University of Washington Medical Center 1959 NE Pacific Street. Seattle, WA 98195 Transfusion Services Laboratory Policies and Procedures Manual	Original Effective Date: 10-28-2020 Revision Effective Date:	Number: EQ-0012.01

TITLE: **Fluke Thermometer Operation**

PURPOSE:
To provide instruction for the operation of the digital Fluke 51 II thermometers

LOCATION:
Northwest Lab Transfusion Support Service (TSS)
Montlake Transfusion Service Laboratory (TSL)

PRINCIPLE & CLINICAL SIGNIFICANCE:
Principle
Thermometers must be standardization, calibrated and used as designated by the manufacture to ensure accurate readings.

Clinical Significance
Blood components

It is necessary for blood banks to ensure accurate temperature Blood components are maintained within strict temperature ranges to ensure the safety, purity, and potency of these blood components.

POLICIES:
- Fluke 51 II Thermocouple Thermometer is a digital thermometer used to measure the temperature of blood components and storage devices such as refrigerators, freezers and plasma incubators
- Thermometer must not be used beyond the calibration due date listed posted on the thermometer

SPECIMEN REQUIREMENTS:
NA

REAGENTS/SUPPLIES/EQUIPMENT:

Reagents:	Supplies:	Equipment:
N/A		• NIST Thermometer (with in-date certification)

QUALITY CONTROL:
Thermometer is sent annually for calibration with a NIST traceable reference device

INSTRUCTIONS:

Operating the Fluke Thermometer

<table>
<tr><th>STEP</th><th>ACTION</th></tr>
<tr><td>1</td><td>Verify calibration is in-date
<table>
<tr><th>If</th><th>Then</th></tr>
<tr><td>In-date</td><td>Go to next step</td></tr>
<tr><td>Expired</td><td>Remove thermometer from service
• NW TSS- contact ML TSL for resolution and send to Montlake for calibration
• ML TSL- use another calibrated Fluke thermometer</td></tr>
</table></td></tr>
<tr><td>2</td><td>Visually inspect the thermometer and probe for any damage such as cracks, or tears or broken wire that would prevent accurate temperature reading
<table>
<tr><th>If visual inspection is</th><th>Then</th></tr>
<tr><td>Acceptable</td><td>Go to next step</td></tr>
<tr><td>Not acceptable</td><td>Remove thermometer from service
• NW TSS- contact ML TSL for resolution
• ML TSL- use another calibrated Fluke thermometer</td></tr>
</table></td></tr>
<tr><td>3</td><td>Connect the probe to the thermometer</td></tr>
<tr><td>4</td><td>Press the green power button

NOTE: Check the batteries if the thermometer does not turn on – refer to Appendix 1</td></tr>
<tr><td>5</td><td>Verify ambient temperature is displayed in ^{o}C</td></tr>
<tr><td>6</td><td>Verify main screen displays “K” type probe</td></tr>
<tr><td>7</td><td>
<table>
<tr><th>If taking temperature of</th><th>Then</th></tr>
<tr><td>Blood components</td><td>Place the thermometer probe in the middle of the component and fold the component in a sandwich. If more than component, the probe can be placed between the two blood components. Read temperature after 3-5 minutes</td></tr>
<tr><td>Storage device</td><td>Place the thermometer probe in the device leaving the digital thermometer outside of the device and carefully close the door carefully. Read temperature after 3-5 minutes</td></tr>
</table></td></tr>
<tr><td>8</td><td>Press the green power to turn off</td></tr>
</table>

CALCULATIONS/INTERPRETATIONS/RESULTS REPORTING/NORMAL VALUES/CRITICAL VALUES

NA

PROCEDURE NOTES AND LIMITATIONS:

- Fluke 51 II thermometer is battery operated. Replace batteries as needed – refer to Appendix 1
- Operating Temperature of the Fluke 51 II thermometer is -10 ºC to 50 ºC
- 80PK-1 probe
  - Measurement range is -40 ºC to 260 ºC
  - Not suitable for liquid immersion
- NW TSS will send the Fluke 51 II thermometer to ML TSL for annual calibration

REFERENCES:

- Technical Manual. Bethesda, MD: AABB, current edition
- Standards for Blood Banks and Transfusion Services. Bethesda, MD; AABB, current edition
- Fluke 51-54 Series II Thermometer, PN 1276114, September 1999, rev. 2, 3/11

RELATED DOCUMENTS:

NA

APPENDIX:

Appendix 1: Replacing Batteries – requires 3 AA batteries

⚠Warning (cont.)

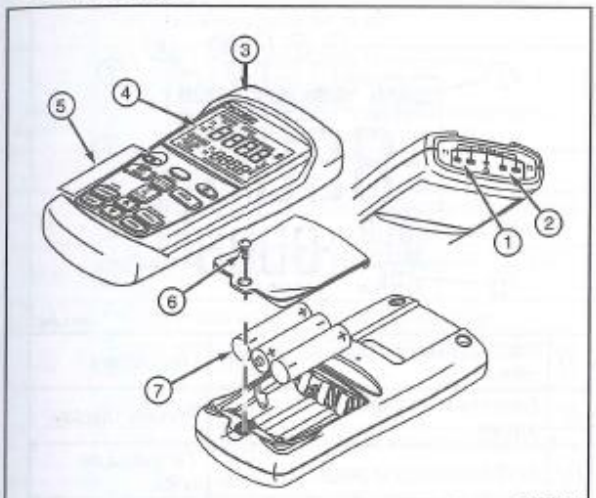
- *Models 52 and 54:* Measurement errors may occur if voltages on the measurement surfaces result in potentials greater than 1 V between the two thermocouples. When potential differences are anticipated between the thermocouples, use electrically insulated thermocouples.
- When servicing the thermometer, use only specified replacement parts.
- Do not use the thermometer with any part of the case or cover removed.

Caution

To avoid damaging the thermometer or the equipment under test.

- Use the proper thermocouples, function, and range for your thermometer.
- Do not attempt to recharge the batteries.
- Do not throw batteries into a fire to prevent explosion.
- Follow local laws or regulations when disposing batteries.
- Match the + and – polarities of the battery with the battery case.

Components



①	Thermocouple T1 input	⑤	Buttons
②	*Models 52 and 54:* Thermocouple T2 input	⑥	Battery door
③	Holster	⑦	Batteries
④	Display		

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UWMC SOP Approval:

UWMC CLIA Medical Director Mark H. Wener, MD — Date 10/20/20

Transfusion Service Manager Nina Sen — Date 10/16/20

Compliance Analyst Christine Clark — Date 10-16-2020

Transfusion Service Medical Director Monica Pagano, MD — Date 10-19-2020

UWMC Biennial Review:

Date _____

Date _____