

## 2.2 Trouble Shooting

Error Indication	Error Cause	Possible Error Source	Corrective Procedure
Displays remain dark	No mains voltage supply	Mains fuse or circuit breaker failed	Check fuse or circuit breaker, replace or switch on again
		Defective mains cord	Check instrument cord, replace defective parts
		Defective unit fuse or fuses on main board	Replace it, if fuse blows again, disconnect electrical parts, otherwise replace main board
	No low voltage supply	Faulty connection from indication to power board	Check connections on CPU, indicat. Board and connecting leads, replace defective parts
		Faulty indication or power board	Replace main board
Displays are illuminated, but drive doesn't start	Motor over-temperature switch has tripped	Motor temperature is higher than 120°C	Let motor cool down, then check temperature switch and leads with Ohmmeter
	Rotor didn't turn	Rotor is jammed	Check for easy rotor movement, remove any jamming objects
		Motor is jammed	Replace motor
	Motor didn't start	Connections inter drive and main board	Check terminal and lead connections, replace faulty parts
		Defective drive	Check resistance of motor windings, replace faulty parts
		Faulty condenser	Replace condenser
		Faulty main board	Remove main board completely and replace it
	Drive makes noises-no good separation result	Mechanics	Wear out of motor rubber mount
Motor bearing			Change motor completely
Electrical		Defective terminal connection, faulty lead or motor winding	Check voltage on motor terminal and winding resistances -see test points on boards
		Defective driving	Replace main board
Drive doesn't decelerate	No brake current	Faulty main board	Remove main board completely and replace it
Lid cannot be opened by key pressure at standstill	Lid coil is not or not sufficiently supplied with voltage	Missing mains voltage	Remedy see above, manual opening only at standstill
		PTC resistor has released	After a waiting time of 1-2 minutes press key again
		Faulty driving or triac circuit	Replace the complete main board
	Faulty lid coil	Faulty winding of coil	Replace complete lid lock
	Lid is not correctly locked	Lid bolt is jamming	Push lid into lock and press the key again
		Lid is deformed or disadjusted	Readjust the lid centrally

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“Lid” message appears in speed display	Lid was opened manually during run	Forbidden intervention Emergency opening can only be used at standstill	Close lid immediately, turn power off/on, wait for termination of br phase until end message appears
	Protection circuit (15V) for lid control was interrupted during the run	Defective micro switch or leads or connectors to micro switch are interrupted	Check leads and connectors to micro switch, in case of a faulty micro switch, replace lid lock device completely
“OPEN” message in speed display	15V supply circuit is interrupted at standstill	Defective micro switch or leads or connectors to micro switch are interrupted	Check leads and micro switch
“br” message appears in speed display	Rotor comes to standstill without braking force	Short interruption of mains supply	Wait for rotor standstill (appr. 75 seconds) and re-start
„E-“, „2“ message appears in speed field	Maintenance counter expired	Rotor has reached 10000 cycles	Replace rotor, NV-Ram and motor supports (Service Kit)
„E-“, „3“ message appears in speed field	No brake current	Faulty main board	Remove main board completely and replace it
„E-“, „12“ message appears in speed field	Checksum error of NV-RAM	NV-RAM is not initialized or false	Check NV-RAM and socket, insert the correct NV-RAM
	Disturbed data transfer from NV-RAM	Faulty main board	Remove main board completely and replace it
All dots in the display are illuminated	Maintenance counter expired	Rotor has reached 10000 cycles	Replace rotor, NV-Ram and motor supports (Service Kit)

### 2.3 Test Points

Test Points	Unit value	Conditions
Mains terminal <b>XA</b>	120V AV	All given voltage and current values refer either to 120V ( $\pm 10\%$ )
Lid micro switch Plug <b>XB</b>	160V DC	Voltage drop by open lid at 120V units
Terminal <b>XC</b> Motor voltage	approx. 58V AC 105V AC 120V AC 80V AC 75V AC	Rotor #3760 not loaded, in each case measured after reaching the selected speed 1600rpm 4000rpm 5300rpm at the beginning of the braking phase at the end of the braking phase
Motor current <b>I<sub>M</sub></b>	Approx. 1,2A 1,2A 0,8A 3,3A 2,0A	Rotor #3760 not loaded, in each case measured after reaching the selected speed with a soft iron or digital effective measuring instrument 1600rpm 4000rpm 5300rpm maximum during acceleration maximum during braking phase
Motor windings resistance 20°C -insulation value	14,6Ω 14,6Ω > 10MΩ	switch OFF unit, pull off motor plug mains winding (black – green) auxiliary winding (black – yellow) resistance inter each phase and motor casing
Lid solenoid terminal <b>XD</b>	29Ω	switch OFF unit, resistance at 20°C (68°F)