

**GEOSCIENCES AND ENGINEERING DIVISION
NONCONFORMANCE REPORT**

Project No. OHD20.131

NCR No. 2007-04

PART 1: DESCRIPTION OF NONCONFORMANCE

Proto 6104 Torque Screwdriver, s/n 139072, AN009202 is out of tolerance per SwRI Cal. Lab. Unit exceeded limits several data points at 20 in-oz, one data point at 60 in-oz, and one data point at 100 in-oz.

Initiated by: Don Bannon

Date: 5Mar07

Action Required by: Xihua He

Response Due Date: 5Apr07

PART 2: PROPOSED DISPOSITION AND CORRECTIVE ACTION

Disposition: Accept data obtained in tests using this torque screwdriver as is.

Basis of Disposition: The torque screwdriver is used to torque polytetrafluoroethylene crevice washers on crevice corrosion test specimens. Under the applied torque, the polytetrafluoroethylene crevice washers deform to match the specimen surfaces. Tests conducted at the CNWRA have used applied torque in the range of 40 to 60 in-oz (typically 50 in-oz), which is the torque used to maintain a consistent crevice tightness and to avoid increased creep of polytetrafluoroethylene crevice washers at higher torque. At the 60 in-oz test point, the torque screwdriver was found to have one break point that was out of tolerance. The limit is ± 3.6 in-oz and the torque screwdriver had a difference of 3.65 in-oz. An error of 3.65 in-oz at 60 in-oz are unlikely to affect the outcome of crevice corrosion tests. In addition, previous CNWRA tests have shown that the initiation and repassivation of crevice corrosion on Ni-base alloys at elevated temperatures is not sensitive to the applied torque used to attach the polytetrafluoroethylene crevice washers.

Action to Correct Nonconformance: Unit was adjusted back into tolerance by SwRI Cal. Lab. The torque screwdriver will continue to be included on the calibration recall list.

Target date for completion: 3Apr07



Proposed by: Xihua He

Date: 2Apr07

PART 3: APPROVAL

Manager: 

Date: 4/2/2007

Director of QA: 

Date: 4/9/2007

Comments/Instructions:

PART 4: CLOSE OUT

Comments:

Verified per attachments.

Verified by:  Date: 4/9/07

Distribution:

Original-CENTER QA Records
ORIGINATOR
PRINCIPAL INVESTIGATOR
MANAGER
ASSISTANT DIRECTOR

SOUTHWEST RESEARCH INSTITUTE

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

To: Don Bannon, Div 20, B57

From: Walt Hill, Metrology Group Leader
Institute Calibration Laboratory

Date: Mar. 01, 2007

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:** 6104

Description: Torque Screwdriver **Serial Number:** 139072

Asset Number: 9202 **User ID Number:**

Last Calibration: Sep 20, 2006

Date Received for Service: Feb. 28, 2007 **Work Order Number:** 303073375

Service Requested: Scheduled calibration

Remarks: Unit exceeds Limits at 20 in/oz and one place at 60 in/oz. one place at 100 in/oz. Please see Measurement Report.

OUT OF TOLERANCE

Southwest Research Institute
Calibration Laboratory
Measurement Report

Work Order:	303073375	Mfr:	Proto	Technician:	PWC
Asset No:	009202	Model:	6104	Cal Date:	01-Mar-07
Serial No:	139072	Type:	Torque Screwdriver		
Remarks:	Calibrated Clockwise Only.				

Function/Range	Test Point	TI Reading	Difference	+/-Limit	+/-Uncertainty	Found
Torque Clockwise	oz/in	oz/in	oz/in	oz/in	oz/in	Result
	18.64	20.00	1.36	1.20	0.06	Fail
	18.49	20.00	1.51	1.20	0.06	Fail
	18.36	20.00	1.64	1.20	0.06	Fail
	18.84	20.00	1.16	1.20	0.06	Pass
	18.83	20.00	1.17	1.20	0.06	Pass
	18.72	20.00	1.28	1.20	0.06	Fail
	18.56	20.00	1.44	1.20	0.06	Fail
	18.18	20.00	1.82	1.20	0.06	Fail
	18.15	20.00	1.85	1.20	0.06	Fail
	58.18	60.00	1.82	3.60	0.18	Pass
	57.89	60.00	2.11	3.60	0.18	Pass
	57.72	60.00	2.28	3.60	0.18	Pass
	57.19	60.00	2.81	3.60	0.18	Pass
	56.35	60.00	3.65	3.60	0.18	Fail
	58.24	60.00	1.76	3.60	0.18	Pass
	58.13	60.00	1.87	3.60	0.18	Pass
	57.52	60.00	2.48	3.60	0.18	Pass
	59.40	60.00	0.60	3.60	0.18	Pass
	96.35	100.00	3.65	6.00	0.30	Pass
	95.05	100.00	4.95	6.00	0.30	Pass
	94.46	100.00	5.54	6.00	0.30	Pass
	94.55	100.00	5.45	6.00	0.30	Pass
	95.41	100.00	4.59	6.00	0.30	Pass
	93.37	100.00	6.63	6.00	0.30	Fail
	95.16	100.00	4.84	6.00	0.30	Pass
	95.75	100.00	4.25	6.00	0.30	Pass
	94.96	100.00	5.04	6.00	0.30	Pass

END OF REPORT



SOUTHWEST RESEARCH INSTITUTE®

6220 Culebra Road, P.O. Drawer 28510
Institute Quality Systems
Institute Calibration Laboratory
Phone: 210-522-5215 Fax 210-522-4834



Certificate #

0972-01

Certificate of Calibration

Submitted By: DIV20

Address: B57

Contact: DON BANNON

Manufacturer / Model: PROTO / 6104

Description: TORQUE SCREWDRIVER

Serial No: 139072

Asset No: 009202

Procedure: TORQUE HAND TOOLS - 19 SEP 06

Work Order: 303073375

Date Issued: Mar 1, 2007

Calibration Date: Mar 1, 2007

*Calibration Due: Sep 1, 2007

Calibration Location: Bldg. 64

Environment: Temp. 68.0°F Hum. 44 %RH

**Data Type: AS-LEFT

DivID/Location: N/A

This certificate documents traceability to the National Institute of Standards and Technology (NIST) and the International System of Units (SI). The Laboratory quality system conforms to ISO/IEC 17025, 2005, ANSI/NCSL Z540-1-1994 and relevant requirements of the ISO 9000-2000 standard. This certificate shall not be reproduced, except in full, without the written approval of the Southwest Research Institute Calibration Laboratory. This certificate shall not be used to claim product endorsement by Southwest Research Institute, American Association for Laboratory Accreditation (A2LA) or any agency of the U. S. Government. Results of this calibration relate only to the instrument described above at the time of calibration and does not imply any long term stability of the instrument.

*Determined by the customer, does not imply the instrument will remain within tolerance as any number of factors may cause an out-of-tolerance condition before this date. **Found/Left = adjustment and/or repair was not required, As Left = adjusted and/or repaired was required. The client has sole responsibility for determination of in-/out-of-tolerance or compliance/noncompliance. See Remarks or attached Measurement Report with the same Work Order number for data.

Reported uncertainty calculated in accordance with the ISO "Guide to the Expression of Uncertainty in Measurement" (GUM) and represents an expanded uncertainty with a coverage factor of k=2 to approximate a 95% confidence level.

Remarks: Calibrated Clockwise Only.

Standards Used

Asset No.	Serial No.	Manufacturer	Model	Description	Cal Due
007010	08803	CDI	1001-0-TTTP	TORQUE TRANSDUCER	May 02, 07

Reviewed by: blt () jrg () pwc () wgh ()

Metrology Technician

Measurements by: Perry Carpenter

Metrology Technician

Southwest Research Institute
Calibration Laboratory
Measurement Report

Work Order:	303073375	Mfr:	Proto	Technician:	PWC
Asset No:	009202	Model:	6104	Cal Date:	01-Mar-07
Serial No:	139072	Type:	Torque Screwdriver		
Remarks:	Calibrated Clockwise Only.				

Function/Range	Test Point	TI Reading	Difference	+/-Limit	+/-Uncertainty	Left
Torque Clockwise	oz/in	oz/in	oz/in	oz/in	oz/in	Result
	19.37	20.00	0.63	1.20	0.06	Pass
	19.45	20.00	0.55	1.20	0.06	Pass
	19.34	20.00	0.66	1.20	0.06	Pass
	19.03	20.00	0.97	1.20	0.06	Pass
	19.35	20.00	0.65	1.20	0.06	Pass
	19.09	20.00	0.91	1.20	0.06	Pass
	19.26	20.00	0.74	1.20	0.06	Pass
	18.95	20.00	1.05	1.20	0.06	Pass
	19.04	20.00	0.96	1.20	0.06	Pass
	62.77	60.00	-2.77	3.60	0.18	Pass
	62.32	60.00	-2.32	3.60	0.18	Pass
	61.91	60.00	-1.91	3.60	0.18	Pass
	62.68	60.00	-2.68	3.60	0.18	Pass
	61.54	60.00	-1.54	3.60	0.18	Pass
	60.46	60.00	-0.46	3.60	0.18	Pass
	62.00	60.00	-2.00	3.60	0.18	Pass
	61.18	60.00	-1.18	3.60	0.18	Pass
	61.11	60.00	-1.11	3.60	0.18	Pass
	102.30	100.00	-2.30	6.00	0.30	Pass
	102.60	100.00	-2.60	6.00	0.30	Pass
	102.00	100.00	-2.00	6.00	0.30	Pass
	101.00	100.00	-1.00	6.00	0.30	Pass
	101.50	100.00	-1.50	6.00	0.30	Pass
	102.20	100.00	-2.20	6.00	0.30	Pass
	101.20	100.00	-1.20	6.00	0.30	Pass
	101.60	100.00	-1.60	6.00	0.30	Pass
	100.40	100.00	-0.40	6.00	0.30	Pass

END OF REPORT