

LAMPIRAN



THREE-WINDING TRANSFORMERS CAPACITANCE AND POWER FACTOR TESTS



AMBIENT TEMP. 35,1 °C DATE 21/04/2016

HUMIDITY 48,3 % JOB # _____

REGISTRATION GI BANTUL

LOCATION TRAFO 1

ASSET ID APP SALATIGA

EQUIPMENT LOCATION _____

REFR XIAN CLASS _____ PHASES 3
 NO A95006 COOLANT OIL REASON Routine
 YEAR 1995 BIL _____ KV 102000 WEIGHT kg
 WINDING MATERIAL Cu
 OIL VOLUME 26000 kg
 OIL TEMP 36 °C
 IMPEDANCE _____ %
 WEATHER Sunny
 TANK TYPE SEALED

BUSHING NAMEPLATE						
DSG	SERIAL NUM	MFR.	TYPE/CLASS	KV	AMPS	YEAR
1U	M990	HAEFELLY	COT	170	800	1994
1W	M994	HAEFELLY	COT	650	800	1994
1W	M1042	HAEFELLY	COT	650	800	1994
1N						
2U						
2W						
2N						
3U						
3W						
3N						

Diagram # 29 (IEC)

	VOLTAGE (KV)	KVA	RATED I	# TAPS	NOMINAL	CHANGER	TAP SETTING
PRIMARY:	/			5	3	Off Load	
SECOND:	/			1	3	On Load	
TERTIARY:	/			1		On Load	

TEST FREQUENCY: 50

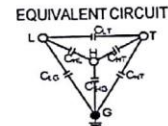
COMMENTS: _____

TRANSFORMER OVERALL TESTS

TEST	INSULATION TESTED	Test Mode	Test Lead Connections				TEST kV	Freq Sweep	Capacitance C (pF)	POWER FACTOR %			DIRECT		%VDF	IR
			HV	Red	Blue	Gnd				Measured	@ 20°C	Corr Factor	mA	Watts		
	CHG + CHL	GSTg-B	H	L	T	G	10,00		10,461,60	0,25	0,23	0,910	32,838	0,8205	0,04	
	CHG	GSTg-RB	H	L	T	G	10,00		3,618,28	0,36	0,33	0,910	11,364	0,4095	0,02	
	CHL	UST-R	H	L	T	G	10,00		6,862,06	0,19	0,17	0,910	21,550	0,4064	0,02	
	CHL		Test 1 Minus Test 2						6,843,32			0,91	21,474	0,411		OK
	CLG + CLT	GSTg-R	L	H	T	G	10,00		14,732,09	0,25	0,22	0,910	46,230	1,1328	0,02	
	CLG	GSTg-RB	L	H	T	G	10,00		1,293,15	0,69	0,63	0,910	4,063	0,2788	0,02	
	CLT	UST-B	L	H	T	G	10,00		13,472,08	0,20	0,18	0,910	42,206	0,8530	0,02	
	CLT		Test 5 Minus Test 6						13,438,95			0,91	42,167	0,854		OK
	CTG + CHT	GSTg-B	T	H			2,00		12,610,63	0,36	0,33	0,910	7,913	0,0570	0,01	
	CTG	GSTg-RB	T	H			2,00		12,443,67	0,36	0,33	0,910	7,823	0,0563	0,03	
	CHT	UST-R	T	H			2,00		166,23	0,32	0,29	0,910	0,104	0,0007	0,02	
	CHT		Test 9 Minus Test 10						166,96				0,090	0,001		OK
	CHG'		CHG Minus H Bushings						2,856,15				10,885	0,407		
	CLG'		CLG Minus L Bushings													
	CTG'		CTG Minus T Bushings													

INSULATION RATING KEY
 G=GOOD
 D=DETERIORATED
 I=INVESTIGATE
 B=BAD

NOTE:
 SHORT EACH WINDING
 ON ITSELF



CS Scanned with
 CamScanner

EQUIPMENT USED: _____

TESTED BY: _____

THREE-WINDING TRANSFORMERS CAPACITANCE AND POWER FACTOR TESTS



AMBIENT TEMP. 22,3 °C DATE 27/08/2018
 HUMIDITY 70,6 % JOB # RUTIN 2THN
 ASSET ID _____ APP SALATIGA

STATION GIBANTUL
 POSITION TRAFO 1
 EQUIPMENT LOCATION _____

MFR XIAN CLASS ONAN/ONAF PHASES 3
 SER NO A95006 COOLANT OIL REASON Routine
 YEAR 1995 BIL _____ KV WEIGHT 102000 kg
 WINDING MATERIAL Cu
 OIL VOLUME 26000 kg
 OIL TEMP _____ °C
 IMPEDANCE _____ %
 WEATHER Sunny
 TANK TYPE SEALED

Diagram:

Regulation # 29 (IEC)

	VOLTAGE (KV)	KVA	RATED I	# TAPS	NOMINAL	CHANGER	TAP SETTING
PRIMARY:	/			5	3	Off Load	
SECOND:	/			1			
TERTIARY:	/			1			

TEST FREQUENCY: 50 COMMENTS: _____

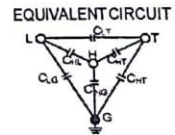
DSG	SERIAL NUM	MFR.	TYPE/CLASS	KV	AMPS	YEAR
1U	M0993	HAEFELLY	COT	170	800	1994
1V	M0934	HAEFELLY	COT	170	800	1994
1W	M1042	HAEFELLY	COT	170	800	1994
2U						
2V						
2W						
3U						
3V						
3W						
3N						

TRANSFORMER OVERALL TESTS

INSULATION TESTED	Test Mode	Test Lead Connections				TEST KV	Freq Sweep	Capacitance C (pF)	POWER FACTOR %			DIRECT		%VDF	IR
		HV	Red	Blue	Grd				Measured	@ 20°C	Corr Factor	mA	Watts		
C _{HG} + C _{HL}	GSTg-B	H	L	T	G	10,00		10.471,31	0,24	0,22	0,910	32,822	0,7766	0,03	
C _{HG}	GSTg-RB	H	L	T	G	10,00		3.612,19	0,33	0,30	0,910	11,341	0,3751	0,02	
C _{HL}	UST-R	H	L	T	G	10,00		6.877,57	0,19	0,17	0,910	21,520	0,3980	0,02	
C _{HL}		Test 1 Minus Test 2						6.859,12			0,91	21,481	0,401		OK
C _{LG} + C _{LT}	GSTg-R	L	H	T	G	10,00		14.788,20	0,23	0,21	0,910	46,398	1,0697	0,03	
C _{LG}	GSTg-RB	L	H	T	G	10,00		1.281,62	0,61	0,58	0,910	4,010	0,2430	0,02	
C _{LT}	UST-B	L	H	T	G	10,00		13.535,91	0,19	0,18	0,910	42,521	0,8229	0,02	
C _{LT}		Test 5 Minus Test 6						13.506,58			0,91	42,387	0,827		OK
C _{TG} + C _{HT}	GSTg-B	T	H			2,00		12.670,68	0,36	0,33	0,910	7,938	0,0576	0,02	
C _{TG}	GSTg-RB	T	H			2,00		12.504,01	0,36	0,33	0,910	7,829	0,0566	0,01	
C _{HT}	UST-R	T	H			2,00		166,59	0,28	0,26	0,910	0,104	0,0006	0,01	
C _{HT}		Test 9 Minus Test 10						166,67				0,108	0,001		OK
C _{HG'}		C _{HG} Minus H Bushings						2.851,65				10,864	0,373		
C _{LG'}		C _{LG} Minus L Bushings													
C _{TG'}		C _{TG} Minus T Bushings													

INSULATION RATING KEY
 G=GOOD
 D=DETERIORATED
 I=INVESTIGATE
 B=BAD

NOTE:
 SHORT EACH WINDING
 ON ITSELF



LEMBAR HASIL PENGECEKAN TRANSFORMER
 PENGIJIAN / PENGUKURAN TAHANAN ISOLASI

NO	AKTIFITAS	STANDARD VDE	HASIL SEBELUMNYA						KONDISI AKHIR				KETERANGAN
			1 MINUTE	10 MINUTE	IP	IP	1 MINUTE	10 MINUTE	IP	IP			
			G	H	IP	K	L	M					
1	SETELAH TRAFU OFF :	° C											
A													
B													
C													
1	TEMP TRAFU	STANDARD VDE (CATALOUGE 228/4)	3,86	4,94	1,27	4,17	5,02	1,20					
	1 PRIMARY - GROUND		3,27	5,55	1,69	3,86	5,31	1,37					
	2 SEKUNDIRY - GROUND		3,85	7,34	1,9	2,36	4,65	1,07					
	3 TERTIER - GROUND	1KV = 1 M Ω	3,53	6,11	14,73	2,46	5,00	1,44					
	4 PRIMARY - SEKUNDIRY		5,21	8,55	1,34	4,63	6,6	1,42					
	5 PRIMARY - TERTIER		2,47	4,02	1,62	2,03	2,88	1,41					
	6 SEKUNDIRY - TERTIER	IP (NORMAL) = 1,25 - > 2,0 IP = 10 Minute / 1 Minute	3,12	4,5	1,44	2,45	3,16	1,3					
	7 PRIMARY & SEKUNDIRY - TERTIER		3,08	4,59	1,49	3,15	4,27	1,35					
	8 PRIMARY & SEKUNDIRY - GROUND												
2	TAHANAN PENTANAHAN	< 1 Ω											0,8
3	Catatan :												
Pelaksana pengujian			Tanpa tangan			Pengawas pekerjaan			Tanda tangan				
1	Memori		M. W. W. W. W. W. W.			M. W. W. W. W. W. W.			M. W. W. W. W. W. W.				
2													
3													

Standard (Buku O&M Trafo):

Hasil Uji	Ket	Rekomendasi
< 1	Berbahaya	Investigasi
1-1.1	Jelek	Investigasi
1.1-1.25	Dipertanyakan	Uji Kadar minyak, uji tan delta
1.25-2	Baik	-
>2	Sangat baik	-



PT. PLN (PERSERO)
 TRANSMISI JAWA BAGIAN TENGAH
 APP SALATIGA
 Jalan Diponegoro No.149 Salatiga Telp. (0298)323167/323168 Fax: (0298)323169

LAMPIRAN " LAPORAN TEKNIK "

SILANG Tahanan
 140/20 KV
 140/20 KV / 60 MVA
 140/20 KV / 60 MVA

LEMBAR HASIL PENGECEKAN TRANSFORMER
 PENGUJIAN / PENGUKURAN TAHANAN ISOLASI

NO	AKTIFITAS	STANDARD VDE	HASIL TAHUN LALU			TINDAKAN	HASIL SAAT INI			KESIMPULAN
			1 MINUTE	10 MINUTE	JP		1 MINUTE	10 MINUTE	JP	
A	B	C	D	E	F	J	K	L	M	N
1 TITIK UKUR TAHANAN ISOLASI (MO)										
TEMP : °C										
1	PRIMARY - GROUND	STANDARD (SKDIR 520)					5720	8080	1,21	
2	SEKUNDARY - GROUND	IP (NORMA.) = 1,25 -> 2,0					4200	6850	1,61	
3	TERTER - GROUND	IP = 10 Minute / 1 Minute					3110	6450	2,07	
4	PRIMARY - SEKUNDARY	150/20 KV 60 MVA					3190	6230	1,83	
5	PRIMARY - TERTER	HV> 795 MG					5716	8870	1,54	
6	SEKUNDARY - TERTER	LV>106 MG					2880	4470	1,51	
7	CORE - YOKE									
8	YOKE - GROUND	1 Minute					7000			
9	CORE - GROUND	1000 V								
10	TERTER - CORE									
11	TERTER - YOKE						7100			

catatan :

Pelaksana Pengujian :

1. Lefyo
 2. Kurniawan
 Tanda Tangan

LEMBAR HASIL PEMELIHARAAN TRANSFORMATOR
 PENGUJIAN / PENGUKURAN TEGANGAN TEMBUS MINYAK ISOLASI

BC : *Suryakarta* MERK/TYPE : *XION* NO. TRAF0 :
 LOKASI GI : BANTUL TEG. / DAYA : TANGGAL : 21 April 2016

NO	URAIAN KEGIATAN	ACUAN		HASIL SEBELUMNY (kV / 2,5 mm) Selang Waktu 5 Menit	KONDISI AWAL	TINDAKAN	KONDISI AKHIR	KESIMPULAN			
		STANDARD IEC 156	TEG. TEMBUS YG. DITUNJUK								
1	TEGANGAN TEMBUS MINYAK (diukur pada suhu ° C)	- MINYAK BAGIAN ATAS	< 70 kV 70 - 170 kV > 170 kV	>=30 kV/2,5mm >=40 kV/2,5mm >=50 kV/2,5mm	1			35,2			
					2			47,2			
					3			39,6			
					4			54,3			
					5			52,8			
					6			49,3			
		Rata 2					1				35,6
		Rata 2					2				37,8
		Rata 2					3				39,9
		Rata 2					4				36,8
		Rata 2					5				36,9
		Rata 2					6				37,4
2	Counter OLTC	- MINYAK BAGIAN BAWAH	< 70 kV 70 - 170 kV > 170 kV	>=30 kV/2,5mm >=40 kV/2,5mm >=50 kV/2,5mm	1			35,6			
					2			37,8			
					3			39,9			
					4			36,8			
					5			36,9			
					6			37,4			
		Rata 2					1				35,6
		Rata 2					2				37,8
		Rata 2					3				39,9
		Rata 2					4				36,8
		Rata 2					5				36,9
		Rata 2					6				37,4
Rata 2					1			35,6			
Rata 2					2			37,8			
Rata 2					3			39,9			
Rata 2					4			36,8			
Rata 2					5			36,9			
Rata 2					6			37,4			
Rata 2					1			35,6			
Rata 2					2			37,8			
Rata 2					3			39,9			
Rata 2					4			36,8			
Rata 2					5			36,9			
Rata 2					6			37,4			

Pelaksana Pengujian : *[Signature]* Tanda Tangan
 Pengawas Pekerjaan : *Nurwantho*
 Tanda Tangan : *[Signature]*



PT. PLN (PERSERO)
 TRANSMISI JAWA BAGIAN TENGAH
 APP SALATIGA
 Jalan Diponegoro No.149 Salatiga Telp. (0298)323167/323168 Fax. (0298)323169

LAMPIRAN " LAPORAN TEKNIK "

Merk / Type	YANI	/	542 - 60000/150
Teg. / Daya	150 / 400 KV	/	60 KVA
No. Trafo	A 950063	/	

LEMBAR HASIL PENGECEKAN TRANSFORMER
 PENGUJIAN / PENGUKURAN TEGANGAN TEMBUS MINYAK ISOLASI

NO	URAIAN KEGIATAN	ACUAN		TAHAP PENGUJIAN	HASIL SEBELUMNYA	TINDAKAN	HASIL AKHIR	KESIMPULAN
		STANDAR IEC 153	TEG. TEMBUS Vg. (DITUNJUK)					
1	- MINYAK BAGIAN TENGAH	< 73 KV 70 - 170 KV > 170 KV	> = 30 KV / 2,5 mm > = 40 KV / 2,5 mm > = 50 KV / 2,5 mm	1			47,5	
				2			71,9	
				3			77,1	
				4			55,6	
				5			66,4	
				6			75,0	
	- MINYAK OLTC	< 73 KV 70 - 170 KV > 170 KV	Rata - rata > = 30 KV / 2,5 mm > = 40 KV / 2,5 mm > = 50 KV / 2,5 mm	1			44,2	
				2			40,7	
				3			38,7	
				4			47,8	
				5			44,2	
				6			49,1	
Rata - rata							43,9	

Catatan :

Pelaksana Pengujian :		Supervis / Peng. Pekerjaan	Tanda Tangan
1	AYY/SB		
2	RV/Anri		
3			

Supervis GI :

Tanda Tangan

