Test 10:

Bundle: Seven wires (6 over 1) of BMS 42A/8/1-16 specification, 15 inches in length.
Metal Shaving: Steel; 48 mils by 26 mils
Circuit Resistance: 0.5 Ohm
Circuit Breakers: Effectively 15 amps
Generator: 3 phase, 400Hz, 120 line to neutral (208 line to line), 10 kVA.

Observations	Test 10
Flash	Yes
Strong Arcing	No
Circuit Breakers Tripped	No
Damage Length	1/8"
Number of Wires Failing Wet Dielectric Test	2 of 5

This test used the same arrangement as Test 9 with effective 15 amperes circuit breakers. The first application of power resulted in a 140 amp peak short circuit current for 15 milliseconds which resulted in some melting.

The sample was then rearranged and power was reapplied. This resulted in a small flash and then the sample become dormant. There was some melting and char build up in the immediate vicinity of the shaving. Two of the five non-predamaged wires failed a wet dielectric test. None of the circuit breakers tripped during this test.

Test 11:

Bundle: Seven wires (6 over 1) of BMS 42A/8/1-16 specification, 15 inches in length.
Metal Shaving: Aluminum 7075; 120 mils by 6 mils
Circuit Resistance: 0.5 Ohm
Circuit Breakers: Effectively 15 amps
Generator: 3 phase, 400Hz, 120 line to neutral (208 line to line), 10 kVA.

Observations	Test 11
Flash	Yes
Strong Arcing*	No
Circuit Breakers Tripped	No
Damage Length	0
Number of Wires Failing Wet Dielectric Test	0 of 5

This test used the same arrangement as Test 9 with effective 15 amperes circuit breakers and a relatively thin aluminum 7075 shaving. Application of power resulted in a small flash and 140 amp peak short circuit current for 8 milliseconds. There was no visible damage to the insulation except for a spot of char build up. None of the circuit breakers tripped.

Test 12:

Bundle: Seven wires (6 over 1) of BMS 42/1/1-20 specification, 15 inches in length.
Metal Shaving: Steel; 51 mils by 10 mils
Circuit Resistance: 1 Ohm
Generator: 3 phase, 400Hz, 120 line to neutral (208 line to line), 10 kVA.

Observations	Test 12
Flash	Yes
Strong Arcing	No
Circuit Breakers Tripped	No
Damage Length	1/4"
Number of Wires Failing Wet Dielectric Test	1 of 5

This test used the original arrangement with a single 7.5 amperes circuit breaker in series with each active wire. Application of power resulted in a flash (Figure 34)and the sample then became dormant. Soot was deposited near the pre-damaged cuts in the wire (Figure 35). No circuit breakers were tripped and one of five wires failed the wet dielectric test.

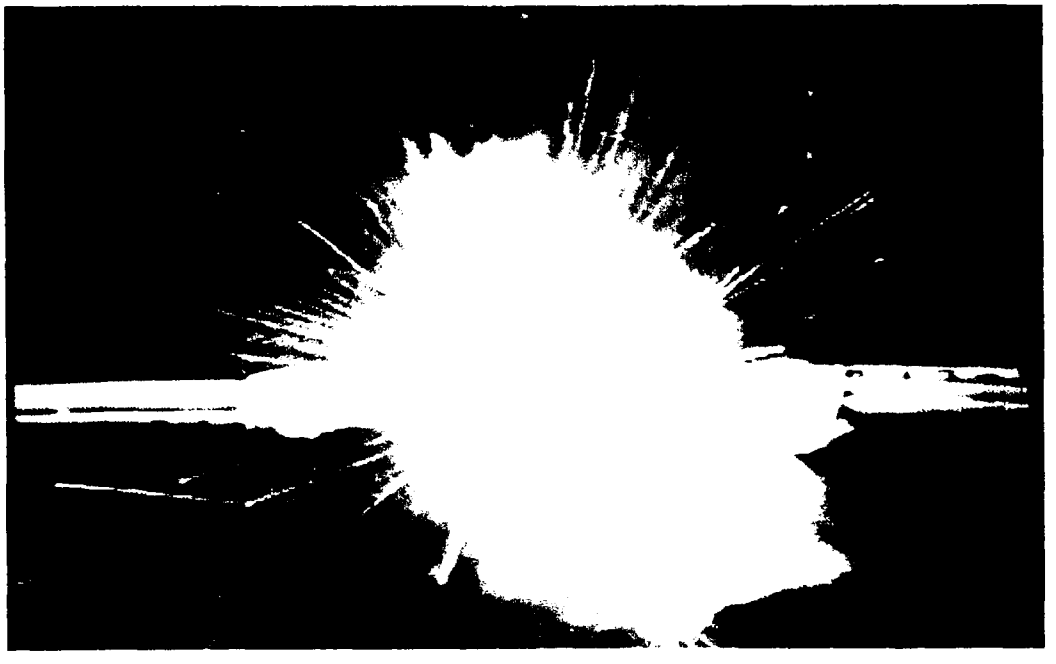

Figure 34. Test 12: Flash event during a metal shavings short circuit test.