1 PURPOSE/SCOPE/POLICY

1.1 PURPOSE

To provide instruction for centrifuge preventative maintenance and QC/ function checks.

1.2 SCOPE

This procedure applies to all centrifuges in the Department of Laboratory Medicine.

1.3 POLICY

To assure proper function and activity of the centrifuges, routine cleaning and/or decontamination of each centrifuge, rotor and bucket assembly should be performed. QC/function checks will be performed to measure accurate performance and are verified by calibrating centrifuges for speed at scheduled intervals.

2 FREQUENCY OF CLEANING

2.1 Each centrifuge should have a routine, scheduled cleaning for each laboratory at the intervals listed in Appendix A.

2.2 Additional cleaning may be needed:

a) After centrifuge repair I.e., motor is replaced, new carriers installed
b) After a laboratory accident
c) When indicated during normal use.

3 CENTRIFUGE CLEANING

3.1 Wear gloves prior to following the cleaning procedure below:

a) Unplug the centrifuge
b) Remove swinging buckets from rotor.
c) Remove adapters from swinging buckets.
d) Soak adapters and buckets in warm H_2O and clean with agent list in appendix A.
e) Clean pivot arms on rotor and pivot notch on adapters with agent list in appendix A.
f) Check the pivot point/notch and rotor body for cracks, tears, etc.
g) Check the O-rings on the buckets--replace as needed. Apply a thin film of vacuum grease to each of the O-rings and reinstall them on the buckets.
h) Check each of the plastic lid threads for cracks or deformations.

i) Clean centrifuge bowl with a soft cloth and agent list in appendix A.
j) Clean exterior surfaces with agent list in appendix A.
k) Replace the buckets and adapters when dry. Be sure the buckets hang and swing freely.
l) Plug the centrifuge in and check the working of the centrifuge.
m) Check the plug and wire and have it replaced by engineering if frayed, loose, or exposed.
n) Notify the technologist in charge of instrumentation with any concerns and/or supply of materials needed.
o) Record the date and initials on the Centrifuge Maintenance checklist

Note: Use 10% Clorox if there are any blood spills.

4 FREQUENCY OF CALIBRATION

4.1 Each centrifuge should be routinely calibrated by the schedule for each laboratory at the intervals listed in Appendix B.

4.2 Additional calibration may be needed:
a) After centrifuge repair I.e., motor is replaced, new carriers installed
b) If a problem occurs during normal use.

5 CALIBRATION: SPEED OF CENTRIFUGE

5.1 The centrifuge speed is checked using a photoelectric Tachometer. The unit's pick-up probe directs a collimated light beam onto a reflective marker attached to the center of the rotor. Reflected light pulses are compared against a 60 HZ internal crystal time base and the resultant speed is displayed on the meter. Calibrate speed using the steps below:

a) Calibrate the tachometer by holding the probe near any fluorescent light, press the "Press to Read" button and adjust "Calibrate" slot so meter reads the RPM setting designate in Appendix B.

b) Attach a round bright label to the top of the motor spindle. Close the centrifuge and adjust speed control to speed to be checked and start centrifuge. (See centrifuges in Appendix B for which speed at which they are checked.)

c) Use all four buckets and balance all of them during each use. Never use only two buckets.

d) NOTE: Use the containers filled with tubes simulating the conditions for accurate results.

e) When centrifuge tachometer reaches pre-set speed hold the probe perpendicular to the disk on the rotating spindle and record meter reading. Meter reading should be ± % or RPM (designated in Appendix B) of setting. If reading is not within limits, check

calibration and recheck speed. If the calibration is good and the speed is not within limits notify the area supervisor.

f) Please record name, model #, serial #, manufacturer and range of readings for the instrument being calibrated in the Maintenance log for centrifuges The Assistance Chief Technologist, Specimen Processing Coordinator and/or Supervisor are responsible for initiating the checks and recording data at the frequency listed in Appendix B.

6 FREQUENCY OF CENTRIFUGE TIMER CHECK

6.1 Each centrifuge should have a timer check performed at the schedule for each laboratory at the intervals listed in Appendix C.

6.2 Additional timer checks may be needed:

a) After centrifuge repair I.e., motor is replaced, new carriers installed
b) If a problem occurs during normal use.

7 CENTRIFUGE TIMER CHECK

7.1 Perform timer checks on all centrifuges against a stopwatch.

a. Start the centrifuge and the stopwatch simultaneously.

b. Stop the stopwatch when the centrifuge timer clicks off.

c. Set the times for each centrifuge timer by the times listed in appendix C

d. Record range of readings for the instrument being calibrated in the Maintenance log for centrifuges

e. If after two attempts, the timer varies more than 10% (or specific range stated on the work sheet) of the expected result, consult with an Assistant Chief Technologist for consideration of a service call for repairs.

8 TEMPERATURE CHECK (BLOOD BANK ONLY)

8.1 Perform pre- and post- spin temperature checks on Sanyo CellSep.

a) Place the probe of the Tele-thermometer into one of the buckets in the CellSep centrifuge. Close the lid and allow probe to come to temperature (about 3 to 5 minutes).

b) Record results on the CellSep Centrifuge QC sheet.

c) Call Sanyo Cellsep service if the probe temperature varies more than 4oC from the set temperature on the centrifuge display panel.

Appendix A – CLEANING OF CENTRIFUGE

Central Processing	mild non-alkaline detergent	Weekly
Chemistry	mild non-alkaline detergent	Monthly
Immunology	70% alcohol	Yearly
Hematology	Precise Foam Cleaner	Daily
Blood Bank	70% Alcohol	Monthly
Virology	70% Alcohol	Weekly
Microbiology	2-5% Amphyl	Quarterly

Appendix B – CALIBRATION SPEED OF CENTRIFUGE

Central Processing	7200 RPM	3700 RPM	+/- 10%	Annual
Chemistry	7200 RPM	3700 RPM	+/- 10%	Annual
Immunology	Two settings, 1500 rpm and 3000 rpm for each centrifuge	Never over 3000RPM	+/- 200 RPM	Annual
Hematology	7200 RPM	900, 1200, and 3000 RPM	+/- 10%	Annual
Blood Bank	Same range as centrifuge	See Centrifuge QC Check sheet	+/- 10%	Quarterly
Virology	Two settings, 1500 rpm and 3000 rpm for each centrifuge	Never over 3000RPM	+/- 200 RPM	Annual
Microbiology	Same range as centrifuge	See Centrifuge Cal Check sheet	+/- 10%	Bi-Annual

Appendix C – CENTRIFUGE TIMER CHECK

Laboratory	**Set Timer**	**Plus/Minus Range**	**Frequency**
Central Processing	N/A	N/A	N/A
Chemistry	N/A	N/A	N/A
Immunology	Two settings, 10 and 15 minutes for each centrifuge	+/- 5%	Annual
Hematology	10 Minutes	+/- 1 minute	Twice Annually
Blood Bank	See Centrifuge QC Check sheet	+/- 10%	Quarterly
Virology			
Microbiology	See Centrifuge Cal Check sheet	+/- 10%	Bi-Annual