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RCS3



Obey local or municipal regulations for product recycling and disposal.

ABOUT THIS MANUAL

ITS PURPOSE

The purpose of this manual is to help you get the most value from your Binks Intelliflow™ system. It can help you to determine how to install, operate, maintain, and repair your equipment. It provides information and procedures for routine maintenance and servicing and offers diagnostic and repair procedures to follow when trouble occurs.

ITS CONTENTS

This manual is divided into chapters, each of which is divided into consecutively numbered sections.

Chapters will contain text, images, tables, or a combination of them.

Pages with images will have paragraphs and sentences with callout numbers that refer to their respective images, steps, and parts.

Procedures, once described in the text, are not normally repeated. When it is necessary to refer to another chapter or section, the reference will be given as chapter and section number. Cross references given without the use of the word "chapter" apply to sections or paragraphs in the current chapter.

Chapter 02 Table of Contents.

Chapter 03 Safety: Safety, hazard, and warning rules.

Chapter 04 Servicing: Material purge, inspection, and frequency schedule.

Chapter 05 Maintenance: Maintenance and general servicing information.

Chapter 06 Troubleshooting: Tracing and correcting mechanical, electronic, programming, and fluid delivery faults.

Chapter 07 Manual Change Summary: The revisions and changes made to this manual.

Chapter 08 Warranty: Your equipment's warranty.

WHO SHOULD USE THIS GUIDE

This guide is intended for users with different levels of knowledge and experience with this system:

Installers: The person(s) who will locate and install this equipment.

Users: The person(s) who will learn how to operate this equipment.

Servicers: The person(s) who will service and maintain this equipment.

This guide assumes all persons who will install, use, operate, and service this equipment have some knowledge of the product and its operating system.

For information on the installation of this equipment, refer to RCS3 Installation Manual 77-3168-1.

For information on the operation of this equipment, refer to RCS3 Operation Manual 77-3168-2.

For information on accessory kits and spare parts of this equipment, refer to RCS3 Kit Instructions and Spare Parts Manual 77-3168-4.

For programming information of this equipment, refer to RCS3 Programming Manual 77-3168-5.

MANUAL DISCLAIMER

All current and applicable certifications shown in this manual confirm Binks adherence to the strict standards met to obtain the required regulatory compliances.

This manual was prepared with the most accurate information current at the time of publishing. Binks does not accept responsibility for errors in, or omissions from, the information contained herein.

Please get in touch with your distributor or Binks Customer Service for additional service information and assistance.

RCS3 RELATED MANUALS & PUBLICATIONS

Part Number	Description
77-3157	Flow Sensor Kit
77-3158	Color Change Kit
77-3159	HMI Screen Protector
77-3160	Gun Flush Kit
77-3167	IntelliFlow™ Dispense Pump Service Manual
77-3168-1	RCS3 Installation Manual
77-3168-2	RCS3 Operation Manual
77-3168-4	RCS3 Kit Instructions and Spare Parts
77-3168-5	RCS3 Programming Manual
77-3169	Gear Pump Service and Installation Manual
77-3170	IntelliFlow RCS3 and RF2+ Dispense Pump Installation Manual

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03 SAFETY

03.1 SAFETY PRECAUTIONS

Before the operation, maintenance, or servicing of this Binks system, fully read and understand all technical and safety literature for your product. This manual contains information that is important for you to know and understand.

This information relates to USER SAFETY and the PREVENTION OF EQUIPMENT PROBLEMS.

To help you understand this information, we use recognizable ANSI Z535 and ISO warning boxes and symbols throughout this manual. Please obey these safety sections.

⚠ DANGER

DANGER! Indicates a hazardous situation that, if not avoided, will result in death or severe injury.

⚠ WARNING

WARNING! Indicates a hazardous situation that, if not avoided, could result in death or severe injury.

⚠ CAUTION

Caution! Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury, or equipment damage.

NOTICE

Notice: Indicates information considered important but not hazard related.

SAFETY

Safety: Indicates a type of safety instruction, or a separate panel on a safety placard, where specific safety-related instructions or procedures are described.

Careful study and continued use of this manual will provide a better understanding of the equipment functions and procedures.

This understanding will result in improved operation, efficiency, and longer, trouble-free service with faster and easier troubleshooting. If you need the necessary safety literature for your specific system, contact your local Binks representative or Binks directly.

NOTICE

This manual lists standard specifications and service procedures. Differences can occur between this literature and your equipment.

Differences in local or municipal codes, manufacturer or plant requirements, material delivery requirements, and more can make variations unpreventable. To find these differences, compare this manual to your system installation drawings and other applicable Binks equipment manuals.

⚠ WARNING

The user **MUST** read and be familiar with the Safety Section in this manual and the safety literature therein identified.

Only trained personnel can operate this equipment.

All personnel who operate, clean, or maintain this equipment **MUST** fully read and understand this manual! To operate and service the equipment, follow all **WARNINGS** and safety requirements.

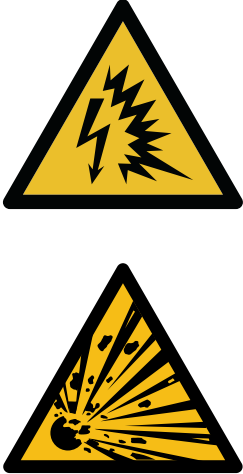
The user must be aware of and adhere to **ALL** local building and fire codes and ordinances, as well as **NFPA 33 AND EN 16985 SAFETY STANDARDS, LATEST EDITION**, or applicable country safety standards, before the installation, operation, or servicing of this equipment.

⚠ WARNING

The hazards shown on the pages that follow can occur during the normal use of this Binks equipment, but not all listed hazards will be applicable to your product model or equipment.

Repairs may only be performed by personnel authorized by Binks.

AREAS Indicate possible hazard occurrences.	HAZARDS Indicate possible hazards.	SAFEGUARDS Prevention of possible hazards.
Spray Areas  	Fire Hazards Improper or unsatisfactory operation and maintenance procedures will cause a fire hazard. If the safety interlocks are disabled during operation, protection against accidental arcing is shut off and can cause a fire or explosion. Frequent Power Supply or Controller shutdown identifies a problem in the system. For this occurrence, a correction will be necessary	Fire extinguishing equipment must be present in the spray area. Periodically run a test to make sure the equipment stays usable. Keep spray areas clean to prevent the build-up of combustible residues. Do not smoke in the spray area. The high voltage supplied to the atomizer must be turned off before the equipment is cleaned, flushed or maintained. Spray booth ventilation must be kept at the rates as set by NFPA-33, OSHA, country, local, and municipal codes. If flammable or combustible solvents are used to clean the equipment, ventilate the area. Prevent electrostatic arcing. Maintain spark-safe work distance between the parts that get coated and the applicator. A span of one inch for every 10KV of the output voltage is necessary. Do an equipment test only in areas free of combustible material. The test may necessitate the high voltage to be on, but only as instructed. Non-factory replacement parts or unauthorized equipment modifications can cause a fire or injury. The key switch bypass is used only during setup operation. Do no production work with disabled safety interlocks. Set up and operate the paint procedure and equipment under NFPA-33, NEC, OSHA, local, municipal, country, and European Health and Safety Norms.

AREAS Indicate possible hazard occurrences.	HAZARDS Indicate possible hazards.	SAFEGUARDS Prevention of possible hazards.
Spray Areas 	Explosion Hazard Improper or unsatisfactory operation and maintenance procedures will cause a fire or explosion hazard. If the safety interlocks are disabled during operation, protection against accidental arcing is shut off and can cause a fire or explosion. Frequent Power Supply or Controller shutdown identifies a problem in the system. For this occurrence, a correction will be necessary.	Prevent electrostatic arcing. Maintain spark-safe work distance between the parts that get coated and the applicator. A span of one inch for every 10KV of output voltage is necessary. Unless specifically approved for use in hazardous locations, put all electrical equipment outside of Class I or II, Division 1 or 2 hazardous areas in accordance with NFPA-33, or outside of Zone 2 or Zone 22 in accordance with EN standards. If equipped, set the current overload sensitivity as described in the related section of the equipment manual. If incorrectly set, the current overload sensitivity for protection against accidental arcing is turned off and can cause a fire or explosion. Frequent power supply shutdown indicates a problem in the system, which requires correction. Always turn off the control panel power before the system is flushed, cleaned, or servicing the spray system equipment. Make sure no objects are within the spark-safe work distance before the high voltage is turned on. The control panel must interlock with the ventilation system and conveyor in accordance with NFPA-33, EN 50176. Fire extinguishing equipment must be present in the spray area. Periodically run a test to make sure the equipment stays usable. Do an equipment test only in areas free of combustible material.
General Use and Maintenance 	Improper or unsatisfactory operation and maintenance procedures will cause a fire hazard. Personnel must be correctly trained in the operation and maintenance of this equipment.	Train all personnel in accordance with the requirements of NFPA-33, EN 60079-0. Before equipment operation, personnel must read and understand these instructions and safety precautions. Obey appropriate local, municipal, state, and national codes governing ventilation, fire protection, operation maintenance, and housekeeping. Reference OSHA, NFPA-33, EN Norms, and your insurance company requirements.

AREAS Indicate possible hazard occurrences.	HAZARDS Indicate possible hazards.	SAFEGUARDS Prevention of possible hazards.
Spray Area High Voltage Equipment    	Electrical Discharge This equipment contains a high-voltage device that can cause an electrostatic induction on ungrounded objects. This electrical charge is capable of igniting coating materials. Insufficient ground will cause a spark hazard. A spark can ignite many coating materials and cause a fire or explosion.	Operators in the spray area and the parts to be sprayed must be sufficiently grounded. All conductive objects inside the spray area must be grounded. Hold the parts that get sprayed on conveyors or hangers that are correctly grounded. The resistance between the parts and the earth-ground must not be more than 1 MΩ. Refer to: NFPA-33. Before the equipment is operated, ground all operators. They cannot wear rubber-soled insulated shoes. Wear ground straps on wrists or legs for sufficient ground contact. Operators must not wear or carry ungrounded metal objects. When used, operators must make complete contact with the applicator handle and electrostatic spray applicator. Use conductive gloves or gloves with the palm section cut out. Operators must wear grounded footwear. NOTE: REFER TO NFPA-33 OR SPECIFIC COUNTRY SAFETY CODES FOR GUIDANCE TO CORRECTLY GROUND THE OPERATOR. Except for objects needed for the high-voltage process, all electrically conductive objects in the spray area are to be grounded. Supply a grounded conductive floor in the spray area. Always turn off the applicator voltage before the system is flushed, cleaned, or when servicing the spray system equipment. Unless specifically approved for use in hazardous locations, put all electrical equipment outside of Class I or II, Division 1 or 2 hazardous areas in accordance with NFPA-33, or outside of Zone 2 or Zone 22 in accordance with EN standards. Do not install an applicator into a fluid system if the solvent supply is ungrounded. Do not touch an energized applicator electrode.

AREAS Indicate possible hazard occurrences.	HAZARDS Indicate possible hazards.	SAFEGUARDS Prevention of possible hazards.
Spray Areas 	Toxic Fluid or Fumes Toxic fluids or fumes can cause severe injury or death if splashed in the eyes or on the skin, or if inhaled or swallowed.	Read the Safety Data Sheet (SDS) for instructions to know and understand how to handle the specific hazards of the fluids used, and the effects of long-term exposure. During the spray, clean, or servicing of equipment, or when in the work area, keep the work area fully ventilated. Always wear personal protective equipment (PPE) when in the work area or during equipment operation. Refer to the Personal Protective Equipment warnings in this manual. Store hazardous fluid in approved containers and refer to local, municipal, state, and national codes governing the disposal of hazardous fluids.
Spray Area and Equipment Use 	High-pressure fluid sprayed from the spray applicator, hose fittings, or ruptured/damaged components can pierce the skin. While this injury can appear as cut skin, this is a severe injury that can result in the amputation of the affected area.	Do not point or operate the spray applicator at the body part of a person. Do not put your hand or fingers over the spray applicator fluid nozzle or fittings in the hose or Proportioner. Do not try to stop or deflect leaks with your hand, glove, body, or shop rag. Do not “blowback” fluid, as the equipment is not an air spray system. Relieve pressure in the supply hoses, Proportioner, and QuickHeat™ hose before the equipment is inspected, cleaned, or serviced. Use the lowest possible pressure to recirculate, purge, or troubleshoot the equipment. Examine the hoses, couplings, and fittings every day. Service or immediately replace parts that leak, are worn, or are damaged. Replace high-pressure hose sections. They cannot be recoupled or serviced.

AREAS Indicate possible hazard occurrences.	HAZARDS Indicate possible hazards.	SAFEGUARDS Prevention of possible hazards.
Equipment and Fluids 	Skin and Clothing Burns Equipment surfaces and fluids can become very hot during operation.	Do not touch hot fluid or equipment during operation. Do not let clothing touch the equipment during operation or immediately after the equipment is stopped. Let the equipment fully cool before the examination or servicing of the component.
Pressurized Aluminum Parts    	The use of certain solvents and chemicals can cause equipment damage and severe personal injury.	Do not use 1,1,1-trichloroethane, methylene chloride or other halogenated hydrocarbon solvents or fluids that contain such solvents. These solvents can cause a severe chemical reaction and equipment rupture that results in equipment and property damage, serious bodily injury, or death.

AREAS Indicate possible hazard occurrences.	HAZARDS Indicate possible hazards.	SAFEGUARDS Prevention of possible hazards.
Spray Areas 	Do Not Touch The effect of paint flow rates and formulations on the quality of atomization can cause the turbines to rotate at high speeds.	Do not use a rag or gloved hand against the bell edge to stop or slow down a bell during rotation. Do not try to clean the bell edge during rotation.

⚠ CAUTION

Only operate the equipment after you have read this section.

03.2 ADDITIONAL SAFETY INFORMATION

The IntelliFlow™ RCS3 has an emergency stop (E-Stop) pushbutton on the main operator panel. During an emergency, all operations for the IntelliFlow will halt when the E-Stop is engaged. The operator must disengage the E-Stop and reset the system to recover from this state.

Observe all local or municipal safety measures and wear approved protective equipment when servicing this equipment. Clean all spilled chemicals and materials and do all work in a clean and organized environment to prevent personal injury and equipment damage.

⚠ DANGER

To prevent injury or electrocution while the system is under power, do not contact, disconnect, or manipulate electrical connections or devices. The main disconnect on the right side of the controller can be locked out. Follow the proper Lockout–Tagout (LOTO) procedures for internal controller electrical work.

Only qualified electrical personnel can perform the work if diagnosis and troubleshooting are not possible during working conditions.

⚠ WARNING

To prevent possible chemical spillage when personnel are not on site, air and fluid supplies for the equipment must be disabled when the equipment idles for an extended period, such as an end-of-day shutdown.

NOTICE

During the initial commission of the equipment and at periodic times throughout equipment life, visually examine all fluid fittings for leaks.

Periodically, it is necessary to visually examine all pieces of this equipment for signs of noticeable degradation due to chemicals or other conditions in the equipment's environment.

SAFETY

Obey local or municipal regulations that require installed fire suppression for equipment operation.

If the operation of this equipment, sensors, switches, or other ancillary equipment occurs in the presence of flammable gases and vapors, connect this equipment through intrinsic-safe or Zener barriers. Classify them as a "simple apparatus" or approve them for use in these areas.

04 REGULAR SERVICING PROCEDURES AND RECOMMENDATIONS

04.1 MATERIAL PURGE

After a job is completed, purge the system thoroughly. Failure to do so can cause clogs, leaks, or cross-contamination of colors and material when the system is disassembled.

04.2 REGULAR INSPECTION AND SERVICING TASKS

Regular inspections help prevent RCS3 system malfunctions. Refer to the table below for the recommended frequency, description, and method for each inspection and servicing task.

FREQUENCY	DESCRIPTION	INSPECTION METHOD
Daily	System flushed with solvent	Visual
Daily	Check for leaks	Visual
Daily	Clean spray applicator(s)	Visual
Daily	Check alarm history	Visual
Daily	Check material supply	Visual
Monthly	Check static mixer for clogs	Visual
Monthly	Check gear pumps for leaking or weeping	Visual
Monthly	Check all hoses for kinks and wear	Visual
Monthly	Perform dispense pump calibration check (if equipped)	Test with beaker
Monthly	Check color change valve (CCV) operation	Trigger manually or from HMI
Monthly	Clean mix manifold and check valves	Disassemble
Monthly	Check fluid hoses for material buildup	Disassemble
Monthly	Replace component feeder line filters	Replace
As needed	Rebuild CCVs	Disassemble
As needed	Rebuild dispense pump (if equipped)	Disassemble
As needed	Rebuild gear pumps or refresh gear pump components	Disassemble
As needed	Replace static mixer assembly	Disassemble
As needed	Clean/replace flow switch	Disassemble
As needed	Clean/replace HGB pressure regulator	Disassemble
As needed	Replace pressure transducer	Replace

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05 RCS3 MAINTENANCE

05.1 COMMON RCS3 PROBLEMS

1. Improperly filtered fluids cause the most common operation problems with the RCS3.

Particulates and residue in the system can plug the fluid ports and cause sluggish valve operation. Use a 100-mesh (149 micron) filter for proper filtration.

If the system is repeatedly disassembled and cleaned for the removal of solids and residue, examine the entire fluid supply system.
2. Fluid backup, known as reverse flow, can cause reacted or catalyzed material to enter the fluid panel components. The machine will detect reverse flow and shut down.

Clean or immediately flush the system to prevent fluid set-up.
3. Kinks or tight bends in the control air line will restrict airflow to the system.

Periodically examine the condition of exposed tubing and check the fitting connection at the fluid panel components.

05.2 PREVENTATIVE MAINTENANCE

1. Examine the fluid fittings for leakage. Repair the fittings if leakage is evident.
2. Examine the exposed fluid and air tubing for kinks, tight bends, leaks, and other defects.

05.3 MAINTENANCE BEST PRACTICES

1. Work on a clean, dry bench.
2. Always install new O-rings, gaskets, and diaphragms as recommended when fluid components are disassembled for service. Lubricate O-rings prior to installation.
3. Use only lint-free wipes or cloths to clean the equipment.
4. To order replacement parts, refer to the model number of the components or the respective assembly service manual.

05.4 PRELIMINARY PROCEDURES

Before removing components for servicing or repair, do the following:

1. Flush the components with the system purge mode.
2. Remove all pressure from the affected fluid lines.
3. If equipped, close all shut-off valves.
4. Clean the exterior of the components before removal.
5. Disconnect the control air lines from the components and cap the exposed hose ends to prevent system contamination.
6. Remove the components from the fluid lines.
7. If the fluid lines remain open during servicing, cap them to prevent system contamination.

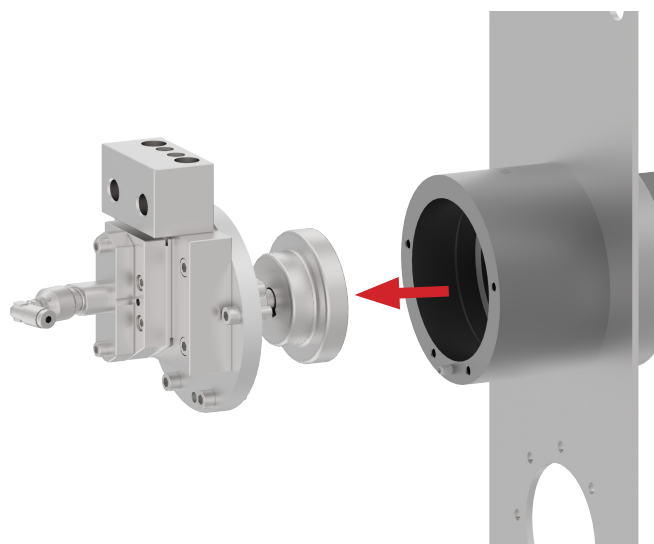
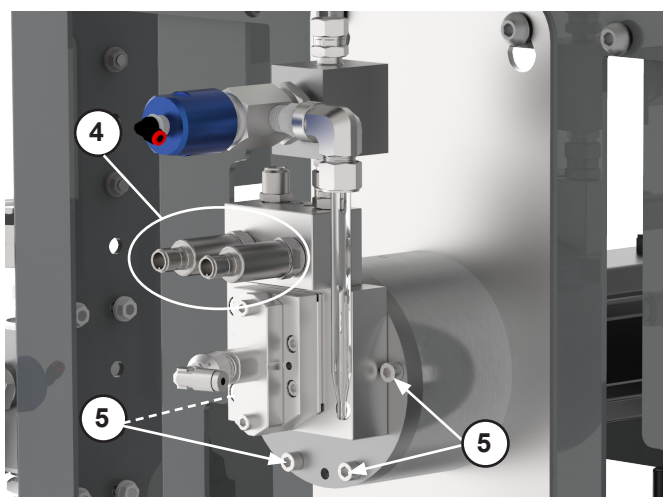
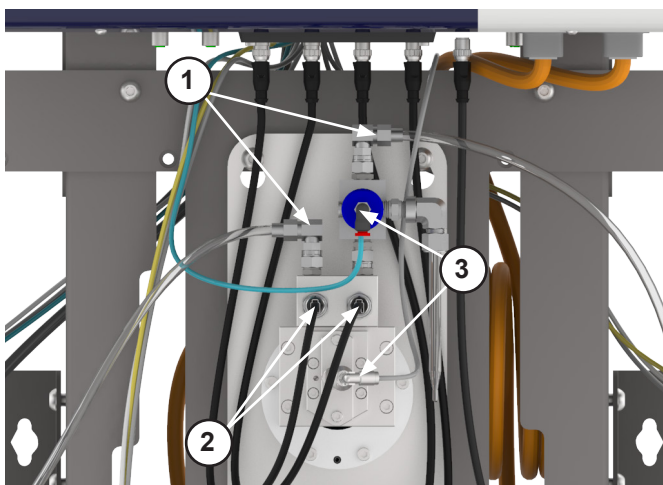
To service the gear pump, refer to Gear Pump Service and Installation Manual 77-3169.

05.5 GEAR PUMP REPLACEMENT

The RCS3 will display an alert if the gear pump is not working correctly. Material leaking from the gear pump ports also signals the pump needs replacing.

To replace the gear pump:

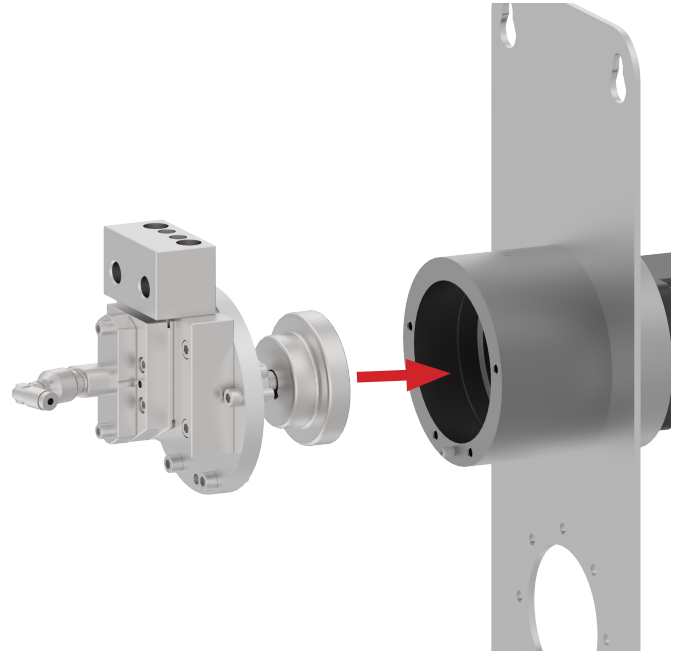
1. Purge material from hoses. For instructions on how to purge material, refer to the 77-3168-2 RCS3 Operation Manual.
2. Disconnect hoses, cables, and air lines from the gear pump, including:
 - a. Material hoses (1)
 - b. Outlet and inlet pressure sensor cables (2)
 - c. Air lines (3)
3. Remove pressure transducers (4).
4. Using a 5 mm Allen wrench, remove the 4 socket head cap screws (SHCS) holding the gear pump assembly to the fluid panel (5).
5. Slowly and firmly pull the pump assembly from the fluid panel. It will require some force because of the strength of the magnetic coupling.



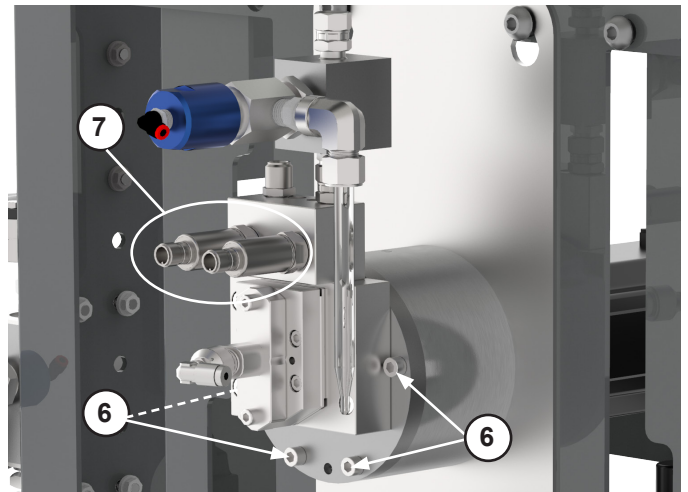
6. Place the new gear pump assembly into the RCS3.

NOTICE

Hold the gear pump assembly by the edge of the flange and not the coupler as you place it back in the RCS3. The strength of the magnetic force causes the coupler to move quickly into the machine once it is close enough, presenting a pinching hazard.



7. Using the 5 mm Allen wrench, tighten the 4 SHCS that secure the pump (6).
8. Replace the pressure transducers (7).
9. Connect hoses, cables, and air lines. Refer to RCS3 Installation Manual 77-3168-1 for more information on connecting these components.



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06 TROUBLESHOOTING

06.1 ALARM LIST

The alarm dialog is the first indication that something may be wrong with the RCS3 control processes. Below is a list of alarms and troubleshooting steps.

ALARM DESCRIPTION	DETAILS AND TROUBLESHOOTING TIPS
E-Stop Pushbutton Pressed	The E-Stop on the front of the RCS3 control enclosure has been pressed.
	Pull the emergency stop pushbutton to reset the alarm
Festo VTEM Pressure Regulator Module (x) Fault	The indicated module (x) on the Festo pressure regulator manifold is at fault.
	This alarm usually occurs at the same time as all other pressure regulator modules and is caused by a lack of input air pressure being fed to the manifold.
	1. Make sure the main air pressure is turned on.
	2. Press the "Reset" button on the main HMI.
PLC Has Suffered a Critical Fault	3. If the fault persists, troubleshoot the pressure regulator manifold further.
	The PLC has suffered a critical fault and must be rebooted.
Comm Loss with Aux. Communications Gateway	Contact Binks support for further assistance.
	The AnyBus gateway is installed, and communications between it and the RCS3 controller have been interrupted.
	1. Power cycle the RCS3.
Station (x)-Recipe Update Failed	2. Examine the cable between the RCS3 and the AnyBus gateway.
	The indicated station (x) failed to load a recipe (timeout occurred).
	1. Try loading the recipe again.
	2. Power cycle the RCS3.
Station (x)-Fluid Sequence Failed	3. Contact Technical Support.
	The indicated station (x) has experienced a failed (incomplete) fluid sequence.
	Material may not be properly loaded or purged from the system.
	This occurs when an interlock is lost during a sequence.
	1. Examine all the wired interlocks to ensure they will not turn on at inappropriate times.
	2. Examine other alarms that can occur in conjunction with this for more detailed cause analysis.
	3. Try to run the fluid sequence again.

ALARM DESCRIPTION	DETAILS AND TROUBLESHOOTING TIPS
Pot Life Expired	The material pot life for the indicated applicator/mixer has elapsed. - If it is safe to do so, trigger the applicator/mixer in order to let fresh material into the system. - If it is not safe to trigger the applicator/mixer, flush the system.
Ratio Out Of Tolerance	The RCS3 has calculated that the ratio of mixtures "A": "B" or % "C" has deviated by more than the permitted tolerance. - Determine if the fluid delivery is ok, if the fluid pressures are correctly set, etc. - Examine for restrictions in any of the fluid channels. - Examine the material's viscosity for abnormalities. - Examine the recipe settings for ratio tolerance.
Flow Rate Out Of Tolerance	The RCS3 has calculated that the overall flow rate is out of tolerance. - Determine if the fluid delivery is ok, if the fluid pressures are correctly set, etc. - Examine for restrictions in any of the fluid channels. - Examine the material viscosity for abnormalities. - Examine the recipe settings for flow tolerance.
Ratio Shutdown	"A Ratio Out Of Tolerance" fault has been generated, shutting down the station. - Determine if the fluid delivery is ok, fluid pressures are correctly set, etc. - Examine for restrictions in any of the fluid channels. - Examine the material viscosity for abnormalities. - Examine the recipe settings for ratio tolerance. - See the alarm-masking instructions to disable the shutdown of the system for this fault.
Flow Rate Shutdown	"A Flow Rate Out Of Tolerance" fault has occurred and shut down the station. - Determine if the fluid delivery is ok, fluid pressures are correctly set, etc. - Examine for restrictions in any of the fluid channels. - Examine the material viscosity for abnormalities. - Examine the recipe settings for flow tolerance. - See the alarm-masking instructions to disable the shutdown of the system for this fault.
Channel (x)-Outlet Overpressure	The indicated channel (x) has detected high pressure on its outlet pressure sensor. This event will cause a spray shutdown. - Determine if the fluid delivery is ok, fluid pressures are correctly set, etc. - Examine for restrictions in the tubing downstream from this channel. - Examine the material viscosity for abnormalities. - Examine the settings for high pressure. - Examine the settings for trigger timing. - Examine the pressure sensor scaling/operation.

ALARM DESCRIPTION	DETAILS AND TROUBLESHOOTING TIPS
Channel (x)-Inlet Underpressure	The indicated channel (x) has detected low pressure on its inlet pressure sensor (applies only to the gear-pump controlled channels).
	• Determine if the fluid delivery is ok, fluid pressures are correctly set, etc. • Examine for restrictions in the tubing feeding this channel. • Examine the material viscosity for abnormalities. • Examine the settings for low pressure. • Examine the pressure sensor scaling/operation.
Channel (x)-Inlet Overpressure	The indicated channel (x) has detected high pressure on its inlet pressure sensor (applicable only for gear-pump controlled channels).
	• Determine if the fluid delivery is ok, fluid pressures are correctly set, etc. • Examine for restrictions in the tubing feeding this channel. • Examine the material viscosity for abnormalities. • Examine the settings for high pressure. • Examine the pressure sensor scaling/operation.
Channel (x)-Low Flow	The flow switch on the indicated channel has not detected flow while the pump is running.
	• Check whether the flow switch is installed. If not installed, disable the flow switch in the global setup page. • Verify the material CCV has opened. • Ensure the fluid supply is working correctly. • Ensure the supply valves are open. • Adjust the flow switch sensitivity to the current flow rate of the pump.
Channel (x)-High Flow	The flow switch on the indicated channel has detected flow while the pump is stopped.
	• Check for leaks on the tubing supplying the pump. • Ensure the pump bypass valve is working correctly. • Ensure the pump is operating correctly. • Ensure the pump's magnetic coupler is installed correctly.
Channel (x)-Spray Shutdown	The indicated channel (x) has caused a spray shutdown, due to a flow or feedback fault that has been configured to shut down the system.
	• Address the other channel faults that occurred in conjunction with this fault. • See the alarm-masking instructions to disable the shutdown of the system for this fault.
Channel (x)-Inlet Pressure Loss of Feedback	If an inlet pressure sensor is configured (gear-pump systems only), the RCS3 has detected no feedback from the inlet pressure sensor.
	• Examine pressure sensor scaling and operation. • Examine pressure sensor connections. • Check fluid supply pressure. • Verify the inlet regulator is working properly. • Verify the inlet regulator setting is appropriate. • Verify the fluid supply is sufficient for the required flow rate.

ALARM DESCRIPTION	DETAILS AND TROUBLESHOOTING TIPS
Channel (x)-Outlet Pressure Loss of Feedback	If an outlet pressure sensor is configured (gear-pump systems only), the RCS3 has detected no feedback from the outlet pressure sensor.
	• Examine pressure sensor scaling and operation. • Examine pressure sensor connections. • Check fluid supply pressure. • Verify the outlet regulator is working properly. • Verify the outlet regulator setting is appropriate. • Verify the fluid supply is sufficient for the required flow rate.
Channel (x)-Flow Out Of Range	The requested flow rate exceeds the ability of the pump for the channel indicated. The system has automatically limited flow rates to maintain the material ratio.
	• Verify the flow rate setting is appropriate for the pump size. The pump may be too large or too small for the requested flow rate. • Verify the ratio is appropriate for all pumps in the application. • Reduce the flow rate setting to within the pump limits.
Channel (x)-Drive Fault	The drive for the indicated channel has suffered a fault.
	Contact Binks for assistance.

06.2 DISPENSE PUMP

For machines equipped with a dispense pump, use this checklist to help identify potential problems with the dispense pump to avoid unnecessary disassembly.

If the problem is still not corrected, it may be necessary to remove the dispense pump and clean it thoroughly after flushing it with a solvent. Look for clogged passageways and evidence of fluid leaks.

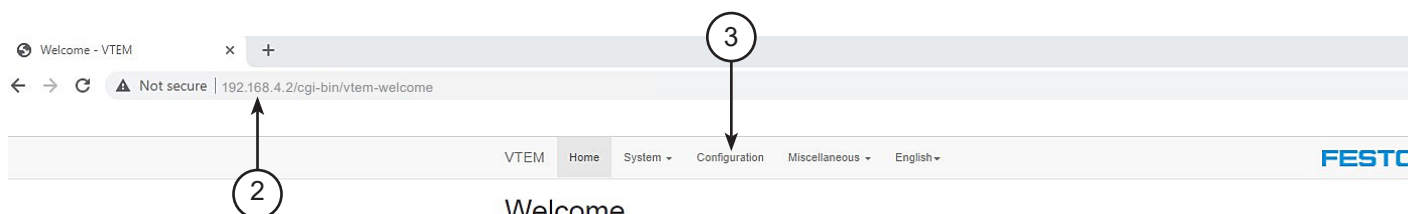
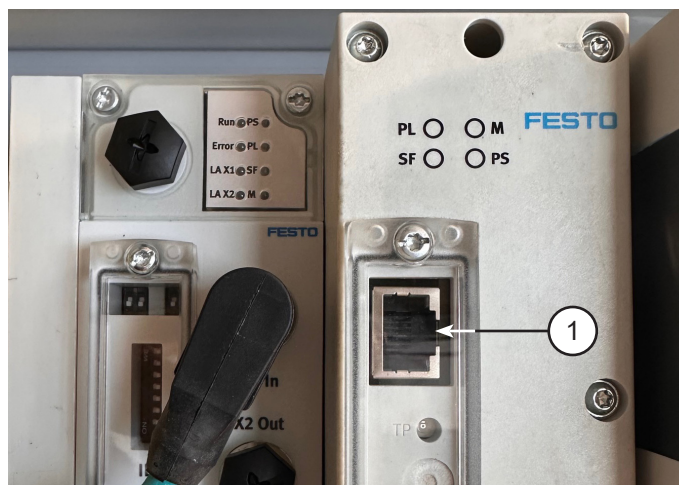
To service the dispense pump, refer to IntelliFlow Dispense Pump Service Manual 77-3167.

DESCRIPTION	PASS/FAIL
Verify that the system is not in an alarm state. An alarm can cause the pump to not run.	
Verify there are no leaks anywhere on the pump fluid end.	
Examine the oil reservoir. Look for overflowing or hints of hardener/catalyst material in the reservoir.	
Check for air in all fluid lines. There must be no air bubbles anywhere.	
Visually inspect the threaded actuator rod; look for wear or damage. Check the rod for adequate lubrication.	
Examine the stepper motor. Verify for smooth operation when the pump runs.	

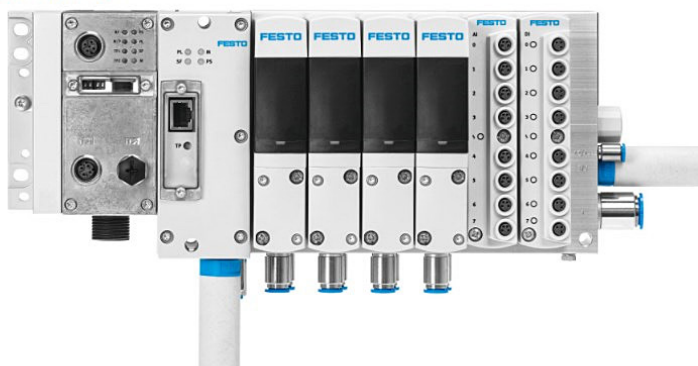
06.3 FESTO VTEM PRESSURE REGULATOR MANIFOLD

If an issue with the Festo VTEM pressure regulator manifold (310-6910 or 310-6911) occurs, the unit can access more detailed troubleshooting.

1. First, locate the RJ45 port (1) used to configure the VTEM module, and then connect a PC to this port.
2. Set the IP address of the connected PC to 192.168.4.1.
3. Open a web browser and enter 192.168.4.2 (2).
4. To troubleshoot a module, click the configuration tab (3).



Welcome



VTEM

Order Information

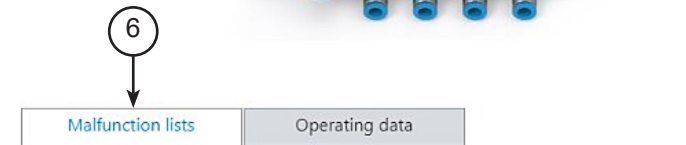
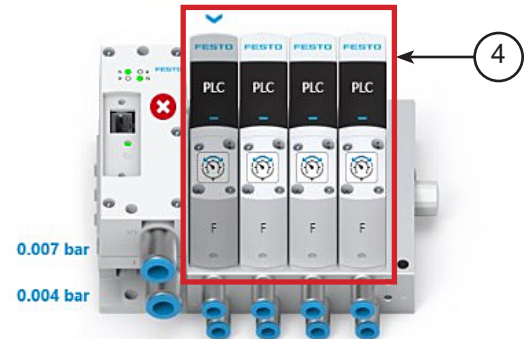
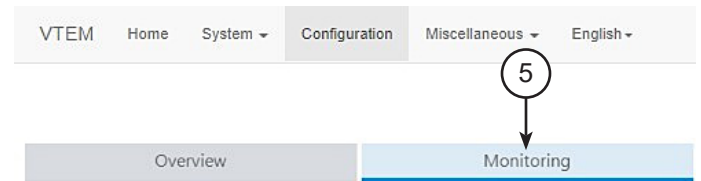
Product Key	3S7PP10VR46
Part Number	8047502

[App World](#)

[General Product Support](#)

[Service](#)

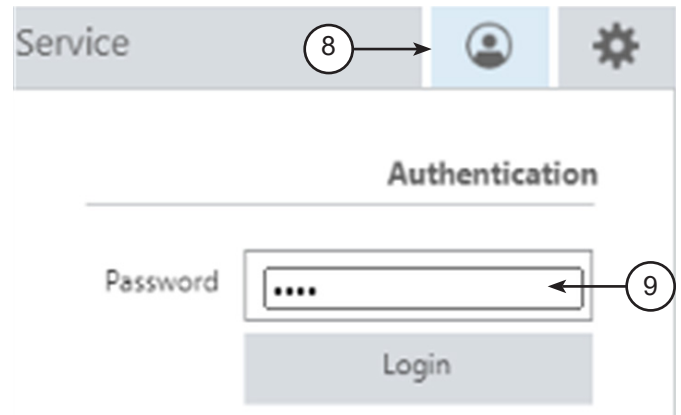
5. Click on any module to select it (4).
6. Select the monitor tab (5) to show a list of malfunctions (6).



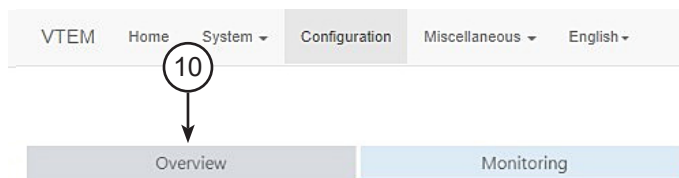
7. The example shows that the supply pressure is too low (7).
8. If the fluid panels for the RCS3 are installed away from the unit, tune the pressure regulators:
 - a. Press the login key (8).
 - b. Enter the password (9) to log into the VTEM unit.
 - c. The factory default password is "vtem." **DO NOT change this password.**

Malfunction list for valve at slot 0

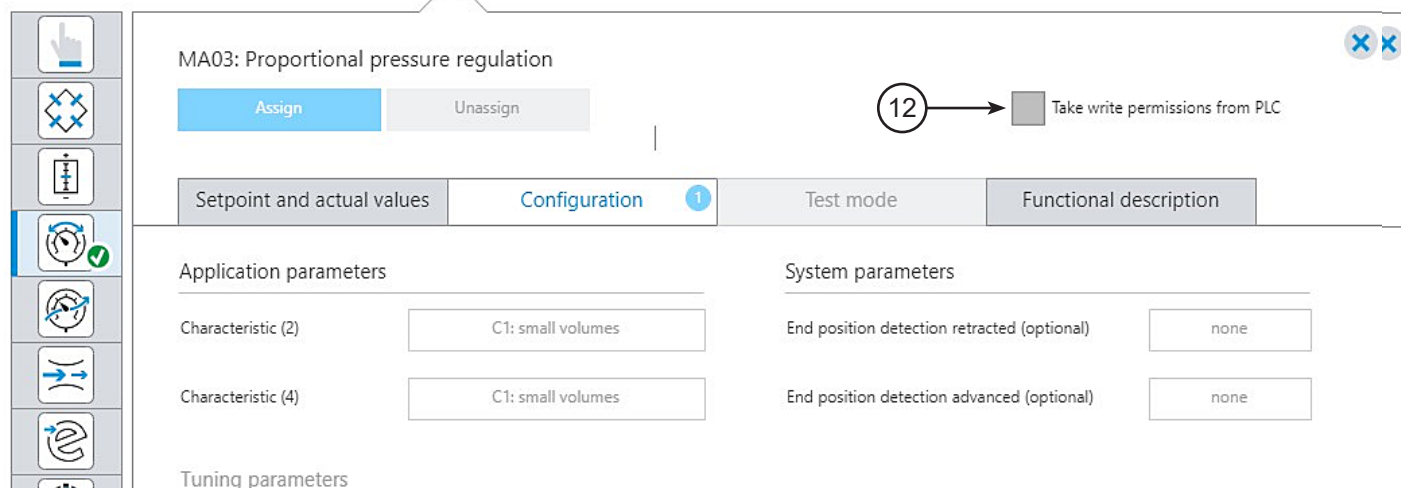
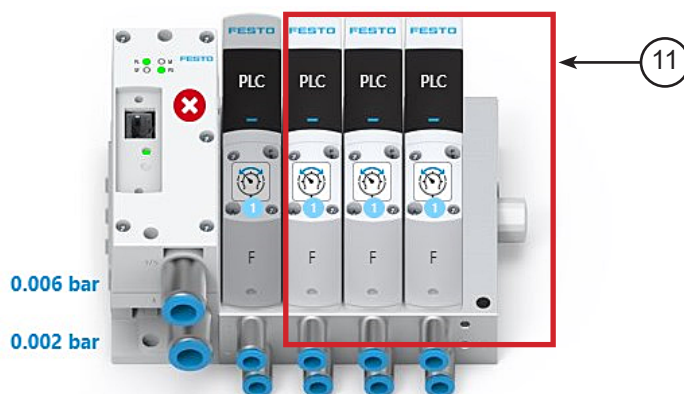
✖ Active error	130	0	Supply pressure too low
✖ Inactive error	130	0	Supply pressure too low
✖ Inactive error	130	0	Supply pressure too low



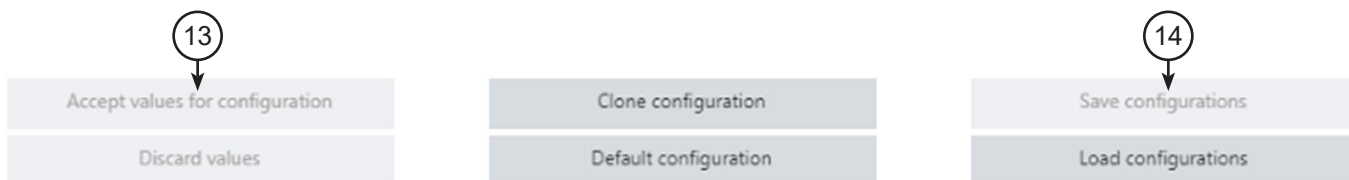
- d. Once logged in, select the overview tab (10) and the module (11) to edit.

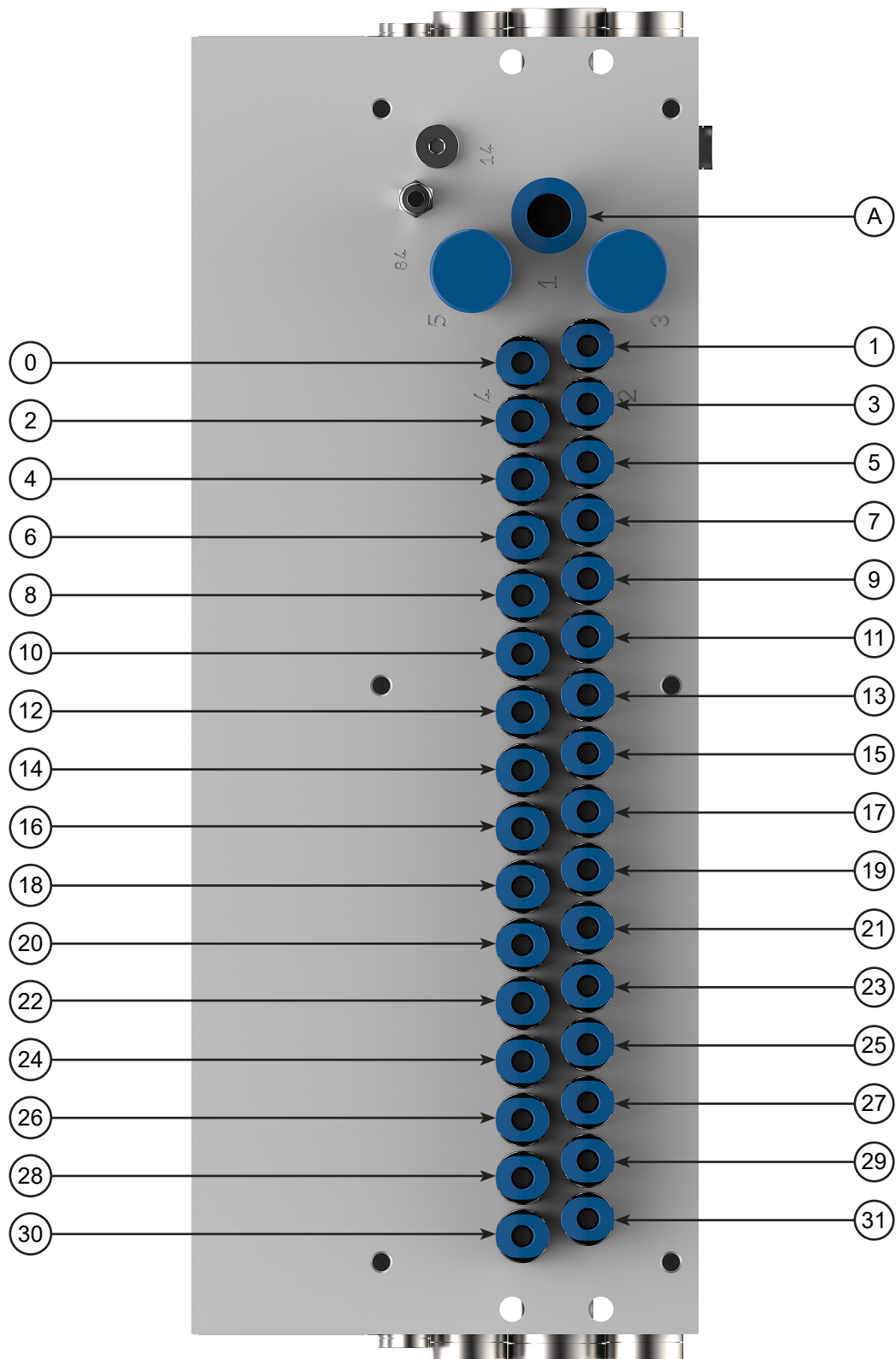


- e. To make any changes, you must select "Take Write Permissions from the PLC" (12).
- f. Changes are not permitted when the PLC is in communication with the VTEM manifold, so the M12 Ethernet cable at the front of the manifold must be unplugged to select the box below.



- g. Once changes are made, select "Accept values for configuration" (13).
- h. Press "Save Configurations" (14). If the configuration is not saved, the unit will revert to its earlier settings upon start-up.



06.4 SOLENOID CONNECTION REFERENCE—COLOR STACK (310-3920 SHOWN)

Use the reference below to reconnect the solenoid air lines to their bulkheads and CCVs. Units that are not fully optioned may not have all solenoids.

#	SOLE-NOID	LOCATION	DESCRIPTION	BASIC	OPTIONED
A	INLET	AIR MANIFOLD	SOLENOID MAIN AIR INLET	x	
0	K1SS	COLOR STACK 1	COMPONENT 1 SOLVENT FLUSH VALVE	x	
1	K1SA	COLOR STACK 1	COMPONENT 1 STACK AIR	x	
2	K2SS	COLOR STACK 2	COMPONENT 2 SOLVENT FLUSH VALVE	x	
3	SPARE	EMPTY	—		
4	SPARE	EMPTY	—		
5	SPARE	EMPTY	—		
6	K1CAL	CCV VALVE	COMPONENT 1 CALIBRATION	x	
7	K2CAL	CCV VALVE	COMPONENT 2 CALIBRATION	x	
8	MBS	FLUID MIX PANEL	MIX BLOCK SOLVENT	x	
9	SPARE	EMPTY	—		
10	TRG G1	SPRAY APPLICATOR 1	APPLICATOR 1 TRIGGER	x	
11	TRG G2	SPRAY APPLICATOR 2	APPLICATOR 2 TRIGGER	x	
12	DUMP 1	—	—		
13	DUMP 2	—	—		
14	K1C1	COLOR STACK 1	COMPONENT 1 CCV VALVE 1	x	
15	K1C2	COLOR STACK 1	COMPONENT 1 CCV VALVE 2	x	
16	K1C3	COLOR STACK 1	COMPONENT 1 CCV VALVE 3	x	
17	K1C4	COLOR STACK 1	COMPONENT 1 CCV VALVE 4	x	
18	K1C5	COLOR STACK 1	COMPONENT 1 CCV VALVE 5	x	
19	K1C6	COLOR STACK 1	COMPONENT 1 CCV VALVE 6	x	
20	K1C7	COLOR STACK 1	COMPONENT 1 CCV VALVE 7	x	
21	K1C8	COLOR STACK 1	COMPONENT 1 CCV VALVE 8	x	
22	K1C9	COLOR STACK 1	COMPONENT 1 CCV VALVE 9	x	
23	K1C10	COLOR STACK 1	COMPONENT 1 CCV VALVE 10	x	
24	K1C11	COLOR STACK 1	COMPONENT 1 CCV VALVE 11	x	
25	K1C12	COLOR STACK 1	COMPONENT 1 CCV VALVE 12	x	
26	K2C1	COLOR STACK 2	COMPONENT 2 CCV VALVE 1	x	
27	K2C2	COLOR STACK 2	COMPONENT 2 CCV VALVE 2	x	
28	K2C3	COLOR STACK 2	COMPONENT 2 CCV VALVE 3	x	
29	K2C4	COLOR STACK 2	COMPONENT 2 CCV VALVE 4	x	
30	BP1	FLUID MODULE	COMPONENT 1 GEAR PUMP	x	
31	BP2	FLUID MODULE	COMPONENT 2 GEAR PUMP	x	

06.5 GEAR PUMP TROUBLESHOOTING

Particulates in the fluid can cause the gears to bind, resulting in inaccurate flow rate signals. To maintain the fluid filters, refer to the filter manufacturer's instructions.

Repeatedly disassembling the gear pump to remove solids and particulates may indicate a larger problem. Inspect the entire fluid supply and evaluate the system cleaning cycle to avoid repeat contamination.

Fluid backup, also known as reverse flow, can cause reacted or catalyzed material to enter the gear pump. Clean the pump immediately before the fluid gels or hardens.

Under normal operation, the sensors or electrical connections will not require replacement.

To service the gear pump, refer to Gear Pump Service Manual 77-3169.

06.6 MAINTENANCE PROCEDURES

If the enclosure door is kept shut, no enclosure components should require cleaning. If material seepage occurs, be sure to correct the problem and maintain a clean work area.

Leftover paint can become hard in the fluid lines. To prevent this occurrence, clean the system with a procedural flush at the end of operations.

06.6.1 HOSE CLEANING

If flush sequences are correct, the mixed material line(s) will remain clean and ready for the next use. Always finish spraying operations with a solvent flush that removes all air from the fluid lines. If pot life is greatly exceeded, it is recommended the static mixer and mixed material hose be replaced.

06.6.2 CCV MAINTENANCE

If a CCV has not been used for a prolonged period, it is recommended that the valve be removed and the fluid passages cleaned. Paint material may collect inside the valve or manifold passages.

If the valve does not operate properly or if fluid leaks occur, the valve must be repaired. Check the valve for proper operation regularly.

06.6.3 CLEANING THE ENCLOSURE EXTERIOR AND HMI

The control enclosure's exterior painted surfaces must only be cleaned with a soft, damp cloth and household cleaners. Cleaning the touchscreen display with solvents is not allowed. If contamination of the display is expected, use disposable screen protectors 310-8030.

WARNING

Never expose electrical equipment to flammable liquids or gases including solvent fumes.

WARNING

Read and understand all operation manuals for connected equipment. Failure to properly follow the operating instructions could result in severe injury.

06.7 PREVENTIVE MAINTENANCE

The RCS3 system requires periodic inspection and regular maintenance. The intervals listed below are recommendations and largely depend on the material being sprayed.

Daily/Each Shift:

- Verify there are no air pockets in the fluid lines.
- Identify and correct air and fluid leaks throughout the RCS3, including the fluid hoses and gear pumps.
- Ensure the spray applicators function correctly and that air does not leak from the air valve.
- Examine the Alarm History and review errors with the operator. Verify that issues have been corrected.
- Ensure material supplies are filled and pressures are correct.
- Ensure mixed material is properly flushed at the end of the shift.
- Flush gear pumps and bypass valve with solvent daily.

Monthly:

- Examine the static mixer assembly at the gear pump outlets. If the static mixer elements are clogged, replace them as needed. Balancing alarms or an increase in outlet pressure indicate blockage.
- Maintain sufficient lubricant levels at all times.
- Examine all air and fluid lines for kinks, cuts, or wear.
- Make sure the CCVs open and close properly. Remove and clean the valves if needed.
- Examine fluid hoses for material buildup. Material buildup is common around hose fittings and can be a source of contamination for finished products.
- Visually inspect the gear pumps for leaking or weeping.
- Visually inspect transducer area for material leakage.
- Replace feeder line filters.
- For machines equipped with dispense pumps:
 - Inspect the oil reservoir tubes of the dispense pump for hardener or contamination.
 - Calibrate the dispense pump to ensure it operates correctly.

Annually:

- Rebuild gear pumps once a year, as needed. Users have three options for rebuilding gear pumps:
 - Replace O-rings with the Pump O-Ring Rebuild Kit (#810-7510).
 - Replace the pump seal housing. Kit numbers depend on the pump size:

PUMP SIZE	KIT NUMBER
0.3 cc/revolution	810-7501
1.2 cc/revolution	810-7502
3.0 cc/revolution	810-7503
6.0 cc/revolution	810-7504
10.0 cc/revolution	810-7505

As Needed:

- Rebuild CCVs: Monitor the valves for air leaks or slow response time when triggering.
- Clean or replace flow switch.
- Clean or replace HGB pressure regulator.
- Replace pressure transducer.
- For machines equipped with a dispense pump:
 - Rebuild the dispense pump if there is material leakage from the oil reservoirs, or if the calibration is incorrect or inaccurate.
 - Examine the dispense pump for excessive wear or buildup of material. Verify the dispense pump moves smoothly.
 - Set the limits of the dispense pump and calibrate it.

NOTICE

Reactive fluid properties greatly vary. If material blockage occurs to any component, adjust the maintenance schedule accordingly.

MANUAL CHANGE SUMMARY

Date	Description	Version
02/2026	Initial Release	R1.0

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WARRANTY POLICY

This product is covered by Binks' materials and workmanship limited warranty.

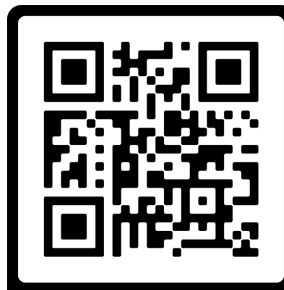
The use of parts or accessories from sources other than Binks will void all warranties. Failure to follow reasonable maintenance guidance provided can invalidate the warranty.

For specific warranty information, please contact Binks.

For technical assistance or to locate an authorized distributor, contact one of our international sales and customer support locations listed below.

REGION	BINKS CONTACT
Americas	Tel: 1-800-992-4657
Europe, Africa, Middle East	Tel: +4401202571111
India	marketingroa@binks.com
China	Tel: +862133730108
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Japan	Tel: +81457856421
Australia	Tel: +61085257555

WARRANTY PAGE





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