

Product Information

SHUNT CALIBRATION TRANSFER

The purpose of this technique is to provide the transducer user with a means of easily performing an accurate system calibration using a Lebow supplied shunt cal resistor and its electrical signal equivalent value.

Possibility One → The instrument and interconnecting cable were provided to Lebow for the actual calibration: Use the electrical signal equivalent value supplied by Lebow and adjust the instrument display or output to the equivalent load value with the shunt resistor connected on the instrument and activated.

Possibility Two → The instrument and interconnecting cable were not provided to Lebow for the actual calibration: The actual calibration was performed using Lebow's instrument and a short interconnecting cable to determine electrical signal equivalent value with a shunt resistor. Since a different cable and instrument will be used in your application, the following method should be used to calibrate the system:

1. Connect the instrument to the transducer using the actual interconnect cable.
2. Shunt the appropriate pins at the transducer receptacle with the shunt resistor provided by Lebow, using short pigtail leads.
3. Adjust the instrument readout or output for the electrical equivalent value supplied by Lebow.
4. Disconnect the pigtails and shunt cal resistor from the transducer receptacle.
5. Install the shunt cal resistor on the instrument.
6. Press the cal buttons one at a time. Read and record the display or output on the instrument. This is the new electrical equivalent value to be used when the shunt resistor is installed and activated on the instrument and using the actual cable.
7. Steps 1 through 6 should be repeated whenever the cable and/or instrument is changed.

Note: WHILE THIS METHOD OF SYSTEM CALIBRATION IS USUALLY VERY RELIABLE AND ACCURATE, IT IS RECOMMENDED THAT THE EQUIVALENT LOAD VALUES BE PERIODICALLY VERIFIED BY CALIBRATING THE SYSTEM WITH KNOWN, ACCURATE MECHANICAL MEANS. LEBOW RECOMMENDS A MAXIMUM OF ONE YEAR BETWEEN RECERTIFICATION.

LIMITED WARRANTY - PRODUCT

(Liability for Repair and Replacement Only)

The Company's products are warranted to be free from defects in material and workmanship for one year from date of shipment from the factory. The Company's obligations are limited to repairing, or at their option, replacing products and components which, on verification, prove to be defective, at the factory in Troy, Michigan. The Company shall not be liable for installation charges, for expenses of Buyer for repairs or replacement, for damages from delay or loss of use, or other indirect or consequential damages of any kind. The Company extends this warranty only upon proper use of the product in the application for which intended and does not cover products which have been modified without the Company's approval or which have been subjected to unusual physical or electrical stress, or upon which the original identification marks have been removed or altered.

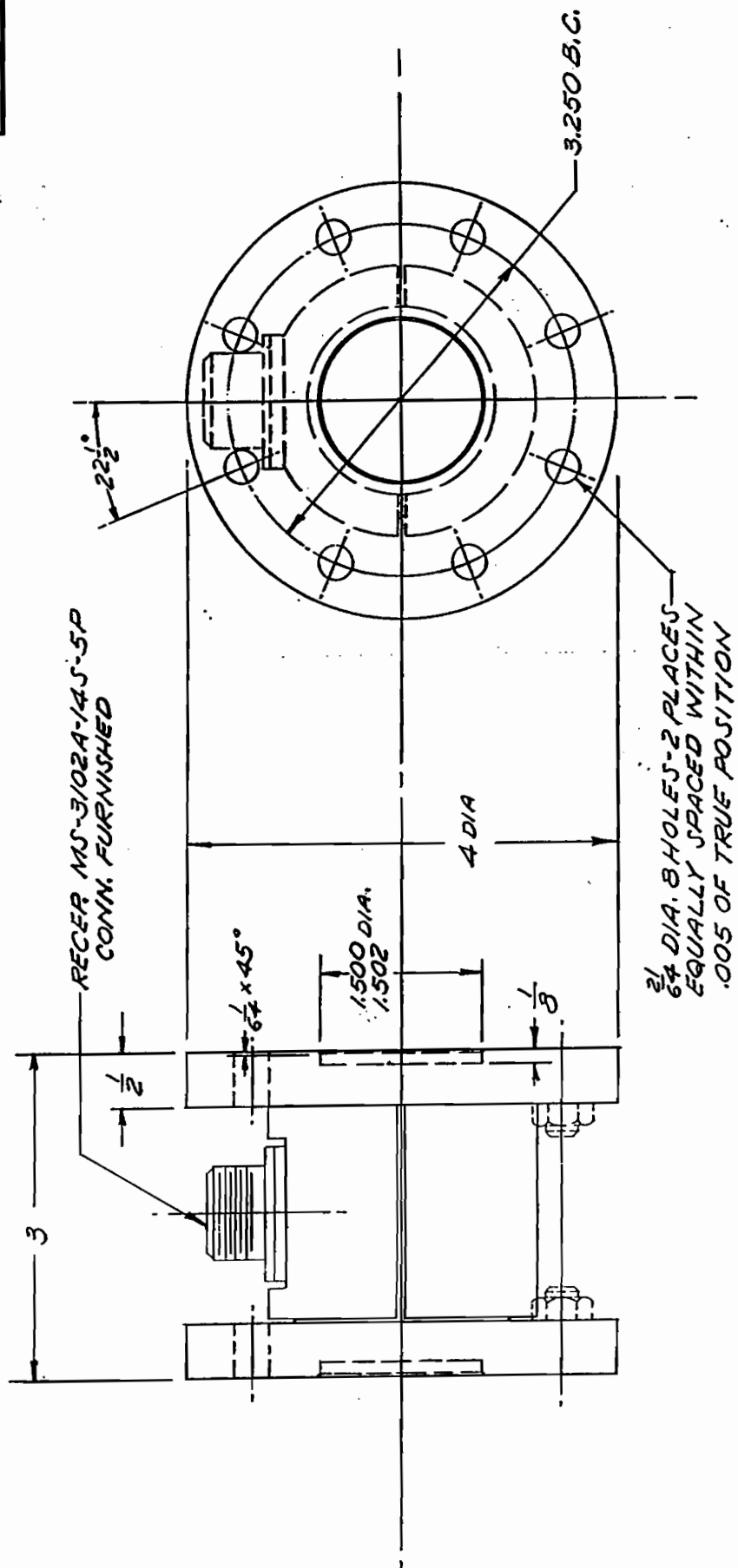
Whenever the design of the equipment to be furnished or the system in which it is to be incorporated originate with the Buyer, manufacturer's warranty is limited specifically to matters relating to furnishing of equipment free of defects in material and workmanship and assumes no responsibility for implied warranties of fitness for purpose or use.

CERTIFICATE OF CALIBRATION AND TRACEABILITY

This is to certify that the products described herein meet the specifications and performance requirements described in this manual. Test reports and other pertinent information are on file and available for inspection by your representative and or U.S. Government representative upon request.

Calibration was performed with a test system in compliance with ANSI/NCSL Z540-1-1994 utilizing a reference load cell and/or deadweights and an electronic indicator. The test system was within current calibration requirements at the time of the test and is traceable to the National Institute of Standards Technology.

B-2110-D



Ⓒ Performance Spec. S-2110

2110-10K	10000 IN.-LB.
2110-5K	5000 IN.-LB.
2110-500	500 IN.-LB.
2110-1K	1000 IN.-LB.
2110-6K	6000 IN.-LB.
2110-4K	4000 IN.-LB.
2110-2K	2000 IN.-LB.
MODEL	CAPACITY

OUTPUT 2.0 MV/VOLT NOMINAL

DIST. NO.	PART NO.	DESCRIPTION	REV. NO.
		INSTALLATION DIMENSIONS ~	
		FLANGED REACTION TORQUE SENSOR	
SCALE: FULL	DRAWN BY: CLOUTIER	REF. DESIG.	MAT'L
DATE: 5-24-65	CHK'D BY:	MODEL: 2110	JOB NO.
UNLESS OTHERWISE SPECIFIED:			
TOLERANCE ON FRACTIONS	± 1/48	TOLERANCE ON DRILLED HOLES	± .002
TWO PLACE DECIMALS	± .010	REMOVE ALL BURRS & SHARP EDGES	± .005
THREE PLACE DECIMALS	± .005	DIMENSION LIMITS HELD AFTER PLATING	
ANGLES	± .001	SURFACE FINISH	125/10
BY: A		REVISION	
DATE: 5-24-65		DATE: 5-24-65	
LEBOW ASSOCIATES, INC. OAK PARK, MICHIGAN			
DRAWING NO. B-2110-D			

Lebow Products Inc.

P.O. Box 1089
Troy, Michigan 48099-1089
Phone: 248-643-0220
FAX: 248-643-0259

Certificate No.: 20015004
Job No.: 13175

CALIBRATION CERTIFICATE

February 28, 2001

We certify that the item listed below was manufactured under a calibration system conforming to ANSI/NC SL Z540-1-1994, and that this test system is within current calibration requirements and is traceable to the National Institute of Standards Technology. We also certify that test reports and other pertinent information, as required, are either on file at our company or on file at the place of manufacture and may be inspected by your quality control representative and/or Government representative upon request.

Any items not meeting ALL requirements of your purchase order are listed below, with a description of the exception, under "Exceptions to this statement".

Customer	P.O. #	Calibration Procedure	Calibration Date	Recal Due
INTERTECHNOLOGY	5973/6763	QAWI-612	02/27/2001	02/27/2002
Model Number	Serial Number	Temperature	Relative Humidity	
2110-5K	1039	69.4 °F	19.7 % R.H.	

REACTION TORQUE SENSOR

CALIBRATION EQUIPMENT TRACEABILITY

Model Number	Description	Serial Number	Manufacturer	NIST Number	Recal Due	Cal Interval
34420A	NANO VOLT/ MICRO OH	US36000957	HEWLETT PACKARD	4200085659	12/18/2001	12 MONTHS
25 LB	DEAD WEIGHTS	15	TROEMNER	MI-03-00-5502	03/03/2002	2 YEARS
25 LB	DEAD WEIGHTS	3	TROEMNER	MI-03-00-5502	03/03/2002	2 YEARS
25 LB	DEAD WEIGHTS	18	TROEMNER	MI-03-00-5502	03/03/2002	2 YEARS
25 LB	DEAD WEIGHTS	1	TROEMNER	MI-03-00-5502	03/03/2002	2 YEARS
25 LB	DEAD WEIGHTS	29	TROEMNER	MI-11-99-5389	11/24/2001	2 YEARS
40 "	SINGLE RIG BEAM	C/N 937	LEBOW PRODUCTS	0-1516F	07/24/2001	12 MONTHS

CALIBRATION DATA ENCLOSED



DANIEL CONNER
QUALITY TECHNICIAN

Exceptions to this statement:

NONE

CALIBRATION DATA SHEET

CE

Lebow Products

Q. UNIT
PROCEDURE 612 TEMP 69.4 DATE 2-27-01
HUMID 19.7 BY PJT/TH
JOB 64563

DEADWEIGHT MACHINE
 40 INCH BEAM CONTROL NO. 937
 DEADWEIGHT 25 LBS S/N 15, 3, 18, 1, 29
 _____ LBS S/N _____
 _____ OZ. S/N _____
 STD LOAD CELL _____ K MODEL NUMBER _____ S/N _____

INSTRUMENT 34420 A CONTROL NO. 2056 S/N _____
 LIN. .00 .00 HYST. .01 .01

LOAD APPLD	THEOR. RDG.	COMP. CLOCKWISE				TEN. COUNTER CW			
		RUN1	DEV		DEV	RUN1	DEV		DEV
0 LBS.	0 %	0				0			
25	20.00	20.00				20.00			
50	40.00	40.00				40.00			
75	60.00	60.00				59.99			
100	80.00	80.00				80.00			
125	100.00	100.00				100.00			
75	60.00	60.00				60.00			
0	0.00	0.00				0.00			
EXC <u>350.29</u> OHMS		0- 2.408 mV/V				+0 2.407 mV/V			
SIG <u>350.24</u> OHMS		60K + 60.46 %				60K - 60.40 %			
ZERO BAL +0 .132 %		3,023 LB. IN.				3,020 LB. IN.			
10-20 VOLTS .18 %									

Lebow Products
 MODEL NUMBER 2110-SK
 SIN 1039
 CAPACITY 5,000 LB. IN.
 PRELIM/FINAL