THERMAL INSIGHT

REPORT ON THE THERMAL SURVEY OF THE ELECTRICAL FACILITIES AT: **SAMPLE SITE** SMITH ST, BANKSTOWN NSW

Prepared for
JOHN SMITH of
ABC PTY LTD
by AARON JENKINS
15TH JANAURY 2023

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INTRODUCTION

1 PLANT INSPECTED

A list of all the switchboards and facilities examined during this inspection can be found within this report.

2 LIMITATIONS IN THERMOGRAPHY

Infrared cameras will only measure surface temperature, they cannot see behind metal, glass, or plastic covers. Panel covers therefore need to be removed, but only if safe to do so and where there is no chance of disruption to power. If a circuit is not operating at the time of inspection, it will be presented in this report as it was seen at the time of inspection. This report is a **snapshot in time**.

3 THE REPORT

This report is a **report by exception** unless otherwise specified. Images will be shown for all **thermal abnormalities** found during the inspection and prioritised as shown below. The report may also include a selection of **no thermal abnormality** images to show the general condition of equipment. The basis of our priority assignment can be found on the third last page of the report under **General Notes**.

PRIORITY

1	A serious abnormality is present. Immediate repair is recommended.
2	Not so serious abnormality. Repair as soon as possible.
3	Abnormality noted should be checked and rectified when convenient.
4	No thermal abnormality exists. The image is to show general condition of equipment.

4 RESULTS

This report contains a selection of thermal and digital images of the facilities examined during the inspection. Where any **thermal abnormality** has been highlighted, we recommend that you conduct your own risk analysis, and then prepare your own repair schedule based on your assessment.

5 FOLLOW UP

We would recommend Thermal Insight© inspections at twelve (12) monthly intervals. This will assist you with effective maintenance, reduction of costly unscheduled downtime and failures, and/or to comply with your insurance requirements.

Aaron Jenkins

Aaron Jenkins (02 9824 5103)
Thermographer

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SUMMARY TABLE OF IMAGES

The following table summarises images of all **thermal abnormalities** found during the inspection. It may also include a summary of **no thermal abnormality** images that were taken to show the general condition of the equipment.

Location	Switchboard	Component	Priority	Page
Outside tenant M16	Link panel	Service fuse	1	4
Main Switch Room	Distribution Board R	Active link	2	5
Level 1	Distribution Board H1	Circuit breaker 17 (submain switch 19-60)	3	6
Plant Room	Fuse link box	Fuses	4	7

PLANT INSPECTED

The following is a list of all the switchboards and facilities that were examined during the inspection.

Location	Switchboard	Notes	Priority
Rear of Block	Main Switch Board		4
Outside M16	Link Panel		1
Rear Loading Bay	Distribution Board 7		4
Anti-Room Roof	Sub Board 1		4
Battery Charger Area	Distribution Board		4
Office Corridor Switch Room	Distribution Board 1 & 1A		4
Adj Front Loading Bay	Refrigeration Panel		4
	Meter Panel North Bld		4
	Meter Panel South Bld		4
Main Switch Room	Distribution Board R		2
Level 1	Distribution Board H1		3
Plant Room	Fuse link box		4

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LOCATION	Outside tenant M16
SWITCHBOARD	Link panel
COMPONENT	Service fuse
OBSERVATION	Red phase lower connection

1

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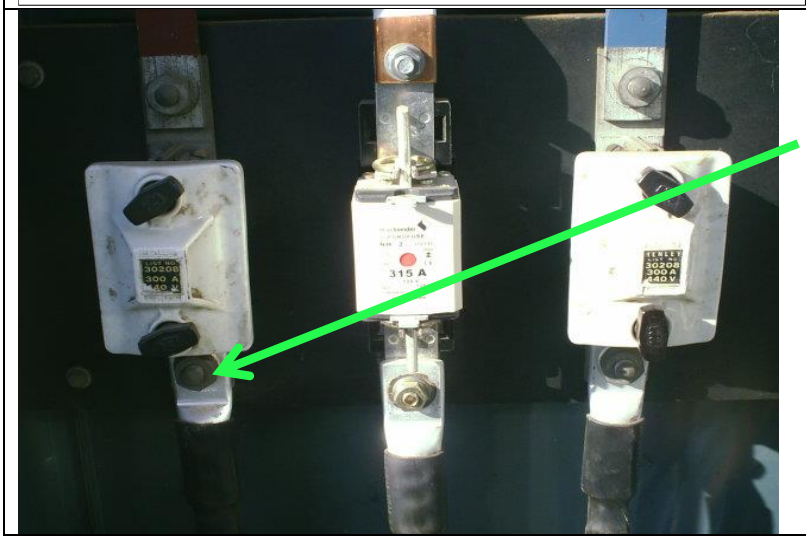
RESULTS TABLE

Ref Temperature	50.0°C
Fault Max. temperature	92.3°C
Temperature difference	42.3°C

The load was checked to be:

Red phase	152	amps
White phase	169	amps
Blue phase	162	amps



RECOMMENDATIONS

Check crimp on cable lug, clean and re-tension connection

Maintain 12 Monthly Inspections

Repairer's comments:

Name:	Sign:	Date:	License:

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LOCATION	Main Switch Room
SWITCHBOARD	Distribution Board R
COMPONENT	Active link
OBSERVATION	Red phase load side

2

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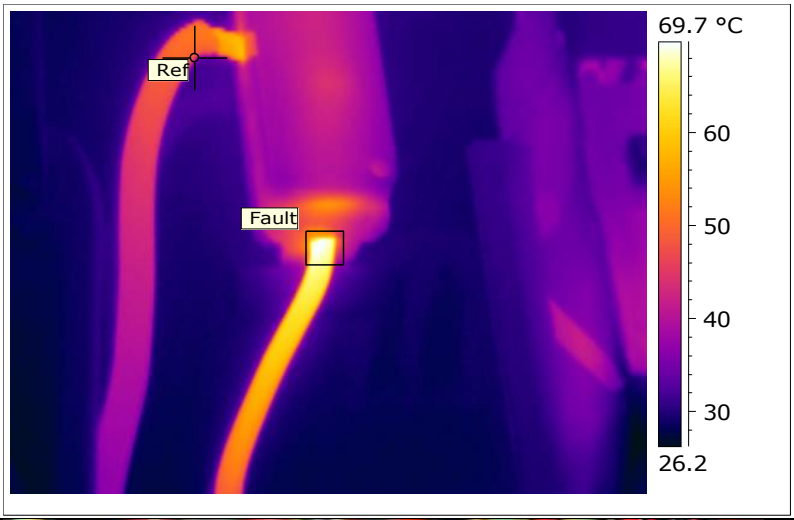
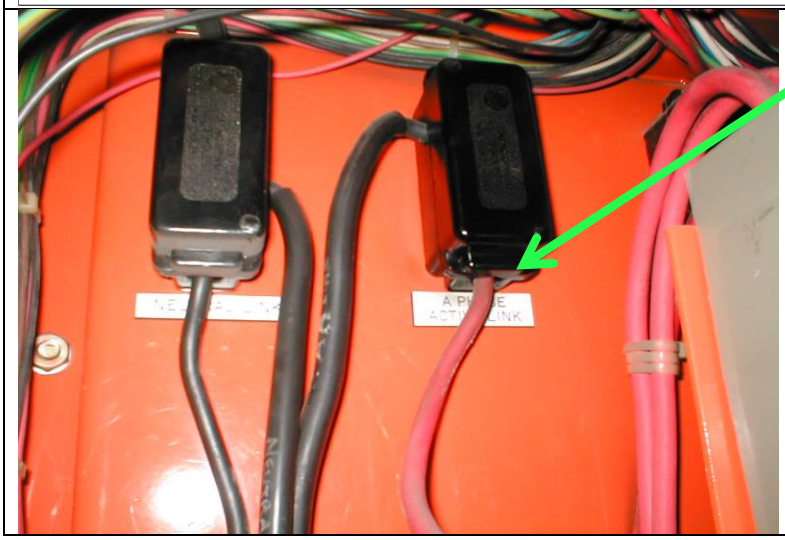


RESULTS TABLE

Load side Maximum	25.3 °C
Fault Max. temperature	70.3°C
Temperature difference	23.8°C

The load was checked to be:

Red phase	53 amps



RECOMMENDATIONS

Check, clean and re-tension connection.

Maintain **12** monthly inspections.

Repairer's comments:

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LOCATION	Level 1
SWITCHBOARD	Distribution Board H1
COMPONENT	Circuit breaker 17 (submain switch 19-60)
OBSERVATION	Busbar rivet

3

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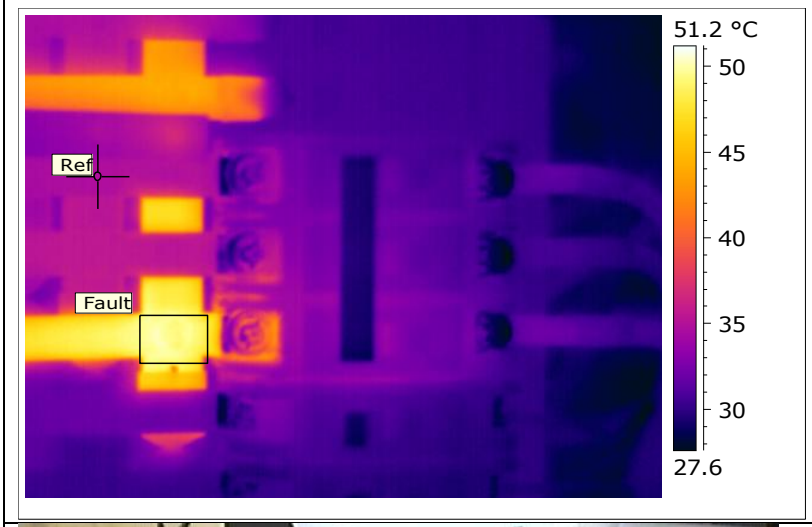
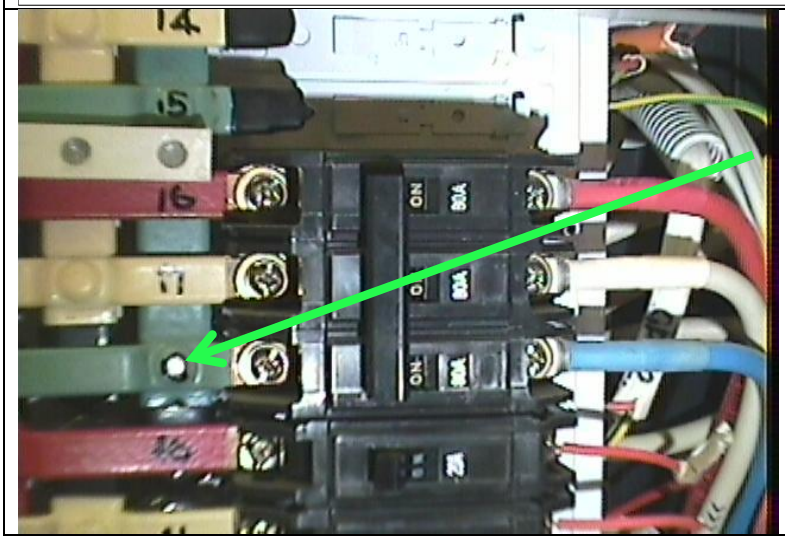


RESULTS TABLE

Ref Temperature	35.0 °C
Fault Max. Temperature	50.5 °C
Temperature Diff.	15.5 °C

The load was checked to be:

Red phase	13.8 amps
White phase	6.3 amps
Blue phase	27.8 amps



RECOMMENDATIONS

Investigate fault, repair or replace as required.

Maintain **12** monthly inspections.

Repairer's comments:

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LOCATION	Plant Room
SWITCHBOARD	Fuse link box
COMPONENT	Fuses
OBSERVATION	No abnormal thermal activity detected

4

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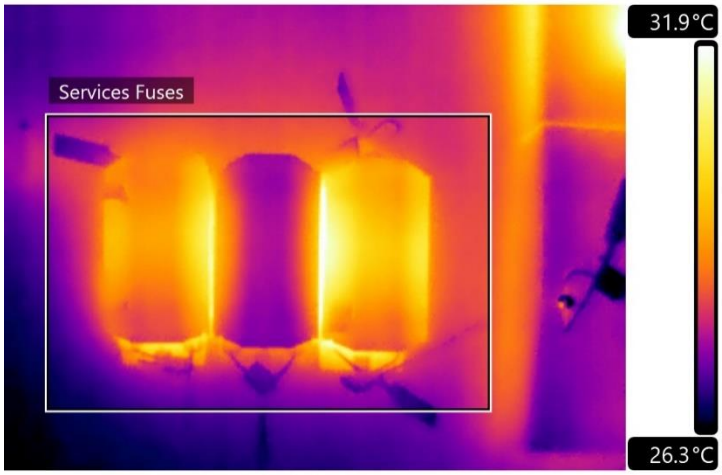

RESULTS TABLE

Service Fuses Maximum	33.1 °C

RECOMMENDATIONS

The temperatures recorded in the Results Table above are considered to be normal operating temperature and no further action will be necessary.

Maintain **12** monthly inspections.

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GENERAL NOTES

BASIS OF PRIORITIES

The priorities of abnormalities are based on the temperature difference between phases, across switches, contactors, and other components with potentially the same loading and application. The table below may be used as a guide. The priority given may be different depending on the finding during the inspection. For example, a burnt cable with no load at the time of inspection will show a low temperature but requires immediate repair.

Priority	Temperature Difference	Fault Temperature	Suggested Action
1	>30°C	>100°C	A serious abnormality is present. Immediate repair is recommended.
2	20°C - 30°C	75°C - 100°C	Not so serious abnormality. Repair as soon as possible.
3	10°C - 20°C	50°C - 75°C	Abnormality noted should be checked and rectified when convenient.
4			No thermal abnormality exists. The image is included to show the general condition of equipment.

NON-THERMAL PROBLEMS

Non-thermal problems may also be identified within the report. The priority given will be assessed by the person doing the inspection at the time. Typical problems may include, but not limited to; overloaded circuits, damage to switch boards, access issues, build-up of dust, and general wiring problems.

RESULTS TABLES

Fault Temperature	Is the approximate temperature of the Fault
Reference Temperature	Is a comparison temperature that may be considered normal
Temperature Difference	Is the temperature difference between the Fault and Reference

INDICATED TEMPERATURES

The emissivity setting on the camera during the inspection was 1.00, unless otherwise stated. Therefore, the temperatures indicated within this report are approximates and the actual temperatures may be different.

RECOMMENDATIONS

The recommendations given are simple and based on what was observed at the time of inspection. Repairs should only be undertaken after a full assessment is made by the owner and/or repairer.

THE INSPECTION

Where possible, the covers that are designed to be removed from an energised board are removed for the inspection. Generally, internal covers will not be removed unless designed to do so. Covers that are unsafe, or by removing may disrupt power, will not be removed. All warning labels pertaining to covers will be adhered to.

The inspection of the switch boards will include all components including Main Switches, Links (active, neutral & earth), Circuit Breakers, Fuses, Contactors, Overloads, Relays, Bus Bars and Wiring. The faults identified may include hot joints, loose connections, overloaded circuits, and faulty internal contacts.

The inspection should normally be performed during the time of greatest load. This will vary from site to site depending on the nature of the business being conducted.

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