON GREEN

Turned in by: \_\_\_\_\_ Phone 2012

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

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

2-16-98

SWRI CALIBRATION LAB  
(210) 522-5215  
CAL 2-16-98 BY OmW  
DUE 2-16-99 ID 2415  
SN 1593009

CAL ENVIRONMENT:

Temperature 68 °F Humidity 41 %RH

CALIBRATED/REPAIRED: OmW

By \_\_\_\_\_ Cal Procedure CCCP-P1-001

Date 2-3-99 Accuracy Grade A

Cal Interval 12mo Reliability Code: \_\_\_\_\_

Next Cal due 2-3-00 Cal Time 1.5h Repair Time \_\_\_\_\_

Standards used (Asset#) 4163

DATE COMPLETED 2-3-99

DATE PICKED UP 2/4/99 PICKED UP BY Y. Zill

33158

## PRESSURE CALIBRATION CHECK FORM

Date 2-3-99 Work Order 33158 Technician Clay Ward  
 Inst Cust. Ron Green Ext \_\_\_\_\_ Charge # 20-0751-006 time 1.5 hr

A) Unit Under Test Moore Pres Gage  
 Model \_\_\_\_\_ Serial No. 1593009 Asset No. 2415  
 Range 15 psi Uncertainty Grade A Std Unc \_\_\_\_\_

B) Calibration Standard (1) Mensor  
 Model 5014 Serial No. 340119A Asset No. 4163  
 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) 5/1

If less than 4:1, Total combined calibration Unc (kXrss) \_\_\_\_\_  
 k = \_\_\_\_\_ Explanation \_\_\_\_\_  
 Env: Room Temp. 68°F Humidity 41% Baro Press. 29.05"Hg  
 Conversion Factor(s) N/A

STANDARD	INCREASING	DECREASING	TOLERANCE: ±0.15/0.3	
			MIN	MAX
UNITS: <u>psi</u>	UNITS: <u>psi</u>	UNITS: <u>psi</u>	UNITS: <u>psi</u>	
AS FOUND				
3	3.0	3.0	2.7	3.3
6	5.9	5.9	5.85	6.15
9	8.9	8.9	8.85	9.15
12	11.9	11.9	11.7	12.3
15	15.0	↑	14.7	15.3
	<u>In Tol</u>			
AS DELIVERED				

NOTES:



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

Accredited



Certificate #  
0972-01

## Certificate of Calibration

3 February 1999

**Issued to:** RON GREEN DIV20 B57  
**Manufacturer/Model:** MOORE PRODUCTS 0-15 PSI  
**Description:** PRESSURE GAUGE  
**Serial Number:** 1593009  
**Asset Number:** 002415

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

## Calibration Laboratory

### WORK ORDER

Processed by RCRUZ at 2:46:41PM on 12/20/00

1 10011 0011 0010 1001 0001 1001 0011 0011

**Work Order 444041851**

Arrived 12/20/00

Asset No. 002415 Manufacturer MOORE PRODUCTS Model 0-15 PSI

Instrument Type/Class PRESSURE GAUGE Serial No. 1593009

Accessory No. Calibration Procedure CLCP-PI-001, 6/99 Location B57

Div/Client DIV20 Custodian RON GREEN Mail Stop B57 Tel. 5305

Charge/Project No. 20.00751.006 Delivered By / Telephone TROY MAXWELL X2012

**IN4CAL**

Special Instructions \_\_\_\_\_

### WORK NOTES

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

SWRI Cal Lab BY: RCRUZ  
CAL: 02/03/00 DUE: 02/03/00  
AN: 002415 SN: 1593009

### REPAIR PARTS

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

### WORK SUMMARY

Failure Description \_\_\_\_\_

Repair Action \_\_\_\_\_

Calibration Procedure \_\_\_\_\_ Temp 68 F Hum. 40 %

Tech RCR Totals Cal Hours 1.5 Repair Hours \_\_\_\_\_ Parts Cost \_\_\_\_\_

Standards Used 4163

Date Picked Up 1-8-01

Picked Up By Troy Maxwell

## PRESSURE CALIBRATION DATA SHEET

Date 1-04-01 Work Order 41851 Technician [Signature]  
 Inst Cust. Ron Green Ext 5305 Charge # 20-00751-006 time 1.5

A) Unit Under Test Moore Press Gauge  
 Model \_\_\_\_\_ Serial No. 1593009 Asset No. 2415  
 Range 15 PSI Uncertainty Grade A Std Unc \_\_\_\_\_

B) Calibration Standard (1) AVA Monitor  
 Model 5014 Serial No. 340119A Asset No. 4163  
 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) (5/1)

If less than 4:1, Total combined calibration Unc (kXrss) \_\_\_\_\_  
 k= \_\_\_\_\_ Explanation \_\_\_\_\_  
 Env: Room Temp. 68 Humidity 40 Baro Press. 29.50" Hg  
 Conversion Factor(s) N/A

STANDARD	INCREASING	DECREASING	TOLERANCE: ±1.5 / 3.0	
	UNITS: PSI	UNITS: PSI	UNITS: PSI	
AS FOUND			MIN	MAX
3	3.0	3.0	2.7	3.3
6	5.9	6.0	5.85	6.15
9	8.9	8.9	8.85	9.15
12	11.9	11.9	11.7	12.7
15	15.0	→	14.7	15.3
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

4 January 2001

**Issued to:** RON GREEN DIV20 B57  
**Manufacturer/Model:** MOORE PRODUCTS 0-15 PSI  
**Description:** PRESSURE GAUGE  
**Serial Number:** 1593009  
**Asset Number:** 002415

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: 68.0 Degrees Fahrenheit Humidity: 40 % RH

**Calibration Date:** 4 Jan 01 **Calibration Procedure:** CLCP-PI-001, 6/99

**Condition as Received:** IN TOLERANCE

**Condition as Released:** IN TOLERANCE

**Remarks:**

**Approved by:**

Jim Patterson, Supervisor, or Walt Hill, Metrologist

**Certificate # 444041851**

m\A2la.rpt Rev date 22 May 00

**Measurements performed by:**

Mack Wood, Technician