# Manual Supplement

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|---|---|---|---|
| Manual Title: | RUSKA 7750i Users | Supplement Issue: | **1** |
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This supplement contains information necessary to ensure the accuracy of the above manual.



FLUKE®
Calibration

# Change #1, 622

On page 2-10, in the ***Oven Control*** section, change the warm-up time sentence to: There is a 24-hour warm-up time required prior to the ADTS operating at its optimum precision.

On page 3-2, Table 3-1, change Warm-up Period to:

| Parameter | Value |
|---|---|
| Warm-up Period | 24 hrs |

On page A-3, replace **Table A-1** with:

**Table A-1. Uncertainty Analysis for a RUSKA 7750i — 3 month and Yearly Calibration**

| Uncertainty Analysis — RUSKA 7750i | 90 Day Uncertainty 32 inHg Ps Sensor (2 sigma) | 1 year Uncertainty 32 inHg Ps Sensor (2 sigma) |
|---|---|---|
| A.1 Performance — (Linearity, Hysteresis, Repeatability and Temperature) | Greater of 0.005 % of RDG or 0.00064 inHg | Greater of 0.005 % of RDG or 0.00064 inHg |
| A.2 Span Stability | 0.0019 % of RDG/90 days | 0.0075 % of RDG/year |
| A.3 Zero Stability — (re-zero at 5 hours) | 0.0006 inHg | 0.0006 inHg |
| A.4 Calibration Standard – (Abs. Mode) (RUSKA 2465 or 2468 DWG) | 0.001 % RDG and 0.00039 inHg | 0.001 % RDG and 0.00039 inHg |
| A.5 Environmental — | | |
| Temperature (Included in A.1) | 0.000 % of RDG | 0.000 % of RDG |
| Head Pressure (± 0.25 in) | 0.00007 % of RDG | 0.00007 % of RDG |
| Control — (in Passive Control) | 0.000 % of RDG | 0.000 % of RDG |
| A.6 Vacuum Reference Zeroing Sensor | 0.00039 inHg | 0.00039 inHg |
| A.7 Two Sigma Expanded Uncertainty | RSS (0.0055 % RDG and 0.0011 inHg) | RSS (0.0091 % RDG and 0.0011 inHg) |

On page A-4, replace **Table A-2** and **Table A-3** with:

**Table A-2. Uncertainty Analysis for a RUSKA 7750i — 3 month and Yearly Calibration**

| Uncertainty Analysis — RUSKA 7750i | 90 Day Uncertainty 40 inHg Ps Sensor (2 sigma) | 1 year Uncertainty 40 inHg Ps Sensor (2 sigma) |
|---|---|---|
| A.1 Performance — (Linearity, Hysteresis, Repeatability and Temperature) | Greater of 0.005 % of RDG or 0.0008 inHg | Greater of 0.005 % of RDG or 0.0008 inHg |
| A.2 Span Stability | 0.0019 % of RDG/90 days | 0.0075% of RDG/year |
| A.3 Zero Stability — (re-zero at 5 hours) | 0.0008 inHg | 0.0008 inHg |
| A.4 Calibration Standard — (Abs. Mode) (RUSKA 2465 or 2468 DWG) | 0.001 % RDG & 0.00039 inHg | 0.001 % RDG & 0.00039 inHg |
| A.5 Environmental — | | |
| Temperature (Included in A.1) | 0.000 % of RDG | 0.000 % of RDG |
| Head Pressure (± 0.25 in) | 0.00007 % of RDG | 0.00007 % of RDG |
| Control — (in Passive Control) | 0.000 % of RDG | 0.000 % of RDG |
| A.6 Vacuum Reference Zeroing Sensor | 0.00039 inHg | 0.00039 inHg |
| A.7 Two Sigma Expanded Uncertainty | RSS (0.0055 % RDG and 0.0013 inHg) | RSS (0.0091 % RDG and 0.0013 inHg) |

**Table A-3. Uncertainty Analysis for a RUSKA 7750i — 3 month and Yearly Calibration**

| Uncertainty Analysis — RUSKA 7750i | 90 Day Uncertainty 32 inHg Qc Sensor (2 sigma) | 1 year Uncertainty 32 inHg Qc Sensor (2 sigma) |
|---|---|---|
| A.1 Performance — (Linearity, Hysteresis, Repeatability and Temperature) | Greater of 0.005 % of RDG or 0.00064 inHg | Greater of 0.005 % of RDG or 0.00064 inHg |
| A.2 Span Stability | 0.0019 % of RDG/90 days | 0.0075 % of RDG/year |
| A.3 Zero Stability — (re-zero at 5 hours) | 0.0006 inHg | 0.0006 inHg |
| A.4 Calibration Standard — (RUSKA 2465 or 2468 DWG) | Greater of 0.0010 % RDG or 0.00002 inHg | Greater of 0.0010 % RDG or 0.00002 inHg |
| A.5 Environmental — | | |
| Temperature (Included in A.1) | 0.000 % of RDG | 0.000 % of RDG |
| Head Pressure (± 0.25 in) | 0.00007 % of RDG | 0.00007 % of RDG |
| Control — (in Passive Control) | 0.000 % of RDG | 0.000 % of RDG |
| A.6 Vacuum Reference Zeroing Sensor | 0.000 inHg | 0.000 inHg |
| A.7 Two Sigma Expanded Uncertainty | RSS (0.0055 % RDG and 0.0009 inHg) | RSS (0.0091 % RDG and 0.0009 inHg) |

On page A-4, replace **Table A-4** with:

**Table A-4. Uncertainty Analysis for a RUSKA 7750i — 3 month and Yearly Calibration**

| **Uncertainty Analysis — RUSKA 7750i** | **90 Day Uncertainty 68 inHg Qc Sensor (2 sigma)** | **1 year Uncertainty 68 inHg Qc Sensor (2 sigma)** |
|---|---|---|
| A.1 Performance — (Linearity, Hysteresis, Repeatability and Temperature) | Greater of 0.005 % of RDG or 0.00136 inHg | Greater of 0.005 % of RDG or 0.00136 inHg |
| A.2 Span Stability | 0.0019 % of RDG/90 days | 0.0075 % of RDG/year |
| A.3 Zero Stability — (re-zero at 5 hours) | 0.0014 inHg | 0.0014 inHg |
| A.4 Calibration Standard — (RUSKA 2465 or 2468 DWG) | Greater of 0.0010 % RDG or 0.00002 inHg | Greater of 0.0010 % RDG or 0.00002 inHg |
| A.5 Environmental — | | |
| Temperature (Included in A.1) | 0.000 % of RDG | 0.000 % of RDG |
| Head Pressure (± 0.25 in) | 0.00007 % of RDG | 0.00007 % of RDG |
| Control — (in Passive Control) | 0.000 % of RDG | 0.000 % of RDG |
| A.6 Vacuum Reference Zeroing Sensor | 0.000 inHg | 0.000 inHg |
| A.7 Two Sigma Expanded Uncertainty | RSS (0.0055 % RDG and 0.0019 inHg) | RSS (0.0091 % RDG and 0.0019 inHg) |

On page A-7, replace **Table A-5** with:

**Table A-5. Specifications RUSKA 7750i**

| | **Ps** | | |
|---|---|---|---|
| Mode | Absolute | | |
| Precision[1] | ±(0.005 % of reading) from 40 % FS to 100 % FS.<br>±(0.005 % of 40 % FS) from 0 % FS to 40 % FS. | | |
| Stability; Over 3 Months:<br>Over 1 Year: | 0.0019 % RDG/ 3 months<br>0.0075 % RDG/year | | |
| Zeroing Vacuum Sensor | ± 10 mtorr at = 100 mtorr, ± 10% RDG at > 100 mtorr | | |
| Active Control Stability | 0.001 % FS | | |
| Control Low Limit[2] | 0.3 inHg a (10 mbar a) | | |
| Zero Drift[3] | <0.0004% FS / hr | | |
| Standard Load Volume | 5 to 60 $in^3$ (80 – 1000 $cm^3$) | | |
| Total Uncertainty[4]<br>(Aeronautical Units) | 32 inHg a<br>Sea Level ±3 ft<br>30,000 ±3 ft<br>60,000 ±11 ft | 40 inHg a<br>Sea Level ±3 ft<br>30,000 ±4 ft<br>60,000 ±12 ft | 100 inHg a<br>Sea Level ±3 ft<br>30,000 ±7 ft<br>60,000 ±28 ft |
| Total Uncertainty[4]<br>(Engineering Units) | 32 inHg a<br>5 ± 0.0011 inHg<br>15 ± 0.0016 inHg<br>30 ± 0.0028 inHg<br>32 ± 0.0030 inHg | 40 inHg a<br>5 ± 0.0013 inHg<br>15 ± 0.0017 inHg<br>30 ± 0.0029 inHg<br>40 ± 0.0038 inHg | 100 inHg a<br>5 ± 0.0029 inHg<br>15 ± 0.0031 inHg<br>30 ± 0.0037 inHg<br>50 ± 0.0050 inHg<br>100 ± 0.0093 inHg |
| Rate of Climb | 0 to 6,000 ft/min. | | |
| Rate of Climb Tolerance | 1% of commanded rate for altitudes up to 50,000 ft<br>5% of Commanded Rate for altitudes from 50,000 ft to 70,000 ft | | |

[1] Precision is defined as the combined effect of linearity, repeatability, and hysteresis throughout the operating temperature range. Some manufacturers use the word “Accuracy” in place of “Precision”, however the meaning is identical.

[2] Requires vacuum pump to control 0 psig, or the vent mode can be used to obtain 0 psig.

[3] Zero drift typically improves with sensor age. Routine zeroing is required to meet uncertainty specifications: i-Class must be zeroed at least every 5 hours.

[4] Total Uncertainty is defined as the two sigma combined uncertainty of linearity, hysteresis, repeatability, thermal effects, one year drift stability and the uncertainty of the calibration standard.

[5] The controller will control rates greater than 6000 ft/min, but its ability to do so is not covered by the Rate of Climb Tolerance specification.

On page A-8, replace **Table A-6** with:

**Table A-6. Specifications RUSKA 7750i**

| | Qc | |
|---|---|---|
| Mode | Differential | |
| Precision[1] | ±(0.005 % of reading) from 40 % FS to 100 % FS.<br>±(0.005 % of 40 % FS) from 0 % FS to 40 % FS. | |
| Stability; Over 3 Months:<br>Over 1 Year: | 0.0019 % RDG/ 3 months<br>0.0075 % RDG/year | |
| Zeroing Vacuum Sensor | N/A | |
| Active Control Stability | 0.001 % FS | |
| Control Low Limit[2] | 0 inHg D (0 mbar D) | |
| Zero Drift[3] | <0.0004 % FS / hr | |
| Standard Load Volume | 5 to 60 $in^3$ (80 – 1000 $cm^3$) | |
| Total Uncertainty[4]<br>(Aeronautical Units) | 32 inHg D<br>50 ± 0.18 knots<br>100 ± 0.09 knots<br>250 ± 0.04 knots | 68 inHg D<br>50 ± 0.39 knots<br>250 ± 0.07 knots<br>500 ± 0.03 knots<br>1000 ± 0.04 knots |
| Total Uncertainty[4]<br>(Engineering Units) | 32 inHg D<br>0.5 ± 0.0009 inHg<br>16 ± 0.0016 inHg<br>32 ± 0.0030 inHg | 68 inHg D<br>0.5 ± 0.0019 inHg<br>16 ± 0.0023 inHg<br>32 ± 0.0032 inHg<br>68 ± 0.0063 inHg |

[1] Precision is defined as the combined effect of linearity, repeatability, and hysteresis throughout the operating temperature range. Some manufacturers use the word “Accuracy” in place of “Precision”, however the meaning is identical.

[2] Requires vacuum pump to control 0 psig, or the vent mode can be used to obtain 0 psig.

[3] Zero drift typically improves with sensor age. Routine zeroing is required to meet uncertainty specifications: i-Class must be zeroed at least every 5 hours.

[4] Total Uncertainty is defined as the two sigma combined uncertainty of linearity, hysteresis, repeatability, thermal effects, one year drift stability and the uncertainty of the calibration standard.