

September 14, 1984

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RE: TERRY DALE DAVIS VS. GROVE MANUFACTURING COMPANY, A DIVISION OF
KIDDE, INC., ET AL

Dear Mr. Nix:

In response to your letter of 19 April 1984, the following comments apply relative to the accident where in a Grove Crane, Model No. RT 6205 made contact with an overhead electrical distribution line.

It is my opinion that subject crane is defective and very dangerous because it was not equipped with an insulated link or a proximity warning device. It is also my opinion that either of these safety features would have prevented the injury to Mr. Davis. The above safety devices have been on the market for approximately 15 years and in my opinion they should be standard equipment on all mobile cranes. I have personally used and tested insulated links for twelve years and the links have proved to meet their design criteria in all respects. Links that are currently being manufactured and utilized have metal ends fabricated from steel. An integral part of these ends is a series of spokes located radially on the body of the unit. In the assembled position, the spokes are located opposite an identical series. The ends are separated by a solid core of dielectric material. Epoxy resin impregnated high tensile glass roving is wound over the spokes. A layer of the same material is circumferentially wound over the longitudinal strands so that equal tension is applied to all strands, ensuring equal distribution of any applied load. This area is covered by a glass fiber reinforced polyester sleeve (shroud) which, in addition to the circumferential winds, protects the load bearing strands during rough service. Shroud and other components are painted with non-metallic epoxy or covered with ½" of molded polyurethane. The insulating (dielectric) compound applied between the end plates is capable of insulating against 10kV (minimum) and of preventing radio frequency (RF) signal leakage at a minimum attenuation ratio of 50:1. The insulating (dielectric) material is high tensile strength glass fiber reinforced epoxy plastic manufactured by the filament winding process using glass reinforcement. End plates are fabricated from high strength steel having not less than 22 percent elongation. Metal parts on the link are zinc or cadmium-plated, applied by electroplating. Metal ends of the insulator link are magnetic particle inspected before zinc-plating or cadmium-plating.

I personally developed test procedures which were implemented on a regular basis to ensure that the insulated links maintained their electrical and mechanical integrity. Subject links were tested yearly by load to 125 percent of their rated capacity and were subjected to high voltage to check for insulation leakage. In addition the links were x-rayed for 9 years and no defects were noted.

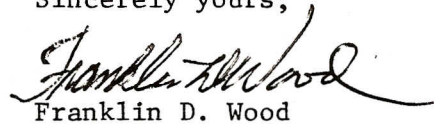
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In addition to the above, I designed a high voltage system which has the capability of applying 20 thousand volts across the insulated link in order to demonstrate that the insulated is very effective even when subjected to extreme environmental conditions. The system also monitors the voltage and current during test or demonstration and will clearly demonstrate the effectiveness of the insulated links.

In preparation for submitting my opinion, in addition to the above, I have also reviewed the depositions of Mr. Rodney Steele, Mr. Dale Schulenberg, Mr. Tim Cureton, and Mr. Dale Davis.

Sincerely yours,



Franklin D. Wood