

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

WORK ORDER

CERTIFICATE # 22441 ASSET # 004994 DATE 8/21/96

ITEM DATA:

Manufacturer ERTCO Model 15-166A
Description Thermometer Serial # C96-784
Accessories Cal

ACTION REQUESTED _____

CUSTODIAN Daryl Dean DIV 20

Turned in by: Daryl Dean Phone 6090

CHARGE # 20-5708-573 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

ACTION TAKEN: (Calibration/Repair/Parts) Calibrated per procedure

22441

CAL ENVIRONMENT:
Temperature 78°F Humidity 38%RH

CALIBRATED/REPAIRED:
By [Signature] Cal Procedure 01-9-30-5103
Date 26 AUG 96 Accuracy +/- 1°C
Cal Interval 6 mths Time to complete:
Next Cal due 26 FEB 97 Cal 2.5 Repair _____
Standards used (Asset#) 219, 328

DATE COMPLETED 26 AUG 96
DATE PICKED UP 8/27/96 PICKED UP BY [Signature]

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

WORK ORDER

CERTIFICATE # 24334 ASSET # 004994 DATE 17 Feb 97

ITEM DATA:

Manufacturer Ergo Model 15 166A
Description Thermometer Serial # C96-7021
Accessories _____

ACTION REQUESTED cal

CUSTODIAN Dir. 20, Danell Dunn

Turned in by: _____ Phone _____

CHARGE # 20-5708-561 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
 - _____ Reliability code

ACTION TAKEN: (Calibration/Repair/Parts) Calibrated by procedure
std 447
0.06°C 0.0°C

CAL ENVIRONMENT:
Temperature 76 °F Humidity 40 %RH

CALIBRATED/REPAIRED:
By [Signature] Cal Procedure WI-9-30-27763
Date 21 Feb 97 Accuracy ±1°C
Cal Interval 6 Mo Time to complete:
Next Cal due 21 Aug 97 Cal 3.0 Repair _____
Standards used (Asset#) 319, 324

DATE COMPLETED 21 Feb 97
DATE PICKED UP 2/26/97 PICKED UP BY [Signature]

24334

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

WORK ORDER

CERTIFICATE # 2054 ASSET # 004994 DATE 25 Aug 97

ITEM DATA:

Manufacturer Fisher Brand / E. I. Co Model 15-106A
Description Thermometer Serial # C96-786
Accessories _____

ACTION REQUESTED MI

CUSTODIAN Dr. R. David Durr

Turned in by: _____ Phone 602

CHARGE # 20-508-561 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) Calibrated by procedure
277 447
0.01°C 0.0°C

2054

CAL ENVIRONMENT:
Temperature 82°F Humidity 37%RH

CALIBRATED/REPAIRED:
By [Signature] Cal Procedure 41-9-30-7H03
Date 3 Aug 97 Accuracy ± 1°C
Cal Interval 60 days Reliability Code: 3
Next Cal due 3 Oct 98 Cal Time 1.5 Repair Time _____
Standards used (Asset#) 218, 525

DATE COMPLETED 4 Aug 97
DATE PICKED UP 9/10/97 PICKED UP BY [Signature]

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

WORK ORDER

CERTIFICATE # 28927 ASSET # 0011994 DATE 09 Mar 98

ITEM DATA:

Manufacturer Tisha Model 15.166A
Description Thermocouples Serial # 016-180
Accessories _____

ACTION REQUESTED Cal

CUSTODIAN Dir. To, Carol Ann

Turned in by: _____ Phone 6090

CHARGE # 20-1402-91 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) _____

Cal steel unit
0.02°C 0.2°C

CAL ENVIRONMENT: Temperature 72°F Humidity 26 %RH

CALIBRATED/REPAIRED:
By K. S. [Signature] Cal Procedure WI 9-30-7#03
Date 10 Mar 98 Accuracy ±1°C
Cal Interval 6 mo Reliability Code: 4
Next Cal due 10 Sep 98 Cal Time 1.0 Repair Time _____
Standards used (Asset#) 29, 328

DATE COMPLETED 10 Mar 98
DATE PICKED UP 3/18/98 PICKED UP BY [Signature]

28927

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

WORK ORDER

CERTIFICATE # 31639 ASSET # 004994 DATE 19 Oct 98

ITEM DATA:

Manufacturer Fisher Model 15-1664
Description Thermometer Serial # 196-784
Accessories _____

ACTION REQUESTED Cal

CUSTODIAN D.V. 20, Darrell Dunn

Turned in by: _____ Phone 6090

CHARGE # 20-1402-571 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 MKS Date 10-19-98

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) Calibrated by Anderson

CAL ENVIRONMENT:
Temperature 75 °F Humidity 54 %RH

CALIBRATED/REPAIRED:
By R. Anderson Cal Procedure ASTM E77-92
Date 10/27/98 Accuracy ±0.5
Cal Interval 6 mths Reliability Code: 5
Next Cal due 10/27/99 Cal Time 1.0 Repair Time _____
Standards used (Asset#) 219, 328

DATE COMPLETED 10/27/98
DATE PICKED UP 10/22/98 PICKED UP BY DD

31639

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

WORK ORDER

CERTIFICATE # 34399 ASSET # 004994 DATE 05 May 99

ITEM DATA:

Manufacturer Fisherbrand Model 15-166A
Description Thermometer Serial # 196-784
Accessories _____

ACTION REQUESTED Cal

CUSTODIAN Div. 20, Darrell Dunn

Turned in by: _____ Phone 6090

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 MAC Date 05-05-99

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) Calibrated by [Signature]

CAL ENVIRONMENT:
Temperature 71 °F Humidity 58 %RH

CALIBRATED/REPAIRED:
By [Signature] Cal Procedure F.O. 3383-1-42-1, Apr 97
Date 12 May 99 Accuracy 0.1% class
Cal Interval 6 mos Reliability Code: F
Next Cal due 12 Nov 99 Cal Time 1.5 Repair Time _____
Standards used (Asset#) 5174, 7001

DATE COMPLETED 12 May 99
DATE PICKED UP 5/13/99 PICKED UP BY [Signature]

34399

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

WORK ORDER

WORK ORDER # 36844 ASSET # 004994 DATE 17 Nov 99

ITEM DATA:

Manufacturer Fisher-brand / Extac Model 15-106A
Description Thermometer Serial # C96-184
Accessories _____

ACTION REQUESTED cal

CUSTODIAN Mr. D. Daniel Damm

Turned in by: _____ Phone 6090

CHARGE # 80.01 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 MAJ Date 11-17-99

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) Calibrated Per Procedure

CAL ENVIRONMENT:
Temperature 75 °F Humidity 52 %RH

CALIBRATED/REPAIRED:
By [Signature] Cal Procedure CL-9, 11/17/99
Date 22 Nov 99 Accuracy [Signature]
Cal Interval 6 mos Reliability Code 7
Next Cal Due 22 May 00 Cal Time 2 Repair Time _____
Standards used (Asset #) 5243, 5174

DATE COMPLETED 22 Nov 99
DATE PICKED UP 11/23/99 PICKED UP BY [Signature]

36844



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

22 November 1999

Issued to: DARRELL DUNN DIV20 B57
Manufacturer/Model: FISHER SCIENTIFIC 15-166A
Description: THERMOMETER
Serial Number: C96-784
Asset Number: 004994

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: 75.0 Degrees Fahrenheit Humidity: 52 % RH

Calibration Date: 22 Nov 99 **Calibration Procedure:** CL-9, MAY99

Condition as Received: IN TOLERANCE

Condition as Released: IN TOLERANCE

Remarks:

Approved by:



Jim Patterson, Supervisor or Walt Hill, Metrologist

Measurements performed by:



Ken Harp, Technician

Certificate # 36844

Page 1 of 1

WORK ORDER 39210

Date Received 5/25/00

Asset No. 004994 Manufacturer FISHER SCIENTIFIC Model 15-166A
Description THERMOMETER Serial Number C96-784
Accessory Received/Required NONE
Div/CC ID NONE Accessory to Asset No. N/A
Div/CC DIV20 Location B57 Custodian DARRELL DUNN Tel. 6090
Charge/Project No. 20.00751.006 Proprietary/Confidential N Date Required ROUTINE
Work Requested CALIBRATION
Receiving Inspection O.K.
Delivered By DARRELL DUNN Tel. 6090

WORK HISTORY

Date	Start Time	Stop Time	Notes

PARTS

Part Name	Part Number	Cost	Failure Description

WORK SUMMARY

Failure Description _____
Repair Action _____
Cal Procedure CL-9, MAY99 Temp 71 F Hum 47 %
Tech JW Cal Hrs. .7 Repair Hrs. _____ Part Cost _____
Action Taken OK
Standards Used 215 5174
Date Cal 2/20/00 Int. 6 Mo. Date Due 1/20/00 Reliability Code 8
Date Picked Up 6/2/00 Picked Up By Darrell Dunn

39210



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

1 June 2000

Issued to: DARRELL DUNN DIV20 B57
Manufacturer/Model: FISHER SCIENTIFIC 15-166A
Description: THERMOMETER
Serial Number: C96-784
Asset Number: 004994

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: 76.0 Degrees Fahrenheit Humidity: 47 % RH

Calibration Date: 1 Jun 00 **Calibration Procedure:** CL-9, MAY99

Condition as Received: In Tolerance

Remarks:

Approved by:

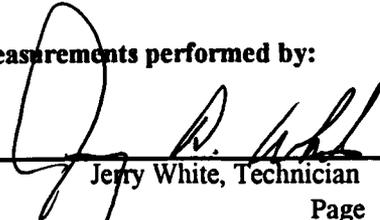


Jim Patterson, Supervisor, or Walt Hill, Metrologist

Certificate # 39210

m:\a2la.rpt Rev date 22 May 00

Measurements performed by:



Jerry White, Technician

Page 1 of 1

SOUTHWEST RESEARCH INSTITUTE

Calibration Laboratory

WORK ORDER

Processed by RCRUZ at 3:56:28PM on 12/14/00

||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

Work Order 444041763

Arrived 12/14/00

Asset No. 004994

Manufacturer FISHER SCIENTIFIC

Model 15-166A

Instrument Type/Class THERMOMETER

Serial No. C96-784

Accessory No.

Calibration Procedure CL-9, MAY99

Location B57

Div/Client DIV20

Custodian DARRELL DUNN

Mail Stop B57

Tel. 6090

Charge/Project No. 20.00751.006

Delivered By / Telephone

IN4CAL

Special Instructions _____

WORK NOTES

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

REPAIR PARTS

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

WORK SUMMARY

Failure Description _____

Repair Action _____

Calibration Procedure _____

Temp 69 F

Hum. 40 %

Tech JW

Totals

Cal Hours 1

Repair Hours _____

Parts Cost _____

Standards Used 219

Date Picked Up 1/9/2001

Picked Up By Darrell Dunn

444041763



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

22 December 2000

Issued to: DARRELL DUNN DIV20 B57
Manufacturer/Model: FISHER SCIENTIFIC 15-166A
Description: THERMOMETER
Serial Number: C96-784
Asset Number: 004994

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: 69.0 Degrees Fahrenheit Humidity: 40 % RH

Calibration Date: 21 Dec 00 **Calibration Procedure:** CL-9, MAY99

Condition as Received: IN TOLERANCE

Condition as Released: IN TOLERANCE

Remarks:

Approved by:

Jim Patterson, Supervisor, or Walt Hill, Metrologist

Certificate # 444041763

mAa2la.rpt Rev date 22 May 00

Measurements performed by:

Jerry White, Technician