PURPOSE:

The Vitek 2 Instrument, personal computer (PC), Smart Carrier Station, DensiCHEK, and saline dispensette are used with Vitek 2 identification and susceptibility cards to provide information to aid the clinician in the treatment of disease. Maintenance is performed to ensure accuracy and precision of the various components of the Vitek 2 Instrument.

SUPPLIES:

- Saline dispensette
- Smart Carrier Station and cassettes
- bioMerieux polystyrene tubes and caps
- DensiCHEK and DensiCHEK calibration standards
- Vitek 2 Instrument, PC, printer, optics, boats and carousels
- Disposables: saline and tubing, pipette tips
- Back-up CDs and DVDs
- 5 ml graduated cylinder
- 2 tubes of Thioglycolate Broth

SPECIAL SAFETY PRECAUTIONS:

Containment Level 2 facilities, equipment, and operational practices for work involving infectious or potential infectious materials or cultures.

- Lab gown must be worn when performing activities with potential pathogens.
- Gloves must be worn when direct skin contact with infected materials is unavoidable.
- Eye protection must be used when there is a known or potential risk of exposure of splashes.
- All procedures that may produce aerosols, or involve high concentrations or large volumes should be conducted in a biological safety cabinet (BSC).
- The use of needles, syringes and other sharp objects should be strictly limited.

All patient specimens are assumed to be potentially infectious. Universal precautions must be followed. Since viable micro-organisms are used, all cultures must be handled with appropriate precautions. All equipment in contact with cultures should be decontaminated by appropriate methods.

QUALITY CONTROL:

- Refer to MIC60030 – Vitek 2 Quality Control for Vitek 2 QC procedures.
- Record all actions and results of maintenance checks on MIC70110.1- Maintenance Record – Vitek 2.
- Record all Vitek 2 QC results on MIC60032 – Vitek 2 Quality Control Results Record.

PROCEDURE INSTRUCTIONS:

Step	Action
Daily Vitek 2 Maintenance	
1	**Empty waste trays:** • Open the waste collection station door. • Place the index finger of one hand on the sliding retainer bar to prevent it from snapping back. • Remove the waste collection tray from the station by lifting the front edge of the tray slightly and then pulling it toward you. • When the tray is clear of the station, allow the sliding retainer bar to slowly slide back into place. • Dispose of the test cards in the tray in the biohazard garbage.
2	**Status Check:** • Ensure the status on the Status Screen is OK before using the instrument**.** If the Status is not OK, refer to Vitek 2 Instrument User Manual, section 8-2 to 8-7, for detailed information on other status notifications. • Monitor the disposables. As the two disposables are used, the shaded portion of the graphs moves to the left. At the same time, the value inside the graph decreases correspondingly. The graphs are marked to show full (330), three-quarter (248), one-half (165), and one-quarter (83) capacity. If the level of either disposable drops below 40, the value changes to Low. The graphs and their values refer specifically to the number of antimicrobial susceptibility tests (AST) that can be processed.
4	**Zero DensiCHEK:** • Refer to MIC70100 – DensiCHEK plus for DensiCHEK maintenance**.**
5	**Check printer paper:** • Refill paper as necessary.

Step	Action
Weekly Vitek 2 Maintenance	
1	**Check sterility of the KB and Vitek saline dispensette in use:** • Requisition and process specimens as per MIC70220 – Dispensette Sterility Test. • Place final reports on Tech II bench for filing.

Step	Action
Monthly Vitek 2 Maintenance	
1	**Smart Carrier Station (SCS):** • Turn OFF the SCS before beginning. • Clean the base unit, keypad, display and barcode scanner (except the clear lens) monthly or as needed with a small amount of 10% bleach solution. • Use glass cleaner and lens paper to clean the lens of the barcode scanner. • Refer to Vitek 2 Instrument User Manual, section 6-41, for detailed instructions on cleaning the Smart Carrier Station.
2	**Smart Carrier Station Cassettes:** • Remove memory buttons from cassettes before cleaning - liquid should NEVER make contact with the memory buttons. Wash cassettes in 10% bleach solution. Cassettes may be left in wash-up to drip dry overnight. • Refer to Vitek 2 Instrument User Manual, starting at section 6-26, for detailed instructions on cleaning of cassettes, removal and replacement of the Memory Button.
3	**Densichek:** • Refer to MIC70100 – DensiCHEK plus for DensiCHEK monthly maintenance procedure
4	**Vitek 2 Instrument:** Perform monthly maintenance in the morning once all cards have been processed and before new cards are loaded. Maintenance takes about 1hour. The maintenance is done in two parts. The first part is done with the instrument “ON” and the second part is done with the instrument turned “OFF”. • **“INSTRUMENT ON”:** Remove and clean the carousels and boats, following the detailed procedures in the Vitek 2 Instrument User Manual (section 6-19 to 6-26 and 6-28 to 6-31). There are two complete sets of carousels and boats. The extra set of each is stored beneath the Vitek 2. Wait until the maintenance is finished to clean the removed carousels and boats.

	Wash carousels and boats in 10% bleach solution. Carousels and boats may be left in wash-up to drip dry. After the carousels and boats have been removed, shut down the instrument using the Interface screen: UTILITIES > MAINTENANCE > SHUTDOWN. The instrument must be shut down and switched off before continuing with Part B. Routine optics cleaning is done with the instrument OFF as below. • **"INSTRUMENT OFF":** Shut down the instrument following the detailed procedures in the (Vitek 2 Instrument User Manual section 5-2). After the instrument is shut down, clean the OPTICS, VACUUM SEAL, VACUUM CHAMBER, WASTE TRAY, BASE PAN and DRIP PAN following the procedures found in sections 6-34 to 6-40. When done, turn power back on as per sections 6-40. The instrument will go through an initialization and/or warm up. When this is complete, perform the Optical Diagnostic Test in section 6-18 to 6-19. Replace boats and carousels by following the procedures in sections 6-23 to 6-26 and 6-30 to 6.31. After the interior components have been cleaned, turn the power to the analyzer back on by flipping the power switch located on the bottom, left hand side.
5	**Clean exterior components:** • Clean Vitek 2 instrument with 10% bleach solution. • Clean computer and keyboard with 10% bleach solution.
6	**Print monthly QC report:** • VT2→Reports→Instrument Monthly QC→Pick the month→Print • Sign report and place on Tech II bench.

Step	Action
As Required Vitek 2 Maintenance	
1	**Change dispensette saline bottles:** Continue to use the same dispensette as long as the weekly sterility checks show no growth. When saline dispensette sterility test fails, refer to MIC70220 – Dispensette Sterility Test.
2	**Change pipette tips and saline bag:** When the instrument tips/saline count drops below 40, an alarm will sound each time a cassette is loaded, warning that tips and saline are low. Do not change the saline tips when the first low tip warnings occur as this will waste the expensive tips. Change the tips and saline when about 10 are left. If the instrument is very low on tips (approx. <10), the instrument will be unable to pick up a tip, the alarm will sound and the cassette will back out. Detailed procedures for changing Vitek 2 tips and saline can be found in the Vitek 2

	Instrument User Manual (section 6-9 to 6-14). After changing the tips and saline, the instrument will perform a pipetter self-test. If tip replacement was successful, instrument will return to the menu.
3	**Dispenser/Pipetter Diagnostic Test:** Perform a Dispenser/Pipetter Diagnostic Test after each replacement of saline and tips. Follow the procedures in the Vitek 2 Instrument User Manual (section6-16). If any of the abnormal conditions are observed or instrument errors occur, discontinue using Automatic Dilution Mode and contact bioMerieux for advice.
4	**After installation of software updates**: Perform quality control of Gram-negative and Gram-positive susceptibility cards – refer to MIC60030 – Vitek 2 Quality Control. Record results on MIC60032 – Vitek 2 Quality Control Results Record. Initial report and place in Vitek 2 QC binder.
5	**How to shut down the Vitek 2 PC:** • Minimize Vitek session • Click on Start (lower left corner of screen) • Click on Shut down • Follow prompts to shut down • When powering back up, allow to reboot and log on

Step	Action
What to do if the Pipettor/Dilutor is DOWN:	
1	Configure the SCS to the “Pre-Diluted” mode using the F4 key.
2	Prepare organism suspensions within 0.5-0.63 McFarland range as usual.
3	If setting up ID and susceptibility cards place the McFarland suspension in the cassette and leave the next slot empty. Prepare a second tube with the following dilutions using the Vitek pipettes: • AST-GN: 3.0mL saline + 145µL of 0.5-0.63 ID suspension • AST-GP: 3.0mL saline + 280µL of 0.5-0.63 ID suspension Place the dilution into the empty slot.
4	If setting up a susceptibility card only, place the dilution only in the cassette. Do not place the McFarland suspension in the cassette.
5	Enter the barcode number of the isolate and scan the barcodes of the Vitek 2 cards into the SCS. Place the cards in the appropriate slots in the cassette.
6	Load the cassette onto the instrument. The button memory will communicate to the VITEK 2 instrument that the AST dilutions are already prepared.

Step	Action
How to import new cards into the Vitek 2:	
1	At the Vitek PC, go to the QC menu. Click on the truck.
2	Enter the lot number of the new cards and the number of boxes received. Click OK.

REFERENCES:

- Vitek 2 Instrument User Manual

REVISION HISTORY:

REVISION	DATE	Description of Change	REQUESTED BY
1.0	17 Nov 2017	Initial Release	L. Steven