

FOR INSTALLATION INSTRUCTIONS SEE INSTRUCTION BOOK

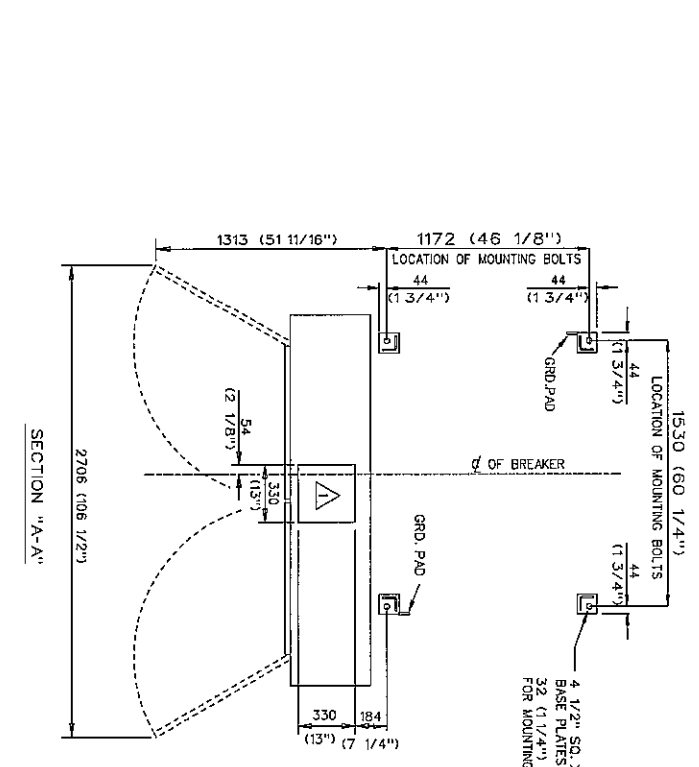
- NOTES**
- 1 CONDUIT ENTRANCE (REMOVABLE PLATE)
 - 2 COLOR OF STRUCTURE CABINET AND BUSHINGS WILL BE ANSIZO GRAY. UNLESS OTHERWISE SPECIFIED ON CUSTOMER PURCHASE ORDER AND CONFIRMED BY ABB TRANSMITTAL.
 - 3 BUSHING CREEP = 2489 (98 INCHES)
 - 4 ⊕ INDICATES CENTER OF GRAVITY
 - 5 LEG EXTENSIONS SHIPPED RETRACTED INTO FRAME.
 - 6 LOCATION FOR TRAVEL ANALYZER CONNECTION WS.
 - 7 BUSHING TOP TERMINALS SHIPPED SEPARATELY.
 - 8 USE ONLY FLEXIBLE CONDUCTORS FOR CONNECTION TO BUSHING TERMINALS. MAXIMUM LINE PULL SHOULD NOT EXCEED 335 LBS.

FOUNDATION LOADS
 (INCLUDES OPERATIONAL LOADS, 335 LB LINE LOADS, .29 DYNAMIC AND 120 MPH WIND LOADS)

OVERTURN MOMENT----- 49,000 FT.LBS.
 TOTAL SHEAR----- 5,500 LBS.
 TOTAL COMPRESSION----- 7,400 LBS.

MAXIMUM ANCHOR BOLT LOADS
 TENSION----- 4,800 LBS.
 SHEAR----- 2,700 LBS.
 PAD COMPRESSION----- 7,900 LBS.

FOUNDATION & ANCHOR BOLT LOADS PER ED 3.1.323



TYPE	CENTER OF GRAVITY	
	AS SHIPPED	AS INSTALLED
INCHES	15.5/8"	67"
MM	397	2457

TYPE	12IPM31-20	12IPM31-12
MAX. VOLTAGE KV	121	121
CONTINUOUS CURRENT AMPS	2000	1200
SHORT CIRCUIT AMPS KA	31.5	31.5
BASIC IMPULSE LEVEL KV	550	550
WEIGHT WITH GAS LB	6170	6170
WEIGHT LESS GAS LB	6106	6106
SF-6 GAS PER BREAKER LB	64	64

ABB ABB POWER T&D CO. INC.
 123 Theobald Ave. Greenville, Pa. 15801

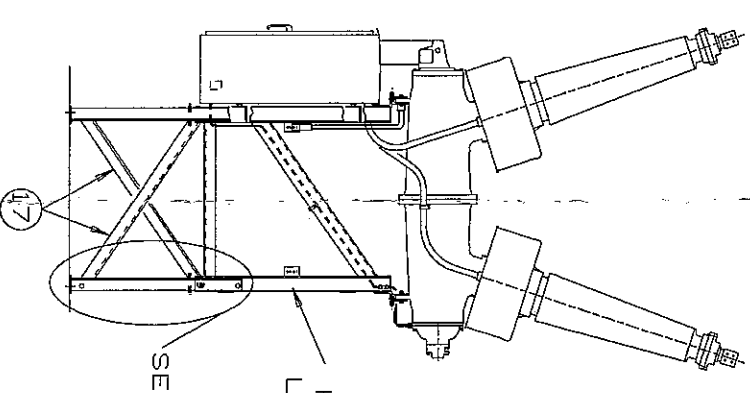
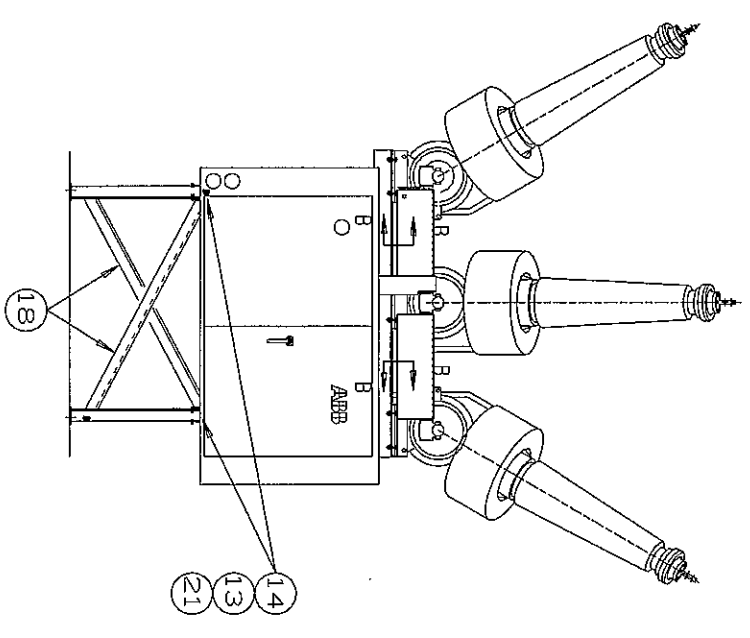
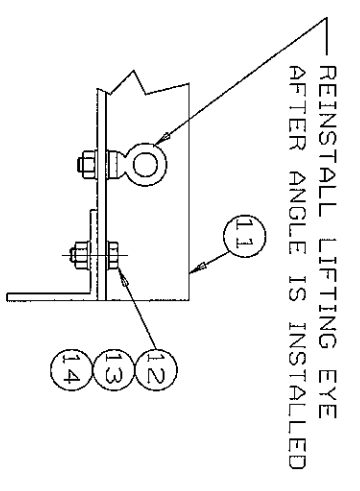
BREAKER OUTLINE
 12IPM31-12
 12IPM31-20

SCALE: DRAWING VER 5
 ASSY. DWG.
 GEN. DWG.
 JEM

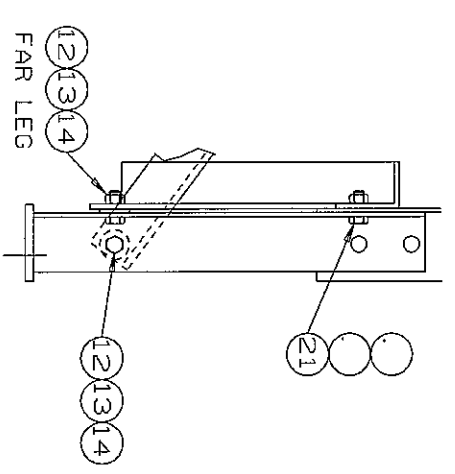
107D654

REV NO	ITEM	PART OR MATL NO	DESCRIPTION
01	04		

REV NO	ITEM	PART OR MATL NO	DESCRIPTION
	10	560A144-01	KIT, SERVICE
	11	134B641-02	ANGLE (TOP BRACE)
	12	800A027-04	SCR CAP 5/8"-11UNCX1-3/4" LG (GALV)
	13	973A060-09	WASHER FLAT 5/8"
	14	673A045-11	NUT 5/8"-11UNC (GALV)
	17	134B640-03	ANGLE (SIDES) LP 13FT
	18	134B640-04	ANGLE (FRONT & REAR) LP 13FT
	21	800A027-06	SCR CAP 5/8"-11UNCX2-1/4" LG (GALV)



* REMOVE & DISCARD
HARDWARE BETWEEN FRAME
LEGS WHEN EXTENDING LEGS
SEE DETAIL "X"



REV.	DESCRIPTION & DATE
01	MAR.2,1994
02	JULY 20,1994
03	OCT.10,1994
04	NOV.8,1994

IT 1 WAS 917C244-01 QTY 6
IT 2 WAS 420A306-14 QTY 24
IT 3 WAS 967800 QTY 24
IT 4 WAS 973B233-02 QTY 24
IT 5 WAS 257B056-01 QTY 6
JPN/JAS

NOTE ADDED ABOUT
DISCARDING HARDWARE.
RMR/JAS

SHAFT COVERS ADDED TO
UP DATE PICTURE.
RMR/JAS

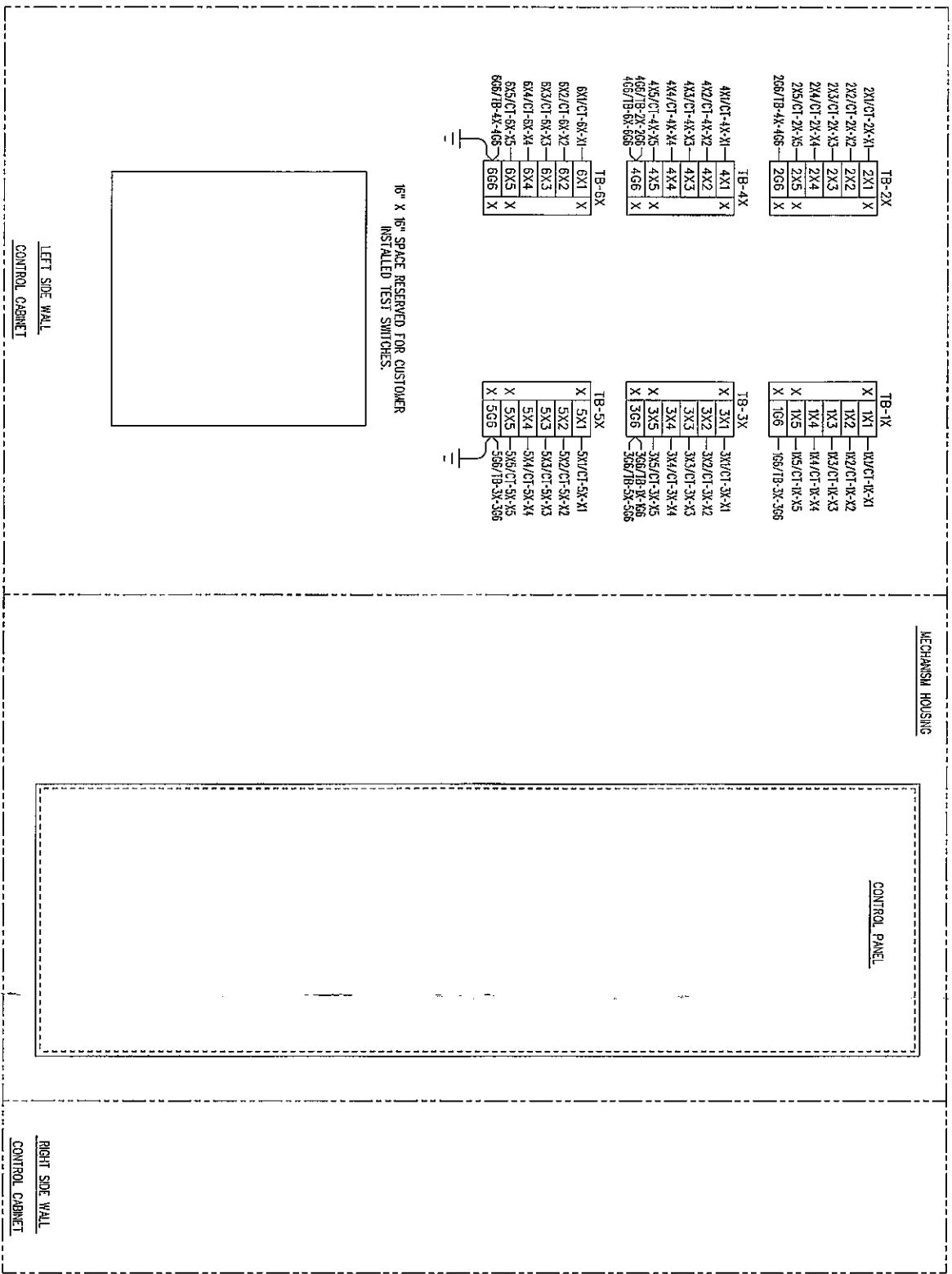
This drawing is the property of ABB POWER T&D CO., INC. and contains
proprietary and confidential information which must not be duplicated,
used or disclosed other than expressly authorized by ABB POWER T&D CO., INC.

BREAKER FIELD ASSEMBLY
121PM31-12
121PM31-20

ABB ABB POWER T&D CO., INC.
125 Theobald Ave. Greensburg, Pa. 15601

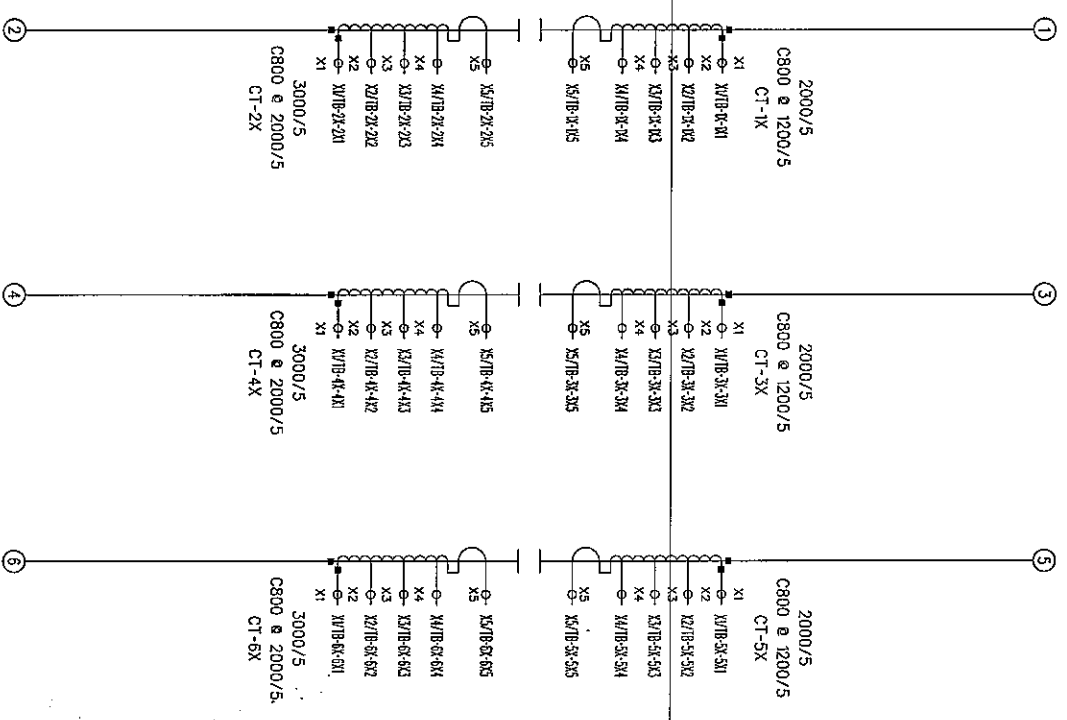
CAD DWG MICROSTATION VER 5	TOLERANCE UNLESS NOTED
SCALE: 1/8" = 1'-0"	FRACTIONAL
ASSY. DWG.	DECIMAL
GROUP	REV.
BA SC JAS JAS	206052304

REV.	DESCRIPTION & DATE
01	JUNE 20, 1994
NO CHANGES THIS SHEET.	
JEM	
02	AUG. 6, 1997
SET SHEETS 3 & 4 FOR REVISION.	
JEM	
03	AUG. 11, 1997



X - SHORTING SCREW
POSITION FOR SHIPMENT

SHOP NOTE: CT LEADS MUST HAVE WIRE MARKERS.



CUSTOMER: SOUTHERN CALIFORNIA Edison
CUST. SPECIFICATION NO. A27-1992

This drawing is the property of ABB Power T&D Co. Inc. and contains proprietary and confidential information which must not be disclosed, used or delivered other than expressly authorized by ABB Power T&D Co. Inc.

ABB
 125 Theobald Ave., Greensburg, PA 15601

ABB POWER T&D CO. INC.
 TYPE 12PMA-20

CONNECTION DIAGRAM
 CURRENT TRANSFORMER

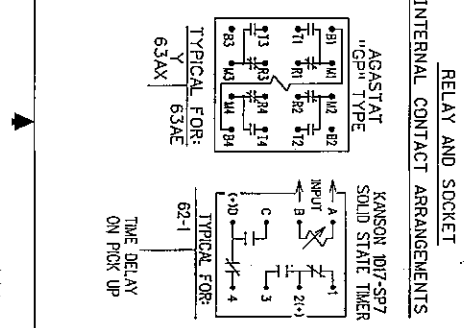
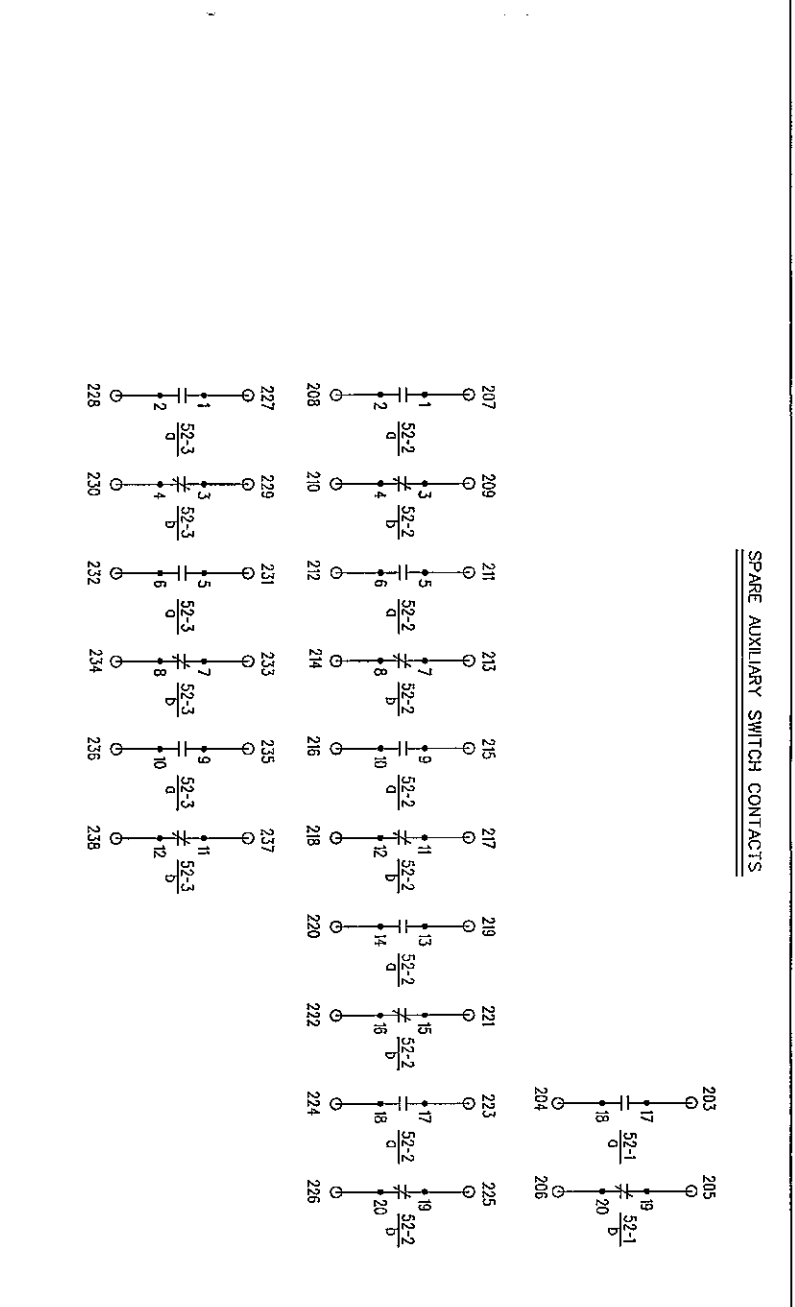
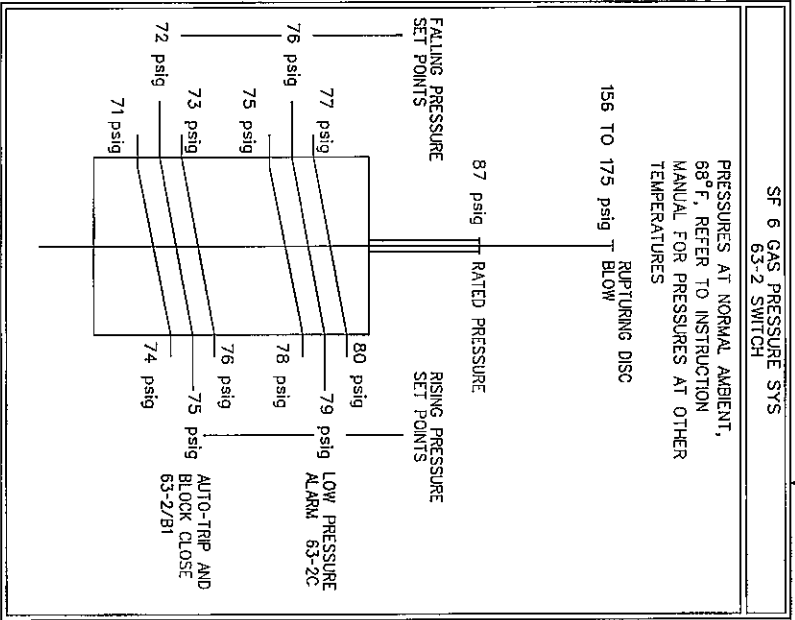
SCALE: 1" = 12"

DATE: 999D146
 SHEET NO 5 OF 5

DEVICE	DESCRIPTION	CONTACT RATING	ABB PART NO.
8-1	CONTROL POWER SWITCH, CLOSE & TRIP DC (STATES TYPE MTS) 250VDC, 30A		894B761-01
8-2	CONTROL POWER SWITCH, SPRING CHARGING MOTOR DC (CONN ELEC 127-HJ) 500VAC, 60A		894A004-09
8-3	CONTROL POWER SWITCH, CONTROL HOUSING AC (STATES TYPE MTS) 250VDC, 30A		894B761-02
23-1	THERMOSTAT, CONTROL HOUSE HEATERS, ADJ RESPONSE RECORDER CONNECTOR	240VAC	923A017-01
30	MOTOR CONTACTOR	48 VDC	712B127-01
42-1	MOMENTARY CONTACT, AUX. "TRIP" RELAY	48 VDC	866A032-22
62-1	SF-6 GAS PRESSURE SWITCH - TEMP. COMPENSATED	48 VDC	762B218-21
63-2	AUTO-TRIP & CLOSE BLOCK AUX. RELAY	48 VDC	894B534-01
63AX	MOMENTARY "a" CONTACT AUX. RELAY	48 VDC	762A081-12
63AE	MOTOR, SPRING CHARGING, 48VAC/48VDC	48 VDC	762A081-12
88	AUXILIARY SWITCH ASSEMBLY	48 VDC	653C061-03
52	AUXILIARY SWITCH CONTACT	48 VDC	894B059-02
c or b	CLOSING COIL, 48 VDC 7A		843A026-02
CC	CONTROL SWITCH, ELECTROSWITCH	48 VDC	894B333-01
CS	FUSE & FUSE HOLDER, 250V 40A		450A001-10
FU-2	FUSE & FUSE HOLDER, 600VAC/250VDC 20A		450A001-06
FU-3	HEATERS, CONTROL HOUSING 240VAC 300W EA		495B147-03
H1 TO H4	LIMIT SWITCH, MOTOR START- STOP	480VAC	894A273-01
LS1	LIMIT SWITCH, SPRING DISCHARGED	48 VDC	894A273-01
LS2	RESISTOR, 50 OHM, 100 W		767A022-82
R1	RESISTOR, 600 OHM, 12 W		712A128-01
SHU-1,2	SHUNTS, RESPONSE RECORDER		917A049-02
TB	TERMINAL BLOCK, 600V 30A		843A026-03
TC-1	TRIP COIL, 48 VDC 7A		762A081-12
Y	ANTI-PUMP RELAY	48 VDC	
Y	DEVICE TERMINAL		
Y	TERMINAL, CUSTOMER		
*	SUPPLIED AS PART OF MOTOR CONTACTOR, 866A032-22		

HEATER	HEATER WATTAGE (RATED)	OPERATING RANGE
H-1,2,3,4	300W EA	+40° F TO +80° F SET AT +75° F
THERMO THERMOSTAT FUNCTION		
23-1	CONTROL HOUSE HEATERS H-3 & H-4	
ELECTRICAL CHARACTERISTICS		
		OPERATING VOLTAGE
		48 VDC
		±10% OPERATING CURRENT AIP
		START - 170
		RUN - 40
		7
		0.14
		0.33
		0.31

REV.	DESCRIPTION & DATE
01	JUNE 20, 1997 P/N & DESCRIPTIONS REVISED FOR DEVICES B-2, FU-2 AND 88. JEM
02	AUG. 6, 1997 SEE SHEETS 3 & 4 FOR REVISION. JEM
03	AUG. 11, 1997



NOTES:

- DIAGRAMS ARE SHOWN WITH NO SF6 GAS PRESSURE BREAKER OPEN SPRING MECHANISM DISCHARGED AND ALL CIRCUITS DE-ENERGIZED.
- GROUND SYMBOL $\frac{1}{2}$ INDICATES CONNECTION TO THE GROUND BAR IN THE CONTROL HOUSE. WARNING-IT IS IMPERATIVE TO ESTABLISH GROUND INTEGRITY WITH THE AC SOURCE PRIOR TO TESTING OR ENERGIZING BREAKER.
- THERE ARE 18 SPARE AUXILIARY SWITCH CONTACTS FOR CUSTOMER USE. CONTACTS ARE MECHANICALLY REVERSIBLE FROM a TO b AND b TO a.
- ON SCHEMATIC, DEVICES AND WIRING PROVIDED BY CUSTOMER IS INDICATED BY DASH LINES.

WIRE TYPE	TERMINAL NAME	PART NO.	COMP TOOL
CONTROL WIRING	H4 ANG SIS	917A355	H7B
CT WIRING	H2 ANG SIS	917A355	H8E

CUSTOMER: SOUTHERN CALIFORNIA EDISON
CUST. SPECIFICATION NO. A22-1992

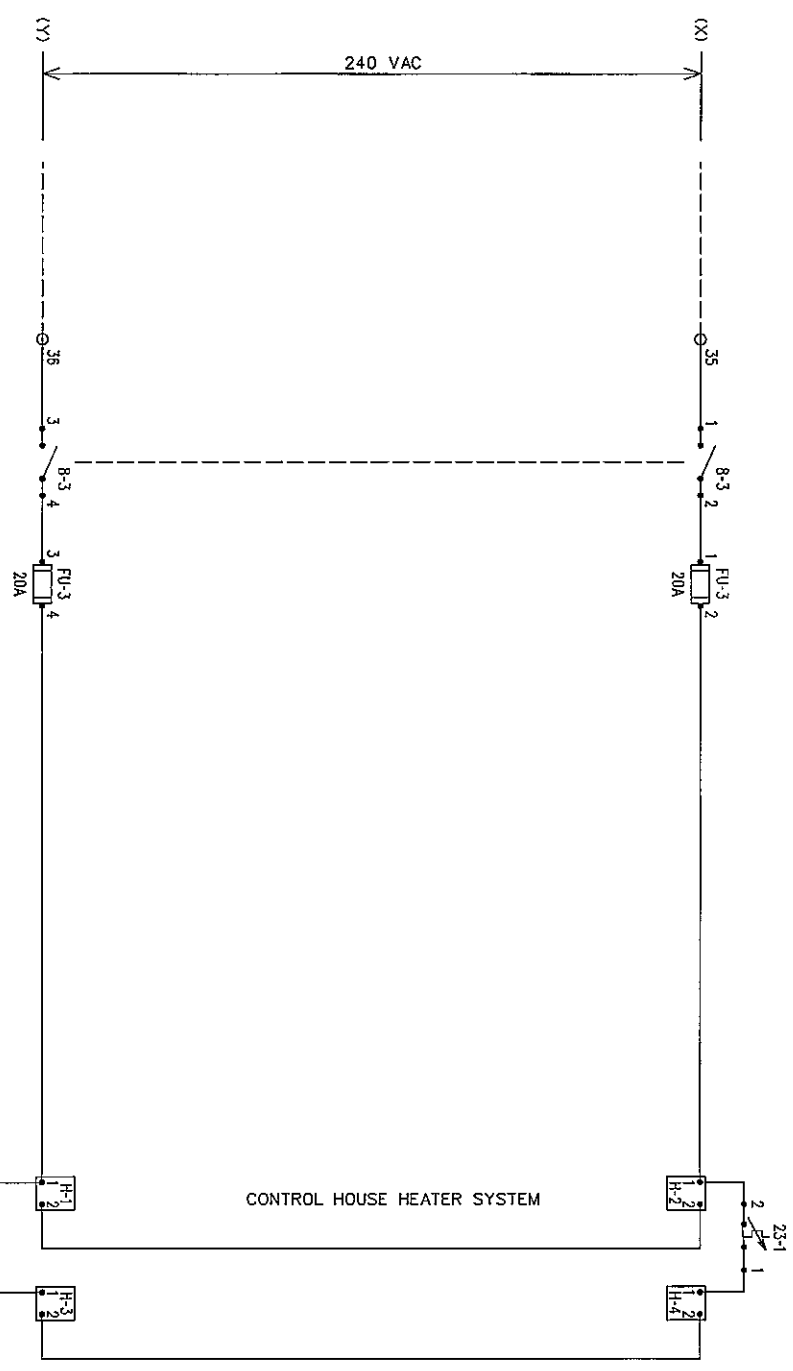
This drawing is the property of ABB POWER T&D CO. INC. and contains proprietary and confidential information which must not be duplicated, used or disclosed other than expressly authorized by ABB POWER T&D CO. INC.

SCHEMATIC DIAGRAM
INCLUDING DATA, AUX. SW. AND ALARM CONTACTS
TYPE 121PM31-20

ABB POWER T&D CO. INC.
125 Theobald Ave. Greentree, PA 15001
TEL: 412-765-1000

999D146
SHEET NO 1 OF 5

REV.	DESCRIPTION & DATE
01	JUNE 20, 1997
NO CHANGES THIS SHEET. JEM	
02	AUG. 6, 1997
SEE SHEETS 3 & 4 FOR REVISION. JEM	
03	AUG. 11, 1997

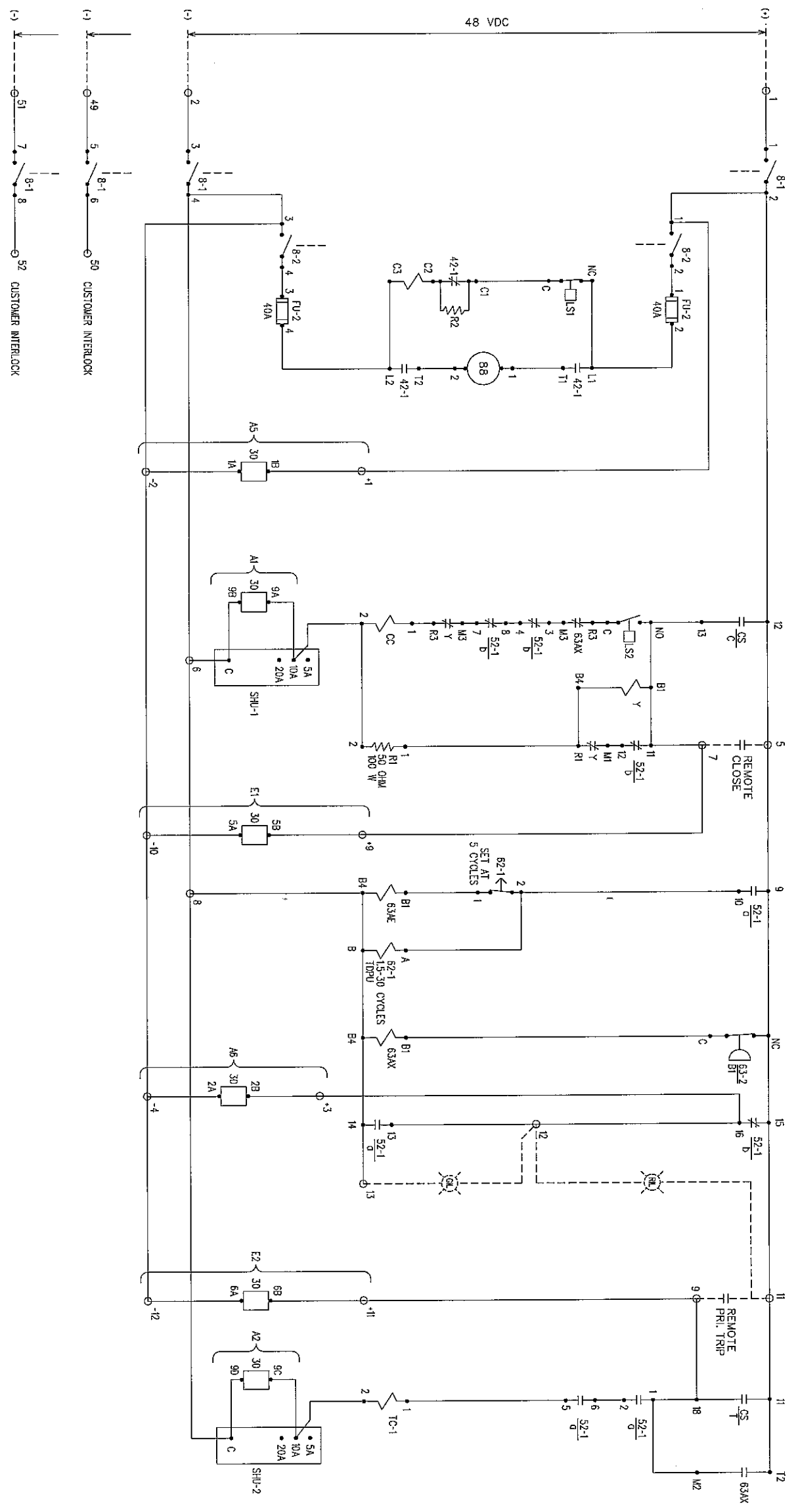


AC CONTROL SYSTEM

CONTROL HOUSE HEATER SYSTEM

<p>CUSTOMER: SOUTHERN CALIFORNIA EDISON CUST. SPECIFICATION NO. A22-1992</p>	
<p><small>This drawing is the property of ABB POWER T&D CO. INC. and contains proprietary and confidential information which may not be disclosed, used or described other than expressly authorized by ABB POWER T&D CO. INC.</small></p>	
<p>SCHEMATIC DIAGRAM AC CONTROL TYPE 12PRA31-20</p>	
<p>ABB ABB POWER T&D CO. INC. 125 Theobald Ave. Greensburg, PA 15601</p>	
<p>COO DMC JAGROSTNIK SCALE: 1" = 1'-0" ASST. DMC 8804-13-01</p>	<p>TOLANEC JAMES WOOD PROJECT NO. 999D146 SHEET NO 2 OF 5</p>
<p>BA JEM</p>	<p>JAS</p>

REV	DESCRIPTION & DATE
01	JUNE 20, 1997
FU-2 WAS RATED 30 AMPS. JEM JAS	
02	AUG. 6, 1997
DEVICE 30, TERMINAL 1B WAS 1C, 2B WAS 2C, 5B WAS 5C & 6B WAS 6C. JEM JAS	
03	AUG. 11, 1997



BREAKER CONNECTOR
FOR RESPONSE RECORDER

ITEM	DESCRIPTION	CABLE WIRE NO.
E1	CLOSE EVENT (TRIGGER SIGNAL)	9, 10
E2	TRIP EVENT (TRIGGER SIGNAL)	11, 12
A1	CLOSE COIL CURRENT	17, 18
A2	TRIP COIL CURRENT	19, 20
A5	DC VOLTAGE	1, 2
A6	C3 LIGHT CIRCUIT	3, 4

STAGE	CONTACTS	SE	SP
1	11-1-1-1-18	X	X
	12-1-1-1-13	X	X
	15-1-1-1-14	X	X
2	21-1-1-1-17	X	X
	22-1-1-1-23	X	X
	23-1-1-1-24	X	X
	24-1-1-1-24	X	X
	26-1-1-1-27	X	X

CONTROL SWITCH
ELECTRO SWITCH * 74202B
SPRING RETURN

CUSTOMER: SOUTHERN CALIFORNIA Edison
CUST. SPECIFICATION NO. AZZ-1992
This drawing is property of ABB Power T&D Co. Inc. and contains
proprietary and confidential information which must not be disclosed, used or
reproduced in any form without the express written authorization of ABB Power T&D Co. Inc.

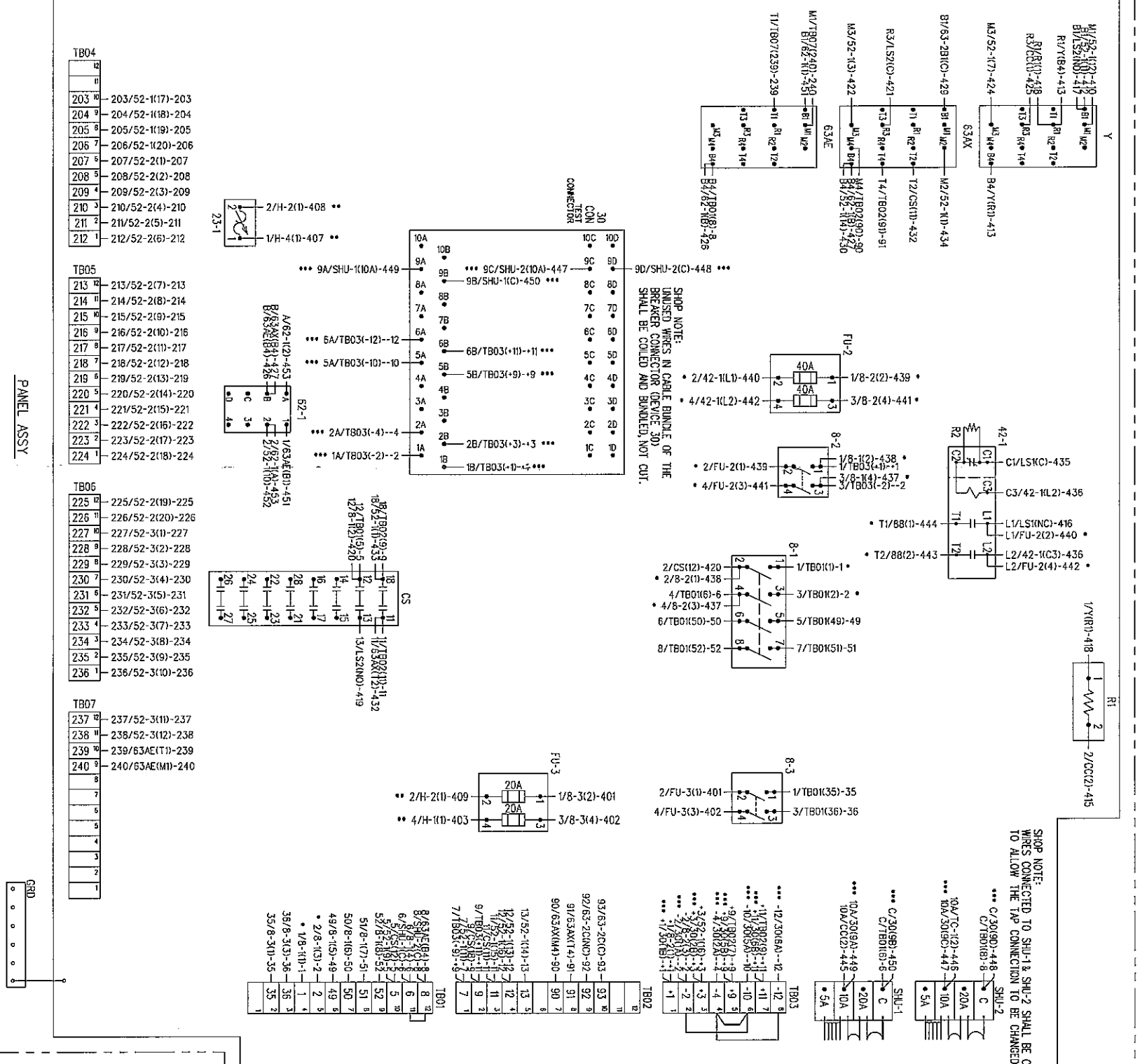
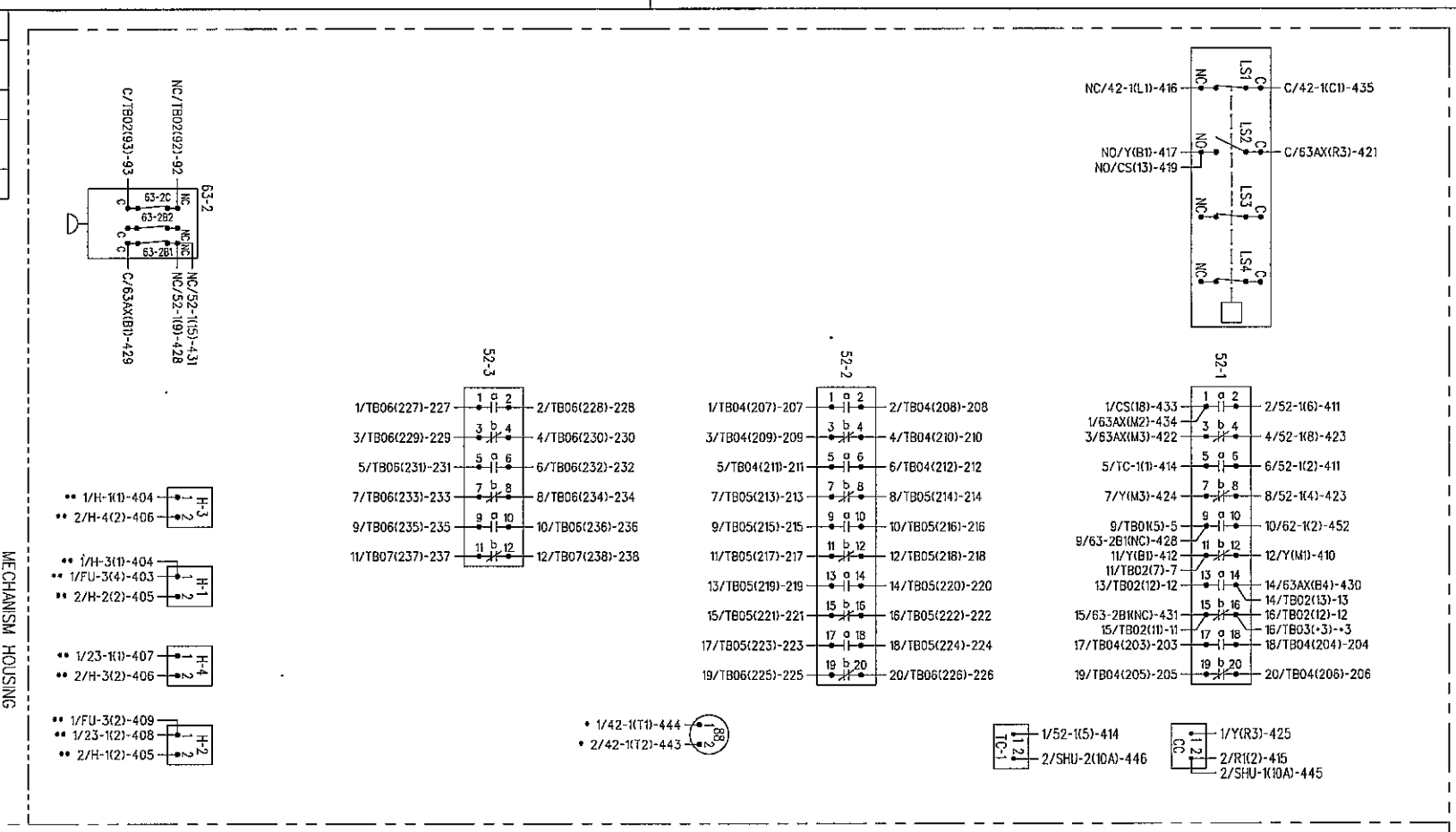
ABB
ABB POWER T&D CO. INC.
125 Thebold Ave. Greensburg, PA 15601
TYPE 12PNA3-20
DC CONTROL
SCHEMATIC DIAGRAM

SCALE: 1" = 12"
CND ENG: INDUSTRION
ASST ENG: 0000431-01
DESIGN: JEM
CHECK: JAS
DATE: 8/11/97
SHEET NO. 3 OF 5
REV: 03

REV.	DESCRIPTION & DATE
01	JUNE 20, 1997
02	AUG. 6, 1997
03	AUG. 11, 1997

8-2 & FU-2 RELOCATED. FU-2 WAS 30A *10 AWG SIS. JEM

WRING REVISED PER CHANGES ON SCHEMATIC SHEET 3. JEM



SHOP NOTE: UNUSED WIRES IN CABLE BUNDLE OF THE BREAKER CONNECTOR DEVICE 300 SHALL BE COILED AND BUNDLED, NOT CUT.

SHOP NOTE: Wires connected to SHU-1 & SHU-2 SHALL BE OF SUFFICIENT LENGTH TO ALLOW THE TAP CONNECTION TO BE CHANGED IN THE FIELD.

SHOP NOTE: 10 AWG SIS 14 AWG HTR special wire

CUSTOMER: SOUTHERN CALIFORNIA Edison
 CUST. SPECIFICATION NO. 422-8992

ABB POWER T&D CO. INC.
 125 Theobald Ave., Greensburg, PA, 15601

999D146
 SHEET NO 4 OF 5