



SOUTHWEST RESEARCH INSTITUTE®

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Institute Calibration Laboratory
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Calibration Laboratory
Certificate #0972-01

Certificate of Calibration

Submitted By: DIV20

Address: B51

Contact: DON BANNON

Manufacturer / Model: SNAP-ON / QDRIVER2

Description: TORQUE SCREWDRIVER

Serial No: 1001200319

Asset No: 010443

Procedure: TORQUE TOOLS - 29 NOV 2007

Work Order: 303080485

Date Issued: Apr 19, 2008

Calibration Date: Apr 19, 2008

***Calibration Due:** Oct 19, 2008

Calibration Location: Bldg. 64

Environment: Temp. 68.0°F Hum. 40 %RH

****Data Type:** FOUND-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: Cal'd ± 6% Clockwise only

Standards Used

| Asset No. | Serial No. | Manufacturer | Model | Description | Cal Due |
|-----------|------------|--------------|-----------|---------------------------------|------------|
| 012699 | 0207806 | CDI | 2000-5-02 | TORQUE TRANSDUCER 15 - 200 INOZ | May 02, 08 |
| 012700 | 0207806 | CDI | 2000-4-02 | TORQUE TRANSDUCER 5 - 50 INOZ | May 02, 08 |

Reviewed by: srk () mar () wgh

Measurements by: Joe Greagrey
Metrology Technician

Southwest Research Institute
Calibration Laboratory
Measurement Report

| | | | | | |
|-------------|----------------------|--------|--------------------|-------------|-----------|
| Work Order: | 303080485 | Mfr: | Snap-On | Technician: | JRG |
| Asset No: | 010443 | Model: | QDRIVER2 | Cal Date: | 19-Apr-08 |
| Serial No: | 1001200319 | Type: | Torque Screwdriver | | |
| Remarks: | Cal'd clockwise only | | | | |

| Function/Range | Test Point | TI Reading | Difference | +/-Limit | +/-Uncertainty | Found/Left |
|------------------|------------|------------|------------|----------|----------------|------------|
| Torque Clockwise | oz/in | oz/in | oz/in | oz/in | oz/in | Result |
| | 20.4 | 20.0 | -0.4 | 1.2 | 0.061 | Pass |
| | 19.9 | 20.0 | 0.1 | 1.2 | 0.061 | Pass |
| | 20.7 | 20.0 | -0.7 | 1.2 | 0.061 | Pass |
| | 20.7 | 20.0 | -0.7 | 1.2 | 0.061 | Pass |
| | 20.7 | 20.0 | -0.7 | 1.2 | 0.061 | Pass |
| | 20.6 | 20.0 | -0.6 | 1.2 | 0.061 | Pass |
| | 20.6 | 20.0 | -0.6 | 1.2 | 0.061 | Pass |
| | 20.6 | 20.0 | -0.6 | 1.2 | 0.061 | Pass |
| | 20.4 | 20.0 | -0.4 | 1.2 | 0.061 | Pass |
| | 20.4 | 20.0 | -0.4 | 1.2 | 0.061 | Pass |
| | 20.6 | 20.0 | -0.6 | 1.2 | 0.061 | Pass |
| | 20.4 | 20.0 | -0.4 | 1.2 | 0.061 | Pass |
| | 60.0 | 60.0 | 0.0 | 3.6 | 0.18 | Pass |
| | 61.7 | 60.0 | -1.7 | 3.6 | 0.18 | Pass |
| | 61.1 | 60.0 | -1.1 | 3.6 | 0.18 | Pass |
| | 59.4 | 60.0 | 0.6 | 3.6 | 0.18 | Pass |
| | 61.2 | 60.0 | -1.2 | 3.6 | 0.18 | Pass |
| | 61.0 | 60.0 | -1.0 | 3.6 | 0.18 | Pass |
| | 61.6 | 60.0 | -1.6 | 3.6 | 0.18 | Pass |
| | 59.3 | 60.0 | 0.7 | 3.6 | 0.18 | Pass |
| | 61.2 | 60.0 | -1.2 | 3.6 | 0.18 | Pass |
| | 60.4 | 60.0 | -0.4 | 3.6 | 0.18 | Pass |
| | 61.2 | 60.0 | -1.2 | 3.6 | 0.18 | Pass |
| | 61.0 | 60.0 | -1.0 | 3.6 | 0.18 | Pass |
| | 104.6 | 100.0 | -4.6 | 6.0 | 0.30 | Pass |
| | 104.5 | 100.0 | -4.5 | 6.0 | 0.30 | Pass |
| | 103.8 | 100.0 | -3.8 | 6.0 | 0.30 | Pass |
| | 103.8 | 100.0 | -3.8 | 6.0 | 0.30 | Pass |
| | 103.4 | 100.0 | -3.4 | 6.0 | 0.30 | Pass |
| | 103.6 | 100.0 | -3.6 | 6.0 | 0.30 | Pass |
| | 103.5 | 100.0 | -3.5 | 6.0 | 0.30 | Pass |
| | 104.0 | 100.0 | -4.0 | 6.0 | 0.30 | Pass |
| | 104.0 | 100.0 | -4.0 | 6.0 | 0.30 | Pass |
| | 103.8 | 100.0 | -3.8 | 6.0 | 0.30 | Pass |
| | 103.7 | 100.0 | -3.7 | 6.0 | 0.30 | Pass |
| | 104.0 | 100.0 | -4.0 | 6.0 | 0.30 | Pass |

END OF REPORT