



STUDY OF BEHAVIOR OF THE ARC OF THE CIRCUIT BREAKER MT(15KV) FROM MAGNETIC DIAGNOSTICS

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Abstract

Circuit breakers are used in electrical installations where they play an essential role in protecting people and systems against short-circuits and overloads. These circuit breakers utilize the spontaneous appearance of an electric arc current limiting shortcircuits in an installation. Technically the breaker must be able to interrupt or establish strong operating current overload or short circuit and also able to withstand stresses in electric fields. The value of this electric field is critical to avoid failure of the dielectric break after the extinction of the arc. Knowledge of geometric shapes in the inner CB plays a fundamental role in determining the electric field. The problem is then to act on the arc and its dynamics in order to accelerate its extinction, and thus improve the quality of the power interruption. Unfortunately, the arc has explosive properties (fast and unstable phenomenon) and destructive to the device. Many laws of physics (fluid mechanics, electromagnetics), intervene and complicate attempts to improve the circuit breakers on the limitation of short-circuit rapid extinction of the arc, increasing the number of maneuver etc. For this and from the magnetic diagnostics, we must conduct studies on the dynamics of the arc in the medium voltage switchgear. (MT) The objective and to present a study on the phenomena caused by the presence of separators, the displacement of the arch to optimize the cutoff. The study shows that modeling of circular electrodes generates a factor Schwaiger very low value that the electrical stresses are localized only in the vicinity of one electrode.

Keywords and phrases: dielectric, electrical field, medium voltage, circuit breaker, magnetic-diagnosis.

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