

NATF Redacted Operating Experience Report

Braided Rope Failure Incident

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Topic

Braided Rope Failure Incident

Description

A two-person crew was utilizing a vehicle boom to place a 3-phase pad-mounted transformer when the braided rope suddenly broke. The transformer fell into the front fender of the vehicle and hit the ground. The transformer weighed 6,100 lbs. and was within the lifting capabilities of the boom. The rope's rated capacity was 16,340 lbs.



Figure 1: Rope Failure

Lessons Learned

1. The braided rope had been in service for 8.5 years prior to the incident due to passing all inspections. The manufacturer does not have an age recommendation, only inspection criteria. Our company will continue to use the manufacturer inspection criteria but now include an age cap for these ropes (4 years).

Reference: NATF-OER-671

2. The crew performed a pre-trip inspection of the vehicle, boom, and braided rope. During the pre-trip inspection a visual inspection of the rope is performed. Per interviews, field personnel mostly check for cuts and gross abrasions to the rope. Field personnel had not been provided standardized/written user inspection criteria for braided ropes that detail conditions for which a rope would be retired.
3. Rope-replacement cost is minimal.
4. Daily boom inspections should include a check of braided rope condition, including abrasion.
5. Personnel should not be in the proximity of a suspended load.
6. Should ensure slack in the braided rope is prevented, by maintaining load-line tension, as slack can cause cutting or weakening of the line.

Actions Taken

1. Establishing a program to replace vehicle braided ropes at four-year intervals, regardless of rope condition.
2. Developing work methods and an operating bulletin to be placed in vehicles for use in daily vehicle boom check. Operating bulletin will include (1) a written user inspection criteria for retirement of braided ropes based on abrasion and (2) proper work-practices discussion, including practices that prevent cutting or weakening of the ropes (i.e., load line tension always required) and operating the boom only within the load chart.

Extent of Condition

Situation exists wherever equipment is placed via braided rope while utilizing a vehicle boom.