POWERTRUSION
INTERNATIONAL, Inc.

Pole Performance Test Report

Test Description: Profile Bolt Pull Out Strength **Report #:** **011400-A**

Location: Las Vegas Facility **Date:** **01/14/00**

Test Objective:

To determine pullout strength of the 10.2" octagon FRP pole applying a tension load to hardware.

Test Procedure:

Two 13/16" ∅ holes were drilled 180° opposite each other through a pole wall thickness of 1/4" at center point of a 20 ft pole section. A 3/4" x 12" bolt was installed with flat square washers under the bolt head and nut; washers measured 2 ¼" x 2 ¼" x 1/8" thick. The torque value of the hardware was 50 ft /lbs. An 8" turnbuckle/eyelet fitting was attached to the shank of the 3/4" bolt to establish an in-line connection to the cable winch and strain gauge. The pole section was fixed in the cantilever test fixture; the pole tip was supported by a 10,500 weight to maintain the test specimen in a static position. An increasing tension load was applied to the winch at a crosshead speed of approximate 2 ft/min. Observations were noted at 500-pound increments to monitor deflection, profile deformation effects and audible cracking.

Test Equipment:

Sensotec® Model 41-10,000 lb tension load cell, Sensotec® AA180 Signature Self-Calibration Line and Model SC200 Indicator. 6,000 lb cable winch mechanism. Six-inch dial caliper.

Test Results:

Tension Load	Comments: deflection	Tension Load	Comments: deflection
500	None	2500	0.152
1000	None	3000	0.228
1500	None	3500	0.342
2000	0.038	4000	0.418

Conclusion:

Slight oval effect to the octagon profile with increasing loads. No audible cracking noises were heard during test. No visible signs of fatigue cracking under surface of washer or the perimeter of 13/16" holes. Bolt pull out strength performance of the10.2 octagon profile reflects no structure failure up to 4,000 lbs load in tension.

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