

REFERENCE DRAWINGS:

ELECTRICAL SYMBOLS AND ABBREVIATIONS TY-47-101

MAIN SINGLE LINE DIAGRAM TY-47-103

480V STATION SERVICE AND DC SWITCHBOARD LAYOUT TY-47-107



RECORD DRAWING

NO.	DATE	REVISIONS	BY	CHK.	APPD.	INSPECTED
2	5/20/88	RECORD DWG.	LH	JKR	EE	
1	7/15/87	REVISED BREAKER SYMBOLS, RATINGS	RFD	JKR	RJS	
0	3/25/88	ISSUED FOR CONSTRUCTION	RFD	JKR	EE	

CONSULTING ENGINEERS
INTERNATIONAL ENGINEERING COMPANY, INC.
A MEMBER OF THE HOLDINGS COMPANY
180 HOWARD STREET, SAN FRANCISCO, CALIFORNIA 94108
2627 OLD SEWARD HIGHWAY, ANCHORAGE, ALASKA 99502

DESIGNED: JKR DRAWN: RFD/LH CHECKED: OYS RECOMMENDED: RS
APPROVED: [Signature]

ALASKA POWER AUTHORITY
ANCHORAGE, ALASKA

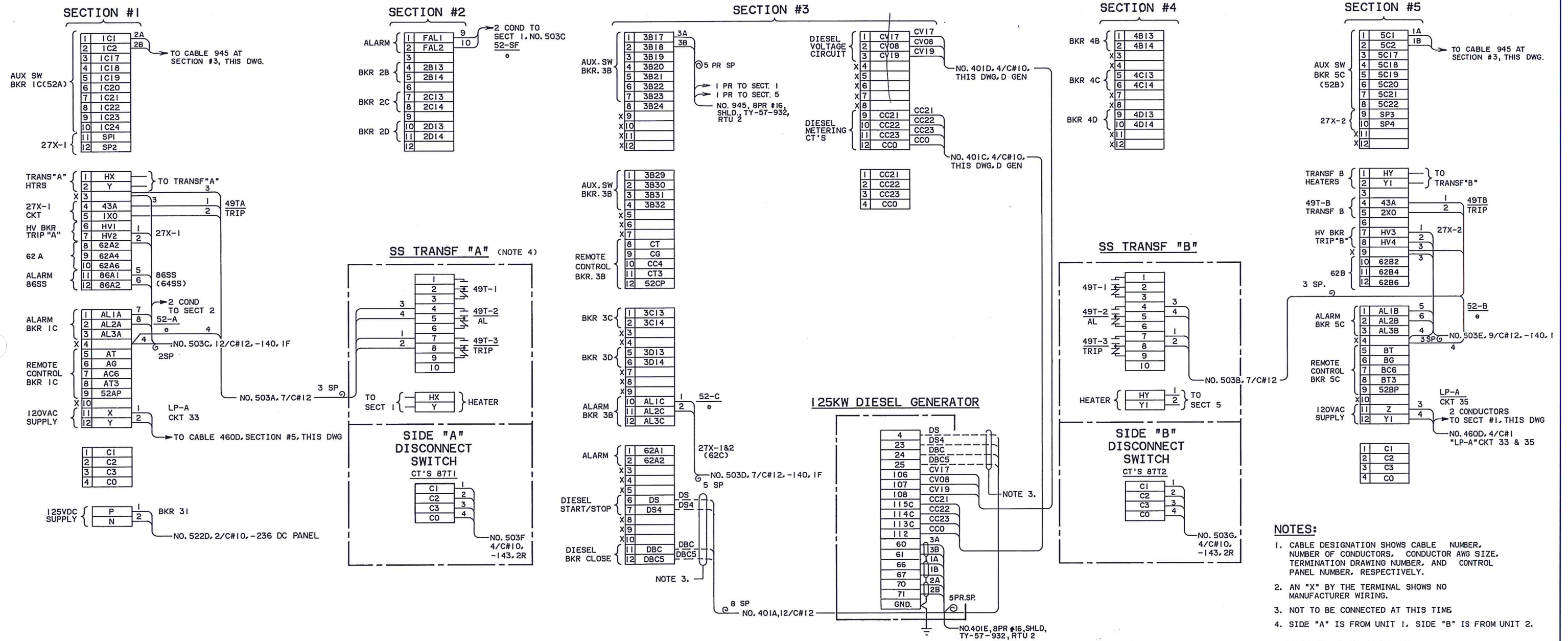
TYEE LAKE HYDROELECTRIC PROJECT
TYEE LAKE POWERPLANT
480V STATION SERVICE
SINGLE LINE DIAGRAM

TY-47-104

SHEET OF _____ REV. 2

ECO NO. _____

480V STATION SERVICE SWITCHGEAR



- NOTES:**
- CABLE DESIGNATION SHOWS CABLE NUMBER, NUMBER OF CONDUCTORS, CONDUCTOR AWG SIZE, TERMINATION DRAWING NUMBER, AND CONTROL PANEL NUMBER, RESPECTIVELY.
 - AN "X" BY THE TERMINAL SHOWS NO MANUFACTURER WIRING.
 - NOT TO BE CONNECTED AT THIS TIME
 - SIDE "A" IS FROM UNIT 1, SIDE "B" IS FROM UNIT 2.
- REFERENCE DRAWINGS:**
- | | |
|--|---------------|
| 1. WESTINGHOUSE SCHEMATIC DIAGRAMS | I079965 TO 67 |
| WIRING DIAGRAMS | I080041 TO 45 |
| DSL-TRANSF WIRING DIAGRAM | 4620C94 |
| CT'S WIRING DIAGRAM | SMWA118 |
| 2. AMPCO - DIESEL GEN. AC & DC SCHEMATIC | 82-102-04 |
| 3. SCHEMATIC DIAGRAM | TY-47-126 |

PROJECT: Southeast Alaska Power Agency - Tyee Lake Powerhouse - Electrical			
DESIGNER/PROJECT ENGINEER: International Engineering Company, Inc.			
NO.		DESIGN/CONSTRUCTION/ASBUILT REVISION	REVIEWED BY/DATE
5			
4			
3			
2			
1	Changed to SEAPA boarder	MLH 4/13/21	
0	R49 - Record Drawing	LM 3/30/84	KK 3/30/84



NO.	DRAWING NO./SHEET	REFERENCE DRAWING/DETAIL/PLAN/SECTION DESCRIPTION

DRAWING NAME: Tyee Lake Power Plant 480V Station Service Switchgear Connection Diagram

REF DWG NO: TY-47-156

DRAWING NO: H02-D-47-2002-R01

SHEET OF

POWER DISTRIBUTION PANEL "PDP-A"										
CIRCUIT NO.	CIRCUIT IDENTIFICATION	LOAD		CIRCUIT BREAKER RATINGS			CABLE			REMARKS
		HP	KW	FRAME SIZE A	NO. OF POLES	TRIP RATING A	CABLE NO.	NO. OF CONDUCT	SIZE	
1	GOVERNOR OIL PUMP, G-1	5.0	-	100	3	20	105A	4/C	#12	
2	GOVERNOR OIL PUMP, G-1	5.0	-	100	3	20	105B	4/C	#12	
3	MACHINE FLOOR POWER OUTLET, 60A	-	-	100	3	75	470	4/C	#4	
4	COOLING WATER PUMP NO. 1	10.0	-	100	3	20	427	3-1/C	#12	
5	COOLING WATER PUMP NO. 2	10.0	-	100	3	20	428	3-1/C	#12	
6	COOLING WATER PUMP NO. 3	10.0	-	100	3	20	429	3-1/C	#12	
7	DRAINAGE PUMP	10.0	-	100	3	20	431A	3-1/C	#12	
8	TURBINE FLOOR POWER OUTLET, 60A	-	-	100	3	75	426	4/C	#4	
9	AIR COMPRESSOR NO. 1	15.0	-	100	3	25	421A	4/C	#10	
10	AIR COMPRESSOR NO. 2	15.0	-	100	3	25	422A	4/C	#10	
11	TURBINE FLOOR HEATERS, 1F	-	13.2	100	3	25	419	3-1/C	#10	
12	MACHINE FLOOR HEATERS	-	12.0	100	3	25	465	4/C	#10	
13	TURBINE FLOOR HEATERS, 1G	-	10.0	100	3	20	425	3-1/C	#10	
14	GENERATOR FLOOR HEATERS	-	20.0	100	3	30	484	4/C	#10	
15	LIGHTING TRANSFORMER "LT-A"	-	45 KVA	100	3	70	460A	4/C	#4	
16	AUXILIARY ROOM UNIT HEATER UH-1D	-	3.3	100	3	20	446	4/C	#12	
17	GENERATOR SPACE HEATER, UNIT NO. 1	-	4.4	100	3	20	114	4/C	#12	
18	OIL LIFT PUMP, UNIT NO. 1	7.5	-	100	3	20	107	4/C	#12	
19	OIL LIFT PUMP, UNIT NO. 2	7.5	-	100	3	20	207	4/C	#12	
20	SPARE	-	-	100	3	20	-	-	-	

POWER DISTRIBUTION PANEL "PDP-B"										
CIRCUIT NO.	CIRCUIT IDENTIFICATION	LOAD		CIRCUIT BREAKER RATINGS			CABLE			REMARKS
		HP	KW	FRAME SIZE A	NO. OF POLES	TRIP RATING A	CABLE NO.	NO. OF CONDUCT	SIZE	
1	GOVERNOR OIL PUMP, G-2	5.0	-	100	3	20	205A	4/C	#12	
2	GOVERNOR OIL PUMP, G-2	5.0	-	100	3	20	205B	4/C	#12	
3	VENTILATING UNIT	-	7.5	100	3	20	445	4/C	#12	
4	SWITCHYARD POWER OUTLET, 60A	-	-	100	3	75	669	4/C	#4	
5	ELECTRIC WATER HEATER	-	15.0	100	3	25	441	4/C	#10	
6	DUCT HEATER, EH-1	-	5.0	100	3	20	471	4/C	#12	
7	DUCT HEATER, EH-2	-	2.0	100	3	20	473	4/C	#12	
8	KITCHEN	-	10.0	100	2	20	474	4/C	#12	
9	LIGHTING TRANSFORMER "LT-B"	-	45 KVA	100	3	70	453A	4/C	#4	
10	WELDING MACHINE	-	15.0	100	3	40	408	4-1/C	#8	
11	BATTERY CHARGER BC-1	-	25	100	3	30	409	4-1/C	#8	
12	BATTERY CHARGER BC-2	-	25	100	3	30	410	4-1/C	#8	
13	TURBINE FLOOR POWER OUTLET, 30A	-	-	100	3	40	407	4-1/C	#8	
14	ERECTION AREA HEATER	-	10.0	100	3	20	457	4/C	#10	
15	CRANE	39	-	100	3	70	456	4/C	#4	
16	GOVERNOR KIDNEY LOOP PUMP G-1	1.0	-	100	3	35	-	4/C	#10	
17	GENERATOR SPACE HEATER, UNIT NO. 2	-	4.4	100	3	20	214	4/C	#12	
18	SPARE	-	-	100	3	20	-	-	-	
19	SPARE	-	-	100	3	20	-	-	-	
20	TUNNEL LIGHTING AND TRANSFORMER	-	-	100	3	70	-	4/C	#4	

POWER DISTRIBUTION PANEL "PDP-M"										
CIRCUIT NO.	CIRCUIT IDENTIFICATION	LOAD		CIRCUIT BREAKER RATINGS			CABLE			REMARKS
		HP	KW	FRAME SIZE A	NO. OF POLES	TRIP RATING A	CABLE NO.	NO. OF CONDUCT	SIZE	
1	AIR COMPRESSOR	7.5	-	100	3	20	856	4-1/C	#12	
2	POWER OUTLET, 30A	-	-	100	3	40	861	4-1/C	#8	
3	POWER OUTLET, 30A	-	-	100	3	40	851	4-1/C	#10	
4	HEATER UNIT UH-1	-	10.0	100	3	20	852	3-1/C	#12	
5	HEATER UNIT UH-3	-	10.0	100	3	20	859	3-1/C	#12	
6	HEATER UNIT UH-2	-	10.0	100	3	20	860	3-1/C	#12	
7	LIGHTING TRANSFORMER "LT-M"	-	30KVA 20.0	100	3	40	850	3-1/C	#8	
8	HOUSE NO. 1	-	30 KVA	100	2	100	-	-	-	
9	POWER OUTLET, 30A	-	-	100	3	40	854	4-1/C	#10	
10	HOUSE NO. 2	-	30 KVA	100	2	100	-	-	-	
11	HOUSE NO. 3	-	30 KVA	100	2	100	-	-	-	

POWER DISTRIBUTION PANEL "PDP-IG"										
CIRCUIT NO.	CIRCUIT IDENTIFICATION	LOAD		CIRCUIT BREAKER RATINGS			CABLE			REMARKS
		HP	KW	FRAME SIZE A	NO. OF POLES	TRIP RATING A	CABLE NO.	NO. OF CONDUCT	SIZE	
1	HOIST	15.0	-	100	3	40	802	4-1/C	#8	
2	HYDRAULIC UNIT	5.0	-	100	3	20	815	3-1/C	#12	
3	LIGHTING TRANSFORMER "LT-IG"	-	9KVA 2.0	100	3	30	808	4-1/C	#8	
4	POWER OUTLET, 30A	-	-	100	3	40	807	4-1/C	#8	
5	INLINE FAN	5.0	-	100	3	20	803	4-1/C	#12	
6	HEATER UNIT UH	-	5.0	100	3	20	804	3-1/C	#12	
7	POWER OUTLET, 30A	-	-	100	3	40	814	4-1/C	#8	
8	SPARE	-	-	100	3	20	-	-	-	
9	SPARE	-	-	100	3	20	-	-	-	
10	SPARE	-	-	100	3	40	-	-	-	

REFERENCE DRAWINGS:

- GATE SHAFT, GATE HOUSE ELECTRICAL, SHEET 2 OF 2 TY-31-342
- TYEE LAKE POWERPLANT 480V STATION SERVICE SINGLE LINE DIAGRAM TY-47-104
- POWERHOUSE, CONDUIT LAYOUT PLAN AT GENERATOR FLOOR, EL 43.50 TY-47-190
- POWERHOUSE, CONDUIT LAYOUT PLAN AT MACHINE FLOOR EL 33.00 TY-47-181
- POWERHOUSE, CONDUIT LAYOUT PLAN AT TURBINE EL 29.00 TY-47-182
- TYEE LAKE POWERPLANT CABLE AND CONDUIT SCHEDULE AUXILIARIES TY-47-215
TY-47-216
TY-47-217
TY-47-218
TY-47-219
TY-47-222
- TYEE LAKE POWERPLANT CABLE AND CONDUIT SCHEDULE GATE SHAFT AND GATE HOUSE TY-47-220
- TYEE LAKE POWERPLANT CABLE AND CONDUIT SCHEDULE MAINTENANCE BUILDING TY-31-221
- MAINTENANCE BUILDING ELECTRICAL TY-70-301

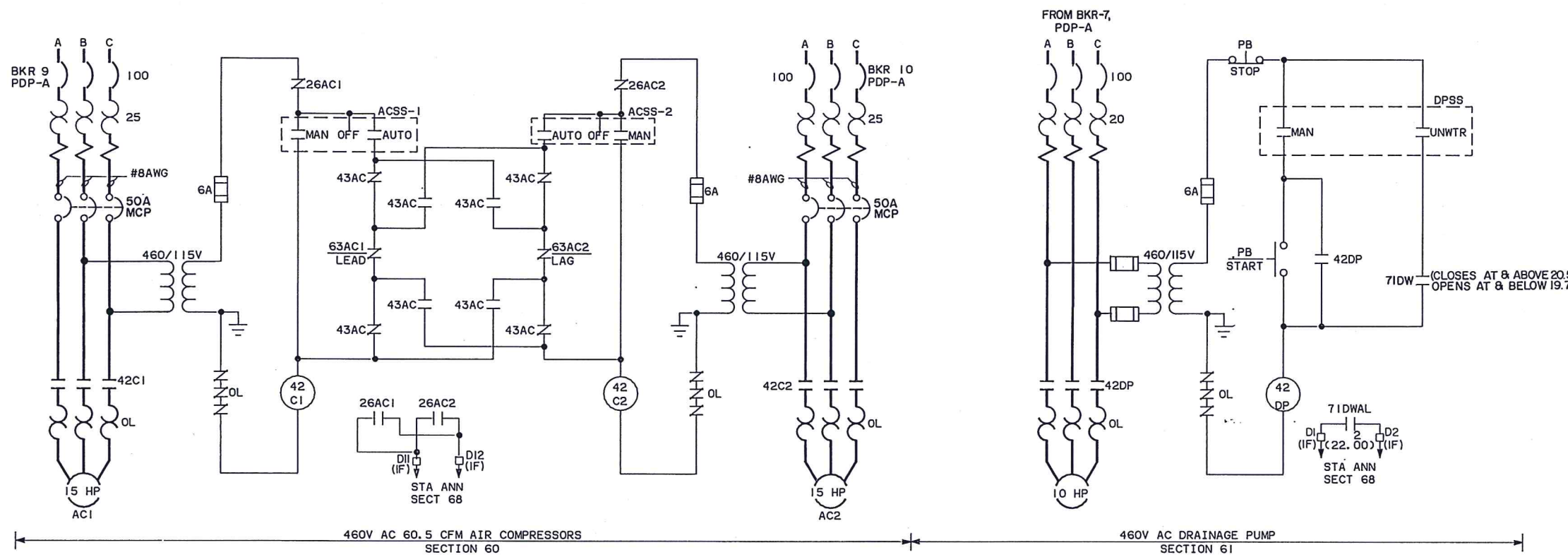


PROJECT: Southeast Alaska Power Agency - Tyee Lake Powerhouse - Electrical			
DESIGNER/PROJECT ENGINEER: International Engineering Company, Inc.			
NO.		JOB #	
DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED BY/DATE	
5			
4			
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2			
1	Changed to SEAPA boarder	MJH 4/13/21	
0	R50 - Governor & Hydraulic System Upgrade	SRY 1/10/06	KJK 1/10/06



NO.	DRAWING NO./SHEET	REFERENCE DRAWING/DETAIL/PLAN/SECTION DESCRIPTION

DRAWING NAME: Tyee Lake Power Plant 480V AC Power Distribution Panelboards Schedule	
REF DWG NO:	TY-47-157
DRAWING NO:	H02-D-47-2003-R01
SHEET	OF

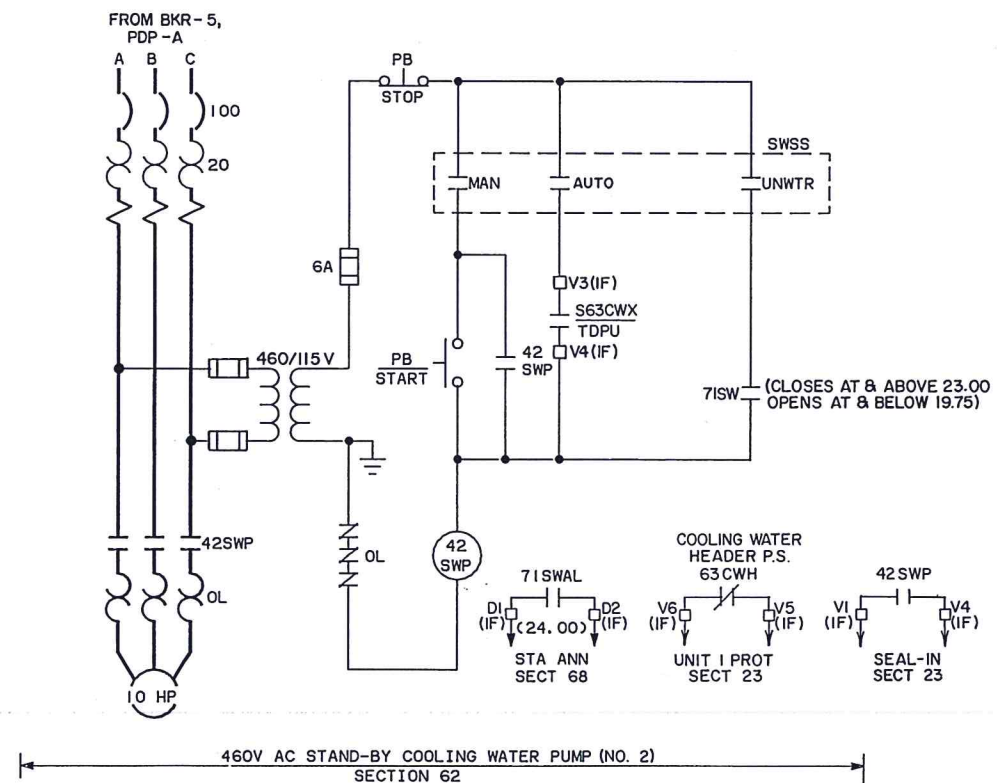


EXPLANATION

DEVICE	LOCATION	DESCRIPTION
26AC1, 2	E	AIR COMPRESSORS TEMPERATURE SWITCH
42C1, C2	E	AIR COMPRESSOR CONTACTORS
42DP	E	DRAINAGE PUMP CONTACTOR
42SWP	E	STAND-BY WATER PUMP CONTACTOR
43AC	E	AIR COMPRESSOR LEAD PUMP SELECTOR SWITCH
63AC1	E	AIR COMPRESSOR TANK PRESSURE SWITCH CLOSURES AT 90 PSIG, OPENS AT 115 PSIG
63AC2	E	AIR COMPRESSOR TANK PRESSURE SWITCH CLOSURES AT 85 PSIG, OPENS AT 115 PSIG
163CW3	G1	UNIT COOLING WATER HEADER PRESSURE SWITCH
71DWAL	E	DRAINAGE PUMP WATER ALARM LEVEL (EL. 22.00')
71DW	E	DRAINAGE PUMP UNWATERING LEVEL SWITCH (CLOSURES AT & ABOVE 20.50, OPENS AT & BELOW 19.75)
71SWAL	E	STAND-BY PUMP WATER ALARM LEVEL (EL. 24.00')
71SW	E	STAND-BY PUMP UNWATERING LEVEL SWITCH
ACSS-1, 2	E	AIR COMPRESSOR MODE SELECTOR SWITCH
DPSS	E	DRAINAGE PUMP MODE SELECTOR SWITCH
SWSS	E	STAND-BY WATER PUMP MODE SELECTOR SWITCH
OL	E	OVERLOAD DEVICE
S63CWX	CCA	STAND-BY PUMP TIME DELAYED START RELAY (23)

- NOTES**
- DEVICES ARE LOCATED ACCORDING TO THE FOLLOWING:
 E ASSOCIATED EQUIPMENT (INCLUDES ASSOCIATED MOTOR CONTROL CABINETS)
 G1 GENERATOR
 CCA MAIN CONTROL SWITCHBOARD
 - TERMINALS "□" IN MAIN CONTROL SWITCHBOARDS AS NOTED.
- REFERENCE DRAWINGS**

480V STATION SERVICE SINGLE LINE DIAGRAM	TY-47-104
SECTION REFERENCE LIST	TY-47-110
UNIT AUXILIARIES SCHEMATIC DIAGRAM	TY-47-122
UNIT PROTECTION SCHEMATIC DIAGRAM, SH. 2 OF 2	TY-47-117
DEVCON SYSTEMS CORP. - CO ₂ SYSTEM	1656



PROJECT: Southeast Alaska Power Agency - Tyee Lake Powerhouse - Electrical			
DESIGNER/PROJECT ENGINEER: International Engineering Company, Inc.		JOB #:	
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED BY/DATE
5			
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2			
1	Changed to SEAPA boarder	MLH 4/16/21	
0	R49 - Record Drawing	LM 3/30/84	KK 3/30/84

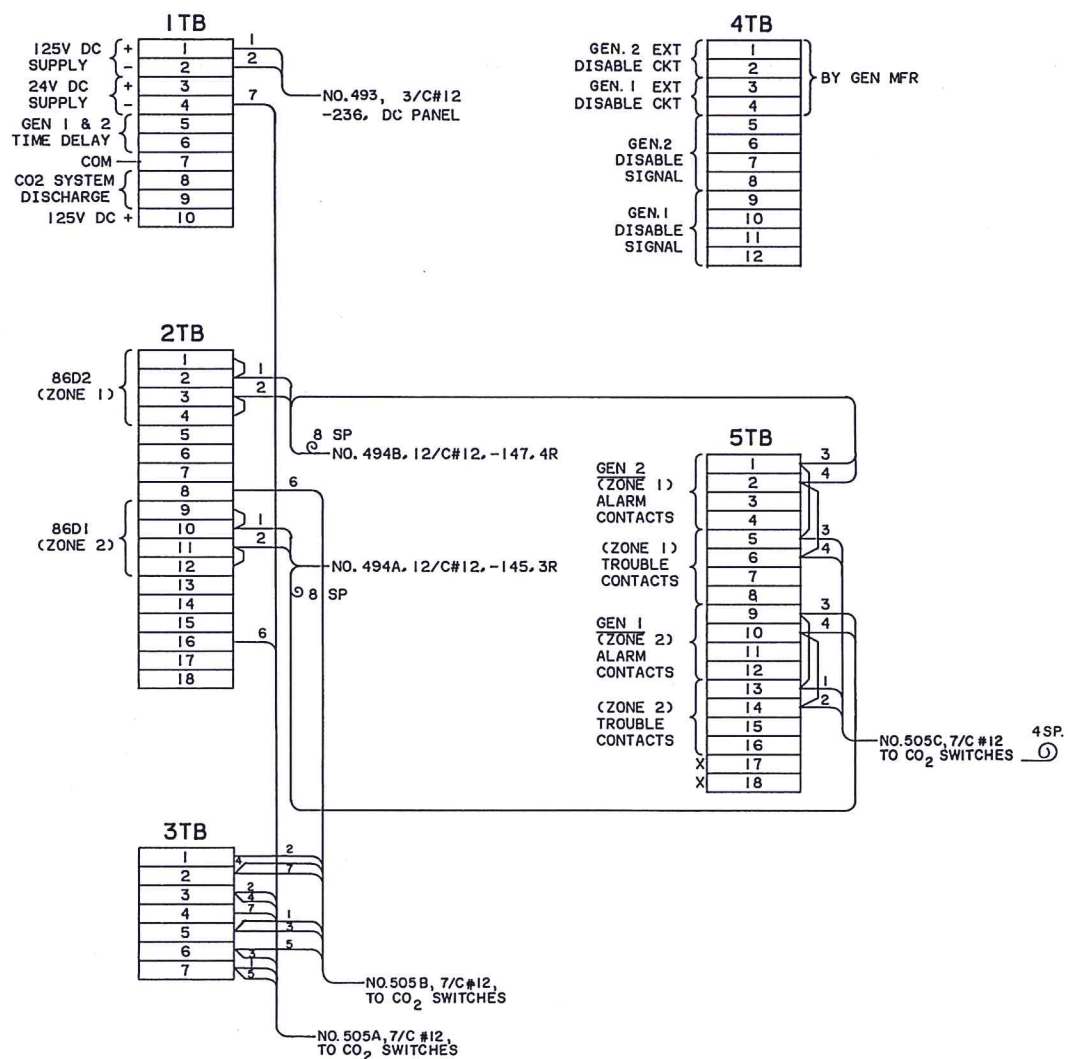


NO.	DRAWING NO./SHEET	REFERENCE DRAWING/DETAIL/PLAN/SECTION DESCRIPTION

DRAWING NAME	
Tyee Lake Power Plant Station Auxiliaries Schematic Diagram	
REF DWG(S):	TY-47-123
DRAWING NO.:	H02-D-47-8003-R01
SHEET OF	

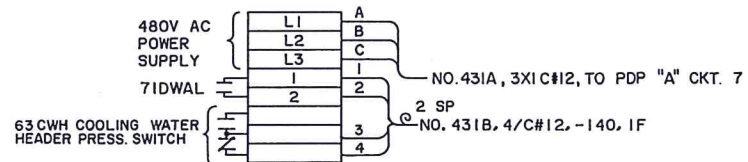
CO₂ SYSTEM CONTROL PANEL

(SEE NOTE 4)



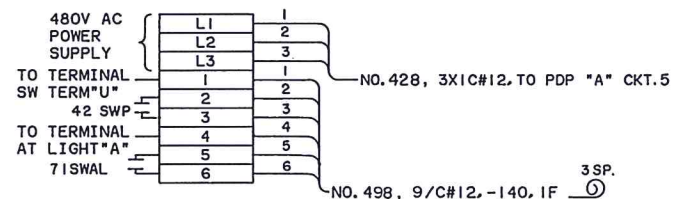
DRAINAGE AND STAND-BY WATER PUMPS

DRAINAGE PUMP

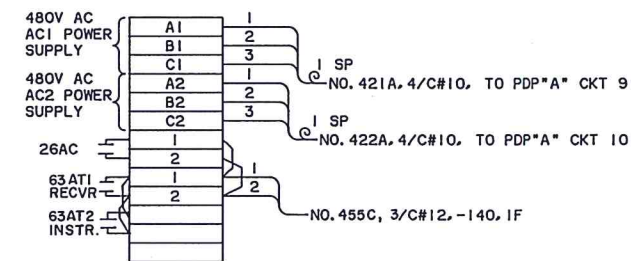


STAND-BY PUMP

(COOLING WATER PUMP NO. 2)



AIR COMPRESSORS



NOTES:

- CABLE DESIGNATION SHOWS CABLE NUMBER, NUMBER OF CONDUCTORS, CONDUCTOR AWG SIZE, TERMINATION DRAWING NUMBER, AND CONTROL PANEL NUMBER, RESPECTIVELY.
- AN "X" BY THE TERMINAL SHOWS NO MANUFACTURER WIRING.

REFERENCE DRAWINGS:

- | | |
|---|------------------------|
| 1. UNIT AUXILIARIES SCHEMATIC DIAGRAM | TY-47-123 |
| 2. DEVCON - CO ₂ SYSTEM CONTROL PANEL SCHEMATIC WIRING DIAGRAM | 1656 SH 2
1656 SH 3 |
| 3. HARRISON WESTERN CORPORATION COOLING, UNWATERING AND DRAINAGE PUMP CONTROL | 139-4-031 |

PROJECT: Southeast Alaska Power Agency - Tyee Lake Powerhouse - Electrical			
DESIGNER/PROJECT ENGINEER: International Engineering Company, Inc. JOB #:			
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED BY/DATE
5			
4			
3			
2			
1	Changed to SEAPA board	MLH 4/16/21	
0	R49 - Record Drawing	LH 3/30/84	KK 3/30/84

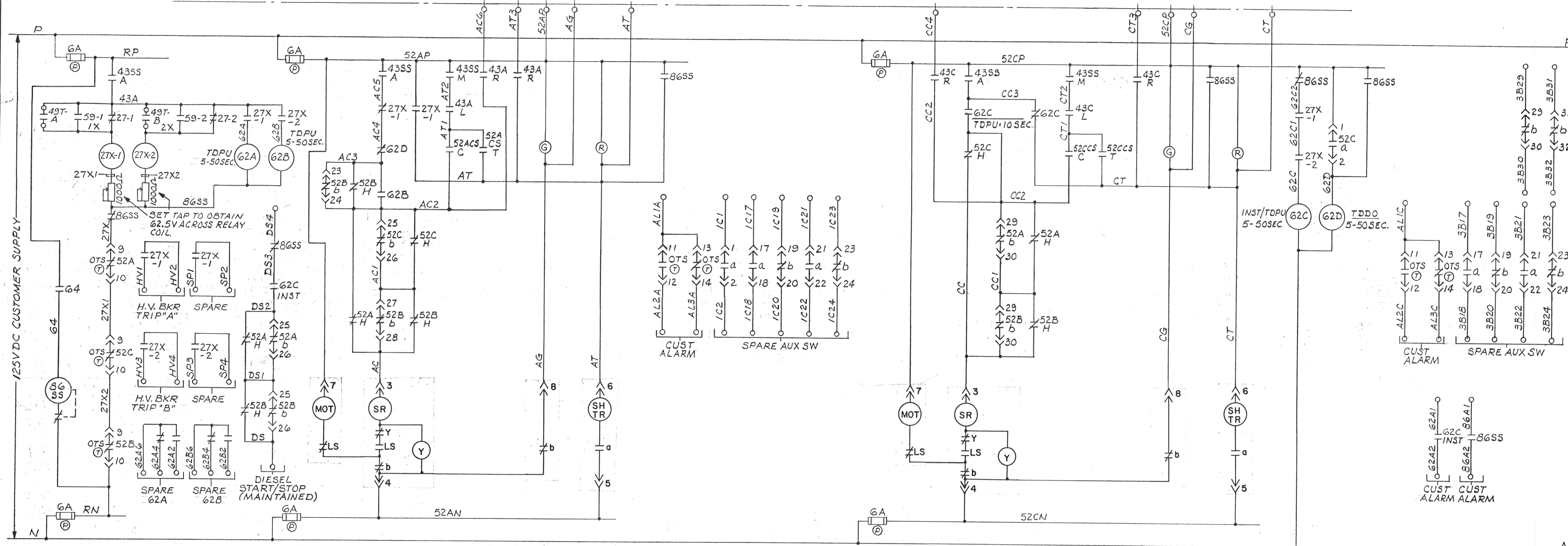


NO.	DRAWING NO./SHEET	REFERENCE DRAWING/DETAIL/PLAN/SECTION DESCRIPTION

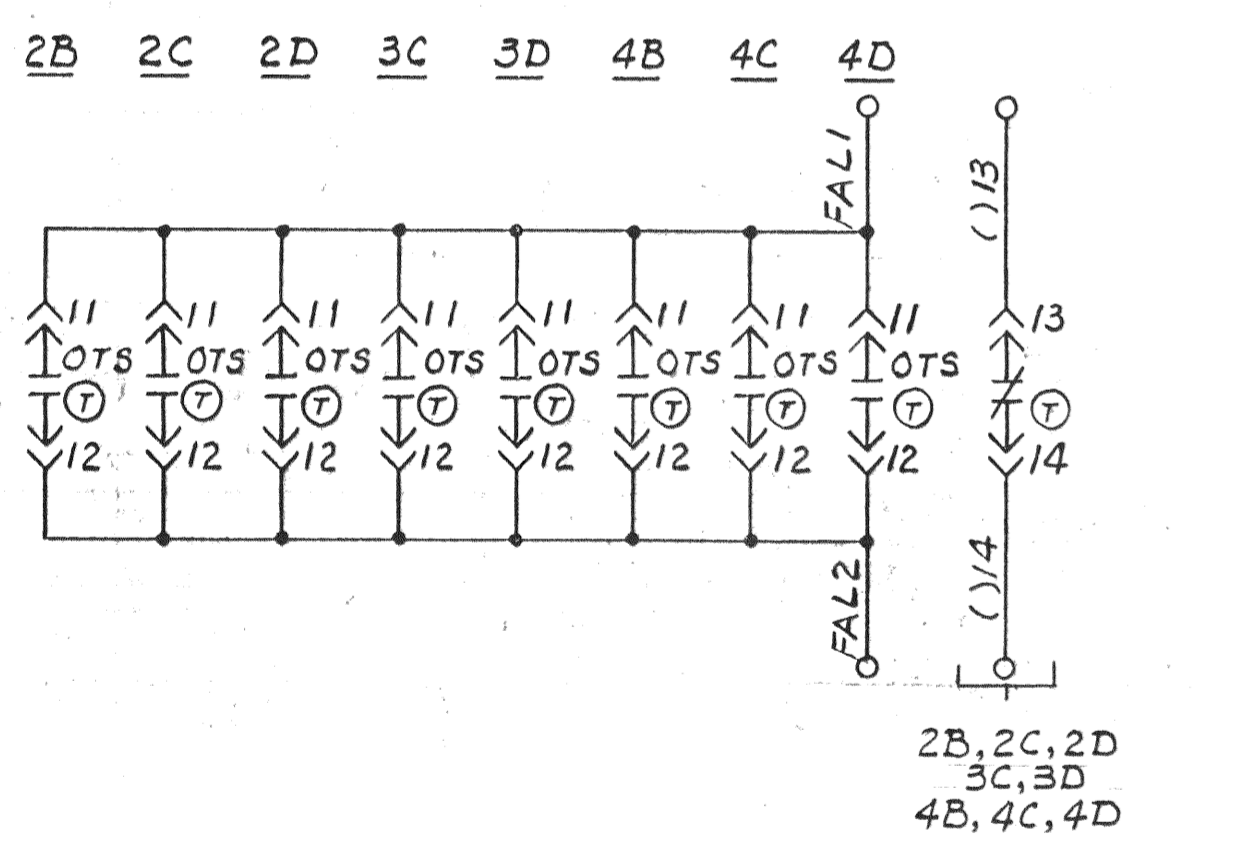
DRAWING NAME: Tyee Lake Power Plant Station Auxiliaries Connection Diagram	
REF DWG NO:	TY-47-155
DRAWING NO:	H02-D-47-8005-R01
SHEET	OF

9966LDI

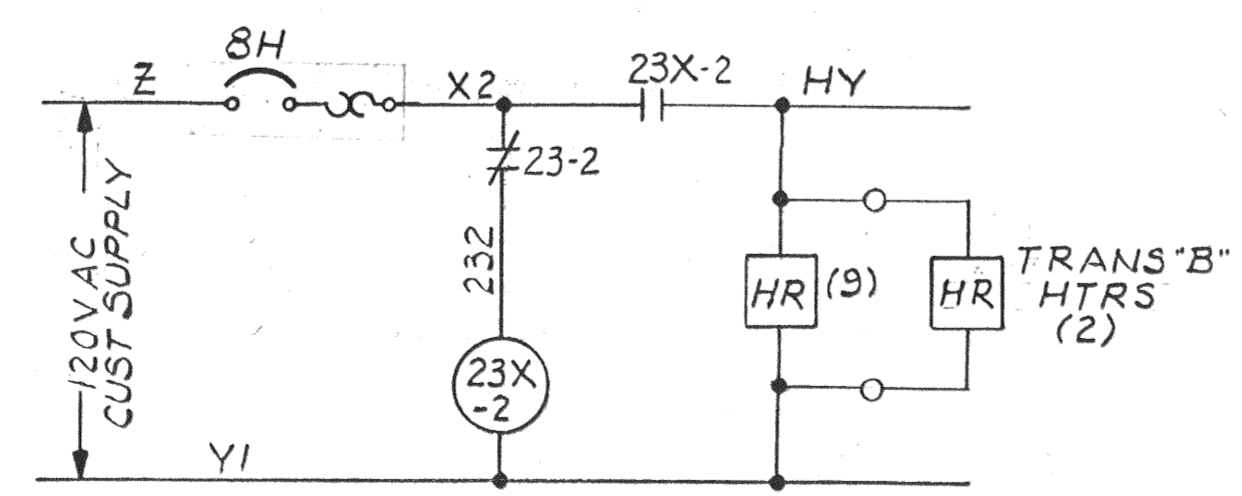
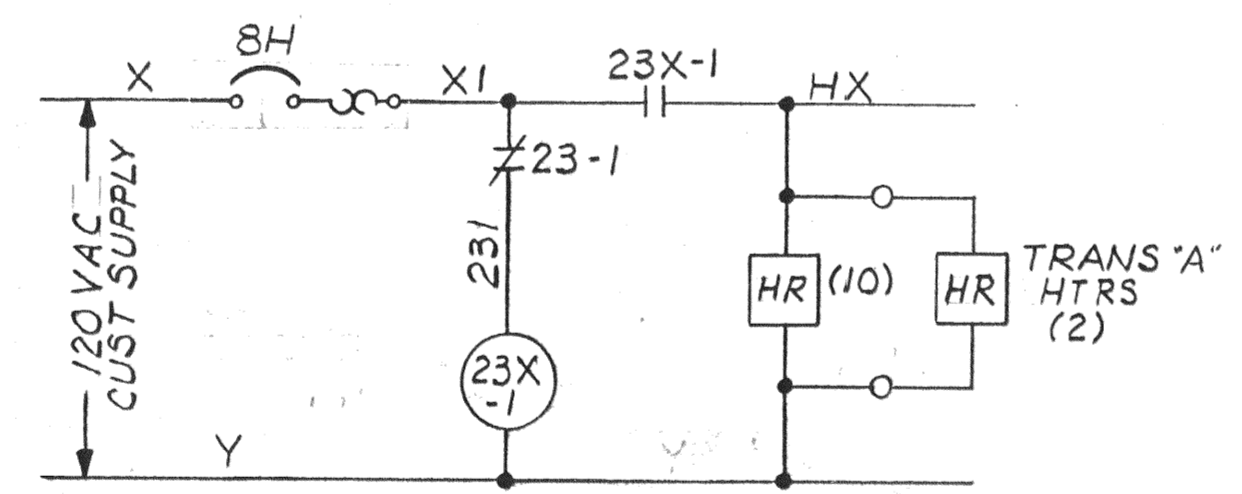
REMOTE



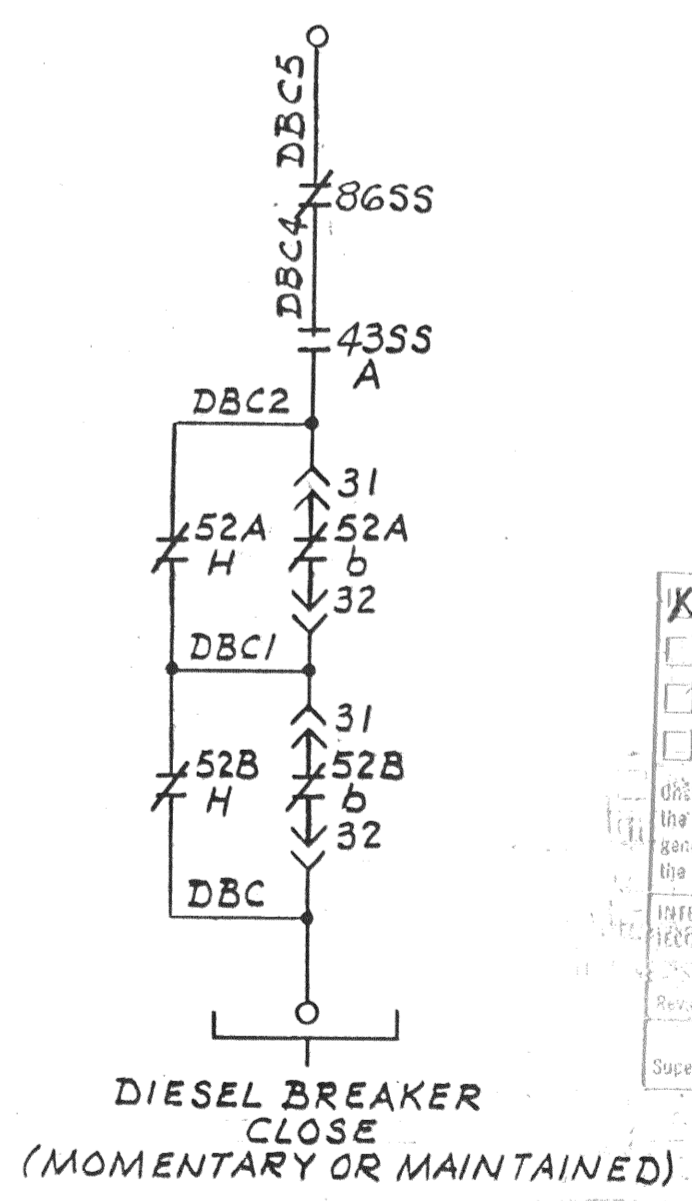
AUTO TRANSFER RELAYS MAIN BKR IC (52A) DS416 GEN BKR 3B (52C) DS206



- DESCRIPTION OF OPERATION**
- TEMPERATURE DEVICE 49T (A OR B) WILL CLOSE AT 200° F
 - DEVICE 49T (A OR B) WILL THEN ACTIVATE 27X-1 OR 27X-2 AND INITIATE THE REGULAR TRANSFER SEQUENCE
 - THE HIGH VOLTAGE BREAKER MUST BE TRIPPED OUT VIA AUX. CONTACT 27X-1 OR 27X-2 IN ORDER TO REMOVE VOLTAGE FROM THE 480V MAIN BUS
 - WHEN OVER-TEMPERATURE CONDITION IS CORRECTED AND SYSTEM IS RESTORED, DEVICE 59 WILL PICK-UP 27X-1 OR 27X-2 (RESET COIL) AND WILL RETURN SYSTEM TO NORMAL (AND HI-TEMP CONTACT 49T (A OR B) WILL HAVE TO BE OPEN)

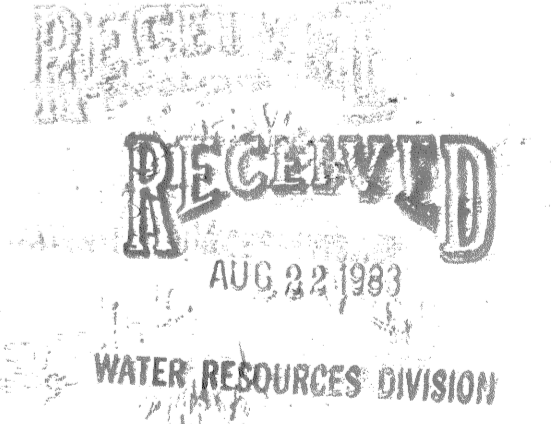


~ HEATER SCHEMES ~



PROCEED WITH CHANGE
 PROCEED AS CORRECTED
 REVERSE AND RESUBMIT
 REJECTED

DATE: 8/29/83
 SUPERVISOR: [Signature]



1 S.O. 27Y7481 CHANGE
 2 27Y7481 SUB I NOT RECORDED. DWG NOT FOR C.A. SEPARATE HTR SCHEMES WERE NOT SHOWN. DEV 49T-A, B IN AUTO TRANS DEV 59 WAS NOT SHOWN. MO BKR PARA LECALAM CKT WAS NOT SHOWN. BKR ICE 5B SCHEMES REVISED PER CUST MARKED PRINT. DIESEL BKR CLOSE SCHEME WAS NOT SHOWN.
 3 27Y7481 DWG REVISED PER TEST FLOOR MARKED PRINT. DEV 27X-1, 27X-2 WERE SHOWN AS ELEC. RESET. SPARE CONTACTS FOR 27X-1, 27X-2, 62A & 62B WERE NOT SHOWN. TIME SET FOR AG-9 START RELAYS WAS 0-30 SEC.
 OJ Kuan 7/6
 (6) AUG 03 1983

- 0 - TERMINAL BLOCK POINT**
- H - CELL SWITCH SHOWN WITH BREAKER IN TEST OR WITHDRAWN POSITION
 - ◆ - MOUNTED IN REAR
 - - FUTURE EQUIPMENT
 - ▲ - MOUNTED ON REAR OF SUB-ASSEMBLY
 - Ⓟ - PULL-OUT TYPE FUSE BLOCK
 - () - USE COMPARTMENT NO. FOR WIRE PREFIX
 - Ⓢ - SHORT CIRCUITING TERMINAL BLOCK
 - HR - HEATER
- ENG REF DWG 1D79965
 NOTE TO CUSTOMER
 LOCATION OF APPARATUS, WIRES OR CABLES MUST NOT BE DETERMINED FROM DIAGRAM. PANEL CONNECTIONS SHOWN AS VIEWED FROM REAR EXCEPT AS NOTED.
 CONNECTIONS ARE FOR PHASE SEQUENCE 1-2-3.
 DIAGRAMS, DEVICE FUNCTIONS AND NUMBERS ARE ANSI STANDARD.

HO2-D-53-V0023-R49

WESTINGHOUSE ELECTRIC CORPORATION
 EAST PITTSBURGH, PA. 15112 U.S.A.

TITLE: ALASKA POWER AUTHORITY
 TYEE LAKE PROJECT
 LVME'DS'SWGR 480V 3PH 60HZ SUBSTA.
 SCHEMATIC DIAG.

SIZE: FROM NO. 1000, Dwg No. 1D79966, Scale 6600

CONTINUED ON DWG 1D79967

6474C18

NOTE:

MAIN BUS IS 1600A BOLTED COPPER 3Ø-3W

EXTERIOR FINISH TO BE STANDARD LIGHT GRAY WITH CHARCOAL GRAY BKR. DOORS - INTERIOR FINISH TO BE GLOSS WHITE, APPLY PER DWG 687C657

CONN. PER FIG. 2
DWG. 309C810

CONN. PER FIG. 2
DWG. 309C810

<input checked="" type="checkbox"/>	PROCEED WITHOUT CHANGE
<input checked="" type="checkbox"/>	PROCEED AS CORRECTED
<input type="checkbox"/>	REVISE AND RESUBMIT
<input type="checkbox"/>	REJECTED

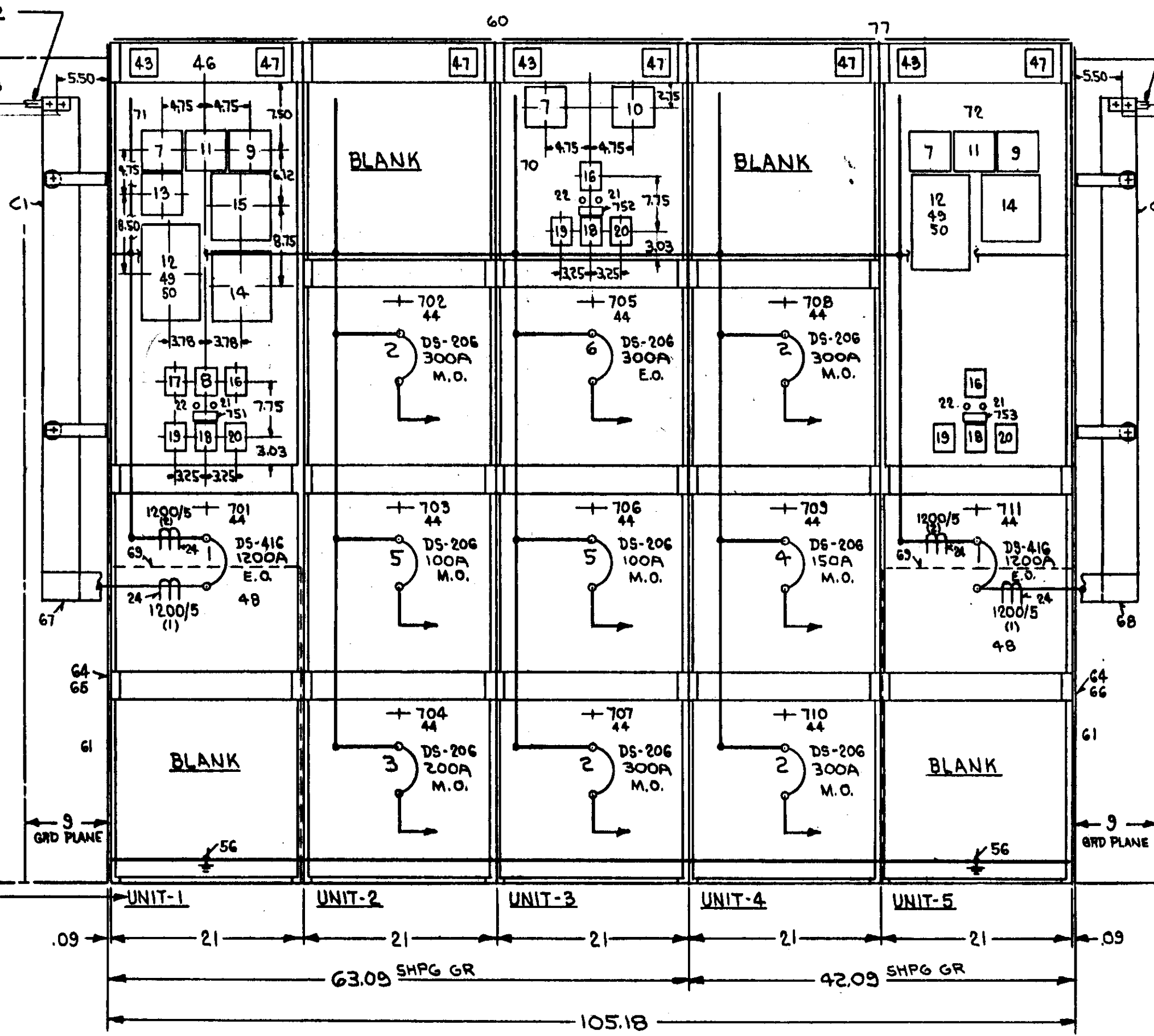
Checked by IECO is for conformance with the design concept of the project and the general coordination of production. Permission to proceed with fabrication is general only and shall not in any respect relieve or diminish the responsibility of the Contractor for full compliance with the requirements of the Contract Documents.

INTERNATIONAL ENGINEERING COMPANY, INC.
IECO Contract No.

Reviewed by: AK Date: 4-16-83
Superv. by: AK Date: 4-19-83

750 KVA D5L TRANSFORMER
H.V. 13.8 KV L.V. 480
S.O. DBV2581
O.L. DWG. 5027C80

750 KVA D6L TRANSFORMER
H.V. 13.8 KV L.V. 480
S.O. DBV2981
O.L. DWG. 5027C80



CUSTOMER AND COMPUTER UNIT NOS

UNIT-1 UNIT-2 UNIT-3 UNIT-4 UNIT-5
 .09 21 21 21 21 21 .09
 63.09 SHPG GR 42.09 SHPG GR
 105.18
 FRONT VIEW

RECEIVED
MAR 24 1983

WATER RESOURCES DIVISION

H02-C-53-V2014-R49

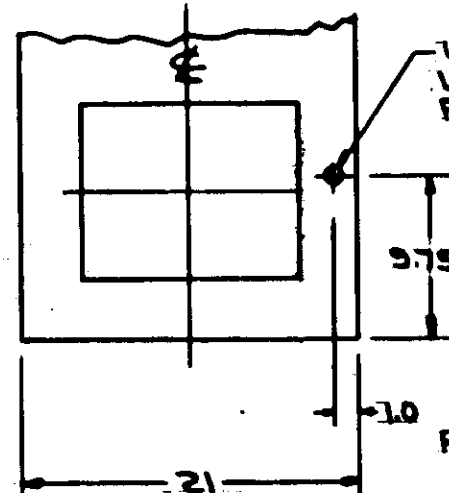
GA PO-15050-UY2	REVISION	1	50 2777481	2	SUB 1 WAS NOT RECORDED AND WAS FOR CA - DWG WAS INCOMPLETE FOR MFG. DRESCHER 2-28-83 4/22/83-1-83 Kamm 1/1	6474C18	TO TOLERANCE PER 848800 UNLESS OTHERWISE SPECIFIED	NEXT ASSY	EMB 6474C18 TO REF DWG 6474C23	DATE	1-5-83	IECO Control Number: IECO 2355 WAT-29	SWITCHGEAR DIVISION
IT.	50 2777481	2	SUB 1 WAS NOT RECORDED AND WAS FOR CA - DWG WAS INCOMPLETE FOR MFG. DRESCHER 2-28-83 4/22/83-1-83 Kamm 1/1	6474C18	TO TOLERANCE PER 848800 UNLESS OTHERWISE SPECIFIED	NEXT ASSY	EMB 6474C18 TO REF DWG 6474C23	DATE	1-5-83	IECO Control Number: IECO 2355 WAT-29	SWITCHGEAR DIVISION	Westinghouse Electric Corporation	EAST PITTSBURGH, PA. 15112 U.S.A.
TITLE ALASKA POWER AUTHORITY											TYEE LAKE HYDRO PROJECT - 480V SWGR		
DIMENSIONS IN INCHES											FRONT VIEW		
SIZE F8CH											DWG NO. 6474C18		
SCALE											SHEET 1 OF 1		
											6600		

T22

6474C19

NOTE:
MAIN BUS IS 1600A BOLTED COPPER 3Ø-3W.

SHOP NOTE
ADDITIONAL CUTTING AND DRILLING REQD IN FRONT COMPTE BEFORE ASSY IN 5-6Ø SEE DWG 6474C95 FOR DETAILS

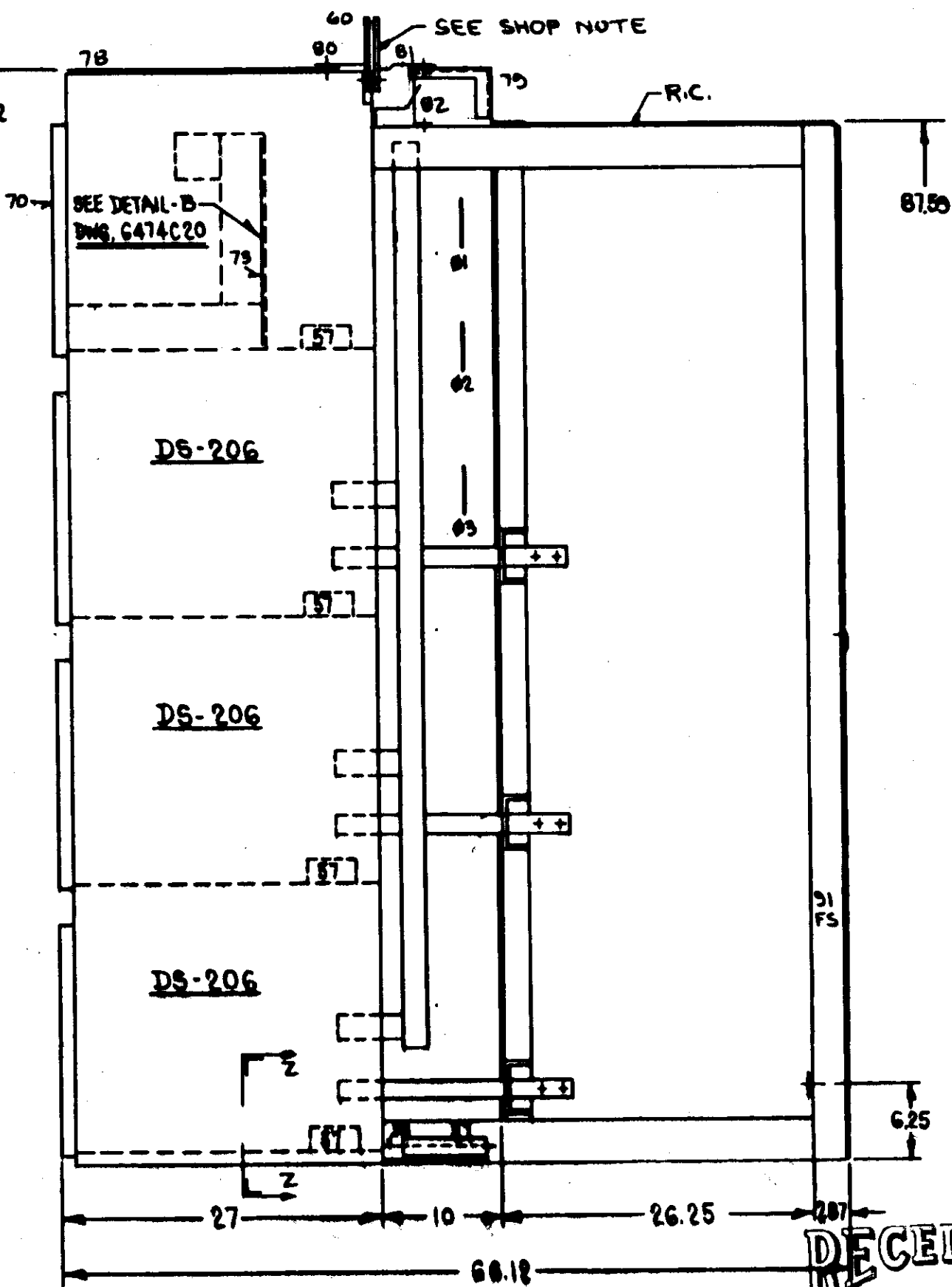
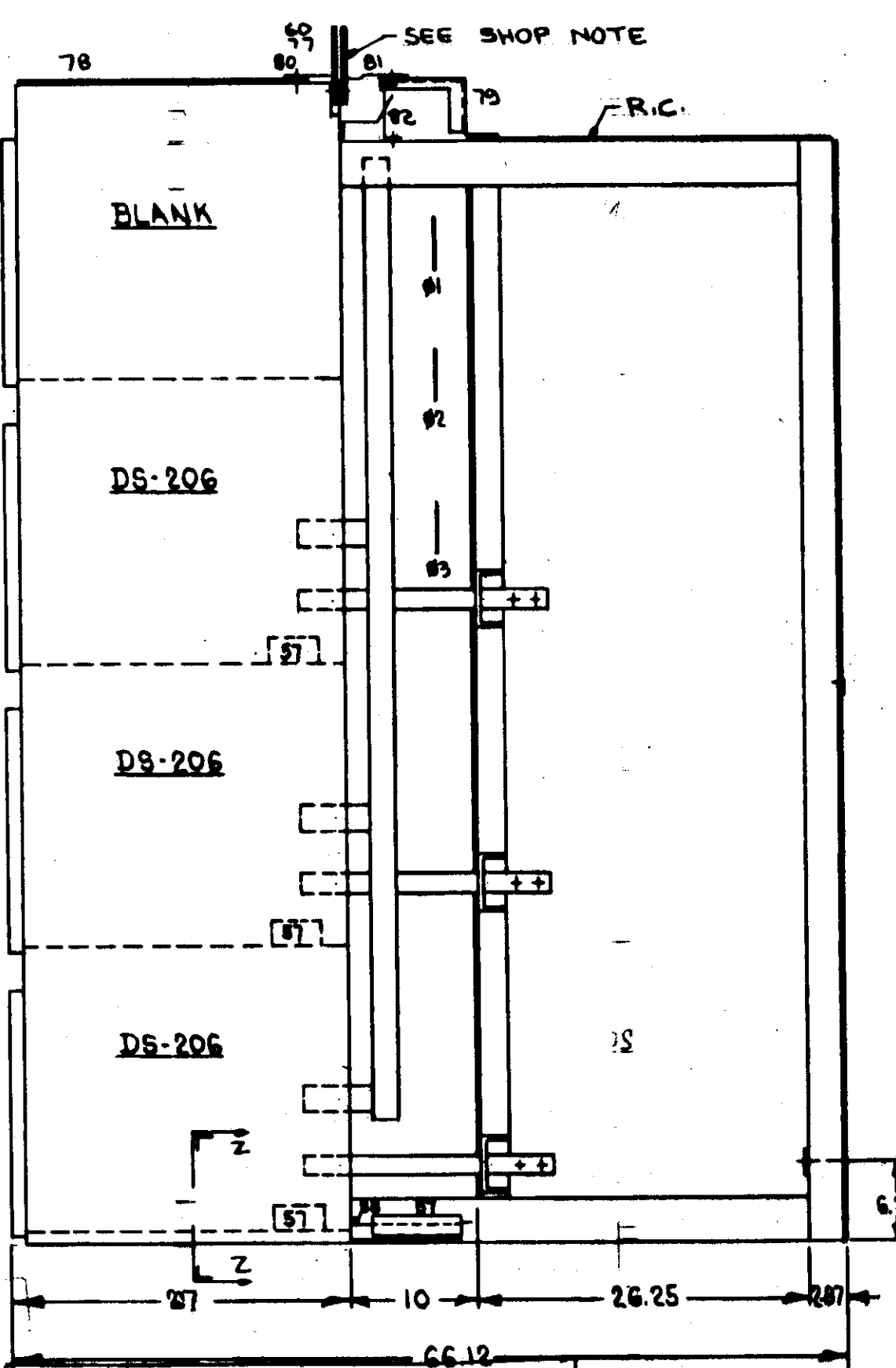
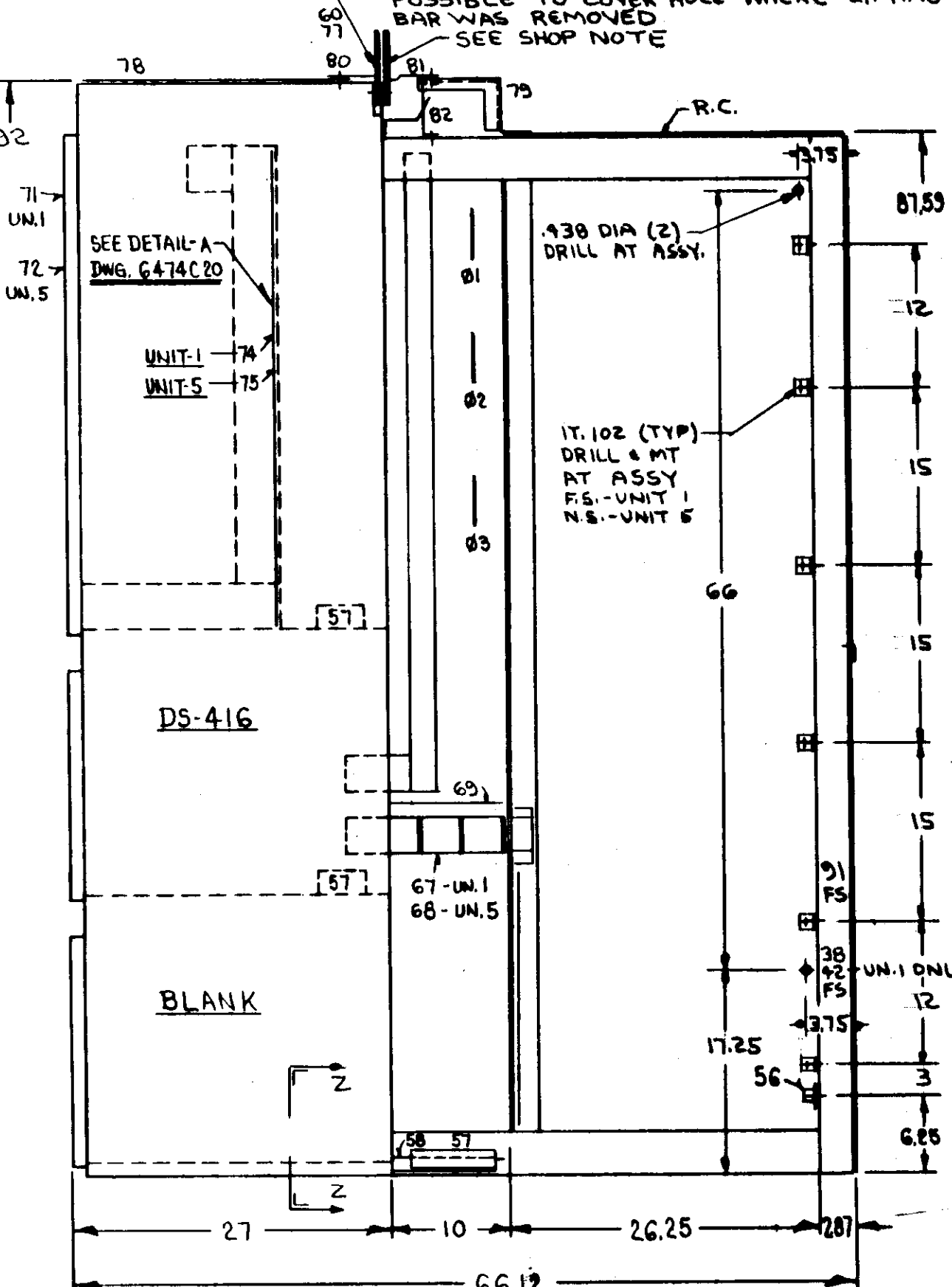


BKR. GRD. NOTE

ALL CRADLES TO BE CONNECTED TO GRD BUS WITH #6 SIS CABLE

R.C. - REMOVABLE COVER TO BE DRILLED FOR CONDUITS IN FIELD BY OTHERS AS REQD.

TO REMOVE LIFTING BARS:
1. REMOVE COVERS (ITS. 80-81)
2. REMOVE BOLTS AND LIFTING BARS
3. REPLACE COVERS (SLIDE EACH COVER TOWARD CENTER OF SWGR AS FAR AS POSSIBLE TO COVER HOLE WHERE LIFTING BAR WAS REMOVED)
SEE SHOP NOTE



SECTION THRU COMPUTER UNITS 1 AND 5
SECTION THRU CUSTOMER UNITS 1 AND 5

SECTION THRU COMPUTER UNIT-3
SECTION THRU CUSTOMER UNIT-3

RECEIVED
JUN 14 1983

WATER RESOURCES DIVISION

H02-C-53-V2015-RAA

IECO Control Number: IECO-2145-WAE-30

PR. WITHOUT CHANGE
PRO. AS SHOWN THRU COMPUTER UNITS 2 AND 4
REVISE AND SHOWN THRU CUSTOMER UNITS 2 AND 4
REJECTED

Checked by IECO is for conformance with the design concept of the project and the general coordination of production. Permission to proceed with fabrication is hereby granted. This does not constitute an assumption of responsibility on the part of IECO for full compliance with the requirements of the Contract Documents.

ENGINEERING COMPANY, INC.
IECO Contract No. _____
Reviewed by: *LR* Date: *6/29/83*
Date: *6/30/83*

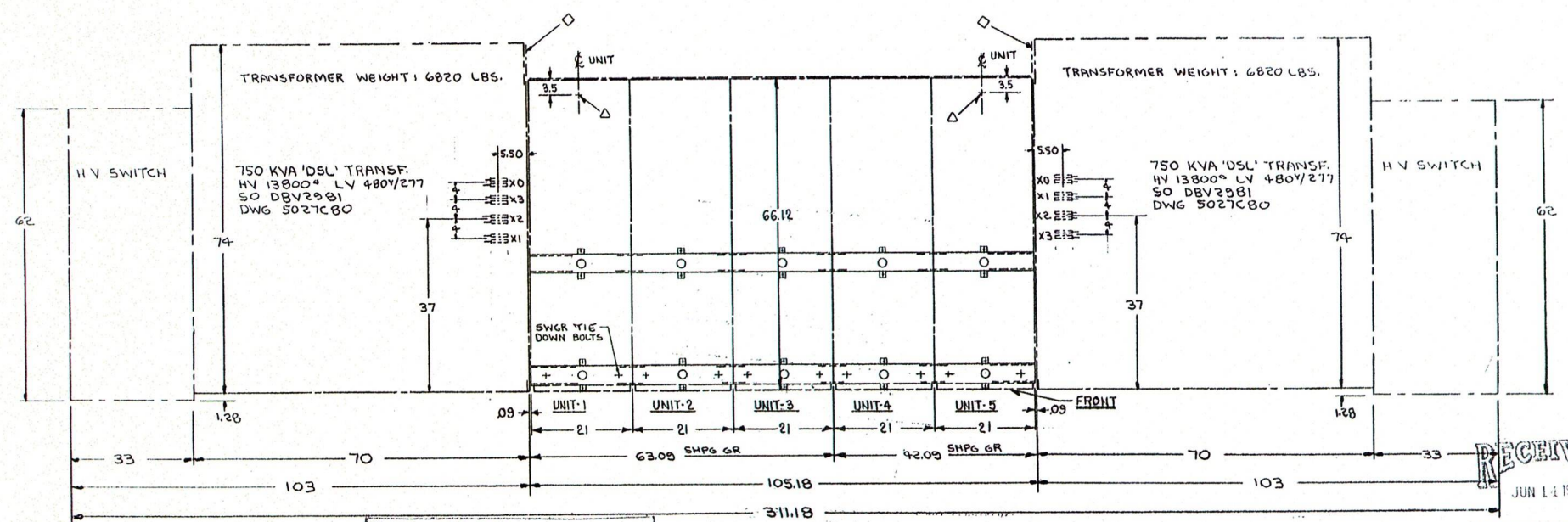
1	2	3	4	5	6	7
S.O. 277481	SO 277481	SO 277481	SO 277481	SO 277481	SO 277481	SO 277481
G.O.PD-15050-UJ2	ITS 38 & 42 WERE NOT ON REAR FRAME OF UN.1	ITS 44 & 46 REMOVED FROM REAR FRAME OF UNIT 1	DRSCHER 4-7-83	DRSCHER 5-13-83	DRSCHER 5-13-83	DRSCHER 5-13-83
IT. REVISION	SUB. 1 WAS NOT RECORDED AND WAS FOR CAT-DWG WAS INCOMPLETE FOR MFG	DRSCHER 3-1-83	DRSCHER 4-7-83	DRSCHER 5-13-83	DRSCHER 5-13-83	DRSCHER 5-13-83
SW 83043	SW 83043	SW 83043	SW 83071	SW 83071	SW 83071	SW 83071

DATE	DATE	SWITCHGEAR DIVISION Westinghouse Electric Corporation PITTSBURGH, PA. 15222 U.S.A.
D.LARGE	1-6-83	
ENG	DATE	TITLE
<i>Kenn</i>	<i>1/11</i>	ALASKA POWER AUTHORITY TYSE LAKE HYDRO PROJECT - 480V SWGR
DR		DIMENSIONS IN INCHES
6474C18		SECTIONS
6474C25		SIZE FOOT
		DWG NO. 6474C19
		SCALE
		SHEET 1 OF 1

REFER TO FLOOR PLAN INFO DWG 6978463 FOR TABULATED DIMS

UNIT	A = UNIT WIDTH	B	C	D	E	F	G	H	K	L	M	CUSTOMER UNIT NUMBER
DS TRANS. UNIT	21	7.38	9.12		20	23.62	25.88		-	18.25		
	30	11.88	13.62		29	23.62	25.88		-	27.25		
	34	13.88	15.62		33	23.62	25.88		-	31.25		
DS-206	21	7.38	9.12	66.12	24	23.62	25.88	10	6.89	18.25	20.12	UNITS 2, 3 & 4
DS-416	21	7.38	9.12	66.12	24	23.62	25.88	10	6.89	18.25	26.25	UNITS 1 & 5
DS-420	21	7.38	9.12		24	23.62	25.88	15	6.89	18.25		
DS-632	21	7.38	9.12		24	23.62	25.88	15	6.25	18.25		
DS-840	34	13.88	15.62		32	31.62	33.88	15	9.38	31.25		
DSL-206	21	7.38	9.12		32	31.62	33.88		6.89	18.25		
DSL-416	21	7.38	9.12		32	31.62	33.88		6.89	18.25		
DSL TRANS. UNIT	21	7.38	9.12		20	31.62	33.88		-	18.25		
	30	11.88	13.62		29	31.62	33.88		-	27.25		
	34	13.88	15.62		33	31.62	33.88		-	31.25		

NOTE:
 Δ - 1/0 TO 300MCM TERM LUG, FOR PURCHASER'S CABLE CONN TO GRD. 6.25" UP FROM FLOOR.
 ◇ - CLOSURE PIECE SUPPLIED WITH TRANSFORMER



PRO... WITHOUT CHANGE
 PRO... AS CORRECTED
 REVISE AND RESUBMIT
 REJECTED

APPROX TOTAL WEIGHT OF SWGR - 8750 POUNDS

DATE: 6/29/83
 DATE: 6/30/83

FLOOR PLAN

H02-C-53-V2019-R49

IECO Control Number: 1850-2148-WAE-34

SWITINGEAR DIVISION
 Westinghouse Electric Corporation
 EAST PITTSBURGH, PA. 15112 U.S.A.

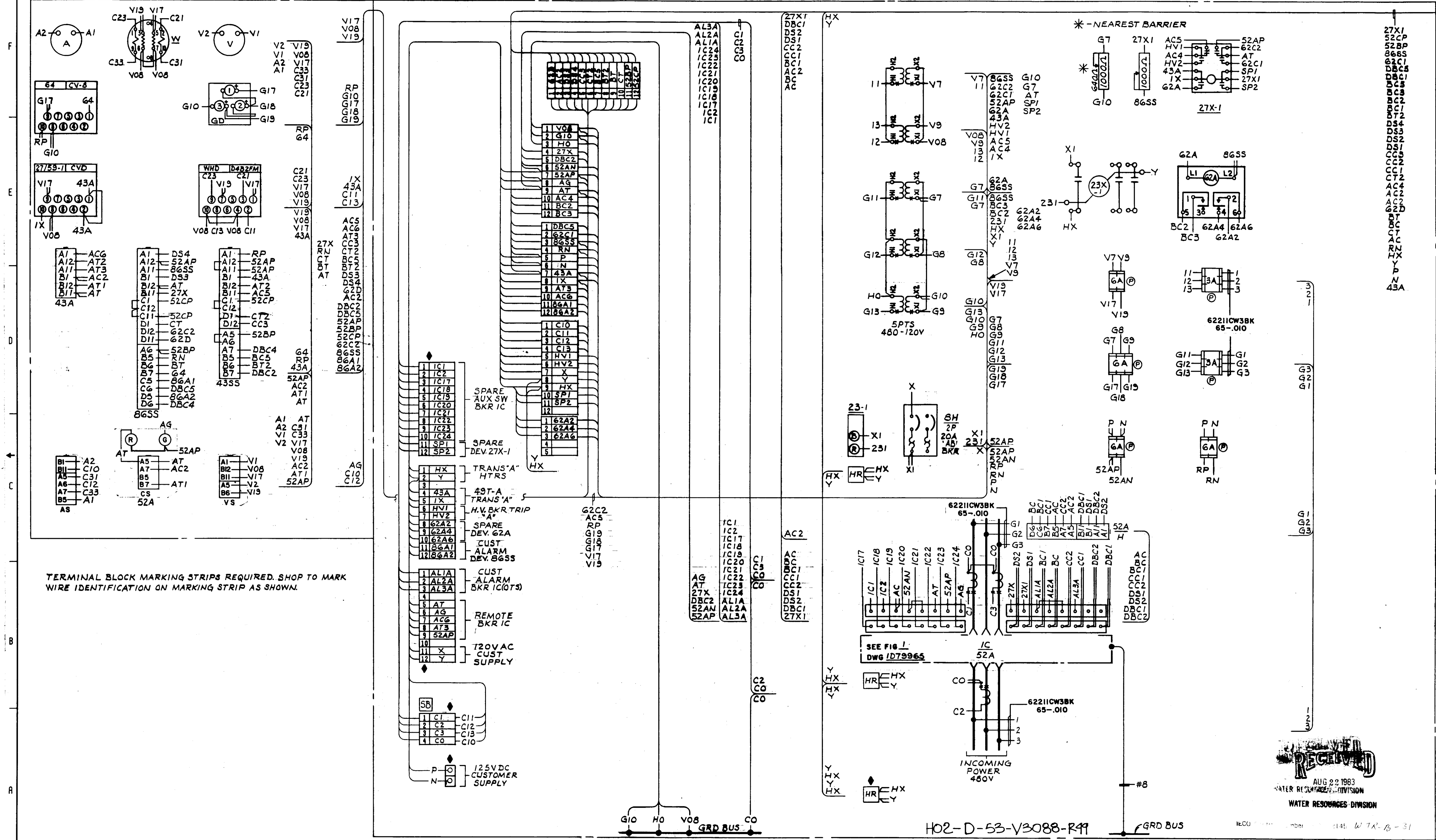
TITLE: ALASKA POWER AUTHORITY
 TYEE LAKE HYDRO PROJECT - 480V SWGR
 DIMENSIONS IN INCHES FLOOR PLAN

SIZE: F8CH
 DWG NO. 6474C23

SCALE: _____ SHEET 1 OF 1

6600

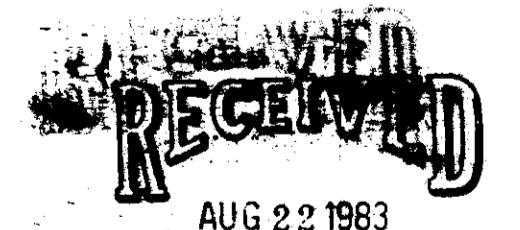
S.O. 2171461	REVISION	DATE	DESCRIPTION
1	1	5/1/83	SUB 1 WAS NOT RECORDED AND WAS FOR CA DRESCHER 2-28-83
2	2	5/1/83	SW 83043
3	3	5/1/83	HW SW DIMS, TRANS & SWGR WEIGHTS AND SWGR TIE DOWN BOLTS WERE NOT ON DRESCHER 4-21-83



TERMINAL BLOCK MARKING STRIPS REQUIRED. SHOP TO MARK WIRE IDENTIFICATION ON MARKING STRIP AS SHOWN.

G10 HO V08 GRD BUS CO

H02-D-53-V3088-R49



AUG 22 1983
WATER RESOURCES DIVISION

1
ISO 27Y7481
CHANGE
G030-15050-DY2
27Y7481
DWG REVISED PER
TEST FLOOR MARKED
PRINT. I.C. RES FOR
DEV 27X-1 WAS NOT
SHOWN. SPARE 62A
CONTACT WAS NOT
SHOWN.
CJ
AUG 03 1983

- H - CELL SWITCH SHOWN WITH BREAKER IN TEST OR WITHDRAWN POSITION
- ◆ - MOUNTED IN REAR
- ◆ - FUTURE EQUIPMENT
- ▲ - MOUNTED ON REAR OF SUB-ASSEMBLY
- Ⓟ - PULL-OUT TYPE FUSE BLOCK
- (1) - USE COMPARTMENT NO. FOR WIRE PREFIX
- SB - SHORT CIRCUITING TERMINAL BLOCK
- HR - HEATER

ENG REF DWG/D79965
NOTE TO CUSTOMER
LOCATION OF APPARATUS, WIRES OR CABLES MUST NOT BE DETERMINED FROM DIAGRAM. PANEL CONNECTIONS SHOWN AS VIEWED FROM REAR EXCEPT AS NOTED.
CONNECTIONS ARE FOR PHASE SEQUENCE 1-2-3.
DIAGRAMS, DEVICE FUNCTIONS AND NUMBERS ARE ANSI STANDARD.

DATE	08/22/83	BY	C. Clark
TITLE	ALASKA POWER AUTHORITY TYEE LAKE PROJECT LVME'D'S SWGR 480V 3PH 60HZ SUBSTA. CONN DIAG UNIT 1		
SIZE	8 1/2 x 11	NO.	1
SCALE		DWG NO.	1D80041
		6600	

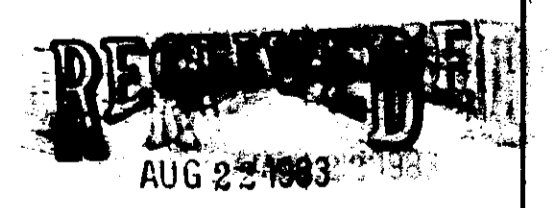
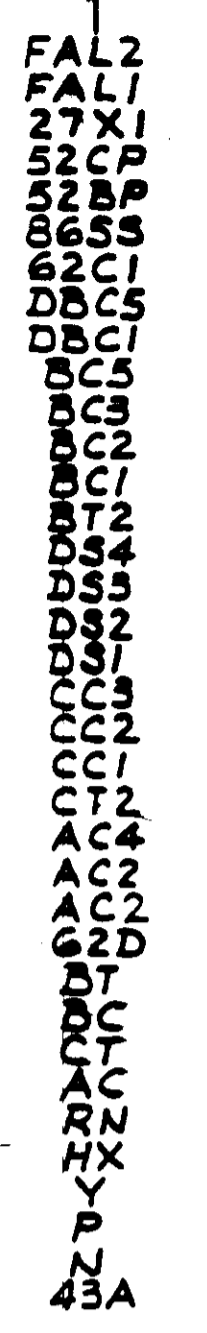
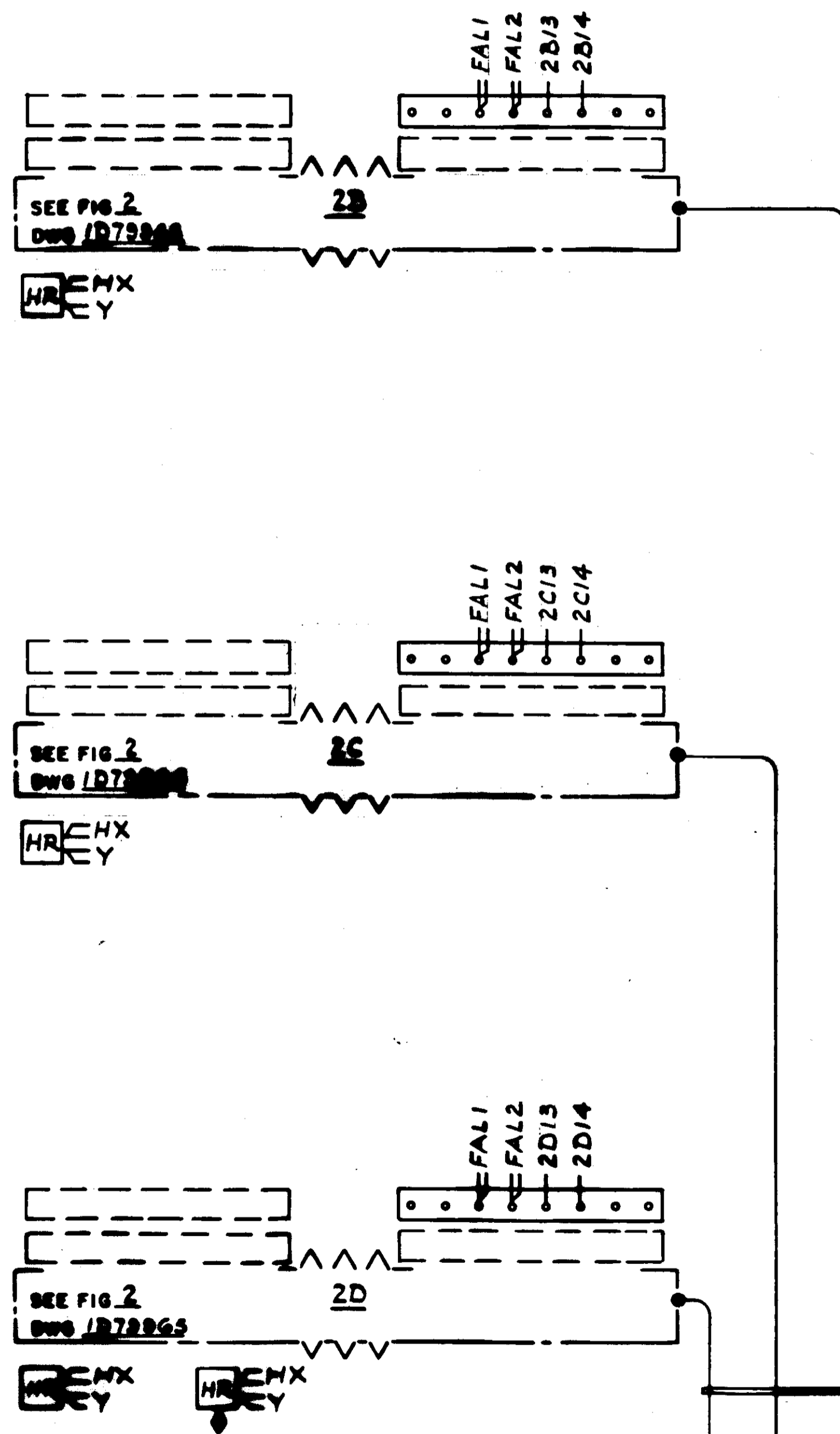
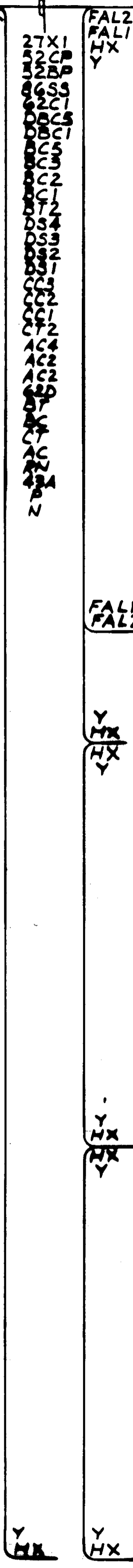
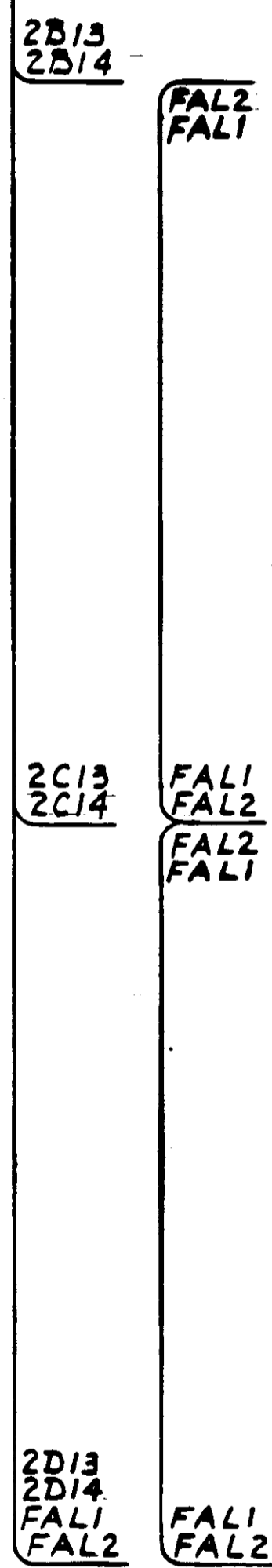
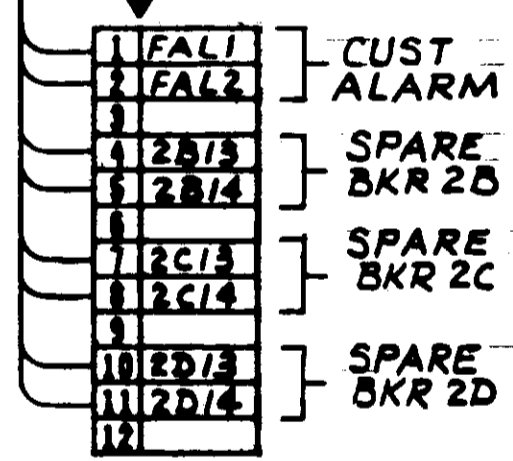
CONTINUED ON DWG 1D80042

UNIT 2 (F.V.)

CONTINUED ON DWG 1D80041

CONTINUED ON DWG 1D80043

TERMINAL BLOCK MARKING STRIPS REQ'D. SHOP TO MARK WIRE IDENTIFICATION ON MARKING STRIP AS SHOWN.



WATER RESISTANT
 HOR-D-53-V3089-R49
 IECO Control Number: IECO 2145-W TR-8-32

1
 SO. 27Y7481
 GO PC-15050-072
 CHANGE
 APR 13 1983
 27Y7481 2
 DWG REVISED PER
 TEST FLOOR MARKED
 PRINT. MINOR CHG'S
 MADE.
 OJ
 Form 2/2
 AUG 03 1983

- H - CELL SWITCH SHOWN WITH BREAKER IN TEST OR WITHDRAWN POSITION
- ◆ - MOUNTED IN REAR
- ◻ - FUTURE EQUIPMENT
- ▲ - MOUNTED ON REAR OF SUB-ASSEMBLY
- ⊖ - PULL-OUT TYPE FUSE BLOCK
- () - USE COMPARTMENT NO. FOR WIRE PREFIX
- SB - SHORT CIRCUITING TERMINAL BLOCK
- HR - HEATER

ENG REF DWG/D79965
 NOTE TO CUSTOMER
 LOCATION OF APPARATUS, WIRES OR CABLES MUST NOT BE DETERMINED FROM DIAGRAM. PANEL CONNECTIONS SHOWN AS VIEWED FROM REAR EXCEPT AS NOTED. CONNECTIONS ARE FOR PHASE SEQUENCE 1-2-3. DIAGRAMS, DEVICE FUNCTIONS AND NUMBERS ARE ANSI STANDARD.

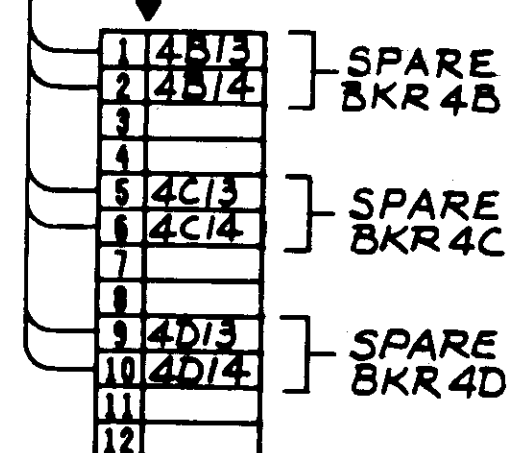
OJ DATE 8/22/83 KUM 3/20	WESTINGHOUSE DIVISION Westinghouse Electric Corporation <small>BRISTOL, PITTSBURGH, PA. 15112 U.S.A.</small> ALASKA POWER AUTHORITY TYEE LAKE PROJECT LVME'DS' SWGR 480V 3PH 60HZ SWGR CONN. DIAG - UNIT 2	SIZE FORM NO. 6600 1D80042	6600
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12 11 10 9 8 7 6 5 4 3 2 1

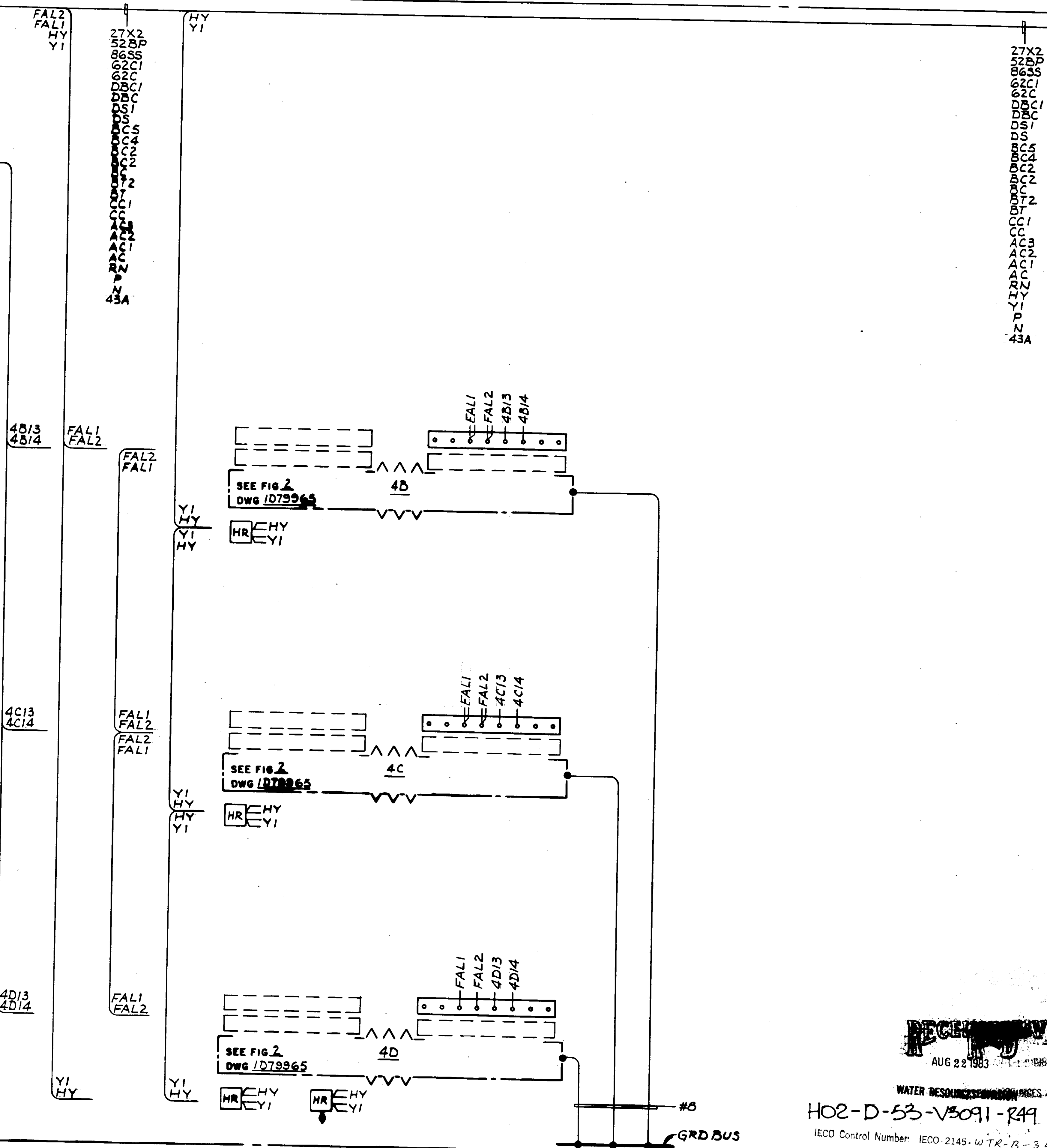
UNIT 4 (REV.)

CONTINUED ON DWG 1D80043

CONTINUED ON DWG 1D80045



TERMINAL BLOCK MARKING STRIP REQ'D. SHOP TO MARK WIRE IDENTIFICATION ON MARKING STRIP AS SHOWN.



REC'D AUG 22 1983

WATER RESOURCES DIVISION
H02-D-53-V3091-R49
IECO Control Number: IECO 2145-WTR-B-34

1	SO. 27Y748/1 G.O. PO. 15850-UY2 CHANGE
2	APR 13 1983 27Y748/1 DWG REVISED PER TEST FLOOR MARKED PRINT. MINOR CHGS MADE. Kum 1/2 19 AUG 83 1:00

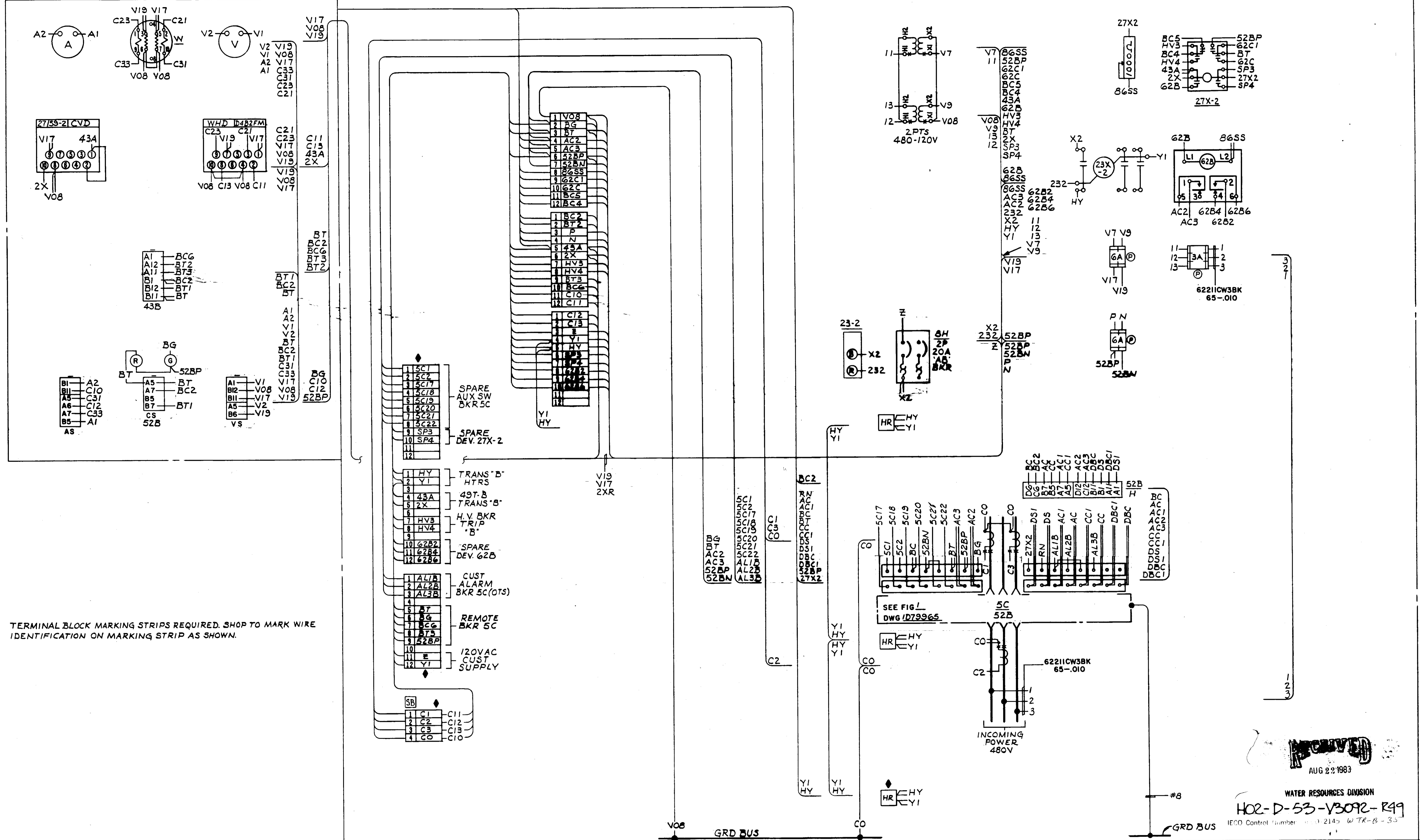
- H - CELL SWITCH SHOWN WITH BREAKER IN TEST OR WITHDRAWN POSITION
- ◆ - MOUNTED IN REAR
- - FUTURE EQUIPMENT
- ▲ - MOUNTED ON REAR OF SUB-ASSEMBLY
- Ⓟ - PULL-OUT TYPE FUSE BLOCK
- (1) - USE COMPARTMENT NO. FOR WIRE PREFIX
- SB - SHORT CIRCUITING TERMINAL BLOCK
- HB - HEATER

ENG REF DWG 1D79965
NOTE TO CUSTOMER
LOCATION OF APPARATUS, WIRES OR CABLES MUST NOT BE DETERMINED FROM DIAGRAM. PANEL CONNECTIONS SHOWN AS VIEWED FROM REAR EXCEPT AS NOTED.
CONNECTIONS ARE FOR PHASE SEQUENCE 1-2-3.
DIAGRAMS, DEVICE FUNCTIONS AND NUMBERS ARE ANSI STANDARD.

DPT# 0J DATE C. Chalk 1/14/83 END FROM 3/20	WESTINGHOUSE DIVISION Westinghouse Electric Corporation EAST PITTSBURGH, PA. 15112 U.S.A. TITLE ALASKA POWER AUTHORITY TYEE LAKE PROJECT LVME "DS" SWGR 480V 3PH 60HZ SUBSTA CONN. DIAG. UNIT 4 SIZE 11x17 SHEET NO. 13 BOOLE 1D80044 0600
---	--

HINGED PANEL (R.V.)

UNIT 5 (F.V.)



CONTINUED ON DWG 1280044

TERMINAL BLOCK MARKING STRIPS REQUIRED. SHOP TO MARK WIRE IDENTIFICATION ON MARKING STRIP AS SHOWN.

RECEIVED
AUG 22 1983

WATER RESOURCES DIVISION
H02-D-53-V3092-R49
IECO Control Number 2145 WTR-B-33

1	ISO 271748/1	DATE	12/1/82
2	27Y748/1	DATE	8/12/83
3	27Y748/2	DATE	8/12/83

DWG REVISED PER
TEST FLOOR MARKED
PRINT, I.K.G. RES FOR
DEV 27X-2. WAS
NOT SHOWN. SPARE
G2B CONTACTS WERE
NOT WIRED

C. Clark 8/12/83

- W - CELL SWITCH SHOWN WITH BREAKER IN TEST OR WITHDRAWN POSITION
- ◆ - MOUNTED IN REAR
- - FUTURE EQUIPMENT
- ▲ - MOUNTED ON REAR OF SUB-ASSEMBLY
- - PULL-OUT TYPE FUSE BLOCK
- () - USE COMPARTMENT NO. FOR WIRE PREFIX
- SB - SHORT CIRCUITING TERMINAL BLOCK
- HR - HEATER

ENG REF DWG 1279965
NOTE TO CUSTOMER
LOCATION OF APPARATUS, WIRES OR CABLES MUST NOT BE DETERMINED FROM DIAGRAM. PANEL CONNECTIONS SHOWN AS VIEWED FROM REAR EXCEPT AS NOTED.
CONNECTIONS ARE FOR PHASE SEQUENCE 1-2-3.
DIAGRAMS, DEVICE FUNCTIONS AND NUMBERS ARE ANSI STANDARD.

DATE	01
DATE	3/30
DATE	3/30
TITLE	ALASKA POWER AUTHORITY TYEE LAKE PROJECT LVME "DS" SWGR 480V 3PH 60HZ SWGR CONN. DIAG - UNIT 5
SIZE	D
SCALE	1/8" = 1"
DWG NO	1280045
6600	6600