

**Company Name**

Street

City

Postcode

Country

Dear [Recipient name]

Re: JPS Reliability: Infrared Thermography Report

I would firstly like to thank you for the courtesy and co-operation shown to JPS Reliability Limited during my recent site visit. Following the survey at your facility I have pleasure in presenting for your attention a comprehensive Infrared Thermography report.

Please contact JPS Reliability Limited for any machinery reliability issues or required health verification, we offer full technical/diagnostic back up which includes:

- Conventional vibration analysis
- Phase analysis
- Resonance testing
- Bearing / gear analysis
- Oil analysis
- On-Site fan dynamic balancing
- Laser alignment
- Thermal imaging
- Ultrasonic air leak energy saving surveys
- Shaft Voltage Bearing discharge surveys

Date of survey:

X

Next Survey due:

X

### **Introduction:**

- This report details the infrared thermographic survey conducted at [xxxxxxxxxxxxxxxxxxxxxxxx]
- This survey was conducted using a Flir Systems Thermal Imaging Camera and the report compiled using ThermaCAM Reporter 2000 Professional Software package.
- The survey includes all electrical, mechanical and process equipment as detailed in the report check list together with any additional equipment as specified by the customer.
- Where abnormalities are detected, thermograms and digital images are presented indicating specific problem areas. The report incorporates fault diagnosis with likely causes and recommendations.
- Plant and equipment found to be free of anomalies will not feature in the thermographic report pages; however, they will be identified in the checklists located in this report.

### **Recommendations and Disclaimer:**

- The recommendations given in this report are intended as a guide only; therefore, JPS Reliability LTD cannot accept responsibility for inappropriate actions taken because of the issue of this report.
- For electrical surveys where current values are not able to be recorded, the recommendations provided are based on the thermographer's experience and judgment.
- To quantify an electrical defect, we rate the temperature rise of the copper conductor above ambient to BS EN 60085:2004 Method for determining the thermal classification of electrical connections
- All recommendations are based on the conditions that prevailed at the time of the survey.

### **Customer Comments / Feedback:**

- Each report page provides a 'corrective actions' box for the customer to provide details of any repairs/actions undertaken. This should be encouraged so that a record can be kept of work undertaken.
- This feedback will enable the IRT technician to evaluate the effectiveness of repair work when conducting subsequent thermographic surveys



# Reliability Services

Customer name - Site  
Thermographic Survey Check List



**JPS Reliability**  
A Reliable Plant is a Profitable Plant

Main Production Area		
Equipment	Item	Comment
DB-1-2-8-4-8 Lighting bay		
DB-1-2-8-4		
Heat Recovery Control Panel	Door Cooling Fan	Replace Fan
Koch effluent CP-1-2-1		
Reel trolley panel right	KM1 Overload Connection	Replace Units
Reel trolley panel left		
Dis board 31		
Starch CP-1-2-16-6 Left	ABB Unit 2A - Internal	Replace Unit
Starch CP-1-2-16-6 Main		
Starch CP-1-2-16-6 Right		
DB1-2-16-5-7 Pump Panel	Main Isolator - L1 Connection	Strip Connection
DB -1-2-16-5		
Facer 2 Extract Panel	Main Isolator - Top Connection	Replace Isolator
Starch Chiller	K2M - L1 Connection	Replace Unit and Cable
Facer 2 Pit Pump Panel		
Facer 2 control panel CP-2-22	Trip 3 - Bottom Left Connection	Re-make Connections
Facer 2 Fan Control Panel	Crydom Unit - Internal B2 Connection	Replace Unit
DB-2-12		
DB-2-2-8-4	Top Left Trip - Top Connection	Re-make Connections
Return Panel 2A	K21 - Top Left Connection	SHUT DOWN PLANT
CP-1-1-1 Extraction Fans	Connection Block	SHUT DOWN PLANT

Electrical Fault Status Guideline		
Fault Category	Action	oC above ambient
4	Record and continue to monitor	<10
3	Investigate at next schedule maint activity	10-30
2	Repair at the earliest opportunity	30-50
1	Must be repaired immediately	>50



# JPS Reliability

A Reliable Plant is a Profitable Plant

## JPS Reliability Services Thermographic Survey For

**Company Name**

Street

City

Postcode

Country

Site Contact: Mr Customet

Date of Survey:      Date of survey

### Report Information

This survey was conducted using a Flir Systems Thermal Imaging Camera and the report compiled using ThermaCAM Reporter 2000 Professional Software package.

The purpose of this survey was to locate and identify anomalies with the equipment listed and recommend actions necessary to rectify.

Thermographer      **Thermographer**

**Identification**



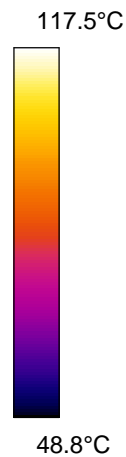
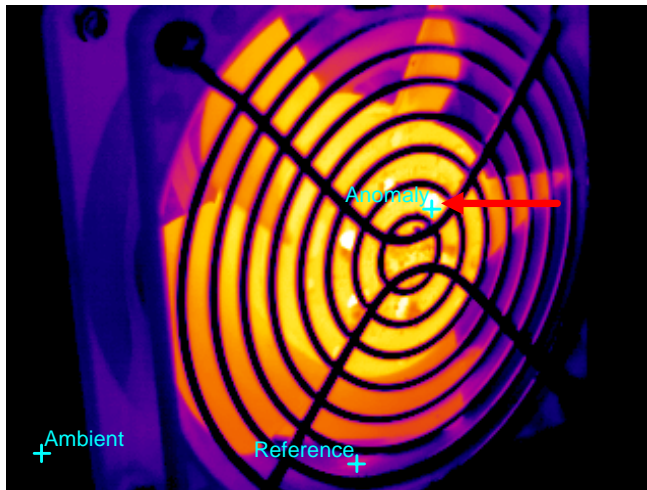
<b>Area</b>	Heat Recovery Control Panel
<b>Equipment</b>	Door Cooling Fan
<b>Item</b>	Fan

<b>Load</b>	Not Running
<b>Time</b>	11:50:17
<b>Date</b>	23/01/2020



Additional Information:  
Replace Fan ASAP.

**Thermogram**



Label	Value
Anomaly	116.3°C
Reference	69.5°C
Ambient	26.0°C

**Fault Diagnosis and Recommendations**

There is a very high localised temperature on the fan unit, the fan unit is defective, and this will reduce the cooling within the control panel.

Replace the fan unit.

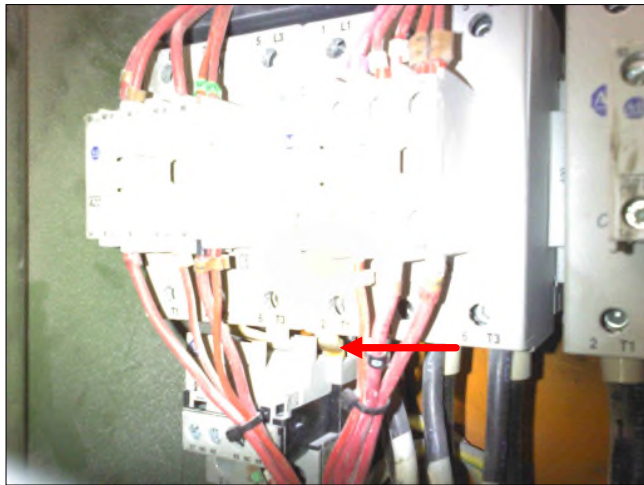
**Corrective Actions**

Action taken:

Date:

Signature:

## Identification

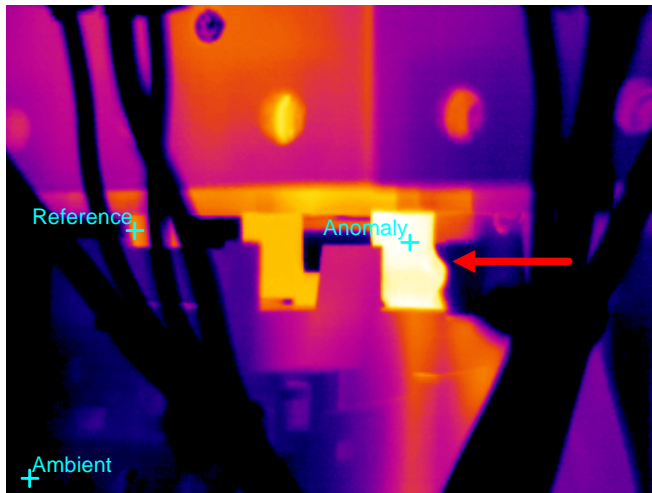


<b>Area</b>	Reel trolley panel right	
<b>Equipment</b>	KM1	
<b>Item</b>	Overload Connection	

<b>Load</b>	Full	
<b>Time</b>	14:40:32	
<b>Date</b>	03/03/2016	

**Additional Information:**  
 Replace Units.

## Thermogram



Label	Value
Anomaly	95.4°C
Reference	58.9°C
Ambient	26.3°C

## Fault Diagnosis and Recommendations

There is localised temperature increase / high resistive connection at the phase three connection, this is probably due to a loose, corroded or sub-standard electrical contact.

Due to the high temperature source spare units and replace.

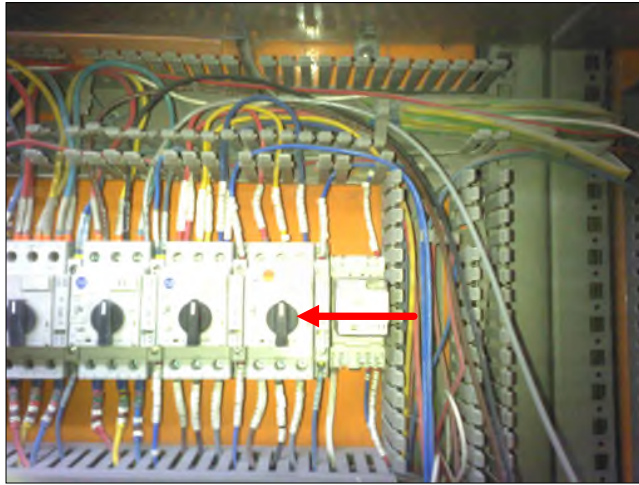
Isolate supply, disassemble components, clean, inspect for damage and replace where necessary. Reassemble; tighten to the correct torque ensuring security of connections and electrical integrity of the circuit.

## Corrective Actions

Action taken:

Date: \_\_\_\_\_ Signature: \_\_\_\_\_

## Identification



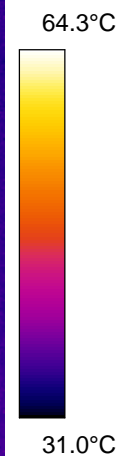
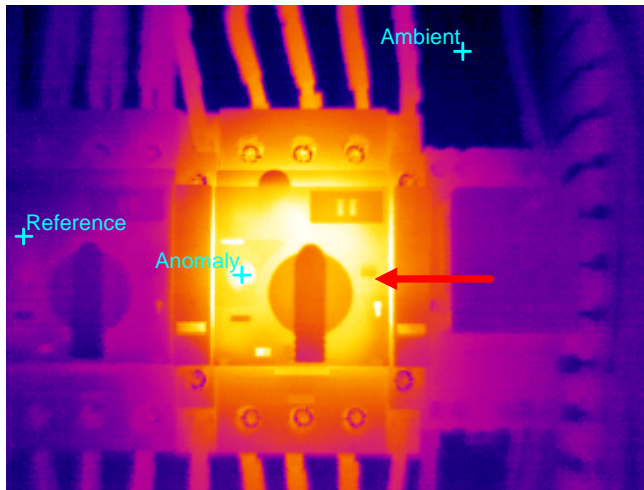
Area	Starch CP-1-2-16-6 Left
Equipment	ABB Unit 2A
Item	Internal

Load	Full
Time	14:08:52
Date	18/03/2019



Additional Information:  
Replace Unit.

## Thermogram



Label	Value
Anomaly	89.8°C
Reference	34.7°C
Ambient	31.7°C

## Fault Diagnosis and Recommendations

There is localised temperature increase on the body of this unit, the problem could be defective internal contacts.

Replace the whole unit.

Isolate supply, disassemble components, clean, inspect for damage and replace where necessary. Reassemble; tighten to the correct torque ensuring security of connections and electrical integrity of the circuit

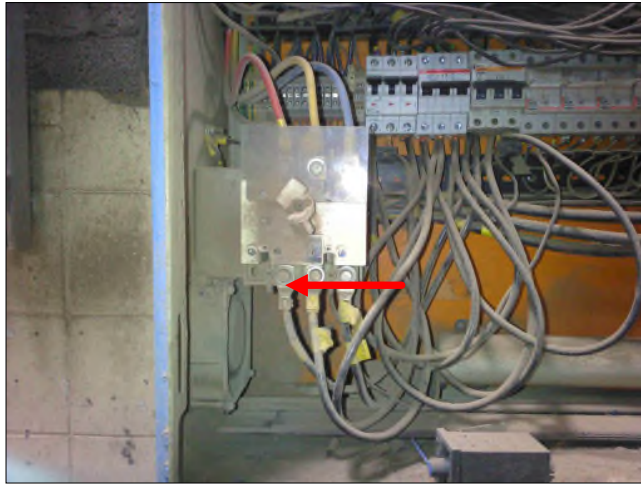
## Corrective Actions

Action taken:

Date:

Signature:

## Identification

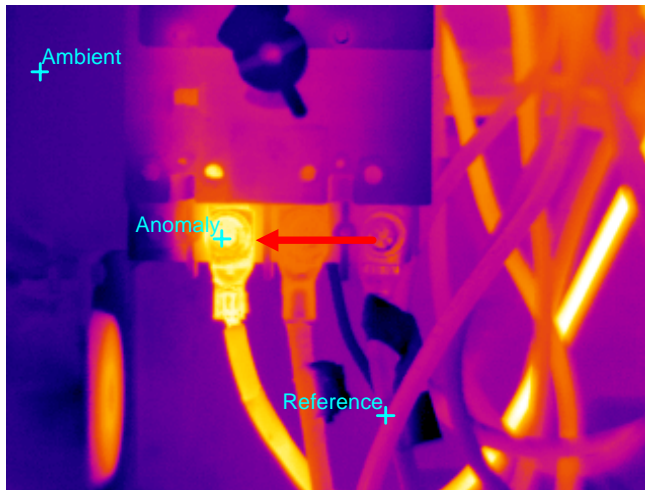


<b>Area</b>	DB1-2-16-5-7 Pump Panel	
<b>Equipment</b>	Door Isolator	
<b>Item</b>	L1 Connection	

<b>Load</b>	Full	
<b>Time</b>	10:10:54	
<b>Date</b>	10/11/2016	

Additional Information:

## Thermogram



Label	Value
Anomaly	51.4°C
Reference	26.8°C
Ambient	23.7°C

## Fault Diagnosis and Recommendations

There is localised temperature increase / high resistive connection at the L1 connection of main door isolator, this is probably due to a loose, corroded or sub-standard electrical contact.

Isolate supply, disassemble components, clean, inspect for damage and replace where necessary. Reassemble; tighten to the correct torque ensuring security of connections and electrical integrity of the circuit.

## Corrective Actions

Action taken:

Date:

Signature:



## Identification

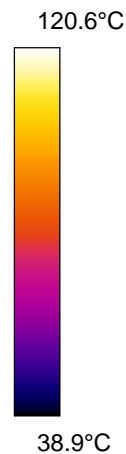
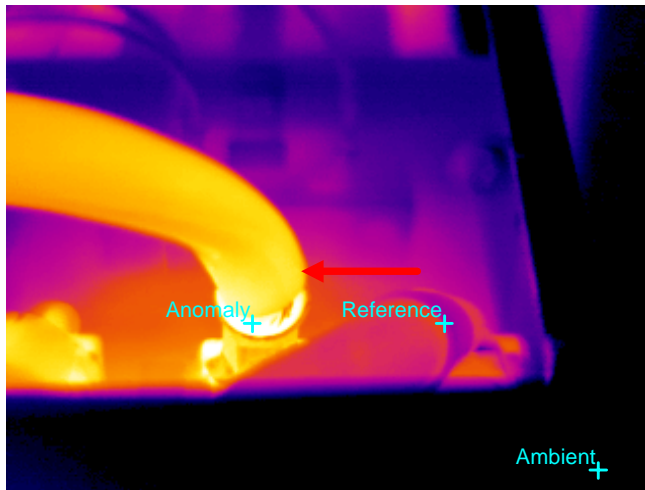


<b>Area</b>	Facer 2 Extract Panel
<b>Equipment</b>	Main Isolator
<b>Item</b>	Top Connection

<b>Load</b>	Full	
<b>Time</b>	10:24:35	
<b>Date</b>	10/11/2016	

Additional Information:  
Repair ASAP

## Thermogram



Label	Value
Anomaly	122.0°C
Reference	58.3°C
Ambient	31.9°C

## Fault Diagnosis and Recommendations

There is localised temperature increase / high resistive connection at the top connection of main isolator, this is probably due to a loose, corroded or sub-standard electrical contact.

This was reported on the day to ensure that site has a spare isolator as due to the very high temperature there will be probable damage withing the isolator.

Isolate supply, disassemble components, clean, inspect for damage and replace where necessary. Reassemble; tighten to the correct torque ensuring security of connections and electrical integrity of the circuit.

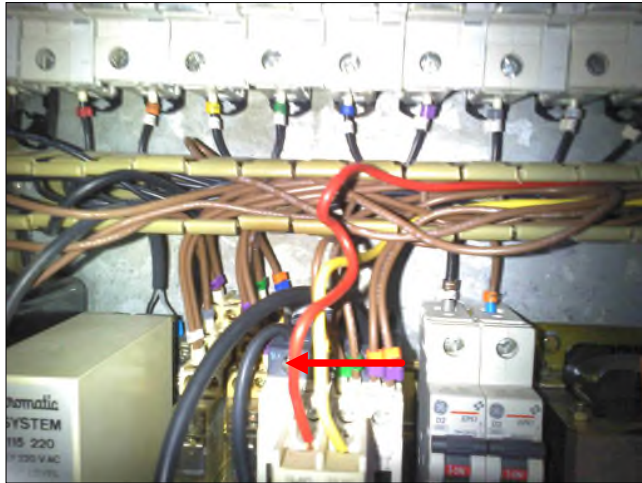
## Corrective Actions

Action taken:

Date:

Signature:

## Identification

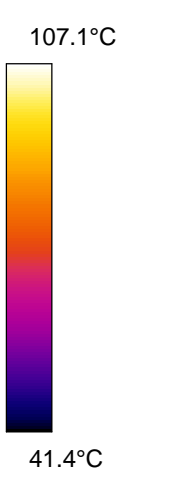
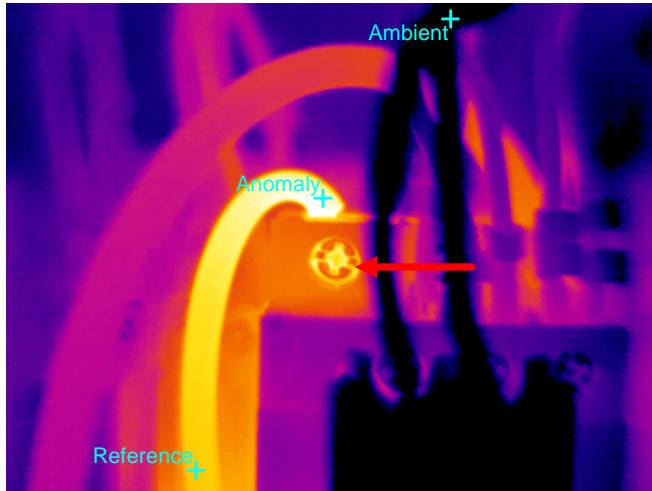


<b>Area</b>	Starch Chiller
<b>Equipment</b>	K2M
<b>Item</b>	L1 Connection

<b>Load</b>	Full	
<b>Time</b>	12:14:28	
<b>Date</b>	10/11/2016	

**Additional Information:**  
 Replace Unit and cable.

## Thermogram



Label	Value
Anomaly	102.2°C
Reference	86.4°C
Ambient	39.0°C

## Fault Diagnosis and Recommendations

There is localised temperature increase / high resistive connection at the L1 connection of K2M, this is probably due to a loose, corroded or sub-standard electrical contact.

The concern here is that this is at over 100 degrees Celsius, this needs repairing at the soonest opportunity, this was reported on the day.

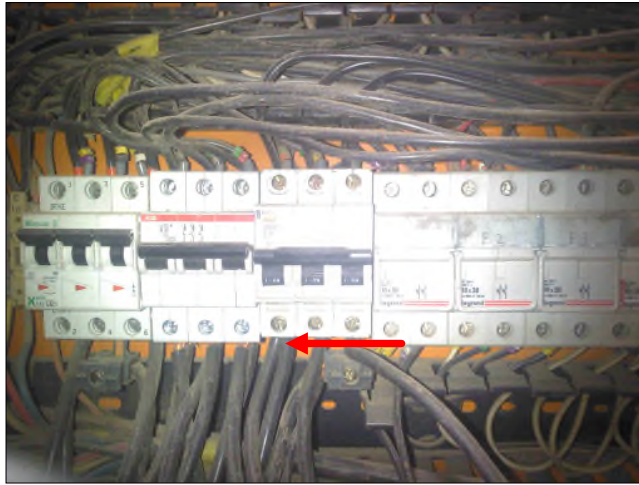
Isolate supply, disassemble components, clean, inspect for damage and replace where necessary. Reassemble; tighten to the correct torque ensuring security of connections and electrical integrity of the circuit.

## Corrective Actions

Action taken:

Date: \_\_\_\_\_ Signature: \_\_\_\_\_

## Identification

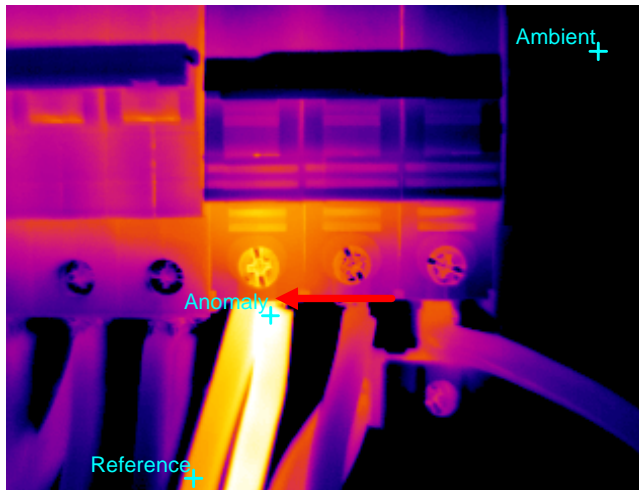


<b>Area</b>	Facer 2 control panel CP-2-22
<b>Equipment</b>	Trip 3
<b>Item</b>	Bottom Left Connection

<b>Load</b>	Full	
<b>Time</b>	09:58:53	
<b>Date</b>	13/11/2017	

Additional Information:

## Thermogram



Label	Value
Anomaly	66.2°C
Reference	49.8°C
Ambient	29.0°C

## Fault Diagnosis and Recommendations

There is localised temperature increase / high resistive connection at the bottom left connection of trip 3, this is probably due to a loose, corroded or sub-standard electrical contact

Isolate supply, disassemble components, clean, inspect for damage and replace where necessary. Reassemble; tighten to the correct torque ensuring security of connections and electrical integrity of the circuit.

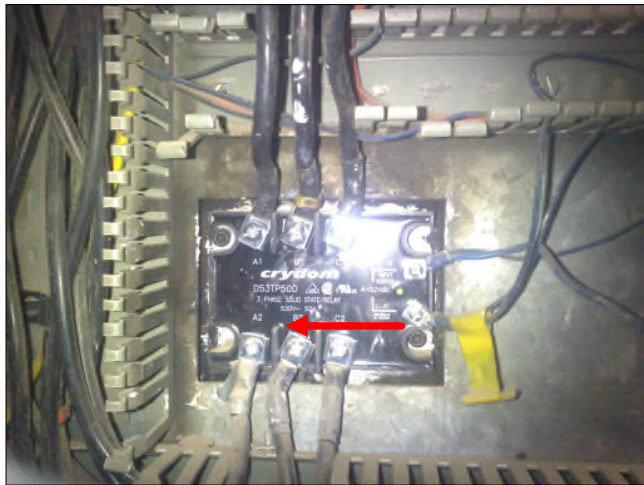
## Corrective Actions

Action taken:

Date:

Signature:

### Identification

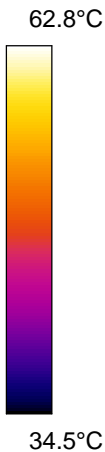
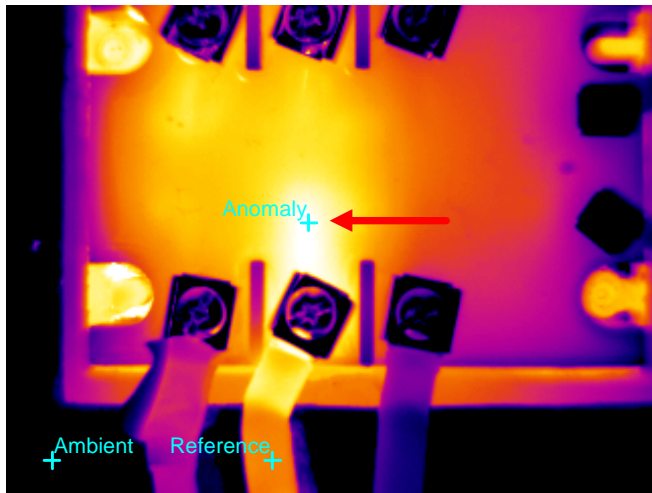


<b>Area</b>	Facer 2 Fan Control Panel	
<b>Equipment</b>	Crydom Unit	
<b>Item</b>	Internal - B2	

<b>Load</b>	Full	
<b>Time</b>	10:09:19	
<b>Date</b>	13/11/2017	

**Additional Information:**  
 Repalce Unit.

### Thermogram



Label	Value
Anomaly	62.7°C
Reference	52.1°C
Ambient	31.2°C

### Fault Diagnosis and Recommendations

This survey shows that the wires at the contacts are at a lower temperature than the body of the Crydom Unit. This indicates that the defect is at the internal contact.

Isolate supply, disassemble components, clean, inspect for damage and replace where necessary. Reassemble; tighten to the correct torque ensuring security of connections and electrical integrity of the circuit.

### Corrective Actions

Action taken:	
Date:	Signature:

### Identification



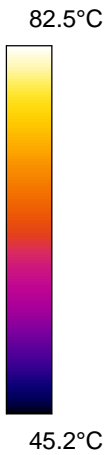
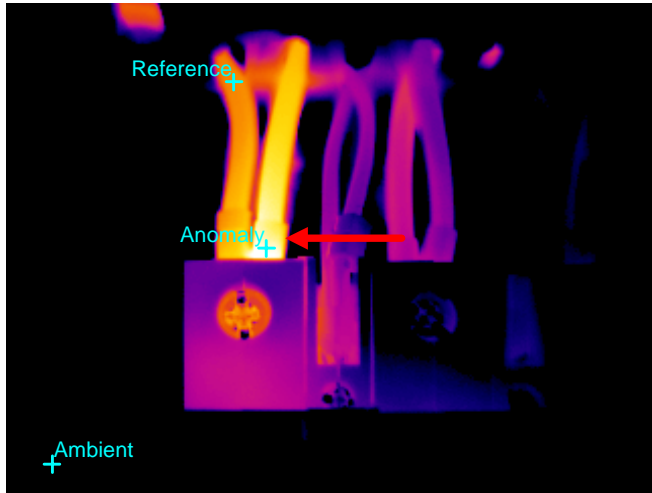
<b>Area</b>	DB-2-2-8-4	
<b>Equipment</b>	Top Left Trip	
<b>Item</b>	Top Connection	

<b>Load</b>	Full
<b>Time</b>	11:33:35
<b>Date</b>	13/11/2017



**Additional Information:**  
Strip connection.

### Thermogram



Label	Value
Anomaly	80.6°C
Reference	63.2°C
Ambient	37.6°C

### Fault Diagnosis and Recommendations

There is localised temperature increase / high resistive connection at the top left connection of top left trip, this is probably due to a loose, corroded or sub-standard electrical contact.

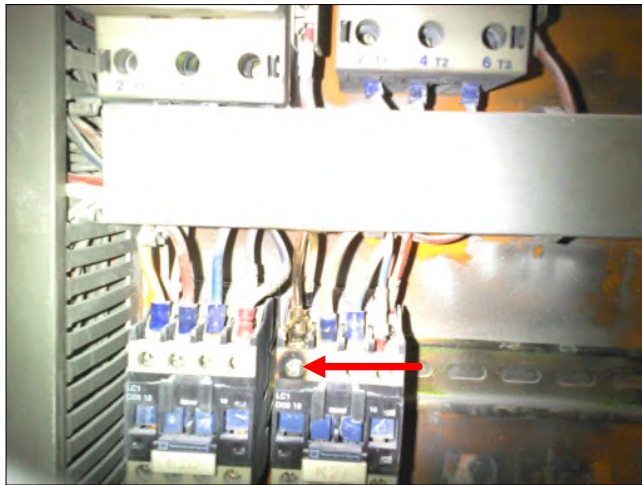
Isolate supply, disassemble components, clean, inspect for damage and replace where necessary. Reassemble; tighten to the correct torque ensuring security of connections and electrical integrity of the circuit.

### Corrective Actions

Action taken:

Date: \_\_\_\_\_ Signature: \_\_\_\_\_

## Identification

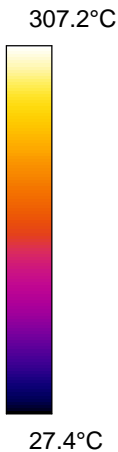
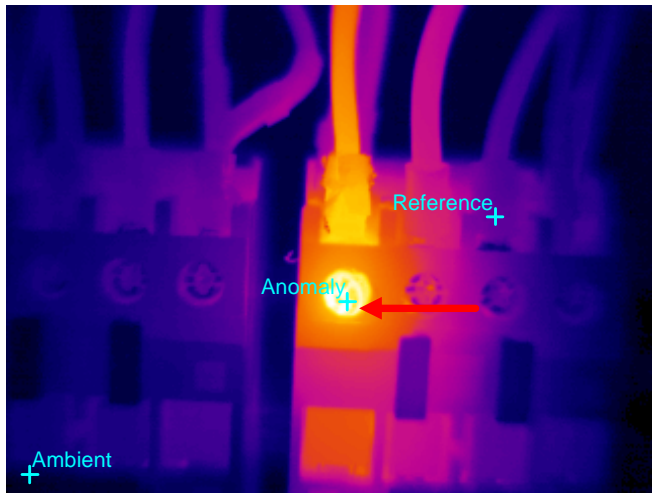


<b>Area</b>	Return Panel 2A
<b>Equipment</b>	K21
<b>Item</b>	Top Left Connection

<b>Load</b>	Full	
<b>Time</b>	11:41:36	
<b>Date</b>	01/03/2016	

**Additional Information:**  
 STOP MACHINE FIRE HAZZARD - REPORTED ON DAY

## Thermogram



Label	Value
Anomaly	307.3°C
Reference	46.5°C
Ambient	30.4°C

## Fault Diagnosis and Recommendations

There is localised temperature increase / high resistive connection at the top left connection of K21, this is probably due to a loose, corroded or sub-standard electrical contact.

This was reported on the day as a fire risk at 307 Degrees Celsius and visual signs of burning.

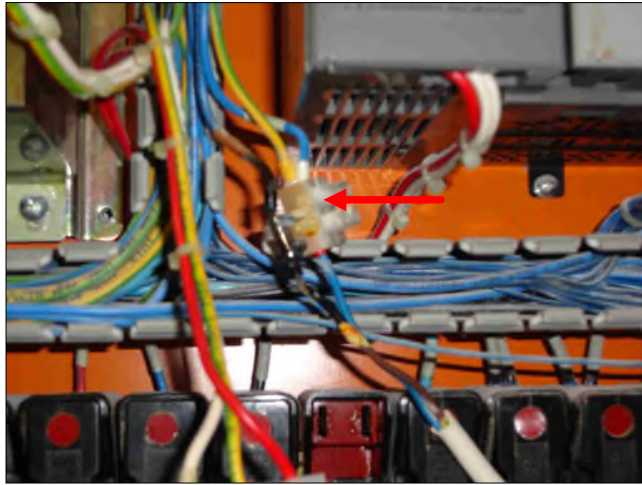
Isolate supply, disassemble components, clean, inspect for damage and replace where necessary. Reassemble; tighten to the correct torque ensuring security of connections and electrical integrity of the circuit.

## Corrective Actions

Action taken:

Date: \_\_\_\_\_ Signature: \_\_\_\_\_

## Identification



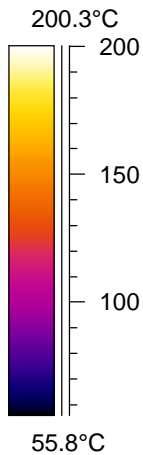
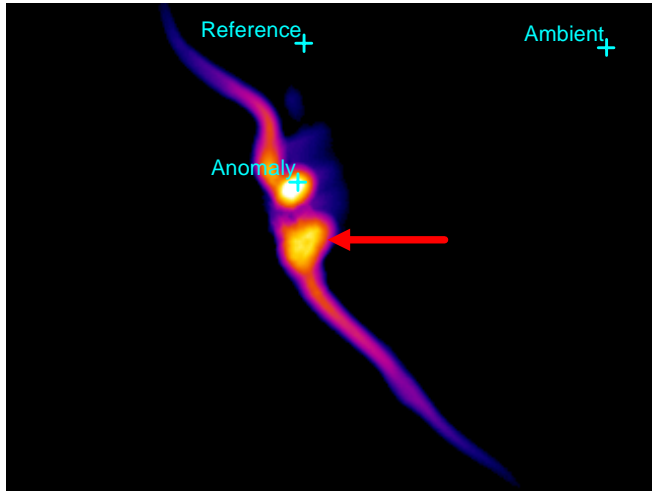
<b>Area</b>	CP-1-1-1 Extraction Fans
<b>Equipment</b>	Connection Block
<b>Item</b>	Connection

<b>Load</b>	
<b>Time</b>	10:53:02
<b>Date</b>	15/05/2012



**Additional Information:**  
 Shut machine down ASAP due to visual signs of smoke at connection.

## Thermogram



Label	Value
Anomaly	219°C
Reference	45°C
Ambient	33°C

## Fault Diagnosis and Recommendations

This was reported on the day due to high temperature of over 219 degrees Celsius and visual signs of smoke.

Replace cables.

Isolate supply, disassemble components, clean, inspect for damage and replace where necessary. Reassemble; tighten to the correct torque ensuring security of connections and electrical integrity of the circuit.

## Corrective Actions

Action taken:

Date: \_\_\_\_\_ Signature: \_\_\_\_\_



# Summary of Inspection at Company Name

## List of Highlighted Items

Area	Equipment	Item	Anomaly Temp.
Heat Recovery Control Panel	Door Cooling Fan	Fan	116.3°C
Reel trolley panel right	KM1	Overload Connection	95.4°C
Starch CP-1-2-16-6 Left	ABB Unit 2A	Internal	89.8°C
DB1-2-16-5-7 Pump Panel	Door Isolator	L1 Connection	51.4°C
Facer 2 Extract Panel	Main Isolator	Top Connection	122.0°C
Starch Chiller	K2M	L1 Connection	102.2°C
Facer 2 control panel CP-2-22	Trip 3	Bottom Left Connection	66.2°C
Facer 2 Fan Control Panel	Crydom Unit	Internal - B2	62.7°C
DB-2-2-8-4	Top Left Trip	Top Connection	80.6°C
Return Panel 2A	K21	Top Left Connection	307.3°C
CP-1-1-1 Extraction Fans	Connection Block	Connection	219°C



**Additional:**

In the interests of reliability and case history, we would appreciate feedback on work undertaken and the details of components used.

Any observations or recommendations we have made are supported with accompanying thermal data.

We trust that this will be acceptable to your requirements, however, should you require any additional information please contact the undersigned.

Kind Regards

*Technician*

**Technician**

Reliability Services



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