



University of Washington Medical Center 1959 NE Pacific Street. Seattle, WA 98195 Transfusion Services Laboratory Policies and Procedures Manual	Original Effective Date: 03-11-16	Number: PC-0048.02
	Revision Effective Date:	
TITLE: Tango Optimo - Maintenance		

PURPOSE:

To outline the procedure for routine maintenance of the instrument in accordance with the manufacturer recommendations and the University of Washington Medical Center (UWMC) standards

PRINCIPLE & CLINICAL SIGNIFICANCE:

N/A

POLICIES:

Any deviations from expected results must be investigated immediately. Consult with the User Manual chapter E or Bio-Rad technical support if necessary

SPECIMEN REQUIREMENTS:

N/A

REAGENTS/SUPPLIES/EQUIPMENT:

Reagents:	Supplies:	Equipment:
<ul style="list-style-type: none"> • DI Water • Phosphate buffered saline (PBS) • Microcide SQ 	<ul style="list-style-type: none"> • Disinfectant Wipes • Lint Free Cloths • Lens Paper • Suspension Cup • Splash Bowl 	Tango Optimo

QUALITY CONTROL:

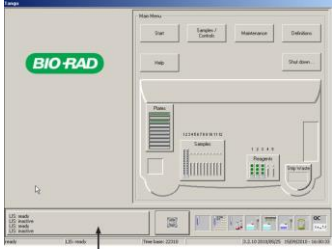
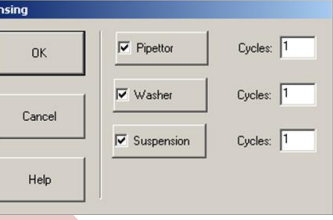


N/A

INSTRUCTIONS:


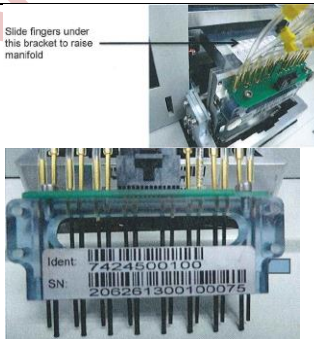
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Daily Maintenance

STEP	ACTION							
1	Verify the Auto Rinse was performed by pressing the Optimo ‘Event Log’ button and verifying “Rinsing active” is displayed NOTE: If the TANGO was performing testing during the scheduled rinse time, the auto rinse will run automatically as soon as the test run is complete	 <p style="text-align: center;">Event log button</p>						
2	<ul style="list-style-type: none"> • Press <Maintenance> and then <Rinsing> • Set all ‘Cycles:’ to 1 and press <OK> • Observe the pipettes during the cycles to ensure <ul style="list-style-type: none"> ○ Pipettes are straight ○ Flow of water is straight down without dripping 							
3	Remove the acrylic front cover (refer to Appendix 1)							
4	Clean the pipettes by gently wiping the exterior with a lint free cloth moistened with DI water							
5	Inspect the Suspension Cup and Splash Bowl <ul style="list-style-type: none"> • Remove the gray plastic cover from the Suspension Cup and clean it • Remove the Suspension Cup and check it for cracks, liquid, or residue • Check the Splash Bowl to ensure it is dry or only has a small amount of residual liquid 							
6	Observe the tubing that runs from the top of the Tango to the pipette needles for bubbles: <table border="1" data-bbox="302 1251 1040 1535"> <thead> <tr> <th>Bubble Size</th> <th>Action</th> </tr> </thead> <tbody> <tr> <td>Small</td> <td>No action required</td> </tr> <tr> <td>Large</td> <td> <ul style="list-style-type: none"> • Check fluid containers to ensure there is sufficient fluid • Consult User Manual or call Technical Service if this container’s fill level is not the problem </td> </tr> </tbody> </table>	Bubble Size	Action	Small	No action required	Large	<ul style="list-style-type: none"> • Check fluid containers to ensure there is sufficient fluid • Consult User Manual or call Technical Service if this container’s fill level is not the problem 	 <p>Small bubbles commonly found in pipette tubing</p>
Bubble Size	Action							
Small	No action required							
Large	<ul style="list-style-type: none"> • Check fluid containers to ensure there is sufficient fluid • Consult User Manual or call Technical Service if this container’s fill level is not the problem 							
7	Clean Surfaces: <ul style="list-style-type: none"> • Wipe all surfaces with a disinfectant wipe • Wipe all surfaces again with DI water after disinfection is complete 							
8	Replace the front cover							
9	Record actions on the <i>Tango Optimo Maintenance</i> form							


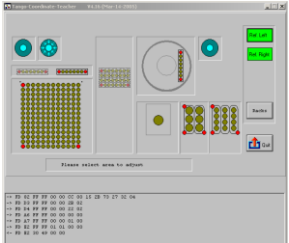

Weekly Maintenance

STEP	ACTION								
1	<p>Clean and Check the Optical Filter</p> <ul style="list-style-type: none"> • Pull the carrier out of the Tango • Carefully clean the filter using lens paper • Check the filter for damage (scratches, breaks, etc.) • Insert the carrier, with the ridges facing up, into the Tango until it clicks into place  <p>CAUTION: Do NOT scratch the filter or run the Tango without the filter inserted</p>								
2	Remove the front cover of the Tango (refer to Appendix 1)								
3	Clean the exterior of the Pipettor Wash Stations with a cotton tipped swab soaked in DI water								
4	<p>Clean the Washer Manifold</p> <ul style="list-style-type: none"> • Remove cover of the strip wash station • Raise the manifold by pulling straight up on the bracket • Remove the 2 screws holding the washer manifold • Pull forward and up to remove the manifold • Gently wipe the washer needles with a lint free pad soaked in DI water to remove any NaCl residue • Reinstall the washer manifold and replace the strip wash station cover 								
5	Replace the front cover of the Tango								
6	<p>Decontaminate the Liquid System:</p> <ul style="list-style-type: none"> • Make 800 mL of Microcide SQ Decontaminant Solution per SOP Tango Reagent Preparation • Unscrew the tubing from the Washing Solution and System Liquid containers • Place the tubing in the container with the decontaminant solution so that the ends of the tubing are at the bottom of the container • Select <Maintenance> and then <Decontamination> on the Tango screen • Set the parameters as follows and then press <OK> <table border="1" data-bbox="344 1461 1037 1602"> <thead> <tr> <th>Cycles</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td>Pipettor</td> <td>2</td> </tr> <tr> <td>Washer</td> <td>3</td> </tr> <tr> <td>Suspension</td> <td>1</td> </tr> </tbody> </table> <ul style="list-style-type: none"> • Let the decontamination solution sit in the tubing for 15 minutes after the cycles are complete allowing the solution to take effect • Remove the tubing from the container and thoroughly wipe the outside ends of the tubing and the gray cover of the Suspension Cup with DI water • Reserve the remaining decontamination solution for later use • Fill a container with 1 L of DI water. Place both of the tubes in the container so that the ends of the tubing are at the bottom of the container • Select <Maintenance> and then <Decontamination> on the Tango screen 	Cycles	Number	Pipettor	2	Washer	3	Suspension	1
Cycles	Number								
Pipettor	2								
Washer	3								
Suspension	1								

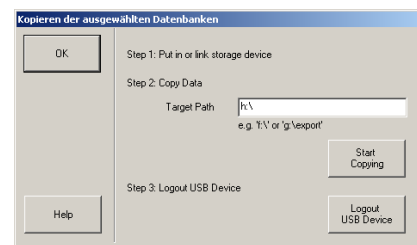
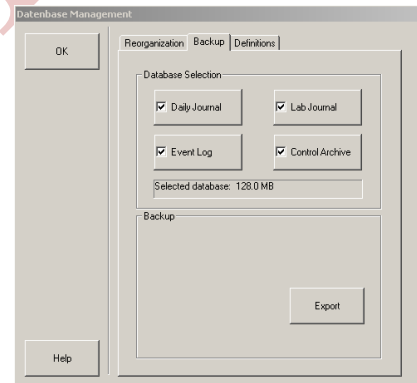
STEP	ACTION																
	<ul style="list-style-type: none"> Set the parameters as follows and then press <OK> <table border="1" data-bbox="345 312 1037 455"> <thead> <tr> <th>Cycles</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td>Pipettor</td> <td>6</td> </tr> <tr> <td>Washer</td> <td>5</td> </tr> <tr> <td>Suspension</td> <td>3</td> </tr> </tbody> </table> Reconnect the tubing to the Washing Solution and System Liquid containers. Select <Maintenance> and then <Rinsing> on the Tango screen Set the parameters as follows and then press <OK> <table border="1" data-bbox="345 562 1037 701"> <thead> <tr> <th>Cycles</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td>Pipettor</td> <td>6</td> </tr> <tr> <td>Washer</td> <td>5</td> </tr> <tr> <td>Suspension</td> <td>3</td> </tr> </tbody> </table> 	Cycles	Number	Pipettor	6	Washer	5	Suspension	3	Cycles	Number	Pipettor	6	Washer	5	Suspension	3
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7	<p>Clean the System Liquid and Washing Solution Containers:</p> <ul style="list-style-type: none"> Disconnect the Sensor Cable and Tubing Empty each container Add approximately 2 L of DI water to each container. Close containers and shake thoroughly Empty each container Refill the System Liquid container with DI water and replace cap Refill the Washing Solution container to about ¼ with PBS and replace cap Reconnect the Sensor Cable and Tubing to each container Select <Maintenance> on the Tango Main Menu and then <Rinsing> Set the parameters as follows: <table border="1" data-bbox="345 1192 1037 1335"> <thead> <tr> <th>Cycles</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td>Pipettor</td> <td>3</td> </tr> <tr> <td>Washer</td> <td>3</td> </tr> <tr> <td>Suspension</td> <td>1</td> </tr> </tbody> </table> Press <OK> to start rinsing <div data-bbox="1193 745 1388 940" data-label="Image"> </div> <p data-bbox="1193 972 1372 1003">Sensor Cable</p> <div data-bbox="1193 1039 1388 1234" data-label="Image"> </div> <p data-bbox="1193 1266 1291 1297">Tubing</p>	Cycles	Number	Pipettor	3	Washer	3	Suspension	1								
Cycles	Number																
Pipettor	3																
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8	<p>Decontaminate the Waste Container:</p> <ul style="list-style-type: none"> Disconnect sensor cable Unscrew the nozzle from the container and place it in the strip waste container collecting the fluid from the waste line Unscrew the cap and empty the container Add the Microcide SQ Solution, reserved from step 6, to the container. Screw cap on the container and shake thoroughly Reconnect the sensor cable and nozzle 																
9	<p>Check all of the Syringes and Tubing for leaks through the acrylic glass window on the rear wall of the Tango with a flash light, while system is rinsing</p> <table border="1" data-bbox="302 1724 1430 1890"> <thead> <tr> <th>Check</th> <th>Abnormal conditions</th> <th>If any abnormal condition exists</th> </tr> </thead> <tbody> <tr> <td>Tubing</td> <td>Large bubbles NOTE: Small bubbles are normal</td> <td rowspan="2"> <ul style="list-style-type: none"> Check fluid levels in containers (System Liquid, Washing Solution, Cleaning Solution) </td> </tr> <tr> <td>Syringes</td> <td>Leaks or bubbles as the piston moves up and down</td> </tr> </tbody> </table>	Check	Abnormal conditions	If any abnormal condition exists	Tubing	Large bubbles NOTE: Small bubbles are normal	<ul style="list-style-type: none"> Check fluid levels in containers (System Liquid, Washing Solution, Cleaning Solution) 	Syringes	Leaks or bubbles as the piston moves up and down								
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Syringes	Leaks or bubbles as the piston moves up and down																

STEP	ACTION		
	Probes	Dripping or splattering	Containers) <ul style="list-style-type: none"> Syringes for wear and replace if necessary (call Technical Support to replace syringe)
10	Check both probes for dripping or splattering		
11	Record actions on the <i>Tango Optimo Maintenance</i> form		

Monthly Maintenance

STEP	ACTION			
1	Remove the front cover of the Tango (refer to Appendix 1)			
2	Remove the gray plastic cover from the Suspension Cup and clean it			
3	Remove the Suspension Cup by pulling it straight up and dispose of the cup			
4	<ul style="list-style-type: none"> Remove the Splash Bowl by pulling it straight up Discard the Splash Bowl Insert new Splash Bowl. The draining nozzle must be inserted in the draining sink on the left side 			
5	Insert a new Suspension Cup and replace the gray plastic cover			
6	Replace the front cover			
7	Check and Adjust the Pipettor Needle Positions: <ul style="list-style-type: none"> Select <Maintenance> then <Teach Coordinates> Wait for the Tango to initialize and the 'Please select area to adjust' message to appear Select <Ref Left> to move the pipettor over the reference position and open the 'Adjust Position' window Select <Prev. Z> to lower the pipettor to the reference position 			
	<p>NOTE: The needle should be centered and directly over the small cavity in the center of the reference position and flushed with the top edge of the reference point. A piece of paper should be able to pass easily between the needle and the cavity, yet touch the needle.</p> <p>CAUTION: Do NOT change any settings in the 'Teach Coordinates' program for the other reference positions. Changing the other coordinates may cause the needles to</p>			

STEP	ACTION	
	crash and damage the Tango	
8	If the pipettor is	Then
	Not in alignment with the reference position	Adjust the X, Y and Z axis to achieve proper alignment <ul style="list-style-type: none"> • Use the arrow keys on the keyboard to control the X-axis (left/right) and the Y-axis (front/back) • Use the Page Up and Page Down keys to control the Z axis (up/down)
	In alignment with the reference position	Press <OK> and proceed to next step
9	Repeat the steps 8-10 for 'Ref Right' to align the Right Pipettor	
10	Press <Quit> to close the Teach Coordinates window	
11	Power down the PC and instrument and then power them back up to save the needle position adjustments (refer to Appendix 2)	
12	<p>Create a Backup of the Database:</p> <ul style="list-style-type: none"> • Select <Database Management> from the Maintenance Screen • Select the <Backup> tab • Check the box for each of the databases to be exported (Daily Journal, Lab Journal, Event Log, and Control Archive) • Insert a USB drive into the PC and press <Export> • Press <Start Copying> to allow the files to download • Press <Logout USB Device> and then press <STOP> • Select the USB device to remove from the 'Safely Remove Hardware' screen and press <OK> • Remove the USB drive and then insert it into a networked PC. • Rename the file as the month and year of the data being backed up EXAMPLE: March 2016 • Download or copy the file to the appropriate folder on the PC 	
13	Record actions on the <i>Tango Maintenance</i> form	



CALCULATIONS/INTERPRETATIONS/RESULTS REPORTING/NORMAL VALUES/CRITICAL VALUES:

NA

CALIBRATION:

NA

PROCEDURE NOTES AND LIMITATIONS:

- DO NOT perform any of the Maintenance tasks while the machine is performing testing
- The content of the Database Backup is inaccessible without free-standing software. If information from the file is needed, it must be sent to Bio-Rad Technical Service for retrieval

REFERENCES:

Tango Optimo User Manual Version 3.3

RELATED DOCUMENTS:

Form: Tango Maintenance

SOP: Tango Reagent Preparation

TRAINING

TITLE: Tango Optimo - Maintenance	Number: PC-0048.02
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UWMC SOP Approval:	
UWMC CLIA Medical Director	_____ Date _____
	Mark H. Wener, MD
Transfusion Service Manager	_____ Date _____
	Nina Senn
Compliance Analyst	_____ Date _____
	Christine Clark
Transfusion Service Medical Director	_____ Date _____
	John R. Hess, MD
UWMC Biennial Review:	
	_____ Date _____
	_____ Date _____

REVISION HISTORY:

05/01/18: Monthly inspection of splash bowl changed to monthly replacement and microside decontamination changed from monthly to weekly as per manufacturer's technician.

APPENDICES:

Appendix 1: Removal of Instrument Covers

STEP	ACTION	
1	Remove the Acrylic Front Cover	
	If	Then
	The Tango is powered on	<ul style="list-style-type: none"> • Press <Maintenance> on the Main Menu • Press <Remove Front Cover> • Pull the Cover off carefully <p>NOTE: Replace the cover when ready and press <OK> to resume normal operations</p>
	The Tango is powered off	Pull the Cover off carefully
NOTE: The Tango must be powered off to proceed with the next steps		
2	Remove the Strip Wash Station Cover <ul style="list-style-type: none"> • Move the Pipettors up, then to the outer sides of the instrument, if necessary • Loosen the two thumbscrews • Pull the cover up and out of the tab holders to remove 	
3	Remove the Right Side Cover: <ul style="list-style-type: none"> • Move the Right Pipettor up and as necessary to the left to clear room for removal • Loosen the two thumbscrews • Gently pull the top of the right side of the Cover forward and out to remove 	
4	Remove the Left Side Cover: <ul style="list-style-type: none"> • Move the Left Pipettor up and as necessary to the right to clear room for removal • Loosen the two thumbscrews • Gently pull the left side of the cover forward and out to remove 	
5	Remove the Bottom Cover: <ul style="list-style-type: none"> • Open the Sample Station and Reagent Station Doors. • Open the Transport Belt Cover • Gently pull the Bottom Cover slightly up and straight out being careful not to damage either pipettor <p>NOTE: Covers should be put back on in the order they were removed and properly secured as they were found. When replacing the bottom cover, ensure that the cover sits above the metal plate holders</p>	

Appendix 2: Shut Down and Start Up

In order to maintain the optimal performance of the Tango software, the order of instrument shut down and start up must be followed in the steps listed below

STEP	ACTION
1	Shut down the PC first and the Instrument second: <ul style="list-style-type: none">• Press <Shut down> in the main menu• Press <Shut down> in the 'Shut down Tango' screen• Switch off the Tango's main power switch
2	Start up the Instrument first and the PC second: <ul style="list-style-type: none">• Switch on the Tango's main power switch• Wait until the probe arms have moved to the front of the analyzer• Press the PC's main power button to turn it on

TRAINING