

ABSTRAK

Transformator tenaga sangat penting dalam mengubah tegangan tinggi 150 kV menjadi tegangan menengah 20 kV dan diteruskan untuk proses pendistribusian listrik. Trafo tenaga dilengkapi proteksi yang sangat lengkap, yaitu proteksi mekanis dan proteksi elektrik. Proteksi elektrik dalam trafo ada 3 yaitu relai arus (OCR), relai diferensial, dan relai *Restricted Earth Fault* (REF). Gangguan internal trafo sendiri dapat berupa berkurangnya pendingin minyak trafo sehingga lilitan mengalami pemanasan, lalu kurang kencangnya sambungan *klem* atau *ring* pada konduktor sehingga menyebabkan gangguan fasa tanah. Karena itu diperlukan Relai *Restricted Earth Fault* (REF) adalah relai yang berfungsi mengamankan dari gangguan internal dari trafo sendiri. REF sendiri terdapat 2 Tipe yaitu *High Impedance* dan *Low Impedance*. REF sendiri diaplikasikan dalam pentanahan solid, dan untuk sambungan belitan star pada transformer. Didapatkan nilai arus netral sebesar 1,42 A, maka relai REF bekerja sesuai dengan nilai *setting* sebesar 1,0 A dan transformator bebas dari gangguan.

Katakunci: REF, Sistem Proteksi, Transformator

ABSTRACT

The power transformer is very important in converting high voltage 150 kV into 20 kV medium voltage and is forwarded to the electricity distribution process. Power transformers are equipped with a very complete protection, there are mechanical protection and electrical protection. There are 3 electrical protections in the transformer, namely current relays (OCR), differential relays, and Restricted Earth Fault (REF) relays. The internal transformer fault itself can be in the form of reduced transformer oil so that the windings are warmed up, then the clamp or ring connection is less tight on the conductor causing ground phase fault. Because of this, a Restricted Earth Fault (REF) is required, a relay that serves to secure internal fault from the transformer itself. REF itself there are 2 types of high impedance and low impedance. REF itself is applied in solid earth, and for star winding connections in transformers. The result a neutral current value of 1.42 A, then the REF relay works with the value of the setting is 1,0 A and the transformer is free from fault.

Keywords: Protection System, REF, Transformer