



XP Series PM Standard Procedure

**Customer Support Headquarters
Sysmex Corporation**

Version 2 March 4, 2013

XP Series Preventive Maintenance Checklist

Check Items		Schedule	Check	Remarks
Check setting values	Print setting values		<input type="checkbox"/>	
	HOST Output Setting OFF		<input type="checkbox"/>	
Check data before maintenance	Check background data		<input type="checkbox"/>	
	Check data using control material or samples		<input type="checkbox"/>	
Check adjustment values before maintenance			<input type="checkbox"/>	*
SRV	Disassemble and clean SRV		<input type="checkbox"/>	
	Clean the tray		<input type="checkbox"/>	
	Replace whole blood tube manually		<input type="checkbox"/>	
Rinse Cup	Clean Rinse Cup		<input type="checkbox"/>	
	Replace Tube Pharmed for Waste Line	Once a year	<input type="checkbox"/>	
Waste Chamber	Disassemble and rinse Waste Chamber		<input type="checkbox"/>	
	Replace Waste Chamber Drain Line silicon tubes.	Once a year	<input type="checkbox"/>	
	Replace Waste Chamber	Every 5 years (or as needed)	<input type="checkbox"/>	
Bellows Unit	Disassemble and rinse Bellows Unit, Clean needle		<input type="checkbox"/>	
	Rinse orifice tube		<input type="checkbox"/>	
Pneumatic Unit	Rinse Trap Chamber		<input type="checkbox"/>	
	Replace Pneumatic Unit protection filter	Every 2 years	<input type="checkbox"/>	
	Replace Compressor	Positive pressure is no more than 0.22 MPa or negative pressure is no more than -0.04MPa.	<input type="checkbox"/>	
Transducer	Clean WBC transducer aperture		<input type="checkbox"/>	
	Clean RBC transducer aperture		<input type="checkbox"/>	
	Clean inside of Transducer Assy		<input type="checkbox"/>	
Pressure adjustment	0.05MPa pressure adjustment		<input type="checkbox"/>	*
	-0.0333MPa pressure adjustment		<input type="checkbox"/>	*
HYDRAULIC UNIT	Transducer cleaning sequence		<input type="checkbox"/>	
	Waste Chamber Rinse Sequence		<input type="checkbox"/>	
Other adjustments	Adjust HGB background count level		<input type="checkbox"/>	*
	Adjust WBC clog level		<input type="checkbox"/>	*
	Adjust RBC clog level		<input type="checkbox"/>	*
Main Unit, Interior	Clean inside of Main Unit		<input type="checkbox"/>	
	Lubricate mechanism		<input type="checkbox"/>	
Checking data	Check background count level		<input type="checkbox"/>	
	Check data using control material or samples		<input type="checkbox"/>	

Check Items		Schedule	Check	Remarks
Main Unit, Exterior	Clean Main Unit covers		<input type="checkbox"/>	
	Clean peripheral device (printer etc.) Cleaning		<input type="checkbox"/>	
Check after maintenance	Restore host output settings		<input type="checkbox"/>	
	Check program version		<input type="checkbox"/>	*
	Cycle counts		<input type="checkbox"/>	*
	Final performance check		<input type="checkbox"/>	

* "Schedule" is only a guideline and differs according to status of use.

* If "Schedule" is blank, it means that the items need to be checked for every periodic maintenance.

* The replaced parts which are not in the check list and the parts that a service engineer recommends to replace in future are mentioned in "Remarks".

【Details of Adjustment Items】

Adjustment Items	Specified Range	Value Before Adjustment	Value After Adjustment
0.05MPa pressure	0.05 +/- 0.01 (MPa)		
-0.0333MPa pressure	-0.0333 +/- 0.0013 (MPa)		
HGB background convert	2000+/-200		
WBC clog level	100.0+/-1.0		
RBC clog level	100.0+/-1.0		

【Details of Check Items】

Adjustment Items	Specified Range	Confirmed Value
Program Version	-	
Cycle counts	-	

* Refer to Job List or QC Chart for control, or sample analysis values.

Maintenance Report No.			
Facility Name			
Instrument Name	XP-100/XP-300	Serial No.	
Maintenance Date			
Name of Service Engineer			

XP Series PM Standard Procedure

[Required jigs and controls, etc.]

Code	Product Name	Remarks
-	EIGHTCHECK	Control blood

Items to be checked		Operation time	Procedure
Checking setting values	Print Setting Value	5 min.	Go to [Menu] -> [Service] -> [Settings] -> [Print Settings] to print all setting values.
	HOST Output Setting OFF		Go to [Menu] -> [Settings] -> [Host Output Settings] to change "Connection" to "Disconnect".
Data analysis before maintenance	Check background count level	10 min.	Analyze normal sample or control material and print average values or record them using stored data/QC chart.
	Check data using control material or samples		Perform background check.
Check adjustment values before maintenance	HGB background convert WBC clog level RBC clog level 0.05MPa -0.0333MPa		Go to [Menu] -> [Service] -> [Service Data]. Print out and check service data for the latest samples. Go to [Menu] -> [Maint.] -> [Status Display] to check pressure.
Removing covers			Remove front and side covers.
SRV	Disassemble and clean SRV	15 min.	Use CELLCLEAN and distilled water to perform cleaning. (Refer to Instructions for Use Chapter 12.)
	Clean the tray		
	Replace the aspiration pipette		Replace PIPETTE NO.57 using FITTING NO. 9-A.
Rinse Cup	Clean Rinse Cup	5 min.	Use CELLCLEAN and distilled water to perform cleaning. (Refer to Instructions for Use Chapter 12.)
	Replace Tube Pharmed for Waste Line	5 min.	Replace by using Tube Pharmed 1/4 IN X 1/8 IN. (Refer to Service Manual "Schematics".)
Waste Chamber	Replace Waste Chamber (Every 5 years)	5 min.	Replace WASTE CHAMBER ASSY NO.35.
	Disassemble and clean Waste Chamber (when not replacing Waste Chamber).	5 min.	Wipe the interior of the chamber and the float switch using gauze impregnated with CELLCLEAN.
	Replace Waste Chamber Drain Line silicon tubes.	5 min.	Replace silicon tube F739-8. (Refer to Service Manual "Schematics".)
Bellows Unit	Disassemble and rinse Bellows Unit	5 min.	Wipe the unit and the needle tip using gauze impregnated with ethanol.
	Clean orifice tube	5 min.	Inject ethanol using an injection syringe to clean. If the tube is extremely dirty, replace the whole tube. TUBE POLYURETHANE 1.8MMX3.4MM (1400mm)
Pneumatic Unit	Rinse Trap Chamber	30 min.	Clean Trap Chamber using distilled water.
	Replace Pneumatic Unit protection filter		Replace FILTER NO. 9.
	Replace Compressor		Replace by using KX-21 Pneumatic Unit (XP series). (Refer to Service Manual Parts List.)
Pressure and vacuum adjustment	0.5kg/cm ² (0.05MPa) Pressure adjustment	10 min.	Adjust pressure to 0.05Mpa using Regulator. (Refer to Instructions for Use Chapter 12.)
	250 mmHg (-0.0333MPa) Vacuum adjustment	5 min.	Adjust vacuum to -0.0333MPa using the bellows unit. (Refer to Instructions for Use Chapter 12.)
Transducer	Clean WBC transducer aperture	10 min.	Apply CELLCLEAN to a brush for clog removal and clean the aperture. (Refer to Instructions for Use Chapter 12.)
	Clean RBC transducer aperture		
	Clean inside of Transducer		Remove dust, etc. and wipe with gauze impregnated with ethanol. Then, wipe with dry gauze.

Items to be checked		Operation time	Procedure
HYDRAULIC UNIT	Perform transducer cleaning sequence.	7 min.	Go to [Menu] -> [Maint.] -> [Clean Transducer] to perform the sequence.
	Perform Waste Chamber Rinse Sequence	15 min.	Go to [Menu] -> [Maint.] -> [Clean W. Chamber] to perform the sequence.
Other adjustments	Adjust HGB background count level	5 ~ 10 min.	Adjust VR 1 of PCB NO.20034/PCB. NO. 2135. (Refer to Service Manual "Adjustment".) A
	Adjust WBC clog level		Adjust VR 6 of PCB NO.20034/PCB. NO. 2135. (Refer to Service Manual "Adjustment".) A
	Adjust RBC clog level		Adjust VR 7 of PCB NO.20034/PCB. NO. 2135. (Refer to Service Manual "Adjustment".) A
Main Unit, Interior	Clean inside of Main Unit	10 min.	Remove dust, etc. from inside of Main Unit. Use vacuum cleaner to remove dust, etc. from the printer mechanism.
	Lubricate mechanism		Apply silicon grease to air cylinder shaft for driving SRV. Apply BIRAL spray to linear slider for rinse cup.
Cover installation			Install instrument covers which were removed previously.
Check data	Check background count level	10 min.	Check that the blank error has not occurred.
	Check data using control material or samples		Analyze normal sample or control material (at least two times) and print average values or record them using stored data/QC chart.
Main Unit, Exterior	Clean Main Unit covers	5 min.	Remove dust, etc. and wipe with gauze impregnated with ethanol. Then, wipe with dry gauze.
	Cleaning peripheral device (printer, etc.)		Use vacuum cleaner to remove dust, etc. from the printer mechanism.
Checking performance after maintenance	Restore host output settings	15 min.	Go to [Menu] -> [Settings] -> [Host Output Settings] to restore "Connection" to the state before maintenance is carried out.
	Check program version		Go to [Menu] -> [Maint.] -> [Status Display] to check version.
	Cycle counts		Go to [Menu] -> [Maint.] -> [Status Display] to check Total C.
	Final performance check		Turn the power OFF and ON and start the instrument in the user mode to check sample analysis is performed without errors.

* Operation time is an approximation and does not include removal of covers, etc.

Part No.	Part Name	Time for Replacement												
		0.5 yr	1.0 yr	1.5 yr	2.0 yr	2.5 yr	3.0 yr	3.5 yr	4.0 yr	4.5 yr	5.0 yr	5.5 yr	6.0 yr	
		9k cycle	18k cycle	27k cycle	36k cycle	45k cycle	54k cycle	63k cycle	72k cycle	81k cycle	90k cycle	99k cycle	108k cycle	
441-1634-7	PIPETTE NO.57	○	○	○	○	○	○	○	○	○	○	○	○	
442-3460-8	FITTING NO. 9A	○	○	○	○	○	○	○	○	○	○	○	○	
442-5287-4	Silicone tube F739-8		○		○		○		○		○			
442-5789-9	TUBE PHARMED 1/4 IN X 1/8 IN		○		○		○		○		○			
443-1362-0	FILTER NO. 9				○				○					
973-2984-2	KX-21 PNEUMATIC UNIT (XP SERIES) (PSL-21)						○							
963-3347-0	WASTE CHAMBER NO.35 (C-7/XN SERIES) (XN Series)										○			

XP Series Periodic Replacement Parts List

“Time for Replacement” is only a guideline and differs according to status of use. Time-based or cycled-based maintenance selection should be determined by whichever comes first.



(Version 2)

Revision History

Version Number	Date of Revision	Revision Details
Version 1	April 27, 2012	
Version 2	March 4, 2013	Added PCB NO.20034 to procedure for each adjustment in "Other adjustments" section. A

A ECR 312J003