PROCEDURE
Corewell Health East - Centrifuge RPM and Timer Check

This Procedure is Applicable to the following Corewell Health sites:
Corewell Health Beaumont Grosse Pointe Hospital, Corewell Health Beaumont Troy Hospital, Corewell Health Dearborn Hospital, Corewell Health Farmington Hills Hospital, Corewell Health Taylor Hospital, Corewell Health Trenton Hospital, Corewell Health Wayne Hospital, Corewell Health William Beaumont University Hospital (Royal Oak)

Applicability Limited to: N/A

Reference #: 33965

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Effective Date: 12/08/2025

Functional Area: Clinical Operations, Laboratory

Lab Department Area: Lab - Blood Bank

1. Principle
This procedure is to be used by the Blood Bank staff to verify the speed (RPM) and the timers on the centrifuge equipment within the department. The speed is checked every six months, after repair, or after adjustment of the centrifuge. The digital timer is checked annually unless specified more frequently by manufacturer recommendation. All centrifuges used within the blood bank must have the RPM checked, including tabletop serofuges, automated cell washers, MTS workstations, MTS centrifuges, and specimen centrifuges. Specimen centrifuges do not require timer checks.

2. Responsibility
Personnel who have completed the competency requirements will perform these tasks.

3. Definitions
A. Rotor Head: top of the rotating part of an electrical or mechanical device
B. Tachometer: an instrument for determining speed, especially the rotational speed of a shaft
C. RPM: revolutions per minute
D. Semi-annually: every 6 months ± 1 month
E. Annually: every 12 months ± 1 month

4. Reagent/Equipment Needed
A. Calibrated traceable tachometer (required for sites completing their own RPM checks)
B. Reflective tape (required for sites completing their own RPM checks)
C. Calibrated digital timer/stopwatch (optional)
D. 10 x 75 mm tubes or 12 x 75 mm tubes
E. IR Thermometer
F. NIST Thermometer
G. Biomedical: department within Corewell that performs some maintenance activities for the laboratory

5. Procedure

A. Temperature-controlled Centrifuge Verification:

1. Programs for washing platelets and volume reducing platelets need to be checked on each temperature-controlled centrifuge.
2. Place 2 saline bags at room temperature.
3. Place a glass thermometer inside of the centrifuge and let it equilibrate for a minimum of 10 minutes. Compare the temperature of the glass thermometer with the temperature display reading from the centrifuge. This should match ± 1°C. This must be done before each program.
4. Centrifuge units on each program, using the room temperature saline bag.
5. After each program is complete, use the IR thermometer to take the temperature of the units. Record this on attached form, *33965-3 Temperature Controlled Centrifuge Semi-annual Quality Control*.
6. Read the temperature on the glass thermometer and record this on the form.
7. Follow RPM Checks and Timer Checks processes listed below and document these on form *33965-3 Temperature Controlled Centrifuge Semi-annual Quality Control.*

B. RPM Checks:

1. RPM checks are routinely performed by the Biomedical department semi-annually at some facilities. Records of these checks are kept by Biomedical with additional copies sent to the blood bank leadership. Policies related to these checks are maintained by Biomedical. If at any time Biomedical does not complete RPM checks, RPM checks should be completed by the blood bank staff according to the following procedure:
   a. If not already installed in the centrifuge, create a reflective mark by cutting a strip of reflective tape into an approximately 0.5-inch square. Apply the reflective mark to the rotor head in a place where it can be seen through the window of the centrifuge lid while spinning.
   b. Start the centrifuge.
   c. Power on the tachometer by pressing the Hold/Power button.
   d. Release the Hold/Power button and align the visible LED beam with the reflective mark.
   e. Read and record the RPM value on form *33965-1 Centrifuge RPM Check* or *33965-3 Temperature Controlled Centrifuge Semi-annual Quality Control* as applicable.

C. Timer Checks:

1. Timer checks are required at least annually. The Sorvall RC3B Plus temperature controlled centrifuge (Royal Oak) must have timers checked semi-annually per manufacturer recommendation. Document these on *33965-3 Temperature Controlled Centrifuge Semi-annual Quality Control.*
2. Timer checks are routinely performed by the Biomedical department semi-annually at some facilities. Records of these checks are kept by Biomedical with additional copies sent to the blood bank leadership. Policies related to these checks are maintained by Biomedical. If at any time Biomedical does not complete timer checks, timer checks should be completed by the blood bank staff according to the following procedure:
   a. Determine centrifuge setting based off of the current centrifuge calibration. Document the acceptable result range on the attached form, *33965-2 Centrifuge Timer Checks* according to the chart in the Results/Interpretation section below. All in-use settings should be verified (i.e. 20 sec centrifugation for grading reactions and 60 sec centrifugation for washing).
   b. Fill all positions of the centrifuge wheel with 10 x 75 mm tubes, 12 x 75 mm tubes, or saline bags as applicable.
   c. Access time.gov for accurate time. If a calibrated digital timer is used, set the digital timer to the time indicated for the specific centrifuge. A calibrated stopwatch may also be used.
   d. Start the centrifuge and note the start time showing on time.gov. If used, ensure the calibrated timer or stopwatch is started at the same time as the centrifuge.
   e. When the centrifuge stops, note the time showing on time.gov. If used, stop the calibrated timer or stopwatch. Record the length of time passed on the appropriate form.

f. Compare the centrifuge timer setting to the time of the centrifugation recorded from the calibrated timer.

6. Results/Interpretation

A. Acceptable RPM results:

Centrifuge	Acceptable RPM
Blood Bank Serofuge	3100-3550
Cell Washer	3400 ± 100
Specimen Centrifuge – Horizon642e/Mini ES	3380 ± 100
Specimen Centrifuge – Horizon642ves	3800 ± 100
Specimen Centrifuge – Horizon 6 Flex	3500 ± 100
Specimen Centrifuge – Horizon 12 Flex	3550 ± 150
MTS Gel Workstation	1032 ± 10
Ortho Workstation	895 ± 25
Acceptable ranges for temperature controlled centrifuges are on form *33965-3 Temperature Controlled Centrifuge Semi-annual Quality Control*	

B. Acceptable Timer results:

Setting	Acceptable Results
15 sec	15 sec ± 1 sec
20 sec	20 sec ± 1 sec
30 sec	30 sec ± 2 sec
60 sec	60 sec ± 3 sec
10 min	10 min ± 10 sec
Acceptable ranges for temperature controlled centrifuges are on form *33965-3 Temperature Controlled Centrifuge Semi-annual Quality Control*	

C. Acceptable Temperature results:
1. Acceptable ranges for temperature controlled centrifuges are on form *33965-3 Temperature Controlled Centrifuge Semi-annual Quality Control*

D. If any measured value is not within the acceptable range, the equipment may not be used for any Blood Bank samples, reagents, controls, or other materials.
1. Place the centrifuge out of service and write a variance. Refer to Corewell Health East - Variance Reporting - Blood Bank - All Beaumont Hospitals.
2. Notify the supervisor or Lead Technologist.

7. Revisions

Corewell Health reserves the right to alter, amend, modify, or eliminate this document at any time without prior written notice.

8. Procedures Superseded and Replaced: This procedure supersedes and replaces the following procedures as of the effective date of this procedure: [33789 Corewell Health East - Centrifuge RPM and Timer Checks – Dearborn, 33846 Corewell Health East - Centrifuge RPM and Timer Checks - Farmington Hills, (paper procedure) Centrifuge RPM, Timer, and Refrigerated Centrifuge Temperature Check – Royal Oak, (paper procedure) Digital Timer Check – Taylor]

9. References

A. AABB, Technical Manual, current edition
B. AABB, Standards for Blood Bank and Transfusion Medicine Services, current edition.
C. Fisherbrand Traceable® Tachometer with Red LED Pointer, Instruction Manual, current edition

10. Procedure Development and Approval

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11. Keywords

Not Set