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AEI/AEC/B349

Issue 1, 08-Apr-2021
Use until 08-Apr-2023

Published by Openreach Overhead Policy Team

Privacy- None

Maximum Wire Loadings

For Non Radial (One side loaded) Poles

About this document ...

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Content approval

This is the Issue 1 of this document.

The information contained in this document was approved on 08-Apr-2021
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Version History

Version No.	Date	Author	Comments
Issue 1	09-Apr-2021	Wesley Grantham	New document

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1 ***Introduction***

This document introduces changes to the permitted number of dropwires attached to poles that are one side loaded (non-radially fed). The changes described here are intended to provide additional operational flexibility and a reduced need for Network Adjustments (pole staying or pole upgrades), whilst also maintaining a safe network.

2 ***Status***

- Working practice
- Engineering standard

3 ***Scope***

- All people involved in the planning, survey and execution of works to install dropwires (Fibre or Copper).
 - Also Network Repair Team members.

4 ***Detail***

4.1 **Background to change**

As the use of PIA increases and Fibre roll out continues to grow, it's becoming increasingly clear that now, and in the future, some existing poles may become overloaded which in extreme conditions could lead to a pole collapse.

To prevent such cases, Chief Engineer and the Plant Safety team are introducing new wire loading rules for non-radially fed poles. Non radial poles are defined as those that are un-stayed and where all wires are attached in a single 180° Arc, with zero wires or stays in the opposing arc. Please see fig 1 below.

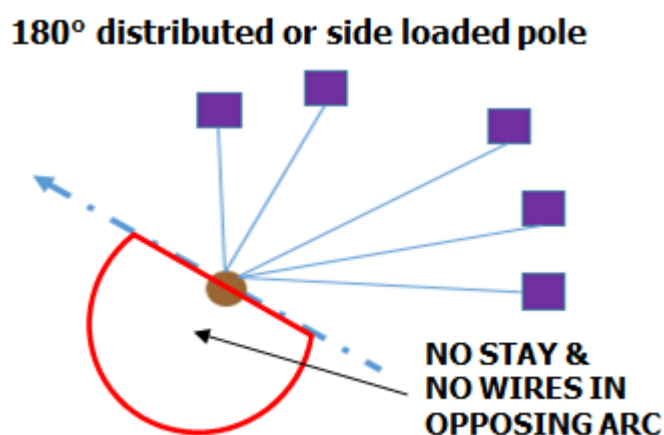


Fig 1

4.2 Previous rules for Non-Radial (One side loaded) Poles

The overall limits shown below in table 1 have been in place for some time but for various reasons have not been fully complied with. These loadings are now being replaced with new arrangements, which everyone needs to be aware of and act upon. Please see section 4.3 below.

Pole Class	Light	Medium	Stout
Max wires	7	15	30

Table 1

4.3 New rules for Non-Radial (One side loaded) Poles

These new rules acknowledge the fact that many existing poles may have a wire count that exceeds the numbers shown in table 1. They are intended to provide maximum flexibility for operational teams whilst also maintaining a safe network.

In brief, this approach provides a managed level of additional wire loading, but where loading becomes particularly excessive; the poles are placed into a programme for remedial work.

Prioritisation of remedial work is influenced by a number of factors, such as Number of wires, Class of pole (light/medium/stout) and also the pole type-wood/hollow.

This new approach requires specific action to be taken by engineers whenever a one side loaded pole is worked on.

Additionally, Network Repair Team members will be required to manage a programme of remedial works.

The specific actions required are detailed below.

5 Action for Engineers

In all cases where a one side loaded pole is worked on, there is a requirement for the engineer on-site to follow the actions below.

5.1 Action for Timber poles

- Count the number of dropwires attached to the pole (including any new wire you may be looking to attach)
- Note the class of pole (Light, Medium or Stout)
- Use the wire count and class of pole information and refer to table 2 below to determine the appropriate course of action
- Submit an appropriate A1024 as shown in table 2

5.2 Action for Hollow poles

The procedure is broadly the same as for Timber poles. However please note that for Hollows there are limits to the number of wires, beyond which, no more wires can be added.

These are;

14 for Light Class Hollow Poles

25 for Medium Class Hollow Poles

Where these limits are reached, the Job should be furthered to the Planning department.

Note: NB On a hollow pole, the size and class are usually cold stamped onto the inner ring i.e. BT – 9 L – GS – 04 = a 2004 Galvanised 9 Metre Light class Pole.

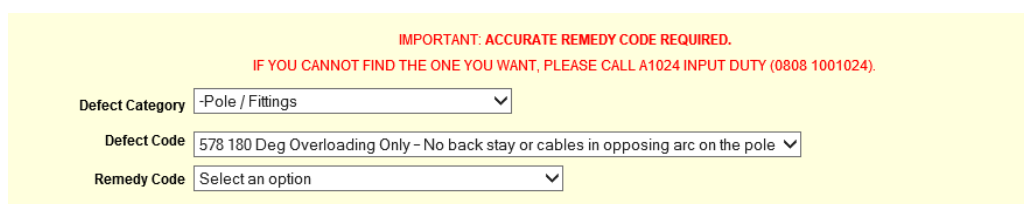
6 ***Appropriate A1024 Defect and Remedy codes***

As mentioned elsewhere in this document, engineers are required to undertake a wire count and submit an A1024 when one side loaded poles are encountered.

Even where there is an existing A1024 on the pole, a new wire count and A1024 is required to capture the increasing load on the pole.

The defect category is **Pole/Fittings** with a defect code of **578**.

Please see an example of the Artisan A1024 input screen below. The same defect codes apply to the App which is shown in fig 4, 5 and 6 within this section.



IMPORTANT: ACCURATE REMEDY CODE REQUIRED.
IF YOU CANNOT FIND THE ONE YOU WANT, PLEASE CALL A1024 INPUT DUTY (0808 1001024).

Defect Category: Pole / Fittings

Defect Code: 578 180 Deg Overloading Only – No back stay or cables in opposing arc on the pole

Remedy Code: Select an option

Fig 2

On entering defect code 578, a drop down will appear. See below.

Type of A1024 Copper & Safety

IMPORTANT: ACCURATE LOCATION DETAILS ARE KEY IN OF

Enter Exchange Name GRIMSBY

District Id SL

CST South Yorkshire

IMPORTANT: ACCURATE REMEDY
IF YOU CANNOT FIND THE ONE YOU WANT, PLEASE C

Defect Category Pole / Fittings

Defect Code 578-180 Den Overloading Only - No back stay or cables in opposing an

Remedy Code Select an option

DP

- 70 Wood/Light/ Wires >28 / Lean - Any Angle
- 71 Wood/Light/ Wires >=12 / Lean - >=10 Deg
- 72 Wood/Light/ Wires 12-28 / Lean - <10 Deg
- 73 Wood/Light/ Wires 8-11 / Lean - <10 Deg
- 74 Wood/Medium/ Wires >45 / Lean - Any Angle
- 75 Wood/Medium/ Wires >=23 / Lean - >=10 Deg
- 76 Wood/Medium/ Wires 23-45 / Lean - <10 Deg
- 77 Wood/Medium/ Wires 16-22 / Lean - <10 Deg
- 78 Wood/Stout/ Wires >55 / Lean - Any Angle
- 79 Wood/Stout/ Wires >=43 / Lean - >=10 Deg
- 80 Wood/Stout/ Wires 43-55 / Lean - <10 Deg
- 81 Wood/Stout/ Wires 31-42 / Lean - <10 Deg
- 82 Hollow/Light/ Wires >12 / Lean - Any Angle
- 83 Hollow/Light/ Wires >=9 / Lean - >=10 Deg
- 84 Hollow/Light/ Wires 10-12 / Lean - <10 Deg
- 85 Hollow/Light/ Wires 8-9 / Lean - <10 Deg
- 86 Hollow/Medium/ Wires >20 / Lean - Any Angle
- 87 Hollow/Medium/ Wires >=18 / Lean - >=10 Deg
- 88 Hollow/Medium/ Wires 19-20 / Lean - <10 Deg
- 89 Hollow/Medium/ Wires 16-18 / Lean - <10 Deg

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Submit Res

Red Date: May 16, 2020

Fig 3

Upon selecting the A1024 App, choose the Pole/Fittings category as shown below.



Fig 4

On entering the Pole/Fittings category, defect code 578 will appear.

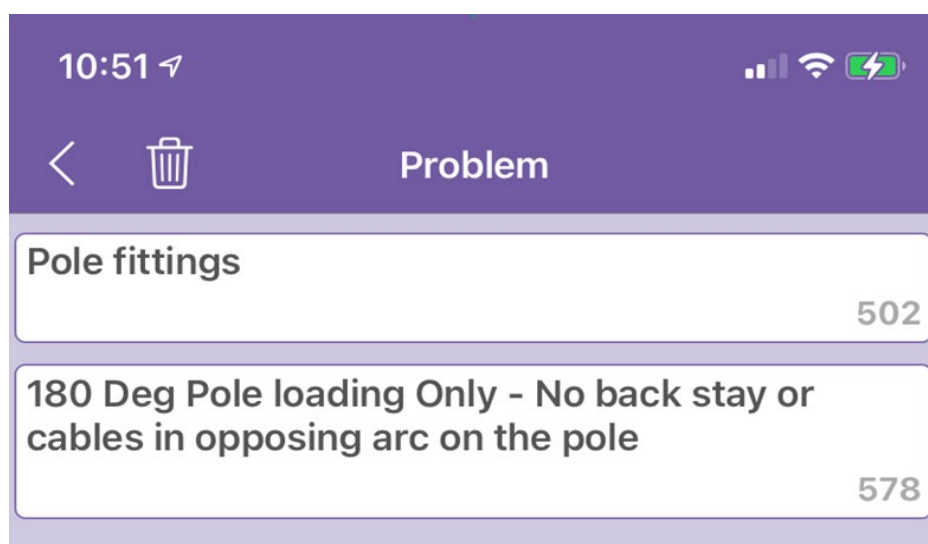


Fig 5

On entering defect code 578, a further drop down will appear. See below

Wood/Light/ Wires >28 / Lean - Any	70
Wood/Light/ Wires >=12 / Lean - >=10 Deg	71
Wood/Light/ Wires 12-28 / Lean - <10 Deg	72
Wood/Light / Wires 8-11 / Lean - <10 Deg	73
Wood/Medium/ Wires >45 / Lean - Any	74
Wood/Medium/ Wires >=23 / Lean - >=10 Deg	75
Wood/Medium/ Wires 23-45 / Lean - <10 Deg	76
Wood/Medium/ Wires 16-22 / Lean - <10 Deg	77
Wood/Stout/ Wires >55 / Lean - Any	78
Wood/Stout/ Wires >=43 / Lean - >=10 Deg	79
Wood/Stout/ Wires 43-55 / Lean - <10 Deg	80
Wood/Stout/ Wires 31-42 / Lean - <10 Deg	81
Hollow/Light/ Wires >12 / Lean - Any	82

Fig 6

To aid selection of the correct remedy code, use the look up tables below.

Defect Code 578 Remedy code look up			
Wood Poles			
	Pole leaning by	With a wire count of	Remedy code
Light Class Poles	Any amount	28 or more	70
	More than 10°	12 or more	71
	Less than 10°	12 to 28	72
	Any amount	8 to 11	73
Medium Class Poles	Any amount	45 or More	74
	More than 10°	23 or more	75
	Less than 10°	23 to 45	76
	Any amount	16 to 22	77
Stout Class Poles	Any amount	55 or more	78
	More than 10°	43 or more	79
	Less than 10°	43 to 55	80
	Any amount	31 to 42	81

Hollow Poles			
Pole class	Pole leaning by	With a wire count of	Remedy code
Light Class Poles	Any amount	12 or More	82
	More than 10°	10 or more	83
	Less than 10°	10 to 12	84
	Any amount	8 to 9	85
Medium Class Poles	Any amount	20 or More	86
	More than 10°	19 or more	87
	Less than 10°	19 to 20	88
	Any amount	16 to 18	89

Table 2

Note: **NB for Hollows Poles there are limits to the number of wires, beyond which, no more wires can be added (14 for Light Class Poles/ 25 for Medium Class Poles).**

For example.

A light wood pole with less than 10° lean and with a total of 15 wires, you may add wires, but must submit an A1024 with a Remedy code of 72.

For all categories, providing a successful pre-climb check (including a hammer test) is undertaken, the pole can be climbed.

7 ***Action for Network Repair Team people***

The Network Repair Team (NRT) is required to monitor incoming A1024's submitted by the field and to programme any necessary work accordingly.

The table below indicates the priority levels that the differing remedy codes fall into and should be followed when programming remedial works for both timber and hollow poles.

Remedy Codes	Status / Logic	Priority level	Action
<u>CAT 4</u> N/A	Pole is currently within the standard 180° unstayed loading limit.	0. None	No action required
<u>CAT 3</u> 73, 77, 81, 85 & 89	Pole is at, or slightly exceeds the designated un-stayed loading limit, but (assuming reasonable weather conditions) is within the loading limit.	3. Low	Record, but currently, no action required
<u>CAT 2</u> 72, 76, 80, 84 & 88	Pole is more significantly loaded.	2. Medium	Place in program for remedial action. Target timescale 2 years
<u>CAT 1</u> 70, 71, 74, 75, 78, 79, 82, 83, 86 & 87	Pole is heavily loaded Or is Cat 2, also displaying physical signs of strain (leaning >10°).	1. High	Place in program for urgent remedial action. Target timescale 9 Months

Table 3

8 ***Radially Distributed Poles***

Where a stay wire or one or more dropwires are attached to the opposing 180° arc, the pole can be considered as radially distributed.

Radially loaded poles are excluded from the process described above.

Figures 7, 8 and 9 shows typical varying degrees of radial loading.



Figures 7 & 8 – Typical Radial loading

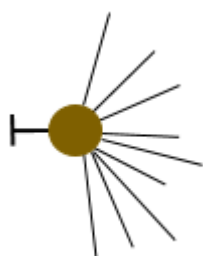


Figure 9 - Non radial, but stayed

9 ***‘D’ Poles & SC Poles***

The new wire loading rules are for non-defective poles only. Not for D Poles where the standard maximum wire loadings apply. Please refer to [EPT/OHP/C031](#) for more guidance on working on ‘D’ poles.

Likewise, this process does not apply to Shallow Climable (SC) poles which are subject to their own evaluation. Please see [EPT/OHP/C022](#) for further guidance.

10 **Network Quality Checks**

The network audit team will check completed work for compliance.

18.18. I6210 Score 5

11 **Q and A**

Q1 What should I do if I encounter a one side loaded pole that has an Aerial Cable and multiple Dropwires attached, with no back stay, or wires running in the opposing 180° Arc?

A Providing that the standard wire loading limits (7 for Light, 15 for Medium, 30 for Stouts) will not be exceeded, you may add wires and should submit an A1024, with the following applicable remedy codes:

Wood Poles	Remedy Code
Light	70
Med	74
Stout	78

Hollow Poles	Remedy Code
Light	82
Med	86

Where the standard wire loading will be exceeded, then no additional dropwires should be attached to the pole. Further the Job for urgent remedial action to be instigated by the NRT.

The pole may still be accessed providing a full pre-climb check has been conducted.

Q2 Do these new rules apply to a DNO Joint Use Pole?

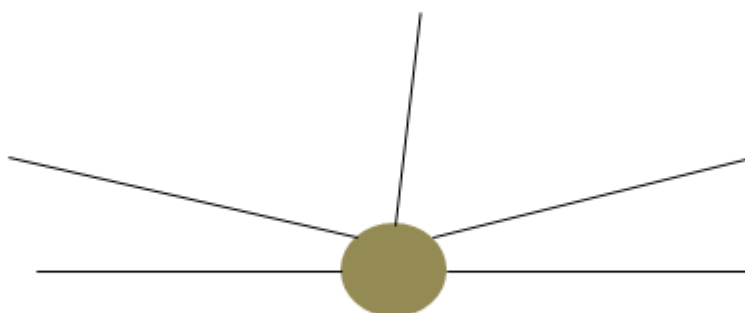
A No as the JU Licence limits the number of wires that may be attached.

Q3 Are in-line dropwires classed as one side loaded poles?

A No, current DILOR rules apply.



In the scenario below, the pole is still one side loaded but with a wire count of 3 **NOT 5**. The in-line dropwires are not included as they effectively cancel each other out.



12 *Training*

Training has been considered and is not required.

13 *Quality Standards*

Quality Standards have been considered and changes are not required.

14 *Accreditation*

Accreditation has been considered and changes are not required

15 *Quality Checks and Independent Audit*

Considered and changes are required

16 *Contract Impact*

The information in this document is issued to Contractors on the following basis:

Mandatory

17 *Reference Documentation*

17.1 ISIS

EPT/ANS/A011 "Specification for Dropwire Work" will be updated in due course

17.2 Manufacturer's Instructions

Considered and changes are not required

17.3 Quality

Considered and changes are not required

17.4 Accreditation Documents

Considered and changes are not required.

17.5 FPQ

Considered and changes are not required

17.6 Supply Chain

Considered and changes are not required

17.7 Communications

The Loop

Workplace

FEN

END OF DOCUMENT
