

DISTRIBUTION COMMISSIONING FORM 2.10 – Streetlights underground supply cable repair

The *Distribution Commissioning Manual* ([EDM 34137510](#)) must be referenced for guidance when completing this form.

Purpose: This form covers the minimum electrical testing required after repairs to steel pole streetlight underground supply cable.

Parameters

- A low-impedance voltmeter must be used for voltage measurements (or use Stray voltage eliminator).
- Measures to prevent unauthorised access to steel standards must be implemented during testing procedures.
- For cable repair methods, refer to the Distribution Construction Standards Handbook (DCSH) maintenance drawings MM13-1.

1. Task Details

Work Package No:		Fed From:		Pick ID	
Repair location address:					
Adjacent pole pick Id (supply side):			Supply cable type:		
Adjacent pole pick Id (downstream):			Supply cable size:		
Single pole pick Id (Tee-off repair):			Configuration:		
Instrument:		Serial No.		Cal Date:	
Instrument:		Serial No.		Cal Date:	
Instrument:		Serial No.		Cal Date:	

2. Pre-repair visual inspection and safety check

1.	Ensure the point of supply has been isolated and tagged.	
2.	Install an independent earth at least 2 metres from the column where testing will be performed. Perform a touch voltage test between the steel standard and the independent (<6V)	V
3.	Confirm cut-out configuration complies with drawing series in the DCSH under MM11; MM13; S08; S09; S10; S11; S12; R26; R27, and the type and class of luminaire. (See note 1 at end of form)	
4.	Inspect the supply cable(s) for damage and replace if necessary	

On completion of supply cable repair perform the following tests at the first downstream cut-out from the repair, or at the teed-off cut-out (for tee-off repair).

3. Supply Cable Insulation Resistance Test

1.	Ensure all the cut-out fuse link covers in the streetlight circuit are removed		
2.	Carry out insulation resistance test of the supply cable. Test voltage shall be 500 VDC. Result must be greater than 1MΩ	Active - neutral	Active - pole
		MΩ	MΩ

If expected values are not achieved, cease testing and DO NOT bring into service. Investigate and repair the problem and/or report this to your supervisor.

Comments on supply arrangement:

4. Supply Polarity Test

Prepare to test at the tee-in column, or at the first downstream streetlight column from the repair

1.	Energise the streetlight supply cable at the point of supply. Test and record results below:			
2.	Perform a touch voltage test between the steel standard and the independent earth (<6V)			V
3.	Test for voltage at the cut-out:	line active - line neutral (U I-n)	226 V – 254 V	V
		line active - independent earth (U I-Pe)	226 V – 254 V	V
		line neutral - independent earth (U n-Pe)	< 6V	V
4.	Record Fault Loop Impedance	line active - line neutral (Z Ω)	<6.6 Z Ω	Z Ω
5.	Refer to Table 1: Based on loop impedance, select appropriate supply fuse rating			A
If results are not within limits investigate further or call supervisor. Do not energise until resolved.				
6.	Ensure that a MEN connection is installed where applicable			
7.	Confirm cut-out configuration complies with drawing series in the DCSH under MM11; MM13; S08; S09; S10; S11; S12; R26; R27, and the type and class of luminaire.			
8.	Replace cut-out cover and all the cut-out fuse link covers in the streetlight circuit			
9.	On completion of all works, perform a touch voltage test using a low impedance multimeter between the steel standard and the independent earth to ensure the steel standard is safe and record measurement			V

5. Completion

I hereby certify that all items have been completed with satisfactory results and transfer control to the network operating authority.			
Re-commissioned by		BNA/EW	
Signature		Date & Time	

1. Ensure that all metal inspection covers are replaced, and the work area is tidy with no hazards to the public.
2. Hand over responsibility to the operating authority.
3. Attach an 'ASCON' drawing to this document on completion of works.
4. The completed form must be returned to the project file/work pack.

Notes:

1. Where 'standard' supply cable is shown in the drawings, this includes 'legacy' supply cable.

Table 1: (from AS 3017)

Use a low fuse rating to ensure adequate capacity for inrush and load, but to also ensure fast fault clearance

Supply fuse rating (A)	Maximum earth fault loop impedance (Z s Ω)
10	6.65
16	3.19
20	2.17