

Technical Bulletin

TB 0280 – Operation of 13mm style protection links

Purpose

The purpose of this bulletin is to update all Protection and Control staff on a potential risk when operating the older style protection links with 13mm nuts as shown in the following picture, and the solution to mitigate this risk

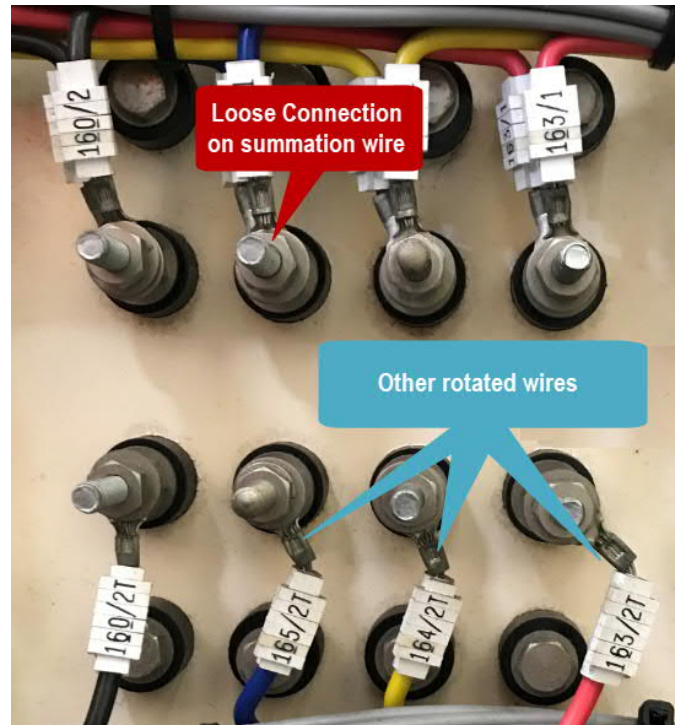


Background

A busbar protection scheme tripped on blue phase when load was connected following a PMI restoration.

On initial inspection, Protection and Control staff identified that the voltage of the blue phase summation was higher than the other two phases, and that this voltage varied each time the links were operated.

Further investigations found the wiring on the rear terminal had worked itself loose as shown in the following photo.



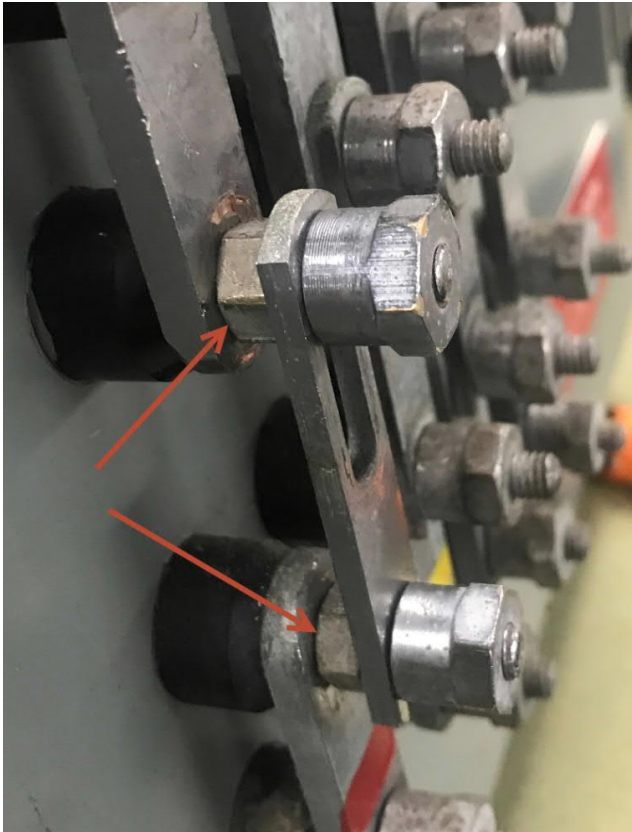
High impedance busbar protection schemes are sensitive, and any high resistance connection will usually cause the scheme to operate.

If the link is in good condition, silver solder bonds the shaft to the link and it won't rotate.

Testing has shown that the strength of the silver solder bond varies considerably.

Some shafts have broken the silver solder at <2Nm, whereas others have held until beyond the point where the shaft has broken (approx. 17Nm).

Further testing on links with broken silver solder has shown an additional lock-nut secured to the front of the link (as shown in the following photo) will help prevent the shaft from rotating if the solder bond is lost.



Actions

On all busbar protection summation panels with 13mm links, Protection and Control staff will add a locking nut to all shafts with CT wires connected.

The tightness of the lock nuts will be checked at each subsequent busbar maintenance.

The lock-nuts are to be tightened to 10Nm.

Implementation

Regional Transmission sections will identify all sites where these links are in use and arrange for the OBA locknuts to be installed under a PWA or outage.

Impacted Workplace Instructions

The contents of this technical bulletin will be included in the next update of the following workplace instruction(s):

- WPC 1325 – High impedance busbar protection maintenance