

- SYMBOL LEGEND**
- (V-C) 1PH VOLTAGE TRANSDUCER
 - (C&I) CONTROL & INDICATION
 - (W) WHITE LIGHT
 - (TS#) TEST SWITCH #
 - (21) DISTANCE (IMPEDANCE) RELAY
 - (25) SYNCHRONIZING DEVICE
 - (27) UNDERVOLTAGE RELAY
 - (50) INSTANTANEOUS OVERCURRENT RELAY
 - (51) TIME OVERCURRENT RELAY
 - (67N) DIRECTIONAL OVERCURRENT RELAY (NEUTRAL)
 - (79) RECLOSEING RELAY
 - (88B) LOCKOUT RELAY (69KV BUS)
 - (88L) LOCKOUT RELAY (LOW BUS)
 - (88T) LOCKOUT RELAY (TRANSFORMER #)
 - (87D) DIFFERENTIAL RELAY (BUS)
 - (87T) DIFFERENTIAL RELAY (TRANSFORMER)

- NOTES:**
1. AT TRANSFORMER #2 LTC CABINET 120 VOLTS IS TAPPED OFF THE 240 VOLT FEEDER FROM AC PANEL FOR THE LTC CONTROLS AND MOTOR.
 2. KEEP IN MIND THAT THE 120/240V POWER SUPPLY FEEDER TO BOTH OF THE TRANSFORMERS IS FROM A BREAKER IN THE AC PANEL AND THEREFORE DEPENDENT ON WHICH STATION POWER (NO.1 OR NO.2) THE TRANSFER SWITCH HAS SELECTED. THEREFORE, IT MAY BE CONFUSING, IF ONE WERE TO MEASURE VOLTAGE AT A CONVENIENCE OUTLET OR POWER SUPPLY FEEDER IN THE LTC COMPARTMENT (NOT RECOMMENDED) WHEN MONITORING SYSTEM VOLTAGE AS THE TAP CHANGER OPERATES. SENSING VOLTAGE MAY BE MONITORED AT TERMINALS 3 & 4 OF THE LTC BACKUP CONTROL.

TRANSFORMER NO.1 LTC SETTINGS

I. TAP CHANGER CONTROL
 SENSING VOLTAGE COMES INDIRECTLY FROM (A PHASE) 8400/120 POTENTIAL TRANSFORMER. DESIRED SETTINGS ARE AS FOLLOWS:
 BANDCENTER = 115 VOLTS
 BANDWIDTH = 2.0 VOLTS (RANGE IS 115 TO 117 VOLTS)
 TIME DELAY = APPROXIMATELY 50 SECONDS
 LINE DROOP COMPENSATOR - SET AT 0 (NOT USED)

II. BECKWITH LTC BACKUP CONTROL. FIXED DEADBAND = 2.0 VOLTS
 SENSING VOLTAGE COMES DIRECTLY FROM (A PHASE) 8400/120 POTENTIAL TRANSFORMER. DESIRED SETTING ARE AS FOLLOWS:
 BANDCENTER = 115 VOLTS
 BANDWIDTH = 9.0 VOLTS (RANGE IS 109 TO 118 VOLTS)
 (ALLOWS FOR 5% VOLTAGE REDUCTION)
 BLOCK RAISE (LED) = 118 VOLTS
 BLOCK LOWER (LED) = 109 VOLTS
 LOWER (LED WITH TAP CHANGE) = 120 VOLTS
 TIME DELAY = 5 SECONDS

III. THERE IS A CONVERSION FACTOR REQUIRED TO TRANSLATE THE SENSING VOLTAGE (READING AVAILABLE AT TERMINALS 3 & 4 OF THE LTC BACKUP CONTROL) TO OUR SYSTEM VOLTAGE (SEE NOTE, READING AVAILABLE AT THE WEST STATION TERMINALS OF THE TRANSFER SWITCH). FACTOR = 8400/7970

TAP CHANGER CONTROL SENSING VOLTAGE	NOMINAL SYSTEM VOLTAGE
119 VOLTS	125.4 VOLTS
118 VOLTS	124.7 VOLTS
117 VOLTS	123.3 VOLTS
116 VOLTS	122.3 VOLTS
115 VOLTS	121.2 VOLTS
114 VOLTS	120.2 VOLTS
113 VOLTS	119.1 VOLTS
112 VOLTS	118.0 VOLTS
111 VOLTS	117.0 VOLTS
110 VOLTS	115.9 VOLTS
109 VOLTS	114.9 VOLTS
108 VOLTS	113.8 VOLTS
107 VOLTS	112.8 VOLTS

COMMENT: WHEN TAKING ACTUAL READINGS THERE WILL BE SOME VARIATION IN COMPARISON TO THE CHART ABOVE.

TRANSFORMER NO.2 LTC SETTINGS

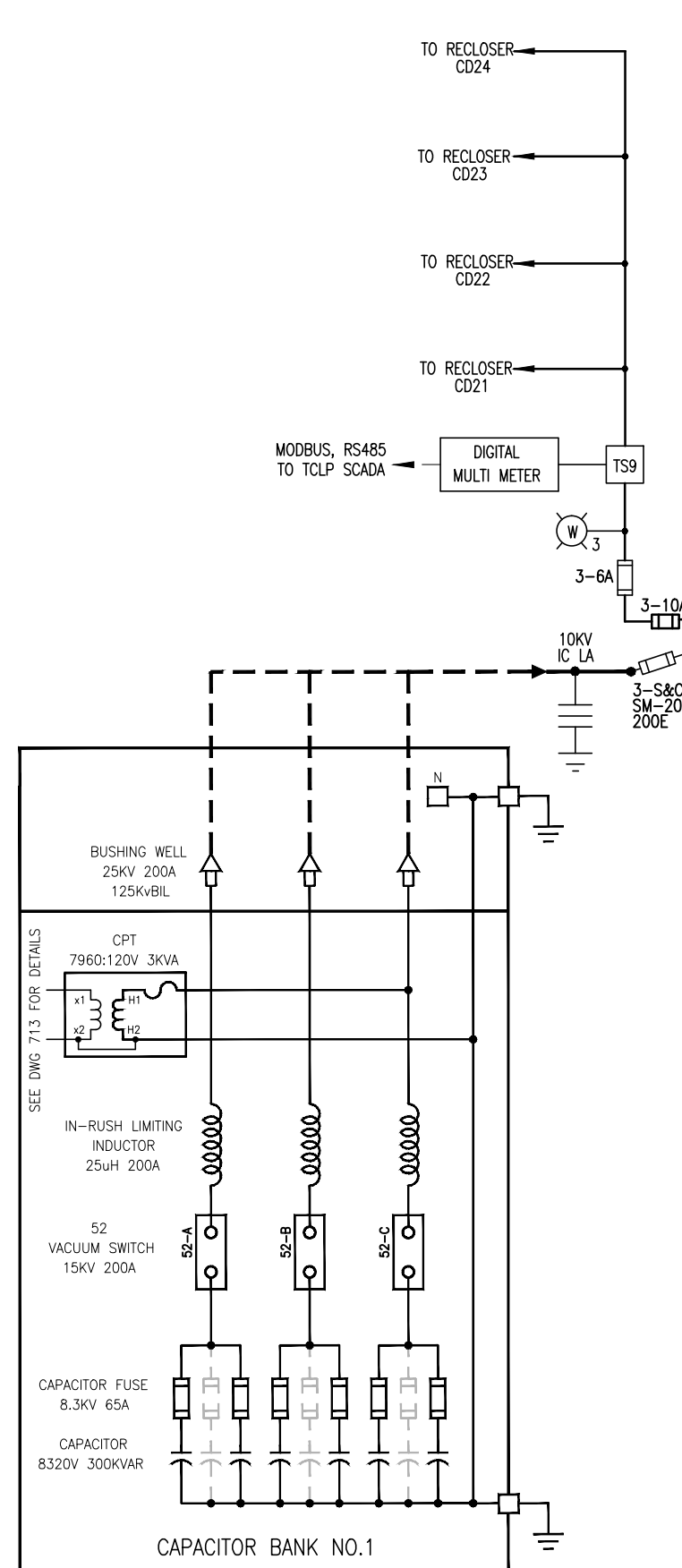
I. TAP CHANGER CONTROL
 SENSING VOLTAGE COMES INDIRECTLY FROM (A PHASE) 8400/120 POTENTIAL TRANSFORMER. DESIRED SETTINGS ARE AS FOLLOWS:
 BANDCENTER = 116 VOLTS
 BANDWIDTH = 2.0 VOLTS (RANGE IS 115 TO 117 VOLTS)
 TIME DELAY = APPROXIMATELY 50 SECONDS
 LINE DROOP COMPENSATOR - SET AT 0 (NOT USED)

II. BECKWITH LTC BACKUP CONTROL. FIXED DEADBAND = 2.0 VOLTS
 SENSING VOLTAGE COMES DIRECTLY FROM (A PHASE) 8400/120 POTENTIAL TRANSFORMER. DESIRED SETTING ARE AS FOLLOWS:
 BANDCENTER = 115.5 VOLTS
 BANDWIDTH = 9.0 VOLTS (RANGE IS 109 TO 118 VOLTS)
 (ALLOWS FOR 5% VOLTAGE REDUCTION)
 BLOCK RAISE (LED) = 118 VOLTS
 BLOCK LOWER (LED) = 109 VOLTS
 LOWER (LED WITH TAP CHANGE) = 120 VOLTS
 TIME DELAY = 5 SECONDS

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114 VOLTS	120.2 VOLTS
113 VOLTS	119.1 VOLTS
112 VOLTS	118.0 VOLTS
111 VOLTS	117.0 VOLTS
110 VOLTS	115.9 VOLTS
109 VOLTS	114.9 VOLTS
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107 VOLTS	112.8 VOLTS

COMMENT: WHEN TAKING ACTUAL READINGS THERE WILL BE SOME VARIATION IN COMPARISON TO THE CHART ABOVE.



ENG.	ACC		
DR	ACC		
CK	PJS		
APP	PJS		
DATE	8/1/2017	CONSTRUCTION	
		ISSUED FOR	

