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Strain Rigging on ACSR Conductors

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1

Background

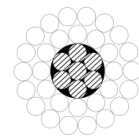
- ACSR conductors are used extensively on overhead lines
- Conductor tensions for ACSR are selected based on the serviceability and ultimate limits
- The conductor is the weakest link while being rigged

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2

Problem

- An ACSR conductor has a greased steel core
- The steel core provides mechanical strength
- *During strain rigging*, the steel core actually contributes very little strength



3

Conductor Failures

- 4 known conductor failures in the last 30 years in Auckland/Northland
- Main causes: risk was not identified and human errors



4

Risk Factors

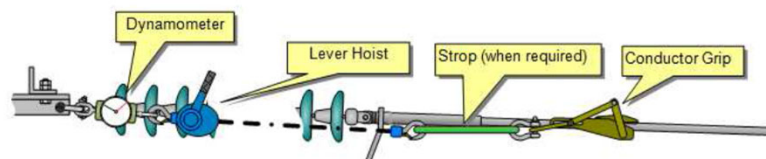
- Conductor with relatively high steel content. E.g. Goat, Skunk, Wolf
- Short strain to strain span, and/or large elevation difference
- Temperature
- Conductor degradation



5

Recommendations

- Identify the spans with the risk factors
- Conductor testing to establish the “working load limit” of conductors
- Calculate the line tension
- Install dynamometer in the strain rig



6

Recommendations – cont'd

- Visually check the conductor
- Do the work in summer
- For new lines, check the line tension with 150mm of conductor removed



7

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Thank you



8