

Report By:

**National TAB - Kansas City
1126 Swift St
N Kansas City, MO 64116**



Report: CERTIFIED TAB REPORT

Function: Test, Adjust, & Balance

Date: 06/26/2024

PROJECT

Diamonds Direct (Oak Ridge North, TX)

N Freeway Service Rd & Woodson Rd

Oak Ridge North, TX 77381

Client

Bayside Mechanical Contractors

3514 Pinemont Dr

Houston, TX 77018

National TAB

Project: Diamonds Direct (Oak Ridge North, TX)

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CERTIFICATION



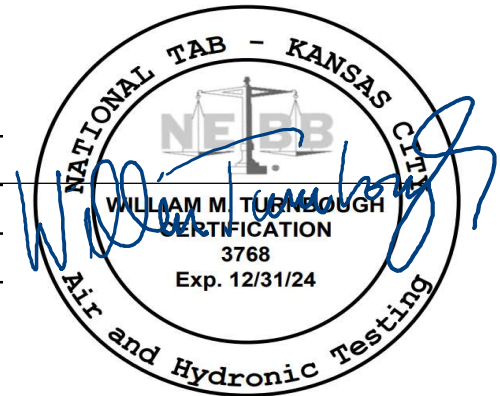
PROJECT: Diamonds Direct (Oak Ridge North, TX)

The data presented in this report is a record of system measurements and final adjustments that have been obtained in accordance with the current edition of the NEBB Procedural Standard for Testing, Adjusting and Balancing of Environmental Systems. The measurements shown, and the information given, in this report are certified to be accurate and complete, at the time and date information was gathered. Any variances from design quantities, which exceed NEBB tolerances, are noted in the TAB report project summary.

NEBB TAB FIRM: National TAB - Kansas City
REGISTRATION NO: 3768
CERTIFIED BY: Will Turnbough
DATE: 6/26/2024

Submitted and Certified by:

NEBB TAB FIRM: National TAB - Kansas City
TAB PROFESSIONAL: Will Turnbough
REGISTRATION NO: CP-24289
CERTIFICATION EXP: 12/31/2024



Project Summary

RTU's w/ Diffusers

Each of the RTU's were measured at their terminal devices to establish a total flow for that unit. These readings and calculations were used to adjust each RTU to within tolerance of the engineer's total design flow. Each outlet was then adjusted to within tolerance of the design flow. Outside air was measured by reading the intake air opening with a velocity grid and multiplying by the free area. The outside air damper was adjusted until the airflow was within the design requirements. Any equipment that fell outside of that tolerance is noted throughout the report.

Ceiling Exhaust Fans

The ceiling exhaust fans was measured using a flow hood. The fan is a single speed fan and was measured as is. Airflow is below design and unable to increase airflow further.

National TAB

Project: Diamonds Direct (Oak Ridge North, TX)

System/Unit: AHU/RTU



Asset: RTU-1

AREA: SALES

| Unit Data | | |
|------------------|--------------------|----------------------|
| | Design | Actual |
| MFG | NA | CAPTIVE-AIRE |
| Serial Num | - | 6025121 |
| Model Num | NA | CASRTU2-I.200-18-10T |
| Configuration | VERTICAL DISCHARGE | VERTICAL DISCHARGE |
| Num OA Filters 1 | - | 2 |
| OA Filter Size 1 | - | 20x25x2 |
| Num PreFilter 1 | - | 4 |
| PreFilter Size 1 | - | 16x20x2 |

| Motor Data | | |
|----------------|--------|--------|
| | Design | Actual |
| Motor MFG | - | TECO |
| Frame | - | 184T |
| Horsepower | - | 5 |
| Motor Rpm | - | 1750 |
| Phase | - | 3 |
| Rated Voltage | - | 208 |
| Rated Amperage | - | 15.0 |
| Service Factor | - | 1.15 |

| Test Data | | |
|--------------------|--------|--------------|
| | Design | Actual |
| SF CFM | 3000 | 2916 |
| SF RPM | - | 1954 @ 67 HZ |
| RA CFM | 2400 | 2343 |
| OA CFM | 600 | 573 |
| RL Voltage | - | 146 @ VFD |
| RL Amperage | - | 11.3 @ VFD |
| OA Damper Position | - | 4.5 VDC |
| Brake Horse Power | - | 3.77 |

| Performance Data | | |
|------------------|--------|--------|
| | Design | Actual |
| MA Plenum SP | - | NA |
| Fan Suction SP | - | NA |
| Fan Discharge SP | - | 0.57" |
| Total ESP | - | NA |
| Fan Total SP | - | NA |

Completed By: Wesley John on 06/21/2024

National TAB

Project: Diamonds Direct (Oak Ridge North, TX)

AHU/RTU



Diffuser Supply (GRD)

RTU-1/SALES

| Asset | | | | | | | |
|------------|------------|------|------|------------|--------|-----------|-------------|
| Asset Name | Location | Type | Size | DESIGN CFM | CFM(1) | FINAL CFM | % to design |
| 1-1 | MAIN SALES | C | 4 | 150 | 82 | 161 | 107.3 |
| 1-2 | MAIN SALES | C | 4 | 140 | 75 | 127 | 90.7 |
| 1-3 | MAIN SALES | C | 4 | 150 | 67 | 138 | 92.0 |
| 1-4 | MAIN SALES | C | 4 | 140 | 46 | 129 | 92.1 |
| 1-5 | MAIN SALES | C | 4 | 200 | 105 | 184 | 92.0 |
| 1-6 | MAIN SALES | C | 4 | 200 | 130 | 214 | 107.0 |
| 1-7 | ENTRY | C | 4 | 100 | 72 | 98 | 98.0 |
| 1-8 | RECEPTION | A | 8" | 145 | 150 | 138 | 95.2 |
| 1-9 | ENTRY | C | 4 | 100 | 37 | 96 | 96.0 |
| 1-10 | MAIN SALES | C | 4 | 200 | 112 | 210 | 105.0 |
| 1-11 | MAIN SALES | C | 4 | 200 | 109 | 206 | 103.0 |
| 1-12 | MAIN SALES | C | 4 | 140 | 117 | 130 | 92.9 |
| 1-13 | MAIN SALES | C | 4 | 115 | 110 | 111 | 96.5 |
| 1-14 | MAIN SALES | C | 4 | 140 | 72 | 132 | 94.3 |
| 1-15 | MAIN SALES | C | 4 | 200 | 122 | 197 | 98.5 |
| 1-16 | DIAMOND 3 | A | 10" | 230 | 211 | 219 | 95.2 |
| 1-17 | DIAMOND 2 | A | 10" | 225 | 238 | 217 | 96.4 |
| 1-18 | DIAMOND 1 | A | 10" | 225 | 194 | 209 | 92.9 |
| Total | | | | 3000 | 2049 | 2916 | 97.2% |

Diffuser Ret/Exh (GRD)

RTU-1/SALES

| Asset | | | | | | | | |
|------------|------|------|------------|-----|--------|--------|-----------|-------------|
| Asset Name | Type | Size | DESIGN CFM | AK | CFM(1) | CFM(2) | FINAL CFM | % to design |
| R1-1 | D | 4 | 155 | 1.0 | 76 | - | 149 | 96.1 |
| R1-2 | D | 4 | 155 | 1.0 | 104 | - | 143 | 92.3 |
| R1-3 | D | 4 | 155 | 1.0 | 137 | - | 160 | 103.2 |
| R1-4 | D | 2 | 75 | 1.0 | 81 | - | 72 | 96.0 |
| R1-5 | D | 2 | 75 | 1.0 | 104 | - | 76 | 101.3 |
| R1-6 | D | 3 | 100 | 1.0 | 56 | - | 107 | 107.0 |
| R1-7 | D | 4 | 155 | 1.0 | 98 | - | 144 | 92.9 |
| R1-8 | D | 4 | 155 | 1.0 | 176 | - | 166 | 107.1 |
| R1-9 | D | 4 | 155 | 1.0 | 177 | - | 141 | 91.0 |
| R1-10 | B | 8X8 | 200 | 1.0 | 284 | - | 210 | 105.0 |
| R1-11 | D | 44 | 155 | 1.0 | 133 | - | 140 | 90.3 |
| R1-12 | D | 4 | 155 | 1.0 | 160 | - | 169 | 109.0 |
| R1-13 | D | 4 | 155 | 1.0 | 177 | - | 164 | 105.8 |
| R1-14 | D | 4 | 155 | 1.0 | 138 | - | 147 | 94.8 |
| R1-15 | B | 8X8 | 200 | 1.0 | 176 | - | 214 | 107.0 |
| R1-16 | B | 8X8 | 200 | 1.0 | 203 | - | 207 | 103.5 |
| Total | | | 2400 | | 2280 | 0 | 2409 | 100.37% |

Completed By: Wesley John on 06/21/2024

National TAB

Project: Diamonds Direct (Oak Ridge North, TX)

System/Unit: AHU/RTU



Asset: RTU-2

AREA:SIDE OFFICES

| Unit Data | | |
|------------------|--------------------|----------------------|
| | Design | Actual |
| MFG | NA | CAPTIVE-AIRE |
| Serial Num | - | 6025121 |
| Model Num | NA | CASRTU2-I.200-18-10T |
| Configuration | VERTICAL DISCHARGE | VERTICAL DISCHARGE |
| Num OA Filters 1 | - | 2 |
| OA Filter Size 1 | - | 20x25x2 |
| Num PreFilter 1 | - | 4 |
| PreFilter Size 1 | - | 16x20x2 |

| Motor Data | | |
|----------------|--------|--------|
| | Design | Actual |
| Motor MFG | - | TECO |
| Frame | - | 184T |
| Horsepower | - | 5 |
| Motor Rpm | - | 1750 |
| Phase | - | 3 |
| Rated Voltage | - | 208 |
| Rated Amperage | - | 15.0 |
| Service Factor | - | 1.15 |

| Test Data | | |
|--------------------|--------|--------------|
| | Design | Actual |
| SF CFM | 3000 | 3138 |
| SF RPM | - | 1867 @ 64 Hz |
| RA CFM | 2500 | 2607 |
| OA CFM | 500 | 531 |
| RL Voltage | - | 139 @VFD |
| RL Amperage | - | 10.7 @VFD |
| OA Damper Position | - | 4.5 VDC |
| Brake Horse Power | - | 3.57 |

| Performance Data | | |
|------------------|--------|--------|
| | Design | Actual |
| MA Plenum SP | - | NA |
| Fan Suction SP | - | NA |
| Fan Discharge SP | - | 0.59" |
| Total ESP | - | NA |
| Fan Total SP |] | NA |

Completed By: Wesley John on 06/21/2024

National TAB

Project: Diamonds Direct (Oak Ridge North, TX)

AHU/RTU



Diffuser Supply (GRD)

RTU-2/SIDE OFFICES

| Asset | | | | | | | |
|------------|-----------------|------|------|------------|--------|-----------|-------------|
| Asset Name | Location | Type | Size | DESIGN CFM | CFM(1) | FINAL CFM | % to design |
| 2-1 | EMPLOYEE LOUNGE | A | 10" | 250 | 268 | 263 | 105.2 |
| 2-2 | HALL | A | 8" | 125 | 129 | 134 | 107.2 |
| 2-3 | HALL | A | 8" | 125 | 128 | 132 | 105.6 |
| 2-4 | VAULT | A | 6" | 100 | 104 | 93 | 93.0 |
| 2-5 | MAIN SALES | C | 4 | 100 | 74 | 101 | 101.0 |
| 2-6 | MAIN SALES | C | 4 | 100 | 67 | 98 | 98.0 |
| 2-7 | CLERICAL | A | 8" | 175 | 177 | 183 | 104.6 |
| 2-8 | CLERICAL | A | 8" | 175 | 183 | 189 | 108.0 |
| 2-9 | CLERICAL | A | 8" | 175 | 191 | 187 | 106.9 |
| 2-10 | CLERICAL | A | 8" | 175 | 179 | 190 | 108.6 |
| 2-11 | HALL | A | 8" | 125 | 118 | 137 | 109.6 |
| 2-12 | JEWELER WORK | A | 8" | 175 | 141 | 188 | 107.4 |
| 2-13 | HALL | A | 8" | 125 | 131 | 134 | 107.2 |
| 2-14 | JEWELER WORK | A | 8" | 175 | 153 | 180 | 102.9 |
| 2-15 | GIFT WRAP | A | 8" | 100 | 59 | 104 | 104.0 |
| 2-16 | REAR EXIT | A | 8" | 200 | 120 | 209 | 104.5 |
| 2-17 | MAIN SALES | C | 4 | 100 | 103 | 109 | 109.0 |
| 2-18 | MAIN SALES | C | 4 | 100 | 82 | 97 | 97.0 |
| 2-19 | KIDS ROOM | A | 8" | 200 | 85 | 204 | 102.0 |
| 2-20 | MENS RR | A | 6" | 50 | 30 | 54 | 108.0 |
| 2-21 | WOMENS RR | A | 6 | 50 | 37 | 49 | 98.0 |
| 2-22 | RR VESTIBULE | A | 6 | 100 | 55 | 103 | 103.0 |
| Total | | | | 3000 | 2614 | 3138 | 104.6% |

Diffuser Ret/Exh (GRD)

RTU-2/SIDE OFFICES

| Asset | | | | | | | | |
|------------|------|-------|------------|-----|--------|--------|-----------|-------------|
| Asset Name | Type | Size | DESIGN CFM | AK | CFM(1) | CFM(2) | FINAL CFM | % to design |
| R2-1 | B | 8X8 | 150 | 1.0 | 94 | - | 140 | 93.3 |
| R2-2 | B | 6X6 | 50 | 1.0 | 73 | - | 52 | 104.0 |
| R2-3 | B | 12X12 | 500 | 1.0 | 343 | - | 487 | 97.4 |
| R2-4 | B | 22X22 | 1750 | 1.0 | 1907 | - | 1788 | 102.2 |
| R2-5 | B | 8X8 | 150 | 1.0 | 107 | - | 141 | 94.0 |
| Total | | | 2600 | | 2524 | 0 | 2608 | 100.31% |

Completed By: Wesley John on 06/21/2024

National TAB

Project: Diamonds Direct (Oak Ridge North, TX)

System/Unit: FAN - Exhaust



Asset: EF-4

AREA:EMPLOYEE LOUNGE

| Unit Data | | |
|-------------------|---------|------------|
| | Design | Actual |
| MFG | NA | GREENHECK |
| Model Num | NA | SP-A110-QD |
| Serial Num | - | 22733329 |
| Type | CEILING | CEILING |

| Test Data | | |
|--------------------|--------|--------|
| | Design | Actual |
| CFM | 70 | 50 |
| RL Voltage | - | 121 |
| RL Amperage | - | 0.10 |
| Total ESP | 0.20 | 0.14" |

| Motor Data | | |
|-------------------------|--------|-----------|
| | Design | Actual |
| Motor MFG | - | GREENHECK |
| Frame | - | NL |
| Horsepower | 15W | NL |
| Motor Rpm | 900 | 950 |
| Phase | 1 | 1 |
| Voltage (rated) | 120 | 115 |
| Amperage (rated) | - | 0.19 |
| Service Factor | - | NL |

Completed By: Wesley John on 06/21/2024

Notes:
FAN IS SINGLE SPEED

Written By: Will Turnbough on 06/26/2024

Abbreviation List

| | |
|--|---|
| A = Area (ft ²) | S.F. = Service Factor |
| AHU = Air Handling Unit | SF = Supply Fan |
| A _k = Effective Area | SP = Static Pressure |
| BHP = Brake Horsepower (IP) HP | SR = Supply Register |
| Btu = British Thermal Unit | T = Temperature |
| Btu/h = Btuh = BTUH = BTU/Hour | T _{ma} = Mixed Air Temperature |
| CL = Center Distance (used in belt formula) | T _{oa} = Outside Air Temperature |
| CD = Ceiling Diffuser | T _{ra} = Return Air Temperature |
| CF = Correction Factor | H = Head (in wc, ft wc, psi) |
| CFM = Volumetric Flow: Cubic Feet Per Minute | h = Enthalpy |
| CO ₂ = Carbon Dioxide | HP = Horsepower |
| CO = Carbon Monoxide | hr = Hour |
| C _v = Flow Constant | K _v = Flow constant (SI) |
| d = Diameter (in.) IP | kW = Kilowatt = 1000 Watts |
| Δ = Difference or Change (Final - Initial) | LAT = Leaving Air Temperature |
| DB = Dry Bulb | lb = Pounds |
| EA = Exhaust Air | LWT = Leaving Water Temperature |
| EAT = Entering Air Temperature | ma = Mixed Air |
| EF = Exhaust Fan | MIN = Minimum |
| Eff = Efficiency | MAX = Maximum |
| EG = Exhaust Grille | N/A = Not Applicable |
| ESP = External Static Pressure | NA = No Access |
| EWT = Entering Water Temperature | NL = Not Listed |
| °F = Degrees Fahrenheit, °F | NPSHA = Net Positive Suction Head Available |
| FPB = Fan Powered Box | NS = Not Specified |
| FLA = Full Load Amps | OA = Outside Air |
| fpm = Feet per Minute (fpm) | OAT = Outside Air Temperature |
| ft = Foot | PD = Sheave Pitch Diameter |
| gal = Gallons | P.D. = Pressure Drop |
| GPM = Gallons Per Minute (GPM) | PF = Power Factor |
| h = Enthalpy (BTU/lb dry air) | SG = Supply Grille |
| P = Pressure | SR = Supply Register |
| ppm = parts per million | TP = Total Pressure |
| psi = Pounds Per Square Inch | T _{ra} = Return Air Temperature |
| psid = PSI Differential | TS = Tip Speed (fpm) IP, (m/s) SI |
| r = Radius (in) | TSP = Total Static Pressure |
| % _{ra} = % of Return Air | V = Velocity |
| RA = Return Air | VAV = Variable Air Volume |
| RAT = Return Air Temperature | VD = Volume Damper |
| RF = Return Fan | VFD = Variable Frequency Drive |
| RG = Return Grille | W = Watt |
| RH = Relative Humidity | WB = Wet Bulb |
| RPM = Revolutions Per Minute | wg = wc = water gauge = water column |
| RTU = Roof Top Unit | WHP = Water Horsepower (IP) |
| SA = Supply Air | ω = Humidity Ratio |



National TAB

Testing, Adjusting, and Balancing Equipment



| Function | | Range | Minimum Accuracy | Instrument Information | Calibration Date | Date Due |
|-------------|-------------------------|---------------------------|-----------------------------|-----------------------------------|------------------|-----------|
| AIR | AIR PRESSURE | 0 in wg to 10 in wg | 2% +/- 0.001 in wg | TSI EBT731 EBT732117009 | 9/7/2023 | 9/7/2024 |
| | AIR VELOCITY INSTRUMENT | 50 fpm to 3900 fpm | +/- 5 % +/- 7 fpm | TSI EBT731 EBT732117009 | 9/7/2023 | 9/7/2024 |
| | DIRECT HOOD READING | 100 cfm to 2000 cfm | +/- 5 % +/- 7 cfm | TSI EBT731 EBT732117009 | 9/7/2023 | 9/7/2024 |
| TEMPERATURE | AIR METER | -20 F to 240 F | +/- .5 % 2 F | Cooper SRH77A S/N 100516003 | 9/29/2023 | 9/29/2024 |
| | AIR PROBE | -20 F to 240 F | +/- .5 % 2 F | Cooper SRH77A S/N 100516003 | 9/29/2023 | 9/29/2024 |
| | IMMERSION METER | -20 F to 240 F | +/- .5 % 2 F | Cooper SRH77A S/N 100516003 | 9/29/2023 | 9/29/2024 |
| | IMMERSION PROBE | -20 F to 240 F | +/- .5 % 2 F | Cooper SRH77A S/N 100516003 | 9/29/2023 | 9/29/2024 |
| | CONTACT METER | -20 F to 240 F | +/- .5 % 2 F | Cooper SRH77A S/N 100516003 | 9/29/2023 | 9/29/2024 |
| | CONTACT PROBE | -20 F to 240 F | +/- .5 % 2 F | Cooper SRH77A S/N 100516003 | 9/29/2023 | 9/29/2024 |
| HUMIDITY | HUMIDITY PROBE | 10 % RH to 90 % RH | 3% of reading | Cooper SRH77A S/N 100516003 | 9/29/2023 | 9/29/2024 |
| ELECTRICAL | VOLTAGE MEASUREMENT | 0 VAC to 600 VAC | 2 % reading +/- 5 digits | Klein Tools CL800 S/N 1220C-C1 | 9/29/2023 | 9/29/2024 |
| | AMPERAGE MEASUREMENT | 0 Amperers to 100 Amperes | 2 % reading +/- 5 digits | Klein Tools CL800 S/N 1220C-C1 | 9/29/2023 | 9/29/2024 |
| ROTATION | ROTATION MEASUREMENT | 60 rpm to 5000 rpm | 2 % reading 2 rpm | Shimpo DT 207Lp S/N D1690029R | 9/29/2023 | 9/29/2024 |



National TAB

Testing, Adjusting, and Balancing Equipment



Report of Calibration

Kansas City Calibration Lab., Inc.
8847 Long Street
Lenexa, Kansas 66215

Telephone: (913) 541-0629 Internet: www.kccl.com Email: service@kccl.com

| | |
|--|---|
| UNIT UNDER TEST: TSI EBT731 Differential Digital Meter | TEST RESULT: PASS |
| SERIAL NUMBER: EBT732117009 | PERFORMED ON: 9/7/2023 |
| ASSET NUMBER: EBT732117009 | DATA TYPE: FOUND-LEFT |
| PROCEDURE NAME: ADM-XXX / EBT-XXX-XX 2.0% Reading: 1 Yr Cert CPC | TEMPERATURE: 23.8°C |
| PROCEDURE REV.: 20210930C | HUMIDITY: 44 % |
| CALIBRATED BY: Bart Schwartz | BAROMETRIC: 28.93 inHg |
| P.O. NUMBER: | Recalibration Date September 07, 2024 |
| CUSTOMER: National TAB 1126 Swift Street NKC, MO 64116 | Calibration Number: 0007333 |
| Cal Seals Intact: Yes | Previous Calibration Date: August 12, 2022 |

K.C. Calibration Lab., Inc. certifies that the above listed instrument meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB NRC NPL, etc), radiometric techniques, or natural physical constants. This calibration complies with MIL-STD-45662A and ANSI/NCSL Z540-1-1994.

This report may not be reproduced, except in full, unless permission for the publication of an approved abstract is obtained in writing from the calibration organization issuing this report.

Note: Any Test Uncertainty Ratio (TUR) that is less than four to one will appear under the "TUR" heading on the data record. If the TUR meets or exceeds four to one, the field is left blank.

REMARKS:

| Asset # | Description | Cal Date | Due Date |
|----------|---|-----------|-----------|
| 41001AR6 | Mensor CPC6050 Low & Medium Pressure Calibrator | 3/15/2023 | 3/15/2024 |

| Test Description | True Value | Test Result | Lower Limit | Upper Limit | Units | TUR |
|---|------------|-------------|-------------|-------------|-------|------|
| Vertical Accuracy: ±2.0% ±0.001 Reading INH20 @ 60" | | | | | | |
| Reference Documents: Mfr. Manual | | | | | | |
| Internal Barometric Reading: 28.80 inHg | | | | | | |
| Version Number is 1.11.1 | | | | | | |
| ** Connector | | | | | | |
| 0.000 inH2O | 0.000 | -0.0005 | -0.0100 | 0.0100 | inH2O | Pass |
| 5.000 inH2O | 5.000 | 5.1000 | 4.9000 | 5.1000 | inH2O | Pass |
| 10.000 inH2O | 10.000 | 10.0300 | 9.8000 | 10.2000 | inH2O | Pass |
| 14.900 inH2O | 14.900 | 14.9100 | 14.6020 | 15.1980 | inH2O | Pass |
| 0.000 inH2O | 0.000 | -0.0003 | -0.0100 | 0.0100 | inH2O | Pass |
| -5.000 inH2O | -5.000 | -5.0100 | -5.1000 | -4.9000 | inH2O | Pass |
| -10.000 inH2O | -10.000 | -10.0200 | -10.2000 | -9.8000 | inH2O | Pass |
| -14.900 inH2O | -14.900 | -14.9600 | -15.1980 | -14.6020 | inH2O | Pass |

Report of Calibration for SERIAL NUMBER: EBT732117009 ASSET NUMBER: EBT732117009

Printed On: Thursday, September 7, 2023 Page 1 of 2

Test Results indicate the following: Found-Left: Unit was left as found. As-Left: Unit was left after adjustments.

| Test Description | True Value | Test Result | Lower Limit | Upper Limit | Units | TUR |
|------------------|------------|-------------|-------------|-------------|-------|------|
| ** Connector | | | | | | |
| 0.000 inH2O | 0.000 | -0.0001 | -0.0100 | 0.0100 | inH2O | Pass |
| 5.000 inH2O | 5.000 | 4.9800 | 4.9000 | 5.1000 | inH2O | Pass |
| 10.000 inH2O | 10.000 | 10.0300 | 9.8000 | 10.2000 | inH2O | Pass |
| 14.900 inH2O | 14.900 | 14.9100 | 14.6020 | 15.1980 | inH2O | Pass |
| 0.000 inH2O | 0.000 | 0.0001 | -0.0100 | 0.0100 | inH2O | Pass |
| -5.000 inH2O | -5.000 | -5.0100 | -5.1000 | -4.9000 | inH2O | Pass |
| -10.000 inH2O | -10.000 | -10.0300 | -10.2000 | -9.8000 | inH2O | Pass |
| -14.900 inH2O | -14.900 | -14.9200 | -15.1980 | -14.6020 | inH2O | Pass |

*****END OF CALIBRATION*****

K.C. Calibration Labs Seal

Signature: *Bart Schwartz*
Bart A. Schwartz, Engineer in Charge

Report of Calibration for SERIAL NUMBER: EBT732117009 ASSET NUMBER: EBT732117009

Printed On: Thursday, September 7, 2023 Page 2 of 2

Test Results indicate the following: Found-Left: Unit was left as found. As-Left: Unit was left after adjustments.

Report of Calibration

Kansas City Calibration Lab., Inc.
8847 Long Street
Lenexa, Kansas 66215

Telephone: (913) 541-0629 Internet: www.kccl.com Email: service@kccl.com

| | |
|--|---|
| UNIT UNDER TEST: Shimpo DT-2077p Tachometer | TEST RESULT: PASS |
| SERIAL NUMBER: D1690029R | PERFORMED ON: 9/29/2023 |
| ASSET NUMBER: D1690029R | DATA TYPE: FOUND-LEFT |
| PROCEDURE NAME: Shimpo DT-20xx: 1 Year Certification | TEMPERATURE: 24.9°C |
| PROCEDURE REV.: 20210818C | HUMIDITY: 47 % |
| CALIBRATED BY: Bart Schwartz | Recalibration Date September 29, 2024 |
| P.O. NUMBER: | Calibration Number: 0007544 |
| CUSTOMER: National TAB 1126 Swift Street NKC, MO 64116 | Previous Calibration Date: August 11, 2022 |
| Cal Seals Intact: Yes | |

K.C. Calibration Lab., Inc. certifies that the above listed instrument meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB NRC NPL, etc), radiometric techniques, or natural physical constants. This calibration complies with MIL-STD-45662A and ANSI/NCSL Z540-1-1994.

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Note: Any Test Uncertainty Ratio (TUR) that is less than four to one will appear under the "TUR" heading on the data record. If the TUR meets or exceeds four to one, the field is left blank.

REMARKS:

| Asset # | Description | Cal Date | Due Date |
|-----------|--|-----------|-----------|
| MYS900813 | Keysight Technologies 33511B Function/Arb Waveform Generator | 12/1/2022 | 12/1/2023 |

| Test Description | True Value | Test Result | Lower Limit | Upper Limit | Units | TUR |
|------------------|------------|-------------|-------------|-------------|-------|------|
| RPM | | | | | | |
| 10.00 RPM | 10.0 | 10 | 9 | 11 | RPM | Pass |
| 100.00 RPM | 100.0 | 100 | 99 | 101 | RPM | Pass |
| 1000.0 RPM | 1000.0 | 1000 | 999 | 1001 | RPM | Pass |
| 10,000.0 RPM | 10000.0 | 10000 | 9998 | 10002 | RPM | Pass |
| 99,900.0 RPM | 99900.0 | 99902 | 99893 | 99907 | RPM | Pass |

Report of Calibration for SERIAL NUMBER: D1690029R ASSET NUMBER: D1690029R

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Test Results indicate the following: Found-Left: Unit was left as found. As-Left: Unit was left after adjustments.

Report of Calibration

Kansas City Calibration Lab., Inc.
8847 Long Street
Lenexa, Kansas 66215

Telephone: (913) 541-0629 Internet: www.kccl.com Email: service@kccl.com

| | |
|---|---|
| UNIT UNDER TEST: Cooper Instrument SRH77A Digital Thermometer | TEST RESULT: PASS |
| SERIAL NUMBER: 100516003 | PERFORMED ON: 9/29/2023 |
| ASSET NUMBER: 100516003 | DATA TYPE: FOUND-LEFT |
| PROCEDURE NAME: Met Temp NIST(SI) 1 Year | TEMPERATURE: 24.1°C |
| PROCEDURE REV.: | HUMIDITY: 46 % |
| CALIBRATED BY: Bart Schwartz | Recalibration Date September 29, 2024 |
| P.O. NUMBER: | Calibration Number: 00077543 |
| CUSTOMER: National TAB 1126 Swift Street NKC, MO 64116 | Previous Calibration Date: August 12, 2022 |
| Cal Seals Intact: Yes | |

K.C. Calibration Lab., Inc. certifies that the above listed instrument meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB NRC NPL, etc), radiometric techniques, or natural physical constants. This calibration complies with MIL-STD-45662A and ANSI/NCSL Z540-1-1994.

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Note: Any Test Uncertainty Ratio (TUR) that is less than four to one will appear under the "TUR" heading on the data record. If the TUR meets or exceeds four to one, the field is left blank.

REMARKS:

| Asset # | Description | Cal Date | Due Date |
|---------|--|-----------|-----------|
| 2659119 | Hart Scientific 1523 Single Chan Reference Thermometer | 1/9/2023 | 1/9/2024 |
| 905040 | Burns Engineering 5615 Platinum Resistance Thermometer | 2/8/2023 | 2/8/2024 |
| DWS18 | Fluke 518 Dry-Block Calibrator | 8/28/2023 | 8/28/2024 |
| MB7103 | Hart Scientific 7103 Micro Bath Calibrator | 12/8/2022 | 12/8/2023 |

| Test Description | True Value | Test Result | Lower Limit | Upper Limit | Units | TUR |
|---|------------|-------------|-------------|-------------|-------|-----|
| 1075 General Purpose Puncture Probe | | | | | | |
| Accuracy ±1.3 deg F / ±0.2 deg C or ±0.5% or reading: | | | | | | |
| -10.00 | F | -10.08 | -8.70 | 1.38 | | |
| 32.00 | F | 32.34 | 32.70 | 0.36 | | |
| 122.00 | F | 122.71 | 121.80 | -0.91 | | |
| 212.00 | F | 211.90 | 211.10 | -0.80 | | |
| 280.00 | F | 279.96 | 280.70 | 0.74 | | |
| 4011 Pipe Strip Probe | | | | | | |
| Accuracy ±2% Range -25° to 212°F / -32° to 100°C | | | | | | |
| 0.00 | F | 0.27 | 2.10 | 1.83 | | |
| 75.00 | F | 75.25 | 75.10 | -0.15 | | |
| 150.00 | F | 150.31 | 150.00 | -0.31 | | |

Report of Calibration for SERIAL NUMBER: 100516003 ASSET NUMBER: 100516003

Printed On: Friday, September 29, 2023 Page 1 of 2

Test Results indicate the following: Found-Left: Unit was left as found. As-Left: Unit was left after adjustments.



National TAB

Testing, Adjusting, and Balancing Equipment



| Test Description | True Value | Test Result | Lower Limit | Upper Limit | Units | TUR |
|---|------------|-------------|-------------|-------------|-------|-----|
| 5028 Slim Humidity Probe | | | | | | |
| Accuracy ±2% from 20 to 80%RH, ±3% below 20 and ± | | | | | | |
| 10.0 %RH @ 23.0°C | %RH | 10.0 | 16 | 6.0 | | |
| 25.0 %RH @ 23.0°C | %RH | 25.0 | 30 | 5.0 | | |
| 50.0 %RH @ 23.0°C | %RH | 50.0 | 53 | 3.0 | | |
| 75.0 %RH @ 23.0°C | %RH | 75.0 | 77 | 2.0 | | |
| 23.0°C @ 10.0 %RH | C | 23.0 | 23.2 | 0.2 | | |
| 23.0°C @ 25.0 %RH | C | 23.0 | 23.2 | 0.2 | | |
| 23.0°C @ 50.0 %RH | C | 23.0 | 23.2 | 0.2 | | |
| 23.0°C @ 75.0 %RH | C | 23.0 | 23.1 | 0.1 | | |

*****END OF CALIBRATION*****

Signed: *Bart A. Schwartz*
Bart A. Schwartz, Engineer in Charge

Report of Calibration for SERIAL NUMBER: 100516003 ASSET NUMBER: 100516003 Page 2 of 2

Printed On: Friday, September 29, 2023
Test Results indicate the following: Found-Left: Unit was left as found. As-Left: Unit was left after adjustments.

Report of Calibration

Kansas City Calibration Lab., Inc.
8847 Long Street
Lenexa, Kansas 66215

Telephone: (913) 541-0629 Internet: www.kccl.com Email: service@kccl.com

| | | | |
|------------------|--|----------------------------|--------------------|
| UNIT UNDER TEST: | Klein Tools CL800 True RMS Digital Clampmeter | TEST RESULT: | PASS |
| SERIAL NUMBER: | 1220C-C1 | PERFORMED ON: | 9/29/2023 |
| ASSET NUMBER: | 1220C-C1 | DATA TYPE: | FOUND-LEFT |
| PROCEDURE NAME: | Klein Tools CL800 : (1 year) CAL VER / 5520 | TEMPERATURE: | 24.9°C |
| PROCEDURE REV.: | 20230928 | HUMIDITY: | 46% |
| CALIBRATED BY: | Bart Schwartz | | |
| P.O. NUMBER: | | Recalibration Date | September 29, 2024 |
| CUSTOMER: | National TAB 1126 Swift Street NKC, MO 64116 | Calibration Number: | 0007542 |
| | | Previous Calibration Date: | |

Cal Seals Intact: Unknown

K.C. Calibration Lab., Inc. certifies that the above listed instrument meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NRC, NPL, etc), radiometric techniques, or natural physical constants. This calibration complies with MIL-STD-45662A and ANSI/NCISL Z540-1-1994.

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Note: Any Test Uncertainty Ratio (TUR) that is less than four to one will appear under the "TUR" heading on the data record. If the TUR meets or exceeds four to one, the field is left blank.

REMARKS:

| Asset # | Description | Cal Date | Due Date |
|---------|--------------------------------------|------------|------------|
| 3277903 | Fluke 5522A Multi-Product Calibrator | 11/30/2022 | 11/30/2023 |

| Test Description | True Value | Test Result | Lower Limit | Upper Limit | Units | TUR |
|---|------------|-------------|-------------|-------------|-------|------|
| Root Difference Square guardbanding method used | | | | | | |
| AC VOLTS TESTS | | | | | | |
| 6 V Range | | | | | | |
| 5.900 V @ 60 Hz | 5.9000 | 5.897 | 5.807 | 5.994 | V | Pass |
| 60 V Range | | | | | | |
| 59.00 V @ 60 Hz | 59.0000 | 58.97 | 58.24 | 59.76 | V | Pass |
| 600 V Range | | | | | | |
| 590.0 V @ 60 Hz | 590.000 | 589.7 | 582.4 | 597.6 | V | Pass |
| 1000 V Range | | | | | | |
| 990.0 V @ 60 Hz | 990.000 | 991.0 | 970.1 | 1009.9 | V | Pass |
| DC VOLTS TESTS | | | | | | |
| 600 mV Range | | | | | | |
| 600.0 mV | 600.000 | 599.8 | 593.2 | 606.8 | m V | Pass |

Report of Calibration for SERIAL NUMBER: 1220C-C1 ASSET NUMBER: 1220C-C1

Printed On: Friday, September 29, 2023
Test Results indicate the following: Found-Left: Unit was left as found. As-Left: Unit was left after adjustments.

| Test Description | True Value | Test Result | Lower Limit | Upper Limit | Units | TUR |
|---------------------------------|------------|-------------|-------------|-------------|-------|------|
| -600.0 mV | -600.00 | -599.9 | -606.8 | -593.2 | m V | Pass |
| 6 V Range | | | | | | |
| 6.000 V | 6.0000 | 5.997 | 5.937 | 6.063 | V | Pass |
| -6.000 V | -6.0000 | -5.995 | -6.063 | -5.937 | V | Pass |
| 60 V Range | | | | | | |
| 60.00 V | 60.0000 | 59.96 | 59.37 | 60.63 | V | Pass |
| 600 V Range | | | | | | |
| 600.0 V | 600.0000 | 599.6 | 593.7 | 606.3 | V | Pass |
| 1000 V Range | | | | | | |
| 1000 V | 1000.0 | 1001 | 985 | 1015 | V | Pass |
| -1000 V | -1000.0 | -1001 | -1015 | -985 | V | Pass |
| CONTINUITY TESTS | | | | | | |
| Audible Indicator ON @ 10 ohms | | | | | | |
| Audible Indicator OFF @ 51 ohms | | | | | | |
| RESISTANCE TESTS | | | | | | |
| 600 Ohm Range | | | | | | |
| 600.0 Ohm | 600.00 | 601.2 | 590.5 | 609.5 | Ω | Pass |
| 6 kOhm Range | | | | | | |
| 6.000 kOhm | 6.00000 | 6.000 | 5.905 | 6.095 | k Ω | Pass |
| 60 kOhm Range | | | | | | |
| 60.00 kOhm | 60.0000 | 59.99 | 59.05 | 60.95 | k Ω | Pass |
| 600 kOhm Range | | | | | | |
| 600.0 kOhm | 600.0000 | 599.9 | 590.5 | 609.5 | k Ω | Pass |
| 6 MOhm Range | | | | | | |
| 6.000 MOhm | 6.00000 | 5.993 | 5.905 | 6.095 | M Ω | Pass |
| 60 MOhm Range | | | | | | |
| 60.00 MOhm | 60.00000 | 59.47 | 58.70 | 61.30 | M Ω | Pass |
| DIODE CHECK TESTS | | | | | | |
| Diode Voltage | | | | | | |
| FREQUENCY TESTS | | | | | | |
| 9.00 Hz @ 8 V | | | | | | |
| 9.00 Hz @ 8 V | 9.0000 | 8.999 | 8.905 | 9.095 | Hz | Pass |
| 90.00 Hz @ 8 V | | | | | | |
| 90.00 Hz @ 8 V | 90.0000 | 89.95 | 89.05 | 90.95 | Hz | Pass |
| 900.0 Hz @ 8 V | | | | | | |
| 900.0 Hz @ 8 V | 900.0000 | 900.0 | 890.5 | 909.5 | Hz | Pass |
| 9.000 kHz @ 8 V | | | | | | |
| 9.000 kHz @ 8 V | 9.00000 | 9.000 | 8.905 | 9.095 | k Hz | Pass |
| 90.00 kHz @ 8 V | | | | | | |
| 90.00 kHz @ 8 V | 90.00000 | 90.00 | 89.05 | 90.95 | k Hz | Pass |
| 100.0 kHz @ 8 V | | | | | | |
| 100.0 kHz @ 8 V | 100.00000 | 100.00 | 98.5 | 101.5 | k Hz | Pass |
| DUTY CYCLE | | | | | | |
| 50.0 % @ 1 kHz | | | | | | |
| 50.0 % @ 1 kHz | 50.00 | 50.3 | 49.3 | 50.8 | % | Pass |
| CAPACITANCE TESTS | | | | | | |
| 60 nF Range | | | | | | |
| 59.00 nF | 59.0000 | 59.96 | 55.70 | 62.30 | n F | Pass |
| 600 nF Range | | | | | | |
| 590.0 nF | 590.0000 | 597.1 | 571.8 | 608.2 | n F | Pass |
| 6 uF Range | | | | | | |
| 5.900 uF | 5.90000 | 5.854 | 5.718 | 6.082 | u F | Pass |
| 60 uF Range | | | | | | |
| 59.00 uF | 59.00000 | 58.87 | 57.18 | 60.82 | u F | Pass |

Report of Calibration for SERIAL NUMBER: 1220C-C1 ASSET NUMBER: 1220C-C1

Printed On: Friday, September 29, 2023
Test Results indicate the following: Found-Left: Unit was left as found. As-Left: Unit was left after adjustments.

| Test Description | True Value | Test Result | Lower Limit | Upper Limit | Units | TUR |
|---------------------|------------|-------------|-------------|-------------|-------|------|
| 6000 uF Range | | | | | | |
| 5900 uF | 5900.00 | 590.6 | 560.0 | 620.0 | u F | Pass |
| TEMPERATURE F TESTS | | | | | | |
| 5900 uF | | | | | | |
| 5900 uF | 5900.00 | 5957 | 5600 | 6200 | u F | Pass |
| -14 °F | | | | | | |
| -14 °F | -14.0 | -10 | -23 | -5 | °F | Pass |
| 100 °F | | | | | | |
| 100 °F | 100.0 | 102 | 94 | 106 | °F | Pass |
| 500 °F | | | | | | |
| 500 °F | 500.0 | 502 | 490 | 510 | °F | Pass |
| 900 °F | | | | | | |
| 900 °F | 900.0 | 902 | 873 | 927 | °F | Pass |
| TEMPERATURE C TESTS | | | | | | |
| -25 °C | | | | | | |
| -25 °C | -25.0 | -23 | -31 | -20 | °C | Pass |
| 100 °C | | | | | | |
| 100 °C | 100.0 | 102 | 96 | 104 | °C | Pass |
| 350 °C | | | | | | |
| 350 °C | 350.0 | 351 | 344 | 357 | °C | Pass |
| 500 °C | | | | | | |
| 500 °C | 500.0 | 501 | 485 | 515 | °C | Pass |
| AC CURRENT TESTS | | | | | | |
| 60 A Range | | | | | | |
| 50.00 A @ 60 Hz | 50.0000 | 49.60 | 48.92 | 51.08 | A | Pass |
| 50.00 A @ 400 Hz | 50.0000 | 50.00 | 48.92 | 51.08 | A | Pass |
| 400 A Range | | | | | | |
| 300.0 A @ 60 Hz | 300.000 | 494.2 | 489.5 | 510.5 | A | Pass |
| 300.0 A @ 100 Hz | 300.0000 | 494.4 | 489.5 | 510.5 | A | Pass |
| 60 A Range | | | | | | |
| 50.00 A | 50.0000 | 49.20 | 48.92 | 51.08 | A | Pass |
| 600 A Range | | | | | | |
| 300.0 A | 300.000 | 296.5 | 293.5 | 306.5 | A | Pass |
| 590.0 A | 590.000 | 582.7 | 577.7 | 602.3 | A | Pass |

*****END OF CALIBRATION*****

Signed: *Bart A. Schwartz*
Bart A. Schwartz, Engineer in Charge

Report of Calibration for SERIAL NUMBER: 1220C-C1 ASSET NUMBER: 1220C-C1

Printed On: Friday, September 29, 2023
Test Results indicate the following: Found-Left: Unit was left as found. As-Left: Unit was left after adjustments.



