

REVISIONS				
REV.	ECN	DESCRIPTION	DATE	APPROVED
B	ECN000353002	—	19/4/24	SR

ZTS T-SERIES SERVICE ENTRANCE ATS (30-1200A)

Product details:

- ZTS Service Entrance product is offered with Level-3 HMI and ABB XT/Emax frame breakers
- ABB breakers are connected to S1 side of ATS. Following pages provide more details.
- ZTS Service Entrance product brochure (Doc # 1SCC303048M0201) provide ordering scheme and option details.
- ZTS Product Brochure (Document # 1SCC303012C0201) provide base ATS feature and functions.
- ZTS product Operation/Maintenance manual (Document # 1SCC303023M0201) provide details about the Time Delays and other option settings.
- These documents also provide the details of Level 4 controller default available features, options and its settings.
- Upto 1200A SE unit is rated for 200-480V application. The operator should be able to program the unit to proper system voltage and Frequency by doing the "Auto Configuration process" in field.
- Level-4 HMI has LEDs on the screen for Source availability, ATS position, AUTO condition and any alarms as default.

Voltage/Frequency set points:

S1 Set points :

S1 Drop-out Voltage
Upper Threshold 102...120 % Un (115* % Un)
Lower Threshold 70...98 % Un (85* % Un)
S1 Pick-up Voltage
Upper Threshold 101...119 % Un (114* % Un)
Lower Threshold 71...99 % Un (90* % Un)
S1 Drop-out Frequency
Upper Threshold 101...120 % fn (115* % fn)
Lower Threshold 80...99 % fn (85* % fn)
S1 Pick-up Frequency
Upper Threshold 100.5...119.5 % fn (114* % fn)
Lower Threshold 80.5...99.5 % fn (86* % fn)

S2 Set points :

S2 Drop-out Voltage
Upper Threshold 102...120 % Un (115* % Un)
Lower Threshold 70...98 % Un (85* % Un)
S2 Pick-up Voltage
Upper Threshold 101...119 % Un (114* % Un)
Lower Threshold 71...99 % Un (90* % Un)
S2 Drop-out Frequency
Upper Threshold 101...120 % fn (115* % fn)
Lower Threshold 80...99 % fn (85* % fn)
S2 Pick-up Frequency
Upper Threshold 100.5...119.5 % fn (114* % fn)
Lower Threshold 80.5...99.5 % fn (86* % fn)

General Note:

1. Electrical diagram shows, Switch in S1 position and no power available.
2. The default setting values are shown with "*"

ATS Sequence of Operation:

SOURCE 1 (S1) = Utility (Priority source) & SOURCE 2 (S2) = Generator (Alternate Source)

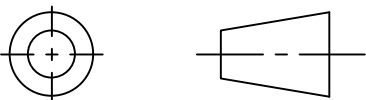
The switching sequence from S1 to S2 can be summarized in the following steps:

1. When anomaly occurs on SOURCE 1, Controller will go through Override momentary S1 outage time delay.
2. After that Engine start contact get closed will start the Generator.
3. Once SOURCE 2 available with in set parameter, controller will go through Transfer from S1 to S2 Time Delay
4. If there are other Pre-transfer signal and/or Elevator Pre signal then ATS will go through those time delays.
5. After those time delay, if it is Delay Transition ATS then it will transfer to position O.
6. After completing the Center-off delay (only with Delayed transition I - O - II type), ATS will transfer to S2 position.
7. if unit has Post-transfer time delay setting then it will go through Post-transfer S1 to S2 delay

The switching sequence from S2 back to S1 can be summarized in the following steps:

1. After S1 return, Controller will go through Override momentary S2 outage time delay.
2. Once S1 available with in set parameter, controller will go through Transfer from S2 to S1 Time Delay
3. If there are other Pre-transfer signal and/or Elevator Pre signal then ATS will go through those time delays.
4. After those time delay, if it is Delay Transition ATS then it will transfer to position O.
5. After completing the Center-off delay (only with Delayed transition I - O - II type), ATS will transfer to S1 position.
6. if unit has Post-transfer time delay setting then it will go through Post-transfer S2 to S1 delay
7. once ATS transfer back to S1 then controller will go through Generator Stop Delay and turn off S2.

THIRD ANGLE PROJECTION



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SIGNATURES		DATE
DESIGNED BY	MG	19/4/24
APPROVED BY	SR	19/4/24
DRAWING FILE:		77A-2008
MODEL / ASSEMBLY FILE:		
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		

ABB			
TITLE			
ZTS DELAYED TRANSITION SCHEMATIC 30-1200A ATS SERVICE ENTRANCE			
FIRST MADE FOR: -			
SIZE	CAGE CODE	DWG NO	
B		77A-2008	
SCALE: -		SHEET 1 OF 10	

OPTION PACKAGES
(CONFIGURED I/O FROM FACTORY)

DELAYED TRANSITION

		Base (B)	Plus (P)	Controls (C)	Motor (M)
Field	Terminal				
Embedded	I01	No Function	Remote test on Load/Peak Shave	Remote test on Load/Peak Shave	Remote test on Load/Peak Shave
Embedded	I02	No Function	Remote Inhibit ATS	Remote Inhibit ATS	Remote Inhibit ATS
Embedded (delayed T1 and TC)	I03	No Function	No Function	No Function	No Function
Ekip 2k-1	I11	not available	Test off Load	Test off Load	Test off Load
Ekip 2k-1	I12	not available	No Function	Remote Inhibit Transfer to non-priority	Remote Inhibit Transfer to non-priority
Ekip 2k-2	I21	not available	not available	Load Shed Input	Load Shed Input
Ekip 2k-2	I22	not available	not available	Remote Manual Re-Transfer	Remote Manual Re-Transfer
Ekip 2k-3	I31	not available	not available	not available	No Function
Ekip 2k-3	I32	not available	not available	not available	No Function
Embedded	O01	No Function	Transfer Alarm	Transfer Alarm	Transfer Alarm
Embedded (TC only)	O02	No Function	No Function	SCR Signal (load shed)	SCR Signal (load shed)
Embedded (TC only)	O03	No Function	No Function	No Function	No Function
Embedded (TC only)	O04	No Function	No Function	No Function	No Function
Ekip 2k-1	O11	not available	Source 1 Available	Source 1 Available	Source 1 Available
Ekip 2k-1	O12	not available	Source 2 Available	Source 2 Available	Source 2 Available
Ekip 2k-2	O21	not available	not available	Elevator Pre-Signal 1	Elevator Pre-Signal 1
Ekip 2k-2	O22	not available	not available	Pre-Signal 1	Pre-Signal 1
Ekip 2k-3	O31	not available	not available	not available	Pre-Signal 2
Ekip 2k-3	O32	not available	not available	not available	Load Disconnected Indication

13th character of the 20 digit USCON/Top-Level code on the rating plate indicates the IO package.

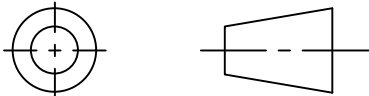
Transfer Alarm option requires 1 output (leave as "no function" if transfer alarm not a configured option)

Switch option requires 2 fixed DI plus an additional input from 2k for remote inhibit, test on load, test off load

NOTES:

1. REFER SHEET #4 FOR I/O LOCATION AND DESIGNATION.

THIRD ANGLE PROJECTION

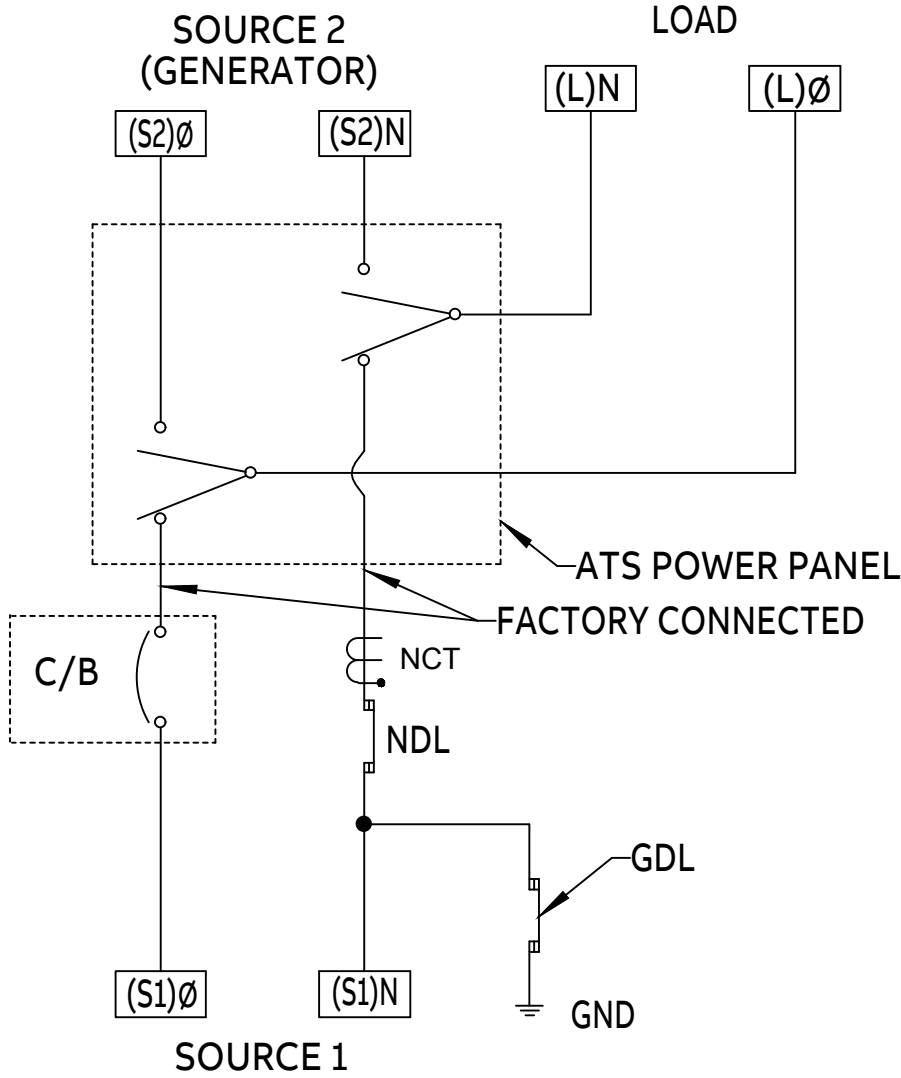


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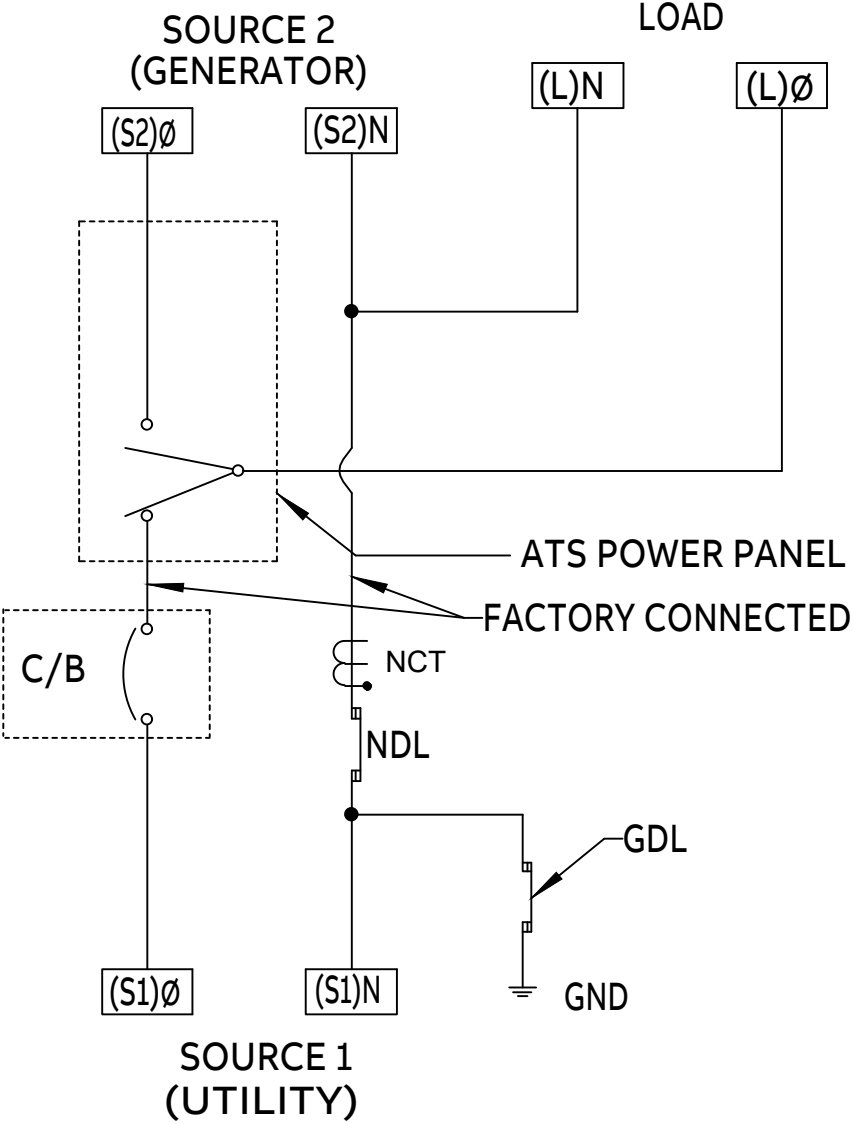
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SINGLE LINE DIAGRAM
SWITCHED NEUTRAL



SINGLE LINE DIAGRAM
SOLID NEUTRAL



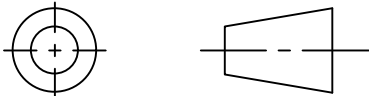
LEGEND:

ATS - AUTOMATIC TRANSFER SWITCH
C/B - MOLDED CASE CIRCUIT BREAKER
GDL - GROUND DISCONNECT LINK
NDL - NEUTRAL DISCONNECT LINK
NCT - NEUTRAL CURRENT SENSOR FOR GROUND PROTECTION
(STANDARD FOR 1000A AND HIGHER. OPTIONAL FROM 225A TO 800A)
N1,2,3(N) - SOURCE 1 LINE
E1,2,3(N) - SOURCE 2 LINE
T1,2,3(N) - LOAD CONNECTIONS

NOTICE:

- TRIP SETTINGS ON CIRCUIT BREAKER ARE FACTORY SET TO INSTANTANEOUS TRIP SETTING.

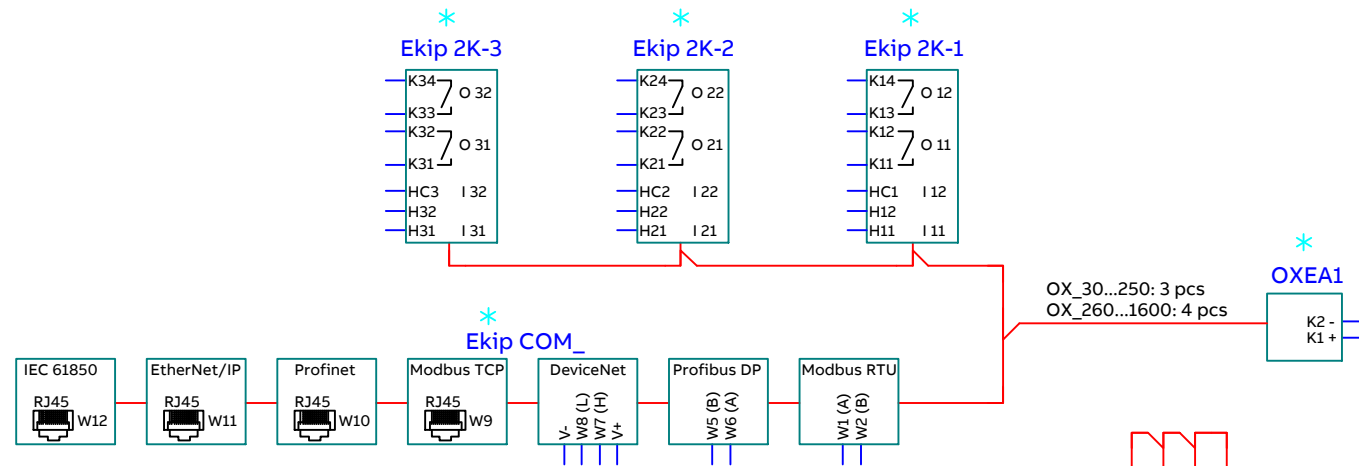
THIRD ANGLE PROJECTION



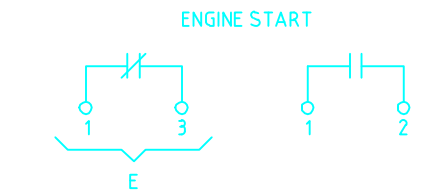
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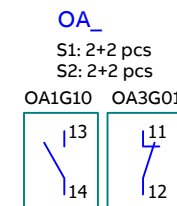


CUSTOMER CONNECTIONS

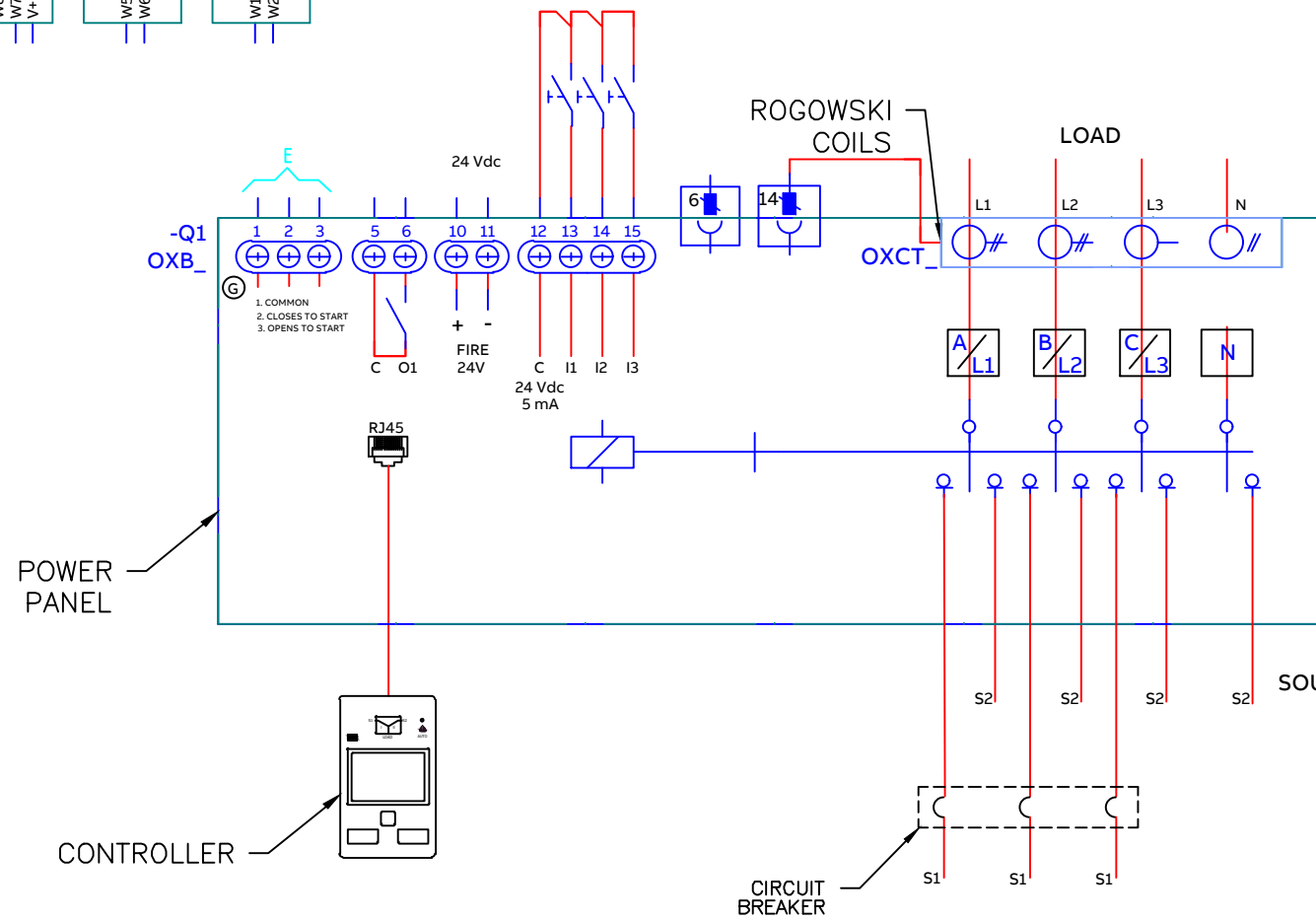


CONTACT	RATING
E	5 AMP @ 240 VAC 5 AMP @ 30 VDC
OA1G10 (N.O.)	6 AMP @ 125, 250 VAC
OA3G01 (N.C.)	6 AMP @ 125, 250 VAC
Ekip Module (2K-1, 2, 3)	4 AMP @ 240 VAC 2 AMP @ 30 VDC

INTERCONNECT PLUG DIAGRAM



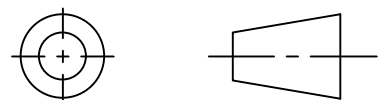
AUX CONTACTS
(OPTIONAL)
LOCATE RIGHT SIDE
OF PANEL



NOTES:

- ATS SHOWN IN SOURCE 1 POSITION WITH NO POWER AVAILABLE.
- REFER TO OPERATION AND MAINTENANCE MANUAL TO CONFIGURE THE OPTIONS.
- # OF N.O. & N.C CONTACTS ON POWER PANEL AS WELL AS COM MODULES AND EKIP-2K MODULE, OFFERING WILL BE DIFFERENT BASED ON THE SWITCH AMPERAGE. REVIEW THE PRODUCT BROCHURE FOR THE DETAILS.
- 4-POLE ATS SHOWN FOR REFERENCE.

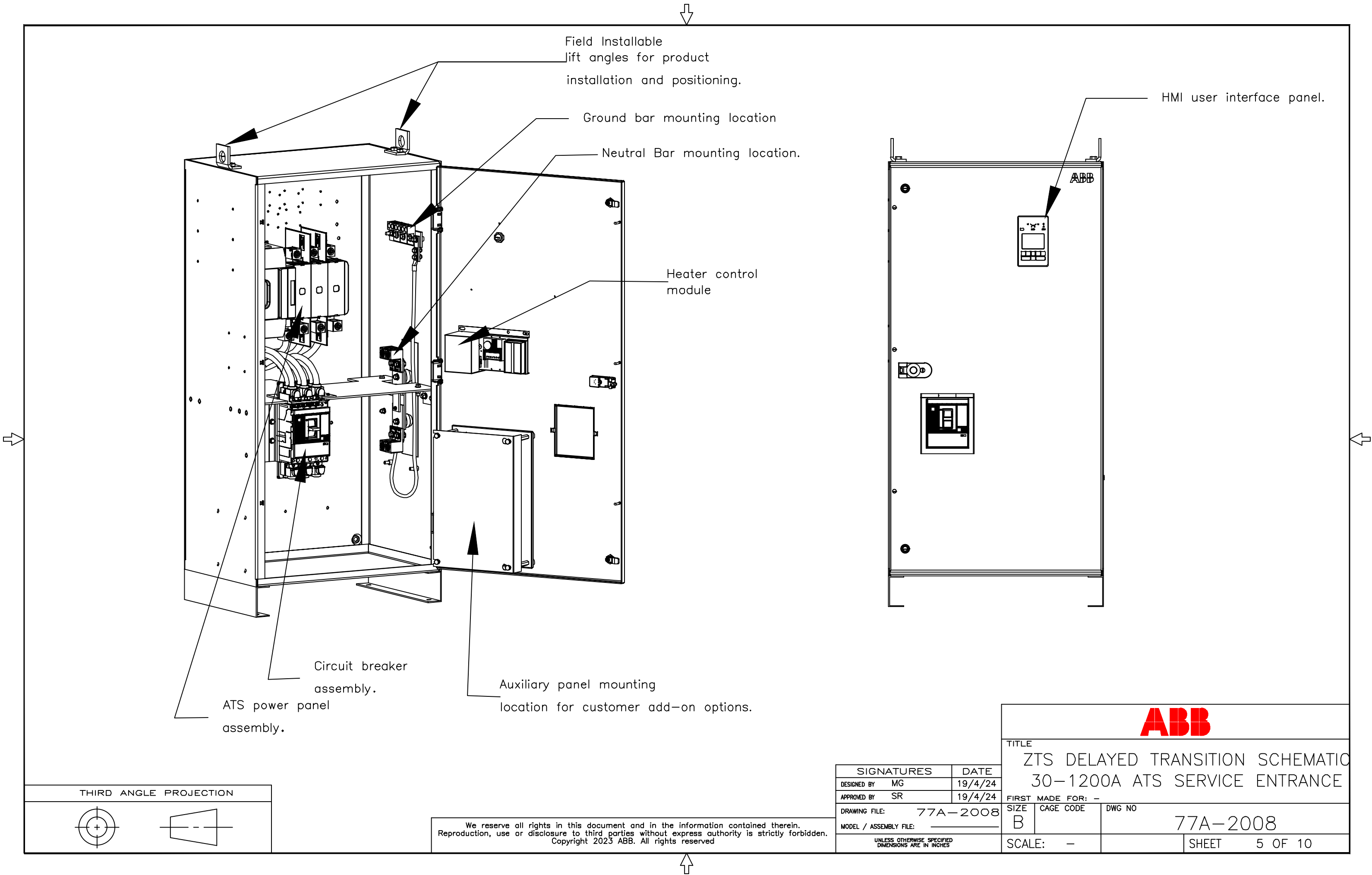
THIRD ANGLE PROJECTION

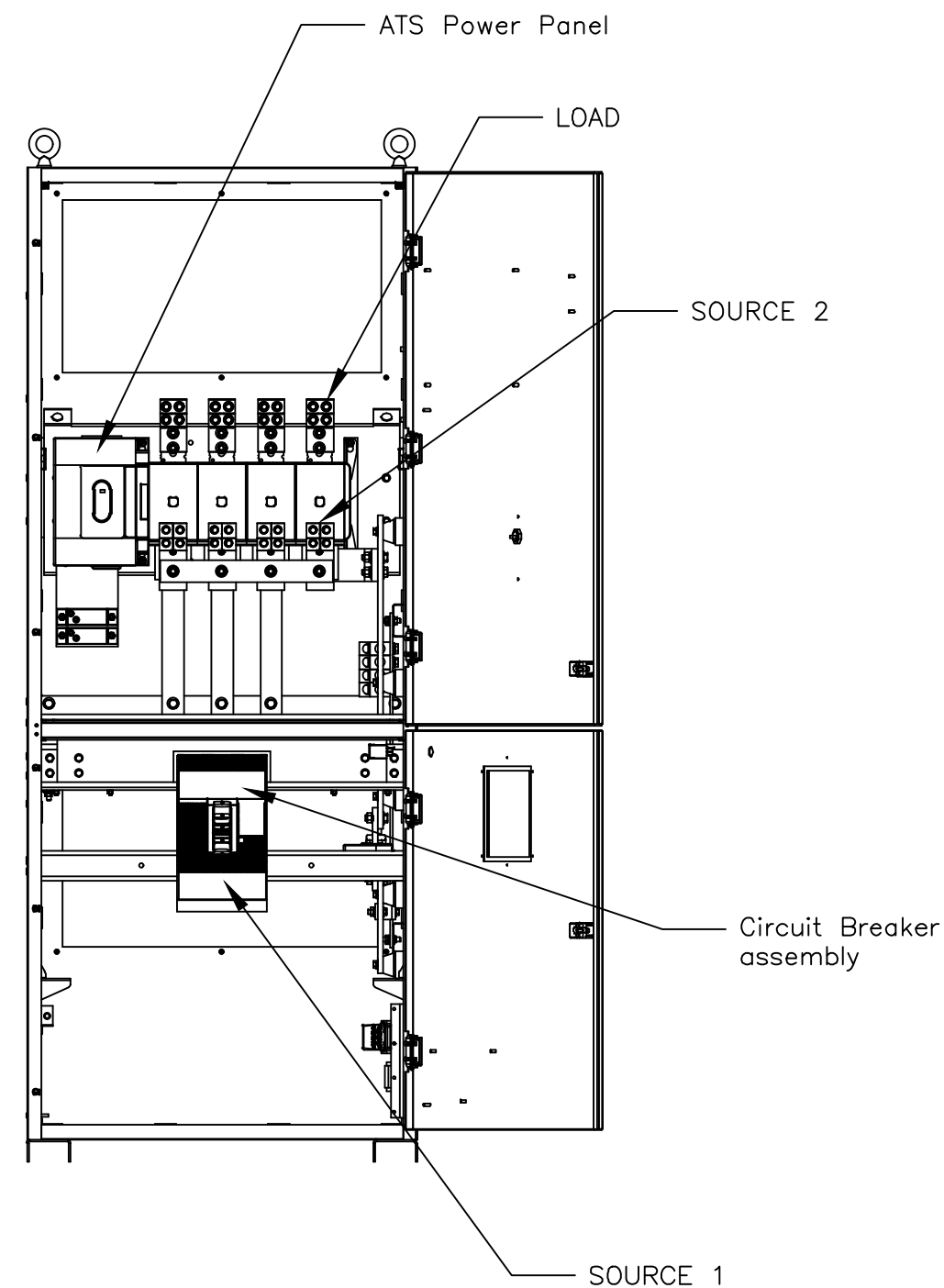
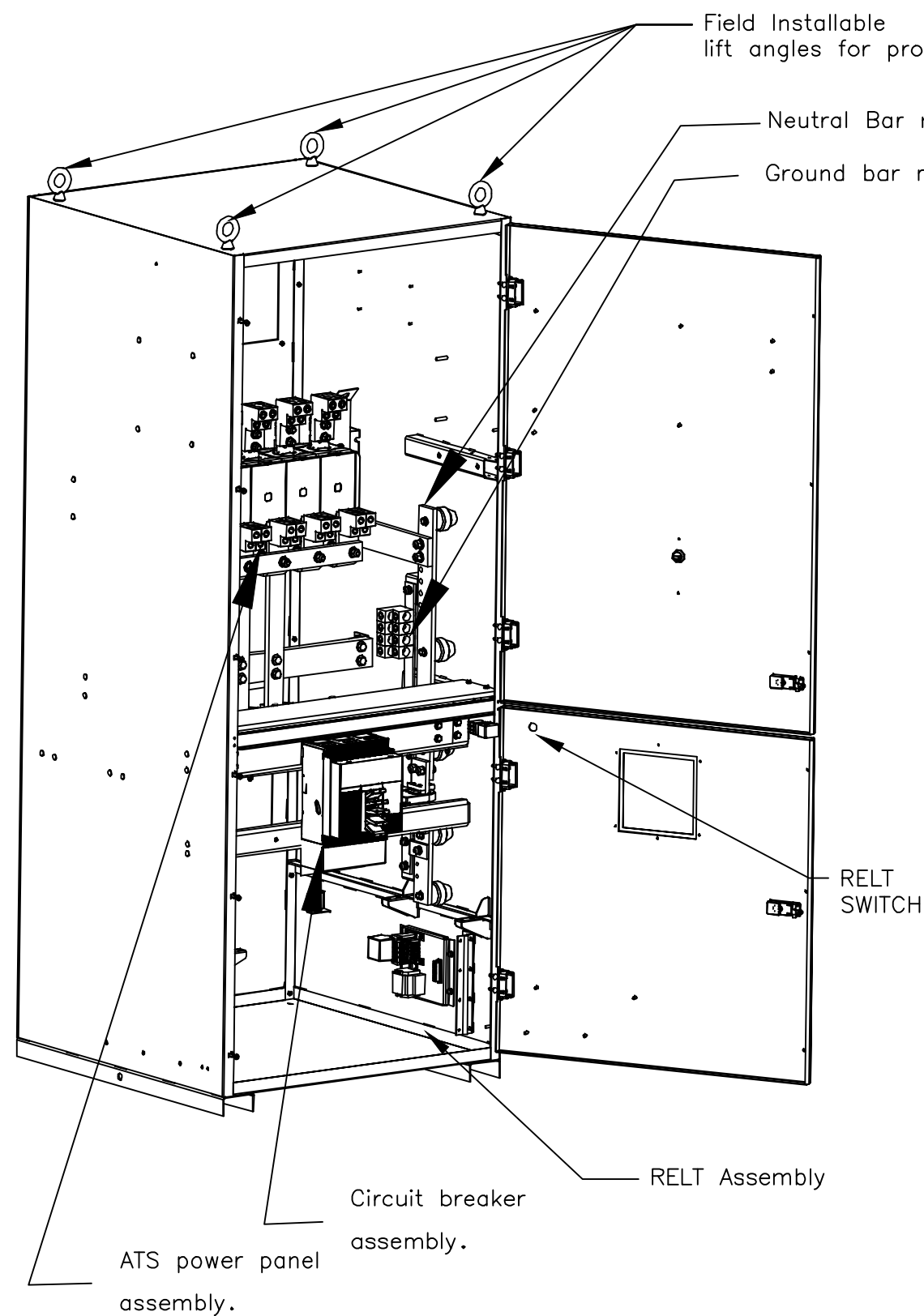


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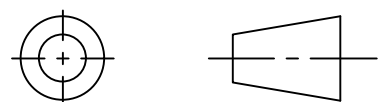
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B		77A-2008
SCALE: -		SHEET 4 OF 10





THE ABOVE VIEWS SHOW HERE IS FOR REFERENCE ONLY
APPLICABLE FOR 800-1200A 4 POLE CONSTRUCTION

THIRD ANGLE PROJECTION



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ZTS DELAYED TRANSITION SCHEMATIC
30-1200A ATS SERVICE ENTRANCE

FIRST MADE FOR: -

SIZE CAGE CODE DWG NO

B

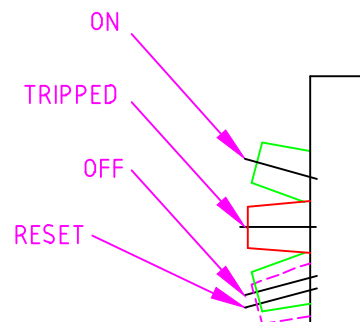
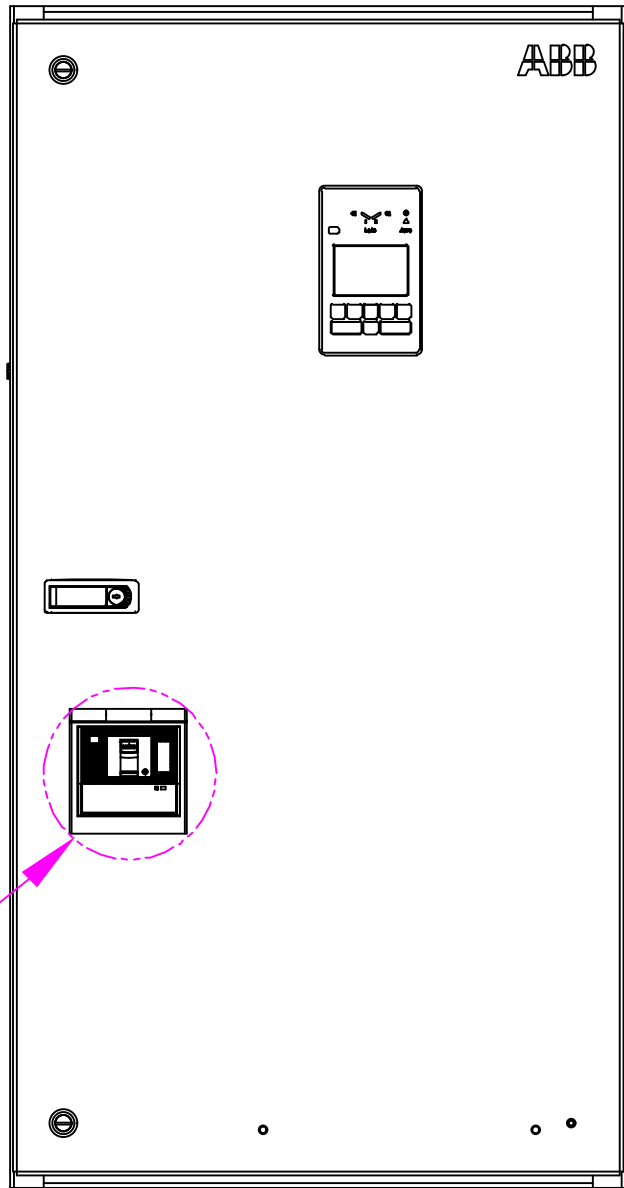
77A-2008

SCALE: -

SHEET 6 OF 10

ABB

CABINET FRONT

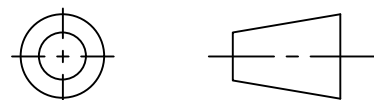


DETAIL A

C/B SIDE VIEW
handle positions for ON,
TRIP, and OFF

DETAIL A

THIRD ANGLE PROJECTION



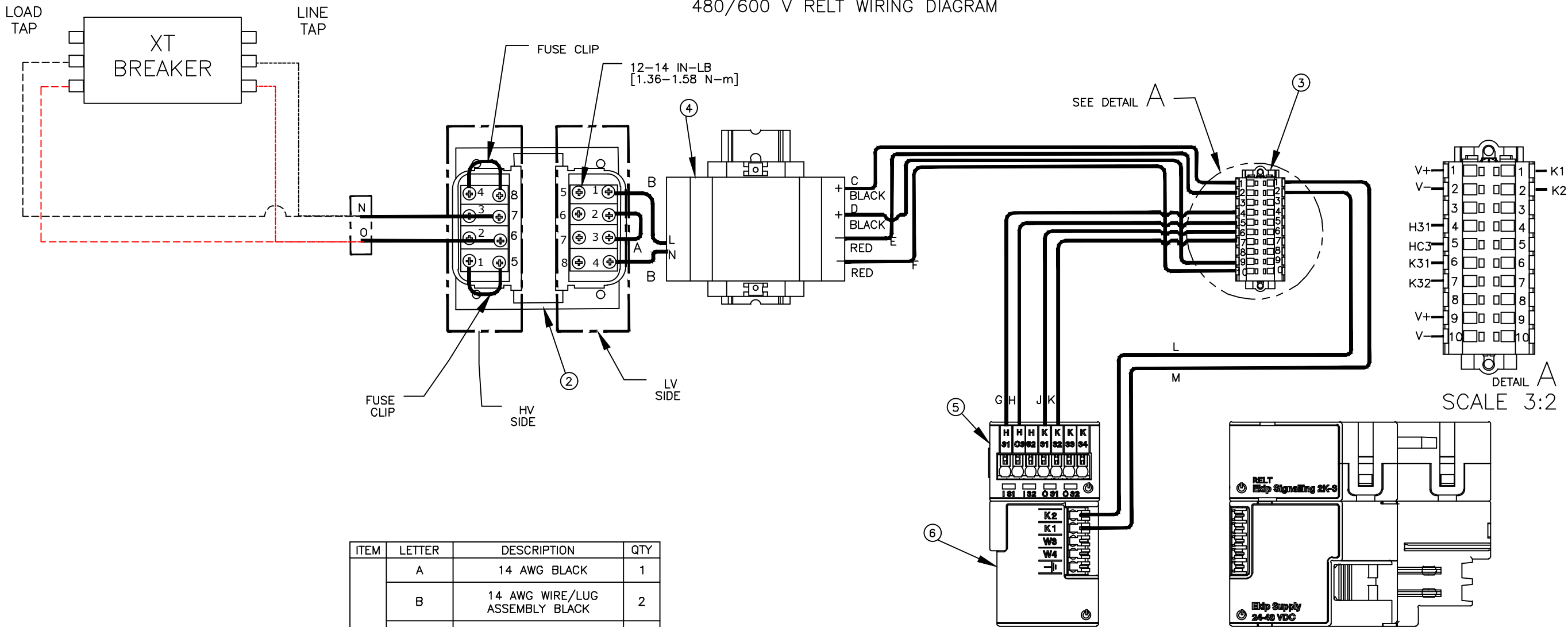
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SCALE: -		SHEET 7 OF 10	

REL-T-ARC FAULT MITIGATION 1200A AND HIGHER

480/600 V RELT WIRING DIAGRAM



ITEM	LETTER	DESCRIPTION	QTY
7	A	14 AWG BLACK	1
	B	14 AWG WIRE/LUG ASSEMBLY BLACK	2
	C	18 AWG BLACK	1
	D	18 AWG BLACK	1
	E	18 AWG RED	1
	F	18 AWG RED	1
8	G	18 AWG BLUE	1
	H	18 AWG GREEN	1
	J	18 AWG YELLOW	1
	K	18 AWG BROWN	1
	L	18 AWG BLACK	1
	M	18 AWG RED	1
9	N	14 AWG WIRE/ LUG ASSEMBLY BLACK	1
	O	14 AWG WIRE/ LUG ASSEMBLY BLACK	1

ITEM	PART NAME	PART NUMBER	Qty
2	TRANSFORMER ,FUSE & FINGER GUARD KIT	3000303942A001	1
3	10-POS TERMINAL BLOCK	1SDA101977R1	1
4	DC POWER SUPPLY	1SVR427043R0100	1
5	RELT EKIP 2K-3	1SDA074169R1	1
6	EKIP SUPPLY (24-48VDC)	1SDA074173R1	1

NOTE:
1. WIRING DIAGRAM FOR TERMINAL BLOCK TO ONBOARD RELT SWITCH IS SHOWN ON PAGE 10

ABB

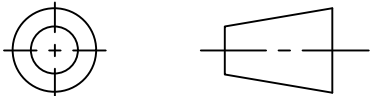
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ZTS DELAYED TRANSITION SCHEMATIC
30-1200A ATS SERVICE ENTRANCE

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SIZE B CAGE CODE DWG NO 77A-2008
SCALE: - SHEET 8 OF 10

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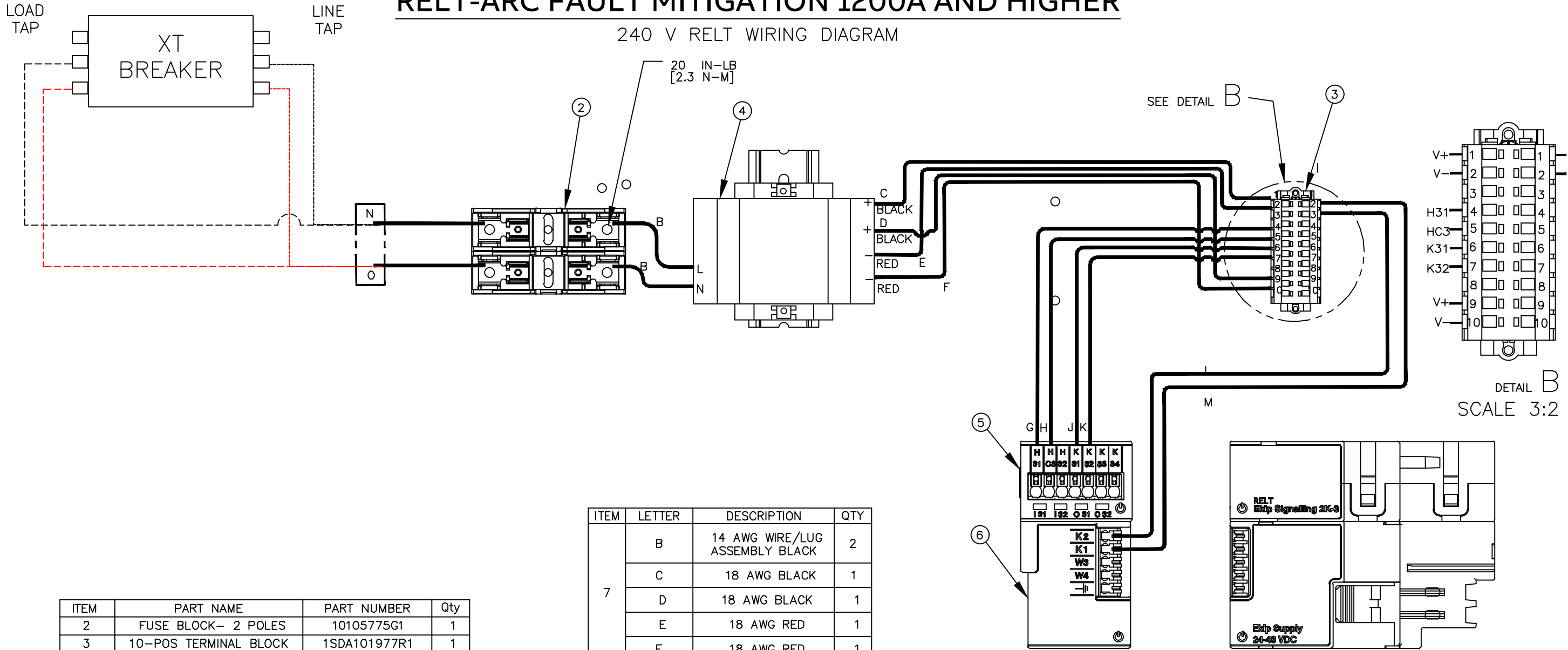
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THIRD ANGLE PROJECTION



REL T-ARC FAULT MITIGATION 1200A AND HIGHER

240 V RELT WIRING DIAGRAM



ITEM	PART NAME	PART NUMBER	Qty
2	FUSE BLOCK- 2 POLES	10105775G1	1
3	10-POS TERMINAL BLOCK	1SDA101977R1	1
4	DC POWER SUPPLY	1SVR427043R0100	1
5	REL T EKIP 2K-3	1SDA074169R1	1
6	EKIP SUPPLY (24-48VDC)	1SDA074173R1	1
7	MCCB RELT INTERNAL WIRING 240V	3000300817A005	1
8	MCCB RELT EKIP WIRING XT7	3000292925A002	1
9	MCCB TAP WIRING	3000300817A006	1

ITEM	LETTER	DESCRIPTION	QTY
7	B	14 AWG WIRE/LUG ASSEMBLY BLACK	2
	C	18 AWG BLACK	1
	D	18 AWG BLACK	1
	E	18 AWG RED	1
	F	18 AWG RED	1
8	G	18 AWG BLUE	1
	H	18 AWG GREEN	1
	J	18 AWG YELLOW	1
	K	18 AWG BROWN	1
	L	18 AWG BLACK	1
9	M	18 AWG RED	1
	N	14 AWG WIRE/ LUG ASSEMBLY BLACK	1
9	O	14 AWG WIRE/ LUG ASSEMBLY BLACK	1

NOTE:
1. WIRING DIAGRAM FOR TERMINAL BLOCK TO ONBOARD RELT SWITCH IS SHOWN ON PAGE 10

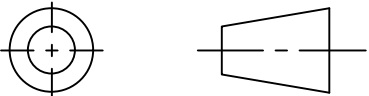


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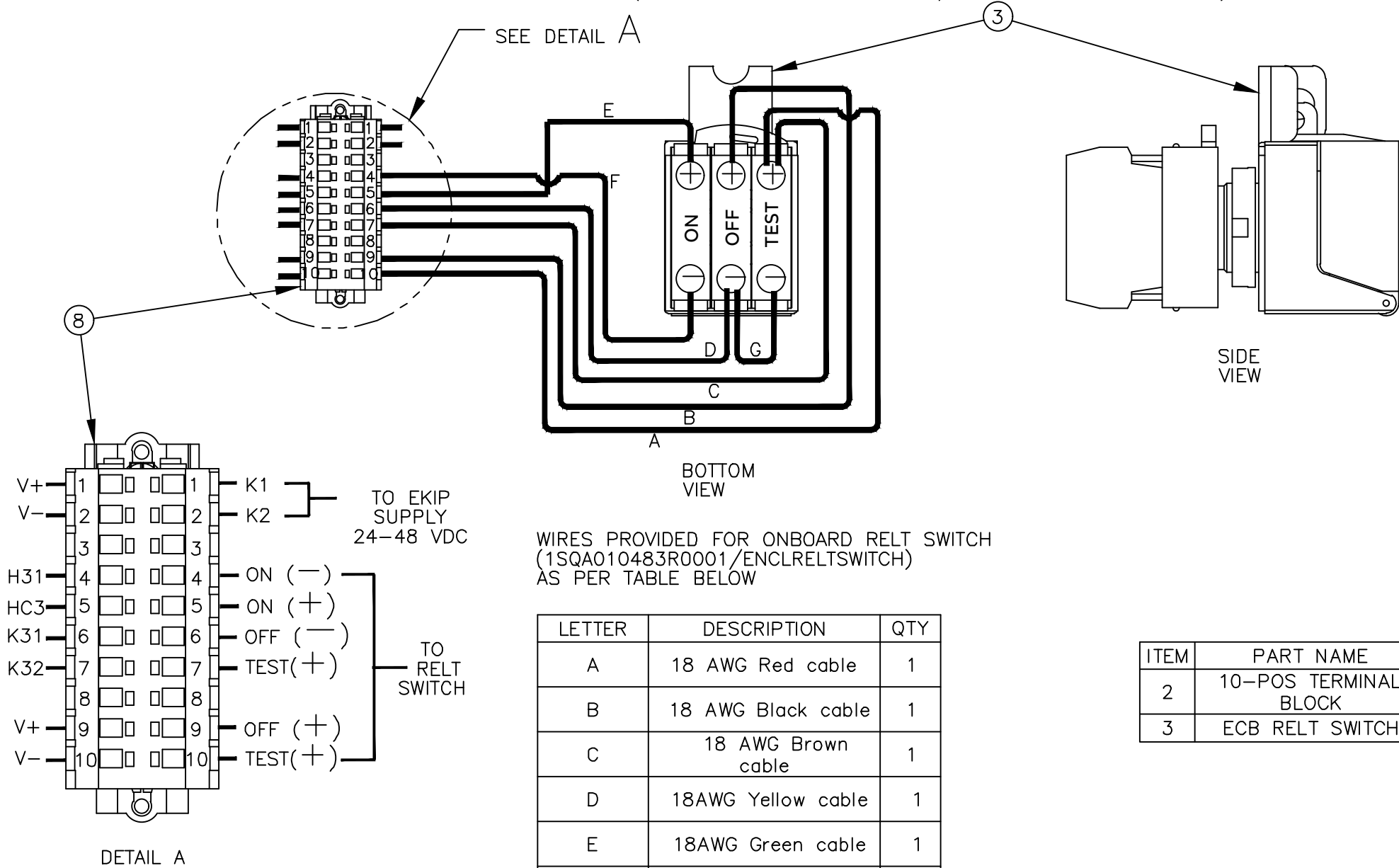
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RELT-ARC FAULT MITIGATION 1200A AND HIGHER

WIRING DIAGRAM FOR TERMINAL BLOCK TO
ONBOARD RELT SWITCH (1SQA010483R0001/ENCLRELT SWITCH)



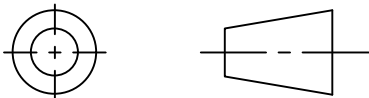
WIRES PROVIDED FOR ONBOARD RELT SWITCH
(1SQA010483R0001/ENCLRELT SWITCH)
AS PER TABLE BELOW

LETTER	DESCRIPTION	QTY
A	18 AWG Red cable	1
B	18 AWG Black cable	1
C	18 AWG Brown cable	1
D	18AWG Yellow cable	1
E	18AWG Green cable	1
F	18 AWG Blue cable	1
G	14 AWG	1

ITEM	PART NAME	QTY
2	10-POS TERMINAL BLOCK	1
3	ECB RELT SWITCH	1

USE 18 AWG WIRE , TOTAL MAXIMUM
LENGTH 100 FT

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