



# Fault Zone – Insulation

The Insulation fault zone refers to the condition of the insulation between the windings and ground. For electrical equipment to operate properly and safely, it is important that the flow of electricity take place along well-defined paths or circuits and that it not be leaking from one path to another. Deterioration of the insulation systems can result in an unsafe situation for personnel exposed to the leakage current

The MCE™ technology allows you to identify potential problems with the insulation by recognizing adverse trends in resistance to ground. After conducting a baseline test, all subsequent tests are compared to the initial data with significant changes in value highlighted in yellow for caution or red for alarm.

AC Standard	Polarization Index	RIC	Step Voltage
	A	B	C
Test Date	9/28/1996	3/23/1998	3/29/1999
Test Time	9:47:45 AM	9:11:11 AM	12:32:07 PM
Test Location	Motor Leads	Motor Leads	Motor Leads
User	Administrator	Administrator	Administrator
<b>Baseline</b>			
Frequency	1200	1200	1200
Charge Time	30	30	30
Voltage	1000	1000	1000
Motor Temp	40	34	42
Measured Mohm	770.00	850.00	430.00
Corrected Mohm	770.00	505.00	490.00
mH Ph 1 to 2	1.975	1.990	1.980
mH Ph 1 to 3	1.985	1.995	1.985
mH Ph 2 to 3	1.970	1.970	1.965
Average Inductance	1.977	1.968	1.977
Imbalance	0.19	0.63	0.18
Imbalance	0.42		

Trend degradation of insulation over time.

The screenshot shows the MCEGold software interface with several data panels. The 'VOLTAGE' panel shows RMS values for three phases. The 'POWER' panel shows kW, kVAR, and kVA. The 'EFFICIENCY' panel shows input and output power. The 'SEQUENCE' panel shows phase sequence. The 'IMPERFORMANCE' panel shows imbalance percentages. The 'VOLTAGE' panel data is as follows:

Voltage	Fund RMS	3rd RMS	C.F.	THD
Voltage 1-2	452.98	453.46	1.40	1.28
Voltage 2-3	0.09	0.10	5.12	34.48
Voltage 3-1	452.72	453.20	1.40	1.30
Average	301.93	302.25		
% Imbalance	99.97	99.97		

In an ungrounded voltage distribution system, the EMAX technology immediately assesses and displays any component on the distribution system that may be grounded.

The screenshot shows the MCEGold software toolbar with various icons. The 'Fault Zones' icon is highlighted, indicating its location on the software interface.

The screenshot shows a 'Fault Zone Report' for '02845'. The report lists various test results and their condition codes. The 'Insulation' section shows a 'Severe' condition for 'RTG (Meg)' and 'Imp. Imbalance (%)'. The 'Stator' section shows a 'Caution' condition for 'Imp. Imbalance (%)'. The 'Rotor' section shows a 'Good' condition for 'Fp Amplitude (Delta dB)'. The 'Air Gap' section shows 'Insufficient Data' for 'Peak One (Delta dB)', 'Peak Two (Delta dB)', and 'Peak Four (Delta dB)'. The 'Power Circuit' section shows 'Caution' for 'Voltage Imbalance (%)' and 'Good' for 'Voltage THD Ph-Ph (%)', 'Current THD (%)', and 'HVF (%)'. The 'Power Quality' section shows 'Good' for 'Skator', 'PS', and 'CTG (pF)'. The 'Stator' section shows 'Caution' for 'Inductive Imbalance (%)'. The 'Rotor' section shows 'Good' for 'Fp Amplitude (Delta dB)'. The 'Air Gap' section shows 'Insufficient Data' for 'Peak One (Delta dB)', 'Peak Two (Delta dB)', and 'Peak Four (Delta dB)'. The 'RIC (Eccentricity)' is 'Not Tested'.

The MCEMAX powered by MCEGold™ provides a Fault Zone Report, which is a one-page summary of the test results relevant to the six fault zones. The Fault Zone Report may be reached directly through the Fault Zones icon on the toolbar.