

GULF COAST CALIBRATION

7999 Hansen, Suite 321
Houston, TX 77061
(713) 944-3139

Certificate Of Calibration

Customer SOUTHWEST RESEARCH INSTITUTE Date 3-27-1991

6220 CULEBRA SAN ANTONIO, TX Expires 9-27-1991

Customer P.O. _____

Type and Size of Gauge Proto 0-100inoz torque screw driver

Serial No. #2

Test Reading Charts

WRENCH SET	AS RECEIVED	FINAL READING
20inoz	20	20
40inoz	40	40
60inoz	61	61
80inoz	82	82
100inoz	101	101

This is to certify that the calibration above meets the requirements for accuracy of applicable per Federal Specification. GGG W 686D

Our Test Equipment used for calibration is traceable to the NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY and maintained in accordance with conditions as noted under MIL. STD. 45662A.

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY No. 523/236657 or
731/242697

Technician Michael H.

SOUTHWEST RESEARCH INSTITUTE

POST OFFICE DRAWER 28510 • 6220 CULEBRA ROAD • SAN ANTONIO, TEXAS, USA 78284 • (512) 684-5111 • TELEX 76-7357

Division 05 - Instrument Repair and Calibration Laboratory

Calibration Record

ITEM PRONTO TORQUE SCREWDRIVER
MODEL 6103 S/N Z SWRI NO. _____
PLUG-INS, ETC. NONE
TOLERANCE MFGRS SECC'S

STANDARDS

Standard No.	MFGR Model	Description	S/N	Cal. Due	Cal. Rec. No.
*		See Certificate of Calibration,			Gulf Coast Calibration

* ENVIRONMENT: Temperature _____ Humidity _____
Location _____

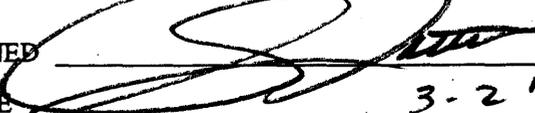
PROCEDURE

* Essentially as outlined in MFGRS Service Manual _____

CONCLUSION

* Item within tolerance _____
 Item out of tolerance _____
 Item ADJ/repared to tolerance _____

Calibration was in accord with requirements of MIL-STD-45662A, MIL-Q-9858A, and MIL-I-45208A. Measurements are traceable to the National Institute of Standards and Technology. Inspection and test data are on file and available for inspection.

RECORD NUMBER: _____ SIGNED: 
DATE: 3-27-91
NEXT CALIBRATION DUE: 9-27-91

0007622

Division 05 - Instrument Repair and Calibration Laboratory
CERTIFICATE OF CALIBRATION

ISSUED TO: DIV 20 ENWRA MACIOWSKI
MFR/MODEL PRONTO 6103
ITEM DESCRIPTION TORQUE SCREWDRIVER
MODEL 6103 S/N 2 SWRI NO. _____
PLUG-INS, ETC. NONE
TOLERANCE SEE MFG SPEC'S

STANDARDS

Standard No.	MFR Model	Description	S/N	Cal. Due	Cal. Rec. No.
*	<u>See Certificate of Calibration, Gulf Coast Calibration #731/242697</u>				

* ENVIRONMENT: Temperature _____ Humidity _____
Location _____

PROCEDURE

* Essentially as outlined in MFRS Service Manual _____

CONCLUSION

* Item within tolerance _____
 Item out of tolerance _____
 Item ADJ/repared to tolerance _____

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 [Signature]
DATE 1, 91 Aug 91
NEXT CALIBRATION DUE: 15 Feb 92

RECORD NUMBER: 0008166

GULF COAST CALIBRATION

7999 Hansen, Suite 321
Houston, TX 77061
(713) 944-3139

Certificate Of Calibration

Customer SOUTHWEST RESEARCH INSTITUTE Date 8-15-1991
6220 CULEBRA, SAN ANTONIO, TEXAS Expires 2-15-1992
Customer P.O. _____
Type and Size of Gauge PROTO 0-100 IN. OZ. TORQUE SCREW DRIVER
Serial No. 2

Test Reading Charts

WRENCH SETTING	AS RECEIVED	FINAL READING
20in.oz.	20	20
40in.oz.	41	41
60in.oz.	61	61
80in.oz.	80	80
100in.oz.	99	99

TEST EQUIPMENT: GCC-174
DUE: 02-18-1992

This is to certify that the calibration above meets the requirements for accuracy of applicable per Federal Specification. GGG-W-686D.
Our Test Equipment used for calibration is traceable to the NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY and maintained in accordance with conditions as noted under MIL. STD. 45662A.

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY No. 731/242697

Michael Ho
Technician _____

GULF COAST CALIBRATION

7999 Hansen, Suite 321
Houston, TX 77061
(713) 944-3139

Certificate Of Calibration

Customer SOUTHWEST RESEARCH INSTITUTE Date 07-20-1992
6220 CULEBRA, SAN ANTONIO, TX. Expires 01-20-1993
Customer P.O. SWRI REQ#828068
Type and Size of Gauge PROTO 0-100 IN. OZ. TORQUE SCREWDRIVER
Serial No. #2

Test Reading Charts

TOLERANCE: $\pm 4\%$

WRENCH SETTING	AS RECEIVED	FINAL READING
20in.oz.	22	20
40in.oz.	42	40
60in.oz.	62	60
80in.oz.	83	81
100in.oz.	104	102

TEST EQUIPMENT: GCC-174
DUE: 01-06-1993

DONE IN ACCORANCE WITH Q.A. MANUAL, REV-2; DATED 01-03-1992.
10CFR21 APPLIES.

This is to certify that the calibration above meets the requirements for accuracy of applicable per Federal Specification. GGG-W-686D
Our Test Equipment used for calibration is traceable to the NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY and maintained in accordance with conditions as noted under MIL. STD. 45662A. TEMP. DURING CALIBRATION: 72°F

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY No. 523/236557
731/242697

Technician Michael Ho

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 B168 NARASI SRIDHAR

Device No: 1443

Manufacturer: PRONTO

Model: 6103

Nomenclature: TORQUE SCREWDRIVER

Serial Number: 2 ~~1~~

SwRI No: NONE

Remarks

Accuracy: MFGR SPECS

Procedure: MFGR

ENVIRONMENT

Temperature: 72 Humidity: 0 Location: GULF COAST CALIBRATION

CONCLUSION

Tolerance/Remarks: Received in tolerance, no adjustments made

Calibrated by Gulf Coast, in tolerance. Dated 07-20-92.

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: 07/20/92

Record Number: 00009449

Next Calibration Due: 01/20/92

GULF COAST CALIBRATION

7999 Hansen, Suite 321
Houston, TX 77061
(713) 944-3139

Certificate Of Calibration

Customer SOUTHWEST RESEARCH INSTITUTE Date 02-14-1992
6220 CULEBRA, SAN ANTONIO, TEXAS Expires 08-14-1992

Customer P.O. SWRI #806631

Type and Size of Gauge PROTO 0-100 IN. OZ. TORQUE WRENCH

Serial No. #2

TOLERANCE: $\pm 4\%$

Test Reading Charts

WRENCH SETTING	AS RECEIVED	FINAL READING
20in.oz.	20	20
40in.oz.	40	40
60in.oz.	61	61
80in.oz.	81	81
100in.oz.	100	100

TEST EQUIPMENT: GCC-174

DUE: 01-06-1993

This is to certify that the calibration above meets the requirements for accuracy of applicable per Federal Specification. GGG-W-686D.

Our Test Equipment used for calibration is traceable to the NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY and maintained in accordance with conditions as noted under MIL. STD. 45662A. TEMP. DURING CALIBRATION: 70°F

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY No. 523/236557
731/242697

Technician Michael Ho

Division 05 - Instrument Repair and Calibration Laboratory

CERTIFICATE OF CALIBRATION

ISSUED TO: DIV 30, CDWCA N. SRIDHAR
MFGR/MODEL DRONTO
ITEM DESCRIPTION TORQUE WRENCH
MODEL 6103 S/N Z SWRI NO. _____
PLUG-INS, ETC. NONE
TOLERANCE ± 4% READING

STANDARDS

Standard No.	MFGR Model	Description	S/N	Cal. Due	Cal. Rec. No.
*	<u>See certificate of calibration Guy Coast Calibration</u>				

ENVIRONMENT: Temperature _____ Humidity _____
Location _____

PROCEDURE

- Essentially as outlined in MFGRS Service Manual _____
- _____

CONCLUSION

- Item within tolerance _____
- Item out of tolerance _____
- Item ADJ/repared to tolerance _____
- _____

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 [Signature]
DATE 14 FEB 92
RECORD NUMBER: 0008918 NEXT CALIBRATION DUE: 14 AUG 92

GULF COAST CALIBRATION

7999 Hansen, Suite 321
Houston, TX 77061
(713) 944-3139

Certificate Of Calibration

Customer SOUTHWEST RESEARCH INSTITUTE Date 07-23-1993

SAN ANTONIO, TX. Expires 01-23-1994

Customer P.O. 03809

Type and Size of Gauge PROTO 0-100 IN. OZ. TORQUE SCREW- DRIVER

Serial No. #2

TOLERANCE: $\pm 4\%$

Test Reading Charts

WRENCH SETTING	AS RECEIVED	FINAL READING
20in.oz.	20	20
40in.oz.	41	41
60in.oz.	61	61
80in.oz.	82	82
100in.oz.	103	103

TEST EQUIPMENT: GCC-174

DUE: 01-04-1994

DONE IN ACCORDANCE WITH Q.A. MANUAL, REV-2; DATED: 01-03-1992.
10CFR21 APPLIES.

This is to certify that the calibration above meets the requirements for accuracy of applicable per Federal Specification. GGG W 686D

Our Test Equipment used for calibration is traceable to the NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY and maintained in accordance with conditions as noted under MIL. STD. 45662A. TEMP. DURING CALIBRATION: 70°F.

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY No. 39569/40093
179355/241548/1

Technician Michael Ho

GULF COAST CALIBRATION

7999 Hansen, Suite 321
Houston, TX 77061
(713) 944-3139

Certificate Of Calibration

Customer SOUTHWEST RESEARCH INSITUTE Date 01-25-1993

6220 CULEBRA, SAN ANTONIO, TEXAS Expires 07-25-1993

Customer P.O. SWRI REQ. #848826

Type and Size of Gauge PROTO 0-100 IN. OZ. TORQUE WRENCH

Serial No. #2

TOLERANCE: $\pm 4\%$

Test Reading Charts

WRENCH SETTING	AS RECEIVED	FINAL READING
20in.oz.	20	20
40in.oz.	40	40
60in.oz.	60	60
80in.oz.	80	80
100in.oz.	99	99

TEST EQUIPMENT: GCC-174
DUE: 01-03-1994

DONE IN ACCORDANCE WITH Q.A. MANUAL, REV-2; DATED: 01-03-1992.
10CFR21 APPLIES.

This is to certify that the calibration above meets the requirements for accuracy of applicable per Federal Specification. GGG W 686D

Our Test Equipment used for calibration is traceable to the NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY and maintained in accordance with conditions as noted under MIL. STD. 45662A. TEMP. DURING CALIBRATION: 70°F.

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY No. 523/236557-
731/242697

Technician Michael Ho

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: 1443

Manufacturer: PRONTO

Model: 6103

Nomenclature: TORQUE SCREWDRIVER

Serial Number: #2

SwRI No: NONE

Remarks

Accuracy: MFGR SPECS

Procedure: MFGR

ENVIRONMENT

Temperature: 70 Humidity: 0 Location: GULF COAST CAL, HOUSTON, TX

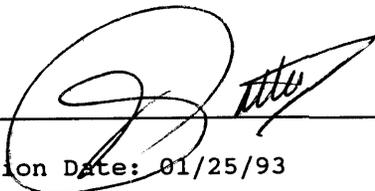
CONCLUSION

Tolerance/Remarks: Received in tolerance, no adjustments made

Calibrated by Gulf Coast Cal, Houston, TX. Cal Cert # PO60014

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: 01/25/93

Record Number: 00010519

Next Calibration Due: 07/25/93

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

CERTIFICATE OF CALIBRATION

Issued to: DIV20 B57 NARASI SRIDHAR

Device No: 1443

Manufacturer: PRONTO

Model: 6103

Nomenclature: TORQUE SCREWDRIVER

Serial Number: #2

SwRI No: NONE

Cal interval 6 Mo.

Remarks

Accuracy: +/- 4%F.S.

Procedure: GGG-W-686D

ENVIRONMENT

Temperature: 70

Humidity:

Location: GULF COAST CAL, HOUSTON, TX

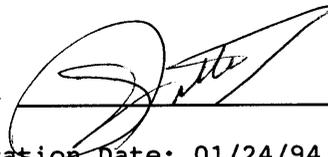
CONCLUSION

Tolerance/Remarks: Received in tolerance, no adjustments made

Calibrated by Gulf Coast Calibration.

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: 01/24/94

Cal interval: 6 Months

Record Number: 00013166

Next Calibration Due: 07/24/94

GULF COAST CALIBRATION

7999 Hansen, Suite 321
Houston, TX 77061
(713) 944-3139

Certificate Of Calibration

Customer SOUTHWEST RESEARCH INSTITUTE Date 1-24-1994

SAN ANTONIO, TEXAS Expires 7-24-1994

Customer P.O. 03809

Type and Size of Gauge PROTO 0-100 INOZ. TORQUE SCREW DRIVER

Serial No. #2

TOLERANCE $\pm 4\%$

Test Reading Charts

WRENCH SET	AS RECEIVED	FINAL READING
20 INOZ.	20	20
40 INOZ.	40	40
60 INOZ.	60	60
80 INOZ.	81	81
100INOZ.	102	102

TEST EQUIPMENT: GCC174
DUE: 1-3-1995

DONE IN ACCORDANCE WITH Q.A. MANUAL REV. 2 DATED 1/3/1992. 10CFR21 APPLIES.

This is to certify that the calibration above meets the requirements for accuracy of applicable per Federal Specification. GGG W 686D

Our Test Equipment used for calibration is traceable to the NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY and maintained in accordance with conditions as noted under MIL. STD. 45662A. TEMPERATURE DURING CALIBRATION 70°F.

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY No. 39569-179355-40093/
241548/1

Technician *Michael Ho*

SOUTHWEST RESEARCH INSTITUTE

Department of Quality Assurance
Calibration Laboratory

CERTIFICATE OF CALIBRATION
08/22/94

Issued to: NARASI SRIDHAR DIV20,B57
Manufacturer: PROTO
Nomenclature: TORQUE SCREWDRIVER
Serial Number: #2

Asset Number: 001443
Model Number: 6103
SwRI Capital Number: NONE

ENVIRONMENTAL CONDITIONS

Temperature: 70.0F

Relative Humidity: 0 %

CALIBRATION INFORMATION

Location: GULF
Procedure Number:
Remarks: NONE

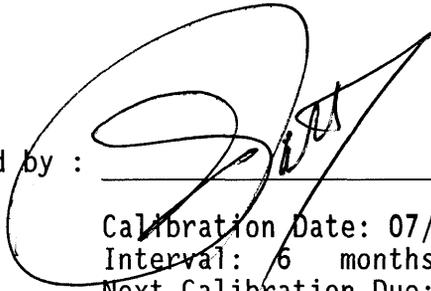
Technician: 9149
Accuracy: +/- 4%F.S.
Received *IN* Tolerance

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
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VENDOR

Certified by : 

Calibration Date: 07/28/94
Interval: 6 months
Next Calibration Due: 01/27/95

Work Order: 14691

28

GULF COAST CALIBRATION

7999 Hansen, Suite 321
Houston, TX 77061
(713) 944-3139

Certificate Of Calibration

Customer SOUTHWEST RESEARCH INSTITUTE Date 07-28-1994
SAN ANTONIO, TEXAS Expires 01-28-1995
Customer P.O. 03809
Type and Size of Gauge PROTO 0-100 IN. OZ. TORQUE SCREW DRIVER
Serial No. #2

TOLERANCE $\pm 4\%$

Test Reading Charts

WRENCH SET	AS RECEIVED	FINAL READING
20in.oz.	21	20
40in.oz.	41	40
60in.oz.	61	60
80in.oz.	82	81
100in.oz.	102	102

DONE IN ACCORDANCE WITH Q.A. MANUAL, REV-2; DATED: 01-03-1992.
10 CFR 21 APPLIES.

TEST EQUIPMENT: GCC-174
DUE: 01-03-1995

This is to certify that the calibration above meets the requirements for accuracy of applicable per Federal Specification. GGG W 686D
Our Test Equipment used for calibration is traceable to the NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY and maintained in accordance with conditions as noted under MIL. STD. 45662A. TEMPERATURE DURING CALIBRATION 70°F.

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY No. 39569-179355-40093/
241548/1

Technician Michael Ha

SOUTHWEST RESEARCH INSTITUTE

**Department of Quality Assurance
Calibration Laboratory**

**CERTIFICATE OF CALIBRATION
02/07/95**

Issued to: DARRELL DUNN DIV20 ,B57
Manufacturer: PROTO
Nomenclature: TORQUE SCREWDRIVER
Serial Number: #2

Asset Number: 001443
Model Number: 6103
SwRI Capital Number: NONE

ENVIRONMENTAL CONDITIONS

Temperature: 70.0F

Relative Humidity: 0 %

CALIBRATION INFORMATION

Location: GULF
Procedure Number: GGG-W-686D
Remarks: CALIBRATED BY GULF COAST CALIBRATION.

Technician: 9149
Accuracy: +/- 4%F.S.
Received IN Tolerance

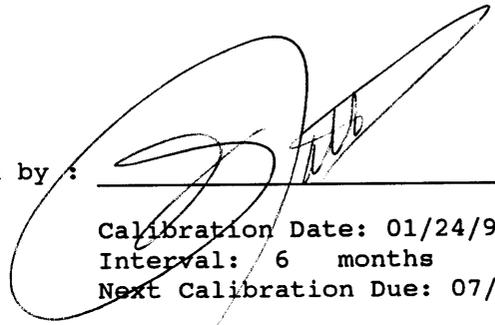
**Calibration was in accordance with requirements of MIL-STD-45662A.
Measurements are traceable to the National Institute of Standards and Tech-
nology. Inspection and test data are on file and available for inspection.**

STANDARDS USED FOR CERTIFICATION

Asset #	Serial #	Mfg	Model #	Nomenclature	Cal Date	Int.	Cal Due

VENDOR							

Certified by : _____



Calibration Date: 01/24/95
Interval: 6 months
Next Calibration Due: 07/24/95

Certificate#: 16261

GULF COAST CALIBRATION

7999 Hansen, Suite 321
Houston, TX 77061
(713) 944-3139

Certificate Of Calibration

Customer SOUTHWEST RESEARCH INSTITUTE Date 01-24-1995
SAN ANTONIO, TEXAS Expires 07-24-1995
Customer P.O. 03809
Type and Size of Gauge PROTO 0-100 IN. OZ. TORQUE WRENCH
Serial No. #2

TOLERANCE $\pm 4\%$

Test Reading Charts

WRENCH SET	AS RECEIVED	FINAL READING
20in.oz.	20	20
40in.oz.	40	40
60in.oz.	60	60
80in.oz.	81	81
100in.oz.	99	99

TEST EQUIPMENT: GCC-174

DUE: 12/22/1995

DONE IN ACCORDANCE WITH Q.A. MANUAL, REV-2; DATED: 01-03-1992.

This is to certify that the calibration above meets the requirements for accuracy of applicable per Federal Specification. GGG W 686D

Our Test Equipment used for calibration is traceable to the NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY and maintained in accordance with conditions as noted under MIL. STD. 45662A. TEMPERATURE DURING CALIBRATION 70°F.

10 CFR 21 APPLIES.

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY No. 39569-179355-40093/
241548/1

Technician Michael Ha

SOUTHWEST RESEARCH INSTITUTE
Department of Quality Assurance
Calibration Laboratory

CERTIFICATE OF CALIBRATION
08/23/95

Issued to: DARRELL DUNN DIV20 ,B57
Manufacturer: PROTO
Nomenclature: TORQUE SCREWDRIVER
Serial Number: #2
Notes:

Asset Number: 001443
Model Number: 6103
SwRI/Div. I.D. #: NONE

ENVIRONMENTAL CONDITIONS

Temperature: 70.0F

Relative Humidity: 0 %

CALIBRATION INFORMATION

Procedure Number: GGG-W-686D
Remarks: CALIBRATED BY GULF COAST CALIBRATION.

Accuracy: +/- 4%F.S.
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
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VENDOR

Certified by : _____

Calibration Date: 08/18/95
Interval: 6 months
Next Calibration Due: 02/18/96

Certificate#: 18256

GULF COAST CALIBRATION

7999 Hansen, Suite 321
Houston, TX 77061
(713) 944-3139

Certificate Of Calibration

Customer SOUTHWEST RESEARCH INSTITUTE Date 08-18-1995
SAN ANTONIO, TEXAS Expires 02-18-1996
03809 SHIPPING #266253
Customer P.O. _____
Type and Size of Gauge PROTO 0-100 IN. OZ. TORQUE WRENCH
Serial No. #2

TOLERANCE $\pm 4\%$

Test Reading Charts

WRENCH SET	AS RECEIVED	FINAL READING
20in.oz.	20	20
40in.oz.	41	41
60in.oz.	61	61
80in.oz.	79	79
100in.oz.	98	98

DONE IN ACCORDANCE WITH Q.A. MANUAL, REV-2; DATED: 01-03-1992.
PER PROCEDURE: #M190-1379. 10CFR21 APPLIES.

TEST EQUIPMENT: GCC-174
DUE: 12-22-1995

This is to certify that the calibration above meets the requirements for accuracy of applicable per Federal Specification. GGG W 686D

Our Test Equipment used for calibration is traceable to the NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY and maintained in accordance with conditions as noted under MIL. STD. 45662A. TEMPERATURE DURING CALIBRATION 70°F.

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY No. 39569-179355-40093/
241548/1

Technician Michael Ha

SOUTHWEST RESEARCH INSTITUTE
Department of Quality Assurance
Calibration Laboratory

CERTIFICATE OF CALIBRATION
02/22/96

Issued to: DARRELL DUNN DIV20 ,B57
Manufacturer/Model: PROTO/6103
Nomenclature: TORQUE SCREWDRIVER
Serial Number: #2
Asset Number: 001443
Notes:

ENVIRONMENTAL CONDITIONS

Temperature: 68.0F

Relative Humidity: 0 %

CALIBRATION INFORMATION

Procedure Number: GGG-W-686D
Remarks: CAL BY GULF COAST, HOUSTON, TX
REPORT# 96-62369/2

Accuracy: +/- 4%F.S.
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
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VENDOR

Certified by : _____

Calibration Date: 02/16/96
Interval: 6 months
Next Calibration Due: 08/16/96

Certificate#: 20160

GULF COAST CALIBRATION

7999 Hansen, Suite 321
Houston, TX 77061
(713) 944-3139

Certificate Of Calibration

REPORT #96-62369/2

Customer SOUTHWEST RESEARCH INSTITUTE Date 02-16-1996
SAN ANTONIO, TEXAS Expires 08-16-1996

Customer P.O. 03809 SHIPPING #278279

Type and Size of Gauge PROTO 0-100 IN. OZ. TORQUE WRENCH

Serial No. 2 Tolerance 4%

WRENCH SET	AS RECEIVED	FINAL READING
20in.oz.	20	20
40in.oz.	40	40
60in.oz.	61	61
80in.oz.	81	81
100in.oz.	102	102

DONE IN ACCORDANCE WITH Q.A. MANUAL, REV-3; DATED: 12/01/1995.
10CFR21 APPLIES.

Test Equipment	Date of Cal.	Expires
GCC-174	12/01/1995	12/01/1996

This is to certify that the calibration above meets the requirement for accuracy of applicable Federal Specification GGG-W-686D. Our Test Equipment use for calibration is traceable to the NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY. Maintained in accordance with conditions as noted by ANSI Z540-1. Temperature during calibration 68°F

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
No. 39569-179355-40093/241548/1

Technician Michael Ha

This certificate of calibration shall not be reproduce except in full without written approval by GULF COAST CALIBRATION.



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

Certificate of Calibration

22 August 1996

Issued to: DARRELL DUNN DIV20 B57
Manufacturer/Model: PROTO 6103
Description: TORQUE SCREWDRIVER
Serial Number: #2
Asset Number: 001443

Environmental Conditions

Temperature: 70.0 Humidity: 0%

Calibration Information

Calibration was in accordance with requirements of MIL-STD-45662A and ANSI/NC SL 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.

Calibration Date: 19 Aug 96 Calibration Procedure: GGG-W-686D
Interval: 6 months Accuracy: +/- 4%F.S.
Next Calibration Due: 19 Feb 97 Received: In Tolerance

Remarks: CALIBRATED BY GULF COAST, HOUSTON, TX.
CERT. #96-05351/1

Certificate # 22375

Signed: _____

LAST PAGE OF REPORT
Total Pages Printed: 1



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

Certificate of Calibration

25 April 1997

Issued to: DARRELL DUNN DIV20 B57
Manufacturer/Model: PROTO 6103
Description: TORQUE WRENCH
Serial Number: #2
Asset Number: 001443

Environmental Conditions

Temperature: 68.0 Deg. F Humidity: 0%

Calibration Information

Calibration was in accordance with requirements of MIL-STD-45662A and ANSI/NC SL 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.

Calibration Date: 23 Apr 97

Calibration Procedure: GGG-W-686D

Interval: 6 months

Accuracy: +/-4% F.S.

Next Calibration Due: 23 Oct 97

Received: In Tolerance

Remarks: CALIBRATED BY GULF COAST, HOUSTON, TX.
REPORT #97-246895.

Certificate # 25174

Signed: 

LAST PAGE OF REPORT
Total Pages Printed: 1



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

Certificate of Calibration

7 June 1999

Issued to: DARRELL DUNN DIV20 B57
Manufacturer/Model: PROTO 6103
Description: TORQUE SCREWDRIVER
Serial Number: #2
Asset Number: 001443

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: 71.0 Degrees Fahrenheit Humidity: 51 % RH

Calibration Date: 1 Jun 99 **Calibration Procedure:** M190-1379

Condition as Received: IN TOLERANCE

Condition as Released: IN TOLERANCE

Calibration Measurements by: GULF COAST CALIBRATION INC., HOUSTON, TX

Remarks: GULF COAST REPORT NO. 99-68892

Approved by:


Jim Patterson, Supervisor or Walt Hill, Metrologist

Certificate # 34565

m:\nona2lav.rpt Rev date 10 Mar 99

Page 1 of 1

**SOUTHWEST RESEARCH INSTITUTE
CALIBRATION LABORATORY
MEMORANDUM**

December 22, 1999

To: DARRELL DUNN DIV20 B57
From: Jim Patterson 
Subject: Calibration by an approved supplier

Manufacturer/Model: PROTO 6103
Description: TORQUE SCREWDRIVER
Serial Number: #2
Asset Number: 001443
Calibration Due: June 15, 2000
Remarks: GULF COAST REPORT NO.: 99-56950/1.

Supplier: GULF COAST CALIBRATION INC., HOUSTON, TX

The above item was sent to an approved supplier who is listed on the SwRI Approved Suppliers List (ASL). This supplier is qualified to supply a product or service in support of project activities that require the use of approved suppliers. Please notify Mark Romero, extension 5215, of any discrepancies with the item or calibration documentation.

Attachment(s) 1

To: Darrell Dunn, Div 20, Bld 57

From: Walt Hill, Metrology Group Leader
Institute Calibration Laboratory

Date: Jan. 15, 2003

Subject: Out-of-tolerance Notice

The purpose of this notice is to alert you of a condition, which may have caused erroneous measurements affecting safety or the quality of products or services your organization provides. The attached as-found readings are provided for your evaluation to determine if the instrument listed below had an impact and if further action is required.

When the as-found results are near the specification limit, +/- a margin less than the measurement uncertainty, it is not possible to state in-tolerance or out-of-tolerance with a 95% level of confidence. It is the Institute Calibration Laboratory policy that the client is made aware of this situation because the end-user is taking some of the risk that the instrument listed below may not meet the end-user measurement requirements.

Your review/evaluation should be conducted in accordance with your organizational quality policy and procedural requirements. If we can be of further assistance, please contact the Calibration Laboratory at 522-5215.

Manufacturer: Proto **Model:** 6103

Description: Torque Screwdriver **Serial Number:** #2

Asset Number: 1443 **User ID Number:**

Last Calibration: Jul. 5, 2002

Date Received for Service: Jan. 14, 2003 **Work Order Number:** 444051933

Service Requested: Scheduled calibration

Remarks: Out of tolerance on all 4 calibration points at 20 in oz, at 60 in oz unit reads out of tolerance at 2 of the 4 break points, and at 100 in oz unit reads out of tolerance at 2 of the 4 break points. 4 break points is one complete revolution of the torque screwdriver.

OUT OF TOLERANCE

SOUTHWEST RESEARCH INSTITUTE

6220 CULEBRA ROAD • POST OFFICE DRAWER 28510 • SAN ANTONIO, TEXAS, 78228-0510 • TEL (210) 522-5215 • FAX (210) 522-3692

To: Darrell Dunn, Div. 20, Bld 57
From: Institute Calibration Laboratory
Date: January 15, 2003
Subject: Returned Equipment

The equipment described below is being return for the reason(s) indicated. If we can be of further assistance, please contact the Calibration Laboratory at 522-5215.

Unit Received: January 14, 2003 Work Requested: Scheduled calibration

Manufacturer: Proto Model: 6103 Description: Torque Screwdriver

Serial Number: #2 Asset Number: 1443 User ID Number:

Reason for return without calibration or repair:

- (X) Requested by the owning organization.
- () Required accessories or items listed in remarks were not provided.
- () Lack of technical data.
- () Parts are no longer available.
- () Lack of support by manufacturer.
- (✓) Other

Remarks: Unit out of tolerance.



Wait Hill, Metrology Group Leader
Institute Calibration Laboratory

Calibration Results

SwRI Calibration Laboratory

TI: PROTO 6103
 TORQUE SCREWDRIVER
 Serial No: #2
 Asset No. 001443

Result: **FAIL**

Performed on: 1/15/03 at 10:08:48

Performed by: Perry Carpenter

Environment: Temp. 68.0°F Humid. 40 %

Condition F/L: AS-FOUND

Procedure Completed:

Work Order#: 444051933

Note: All TAR's are greater than 4:1 unless noted on TAR column.

Calibration Procedure: HAND TORQUE TOOLS, NOV 2000 (0-100in.oz.)

Notes:

Standards Used

Asset	Mfg	Model	Description	Cal. Date	Due Date
007010	CDI	1001-0-TTTP	TORQUE TRANSDUCER	20-Dec-02	20-Mar-03

Test Data

STD PARAMETER	TRUE VALUE	----- READING	TEST INSTRUMENT TOLERANCE	----- TI ERROR	ERROR in (% of Tol)
CLOCKWISE					
20% F.S.					
20.000in/oz		24.810	1.2in/oz	4.81in/oz	401
20.000in/oz		22.410	1.2in/oz	2.41in/oz	201
20.000in/oz		21.710	1.2in/oz	1.71in/oz	143
20.000in/oz		23.740	1.2in/oz	3.74in/oz	312
60%F.S.					
60.000in/oz		67.190	3.6in/oz	7.19in/oz	200
60.000in/oz		59.070	3.6in/oz	-0.93in/oz	26
60.000in/oz		62.470	3.6in/oz	2.47in/oz	69
100.000in/oz		107.600	6in/oz	7.6in/oz	127
100%F.S.					
100%F.S.					
100.000in/oz		107.000	6in/oz	7in/oz	117
100.000in/oz		100.400	6in/oz	0.4in/oz	7
100.000in/oz		102.100	6in/oz	2.1in/oz	35
100.000in/oz		106.100	6in/oz	6.1in/oz	102

End of Test Data

SOUTHWEST RESEARCH INSTITUTE

6220 CULEBRA ROAD • POST OFFICE DRAWER 28510 • SAN ANTONIO, TEXAS, 78228-0510 • TEL (210) 522-5215 • FAX (210) 522-3692

To: Darrell Dunn, Div. 20, Bld 57
From: Institute Calibration Laboratory
Date: January 15, 2003
Subject: Returned Equipment

The equipment described below is being return for the reason(s) indicated. If we can be of further assistance, please contact the Calibration Laboratory at 522-5215.

Unit Received: January 14, 2003 Work Requested: Scheduled calibration

Manufacturer: Proto Model: 6103 Description: Torque Screwdriver

Serial Number: #2 Asset Number: 1443 User ID Number:

Reason for return without calibration or repair:

- (X) Requested by the owning organization.
- () Required accessories or items listed in remarks were not provided.
- () Lack of technical data.
- () Parts are no longer available.
- () Lack of support by manufacturer.
- (X) Other

Remarks: Unit out of tolerance.


Walt Hill, Metrology Group Leader
Institute Calibration Laboratory

Calibration Results

SwRI Calibration Laboratory

TI: PROTO 6103
 TORQUE SCREWDRIVER
 Serial No: #2
 Asset No. 001443

Result: **FAIL**

Performed on: 1/15/03 at 10:08:48

Performed by: Perry Carpenter

Environment: Temp. 68.0°F Humid. 40 %

Condition F/L: AS-FOUND

Procedure Completed:

Work Order#: 444051933

Note: All TAR's are greater than 4:1 unless noted on TAR column.

Calibration Procedure: HAND TORQUE TOOLS, NOV 2000 (0-100in.oz.)

Notes:

Standards Used

Asset	Mfg	Model	Description	Cal. Date	Due Date
007010	CDI	1001-0-TTTP	TORQUE TRANSDUCER	20-Dec-02	20-Mar-03

Test Data

STD PARAMETER	TRUE VALUE	TEST INSTRUMENT			ERROR in (% of Tol)
		READING	TOLERANCE	TI ERROR	
CLOCKWISE					
20% F.S.					
20.000in/oz		24.810	1.2in/oz	4.81in/oz	401
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20.000in/oz		21.710	1.2in/oz	1.71in/oz	143
20.000in/oz		23.740	1.2in/oz	3.74in/oz	312
60% F.S.					
60.000in/oz		67.190	3.6in/oz	7.19in/oz	200
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60.000in/oz		62.470	3.6in/oz	2.47in/oz	69
100.000in/oz		107.600	6in/oz	7.6in/oz	127
100% F.S.					
100% F.S.					
100.000in/oz		107.000	6in/oz	7in/oz	117
100.000in/oz		100.400	6in/oz	0.4in/oz	7
100.000in/oz		102.100	6in/oz	2.1in/oz	35
100.000in/oz		106.100	6in/oz	6.1in/oz	102

End of Test Data

SOUTHWEST RESEARCH INSTITUTE

6220 CULEBRA ROAD • POST OFFICE DRAWER 28510 • SAN ANTONIO, TEXAS, 78228-0510 • TEL (210) 522-5215 • FAX (210) 522-3692

To: Darrell Dunn, Div 20, Bld 57

From: Walt Hill, Metrology Group Leader
Institute Calibration Laboratory

Date: Jan. 15, 2003
Subject: Out-of-tolerance Notice

The purpose of this notice is to alert you of a condition, which may have caused erroneous measurements affecting safety or the quality of products or services your organization provides. The attached as-found readings are provided for your evaluation to determine if the instrument listed below had an impact and if further action is required.

When the as-found results are near the specification limit, +/- a margin less than the measurement uncertainty, it is not possible to state in-tolerance or out-of-tolerance with a 95% level of confidence. It is the Institute Calibration Laboratory policy that the client is made aware of this situation because the end-user is taking some of the risk that the instrument listed below may not meet the end-user measurement requirements.

Your review/evaluation should be conducted in accordance with your organizational quality policy and procedural requirements. If we can be of further assistance, please contact the Calibration Laboratory at 522-5215.

Manufacturer: Proto **Model:** 6103

Description: Torque Screwdriver **Serial Number:** #2

Asset Number: 1443 **User ID Number:**

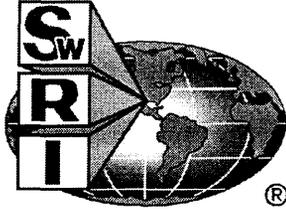
Last Calibration: Jul. 5, 2002

Date Received for Service: Jan. 14, 2003 **Work Order Number:** 444051933

Service Requested: Scheduled calibration

Remarks: Out of tolerance on all 4 calibration points at 20 in oz, at 60 in oz unit reads out of tolerance at 2 of the 4 break points, and at 100 in oz unit reads out of tolerance at 2 of the 4 break points. 4 break points is one complete revolution of the torque screwdriver.

OUT OF TOLERANCE



CNWRA *A center of excellence in earth
sciences and engineering*

6220 Culebra Road · San Antonio · Texas, U.S.A. 78228-5166

MEMORANDUM

To: SwRI Calibration Lab
From: Darrell S. Dunn *D.S.D.*
Date: April 7, 2003
Subject: Removal of Equipment from the Calibration Recall List

The following equipment are no longer within tolerance and need to be removed from the calibration recall list. A copy of this memorandum will be placed in the Division 20 calibration records.

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Asset Number</u>
Unknown	25 x 0.01 mm	20-M-1	002186
Proto	6103	#2	001443
Proto	6104	918697	010126
Fisher	14-983-10B	0323004	002042

Please contact me at extension 6090 if you have any questions.