

OPERATOR'S MANUAL

Clinical Chemistry Analyzer

CA-400

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FURUNO

W A R R A N T Y

The term of warranty of this analyzer is one year from the date of purchase. Our company shall not be responsible for the following failures and damages for the warranty period.

- (1) Failure/damage caused by the result of misuse.
- (2) Failure/damage caused by repair or alteration performed by any company other than our company.
- (3) Failure/damage caused by the phenomenon which is due to other than our product.
- (4) Failure/damage caused by the condition beyond the normal operating condition of this analyzer such as the power supply, the installation environment.
- (5) Failure/damage caused by fire, earthquake, flood damage or other natural disaster.
- (6) Failure/damage caused by shift or transportation performed by other than our company after our installation.

Technical

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REVISION RECORD

The latest edition supersedes any preceding ones. If you have old editions, discard them to avoid possible confusion.

REV	DATE	REVISION HIGHLIGHT
1A	March 2008	Published as first version.
1B	July 2008	[0.7 Component List] : Modified Component List and Standard Accessories List. [0.2 Precautions for Use] and [0.8 Software Operating Environment] : Added notifications for external devices. [Overall] : Corrected minor errors.
1C	Dec. 2008	[Forward] : Modified [5. Technical Specifications]. [1.1 General] and [1.2 Built-in Unit]: Added comments that “RCU Barcode is optional”. [1.4 Operation Basics] : Modified [1.4.5 Menu Structure]. [2.2 Reagent Registration] : Modified overall. [2.4 Placement for Reagent Bottles] : Modified bottles types. [2.7 Test Selection Setting] : Modified [2.7.1.5 Multi Standard Sample]. Modified [2.7.1.8 Control Sample]. Modified [2.7.2.2 Multi Standard Sample]. Modified [2.7.2.3 Control Sample]. [3.1 Run Menu] : Modified [3.1.5 Reagent Remaining Volume]. [3.5 System Menu] : Modified [3.5.1 System Settings]. Modified [3.5.2 Reagent Registration]. Modified [3.5.5 Technical Range and the Registration for Patient Generation]. [Chapter 4 Alarm] : Added Alarm Messages for SPT
1D	Aug. 2009	Modified [Foreword].

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FOREWORDS

FOREWORDS

This operation manual is the one to use the Fully Automated Clinical Chemistry Analyzer safely and correctly. Before you operate this Analyzer, please read this manual carefully and understand the contents enough.

This analyzer is designed to measure the human specimen (Serum, Plasma, Urine and so on) and is used with Windows PC, and the measurement result can be printed out.

[Precaution]

- 1 The contents of this manual are described for the clinical laboratory technologists who operate this analyzer.
- 2.The contents of this manual may be changed without a previous notice in the future.

This analyzer belongs to “In vitro diagnostic (IVD) medical device”, and complies with IVD Directive (98/79/EC) and EMC Directive (89/336/EEC) or EU Directive.



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EC

REP

<Precaution for Use and Installation Environment>

This section explains points to note when using the analyzer, the installation environment required for normal operation, standard accessory and warning labels. Before using the analyzer, please read this manual. If the equipment is used in a manner not specified by the manufacturer, the protection may be impaired.

1. Safety Precautions

Prevention of damage and ignition



Please observe the following precautions to prevent damage and ignition of the analyzer.

- Install the analyzer according to the installation environment and the installation requirements specified in this manual.
- Contact our servicing or sales division when you need to move the analyzer to other location.

Prevention of electric shock



Please observe the following precautions to prevent electric shock caused by the use of the analyzer.

- Whenever the analyzer is operating, do not remove the covers (front cover, rear cover, side cover, etc.) that are installed by using screws.
- If liquid falls into the analyzer or liquid spills inside the analyzer, contact our servicing division. In this case, careless action may cause electric shock.

Prevention of injury



Please observe the following precautions to prevent injury due to the use of the analyzer.

- Whenever the analyzer is operating, never touch the moving parts including sample probes, reagent probes, stirrer, etc. Also do not put your fingers or hand into the openings.
- As for replacing lamps, turn the power off and wait for the lamp to get cold (over 30 minutes), then replace the lamp. Direct contact with the heated lamp may cause burn injury.
- For safety reasons, follow the instructions written on the labels attached to the analyzer and the instructions of this manual.
- As for personal computers and printers, refer to each operating manual.

Protection of eyes



Please observe the following precautions to protect eyes.

- Do not look directly at the lighted lamps of the analyzer or laser beam used in the bar code reader, as they may cause eye injury.

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To ensure the accuracy of measurement data



- Whenever the analyzer is operating, do not open the covers including top cover, rear cover, side covers (left cover and right cover).
- Whenever the analyzer is operating, do not open the Reagent Container Unit (RCU) cover (lid) and Auto Sampler Unit (ASP) cover (lid).
If the lid for ASP or RCU is removed, then the measurement is aborted.
- For use of the analyzer, conduct accuracy control so that the analyzer functions correctly.
- As for maintenance or components needing periodic replacement for the analyzer, follow the instructions in this manual.
- As for reagents, accuracy control substances and standard substances, follow the instructions of their manufacturers and suppliers.

Disposal of wastewater



Special attention is required for disposal of some wastewater or residual samples. This analyzer discharges high concentrated wastewater and low concentrated wastewater separately. Please observe the following precautions.

Substances regulated by the pollution control laws and wastewater discharge standards are contained in some samples, reagents, accuracy control substances, standard substances, wash solutions (detergents), etc. used for the analyzer. Please refer the disposal of such substances to the instructions of relevant manufacturers and suppliers to comply with the facility wastewater standards.

Prevention of infection



It is necessary to correctly handle samples used in the analyzer. Unless the samples are correctly handled, it may result in infection. Please observe the following precautions to prevent infection.

Do not directly touch samples, reagents, wastewaters, etc. that may cause infection. If there is possibility to touch them, make sure to wear protective gloves, masks and goggles to prevent infection. In case you touch them accidentally, follow your company's operating procedure and consult a physician as required. If they contact the analyzer, immediately wipe away.

Handling of test reagents



Please observe the following precautions to prevent injury.

Some reagents are strong acid or strong alkali. Be careful not to touch them directly with hands or spill over your clothes. In case where they mistakenly spill over your skin or clothes, immediately wash enough with water and soap. If they contact eyes, flush thoroughly with plenty of water and consult a physician.

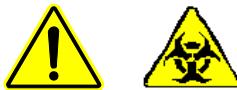
FOREWORDS

Prevention of affect on other facility/equipment



As for the installment of the analyzer, make appropriate power supply wiring so that failure of the analyzer should not affect other important facility or equipment (example: power supply unit of surgical equipment, etc.).

2. Precautions for Use



Please observe strictly the following precautions to ensure safe and efficient use of the analyzer.

General precautions for use of the analyzer

1. Use of samples

- (1) This analyzer is designed to analyze human serums, urine, etc. There might be some sample that cannot be analyzed depending on the analysis item and the reagents. In this case, refer to the relevant manufacturers and suppliers.
- (2) Use samples that contain no suspended particles. As for serum samples, use serum samples that contain no blood clots. Use of serum samples containing blood clots or use of urine samples containing suspended particles may cause the analyzer's probes to get clogged and adversely affect the analysis processing.
- (3) Note that there are some cases where a significant clinical affect is achieved depending on chemical substances which coexist with samples (medication, anticoagulant, preservative, etc.)

2. Storage of samples

Store samples in an appropriate manner. If stored in an inappropriate environment, samples may change in quality. For example, if blood is kept in cold storage, potassium in the blood will be increased.

3. Sample pretreatment and handling of samples

- (1) Fibrins contained in serum may clog the probes. When separating serum, make sure that blood is clotted enough. Samples to be used in the analyzer shall be free of fibrin.
- (2) As for using urine as a sample, if there is suspension of particles in a urine sample, centrifugalize the urine sample so that the suspended particles get precipitated.
- (3) If sample pretreatment unique to the analysis item is required, consult the relevant reagent manufacturers and suppliers. Regarding the advisability of serum separation agents, refer to their manufacturers.
- (4) To prevent samples from evaporating, do not leave the sample containers unsealed for a long time. The evaporation may lead to incorrect analysis results.

4. Handling of reagents, standard substances, and accuracy control substances

- (1) Regarding the ways to store, handle and use reagents, standard substances and accuracy control substances, follow the instructions of the relevant reagent manufacturers and suppliers.
- (2) If a reagent, standard substance or accuracy control substance is not stored appropriately, regardless of the specified expiry date, correct analysis results may not be gained. With regard to the ways to store reagents, follow the instructions specified on their packaging, container or attached documents.
- (3) Regarding safety after opening the package of reagents, etc., refer to the relevant manufacturers and suppliers.
- (4) Make sure to calibrate the analyzer whenever reagents are replaced. To gain correct analysis results, correct calibration is important.

FOREWORDS

5. Reagent interference of assay method-to-method

In the analysis process sometimes a reagent may be contaminated by other reagents and that may adversely affect the analysis results. Refer to the relevant manufacturers and suppliers for details because the influence is different by individual reagents.

6. Analysis performance

If hemolysis, turbidity or bilirubin is contained in serum at high concentrate rate, the medical agent or its metabolic products may adversely affect analysis results. Refer to the relevant manufacturers and suppliers for details.

7. Connection of water supply/exhaust hoses

- (1) Leave connection work of water supply/exhaust hoses to qualified personnel only. Incorrect connection may cause troubles including hose disconnection during the operation, leakage, etc.
- (2) Make sure to prevent air bubbles from entering the ion-exchange water to be supplied to the analyzer.

8. Electromagnetic waves, noise, etc.

- (1) Do not install the analyzer near the equipment that generates an abnormal noise.
- (2) Turn off a portable radio or cellular phone near the analyzer. Abnormal noise or electromagnetic waves generated from the portable radio or cellular phone may cause malfunction of the analyzer.
- (3) Do not use medical equipment that may be affected by electromagnetic waves near the analyzer.

9. Operational environment of the analyzer

Operate the analyzer with temperature: 15 to 30°C humidity: 45 to 85% and temperature variation: less than 2°C per hour.

Use ion-exchange water (pure water) at water temperature 5 to 25°C. If used outside the specified range, analysis performance by the analyzer may not be guaranteed.

10. CRT monitor, keyboard and mouse

Do not handle a CRT monitor, keyboard and mouse by hand wet with water or reagents to prevent failure.

11. Points to check when analyzing

As for the points to check when analyzing, follow your company's operating standards.

Check the following points at least:

- quality of pure water
- remaining amount of reagents and wash solutions
- calibration results
- accuracy control data
- analysis results
- that there is no leakage in pipettes (SPT and RPT) or piping system
- that there is no dust, fibrin or foam within samples.
- that there is enough amount of samples required for analysis

FOREWORDS

12. Maintenance checks and periodical parts replacement

- (1) As for maintenance checks and periodical parts replacement, follow the instructions stated in this manual.
- (2) After replacing main parts of the analyzer including a halogen lamp, probes, syringes, cuvettes, etc., make sure to calibrate them.
- (3) Use consumables and replacement parts we recommend. Use of non-recommended consumables or parts may adversely affect the performance and safety of the analyzer.
Parts such as nozzle, cuvette, syringe tip, wipe tip, mesh filter, electrode of ISE, diaphragm pump, micro syringe, electromagnetic valve, waste line tube and etc. that have been replaced may be infected. When they are discarded after exchanging, refer to the relevant manufacturers and suppliers and follow your company's or national regulation for disposal substances and dispose them appropriately.

13. Backup of data

Please back up parameters and analysis result data, etc. stored in hard disc periodically, so that data recovery can be provided in unexpected events including failure of the equipment or power interruption.

When you use external devices, please confirm that those devices are Virus Free.

14. Prohibition of use for purposes other than those intended

Do not use the analyzer for purposes other than those intended.

15. Cleaning of covers, etc.

When covers, worktable, CRT monitor, etc. get dirty, wipe and clean them with a dry cloth, etc.

16. Other cautions

If accidentally any reagent or sample contacts mucous, or if any reagent or sample is swallowed, immediately consult a physician for the instructions.

17. In the event of trouble, do not play with the analyzer and leave repair work to authorized experts.

FOREWORDS

General Precautions for Use of Medical Electrical Equipment (for Safety and Prevention of Danger)



The followings are general precautions for use of medical electrical equipments.

As for precautions unique to each equipment, please read its operation manual for full understanding and do not do wrong handling.

1. Only qualified personnel shall use the analyzer.
2. The following precautions shall be taken when the analyzer is installed.
 - (1) Keep the analyzer away from rain or any other water.
 - (2) Avoid areas that are adversely affected by atmospheric pressure, temperature, humidity, ventilation, sunlight, dust, air containing salt or sulfur, etc.
 - (3) Do not expose the analyzer to inclination, vibration, shock (including shock during transportation), etc. and pay attention to the state of safety.
 - (4) Do not install the analyzer in a place adjacent to a storage room of chemicals or a place where any gas is likely to be generated.
 - (5) Pay attention to frequency, voltage and permissible current (or power consumption).
 - (6) Confirm the conditions of battery power source (state of discharge, polarity, etc.).
 - (7) Make sure that the analyzer is correctly and well grounded.
 - (8) Secure the space (minimum 300mm) at the left side of analyzer in order to be easily taken power-off the analyzer at emergency situation.
3. The following precautions shall be taken before using the analyzer.
 - (1) Confirm that the analyzer operates correctly by checking contact status of switches, polarity, dial setting, meters, etc.
 - (2) Make sure that the analyzer is correctly and completely grounded.
 - (3) Make sure that all necessary electrical cables are correctly and completely connected.
 - (4) Special care shall be taken not to result in misdiagnosis or any danger to analyzer or human body when the analyzer is used in conjunction with other equipment.
 - (5) Check battery power source.
4. The following precautions shall be taken during operation.
 - (1) Pay attention not to exceed time and volume required for diagnosis and treatment.
 - (2) Keep monitoring the behavior of whole system in order to detect any malfunction.
 - (3) Take immediate corrective measures including shutdown of operation when any malfunction is detected in the analyzer.
 - (4) Avoid any possibilities of direct access from patients.

FOREWORDS

5. The following precautions shall be taken after use of the analyzer.
 - (1) Turn off the power after every operational switch and control is restored to its pre-use state as directed.
 - (2) Do not remove the line cord plugs from receptacles by cords not to give undue stress to cords.
 - (3) Storage areas:
 - Keep away from rain or any other water splash.
 - Avoid areas that are adversely affected by atmospheric pressure, temperature, humidity, ventilation, sunlight, dust, air containing salt or sulfur, etc.
 - Do not expose the analyzer to inclination, vibration and shock (including shock during transportation), etc. and pay attention to the state of safety.
 - Do not store the analyzer at a place adjacent to the storage room of chemicals or a place where any gas is likely to be generated.
 - (4) Organize and store the accessory parts and cords after they have been cleaned.
 - (5) Keep the analyzer clean not to cause any inconvenience to the next use.
6. In the event of trouble, do not play with the analyzer and leave repair work to authorized experts.
7. Do not refurbish the analyzer.
8. Conduct maintenance checks correctly.
 - (1) Make sure to conduct periodic checks on the analyzer and its associated parts.
 - (2) Make sure to check that the analyzer operates normally and safely when it is reused after being kept unused for some time.
9. The following precautions shall be taken when the cleaning procedure will be performed.
 - (1) Appropriate decontaminations is carried out if hazardous material is split onto or into the analyzer.
 - (2) No decontamination or cleaning agents are used which could cause a HAZARD as a result of a reaction with parts of the analyzer or with material contained in it.
 - (3) Our agent is consulted if there is any doubt about the compatibility of decontamination or cleaning agents with parts of the analyzer or with material contained in it.
10. When you discard the analyzer from the field, you should consult our agents in advance.

3. Installation Environment

The analyzer is required to be installed under the environmental conditions that will not adversely affect its operation or analysis. Qualified service engineer of our servicing division shall carry installation work out (unpacking, installation, operation check).

Installation environmental conditions

The analyzer shall be installed:

- (1) in a place that is not subject to direct sunlight.
- (2) in a place that is not exposed to direct wind, rain or any other water. (The analyzer shall be installed indoors.)
- (3) in a dustless place.
- (4) in a place that is not subject to vibration or sound.
- (5) in not inclined but horizontal place (slope: 1/200 or less).
- (6) on a floor that is strong enough to support the weight of the whole analyzer system (about 150 kg).
- (7) in a place that is not subject to voltage variation (less than $\pm 10\%$).
- (8) not near noise sources (facility or equipment). Avoid placing the analyzer right under the fluorescent light.
- (9) at the height of 2,000 meters above sea-level or lower. (Use the analyzer only indoors.)

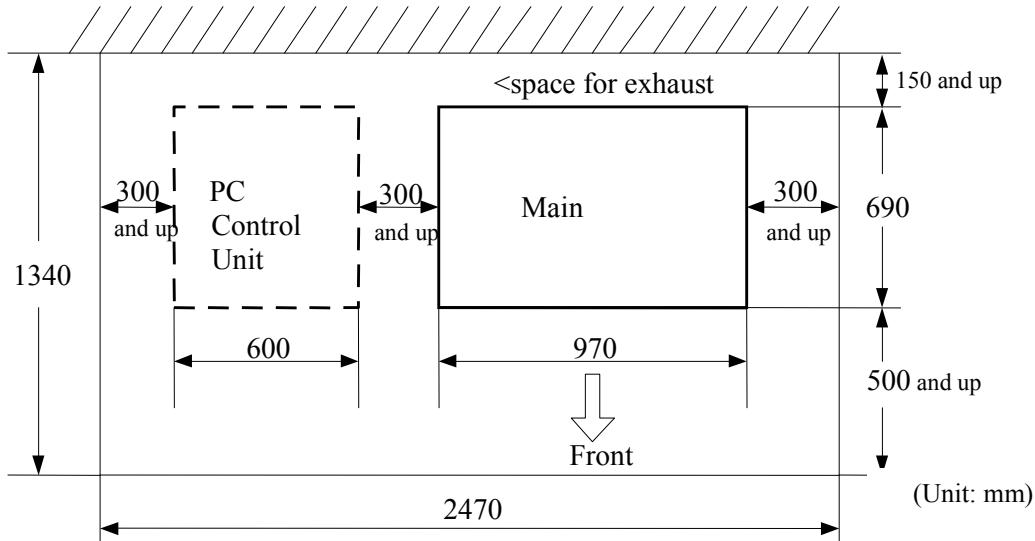
Temperature/humidity conditions

- (1) Indoor temperature: 15 to 30°C, Temperature variation: less than 2°C per hour
- (2) Indoor humidity: 45 to 85% (No condensation shall be formed.)
- (3) Install the analyzer in a place with good ventilation or with ventilation system.
- (4) Do not install the analyzer in a place subject to direct wind from the air conditioning.

Space

Refer to the figure below for space required for installation including space for maintenance and for exhaust ventilation.

Secure the space (minimum 300mm) at the left side of analyzer in order to easily power off the analyzer at emergency situation.



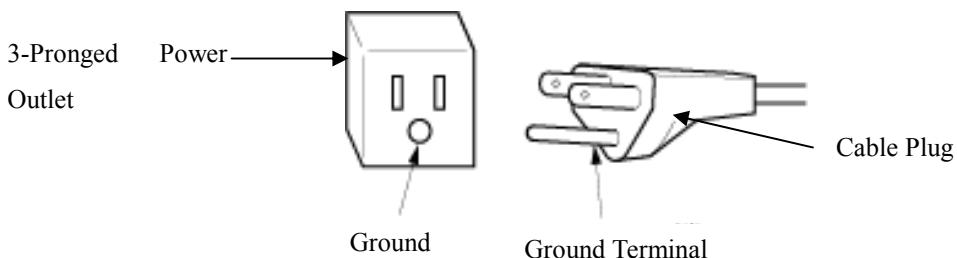
FOREWORDS

Power supply and grounding

Install a 3-pronged power outlet with a ground terminal (A-Type, S-Type or O-Type) within the reach of the analyzer's accessory power cable (2 m). Ground resistance shall be less than 100Ω .



Refer power outlet installation to qualified personnel only.



Water supply and drainage

As for connection part for water supply and drainage, there are 8 types of tube connections on the right side of the analyzer. Refer to the table below for details.

Type of Water supply and drainage	Type of connection tube	Remarks
Pure water supply	Pressure-resistant hose Inside diameter: 12mm Outside diameter: 18mm	Main analyzer - Purified water generator
Wash solution 1 supply	P.V.C tube (R-3603) Inside diameter: 1.59mm Outside diameter: 4.76mm	Main analyzer - Wash Solution Tank 1 (with tube (1m), inline filter and pipe)
Wash solution 2 supply	P.V.C tube (R-3603) Inside diameter: 1.59mm Outside diameter: 4.76mm	Main analyzer - Wash Solution Tank 2 (with tube (1m), inline filter and pipe)
ISE high-concentrated wastewater	Silicon tube Inside diameter: 3mm Outside diameter: 7mm	ISE - High-concentrated wastewater tank (length:1m)
WU high-concentrated wastewater	Pressure-resistant hose Inside diameter: 15mm Outside diameter: 22mm	Main analyzer - High-concentrated wastewater tank (length:1m)
WU low-concentrated wastewater		Main analyzer - Low-concentrated wastewater drainage system
Trough low-concentrated wastewater		
Overflow		

Before installation of the analyzer, it is required to install a pure water supply system and a low-concentrated wastewater drainage system. As for high-concentrated wastewater, place a high-concentrated wastewater tank close to the main analyzer. Before this tank becomes full, dispose of high-concentrated wastewater being stored in this tank in accordance with the specified wastewater standards.

Please wash Wash Solution Tank 1 and Wash Solution Tank 2 enough with pure water before use.

* Disposal limit of this high-concentrated wastewater tank is approx. 7 hours at the use of 5L tank.

FOREWORDS

(1) Water supply system (purified water generator)

- Water pressure: 0.15 to 0.34 MPa
- Capacity: the Equipment that has ability of 18 L per hour or more
- Connection tube: Pressure-resistant hose (Inside diameter: 12mm, Outside diameter: 18mm)

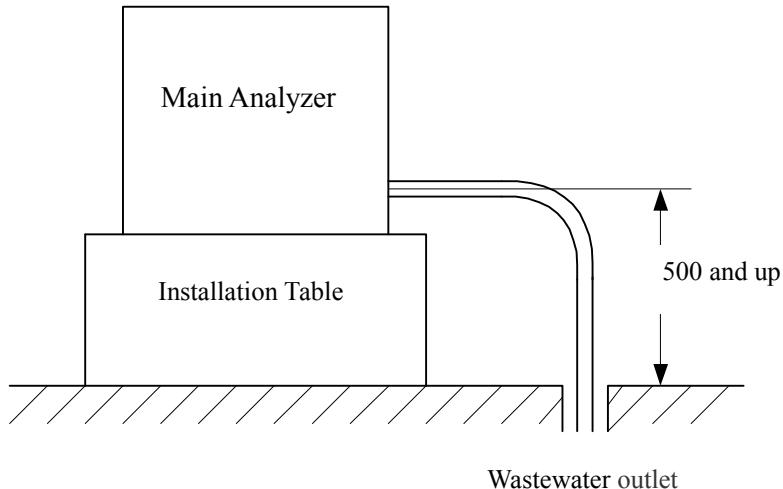
Caution



Water pressure for the water supply system is required 0.15 to 0.34 MPa.

(2) Drainage system

- Capacity: 18 L per hour
- Position: Drainage system shall be at a position that is 500mm or more lower than the wastewater outlet of the main analyzer.



- Lay the exhaust hose in the wastewater outlet so that the wastewater is drained by a natural drop.
- Open the end of the exhaust hose to the atmosphere. (Do not soak it in the liquid.)

4. Warning Labels

Main meaning of warning labels

The following labels that show warning and attention are affixed on the places that are potentially hazardous.



Biohazard



Electric shock



High temperature



Injury



Action to be taken as directed by the “OPERATOR’S MANUAL”

FOREWORDS

Warning labels

The following warning labels are affixed on the main places that are hazardous within the analyzer.

WARNING LABEL	WARNING ABOUT	PLACE
 RISK OF ELECTRIC SHOCK	Risk of electric shock	Power supply inlet
 DO NOT TOUCH MOVING PARTS	Do not touch moving parts	Covers of SPT, RPT1, RPT2, MIX1, MIX2 and WU
 CONTAINS HAZARDOUS MATERIALS SERUM, PLASMA OR URINE	CONTAINS HAZARDOUS MATERIALS (SERUM, PLASMA OR URINE)	Mosaic plate (Mosaic 1), SWU cover and Panel in lower right-hand of the main analyzer (Side Panel RD)
 RISK OF INJURY TURN THE POWER OFF BEFORE OPENING THIS PANEL	RISK OF INJURY TURN THE POWER OFF BEFORE THE PANEL OPEN	Lid for replacing halogen lamps, lid of ISE tank, lid for replacing ISE electrodes, lid for replacing cuvettes and Maintenance cover 1/R1/R2
	HOT SURFACE	DTR
	Work according to the instruction of the operation manual.	IRU heat insulation place, lid for ASP, lid for RCU and input line for purified water
 CLASS 1 LASER PRODUCT CAUTION – CLASS 2 LASER LIGHT WHEN OPEN DO NOT STARE INTO THE BEAM 650nm, 1mW (IEC60825-1:1993+A1:1997+A2:2001)	CLASS 1 LASER PRODUCT CAUTION-CLASS 2 LASER LIGHT WHEN OPEN DO NOT STARE INTO THE BEAM	Barcode reader of ASP and RCU

FOREWORDS

5. Technical Specification

1.	Kind of device	CA-400
2.	Usage	General chemistry as photometric assay Immunology as photometric assay (Latex reagent available)
3.	Assay type	1 point end, 2 point end, 1 point rate, 2 point rate
4.	Type of calibration	Factor, Linear, Loglogit, Exponential, Spline
5.	Throughput	400 tests per hour
6.	Incubation time	One reagent assay: 10 minutes (R1) Two reagent assay: 5 minutes for R1 + 5 minutes for R2 (The samples for which the methods of the One reagent assay are used and the samples for which the methods of the Two reagent assay are used can be set at the same time.)
7.	Sample type	Serum, Plasma and Urine
8.	Number of simultaneous measurement	60 methods (Max.) + Electrolyte: 3 methods *Electrolyte (ISE Unit) is optional
9.	Components	 (1) Main Analyzer CHS (Chassis Unit) IRU (Incubation Reaction Unit) ASP (Auto Sampler Unit) RCU (Reagent Container Unit) RPT (Reagent Pipette Unit) SPT (Sample Pipette Unit) RPP (Reagent Pump Unit) SPP (Sample Pump Unit) WPP (Wash Pump Unit) DTR (Detector Unit) MIX (Mixing Stirrer Unit) SWU (Supply Water Unit) WU (Wash Unit) PSU (Power Supply Unit) CNT (Control Unit) ISE (Ion Selective Electrode Measurement Unit) TR (Trough) STK (Subtank)

FOREWORDS

9-1	IRU (Incubation Reaction Unit)
	Heating method: Direct heat with silicon-rubber heater (The heat block made of aluminum in IRU is heated.)
	Heating range: $37 \pm 0.3^{\circ}\text{C}$
9-2	Cuvette
	Material: PYREX
	Size: 8mm(W) × 6.23mm(D) × 30mm(H)
	Light length: 6mm (Calibrated to 10mm by the calculation.)
	Quantity: 90
	Minimum volume: 150 μl
	Maximum volume: 450 μl
9-3	ASP (Auto Sampler Unit)
	Tube: Diameter: 13 to 16mm, Length: 75 to 100mm
	Turn table: Detachable type
	Number of tubes: Maximum 92 (Normal / Emergency samples : 36 tubes on the outer circumference + 36 tubes on the middle circumference Standard samples / ISE cleaning: + 20 sample cups on the inner circumference)
	Cooling method: Cooling with peltier modules (* Optional , cooling only the tubes on the inner circumference.)
9-4	SPT(Sample Pipette Unit) / SPP(Sampling Pump Unit)
	Number of pipettes: 1
	Pump type: Syringe pump
	Liquid level detection: Micropipette with a liquid level sensor by sensing a change of capacitance
	Sampling volume: 2 to 35 μl (0.1 μl / step), ISE: 100 μl
9-5	RCU (Reagent Container Unit)
	Turn table: Detachable type
	Number of bottles: Maximum 60 (30 bottles for 100 / 70 / 50 / 40 mL types in total and 30 bottles for 20ml types)
	Cooling method: Cooling with peltier modules
	Cooling range: 8 to 15 $^{\circ}\text{C}$

FOREWORDS

9-6	RPT1/2 (Reagent Pipette Unit) / RPP1/2(Reagent Pump Unit)
	Number of pipettes: 1 per each unit
	Pump type: Syringe pump
	Liquid level detection: Micropipette with a liquid level sensor by sensing a change of capacitance
	Sampling volume: RPT1 / RPP1: 20 to 350µl (1µl / step) RPT2 / RPP2: 20 to 250µl (1µl / step)
9-7	DTR (Detector Unit)
	Method: Measurement of absorbance (1 or 2 wavelength measurement)
	Selectable wavelength: 12 wavelengths (340, 380, 415, 450, 510, 546, 570, 600, 660, 700, 750, 800nm)
	Wavelength selection: Grating method
	Light source: Tungsten halogen lamp
	Cooling for light source Air-cooled by fan
9-8	MIX1/2 (Mixing Stirrer Unit)
	Stirring mechanism: Stirrer (stirring bar) driven by a stepping motor (5 speed)
9-9	SWU (Supply Water Unit)
	WU wastewater: 8 diaphragm pumps
	Trough wastewater: Free fall
	Trough pure water supply : 5 diaphragm pumps (one per trough / RPT1, RPT2, SPT, MIX1 and MIX2)
9-10	PT Trough 3 PT Troughs (SRT Trough, RPT1 Trough, PRT2 Trough)
	Mix Trough 2 Mix Troughs (Mix-1 Trough, Mix-2 Trough)
	Trough chamber 1 Trough chamber
9-11	Subtank
	(with Water level detector)
	Subtank R 1 Subtank
	Subtank L 1 Subtank
9-12	WPP (Water Pump Unit)
	Wash solution supply for 6 syringe pumps
	cuvette cleaning:

FOREWORDS

9-13	WU (Wash Unit)	
	Cleaning mechanism:	8 step cleaning 1 st step: Drainage + Wash solution supply 2 nd step: Drainage + pure water supply 3 rd step: Drainage + Wash solution supply 4 th step: Drainage + pure water supply 5 th step: Drainage + pure water supply 6 th step: Drainage + pure water supply 7 th step: Drainage 8 th step: Drainage (Remove remaining liquid by using a wipe tip)
9-14	Power Supply Unit	
	Power requirements:	100 to 120VAC, 9A(Max) / 200 to 240VAC, 4.5A(Max), 50/60Hz
	Power consumption:	900VA (Max.)
	Permissible voltage variation:	±10% (Max.)
10.	Other Functions	- Auto start / shutoff, - Emergency sample insertion - Automatic sample dilution - Water blank measurement - Reagent blank measurement - Test selection by profile - Host communication by RS232C with Operational PC.
11.	Environment (under operation)	
	Temperature:	15 to 30°C, 2°C / hour, (Storage / Transport: -10 to +50°C)
	Humidity:	45 to 85% (No dew condensation allowed.), (Storage / Transport: 45 to 85%)
	Pressure:	800 to 1060 hPa, (Storage / Transport: 500 to 1060 hPa)
12.	Dimension	
	Outside diminution (Main analyzer):	970mm(W) × 690mm(D) × 582mm(H) (The height of the rubber pad is not included.)
	Weight (Main analyzer):	150 kg (Max.)

FOREWORDS

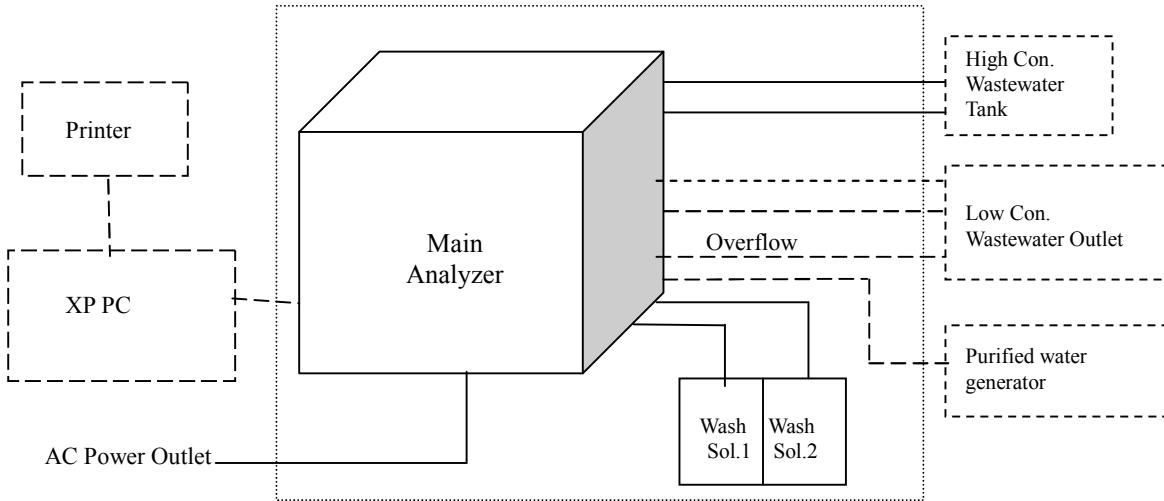
13. Connectors to main analyzer
- 1) Electrical connectors
 - Power connector
 - RJ-45 modular jack (for connection between main analyzer and operational PC)
 - D-sub receptacle (for connection between main analyzer and optional external tank rack)
 - 2) Piping Connectors for supply / drainage
 - Pure water
 - WU high conc. wastewater (output)
 - ISE high conc. wastewater (output)
 - WU low conc. wastewater (output)
 - Trough low conc. wastewater (output)
 - Overflow line
 - Wash solution 1
 - Wash solution 2
14. Maximum sound level 75dB (at the location 1m or longer distant from the main analyzer with its hatch closed.)
15. Transient overvoltage Overvoltage category II
16. Rated pollution degree Pollution degree 2

FOREWORDS

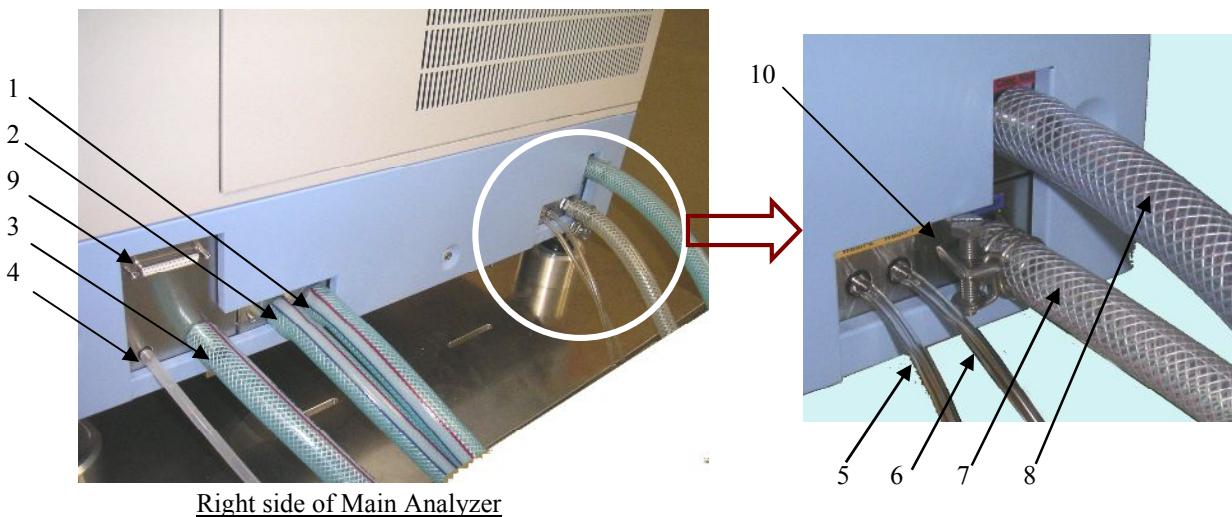
17. The rating and characteristics of fuses

TYPE	SIZE	RATING	CHARACTERISTICS	LOCATION AND PART NO.
Glass tube fuse	5 × 20 mm	2A / 250V	Slo-Blo	PCB:25P3503 (ASP_DRV) F1
Glass tube fuse	5 × 20 mm	4A / 250V	Slo-Blo	PCB:25P3502 (RCU_DRV) F1
Glass tube fuse	5 × 20 mm	5A / 250V	Slo-Blo	PCB:25P3503 (ASP_DRV) F2 PCB:25P3506 (SWU_DRV) F1
Glass tube fuse	3AG	10A / 250V	Fast-Acting	PCB:25P3502 (RCU_DRV) F2,F3,F4,F5 PCB:25P3505 (SWU_DRV2) F1 PCB:25P3509 (IRU_DRV) F1
Glass tube fuse	3AG	4A / 250V	Slo-Blo	PCB:25P3507 (SWU_DRV3) F1
Ceramic tube fuse	3AB	10A / 250V	Slo-Blo	Fuse Holder (AC input) F1 & F2

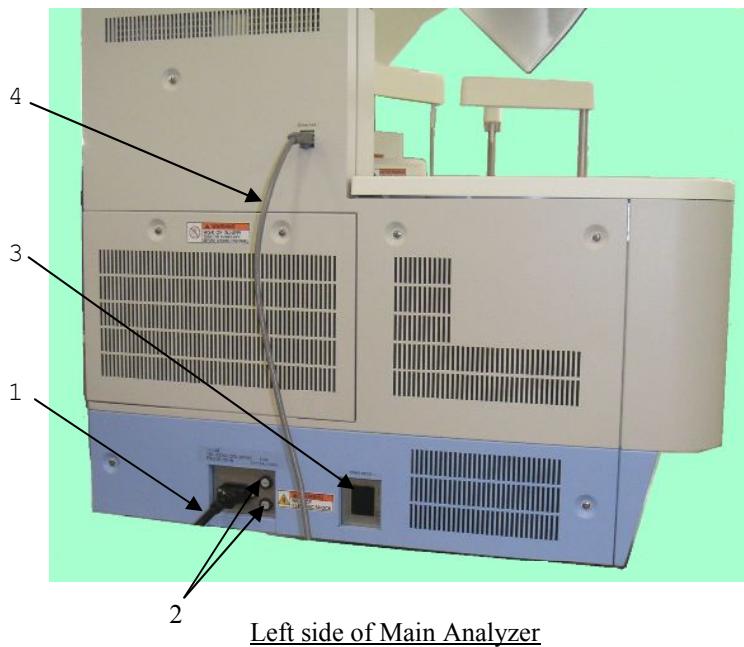
6. System Configuration



Note: Standard supplies are illustrated in full line.



No.	Use	Note
1	Output line for high conc. wastewater for WU (Pressure-resistant hose. See Page 0-10.)	standard
2	Output line for low conc. wastewater for WU (Pressure-resistant hose. See Page 0-10.)	preparation by customer
3	Output line for low conc. wastewater for troughs (Pressure-resistant hose. See Page 0-10.)	preparation by customer
4	Output line for high conc. wastewater for ISE (Silicon tube. See Page 0-10.)	standard
5	Input line for wash solution 2 (P.V.C tube. See Page 0-10.)	standard
6	Input line for wash solution 1 (P.V.C tube. See Page 0-10.)	standard
7	Input line for pure water (Pressure-resistant hose. See Page 0-10.)	preparation by customer
8	Output line for overflowing (Pressure-resistant hose. See Page 0-10.)	preparation by customer
9	Connector for external tank rack cable	Option
10	Hose clamp	standard



No.	Use
1	Power cable
2	Fuses
3	Power switch
4	LAN connecter and cable for PC

7. Component List

Please check a component list.

NO.	EQUIPMENT	MODEL/STANDARD	QTY	REMARKS
1	Clinical Chemistry Analyzer	CA-400	1	-
2	Power Cable	25AZ-X-6001(25S1031)	1	For Clinical Chemistry Analyzer
3	LAN Cable Assy.	25AP-X-6001	1	Between PC and Chlincial Chemistry Analyzer
4	Operator's Manual	OM-E7219	1	-
5	Accessories	-	1 set	Refer to the Standard Accessories List.
6	Spare parts	Ceramic Tube Fuse 326 010 : 2 Glass Tube Fuse 218 002 : 1 Glass Tube Fuse 218 004 : 1 Glass Tube Fuse 218 005 : 2 Glass Tube Fuse 313 004 : 1 Glass Tube Fuse 312 010 : 2	1 set	-

FOREWORDS

STANDARD ACCESSORIES LIST

Please check an accessories list.

Part code #	NAME	TYPE	QTY	REMARKS
-	Syringe Tip Insertion Tool	25-012-4101	1	For exchange of syringe tip
-	Screw Driver	No. 123-S75	1	-
-	Hexagonal Wrench	1.5 mm 3.0 mm	1	-
-	Hose Clamp	2269-08	1	-
-	Plastic Tube Wash Solution -1	25-023-4011	1	For Tank 1 P.V.C tube 1.59 mm (Inside) × 4.76 mm (Outside): 1m Inline filter: 1 Pipe: 1
-	Plastic Tube Wash Solution -2	25-023-4012	1	For Tank 2 P.V.C tube 1.59 mm (Inside) × 4.76 mm (Outside): 1m Inline filter Pipe: 1
-	Plastic Tube High Conc. Waste	15 x 22	1m	Line for high conc. waste water
-	Wash Solution No. 3	Furuno Clean No. 3 (500g)	1	x 200
-	Wash Solution No. 9	Furuno Clean No. 9 (500g)	1	x 200
-	Wash Solution C-1	Furuno Clean C-1 (500g)	1	x 100
-	5L Wash Solution Tank 1	25AZ-X-4951	1	For Wash Solution No. 3
-	5L Wash Solution Tank 2	25AZ-X-4952	1	For Wash Solution No. 9
-	Mix Arm Cover	25-023-1911	2	-
-	Pipette Arm Cover	25-023-2012	3	-
-	Sample Tray Assy	25AZ-X-4307	1	-
-	Inner Sample Tray	25-023-2353	1	-
-	ASP Lid Assy.	25AZ-X-4314	1	-
-	Reagent Bottle Tray	25-034-2451	1	-
-	RCU Lid	25AZ-X-4416	1	-

8. Software Operating Environment

ITEM	SPECIFICATIONS
OS	Window XP Professional version + Multi-language (option)
CPU	Type: Intel CPU Operating frequency: 1GHz or more
Memory	English 256 Mbytes (Other 512Mbytes) or more
VGA	1024*768 or more
Hard Disc	2GB or more ,Capacity before analyzer installation
Serial Port	RS232C (used only when using ASTM)
Ethernet	10/100 Base-T
Sound Function	Sound function + speaker (when using alarm sounds)
CDROM	Used at the time of analyzer installation
Printer	Operating mode can be designated by software. (1) Page Printer A page printer with the driver corresponding to XP (2) Line Printer Fujitsu M33051, only English and Japanese modes are available.
Modem (Optional)	Windows Dial-up connection
Backup System	CD-R, MO, ZIP, Flash Memory, etc.* 1
Others	Keyboard, mouse, and PS2 compatible BCR

*1 : The device which OS file recognizes as file system. This can be connected to USB, IEEE1394.

*2 : When you use external devices, please confirm that those devices are Virus Free.

*3 : This operating PC shall not be used with applications of other companies, since it is not guaranteed.

List of installed software in PC

Program Name	Program No.	Use
UI Main	25504631XX	This program is for handling of user interface.
UI UC	25503291XX	This program is for handling of communication between PC and main unit.
UI PRT	25504741XX	This software is for live printing.
UI LIS	25503311XX	This software is for handling of communication between host.

XX shows the software version number.

List of installed software in Main unit

Program Name	Program No.	Use
Unit Main	25504221XX	This program is for handling of machinery unit (main unit).
Uinit LIQ	25503041XX	This program is for handling of liquid level detection.
Unit DTR	25503031XX	This software controls the DTR.
Unit SPT	25504431XX	This software controls the SPT.

XX shows the software version number.

Note: Version number of each program can be verified by opening the tab menu [Version] under the job menu [System (F9)].

9. Handling of barcode reader

(1) Specifications

- Class2 laser product
- Emitted wavelength: 650nm
- Maximum output: 1.0mW

(2) Safety Precautions

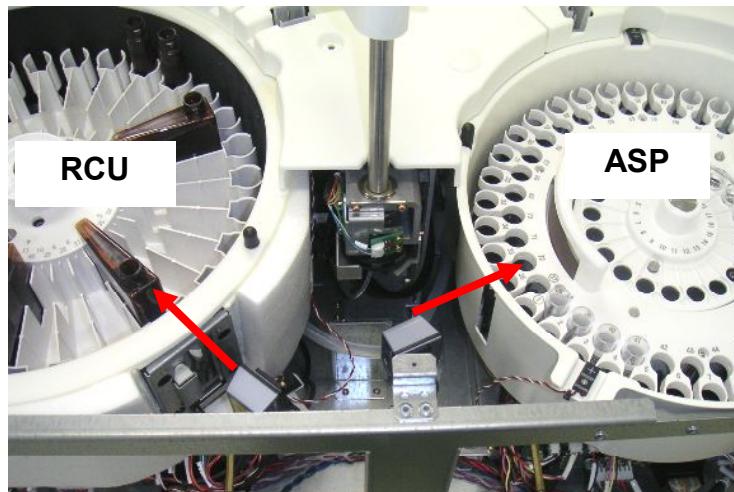
- Do not stare beam light.
- Do not ray the laser beam to human body for a long time.
- Do not disassemble the unit.
- Do not remove the cover. Adjustment of BCR is carried out by a service engineer.

Caution



Use of controls or adjustments, or the performance of procedures other than those specified herein, may result in hazardous radiation exposure.

Laser beam is rayed out from each BCR unit to the arrow direction while analyzer is operating. (See below.)



Chapter 1 Overview

1.1 General

This Fully Automated Clinical Chemistry Analyzer is a middle-sized automated biochemical analyzer, which is capable of performing 400 tests per hour. This analyzer is operated by an external operational PC and measurement results can be printed out from a printer.

This analyzer may be connected to a host computer, when needed (ASTM Protocol capable).

Ninety cuvettes, where the samples are reacted with reagents, are located on the Incubation Reaction Unit (IRU), the inside of which is kept at 37°C constantly. Cuvettes are cleaned by the cleaning mechanism of the analyzer after each use for the next use.

The absorbance of the content of each cuvette on the Incubation Reaction Unit (IRU) is measured every 9 seconds by the Detector Unit (DTR) after the sample fully mixed with a reagent. Wavelength(s) (to a maximum of 2 wavelengths) used for a measurement can be chosen from 12 pre-specified wavelengths.

Samples [including standard samples and quality control samples (QC samples)] are placed on the removable ASP tray. The ASP tray can accommodate maximum of 72 tube-holders and 20 cup-holders.

Cup holders are located in the center of the ASP and can keep samples cold, which are exclusively used for standard samples and QC samples (control samples). They cannot be used for normal samples. Barcode labels can be affixed to the sample tubes so that the analyzer can identify the contents by using the barcode reader.

Reagents are mounted on the removable RCU tray. Maximum of 60 reagent bottles can be mounted. Barcode labels can be affixed to the reagent bottles so that the analyzer can identify the contents by using the barcode reader (optional). The RCU has a cooling function to keep a constant temperature.

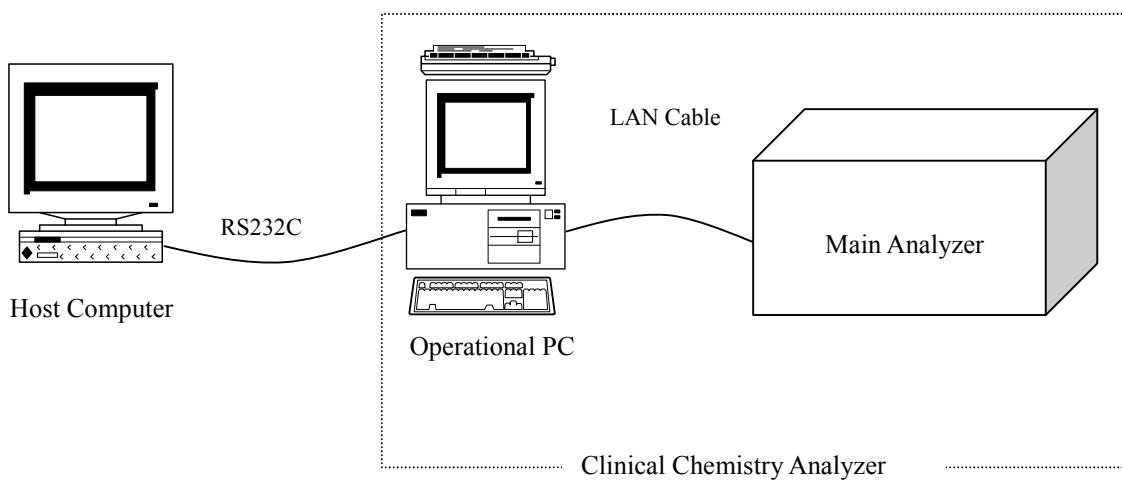


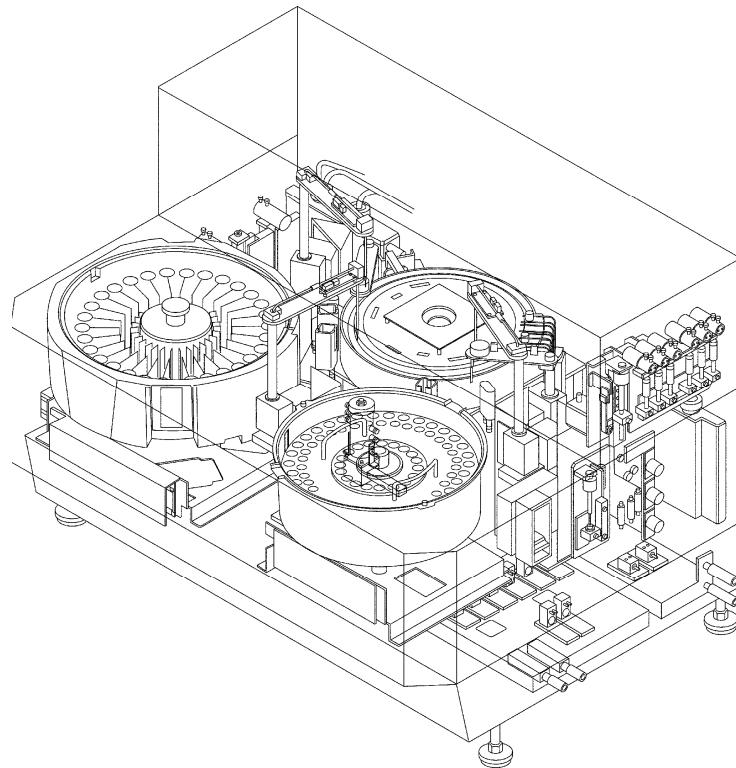
Figure 1.1-1

Refer to Figure 1.1-2 for the appearance of the main analyzer (control section).

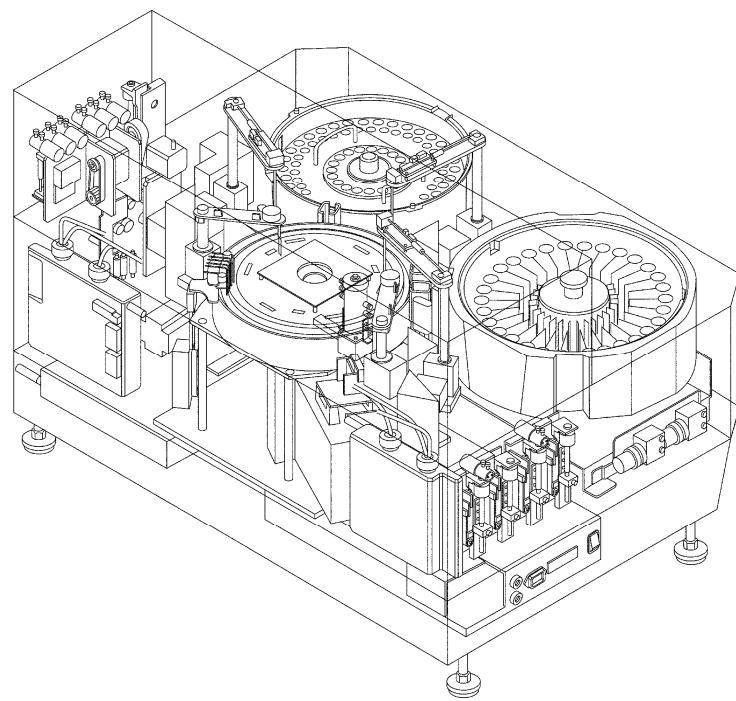


Appearance of Main Analyzer (Control Section)

Figure 1.1-2



Viewed from the front



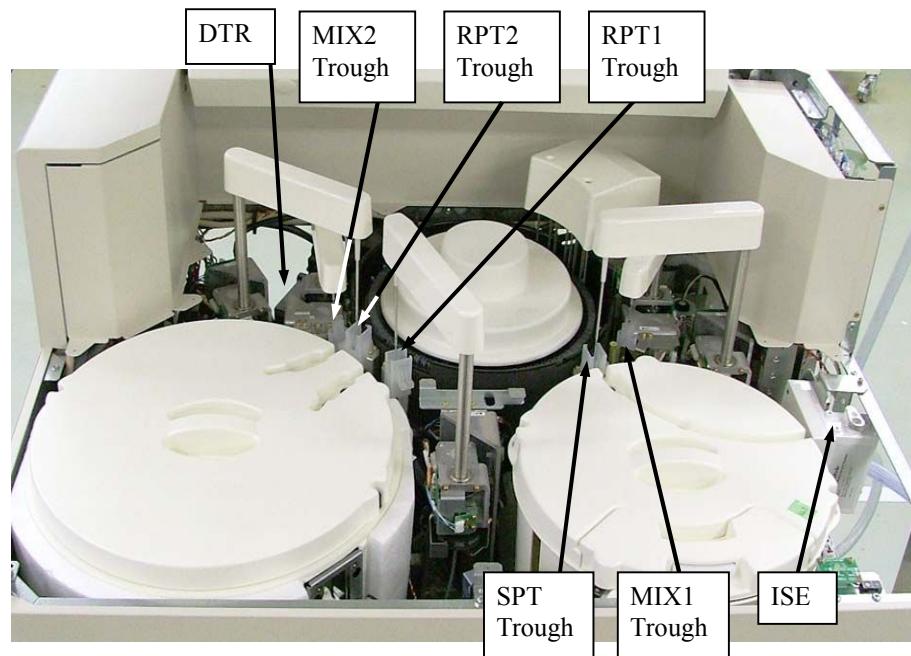
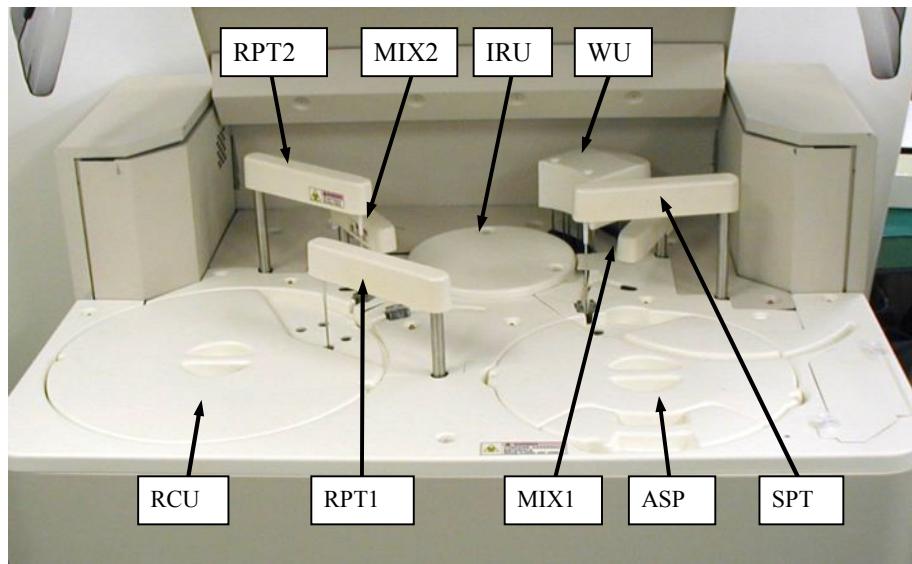
Viewed from the Rear

Perspective View of Main Analyzer (Control Section)

Figure 1.1-

1.2 Built-In Unit

The main analyzer consists of various built-in units as shown below.



Built-In Units 1/2

Figure 1.2-1

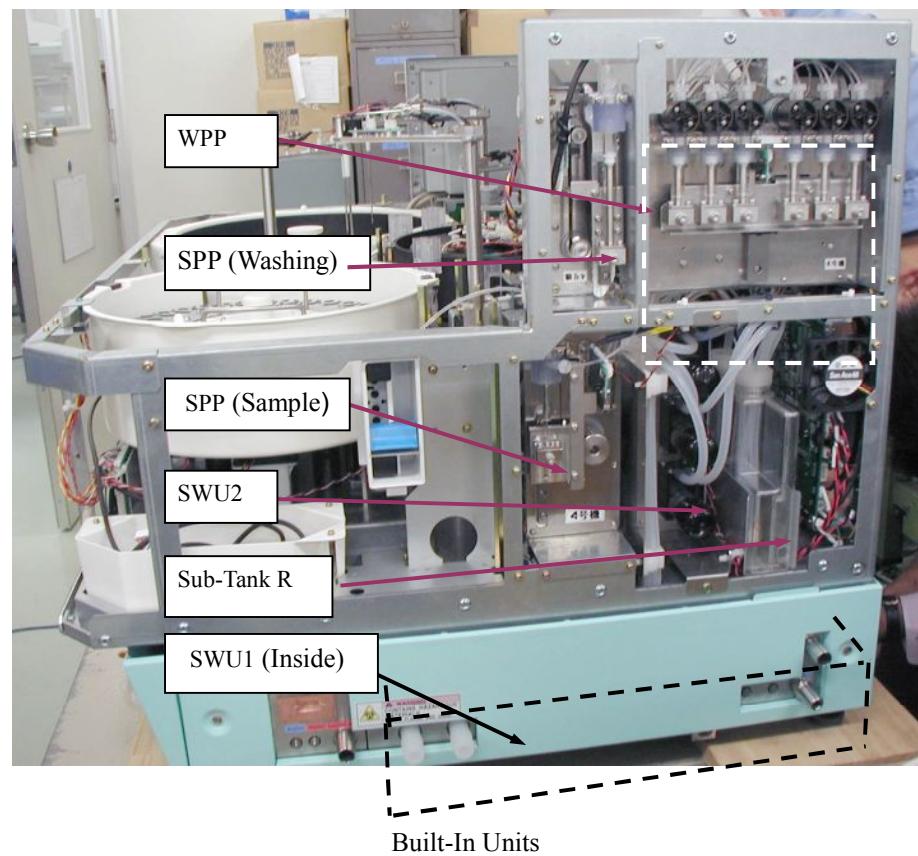
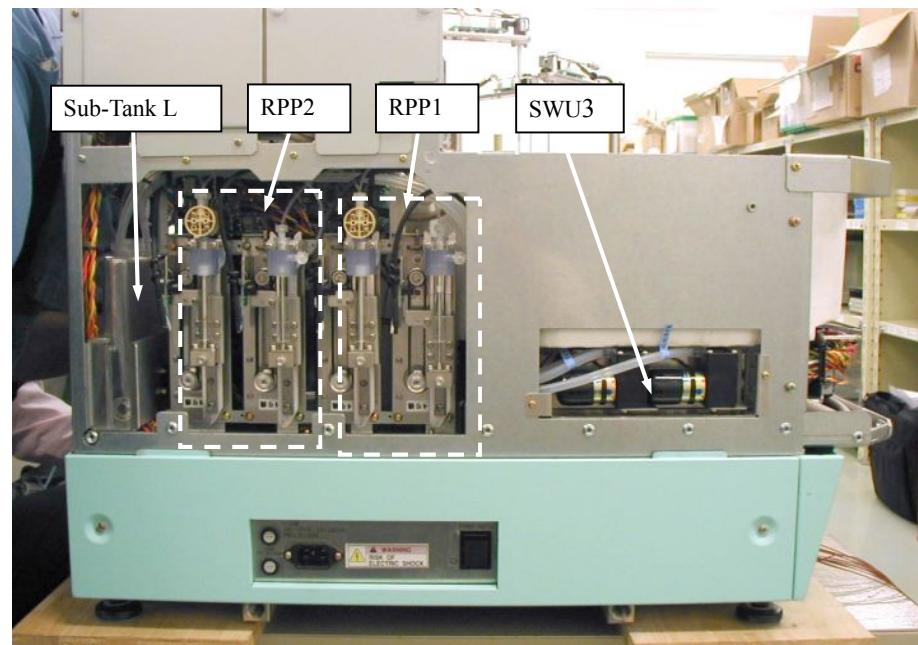


Figure 1.2-2

1.2 Built-in Unit

Chapter 1 Overview

Major functions of each unit are summarized in the table below.

Major Functions of Each Unit

Unit (Abbreviation)	Major Functions
IRU	Incubation Reaction Unit: The cuvette table (turntable) of the IRU holds 90 cuvettes. It rotates and brings the designated cuvettes to where samples/reagents are dispensed by the SPT/RPT.
DTR	DeTector unit: The DTR measures the absorbance of reaction liquids during reaction (mixing and incubation) process in cuvettes. This disperses the light from the halogen lamp as a source of light with a grading method and measures 12 wavelengths at one time.
SPT	Sample PipeTte unit: The SPT aspirates the sample from the Auto SamPler unit (ASP) by using the SPP and dispenses it into a cuvette (in IRU) and/or into the ISE. Each nozzle is cleaned in the SPT TRough after use.
RPT	Reagent PipeTte unit: The RPT aspirates a reagent from a reagent bottle (in RCU) by using the RPP, then dispenses it into a cuvette (in IRU). The RPT consists of the RPT1 for the reagent #1 and the RPT2 for the reagent #2. Each nozzle is cleaned in the RPT Trough after use.
MIX	MIXing stirrer unit: After a sample and a reagent are dispensed into a cuvette, the MIX brings down the paddle-type stirrer and stirs the mixture in the cuvette by rotating the stirrer to react the sample with the reagent evenly. This unit consists of the MIX 1 for the reagent #1 and MIX2 for the reagent #2. The stirrer is cleaned with pure water after every use.
WU	Wash Unit: The WU consists of six supply/drain nozzle pairs, one drain nozzle and one wipe tip. This unit drains the reaction liquid out of each cuvette after the completion of measurement and cleans the inner surface of each cuvette by pouring wash solution or pure water into the cuvette.
ASP	Auto SamPler unit: <u>*Barcode Reader and Cooling Function are optional.</u> The ASP holds 72 tubes of samples (normal samples and emergency samples), and 20 sample cups (standard samples and the ISE wash solution) and brings the required sample to the SPT pipetting position by rotating its turntable.
RCU	Reagent Container Unit: <u>*Barcode Reader is optional.</u> The RCU holds maximum of 60 reagent bottles in the reagent tray and brings the required reagent to the RPT pipetting position.
SPP	Sampling Pump unit: The SPP aspirates/dispenses both samples and pure water by moving its plungers up and down. Since the sample syringe and the cleaning syringe have separate motors, they can operate independently.

1.2 Built-in Unit

Chapter 1 Overview

Unit (Abbreviation)	Major Functions
RPP	<p>Reagent Pump unit: The RPP aspirates/dispenses both reagents and pure water by moving its plungers up and down. This unit consists of the RPP1 for the reagent #1 and the RPP2 for the reagent #2. Since the reagent syringe and the cleaning syringe have separate motors, they can operate independently.</p>
WPP	<p>Wash Pump unit: The WPP (consists of six pumps which) aspirate/dispense wash solution or pure water by moving its plungers up and down, which are connected to the nozzles of the WU (Cuvette Wash Unit). This unit supplies wash solution or pure water to WU1 and WU3, and supplies pure water to WU2, WU4, WU5 and WU6.</p>
SWU	<p>Supply Water Unit: The SWU consists of SWU1, SWU2 and SWU3. This unit <ul style="list-style-type: none"> - controls pure water supply from the purified water generator to the subtanks R/L (SWU1-1), - supplies pure water from the sub-tank R to the SPT Trough and the MIX1 and 2 Troughs (SWU2), - supplies pure water from the sub-tank L to the RPT1 and 2 Troughs (SWU3), - drains wastewater from the WU (SWU1-2). </p>
TR	<p>Trough unit: The TR (Wash Station) consists of 5 troughs and one trough chamber. This unit collects wastewater in the nozzles of the SPT and the RPT-1 and 2, and cleans the external surfaces of these nozzles of the SPT and the RPT-1 and 2 and also cleans the stirrers of the MIX-1 and 2 with pure water, then collects the wastewater after cleaning.</p>
ST	<p>SubTank: The ST consists of the sub-tanks R and L. These tanks store pure water, which will be supplied to the SPP, the WPP and the RPP-1 and 2, and each trough for the SPT, the MIX-1 and 2, and the RPT-1 and 2.</p>
ISE	<p>Ion Selectable Electrode unit:<u>*Optional</u> The ISE determines the concentration of the electrolytes (sodium, potassium and chloride) contained in serum, plasma and urine by using ion electrodes.</p>
-	<p>Chassis Unit (Enclosure): This Chassis Unit houses the above-mentioned units, and the PC boards and the power supply unit that are not installed in these units, and protects them from damage using covers. This unit also has functions such as cooling, dust-proof etc. using fans and filters.</p>
-	<p>External tanks and external tank sensors:<u>*Optional</u> External tanks supply wash solutions that are used by the analyzer and store the wastewater discharged from the analyzer. The external tank sensor(s) monitor the amount of liquid in each tank. (Optional)</p>

1.2 Built-in Unit

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1.3 Measurement Flow

1.3.1 Normal Measurement

Test selection(s) and calibration curve(s), which are required for the measurement, must already exist, or required amount of calibrators necessary to find calibration curves must be set at the starting position of the ASP in advance.

A) Reagent Control (RCU Scan)

When you execute the “RCU Scan”, the tray in the RCU unit goes into a 360-degree roll. During this movement, the barcode reader reads the barcodes on the reagent bottles in the tray. Based on these barcode records, the reagent information is controlled. This “RCU Scan” needs to be performed prior to pressing the [F1] key for Measurement Start.

B) Preparatory Operation

When you press the [F1] key for Measurement Start, the following preparatory operations will be performed.

- (1) Each unit is initialized.
- (2) The SPP, RPP-1 and 2 are primed. The ISE is also primed.
- (3) Water blank measurement is performed for the cuvette (Cuvette #6), which will be used at first.
- (4) The ASP turns around and barcode of the sample to be measured is read. Then, an inquiry to the PC regarding the measurement schedule (Test Selection) is performed.

C) Reagent No. 1 Measurement

As long as there is no lack of the reagents (R1 and R2), pure water, wash solution and diluent, the following processes are performed.

(1) Reagent No. 1 (R1) Dispensing

Reagent No.1 Pipette (RPT-1) aspirates the Reagent No.1 on the RCU and dispenses it into cuvette on the IRU. The IRU and the RCU rotate individually and move to the positions where the reagent is aspirated/dispensed.

(2) Sample Dispensing

The Sample Pipette (SPT) aspirates the sample in the ASP and dispenses it into the cuvette in the IRU in which the R1 reagent is already dispensed. The ASP and the IRU rotate individually and move to the position where the sample is aspirated/dispensed.

(3) Stirring

The R1 reagent and the sample dispensed in the cuvette in the IRU are stirred thoroughly by the stirrer (MIX-1). The IRU rotates and brings the cuvette to the stirring position of the MIX-1.

(4) Photometry (1-34)

The absorbance of the thoroughly stirred mixture of Reagent No.1 and the sample in the cuvette is measured by the DTR every 9 seconds and up to 34 times. The results of measurement are collected as R1 Time Course Data.

D) Reagent No. 2 Measurement

(1) Reagent No. 2 (R2) Dispensing

The Reagent No.2 Pipette (RPT-2) aspirates the Reagent No.2 in the RCU and dispenses it into the cuvette (where the Reagent No.1 and the sample have already been dispensed). The IRU and the RCU rotate individually and move to the position where each reagent is aspirated/dispensed.

(2) Stirring

The R2 reagent and the sample dispensed in the cuvette on the IRU are stirred thoroughly by the stirrer (MIX-2). The IRU rotates and brings the cuvette to the stirring position of the MIX-2.

(3) Phometry (35 – 68)

The absorbance of the thoroughly stirred mixture of Reagent No.1, Reagent No.2 and the sample in the cuvette is measured by the DTR every 9 seconds and up to 34 times. The results of measurement are collected as R2 Time Course Data.

E) Cleaning

After the measurement of the R2 Time Course is complete, the mixture in the cuvette is discharged at the WU unit. The used cuvette is cleaned with wash solution and pure water, then used for the next measurement.

1.3.2 Sample Dilution

High concentrated sample that is beyond the measurement range is diluted prior to the measurement. The quantity of the sample that will be diluted, the quantity of diluent and the sample to be diluted shall comply with the contents specified by the Chemistry Parameters. The measurement results are output using the concentration corrected by dilution proportion.

1.3.3 Reagent Blank Measurement

This is to measure the absorbance of the cuvette with a dispensed reagent. There are four types of Reagent Blank Measurements as follows,

- (1) R1
- (2) R1+ R2
- (3) R1+ Water
- (4) R1+ R2 + Water

Measurement conditions such as dispensing quantity, number of the measurements (one chosen from Single, Duplicate and Triplicate) and measurements with or without water (equivalent to sample), are determined by the Chemistry Parameters. Adjustment by the reagent blank value allows you to obtain higher accurate results of the absorbance measurement.

1.3.4 Water Blank Measurement

“Water blank Measurement” is defined as an absorbance measurement for the cuvette with dispensed water. This measurement is inevitably performed for each cuvette that is used for sample measurement. The purpose of this measurement is to adjust the differences among cuvettes. The measurement results are also used to evaluate the condition of the cuvettes’ contamination. The measurement results of the water blank can be referred in the tab menu [Mainte (F10)] – [W Blank].

1.3.5 ISE Measurement

The ISE unit measures the concentration of sodium (Na), potassium (K) and chloride (Cl) contained in serum, plasma, urine etc. by using ion electrodes. Urine must be diluted ten times before measurement.

The code number and name of the diluent need to be registered on the tab menu [System (F9)] – [Reagent] prior to measurement.

The ISE measurement of the sample is executed by conducting test selection setting on the tab menu [RUN (F5)] – [Selection].

The ISE prime, the ISE cleaning and the ISE calibration can be executed on the tab menu [Mainte (F10)] – [Sequence].

1.3 Measurement Flow

1.3.2 Sample Dilution / 1.3.3 Reagent Blank Measurement /

1.3.4 Water Blank Measurement / 1.3.5 ISE Measurement

1.4 Operation Basics

1.4.1 Analysis Specifications

Items	Specifications
Number of analysis methods	Up to 240 methods (Common: 60, Serum: 60, Plasma: 60, Urine: 60)
Normal range	50 steps 6 types = gender (2 kinds) x age (3 generations), others: 44 types
Multi standard	Capable of 10 set definition
Control sample	Capable of registration of 40 types (samples)
Profile	Capable of 20 type definition
Method to method calculation	Capable of 40 type definition
Test selection	Normal sample: Up to 1,000 samples Emergency sample: Up to 100 samples
Reagent registration	Up to 200 types
Number of controllable reagent bottles	Up to 800 bottles (10 trays)
Measurement results	Sample measurement results: 1,000,000 tests Sample time course: 60,000 tests Calibration results: 25,000 tests Calibration time course: 6,000 tests
Calibration curve	Number of methods x 2 (Old and New): 480 curves
QC measurement results	Up to 50,000 tests (approximately for one year)
Number of identifiable patients	30,000 patients
Number of maximum rounds per day.	99 rounds per day

1.4.2 Sample Identification Code

All samples placed in the ASP have been assigned identification codes as shown in the table below. These identification codes (SID) are printed on the barcode labels attached to the samples.

*General Identification Code: Identification code (SID) with additional information of measurement numbers, which will be displayed in the SID section of the Run Monitor screen and the Result Search screen.

Type of sample	Identification code (SID)	Digit number	General identification code (Refer to above *)	Details
Normal sample	xxxxxxxxxxxxxx	3 - 12	Nxxxxxxxxxxxxnn1	xxxxxxxxxxxx: Sample identification code nn: Number of measurement
On line sample	xxxxxxxxxxxxxx	3 - 12	Oxxxxxxxxxxxxnn1	xxxxxxxxxxxx: Sample identification code nn: Number of measurement
Pediatric sample	8999xxxx	8	n8999xxxxnn1	xxxx: Sample identification code nn: Number of measurement
Emergency sample	99000xxx	8	E99000xxxnn1	xxx: Sample identification code nn: Number of measurement
Pediatric emergency sample	990009xx	8	e990009xxnn1	xx : Sample identification code nn : Number of measurement
Control sample	970000xx	8	C970000xxnn1	xx : Sample identification code nn : Number of measurement
Standard sample	98xxxxxy	8	S98xxxxyymm	xxxxx : Reagent code y : Classification (from 1 to 7) nn : Number of measurement m : Number of repetition
Multi-standard sample	950000xy	8	M950000xyymm	x : Set number y : Classification (from 1 to 7) nn : Number of measurement m : Number of repetition
Serial dilution standard sample	93xxxxx0	8	D93xxxxyymm	xxxxx: Reagent code y : Classification (from 1 to 7) nn : Number of measurement m : Number of repetition
Replicate sample	9400xx01	8	R9400xxnn111	xx: Sample identification code
Orderless sample	920000xx	8	A920000xx111	xx : ASP position code
Blank sample	9510000x	8	B9510000xnnm	x: Sample identification code nn: Number of measurement m: Number of repetition
Reagent blank	91xxxxx1	8	RB91xxxx1nnm	xxxxx : Reagent code nn : Number of measurement m : Number of repetition

1.4.3 Barcode Label Specifications for both Sample and Reagent

A) Barcode Type

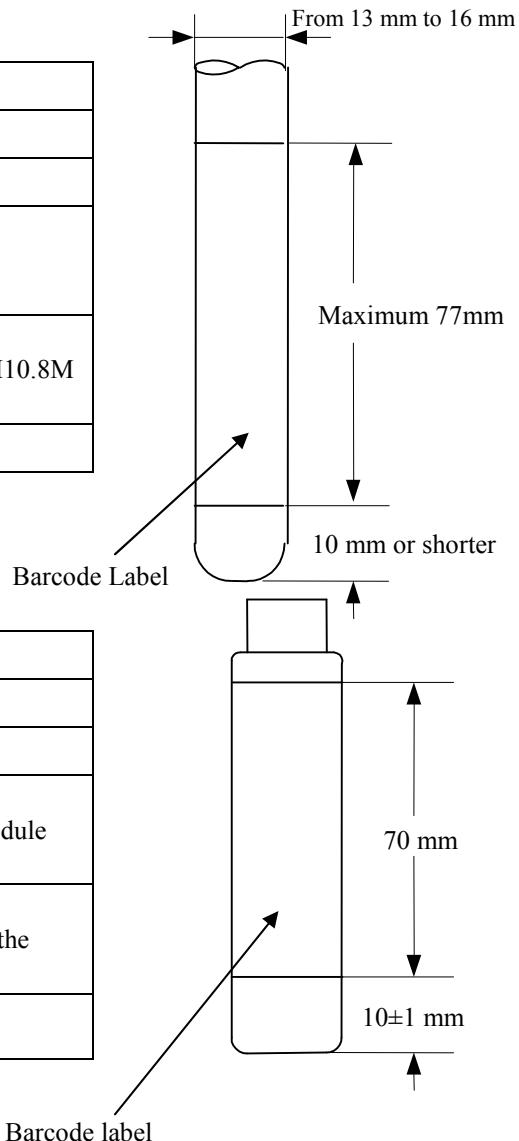
* Only numbers can be used for Reagent barcode label.

Type	Data digit number	Check digit	Effective characters
UPC(JAN)	From 3 to 12 digits	1 digit, Modulus 10	Numbers (from 0 to 9)
NW7	From 3 to 12 digits	1 digit, Modulus 16	Numbers (from 0 to 9) Symbols (-, \$, /, ., +)
CODE39	From 3 to 8 digits	1 digit, Modulus 43	Numbers (from 0 to 9), Alphabet Symbols (-, \$, /, ., +)
ITF	From 3 to 12 digits	1 digit, Modulus 10	Numbers (from 0 to 9)
CODE128 (Set A, B and C)	From 3 to 12 digits	2 digits, Modulus 103	Numbers (from 0 to 9), Alphabets (capital letters and small letters) Symbols (!, " , #, \$, (,), *, +, ., :, ;, <, >, =, ?, @, [,]) Note: Small Roman letters cannot be used for the Set B.

B) Barcode Specifications for Sample

Bar module width	From 0.25mm to1.00mm
Barcode height	15 mm or higher
Barcode length	60 mm or shorter, including quiet zone.
Quiet zone	Blank areas before/after the barcodes. 4 mm or 10 times length of the minimum module width, whichever the greater.
Printing	Black on the white background. Quality standard shall comply with the ANSI MH10.8M standard.
Barcode label location	Refer to the drawing on the right.

Note: Usable sample tube: Diameter in the range of 13 mm to 16 mm



C) Barcode Specifications for Reagent Bottle

Bar module width	From 0.25 mm to1.00 mm
Barcode height	15 mm and higher
Barcode length	80 mm or shorter, including quiet zone
Quiet zone	Blank areas before/after the barcodes. 4 mm or 10 times length of minimum module width, whichever the greater.
Printing	Black on the white background. Quality standard shall comply (compatible) with the ANSI MH10.8M standard.
Barcode label location	Refer to the drawing on the right.

1.4 Operation Basics

1.4.3 Barcode Label Specifications for both Sample and Reagent

1.4.4 Keyboard

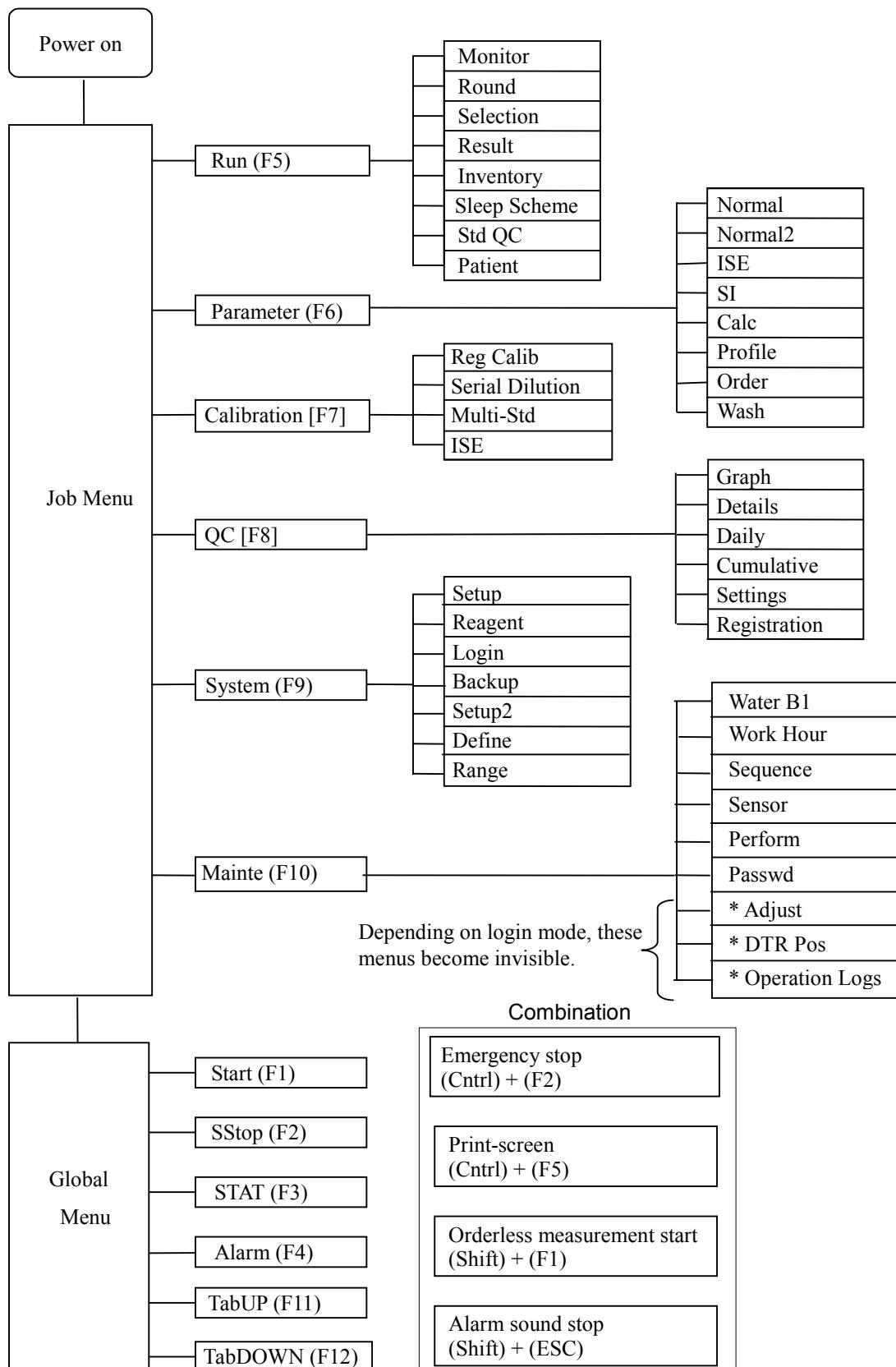
This analyzer is controlled using the PC keyboard and/or the mouse.

The function and description of each key are shown below.

Key	Function	Description
[F1]	Measurement start	Press this key when you start measurement and/or restart measurement.
[F2]	Sampling stop	Stop dispensing of the sample into the subsequent cuvettes. However, the measurement for the dispensed sample(s) will be continued.
[F3]	Emergency sample addition	Press this key when you add an emergency sample.
[F4]	Alarm	When an alarm occurs, this key starts blinking in red. When you press this key, the alarm screen will be displayed.
[F5]	Daily performance	Job menu [Run (F5)] selection key.
[F6]	Analysis condition setting	Job menu [Parameter (F6)] selection key.
[F7]	Calibration setting	Job menu [Calibration (F7)] selection key.
[F8]	QC setting	Job menu [QC (F8)] selection key.
[F9]	System parameter setting	Job menu [System (F9)] selection key.
[F10]	Maintenance	Job menu [Maintenance (F10)] selection key
[F11]	Tab menu selection (upward)	Tab menu selection key.
[F12]	Tab menu selection (downward)	Tab menu selection key.
[Shift] + [F1]	Orderless measurement start	When you wish to start the simple measurement without settings of test selection, press [Shift] and [F1] keys simultaneously. (Refer to the Note below)
[Shift] + [ESC]	Alarm sound stop	When you press [Shift] and [ESC] keys simultaneously, the alarm sound will stop.
[Control] + [F2]	Emergency stop	When you wish to abort the measurement process in progress, press [Control] and [F2] keys simultaneously. This brings the analyzer operation to a complete halt.
[Control] + [F5]	Screen-print	When you wish to print the screen image that is currently displayed using the printer, press [Control] and [F5] keys simultaneously. This function is not available during measurement process.

Note: The “Orderless measurement start” function is available either with or without the ASP barcodes. This function allows the analyzer to measure all available samples positioned in the ASP for all methods that are set by the chemistry parameter regardless of the presence of the test selection. The measurement methods for the Orderless measurement can also be selected in advance. The necessary reagents that have been registered must be positioned in the RCU for this operation. (Refer to Chapter 2, “2.7.1.10 Orderless Sample”)

1.4.5 Menu Structure



Chapter 1 Overview

A) Job Menu List

Job Menu	Tab Menu	Description
Run (F5)	Monitor	Measurement status monitor
	Round	Measurement details status monitor
	Selection	Test order (patient sample, standard sample, control sample and blank sample), patient information and mask settings.
	Result	Measurement results control
	Inventory	Reagent remaining amount control
	Sleep Scheme	Settings of sleep schedule and wake-up conditions
	Std QC	Test order settings for standard samples and control samples positioned in the innermost circle of the ASP. (Barcode label is not applicable)
	Patient	Patient information registration
Parameter (F6)	Normal	Setting for the analysis condition per method. (Settings for analysis method, measurement point, dispensing amount, normal range, technical range, stirring speed etc.)
	Normal2	Setting for the analysis condition 2 per method. (Settings for limit check, blank measurement condition, inter-equipment coefficient etc.)
	ISE	Analysis condition setting for the ISE.
	SI	Condition setting for serum information.
	Calc	Definition of method to method calculation
	Profile	Profile setting
	Order	Settings for measurement order and printout order.
	Wash	Method to method wash setting
Calibration (F7)	Reg Calib	Registration and setting for calibration curve
	Serial Dilution	(Serial) Dilution standard setting
	Multi-Std	Multi-standard setting
	ISE	ISE calibration results display
QC (F8)	Graph	QC graph display
	Details	QC measurement results details display
	Daily	Daily statistical processing for QC results
	Cumulative	Statistical processing of QC results for specified days
	Settings	Setting for the evaluation criteria of QC results
	Registration	Registration of control samples for quality control (QC).

Chapter 1 Overview

Job Menu	Tab Menu	Description
System (F9)	Setup	Setup for system parameter 1 (Host communication parameters, higher-order digits in the sample numbers, settings for sample barcode type etc., settings for various selection condition flags and the RPT special wash solution code, header settings for real-time printing.)
	Reagent	Registration and settings for reagent codes, reagent names, bottle sizes etc.
	Versions	Display of various program numbers
	Backup	Backup for system parameter and measurement data
	Setup2	Setup for system parameter 2 (Settings for default settings of reagent bottles, technical range value and age and generation of patients etc.)
	Define	Definition and editing for patient information
	Range	Definition and editing for normal range name(s).
Mainte (F10)	Water Bl	Display for water blank value of cuvettes
	Work Hour	Display for operating time of the equipment and consumable parts
	Sequence	Single operation and specific sequence operation of units
	Sensor	Test and display for sensor status
	Perform	Temperature status monitor for IRU, RCU and ASP. Sensitivity status monitor for various wavelengths of DTR.
	Passwd	Setup necessary password for each user level.
	Adjust	For factory adjustment (volume adjustment)
	DTR Pos	Execution of DTR light path adjustment for cuvettes and adjustment amount display
	Operation Logs	Operational record by any operator's

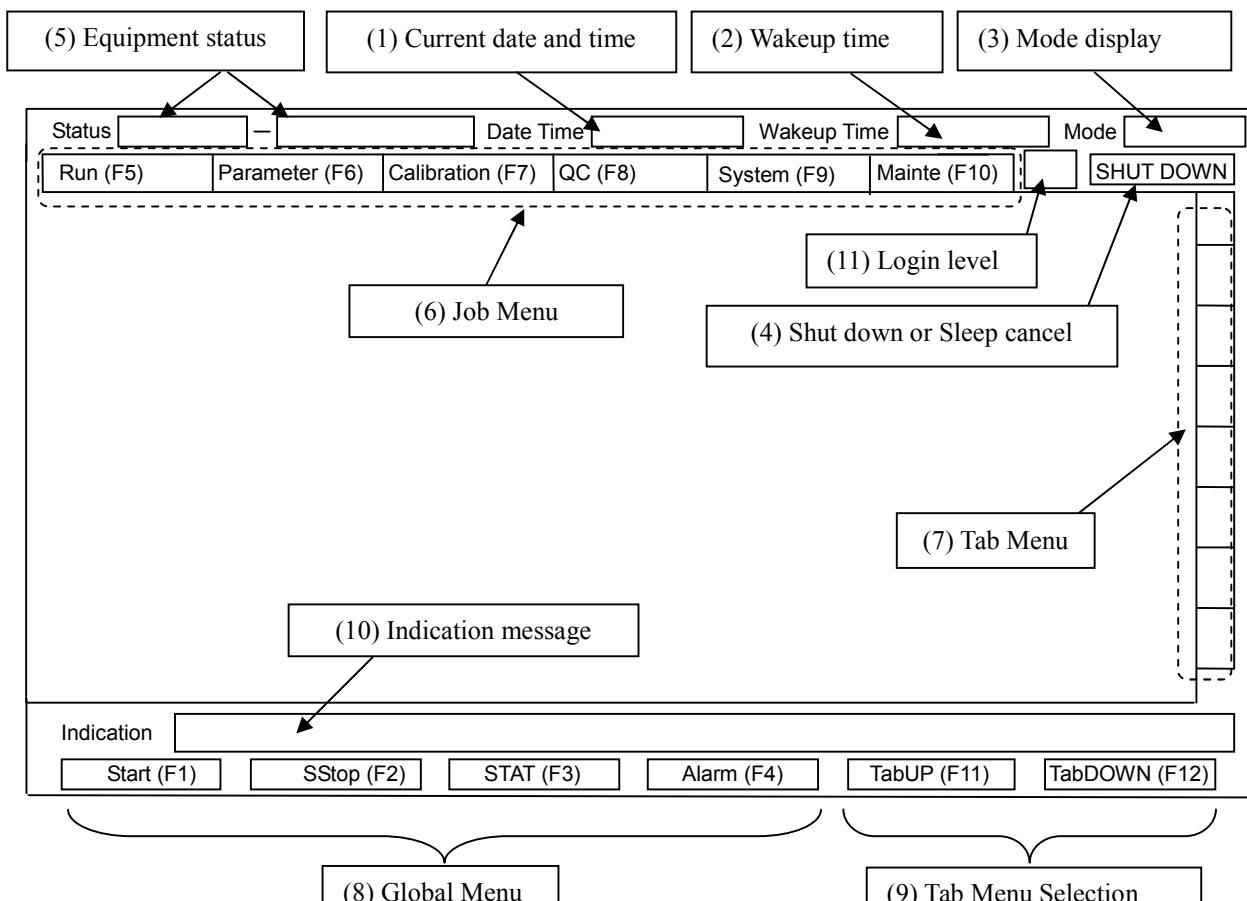
1.4 Operation Basics

1.4.5 Menu Structure

1.4.6 Control Screen Layout

The screen layout of the control section (Operational PC) is shown below.

To select the menu, click each function key (for example [Run (F5)]) displayed on the screen or press [F5] key on the keyboard.



No.	Details
(1)	Date Time Current date and time is displayed.
(2)	Wakeup Time Wakeup time from the sleep mode is displayed.
(3)	Mode One of the following messages is displayed. <ul style="list-style-type: none">• Receiving order : Indicates that the test order is being received from the host computer.• RCU Scan in process : The RCU is currently rotating in order to obtain reagent control information• No displays: None of the above.
(4)	SHUT DOWN / SLEEP CANCEL During measurement process, this button is used to shut down the analyzer or shift to the sleep mode. When pressed during the sleep status, the sleep is cancelled.

Chapter 1 Overview

No.	Details																																																																		
(5)	<p>Status “Main status” and “Sub-status” messages that indicate the status of the analyzer are displayed.</p> <p><Main status display message (left display box)></p> <table> <tbody> <tr> <td>Not ready :</td> <td>Communication with each CPU in the analyzer has not been established yet.</td> </tr> <tr> <td>Pre-ready :</td> <td>The boot process has been completed, however, cuvette water dispensing and prime have not yet been performed.</td> </tr> <tr> <td>Ready :</td> <td>Ready to perform measurement any time.</td> </tr> <tr> <td>Measurement :</td> <td>Measurement for normal sample(s) is now in process.</td> </tr> <tr> <td>STAT-measurement :</td> <td>Emergency samples are being measured as a priority. 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1.4 Operation Basics

1.4.6 Control Screen Layout

Chapter 1 Overview

No.	Details
(6)	<p>Job Menu</p> <p>By clicking the displayed Job Menu buttons, the following menus can be selected. (Refer to “1.4.5 Menu Structure, (A) Job Menu List”.)</p> <ul style="list-style-type: none">• Run (F5) Refer to “3.1 Run Menu: [Run (F5)]”.• Parameter (F6) Refer to “3.2 Set-up Menu 1: [Parameter (F6)]”.• Calibration (F7) Refer to “3.3 Set-up Menu 2: [Calibration (F7)]”.• QC (F8) Refer to “3.4 QC Menu: [QC (F8)]”.• System (F9) Refer to “3.5 System Menu: [System (F9)]”.• Mainte (F10) Refer to “3.6 Maintenance Menu: [Mainte (F10)]”.
(7)	<p>Tab Menu</p> <p>By clicking the displayed Tab Menu Button, the Tab Menu attached to each Job Menu can be selected. (Refer to “1.4.5 Menu Structure: A) Job Menu List”.)</p>
(8)	<p>Global Menu</p> <p>These Global Menu buttons are always shown on the bottom of the screen, they are available in any Menu.</p> <ul style="list-style-type: none">• Start (F1) By clicking this button, measurement can be started.• Sstop (F2) By clicking this button during measurement, sample dispensing can be stopped. To restart the measurement, click the [Start (F1)] button.• STAT (F3) When you add an emergency sample to the ASP tray, click this button.• Alarm (F4) By clicking this button, the alarm message screen can be selected. All alarm messages can be referred in this screen. When an alarm happens, this button starts blinking in red.
(9)	<p>Tab Menu Selection</p> <p>The following buttons allow you to select Tab Menu that is attached to each selected Job Menu.</p> <ul style="list-style-type: none">• TabUP (F11) Press this button to move up to select Tab Menu.• TabDOWN (F12) Press this button to move down to select Tab Menu.
(10)	<p>Indication message</p> <p>Indication messages that will help your operations such as selection, input settings, are displayed.</p>
(11)	<p>Login Level</p> <p>Login level (L1 or L2 or L3 or EL) is displayed in this box.</p>

1.4 Operation Basics 1.4.6 Control Screen Layout

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BLANK.

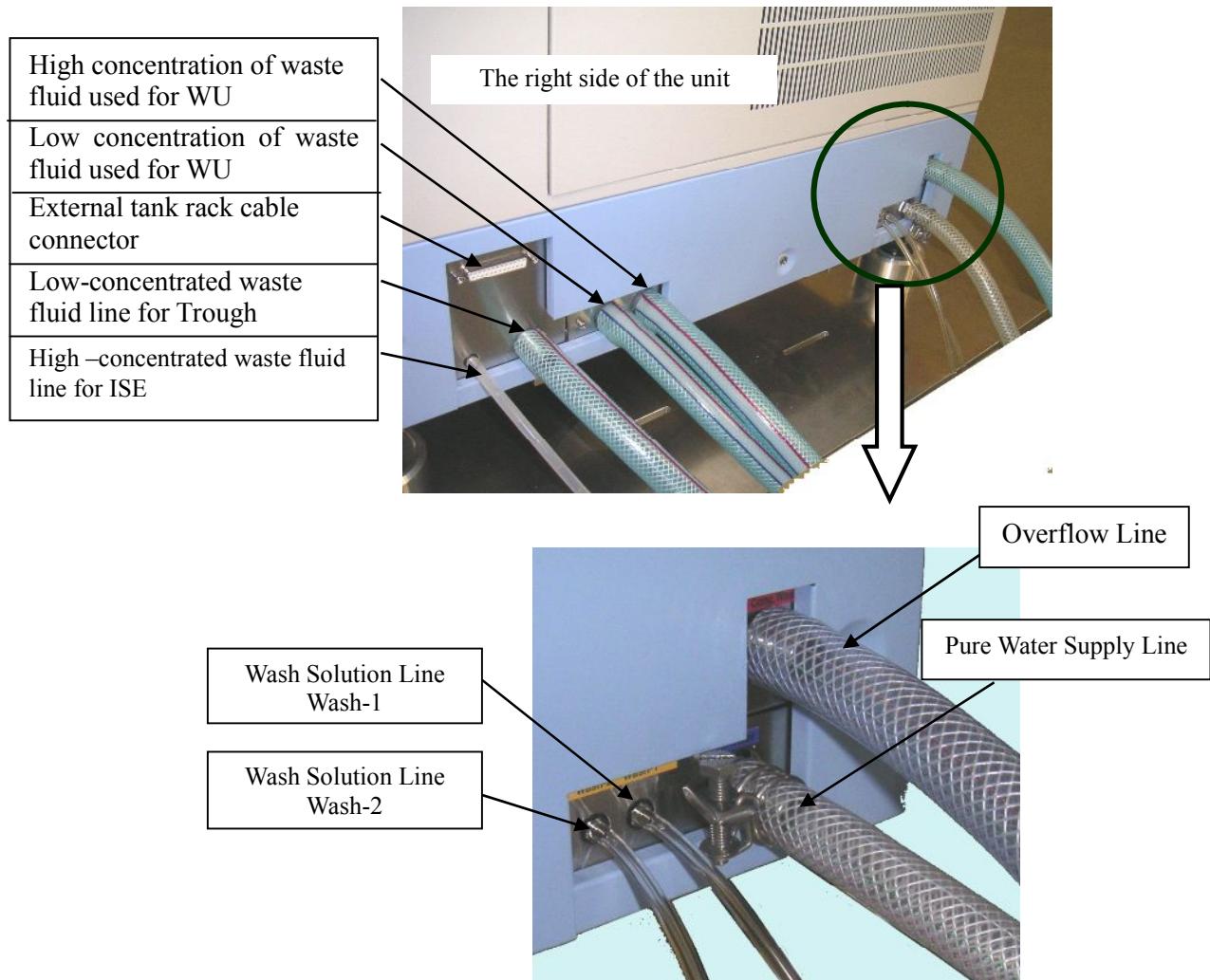
Chapter 2 Measurement Procedures

2.1 Prior Checking and Power On

2.1.1 Checking Prior to Work

Make sure that you check out the followings before measurement work.

1. Confirm that each discharge line (high or low level concentration of waste fluid used for WU, and low level concentration of waste fluid used for the trough) and the overflow line or the pure water supply line connect to the analyzer accurately (it means the right side of the unit).
Each drain line should be placed in a sloping path and led to the waste equipment located in the premises so as not to remain waste fluid inside the tube.
2. Confirm that the pure water supply line is in a condition that some pure water from the water supply unit can be transferred to the analyzer.
 - The quantity of water supply: 18 liters or more per an hour
 - The supply water pressure: 0.15 - 0.34 Mpa
3. Confirm that wash solutions (Wash-1 and Wash-2) are in full in each tank then each tube is sufficiently inserted so as not to come out from the fluid level in measurement operation.



2.1 Prior checking and Power On

2.1.1 Checking Prior to Work

Chapter 2 Measurement Procedure

4. The following checking is required to confirm as well if an ISE unit is added.
 - (a) Make empty the waste fluid tank for ISE (High concentrated waste fluid). Then set the edge of the ISE waste fluid line tube not to touch the surface of the waste fluid line for high concentrated waste fluid tank.
 - (b) Make sure that each electrode within expiration date (Na, K, Cl) has been applied to the unit.
 - (c) Make sure that the Cal-A (Calibrant-A solution) in a pack has enough solution for the number of the tests to be implemented.
 - (d) Confirm that the Cal-A solution can be discharged from a small hole next to the sample port when you try to do ISE prime from 3 to 5 times.
 - (e) Note that the ISE calibrations must be implemented after the analyzer is power on. The setup to calibrate about 2-points calibrator is available on the tab menu [Mainte (F10)] – [Sequence]. (See “3.6.3 [Sequence]” in “Chapter 3 Menu Details”)

2.1 Prior checking and Power On

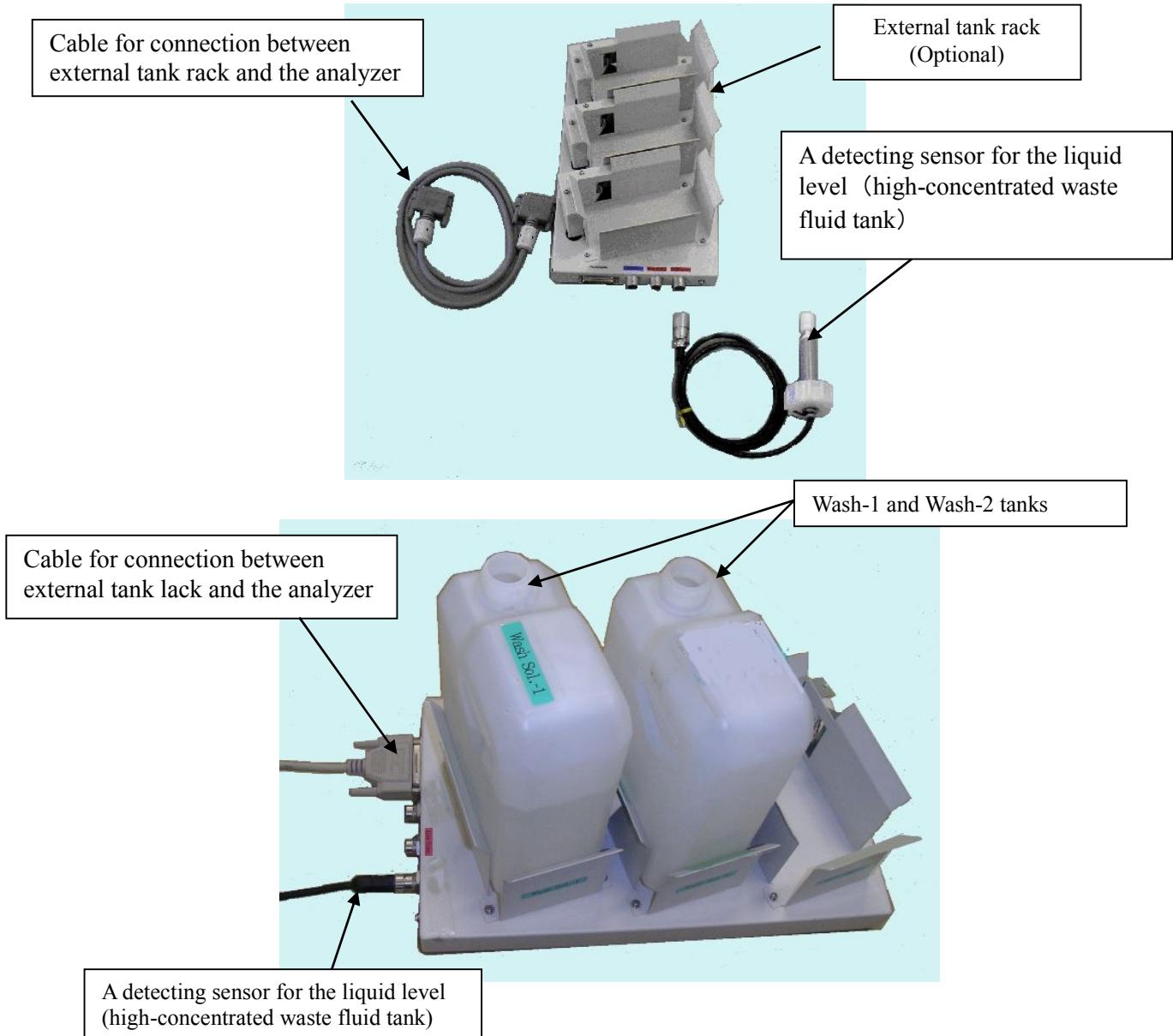
2.1.1 Checking Prior to Work

2.1.2 External Tank Rack (optional)

You can purchase a tank rack to set a tank for wash solution. This is an option.

The external tank rack is available to place both of the Wash solution-1 and Wash solution-2 (Wash-1/2) tanks and the remaining wash solution of each tank is being monitored by a sensor attached to the rack. The sensor will send out a warning signal to the analyzer when the solution of the tank goes under the regular amount.

Connect a sensor cable, detecting the liquid level of the high-concentrated waste fluid tank used for ISE, to the external tank rack. Connect the edge of the sensor to the high-concentrated waste fluid tank used for ISE as well.



2.1 Prior checking and Power On

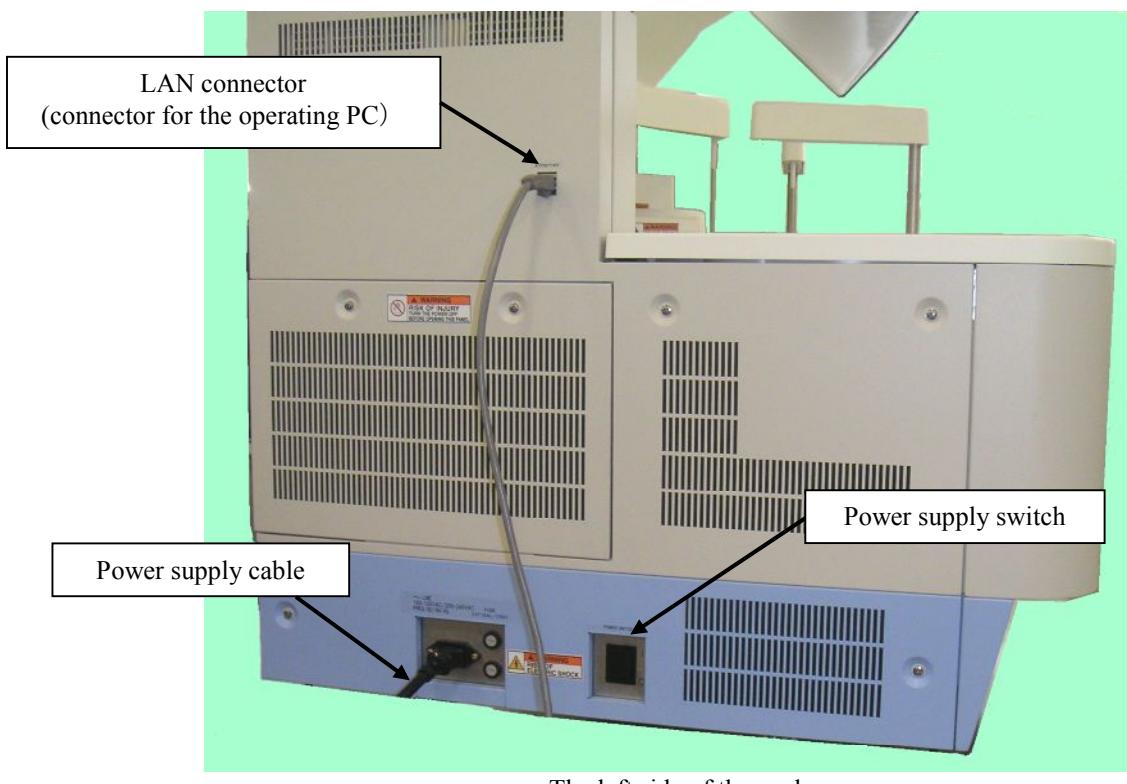
2.1.2 External Tank Rack

2.1.3 Power ON

A) Power on the main unit

First you have to check that all electrodes and the Cal-A (Calibrant solution) has been set before turning the power on.

The power on switch is attached to the right side of the analyzer.



B) Power on for printer

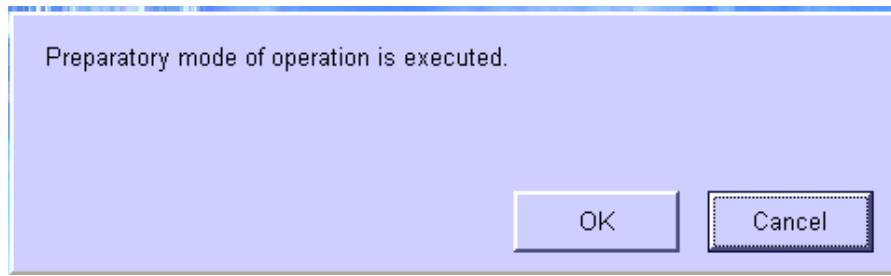
Turn on the power supply of the printer connected to the operating PC so that the printer will change a ready status. Make sure that enough print papers are set in the printer as well.

C) Power on for operating PC

Turn on the power supply for the operating PC connected via a LAN connector of the analyzer.

Basically all the software has been installed in the analyzer designed as becoming a run mode automatically after the PC turns on.

After the PC's power on, the following pop-up message will be shown in the center of the screen as an inquiry that whether you need to implement a preparatory mode that it fills pure water (or system water) enough in an internal tank of the analyzer or the supply lines. (See the figure below.). This inquiry will not happen in an automatic run by sleep mode, however. We strongly recommend you implement this preparatory mode such as the completion of an analyzer setting or before resumption of the analyzer out of operation for a long time.



OK : By clicking the button, a preparatory mode which fills pure water line or the wash solution line inside of the analyzer will start. (About 8 minutes)

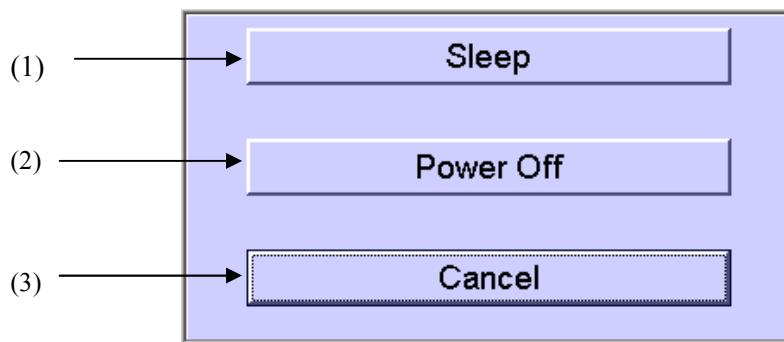
Cancel : By clicking the button, a preparatory mode will be passed.

2.1.4 Power OFF

A) Shut down for the operating PC

To shut down your analyzer, click the **Shut Down** displayed in the upper-right corner of the screen so you will see the following pop-up message. Next, choose one of the following modes for shutdown.

The **Shut Down** button is available on all screen modes.



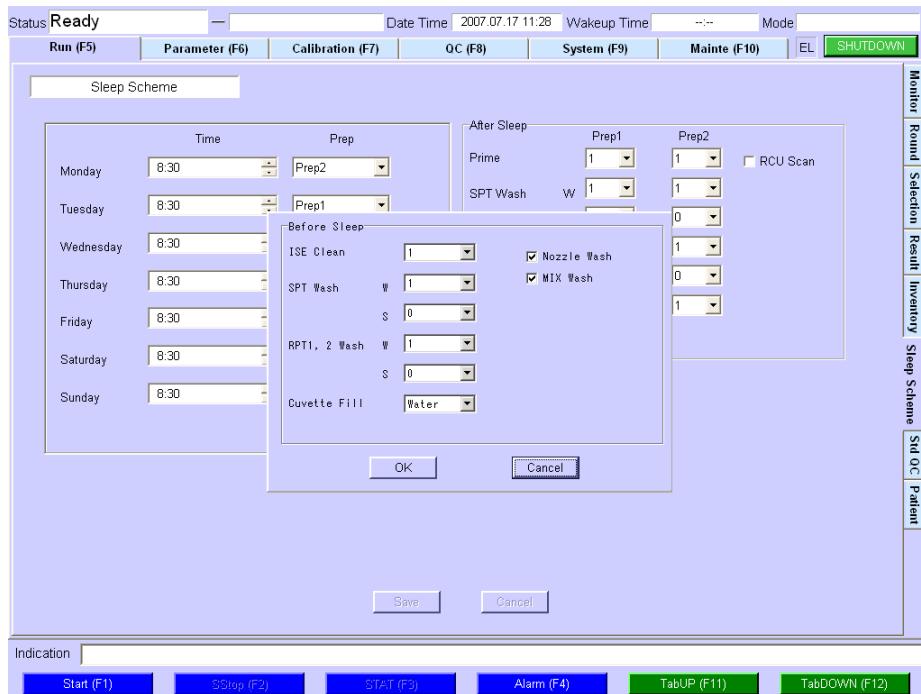
(1) Sleep : Selecting a Sleep mode

By choosing this mode the analyzer will execute a pre-sleep process then turn into a sleep mode. Therefore, you MUST NOT turn off the power of the analyzer when selecting this mode.

A sleep state is that all functions will stop except that cooling function for a reagent container unit (RCU) and an Auto Sampler unit (ASP) for the analyzer will continue. The analyzer will resume in a run mode, available for measurement, at the time specified sleep release in advance. (See the tab menu [RUN (F5)] – [Sleep Scheme])

For choosing sleep modes, you have to register these “After Sleep” and “Sleep Scheme” on the tab menu [RUN (F5)] – [Sleep Scheme] in advance then set up “Before Sleep” on a pop-up menu to shift Sleep Mode from **Shut Down**.

Chapter 2 Measurement Procedure



ISE cleaning:

Specify the number of ISE cleaning times (0-5 times).

SPT Wash:

Specify the number of SPT cleaning times. Selecting "(W)" will execute SPT wash with system water and "(S)" will be for wash solution. Wash solution should be registered on [Run (F5)] – [Std QC] in advance.

The number can be chosen from 0 to 5 times and SPT wash will not be executed when the number is "0".

Note that you cannot select both "(W)" and "(S)" at the same time.

RPT1, 2 Wash:

Specify the number of RPT cleaning times. Selecting "(W)" will execute RPT wash with system water and "(S)" will be for wash solution. Wash solution should be registered on [System (F9)] – [Setup] in advance.

The number can be chosen from 0 to 5 times and RPT wash will not be executed when the number is "0".

Note that you cannot select both "(W)" and "(S)" at the same time.

Cuvette Fill:

Choose whether you fill cuvettes with system water, wash solution or none (not fill cuvettes).

Wash solution should be registered on [System (F9)] – [Setup] in advance.

Nozzle Wash:

Nozzle wash operation will be implemented in IRU cuvettes for 10 minutes.

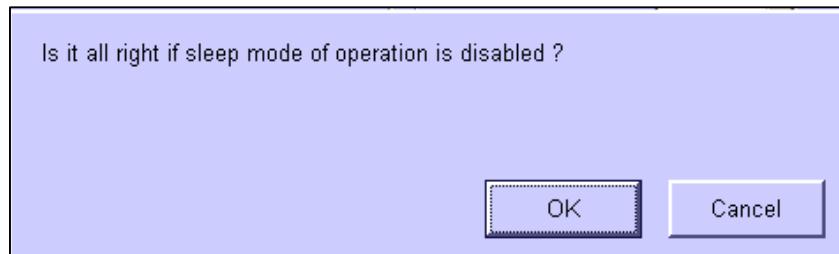
Mix Wash:

Mix 1 / 2 wash operation will be implemented in IRU cuvettes for 10 minutes.

2.1 Prior checking and Power On 2.1.3 Power ON / 2.1.4 Power OFF

Even in sleep mode you can go to see any screens as you like because the mode will not affect the operating PC. But note that the [Start (F1)] key for starting measurement and the [Mainte (F10)] key for the job menu for each unit operation will not work as each unit of the analyzer is inoperative.

It is possible to return in a normal condition regardless of sleeping. By clicking on the **Shut Down** button again for release. The pop-up message confirming the release will be shown as below. To click the **OK** button inside of the message, the sleep mode will release.



- Before Sleep :

This is some preparatory event for the analyzer such as nozzle's cleaning before transferring to a sleep mode. You need to set up those events at pop-up screen to shift Sleep Mode from **Shut Down**.

- After Sleep :

This is prime and nozzle cleaning actions to be done for the analyzer when it returns from a sleep mode (Wake up). You need to set up those actions at [Sleep Scheme] screen on the job menu.

- Sleep Scheme :

This is a setting such as a wake- up time to be returned from a sleep mode and a necessity to be done events after a sleep mode everyday (from Monday to Sunday). You need to set up those actions at [Sleep Scheme] screen on the job menu.

(2) Power Off : Selecting of A power-off mode.

By choosing this mode, the operating PC will start a process that makes all the analyzer equipments turn off the power and after that it will shut down itself automatically.

(3) Cancel : Your selecting the **Shut Down** will be canceled.

B) Power OFF for the measurement equipment

(1) When selecting **Sleep**

After having completed some Before Sleep processes, set by the [Sleep Scheme] on the job menu, the analyzer itself will be in a sleep mode. The current status will be shown in the upper left portion of the screen so that you can watch the transitional condition of each process.

The following shows change of a Status on the left side of the top line of the screen as an example.

<A status shown in processing a “Before Sleep” (**Shut Down** click) >

Status	Ready	—	SleepProgress	Date Time	2005.05.26 14:03	Wa
Run (F5)	Parameter (F6)	Calibration (F7)	QC (F8)	Sy		

<A status shown in sleeping mode>

Status	Sleeping	—		Date Time	2005.05.26 13:56	Wa
Run (F5)	Parameter (F6)	Calibration (F7)	QC (F8)	Sy		

<A status shown in releasing a sleep mode (**Shut Down** click again) >

Status	Sleeping	—	CancelSleep	Date Time	2005.05.26 13:57	Wa
Run (F5)	Parameter (F6)	Calibration (F7)	QC (F8)	Sy		

(2) When selecting **Power Off**

Make the analyzer turn off after the completion of the end processes of software at the PC side.

Note that cooling function for the Reagent Container Unit (RCU) and Auto Sampler Unit (ASP) will not be applied to this condition.

C) Power Off for the printer

Turn off the printer as appropriate.

2.2 Reagent Registration

It is required to register each reagent for measurements including wash solutions and dilute solutions in advance with measurements. Go to register its information in the tab menu [System (F9)] – [Reagent].

Code	Name
10001	AST
10002	ALT
10003	GGT
10004	TP
10005	ALB
10006	LDH
10007	ALP
10008	AMY
10009	BUN
10010	CRE
10011	UA
10012	TC
10013	TG
10014	CRP
90001	C-1
90002	DIL

The list of the registered reagents

Reagent Code: 10001
Reagent Name: AST

Reagent bottle types:

<input type="checkbox"/> 100	<input checked="" type="checkbox"/> 70	<input checked="" type="checkbox"/> 50	<input type="checkbox"/> 40	<input checked="" type="checkbox"/> 20Sq	<input type="checkbox"/> 20Rd

R1	<input checked="" type="checkbox"/> Enable	<input type="checkbox"/> 70	<input type="checkbox"/> 50	<input type="checkbox"/> 20	Stability Check	<input type="checkbox"/> Term
R2	<input checked="" type="checkbox"/> Enable	<input type="checkbox"/> 70	<input type="checkbox"/> 50	<input type="checkbox"/> 20		<input type="checkbox"/> Enable
						<input type="checkbox"/> Enable

Wash: Enable Dil.: Enable

Reagent Register Panel : [System (F9)]-[Reagent]

First, the bottle information of registered reagents and the list of registered reagents will be shown in the screen. On the registered reagent list, a reagent list that is currently being registered will be seen on the left side of the screen. It is available to delete its registration and change some information of the reagent, by clicking any reagent codes or reagent names on the list. In this regard, you don't need to click inside of the list in the case of additional registration.

Generally, some white parts in the screen are a selecting or settings for input items available.

A reagent code consists of 5 digits (numerals only) and you cannot use following codes.

Codes start from “000” and codes end at “00”.

You can select “Reagent bottle types” up to 3 types. Default types depends on “Default setting for reagent bottle types” on [System]-[Setup2].

2.2 Reagent Registration

Chapter 2 Measurement Procedure

2.2.1 Addition

<Additional registry procedures>

- Enter a reagent code in 5 digits, which you want to add as new, in the “Reagent Code” area.

Reagent Code	10001
--------------	-------

- Enter a new name within 6 digit alphanumeric characters in the “Reagent Name” area.

Reagent Name	AST
--------------	-----

- For the information for the setting of the first reagent bottle (R1), you have to click the “Enable” box of R1 and wait until it turns on. Register the amount of the bottle to be used from “Reagent bottle types”. If you want to check the term of stability for this reagent bottle, click the “Enable” box of the “Stability Check” then enter 2 numeric digits (from 0 to 99) as an effective stability term in the “Term” area.
- For the information for the setting of the second reagent bottle (R2), you have to click the “Enable” box of R2 and wait until it turns on. Register the quantity of the bottle to be used from “Reagent bottle types”. If you want to check the term of stability for this reagent bottle, click the “Enable” box of the “Stability Check” then enter 2 numeric digits (from 0 to 99) as an effective stability term in the “Term” area.

	70	50	20Sq	Stability Check	Term	
R1	<input checked="" type="checkbox"/> Enable	70	50	20	<input type="checkbox"/> Enable	0
R2	<input checked="" type="checkbox"/> Enable	70	50	20	<input type="checkbox"/> Enable	0

The start point for the stability check is the date registered reagent codes. This function will be implemented in the tab menu [Run (F5)] – [Inventory], and as a result, part of the inventory of the reagent that is no longer within the stability term will be displayed with yellow background.

- For the information for the setting of the wash solution (or Wash), you have to click the “Enable” box of Wash. Then register the initial amount of the bottles to be used by 70 / 20 mL.

- For the information for the setting of the dilute solution (or Dil), you have to click the “Enable” box of Dil. Then register the initial amount of the bottles to be used by 70 / 20 mL.

Wash	<input checked="" type="checkbox"/> Enable	70	50	20
Dil.	<input checked="" type="checkbox"/> Enable	70	50	20

- Save all the settings by clicking the Save button.

Delete	Save	Cancel
--------	------	--------

2.2 Additional registry procedures

2.2.1 Addition

Chapter 2 Measurement Procedure

2.2.2 Editing

<Editing procedures for the registered information>

- 1 By clicking a reagent code or a reagent name in the registered list, the information of current its bottle will be shown.

- 2 Enter the information of the bottle that you want to change.

The screenshot shows a software interface for reagent registration. At the top, there is a menu bar with tabs: Run (F5), Parameter (F6), Calibration (F7), QC (F8), System (F9), Mainte (F10), EL, and SHUTDOWN. Below the menu bar, there is a status bar showing 'Not ready', 'PowerOn', 'Date Time 2008.10.21 11:11', 'Wakeup Time', and 'Mode'. On the right side of the screen, there is a vertical toolbar with buttons for Setup, Reagent, Login, Backup, Setup2, Define, and Range. The main window is titled 'Reagent Registration' and contains a table of registered reagents. The table has columns for 'Code' and 'Name'. The registered reagents are:

Code	Name
10001	AST
10002	ALT
10003	GGT
10004	TP
10005	ALB
10006	LDH
10007	ALP
10008	AMY
10009	BUN
10010	CRE
10011	UA
10012	TC
10013	TG
10014	CRP
90001	C-1
90002	DIL

Below the table, there are input fields for 'Reagent Code' (10001) and 'Reagent Name' (AST). There is also a section for 'Reagent bottle types' with checkboxes for 100, 70, 50, 40, 20Sq, and 20Rd. Below this, there are sections for 'R1' and 'R2' with 'Enable' checkboxes and input fields for 70, 50, and 20. There are also 'Stability Check' and 'Term' input fields. Below R1 and R2, there are sections for 'Wash' and 'Dil.' with similar 'Enable' checkboxes and input fields. At the bottom of the window, there are buttons for 'Delete', 'Save', and 'Cancel'. At the very bottom of the screen, there is an 'Indication' bar with buttons for Start (F1), SStop (F2), STAT (F3), Alarm (F4), TabUP (F11), and TabDOWN (F12).

- 3 Save all the settings by clicking the **Save** button.

2.2 Reagent Registration

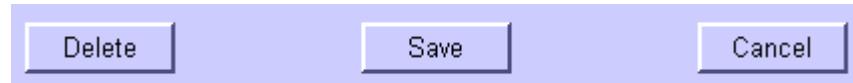
2.2.2 Editing

2.2.3 Delete

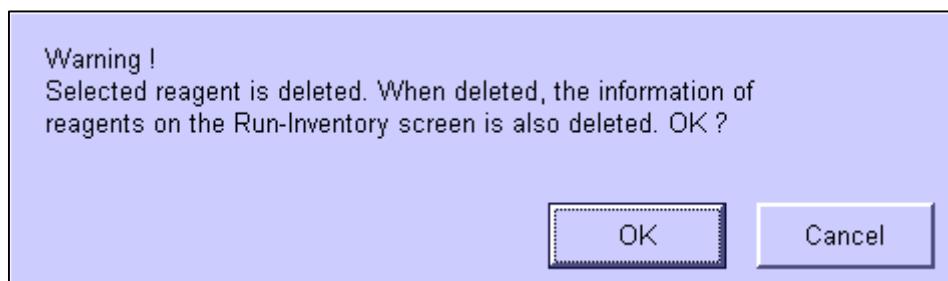
<Deletion of the registered information>

- 1 By clicking a reagent code or a reagent name in the registered list, the information of its current bottle will be shown.

- 2 Click the **Delete** button.



- 3 The following pop-up message will be shown to reconfirm your elimination command, so that press **OK** if you can commit it. However, it will become invalid to click the **Cancel** button.



2.3 Settings for Chemistry Parameters

Parameters related to the assay conditions for measurements should be defined in advance to measurement. You need to register those necessary parameters for measurements using some tab menu on the job menu [Parameter (F6)]. The following table describes the outline of each tab menu.

[Parameter (F6)] Tab menu	Setting Description
[Normal]	Method Number / Name, Sample types, Output unit for concentrated value, Assay Type, Measurement point, Measurement Wave Length, Amount of Sample dispensing, Amount of Dilute Solution, Amount of reagent dispensing, Normal Range, Technical Range, and Stirring Speed (See “3.2.1 [Normal]” in the “Chapter 3 Explanation of Menus”.)
[Normal2]	Method Number / Name, Sample types, Limit Values (Duality, Sensitivity, linearity, Prozone, Absorbance limit), Conditions for Blank Measurements (Application available / unavailable, Application conditions, Reagent types, the number of measurement times, Duality limit Values), Instrument Factor (See “3.2.2 [Normal 2]” in the “Chapter 3 Explanation of Menus”.)
[ISE]	Sample Types, Dilute Solution name, Instrument Factor, Normal Range (Maximum and Minimum values per Na, K and Cl) (See “3.2.3 [ISE]” in the “Chapter 3 Explanation of Menus”.)
[SI]	Factors for blood serum information (from A to F), Amount of sample dispensing, Instrument Factor, Reagent names, Amount of reagent dispensing, SI criteria (Hemolysis / Turbidity / Icterus) (See “3.2.4 [SI]” in the “Chapter 3 Explanation of Menus”.)
[Calc]	Definition of Method to Method calculation This value is a combination of several results produced from the measurement results. The value is calculated based on some results that have been taken by some type of methods in real measurements and its calculation uses four arithmetic operations. The produced value is used as another value of the real value. (See “3.2.5 [Calc]” in the “Chapter 3 Explanation of Menus”.)
[Profile]	Definition of a profile A profile is that is combined several measurement methods in a file. It is possible to set up to 20. (See “3.2.6 [Profile]” in the “Chapter 3 Explanation of Menus”.)
[Order]	Definition of Orders in Measurement Procedure The definition of measurement order and print order (See “3.2.7 [Order]” in the “Chapter 3 Explanation of Menus”.)
[Wash]	Definition of nozzle wash Program This is to define cleaning for reagent nozzle in every measurement methods to prevent from being infected with the nozzles (RPT1 / RPT2), of which dispensing different reagents used by a measurement method may cause contamination problem. (See “3.2.8 [Wash]” in the “Chapter 3 Explanation of Menus”.)

Chapter 2 Measurement Procedure

2.3.1 Setting for Chemistry Parameters (1)

Before starting measurement, specify necessary parameters for measurement to select the tab menu [Parameter (F6)] – [Normal].

The screenshot shows the 'Parameter (F6)' tab selected in a software interface. On the right, a vertical bar displays tabs: Normal, Normal2, ISE, SI, Calc, Profile, Order, and Wash. The 'Normal' tab is highlighted.

Chemistry Parameters

Method: 14, Name: Test04

Print Name: (empty), Sample: Common, Unit: ng/uL, Assay Type: Rate

Measuring Points: Start 1, End 2, Enable 2, Range 35–36

Reagent Name: test04, Reagent (uL): 148, Water (uL): (empty)

R1: Reagent Name test04, Reagent (uL) 148, Water (uL) (empty)

R2: Enable, Reagent Name test04, Reagent (uL) 120, Water (uL) (empty)

Diluent: Enable, Reagent Name test04, Reagent (uL) (empty)

Decimal Points: 2

Normal Range:

No.	Range Name	Min	Max
1	Male-G1	0.00	0.00
2	Male-G2	0.00	0.00
3	Male-G3	0.00	0.00
4	Female-G1	0.00	0.00

Wave Length: Prim. 340, Sec. Disable 510

Normal Sampling: Dilution 2.0, Sample (uL) 2.0, Diluent (uL) 78

Rerun(High/Prozone): Dilution 2.0, Sample (uL) 2.0, Diluent (uL) 78

Rerun (Low): Dilution 2.0, Sample (uL) 2.0, Diluent (uL) 78

Technical Range (Conc.) (mAbs./10): 0.00 – 100.00, 999999 – 999999

SPT Wash: Enable, Reagent Name (empty)

Stirring Speed: R1 Middle, R2 Middle

Buttons: Copy, Save, Cancel, Delete, Print

Indication: Enter R2 pipetting volume (20 to 250).

Bottom Buttons: Start (F1), STOP (F2), STAT (F3), Alarm (F4), TabUP (F11), TabDOWN (F12)

[Parameter (F6)] – [Normal]

<Setting descriptions>

- Specify the Method number and the Method Name.

Click the drop-down arrow on the list box to display.

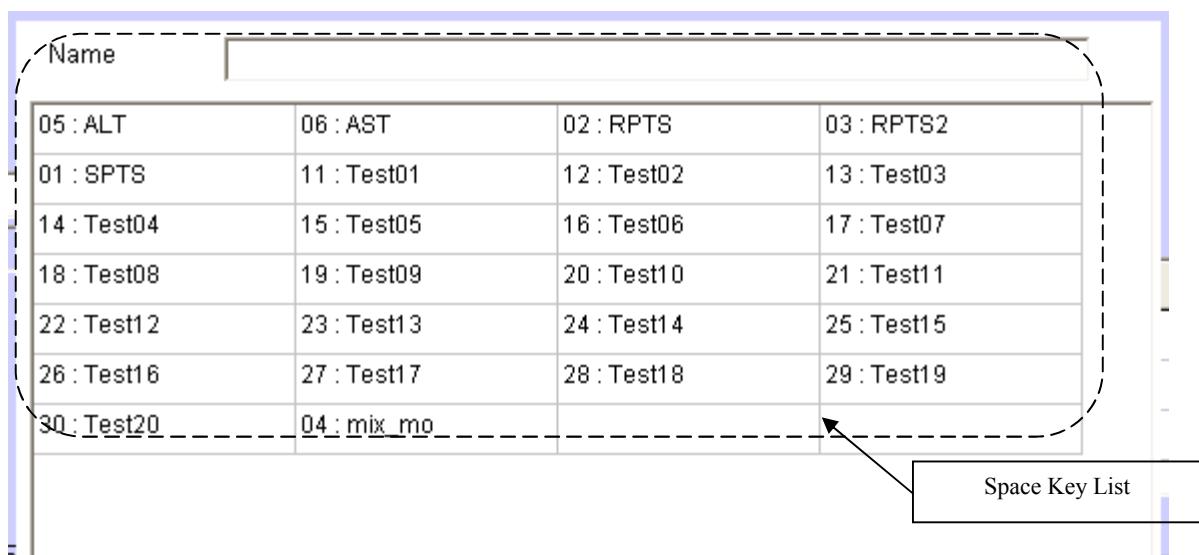
Method 14 Name Test04

Your choice for a method number and name is 3 types. One is that you move your cursor to the center of the box then type a value directly; the other one is that you keep pressing the press key to display the list and select one of the values, or the other is that you select one from the drop-down menu. Choose one as appropriate.

The space key function list will be shown as a pop up at the center of the screen. (Refer the figure on the next page.)

2.3 Setting for Chemistry Parameters

Chapter 2 Measurement Procedure



- 2 Specify a measurement name used for printing. If this print name is not inputted, the name will be used in printing with the measurement name that was set in the Name section. The name can use alphanumeric and signs within 15 digits.

Print Name

- 3 Specify a sample category.

Sample	Common	
Unit	Common	
Assay Type	Serum	
	Urine	
	Plasma	

Click the drop-down arrow on the list box to display.

Select any one of types on the drop-down menu as a sample type: Common, Serum, Urine or Plasma.

- 4 Type a measurement unit for concentration.

Unit ng/ul

Specify a unit that will be added with the measurement results. Type a unit what you need inside the box.

- 5 Specify an assay type.

Assay Type	Rate	
	Rate	
	Measuring P	
	End	

Click the drop-down arrow on the list box to display.

Select "Rate" or "End" from the drop-down menu for the assay type.

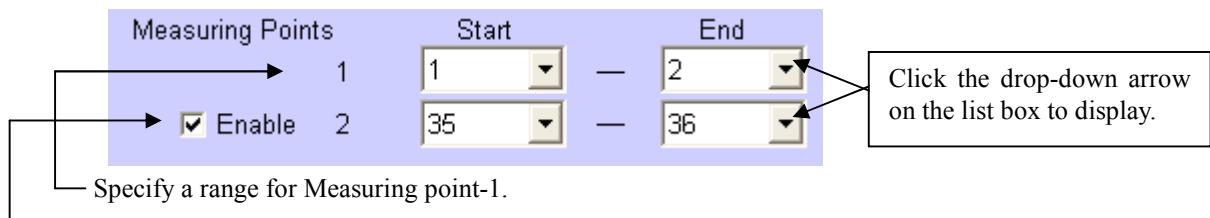
2.3 Setting for Chemistry Parameters

Chapter 2 Measurement Procedure

6 Specify measuring points

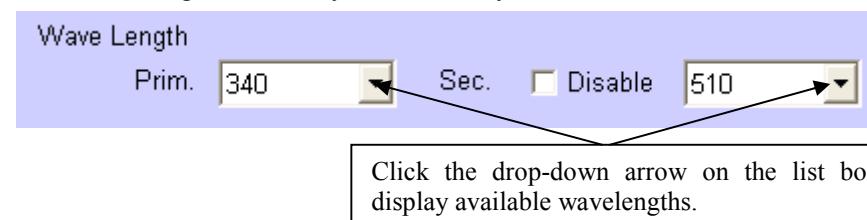
Specify the measuring points from the measured time course data to evaluate a concentrated value

The points can be selected from 1 to 68 on the drop-down menu.



Make sure that the range of measuring point is from 1 to 68, Start<=End, [Measuring point-1]<[Measuring point-2].

7 Select a wavelength for Primary and Secondary.

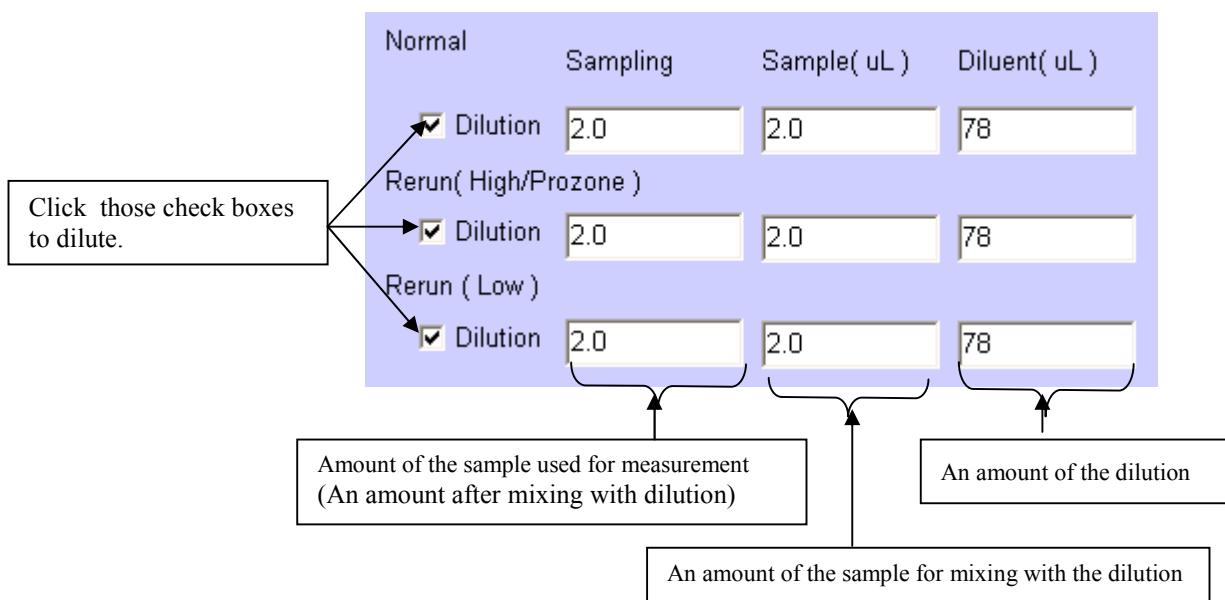


Specify a Primary Wavelength and a Secondary Wavelength for measuring. The available wavelengths are 12 wavelengths: 340 / 380 / 415 / 450 / 510 / 546 / 570 / 600 / 660 / 700 / 750 / 800. Click the "Disable" check box of the Sec. not to use a Secondary Wavelength.

8 Specify an amount of the sample. (See 10)

Three cases can be specified for the amount as a normal measurement, rerun for high value measurement, rerun for low value measurement.

The setting for "Sample (μL)" and "Diluent (μL)" are unavailable when the Dilution check box is OFF.



2.3 Setting for Chemistry Parameters

Chapter 2 Measurement Procedure

2 Specify an amount of the primary (R1) and the secondary reagent (R2) for dispensing.

You can select Reagent Name from the pop-up list displayed by pressing the Space key where you type in the box, or form the drop-down menu. Available reagents, which are registered in the tab menu [System (F9)] – [Reagent], will be displayed in any of those lists.

Click the “Enable” box of R2 to apply the secondary reagent (R2).

The range for R1 reagent consumption is from 20 to 350 µL (1 µL step) and that of R2 is from 20 to 250 µL(1 µL step).

The range of dilution water is from 100 to 350 µL (1 µL step).

Note: You can specify an amount of pure water (or system water) for diluting reagents for both R1 and R2. However, the total amount of the reagent and pure water, which will be injected in cuvettes, comes to the dispensing amount for IRU’s cuvettes when you specify the amount of pure water for reagent dilution.

The total volume (sample, R1 / R2 reagents, R1 / R2 dilution) used for measuring should be between 150 and 450 µL.

	Reagent Name	Reagent(uL)	Water(uL)
R1	test04	148	
R2	<input checked="" type="checkbox"/> Enable test04	120	

Click the check box to apply R2

Specify a reagent name

Specify reagent amount for measurement

Specify an amount pure water for dilution when the reagent dilution.

10 Specify a Dilution

Specify the name used for a sample dilution to dilute it. Click the “Enable” box to be able to specify a dilution name. The ways to specify like the previous section, you can choose from the list by using the Space key or from the drop-down menu.

You can specify some amount of pure water to dilute an identified dilution with pure water.

Note: Be aware of the sample dilution (Item-8) if you register an amount of pure water of reagent dilution. Therefore, the total amount comes to the sum of the dilution and pure water.

Diluent Enable test04

Click the drop-down arrow on the list box to display.

The box is available to type an amount of pure water to dilute the Dilution.

2.3 Setting for Chemistry Parameters

Chapter 2 Measurement Procedure

- 11 Specify a significant decimal point for measurement.



The range of number 0 to 5 can be chosen from the drop-down menu. For example, when you select "2" as a decimal point, the concentration of your measurement result will be displayed to two places of decimals.

- 12 Specify a Normal Range value.

By double clicking a box of Min and Max on the list, you can change the value.

Normal Range				
No.	Range Name	Min	Max	
1	Male-G1	0.00	0.00	
2	Male-G2	0.00	0.00	
3	Male-G3	0.00	0.00	
4	Female-G1	0.00	0.00	

A callout box points to the 'Min' and 'Max' columns with the text 'Those boxes can be able to change or modify their value of Min and Max.'

The Range Names from No.1 to No.6 are the fixed values. Refer the below.

1. Male-G1 : Male Generation1
2. Male-G2 : Male Generation2
3. Male-G3 : Male Generation3
4. Female-G1 : Female Generation1
5. Female-G2 : Female Generation2
6. Female-G3 : Female Generation3

} Go to register the range of each age to the tab menu [System (F9)] – [Setup2]

Numbers up to No.50 after No.7 can be defined on the Tab Menu [System (F9)] – [Range].

- 13 Specify a Technical Range.

Here, you can specify the lower and upper limit of the concentration as a Technical Range.

	The lower limit	The upper limit	
Technical Range (Conc.)	0.00	100.00	Concentration
(mAbs./10)	-999999	999999	

A callout box points to the 'Concentration' and 'Absorbance' columns with the text 'The setting for absorbance is not here. Its setting is defined on the tab menu [System (F9)] – [Setup2].'

The setting for absorbance is not here. Its setting is defined on the tab menu [System (F9)] – [Setup2].

2.3 Setting for Chemistry Parameters

Chapter 2 Measurement Procedure

- 14 Specify a special wash for SPT nozzles.

Select one of wash solutions from the drop-down menu by clicking the “Enable” check box to execute SPT nozzle wash.



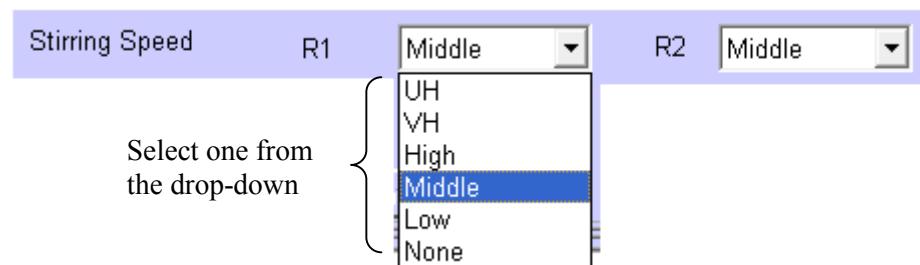
Those solutions displayed on the drop-down menu have been registered on the tab men [System (F9)] – [Reagent], and you can choose among them.

- 15 Specify a stirring speed.

Specify the stirring speed for the Mix-1, which R1 reagent and a sample is dispensed in cuvettes.

Specify the stirring speed for the Mix-2, which R1 & R2 reagent and a sample is dispensed in cuvettes.

Any of the stirring speeds can be selected from the drop-down menu.



- 16 Click the **Save** button to save the editing parameter unless it has any problems.

Use the **Cancel** button to cancel the editing parameters.

Click the **Delete** button for deleting the method number of chemistry parameters that you are selecting from the database.



Chapter 2 Measurement Procedure

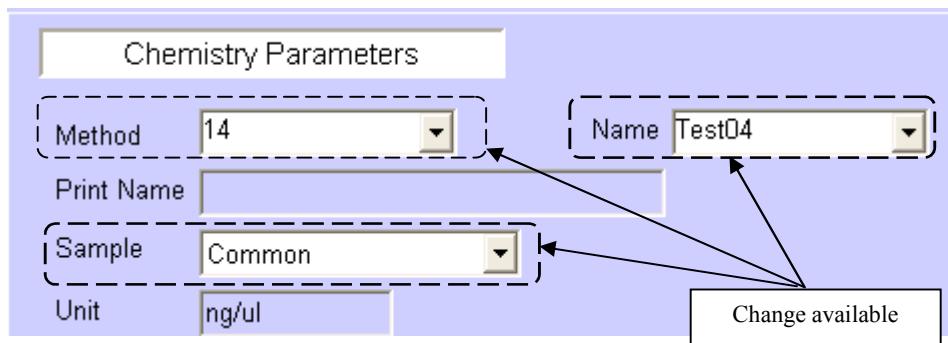
- 17 This is a parameter registration by using a copy function.

Parameters that are the same as the copy parameter except the Method, the Name and the sample type can be registered to another method of the chemistry parameters.

Click the “Copy” check box (on the lower left corner of the screen)



When you click the Copy check box, the “Method”, “Name” and “Sample” parameters and the **Save** and **Cancel** button will be available, and the others cannot be changed. All you have to do is type your necessary information such as a measurement method number and its name, a sample type then press the **Save** button so that the chemistry parameter will be registered as a new one.

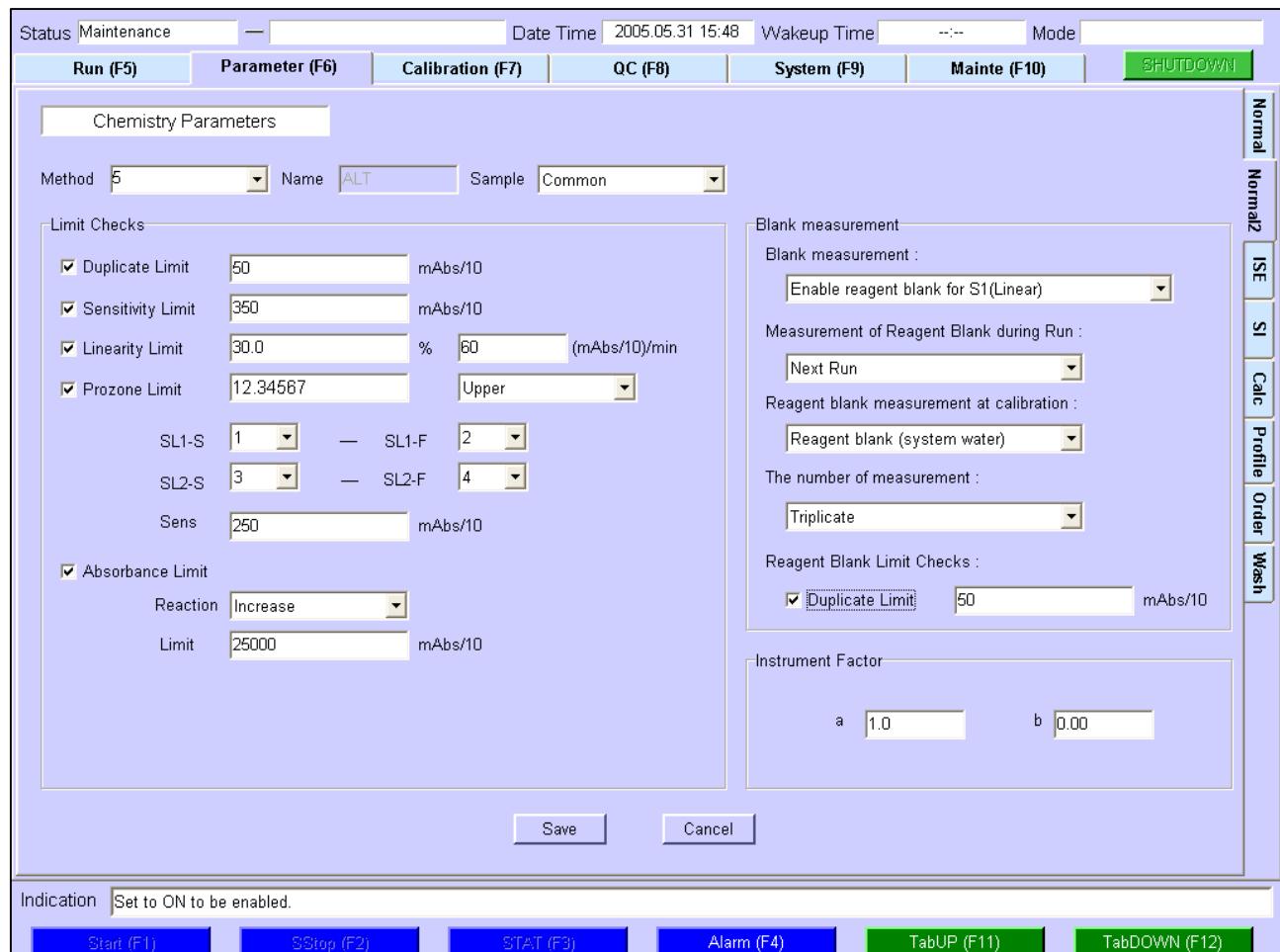


2.3 Setting for Chemistry Parameters

Chapter 2 Measurement Procedure

2.3.2 Setting for Chemistry Parameters (2)

A measurement condition like each limit value and a reagent blank is defined on the tab menu [Parameter (F6)] – [Normal2].

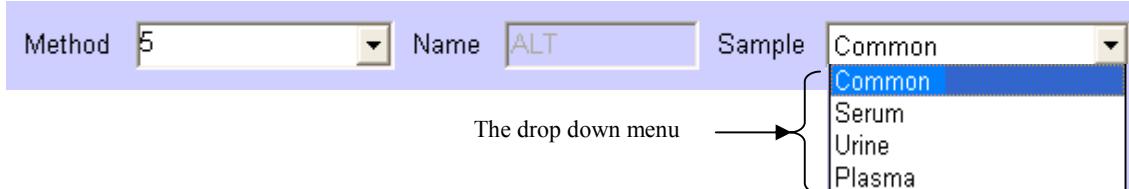


[Parameter (F6)] - [Normal2]

<Setting descriptions>

- Specify the method number, the method name and a sample category on the screen.

The method name that is registered on the tab menu [Normal] will be shown automatically when you set the Method number. Select one of the categories from the drop-down menu: Common, Serum, Urine and Plasma



2.3 Setting for Chemistry Parameters 2.3.2 Setting for Chemistry Parameter (2)

Chapter 2 Measurement Procedure

- 2 Click the enable check box for the Duplicate Limit and define the value to get the Duplicate Limit check effective. This check will be effective only when a calibration measurement.

Enable check box → **Duplicate Limit** mAbs/10

- 3 Click the enable check box for the Sensitivity Limit and define the value to get the Sensitivity Limit check effective. This check will be effective only when a calibration measurement.

Enable check box → **Sensitivity Limit** mAbs/10

- 4 Click the enable check box for the Linearity Limit and define its percent threshold value (%) and absorbance limit (mAbs/10) to get the Linearity Limit check effective. This check will be effective only for a rate method measurement.

Enable check box → **Linearity Limit** % (mAbs/10)/min

- 5 Click the enable check box for the Prozone Limit and define its percent threshold value (%), a choice of a judge direction (Upper/Lower), the first and last measurement point numbers of the Slope-1, the first and last measurement point numbers of the Slope-2 and a sensibility limit value in order to get the Prozone Limit check effective. Make sure that this check is not applied to a calibration measurement.

Enable check box → **Prozone Limit** Prozone threshold value

The measurement rang of Slop-1 (SL1-S < SL1-F) → SL1-S — SL1-F

The measurement rang of Slop-2 (SL2-S < SL2-F) → SL2-S — SL2-F

Sens Sensibility Limit

- 6 Click the enable check box for the Absorbance Limit and define its reaction trend (increase/decrease) and its limit value (mAbs/10) to get the Absorbance Limit check effective. This check will be effective only for a rate assay measurement.

Enable check box → **Absorbance Limit**

Reaction Select a reaction trend (Increase / Decrease)

Limit mAbs/10

Limit value setting

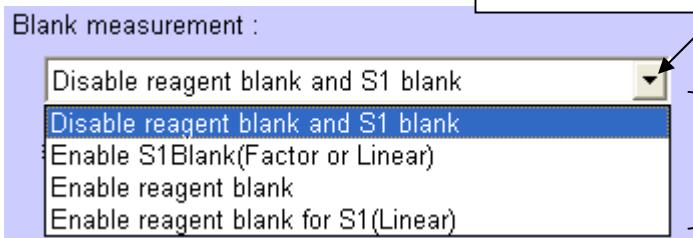
2.3 Setting for Chemistry Parameters

2.3.2 Setting for Chemistry Parameter (2)

Chapter 2 Measurement Procedure

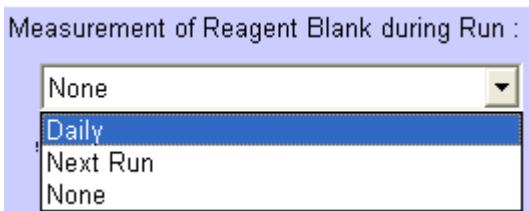
7 Specify the Blank measurement.

Select the type of blank measurement from the drop-down menu.



- Disable reagent blank and S1 blank : It does not measure a reagent blank and S1 blank. By choosing this, item-8, 9 and 10 are unnecessary to define.
- Enable S1 Blank (Factor or Linear) : It measures S1 blank.
- Enable reagent blank : It measures reagent blank.
- Enable reagent blank for S1 (Linear) : It takes the reagent blank result substitute for a S1 result.

8 Specify the measurement timing for reagent blank.

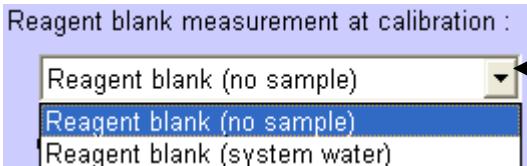


Select the measurement timing from the drop-down menu.

Drop-down menu

- Daily : It executes any of the Methods that has not been measured for reagent blank in a same day. The timing of measurement is anytime an unprocessed reagent blank method occurs.
- Next Run : It executes the reagent blank in every round.
- None : It does not measure any reagent blank. (Because a reagent blank in the past is applied.)

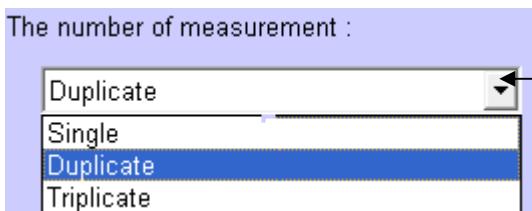
9 Specify blank measurement method.



Select a measurement method from the drop-down menu.

- Reagent blank (no sample) : It measures blank only with a reagent.
- Reagent blank (system water) : It measures blank with pure water instead of a sample.

10 Specify the number of reagent blank measurements.



Select the number of measurement from the drop-down menu.

Drop-down menu

- Single : It determines the value of the reagent blank by just 1 time measurement.
- Duplicate : It determines the value of the reagent blank from 2 times of the measurement results.
- Triplicate : It determines the value of the reagent blank from 3 times of the measurement results.

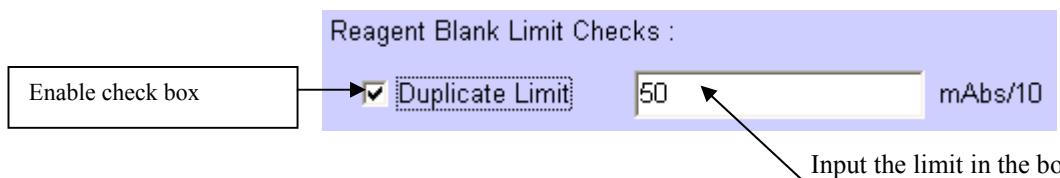
2.3 Setting for Chemistry Parameters

2.3.2 Setting for Chemistry Parameter (2)

Chapter 2 Measurement Procedure

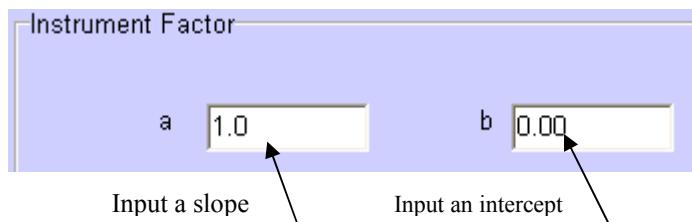
- 11 Specify whether or not to need a Duplicate Limit check for the reagent blank measurement and its limit.

Click the enable check box for the Duplicate Limit and define its response to get the Duplicate Limit checks effective. This determines whether the result is duplication. After ticking off the check box, enter its limit value in the box.



- In the case of a Duplicate, if both of the 2 measurement results are within its limit, it will adopt its average.
- In the case of a Triplicate, if all of the 3 measurement results are within its limit, it will adopt the center value of the results. It will adopt the average of the 2 results, which are within its limit in the 3.

- 12 Specify an Instrument Factor.



The measurement result of methods defined in this menu can be corrected with linear equation to be consistent with other analyzers. You can specify its parameters (a slope and an intercept) here.

- 13 Click the **Save** button to fix the setting on the menu.



- **Save** : By clicking the button, the setting will be saved.
- **Cancel** : By clicking the button, the setting will be canceled.

Chapter 2 Measurement Procedure

2.3.3 Setting for ISE Parameters

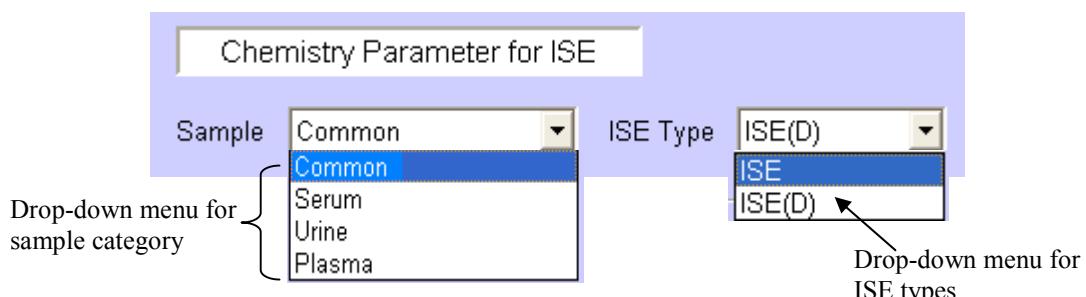
You can specify ISE measurement methods on the tab menu [ISE] in the job menu [Parameter (F6)].

The screenshot shows the 'Chemistry Parameter for ISE' screen. At the top, there are tabs for Run (F5), Parameter (F6) (which is selected), Calibration (F7), QC (F8), System (F9), Maintenance (F10), and SHUTDOWN. On the right, there is a vertical toolbar with buttons for Normal, Normal2, ISE, SI, Calc, Profile, Order, and Wash. The main area contains fields for Sample (Common) and ISE Type (ISE(D)). Below these are two tables for Instrument Factor: one for Na and one for K. The Na table has columns for 'a' and 'b'. The K table has columns for 'a' and 'b'. To the left is a table for Urine Diluent Reagent Name, with 'test01' selected. Below these are two tables for Normal Range, each with columns for No., Range Name, Na-Min, Na-Max, K-Min, K-Max, Cl-Min, and Cl-Max. The first table has rows for Male-G1 through Male-G3. The second table has rows for Female-G1 through Female-G3. At the bottom are Save, Cancel, and Print buttons.

[Parameter (F6)] - [ISE]

<Setting descriptions>

- 1 Specify a sample type and an ISE type.
 - Note that you have to choose whether ISE or ISE(D) for ISE type when you select Common for a sample type.
 - When you select Serum or Plasma for a sample type, ISE will be automatically selected for the ISE type.
 - When you select Urine for a sample category, ISE (D) will be automatically selected for the ISE type. The meaning of ISE (D) is that it executes ISE measurement using a sample dilution.



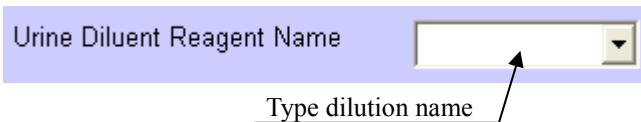
2.3Ssetting for Chemistry Parameters

2.3.3 Setting for ISE Parameters

Chapter 2 Measurement Procedure

- 2 When you select ISE (D) for ISE type, you need to specify its dilution name.

The dilution name should have been registered on the tab menu [Reagent] in the job menu [System (F9)]



Note: If any dilution names have been typed in the box, you can choose a previous name from the drop-down menu.

- 3 Specify a value for Normal Range.

Double-click any part of the Na-Min, K-Min and Cl-Min cells for the lower Limit and the Na-Max, K-Max and Cl-Max cells in the box to change its value.

Normal Range							
No.	Range Name	Na-Min	Na-Max	K-Min	K-Max	Cl-Min	Cl-Max
1	Male-G1	0.0	0.0	0.00	0.00	0.0	0.0
2	Male-G2	0.0	0.0	0.00	0.00	0.0	0.0
3	Male-G3	0.0	0.0	0.00	0.00	0.0	0.0
4	Female-G1	0.0	0.0	0.00	0.00	0.0	0.0
5	Female-G2	0.0	0.0	0.00	0.00	0.0	0.0
6	Female-G3	0.0	0.0	0.00	0.00	0.0	0.0

You can correct or change the Min and Max value on the list.

The Range Names from No.1 up to No.6 are the fixed values. Refer the below.

- 1. Male-G1: Male Generation1
- 2. Male-G2: Male Generation2
- 3. Male-G3: Male Generation3
- 4. Female-G1: Female Generation1
- 5. Female-G2: Female Generation2
- 6. Female-G3: Female Generation3

} Go to define the range of each age to the tab menu [Setup2] in the job menu [System (F9)]

- 4 Define an Instrument Factor

Here you can calibrate your results, each Na, K and Cl, with a linear equation in order to be consistent with the results of other analyzers. You can define parameters for the calibration (a: Slope, b: Intercept).

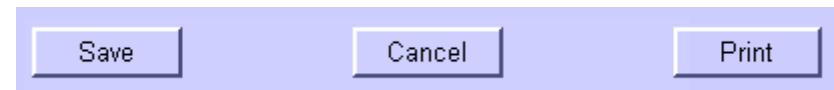
	a	b
Na	1.00	0.00
K	1.00	0.00
Cl	1.00	0.00

2.3 Setting for Chemistry Parameters

2.3.3 Setting for ISE Parameters

Chapter 2 Measurement Procedure

5 Click the **Save** button to fix the setting parameters in the menu.



- **Save** : By clicking this button, the setting parameters will be saved.
- **Cancel** : By clicking this button, the setting parameters will be canceled.
- **Print** : By clicking this button, the setting parameters will be printed out. However, this button should be available to click.

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Chapter 2 Measurement Procedure

2.3.4 Setting for Serum Information (SI) Parameters

You can specify serum information parameters for a measurement and judgment condition, on the tab menu [SI] in the job menu [Parameter (F6)] (See Chap 3 “3.2.4 [SI]”).

All necessary parameters for SI measurement are defined correctly and then selecting SI measurement on the tab menu [Selection] in the job menu [Run (F5)] will be available.

The screenshot shows the 'Serum Indices' setup screen. At the top, there are tabs: Run (F5), Parameter (F6) (which is selected and highlighted in blue), Calibration (F7), QC (F8), System (F9), Mainte (F10), and SHUTDOWN. Below the tabs, there's a status bar showing Status, Maintenance, Date Time (2005.05.31 15:47), Wakeup Time, Mode, and a green SHUTDOWN button. On the right side, there's a vertical column of buttons labeled: Normal, Normal2, ISE, SI, Calc, Profile, Order, and Wash. The main area contains fields for Reagent Type (R1), Reagent Name (AST), Volume (148 uL), and lists for Factors A-F (each with a value of 1) and Sampling Volume (2.0 uL). Instrument Factor tables show values for H, L, and I across columns a and b. At the bottom are Save, Cancel, and Print buttons. Below the main window, there's an Indication field and a row of function keys: Start (F1), SStop (F2), STAT (F3), Alarm (F4), TabUP (F11), and TabDOWN (F12).

[Parameter (F6)]—[SI]

<Setting descriptions>

- 1 Specify a reagent type.

Reagent Type R1

Click the arrow to display the drop-down menu.

Specify whether “R1” or “Dil” for a reagent type, from the drop-down menu

- 2 Specify a reagent name and its dispensing amount.

Reagent Name AST Volume 148 uL

Enter a reagent name

Enter an amount of reagent dispensing

You can select a reagent name from the list displayed by pressing the Space key where you type in the cell box, or from the drop-down menu. Note that the reagent names you will choose should have been defined on the tab menu [Reagent] in the job menu [System (F9)] beforehand.

2.3 Setting for Chemistry Parameters 2.3.4 Serum Information (SI) Parameters

Chapter 2 Measurement Procedure

3 Define a Factor value.

Specify Factor A to F each (The range: 0 -999999).

Factor A	100
Factor B	200
Factor C	300
Factor D	400
Factor E	500
Factor F	600

4 Specify an amount of dispensing for the sample

Sampling Volume uL

Set sample's dispensing amount

5 Specify the range for judgment.

The judge range (Hemolysis)	H	0	< 100	H0 < 100
	1	110	< 110	100 ≤ H1 < 110
	2	120	< 120	110 ≤ H2 < 120
	3	130	< 130	120 ≤ H3 < 130
	4		< 130	H4 > 130
The judge range (Turbidity)	L	++	< 150	L++ < 150
	+	160	< 160	150 ≤ L+ < 160
	+-	170	< 170	160 ≤ L+- < 170
	-	180	< 180	170 ≤ L- < 180
	--		< 180	L-- > 180
The judge range (Icterus)	I	+++	< 200	I+++ < 200
	++	210	< 210	200 ≤ I++ < 210
	+	220	< 220	210 ≤ I+ < 220
	+	230	< 230	220 ≤ I- < 230
	-		< 230	I- > 230

Max 5 letters available for judgment signs

Judgment value (0 -999999 available)

2.3 Setting for Chemistry Parameters

2.3.4 Serum Information (SI) Parameters

Chapter 2 Measurement Procedure

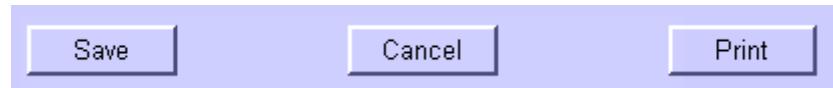
6 You can specify an Instrument Factor

The measurement result in each Hemolysis (or H), Turbidity (or L) and Icterus (or I) can be consistent with that of other analyzer so that the result can be calibrated with a linear equation. You can specify those parameters (a: gradient / b: intercept).

Instrument Factor		
	a	b
H	1.0	0.00
L	1.0	0.00
I	1.0	0.00

5 Click the **Save** button to fix the setting parameters on this menu.

All necessary parameters for SI measurement are defined correctly and then selecting SI measurement on the tab menu [Selection] in the job menu [Run (F5)] will be available.



- **Save** : By clicking this button, the setting parameters will be saved.
- **Cancel** : By clicking this button, the setting parameters will be canceled.
- **Print** : By clicking this button, the saved parameters can be printed out.
Note, this button should be available to click.

2.3.5 Definition of Method-to-Method Calculation

Method to Method calculation is a combination of several measurement produced from the measurement results. The value is calculated based on some results that have been measured and you can use it as if another one. You can define the method on the tab menu [Calc] in the job menu [Parameter(F6)]. (See Chap 3 “3.2.5 [Calc]”).

2.3.6 Definition of Profile

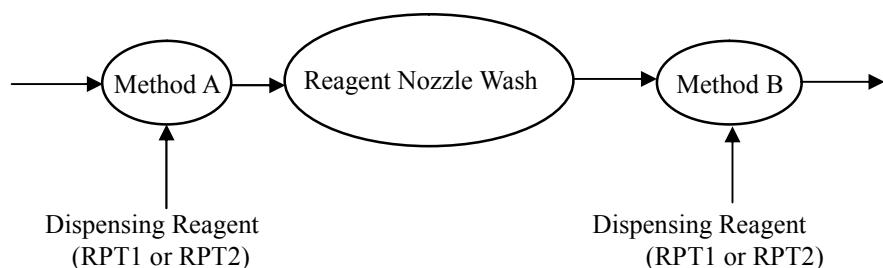
You can define several measurement items in a file. This is called a “Profile”, and it is possible to define 20 files per a sample. The registration way for this, go to the tab menu [Profile] in the job menu [Parameter(F6)]. (See Chap 3 “3.2.6 [Profile]”).

2.3.7 Setting for Measurement Orders

You can define a measurement order and a result printing order on the tab menu [Order] in the job menu [Parameter (F6)]. (See Chap 3 “3.2.7 [Order]”)

2.3.8 Definition of Nozzle Wash Program

Reagent nozzles (RPT1 or RPT2) mutually used over different methods may cause infection trouble. To avoid this, you can define nozzle wash program on the tab menu [Wash] in the job menu [Parameter (F6)]. This program will be processed in measuring so that the throughput of this measurement may be affected, indeed. (See Chap 3 “3.2.8 [Wash]”)



2.3 Setting for Chemistry Parameters

2.3.5 Definition of Method to Method Calculation / 2.3.6 Profile Defenition /
2.3.7 Define Measurement Order/ 2.3.8 Define Nozzle Wash Program

2.4 Placement for Reagent Bottles (RCU)

Before starting measurement, place all necessary items such as reagents, dilutions, and wash solutions on the tray in Reagent Container Unit (RCU).

The bottle types are 100 / 70 50 / 40 / 20mL. You can put 30 bottles of 100 / 70 50 / 40 / 20mL types in total on inner side and 30 bottles of 20mL types on outer side.

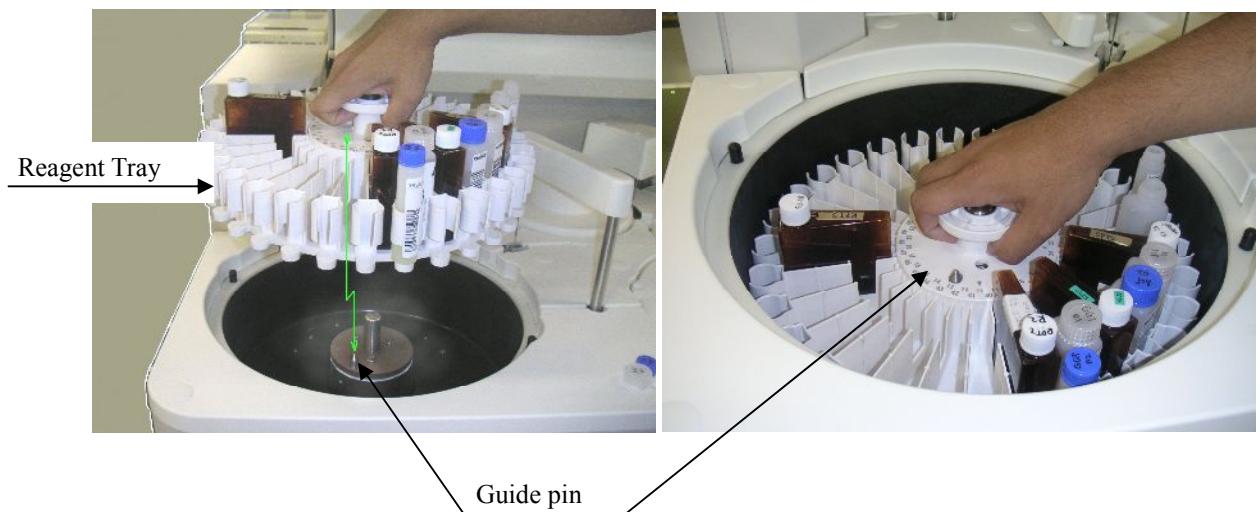
This reagent tray can be removed from the RCU.

Bottles can be placed in any slots on the RCU's tray but they need to be registered beforehand. (See Chapter 2 "2.2 Reagent Registration")

An analyzer distinguishes bottles on the RCU's tray by reading barcodes attached on the bottles. In addition, it needs to know all the information of reagents placed on the RCU's tray (reagent types, reagent remaining, bottle type etc) before the measurement; therefore Reagent Scan process should be performed. (See Chapter 2 "2.9 Confirmation of Reagent Remaining Volume")

2.4.1 Sequence Procedures for Bottles

- 1 Place some bottles horizontally on an empty slot of the RCU's tray.
- 2 Set the reagent try you placed some bottles inside of RCU in the analyzer.
- 3 Turn the reagent tray slowly and make the guide pin fit.



- 4 Detach the lid of the bottle you placed.
- 5 Set the lid of RCU.

2.5 Calibration Setting

For converting the absorbance of the measurement result into a concentrated value, the analyzer needs an approximation formula. Therefore, it will get the approximation formula to calculate from Standard sample (or Calibrator) that has a previous concentrated value. Standard sample usually consists of a concentrated value below 7 types. This result, an approximation formula, is needed to all measurement methods and the value should have been prepared in the analyzer in advance with measurement.

A regulatory calibration for each method is fundamentally required to implement a stable measurement. This analyzer has a function that can set an expiry for a calibration in order to guarantee the regulatory calibration updates. Moreover, the analyzer has another function that can check its expire date of the calibrator.

The calibration types are;

- Full-calibration

This is to get a calibration curve, using all necessary calibrators.

- Re-calibration (Partial calibration)

This is to calibrate the current calibration curve, measuring only a necessary calibrator.

There are 2 types as you see on the above.

As a result of a calibration measurement, the result can get 2 types of calibration curves as followings.

- Master

This curve is resulted in a full calibration measurement and it will also go to the Work result.

- Work

This curve is a curve that resulted in a re-calibration and it is corrected with a Master.

This Work curve is used for converting a sample (including control measurement) into a concentration value.

The calibration result that was measured by reagent sets (R1/R2) of different lot number can be saved as “New” and “Old” areas. You can use both by switching as appropriate. (Lot numbers are available up to 2 types)

2.5.1 Calibration Curve Type

As a calibration type, 5 curves can be selected among the following.

- (1) Factor: An operator should set a gradient value of a linear equation in the system. An intercept value can be calibrated to measure a standard sample (SI).
- (2) Linear: This is to get a linear equation from the measurement results of various standard samples.
- (3) Point To Point: This is to get a linear equation for each measurement point from the measurement results of various standard samples.
- (4) Log-Logit: This is to get a log formula from the measurement results of various standard samples.
- (5) Spline: This is to get a spline curve approximation formula from the measurement results of various standard samples.
- (6) Exponential: This is to get an approximation formula of an exponential function from the measurement results of various standard samples.

Chapter 2 Measurement Procedure

2.5.2 Calibration Registration / Setting

You can define calibration parameters that you need for measurements on the tab menu [Reg Calib] in the job menu [Calibration (F7)].



[Calibration (F7)] - [Reg Calib]

<Setting Descriptions>

1. Specify both of a Method number and a Method Name.
There are 3 types of specifying a Method number. One is to input it directly in the cell by making the key cursor move where you input, the other one is to choose one of the values from the list displayed by pressing the space key and the other is to select one from the drop-down list. All three are possible so you can select one as applicable. (Note: This is the same as “2.3.1 Chemistry Parameter Setting (1)”) The method name added with related to its method number will be shown automatically.
2. Specify a sample category to apply.
Choose one from Common / Serum / Urine / Plasma, shown by the drop-down list.
3. Specify the number of measurements for a calibrator.
Choose the number from the drop-down list.
 - Duplicate: This function executes duplicate measurement, and it takes its average for a measurement result.
 - Triplicate: This function executes triplicate measurement, and it takes its median value for a measurement result.

2.5 Caribration Setting 2.5.2 Caribration Registration /Setting

Chapter 2 Measurement Procedure

4. Specify a stability term for a calibration.

To get a stable and precision measurement, a calibration curve modifying with some regular intervals is preferable. Input an expiry term (days: 0- 99) for the reason.

The expiry term check will not be executed when you set 0 days for the term.

This check detects any method names which have past their expiry date from the latest calibration measurement, and it makes them turn red on the Test Selection screen ([Run (F5)] – [Selection]). In addition, a “CTO” flag will be added for the result of the sample measurement.

The screenshot shows a software interface for calibration settings. A central purple rectangular area contains several input fields and dropdown menus:

- Method:** Set to 11.
- Name:** CRP
- Sample:** Common
- Sampling:** Triplicate
- Check Interval:** 0 days
- Auto:** Change Lot
- Auto Interval:** hours
- Type:** Spline
- Material Name:** CRP-cal

Surrounding the central area are several callout boxes labeled with numbers:

- 1 Method Number:** Points to the Method dropdown.
- 2 Sample Type:** Points to the Sample dropdown.
- 3 The number of calibration measurement:** Points to the Sampling dropdown.
- 4 The calibration's expiry terms:** Points to the Check Interval field.
- 5 Automatic measurement condition:** Points to the Auto dropdown.
- 6 Type of automatic measurement:** Points to the Auto Interval dropdown.
- 7 Time interval for automatic measurement:** Points to the Type dropdown.
- 8 Calibration type:** Points to the Material Name field.
- 9 Material name:** Points to the Material Name field.
- 10 Reagent lot (New/ Old):** Points to the Lot dropdown.

5. Specify an automatic measurement condition. (See note.)

Choose either “Change Lot” or “Timeout” by the drop-down list.

- Chang Lot: When the lot number of reagent for the calibration is changed, the calibration measurement can be automatically executed.
- Timeout: When the times are passed over the specified interval time in the “Auto Interval”, the calibration measurement can be automatically executed.

6. Specify the type of automatic measurement. (See note.)

Choose one type from Blank/ One/ Two/ Full Calibration by the pull-down list.

- Blank: Blank measurement
- One: One-point calibration
- Two: Two-point calibration
- Full Calibration: Full calibration

7. Input the time interval for automatic measurement of calibrator. (See note.)

This setting becomes available when the “Timeout” is selected as the automatic measurement condition.

8. Specify a calibration type. (See note.)

Choose one type from Factor / Linear / Point To Point / Log-Logit / Spline / Exponential, shown by the drop-down list. (See item-12 later discussed, when you select Factor.)

Note: The function of automatic execution for calibration measurement is applied only when the calibrator(s) is/are placed in the innermost slot (#I01 to I20) of ASP. (Refer to “2.7.2 Special Test Selection”.)

2.5 Caribration Setting

2.5.2 Cariblation Registration /Setting

Chapter 2 Measurement Procedure

9. You can input a calibrator material name. (Within 8 alphanumeric)
10. Select either "New" or "Old" for the reagent lot.
This is used for a partial resetting for a calibration that has been measured, or for a calibration switching to apply another one.
- The meaning of "New" and "Old" is that the calibration results of which reagent lot numbers are different can be administrative as 2 types.
- (a) The first calibration result using reagent lot number N1 will be stored in "New".
- (b) The second calibration result using reagent lot number N2 will be stored in "New" and the first result will be transferred to "Old".
- (c) After the third result, a result using a calibration result which is different from "New" or "Old" one will be executed as same as a (b) process. However, a result using the same lot number as "New" (or "Old") one will be overwritten it to its area which is stored, and also its time-stamp is renewed. Depending on time-stamp, the name of "Old" (or "New") is changed to "New" (or "Old").
11. Input a concentration of each standard sample (Calibrator). Max 7 samples are possible to set.
This setting must be defined before calibration measurements.
But, when selecting "Factor" as a case of calibration curve type, you don't have to deal with this setting.
12. The absorbance result of calibration measurement will be displayed.
Work: At Full-calibration, the value will be shown same as Master's
At Re-calibration, the only Work will be updated.
Master: The result of Full-calibration will be displayed. In addition, those absorbance values can be edited except "Factor".
13. You can input the lot number of a normal sample (Calibrator).
It is effective that a calibration type is Linear / Point To Point / Log-Logit / Spline / Exponential.
But, when selecting "Factor" as a case of calibration curve type, you don't have to deal with this setting.

By clicking this check box, the same lot number S1 you entered is applied to from S2 to S7.

11 Concentration for standard sample	12 Absorbance value for calibration result	13 Lot number for standard samples
S1 0.00	WORK 12	MASTER 10
S2 0.50	68	65
S3 2.00	236	235
S4 6.00	621	601
S5 18.00	1138	1107
S6 30.00	1311	1276
S7		

2.5 Calibration Setting

2.5.2 Calibration Registration /Setting

Chapter 2 Measurement Procedure

14. In case of only selecting “Factor” for a calibration curve type, the cells for K-Factor will be displayed. For Point To Point, Log-Logit, Spline, Exponential, those cells will not be displayed. Also, next to K-Factor, blank measurement check box “ON” or “OFF” on the tab menu [Normal2] of the job menu [Parameter (F6)] will be indicated. (See chapter 2 “2.3.2 The setting chemistry Parameters (2)’’)

Conc	WORK	MASTER	LotNo(S)	All
S1 0.00	1	1		
S2 1000.00	2	2		
S3	1	1		
S4	1	1		
S5				
S6				
S7				
K 1000	<input checked="" type="checkbox"/> S1 Blank	<input checked="" type="checkbox"/> Reagent Blank for S1		

Applicable to “Factor” and “Linear”;
 : will execute S1 blank measurement
 : will NOT execute S1 blank measurement.

Applicable to only “Linear”;
 : The reagent blank is defined as S1.
 (You don’t have to set s1 to ASP at calibration measurement.)

Save
Cancel
Print

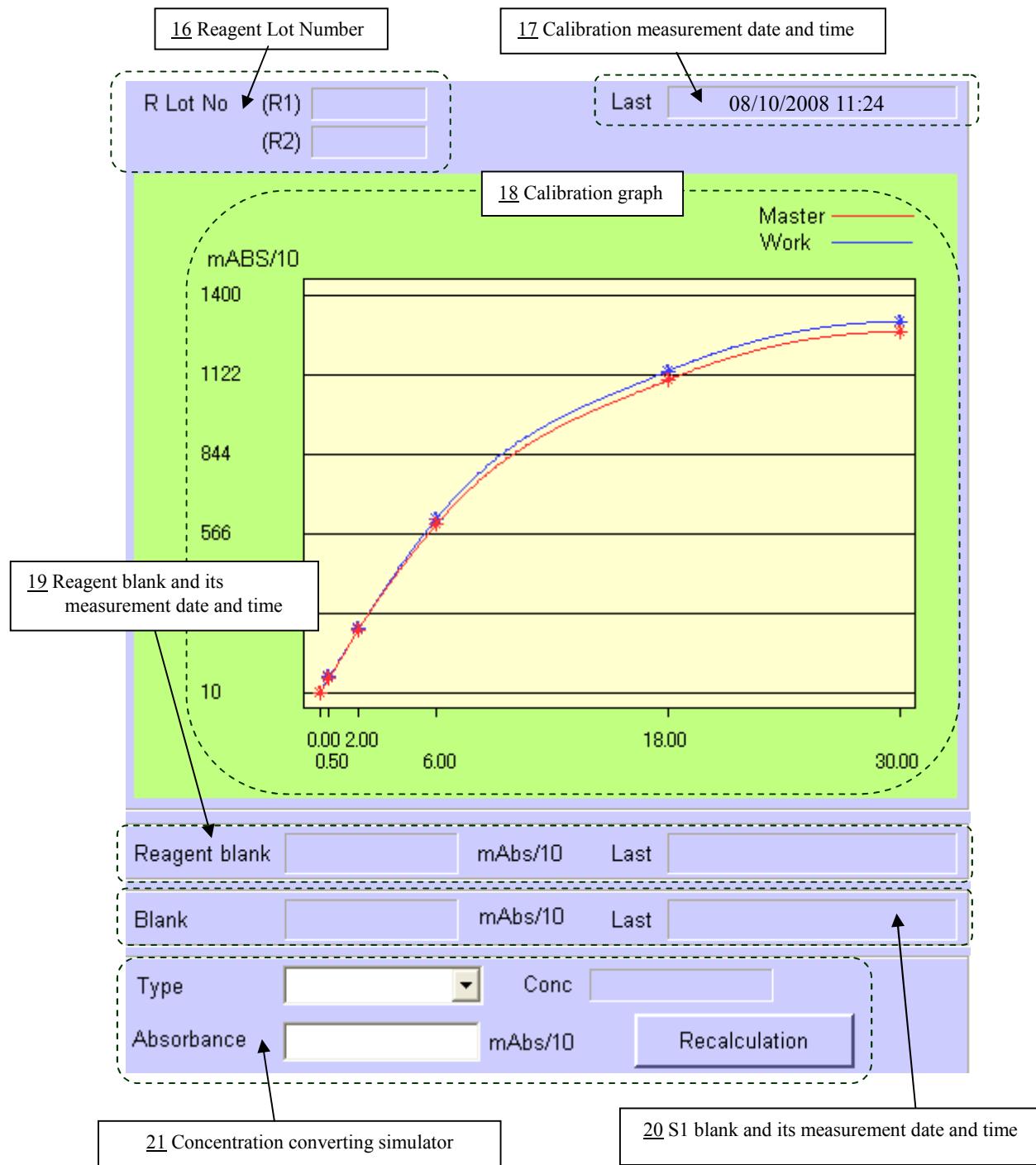
15. After the completion of selecting or inputting the necessary parameters for calibration, click the **Save** button. This action makes all the settings effective.
 The **Print** button for printing calibration parameters will be available after the save action.

Save **Cancel** **Print**

16. The reagent lot number (R1 or R2) used for calibration measurement will be displayed.
 If there is any information of a lot number on the barcode label attached on a reagent bottle, its number will be displayed. As you switch “New” and “Old”, this lot number will change consistently. (See item-10.)
17. The date and time executed a full calibration will be shown (yyyy / mm / dd hh:mm)
 As you switch “New” and “Old”, this date and time of measurement will change consistently. (See item-10.)
18. A graph of s calibration result will be shown.
 On the graph chart, the red line shows the Full-calibration result and the blue line shows Re-calibration. The horizontal axis is concentration and vertical is absorbance.
19. The latest reagent blank measurement (mAbs/10) its measurement date (yyyy / mm / dd hh:mm) will be shown.
20. The latest S1 blank measurement (mAbs/10) its measurement date and time (yyyy / mm / dd hh:mm) will be shown. When the calibration type is “Factor” and “Linear”, it is available.
21. This will be able to simulate a concentration conversion.
 This simulator enables to convert an absorbance into a concentration, using the current calibration curve.

Chapter 2 Measurement Procedure

- Type: Select either "Master" or "Work" as an applicable calibration curve.
- Absorbance: Type an absorbance value that will be calibrated.
- Conc: A concentration value after converting will be displayed.
- Recalculation:** By clicking this button, a converting calculation starts.



2.5 Caribration Setting 2.5.2 Cariblation Registration /Setting

2.5.3 Serial Dilution Setting

By auto diluting of a standard sample that is the maximum concentration, the analyzer produces some standard samples and executes calibration measurement, called this serial dilution.

This function can automatically calculate an appropriate amount of dilution relevant to necessary each standard sample on tab menu [Serial Dilu] of the job menu [Calibration(F7)].

By specifying the Method number on the screen, it will get a right dilute concentration, which is relevant to other standard samples, from maximum standard samples defined on the tab menu [Reg Calib]. (See Chapter 3 “3.3.2 [Serial Dilut]”)

2.5.4 Multi Standard Setting

This can be allocated some method to a standard sample. We call this “Multi Standard”. In advance to calibration measurement, define “Multi Standard” samples on the tab menu [Multi-Std] of the job menu [Calibration (F7)] (See Chap 3 “3.3.3 [Multi-Std]”)

2.5.5 Confirmation of ISE Calibration

For confirmation of ISE calibration result, go to see the Tab Menu [ISE] of the [Calibration (F7)]. (See Chapter 3 “3.3.4 [ISE]”)

2.5 Calibration Setting

2.5.3 Serial Dilution Setting / 2.5.4 Multi Standard Setting /

2.5.5 Configuration of ISE Calibration

2.6 Confirmation of System Parameters

A variety of condition settings for the whole system can be set as the system parameter by job menu [System (F9)]. When you execute the daily measurement work, the various settings and the definitions as the system parameters must be executed in advance.

There are the following tab menus for setting of the system parameters.

- (1) Setup: System settings
- (2) Reagent: Registration of Reagent information (Refer to Chapter 2 “2.2 Reagent Registration”)
- (3) Login: Login with password and Confirmation of software versions
- (4) Backup: Backup of data
- (5) Setup2: Definition of range of Technical Range
- (6) Define: Definition of Patient Information basic data
- (7) Range: Definition of Normal Range name

It is recommended that the backup of the system parameter and the measurement data be executed regularly to prepare for unexpected problems.

Refer to Chapter 3 “3.5 System Menu” for the specific content and the setting method of tab menu.

2.7 Test Selection Setting

The measurement schedule about which Method is executed to each sample is necessary before the measurement of samples is executed. This measurement schedule is called “Test Selection” or “Test Order”. Unique sample ID numbers are added to the all samples (Patient sample, Standard sample, Control sample, Blank sample) placed in ASP and the ID number identifies them. Therefore, Test Selection is to define about which Method is executed to each sample.

<Sample Barcode Management>

The Auto Sampler Unit (ASP) has a barcode reader as standard equipment. Therefore, if the barcode labels that have the barcode information of the sample ID number are stuck and are read with the ASP barcode reader, it can be automatically recognized which slot position in the ASP the sample is at. Therefore, you only have to define the relation between the sample ID number and the Method about the test selection in this case.

<Sample Barcode non-management>

When there sample ID barcode management is not applied, the relation between the sample ID number and the Method should be defined as Test Selection Setting after deciding about which ASP slot the sample which has certain sample ID number is in.

This system responds to both of Sample Barcode Management and Sample Barcode non-management.

Test Selection Setting is done basically by the Menu [Run (F5)] - [Selection]. However, Standard sample, Multiple standard sample, Dilution standard sample, Control sample, Blank sample, ISE wash solution and SPT wash solution except Patient sample can be placed at installation slot only for sample cup (the slot number I01 to I20) in the innermost circumference block in ASP. This innermost circumference block has the cold insulation function to prevent the liquid in cups from evaporating and its inside is kept 10°C or less for cold insulation. The samples placed in that area is the Sample Barcode non-management. Test Selection Setting for the innermost circumference block is done by tab menu [Run (F5)] – [Std QC]. (Refer to “2.7.2. Special Test Selection: [Run (F5)]-[Std QC]”)

When you place a sample cup in the ASP slot# I01 to I20 for a long time without applying, it is recommended to wrap proper waxed paper around the cup to protect evaporation and condensation for the liquid.

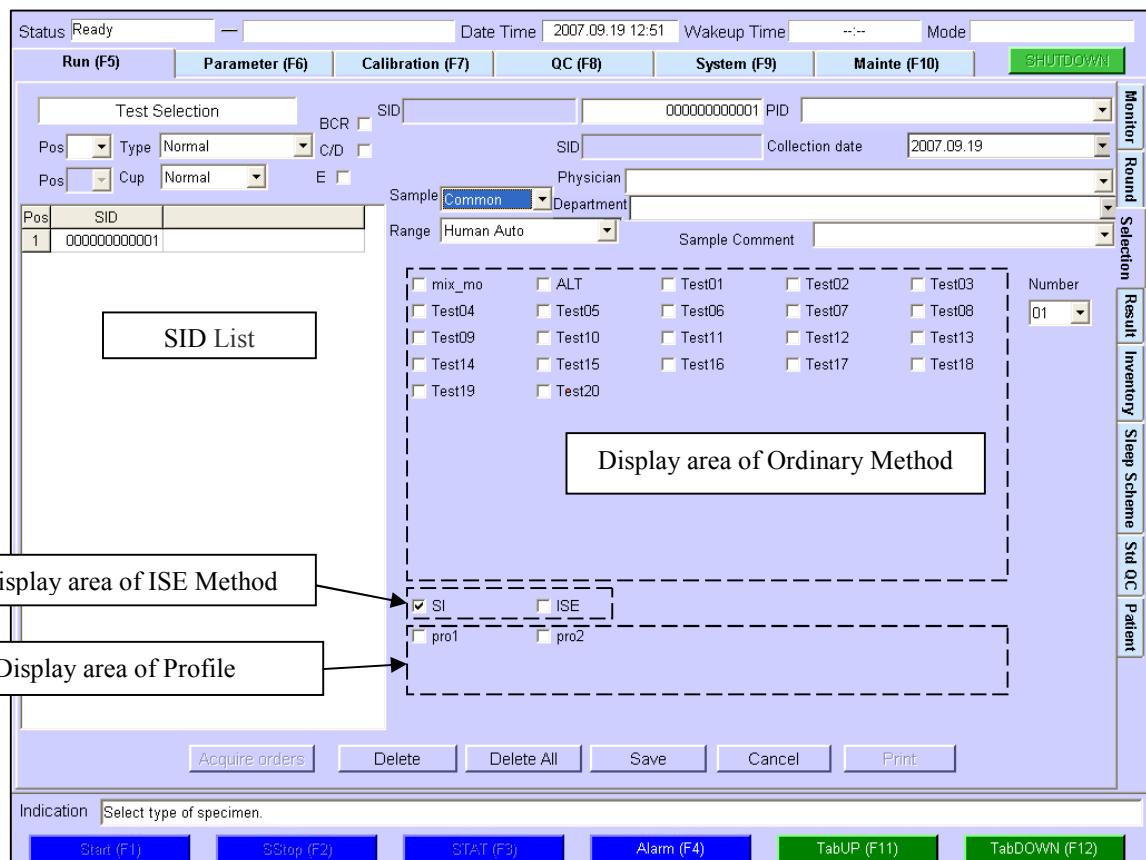
<The execution sequence of test selection>

The execution sequence of test selection is as follows.

First the content of tab menu [Std QC] is executed and then the content of tab menu [Selection] is executed.

Chapter 2 Measurement procedure

2.7.1 Normal Test Selection:[Run (F5)]-[Selection]



The background color of warning for Method display (Ordinary Method and ISE Method) is shown in the table below.

Priority	Method background color	Meaning of warning notice
High	Red	The calibration measurement has not been executed or the time limit of calibration has passed.
Middle	Yellow	The control measurement has not been executed or the time limit of control has passed.
-----	Dark Gray	The method is not executable because its method is set on the mask. Refer to "2.7.1.9 Mask Setting" to release the mask condition.

2.7 Test Selection Setting

2.7.1 Normal Test Selection: [Run (F5)]-[Selection]

2.7.1.1 Normal Sample (Normal)

Measurement will be proceeded in ASP position order.

<Order setting procedure>

- 1 Specify the ASP slot number to place the sample.
In the case of Barcode Management : Select “Blank” without the slot number.
In the case of Barcode Non-management : Select the slot number from drop-down menu.
outer circumference 36 (1 to 36),
middle circumference 36 (37 to 72)
- 2 Select “Normal” as the sample type from drop-down menu.
- 3 When using the barcode reader for the keyboard, click this “BCR” box ON.
- 4 Select the type of the sample cup.
Select either “Normal” or “Pediatric” from drop-down menu.
However, The selection of “Pediatric” becomes effective only for Normal samples or Emergency samples.
- 5 Set the sample ID number (SID)
When making high-order digit the fixed number, defining can be done by tab menu [System (F9)] – [Setup] in advance. After defining, you have only to input low-order digit. However, that becomes effective only when “Normal” of sample cup has been selected.
When “Pediatric” has been selected, inputting the SID number of four digits becomes possible and “8999” of upper 4 figures is automatically added. (Refer to “1.4.2. Sample Identification Code”)
As the default, SID number is automatically produced, that SID number is same as the designated ASP slot number in “Pos”. (In the case of barcode non-management.)
- 6 Set the Patient ID number. Selecting ones have been set by tab menu [Patient] from the drop-down menu is possible. When PID number is inputted into the “PID” box, if its PID is not registered in advance, the pop-up screen for definition of patient information is automatically popped up to determine the patient information, and its pop-up screen is disappeared after completing the definition. (Note: The pop-up screen is very close to “3.5.6 [Define]”.)
- 7 When being still Normal sample and treat as the Emergency sample(STAT), click this “E” box (Emergency sample specification) ON.
- 8 Set a drawing blood date from the calender by pulling down the drop-down menu.

The screenshot shows the 'Test Selection' screen with various input fields and dropdown menus. The fields are labeled as follows:

- 1 ASP Slot number:** Pos dropdown (highlighted in yellow).
- 2 Sample type:** Type dropdown (highlighted in yellow), showing 'Normal'.
- 3 Keyboard BCR:** BCR checkbox (highlighted in yellow).
- 5 Sample ID number:** SID dropdown (highlighted in yellow).
- 6 Patient ID number:** PID dropdown (highlighted in yellow).
- 4 Sample cup type:** Cup dropdown (highlighted in yellow), showing 'Normal'.
- 7 Emergency sample specification:** E checkbox (highlighted in yellow).
- 8 Drawing blood date:** Collection date dropdown (highlighted in yellow), showing '2007.08.19'.

Other visible fields include: Test Selection dropdown, C/D checkbox, Physician dropdown, Department dropdown, Range dropdown (Human Auto), and Sample Comment dropdown.

Chapter 2 Measurement procedure

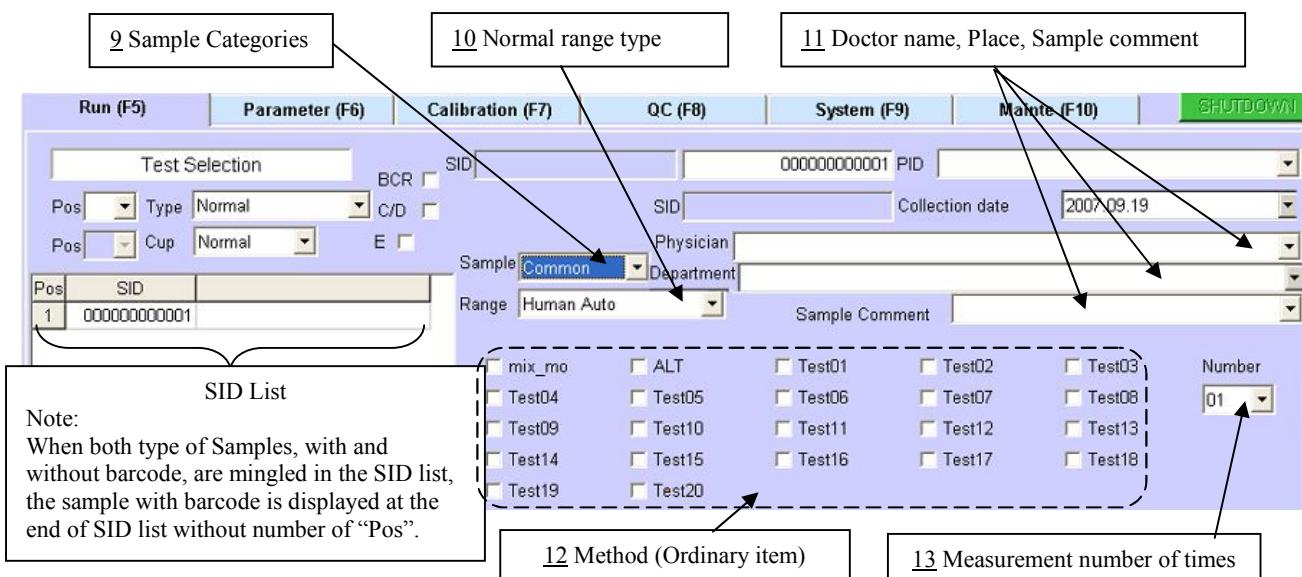
9 Select the sample category. Select Common or Serum or Urine or Plasma from drop-down menu.

10 Select the type of normal range taht is the evaluation standard of measurement result.

Default is “Human Auto”.

Human Auto means that the type of the normal range is automatically selected from the sex and the age of the patient which was set by tab menu [Patient] and the judgment is performed by that reference value. However, when the age of the patient is uncertain, it is treated as the middle generation (G2).

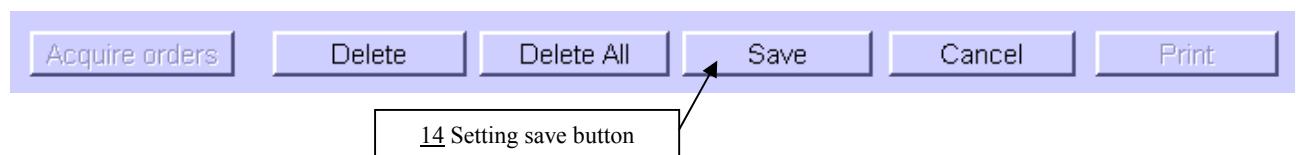
11 Select Doctor name and Place and Sample Comment from each drop-down menu. It is necessary to set these information beforehand. When they have not been set, the drop-down menu is blank. These setting information is added to the printer output of the measurement result.



12 Specify the Method. When clicking the box on the left side of Method name ON, taht Method is orderd. ISE and the profile are in the lower part than the display area of the Ordinary Method.

13 Specify the measurement number of times to the Method from drop-down menu of the “Number” box. Default value is once. Allowable range is 1 ~ 99. When this repetition measurement number of times is two or more, the rerun is not executed (when being outside the technical range and outside the prozone check range, the rerun becomes the object).

14 Then fixing the setting contents, click the **Save** button in the lower part of screen. After fixing them, the ASP sample position number and its Sample ID number (SID) are displayed in Order list on the left side of screen. In the case of the Barcode management sample, the ASP sample position number is blank. Execute from the procedure-1 when continuously executing the Test Selection of another sample. After saving the setting contents, SID number is automatically counted up by one.



2.7 Test Selection Setting

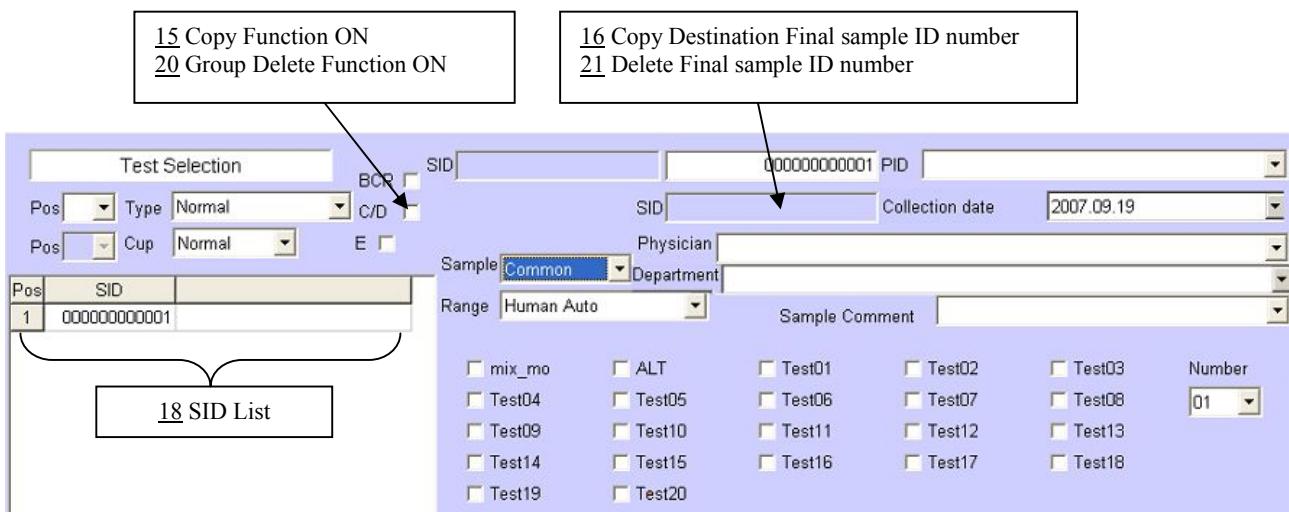
2.7.1 Normal Test Selection: [Run (f5)]-[Selection]

2.7.1.1 Normal Sample (Normal)

<Order Copy Procedure (in the case of the barcode management)>

After proceeding the procedures-13;

- 15 When wanting to apply the present content of the test order to two or more sample IDs, click the “C/D” box ON.
- 16 Input the copy final sample ID number.
- 17 Click the **Save** button. The present test order is continuously set to the final sample ID.



2.7 Test Selection Setting

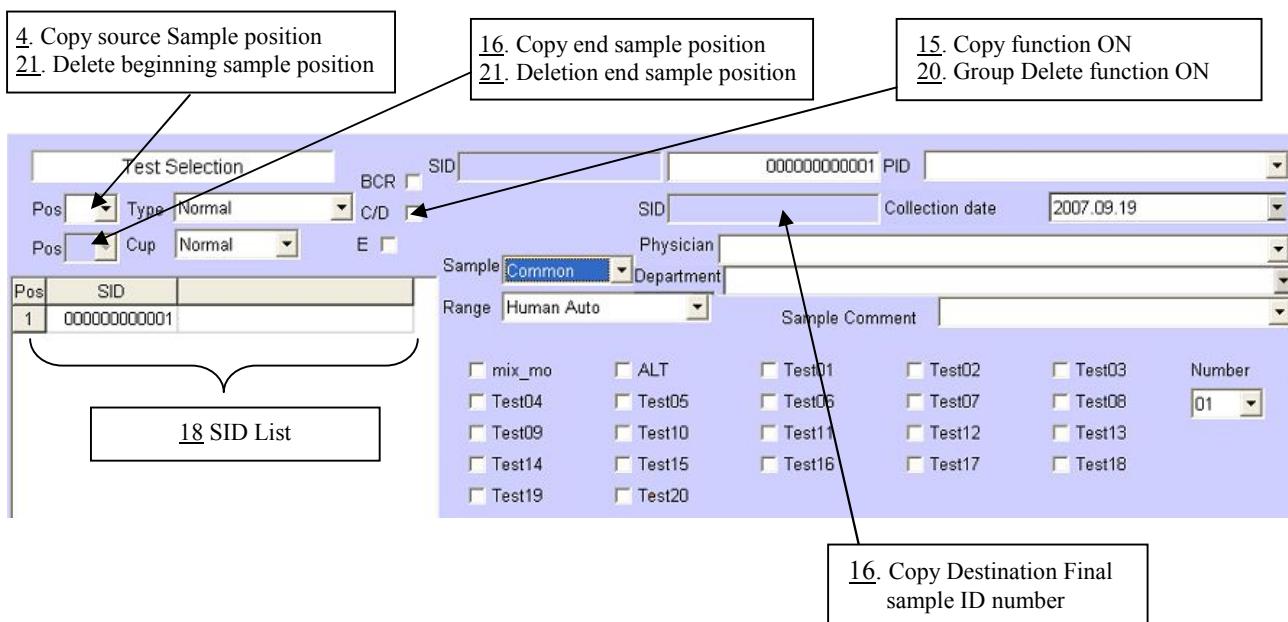
2.7.1 Normal Test Selection: [Run (f5)]-[Selection]

2.7.1.1 Normal Sample (Normal)

<Order Copy Procedure (in the case of the barcode non-management)>

After proceeding the procedures-13;

- 15 When wanting to apply the present content of the test order to two or more sample IDs, click the “C/D” box ON.
- 16 Set ASP slot number of the copy end sample or input the copy destination final sample ID number.
When the copy end slot number is set, the present test order will be automatically copied between the copy source slot number and the copy end slot number. The setting box for the end sample ID number of copy destination becomes unavailable.
When the sample ID number of the copy end is inputted to its box, the present test order will be continuously copied until the end sample ID number of copy destination.
- 17 When click the **Save** button, the copy of the order is executed.



2.7 Test Selection Setting

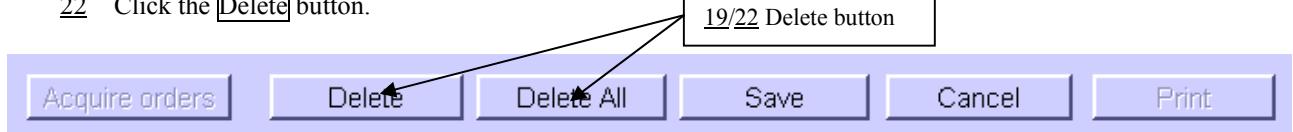
2.7.1 Normal Test Selection: [Run (f5)]-[Selection]

2.7.1.1 Normal Sample (Normal)

<Deletion Procedure of Order>

- 18 The SID numbers of all samples set in ASP such as current Normal sample, Standard sample, Control sample, etc. are displayed in “SID List” on the left of the screen.
- 19 When deleting the orders of all samples, click the **Delete All** button.
When delete the order of a specified sample, click the sample ID number (SID) or the patient ID number (PID) in the order list and then the order state of its sample (Method) is displayed, and so click the **Delete** button after confirmation.
- 20 When deleting the orders of a group of sample IDs within the range, click the “C/D” box ON.
- 21 In the case of the barcode management sample, input the Delete final sample ID number. (See page 2-46.)
In the case of barcode non-management sample, set the Delete beginning slot number and the Deletion end slot number in the lower “Pos” part. (See page 2-47.)

- 22 Click the **Delete** button.



- 23 When clicking the **Delete** or **Delete All** button, the sample IDs to delete are deleted from the order list on the screen, and the screen becomes in the status to wait clicking the **Save** button or the **Cancel** button.



When clicking the **Cancel** button, deletion becomes invalid and the former state returns.

When clicking the **Save** button, the following alert messages is displayed at the center of the screen by the pop-up to confirm the deletion execution. When actually executing deletion, click the **OK** button. When invalidating deleting, click the **Cancel** button.



message for **Delete**



message for **Delete All**

2.7 Test Selection Setting

2.7.1 Normal Test Selection: [Run (f5)]-[Selection]

2.7.1.1 Normal Sample (Normal)

2.7.1.2 Emergency Sample (STAT)

Measurement will be proceeded in ASP position order same as normal sample.

<Order setting procedure>

- 1 Specify the ASP slot number to place the sample from drop-down menu. (1 ~ 72)

2 Select “STAT” as the sample type from drop-down menu.

3 When using the bar-code reader for the keyboard, click this “BCR” box ON.

4 Select the typ of sample cup. (This is similar to Procedure of Normal sample-4)

5 Set sample ID number. Input the numeric code of 3 digits.
When Normal has been selected as the Sample cup, “99000” of upper 5 figures is automatically added. When Pediatric has been selected as the Sample cup, the numerical value of 2 digits can be input as Sample ID number and “990009” of last 6 digits is automatically added. (Refer to “1.4.2 Sample Identification Code”).
As the default, SID number tht is same as the designated ASP slot number in “Pos” is produced automatically to save the operator’s labor.

6 Set the Patient ID number (PID). (This is similar to Procedure of Normal sample-6)
Procedure of Normal sample-7 doesn’t exist in the case of Emergency sample.
The same procedures as from procedure-8 to procedure-13 of Normal sample are applied in the case of Emergency sample.

Run (F5)		Parameter (F6)		Calibration (F7)		QC (F8)		System (F9)		Mainte (F10)		EL	SHUTDOWN	
Test Selection				BCR <input checked="" type="checkbox"/>		SID <input type="text" value="99000901"/>		PID <input type="text"/>		Collection date		<input type="text" value="2007.09.19"/>		
Pos	<input type="button" value="01"/>	Type	<input type="button" value="STAT"/>	C/D	<input type="checkbox"/>									
Pos	<input type="button" value=""/>	Cup	<input type="button" value="Normal"/>			Sample	<input type="button" value="Common"/>	Physician						
Pos	<input type="button" value=""/>	<input type="text" value="SID"/>		<input type="text"/>		Range	<input type="button" value="Human Auto"/>	Department						
1	<input type="text" value="99000901"/>	<input type="text"/>		<input type="text"/>		<input type="text"/>		<input type="text"/>		<input type="text"/>		<input type="text"/>		
Sample Comment <input type="text"/>														

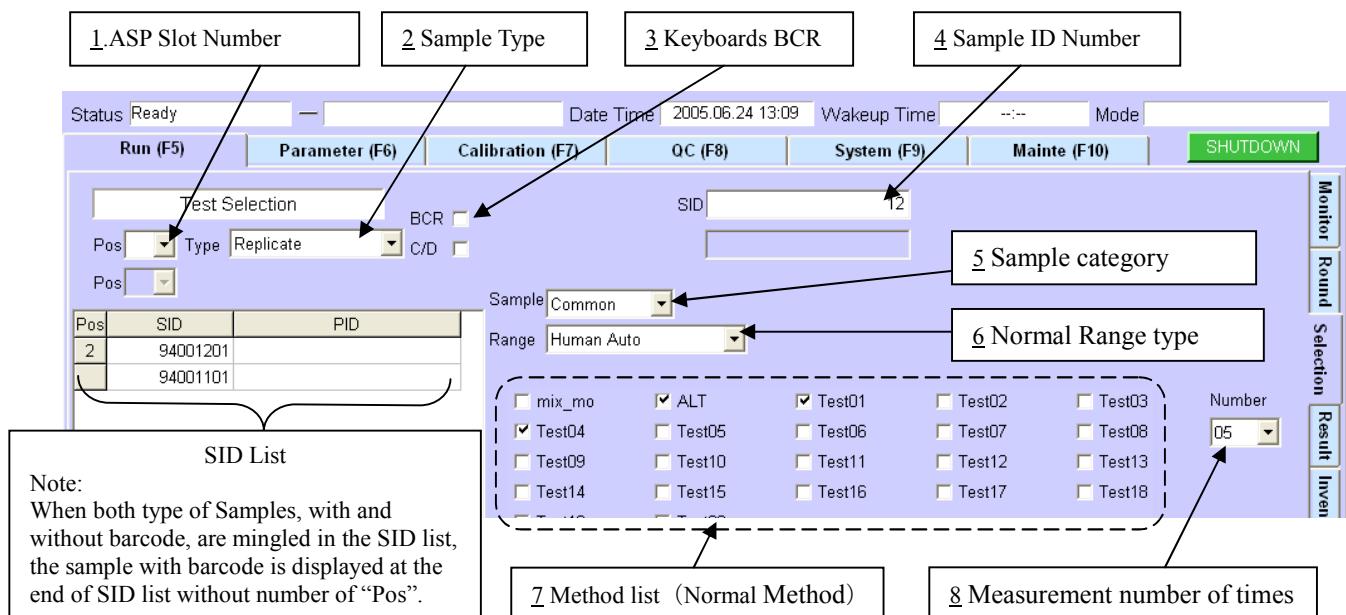
- <Order copy procedure > (In the case of Barcode Management) >
- <Order copy procedure > (In the case of Barcode Non-management)
- <Delete procedure of order>

This is similar from Setting Procedure-14 to Setting Procedure-22 of “2.7.1.1 Normal Sample (Normal)”.

2.7.1.3 Replicate Sample (Replicate)

< Order Setting / Delete Procedure >

- 1 Specify the ASP slot number to place the sample.
 In the case of Barcode Management: Select “Blank” without the slot number.
 In the case of Barcode Non-management: Select the slot number from drop-down menu.
 outer circumference 36 (1 ~ 36),
 middle circumference 36 (37 ~ 72)
- 2 Select “Replicate” as the sample type from drop-down menu.
- 3 When using the barcode reader for the keyboard, click this “BCR” box ON.
- 4 Specify the sample ID number. Inputting the numeric value of 2 digits is possible and “9400” of upper 4 figures and “01” of last 2 digits are automatically added. (Refer to “1.4.2. Sample Identification Code”).
 As the default, SID number is automatically produced, that SID number is same as the designated ASP slot number in “Pos”.
- 5 Select sample category. Select Common / Serum / Urine / Plasma from drop-down menu.
- 6 Select the type of the normal range taht is the evaluation standard of the measurement result. Default is “Human Auto”.
 Human Auto means that the type of the normal range is automatically selected from the sex and the age of the patient set by tab menu [Patient] and the judgment is performed by that reference value. However, when the age of the patient is uncertain, it is treated as the middle generation (G2).
- 7 Specify the Method. When clicking the box on the left side of Method name ON, that Method is ordered. ISE and the profile are in the lower part than the display area of the ordinary Method.
- 8 Specify the measurement number of times to the specified Method from drop-down menu of the “Number” box. Allowable range is 1 ~ 99. In case of Replicate sample, auto-rerun is not available.



- 9 Click the **Save** button in the lower part of screen to fix setting contents. When fixed, in the case of the sample of Barcode Non-management, the ASP Sample position number and its Sample ID number (SID) are displayed in “SID List” in the left side of the screen. In the case of the sample of Barcode management, the ASP Sample position number is the blank. Execute from the procedure-1 when continuously doing Test Selection of another sample.

After saving the setting contents, SID number is automatically counted up by one.

2.7 Test Selection Setting

2.7.1 Normal Test Selection: [Run (f5)]-[Selection]

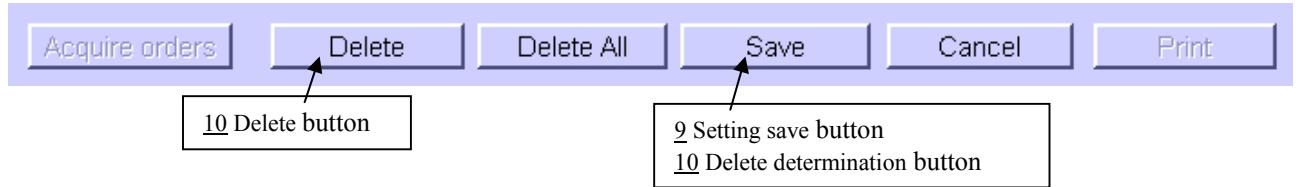
2.7.1.3 Replicate Sample (Replicate)

Chapter 2 Measurement procedure

- 10 When Delete, Click the SID number that shows Replicate sample in “SID List” and click the **Delete** button. Specified sample will be delete from the list on the screen, and click the **Save** button next. Alert message of deletion confirmation

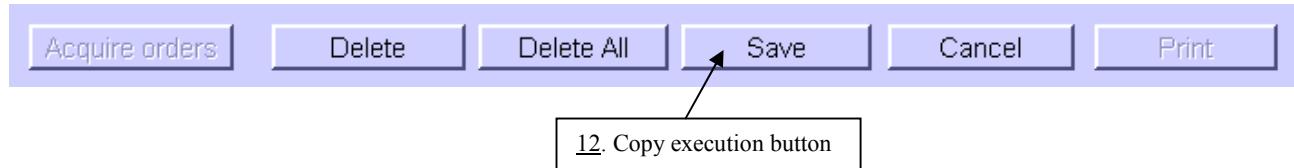
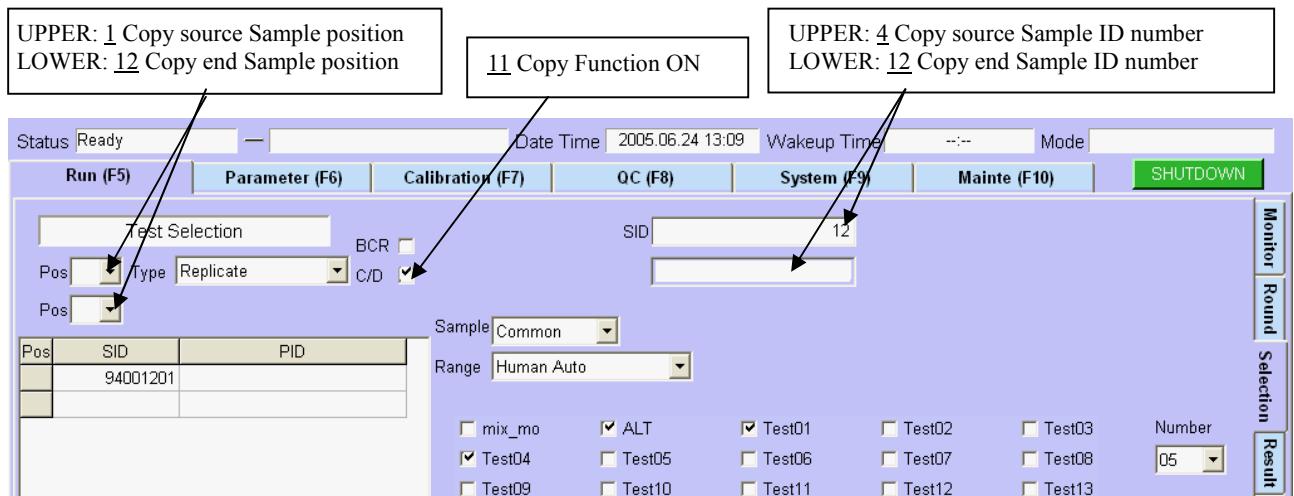
“Warning ! Is it all right if the specified order is deleted ?”

is displayed at the center of the screen by the Pop-up. Executing delete, click the **OK** button.in the Pop-up message.



<Order Copy Procedure>

- 11 When applying the order of the present sample ID number (SID) to the other sample ID, after setting sample ID number of “SID” part by Procedure-4, click the “C/D” box ON.
- 12 In the case of Barcode Management : Input the Copy end sample ID number (2digits) in the Input part right under the “SID” box.
In the case of Barcode Non-management : Set the Copy end sample position number in the lower “pos” part. Select the position number from drop-down menu.
- 13 Click the **Save** button and the test order will be copied within the range of the samples which is set by any one of above-mentioned method.



2.7 Test Selection Setting

2.7.1 Normal Test Selection: [Run (f5)]-[Selection]

2.7.1.3 Replicate Sample (Replicate)

2.7.1.4 Standard Sample (Standard)

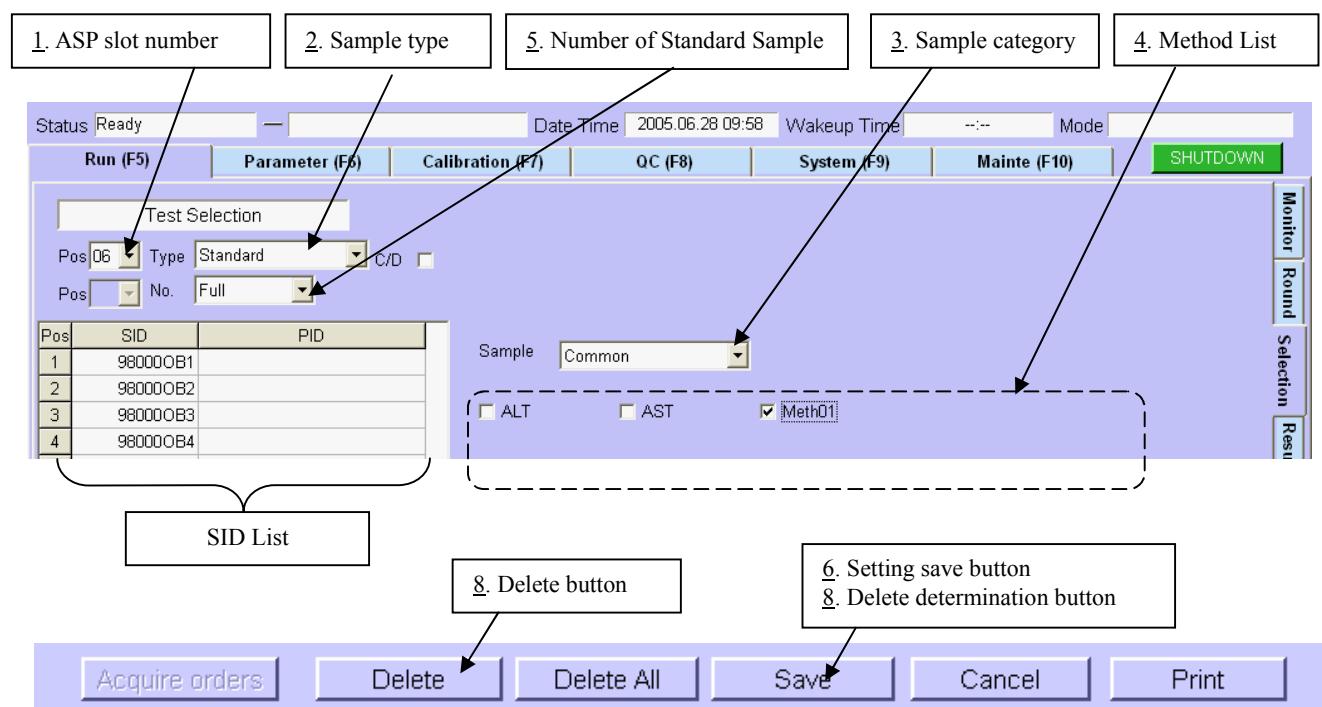
The Standard sample to which the barcode management is applied can be judged about all necessary information in the inside of the system from the content of the barcode label. Therefore, place the Standard samples of necessary number in ASP and no necessary to set the order. When samples are not managed by the barcode, it is necessary to set those Test Order according to the following procedures.

<Order Setting / Delete Procedure>

- 1 Specify the slot number of ASP to place the standard sample from drop-down menu. (1 - 72)
- 2 Select “Standard” as the sample type from drop-down menu.
- 3 Select sample category. Select Common / Serum / Urine / Plasma from drop-down menu.
- 4 Set Method. (Only one type can be selected.)
- 5 Specify the number of sample in “No” part. For Full-calibration, select “Full” and for Re-calibration, select the number of Standard sample to place (which standard sample). (Refer to “2.5.2. Registration and setting for calibration.”)
- 6 Click **Save** button and the order is fixed and the SID number of calibrator is displayed in the “SID List”. (Refer to “1.4.2. Sample Identification Code”).
- 7 In case for two or more calibrators by Re-calibration, repeat from Procedure-1 to Procedure-6.
- 8 As for delete, click the SID number that shows the Standard sample in “SID List” and click the **Delete** button. The specified sample is deleted from the list on the screen, and so click the **Save** button next. Alert message of deletion confirmation

“Warning ! Is it all right if the specified order is deleted ?”

is displayed at the center of the screen by the Pop-up. To delete, click the **OK** button in the Pop-up message.



2.7 Test Selection Setting

2.7.1 Normal Test Selection: [Run (f5)]-[Selection]

2.7.1.4 Standard Sample (Standard)

2.7.1.5 Multi Standard Sample (Multi Standard)

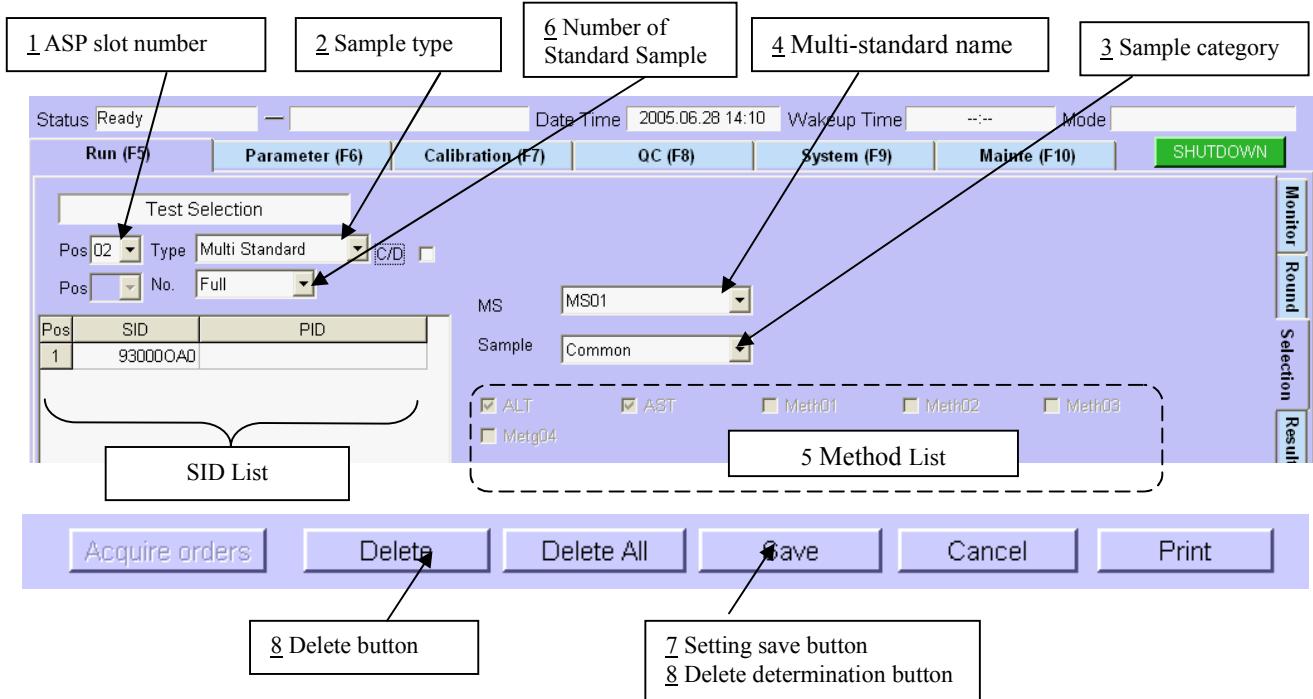
When the barcode management is applied, all necessary information can be judged in the inside of the system from the content of the barcode label. Therefore, place the Multi Standard samples of necessary number in ASP and no necessary to set the order. When samples are not managed by the barcode, it is necessary to set those Test Order according to the following procedures.

<Order Setting / Delete Procedure>

- 1 Specify the slot number of ASP to place the Multi-standard sample from drop-down menu. (1 - 72)
- 2 Select “Multi Standard” as the sample type from drop-down menu.
- 3 Select the Sample category. Select Common / Serum / Urine / Plasma from drop-down menu. (Follow the content registered by Tab Menu [Calibration (F7)] – [Multi-Std]).
- 4 Select the Multi Standard name from drop-down men.
- 5 The method is ordered according to the content registered by tab menu [Calibration (F7)] – [Multi-Std].
- 6 Specify the number of sample in “No” part. For Full-calibration, select “Full” and for Re-calibration, select the number of Standard sample to place (which standard sample). (Refer to “2.5.2. Registration-and setting for calibration”).
- 7 Click the **Save** button and the order is fixed and the SID number of Multi-standard Sample is displayed in the “SID List”. (Refer to “1.4.2. Sample Identification Code”).
- 8 As for Delete, Click the SID number that shows the Multi standard sample in “SID List” and click the **Delete** button. The specified sample is delete from the list on the screen, and so click the **Save** button next. Alert message of deletion confirmation

“Warning ! Is it all right if the specified order is deleted ?”

is displayed at the center of the screen by the Pop-up. To delete, click the **OK** button.in the Pop-up message.



2.7 Test Selection Setting

2.7.1 Normal Test Selection: [Run (f5)]-[Selection]

2.7.1.5 Multi Standard Sample (Multi Standard)

2.7.1.6 Dilution Standard Sample (Serial Dilution)

Before executing the test selection setting, the necessary dilution rate and the dilution stage need to be decided in tab menu [Calibration (F7)] – [Serial Dilut].

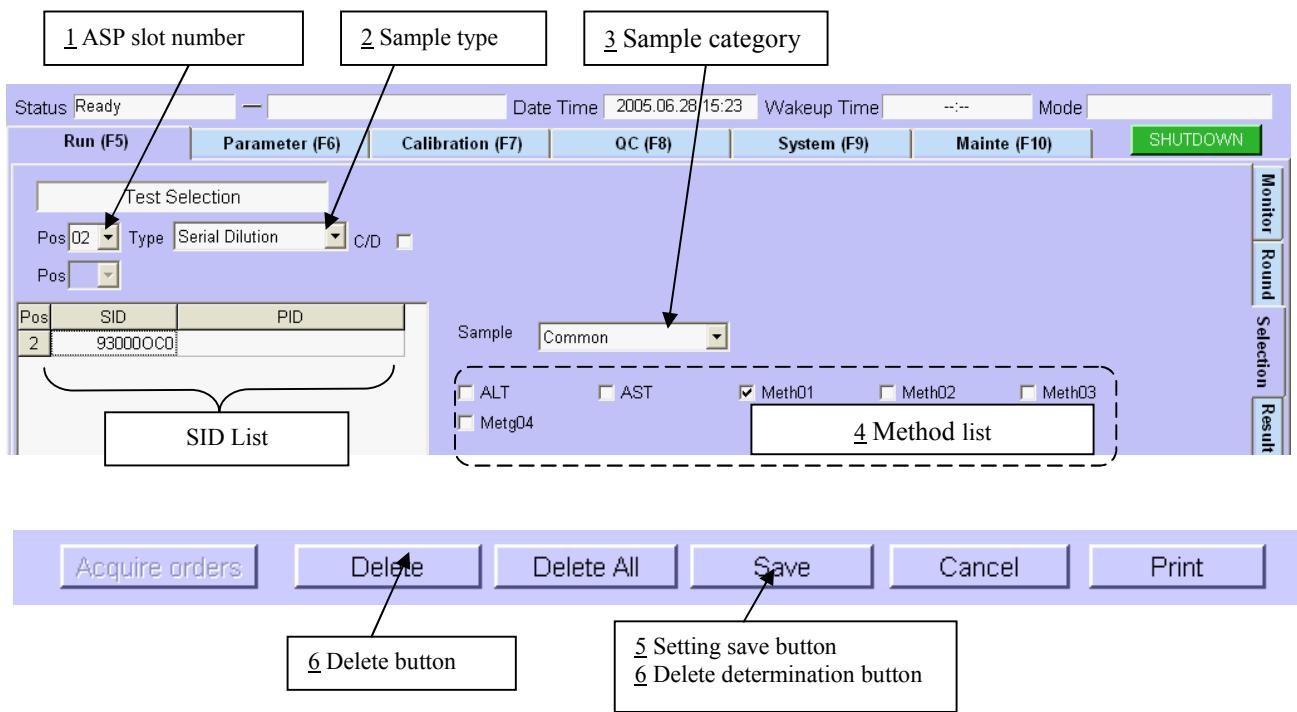
When the barcode management is applied, all necessary information can be judged in the inside of the system from the content of the barcode label. Therefore, place the required dilution standard sample in the ASP and the order setting is not required. When samples are not managed by the barcode, it is necessary to set the Test Order according to the following procedures.

<Order Setting / Delete Procedure>

- 1 Specify the ASP slot number to place the dilution standard sample from the drop-down menu.
- 2 Select “Serial Dilution” as the sample type from drop-down menu.
- 3 Select the sample category. Select Common / Serum / Urine / Plasma from drop-down menu.
- 4 Specify the Method. Click the box on the left side of a Method name and this Method will be ordered. Follow the Setting contents of tab menu [Serial Dilut] on job menu [Calibration (F7)] about Procedure-3 and Procedure-4.
- 5 Click the **Save** button and the order is fixed then the SID number of the dilution standard sample is displayed in the “SID List”. (Refer to “1.4.2. Sample Identification Code.”).
- 6 As for Delete, click the SID number that shows the dilution standard sample in “SID List” and click the **Delete** button. The specified sample is deleted from the list on the screen and so click the **Save** button next. Alert message of deletion confirmation

“Warning ! Is it all right if the specified order is deleted ?”

is displayed at the center of the screen by the Pop-up. To delete, click the **OK** button in the Pop-up message.



2.7 Test Selection Setting

2.7.1 Normal Test Selection: [Run (f5)]-[Selection]

2.7.1.6 Dilution Standard Sample (Serial Dilution)

2.7.1.7 Blank Sample (Blank)

Before executing the Test selection setting of the blank sample, “Enable S1 Blank (Factor or Linear)” needs to be set by tab menu [Parameter (F6)] – [Normal2].

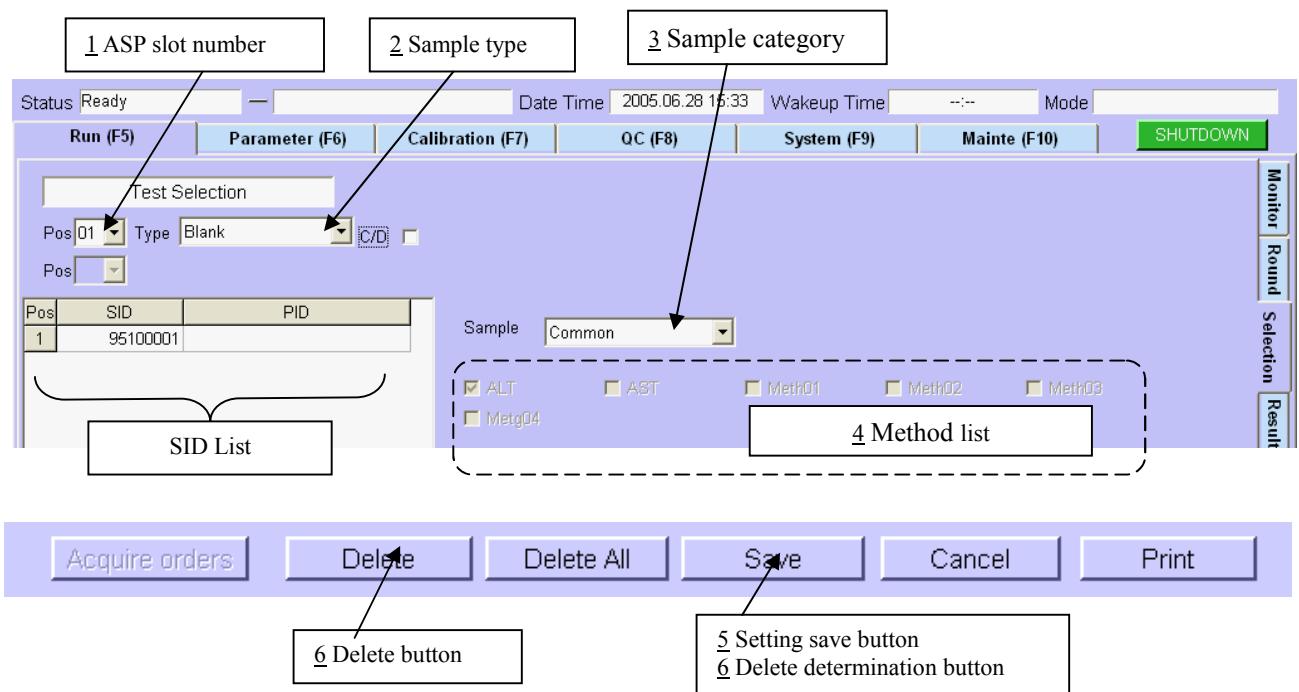
When the barcode management is applied, all necessary information can be judged in the inside of the system from the content of the barcode label. Therefore, place the required blank sample in ASP and the order setting is not required. When samples are not managed by the barcode, it is necessary to set the Test Order according to the following procedures.

<Order Setting / Delete Procedure>

- 1 Specify the ASP slot number to place the blank sample from drop-down menu.
- 2 Select “Blank” as the sample type from drop-down menu.
- 3 Select the sample category. Select Common / Serum / Urine / Plasma from drop-down menu.
- 4 Only the Methods whose “Blank measurement enable” was set by tab menu [Parameter (F6)] – [Normal2] has been ordered. (You cannot change the order here.)
- 5 Click **Save** button and the order is fixed then the SID number of the blank sample is displayed in the “SID List”. (Refer to “1.4.2. Sample Identification Code.”).
- 6 As for Delete, click the SID number that shows the blank sample in “SID List” and click the **Delete** button. The specified sample is deleted from the list on the screen and so click the **Save** button next. Alert message of deletion confirmation

“Warning ! Is it all right if the specified order is deleted ?”

is displayed at the center of the screen by the Pop-up. To delete, click the **OK** button in the Pop-up message.



2.7 Test Selection Setting

2.7.1 Normal Test Selection: [Run (f5)]-[Selection]

2.7.1.7 Blank Sample (Blank)

2.7.1.8 Control Sample (Control)

Before executing the Test selection setting of the control sample, it is necessary to register the name of the control sample by tab menu [QC (F8)] – [Registration] and set the Method which is applied on tab menu [Settings] and the accuracy management data..

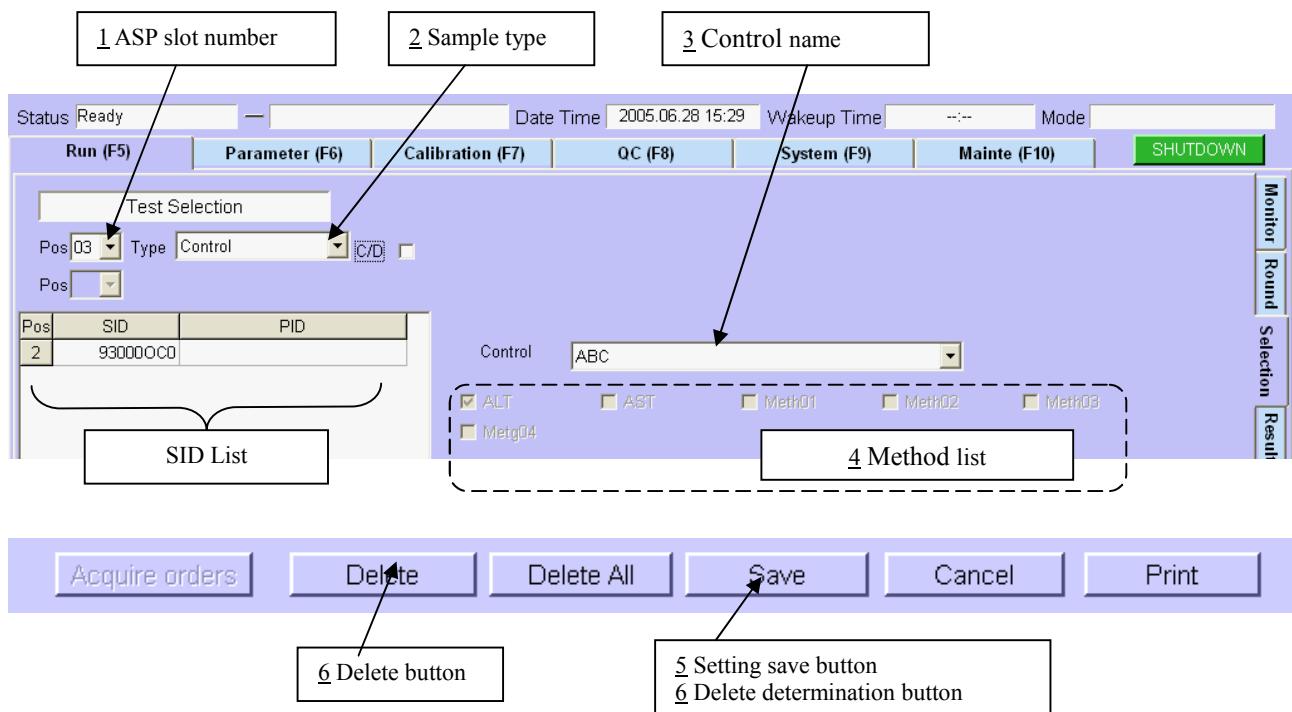
When the barcode management are applied, all necessary information can be judged in the inside of the system from the content of the barcode label. Therefore, place the required control samples in the ASP and the order setting is not required. When samples are not managed by the barcode, it is necessary to set the Test Order according to the following procedures.

<Order Setting / Delete Procedure>

- 1 Specify the ASP slot number to place the control sample from drop-down menu.
- 2 Select “control” as the sample type from drop-down menu.
- 3 Select the name of the control sample from drop-down menu.
- 4 The Methods which was set by tab menu [QC (F8)] – [Settings] has been order.
- 5 Clicking the **Save** button and the order is fixed then the SID number of the control sample is displayed on the Order List. (Refer to “1.4.2. Sample Identification Code”.)
- 6 As for Delete, click the SID number that shows the control sample in “SID List” and click the **Delete** button. The specified sample is deleted from the list on the screen and so click the **Save** button next. Alert message of deletion confirmation

“Warning ! Is it all right if the specified order is deleted ?”

is displayed at the center of the screen by the Pop-up. To deletion, click the **OK** button in the Pop-up message.



2.7 Test Selection Setting

2.7.1 Normal Test Selection: [Run (f5)]-[Selection]

2.7.1.8 Control Sample (Control)

2.7.1.9 Mask Setting (Mask)

The Method that can be measured on this analyzer, that is to say, about the Method which meets the condition that the chemistry parameter is set and the calibration curve exists and the necessary reagent for the measurement exists in RCU, too, even if the test order exists, forbidding the actual measurement is enabled. This is called “Mask settings”.

When the mask is ON (no check mark), its method is not applied to the measurement for specimen (include profile), control and calibration (include multi-standard).

<Mask settings / Procedure of release>

1 Select “Mask” as the sample type from drop-down menu.

2 Select Normal / Control / Standard as the Mask Type.

3 The mask state of the Method is displayed.

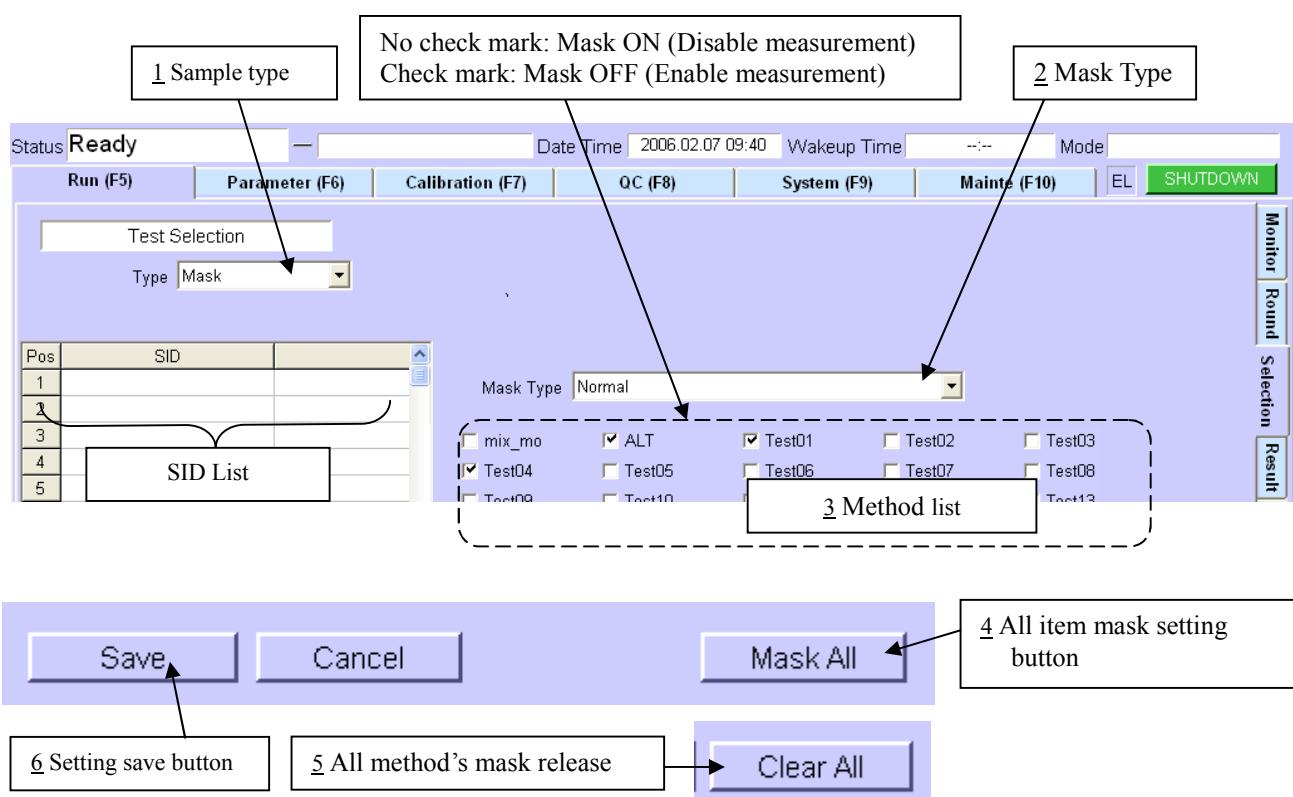
The Methods with check mark in the check box of the Method name show the mask off, and they become measurable Methods. When clicking the check mark again, the mark disappears and the Method becomes the mask on, and becomes the measurement forbiddance Method.

4 When making all Methods the mask on, click the **Mask All** button.

5 After that, the button changes to the **Clear All** button. When clicking this button, the masks of all Methods are reset, and all Methods become measurable Methods.

6 When clicking **Save** button, the mask state of the Method list is fixed.

NOTE: “SID Llist” in the left of the screen only displays the current order state of measurable Method and there is no influence on the state of the mask.



2.7 Test Selection Setting

2.7.1 Normal Test Selection: [Run (f5)]-[Selection]

2.7.1.9 Mask Settings (Mask)

2.7.1.10. Orderless Sample (Orderless)

Before executing the orderless measurement, the Method that permits measuring can be selected beforehand.

NOTE : The Orderless measurement means that when “Shift” key and the “F1” key are pushed at the same time, all measurable Methods of all samples that exist in ASP will be measured.

<Selection procedure of Method>

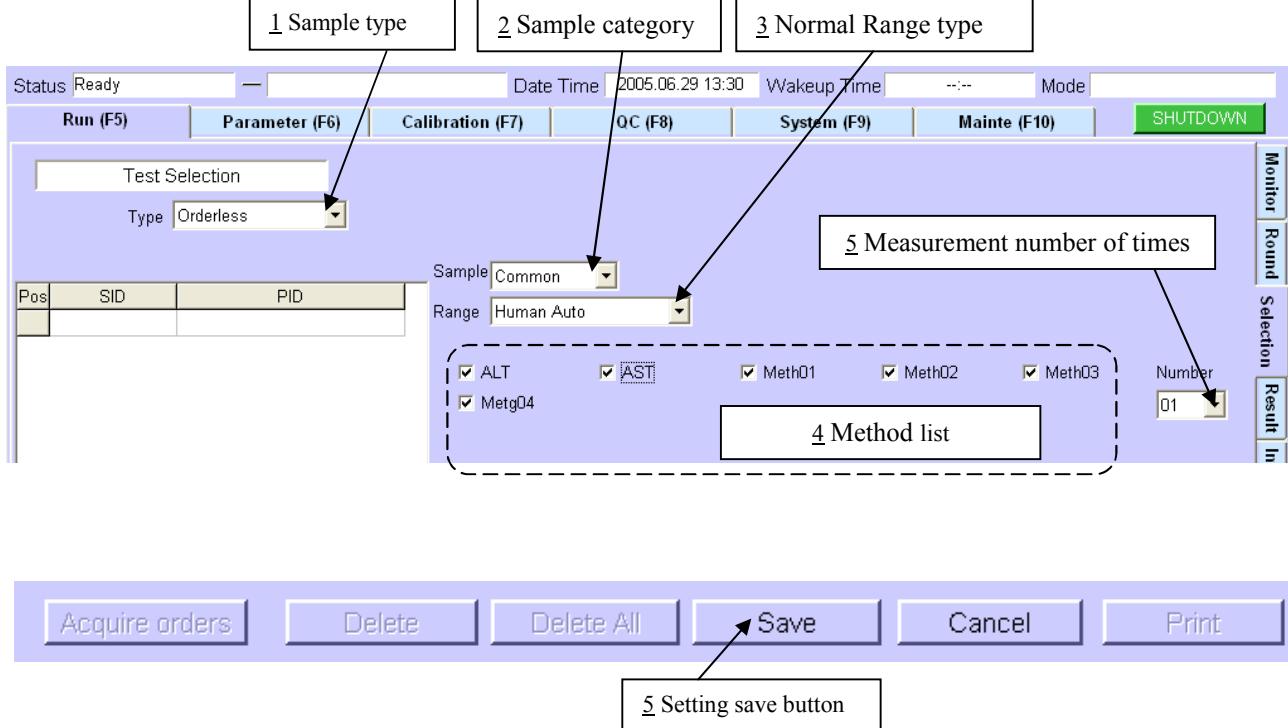
- 1 Select “Orderless” as the sample type from drop-down menu.
- 2 Select sample type. Select Common / Serum / Urine / Plasma from drop-down menu.
- 3 Select the type of Normal range taht is the evaluation standard of measurement results. Default is “Human Auto”.

Human Auto means that the type of the normal range is automatically selected from patient's sex and age set by Taab Menu [Patient] and the judgment is performed by that reference value. However, when the patient's age is uncertain, it is treated as the middle generation (G2).

- 4 Set No Permission / Permission of measurement by the Method list.

The Methods that have the check mark in the check box in the left side of the Method name are measurement permission Methods. Methods that don't have the check mark on that area are no permission Methods. Every time the check box is clicked, the check mark alternately changes between ON and OFF.

- 5 Specify the measurement number of times to the Method from drop-down menu of “Number” box. Default is one time. Allowable range is 1 ~ 99. When this replicate number is two or more, the auto-rerun is not executed. (when the result is over the Technical Range and Prozone Check Range, the auto-rerun becomes available.)
- 6 Clicking the **Save** button and the Method is fixed.



2.7 Test Selection Setting

2.7.1 Normal Test Selection: [Run (f5)]-[Selection]

2.7.1.10 Orderless Sample (Orderless)

2.7.1.11. Online Sample (Online)

“On Line Batch” or “On Line Real time” should be selected beforehand as Host Communication Mode by tab menu [System (F9)] – [Setup] to execute the online measurement. In case of Online real time and sample barcode management, the order is automatically established by the communication between the host computer and the analyzer. The order setting explained here is to confirm the order. However, in case of sample barcode non-management, it is necessary to relate the ASP slot number to the sample ID number beforehand to specify the slot number of ASP where the sample is mounted. Therefore, execute processing according to the following order setting procedure.

<Order setting procedure >

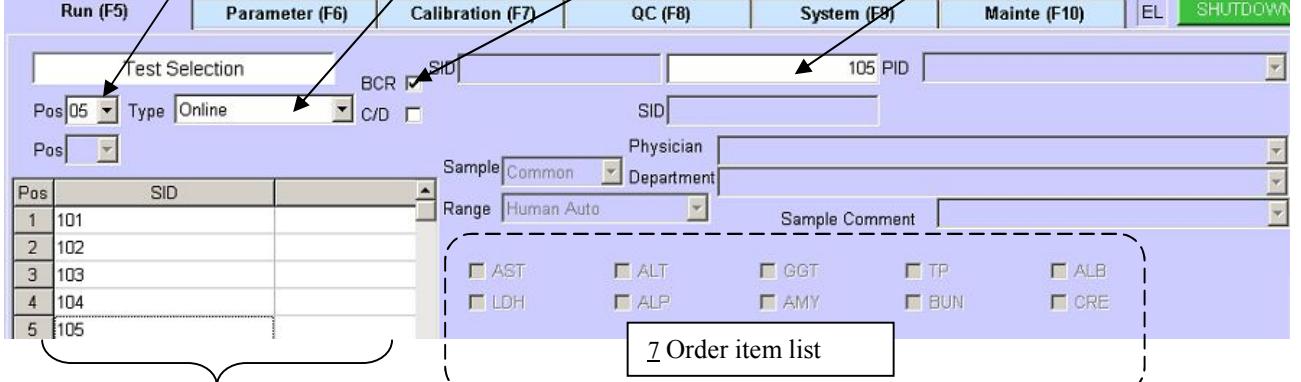
- 1 Specify the ASP slot number to place the sample.
In the case of Barcode Management : Select “Blank” without the slot number.
In the case of Barcode Non-management : Select the slot number from drop-down menu.
outer positions 36 (1 ~ 36),
middle positions 36 (37 ~ 72)
- 2 Select “Online” as the sample type from drop-down menu.
- 3 Click this “BCR” box ON when using the barcode reader for the keyboard.
- 4 Set the sample ID number (SID)
When the high-order digit is made the fixed number, it is possible to define it beforehand by tab menu [System (F9)] – [Setup]. After defining it, you only have to input only the low order digit of the sample ID number.
- 5 Click the **Save** button. Then, the sample ID number to be placed is fixed.
When fixed, in case of the barcode non-management, the ASP Sample Position Number (Pos) and the Sample ID Number (SID) are displayed in “SID List” in the left side of screen. In case of the barcode management, the ASP Sample Position Number (Pos) is the blank. Execute from the procedure-1 when continuously setting another sample ID number. Moreover, if the sample ID numbers are consecutive, the use of the copy function is very effective to set those samples. Refer to after-mentioned “<Sample group setting · delete procedure>”.
- 6 Click the **Acquire orders** button and the order information of the Method etc. will be sent from the host computer.
- 7 The sample order state is displayed in the order Method list.(Editing is impossible)

2.7 Test Selection Setting

2.7.1 Normal Test Selection: Run (f5)]-[Selection]

2.7.1.11 Online Sample (Online)

Chapter 2 Measurement procedure

1 ASP slot number	2 Sample type	3 Keyboard BCR	4 Sample ID
			
			
			

2.7 Test Selection Setting

2.7.1 Normal Test Selection: Run (f5)]-[Selection]

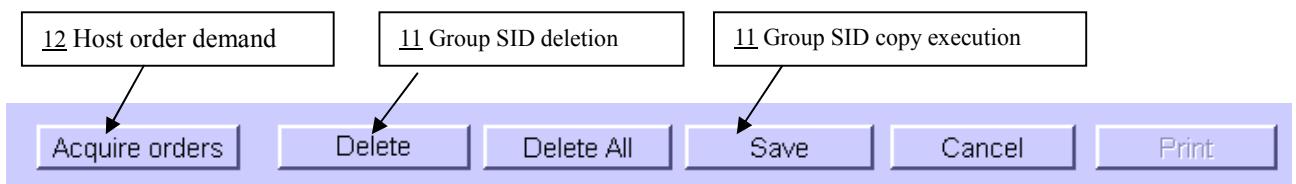
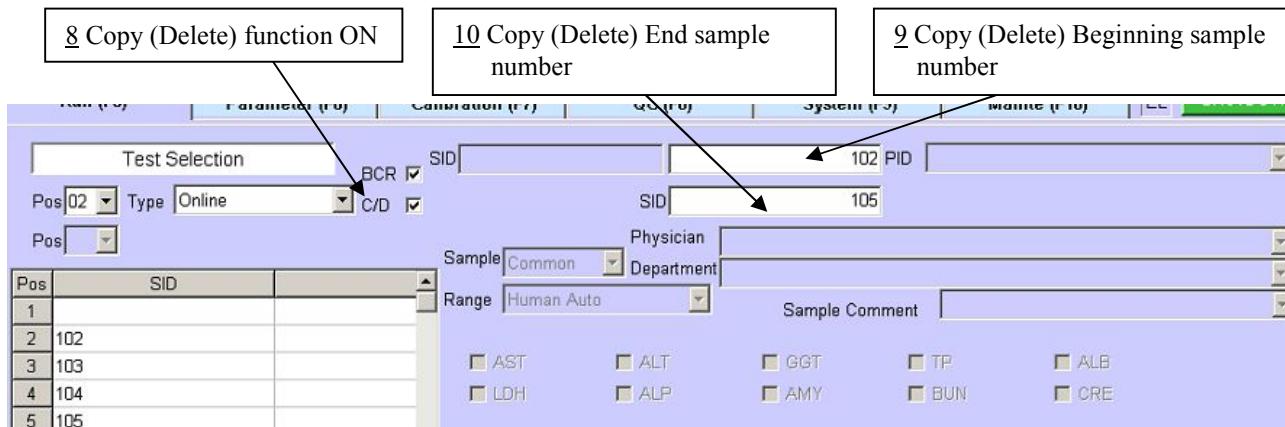
2.7.1.11 Online Sample (Online)

Chapter 2 Measurement procedure

<Group setting and Delete procedure of samples (In the case of Barcode Management)>

- 8 Click the “C/D” box ON.
- 9 Input the Copy (or Delete) beginning sample ID number.
- 10 Input the Copy (or Delete) end sample ID number.
- 11 Click the **Save** button (**Delete** button).

Clicking the **Save** button and a series of sample ID number (SID) will be added and displayed in the order list.
Clicking the **Delete** button and a series of sample ID number (SID) will be deleted from the order list on the screen then click the **Save** button next. Alert message of deletion confirmation
“Warning ! Is it all right if the specified order is deleted ?”
is displayed at the center of the screen by the Pop-up. To delete, click the **OK** button.in the Pop-up message.
- 12 Click the **Acquire orders** button for the order confirmation after copying (or deleting) completed.



Chapter 2 Measurement procedure

<Group setting and Delete procedure of samples (In the case of Barcode Non-management)>

8 Click the “C/D” box ON.

9 Input the Copy (or Delete) ASP slot number of Beginning sample placing.

10 Input the Copy (or Delete) ASP slot number of End sample placing.

11 Click the **Save** button (**Delete** button).

Clicking the **Save** button and a series of sample ID number (SID) will be added and displayed in the order list.

Click the **Delete** button and a series of sample ID number (SID) will be deleted from the order list on the screen then click the **Save** button next. Alert message of deletion confirmation

“Warning ! Is it all right if the specified order is deleted ?”

is displayed at the center of the screen by the Pop-up. To delete, click the **OK** button.in the Pop-up message.

12. Click the **Acquire orders** button for the order confirmation after copying (or deleting) completed.

9. Copy (Delete) Beginning sample number

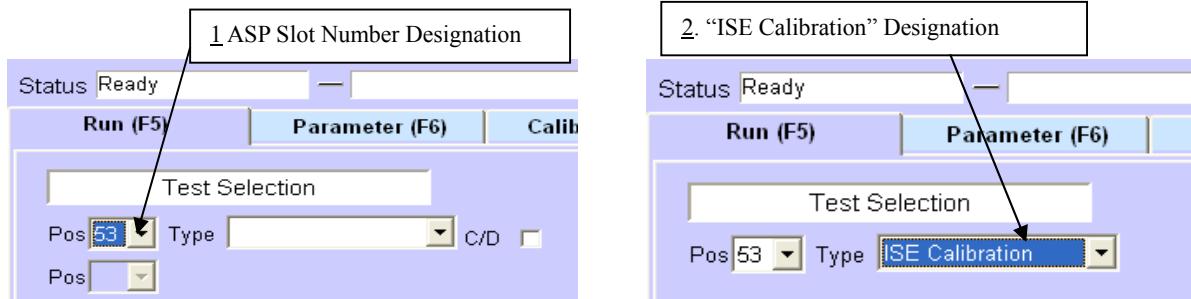
10. Copy (Delete) End sample number

8. Copy (Delete) function

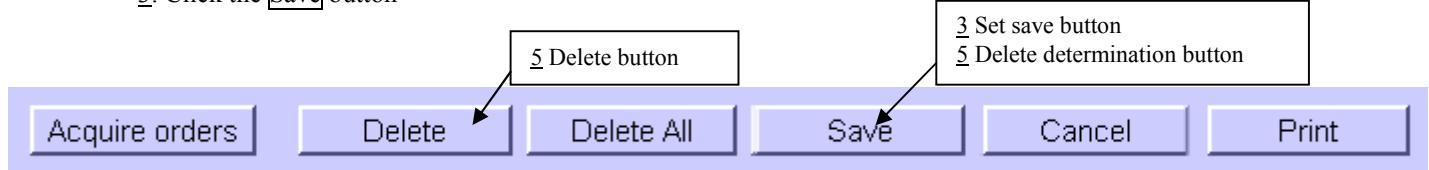
2.7.1.12 ISE Calibration

It is necessary to specify the ASP installation site of necessary ISE standard (Calibrant-B) for the ISE calibration measurement. When the sample barcode management is applied, the installation site becomes clear by reading the barcode label. However, in the case of the sample barcode non-management, specify / delete the ASP slot number to place the ISE standard according to the following procedures.

1. Select the ASP slot number to place the ISE standard from drop-down menu. (1 ~ 72)
2. Select “ISE Calibration” as the sample type from drop-down menu.



3. Click the **Save** button



4. The ASP slot number and the SID number “96000001” of the ISE standard sample are displayed in “SID List”.

Pos	SID	
52		
53	96000001	ISE STD
54	96000101	ISE CLEAN
55	96000201	SPT WASH
56		

4 SID List

5. As for delete, click the SID number that shows the ISE standard in “SID List” and click the **Delete** button. The specified ISE standard is deleted from the list on the screen and then click the **Save** button next. Alert message of deletion confirmation

“Warning ! Is it all right if the specified order is deleted ?”

is displayed at the center of the screen by the Pop-up. When actually executing deletion, click the **OK** button in the Pop-up message.

2.7 Test Selection Setting

2.7.1 Normal Test Selection: [Run (f5)]-[Selection]

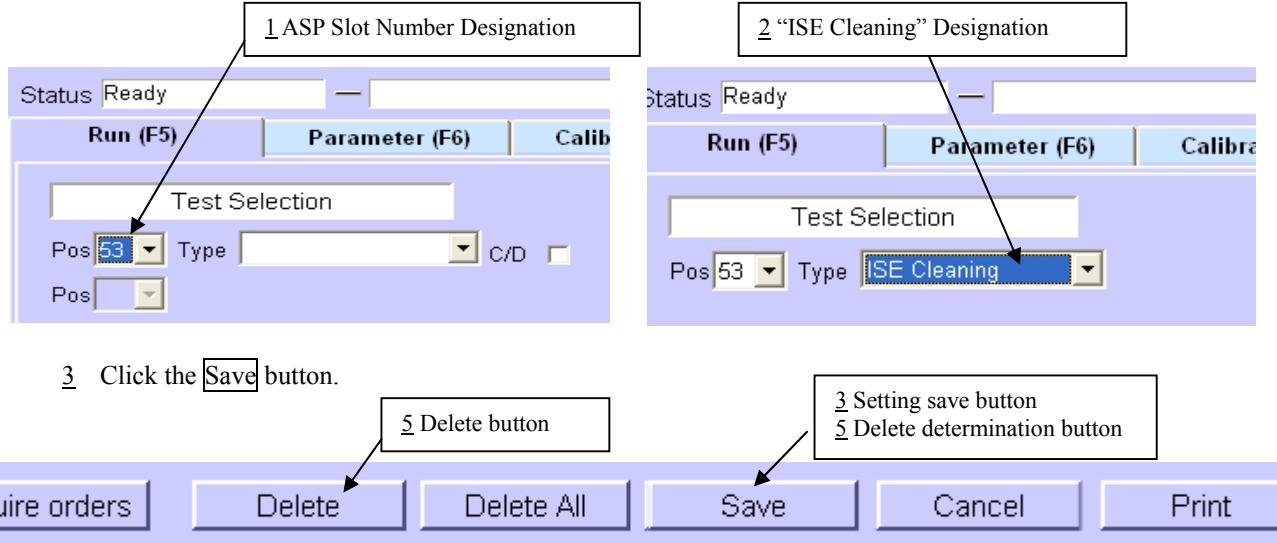
2.7.1.12 ISE Calibration

2.7.1.13 ISE Cleaning

It is necessary to specify the ASP installation site of necessary ISE wash solution (ISE Cleaner) for Cleaning treatment of the ISE module. When the sample barcode management is applied, the installation site becomes clear by reading the barcode label. However, in the case of the sample barcode non-management, specify / delete the ASP slot number to place the ISE wash solution according to the following procedures.

1 Select the ASP slot number to place the ISE wash fluid from drop-down menu. (1 ~ 72)

2 Select “ISE Cleaning” as the sample type from drop-down menu.



3 Click the **Save** button.

4 The ASP slot number and the SID number “96000101” of the ISE Cleaner are displayed in “SID List”.

Pos	SID
52	
53	96000001 ISE STD
54	96000101 ISE CLEAN
55	96000201 SPT WASH

4 SID List

5 As for Delete, click the SID number that shows the ISE Cleaner in “SID List” and click the **Delete** button. The specified ISE Cleaner is deleted from the list on the screen and then click the **Save** button next. Alert message of deletion confirmation

“Warning ! Is it all right if the specified order is deleted ?”

is displayed at the center of the screen by the Pop-up. To delete, click the **OK** button in the Pop-up message.

2.7 Test Selection Setting

2.7.1 Normal Test Selection: [Run (f5)]-[Selection]

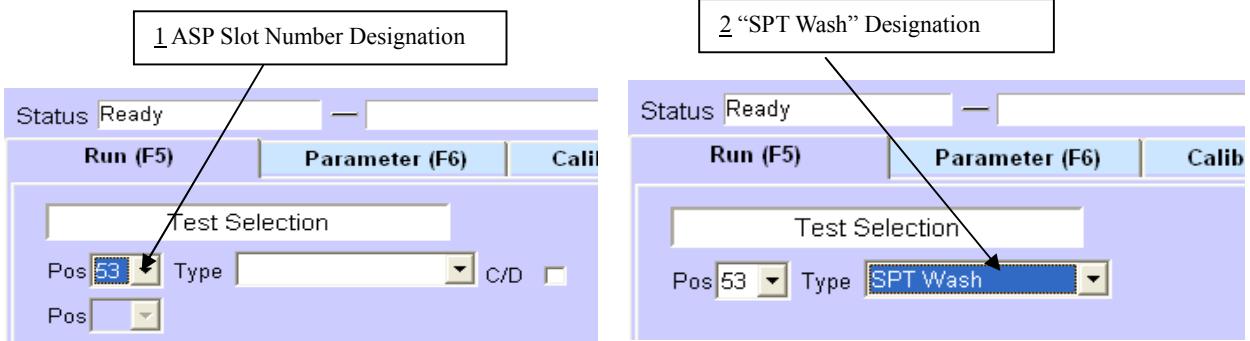
2.7.1.13 ISE Cleaning

2.7.1.14 SPT Wash

It is necessary to specify the ASP installation site of necessary wash solution (SPT wash solution) for Cleaning treatment of the SPT nozzle. When the sample barcode management is applied, the installation site becomes clear by reading the barcode label. However, in the case of the sample barcode non-management, specify / delete the ASP slot number to place the nozzle wash solution according to the following procedures.

1 Select the ASP slot number to place the SPT nozzle wash solution from drop-down menu. (1 ~ 72)

2 Select “SPT Wash” as the sample type from drop-down menu.



3 Click the **Save** button.



4 The ASP slot number and the SID number “9600201” of the SPT wash solution are displayed in “SID List”.

Pos	SID	
52		
53	96000001	ISE STD
54	96000101	ISE CLEAN
55	9600201	SPT WASH

5 As for Delete, click the SID number that shows the SPT wash solution in “SID List” and click the **Delete** button. The specified SPT wash solution is deleted from the list on the screen and so click the **Save** button next. Alert message of deletion confirmation

“Warning ! Is it all right if the specified order is deleted ?”

is displayed at the center of the screen by the Pop-up. To delete, click the **OK** button.in the Pop-up message.

2.7 Test Selection Setting

2.7.1 Normal Test Selection: [Run (f5)]-[Selection]

2.7.1.14 SPT Wash

2.7.2 Special Test Selection: [Run (F5)] – [Std QC]

The innermost 20 slots (Slot #I01 to #I20) of the ASP are used for special samples such as standard samples, control samples or washing solutions, and only accommodate cups can be used. Therefore, barcode control is not available. It is required to perform settings for slot numbers and sample types in advance.

2.7.2.1. Standard Sample (Standard)

<Slot Number Setting/Delete Procedure>

1. Select the number of the slot where the cup is placed from the drop-down menu.
2. Select the “Standard” as a sample type from the drop-down menu.
3. Select the sample category. Select one sample category from Common / Serum / Urine / Plasma from the drop-down menu.
4. Select the “Auto” function for execution mode. Select Invalid / Start / Auto / Start+Auto from the drop-down menu. (Refer to “3.1.7 [Std QC]”).
 - Invalid: The measurement of this test order is suppressed.
 - Start: The measurement is automatically performed when the first round of this test order is started. After the measurement is completed, this selection is changed to “Invalid”.
 - Auto: At the time when the lot number of reagent is changed or the time-out period for calibration goes over, the measurement of this test order is automatically performed. These conditions should be set in the tab menu [Calibration] – [Reg Calib] in advance.
 - Start+Auto: The measurement of this test order is automatically performed when the first round of this test order is started or the lot number of reagent is changed or the time-out period for calibration goes over. These conditions should be set in the tab menu [Calibration] – [Reg Calib] in advance. After the measurement is completed, this selection is changed to “Auto”.
5. Select the measurement method. Click the box left of the method name and a check mark appears then the method becomes effective. Click the checkmark again and the checkmark disappears then the method becomes non-effective.
6. Designate the number of samples at the “No.” section from the pull-down menu. To perform full calibration, select “Full”. To perform partial calibration (recalibration), select the number of standard samples you will place. (Refer to “2.5.2 Registration and Setting for Calibration”)
7. Click the **Save** button to decide the order. Calibrator SID number will be displayed on the “SID List”. (Refer to “1.4.2 Sample Identification Code”)
8. For the partial calibration (set more than one calibrator), repeat the procedures from 1 to 7.
9. To delete the standard sample, click the SID number indicating the standard sample in the “SID List”, and click **Delete** button. After the designated standard sample is shown as deleted, click **Save** button. The warning message

“Warning! Is it all right if the specified order is deleted?”

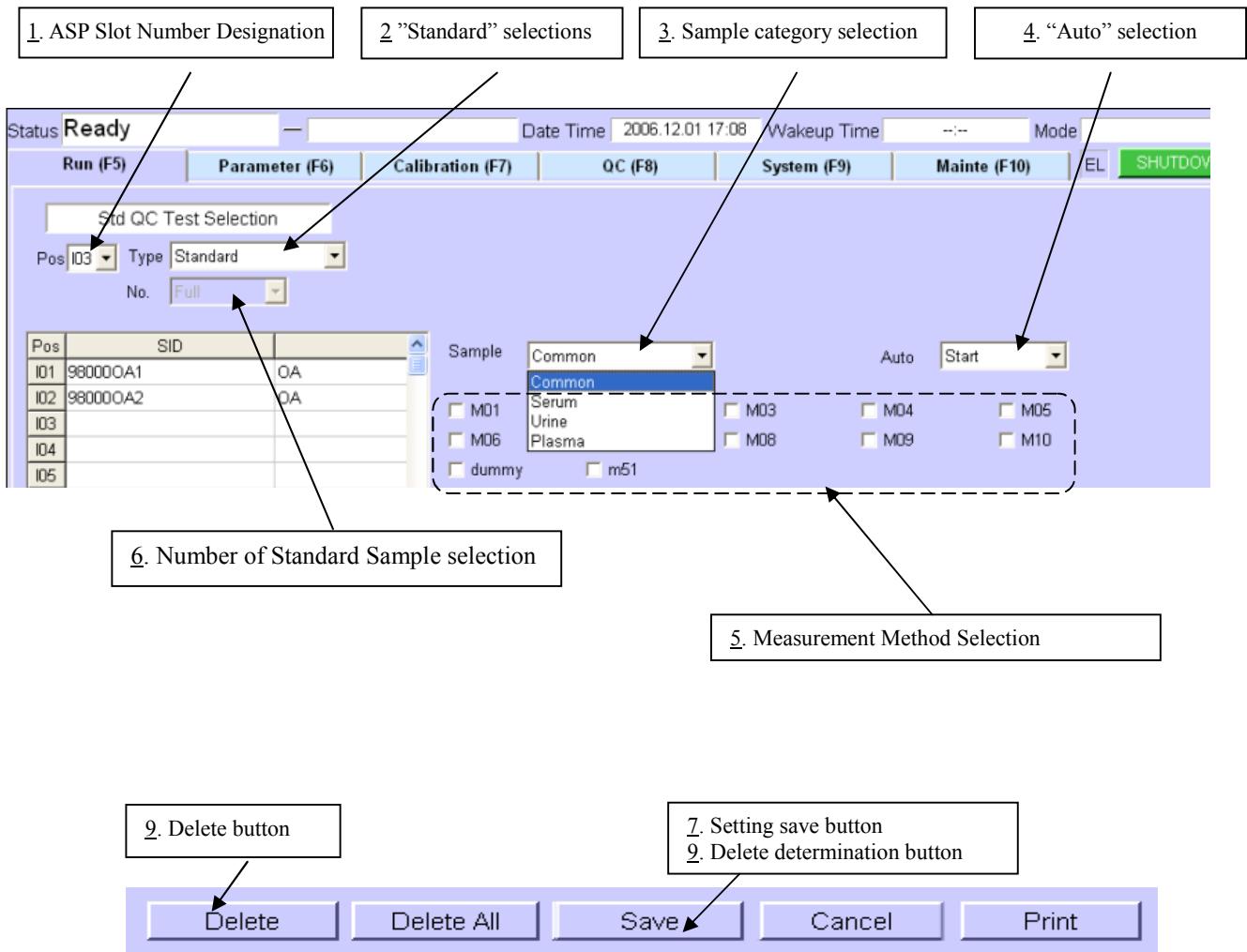
to confirm the delete action, will be pop-upped in the middle of the screen. If you are sure to execute the delete action, click on the **OK** button in the pop-up message.

2.7 Test Selection

2.7.2 Special Test Selection: [Run (f5)]-[Std QC]

2.7.2.1 Standard Sample

Chapter 2 Measurement procedure



2.7 Test Selection

2.7.2 Special Test Selection: [Run (f5)]-[Std QC]

2.7.2.1 Standard Sample

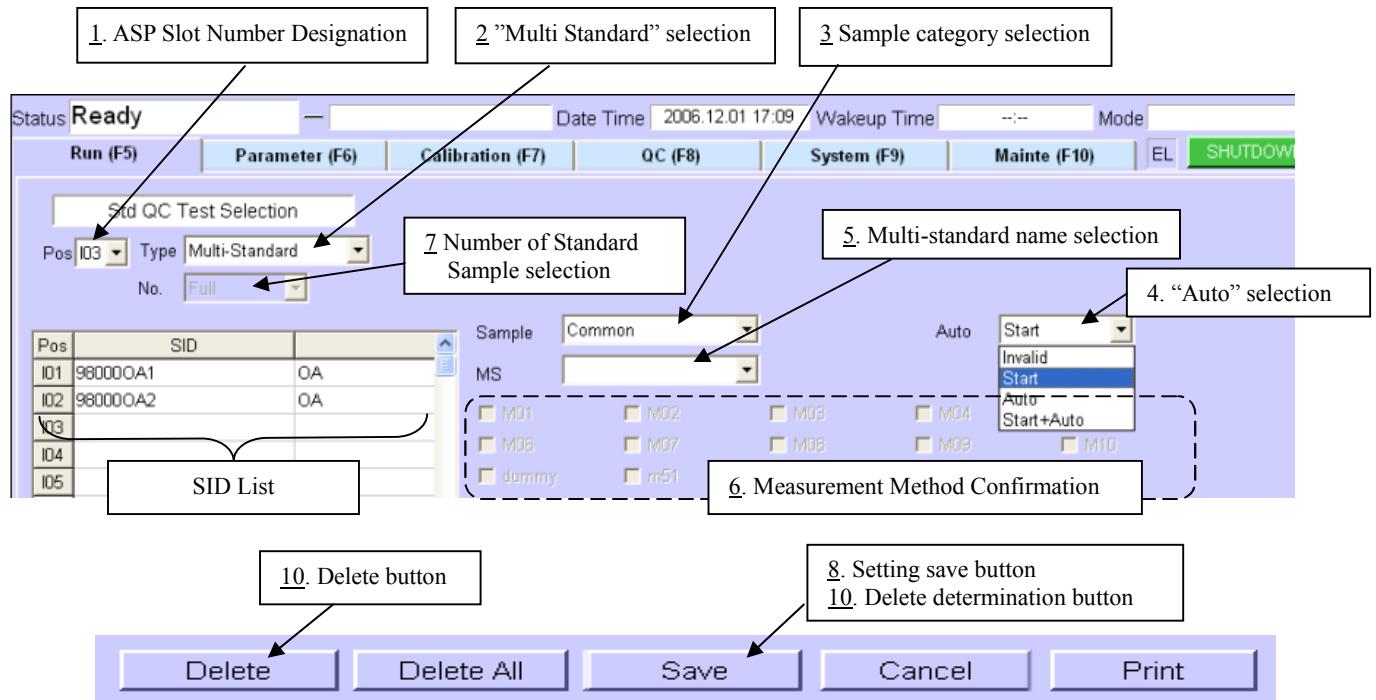
2.7.2.2 Multi Standard Sample (Multi Standard)

<Slot Number Setting/Delete Procedure>

1. Select the number of the slot where the cup is placed from the drop-down menu.
2. Select the “Multi Standard” as a sample type from the drop-down menu.
3. Select the sample category. Select one sample category from Common / Serum / Urine / Plasma from the drop-down menu.
4. Select the “Auto” function for execution mode. Select Invalid / Start / Auto / Start+Auto from the drop-down menu. (Same as the 4. of “2.7.2.1 Standard Sample”.)
5. Select the Multi Standard name from the drop-down menu.
6. Defined measurement methods can be referred on the tab menu [Calibration (F7)] – [Multi Std]. The measurement methods with checkmarks in the left boxes will be measured.
7. Designate the number of samples at the “No.” section from the pull-down menu. To perform full calibration, select “Full”. To perform partial calibration (recalibration), select the number of standard samples you will place. (Refer to “2.5.2 Registration and Setting for Calibration”)
8. Clicking the **Save** button top decide the order. Calibrator SID number will be displayed on the “SID List”. (Refer to “1.4.2 Sample Identification Code”)
9. For the partial calibration (to set more than one calibrators), repeat the procedures from 1 to 8.
10. To delete the multi standard sample, click the SID number indicating the multi standard sample in the “SID List”, and click **Delete** button. After the designated multi standard sample is shown as deleted, click **Save** button. The warning message

“Warning! Is it all right if the specified order is deleted?”

to confirm the delete action, will be pop-upped in the middle of the screen. When you are sure to execute the delete action, click the **OK** button in the pop-up message.



2.7 Test Selection

2.7.2 Special Test Selection: [Run (f5)]-[Std QC]

2.7.2.2 Multi Standard Sample

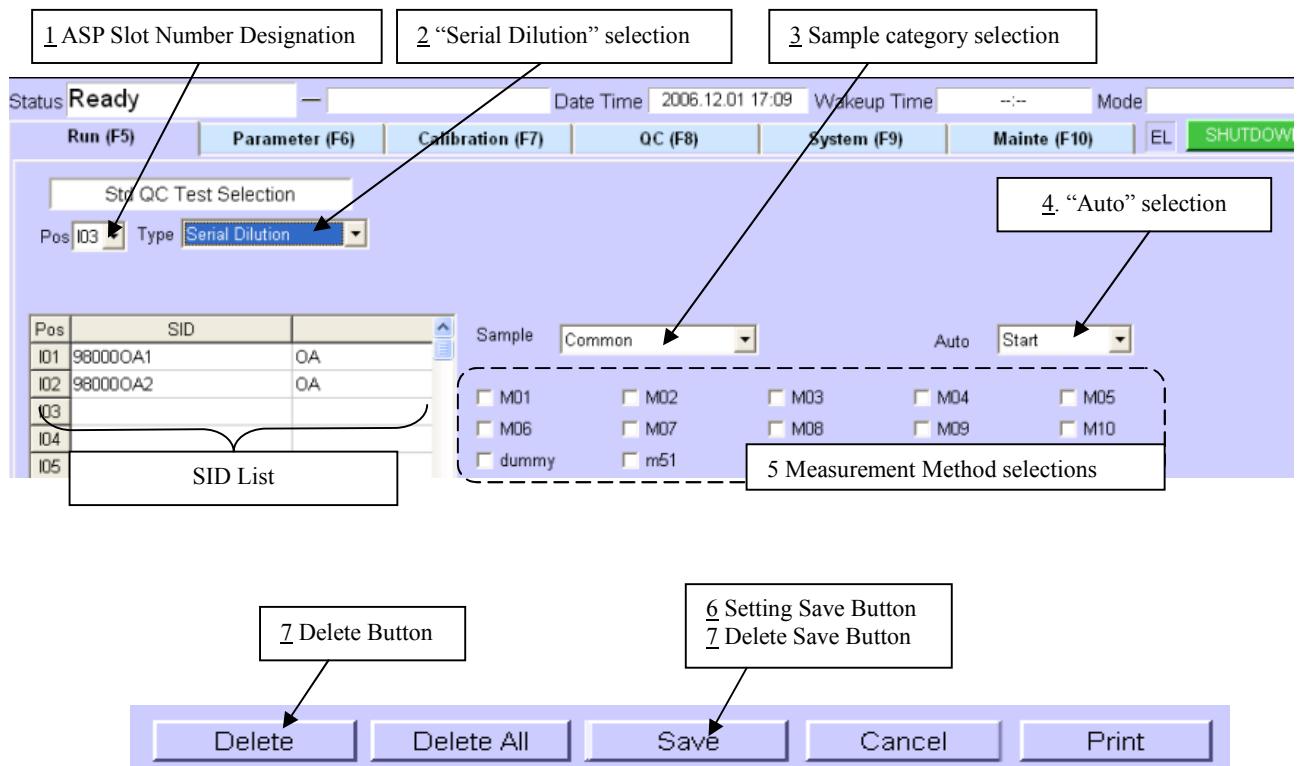
2.7.2.3 Dilution Standard Sample (Serial Dilution)

<Slot Number Setting/Delete Procedure>

1. Select the number of the slot where the cup is placed from the drop-down menu.
2. Select the “Serial Dilution” as a sample type from the drop-down menu.
3. Select the sample category. Select Common / Serum / Urine / Plasma from the drop-down menu.
4. Select the “Auto” function for execution mode. Select Invalid / Start / Auto / Start+Auto from the drop-down menu. (Same as the 4. of “2.7.2.1 Standard Sample”.)
5. Select the measurement method. Click the box left of the method name and check mark appears then the method becomes effective. When you click the checkmark (again), the checkmark disappears and the method becomes non-effective.
6. Clicking the **Save** button finalizes the order. Dilution calibrator SID number will be displayed on the “SID List”. (Refer to “1.4.2 Sample Identification Code”)
7. To delete the dilution calibrator, click the SID number indicating the dilution calibrator in the “SID List”, and click **Delete** button. After the designated dilution calibrator is shown as deleted, click **Save** button. The warning message

“Warning! Is it all right if the specified order is deleted?”

to confirm the delete action, will be pop-uped in the middle of the screen. When you are sure to execute the delete action, click the **OK** button in the pop-up message.



2.7 Test Selection

2.7.2 Special Test Selection: [Run (f5)]-[Std QC]

2.7.2.3 Dilution Standard Sample (Serial Dilution)

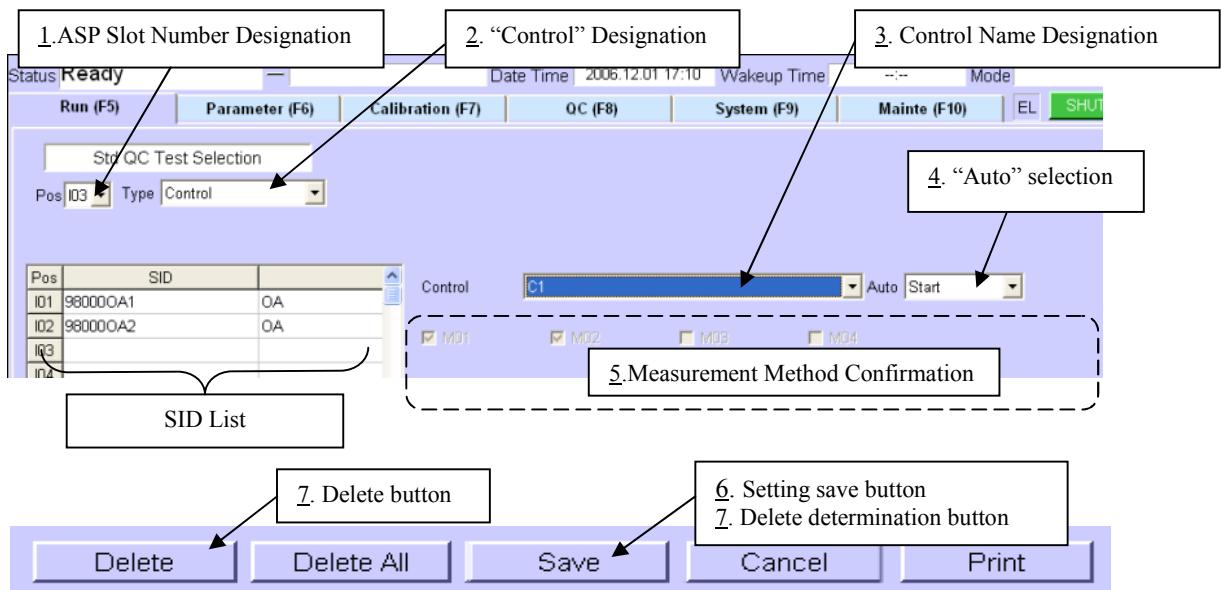
2.7.2.4 Control Sample (Control)

<Slot Number Setting/Delete Procedure>

1. Select the number of the slot where the cup is placed from the drop-down menu.
2. Select the “Control” as a sample type from the drop-down menu.
3. Select the Control Sample name from the drop-down menu.
4. Select the “Auto” function for execution mode. Select one of Invalid / Start / Auto / Start+Auto from the drop-down menu.
 - Invalid: The measurement of this test order is suppressed.
 - Start: The measurement is automatically performed when the first round of this test order is started. After the measurement is completed, this selection is changed to “Invalid”.
 - Auto: At the time when the test count is reached the specified numbers (“Auto test interval”) or the times are passed over the specified interval time (“Minutes”), the measurement of this test order is automatically performed. These conditions should be set in the tab menu [QC (F8)] – [Settings] in advance.
 - Start+Auto: When the first round of this test order is started, the measurement is automatically performed. And at the time when the test count is reached the specified numbers or the times are passed over the specified interval time, the measurement of this test order is automatically performed. These conditions should be set in the tab menu [QC (F8)] – [Settings] in advance. After the measurement is completed, this selection is changed to “Auto”.
5. The measurement method(s), which have been set on the tab menu [QC (F8)] – [Settings], are being ordered.
6. Click the **Save** button to decide the order. Control Sample’s SID number will be displayed on the Order List. (Refer to “1.4.2 Sample Identification Code”.)
7. To delete the control sample, click the SID number indicating the control sample in the “SID List” and click **Delete** button. After the designated control sample is shown as deleted, click **Save** button. The warning message

“Warning! Is it all right if the specified order is deleted?”

to confirm the delete action, will be pop-uped in the middle of the screen. When you are sure to execute the delete action, click the **OK** button in the pop-up message.



2.7 Test Selection

2.7.2 Special Test Selection: [Run (f5)]-[Std QC]

2.7.2.4 Control Sample (Control)

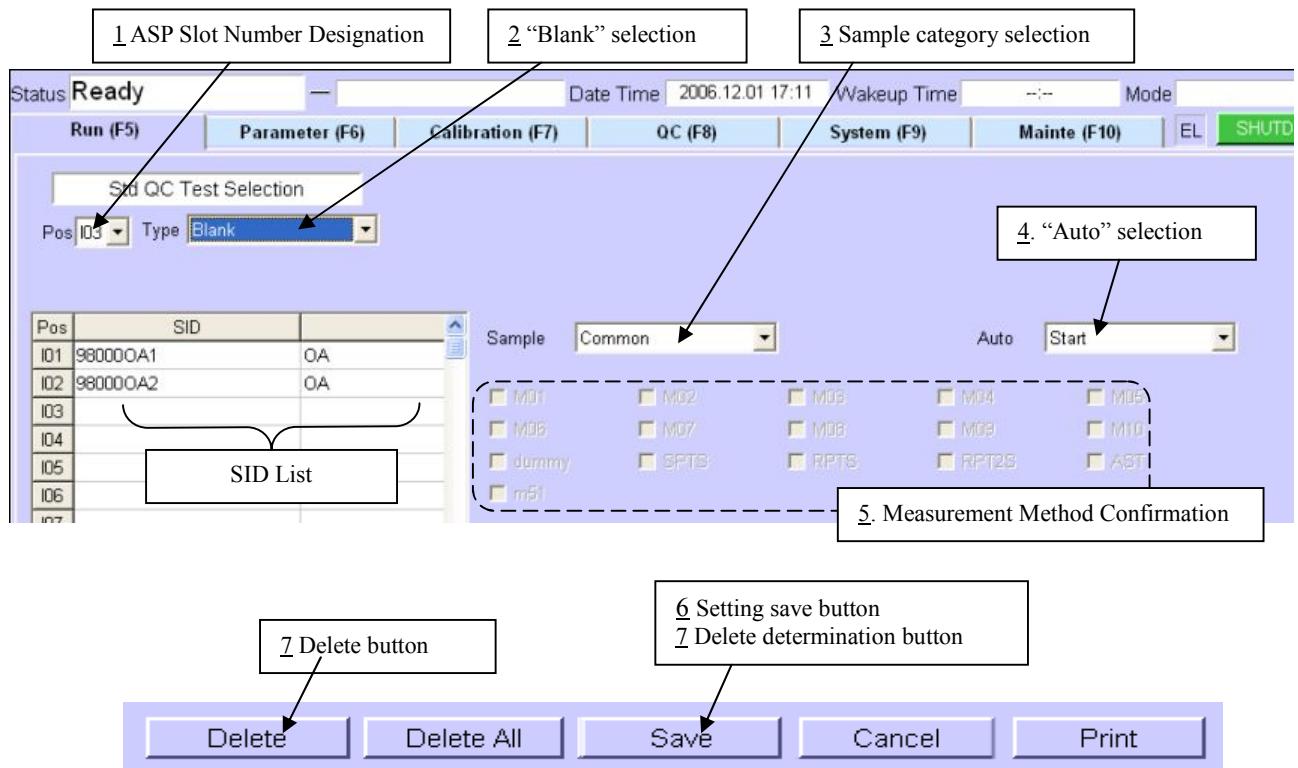
2.7.2.5 Blank Sample (Blank)

< Slot Number Setting/Delete Procedure>

1. Select the number of the slot where the cup is placed from the drop-down menu.
2. Select the “Blank” as a sample type from the drop-down menu.
3. Select the sample category. Select Common / Serum / Urine / Plasma from the drop-down menu.
4. Select the “Auto” function for execution mode. Select Invalid / Start / Auto / Start+Auto from the drop-down menu. (Same as the 4. of “2.7.2.1 Standard Sample”).
5. Only the measurement methods, which have been set as the “S1 Blank Measurement Enable” on the Tab Menu [Normal2] of the Job Menu [Parameter (F6)], are being ordered. (Order change is not available here.)
6. Click the **Save** button to decide the order. Blank Sample SID number will be displayed on the “SID List”. (Refer to “1.4.2 Sample Identification Code”)
7. To delete the blank sample, click the SID number indicating the blank sample in the “SID List” and click **Delete** button. After the designated blank sample is shown as deleted, click **Save** button. The warning message

“Warning! Is it all right if the specified order is deleted?”

to confirm the delete action, will be pop-upped in the middle of the screen. When you are sure to execute the delete action, click the **OK** button in the pop-up message.



2.7 Test Selection

2.7.2 Special Test Selection: [Run (f5)]-[Std QC]

2.7.2.5 Blank Sample (Blank)

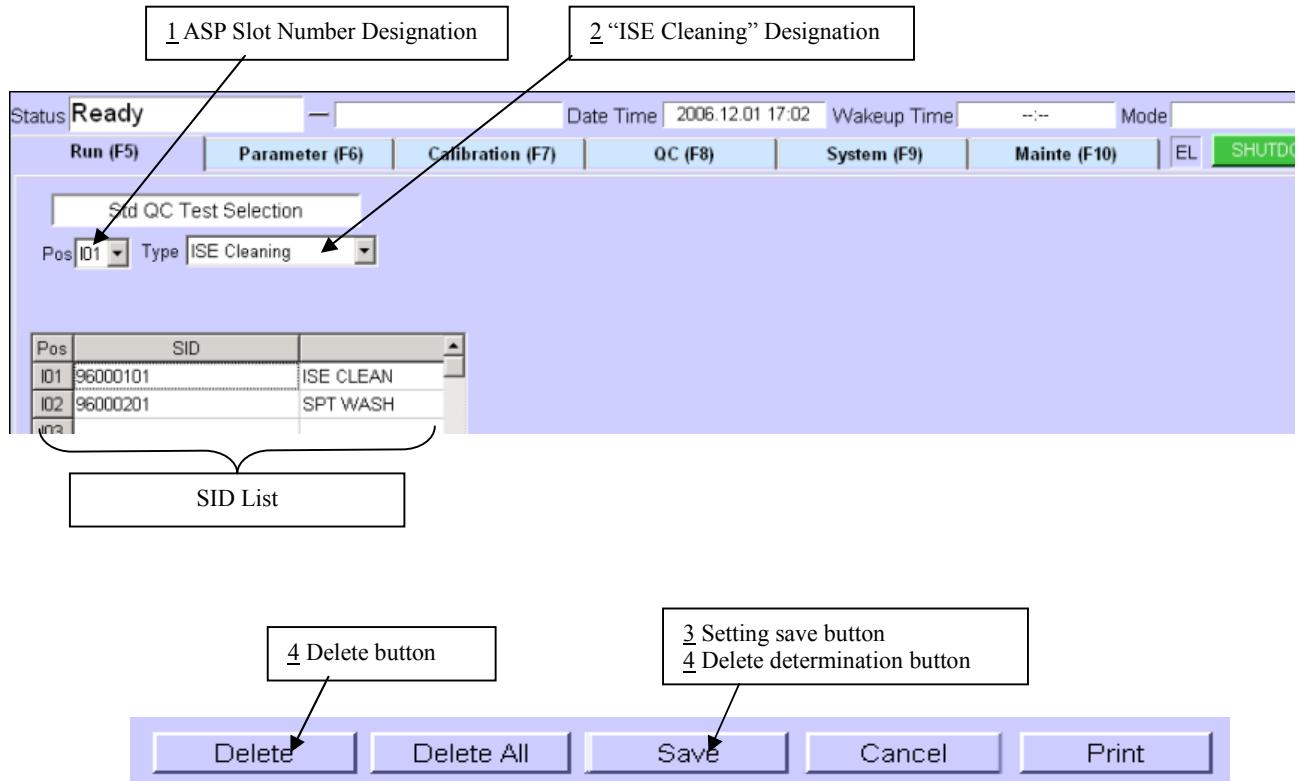
2.7.2.6 ISE Cleaning

< Slot Number Setting/Delete Procedure>

1. Select the number of the slot where the cup is placed from the drop-down menu.
2. Select the “ISE Cleaning” as a sample type from the drop-down menu.
3. Clicking the **Save** button to decide the order. ISE Cleaner SID number (96000101) will be displayed on the “SID List”. (Refer to “1.4.2 Sample Identification Code”).
4. To delete the ISE Cleaner, click the SID number indicating the ISE Cleaner in the “SID List” and click **Delete** button. After the designated ISE Cleaner is shown as deleted, click **Save** button. The warning message

“Warning! Is it all right if the specified order is deleted?”

to confirm the delete action, will be pop-upped in the middle of the screen. When you are sure to execute the delete action, click the **OK** button in the pop-up message.



2.7 Test Selection

2.7.2 Special Test Selection: [Run (f5)]-[Std QC]

2.7.2.6 ISE Cleaning

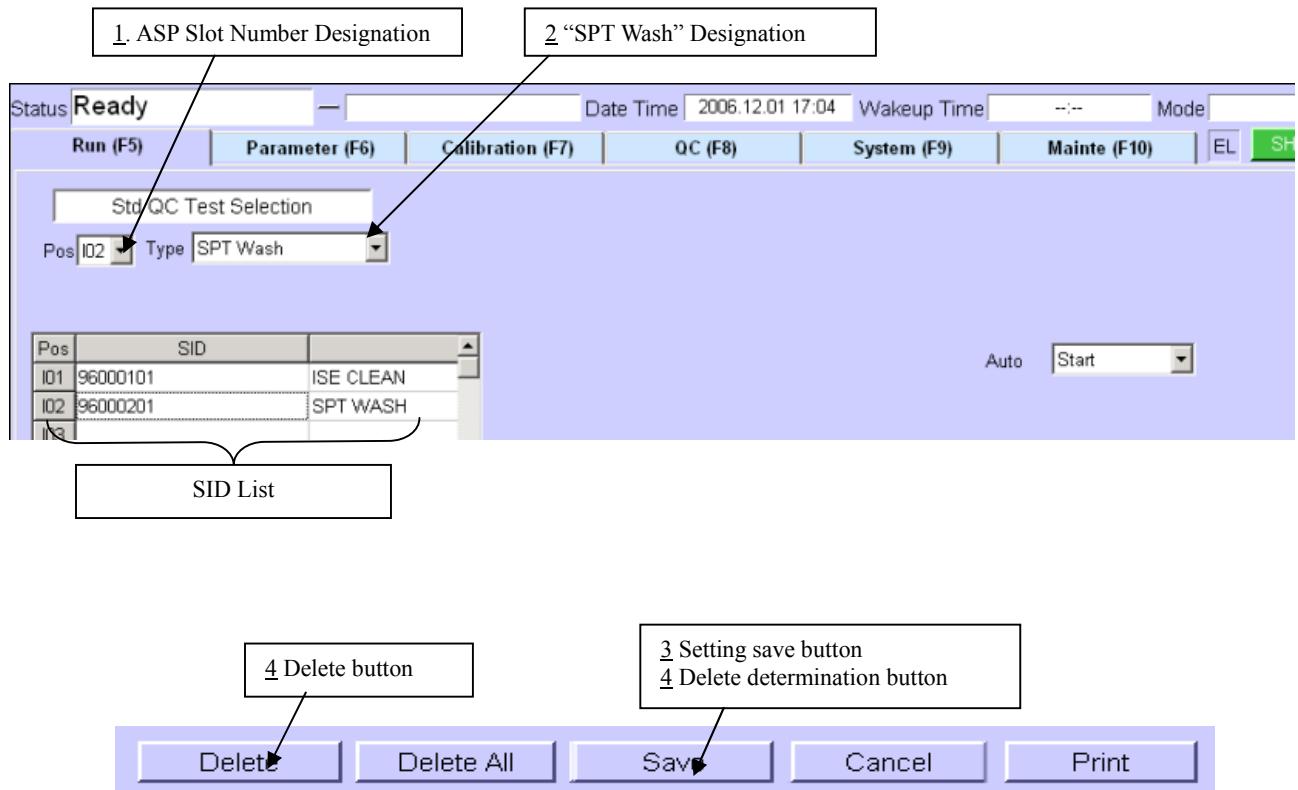
2.7.2.7 SPT Wash

< Slot Number Setting/Delete Procedure>

1. Select the number of the slot where the cup is placed from the drop-down menu.
2. Select the “SPT Wash” as a sample type from the drop-down menu.
3. Clicking the **Save** button to decide the order. SPT washing solution SID number (96000201) will be displayed on the “SID List”. (Refer to “1.4.2 Sample Identification Code”)
4. To delete the SPT washing solution, click the SID number indicating the SPT washing solution in the “SID List” and click **Delete** button. After the designated SPT washing solution is shown as deleted, click the **Save** button. The warning message

“Warning! Is it all right if the specified order is deleted?”

to confirm the delete action, will be pop-upped in the middle of the screen. When you are sure to execute the delete action, click the **OK** button in the pop-up message.



2.7 Test Selection

2.7.2 Special Test Selection: [Run (f5)]-[Std QC]

2.7.2.7 SPT Wash

2.8 Sample Placement (ASP)

Blood collection tubes (Tube) and sample cups for normal samples, emergency samples, control samples and standard samples can be placed into the two types of trays in the Auto Sampler Unit (ASP) of the analyzer.

The tray mechanism inside the ASP is equipped with a holder of double structure, which can hold samples as described below.

- 1) Tube tray (capable of placing 72 samples in the inner and outer circles):

Barcode labels on the tubes enable barcode control. Sample cups placed on the lip of tubes with barcode labels also can be controlled.

- 2) Sample cup tray (capable of placing 20 samples):

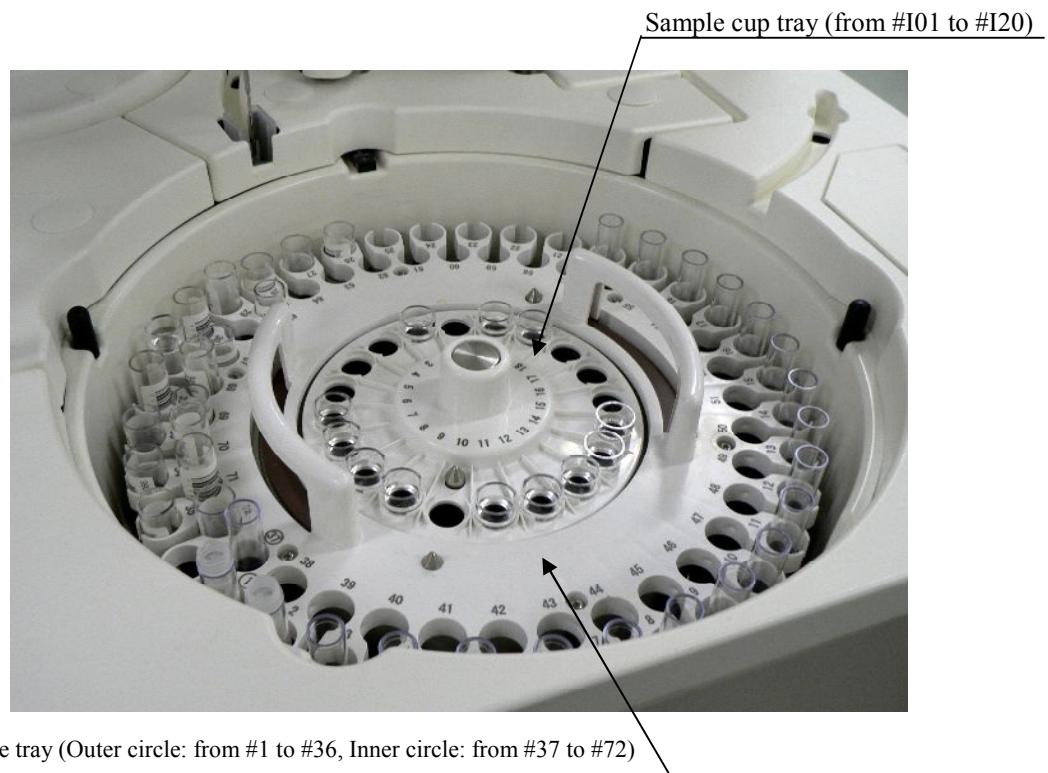
Sample cup tray is located in the innermost layer of the ASP and used to place special samples such as standard samples or control samples. Barcode control of the sample cups placed here is not available.

Measurement begins with the test order for the sample cup tray in the innermost circle, and then the test order for the tube tray is performed.

Note:

Sample volume of the cup installed in ASP should be satisfied the following requirements;

- Sample cup: More than 150 μ L
- Pediatric cup: Within 50 to 100 μ L

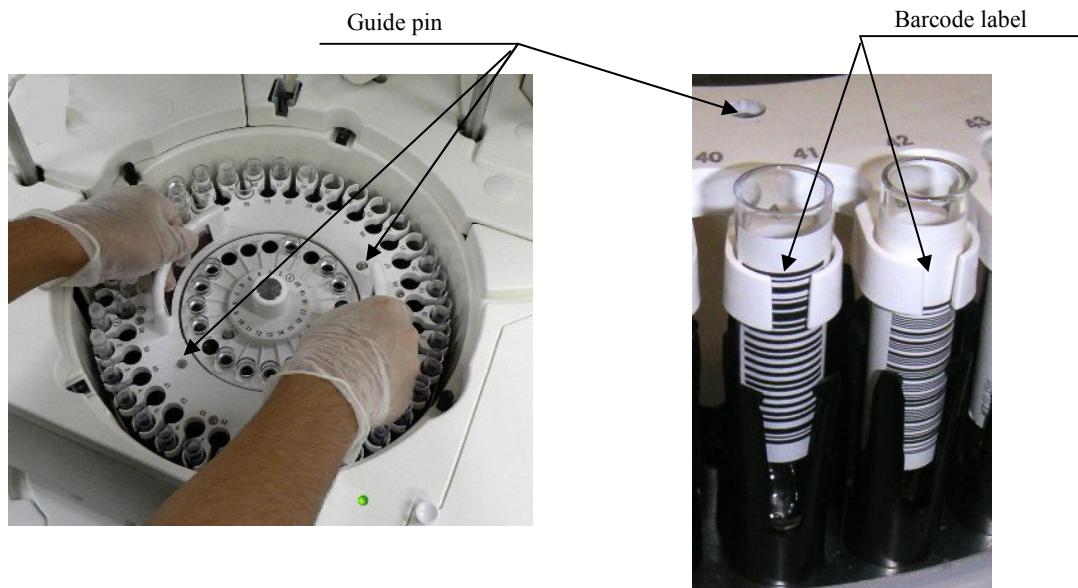


2.8.1 Placement to Tube Tray

When you place standard samples on the tray, make sure to start placing from the position #1. Samples placed after a patient sample cannot be calibrated adequately.

<Sample Placement>

- 1 Take out the tube tray from the Auto Sampler Unit (ASP).
- 2 Place the sample into a slot of the tray. The tube with a barcode label should be positioned in such a way that its label faces the slit of the slot.
- 3 Set the tray into the ASP unit so that the inner guide pins can be fit into the two pin-holes (located between Slot #40 and #41, and between Slot #57 and #58) of the tray.



2.8.2 Placement to Sample Cup Tray (Innermost slots of ASP)

<Sample Placement>

- 1 Take out the sample cup tray from the Auto Sampler Unit.
- 2 Place the cups containing samples (standard samples, control samples etc.) into the cup placement holes.
- 3 Set the sample cup tray into the unit inside so that the inner guide pin can be fit into the pin-hole (at Slot #10) of the sample cup tray.



Note: When you place a cup for a long time without applying, it is recommended to wrap proper waxed paper around the cup to protect evaporation / condensation for the liquid.

Chapter 2 Measurement Procedure

2.9 Confirmation of Reagent Remaining Volume

Prior to the measurement, you need to check if the necessary reagents are placed adequately in the Reagent Container Unit (RCU) and to confirm the reagent remaining amount.

Information such as types and remaining volume of the reagents, which are placed inside the Reagent Container Unit (RCU), can be confirmed on the tab menu [Inventory] of the job menu [Run (F5)]. If necessary, add new reagent bottles after confirmation.

Every time you add a new reagent, make sure to perform “Reagent Scan” in order to update the reagent information.

For barcode controlled reagent bottles, it is very easy to carry out the “Reagent Scan”. When you click the **RCU Scan** button of the tab menu [Inventory], the Reagent Container Unit (RCU) starts rotating and the barcode reader reads the barcodes on the bottles. Necessary information such as reagent types, reagent quantity, bottle capacity is automatically recognized.

However, for the bottles which are not controlled by reagent barcodes, the necessary information is required to be input on the tab menu [Inventory] from the keyboard.

(Refer to the “3.1.5 Reagent Information Control: [Inventory]”)

Pos	Name	Type	Lot	Size	Vol(mL)	Tests	Method	Total	Valid	Stability	ID
01	AST	R1	*	M	66.4	407	AST	407	*		10001219
02	AST	R2	*	M	66.4	577	AST	407	*		10001233
03	ALT	R1	*	M	66.4	407	ALT	407	*		10002216
04	ALT	R2	*	M	66.4	577	ALT	407	*		10002230
05	GGT	R1	*	M	66.4	407	GGT	407	*		10003213
06	GGT	R2	*	M	66.4	577	GGT	407	*		10003237
07	TP	R1	*	M	66.4	407	TP	407	*		10004210
08	TP	R2	*	M	66.4	577	TP	407	*		10004234
09	ALB	R1	*	M	66.4	407	ALB	407	*		10005217
10	ALB	R2	*	M	66.4	577	ALB	407	*		10005231
11	LDH	R1	*	M	66.4	407	LDH	407	*		10006214
12	LDH	R2	*	M	66.4	577	LDH	407	*		10006238
13	ALP	R1	*	M	66.4	407	ALP	407	*		10007211
14	ALP	R2	*	M	66.4	577	ALP	407	*		10007235
15	AMY	R1	*	M	66.4	407	AMY	407	*		10008218
16	AMY	R2	*	M	66.4	577	AMY	407	*		10008232
17	BUN	R1	*	M	66.4	407	BUN	407	*		10009215
18	BUN	R2	*	M	66.4	1897	BUN	407	*		10009239

Indication The reagent is available for usage.

Start (F1) SStop (F2) STAT (F3) Alarm (F4) TabUP (F11) TabDOWN (F12)

[Run (F5)]-[Inventory]

Red line: Number of test is less than 1.

Pink line: Valid term is expiry.

Yellow line: Stability term is expiry.

2.9 Confirmation of Reagent Remaining Volume

2.10 Measurement Start and Monitor

2.10.1 Measurement Start

By pressing the [F1] key on the keyboard or clicking on the [Start (F1)] button of the Global Menu located at the bottom of the screen, you can start the measurement operation. Measurement Start operation can be carried out from any screens, however, in principle, we recommend that you perform the Measurement Start after selecting [Monitor] or [Round] of the tab menu in the job menu [Run (F5)].

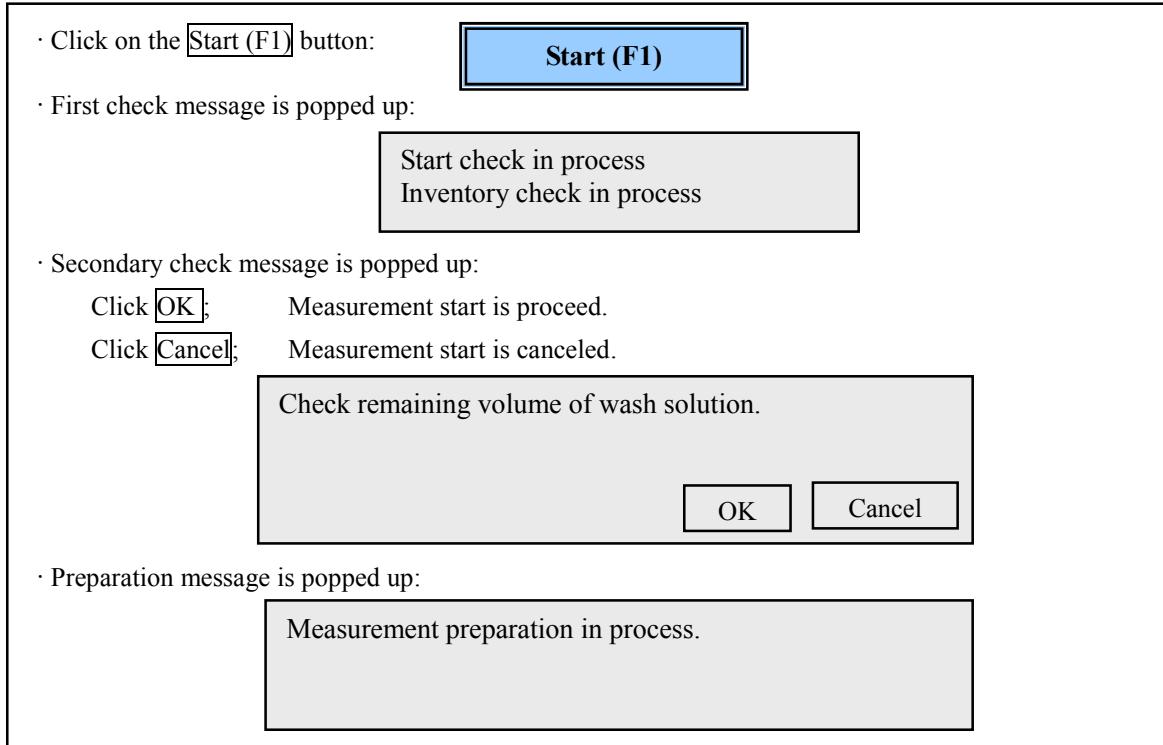
The measurement cannot be performed unless following conditions are satisfied prior to the measurement.

- 1) Each lid for ASP, RCU and ISE is closed.
- 2) The temperatures inside the RCU are 15°C or lower.
- 3) The temperature range inside the IRU is within $37 \pm 0.5^\circ\text{C}$.
- 4) Halogen lamp is stable. (20 minutes or more has passed after the light turned on)
- 5) 30 or more usable cuvettes are present in the IRU.
- 6) Purified water of regulated amount or more is reserved in the sub tanks (R and L) inside the analyzer.
- 7) No water leakage inside the analyzer.
- 8) No insufficient reagents for measurement methods.

If you press [Control] and [F1] keys, you can skip remaining reagent volume check at Measurement Start.

Press [Ctrl] and [F2] keys for emergency stop. When **Alarm (F4)** blinks at measurement start, press [Ctrl] and [F2] keys for emergency stop and then verify alarm messages.

The measurement status can be monitored either on the tab menu [Monitor] or [Round] of the job menu [Run (F5)]. On the tab menu [Round], further details of the measurement process status can be monitored.



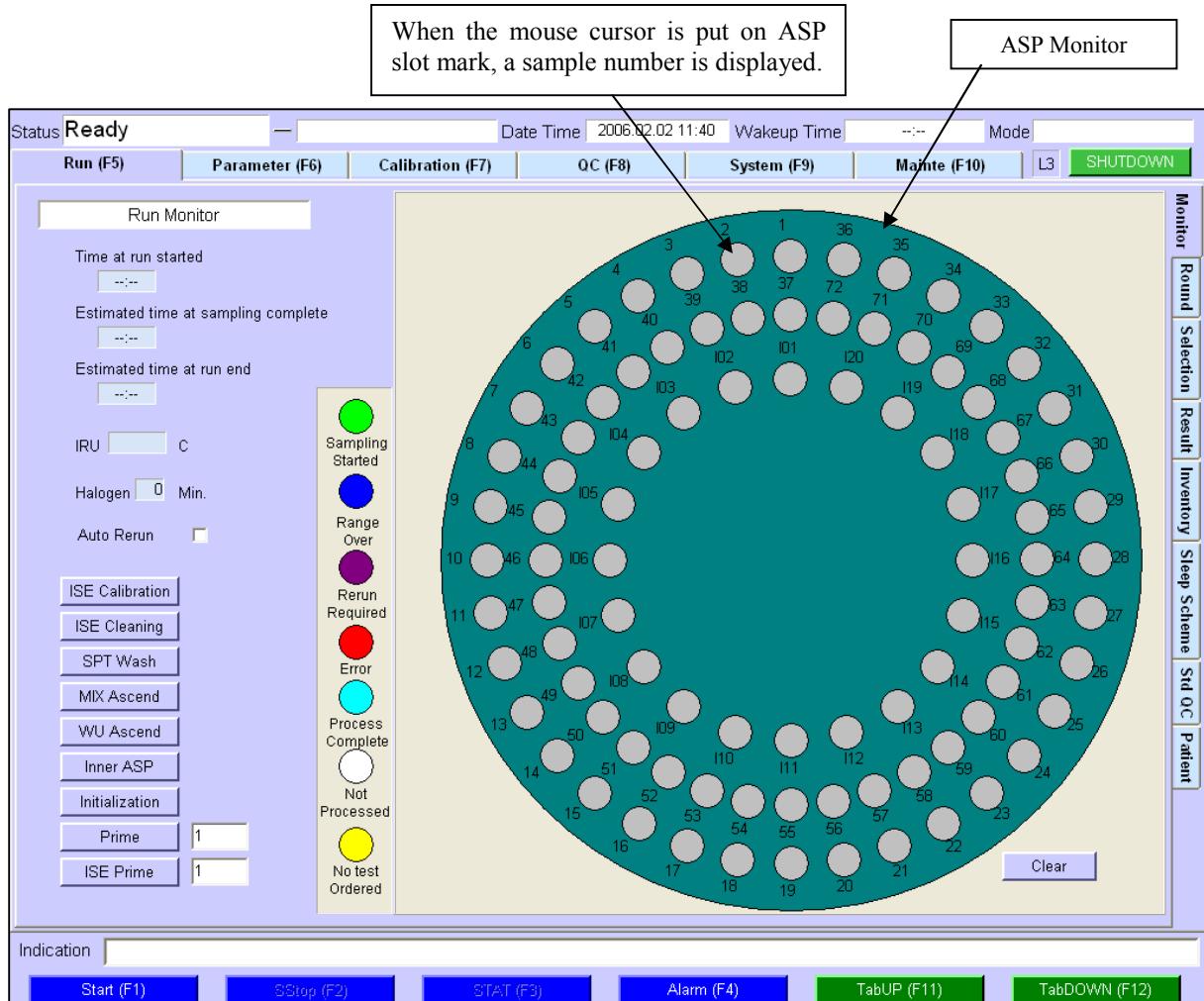
2.10 Measurement Start and Monitor

2.10.1 Measurement Start

2.10.2 Measurement Status Monitor (Run Monitor)

By selecting the tab menu [Monitor] of the job menu [Run (F5)], the Run Monitor screen can be opened. This screen allows you to easily perform the ISE calibration, the ISE cleaning, the SPT cleaning etc. immediately before the Measurement Start. Addition of emergency samples and/or normal samples during the measurement is also performed on this screen.

For the details and functions of this screen, refer to “3.1 [Run (F5)]” of Chapter 3.



ASP monitor	Meaning	ASP monitor	Meaning
Green	Sampling process started	White	Sampling process not started yet
Blue	Range over occurred in the result	Yellow	Any test order not recognized
Purple	Auto-rerun required for the result	Gray	Measurement process not started yet
Red	Error occurred in the result	Pale Gray	Barcode not recognized and any test order not found
Light Blue	Measurement normally completed		

2.10 Measurement Start and Monitor

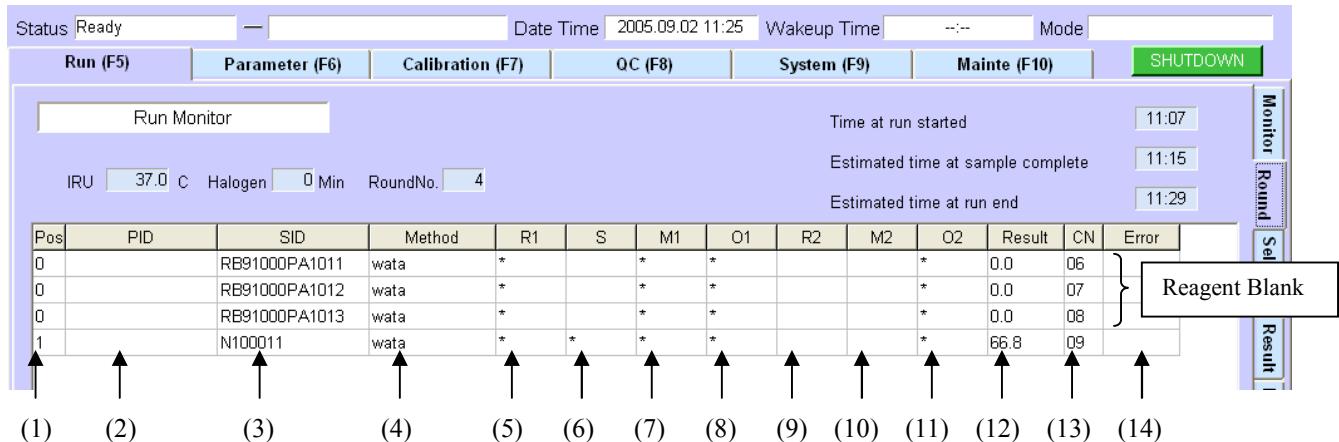
2.10.2 Measurement Status Monitor (Run Monitor)

Chapter 2 Measurement Procedure

2.10.3 Measurement Process Monitor (Round Monitor)

By selecting the tab menu [Round] of the job menu [Run (F5)], the Round Monitor screen can be opened. On this screen, detailed progress status of measurement process can be monitored.

For the details and functions of this screen, refer to “3.1 Run Menu: [Run (F5)]” of Chapter 3.



No.	Process	Detail
(1)	ASP Position Number	0: Water of the interior of SPT is dispensed to the cuvette. This case is only the Reagent Blank Measurement. 1 to 92: ASP position number of the cup or tube contained the sample to be dispensed to the cuvette is displayed.
(2)	Patient ID Number	Specified PID in the tab menu [Selection] of the job menu [Run (F5)] is displayed.
(3)	Sample ID Number	Specified SID in the tab menu [Selection] of the job menu [Run (F5)] or the automatically defined SID, for example “Reagent Blank”, is displayed.
(4)	Method Name	Method name for the measurement is displayed.
(5)	R1 dispensing completion	When R1 dispensing to the cuvette is completed, star mark is displayed.
(6)	Sample dispensing completion	When sample dispensing to the cuvette is completed, star mark is displayed.
(7)	R1 Mixing completion	When the stirring of the Mixer-1 is completed, star mark is displayed.
(8)	Photometry (1) completion	When the photometry for the first half (1 to 34 points) is completed, star mark is displayed.
(9)	R2 dispensing completion	When R2 dispensing to the cuvette is completed, star mark is displayed.
(10)	R2 Mixing completion	When the stirring of the Mixer-2 is completed, star mark is displayed.
(11)	Photometry (2) completion	When the photometry for the last half (35 to 68 points) is completed, star mark is displayed.
(12)	Result	After the concentration value is calculated, its result is displayed.
(13)	Cuvette Number	The cuvette number that has been used for the measurement is displayed.
(14)	Error Status	When any error is occurred during measurement, error flag is displayed. In the case of no error, the blank code is filled in this cell.

2.10 Measurement Start and Monitor

2.10.3 Measurement Details Monitor (Round Monitor)

2.11 Sample Addition

2.11.1 Emergency Sample Addition

Added Emergency Samples will be measured prior to other samples.

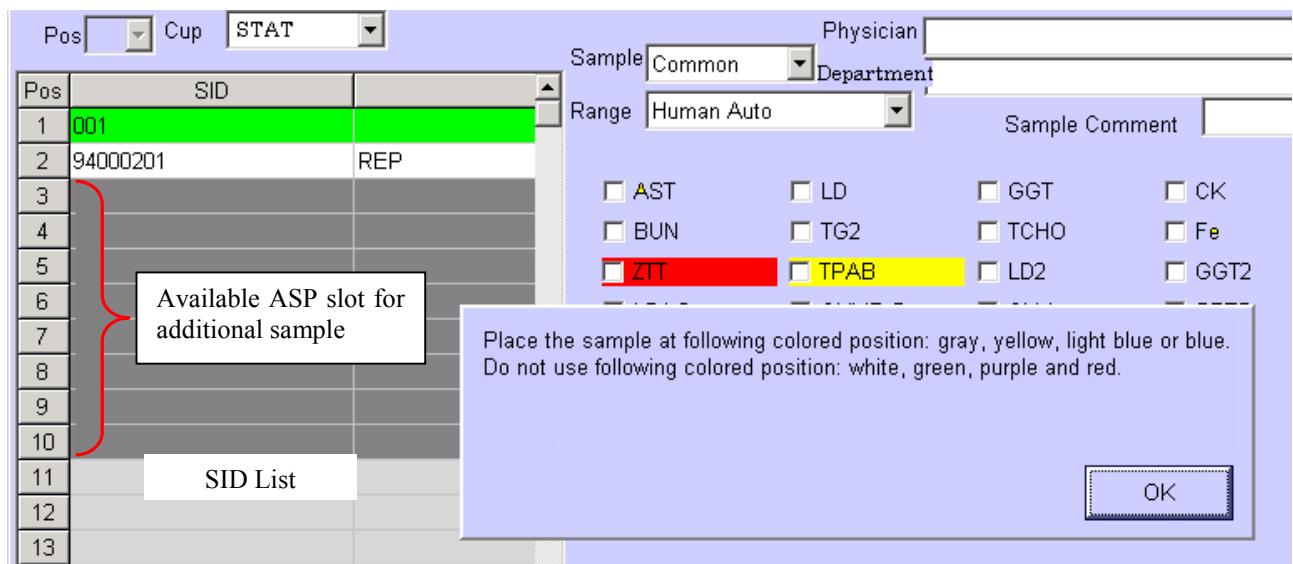
To add an emergency sample while the measurement is in process, perform the following procedures.

1. Click the [STAT (F3)] button of the Global Menu. Sampling process for new sample comes to a pause, however, the measurement process for already dispensed cuvettes in the IRU is carried on.
2. After sampling process is stopped, ASP rotates to the position where any test order is not still registered. However, if there is more than one slot, ASP rotates to the youngest number of slot. And the present screen is automatically jumped to the tab menu [Selection] and the following pop-up message is appeared.

**“Place the sample at following position: gray, yellow, light blue or blue.
Do not use following colored position: white, green purple and red”**

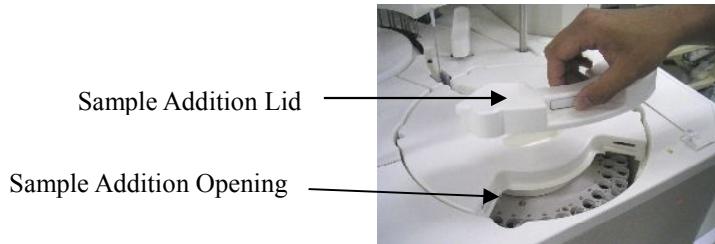
When the operator selects the ASP slot position to place the additional sample, it should be considered the sort of color in the SID List at the left of screen as referring to the pop-up message.

When click the **OK** button in the pop-up message, the pop-up message is disappeared from the screen.



3. Then, you can perform to designate the test order of the additional sample. Refer to “2.7.1.2 Emergency Sample (STAT)” of Chapter 2.

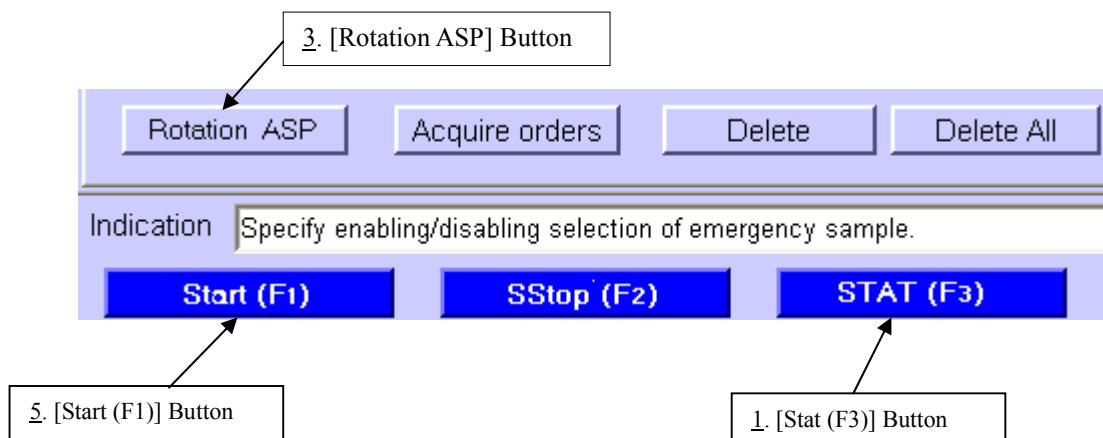
4. Remove the “Sample addition lid” and place the additional sample to the ASP slot.
After completion of sample placement, return the “Sample addition lid” to its original position.
When you want to add more than one sample, repeat the procedures from 3 to 4.



5. Click the Global Menu button [Start (F1)] flickering yellow to restart the measurement process. The following message is popped up while the analyzer performs the start up check and inventory check, then the message is disappeared after completion of check process.

Startup check in process.
Inventory check in process.

The ASP starts rotating and the measurement is resumed. But the measurement of emergency sample is prioritized. Of course, the measurement for the suspended sampling process is restarted.



2.11 Sample Addition

2.11.1 Emergency Sample Addition

2.11.2 Normal Sample Addition

Added Normal Samples will NOT be measured prior to other samples.

To add a normal sample while the measurement is in process, perform the following procedures

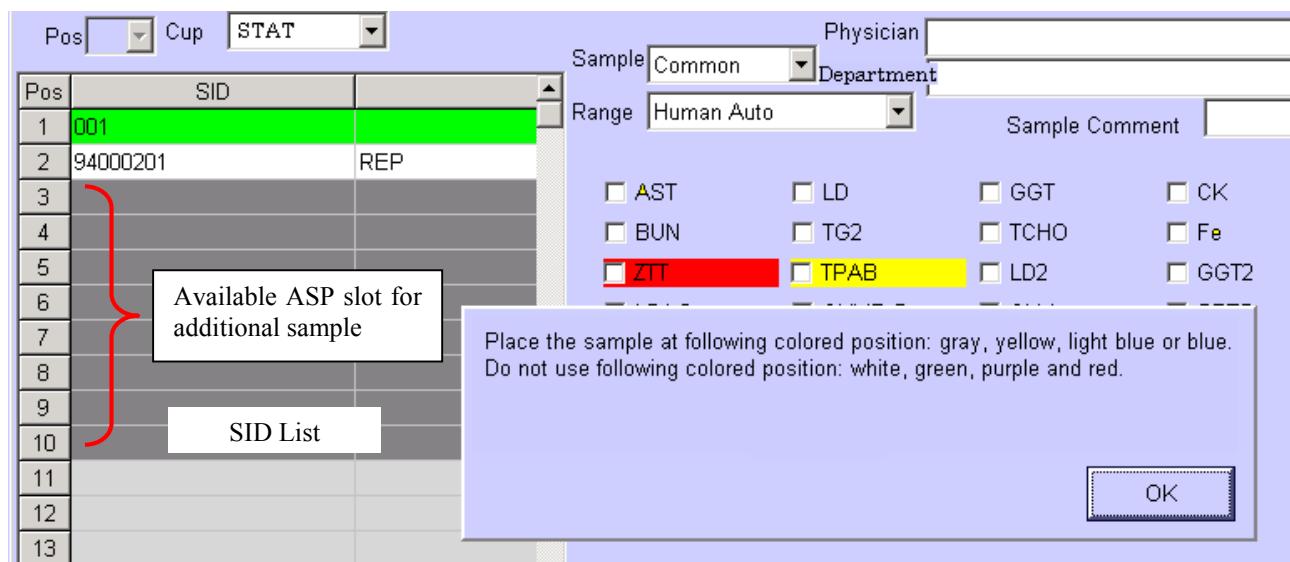
1. Click the [STAT (F3)] button of the Global Menu. Sampling process for new sample comes to a pause, however, the measurement process for already dispensed cuvettes in the IRU is carried on.

2. After sampling process is stopped, ASP rotates to the position where any test order is not still registered. However, if there is more than one slot, ASP rotates to the youngest number of slot.
And the present screen is automatically jumped to the tab menu [Selection], and the following pop-up message is appeared. (Refer to previous page “2.11.1 Emergency Sample Addition”.)

**“Place the sample at following position: gray, yellow, light blue or blue.
Do not use following colored position: white, green purple and red”**

When the operator selects the ASP slot position to place the additional sample, it should be considered the sort of color in the SID List at the left of screen as referring to the pop-up message.

When click the **OK** button in the pop-up message, the pop-up message is disappeared from the screen.

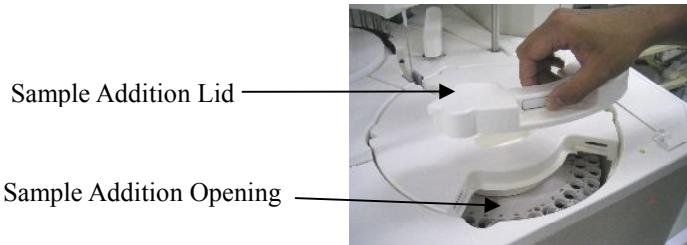


3. Then, you can perform to set the test order for the additional sample. Refer to “2.7.1.1 Normal Sample (Normal)” of Chapter 2.

When click the **Rotation ASP** button, the ASP slot that has been newly selected rotates to CW.

Chapter 2 Measurement Procedure

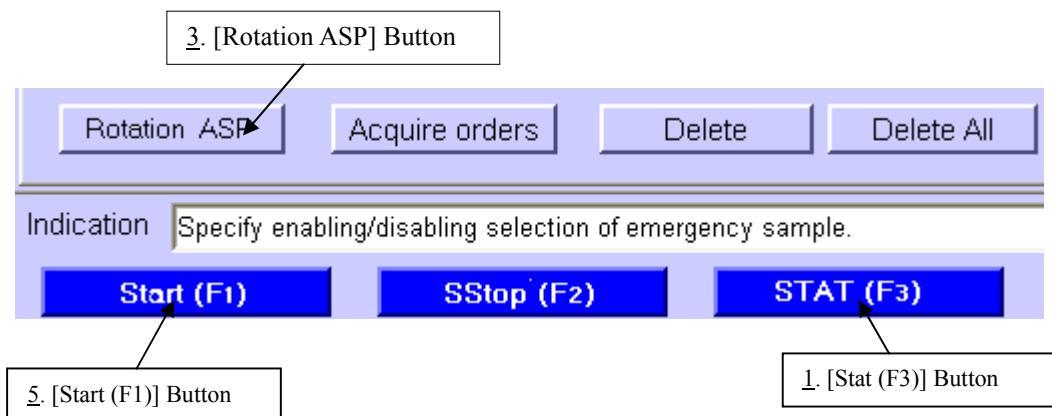
4. Remove the “Sample addition lid” and place the additional sample to the ASP slot.
After completion of sample placement, return the “Sample addition lid” to its original position.
When you want to add more than one sample, repeat the procedures from 3 to 4.



5. Click the Global Menu button [Start (F1)] flickering yellow to restart the measurement process. The following message is popped up while the analyzer performs the start up check and inventory check, then the message is disappeared after completion of check process.

Startup check in process.
Inventory check in process.

ASP starts rotating and the suspended sampling process is restarted, then the measurement of samples including additional sample is performed.



2.11 Sample Addition

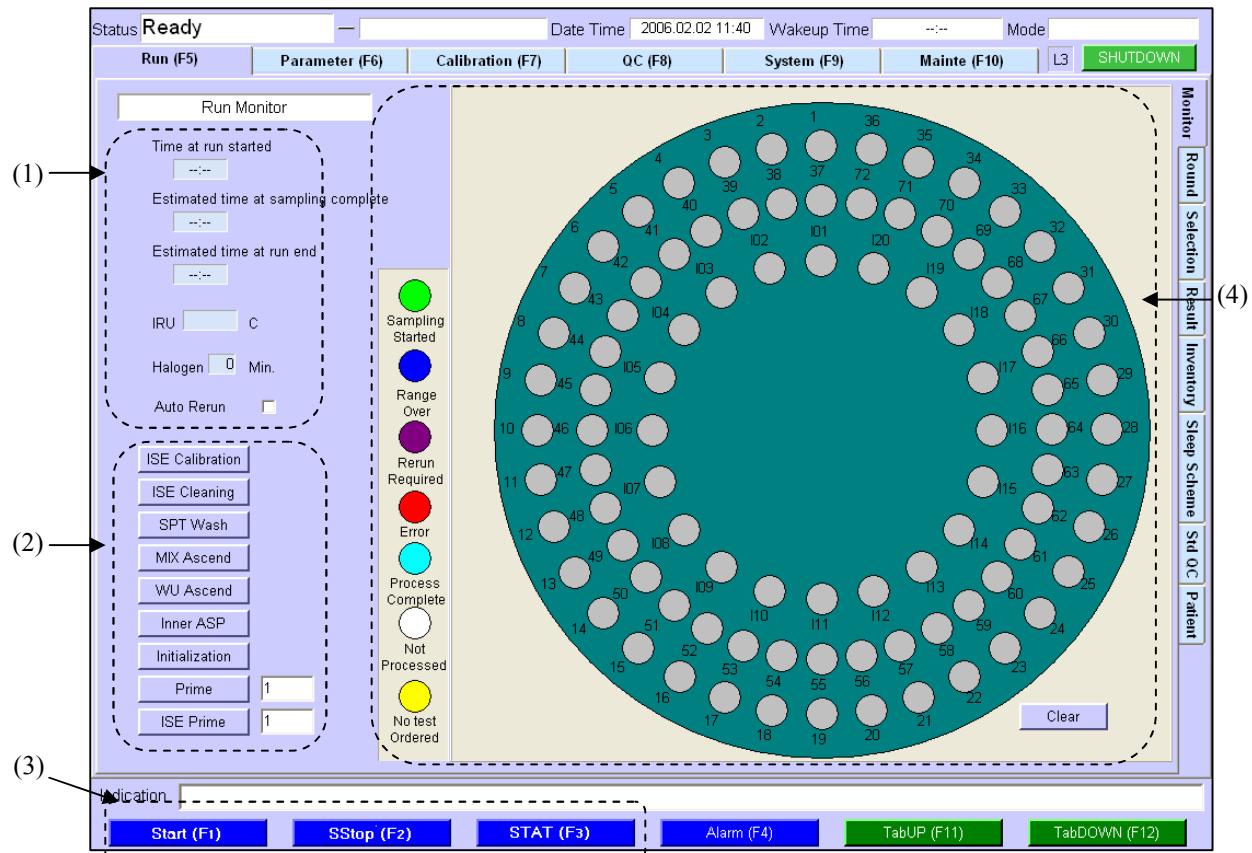
2.11.2 Normal Sample Addition

Chapter 3 Explanation of Menus

3.1 [Run (F5)]:Run Menu

3.1.1 [Monitor]:Run Monitor

This menu is available to monitor the measurement progress and to execute some functions such as ISE Calibration, ISE Cleaning, SPT Wash, Initialization or Prime.



No.	Descriptions
(1)	<p>Time at run started It will display the measurement start time.</p> <p>Estimated time at sampling complete It will display an estimated time for the completion of a sampling. Some necessary time will be added for BCR samples when the order inquiry about samples.</p> <p>Estimated time at run end It will display the measurement end time.</p> <p>IRU It will display the IRU temperature. The temperature of the IRU is monitored with several sensors, and the screen will show their representing temperature. If any of them exceed ± 0.5 from 37°C, the temperature value of its sensor will be displayed in red.</p>

Chapter 3 Explanation of Menus

No.	Descriptions
(1)	<p>Halogen It will display the remained time that Halogen lamp is available to use. (by minute) After Power ON, it will be counted down from 20 minutes.</p> <p>Auto Rerun Specify whether or not to need an auto-rerun operation. Rerun will be performed automatically with setting parameters in advance by this Auto-Rerun function when results are over the technical range or error flags occurred. Refer to “3.2.1 Chemistry Parameter 1” for details on rerun operations.</p>
(2)	<p>ISE Calibration This button is to implement ISE Calibration. The setting for the ISE calibrating solution is available on the “Selection” or “Std QC” screen.</p> <p>ISE Cleaning This button is to implement ISE cleaning. The setting for ISE cleaning solution is available on the “Selection” or “Std QC” screen.</p> <p>SPT Wash This is to perform the SPT cleaning with wash solution. This SPT wash solution is defined on the “Selection” or “Std QC” screen.</p> <p>MIX Ascend / MIX Descend This is for easy stirrer cleaning of MIX1 / MIX2. Click this button and MIX1 / MIX2 unit move to upper direction and the button title will be changed to MIX Descend. After cleaning work, click on the button MIX Descend to return MIX1 / MIX2 units to initial position.</p> <p>WU Ascend / WU Descend This is for easy nozzle cleaning of WU. Click on this button and WU unit move to upper direction and the button title will be changed to WU Descend. After cleaning work, click on the button WU Descend to return WU unit to initial position.</p> <p>Inner ASP ASP will rotate CW.</p> <p>Initialization Click on this button and it will make each unit return to its home position.</p> <p>Prime Click this button and as well as filling the purified water and wash solution inside of the tubing, the air in the path is discharged. It will execute the number of times specified in the <input type="text"/>.</p> <p>ISE Prime Click this button and it will execute a discharging air in the path by the solution Calibrant A. It will execute the number of times specified in the <input type="text"/>.</p>

Chapter 3 Explanation of Menus

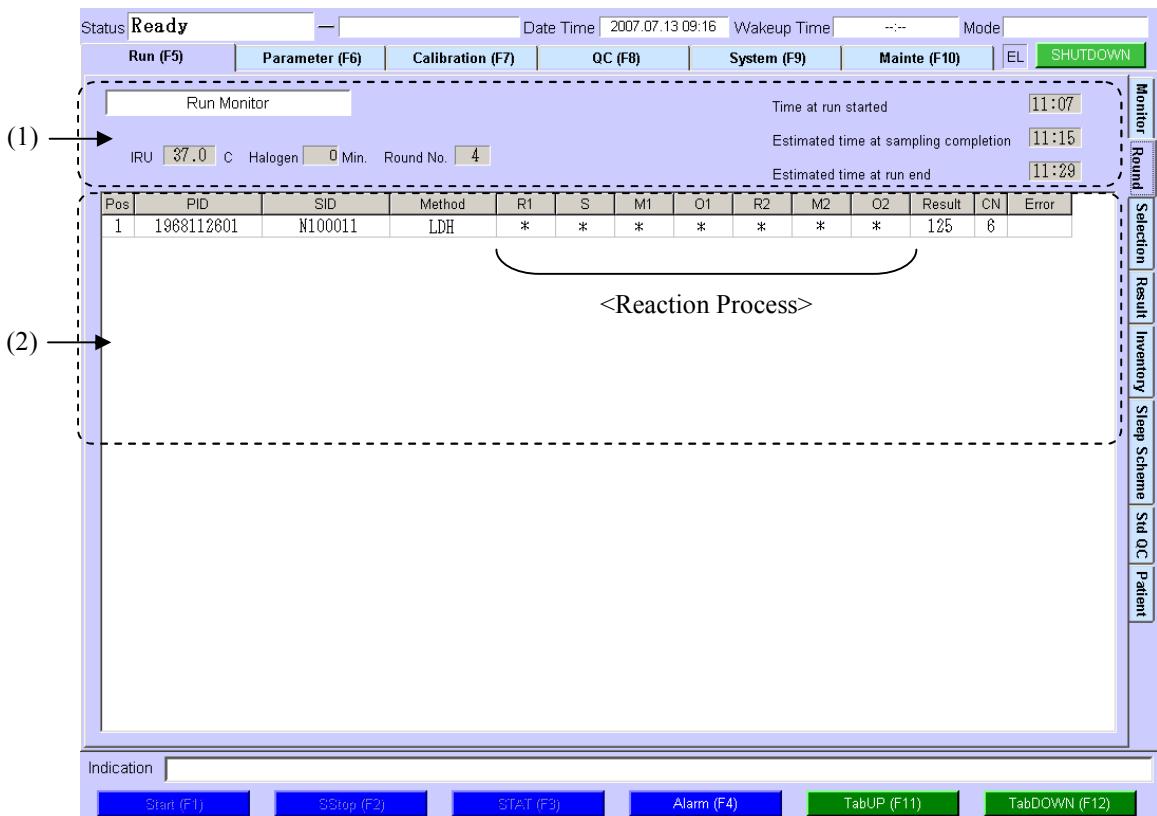
No.	Descriptions
(3)	<p>Start (F1) Click this button and the measurement process is started. During the measurement, this button is flickered with yellow color.</p> <p>Sstop (F2) Clicked this button, the sampling movement is suspended until the Start (F1) button is clicked again.</p> <p>STAT (F3) This is an operational button for additional sample. It will be switched over the tab menu [Selection] by pressing [F3] key from any screen.</p>

Chapter 3 Explanation of Menus

No.	Descriptions		
(4)	<ASP Monitor> The monitor shows the status of each sample placed in the ASP with colors. And when the key cursor is placed on the sample mark, its sample number (SID) is displayed.		
 Priority in the case each method's status is different. 	High	Display Color	Status
	Grey (Unknown)	It means that the status is unprocessed and the (Gray) shows before the round starts.	
	Red (Error)	It means that at least one error method is included. (Except for STB error) When conversion concentration has been failed due to such as a calibration curve error or no calibration curve, the color will be red. Note: Abnormal temperature error may not be shown immediately on the screen.	
	Purple (Rerun Required)	It means that at least one method for rerun is included. When samples are technical range over and the samples are rerun, the color will be changed from (Green) to (Purple). Rerun samples will be measured when their barcodes are read at the re-circulation of ASP and its color is changed from (Purple) to (White).	
	Blue (Range Over)	It means that at least one range-over method is included. The measurement has been completed and the conversion of concentration of the measurement has been normally done but the result is over Technical Range. The color will be changed from (Green) to (Blue).	
	Light Blue (Process Complete)	It means that all methods have been completed (STB error is deemed as normal completion.). The measurement has completed and its concentration conversion has been normally done, all methods are within the technical range. The color will be changed from (Green) to (Light blue).	
	Green (Sampling Started)	It means that the process from sampling for the first method to the sampling for all methods has done (Except for occurrences of rerun, errors and range over.). The color will be changed from (White) to (Green) at the time that the sample has been dispensed in cuvettes.	
	White (Not Processed)	It means that all methods are unprocessed sampling. If the sample barcode can be read and its order is registered, the color will be changed from (Grey) to (White) and the status means that it is waiting for a sampling process. Meanwhile, it remains (Grey) in the case that the barcode could not be read.	
	Yellow (No test Ordered)	It means that any test order is not registered. Although the sample barcode can be read, its order is not registered and the color will be changed from (Gray) to (Yellow).	
	Dark Gray	It means barcode is not recognized and any test order is not registered for its ASP slot.	

3.1.2 [Round]:Round Monitor (Error Flags)

You can check both of the statuses, the unit control before start and an each sample's condition in process.



No.	Descriptions
(1)	<p>IRU <input type="checkbox"/> C The temperature of the IRU is monitored with several sensors and represented temperature of them is displayed on the screen. If any of which exceeds ± 0.5 from 37°C, its temperature will be displayed in red.</p> <p>Halogen <input type="checkbox"/> Min It will show a remaining time that the Halogen lamp will be available (stable) by minutes.</p> <p>Time at run started It will display the measurement start time.</p> <p>Estimated time at sampling complete It will display the sampling estimated completion time.</p> <p>Estimated time at run end It will display the measurement completion time.</p>
(2)	<p><Operational Monitor List> The measurement status of each sample will be shown.</p> <p>Pos This will display the sample position number at the IRU.</p> <p>PID This is patient ID. It will be blank if it is not registered.</p>

Chapter 3 Explanation of Menus

No.	Descriptions																										
(2)	<p>SID</p> <p>A sample ID will be shown. On the list, the sample number will be displayed together with its number added measurement times and repeat times.</p> <table border="1"><tbody><tr><td>Normal sample</td><td>Nxxxxxxxxxxxxnn1 (3 to 12 digit display) nxxxxxxxxxxxxnn1 (Pediatric) Exxxxxxxxxxxxxnn1 (STAT) e8999xxxxnn1 (STAT & Pediatric)</td></tr><tr><td>On line sample</td><td>Oxxxxxxxxxxxxnn1 oxxxxxxxxxxxxxnn1 (Pediatric)</td></tr><tr><td>Normal Pediatric sample</td><td>n8999xxxxnn1</td></tr><tr><td>STAT sample</td><td>E99000xxxnn1 e99000xxxnn1 (Pediatric)</td></tr><tr><td>STAT Pediatric sample</td><td>e990009xxnn1</td></tr><tr><td>Control sample</td><td>C970000xxnn1</td></tr><tr><td>Standard sample</td><td>S98xxxxyymm</td></tr><tr><td>Multi-Standard sample</td><td>M950000xyymm</td></tr><tr><td>Serial Dilution sample</td><td>D93xxxxyymm</td></tr><tr><td>Replicate sample</td><td>R9400xx0111 r9400xx0111 (Pediatric)</td></tr><tr><td>Orderless sample</td><td>A920000xx11</td></tr><tr><td>Blank sample</td><td>B9510000xnnm</td></tr><tr><td>Reagent Blank sample</td><td>RB91xxxx1nnm</td></tr></tbody></table> <p>“nn” indicates the measurement times, “m” does repeat times, and “y” does the solution number(1 to 7).</p> <p>Method The measurement method name will be shown.</p> <p><Reaction Process> The reactive process in measurement will be shown by “*”. R1: R1 Reagent dispensing completion S: Sample dispensing completion M1: R1 Stirring completion O1: Photometry for the first half completion R2: R2 Reagent dispensing completion M2: R2 Stirring completion O2: Photometry for the last half completion</p> <p>Result The measurement result (the concentration value) will be shown.</p> <p>CN The number of a cuvette used in measurement will be shown.</p> <p>Error When an error occurs, its error flag will be displayed with alphabets then the flag will be shown. If some errors are duplicated, one of the higher priorities will be chosen to display.</p>	Normal sample	Nxxxxxxxxxxxxnn1 (3 to 12 digit display) nxxxxxxxxxxxxnn1 (Pediatric) Exxxxxxxxxxxxxnn1 (STAT) e8999xxxxnn1 (STAT & Pediatric)	On line sample	Oxxxxxxxxxxxxnn1 oxxxxxxxxxxxxxnn1 (Pediatric)	Normal Pediatric sample	n8999xxxxnn1	STAT sample	E99000xxxnn1 e99000xxxnn1 (Pediatric)	STAT Pediatric sample	e990009xxnn1	Control sample	C970000xxnn1	Standard sample	S98xxxxyymm	Multi-Standard sample	M950000xyymm	Serial Dilution sample	D93xxxxyymm	Replicate sample	R9400xx0111 r9400xx0111 (Pediatric)	Orderless sample	A920000xx11	Blank sample	B9510000xnnm	Reagent Blank sample	RB91xxxx1nnm
Normal sample	Nxxxxxxxxxxxxnn1 (3 to 12 digit display) nxxxxxxxxxxxxnn1 (Pediatric) Exxxxxxxxxxxxxnn1 (STAT) e8999xxxxnn1 (STAT & Pediatric)																										
On line sample	Oxxxxxxxxxxxxnn1 oxxxxxxxxxxxxxnn1 (Pediatric)																										
Normal Pediatric sample	n8999xxxxnn1																										
STAT sample	E99000xxxnn1 e99000xxxnn1 (Pediatric)																										
STAT Pediatric sample	e990009xxnn1																										
Control sample	C970000xxnn1																										
Standard sample	S98xxxxyymm																										
Multi-Standard sample	M950000xyymm																										
Serial Dilution sample	D93xxxxyymm																										
Replicate sample	R9400xx0111 r9400xx0111 (Pediatric)																										
Orderless sample	A920000xx11																										
Blank sample	B9510000xnnm																										
Reagent Blank sample	RB91xxxx1nnm																										

Chapter 3 Explanation of Menus

Error Flags

Error ranks	Error flags	Descriptions	Matter of error
	<None>	Normal	
(1)	IE1	Requirement of ISE measurement is abnormal	No correspondence for the measurement requirement is from ISE.
	IE2	Not received ISE measurement result data	The measurement result from ISE could not be received.
(2)	SPS	SPT nozzle clogging	SPT becomes step-out on the IRU.
	SS	Sample shortage	The liquid level of SPT is not detected or a hit of the bottom is detected in ASP.
	SS	Out of the range of the liquid level of sample	The result of SPT liquid level detection is out of the range in ASP.
	SI1	Non detection of the liquid level of sample discharge	The liquid level of SPT is out of the range or a hit of the bottom has been detected in IRU.
	SI1	Out of the range of the liquid level of sample discharge	The result of SPT liquid level detection is out of the range in IRU.
	SI2	Dilution sample shortage	The liquid level of SPT is out of the range or a hit of the bottom has been detected in IRU.
	SI2	Out of the range of the liquid level of Dilution sample	The result of SPT liquid level detection is out of the range in IRU.
	R1S	R1 Reagent shortage	When R1 reagent aspirating, the RPT liquid level is not detected or a hit of the bottom is detected.
	R1S	Out of the range of the liquid level of R1 Reagent	When R1 reagent aspirating, the result of the RPT liquid level detention is out of the range.
	R2S	R2 Reagent shortage	When R2 reagent aspirating, the RPT liquid level is not detected or a hit of the bottom is detected.
	R2S	Out of the range of the liquid level of R2 Reagent	When R2 reagent aspirating, the result of the RPT liquid level detention is out of the range.
	DS	Dilution shortage	When dilution aspirating, the RPT liquid level is not detected or a hit of the bottom is detected.
	DS	Out of the range of the liquid level of dilution	When dilution aspirating, the result of the RPT liquid level detention is out of the range.
	WS	Wash solution shortage	When wash solution aspirating, the RPT liquid level is not detected or a hit of the bottom is detected.
	WS	Out of the range of the liquid level of the wash solution	When wash solution aspirating, the result of the RPT liquid level detention is out of the range.
	R1B	No R1 reagent bottle	R1 reagent bottle has not been registered.
	R1S	Volume Zero in R1 reagent	The remaining volume of R1 reagent has reached zero.
	R2B	No R2 reagent bottle	R2 reagent bottle has not been registered.
	R2S	Volume Zero in R2 reagent	The remaining volume of R2 reagent has reached zero.
	DB	No dilution bottle	The dilution bottle has not been registered
	DS	Volume Zero in dilution bottle	The remaining volume of the dilution bottle has reached zero.
	WB	No wash solution bottle	Wash solution bottle has not been registered
	WS	Volume Zero in wash solution bottle	The remaining volume of the wash solution bottle has reached zero.
	LOT	Lot inconsistency	The reagent lot number has not been inconsistency.
	SPW	Failure of SPT wash	SPT wash has been failed. Check the alarm to determine the reason for its fail.

3.1 Run

3.1.2 Round

Chapter 3 Explanation of Menus

Error ranks	Error flags	Descriptions	Matter of error
	R1W	Failure of RPT 1 wash	Method to Method washing, an operation in advance to R1, has failed. Check the alarm to determine the reason for its fail.
	R2W	Failure of RPT 2 wash	Method to Method washing, an operation in advance to R2, has failed. Check the alarm to determine the reason for its fail.
(3)	TE1	IRU temperature extremely low	IRU temperature < 37-2(°C)
	TE2	IRU temperature extremely high	IRU temperature > 37+2(°C)
	TE3	RCU temperature extremely high	RCU temperature > 15°C
	TE4	ASP temperature extremely high	ASP temperature > 10°C
	EST	Anomalous measurement	Error sampling stop. Check the alarm for the reason.
(4)	EXP	The reagent is no longer valid.	An expired reagent was used in the measurement
	STB	Reagent stability expired	Invalid reagent stability was used with the measurement.
	CTO	Calibration expired	The reason is that the measurement was taken by a method of which calibration has not been implemented within a setting term.
	CXP	Control expired	The reason is that the measurement was taken by a method of which QC measurement has not been implemented within a setting term.
(5)	CA?	An error of concentrations of conversions.	No calibration curve, or ISE calibration ever has been executed after the startup.
(6)	OVR	An error out of the range of calibrator.	The value is not between Calibrator's minimum and maximum.
	LIN	Linearity Limit Error	Linearity Limit Error
	PRO	Prozone Limit Error	Prozone Limit Error
	AB1	Absorbance Limit1 Error	Only one of the measured values is in Absorbance Limit.
(7)	AB2	Absorbance Limit2 Error	After the first 3 points of the measured value that are out of Absorbance Limit, and also more than 2 points of the measured value are out of Absorbance Limit. But when more than 8 points of the measured value are within Absorbance Limit, "AB2" flag is not applied to the result.
	CLT	Using the different lot number of R1 or R2	Used reagent lot number in the specimen or control measurement has been different from the reagent in the calibration measurement.
(8)	STM	Sample type Inconsistent	The measurement was taken by sample type of each method that does not match the sample type. The concentration value was converted with a calibration curve that does not match the sample type.
(9)	DUP	Duplicate Limit Error	Duplicate Limit Error
	SEN	Sensitivity Limit Error	Sensitivity Limit Error
	CAL	Failure of calibration	An operation of calibration has failed in shortage of points etc.

(*) In an error, a Concentration value (or the measurement value) will be shown by "*****".

The priority of each error rank should be (1)>(2)>(5)>(6)>(3)>(4)>(7)>(8)>(9).

The errors from (1) to (4) are those that have occurred in the main analyzer, and the errors from (5) to (9) are those that have been detected in the UI side.

Chapter 3 Explanation of Menus

The descriptions for ISE error codes are provided with the following list.

The code consists of 4 bytes. When the numeric value of each byte is converted into binary numbers, each method of the following case may be error.

In the case the Bit 0 (0x01) is ON, the measurement value for Na will be shown by “*****” if Na error.

In the case the Bit 1 (0x02) is ON, the measurement value for K will be shown by “*****” if K error.

In the case the Bit 2 (0x04) is ON, the measurement value for Cl will be shown by “*****” if Cl error.

All the three methods are considered error unless the value has set with from “0 to 7”. This will be applied except that the value from “K” to “R” for the byte 4 is effective.

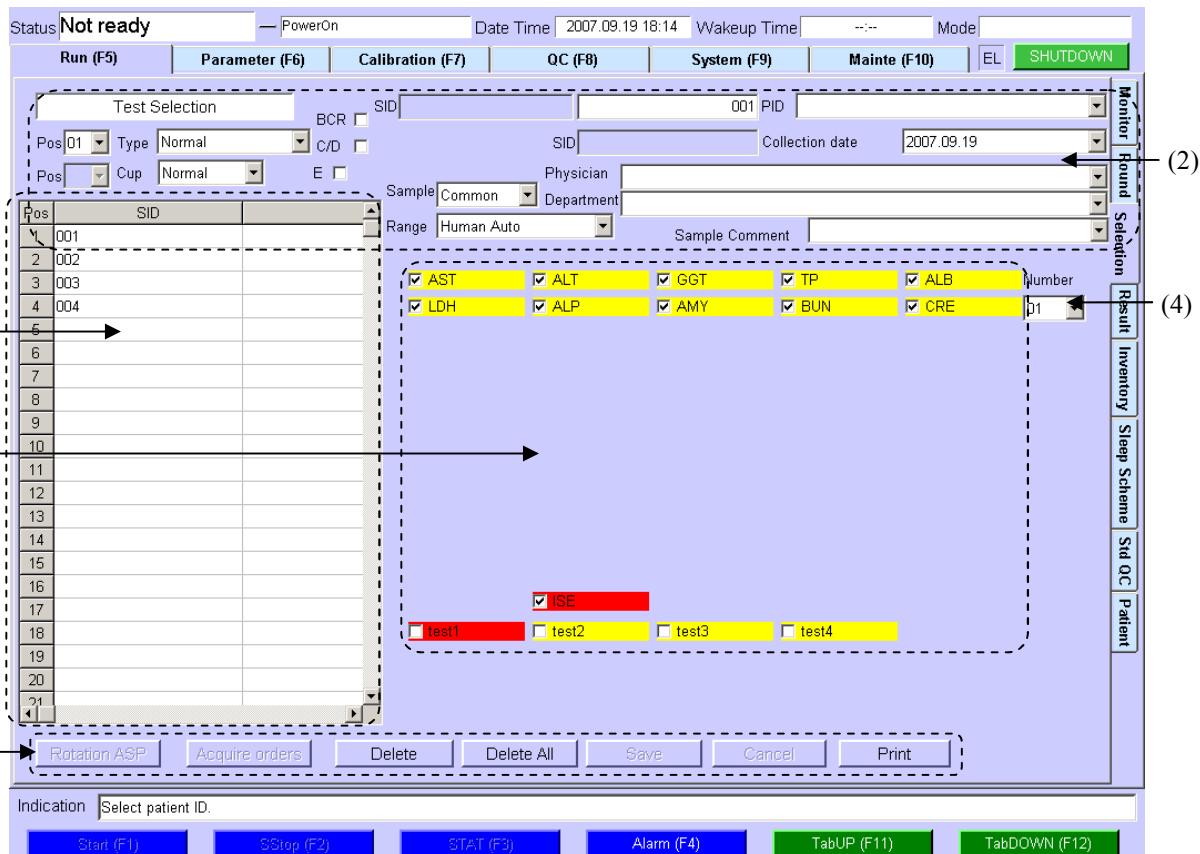
			Byte1	Byte2	Byte3	Byte4			
			Noise or Air for Sample / Cal B	Noise or Air for Cal A	Drift in Cal A	Out of Range for Sample / Cal B and Urine	Out of Range and/or Na Error for Urine Only (Note 1)		
ISE	No error	0	0	0	0	0			
	Na	1	1	1	1	1			
	K	2	2	2	2	2			
	Na, K	3	3	3	3	3			
	Cl	4	4	4	4	4			
	Na, Cl	5	5	5	5	5			
	K, Cl	6	6	6	6	6			
	Na, K, Cl	7	7	7	7	7			
ISE(D)	No error	0	0	0	0	K	Na Urine error only, no out of range error	Na Urine error and out of range error	
	Na	1	1	1	1	L			
	K	2	2	2	2	M			
	Na, K	3	3	3	3	N			
	Cl	4	4	4	4	O			
	Na, Cl	5	5	5	5	P			
	K, Cl	6	6	6	6	Q			
	Na, K, Cl	7	7	7	7	R			
Air		S (Note2)	A	—	—	—			
		B (Note2)	—	—	—	—			

(Note 1): ISD (D) is basically uses error codes from “0 to 7”. However, “K” is used for a case as Na error and no range over, from “L to R” are used for another case as both Na errors and range over.

(Note 2): “S” indicates aeration when sample dispensing, “B” does when Cal B dispensing either.

3.1.3 [Selection]:Test Selection

The orders of the outer and inner circumferences are registered.



No.	Descriptions
(1)	<p><Order List> The order list will be shown. To edit the order, click to chose some orders on the list.</p> <p>“Pos” column: The sample position number of the outer and middle positions in ASP will be shown. The Pos will be shown from 1 to 72, and after that the registered orders in “Sample Barcode Exist” will be displayed.</p> <p>“SID” column: A sample ID will be shown.</p> <p><Untitled> column: Unique name attached to the sample will be shown. Such as PID, Control name, Reagent name, Multi-standard name, “REP”, “ISE STD”, “ISE CLEAN”, “ORDERLESS”, “BLANK” and “SPT WASH”.</p>

(You can register a setup for the ASP center circumference on the [Run (F5)] – [Std QC] menu.)

Chapter 3 Explanation of Menus

No.	Descriptions
(2)	<p>Pos (Upper) Choose an ASP position. The outer circumference 36 (1–36) The middle circumference 36 (37–72) Specify an ASP position for order input. When you order by specifying the Pos, it will be considered as “Sample Barcode Reader not exist Order”. When you order by Pos with blank, it will be considered as Sample Barcode Reader exist Order”. In that case, it is only available to register Normal, STAT, Replicate and Online sample order.</p> <p>Pos (Lower) Enter the end position of the copy and the repeat deletion (1 to 72).</p> <p>Type Choose a type of setting object by means of drop-down menu. The following types can be selectable by means of the drop-down menu.</p> <ul style="list-style-type: none"> Normal STAT Replicate Standard Multi Standard Serial Dilution Blank Control Mask Orderless Online ISE Calibration ISE Cleaning SPT Wash <p>Cup Specify attribute sample by means of drop-down menu. Select either one of “Normal” or “Pediatric”. Choosing “Pediatric” means that the Pediatric process will be taken by the sample number of Normal sample and STAT sample.</p> <p>BCR Choose a mode for keyboard BCR use. As the barcode reader accommodated to connect a keyboard, you can input SID with full digits to turn this check mark ON. At this time, the upper digits of SID will turn blank in a Normal sample case, and some information such as “Type” will automatically change depending on the reading SID number.</p> <p>C/D Package registration (by Save button) and delete (by Delete button) orders will be available in a specified range with this check mark ON. You can specify “Pos (End Number)” and the “SID (End Number)” then. Meanwhile, it will be able to use the Save button and Delete button to register or delete an each sample with this check mark OFF. In addition, the both of “Pos (End Number)” and “SID (End Number)” will be prohibited the designation.</p> <p>E Specify an emergency sample. Specify a STAT sample remaining its ”SID” as a Normal sample. This is only effective for Normal sample.</p> <p>SID: Upper Input a sample ID (Should be within alphanumeric 12 digits).</p> <p>SID: Lower Input the last sample ID to be copied or deleted when the “C/D check box” is ON.</p>

Chapter 3 Explanation of Menus

No.	Descriptions
(2)	<p>PID You can input a patient ID (Should be within alphanumeric 20 digits). Choose a registered patient ID from the drop-down menu. If your input PID is not registered, the patient information settings is automatically popped up so that you can newly create the patient information for the inputted PID.</p> <p>Collection date Choose a drawing blood date from the drop-down calendar.</p> <p>Physician Choose an attending physician (or an archiater) from the drop-down menu. Physician can be created in the tab menu [Define] of the job menu [System (F9)] in advance.</p> <p>Department Choose a department from the drop-down menu. Department can be created in the tab menu [Define] of the job menu [System (F9)] in advance.</p> <p>Sample Comment Choose a sample's comment from the drop-down menu. Sample's comment can be created in the tab menu [Define] of the job menu [System (F9)] in advance.</p> <p>Sample Choose a sample type. Choose a sample category from "Common", "Serum", "Urine", "Plasma" displayed on the drop-down menu. It will display the measurement methods for each selecting sample type and then switch over the screen.</p> <p>Range Specify the Normal Range to use for judgment of the result. Need to be chosen from Human Auto (Auto), six types of Human (each 3 Generations in both Sexes) and other 44 types. The default setting is Human Auto. No.01 to 06 are fixed as follows. 01: Male-G1 02: Male-G2 (This standard value should be applied if no age and no sex have been specified in Human Auto.) 03: Male-G3 04: Female-G1 05: Female-G2 06: Female-G3 The No.07 to 50 are available to select only for ranges of which name has been registered on the tab menu [Range] of the job menu [System (F9)].</p> <p>MS: This item is only output when you select "Multi-Standard" in "Type" selection. By choosing a set name shown on the drop-list, the check box of measurement methods registered in each set will be shown as "ON".</p> <p>Control: This item is only outputted when you select "Control" in "Type" selection. It will be shown when you select the Control in "Type". Choose a control sample from the drop-down menu.</p>

No.	Descriptions						
(3)	<p><Measurement methods specification></p> <p>(1) In the case of setting of Normal, STAT and Replicate sample's measurement order</p> <p>Specify measurement methods (Standard, ISE, SI and Profile).</p> <p>It is available to select methods registered on each menu of Normal, ISE, SI, and Profile. Methods which reagents have not been registered or which reagents have been shortage will not be displayed.</p> <p>Methods which calibrations have not been executed or which calibrations have been expired will be displayed in <u>red</u>. However, methods which calibration types are "Factor" will not be checked.</p> <p>Methods which Control have not been executed or expired will be shown in <u>yellow</u>.</p> <p>Methods which Calibrators have been expired will be shown in <u>orange</u>.</p> <p>Note: The priority levels are; "Calibration expired" > "Control expired" > "Calibrator expired"</p> <p>ISE methods will be displayed differently by types specified in "Sample".</p> <table> <tr> <td>Common</td> <td>:It is possible to choose from ISE or ISE (D).</td> </tr> <tr> <td>Serum and Plasma</td> <td>:It is only available to choose ISE.</td> </tr> <tr> <td>Urine</td> <td>:It is only available to choose ISE (D).</td> </tr> </table> <p>All the measurement methods in Profile will be displayed with underline when you choose "Profile". Move a mouse pointer to any of Profile methods and the registered measurement methods in Profile will be shown in a hint box..</p> <p>(2) In the case of setting of Control sample's measurement order</p> <p>By choosing a control name from the drop-down menu, check boxes of registered methods will be changed ON. These measurement methods cannot be modified here.</p> <p>(3) In the case of setting of Standard sample's measurement order</p> <p>Choose a sample type from the drop-down menu and the registered method will be displayed. Then you can specify a measurement method here.</p> <p>(4) In the case of setting of Multi-Standard sample's measurement order</p> <p>Choose a Multi-standard name and sample type and measurable methods will be checked and displayed set on the "Multi-Std" screen.</p> <p>Measurement methods cannot be modified here.</p> <p>(5) In the case of setting of Blank sample's measurement order</p> <p>Choose this order and the measurement methods used for Blank sample will be shown.</p> <p>Measurement methods cannot be modified here.</p> <p>(6) In the case of setting of Masking</p> <p>By check-OFF on this setting, it will mask the measurement methods.</p> <p>The mask information is not eliminated even when the measurement has been completed.</p> <p>From the next measurement, the previous setting will be displayed.</p> <p>The Mask order you set will be applied to all the samples.</p> <p>(7) In the case of setting of Orderless sample's measurement order</p> <p>Specify methods that you will measure in all methods measurement (Shift+F1).</p> <p>Click the check box ON to implement measurements.</p> <p>(8) In the case of setting of Online measurement order</p> <p>In "Online Batch" mode, click the Acquire orders button and sample order information will be transferred from the host computer. The order list will be updated by receiving data.</p> <p>When you measure any samples without a sample barcode in "Online Real Time" mode, you have to register a "SID" for each "Pos" in advance.</p> <p>In case that the received Online Orders and the registered orders on the screen match, the orders will be determined. However, if they don't match, the orders will be an error and then it will not be determined (result in fail).</p> <p>An "SID" received from the host computer becomes an "SID" added to the error message</p> <p>(9) In the case of setting of ISE Calibration, ISE Cleaning and SPT Wash</p> <p>Specify an ISE Calibrator, ISE wash solution and a position for SPT special wash solution.</p> <p>You can execute each performance on the [Monitor] screen or the [Sequence] screen of the job menu [Maint (F10)].</p>	Common	:It is possible to choose from ISE or ISE (D).	Serum and Plasma	:It is only available to choose ISE.	Urine	:It is only available to choose ISE (D).
Common	:It is possible to choose from ISE or ISE (D).						
Serum and Plasma	:It is only available to choose ISE.						
Urine	:It is only available to choose ISE (D).						

Chapter 3 Explanation of Menus

No.	Descriptions
(4)	Number Specify Normal samples / Replicate samples when you repeatedly measure. Choose a number from 1 to 99 on the drop-down menu. Note that Auto Rerun will not be performed when this number is two or bigger.
(5)	Rotation ASP When the STAT (F3) button is clicked for the sample addition (Emergency or Normal), this button becomes available to move the ASP slot. Acquire orders Receive host orders. Click this button and the analyzer will start to receive the order information from the Host computer. Normal and emergency samples are available. QC samples are also available in Online Real mode. During receiving orders from the host, the message of "Receiving Orders." will be displayed in the "Mode" box at the upper right of screen. Delete Delete the order of the selected sample ID. All samples from Start Sample ID (start position) to End Sample ID (end position) will be deleted at once with the C/D function. A confirmation message will notify you to complete delete process. To press the OK button will continue the delete and to press the Cancel button will be dissolved the deletion. Save Order settings will be saved. Order information of Start Sample ID (start position) will be copied from the Start Sample ID to End Sample ID (end position) with the C/D function. Cancel It will cancel editing data and original data is available. Print It will print out the registered orders when you specify the range of sample numbers you need. Mask All / Clear All Both buttons will be only available on the mask order screen. By clicking the Mask All , all the measurement methods will be masked (Their check boxes will become "OFF"). At the same time, the button name will switch over the Clear All . By clicking the Clear All , all the measurement methods that have been masked will be released (Their check boxes will become "ON"). Associated with this, the button name will switch over the Mask All .

3.1.4 [Result]:Measurement Results

On this screen, you can retrieve the measurement results and testing count for each sample type then display it, print it out and send it to the Host computer.

3.1.4.1 Measurement Result

(A) In the case of selection “All” in the “Sample Type”

The screenshot shows the 'Results' search interface. The search criteria are set to 'Sample Type: All', 'Sample: All', and 'Date: From 2006.03.03 To 2006.03.03'. The results table displays various samples with their details like Date, Round, ID, SID, and Method values. A specific row for 'Male G1' is highlighted.

Date	Round	ID	SID	Meth01	Meth02	Meth03
2006.02.11	1		94003001991		85.00H	
2006.02.14	1	Control 1	970000001011		0.00<	
2006.02.14	1	Control 2	970000002011		0.00<	
2006.02.14	1	Control (S)	970000003011		0.00<	
2006.02.14	1	***** G1	005011	-191772.73	0.00<	111.9
2006.02.14	1	Female G****	003011	-148866.23	*****	0.00L<
2006.02.14	1	Female G3	007011		0.00L<	114.8
2006.02.14	1	Male G1	990000004011	-203229.02	*****	0.00L<
2006.02.14	1	Male G2	010011		0.00<	
2006.02.14	1	Male G3	006011	-211458.03	0.00L<	119.3
2006.02.16	1		002011			

(B) In the case of selection “Control” in the “Sample Type”

The screenshot shows the 'Results' search interface with 'Sample Type: Control' selected. The results table is much simpler, showing only a few rows for control samples.

Date	Round	ID	SID

Chapter 3 Explanation of Menus

No.	Descriptions
(1)	<p>Sample Type Specify a sample type. Choose a type from the following: All, Normal, STAT, Online, Standard, ISE Standard, Control, Replicate, and Test Number. Normal, STAT, Online, Replicate and Control sample's results will be outputted when you select "All". "Standard" includes "Serial Dilution" and "Multi-Standard" and Blank sample.</p> <p>Sample Select a sample type. Choose a type from the following: All, Common, Serum, Urine and Plasma. "Common", "Serum", "Urine" and "Plasma" will be subject to retrieve when you select "All".</p> <p><ID select> Select an ID (SID, PID, Name or Medical Chart) for a search. "Name" & "Medical Chart" can be selected when Sample Type is "Normal", "STAT" or "Online".</p> <ul style="list-style-type: none">▪ 12 digits will be available in both "From" and "To" boxes on the screen when you select a SID.▪ 20 digits will be available in both "From" and "To" boxes on the screen when you select a PID. The content of "From" and "To" boxes will be cleared when its ID is changed. <p>From / To Specify the range of a search SID or PID, depending on the selection of ID select. Input it within 20 alphanumeric digits. (Should be the Start number (From) ≤ the End number (To)) "*" (Asterisk) can be used for the wildcard character and all SID / PID will be target with "*".</p> <p>Date From / To By pulling down the drop-down menu, set a date from the calendar. [From]: Input a search start date. If the "Disable" check box is ON, you don't have to input the date. In that case, all data you have will be target.</p> <p>[To]: Input an end date. If the "Disable" check box is ON, you don't have to input the date. In that case, the latest date will be the end date.</p> <p>Round# Specify a round number for search. Round number 1 - 99 can be entered. The first measurement in a day will be Round 1, the second measurement will be Round 2 and the third measurement will be Round 3. Round number is a serial measurement number in a day. "*" (Asterisk) can be used for the wildcard character and all rounds will be target with "*".</p> <p>Method (for Control result extraction) Choose a method name for the result of the control measurement. This selection method is only appeared on the screen when "Control" is specified in the "Sample Type". Refer to previous page "(B) In the case of selection "Control" in the "Sample Type".</p> <p>Name (for Control result extraction) The name of the selected "Method" will be shown. Refer to previous page "(B) In the case of selection "Control" in the "Sample Type".</p> <p>Send Specify a result data type transferred to host computer from 3 types below. This will be available when "Normal" is specified as "Sample Type".</p> <ul style="list-style-type: none">▪ ALL: all results▪ OK : results which have been transferred successfully▪ NG : results which have been failed to be transferred

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No.	Descriptions
(1)	<p>Select Test Specify methods that you want to output for the search result. Clicking this button and the method select list will be displayed. Specify the measurement methods (light blue for effective / the background color for ineffective).</p> <p>Result Output Specify where to be output.</p> <ul style="list-style-type: none">▪ Monitor: The result will be displayed on the Monitor.▪ Normal Print: The result will be printed out with normal print format.▪ Report Print: The results will be printed out with report print format. This format can be chosen when "Normal", "STAT" or "Online" sample is specified in "Sample Type".▪ File: The result will be printed out to a file. The <input type="button"/> button will be available and you can choose where to be output (saved).▪ Patient history Print: The results will be printed out with a history print format. This format can be chosen when "Normal", "STAT" or "Online" is specified in "Sample Type".▪ Host: This can be chosen when "Normal", "STAT", "Control" or "Online" is specified in "Sample Type". However, when the "Off Line" is selected in the "Host Communication Mode", this "HOST" cannot be specified. <p>Search This will execute result search. The mouse pointer will be busy during search. The search will be suspended if the search targets exceed more than 2,000. Change search condition and search again.</p> <p>Delete Delete measurement results with specified condition. Click this button and a confirmation message will be shown. Click <input type="button"/> button for implementing the delete, or <input type="button"/> for cancel.</p> <p>Select Output Methods selected will be output. Select measurement result in a Search Result List and this button will be available.</p> <ul style="list-style-type: none">▪ Methods selected in a Search Result List will be output.▪ Click a measurement result and press <input type="button"/> key, then the measurement result will be "Select" or "Not Selected".▪ Press <input type="button"/> key and click a mouse at the same time, then a measurement result you select will be "Select" or "Not Selected".▪ Press <input type="button"/> key and click a mouse at the same time, it is possible to select all the range between the line selected in the last and the line selected now▪ Keep pressing <input type="button"/> key and click <input type="button"/> or <input type="button"/> key at the same time, it is possible to change focus line to the upper / lower line.
(2)	<p>Result It will show the concentration of the measurement results.</p> <p>Judgment Normal range judgment selected in Search Result List will be displayed with "H" or "L".</p> <p>Range Technical range judgment selected in Search Result List will be displayed with "<" or ">".</p> <p>Flag The error status of the measurement result selected from Search Result List will be shown. The error status will be described in four digits consisted of three digits for error flag and one digit for rerun flag. E.g.) Error flag of a rerun for AB1 error will be displayed as "AB1r".</p>

Chapter 3 Explanation of Menus

No.	Descriptions
(2)	<p>QC Judgment This will be available in selecting Control samples and show the QC judgment for the measurement result. Judgment result will be shown by three items and seven digits. When there are two or more errors / warnings in QC Judgment, higher priority errors / warnings, up to three, will be displayed in order from the left side of results.</p> <p>ABS The absorbance value of measurement result is shown selected from Search Result List. This ABS will not be displayed in "Standard" or "ISE Standard" as sample type.</p> <p>Conc (S) The concentration value of measurement result is shown selected from Search Result List. This value will be shown in "Standard" as sample type..</p> <p>Delete This will delete the measurement result selected in Search Result List. Press this button and a confirmation message will be shown. Press OK button for implementing the delete and Cancel button for cancel.</p> <p>Output Time Course Graph This will display time course GRAPH of the measurement result selected in Search Result List.</p> <p>Output Time Course Print This will print put time course DATA of the measurement result selected in Search Result List.</p> <p>Output Time Course File This will output time course DATA of the measurement result selected in Search Result List to a specified file with CSV Format.</p>
(3)	<p><Search Result List> Searched measurement results will be shown here.</p> <p>Date: Measured Date Round: Round Number PID: Patient ID (Control Name for Control sample) SID: Sample ID Method: Method Names Result: Measurement results</p> <p>You can confirm data in process here.</p>

3.1.4.2 Testing Count

L1 and L2 user cannot open this menu.

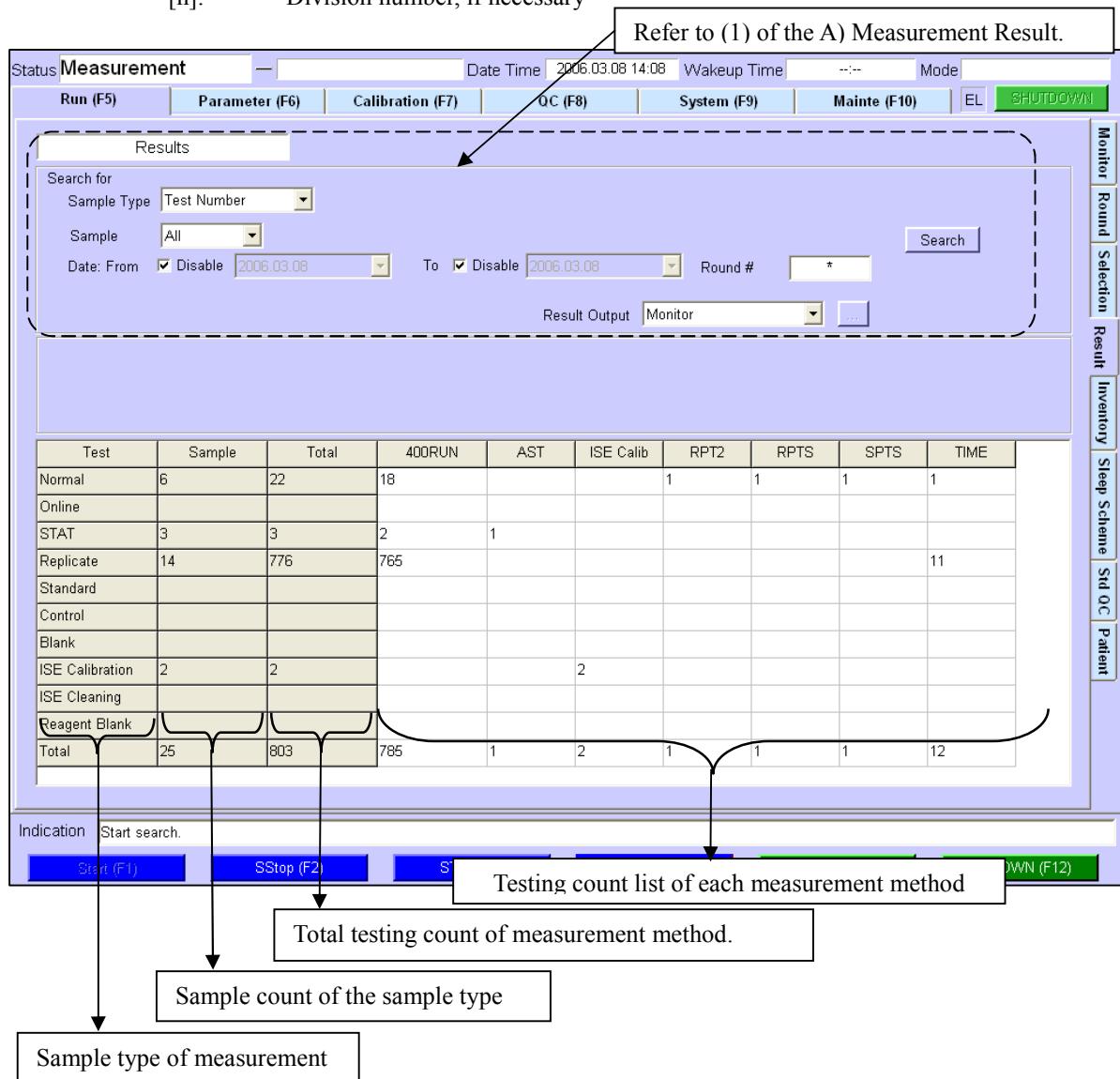
In the tab menu [Result] of [Run (F5)], when the “Test Number” is selected in the “Sample Type”, the test counts for all sample types (Normal, Online, STAT, Replicate, Standard, Control, Blank, ISE Calibration, ISE Cleaning and Reagent Blank) which measuring result have been obtained are listed on the screen.

The testing count data is saved in the system for one year, therefore, past data over one year is automatically deleted from the system storage when the system becomes “Sleep Mode” or the Shutdown process starts. And the file name of saved data is created automatically as “TESTCNT20060309104321.DES”.

TESTCNTYyyyymmddhhmmss[n].DES

TESTCNT: Specific characters

yyyy: Year (4 digits numeric number)
 mm: Month (2 digits numeric number)
 dd: Day (2 digits numeric number)
 hh: Hour (2 digits numeric number)
 mm: Minute (2 digits numeric number)
 ss: Second (2 digits numeric number)
 [n]: Division number, if necessary



Chapter 3 Explanation of Menus

3.1.5 [Inventory]:Reagent Remaining Volume

This manages reagents set in Reagent Container Unit (or RCU).

Pos	Name	Type	Lot	Size	Vol(mL)	Tests	Method	Total	Valid	Stability
01	AST	R1	*	50	47.4	290	AST	290	*	
02	AST	R2	*	50	47.4	412	AST	290	*	
03	ALT	R1	*	40	37.6	230	ALT	230	*	
04	ALT	R2	*	40	37.6	327	ALT	230	*	
05	GGT	R1	*	70	66.4	407	GGT	407	*	
06	GGT	R2	*	70	66.4	577	GGT	407	*	
07	TP	R1	*	100	94.8	581	TP	581	*	
08	TP	R2	*	100	94.8	824	TP	581	*	
09	ALB	R1	*	70	66.4	407	ALB	407	*	
10	ALB	R2	*	70	66.4	577	ALB	407	*	
11	LDH	R1	*	70	66.4	407	LDH	407	*	
12	LDH	R2	*	70	66.4	577	LDH	407	*	
13	ALP	R1	*	70	66.4	407	ALP	407	*	
14	ALP	R2	*	70	66.4	577	ALP	407	*	
15	AMY	R1	*	70	66.4	407	AMY	407	*	
16	AMY	R2	*	70	66.4	577	AMY	407	*	
17	BUN	R1	*	70	66.4	407	BUN	407	*	
18	BUN	R2	*	70	66.4	1897	BUN	407	*	

No.	Descriptions
(1) <Reagent List>	<p>Pos: Click this column and “Pos” column is rearranged by numerical order. This shows the number of RCU position. The outer position: 1 – 30 / The middle position: 31 – 60</p> <p>Name: Click this column and “Name” column is rearranged by alphabetical/numerical order. This shows registered reagent names. Reagent names will be displayed by RCU scan or a manual input of a barcode.</p> <p>Type: Click this column and “Type” column is rearranged by alphabetical / numerical order. This shows a reagent type.</p> <p>Lot: Click this column and “Lot” column is rearranged by alphabetical / numerical order. This shows Lot Numbers.</p> <p>Reagent barcodes which do not include Lot Numbers will be displayed with * (asterisk mark).</p>

Chapter 3 Explanation of Menus

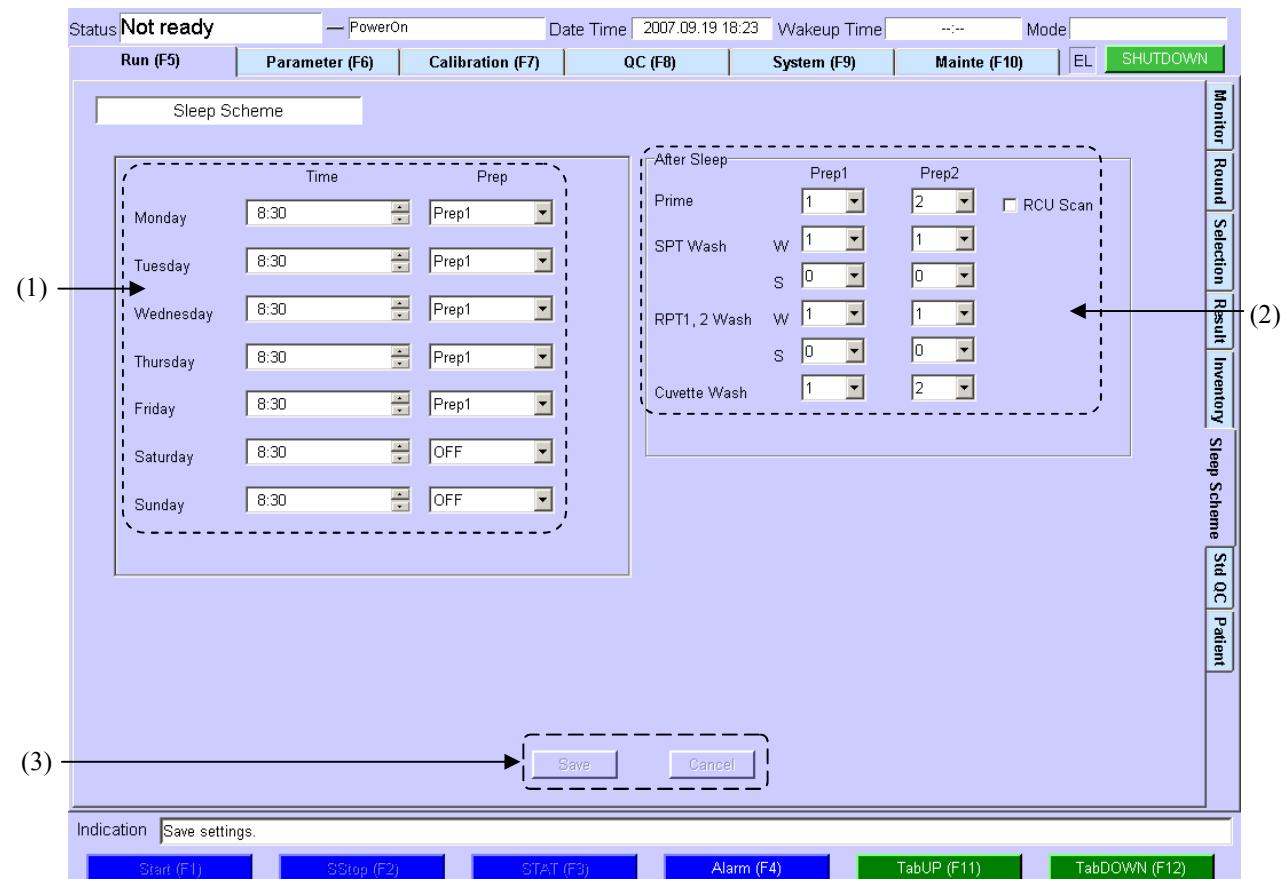
No.	Descriptions
(1)	<p>Size: Click this column and “Size” column is rearranged by alphabetical / numerical order. This shows reagent bottle sizes. The “Pos” number 31 – 60 can be used for 20ml bottle only.</p> <p>Vol (mL): Click this column and “Vol (mL)” column is rearranged by alphabetical / numerical order. This displays the remaining volume of the reagent (unit: 0.1mL). Those lines which reagents have been run short will be display in red. Remaining volume of reagents registered for the first time will be displayed as the maximum size of an each bottle.</p> <p>Tests: Click this column and “Tests” column is rearranged by numerical order. This shows the number of tests you can measure with each reagent and the number depends on a method which needs a reagent the most. This tests number will be displayed in pail color when measurement has not been performed due to uncertain remaining volume.</p> <p>Method: Click this column and “Method” column is rearranged by alphabetical / numerical order. Reagents names which methods use will be displayed. If same reagents are used for different methods, methods which use the reagents the most will be displayed. It will become blank when “Wash “ is selected in ”Type”.</p> <p>Total: Click this column and “Total” column is rearranged by numerical order. Number of tests which is available for measurement will be displayed. If measurable number of tests is less than 1 (test), the whole line will be displayed in red.</p> <p>Valid: Click this column and “Valid” column is rearranged by alphabetical / numerical order. This shows the validation date (Day / Month / Year) for the reagent. Double click this date and you can change the date. When barcodes do not specify an expiry date, the expiry date will be proceeded with blank and need to set an expiry date manually. Put * (asterisk mark) not to specify valid date. In case expired, the whole line will be displayed in pink.</p> <p>Stability: Click this column and “Stability” column is rearranged by numerical order. This displays remaining days of reagent stability. This stability check will be available when “Stability Check” of [System] - [Reagent] is set ON and “Term” is set to more than one day. This Stability is calculated based on “Valid” and the current date. Stability 0 (zero) means the last day for stability. When stability day becomes less than 0 (no remaining days), minus (-) will added to stability day. (-1, -2, -3....) The whole line will be displayed in yellow when expired. This stability will be displayed with blank when stability check is not set.</p> <p>BCR: Click this column and “BCR” column is rearranged by alphabetical / numerical order. This shows reagent barcode data and can be modified manually. It is not allowed to enter same barcodes as are registered already. Remaining volume, stability and tests will be recovered when the same barcodes number is re-entered.</p>

Chapter 3 Explanation of Menus

No.	Descriptions																																																												
(2)	<p>RCU Scan</p> <p>This button is used to scan bottles set in the RCU. Barcodes of bottles will be read and reagents will be registered to the analyzer automatically.</p> <p>RCU Scan will start when you press this button.</p> <p>Barcodes by entered manually will be overwritten with barcodes by RCU Scan at the same RCU position. If no reagents have been set in the same position, barcodes entered manually will be remained.</p> <p>RCU Scan will not delete any reagents.</p> <p>Automatic RCU Scan (when RCU lid is opened / closed) can be set in the tab menu [Setup] of the job menu [System (F9)].</p> <p>Save</p> <p>This button will save the edited data in this screen.</p> <p>Cancel</p> <p>This button will not save the editing data.</p> <p>Delete</p> <p>This button will delete the information of selecting position (items).</p> <p>Press this button and you will see a confirmation message on the screen. Choose OK button to implement the delete and Cancel for cancel.</p> <p>Print</p> <p>Click this button and the information about reagent inventory is printed out. But this function works only during ready state (not run state).</p> <p>Print format example is shown below.</p> <p style="text-align: right;">Header is set in the [setup] of [System (F9)] in advance.</p> <table border="1"><thead><tr><th>Pos</th><th>Name</th><th>Type</th><th>Lot</th><th>Size (mL)</th><th>Vol (mL)</th><th>Tests</th><th>Method</th><th>Total</th><th>Valid</th><th>STB</th><th>BCR</th></tr></thead><tbody><tr><td>01</td><td>400RUN</td><td>R1</td><td>999</td><td>100</td><td>94.8</td><td>441</td><td>400RUN</td><td>441</td><td>2007.12.31</td><td>50</td><td>100012180101200010</td></tr><tr><td>02</td><td>400RUN</td><td>R2</td><td></td><td>100</td><td>68.3</td><td>1050</td><td>400RUN</td><td>441</td><td></td><td>49</td><td>100012380101200014</td></tr><tr><td>03</td><td>SPTS</td><td>R1</td><td></td><td>100</td><td>94.8</td><td>441</td><td>SPTS</td><td>441</td><td></td><td>39</td><td>100022180108700015</td></tr><tr><td>04</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></tbody></table> <p>Volume Reset</p> <p>This button will reset reagent's remaining volume of position selected.</p> <p>Click this button and you will see a confirmation message on the screen. Click OK button to implement the reset of the remaining reagent volume and the maximum volume of the registered reagent amount will be set. Cancel button will cancel the procedure.</p> <p>Clear added information</p> <p>Set Reagent Lot Number & Valid Date to the initial value (* mark).</p>	Pos	Name	Type	Lot	Size (mL)	Vol (mL)	Tests	Method	Total	Valid	STB	BCR	01	400RUN	R1	999	100	94.8	441	400RUN	441	2007.12.31	50	100012180101200010	02	400RUN	R2		100	68.3	1050	400RUN	441		49	100012380101200014	03	SPTS	R1		100	94.8	441	SPTS	441		39	100022180108700015	04											
Pos	Name	Type	Lot	Size (mL)	Vol (mL)	Tests	Method	Total	Valid	STB	BCR																																																		
01	400RUN	R1	999	100	94.8	441	400RUN	441	2007.12.31	50	100012180101200010																																																		
02	400RUN	R2		100	68.3	1050	400RUN	441		49	100012380101200014																																																		
03	SPTS	R1		100	94.8	441	SPTS	441		39	100022180108700015																																																		
04																																																													

3.1.6 [Sleep Scheme]:Sleep Conditions

Operations before and after sleep can be defined on this screen.



No.	Functions
(1)	<p><Start-up time Setting> Specify time for preparation operations to start each day.</p> <p>Time Specify a start-up time. Set the time on 24 hours and this operation will start at the time set.</p> <p>Prep Select one operation from 3 types of (Prep1, Prep2 and OFF) in the drop-down menu.</p>

Chapter 3 Explanation of Menus

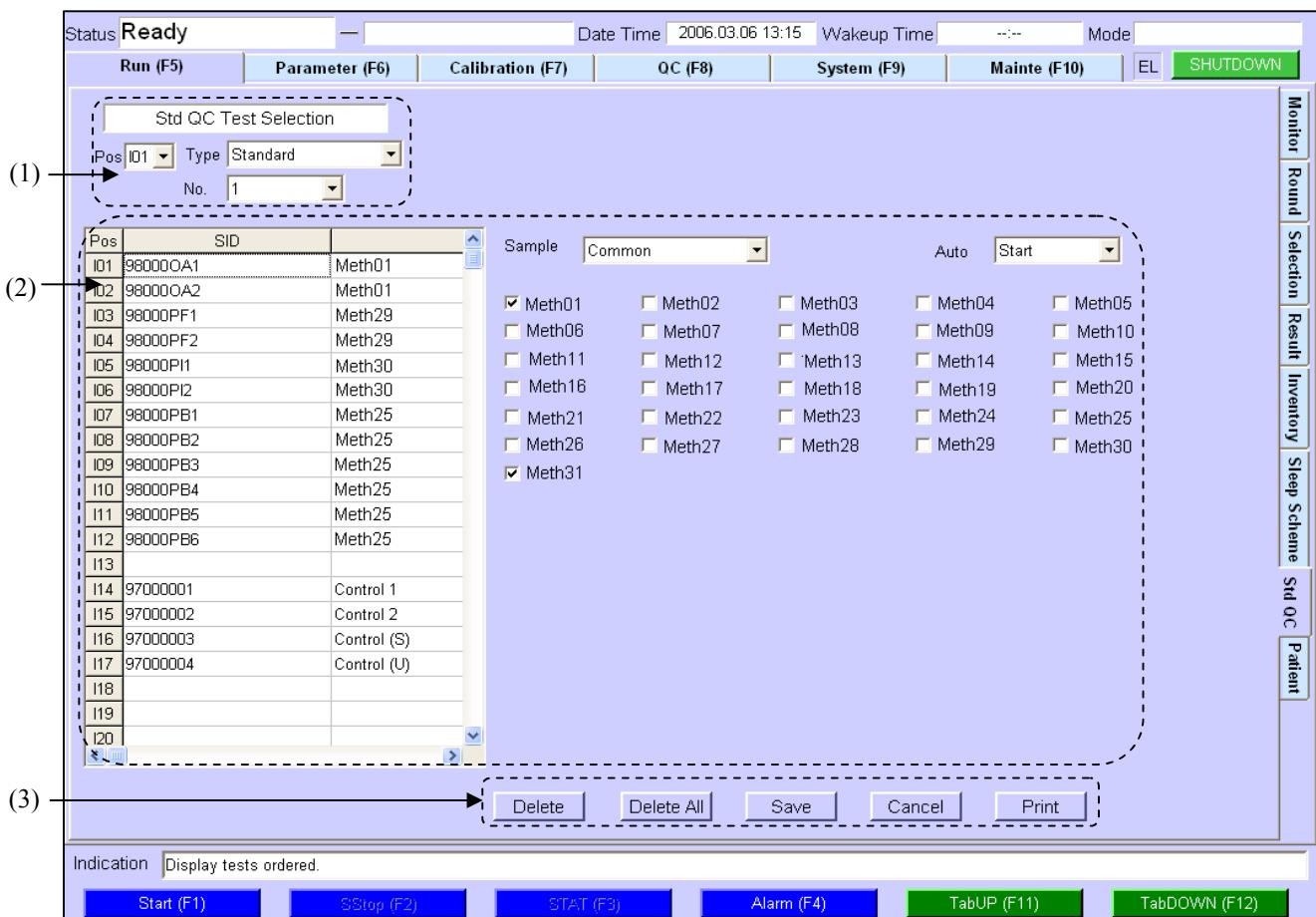
No.	Descriptions
(2)	<p>After Sleep Specify settings processed in start-up operation.</p> <p>Prime Specify number of Prime. (0 - 5 times.)</p> <p>SPT Wash “(W)”/ “(S)” Specify number of the SPT cleaning times. “(W)” means the SPT will be washed with system water and “(S)” means the SPT will be washed with wash solution. Number of the wash times can be chosen from 0 to 5 and SPT wash will not be executed when zero. Note that you cannot select both “(W)” and “(S)” at the same time.</p> <p>RPT1, or 2 Wash “(W)”/ (“S”) Specify number of the RPTs cleaning times. “(W)” means the RPTs will be washed with system water and “(S)” means the RPTs will be washed with wash solution. Number of wash times can be chosen from 0 to 5 and RPTs wash will not be executed when zero. Note that you cannot select both “(W)” and “(S)” at the same time.</p> <p>Cuvette Wash “(W)”/ (“S”) Specify number of cuvettes cleaning times. “(W)” means cuvettes will be washed with system and “(S)” means cuvettes will be washed with wash solution. Number of wash times can be chosen from 0 to 5 and cuvette wash will not be executed when zero. Note that you cannot select both “(W)” and “(S)” at the same time.</p> <p>RCU Scan Specify whether or not to implement RCU Scan. RCU Scan will be executed after Sleep mode is released if RCU lid's is opened during Sleep mode with this RCU Scan.</p>
(3)	<p>Save This will save the editing data.</p> <p>Cancel This will cancel to save the editing data.</p>

3.1.7 [Std QC]:Order for Standard or Control samples

You can register orders for the inner position in ASP.

Orders registered on this screen will not be deleted after measurement or Shut Down.

Samples registered here will be measured prior to samples on [Selection].



No.	Functions
(1)	<p>Pos Specify an ASP position to place a sample. (I01 – I20)</p> <p>Type Specify a sample type. Select one type on the drop-down menu: Standard / Multi-Standard / Serial Dilution / Control / Blank / ISE Calibration / ISE Cleaning and SPT Wash. Specify sample positions of ISE Calibration, ISE Cleaning and SPT Wash and proceed each operation on [Run (F5)] – [Monitor] or [Mainte (F10)] – [Sequence].</p> <p>No. This item will be shown when you select a method of calibration curve except Factor at Standard or Multi-Standard. Choose number of calibrators when each concentration of calibration curves is registered individually. Choose “Full” if you register all calibrators.</p>

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No.	Descriptions
(2)	<p><Sample> Select a sample category on the drop-down menu: Common / Serum / Urine / Plasma. Select sample category and each measurement method that has been registered will be displayed on the order list.</p> <p><Auto> Measurement will be started automatically in those modes bellow. This function will be applied for Standard / Multi-Standard / Serial Dilution / Control / Blank samples.</p> <p>Invalid The measurement of this test order is suppressed.</p> <p>Start The measurement is automatically performed when the first round of this test order is started. After the measurement is completed, this selection is changed to “Invalid”.</p> <p>Auto At the time when the lot number of reagent is changed or the time-out period for calibration goes over, the measurement of this test order is automatically performed. These conditions should be set in the tab menu [Calibration] – [Reg Calib] in advance.</p> <p>Start + Auto The measurement of this test order is automatically performed when the first round of this test order is started or the lot number of reagent is changed or the time-out period for calibration goes over. These conditions should be set in the tab menu [Calibration] – [Reg Calib] in advance. After the measurement is completed, this selection is changed to “Auto”.</p> <p><Order List> An order list will be displayed and can be edited to select orders. This shows orders clicked from the list and these orders will become editing targets.</p> <p>Pos : ASP position SID : Sample ID</p> <p><Methods> Methods will be displayed as test orders. These methods can be edited in Standard / Multi-Standard / Serial Dilution samples. Methods names will not be displayed in ISE Cleaning / SPT Cleaning.</p>
(3)	<p>Delete This button will delete the information of position selected. Press this button and you can see a confirmation message on the screen. Choose OK button for implementing the delete and Cancel for cancel.</p> <p>Delete All This button will delete information of all positions. Press this button and you can see a confirmation message on the screen. Choose OK button for implementing the delete and Cancel for cancel.</p> <p>Save Click this button to save editing data.</p> <p>Cancel Click this button to cancel to save editing data.</p> <p>Print Click this button to print out a list for registered orders by specifying sample numbers.</p>

3.1.8 [Patient]:Patient Registration Information

The screen of Patient Registration Information

The screenshot shows the 'Patient Information' section of the registration screen. It includes fields for Patient ID (070919001), Patient Name (furuno), Classification (Sales), Ward (Technical), Bed No. (123-456-78), Blood Type (A Rh+), Medical Chart (81-33-7510), Social Security # (9876-54321-00), Date of Birth (1980.09.19), Age (27), Sex (Male), Race (Jpn), Comments (test), Reference 1 (sample 1), and optional 2 (sample 2). There are buttons for Save, Cancel, and Delete at the bottom. To the right is a 'List' window showing a single record: Patient ID 070919001 and Name furuno. The bottom features a footer with function keys: Start (F1), SStop (F2), STAT (F3), Alarm (F4), TabUP (F11), and TabDOWN (F12).

No.	Descriptions
(1)	<p><Patient registration information ></p> <p>Patient ID You can input patient ID. (Should be less than 20 digits in alphanumeric) Having been registered the information of the patient, its details will be displayed automatically and the cursor will move to the target ID.</p> <p>Patient Name You can input patient name within 18 digits in alphanumeric. All space codes are unacceptable.</p> <p>Classification Select a class from a drop down menu. Classes need to be defined on [System] – [Define] beforehand.</p> <p>Ward Select a ward from a drop down menu. Wards need to be defined on [System] – [Define] beforehand.</p> <p>Bed No. Input a bed number within 10 digits in alphanumeric.</p> <p>Blood Type Select a blood type from a drop down menu.</p>

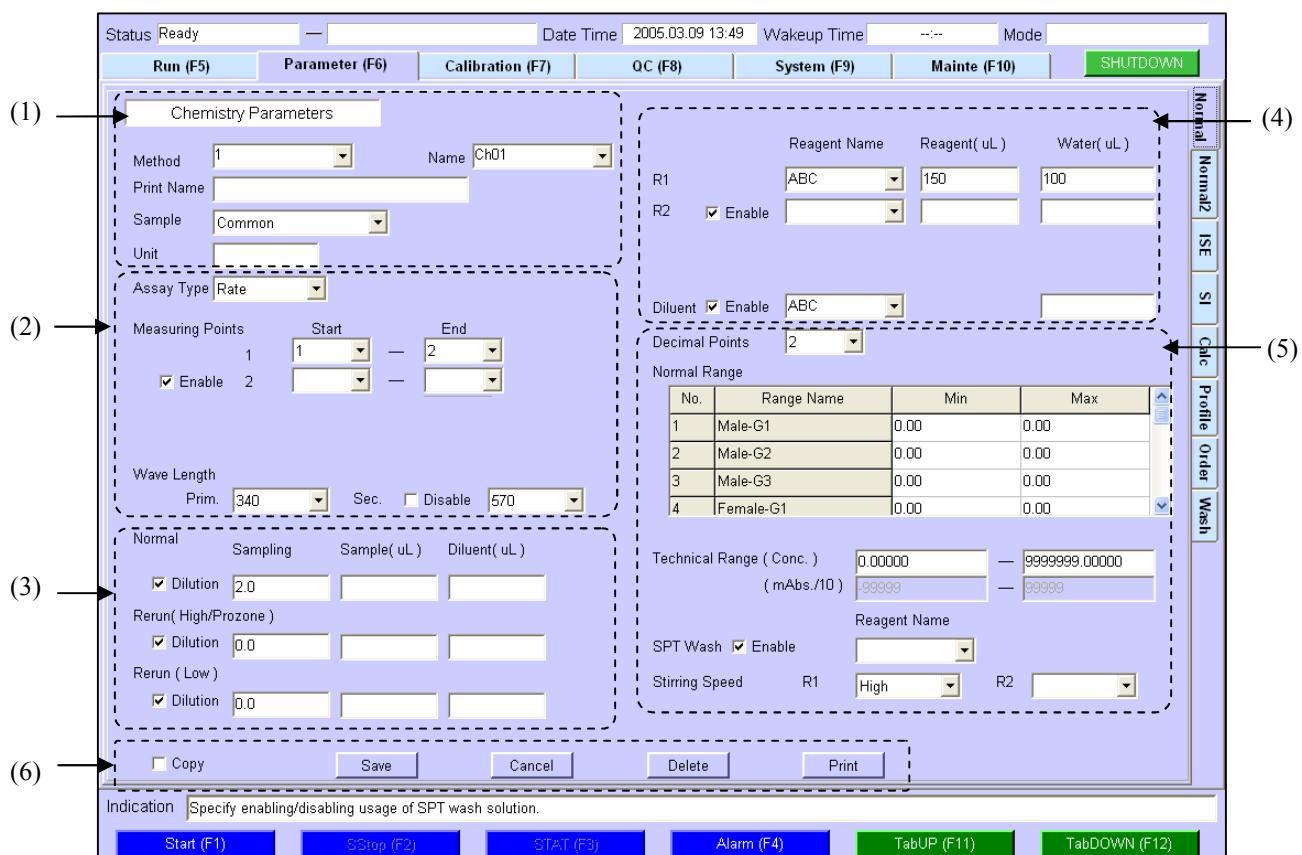
Chapter 3 Explanation of Menus

No.	Descriptions
(1)	<p>Medical Chart Input a medical chart number within 10 digits in alphanumeric.</p> <p>Social Security # You can input social security number within 13 digits in alphanumeric.</p> <p>Date of Birth Input date of birth. When Disable check is “ON”, the box will be space.</p> <p>Age This is an age calculated automatically based on its birthday.</p> <p>Sex Choose one on the drop-down menu from the value, Male / Female / Space (or Non specified).</p> <p>Race It can be selected from the drop-down menu. The registration for your selecting value is available in the tab menu [Define] of the job menu [System (F9)].</p> <p>Comments You can enter comments within 40 digits in alphanumeric.</p> <p>Reference 1 You can input any comments within 10 digits. The title “Reference 1” will be defined on [System] – [Define].</p> <p>Reference 2 You can input any comments within 10 digits. The title “optional 2” will be defined on [System] – [Define].</p>
(2)	<p><Patient information list> This displays the information of the registered patients. In “Record Count”, number of the patients will be shown. Select a patient and the patient’s information will be shown on the left side.</p>
(3)	<p>Save This will save editing information. 30,000 patients can be registered. When you register over 30,000 patients, those patients will be deleted who have not had any history in last 2 years (this will be prior) or who are the oldest in the patient history record.</p> <p>Cancel This button will not save editing data.</p> <p>Delete Select this button to delete patient data. Note that this will delete all the information related to the patient such as patient, sample, order and measurement history.</p>

3.2 [Parameter (F6)]:Setup Menu 1

3.2.1 [Normal]:Chemistry Parameters (1)

You can specify measurement conditions for each method.



No.	Descriptions
(1)	<p><The specification of the method number></p> <p>Method Specify or input the number of a method. (1 - 60) You can select methods registered from the list by pressing SPACE key or from the dropdown menu. When you specify a method number, the method information will be displayed.</p> <p>Name Specify or input a method name within 6 digits with alphanumeric and signs. You can select methods registered from the list by pressing SPACE key or from the dropdown menu. When you specify the method name, the method information will be displayed. All method names once registered will be displayed on the list (Max 200 methods).</p> <p>Print Name You can specify a method name to print within 15 digits with alphanumeric and signs. Define a “Print Name” and the name will be printed out as a method name in printing or file outputting. If not (“Print Name” is space), method name will be printed the same name as registered in “Name”.</p> <p>Sample Select a sample category. You can specify Chemistry Parameter depending on its sample category. Select a sample category from Common / Serum / Urine / Plasma on the list. Select “Common” to set all sample’s conditions as the same.</p> <p>Unit Specify a unit used for printing, host communications within 6 digits with alphabets and signs.</p>

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No.	Descriptions
(2)	<p><Photometry settings></p> <p>Assay Type Select a photometry method from “Rate” Method or “End” Method.</p> <p>Measuring Points Specify the photometry range by a measuring point number. You can specify 2 photometry ranges depending on the measurement method, 1 - 34 and 35 - 68. Photometry ranges will be specified by “Start” and “End” measuring points. “End” point needs to be bigger than “Start” point. However, if the measurement is “End” Method, “Start” point = “End” point will be allowed. Check “Enable” box ON to use “Measurement range 2” and measuring range of Photometry range1 needs to be smaller than that of Photometry range2.</p> <p>Wavelength Prim. Select a main wavelength for measuring. You can select from 12 wavelengths displayed on the dropdown menu. (340 / 380 / 415 / 450 / 510 / 546 / 570 / 600 / 660 / 700 / 750 / 800)</p> <p>Wavelength Sec. (Disable) Select a sub wavelength for measuring. Check the “Disable” box ON if you don’t use a sub wavelength.</p>
(3)	<p><The setting for sample dispensing></p> <p>Specify sampling conditions for samples. Check the “Diluent Check” box ON to use a sample diluent function. Note that you need to register diluent solutions.</p> <p>Normal Specify sampling conditions for the first sample.</p> <p>Sampling: Specify sample dispense volume from 2 to 35 µL (0.1 µL step)</p> <p>Dilution: When you dilute the sample, check the box “ON”. Specify dilute conditions.</p> <p>Sample (µL): Input an amount of sample diluted from 2 to 35 µL (0.1 µL step)</p> <p>Diluent (µL): Input an amount of dilute dispensing from 20 to 350 µL (1 µL step)</p> <p>Rerun (High / Prozone): Define sampling conditions for a high value rerun. Setting procedure is the same as above “Normal” description. When you don’t execute the high value rerun, input 0 in a box of “Sample (µL)”.</p> <p>Rerun (Low): Define sampling conditions for a low value rerun. Setting procedure is the same as above “Normal” description.. When you don’t execute the low value rerun, input 0 in a box of “Sample (µL)”.</p>

Chapter 3 Explanation of Menus

NO.	Functions
(4)	<p>< The setting for reagents dispensing ></p> <p>Specify dispensing conditions for R1 and R2 reagents. Check the “R2 Enable Diluent Check” ON to use R2 reagent.</p> <p>Reagent Name</p> <p>Click SPACE key to display reagents list or select a reagent from the dropdown menu.</p> <p>Reagent (μL)</p> <p>Specify an amount of reagent consumption. The range for R1 reagent consumption is from 20 to 350 μL (1 μL step) and that of R2 is from 20 to 250 μL (1 μL step).</p> <p>Water (μL)</p> <p>Specify an amount of dispensing pure water to dilute reagents. The range is from 100 to 350 μL (1 μL step). This box should be blank (space) when reagents are not diluted. Note that the total volume (sample, R1 / R2 reagents, R1 / R2 dilution) used for measuring should be between 150 and 450 μL.</p> <p>Diluent Enable</p> <p>Check the box “ON” to use diluents. Click SPACE key to display diluents list or select a reagent from the dropdown menu.</p> <p>Water</p> <p>Input an amount of pure water to dilute reagents between 100 and 350 μL (1 μL step).</p>
(5)	<p><The setting for display or operational conditions></p> <p>Decimal Points</p> <p>Specify number of decimal points for concentrated value used for display, printing, FD and host computer output. Select number from the dropdown menu (0 - 5).</p> <p>Normal Range</p> <p>This displays the setting information of Normal Ranges. (Maximum 50 types) Input minimum and maximum values in Normal Range. The value should be from 0 to 9,999,999 (number of digits specified in “Decimal Points” will be effective).</p> <p>Min: Flag “L” will be attached with measurement result when its concentrated value is under this value. Max: Flag “H” will be attached with the measurement result when its concentrated value is over this value. This Normal Range check (L / H) will not be available when Min / Max settings are 0 / 0. Register Range Names at the [System (F9)] – [Range screen]. Settings for age ranges of each generation can be modified on the job menu [System (F9)] – [Setup2].</p> <p>Technical Range (Conc.)</p> <p>Input the minimum and maximum range for measurement range (a concentration). When measurement result exceeds its minimum or maximum, the sign “>” or “<” will be added to the result. “Conc.” value specified in this list will be output as its minimum and maximum value and an automatic rerun will be implemented when you set the automatic rerun function effective.</p> <p>Technical Range (mAbs. /10)</p> <p>Technical range set in the job menu [System (F9)] – [Setup2] is displayed.</p>

3.2 Parameter

3.2.1 Normal

Chapter 3 Explanation of Menus

No.	Descriptions
(5)	<p>SPT Wash Specify a reagent name for SPT cleaning. Click SPACE key to display the list or select a reagent from the drop-down menu. Reagents registered as “Wash” in the job menu [System (F9)] – [Reagent] will be displayed.</p> <p>Stirring Speed Specify a stirring speed. 5 levels are available depending on the stickiness of the reagent. UH: stirring for reagents that are extremely high stickiness. VH: stirring for reagents that are very high stickiness. High: stirring for reagents that are high stickiness. Middle: standard stirring. Low: stirring for reagents that are low stickiness. None: stirring OFF</p>
(6)	<p>Copy This will copy settings. Click copy check box “ON” and specify a destination method to be copied with “Method” or “Name”. Then press Save button and settings can be copied. When “Sample” (sample category) of the destination method is “Common”, all sample categories will be copied.</p> <p>Save This button will save editing data.</p> <p>Cancel This button will not save editing data.</p> <p>Delete This will delete selecting methods. Press this button and a confirmation message will be shown and then click OK to implement the delete. Click Cancel to cancel.</p> <p>Print Click this button to print out the condition list for methods.</p>

Auto Rerun Conditions

Normal, STAT and Online sample types will be implemented auto rerun.

Auto rerun conditions are as follows:

1. Error Flag (LIN, PRO, ABS)

Rerun will be implemented under the condition of “Rerun (High / Prozone)”

2. Technical Range (High)

Rerun will be implemented under the condition of “Rerun (High / Prozone)”.

3. Technical Range (Low)

Rerun will be implemented under the condition of “Rerun (Low)”.

(When two or more error flags (LIN, PRO, ABS) happens simultaneously, a rerun will be executed under the condition of “Rerun (High / Prozone)”.

Sampling Volume Correction in rerun

You can set different sample volume in rerun from normal round and correction for results in rerun will be done as follows:

[Results in Rerun after correction] = [Results in Rerun] × [Sample Ratio in Normal Round / Sample Ratio in Rerun]

Sample Ratio in Normal Round = $[S / (S + R1 + R2)]$

Sample Ratio in Rerun = $[SR / (SR + R1 + R2)]$

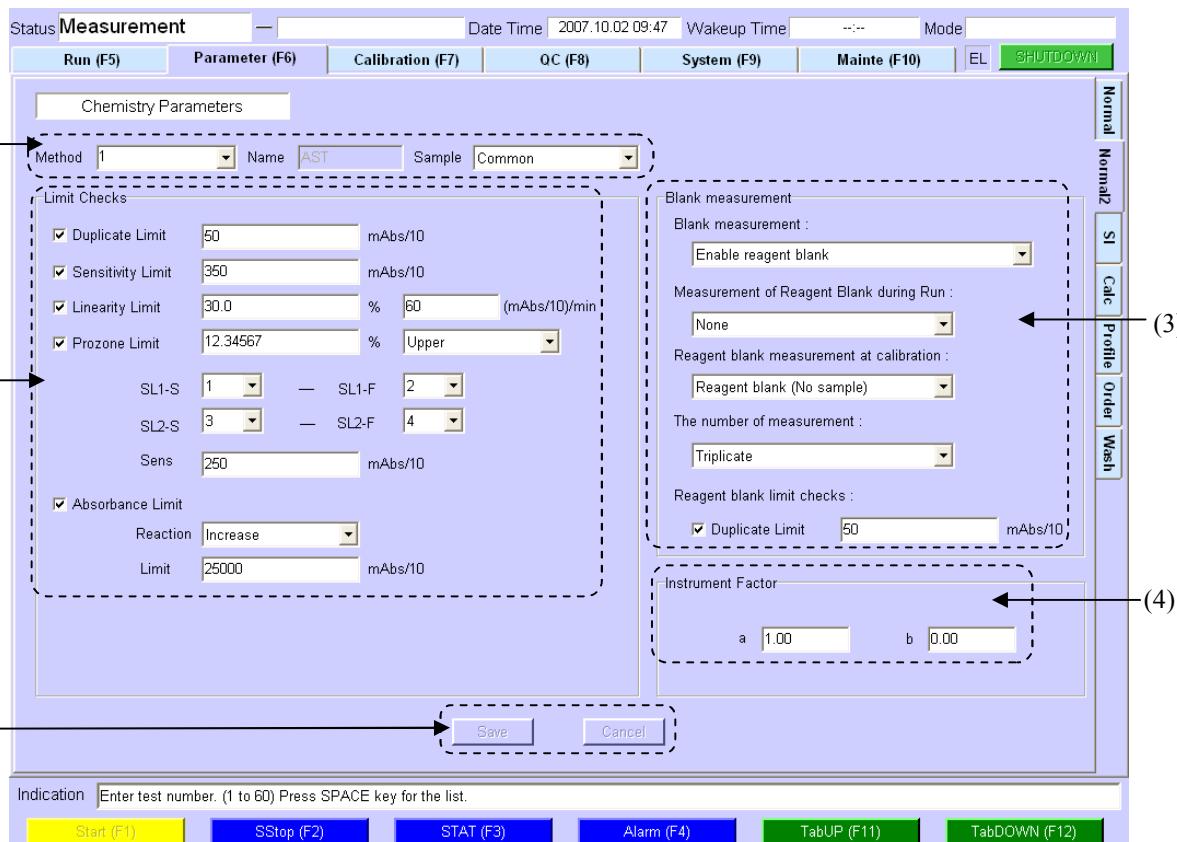
R1: R1 Volume

R2: R2 Volume

S: Sample Volume in Normal Round

SR: Sample volume in Rerun (High / Prozone or Low)

3.2.2 [Normal 2]:Chemistry Parameters (2)



No.	Description
(1)	<p>Method Select method number. Select a method number from the list to press the SPACE key or choose a number from the drop-down menu. You can also input a method number directly. Specify method number and its information will be displayed.</p> <p>Name Method name will be displayed when you specify method number.</p> <p>Sample Select a sample category. Choose a sample category from drop-down menu, Common / Serum / Urine / Plasma. Select "Common" if you do not need to specify a sample category.</p>

No.	Description
(2)	<p><Limit Check></p> <p>Duplicate Limit This is for dispersion check in duplicate / triplicate calibration measurement. Input a threshold of an absorbance difference value (ΔABS) of each measurement result between 1 and 99,999 (mAbs / 10). When ΔABS exceeds this threshold, DUP error will be displayed and calibration value will not be updated.</p> <p>Sensitivity Limit This is to check sensitivity in calibration measurement. Input a threshold of sensitivity range of the ΔABS between 1 and 99,999 (mAbs / 10). When ΔABS is under this threshold, SEN error will be displayed and the calibration value will not be updated.</p> <p>Linearity Limit This is to check the linearity for a time course in Rate Method. Input a threshold ratio between 0.1 and 99.9(%) in the left side and input a threshold value between 1 and 99,999 (mAbs / 10) / min in the right side.</p> <p>Judgment This judgment is decided by ratio (%) between the slope calculated by the moving average of previous 3 points measurement range and the slope calculated by the moving average of following 3 points measurement range</p> <ul style="list-style-type: none"> (a) A span of Measurement range (the number of photometry points) = n ($n \geq 4$) (b) The slope of the moving average 1 – 3, calculated by regression analysis: $\Delta\text{ABS}_{\text{first}}$ (c) The slope of the moving average (n - 3) - (n - 1), calculated by regression analysis: $\Delta\text{ABS}_{\text{last}}$ (e) The slope of the moving average 1 - (n - 1), calculated by regression analysis: $\Delta\text{ABS}_{\text{slope}}$ <p>Linearity Rate will become as follows: $[\text{Linearity Rate}] = [\Delta\text{ABS}_{\text{first}} - \Delta\text{ABS}_{\text{last}} / \Delta\text{ABS}_{\text{slope}}] \times 100 (\%)$</p> <p>When the linearity rate calculated is greater than the threshold, linearity error will be displayed and LIN Flag will be attached to the result.</p> <p>Measurement range applied for this linearity check will be the Measurement Range 1 for 1-point Rate Method and the Measurement Range 2 for 2-point Rate Method.</p> <p>This Linearity Limit Check will not be applied for following cases.</p> <ul style="list-style-type: none"> (a) Not Rate Method (b) $\Delta\text{ABS}_{\text{slope}} \leq$ Threshold Value (c) $\Delta\text{ABS}_{\text{first}} - \Delta\text{ABS}_{\text{last}} \leq$ Threshold Value (d) Measurement Range of photometry point is under 4 points (e) Higher priority errors happen (f) Sample Types are Control / ISE

Chapter 3 Explanation of Menus

No.	Descriptions
(2)	<p>Prozone Limit</p> <p>This is to check a decreasing phenomenon (Prozone phenomenon) in high concentration of photometry. Input a threshold value (limit rate) between 0.00001 and 99.99999 in a ratio of reaction speed. Specify a value from “Upper” or “Lower” by drop-down menu depending on max or min value in the “Prozone Limit”. Specify an absorbance rage and sensitivity;</p> <ul style="list-style-type: none">(a) SL1 - S: the first number of measuring point of Slope Range-1(b) SL1 - F: the last number of measuring point of Slope Range-1 (SL1S < SL1F)(c) SL2 - S: the second number of measuring point of Slope Range-2(d) SL2 - F: the last number of measuring point of Slope Range-2 (SL2S < SL2F)(e) Sens: a number between 1 and 999,999 (mAbs / 10) for the sensitivity <p>When a result exceeds this limit, error PRO Flag will be attached to the result. Prozone check will no be executed in following cases;</p> <ul style="list-style-type: none">(a) Control sample measurement(b) Sensitivity does not exceed “Sensitivity Limit” value. <p>Absorbance Limit</p> <p>This is to check a limit level of absorbance reaction. This check will be applied to 1- point Rate Method.</p> <p>Reaction</p> <p>Specify a value “Increase” or “Decrease” from drop-down menu as reactive trend.</p> <p>Limit</p> <p>Input a number between 1 and 999,999 (mAbs / 10) as a threshold value. Get an absorbance value within bellow conditions;</p> $[\text{Absorbance value of Primary Wavelength}] - [\text{Water blank of Primary Wavelength}] < [\text{Threshold}]$ <p>When absorbance value of all measuring points or all points except the first measuring point exceeds this threshold, error AB1 Flag will be displayed. When the first two or more points are within this limit and measuring points which exceed this limit are within 1 minute, result (ΔABS) will be calculated by measuring points within the limit and add an error flag AB2 to the result.</p>
(3)	<p>< Blank measurement ></p> <p>Blank measurement</p> <p>Choose a calibration method for reagent blank from the drop-down list.</p> <p>Disable reagent blank and S1 blank</p> <p>This does not execute a calibration using a reagent blank or a S1 (zero concentration) blank.</p> <p>Enable S1 Blank (Factor or Linear)</p> <p>This executes a calibration using S1 blank.</p> <p>Enable reagent blank</p> <p>This will execute a calibration using reagent blank.</p> <p>Enable reagent blank for S1 (Linear)</p> <p>This will use reagent blank as S1 sample.</p>

Chapter 3 Explanation of Menus

No.	Descriptions
(3)	<p>Measurement of Reagent Blank during Run Specify time when to run Reagent Blank Measurement. Choose whether Reagent Blank is executed or not in measurement.</p> <p>Daily (Everyday) When there are orders which Reagent Blank Measurement have not been implemented in a day, Reagent Blank Measurement will be executed. Result of samples will be calibrated with this Reagent Blank.</p> <p>Next Run (Every time) Reagent Blank Measurement will be executed at the beginning of measurements of each round.</p> <p>None (Invalid) Reagent Blank Measurement will not be executed. (previous blank result will be applied as reagent blank.)</p> <p>Reagent blank measurement at calibration Specify whether to use system water as a sample or not on Reagent Blank Measuring.</p> <p>Reagent blank (no sample) Reagent Blank Measurement will be executed without sample.</p> <p>Reagent blank (system water) Reagent Blank Measurement will be executed with system water.</p> <p>The number of measurement Specify number of measurement for Reagent Blank Measurement. Choose Single / Duplicate / Triplicate from the drop-down menu.</p> <p>Reagent Blank Limit Checks This will check the variation of Reagent Blank Measurement when Duplicate or Triplicate is selected. Enter limit value, absorbance measurement differential (ΔABS), between 1 and 99,999 (mAbs / 10).</p>
(4)	<p>Instrument Factor Specify a slope (a) and intercept (b) to correct measurement result. (a) is a slope and (b) is an intercept of linear equation, [Y = aX + b].</p> <p>a: -99.9 to 99.9 b: -999.99 to 999.99</p>
(5)	<p>Save Click this button to save editing data.</p> <p>Cancel Click this button not to save editing data.</p>

3.2.3 [ISE]:ISE Parameters

You can specify measurement conditions for ISE.

The screenshot shows the 'ISE Parameters' dialog box. At the top, there are tabs: Run (F5), Parameter (F6) (selected), Calibration (F7), QC (F8), System (F9), Mainte (F10), and SHUTDOWN. On the right, there is a vertical toolbar with buttons: Normal, Normal2, ISE, SI, Calc, Profile, Order, and Wash. The main area has a dashed border and contains:

- Chemistry Parameter for ISE:** Includes 'Sample' dropdown (Common), 'ISE Type' dropdown (ISE), and 'Urine Diluent Reagent Name' dropdown.
- Instrument Factor:** A table for Na, K, and Cl with columns for slope (a) and intercept (b). Values are all 1.00.
- Normal Range:** A table with columns: No., Range Name, Na-Min, Na-Max, K-Min, K-Max, Cl-Min, Cl-Max. Rows show ranges for Male-G1, Male-G2, Male-G3, Female-G1, Female-G2, and Female-G3.
- Bottom Toolbar:** Buttons for Save, Cancel, and Print.

No.	Functions
(1)	<p>Sample Select one category from Common / Serum / Urine / Plasma from drop-down menu. Select "Common" when all sample categories are the same conditions.</p> <p>ISE Type Select one type from drop-down menu. When sample category is "Common", select "ISE", or "ISE (D)". When "Serum", or "Plasma" is selected as sample category, "ISE" should be selected. When "Urine" is selected as sample category, "ISE (D)" should be selected.</p> <p>Urine Diluent Reagent Name Specify ISE diluent to use when "ISE (D)" is specified. Select a diluent from drop-down menu.</p> <p>Instrument Factor Specify a slope (a) and an intercept (b) to correct the measurement result. To correct the result with a liner equation [$Y = aX + b$], input slope (a) and intercept (b) of Na, K, and Cl.</p> <p>a: -99.99 to 99.99 b: -999.99 to 999.99</p>

Chapter 3 Explanation of Menus

No.	Descriptions
(2)	<p>Normal Range Specify Normal Range. Input the lower limit and the upper limit in normal value for Na, K, and Cl.</p> <p>Validation Range: Na:0 to 999.9 K : 0 to 99.99 Cl: 0 to 999.9</p> <p>Min: The flag “L” will be attached with the measurement result when the result is under this value. Max: The flag “H” will be attached with the measurement result when the result is over this value.</p>
(3)	<p>Save Click this button to save editing data.</p> <p>Cancel Click this button not to save editing data.</p> <p>Print Click this button to print out setting list.</p>

3.2.4 [SI]:Serum Information Parameters

Define measurement conditions of the serum information.

Serum Indices

(1) Factor A to Factor F

Factor A: 1
Factor B: 1
Factor C: 1
Factor D: 1
Factor E: 1
Factor F: 1

Sampling Volume: 2.0 μL

Instrument Factor

H	a: 1.0	b: 0.00
L	a: 1.0	b: 0.00
I	a: 1.0	b: 0.00

Reagent Type: R1
Reagent Name: AST
Volume: 148 μL

(2) Reagent Type dropdown menu (R1 selected)

(3) Volume input field (148)

(4) Print button

Criteria

Depending on assay method, high turbidity, hemolysis and bilirubin in serum may affect measurement results.

This analyzer can describe a degree of Turbidity (L), Hemolysis (H) and Icterus (I) of serum by numeric expression. In addition, it is possible to display SI criteria as numeric value.

No.	Descriptions
(1)	<p>Factor A to Factor F Input a numeric value between 0 and 999,999 for Factor A, B, C, D, E and F.</p> <p>Sampling Volume Input a volume of dispensing sample (μL).</p> <p>Instrument Factor (H, L, I) To correct results with liner equation ($Y = aX + b$), input each slope (a) and intercept (b) of H, L and I.</p> <p>a: - 99.9 to 99.9 b: - 999.99 to 999.99</p> <p>Input "a=1" and "b=0" when correction is not necessary.</p>

Chapter 3 Explanation of Menus

No.	Descriptions
(2)	<p>Reagent Type Select a reagent type from drop-down menu, R1 or Dil.</p> <p>Reagent Name Select a reagent name from drop-down menu.</p> <p>Volume Input reagent dispense volume between 20 and 350 (μ L).</p>
(3)	<p><Abbreviations for SI criteria> H: setting for Hemolysis judgments. L: setting for Turbidity judgments. I: setting for icterus judgments. (The left side box) Input an abbreviation of SI criteria. (Within 5 letters) *Example for Hemolysis) If setting is “0 < 1”, the result will be “H0” when hemolysis is lower than 1. (The right side box) Input threshold value for SI criteria (between 0 to 999,999).</p>
(4)	<p>Save Click this button to save editing data.</p> <p>Cancel Click this button not to save editing data.</p> <p>Print Click this button to print out a setting list.</p>

The serum information will be calculated with following formula:

$$\text{Opacity (L)} = \frac{1}{C/10}(\alpha - \beta)$$

$$\text{Hemolysis (H)} = \frac{1}{A/10}((\gamma - \alpha) - (B/10^5)(\alpha - \beta))$$

$$\text{Ictus (I)} = \frac{1}{D/10}((\delta - \varepsilon) - (E/10^5)(\gamma - \alpha) - (F/10^5)(\alpha - \beta))$$

A, C, D are 10 multiplied values and B, E, F are 10^{-5} multiplied values.
(the value $\alpha, \beta, \gamma, \delta, \varepsilon$ are considered as λ_{xxx} . The λ_{xxx} means a value that an absorbance λ_{xxx} of each primary wavelength is corrected with water blank λ_{wxxx} .)

Moreover, you have to divide the value by 10 because units are different between the output of the measured absorbance and the serum.

Take a 450nm case for an example.

$$\lambda_{450} = (\lambda_{r450} - \lambda_{w450}) / 10$$

The default settings are:

α : 600nm

β : 700nm

γ : 570nm

δ : 415nm

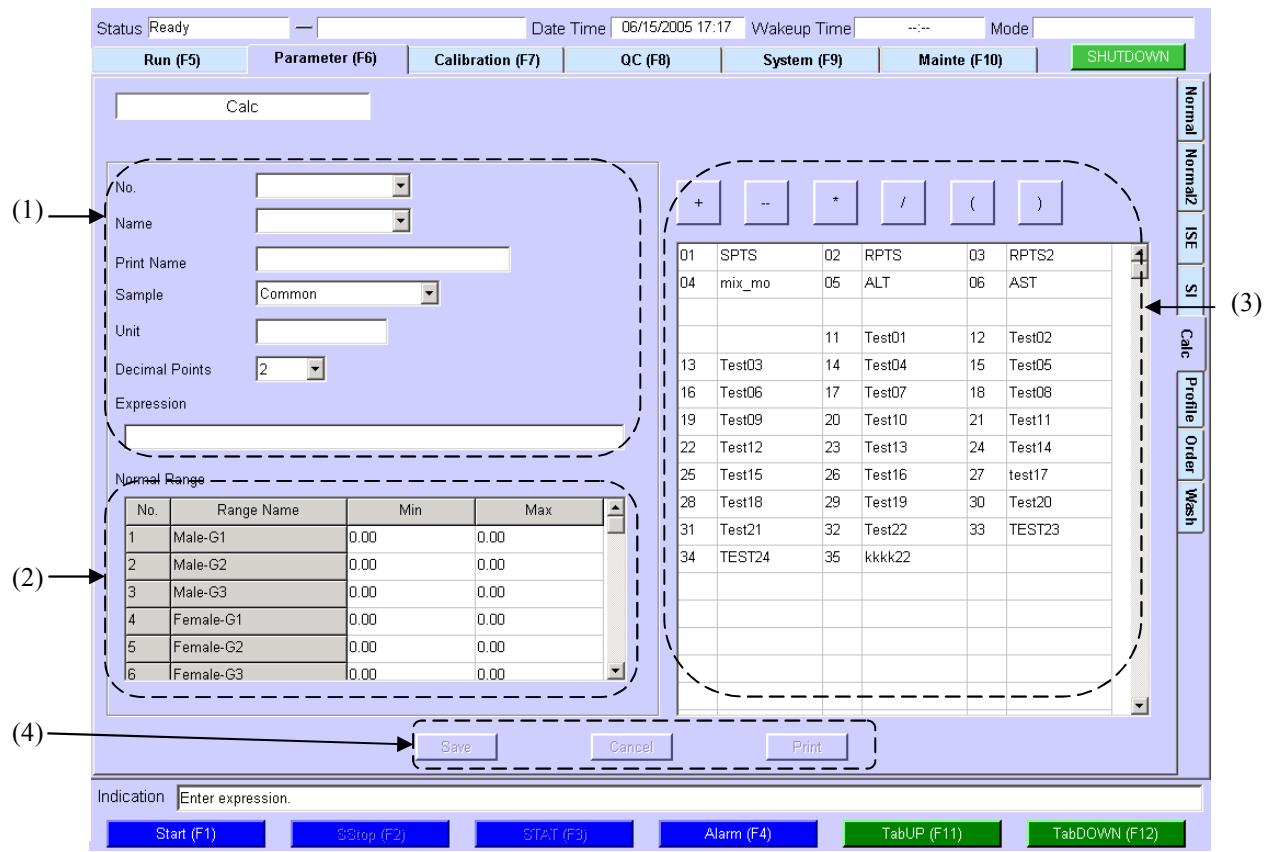
ε : 510nm

3.2 Parameter

3.2.4 SI

3.2.5 [Calc]:Method-to-Method Calculation

You can define a method-to-method calculation.

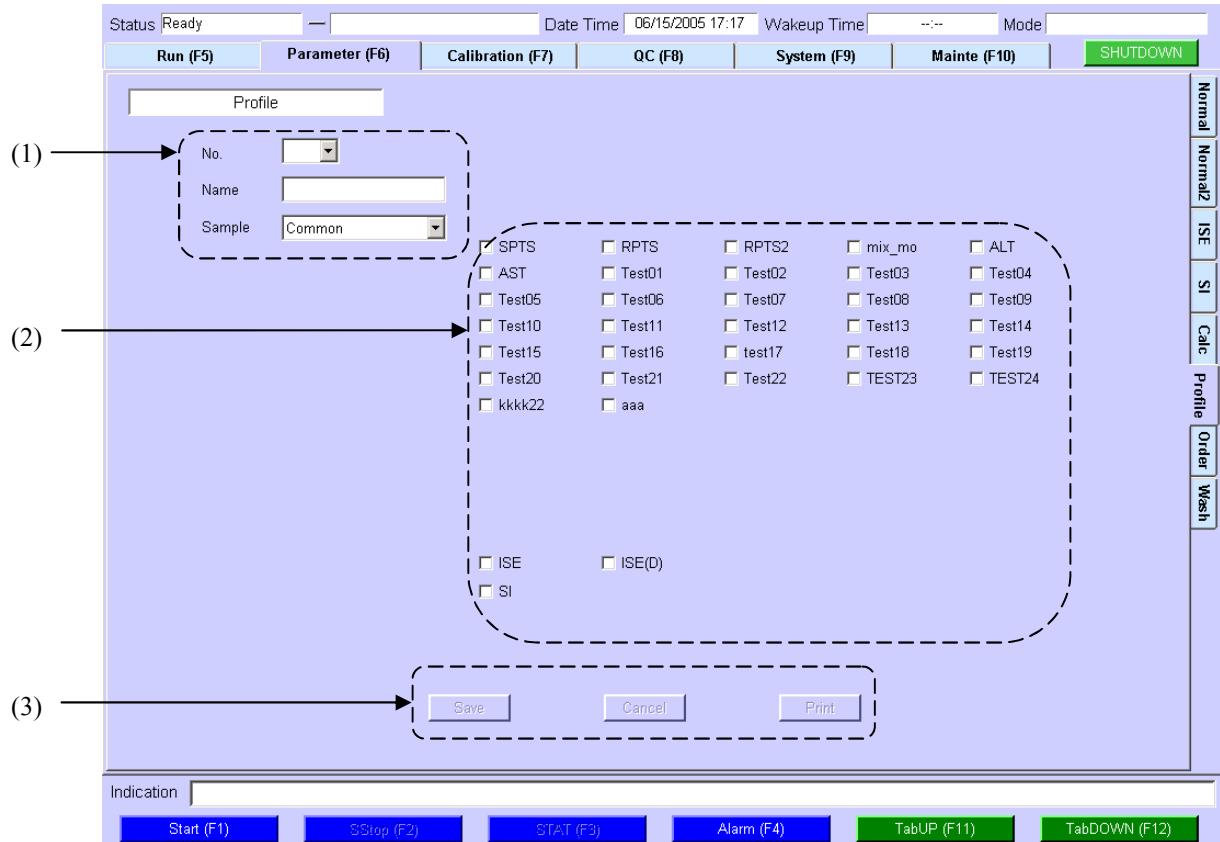


No.	Descriptions
(1)	<p>No. Specify number of method. Numbers for method-to-method calculations are 71 - 80 and 3001 - 3040.</p> <p>Name Specify a method name. Input name with alphanumeric or symbol characters within 6 digits. Specify a method name and information of the name will be shown.</p> <p>Print Name Specify a method name for printing. Input print name with alphanumeric or symbol characters within 15 digits This specified name will be printed out as the measurement name in printing or outputting. Method name which you have defined in "Name" will be printed out if this Print Name is unset.</p> <p>Sample Select a sample category from Common / Serum / Urine / Plasma from drop-down menu.</p> <p>Unit Specify a unit used for printing or sending result data to host computer with alphanumeric or symbol characters within 6 digits.</p>

Chapter 3 Explanation of Menus

No.	Descriptions
(1)	<p>Decimal Points Specify number of digits of decimal point of the concentration printed out as measurement result. Select the number 0 - 5 (digits).</p> <p>Expression Input an expression formula. Up to 10 methods can be used for one formula. Select methods from a list and double click them, then those methods can be used to expression formula. Expression formulas will be checked when registering and if there are any errors, the expression cannot be registered.</p>
(2)	<p><The list of Normal Range> Input a normal range. Select the number you want to update from the list and double click it, then the number can be edited. The lower limit should be less than the upper limit. When the upper limit is not specified, the upper limit will not be checked and when the lower limit is not specified, then lower limit will not be checked. Results which are lower than the lower limit will have “L” and results which are higher than the upper limit will have “H”.</p>
(3)	<p><The list of method numbers> “+”, “-”, “*”, “/”, “(”, “)” buttons are available for this calculation. Click these buttons and the buttons will be entered in the “Expression” cell. The list of method numbers Select a method name or number and double click them, then they will be entered in the expression.</p>
(4)	<p>Save Click this button to save editing data.</p> <p>Cancel Cancel this button not to save editing data.</p> <p>Print Click this button to print out setting list.</p>

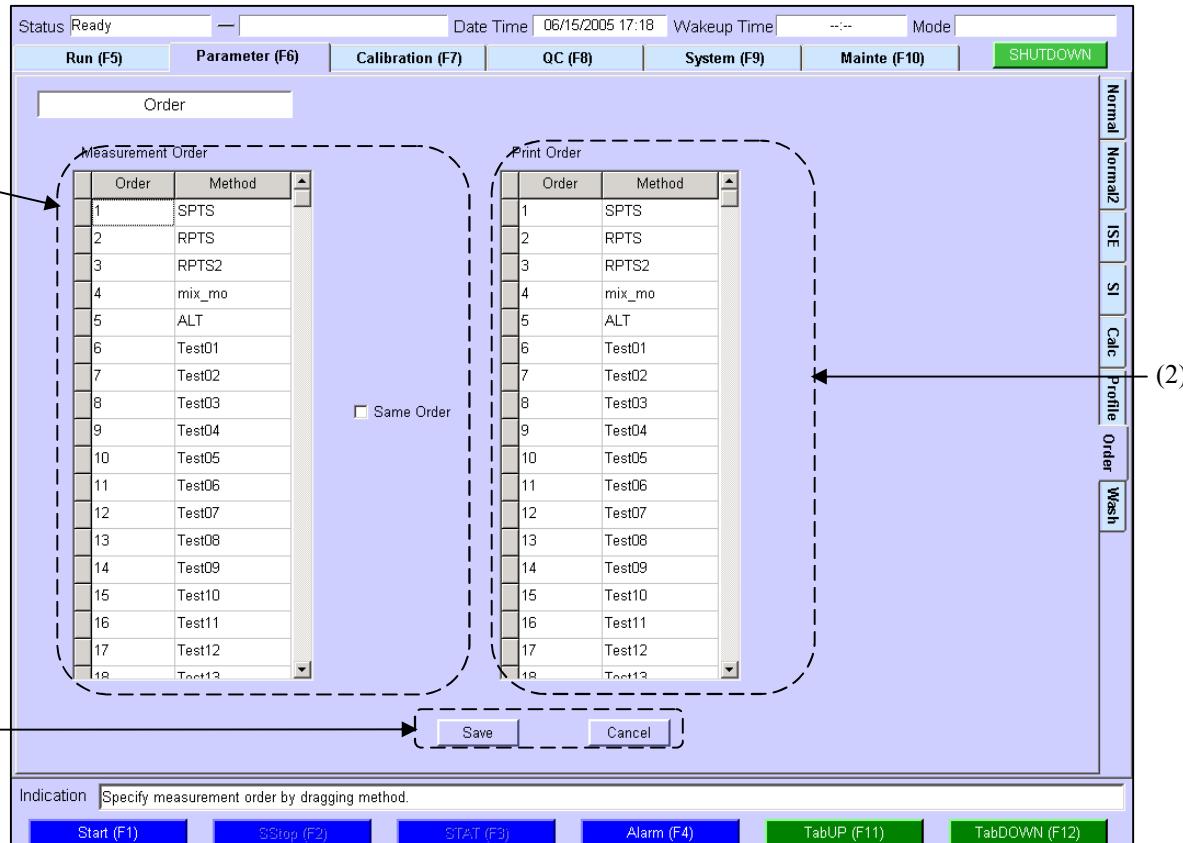
3.2.6 [Profile]:Profile



No.	Functions
(1)	<p>No. Specify number of a profile. You can register method numbers between 1 and 20. (20 types) When a number you specified is already registered, profile name and methods will be shown.</p> <p>Name Input a profile name with alphanumeric or symbol characters within 6 digits.</p> <p>Sample Select a sample category from Common / Serum / Urine / Plasma from drop-down menu.</p>
(2)	<p><The list of measurement methods> The registered measurement method based on selected “Sample” (category) will be displayed. Select measurement method(s) to apply in the profile and click the check box “ON”.</p>
(3)	<p>Save Click this button to save editing data.</p> <p>Cancel Click this button not to save editing data.</p> <p>Print Click this button to print out setting list.</p>

3.2.7 [Order]:Measurement Order

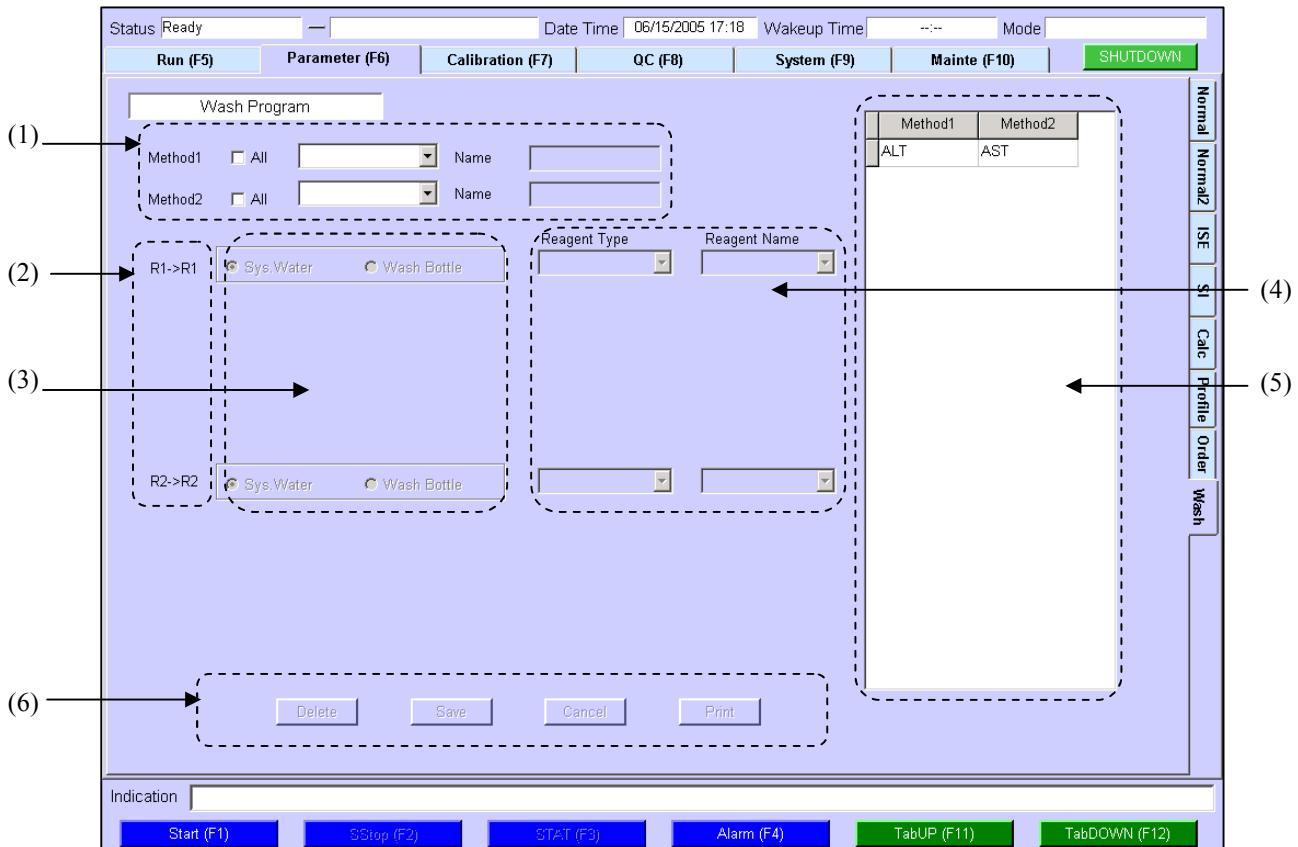
You can define measuring orders and print orders.



No.	Functions
(1)	<Measurement Order> Specify a measurement order. Drag a target method where you want to move and you can change measurement order. Same Order Check “Same Order” check box ON and the print order will be set as the same order as the measurement order.
(2)	<Print Order> Specify a print order. Drag a target method where you want to move and you can change print order. Check “Same Order” check box ON and the print order will be set as the same order as the measurement order.
(3)	Save Click this button to save editing data Cancel Click this button not to save editing data.

3.2.8 [Wash]:Nozzle Wash Program

This is RPT nozzles wash program.



No.	Functions
(1)	<p><Selecting target methods> Select numbers of methods and Nozzle Wash Program will be performed between Method1 and Method2.</p> <p>Method1 Select a number of Method1 and check “ALL check box” if all methods are target.</p> <p>Method2 Select a number of Method2 and check “ALL check box” if all methods are target.</p>
(2)	<p><Reagent setting> Specify details for R1 (RPT1) and R2 (RPT2).</p> <p>R1 → R1 Define details of RPT1 wash program (from R1 to R1 operations).</p> <p>R2 → R2 Define details of RPT2 wash program (from R2 to R2 operations).</p>

Chapter 3 Explanation of Menus

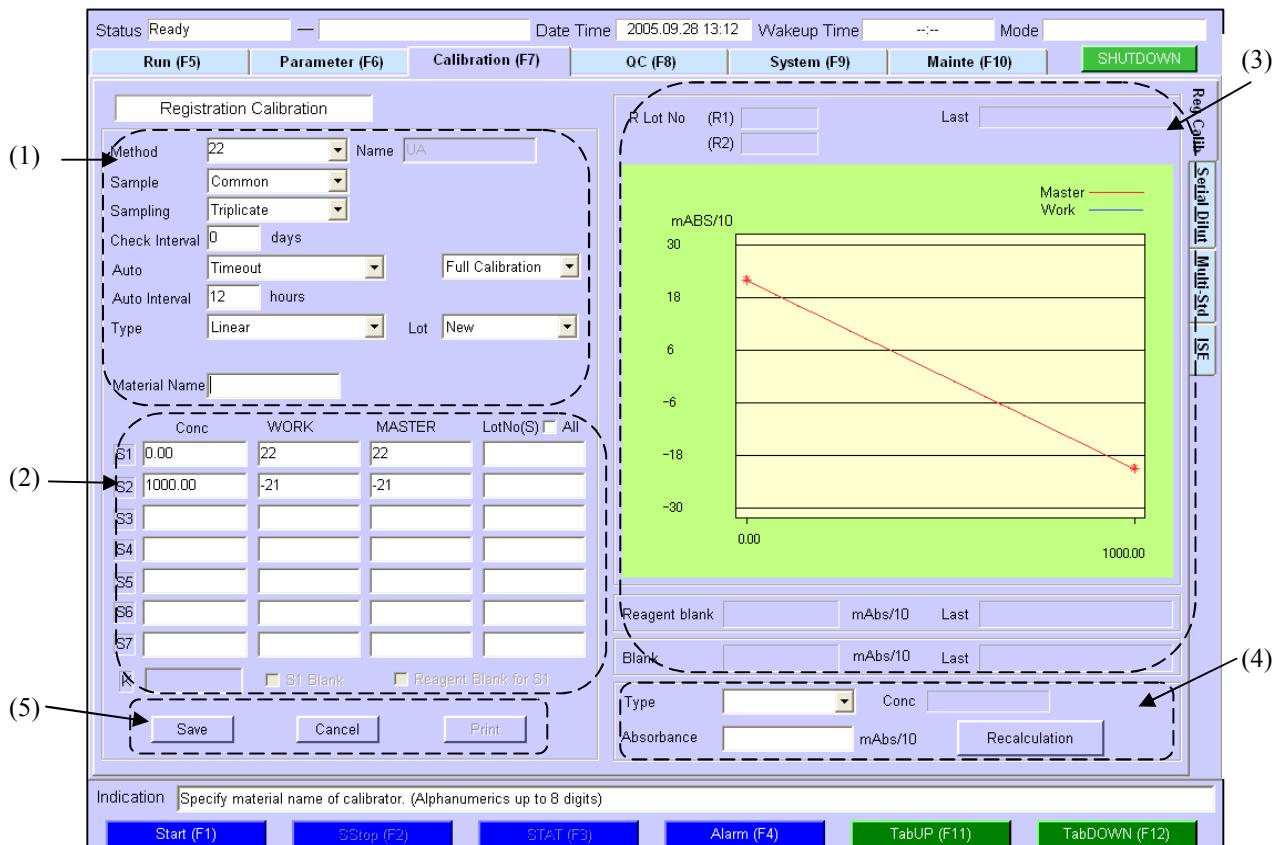
No.	Descriptions
(3)	<p><The setting Wash method></p> <p>Select a wash solution to use.</p> <p>Sys. Water Execute a wash program with system water (pure water).</p> <p>Wash Bottle Execute a wash program with wash solution in RCU specified in reagent bottle setting.</p>
(4)	<p><The setting reagent bottles></p> <p>Select a reagent bottle for this wash program.</p> <p>Reagent Type Select a reagent type from “R1”, “R2”, and “Wash”.</p> <p>Reagent Name Select a reagent name from drop-down menu.</p>
(5)	<p><The setting list></p> <p>Method list registered will be displayed.</p> <p>You can select methods in this list and edit them.</p>
(6)	<p>Delete Click this button to delete contents selected. Select this button and a confirmation message will be displayed. Then press OK button to execute the delete and press Cancel button to cancel.</p> <p>Save Click this button to save editing data.</p> <p>Cancel Click this button not to save editing data.</p> <p>Print Click this button to print out a setting list.</p>

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3.3 [Calibration (F7)]:Setup Menu 2

3.3.1 [Reg Calib]:Calibration

You can define a content of calibration for each measurement method.



No.	Functions
(1)	<p>Method Select a method number. Input a method number directly in a cell or get a number from drop-down menu. Or press a space key and methods registered will be popped up at the center of screen, then you can select the method from the list.</p> <p>Name A selected method name will be displayed.</p> <p>Sample Select a sample category from Common / Serum / Urine / Plasma from drop-down menu.</p> <p>Sampling Select a number of measurements for Standard sample and Blank sample, "Duplicate" or "Triplicate" from drop-down menu.</p> <p>Check Interval Define a validation for a calibration. Input an interval between 0 and 99 (days). Setting 0 will skip a validation check. Methods will be red color on [RUN (F5)] - [Selection] and CTO error flag will be added with results when this valid interval has been passed since the previous calibration date.</p>

Chapter 3 Explanation of Menu

No.	Functions
(1)	<p>Auto (Refer to “3.1.7 [Std QC]”) Select an automatic measurement condition from drop-down menu shown below.</p> <ul style="list-style-type: none">- Change Lot: When lot numbers of reagents for the calibration are changed, calibration measurement is executed.- Timeout: When a valid interval at “Auto Interval” is passed, calibration measurement is executed. <p><Type of Automatic measurement for calibration> Select details of the measurement in a cell beside “Auto” from drop-down menu.</p> <ul style="list-style-type: none">- Blank: Blank measurement- One: One-point calibration- Two: Two-points calibration- Full Calibration: Full calibration <p>Auto Interval (Refer to “3.1.7 [Std QC]”) Input an interval between 0 and 99 (hours) for automatic measurement. This setting is available when the “Timeout” is selected as automatic measurement conditions.</p> <p>Type Select a type for a calibration curve. Select a type from Factor / Linear / Point To Point / Log-Logit / Spline / Exponential from drop-down menu.</p> <p>Lot Select Old / New from drop-down menu as reagent lot. Each method has two types of calibration results depending on reagent lot. “New” is a newer calibration result and “Old” is an older result.</p> <p>Material Name You can input a material name for a calibrator with alphanumeric within 8 letters.</p>
(2)	<p>S1, S2, S3, S4, S5, S6, S7 These are concentrations of Standard Samples. You can define Standard Samples up to 7 points. (S1 is the lowest concentration.)</p> <p>Conc Input each concentration value at 7 points of the standard sample. Valid range: 0 – 9,999,999 (This range should be within 5 decimal places and concentration value should be S1 < Sn < S7.) Numbers of standard samples defined here will be numbers of Standard Samples when you register Standard Samples on [Run (F1)] – [Selection].</p> <p>WORK Measurement results (absorbance value) will be displayed here at a full calibration or re-calibration (a measurement by 1 point or 2 points) measurement.</p> <p>MASTER Measurement results (absorbance value) will be displayed here at a full calibration. Note that WORK / MASTER can be input manually and these values should be between -999,999 - 999,999 (mABS / 10).</p> <p>Lot No(S) <input type="checkbox"/> All You can input a lot number of a calibrator with alphanumeric within 6 digits. This input “Lot No (S)” can be seen following screens; Measurement Result Search Screen, Calibration Result Printing and Result for File Output. Check “All” check box ON and S1 lot number can be input, then the same lot number as S1 will be displayed from S2 to S7.</p>

3.3 Calibration

3.3.1 Reg Calib

Chapter 3 Explanation of Menus

No.	Functions
(2)	<p>K This value will be available on selecting “Factor” in “Type” as calibration type. Input value K Factor between -99,999.999 and 99,999.999 (“0” is not effective).</p> <p>S1 Blank This will be available when “Factor” or “Linear” is selected in “Calculation”. This check box will be available when “Enable S1 Blank (Factor or Linear)” is chosen on [Parameter (F6)] - [Normal2].</p> <p>Reagent Blank for S1 This will be displayed when “Linear” is selected in “Calculation”. This chek box will be ON when “Enable reagent blank for S1 (Linear)” is chosen on [Parameter (F6)] - [Normal2].</p>
(3)	<p>R Lot No (R1) / (R2) Reagent lot numbers used for calibration will be displayed.</p> <p>Last The last date of a full calibration will be displayed.</p> <p><Graph display of calibration curve> Calibration curves will be displayed here. 2 types of calibration curves will be described in 2 colors, blue for “Work” and red for “Master”. Any results containing an error flag will not be used for a calibration curve.</p> <p>Reagent blank / Last The last result of a reagent blank measured without error and its date will be displayed. Reagent blank value (Delta-ABS) is obtained from conditons of each method based on the last reagent blank time course and cuvette blank value.</p> <p>Blank / Last The last result of a blank sample without error and its date will be displayed.</p>
(4)	<p><Recalculation></p> <p>Type Select a calibration curve used for recalculation from “Work” or “Master” from drop-down menu.</p> <p>Absorbance Input an absorbance value to recalculate between -999,999 and 999,999.</p> <p>Conc Concentration value recalculated will be displayed from 0 to 9,999,999.</p> <p>Recalculation Click this button to execute a recalculation.</p>
(5)	<p>Save Click this button to save editing data.</p> <p>Cancel Click this buoton not to save editing data.</p> <p>Print Click this bottun to print out setting details.</p>

3.3 Calibration

3.3.1 Reg Calib

Chapter 3 Explanation of Menu

Processes of reagent lot numbers at calibrations:

Full / Part	Lot Numbers	Process
Full	Different	Previous calibration result will be stored as “Old” and new calibration will be stored as “New”.
Full	Same	Previous calibration of the same lot number as new calibration will be overwritten.
Full	No Numbers	Previous calibration will be overwritten.
Part	Different	Previous calibration will be overwritten.
Part	Same	Previous calibration of the same lot number as new calibration will be overwritten.
Part	No Numbers	Previous calibration will be overwritten.
Full	-----	It will update the number currently being displayed.
Part	-----	It will update the number currently being displayed.

A calculation for concentrations out of the range of a calibrator:

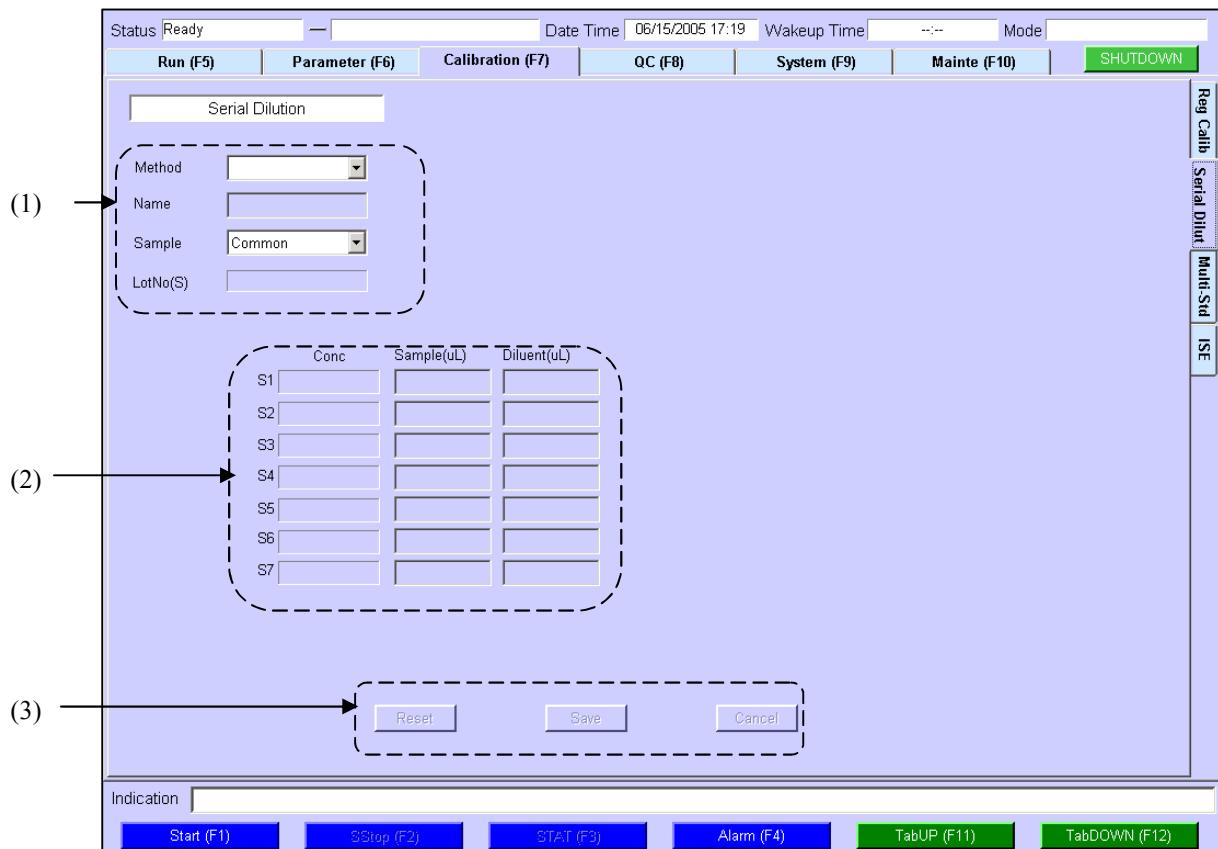
Calibration Curve Types	Concentration Range	OVR Flag	Concentration Conversion Formula	Concentration Value when “Disable Extrapolated Results” is ON ([System (F9)] – [Setup])
Factor	All	Not Added	Extended Calibration Curve will be applied.	
Linear	· Below S1 · Over Sn	Not Added	Extended Calibration Curve will be applied.	
Spline	· Below S1	Added	Tangent line of a Calibration Curve at S1 will be applied.	S1
	· Over Sn	Added	Tangent line of a Calibration Curve at Sn will be applied.	Sn
Point to Point	· Below S1	Added	Extended Calibration Curve between S1 and S2 will be applied.	S1
	· Over Sn	Added	Extended Calibration Curve between Sn-1 and Sn will be applied.	Sn
Log Logit	· Below S1 (S1 concentration=0)	Added	Linear Approximation will be applied.	S1
	· Below S1 (S1 concentration<>0)	Not Added	Tangent line of Calibration Curve at S1 will be applied.	
	· Over Sn	Not Added	Tangent line of Calibration Curve at Sn will be applied.	

3.3 Calibration

3.3.1 Reg Calib

3.3.2 [Serial Dilut]:Serial Dilution

You can define the setting for auto-dilution calibration.



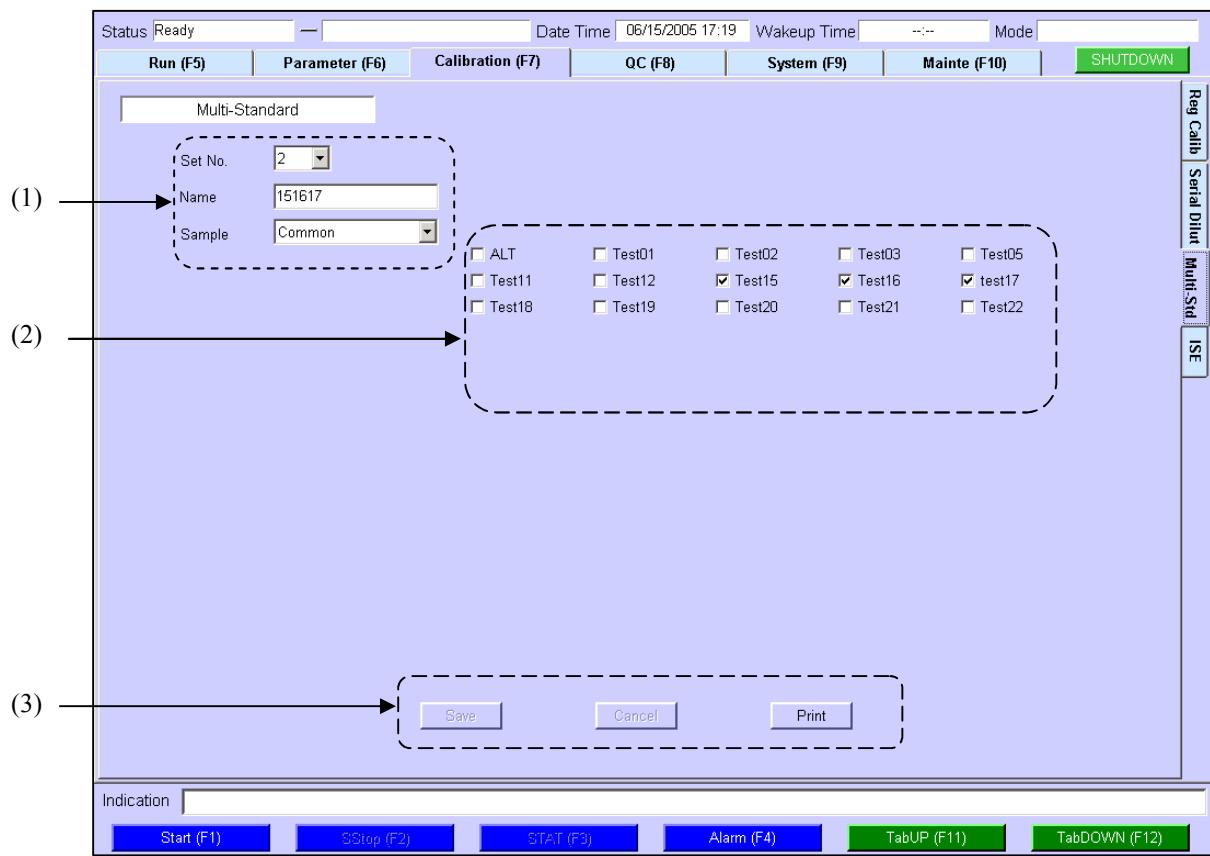
No.	Functions
(1)	<p>Method Select a method name from drop-down menu.</p> <p>Name Method name selected will be displayed.</p> <p>Sample Select a sample category Common / Serum / Urine / Plasma from drop-down menu.</p> <p>Lot No(S) This shows a number of a calibrator lot. When different lot numbers are used in each concentration, lot number of the highest concentration calibrator registered at [Calibration (F7)] - [Reg Calib] will be shown.</p>

Chapter 3 Explanation of Menu

No.	Descriptions
(2)	<p>Conc Concentration values of standard samples registered at [Calibration (F7)] - [Reg Calib] will be displayed.</p> <p>Sample (uL) Diluent (uL) The best suite volume calculated by the highest concentration calibrator and specified concentration value will be displayed as a default. Approximate value will be in red when a target dilution rate cannot be calculated within the range. You can edit sample volume within available dispensing range if necessary.</p> <p>Available dispensing range Sample: 2 – 35 (0.1 μ L step) Diluent: 45 – 350 (1 μ L step) Total amount of dispensing “Sample” and “Diluent” should be between 80 μ L and 450 μ L.</p>
(3)	<p>Reset Click this button to show the best volume calculated from the target dilution rate.</p> <p>Save Click this button to save editing data.</p> <p>Cancel Click this button not to save editing data.</p>

3.3.3 [Multi-Std]:Multi Standard

You can define multi standard samples

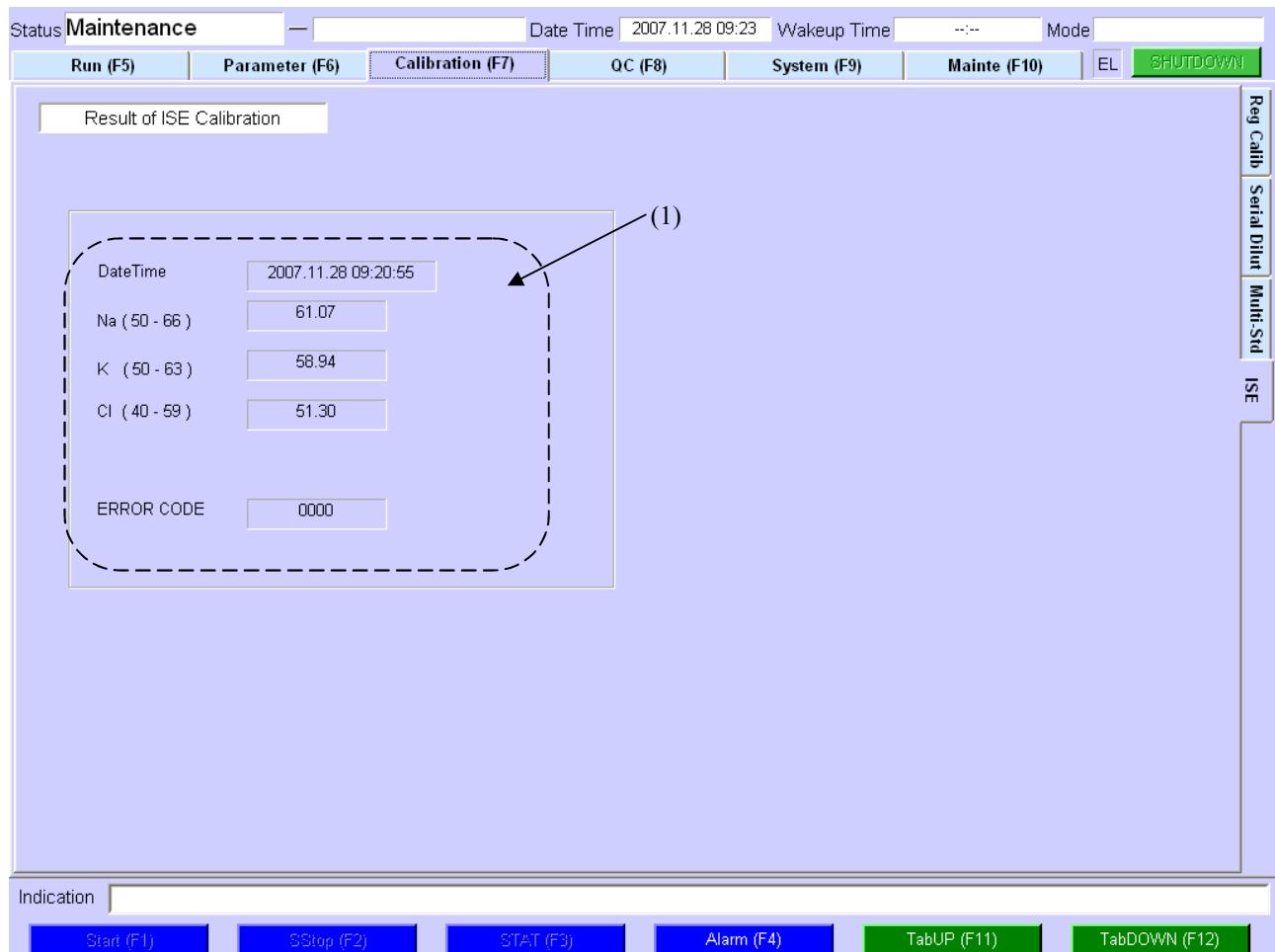


No.	Functions
(1)	Set No. Select a number of Multi Standard Sample between 1 and 10 from drop-down menu. Name Input Multi Standard Set name in alphanumeric within 6 digits. Sample Select a sample category from Common / Serum / Urine / Plasma from drop-down menu.
(2)	<Measurement method> Select measurement methods to register. Select methods registered in a list for every Multi Standard Set. Click the check box ON to register.
(3)	Save Click this button to save editing data. Cancel Click this button not to save editing data. Print Click this button to print out settings.

Chapter 3 Explanation of Menu

3.3.4 [ISE]:ISE Calibration Result

You can see the latest ISE calibration result on this screen.



No.	Functions
(1)	<p>Date Time The last measurement date and time will be displayed.</p> <p>Na (50-66) K (50-63) Cl (40-59) These values are permissible range of each method. The last measurement results will be shown on the right side. When the result exceeded the range, “H” or “L” flag will be added to results in red.</p> <p>ERROR CODE The last measurement error code will be shown.</p>

3.3 Calibration

3.3.4 ISE

3.4 [QC (F8)]:QC Menu

The results of Quality Control samples are kept in a database for half a year. Each method of the result can be displayed in a graph or list.

Click [QC (F8)] button on the job menu and you can select one of the following on the tab menu.

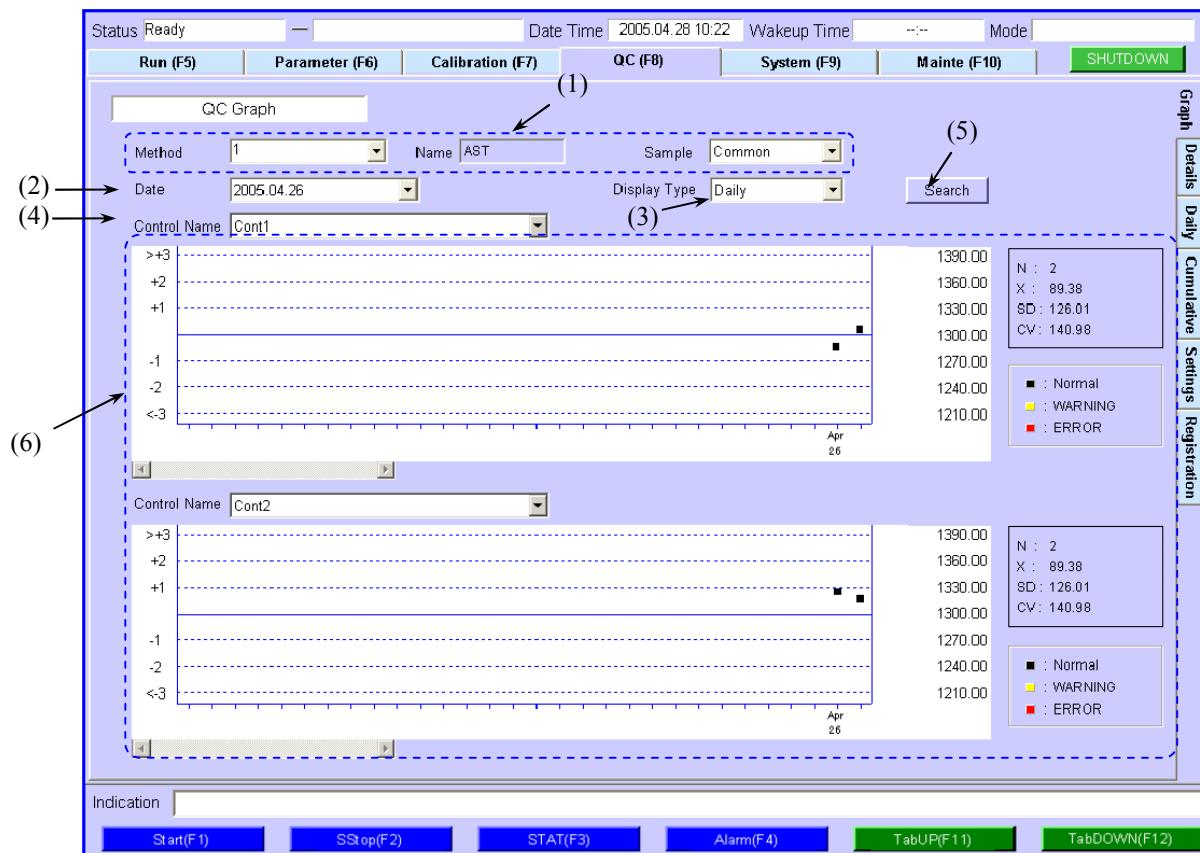
- Graph (Quality Control graph display)
- Details
- Daily
- Cumulative
- Settings (for judgment criteria)
- Registration (for QC sample)

When the “Enable live QC report” in the tab menu [System (F9)] – [Setup], which is printing setting for printers, is set to effective, a measurement result (the information of quality control) will be printed out automatically after a measurement of QC sample was executed.

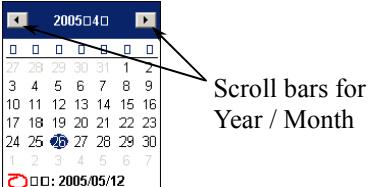
3.4.1 [Graph]:QC Graph

You can see the measurement data of 3-types of control samples in graph, by selecting a display type from “Daily” or “Cumulative”.

Click to select the tab menu [QC (F8)] – [Graph].



Chapter 3 Explanetion of Menus

No.	Descriptions
(1)	<p>Method</p> <p>As for the setting, 3 ways are available. The first one is to click and select a measurement method number on the list by pressing [Space], the second is to select a number displayed on the pull-down menu, the third is to input a number with the keyboard.</p> <ul style="list-style-type: none"> - General Biochemistry (1-60): 60 methods - ISE (1001-1003): 3(6) methods - ISE diluent (1005-1007): 3 methods - SI (2001-2003): 3 methods - Method to method calculation (3001-3040): <p>Select one from a sum of 40 methods, 106(109) methods</p> <p>Some related ISE methods depending on the setting definitions in samples will be displayed.</p> <ul style="list-style-type: none"> - Common: 3 methods (Na, K, Cl) of ISE and 3 methods (Na, K, Cl) of ISE (D) - Serum, Plasma: 3 methods (Na, K, Cl) of ISE - Urine: 3 methods (Na, K, Cl) of ISE (D) <p>Name <input type="text"/></p> <p>The method name registered on the tab menu [QC (F8)] – [Registration] will be displayed in the cell box when its number was specified.</p> <p>Sample</p> <p>Select a sample category from pull-down menu.</p> <ul style="list-style-type: none"> - Common - Serum - Urine - Plasma
(2)	<p>Date</p> <p>Specify the starting date for the graph.</p> <p>You can input the date from keyboard or pull-down menu to display a calendar.</p>  <p>Scroll bars for Year / Month</p>
(3)	<p>Display Type</p> <p>Select a display type for graph from pull-down menu.</p> <ul style="list-style-type: none"> - Daily: Measurement results in a day specified on “Date” will be displayed. - Cumulative: Cumulative measurement results for recent 30 days from the day you specified or in a day will be displayed.
(4)	<p>Control Name</p> <p>The registered sample name in the tab menu [QC (F8)] – [Settings] will be displayed from pull-down menu.</p> <p>Control name which method number and sample are matched can be selected.</p> <p>Select a sample to display from up to 3 samples.</p>
(5)	<p>Search</p> <p>Click Search button to start a search and a measurement result of Quality Control sample will be displayed in graphic.</p>

3.4 QC

3.4.1 Graph

No.	Descriptions						
(6)	<p><Graph display></p> <p>(E.g.)</p> <p>Display Type Daily</p> <p>Display Type Cumulative</p> <p>Number of data / Average value / Standard deviation / CV (%)</p> <p>Number of data, Average value, Standard deviation and CV (%) will be displayed by using the data calculated automatically from all of the measurement results.</p> <p>N: Number of data X: Average value SD: Standard deviation CV: Coefficient of variance</p> <p>Any measurement data determined as an error in the measurement results are removed from calculation.</p> <p>For those calculations, the conditions of the graph display are supposed to apply defined in the tab menu [QC (F8)] – [Settings].</p> <p>The display color Graph plot</p> <p>The judgment of the measurement results will be displayed by plotting in colors of the following.</p> <table> <tbody> <tr> <td>Black symbol:</td> <td>Normal “(plot black)”</td> </tr> <tr> <td>Yellow symbol:</td> <td>WARNING “(plot yellow)”</td> </tr> <tr> <td>Red symbol:</td> <td>ERROR “(plot red)”</td> </tr> </tbody> </table>	Black symbol:	Normal “(plot black)”	Yellow symbol:	WARNING “(plot yellow)”	Red symbol:	ERROR “(plot red)”
Black symbol:	Normal “(plot black)”						
Yellow symbol:	WARNING “(plot yellow)”						
Red symbol:	ERROR “(plot red)”						

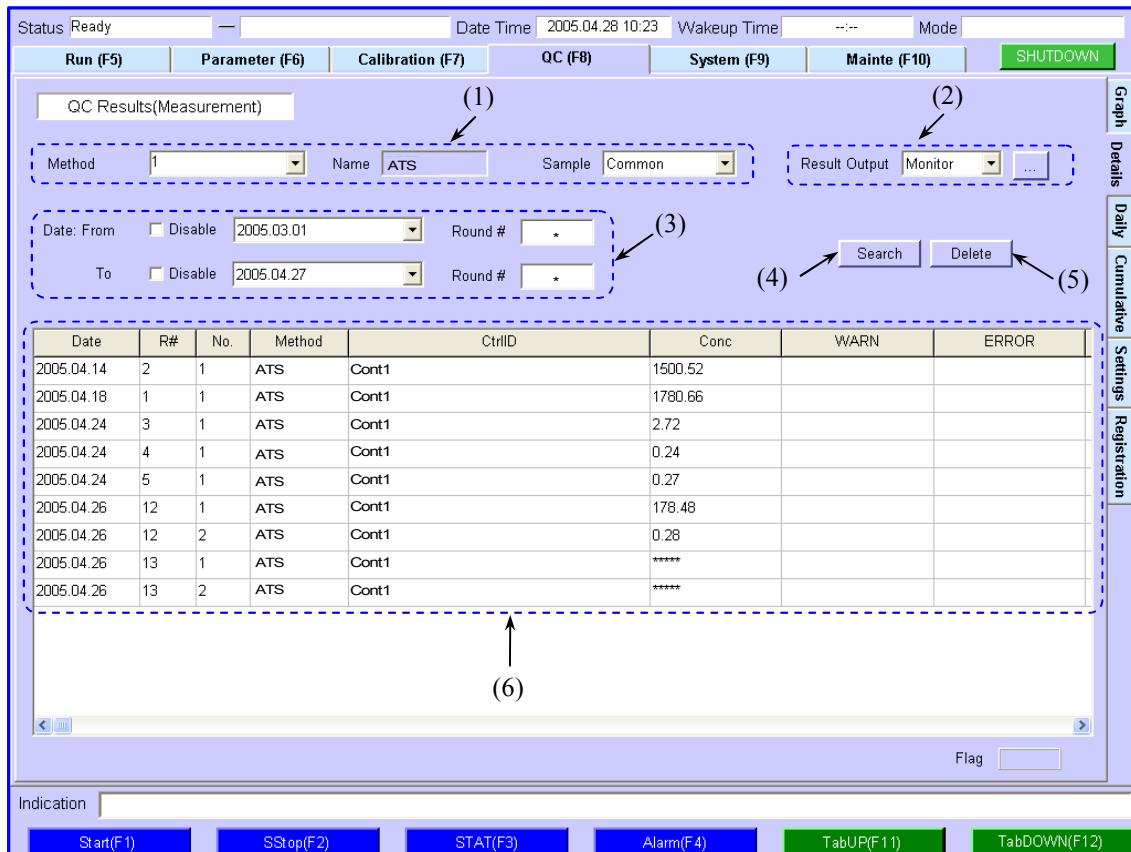
3.4 QC

3.4.1 Graph

3.4.2 [Details]:QC Results

Records of the judgment of the QC results will be displayed one by one, specifying the measurement methods and date.

Click to select the tab menu [QC (F8)] – [Details].



No.	Descriptions
(1)	<p>Method The way of selecting the number of the measurement method is the same as the tab menu [Graph]. As for the setting, 3 ways are available. The first one is to click and select a measurement method number on the list by pressing Space, the second is to click a number by means of pull-down menu, and the third is to input a number with a keyboard typing.</p> <p>Name <input type="text" value="nnn"/> The measurement method name registered will be displayed when its number was specified.</p> <p>Sample Select a sample category from pull-down menu;</p> <ul style="list-style-type: none"> - Common - Serum - Urine - Plasma

Chapter 3 Explanation of Menus

No.	Descriptions
(2)	<p>Result Output Select the destination for an output from pull-down menu. - Monitor - Print - File</p> <p>The specification of the output folder: <input type="button" value="..."/></p> <p>When “File” is selected, a folder will be shown by a click of the <input type="button" value="..."/>, and you can specify the destination directory where the extracted result should be placed.</p> <p>The error messages for search output When you specified a floppy disc as an output device and a disc is not inserted or an unformatted disc is inserted,</p> <p style="text-align: center;">“Floppy disk is not either inserted or formatted.”</p> <p>The warning will be displayed. When there are not enough volume;</p> <p style="text-align: center;">“Not enough disk space to copy files.”</p> <p>The error message will be displayed.</p>
(3)	<p>Date From <input type="checkbox"/> Disable Specify the starting date for search.</p> <p><input type="checkbox"/> Disable - When the check box “OFF”; You can input the date from keyboard or pull-down menu to display a calendar. - When the check box “ON”; This means to search all records in the past and you cannot specify the search starting date.</p> <p>Round # <input type="button" value=""/> Input the measurement round number for the starting search date between 1 and 99. Entering asterisks “*” means all rounds are applied.</p> <p>To <input type="checkbox"/> Disable Specify the ending date for search.</p> <p><input type="checkbox"/> Disable - When the check box “OFF”; You can input the date from keyboard or pull-down menu to display a calendar. - When the check box “ON”; This setting is to search all records in the past and you cannot specify a search start date. Setting date should be [From (the search starting date)] ≤ [To (the search ending date)].</p> <p>Round # <input type="button" value=""/> Input the measurement round number for the ending search date between 1 and 99. Entering asterisks “*” means all rounds are applied.</p>
(4)	<p>Search This will search results with specified details. Click the Search button to start extracting results of the specified details and the term days so that the measurement result(s) of Quality Control sample will be output in the place you specified.</p>

3.4 QC

3.4.2 Details

Chapter 3 Explanetion of Menus

No.	Descriptions
(5)	<p>Delete</p> <p>This will execute a delete process. Clicking the Delete button, a confirmation-warning message will be displayed.</p> <p style="text-align: center;">“Warning! Is this all right if the measurement data is deleted?”</p> <p>Click OK button to delete the measurement methods and date range of the measurement results. Click Cancel button to cancel the deleting.</p> <p>If the search result exceeds more than 1,000 lines, the following message will notify you. You cannot delete those data though you click Delete button.</p> <p style="text-align: center;">“Too many results meet search condition. Narrow the condition any try again.”</p> <p>Click OK button to change the contents of the search conditions and retry it.</p>
(6)	<p><The result list display for details></p> <p>Date The date of the measurement result will be displayed in the format "yyyy / mm / dd".</p> <p>R# The round number will be displayed between 0 and 99.</p> <p>No. When the result was measured more than one time at the same round, the round number on which the result was executed will be displayed.</p> <p>Method The measurement method name will be displayed in alphanumeric within 6 digits.</p> <p>Ctrl ID The Control sample name will be displayed in alphanumeric within 20 digits.</p> <p>Conc The measurement result of the control sample will be displayed in 7 digits between -9,999,999 and 9,999,999. Any invalid values will be displayed with “*****”.</p> <p>WARNING If the Control sample is specified for “WARNING” as the judgment criterion in the tab menu [QC (F8)] – [Settings], the judgment result will be displayed in this column. A higher priority error should be displayed if more than 2 errors are found in the result.</p> <p>ERROR If the Control sample is specified for “ERROR” as the judgment criterion in the tab menu [QC (F8)] – [Settings], the judgment result will be displayed in this column. A higher priority error should be displayed if more than 2 errors are found in the result.</p> <p>Flag If the measurement result you selected contains any errors, an error flag will be displayed with the result. For further details of error flags, refer to “3.4.5 [Settings]”.</p>

3.4 QC

3.4.2 Details

3.4.3 [Dairy]:QC Results

This will sum up QC measurement data of control samples you specified a day and display them in each measurement method.

Click the tab menu [QC (F8)] – [Cumulative].

The screenshot shows the 'QC Results (Measurement)' screen. At the top, there are several input fields: 'Method' (set to 1), 'Name' (set to AST), 'Sample' (set to Common), 'Control Name' (set to control1), 'Date' (set to 2007.07.13), and 'Round #' (set to 1). To the right of these are buttons for 'Search' and 'Delete'. Below these fields is a table with one row of data:

Method	N	Mean(X)	-2SD	+2SD	SD	CV	Min	Max	Warning/Error
AST	3	42.0	39.5	44.5	1.25	3.4	39.8	43.3	

Below the table is a large empty area labeled '(7) The list of the detail search results'.

No.	Descriptions
(1)	<p>Method How to select the number of the measurement method is the same as the tab menu [Details]. As for the setting, 3 ways are available. The first one is to click and select a measurement method number on the list by pressing Space, the second is to click a number displayed the pull-down menu, the third is to input a number with a keyboard typing.</p> <p>Name Same as the tab menu [Details], the measurement method will be displayed.</p> <p>Sample Same as the tab menu [Details], you can select a sample from pull-down menu.</p>
(2)	<p>Result Output Same as the tab menu [Details], you can specify the output destination and an output folder for a measurement result.</p>
(3)	<p>Control Name Select a name of Control Samples.</p> <ul style="list-style-type: none"> - When Method is blank: Select a Control Name. - When Method is not blank: Select a control sample name registered in the tab menu [QC (F8)] – [Settings] from pull-down menu.

Chapter 3 Explanation of Menus

No.	Descriptions
(4)	<p>Date: From <input type="checkbox"/> Disable / To <input type="checkbox"/> Disable Specify the searching date. <input type="checkbox"/> Disable</p> <ul style="list-style-type: none">- When the check box “OFF” Click pull-down arrow on the Combo Box and a calendar will be displayed, then you can click the search date on it to select.- When the check box “ON”; This setting is to search all records in the past and you cannot specify a search start date. <p>Round # <input type="text"/> Input the measurement round number for the ending search date between 1 and 99. Entering asterisks “*” means all rounds are applied.</p>
(5)	<p>Search This will execute the extraction of the result with specified details. Click this button to search specified Method and control sample results then you can output all data to specified field.</p>
(6)	<p>Delete This will delete data you are editing. Click Delete button and a confirmation message for the delete notifies you.</p> <p style="text-align: center;">“Warning! Is this all right if the measurement data is deleted?”</p> <p>The measurement result of Method and the range dates you specified will be deleted by clicking OK button, and will stop the delete by clicking Cancel.</p>
(7)	<p><The result list display for details></p> <p>Method The measurement method name will be displayed in alphanumeric within 6 digits.</p> <p>N The number of the data samples will be displayed.</p> <p>Mean (X) The average concentration calculated from the measurement result will be displayed. The digit numbers of the fraction part will be displayed in the digit numbers specified at the “Decimal Points” in the tab menu [Parameter (F6)] – [Normal]. Note that any data that QC judgment resulted in an error are removed.</p> <p>-2SD The latest measurement results out of the range of -2SD The -2SD value calculated from the target measurement result will be displayed with a form of “-999.999”. When the calculation is invalid because there is less than 1 point, the value will be displayed in blank.</p> <p>+2SD The latest measurement results out of the range of +2SD The +2SD value calculated from the target measurement result will be displayed with a form of “999.999”. When the calculation is invalid because there is less than 1 point, the value will be displayed in blank.</p>

3.4 QC

3.4.3 Daily

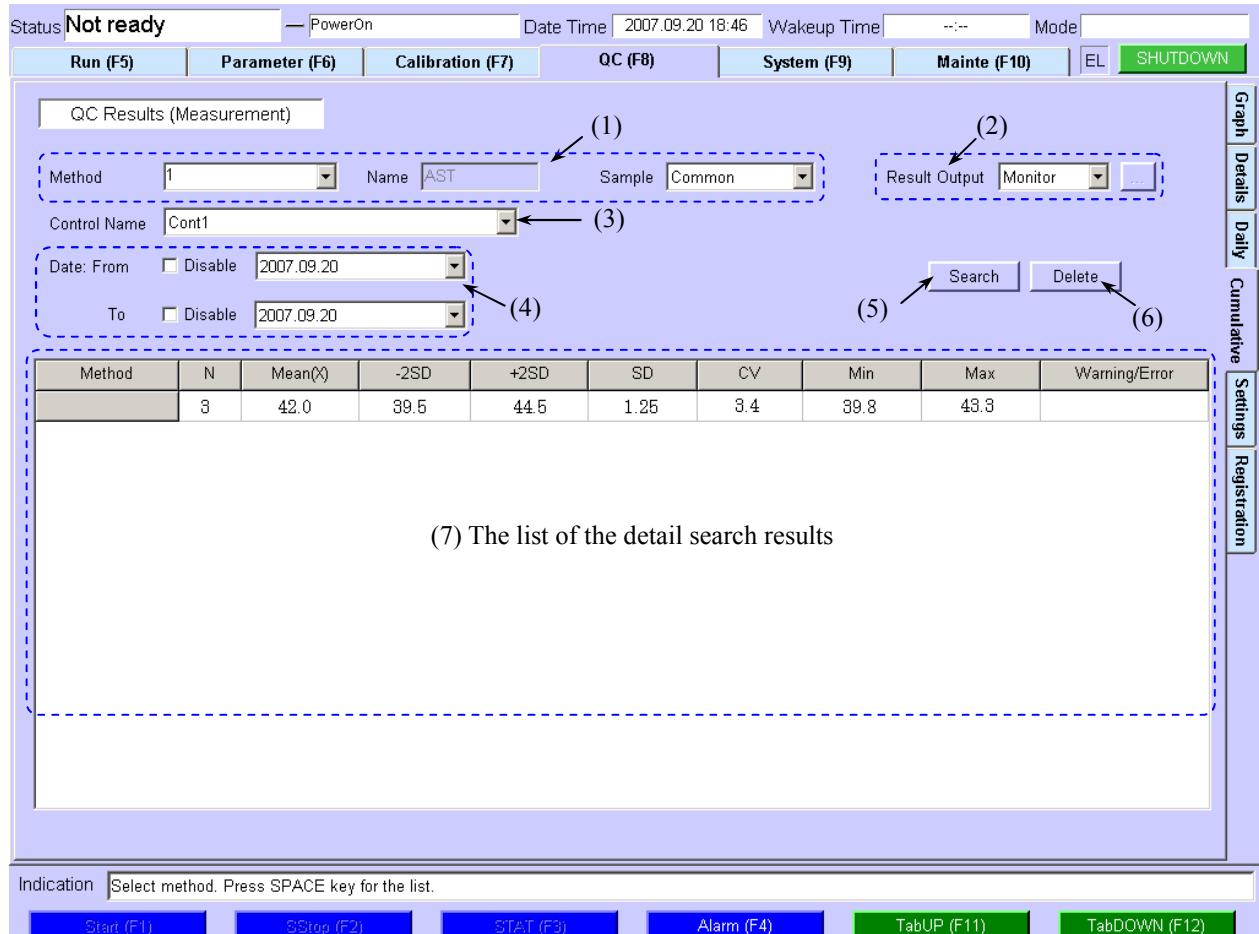
Chapter 3 Explanation of Menus

No.	Descriptions
(7)	<p>SD The standard deviation (or SD) value calculated from the target measurement result will be displayed with a form of “999.999”. When the calculation is invalid because there is less than 1 point, the value will be displayed in blank.</p> <p>CV The coefficient of variance (or CV) value calculated from the target measurement result will be displayed with a form of “Z9.999”. When the calculation is invalid because there is less than 1 point, the value will be displayed in blank.</p> <p>Min This will show the minimum value of the measurement result. The digit numbers of the fraction part will be displayed in the digit numbers specified at the “Decimal Points” in the tab menu [Parameters (F6)] – [Normal]. Note that any data that QC judgment resulted in an error are removed.</p> <p>Max This will show the maximum value of the measurement result. The digit numbers of the fraction part will be displayed in the digit numbers specified at the “Decimal Points” in the tab menu [Parameters (F6)] – [Normal]. Note that any data that QC judgment resulted in an error are removed.</p> <p>Warning/Error QC judgment results (10 digits) defined on the [Settings] screen as “WARNING” or “ERROR” will be displayed. The higher priority result will be displayed if the judgment contains some errors. Refer to the “3.4.5 QC Settings” as the letters the judgment results for order of priority.</p>

3.4.4 [Cumulative]:QC Results

This will sum up the QC measurement data of control samples you specified the cumulative days and then display them in each measurement method.

Click to select the tab menu [QC (F8)] – [Cumulative].



(7) The list of the detail search results

No.	Descriptions
(1)	<p>Method Selecting the number of the measurement method is the same as the tab menu [Details]. As for the setting, 3 ways are available. The first one is to click and select a measurement method number on the list by pressing <u>Space</u>, the second one is to click a number displayed a pull-down menu of the Combo Box and the third is to input a number with a keyboard typing.</p> <p>Name <input type="text"/> The measurement method name registered will be displayed when its number was specified.</p> <p>Sample Same as the tab menu [Details], you can select a sample from pull-down menu.</p>
(2)	<p>Result Output Same as the tab menu [Details], you can specify the output destination and an output folder for a measurement result.</p>
(3)	<p>Control Name (Control Sample name) Same as the tab menu [Daily], you can select a control name.</p>

3.4 QC 3.4.4 Cumulative

Chapter 3 Explanation of Menus

No.	Descriptions
(4)	Date From <input type="checkbox"/> Disable Same as the tab menu Details , you can select a search start date as well. To <input type="checkbox"/> Disable Same as the tab menu Details , you can select a search end date as well.
(5)	Search Same as the tab menu Daily , you can select a control name
(6)	Delete Same as the tab menu Daily , you can execute a delete.
(7)	< The result list display for cumulative > The result list display for details is the same as the result of the Daily .

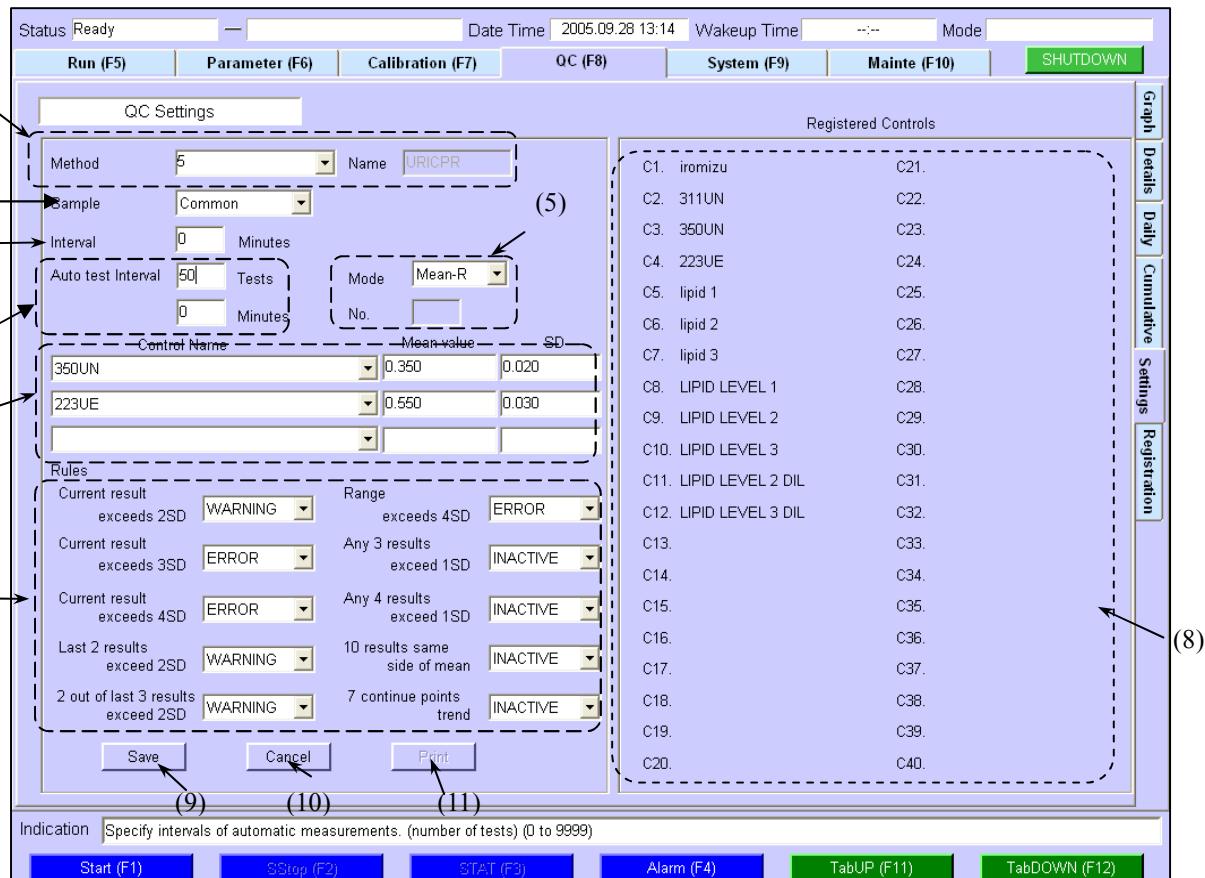
3.4 QC

3.4.4 Cumulative

3.4.5 [Settings]:QC Results

You can specify the control name to use and its criteria to determine in each method.

Click the tab menu [QC (F8)] – [Settings].



No.	Descriptions
(1)	<p>Method</p> <p>As for the setting, 3 ways are available. The first one is to click and select a measurement method number on the list by pressing Space, the second one is to select a number displayed on the pull-down menu and the third is to input a number with the keyboard.</p> <ul style="list-style-type: none"> - General Biochemistry (1-60): 60 methods - ISE (1001-1003): 3(6) methods - ISE diluent (1005-1007): 3 methods - SI (2001-2003): 3 methods - Method to method calculation (3001-3040): Select one from a sum of 40 methods, 106(109) methods <p>Some related ISE methods depending on the setting definitions in samples will be displayed.</p> <ul style="list-style-type: none"> - Common : 3 methods (Na, K, Cl) of ISE and 3 methods (Na, K, Cl) of ISE (D) - Serum, Plasma : 3 methods (Na, K, Cl) of ISE - Urine : 3 methods (Na, K, Cl) of ISE (D) <p>Name <input type="text"/></p> <p>The measurement method name registered will be displayed when its number is specified.</p>

Chapter 3 Explanation of Menus

No.	Descriptions
(2)	<p>Sample Select a sample category on the list from pull-down menu. - Common - Serum - Urine - Plasma</p>
(3)	<p>Interval <input type="text"/> Minutes Input the number of the Quality Control valid interval minutes for the control samples between 0 and 9,999 (min). If you set '0' to the interval minute, valid term will not be checked. When the valid interval has passed the date from the previous measurement of the control sample, method name in the tab menu [Run (F5)] – [Selection] will be displayed in yellow and a CXP flag will be attached to the measurement result.</p>
(4)	<p>Auto test Interval <input type="text"/> Tests; (Refer to “3.1.7 [Std QC]”.) Input the number of QC test count (0 to 9,999). When the QC test has been passed the designated counts since the last QC measurement was performed, the newly QC measurement will be performed. When 0 (zero) is inputted, the automatic QC measurement is not performed.</p> <p>Auto test Interval <input type="text"/> Minutes; (Refer to “3.1.7 [Std QC]”.) Input the number of minutes (0 to 9,999). When the time has been passed the designated minutes since the last QC measurement was performed, the newly QC measurement will be performed. When 0 (zero) is inputted, the automatic QC measurement is not performed.</p>
(5)	<p>Mode Select a calculation method on the list from pull-down menu. - Mean-R (calculated by a differential from input mean value) - X-R (calculated by specified one sample) When you select “Mean-R”, the cell of “No. <input text"="" type="text”/> will be masked and QC data will be calculated by a differential from the values set in the ” Mean Value”.
 The mask of No. <input type="/> will be released when you select “X-R”. “X” is an average measurement result from some previous data to the latest data. You can decide how many previous data you apply at No. <input text”="" type="text”/>.</p> <p>No. <input type="/> Specify target data in the “X-R” mode. When the “Mean-R” is selected in “Mode”, the cell of “No. <input center;"="" text-align:="" type="text”/> will be masked. The number specified in “X-R” will be displayed here.
 When the “X-R” is selected in “Mode”, you can specify how many data to use. Input the number between No.1 and 99.</p> </td></tr> <tr> <td>(6)</td><td> <p>Control Name
 Select the name of control sample.
 You can select the name from control sample names defined in the tab menu [QC (F8)] – [Registration].</p> <p>Mean Value
 Input the concentration value for the Control sample you specified between “0” and “9,999,999”. This value represents the center of the Y-axis on the graph chart.
 When the “Mean-R” is selected in “Mode”, you can input a value in this cell.
 When the “X-R” is selected, this method will be masked. (In this case, it will display the value of “Mean Value” specified in “X-R”).
 When this Mean Value is blank, an error message will be displayed and your cursor will jump on where the error is occurring.</p> <p style="/>“Input proper values.”</p>

3.4 QC

3.4.5 Settings

Chapter 3 Explanetion of Menus

No.	Descriptions
(6)	<p>SD</p> <p>Input a standard deviation value, which is the concentration of the measurement for the control sample you specified, between 0.001 and 999.999 (value 0 is not acceptable.).</p> <p>When you input SD, its range will be displayed in a dotted line on the Graph.</p> <p>When this SD is blank, an error message will be displayed and your cursor will jump on where the error is occurring.</p> <p style="text-align: center;">“Input proper values.”</p>
(7)	<p>Rules</p> <p>Current result exceeds 2SD</p> <p>Select a judgment method for “Current result exceeds 2SD” from pull-down menu;</p> <ul style="list-style-type: none">- INACTIVE (Black symbol): displayed in black on Graph chart. Any judgment is not performed for the current result of QC sample.- WARNING (Yellow symbol): displayed in yellow on Graph chart. When the current result of QC sample exceeds the 2SD, the flag “1:2S” will be displayed on the column of the “WARNING” in [Details], [Daily] and [Cumulative] screen..- ERROR (Red symbol): displayed in red on Graph chart. If the current result of QC sample exceeds the 2SD, the flag “1:2S” will be displayed on the column of the “ERROR” in [Details], [Daily] and [Cumulative] screen. <p>Current result exceeds 3SD</p> <p>Select a judgment method for “Current result exceeds 3SD” from pull-down menu.</p> <p>When the current result of QC sample exceeds 3SD, the flag “1:3S” will be displayed on the column of the “WARNING” or “ERROR” of each [Details], [Daily] and [Cumulative] screen.</p> <p>Current result exceeds 4SD</p> <p>Select a judgment method for “Current result exceeds 4SD” from pull-down menu.</p> <p>When the current result of QC sample exceeds 4SD, the flag “1:4S” will be displayed on the column of the “WARNING” or “ERROR” of each [Details], [Daily] and [Cumulative] screen.</p> <p>Last 2 results exceed 2SD</p> <p>Select a judgment method for “Last 2 results exceed 2SD” from pull-down menu.</p> <p>When the last 2 results of QC sample exceeds 2SD, the flag “2:2S” will be displayed on the column of the “WARNING” or “ERROR” of each [Details], [Daily] and [Cumulative] screen.</p> <p>2 out of last 3 results exceed 2SD</p> <p>Select a judgment method for “2 out of last 3 results exceed 2SD” from pull-down menu.</p> <p>When the 2 out of last 2 results of QC sample exceeds 2SD, the flag “2/3:2S” will be displayed on the column of the “WARNING” or “ERROR” of each [Details], [Daily] and [Cumulative] screen.</p> <p>Range exceeds 4SD</p> <p>Select a judgment method for “The max and min value exceed $\pm 2SD$ (4SD) within the term (days, months)” from pull-down menu.</p> <p>When the judgment result is applied this case, the flag “R:4S” will be displayed on the column of the “WARNING” or “ERROR” of each [Details], [Daily] and [Cumulative] screen.</p> <p>Any 3 Results exceed 1SD</p> <p>Select a judgment method for “Any 3 Results exceed 1SD within the term (days, months)” from pull-down menu.</p> <p>When the judgment result is applied this case, the flag “3:1S” will be displayed on the column of the “WARNING” or “ERROR” of each [Details], [Daily] and [Cumulative] screen.</p>

3.4 QC

3.4.5 Settings

Chapter 3 Explanation of Menus

No.	Descriptions
(7)	<p>Any 4 results exceed 1SD Select a judgment method for “Any 4 Results exceed 1SD within the term (30 days)” from pull-down menu. (Under the condition of this setting, the term is determined by the data for a day in the daily graph and cumulative data, from the measurement day back to 30 days ago, of the cumulative graph chart.) When the judgment result is applied this case, the flag “4:1S” will be displayed on the column of the “WARNING” or “ERROR” of each [Details], [Daily] and [Cumulative] screen.</p> <p>10 results same side of mean Select a judgment method for “The results is greater or smaller in consecutive 10 points” from pull-down menu. When the judgment result is applied this case, the flag “10:X[+]” or “10:X[-]” will be displayed on the column of the “WARNING” or “ERROR” of each [Details], [Daily] and [Cumulative] screen.</p> <p>7 continue points trend Select a judgment method for “The results is likely to increase or decrease in consecutive 7 points” from pull-down menu. When the judgment result is applied this case, the flag “7:X[+]” or “7:X[-]” will be displayed on the column of the “WARNING” or “ERROR” of each [Details], [Daily] and [Cumulative] screen.</p>
(8)	<p>Registered Controls The display the registration name of the control sample. The control sample names registered in the tab menu [QC (F8)] – [Registration] will be displayed within 40 digits.</p>
(9)	<p>Save Click this button to save editing data.</p>
(10)	<p>Cancel Click this button not to save editing data.</p>
(11)	<p>Print Click this button to print out the details of editing data.</p>

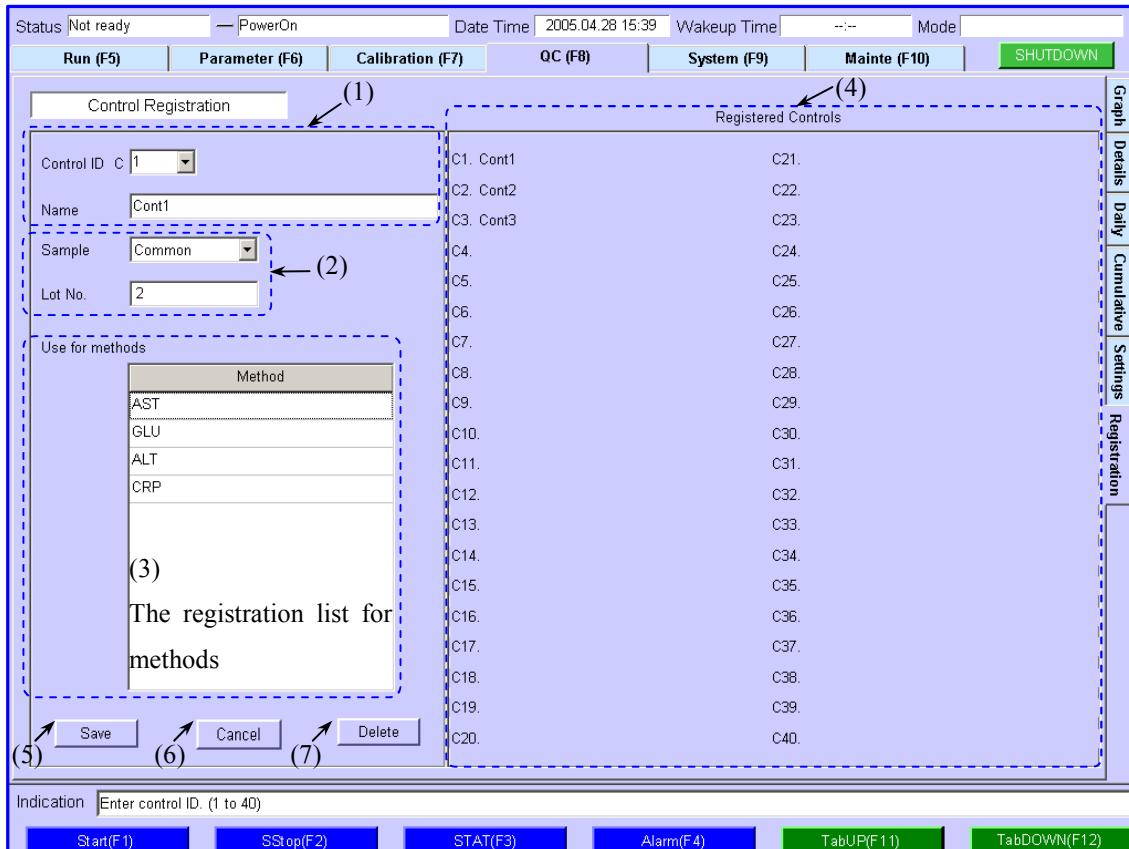
3.4 QC

3.4.5 Settings

3.4.6 [Registration]:QC Registration

You can register the name of Quality Control samples (or Control serum) to be used on the list. Maximum 40 types of Control (C1 to C40) can be registered on the list.

Click to choose the tab menu [QC (F8)] – [Registration].



No.	Descriptions
(1)	Control ID C <input type="text"/> Select the number of a method on the list from pull-down menu or input a number between 1 and 40 with keyboard typing. Name <input type="text"/> Input the name of a control sample in alphanumeric within 20 digits.
(2)	Sample Select a sample type of the following on the list from pull-down arrow on the Combo Box. -Common - Serum - Urine - Plasma Lot No. <input type="text"/> Input the number of a control sample's lot number in alphanumeric within 6 digits.
(3)	Use for methods The method registered in the tab menu [QC (F8)] – [Settings] will be displayed by its name selected in the Control ID.

3.4 QC 3.4.6 Registration

Chapter 3 Explanation of Menus

No.	Descriptions
(4)	Registered Controls The display for the registration name of the control samples. Control sample name (C1 to C40) registered in the tab menu [Registration] will be displayed.
(5)	Save Click this button to save editing settings up to 40 records.
(6)	Cancel Click this button not to save editing settings and this button will become invalid again by clicking the Cancel button.
(7)	Delete Click this button to delete editing contents. Click this button then Save and Cancel button will become available. The following warning message will notify you when you click the [Save] button. “Warning ! Is it all right if the selected sample informatiion is deleted.” It will delete your editing contents by clicking the OK button and stop deleting by clicking the Cancel button.

3.4 QC

3.4.6 Registration

3.5 [System (F9)]:System Menu

Here, you can setup system configuration, reagent registration, operation for FD / HDD backup and printing conditions etc.

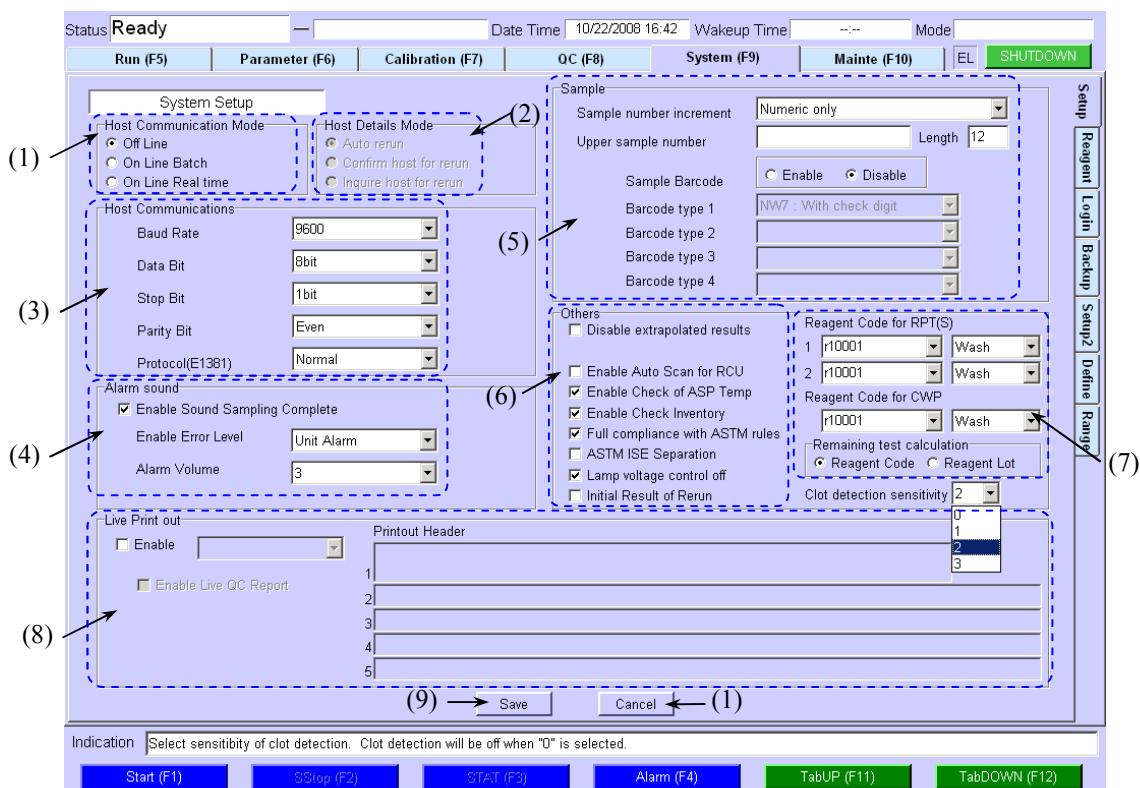
Click the job menu [System (F9)] and you can select a menu from the following on the tab menu.

- Setup: System Configuration
- Reagent: Registration of Reagent Information
- Login: Login / Logout and Software Version
- Backup: Data Backup
- Setup2: Technical Range
- Define: Editing for Patient Information
- Range: Editing for Normal Range Names

3.5.1 [Setup]:System Settings

On the screen you can define conditions of the system communications, alarm sounds, sample barcodes, special wash solutions and printing conditions.

Click to select the tab menu [QC (F9)] – [Setup].



Chapter 3 Explanation of Menus

No.	Descriptions																				
(1)	<p>Host Communication Mode This will setup a communication mode to the Host computer.</p> <ul style="list-style-type: none"> - Off Line Check this checkbox “ON” and the analyzer will execute measuring along with the orders set in the PC. - On Line Batch Check this checkbox “ON” and the analyzer will execute measuring using the orders transferred by the Host computer (without inquiring the Host computer), and the measurement result will be transferred to the Host computer. - ON Line Real time Check this checkbox “ON” and the analyzer will read the barcode label of the sample and inquire to the Host computer each time. The measurement result will be transferred to the Host computer. When measurement starts, the analyzer will check the connection setting to the host computer. The default setting is “Off Line”. 																				
(2)	<p>Host Rerun Mode This will setup the Host Rerun mode. This setup is only available when the checkbox of “On Line Real time” of “Host Communication Mode” is set “ON”;</p> <ul style="list-style-type: none"> - No Re-query Host Rerun will not be executed. - Enable Re-query Host Rerun will be executed only in the case that the Host computer requires rerun. - Enable Host Rerun Host Rerun will be executed. 																				
(3)	<p>Host Communication Define the communication configuration methods of the connection to the Host computer from pull-down menu.</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Communication configurations</th> <th>Communication configuration methods</th> <th>Defaults</th> </tr> </thead> <tbody> <tr> <td>Baud Rate</td> <td>19200, 9600, 4800, 2400, 1200, 300 bps</td> <td>19200</td> </tr> <tr> <td>Date Bit</td> <td>7, 8 bits</td> <td>8 bits</td> </tr> <tr> <td>Stop Bit</td> <td>1, 2 bit(s)</td> <td>2 bits</td> </tr> <tr> <td>Parity Bit</td> <td>None, Even, Odd</td> <td>None</td> </tr> <tr> <td>Protocol (E1381)</td> <td>Normal, No Handshake</td> <td>Normal</td> </tr> </tbody> </table>	Communication configurations	Communication configuration methods	Defaults	Baud Rate	19200, 9600, 4800, 2400, 1200, 300 bps	19200	Date Bit	7, 8 bits	8 bits	Stop Bit	1, 2 bit(s)	2 bits	Parity Bit	None, Even, Odd	None	Protocol (E1381)	Normal, No Handshake	Normal		
Communication configurations	Communication configuration methods	Defaults																			
Baud Rate	19200, 9600, 4800, 2400, 1200, 300 bps	19200																			
Date Bit	7, 8 bits	8 bits																			
Stop Bit	1, 2 bit(s)	2 bits																			
Parity Bit	None, Even, Odd	None																			
Protocol (E1381)	Normal, No Handshake	Normal																			
(4)	<p><Alarm Sound></p> <p><input type="checkbox"/> Enable Sound Sampling Complete When you set “ON” the checkbox, the setting will make the alarm sound effective after the completion of the measurement at the end of the ASP circulation. The default setting is set “ON”.</p> <p>Enable Error Level You can set the level of the alarm sound, making it effective. Select error levels from pull-down menu.</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Levels</th> <th>Select methods</th> <th>Descriptions</th> <th>Alarm Levels</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Off</td> <td>Ineffective</td> <td></td> </tr> <tr> <td>2</td> <td>Emergency Stop</td> <td>Emergency stop</td> <td>2 is effective</td> </tr> <tr> <td>3</td> <td>Sampling Stop</td> <td>Sampling Stop</td> <td>2,3 are effective</td> </tr> <tr> <td>4</td> <td>Unit Alarm</td> <td>Warning</td> <td>2,3 and 4 are effective</td> </tr> </tbody> </table> <p>An alarm sound will be played only in the case that the level of the alarm you selected is emerging.</p>	Levels	Select methods	Descriptions	Alarm Levels	1	Off	Ineffective		2	Emergency Stop	Emergency stop	2 is effective	3	Sampling Stop	Sampling Stop	2,3 are effective	4	Unit Alarm	Warning	2,3 and 4 are effective
Levels	Select methods	Descriptions	Alarm Levels																		
1	Off	Ineffective																			
2	Emergency Stop	Emergency stop	2 is effective																		
3	Sampling Stop	Sampling Stop	2,3 are effective																		
4	Unit Alarm	Warning	2,3 and 4 are effective																		

3.5 System

3.5.1 Setup

Chapter 3 Explanation of Menus

No.	Descriptions
(4)	Alarm Volume Define the alarm sound volume. Select the number of volume sound from pull-down menu. - Off: Speakers "Off" - 1~9: Volume Sounds ("9" is the maximum) The default setting is "3".
(5)	<Sample> Sample number increment Select an auto generating method of sample numbers. Select a type of increment from pull-down menu. - Numeric only: - Alphanumeric (Upper case) - Alphanumeric (Upper and lower cases) Upper sample number <input type="text"/> Length <input type="text"/> Specify the upper digit numbers of the sample barcode and the number of its whole digits. Based on the specified contents, the setting number will be complemented in the upper digits at order registration. The input range (Max 12 digits) will work with the value of Length and blank will be ineffective. This will complement some digits that the digits of Length were subtracted from the SID digits that were input order. (E.g.) Upper sample number: <input type="text" value="123456789"/> Length: <input type="text" value="12"/> When the "SID" of the tab menu [Run (F5)] – [Selection] is 001, the barcode will be "123456789001" because the upper nine digits will be supplied. [Auto generating digits for sample number] = [whole digits] – [digits of the upper sample number] Sample Barcode <input type="radio"/> Enable <input type="radio"/> Disable Enable; When this checkbox is set "ON", the setting will be changed as using ASP's barcode reader. When you select this, the barcode type of UPC (JAN), NW7, Code39, ITF and Code128 can be applied. And it is applicable either with or without sample barcodes. Disable; When this checkbox is set "ON", the setting will be changed as not using ASP's barcode reader. This case is only available without sample barcodes.

No.	Descriptions																																				
(5)	<p>Barcode type 1-4 Define barcode types to use in samples. (5 types settings are available.) When the “Enable” checkbox of Sample Barcode is set “ON”, the sample barcode can be applied. Select a barcode type from pull-down menu.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Types</th><th style="text-align: center;">Selection items</th><th style="text-align: center;">Details</th></tr> </thead> <tbody> <tr> <td rowspan="2">UPC(JAN)</td><td style="text-align: center;">Blank</td><td>Not used</td></tr> <tr> <td style="text-align: center;">W/ Check Digit</td><td>Used with check digits</td></tr> <tr> <td rowspan="3">NW7</td><td style="text-align: center;">Blank</td><td>Not used</td></tr> <tr> <td style="text-align: center;">W/ Check Digit</td><td>Used with check digits</td></tr> <tr> <td style="text-align: center;">W/o check digit</td><td>Used without check digits</td></tr> <tr> <td rowspan="3">Code39</td><td style="text-align: center;">Blank</td><td>Not used</td></tr> <tr> <td style="text-align: center;">W/ check digit</td><td>Used with check digits</td></tr> <tr> <td style="text-align: center;">W/o check digit</td><td>Used without check digits</td></tr> <tr> <td rowspan="3">ITF</td><td style="text-align: center;">Blank</td><td>Not used</td></tr> <tr> <td style="text-align: center;">W/ check digit</td><td>Used with check digits</td></tr> <tr> <td style="text-align: center;">W/o check digit</td><td>Used without check digits</td></tr> <tr> <td rowspan="3">Code128</td><td style="text-align: center;">Blank</td><td>Not used</td></tr> <tr> <td style="text-align: center;">W/ check digit</td><td>Used with check digits</td></tr> <tr> <td style="text-align: center;">W/o check digit</td><td>Used without check digits</td></tr> </tbody> </table> <p>When you define barcode types as duplicate, the following message will be pop-upped on Save button's click.</p> <p>“BCR Type is over lapped.”</p> <p>Then clicking the OK button, it retuns to before.</p>	Types	Selection items	Details	UPC(JAN)	Blank	Not used	W/ Check Digit	Used with check digits	NW7	Blank	Not used	W/ Check Digit	Used with check digits	W/o check digit	Used without check digits	Code39	Blank	Not used	W/ check digit	Used with check digits	W/o check digit	Used without check digits	ITF	Blank	Not used	W/ check digit	Used with check digits	W/o check digit	Used without check digits	Code128	Blank	Not used	W/ check digit	Used with check digits	W/o check digit	Used without check digits
Types	Selection items	Details																																			
UPC(JAN)	Blank	Not used																																			
	W/ Check Digit	Used with check digits																																			
NW7	Blank	Not used																																			
	W/ Check Digit	Used with check digits																																			
	W/o check digit	Used without check digits																																			
Code39	Blank	Not used																																			
	W/ check digit	Used with check digits																																			
	W/o check digit	Used without check digits																																			
ITF	Blank	Not used																																			
	W/ check digit	Used with check digits																																			
	W/o check digit	Used without check digits																																			
Code128	Blank	Not used																																			
	W/ check digit	Used with check digits																																			
	W/o check digit	Used without check digits																																			
(6)	<p><Others></p> <p>Clot detection sensitivity Specify the sensitivity level of clot detect function from “0” to “3”. “0” means invalid and “3” will be the most sensitive.</p> <p><input type="checkbox"/> Disable extrapolated results Specify the conversion method of concentration when the result exceeds the calibration curve. - When this checkbox is set “ON”, calibration curve will be extended to the range of the S1 or Sn, and then convert it concentration. - When this checkbox is set “OFF”, results exceed the calibration curve will be S1 (Min.) or Sn (Max.). The default setting is set “ON”.</p> <p><input type="checkbox"/> Enable Auto Scan for RCU Specify whether the RCU scan will be carried out or not. - When this checkbox is set “ON”, RCU scan will start automatically at the case of the lid of RCU’s open and close. The default setting is set “ON”.</p> <p><input type="checkbox"/> Enable Check of ASP Temp - When this checkbox is set “ON”, temperature for ASP will be monitored at a round start. The default setting is set “ON”.</p>																																				

Chapter 3 Explanetion of Menus

No.	Descriptions
(6)	<p><input type="checkbox"/> Enable Check Inventory - When this checkbox is set “ON”, remaining reagents volume will be cheked at a round start. The default setting is “ON”.</p> <p><input type="checkbox"/> Full compliance with ASTM rules Specify whether the data transfer format to the Host computer applies to ASTM rules or not. - When the checkbox is set “ON”, ASTM rules will be applied. The rerun flags, QC measurement results and QC flags will not be transferred and method-to-method calculation results will be transferred. - When the checkbox is set “OFF”, ASTM rules will not be applied. The rerun flags, QC measurement results and QC flags wil be transferred. The default setting is “ON”</p> <p><input type="checkbox"/> ASTM ISE Separation When ordering ISE from the Host computer, select whether ISE orders need to be separated or not. When the checkbox is set “ON”, ISE orders will be separated to Na, K and Cl.</p> <p><input type="checkbox"/> Lamp voltage control off When this checkbox is set to “OFF”, the halogen lamp voltage is set to “Low” in some mode (when this checkbox is set to “ON”, the halogen lamp voltage is set to “High”) as follows: <ol style="list-style-type: none">1. start up2. after measurement3. after maintenance sequence (at [Mainte (F10)] – [Sequence])4. after “Sleep Mode” (both starting up from “Sleep Mode” & canceling “Sleep Mode”)</p> <p><input type="checkbox"/> Initial Result of Rerun When this check box is set to “ON”, first (initial) results will not be transferred to Host Computer in transfferring rerun results.</p>
(7)	<p>Reagent Code for RPT (S) Specify the reagent code and name of the special wash solutions for 1: RPT1 and 2: RPT2 washing. Select the reagent from pull-down menu or on the reagent list registered by pressing Space key. Reagent codes registered on the reagent registration screen of the tab menu [Reagent] will be displayed on the list box.</p> <p>Regent Code for CWP - R1: R1 Reagent - R2: R2 Reagent - Wash: Wash Solution</p> <p>Remaining test calculation: <input type="radio"/> Reagent Code <input type="radio"/> Reagent Lot When the checkbox is set “ON”, specify the calculation method for number of available measurement. - Reagent Code: Calculate the number with the sum of remaining per each reagent code. - Reagent Lot: Calculate the number with the sum of remaining per each reagent lot that belongs same reagent code. In the tab menu [Run (F5)] – [Inventory], specify a calculation method for the number of available measurement tests that is calculated from all of the regents registered on “Total”.</p>

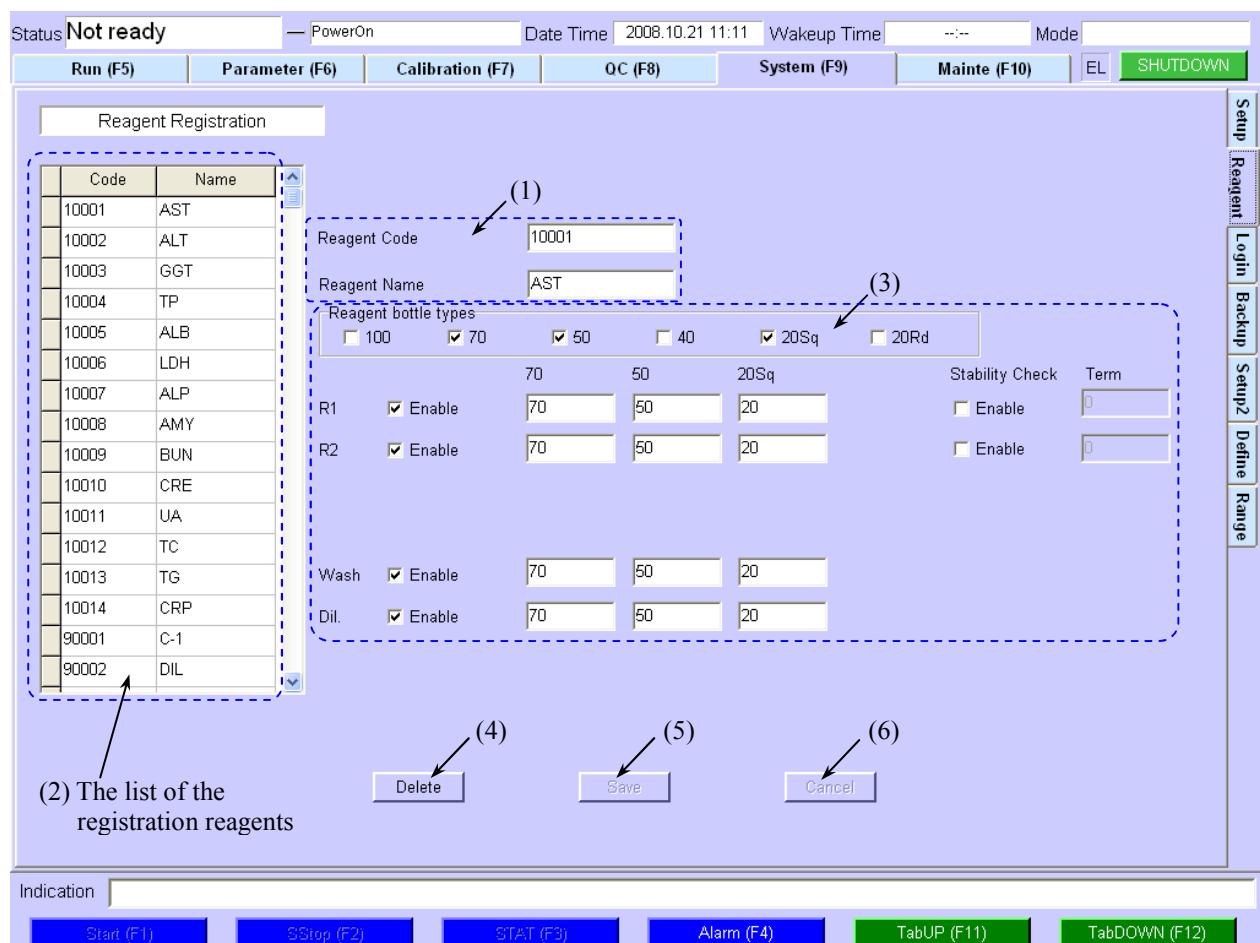
Chapter 3 Explanation of Menus

No.	Descriptions
(8)	<p>Live Print out</p> <p><input type="checkbox"/> Enable When this Enable checkbox is “ON”, an auto- printing in measuring will be executed. Select a printing form from pull-down menu. - Nomal - Reprt</p> <p><input type="checkbox"/> Enable Live QC Report When the Enable checkbox is “ON”, an auto-printing in QC measuring will be executed. QC report will be printed out per method for every sample after QC measurement data print out.</p> <p>Printout Header</p> <p>1 <input type="text"/> : This header of a list can be edited within 20 digits. 2 <input type="text"/> : This header of a list can be edited within 50 digits. 3 <input type="text"/> : This header of a list can be edited within 50 digits. 4 <input type="text"/> : This header of a list can be edited within 50 digits. Input letters here will be printed on the list as header.</p>
(9)	<p>Save This Save button will be available when you edit the setting and click this button to save the data. After clicking this Save button, this button will be masked again.</p>
(10)	<p>Cancel This Cancel button will be available when you edit the setting and click this button not to save editing data. After clicking this Cancel button, this button will be masked again.</p>

3.5.2 [Reagent]:Reagent Registration

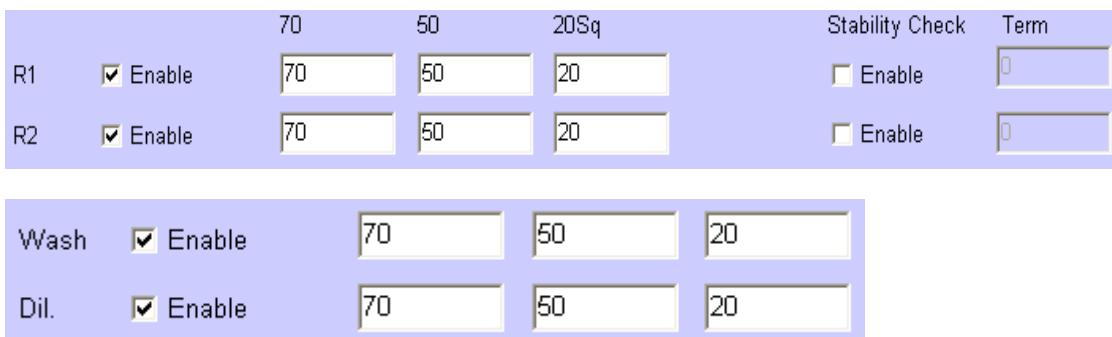
You can register the reagent codes to use in the analyzer on this screen.

Click to select the tab menu [System (F9)] – [Reagent].



No.	Descriptions
(1)	Reagent Code <input type="text"/> Input a reagent code in five numeral digits. Detail information of the code will be displayed when the code you input matches one of the codes in the reagent list. When a new code is input, all setting items will be initialized. Reagent Name <input type="text"/> Input a reagent name in alphanumeric within 6 digits.
(2)	<The list of the reagent registration> Code, Name Reagent names and codes registered will be displayed.

Chapter 3 Explanation of Menus

No.	Descriptions
(3)	<p>Specify whether you use each reagent bottle (R1, R2, Wash solution, and Dilution) or not. Input the initial volume of the each bottle.</p> <p>To make the bottles effective, you need to check the “ <input type="checkbox"/> Enable” checkbox for R1 / R2 / Wash / Dil . Input full volume of each bottle as an initial volume (mL).</p>  <p>The screenshot shows four sets of input fields for reagent bottles. Each set includes a checkbox labeled "Enable" (checked), a text input field with the value "70", and two smaller text input fields with values "50" and "20". To the right of these are two more checkboxes: "Stability Check" (unchecked) and "Term" (unchecked). The sets are labeled R1, R2, Wash, and Dil.</p> <p>Stability Check <input type="checkbox"/> Enable - When the checkbox is set “ON”; stability check will be effective for the reagent. Reagents will be considered as “expired” when reagents are used over this stability term. - When the checkbox is set “OFF”; stability check will not be effective.</p> <p>Term Input the number of the days in <input type="text"/> for a reagent stability term (days) between “0” and “99”</p>
(4)	<p>Save Click this button to save editing details. When you edit setting, this Save button will be available. After clicking Save button, this button is masked again. Note that you need to save those settings for each reagent one by one.</p>
(5)	<p>Cancel Click this button not to save editing data. When you edit setting, this Cancel button will be available. After clicking Cancel button, this button is masked again.</p>
(6)	<p>Delete Click this button to delete settings. Click the item that you want to delete on the registration list and then click this Delete button so that selecting item will be deleted. When you click Save button, the following warning message will be displayed. (For specifying a delete, you have to save the setting.)</p> <p style="text-align: center;">“Warning! Selected reagent is deleted. the information of reagents on the Run-Inventory screen is also deleted. OK?”</p> <p>It will execute the delete by clicking the OK button, and stop the delete by clicking the Cancel button.</p>

3.5 System

3.5.2 Login

3.5.3 [Login]:Login / Logout and Program Versions

This tab screen will serve you the operation of login and logoff, and show the program versions on each CPU used in the analyzer.

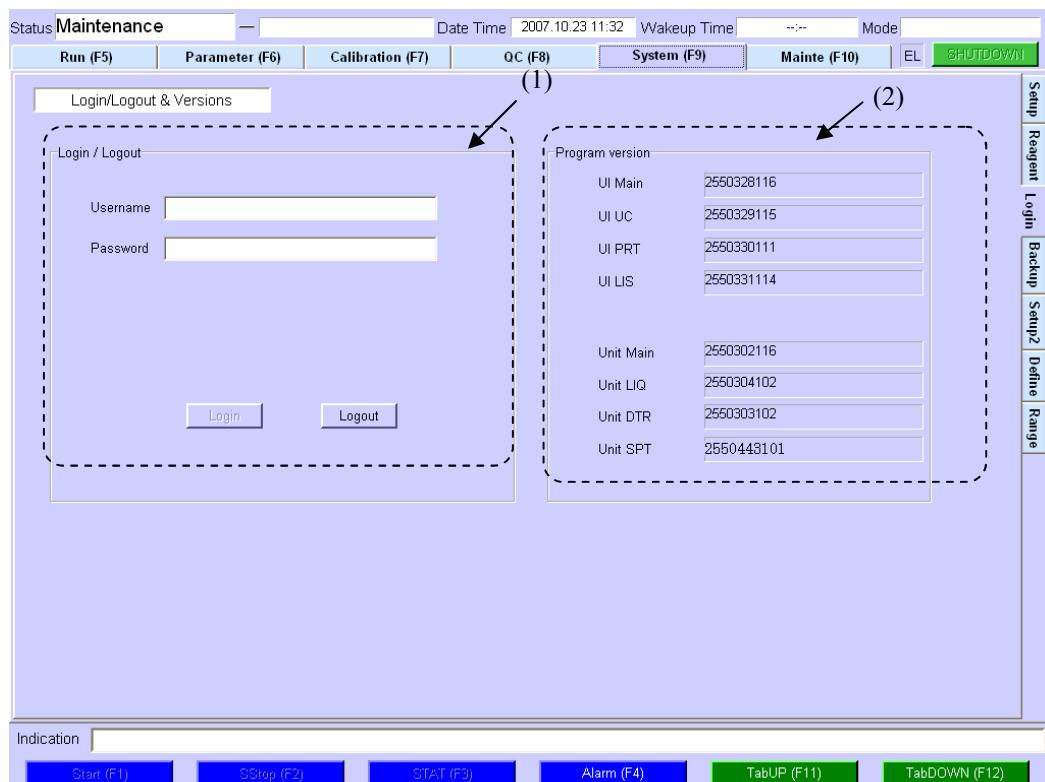
There are four levels of the privileges of access to enter the analyzer such as Level1 (L1), Level2 (L2), Level3 (L3) and Engineer level (EL). (Refer to “3.6.8 [Password]”.)

Proper password is necessary to login. Passwords can be definable depending on login levels.

- General User (L1): For the routine measurement work consisting of test order settings, normal sample measurement, QC measurement, calibration measurement, registration of patients, registration of print orders, display / printing of measurement results, report printing, etc.
- Supervisor (L2): For the general User (L1) work and moreover the settings of reagent / analysis conditions, setup the Calibration / QC, test order setting, deletion of measurement results, etc.
- Manager (L3): For the supervisor (L2) work and moreover the access of [Sequence], [Sensor] and [Perform] of [Mainte (F10)].
- Engineer (EL): For the maintenance work consisting of management of total times, unit adjustment, dispensing correction, temperature adjustment, etc.
And also this level user is allowed to access all menus.
- (- Non-login: Basically, this level user is only possible to view the contents of each menu.)

As for the program versions, this analyzer will not work properly unless those program versions are not displayed on the screen. Therefore, you are requested to look up those versions and confirm them.

(The version numbers shown on the screen may be different according to the programs installed.) Click the tab menu [System (F9)] – [Version] to confirm versions.



3.5 System 3.5.2 Login

Chapter 3 Explanation of Menus

No.	Descriptions
(1)	<p>Login / Logout</p> <p>Username <input type="text"/></p> <p>Password <input type="password"/></p> <p>Input Username and Password and click Login button to login to the analyzer. After that, Login button will be ineffective and Logout button will become effective.</p>
(2)	<p><Program version></p> <p>UI Main Number of version of software for user I/F processing will be displayed.</p> <p>UI UC Number of version of software for communications processing both of the PC and the analyzer will be displayed.</p> <p>UI PRT Number of version of software for live printing processing will be displayed.</p> <p>UI LIS Number of version of software for communication processing both of the Host computers and the communications processing will be displayed.</p> <p>Unit Main Number of version of main software for the analyzer will be displayed.</p> <p>Unit LIQ Number of version of software for a process of detecting of the liquid level will be displayed.</p> <p>Unit DTR Number of version of main software for photometric processing will be displayed.</p> <p>Unit SPT Number of version of main software for SPT will be displayed.</p>

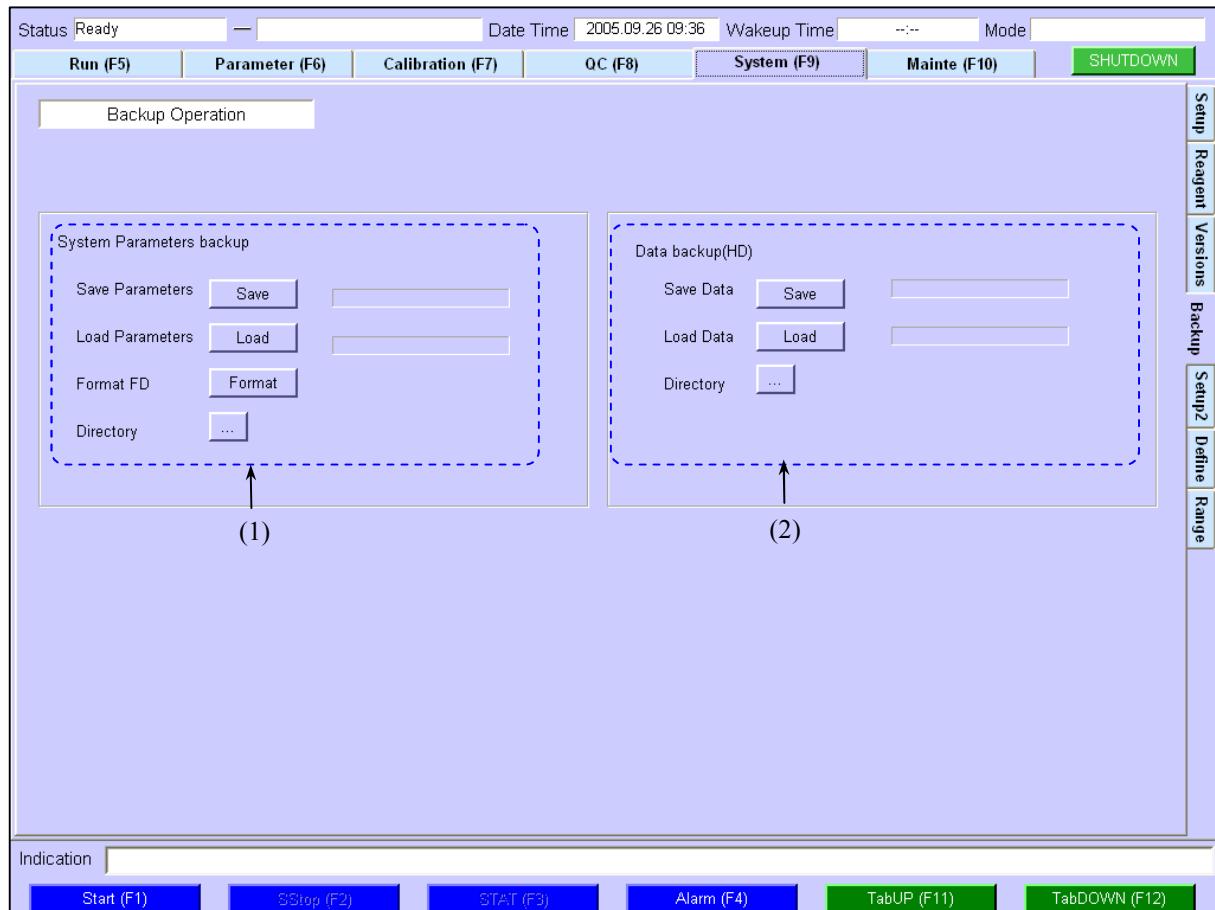
3.5 System 3.5.2 Login

3.5.4 [Backup]:Backup

You can save measurement conditions, data and parameters to HDD or external devices such as FDD or USB memory.

This function will backup databases of the analyzer in HDD and restore those databases to the HDD.

Click the tab menu [System (F9)] – [Backup] for this function.



No.	Descriptions
(1)	<p><System Parameters backup></p> <p>Save Parameters Save This will backup a database for system parameters. Depending on the database volume, the database will be saved on multi FDs. Click Save button and the following warning message will be displayed.</p> <p style="text-align: center;">“Warning! Overwriting FD with system parameter.”</p> <p>Click OK button to save the parameters on FD. If the backup is saved on several FDs, the following message will be displayed.</p> <p style="text-align: center;">“This FD has been full. Please insert a new FD.”</p> <p>Insert another floppy disk and click OK button, then the rest of the parameters will be nsaved.</p> <p>Load Parameters Load This will restore the parameters from the backup FD. The following warning message will be displayed after clicking Load button.</p> <p style="text-align: center;">“Warning! Loading system parameters from FD will overwrite the settings in the analyzer.”</p> <p>Click OK button to start to restore parameters to the PC. If the multi backups FDs are used, the following message will notify you.</p> <p style="text-align: center;">“Please insert the next FD.”</p> <p>Insert the FD and click OK button, then the rest of the parameters will be saved.</p> <p>Format FD Format This will initialize FD. Insert FD in the PC to initialize and click Format button, then the following warning message will be displayed.</p> <p style="text-align: center;">“Warning! Formatting the FD will delete all contents stored in the FD.”</p> <p>Initializing the FD will start when you click OK button.</p> <p>Directory ... Specify directory to save and load. Click ... button and select the saving destination directory or the load directory (“DBBack”).</p> <ul style="list-style-type: none"> - Click Save button and the “DBBack” file will be created in the directory you selected and then the data will be saved. - Click Load button and all of the data will be loaded from the directory in which they are kept as the “DBBack” file.

3.5 System

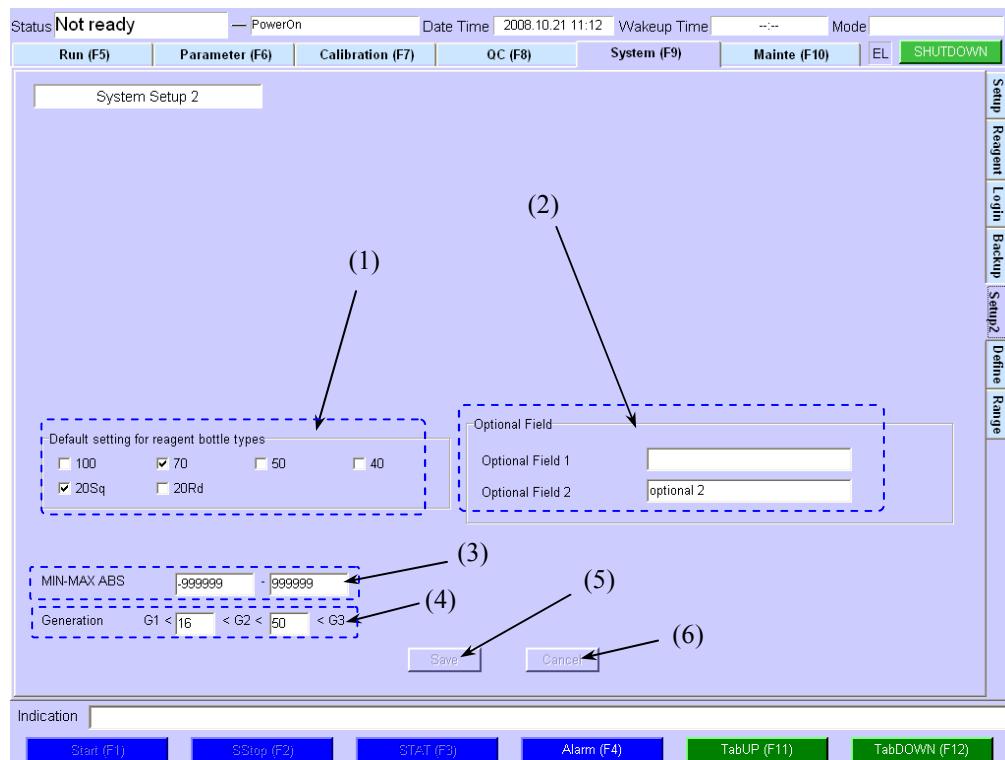
3.5.4 Backup

No.	Descriptions
(2)	<p><Data backup (HD)></p> <p>Save Data <input type="button" value="Save"/></p> <p>This will backup a database for the analyzer on the HDD. Click <input type="button" value="Save"/> button and the database will be checked whether the database contains any damage. - When DB check is “OK”, the following warning message will be displayed;</p> <p style="text-align: center;">“Warning! any data to existing be over written. OK?”</p> <p>Click <input type="button" value="OK"/> button to execute the backup. - When DB check is ‘NG’, the following warning message will be displayed and will cancel save process;</p> <p style="text-align: center;">“Warning! a database is corrupted. Recovery with backup data required.”</p> <p>Load Data <input type="button" value="Load"/></p> <p>This will restore backed up data to the analyzer. Click <input type="button" value="Load"/> button and the following warning message will be displayed;</p> <p style="text-align: center;">“Warning! Retrieving the data will over write existing data. OK ?”</p> <p>Click <input type="button" value="OK"/> button and all of the data will be loaded from a directory selected.</p> <p>Directory <input type="button" value="..."/></p> <p>Specify a directory to save and load. Click <input type="button" value="..."/> button and select a directory to save and the load (“DBBack”). - Click <input type="button" value="Save"/> button and the “DBBackupsave” file will be created in a directory selected, then the data will be saved. - Click <input type="button" value="Load"/> button and all of the data will be loaded from the directory in which they are kept as the “DBBackupsave” file.</p>

3.5.5 [Setup 2]:Technical Range and the Registration for Patient Generations

You can define Default setting for reagent bottle types, the limit ABS for technical range, the ages for patient 3 generations and titles of “Reference 1” & “Reference 2” on [Run (F5)] – [Patient].

Click the tab menu [System (F9)] – [Setup2] for these settings.

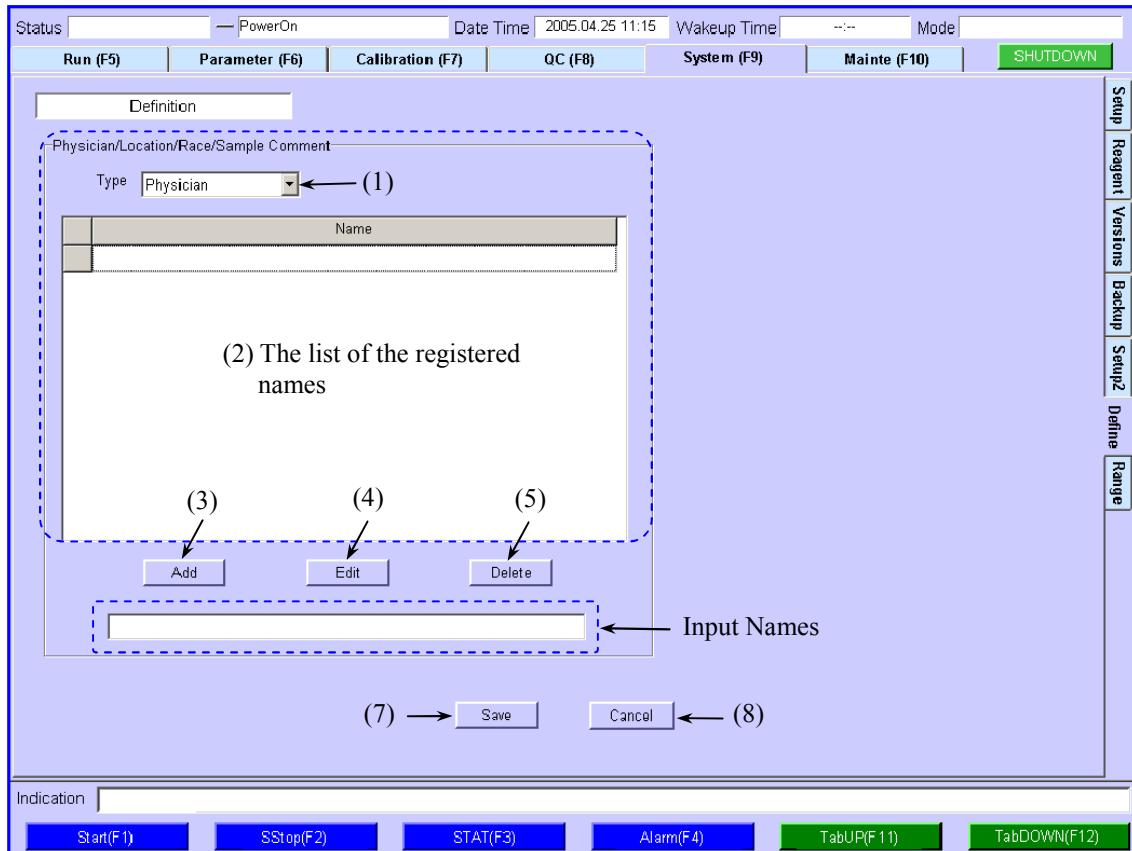


No.	Descriptions
(1)	Default setting for reagent bottle types Define default setting for reagent bottle types. This will work for a default setting of “Reagent bottle types” on [System] – [Regant].
(2)	MIN-MAX ABS <input type="text"/> - <input type="text"/> Define the limit ABS for technical range. Define the upper and lower limit for the technical range, which is photometry, to be able to confirm of credibility for its result. Input the value between –999,999 and 999,999.
(3)	Generation G1 < <input type="text"/> < G2 < <input type="text"/> < G3 Define the ages for patient 3 generations. Input the ages for the patient’s 3 generation (G1, G2, G3) within 1 to 99.
(4)	Optional Field Define titles of “Reference 1” & “Reference 2” on [Run (F5)] – [Patient] in alphanumeric within 10 digits.
(5)	Save When you edit the setting, this button will be available and the editing data will be saved.
(6)	Cancel It will restore the data as before.

3.5.6 [Define]:Patient Information (Attending Physician and Location) Define

You can input some comments on the information of patients such as attending physicians, addresses or races.

Click the tab menu [System (F9)] – [Define] for these settings.

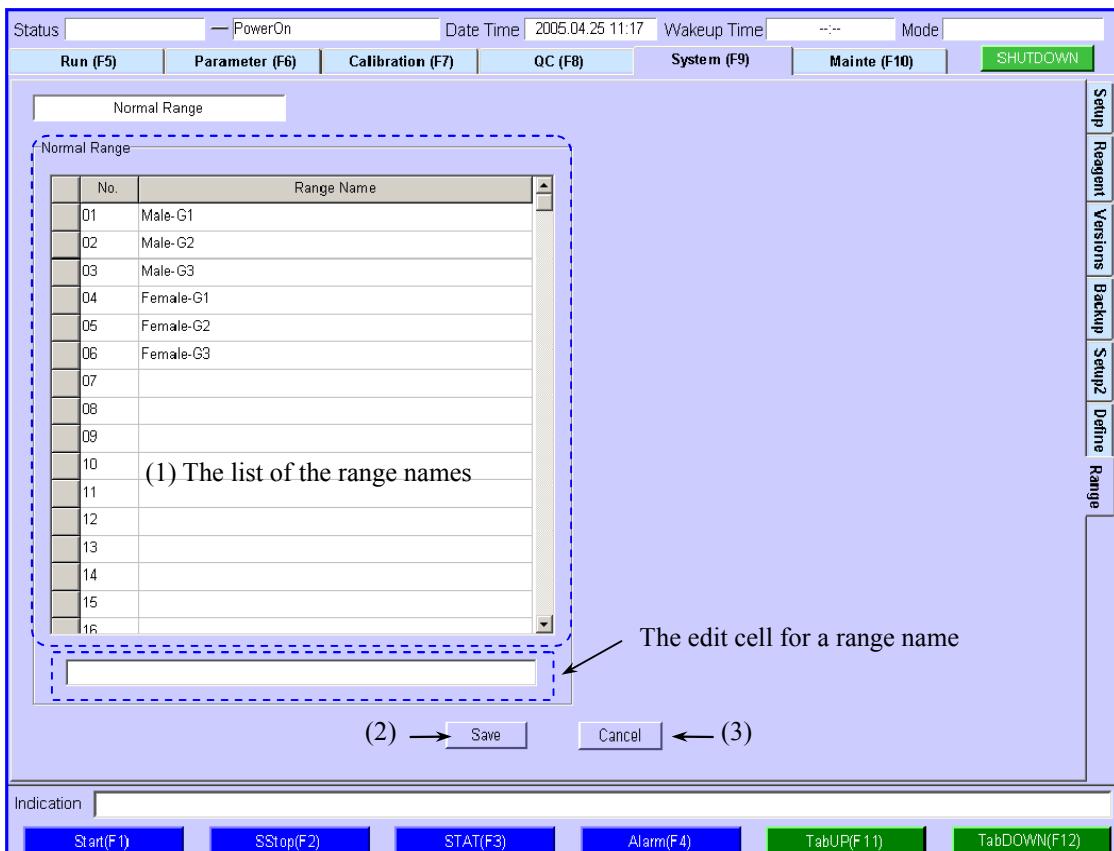


No.	Descriptions
(1)	<p><Physician / Department / Race / Sample Comment / Ward / Classification></p> <p>Type</p> <p>You can select the following edit items from pull-down menu. When you select one of them, the selecting item will be displayed on the list of the registered names.</p> <ul style="list-style-type: none"> - Physician - Department - Race - Sample Comment - Ward - Classification
(2)	<p><The list of the registered names></p> <p>Contents of registered names selected at Type will be displayed.</p>
(3)	<p>Add</p> <p>Click this Add button and a mask of the input name cell will be released, and you can add a record.</p>
(4)	<p>Edit</p> <p>Click the number of the line you are going to edit on the list and click this Edit button so that a mask of the name input cell will be released and then you can edit in it.</p>
(5)	<p>Delete</p> <p>Click the number of the line you are going to delete on the list and click this Delete button so that the selecting lines will be deleted.</p>

3.5.7 [Range]:Registration of Normal Range Names

Fixed range names for each generation and an optional edit list will be displayed and you can edit range names in optional edit (No. 7-50).

Click the tab menu [QC (F9)] – [Range] for these settings.



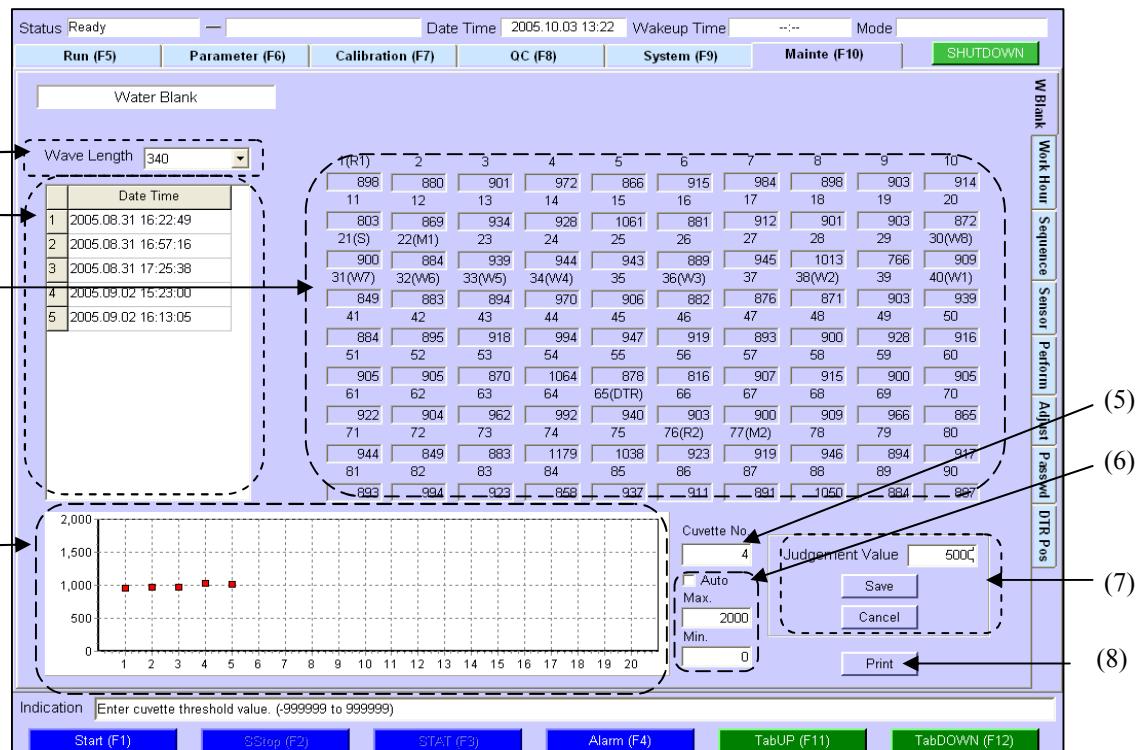
No.	Descriptions
(1)	No. (Registration Numbers) / Range Name Each generation of a range name will be displayed and you can edit as an option. No. Range Name 01 Male-G1 02 Male-G2 03 Male-G3 04 Female-G1 05 Female-G2 06 Female-G3 07 XXXXXXXX ↑ 50 XXXXXXXX <div style="margin-left: 20px;"> Fixed <div style="display: inline-block; border-left: 1px solid black; width: 10px; margin-left: 10px;"></div> Optional </div> Regarding the optional edit (No. 7-50), click the number of the line you are going to edit on the list and you will see the edit cell for the range name in the blow so you can input the name in the cell, <input type="text"/> , in alphanumeric within 10 digits.
(2)	Save Click this button to save editing data.
(3)	Cancel Click this button not to save editing data.

3.6 [Mainte (F10)]:Maintenance Menu

3.6.1 [W Blank]:Result of Water Blank

L1 and Non-login user is not allowed full access in this menu. (Refer to “3.6.8 [Password]”.)

Clean level of each cuvette can be seen based on the result from the water blank measurement.

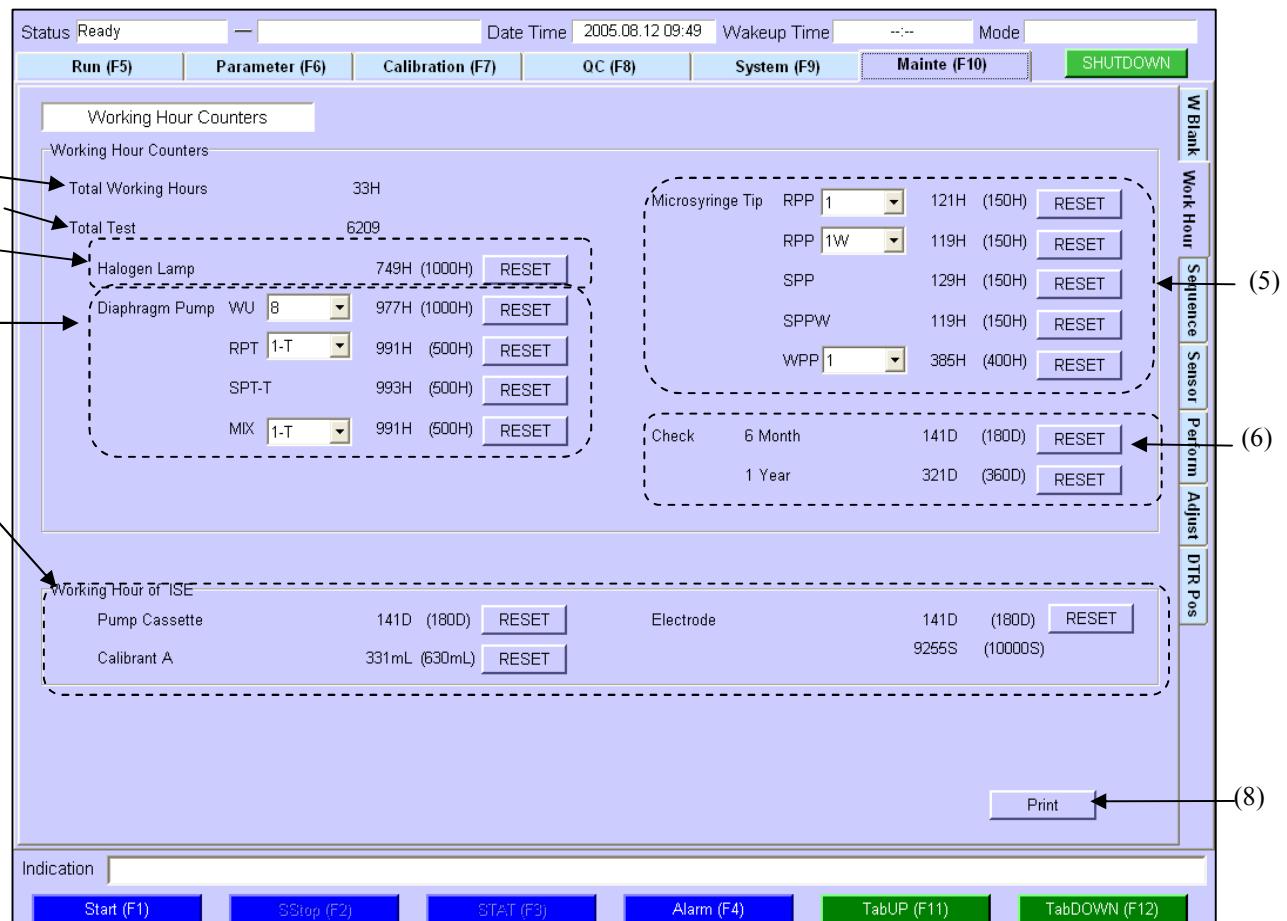


No.	Descriptions
(1)	Wave Length Select a wavelength to display the result of water blank measurement.
(2)	Date time Select a measurement date of water blank measurement for display. The latest 20 times can be stored.
(3)	<Water blank data> You can confirm a value of water blank at a selected wavelength of each cuvette. Data that exceed the threshold value at the selected wavelengths will be displayed in red and data which exceeds that of other wavelengths will be displayed in yellow.
(4)	<Graph for water blank data> Click water blank value of each cuvette and its water blank data in the latest 20 times will be displayed in graph chart. (X axis: the number of times and Y axis: the absorbance value)
(5)	Cuvette No. Specify the number of the cuvette for display in the data graph for water blank between 1 and 90.
(6)	Auto When this checkbox is “ON”, an Auto scale will be applied for the graph. When this checkbox is set to “OFF”, input a value in Max and Min. as the range of Y-axis values. This checkbox is set to “ON” as default.
(7)	Judgment Value Specify a threshold value (or judgment value) for the selecting wavelength between -999,999 and 999,999. Click Save button to save its judgment value and click Cancel button to restore previous judgment value.
(8)	Print Click this button to print out displayed water blank value.

3.6.2 [Work Hour]:Operation Check for Parts

L1 and Non-login users are not allowed full access in this menu. (Refer to “3.6.8 [Password]”.)

This will administrate work hours for each unit. You can check operation time for periodic replacement parts.



No.	Descriptions
(1)	Total Working Hours This will display the total of power-on hours on the analyzer.
(2)	Total Test This will display the total number of test on the analyzer.
(3)	Halogen Lamp This will display remainig hours of the Halogen Lamp. The calculation of the remaining hours is subtracted from 1,000 hours until 0 hours. When the remainig hours goes under 0 hours, the value will be displayed in red and after that the value will be displayed in minus. Click RESET button and the remaning hours will be cleared to the initial value. (Initial value: 1,000H and lower limit value: -9,999H)

Chapter 3 Explanation of Menus

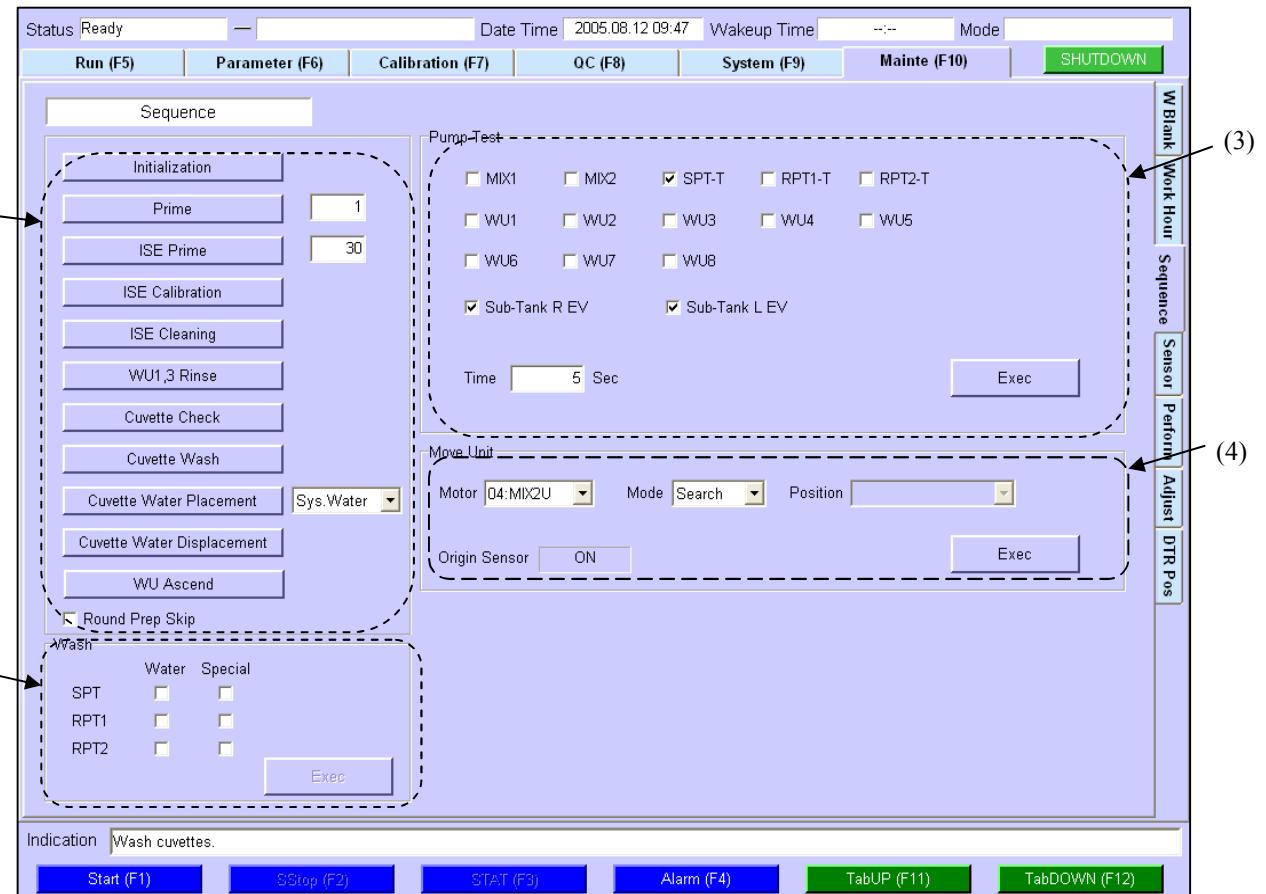
No.	Descriptions
(4)	<p>Diaphragm Pump</p> <p>This will display remaining hours of the Diaphragm Pump. The calculation of the remaining hours is subtracted from 1,000 hours until 10 hours. When this remaining hours goes under 10 hours, the value will be displayed in yellow.</p> <p>When this hours goes under 0 hours, the value will be displayed in red and after that the value will be in minus.</p> <p>Clicking RESET button and the remaining hours will be cleared to the initial value. (WU : 1,000 hours, others : 500 hours)</p> <p>WU: Working hours of WU drainage pump (Select the WU number between 1 and 8 from pull-down menu.)</p> <p>RPT: Working hours of RPT Trough supply water (Select the RPT type, 1-T or 2-T from pull-down menu.)</p> <p>SPT-T: Working hours of SPT Trough supply water</p> <p>MIX: Working hours of MIX Trough supply water (Select the MIX type, 1-T or 2-T from pull-down menu)</p>
(5)	<p>Microsyringe Tip</p> <p>This will display the remaining hours of the Microsyringe Tip. The calculation of the remaining hours for RPP, RPPW, SPP, and PPW is subtracted from 150 hours and for WPP is subtracted from 400 hours.</p> <p>When this remaining hours goes under 10 hours, the value will be displayed in yellow.</p> <p>When this remaining hours goes under 0 hours, the value will be displayed in red and after that the value will be in minus.</p> <p>Click RESET button and the remaining hours will be cleared to the initial value.</p> <p>RPP: RPP Syringe Tip working hours (Switch over 1 or 2 from pull-down menu.)</p> <p>RPPW: RPPW Syringe Tip working hours (Switch over 1W or 2W from pull-down menu.)</p> <p>SPP: SPP Syringe working Tip hours</p> <p>SPPW: SPPW Syringe working Tip hours</p> <p>WPP: WPP Syringe Tip working hours (Switch over between 1 and 8 from pull-down menu.)</p>
(6)	<p>Check</p> <p>This will display the remaining days for 6 months (half-a year) or 1-year (annual) regular maintenance.</p> <p>The calculation of this remaining days is subtracted from 6 months (or 180 days) or 1 year (or 360 days; one month as 30 days).</p> <p>When this remaining days goes under 0 days, this value will be displayed in red and after that the value will be displayed in minus.</p> <p>Click RESET button and the remaining days will be cleared to the initial value.</p>
(7)	<p>Working Hours of ISE</p> <p>Pump Cassette: This will show remaining days for the ISE pump cassettes.</p> <p>Calibrant A: This will show remaining volume of the solution Calibrant A.</p> <p>Electrodes: This will show remaining days / tests for ISE electrodes.</p> <ul style="list-style-type: none"> - 180D: Subtracted from 180 days. When this remaining days goes under 0 days, this value will be displayed in red and after that this value will be displayed in minus - 10000S: Subtracted from 10,000 tests. When this remaining tests goes under 0 tests, this value will be displayed in red and after that this value will be displayed in minus <p>Click RESET button and the remaining days and tests will be cleared to the initial value.</p>
(8)	<p>Print</p> <p>Click this button to print out the information of working hours.</p>

Chapter 3 Explanation of Menus

3.6.3 [Sequence]:Unit Tests

L1, L2 and Non-login users are not allowed full access in this menu. (Refer to “3.6.8 [Password]”.)

This will execute the operation check and nozzle washing for this analyzer and each unit.



No.	Descriptions
(1)	<p><Sequence operation></p> <p>Initialization Click this button and each unit will return to the home position.</p> <p>Prime Click this button and tube will be filled with system water. This prime will be executed by the number of times specified in the <input type="text"/>.</p> <p>ISE Prime Click this button and tube in the ISE unit will be filled with Calibrant A. This ISE prime will be executed by the number of times specified in the <input type="text"/>.</p> <p>ISE Calibration 2-point calibration with the ISE calibrator (Calibrant B) will be executed. This operation should be executed before measurement in a day.</p> <p>ISE Cleaning Click this button and ISE electrodes' sample paths and tubing will be cleaned with the ISE cleaning solution. This operation will be usually executed after measurements once in a day. Also this ISE cleaning is recommended to execute in every 50 samples a day. When there are more than 50 samples in a day, this ISE Cleaning is recommended to execute in every 8 hours. If you want to continue measuring, you need to execute ISE Prime more than 10 times and take more than 30 minutes interval for next measurement.</p>

3.6 Mainte

3.6.3 Sequence

Chapter 3 Explanation of Menus

No.	Descriptions
	<p>WU1,3 Rinse Click this button to fill the WU1 and WU3 lines by system water because wash solutions' crystals may adhere inside of tubing, nozzles and filters. Those lines will be filled with system water automatically at the end of every round.</p> <p>Cuvette Check Click this button to execute a water blank measurement and determine whether a condition of the cuvette is OK or NG. All cuvettes will be measured with all wavelengths and you can see the result in the tab menu [W Blank].</p> <p>Cuvette Wash Click this button to execute the cuvette wash.</p> <p>Cuvette Water Placement Click this button to fill system water or wash solutions in cuvettes. You can prevent cuvettes from adhering dusts or garbage before system suspension. (Select "Sys. Water" or "Wash Bottle" on the pull-down menu.)</p> <p>Cuvette Water Displacement Click this button to drain wastewater or wash solutions from cuvettes.</p> <p>WU Ascend / WU Descend Click this button and WU unit moves to upper direction after initialization of each unit and the button will become "WU Descend". Then you can easily practice the WU nozzles cleaning. After cleaning, click the button [WU Descend] to return WU Unit to initial position.</p> <p>Round Rep Skip When this check box is set to "ON", the analyzer will skip preparation process at the round start.</p>
(2)	<p><Nozzle washing sequence></p> <p>SPT Click this check box and you can select "Water" or "Special" for the SPT wash.</p> <p>RPT1 Click this check box and you can select "Water" or "Special" for the RPT1 washes.</p> <p>RPT2 Click this check box and you can select "Water" or "Special" for the RPT2 wash</p> <p>Exec Click this button and nozzle wash sequence will start. When any one of the checkboxes of SPT, RPT1 and RPT2 is "ON", the [Exec] will be effective. When any one of the "Special" of SPT, RPT1 and RPT2 is "ON", press [Exec] button and a message "Requires approximately 13 minutes to complete the wash" will be displayed and select [OK] or [Cancel]. Press [OK] button to execute a wash program and press [Cancel] button not to execute a wash program.</p> <div style="border: 1px solid black; padding: 10px; background-color: #e0e0ff; margin-top: 20px;"> <p style="margin: 0;">Requires approximately 13 minutes to complete the wash.</p> <div style="text-align: right; margin-top: 10px;"> OK Cancel </div> </div>

Chapter 3 Explanation of Menus

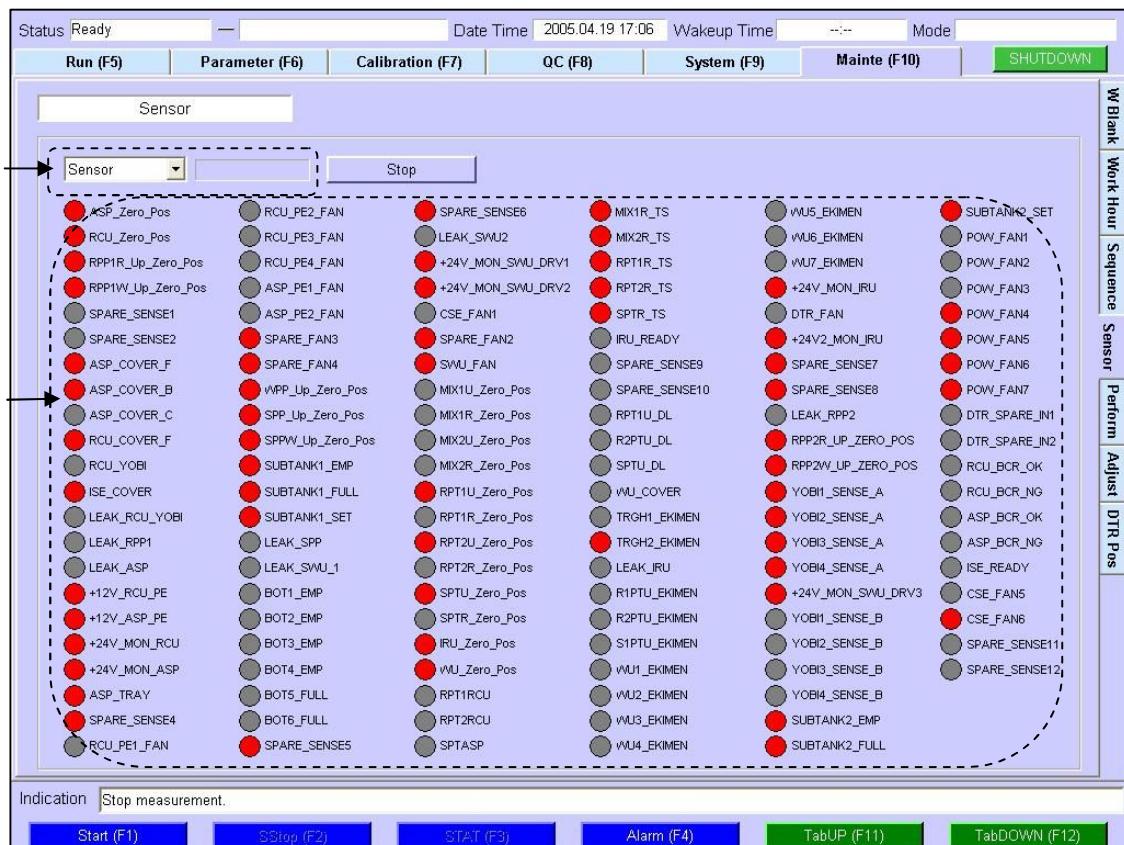
No.	Descriptions
	<p>When both “Water” and “Special” are “ON” and then you press the Exec button, a message “Specify either water or wash solution” will notify you and wash program will not be executed.</p> <div style="background-color: #e0e0ff; padding: 10px; text-align: center;"><p>Specify either water or wash solution.</p><p style="margin-top: 10px;">Ok</p></div> <p>Special washing for SPT nozzle; Washing solution for SPT nozzle should be registered in the tab menu [Run (F5)] – [Std QC] in advance.</p> <p>Special washing for RPT nozzles; Washing solutions for RPT nozzle should be registered in the tab menu [System (F9)] – [Setup] in advance.</p> <p>When any reagent codes and types are not defined, a message “The bottle code for wash solution is “0”.” will notify you on pressing Exec button and a special washing for RPT nozzles will not be executed.</p> <div style="background-color: #e0e0ff; padding: 10px; text-align: center;"><p>The bottle code for wash solution is "0".</p><p style="margin-top: 10px;">OK</p></div> <p>When the remaining volume of reagent is not enough, a message “Not enough wash solution inventory” will notify you on pressing Exec button and a special washing for RPT nozzles will not be executed.</p> <div style="background-color: #e0e0ff; padding: 10px; text-align: center;"><p>Not enough wash solution inventory.</p><p style="margin-top: 10px;">OK</p></div>

(3)	<p>Pump Test Select any of the checkboxes that you are going to execute pump units for tests. When you check more than two checkboxes, the test will be executed in order.</p> <p>Time <input type="text"/>:</p> <p>Input an execution time for pump test between 1 and 99 for the cell <input type="text"/>. (Measurement unit: seconds)</p> <p>Exec:</p> <p>Click this button and pump test will start.</p>																																																				
(4)	<p>Move Unit This will run each unit as a single operation and you can check each unit movement.</p> <p>Motor: Select a motor to be run from pull-down menu. When you select a motor, its corresponding "Mode" and "Position" will be switched over.</p> <table style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="width: 50%;">01: MIX1R</td> <td>MIX1 revolving motor</td> <td style="width: 50%;">11: SPTR</td> <td>SPT revolving motor</td> </tr> <tr> <td>02: MIX1U</td> <td>MIX1 up-and-down motor</td> <td>12: SPTU</td> <td>SPT up-and-down motor</td> </tr> <tr> <td>03: MIX2R</td> <td>MIX2 revolving motor</td> <td>13: WU</td> <td>WU up-and-down motor</td> </tr> <tr> <td>04: MIX2U</td> <td>MIX2 up-and-down motor</td> <td>14: IRU</td> <td>IRU revolving motor</td> </tr> <tr> <td>05: MIX1S</td> <td>MIX1 stirring motor</td> <td>15: WPP</td> <td>WPP washing syringe</td> </tr> <tr> <td>06: MIX2S</td> <td>MIX2 stirring motor</td> <td>16: SPP</td> <td>SPP sample syringe</td> </tr> <tr> <td>07: RPT1R</td> <td>RPT1 revolving motor</td> <td>17: ASP</td> <td>ASP revolving motor</td> </tr> <tr> <td>08: RPT1U</td> <td>RPT1 up-and-down motor</td> <td>18: RCU</td> <td>RCU revolving motor</td> </tr> <tr> <td>09: RPT2R</td> <td>RPT2 revolving motor</td> <td>19: RPP1</td> <td>RPP1 reagent syringe</td> </tr> <tr> <td>10: RPT2U</td> <td>RPT2 up-and-down motor</td> <td>20: RPP1W</td> <td>RPP1W pure water syringe</td> </tr> <tr> <td></td> <td></td> <td>21: RPP2</td> <td>RPP2 reagent syringe</td> </tr> <tr> <td></td> <td></td> <td>22: RPP2W</td> <td>RPP2W pure water syringe</td> </tr> <tr> <td></td> <td></td> <td>23: SPPW</td> <td>SPP pure water syringe</td> </tr> </tbody> </table> <p>Mode: Select a mode from Search (Search for origin) / Move (Move to the specified position) / Check (Check for drive) from pull-down menu.</p> <p>Position: This will be available when Move (Move to the specified position) is selected and a position map of a motor selected in Motor can be selected from pull-down menu.</p> <p>Origin Sensor: This will display information of detection for Origin sensor. (ON: Origin, OFF: Not Origin)</p> <p>Exec:</p> <p>Click this button to run sequences.</p>	01: MIX1R	MIX1 revolving motor	11: SPTR	SPT revolving motor	02: MIX1U	MIX1 up-and-down motor	12: SPTU	SPT up-and-down motor	03: MIX2R	MIX2 revolving motor	13: WU	WU up-and-down motor	04: MIX2U	MIX2 up-and-down motor	14: IRU	IRU revolving motor	05: MIX1S	MIX1 stirring motor	15: WPP	WPP washing syringe	06: MIX2S	MIX2 stirring motor	16: SPP	SPP sample syringe	07: RPT1R	RPT1 revolving motor	17: ASP	ASP revolving motor	08: RPT1U	RPT1 up-and-down motor	18: RCU	RCU revolving motor	09: RPT2R	RPT2 revolving motor	19: RPP1	RPP1 reagent syringe	10: RPT2U	RPT2 up-and-down motor	20: RPP1W	RPP1W pure water syringe			21: RPP2	RPP2 reagent syringe			22: RPP2W	RPP2W pure water syringe			23: SPPW	SPP pure water syringe
01: MIX1R	MIX1 revolving motor	11: SPTR	SPT revolving motor																																																		
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03: MIX2R	MIX2 revolving motor	13: WU	WU up-and-down motor																																																		
04: MIX2U	MIX2 up-and-down motor	14: IRU	IRU revolving motor																																																		
05: MIX1S	MIX1 stirring motor	15: WPP	WPP washing syringe																																																		
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07: RPT1R	RPT1 revolving motor	17: ASP	ASP revolving motor																																																		
08: RPT1U	RPT1 up-and-down motor	18: RCU	RCU revolving motor																																																		
09: RPT2R	RPT2 revolving motor	19: RPP1	RPP1 reagent syringe																																																		
10: RPT2U	RPT2 up-and-down motor	20: RPP1W	RPP1W pure water syringe																																																		
		21: RPP2	RPP2 reagent syringe																																																		
		22: RPP2W	RPP2W pure water syringe																																																		
		23: SPPW	SPP pure water syringe																																																		

3.6.4 [Sensor]:Sensor Tests

L1, L2 and Non-login users are not allowed full access in this menu. (Refer to “3.6.8 [Password]”.)

This will execute operation tests on each sensor on the analyzer.



No.	Descriptions																								
(1)	<p><The select the measurement methods></p> <p>Select a type of sensor to read its condition from pull-down menu. For example, when you select "Sensor" on the menu, the condition of sensors will be displayed on the screen.</p> <p>When you select other items on the menu, the value of a selected measurement pulse sensor will be shown on the cell box next to the pull-down menu.</p> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Names</th><th>Meanings</th></tr> </thead> <tbody> <tr> <td>Sensor</td><td>All photo sensors</td></tr> <tr> <td>SPT_PULSE</td><td>Detection sensor for the SPT liquid level</td></tr> <tr> <td>RPT1_PULSE</td><td>Detection sensor for the RPT1 liquid level</td></tr> <tr> <td>RPT2_PULSE</td><td>Detection sensor for the RPT2 liquid level</td></tr> <tr> <td>WU1_PULSE</td><td>WU1 overflow sensor</td></tr> <tr> <td>WU2_PULSE</td><td>WU2 overflow sensor</td></tr> <tr> <td>WU3_PULSE</td><td>WU3 overflow sensor</td></tr> <tr> <td>WU4_PULSE</td><td>WU4 overflow sensor</td></tr> <tr> <td>WU5_PULSE</td><td>WU5 overflow sensor</td></tr> <tr> <td>WU6_PULSE</td><td>WU6 overflow sensor</td></tr> <tr> <td>WU7_PULSE</td><td>WU7 overflow sensor</td></tr> </tbody> </table> <p><The result of pulse measurements></p> <p>Result of measurement pulses will be displayed in the <input type="text"/>.</p>	Names	Meanings	Sensor	All photo sensors	SPT_PULSE	Detection sensor for the SPT liquid level	RPT1_PULSE	Detection sensor for the RPT1 liquid level	RPT2_PULSE	Detection sensor for the RPT2 liquid level	WU1_PULSE	WU1 overflow sensor	WU2_PULSE	WU2 overflow sensor	WU3_PULSE	WU3 overflow sensor	WU4_PULSE	WU4 overflow sensor	WU5_PULSE	WU5 overflow sensor	WU6_PULSE	WU6 overflow sensor	WU7_PULSE	WU7 overflow sensor
Names	Meanings																								
Sensor	All photo sensors																								
SPT_PULSE	Detection sensor for the SPT liquid level																								
RPT1_PULSE	Detection sensor for the RPT1 liquid level																								
RPT2_PULSE	Detection sensor for the RPT2 liquid level																								
WU1_PULSE	WU1 overflow sensor																								
WU2_PULSE	WU2 overflow sensor																								
WU3_PULSE	WU3 overflow sensor																								
WU4_PULSE	WU4 overflow sensor																								
WU5_PULSE	WU5 overflow sensor																								
WU6_PULSE	WU6 overflow sensor																								
WU7_PULSE	WU7 overflow sensor																								

Chapter 3 Explanation of Menus

No.	Descriptions
(2)	<p><The display the sensor conditions></p> <p>Select “Sensor” in measurement items and press Read Start button and sensor status will be displayed. Read Start button will be changed to Stop.</p> <p>Press Stop to terminate reading sensor status.</p> <p>When the sensor status is ON, a mark beside each sensor will be displayed in red.</p> <p>When the sensor status is OFF, a mark beside each sensor will be displayed in gray.</p> <p>All sensor conditions will be repeatedly displayed in 500ms intervals</p> <p>Names and meanings of each sensor will be shown on the following list.</p>

Sensor Names (Sensor Number)	Unit Names	Meanings
ASP_Zero_Pos (101)	ASP	The zero position of ASP's turn table Red (ON): Zero position Disconnecting state: Red (ON)
RCU_Zero_Pos (102)	RCU	The zero position of RCU's turn table Red (ON): Zero position Disconnecting state: Red (ON)
RPP1R_Up_Zero_Pos (103)	RPP1 (Reagent)	The zero position of RPP1R's syringe (The upper limit of Syringe) Red (ON): Zero position Disconnecting state: Gray (Off)
RPP1W_Up_Zero_Pos (104)	RPP1 (Washing)	The zero position of RPP1W's syringe (The upper limit of Syringe) Red (ON): Zero position Disconnecting state: Gray (Off)
SPARE_SENSR1		Not Used
SPARE_SENSR2		
ASP_COVER_F (107)	ASP	Detecting the cover of ASP emergency samples Red (ON): Found the cover Disconnecting state: Gray (Off)
ASP_COVER_B (108)		Detection of cover for ASP Normal samples Red (ON): Found the cover Disconnecting state: Gray (Off)
ASP_COVER_C		Not Used
RCU_COVER_F (110)		RCU cover detection Red (ON): Found the cover Disconnecting state: Gray (Off)
RCU_YOBI		Not Used
ISE_COVER (112)		ISE cover detection Red (ON): Found the cover Disconnecting state: Gray (Off)
LEAK_RCU_YOBI		Not Used
LEAK_RPP1 (115)		Not Used Detection of RPP1 leaking Red (ON): Found a leaking Disconnecting state: Gray (Off)
LEAK_ASP (116)	ASP	Not Used Detection of ASP leaking Red (ON): Found a leaking Disconnecting state: Gray (Off)
+12_RCU_PE (117)		DC 12V monitor (Peltier power supply for RCU cooler) Red (ON): 12V
+12_ASP_PE (118)	ASP	DC 12V monitor (Peltier power supply for ASP cooler) Red (ON): 12V
+24_MON_RCU (119)		DC 24V monitor (RCU power supply) Red (ON): 24V
+24_MON_ASP (120)	ASP	DC 24V monitor (ASP power supply) Red (ON): 24V

Chapter 3 Explanation of Menus

Sensor Names (Sensor Number)	Unit Names	Meaning
ASP_TRAY		Not Used
SPARE_SENSE4		
RCU_PE1_FAN (125)	RCU	Radiating fan for RCU peltier-1 cooler (Rotation stop detecting function) Gray (ON): Rotate Stop state: Red
RCU_PE2_FAN (126)		Radiating fan for RCU peltier-2 cooler (Rotation stop detecting function) Gray (ON): Rotate Stop state: Red
RCU_PE3_FAN (127)		Radiating fan for RCU peltier-3 cooler (Rotation stop detecting function) Gray (ON): Rotate Stop state: Red
RCU_PE4_FAN (128)		Radiating fan for RCU peltier-4 cooler (Rotation stop detecting function) Gray (ON): Rotate Stop state: Red
ASP_PE1_FAN (129)	ASP	Radiating fan for ASP peltier-1 cooler (Rotation stop detecting function) Gray (ON): Rotate Stop state: Red
ASP_PE2_FAN (130)		Radiating fan for ASP peltier-2 cooler (Rotation stop detecting function) Gray (ON): Rotate Stop state: Red
SPARE_FAN3		Not Used
SPARE_FAN4		
WPP_Up_Zero_Pos (133)	WPP	The zero position of WPP syringe (The upper limit of Syringe) Red (ON): Zero position Disconnecting state: Red (ON)
SPP_Up_Zero_Pos (134)	SPP (Samples)	The zero position of SPP syringe (The upper limit of Syringe) Red (ON): Zero position Disconnecting state: Red (ON)
SPPW_Up_Zero_Pos (135)	SPPW (Washing)	The zero position of SPPW syringe (The upper limit of Syringe) Red (ON): Zero position Disconnecting state: Red (ON)
SUBTANK1_ENP (136)	Sub-Tank (R)	Detecting empty in Sub tank R Red (ON): Found pure water Gray (OFF): Not found pure water
SUBTANK1_FLL (137)		Detecting Sub tank R Red (ON): Found sub tank R Gray (OFF): Not fitted sub tank R
SUBTANK1_SET (138)		
LEAK_SPP (139)	SPP	SWU1-1 leaking liquid Detecting SPP leaking liquid Red (ON): Found leaking liquid Disconnecting state: Gray (OFF)
LEAK_SWU_1 (140)		SWU1-2 leaking liquid
BOT1_EMP (141)	External tanks	Detecting empty for pure water tank Yellow (ON): Liquid found (Not empty)
BOT2_EMP (142)		Detecting empty for wash solution tank -1 Yellow (ON): Liquid found (Not empty)
BOT3_EMP (143)		Detecting empty for wash solution tank -2 Yellow (ON): Liquid found (Not empty)
BOT4_ENP (144)		Detecting full of water for the Low-concentrated waste water tank Yellow (ON): Empty
BOT5_FULL (145)		Detecting full of water for the High-concentrated waste water tank Yellow (ON): Empty
BOT6_FULL (146)		Detecting empty for wash solution tank -3 Yellow (ON): Liquid found (Not empty)
SPARE_SENSE5		Not Used
SPARE_SENSE6		
LEAK_SWU2	SWU2	Detecting SWU2 leaking liquid

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3.6.4 Sensor

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Sensor Names (Sensor Number)	Unit Names	Meaning
(149)		Red (ON): Leaking found Disconnecting state: Gray (OFF)
+24_MON_SWU_DRV1 (150)	SWU	DC 24V monitor (SWU-DRV1 power supply) Red (ON): 24V
+24_MON_SWU_DRV2 (151)		DC 24V monitor (SWU-DRV2 power supply) Red (ON): 24V
CSE_FAN1		Not Used
SPARE_FAN2		
SWU_FAN		
MIX1U_Zero_Pos (165)	MIX1	The zero position for MIX1's up-and-down operation (The upper limit) Yellow (ON): Zero position Disconnecting state: Yellow (ON)
MIX1R_Zero_Pos (166)		The zero position of MIX1's rotating operation Yellow (ON): Zero position Disconnecting state: Yellow (ON)
MIX2U_Zero_Pos (167)	MIX2	The zero position of MIX1's up-and-down operation (The upper limit) Yellow (ON): Zero position Disconnecting state: Yellow (ON)
MIX2R_Zero_Pos (168)		The zero position of MIX1's rotating operation Yellow (ON): Zero position Disconnecting state: Yellow (OFF)
RPT1U_Zero_Pos (169)	RPT1	The zero position of RPT1's up-and-down operation (The upper limit) Yellow (ON): Zero position Disconnecting state: Yellow (OFF)
RPT1R_Zero_Pos (170)		The zero position of RPT1's rotating operation Yellow (ON): Zero position Disconnecting state: Yellow (OFF)
RPT2U_Zero_Pos (171)	RPT2	The zero position of RPT2's up-and-down operation (The upper limit) Yellow (ON): Zero position Disconnecting state: Yellow (OFF)
RPT2R_Zero_Pos (172)		The zero position of RPT2's rotating operation Yellow (ON): Zero position Disconnecting state: Yellow (OFF)
SPTU_Zero_Pos (173)	SPT	The zero position of SPT's up-and-down operation (The upper limit) Yellow (ON): Zero position Disconnecting state: Yellow (OFF)
SPTR_Zero_Pos (174)		The zero position of SPT's rotating operation Yellow (ON): Zero position Disconnecting state: Yellow (OFF)
IRU_Zero_Pos (175)	IRU	The zero position of cuvette turn table in the IRU Red (ON): Zero position Disconnecting state: Red (ON)
WU_Zero_Pos (176)	WU	WU nozzle's point of origin (The upper limit) Red (ON): Zero position Disconnecting state: Red (ON)
RPT1RCU (177)	RPT1	RPT1 position ON: RPT1 is on the RCU. OFF: RPT1 is not on RCU.
RPT2RCU (178)	RPT2	RPT2 position ON: RPT2 is on the RCU. OFF: RPT2 is not on RCU.
SPTASP (179)	SPT	SPT position ON: SPT is on the RCU. OFF: SPT is not on RCU. Note that it will be ON when SPT turns to ISE unit also.
MIX1R_TS (181)	MIX1	The tough position of MIX1's stirring paddle Red (ON): the paddle is at trough. Disconnecting state: Gray (OFF)
MIX2R_TS (182)	MIX2	The tough position of MIX2's stirring paddle Red (ON): the paddle is at trough. Disconnecting state: Gray (OFF)

Chapter 3 Explanation of Menus

Sensor Names (Sensor Number)	Unit Names	Meanings
RPT1R_TS (183)	RPT1	The position of trough discharging for RPT1 rotating operation Red (ON): RPT1 is at the discharging position in trough. Gray (OFF): Disconnecting state
RPT2R_TS (184)	RPT2	The position of trough discharging for RPT2 rotating operation Red (ON): RPT2 is at the discharging position in trough. Gray (OFF): Disconnecting state
SPTR_TS (185)	SPT	The position of trough discharging for SPT rotating operation Red (ON): SPT is at the discharging position in trough. Gray (OFF): Disconnecting state Note that it will be ON when SPT turns to ISE unit also.
IRU_READY		
SPARE_SENSE9		
SPARE_SENSE10		
RPT1U_DL (189)	RPT1	The lower limit where RPT1 moves up and down (The lower limit) Red (ON): The lower limit Disconnecting state: Gray (ON)
RPT2U_DL (190)	RPT2	The lower limit where RPT2 moves up and down (The lower limit) Red (ON): The lower limit Disconnecting state: Gray (ON)
SPTU_DL (191)	SPT	The lower limit where SPT moves up and down (The lower limit) Red (ON): The lower limit Disconnecting state: Gray (ON)
WU_COVER		Not Used
TRGH1_EKIMEN (197)	TR	Detecting the liquid level of trough chamber ON: Found liquid OFF: Liquid not found
TRGH2_EKIMEN		Not Used
LEAK_IRU (199)	WPP	Leaking WPP part ON: Found leaking OFF: Not found leaking
R1PTU_EKIMEN (205)	RPT1	Detecting the liquid level of RPT1 This cannot check in sensor mode.
R2PTU_EKIMEN (206)	RPT2	Detecting the liquid level of RPT2 This cannot check in sensor mode.
S1PTU_EKIMEN (207)	SPT	Detecting the liquid level of SPT This cannot check in sensor mode.
WU1_EKIMEN (213)	WU	Detecting the liquid level of WU1 This cannot check in sensor mode.
WU2_EKIMEN (214)		Detecting the liquid level of WU2 This cannot check in sensor mode.
WU3_EKIMEN (215)		Detecting the liquid level of WU3 This cannot check in sensor mode.
WU4_EKIMEN (216)		Detecting the liquid level of WU4 This cannot check in sensor mode.
WU5_EKIMEN (217)		Detecting the liquid level of WU5 This cannot check in sensor mode.
WU6_EKIMEN (218)		Detecting the liquid level of WU6 This cannot check in sensor mode.
WU7_EKIMEN (219)		Detecting the liquid level of WU7 This cannot check in sensor mode.
+24V_MON_IRU (229)	IRU	DC 24V monitor (SWU-DRV1 power supply) Red (ON): 24V

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3.6.4 Sensor

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Sensor Names (Sensor Number)	Unit Names	Meanings
DTR_FAN (230)	DTR	Detecting DTR fan stop Gray (ON): rotation Condition Stopping: Red
+24V2_MON_IRU (231)	IRU	ON: Power ON OFF: Power OFF
SPARE_SENSE7		Not Used
SPARE_SENSE8		
LEAK_RPP2 (261)	RPP2	Detecting RPP1, 2 leaking (common in rpp1, 2) Red (ON): Found leaking Disconnecting state: Gray (OFF)
RPP2R_UP_ZERO_POS (269)	RPP2 (Reagents)	The zero position of RPP2R syringe (The upper limit of Syringe) Red (ON): Zero position Disconnecting state: Gray (OFF)
RPP2W_UP_ZERO_POS (270)	RPP2 (Washing)	The zero position of RPP2W syringe (The upper limit of Syringe) Red (ON): Zero position Disconnecting state: Gray (OFF)
YOB1_SENSE_A		
+24_MON_SWU_DRV3 (277)	SWU	DC 24V monitor (SWU-DRV3 power supply) Red (ON): 24V
YOB1_SENSE_B		
SUBTANK2_ENP (285)		
SUBTANK2_FULL (286)	Sub-Tank (L)	Detecting empty sub tank L Red (ON): Found pure water Gray (OFF): No pure water
SUBTANK2_SET (287)		Detecting sub tank L Red (ON): Found sub tank
POW_FAN1 (293)		Heating-release fan -1 for Power supply unit (Rotation stop detecting function) Multi power supply unit Gray (ON): Rotation Condition Stop: Red
POW_FAN2 (294)	Power supply unit	Radiating fan-2 for Power supply unit (Rotation stop detecting function) Gray (ON): Rotation Condition Stop: Red
POW_FAN3 (295)		Radiating fan-3 for 24V and 12 V Power supply units (Rotation stop detecting function) Gray (ON): Rotation Condition Stop: Red
POW_FAN4		
POW_FAN5		
POW_FAN6		
POW_FAN7		
DTR_SPARE_IN1		
DTR_SPARE_IN2		
RCU_BCR_OK	RCU	Not Used
RCU_BCR_NG		
ASP_BCR_OK	ASP	Not Used
ASP_BCR_NG		
ISE_READY	ISE	Not Used
CSE_FANS (317)		
CSE_FAN6 (318)	CSE	Stop the fan attached to the back of CSE ON: Stop OFF: Rotating
SPARE_SENSE11		
SPARE_SENSE12		

3.6.5 [Perform]:Temperature and DTR Conditions

L1, L2 and Non-login users are not allowed full access in this menu. (Refer to “3.6.8 [Password]”.)

Conditions of main performance of this analyzer and gain control of photometry unit can be observed here.

Note that these monitors will be updated at a stand-by mode but not during measurement. (The measuring temperature will be displayed on the operation monitor, [Run (F5)] – [Monitor].)



No.	Descriptions								
(1)	<p>Temperature Control</p> <p>This will monitor the temperature for 6 points in IRU and the temperature of RCU and ASP. Temperature of IRU will be displayed in numeric and in a graph (with Red, Orange, Green, Light Blue, Violet, and Lime). The temperature of RCU and ASP will be displayed only in numeric. Those will be available in a stand-by mode and not available during measurement.</p> <table> <tr> <td>(a) IRU temperature graph monitor</td> <td>X axis: past time (the current time on the right edge) Y axis: temperature</td> </tr> <tr> <td>(b) IRU</td> <td>Temp: displays calibrated IRU temperature Offset: displays IRU calibrating</td> </tr> <tr> <td>(c) RCU</td> <td>Temp: displays RCU temperature Offset: displays calibrated RCU temperature.</td> </tr> <tr> <td>(d) ASP</td> <td>Temp: displays ASP temperature Offset: displays calibrated ASP temperature.</td> </tr> </table> <p>Save: Click this button to save calibrated parameters.</p> <p>Cancel: Click not to save calibrated parameters.</p> <p>These calibrating parameters have been adjusted before shipment at factory.</p>	(a) IRU temperature graph monitor	X axis: past time (the current time on the right edge) Y axis: temperature	(b) IRU	Temp: displays calibrated IRU temperature Offset: displays IRU calibrating	(c) RCU	Temp: displays RCU temperature Offset: displays calibrated RCU temperature.	(d) ASP	Temp: displays ASP temperature Offset: displays calibrated ASP temperature.
(a) IRU temperature graph monitor	X axis: past time (the current time on the right edge) Y axis: temperature								
(b) IRU	Temp: displays calibrated IRU temperature Offset: displays IRU calibrating								
(c) RCU	Temp: displays RCU temperature Offset: displays calibrated RCU temperature.								
(d) ASP	Temp: displays ASP temperature Offset: displays calibrated ASP temperature.								

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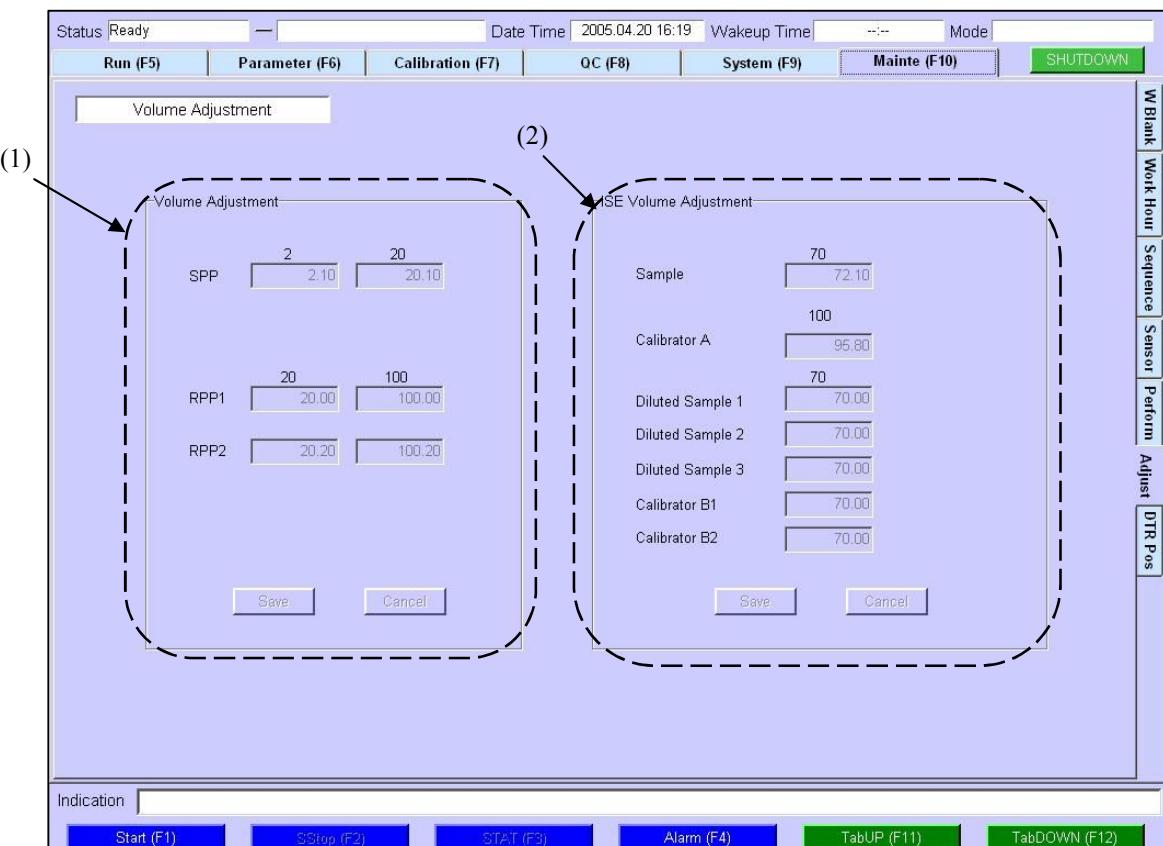
No.	Descriptions
(2)	<p>Detector Performance Monitor You can check Auto Gain Function of the photometry unit. This Auto Gain will be performed at every round start.</p> <p>Gain Measuring wavelengths (12 wavelengths) Voltage Voltage (within $9.0 \pm 0.5V$) Absorbance Absorbance at Gain control voltage (1mAbs) Automatic Auto Gain control Check Lamp Click this button to execute Halogen lamp check. The result will be shown on the Voltage and when the voltage exceeds a threshold value, it will be displayed in red. <Threshold values for lamp check> Define a threshold value for the result of Check Lamp (0~999). Save Click this button to save editing data. Cancel Click this button not to save editing data.</p>

3.6.6 [Adjust]:Correction of Dispensing Volume

L1, L2 and Non-login users cannot access this menu. (Refer to “3.6.8 Setup Password”.)

You can specify correction values for dispensing volume for each pipette.

Parameters adjusted at factory will be displayed.



No.	Descriptions
(1)	<p>Volume Adjustment</p> <p>SPP Input the measurement volume at 2 uL and 20 uL.</p> <p>RRP1 Input the measurement volume at 20 uL and 100 uL</p> <p>RRP2</p> <p>Save Click this button to save editing data.</p> <p>Cancel Click this button not to save editing data.</p>
(2)	<p>ISE Volume Adjustment</p> <p>Sample Input the measurement volume at 70 uL.</p> <p>ISE Calibrator A Input the measurement volume at 100 uL.</p> <p>ISE Diluted Sample 1 Input the first dilution volume at 70 uL.</p> <p>ISE Diluted Sample 2 Input the second dilution volume at 70 uL.</p> <p>ISE Diluted Sample 3 Input the third dilution volume at 70 uL.</p> <p>ISE Calibrator B1 Input the first volume of Calibrant B in 70 uL.</p> <p>ISE Calibrator B2 Input the second volume of Calibrant B in 70 uL.</p> <p>Save Click this button to save editing data.</p> <p>Cancel Click this button not to save editing data.</p>

3.6.7 [DTR Pos]:DTR Optical Axis Auto-Calibration

L1, L2 and Non-login users cannot open this menu. (Refer to “3.6.8 [Password]”.)

This is an automatic calibration of optical axis and this calibration will choose the best photometry point for each cuvette.

This operation will be executed after such maintenance as cuvettes exchange.



No.	Descriptions
(1)	<p><DTR calibrating position> Calibrating positions for photometry measurement for 90 cuvettes will be displayed.</p> <p>Exec Click this button to execute a calibration and then results will be displayed.</p> <p>File Click this button to output calibrating positions for photometry measurement displayed on the screen at the file specified. (CSV format)</p> <p>... Specify a folder where to output data. If there is not enough space, the following error message will notify you; “Not enough disk space to copy files.”</p> <p>Print Click this button to print out the calibrating positions for photometry measurement.</p>

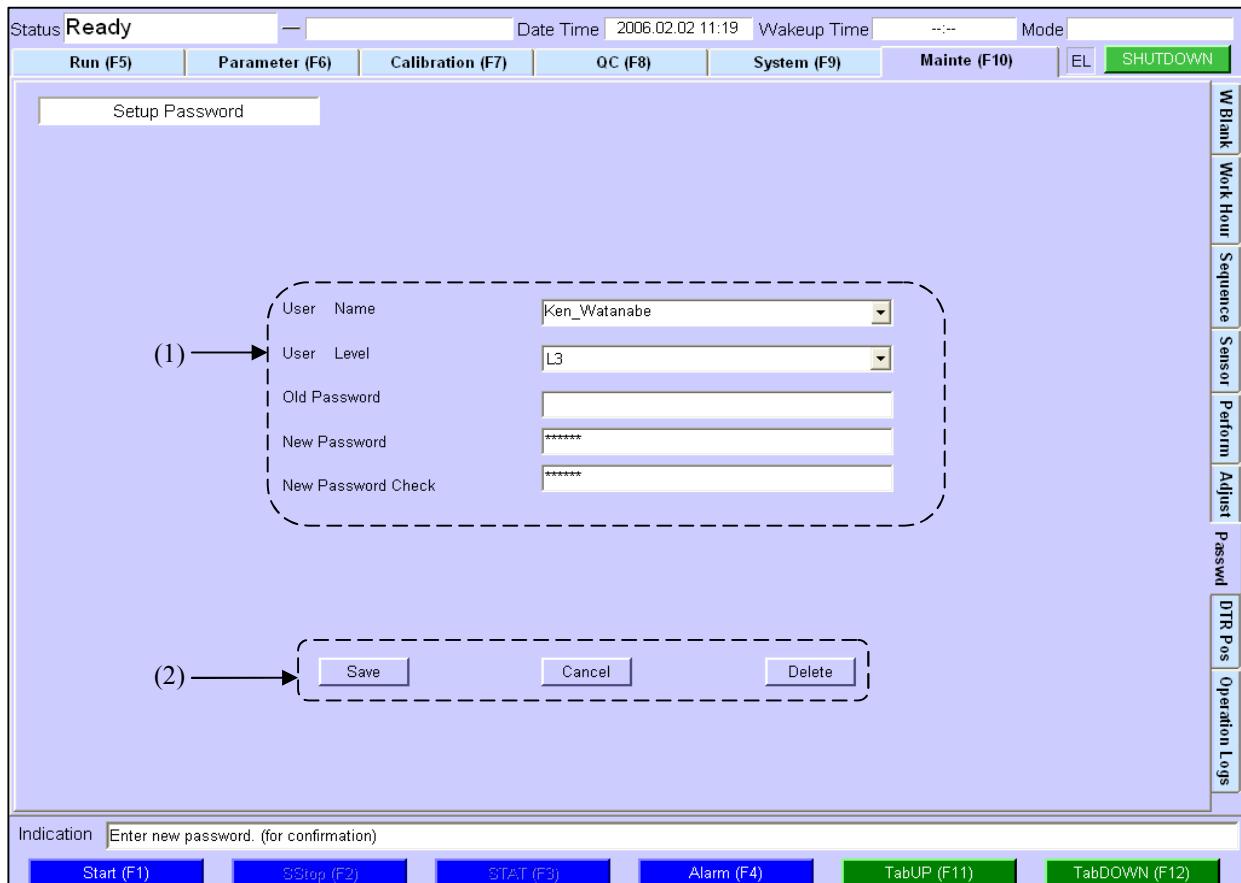
3.6.8 [Password]:Setup Password

L1, L2 and Non-login users are not allowed full access in this menu.

User name for each user level and its password can be defined here.

Numbers of user names can be defined are shown below;

- L1 (Level1: General user) : 20
- L2 (Level2: Supervisor): 10
- L3 (Level3: Manager): 5



No.	Descriptions
(1)	<p>User Name Input a user name to register. You can select a registered user name from drop-down menu.</p> <p>User level Select a suitable user name for “L1”, “L2” and “L3” from drop-down menu.</p> <p>Password Input the password of specified user name in order to delete or create.</p> <p>Old Password: Input an old (current) password.</p> <p>New Password: Input a new password.</p> <p>New Password Check: Input the same password you entered as a new password above.</p>
(2)	<p>Save Click this button to save a changed password.</p> <p>Cancel Click this button not to save a changed password.</p> <p>Delete Click to delete a specified password.</p>

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<The following table shows the relevant to the menu screen and password level.>

V: View only, FA: Full accessible, PA: Partial accessible, NA: Not accessible (Invisible)

Job Menu	Tab Menu or Display or Function	Non Login	General User (L1)	Supervisor (L2)	Manager (L3)	Engineer (EL)
<Initial Screen>	Display of the client's logo	FA	FA	FA	FA	FA
Run	Monitor	V	FA	FA	FA	FA
	Round	V	FA	FA	FA	FA
	Selection	V	FA	FA	FA	FA
	Result	V	PA (*1)	PA (*2)	FA	FA
	Inventory	V	PA (*3)	FA	FA	FA
	Sleep Scheme	V	V	FA	FA	FA
	Std QC	V	FA	FA	FA	FA
	Patient	V	PA (*3)	FA	FA	FA
Parameter	Normal	V	V	PA (*4)	PA (*4)	FA
	Normal 2	V	V	PA (*5)	PA (*5)	FA
	ISE	V	V	FA	FA	FA
	SI	V	V	PA (*6)	PA (*6)	FA
	Calc	V	V	FA	FA	FA
	Profile	V	V	FA	FA	FA
	Order	V	V	FA	FA	FA
	Wash	V	V	FA	FA	FA
Calibration	Reg Calib	V	V	FA	FA	FA
	Serial Dilut	V	V	FA	FA	FA
	Multi-Std	V	V	FA	FA	FA
	ISE	V	V	FA	FA	FA
QC	Graph	V	FA	FA	FA	FA
	Details	V	PA (*7)	FA	FA	FA
	Daily	V	PA (*7)	FA	FA	FA
	Cumulative	V	PA (*7)	FA	FA	FA
	Settings	V	V	FA	FA	FA
	Registration	V	V	FA	FA	FA
System	Setup	V	V	FA	FA	FA
	Report	V	V	FA	FA	FA
	Reagent	V	V	PA(*8)	PA (*8)	FA
	Login	FA	FA	FA	FA	FA
	Backup	V	V	FA	FA	FA
	Setup 2	V	V	FA	FA	FA
	Define	V	V	FA	FA	FA
	Range	V	V	FA	FA	FA
Maintenance	W Blank	V	V	FA	FA	FA
	Work Hour	V	V	PA (*9)	PA (*9)	FA
	Sequence	V	V	V	PA (*10)	FA
	Sensor	V	V	V	FA	FA
	Perform	V	V	V	PA (*11)	FA
	Adjust	NA	NA	NA	FA	FA
	Password	V	V	V	FA	FA
	DTR Pos	NA	NA	NA	FA	FA
	Operation Logs	NA	NA	NA	NA	FA
Shutdown/Sleep	Shutdown/Sleep Operation	NA	FA	FA	FA	FA
<Alarm>	Display of alarm information	V	V	V	PA (*12)	FA
[Alarm]	Alarm screen selection	FA	FA	FA	FA	FA
[Start (F1)]	Measurement start button	NA	FA	FA	FA	FA
[Sstop (F2)]	Sampling stop button	NA	FA	FA	FA	FA
[STAT (F3)]	Sample addition button	NA	FA	FA	FA	FA
[Cntrl]+[F2]	Emergency stop	FA	FA	FA	FA	FA

Chapter 3 Explanation of Menus

Note:

- *1: L1 user is not allowed to access the **Delete** button and to specify the “Test Number” of “Sample Type”.
- *2: L2 user is not allowed to specify the “Test Number” of “Sample Type”.
- *3: L1 user is not allowed to access the **Delete** button.
- *4: L2 and L3 user are not allowed to set/modify the chemistry parameters of method applied the close reagent and to select the “None” of “Stirring Speed”.
- *5: L2 and L3 user are not allowed to set/modify all items in this menu except the selecting “Method”.
- *6: L2 and L3 user are not allowed to set/modify the “Sampling Volume”, “Reagent Type”, “Reagent Name” and “Volume”.
- *7: L1 user is not allowed to access the **Delete** button.
- *8: L2 and L3 user is not allowed to register any code of close reagent into the system.
- *9: L2 and L3 user is allowed to access only the **Reset** button for “Working Hour of ISE”.
- *10: L3 user is not allowed to make available the “Round Prep Skip”, but “Search” mode in the “Move Unit” is only available.
- *11: L3 user is not allowed to modify the temperature parameter for IRU, RCU and ASP, but the “Detector Performance Monitor” is allowed to fully access .
- *12: L3 user is not allowed to access the **Alarm clear** button.

3.6.9 [Operation Logs]:Records of the Operational Logs

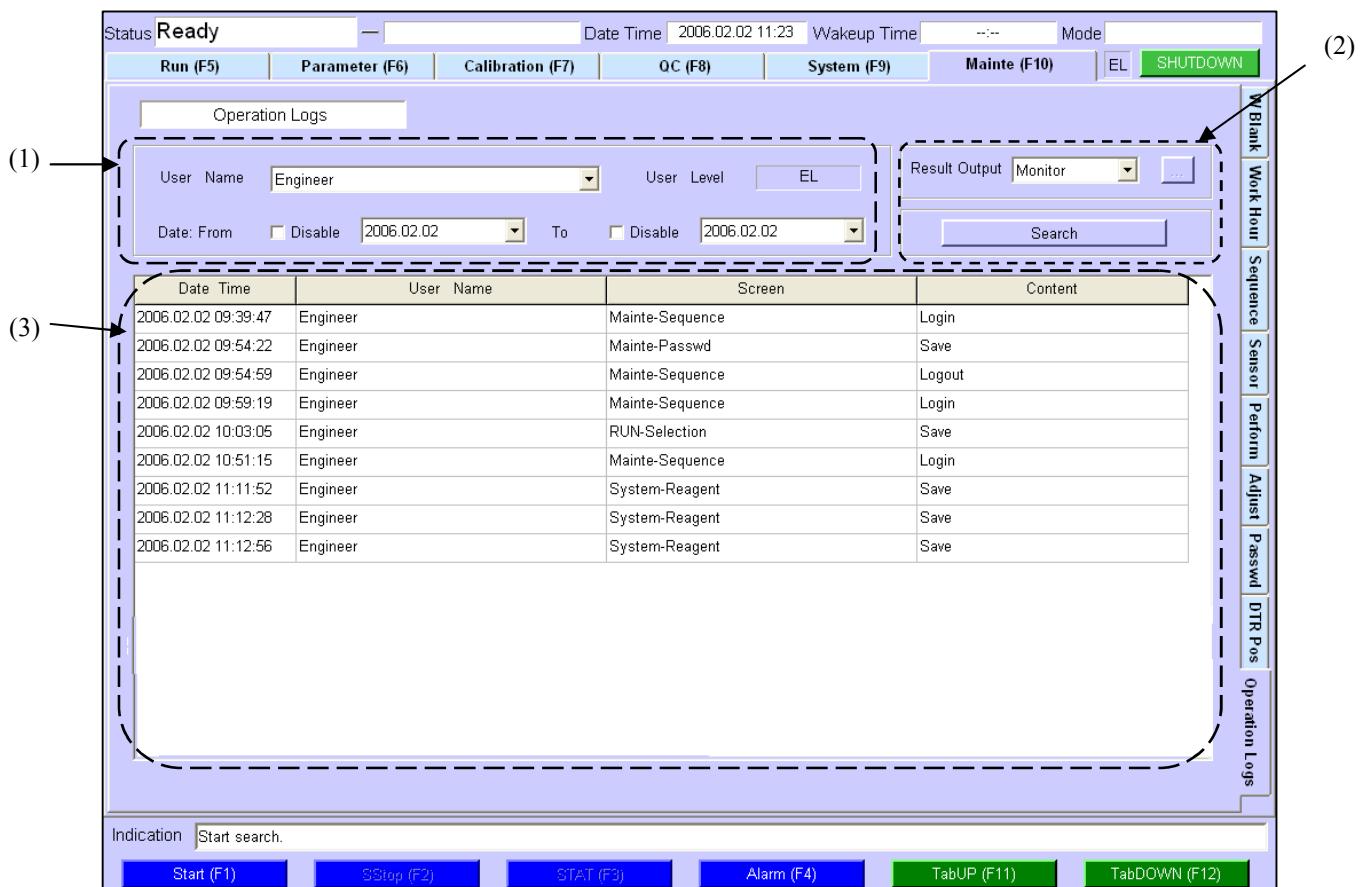
L1, L2, L3 and Non-login users cannot open this menu.

Operation records are saved in the system as the operational logs. Saving period of data is for two years, therefore, data which are more than two years old is automatically deleted from the system at the time when the system enters in the sleep mode or system starts the shutdown..

You can extract operational logs that meets the sorting condition.

<Sorting condition>

- User Name: Define user name and Engineer level.
- Date: Define starting and ending date.



No.	Descriptions
(1)	<p>User Name Specify a user name to be extracted from drop-down menu.</p> <p>User Level Specify a user level to be extracted from drop-down menu.</p> <p>Date From <input type="checkbox"/> Disable Specify the starting date from drop-down menu (Calendar). Click the check box "Disable" to make invalid the starting date.</p> <p>Date From <input type="checkbox"/> Disable Specify the ending date from drop-down menu (Calendar). Click the check box "Disable" to make invalid the ending date.</p>

Chapter 3 Explanation of Menus

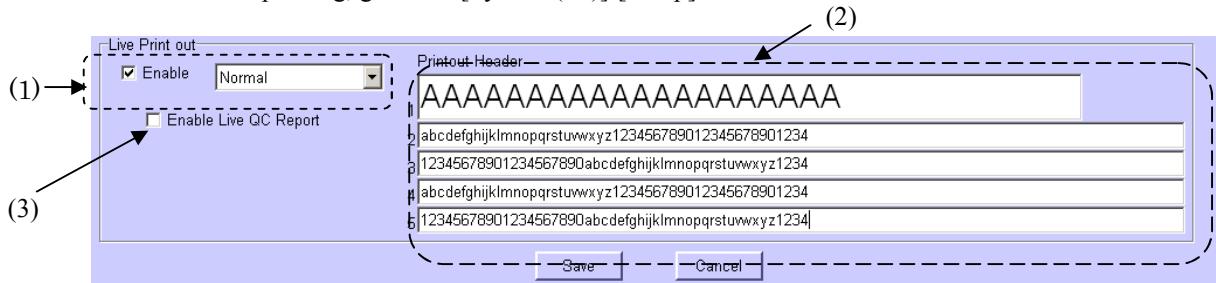
No.	Descriptions
(2)	<p>Result Output Specify the destination of retrieved data from drop-down menu.</p> <ul style="list-style-type: none">- Monitor: Retrieved data will be displayed on the screen.- File: Click the box <input type="text"/> and select the directory to save the retrieved data. File name will be created as "yymmddnnOperationLog.csv". <p>yy: 00 to 99 (Year) mm: 01 to 12 (Month) dd: 01 to 31 (Day) nn: 01 to 99 (Serial number)</p> <p>Search Click this button to start retrieving log data and the retrieved data will be outputted to the destination (Monitor or file).</p>
(3)	<p><Retrieved Data></p> <p>Date Time Operational date and time will be displayed in this column.</p> <p>User Name User name logged in will be displayed in this column.</p> <p>Screen Names of menu operators had handled will be displayed in this column.</p> <p>Content What operator had done will be displayed in this column.</p>

3.7 Print out

3.7.1 Live Print Out

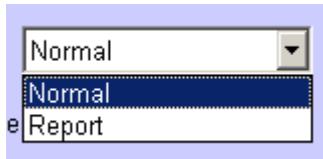
It is available to print out such as measurement results or the information of measuring settings, by connecting with a printer to the analyzer.

To define the printing, go to the [System (F9)]-[Setup] screen.



(1) Live Print out

Live Print out will run when you check the “Enable” box ‘ON’
Select a form for Live Print out either “Normal” or “Report”.



E.g.1) Normal form print out

2007/06/15 13:27											
Sno.:001011	ID:	Date:2007/06/15 Round No:10				G-GTP	AMY				
AST 46.0 IU/L 22 23	ALT 42.0 IU/L 59 60	LDH 235.0 IU/L 11 12				36.0 IU/L 91 92				125 IU/L 75 76	
TP 5.2 g/dl 38 39	ALB 3.5 g/dl 66 67	CRE 1.25 mg/dl 51 52									
R1/R2 Lot No.											

E.g.2) Report form print out

PrintDate: 2007/07/04 PrintTime 13:39											
Name : Furuno	Date : 2007/07/04										
ID : 20070704017	Time: 13:32										
SID.: 003012	Sex: : Male										
Sample : Common	Age : 64										
Comment : none	SSNo. :										
Physician : abcd	Race :										
Department : efg	Ward :										
MedicalChart : 123-456	BloodType :										
Classification : VW-XYZ	Reference 1 :										
BedNo. : 987-012	Reference 2 :										
CollectionDate : 2007/07/04											
Method	Units	Results	Flag	Rlot1	Rlot2	Normal Range					
TP	g/dl	5.2	SS	229	429	0.0- 6.5					
CHO	Mg/dl	18.2	SS	30	20	0.0- 199.0					

Chapter 3 Explanation of Menu

(2) Printout Header

If you input a header, it can be printed as header for the list as well.

The header can have 5 lines. The first line is 20 digits with 20-font point. From 2 to 5 line is 50digits with normal font (10-font point).

In addition, the line 2 to 5 of the page is applied to the “Report” form only, and the first line of the header in other pages is printed with flush left.

E.g.3) The Repot form Header printing sample (Output)

Header

PrintDate:2007/07/04 PrintTime 13:39

Name : Furuno	Date : 2007/07/04						
ID : 20070704101	Time : 13:32						
SID : 00301	Sex : Male						
Sample : Common	Age : 64						
Comment : none	SSNo. :						
Physician : abcd	Race :						
Department : efg	Ward :						
MedicalChart : 123-456	BloodType :						
Classification : VW-XYZ	Reference 1 :						
BedNo. : 987-012	Reference 2 :						
CollectionDate : 2007/07/04							
Method	Units	Results	Flag	Rlot1	Rlot2	Normal Range	
TP	g/dl	5.2	SS	229	429	0.0-	6.5
CHO	Mg/dl	18.2	SS	30	20	0.0-	199.0

(3) Patient history Print Form

PrintDate: 2007/07/04 PrintTime 13:39

Name : Furuno	Sex: : Male						
ID : 20070704017	Age : 64						
Sample : Common	SSNo. :						
Comment : none	Race :						
Physician : abcd	Ward :						
Department : efg	BloodType :						
MedicalChart : 123-456	Reference 1 :						
Classification : VW-XYZ	Reference 2 :						
BedNo. : 987-012							
Method	Units	Results	Flag	Rlot1	Rlot2	Normal Range	Date
CHO	Mg/dl	16.7		30	20	0.0- 199.0	07/07/01
CHO	Mg/dl	18.2		30	20	0.0- 199.0	07/07/04
TP	g/dl	4.7		52	248	0.0- 6.5	07/06/10
TP	g/dl	4.5		113	375	0.0- 6.5	07/06/21
TP	g/dl	4.9		229	429	0.0- 6.5	07/07/01
TP	g/dl	5.2		229	429	0.0- 6.5	07/07/04

3.7 Print out

3.7.1 Live Print Out

Chapter 3 Explanation of Menu

(4) Enable Live QC Report

When you check the “Enable” box “ON”, a QC report will be printed out with the measurement result of the Quality Control sample.

QC report printing sample

Method	Units	Results	Flag	RLot1	Rlot2	Normal Range
Test01	mg/dl	12.0		462	162	
Test02	mg/dl	5.0		497	197	
QC Report			Date : 2007/06/15		Time : 17:31	
Control:C12 QCL3			RoundNo:2			
Method	Conc	Unit	Set Mean	Set -2SD	Set +2SD	Warning Error
Test01	12.3	mg/dl	12.0	10.0	14.0	
Test02	5.6	mg/dl	5.0	4.5	5.5	1:2S

Control:	Control number/ Control name
RoundNo:	Round number
Method:	Method name
Conc:	The result concentration
Unit:	Unit for concentration value
Set Mean:	The mean concentrated value of the QC sample that has been input
Set -2SD:	The value calculated by the SD that has been input.
Set +2SD:	The value calculated by the SD that has been input.
Warning:	
Error:	

} Current result exceed 2SD: 1:2S
Current result exceed 3SD: 1:3S
Current result exceed 4SD: 1:4S
Last 2 results exceed 2SD: 2:4S
2 out of last 3 results exceed 2SD: 1/3:2S
Range exceeds 4SD: R:4S
Any 3 result exceed 1SD: 3:1S
Any 4 result exceed 1SD: 4:1S
10 results same side of mean (increasing): 10:X[+]
10 results same side of mean (decreasing): 10:X[-]
7 continue points trend (increasing) 7:T[+]
7 continue points trend decreasing) 7:T[-]

Chapter 3 Explanation of Menu

3.7.2 Print of the Setting Items

(1) Print sample of the tab menu [Selection] of the job menu [Run (F5)].

The order list is printed out.

The title is printed as “Std QC Test Selection” and this print format is also applied to the tab menu [StdQC] screen.

Test Selection						2007/06/15 17:31
Pos.:01	SID: 123456789012	ID: PATIENT01234	R:03	S:Common		
TEST01	TEST02	TEST03	TEST04	AST	ALT	
Pos.:02	SID: 123456789013	ID: PATIENT01235	R:02	S:Common		
TEST01	TEST02	TEST03	TEST04	AST	ALT	

Pos.: Sample position
SID: Sample ID
ID: Patient ID
R: Recognition numbers of standard values
S: Sample type

Chapter 3 Explanation of Menu

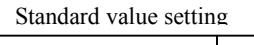
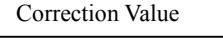
(2) Print sample of the Chemistry parameters (1): [Normal]

The defined values of assay criteria in measurement methods are printed out.

2007/06/15 17:31						
No 1	Name AST	Print Name AST	Unit IU/L	Assay Rate	Wave 340 415	DP 1
Sample Common	N 03.0 H 02.0 L 03.0	Sample Pre - - -		Reagent Vol R1 AST 180 R2 AST 090	Water 200 - -	Speed Middle Point 48-64
				D1 W		
Technical Range (Conc.) 0000.00-0600.00	Technical Range (mAbs/10) -035000- 035000					
Normal Range						
01 Male-G1	0000.00- 0000.00		11	Standard Value		
02 Male-G2	0000.00- 0000.00		12	-		
03 Male-G3	0000.00- 0000.00		13	-		
04 Female-G1	0000.00- 0000.00		14	-		
05 Female-G2	0000.00- 0000.00		15	-		
06 Female-G3	0000.00- 0000.00		16	-		
49	-					
50	-					
Dup	00050					
Sen	00350					
Lin	30.0 00060					
Pro	0.00500000 U 01-02 03-04 000250					
ABS	I 025000					
Blank						
Type	Disable					
WHEN	None					
Sample	No Sample					
MNum	3					
Dup	-					
Inst Factor	a: 01.00 b: 000.00					

Chapter 3 Explanation of Menu

(3) Print sample of the ISE Parameters: [ISE]

				2007/06/15 17:35
Name ISE	DI	Reagent ISE(D)		
Type Common		ISEType ISE(D)		
Normal Range				
01	Male-G1	Na 000.0-000.0	K 00.00-00.00	Cl 000.0-000.0
02	Male-G2	000.0-000.0	00.00-00.00	000.0-000.0
03	Male-G3	000.0-000.0	00.00-00.00	000.0-000.0
04	Female-G1	000.0-000.0	00.00-00.00	000.0-000.0
05	Female-G2	000.0-000.0	00.00-00.00	000.0-000.0
06	Female-G3	000.0-000.0	00.00-00.00	000.0-000.0
07		-	-	-
08		-	-	-
49		-	-	-
50		-	-	-
Inst Factor		Na a: 01.00 b: 00.00		
		K a: 01.00 b: 00.00		
		Cl a: 01.00 b: 00.00		

Chapter 3 Explanation of Menu

(4) Print sample of the Serum information parameters: [SI]

2007/06/15 17:31					
Name SI	Sampling 02.0	Reagent	Type	Vol 148	Factor
					A 000001 B 000001 C 000001 D 000001 E 000001 F 000001
Normal Range					
H 0 1 2 3 4	L 0 1 2 3 4		I 0 1 2 3 4		
< 000001	< 000001		< 000001		
< 000002	< 000002		< 000002		
< 000003	< 000003		< 000003		
< 000004	< 000004		< 000004		
Inst Factor					
		H a: 01.00 b: 000.00	L a: 01.00 b: 000.00	I a: 01.00 b: 000.00	
Correction value					

(5) Print sample of the Method-to-Method calculation: [Calc]

2007/06/15 17:35					
No 1	Name Calc1	Print Calc1	Sample Common	Unit	DP 1
Expression $\left(\{11\}/(\{11\}+\{12\})\right)*100$					
Normal Range					
01	Male-G1	0000.0-0000.0	11	-	
02	Male-G2	0000.0-0000.0	12	-	
03	Male-G3	0000.0-0000.0	13	-	
04	Female-G1	0000.0-0000.0	14	-	
05	Female-G2	0000.0-0000.0	15	-	
06	Female-G3	0000.0-0000.0	16	-	
07		-	17	-	
08		-	18	-	
49		-			
50		-			

3.7 Print out

3.7.2 Print of the Setting Items

Chapter 3 Explanation of Menu

(6) Print sample of the Profile: [Profile]

2007/06/15 17:31

Profile

Name : Prof01 Sample : Common

TEST01 TEST02 TEST03 TEST04 AST ALT ISE

Name : Prof02 Sample : Common

TEST06 TEST07 TEST08 TEST09 CRP ISE

Name: Profile name
Sample: Sample type
Method names are printed out in serial order of method.

(7) Print sample of the Wash program: [Wash]

The setting condition of wash program is printed out.

2007/06/15 17:32

Wash Programs

Method	Method	Reagent
	- AST	Type Name
	R1-R1	Wash - AST
	R2-R2	- Water

Method: Method names are printed out. The mark “*” will be printed out if all methods are the targets.
R1-R1 (R2-R2): Each target reagent by reagent
Type: Washing reagent by reagent (It will be blank if pure water washing is applied. In this case, “Water” is printed out as reagent name.)
Name: Washing reagent name

Chapter 3 Explanation of Menu

(8) Print sample of the Calibration: [Reg Calib]

Details of calibration are printed out with method by method.
The setting values of [Sirial Dilut] are printed out as well.

2007/06/15 16:15							
Name Test04 Material	Sample Common	Interval 01	Sampling 3	Auto Lot Change Full	00	Formula Factor	
NEW R1Lot: R2Lot:							
DateTime:							
S1	Conc 0000.00	Work 000000	Master 000000	LotNo	Sample	Diluent	
S2	1000.00	010000	010000		Calibration curve data (New)		
S3							
S4							
S5							
S6							
S7							
K	00001000						
OLD R1Lot: R2Lot:							
DateTime:							
S1	Conc 0000.00	Work 000000	Master 000000	LotNo	Sample	Diluent	
S2	1000.00	010000	010000		Calibration curve data (Old)		
S3							
S4							
S5							
S6							
S7							
K	00001000						
Reagent Blank Blank							

3.7 Print out

3.7.2 Print of the Setting Items

Chapter 3 Explanation of Menu

(9) Print sample of the QC reports: [Details]

QC Report			2007/06/15 17:32
Name Test01	Unit IU/L	Sample Common	
Data From: 2007/07/25	2007/07/25	RoundNo:02	
Data To : 2007/07/25	2007/07/25	RoundNo:02	
Data Round No. 2007/07/25	Control Name Conc Ctrl1 30.5	Warning Error 1:2S	Control Name Conc Ctrl2 45.2 Warning Error 1:3S

Name	Measurement method name
Unit:	Unit
Sample:	Sample type
Date From:	Search period
Date To:	Search period
Round No:	Round number
Control Name:	Control name
Conc:	Measurement result
Warning Error:	Warning/Error strings

Three control results of “Control Name” to “Warning/Error strings” are printed out abreast.

Chapter 3 Explanation of Menu

(10) Print sample of the Daily: [Daily]

Daily QC List							
Control:C01 Ctrl01							2007/06/15 17:32
Date:2007/07/24 Round No. : 1							
Method	N	Mean	-2SD +2SD	SD	CV	Min Max	Warn/Err
Test01	3	45.0	-5 5	2.5	1.0	40.0 50.0	
Test02	3	22.0	-2 2	1.0	2.5	20.0 24.0	

Control: Control number and name
Date: Search starts date and end date
Round: Round number
Method: Method name
N: The number of the search data
Mean: The value -2SD calculated by the target measurement results
+2SD: The value +2SD calculated by the target measurement results
SD: The value SD calculated by the target measurement results
CV: The value CV calculated by the target measurement results
Min: The minimum value calculated by the target measurement results
Max: The maximum value calculated by the target measurement results
Warn/Err: Error or warning strings

3.7 Print out

3.7.2 Print of the Setting Items

Chapter 3 Explanation of Menu

(11) Print sample of the QC report: [Cumulative]

Cumulative QC List							
Control:C01 Ctrl01							
Date From:2007/07/24		To:2007/07/26					
Method	N	Mean	-2SD +2SD	SD	CV	Min Max	Warn/Err
Test01	1	162.9	-13.3 5	6.7	4.09	157.0 173.0	1 : 2S
Test02	1	93.54	-9.30 9.30	4.65	5	88.00 105.00	

Control:

Control number and name

Date From To:

Search start date and end date

Method::

Method name

N:

The number of the search data

Mean:

Mean value of concentration calculated by the target measurement results

-2SD:

The value -2SD calculated by the target measurement results

+2SD:

The value +2SD calculated by the target measurement results

SD:

The value SD calculated by the target measurement results

CV:

The value CV calculated by the target measurement results

Min:

The minimum value calculated by the target measurement results

Max:

The maximum value calculated by the target measurement results

Warn/Err:

Error or warning strings

Chapter 3 Explanation of Menu

(12) Print sample of the QC setting: [Setting]

QC Settings					
Name Test04	Sample Common	Interval 000	Auto Tests :0000	Min:0000	Mode:MEAN-R No.:-
Control Name Mean SD					
1 Ctrl1	5.00	1.00			
2 Ctrl2	10.00	2.00			
3 Ctrl3	15.00	3.00			
Current result exceeds 2SD			WARNING		
Current result exceeds 3SD			ERROR		
Current result exceeds 4SD			INACTIVE		
Last 2 results exceed 2SD			INACTIVE		
2 out of last 3 results exceed 2SD			INACTIVE		
Range exceeds 4SD			INACTIVE		
Any 3 result exceed 1SD			INACTIVE		
Any 4 result exceed 1SD			INACTIVE		
10 results same side of mean			INACTIVE		
7 continue points trend			INACTIVE		

Name: Method name
Sample: Sample type
Interval: Check interval
Mode: Mode for calculation
With a calculation mode, either "MEAN-R" or "X-R" can be printed out.
No.: Data number
It will be printed out when the calculation mode is "X-R".
"No." will be put "-" when the mode is "MEAN-R".
Control Name: Control Name
Mean: Mean value
SD: Standard Deviation

3.7 Print out

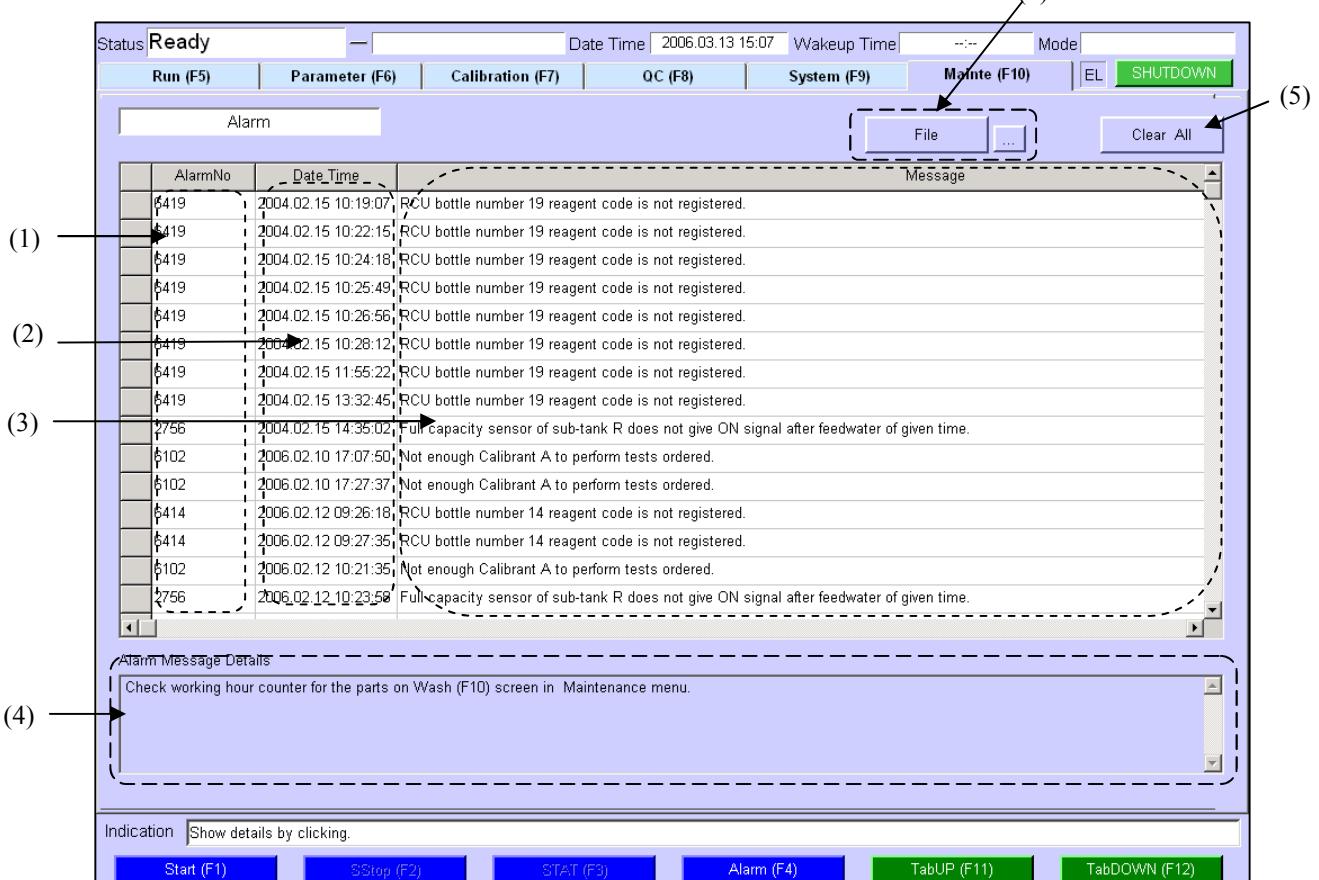
3.7.2 Print of the Setting Items

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Chapter 4 Alarm

4.1 Alarm Overview

Information of abnormalities, which occur during operation, is displayed as alarm messages. These abnormalities are detected mechanically, electrically or by software. When an error occurs, the [Alarm (F4)] button at the bottom of the screen starts blinking in red. Pressing the [F4] key switches the current screen to “Alarm screen” which displays the error code and error description.



No.	Explanation
(1)	Alarm No. Alarm number for the current alarm event is displayed. Refer to “4.2 User Interface Alarm” and “4.3 Unit Alarm”.
(2)	Date Time : Date and time when the alarm occurs is displayed.
(3)	Message : Alarm contents are displayed.
(4)	Alarm Message Details : Alarm detail description is displayed.
(5)	Clear All : When click on this button, deletes all alarms in the list.
(6)	File : When click on this button, saves all alarms into the destination directory. <input type="button"/> : When click on this button, you can designate the destination directory where is saved alarm file. And the alarm file's name is automatically assigned by system. <div style="float: right; border: 1px solid black; padding: 5px; margin-top: 10px;"> <Assigned alarm file name> alm: Fixed name yy: Year (00 to 99) mm: Month (01 to 12) dd: Day (01 to 31) nn: Number (01 to 99) </div>

4.1.1 Alarm Type

Last two digits of the error code are defined as follows;

Level	Alarm type	Definition of last two digits	Description
1	Emergency stop	“00” ~ “49”	The analyzer emergently stops the operation due to a fatal error.
2	Alarm 1	“50” ~ “74”	Sampling operation for new samples stops. The measurement for the already dispensed samples will be continued.
3	Alarm 2	“75” ~ “99”	Only the message is displayed, the measurement operation continues.

4.1.2 Alarm Output Destination

Alarm messages are normally output on the screen of the operational PC. Evaluation flags for the measurement results are printed out at the printer. cf. op. cit., [3.1.2 Round (Error Flags)] for detail.

4.1.3 Alarm Code Numbering System

Alarm code, which is a combination of unit number and error number, is assigned to each error event. This 4-digit code consists of 2-digit unit number and 2-digit error number. (Ex. 1310 etc.)

4.1 Alarm Overview

4.1.1 Alarm Type/ 4.1.2 Alarm Output Destination/ 4.1.3 Alarm Code Numbering System

4.2 User Interface Alarm

Code	Message	Explanation and Action
6002	Concentration calculation error.	The measurement result(s) could not be converted into concentration. Check the setting details on the [Calibration] screen and also verify if the calibration is performed correctly.
6003	Full calibration failed.	Full calibration was not performed appropriately. The concentration value input on the [Calibration] screen may be wrong or standard sample may not be placed in the ASP appropriately. Check and try again.
6004	Full, one point or 2-point calibration failed.	Full calibration, one-point or two-point calibration failed. The concentration value input on the [Calibration] screen may be wrong or standard sample may not be placed in the ASP appropriately. Check and try again.
6005	Printer output failed.	Printer output failed. Verify if the cable is connected appropriately or the printer is in the [Ready] state.
6008	Invalid standard sample found.	Standard sample whose concentration value has not been set was found. Make sure to input the concentration value for the standard sample which you calibrate.
6009	Concentration information not available.	Input concentration values are less than 3. Input 3 or more concentration values for the standard sample to be calibrated.
6011	Data reception error.	Received invalid data from the Host. Check with the Host.
6012	Software interrupted.	Overflow or zero divide error occurred during concentration conversion.
6013	Bcc error occurred during host communication.	Bcc error occurred during host communication. Check the communication setting details on the [System setting] screen.
6014	Time out error occurred during host communication.	No response from the Host. Verify if the communication cable to the Host is appropriately connected. Check the communication setting details on the [System setting] screen.
6015	Re transmission error occurred during host communication.	Data was resent to the Host, however, no response. Verify if the communication cable to the Host is appropriately connected. Check the communication setting details on the [System setting] screen.
6016	Unable to display time course data.	Reagent blank data has been deleted automatically due to expiration of storage period. Reagent blank data for the selected measurement has been deleted. Unable to display time course data.
6030	Database update failure.	Database may be corrupt or damaged. Contact our customer service section for technical support.
6031	Database insertion failure.	
6032	Database deletion failure.	
6033	Database SelectOpen failure.	
6100	There are less than 30 good cuvettes and testing cannot begin.	Conduct cuvette cleaning. If you still have an error, replace no-good cuvette(s) with good cuvette(s).

4.2 User Interface Alarm

Chapter 4 Alarm

Code	Message	Explanation and Action
6101	Not enough reagent inventory to initiate the run.	The amount of the required reagent(s) for the measurement shown below is not sufficient. Replace reagent bottle(s) with new ones.
6102	Calibrant A remaining volume is running short.	Remaining amount of Calibrant A is insufficient. Replace the bottle with new one.
6103	Possible shortage of reagent for measurement.	Following reagent remaining amount required for the measurement may be running short.
6104	Error detected	<p>As the sensor has detected an error, the measurement cannot be started. Check the situation.</p> <p>Press [Ctrl] + [F2] for emergency stop and click [F4] to confirm error status. Follow [3.6.4 Sensor] to identify sensor number.</p>
6120	Standard has been set for “Factor” assay.	Factor computation is included among the placed standard samples. Check the situation.
6121	Found calibrators other than S2. As Blank Measurement is set to enable reagent blank as S1, only S2 can be used for calibration.	Even if the selection of “Enable reagent blank as S1” is set, a calibrator (standard sample) other than S2 is placed. Check the situation.
6122	Found series dilution calibrators. As Blank Measurement is set to enable reagent blank as S1, only S2 can be used for calibration.	Even if the selection of “Enable reagent blank as S1” is set, a standard sample except for S1 is placed. Check the situation and place S2 standard sample.
6123	Calibration is performed due to lack of calibration curve for method.	Check the sample number and method number:
6124	Measurement is not performed due to lack of calibration curve for method.	
6125	Disagreed reagent lot number.	There is no agreed reagent lot numbers with the measurement result data. Try again after check.
6201~6260	RCU bottle barcode number (1~60) is not usable.	Check if there are any smears and/or damages on the barcode label applied to the reagent bottles
6301~6360	RCU bottle number (1~60) barcode has already been assigned.	The barcode is already assigned for the bottle that has been already placed in other position.
6401~6460	RCU bottle number (1~60) reagent code is not registered.	Check the reagent registration status at the [System] screen.
6500	The process has been interrupted due to mechanical interference.	Contact our customer service section for technical support.
6501	Automatic gain adjustment failed.	Check the halogen lamp. Perform automatic gain adjustment. If fault returns, contact our customer service section for technical support.
6502	Restart failed.	While dealing with the emergency stop situation, an emergency stop occurred in the main analyzer. Hardware problems may be occurring. Check the situation.
6510	Error detected	<p>Sensor detects the error. Check the sensor and sensor number.</p> <p>Follow [3.6.4 Sensor] to identify sensor number.</p>

4.2 User Interface Alarm

Chapter 4 Alarm

Code	Message	Explanation and Action
6520	IRU temperature is less than 36.5 degrees.	The temperature in the IRU must be kept within a range of 36.5 °C to 37.5°C (not including 37.5°C). Observe the temperature monitor on the [Mainte]-[Perform] screen and contact our customer service section for technical support.
6521	IRU temperature is more than 37.5 degrees.	
6522	RCU temperature is more than 15 degrees.	Temperature in the RCU must be kept at 15°C or lower. Observe the temperature monitor on the [Mainte]-[Perform] screen and contact our customer service section for technical support.
6523	ASP temperature is more than 10 degrees.	The temperature in the ASP must be kept at 10°C or lower. Observe the temperature monitor on the [Mainte]-[Perform] screen and contact our customer service section for technical support.
6600	Omitted order registration of position and sample numbers.	Order registrations for the following position numbers and sample numbers have not been performed yet. Check the orders.
6601	Measurement is not performed due to overlaps of sample numbers.	Measurement cannot be performed because the order registrations for the following sample numbers are overlapped. Check the orders.
6602	Existing order for a sample has been overwritten with new order by ASP Scan.	
7001	Existing order for a sample has been overwritten with new order from host.	As a new order was sent by the ASP Scan to the existing sample, the existing order has been renewed into the new order.
7002	Communication error occurred during order reception from host.	
7003	Communication error occurred during result transmission to host.	Verify that the communication cable to the Host is connected appropriately. Perform an order inquiry to the Host again. If you still have an error, contact our customer service section for technical support.
7004	Received order with short reagent received from host.	Received order(s) with following reagent shortage method(s). Add a new reagent and perform an order inquiry to the Host again.
7005	Sample number with invalid character received from host and discarded it.	Because the sample number other than normal sample is received, following orders were discarded. Check the correct order with the Host.
7006	Failed to allocate memory for result transmission.	Check the memory capacity of the PC, and stop the unnecessary applications, then resend the result(s) to the Host.
7007	Host transmissions retry time over error.	Communication protocol may not be set appropriately. Check the communication setting details on the [System setting] screen.
7008	Failed to allocate memory for order acquire.	Check the memory capacity of the PC, and stop the unnecessary applications, then perform an order inquiry to the Host again.
7010	Sample number with invalid character received from host and discarded.	As an unregistered sample number is received, the following orders were discarded.
7011	Failed to allocate memory while acquiring QC data.	Reboot the PC. If you still have an error, contact our customer service section for technical support.
7030	Failed to read serum indices setting file.	Either the serum information definition file does not exist or the file format is not correct. Contact our customer service section for technical support.
7051	Received more orders from host than the analyzer can handle.	Received more orders than the maximum sample numbers (1,000) for order registration. Check with the Host.
7052	ISE calibrator B is not registered.	Registration of calibrator B to the standard sample tray position is required to execute the calibration.
7053	ISE wash solution is not registered.	Registration of wash solution to the standard sample tray position is required to execute the ISE wash.

4.2 User Interface Alarm

Chapter 4 Alarm

4.3 Unit Alarm

Code	Message	Action
0075	System file is not recognized.	System file cannot be found. Contact our customer service section for technical support.

4.3.1 Reagent Pipette 1 (RPT1)

Reagent Pipette's Rotation Movement (RPT1R)

Code	Level	Message	Location of Problem & Cause	Action
0102	1	Reagent pipette (RPT1) rotation sensor is on after rotation.	Nozzle position is out of the IRU side normal movable area.	
0103	1	Reagent pipette (RPT1) rotation sensor is on before rotation. (while not at its origin)	Rotary drive unit	
0104	1	Reagent pipette (RPT1) rotation sensor is off after returning to its origin.	Nozzle position is out of the RCU side normal movable area. Rotary drive unit RPT1 origin sensor	Turn off the power, and verify if the RPT1 Unit can move smoothly within its normal movable area.
0106	1	Reagent pipette (RPT1) up sensor is off at initiation of rotation command.	Nozzle position is beyond the lower limit. The nozzle cannot return to its origin due to an external force. Up-down driving mechanism Upper origin sensor	Reinitialize the analyzer, and check if it recovers correctly. If you still have an error, contact our customer service section for technical support.
0156	2	Reagent pipette (RPT1) up sensor is off at initiation of rotation command. (while not at trough or RCU position)	The nozzle cannot return to its origin due to an external force. Up-down driving mechanism Upper origin sensor	

Reagent Pipette's Vertical Movement (RPT1U)

Code	Level	Message	Location of Problem & Cause	Action
0201	1	Reagent pipette (RPT1), up origin sensor, is off before descent.	Up-down driving mechanism Upper origin sensor	
0202	1	Reagent pipette (RPT1), up origin sensor, is still on after descent.	Nozzle position is beyond the upper limit. Up-down driving mechanism Upper origin sensor	Turn off the power, and verify if the RPT1 Unit can move smoothly within its normal movable area.
0203	1	Reagent pipette (RPT1), ascent to origin sensor, is on before ascent.	Nozzle position is beyond the lower limit. The nozzle cannot return to its origin due to an external force. Upper origin sensor	Reinitialize the analyzer, and check if it recovers correctly. If you still have an error, contact our customer service section for technical support.
0204	1	Reagent pipette (RPT1), ascent to origin sensor, is off after ascent.	Nozzle position is beyond the upper limit. Up-down driving mechanism Upper origin sensor	
0205	1	Reagent pipette (RPT1) origin sensor is not off at the initiation of movement command. (from a position other than its origin)	Nozzle position is beyond the upper limit. Up-down driving mechanism Upper origin sensor	
0206	1	IRU safety sensor is off at reagent pipette (RPT1) movement command.	Positional relation between IRU and RPT1 IRU Drive unit IRU Ready position sensor	Turn off the power, and verify if the IRU Unit can move smoothly within its normal movable area. Reinitialize the analyzer, and check if it recovers correctly. If you still have an error, contact our customer service section for technical support.
0209	1	Reagent pipette (RPT1) is not above IRU at initiation of the pipette up or down command.	RPT1 Origin sensor RPT1 Rotary drive unit	Turn off the power, and verify if the RPT1 Unit can move smoothly within its normal movable area. Reinitialize the analyzer, and check if it recovers correctly. If you still have an error, contact our customer service section for technical support.

4.3 Unit Alarm

4.3.1 Reagent Pipette 1 (RPT1)

Chapter 4 Alarm

Code	Level	Message	Location of Problem & Cause	Action
0251	2	Reagent pipette (RPT1) up position sensor is off at initiation of reagent pipette downward command.	RPT1U Drive unit	<p>Turn off the power, and verify if the RPT1 Unit can move smoothly within its normal movable area.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
0253	2	Reagent pipette (RPT1) up position sensor is on at initiation of reagent pipette upward command.		
0255	2	Reagent pipette (RPT1) up sensor is on at initiation of reagent pipette up or down command. (from a position other than its origin)		<p>Turn off the power, and verify if the RPT1 Unit can move smoothly within its normal movable area.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
0257	2	Reagent pipette (RPT1) safety sensor is off at initiation of the pipette up or down command at RCU.	RPT1 nozzle position at the RPT 1 Trough. RPT1U Drive unit	
0258	2	Reagent pipette (RPT1) position sensor for RCU is off at initiation of the pipette up or down command at RCU.	RPT1 nozzle position at the RCU reagent aspiration point. RPT1U Drive unit RPT1 Ready position sensor	
0275	3	Reagent pipette (RPT1) crash detection sensor is on before reagent pipette has reached the bottom of the RCU.	Reagent shortage Lower limit sensor RCU Drive unit RPT1U Drive unit	<p>Wipe the pipette nozzle with alcohol.</p> <p>Check if the liquid level detection mechanism of the RPT1 has been inhibited.</p> <p>While holding the pipette arm, verify if the nozzle can be moved vertically by a few millimeters with hands.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
0276	3	Reagent pipette (RPT1) cannot detect RCU liquid level.	Reagent shortage Liquid level sensor RCU Drive unit	<p>Verify if there is enough reagent quantity in the reagent bottle(s) placed in the RCU. If there is enough reagent quantity in the bottles, then verify the vertical movement of the RPT1.</p> <p>Check if the liquid level detection mechanism of the RPT1 has been inhibited. While holding the pipette arm, verify if the nozzle can be moved vertically by a few millimeters with hands.</p> <p>Wipe the pipette nozzle with alcohol.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
0278	3	Reagent pipette (RPT1) hardware is functioning abnormally.	Reagent Liquid level sensor	<p>Wipe the pipette nozzle with alcohol.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
0279	3	RPT1 liquid level detection at RCU; Liquid level not detected.		<p>Check the condition of the reagent bottle(s) placed in the RCU. Remove the bubbles, if any, on the surface of reagent.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
0281	3	Reagent pipette (RPT1) crash detection sensor is on at initiation of dispensation command at IRU.	IRU Drive system RPT1R Rotary drive system	<p>When the RPT1 descended, the IRU did not stop at the center. Check if there are any plays in the IRU Drive system.</p> <p>If you still have an error, contact our customer service section for technical support.</p>

4.3 Unit Alarm

4.3.1 Reagent Pipette 1 (RPT1)

Chapter 4 Alarm

Syringe Pump for Reagent Pipette 1 (RPP1)

Code	Level	Message	Location of Problem & Cause	Action
0301	1	Reagent syringe pump (RPP1) origin sensor is off at initiation of aspiration command.	RPP 1 Origin sensor RPP1Drive unit	
0302	1	Reagent syringe pump (RPP1) origin sensor is still on although syringe has left its origin.	RPP 1 Drive unit RPP1 Piping section Solenoid valve Syringe tip Upper origin sensor Installation position of the gobo for the Upper origin sensor is too high.	
0303	1	Reagent syringe pump (RPP1) origin sensor is on before dispensation command.	RPP 1 Drive unit RPP1 Piping section Solenoid valve Syringe tip Upper origin sensor	<p>This indicates that the RPP1 syringe is not located appropriately. Visually check the syringe movement.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p>
0304	1	Reagent syringe pump (RPP1) origin sensor is still off although the reagent syringe has returned to its origin.		<p>If you still have an error, contact our customer service section for technical support.</p>
0305	1	Reagent syringe pump (RPP1) origin sensor is not off at initiation of reagent pump movement. (while reagent syringe is not at its origin)	RPP 1 Drive unit RPP1 Piping section Solenoid valve Syringe tip Upper origin sensor	
0351	2	Reagent syringe pump (RPP1) origin sensor is off at initiation of aspiration command.		
0352	2	RPT1 nozzle is clogged.	RPT1 nozzle is clogged	Clean the RPT1 nozzle with the nozzle-cleaning jig.
0353	2	Reagent syringe pump (RPP1)origin sensor is on at initiation of dispensation command.	RPP 1 Drive unit RPP1 Piping section Solenoid valve Syringe tip Upper origin sensor	<p>This indicates that the RPP1 syringe is not located appropriately. Visually check the syringe movement.</p>
0355	2	Reagent syringe pump (RPP1)origin sensor is not off at initiation of reagent pump movement. (while reagent syringe is at trough or RCU position)	RPP 1 Drive unit RPP1 Piping section Solenoid valve Syringe tip Upper origin sensor	<p>Reinitialize the analyzer, and check if it recovers correctly.</p>
0356	2	Reagent syringe pump (RPP1) safety sensor is off at initiation of dispensation command.	RPT1 Safety sensor	<p>If you still have an error, contact our customer service section for technical support.</p>

4.3 Unit Alarm

4.3.1 Reagent Pipette 1 (RPT1)

Chapter 4 Alarm

Syringe Pump of Water for Reagent Pipette 1 (RPP1W)

Code	Level	Message	Location of Problem & Cause	Action
4001	1	Reagent syringe pump for wash (RPP1W) origin sensor is off at initiation of aspiration at origin. (Trough or RCU)	RPP1W Origin sensor RPP1W Drive unit	
4002	1	Reagent syringe pump for wash (RPP1W) origin sensor is on although the syringe has left origin. (at initialization)	RPP1W Drive unit RPP1W Piping section Solenoid valve Syringe tip Upper origin sensor Installation position of the gobo for the Upper origin sensor is too high.	
4003	1	Reagent syringe pump for wash (RPP1W) origin sensor is on before initiation of the syringe movement command. (from fully dispensed position)		
4004	1	Reagent syringe pump for wash (RPP1W) origin sensor is still off although the syringe has returned to origin. (at initialization)		This indicates that the RPP1W syringe is not located appropriately. Visually check the syringe movement. Reinitialize the analyzer, and check if it recovers correctly.
4005	1	At the initiation of movement the reagent syringe pump for wash (RPP1W) origin sensor is not off although the syringe is not at origin.	RPP1W Drive unit RPP1W Piping section Solenoid valve Syringe tip Upper origin sensor	If you still have an error, contact our customer service section for technical support.
4051	2	Reagent syringe pump for wash (RPP1W) origin sensor is off at initiation of aspiration at origin. (Trough or RCU)		
4053	2	Reagent syringe pump for wash (RPP1W) origin sensor is on before initiation of the syringe movement command. (from fully dispensed position) (Trough or RCU)		
4055	2	At the initiation of movement the reagent syringe pump for wash (RPP1W), the origin sensor is not off although the syringe is not at origin.		
4056	2	Reagent pipette (RPT1) safety sensor is off before initiation of RPP1W movement command. (from fully dispensed position)	RPT1 Safety sensor	Turn off the power, and verify if the RPT1 Unit can move smoothly within its normal movable area. Reinitialize the analyzer, and check if it recovers correctly. If you still have an error, contact our customer service section for technical support.

4.3 Unit Alarm

4.3.1 Reagent Pipette 1 (RPT1)

Chapter 4 Alarm

4.3.2 Reagent Pipette 2 (RPT2)

Reagent Pipette's Rotation Movement (RPT2R)

Code	Level	Message	Location of Problem & Cause	Action
4102	1	Reagent pipette (RPT2) rotation sensor is on after rotation.	Nozzle position is out of the IRU side normal movable area. Rotary drive unit	
4103	1	Reagent pipette (RPT2) rotation origin sensor is on at initiation of return to origin command.	Nozzle position is out of the RCU side normal movable area. Rotary drive unit RPT2R Origin sensor	
4104	1	Reagent pipette (RPT2) rotation origin sensor is still off although the RPT2 has returned to origin. (at initialization)	Nozzle position is beyond the lower limit. The nozzle cannot return to its origin due to an external force. Up-down driving mechanism Upper origin sensor	Turn off the power, and verify if the RPT2 Unit can move smoothly within its normal movable area. Reinitialize the analyzer, and check if it recovers correctly.
4106	1	Reagent pipette (RPT2) up origin sensor is off at initiation of RPT2 rotation command.	The nozzle cannot return to its origin due to an external force. Up-down driving mechanism Upper origin sensor	If you still have an error, contact our customer service section for technical support.
4156	2	Reagent pipette (RPT2) up origin sensor is on at initiation of RPT2 rotation command. (Trough or RCU)		

Reagent Pipette's Vertical Movement (RPT2U)

Code	Level	Message	Location of Problem & Cause	Action
4201	1	Reagent pipette (RPT2) up origin sensor is off at initiation of the pipette descent from origin command.	Up-down driving mechanism Upper origin sensor	
4202	1	Reagent pipette (RPT2) up origin sensor is on although the RPT2 has left up origin. (at initialization)	Nozzle position is beyond the upper limit. Up-down driving mechanism Upper origin sensor	Turn off the power, and verify if the RPT2 Unit can move smoothly within its normal movable area.
4203	1	Reagent pipette (RPT2) up origin sensor is on at initiation of return to origin command.		Reinitialize the analyzer, and check if it recovers correctly.
4204	1	Reagent pipette (RPT2) up origin sensor is still off although the RPT2 has returned to up origin. (at initialization)	Nozzle position is beyond the lower limit. The nozzle cannot return to its origin due to an external force. Upper origin sensor	If you still have an error, contact our customer service section for technical support.
4205	1	At the initiation of movement the reagent pipette (RPT2) up origin sensor is not off although the RPT2 is not at up origin.	Nozzle position is beyond the lower limit. Up-down driving mechanism Upper origin sensor	
4206	1	IRU safety sensor is off at initiation of the reagent pipette (RPT2) up or down command.	Positional relation between IRU and RPT2 IRU Drive unit IRU Ready sensor position	Turn off the power, and verify if the IRU Unit can move smoothly within its normal movable area. Reinitialize the analyzer, and check if it recovers correctly. If you still have an error, contact our customer service section for technical support.
4209	1	Reagent pipette (RPT2) is not above IRU at initiation of the pipette up or down command.	RPT 2 R Origin sensor RPT 2 R Rotary drive unit	Turn off the power, and verify if the RPT2 Unit can move smoothly within its normal movable area. Reinitialize the analyzer, and check if it recovers correctly. If you still have an error, contact our customer service section for technical support.
4210	1	Mixer2 is not above its trough at initiation of movement command. (at initialization)	MIX2 is not located above its trough.	MIX2 must be located above its trough at initiation. Turn off the power, and move the MIX2 to above its trough.

4.3 Unit Alarm

4.3.2 Reagent Pipette 2 (RPT2)

Chapter 4 Alarm

Code	Level	Message	Location of Problem & Cause	Action
4251	2	Reagent pipette (RPT2) up origin sensor is off at initiation of the pipette descent from origin command. (at trough or RCU)	RPT2U Drive unit	<p>Turn off the power, and verify if the RPT2 Unit can move smoothly within its normal movable area.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p>
4253	2	Reagent pipette (RPT2) up origin sensor is on at initiation of return to origin command. (Trough or RCU)		
4255	2	At the initiation of movement, the reagent pipette (RPT2) up origin sensor is not off although the RPT2 is not at up origin. (Trough or RCU)		
4257	2	Reagent pipette (RPT2) safety sensor is off at initiation of the pipette up or down command at RCU.	RPT2 nozzle position at the RPT 2 Trough. RPT2U Drive unit RPT2 Ready position sensor	<p>If you still have an error, contact our customer service section for technical support.</p>
4258	2	Reagent pipette (RPT2) position sensor for RCU is off at initiation of the pipette up or down command at RCU.	RPT2 nozzle position at the RCU reagent aspiration position. RPT2U Drive unit RPT2 Ready position sensor	
4275	3	Reagent pipette (RPT2) crash detection sensor is on before reagent pipette has reached the bottom of the RCU.	Reagent shortage Lower limit sensor RCU Drive unit RPT2U Drive unit	
4276	3	RCU liquid level has not been detected by reagent pipette (RPT2).	Reagent shortage Liquid level sensor RCU Drive unit	<p>Wipe the pipette nozzle with alcohol.</p> <p>Check if the liquid level detection mechanism of the RPT2 has been inhibited. While holding the pipette arm, verify if the nozzle can be moved vertically by a few millimeters with hands.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
4278	3	Level detection of RCU with reagent pipette (RPT2) indicated erroneously H/W.	Reagent Liquid level sensor	<p>Check if the liquid level detection mechanism of the RPT2 has been inhibited. While holding the pipette arm, verify if the nozzle can be moved vertically by a few millimeters with hands.</p> <p>Wipe the pipette nozzle with alcohol.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
4279	3	RCU liquid level has not been detected by reagent pipette (RPT2) at retrial.		<p>Check the condition of the reagent bottle(s) placed in the RCU. Remove the bubbles, if any, on the surface of reagent.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
4281	3	Reagent pipette (RPT2) crash detection sensor is on at initiation of dispensation command at IRU.	IRU Drive system RPT2R Rotary drive system	<p>When the RPT2 descended, the IRU did not stop at the center. Check if there are any plays in the IRU Drive system.</p> <p>If you still have an error, contact our customer service section for technical support.</p>

4.3 Unit Alarm

4.3.2 Reagent Pipette 2 (RPT2)

Chapter 4 Alarm

Syringe Pump for Reagent Pipette 2 (RPP2)

Code	Level	Message	Location of Problem & Cause	Action
4301	1	Reagent syringe pump (RPP2) origin sensor is off at initiation of aspiration at origin.	RPP 2 Origin sensor RPP 2 Drive unit	
4302	1	Reagent syringe pump (RPP2) origin sensor is on although the syringe has left origin. (at initialization)	RPP2 Drive unit RPP2 Piping section Solenoid valve Syringe tip Upper origin sensor Installation position of the gobo for the Upper origin sensor is too high.	
4303	1	Reagent syringe pump (RPP2) origin sensor is on before initiation of the syringe movement command. (from fully dispensed position)		
4304	1	Reagent syringe pump (RPP2) origin sensor is still off although the syringe has returned to origin. (at initialization)		This indicates that the RPP2 syringe is not located appropriately. Visually check the syringe movement. Reinitialize the analyzer, and check if it recovers correctly.
4305	1	At the initiation of movement the reagent syringe pump (RPP2) origin sensor is not off although the syringe is not at origin.		If you still have an error, contact our customer service section for technical support.
4351	2	Reagent syringe pump (RPP2) origin sensor is off at initiation of aspiration at origin. (at trough or RCU)	RPP2 Drive unit RPP2 Piping section Solenoid valve Syringe tip Upper origin sensor	
4353	2	Reagent syringe pump (RPP2) origin sensor is on before initiation of the syringe movement command. (from fully dispensed position) (Trough or RCU)		
4355	2	At the initiation of movement the reagent syringe pump (RPP2) origin sensor is not off although the syringe is not at origin.		
4356	2	Reagent pipette (RPT2) safety sensor is on before initiation of RPP2 syringe movement command. (from fully dispensed position)	RPT2 Safety sensor	

4.3 Unit Alarm

4.3.2 Reagent Pipette 2 (RPT2)

Chapter 4 Alarm

Syringe Pump of Water for Reagent Pipette 2 (RPP2W)

Code	Level	Message	Location of Problem & Cause	Action
4401	1	Reagent syringe pump of water (RPP2W) origin sensor is off at initiation of aspiration at origin. (Trough or RCU)	RPP2W Origin sensor RPP2W Drive unit	
4402	1	Reagent syringe pump for wash (RPP2W) origin sensor is on although its syringe position has left origin. (at initialization)	RPP2W Drive unit RPP2W Piping section Solenoid valve Syringe tip Upper origin sensor Installation position of the gobo for the Upper origin sensor is too high.	
4403	1	Reagent syringe pump for wash (RPP2W) origin sensor is on before initiation of syringe movement command. (from fully dispensed position)		
4404	1	Reagent syringe pump for wash (RPP2W) origin sensor is still off although its reagent syringe has returned to origin. (at initialization)		<p>This indicates that the RPP2W syringe is not located appropriately. Visually check the syringe movement.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p>
4405	1	At the initiation of movement the reagent syringe pump for wash (RPP2W) origin sensor is not off although the syringe position is not at origin point.	RPP2W Drive unit RPP2W Piping section Solenoid valve Syringe tip Upper origin sensor	<p>If you still have an error, contact our customer service section for technical support.</p>
4451	2	Reagent syringe pump for wash (RPP2W) origin sensor is off at initiation of aspiration at origin. (Trough or RCU)		
4453	2	Reagent syringe pump for wash (RPP2W) origin sensor is on before initiation of syringe movement command. (from fully dispensed position) (Trough or RCU)		
4455	2	At the initiation of movement the reagent syringe pump for wash (RPP2W), the origin sensor is not off although the syringe position is not at origin.		
4456	2	Reagent pipette (RPT2) safety sensor is off before initiation of syringe of RPP2W movement command. (from fully dispensed position)	RPT2 Safety sensor	<p>Turn off the power, and verify if the RPT2 Unit can move smoothly within its normal movable area.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>

4.3 Unit Alarm

4.3.2 Reagent Pipette 2 (RPT2)

Chapter 4 Alarm

4.3.3 Sample Pipette (SPT)

Sample Pipette's Rotation Movement (S PTR)

Code	Level	Message	Location of Problem & Cause	Action
0402	1	Sample pipette (SPT) origin rotation sensor is still on although the pipette has left its origin.	Nozzle position is out of the IRU side normal movable area.	
0403	1	Sample pipette (SPT) origin rotation sensor is on before rotation to its origin.	S PTR Drive unit	
0404	1	Sample pipette (SPT) origin rotation sensor is still off although the pipette has returned to its origin.	Nozzle position is out of the RCU side normal movable area. S PTR Drive unit S PTR Origin sensor	Turn off the power, and verify if the SPT can move smoothly (vertical & rotational movement) within its normal movable area. Reinitialize the analyzer, and check if it recovers correctly.
0406	1	Sample pipette (SPT) up origin rotation sensor is off at initiation of pipette rotation command.	Nozzle position is beyond the lower limit. The nozzle cannot return to its origin due to an external force. S PTR Drive unit S PTU Origin sensor	If you still have an error, contact our customer service section for technical support.
0456	2	Sample pipette (SPT) origin sensor is off at initiation of pipette rotation command.	S PTU Drive unit Upper origin sensor	

Sample Pipette's Vertical Movement (S PTU)

Code	Level	Message	Location of Problem & Cause	Action
0501	1	Sample pipette (SPT) up origin sensor is off at initiation of pipette descent from origin command.	S PTU Drive unit Upper origin sensor	
0502	1	Sample pipette (SPT) up origin sensor is on after pipette descent.	Nozzle position is beyond the upper limit. S PTU Drive unit Upper origin sensor	Turn off the power, and verify if the SPT can move smoothly (vertical & rotational movement) within its normal movable area.
0503	1	Sample pipette (SPT) up sensor is on at initiation of pipette return to origin command.	Nozzle position is beyond the upper limit. The nozzle cannot return to its origin due to an external force. Upper origin sensor	Reinitialize the analyzer, and check if it recovers correctly.
0504	1	SPT ascend to origin; S PTU origin sensor (S PTU_ZERO) is off after ascend. (At initialization)	Nozzle position is beyond the upper limit. The nozzle cannot return to its origin due to an external force. Upper origin sensor	If you still have an error, contact our customer service section for technical support.
0505	1	Sample pipette (SPT) up origin sensor is not off at initiation of pipette movement. (the pipette is not at its origin)	Nozzle position is beyond the upper limit. Upper origin sensor.	
0506	1	IRU safety sensor is not on at the sample pipette (SPT) up or down command.	IRU Drive unit IRU Ready position sensor	Turn off the power, and verify if the IRU Unit can move smoothly within its normal movable area. Reinitialize the analyzer, and check if it recovers correctly. If you still have an error, contact our customer service section for technical support.
0510	1	MIX1 is not above trough at initiation of movement. (at initialization)	MIX1 is not located above its trough when initializing the SPT.	MIX1 must be located above its trough when starting initialization. Turn off the power and move the MIX1 to its trough.
0511	1	Sample pipette (SPT) rotation origin sensor is off at initiation of the pipette up or down command at IRU.	S PTR Origin sensor S PTR Rotary drive unit	Turn off the power, and verify if the SPT can move smoothly (vertical & rotational movement) within its normal movable area. Reinitialize the analyzer, and check if it recovers correctly. If you still have an error, contact our customer service section for technical support.

Chapter 4 Alarm

Code	Level	Message	Location of Problem & Cause	Action
0551	2	Sample pipette (SPT) origin sensor is off at initiation of pipette downward movement.		
0553	2	Sample pipette (SPT) origin sensor is on at initiation of upward movement.	SPTU Drive unit Upper origin sensor	
0555	2	Sample pipette (SPT) origin sensor is not off at initiation of pipette movement. (the pipette is not at its origin)		
0557	2	Sample pipette (SPT) safety sensor is off at initiation of the pipette upward command at ASP.	Nozzle position is out of the normal movable area. T/S Position sensor	Turn off the power, and verify if the SPT can move smoothly (vertical & rotational movement) within its normal movable area.
0558	2	Sample pipette (SPT) position sensor for ASP is off at initiation of the pipette upward command at ASP.	SPTASP Sensor SPTR Rotary drive unit	Reinitialize the analyzer, and check if it recovers correctly.
0559	2	Sample pipette (SPT) trough sensor is on at initiation of the pipette up or down command at ASP.	SPT_TS Sensor SPTR Rotary drive unit	If you still have an error, contact our customer service section for technical support.
0561	2	Sample pipette (SPT) trough sensor is not on at initiation of the pipette up or down command at the trough.	SPT_TS Sensor SPTR Rotary drive unit	
0562	2	Sample pipette (SPT) trough sensor is off at initiation of the pipette up or down command at ISE.	SPT_TS Sensor SPTR Rotary drive unit	
0563	2	SPT position sensor for ASP is off at initiation of the pipette up or down command at ISE.	SPT_TS Sensor SPTR Rotary drive unit	
0570	2	SPT clot detected while aspirating.	SPT nozzle clotting Sample clotting	
0571	2	SPT clot detected while dispensing.	SPT nozzle clotting Sample clotting	Check sample condition. Shut down the analyzer and clean SPT nozzle if necessary.
0572	2	SPT clot detected while washing.	SPT nozzle clotting Sample clotting	If you still have this error, contact our customer service for technical support.
0573	2	Communication error for SPT clot detection.	ASP Drive unit SPT Clot Detecting unit	
0575	3	Sample pipette (SPT) crash sensor is on but the pipette is not at the bottom of the ASP.	Sample shortage Lower limit sensor ASP Drive unit SPTU Drive unit	Wipe the pipette nozzle with alcohol. Check if the liquid level detection mechanism of the SPT has been inhibited. While holding the pipette arm, verify if the nozzle can be moved vertically by a few millimeters with hands. Reinitialize the analyzer, and check if it recovers correctly. If you still have an error, contact our customer service section for technical support.

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Code	Level	Message	Location of Problem & Cause	Action
0576	3	Sample pipette (SPT) cannot detect the liquid level at ASP.	Sample tube may not exist in the ASP slot or the sample amount in the tube may not be sufficient. Liquid level sensor ASP Drive unit	<p>Check the amount of the sample placed in the ASP. If the sample amount is sufficient, check the vertical movement of the SPT.</p>
0578	3	Sample pipette (SPT) crash sensor is on but the pipette has not reached the bottom of the cuvette.	Cuvette condition is abnormal. Reagent has not been dispensed yet. Lower limit sensor.	<p>Check if the liquid level detection mechanism of the SPT has been inhibited. While holding the pipette arm, verify if the nozzle can be moved vertically by a few millimeters with hands.</p> <p>Wipe the SPT nozzle with alcohol. Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
0579	3	Sample pipette (SPT) cannot detect liquid level at IRU.	Cuvette condition is abnormal. Reagent has not been dispensed yet. Liquid level sensor.	<p>Check the presence of the reagent (Reagent R1) in the cuvette. If Reagent R1 is present in the cuvette, check the vertical movement of the SPT.</p> <p>Check if the liquid level detection mechanism of the SPT has been inhibited. While holding the pipette arm, verify if the nozzle can be moved vertically by a few millimeters with hands.</p> <p>Wipe the SPT nozzle with alcohol. Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
0581	3	Sample pipette (SPT) liquid level hardware is abnormal at ASP.	SPTU Drive unit Liquid level sensor	<p>Check the amount of the sample placed in the ASP. If the sample amount is sufficient, check the vertical movement of the SPT.</p> <p>Check if the liquid level detection mechanism of the SPT has been inhibited. While holding the pipette arm, verify if the nozzle can be moved vertically by a few millimeters with hands.</p> <p>Wipe the SPT nozzle with alcohol. Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>

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0582	2	Sample pipette (SPT) liquid level hardware is abnormal at IRU.	Liquid level sensor	<p>Check the presence of the reagent (Reagent R1) in the cuvette. If Reagent R1 is present in the cuvette, check the vertical movement of the SPT.</p> <p>Check if the liquid level detection mechanism of the SPT has been inhibited. While holding the pipette arm, verify if the nozzle can be moved vertically by a few millimeters with hands.</p> <p>Wipe the SPT nozzle with alcohol. Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
0583	2	SPT liquid level detection at ASP; Liquid level not detected at duplicate detection.		<p>Check the condition of the sample placed in the ASP. Remove the bubbles, if any, on the surface of sample. Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
0590	2	SPT clot detected while aspirating.	SPT clotting SPT clotting sensor	Check sample condition. Shut down the analyzer and clean SPT nozzle if necessary.
0591	2	SPT clot detected while dispensing.		If you still have an error, contact our customer service for technical support.
0592	2	SPT clot detected while washing.		Contact technical support.
0593	2	Communication error for SPT clot detection.		

4.3 Unit Alarm

4.3.3 Sample Pipette (SPT)

Chapter 4 Alarm

Syringe Pump for Sample Pipette (SPP)

Code	Level	Message	Location of Problem & Cause	Action
0601	1	Sample syringe (SPP) origin sensor is off at initiation of aspiration instruction.	SPP Drive unit SPP Piping section Solenoid valve Syringe tip Upper origin sensor	
0602	1	Sample syringe (SPP) origin sensor is still on after the syringe has left its origin.	SPP Drive unit SPP Piping section Solenoid valve Syringe tip Upper origin sensor Installation position of the gobo for the Upper origin sensor is too high.	This indicates that the SPP is not located appropriately. Visual check the syringe movement.
0603	1	Sample syringe (SPP) origin sensor is on before initiation of syringe movement command to discharge.		Reinitialize the analyzer, and check if it recovers correctly.
0604	1	Sample syringe (SPP) origin sensor is still off after syringe has returned to its origin.		If you still have an error, contact our customer service section for technical support.
0605	1	Sample syringe (SPP) origin sensor is not off at initiation of syringe movement command. (the syringe is not at its origin)	SPP Drive unit SPP Piping section Solenoid valve Syringe tip Upper origin sensor	
0651	2	Sample syringe (SPP) origin sensor is off before Aspiration. (at trough or ASP position)	SPP Drive unit SPP Piping section Solenoid valve Upper origin sensor	
0652	2	SPT nozzle is clogged.	SPT nozzle is clogged.	Clean the SPT nozzle with the nozzle-cleaning jig.
0653	2	Sample syringe (SPP) origin sensor is on before dispensation. (at trough or ASP)	SPP Drive unit SPP Piping section Solenoid valve Upper origin sensor	This indicates that the SPP is not located appropriately. Visual check the syringe movement.
0655	2	Sample syringe pump (SPP) origin sensor is on at initiation of the syringe movement command although the syringe is not at origin.	SPP Drive unit SPP Piping section Solenoid valve Syringe tip Upper origin sensor	Reinitialize the analyzer, and check if it recovers correctly.
0656	2	Sample pipette (SPP) safety sensor is off before initiation of SPP movement command. (from fully dispensed position)	SPT Safety sensor	If you still have an error, contact our customer service section for technical support.
0657	2	Sample pipette (SPP) position sensor for ASP is on before initiation of the sample syringe pump (SPP) movement command. (from fully dispensed position)	SPTASP Upper sensor	This indicates that the SPP syringe is not located appropriately. Visually check the syringe movement. Reinitialize the analyzer, and check if it recovers correctly. If you still have an error, contact our customer service section for technical support.

4.3 Unit Alarm

4.3.3 Sample Pipette (SPT)

Chapter 4 Alarm

Syringe Pump of Water for Sample Pipette (SPPW)

Code	Level	Message	Location of Problem & Cause	Action
4501	1	Sample syringe pump for wash (SPPW) origin sensor is off at initiation of aspiration at origin point.	SPPW Drive unit SPPW Piping section Solenoid valve Syringe tip Upper origin sensor	
4502	1	Sample syringe pump for wash (SPPW) origin sensor is on although the syringe position has left origin. (at initialization)	SPPW Drive unit SPPW Piping section Solenoid valve Syringe tip Upper origin sensor Installation position of the gobo for the Upper origin sensor is too high.	
4503	1	Sample syringe pump for wash (SPPW) origin sensor is on before initiation of the syringe pump movement command. (from fully dispensed position)		This indicates that the SPPW syringe is not located appropriately. Visually check the syringe movement.
4504	1	Sample syringe pump for wash (SPPW) origin sensor is still off although the syringe has returned to origin. (at initialization)	SPPW Drive unit SPPW Piping section Solenoid valve Syringe tip Upper origin sensor	Reinitialize the analyzer, and check if it recovers correctly.
4505	1	At the initiation of movement the sample syringe for wash (SPPW) origin sensor is not off although the syringe position is not at origin.		If you still have an error, contact our customer service section for technical support.
4551	2	Sample syringe for wash (SPPW) origin sensor is off at initiation of aspiration at origin. (at trough or RCU)	SPPW Drive unit SPPW Piping section Solenoid valve Upper origin sensor	
4553	2	Sample syringe pump for wash (SPPW) origin sensor is on before initiation of the syringe movement command. (from fully dispensed position) (Trough or ASP)	SPPW Drive unit SPPW Piping section Solenoid valve Upper origin sensor	
4555	2	At the initiation of movement the sample syringe pump for wash (SPPW) origin sensor is not off although the syringe position is not at origin.	SPPW Drive unit SPPW Piping section Solenoid valve Syringe tip Upper origin sensor	
4556	2	Sample pipette (SPT) safety sensor is off before initiation of SPPW movement command. (from fully dispensed position)	SPT Safety sensor	Turn off the power, and verify if the SPT can move smoothly (vertical & rotational movement) within its normal movable area.
4557	2	Sample pipette (SPT) position sensor for ASP is on before initiation of the sample syringe of water (SPPW) movement command. (from fully dispensed position)	SPTASP Upper sensor	Reinitialize the analyzer, and check if it recovers correctly. If you still have an error, contact our customer service section for technical support.

4.3 Unit Alarm

4.3.3 Sample Pipette (SPT)

Chapter 4 Alarm

4.3.4 Mixer Unit 1 (MIX-1)

Code	Level	Message	Location of Problem & Cause	Action
0701	1	IRU safety sensor is off at initiation of Mixer1 stirring paddle rotation command. (Mixer1 is not above IRU position.)	IRU Rotary drive unit	<p>Turn off the power, and verify if the IRU Unit can move smoothly within its normal movable area.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
0702	1	Mixer1 arm rotation origin sensor is off at initiation of the stirring paddle rotation command.	MIX1R Origin sensor MIX1R Rotary drive unit	
0703	1	Mixer1 safety sensor is off at initiation of the stirring paddle rotation command.	MIX1_TS Sensor MIX1R Rotary drive unit	
0706	1	Mixer1 up origin sensor is on at initiation of the stirring paddle rotation command.	MIX1U Drive unit	
0751	2	Mixer1 arm rotation origin sensor is on at initiation of the stirring paddle rotation command for paddle washing. (Mixer1 is not at trough position for paddle washing.)	MIX1R Drive unit Rotation origin sensor	
0752	2	Mixer1 safety sensor is off at initiation of the stirring paddle rotation command for paddle washing.	MIX1R Drive unit MIX1 Safety sensor	<p>Turn off the power, and verify if the MIX1 can move smoothly within its normal movable area.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p>
0753	2	Mixer1 up origin sensor is on at initiation of the stirring paddle rotation command for paddle washing.	MIX1U Drive unit Origin sensor MIX1U_Zero	<p>If you still have an error, contact our customer service section for technical support.</p>
0801	1	Mixer 1 up origin sensor is off at initiation of descent command.	MIX1U Drive unit Origin sensor	
0802	1	Mixer 1 up origin sensor is still on although mixer 1 has left its origin.	MIX1U Drive unit Origin sensor	
0803	1	Mixer 1 up origin sensor is on at initiation of return to origin command.	MIX1U Drive unit Origin sensor	
0804	1	Mixer 1 up origin sensor is still off although the mixer has returned to its origin.	Mixing stirrer cannot return to its origin due to an external force. Origin sensor	
0805	1	At the initiation of movement the mixer 1 origin sensor is on although the mixer is not at its origin point.	Mixing stirrer cannot return to its origin due to an external force. MIX1U Drive unit Origin sensor	

Chapter 4 Alarm

Code	Level	Message	Location of Problem & Cause	Action
0806	1	IRU safety sensor is off at initiation of Mixer1 descent command.	IRU Drive unit IRU Ready position sensor	<p>Turn off the power, and verify if the IRU Unit can move smoothly within its normal movable area.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
0807	1	Mixer1 arm rotation origin sensor is off at initiation of the mixer downward command above IRU.	MX1R Origin sensor MIX1 Rotary drive unit	
0808	1	Mixer1 safety sensor is off at initiation of the mixer downward command above IRU.	MIX1_TS Sensor MIX1 Rotary drive unit	
0851	2	Mixer1 up origin sensor is off at initiation of the mixer descent command.	MX1U Origin sensor MX1 Up-down driving mechanism	<p>Turn off the power, and verify if the MIX1 can move smoothly within its normal movable area.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
0852	2	Mixer1 arm rotation origin sensor is on at initiation of the mixer downward command above trough.	MX1R Origin sensor MIX1 Rotary drive unit	
0853	2	Mixer1 safety sensor is off at initiation of the mixer downward movement above tough.	MX1U Origin sensor MX1 Up-down driving mechanism	
0854	2	At the initiation of movement Mixer1 up origin sensor is on although the mixer is not at origin.	MX1U Origin sensor MX1 Up-down driving mechanism	
0855	2	Mixer1 up origin sensor is on at initiation of return to origin command.	MX1U Origin sensor MX1 Up-down driving mechanism	

Mixing Unit 1 Rotary Drive Unit (MIX1R)

Code	Level	Message	Location of Problem & Cause	Action
4601	1	Mixer1 up origin sensor is off at initiation of the mixer movement command.	MX1U Origin sensor MX1 Up-down driving mechanism	<p>Turn off the power, and verify if the MIX1 can move smoothly within its normal movable area.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
4602	1	Mixer1 arm rotation origin sensor is still off although the mixer has returned to origin. (at initialization)	MX1R Origin sensor MIX1 Rotary drive unit	
4651	2	Mixer1 up origin sensor is off at initiation of the mixer movement command.	MX1U Origin sensor MX1 Up-down driving mechanism	

4.3 Unit Alarm

4.3.4 Mixer Unit 1 (MIX-1)

Chapter 4 Alarm

4.3.5 Mixer Unit 2 (MIX-2)

Code	Level	Message	Location of Problem & Cause	Action
0901	1	IRU safety sensor is off at initiation of Mixer2 stirring paddle rotation command. (Mixer2 is not above IRU position.)	IRU Rotary drive unit	<p>Turn off the power, and verify if the IRU Unit can move smoothly within its normal movable area.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
0902	1	Mixer2 rotation origin sensor is off at initiation of the stirring paddle rotation command.	MIX1R Origin sensor MIX1R Rotary drive unit	
0903	1	Mixer2 safety sensor is off at initiation of the stirring paddle rotation command.	MIX1_TS Sensor MIX1R Rotary drive unit	
0906	1	Mixer2 origin sensor is on at initiation of stirring paddle rotation command.	MIX2 Drive unit Origin sensor	
0951	2	Mixer2 arm rotation origin sensor is on at initiation of the stirring paddle rotation command for paddle washing. (Mixer2 is not at trough position for paddle washing.)	MIX2 Drive unit Rotation origin sensor	
0952	2	Mixer2 safety sensor is off at initiation of the stirring paddle rotation command for paddle washing.	MIX2R Drive unit MIX2 Safety sensor	<p>Turn off the power, and verify if the MIX2 can move smoothly within its normal movable area.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p>
0953	2	Mixer2 up origin sensor is on at initiation of the stirring paddle rotation command for paddle washing.	MIX2U Drive unit Origin sensor	<p>If you still have an error, contact our customer service section for technical support.</p>
1001	1	Mixer2 up origin sensor is off at initiation of descent command.	MIX2 Drive unit Origin sensor	
1002	1	Mixer2 up origin sensor is still on although mixer has left its origin.	Mixing stirrer cannot return to its origin due to an external force.	
1003	1	Mixer2 up origin sensor is on at initiation of return to origin command.	MIX2 Drive unit Origin sensor	
1004	1	Mixer 2 up origin sensor is still off although the mixer has returned to its origin.	Mixing stirrer cannot return to its origin due to an external force. Origin sensor	
1005	1	At the initiation of movement the Mixer2 origin sensor is on although the mixer is not at its origin point.	Mixing stirrer cannot return to its origin due to an external force. MIX2 Drive unit Origin sensor	

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Code	Level	Message	Location of Problem & Cause	Action
1006	1	IRU safety sensor is off at initiation of Mixer2 descent command.	IRU Drive unit IRU Ready position sensor	<p>Turn off the power, and verify if the IRU Unit can move smoothly within its normal movable area.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
1007	1	Mixer2 arm rotation origin sensor is off at initiation of the mixer downward command above IRU.	MIX2R Origin sensor MIX2 Rotary drive unit	<p>Turn off the power, and verify if the MIX2 can move smoothly within its normal movable area.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
1008	1	Mixer2 safety sensor is off at initiation of the mixer downward command above IRU.	MIX2_TS Sensor MIX2 Rotary drive unit	<p>Turn off the power, and verify if the MIX2 can move smoothly within its normal movable area.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
1051	2	Mixer2 up origin sensor is off at initiation of the mixer descent command.	MX2U Origin sensor MIX2 Up-down driving mechanism	<p>Turn off the power, and verify if the MIX2 can move smoothly within its normal movable area.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
1052	2	Mixer 2 arm rotation origin sensor is on at initiation of the mixer downward command above tough.	MIX2R Origin sensor MIX2 Rotary drive unit	
1053	2	Mixer2 safety sensor is off at initiation of the mixer downward command above tough.	MX2U Origin sensor MIX2 Up-down driving mechanism	
1054	2	At the initiation of movement the Mixer2 up origin sensor is on although the mixer is not at origin.	MX2U Origin sensor MIX2 Up-down driving mechanism	
1055	2	Mixer2 up origin sensor is on at initiation of return to origin command.	MX2U Origin sensor MIX2 Up-down driving mechanism	

Mixing Stirrer Unit 1 Rotary Drive unit (MIX2R)

Code	Level	Message	Location of Problem & Cause	Action
4701	1	Mixer2 up origin sensor is off at initiation of the mixer descent command.	MIX2U Origin sensor MIX2 Up-down driving mechanism	<p>Turn off the power, and verify if the MIX2 can move smoothly within its normal movable area.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
4702	1	Mixer2 arm rotation origin sensor is still off although the mixer has returned to origin. (at initialization)	MIX2R Origin sensor MIX2 Rotary drive unit	
4751	2	Mixer2 up origin sensor is off at initiation of the mixer descent command.	MIX2U Origin sensor MIX2 Up-down driving mechanism	

4.3 Unit Alarm

4.3.5 Mixer Unit 2 (MIX-2)

Chapter 4 Alarm

4.3.6 Wash Unit (WU)

Code	Level	Message	Location of Problem & Cause	Action
1101	1	Wash unit origin sensor is off at initiation of descent command.	WU Drive unit Upper origin sensor	
1102	1	Wash unit origin sensor is still on although the wash unit has left its origin.	WU position is beyond the upper limit. WU Drive unit Upper origin sensor	Turn off the power, and verify if the WU can move vertically and smoothly within its normal movable area. (Remove the WU cover behind the SPT.)
1103	1	Wash unit origin sensor is on at initiation of wash unit return to origin command.	WU position is beyond the upper limit. WU Drive unit Upper origin sensor	Reinitialize the analyzer, and check if it recovers correctly.
1104	1	Wash unit origin sensor is still off although the wash unit has returned to its origin.	WU Drive unit Upper origin sensor	If you still have an error, contact our customer service section for technical support.
1105	1	WU ascend/descend at off-origin; WU origin sensor (WU_ZERO) should be off before action but not.	WU Drive unit Upper origin sensor	
1106	1	IRU safety sensor is off at WU movement command.	IRU Drive unit	Turn off the power, and verify if the IRU Unit can move smoothly within its normal movable area. Reinitialize the analyzer, and check if it recovers correctly. If you still have an error, contact our customer service section for technical support.
1201	1	WPP aspiration; WPP origin sensor (WPP_ZERO) is off before aspiration.	WPP Drive unit Upper origin sensor	This indicates that the WPP syringe is not located appropriately.
1202	1	Wash pump syringe origin sensor is still on although the wash pump has left its origin.	WPP Drive unit Upper origin sensor	Visually check the syringe movement. Reinitialize the analyzer, and check if it recovers correctly.
1203	1	Wash pump syringe origin sensor is on before initiation of wash pump movement command. (from fully dispensed position)	WPP Drive unit Upper origin sensor	If you still have an error, contact our customer service section for technical support.
1204	1	Wash pump syringe origin sensor is off although the unit has returned to its origin.	WPP Drive unit Upper origin sensor	
1205	1	WPP aspiration/dispensation at off-origin; WPP origin sensor (WPP_ZERO) is not off before movement.	WPP Drive unit Upper origin sensor	This indicates that the WPP syringe is not located appropriately. Visually check the syringe movement. Reinitialize the analyzer, and check if it recovers correctly. If you still have an error, contact our customer service section for technical support.
1206	1	WU1 has detected excess water in a cuvette. (WU1_EKIMEN=1) (During Prime)	Inline filter for the WU1 wastewater line. WU1 Wastewater line pump	Wipe the WU1 nozzle with alcohol. Make sure that the inline filter is not clogged and/or damaged. Reinitialize the analyzer, and check if it recovers correctly. If you still have an error, contact our customer service section for technical support.
1207	1	WU2 has detected excess water in a cuvette. (WU2_EKIMEN=1) (During Prime)	Inline filter for the WU2 wastewater line. WU2 Wastewater line pump	Wipe the WU2 nozzle with alcohol. Make sure that the inline filter is not clogged and/or damaged. Reinitialize the analyzer, and check if it recovers correctly. If you still have an error, contact our customer service section for technical support

4.3 Unit Alarm

4.3.6 Wash Unit (WU)

Chapter 4 Alarm

Code	Level	Message	Location of Problem & Cause	Action
1208	1	WU3 has detected excess water in a cuvette. (WU3_EKIMEN=1) (During Prime)	Inline filter for the WU3 wastewater line. WU3 Wastewater line pump	<p>Wipe the WU3 nozzle with alcohol. Make sure that the inline filter is not clogged and/or damaged.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support</p>
1209	1	WU4 has detected excess water in a cuvette. (WU4_EKIMEN=1) (During Prime)	Inline filter for the WU4 wastewater line. WU4 Wastewater line pump	<p>Wipe the WU4 nozzle with alcohol. Make sure that the inline filter is not clogged and/or damaged.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support</p>
1210	1	WU5 has detected excess water in a cuvette. (WU5_EKIMEN=1) (During Prime)	Inline filter for the WU5 wastewater line. WU5 Wastewater line pump	<p>Wipe the WU5 nozzle with alcohol. Make sure that the inline filter is not clogged and/or damaged.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support</p>
1211	1	WU6 has detected excess water in a cuvette. (WU6_EKIMEN=1) (During Prime)	Inline filter for the WU6 wastewater line. WU6 Wastewater line pump	<p>Wipe the WU6 nozzle with alcohol. Make sure that the inline filter is not clogged and/or damaged.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support</p>
1212	1	WU7 has detected excess water in a cuvette. (WU7_EKIMEN=1) (During Prime)	Inline filter for the WU7 wastewater line. WU7 Wastewater line pump	<p>Wipe the WU7 nozzle with alcohol. Make sure that the inline filter is not clogged and/or damaged.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support</p>
1213	1	IRU safety sensor is off at WU movement command.	IRU Drive unit	<p>Turn off the power, and verify if the IRU Unit can move smoothly within its normal movable area.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
1214	1	At the initiation of movement the WU, the origin sensor is on although the WU is not at origin.	WU Drive unit Upper origin sensor	<p>Turn off the power, and verify if the WU can move vertically and smoothly within its normal movable area. (Remove the WU cover behind the SPT)</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>

4.3 Unit Alarm

4.3.6 Wash Unit (WU)

Chapter 4 Alarm

Code	Level	Message	Location of Problem & Cause	Action
1251	1	Wash syringe pump (WPP) origin sensor is off at initiation of aspiration at origin.	WPP Drive unit Upper origin sensor	This indicates that the WPP syringe is not located appropriately. Visually check the syringe movement. Reinitialize the analyzer, and check if it recovers correctly.
1253	1	Wash syringe pump (WPP) origin sensor is on before initiation of wash pump movement command. (from fully dispensed position)	WPP Drive unit Upper origin sensor	If you still have an error, contact our customer service section for technical support.
1255	1	At the initiation of movement the wash pump syringe (WPP), the origin sensor is not off although WPP is not at origin.	WPP Drive unit Upper origin sensor	Wipe the WU1 nozzle with alcohol. Make sure that the inline filter is not clogged and/or damaged. Reinitialize the analyzer, and check if it recovers correctly.
1256	1	WU1 has detected excess water in a cuvette. (WU1_EKIMEN=1) (During run)	Inline filter used for the WU1 wastewater line. WU1 Wastewater line pump	If you still have an error, contact our customer service section for technical support.
1257	2	WU2 has detected excess water in a cuvette. (WU2_EKIMEN=1) (During run)	Inline filter used for the WU2 wastewater line. WU2 Wastewater line pump	Wipe the WU2 nozzle with alcohol. Make sure that the inline filter is not clogged and/or damaged. Reinitialize the analyzer, and check if it recovers correctly.
1258	2	WU3 has detected excess water in a cuvette. (WU3_EKIMEN=1) (During run)	Inline filter used for the WU3 wastewater line. WU3 Wastewater line pump	If you still have an error, contact our customer service section for technical support.
1259	2	WU4 has detected excess water in a cuvette. (WU4_EKIMEN=1) (During run)	Inline filter used for the WU4 wastewater line. WU4 Wastewater line pump	Wipe the WU4 nozzle with alcohol. Make sure that the inline filter is not clogged and/or damaged. Reinitialize the analyzer, and check if it recovers correctly.
1260	2	WU5 has detected excess water in a cuvette. (WU5_EKIMEN=1) (During run)	Inline filter used for the WU5 wastewater line. WU5 Wastewater line pump	If you still have an error, contact our customer service section for technical support.
1261	2	WU6 has detected excess water in a cuvette. (WU6_EKIMEN=1) (During run)	Inline filter used for the WU6 wastewater line. WU6 Wastewater line pump	Wipe the WU6 nozzle with alcohol. Make sure that the inline filter is not clogged and/or damaged. Reinitialize the analyzer, and check if it recovers correctly.
				If you still have an error, contact our customer service section for technical support.

4.3 Unit Alarm

4.3.6 Wash Unit (WU)

Chapter 4 Alarm

Code	Level	Message	Location of Problem & Cause	Action
1262	2	WU7 has detected excess water in a cuvette. (WU7_EKIMEN=1) (During run)	Inline filter used for the WU7 wastewater line. WU7 Wastewater line pump	<p>Wipe the WU7 nozzle with alcohol. Make sure that the inline filter is not clogged and/or damaged.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
1263	2	IRU safety sensor is off at the wash unit (WU) movement command.	IRU Drive unit	<p>Turn off the power, and verify if the IRU Unit can move smoothly within its normal movable area.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
1264	2	At the initiation of movement of wash unit (WU), the origin sensor is not off although the WU is not at origin.	WU Drive unit Upper origin sensor	<p>Turn off the power, and verify if the WU can move vertically and smoothly within its normal movable area. (Remove the WU cover behind the SPT)</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
1276	3	WU1 has detected excess water in a cuvette. (WU1_EKIMEN sensor =1) (During run)	WU1 Wastewater pump Inline filter	<p>Waste pump may be damaged or the filter is clogged. Contact customer service section for technical support.</p> <p>Since the cuvette issued alarm is omitted from the measurement, analytic operation continues.</p>
1277	3	WU2 has detected excess water in a cuvette. (WU2_EKIMEN sensor =2) (During run)	WU2 Wastewater pump Inline filter	
1278	3	WU3 has detected excess water in a cuvette. (WU3_EKIMEN sensor =3) (During run)	WU3 Wastewater pump Inline filter	
1279	3	WU4 has detected excess water in a cuvette. (WU4_EKIMEN sensor =4) (During run)	WU4 Wastewater pump Inline filter	
1280	3	WU5 has detected excess water in a cuvette. (WU5_EKIMEN sensor =5) (During run)	WU5 Wastewater pump Inline filter	
1281	3	WU6 has detected excess water in a cuvette. (WU6_EKIMEN sensor =6) (During run)	WU6 Wastewater pump Inline filter	
1282	3	WU7 has detected excess water in a cuvette. (WU7_EKIMEN sensor =7) (During run)	WU7 Wastewater pump Inline filter	

4.3 Unit Alarm

4.3.6 Wash Unit (WU)

Chapter 4 Alarm

4.3.7 Incubation Reaction Unit (IRU)

Code	Level	Message	Location of Problem & Cause	Action
1301	1	IRU origin sensor is on although the IRU has left origin.	IRU Drive unit Origin sensor	Waste pump may be damaged or the filter is clogged. Contact customer service section for technical support.
1302	1	IRU origin sensor is still on although the IRU has left its origin.	Rotary encoder IRU Drive unit	
1303	1	ACK signal cannot be received after IRU origin search command has been given to DTR control CPU.		
1304	1	ACK signal cannot be received after IRU rotation stop instruction has been given to DTR control CPU.	Communication with the DTR control CPU	Cannot electrically communicate with the sub CPU. Contact our customer service section for technical support.
1305	1	ACK signal cannot be received after request command for number of pulses has been given to DTR control CPU.		
1306	1	IRU origin sensor is on after origin-centered process.	Rotary encoder IRU Drive unit	Turn off the power, and verify if the IRU can be rotated smoothly with hands. Reinitialize the analyzer, and check if it recovers correctly. If you still have an error, contact our customer service section for technical support.
1307	1	Number of drive pulses cannot be received from DTR control CPU after origin-centered process.	Communication with the DTR control CPU	Cannot electrically communicate with the sub CPU. Contact our customer service section for technical support.
1308	1	Sample pipette (SPT) rotation origin sensor is on at initiation of IRU rotation command.	SPT Origin sensor S PTR Drive unit	This indicates that the SPT is located above the IRU during the IRU rotation. Turn off the power, and verify if the SPT can move smoothly within its normal movable area. Reinitialize the analyzer, and check if it recovers correctly. If you still have an error, contact our customer service section for technical support.
1309	1	Reagent pipette (RPT1) rotation origin sensor is on at initiation of IRU rotation command.	RPT1 Origin sensor R PTR Drive unit	This indicates that the RPT1 is located above the IRU during the IRU rotation. Turn off the power, and verify if the RPT can move smoothly within its normal movable area. Reinitialize the analyzer, and check if it recovers correctly. If you still have an error, contact our customer service section for technical support.
1310	1	Reagent pipette (RPT2) rotation origin sensor is on at initiation of IRU rotation command.	RPT2 Origin sensor R PT2R Drive unit	This indicates that the RPT2 is located above the IRU during the IRU rotation. Turn off the power, and verify if the RPT can move smoothly within its normal movable area. Reinitialize the analyzer, and check if it recovers correctly. If you still have an error, contact our customer service section for technical support.

4.3 Unit Alarm

4.3.7 Incubation Reaction Unit (IRU)

Chapter 4 Alarm

Code	Level	Message	Location of Problem & Cause	Action
1311	1	Mixer1 rotation origin sensor is on at initiation of IRU rotation command.	MIX1R Origin sensor MIX1R Drive unit	<p>This indicates that the MIX1 is located above the IRU during the IRU rotation.</p> <p>Turn off the power, and verify if the MIX can move smoothly within its normal movable area.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
1312	1	Mixer2 rotation origin sensor is on at initiation of IRU rotation command.	MIX2R Origin sensor MIX2R Drive unit	<p>This indicates that the MIX2 is located above the IRU during the IRU rotation.</p> <p>Turn off the power, and verify if the MIX can move smoothly within its normal movable area.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
1313	1	Wash unit origin sensor is off at initiation of IRU command.	WU Drive unit WU Origin sensor	<p>This indicates that the WU is located above the IRU during the IRU rotation.</p> <p>Turn off the power, and verify if the WU can move smoothly within its normal movable area.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>

Chapter 4 Alarm

4.3.8 Reagent Container Unit (RCU)

Code	Level	Message	Location of Problem & Cause	Action
1402	1	RCU sensor is on although the RCU has left its origin.	RCU Origin sensor RCU Drive unit	<p>Turn off the power, and verify if the RCU can be rotated smoothly with hands.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
1404	1	RCU origin sensor is on at initiation of return to origin command.	RPT nozzle cannot return to its origin due to an external force. RPT Upper origin sensor	<p>This indicates that the RPT1 is located above the RCU during the RCU rotation. Verify if the RPT can move smoothly (vertical and rotational movement) within its normal movable area.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
1406	1	Reagent pipette (RPT1) up origin sensor is off at initiation of RCU rotation command.	RPT1 nozzle cannot return to its origin due to an external force. RPT1 Upper origin sensor	<p>This indicates that the RPT2 is located above the RCU during the RCU rotation. Verify if the RPT can move smoothly (vertical and rotational movement) within its normal movable area.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
1407	1	Reagent pipette (RPT2) up origin sensor is not on at initiation of RCU rotation command.	RPT2 nozzle cannot return to its origin due to an external force. RPT2 Upper origin sensor	<p>This indicates that the RCU failed to rotate appropriately. Turn off the power, and then verify if the RCU can be rotated smoothly with hands.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
1454	1	RCU origin sensor is still off although the RCU has returned to its origin.	RCU cannot return to its origin due to an external force. RCU Origin sensor	<p>Cannot electrically communicate with the sub CPU.</p> <p>Contact our customer service section for technical support.</p>

4.3.9 Detector Unit (DTR)

Code	Level	Message	Location of Problem & Cause	Action
1501	1	Program number cannot be received from DTR control CPU.	Communication with the DTR control CPU	<p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
1502	1	There is no response to transmission of photometric position compensation from DTR control CPU.		
1503	1	There is no response to rotary photometric command from DTR control CPU.		
1504	1	There is no response to inquiry command for photometric data from DTR control CPU.		
1505	1	Photometric data is not sent from DTR control CPU.		
1506	1	There is an anomaly in reception of photometric data from DTR control CPU.		
1507	1	There is an anomaly in transmission of offset voltage.		
1508	1	Negative absorbance occurs. Automatic gain is requested.	Halogen lamp (light intensity shortage)	

4.3 Unit Alarm

4.3.8 Reagent Container Unit (RCU)/ 4.3.9 Detector Unit (DTR)

4.3.10 Auto Sampler Unit (ASP)

Code	Level	Message	Location of Problem & Cause	Action
1601	1	Sample pipette (SPT) up origin sensor is on at initiation of ASP rotation command with SPT being above ASP.	SPTU Origin sensor SPT Up-down driving mechanism	<p>Turn off the power, and verify if the SPT can move smoothly (vertical & rotational movement) within its normal movable area.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
1602	1	ASP rotation origin sensor is on although the ASP has left its origin.	ASP Origin sensor ASP Rotary drive unit	<p>Turn off the power, and verify if the ASP can be rotated smoothly with hands.</p>
1604	1	ASP rotation origin sensor is off although the ASP has returned to its origin.	ASP Origin sensor ASP Rotary drive unit	<p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
1605	1	Sample pipette (SPT) up origin sensor is off at initiation of ASP rotation command.	SPTU Origin sensor SPT Up-down driving mechanism	<p>Turn off the power, and verify if the SPT can move smoothly (vertical & rotational movement) within its normal movable area.</p>
1606	1	Sample pipette (SPT) up origin sensor is not on at initiation of ASP rotation command.	SPT nozzle position is beyond the lower limit. SPT nozzle cannot return to its origin due to an external force. SPT Upper origin sensor	<p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>
1651	2	Sample pipette (SPT) up origin sensor is off at initiation of ASP rotation command with SPT being above ASP.		
1654	2	ASP rotation origin sensor is off although the ASP has returned to origin.	ASP Origin sensor ASP Rotary drive unit	<p>Turn off the power, and verify if the ASP can be rotated smoothly with hands.</p> <p>Reinitialize the analyzer, and check if it recovers correctly.</p> <p>If you still have an error, contact our customer service section for technical support.</p>

Chapter 4 Alarm

4.3.11 Ion Selectable Electrode Unit (ISE)

Code	Level	Message	Location of Problem & Cause	Action
1775	3	There is an anomaly in response to Serum Sample inquiry.	ISE ISE Communication cable	Cannot electrically communicate with the ISE. Contact our customer service section for technical support.
1776	3	There is an anomaly in response to Urine Sample inquiry.		
1777	3	ISE result measurement data is not available.		Refer to the "error flag" added to the ISE measurement results.
1780	3	No acknowledge from ISE module for "Electrode Exchange" command.	ISE ISE Communication cable	Check the possibility of disconnection or faulty contact of the communication cable. If you still have an error, contact our customer service section for technical support.
1781	3	No acknowledge from ISE module for "Prime" command.	ISE ISE Communication cable	
1782	3	No acknowledge from ISE module for "Cleaning" command.	ISE ISE Communication cable	
1790	3	Failed to detect cleaning solution for S.P.T (S)	Cleaning solution shortage Liquid level sensor	Failed to detect the liquid level of the SPT special cleaning solution. Set the specified cleaning solution in place.
1791	3	Failed to detect cleaning solution for R.P.T (S)	Cleaning solution shortage Liquid level sensor	Failed to detect the liquid level of the RPT special cleaning solution. Set the specified cleaning solution in place.
1792	3	Failed to detect ISE cleaning solution	Cleaning solution shortage Liquid level sensor	Failed to detect the liquid level of the ISE cleaning solution. Set the specified cleaning solution in place.
1793	3	Failed to detect Calibrant-B for ISE	Calibrant-B shortage Liquid level sensor	Failed to detect ISE Calibrant-B liquid level. Set the ISE Calibrant-B in place.
1875	3	Failed to detect cleaning solution for S.P.T (S)	Cleaning solution shortage Liquid level sensor	Failed to detect cleaning solution for the SPT nozzle. Set the cleaning solution in place.
1876	3	Failed to detect cleaning solution for R.P.T1 (S)	Cleaning solution shortage Liquid level sensor	Failed to detect cleaning solution for the RPT nozzle. Set the cleaning solution in place.
1877	3	Failed to detect cleaning solution for R.P.T2 (S)	Cleaning solution shortage Liquid level sensor	Failed to detect cleaning solution for the RPT nozzle. Set the cleaning solution in place.
1878	3	Failed to detect cleaning solution for Cuvette Water Placement.	Cleaning solution shortage Liquid level sensor	Failed to detect cleaning solution for Cuvette Water Placement (detergent). Set the cleaning solution in place.

4.3 Unit Alarm

4.3.11 Ion Selectable Electrode Unit (ISE)

Chapter 4 Alarm

4.3.12 Tank

Code	Level	Message	Location of Problem & Cause	Action
2605	1	Purified water supply is low.	Purified water shortage Sensor	Fill the purified water tank with purified water, and then execute the prime.
2606	1	Wash solution 1 is low.	Wash solution 1 shortage Sensor	Fill the wash tank 1 with the liquid and then execute the prime.
2607	1	Wash solution 2 is low.	Wash solution 2 shortage Sensor	Fill the wash tank 2 with the liquid and then execute the prime.
2608	1	Waste tank 1 is full to capacity.	Waste tank for low-concentrated wastewater is full.	Drain the (low-concentrated) wastewater in the waste tank.
2609	1	Waste tank 2 is full to capacity.	Waste tank for high-concentrated wastewater is full.	Drain the (high-concentrated) wastewater in the waste tank.
2655	3	Purified water supply is low.	Purified water shortage Sensor	Fill the purified water tank with purified water, and then execute prime.
2656	3	Wash solution 1 is low.	Wash solution 1 shortage	Fill the wash tank 1 with the liquid and then execute prime.
2657	3	Wash solution 2 is low.	Wash solution 2 shortage	Fill the wash tank 2 with the liquid and then execute prime.
2658	3	Waste tank 1 is full to capacity.	Waste tank for low-concentrated wastewater is full.	Drain the (low-concentrated) wastewater in the waste tank.
2659	1	Waste tank 2 is full to capacity.	Waste tank for high-concentrated wastewater is full.	Drain the (high-concentrated) wastewater in the waste tank.
2675	3	Purified water supply is low.	Purified water shortage Sensor	Fill the purified water tank with purified water, and then execute prime.
2676	3	Wash solution 1 is low.	Wash solution 1 shortage Sensor	Fill the wash tank 1 with the liquid and then execute prime.
2677	3	Wash solution 2 is low.	Wash solution 2 shortage Sensor	Fill the wash tank 2 with the liquid and then execute prime.
2678	3	Waste tank 1 is full to capacity.	Waste tank for low-concentrated wastewater is full.	Drain the (low-concentrated) wastewater in the waste tank.
2679	3	Waste tank 2 is full to capacity.	Waste tank for high-concentrated wastewater is full.	Drain the (high-concentrated) wastewater in the waste tank.

4.3 Unit Alarm

4.3.12 Tank

Chapter 4 Alarm

4.3.13 Sensor Status

Code	Level	Message	Location of Problem & Cause	Action
2701	1	ASP lid is open.	ASP Lid is not closed properly. ASP Lid sensor	Make sure to set the ASP Lid.
2702	1	RCU lid is open.	RCU Lid is not closed properly. RCU Lid sensor.	Make sure to set the RCU Lid.
2703	1	ISE maintenance lid is open.	ISE Maintenance lid is not closed properly. ISE Maintenance lid sensor	Make sure to set the ISE Lid.
2704	1	ASP sample insertion lid is open.	(ASP) Sample insertion lid is not closed properly. (ASP) Sample insertion lid sensor	Make sure to set the ASP sample insertion lid.
2720	1	Trough chamber overflows.	Trough piping section External piping section Trough overflow sensor	Cannot drain water. Check if the drain line at the right side of the analyzer is clogged or not.
2731	1	Sub-tank L is not existent.	Sub-tank L has not been set. Sensor	The sub-tank has not been set on the left side of the analyzer. Make sure to set the sub-tank.
2732	1	Sub-tank R is not existent.	Sub-tank R has not been set. Sensor	The sub-tank has not been set on the right side of the analyzer. Make sure to set the sub-tank.
2733	1	Full capacity sensor of sub-tank L does not give OFF signal after a lapse of given time.	Sensor	Full capacity sensor of the sub-tank is abnormal. Contact our customer service section for technical support.
2734	1	Full capacity sensor of sub-tank R does not give OFF signal after a lapse of given time.		
2735	1	Full capacity sensor of sub-tank L does not give ON signal after feed water of given time.	Water supply pressure is insufficient. Sensor	Water supply capacity of the purified water generator is insufficient.
2736	1	Full capacity sensor of sub-tank R does not give ON signal after feed water of given time.		
2737	1	Sub-tank L sensor is in trouble.	Sensor	Full capacity sensor and/or empty sensor of the sub-tank are abnormal. Contact our customer service section for technical support.
2738	1	Sub-tank R sensor is in trouble.		
2751	2	Sub-tank L is not existent.	Sub-tank L has not been set. Sensor	The sub-tank has not been set on the left side of the analyzer. Make sure to set the sub-tank.
2752	2	Sub-tank R is not existent.	Sub-tank R has not been set. Sensor	The sub-tank has not been set on the right side of the analyzer. Make sure to set the sub-tank.
2753	2	Full capacity sensor of sub-tank L does not give OFF signal after a lapse of given time.	Sensor	Full capacity sensor of the sub-tank is abnormal. Contact our customer service section for technical support.
2754	2	Full capacity sensor of sub-tank R does not give OFF signal after a lapse of given time.		
2755	2	Full capacity sensor of sub-tank L does not give ON signal after feed water of given time.	Water supply pressure is insufficient. Sensor.	Water supply capacity of the purified water generator is insufficient.
2756	2	Full capacity sensor of sub-tank R does not give ON signal after feed water of given time.		
2775	3	Sub-tank L is not existent.	Sub-tank L has not been set. Sensor	The sub-tank has not been set on the left side of the analyzer. Make sure to set the sub-tank.
2776	3	Sub-tank R is not existent.	Sub-tank R has not been set. Sensor	The sub-tank has not been set on the right side of the analyzer. Make sure to set the sub-tank.

4.3 Unit Alarm

4.3.13 Sensor Status

Chapter 4 Alarm

Code	Level	Message	Location of Problem & Cause	Action
2777	3	Full capacity sensor of sub-tank L does not give OFF signal after a lapse of given time.	Sensor	Sub-tank full capacity sensor is abnormal. Contact our customer service section for technical support.
2778	3	Full capacity sensor of sub-tank R does not give OFF signal after a lapse of given time.		
2779	3	Full capacity sensor of sub-tank L does not give ON signal after feed water of given time.	Water supply pressure is insufficient. Sensor	Water supply capability of the purified water generator is insufficient.
2780	3	Full capacity sensor of sub-tank R does not give ON signal after feed water of given time.		
2781	3	Trough chamber overflows.	Trough piping section External piping section of the analyzer. Trough overflow sensor	Cannot drain water. Check if the drain line on the right side of the analyzer is clogged.
2782	3	Sample addition lid on ASP is opened.	ASP lid. While sample addition work is not preceded, ASP small lid for sample addition is opened in spite of during run.	Check the ASP lid and close the sample addition lid.
2801	1	Water leakage is detected under the middle WPP	Water leakage	Contact our customer service section for technical support.
2802	1	Water leakage is detected under the middle RCU.		
2803	1	Water leakage is detected under the middle ASP.		
2804	1	Water leakage is detected under the middle SPP.		
2805	1	Water leakage is detected under the middle RPP.		
2806	1	Water leakage is detected under the middle RPP2.		
2807	1	Water leakage is detected at the lower SWU.		
2808	1	Water leakage is detected at SWU2.		
2851	2	Water leakage is detected under the middle WPP	Water leakage	Contact our customer service section for technical support.
2852	2	Water leakage is detected under the middle RCU.		
2853	2	Water leakage is detected under the middle ASP.		
2854	2	Water leakage is detected under the middle SPP.		
2855	2	Water leakage is detected under the middle RPP.		
2856	2	Water leakage is detected under the middle RPP2.		
2857	2	Water leakage is detected at the lower SWU.		
2858	2	Water leakage is detected at SWU2.		
2875	3	Water leakage is detected under the middle WPP.	Water leakage	Contact our customer service section for technical support.
2876	3	Water leakage is detected under the middle RCU.		
2877	3	Water leakage is detected under the middle ASP.		
2878	3	Water leakage is detected under the middle SPP.		
2879	3	Water leakage is detected under the middle RPP.		
2880	3	Water leakage is detected under the middle RPP2.		
2881	3	Water leakage is detected at the lower SWU.		
2882	3	Water leakage is detected at SWU2.		

4.3 Unit Alarm

4.3.13 Sensor Status

Chapter 4 Alarm

Code	Level	Message	Location of Problem & Cause	Action
2951	2	Fan motor1 for power supply is at rest.	Power supply fan	Contact our customer service section for technical support.
2952	2	Fan motor2 for power supply is at rest.		
2953	2	Fan motor3 for power supply is at rest.		
2954	2	Fan motor4 for power supply is at rest.		
2955	2	Fan motor5 for power supply is at rest.		
2956	2	Fan motor at the bottom of right-hand side of cabinet is at rest.	Cabinet fan	Contact our customer service section for technical support.
2957	2	Fan motor in the top of right-hand side of cabinet is at rest.		
2958	2	Fan motor at the bottom of left-hand side of cabinet is at rest.		
2959	2	Fan motor in the top of left-hand side of cabinet is at rest.		
2960	2	Fan motor 1 for RCU Peltier is at rest.	Peltier fan	Contact our customer service section for technical support.
2961	2	Fan motor 2 for RCU Peltier is at rest.		
2962	2	Fan motor 3 for RCU Peltier is at rest.		
2963	2	Fan motor 4 for RCU Peltier is at rest.		
2964	2	Fan motor 1 for ASP Peltier is at rest.		
2965	2	Fan motor 2 for ASP Peltier is at rest.		
2975	2	Fan motor1 for power supply is at rest.	Power supply fan	Contact our customer service section for technical support.
2976	2	Fan motor2 for power supply is at rest.		
2977	2	Fan motor3 for power supply is at rest.		
2978	2	Fan motor4 for power supply is at rest.		
2979	2	Fan motor5 for power supply is at rest.		
2980	2	Fan motor at the bottom of right-hand side of cabinet is at rest.	Cabinet fan	Contact our customer service section for technical support.
2981	2	Fan motor in the top of right-hand side of cabinet is at rest.		
2982	2	Fan motor at the bottom of left-hand side of cabinet is at rest.		
2983	2	Fan motor in the top of left-hand side of cabinet is at rest.		
2984	2	Fan motor 1 for RCU Peltier is at rest.	Peltier fan	Contact our customer service section for technical support.
2985	2	Fan motor 2 for RCU Peltier is at rest.		
2986	2	Fan motor 3 for RCU Peltier is at rest.		
2987	2	Fan motor 4 for RCU Peltier is at rest.		
2988	2	Fan motor 1 for ASP Peltier is at rest.		
2989	2	Fan motor 2 for ASP Peltier is at rest.		

4.3 Unit Alarm

4.3.13 Sensor Status

Chapter 4 Alarm

4.3.14 Temperature

Code	Level	Message	Location of Problem & Cause	Action
3051	2	IRU temperature is less than 35 degrees.	IRU Heater 1 IRU Slip ring IRU_DRV PC board IRU Thermal fuse for Heater 1 Fuse F1 on the IRU_CN2 PC board	During measurement, the temperature in the IRU must be kept within a range of 35 °C to 39°C. Observe the temperature monitor display of “Maintenance” at the standby time, and contact our customer service section for technical support.
3052	2	IRU temperature is more than 39 degrees.	IRU Slip ring IRU_DRV PC board	
3053	2	RCU temperature is more than 15 degrees.	RCU Peltier RCU Peltier fan	During measurement, the temperature in the RCU must be kept at 15 °C or lower. Observe the temperature monitor display of “Maintenance” at the standby time, and contact our customer service section for technical support.
3054	2	ASP temperature is more than 15 degrees.	ASP Peltier ASP Peltier fan	During measurement, the temperature in the ASP must be kept at 15 °C or lower. Observe the temperature monitor display of “Maintenance” at the standby time, and contact our customer service section for technical support.

4.3.15 Others

Code	Level	Message	Location of Problem & Cause	Action
5001	1	Reagent barcode reader; Initialization error.		Wipe the reading window of the barcode reader with alcohol.
5002	1	Sample barcode reader; Initialization error.	Connection BCR main body	If you still have an error, contact our customer service section for technical support.
5051	2	Order buffer is full to capacity.		Contact our customer service section for technical support.
5052	2	The analyzer is lacking in cuvettes.	Cuvette contamination	More than 30 contaminated cuvettes are present. Perform cuvette cleaning at the cuvette cleaning of the “Maintenance”.
5075	3	Sample barcode could not be read due to character out of specification.	Abnormal character that is out of the specifications.	Examine the barcode label attached to the sample tube.

4.3 Unit Alarm

4.3.14 Temperatur/ 4.3.15 Others

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Chapter 5 Troubleshooting

5.1 Actions to be taken at trouble

If something goes wrong with the analyzer, there are the following measures that the operators should check.

1. The preparation of reagent and the check of the method of storing.
2. The preparation of samples and the check of handling.
3. The check of the operation method of the analyzer.
4. The check of maintenance work.

When it seems that the problem relates to electrical system or the mechanical system, do not perform the inside check of the analyzer etc. by yourself. Contact our sales representatives (promoter).

5.1.1 Details When You Contact Our Servicing

When you contact our service division about the problem of the measurement results or the equipment, prepare the following information.

Problem that relates to analysis;

1. Equipment number
2. Method for measurement with the problem
3. Explanation about the problem
4. Manufacturer's serial number and the lot number of the reagent, the standard sample, the quality control sample that you are using
5. Some results of calibration that were performed recently.
6. Some recent measurement results of the quality control samples
7. The measurement results

Problem about the equipment

1. Equipment number
2. Version number of software used
3. The contents of the alarm that relates to problem and the explanation of problem
4. Information that relates to other equipment or the maintenance

5.2 Abnormality of Power On

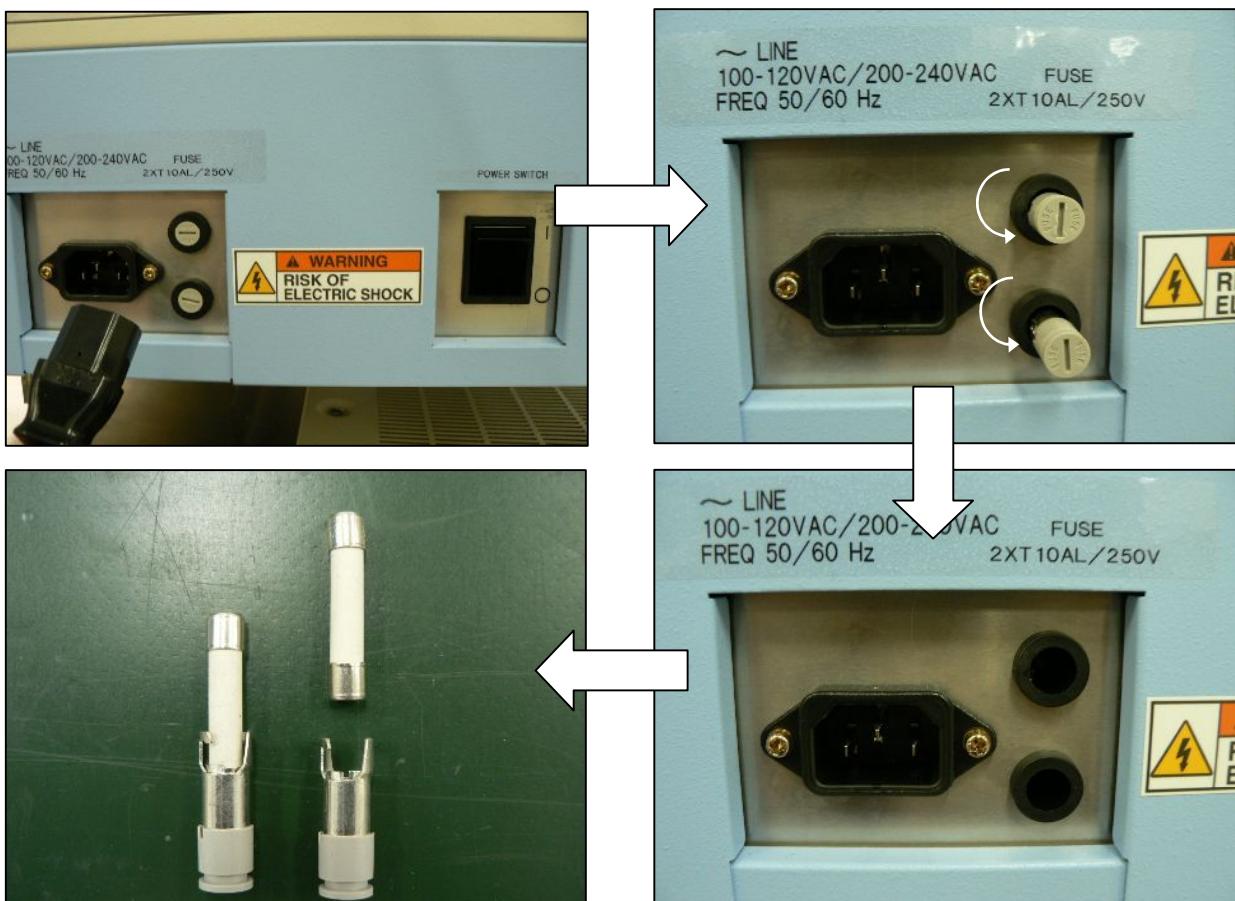
When you can not turn on the power, check the situation according to the following procedure.

1. Check that the main switch on a left side of the analyzer is on.
2. Check whether the main fuse of the main analyzer has not been burned out.
3. Check whether the breaker of the electrical system with which the analyzer is connected has not been thrown.

<Check method of the main fuse>

- Be sure to turn off the main power switch of the main analyzer.
- Unplug the power cable from the cable entry point of the main analyzer.
- Pull out the fuse holder as shown in the figure below (two places).
- Replace the fuse pulled out with the new fuse included in the auxiliaries.
- Return the new fuse according to the reverse procedure to detaching the old fuse.
- Place the power cable in the cable entry point of the main analyzer.
- Turn on the main power switch of the main analyzer, and make sure that the main analyzer is powered.

The main fuse can be checked by the above-mentioned work.



5.3 Abnormality of Measurement Results

The error concerning the analysis can be found by the error flag or by the unpredictable result having come out.

In the following the error, the troubleshooting is needed.

1. The error flag of calibration result
2. The error flag of measurement result of the quality control sample or the normal sample
3. The result of the quality control sample measurement is outside the standard value range.

Check that the calibration result or the result of quality control samples or the result of normal samples applies to which of the following conditions and execute the check that relates to the conditions.

4. The measurement result of a certain method is high about all samples.
5. The measurement result of a certain method is low about all samples.
6. The wrong measurement result comes out at random.
7. Two or more abnormal measurement results

— All method
— No pattern

5.3.1 Preparation Check of Reagent, Standard Sample and QC Sample

To ascertain the cause why measurement result is high or why measurement result is low or why the variations is caused, first of all, check the following matters and confirm about the reagent or the standard sample or the quality control sample.

When the reagent, the standard sample, the quality control sample are prepared, be sure to read the appended description, and follow the instruction matter.

About the reagent preparation

1. Was not the reagent changed?
2. When is the expiration date of the prepared reagent?
3. Was the reagent prepared by the right procedures?
4. Was the reagent prepared with fresh deionized water without bacteria or the appropriate diluent?

About the preparation of the quality control sample

1. The quality control sample was prepared by right amount to prepare it.
2. The quality control sample had been stored by the recommended storing method.
3. When is the expiration date of the quality control sample before the quality control sample was prepared?
4. Did you prepare the quality control sample by using the pipette whose capacity had been corrected?
5. Is the lot of the quality control sample within the expiration date?
6. Did you prepare by using proper diluent?

About the preparation of the standard sample

1. Was not the lot number changed?
2. Did you prepare standard sample by right amount to prepare it.
3. The standard sample had been stored by the recommended preservation method.
4. When is the expiration date of the standard sample since the standard sample was prepared?
5. Did you prepare the standard sample by using the pipette whose capacity had been corrected?
6. When is the expiration date of the lot of the standard sample?
7. Did you prepare by using proper diluent?

Chapter 5 Troubleshooting

5.3.2 When Measurement Results of a Certain Method are Higher for All Samples

Factor	Action
The calibration result is not correct.	Check the preparation of the standard sample. Check whether the calibration setting is appropriate. If necessary, perform the calibration again.
Incubation temperature is too high.	Check the temperature displayed on "active monitor" screen. Contact our service division when the temperature is outside $37\pm0.3^{\circ}\text{C}$.
The reagent has not been appropriately prepared.	Check the preparation of the reagent.
The standard sample has not been appropriately prepared.	Check the preparation of the standard sample.

5.3.3 When Measurement Results of a Certain Method are Lower for All Samples

Factor	Action
The expiration date of the reagent has passed.	Refer to instruction in the kit about stability of the prepared reagent.
The reagent has not been appropriately prepared.	Check the preparation of the reagent.
The reagent has not been appropriately stored.	Refer to instruction in the kit about appropriate storing method.
Incubation temperature is too low.	Check the temperature displayed on "active monitor" screen. Contact our service division when the temperature is outside $37\pm0.3^{\circ}\text{C}$.
The standard sample has not been appropriately prepared.	Check the preparation of the standard sample.
The amount of reagent to dispense is too much.	Check the liquid leakage and the fluid dripping at the junction of the reagent dispensing system

5.3.4 Wrong Measurement Results Come Out at Random

Factor	Action
SPT or RPT are dirty.	Perform Nozzle Washing by [Main(F10)]-[Sequence] (on the screen) and make sure that wash water of Nozzle has been discharged enough at the trough.
Fibrins are generated in the specific sample tube or the sample cups.	Clean the SPT nozzle. Remove fibrins in samples
Water supply and liquid supply from the external tanks are insufficient.	Make sure that the tube for water supply and liquid supply of each external tank has been correctly inserted below the liquid level. If there are problems, contact our service division.
The stir is insufficient.	Check that the stirrer rotates at the correct speed at the center of the cuvette. Make sure that the abnormal noise is not generated because the stirrer hits the cuvette and make sure that the stirrer rotates.

5.3 Abnormality of Measurement Results

5.3.2 When Measurement Results of a Certain Method are Higher for All Samples /

5.3.3 When Measurement Results of a Certain Method are Lower for All Samples /

5.3.4 When Measurement Results Come Out at Random

5.3.5 Measurement Results of One Sample Show Abnormal Value for All Methods

Factor	Action
The reagent has not been appropriately prepared.	Refer to the instruction for use in the kit and prepare a new reagent.
The reagent expiration date of the reagent has passed. The reagent has been contaminated. The reagent is discolored.	Refer to the instruction for use in the kit and prepare a new reagent

5.3.6 Multiple Abnormal Measurement Results

Factor	Action
The leakage has happened in dispensing system of SPT or RPT.	Check the tube connection of the nozzles and syringes.
Incubation temperature is abnormal.	Check the temperature displayed on "Run Monitor" screen. Contact our service division when the temperature is outside $37\pm0.3^{\circ}\text{C}$.
The stir is insufficient.	Check that the stirrer rotates at the correct speed at the center of the cuvette (the abnormal noise is not generated because the stirrer hits the cuvette).

5.3 Abnormality of Measurement Results

5.3.5 Measurement Results of One Sample Show Abnormal Value for All Methods /

5.3.6 Multiple Abnormal Measurement Results

5.4 Malfunction of Analyzer

About the troubleshooting of the analyzer, do only the range described in this manual. When the problem is more complex than the range described in this manual, it might be difficult to address it by the user, and so contact our service division in that case.

5.4.1 Detection of Mechanical Problem

As for all mechanical functions, the control supervision is being done by the computer of the analyzer.

When a mechanical problem occurs in the analyzer, the computer immediately recognizes it and the error message is displayed to inform that a specific problem occurred.

When the problem influences the performance of the analyzer, Sampling stop or Emergency Stop is performed. When Sampling stop mode, the analyzer continues the processing of the samples that the trouble doesn't influence and completes the measurement.

When the problem influences whole sample measurement, Emergency Stop is immediately executed.

5.4.2 Error Messages of Each Unit

Refer to "Chapter 4 Alarm".

Chapter 6 Maintenance

This chapter explains the cleaning procedure of each unit.

6.1 Cleaning and Decontamination

WARNING: Wear medical rubber gloves so that the liquid does not adhere directly to the skin.



Be sure to turn off the main analyzer before starting the work.

In the case of using ethanol, should not be close to fire or high temperature parts/units, because the ethanol is flammable liquid.

6.1.1 External Tank

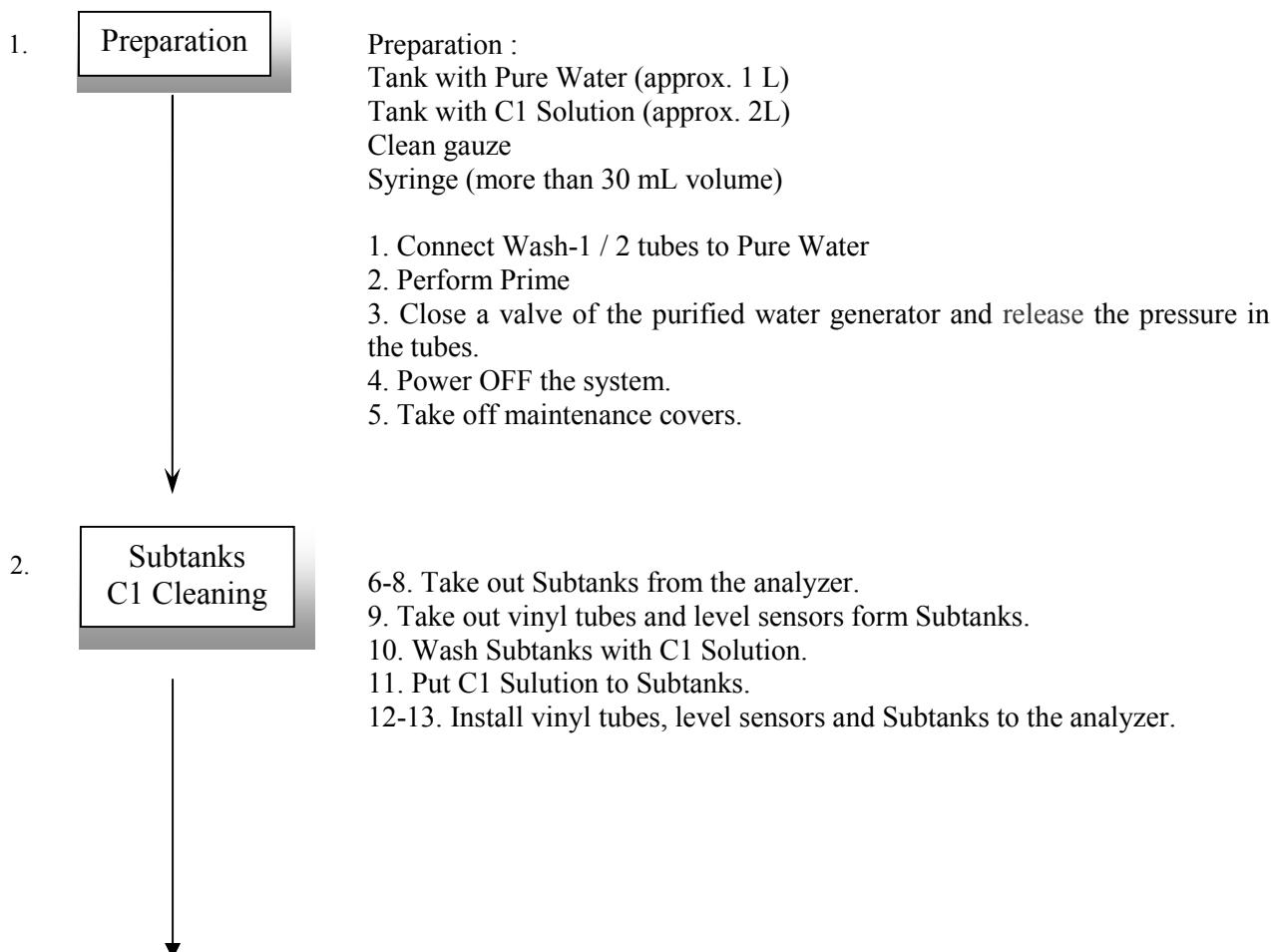
1. Detergent tank (5L)

- Dispose the wash solution and put pure water in the detergent tank and wash it enough. After that, put diluted solution “Furunoclean C-1” (this cleaning solution should be diluted to 100 times (1% concentration) with pure water) in the detergent tank and keep this state (for 10 minutes).
- Dispose this diluted solution and put pure water in the tank, and wash it enough before using it.

6.1.2 Piping and Internal Tank

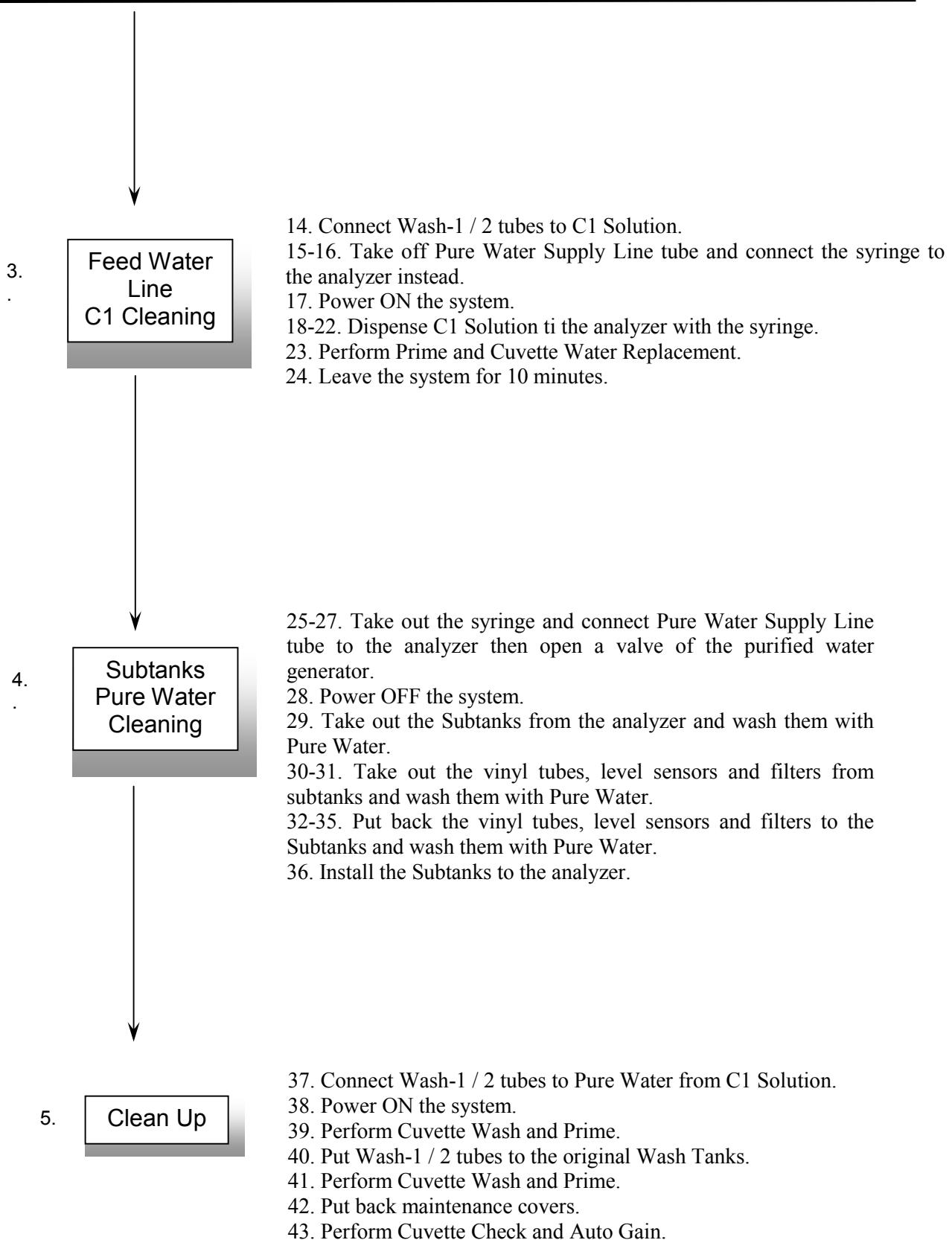
Make sure this 100 times diluted solution (C1 Solution) used in this cleaning procedure should not be mixed with other detergents (the solution for wash) and understand the following procedures well then execute washing.

A. Cleaning procedure



6-1 Cleaning and Decontamination

6.1.1 External Tank / 6.1.2 Piping and Internal Tank



6-1 Cleaning and Decontamination

6.1.1 External Tank / 6.1.2 Piping and Internal Tank

B. Detail description of cleaning procedure

B-1. Preparation

1. Tank with Pure Water (approx. 1L)
2. Tank with C1 Solution (approx. 2L)
3. Clean gauze or the like
4. Syringe to dispense C1 Solution to the analyzer (more than 30 mL volume)

B-2. Cleaning

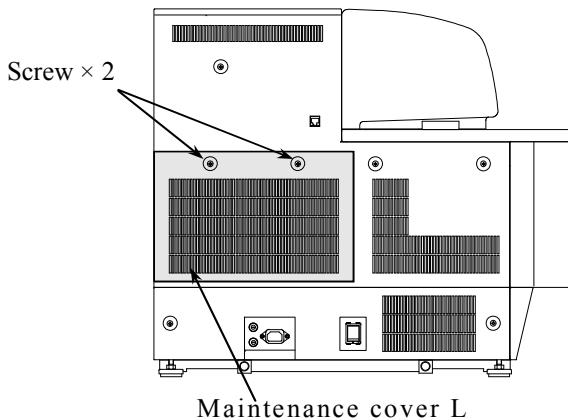
1. Take off Wash-1 / 2 tubes from wash tanks and wipe out water or dirt form the tubes then put them on to the Tank with Pure Water.
2. Select [Mainte (F10)] – [Sequence] and perform **Prime** 1 time.
3. Close a valve of purified water generator to stop supply of pure water and release pressure as follows.

Select [Mainte (F10)] – [Sequence].

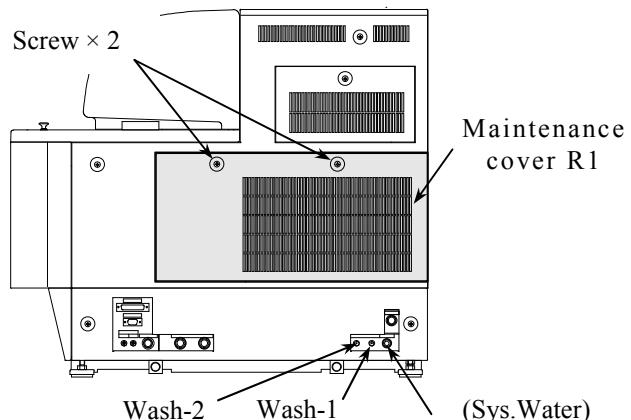
Click ON “ Sub-Tank R EV ” and “ Sub-Tank L EV ” of Pump Test section and input 5 in Time (Sec) column. Then click **Exec** button.



4. Power off the analyzer and PC.
5. Remove Maintenance cover R1 on the right side of the analyzer and Maintenance cover L on the left side of it.



Left side
Figure 6.1.2-1



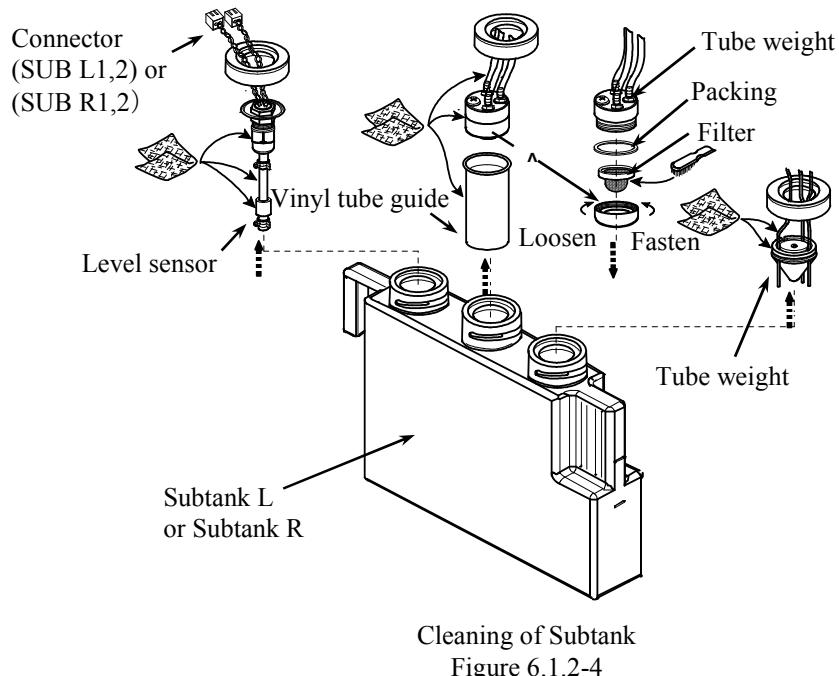
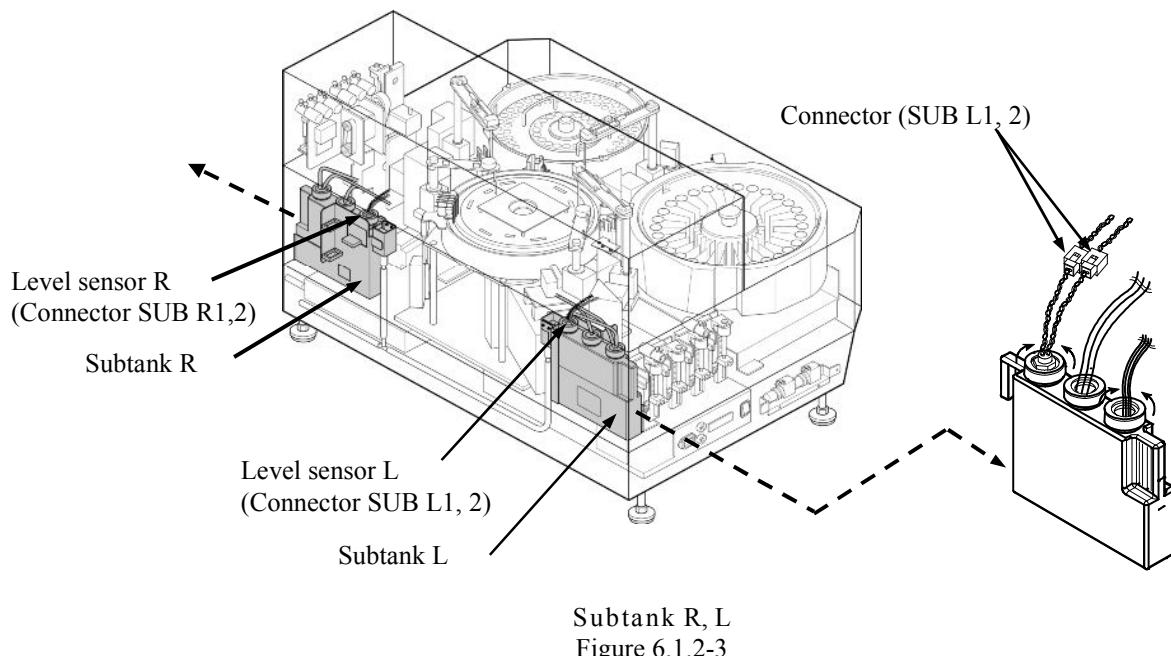
Right side
Figure 6.1.2-2

6-1 Cleaning and Decontamination

6.1.1 External Tank / 6.1.2 Piping and Internal Tank

B-3. Cleaning Subtanks

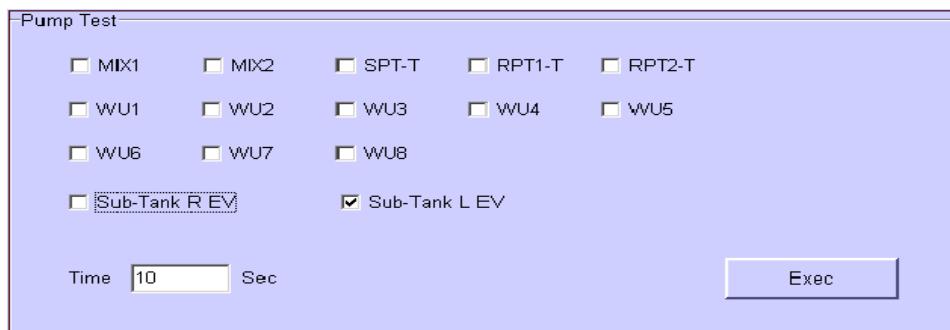
6. Remove the connection of connectors (SUB L1,2), (SUB R1,2) of the level sensors. Open the screw lids in upper part of the Subtank R, L and remove the tubes. (Refer to Figure 6.1.2-3.)
7. Take out the Subtank R, L from the analyzer.
8. Wipe out water and dirt from tubes with gauze and leave the tubes in the analyzer.



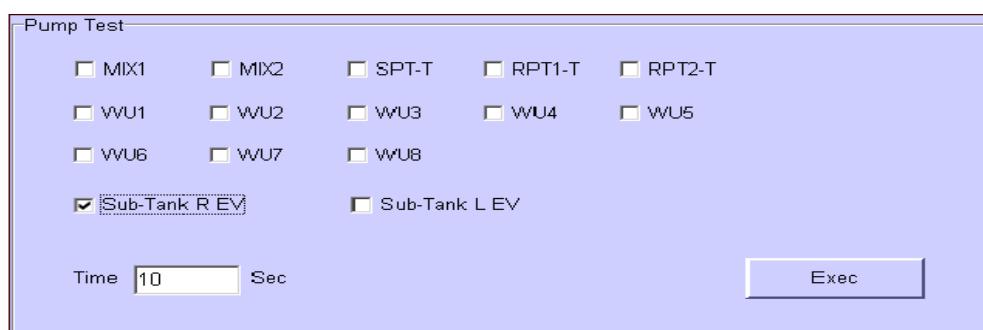
9. Open the lids in the upper part of Subtanks and remove the vinyl tubes and the level sensors.
10. Put the C1 Solution in the Subtank R, L and wash inside of them enough.
11. Put the C1 Solution to the High level in the washed Subtank R, L.
12. Install the vinyl tubes and the level sensors of the Subtank R, L and then put the lids on them.
13. Install the Subtank R, L to the analyzer and connect the connectors of the level sensors (SUB L1, 2), (SUB R1, 2) to them.
14. Take off Wash-1 / 2 tubes from Tank with Pure Water and put them on to the Tank with C1 Solution.

B-4. Cleaning Pure Water Supply Line

15. Take off a tube of Pure Water Supply Line from the analyzer and wipe out water and dirt around the line.
16. Power ON the analyzer and the PC. Select Cancel for preparatory mode (initial start up).
17. Dispense 30 mL of C1 Solution to the syringe and connect the syringe to the analyzer instead of the Pure Water Supply Line.
18. Select [Mainte (F10)] – [Sequence] and click ON “ Sub-Tank L EV ” of Pump Test section and input 10 in Time (Sec) column.
19. Click Exec button and dispense 30 mL of C1 Solution from the syringe to the analyzer in 10 seconds.



20. Dispense 30 mL of C1 Solution to the syringe again and connect the syringe to the analyzer instead of the Pure Water Supply Line.
21. Select [Mainte (F10)] – [Sequence] and click ON “ Sub-Tank R EV ” of Pump Test section and input 10 in Time (Sec) column.
22. Click Exec button and dispense 30 mL of C1 Solution from the syringe to the analyzer in 10 seconds.



23. Select [Mainte (F10)] – [Sequence] and perform Prime 2 times then click Cuvette Water Placement button.
24. Leave the analyzer for 10 minutes.

6-1 Cleaning and Decontamination

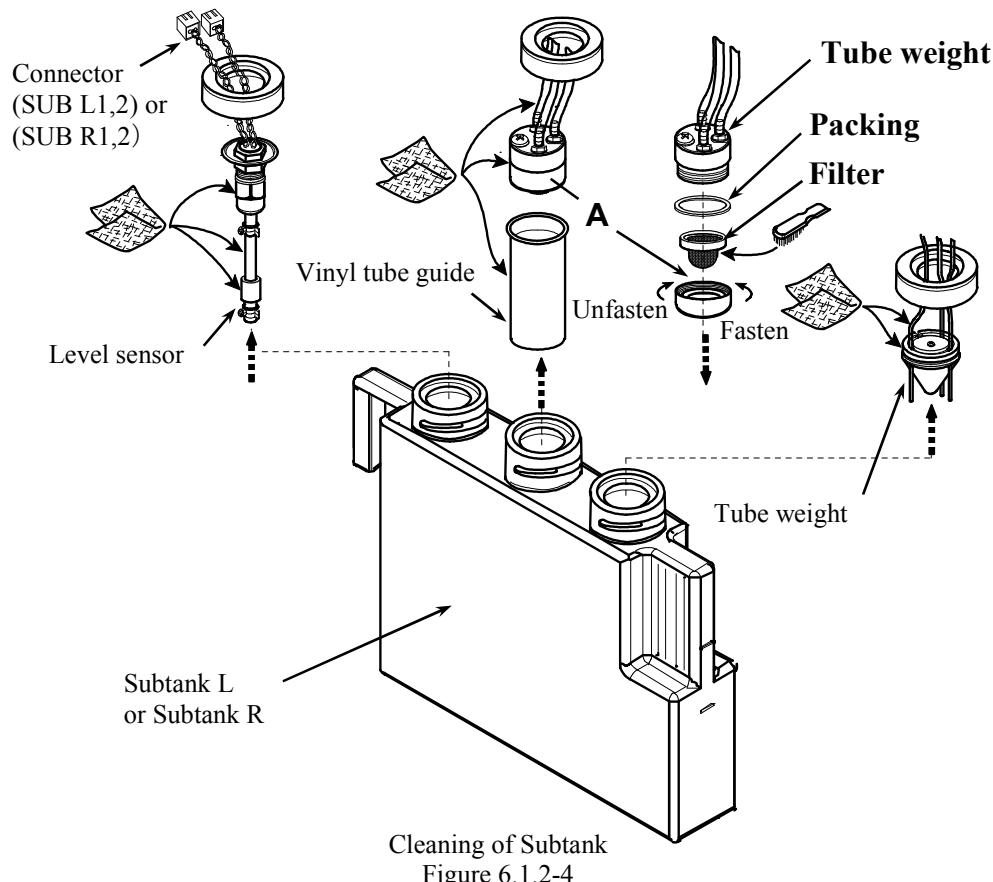
6.1.1 External Tank / 6.1.2 Piping and Internal Tank

B-5. Cleaning Subtanks with pure water

25. Remove the syringe connected to Pure Water Supply Line of the analyzer and connect the tube of Pure Water Supply Line. Make sure that a Hose Clump of the line has been installed securely.
26. Open the valve of the purified water generator.
27. Select [Mainte (F110)] – [Sequence] and click ON “ Sub-Tank R EV ” and “ Sub-Tank L EV ” of Pump Test section.. Then input 1 in Time (Sec) column and click **Exec** button.



28. Power OFF the analyzer and PC.
29. Take out the Subtank R, L from the analyzer following the procedure of **B-3. Cleaning Subtanks** and wash the Subtanks with pure water carefully.
30. Remove the vinyl tubes and the level sensors from the Subtanks and wipe them out with clean gauze carefully.
31. Rotate the tube weights (A part) to the right and remove the filters and wash it (with brushes etc.) with the pure water and then put them back together. (Refer to figure 6.1.2-4.)



Chapter 6 Maintenance

32. Put pure water to the Low level in the Subtank L, R and put the vinyl tube guides and the level sensors in the Subtank R, L. (Refer to figure 6.1.2-4.)
33. Put the tubes in the Subtank R, L and wash them enough.
34. Open the lids of the Subtank R, L and remove the tubes and the weights and then dispose the pure water. (Refer to figure 6.1.2-4.)
35. Install the tubes and the weights in the washed Subtank R, L and put the lids on them.
36. Install the Subtank R, L in the analyzer and connect connectors (SUB L1,2) (SUB R1,2) of the level sensors to them.

B-6. After treatment

37. Take out the tubes of Wash-1 / 2 line placed in the Tank with C1 Solution and wipe out water and dirt from the tube with gauze then put them in the Tank with Pure Water.
38. Power ON the analyzer and the PC. Select **Cancel** for preparatory mode (initial start up).
39. Select [Mainte (F10)] – [Sequence] and perform **Cuvette Wash** and **Prime** 1 time for each.
40. Take out the tubes of Wash-1 / 2 line placed in the Tank with Pure Water and wipe out water and dirt from the tube with gauze then put them in the original Wash-1 / 2 tank.
41. Select [Mainte (F10)] – [Sequence] and perform **Cuvette Wash** and **Prime** 1 time for each.
42. Put the removed maintenance cover R1, L on right and left side of the analyzer back in place.
43. Over 20 minutes from Power ON, select [Mainte (F10)] – [Sequence] and perform **Cuvette Chekck** then select [Mainte (F10)] – [Perform] and perform **Automatic**. Check that the results should be within specifications.

6-1 Cleaning and Decontamination

6.1.1 External Tank / 6.1.2 Piping and Internal Tank

C. Frequency of cleaning

Perform cleaning with “Furunoclean C-1” every three months for average use (approx. four hours per day).

CAUTION: Usually the cleaning interval is every three months. If the cleaning interval becomes long, diatomaceous attachment develops in the tubes. When washing, the filters may be clogged with the removed attachments and the life of the filters become short. Therefore, do not lengthen the cleaning interval extremely.

D. Storage of Concentrate Solution “Furunoclean C-1”

The storage life of concentrate solution “Furunoclean C-1” (commercial product) is 24 months. Concentrate solution can be stored for 24 months as long as the cap is closed tightly even after first opening the cap. Since diluted solution is not preservable, make fresh diluted solution for every use.

E. Precautions for use of Concentrate Solution “Furunoclean C-1”

The following are chiefly precautions for cleaning of the analyzer. For other general precautions, obey the instructions given on the label of the “Furunoclean C-1” container.

- (1) Use this product after diluting in accordance with the above mentioned instructions.
- (2) Make sure to use pure water (ion-exchanged water) to dilute the product. Do not use tap water to dilute it. If you dilute it with tap water and leave the diluted solution for several days, brown deposits (corroded iron) or white deposits (calcium chloride) may be generated.
- (3) If the product expires (storage life: 24 months), sodium hypochlorite contained in the product is decomposed and effective chlorine is reduced. Therefore, dispose of an expired product in an appropriate manner. (Before disposal, neutralize it and dilute it with a large amount of water.)
- (4) Do not mix the product with acid material.
- (5) Do not make the product contact with zinc plating or metals including iron, ferric oxide, copper, copper alloy, etc. to prevent corrosion of them.
- (6) Before putting the product into another container, completely clean the container by rinsing it with pure water and completely dry it.

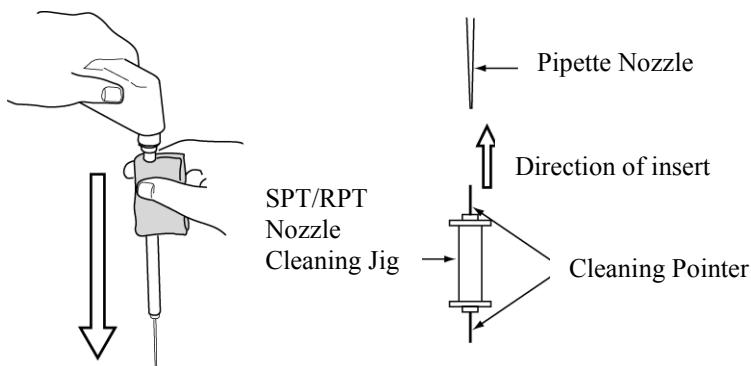
6.1.3 Pipettes (for RPT1/RPT2/SPT)

WARNING: Be sure to turn off the main analyzer before starting the work.
Wear medical rubber gloves so that the liquid does not adhere directly to the skin.



- (1) Moisten gauze with ethanol.
- (2) Lift up the nozzle assembly by hand.
- (3) Wipe the whole pipette with the moistened gauze. Wipe the pipette from the upper part of it to the direction of the point of it, as shown in Figure 6.1-3-1.

WARNING: When wiping the nozzle, do not apply extra force to it. It is very important that the nozzle is vertically set so that the analyzer can function correctly. Improper alignment can cause the damages of the pipette and / or incorrect analysis results.



Cleaning of Pipette
Figure 6.1.3-1

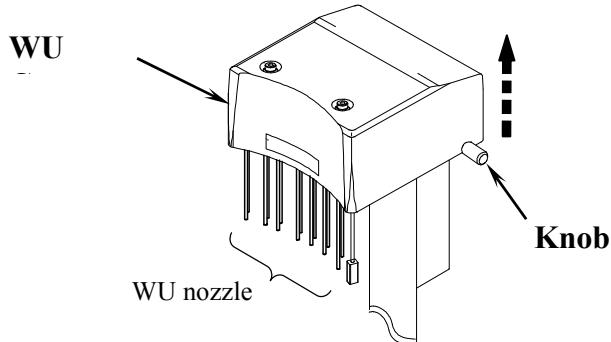
- (4) Insert the cleaning pointer of the SPT / RPT nozzle cleaning jig into the point of the nozzle in order to clean the inside of the nozzle. (Refer to Figure 6.1-3-1.)
Note that the cleaning pointer for SPT is thinner than the pointer for RPT.
- (5) Wipe SPT / RPT1 / RPT2 with gauze or paper towel moistened with neutral detergent.
- (6) After cleaning the inside of the nozzle, clean the nozzle with pure water according to the following procedure.
By the screen operation, [Mainte (F10)] → [Sequence] screen.
And click ON of SPT, RPT1 or RPT2 on Wash section and click button to start washing.

6.1.4 WU Nozzles

WARNING: Be sure to turn off the main analyzer before starting the work.
Wear medical rubber gloves to prevent direct contact with nozzles or liquid.



- (1) Hold up the knob of the WU unit (direction of the arrow).



WU UNIT
Figure 6.1.4-1

- (2) Wipe the nozzles (six supply nozzles and seven drain nozzles) using gauze moistened with ethanol. Make sure not to bend the nozzles.
- (3) Wipe the WU cover with gauze or paper towel moistened with neutral detergent.

6.1.5 Stirrers (for MIX1/MIX2)

WARNING: Be sure to turn off the main analyzer before starting the work.
Wear medical rubber gloves to prevent direct contact with nozzles or liquid.



There are two stirrers.

The MIX1 stirrer is located at the right rear of the SPT and the MIX2 stirrer is located at the right rear of the RPT2.

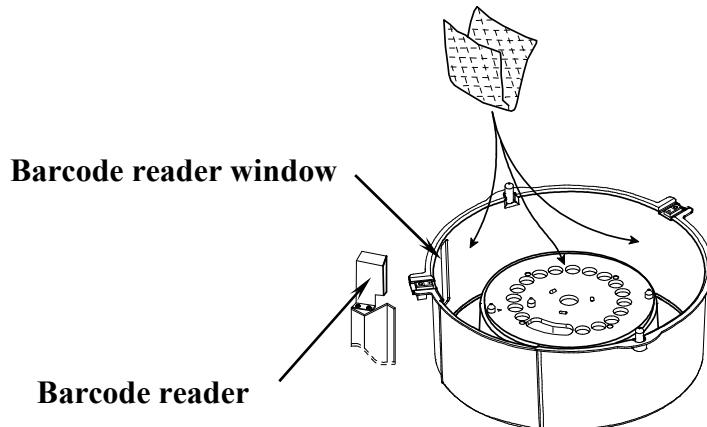
- (1) Moisten gauze with ethanol.
- (2) Lift up the stirrer by holding its arm cover.
- (3) Wipe the whole stirrer with the gauze moistened with ethanol. Be careful not to bend the paddle.
- (4) Wipe the cover of MIX1 / MIX2 with gauze or paper towel moistened with neutral detergent.

6.1.6 Auto Sampler Unit (ASP)

**WARNING: Be sure to turn off the main analyzer before starting the work.
Wear medical rubber gloves to prevent direct contact
with nozzles or liquid.**



- (1) Make sure that the SPT nozzle is not above or in the Auto Sampler Unit (ASP). If it is, remove it by hand.
- (2) Take out the ASP tray (inner circumference, outer circumference).
- (3) Wipe the frame of the barcode reader window (without glass) with gauze moistened with ethanol.



Auto Sampler Unit
Figure 6.1.6-1

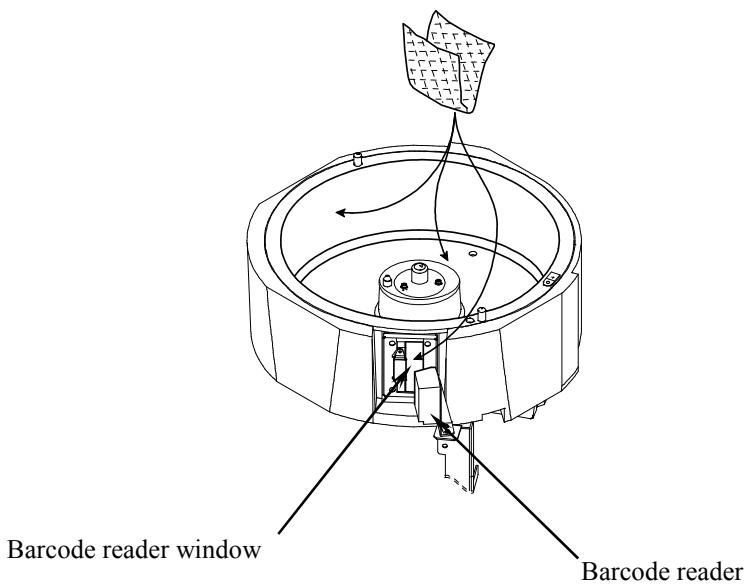
- (4) Wipe the inner surface of the Auto Sampler Unit (ASP) with gauze or paper towel as illustrated above. Make sure that water drops are wiped off completely.
- (5) Install the ASP tray (inner circumference, outer circumference) and the lid as before.

6.1.7 Reagent Container Unit (RCU)

WARNING: Be sure to turn off the main analyzer before starting the work.
Wear medical rubber gloves to prevent direct contact
with nozzles or liquid.



- (1) Make sure that the RPT nozzle is not in the Reagent Container Unit (RCU). If it is, remove the nozzle by hand.
- (2) Take out the RCU tray.
- (3) Wipe the barcode reader window with gauze moistened with ethanol or glass cleaner. Then, be careful not to damage the window surface.



Reagent Container Unit
Figure 6.1.7-1

- (4) Wipe the inner surface of the Reagent Container Unit (RCU) with gauze or paper towel as illustrated above. Make sure that water drops are wiped off completely.
- (5) Install the RCU tray and the lid as before.

6.1.8 Worktable

WARNING: Be sure to turn off the main analyzer before starting the work.
Wear medical rubber gloves to prevent direct contact
with nozzles or liquid.



- (1) Wipe the surface of the mosaic plates with gauze or paper towel moistened with neutral detergent.



Mosaic Plates
Figure 6.1.8-1

6.2 Part Replacement

As part replacement procedures, only dismounting procedures are explained here. Mounting procedures are omitted because they are simply the reverse of the dismounting procedures. Exceptionally, mounting procedures or remarks are given in cases where adjustment or special care is required.

The following items are required for Part Replacement.

SPECIAL TOOLS AND MATERIALS

ITEM	DESCRIPTION
Liquid Gasket (1212)	Required for WU wipe tip replacement.
Silicon Grease (KF-96H-50000CS)	Required for syringe tip.
Jig: (accessories)	Syringe tip insertion jig
Screwdriver: (accessories)	Required types: + Screwdrivers No.1 and No.2
Hex Wrench: (accessories)	Required sizes: 1.5 mm (for PT Nozzle), 3 mm (for syringe)
Spanner	Required sizes (for PT Nozzle): 5.5 mm

CAUTION: Contact the suppliers about the details regarding Liquid Gasket (1212), and Silicon Grease (KF-96H-50000CS)

6.2.1 Syringe Tips (for SPP/RPP/WPP)

WARNING: Be sure to turn off the main analyzer before starting the work.
Wear medical rubber gloves to prevent direct contact
with nozzles or liquid.

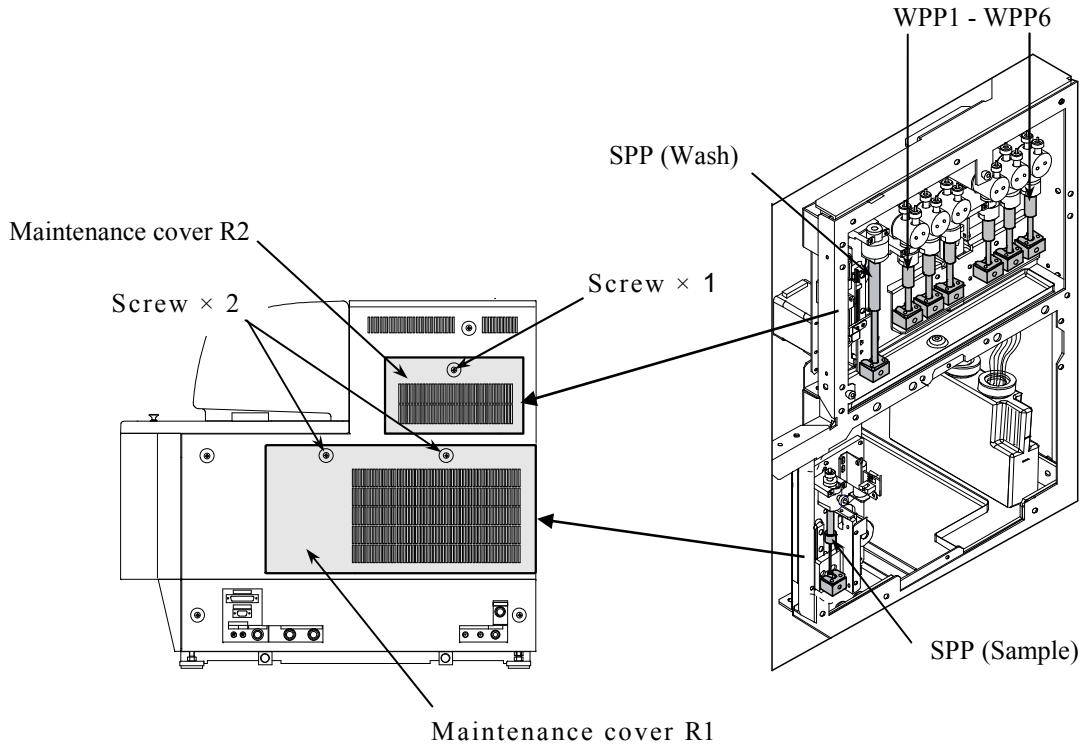


This section explains syringe plunger tip replacement procedures which can apply to all the syringe pumps used in the analyzer. Replace syringe tips at the provided cycle according to the following procedures.

Procedure

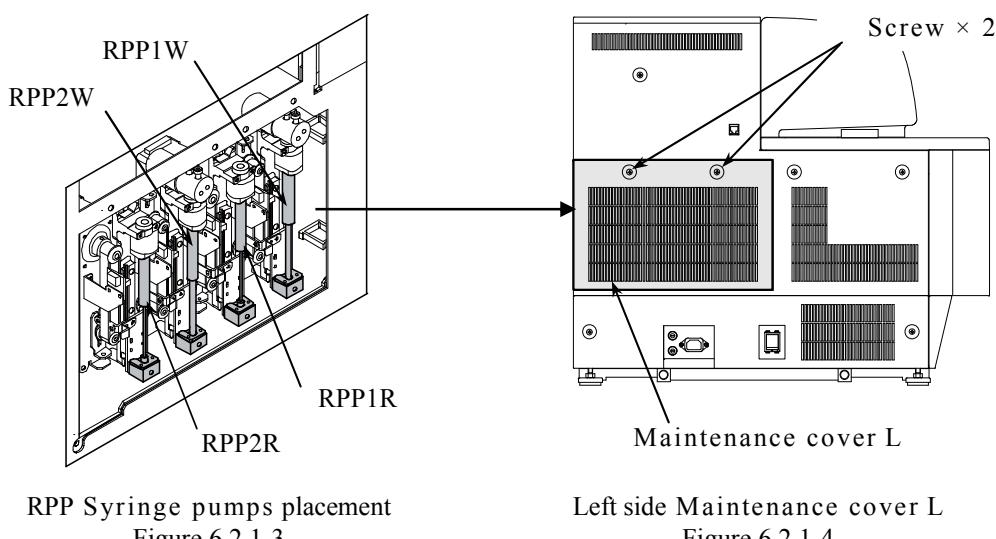
(1) Turn "OFF" the analyzer and Operational PC

(2) Open the maintenance covers on the sides. (Refer to Figure 6.2.1-1 and Figure 6.2.1-4.)



Right side Maintenance cover (R1,R2)
Figure 6.2.1-1

WPP, SPP Syringe pumps placement
Figure 6.2.1-2



RPP Syringe pumps placement
Figure 6.2.1-3

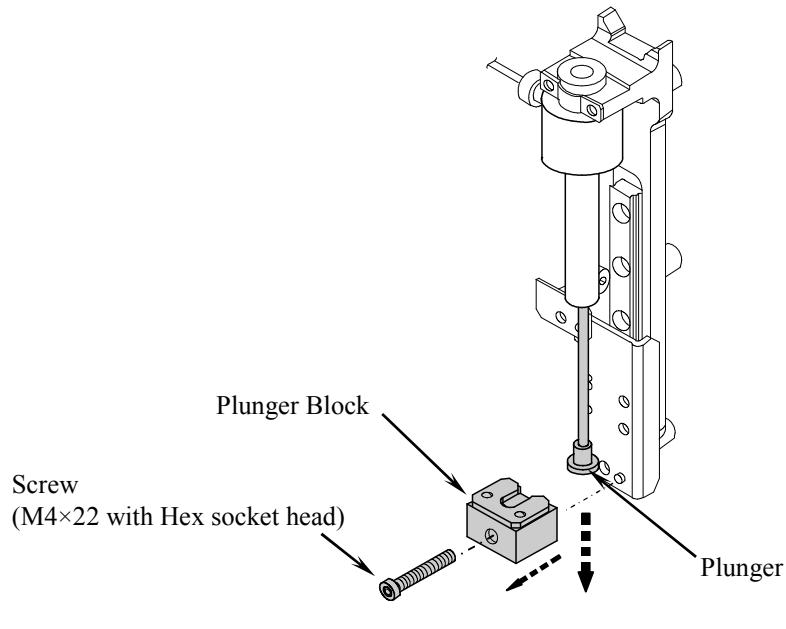
Left side Maintenance cover L
Figure 6.2.1-4

6.2 Part Replacement

6.2.1 Syringe Tips (for SPP/RPP/WPP)

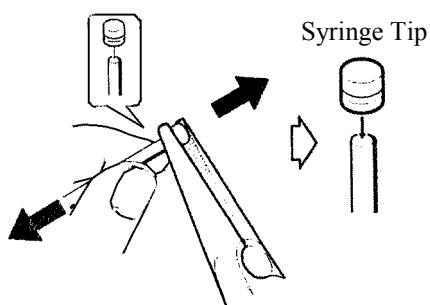
(3) Remove the plunger block by removing one screw (M4×22).

(4) Pull down the plunger and remove it.



Removing plunger
Figure 6.2.1-5

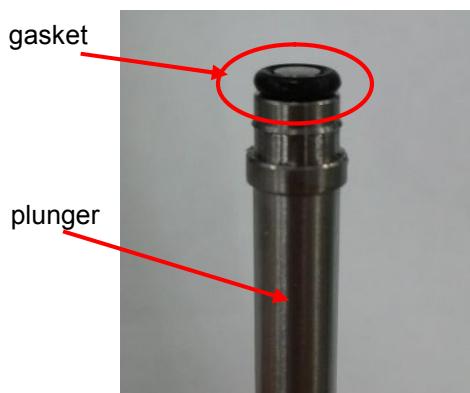
(5) As shown by the Figure below, remove the syringe tip by using pliers (long-nose pliers).



Removing syringe tip
Figure 6.2.1-6

(6) Insert a new syringe tip in the hole on the syringe tip insert jig.

Gaskets will be replaced at the same time for Type TEF050 and TEF 250 and need to be installed to a plunger beforehand.



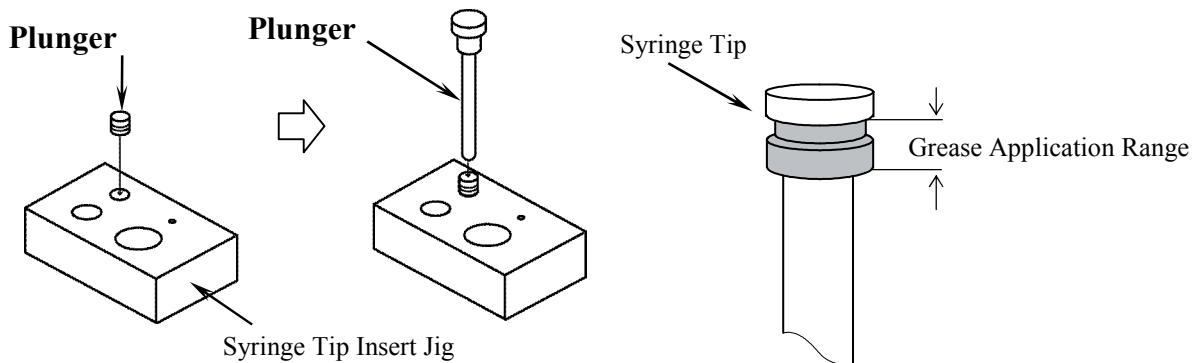
Syringe tip Table
Figure 6.2.1-7

TYPE NAME	T-0510 (S1.4)	TEF050 (3.26)	TEF250 (7.29)
SPPS	○		
SPPW			○
RPP1R		○	
RPP1W			○
RPP2R		○	
RPP2W			○
WPP(1-6)			○

Syringe tip Table
Figure 6.2.1-8

(7) Hold the plunger vertically by hand, and insert it vertically into the hole of the syringe tip.

(8) Apply silicone grease (Shin-Etsu Silicones, KF-96H-50,000cs) to the plunger with the attached tip, then insert this plunger into the syringe and slowly push it upward.



Inserting syringe tip by Jig
Figure 6.2.1-9

Grease Application Range
Figure 6.2.1-10

(9) Install the plunger to the syringe pump by the reverse procedure to Procedure (1) and (2).

(10) Turn on Operational PC and the main analyzer.

(11) Lastly, by the screen operation, [Mainte (F10)] → [Work Hour] screen,

and to clear the used hours of RPP(1, 2), RPP(1W, 2W) , SPP, SPPW , WPP (1-6) that correspond to the exchanged syringes on Microsyringe Tip section, click **RESET** button.

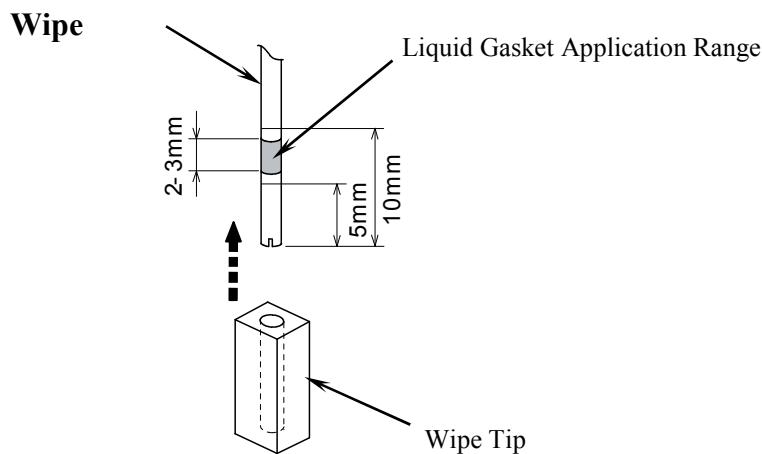
6.2.2 Wipe Tip (in WU)

WARNING: Be sure to turn off the main analyzer before starting the work.
Wear medical rubber gloves to prevent the contaminant from infiltrating.



Procedure

- (1) Hold up the knob of the WU unit. (Refer to Figure 6.1.4-1.)
- (2) While holding the wipe nozzle by fingers, pull out the wipe tip downward.
- (3) Apply liquid gasket to all circumferences of the wipe nozzle so that applied liquid gasket width becomes 2 to 3 mm and the applied area is in the range of 5 to 10 mm from the tip of the wipe nozzle. (Refer to Figure 6.2.2-1.)
- (4) Insert a new wipe tip into the wipe nozzle until it hits the bottom.

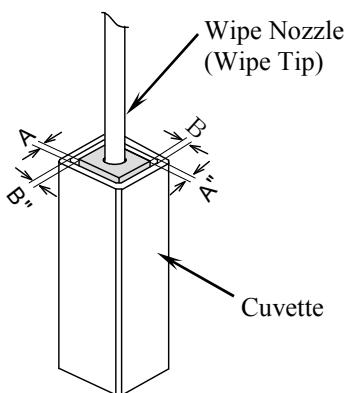


Appling Liquid Gasket and Mounting wipe tip
Figure 6.2.2-1

- (5) Turn on Operational PC and the main analyzer.

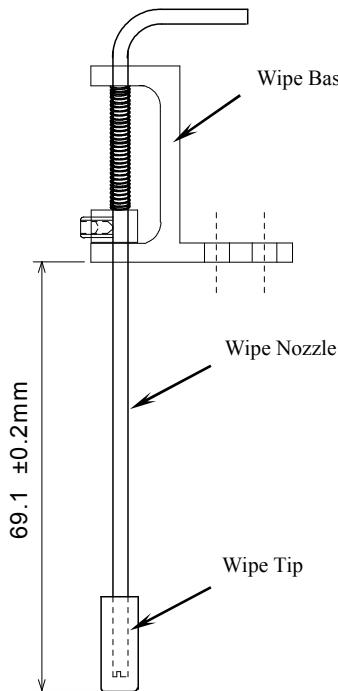
By the screen operation, [Mainte (F10)] → [Sequence] screen,
and click **Initialization** button.

- (6) Hold the knob of the WU unit and lower it below. Put the wipe nozzle in the cuvette (IRU) and adjusts it while rotating the wipe tip so that the interspaces between the cuvette and the wipe tip ((A , A’), (B , B’)) becomes even. (Refer to Figure 6.2.2-2.)



Adjusting Wipe Tip
Figure 6.2.2-2

- (7) When you normally install the wipe tip, the length between the lowest end of the wipe base and the top end of the wipe tip is $69.1 \pm 0.2\text{mm}$. (Refer to Reference figure 6.2.2-3 "Wipe Nozzle Dimension".)



Wipe Nozzle Dimension
Reference Figure 6.2.2-3

6.2.3 Pipette (for SPT/RPT)

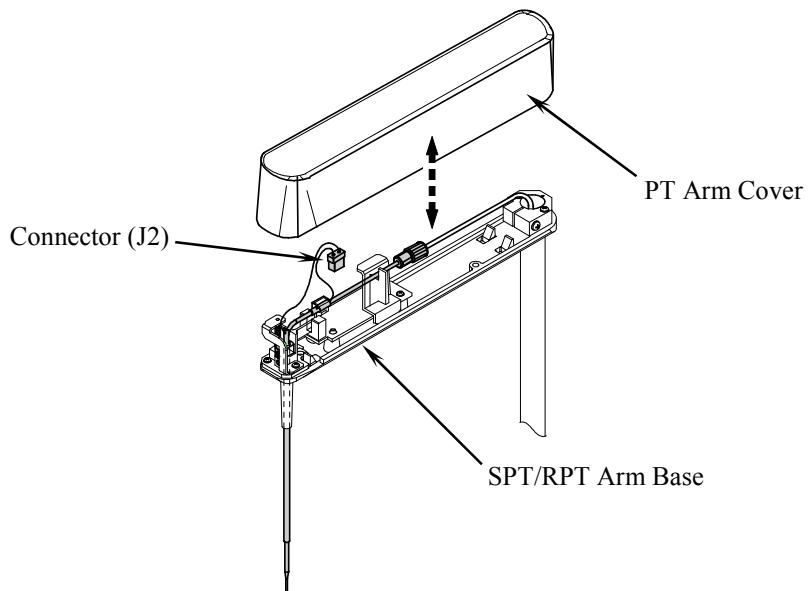
WARNING: Be sure to turn off the main analyzer before starting the work.
Wear medical rubber gloves to prevent the contaminant from infiltrating



The replacement procedures of SPT and procedures of RPT are common. Replace them according to the following procedures.

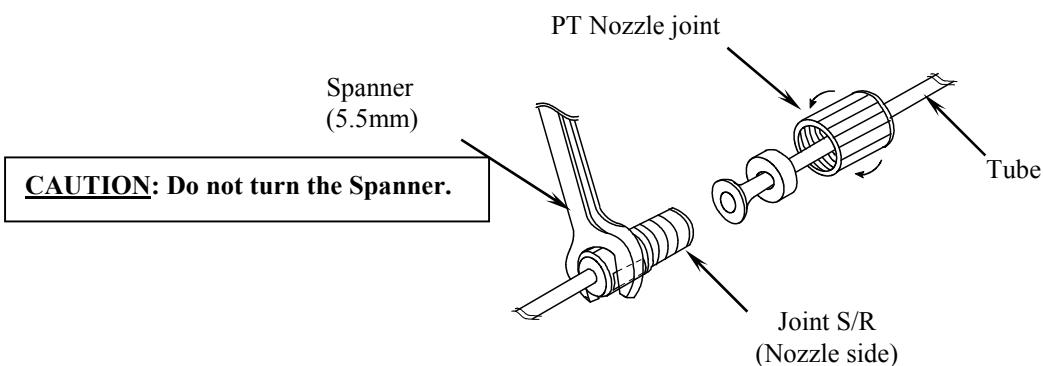
Procedure

- (1) Turn "OFF" the analyzer and Operational PC.
- (2) Remove the SPT / RPT arm cover. (The arm cover has tabs on its internal surface and these tabs fix the cover to the SPT/RPT arm base.)
- (3) Remove the connector (J2).



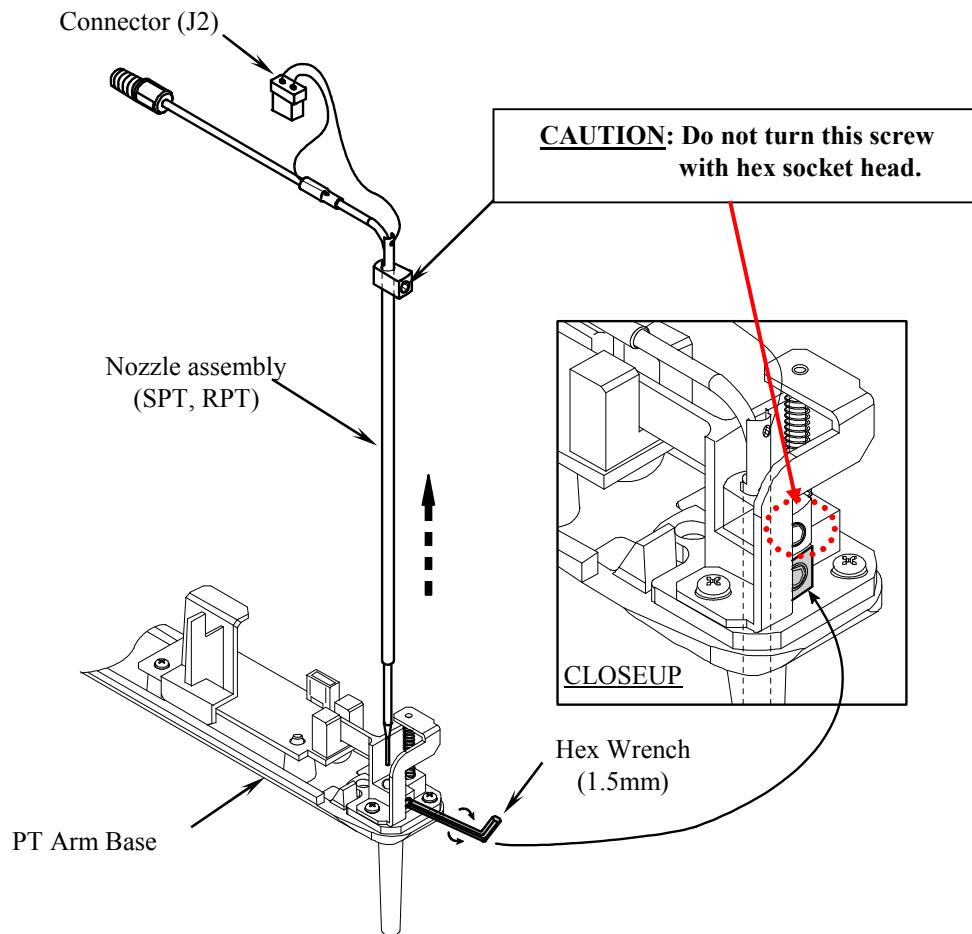
Removing PT arm cover
Figure 6.2.3-1

- (4) While holding the nozzle side (on the joint S/R side) by using spanner (5.5 mm), turn the PT Nozzle joint (the tube side) by hand to remove the joint S/R. Use tissue paper, etc. to prevent drops of liquid from falling out of the removed tube and the removed nozzle.



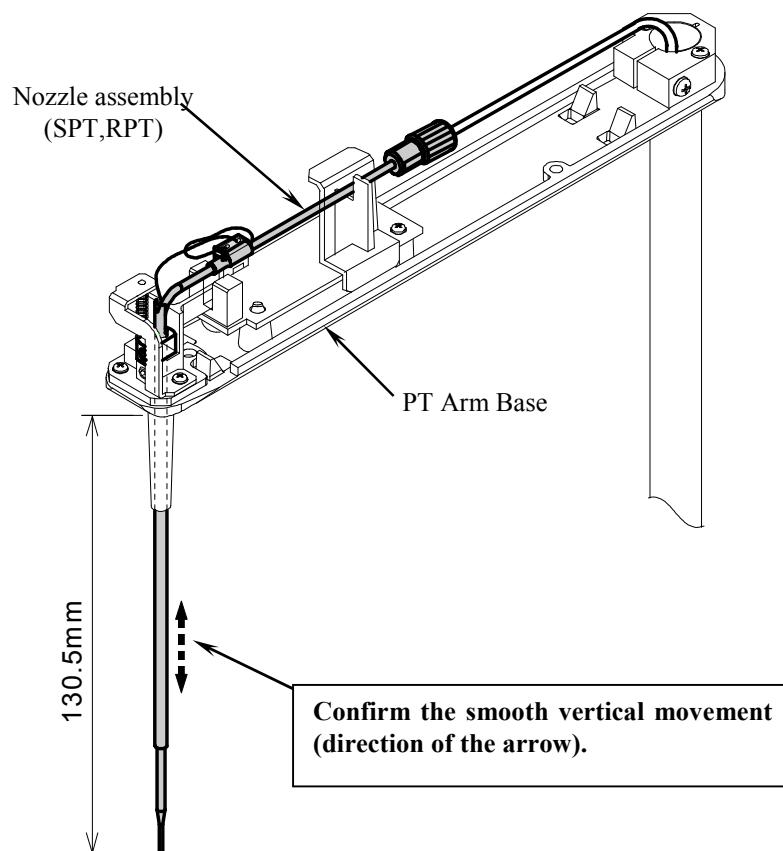
Removing Joint S/R
Figure 6.2.3-2

- (5) Loosen the screw (M3×5 with hex socket head, lower one), which fixes the nozzle. Lift up the nozzle and remove it.



Removing S/R nozzle assembly
Figure 6.2.2-3

- (6) Install new pipette nozzle. Do the assembling work in the reverse way of the Procedure (3) to Procedure (5).
- (7) Confirm the installation state of the pipette nozzle.
 - **Make sure that the pipette nozzle is not bent.**
 - **Make sure that the pipette nozzle is installed parallel to the PT arm base.**
 - **Make sure that the pipette nozzle does not contact with the sensor.**
- (8) When you normally install the pipette, the length between the lowest end of the pipette nozzle and the PT arm base is 130.5mm. (Refer to figure 6.2.2-4.)
- (9) Have the pipette nozzle by the hand and make sure that it can move smoothly up and down (direction of the arrow).



Installation confirmation of pipette nozzle
Figure 6.2.2-4

- (10) Return the pipette arm to the trough position by holding it up.

6.2.4 Halogen Lamp



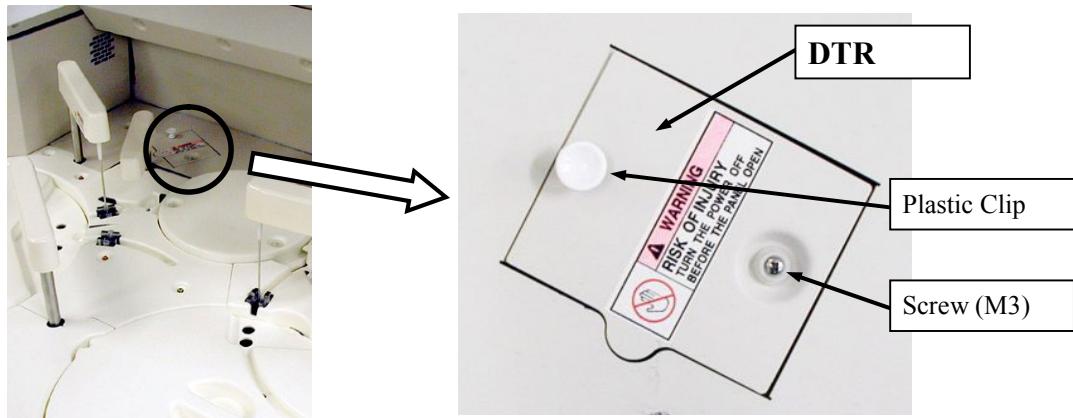
WARNING: The lamp case may be very hot. Before starting halogen lamp replacement, turn off power and leave it for at least 30 minutes.

CAUTION: When installing a new halogen lamp, do not touch the glass of the halogen lamp by bare hands.

Grease from hands may cause malfunction.

Procedure

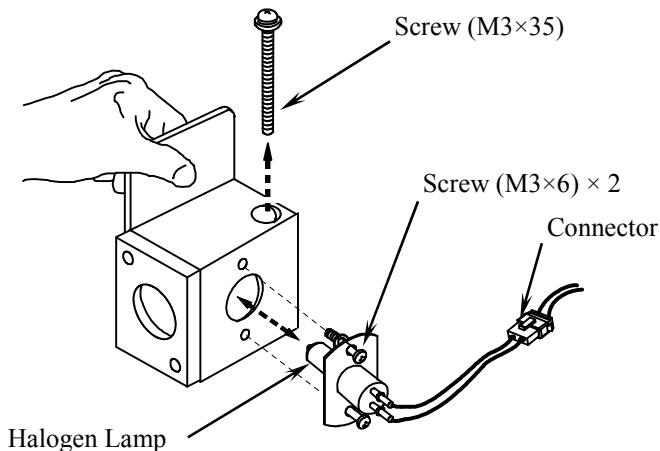
- (1) Pick up the Pipette of the reagent or sample, and move it to the place where you work easily.
- (2) Remove the DTR cover by removing one screw (M3) and one plastic clip.



Mosaic plate for halogen lamp replacement

Figure 6.2.4-1

- (3) Remove the lamp case by unplugging the connector of the halogen lamp and removing one screw (M3×35).
- (4) Hold the handle (blue part) and hold up the lamp case.
- (5) As shown by the Figure below, slacken two screws (M3×6) that are attached to the halogen lamp and take out the halogen lamp.



Removing Halogen lamp

Figure 6.2.4-2

- (6) Install a new halogen lamp.
- (7) In the reverse way of the installation procedure, install a new halogen lamp, connect the connector plug, and install the mosaic plate. Return the moved pipette to the trough position.
- (8) Turn on Operational PC and the main analyzer.
- (9) Lastly, by the screen operation, [Mainte (F10)] → [Work Hour] screen and click **RESET** button of Halogen Lamp on Work Hour Counters section to clear the used hours.

6.2.5 Cuvettes (in IRU)

WARNING: Be sure to turn off the main analyzer before starting the work.
Wear medical rubber gloves to prevent direct contact with nozzles or liquid.

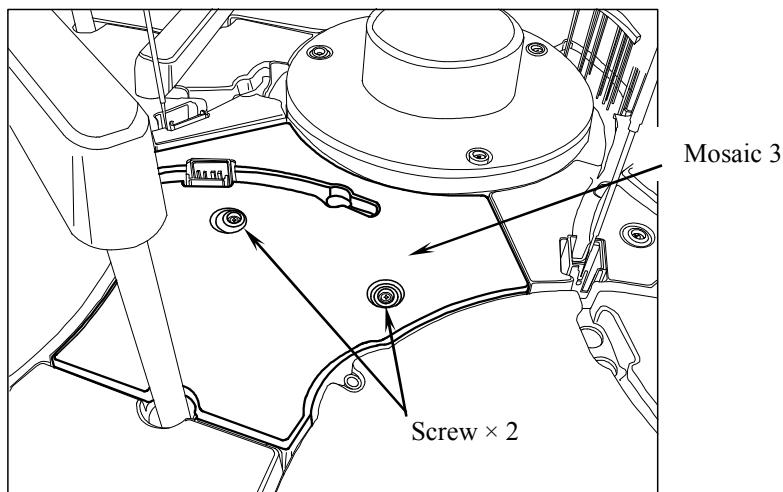


The condition of cuvettes can be checked according to the following procedure.

By the screen operation, [Mainte (F10)] → [W Blank] screen
and check the condition of cuvettes by the cuvette check of Water Blank.
(Refer to Chapter 3 6 1 "The result of water blank".)

Procedure

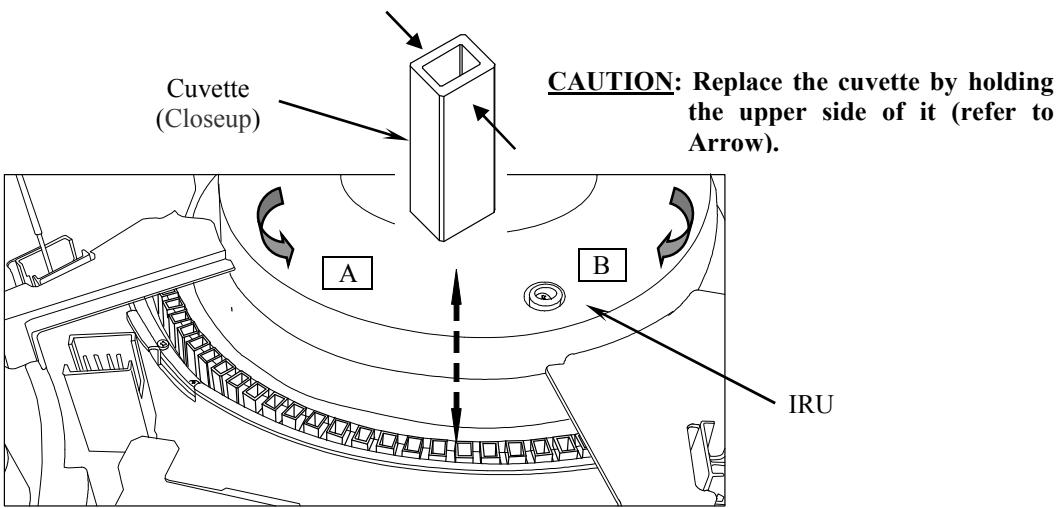
- (1) Pick up the Pipette of the reagent or sample, and move it to the place where you work easily.
- (2) Slacken the two screws and remove the Mosaic 3.



Mosaic 3
Figure 6.2.5-1

- (3) Rotate IRU (in the direction of arrow A or B) and take out cuvettes to replace.

CAUTION: When you rotate the IRU, make sure that there is not the nozzle and the stirrer in the cuvette.



Removing Cuvette
Figure 6.2.5-2

- (4) Install the new cuvette. As shown by the above the Figure, replace the cuvette by holding the upper side of it.

- (5) Install the Mosaic plate removed by Procedure (2), and return the moved pipette to the trough position.

6.2.6 Mesh Filter

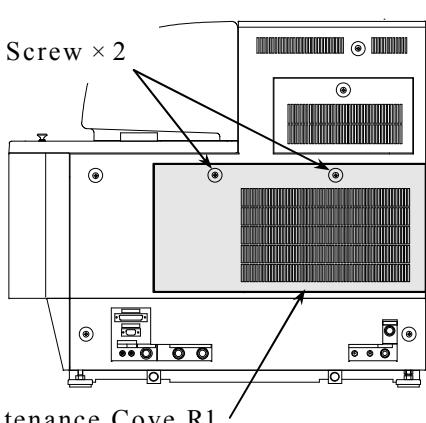
WARNING: Be sure to turn off the main analyzer before starting the work.
Wear medical rubber gloves to prevent direct contact with nozzles or liquid.



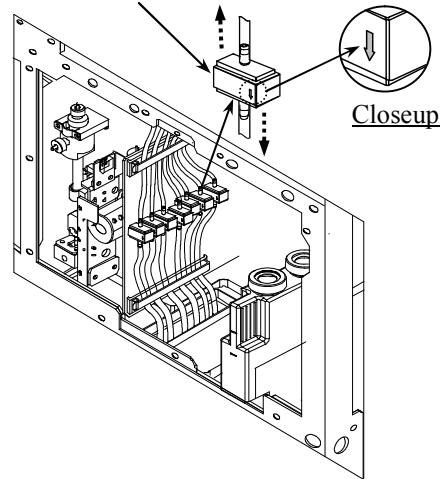
Procedure

- (1) Turn "OFF" the analyzer and Operational PC.
- (2) Open the Maintenance cove R1 on the right side of the analyzer. (Refer to Figure of Right side 6.2.6-1.)

Mesh Filter 1-7



Maintenance Cove R1
Maintenance Cove R1(right side)
Figure 6.2.6-1



Removing Mesh Filter
Figure 6.2.6-2

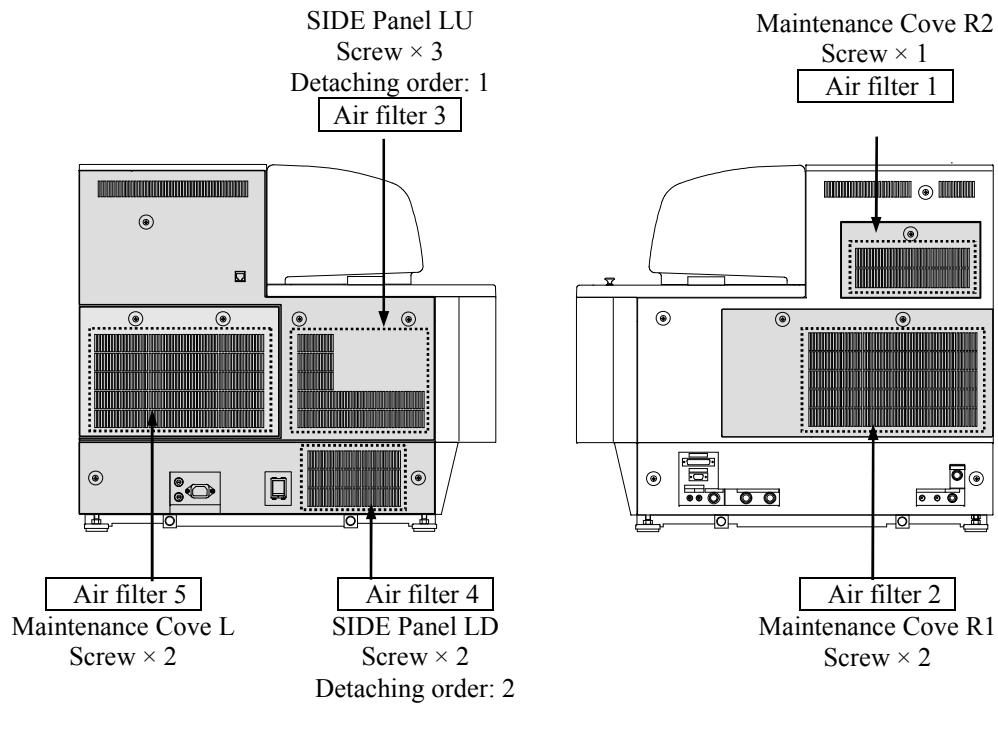
- (3) Remove the tube connected to the Mesh filter.
CAUTION: Seven Mesh filters in total are used. Replace the Mesh filters one by one to avoid wrong insertion.
- (4) Insert the tube to the bottom of the Mesh filter.
CAUTION: The arrow is drawn in the Mesh filters. Before installing, make sure that the direction of the arrow is downward.

6.2.7 Air Filter

WARNING: Be sure to turn off the main analyzer before starting the work.



The side of this main Analyzer has five air filters as shown by the Figure below. Clean the filters if necessary. When the filters is damaged or is awfully dirty, replace them.



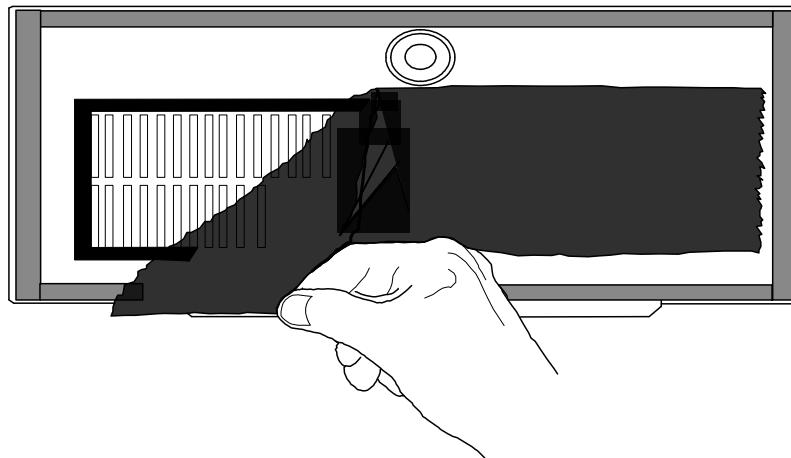
Air filter placemen on the left side

Figure 6.2.7-1

Air filter placemen on the right side

Figure 6.2.7-2

The air filter is fixed with hook and loop fasteners and it can be easily mounted and dismounted by hand. (Refer to Figure 6.2.7-1 and Figure 6.2.7-2 for the installation place.)



Mounting/Dismounting Air filter
Figure 6.2.7-3

6.2.8 Electrode (in ISE)

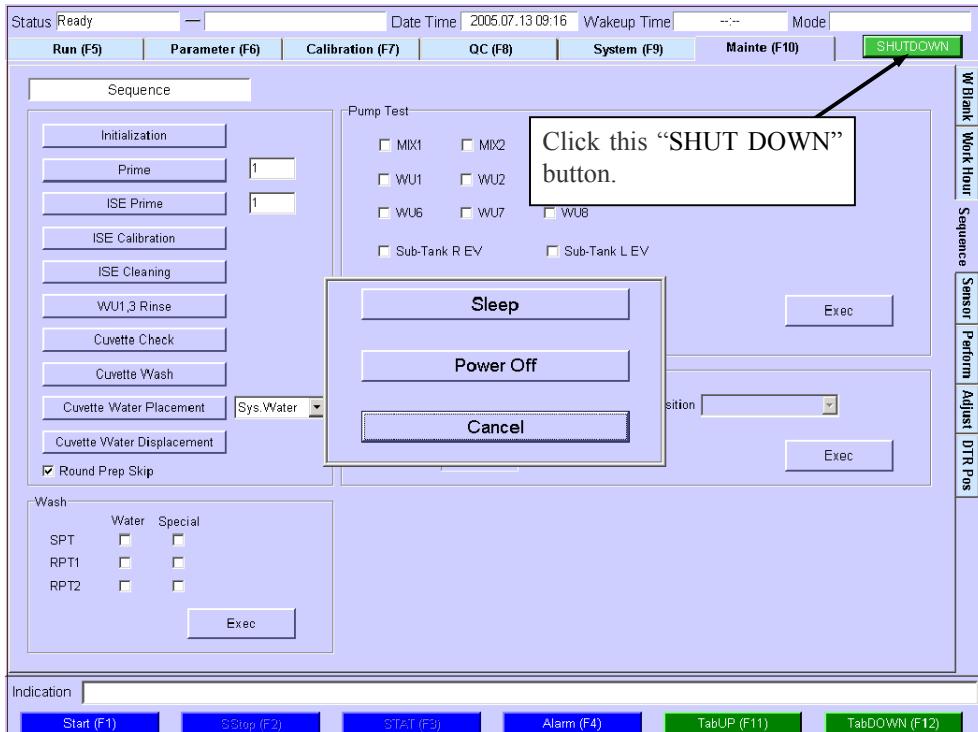


WARNING: Wear medical rubber gloves to prevent direct contact with nozzles or liquid.

Procedure

- (1) Work on the preparation of electrode exchange according to the following procedures.

- (a) By the screen operation, click [SHUT DOWN] button in the upper right of the screen of Operational PC and the pop-up screen is displayed. Click [Power Off] button for end.



Preparation for Replacing Electrodes

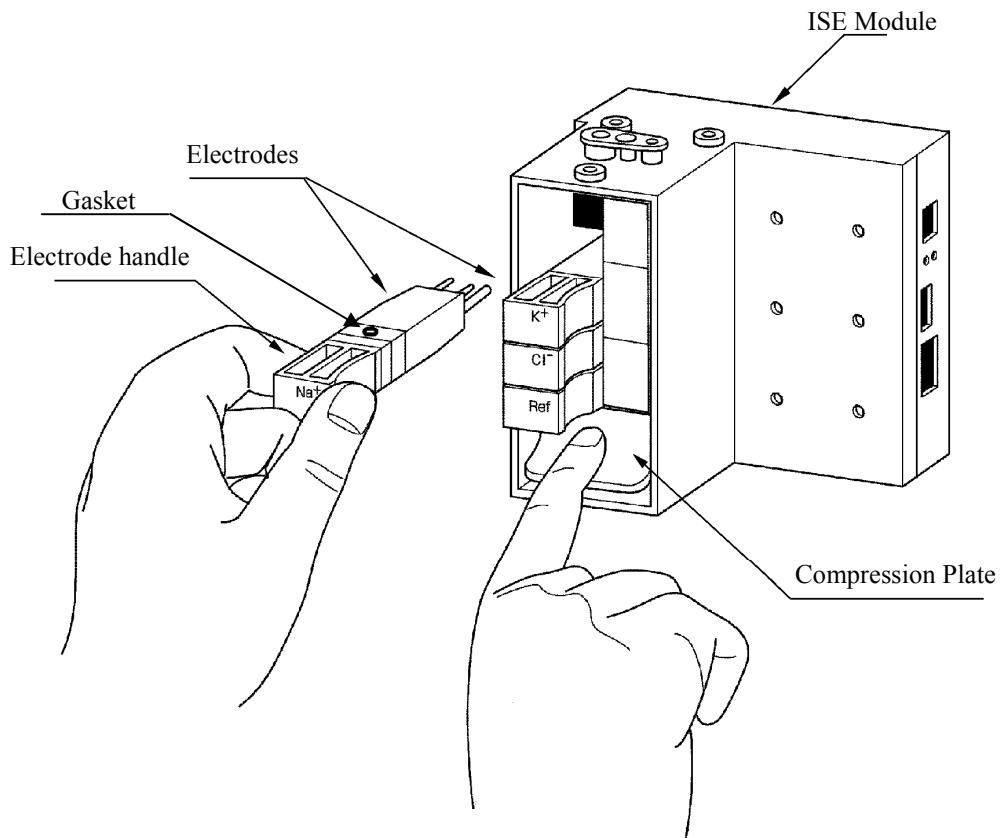
Figure 6.2.8-1

- (b) Confirm that the UI screen on Operational PC is closed and ended, and turn OFF the main analyzer.
- (2) Remove the Maintenance Cover R1. (Refer to Figure 6.2.7-2 and Figure 6.2.8-2)



inside Maintenance Cover R1
Figure 6.2.8-2

- (3) Depress the compression plate and pull out an electrode while holding the handle of it.



Replacing Electrodes
Figure 6.2.8-3

CAUTION:

1. Take off Electrodes (Na, K, Cl and Ref) one by one in order easily.
2. Take off a protection tube of a new Ref Electrode.
3. Make sure that no dirt or crystals can be observed on Compression Plate and ISE Module. Wipe out dirt or crystals if there.
4. Make sure that no dirt or crystals can be observed on Electrodes you are about to install. Wipe out dirt or crystals if there.
5. Make sure that Gaskets are installed upon Electrodes.

CAUTION: When you open a new electrode package for use and remove a brown tube from a Ref electrode.

- (4) Install Electrodes (Ref, Cl, K and Na) one by one in order securely.
- (5) Turn ON the analyzer and PC then perform **[ISE Prime]** 5 times. Make sure that solution are pumped correctly and no leakage can be observed. If you find something suspicious, follow procedure form (1) through (4) again.
- (6) Install Maintenance Cover R1.
- (7) Perform **[ISE Calibration]** and confirm results are within specifications.



6.2.9 Pump Cassette (for ISE)

WARNING: Be sure to turn off the main analyzer before starting the work.

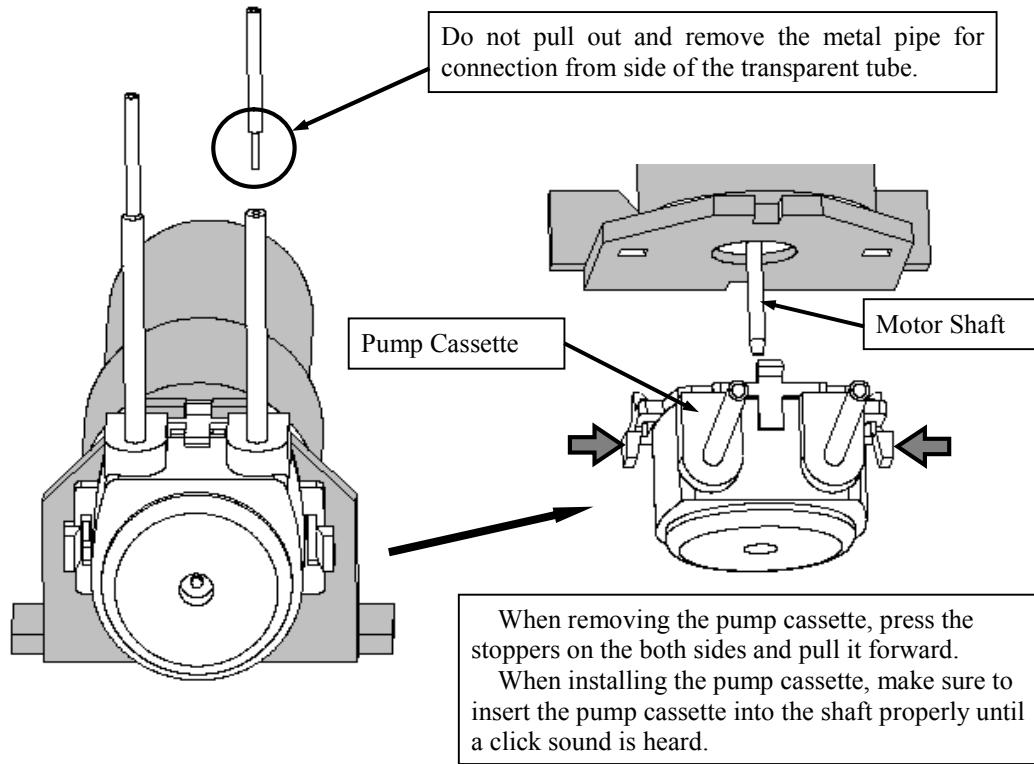
Wear medical rubber gloves to prevent direct contact with nozzles or liquid.

Reference: To ensure the proper liquid supply/drain operation of the ISE, it is required to replace pump cassettes on a regular basis. You can check the used hours according to the following procedure.

By the screen operation, [Mainte (F10)] → [W Blank] screen
and check the used hours by Water Blank on the screen.

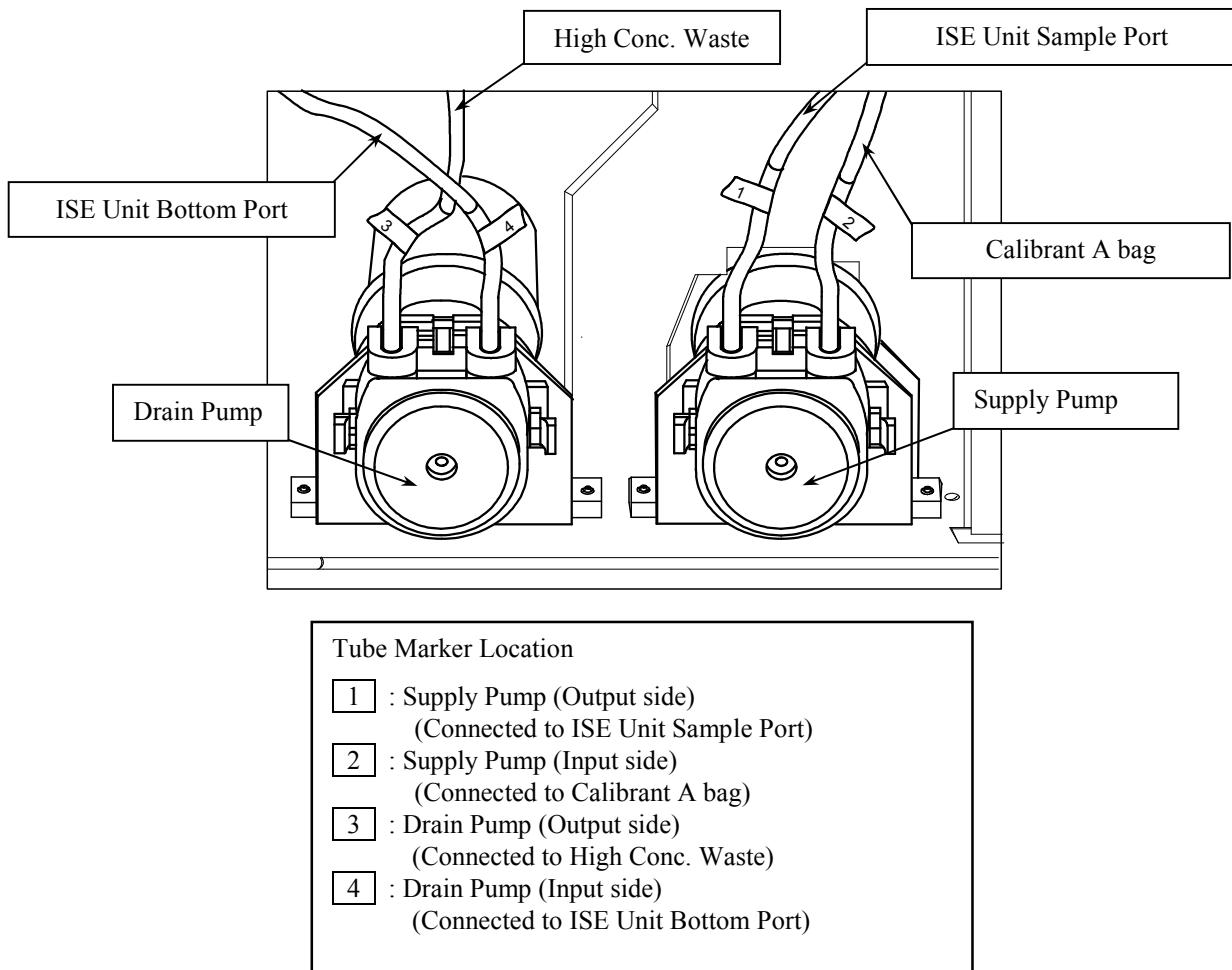
Procedure

- (1) Remove the ISE cover by removing the two plastic clips. (Refer to figure 6.2.10-1.)
- (2) Remove the tube from the Calibrant A bag. (Refer to figure 6.2.10-1.)
- (3) Be sure that the cap is set to the Calibrant A bag during work.
- (4) By the screen operation, [Mainte (F10)] → [Sequence] screen and input 5 (Number of times of execution) in [ISE Prime] [1] then click [ISE Prime] button to perform ISE Prime and discharge the liquid from the tube.
- (5) Turn OFF the operational PC and the main analyzer.
- (6) Remove the maintenance cove R1. (Refer to Figure 6.2.7-2.)
- (7) Pull and remove the four tubes from the pump cassettes (two tubes / pump cassette). (Refer to Figure 6.2.9-1.)
- (8) Remove the pump cassettes from the motor shaft by pressing the stoppers on both sides of the cassette.



Replacing ISE pump cassette
Figure 6.2.9-1

- (9) Install new pump cassette to the motor. (Refer to Figure 6.2.9-1.)
- (10) Insert the four tubes into the new two pump cassettes. Since the new pump cassettes have no tube maker (instruction), carefully connect the tubes to the cassettes in accordance with the tube maker (instruction) marked on the piping tube of the side of the analyzer.



Mounting cassette pump
Figure 6.2.9-2

- (11) Turn on the operational PC and the main analyzer.
- (12) Perform **[ISE Prime]** 99 times.
- (13) Connect the tube to the Calibrant A bag and perform **[ISE Prime]** 10 times.
At this time, check that the liquid is correctly pumped and there is no liquid leakage at the junctions.
- (14) Install the maintenance cove R1 of the right side. (Refer to Figure 6.2.7-2.) and the ISE cover. (Refer to Figure 6.2.10-1.)
- (15) Lastly, by the screen operation, [Mainte (F10)] → [Work Hour] screen and click **[RESET]** button of Pump Cassette on Work Hour of ISE section to clear the used hours.
- (16) Perform **[ISE Calibration]** and confirm results are within specifications.

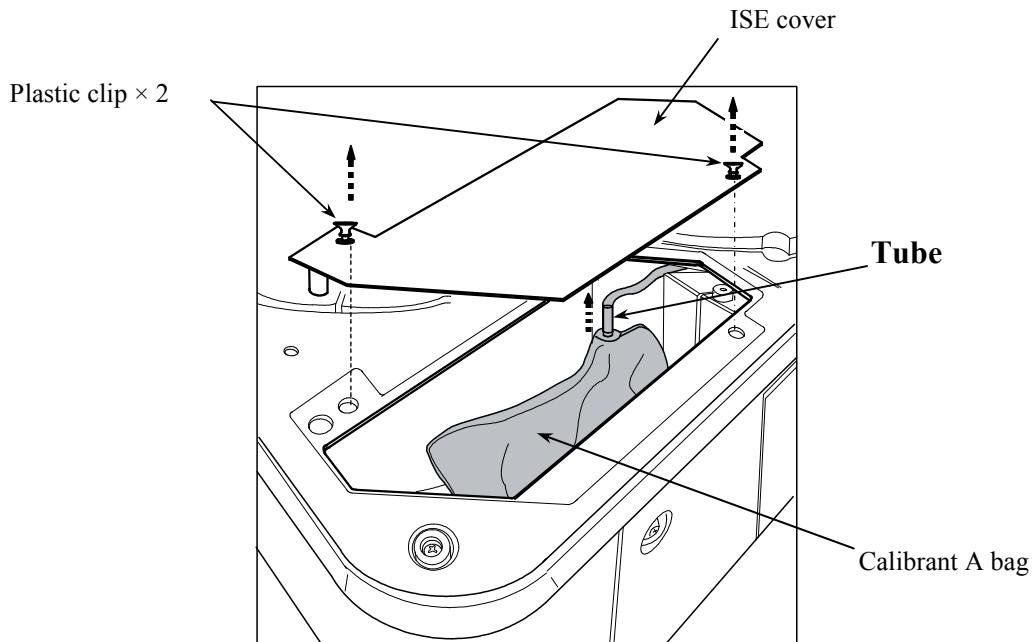
6.2.10 CAL-A bag (in ISE)

WARNING: Wear medical rubber gloves to prevent direct contact with nozzles or liquid.



Procedure

- (1) Remove the ISE cover by pulling up the two plastic clips. (Refer to Figure 6.2.10-1.)
- (2) Pull out the tube from the Calibrant A bag and remove the Calibrant A bag. (Refer to Figure 6.2.10-1.)



Replacing Calibrant A bag
Figure 6.2.10-1

- (3) Pull out the connection tube on the point of the Calibrant A bag and takeout the used Calibrant A bag.
- (4) Install a new Calibrant A bag in the predefined position and connect the tube to the Calibrant A bag by the connection tube that belongs to the Calibrant A bag.
CAUTION: Be sure to hold the lower part of the opening of the bag for inserting the tube.
Insert the connection tube to the lower part of the opening of the bag.
- (5) Install the SE cover.
By the screen operation, [Mainte (F10)] → [Sequence] screen
and input 10 (Number of times of execution) to **[ISE Prime]**.
and click **[ISE Prime]** button to perform ISE Prime.
- (6) Lastly, by the screen operation, [Mainte (F10)] → [Work Hour] screen
and click **[RESET]** button of Calibrant A on Work Hour of ISE section to clear the used hours.