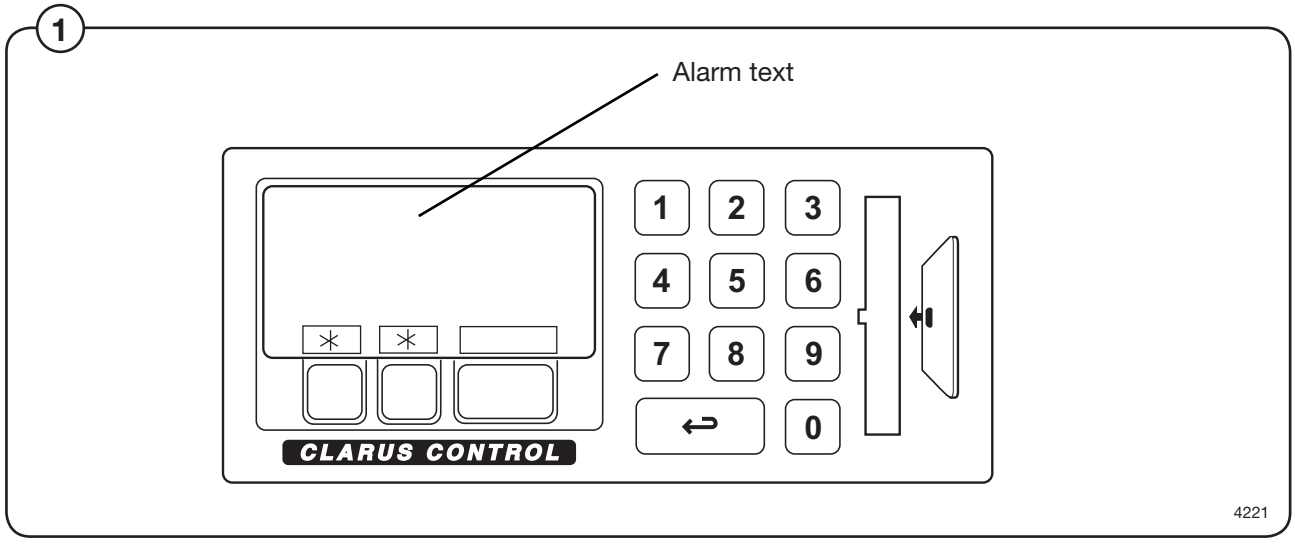
## Errors with no error codes

This section includes troubleshooting charts for errors for which no error code is generated.

## Errors with error codes

### Error indication

(1) Programme or machine errors are indicated by an alarm text in the display window.




### Resetting an error indication

Error indications can be reset in two different ways:

(1)
- By pressing START, the error may be temporarily reset. The machine then continuous the programme that was already started. If the error code remains, the error will come back at once.
- By pressing ↩ the error is reset and the started programme is cancelled.

### Error codes

A brief summary of all error codes and the possible cause for each error is presented below. Troubleshooting charts for all errors are presented on the following pages.

**List of errors, functions monitored and relevant error messages displayed**

| Error/Function | Error message displayed |
|---|---|
| **01 ERROR. NO WATER**<br>Water level has not reached set level within time set. After this error message appears and the machine is reset, the machine will try again. | NO WATER |
| **02 ERROR. OPEN DOOR**<br>Signal from microswitch which checks door status absent during program. After this error message appears and the machine is reset, the machine will try again. | DOOR OPEN |
| **03 ERROR. DOOR LOCK**<br>Signal from microswitch which detects when the door is locked absent during program. | DOOR UNLOCKED |
| **04 ERROR. LOW TEMPERATURE**<br>The temperature is below the lowest value allowed (open circuit in temperature sensor). | NTC LOW TEMP |
| **05 ERROR. HIGH TEMPERATURE**<br>The temperature is above the highest value allowed (short-circuit in temperature sensor). | NTC HIGH TEMP |
| **06 ERROR. WATER IN MACHINE**<br>The water level is higher that the level EMPTY at the start of the program. | WATER IN DRUM |
| **07 ERROR. OVER-FILLED**<br>The water level is higher than the ”LEVEL OVERFILL” (i.e. DRUM OVER-FILLED) level. If this function is switched off (=N), instead the drain valve will open for a short time and discharge some of the water. This is described under the function ”DRAIN TIME WHEN OVERFILL” (i.e. DRAIN TIME AFTER OVER-FILLING) earlier in this section. | MACHINE OVER-FILLED |
| **08 ERROR. NO HEAT**<br>The temperature has not increased by the number of degrees specified in the function ”MIN. TEMPERATURE INCREASE” (see back in this section), over the period of time specified in the function MAXIMUM HEATING TIME (see ”SETTINGS 1”). | NO HEATING |
| **10 ERROR. REMAINING WATER**<br>When the drain sequence has finished, the water level is still higher than the EMPTY level. | NOT DRAINED |
| **11 ERROR. UNBALANCE SWITCH**<br>The unbalance switch is closed when the machine is starting on a drain sequence. | UNBALANCE SENSOR FAULT |
| **13 ERROR. MOTOR COMMUNICATION**<br>Communication between PCU and motor control unit interrupted or disturbed. | NO MOTOR COMM |
| **14 ERROR. LEVEL ADJUST**<br>Every machine has individual level calibration at the factory. If these calibration values are missing or fall outside the limit values, an error warning will be flagged at each program start-up. The program can still be started, however, by pressing START. It will then use standard (default) values, which means that the levels will not be as precise as intended. | LEVEL CALIBRATION |

**List of errors, functions monitored and relevant error messages displayed, cont.**

| Error/Function | Error message displayed |
|---|---|
| **15 ERROR. EMERGENCY STOP**<br>The emergency stop button has been pressed. | EMERGENCY STOP |
| **16 ERROR. WEIGHT FROM SCALE**<br>Over-/Under-load of scale or weight above limit for maximum allowed weight at wash module start. | WEIGHT FROM SCALE |
| **17 ERROR. DOOR LOCK SWITCH**<br>Even though the door lock microswitch indicates that the door is locked, the signal from the microswitch which is used to detect when the door is closed is absent. | DOOR LOCK |
| **18 ERROR. START NOT ALLOWED**<br>Network does not allow programme start. | START NOT ALLOWED |
| **19 ERROR. MIS COMMUNICATION**<br>Machine has lost contact with network. | MIS COMMUNICATION |
| **20 ERROR. EWD INTERLOCK**<br>The motor control system for frequency-controlled motors (EWD) receives a signal direct from the door lock which indicates that the door really is closed. If this signal is lost, a fault signal is sent to the PCU | INTERLOCK STATUS |
| **21 ERROR. I/O COMMUNICATION**<br>Communication between the CPU board and one of the I/O boards interrupted or disturbed. | I/O COMMUNICATION |
| **22 ERROR. LOW OIL LEVEL**<br>In machines with an oil lubrication system, indicates low level in the oil container. | LOW OIL LEVEL |
| **23 ERROR. LOW OR HIGH VOLTAGE**<br>Incorrect input voltage to external equipment. | PHASE |
| **24 ERROR. PRESSURE SENSORS, TILT**<br>Both pressure sensors are active at the same time. | PRESSURE SENSOR TILT |
| **25 ERROR. PRESSURE SENSOR TIMEOUT**<br>No pressure at the relevant pressure sensor within the maximum time allowed for tilt backwards or forwards. | PRESSURE SENSOR TIMEOUT |
| **26 ERROR. DOOR SWITCH, TILT**<br>Door closed (S3) is "on" at a time when the machine door is locked open (S25).) | DOOR SWITCH, TILT |
| **27 ERROR. LEVEL OFFSET**<br>The pressure sensor for the water level signals a value that is so different from the empty machine state that the automatic level calibration cannot adjust the level system. | AUT. LEVEL CALIB. |
| **28 ERROR. LEVEL NOT CALIBRATED**<br>Calibration of level system not done in service mode before use of machine. | |

**List of errors, functions monitored and relevant error messages displayed, cont.**

| Error/Function | Error message displayed |
|---|---|
| **ERROR. ERROR CODES FROM MOTOR**<br>This function includes a number of error warnings from the motor control system for frequency-controlled motors (EWD) | |
| 31 Temperature of MCU control circuits too high | HEAT SINK TOO HOT |
| 32 Motor thermal protection has tripped | MOTOR TOO HOT |
| 33 The motor has received a start command from the PCU without receiving an interlock signal from the door lock. The MCU receiving circuitry for the interlock signal is not faulty | NO INTERLOCK |
| 35 Short-circuit between motor windings or to earth. | MOTOR SHORTNING |
| 36 Fault in MCU receiving circuitry for lock acknowledgement signal. | INTERLOCK HARDWARE |
| 37 DC voltage too low | LOW DC VOLTAGE |
| 38 DC voltage too high | HIGH DC VOLTAGE |
| 39 DC level varying too much | RIPPEL ON DC BUS |
| 40 One phase missing for/at motor control unit | LINE INTERRUPT |
| 41 Hardware fault, temperature monitoring, motor | KLIXON CIRCUITS |

# Errors with no error codes

## No indication in the display window (machine not responding or operates apart from this).

**If the power is on, be very careful when working on the the machine.**

**Verify that:**

- the machine receives power.
- the machine has not been emergency stopped.

(2) (3)
- the red LEDs on the programme unit card and the I/O card light steadily. (Verify through measurement that X3:1 - 2 at A11 is 16 V. If not, troubleshoot the voltage supply circuit.)
- verify that the green LEDs on the programme unit card and the I/O card blink quickly.

(4)
- verify the fuses F11 and F12 (T 1.25 A) on the communication card A21. Replace burnt-out fuses.

**1. Perform a communication test using the test box. Refer to the manual "Instructions for Clarus Communication Tests".**

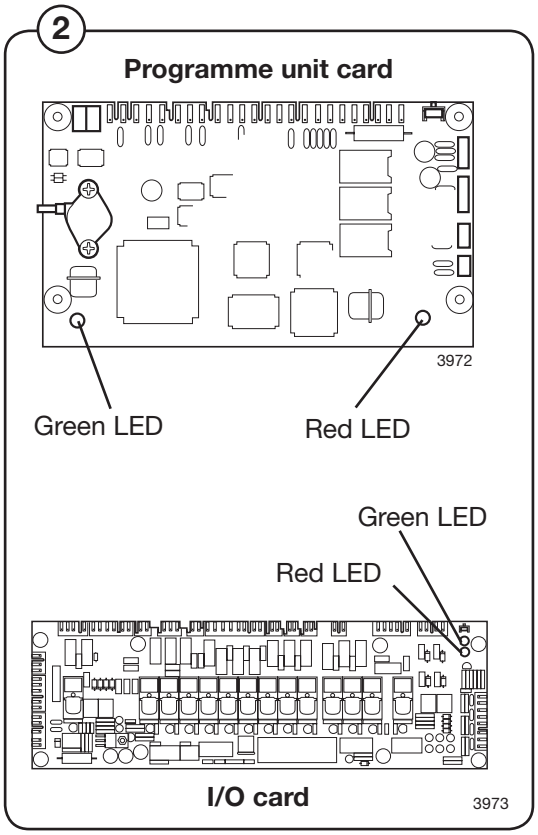
OK LED on test box

The display or display cable is probably defective.

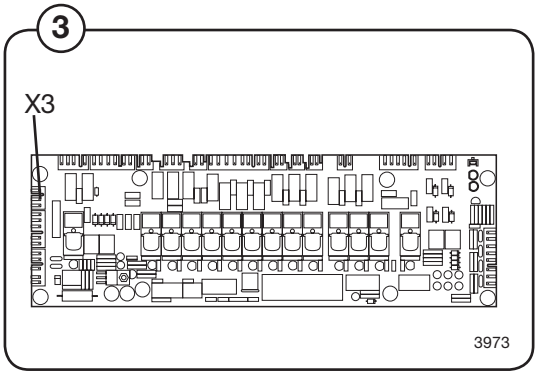
Defective LEDs on test box

Troubleshoot according to the manual "Instructions for Clarus Communication Tests".

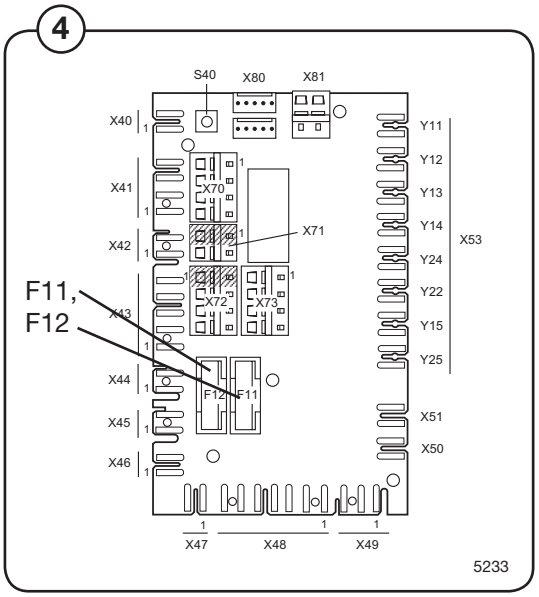
(2)




(3)




(4)



# Errors with error codes

## NO WATER

**The water level has not reached the selected level within the given time. Following an alarm and subsequent, the machine will make a new attempt.**

**First verify that:**

- the programme unit was not incorrectly programmed
- the inlet filter is not blocked
- all water faucets are open
- the drain is not leaking
- Reset the error code. Continue with troubleshooting if the error code appears again.

(5) **1. Enter the service programme and the activate water valves on the machine, one after the other.**

All valves fill up with water

One of the valves does not fill up with water

**2. Activate the defective valve in the service programme and measure the voltage (230 V) at the water valve.**

No voltage

Voltage OK

The valve is probably defective.
Verify and remedy

(5) **3. Depending on the valve, measure the supply voltage (230 V) of the water valve at switch X9 on I/O card 1, A11.The relay functions can also be verified using the LEDs on I/O card 1.**

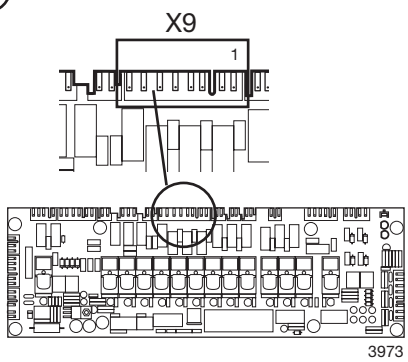
No voltage

Voltage OK

Defective cables between the communication card A11 and the water valve, or defective programme unit card A1.
Verify and remedy.

Probably defective control output from the programme unit card A1 or I/O card 1 A11.

(5)




| Valve | | Switch | Relay |
|---|---|---|---|
| Y11 | cold/warm compartment 1 | X9:7 | 4 |
| Y12 | cold/warm compartment 2 | X9:6 | 5 |
| Y13 | cold/warm compartment 3 | X9:5 | 6 |
| Y15 | cold mix box | X9:4 | 7 |
| Y22 | warm compartment 2 | X9:2 | 8 |
| Y25 | warm mix box | X9:1 | 9 |
| Y14/24 | cold/warm compartment 4 | X9:3 | 10 |

**Continued on next page**

**Continued from previous page**

**5. Activate (close) the drain valve in the service programme. Activate another of the water valves and verify the drain valve function.**

Drain valve OK

Drain valve defective

Troubleshoot the drain valve according to the instructions under error code **WATER IN DRUM** later in this troubleshooting section.

(6) **6. Verify that the level hose is not damaged, bent, blocked and has not come lose from the T-joint, drum, programme unit card A1 or level guard B2.**

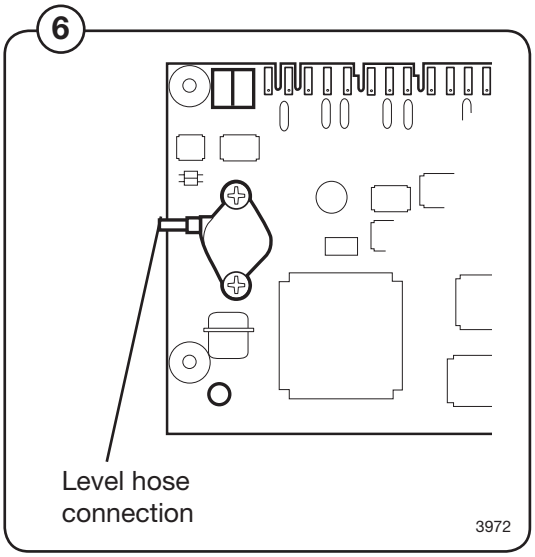
Level hose OK

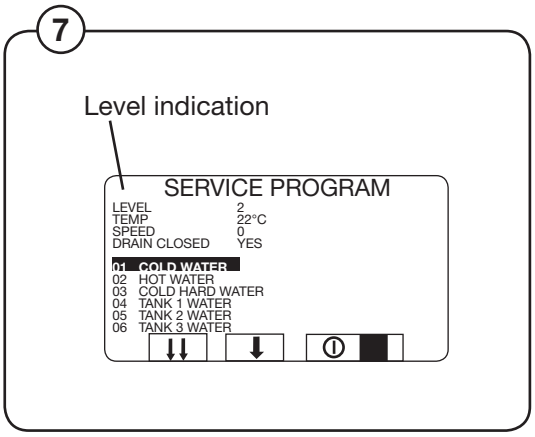
Defective level hose

Fit the hose correctly or replace it.

(7) Level detector on programme unit card A1 probably defective.

- Enter the service programme and verify that the level indication is stable.
- Blow into the level hose and check the level indication increases.
- Check the level system for leakage.



# DOOR OPEN

**No signal from the ”Door closed” during programme operation. If the input signal for ”Door closed” is lost during programme operation, the OPEN DOOR error code is immediately generated.**

**If the power is on, be very careful when working on the the machine.**

**1. Try to restart the machine (i.e. reset the error code) by pressing START.**

Error message returns

No error message

Temporary error (probably defective contact)

(8) **2. Exit the programme using ⏎. Enter the service programme (unlock the door if it is locked). Verify voltage supply is present between X5:4 - 5 when the door is closed.**

(9) No voltage

Voltage present but black square does not light

I/O card 1 A11 probably defective.

**3. Verify voltage is present between X5:3 - 5.**

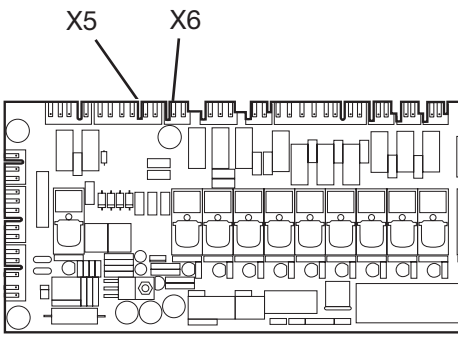
Voltage present

No voltage

Troubleshoot the cabling for the voltage supply (between the main power switch Q1 and X6).

**Continued on next page**

8




3973

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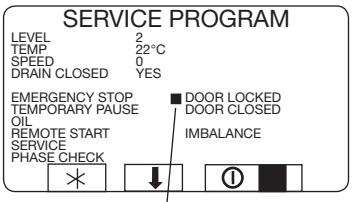



Indication **Door locked**

5390

**Continued from previous page**

(10) **4. Disassemble the door lock and verify the function of S3 using an ohm meter.**

Correct function

Incorrect function

Replace Door lock.

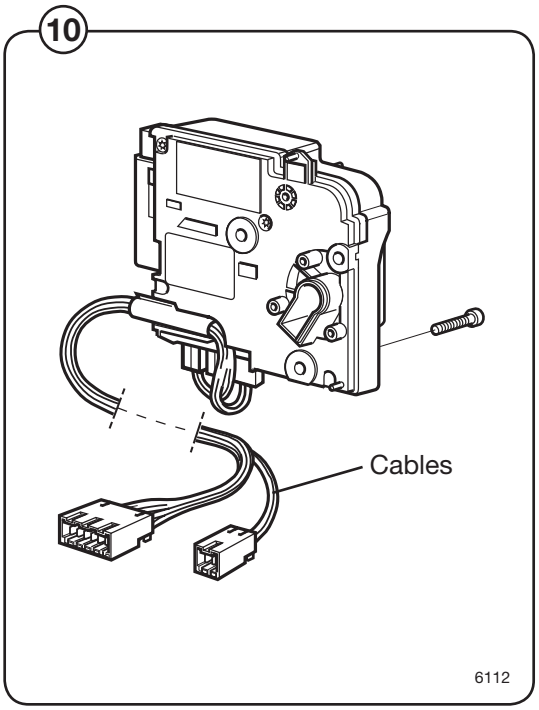
**5. Inspect the cabling between X5 and S3 using an ohm meter.**

Cabling OK

Incorrect cabling

Remedy or replace the cables.

Inspect the mechanical function of the door lock. Replace any defective components or replace the door lock.



# DOOR UNLOCKED

**No signal from the ”Door locked” during programme operation.**

**If the input signal for the "Door locked" is lost during programme operation, the "DOOR UNLOCKED" error code is immediately genrerated.**

**At programme start, this error code is suppressed for a few seconds.**

**If the power is on, be very careful when working on the the machine.**

**1. Try to restart the machine (i.e. reset the error code) by pressing START.**

Error message returns

No error message

Temporary error in the door lock or programme unit

(11) **2. Exit the programme using (↩). Enter the service programme and verify that there is voltage between X5:2 - 6 when the door lock is engaged.**

(12) No voltage

Voltage present but black square does not light

I/O card 1 A11 probably defective

**3. Verify that there is voltage supply between X5:1 - 5 when the door lock is switched on.**

Voltage present

No voltage

Troubleshoot the cabling for the voltage supply (between the main power switch Q1 and X6).

(13) **4. Is the lock command present? Measure X:92 on the door lock controller.**

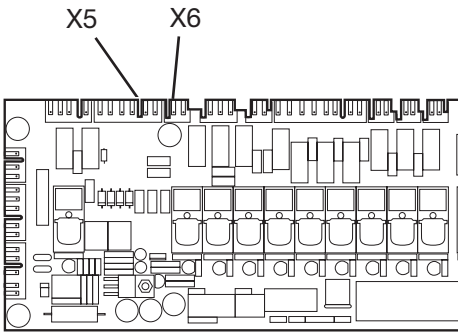
Yes

No

Troubleshoot according to the error codes in section 29.

Troubleshoot cabling between X5 and the actuator/door lock. The actuator/door lock could be defective.

11




3973

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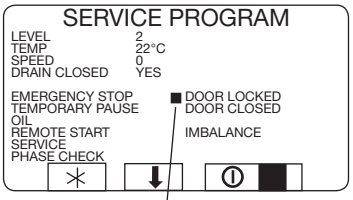
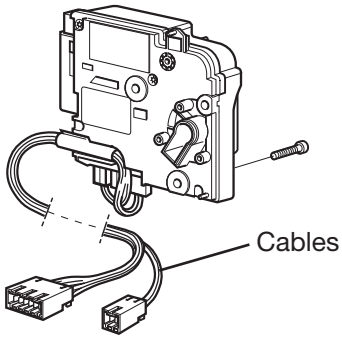



Indication **Door locked**

5390

13




6112

# NTC LOW TEMP

**The programme unit indicates an interruption with the temperature sensor or the temperature is below -5 °C.**

Try to restart the machine (i.e. reset the error code) by pressing START.

(14) **1. Undo the temperature sensor connections and measure the resistance of the sensor. The resistance should be as in the table below:**

Approximate values for a fully functional temperature sensor

| T (°C) | R (ohm) |
|---|---|
| 19 | 6109 |
| 20 | 5844 |
| 21 | 5592 |
| 22 | 5353 |
| 23 | 5124 |

Resistance OK — Incorrect resistance

The temperature sensor is probably defective.

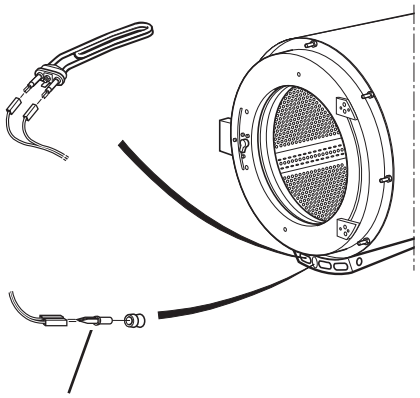
(15) **2. Exit the programme using ⮌. Enter the service programme and read the temperature (the display window shows 0°C). Short-circuit inputs 1 and 2 on**
(16) **card switch X1. Verify that the display window shows 100°C.**

Yes — No

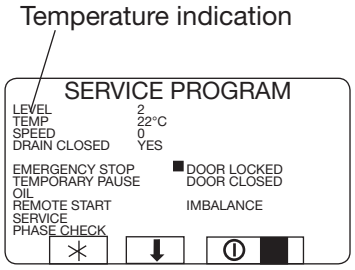
Incorrect temperature sensing on the programme unit card. Replace the card.

Incorrect cabling to the . Verify and replace if necessary.

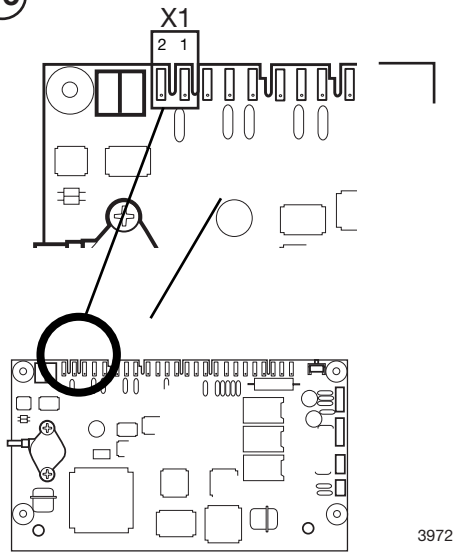
(14)




(15)




(16)



# NTC HIGH TEMP

**The programme unit indicates a short-circuit with the temperature sensor or the temperature exceeds 98°C.**

Try to restart the machine (i.e. reset the error code) by pressing START.

(17) **1. Undo the temperature sensor connections and measure the resistance of the sensor. The resistance should be as in the table below:**

Approximate values for a fully functional temperature sensor

| T (°C) | R (ohm) |
|---|---|
| 19 | 6109 |
| 20 | 5844 |
| 21 | 5592 |
| 22 | 5353 |
| 23 | 5124 |

Resistance OK

Incorrect resistance

The temperature sensor is probably defective.

(18) **2. Reset the connection on the sensor and exit the programme using ⮌. Enter the service programme and read the temperature. Disconnect one of the**

(19) **inputs 1 and 2 on card switch X1. Verify that the display window shows 0°C.**

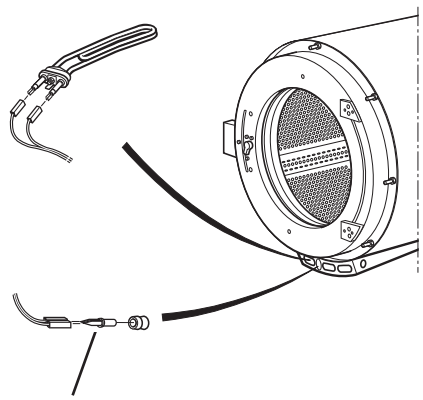
Yes

No

Incorrect temperature sensing on the programme unit card.

Incorrect cabling to the temperature sensor. Verify and replace if necessary.

(17)

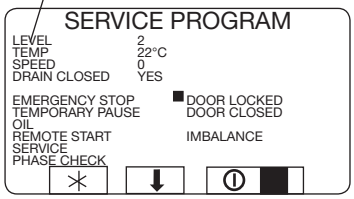


Temperature sensor

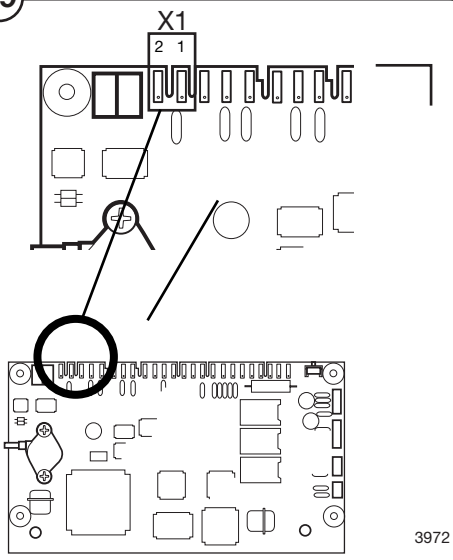
5204

(18)

Temperature indication




(19)




3972

# WATER IN DRUM

## The water level is higher than EMPTY at programme start.

**First verify whether:**

- the same error appears again following resetting of the error code
- the drain is blocked by fluff or foam
- the level hose and air box are blocked (blow into the level hose)
- For machines with a drain pump, verify correction operation.

Pay attention to temperature extremes in the surrounding which may affect the level system, generating this error code.

**1. Verify whether there is any water in the drum.**

Water in drum

No water in drum

**2. Enter the service program and record the actual level value. Disconnect the level hose from the programme unit card A1.**

(20) (21)

Level value does not change

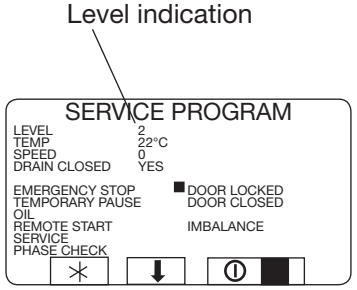
Level value falls

The level hose is probably blocked by fluff or due to incorrect installation. Verify and clean, or replace the hose.

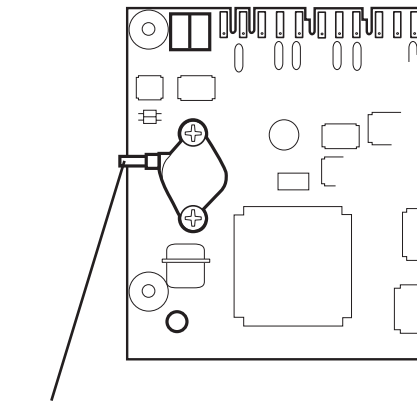
Level detector on programme unit card A1 is defective.

Verify the operation of the drain valve using the service programme. Remedy or replace the defective drain valve if necessary.

(20)




(21)



# MACHINE OVERFILLED

**The water level is above the level for OVER-FILLED MACHINE. If this function is switched off (=N) the drain valve will open instead for a short while to drain some of the water.**

**If the power is on, be very careful when working on the the machine.**

Try to restart the machine (i.e. reset the error code) by pressing START.
If the error returns, first make sure that:

- the level hose and air box are not blocked (blow into the level hose)
- that none of the water valves has locked (i.e. poured in continuously).

**1. Visually inspect. Is there too much water in the machine?**

No

Yes

Exit the programme and drain the machine.

(22) **2. Exit the programme using ⏎. Enter the service programme and record the actual level value. Undo the**

(23) **level hose from the programme unit and verify whether the level falls.**

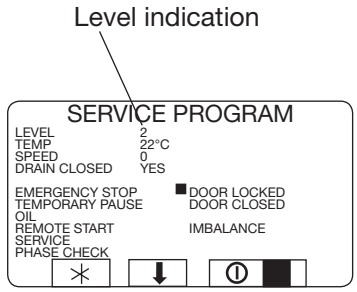
No

Yes

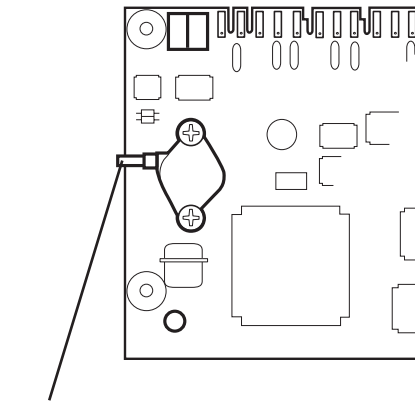
Inspect the level system (hoses, nipples and air box).

**3. Inspect whether the level input on the programme unit is blocked. If this is not the case, the the programme unit is probably defective.**

22




23



## NO HEATING

**The temperature has not increased the number of degrees specified in the function MIN ALLOWABLE TEMPERATURE INCREASE (see settings 2) during the time that is programmed in the function MAXIMUM HEATING TIME (Configuration 1).**

**If the power is on, be very careful when working on the the machine.**

Try to restart the machine (i.e. reset the error code) by pressing START.
If the error returns, first make sure that:

- the programme module is not incorrectly programmed
- the heat supply is intact (all phases OK and the steam or gas boiler is operating)
- the drain does not leak.

**1. Exit the programme using ⮌. Enter the service programme and fill up water to above the safety level (5-10 cm above the lower edge of the inner drum). Switch on the heating. Does the heat contactor go high?**

Yes

No

Troubleshoot the operating circuits of the contactor

(24) **2. Measure the operating voltage across each element.**

No voltage

Voltage present

**3. Use a clip-on ammeter and verify that all phases draw current (6 - 25 A depending on the element rating) or, alternatively, switch off the voltage with the wall-mounted power switch and measure the resistance of the elements, which should be 20 - 25 ohms (2.5 kW) or 40 - 50 ohms (1 kW).**

Resistance OK

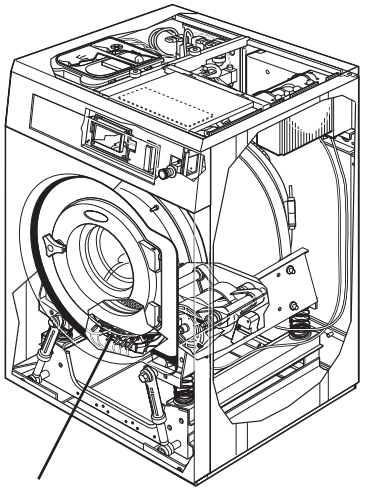
Inspect the elements for lime deposits. Decalcify if necessary

Incorrect resistance

Replace the defective element

**4. Troubleshoot the voltage supply circuit for the elements.**

(24)



Element connectors

5207

## NOT DRAINED

**The water level exceeds EMPTY at wash program start.**

Try to restart the machine (i.e. reset the error code) by pressing START. If the error returns, first verify these items:

- Is the drain is blocked by fluff or foam?
- Are the the level hose and air box blocked (blow into the level hose)?
- For machines with a drain pump, verify correction operation.
- Does water run out when the power switch on the machine is switched off?
- Verify the operation of the drain using the service programme.
- Is the drain in the room capable of receiving the water from the machine?

## UNBALANCE SENSOR FAULT

**The imbalance switch is closed during program start.**


**If the power is on, be very careful when working on the the machine.**

Try to restart the machine (i.e. reset the error code) by pressing START.
If the error returns, troubleshoot as follows:

**Verify:**

- the mechanical function of the imbalance switch
- the resistance between the imbalance switch and the cabling.

If the error remains, there is probably an internal error in the motor controller.

# NO MOTOR COMM.

**Communication between the programme unit and the motor controller has been interrupted or interfered.**


**If the power is on, be very careful when working on the the machine.**

Try to restart the machine (i.e. reset the error code) by pressing START.
If the error returns, troubleshoot as follows:

**1. Perform a communication test using the test box. Refer to the manual ”Instructions for Clarus Communication Tests”.**

OK LED on test box

Defective LEDs on test box

Troubleshoot according to the manual ”Instructions for Clarus Communication Tests”.

The motor controller or cabling for the motor controller is probably defective.

## LEVEL CALIBRATION

**The water level system has not been correctly calibrated.**

Each machine has been individually level adjusted at the factory. If the calibration values are missing or outside the limits, an error is generator at programme start. The programme can, however, be started by pressing START once more. In this case the standard values are used and the level swill not be as exact.

Carry out programming anew and make sure the calibration values are within the allowed limits.

## WEIGHT FROM SCALE

The scale is all the time sending the actual weight to the timer. If the scale is over- or under-loaded all the time the error will be indicated.

The same error will also be indicated if the weight transfered from the scale to the timer at the beginning of a water filling periode, is above a certain limit set in the configuration system of the machine. To correct the problem, try to first zerocalibrate the scale and then reset the scale in the service-mode. If the error remains, please contact service.

## EMERGENCY STOP

**The emergency stop button was pressed.**


**If the power is on, be very careful when working on the the machine.**

Find out the reason for the emergency stop button having been pressed.

Take the necessary measures.

Reset the emergency stop button by turning it counter-clockwise.

Restart the machine by pressing START or ⏎.

# DOOR LOCK

**The signal from the ”Door locked ” switch is present although there is no signal from the ”Door closed” switch.**

**This error code can only be generated prior to programme start.**

**If the power is on, be very careful when working on the the machine.**

Try to restart the machine (i.e. reset the error code) by pressing START.
If the error returns, troubleshoot as follows:

(25) **1. Undo the card connection X5 on I/O card 1, A11**

Error message returns

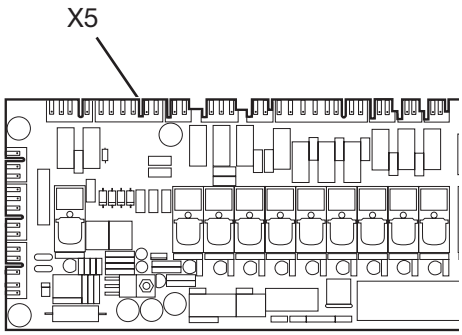
(26)

I/O card A11 probably defective.

No error message

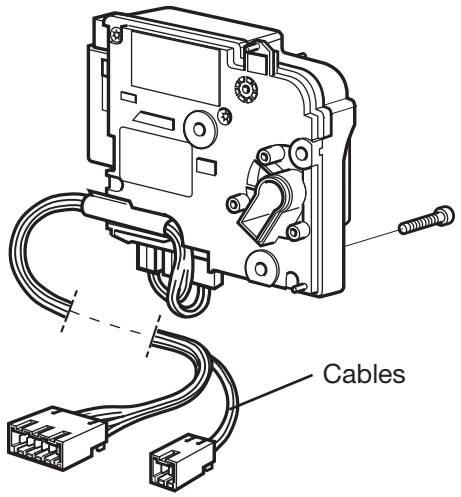
Troubleshoot the door lock and the cabling for electric or mechanical short-circuit.

(25)




3973

(26)




6112

## START NOT ALLOWED

**The network does not allow start of the washing programme.**

Try to reset the error code.

If the error remains, contact the responsible person for the network and have the error fixed.

# MIS COMMUNICATION

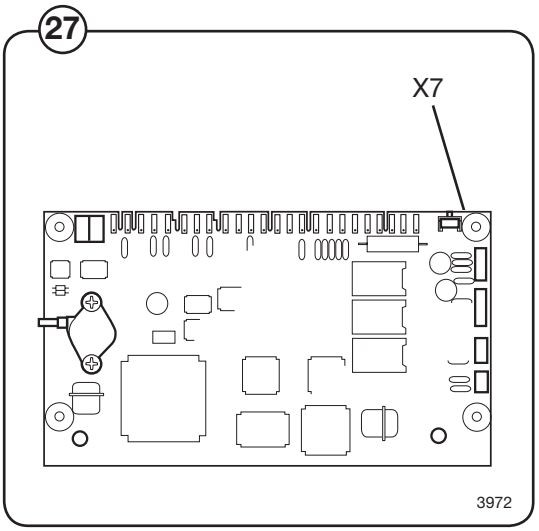
**Communication between the programme unit card A1 and the network has been interrupted.**

**If the power is on, be very careful when working on the the machine.**

Try to restart the machine (i.e. reset the error code) by pressing START.
If the error returns, troubleshoot as follows:

(27) Verify that the cable between the network and X7 on programme unit card A1 is connected.
If the cable is properly connected, contact the person responsible for the network.

**Note!**
This error code will disappear by itself after several programme starts. In case communication has been interrupted intentionally, the machine can be operated with no further intervention required.



# INTERLOCK STATUS

**The motor controller does not receiving an interlock signal during programme operation.**

**If the power is on, be very careful when working on the the machine.**

Switch off the machine for at least 30 seconds to ensure the motor controller has been completely reset. Then try to start the machine again. If the error returns, troubleshoot as follows:

(28) **1. Measure the interlock signal on the motor controller U1:X302.**

No signal

Signal OK

Troubleshoot the motor controller.

(29) **2. Measure the signal on the I/O card 1 interlock bus A11:X10.**

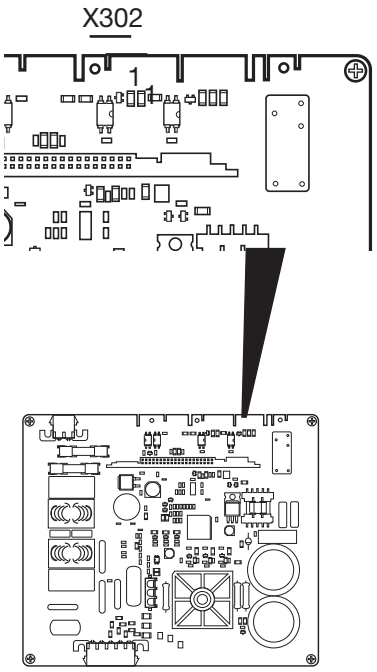
No signal

Signal OK

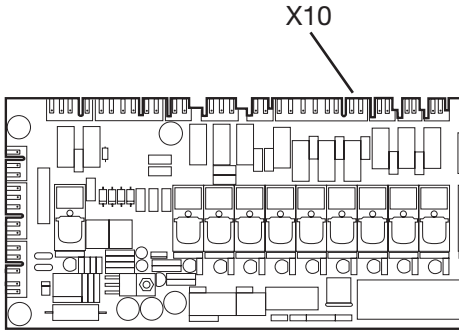
Troubleshoot the cabling between the motor controller and programme unit. Inspect the cabling and replace if necessary.

Troubleshoot the interlock circuits.

28




29



# IO COMMUNICATION

**Communication between programme unit A1 and one of the I/O cards has been interfered with or interrupted, or incorrect configuration of the I/O cards.**


**If the power is on, be very careful when working on the the machine.**

Try to restart the machine (i.e. reset the error code) by pressing START.
If the error returns, troubleshoot as follows:

**1. Perform a communication test using the test box. Refer to the manual ”Instructions for Clarus Communication Tests”.**

OK LED on test box

Defective LEDs on test box

Troubleshoot according to the manual ”Instructions for Clarus Communication Tests”.

The motor controller or cabling for the motor controller is probably defective.

## LOW OIL LEVEL

**Low oil level in the oil container. Applies only to machines with oil lubrication.**

Fill up with oil and restart the machine.

Verify for any leaks.

## PHASE

**Alarm from the mains monitoring equipment.**

An input on I/O card 1 (X16:7-8) can be connected to external equipment that monitors received mains signals in terms of voltage levels, loss of phase, etc. If this input goes high, the error message is displayed.

Find out the reason for the error indication by inspecting the mains monitoring equipment.

For more on this troubleshooting, refer to the manual supplied with the mains monitoring equipment in use.

# AUT. LEVEL CALIB.

**The pressure sensor for the water level signals a value that is so incorrect when the machine is empty that automatic level calibration of the level system is not possible.**

**If the power is on, be very careful when working on the the machine.**

Try to restart the machine (i.e. reset the error code) by pressing START.
If the error returns, troubleshoot as follows:

(30) **1. Verify the level indication in the service programme when the drum is empty. Does the level indication exceed the set limit value?**

Yes

No

**2. Try to restart a washing programme again.**

No error code

Error remains

The level hose is probably blocked.
Replace or clean the level hose.

Temporary error.

(31) **3. Undo the level hose from the programme unit card A1. Does the level indication still exceed the set limit value?**

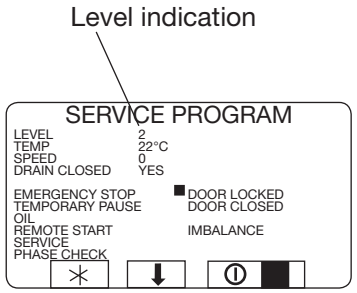
Yes

No

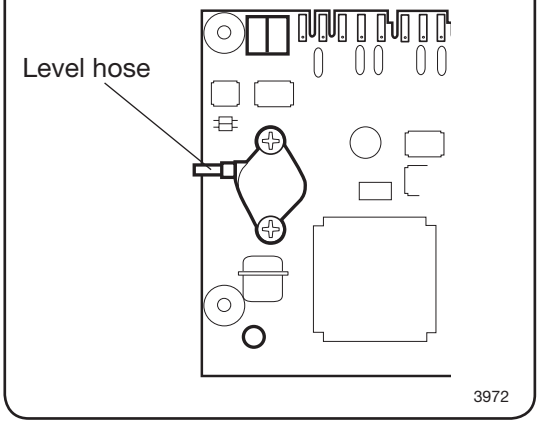
The level hose is probably blocked.
Replace or clean the level hose.

The programme unit card A1 is probably defective.

30




31



## LEVEL NOT CALIBRATED

Before the machine is used filling water controlled by the pressure sensor system, the pressure sensor system must be calibrated. The pressure sensor system for water filling can be calibrated in the service mode.

It is possible to use the machine in weight mode, filling water on weight, without calibrating the water pressure sensor system.

## NO SCALE CONNECTED

Communication between the timer and the scale is not working. Check the wire between the timer and the scale. If still not working, please contact service.

# HEAT SINK TOO HOT

**The motor controller indicates too high a temperature at the heat dissipator.**

**This error code appears if the external temperature has been very high. It his has been the case, lower the temperature by e.g., ventilation the room.**


**If the power is on, be very careful when working on the the machine.**

**First verify that:**

- the machine is not overloaded
- the machine is not covered
- any fan for the motor controller operates correctly
- the motor controller heat dissipator is not blocked by dust
- the motor controller LEDs do not indicate and error (see the description of the motor controller in section 30).

Switch off the machine for at least 30 seconds to ensure the motor controller has been completely reset. Then try to start the machine again. If the error returns, troubleshoot as follows:

**1. Verify that the drum and motor operate smoothly.**

Drum/motor OK

Heavy operation of the drum/motor

Defective bearings in drum or motor, or there is an object between the outer and inner drum. Inspect and remedy.

**2. Enter the service programme. Run the motor at different washing revolutions, clockwise and counter-clockwise. Verify that no noise can be heard from the drum/motor.**

Drum/motor OK

Noise from drum/motor

Defective bearings in drum or motor, or there is an object between the outer and inner drum. Inspect and remedy.

The motor controller is probably defective.

# MOTOR TOO HOT

**The motor controller indicates the thermal protector of the motor has triggered.**

**If the power is on, be very careful when working on the the machine.**

**First verify that:**

- the machine is not overloaded
- the ventilation openings of the machine are blocked
- the external temperature is very high
- the motor is not abnormally warm.

Switch off the machine for at least 30 seconds to ensure the motor controller has been completely reset. Then try to start the machine again. If the error returns, troubleshoot as follows:

**1. Switch off the machine and verify that the drum and motor operate smoothly.**

Drum/motor OK

Heavy operation of the drum/motor

Defective bearings in drum or motor, or there is an object between the outer and inner drum. Inspect and remedy.

**2. Wait for at least 10 minutes to allow the motor to cool down. Then switch on the machine again. Enter the service programme and run the motor at low washing revolutions. Verify whether the error indication immediately returns.**

No error indication

Immediate error indication

(32)

**3. Switch off the machine. Undo the contactor at X3 on the motor. Use an ohmmeter to measure the resistance in the between the contactor and the motor between X3:7 - 9.**

Contact

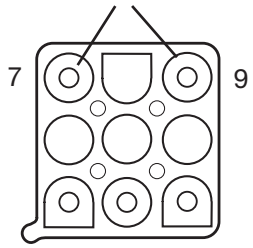
Interruption

Thermal protector of motor interrupted. Replace the motor.

**Continued on next page**

(32)

Measure the resistance between pins 7 and 9




Contactor X3, female towards motor

5420

**Continued from previous**

(33) **4. Replace X3. Remove the contactor X312 and measure the resistance of the contactor with the motor cabling between X312:4 - 5.**

Contact

Interruption

Defective cabling between motor controller and motor. Inspect the cabling and replace if necessary.

Internal error in the thermal sensor of the motor controller detector.

(34) **5. Switch of the wall-mounted power switch. Undo the contactor at X3 on the motor. Use an ohmmeter to measure the resistance towards the motor. Measure between 1-2, 1-3, and 2-3.**

**Resistance**

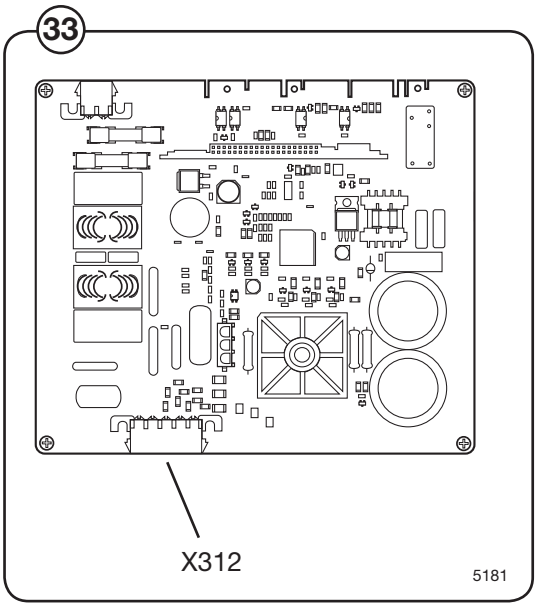
| | |
|---|---|
| W465H | 4 ohm |
| W475H | 4 ohm |
| W4105H | 4 ohm |
| W4130H | 2 ohm |
| W4180H | 1.2 ohm |
| W4250H | 0.8 ohm |
| W4300H | 0.8 ohm |

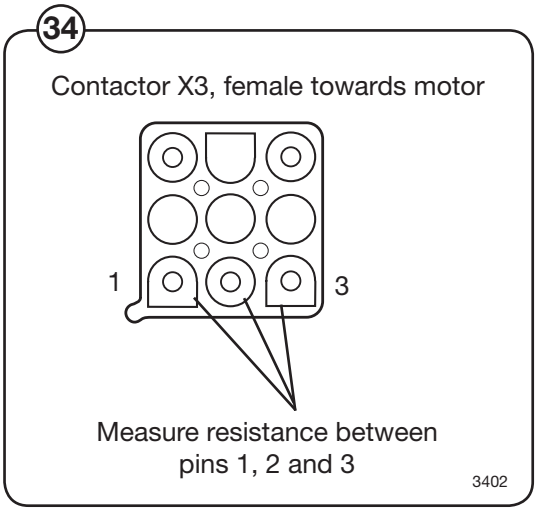
Correct resistance

One of the resistance values is incorrect

The motor is probably defective.

Troubleshoot the cabling between the motor and motor controller.



# NO INTERLOCK

**The motor controller received the rotation command from the programme unit but receives no interlock ACK (”Door locked” signal).**

**If the power is on, be very careful when working on the the machine.**

Switch off the machine for at least 30 seconds to ensure the motor controller has been completely reset. Then try to start the machine again. If the error returns, troubleshoot as follows:

(35) **1. Measure the interlock signal on the motor controller U1:X302.**

No signal

Signal OK

Troubleshoot the motor controller.

(36) **2. Measure the signal on the I/O card 1 interlock bus A11:X10.**

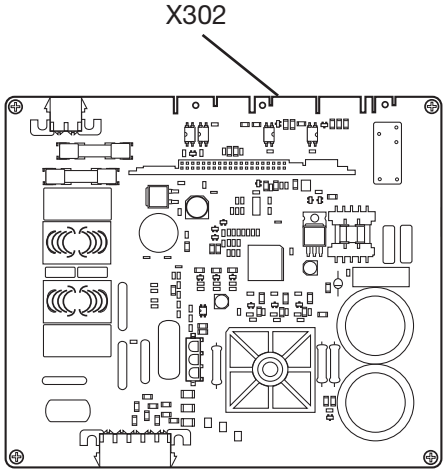
No signal

Signal OK

Troubleshoot the cabling between the motor controller and programme unit. Inspect the cabling and replace if necessary.

Troubleshoot the interlock circuits.

35

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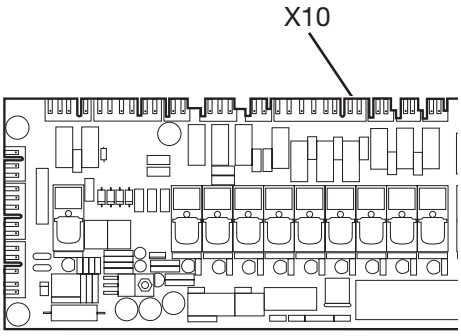



3973

## MOTOR SHORTNING

**The motor controller indicates a short-circuit in the motor windings, cabling or internally in the motor controller.**

**If the power is on, be very careful when working on the the machine.**

Switch off the machine for at least 30 seconds to ensure the motor controller has been completely reset. Then try to start the machine again. If the error returns, troubleshoot as follows:

(37) **1. Switch off the machine. Undo the contactor at X3 on the motor. Use an ohmmeter to measure the resistance towards the motor. Measure between 1-2, 1-3, and 2-3.**

**Resistance**

| | |
|---|---|
| W465H | 4 ohm |
| W475H | 4 ohm |
| W4105H | 4 ohm |
| W4130H | 2 ohm |
| W4180H | 1.2 ohm |
| W4250H | 0.8 ohm |
| W4300H | 0.8 ohm |

Correct resistance

One of the resistance values is incorrect

The motor is probably defective.

(38) **2. Inspect the cabling from X312 on the motor controller to X3 on the motor. Use an ohmmeter and measure the five leads as follows:**

| | | | | | | |
|---|---|---|---|---|---|---|
| **X312:** | **1** | **2** | **3** | **4** | **5** | |
| **X3:** | **1** | **2** | **3** | **7** | **9** | **(X3:4 - 6, 8 not used)** |

**Also measure the five leads to be sure there is no short-circuit between any two leads.**

Cabling OK

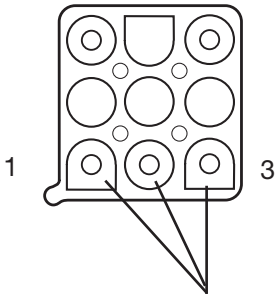
Incorrect cabling

Inspect the cabling and replace if necessary.

The motor controller output is defective.

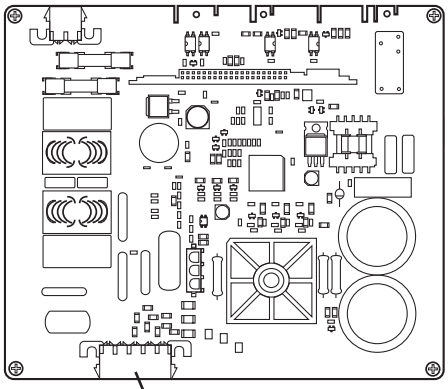
37

Contactor X3, female towards motor




Measure resistance between pins 1, 2 and 3

38



X312

5181

## INTERLOCK HARDWARE

**The motor controller indicates an error in the interlock receiving circuit.**


**If the power is on, be very careful when working on the the machine.**

Switch off the machine for at least 30 seconds to ensure the motor controller has been completely reset. Then try to start the machine again.

If the error returns, the motor controller is probably defective.

# LOW DC VOLTAGE

**The motor controller indicates the DC level is too low.**

**If the power is on, be very careful when working on the the machine.**

Switch off the machine for at least 30 seconds to ensure the motor controller has been completely reset. Then try to start the machine again. If the error returns, troubleshoot as follows:

(39) **1. Verify the voltage supply (230 V) to the motor controller at the contactor X311.**

Voltage too low

Voltage OK

The motor controller is probably defective.

(40) **2. Inspect the power supply (230 V) at the main power switch Q1 on the machine.**

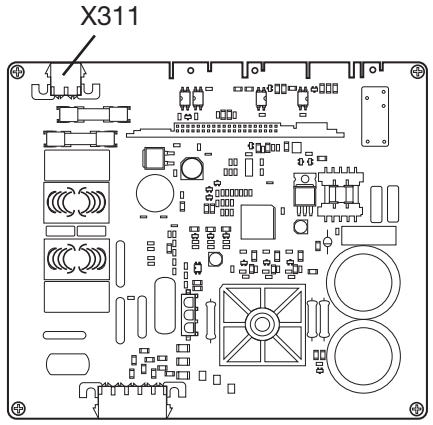
Voltage too low

Troubleshoot the mains.

Voltage OK

Defective cabling.

39

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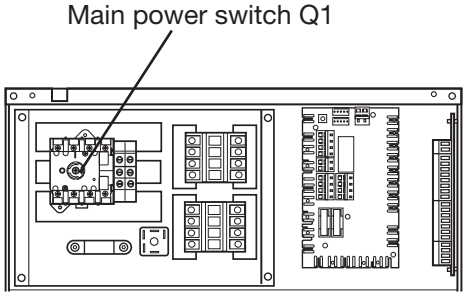


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# HIGH DC VOLTAGE

**The motor controller indicates the DC level is too high.**

**If the power is on, be very careful when working on the the machine.**

Switch off the machine for at least 30 seconds to ensure the motor controller has been completely reset. Then try to start the machine again. If the error returns, troubleshoot as follows:

(41) **1. Verify the voltage supply (230 V) to the motor controller at the contactor X311.**

Voltage too high

Voltage OK

The motor controller is probably defective.

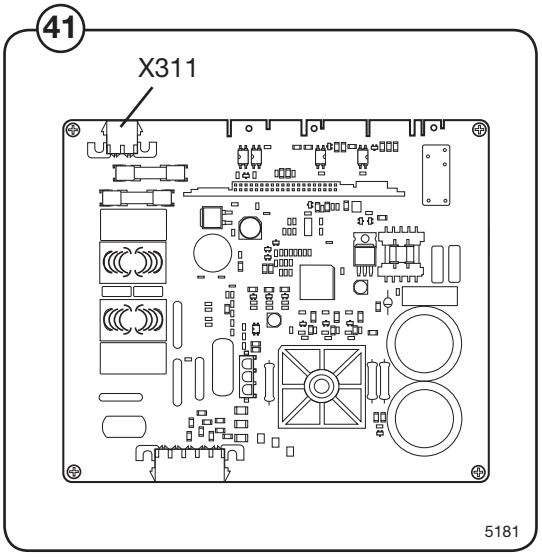
(42) **2. Inspect the power supply (230 V) at the main power switch Q1 on the machine.**

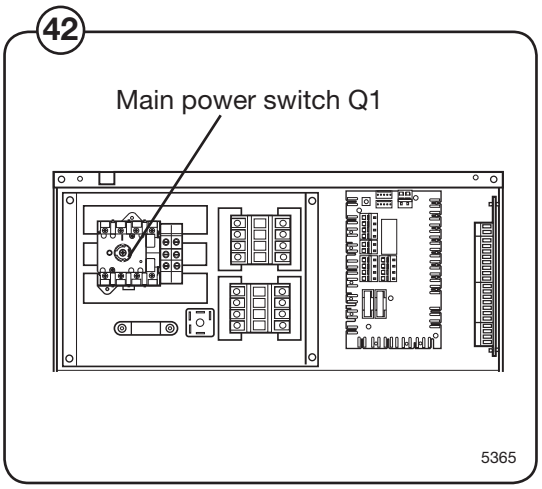
Voltage too high

Troubleshoot the mains.

Voltage OK

Defective cabling.



## RIPPEL ON DC BUS

**The DC voltage level fluctuates too much.**

**If the power is on, be very careful when working on the the machine.**

Switch off the machine for at least 30 seconds to ensure the motor controller has been completely reset. Then try to start the machine again. If the error returns, troubleshoot as follows:

(43) **1. Verify the voltage supply (230 V) to the motor controller at the contactor X311.**

Large voltage fluctuations

Voltage OK

The motor controller is probably defective.

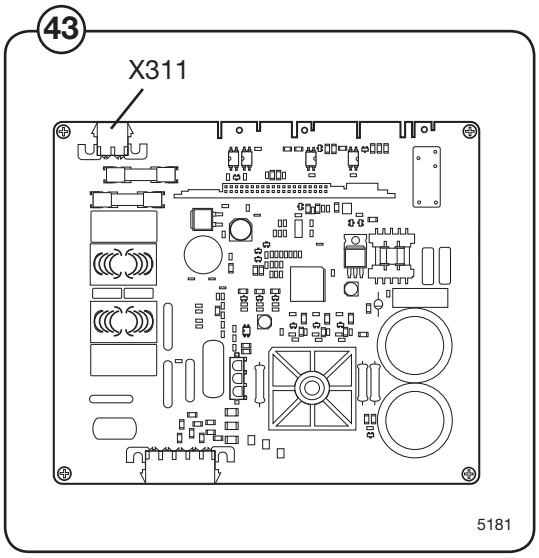
(44) **2. Inspect the power supply (230 V) at the main power switch Q1 on the machine.**

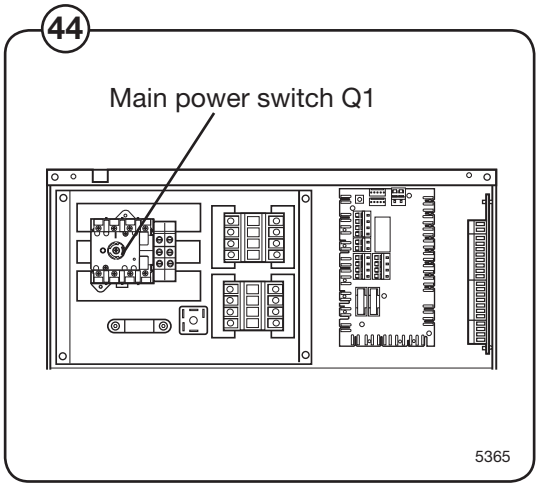
Large voltage fluctuations

Voltage OK

Defective cabling.

Troubleshoot the mains.



# LINE INTERRUPT

## The motor controller is missing a phase.

**If the power is on, be very careful when working on the the machine.**

Switch off the machine for at least 30 seconds to ensure the motor controller has been completely reset. Then try to start the machine again. If the error returns, troubleshoot as follows:

(45) **1. Verify the voltage supply (230 V) to the motor controller at the contactor X311.**

No voltage

Voltage OK

The motor controller is probably defective.

(46) **2. Inspect the voltage supply (230 V) at the main power switch Q1 of the machine. For machine with neutral leads, measure between L1 and N; for machines without neutral leads, measure between L1 and L2.**

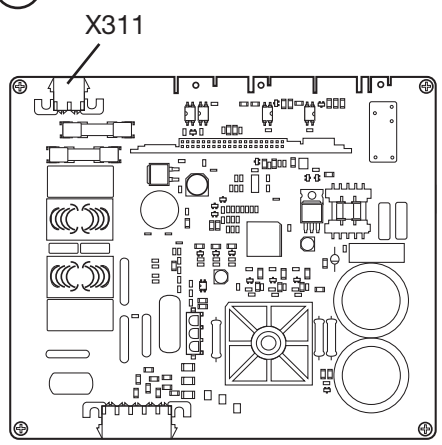
No voltage

Troubleshoot the mains.

Voltage OK

Defective cabling.

(45)

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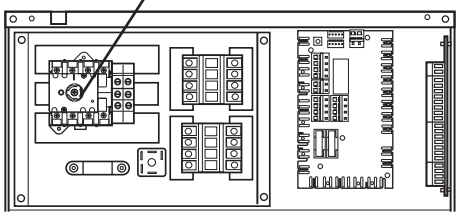
(46)

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## KLIXON CIRCUIT

**The motor controller indicates an error inn the thermal protection circuits of the motor.**


**If the power is on, be very careful when working on the the machine.**

Switch off the machine and for about 30 seconds. Then switch on the machine again and start a programme.

If the error returns, the motor controller is probably defective.