

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: 2241

Manufacturer: MOORE

Model: 3356-1

Nomenclature: PRESSURE GAGE

Serial Number: 0613001

SwRI No: NONE

Remarks

Accuracy: MFGR

Procedure: MFGR

ENVIRONMENT

Temperature: 72 Humidity: 40 Location: ROOM A11 B68 SWRI

CONCLUSION

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

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

Anthony P. [Signature]

Calibration Date: 03/02/93

Record Number: 00010819

Next Calibration Due: 09/02/93 ✓

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: 0613001

Calibration Date: 03/02/93

STANDARDS

Standard No: 1554 Manufacturer: AMETEK

Model: RK-300

Nomenclature: DEADWEIGHT TESTER

Serial No: 82167

Cal.Due: 03/05/93

Cal.Rec.No: 00008974

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: 2241

Manufacturer: MOORE

Model: 3356-1

Nomenclature: PRESSURE GAGE

Serial Number: 0613001

SwRI No: NONE

Cal interval 6 Mo.

Remarks

Accuracy: +/-1PSI

Procedure: SWRI

ENVIRONMENT

Temperature:

Humidity:

Location: SWRI DIV20 BLDG. 57

CONCLUSION

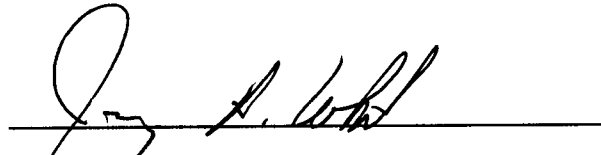
Tolerance/Remarks: Received in tolerance, no adjustments made

Room Temperature.

Standard Reading:	Gage Reading:
0	0
10	10.0
20	20.0
30	29.9
40	39.8
50	49.6
60	59.6

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: 05/02/94

Cal interval: 6 Months

Record Number: 00014002

Next Calibration Due: 11/02/94

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: 0613001

Calibration Date: 05/02/94

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
12/19/94**

Issued to: RON GREEN
Manufacturer: MOORE
Nomenclature: PRESSURE GAGE
Serial Number: 0613001

DIV20 ,B57

Asset Number: 002241
Model Number: 3356-1
SwRI Capital Number:

ENVIRONMENTAL CONDITIONS

Temperature: 69.0F

Relative Humidity: 75 %

CALIBRATION INFORMATION

Location: B184
Procedure Number: SWRI
Remarks: 20PSI READ 20.0, 40PSI READ 39.8, 60PSI READ 59.6.

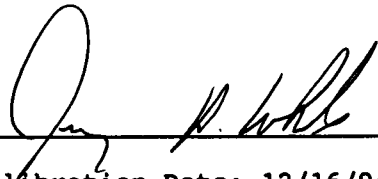
Technician: 7213
Accuracy: MFGR SPECS
Received IN Tolerance

Calibration was in accordance with requirements of MIL-STD-45662A. Measurements are traceable to the National Institute of Standards and 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#: 16027

Calibration Date: 12/16/94
Interval: 6 months
Next Calibration Due: 06/16/95

" Revised COPY "

SOUTHWEST RESEARCH INSTITUTE

Department of Quality Assurance
Calibration Laboratory

CERTIFICATE OF CALIBRATION
01/09/95

Issued to: RON GREEN
Manufacturer: MOORE
Nomenclature: PRESSURE GAGE
Serial Number: 0613001

DIV20 ,B57

Asset Number: 002241
Model Number: 3356-1
SwRI Capital Number:

ENVIRONMENTAL CONDITIONS

Temperature: 69.0F

Relative Humidity: 75 %

CALIBRATION INFORMATION

Location: B184
Procedure Number: SWRI
Remarks: 20PSI READ 20.0, 40PSI READ 39.8, 60PSI READ 59.6.

Technician: 7213
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 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#: 16027 R

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

" Revised COPY "

December 27, 1994

Department of Quality Assurance
Calibration Laboratory

Attn: Jerry White

Re: 60 psi Moore Pressure Gage, serial number 0613001.

Jerry,

Please change the calibration interval for this gage from 6 months
to 12 months.

Thankyou



Ron Green

SOUTHWEST RESEARCH INSTITUTE

**Department of Quality Assurance
Calibration Laboratory**

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

Issued to: **RON GREEN**
Manufacturer: **MOORE**
Nomenclature: **PRESSURE GAGE**
Serial Number: **0613001**
Notes:

DIV20 ,B57

Asset Number: **002241**
Model Number: **3356-1**
SwRI/Div. I.D. #:

ENVIRONMENTAL CONDITIONS

Temperature: **65.0F**

Relative Humidity: **65%**

CALIBRATION INFORMATION

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

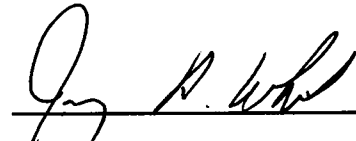
Accuracy: **MFGR SPECS**
Received IN **Tolerance**

**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#: **17783**

SOUTHWEST RESEARCH INSTITUTE

Department of Quality Assurance

Calibration Laboratory • 522-5215

WORK ORDER

CERTIFICATE # 24369 ASSET # 002241 DATE 18 FEB 97

ITEM DATA:

Manufacturer Moran Products Co. Model 060 PSI 9151
Description Pressure Gauge Serial # 0613001
Accessories _____

ACTION REQUESTED Cal

CUSTODIAN Dr. Melissa For Green

Turned in by: Melissa Hill Phone _____

CHARGE # 20-5708-661 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 interval
_____ Reliability code

SWRI CALIBRATION LAB
(210) 522-5215
CAL 7-30-96 BY Chw
DUE 1-30-97 ID 2241
SN 0613001

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

CAL ENVIRONMENT:
Temperature 71 °F Humidity 42%RH

CALIBRATED/REPAIRED:
By MW Cal Procedure T033K6-4-427-1
Date 2-24-97 Accuracy Grade A
Cal Interval 12 mo Time to complete:
Next Cal due 2-24-98 Cal 2h Repair _____
Standards used (Asset#) 4163 5242

DATE COMPLETED 2-25-97
DATE PICKED UP 2/2/97 PICKED UP BY Melissa Hill

24369

PRESSURE CALIBRATION CHECK FORM

Date 2-16-98 Work Order 28586 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. 0613001 Asset No. 2241
 Range 0-60 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) 20/1

If less than 4:1, Total combined calibration Unc (kXrss) _____
 k= _____ Explanation _____
 Env: Room Temp. 72°F Humidity 42% Baro Press. 29.15" Hg
 Conversion Factor(s) N/A

STANDARD	INCREASING	DECREASING	TOLERANCE: ± 0.6 / 1.2	
UNITS: PSIG	UNITS: PSIG	UNITS: PSIG	UNITS: PSIG	
AS FOUND			MIN	MAX
12	12.0	12.0	10.8	13.2
24	24.0	24.0	23.4	24.6
36	35.9	35.9	35.4	36.6
48	47.9	47.9	46.8	49.2
60	59.9	59.9	58.8	61.2
AS DELIVERED	<u>In Tol</u>			



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. 0-60 PSI
 Description: PRESSURE GAUGE
 Serial Number: 0613001
 Asset Number: 002241

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: *Caltech*

LAST PAGE OF REPORT
 Total Pages Printed: 1

Certificate # 28586

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

WORK ORDER

CERTIFICATE # 2886 ASSET # 002741 DATE 11 Feb 98

ITEM DATA:

Manufacturer Moran Model 0-60 ps. 9151
Description pressure gauge Serial # 0613001
Accessories _____

ACTION REQUESTED (01)

CUSTODIAN D. W. In. Coor

Turned in by: Melissa H.H Phone 7017

CHARGE # 7001 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 2-24-97 BY OMW
DUE 2-24-98 ID 2241
SN 0613001

CAL ENVIRONMENT:
Temperature 72 °F Humidity 42 %RH

CALIBRATED/REPAIRED: By OMW 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 Melissa H.H PICKED UP BY of/wh

2886



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

4 February 1999

Issued to: RON GREEN DIV20 B57
Manufacturer/Model: MOORE PRODUCTS 0-60 PSI
Description: PRESSURE GAUGE
Serial Number: 0613001
Asset Number: 002241

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: 4 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
Department of Quality Assurance
Calibration Laboratory • 522-5215

WORK ORDER

CERTIFICATE # 33159 ASSET # 2241 DATE 03 FEB 99

ITEM DATA:

Manufacturer MOORE PRODUCTS Model 0-60 PSI
Description PRESSURE GAUGE Serial # 0613001
Accessories _____

ACTION REQUESTED _____

CUSTODIAN DV. 20, Ron Green

Turned in by: Melissa Hill Phone 2912

CHARGE # 2004 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 CH
DUE 2-16-99 ID 2241
SN 0613001

CAL ENVIRONMENT:

Temperature 68 °F Humidity 41 %RH

CALIBRATED/REPAIRED:

By OM Wood Cal Procedure CLCP-P1-001
Date 2-4-99 Accuracy Grade A
Cal Interval 1 mo Reliability Code: _____
Next Cal due 2-4-00 Cal Time 1.5 Repair Time _____
Standards used (Asset#) 4163

DATE COMPLETED 2-4-99
DATE PICKED UP 2/4/99 PICKED UP BY Melissa Hill

33159

PRESSURE CALIBRATION CHECK FORM

Date 2-4-99 Work Order 33159 Technician JM Wood
 Inst Cust. Ron Green Ext _____ Charge # 20-0751-006 time 1.5

A) Unit Under Test Moore Press Gage
 Model _____ Serial No. 613001 Asset No. 2241
 Range 60 psi Uncertainty Grade A Std Unc _____

B) Calibration Standard (1) Mensor
 Model 5014 Serial No. 3401194 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 psi TUR (A Unc/Comb Unc) 20/1

If less than 4.1, Total combined calibration Unc (kXrss) _____
 k= _____ Explanation _____
 Env: Room Temp. 68°F Humidity 41% Baro Press. 28.94" Hg
 Conversion Factor(s) N/A

STANDARD UNITS: PSI AS FOUND	INCREASING UNITS: PSI	DECREASING UNITS: PSI	TOLERANCE: ± 0.6/1.2	
			MIN	MAX
12	12.0	12.0	10.8	13.2
24	24.0	24.0	23.4	24.6
36	35.9	36.0	35.4	36.6
48	47.9	47.9	46.8	49.2
60	60.0	→	58.8	61.2
AS DELIVERED	<u>Int'l</u>			

NOTES:

PRESSURE CALIBRATION DATA SHEET

Date 6-29-00 Work Order 39524 Technician [Signature]
 Inst Cust. RanGreen Ext 5305 Charge # 20-00751-006 time 1.5

A) Unit Under Test Moore Press Gauge
 Model _____ Serial No. 0613001 Asset No. 2241
 Range 60 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 PSI TUR (A Unc/Comb Unc) 20/1

If less than 4:1, Total combined calibration Unc (kXrss) _____
 k= _____ Explanation _____
 Env: Room Temp. 68°F Humidity 46% Baro Press. 27.18" Hg
 Conversion Factor(s) N/A

STANDARD	INCREASING	DECREASING	TOLERANCE: ± 0.6/1.2	
			MIN	MAX
UNITS: PSI	UNITS: PSI	UNITS: PSI	UNITS: PSI	
AS FOUND				
12	12	12.1	10.8	13.2
24	24.1	24.1	23.4	24.6
36	36.0	36.0	35.4	36.6
48	47.9	48	46.8	49.2
60	59.9	→	58.8	61.2
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

29 June 2000

Issued to: RON GREEN DIV20 B57
Manufacturer/Model: MOORE PRODUCTS 0-60 PSI
Description: PRESSURE GAUGE
Serial Number: 0613001
Asset Number: 002241

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: 46 % RH

Calibration Date: 29 Jun 00 **Calibration Procedure:** CLCP-PI-001, 6/99

Condition as Received: In Tolerance

Remarks:

Approved by:



Jim Patterson, Supervisor, or Walt Hill, Metrologist

Measurements performed by:



Mack Wood, Technician

Certificate # 39524

m:\a2la.rpt Rev date 22 May 00

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