

Westinghouse Signal LED Module Failure

Applicability

ARTC Network Wide	✓
-------------------	---

Audience	Main Points	Amendment Record
<ul style="list-style-type: none"> Signal Work Group Leaders Signal Maintainers Signal Maintenance Engineers Signal Team Managers Team Managers Delivery Managers Team Leader Asset Management Inventory Controllers 	<ul style="list-style-type: none"> Failure of Power Supplies fitted to Westinghouse RM4 Signal LED modules manufactured/constructed prior to October 2007 can cause signal failures (flashing mode) approximating a Wrong Side Signal Failure for Yellow Signal Aspects. NOTE: Signal LED modules have a nominal service life of 10 years. 	<ul style="list-style-type: none"> First Issue (v1.0)

1 Scope

This instruction is for all Maintenance and Construction Personnel. It applies to all installed Westinghouse RM4 LED units.

2 Background

At 22:20 hours on the 9th April 2013 Network Control set a route between GH1 & GH3 signal at Gunnedah in the down direction for the passage of NB221. GH1 signal cleared to a steady yellow aspect (Caution). The driver of NB221 advised Train Control that GH1 signal then started to flash or flicker (approximating the display of a Pulsating Medium Yellow Aspect). As GH3 signal was at stop, the least restrictive aspect that the driver should have received at GH1 is steady yellow (Caution).

A similar event occurred at 19:20 hours on the 4th of May 2011, where the Network Control officer on North Coast B board was advised by train number 3WB3, which was travelling in the down direction, that the down distant signal at Tamrookum was flashing yellow when it should have been a steady yellow.

These investigations identified that the Power Supply fitted to RM4 type LED units manufactured prior to October 2007 had an irregular failure mode causing the LED module to flash, in the case of the Yellow aspect approximating a less restrictive Pulsating Yellow Signal aspect.

Further it has come to light that numerous RED Marker Lights and less frequently RED LED units have failed with the same problem. The dates of manufacture/construction are prior to October 2007; however these failures are Safe Side failures.

3 Actions

For signals with Yellow aspects where it is SUSPECTED to be older than October 2007 the signal maintainer at the NEXT MAINTENANCE VISIT is to:

- 1) Inspect the Information Label fixed to the rear of the RM4 LED module (as shown in Figure1)
- 2) If the D/C (Date of Construction) number is lower / earlier than 0741 (41st week of 2007) then record the interlocking location name e.g. crossing loop name, signal number, date as shown on the label and the signal aspect i.e. Red, Yellow or Green and if the Yellow aspect has a pulsating Yellow function on the form provided in the appendix.

- a) Special attention has been given to the YELLOW LED module as this has the potential to introduce a Wrong Side Failure, albeit infrequent at twice in two years.
- b) For aspects other than YELLOW, the records will be collated and analysed and corridor management will be advised should any further action be deemed necessary.
- 3) For YELLOW aspects the LED module should be replaced immediately or recorded as a defect and scheduled for replacement (provided sufficient spares maintained in inventory) in the Works Management System (WMS) at the earliest opportunity but no later than the next maintenance visit.
- 4) A special "one off" MST, quoting "ESI-04-01" will be created for all colour light signals, they will be scheduled to coincide with the next maintenance service/MST. The attached table must be completed for **all** LED signals for the purposes of recording:-
 - a) All RM4 LED modules (RED/YELLOW/GREEN) manufactured/constructed prior to October 2007
 - b) All LED modules, the manufacturer, model, date of manufacture/construction and colour aspect to be used as a check against the asset register and update if necessary and for use as reference and special inspection or change out scope should any issues arise with particular type of LED module in future.
- 5) Removed RM4 LED Modules are to be disposed of and not reused. It is expected that there will be a manageable rate of replacement over 12 months in line with current service schedules.

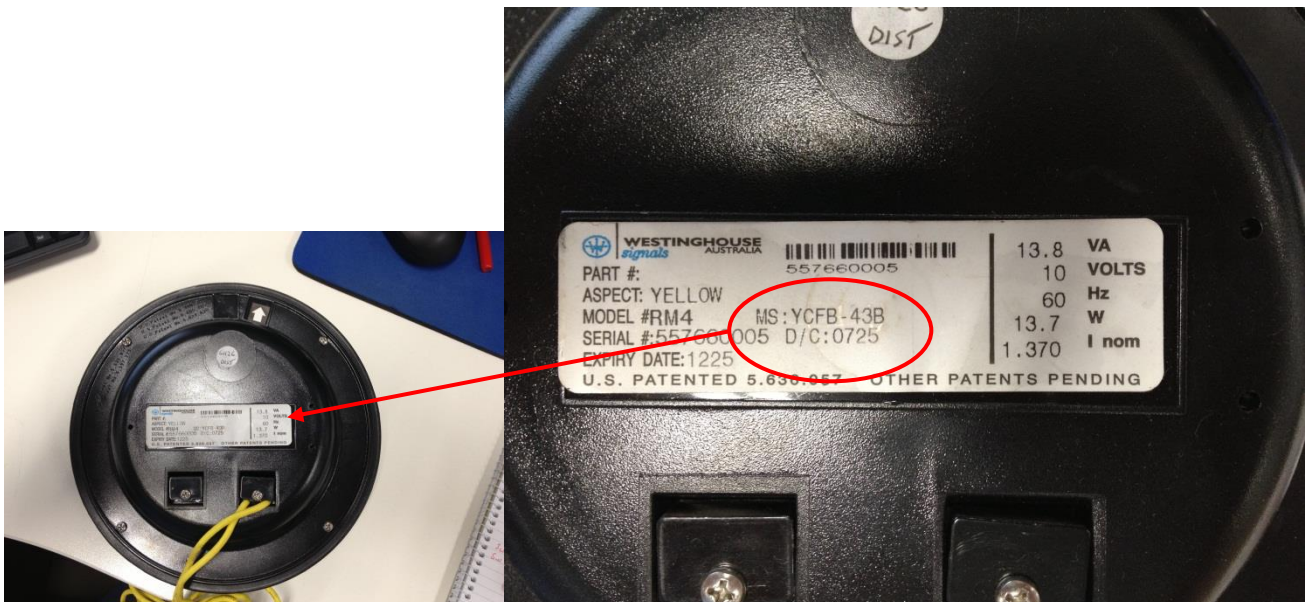


Figure 1

Issued by	Date
Manager Standards	20 AUG 2013