



EXCITATION - CURRENT TEST



CUSTOMER SAMPLE FORMS COMPANY PAGE _____
 ADDRESS _____ JOB # FORMS-ALL
 USER SAMPLE FORMS COMPANY
 OWNER REPRESENTATIVE _____ TELEPHONE _____
 DATE 5/7/2008 TEMPERATURE _____ °F HUMIDITY _____ % EQPT. LOCATION _____
 SUBSTATION POWER FACTOR POSITION DOBLE

SINGLE PHASE				THREE - PHASE WYE ⁽¹⁾			THREE - PHASE WYE		
ENERGIZE		UST		ENERGIZE	UST	PHASE	ENERGIZE	UST	PHASE
H ₁		H ₂ (or H ₀)		H ₁	H ₀	phA	H ₁	H ₀ X ₀	phA
	H ₂ (or H ₀)		H ₁	H ₂	H ₀	phB	H ₂	H ₀ X ₀	phB
				H ₃	H ₀	phC	H ₃	H ₀ X ₀	phC
THREE - PHASE DELTA ⁽¹⁾									
ENERGIZE	UST	GROUND	PHASE						
H ₁	H ₂	H ₃	phA						
H ₂	H ₃	H ₁	phB						
H ₃	H ₁	H ₂	phC						

MANUFACTURER _____ SERIAL NO. _____
 NLTC POSITION (CHECK): 1 (A) 2 (B) 3 (C) 4 (D) 5 (E)
 TAP CHANGER FOUND / LEFT ON POSITION: _____ TEST VOLTAGE: _____ kV ⁽²⁾

LINE NO.	(3) ULTC POSITION	MILLIVOLTAMPERES									REMARKS
		PHASE A			PHASE B			PHASE C			
		METER READING	MULTIPLIER	mVA	METER READING	MULTIPLIER	mVA	METER READING	MULTIPLIER	mVA	
1											
2											
3											
4											
5											
6											
7											
8											
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27											
28											

- NOTES: 1. IF THE LOW-VOLTAGE WINDING IS WYE CONNECTED, THEN X₀ IS CONNECTED AS IN SERVICE (USUALLY, THIS WOULD MEAN GROUNDING X₀).
 2. ALL TESTS SHOULD BE PERFORMED ROUTINELY AT THE SAME VOLTAGE.
 3. INDICATE TAP POSITION: RAISED, LOWERED OR NEUTRAL.

COMMENTS: _____
 DEFICIENCIES: _____

EQPT. INVENTORY NO. _____ TESTED BY: _____



INSULATION TESTS MISCELLANEOUS EQUIPMENT



CUSTOMER SAMPLE FORMS COMPANY PAGE _____
 ADDRESS _____ JOB # FORMS-ALL
 USER SAMPLE FORMS COMPANY
 OWNER REPRESENTATIVE _____ TELEPHONE _____
 DATE 5/7/2008 TEMPERATURE _____ °F HUMIDITY _____ % EQPT. LOCATION _____
 SUBSTATION _____ POWER FACTOR _____ POSITION DOBLE

EQUIPMENT TESTED _____ DATE LAST TEST _____ LAST TEST SHEET NO. _____
 COPIES TO _____ WEATHER _____ OIL TEMP. _____ EQPT. TEMP. _____

LINE NO.	SERIAL NO.	TEST kV	EQUIVALENT 2.5 kV READINGS						%POWER FACTOR		INSULATION RATING
			MILLIVOLTAMPERES			MILLIWATTS			MEASURED	COR. 20°C	
			METER READING	MULTI-PLIER	mVA	METER READING	MULTI-PLIER	mW			
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
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27											
28											
29											

KEY TO INSULATION RATING

BUSHINGS - INSULATORS - ETC.

G = GOOD
 D = DETERIORATED
 I = INVESTIGATE
 B = BAD (REMOVE OR RECONDITION)

WOOD MEMBERS - OIL - ETC.

XG = GOOD
 XD = DETERIORATED
 XI = INVESTIGATE
 XB = BAD (REMOVE OR RECONDITION)

WINDINGS

WG = GOOD
 WD = DETERIORATED
 WI = INVESTIGATE
 WB = BAD (REMOVE OR RECONDITION)

COMMENTS:

DEFICIENCIES:

EQPT. INVENTORY NO. _____

TESTED BY: _____



INSULATION TESTS CIRCUIT BREAKERS



CUSTOMER SAMPLE FORMS COMPANY PAGE _____
 ADDRESS _____ JOB # FORMS-ALL
 USER SAMPLE FORMS COMPANY
 OWNER REPRESENTATIVE _____ TELEPHONE _____
 DATE 5/7/2008 TEMPERATURE _____ °F HUMIDITY _____ % EQPT. LOCATION _____
 SUBSTATION _____ POWER FACTOR _____ POSITION _____ DOBLE _____

CIRCUIT BREAKER _____ WEATHER _____ OIL TEMP. _____
 BREAKER MFR. _____ TYPE _____ AGE _____
 BREAKER SERIAL NO. _____ KV _____ AMPS. _____
 DATE LAST INSP. _____ DATE LAST TEST _____ LAST TEST SHEET NO. _____ EQUIP. TEMP. _____
 COPIES TO _____ BUSHING MFR. _____ BUSHING (TYPE - FORM - DWG. NO.) _____

BUSH NO.	BUSHING SERIAL NO.	SIDE	PHASE	FT OF BUS	INS. IN PAR'LL	EQUIVALENT 2.5 KV READINGS						% POWER FACTOR		COLLAR TESTS mW / mVA	INSULATION RATING
						MILLIVOLTAMPERES			MILLIWATTS			MEASURED	COR. 20°C		
						METER READING	MULTIPLIER	mVA	METER READING	MULTIPLIER	mW				
1															
2															
3															
4															
5															
6															
TANK 1															
TANK 2															
TANK 3															

LINE NO.	OTHER TESTS														
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															

KEY TO INSULATION RATING

<u>BUSHINGS - INSULATORS - ETC.</u>	<u>WOOD MEMBERS - OIL - ETC.</u>	<u>WINDINGS</u>
G = GOOD	XG = GOOD	WG = GOOD
D = DETERIORATED	XD = DETERIORATED	WD = DETERIORATED
I = INVESTIGATE	XI = INVESTIGATE	WI = INVESTIGATE
B = BAD (REMOVE OR RECONDITION)	XB = BAD (REMOVE OR RECONDITION)	WB = BAD (REMOVE OR RECONDITION)

COMMENTS: _____
 DEFICIENCIES: _____

EQPT. INVENTORY NO. _____ TESTED BY: _____



INSULATION TESTS TWO-WINDING TRANSFORMERS



CUSTOMER SAMPLE FORMS COMPANY PAGE _____
 ADDRESS _____ JOB # FORMS-ALL
 USER SAMPLE FORMS COMPANY
 OWNER REPRESENTATIVE _____ TELEPHONE _____
 DATE 5/7/2008 TEMPERATURE _____ °F HUMIDITY _____ % EQPT. LOCATION _____
 SUBSTATION _____ POWER FACTOR _____ POSITION DOBLE

TRANSFORMER _____ MFR _____ SERIAL NO. _____ WEATHER _____ TOP OIL TEMP. _____
 AGE _____ TYPE/CLASS _____ kVA _____ GAL OF OIL _____ DATE LAST TEST _____ LAST SHEET NO. _____
 OIL ASKAREL AIR GAS FREE BREATHING SEALED GAS BLANKETED CONSERVATOR
 COPIES TO _____ MFR. TYPE CLASS DWG. NO. CAT. NO. kV YEAR
 HIGH SIDE kV WYE DELTA
 LOW SIDE kV WYE DELTA
 NEUTRAL _____

BUSHINGS

OVER-ALL TESTS													
TEST	TEST CONNECTIONS			TEST kV	EQUIVALENT 2.5 kV READINGS						% POWER FACTOR		INSULATION RATING
	WINDING ENERGIZED	WINDING GROUNDED	WINDING GUARDED		MILLIVOLTAMPERES			MILLIWATTS			MEASURED	COR. 20°C	
					METER READING	MULTIPLIER	mVA	METER READING	MULTIPLIER	mW			
1	HIGH	LOW											
2	HIGH		LOW										
3	LOW	HIGH											
4	LOW		HIGH										
CALCULATED RESULTS													

BUSHING TESTS															
LINE NO.	BUSH NO.	P H A S E	BUSHING SERIAL NO.	TEST kV	EQUIVALENT 2.5 kV READINGS						% POWER FACTOR		COLLAR TESTS (mW/mVA)		INSULATION RATING
					METER READING	MULTIPLIER	mVA	METER READING	MULTIPLIER	mW	MEASURED	COR. 20°C	TOP		
	1														
	2														
	3														
	4	N													
	5														
	6														
	7														
	8	N													
	9														
	10														
	11														
	12	N													
	13														
	14														
	15														
	16														
	17														
	18														
	19	OIL SAMPLE											OIL TEMP. °C		

COMMENTS: _____
 DEFICIENCIES: _____

EQPT. INVENTORY NO. _____ TESTED BY: _____



INSULATION TEST THREE-WINDING TRANSFORMER



CUSTOMER SAMPLE FORMS COMPANY PAGE _____
 ADDRESS _____ JOB # FORMS-ALL
 USER SAMPLE FORMS COMPANY
 OWNER REPRESENTATIVE _____ TELEPHONE _____
 DATE 5/7/2008 TEMPERATURE _____ °F HUMIDITY _____ % EQPT. LOCATION _____
 SUBSTATION _____ POWER FACTOR _____ POSITION DOBLE

TRANSFORMER _____ MFR. _____ SERIAL NO. _____ WEATHER _____ TOP OIL TEMP. _____
 AGE _____ TYPE/CLASS _____ kVA _____ GALLONS OF OIL _____ DATE LAST TEST _____ LAST SHEET NO. _____
 OIL ASKAREL AIR GAS FREE BREATHING SEALED GAS BLANKETED CONSERVATOR
 COPIES TO _____ MFR. TYPE CLASS DWG. NO. CAT. NO. KV YEAR
 HIGH SIDE KV WYE DELTA
 LOW SIDE KV WYE DELTA
 NEUTRAL

BUSHINGS

OVER-ALL TESTS														
TEST	TEST CONNECTIONS			TEST KV	EQUIVALENT 2.5 KV READINGS						% POWER FACTOR		KEY TO INSULATION RATING G = GOOD D = DETERIORATED I = INVESTIGATE B = BAD (REMOVE OR RECONDITION)	INSULATION RATING
	WINDING ENERGIZED	WINDING GROUNDED	WINDING GUARDED		MILLIVOLTAMPERES			MILLIWATTS			MEASURED	COR. 20°C		
					METER READING	MULTI-PLIER	mVA	METER READING	MULTI-PLIER	mW				
1	HIGH	LOW	TERT.											
2	HIGH		LOW AND TERT.											C H
3	LOW	TERT.	HIGH											
4	LOW		HIGH AND TERT.											C L
5	TERT.	HIGH	LOW											
6	TERT.		HIGH AND LOW											C T
7	ALL													CHECK TEST (SHOULD EQUAL) CH - CL - CT
CALCULATED RESULTS														C HL (TEST 1 MINUS TEST 2)
														C LT (TEST 3 MINUS TEST 4)
														C HT (TEST 5 MINUS TEST 6)

BUSHING TESTS															
LINE NO.	BUSH NO.	P H A S E	BUSHING SERIAL NO.	TEST KV	EQUIVALENT 2.5 KV READINGS						% POWER FACTOR		COLLAR TESTS (mW/mVA)		INSULATION RATING
					METER READING	MULTI-PLIER	mVA	METER READING	MULTI-PLIER	mW	MEASURED	COR. 20°C	TOP		
HIGH SIDE	1														
	2														
	3														
	4	N													
LOW SIDE	5														
	6														
	7														
	8	N													
TERTIARY	9														
	10														
	11														
	12	N													
	13														
	14	OIL SAMPLE													OIL TEMP. °C

N = NEUTRAL

COMMENTS:
 DEFICIENCIES:

EQPT. INVENTORY NO. _____ TESTED BY: _____



INSULATION TEST AUTO TRANSFORMERS



CUSTOMER SAMPLE FORMS COMPANY PAGE _____
 ADDRESS _____ JOB # FORMS-ALL
 USER SAMPLE FORMS COMPANY
 OWNER REPRESENTATIVE _____ TELEPHONE _____
 DATE 5/7/2008 TEMPERATURE _____ °F HUMIDITY _____ % EQPT. LOCATION _____
 SUBSTATION POWER FACTOR POSITION DOBLE

TRANSFORMER _____ MFR. _____ SERIAL NO. _____ WEATHER _____ TOP OIL TEMP. _____
 AGE _____ TYPE _____ FORM _____ CLASS _____ DATE LAST TEST _____ LAST SHEET NO. _____
 COPIES TO _____ DRY TYPE EQUIPMENT TEMP. _____
 HIGH SIDE kV WYE DELTA MFR. TYPE FORM CLASS DWG. NO. CAT. NO. kV AMP YEAR
 LOW SIDE kV WYE DELTA
 TERT. SIDE kV WYE DELTA

OVER-ALL TESTS														
TEST	TEST CONNECTIONS			TEST kV	EQUIVALENT 2.5 kV READINGS						% POWER FACTOR		KEY TO INSULATION RATING G = GOOD D = DETERIORATED I = INVESTIGATE B = BAD (REMOVE OR RECONDITION)	INSULATION RATING
	WINDING ENERGIZED	WINDING GROUNDED	WINDING GUARDED		MILLIVOLTAMPERES			MILLIWATTS			MEASURED	COR. 20°C		
					METER READING	MULTIPLIER	mVA	METER READING	MULTIPLIER	mW				
1	HIGH LOW		TERT.											
2	HIGH LOW		TERT.											C H
3		HIGH LOW												
4	TERT.		HIGH AND TERT.											C T
CALCULATED RESULTS														C HT (TEST 1 MINUS TEST 2)
														(TEST 3 MINUS TEST 4) X

X mVA AND mW SHOULD COMPARE WITH THOSE FOR C HT

BUSHING TESTS															
LINE NO.	BUSH NO.	PHASE	BUSHING SERIAL NO.	TEST kV	EQUIVALENT 2.5 kV READINGS						% POWER FACTOR		COLLAR TESTS (mW/mVA)		INSULATION RATING
					METER READING	MULTIPLIER	mVA	METER READING	MULTIPLIER	mW	MEASURED	COR. 20°C	TOP		
HIGH	1														
	2														
	3														
LOW	4														
	5														
	6														
	7	N													
TERTIARY	8														
	9														
	10														
	11	N													
	12														
	13														
14	OIL SAMPLE												OIL TEMP. °C		

N = NEUTRAL

COMMENTS: _____
 DEFICIENCIES: _____

EQPT. INVENTORY NO. _____ TESTED BY: _____



INSULATION TESTS CABLES AND POTHEADS



CUSTOMER SAMPLE FORMS COMPANY PAGE _____
 ADDRESS _____ JOB # FORMS-ALL
 USER SAMPLE FORMS COMPANY
 OWNER REPRESENTATIVE _____ TELEPHONE _____
 DATE 5/7/2008 TEMPERATURE _____ °F HUMIDITY _____ % EQPT. LOCATION _____
 SUBSTATION _____ POWER FACTOR _____ POSITION _____ DOBLE _____

CIRCUIT _____ WEATHER _____ EARTH TEMP. _____ DUCT TEMP. _____ DEPTH _____
 COPIES TO _____ DATE LAST TEST _____ LAST TEST SHEET NO. _____

CABLE	
MFR. AND TYPE	
LOCATION	
IDENTIFICATION	
RATED kV	
OPER kV	
AMPS. (LOAD)	
LENGTH - OUTDOOR	
LENGTH - INDOOR	
AGE	
TYPE: DRY, OIL-FILLED, OIL RESERVOIR, GAS RESERVOIR	
NO. COND.	
SIZE AWG, MCW	
INSULATION MATERIAL	
INSULATION THICKNESS	
INSULATION TYPE BELTED, SHIELDED	
JACKET LEAD, ARMOR, BRAID	
DUCT TRAY METALLIC, NONMETALLIC	

POTHEAD	
MFR. AND TYPE	
LOCATION	
IDENTIFICATION	
RATED kV	
OPER kV	
AMPS. (RATED)	
OUTDOOR - INDOOR	
AGE	
TYPE: DRY, CPD-FILLED, OIL-FILLED	
NO. COND.	
SIZE AWG, MCM	
PORCELAIN SINGLE MULTIPIECE	
TERM. TYPE CAP NUT, SOLDER SEALED	
AERIAL CONN. RIGID, FLEXIBLE	
JOINTS INSULATED, WPED, COMPRESSED	

LINE NO.	IDENTIFICATION	P H A S E	TEST kV	EQUIVALENT 2.5 kV READINGS						% POWER FACTOR	D. C. MEGOHMS	INSULATION RATING CABLE	POTHEAD HOT-COLLAR TESTS mW / mVA			INSULATION RATING POTHEAD
				MILLIVOLTAMPERES			MILLIWATTS						LOCATION	TOP		
				METER READING	MULTI-PLIER	mVA	METER READING	MULTI-PLIER	mW							
1																
2																
3																
4	N															
5																
6																
7																
8	N															
9																
10																
11																
12	N															
13																
14																
15																

KEY TO INSULATION RATING
 G = GOOD
 D = DETERIORATED
 I = INVESTIGATE
 B = BAD (REMOVE OR RECONDITION)

COMMENTS: _____
 DEFICIENCIES: _____

EQPT. INVENTORY NO. _____ TESTED BY: _____