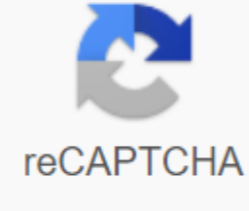I'm not robot

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# Makalah transformator 3 fasa pdf

CHAPTER AND INTRODUCTION 1.1 Transformer wallpaper or transformer or transformer is an electromagnetic component that can change the AC voltage level to another level. Transformers work on the basis of the principle of electromagnetic induction. The alternating input voltage that extends through the primary creates a magnetic flow that ideally connects everything to a secondary turn. This flow back and forth provokes GGL in secondary upheaval. If the efficiency is perfect, all power in the primary co-ing will be assigned to the secondary wheel. Transformer 3 phase is basically a 1-phase Transformer that is arranged in 3 pieces and has 2 belitans, i.e. primary kraakse and secondary belitan. There are two main methods for connecting the primary cucumbers, which are triangular and stellar relationships (delta and wye). While secondary kraaks can be connected in triangular, stellar and zigzag (Delta, Wye and Zig-zag). There is also a relationship in the special form of open-delta (VV connection) 1.2 Problem Formulation In this paper the issues that will be discussed are related: - Configuration 3 stages of the transformer purchase relationship. 1.3 Purpose of knowing the configuration of the 3-phase transformer purchase relationship. CHAPTER II DISCUSSION 2.1 Configuration of purchase relationship transformation 3 Phase 2.1.1 Triangular relationship transformer (delta-delta) Figure 1. Delta Delta connection. At number 1 primary and secondary pick-ups are connected to the delta. Terminals 1U, 1V and 1W are primarily pick-ups connected to 3-phase power supply. While secondary terminals 2U, 2V and 2W are connected to the load side. In relation Delta (triangle) there are no neutral points, all three of which are line-to-line voltages, which are L1, L2 and L3. In the delta-delta relationship (see figure 1), the voltage on the primary side (inbound) and the secondary side (exit side) are at one stage. And in the application (see figure 2), if the draw load is connected to channel 1-2-3, then the output result is just as large. This results in a balanced line current in the A-B-C input channel. As in some delta relationships, this line current is 1.73 times higher than each Ip current (primary current) and Is (secondary current) that flows in primary and secondary bends. The power rating for a 3-phase transformer is 3 times higher than the rating of a single transformer. Figure 2 Delta-Delta Transformer 3 Phase Connected Power Plant and Load 2.1.2 Transformer Relationship Star Figure 3. Star relationship When transformers are connected in a star-to-star way, the thing to have to protect is to prevent the deviation from the line to the neutral voltage (phase to neutral). Ways to prevent connects neutrally with the primary to a neutral source that is usually ground, as shown in number 4. Another way is to provide each transformer with a third turn, called a tertiary turn. Tertiary bends for the three transformers are connected by deltas as shown in Figure 5, which often provide branches that pass through the voltage at which the transformer is installed. There is no phase difference between the input and output voltage of the transmission line (primary and secondary) for star-connected transformers. 2.1.3 Star-triangular relationship transformer In relation to triangular stars (delta-wye) voltage through each primary turn is the same as the voltage of the input line. The output line voltage is 1.73 times the secondary voltage that passes through each transformer. The line currents in phasa A, B and C are 1.73 times more than the current in secondary bends. The current line in stages 1, 2 and 3 is the same as the current on the secondary twist number 6. Delta-wye Delta-star relationship results in a 30° phase difference between the inbound line voltage and the power line. Therefore, the voltage of the output line E12 30° precedes the voltage of the EAB inlet line, as can be seen from the fascist diagram. If the output channel enters an isolated load group, the difference in the stage is not important. But if the channel is connected in parallel to the input channel to another source, the difference of 30° phase can disable parallel relationships, even if the voltage channels are otherwise identical. An important advantage of the stellar relationship is that it will result in a lot of insulation /sealing generated inside the transformer. HV (high voltage) bends are insulated/separated with only 1/1.73 or 58% channel voltage. Figure 8 Delta-Star Diagram Relationship Scheme and Phasor Diagram 2.1.4 Open-delta transformer relationships This open-delta relationship to change the voltage of the 3-phase system using only 2 open-delta connected transformers. The open-delta assembly is identical to the Delta Delta series, except that one transformer does not exist. However, open-delta relationships are rarely used as they can be charged only 86.6% (0.577 x 3 x transformer) of the installed transformer capacity. Figure 7 Open delta connection. For example, if 2 50 kVA transformers are connected to open-delta, the installed capacity of the bank transformer is obviously 2x50 = 100kVA. the trans-sea transceivers, then the transformer can only charge 86.6 kVA before the transformer starts to overheat. Open-delta relationships are primarily used in emergency situations. So if 3 transformers are connected delta delta and one of them and needs to be repaired / moved, it allows 2.1.5 Transformer Zig-zag relationship transformers with Zig-zag relationship to have a special feature, ie the primary kraak has three collars, the secondary collar has six collars and is usually used for unbalanced loads (asymmetrically) – meaning that the load between the stages is not the same, there are larger or smaller Images 9. Zigzag-Star relationship (Yzn5) Figure 9 shows 20 KV primary pickers associated in L1, L2 and L3 stars without n neutral and secondary pickaxea 400 V is a Zig-zag relationship in which the relationship of six secondary cucumbers crosses with each other. When the load is connected to phasa you and N secondary current I2 flows through phasa phasa you and phasa S. The vector form of the voltage Zig-zag voltage line is not a straight line, but moves at an angle of 60°. CHAPTER III PENUTUP 1.1 Conclusion Based on this explanation concludes that the configuration of the 3-phase relationship of the electric motor: · Triangular relationship transformer (delta-delta) · Transformers of Stellar Relationships · Delta-star transformer relationships · Open-star transformer · Transformer zig-zag relationship 1.2 Tips As ordinary human beings we do not run away from error and sin, so all decisions can be followed as long as there is a clear and responsible reason for the truth. The author is very aware that the work that the author composes is far from perfect and needs a lot of improvement, so the author certainly expects various constructive reviews and suggestions from both the lecturer father, friends and all readers to make this report even better in the future. Built-in size (px) 344 x 292429 x 357514 x 422599 x 4870 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 1. IHUBUNGAN Electromechanic course paper on three phase transformers Rezon Arif Budiman (L2F008082) rezon_arif@yahoo.comE electrotechnical studies- Faculty of Engineering Undip, Semarang Abstract Transformer or Transformer is an electrical equipment that is used to change the value of current or voltage from one value to another to mitigate magnetic gag and use the principles of electromagnetic. The principle of operation of transformers is based on faraday law. The type and shape of transformers vary from the function and size of the voltage and current running on the transformer. This paper will discuss the three-curve transformer, part of the three-part transformer, as well as the relationship contained in the three-sided transformer (delta or star). However, testing of three-dimensional transformers is not discussed. Three-day transformers are commonly used to power with sufficient power above 11kV. It is usually found in substations for change from the gearbox voltage (high) to the distribution voltage (medium). With this transformer, the voltage is ready to be distributed to customers. Keywords: three-year transformer, three-day transformer relationship. Introduction II. The basis of the theory2.1 Construction of three-phasetrafo transformers is a useful electrical device General three-phase transformer to change voltage or current construction values of almost the same value, one on the other as needed. The difference is that auxiliary and systemTrafo operates on the basis of its Safety Act, depending on the location of the installation, Faraday.The type of transformer varies greatly depending on the cooling system, operation, function and working tension, the stage used and for what it is used for. Main parts, tools and systems are used. One type of transformer whose safety on the energy transformer will be discussed this time is a three-time transformer that generally has a high operating voltage and is usually located on the main substation, which is used to lower the transmission voltage (high voltage) into the distribution voltage (medium). As the name suggests, the three-pronged transformer operates on a voltage that has three stages. The three-thick transformer is in principle the same as a one-year transformer, and the most basic difference is in the systemImage 1 part in its 3-phase transformer which is a one-year and three-year system. So, a three-pronged transformer can be. Trafodihubung core stars, triangles or zigzags. As with a single-use transformer, the iron core serves as a place where flow flow from the three-dendeson Transformer is widely used by primary coils to secondary coils, so that transmission and distribution systems of electricity will receive more magnetic field induction due to economic considerations. Transformer 3 is strong. Just like a single-side Transformer, many stages reduce weight and width based on the way they are wrapped around two types of skeletons, so that the price can be reduced when the core type is compared to the merging of three pieces (Fig. 2) and shell type (Figure 3). one-year transformer with the same power rating. 2. b. Transformer Coil Transformer coil consists of insulated wire coils and coil formation. The wire used is a round copper wire or plate. The coils are isolated from both the coils and the iron core. Insulating materials are in a crowded form such as overflowing paper, pertinak and others. Transformer OilImage 2 Core Type TransformersA major coil power transformers and their cores are soaked in oil transformers, especially power transformers with capacity because transformer oil has properties as a medium for heat transfer (circulating) and is also as insulation (high transparent voltage power)so that it serves as a medium for cooling and insulation. For cooling transformers during operation, the core of the coil and transformer is soaked with transformer oil, oilImage 3 Shell Type Transformers also serves as insulation. Therefore, transformer oil must meet the requirements, as follows:Transformer cores are made of thin iron plates Have dielectric strength (Dielectric Strength);d ari silicon iron material (Grain Oriented Silicon Good heat feeder with steel type weight), the purpose of which is for small, so that small particles can be quickly calmed;reduce heat (as iron loss) low viscosity that will be more easily applied by Eddy Current (Figure 4).calculating and cooling abilities for the better; No high flame, not volatile, stable chemical properties. Figure 4 Iron Core and Laminate tied fiber glass figures 5.Power Transformer Conservator 3. III. The relationship on the transformer three phases 2. Triangular Connect Transformer ( - )In principle the method or method In this type of end of the stage is connected a series of coils on the side of the pri imer and secondary.with the neutral end of the second coil that is generally known 3 ways for arranging the whole will form delta / triangular relationship.coils on the tripod transformer, that relationship is usually used in star systems, delta relationships and zigzag relationships.which channel high currents at low voltages and are most prominent when continuity is 1. The Transformer 3 stages of bintang bintang (Y-Y) services must be maintained even if one of the stages fails. On this type, the ends of each terminal are connected by star ing. The neutral point is made into one. Relationships of this type are more economical for small nominal currents, high voltage transformersImage 7 Delta Delta Relationship TransformersCalcular circuits Primary sideVL1 = Vph1 voltIL1 = 3 And ph1Image 6 Star Relations Transformers Secondary SideCounts on star relationships Primary Side : VL2 = Vph2 voltIL2 = 3 And ph2 VL1K = Vph2 / Vph1Vph1 =voltIL1 = And ph1 3 Secondary Side VL 2Vph2 =voltIL2 = I ph2 3K= Vph2/ Vph1 4. 3, 2014 in Los Triangular star contact transformer ( Y - )4. Transformer Triangular Relationship Of Stars (- Y)On this connection the primary side of the transformerTha is connected the primary side pafa coil in the delta while on the secondary side is strung together by a star (wye), and the secondary side is a series of stars so that it is on the side of the delta wire. Usually used on transformers for secondary there is a neutral point. Usually, the transmission network in which the voltage will later be used to increase the voltage (Step Step-Down).at the beginning of the high-voltage transmission system. 1In this relation to the voltage comparison 3Perbandingantegangana- network times comparison of transformer twist and voltage 3secunder precedes 30 voltage comparison of transformer lilies. The voltage is 300 behind the primary voltage. Figure 8 Delta Star Relationship TransformersImage 9 Transformer Delta Star RelationshipCalculation on Delta Star Link Calculation on delta bintang connection Primary side L1VL1 = Vph1 volt Iph1 =I ph1 VL1 3Vph1 = voltIL1 = I ph1 Secondary Secondary Side Secondary VL 1VL2Vph2 =voltIL2 = I ph2 L23Vph2 = VL2 voltIph2 =3K= Vph2 / V ph1K = Vph2 / V ph1 Total power on three phasetrafo = 3 VL IL VA or S = 3.Vph . Iph VAP= 3 VL. Il. Cos WattQ= 3 VL. Il.. Sin Var 5. 5. Zig Zag Relationship Star Point Voltage eb = 0ee Most distribution transformers is always e1 = , phase voltage value ez = 3 connected stars, one of the conditions that should be filled with transformer is the third while you should try to balance the mesh voltage jalafasanya. If loadeEz = ez 3 = 3 imbalance will cause the beginning of 2undesirable star point voltage, because 6. A three-week transformer with a load of equipment used by the wearer Dua Kumparanakan varies. In addition to transforamtor relationships such as star point strain, as explained in the previous sub-chapter, there is a secondary lateral connection in the three-phase Zig-transformer relationship with two coils. Tigazag. In the secondary side zigzag relationships consist of the most commonly used type of relationship: over six coils connected v-V or special Open (Image) Open Y - Open Relationship T Open Delta Relationship It is possible to transform a 3-phase voltage system using only 2 open delta connected transformers. The open delta connection is identical to delta delta relationship, but one of the transformers is not installed. This relationship is rarely used because the load capacity is only 86.6% of the installed capacity. For example: If two 50 kVA transformers are connected to an open delta, then the installed capacity should be 2 x 50 = 100 kVA. However, chewing can only produce 86.6 kVA, before the transformer finally overheats. Open delta relationships are usually used in emergency situations. Calculation on open delta power s connect transformer when connected delta = 3 VL IL VA Image 10 Transformer Zig Zag Connection The ends of the secondary coil connected IL Iph2 = in a mesh current in such a way that the current direction in the 31th coil becomes contradictory. Because e1 Power when connected V V is connected opposite of roll e2,I so the number of vectors of both voltages = 3 VL L = VL IL VA stations : 3 eZ1 = e1 e2 Power comparison when relationship with = e2 3 S when V = VL ILeZ3 = e3 e1S current 3 VL ILeZ1 + eZ2 + eZ3 = 0 = 3 eb1 = x 100 % = 57,7 %3 6. Figure 12 Scott Relationships or T-TImage 11 Transformers This open Delta/V relationship is: Average power factor, the V-V acts more IV. The conclusion is small of p.f load, approximately 86.6% of the load factor is balanced. Transformer 3 Stage LotPage 2 2