

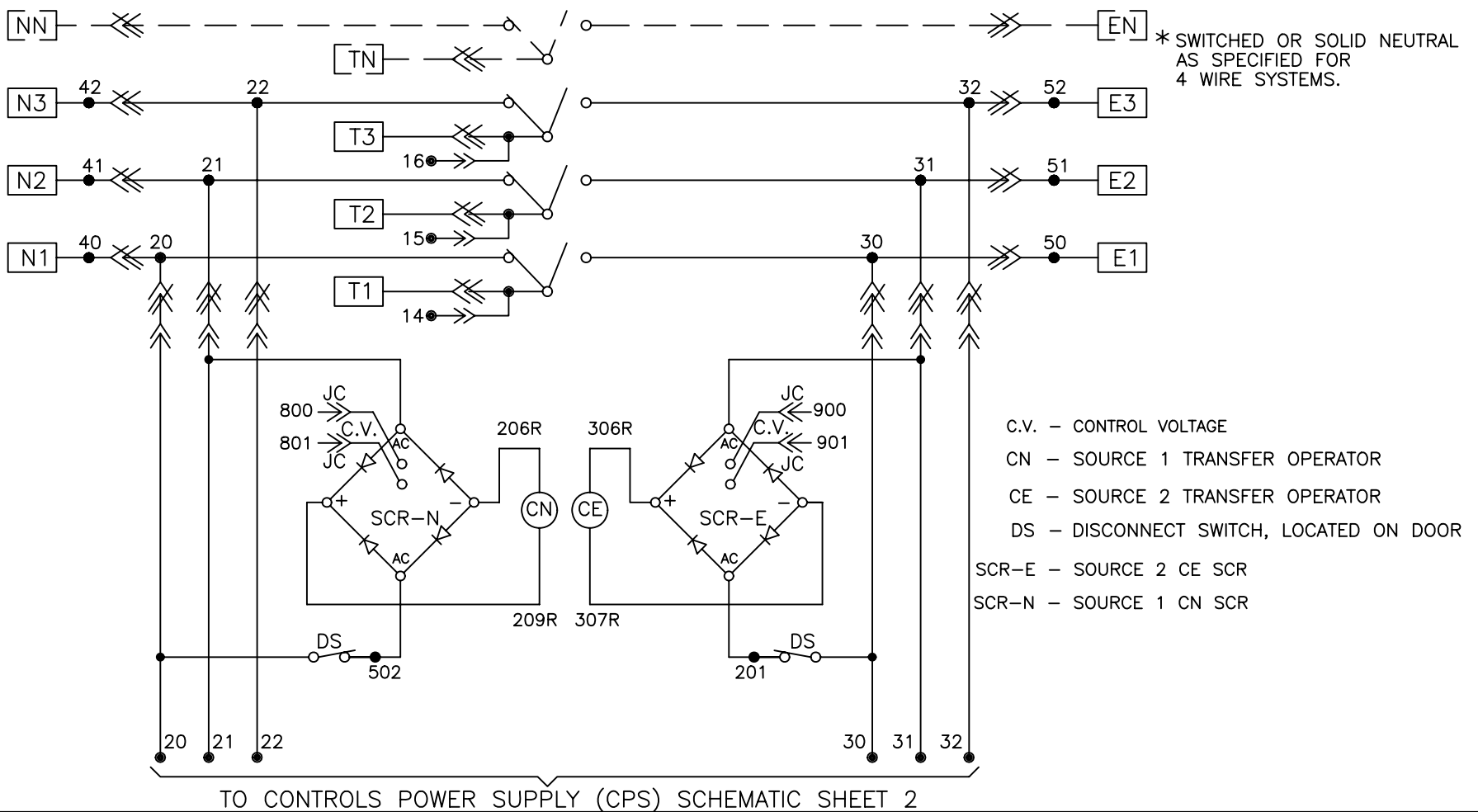
ATS POWER CIRCUIT SCHEMATIC

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
C	S-8154	REVISED DWG 07/10/04	GG FS

N1,2,3,N - SOURCE 1 LINE  
(TO BYPASS/ISOLATION SWITCH)

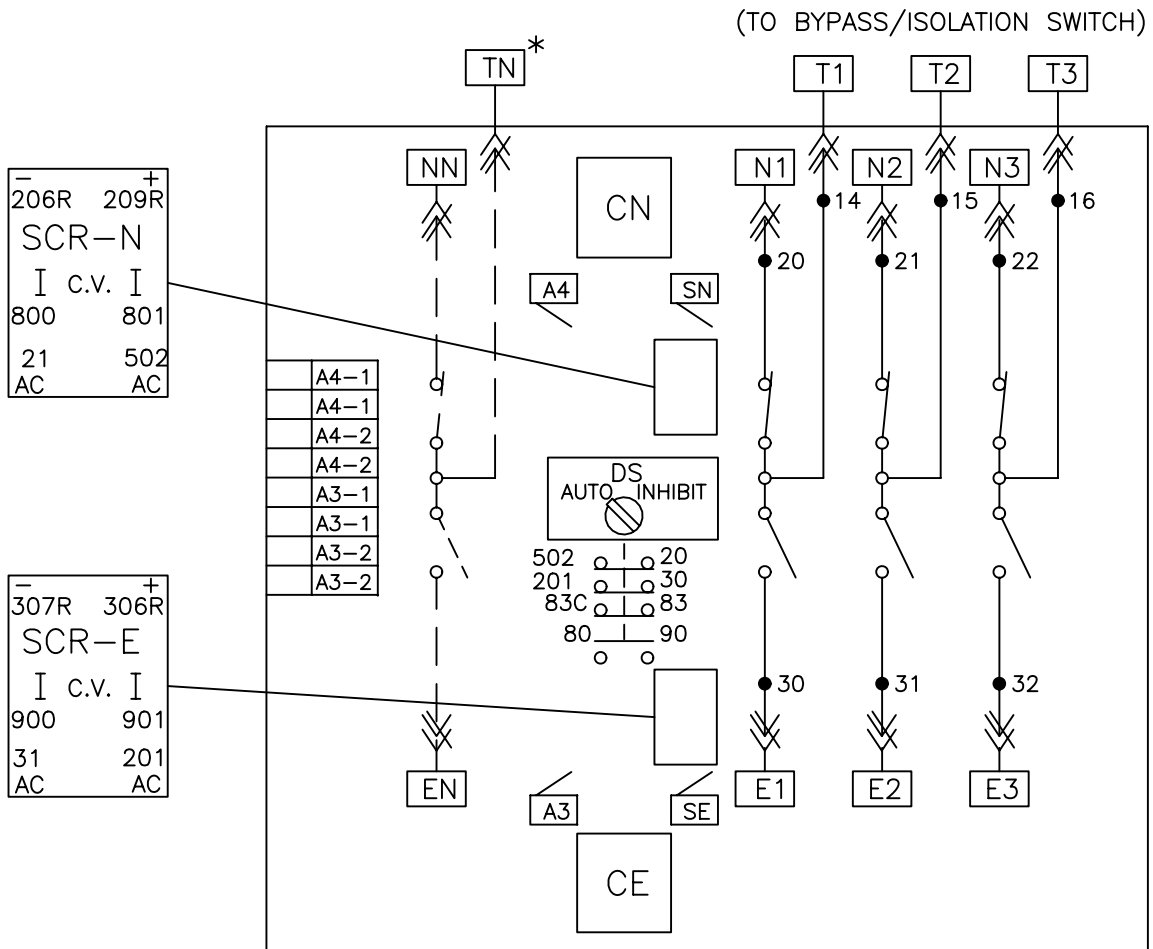
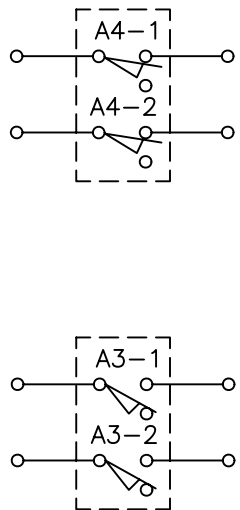
T1,2,3,N - LOAD  
(TO BYPASS/ISOLATION SWITCH)

E1,2,3,N - SOURCE 2 LINE  
(TO BYPASS/ISOLATION SWITCH)

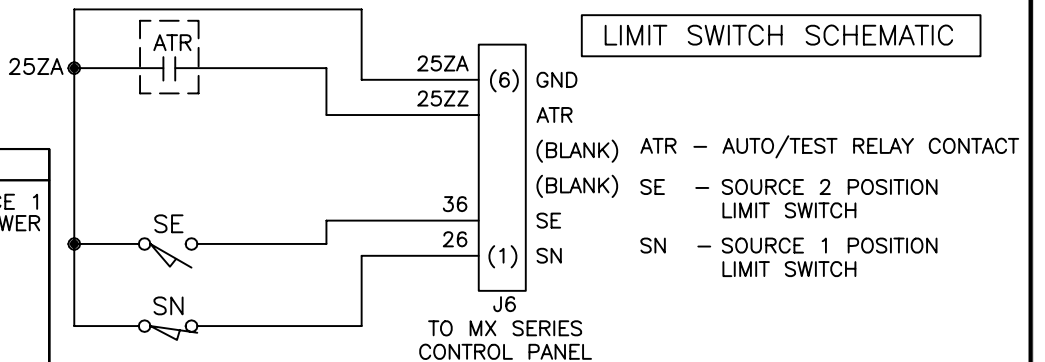


AUXILIARY CONTACTS

ATS POWER PANEL LAYOUT



LIMIT SWITCH SCHEMATIC



LEGEND	REFERENCE	NOTES
● WIRE CONNECTION	LEGEND, OPERATION, AND ACCESSORIES: 72A-0900 MX250 CONTROLLER-71A-0500	ATS SHOWN IN SOURCE 1 POSITION WITH NO POWER AVAILABLE.
○ WIRE ON TERMINAL BLOCK		
➤ WIRE IN INTERCONNECT PLUG		
* OPTIONAL		

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THIRD ANGLE PROJECTION

AutoCad Generated

APPLIED PRACTICES	SIGNATURES	DATE
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	MODEL GG	04/15/03
TOLERANCES ON:	CHECKED	
2 PL. DECIMALS ± .020	ENGRG FS	
3 PL. DECIMALS ± .005	MFG	
ANGLES ± 1°	QUALITY	
FRACTIONS ± 1/64	ISSUED	
FINISH ✓	DRAWING FILE: 73a-3000-c-1.dwg	
	MODEL / ASSEMBLY FILE: ZBTS(1600-3000 AMP)	
	# CTQs	
	CRITICAL TO QUALITY CHARACTERISTIC	

**GE Zenith Controls**

TITLE: **ATS POWER CIRCUIT & LAYOUT**

FIRST MADE FOR: ZBTS(1600-3000 AMP)

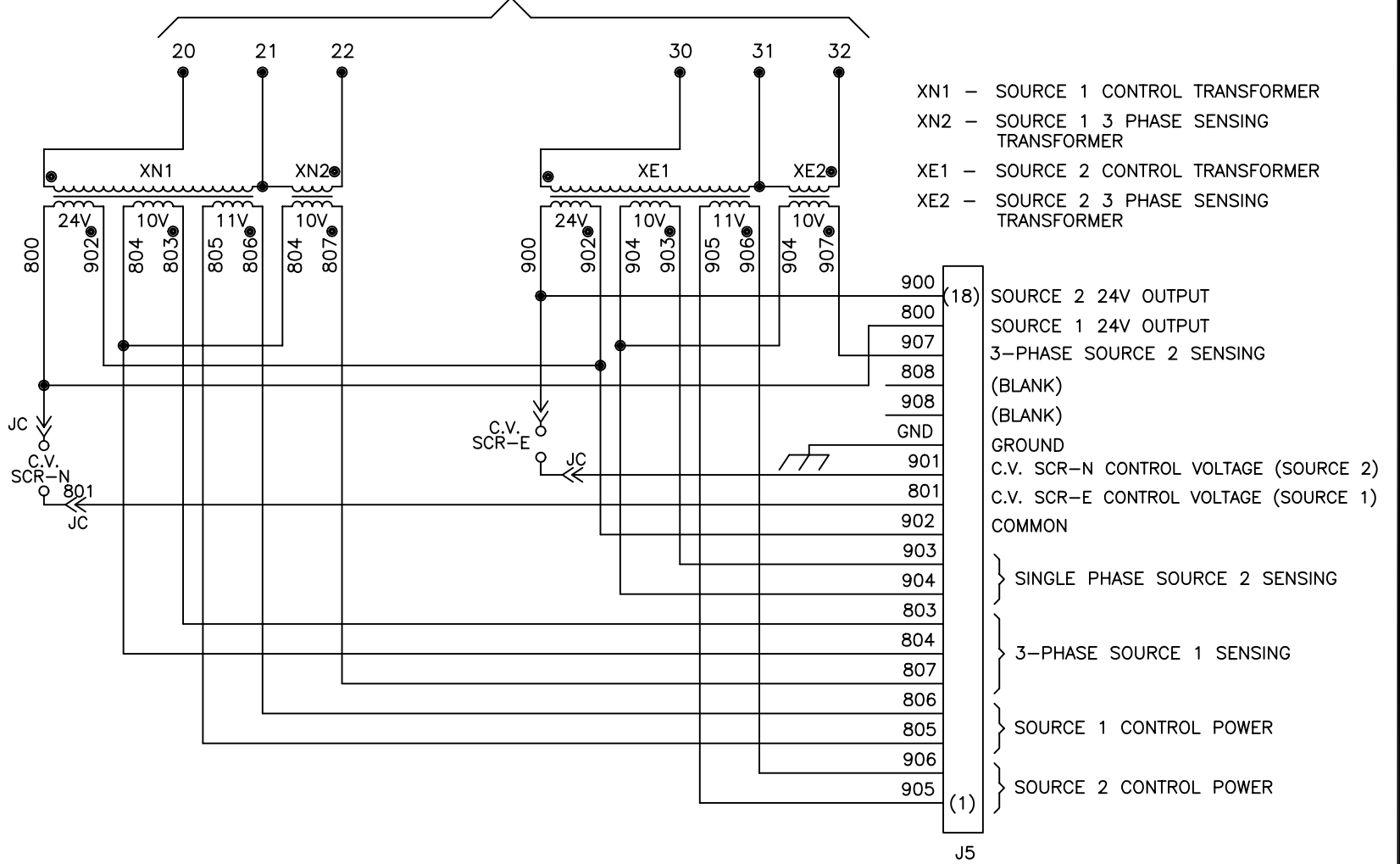
SIZE: B CAGE CODE: DWG NO: 73A-3000

SCALE: NA SHEET 1 OF 5

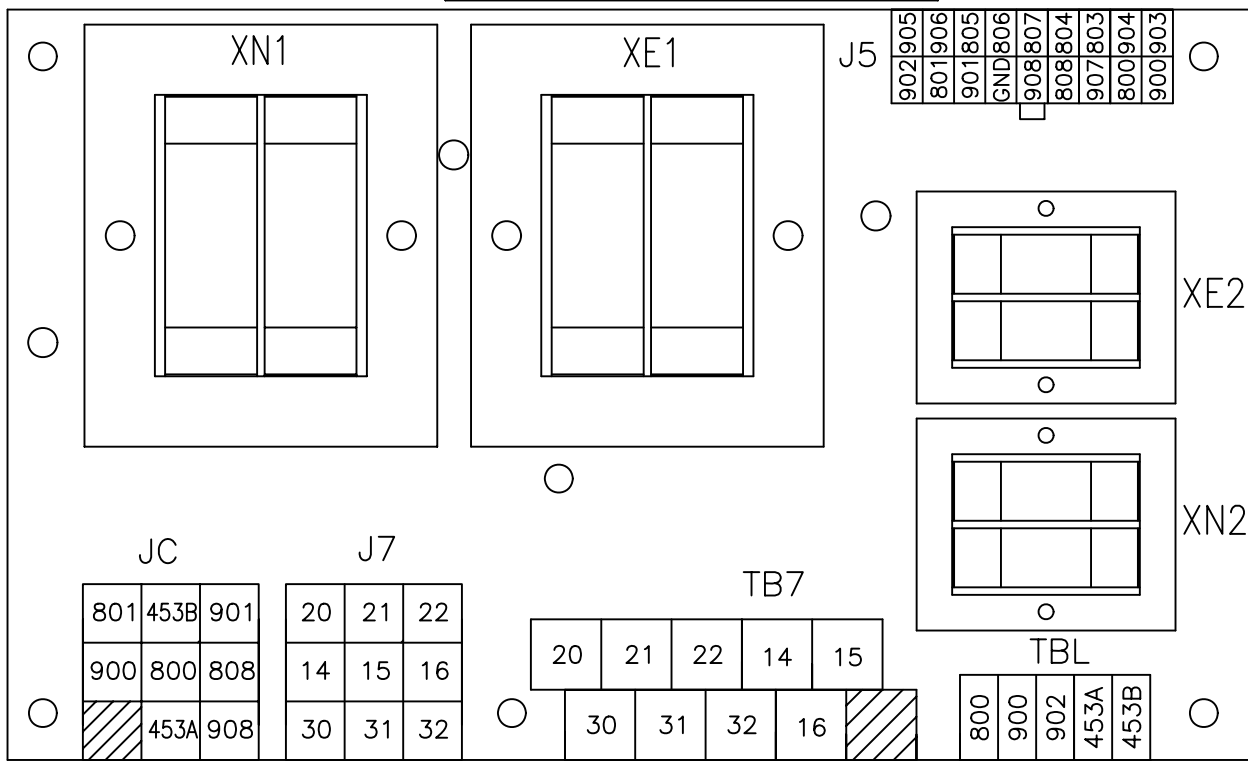
CONTROLS POWER SUPPLY (CPS) SCHEMATIC

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
C	S-8154	REVISED DWG 11/23/04	GG FS

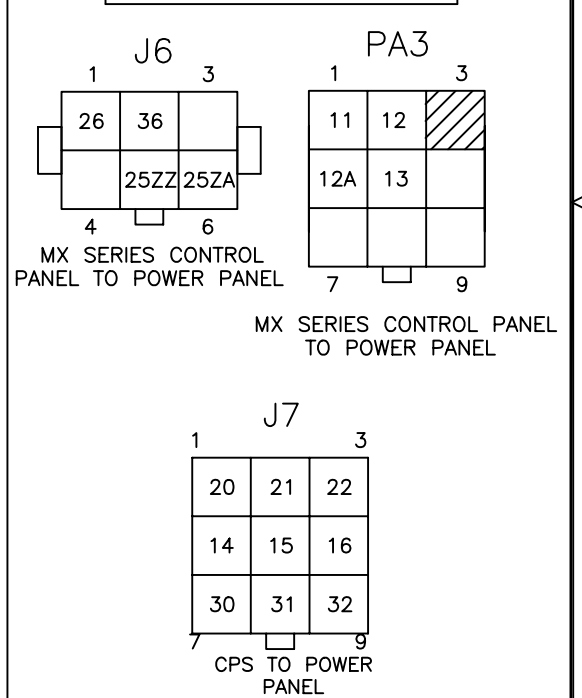
TO POWER CIRCUIT SCHEMATIC - SHEET 1



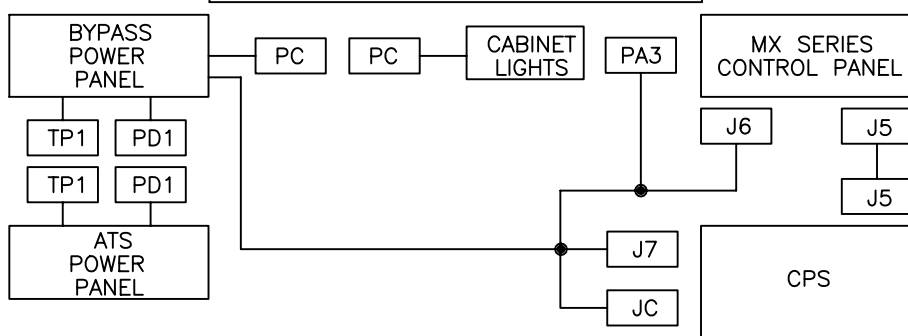
CONTROLS POWER SUPPLY (CPS)



INTERCONNECT PLUGS



INTERCONNECTION PLUG DIAGRAM

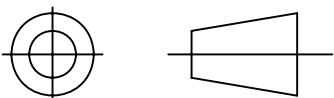


LEGEND

- WIRE CONNECTION
- \* OPTIONAL

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THIRD ANGLE PROJECTION



FOR ADDITIONAL INFO REFER TO

APPLIED PRACTICES	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON:	
2 PL. DECIMALS ± .020	
3 PL. DECIMALS ± .005	
ANGLES ± 1°	
FRACTIONS ± 1/64	
FINISH	✓

AutoCad Generated

SIGNATURES

MODEL	GG
DATE	05/08/03
DETAIL	
CHECKED	
ENGRG	FS
MFG	
QUALITY	
ISSUED	
DRAWING FILE:	73a-3000-c-2.dwg
MODEL / ASSEMBLY FILE:	ZBTS(1600-3000AMP)
# CTQs	
	⊖ CRITICAL TO QUALITY CHARACTERISTIC



GE Zenith Controls

CONTROLS POWER SUPPLY (CPS) & INTERCONNECT PLUGS

FIRST MADE FOR: ZBTS(1600-3000AMP)

SIZE B CAGE CODE DWG NO

73A-3000

SCALE: N/A

SHEET 2 OF 5

OPERATION: BYPASS/ISOLATION SWITCH

REVISIONS				
REV.	DESCRIPTION	DATE	APPROVED	
C	S-8145	REVISED DWG	07/10/04	GG FS

AUTOMATIC

1. Manually operated Bypass Switch contacts (BN/BE) are open and ATS is supplying load.
2. Disconnect Switch (DS) is in "AUTO".

TO BYPASS ATS

1. Open bottom cabinet door and turn DS to "INHIBIT".
2. Turn Bypass Selector Switch (BSS) to same power source as ATS.
3. Move the Manual Bypass Handle (MBH) upward.

TO TEST ATS

1. Bypass per above instructions.
2. Rotate crank mechanism counterclockwise until ATS TEST light is illuminated.
3. Turn DS to "AUTO".
4. Test Switch (TS) on bottom cabinet door will allow electrical operation of ATS.

TO ISOLATE ATS

1. Bypass per above instructions.
2. Rotate crank mechanism counterclockwise until ATS ISOLATED light is illuminated.

TO REMOVE ATS

1. Bypass and Isolate per above instructions.
2. Disconnect multipin plugs and external connections to ATS.
3. Slide four corner latches of ATS to innermost position.
4. ATS can now be removed from cabinet.

TO RECONNECT ATS

1. Roll cart back into cabinet.
2. Slide four corner latches of ATS to outermost position.
3. Turn DS Switch to "INHIBIT".
4. Manually position ATS into same source as Bypass Switch.
5. Reconnect multipin plugs and external connections to ATS.
6. Rotate crank mechanism clockwise until ATS TEST light is illuminated.
7. Turn DS Switch to "AUTO" and use TS to electrically operate ATS.
8. Turn DS to "INHIBIT".
9. Rotate crank mechanism clockwise until ATS location pointer is aligned with "AUTO" mark on location indicator. (ATS must be in same source as Bypass).
10. Turn DS to "AUTO" and open Bypass with MBH.
11. ATS is now fully automatic (Figure 1).

NOTES:

1. DS in "INHIBIT" will prevent ATS electrical operation.
2. DO NOT use excessive force on mechanical handles.
3. Above Figures depict Bypass SOURCE 1. Sequence is same for Bypass SOURCE 2.
4. When ATS is in TEST or ISOLATE, Bypass Switch is a manual transfer switch to either available source. (Indicated on light panel).
5. To operate Bypass Switch when ATS is in TEST or ISOLATE:
  - a) Move MBH downward (to open Bypass Contacts BN/BE).
  - b) Turn BSS to opposite power source.
  - c) Move MBH upward to close into selected power source.

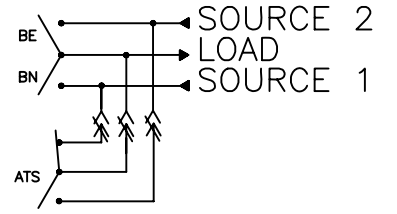


FIG. 1 BP IS OPEN WITH ATS IN SOURCE 1

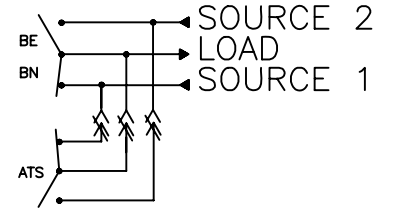


FIG. 2 BP IN SOURCE 1 WITH ATS IN SOURCE 1

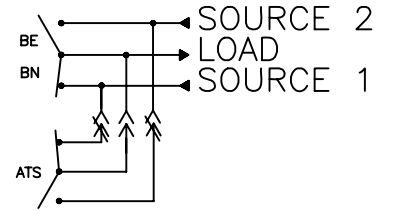


FIG. 3 BP IN SOURCE 1 WITH ATS IN TEST (LOAD CONNECTIONS ARE OPEN)

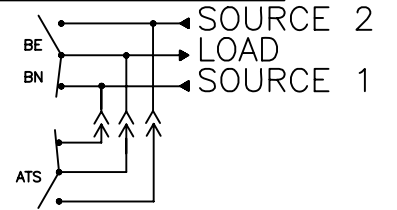


FIG. 4 BP IN SOURCE 1 WITH ATS ISOLATED

NOTES:

1. BP-Bypass switch (indicated by contacts BN/BE) is a 3 position switch.
2. ATS-Automatic Transfer Switch

LEGEND: BYPASS/ISOLATION SWITCH (BP)

I. (BP) BYPASS/ISOLATION SWITCH: MECHANICAL COMPONENTS

- N1,2,3,(N)..... SOURCE 1 Line connections\_\_\_\_\_
- E1,2,3,(N)..... SOURCE 2 Line connections\_\_\_\_\_
- T1,2,3,(N)..... Load Line connections\_\_\_\_\_
- BE..... Bypass SOURCE 2 contacts
- BN..... Bypass SOURCE 1 contacts
- BSS..... Bypass Selector Switch
- MBH..... Manual Bypass Handle

II. (BP) BYPASS/ISOLATION: ELECTRICAL COMPONENTS

- AA-1,2..... Limit switch held actuated in Auto location of ATS, Non-actuated Test and Isolated locations.
- AB3,-1,2,3,4..... Limit switch, actuated in Bypass SOURCE 2 position
- AB4-1,2..... Limit switch, actuated in Bypass SOURCE 1 position
- AE-1,2..... Limit switch, switches Engine Start from ATS control to bypass control during ATS Isolate
- AI-1,2..... Limit switch, actuated in Isolate location
- AT-1,2..... Limit switch, actuated in Test location
- ATR..... Auto/Test Relay. Energized in AUTO and TEST locations
- BR..... Bridge Rectifier
- C..... Capacitor: RNH
- CBC..... Crank Solenoid
- CBE..... SOURCE 2 Bypass Permissive Solenoid
- CBN..... SOURCE 1 Bypass Permissive Solenoid
- CH-1..... Limit switch actuated when crank handle is engaged
- D1..... Diode
- RNH..... Relay normally held, 24 VDC coil, 3PDT
- R1..... Resistor: RNH
- XBE..... SOURCE 2 line control transformer
- XBN..... SOURCE 1 line control transformer

III. (BP) BYPASS/ISOLATION SWITCH: INDICATOR LIGHTS

- LNA..... SOURCE 1 available
- LEA..... SOURCE 2 available
- LBN NOTE 1)..... Bypass SOURCE 1 (BN closed)
- LBE (NOTE 1)..... Bypass SOURCE 2 (BE closed)
- LAT (NOTE 1)..... ATS in Test location
- LAI (NOTE 1)..... ATS in Isolate location
- LIT (NOTE 1)..... ATS Inhibit
- LDS (NOTE 1)..... ATS DS switch in INHIBIT position

NOTES:

1. Indicator off during automatic operation of ATS.
2. Four pole includes neutral lugs.

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FOR ADDITIONAL INFO REFER TO

APPLIED PRACTICES	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON:	
2 PL. DECIMALS ± .020	
3 PL. DECIMALS ± .005	
ANGLES ± 1°	
FRACTIONS ± 1/64	
FINISH	✓

SIGNATURES

MODEL	GG
DETAIL	
CHECKED	
ENGRG	FS
MFG	
QUALITY	
ISSUED	
DRAWING FILE:	73a-3000-c-3.dwg
MODEL / ASSEMBLY FILE:	ZBTS(1600-3000 AMP)
# CTQs	⊖ CRITICAL TO QUALITY CHARACTERISTIC

DATE

04/16/03



**GE Zenith Controls**

TITLE

BYPASS ISOLATION  
 LEGEND & OPERATION

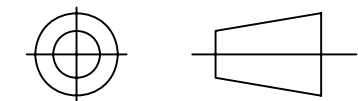
FIRST MADE FOR: ZBTS(1600-3000 AMP)

SIZE B CAGE CODE DWG NO

73A-3000

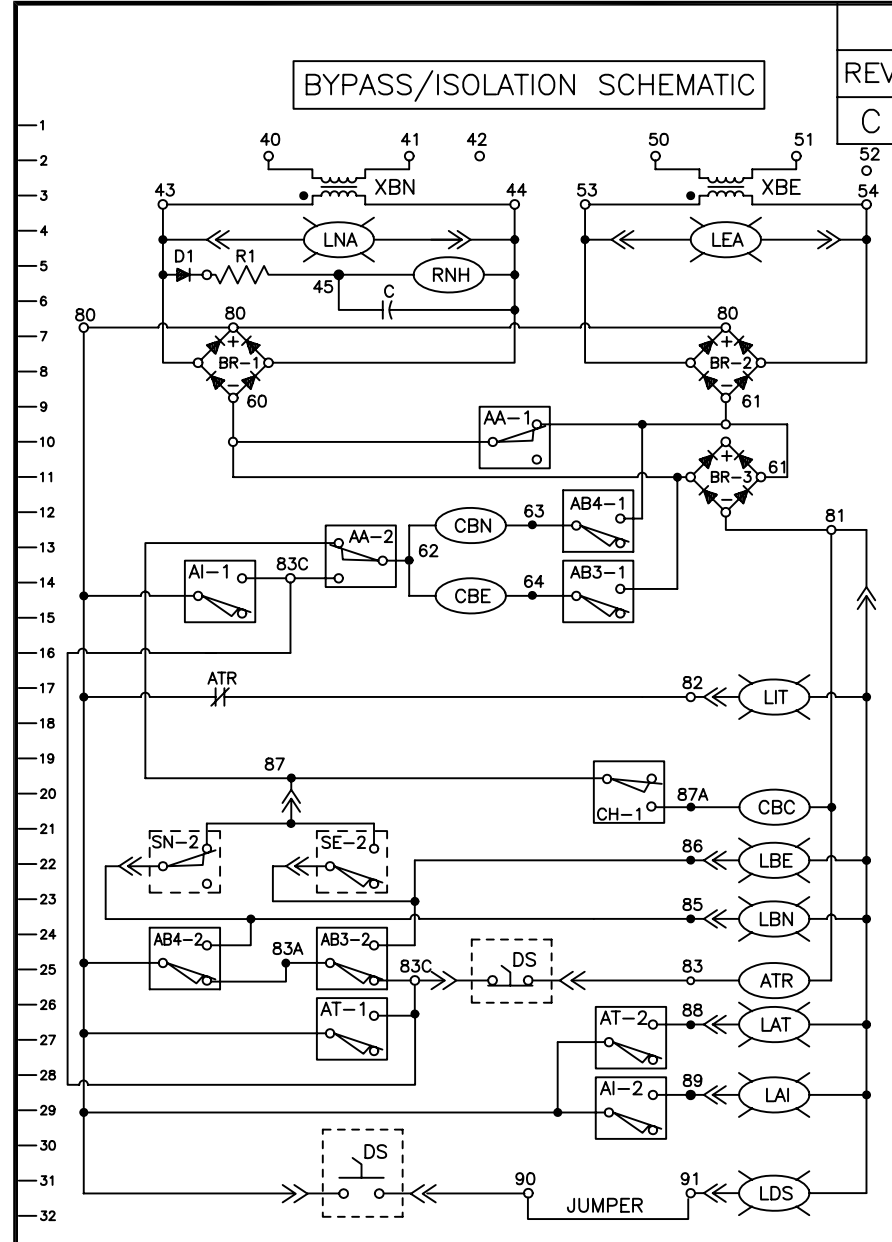
SCALE: NA

SHEET 3 OF 5

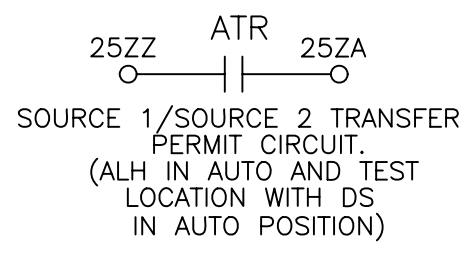
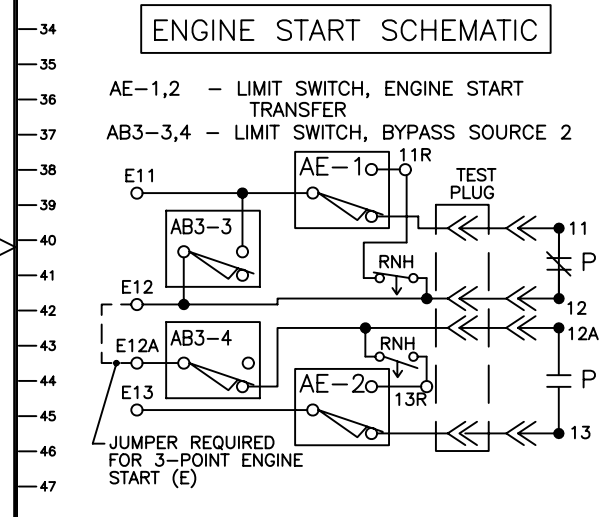
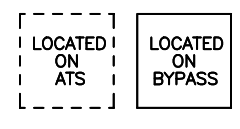


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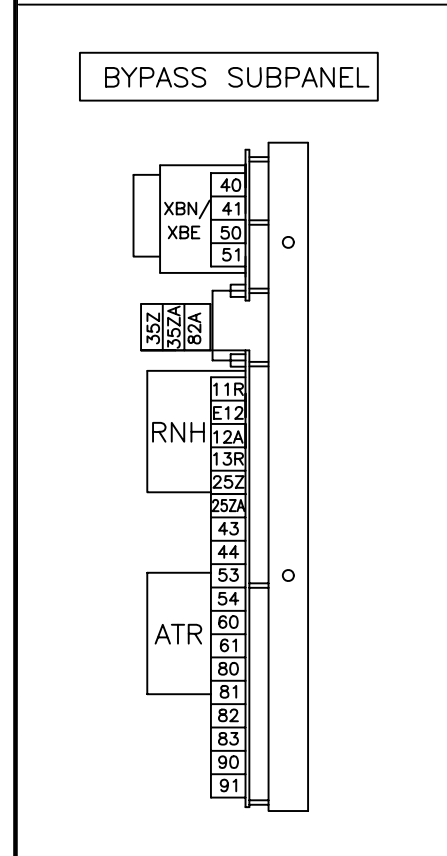
REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
C	S-8145	05/14/04	GG FS



- XBN - BYPASS SOURCE 1 CONTROL TRANSFORMER
- XBE - BYPASS SOURCE 2 CONTROL TRANSFORMER
- LNA - SOURCE 1 AVAILABLE LIGHT
- LEA - SOURCE 2 AVAILABLE LIGHT
- RNH - NORMALLY HELD RELAY
- D1 - DIODE
- R1 - RESISTOR, RNA
- BR-1, - BRIDGE RECTIFIER
- 2,3
- C - CAPACITOR, RNA
- AA-1 - LIMIT SWITCH, ATS AUTO LOCATION
  
- AB4-1- LIMIT SWITCH, BYPASS SOURCE 1
- CBN - SOURCE 1 TRANSFER OPERATOR
- AA-2 - LIMIT SWITCH, ATS IN AUTO
- CBE - SOURCE 2 TRANSFER OPERATOR
- AB3-1- LIMIT SWITCH, BYPASS SOURCE 2
- AI-1 - LIMIT SWITCH, ATS IN ISOLATE
  
- LIT - ATS INHIBIT LIGHT
- DS - DISCONNECT SWITCH
  
- CBC - CRANK SOLENOID
- CH-1 - LIMIT SWITCH
- LBE - BYPASS SOURCE 2
- AB4-2- LIMIT SWITCH, BYPASS SOURCE 1
- LBN - BYPASS SOURCE 1 LIGHT
- AB3-2- LIMIT SWITCH, BYPASS SOURCE 2
- ATR - AUTO/TEST RELAY
- AT-1 - LIMIT SWITCH, ATS TEST LOCATION
- LAT - ATS TEST LOCATION LIGHT
- AT-2 - LIMIT SWITCH, ATS TEST LOCATION
- LAI - ATS ISOLATE LIGHT
- AI-2 - LIMIT SWITCH, ATS IN ISOLATE
  
- LDS - DISCONNECT SWITCH LIGHT



X = ACTUATED	ATS LOCATION				ATS MODE		BYPASS MODE	
	AUTO	TEST	ISO	REMOVE	SOURCE 1	SOURCE 2	SOURCE 1	SOURCE 2
AA	X							
AT		X						
AI			X	X				
AE			X	X				
SN					X			
SE						X		
AB4							X	
AB3								X

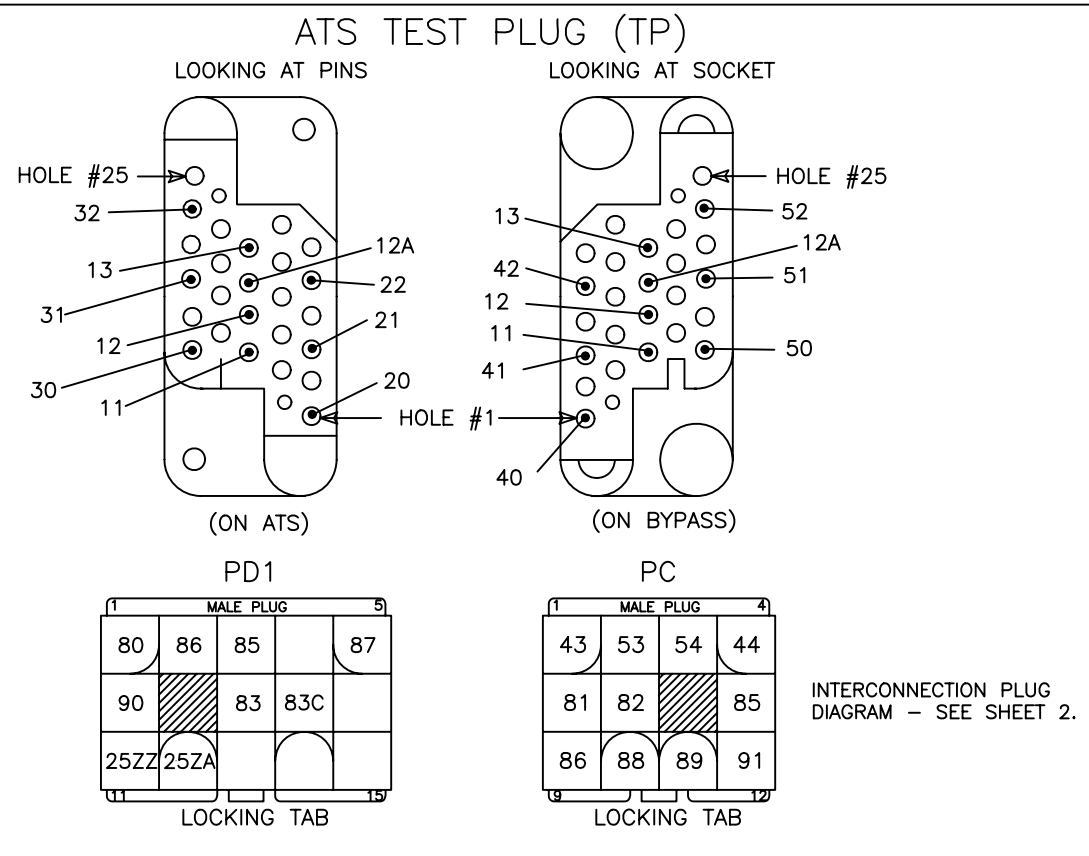


**LEGEND**

- WIRE CONNECTION
- WIRE ON TERMINAL BLOCK
- ↔ WIRE IN INTERCONNECT PLUG

**NOTES**

ATS SHOWN IN SOURCE 1 POSITION WITH NO POWER AVAILABLE.

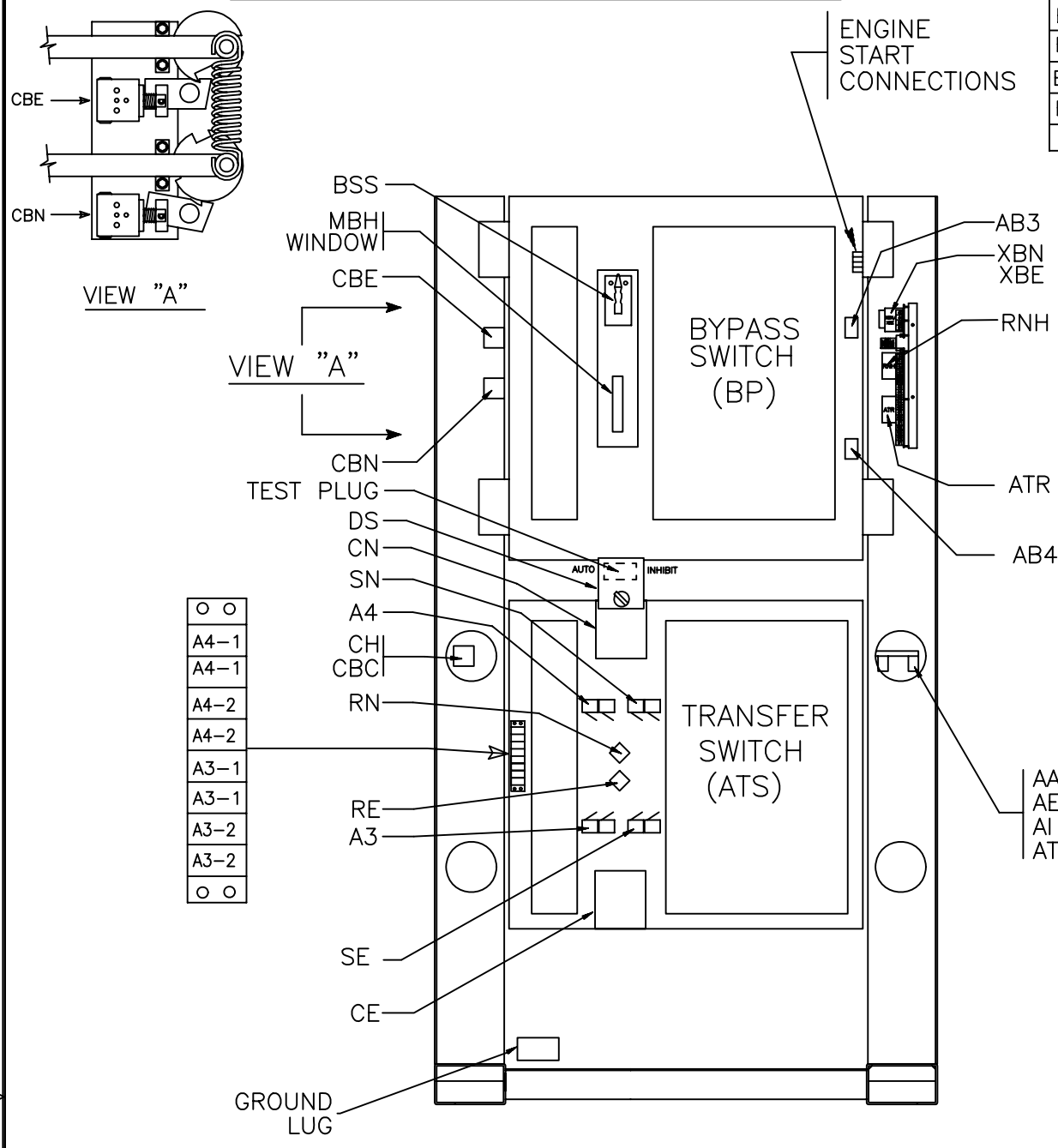


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	THIRD ANGLE PROJECTION 	AutoCad Generated	# CTQs CRITICAL TO QUALITY CHARACTERISTIC

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
C	S-8145	REVISED DWG 07/10/04	GG FS

**BYPASS/ISOLATION TRANSFER SWITCH**

- ○
- E11
- E12
- E12A
- E13
- ○

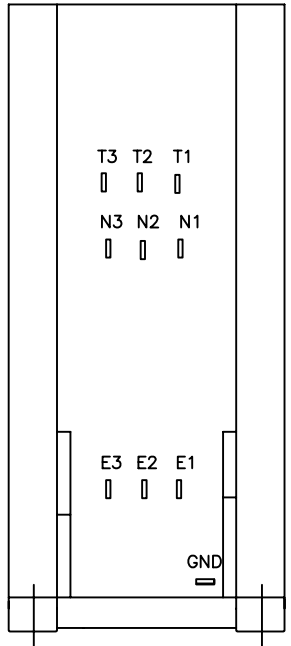


**WIRE NUMBERING CHART**

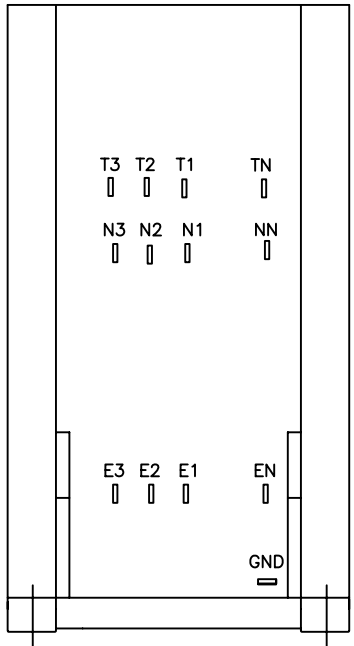
LIMIT SWITCHES	C	NC	NO
AA-1	60		61
AA-2	62	83C	87
AB3-1	64		60
AB3-2	83A	83C	86
AB3-3	E12		E11
AB3-4	E12A	12A	
AB4-1	63		61
AB4-2	80	83A	85
AE-1	E11	11	11R
AE-2	E13	13	13R
AI-1	80		83C
AI-2	80		89
AT-1	80		83C
AT-2	80		88
CH-1	87	87A	
SE-2	86		87
SN-2	85		87

- ○
- A4-1
- A4-1
- A4-2
- A4-2
- A3-1
- A3-1
- A3-2
- A3-2
- ○

**STANDARD LUG CONFIGURATION  
(CONSULT FACTORY FOR OPTIONAL CONFIGURATIONS)  
REAR VIEW OF ENCLOSURE**

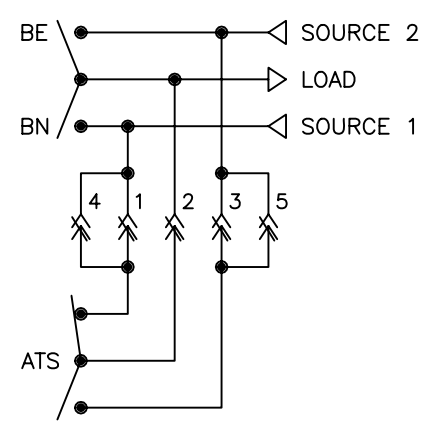


2/3-POLE SWITCH



4-POLE SWITCH

**BYPASS/ISOLATION DIAGRAM**



ATS LOCATION	LOAD CARRYING CONTACTS			ATS TEST PLUG (TP)	
	1	2	3	4	5
AUTO	X	X	X	X	X
TEST	0	0	0	X	X
ISOLATE	0	0	0	0	0

X = CLOSED  
0 = OPEN

**NOTES**  
ATS SHOWN IN SOURCE 1 POSITION WITH NO POWER AVAILABLE.

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	<p>THIRD ANGLE PROJECTION</p>	<p>AutoCad Generated</p> <p># CTQs</p> <p>⊖ CRITICAL TO QUALITY CHARACTERISTIC</p>	<p>DRAWING FILE: 73a-3000-c-5.dwg</p> <p>MODEL / ASSEMBLY FILE: ZBTS(1600-3000 AMP)</p> <p>SCALE: NA</p>