

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

WORK ORDER

CERTIFICATE # 22439 ASSET # 004392 DATE 8/21/96

ITEM DATA:
Manufacturer ELICO Model 15-166 A
Description Thermometer Serial # C96-727
Accessories _____

ACTION REQUESTED Cal

CUSTODIAN Daryl Gunn Div. 20

Turned in by: Daryl Phone 609c

CHARGE # 20-5108-573 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 by [Signature]

22439

CAL ENVIRONMENT:
Temperature 78 °F Humidity 38 %RH

CALIBRATED/REPAIRED:
By [Signature] Cal Procedure 411-9-30-7703
Date 26 Aug 96 Accuracy 1/2% line
Cal Interval 6 mos 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 # 24326 ASSET # 002/992 DATE 17 FEB. 97

ITEM DATA:

Manufacturer Frico Model 15 166A
Description Thermometer Serial # C 96-707
Accessories _____

ACTION REQUESTED cal

CUSTODIAN DIV. 20, Darrell Durr

Turned in by: _____ Phone _____

CHARGE # 20-5700-561 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
_____ Realibility code

ACTION TAKEN: (Calibration/Repair/Parts) calibrated by procedure
0.03°C 0.0°C

24326

CAL ENVIRONMENT:
Temperature 51 °F Humidity 32%RH

CALIBRATED/REPAIRED:
By [Signature] Cal Procedure 411-9-30-9703
Date 20 FEB 97 Accuracy +/- 1°C
Cal Interval 6 mo Time to complete:
Next Cal due 20 AUG 97 Cal 2.0 Repair _____
Standards used (Asset#) 219, 325

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

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

WORK ORDER

CERTIFICATE # 26585 ASSET # 02/1992 DATE 25 Aug. 97

ITEM DATA:
Manufacturer Fisher Bros. / T. Inc Model K5-1661
Description 1 No. 1111010 Serial # 096-127
Accessories _____

ACTION REQUESTED NAI

CUSTODIAN Dr. D. D. D.

Turned in by: _____ Phone 1090

CHARGE # 20.528561 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 Per Procedure
all 445
0.012°C 0.0°C

CAL ENVIRONMENT:
Temperature 51 °F Humidity 34 %RH

CALIBRATED/REPAIRED:
By [Signature] Cal Procedure 411-9-30-7A03
Date 3 Sep 97 Accuracy ±1°C
Cal Interval 6 mos Reliability Code: 3
Next Cal due 3/1/98 Cal Time 1.5 Repair Time _____
Standards used (Asset#) 219, 328

DATE COMPLETED 4 Sep 97
DATE PICKED UP 9/16/97 PICKED UP BY [Signature]

26585

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

WORK ORDER

CERTIFICATE # 28925 ASSET # 004992 DATE 09 Mar 98

ITEM DATA:

Manufacturer J. Shor Model 15-166A
Description Thermometer Serial # 196-707
Accessories _____

ACTION REQUESTED cal

CUSTODIAN Div. 70, David Dunn

Turned in by: _____ Phone 6090

CHARGE # 20-1162-571 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 _____ 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 std wms
-0.003°C 0°C

CAL ENVIRONMENT:
Temperature 66 °F Humidity 26 %RH

CALIBRATED/REPAIRED:
By K. Hush Cal Procedure w/ 9-30-T/H/83
Date 10 Mar 98 Accuracy ± 1°C
Cal Interval 6 mos Reliability Code: 4
Next Cal due 10 Sep 98 Cal Time 1.0 Repair Time _____
Standards used (Asset#) 219, 328

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

28925

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

WORK ORDER

CERTIFICATE # 31641 ASSET # 004997 DATE 19 Oct 98

ITEM DATA:

Manufacturer Fisher Model 15-166A
Description flow meter Serial # 196.727
Accessories _____

ACTION REQUESTED (M)

CUSTODIAN Div. 80, Darrell Dunn

Turned in by: _____ Phone 6070

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 WAD 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 Per Procedure

CAL ENVIRONMENT:
Temperature 74 °F Humidity 60 %RH

CALIBRATED/REPAIRED:
By WAD Cal Procedure ASST E77-92
Date 20 Oct 98 Accuracy 1/2% Full
Cal Interval 6 mos Reliability Code: 5
Next Cal due 20 Apr 99 Cal Time 1.0 Repair Time _____
Standards used (Asset#) 219, 328

DATE COMPLETED 20 Oct 98
DATE PICKED UP 10/22/98 PICKED UP BY DD

31641

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

WORK ORDER

CERTIFICATE # 34371 ASSET # 004992 DATE 04 May 99

ITEM DATA:

Manufacturer Fisherbrand Model 15-166A
Description Thermometer Serial # 196-787
Accessories tube

ACTION REQUESTED cal

CUSTODIAN Div. #0, Darrell Dunn

Turned in by: _____ Phone 6070

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 [Signature] Date 05-04-99

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) Cal

CAL ENVIRONMENT:
Temperature 75 °F Humidity 57 %RH

CALIBRATED/REPAIRED:
By [Signature] Cal Procedure T033K5-4-42-1 Apr 97
Date 5-5-99 Accuracy ±1°C
Cal Interval 6mo Reliability Code: _____
Next Cal due 11-5-99 Cal Time 1h Repair Time _____
Standards used (Asset#) 5174, 7001

DATE COMPLETED 5-6-99
DATE PICKED UP 5/13/99 PICKED UP BY [Signature]

34371

SOUTHWEST RESEARCH INSTITUTE

Department of Quality Assurance

Calibration Laboratory • 522-5215

WORK ORDER

WORK ORDER # 36836 ASSET # 004992 DATE 11/16/99

ITEM DATA:

Manufacturer Fisher Grand / Fortco Model 15-106A

Description Thermometer Serial # 196-787

Accessories _____

ACTION REQUESTED Cal

CUSTODIAN Dr. D. Danell 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 WAD 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, 1/16/99
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]

36836



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: C96-727
Asset Number: 004992

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

Certificate # 36836

m:\a2la.rpt Rev date 10 Mar 99

Measurements performed by:

Ken Harp, Technician

Page 1 of 1

WORK ORDER 39211

Date Received 5/25/00

Asset No. 004992 Manufacturer FISHER SCIENTIFIC Model 15-166A
Description THERMOMETER Serial Number C96-727
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

39211

WORK SUMMARY

Failure Description _____

Repair Action _____

Cal Procedure CL-9, MAY99 Temp 74 F Hum 47 %

Tech JW Cal Hrs. .7 Repair Hrs. _____ Part Cost _____

Action Taken enL

Standards Used 219 5174

Date Cal 1 JUN 2000 Int. 6 Mo. Date Due 1 DEC 2000 Reliability Code 8

Date Picked Up 6/2/00 Picked Up By Darrell Dunn



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: C96-727
Asset Number: 004992

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

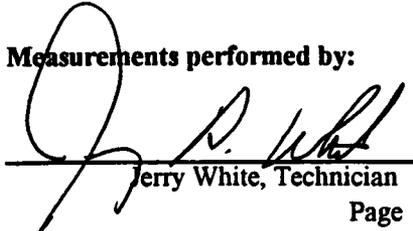
Remarks:

Approved by:



Jim Patterson, Supervisor, or Walt Hill, Metrologist

Measurements performed by:



Jerry White, Technician

Certificate # 39211
m:\a2la.rpt Rev date 22 May 00

Page 1 of 1

SOUTHWEST RESEARCH INSTITUTE

Calibration Laboratory

WORK ORDER

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

1 0000 0000 0000 0000 0000 0000 0000

Work Order 444041752

Arrived 12/14/00

Asset No. 004992 Manufacturer FISHER SCIENTIFIC Model 15-166A

Instrument Type/Class THERMOMETER Serial No. C96-727

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 63 F Hum. 40 %

Tech QW Totals Cal Hours 1 Repair Hours _____ Parts Cost _____

Standards Used 219

Date Picked Up 1/9/2001

Picked Up By Darrell Dunn

444041752



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: C96-727
Asset Number: 004992

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: 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 # 444041752

m3a2la.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 2:43:41PM on 6/22/01



Work Order **444044158**

Arrived 6/22/01

Asset No. 004992

Manufacturer FISHER SCIENTIFIC

Model 15-166A

Instrument Type/Class THERMOMETER

Serial No. C96-727

Accessory No.

Calibration Procedure CL-9, MAY99

Location B57

Div/Client DIV20

Custodian DARRELL DUNN

Mail Stop B57

Tel. 6090

Charge/Project No. 00751.006 1.20

Delivered By / Telephone

IN4CAL

Special Instructions _____

WORK NOTES

Date	Hours	Remarks/Notes
<u>6/25</u>	<u>.5</u>	<u>Calibration</u>
<u>6/26</u>	<u>.5</u>	<u>Calibration</u>

REPAIR PARTS

Date	Hours	Part Name	Part Number	Failure Description	Cost

WORK SUMMARY

Failure Description ~~CL-9, May 99~~ N/A

Repair Action N/A

Calibration Procedure CL-9, May 99 Temp 75 F Hum. 50 %

Tech R Dijkstra Totals Cal Hours 1.0 Repair Hours _____ Parts Cost _____

Standards Used 0219

Date Picked Up 7/9/01

Picked Up By B. [Signature]

444158



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

26 June 2001

Issued to: DARRELL DUNN DIV20 B57
Manufacturer/Model: FISHER SCIENTIFIC 15-166A
Description: THERMOMETER
Serial Number: C96-727
Asset Number: 004992
Work Order Number: 444044158

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: 75.0 Degrees Fahrenheit Humidity: 50 % RH

Calibration Date: 26 Jun 01 **Calibration Procedure:** CL-9, MAY99

Condition as Received: IN TOLERANCE

Condition as Released: IN TOLERANCE

Remarks:

Approved by:

Walt Hill, Supervisor
Institute Calibration Laboratory

Measurements performed by:

Roger Dykstra, Technician

SOUTHWEST RESEARCH INSTITUTE

Calibration Laboratory

WORK ORDER

Received by RCRUZ, 12/6/01 2:25:38PM

Arrived 12/6/01

Work Order **444046372**

Asset No. 004992 Manufacturer FISHER SCIENTIFIC

Model 15-166A

Equipment Type THERMOMETER

Serial No. C96-727

Accessory No.

Interval 6 M

Calibration Procedure CL-9, MAY99

Location B57

Div/Client DIV20

Custodian DARRELL DUNN

Mail Stop B57

Tel 6090

IN4CAL

Special Instructions _____

Notify before adjustments or repairs. () Provide data with certificate () Certificate Type _____

Charge/Project No. 00751.006 1.20

Requester / Telephone _____

This information is correct for the work requested. *Darrell Dunn*

WORK NOTES

Date	Hours	Remarks/Notes
<u>12/11</u>	<u>1.0</u>	<u>cal</u>

Date	Hours	Part Name	Part Number	Failure Description	Cost
<u>n/a</u>					

WORK SUMMARY

Failure Description n/a

Repair Action n/a

Tech R. Dykster Cal Hrs. 1.0 Repair Hrs. _____ Parts Cost _____ Temp 75 F Hum. 36 %

Standards Used 6219

Date Picked Up 12/18/01

Picked Up By *Darrell Dunn*

444046372



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

Certificate of Calibration

13 December 2001

Issued to: DARRELL DUNN DIV20 B57
Manufacturer/Model: FISHER SCIENTIFIC 15-166A
Description: THERMOMETER
Serial Number: C96-727
Asset Number: 004992
Work Order Number: 444046372

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.

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: 36 % RH

Calibration Date: 11 Dec 01 **Calibration Procedure:** CL-9, MAY99

Condition as Received: SEE ATTACHED DATA

Condition as Returned: SEE ATTACHED DATA

Remarks: SEE ATTACHED DATA SHEET FOR DATA AND UNCERTAINTY.

Approved by:

Walt Hill, Supervisor
Institute Calibration Laboratory

Measurements performed by:

Roger Dykstra, Technician

SOUTHWEST RESEARCH INSTITUTE

Calibration Laboratory

WORK ORDER

Received by RCRUZ, 6/14/02 9:00:15AM

Arrived 6/14/02

Work Order **444049037**

Asset No. 004992 Manufacturer FISHER SCIENTIFIC

Model 15-166A

Equipment Type THERMOMETER

Serial No. C96-727

Accessory No.

Interval 6 M

Calibration Procedure CL-9, MAY99

Location B57

Div/Client DIV20

Custodian DARRELL DUNN

Mail Stop B57

Tel 6090

IN LINE

Special Instructions _____

Notify before adjustments or repairs. () Provide data with certificate () Certificate Type _____

Charge/Project No. 00751.006 1.20

Requester / Telephone _____

This information is correct for the work requested.

WORK NOTES

Date	Hours	Remarks/Notes
<u>6/17/02</u>	<u>1.0</u>	<u>C.O</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Date	Hours	Part Name	Part Number	Failure Description	Cost
<u>n/a</u>	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

WORK SUMMARY

Failure Description n/a

Repair Action n/a

Tech R. D. K. S. T. Cal Hrs. 1.0 Repair Hrs _____ Parts Cost _____ Temp 74 F Hum. 5-1 %

Standards Used 9137, 8920

Date Picked Up 6/28/02

Picked Up By Paul D.

444049037

Southwest Research Institute
Calibration Laboratory
Calibration Data Sheet

Workorder 444049037
Asset #. 004992
Serial #. C96-727

Mfr. Fisher Scientific
Model 15-166A
Type Thermometer

Technician R Dykstra
Procedure CL-9, 5/99
Cal Date 6/17/02

Ambient Conditions:

Temperature 74 Degree F
Humidity 54 % R.H.
Baro. Pressure N/A PSIA

Data sheet Revision:

Revision 0 2/21/02

Standards used:

Asset #	Due Date	Nomenclature
009137	12010/02	Hart Super Thermometer
008920	12/07/02	RTD probe

Is statement of compliance to a specification requested. Yes
(if statement is required, print yes otherwise leave blank)

Tolerance 1.00 Degree C Range -20 to 150 Degree C
(if not required leave blank)

Degree C	Degree C	Degree C	Degree C	Degree C	
Std Reading	TI Reading	Error	Test Limits	Uncertainty	Results
-19.80	-20.6	-0.80	1	0.35	
0.09	-0.6	-0.69	1	0.35	
49.99	49.2	-0.79	1	0.35	
99.98	99.2	-0.78	1	0.35	
149.94	150.4	0.46	1	0.35	Pass

Remarks:

The reported uncertainty is based on a standard uncertainty multiplied by a coverage factor of k=2, which provides a level of confidence of approximately 95%.

If compliance testing to a specification is requested. The results can be pass, fail, or if blank "Not determinable". If results are not determinable it is to end user to determine if results meet thier needs.

If compliance testing to a specification is not requested, only data and uncertainty will be given on data sheet.



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

Certificate of Calibration

18 June 2002

Issued to: DARRELL DUNN DIV20 B57
Manufacturer/Model: FISHER SCIENTIFIC 15-166A
Description: THERMOMETER
Serial Number: C96-727
Asset Number: 004992
Work Order Number: 444049037

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.

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: 74.0 Degrees Fahrenheit Humidity: 54 % RH

Calibration Date: 18 Jun 02 **Calibration Procedure:** CL-9, MAY99

Condition as Received: SEE ATTACHED DATA

Condition as Returned: SEE ATTACHED DATA

Remarks:

Approved by:

Walt Hill, Metrology Group Leader
Institute Calibration Laboratory

Measurements performed by:

Roger Dykstra, Technician