ASAHI SUNAC

Operation and Maintenance Manual

Single-Color CNC Two-component Coating Machine

ACW Control Unit

ACW1200EX

Operation Manual

The instruction manual of ACW Control Unit (ACW1200EX) is composed three part as below;
①Operation manual
②Installation/device manual
③Maintenance manual
And this document is ①Operation Manual.

Ec'Coater™ エコータ

This manual contains important information on warnings and cautions.
Read the manual thoroughly before starting to operate this equipment, and follow the instructions.
Always keep the manual handy until such time as the product is no longer being used. If your manual is lost or worn badly, do not hesitate to contact our agency which is closest to you, or the Asahi Sunac Corporation directly, and ask us to send you a new one.

6th Edition: October 26, 2022

Introduction

Thank you for purchasing our product, Single-Color CNC Two-component Coating Machine (ACW).

Please read this manual carefully before starting to operate the equipment so that you can benefit the equipment in the best condition for a long time. Above all, the specifications, warnings and prohibitory or cautionary instructions shown herein shall be fully understood and observed during the use of the equipment.

The equipment described in the instruction manual is designed for coating operations. Use of the equipment should, therefore, be limited to those who have acquired operation and application skills through an authorized training course.

Should you have any questions about the manual, please get in touch with us at the addresses, phone and fax numbers as shown on the back of this manual. In order for us to give you an answer that's relevant to your particular needs, don't forget to give us the "model" and "serial number" of your equipment at that time.

6th Edition: October 26, 2022

ACW1200EX (Operation) contents
***Refer to this book.**

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ACW1200EX (Maintenance) contents
***Refer to maintenance manual that separated from this book.**

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ACW1200EX (Installation/device) contents
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ACW1200EX (Installation/device) contents
***Refer to installation/device manual that separated from this book.**

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1 For Your Safety

Please read and fully understand the contents of the instruction manual and thoroughly observe the technical and safety instructions.
Failure to do so may result in **personal injury and/or property damage**.

While all the safety precautions in the manual are very important, they are nothing but minimum requirements and other types of safety precautions may also be necessary.
For example, all requirements provided by laws and legislations as well as rules and guidelines laid by your company or office shall be observed.

Shown below and in the pages that follow are the basic minimum safety precautions in connection with use of our product.

● Cautionary instructions are shown in three levels as defined below.

⚠	**WARNING**	Alerts a hazardous situation which may result in personal injury, along with hazard avoidance measures.
⚠	**CAUTION**	Alerts a hazardous situation which may result in equipment damage or breakage, along with hazard avoidance measures.
	NOTE	Indicates important methods and practical information.

※ Please remember that the situation mentioned under CAUTION may also lead to a serious disaster under certain circumferences.
To ensure your own safety and prevent equipment failure, always observe the safety precautions and follow the hazard avoidance measures.

⚠ WARNING

Suitable use of the equipment

- For mixed paint coating, the ACW control unit is used with the ACW mixing unit.
  Do not use them in another composition or for another purpose than mixing two-component paint.
- Use the primary power and air supplies complying with the specifications.
  Using power input not complying with the specifications may lead to machine failure, damage, malfunction, electric shock or fire.
- The ACW control unit is not explosion-proof. Never install or use it in a dangerous area. Do not leave it in a place exposed to rain, considerably filled with oil or dust, or with the temperature reaching 60°C. Also, do not use when the door of the control panel is open.
- Do not wet electric parts inside the ACW control unit with any liquid (water, alcohol, solvent, etc.). The ACW control unit is composed of delicate and sensitive parts. Do not open the door of the control panel except for inspections by the administrator.
  Doing so may lead to machine failure, damage, malfunction, electric shock or fire.
- Never use any acid or corrosive substance or halogenated hydrocarbon solvent around the equipment. Doing so may lead to machine explosion, fire, malfunction or failure.
- If you have any questions about usage of this equipment or materials used, please feel free to consult with us, Asahi Sunac.
- Use of this product conditions other than specified above is considered as misuse unless such use is approved by us.

<<General safety instructions>>

- Never apply a fluid or air pressure exceeding the allowable maximum specified in the specifications to the equipment.
  All components and accessories to be used shall be durable against the maximum operating pressures mentioned above.
- Class D grounding is required for the equipment (to ensure an electric resistance not exceeding 100Ω).
- Inspect the whole equipment everyday. If any unusual condition is found, turn off the main power switch and, if the problem can be solved within the specified scope of maintenance work, repair or replace faulty parts as necessary.
  If the unusual condition cannot be corrected within the specified scope of maintenance work, please contact us or any of our distributors for repair.
- When checking or repairing the equipment, be sure to turn off the main power switch and reduce all fluid and air pressures (gauge pressure, etc.) to zero.
- To ensure safe operation of the system, all workers shall read and understand this manual and labels attached to each unit as well as instruction manuals related to all coating systems. The equipment can only be operated by those who received authorized training.
- Fire and electric codes and safety related regulations provided by the national or local government shall be observed during the work.

⚠ WARNING

Danger from fire, explosion and electric shock

<<Sources of ignition>>

When paint runs through a pump or hose, it generates static electricity. If the coating machine is not properly grounded at each section, static electricity may spark, which ignites combustible volatile components of solvents, particles of sprayed paint, dust suspended in the air and other combustible substances. That may lead to fire or explosion, resulting in serious injury or damage to the equipment.

- Be sure to check that the coating machine, workpieces, and all conductive materials are correctly grounded.
- Do not perform the paint work in the vicinity of open flame, pilot lamp, drive unit such as electric motor or engine or another source of ignition.
- Never smoke in or around a spray booth or in the atmosphere containing solvent.
- Adequately ventilate the spray coating place so that it will not be filled with a combustible (solvent containing) atmosphere generated by solvent.
- If you feel shocked even slightly by static electricity when handing the coating machine, immediately stop the coating operation and check that all components are grounded. Never restart the paint work until the cause is located and corrective action is taken.
- Fire extinguishers with a sufficient capacity must be provided in the place where the spray coating operation is performed.
- The ACW control unit is not explosion-proof. Do not install it in a dangerous area.
- If the ACW control unit or another electric component generates excessive heat or smokes, immediately turn off the main power switch to stop the equipment.

<<Electric shock>>

- Do not overhaul or remodel any electric component or ACW controller installed in the ACW control unit.
- Do not carelessly expose electric parts inside the ACW control unit to the ambient atmosphere of the equipment place.
- Do not wet electric parts inside the ACW control unit with any liquid (water, alcohol, solvent, etc.).
- Before checking the equipment, be sure to turn off the main power switch on the ACW control unit.
- Before wiring, be sure to turn off all external power supplies used by the system.
- Do not open the door of the ACW control unit when the equipment is energized. Also, do not touch wiring connection terminals.

⚠ WARNING

<<Grounding>

Class D grounding is required for the equipment (to ensure an electric resistance not exceeding 100Ω).

The pump, workpieces and all other coating machine components (in use or around the unit in use) shall be grounded to prevent accidents from static electricity. If no adequate grounding means is provided, class D grounding shall be performed according to the technical standard for electric equipment.

The coating machine components shall be grounded as specified below.

(1) Grounding the pump

- Attach a grounding wire to the grounding terminal provided at the pump body or a cart and connect the other end of the wire to a class D grounding means.

(2) Grounding the hoses

- Be sure to ground all high-pressure hoses so that the whole coating system will be grounded. When connecting additional hoses for extension, check that each hose is grounded.
- Check electric resistance of the high-pressure paint hoses in use every week.
  The electric resistance shall be 100Ω or less as obtained with class D grounding. Connect an ohmmeter to metal parts such as the joint of the hose to measure the resistance. If it exceeds the highest allowed limit, it is dangerous to use the hose. Immediately replace the hose with another one.

(3) Grounding workpieces

- If hangers and earth clips are contaminated, complete grounding cannot be achieved. Keep hangers and earth clips clean and conductive (grounded).

(4) Grounding the paint containers

- Use containers made of conductive metals and place on a grounded floor or table.

(5) Grounding cleaning solvent containers

- Use containers made of conductive metals and place on a grounded floor or table.
  It is dangerous to place them on a non-conductive sheet such as paper or corrugated cardboard because they may be electrically charged.

<<Safe cleaning>>

- Before cleaning, check that the mixing unit, pump, whole coating machine and paint and solvent cans or containers have been correctly grounded.
- Adequately ventilate the workplace so that it will not be filled with a combustible (solvent containing) atmosphere.
- Wear a face mask, safety goggles and protective clothes for protection against organic solvents.

⚠ WARNING

Danger from toxic substances

<<Solvents>>

Halogenated hydrocarbon solvents may explode if brought into contact with aluminum or plated part of a pressure vessel (pump, heater, filter, valve, gun, etc.).

The explosion may consequently lead to fatal bodily injury.

Never use halogenated hydrocarbon solvents.

<<Examples of halogenated hydrocarbon solvents>>

Chlorine group	Trichlorethylene, Tetrachlorethyleneand dichloroethylene
Bromine group	n- propyl bromide
Fluorocarbon group	HCFC-225,HFC-43-10mee,HFE-449s1(HFE-7100)

(The above list does not include all halogenated hydrocarbons. For detail, contact the paint distributor or manufacturer.)

<<Influences on the human body>>

If a solvent containing atmosphere or fluid comes into contact with your eyes or mouth or a toxic substance is inhaled or swallowed and brought into your body, your nervous tissue may be destroyed to cause serious injury such as lifetime functional disorder.

Immediately ask for adequate medical treatment.

Necessity of medical treatment

Immediately receive medical treatment by a medical specialist such as orthopedist, not by a layman.

At this time, you need to tell him (her) the exact type of the paint you used.

- You may lapse into dyspnea or be poisoned by organic solvent in the mist of paint or spraying atmosphere. Do not use in a closed room, tunnel, tank or another poorly ventilated place. The user shall take enough care of persons and livestock around him/her as well as him/herself.
- The isocyanate contained in two-component paint may hurt mucous membranes in your noise or throat.
  You should be acquainted with components of the paint, hardener, solvent and other volatile substances to be used. If you need further information, contact the paint or solvent manufacturer.
- During spray work, always wear a face mask, safety goggles and protective clothes for protection against organic solvents recommended by the paint or solvent manufacturer. Additional protective devices may be required depending on the paint components or ventilation level. Contact the paint or solvent manufacturer.

⚠ WARNING

Danger from spray and pressures

This system uses the paint under a very high pressure. Therefore, the spray gun is filled with the highly pressurized paint. If the sprayed or highly pressurized paint hits a person at a close distance, it hurts his/her skin and a lot of toxic substances penetrate into his/her body. If he/she fails to receive adequate medical treatment immediately, his/her nervous tissue may be destroyed to cause serious injury such as lifetime functional disorder or surgical amputation of damaged part of his body. You may be seriously injured if the paint is only pinged into your eyes or skin.

Necessity of medical treatment

If sprayed paint hits you, immediately receive medical treatment by a medical specialist such as orthopedist, not by a layman. hit At this time, you need to tell him (her) the exact type of the paint you used.

- Never direct the head of a spray gun to your body or another person or draw any part of your body near the spray.
- Never cover the nozzle of the spray gun with your finger, palm or another part of your body.
- Do not start using the system before fully understanding how to operate it.
- Before using the system, tighten hose joints and all connections in the paint route.
  Above all, check that hose joints are locked tight if they are moved round during operation.

<<Safety device on spray gun>>

- Each spray gun is provided with a safety device. Before using the spray gun, check that the safety device correctly functions.
- Do not remove or modify any part of a safety device. Doing so may lead to a malfunction or injury.
- Use the spray gun according to the instruction manual provided with it.

<<For safe nozzle handling>>

- Do not hold the nozzle with your finger or palm or any article in your hand.
- Pay careful attention when cleaning or replacing the nozzle.
  If the nozzle is clogged during the spraying operation, immediately fasten the safety lock on the gun trigger, reduce the paint and air pressures (gauge pressure, etc.) to zero and remove the nozzle for cleaning. It is dangerous to start removing the paint deposited around the nozzle before fully releasing the pressures or with the trigger not locked.

⚠ WARNING

<<Safety of hoses>>

- Handle hoses with care. Make sure that hoses are not caught or pulled by another object or brought into contact with sharp edges.
- Make sure that there is no bent or collapse on hoses. If any, that raises the pressure in the hose and possibly breaks the hose to cause paint blowout in a dangerous manner.
- Do not expose hoses to temperatures higher than 50°C or lower than -20°C.
- Fasten hose joints and all connections in the paint circuit at every use of the equipment. Above all, check that hose joints are locked tight if they are moved round during operation.
- Do not pull any hose to drag or move the equipment.
- Never use any damaged hose. Check each hose over its entire length for scars, leak, wear, swells, cracks and loose fittings. If any of them is found, immediately withdraw the hose from service and replace it with a new one.
- Any hose with paint leak must be replaced with a new one. Use a standard hose complying with our specifications.

<<Danger from misuse of the equipment>>

- When checking the equipment, be sure to turn off the main power switch on the ACW control unit and reduce the air and paint pressures (gauge pressure, etc.) supplied to the ACW control unit and the ACW mixing unit to zero.
- Never apply a fluid or air pressure exceeding the allowable maximum to the equipment. All components and accessories to be used shall be durable against the maximum operating pressures mentioned above.
- Do not open the door of the ACW control unit when the equipment is energized. Also, do not touch wiring connection terminals.
- To ensure safe operation of the system, all workers shall read and understand this manual and labels attached to each unit. The equipment can only be operated by those who received authorized training.
- Fire and electric codes and safety related regulations provided by the national or local government shall be observed during the work.

⚠ CAUTION

Failure or malfunction from misuse

<<General precautions>>

- Use the equipment in the environment specified in this instruction manual. Using in an environment outside the range of the specifications may lead to a malfunction, damage or deterioration of the product.
- An electric shock or malfunction may occur. Be sure to apply Class D grounding (Class 3 grounding) or higher level to the ACW control unit.

<<Precautions for wiring, etc. in the ACW control unit>>

- Be sure to shut off the power at all external switches before wiring.
  If all the switches are not shut off, an electric shock, damage of the product, or malfunction may occur.
- Before starting the wiring operation, make sure to perform class D grounding for the grounding terminal of the ACW control unit.
  Check that electric resistance not exceeding 100Ω is ensured wit class D grounding.
- Perform wiring to the power unit correctly after checking the rated voltage and terminal arrangement of the product.
  Connection of non-rated power or wrong wiring may lead to fire or failure.
- Tighten the terminal screw of the power unit within the specified torque range.
  When the terminal screw is tightened loose, a short circuit or malfunction may occur.
  When the terminal screw is tightened too tight, a short circuit or malfunction, due to damage of the screw, may occur.
- Be sure to tighten any unused terminal screw with a torque of 0.6 to 0.8 N•m.
  If neglected, that may lead to short-circuit with another solderless terminal.
- Use a compatible solderless terminal and tighten at specified torque.
  A loosened screw may drop off and cause failure.
- Make sure that no foreign objects such as screws, filings or wire chips are included in the ACW controller.
  Doing so may lead to fire, defect, or malfunction.
- A contamination prevention label is affixed to the top of the ACW controller unit to prevent foreign objects such as wire chips from getting inside the controller during wiring.
  Do not remove the label during wiring.
  Be sure to remove this label for heat release during system operation.
- Fasten screws within the specified torque ranges.
  Loose installation screw or terminal screw may lead to malfunction from poor contact or short-circuit accident from a detached terminal. Tightening the installation screw or terminal screw too tight may damage the screw, which may lead to malfunction due to contact failure or a short circuit accident due to a detached terminal.
- Be sure to shut off the power at all external switches before cleaning or additional tightening to the terminal screw.
  Failure to do so may lead to failure or malfunction of the ACW controller.

⚠ CAUTION

<<Precautions for flow meter cable wiring>>

- Be sure to turn off the power of the equipment before wiring cables.
  Failure to do so may lead to electrification, product damage or malfunction.
- Be sure to store the flow meter cable in the duct or secure.
  If the cable is not stored in the duct or secured, that may lead to cable damage from careless accidents by workers being caught with trailing cable or malfunction from poor connection
- It may malfunction due to noise interference from grounding (earth) wires.
  If the equipment malfunctions, despite the state where the flow meter cable is routed independently and free from noise interference, separate the grounding wire from other grounding points and arrange single grounding.
- Avoid crossing the flow meter cable over a robot cable or another power cable or keep it apart for over 100 mm.
  Noise interferences may lead to malfunction of the flow meter cable. Lay out a single route for the cable. Use a conductive pipe and wire in the duct.
- Firmly connect a shielded line of the flow meter cable into the ACW control unit and apply Class D grounding to the ACW control unit.
- It is affected with noise from the ACW mixing unit.
  If the equipment malfunctions, despite the state where the flow meter cable is routed independently and free from noise impacts, the grounding of the ACW mixing unitmay be inadequate. Inspect a grounding state and grounding resistance of the ACW mixing unit.
  Loose grounding screw may lead to malfunction as noise is not cancelled.
  Moreover, if noise interference affects the grounding (earth) line on the ACW mixing unit side, choose a different grounding location or remove the noise interference by separating from other grounding and make individual grounding.
- Do not pull a cable line with hand to remove a connected cable.
  That may lead to fire, failure, or malfunction.
- Fasten screws or terminal screws within the specified torque range to install cables.
  Loose installation screw or terminal screw may lead to malfunction from poor contact or short-circuit accident from a detached terminal.
  Tightening the installation screw or terminal screw too tight may damage the screw, which may lead to malfunction due to contact failure or a short circuit accident due to a detached terminal.

⚠ CAUTION

<<Safety precautions for operating the ACW controller>>

- The ACW controller equips with an analog resistance film type display.
  If two sections or more are simultaneously pressed on the display, that may activate a switch different from the user's intention.
  Do not press two sections or more simultaneously on the display.
  Pressing simultaneously two sections or more may lead to an accident from incorrect outputs or malfunction.
- Do not use a sharp object to press on the display of the ACW controller such as pen or screwdriver.
  It may lead to damage or failure.

<<Safety precautions for memory cards>>

- Turn off the card access switch before inserting or ejecting a memory card of the ACW controller. If not OFF, it may lead to data damage in the card.
- Support the memory card with hand while ejecting from the ACW controller.
  If it is not supported with hand and ejected, it may fall, causing card damage or failure.
- Do not wet a memory card with water or solvent. Do not drop or give impacts.
  It may cause card damage or failure.
- Push a memory card into the ACW controller until the card eject button comes up so that malfunction from poor contact will be prevented.

<<Safety precautions for ACW controller replacement>>

- Before touching the ACW controller, be sure to touch a grounded metal and discharge retained static electricity in human body. If you are electrically charged, that may cause a failure or malfunction.
- Do not drop the ACW controller or give strong impacts to it.
  It may lead to damage of the ACW controller.
- Do not make direct contact with a conductive section or electronic parts inside the ACW controller.
  It may lead to malfunction or failure of the ACW controller.
- Fasten the installation screw within the specified torque range when installing the ACW controller on the ACW control unit.
  Loose installing screw may lead to fall, short-circuit, or malfunction.
  If the installation screws are too tight, it may damage the screws, resulting in falling, short-circuit, or malfunction.
- You can still operate the touch keys when the back light is out. If the back light display is getting difficult to see, contact us for early replacement.
- The back light or LCD must not be replaced by the user.
  It may lead to damage of the ACW controller. Contact us for repair.

⚠ CAUTION

<<Safety precautions for ACW controller cleaning>>

- Keep the display of the ACW controller clean at all times.
  Use a soft cloth after soaked in neutral detergent or ethanol. Wipe off contamination gently.
- Do not use the solvent such as acetone, benzene, or toluene.
  That may lead to deformed or peeled protection sheet.
- Do not use spray type solvents. That may lead to a failure.

<<Cautions for transportation>>

- The unit is precision equipment. Avoid stronger impacts than the general specification described in the manual during transportation. Impacts during transportation may lead to a failure of the ACW controller.
  After transportation, check operations of the ACW controller.

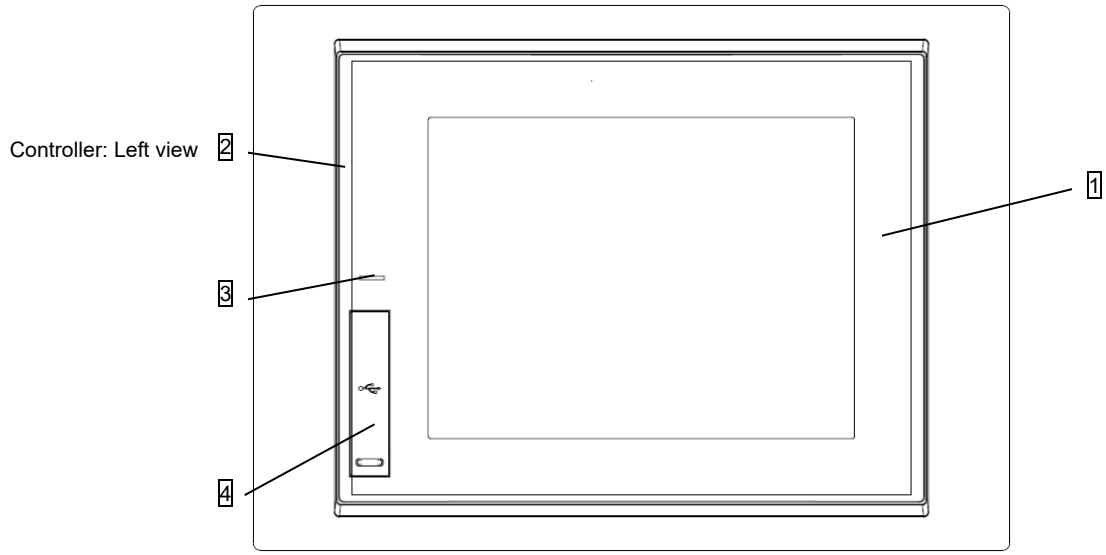
<<Caution for disposal>>

- Dispose of the product as industrial waste.

2 ACW controller

2-1 Exploded Diagram and Names of Parts

2-1-1 ACW controller: Front view



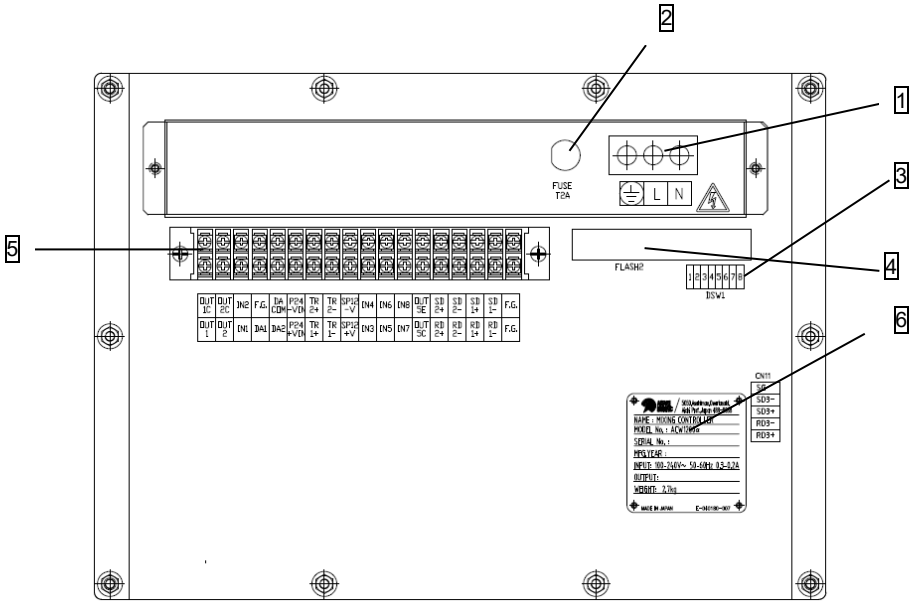
No.	Item	Description
1	Display	Shows the mixer status, various settings and operations. It is the touch panel display for setup and operations.
2	Memory card slot	It is designed for an ACW dedicated memory card. Memory card: To save the control program and various types of data. ※: It does not start up without the memory card. Refer to [9 Handling Memory Card]. Refer to [2-1-2 ACW controller: Back view].
3	Lamp	① It lights up when power is supplied to the controller. Lighting color: Blue ② The lighting color changes when the screensaver is on. Lighting color: Orange Refer to [2-6 Screensaver].
4	USB port	Is used to copy production record data to USB memory.

⚠ CAUTION

Risk of malfunction or failure of the equipment.

- **The memory card contains a control program. Do not use the program with the memory card removed. The control or data saving is not properly operated.**

2-1-2 ACW controller: Back view



No.	Item	Part name	Description
1	L,N,P.E.	Power supply terminal	For 100 VAC Refer to the installation manual [ACW control unit specification].
2	FUSE 2AT	Fuse	2 units, 2AT
3	DIP SW	DIP switch	OFF = Down; ON = Up Refer to [2-2 ACW controller: DIP switch]. Maintenance Manual Refer to [Relation of the ACW controller DIP SW setting with I/O allocation].
4	FLUSH 2	FLUSH 2	Not used.
5		Interface terminal	36 units Refer to [2-3 ACW controller: Interface terminal allocation].
6	ACW CONTROLLER	Model name plate	It describes a model and serial No.

2-2 ACW controller: DIP switch

Default setting is arranged at delivery according to your specification of the ACW controller. This setting does not affect the operations conducted by workers such as mixing or color change. But the setting needs to be checked or edited when the ACW controller is replaced or the system circuit is changed.

⚠ WARNING

Risk of electrification

- **Do not wet electric parts inside the ACW control unit with any liquid (water, solvent, etc.).**
- **Be sure to turn off the main power switch on the ACW control unit before inspecting the equipment.**

DIP switch No.	Description
1~3	Not used
4	Setting for ACW1200EX. Do not change.
5~7	Not used
8	It initializes data on the ACW controller screen. It does not initialize data in the memory disc. Turn the DIP switch to the ON side to power on for initialization. ※1
	Data types to be initialized on the screen: Production record, test history, learning history, paint consumption counter, total consumption counter, valve counter, and total valve counter.

※1: Be sure to turn back to the OFF side if you turned on the DIP switch to power on.

2-3 ACW controller: Interface terminal allocation

The following shows the allocation of interface terminals on the back side of the controller.

	Part name	Function	Specification	Description
1	OUT1	Relay output 1, contact a	30 VDC 2 A	For buzzer output (Stop the buzzer to reset.)
2	OUT1C	Relay output 1, contact c	30 VDC 2 A	For buzzer output (Stop the buzzer to reset.)
3	OUT2	Relay output 2, contact a	30 VDC 2 A	For error output (Press Reset to reset)
4	OUT2C	Relay output 2, contact c	30 VDC 2 A	For error output (Press Reset to reset)
5	IN1	PC input 1 (DC24V)	12~24 VDC	For signal inputs for the spray 1
6	IN2	PC input 2 (DC24V)	12~24 VDC	For emergency stop input (Not used)
7	DA1	Analog output 1	12bit 0-20 mA	Not used (For analog output of instantaneous flow rate)
8	F.G.	Frame GND		Earth terminal for shielded line
9	DA2	Analog output 2	12bit 0-20 mA	For analog output (Not used)
10	DACOM	Analog common		Analog common (Not used)
11	P24+V IN	DC24V input		For DC24V(+) input
12	P24-V IN	DC24V GND		For DC24V(-) input
13	TR1+	HLS1 communication +	6 MBps transfer	For ALB terminal block communication
14	TR2+	Not used	6 MBps transfer	Not used
15	TR1-	HLS1 communication -	6 MBps transfer	For ALB terminal block communication
16	TR2-	Not used	6 MBps transfer	Not used
17	SP12+V	DC12V output	12 VDC	Power supply (+) to flow meter, Zener barrier
18	SP12-V	DC12V GND	12 VDC	Power supply (-) to flow meter, Zener barrier
19	IN3	Base component 1/V	12 VDC ON voltage Up to DC 3.5 V OFF voltage Up to DC 1.0 V 1 kHz or less	For pulse signals input from base component flow meter
20	IN4	Hardener 1/V		For pulse signals input from hardener flow meter
21	IN5	Not used		Not used
22	IN6	Not used		Not used
23	IN7	Not used		Not used
24	IN8	Not used		Not used
25	OUT5C	CPC	12~24 VDC	Not used
26	OUT5E	CPE	12~24 VDC	Not used
27	RD2+	RS422 reception		Not used
28	SD2+	RS422 transmission		Not used
29	RD2-	RS422 reception		Not used
30	SD2-	RS422 transmission		Not used
31	RD1+	RS422 reception		Not used
32	SD1+	RS422 transmission		Not used
33	RD1-	RS422 reception		Not used
34	SD1-	RS422 transmission		Not used
35	F.G.	Frame GND		Earth terminal for shielded line
36	F.G.	Frame GND		Earth terminal for shielded line

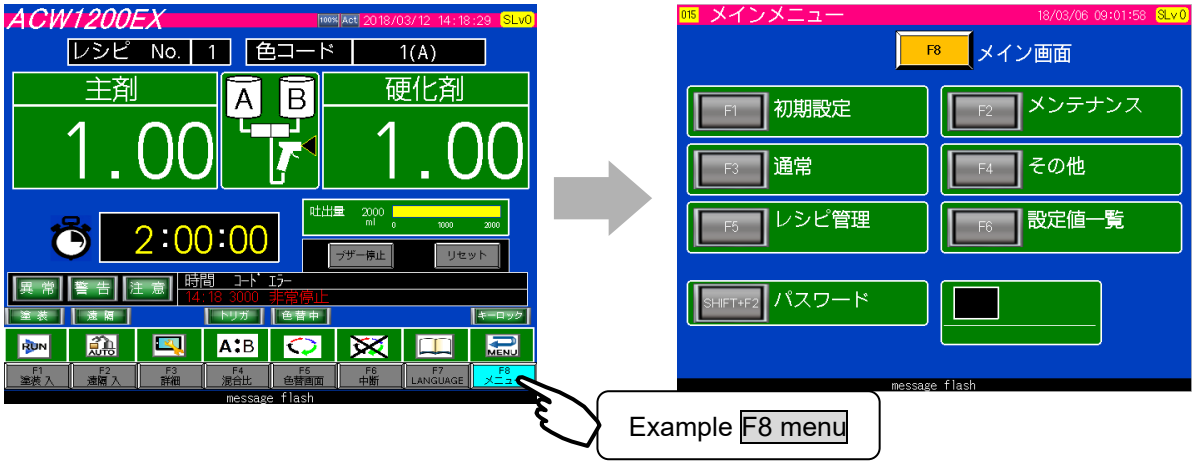
⚠ CAUTION

Risk of malfunction of the equipment.

- **Do not use a sharp object to press on the display of the ACW controller such as pen or screwdriver.**
  It may lead to damage or failure.

2-4-1 Basic methods of switching screens

① Press one of the function keys (switches with letter “F” shown) to switch the screens.



2-4-2 Entering numeric values

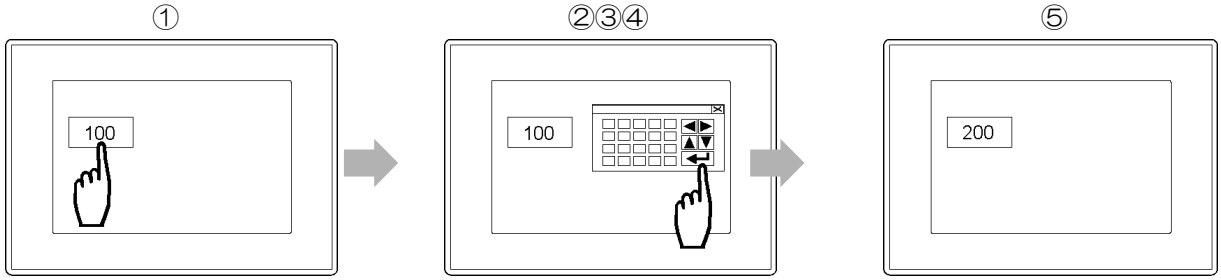
① Touch the entry field (white) of a numeric value that you want to enter.

② The key window (decimal digit input) appears. Enter a numeric value.

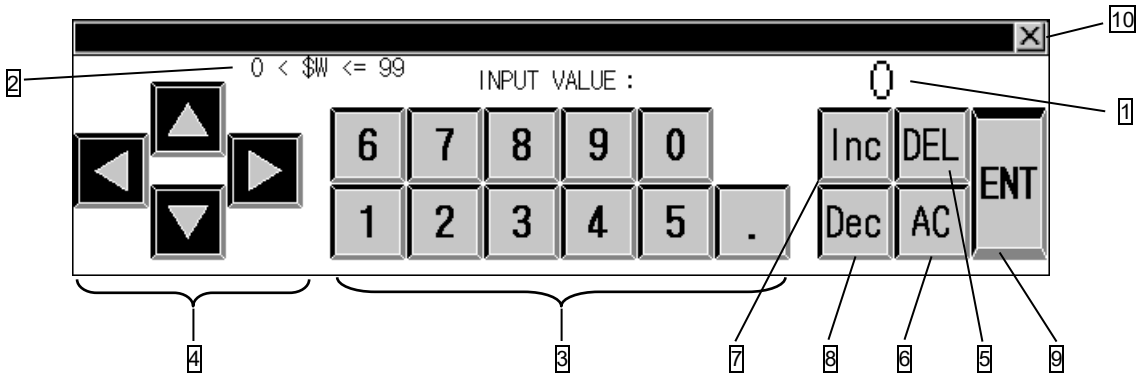
③ After entering a numeric value, press ENT. Press ENT to close the key window.

④ The key window does not close on some of the screens even after ENT is pressed. In this case, press × shown on the upper right section of the window screen.

⑤ The entered numeric value is reflected.



2-4-3 Numerical keypad and description of the keys



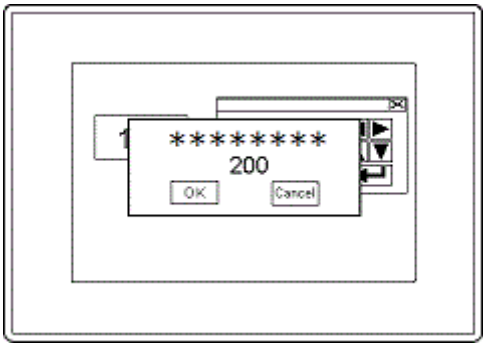
※: There are three types of the numerical keypads in shapes. They have the same switch structure as above.

No.	Item		Description
1	INPUT VALUE		Shows an entered numeric value.
2	0 < $W <= 99		Shows a range of entered numeric values.
3	1 ~ 0 .		Inputs numeric values and the decimal point.
4	▷ ◁ △ ▽		Moves the input cursor.
5	DEL	Delete	Deletes the last digit of a numeric value.
6	AC	All Clear	Deletes all numeric values.
7	Inc	Increase	Increases a numeric value in the smallest unit.
8	Dec	Decrease	Decreases a numeric value in the smallest unit.
9	ENT	Enter	Confirms the entered numeric value. (Enter key)
10	×		Closes the key window.

2-4-4 Confirmation Window

After pressing ENT on the numerical keypad, some screens show the confirmation window.

Check the window and select OK or Cancel.



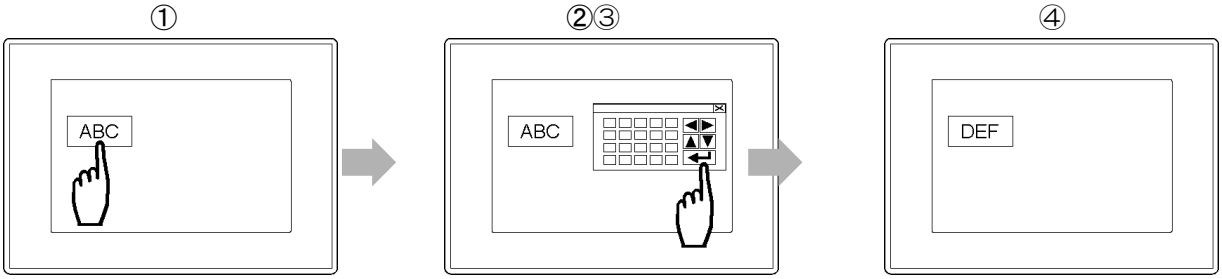
2-4-5 Entering alphabets and symbols (ASCII)

① Touch the entry field.

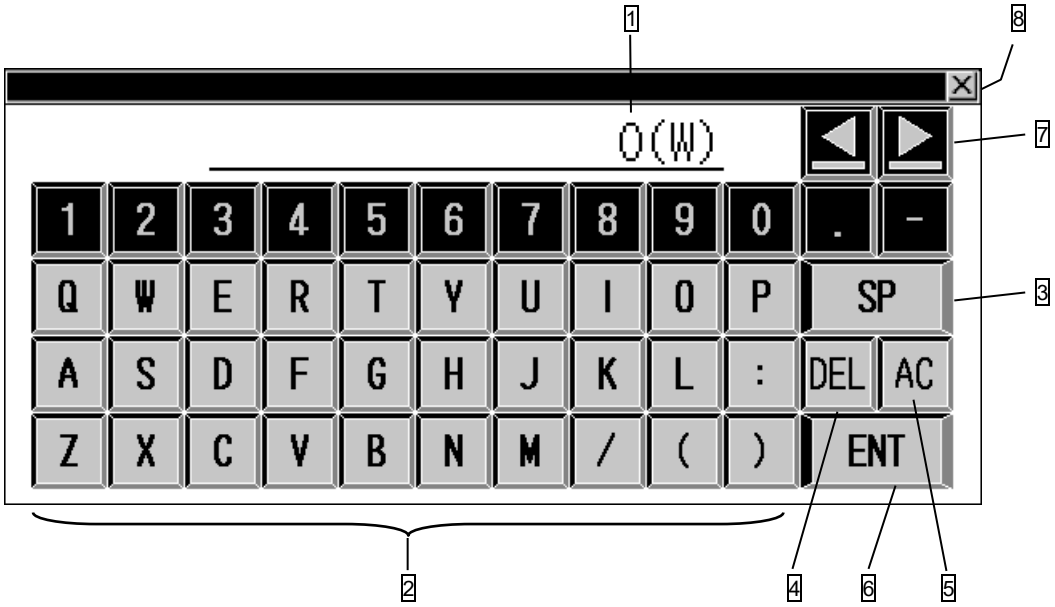
② The key window (ASCII characters) appears. Enter alphabets, symbols, and numeric values.

③ After entered, press ENT. Press ENT to close the key window.

④ The alphabets, symbols, and numeric values are confirmed.



2-4-6 ASCII keys and descriptions



No.	Item		Description
1	0(W)		Shows entered alphabets, symbols, and numeric values.
2	1 ~ 0 , A ~ Z . -		Inputs alphabets, symbols, and numeric values.
3	SP	Space	Enters a space.
4	DEL	Delete	Deletes the last digit of a numeric value.
5	AC	All Clear	Deletes all numeric values.
6	ENT	Enter	Confirms the entered numeric value. (Enter key)
7	◁ ▷		Moves the input cursor to other entry fields.
8	×		Closes the key window.

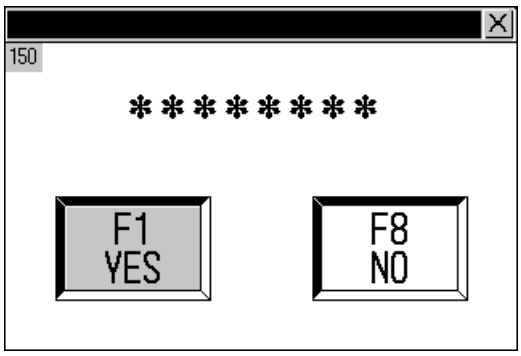
2-4-7 YES/NO popup window

The YES / NO window to confirm copied data or execution of the operations appear on some of the screens.

① Press YES to execute.

② Press NO to cancel the execution and close the window.

③ Press × to close the window.



2-4-8 Popup window of detailed descriptions

The popup window for details appears on some of the screens when text is touched.

① Press Next Page or Previous page to switch the popup window.

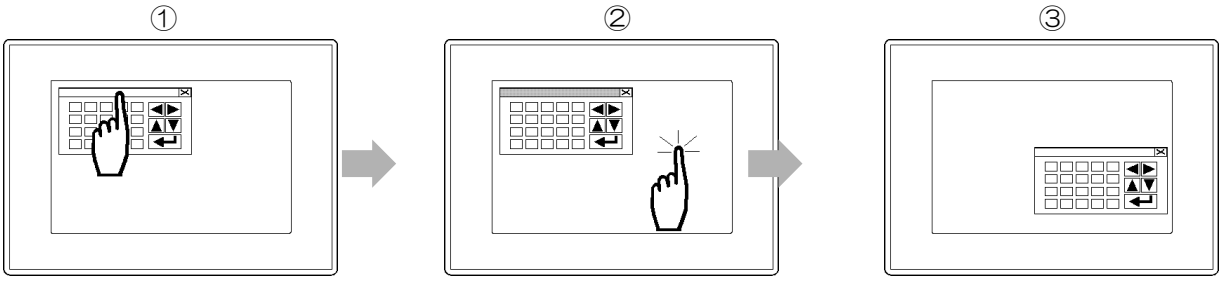
② Press Delete Window or × to close the window.

2-4-9 Moving the key window or the popup window

① The bar color changes from blue to yellow when the upper section of the key window is touched. When the bar color is yellow, the key window is ready to move.

② Touch a spot that you wish to move to within 3 seconds.
If it remains untouched for 3 seconds or longer, the key window will be disabled for moving (blue bar color).

③ The key window will move and will be displayed there.

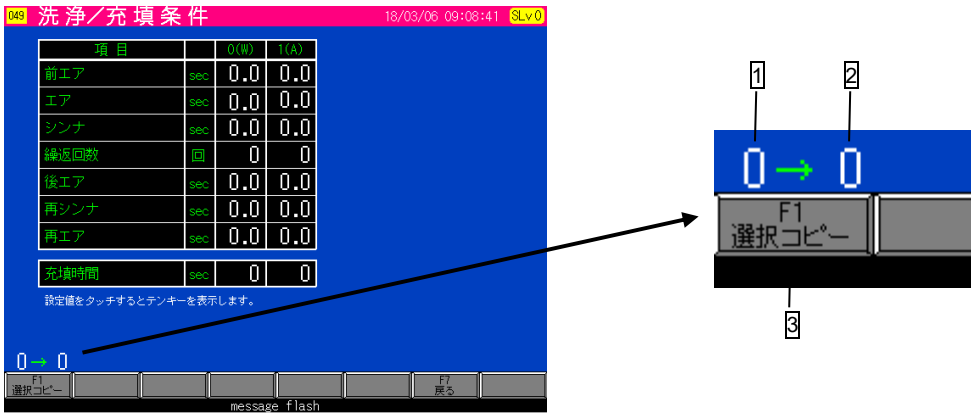


2-5 Copying setting values from the screens

You can copy setting values or data of color groups and paste to another color group on the color change condition or learning data screen.

This helps to shorten input time and avoid input errors.

2-5-1 Copying setting values from the screens



No.	Item	Description
1	Copy source	Shows the copy source to copy from.
2	Copy destination	Shows the copy destination to copy to.
3	F1 “Select to copy”	Starts copying.

2-5-2 Copying

① Touch the numeric value “0” of the copy source 1. The numerical keypad appears.

② Select a copy source with the numerical keypad. Select and set a numeric value. Select “1” for 1(A).

③ After checking, press ENT on the numerical keypad to move the cursor to the numeric value at copy destination 2.

④ Use the numerical keypad to select a copy destination. Select and set a numeric value.
Select “2” for 2(B).

⑤ After checked, press × on the numerical keypad to close the numerical keypad.

⑥ After entered, press F1 “Select to copy” 4. The confirmation window, “Do you want to copy?”, appears.
Press F1.

2-6 Screensaver

The screensaver is activated on the display to block temperature rise of the ACW controller if there is no operation for a given time.

Refer to [2-1-1 ACW controller: Front view].

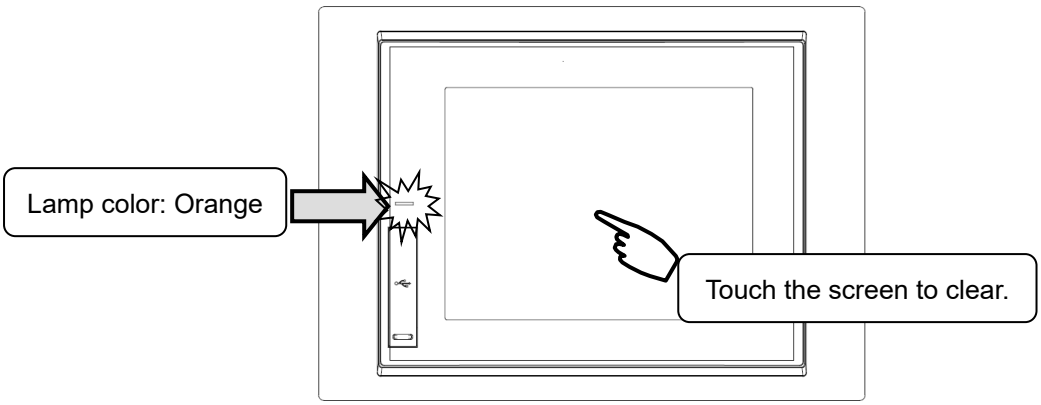
① The screen turns to black, displaying nothing when the screensaver is activated.

② Also, the lamp lighting color changes to orange.

③ Touch the screen to clear the screensaver status.

④ The default screensaver time setting is 10 min.

Refer to [6-3 Screen property (SLv2)].



⚠ CAUTION

Risk of malfunction of the equipment.

- **Do not use a sharp object to press on the display of the ACW controller such as pen or screwdriver.**
  It may lead to damage or failure.

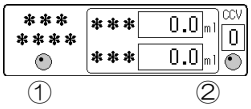
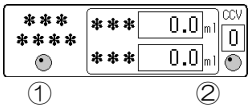
2-7 Main Screen

No.	Item	Description
1	Model indication ※※ACW1200EX※※	It shows the model of the mixing control unit. Two-component mixing unit: ACW1200EX
2	Recipe No.	Shows the current recipe No. Refer to [8 Recipe control].
3	Color code	Shows the current color code. If no color code is entered, it will be displayed as “1(A)” to “21(U)” or “0(W)”. Refer to [5-1-3 Color code].
4	Target base component ratio	Shows the target base component ratio of the current color No. ※: If the component mode is “1, it will show “0.0”. Refer to [4-1-2 Default setting details]. Refer to [5-1-2 Valve selection/component mode conditions].
5	Target hardener ratio	Shows the target hardener ratio of the current color No. ※: If the component mode is “1, it will show “0.0”. Refer to [4-1-2 Default setting details]. Refer to [5-1-2 Valve selection/component mode conditions].
6	Pot life indication	It shows the remaining time of the pot life. Refer to [5-1-1 Mixture ratio and pot life conditions].
7	Discharge rate indication	Shows the current discharge rate in numeric values and in a bar chart. It allows to edit the maximum reading of the bar chart. It also allows to edit the display update time of the discharge rate. Refer to [4-1-2 Default setting details].
8	Security level indication SLv ※	It shows a security level. Refer to [3 Security Level].
	Date and time indication 08/07/01 00:00:00	It shows the current date and time. Refer to [6-1-7 Clock setting].

No.	Item		Description	
9	Alarm indication		“FAILURE”	Shows an on-going failure item. Flashing color for on-going error: Red
			“WARNING”	Shows an on-going warning item. Flashing color for on-going error: Orange
			“CAUTION”	Shows an on-going caution item. Flashing color for on-going error: Yellow
			“TIME”	Shows occurrence time of the error.
			“CODE”	Shows the code of the error.
			“ERROR”	Shows the name of the error. Touch the error name on the display to indicate the error detail screen. Refer to [6-1-4-2 About error detail screen].
			Refer to [4-2-2 Detection condition setting details]. Refer to [6-1-4 Error history]. Refer to the maintenance manual [Troubleshooting].	
10	“Paint” lamp	ON	Lighted color: Yellow Shows that the paint mode is “ON” (mixture control is enabled).	
		OFF	Shows that the paint mode is “OFF” (mixture control is disabled).	
	“Remote” lamp	ON	Lighted color: Yellow Shows that the remote mode is “ON”. Shows that communication is established for color change signals and operation signals with the control panel of the paint line. Shows that it is ready to start the color change from the hand operation panel.	
		OFF	Shows that the remote mode is “OFF”. Shows that it is ready to operate the maintenance works (measurement, mixture ratio test) with the hard keys or on the touch panel.	
	“Trigger” lamp	ON	Lighted color: Yellow Shows that the gun trigger (air flow switch) is ON.	
		OFF	Shows that the gun trigger (air flow switch) is OFF.	
	“Color change in progress” lamp	ON	Flashing color: Light green Shows that color change is on-going.	
		OFF	It is turned off at completion of color change.	
	“Key lock” lamp	ON	Flashing color: Light blue Shows that the key operations are disabled.	
		OFF	Shows that the key operations are enabled.	
12	F1 Paint ON		Turns the paint mode “ON”.	
	F1 Paint OFF		Turns the paint mode “OFF”.	
	F2 Remote ON		Turns the remote mode “ON”.	
	F2 Remote OFF		Turns the remote mode “OFF”.	
	F3 Detail		Moves to the detail screen.	
	F4 Mixture ratio		Switches to the “mixture ratio setting” screen. Refer to [11-6 Editing mixture ratio of the current color]. The switch enables to adjust the mixture ratio of the currently selected color group.	
	F5 Color change screen		Switches to the “color change operation” screen. Refer to [5-1-6 Color change conditions (mixing unit)]. Refer to [11-3 Color change operation].	
	F6 Cancel color change		Cancels (stops) color change. Refer to [11-3 Color change operation].	

No.	Item	Description
12	F7 LANGUAGE	Switches to the “LANGUAGE” screen. Refer to [7-1 LANGUAGE] Switches the language setting.
	F8 Menu	Switches to the “main menu” screen.
13	Message flash list	Shows messages about key operation assist or control processes, etc. Refer to [2-9 Message flash list].

2-8 Detail screen

No.	Item	Description	
1	Model indication ※※ACW1200EX※※	It shows the model of the mixing control unit. Two-component mixing unit: ACW1200EX	
2	Base component status indication  ① ②	"CCV"	Shows the color No. of the currently selected color of the base component CCV in “0” to“21”.
		The mixing valve (base component) is open when the lamp ① lights up. The lamp is turned ON and OFF, coupled with the control system that alternatively opens/closes the valves for the base component and the hardener while also coupled with the trigger of the spray gun.	
		Your selected base component CCV valve is open when the lamp ② lights up.	
		“TARGET”	Shows a base component quantity per cycle. If the component mode is “1, it will show “0.0”.
		“ACTUAL”	Shows the quantity of base component actually fed. It does not count up if the component mode is “1.
		Refer to [4-1-2 Default setting details]. Refer to [5-1-2 Valve selection/component mode conditions].	
3	Hardener status indication  ① ②	"CCV"	Shows the No. of the currently selected hardener CCV in “0” to“21”.
		The mixing valve (hardener) is open when the lamp ① lights up. The lamp is turned ON and OFF, coupled with the control system that alternatively opens/closes the valves for the base component and the hardener while also coupled with the trigger of the spray gun.	
		Your selected hardener CCV valve is open when the lamp ② lights up.	
		“TARGET”	Shows a hardener quantity per cycle. If the component mode is “1, it will show “0.0”.
		“ACTUAL”	Shows the quantity of base component actually fed. It does not count up if the component mode is “1.
		Refer to [4-1-2 Default setting details]. Refer to [5-1-2 Valve selection/component mode conditions].	

Refer to [2-4 ACW controller: Basic operations].

No.	Item	Description	
4	Pot life indication	It shows the remaining time of the pot life. Refer to [5-1-1 Mixture ratio and pot life conditions].	
5	Alarm indication	“FAILURE”	Shows an on-going failure item. Flashing color for on-going error: Red
		“WARNING”	Shows an on-going warning item. Flashing color for on-going error: Orange
		“CAUTION”	Shows an on-going caution item. Flashing color for on-going error: Yellow
		“TIME”	Shows occurrence time of the error.
		“CODE”	Shows the code of the error.
		“ERROR”	Shows the name of the error. Touch the error name on the display to indicate the error detail screen. Refer to [6-1-4-2 About error detail screen].
		Refer to [4-2-2 Detection condition setting details]. Refer to [6-1-4 Error history]. Refer to the maintenance manual [Troubleshooting].	
6	Security level indication SLv ※	It shows a security level. Refer to [3 Security Level].	
	Date and time indication 08/07/01 00:00:00	It shows the current date and time. Refer to [6-1-7 Clock setting].	
7	Mixture ratio indicator	“TARGET RATIO”	Indicates the mixture ratio of the currently selected color No.
		“ACTUAL RATIO”	Indicates the actual mixture ratio.
		Refer to [5-1-1 Mixture ratio and pot life conditions]. Refer to [11-6 Editing mixture ratio of the current color]. If the component mode is “1, the “Target ratio” is “0.00” and the “Measured ratio” is “0.000”. Refer to [5-1-2 Valve selection/component mode conditions].	
8	Paint specification indication	“RECIPE No.”	Shows the current recipe No. Refer to [8 Recipe control].
		“COMPONENT MODE”	Shows the current component mode. If the component mode is “1, it shows “1” and flashes. Refer to [5-1-2 Valve selection / Component mode conditions].
		“COLOR GROUP”	Shows the current color group. If it is 0(W), it shows “0” in blue. Refer to [5-1-2 Valve selection / Component mode conditions].
		“COLOR CODE”	Shows the current color code. If no color code is entered, it will be displayed as “1(A)” to “21(U)” or “0(W)”. Refer to [5-1-3 Color code].
9	Color change time indication	“TOTAL TIME”	Shows total time of the color change cycle (Flush => Fill => Completion). The total time is not updated when you edit the color change condition only. It is updated when the color change operation is executed.
		“REMAINING TIME”	Shows remaining time to color change completion.
		Refer to [5-1-6 Color change conditions (mixing unit)]. Refer to [5-3. Color change timing chart]. Refer to [11-3 Color change operation].	
10	Discharge rate indication	Shows the current discharge rate in numeric values and in a bar chart. It allows to edit the maximum reading of the bar chart. It also allows to edit the display update time of the discharge rate. Refer to [4-1-2 Default setting details].	

Refer to [2-4 ACW controller: Basic operations].

No.	Item		Description
11	“Paint” lamp	ON	Lighted color: Yellow Shows that the paint mode is “ON” (mixture control is enabled).
		OFF	Shows that the paint mode is “OFF” (mixture control is disabled).
	“Remote” lamp	ON	Lighted color: Yellow Shows that the remote mode is “ON”. Shows that communication is established for color change signals and operation signals with the control panel of the paint line. Shows that it is ready to start the color change from the hand operation panel.
		OFF	Shows that the remote mode is “OFF”. Shows that it is ready to operate the maintenance works (measurement, mixture ratio test) with the hard keys or on the touch panel.
	“Trigger” lamp	ON	Lighted color: Yellow Shows that the gun trigger (air flow switch) is ON.
		OFF	Shows that the gun trigger (air flow switch) is OFF.
	“Color change in progress” lamp	ON	Flashing color: Light green Shows that color change is on-going.
		OFF	It is turned off at completion of color change.
	“Key lock” Lamp	ON	Flashing color: Light blue Shows that the key operations are disabled.
		OFF	Shows that the key operations are enabled.
12	F1 Paint ON		Turns the paint mode “ON”.
	F1 Paint OFF		Turns the paint mode “OFF”.
	F2 Remote ON		Turns the remote mode “ON”.
	F2 Remote OFF		Turns the remote mode “OFF”.
	F4 Mixture ratio		Switches to the “mixture ratio setting” screen. Refer to [11-6 Editing mixture ratio of the current color]. The switch enables to adjust the mixture ratio of the currently selected color group.
	F5 Color change screen		Switches to the “color change operation” screen. Refer to [5-1-6 Color change conditions (mixing unit)]. Refer to [5-3. Color change timing chart]. Refer to [11-3 Color change operation].
	F6 Cancel color change		Cancels (stops) color change. Refer to [11-3 Color change operation].
	F7 LANGUAGE		Switches to the “LANGUAGE” screen. Refer to [7-1 LANGUAGE] Switches the language setting.
	F8 Menu		Switches to the “main menu” screen.
13	Message flash list		Shows messages about key operation assist or control processes, etc. Refer to [2-9 Message flash list].

Refer to [2-4 ACW controller: Basic operations].

2-9 Message flash list

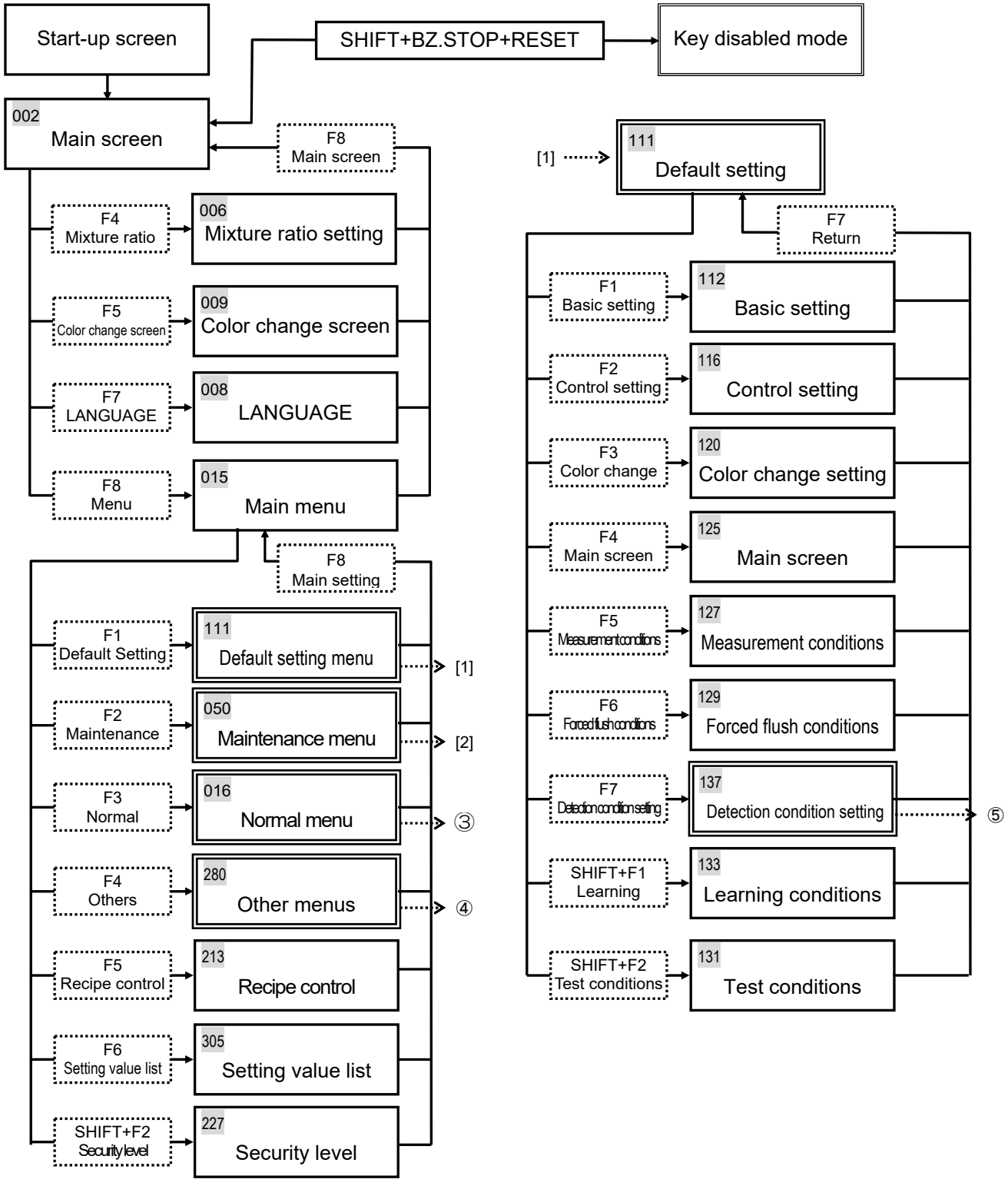
It is a list of comments shown at the screen bottom.

It shows operation related comments or status at the comment section of the screen bottom.

Category	No.	Comment
Memory card	1	No memory card is inserted. Or the access switch is OFF.
Error status	2	Currently on emergency stop.
	3	An error occurs.
	4	Issuing warning...
Mixture ratio input	5	Invalid mixture ratio of color group 0(W).
	6	Invalid mixture ratio of color group 1(A).
	27	The mixture ratio you entered is not complying the specification.
	28	Updating mixture ratio...
	29	The mixture ratio has been updated.
Saving	30	It has been saved.
	31	Exporting to memory card...
Initialization	32	It has been initialized.
Recipe operation	33	Changing recipe...
	34	The recipe has been changed.
	35	Saving recipe...
	36	Unable to delete the current recipe.
	37	It is current recipe or invalid recipe No.
	38	It is not a registered recipe No.
	39	It has been deleted.
	40	Change the current recipe No.

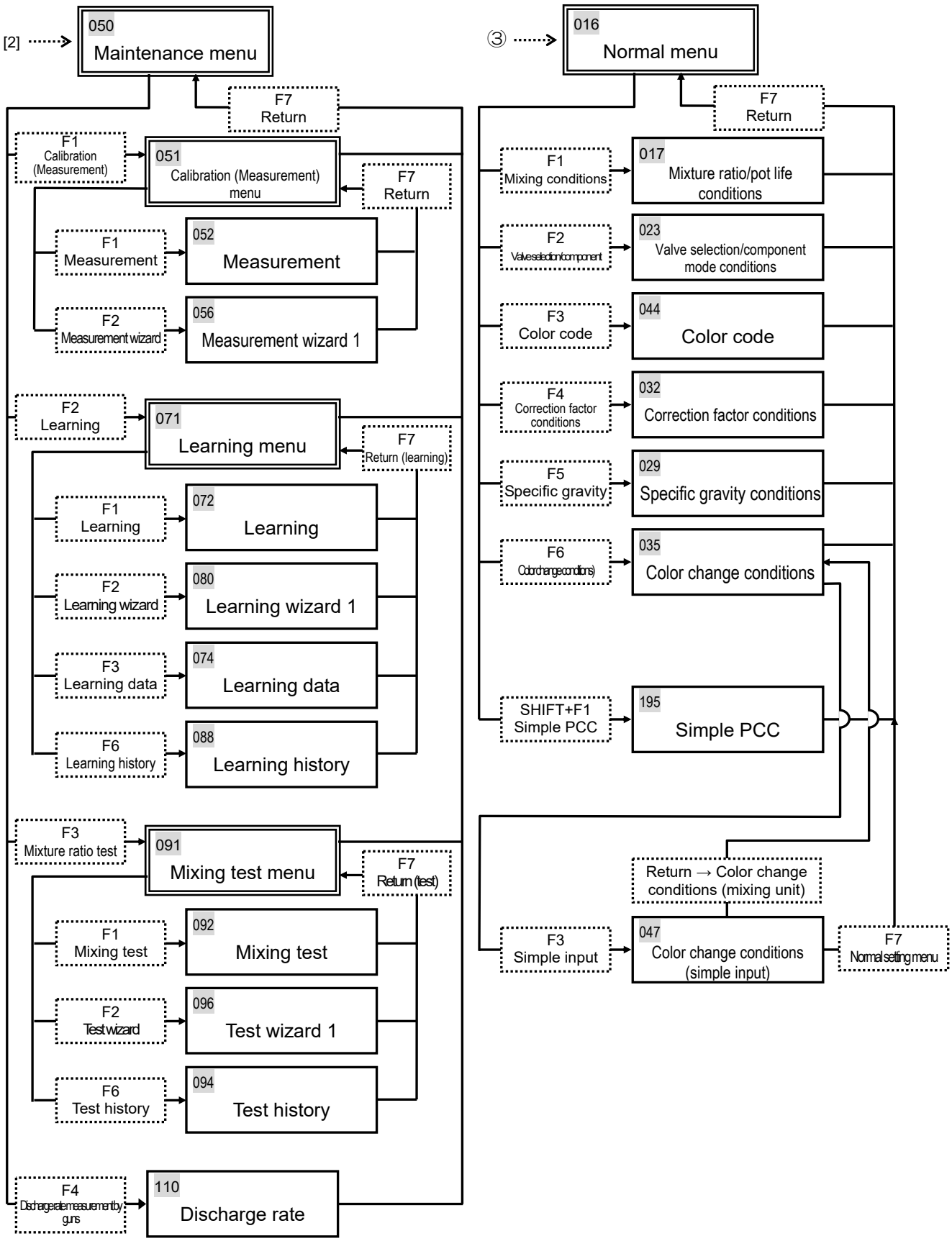
Category	No.	Comment
Switch status Color change operation	41	The paint mode is “ON”.
	42	Failed to establish paint mode ON conditions.
	43	The remote mode is “ON”.
	44	The remote mode is “OFF”.
	45	The paint switch of the hand operation panel is “ON”. Operation is disabled.
	46	The key operation is disabled.
	47	It has been cancelled.
	48	The “mixture ratio” key is disabled.
	49	The “color change cancellation” key is disabled.
Measurement Mixture ratio test operation	50	Failed to establish filling start conditions.
	51	Filling has started.
	52	Filling...
	53	The filling is completed.
Mixture ratio test operation	54	The currently selected color is one-component mode.
	55	Failed to establish mixing test start conditions.
	56	The mixing test has started.
	57	The mixture ratio test is taking place...
	58	The mixture ratio test is completed.
Measurement	59	The route is filled with component fluid. Pay attention to hardening time.
	60	The measurement has started.
	61	Measuring...
	62	Measurement filling or measuring...
	63	The measurement is completed. Enter measured value.
	64	Enter measured value.
	65	The correction factor was calculated.
	66	Press the “Calculation” key.
	67	The correction value is updated.
	68	The calculated value is not valid.
	69	The measured value is zero. Start measurement.
Color change operation	70	No color change ready signal input.
	71	Same color change is invalid.
	72	Failed to establish color change start conditions.
	73	The color change is in progress.
	74	Turn the remote mode “ON” to change the color from the hand operation panel.
	75	The paint mode is “OFF”. The external color command (color change) is cancelled.
	76	The remote mode is “OFF”. The external color command (color change) is cancelled.
	77	The flush has started.
	78	Flush is in progress.
	79	The flush is completed.
Copy	80	The selected section has been copied.
	81	All has been copied.
Learning	82	Learning is in progress.
	83	The learning has started. Continuously spray until “Learning in progress” closes.
	84	It is learning or is on one-component mode.
Pot life status Forced flush status	85	The pot life expired
	86	The forced flush has started.
	87	Forced flushing...
	88	The forced flush is completed.
	89	Only W(0) color change is valid.

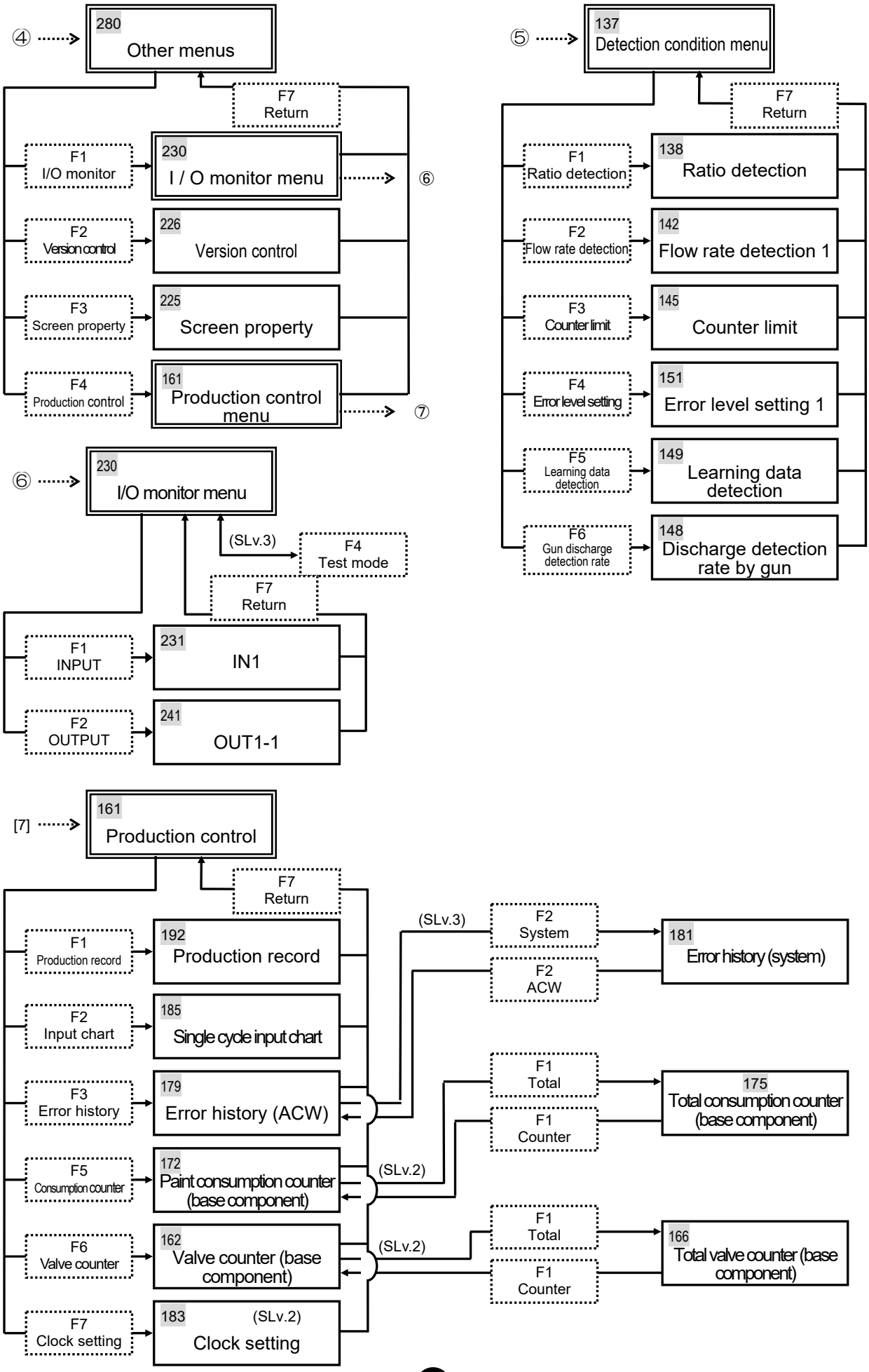
2-10 Liquid crystal display (screen map)



※ The broken line frames indicate the switches.
You can use the hard keys if the “F” letter is shown.
※ The double-line frames indicate the menu screens.
※ Numbers in the brackets indicate the screen No.
There is a display on the controller screen.

※ SLv. in the brackets indicate security.
If it is not a right security level, you cannot switch the screen.


[2]
050
Maintenance menu
F7
Return
F1
Calibration
(Measurement)
051
Calibration (Measurement)
menu
F7
Return
F1
Measurement
052
Measurement
F2
Measurement wizard
056
Measurement wizard 1
F2
Learning
071
Learning menu
F7
Return (learning)
F1
Learning
072
Learning
F2
Learning wizard
080
Learning wizard 1
F3
Learning data
074
Learning data
F6
Learning history
088
Learning history
F3
Mixture ratio test
091
Mixing test menu
F7
Return (test)
F1
Mixing test
092
Mixing test
F2
Test wizard
096
Test wizard 1
F6
Test history
094
Test history
F4
Discharge rate measurement by guns
110
Discharge rate
③
016
Normal menu
F7
Return
F1
Mixing conditions
017
Mixture ratio/pot life conditions
F2
Valve selection/component mode conditions
023
Valve selection/component mode conditions
F3
Color code
044
Color code
F4
Correction factor conditions
032
Correction factor conditions
F5
Specific gravity
029
Specific gravity conditions
F6
Color change conditions
035
Color change conditions
SHIFT+F1
Simple PCC
195
Simple PCC
Return → Color change conditions (mixing unit)
F3
Simple input
047
Color change conditions (simple input)
F7
Normal setting menu


④
280
Other menus
F7
Return
F1
I/O monitor
230
I / O monitor menu
⑥
F2
Version control
226
Version control
F3
Screen property
225
Screen property
F4
Production control
161
Production control menu
⑦
⑤
137
Detection condition menu
F7
Return
F1
Ratio detection
138
Ratio detection
F2
Flow rate detection
142
Flow rate detection 1
F3
Counter limit
145
Counter limit
F4
Error level setting
151
Error level setting 1
F5
Learning data detection
149
Learning data detection
F6
Gun discharge detection rate
148
Discharge detection rate by gun
⑥
230
I/O monitor menu
(SLv.3)
F4
Test mode
F7
Return
F1
INPUT
231
IN1
F2
OUTPUT
241
OUT1-1
[7]
161
Production control
F7
Return
F1
Production record
192
Production record
F2
Input chart
185
Single cycle input chart
F3
Error history
179
Error history (ACW)
F5
Consumption counter
172
Paint consumption counter (base component)
F6
Valve counter
162
Valve counter (base component)
F7
Clock setting
183
(SLv.2)
Clock setting
(SLv.3)
F2
System
F2
ACW
181
Error history (system)
F1
Total
F1
Counter
175
Total consumption counter (base component)
(SLv.2)
(SLv.2)
F1
Total
F1
Counter
166
Total valve counter (base component)

3 Security level

For accurate control of mixing and other functions, parameters shall be set and adjusted with its values according to the relevant specifications.

The setting items are not necessary for the daily paint work, and changing their settings may affect the mixture control. To protect them, the security level SLv is protected with a four-digit password and handled by the authorized paint work personnel only.

3-1 Changing security levels

① Edit the security level. The numeric value of “SLv”, shown on the upper left section of respective screens, changes.

② The security levels are in four stages: SLv0, SLv1, SLv2, and SLv3.

③ The security level is maintained until the power is turned off or the level is reset.

① Main

Press F8.

② Main menu

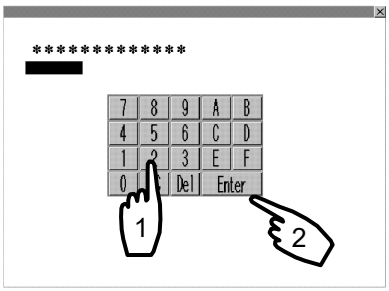
<Screen No.015>

Press Password.

③ Security level

<Screen No.227>

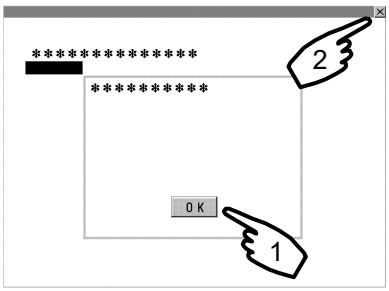
Press PASSWORD.



④ Password

(1) Enter your password.

(2) Press Enter.



⑤ Confirm.

(1) Press OK.

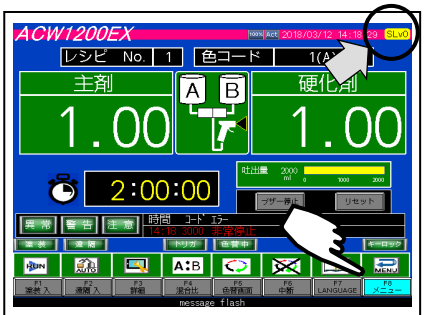
(2) Press ×.

⑥ Main menu

<Screen No.15>

Refer to [2-4 ACW controller: Basic operations].

3-2 Resetting security levels



① Main

Check other than SLv0.

Press F8.

② Main menu

<Screen No.015>

Press Shift and F2.

③ Security level

<Screen No.227>

Press Reset.

※: After changing the security level as well as its operation and parameter, return to “SLv0” to stop unintentional changes or operations.

Refer to [2-4 ACW controller: Basic operations].

3-3 About security levels

① The security levels are in four stages: SLv0, SLv1, SLv2, and SLv3.
The password is different for each security level.

② The passwords cannot be changed.

SLv	Operation level	Password	Description
0	Paint worker		Is able to handle necessary operations of daily coating works. ・Can handle mixing, color change and recipe operations. ・Can view the production control and I/O monitors.
1	Maintenance technician	0001	Is able to edit the settings and to practice maintenance. ・Can edit basic conditions such as mixing and color change conditions and device and control settings. ・Is able to practice maintenance works (measurement, learning, and mixture ratio test).
2	Administrator	1212	Is able to handle the administrator tasks. ・Can edit detection conditions (error detection levels, learning judgment, etc.).
3	Manufacturer	8847	Is able to make setting depending on delivery specifications. ・Do not make any changes unless necessary.

3-4 About security levels and screen indications

① The function keys appear according to the security levels, SLv.

<Example: Control setting >

SLv1 status

SLv2 status

SLv3 status

The function keys appear according to the security levels, SLv.

4 Default Setting

⚠ CAUTION

Risk of malfunction of the equipment.

Accurate mixing and error detection cannot be ensured without correct parameter setting.

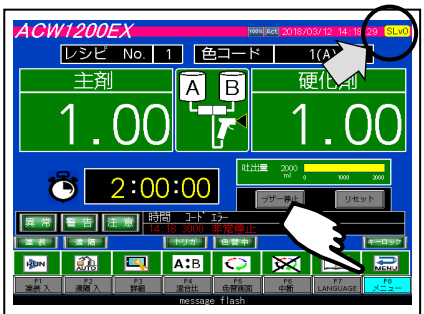
In the equipment and control setting, you can enter equipment and control conditions as pre-setting, depending on the specification of the ACW mixing unit and paint specifications such as detection conditions such as ratio and flow rate, color change operations, maintenance works (measurement, learning, and test).

① Setting and editing are enabled at the security level SLv1 or SLv2.

Refer to [3-1 Changing security levels].

② The contents should be well understood before you enter your setting based on mixing paint specifications.

4-1 Switching to the default setting menu screen (example: SLv2)



① Main

View SLv2.

Press F8.

② Main menu

<Screen No.15>

Press F1.

③ Default setting menu

<Screen No.111>

Select the item.

4-1-1 Default setting list

Screen <Screen No.>	No.	Item	Unit	Default	SLv
Basic setting 1 <Screen 112>	1	No of base components		1	1
	2	No of hardeners		1	
	3	Base component: Flow rate per pulse	ml/pulse	0.1150 (※1)	
		Hardener: Flow rate per pulse	ml/pulse	0.1150 (※1)	
Basic setting 2 <Screen 114>	4	ACW type (2: Two-component / 3: Three-component)		2	3
	5	Equipment mode (0: General / 1: Automatic)		0	
	6	Water paint mode (0: No / 1: Yes)		0	
	7	Mixing unit type (0: ACW4000 / 1: ACW1200)		1	

	8	Cycle stop mode (0: No / 1: Yes)		0	
	9	Power mixer (0: No / 1: Yes)		0	
	10	Base component with 2 routes (0: No / 1: Yes)		0	

※1: When the high pressure specification is selected for the recipe control, the value will be indicated as 0.225 (ml/pulse).

Refer to [8-8 Recipe No. and default values].

Screen <Screen No.>	No.	Item	Unit	Default	SLv
Control setting 1 <Screen 116>	11	Default flow rate for hardening time	ml	200	1
	12	Min. mixing quantity per cycle (1.0: 5.0)	ml	30.0	
		Max. mixing quantity per cycle (30.0: 1.0)	ml	70.0	
Control setting 2 <Screen 117>	13	D/A output resolution (bit)		12	2
	14	Analog output of instantaneous flow rate: Sampling time	sec	1.0	
		Analog output of instantaneous flow rate: Max. flow rate	ml	2000	
	15	CC-Link (0: No / 1: Yes)		0	
Control setting 3 <Screen 118>	16	Simultaneous valve OFF time at mixing	sec	0.02	3
	17	Correction	%	0.5	
	18	Base component: Invalid measurement time for 4 pulses	msec	10	
		Hardener: Invalid measurement time for 4 pulses	msec	10	
Color change setting 1 <Screen 120>	19	Drain time	sec	0.0	1
	20	Color change to same color (0: No / 1: Yes) On the panel		1	
	21	Color change to same color (0: No / 1: Yes) Automatic		0	
	22	Color change to same color (0: No / 1: Yes) Hand operation panel		1	
	23	Self-spray signal retention at color change (0: No / 1: Yes)		0	
	24	Route flush unit (0: No / 1: Yes)		0	
	25	Flush reminder time	min	0	
			sec	10	
	26	Air BZ.output at color change (0: No / 1: Color change in progress / 2: Color change completion)		0	
	27	Air BZ. ON/OFF switch time	sec	0.0	

Screen <Screen No.>	No.	Item	Unit	Default	SLv
Color change setting 2 <Screen 121>	28	Base component: Initial filling	ml	30	2
		Hardener: Initial filling	ml	30	
		Initial filling repeat count	Times	1	
	29	Total thinner amount detection during color change (0: No / 1: Yes)		0	
	30	Eco clean mode (0: No / 1: Yes)		0	
	31	Eco clean: Pressure detection time	sec	5.0	
	32	Eco clean: Drain flush time	sec	5.0	
	33	Eco clean: Simultaneous drain valve OFF time	sec	0.0	
Color change setting 3 <Screen 123>	34	Simultaneous valve OFF time at flush	sec	0.20	3
	35	Automatic color change sampling time	sec	0.0	
	36	Continuous flush mode for hardener (0: No / 1: Yes)		0	
	37	Drain valve and route coupled flush (0: No / 1: Yes)		0	
	38	Color changer (0: Standard / 1: PG)		0	
	39	Pot life error reset mode (0: Flush / 1: Eject)		0	
	40	No of gun at flush start (1-4)		1	
	41	Individual gun flush (0: No / 1: Yes)		0	
	42	No of guns (1-4)		0	
	43	Individual gun filling (0: No / 1: Yes)		0	
Main screen setting <Screen 125>	44	Flow rate indication: Update time	sec	2.0	1
	45	Flow rate indication: Max value	ml	2000	
	46	F4 “Mixture ratio” switch availability (0: Disable / 1: Enable)		1	
	47	F6 “Cancel color change” switch availability (0: Disable / 1: Enable)		1	
	48	Discharge rate display (0: No / 1: Yes)		1	
	49	Base component tank pressure specification	MPa	0.000	
		Hardener tank pressure specification	MPa	0.000	
		Air pressure specification for air supply to equipment	MPa	0.000	
		Factory air pressure specification	MPa	0.000	

Screen <Screen No.>	No.	Item	Unit	Default	SLv
Measurement setting <Screen 127>	50	Base component: Target measurement value	ml	100	1
		Hardener: Target measurement value	ml	100	
	51	Base component: Target filling value	ml	100	
		Hardener: Target filling value	ml	100	
	52	Measurement reminder time	min	0	
			sec	10	
	53	Measurement use restriction 0(W) (0: No / 1: Yes)		0	
Forced flush conditions <Screen 129>	54	Forced flush: Start time	min	10	1
		Forced flush: Base component, thinner time	sec	10.0	
		Forced flush: Base component, air time	sec	10.0 (※1)	
		Forced flush: Hardener, thinner time	sec	10.0	
		Forced flush: Hardener, air time	sec	0.0	
		Forced flush: Repeat count	Times	2	
	55	Notification time before pot life error	min	0	
Learning condition 1 <Screen 133>	56	Learning reminder time	min	0	1
			sec	10	
Learning condition 2 <Screen 134>	67	⊿t1 mixing valve open/close ratio [α※x※100]	×100%	0.25	2
		⊿t2 mixing valve open/close ratio [α※x※100]	×100%	0.50	
		⊿t3 mixing valve open/close ratio [α※x※100]	×100%	1.00	
	68	Pulse END setting: (4pls/x): Base component		2.0	
		Pulse END setting: (4pls/x): Hardener		2.0	
Mixing test conditions <Screen 131>	69	Mixing test: Repeat count	Times	5	1
	70	Mixing test: Reminder time	min	0	
			sec	10	
	71	Mixing test: Use restriction 0(W) (0: No / 1: Yes)		0	
	72	Mixing test: Color change use restriction 1(A)-21(U) (0: No / 1: Yes)		0	

※1: The value will be indicated as 0.0 (sec) when the high pressure specification is selected in the recipe control.

Refer to [16-8 Recipe No. and default values].

4-1-2 Initial setting details

The following table categorizes the items that require changes for parts replacement of the ACW mixing unit or adjustment to specifications as ◎, the items to change for improved convenience such as usability as ○, the items that do not necessarily require changes or optional items as △, and the items generally restricted from making changes as x.

The contents should be well understood before you enter your setting based on mixing paint specifications.

1	Item	No of base components	Unit		—
Description	Enter the number of base component valves. (No change allowed with ACW1200EX.)		Default		1
			Range	min	0
				max	21
			Necessity of setting change		×

2	Item	No of hardeners	Unit		—
Description	Enter the number of hardener valves. (No change allowed with ACW1200EX.)		Default		1
			Range	min	0
				max	21
			Necessity of setting change		×

3	Item	Base component and hardener: Flow rate per pulse	Unit		ml/pulse
Description	Enter an output pulse value of the flow meter. Enter a flow meter catalog value or a value from flow meter documents. Be sure to change the setting if the flow meter is replaced. ※Note: If a numeric value of the flow meter differs from the setting value, accurate measurement may not be achieved.		Default	Low pressure	0.1150
				High pressure	0.2250
			Range	min	0.0001
				max	1.9999
			Necessity of setting change		◎◎

4	Item	ACW type (2: Two-component / 3: Three-component)	Unit		—
Description	The ACW controller can switch between two component and three component. Enter “2” for the two-component specification. Do not change the numeric value. If it is changed, the controller does not properly function. ※Caution: Do not change the setting made at delivery.		Default		2
			Range	Two-component	2
				Three-component	3
			Necessity of setting change		×

5	Item	Equipment mode (0: General / 1: Automatic)	Unit		—
Description	This is color change control signal setting. Enter “0” if you use the hand operation panel. Enter “1” if you use the color change signal (binary signal) of the paint line. ※Caution: Do not change the setting made at delivery.		Default		0
			Range	General	0
				Automatic	1
			Necessity of setting change		×

6	Item	Water paint mode (0: No / 1: Yes)	Unit		—
Description	Use a Coriolis flow meter for the ACW mixing unit and enter “1” only when the air purge valve is mounted on CCV in the specification. Air-purge the Coriolis flow meter. ※Caution: This setting applies to aqueous two-component paint or special paint.		Default		0
			Range	No	0
				Yes	1
			Necessity of setting change		×

7	Item	Mixing unit type (0: ACW4000 / 1: ACW1200)	Unit		—
Description	Enter “1” in the setting only when a single color specification is applied to the ACW mixing unit. (No change allowed with ACW1200EX.)		Default		1
			Range	ACW4000	0
				ACW1200E	1
			Necessity of setting change		×

8	Item	Cycle stop mode (0: No / 1: Yes)	Unit		—
Description	Enter “1” when it is used as a measuring device. In this case, the mixture control continues until one cycle is completed after the trigger signal is turned off.		Default		0
			Range	No	0
				Yes	1
			Necessity of setting change		×

9	Item	Power mixer (0: No / 1: Yes)	Unit		—
Description	Enter “1” if you use the power mixer.		Default		0
			Range	No	0
				Yes	1
			Necessity of setting change		×

10	Item	2 routes for base component (0: No / 1: Yes)	Unit		—
Description	Enter “1” if you use the specification of two routes for the base component.		Default		0
			Range	No	0
				Yes	1
			Necessity of setting change		×

11	Item	Default flow rate for hardening time	Unit		ml
Description	Enter the quantity to reset the pot life time. It resets when the flow meter reading reaches the setting numeric value or higher. Set the total capacity from the ACW mixing unit leading up to the spray gun as the setting time. Refer to [10-2-1 Mixture paint in hose after mixer]. Refer to [No.28 of the section].		Default		200
			Range	min	1
				max	999
			Necessity of setting change		○

12	Item	Min. and max. mixing quantity per cycle	Unit		ml
Description	This is a numeric value for calibration, and the setting enables to automatically adjust an input quantity of the base component or the hardener to a mixture ratio. “min” indicates the quantity to feed when the ratio is 1: 5 while “max” indicates the quantity to feed when the ratio is 30: 1. ※Caution: The numeric value must be selected within the range under the input control of the base component and the hardener.		Default	Min	30.0
				Max	70.0
			Range	min	2.0
				max	999.0
			Necessity of setting change		◎

13	Item	D/A output resolution (bit)	Unit		bit
Description	Enter resolution of the discharge rate data (analog output) of the ALB terminal block. ※Note: No change needed. Refer to the maintenance manual [Input/output]		Default		12
			Range	min	8
				max	16
			Necessity of setting change		△

14	Item	Analog output of instantaneous flow rate: Sampling time and Max. flow rate	Unit		sec	ml
Description	Enter sampling time and Max. flow rate of the discharge rate data (analog output) of the ALB terminal block. ※Note: No change needed. Refer to the maintenance manual [Input/output]		Default		1.0	2000
			Range	min	0.1	100
				max	9.9	9999
			Necessity of setting change		△	△

15	Item	CC-Link (0: No / 1: Yes)	Unit		—
Description	Select when the option (cc-Link output unit) of the ACW controller is mounted. ※Note: No change needed.		Default		0
			Range	No	0
				Yes	1
			Necessity of setting change		×

16	Item	Simultaneous valve OFF time at mixing	Unit		sec
Description	Select the time when both of the base component and hardener mixing valves are simultaneously OFF under the mixture control. This is an effective prevention to stop backflow of base components and hardeners. ※CAUTION: Large numeric value leads to pulsation. Use the setting made at delivery.		Default		0.02
			Range	min	0.01
				max	0.99
			Necessity of setting change		×

17	Item	Correction	Unit		%
Description	It corrects the base component if a gap rate (correction ratio) of supplied hardener to a target hardener value exceeds the setting value. Large numeric value leads to improper operation, which causes a mixture ratio error. ※Caution: Do not change the setting.		Default		0.5
			Range	min	0.0
				max	50.0
			Necessity of setting change		×

18	Item	Base component and Hardener: Invalid measurement time for 4 pulses	Unit		msec
Description	When the mixing valves alternatively open/close, the internal control is ignored as invalid because the flow rate is instable for a very short time after the mixing valves are turned ON. ※Note: Do not change the setting made at delivery.		Default		10
			Range	min	10
				max	200
			Necessity of setting change		×

19	Item	Drain time	Unit		sec
Description	Select the drain valve ON time (installation right after the mixer, etc.). The valve is turned ON at the setting time right after color change starts. Refer to [5-3. Color change timing chart].		Default		0.0
			Range	min	0.0
				max	99.9
			Necessity of setting change		◎

20	Item	Color change to same color (0: No / 1: Yes) On the panel	Unit		-
Description	Set to enable or disable to change to the same color on the touch panel screen of the ACW controller or on the hard keys. ※Caution: Do not change the setting made at delivery.		Default		1
			Range	No	0
				Yes	1
			Necessity of setting change		○

21	Item	Color change to same color (0: No / 1: Yes) Automatic	Unit		-
Description	Set to enable or disable to change to the same color through the color change signal (binary signal) of the paint line. Select according to paint line specifications. ※Caution: Do not change the setting made at delivery.		Default		0
			Range	No	0
				Yes	1
			Necessity of setting change		○

22	Item	Color change to same color (0: No / 1: Yes) Hand operation panel	Unit		-
Description	Set to enable or disable to change to the same color (from flush to filling next color) with the optional hand optional panel. ※Caution: Do not change the setting made at delivery.		Default		1
			Range	No	0
				Yes	1
			Necessity of setting change		○

23	Item	Self-spray signal retention at color change (0: No / 1: Yes)	Unit		-
Description	Enter “1” to keep the trigger signal (flow switch) internally turned ON throughout the color change process. This is used to avoid jet mist air of the hand gun at color change. ※Caution: Do not change the setting made at delivery.		Default		0
			Range	No	0
				Yes	1
			Necessity of setting change		○

24	Item	Route flush unit (0: No / 1: Yes)	Unit		-
Description	Select if the route flush system (option) is used. (No change allowed with ACW1200EX.) Refer to [5-3. Color change timing chart].		Default		0
			Range	No	0
				Yes	1
			Necessity of setting change		×

25	Item	Flush reminder time	Unit		min	sec
Description	This reminder warns when the spray signal is not received for the length of the setting time or longer during the color change flush operation.		Default		0	10
			Range	min	0	0
				max	59	59
			Necessity of setting change		○	○

26	Item	Air BZ. output at color change (0: No / 1: Color change in progress / 2: Color change completion)	Unit		-
Description	Enter “1” or “2” if you use the function to enable the air Bz output during color change and to detect Color change in progress with the gun tip. Select "1" to turn the air Bz ON during color change and "2" to turn it ON at completion of color change.		Default		0
			Range	No	0
				Yes	2
			Necessity of setting change		○

27	Item	Air BZ. ON/OFF switch time	Unit		sec
Description	Change this setting value to edit the buzzer ON and OFF interval when the setting value of the item 26 is "1". Change this setting value to edit the buzzer ON time when the setting value of the item 26 is "2".		Default		0.0
			Range	min	0.0
				max	99.9
			Necessity of setting change		○

28	Item	Base component and hardener: Initial filling quantity, initial filling repeat count.	Unit		ml	Times
Description	Enter the first input of the next color filling, that is, the capacity (weight) from the base component/hardener CCV valves to the mixing point. ※Note: Do not change if it is the standard specification. Refer to the maintenance manual [Calibration (Measurement)].		Default		30	1
			Range	min	1	1
				max	999	99
			Necessity of setting change		○	○

29	Item	Color change in progress: Total thinner amount detection (0: No / 1: Yes)	-		-
Description	It is used for error detection after setting up a flow meter to learn thinner amounts at color change. (Option)		Default		0
			Range	No	0
				Yes	1
			Necessity of setting change		×

30	Item	Eco clean mode (0: No / 1: Yes)	-		-
Description	Select if the Eco clean mode is used.		Default		0
			Range	No	0
				Yes	1
			Necessity of setting change		×

31	Item	Eco clean: Pressure detection time	Unit		sec
Description	Select the time to detect the lower limit of the pressure gauge during the color change flush process when the Eco clean mode is enabled.		Default		5.0
			Range	min	0.0
				max	99.9
			Necessity of setting change		×

32	Item	Eco clean: Drain flush time	Unit		sec
Description	Select the drain valve flush time for color change flush when the Eco clean mode is enabled.		Default		5.0
			Range	min	0.0
				max	99.9
			Necessity of setting change		×

33	Item	Eco clean: Simultaneous valve OFF time	Unit		sec
Description	Select the simultaneous valve OFF time for color change flush when the Eco clean mode is enabled.		Default		0.0
			Range	min	0.0
				max	10.0
			Necessity of setting change		×

34	Item	Simultaneous valve OFF time at flush	Unit		sec
Description	Select the time when both of the base component/hardener mixing valves are simultaneously OFF during flushing. This function aims to prevent backflow of paint or cleaning solvent into the air purge route. To shorten the total flush time, select the value around 0.1 to 0.05 so that it does not flow back into the air purge route.		Default		0.20
			Range	min	0.01
				max	9.99
			Necessity of setting change		×

35	Item	Automatic color change sampling time	Unit		sec
Description	Enter the sampling time of the color change signal (binary signal). The color change starts when inputs of the signal continue for length of the setting time or longer. Enter “0” as the default value if the color change strobe signal is used. ※ Note: This applies for automatic paint lines. No change is particularly needed.		Default		0.0
			Range	min	0.0
				max	10.0
			Necessity of setting change		△

36	Item	Continuous flush mode for hardener (0: No / 1: Yes)	Unit		-
Description	Select the flush control for the hardener route. If the next color is used in the same hardener valve at color change, the hardener route is usually not flushed. The base component route only will be flushed and the color will be changed. Enter “1” to flush the hardener route at every color change.		Default		0
			Range	No	0
				Yes	1
			Necessity of setting change		○

37	Item	Coupled flush with drain valve and route (0: No / 1: Yes)	Unit		-
Description	Select the drain valve control while the route flush in progress signal is sent out. Enter “1”to keep the drain valve ON while the route flush in progress signal is issued. ※Caution: Do not change the setting made at delivery. Refer to [5-3. Color change timing chart].		Default		0
			Range	No	0
				Yes	1
			Necessity of setting change		△

38	Item	Color changer (0: Standard / 1: PG)	Unit		-
Description	Enter “1” to use the programable color changer (PCC). Also, enter “1” to use the simple PCC. Refer to [5-2 Simple PCC].		Default		0
			Range	Standard	0
				PG	1
			Necessity of setting change		△

39	Item	Pot life error: Reset mode (0: Flush / 1: Eject)	Unit		-
Description	Select conditions to reset a “pot life error”. Enter “0” to reset by flush “0(W)”. Enter “1” to reset by pulling the trigger to eject paint. In this case, the paint is ejected more than specified in the default flow rate for hardening time. Refer to [No.7 of the section].		Default		0
			Range	Wash	0
				Eject	1
			Necessity of setting change		△

40	Item	Flush start: No of guns (1-4)	Unit		-
Description	Enter the number of guns to be used for cleaning if you use multiple guns and turn on the gun triggers simultaneously.		Default		1
			Range	min	1
				max	4
			Necessity of setting change		△

41	Item	Individual gun flush (0: No / 1: Yes)	Unit		-
Description	Set to enable the individual gun flush mode.		Default		0
			Range	No	0
				Yes	1
			Necessity of setting change		×

42	Item	No of guns (1-4)	Unit		-
Description	Enter the number of guns to use when the individual gun flush mode is enabled.		Default		1
			Range	No	1
				Yes	4
			Necessity of setting change		×

43	Item	Individual gun filling (0: No / 1: Yes)	Unit		-
Description	Set to enable if you also wish to fill individual guns after flushing when the individual gun flush mode is enabled.		Default		0
			Range	No	0
				Yes	1
			Necessity of setting change		×

44	Item	Flow rate indication: Update time	Unit		sec
Description	Enter the time to update the discharge rate on the main screen. Set to at 1.0 sec at minimum. Refer to [2-7 Main screen].		Default		2.0
			Range	min	0.1
				max	9.9
			Necessity of setting change		○

45	Item	Flow rate indication: Max value	Unit		ml/min
Description	Enter the max value (max. value of the bar chart) of the discharge rate on the main screen. Select within the range where the discharge rate at color change filling also can be fit in the cart. Refer to [2-7 Main screen].		Default		2000
			Range	min	100
				max	9999
			Necessity of setting change		○

46	Item	F4 “mixture ratio” switch enabled/disabled (0: Enable / 1: Disable)	Unit		-
Description	Set to enable or disable F4 the “mixture ratio” switch on the main screen. Enter “1” to enable the switch. It is used to prevent malfunction or to restrict usage. Refer to [2-7 Main screen].		Default		1
			Range	Disable	0
				Enable	1
			Necessity of setting change		○

47	Item	F6 “Cancel color change” switch enabled/disabled (0: Disable / 1: enable)	Unit		-
Description	Set to enable or disable F6 the “Cancel color change” switch on the main screen. Enter “1” to enable the switch. It is used to prevent malfunction or to restrict usage. Refer to [2-7 Main screen].		Default		1
			Range	Disable	0
				Enable	1
			Necessity of setting change		○

48	Item	Discharge rate indicator (0: No / 1: Yes)	Unit		-
Description	Set to enable if you wish to view the discharge rate on others than the main screen and the color change screen.		Default		0
			Range	No	0
				Yes	1
			Necessity of setting change		×

49	Item	Base component tank pressure specification / Hardener tank pressure specification / Equipment supply air pressure specification Factory air pressure specification	Unit		MPa
Description	Enter the specification of the air pressure gauge if you set an air pressure gauge on the paint tank and supply air to monitor errors.		Default		0.000
			Range	min	0.000
				max	10.000
			Necessity of setting change		×

50	Item	Base component/hardener: Target measurement value	Unit		ml
Description	Enter measured quantities of the base component and the hardener during the measurement process. The amount should be less than the capacity of the measuring container. Higher measured amount results in higher accuracy. Refer to the maintenance manual [Calibration (Measurement)].		Default		100
			Range	min	1
				max	999
			Necessity of setting change		◎

51	Item	Base component/hardener: Target filling value	Unit		ml
Description	Enter a filling quantity that weighed before the measurement. It should be the quantity that can sufficiently fill up to the Teflon tube. The quantity should be less than the capacity of a paint receiver. Refer to the maintenance manual [Calibration (Measurement)].		Default		100
			Range	min	1
				max	999
			Necessity of setting change		○

52	Item	Measurement reminder time	Unit		min	sec
Description	The equipment outputs an error signal if the flow rate is not being measured with a flow meter for length of the setting time or longer, once the measurement process started. Refer to the maintenance manual [Troubleshooting 16].		Default		0	10
			Range	min	0	0
				max	59	59
			Necessity of setting change		△	△

53	Item	Measurement limit 0(W) (0: No / 1: Yes)	Unit		-
Description	Set to enable if you wish to block the measurement on any color but the color 0(W) as current color.		Default		0
			Range	No	0
				Yes	1
			Necessity of setting change		×

54	Item	Forced flush (start time, base component thinner time, base component air time, hardener thinner time, hardener air time, repeat count)	Unit		min	sec	Times
Description	Set conditions to activate the forced flush after a pot life error occurs. The flush automatically starts when the “forced flush start time” expires. Refer to [4-3 Forced flush after pot life error (automatic flush).		Default	Low pressure	10	0.0/10.0	2
				High pressure	Air time 0.0		
			Range	min	1	0	1
				max	59	99.9	99
			Necessity of setting change		△	△	△

55	Item	Notification time before pot life error	Unit		min
Description	Set the value to output the signal before a pot life expiration warning is issued.		Default		0
			Range	min	0
				max	59
			Necessity of setting change		△

56	Item	Learning reminder time	Unit		min	sec
Description	The equipment outputs an error if the flow rate is not being measured with a flow meter for length of the setting time or longer after the learning process started. Refer to the maintenance manual [Troubleshooting 26].		Default		0	10
			Range	min	0	0
				max	59	59
			Necessity of setting change		△	△

57	Item	⊿t1, ⊿t2, ⊿t3 Mixing valve open/close ratio		1	2	3
Description	Enter the hardener valve minor ON time at learning. ※Caution: Do not change the setting made at delivery. Refer to the Maintenance Manual [Learning].		Unit	×100%		
			Default	0.25	0.50	1.00
			Range min	0.05		
			Range max	9.99		
			Necessity of setting change	×	×	×

58	Item	Pulse END setting (4pls/x): Base component and hardener	Unit		-
Description	This is used for adjustments if you install a flow meter other than our standard meter. ※CAUTION: It will be adjusted by Asahi Sunac. Do not change the setting made at delivery.		Default		2.0
			Range	min	0.1
				max	9.9
			Necessity of setting change		×

59	Item	Mixing test: Repeat count	Unit		Times
Description	Enter the number of counts to supply the base component and hardener for the mixture ratio test. Higher number of counts results in higher confirmation accuracy. Refer to the maintenance manual [Mixing test].		Default		5
			Range	min	3
				max	23
			Necessity of setting change		○

60	Item	Mixing test reminder time	Unit		min	sec
Description	The equipment outputs an error if the flow rate is not being measured with a flow meter for length of the setting time or longer after the mixing test process started. Refer to the maintenance manual [Troubleshooting 17].		Default		0	10
			Range	min	0	0
				max	59	59
			Necessity of setting change		△	△

61	Item	Mixing test use restriction 0(W) (0: No / 1: Yes)	Unit		-
Description	Set to enable if you wish to block the mixing test process on any color but the color 0(W) as current color.		Default		1
			Range	No	0
				Yes	1
			Necessity of setting change		△

62	Item	Mixing test use restriction 1(A)-21(U) (0: Yes / 1: No)	Unit		-
Description	Set “0” to disable the mixing test for the color other than the current color when the current color is not 0(W). Set “1” to enable.		Default		1
			Range	No	0
				Yes	1
			Necessity of setting change		△

4-2 Switching to the detection condition setting menu screen (example: SLv2)

[1] Main menu <Screen No.15>

Press F1.

[2] Default setting menu

<Screen No.111>

Press F7.

③ Detection condition menu

<Screen No.137>

Select the item.

4-2-1 Detection condition setting list

Screen <Screen No.>	No.	Item	Unit	Default	SLv
Ratio detection <Screen 138>	1	Allowed mixture ratio range [±%]	%	5.0	1
		Continuous detection count for exceeding allowed mixture ratio.	Times	3	
	2	Max allowed mixture ratio range [±%]	%	15.0	
	3	Input upper limit	ml	120	
	4	Input upper limit: Continuous detection count	Times	3	
	5	Normal base component pressure gauge range: Lower limit value	MPa	0.000	
		Normal base component pressure gauge range: Upper limit value	MPa	0.000	
		Normal hardener pressure gauge range: Lower limit value	MPa	0.000	
		Normal hardener pressure gauge range: Higher limit value	MPa	0.000	
		Normal equipment pressure gauge range: Lower limit value	MPa	0.000	
		Normal factory gauge range: Upper limit value	MPa	0.000	
		Normal factory gauge range: Lower limit value	MPa	0.000	
Flow rate detection 1 <Screen 142>	6	Flow rate lower limit (short)	ml/min	50	1
	7	Flow rate lower limit (short): Continuous detection count	Times	20	
	8	Flow rate upper limit (over)	ml/min	4000	
	9	Flow rate upper limit (over): Continuous detection count	Times	3	
	10	Flow rate detection time with valve OFF	sec	3.0	
		Flow rate detection amount with valve OFF	ml	3.0	

Flow rate detection 2 <Screen 143>	11	Base component valve ON: Flow rate lower limit detection Cancellation time	msec	100	2
		Hardener valve ON: Flow rate lower limit detection Cancellation time	msec	100	
	12	Invalid valve OFF detection time	msec	100	
Counter limit <Screen 145>	13	Mixing valve: Counter limit	Times	7000000	1
	14	Other valves: Counter limits	Times	7000000	
	15	Base component: Consumption counter limit	g	10000	
		Hardener: Consumption counter limit	g	10000	
	16	Base component: Flow rate counter limit	g	30000000	
		Hardener: Flow meter counter limit	g	10000000	

Screen <Screen No.>	No.	Item	Unit	Default	SLv
Error level setting 1 <Screen 151>	17	Emergency stop		3	2
		External device error 1		2	
		Mixture ratio error		3	
		Not used			
		Cycle input upper limit		3	
		Not used			
		Start forced flush		3	
		Pot life error		2	
		Base component: Flow rate lower limit (short)		3	
		Hardener: Flow rate lower limit (short)		3	
		Not used			
		Base component valve OFF: Flow rate detection		2	
		Hardener valve OFF: Flow rate detection		2	
		Not used			
Error level setting 2 <Screen 152>	18	Flush reminder		2	2
		Measurement reminder		2	
		Mixture ratio test reminder		2	
		Base component: Flow rate upper limit (over)		2	
		Hardener: Flow rate upper limit (over)		2	
		Not used			
		RAM initialization		2	
		ALB terminal block communication error		2	
		Memory card error		2	
		Recipe not registered		2	
		External device error 2		2	
		Learning reminder		3	
		Trigger error		1	
		Communication error ch1		3	
Error level setting 3 <Screen 153>	19	Clock error		2	2
		Base component: Consumption count-up		0	
		Hardener: consumption count-up		0	
		Not used			
		Base component: Mixing valve count-up		2	
		Hardener: Mixing valve count-up		2	
		Not used			

Screen <Screen No.>	No.	Item	Unit	Default	SLv
Error level setting 4 <Screen 154>	20	Gun 1: Cycle discharge rate lower limit		0	2
		Gun 2: Cycle discharge rate lower limit		0	
		Gun 3: Cycle discharge rate lower limit		0	
		Gun 4: Cycle discharge rate lower limit		0	
		Base component air pressure upper limit error		0	
		Hardener pressure upper limit error		0	
		Equipment air pressure upper limit error		0	
		Factory air pressure upper limit error		0	
		Flow meter counter count-up		0	
		Valve counter count-up		0	
Error level setting 5 <Screen 155>	21	Base component: Mixing valve ON response error		1	2
		Hardener: Mixing valve ON response error		1	
		Not used			
		Base component: Mixing valve OFF response error		1	
		Hardener: Mixing valve OFF response error		1	
		Not used			
Error level setting 6 <Screen 156>	22	GOT system alarm (ACPU)		1	2
		PM sensor		1	
		GOT system alarm (Main unit function 1)		1	
		Base component air pressure lower limit error		1	
		Hardener air pressure lower limit error		1	
		Equipment air pressure lower limit error		1	
		Factory air pressure lower limit error		1	
		Total thinner amount lower limit during color change		2	
		Not used			
		Not used			
		Not used			
		PM RPM (upper limit)		1	
		PM RPM (lower limit)		1	
Learning data detection <Screen 149>	23	Base component mixing valve ON: Pulse input time Upper limit	msec	150	2
	24	Hardener mixing valve ON: Pulse input time Upper limit	msec	150	
	23	Base component: Mixing valve OFF-pulse stop time Upper limit	msec	150	
	24	Hardener: Mixing valve OFF-pulse stop time Upper limit	msec	150	

Discharge detection rate by gun <Screen 148>	25	Gun 1: Cycle discharge rate	ml	100	2
		Gun 2: Cycle discharge rate	ml	100	
		Gun 3: Cycle discharge rate	ml	100	
		Gun 4: Cycle discharge rate	ml	100	
	26	Cycle discharge rate upper limit	%	50	
		Cycle discharge rate lower limit	%	50	
		Cycle discharge rate upper/lower limit Continued detection count	Times	1	
Power mixer detection <Screen 159>	27	RPM upper limit	r.p.m,	4000	2
	28	RPM lower limit	r.p.m,	500	
	29	Detection time	sec	10	
	30	Sensor error detection time	sec	3	
	31	Regulator specification (0: 0.9MPa / 1: 0.7MPa)		0	
	32	Proportionality factor PM1		0.100	
		Proportionality factor PM2		0.100	
	33	Integral factor PM1		2.000	
		Integral factor PM2		2.000	

4-2-2 Detection condition setting details

The following table categorizes the items that require changes for parts replacement of the ACW mixing unit or adjustment to specifications as ◎, the items to change for improved convenience such as usability as ○, the items that do not necessarily require changes or optional items as △, and the items generally restricted from making changes as ×.

The contents should be well understood before you enter your setting based on mixing paint specifications.

1	Item	Allowed mixture ratio range [±%], continuous detection count for exceeding allowed mixture ratio.	Unit		%	Times
Description	Enter a detection range for mixture ratio errors. A mixture ratio error is signaled when the ratio exceeds the numeric value as well as the setting count. Refer to the maintenance manual [Troubleshooting 3].		Default		5.0	3
			Range	min	0.1	1
				max	99.9	9
			Necessity of setting change		○	○

2	Item	Max. allowed range of mixture ratio [±%]	Unit		%
Description	Enter a detection range for mixture ratio errors. A mixture error is signaled when the ratio exceeds the numeric value. Refer to the maintenance manual [Troubleshooting 3].		Default		15.0
			Range	min	0.1
				max	99.9
			Necessity of setting change		○

3	Item	Input upper limit	Unit		%
Description	Enter the upper limit of a total amount of the base component and the hardener that are alternatively supplied. ※Note: Set the mixing hose type to 120% (default value). Be sure to change other numeric values according to the specification. Refer to [4 of the section].		Default		120
			Range	min	1
				max	999
			Necessity of setting change		○

4	Item	Input upper limit: Continuous detection count	Unit		Times
Description	Enter the counts of continuous detection on the state that the input exceeds the setting rate of the upper limit. When it reaches the detection count, it outputs a “cycle input upper limit” error. Refer to the maintenance manual [Troubleshooting 5].		Default		3
			Range	min	1
				max	999
			Necessity of setting change		○

5	Item	Input upper limit: Continuous detection count	Unit		Times
Description	Enter the counts of continuous detection on the state that the input exceeds the setting rate of the upper limit. When it reaches the detection count, it outputs a “cycle input upper limit” error. Refer to the maintenance manual [Troubleshooting 5].		Default		3
			Range	min	1
				max	999
			Necessity of setting change		○

6	Item	Normal pressure gauge range for base component/hardener/equipment/factory	Unit		MPa
Description	Set up a normal range if the base component/hardener/equipment/factory air pressure sensor is used.		Default		0.000
			Range	min	0.000
				max	10.000
			Necessity of setting change		△

7	Item	Flow rate lower limit (short): Continuous detection count	Unit		Times
Description	Enter the counts of continuous detection on the state that it is below the lower limit of the flow rate (short). When it reaches the detection count, it outputs a “lower flow rate limit” error. ※Note: Be sure to change the numeric values according to the specification. Refer to the maintenance manual [Troubleshooting 9, 10].		Default		20
			Range	min	1
				max	999
			Necessity of setting change		◎

8	Item	Flow rate upper limit (over)	Unit		ml/min
Description	Enter a detection value of Max. flow rate (upper limit of discharge rate). Select to prevent over-rotation of the flow meter. The detection also continues while the color change and flushing are taking place. ※Note:It is up to a doubled amount as the discharge rate of the ACW mixing unit. Refer to the maintenance manual [Troubleshooting 18, 19].		Default		4000
			Range	min	100
				max	9000
			Necessity of setting change		◎◎

9	Item	Flow rate upper limit (over): Continuous detection count	Unit		Times
Description	Enter the counts of continuous detection on the state that it exceeds the upper limit of the flow rate (over). When it reaches the detection count, it signals an “upper limit of flow rate (over)” error. ※Note: Be sure to change the numeric values according to the specification. Refer to the maintenance manual [Troubleshooting 18, 19].		Default		3
			Range	min	1
				max	999
			Necessity of setting change		◎◎

10	Item	Flow rate detection with valve OFF: Time and quantity	Unit		sec	ml
Description	A warning is given when it is not painting or when a flow meter is activated on the side where the base component or the hardener is not supplied and the flow rate exceeds the setting value. Both of time and quantity will be monitored. ※Note: Be sure to change the numeric values according to the specification. Refer to the maintenance manual [Troubleshooting 12, 13].		Default		3.0	2.0
			Range	min	0.1	0.1
				max	99.9	99.9
			Necessity of setting change		○	○

11	Item	Base component/hardener valve ON: Cancellation time of flow rate lower limit detection	Unit		msec
Description	Enter non-detection time for a flow rate lower limit (short) right after the mixing valve (base component, hardener) is actuated. This is used when the flow rate is not stable right after the valve is ON, resulting from pressure balance or viscosity differences of fluids.		Default		100
			Range	min	1
				max	999
			Necessity of setting change		×

12	Item	Invalid detection time with valve OFF	Unit		msec
Description	A paint leak error occurs at valve changing if paint pressure is high. But this setting enables to solve the leak error that occurs right after valve changing.		Default		100
			Range	min	1
				max	999
			Necessity of setting change		×

13	Item	Mixing valve: Counter limit	Unit		Times
Description	Enter the upper limit of the operation count of each mixing valve. If it reaches the setting count, a “mixing valve count-up” error is issued. Refer to the maintenance manual [Troubleshooting 33, 34].		Default		7000000
			Range	min	1
				max	1999999999
			Necessity of setting change		○

14	Item	Other valves: Counter limits	Unit		Times
Description	Enter the upper limit of the operation count for the valves (except for the mixing valves). If it reaches the setting count, a “valve counter count-up” error is issued. Refer to the maintenance manual [Troubleshooting 45].		Default		7000000
			Range	min	1
				max	1999999999
			Necessity of setting change		○

15	Item	Base component/hardener: Consumption counter limit	Unit		ml
Description	Enter the upper limit value of each base component and harder valve consumption. If it reaches the setting count, a “consumption count-up” error is issued. It is used for lower limits of the tank and the container. Refer to the maintenance manual [Troubleshooting 30, 31].		Default		10000
			Range	min	1
				max	1999999999
			Necessity of setting change		○

16	Item	Base component/hardener: Flow meter counter limit	Unit		ml
Description	Enter the upper limit of the flow meter of the base component and the hardener (pulse detection count). If it reaches the setting count, a “flow meter counter count-up” error is issued. It is used as a guide for the flow meter maintenance cycle. Refer to the maintenance manual [Troubleshooting 44].		Default	Base component	3000000
				Hardener	1000000
			Range	min	1
				max	1999999999
			Necessity of setting change		○

17	Item	Error level setting 1	Error item	Errors	WARNING	CAUTION	Non-detection
Description	Select the error level.		Level	3	2	1	0

	Code	Error	Default	Changeable range				Remarks
Description	3000	Emergency stop	3				3	Do not change
	3001	External device error 1	2	0	1	2	3	
	3002	Mixture ratio error	3			2	3	
	-	-	-	-	-	-	-	Not used
	3004	Cycle input upper limit	3		1	2	3	
	-	-	-	-	-	-	-	Not used
	3006	Start forced flush	3			2	3	
	3007	Pot life error	3			2	3	
	3008	Base component: Flow rate lower limit (short)	3		1	2	3	
	3009	Hardener: Flow rate lower limit (short)	3		1	2	3	
	-	-	-	-	-	-	-	Not used
	3011	Base component valve OFF: Flow rate detection	2		1	2	3	
	3012	Hardener valve OFF: Flow rate detection	2		1	2	3	
	-	-	-	-	-	-	-	Not used
	Refer to the maintenance manual [Troubleshooting].							

18	Item	Error level setting 2	Error item	Errors	WARNING	CAUTION	Non-detection
Description	Select the error level.		Level	3	2	1	0

	Code	Error	Default	Changeable range				Remarks
Description	3014	Flush reminder	2	0	1	2	3	
	3015	Measurement reminder	2	0	1	2	3	
	3016	Mixture ratio test reminder	2	0	1	2	3	
	3017	Base component: Flow rate upper limit (over)	2		1	2	3.	
	3018	Hardener: Flow rate upper limit (over)	2		1	2	3	
	-	-	-	-	-	-	-	Not used
	3020	RAM initialization	2	0	1	2	3	
	3021	ALB terminal block communication error	2	0	1	2	3	
	3022	Memory card error	2		1	2	3	
	3023	Recipe not registered	2	0	1	2	3	
	3024	External device error 2	2	0	1	2	3	
	3025	Learning reminder	3	0	1	2	3	
	3026	Trigger error	1	0	1	2	3	
	3027	Communication error ch1	3	0	1	2	3	
	Refer to the maintenance manual [Troubleshooting].							

19	Item	Error level setting 3	Error item	Errors	WARNING	CAUTION	Non-detection
Description	Select the error level.		Level	3	2	1	0

	Code	Error	Default	Changeable range				Remarks
Description	3028	Clock error	2	0	1	2	3	
	3029	Base component: Consumption count-up	0	0	1	2	3	
	3030	Hardener: Consumption count-up	0	0	1	2	3	
	-	-	-	-	-	-	-	Not used
	3032	Base component: Mixing valve count-up alarm	2	0	1	2	3	
	3033	Hardener: Mixing valve count-up	2	0	1	2	3	
	-	-	-	-	-	-	-	Not used
	Refer to the maintenance manual [Troubleshooting].							

20	Item	Error level setting 4	Error item	Errors	WARNING	CAUTION	Non-detection
Description	Select the error level.		Level	3	2	1	0

	Code	Error	Default	Changeable range				Remarks
Description	3035	Gun 1: Cycle discharge rate lower limit	0	0	1	2	3	
	3036	Gun 2: Cycle discharge rate lower limit	0	0	1	2	3	
	3037	Gun 3: Cycle discharge rate lower limit	0	0	1	2	3	
	3038	Gun 4: Cycle discharge rate lower limit	0	0	1	2	3	
	3039	Base component air pressure upper limit error	0	0	1	2	3	
	3040	Hardener air pressure upper limit error	0	0	1	2	3	
	3041	Equipment air pressure upper limit error	0	0	1	2	3	
	3042	Factory air pressure upper limit error	0	0	1	2	3	
	3043	Flow meter counter count-up	0	0	1	2	3	
	3044	Valve counter count-up	0	0	1	2	3	
	Refer to the maintenance manual [Troubleshooting].							

21	Item	Error level setting 5	Error item	Errors	WARNING	CAUTION	Non-detection
Description	Select the error level.		Level	3	2	1	0

	Code	Error	Default	Changeable range				Remarks
Description	3045	Base component: Mixing valve ON response error	1	0	1	2	3	
	3046	Hardener: Mixing valve ON response error	1	0	1	2	3	
	-	-	-	-	-	-	-	Not used
	3048	Base component: Mixing valve OFF response error	1	0	1	2	3	
	3049	Hardener: Mixing valve OFF response error	1	0	1	2	3	
	-	-	-	-	-	-	-	Not used
	Refer to the maintenance manual [Troubleshooting].							

22	Item	Error level setting 6	Error item	Errors	WARNING	CAUTION	Non-detection
Description	Select the error level.		Level	3	2	1	0

	Code	Error	Default	Changeable range				Remarks
Description	3051	GOT systems alarm (ACPU)	1	0	1	2	3	
	3052	PM sensor	1	0	1	2	3	
	3053	GOT system alarm (Main unit function 1)	1	0	1	2	3	
	3054	Base component air pressure lower limit error	1	0	1	2	3	
	3055	Hardener/base component air pressure lower limit error	1	0	1	2	3	
	3056	Equipment/base component air pressure lower limit error	1	0	1	2	3	
	3057	Factory/base component air pressure: Lower limit error	1	0	1	2	3	
	3062	PM RPM (upper limit)	1	0	1	2	3	
	3063	PM RPM (lower limit)	1	0	1	2	3	
	Refer to the maintenance manual [Troubleshooting].							

23	Item	Base component mixing valve ON: Pulse input time upper limit Base component mixing valve OFF-pulse input time: Upper limit	Unit		msec
Description	Enter the upper limit value of the responsiveness of the base component mixing valve. If learning data exceeds the setting value, a “base component mixing valve ON response error” or “base component mixing valve OFF response error” is issued. Refer to the maintenance manual [Troubleshooting 46, 49].		Default		150
			Range	min	1
				max	999
			Necessity of setting change		△

24	Item	Hardener mixing valve ON: Pulse input time upper limit Hardener mixing valve OFF-pulse input time: Upper limit	Unit		msec
Description	Enter the upper limit value of the responsiveness of the hardener mixing valve. If learning data exceeds the setting value, a “hardener mixing valve ON response error” or “hardener mixing valve OFF response error” is issued. Refer to the maintenance manual [Troubleshooting 47, 50].		Default		150
			Range	min	1
				max	999
			Necessity of setting change		△

25	Item	Gun 1, Gun 2, Gun 3, Gun 4: Cycle discharge rate	Unit		ml/min
Description	Enter the standard detection value of the discharge rate for each gun. The value is automatically changed through the discharge rate measurement by guns. This setting is mainly aimed for confirmation. Refer to [24 of the section].		Default		100
			Range	min	1
				max	9999
			Necessity of setting change		×

26	Item	Cycle discharge rate upper limit/lower limit Cycle discharge rate upper limit/lower limit: Continuous detection count	Unit		%	Times
Description	Enter the allowed upper and lower limit ranges of the standard discharge amount detection by guns. Enter the counts of continuous detection on the state that does not meet the allowed range. Once it reaches the detection count, a “cycle discharge rate lower limit” or “cycle discharge rate upper limit” error is issued. Refer to the maintenance manual [Troubleshooting 36, 37, 38, and 39]. Refer to the maintenance manual [Troubleshooting 40, 41, 42, and 43].		Default		50	1
			Range	min	1	1
				max	100	10
			Necessity of setting change		△	△

27	Item	RPM upper limit	Unit		r.p.m.
Description	Enter the max RPM if the power mixer is used. A “PM RPM (upper limit)” error is issued if the RPM exceeds the setting value for a given time.		Default		4000
			Range	min	500
				max	9000
			Necessity of setting change		△

28	Item	RPM lower limit	Unit		r.p.m.
Description	Enter the min RPM if the power mixer is used. A “PM RPM (lower limit)” error is issued if the RPM is below the setting value for a given time.		Default		500
			Range	min	1
				max	999
			Necessity of setting change		△

29	Item	Detection time	Unit		sec
Description	Enter the error detection time if the power mixer is used. Edit this setting to change the time to output ”PM RPM (upper limit)”/”PM RPM (lower limit)” errors.		Default		10
			Range	min	1
				max	99
			Necessity of setting change		△

30	Item	Sensor error detection time	Unit		sec
Description	Enter the sensor error detection time if the power mixer is used. A “PM sensor” error is signaled after the setting time has passed, if the power mixer is in operation and the rotation sensor signal is unable to be detected.		Default		3
			Range	min	1
				max	99
			Necessity of setting change		△

31	Item	Regulator specification (0:0.9MPa / 1:0.7MPa)	Unit		-
Description	Set up the air pressure specification of an electropneumatic regulator if a power mixer is used. T-mode operation will be affected by this setting value.		Default		0
			Range	min	0
				max	1
			Necessity of setting change		△

32	Item	PM1/PM2 Proportionality factor	Unit		-
Description	Enter a proportionality factor if the power mixer is used. Increase the value to strengthen the feedback control and decrease to turn down the feedback control.		Default		0.100
			Range	min	0.001
				max	9.999
			Necessity of setting change		△

33	Item	PM1/PM2 integral factor	Unit		-
Description	Enter a proportionality factor if the power mixer is used. Decrease the value to strengthen the feedback control and increase to turn down the feedback control.		Default		2.000
			Range	min	0.001
				max	9.999
			Necessity of setting change		△

4-3 Forced flush after pot life error (automatic flush)

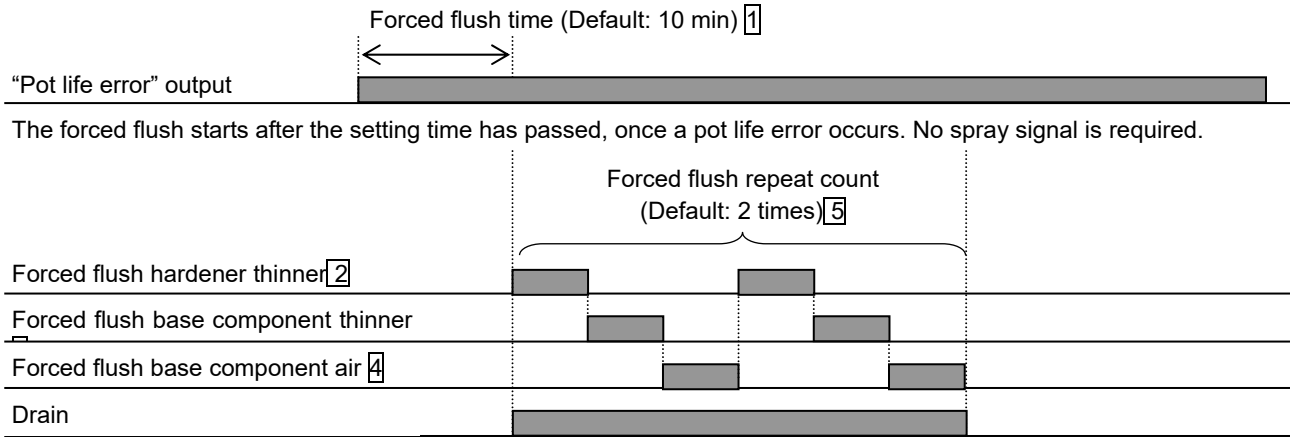
This automatic flush cycle is activated after the pot life counter shows zero and the setting time passed.

This control enables to forcibly flush the flow meter and the mixer as prevention of hardening of the equipment in that state where the drain valve is installed at the mixer rear, the equipment power is ON, the cleaning pump is in operation and cleaning solvent pressure is rising.

Refer to the maintenance manual [Troubleshooting 7, 8].

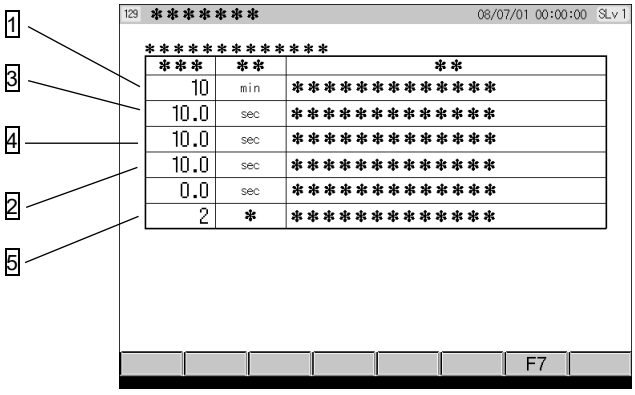
NOTE

- **The flush does not cover the paint hose leading up to the spray gun and gun.**
- **This is enabled only when the mixer drain valve is mounted.**



The drain is automatically turned on at start of the forced flush, and mixture paint in the mixer is discharged.

<Screen No.129>



Refer to [2-4 ACW controller: Basic operations].

5 Normal setting

⚠ CAUTION

Risk of malfunction of the equipment. Accurate mixture control may be prevented.

Accurate mixing and error detection cannot be ensured without correct parameter setting.

In the normal setting, you need to enter paint conditions suitable for your paint specification such as mixture ratio or color change condition beforehand.

Setting and editing are enabled at the security level SLv1 or SLv2.

Refer to [3-1 Changing security levels].

5-1 Switching to the normal setting menu screen (Example: SLv1)

① Main

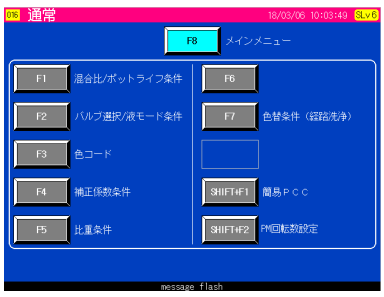
Check SLv1 and SLv2.

Press F8.

② Main menu

<Screen No.015>

Press F3.



③ Normal setting menu

<Screen No.016>

Select the item.

Refer to [2-4 ACW controller: Basic operations].

5-1-1 Mixture ratio/pot life conditions

Enter the mixture ratio and pot life conditions.

<Screen No.017>

No.	Item	Default	Description
1	Color code		Shows the color codes, the color W (thinner) and the color A (2K).
2	Base component	1.00	Enter the mixture ratio. ※: When the component mode is “1”, it shows “----”.
3	Hardener	1.00	
4	Pot life	2:00	Enter the pot life of two-component paints (spray allowed time). The color group“0(W)” is not available to enter. ※: When the component mode is “1”, it shows “----”.
5	F4"No.1-7"		Switches to the “color codes” (No.1-7). <Screen No.018>
6	F7 “Return”		Switches to “Normal setting menu”. <Screen No.016>

Refer to [2-4 ACW controller: Basic operations].

Refer to [4-3 Forced flush after pot life error (automatic flush).

5-1-2 Valve selection/component mode conditions

⚠ CAUTION

Risk of malfunction and failure. Accurate mixture control may be prevented.

- **Do not feed mixture paint with a base component and a hardener (prepared mixture paint) to the base component CCV.**
  Failure to do so leads to inaccurate measurements by the flow meter on the base component side.

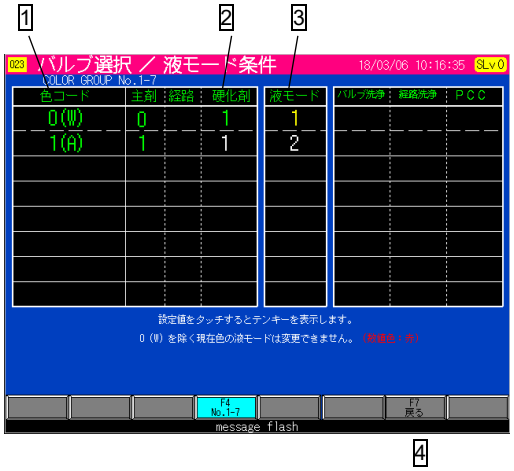
(1) Select valve: Select a hardener (valve) corresponding the base component.

(2) Component mode: Select “1” to feed the base component only.

If color is changed to the color group with the “component mode” “1”, the hardener CCV is not actuated but the base component CCV only opens and feeds the paint <it is called one-component mode>.

The mixture control or the error detection (mixture rate error, etc.) are not enabled on this one-component mode.

<Screen No.023>



No.	Item	Default	Description
1	Color code		Shows the color codes, the color W (thinner) and the color A (2K).
2	Hardener	1	Select the hardener (CCV) corresponding the base component. The color group“0(W)” is not available to enter.
3	Component mode	2	Enter “2” for two-component mixing. Enter “1” to feed the base component only. ※: The currently selected color group cannot be changed unless it is 0(W). (Red indication) ※: Numbers are shown in blue on the component mode 1.
4	F7 “Return”		Switches to “Normal setting menu”. <Screen No.016>

Refer to [2-4 ACW controller: Basic operations].

5-1-3 Color code

You can enter (alphanumeric characters only) paint (base component) manufacturer models or No. in the color code entry.

The entered color code here will be shown in the “color code” on the main screen.

<Screen No.044>

No.	Item	Default	Description
1	Color group		Shows the color W (thinner) and the color A (2K).
2	Color code	0(W) 1(A)~21(U)	This can be changed to paint models or No.
3	F7 “Return”		Switches to “Normal setting menu”. <Screen No.016>

Refer to [2-4 ACW controller: Basic operations].

5-1-4 Correction factor conditions

This setting enables to set up a correction factor for calibration of the flow meter of viscosity and properties of actual paints (base component, hardener).

This numeric value is automatically changed through the measurement operation. This setting is mainly aimed to check the current correction values. The value is generally less than 1 when it is low viscosity.

Base component <Screen No.032>

Hardener <Screen No.033>

Base component

No.	Item	Default	Description
1	Valve No.		Shows 0 as thinner color and 1 as 2K color.
2	Correction factor	1.000	Calibrates the flow meter of the base component (viscosity, property).
3	F5 “Hardener”		Switches to “Correction factor condition: Hardener”. <Screen No.033>
4	F7 “Return”		Switches to “Normal setting menu”. <Screen No.016>

Hardener

No.	Item	Default	Description
1	Valve No.		Shows 0 as thinner color and 1 as 2K color.
2	Correction factor	1.000	Calibrates the flow meter of the hardener (viscosity, property).
3	F4 “Base component”		Switches to “Condition factor: Base component”. <Screen No.032>
4	F7 “Return”		Switches to “Normal setting menu”. <Screen No.016>

Refer to [2-4 ACW controller: Basic operations].

Refer to the maintenance manual [Calibration (Measurement)].

NOTE

- **It nears “1.000” when paint viscosity is 40mPa･s (18s/FC#4) or higher.**
- **This numeric value is automatically changed through the measurement operation. It is aimed mainly to check the current correction values. Do not change the numeric value on this screen.**

5-1-5 Specific gravity conditions

You need to enter the specific gravity beforehand to estimate a correction factor of a measured component in the calibration (measurement) function.

Specific gravity condition (base component) <Screen No.029>

Specific gravity condition (hardener) <Screen No.030>

Specific gravity conditions (base component)

No.	Item	Default	Description
1	Valve No.		Shows 0 as thinner color and 1 as 2K color.
2	Specific gravity	1.000	Enter the specific gravity of the base component.
3	F5 “Hardener”		Switches to “Specific gravity conditions (hardener)”. <Screen No.030>
4	F7 “Return”		Switches to “Normal setting menu”. <Screen No.016>

Specific gravity condition (hardener)

No.	Item	Default	Description
1	Valve No.		Shows 0 as thinner color and 1 as 2K color.
2	Specific gravity	1.000	Enter the specific gravity of the hardener.
3	F4 “Base component”		Switches to “Specific gravity conditions (base component)”. <Screen No.029>
4	F7 “Return”		Switches to “Normal setting menu”. <Screen No.016>

Refer to [2-4 ACW controller: Basic operations].

Refer to the maintenance manual [Calibration (Measurement)].

5-1-6 Color change conditions (mixing unit)

There are three cycles available in the color change conditions: Fill the next color from the flush status “0(W) indication” and prepare for paint, change from color to another color, and flush from color change and finish with filling cleaning solvent.

Enter color change control conditions such as cleaning solvent (thinner), air purge, or repeat count.

Refer to [5-3. Color change timing chart].

<Screen No.035>

No.	Item	Unit	Default	Description
1	Pre-air	sec	0.0	Enter the air-purge time before starting color change or flushing.
2	Air	sec	5.0 ※2	Enter the air-purge valve ON time of the base component route.
3	Thinner	sec	5.0	Enter thinner valve ON time of the base component CCV.
4	Repeat count	Times	3 ※1	Enter cycle counts of the base component air and thinner.
5	Post-air	sec	5.0 ※2	Enter the air-purge time after flushing.
6	Second thinner	sec	5.0	Enter if thinner-purge is conducted for a given amount.
7	Second air	sec	5.0 ※2	Enter the air-purge time to eject thinner for the second thinner-purge of the base component.
8	Filling time	sec	10	Enter the filling time of paint mixture. Enter the time to sufficiently fill up the route leading up to the spray gun.
9	F1 “Select to copy”			Refer to [2-5 Copying setting value from the screen].
10	F7 “Return”			Switches to “Normal setting menu”. <Screen No.016>

Refer to [2-4 ACW controller: Basic operations].

※1: The repeat count for 0(W) is 0 (times).

※2: The value will be indicated as 0.0(sec) when the high pressure specification is selected in the recipe control.

Refer to [8-8 Recipe No. and default values].

NOTE

- **Set the base component air to “0” sec for the air wrap (air-less) spray**
- **Set the “hardener air ” to “0” in general cases.**
- **Fill up cleaning solvent (thinner) for the “filling time” under the “0(W)” item. It is desirable to choose a larger quantity than setting conditions of each color so that it can fully clean. Select the setting suitable for your conditions.**
- **Select a flush cycle that you need based on the timing chart of color change and enter respective conditions.**

  Refer to [5-3. Color change timing chart].
- **The switching interval between thinner and air purge for the base component or the hardener will be determined based on the “simultaneous valve OFF time at flush“ (default: 0.2sec).**

  Refer to [4-1-2 Default setting details 23].

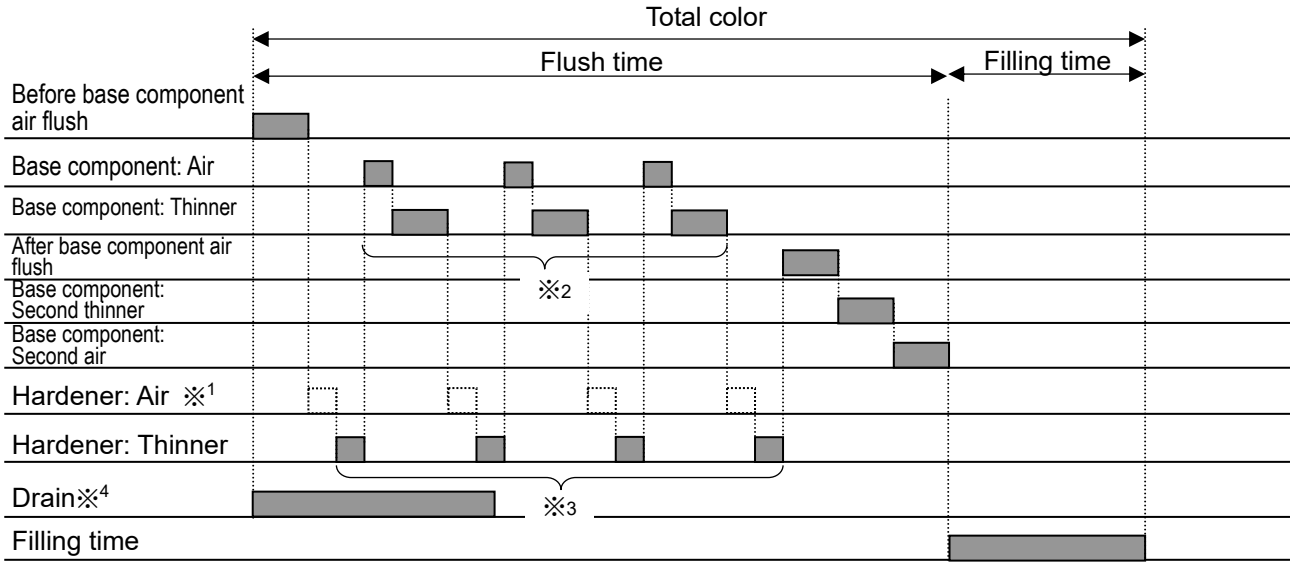
5-2 Color change timing chart

The ACW mixing coating machine offers the color change control with the mixing unit and the route flush system.

The following contents show the basic color change timing chart.

5-2-1 ACW mixing unit

The following shows the timing chart for the ACW mixing unit.



※1: Do not use hardener air.

※2: It shows the repeat count of the base component (ex. 3 times).

※3: It shows the repeat count of the hardener (ex. 4 times).

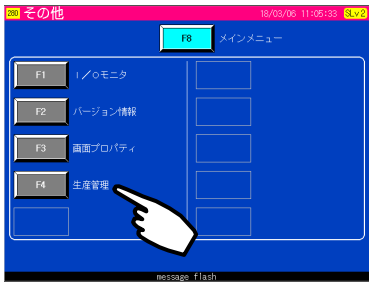
※4: The drain valve opens at the setting time only.

6-1 Production control

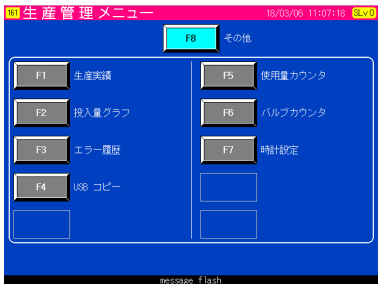
6-1-1 Switching the production control menu screen (example: SLv2)

① Main
View SLv2.
Press F8.

② Main menu
<Screen No.015>
Press F4.



③ Other menu
<Screen No.280>
Press F4.



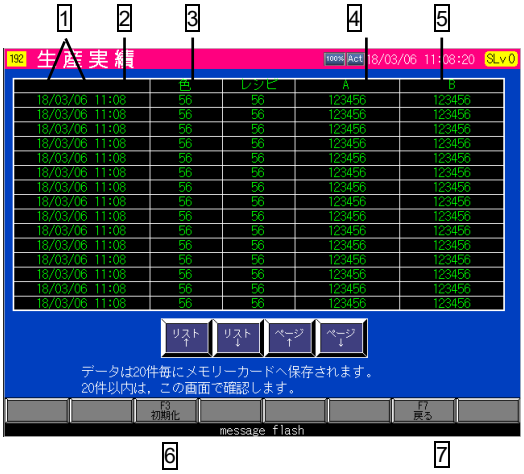
④ Production control menu
<Screen No.161>
Select the item.

Refer to [2-4 ACW controller: Basic operations].

6-1-2 Production record

Paint consumption will be saved at every color change, paint mode “OFF”, or occurrence of failure. It is used for paint consumption control of every color change. Data is saved in the memory card at every data of 20 items. You can view 20 items of data or less on this screen.

<Screen No.192>



No.	Item	Description
1	Date and month	Shows date and time of each color change, paint mode “OFF” and error level 3.
2	Time	
3	Color group	Shows 0 as thinner color and 1 as 2K color.
4	Base component	Shows consumption of the base component.
5	Hardener	Shows hardener consumption.
6	F3 “Initialization”	Initializes data. ※1
7	F7 “Return”	Switches to the “production control menu”. <Screen No.161>

※1: Data in the memory card will be deleted as well. Refer to [2-4 ACW controller: Basic operations].

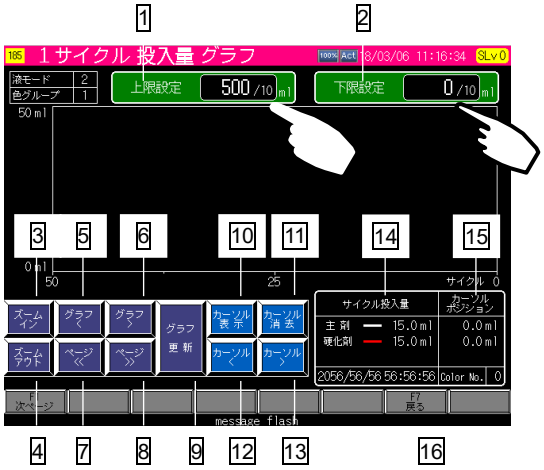
6-1-3 Input chart

Cyclic inputs of the base component and the hardener will be shown in a chart.

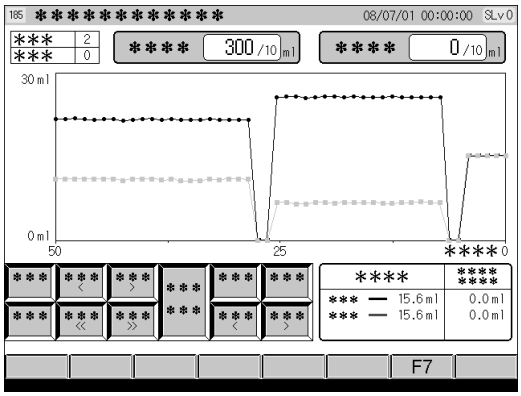
It indicates the data up to 1000 cycles. Data after 1000 cycles will be saved in a memory card.

When the cursor is displayed and moved around, a numeric value will be shown at a cursor position.

<Screen No.185>



Display status at measurement (example)



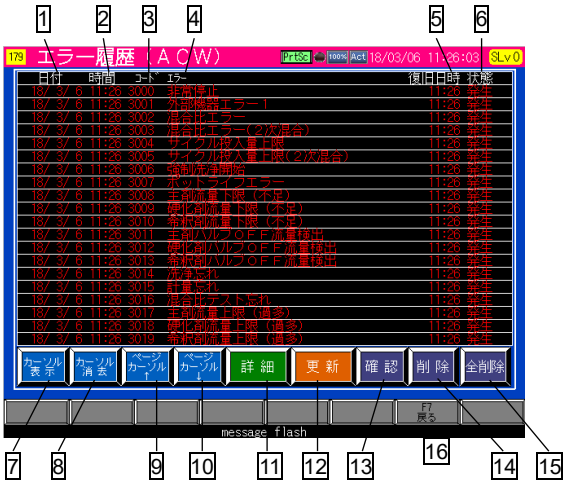
No.	Item	Description
1	Upper limit setting	Enter the upper limit value of the chart.
2	Lower limit setting	Enter a lower limit of the chart.
3	Zoom in	Zooms in the chart.
4	Zoom out	Zooms out the chart.
5	Chart <	Moves the chart to left.
6	Chart >	Moves the chart to right.
7	Page <<	Moves the chart to left by page.
8	Page >>	Moves the chart to right by page.
9	Update chart	Updates the chart.
10	Show cursor	Shows the cursor on the chart.
11	Hide cursor	Hides the cursor.
12	Cursor <	Moves the cursor to left.
13	Cursor >	Moves the cursor to right.
14	Cyclic input	Shows the latest cyclic input.
15	Cursor position	Shows the cyclic input at a cursor point.
16	F7 “Return”	Switches to the “production control menu”. (Screen No.161)

6-1-4 Error history

6-1-4-1 Error history

This equipment shows logs of errors (failure, warning, and caution) and their basic treatments on the screen.

<Screen No.179>

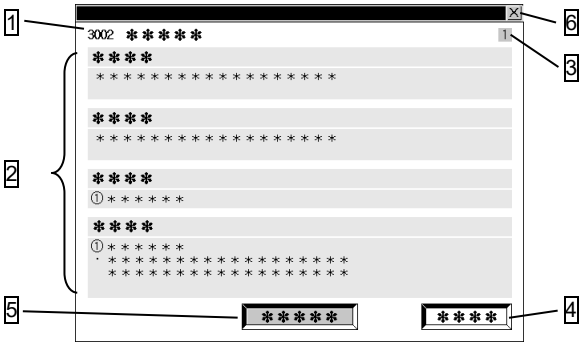


No.	Item		Description
1	Date		Shows the date of errors.
2	Time		Shows the time of errors.
3	Code		Shows the error code.
4	Error		Shows the error name.
5	Recovery date and time		Shows the time when the reset key is pressed.
6	Status	Occurrence	Shows the currently on-going error. (Red)
		Check	Shows the error selected with the ENT key. (Yellow)
		Recovery	Shows that the reset button is pressed. (White)
7	Show cursor		Shows the cursor.
8	Hide cursor		Hides the cursor.
9	Cursor page ↑		Moves up the cursor.
10	Cursor page ↓		Moves down the cursor.
11	Detail		Shows error details at the cursor in the popup window. ※: You can also view the details on the screen by touching the error item. Refer to the next page.
12	Update		Saves error history data into a memory card.
13	Check		Shows items of an error occurrence to view.
14	Delete		Deletes data. ※1
15	Delete all		Deletes all data. ※1
16	F7 “Return”		Switches to the “production control menu”. <Screen No.161>

※1: Data in the memory card will be deleted as well.

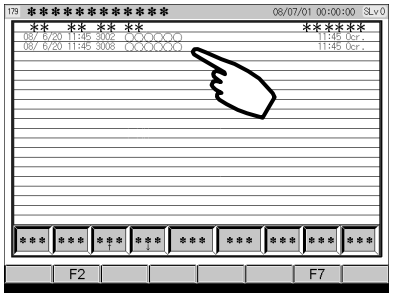
6-1-4-2 About error detail screen

You can view causes of errors and their basic treatments on the screen.

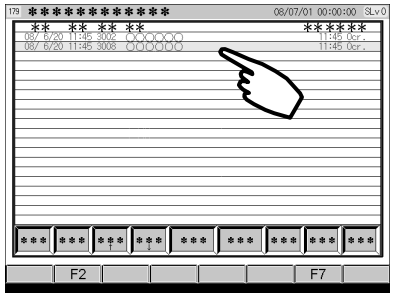


No.	Item	Description
1	Error item	Shows the error code and the error name.
2	Detail item	Shows error details
3	Page	Shows the page number if there are multiple pages.
4	Next page Previous page	Turns the page. The keys appear when there are multiple pages.
5	Delete window	Closes the error detail popup window.
6	×	Closes the error detail popup window.

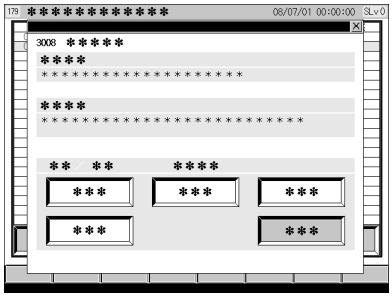
6-1-4-3 Loading the popup window by screen touch



① Touch the item once.



② The brightness of the item changes.
Touch the item again.



③ The error detail popup screen appears over the screen.

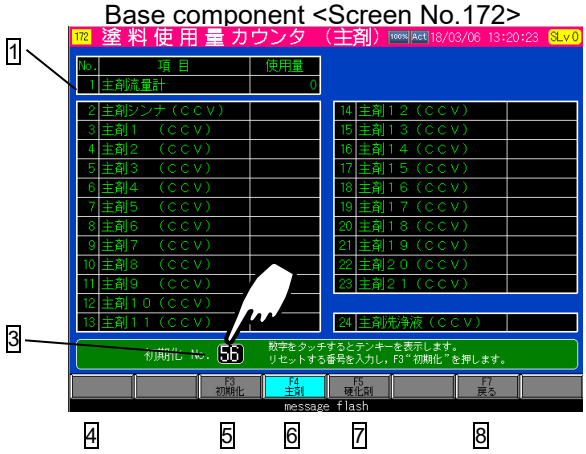
6-1-5 Paint consumption counter

6-1-5-1 Consumption counter (base component) and consumption counter (hardener)

The counters show consumption of the base component and the hardener by valve.

They are used to control remaining paint quantities.

Base component <Screen No.172>



Hardener <Screen No.173>

No.	Item	Description
1	Base component or hardener: Flow meter	Shows the consumption measured with the flow meter.
2	Base component or hardener: Thinner	Shows consumption measured with the flow meter when the thinner valve is ON.
3	Initialization No.	Enter No. (see the left section of the table) to initialize. The numbers 1 to 3 are available for ACW1200EX.
4	F1 “Total”	Switches to the “total consumption counter” screen. Display at sLv3 or higher. Refer to the next page.
5	F3 “Initialization”	Initializes data. ※: Initialization on this screen does not initialize data on the total screen.
6	F4 “Base component”	Switches to the “consumption counter (base component)” screen. <Screen No.172>
7	F5 “Hardener”	Switches to the “consumption counter (hardener)” screen. <Screen No.173>
8	F7 “Return”	Switches to the “production control menu”. <Screen No.161>

Refer to [2-4 ACW controller: Basic operations].

Refer to the maintenance manual [Troubleshooting 30, 31, and 44].

6-1-5-2 Total consumption counter (base component) and total consumption counter (hardener)

They are used for total paint consumption control.

Base component <Screen No.175>

Hardener <Screen No.176>

No.	Item	Description
1	Base component or hardener: Flow meter	Shows the consumption measured with the flow meter.
2	F1 “Counter”	Switches to the “consumption counter (base component)” screen <Screen No.172> and the “consumption counter (hardener)” screen <Screen No.172>.
3	F3 “Initialization”	Initializes all data.
4	F4 “Save”	Saves data into the memory card.
5	F7 “Return”	Switches to the “production control menu”. <Screen No.161>

Refer to [2-4 ACW controller: Basic operations].

6-1-6 Valve counter

6-1-6-1 Valve counter (base component) and valve counter (hardener)

The counters show the operation counts of the base component and the hardener valves.

They are used to control valve maintenance timing.

Base component <Screen No.162>

Hardener <Screen No.163>

No.	Item	Description
1	Base component or hardener: Mixing valve	Shows the operation counts of the mixing valve.
2	Initialization No.	Enter No. (see the left section of the table) to initialize. The number 1 only is available for ACW1200EX.
3	F1 “Total”	Switches to the “total valve counter (base component)” or “total valve counter (hardener)” screen. Display at sLv3 or higher. Refer to the next page.
4	F3 “Initialization”	Initializes data. ※: Initialization on this screen does not initialize data on the total screen.
5	F4 “Base component”	Switches to the “valve counter (base component)” screen. <Screen No.162>
6	F5 “Hardener”	Switches to the “valve counter (hardener)” screen. <Screen No.163>
7	F6 “Other”	Switches to the “valve counter (other)” screen. <Screen No.165> Refer to [6-1-6-3 Valve counter (others)].
8	F7 “Return”	Switches to the “production control menu”. <Screen No.161>

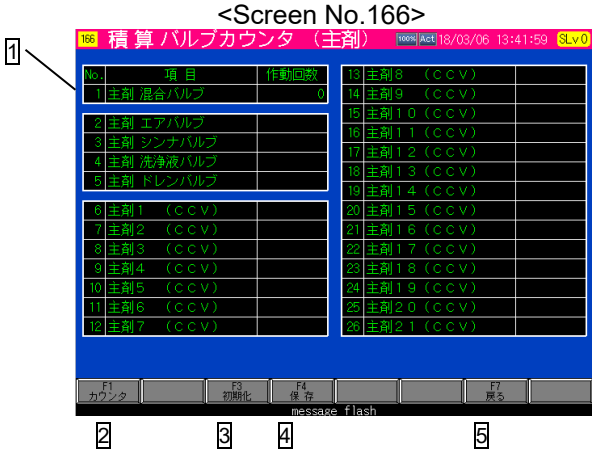
Refer to [2-4 ACW controller: Basic operations].

Refer to the maintenance manual [Troubleshooting 33, 34, and 45].

6-1-6-2 Total valve counter (base component) and total valve counter (hardener)

They are used to control total operation counts.

<Screen No.166>



<Screen No.167>

No.	Item	Description
1	Base component or hardener: Mixing valve	Shows the operation counts of the mixing valve.
2	F1 “Counter”	Switches to the “valve counter (base component)” screen <Screen No.162> and the “valve counter (hardener)” screen <Screen No.163>.
3	F3 “Initialization”	Initializes all data.
4	F4 “Save”	Saves data into the memory card.
5	F7 “Return”	Switches to the “production control menu”. <Screen No.161>

Refer to [2-4 ACW controller: Basic operations].

6-1-6-3 Valve counter (others)

The counter shows the operation count of valves other than ones described in 14-6-1.

They are used to control valve maintenance timing.

<Screen No.165>

No.	Item	Description
1	Drain valve	Shows the operation counts of the drain valve.
2		
3	Air valve	Shows the operation counts of the mixing unit air valve of ACW1200EX.
4	Thinner valve	Shows the operation counts of the mixing unit thinner valve of ACW1200EX.
5	Drain valve	Shows the operation counts of the mixing unit drain valve of ACW1200EX.
6	Switch valve	Shows the operation counts of the switch valve.
7	Initialization No.	Enter No. (see the left section of the table) to initialize.
8	F1 “Total”	Switches to the “total valve counter (other)” screen. Display at sLv3 or higher. Refer to the next page.
9	F3 “Initialization”	Initializes data. ※: Initialization on this screen does not initialize data on the total screen.
10	F4 “Base component”	Switches to the “valve counter (base component)” screen. <Screen No.162>
11	F5 “Hardener”	Switches to the “valve counter (hardener)” screen. <Screen No.163>
12	F7 “Return”	Switches to the “production control menu”. <Screen No.161>

Refer to [2-4 ACW controller: Basic operations].

Refer to the maintenance manual [Troubleshooting 45].

6-1-6-4 Total valve counter (others)

It is used to control total operation counts.

<Screen No.169>

No.	Item	Description
1	Drain valve	Shows the operation counts of the drain valve.
2		
3	Route flush air valve	Shows the operation counts of the air valve for route flush.
4	Route flush thinner valve	Shows the operation counts of the thinner valve for route flush.
5	Route flush drain valve	Shows the operation counts of the drain valve for route flush.
6	Route flush switch valve	Shows the operation counts of the switch valve for route flush.
7	F1 “Counter”	Switches to the “valve counter (other)” screen.
8	F3 “Initialization”	Initializes data.
9	F4 “Save”	Saves data into the memory card.
10	F7 “Return”	Switches to the “production control menu”. <Screen No.161>

Refer to [2-4 ACW controller: Basic operations].

6-1-7 Clock setting

You need to set up the clock accurately as the equipment shows the date and time in production records and error history under the production control function. The selected value here will be shown as clock on the upper right section of the screen.

The security level should be 2 (SLv2) or higher.

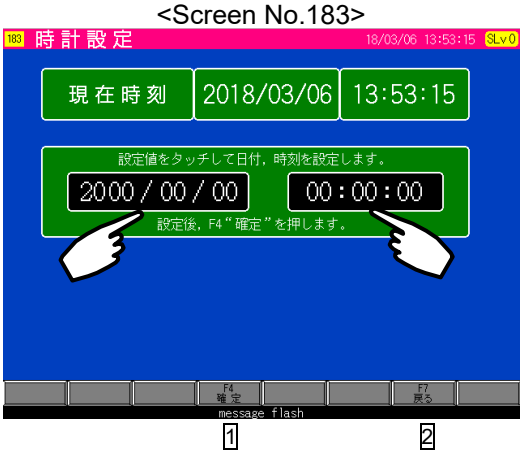
Refer to [3-1 Changing security levels].

① Touch the setting value to set up the date and time.

② Press F4 “ENT” after entered.

③ The entered time will be shown on the upper right section on the screen and the “current time” after updated.

<Screen No.183>



No.	Item	Description
1	F4 “ENT”	Confirms date and time data.
2	F7 “Return”	Switches to the “production control menu”. <Screen No.161>

Refer to [2-4 ACW controller: Basic operations].

6-2 Version information

The version of the ACW controller is shown on the screen.

It is used to view the latest version for replacement of the ACW controller.

<Screen No. 226>

	Item	Description
1	ACW Version (ACW Ver.)	Shows the version of the control program.
2	Display version (DISPLAY Ver.)	Shows the version of the display.

6-3 Screen property (SLv2)

This function allows to edit common conditions of the screen.

The security level should be 2 (SLv2) or higher.

Refer to [3-1 Changing security levels].

<Screen No.225>

	Item	Unit change: g <=> mL (0: mL / 1: g)	Unit		-
Description	It switches between “g” and “ml” on the screens. It is used to enter the mixture ratio by weight. The entry screen for the measurement operation changes when you enter the setting. Refer to the maintenance manual [Measurement procedure ⑥, [9]].		Default		1
			Range	min	0
				max	1
			Necessity of setting change		△

	Item	Screensaver time	Unit		min
Description	You can change the screensaver time of the LCD touch panel. Refer to [2-6 Screensaver].		Default		10
			Range	min	1
				max	60
			Necessity of setting change		△

7 Other setting screens

7-1 LANGUAGE(SLv0)

You can change the language option on this screen. Refer to [2-7 Main screen].

Touch the Japanese or the English key. The language switches.

<Screen No.008>

6th Edition: October 26, 2022

8 Recipe control

It is used to control all conditions by the recipe No. The conditions vary based on seasons or paint items even with the same paint. In such a case, this setting makes it easy to change the conditions by changing the recipe No.

8-1 Switching to the recipe control screen (SLv0)

① Main

Check SLv0.

Press F8.

② Main menu

<Screen No.015>

Press F5.

③ Recipe control

<Screen No.213>

Refer to [2-4 ACW controller: Basic operations].

8-2 Recipe control

<Screen No.213>

No.	Item	Description
1	Recipe usage monitor	Shows the saved recipe No. in yellow.
2	Recipe comment	Shows the current recipe name and code.
3	Current recipe No.	Shows the currently selected recipe No.
4	Recipe control No.	Shows the recipe No. available for the control.
5	Recipe No. to import	Press the switch 1 and touch a numeric value to select and load the recipe No.
6	Recipe No. to save	Press the switch 2, touch a numeric number and select and save the recipe No.
7	Recipe No. to delete	Press the switch 3, touch a numeric value and select and delete recipe No.

Refer to [2-4 ACW controller: Basic operations].

No.	Item	Description
8	F1 “Next page” F2 “Previous page”	Switches to the recipe control screen. Screen No.213: No. 1 to 100 Screen No.214: No. 101 to 200 Screen No.215: No. 201 to 300 Screen No.216: No. 301 to 400 Screen No.217: No. 401 to 500 Screen No.218: No. 501 to 600 Screen No.219: No. 601 to 700 Screen No.220: No. 701 to 800 Screen No.221: No. 801 to 900 Screen No.222: No. 901 to 990
9	F3 “Change”	Loads the recipe No. of the “recipe No. to import”.
10	F4 “Save”	Saves the recipe No. of the “recipe No. to save”.
11	F5 “Delete”	Deletes the recipe No. of the “recipe No. to delete”.
12	F6 “Edit”	Switches to the “edit recipe” screen. <Screen No.223>
13	F8 “Menu”	Switches to the “Main menu” screen. <Screen No.15>

8-3 Editing recipes

<Screen No.223>

No.	Item	Description
1	Current recipe No.	Shows the currently selected recipe No.
2	Recipe control No.	Changes the No of recipe to control.
3	Recipe comment	Edit a comment of the current recipe.
4	F7 “Recipe control”	Switches to the “recipe control”. <Screen No.213>

Refer to [2-4 ACW controller: Basic operations].

8-4 Saving recipes

Default setting is saved in the recipe No.1 at delivery of the equipment. This procedure is used to edit the setting value and save in another recipe No.

① Press 2 switch of “recipe No. to save”.

② The 2 switch is turned to OK and flashes ▷on the side of the numeric value.

③ Touch the numeric value and enter the recipe No. to save. The number will be shown in yellow.

④ Press F4 “Save”.

※: It will not be saved in the current recipe No. Save in a different number.

※: No recipe cannot be saved from No.991 to No.999.

※: No.0 is not available.

⑤ Once saved, the recipe No. saved in the recipe usage monitor will be shown in yellow.

The numeric value of the “recipe No. to save” turns to “0”.

8-5 Deleting recipes

The procedure is used to delete recipe No. when it is no longer necessary.

① Press the 3 switch of “recipe No. to delete”.

② The 3 switch is turned to OK and flashes ▷ on the side of the numeric value.

③ Touch the numeric value and enter the recipe No. to delete. The number will be shown in yellow.

④ Press F5 “Delete”.

※: If it is not registered, the recipe No. cannot be deleted.

※: No recipe cannot be deleted from No.991 to No.999.

※: No.0 is not available.

⑤ Once saved, the recipe No. of the recipe usage monitor will be turned back to the original number.
The numeric value of the “recipe No. to delete” turns to “0”.

8-6 Loading recipes

It is used to load the recipe No. that are registered multiple times.

① Press the 1 switch of the “recipe No. to import”.

② The 1 switch is turned to OK and flashes ▷ on the side of the numeric value.

③ Touch the numeric value and enter the recipe No. to load. The number will be shown in yellow.

④ Press F3 “Change”.

※: If it is not registered, the recipe No. cannot be imported.

※: No.0 is not available.

⑤ Once loaded, the numeric value of the “recipe No. to import” turns to “0”.
The “recipe comment” of the “current recipe No.” will be changed.

8-7 Loading default values

Default values are registered between the recipe No.No.991 and No.999 by conditions.

The procedure is used to load the default values.

① Press the 1 switch of the “recipe No. to import”.

② The 1 switch is turned to OK and flashes ▷ on the side of the numeric value.

③ Touch the numeric value and enter the recipe No. (No.991 to No.999) of the default value.
The number turns to sky blue color.

④ Press F3 “Change”.

⑤ Once imported, the numeric value of the “recipe No. to save” turns to “0”.
The “current recipe No.” is flashing in sky blue color.
※: When the current recipe No. is one from No.991 to No.999, F8 “Menu” is disabled.

⑥ Use the save recipe operation and save it a number other than No.991 to No.999.

⑦ Use the load recipe operation to load saved recipe No.

<Example> The following describes the procedure for saving the default value, No.991, in the recipe No.3.

STEP 1: Enter the default value No.991 in a “recipe No. to import”.

STEP 2: Enter “3” in the “recipe No. to save” and save.

STEP3: Enter “3” to the “recipe No. to import” and change.

8-8. Recipe No. and default values

Recipe No.	Recipe comment※3	Description
No.991	LOW.2K	Two-component※1, low pressure※2, specification
No.992	LOW.3K	Three-component※1, low pressure※2, specification
No.993	HIGH.2K	Two-component※1, high pressure※2, specification
No.994	HIGH.3K	Three-component※1, high pressure※2, specification
No.995	Spare (LOW.2K)	Spare (two-component, low pressure, specification)
No.996	Spare (LOW.2K)	Spare (two-component, low pressure, specification)
No.997	Spare (LOW.2K)	Spare (two-component, low pressure, specification)
No.998	Spare (LOW.2K)	Spare (two-component, low pressure, specification)
No.999	Spare (LOW.2K)	Spare (two-component, low pressure, specification)

※1: There are differences such as three-component specification and two-component specification including dilution agent.

※2: Different flush sequences and control/equipment setting apply between the high-pressure and low-pressure specifications.

※3: The comment of the table will be shown on the recipe comment when the loading process starts.

9 Memory card handling

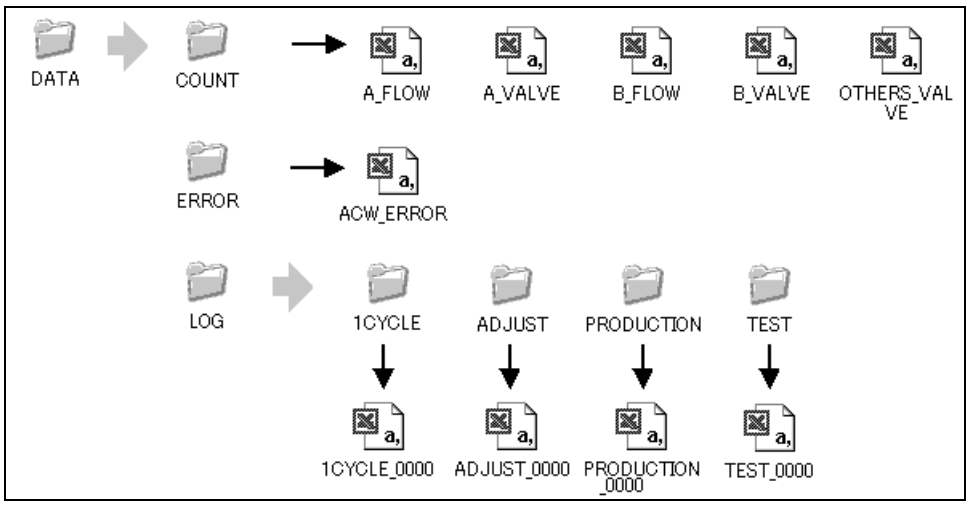
⚠ CAUTION

Risk of malfunction or no activation of the equipment

- **The memory card contains a control program.**
  Do not use the program with the memory card removed.
  Do not delete the program from the memory card.
  The control or data saving is not properly operated.

9-1 Data to save in memory card

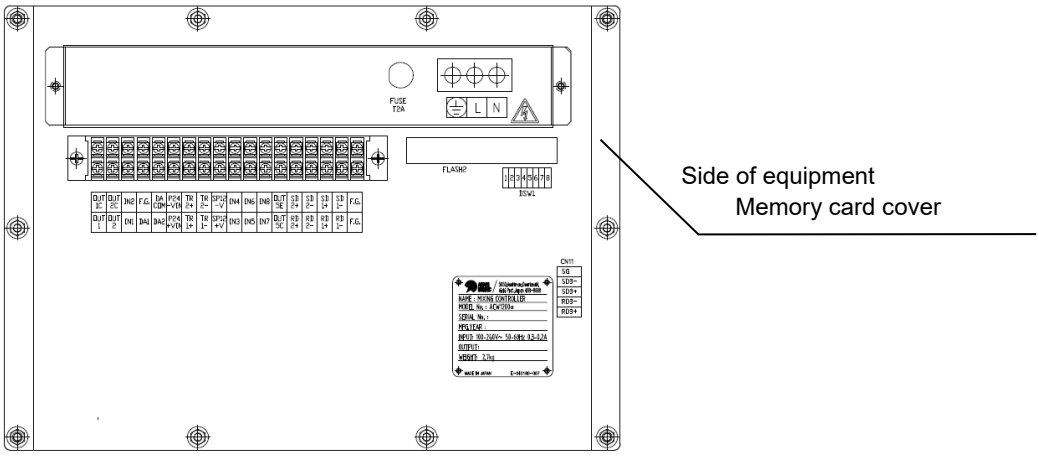
- Files in the memory card (Use the DATA folder only.)



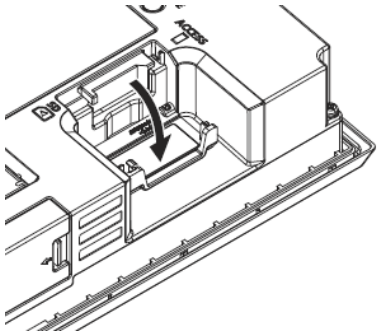
Item	File name	Category
Base component consumption counter	A_FLOW.csv	Refer to [6-1-5 Paint consumption counter].
Base component valve counter	A_VALVE.csv	Refer to [6-1-6 Valve counter].
Hardener consumption counter	B_FLOW.csv	Refer to [6-1-5 Paint consumption counter].
Hardener valve counter	B_VALVE.csv	Refer to [6-1-6 Valve counter].
Other valve counters	OTHERS_VALVE .csv	Refer to [6-1-6 Valve counter].
Error history (ACW)	ACW_ERROR.csv	Refer to [6-1-4 Error history].
Input record	1CYCLE_※※※※.csv	Refer to [6-1-3 Input chart].
Learning history	ADJUST_※※※※.csv	Refer to the maintenance manual [Learning history].
Production record	PRODUCTION_※※※※.csv	Refer to [6-1-2 Production record].
Test history	TEST_※※※※.csv	Refer to the maintenance manual [Mixing test history].

※: The ※※※※ as in "※※※※.csv" indicate a sequential number. You can create up to 1,000 files.

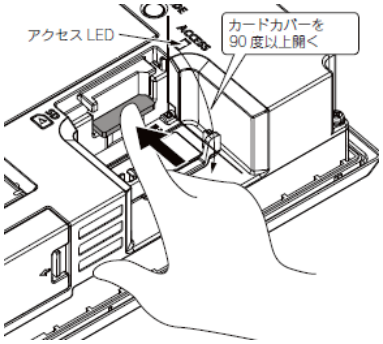
9-2 Inserting and ejecting memory card



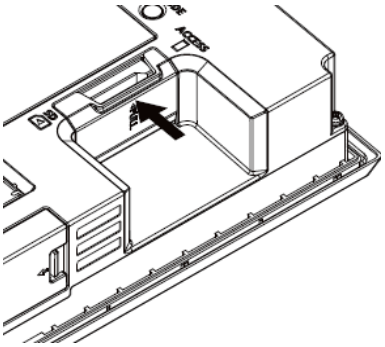
9-2-1 Removal



① Open the cover.



② Check that the access switch LED is off with the cover opening at 90° or more. Then, push up the card and remove it.



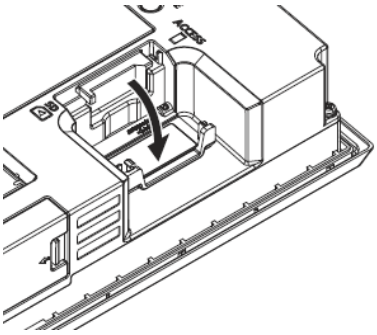
③ Push in the card cover to close until it clicks.

⚠ CAUTION

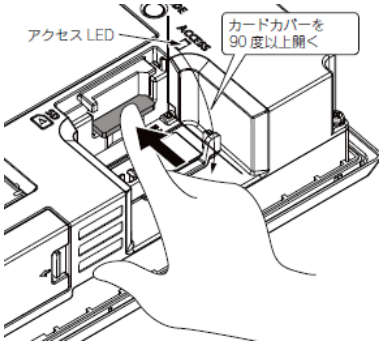
The equipment malfunctions or does not start up.

- **Support the memory card with hand while ejecting from the ACW controller. If it is not supported with hand and ejected, it may fall, causing card damage or failure.**
- **Do not remove the memory card or turn off the power of the equipment when the card access LED is lighted on. That may lead to damage of the memory card or files.**
- **Do not wet the memory card with fluid. Do not drop or give impacts. It may lead to card damage or failure.**

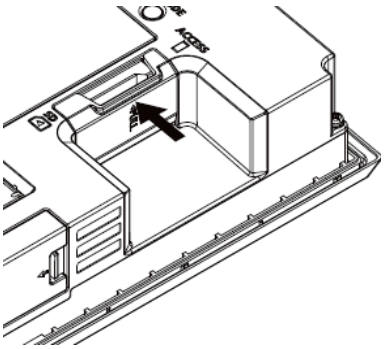
9-2-2 Insertion



① Open the cover.



② Check that the access switch LED is off with the cover opening at 90° or more. Then, insert the memory card.



③ Push in the card cover to close until it clicks.

⚠ CAUTION

The equipment malfunctions or does not start up.

- **Do not wet the memory card with fluid. Do not drop or give impacts. It may lead to card damage or failure.**

⚠ WARNING

Risk of injury

- **Before power-up, be sure to reduce the air pressure supplied to all devices to zero so that the equipment does not accidentally move.**

Risk of fire and explosion

- **Before power-up, check that all units have been correctly grounded.**
- **Before power-up, check that no combustible (solvent containing) atmosphere around the ACW control unit. Do not turn on the power switch if there is presence of any combustible atmosphere.**

10-1 Preparation for operation

10-1-1 Power-up procedure and cautionary notes

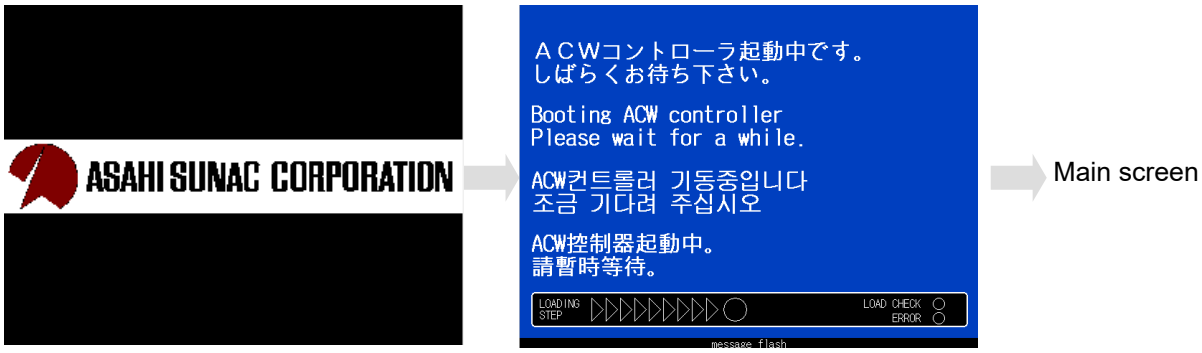
① After connecting the paint hose and air tubes, supply the paint and compressed air.

② Check that the air pressure supplied to the ACW control unit and the ACW mixing unit (intrinsically safe solenoid valve) have been set to zero so that the equipment does not accidentally move.

③ Press the power ON push button of the ACW control unit. Refer to the installation manual [Exploded Diagram and Names of Parts (appearance)].

④ The start-up screen of the ACW controller appears. It then switches to the main screen.

(1) System starting up　　(2) ACW start screen



※: If the “ERROR” lamp lights up on the ACW start screen, it indicates an error in the control program. Contact us if the “ERROR” lamp lights up or it does not start up.

⑤ Check for any pot life error or other errors on the main screen.

⑥ Supply air to the ACW control unit and the ACW mixing unit (intrinsically safe solenoid valve).

⑦ Open the air valve to supply to a spray gun under the ACW control unit. If it is used as automatic spray gun, there is no air pressure gauge or regulator control of the spray gun available in the ACW control unit.

10-1-2 Paint conditions

① Be sure to adjust the paint (base component and hardener) pressures using the respective paint regulators.

Adjust the pumps (feeders) to prevent pulsation of the paint flow so that the dynamic (not static) pressures of the base component and the hardener will be the same.

② Above all, keep a sufficient quantity of cleaning solvent in stock. Be prepared to immediately flush the equipment in case of a pot life error or hardening in the spray line.

10-1-3 Setting parameters

Enter the equipment, control, normal setting and other setting items.

	Setting item	Description
1	Equipment/control setting	Refer to [12-1-2 Control/equipment setting details].
2	Normal setting	Refer to [13 Normal setting.]
3	Detection condition setting	Refer to [12-2-2 Detection condition setting details].

10-2 Safety precautions for operations

10-2-1 Mixture paint in hose after mixer

① When suspending the spray operation for an extended period or changing the mixture ratio, it is necessary to discard the mixture in the valves of the ACW mixing unit, mixing hoses, paint hoses, and spray gun.

<Reference: Hose specifications and waste spray quantities>

Mixing unit capacity	Mixing hose Inner diameter Φ6mm, 6m	Mixing hose through gun	Inner diameter	Hose capacity	Waste spray quantity
80ml	200ml	Hose length 3m	φ6mm	85ml	365ml
			φ4mm	40ml	320ml

※: It is the mixing unit volume of the standard specification.

※: You can calculate the length of waste spray time from the flow rate and waste spray quantity.

② Estimate with the above-mentioned waste spray quantity according to the default flow rate of hardening time.

Refer to [4-1-2 Default setting details].

10-2-2 Operating spray guns (hand gun and automatic gun)

① If the spray gun ON/OFF interval is short (1 sec or less), the control may fail.

It should be programed to continuously spray during robot teaching if possible.

② Be sure to keep the spray gun trigger on during color change or learning.

Releasing the trigger or stopping the spray during the course may result in an error or poor control.

③ Do not air-blow with the spray gun.

The atomization air for spray gun serves as a starting switch for mixture control. If you air-blow, a “flow rate lower limit (short)” error is signaled.

10-2-3 Main screen and operation panel status

① Do not turn off the “paint” lamp (paint mode) on the main screen until the paint work finishes for the day. If the paint mode is turned “OFF”, the feeding process is reset during the course and the supply starts from the hardener. That results in partially overloaded with the hardener. In this case, continue the waste spray for a while.

② Be sure to check status such as error indication or pot life time before starting the work.

③ Keep the ACW controller clean at all times. Paint contaminant may hide the indications and disable the touch key.

Refer to the maintenance manual [Screen cleaning procedure].

10-3 Regular practices for accuracy

The following operation shall be performed to ensure an accurate mixture control.

Operation	Frequency	Reference
Learning	Once every 3 to 6 months.	[20-3 Learning]
Measurement	When new paint is used.	[20-2 Calibration (Measurement)]
Mixture ratio test	When new paint is used. When mixture ratio is changed.	[20-4 Mixing test]

10-4 Power-off procedure

① Start the flush process. Refer to [11-3 Color change operation].

② Reduce the supply air pressures of the ACW control unit and the ACW mixing unit (Intrinsically safe solenoid valve) to zero.

③ Press the “Power OFF” push button of the ACW control unit.

Refer to the installation manual [Exploded Diagram and Names of Parts (appearance)].

If the flush status is not shown on the display of the ACW controller at this point, the power interlock in the ACW control unit will be activated. The power will not be turned off regardless of the “power OFF” push button being pressed.

This function is intended to block the power from being turned off when a worker fails to remember the flush operation and attempt turning off.

11 Operation and Procedure

11-1 Operation at delivery

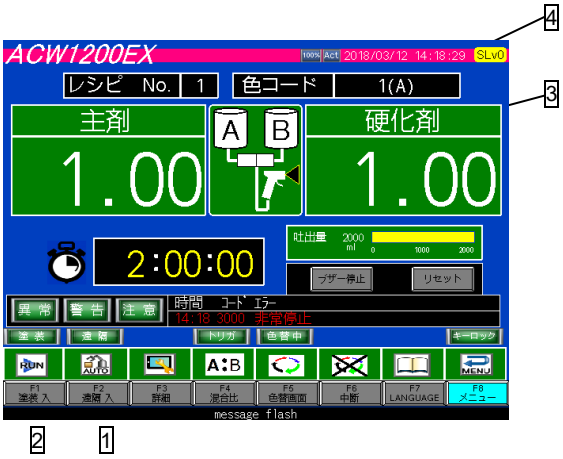
The following procedure shall be taken with the purpose of carrying out accurate mixture control.

Step	Operation	Description	Detail
1	Measurement	Calibrate paint and the flow meter.	Maintenance Manual [Calibration (Measurement]]
2	Color change	Check that the color change functions properly.	[11-3 Color change operation]
3	Learning	Save valve control suitable for paint conditions.	Maintenance Manual [Learning]
4	Mixture ratio test	Verify an actual mixture ratio.	Maintenance Manual [Mixing test]

① Be sure to follow the procedure above. If you change the procedure, the equipment may fail to run accurate control or fail to save the operation condition.

② Refer to the items shown in the detail field for operation details of each operation item.

11-2 Operation



① Turn the remote mode “OFF” on the main screen. 1

② Turn on the paint mode “ON” (“Paint” lamp ON). 2

③ Pull the spray gun trigger to activate the lamp 3 alternatively. This means that the mixing valves are operating and feeding mixture.

At delivery, “0(W)” 4 is selected. The cleaning solvent will be supplied.

⑤ Start the color change and feed the mixture.

11-3 Color change operation

WARNING

Risk of respiratory failure or solvent poisoning

- **Wear a face mask, safety goggles and protective clothes for protection against organic solvents.**
- **Adequately ventilate the workplace so that it will not be filled with a combustible (solvent containing) atmosphere.**

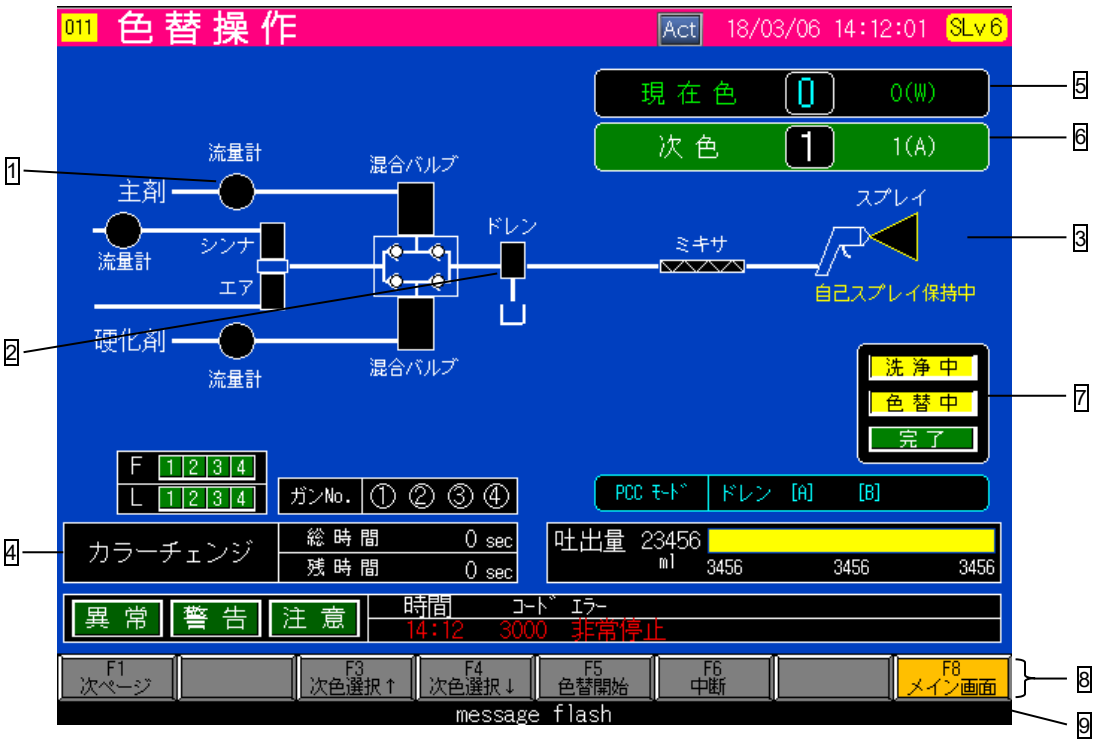
11-3-1 Switching screens

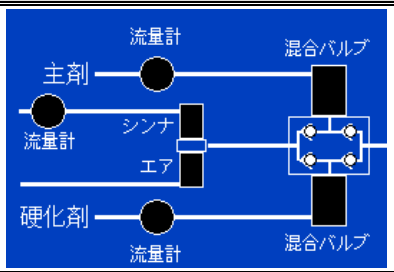
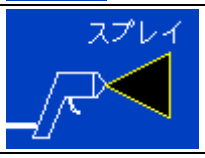
① Press F2 “Remote OFF” and turn off the remote mode “OFF” (“Remote” lamp OFF).

② Press F5 “Color change screen” and switch the screen.

11-3-2 Color change screen

<Screen No.009>



No.	Item		Description
1		“Thinner”	Lights up when the thinner valve is ON.
		“Air”	Lights up when the air purge valve is ON.
		“Flow meter”	Flashes when the base component or the hardener flow meter is actuated. (When flashing fast, it may seem lighted on.)
		“Mixing valve”	Lights up when the base component or hardener mixing valve is ON.
2		Drain	Lights up when the drain valve is ON.
3		Spray	Lights up when the spray gun trigger is ON.
4	Color change	Total time	Shows total time required for color change.
		Remaining time	Shows remaining time of color change.
5	Current color		Shows the current color and color code.
6	Next color		Shows the next color ad color code.
7	Status indicator	Flush in progress	Lights up while it is flushing.
		Color change in progress	Lights up while it is flushing or the next color is being filled.
		Completion	Lights up for one second at color change completion.
8	F3 Select next color ↑		Selects the next color.
	F4 Select next color ↓		
	F5 Start color change		Starts color change.
	F6 Cancel color change		Cancels (stops) color change.
	F8 Main screen		Switches to the “Main”screen.
9	Black belt at the screen bottom		Shows a message to assist the key operations, etc.

11-4 Changing colors

① Press F3 “Select next color ↑”, F4 “Select next color ↓” to choose the next color.

② Press F5 “Start color change”.

③ Trigger the spray gun and spray to fill mixture paint until the remaining time shows “0”.
(An error occurs when the spray is stopped before completion.)

④ The equipment counts down the “remaining time” of the “color change”.

⑤ The “flush in progress” lamp and the “color change in progress” are lighted up.

⑥ The screen automatically switches to “Main“ when the “flush in progress” lamp is turned off.

⑦ The filling process is shown on the “Main” screen.

Press F5 “Color change screen” of the “Main” screen to return to the “Color change” screen.

If you change from the current color “0 (W)”, press F5 “Start color change” to go to the “Main”screen, as it starts from the filling process.

⑧ The “completion” lamp lights up for one second on the “color change operation” screen after the “color change in progress” lamp is turned off.

11-5 Cancelling color change

Press F6 “Cancel color change” to stop the color change process.

If you cancel during the course of flushing, the current color remains the same. If you cancel during the course of filling, the filling is interrupted and the color changes to the current color, color A, (2K color).

In this case, be sure to view the “color group” and the “color code” and confirm the current states.

At cancellation	After cancellation
Flush in progress	The current color remains the same.
Filling in progress	It changes to the next color (color W or A).

⚠ CAUTION

Hardening in the mid-line may occur.

- **If it is canceled during the process, mixture paint remains in the route. If it left untreated, it becomes hardened and unable to be used for painting. Be sure to resume the color change or flush (switch to “0(W)”).**

11-6 Editing mixture ratio of the currently selected color

It is used to edit the currently selected mixture ratio.

11-6-1 Switching screens

① Press F4 "Mixture ratio" on the "Main"screen to switch the screen.

② Once switched, check the "mixture ratio" field of the "Main" screen.

11-6-2 Mixture ratio setting screen

<Screen No.006>

No.	Item	Description
1	Target ratio	Enter the mixture ratio. Refer to [2-4 ACW controller: Basic operations].
2	Single cycle input	Shows an input per cycle after the ratio is changed. Refer to [4-1-1 Default setting list: Control setting 1]
3	F4 "ENT"	Updates the mixture ratio.
4	F8 "MAIN SCREEN"	Switches to the "MAIN" screen. ※: It is disabled while the mixture ratio is being updated.
5	Message flash list	Shows messages. Refer to [2-8 Message flash list].

Refer to [2-4 ACW controller: Basic operations].

NOTE

● **A mixture ratio error may occur if the mixture ratio is changed during paint work. Cancel the paint work before changing.**

12 Warranty

ASAHI SUNAC CORPORATION (the “Company”) shall provide the original purchaser (the “Purchaser”) with warranty service for a period of one (1) year from the date of purchase of the product, as follows:

- Should you find defects in design or workmanship with regard to parts, ship them back to the Company with freight prepaid. The Company shall repair or replace the parts free of charge and reimburse the freight charges, provided that, as a result of an inspection and investigation of the parts conducted by the Company, the defects are deemed to be to attributable to the factors within the Company’s responsibility.

- In the following cases, our free after-sales service is not provided.

  1. Failure resulting from an inappropriate method of installing this equipment.
  2. Failure resulting from a use method not conforming to this instruction manual or mishandling.
  3. Failure resulting from insufficient maintenance management of this equipment and incorrect handling such as non-conformance to the procedures specified in this instruction manual.
  4. Failure resulting from unauthorized alteration or structure change of this equipment without the Company’s consent.
  5. Failure due to force majeure such as earthquake, disaster, flood disaster or lightening.
  6. Warranty for consumables worn or deteriorated even in the case where this equipment is used correctly.
  7. Repair after the machine has been used outside Japan, and shipping cost.
  8. In addition to the above, failure due to circumstances beyond our control.

- As for items such as parts purchased by the Company from another manufacturer, the warranty of that manufacturer shall apply.

- As for any parts deemed to be defective, the Company shall not be held liable for any expenses beyond the provision of repair or replacement parts free of charge.

- The Company shall not be held liable for any damage to the Purchaser caused by factors not attributable to the Company, such as misuse of product, etc.

●When transferring this machine to another owner, attach the instruction manual to the machine.

● This machine has been manufactured according to the laws and legislations of Japan and may only be used in Japan.

When using the machine in another country, it is necessary to observe the safety standards in that country.

6th Edition: October 26, 2022

Leading Manufacturer of Coating FA Systems

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