

STANTON TERRITORIAL HEALTH AUTHORITY

Yellowknife, Northwest Territories

TITLE: Allegra X-15R Centrifuge	Revision Date: 07-April-2017	Issue Date: 07-April-2015
Document Number: MIC80700	Status: Approved	
Distribution: Mycobacteria Manual	Page: 1 of 8	
Approved by: Gloria Badari, Director, Corporate Services and Chief Financial Officer	Signed by: (Original Signed Copy in Microbiology)	


PURPOSE:

To standardize the general use, quality control and maintenance of the Allegra X-15R (refrigerated centrifuge) in the Mycobacteria Room.

SPECIAL SAFETY PRECAUTIONS:

- Handle all patient samples and testing reagent using “Routine Practices”
- Please refer to the Northwest Territories Infection Prevention and Control Manual, March 2012
- Prior to testing all patient are to be identified as per I-0500 Use of Two Patient Identifiers.

CENTRIFUGE

Equipment	Information
Allegra X-15R Centrifuge	
	<p>Manufacturer:</p> <ul style="list-style-type: none"> • Beckman Coulter <p>Model and Serial # currently unattainable (back of equipment)</p> <p>System ID: 1085608</p> <p>Special features – Refrigeration option, making it useful for Mycobacteria and some chemistry tests.</p>

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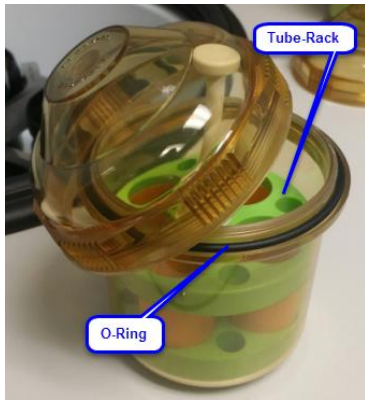
FILENAME: MIC80700Allegra X-15RPRO.doc

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INFORMATION ABOUT CENTRIFUGE:

Canisters:



- Brand: Aerosolve™
- Manufacturer: Beckman Coulter
- Tube Racks: Lime Green, spins max 4 50mL conical Falcon tubes /cannister
- O-ring: part #345366 (**cannot** substitute with any other O-ring)

- Purpose: To contain microbial aerosol leakage and liquid spills from the rotor buckets during centrifugation. The Beckman Coulter O-ring has been specifically designed to be gas-tight for maximum prevention of aerosol release.
- Design feature: Transparent so the Technologist can check for broken samples before opening the lid.
- Canisters contain the tube rack inserts that hold 50mL falcon centrifuge tubes or Vacutainer tubes for chemistry or Quantiferon Gold samples.
- Cleaning Canisters and tube racks – can be autoclaved for up to 30 minutes at 121°C or soaked in 5% bleach to disinfect. Regular maintenance: soak in warm soap water.

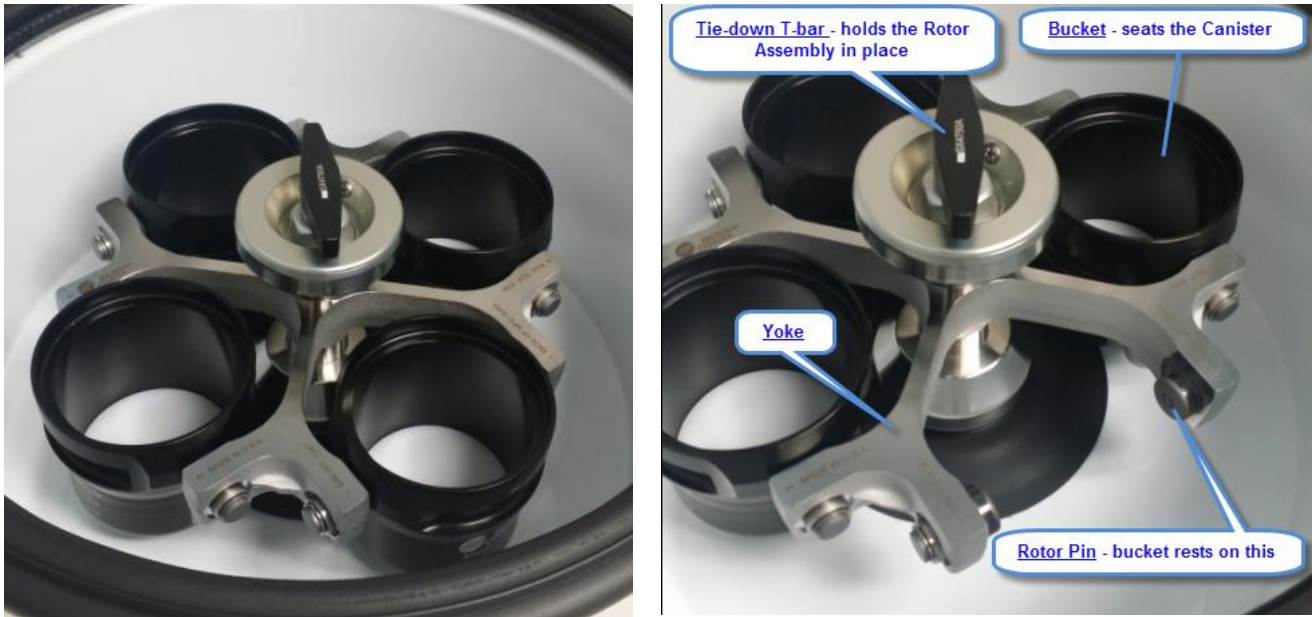
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Swinging Bucket Rotor Assembly:



- Rotor: SX4750/4750A, made by Beckman Coulter. Equipped with ARIES technology.
- Buckets: Display the rotor specifications on the side. Must use a Beckman Coulter bucket that has been tested for the specific rotor/centrifuge combination.
- Buckets are attached to the rotor yoke (“arms” of rotor) by pivot pins.
- Only the canisters should be removed while loading/unloading samples, not the buckets.
- The centrifuge identifies the rotor during the run using a magnetic sensor and the rotor model will be displayed in the window when centrifuging.

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BALANCING THE LOAD:

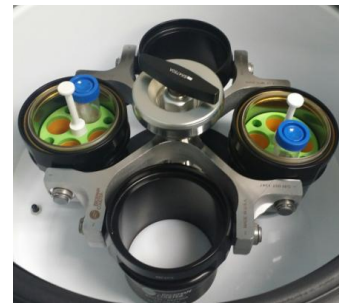
- Use a Cross-parallel technique, and try to load balancing samples with nearly the same volume/mass.
- Note: Rotor equipped with ARIES technology; compensates for an unbalanced load of 50 grams between samples.



Balanced load



Unbalanced load



Balanced load

OPERATION USING PROGRAMMED RUNS:

- Use the preset settings posted on the centrifuge:

Program	Sample	RPM	G	Time	Temp
1	AFB	3590	3000	15	4°C
2	Fluid	3500	2851	10	20°C
3	ACTH	3500	2851	10	4°C
4	Quantiferon	3277	2500	15	20°C

- **STARTING a CYCLE:** Firmly close door (hear a “click” when it latches) → Press Program → use keypad to select Program Number (1 to 4) → press Enter/Save → Review screen and check that all parameters are correct → Press Enter/Save

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again → Press Start (LED by button light up) → Wait for display to read Rotor and speed before walking away (if any malfunctions occur, it'll occur before the Rotor and speed is displayed).

- Quality Control: Record RPM and Time Remaining after several minutes of spinning (after reaching full speed) on the Centrifuge Maintenance sheet.
- END of CYCLE: a quiet tone sounds when cycle is complete → Door unlatches (LED by door button lights up) → Press the Door button → chamber unlocks and opens up → lift door up. Samples are ready to unload from the buckets by removing the canisters.
- Note for unloading Mycobacteria samples: Allow Mycobacteria samples to “rest” for several minutes in Centrifuge in their Canisters before removing Canisters from buckets to BSC. This allows any potential aerosols on the inside of the Canisters to settle before unscrewing lid.

OPERATION USING MANUAL RUNS:

- Uncommonly done; refer to Allegra® x-15R Centrifuge Instruction Manual pg 3-2.

NOTES ON LOADING SAMPLES FOR CNTRIFUGATION:

- Always use the screw-on lid on the canisters.
- Always balance the centrifuge load with a cross-parallel technique before closing the lid and spinning.
- Vacutainers/Quantiferon Golds: when loading Quantiferons or Chemistry tubes (ie. For ACTH), place samples in empty screw-topped falcon centrifuge tubes and load into the tube racks inside the Canisters for centrifugation.
- Before loading Mycobacteria samples after digestion in the falcon tubes, 1st take the canisters over to the BSC and load samples into canisters. Do not take the samples to the centrifuge and load without the Canisters being sealed underneath the BSC. Always unload Mycobacteria samples from the canisters under the BSC.

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- Never walk away from the centrifuge before its full RPM is reached. Watch the spinning load for unbalanced tubes before full RPM is reached (excessive vibrations and shaking will be felt). The centrifuge will often automatically detect unbalanced loads and shut down when too much vibration is felt; however a watchful eye should be kept in case this does not happen and damage may result. Correct any unbalanced loads and re-spin.

Note: the centrifuge has been mounted to the bench using the provided anti-rotation kit, to prevent an accident if an unlikely incident of a rotor mishap occurs.

MAINTENANCE PROCEDURE:

Daily (with use):

- Record RPM at any time during the cycle once full speed has been established (wait at least 2 minutes before recording on sheet).
- Wipe down external surfaces with 70% ethanol to remove accumulated dust.
- Wipe down chamber (area around rotor and yoke) with 70% ethanol.
- Do not use Acetone to clean.

Weekly:

Ideally performed on Fridays, to all complete drying of accessories:

- Daily Maintenance as above (wipe-down in 70% ethanol)
- Wash non-metal components (Aerosolve Canisters, tube racks, O-ring) in warm soapy water (dish detergent). Rinse in tap water. Dry in the O2 incubator.
- When components are dry, coat the O-ring with a light film of silicone vacuum grease.

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Monthly:

- Dismantle Rotor and Yoke assembly by loosening the T-bar tie down. Turn the T-bar counterclockwise to loosen it. Lift the Yoke up and off the drive shaft. *Caution: Yoke assembly is heavy; removal will require some muscle to lift.*
- Wash all components (Aerosolve Canisters, tube racks, O-rings, Buckets, Yoke, inserts) in warm soapy water (dish detergent). Rinse in tap water. Yoke should be rinsed with tap water followed up with distilled water to remove tap water to prevent rust.
- Place components in the O2 incubator to dry.
- When components are dry, coat the O-ring with a light film of silicone vacuum grease.
- Lubricate drive shaft with SpinKote™
- Coat pin sockets with Paint On Graphite (lubricant). Allow to dry for 5 minutes before replacing buckets on yoke.

MAINTENANCE AND QC SHEETS:

- Found in Mycobacteria Manual → “MIC80710 Allegra X-15R Maintenance Sheet”.

RELATED DOCUMENTS & REFERENCES:

- Beckman Coulter. (2007). *Aerosolve Cannisters*. California: Beckman Coulter Inc.
- Beckman Coulter. (2007). *Allegra X-15R Centrifuge Instruction Manual*. California: Beckman Coulter Inc.
- Beckman Coulter. (2007). *SX4750A Rotor Instruction Manual*. California: Beckman Coulter Inc.

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REVISION HISTORY:

REVISION	DATE	Description of Change	REQUESTED BY
1.0	11-Feb-15	Initial Release	L. Driedger