



TECHNICAL MANUAL

P/N 3-9317-254-00-0 Rev. B



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ServoSpray Spray Fluxer

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Functional Descriptions

Overview

Introduction

This chapter describes.....

In this Chapter

The following is covered:

Торіс	See Page
Pneumatic Regulator Panel	2
Tubing Connection Panel	3
Five Gallon Flux Tank	4

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FUNCTIONAL DESCRIPTIONS Regulator Panel

Regulator Panel

Introduction



Descriptions

Refer to the following:

Part	Function
Inlet Air Pressure	Controls air pressure to Atomizing Pressure Regulator and Knife Pressure Regulator. It is the regulator that controls the pressure of the Air Purge portion of the Automated Atomizing Air Passage Cleaning Cycle.
	Maximum setpoint: 60 psi which is the recommended setpoint.
Inlet N2 Pressure	Controls nitrogen pressure to the Flux Tank Pressure Controller (located within the Pneumatic Contol Box – controlled by the Control Computer) and Solvent Tank Pressure Regulator (located on the Solvent Tank).
	Nitrogen is required as a pressurizing gas when using alcohol-based fluxes to comply with OSHA regulations. When water soluble fluxes are used, air may be substituted for nitrogen.
	Maximum setpoint is 60 psi
Atomizing Pressure	Controls the air pressure used to atomize the Flux Droplet Stream and transport flux to the circuit board. Typical Setpoint:20 psi

FUNCTIONAL DESCRIPTIONS Tubing Connection Panel

Tubing Connection Panel

Introduction

The tubing color code is as follows:

Flux Air/Liquid	Yellow
Atomizing Air	Blue
Air inlet	Clear
N2 Inlet	Green

Connections

Make connections as described:

Atomizing Air	Connect Blue 0.250 / 0.170 inch polyethylene tubing to the nozzle head
Flux Tank	Connect Yellow 0.250 / 0.170 inch polyethylene tubing with quick disconnect to Flux Tank



FUNCTIONAL DESCRIPTIONS Five Gallon Flux Tank

Five Gallon Flux Tank

Description



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Theory of Operation

Descriptions

Flux Dispense Head Transport	A ball-screw actuator driven by a Servo Motor traverses a Flux Dispense Head perpendicular to board travel in a wave solder machine. Traveling at a programmable constant velocity, Flux is dispensed on the outgoing stroke at start and end points defined in the control computer. Slower Traverse Velocity will dispense more flux, higher Traverse Velocity will dispense less flux. The actuator returns to its home position at a high speed to prepare for the next stroke. In dual mode, flux is dispensed in both directions at the same actuator speed.
Board Detection / Tracking	A photocell located at the entrance of the fluxing zone detects the entry of a board. The control computer tracks the progress of the board within the flux zone based on the indicated conveyor speed. When the leading edge of the board reaches the programmed fluxing start point, a flux traverse stroke is initiated. The control computer continues to track the board. When a distance equal to the Flux Dispense Head Spray Width (approx: 3 inches) has passed, the next traverse stroke is triggered. In dual mode, the actuator continues to move without a delay between strokes.
Flux Dispense	Programmable pressurized Nitrogen (or Air) enters into the Flux Tank, forcing flux through the filter and tubing to the valve located by the Dispense Head. Software controls when the valve is turned on and off to dispense flux. Higher tank pressure increases the amount of flux to the spray head; lower tank pressure decreases the amount of flux to the spray head.

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THEORY OF OPERATION Descriptions

Flux Atomization Pressurized air is forced through a small, concentric air passage surrounding the Flux Dispense Nozzle. This air breaks the spray stream into fine particles and carries them at a high velocity to the circuit board. The side air orifices form the conical spray into a flat fan.



Atomization Regulator



Cleaning Systems



Diagram



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RCP2 Maintenance

Maintenance Schedule

Introduction

Perform maintenance work according to the schedule below. The schedule is set assuming eight hours of operation a day. When the operation time is long such as 24-hour operation, shorten the maintenance intervals as needed.

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Interval	Visual Inspection	Check Interior	Grease Supply
Start of Operation	Х		
After 1 Month of Operation	Х		
After 6 Months of Operation	Х	Х	
After 1 Year of Operation	Х	Х	X
Every 6 Months Thereafter	Х		
Every 1 year	Х	Х	Х



RCP2 MAINTENANCE Visual Inspection of the Machine Exterior

Visual Inspection of the Machine Exterior

What to Inspect

Check the following items when carrying out visual inspection.

Area	Inspect For
Body	Loose mounting bolts?
Cables	Damage to cables or connection to connector box?
Stainless Sheet	Damage or foreign deposit?
General	Unusual noise or vibrations?

Cleaning

Procedure

Perform the following:

- 1. Clean the exterior as needed.
- 2. Wipe off dirt with a soft cloth.



CAUTION

Do not use strong compressed air on the actuator - this may force dust into the crevices.



CAUTION

Do not use petroleum-based solvent on plastic parts or painted surfaces.

3. If the unit is badly soiled, apply a neutral detergent or alcohol to a soft cloth, and wipe gently.

Interior Inspection

Introduction

Turn off the power, remove the side covers, and then visually inspect the interior. Check the following items during interior inspection.

Body	Loose mounting bolts?
Guides	Lubrication appropriate? Soiling?
Ball screw	Lubrication appropriate? Soiling?

Procedure

To inspect the interior:

- 1. Remove both side covers. With the SA5, SA6 SA7 or SS type, use an Allen wrench of 1.5 mm across flats. With the SM type, use an Allen wrench of 2 mm across flats.
- 2. Make a visual check of the interior to see if there is any dust or foreign matter in the unit and check the lubrication. Even if the grease you see around the parts is brown, the lubrication is fine as long as the traveling surface appears shiny.



3. If the grease becomes dirty and dull or if the grease has worn away due to extended operating time, lubricate the parts after cleaning them.

4. When the inspection/maintenance work is complete, install the side covers.

Tightening torque	Thin-head screw M3 x 6 – 87.2 NÞcm
(SA5/SA6/SA7/SS):	(8.90 kgfÞcm)
Tightening torque (SM):	Thin-head screw M4 x 6 – 87.2 NÞcm (20.8 kgfÞcm)



ATTENTION

When installing the side covers, do not let them contact the end faces of the stainless sheet. It may damage or bend the sheet, causing it to deteriorate or wear quickly. To prevent this problem, insert a shim (approx. 0.1 to 0.2 mm) between the sheet and each cover to provide an allowance, and gently push in the cover.

RCP2 MAINTENANCE Internal Cleaning





CAUTION

When checking the interior, be careful not to bend or scratch the stainless sheet. Wear protective gloves when handling the stainless sheet, because it has sharp edges that may cause accidental cuts. The front cover is supporting the ball screw, so do not disassemble the front cover. If the front cover is misaligned, the shaft centers may become offset, thus increasing the traveling resistance, reducing the service life of each part, or generating noise.

Internal Cleaning

Procedure

Wipe off dirt with a soft cloth.



CAUTION

Do not use strong compressed air on the actuator as this may force dust into the crevices. Do not use petroleum-based solvent, neutral detergent or alcohol. Do not use flushing oil, molybdenum grease or anti-rust lubricant. When grease is soiled with large amounts of foreign substances, wipe off the dirty grease and then apply new grease.

RCP2 MAINTENANCE Lubricating the Guides and Ball Screw

Lubricating the Guides and Ball Screw

What Grease to Use on the Guides

The following grease is used when we ship the unit.

Idemitsu Kosan	Daphne Eponex Grease No.2

Other companies also sell a grease similar to this. If ordering from another maker, give the name of this product and request something comparable. Comparable products include the following:

Showa Shell Oil	Albania Grease No. 2
Mobil Oil	Mobilux 2

What Grease to Use on the Ball Screw

The following grease is used when we ship the unit.

Kyodo Yushi	Multemp LRL3
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This grease offers excellent properties such as low heat generation, and is suitable for lubricating ball screws.



CAUTION

Never use any fluorine based grease. It will cause a chemical reaction when mixed with a lithium based grease and may cause damage to the actuator.

How to Apply Grease 1. When greasing the guide, use a spatula or grease applicator to squeeze or inject grease into the space between the slider and base, and then move the slider back and forth several times to let the grease spread evenly.

- 2. Apply grease on the guides on both sides.
- 3. Remove excess grease.



4. When greasing the ball screw, clean the ball screw, apply grease using a finger, and then move the slider back and forth several times to let the grease spread evenly. At this time, be careful not to deform the stainless sheet by accidentally touching the sheet. Remove excess grease.



5. Install the side covers:

Tightening torque	Thin-head screw M3 x 6 – 87.2 NÞcm
Tightening torque (SM):	Thin-head screw M4 x 6 – 87.2 NÞcm
	(20.8 kgfÞcm)

Refer to step 4 of "Interior Inspection" on page 11 for information on installing covers.

Replacing/Adjusting the Stainless Sheet

Items Required	The following items are required:		
for Replacement	 Replacement stainless sheet Clearance-checking tool (a regular slider cover with holes). This tool is available from IAI's Sales Engineering Section. If you are replacing the stainless sheet, please contact us to make a rental arrangement or purchase the tool. Allen wrench set Phillips screwdriver Measure 		



ATTENTION

Deterioration and wear of the stainless sheet is affected by its tension. If the stainless sheet is too tight, excessive clearances will be created between the sheet and slider covers and the sheet may undergo a fatigue failure. If the stainless sheet is too loose, the sheet will contact the back of the slider covers and generate shaving. Therefore, use a dedicated adjustment tool to properly adjust the tension of the stainless sheet so that the clearances between the stainless sheet and slider covers conform to the specified dimension.



RCP2 MAINTENANCE

Replacing/Adjusting the Stainless Steel

Procedure

Proceed as follows:

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1. Remove the slider-cover affixing screws and remove the covers. <u>After the slider covers have been removed</u>

Standard Specification (Slider Structure)











CAUTION

Remove the slider covers slowly and gently. If the actuator is installed on the ceiling or oriented vertically or horizontally on side, place a plastic bag, etc., underneath the slider covers so as not to lose the coil springs and spacers in case they drop off.

- 2. Remove the stainless-sheet retainer screws on both sides and pull out the stainless sheet.
- 3. Guide a new stainless sheet into the slider.

4. Hold the stainless sheet in place, and affix the retainer plates and screws. At this time, securely tighten the screws only on the motor side, and leave the screws on the counter-motor side loose.



5. Install the clearance-checking tool.



6. Adjust the tension of the stainless sheet. While looking through the center opening in the clearance-checking tool, move the stainless sheet on the loose end in the directions of arrows until the clearance between the top face of the stainless sheet and the back of the clearance-checking tool falls within the specified range.

RCP2 MAINTENANCE

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Replacing/Adjusting the Stainless Sheet

Move the Stainless Sheet in the direction of the arrows to adjust the tension



While Looking Through the Center Opening, Check the Clearance Between the Top Face of the Stainles Sheet and the Back of the Clearance-Checking Tool. If the Clearance is within the Specified Tolerance Range, the Tension is Appropriate Even When the Clearance Varies Along the Entire Stroke or Between Right and Left



7. When the stainless sheet has been properly positioned, tighten the screws on the loose end to a level that the stainless sheet no longer moves.

8. Move the slider and check the tension of the stainless sheet along the entire stroke.



Clearance between stainless sheet edges and slider body

9. If the conditions in Checkpoints 1 and 2 are not satisfied, loosen the screws and readjust the position and tension of the stainless sheet again.

RCP2 MAINTENANCE

Replacing/Adjusting the Stainless



ATTENTION

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If the condition in Checkpoint 2 cannot be met after the readjustment, try installing the stainless sheet in the reverse direction or placing it upside down. If the stainless sheet is still not adjusted properly, replace it with a new sheet.

10. When proper clearances are obtained between the slider body and stainless sheet and an absence of contact between the two is confirmed, tighten the two screws on the loose end alternately, and then finally tighten all screws to a uniform torque to securely affix the stainless sheet. If the screws are not tightened uniformly, the sheet may meander or lift.



Apply additional torque to the screws on both ends until the stainless sheet no longer moves. Tightening torgue:

SA5/SA6/SA7/SS: 87.2 N-cm (8.90 kgf-cm) (Reference Value)

SM: 204 N-cm (20.8 kgf-cm) (Reference Value)

11. Remove the clearance-checking tool and install the slider covers.



ATTENTION

Again, pay attention not to lose the coil springs and spacers.

Reduction Belt [Motor Reversing Type]

Inspecting the Belt Remove the pulley cover and visually inspect the belt. Durability of the reduction belt is affected significantly by the operating condition, and there is no standard guideline as to when the belt should be replaced.

Generally, the belt is designed to withstand several millions of flexing loads. As a practical guideline, replace the reduction belt when any of the following conditions is observed:

- The teeth and end faces of the belt have worn significantly.
- The belt has swollen due to deposits of oil, etc.
- Cracks and other damages are found on the teeth or back of the belt.
- The belt has broken.

Applicable Belt

Refer to the following:

Manufacturer	Description	Specification	Application
Bando Chemical Industries	60S2M184U, 6mm Wide	Polyurethane Rubber	SA5R/SA6R
Bando Chemical Industries	150S3M255U, 15mm Wide	Polyurethane Rubber	SA7R
Bando Chemical	100S3M219U, 10 mm Wide	Polyurethane	SSR
Bando Chemical	150S3M252U, 15	Polyurethane	SMR



RCP2 MAINTENANCE Reduction Belt [Motor Reversing Type]





RCP2 MAINTENANCE Reduction Belt [Motor Reversing Type]



Replacing the Belt (SA5R/SA6R)

Items for Replacement Ensure that you have the following:

- Replacement reduction belt
- Allen wrench set
- Tension gauge (capable of applying a tensile load of 3 kgf or more)
- Strong string or long tie-band

Procedure

To replace the belt:

1. Remove the pulley cover. Remove the four thin-head mounting screws using an Allen wrench of 1.5 mm across flats.





2. Remove the two motor-cover mounting bolts and move the motor cover by approx. 20 mm. (Use an Allen wrench of 2.5 mm across flats).





RCP2 MAINTENANCE

Replacing the Belt (SA5R/SA6R)

- 3. Loosen the four tension adjustment bolts to loosen the belt.
- 4. Remove the belt from the pulleys (Use an Allen wrench of 2.5 mm across flats).



5. Remove the pulley assembly.





Remove the four mounting bolts using an Allen wrench of 2.5 mm across flats





Remove the two mounting bolts using an Allen wrench of 2.5 mm across flats.



Pull out the assembly with a hand.



- 7. Pull out the belt and insert a new belt.

- Install the pulley cap. Tighten the hexagon socket-head bolts (M3 x 8, 2 pcs) using a 2.5 mm Allen wrench across flats. Tightening torque: 83 N·cm (8.47 kgf·cm).
- 9. Install the pulley assembly.
 - Align the angles of projections and depressions on the couplings.
 - Tighten the hexagon socket-head bolts (M3 x 22, 4 pcs) using an Allen wrench of 2.5 mm across flats.





10. Pass the belt around the pulleys.



RCP2 MAINTENANCE Replacing the Belt (SA5R/SA6R)

11. Hook a looped strong string (or long tie-band) on the flange at the base of the motor, pull the string with a tension gauge to the specified tension, and then securely and uniformly tighten the adjustment bolts (hexagon socket-head bolt with washer M3 x 10, 4 pcs). (Use an Allen wrench of 2.5 mm across flats.)



12. Install the pulley cover.

- Tighten the hexagon socket-head bolts (M3 x 12, 2 pcs) using an Allen wrench of 2.5 mm across flats.
- Tighten the thin-head screws (M3 x 6, 4 pcs) using an Allen wrench of 1.5 mm across flats.





Replacing the Belt (SA7R)

Items for Replacement Ensure that you have the following:

- Replacement reduction belt
- Allen wrench set
- Tension gauge (capable of applying a tensile load of 8 kgf or more)
- Strong string or long tie-band

Procedure

To replace the belt:

1. Remove the pulley cover. Remove the four thin-head mounting screws using an Allen wrench of 1.5 mm across flats.





- 2. Loosen the four tension adjustment bolts to loosen the belt. (Use an Allen wrench of 3 mm across flats).
- 3. Remove the belt from the pulleys.





RCP2 MAINTENANCE Replacing the Belt (SA7R)

- 4. Remove the pulley assembly.
 - Remove the four mounting bolts using an Allen wrench of 2.5 mm across flats.
 - Pull out the assembly by hand.





5. Remove the pulley cap. Remove the four mounting bolts using an Allen wrench of 2.5 mm across flats.





6. Pull out the belt and insert a new belt.



- 7. Install the pulley cap.
 - Tighten the hexagon socket-head bolts (M3 x 10, 4 pcs) using an Allen wrench of 2.5 mm across flats. Tightening torque: 83 N·cm (8.47 kgf·cm)

- 8. Install the pulley assembly:
 - Align the angles of projections and depressions on the couplings.
 - Tighten the hexagon socket-head bolts (M3 x 40, 4 pcs) using an Allen wrench of 2.5 mm across flats.





Depressions on Couplings

Socket Head Bolts

- 9. Pass the belt around the pulleys.
- 10. Hook a looped strong string (or long tie-band) on the flange at the base of the motor, pull the string with a tension gauge to the specified tension, and then securely and uniformly tighten the adjustment bolts (hexagon socket-head bolt with washer M4 x 20, 4 pcs). (Use an Allen wrench of 3 mm across flats.)





RCP2 MAINTENANCE Replacing the Belt (SA7R)

11. Install the pulley cover. Tighten the thin-head screws (M3 x 6, 4 pcs) using an Allen wrench of 1.5 mm across flats.



Replacing the Belt (SSR/SMR)

Items for Replacement Ensure that you have the following:

- Replacement reduction belt
- Allen wrench set
- Tension gauge (capable of applying a tensile load of 12 kgf or more)
- Strong string or long tie-band

Procedure

To Replace the belt:

1. Remove the pulley cover. Remove the four thin-head mounting screws using an Allen wrench of 2 mm across flats.





- 2. Loosen the four tension adjustment bolts to loosen the belt (Use an Allen wrench of 3 mm across flats.)
- 3. Remove the belt from the pulleys.



4. Pass a new belt around both pulleys.


RCP2 MAINTENANCE Replacing the Belt (SSR/SMR)

5. Hook a looped strong string (or long tie-band) on the motor bracket, pull the string with a tension gauge to the specified tension, and then securely and uniformly tighten the adjustment bolts (hexagon socket-head bolt with washer M4 x 20, 4 pcs).



6. Install the pulley cover. Tighten the thin-head screws (M4 x 6, 4 pcs) using an Allen wrench of 2 mm across flats.



Replacing the SA5/SA6 Motor

Items for Replacement Ensure that you have the following:

• Replacement motor (with a coupling on the motor shaft; see the photograph below)



- Allen wrench set
- Phillips screwdriver
- Grease (Kyodo Yushi's Multemp LRL3 or equivalent)

Procedure

To replace the motor:

- 1. Remove the flat countersunk-head screws (M3 x 8, 2 pcs) affixing the cable ends on the motor-end cap, and then remove the pan-head screws (M3 x 80, 4 pcs) affixing the motor-end cap.
- 2. Push in the cable-end molding to create a slack along the inner cable.



Push in the molding as much as possible

- 3. Pull out the motor connector.
- 4. Pull out the encoder connector.



CAUTION

Be careful not to touch the encoder directly when applying force.

- 5. Remove the motor.
 - Remove the affixing bolts (M3 x 50, 2 pcs) using an Allen wrench of 2.5 mm across flats.
 - Pull out the motor by hand.

RCP2 MAINTENANCE Replacing the SA5/SA6 Motor

6. Apply grease to the coupling on the actuator side.



- 7. Install a new motor.
 - After confirming that the angles of projections and depressions on the couplings are aligned, assemble the motor, and then tighten the affixing bolts (M3 x 50, 2 pcs) (Use an Allen wrench of 2.5 mm across flats).



Tightening Torque: 59 N-cm (6 kgf-cm)



CAUTION Be careful not to touch the encoder directly when applying force. 8. Connect the encoder and motor connectors.

Encoder Connector





9. Replace the cable-end molding in the original position, and affix it with the flat countersunk-head screws (M3 x 8, 2 pcs).





10. Affix the motor-end cap with the pan-head screws (M3 x 80, 4 pcs). At this time, pay attention not to pinch the cables.



Tightening Torque: 61.5 N-cm (6.3 kgf-cm)



RCP2 MAINTENANCE Replacing the SA7 Motor

Replacing the SA7 Motor

Items for Replacement Ensure that you have the following:

- Replacement motor (with a coupling on the motor shaft
- Allen wrench set
- Phillips screwdriver
- Grease (Kyodo Yushi's Multemp LRL3 or equivalent)

Procedure

To replace the motor:

- 1. Remove the flat countersunk-head screws (M3 x 8, 2 pcs) affixing the cable ends on the motor-end cap, and then remove the pan-head screws (M3 x 105, 4 pcs) affixing the motor-end cap.
- 2. Push in the cable-end molding to create a slack along the inner cable.
- 3. Pull out the motor connector.
- 4. Pull out the encoder connector.



CAUTION

Be careful not to touch the encoder when applying force.

5. Remove the motor. Remove the affixing bolts (M4 x 15, 4 pcs) using an Allen wrench of 3 mm across flats.





RCP2 MAINTENANCE Replacing the SA7 Motor

6. Pull the motor by hand:



Decoupled motor and actuator



Pilot alignment metal. If this metal is attached on the decoupled motor, move it back to the pilot on the actuator side.

7. Apply grease to the coupling on the actuator side.



ATTENTION

Kyodo Yushi's Multitemp LRL3 was applied before shipment. Never use flouride grease. It will chemically react with lithium grease and cause damage to the machine.



RCP2 MAINTENANCE Replacing the SA7 Motor

- 8. Install a new motor.
 - After confirming that the angles of projections and depressions on the couplings are aligned, assemble the motor, and then tighten the affixing bolts (M4 x 15, 4 pcs). (Use an Allen wrench of 3 mm across flats.)





- 9. Connect the encoder connector.
- 10. Connect the motor connector.
- 11. Replace the cable end molding in the original position, and affix it with the flat countersunk head screws (M3 x 8) (2 pcs).
- 12. Affix the motor-end cap with the pan-head screws (M3 x 105, 4 pcs). At this time, pay attention not to pinch the cables.

Items for Replacement Ensure that you have the following:

• Replacement motor (with a coupling on the motor shaft):



- Allen wrench set
- Phillips screwdriver
- Plastic hammer



RCP2 MAINTENANCE

Procedure

To replace the blower:

1. Remove the pan-head screws affixing the motor-end cap.

Pan-head screws (M3 x 95) (2 pcs)



2. Remove the motor cover.

Pan-head screws (M2 x 10) (2 pcs)





ATTENTION

The motor cover is engaged with a positioning pin. If the cover does not come off easily, use a plastic hammer to gently tap the motor cover from side, and pull out the cover.



Positioning Pin

3. Push in the motor-end cap into the motor cover.







4. Pull out the motor connector and the encoder connector.

Motor Connector









CAUTION Be careful not to touch the encoder when applying force.

RCP2 MAINTENANCE

SS

- 5. Remove the motor:
 - Remove the affixing bolts (M3 x 15, 2 pcs/M3 x 18, 2 pcs) using an Allen wrench of 2.5 mm across flats.
 - Pull the motor out using your hand.
 - Remove the motor flange by removing the attaching bolts (M3 x 8, 4 pcs) using a 2.5 mm Allen wrench across the flats.
- 6. Install a new motor:
 - Tighten the motor flange with the affixing bolts (M3 x 8, 4 pcs).
 - Confirm that the angles of projections and depressions on the couplings are aligned.



ATTENTION

Tightening torque of the M3 bolt is 83 N-cm (8.5 kgf-cm).

- Uniformly tighten the upper affixing bolts (M3 x 15, 2 pcs).
- Uniformly tighten the right and left attaching bolts (M3 x 18, 2 pcs).
- Connect the encoder and motor connectors. Be careful not to touch the encoder when applying force.
- 7. Pull out the motor-end cap from the motor cover and affix it with the panhead screws. At this time, pay attention not to pinch the cables.



Pan-head screws (M3 x 105, 2 pcs) Tightening torque: 61.5 N-cm (6.3 kgf - cm)



8. Affix the motor cover. If the positioning pin does not go in smoothly, gently

tap the motor-end cap using a plastic hammer.

Pan-head screws (M2 x 10, 2 pcs) Tightening torque: 16.9 N-cm (1.7 kgf - cm)



SM

Items for Replacement Ensure that you have the following:

- Replacement motor (with a coupling on the motor shaft)
- Allen wrench set
- Phillips screwdriver
- Plactic hammer

Procedure

To replace the blower

- 1. Remove the pan-head screws (M3 x 10, 4 pcs) affixing the motor-end cap.
- 2. Remove the pan-head screws (M3 x 10, 2 pcs) affixing the motor cover.
- 3. Remove the motor cover. The motor cover is engaged with a positioning pin. If the cover does not come off easily, use a plastic hammer to gently tap the motor cover from side, and pull out the cover.
- 4. Push the motor-end cap into the motor cover.
- 5. Pull out the motor and encoder connectors. Be careful not to touch the encoder when applying force.
- 6. Remove the motor.
 - Remove the affixing bolts (M4 x 15, 4 pcs) using an Allen wrench of 3 mm across flats.
 - Pull the motor out by hand.
- 7. Install a new motor.
 - After confirming that the angles of projections and depressions on the couplings are aligned, assemble the motor, and then tighten the affixing bolts (M4 x 15, 4 pcs). (Use an Allen wrench of 3 mm across flats.)



ATTENTION

Tightening torque is 176 N - cm (18 kgf - cm)

- 8. Connect the encoder and motor connectors. Be careful not to touch the encoder directly when applying force.
- 9. Pull out the motor-end cap from the motor cover and affix it with the panhead
- screws (M3 x 105, 4 pcs). At this time, pay attention not to pinch the cables.
- 10. Affix the motor cover.
 - If the positioning pin does not go in smoothly, gently tap the motor-end cap using a plastic hammer (as shown above).
 - Tighten the pan-head screws (M3 x 10, 2 pcs) (shown above).

Motor Reversing Type SA5R/SA6R

Items for Replacement Ensure that you have the following

- Replacement motor (with a pulley on the motor shaft; see the photograph below)
- Allen wrench set
- Phillips screwdriver
- Tension gauge (capable of applying a tensile load of 3 kgf or more)
 - Strong string or long tie-band

Procedure

To replace the motor:

- 1. Remove the pulley cover.
 - Remove the four thin-head mounting screws using a 1.5 mm Allen wrench across flats.











2. Loosen the tension adjustment bolts to loosen the belt (Use an Allen wrench of 2.5 mm across flats).

RCP2 MAINTENANCE

Motor Reversing Type SA5R/SA6R

- 3. Remove the belt from the pulleys.
- 4. Pull out the four tension adjustment bolts and two motor-cover mounting bolts, and then remove the motor unit.



Motor Cover Mounting Bolt



Motor Connector











- 5. Remove the four pan-head screws mounting the motor-end cap on the motor unit, and then pull out the motor.
- 6. Pull out the motor and encoder connectors. Be careful not to touch the encoder directly when removing the connector.

7. Connect the encoder connector and motor connector to a new motor. Be careful not to touch the encoder directly when removing the connector.

Encoder Connector



Motor Connector





Tightening torque: 61.5 N - cm (6.27 kgf - cm)





- 8. Connect the motor cover and motor-end cap using the pan-head mounting screws (M3 x 6, 4 pcs). Be careful not to pinch the cables.
- 9. Loosely affix the motor in place using the tension adjustment bolts (hexagon socket-head bolt with washer M3 x 10, 4 pcs), and then pass the belt. In this condition, hook a looped strong string (or long tie-band) on the flange at the base of the motor, pull the string with a tension gauge to the specified tension, and then securely and uniformly tighten the adjustment bolts (Use a 2.5 mm Allen wrench across flats).



ATTENTION

Tensile force = 2.5 kgf. Tightening torque of adjustment bolt is 162 N - cm (16.5 kgf - cm).



RCP2 MAINTENANCE Motor Reversing Type SA5R/SA6R

Install the motor cover. Tighten the hexagon socket-head bolts (M3 x 12, 2 pcs) using a 2.5 mm Allen wrench across flats. Tightening torque is 83 N - cm (8.47 kgf - cm)

Socket head bolts



11. Install the pulley cover. Tighten the thin-head screws (M3 x 6, 4 pcs) using a 1.5 mm Allen wrench across flats. Tightening torque is 87.2 N - cm (8.90 kgf -cm).



Motor Reversing Type SA7R

Items for Replacement Ensure that you have the following:

- Replacement motor unit (see the photograph below)
- Allen wrench set
- Tension gauge (capable of applying a tensile load of 8 kgf or more)
- Strong string or long tie-band



Procedure

To replace the motor:

- 1. Remove the pulley cover (View B). Remove the four thin-head mounting screws using a 1.5 mm Allen wrench across flats.
- 2. Loosen the tension adjustment bolts to loosen the belt (View C). Use a 3 mm Allen wrench across flats.
- 3. Remove the belt from the pulleys.
- 4. Pull out the tension adjustment bolts and remove the motor unit (View D).

View A:



View B:





View C:









5. Install a new motor unit, and loosely tighten the tension adjustment bolts (hexagon socket-head bolt with washer M4 x 20, 4 pcs). In this condition, pass the reduction belt around the pulleys (View A below).

View A:



View B:



View C:



6. Hook a looped strong string (or long tie-band) on the motor bracket, pull the string with a tension gauge to the specified tension, and then securely and uniformly tighten the adjustment bolts (View B above).



ATTENTION

Tensile force=8 kgf. Tightening torque of adjustment bolt is 323 N-cm(33 kgf-cm).

Install the pulley cover (View C above). Tighten the thin-head screws (M3 x 6, 4 pcs) using a 1.5 mm Allen wrench across flats. Tightening torque is 87.2 N-cm (8.90 kgf - cm).



RCP2 MAINTENANCE Motor Reversing Type SSR/SMR

Motor Reversing Type SSR/SMR

Items for Replacement Ensure that you have the following:

- Replacement motor unit (see View A below)
- Allen wrench set
- Tension gauge (capable of applying a tensile load of 12 kgf or more)
- Strong string or long tie-band

Procedure

To replace the motor:

1. Remove the pulley cover (View B below). Remove the four thin-head mounting screws using an Allen wrench of 2 mm across flats.

View A:



View B:









View D:



- Loosen the tension adjustment bolts to loosen the belt (View C above). Use a 3 mm Allen wrench across flats. Remove the belt from the pulleys.
- 3. Pull out the tension adjustment bolts and remove the motor unit (View D).



RCP2 MAINTENANCE Motor Reversing Type SSR/SMR

4. Install a new motor unit, and loosely tighten the tension adjustment bolts (hexagon socket-head bolt with washer M4 x 20, 4 pcs) (View A below). In this condition, pass the reduction belt around the pulleys.

View A:



View B:



View C:



5. Hook a looped strong string (or long tie-band) on the motor bracket, pull the string with a tension gauge to the specified tension, and then securely and uniformly tighten the adjustment bolts (View B above).



ATTENTION

Tensile force for SSR is 7.3 kgf and tensile force for SMR is 11.6 kgf. Tightening torque of adjustment bolt is 323 N-cm (33 kgf -cm).

Install the pulley cover (View C above). Tighten the thin-head screws (M4 x 6, 4 pcs) using a 2 mm Allen wrench across flats. Tightening torque is 204 N - cm (20.8 kgf - cm).



RCP2 MAINTENANCE Motor Reversing Type SSR/SMR

4

Maintenance

Maintenance Schedule

Description

Perform maintenance work according to the schedule below.

The schedule is set assuming eight hours of operation a day. When the operation time is long such as 24 hour operation, shorten the maintenance intervals as needed.

	Visual Inspection	Check Interior	Grease Supply
Start of operation	Х		
After 1 month of operation	Х		
After 6 months of operation	Х	Х	
After 1 year of operation	Х	Х	Х
Every 6 months thereafter	Х		
Every 1 year	Х	Х	Х

Visual Inspection of the Machine Exterior

Procedure

Check the following items when carrying out visual inspection:

Body	Loose mounting bolts?
Cables	Damage to cables or connection to connector box?
Stainless sheet	Damage or foreign deposit?
General	Unusual noise or vibrations?



Actuator Cleaning

Procedure

Proceed as follows:

- 1. Clean the exterior as needed.
- 2. Wipe off dirt with a soft cloth.



CAUTION

Do not use strong compressed air on the actuator as this may force dust into the crevices.



CAUTION

Do not use petroleum-based solvent on plastic parts or painted surfaces.

3. If the unit is badly soiled, apply a neutral detergent or alcohol to a soft cloth, and wipe gently.

Interior Inspection

Introduction

Turn off the power, remove the side covers, and then visually inspect the interior. Check the following items during interior inspection:

Body	Loose mounting bolts?
Guides	Lubrication appropriate? Soiling?
Ball Screw	Lubrication appropriate? Soiling?

Procedure

To inspect the interior:

1. Remove both side covers. With the SA5, SA6, SA7 or SS type, use an Allen wrench of 1.5 mm across flats. With the SM type, use an Allen wrench of 2 mm across flats.



- 2. Make a visual check of the interior to see if there is any dust or foreign matter in the unit and check the lubrication. Even if the grease you see around the parts is brown, the lubrication is fine as long as the traveling surface appears shiny.
- 3. If the grease becomes dirty and dull or if the grease has worn away due to extended operating time, lubricate the parts after cleaning them.
- 4. When the inspection/maintenance work is complete, install the side covers.



Tightening torque (SA6/SA7): Thin-head screw M3 x 6-87.2 N-cm (8.90 kgf-cm)

MAINTENANCE

Internal Actuator Cleaning



ATTENTION

When installing the side covers, do not let them contact the end faces of the stainless sheet. It may damage or bend the stainless sheet, causing the sheet to deteriorate or wear quickly. To prevent this problem, insert a shim (approx. 0.1 to 0.2 mm) between the sheet and each cover to provide an allowance, and gently push in the cover.



CAUTION

When checking the interior, be careful not to bend or scratch the stainless sheet. Wear protective gloves when handling the stainless sheet, because it has sharp edges that may cause accidental cuts.



ATTENTION

The front cover is supporting the ball screw, so do not disassemble the front cover. If the front cover is misaligned, the shaft centers may become offset, thus increasing the traveling resistance, reducing the service life of each part, or generating noise.

Internal Actuator Cleaning

Procedure

To clean the inside of the machine:

1. Wipe off dirt with a soft cloth.



CAUTION

Do not use strong compressed air on the actuator as this may force dust into the crevices.

Do not use petroleum-based solvent, neutral detergent or alcohol.

Do not use flushing oil, molybdenum grease or anti-rust lubricant.

2. When grease is soiled with large amounts of foreign substances, wipe off the dirty grease and then apply new grease.

Lubricating the Guides and Ball Screw

What Grease to Use	The fo
on the Guides	. Id

ollowing grease is used when we ship the unit.

Idemitsu KosanDaphne Eponex Grease No.2

Other companies also sell a grease similar to this. If ordering from another maker, give the name of this product and request something comparable. Comparable products include the following:

Showa Shell Oil	Albania Grease No. 2
Mobil Oil	Mobilux 2

on the Ball Screw

What Grease to Use The following grease is used when we ship the unit.

Kyodo Yushi	Multemp LRL3

This grease offers excellent properties such as low heat generation, and is suitable for lubricating ball screws.



CAUTION

Never use any fluorine based grease. It will cause a chemical reaction when mixed with a lithium based grease and may cause damage to the actuator.

How to Apply Grease To apply grease:

1. When greasing the guide, use a spatula or grease applicator to squeeze or inject grease into the space between the slider and base, and then move the slider back and forth several times to let the grease spread evenly. Apply grease on the guides on both sides. Remove excess grease.



2. When greasing the ball screw, clean the ball screw, apply grease using a finger, and then move the slider back and forth several times to let the grease spread evenly. At this time, be careful not to deform the stainless sheet by accidentally touching the sheet. Remove excess grease.



- 3. Install the side covers:
- Tightening torque (SA6/SA7) Thin-head screw M3 x 6 87.2 N-cm (8.90 kgfcm)
- Refer to step 4 of "Interior Inspection" on page 61 for notes on installing the side covers.

Flux / Cleaner Filter Replacement

Disconnect Air and Flux Connections from the Tank

Remove Pressure from the Tank

Pull on the Pressure Relief Valve to remove pressure from the tank. Ensure that the tank pressure has reached 0 psi before opening the tank.



Open Tank Lid Open the tank to ensure that there is no pressure in the tank before removing the filter.





MAINTENANCE Flux / Cleaner Filter Replacement

Remove Flux Filter from the Tank

Remove the flux filter assembly from the flux line.



Replace Flux Filter

Replace the filter with a new one.



MAINTENANCE Purging Liquid and Air Tubing

Purging Liquid and Air Tubing

Introduction

The nozzle and air passage at the head have very tight clearances and can be easily plugged if any particulate enters the system. As such, any time the system has been moved, disconnected, thoroughly cleaned, filter cleaned or replaced, tubing or fittings replaced (ie: any major disturbance) the tubing should be disconnected from the head and ample quantities of liquid and air should be flushed through the tubing to clean out any particulate matter.

Procedure

Proceed as follows:

1. Disconnect flux and cleaner lines from the tanks:



- 2. Ensure tanks are pressurized.
- 3. Remove tubing from the head.
- 4. Prepare a vessel to collect flushed fluid.
- 5. Connect the flux / cleaner line to force fluid through the tubing:



MAINTENANCE

Purging Liquid and Air Tubing

- 6. Disconnect the flux / cleaner line.
- 7. Reconnect tubing at head.



- 8. Disconnect air tubing at head.
- 9. Press the Atomizing Air on the maintenance page in the software to flush high pressure air through the tubing.
- 10. Turn off air.
- 11. Reconnect air tubing.

Nozzle Cleaning and Assembly

Procedure

Proceed as follows:

1. Unscrew knurled ring and remove air cap.





2. Using a 3/16" wrench, unscrew liquid orifice.



- 3. Remove liquid orifice and Teflon washer.
- 4. Clean air cap, liquid orifice and nozzle body and reassemble.


MAINTENANCE

Nozzle Cleaning and Assembly

5. Caution must be taken to properly align the horns of the air cap in parallel with the direction of travel of the nozzle assembly.



5

Firmware

Overview

The following information is used to upgrade the ServoSpray software.

Download Procedure

- 1. Exit the machine program and power off the circuit breaker in the ServoSpray control box.
- 2. Attach the special download ribbon cable connector marked **Prog** to the connector below controller board as shown below.
- 3. Connect the opposite end of the cable to the download computer's serial port directly or via straight-through serial cable.



- 4. Power on the CB to flux controller box.
- 5. Start the Rabbit Field Utility program, **RFU.exe** found in the c:\Zworld RFU folder.
- 6. Select Setup from the Menu and choose File Locations.

FIRMWARE

7. Verify selections appear as shown below and select "OK". If the location is incorrect select the button next to the box to select the correct location.

Channe Elle Legettere	
File Locations Cold Loader : C:\ZWorld RFU\coldload.bin Pilot BIOS : C:\ZWorld RFU\pilot.bin Flash table : C:\ZWorld RFU\Flash.ini	
OK Cancel H	elp

- 8. Select Setup again and select "Communications".
- 9. Choose the appropriate COM port (typically COM 1) and select "Use USB to Serial Converter" if required. Select "OK" when complete.

<u>F</u> ile <u>S</u> e	
	TCP/IP Options
	C Use ICP/IP Connection
	Network Address :
	Controller Name :
	Control Port : 4244
	 Serial Options Use Serial Connection
	Baud Rate : 115200
	Comm Port : COM1 💌
	Enable Processor Detection Use USB to Serial Converter

- 10. Select "File" from the menu and choose "Load Flash Image".
- Select the button next to the file location box if the correct file name is not displayed in the field. Choose the correct file from the open window and select "Open". (Typically SSXX.bin, where "XX" represents the revision of the software.)

Rabbit Field Utility 2.50	Open 🔹 💽 🔀
<u>File S</u> etup <u>H</u> elp	Look in: 🔁 ZWorld RFU 🗾 🔶 🖆 🏢 🗸
Choose Flash Image Flash Image	COLDLOAD.BIN pilot.bin SS1pt2d.bin SS13.bin
	File name: SS13.bin Open
OK Can	Files of type: Binary Image Files (*.bin) Cancel

12. Select "OK" on the Choose Flash Image box when correct folder and Bin file are displayed.

m	Rabb	it Field	l Utility	2.50							
	<u>F</u> ile	<u>S</u> etup	<u>H</u> elp								
		Generation									
		Choos	se Flash	Image	1					×	
		Flaz	sh Image -								
		File	Location :	C:VZW	/orld RF	U\SS13	.bin	•			
		Ī	OK		С	ancel	1	Hel	P		
				_			_			_	
											1

FIRMWARE

13. After Coldloader, Pilot Bios and Flash are sent to the controller, "Sending program to controller" begins. When complete, close the RFU program, disconnect the serial cables, cycle power to the fluxer control box and restart the machine program.

📸 Rabbit Field Utility 2.50 (C:\ZWorld RFU\\$\$13.bin)	
<u>File S</u> etup <u>H</u> elp	
Progress (C:\ZWorld RFU\SS13.bin)	3
Sending Coldloader	
<u>Cancel</u>	
	1

Download Procedure The installation is now complete. **Completion**

6

ServoSpray Software

Overview

Introduction

The ServoSpray software controls are integrated into the wave soldering system machine control software. This section provides information on the configuration and process use of the ServoSpray as it appears in the software. Mechanical functions are detailed in earlier sections. Refer to those sections if needed for issues not related to software.

Topics

The following topics are discussed in this section:

Торіс	See Page
Initial Fluxer Configuration	76
ServoSpray Machine Control Software for Process Use	78
ServoSpray Operation	81
ServoSpray Maintenance	83
Maintenance Timers	85
ServoSpray Troubleshooting	86



SERVOSPRAY SOFTWARE Initial Fluxer Configuration

Initial Fluxer Configuration

Overview	The ServoSpray is available as either an external option or an internal option. The option is configured at the factory. To verify the configuration or when reinstalling the software, refer to the following procedure.
Initial Fluxer Configuration	Ensure that the wave soldering system is Stopped. (Click the red square on the right of the screen to stop the system.)
Procedure	Select "Configuration > Modules" from the menu bar at the top of the screen.
	Select the "Fluxers" tab and verify that the correct fluxer is selected. Note that one column is labeled for External Fluxer and the other is labeled for Internal Fluxer. It is possible to have both, although most systems with a fluxer option are configured with only one.



The nozzle is configured in the "Modules > Fluxers" Window as indicated in the next topic.



Note

The selections "FDC" and "Flux Level" are grayed out (on the right side of the window). These selections are not available with a ServoSpray fluxer.

Flux Distance from Sensor

The "Flux Distance from Sensor" parameter is the distance between the incoming board detect sensor and the spray head.

SERVOSPRAY SOFTWARE Initial Fluxer Configuration

Minimum Board Length

The "Minimum Board Length" parameter sets the minimum board length allowed with the use of the photocell. A board that is equal to or less than the minimum board length value is ignored by the wave solder system and flux is not applied. The default value is 25.4 mm (1.0 in.).

Configuration > Modules > Fluxers

The window below illustrates the external ServoSpray selected. The selectable parameters for the internal ServoSpray are the same.

Conveyor	Trenedicits	1 yrometer	1 Joider I of	
	External	Internal		🖲 None
Fluxer Type	ServoSpray 💌	None	•	C Paar
Fluxer Dist.From Sensor	0.00	13.00	inches	
Spray Segment Width	3.00	3.00	inches	Flux Level
Minimum Board Length	1.00	1.00	inches	Level Contro
Cleaning Duration	10 🚠	10 -	seconds	
Washdown Rate	0.10	0.10	seconds	
Auto Shutdown	1 ÷	1 =	minutes	
Home to Fixed Rail	2.0	2.0	inches	
Flux Line Purge Time	5.00	5.00	seconds	
Tank A Orifice Size	#18 💌	#18 💌		
Tank B Orifice Size	#18 -	#18 🔻		
Current Value Range —				



SERVOSPRAY SOFTWARE ServoSpray Machine Control Software for Process Use

ServoSpray Machine Control Software for Process Use

Accessing the Fluxer Module Window Ensure that the wave soldering system is stopped. (Press the red square on the right of the screen to stop the system.)

Select "Modules > [Internal] or [External] Fluxer" from the menu bar at the top of the screen.

Alternately, double click on the depiction of the fluxer in the graphics process control screen.

A spray fluxer window displays. Process operation of the ServoSpray is controlled using parameters configured within the pages of the six (6) tabs displayed in the fluxer window: Configuration - Actuator, Configuration - Nozzle, Operation, Maintenance, Maintenance Timers and Troubleshooting.

Fluxer Module Window Access

The follow graphic depicts access of the fluxer window for process use:



ServoSpray[™] Configuration

Overview	The ServoSpray configuration page contains settings that are specific to the fluxer and not individual board recipes. Once a setting is changed, the OK button should be clicked from this page to save the new changes.
Spray Segment Width	The spray segment width sets the distance of board travel on the conveyor between the start of each spray stroke.
Photocell to Head	This parameter sets the distance from the fluxer board detect sensor to the spray head on the fluxer.
Cleaning Location	This parameter is the location the head travels from home before the self-clean is performed.
Nozzle Purge Duration	The nozzle purge duration sets the period of time that the purge air is turned on after a cleaning cycle has been started from the maintenance page or when automatically performed when the fluxer is in auto mode.
Cleaning Delay	The cleaning delay sets the period between each cleaning cycle. The process will not occur if there are boards in the fluxer. If time expires but there are boards in the fluxer, cleaning will delay 10 seconds after the board count is 0.
Cleaning Liquid Pulse	Cleaning liquid pulse is used when a Clean Nozzle cycle is performed. This sets the time the cleaner fluid is sprayed through the line.
Nozzle Refill Pulse	Nozzle refill pulse is used after a cleaning cycle is performed. This sets the time that flux is refilled into the nozzle when a new board is scanned.
Flux Max Pressure	The flux max pressure sets the max pressure of the controller. This value is found on the flux pressure controller located in the pneumatic box.



SERVOSPRAY SOFTWARE ServoSpray Configuration

Deceleration Zone	The spray head travels out on an extend stroke and travels back on a return stroke. Before reaching the stop point of each stroke, the spray head decelerates. The Deceleration Zone parameter sets the distance (before each stop point) at which the actuator begins the deceleration process. The default value is 13.0 mm (0.5 in.).
Home to Fixed Rail Distance	The Home to Fixed Rail Distance value determines the distance from the Home position to the inner edge of the fingers of the fixed rail or the location of the start of the flux zone. The default value is 13.0 mm (0.5 in.).
Flux Valve Off Advance	The flux valve off advance sets the time in 10ths of a second in which the flux valve will shut off before the end of the spray stroke to help prevent over-spray.
Service Position	The service position sets the distance from Home in which the spray head moves when the Move to Maintenance Location button is pressed on the Maintenance page.
Extend Spray Width	This parameter adds this particular value to the board width sent to the fluxer.
Servo Return Speed	Servo return speed sets the return speed after a spray stroke.
Quick Clean	When selected, a short periodic self clean is performed. This application is designed for large process batches with little board spacing.
Model Number	The model is either a 500 mm or a 700 mm spray stroke length machine. Choose the applicable model.

SERVOSPRAY SOFTWARE ServoSpray Operation

Module > Fluxer Window >Configuration Page

Troubleshooting	Maintenance Co	Maintenance Times nfiguration - ServoSpray
	Setpoint	
Spray Segment Width	300	inches
Photocel to Spray Head	0.00	inches
Cleaning Location	1.0	inches
Nozzle Purge Duration	3	sec
Cleaning Delay	60	sec
Cleaning Liquid ^D ulse	1.0	sec
Nozzle Refill Pulse	0.5	sec
Flux Max Pressure	50	psi
Deceleration Zone	0.5	inches
Home to Fixed Rail Dist.	0.5	inches
Flux Valve Off Advance	0.1	sec
Service Position	6.0	inches
Servo Return Speed	28.0	inches/sec
Extend Spray Width	0.0	inches
Quick Clean	Γ	
Model #	700 💌	
Current Value Range		

ServoSpray Operation

Overview	Within the operation tab, specific parameters related to the ServoSpray fluxer module can be entered or changed to meet the requirements of a specific recipe. These entries may be saved in a specific recipe or to a new recipe. The parameters can also be applied to a specific board without being saved.
Fluxer	The start/stop button is used to operate the fluxer in manual mode. The text box indicates if the fluxer is on or off. Click on the box to the right of the fluxer under the set point column to enable the fluxer for auto start operation.
Tank Pressure	The tank pressure parameters control the pressure of the flux tank which affects the flow rate to the spray head. The text box in the set point column allows the user to adjust the pressure of the tank pressure.

SERVOSPRAY SOFTWARE ServoSpray Operation

Traverse Speed	The traverse speed sets the speed of the flux nozzle as it extends and retracts during the spray cycle.
Minimum Traverse Speed	The minimum traverse speed displays the minimum allowable traverse speed setpoint as determined by the current conveyor speed, spray width and conveyor width setpoints.
Spray Duration	The spray duration parameter sets the length of the board to spray which helps the fluxer determine how many passes to make using this value and the spray segment width.
Pallet Offset – Leading Edge	This parameter sets the distance between the leading edge of the board and the position where the fluxer begins to spray the board.
Pallet Offset – Fixed Edge	This parameter sets the distance between the fixed rail proximity sensor and the point at which the spray head begins to spray.
Use Conveyor Width	Selection of this checkbox automatically sets the board width of the fluxer to the current conveyor width actual.
Board Width	This parameter sets the process width of the circuit board. This value is used if the "Use Conveyor Width" box is not selected.
Atomizing Air Pressure	This is a display used for reference only. It displays pressure as set manually on the fluxer control box.
Dual Pass	When selected, the fluxer sprays on the extend and retract of the spray stroke. Otherwise the fluxer only sprays on the extend spray stroke.

> Operation Page	External ServoSpray Fluxe	20		<u>×</u>
	Troubleshooting) Co	onfiguration - Serv	oSpray
	Operation	Maintenance	Maintenar	nce Timers
	Fluxer	Sct Point	Actual	Manual
			Off	Start
	Flux Tank Pressure	25.0	P	osi iii
	Traverse Speed	0.0	ir	nches/sec.
	Minimum Traverse Spee	d	0.0 ir	nches/sec.
	Spray Duration	0.0	ir	nches
	Pallet Offset - Leading E	dge 0.0	ir	nches
	Pallet Offset - Fixed Edge	.0.0	ir	nches
	Use Conveyor Width			
	Board Width	8.0	ir	nches
	Atomizing Air Pressure (n	ef.) 30	P	osi
	Dual Pass			
	- Current Value Pange			
			1	Help

Module > Operation Page

ServoSpray Maintenance

Overview	The maintenance tab contains manual override buttons, specifically for maintenance functions. These features should be limited to use by maintenance personnel only. The machine must first be in the Manual Mode. The start buttons listed below allow maintenance personnel to perform the following functions.
Spray Flux	This toggle button turns On or Off the flux and atomizing air.
Flux Nozzle	This toggle button turns On or Off the flux without atomizing air.
Atomization Air	This toggle button turns On or Off the atomizing air only.

SERVOSPRAY SOFTWARE ServoSpray Maintenance

Purge Air	This toggle button turns On or Off the purge air.
Clean Nozzle	This button forces a cleaning cycle to the air line. The function times out after 30 seconds.
Cleaning Pump	This button toggles the solvent pump. This function times out after 30 seconds.
Move to Maintenance Location	This button moves the fluxer to the desired service location as defined in the configuration page.
Actuate Spray Stroke	Selecting this button initiates a single flux spray stroke

Module > Maintenance Page

Anual Operations Spray Flux R Start Flux Nozzle Start Atomization Air Start Purge Air Start Clean Nozzle Start Cleaning Pump Start Move To Maintenance Location Start Actuate Spray Stroke Start	A stranual Operations Start Flux Nozzle Flux Nozzle Flux Nozzle Flux Nozzle Clean Nozzle Clean Nozzle Cleaning Pump Start Move To Maintenance Location Actuate Spray Stroke	Troubleshoot Operation	ing Maintenance	Configuration - Se Mainter	rvoSpray
 Spray Flux Flux Nozzle Atomization Air Purge Air Clean Nozzle Start Cleaning Pump Start Move To Maintenance Location Start Actuate Spray Stroke Start 	 Spray Flux Flux Nozzle Atomization Air Purge Air Clean Nozzle Cleaning Pump Start Cleaning Pump Start Move To Maintenance Location Start Actuate Spray Stroke Start 	Manual Operations -		1	
 Flux Nozzle Atomization Air Start Purge Air Clean Nozzle Cleaning Pump Start Move To Maintenance Location Start Actuate Spray Stroke 	 Flux Nozzle Atomization Air Start Purge Air Start Clean Nozzle Start Cleaning Pump Start Move To Maintenance Location Start Actuate Spray Stroke 	Spray Flux	5	Start	
 Atomization Air Start Purge Air Start Clean Nozzle Start Cleaning Pump Start Move To Maintenance Location Start Actuate Spray Stroke 	 Atomization Air Purge Air Clean Nozzle Start Cleaning Pump Start Move To Maintenance Location Start Actuate Spray Stroke 	Flux Nozzle		Start	
 Purge Air Clean Nozzle Start Cleaning Pump Move To Maintenance Location Actuate Spray Stroke 	 Purge Air Clean Nozzle Start Cleaning Pump Start Move To Maintenance Location Start Actuate Spray Stroke 	Atomization Air		Start	
 Clean Nozzle Start Cleaning Pump Start Move To Maintenance Location Start Actuate Spray Stroke 	Clean Nozzle Start Cleaning Pump Start Move To Maintenance Location Actuate Spray Stroke Start	O Purge Air		Start	
Cleaning Pump Start Move To Maintenance Location Actuate Spray Stroke Start	Cleaning Pump Start Move To Maintenance Location Carr Actuate Spray Stroke Start	 Clean Nozzle 		Start	
Move To Maintenance Location Start Actuate Spray Stroke Start	Move To Maintenance Location Start Actuate Spray Stroke Start	Cleaning Pump	2	Start	
Actuate Spray Stroke Start	Actuate Spray Stroke Start	Move To Main	Itenance Location	Start	
		 Actuate Spray 	Stroke	Start	

Maintenance Timers

Overview	Maintenance timers are uses as a guide to know when to perform maintenance on a specific module. Each maintenance timer screen contains two different types of timers. The Maintenance Timer associated with a specific device only runs while the device is on. The Maintenance Timer Level 1, 2, 3 are free running timers and do not stop when the device is off. These timers are used for setting up a maintenance schedule such as Daily, Weekly, or Monthly.
Interval (hours)	Enter the time expected in hours for maintenance to be done on a particular module.
Time Remaining	This field displays the time left before maintenance is due for the module.
Total Run Time	Total run time displays the time that a module has been on since installation.
Complete	When a maintenance operation is performed for this module, click on "Complete". A window titled "Maintenance Note" then appears allowing the operator to store a note to be viewed in the "Log View Maintenance Screen".
Restore Default Intervals	Selecting this button restores the default interval values.

SERVOSPRAY SOFTWARE ServoSpray Troubleshooting

Modules > Maintenance Timers Page

Troublesho	ooting	Cor	nfiguration - Se	rvoSpray
Operation	Maint	tenance	Mainter	iance Timers
	Interval (hours)	Time Remaining	Total Run Time	
Fluxer Level 1	24	15:51	08:09	Complete
Fluxer Level 2	168	159:51	08:09	Complete
	Resto	re Default Inter	vals	
			R	
			ß	
			Ę	
			L ₈	
Current Value Ran J - 87600	ge		Ę	

ServoSpray Troubleshooting

Overview	The troubleshooting tab contains features specifically for troubleshooting purposes and is recommended for use by maintenance personnel. This tab displays internal machine parameters and fluxer debug information. If there is a functionality issue with the fluxer, the values provided here may give the user an indication as to the cause of the problem.
Current Software Revision	The current software revision is necessary when calling Technical Support for help in software issues related to machine control operation.
Board Count	The board count parameter displays the current number of the boards that the fluxer is tracking.
Inputs/Outputs	The Inputs and Outputs of Fluxer with Fluxer I/O designation and Title. The LED is Green when active, otherwise it is Gray.

SERVOSPRAY SOFTWARE ServoSpray Troubleshooting

ServoSpray Troubleshooting Tab

Operation N	laintenance Maintenance Timers
Tioubleshooting	Configuration - ServoSplay
Current Software Revision	
Fluxer Board Count	0
Flux Low Delay Timer	
Celuent Leur Delau Timer	
Solveni Low Delay Timer	
Innuts	- Outputs
1 S Flux Level OK	1 🔿 Atomization Air
2 O Incoming Photocel	2 🔘 Output 2
3 🔿 Solvent Level OK	3 🔿 Purge Air
4 O DS Output pin 26	4 🔿 DS Controller pir 11
5 O DS Output pin 27	5 🔿 Valve Controler Input 1
6 O DS Output pin 28	6 🕢 Valve Controler Input 2
7 O Input 7	7 🕥 Valve Controler Input 3
8 🔿 Input 8	8 🥥 Air Knife
9 Keypad pin 5	9 🕢 Nozzle Purge Valve
10 Keypad pin 6	10 Output 10
11 O Keypad pin 7	11 O Output 11
12 🔘 Keypad pin 8	12 🔘 Keypad pin 2
13 O Encoder to DS cor	itroller 13 🔿 Keypad pin 3
14 🕥 Input 14	14 🕥 Keypad pin 4
15 🕥 Input 15	
16 O Input 16	
TO SUPERIOR	