TITLE: Scale Check and Calibration

PRINCIPLE:

Scale affects the reliability, uniformity, and accuracy of the final product in blood bank component process. Therefore, the accuracy must be checked upon receipt, after repair and as scheduled.

A calibrated weighing scale ensures compatibility with measurements from other weighing equipment.

CLINICAL SIGNIFICANCE:

The effect of excess or insufficient blood component can negatively affect patient's outcome. Therefore, the weight of the components prepared by the blood bank must be as precise as prescribed by the patient care team using a calibrated scale.

PERSONNEL:

All blood bank staff must be familiar with this procedure.

SPECIMEN:

N/A

MATERIALS:

1. A&D Digital Scale SK-2000WP
2. Denver Instrument Weight Calibration Kit
3. Silk glove
4. Proc.#4840-BB-2008.1F (Scale Calibration Form)

QUALITY CONTROL:

All collected data within the year are stored in the preventative maintenance book inside the blood bank. All forms are then archived and stored in a secure location in the laboratory.

DEFINITION:

AC: Alternating Current

BBTS: Blood Bank Technical Specialist

NOTES AND LIMITATIONS:

1. Installing batteries:

   CAUTION: When placing batteries, be careful not to apply too much force to the weighing pan. An excessive force could damage the scale.

   - Remove the battery cover and insert six (6) new batteries (R20P / LR20 / D size) into the battery compartment, taking extreme care so that the plus and minus polarities are observed.

2. Using an AC Adapter (Optional):

   CAUTION: When using an AC adapter, the scale doesn't comply with IP65. The AC input requirement should be 120 volts (50/60Hz).

   - Plug the AC adapter into the AC adapter socket inside the battery compartment.

3. The scale should be placed on a firm flat surface away from sunlight. For accurate weighing, the scale can be leveled by adjusting the feet while using the spirit level.
   - The bubble must be located in the middle of the red circle.

4. All weights from the Denver Instrument Weight Calibration Kit must be handled by the silk gloved hand.

STEPWISE PROCEDURE:

I. Scale check:

1. Obtain,
   a. Denver Instrument Weight Calibration Kit
      and
   b. Proc.#4840-BB-2008.1F (Scale Calibration Form)
2. Press [ON/OFF] to turn on the scale. The scale should display all segments for a few seconds and then "0"
3. Verify the reading is "0". If needed, press [ZERO] to display "0"
4. With a silk gloved hand, place weight on scale and record reading on [Proc.#4840-BB.2008.1F]
5. Repeat step 4 above until all data is collected

6. All readings should be within 0.5% of the actual weights listed on [Proc.#4840-BB-2008.1F]
7. Notify BBTS for any discrepancy and follow step II below.

II. Scale Re-calibration (if needed):

1. Zero Calibration
    a. Open the calibration key switch cover (located at the bottom of the scale)
    b. Press the calibration key while in weighing mode to enter the calibration mode, the display will show “CAL”
    c. Press [TARE] to calibrate to zero, “CAL 0” will display
    d. Wait for the stable indicator ◯ to be displayed and press [TARE], “CAL F” will display in a few seconds
    e. Press [ZERO], the scale will show “END” and automatically return to the weighing mode

2. Span Calibration:
    a. Place the weight at the center of the weighing platform for accurate calibration
    b. Wait for the stable indicator ◯ to be displayed and press [TARE]. The display will show “END” and automatically return to the weighing mode

3. Calibration by Gravity Compensation:
    a. Press the calibration key while in weighing mode, “CAL” will be displayed
    b. Press [ZERO], 9.798 will displayed
    c. Press [TARE] to move the decimal point
    d. Press [ZERO] to change the digit
    e. Press [TARE] to move to the next decimal point
    f. While pressing [ZERO], press [TARE] to save the value. The display will show “END” and automatically return to the weighing mode

CALIBRATION:

Scale should be checked for optimal performance and cleaned at least four (4) times a year – quarterly. Additional checks should be done upon receipt of new equipment and after repair.

CALCULATIONS:

N/A

REFERENCE RANGES:

± 0.5% of the instrument weights

RELATED DOCUMENTS:

1. Proc.#4840-BB-2008.1F

REFERENCES:

1. AABB, Standards for Blood Banks and Transfusion Services, *current edition*
2. A&D Digital Scale Titan-Compact (SK-2000WP) Instruction Manual