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# SYDNEY TRAMWAY MUSEUM

## POWER OUTAGE DIAGNOSTIC PROCEDURE

OCTOBER 2009 MARCH 2010



**SYDNEY TRAMWAY MUSEUM**  
**Diagnostic Checking When A Power Failure Occurs**

## **1. Purpose**

To provide direction for diagnosing when the power at the Museum has gone off..

## **2. Scope**

This process is to be applied to all power outages within the Museum.

## **3. Responsibilities**

It is the responsibility of the Officer-in-Charge to determine the cause and call out the relevant person to restore power.

## **4. References**

[Occurrence Report form \(STM6033\)](#)~~None~~

## **5. Definitions**

The Museum                      refers to the Sydney Tramway Museum

## **6. Actions**

### **6.1 “THE POWER HAS GONE OFF!”**

On the way to the main switchboard look around at what is or is not working.  
Check:

- Is the A.C. working where you are?
- Are any of the trams lit or are compressors/m.g. sets running?
- Are the indicators outside on?
- Is water running from the sprinkler system drain????

Inside the substation, if you can hear the transformers, look at the D.C. breakers. If all is quiet look at the A.C.

*REMEMBER: Don't let the substation fill up with people. There should only be the OIC plus one helper maximum in the substation.*

### **6.2 IF D.C. CIRCUIT BREAKERS OPEN.**

**WHY?** Try to find a reason before reclosing.

- Contact the tram crews to see if they have a problem.
- Are there any other possible problems?
- Is the overhead down?
- Has someone done something clever with a wandering lead?
- Are the trolley poles touching any buildings?
- Are any vehicles touching the overhead?

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*Only when you are sure that all is clear should you attempt to reclose.*

To reclose the circuit breaker:

- Turn off traction supply by pushing the “OFF” button. The contactors open and the transformer should stop humming;
- Check that AC circuit breakers behind right hand door in switchboard are closed (Up);
- Close DC circuit breakers; and
- To turn supply on either go to push buttons outside substation or push “ON” button on side of switchboard whilst facing away from DC breakers.

You should hear the contactors close and the transformers start to hum. The indicator lamps should be lit. If not check the lights on a tram.

### **6.3 IF TRACTION SUPPLY SEEMS “WEAK.”**

Check LED’s on meter which is inside the substation.

- If one is out look at “Drop-out” fuses.
- If one is hanging down, that could be the problem.

If all appears well go to the Display Hall and turn on the high bay lights. If a phase is missing, then at least one row won’t work. This is probably a service fuse blown. Call Energy Australia and tell them *that we appear to have a partial loss of supply.*

If all seems well with the AC to the buildings then it is probably a traction supply fuse that has failed. At present this will require an electrician to attend.

### **Why can’t I change the fuse, I do it at home?**

At present it is Society policy that only electrical staff perform this operation for a number of reasons. This may change in the future.

### **6.4 IF SUPPLY IS LOST FROM THE SITE ALTOGETHER.**

Ring Energy Australia.

Listen to the recorded message.

- If there is a High Voltage fault in the area (i.e. Sutherland area) they will probably know. Listen for an estimated time of restoration of supply.
- If they appear to know about the fault but it is late in the day or if they don’t mention a fault in the area then follow the prompts and speak to an operator.
- Don’t try to be technical as they know less about it than you do. It is important obviously to get across to them our position, particularly if it is late in the day and we have a tram stuck out at National Park.

### **6.5 WHO YA GUNNA CALL?**

Always try to contact one of the electrical staff and the Rail Safety Manager. Some incidents must be reported on the Occurrence Report form (STM6033).

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Contact Numbers

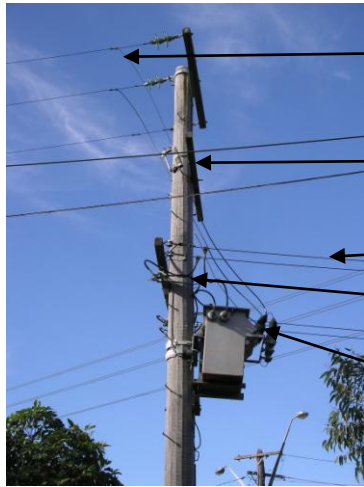
Geoff Olsen. . . . . 9520 4681.....0418 285 494  
Chris Olsen. . . . . 9153 7464.....0407 289 040  
Bill Parkinson. . . . . 4229 3889.....0428 991 407  
Rail Safety Manager (David Rawlings) . . . . . 9520 7601  
Energy Australia. . . . . 13 13 88

Remember that Energy Australia will only provide limited assistance if the fault is not with their network. They are unlikely to be either willing or able to repair anything to do with the D.C. supply. Anything that they do to our part of the installation, including replacing service fuses, they will charge us for.

We have a supply of suitable fuse cartridges to replace the service fuses but they may choose not to use them, which is their call. We are not allowed to replace them ourselves.

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**6.6 ENERGY AUSTRALIA EQUIPMENT**

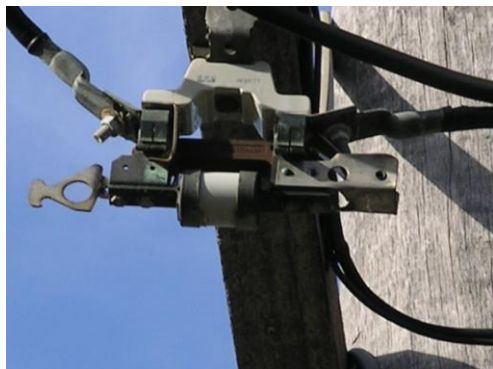


- ← 11 KV power lines
- ← Drop out fuses
- ← Power lines to the Museum
- ← Lower voltage fuse
- ← Transformer which converts 11KV to 240 volts

*Energy Australia Pole located outside the Museum site.*



← Enlarged photo of a Drop out fuses

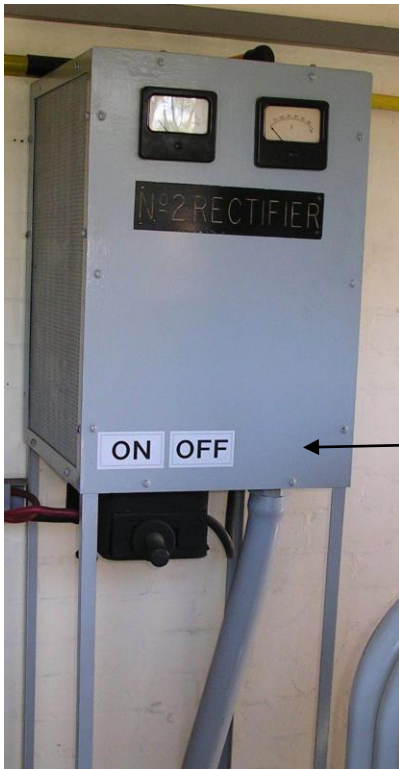


← Enlarged photo of a Lower voltage fuse

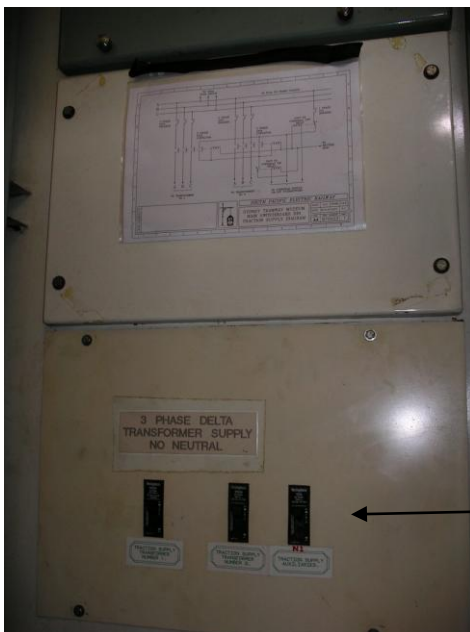
All of the above equipment is maintained by Energy Australia.

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**6.7 WITHIN THE SUBSTATION**



Circuit Breaker which should be in the ON position



Cabinet Controls

Circuit breakers which should all be in the UP position