

# HIGH RESISTANCE CONNECTIONS DETECTED BY ON-LINE PD IN MOTOR

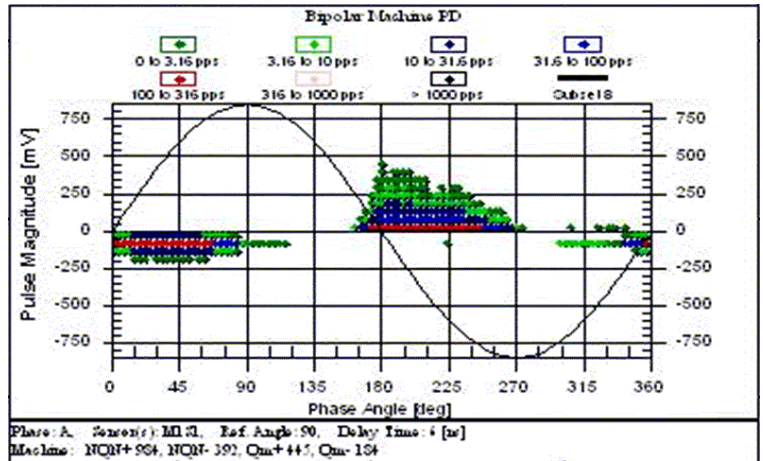


Figure 1. Peak PD levels at 180°



Figure 2. Overheated Connections in Motor Terminals



Figure 3. Damaged Flexible Connectors

**Company:** An US oil refinery  
**Ratings:** 20.5 MW, 13.8 kV Motor  
**Manufacturer:** Confidential  
**PD Sensors:** One Bus Couplers per phase  
**PD Instrument:** TGA-B portable instrument  
**Details:**

On-line PD tests were indicating high levels of activity at the zero line to ground voltage crossing (angles of 0° and 180°) on one phase (Figure 1). This can result from:

- ❖ Degradation of the semi-conductive coating material at the slot ends, or the interface between this and the grading material in high voltage coils at or near the slot exits, or
- ❖ Loose or oxidized connections near the line ends of the stator winding.

The motor was shut down for further investigation. Overheated bolted connections were found at the winding line and neutral ends (Figure 2 & 3). A failure in service was thus averted. Off-line testing confirmed the rest of the stator winding was in good condition.