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3. All damage due to incorrect connection or installation will immediately cancel the warranty. Repair costs will be charged to the customer.
4. The pump must be fixed at a reasonable distance from the dispenser arm with no stress on the pre-formed dispenser pipe

The following parts are delivered with the pump :

1. A tool kit for purging, including TEFLON adapter and PTFE 4(ID) x 6(OD) pipe
2. One filter with a TEFLON cap to plug in the resist bottle
3. One "S" shape pre-formed TEFLON pipe to connect between the resist bottle and the dispenser pump
4. 2 metres PTFE 4(ID) x 6(OD) pipe for the connection between the dispenser arm and the dispenser pump

If the SUSS *Virgin 30* dispenser is fitted, the connection with the spin coater controller uses cable (Z3). The power supply as well as the control signals come through cable (Z3). Plug (Z3) to connector (J3) at spin coater rear panel and to (J5) at the dispenser control box.

Each pump has a separate cable to be connected to the rear of the pump control box;

1. Connect pump 1 to connector **(J1)**.
2. Connect pump 2 to connector **(J2)**.
3. Connect pump 3 to connector **(J3)**.
4. Connect pump 4 to connector **(J4)**.

Pneumatic connection for the pump

Connect fluid "INLET" to dispense reservoir and dispense line "OUTLET" to the TEFLON pipe.

OTHER DISPENSERS

Pin Number	Description
A	Dispenser1 start pulse
F	Dispenser2 start pulse
H	Dispenser3 start pulse
K	Dispenser4 start pulse
B	End of dispense pulse
E	Power supply input (GNU)
D	Power supply input (+24V DC)
M	Ground

Dispensers from other suppliers can be controlled by the spin coater. Signals for controlling a dispenser are available on connector (J3) on the rear panel of the spin coater controller.

Five signals are provided:

1. Start dispense "ST" (1, 2, 3 & 4)
2. End of dispense "EOD"

4.3.2.6 SERIAL INTERFACE (RS 232 C)

Connect the RS 232 C cable to connector **(J7)** on the back of the spin coater controller. Refer to the technical manual for further details about module interconnection, especially drawing n° 6 47 XX 0 001.

4.4 PROCEDURE FOR FITTING AND CENTRING THE GYRSET HUB

WARNING

Any adjustment to the hub must always be carried out at a maximum of 1000 rpm.

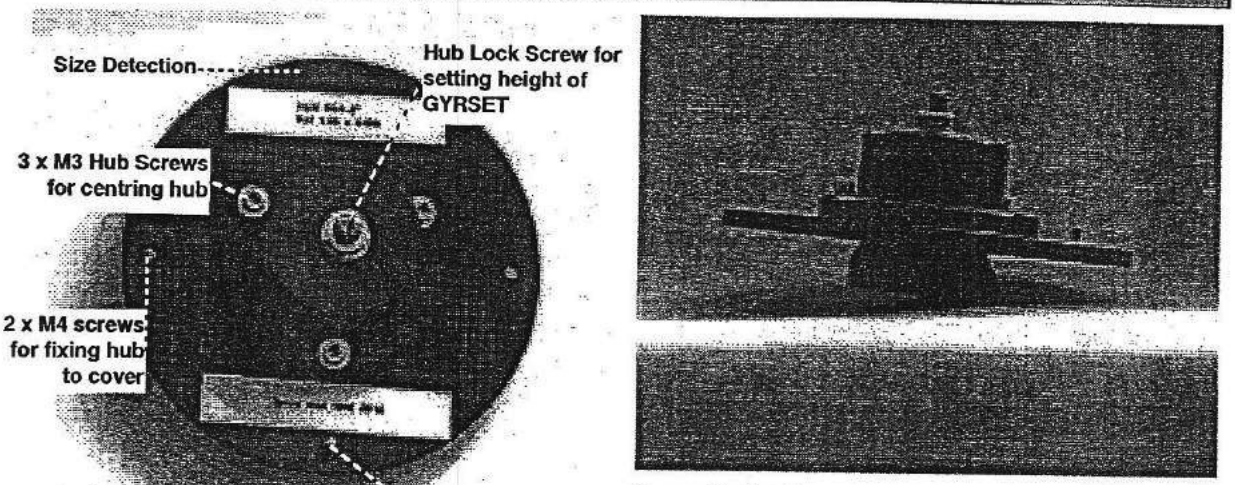
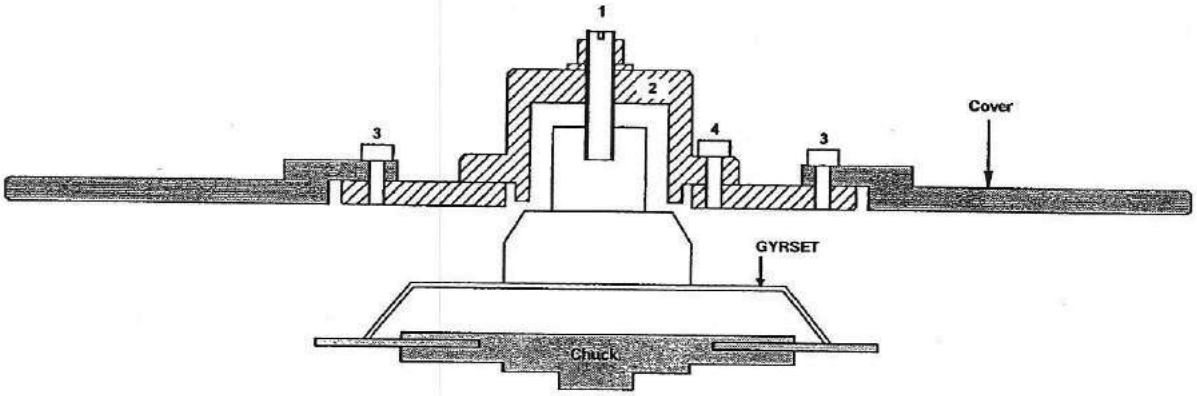


Figure 29: The GYRSET Hub Assembly



1. Remove the conic cover to access the hub assembly
2. Open the cover.
3. Centre the GYRSET and hub assembly on the chuck.
4. Turn the hub lock screw (1) anti-clockwise, lowering the hub (2) as far as possible.
5. Close the cover by switching off or disconnecting the compressed air.
6. Turn the hub lock screw (1) clockwise, raising the hub (2) until the cover just begins to lift up.
7. Fix the hub to the cover with the 2 x M4 screws (3).
8. Make sure the GYRSET is well inside the locating pins located around the edge of the chuck.
9. Switch the compressed air back on.
10. Loosen the 3 x M3 hub screws (4).
11. Program a spin cover closed cycle at 500 rpm/1000 rpm/s/999s
12. With the cycle running, centre the hub assembly manually to minimise vibration and noise.
13. Tighten the hub lock screw nut.
14. Tighten the 3 x M3 hub screws (4).
15. Increase the speed to 1000 rpm.
16. Fine tune the centring if necessary.
17. Check the centring at increasing steps of 1000 rpm and 1000 rpm/s up to the maximum speed. If the centring is not satisfactory, return to 1000 rpm and repeat steps 8 - 13.

4.5 PROCEDURE FOR CHANGING THE CHUCK

1. Switch the machine off. This will automatically bring the arm to the home position, and lower the lift pins if up.
2. Push the arm out until it reaches the negative travel stop.
3. Take out the screw from the centre of the chuck.
4. Exchange the chuck.
5. Replace the screw.
6. Switch the machine back on.

4.6 CHECKING THE DECANTER

Check the decanter every two months and remove any solvent present.

The purpose of the decanter is to secure the vacuum line (solenoid valve and vacuum sensor). If there is solvent inside the bottle it means the machine had not been used correctly eg the chuck is not the correct size or too much solvent is being used.

Contact SUSS service to identify the problem.

4.7 ADJUSTING THE GYRSET MOTOR AMPLIFIER

Before adjusting the motor amplifier, the PMW has to be de-validated. To do this, set set-up parameter value 59 "Type Of Spinning Power" to 0.

1. With the machine on stand-by (the cycle number is displayed), press <DEL>.
2. Confirm by pressing <ENTER>.
3. The display shows 3 zeros; All the LED's are off.
4. Type <59>, then press <ENTER>.
5. The parameter value flashes on the display, and the corresponding LED's light up.
6. Type <0>, then press <ENTER>. A beep is emitted.
7. Step 2 returns. Press <START/STOP> to end parameter editing and re-initialise the machine.

When adjustment is finished, re-set to 1.

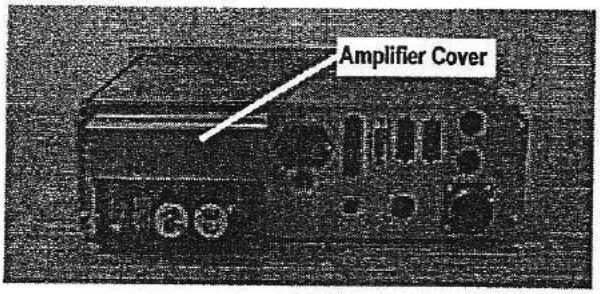


Figure 30: The Back of the CT62 Coater Controller Showing the Motor Amplifier

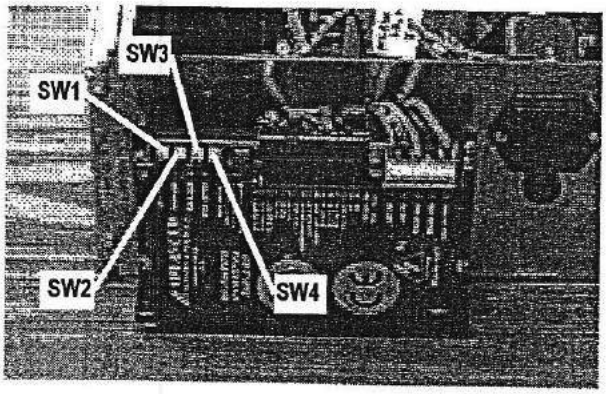


Figure 31: The Motor Amplifier with the Lid Off

The GYRSET Motor Amplifier controls the speed and movement of the GYRSET. Occasionally, this control may become unbalanced. This is evident when the machine is switched on, and the GYRSET turns.

To adjust the amplifier, there are 4 screws which can be rotated in both directions. To access these screws, slide off the CT62 lid, then take out the 2 x 2.5 mm Allen screws and remove the amplifier cover.

SW1: LOOP GAIN

1. Turn full clockwise until you hear a "click"
2. Turn 2 rotations anti-clockwise. If oscillations occur, turn anti-clockwise until oscillations stop.

SW2: CURRENT LIMIT

1. Turn full clockwise a maximum of 1 revolution

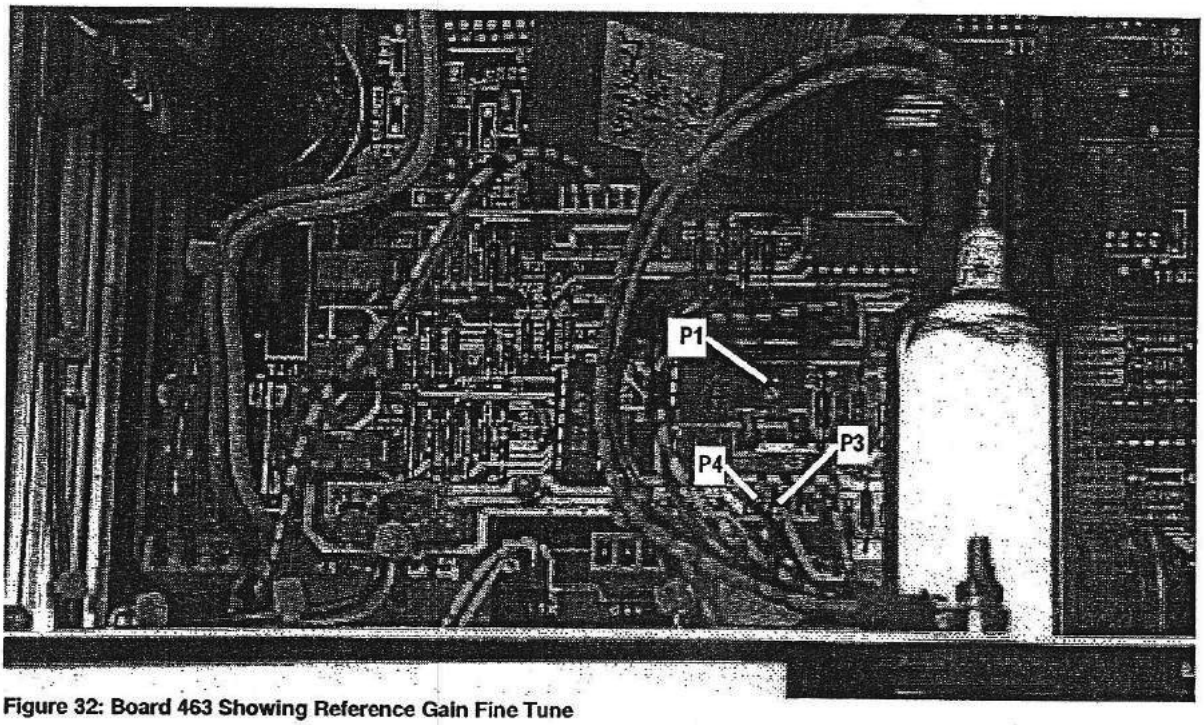


Figure 32: Board 463 Showing Reference Gain Fine Tune

SW3: REFERENCE GAIN

This procedure adjusts the real speed to correspond with the set speed.

1. Program and run a motor speed of 1000 rpm.
2. Place a voltmeter across P3 (white) and P4 (black)
3. Adjust the voltage with SW3 to give a reading of 10V on the voltmeter.
4. To fine tune the voltage, adjust P1.
5. Measure the real spin speed with tachometer. If necessary, adjust P1 until the tachometer reads 1000 rpm.

SW4: OFFSET

1. Apply 0V input signal and adjust to obtain 0V on motor outputs.

4.8 LOCATION OF THE FUSE

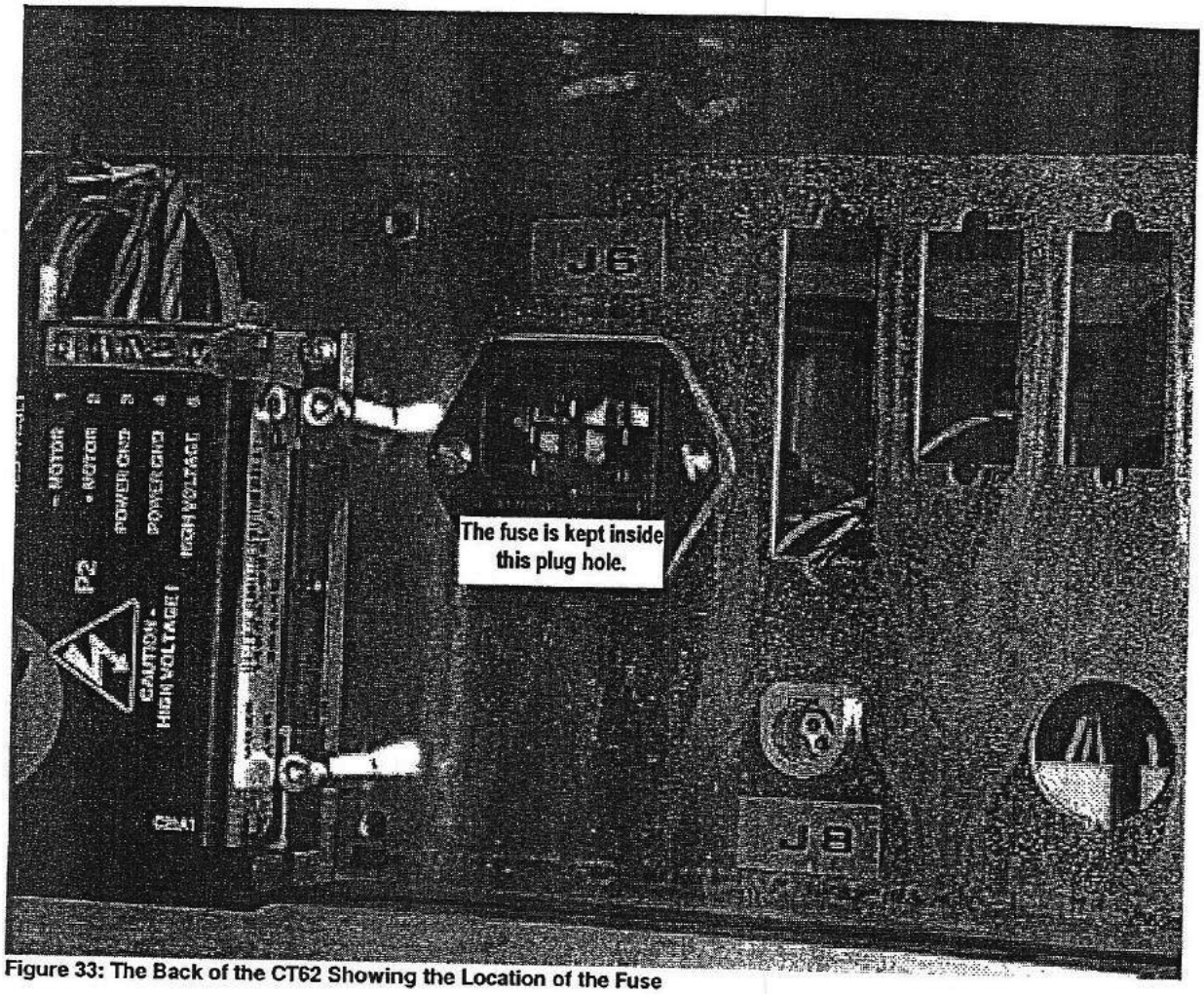


Figure 33: The Back of the CT62 Showing the Location of the Fuse

4.9 CHANGING THE EPROM

CAUTION

Versions Kxx and Vxx are compatible up to version V099. V099 is the most complete Vxx version.

Versions Vxx are incompatible with versions Cxx. Version Cxx cannot replace version Vxx without changing the CT62 coater controller.

If SUSS pumps are used, changing the CT62 EPROM also necessitates changing the MP25 pump controller EPROM, the ACS software (if applicable) the PC software (if applicable) etc.

1. Furnish yourself with the parameter table for the installed version
2. Furnish yourself with the parameter table for the new version
3. Understand the equivalence between the parameters of the two versions
4. Note the current parameter values in the first table
    1. Switch the coater on while keeping <RESET> pressed. The parameters in use flash.
    2. Press <ENTER> to read the next parameter. Attention: any parameters not used are not displayed. The parameters in the table and those on the display are linked by the LEDs.

5. Note which cycles are used and their parameters
6. Switch off the coater
7. Disconnect the CT62 from the coater and take it out of the cabinet
8. Take off the CT62 lid and exchange EPROMS. Note: an antistatic band is compulsory for ISO9000.
9. Connect a mains lead to the CT62
10. Re-enter the parameters:
    1. Switch the machine on while keeping <RESET> pressed
    2. Re-program the parameters with those previously noted

CAUTION

New parameters could appear in the list. These are usually set to 0. Others could disappear. Check the link with the LEDs.

11. Disconnect the mains lead from the CT62
12. Re-connect the mains lead. An error should appear on the CT62 display eg o28
13. If the display flashes, certain parameters are incorrect. Check.
14. Disconnect the mains lead from the CT62
15. Re-connect the mains lead while keeping <INS> pressed
16. The CT62 should display a cycle number eg oo2
17. Zero all the cycles (1 to 9)
    1. Select the cycle.
    2. Press <RESET>. The display flashes.
    3. Press <ENTER>
18. Reprogram all the cycles with the values taken in step (5)

CAUTION

Certain steps may require new parameters

19. Disconnect the mains lead from the CT62
20. Reconnect all the CT62 cables to the coater
21. Reconnect the mains lead to the CT62
22. Switch the coater back on and test the new version
23. Note the parameters for the new version in the table
24. Send the table, version, date and checksum of the new EPROM to the field service department at KSF

5. SAFETY START/STOP

5.1 ISOLATION

The machine is fitted with a safety isolation panel. This panel is integrated into the process area on the top back of the cabinet. This panel is inserted between the machine and the mains power supply.

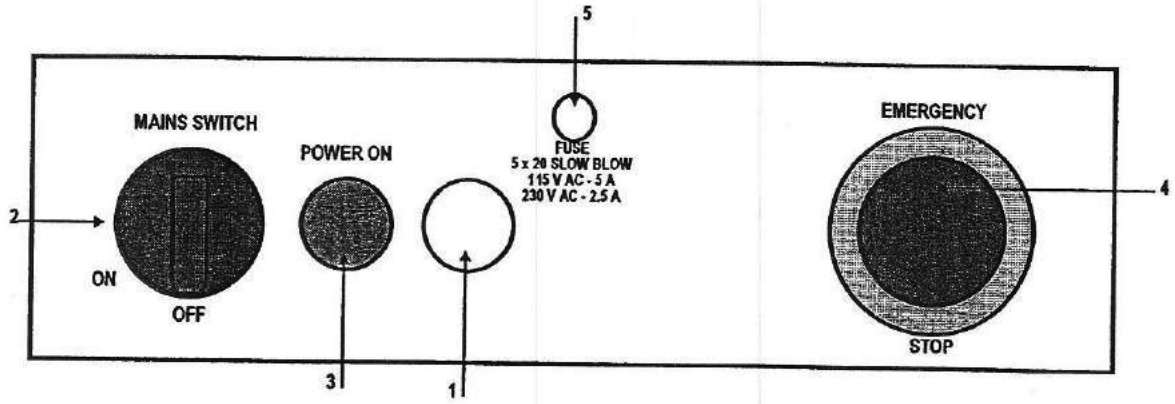


Figure 34: Isolation Panel

1 Mains Switch Light: Indicates whether the machine is connected to the mains. Lights up green if connected.

2 Mains Switch: Connects or disconnects the machine to the mains power supply. Turn to the "on" position to connect the machine to the mains. The mains switch light glows green if connected.

3 Machine Power On Switch: Press to switch the machine on. Glows green if on.

4 Stop Mushroom Button: Hit this button to stop the machine. Once activated, the button needs to be pulled up to deactivate. To re-start the machine, press the power on button.

5 Machine Fuse

5.2 SAFETY

The large area spin coaters (RC13, 16, 22 & 33) have an enclosure around the process area. The enclosure is fitted with interlocked doors. A spin cycle can only be run if these doors are shut. If they are not, error 30 is returned. If this happens, close the doors and press <Enter> to clear the error. Similarly, the machine will not initialise if the doors are open. Make sure they are shut when switching on the machine.

NOTE

Make sure the process area doors are shut when switching the machine on.

If they are not, the machine will not initialise.

The enclosure prevents the operator from putting his hand in the process area when spinning with the cover open.

The smaller spin coaters (RC8, RC5 GYRSET and RC5) do not have an enclosure. Instead, the operator is prevented from programming a fast spin cycle with the cover open. The speed is limited to 1 000 rpm by European safety standards.

5.3 EXHAUST DETECTION

The large area spin coaters are fitted with a mechanical exhaust gate. If the exhaust is not sufficient, this gate remains closed. If the Mains Switch is then turned on, an error is returned, and the Machine Power On Switch is defeated.

The flow rate of the exhaust must be sufficient to open the gate. The value is determined during installation of the machine.

NOTE

Make sure that the machine is connected to an aspirator with an adequate flow rate. The machine will not switch on if it is not.

5.4 STARTING THE MACHINE

1. For large area spin coaters, connect to an exhaust at least 1 minute before turning on the machine.
2. For large area spin coaters, shut the process area doors
3. Turn the Mains Switch to "ON". The mains switch light lights up.
4. Press the power on button. This button lights up.

STOPPING THE MACHINE

1. Press the stop mushroom button. To re-start, lift up the stop button and press the power on button.
2. At the end of a session, disconnect the machine from the mains by turning the mains switch to the "OFF" position.

6. LOADER OPTION (RC33)

Your machine may be fitted with a loader. This comprises a manual fork for helping you to load and unload large substrates. Configuration parameters for this option are included in the software, which are set up at the factory.

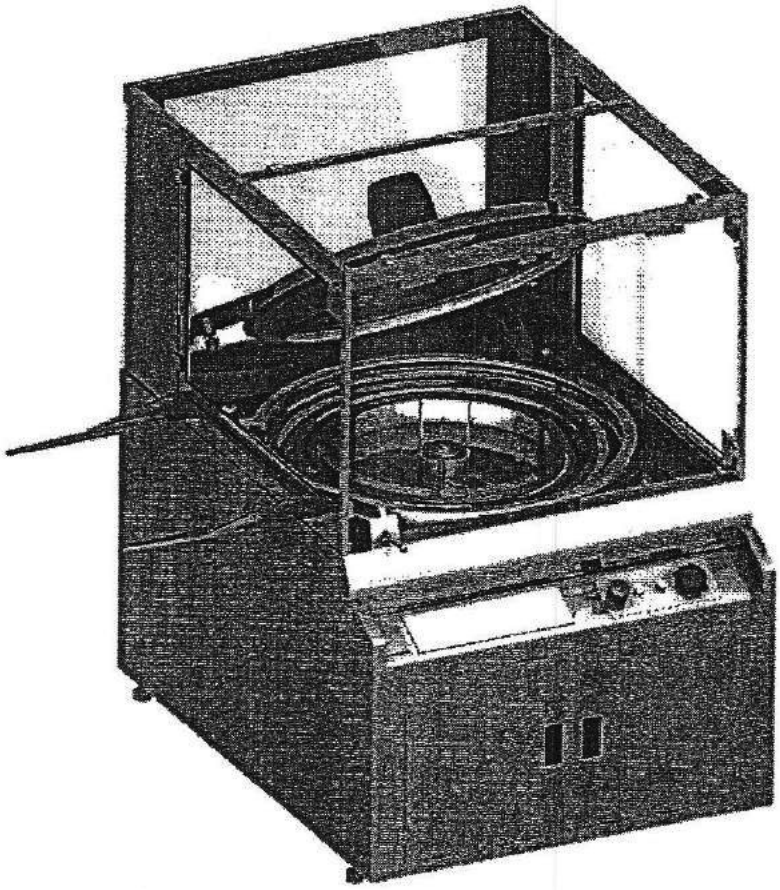


Figure 35: RC33 Fitted With Loader Option

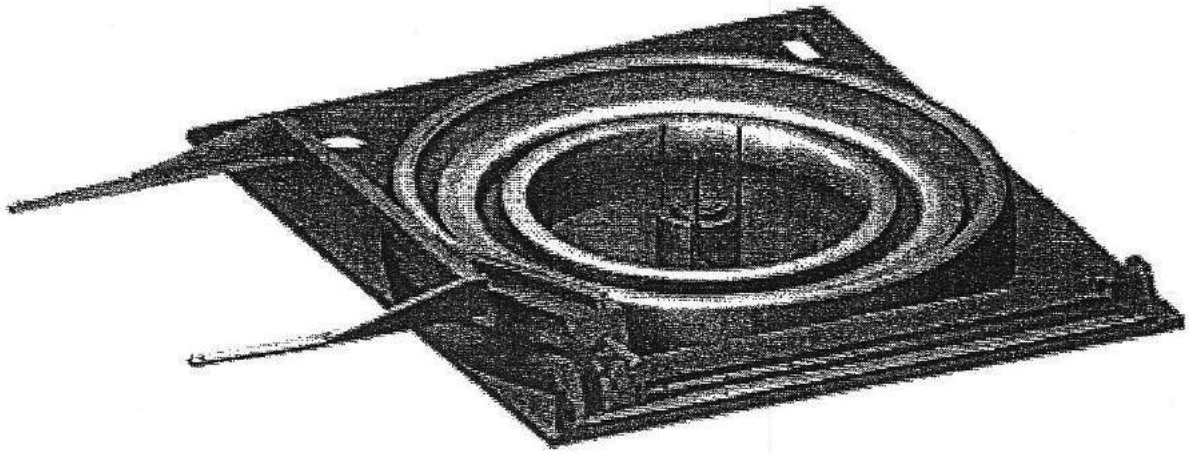


Figure 36: RC33 Loader Option

The loader comprises a loader fork, a handle and a rail. The loader fork has four sets of pins on it for positioning the substrate. The handle is used to move the fork in and out of the machine long the rail, enabling loading of the substrate onto the chuck. The rail has a suction pad at each end, which holds the fork in place for loading and unloading.

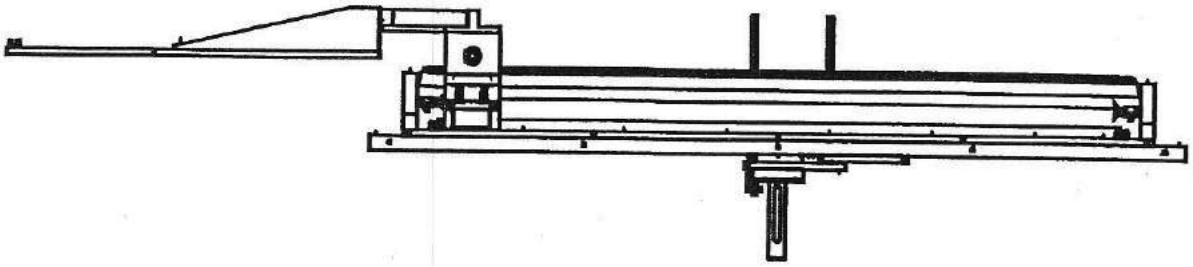


Figure 37: RC33 Loader - Side View

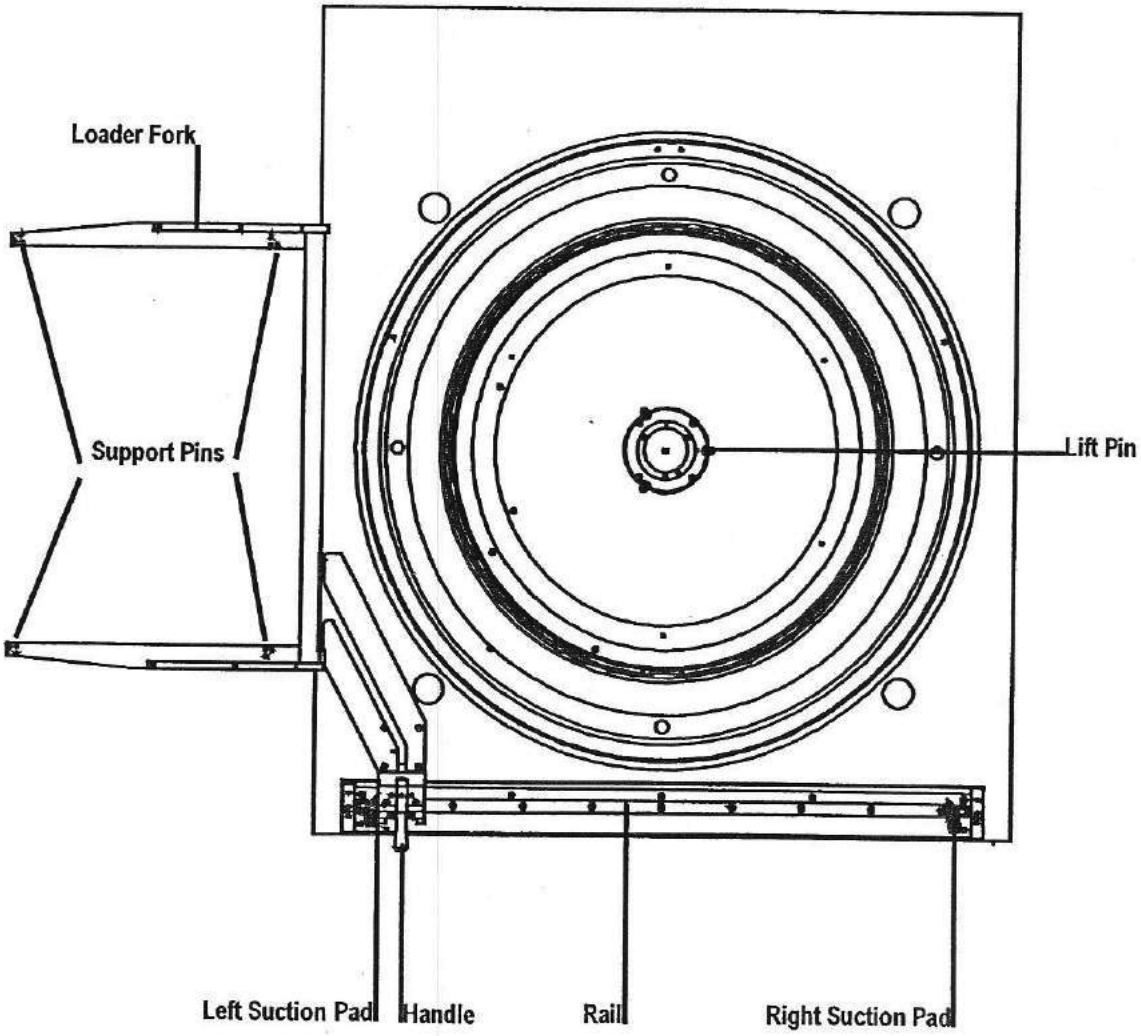


Figure 38: RC33 Loader - Top View

Loading and unloading procedures are as follows:

LOADING

1. At rest, the loader fork is held outside (to the left of the machine) by the left suction pad vacuum. The lift pins are down.
2. Place the substrate on the loader fork. There are two locating pins and one support pin for each corner of the substrate.
3. Run your cycle: press<START/STOP>.
4. The substrate vacuum is tested.
5. If a substrate is detected in the machine, the cycle will not be run.
6. If a substrate is not detected in the machine, the cycle will run, and the substrate can be loaded.
7. The vacuum to the left suction pad is cut off, freeing the loader fork.
8. A line flashes across the display, telling you to move the loader fork above the chuck.
9. When the loader fork is detected above the chuck, the vacuum to the right suction pad is switched on, holding the loader fork.
10. The lift pins rise up, lifting the substrate off the loader fork.
11. The vacuum to the right suction pad is cut off, freeing the loader fork.
12. A line flashes across the display, telling you to move the loader fork back outside.
13. When the loader fork is detected outside, the vacuum to the left suction pad is switched on, holding the loader fork.
14. The lift pins descend and the substrate vacuum is switched on, holding the substrate to the chuck.
15. The cycle starts.

UNLOADING

1. At rest, the loader fork is held outside (to the left of the machine) by the left suction pad vacuum. The lift pins are down.
2. The loader fork must be empty.
3. At the end of the spin cycle, the lift pins rise up, lifting the substrate off the chuck.
4. The vacuum to the left suction pad is cut off, freeing the loader fork.
5. A line flashes across the display, telling you to move the loader fork above the chuck.
6. When the loader fork is detected above the chuck, the vacuum to the right suction pad is switched on, holding the loader fork.
7. The lift pins descend, placing the substrate on the loader fork.
8. The vacuum to the right suction pad is cut off, freeing the loader fork.
9. A line flashes across the display, telling you to move the loader fork back outside.
10. When the loader fork is detected outside, the vacuum to the left suction pad is switched on, holding the loader fork ready for you to unload the substrate.

Machine initialisation finishes with a chuck vacuum check. If a substrate is present, the operator is requested to unload it. Unloading is also accessible through function 0 in cycle 0. Use this to recuperate a substrate after an incorrect loading.

RELATED CONFIGURATION PARAMETERS

N°	Description	Limits	LED's	Comments
58	Type of loader	0, 1, 2	TIME (y), REMOTE (g)	0: Loader not fitted 1: Loader fitted 2: Loader fitted but not used

7. EXTENDED CABINET WITH MANUAL LOADER OPTION (RC8)

7.1 INTRODUCTION

This section describes the manual loader. This is a transfer arm that helps the user move a wafer between the spin coater and the hot plate in an extended cabinet configuration.

7.2 MACHINE OVERVIEW

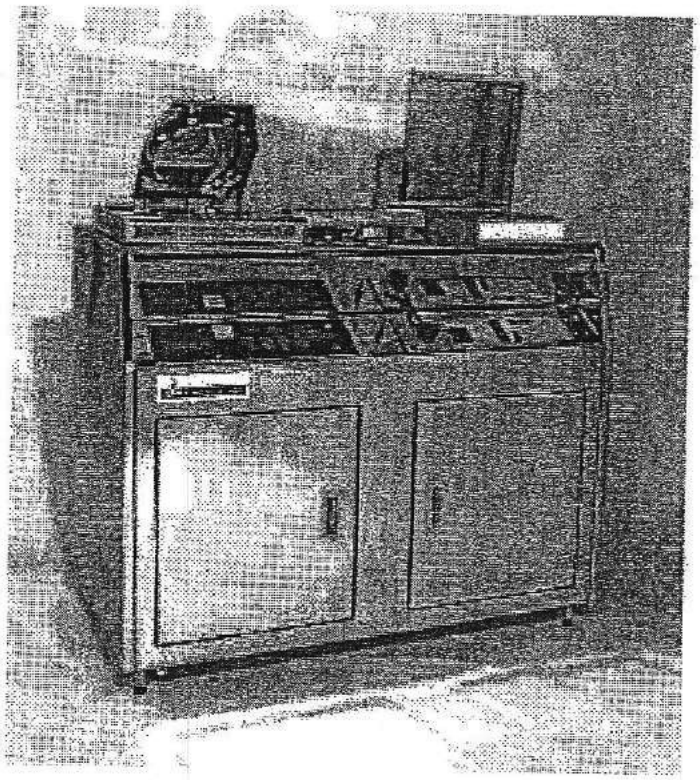


Figure 39: The RC8 THP Transfer Hot Plate

The loader helps the user to move the wafer from the spin coater to the hot plate. It limits human contact with the wafer which could damage or dirty it, and assures an accurate positioning on the chuck and in the hot plate. It also keeps the wafer flat between the coater and the hot plate, especially useful for thick resist applications. The substrate is carried on a fork, called an "end effector", on the end of the loader arm, and is held in position by locating pins and vacuum.

The loader can be rotated through 180° (with the substrate always moving away from the user) and displaced through 265 cm. Rotation (T+/-) and translation (X+/-) detectors activate suction pads during the program sequence. These in turn manage the lift pin movements of the spin coater and the hot plate, and the end effector vacuum.

The loader has 3 positions:

1. Rest, when the spin coater and hot plate are processing
2. Spin coater, for loading and unloading substrates on the spin coater
3. Hot plate, for loading and unloading substrates on the hot plate

2 lights show the status of the loader and a function knob selects one of 5 pre-set functions. In any case, both the spin coater and the hot plate can be used manually.

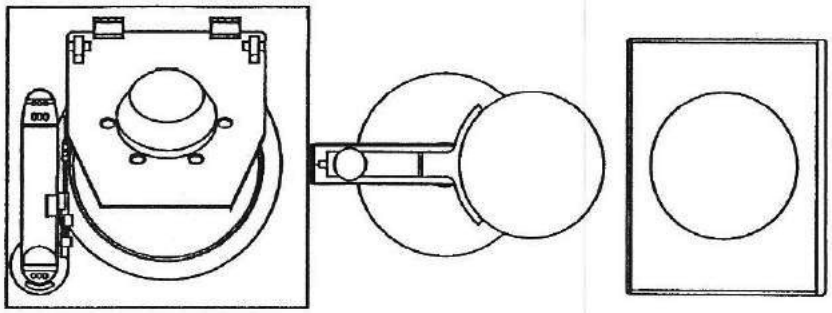


Figure 40: The loader in the rest position

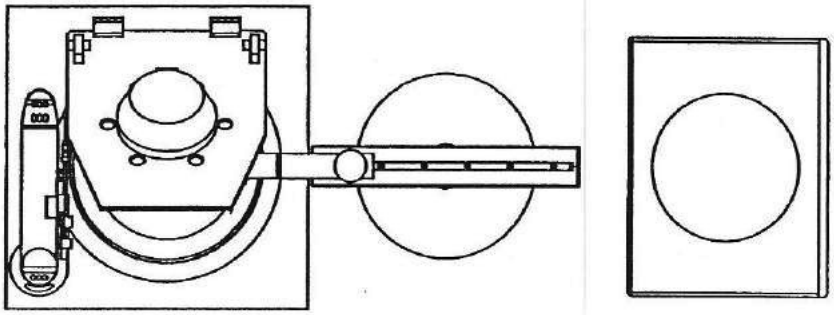


Figure 41: The loader in the spin coater position

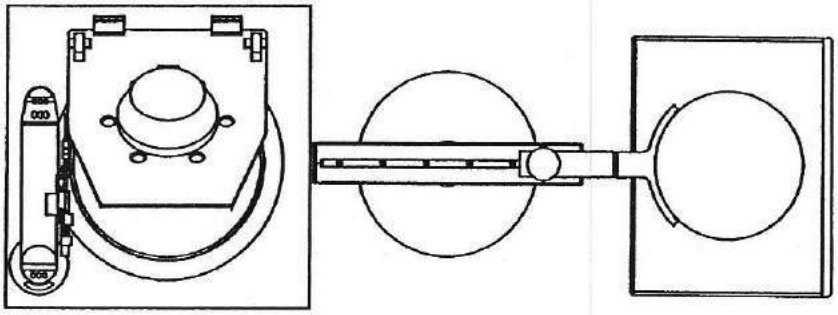


Figure 42: The loader in the hot plate position

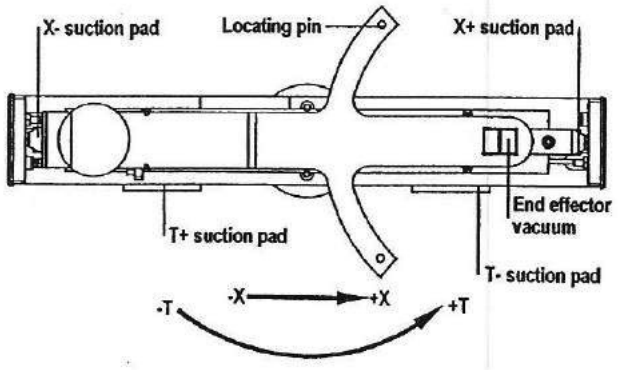


Figure 43: The loader (without covers) showing suction pads

7.3 USE

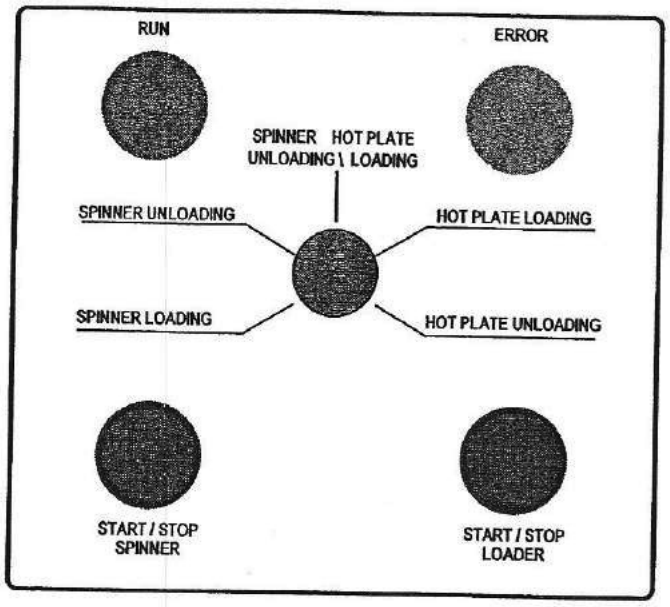


Figure 44: The Loader Control Panel

The loader should be in the rest position X-, T+ , with the lights RUN and ERROR off. If the loader is not detected in this position, the yellow light ERROR comes on. Move the arm so that the suction pads hold it in the rest position. The ERROR light goes out.

The user selects one of the five pre-set functions

1. Spinner loading
2. Spinner unloading
3. Spinner hot plate unloading/loading
4. Hot plate loading
5. Hot plate unloading

Place a substrate on the loader for the loading functions (n° 1, 3 and 4) and take the substrate off the loader for the unloading functions (n° 2, 3 and 5).

Validate your selection the selection by pressing <START/STOP LOADER>.

The green light RUN comes on.

Release the <START/STOP LOADER> button to start the function.

When the green light flashes, place the loader in the next position. All functions finish with the arm in the rest position.

The RUN light goes out.

After loading the spin coater (function 1), press <START/STOP SPINNER>. This has the same effect as pressing <START/STOP> on the CT62 spin coater controller.

After loading the hot plate (function 3 or 4), move the loader back to its rest position. The hot plate cycle starts automatically.

If an error occurs during a function, the yellow light ERROR comes on. Return the loader to its rest position and the light goes out.

If the user presses <START/STOP LOADER> during a cycle, the function stops. Return the loader to its rest position.

The loader memorises the functions and stops the spin coater or oven being loaded twice if a complete unload has not already been carried out. The same applies for unloading. This memory feature can be switched on or off by keeping the <START/STOP LOADER> button pressed for longer than 5 seconds. The green light goes out.

When switching the memory back on, there must be no substrate in the spin coater or the oven as the program will not know it is there.

7.4 FUNCTION1: SPINNER LOADING

1. Place a substrate on the loader in the rest position and make sure there is no substrate in the spin coater.
2. Check the function selector knob and press <START/STOP LOADER>. The RUN light comes on.
3. The substrate vacuum comes on. If it is not strong enough, the ERROR light flashes, and the function fails.
4. The spin coater display goes out, the keyboard is deactivated and the lift pins retract.
5. The vacuum to suction pad T+ is switched off, freeing the loader to rotate. The green light RUN flashes.
6. Push the loader round anti-clockwise. When it arrives at the stop T-, the vacuum to this suction pad is switched on, holding the loader.
7. The vacuum to suction pad X- is switched off, freeing the loader to move laterally. The green light RUN flashes.
8. Push the loader to the left over the spin coater. The vacuum to suction pad X+ is switched on, holding the loader.
9. The end effector vacuum is switched off, the lift pins move up and pick up the substrate.
10. Push the loader to the right then turn it clockwise to its rest position. The vacuum to suction pads X- and T+ are switched on, locking the loader in position.
11. The green light goes out.
12. The spin coater display re-appears, and the keyboard becomes operational.
13. Set the spin coater parameters as required and validate, then press <START/STOP SPINNER>. The spin coater runs its cycle.

7.5 FUNCTION2: SPINNER UNLOADING

1. The loader is in the rest position. If there is a substrate on it, take the substrate off.
1. Check the function selector knob and press <START/STOP LOADER>. The green light RUN comes on.
2. The spin coater display goes out and the keyboard is deactivated.
3. The vacuum to suction pad T- is switched off, freeing the loader to rotate. The green light RUN flashes.
4. Push the loader round anti-clockwise. When it arrives at the stop T+, the vacuum to this suction pad is switched on, holding the loader.
5. The vacuum to suction pad X- is switched off, freeing the loader to move laterally. The green light RUN flashes.
6. Push the loader to the left over the spin coater. The vacuum to the suction pad X+ is switched on, holding the loader.
7. The end effector vacuum is switched on. The spin coater lift pins retreat, leaving the substrate on the loader.
8. Push the loader to the right then turn it clockwise to its rest position. The vacuum to suction pads X- and T+ are switched on, locking the loader in position.
9. The green light goes out.

10. The spin coater display re-appears, and the keyboard becomes operational.

7.6 FUNCTION3: SPINNER HOT PLATE UNLOADING/LOADING

This function transfers the substrate from the spin coater to the hot plate. It links function 2 and function 4. After loading the spin coater, it is not necessary to validate the loading of the hot plate.

7.7 FUNCTION4: HOT PLATE LOADING

1. Place a substrate on the loader in the rest position and make sure there is no substrate on the hot plate. Set up the hot plate.
2. Check the function selector knob and press <START/STOP LOADER>. The RUN light comes on.
3. The substrate vacuum comes on. If it is not strong enough, the ERROR light flashes, and the function fails.
4. The hot plate lift pins retract.
5. The vacuum to suction pad X- is switched off, freeing the loader to move laterally. The green light RUN flashes.
6. Push the loader to the right over the hot plate.
7. The vacuum to the suction pad X+ is switched on, holding the loader.
8. The end effector vacuum is switched off, the lift pins move up and pick up the substrate.
9. The vacuum to suction pad X+ is switched off, freeing the loader to move laterally. The green light RUN flashes.
10. Push the loader to the left to the rest position. The vacuum to suction pads X- and T+ are switched on, locking the loader in position.
11. The green light goes out. And the hot plate cycle is run.

7.8 FUNCTION5: HOT PLATE UNLOADING

1. The loader is in its rest position. If there is a substrate on it, take the substrate off.
2. Check the function selector knob and press <START/STOP LOADER>. The green light RUN comes on.
3. The vacuum to suction pad X- is switched off, freeing the loader to move laterally. The green light RUN flashes.
4. Push the loader to the right over the hot plate.
5. The vacuum to suction pad X+ is switched on, holding the loader.
6. The end effector vacuum is switched on. The lift pins retreat, leaving the substrate on the loader.
7. The vacuum to suction pad X+ is switched off, freeing the loader to move laterally. The green light RUN flashes.
8. Push the loader to the left to the rest position. The vacuum to suction pads X- and T+ are switched on, locking the loader in position.
9. The green light goes out.
10. The hot plate lift pins move back up.

8. SYSTEM CONFIGURATION

8.1 INTRODUCTION

The following configurations, either switch positions or memory values are pre-set prior to shipment according to the hardware configuration. They should never be changed. Explanation follows for trouble shooting purposes only.

8.2 SOFTWARE CONFIGURATION SWITCHES

The set of switches 'SW1' on the KSF 414 board allows the system software configuration to be adapted according to the actual hardware configuration as follows:

SW1.1: ON No chuck indexing

OFF Chuck indexing fitted

SW1.2: ON No automatic dispense arm (or manual arm)

OFF Automatic dispense arm fitted

SW1.3: ON Manual

OFF Cover is automatic

SW1.4: ON No cover

OFF Cover fitted

Note: SWI.3 = OFF and SWI.4 = ON Cover with indexed GYRSET.

8.3 SOFTWARE MACHINE PARAMETERS

Some specific parameters are required by the software to run the machine correctly. These parameters are not to be modified by the user. Only the service engineer should modify these parameters. There are two parameter access modes: sequential and direct. For the values set at the factory see section Appendix 1.on page 75.

SEQUENTIAL

To access the software parameters, keep the <RESET> key pressed down while switching on the system. In case an incorrect parameter is detected at power ON, the software configuration mode is automatically activated. The three-digit display flashes to inform the user that he is running the software programming sequence. LED's light up on the control panel corresponding to the parameter displayed (see table).

It is not necessary to pass through every remaining parameter to change a single parameter value. After you have made the modification, press <START/STOP> to validate and stop sequential access and start machine initialisation.

DIRECT

25. When the machine is on stand-by (the cycle number is displayed), press <DEL>.
26. Confirm by pressing <ENTER>.
27. The display shows 3 zeros; All the LED's are off.
28. Enter the parameter to be modified, then press <ENTER>.
29. The parameter value flashes on the display, and the corresponding LED's light up.
30. Modify the parameter value as required, then press <ENTER>. A beep is emitted.
31. Step 2 returns. Another parameter value can be modified.
32. At any moment, press <START/STOP> to end parameter editing and re-initialise the machine.

PARAMETER LIST

N°	Description	Parameter Limits	LEDs on (g or y)	COMMENTS
1	Motor type	1, 2, 3, 4, 5, 6	TIME (y) ACCELERATION (y)	
		1: 10 000 rpm 2: 5 000 rpm 3: Infranor 4: 3 000 rpm 5: 7 000 rpm 6: GYRSET configuration		
2	Spin speed gear	1 to 999	TIME (y) SPEED (y) ACCELERATION (y)	
3	Maximum spin speed with cover closed.	0 to the maximum speed of the motor type	SPEED (y) CLOSE (g)	
4	Maximum spin speed with cover open	0 to the maximum speed of the motor type	SPEED (y) OPEN (g)	Irrespective of the value entered, the maximum speed is limited to approx 1000 rpm for EU safety reasons. Therefore, if the user programs a value of more than 1000, error 28 is returned.
5	Rotation speed of chuck during indexing sequence	10 to 90 (corresponding to 10 to 90 rpm)	SPEED (y)	Only if chuck indexing option is fitted (SW1.1=OFF).
6	Maximum speed of the chuck on the cover closing	0 to 50 (corresponding to 0-500rpm)	SPEED (y) OPEN (g) CLOSE (g)	Only cover (SW1.4=OFF).
		0: The chuck will stop at each cover close		
7	Maximum acceleration allowed	1 to 200 (corresponding to 100-20000 rpm/s)	ACCELERATION (y)	
8	GYRSET indexing type	0 or 1	ACCELERATION (g) OPEN (g) CLOSE (g)	SW1.3 = OFF and SW1.4 = ON
		0: Stand GYRSET 1: GYRSET up/down		
9	Use of lift pins	0, 1, 2, 3	OPEN (g) CLOSE (g)	only if chuck indexing is fitted (SW1.1=OFF)
		0: lift-pins not fitted 1: robot: pins lift up at beginning and end of cycle 2: manual: pins remain down at beginning of cycle for user to place substrate on chuck locating pins. Pins lift up at end of cycle. 3: lift pins are fitted but not used. They are kept down.		
10	Use of serial interface ports	0, 1, 2, 3, 4, 5, 6	DISPENSER1 (g) DISPENSER2 (g) TIME (y)	

N°	Description	Parameter Limits	LEDs on (g or y)	COMMENTS
		0: there is no serial communication. 1: Virgin KSF414 pump is connected to the main RS232. Predispense is available. 2: Host KSF414 is connected to the main RS232. 3: Virgin KSF414 is connected to the main RS232, host 455 is connected to the auxiliary RS422. 4: Host is connected to the auxiliary RS422. 5: Host = RS232, Virgin/Vulcan = RS422 6: RS422 predispense + TTL dispense		
11	Address of the RS232 interface port	0 to 9 0: No address needed. Other values are the interface numbers	REMOTE (g)	The ASCII code of a non-zero value must come before each remote command
12	Number of drain level alarm sensors fitted	0, 1, 2, 3		
13	Dispense Arm Positioning Type	2, 6 or 999 2: standard automatic arm 6: extension for three (3) dispense lines is fitted 999: motorised arm	All LEDs in fluid column (g)	
14	Arm position in count	1 to 999	SUBSTRATE SIZE (mm) (g) ARM SPEED (g)	For motorised arm (13=999) only
15	Dispenser arm home position	0 to 999	SPEED (y) SUBSTRATE SIZE (g)	
16	Maximum diameter allowed (mm)	1 to 999	SUBSTRATE SIZE (mm) (g)	only for motorised arm (13=999)
17	Number of dispenser lines fitted	0, 1, 2, 3, 4	DISPENSER1 (g) DISPENSER2 (g)	Available only with the 6 position dispenser arm (13=6) or motorised arm (13=999).
18	Auto Clean Solvent 1 - SET UP	0, 1, 2 0: Solvent 1 is not used 1: Solvent 1 is dedicated to autoclean 2: Solvent 1 is standard	SOLVENT1 (g) SOLVENT2 (g)	
19	Arm position for nitrogen blow-off	1 to 6 when parameter 13=6, 0 to 999 when parameter 13=999	NITROGEN (g)	
20	Arm position for Dispenser1	1 to 6 when parameter 13=6, 0 to 999 when parameter 13=999	DISPENSER1 (g)	Only with the 6 position arm (13=6) or motorised arm (13=999) and if at least 1 dispenser (17 ≥ 1).
21	Arm position for Dispenser2	1 to 6 when parameter 13=6, 0 to 999 when parameter 13=999	DISPENSER2 (g)	Only with the 6 position arm (13=6) or motorised arm (13=999) and if at least 2 dispensers (17 ≥ 2).
22	Arm position for Dispenser3	1 to 6 when parameter 13=6, 0 to 999 when parameter 13=999	DISPENSER1 (g)	Only with the 6 position arm (13=6) or motorised arm (13=999) and if 3 dispensers (17>=3).
23	Arm position for Dispenser4	1 to 6 when parameter 13=6, 0 to 999 when parameter 13=999	DISPENSER2 (g)	Only with the 6 position arm (13=6) or motorised arm (13=999) and if 4 dispensers (17>=4).
24	Arm position for Solvent1	1 to 6 when parameter 13=6, 0 to 999 when parameter 13=999	SOLVENT1 (g)	Only with the 6 position arm (13=6) or motorised arm (13=999)

N°	Description	Parameter Limits	LEDs on (g or y)	COMMENTS
25	Arm position for Solvent2	1 to 6 when parameter 13=6, 0 to 999 when parameter 13=999	SOLVENT2 (g)	Only with the 6 position arm (13=6) or motorised arm (13=999)
26	Arm position for Solvent3	1 to 6 when parameter 13=6, 0 to 999 when parameter 13=999	SOLVENT1 (g)	Only with the 6 position arm (13=6) or motorised arm (13=999)
27	Arm position for Solvent4	1 to 6 when parameter 13=6, 0 to 999 when parameter 13=999	SOLVENT2 (g)	only with the 6 position arm (13=6) or motorised arm (13=999)
28	Cotton Candy Remover (CCR) Solvent 3 - SET UP	0, 1, 2 0: Solvent 3 is not used 1: Solvent 3 is dedicated to cotton candy remover 2: Solvent 3 is standard	SOLVENT1 (g) NITROGEN (g)	
29	Edge Bead Remover (EBR) Solvent 2 - SET UP	0, 1, 2 0: Solvent 2 is not used 1: Solvent 2 is dedicated to edge bead remover 2: Solvent 2 is standard	SOLVENT2 (g) NITROGEN (g)	
30	Unused	0	N/A	Speed for EBR is now a step parameter
31	Servicing position	0 to 999	TIME (y) SUBSTRATE SIZE	only for motorised arm (13=999)
32	Back Side Rinse (BSR) Solvent 4 - SET UP	0, 1, 2 0: Solvent 4 is not used 1: Solvent 4 is dedicated to back side rinse 2: Solvent 4 is standard	TIME (y) SOLVENT1 (g)	
33	Return position for the Back Side Rinse nozzle	0 to 999	SPEED (y) SOLVENT1 (g)	only if back side rinse option active (32≠0)
34	Dispenser Nozzle Resist Auto clean (DNR) Solvent 5 - SET UP	0,1, 2 0: Solvent 5 is not used 1: Solvent 5 is dedicated to dispenser nozzle rinse 2: Solvent 5 is standard	SOLVENT1 (g) SOLVENT2 (g) DISPENSER1 (g)	
35	Arm position for resist nozzle autoclean of Dispenser1	0 to 999	SOLVENT1 (g) DISPENSER1 (g)	Only if resist nozzle autoclean activated (34≠0) and at least 1 dispensers (17>0)
36	Arm position to resist nozzle autoclean of Dispenser2	0 to 999	SOLVENT1 (g) DISPENSER2 (g)	Only if resist nozzle autoclean activated (34≠0) and at least 2 dispensers (17>1)
37	Arm position to resist nozzle autoclean of Dispenser3	0 to 999	SOLVENT1 (g) DISPENSER1 (g)	Only if resist nozzle autoclean activated (34≠0) and at least 3 dispensers (17>2)
38	Arm position to resist nozzle autoclean of Dispenser4	0 to 999	SOLVENT1 (g) DISPENSER2 (g)	Only if resist nozzle autoclean activated (34≠0) and at least 4 dispensers (17>3)
39	Swinging Resist (SR) Dispenser1 – SET UP	0, 1, 2	NITROGEN (g) DISPENSER1 (g)	Only if at least 1 dispenser (17>0)

N°	Description	Parameter Limits	LEDs on (g or y)	COMMENTS
		0: Dispenser 1 is not used 1: Dispenser 1 has a rotative nozzle 2: Dispenser 1 is standard		
40	Unused	0	N/A	Speed for BSR is now a step parameter
41	Index for swinging resist dispense	0 to 999	REMOTE (g) ARM SPEED(g)	only if swinging dispenser (39≠0)
42	Type of dispenser1	0, 1, 2, 3, 0: SUSS Pump: Virgin, Vulcan, Mp25 1: TTL pulse used for dispense 2: TTL pulse used for predispense + a second TTL pulse for dispense 3: TTL pulse starts dispense then counts down a delay (P54..P57 in s)	SPEED (y) DISPENSER1 (g)	
43	Type of dispenser2	0, 1, 2, 3, 0: SUSS Pump: Virgin, Vulcan, Mp25 1: TTL pulse used for dispense 2: TTL pulse used for predispense + a second TTL pulse for dispense 3: TTL pulse starts dispense then counts down a delay (P54..P57 in s)	SPEED (y) DISPENSER2 (g)	
44	Type of dispenser3	0, 1, 2, 3, 0: SUSS Pump: Virgin, Vulcan, Mp25 1: TTL pulse used for dispense 2: TTL pulse used for predispense + a second TTL pulse for dispense 3: TTL pulse starts dispense then counts down a delay (P54..P57 in s)	SPEED (y) DISPENSER (g)	
45	Type of dispenser4	0, 1, 2, 3, 0: SUSS Pump: Virgin, Vulcan, Mp25 1: TTL pulse used for dispense 2: TTL pulse used for predispense + a second TTL pulse for dispense 3: TTL pulse starts dispense then counts down a delay (P54..P57 in s)	SPEED (y) DISPENSER2 (g)	
46	Remote address for controller of dispenser1	1 to 9	DISPENSER 1 (g)	only for cluster config (10=5)
47	Remote address for controller of dispenser2	1 to 9	DISPENSER 2 (g)	only for cluster config (10=5)
48	Remote address for controller of dispenser3	1 to 9	DISPENSER 1 (g)	only for cluster config (10=5)
49	Remote address for controller of dispenser4	1 to 9	DISPENSER 2 (g)	only for cluster config (10=5)
50	Delay between starting dispense1 and arm moving (1/10s)	0 to 250	TIME (y) DISPENSER1 (g)	only if dispenser line active (17>0)
51	Delay between starting dispense2 and arm moving (1/10s)	0 to 250	TIME (y) DISPENSER2 (g)	
52	Delay between starting dispense3 and arm moving (1/10s)	0 to 250	TIME (y) DISPENSER1 (g)	
53	Delay between starting dispense4 and arm moving (1/10s)	0 to 250	TIME (y) DISPENSER2 (g)	
54	Delay between ending dispense1 and arm moving (1/10s)	0 to 250	ACCELERATION (y) DISPENSER1 (g)	If 42=3, delay is in seconds

N°	Description	Parameter Limits	LEDs on (g or y)	COMMENTS
55	Delay between ending dispense2 and arm moving (1/10s)	0 to 250	ACCELERATION (y) DISPENSER2 (g)	If 43=3, delay is in seconds
56	Delay between ending dispense3 and arm moving (1/10s)	0 to 250	ACCELERATION (y) DISPENSER3 (g)	If 44=3, delay is in seconds
57	Delay between ending dispense4 and arm moving (1/10s)	0 to 250	ACCELERATION (y) DISPENSER4 (g)	If 45=3, delay is in seconds
58	Type of loader	0, 1, 2	TIME (y) REMOTE (g)	
		0: No loader fitted 1: Loader fitted 2: Loader fitted but not used		
59	Type of spin power	0, 1	TIME (y) ACCELERATION (y) NITROGEN (g)	
		0: Linear amplifier (standard) 1: PWM servo amplifier (option)		
60	Edge bead remover delay at the internal diameter (s)	0 to 250	TIME (y) SOLVENT1 (g)	Only if edge bead remover (29=1)
61	Back side rinse delay between solvent and moving back the arm (s)	0 to 250	TIME (y) SOLVENT2 (g)	Only if back side rinse (32=1)
62	Maximum deceleration allowed (100 rpm)	1 to 200	ACCELERATION (y)	
63	Arm position for Solvent5	0 to 999	SOLVENT1 (g)	
64	Solvent6 – SET UP	0, 1, 2	ACCELERATION (y) SOLVENT2 (g)	
		0: Solvent 6 is not used 1: Reserved 2: Solvent 6 is standard		
65	Arm position for Solvent6	0 to 999	SOLVENT1 (g)	
66	Solvent7 – SET UP	0, 1, 2	ACCELERATION (y) SOLVENT1 (g)	
		0: Solvent 7 is not used 1: Reserved 2: Solvent 7 is standard		
67	Arm position for Solvent7	0 to 999 (mn)	SOLVENT1 (g)	
68	Solvent8 – SET UP	0, 1, 2	ACCELERATION (y) SOLVENT2 (g)	
69	Arm position for Solvent8	0 to 999 (s)	SOLVENT2 (g)	
70	Period in minute for refilling tank	0..999	SPEED (y) REMOTE (g)	Only if P68=1 Power OFF/ON spinner after change
71	Duration in second for refilling tank	0..999	TIME (y) REMOTE (g)	Only if P68=1 Power OFF/ON spinner after change

Note: Parameters are requested according to the switch configuration (chuck index etc.) and to the answers to other parameter requests (number of solvents, number of dispensers, etc.). For instance, if the answer is zero for the number of solvents (f=0), the number of the solvent dedicated to washing the GYRSET will not be requested.

9. SPIN COATER CONTROL PANEL

9.1 INTRODUCTION

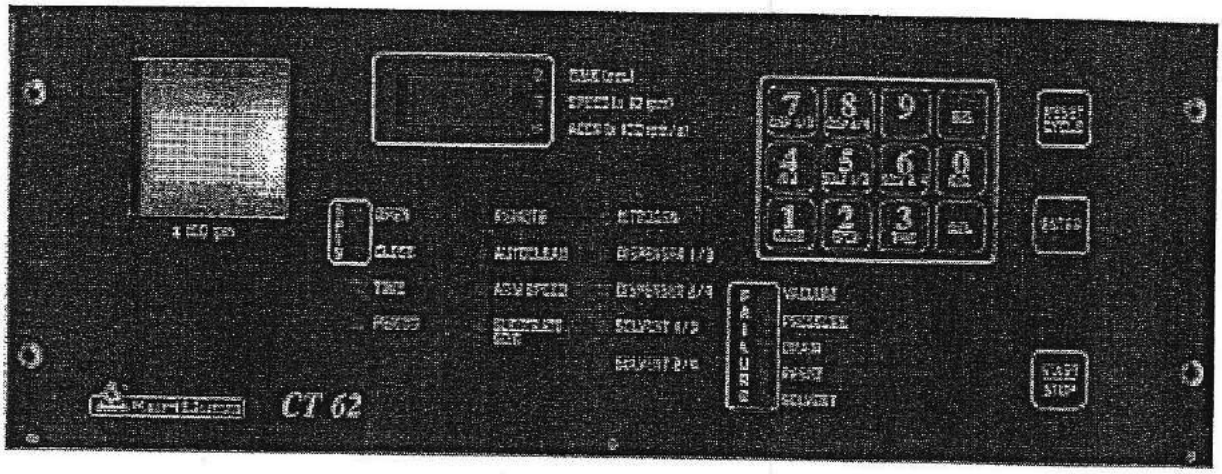


Figure 45: The CT62 RC Spin Coater Control Panel

The control panel is composed of:

- Yellow LEDs to indicate the selected parameter step
- Red LEDs to indicate the error types
- Three-digit display and yellow LEDs to indicate parameter value and/or error messages
- Numerical keypad to select and program cycles
- <RESET> key to clear a cycle
- <ENTER> key to validate the entered data
- <START/STOP> key to start a cycle
- Speed indicator

9.2 KEYBOARD DESCRIPTION

1 CLOSE

SPINNING WITH GYRSET COVER CLOSED (CENTRIFUGATION)

The function <1/CLOSE> allows the programming of a spin sequence with the GYRSET cover closed. The main use of this function is the centrifugation of the substrate in order to spread out the fluid (resist, polyimide or other) and obtain a uniform coating over the substrate.

The speed and acceleration are to be programmed according to the thickness of the film to be obtained and vary according to the fluid viscosity and the substrate material.

This function starts the centrifugation, but does not stop it. The centrifugation time is not programmed at this step. There is a specific sequence for programming the duration of this function. Subsequently, another command is needed to stop the chuck rotation.

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