



SQUARE D COMPANY

<u>Job Name:</u>	USDA APHIS SUPPLEMENTAL LAB	<u>Square D Quotation Number:</u>	17993430
<u>Job Location:</u>	AMES IA	<u>Quotation Revision Number:</u>	
		<u>Sales Contact:</u>	SMW
		<u>Sales Contact Location:</u>	448
<u>Purchaser:</u>	ELECTRICAL ENGINEER	<u>Customer:</u>	NIKKEL & ASSOC INC
<u>Purchaser PO No.:</u>	D150041	<u>Customer PO No.:</u>	
<u>User:</u>	USDA VETERINARY SVC	<u>Architect:</u>	USDA VETERINARY SVC
<u>User Location:</u>	-	<u>Cons. Engineer:</u>	-
<u>Order Status:</u>	Record		

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SQUARE D FACTORY ORDER NUMBER 17.17993430-001

<u>Equipment Designation</u>	<u>Equipment Type</u>	<u>Document Type</u>	<u>Document Number</u>	<u>Page</u>	<u>Revision Level</u>
	Switchgear	Nameplates			
		Engraved Nameplates	T 17993430-001-EP	1	A
		Rating Nameplates	N 17993430-001-01	1	-
					-
		Bill Of Material			
		Summary Bill Of Material	017-17993430-001-00-01-E	All	1
		Drawings			
		Key Interlock	HVL09-190	1	-
		Elevation/One Line	F 17993430-001-01	1	A
		Top View/Floor Plan & Notes	F 17993430-001-02	1	-
		Control Schematic -	C 17993430-001-01	1	-
		Wiring Diagram -	W 17993430-001-01	1	-

ENGRAVED NAMEPLATES DATA SHEET

AE: Van N. Nguyen
ED:

PRODUCT CODE (MC, ME, SB, MCC) ME__

TYPE (TY)	FIELD/ LETTERS	SIZE (S)	NP HEIGHT	NP WIDTH	CHAR HEIGHT	MAX. LINES	MAX. CHAR/LINE
WB	WHITE/BLACK	A	0.75"	4.6"	3/16"	2	26
BW	BLACK/WHITE	B	0.75"	2.0"	1/8"	3	11
RW	RED/WHITE	C	9001 DEVICE		1/8"	3	14
		D	2.0"	6.0"	5/16"	4	19
		E	1.0"	2.5"	1/8"	4	16
		F	0.75"	2.0"	1/8"	3	11

CODES A-E ARE FOR DOOR MOUNTED DEVICES.
CODE F APPLIES TO INTERNALLY MOUNTED DEVICES.
SPECIAL NAMEPLATES ARE CODED SA, SB, SC, ... WITH ASSOCIATED DETAILS NOTED.

NP #	TYPE	SIZE	QTY	TEXT CONTENT
1	WB	D	1	M/S-1
10	WB	C	1	FUSE BLOWS OR REMOVAL OF FUSE

ENGR: VNN

DATE: August 14, 2003

PG 1 OF 1

STATUS: Record

REV: A

DOC #: T17993430-001-EP

REV	DESCRIPTION	BY	DATE	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---

HVL

LOAD CURRENT INTERRUPTER SWITCH

FACTORY ORDER NO. 17-17993430-001

SWITCH PART NO. 44036-325-50

MANUFACTURE DATE

RATED MAXIMUM VOLTAGE kV 15.0

IMPULSE WITHSTAND (BIL) kV 95

NORM. FREQ. WITHSTAND kV 36

FREQUENCY HZ 60

CONTINUOUS CURRENT A SYM 600

LOAD INTERRUPTING CURRENT A SYM 600

MOMENTARY CURRENT kA ASYM 40

SHORT TIME -- CURRENT kA SYM 25

-- TIME SEC 2

FAULT CLOSING CURRENT kA ASYM 40

FUSE/RATING GOULD 125E

FUSE CATALOG NO. A155F2DSR0125E

INTEGRATED SWITCH & FUSE SHORT CIRCUIT CURRENT kA SYM 50

METAL ENCLOSED SWITCHGEAR

MAIN BUS AMPACITY A 600

MAIN BUS BRACING kA ASYM 40



SQUARE D COMPANY

SMYRNA, TN USA

44036-437-01

SECTION 1

JOB NAME:	USDA APHIS SUPPLEMENTAL LAB	EQUIPMENT DESIGNATION:	
JOB LOCATION:	AMES IA	EQUIPMENT TYPE:	METAL ENCLOSED SWITCHGEAR
DRAWN BY:	CAD	DRAWING TYPE:	RATING NAMEPLATE
ENGR:	VAN N. NGUYEN		
DATE:	JUL 9, 2003		
DRAWING STATUS:	RECORD	DWG# N17993430-001-01	PG 1 OF 1 REV -



SQUARE D
Schneider Electric

Summary Bill of Material

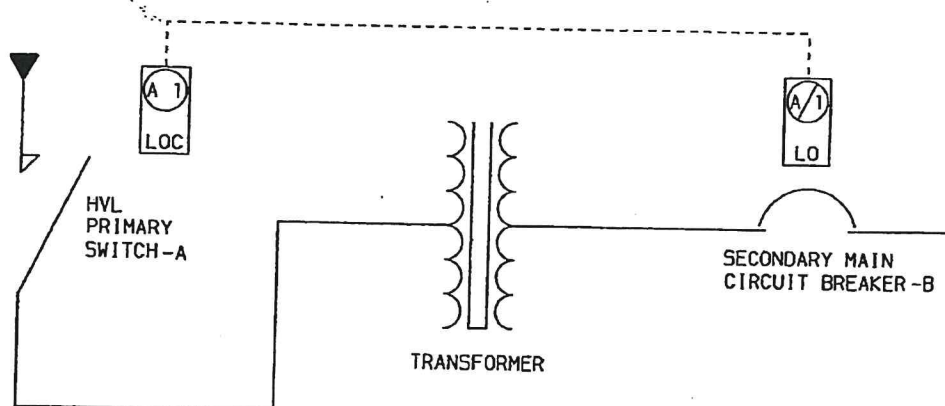
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Page 1 of 1

Find #	Part Number	Qty Per	Total Qty	Function	Supplier	Description	Rev
001	44036-325-50	1.00	1.00	89	SQUARE D COMPANY	SWITCH, TYPE HVL, 15KV, 600A, 40KA, UPRIGHT, GLASS POLYESTER, SILVER PLATED.	
002	A155F2DSR0125E	6.00	6.00	FU	GOULD	FUSE, CURRENT LIMITING, 125E, 15.5KV, 50KAIC, 18" CLIP CENTERS, DOUBLE BARREL, TYPE CS-3 WITH STRIKER.	
003	44037-241-52	1.00	1.00	FU CLIP	SQUARE D COMPANY	FUSE CLIP ASSEMBLY W/FUSE LOGIC, 15KV, UPRIGHT, MV & CS3, 65E-200E, 18" CENTERS, SILVER PLATED.	
004	44038-216-50	1.00	1.00	ACTUATOR	SQUARE D COMPANY	FUSE LOGIC MECHANISM FOR MANUAL HVL SWITCH	
005	44038-332-51	1.00	1.00	BFI	SQUARE D COMPANY	ONE INDICATOR SWITCH ASSEMBLY.	
006	9001KP38A9	1.00	1.00	A	SQUARE D COMPANY	PILOT LIGHT, 120VAC, RESISTOR STYLE, AMBER COLOR CAP.	
007	UHS18080B0D0AMZ	3.00	3.00	LA	COOPER POWER SYSTEMS	SURGE ARRESTER, DISTRIBUTION CLASS, ULTRASIL VARISTAR, 18KV, 15.3KV MCOV.	
008	L1D2250	6.00	6.00	LUG	SQUARE D COMPANY	LUG, SET SCREW, ALUMINUM, TYPE L-D, (1) #6-250 MCM AL/CU, 2 HOLE PAD, TORQUE HARDWARE TO 275 IN-LB.	
009	DLA350	1.00	1.00	LUG	CONNECTOR MFG INC.	LUG, SET SCREW, ALUMINUM, TYPE DLA, (2) #6-350 MCM AL/CU, 1 HOLE (1/2") PAD.	
010	44036-412-02	1.00	1.00	UL LABEL	SQUARE D COMPANY	UL LABEL (U.S. & CANADA).	
011	BAF5	1.00	1.00	FU	BUSSMANN	FUSE, ONE TIME, 5 AMPERES, 1.5", 250VAC.	
012	P17993430001001	1.00	1.00	KEYLOCK	SCHNEIDER CANADA	KEY INTERLOCK VFL000010SH-----, KEY REMOVABLE EXTENDED, KEY INTERCHANGE R1, USER - USDA APHIS SUPPL. LAB., USER LOCATION - AMES, IA, COORDINATE WITH SECONDARY PO#85-57632, SMYRNA PO#39807	
013	P17993430001002	1.00	1.00	PAINT	SHERWIN WILLIAMS	PAINT, SHERWIN WILLIAMS ULTRA WHITE. USE TO PAINT MIMIC BUS.	

Job Name:	USDA APHIS SUPPLEMENTA	Engineer:	VNN
Order Qty:	1	Plant:	017
Status:	RM	Order:	017-17993430-001-00-01-E
Catalog No: METAL ENCLOSED SWITCHGEAR			

REV	KEY	BY	DATE										



PURPOSE: TO PREVENT OPERATION OF SWITCH A WHEN BREAKER B IS CLOSED.
PERMITS RECLOSING OF BREAKER FOR SERVICING WHEN SWITCH IS
LOCKED OPEN.

NORMAL OPERATING CONDITION: SWITCH A AND BREAKER B ARE IN CLOSED POSITION.
KEY A-1 IS HELD IN BREAKER INTERLOCK. (KEY
SUPPLIED WITH SWITCH INTERLOCK TO BE REMOVED AND
STORED AS SPARE.)

SEQUENCE OF OPERATION: 1 - OPEN BREAKER B.
2 - TURN KEY A-1 IN L-O INTERLOCK ON BREAKER B TO LOCK
OPEN. KEY A-1 IS NOW FREE.
3 - INSERT KEY A-1 IN L-O-C INTERLOCK ON SWITCH A AND
TURN TO UNLOCK.
4 - OPEN SWITCH A.
5 - TURN KEY A-1 IN L-O-C INTERLOCK ON SWITCH A TO LOCK
OPEN. KEY A-1 IS NOW FREE.
6 - RETURN KEY A-1 TO BREAKER INTERLOCK AND UNLOCK FOR
OPERATION DURING SERVICING PERIOD.

REVERSE SEQUENCE TO RESTORE SERVICE.

KEY DESIGNATION A1 IS SHOWN FOR EXAMPLE ONLY. REFER TO SINGLE LINE DIAGRAM
FOR ACTUAL DESIGNATION EMPLOYED ON THE EQUIPMENT.

WARNING: SPARE KEYS MUST BE STORED UNDER THE CONTROL OF RESPONSIBLE
SUPERVISION TO PROMOTE PROPER OPERATION OF THE SWITCHGEAR.

APPLICATION STANDARD DRAWING

KEY INTERLOCK SCHEME - HVL SWITCH TO SECONDARY MAIN BREAKER

"THE SQUARE D COMPANY HAS PROPRIETARY RIGHTS TO THE INFORMATION CONTAINED
HEREON. THIS INFORMATION REMAINS THE PROPERTY OF SQUARE D COMPANY AND MAY
BE USED ONLY IN CONFORMANCE WITH INSTRUCTIONS ISSUED BY SQUARE D COMPANY. THIS
DOCUMENT IS ISSUED IN CONFIDENCE. IT MAY NOT BE REPRODUCED WITHOUT WRITTEN
PERMISSION FROM THE SQUARE D COMPANY, AND MAY BE RECALLED AT ANY TIME."

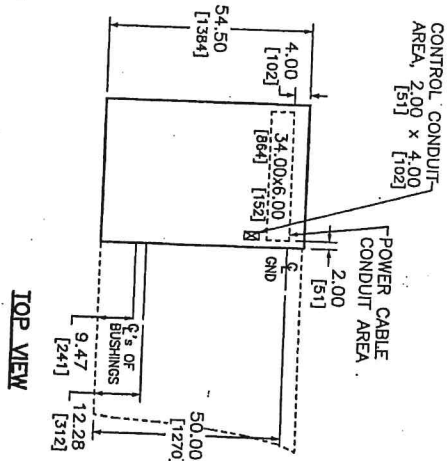


SQUARE D COMPANY
POWER EQUIPMENT DIVISION

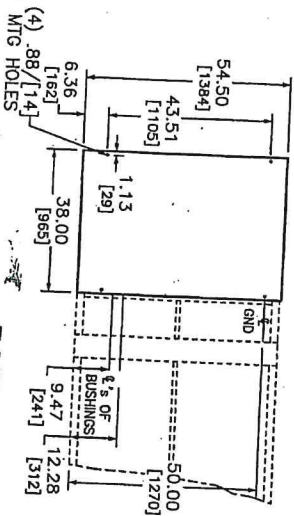
A HVLO9-190

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REV	DESCRIPTION	BY	DATE
A	CHANGE MAIN BUS TO ULTRA WHITE	VNN	08/14/03



TOP VIEW



FLOOR PLAN

GENERAL NOTES:

PRODUCT DESCRIPTION AND RATINGS:

13800 VOLTS, 3 PHASE, 3 WIRE WYE SOLIDLY GROUND
 15.0 KV MAXIMUM VOLTAGE RATING
 95 KV BIL, 60 HERTZ FREQUENCY
 CONTROL POWER NOT REQUIRED
 BUS SYSTEM DATA:

600A COPPER, SILVER PLATED MAIN BUS
 GLASS POLYESTER BUS SUPPORTS
 SILVER PLATED COPPER GROUND BUS
 40 KA Asym (25 KA Sym) MAIN BUS BRACING
 ENCLOSURE DATA:

NEMA 1 INDOOR CONSTRUCTION
 CATEGORY "B" ENCLOSURE
 ANSI #49 FINISH
 FRONT AND REAR ACCESS IS AVAILABLE
 PADLOCK PROVISIONS
 TOP CABLE ENTRY: ENTRY THRU TOP TO BE PUNCHED DURING INSTALLATION
 IN GENERAL AREA SHOWN ON TOP VIEW, IF APPLICABLE, RECOMMENDED POWER CABLE
 HANDLING: ENTRY AREA, 6" x 34" (152 x 864) AS SHOWN ON TOP VIEW.

SWITCHGEAR SECTIONS ARE FURNISHED WITH LIFTING ANGLES AND ARE SHIPPED ON SKIDS.
 ROLLERS OR FORKLIFT SHALL ONLY BE USED WITH SKID IN PLACE.
 APPROXIMATE WEIGHT: 1560 LBS 709 KG
 SHIPPING SPLIT 1 WEIGHT: 1560 LBS 709 KG
 CODE STANDARDS:

THIS EQUIPMENT BEARS THE UL LISTING MARK FOR THE UNITED STATES.
 PRODUCT INFORMATION:

INSTRUCTION BULLETIN:

OPTIONS/ACCESSORIES:

LIST OF MISC. ACCESSORIES:

SPARE FUSES

LIST OF MISC. STRUCTURE OPTIONS:

TOUCH-UP PAINT
 INSULATED BUS

1/2" SHERWIN WILLIAMS ULTRA WHITE PAINTED DEVICE SYMBOLS MIMIC BUS
 LIST OF MISC. GENERAL OPTIONS:

JOB NAME:	USDA APHIS SUPPLEMENTAL LAB	EQUIPMENT DESIGNATION:	METAL ENCLOSED SWITCHGEAR
JOB LOCATION:	AMES IA	DRAWING TYPE:	TOP VIEW/FLOOR PLAN & NOTES
DESIGN BY:	CND	SCALE:	1" = 1'-0"
DATE:	JUL 9, 2003	BY:	Schneider Electric
DRAWING STATUS:	RECORD	DWG#	F1793430-001-02

DUAL DIMENSIONS: INCHES
 MILLIMETERS



SQUARE D COMPANY

<u>Job Name:</u>	USDA APHIS SUPPLEMENTAL LAB	<u>Square D Quotation Number:</u>	17993430
<u>Job Location:</u>	AMES IA	<u>Quotation Revision Number:</u>	
		<u>Sales Contact:</u>	SMW
		<u>Sales Contact Location:</u>	448
<u>Purchaser:</u>	ELECTRICAL ENGINEER	<u>Customer:</u>	NIKKEL & ASSOC INC
<u>Purchaser PO No.:</u>	D150041	<u>Customer PO No.:</u>	
<u>User:</u>	USDA VETERINARY SVC	<u>Architect:</u>	USDA VETERINARY SVC
<u>User Location:</u>	-	<u>Cons. Engineer:</u>	-
<u>Order Status:</u>	Record		

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SQUARE D FACTORY ORDER NUMBER **17.17993430-002**

<u>Equipment Designation</u>	<u>Equipment Type</u>	<u>Document Type</u>	<u>Document Number</u>	<u>Page</u>	<u>Revision Level</u>
	Switchgear	Nameplates			
		Engraved Nameplates	T 17993430-002-EP	1	A
		Rating Nameplates	N 17993430-002-01	1	-
					-
		Bill Of Material			
		Summary Bill Of Material	017-17993430-002-00-01-E	All	1
		Drawings			
		Key Interlock	HVL09-190	1	-
		Elevation/One Line	F 17993430-002-01	1	A
		Top View/Floor Plan & Notes	F 17993430-002-02	1	-
		Control Schematic -	C 17993430-002-01	1	-
		Wiring Diagram -	W 17993430-002-01	1	-

ENGRAVED NAMEPLATES DATA SHEET

AE: Van N. Nguyen
ED:

PRODUCT CODE (MC, ME, SB, MCC) ME__

TYPE (TY)	FIELD/ LETTERS		SIZE (S)	NP HEIGHT	NP WIDTH	CHAR HEIGHT	MAX. LINES	MAX. CHAR/LINE
WB	WHITE/BLACK		A	0.75"	4.6"	3/16"	2	26
BW	BLACK/WHITE		B	0.75"	2.0"	1/8"	3	11
RW	RED/WHITE		C	9001 DEVICE		1/8"	3	14
			D	2.0"	6.0"	5/16"	4	19
			E	1.0"	2.5"	1/8"	4	16
			F	0.75"	2.0"	1/8"	3	11

CODES A-E ARE FOR DOOR MOUNTED DEVICES.
CODE F APPLIES TO INTERNALLY MOUNTED DEVICES.
SPECIAL NAMEPLATES ARE CODED SA, SB, SC, ... WITH ASSOCIATED DETAILS NOTED.


NP #	TYPE	SIZE	QTY	TEXT CONTENT
1	WB	D	1	M/S-2
10	WB	C	1	FUSE BLOWS OR REMOVAL OF FUSE

ENGR: VNN
STATUS: Record


DATE: August 14, 2003
REV: A

PG 1 OF 1
DOC #: T17993430-002-EP

REV	DESCRIPTION	BY	DATE				
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<h1>HVL</h1>	
LOAD CURRENT INTERRUPTER SWITCH	
FACTORY ORDER NO.	17-17993430-002
SWITCH PART NO.	44036-325-50
MANUFACTURE DATE	
RATED MAXIMUM VOLTAGE	kV 15.0
IMPULSE WITHSTAND (BIL)	kV 95
NORM. FREQ. WITHSTAND	kV 36
FREQUENCY	HZ 60
CONTINUOUS CURRENT	A SYM 600
LOAD INTERRUPTING CURRENT	A SYM 600
MOMENTARY CURRENT	KA ASYM 40
SHORT TIME - CURRENT	KA SYM 25
- TIME	SEC 2
FAULT CLOSING CURRENT	KA ASYM 40
FUSE/RATING	GOULD 125E
FUSE CATALOG NO.	A155F2DSR0125E
INTEGRATED SWITCH & FUSE	KA SYM 50
SHORT CIRCUIT CURRENT	
METAL ENCLOSED SWITCHGEAR	
MAIN BUS AMPACITY	A 600
MAIN BUS BRACING	KA ASYM 40
 SQUARE D COMPANY SMYRNA, TN USA 44036-437-01	

SECTION 1

JOB NAME:	USDA APHIS SUPPLEMENTAL LAB	EQUIPMENT DESIGNATION:	
JOB LOCATION:	AMES IA	EQUIPMENT TYPE:	METAL ENCLOSED SWITCHGEAR
DRAWN BY:	CAD	DRAWING TYPE:	RATING NAMEPLATE
ENGR:	VAN N. NGUYEN		 SQUARE D
DATE:	JUL 9, 2003		Schneider Electric
DRAWING STATUS:	RECORD	DWG# N17993430-002-01	PG 1 OF 1 REV -

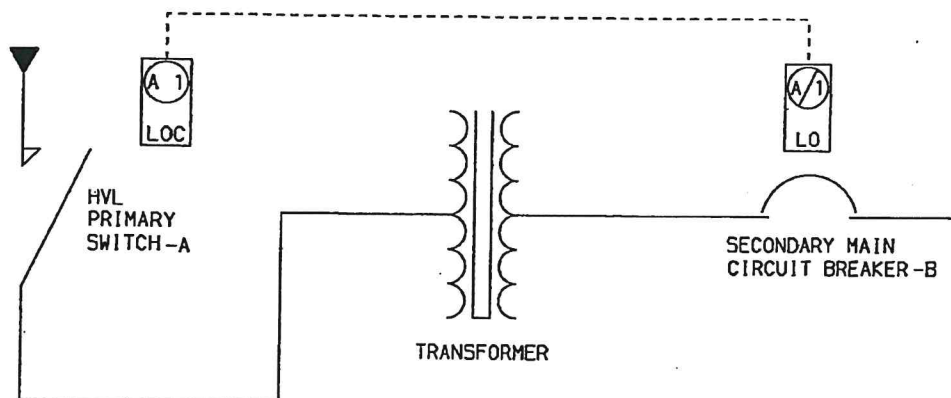
Summary Bill of Material

Printed 08/14/03 15:59:34 by MSM020

Find #	Part Number	Qty Per	Total Qty	Function	Supplier	Description	Rev
001	44036-325-50	1.00	1.00	89	SQUARE D COMPANY	SWITCH, TYPE HVL, 15KV, 600A, 40KA, UPRIGHT, GLASS POLYESTER, SILVER PLATED.	
002	A155F2DSR0125E	6.00	6.00	FU	GOULD	FUSE, CURRENT LIMITING, 125E, 15.5KV, 50KAIC, 18" CLIP CENTERS, DOUBLE BARREL, TYPE CS-3 WITH STRIKER.	
003	44037-241-52	1.00	1.00	FU CLIP	SQUARE D COMPANY	FUSE CLIP ASSEMBLY W/FUSE LOGIC, 15KV, UPRIGHT, MV & CS3, 65E-200E, 18" CENTERS, SILVER PLATED.	
004	44038-216-50	1.00	1.00	ACTUATOR	SQUARE D COMPANY	FUSE LOGIC MECHANISM FOR MANUAL HVL SWITCH	
005	44038-332-51	1.00	1.00	BFI	SQUARE D COMPANY	ONE INDICATOR SWITCH ASSEMBLY.	
006	9001KP38A9	1.00	1.00	A	SQUARE D COMPANY	PILOT LIGHT, 120VAC, RESISTOR STYLE, AMBER COLOR CAP.	
007	UHS18080B0D0AMZ	3.00	3.00	LA	COOPER POWER SYSTEMS	SURGE ARRESTER, DISTRIBUTION CLASS, ULTRASIL VARISTAR, 18KV, 15.3KV MCOV.	
008	L1D2250	6.00	6.00	LUG	SQUARE D COMPANY	LUG, SET SCREW, ALUMINUM, TYPE L-D, (1) #6-250 MCM AL/CU, 2 HOLE PAD, TORQUE HARDWARE TO 275 IN-LB.	
009	DLA350	1.00	1.00	LUG	CONNECTOR MFG INC.	LUG, SET SCREW, ALUMINUM, TYPE DLA, (2) #6-350 MCM AL/CU, 1 HOLE (1/2") PAD.	
010	44036-412-02	1.00	1.00	UL LABEL	SQUARE D COMPANY	UL LABEL (U.S. & CANADA).	
011	BAF5	1.00	1.00	FU	BUSSMANN	FUSE, ONE TIME, 5 AMPERES, 1.5", 250VAC.	
012	P17993430002001	1.00	1.00	KEYLOCK	SCHNEIDER CANADA	KEY INTERLOCK VFL000010SH-----, KEY REMOVABLE EXTENDED, KEY INTERCHANGE L1, USER - USDA APHIS SUPPL. LAB., USER LOCATION - AMES, IA, COORDINATE WITH SECONDARY PO#85-57632, SMYRNA PO#39807	
013	P17993430002002	1.00	1.00	PAINT	SHERWIN WILLIAMS	PAINT, SHERWIN WILLIAMS ULTRA WHITE. USE TO PAINT MIMIC BUS.	

Job Name:	USDA APHIS SUPPLEMENTA	Engineer:	VNN
Order Qty:	1	Plant:	017
Status:	RM	Order:	017-17993430-002-00-01-E
Catalog No:	METAL ENCLOSED SWITCHGEAR		

REV	KEY	BY	DATE										



PURPOSE: TO PREVENT OPERATION OF SWITCH A WHEN BREAKER B IS CLOSED.
PERMITS RECLOSING OF BREAKER FOR SERVICING WHEN SWITCH IS LOCKED OPEN.

NORMAL OPERATING CONDITION: SWITCH A AND BREAKER B ARE IN CLOSED POSITION.
KEY A-1 IS HELD IN BREAKER INTERLOCK. (KEY SUPPLIED WITH SWITCH INTERLOCK TO BE REMOVED AND STORED AS SPARE.)

SEQUENCE OF OPERATION:

- 1 - OPEN BREAKER B.
- 2 - TURN KEY A-1 IN L-O INTERLOCK ON BREAKER B TO LOCK OPEN. KEY A-1 IS NOW FREE.
- 3 - INSERT KEY A-1 IN L-O-C INTERLOCK ON SWITCH A AND TURN TO UNLOCK.
- 4 - OPEN SWITCH A.
- 5 - TURN KEY A-1 IN L-O-C INTERLOCK ON SWITCH A TO LOCK OPEN. KEY A-1 IS NOW FREE.
- 6 - RETURN KEY A-1 TO BREAKER INTERLOCK AND UNLOCK FOR OPERATION DURING SERVICING PERIOD.

REVERSE SEQUENCE TO RESTORE SERVICE.

KEY DESIGNATION A1 IS SHOWN FOR EXAMPLE ONLY. REFER TO SINGLE LINE DIAGRAM FOR ACTUAL DESIGNATION EMPLOYED ON THE EQUIPMENT.

WARNING: SPARE KEYS MUST BE STORED UNDER THE CONTROL OF RESPONSIBLE SUPERVISION TO PROMOTE PROPER OPERATION OF THE SWITCHGEAR.

APPLICATION STANDARD DRAWING

KEY INTERLOCK SCHEME - HVL SWITCH TO SECONDARY MAIN BREAKER

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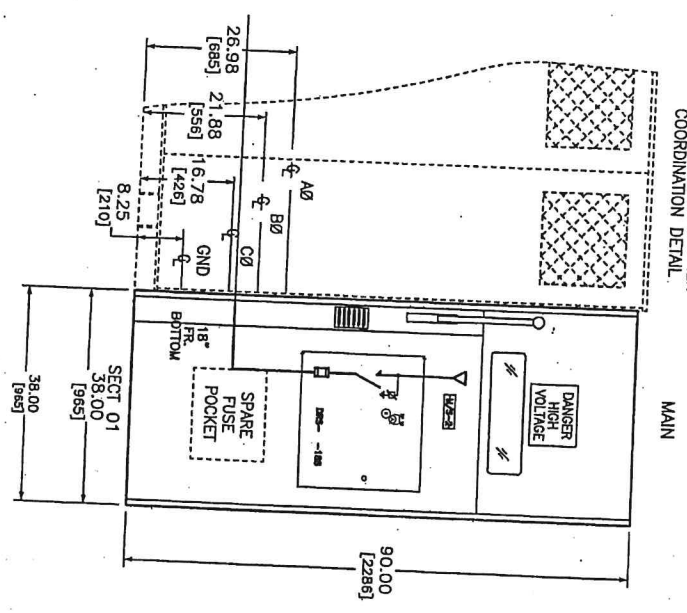
SQUARE D COMPANY
POWER EQUIPMENT DIVISION

A HVLO9-190

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REV	DESCRIPTION	BY	DATE
1			

REFER TO TRANSFORMER
COORDINATION DETAIL.

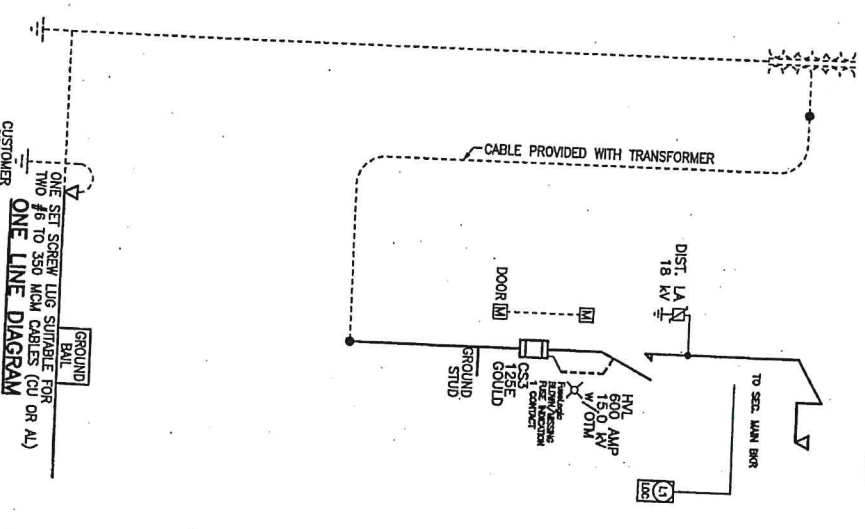


FRONT ELEVATION

CONVENTIONAL DRY
TRANSFORMER
2000 KVA

MAIN SECTION
UL/C-UL LABEL

SET SCREW LUGS
SUITABLE FOR TWO
4/0 AWG CABLE(S) /PH
TOP INCOMING



ONE LINE DIAGRAM

JOB NAME:	USDA APHIS SUPPLEMENTAL TAB	EQUIPMENT DESIGNATION:	METAL ENCLOSED SWITCHGEAR
JOB LOCATION:	AMES IA	DRAWING TYPE:	ELEVATION/ONE LINE
DESIGN BY:	CAD	SCALE:	1"=10'-0"
ENGINEER:	VAN N. NGUYEN	DATE:	JUL 9 2003
DRAWING STATUS:	RECORD	DWG #:	17983430-002-01
		REV:	1 OF 1

DUAL DIMENSIONS: INCHES
MILLIMETERS

BY	DATE
VNN	08/14/03

PRODUCT DESCRIPTION AND RATINGS:

12000 VOLTS, 3 PHASE, 3 WIRE WYE SOLIDLY GROUND
15.0 KW MAXIMUM VOLTAGE RATING
85 KW BIL, 60 HERTZ FREQUENCY
CONTROL POWER NOT REQUIRED
BUS SYSTEM DATA:

ENCLOSURE DATA:
40 KA Asym (25 KA Sym) MAIN BUS BRACING
SILVER PLATED COPPER GROUND BUS
GLASS POLYESTER BUS SUPPORTS
SOON OFFER, SILVER PLATED MAIN BUS

NEW! INDOOR CONSTRUCTION
CATEGORY "B" ENCLOSURE
ANSI #49 FINISH
FRONT AND REAR ACCESS IS AVAILABLE
HARD LOCK PROTECTION

ENTRANCE TO BE PUNCHED DURING INSTALLATION
IN GENERAL AREA SHOWN ON TOP VIEW, IF APPLICABLE. RECOMMENDED POWER CABLE
ENTRY AREA, 6" X 3 3/4" (152 X 864) AS SHOWN ON TOP VIEW.

SWITCHGEAR SECTIONS ARE FURNISHED WITH LIFTING ANGLES AND ARE SHIPPED ON SKIDS.
ROLLERS OR FORKLIFT SHALL ONLY BE USED WITH SKID IN PLACE.
APPROXIMATE WEIGHT: 1560 LBS 709 KG
SHIPPING SPLIT 1 WEIGHT: 1560 LBS 709 KG
CODE STANDARDS:

THIS EQUIPMENT BEARS THE UL LISTING MARK FOR THE UNITED STATES
PRODUCT INFORMATION:

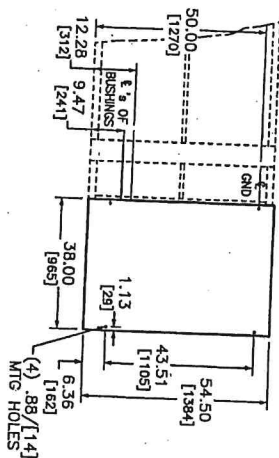
INSTRUCTION BULLETIN

OPTIONS/ACCESSORIES:


LIST OF MISC. ACCESSORIES

LIST OF MISC. STRUCTURE OPTIONS:

TOUGH-UP PAINT
INSULATED BUS
1/2", SHERWIN WILLIAMS ULTRA WHITE PAINTED DEVICE SYMBOLS MIMIC BUS
LIST OF MISC. GENERAL OPTIONS:



FLOOR PLAN

EQUIPMENT DESIGNATION:			
EQUIPMENT TYPE:	METAL ENCLOSED SWITCHGEAR		
DRAWING TYPE:	TOP VIEW/FLOOR PLAN & NOTES		
		Schneider Electric	
DWG# F179834-30--002-02	PG 1	OF 1	REV A



Job Name: USDA APHIS SUPPLEMENTA
Job Location: AMES IA

Square D Quotation #:
Quotation Revision #:
Sales Contact:
Sales Contact Location:

J. DAVIS
DES MOINES

Purchaser: ELECTRICAL ENGINEERING
Purchaser PO #: D150041

Customer: USDA APHIS SUPPLEMENTA
Customer PO #:

User: USDA VETERINARY SVC
User Location:

Architect: USDA VETERINARY SVC
Cons. Engineer: USDA VETERINARY SVC

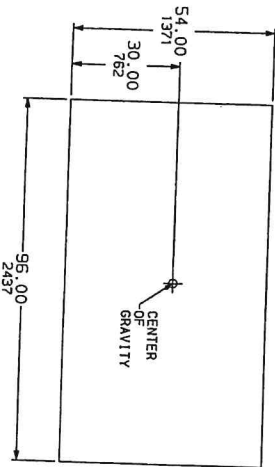
Drawing Status: RECORD

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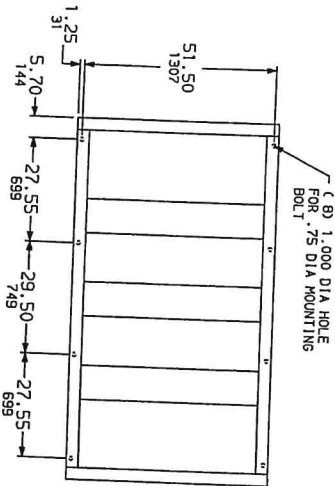
SQUARE D FACTORY ORDER NUMBER: 17993430

<u>Equipment Designation</u>	<u>Equipment Type</u>	<u>Drawing Type</u>	<u>Drawing Number</u>	<u>Page</u>	<u>Revision Level</u>
XFMR 1	POWER-DRY	ELEVATION	17993430-003002	1	A
	TRANSFORMER	RATING NAMEPLATE	17993430-003003	4	-
		WIRING DIAGRAM	17993430-003005	5	-

REV	DESCRIPTION	BY	DATE
A	PAINT WAS PURE WHITE.	DZ	8-11-03



TOP VIEW



FLOOR PLAN

GENERAL NOTES

PRODUCT DESCRIPTION AND RATINGS

POWER SYSTEM DATA:

2000 KVA 13800 DELTA PRIMARY 480Y/277 SECONDARY
3 PHASE 60 HZ CLASS AA/FA

ENCLOSURE DATA:

NEHA Type I General Purpose - Indoor Enclosure (UL Category C)
FINISH ANSI 49 LIGHT GRAY

ESTIMATED SHIPPING WEIGHTS:

CORE AND COILS 9612 LBS
ENCLOSURE AND ACCESSORIES 2117 LBS
TOTAL 10729 LBS

PRODUCT INFORMATION

TRANSFORMER RATING

KVA, 2000/ 2667
PRIMARY VOLTAGE, 13800 DELTA
BASIC IMPULSE LEVEL (KV), 55
PRIMARY VOLTAGE CONNECTION, DELTA
SECONDARY VOLTAGE, 480Y/277
BASIC IMPULSE LEVEL (KV), 10
SECONDARY VOLTAGE CONNECTION, WYE
PRIMARY CONDUCTOR, ALUMINUM
SECONDARY CONDUCTOR, ALUMINUM
TAPS, +2, -4 At 2.5%
IMPEDANCE, 5.75 NOMINAL (+/-7.5% ANSI TOLERANCE)
TEMPERATURE RISE, 150°C
INSULATION CLASS, 220°C

FEATURES

TRANSFORMER PROVIDED WITH:

- CABINET PROVIDED WITH REMOVABLE DOORS AT FRONT AND REAR.
- TRANSFORMER FURNISHED WITH CONTINUOUS 1.00 X .25 PLATED COPPER GROUND BUS WITH FLEXIBLE CONNECTIONS FOR ATTACHING TO ADJACENT GEAR.
- STAINLESS STEEL GROUND PADS LOCATED ON (2) CORNERS WITH (2) .50-13 TAPPED HOLES ON 1.25 CENTERS.
- SLOTS FOR SKIDING TRANSFORMER TYPICAL (6) PLACES. (DO NOT LIFT AT ENDS OVER 120°)
- AA/FA 33% OVERLOAD W/MODEL 98 TEMPERATURE CONTROLLER POWER OPT.
- MIMIC BUS (.50 WIDE SHERWIN WILLIAMS ULTRA WHITE).

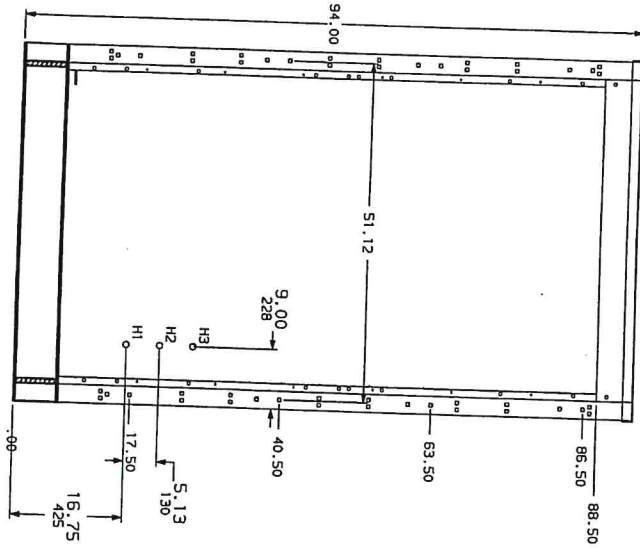
JOB NAME:	USDA APHIS SUPPLEMENTA	EQUIPMENT DESIGNATION:	REFR 1
JOB LOCATION:	AMES IA	EQUIPMENT TYPE:	POWER-DRY TRANSFORMER
DRAWN BY:	D. FIRESTONE	DRAWING TYPE:	TOP VIEW/FLOOR PLAN & NOTES
ENGR:	J. KIVARTIA		
DATE:	JULY 15, 2003		
DRAWING STATUS:	RECORD		

DWG: 17993430-003002 Pg 2 of 3 REV A

DUAL DIMENSIONS, INCHES
MILLIMETERS

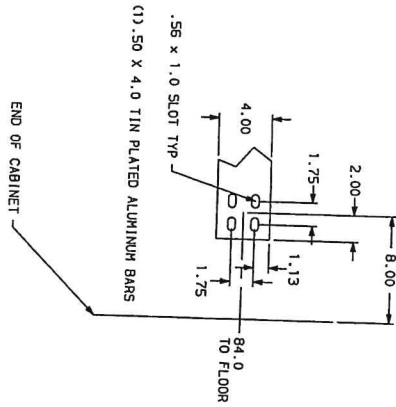
REV	DESCRIPTION	BY	DATE
A	PAINT WAS PURE WHITE.	DZ	8-11-03

HVL SWITCHGEAR INTERFACE



TRANSFORMER LEFT END VIEW (ANSI SEG. #2)

L.V. SPADE DETAIL

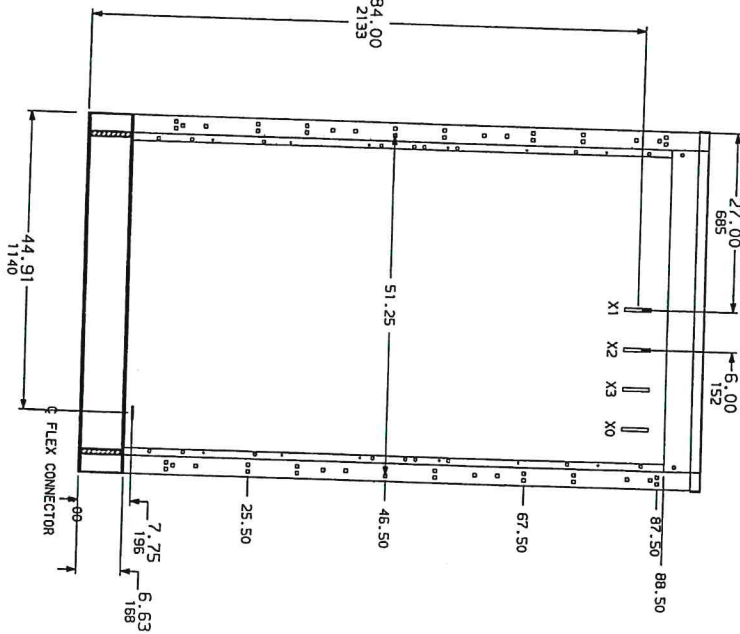


FRONT

FRONT

HV CABLE LENGTHS
H1 - 50.0
H2 - 35.0
H3 - 25.0
CABLE SIZE - (1) #2 - 15KV

P2 IV SWITCHGEAR INTERFACE



TRANSFORMER RIGHT END VIEW (ANSI SEG. #4)

DUAL DIMENSIONS, INCHES
MILLIMETERS

JOB NAME:	USDA APPLIS SUPPLEMENTA	EQUIPMENT DESIGNATION:	XFMR 1
JOB LOCATION:	AMES IA	EQUIPMENT TYPE:	POWER-DRY TRANSFORMER
DRAWN BY:	D. FIRESTONE	DRAWING TYPE:	LEFT/RIGHT VIEW
ENGR:	J. KYRTA		
DATE:	JULY 15, 2003		
DRAWING STATUS:	RECORD		

SQUARE D COMPANY

DWG# 17993430-003002 Pg 3 OF 3 REV A



Job Name: USDA APHIS SUPPLEMENTA
Job Location: AMES IA

Square D Quotation #:
Quotation Revision #:
Sales Contact:
Sales Contact Location:

J. DAVIS
DES MOINES

Purchaser: ELECTRICAL ENGINEERING
Purchaser PO #: D150041

Customer: USDA APHIS SUPPLEMENTA
Customer PO #:

User: USDA VETERINARY SVC
User Location:

Architect: USDA VETERINARY SVC
Cons. Engineer: USDA VETERINARY SVC

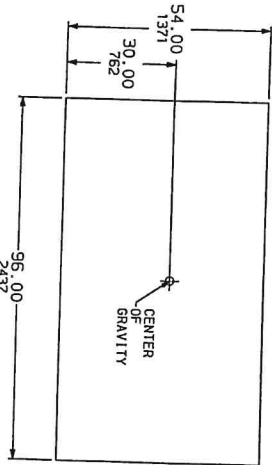
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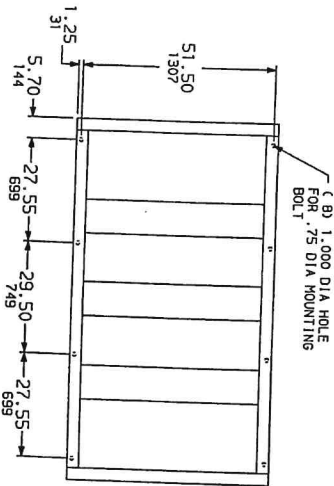
SQUARE D FACTORY ORDER NUMBER: 17993430

<u>Equipment Designation</u>	<u>Equipment Type</u>	<u>Drawing Type</u>	<u>Drawing Number</u>	<u>Page</u>	<u>Revision Level</u>
XFMR 2	POWER-DRY	ELEVATION	17993430-004002	1	A
	TRANSFORMER	RATING NAMEPLATE	17993430-004003	4	-
		WIRING DIAGRAM	17993430-004005	5	-

REV	DESCRIPTION	BY	DATE
A	PAINT WAS PURE WHITE.	DZ	8-11-03



TOP VIEW



FLOOR PLAN

GENERAL NOTES

PRODUCT DESCRIPTION AND RATINGS

POWER SYSTEM DATA:
 2000 KVA 13800 DELTA PRIMARY 480V/277 SECONDARY
 3 PHASE 60 HZ CLASS AA/FA

ENCLOSURE DATA:
 NEMA Type 1 General Purpose - Indoor Enclosure (UL Category C)
 FINISH ANSI 49 LIGHT GRAY

ESTIMATED SHIPPING WEIGHTS:
 CORE AND COILS 8512 LBS
 ENCLOSURE AND ACCESSORIES 2117 LBS
 TOTAL 10729 LBS

PRODUCT INFORMATION

TRANSFORMER RATING
 2000/2667 KVA
 BASIC IMPULSE LEVEL (KV): 13800 DELTA
 PRIMARY VOLTAGE CONNECTION: DELTA
 SECONDARY VOLTAGE: 480V/277
 BASIC HOUSE LEVEL (KV): 10
 SECONDARY VOLTAGE CONNECTION: WYE
 PRIMARY CONDUCTOR: ALUMINUM
 SECONDARY CONDUCTOR: ALUMINUM
 TAPS: +2 -4 AT 2.5K
 IMPEDANCE: 5.75 NOMINAL +-7.5% ANSI TOLERANCE
 TEMPERATURE RISE: 150°C
 INSULATION CLASS: 220°C

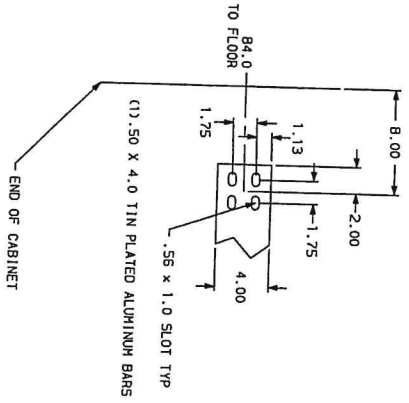
FEATURES

- TRANSFORMER PROVIDED WITH:
- CABINET PROVIDED WITH REMOVABLE DOORS AT FRONT AND REAR.
 - TRANSFORMER FUSED WITH CONTINUOUS 1.00 X .25 PLATED COPPER GROUND BUS WITH FLEXIBLE CONNECTORS FOR ATTACHING TO ADJACENT GEAR.
 - STAINLESS STEEL GROUND BARS, LOCATED ON (2) CORNERS, WITH (2) .50-13 TAPPED HOLES ON 1.75 CENTERS.
 - SLOTS FOR SKIDDING TRANSFORMER TYPICAL (B) PLACES. (DO NOT LIFT AT ENDS OVER 120°)
 - AA/FA 33X OVERLOAD W/MODEL 98 TEMPERATURE CONTROLLER POWER CRT.
 - MIMIC BUS (.50 WIDE SHERWIN WILLIAMS ULTRA WHITE).

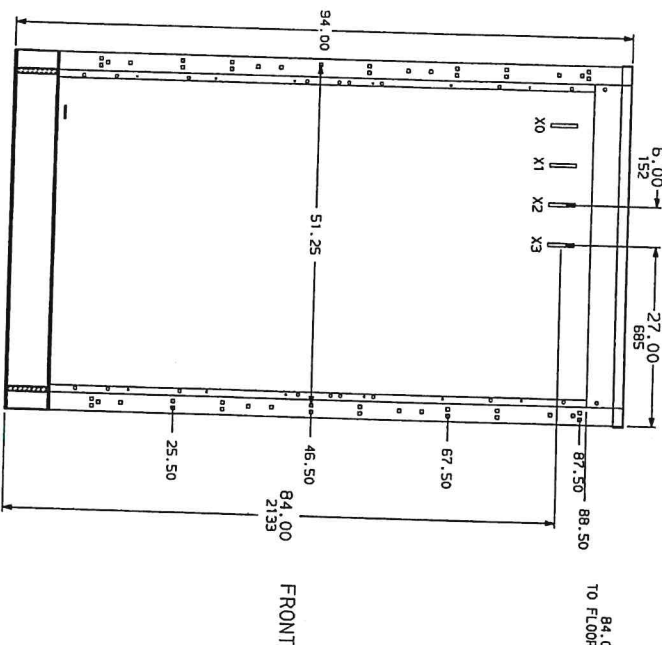
JOB NAME:	USDA APPLIS SUPPLEMENTA	EQUIPMENT DESIGNATION:	XFMR 2
JOB LOCATION:	AMES IA	EQUIPMENT TYPE:	POWER-DRY TRANSFORMER
DRAWN BY:	D. FIRESTONE	TOP VIEW/FLOOR PLAN & NOTES	
ENGR. BY:	J. KYARITA	DRAWING TYPE:	
DATE:	JULY 15, 2003		
DRAWING STATUS:	RECORD	DWG # 17993430-004002	pg 2 of 3 REV A

REV	DESCRIPTION	BY	DATE
A	PAINT WAS PURE WHITE.	DZ	8-11-03

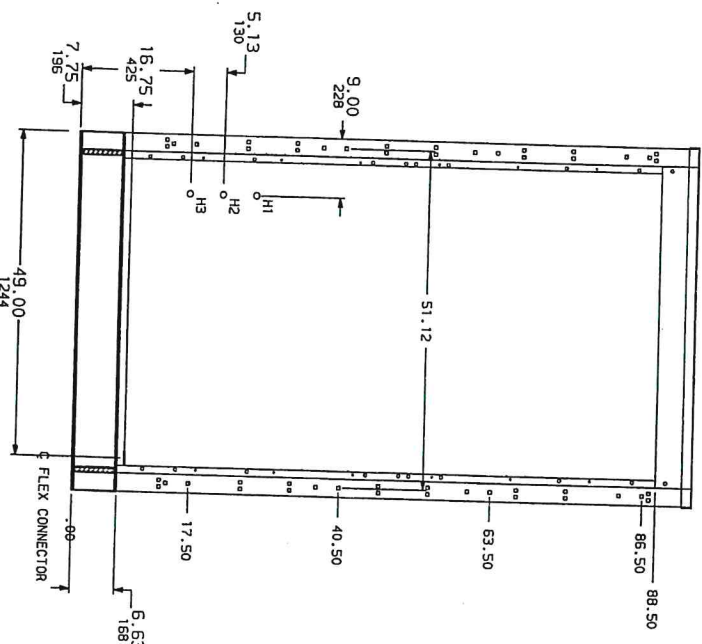
L.V. SPADE DETAIL



PZ IV SWITCHGEAR INTERFACE



HVL SWITCHGEAR INTERFACE



TRANSFORMER LEFT END VIEW (ANSI SEG. #2)


HW CABLE LENGTHS
H1 - 25.0
H2 - 35.0
H3 - 50.0
CABLE SIZE - (1) #2 -15KV

TRANSFORMER RIGHT END VIEW (ANSI SEG. #4)

DUAL DIMENSIONS, INCHES

JOB NAME:	USDA APHIS SUPPLEMENTA	EQUIPMENT DESIGNATION:	XFER 2
JOB LOCATION:	ANES 1A	EQUIPMENT TYPE:	POWER-DRY TRANSFORMER
DRAWN BY:	D. FIRESTONE	DRAWING TYPE:	LEFT/RIGHT VIEW
ENGR:	J. KAVARIA		
DATE:	JULY 15, 2003		
DRAWING STATUS:	RECORD		
		DWG. 17993430-004002	PG 3 OF 3 REV A

SQUARE D COMPANY



SQUARE D COMPANY
SQUARE TRANSFORMERS

Power-Dry™
78

INSULATED DRY TYPE TRANSFORMER

SERIAL NO.	034189-B	CLASS	AA/FA THREE-PHASE	60 HERTZ
KVA RATING	13800 DELTA	TYPE	2657 SHT	
LV VOLT	480Y/277	INS SYSTEM	150 °C	RISE
IMPEDANCE,	% AT	2000 KVA	MFG. DATE	

HV VOLT'S	2657 AMP'S	CONNECTIONS
14490	105.3	1 TO 2
14145	108.9	2 TO 3
13800	111.6	3 TO 4
13455	114.4	4 TO 5
13110	117.5	5 TO 6
12765	120.6	6 TO 7
12420	124.0	7 TO 8

LV WINDING CONNECTIONS	AMP'S	KVA
X1-X2-X3	2657	13800
480Y/277	3208.0	

HV WINDING	AMP'S	KVA
B1L LEVELS	95.0	
HV NEUTRAL	55 KV	
LV WINDING	--KV	10 KV

WINDING MATERIAL	AL	AL
HV		
LV		

DE-ENERGIZE TAG TRANSFORMER BEFORE CHANGING TAPS

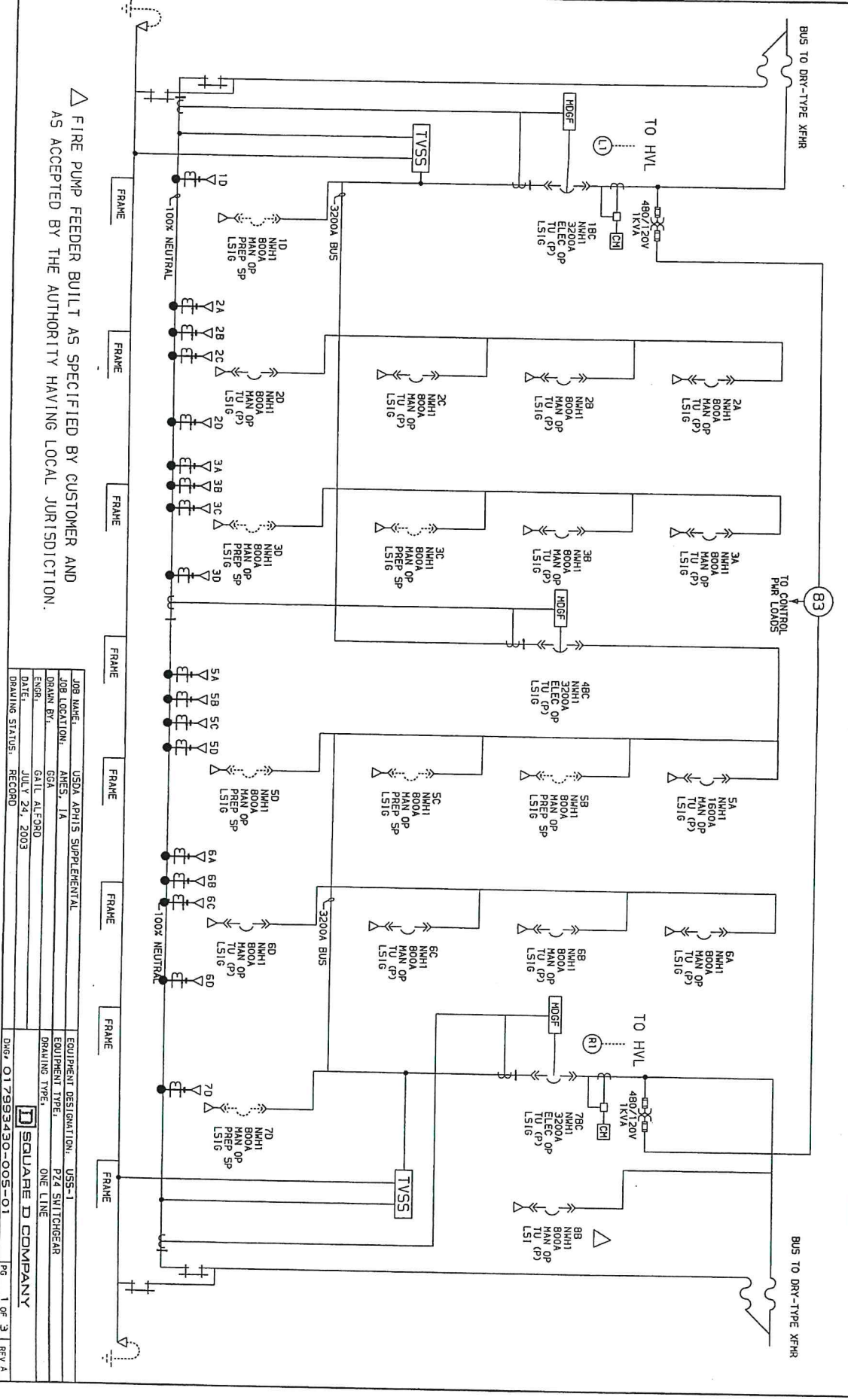
READ INSTRUCTION MANUAL 43500-055-30

OPERATION



SQUARE D COMPANY
DNG# 17993430-004003 Pg 1 OF 1

REV	DESCRIPTION	BY	DATE
A	CONV'D & REL'D FOR FHS PER RETURNED APPROVALS	CB	08/13/03



REV	DESCRIPTION	REV	DATE
A	01/01/03 0.8 REL'D FOR IFC PER RETURNED APPROVALS	03	08/13/03

POWER-ZONE 4 SWITCHGEAR - MASTERPACT POWER CIRCUIT BREAKER TABLE

CELL NO	BREAKER TYPE	BREAKER OPERATION	BREAKER TRIP UNIT	FRAME SIZE	SENSOR PLUG	TRIP SETTING	INTERRUPTING CAPACITY	TRIPPING PARAMETERS	QTY	A, B, C PH SIZE	MECHANICAL LUGS	QTY	NEUTRAL SIZE	QTY	GROUND SIZE	ACCESSORIES	DESIGNATION
1 A	----	----	(AUTO TRANSFER)	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1 BC	NH1	ELECTRIC	PHR HETERING (G. OP)	3200A	3200A	3200A	65,000A	LS16	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	UC2, UC3, NH1, 3F, MCM, M2, COM, CE3, C03, C13, C23, PBL, PL, K, M2	MCB A
1 D	NH1	----	(PREPARED SPACE)	800A	800A	800A	65,000A	LS16	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	UC3, CE3, C02, C11, COM, PBL, PL	800/3 SPACE
2 A	NH1	MANUAL	PHR HETERING (G. OP)	800A	800A	800A	65,000A	LS16	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	UC3, CE3, C02, C11, COM, PBL, PL	CHILLER CH-1.1
2 B	NH1	MANUAL	PHR HETERING (G. OP)	800A	800A	800A	65,000A	LS16	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	UC3, CE3, C02, C11, COM, PBL, PL	CHILLER CH-1.2
2 C	NH1	MANUAL	PHR HETERING (G. OP)	800A	800A	800A	65,000A	LS16	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	UC3, CE3, C02, C11, COM, PBL, PL	CHILLER CH-1.3
2 D	NH1	MANUAL	PHR HETERING (G. OP)	800A	250A	250A	65,000A	LS16	1	3/0 TO 750 MCM	1	3/0 TO 750 MCM	1	3/0 TO 750 MCM	1	UC3, CE3, C02, C11, COM, PBL, PL	PANEL P4-53
3 A	NH1	MANUAL	PHR HETERING (G. OP)	800A	400A	400A	65,000A	LS16	2	3/0 TO 750 MCM	2	3/0 TO 750 MCM	2	3/0 TO 750 MCM	2	UC3, CE3, C02, C11, COM, PBL, PL	OSMCA-61 VIA A
3 B	NH1	MANUAL	PHR HETERING (G. OP)	800A	800A	800A	65,000A	LS16	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	UC3, CE3, C02, C11, COM, PBL, PL	SPARE
3 C	NH1	----	(PREPARED SPACE)	800A	800A	800A	65,000A	LS16	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	UC3, CE3, C02, C11, COM, PBL, PL	800/3 SPACE
3 D	NH1	----	(PREPARED SPACE)	800A	800A	800A	65,000A	LS16	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	UC3, CE3, C02, C11, COM, PBL, PL	800/3 SPACE
4 A	----	----	(AUTO TRANSFER)	----	----	----	----	----	----	----	----	----	----	----	----	----	----
4 BC	NH1	ELECTRIC	PHR HETERING (G. OP)	3200A	3200A	3200A	65,000A	LS16	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	UC2, UC3, NH1, 3F, MCM, M2, COM, CE3, C03, C13, C23, PBL, PL, K, M2	BUS A-B TIE C/B
4 D	----	----	(AUTO TRANSFER)	----	----	----	----	----	----	----	----	----	----	----	----	----	----
5 A	NH1	MANUAL	PHR HETERING (G. OP)	1600A	1600A	1600A	65,000A	LS16	5	3/0 TO 750 MCM	5	3/0 TO 750 MCM	5	3/0 TO 750 MCM	5	UC3, CE3, C02, C11, COM, PBL, PL	0504-P1 VIA AT5
5 B	NH1	----	(PREPARED SPACE)	800A	800A	800A	65,000A	LS16	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	UC3, CE3, C02, C11, COM, PBL, PL	800/3 SPACE
5 C	NH1	----	(PREPARED SPACE)	800A	800A	800A	65,000A	LS16	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	UC3, CE3, C02, C11, COM, PBL, PL	800/3 SPACE
5 D	NH1	----	(PREPARED SPACE)	800A	800A	800A	65,000A	LS16	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	UC3, CE3, C02, C11, COM, PBL, PL	800/3 SPACE
6 A	NH1	MANUAL	PHR HETERING (G. OP)	800A	800A	800A	65,000A	LS16	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	UC3, CE3, C02, C11, COM, PBL, PL	PANEL D4-P1
6 B	NH1	MANUAL	PHR HETERING (G. OP)	800A	400A	400A	65,000A	LS16	2	3/0 TO 750 MCM	2	3/0 TO 750 MCM	2	3/0 TO 750 MCM	2	UC3, CE3, C02, C11, COM, PBL, PL	PANEL DX2-P1 VI
6 C	NH1	MANUAL	PHR HETERING (G. OP)	800A	400A	400A	65,000A	LS16	2	3/0 TO 750 MCM	2	3/0 TO 750 MCM	2	3/0 TO 750 MCM	2	UC3, CE3, C02, C11, COM, PBL, PL	PANEL DX2-P2 VI
6 D	NH1	MANUAL	PHR HETERING (G. OP)	800A	800A	800A	65,000A	LS16	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	UC3, CE3, C02, C11, COM, PBL, PL	SPARE
7 A	----	----	(AUTO TRANSFER)	----	----	----	----	----	----	----	----	----	----	----	----	----	----
7 BC	NH1	ELECTRIC	PHR HETERING (G. OP)	3200A	3200A	3200A	65,000A	LS16	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	UC2, UC3, NH1, 3F, MCM, M2, COM, CE3, C03, C13, C23, PBL, PL, K, M2	MCB B
7 D	NH1	----	(PREPARED SPACE)	800A	800A	800A	65,000A	LS16	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	3/0 TO 750 MCM	3	UC3, CE3, C02, C11, COM, PBL, PL	800/3 SPACE
8 B	NH1	MANUAL	PHR HETERING (G. OP)	800A	250A	250A	65,000A	LS1	1	3/0 TO 750 MCM	1	3/0 TO 750 MCM	1	3/0 TO 750 MCM	1	UC3, CE3, C02, C11, COM, PBL, PL	FIRE PUMP FEED

△ FIRE PUMP FEEDER BUILT AS SPECIFIED BY CUSTOMER AND
 AS ACCEPTED BY THE AUTHORITY HAVING LOCAL JURISDICTION.

JOB NAME:	USDA, APHIS SUPPLEMENTAL	EQUIPMENT DESIGNATION:	USS-1
JOB LOCATION:	AREAS, 1A	EQUIPMENT TYPE:	P24 SWITCHGEAR
DRAWN BY:	GAIL ALFORD	DRAWING TYPE:	P24 BREAKER TABLE
DATE:	JULY 24, 2003		
DRAWING STATUS:	RECORD	DWG. NO:	017939430-005-01
		PG:	2 OF 3
		REV:	A

SQUARE D COMPANY

REV	DESCRIPTION	BY	DATE
A	ISSUED & REL'D FOR MFG PER RETURNED APPROVALS	CB	08/13/03

LEGEND (ACCESSORIES)

STANDARD ACCESSORIES	
OF-4	AUX CONTACTS (STD)
UC1	ZS1 SECONDARIES (STD)
UC2	MODIFIED DIFFERENTIAL GROUND FAULT (STD)
UC3	24VDC POWER SUPPLY (STD)
SOE1	ELECTRICAL FAULT ALARM CONTACT (STD)
NON-STANDARD ACCESSORIES	
HX1	120VAC SHUNT TRIP
XF	120VAC SHUNT CLOSE
HCH	SPRING CHARGING MOTOR
HX1C	120VAC SHUNT TRIP WITH COM'S
XFC	120VAC SHUNT CLOSE WITH COM'S
COM	COMMUNICATION
SH	SHUTTERS
CE (X)	CONNECTED CELL SWITCHES (X=NUMBER OF)
CD (X)	DISCONNECTED CELL SWITCHES (X=NUMBER OF)
CT (X)	TEST CELL SWITCHES (X=NUMBER OF)
OFB	AUX CONTACTS (OF-1, OF-4, OF-11, OF-14)

120VAC UNDERVOLTAGE TRIP	
HN	READY TO CLOSE CONTACT
PF	PUSH BUTTON INTERLOCK COVER
PBL	ELEC FAULT ALARM CONTACT (BELL ALARM CONTACT)
SDE	REMOTE RESET AFTER FAULT
RES	120VAC SHUNT TRIP
HX2	BREAKER COM'S MODULE
BCH	UNDERVOLTAGE TRIP WITH TIME DELAY
IDM	SHUNT CLOSE PUSHBUTTON
BPFE	OPERATIONS COUNTER
CDM	TRANSPARENT BREAKER COVER
CCP	24VDC POWER SUPPLY
UC3	ADDITIONAL ELECTRICAL FAULT ALARM CONTACT
SDE2	EF
EF	BA/BB
CH	SPRING CHARGED CONTACT
K	KEY INTERLOCK
PL	PADLOCK ATTACHMENT
HCT	METERING CT
OFB	44/48 AUX. CONTACTS

MAJOR ELECTRICAL COMPONENTS

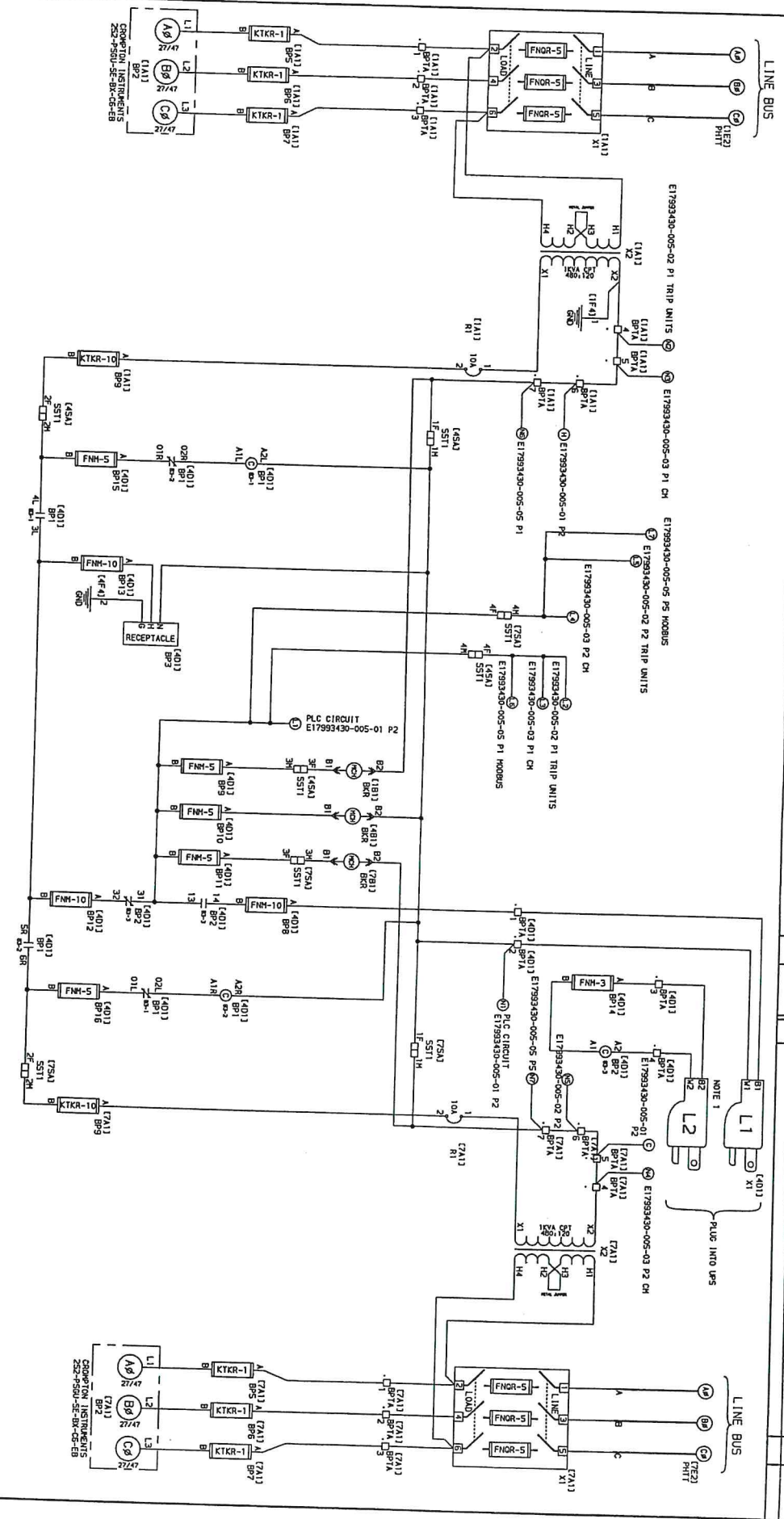
ITEM NO.	QUANTITY	MANUFACTURER	PART NO.	DESCRIPTION
P5	4	PHOENIX	CH50-PS-120-230A/24DC/2.5/F	120/230VAC/24VDC POWER SUPPLY
CPT	2	SQUARE D	907011000D1	480/120 1 KVA CONTROL POWER TRANSFORMER
CH	2	SQUARE D	CH4000	CH4000 W/CHD-VF, 10C44, ECC21
X	X	X	X	X
X	X	X	X	X
X	X	X	X	X

NOTES:
 Δ EXHAUST LABELS SHALL BE WHITE BACKGROUND WITH BLACK LETTERS, SCREEN PATTERNED.
 Δ LUG QUANTITIES ARE BASED ON 500 MCM CABLE.
 Δ UNLESS OTHERWISE SPECIFIED BY THE CUSTOMER, ALL CIRCUIT
 Δ UNLESS OTHERWISE SPECIFIED BY THE CUSTOMER, ALL CIRCUIT
 Δ UNLESS OTHERWISE NOTED ALL LUGS SHALL BE TYPE "X".

JOB NAME:	USDA APHIS SUPPLEMENTAL	EQUIPMENT DESIGNATION:	US5-1
JOB LOCATION:	AMES, IA	EQUIPMENT TYPE:	P24 SWITCHGEAR
DRAWN BY:	GAIL ALFORD	DRAWING TYPE:	BREAKER LEGEND/COMP.
DATE:	JULY 24, 2003		
DRAWING STATUS:	RECORD		

SQUARE D COMPANY

REV	DESCRIPTION	BY	DATE
A	CONVERT & REL'D FOR P&S PER RETURNED APPROVALS	CB	08/11/03



NOTES:
 1. DO NOT GROUND GREEN WIRE IN THE CONDUIT.
 CUT GREEN GROUND WIRE IN THE CONDUIT.
 CABLES FROM UPS ARE 3/4" 714 POWER.

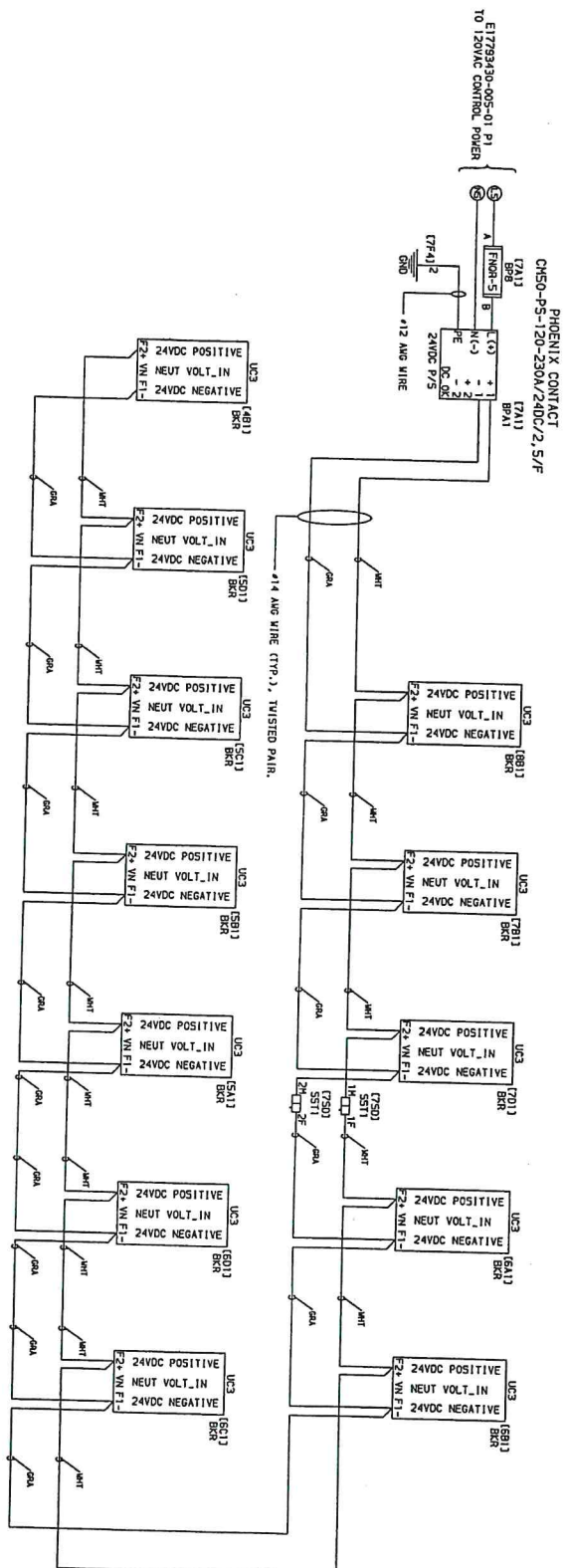
JOB NAME:	USDA ARHIS SUPPLEMENTAL
JOB LOCATION:	AINES, IA
DRAWN BY:	GALE ALFORD
DATE:	JULY 24, 2003
DRAWING STATUS:	RECORD
DWG#	E1793430-005-01
Pg	1 OF 2
REV	A

CONTROL POWER TRANSFER

EQUIPMENT DESIGNATION: USS-1
 EQUIPMENT TYPE: PZA SWITCHGEAR
 CONTROL POWER TRANSFER

SQUARE D COMPANY

REV	DESCRIPTION	BY	DATE
A	COPIED & RECD FOR WFO PER RETURNED APPROVALS	CB	08/12/03

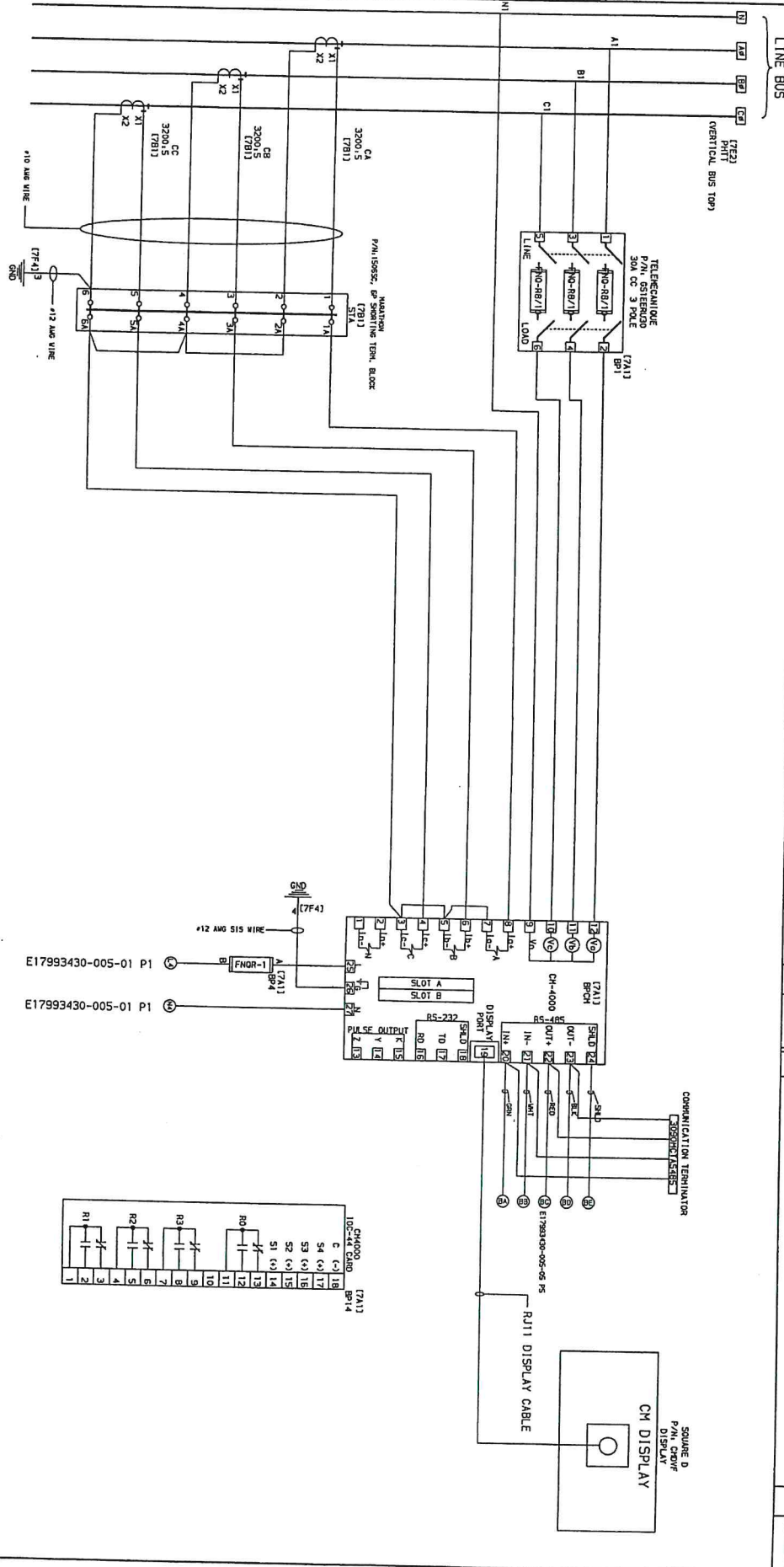


24VDC CONTROL POWER

JOB NAME:	USDA APHIS SUPPLEMENTAL	EQUIPMENT DESIGNATION:	US-1
JOB LOCATION:	AMES, IA	EQUIPMENT TYPE:	P24 SWITCHGEAR
DRAWN BY:	GGA	DRAWING TYPE:	TRIP UNIT PUR DIAGRAM
ENGR:	GAIL ALFORD		
DATE:	JULY 24, 2003		
DRAWING STATUS:	RECORD		

 SQUARE D COMPANY

REV	DESCRIPTION	BY	DATE
A	CHANGING & REL'D FOR P&S PER NETWORK APPROVALS	CS	08/12/03



POWERLOGIC CIRCUIT MONITORING (MAIN SECTION 7)

JOB NAME:	USDA APHS SUPPLEMENTAL	EQUIPMENT DESIGNATION:	US-1
JOB LOCATION:	AMES, IA	EQUIPMENT TYPE:	P24 SWITCHGEAR
DRAWN BY:	GGA	DRAWING TYPE:	MAIN METERING
DATE:	JULY 24, 2003		
DRAWING STATUS:	RECORD		

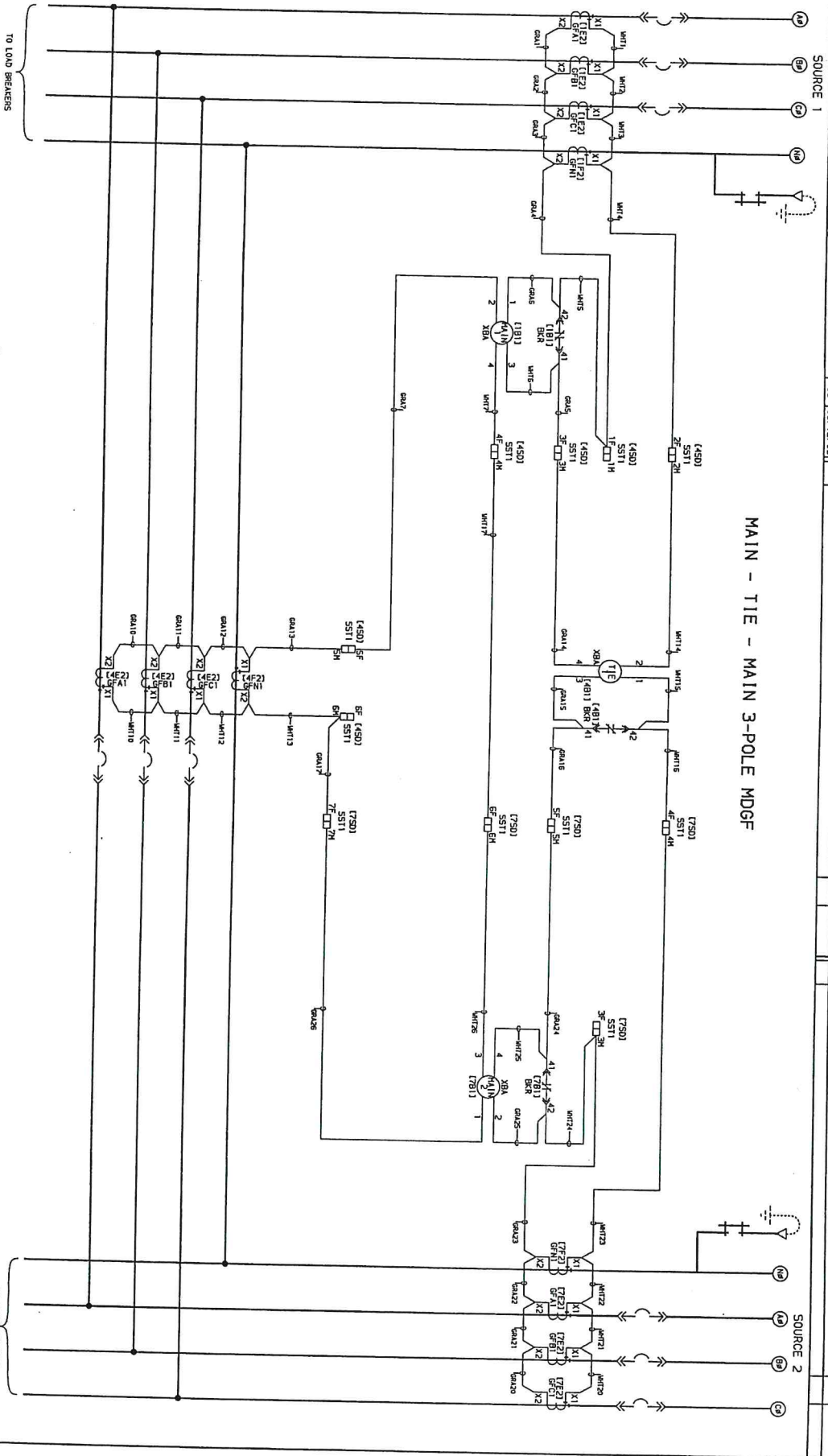
NOTES:

1. ALL WIRING TO BE TYPE "SIS" CUL LISTED.
2. ALL CONTROL FUSES MOUNTED IN FUSED PALLETS.

DWG# E17993430-005-03 Pg 2 OF 2 REV A

REV	DESCRIPTION	BY	DATE
A	CHANGED & RED. FOR WGS PER RETURNED APPROVALS	CB	08/12/03

MAIN - TIE - MAIN 3-POLE MDGF

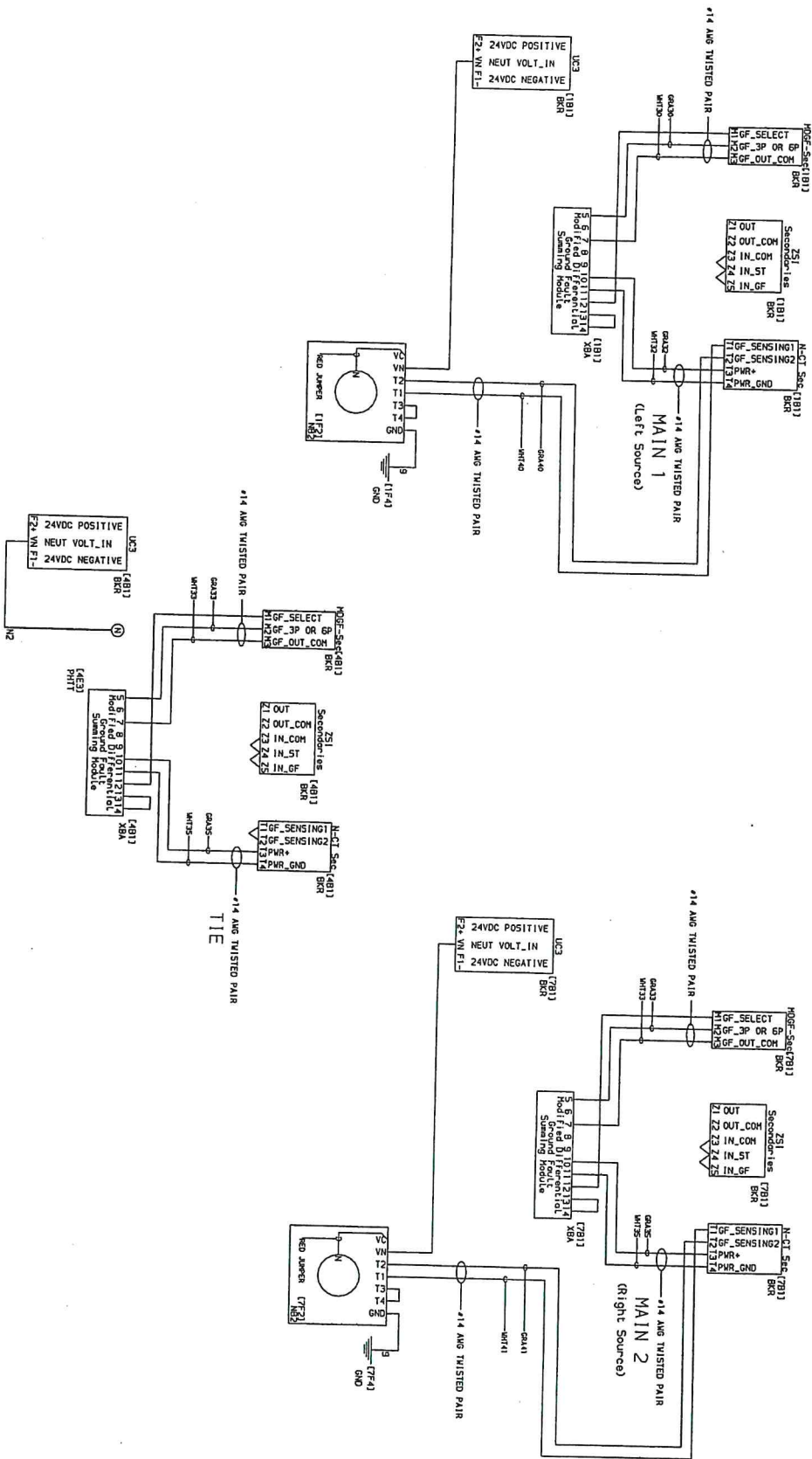


TIE BOTTON FEED FROM MAIN 1

JOB NAME:	USDA APHIS SUPPLEMENTAL	ALL WIRE *14KMG UNLESS OTHERWISE NOTED
JOB LOCATION:	AVES, IA	EQUIPMENT DESIGNATION: USS-1
DRAWN BY:	GGA	EQUIPMENT TYPE: PZA SWITCHGEAR
ENGR:	GAIL ALFORD	DRAWING TYPE: MTH GROUND FAULT
DATE:	JULY 24, 2003	
DRAWING STATUS:	RECORD	
DWG#	E17939430-005-04	PG 1 OF 5 REV A

SQUARE D COMPANY

REV	DESCRIPTION	BY	DATE
A	CONNECT & REL'D FOR PER RETURNED APPROVALS	CB	08/12/03

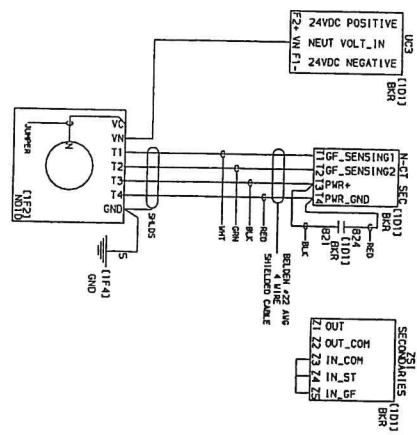


JOB NAME:	USDA APHS SUPPLEMENTAL	EQUIPMENT DESIGNATION:	US5-1
JOB LOCATION:	AMES, IA	EQUIPMENT TYPE:	P24 SWITCHGEAR
DRAWN BY:	GGA	DRAWING TYPE:	MOSE DIAGRAM
ENGINEER:	GAIL ALFORD		
DATE:	JULY 24, 2003		
DRAWING STATUS:	RECORD		
	DWG# E17993430-005-04		

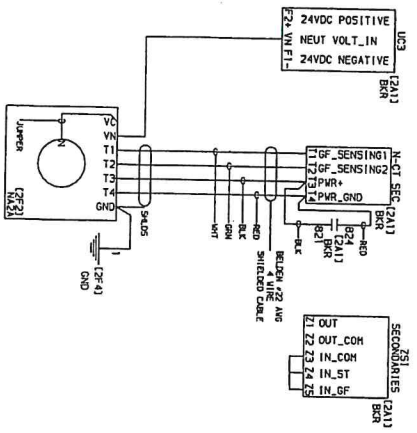
SQUARE D COMPANY

DESCRIPTION		BY	DATE
REV	A		
CONNECT & REL'D FOR PER RETURNED APPROVALS			
C8		08/12/03	

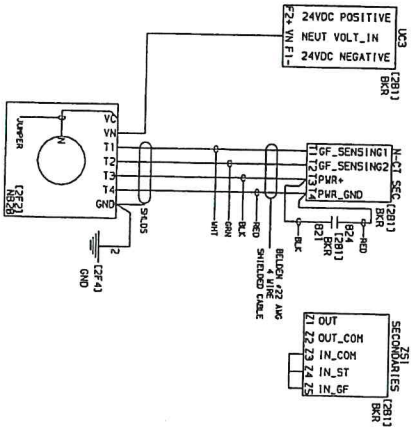
CELL 1D



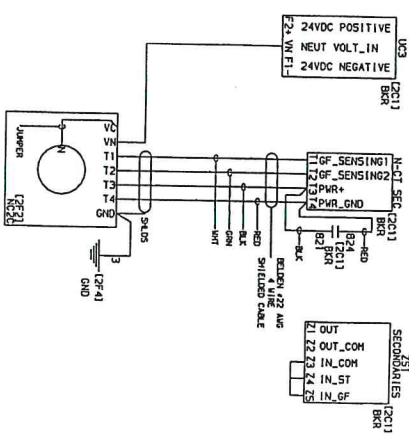
CELL 2A



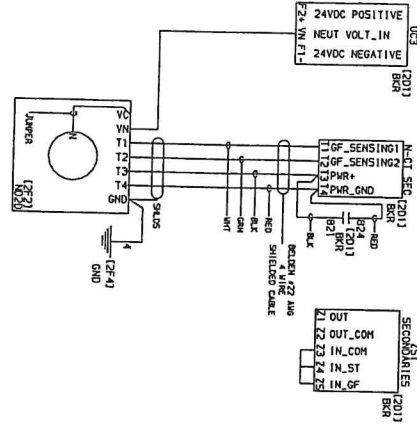
CELL 2B



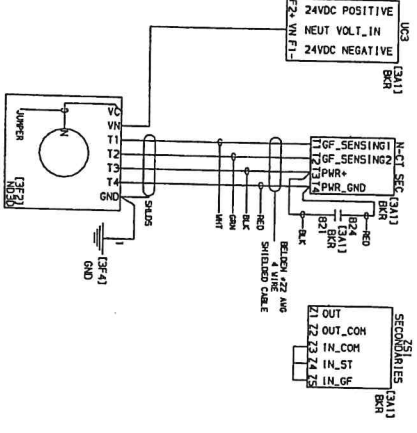
CELL 2C



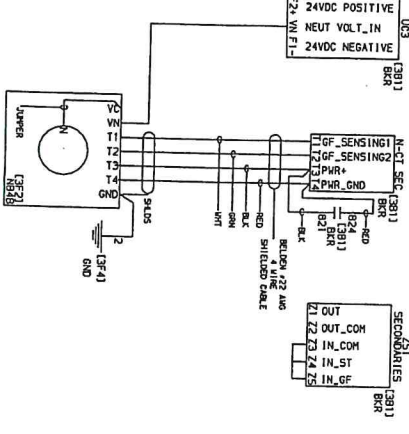
CELL 2D



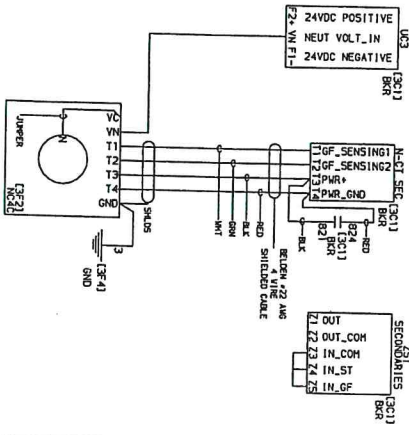
CELL 3A



CELL 3B



CELL 3C

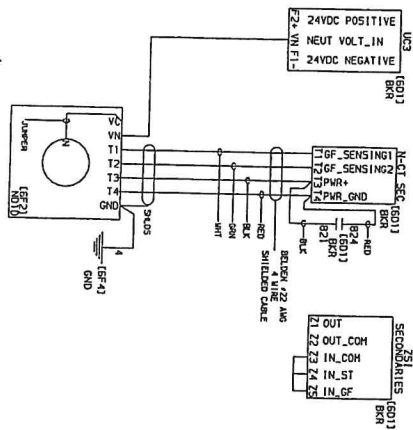


JOB NAME:	USDA APHIS SUPPLEMENTAL	EQUIPMENT DESIGNATION:	US5-1
JOB LOCATION:	ANES, IA	EQUIPMENT TYPE:	P24 SWITCHGEAR
DRAWN BY:	GAIL ALFORD	DRAWING TYPE:	RADIAL GROUND FAULT
DATE:	JULY 24, 2003		
DRAWING STATUS:	RECORD		
	DWG# E17993430-005-04		PG 3 OF 5 REV A

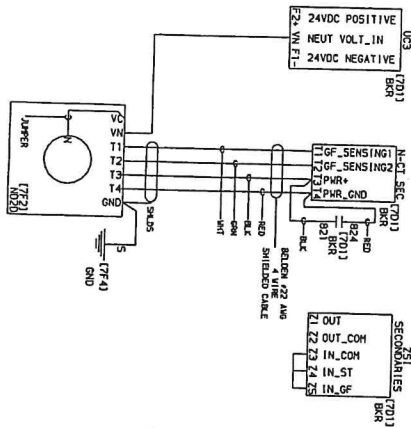
RADIAL GROUND FAULT

REV	DESCRIPTION	BY	DATE
A	CONVERTED & REL'D FOR PWS PER RETURNED APPROVALS	CB	08/12/03

CELL 6D

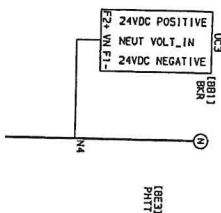


CELL 7D



CELL 88

NEUTRAL BUS

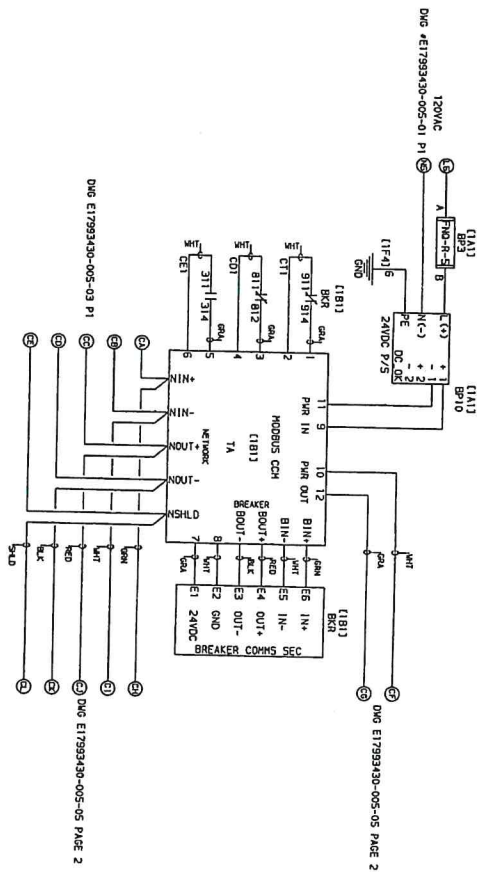


RADIAL GROUND FAULT

JOB NAME:	USDA APHIS SUPPLEMENTAL	EQUIPMENT DESIGNATION:	US5-1
JOB LOCATION:	AKES, IA	EQUIPMENT TYPE:	P24 SWITCHGEAR
DRAWN BY:	GGA	DRAWING TYPE:	RADIAL GROUND FAULT
ENGR:	GAIL ALFORD		
DATE:	JULY 24, 2003		
DRAWING STATUS:	RECORD		
	DWG# E17993430-005-04		PG 5 OF 5 REV A

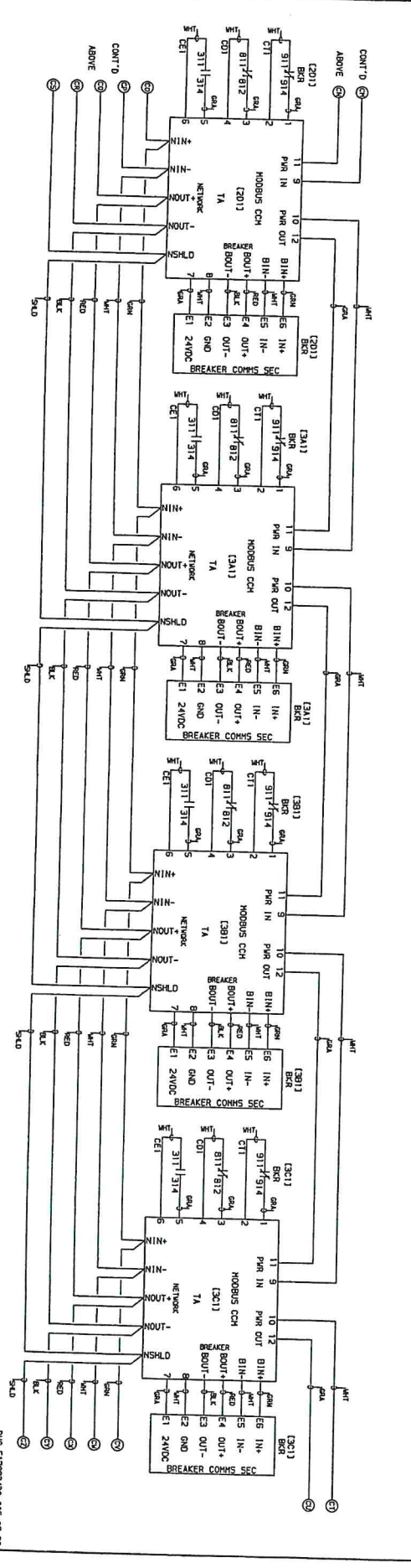
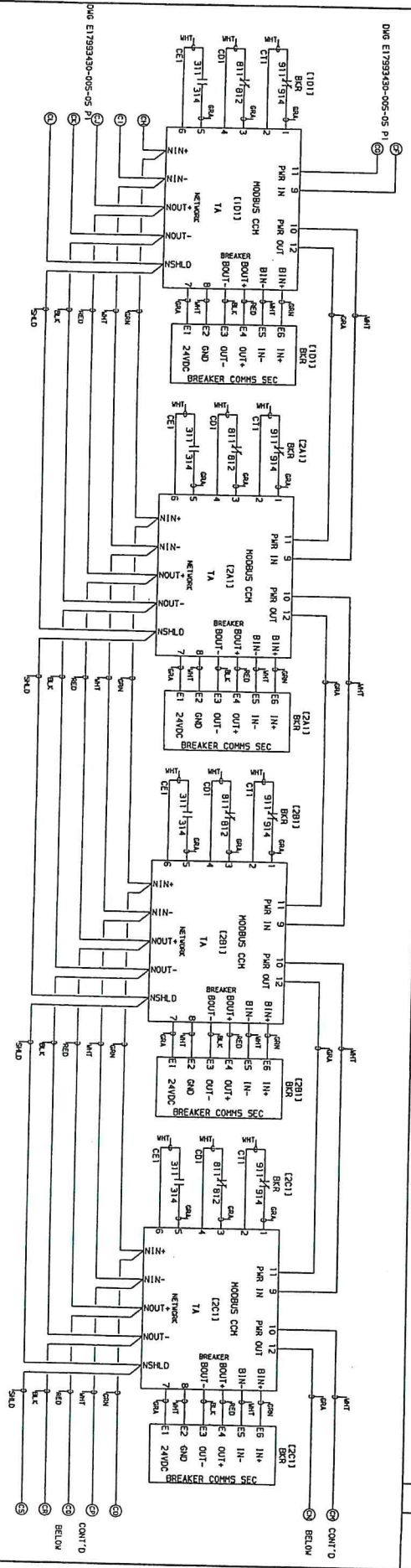
SQUARE D COMPANY

REV	DESCRIPTION	BY	DATE
A	QUICK D & EEL D FOR PER PER RETURNED APPROVALS	CB	08/12/03



JOB NAME:	USDA APHIS SUPPLEMENTAL	EQUIPMENT DESIGNATION:	US-1
JOB LOCATION:	AMES, IA	EQUIPMENT TYPE:	P2Z SWITCHGEAR
DRAWN BY:	GGA	DRAWING TYPE:	MODBUS COMMUNICATIONS
ENGINEER:	GAIL ALFORD		
DATE:	JULY 24, 2003		
DRAWING STATUS:	RECORD		

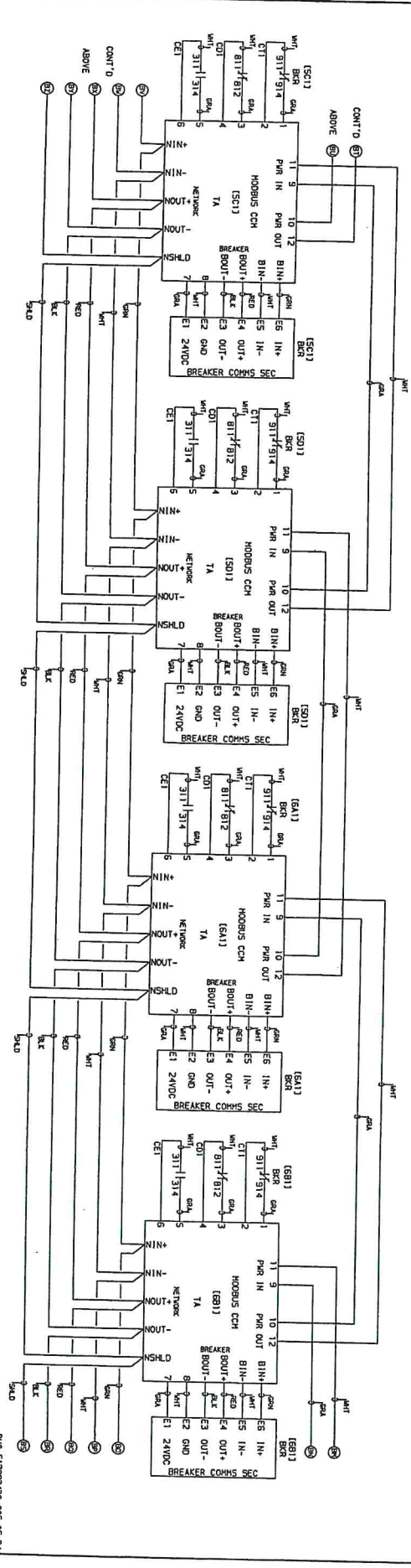
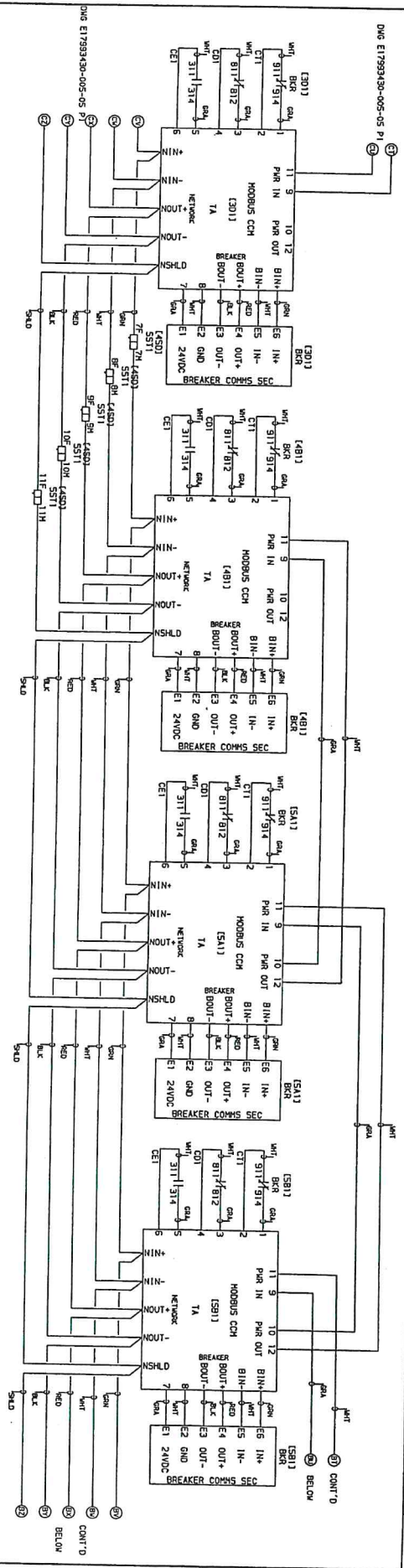
REV		DESCRIPTION		BY	DATE
A		CONNECT & REL'D FOR PG PER RETURNED APPROVALS		CB	08/12/03



JOB NAME:	USDA APHS SUPPLEMENTAL	EQUIPMENT DESTINATION:	US-1
JOB LOCATION:	AMES, IA	EQUIPMENT TYPE:	PZA SWITCHGEAR
DRAWN BY:	GAIL ALFORD	MODBUS COMMUNICATIONS	
DATE:	JULY 24, 2003	DRAWING TYPE:	
DRAWING STATUS:	RECORD		

SQUARE D COMPANY

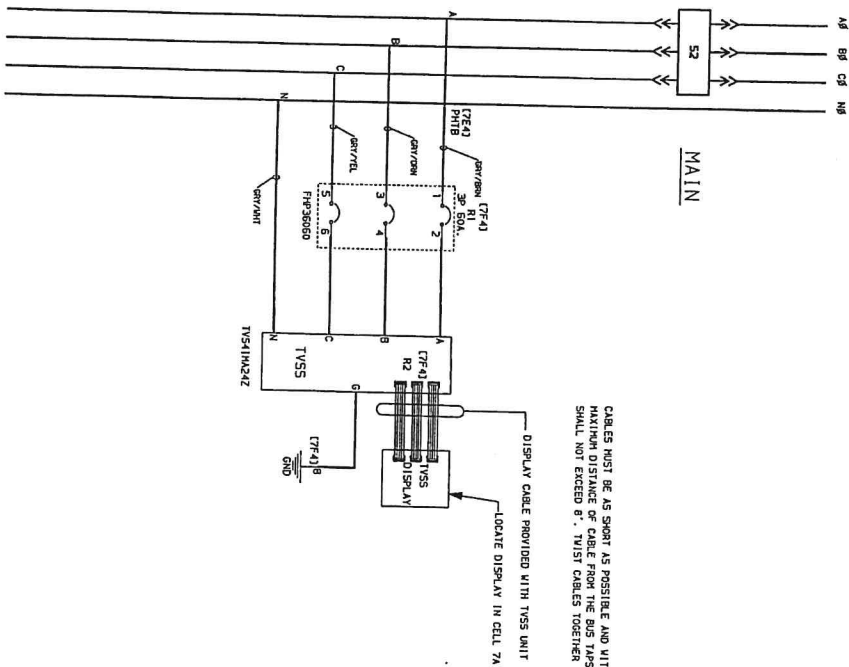
REV	DESCRIPTION	BY	DATE
A	CONNECTED & REL'D FOR PFG PER RETURNED APPROVALS	CB	08/12/03



JOB NAME.	USDA APHIS SUPPLEMENTAL
JOB LOCATION.	AMES, IA
DRAWN BY.	GALE ALFORD
DATE.	JULY 24, 2003
DRAWING STATUS.	RECORD
EQUIPMENT DESIGNATION.	US5-1
EQUIPMENT TYPE.	P24 SWITCHGEAR
DRAWING TYPE.	MODBUS COMMUNICATIONS
SQUARE D COMPANY	

REV	DESCRIPTION	DATE
A	CONVERTED TO REL'D FOR MFG PER RETURNED APPROVALS	08/12/03

SYSTEM VOLTAGE:
480/277 V, 3 PHASE, 4 WIRE




CABLES MUST BE AS SHORT AS POSSIBLE AND WITH MINIMUM BENDS.
MAXIMUM DISTANCE OF CABLE FROM THE BUS TAPS TO THE DISCONNECT
SHALL NOT EXCEED 6'. TWIST CABLES TOGETHER 2 OR 3 TIMES PER FOOT.

DISPLAY CABLE PROVIDED WITH TVSS UNIT
LOCATE DISPLAY IN CELL 7A

TVSS

JOB NAME:	USDA APHIS SUPPLEMENTAL	EQUIPMENT DESIGNATION:	US5-1
JOB LOCATION:	AMES, IA	EQUIPMENT TYPE:	PZA SWITCHGEAR
DRAWN BY:	GSA	DRAWING TYPE:	TVSS DETAIL
ENGR:	GAIL ALFORD		
DATE:	JULY 24, 2003		
DRAWING STATUS:	RECORD		

 SQUARE ID COMPANY

DWG# E17993430-005-05

Pg 2 OF 2 REV A

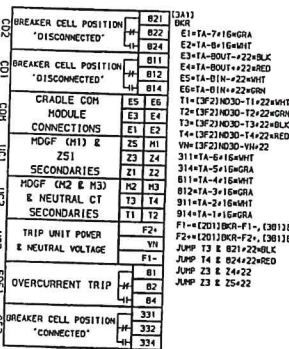
TVSS DIAGRAM

1. ALL 22 AWG WIRE WITH A COLOR DESIGNATION (RED, BLK, WHT, GRN)
2. IS 8723 4-CONDUCTOR BLENDED CABLE.
3. ALL WIRE DESIGNATIONS INCLUDING A COLOR (GRN, WHT) PLUS A ONE OR TWO LETTER ALPHABETIC SUFFIX (A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z) SHALL BE USED TO IDENTIFY EACH WIRE IN A CABLE.
4. ROUTE ALL BLENDED CABLE AND TWISTED PAIR WIRE IN BOTTOM WIREWAY.

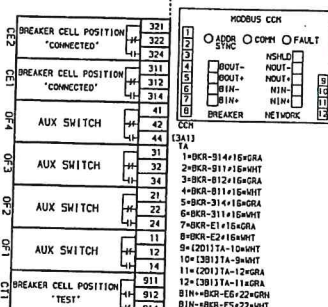
SECTION 3

JOB NAME: US04 APHS SUPPLEMENTAL
 JOB LOCATION: ANES 1A
 DRAWN BY: CARO BREHER
 DATE: JULY 24, 2003
 DSG: W17993430-005-03
 PG: 1 OF 1

CELL A BREAKER COMPARTMENT

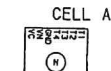


TOP BARRIER



CABLE COMPARTMENT

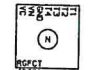
NEUTRAL C/T'S



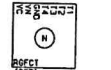
CELL B



CELL C

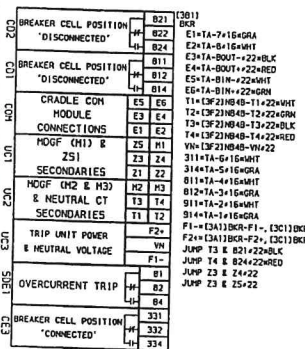


CELL D

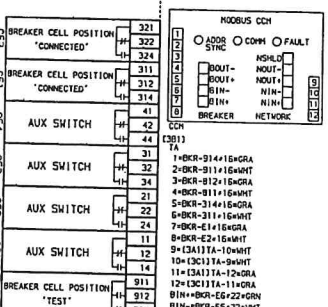


NEUTRAL CT WIRING NOTE:
 SHIELDS ARE TO BE TERMINATED AT THE
 CT GND TERMINAL AND CUT BACK TO THE
 WIRE INSULATION AT THE BREAKER.

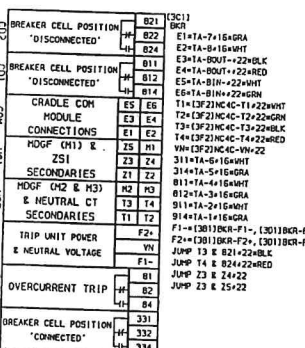
CELL B BREAKER COMPARTMENT



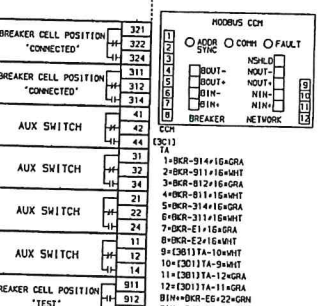
TOP BARRIER



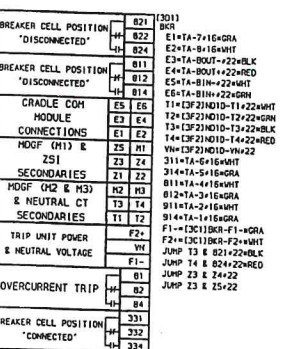
CELL C BREAKER COMPARTMENT



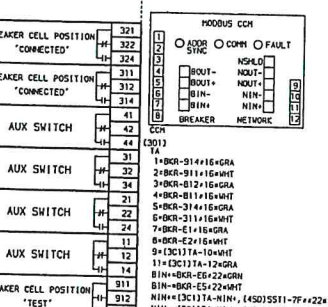
TOP BARRIER



CELL D BREAKER COMPARTMENT



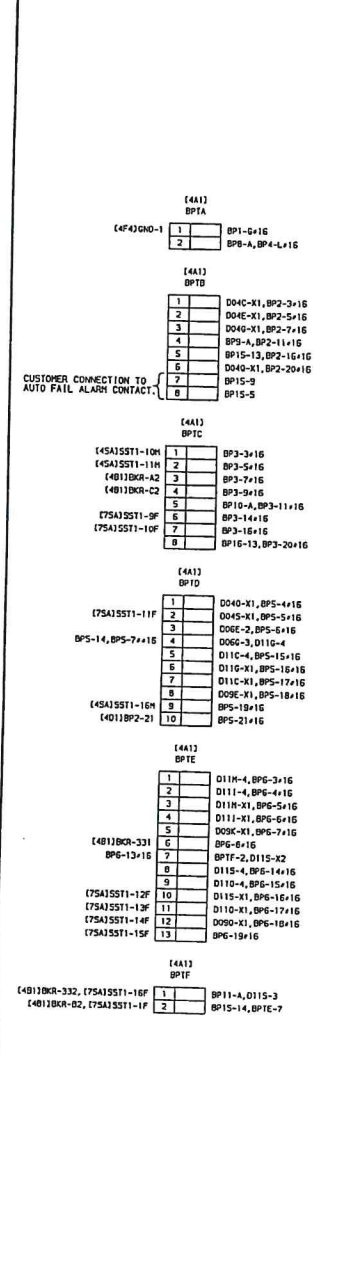
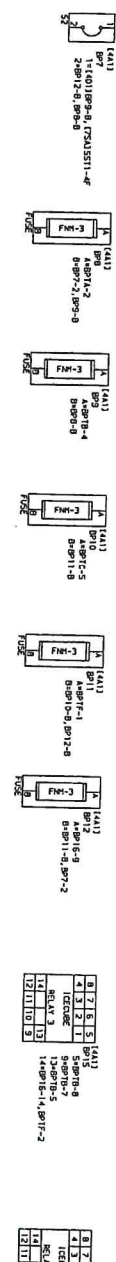
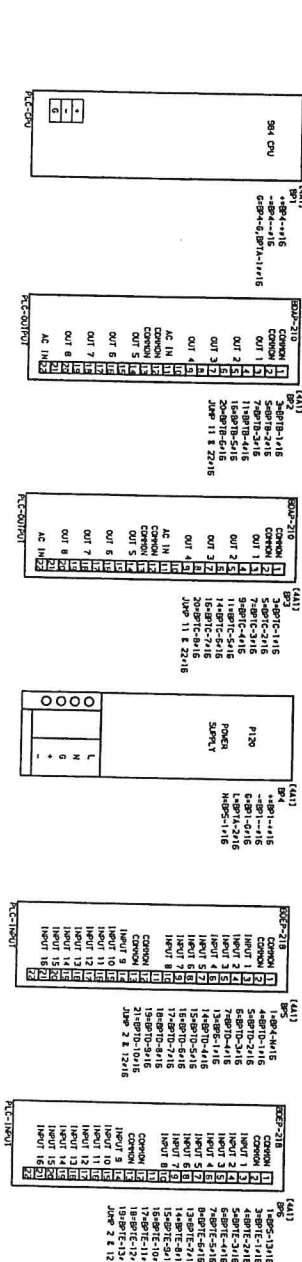
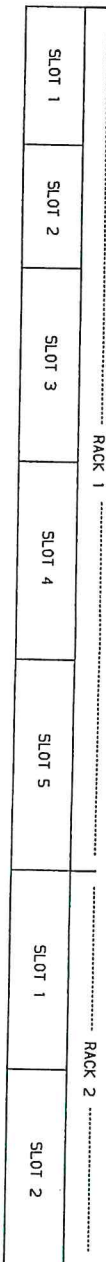
TOP BARRIER



1 3 5 7 9 10 (3F4)
 2 4 6 8 10 GND
 1-1 (3F2)N030-GND+12
 2-1 (3F2)N040-GND+12
 3-1 (3F2)N050-GND+12

REV	DESCRIPTION	BY	DATE

CELL A - BACK PAN



- NOTES:
1. CONNECT RIBBON CABLE AND GROUND BAR BETWEEN RACKS
 2. USE #14 GRAY SIS WIRE UNLESS OTHERWISE NOTED.

JOB NAME:	USDA APHS SUPPLEMENTAL
JOB LOCATION:	AMES, IA
DRAWN BY:	CAROL BREWER
CHECKED BY:	GAIL ALFORD
DATE:	AUGUST 13, 2003
DRAWING STATUS:	RECORD
DWG NO:	MT993430-005-04
REV:	4

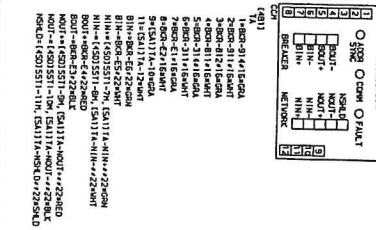
SECTION 4

CELL BC BREAKER COMPT.

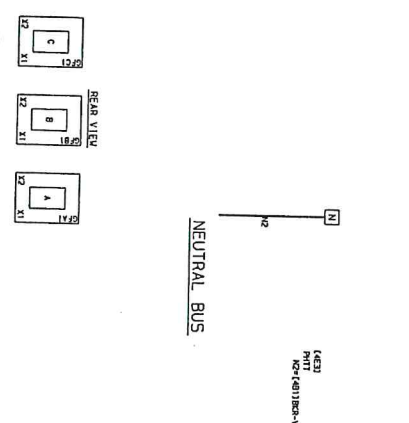
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98	BREAKER CELL POSITION	198	AUX SWITCH
99	BREAKER CELL POSITION	199	AUX SWITCH
100	BREAKER CELL POSITION	200	AUX SWITCH

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

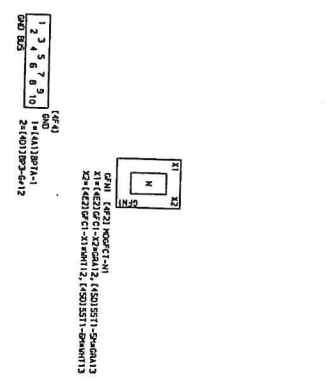
TOP BARRIER



BUSSING COMPARTMENT

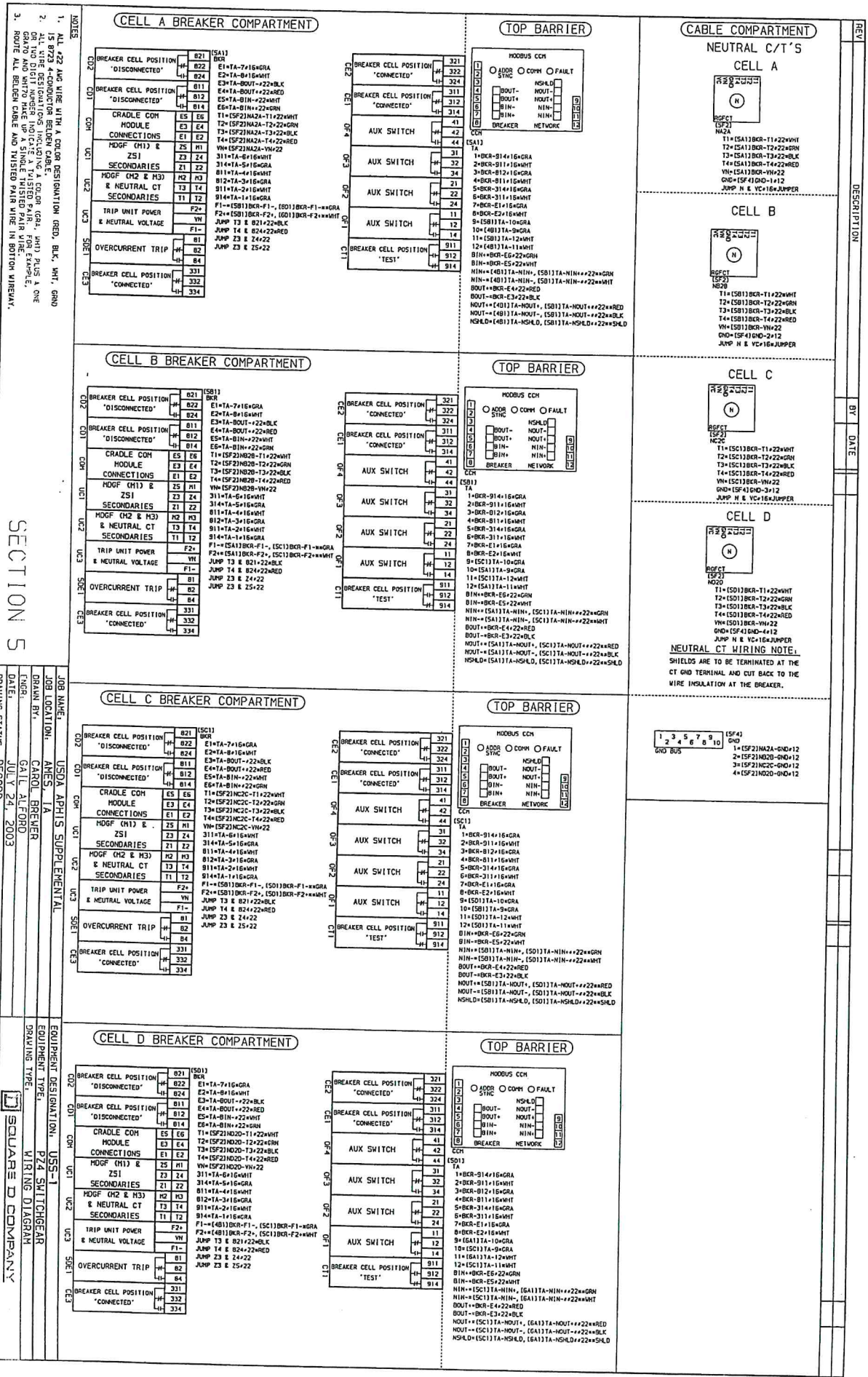


CABLE COMPARTMENT



JOB NAME: USDA APHIS SUPPLEMENTAL
JOB LOCATION: AMES, IA
DRAWN BY: CAROL BREWER
DATE: AUGUST 13, 2003
DRAWING STATUS: RECORD
EQUIPMENT DESIGNATION: USS-1
EQUIPMENT TYPE: P24 SWITCHGEAR
WIRING TYPE: WIRING DIAGRAM
DRAWING STATUS: RECORD
DWG: WT7993430-005-04
REV: 3 OF 4

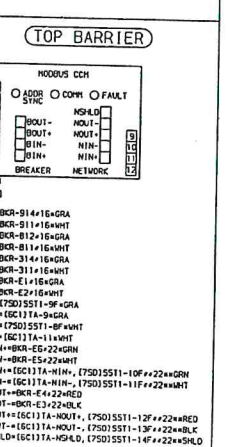
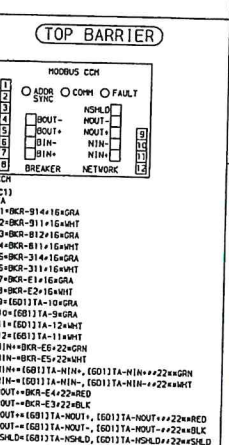
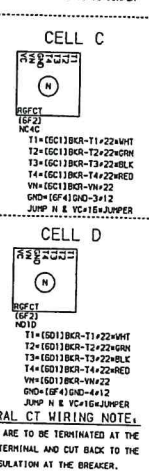
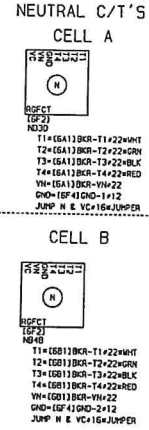
SECTION 4



SECTION 5

JOB NAME: USDA APHIS SUPPLEMENTAL
JOB LOCATION: ANES, IATA
DRAWN BY: CARL BREWER
CHECKED BY: GAIL ALFORD
DATE: JULY 24, 2003
DRAWING STATUS: RECORD
DWG# W17993430-005-05
EQUIPMENT DESIGNATION: USS-1
EQUIPMENT TYPE: P24 SWITCHGEAR
WIRING TYPE: WIRING DIAGRAM
SQUARE D COMPANY
PG 1 OF 1

(CABLE COMPARTMENT)



JOB NAME:	USDA APHIS SUPPLEMENTAL	EQUIPMENT DESIGNATION:	USS-1
JOB LOCATION:	AMES, IA	EQUIPMENT TYPE:	P24 SWITCHGEAR
DRAWN BY:	CAROL BREWER	DRAWING TYPE:	WIRING DIAGRAM
ENGR:	GAIL ALFORD		
DATE:	JULY 24, 2003		
DRAWING STATUS:	RECORD		
			W17080310.000.00

1

REV	DESCRIPTION	BY	DATE
A	QUANTITY 1 REL'D FOR MFG PER RETURNED APPROVALS	CB	08/13/03

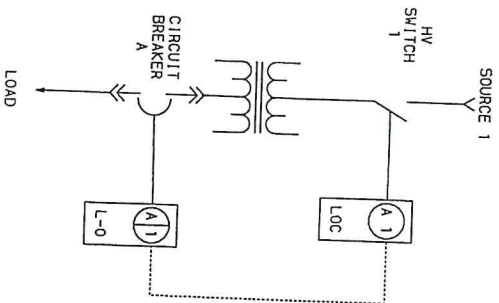
PURPOSE: TO PREVENT OPERATION OF HV SWITCH 1 WHEN BREAKER A IS CLOSED.
TO PERMIT OPERATING OF BREAKER A FOR SERVICING WHEN HV SWITCH 1 IS LOCKED OPEN.

NORMAL OPERATING CONDITION: HV SWITCH 1 CLOSED, BREAKER A CLOSED.
KEY A1 IS HELD IN BREAKER INTERLOCK.

KEY TRANSFER SEQUENCE

DESIRED CONDITION: HV SWITCH 1 OPEN TO ALLOW SERVICING OF BREAKER A.

- 1) OPEN BREAKER A AND TURN KEY A1 TO LOCK BREAKER OPEN.
 - 2) REMOVE KEY A1 FROM BREAKER A AND INSERT KEY INTO LOCK ON HV SWITCH 1.
 - 3) TURN KEY A1 TO UNLOCK HV SWITCH 1.
 - 4) OPEN HV SWITCH 1.
 - 5) TURN KEY A1 ON HV SWITCH 1 TO LOCK OPEN.
 - 6) RETURN KEY A1 TO BREAKER A LOCK AND UNLOCK FOR OPERATION OF BREAKER DURING SERVICING.
- REVERSE PROCEDURE TO RESTORE SERVICE TO LOAD.



NOTE: THIS SYSTEM USES ONE (1) KEY ONLY. ANY SPARE KEYS MUST BE REMOVED AND SECURED TO PREVENT UNAUTHORIZED ACCESS.

JOB NAME:	USDA APHIS SUPPLEMENTAL	EQUIPMENT DESIGNATION:	USG-1
JOB LOCATION:	AMES, IA	EQUIPMENT TYPE:	P24 SWITCHGEAR
DRAWN BY:	GCA	DRAWING TYPE:	KEY INTERLOCK DIAGRAM
ENGR:	GAIL ALFORD		
DATE:	JUL 24, 2003		
DRAWING STATUS:	RECORD		
		DWG#	K17993430-005-01
		PG	1 OF 1
		REV	A