



Pole Top Extension Test Procedures and Results

December 2002

The following is a basic test specification that has been used to test AMI Pole Top Extensions since the early 1970's, and is written for the 54" extension product.

1. Cantilever Load Test:

The initial cantilever tests were carried out by two major utility companies using two standard 54" Pole Top Extensions. One extension was fitted with a standard "A" bracket for smaller diameter poles and the other fitted with a standard "B" bracket which accommodates large diameter poles. Each extension was mounted to a Class 1 pole. A pull strap was secured around the extension 24" from the top (see figs. 1a and 1b). A hydraulic cylinder applied the load. In this case, the specification requires that no visible damage may occur to any part of the extension when subjected to a maximum load of 4,500 pounds.

Results:

The Class 1 pole failed prior to achieving the required maximum test load of 4,500 pounds. The Pole Top Extensions and brackets were undamaged.

Note:

Although the above results satisfy the specifications of most utility companies, AMI can supply reinforced brackets and thicker walled tubes to meet higher load requirements and invites inquiries for review.

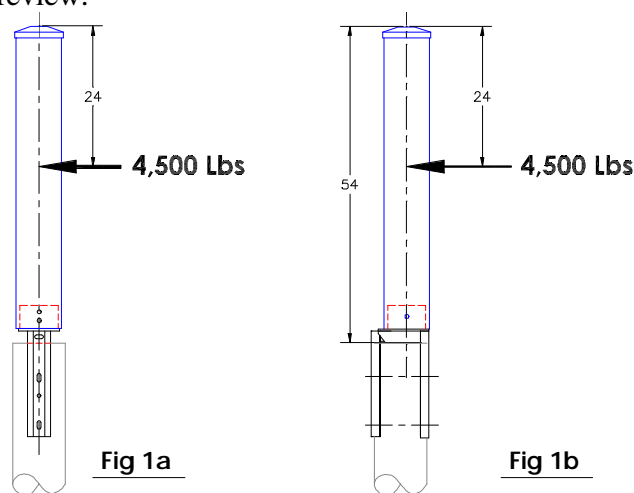


Figure 1 – Cantilever Tests



2. Shear Tests:

- (a) A single 12'-8" x 5 1/4" x 4 1/4" wood crossarm and a wood brace was mounted on the fiberglass tube using D/A bolts, curved washers and a crossarm gain plate. An unbalanced load of 700 lbs was applied through a hole 4" from one end of the crossarm such that the load parallels the wood brace (see fig 2a).

Result: There was no sign of damage to the tube or bracket.

- (b) A fiberglass standoff bracket was mounted to the tube such that the mounting bolts are 12" and 20" from the top of the extension using 5/8" bolts and curved washers (See fig. 2b).

A load of 3,000 Lbs was applied through the end of the standoff bracket and parallel to the extension.

Result: There was no sign of damage to the tube or bracket.

- (c) An anchor guyhook was installed on the extension tube 24" from the top using a 1 3/4" diameter D/A bolt (upper mount) and a 1 1/2" diameter D/A bolt (lag hole) and curved washers. A load of 10,000 lbs was applied through the guyhook parallel to the tube (see Fig 2c.)

Result: There was no sign of damage to the tube or bracket.

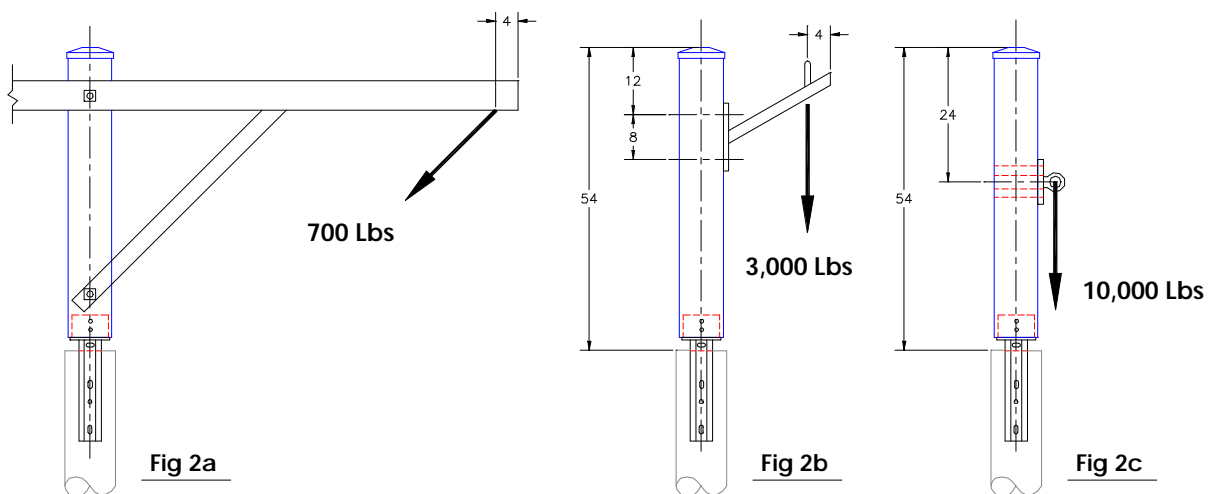


Figure 2 – Shear Tests



3. Torque Test

The extension was installed on a Class 1 pole and a lever arm was bolted to the tube 8" below the top of the tube using a 5/8" diameter D/A bolt and a curved washer. (see fig 3).

The bolt was torqued to 120 Ft-lbs and a 200 lb load (1,500 ft-lbs torque) was applied to the arm 7'-6" from the bolt.

Result: No crushing or tearing of the tube or deformation of the bracket was observed.

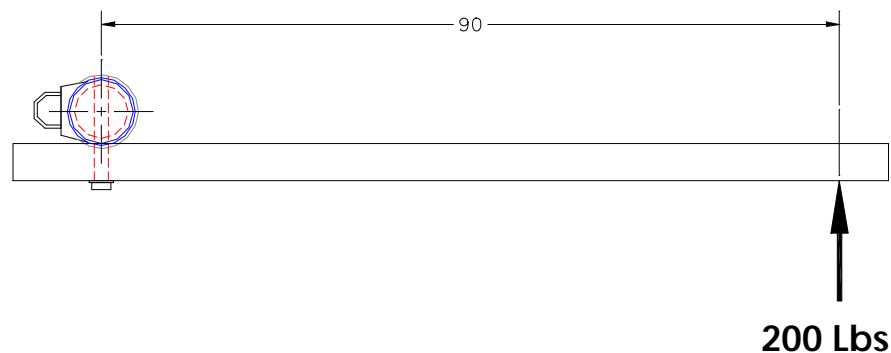


Figure 3 – Torque Test

4. Creep Test

The Pole Top Extension was mounted to a steel tube and a 2,000 lb load was applied to it 24" from the top for a period of one week.

Result: When the load was removed, no permanent deformation in the tube could be measured.

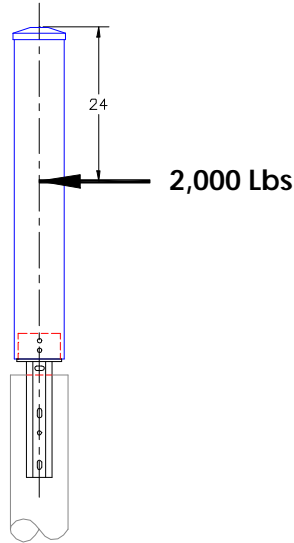


Figure 4 – Creep Test

Final Note: The above tests have been carried out by AMI over the past nineteen (19) years with consistent results. To date, AMI has received no reports of failure from the field.