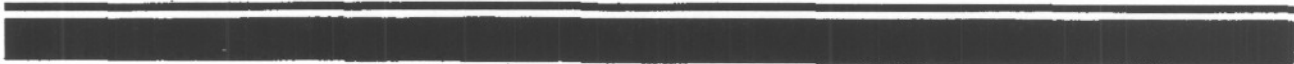


Schematic

CTG and CTGD Automatic Transfer Switch (ATS) Electrical System


CTG
TSA1-UP

CTGD
TSB1-UP



ATS Electrical Schematics				
	Power Circuit and Layout 3/4 Pole		Power Circuit and Layout 2 Pole	
CTG:	Sheet 1	Sheet 2	Sheet 1	Sheet 2
40-200 Amp	Page 3	Page 4	Page 5	Page 6
225-260 Amp	Page 7	Page 8	Page 9	Page 10
400 Amp	Page 11	Page 12	Page 13	Page 14
600-1200 Amp	Page 15	Page 16	Page 17	Page 18
1600-3000 Amp	Page 19	Page 20	N/A	N/A
CTGD:	Sheet 1	Sheet 2	Sheet 1	Sheet 2
40-260 Amp	Page 21	Page 22	Page 23	Page 24
400 Amp	Page 25	Page 26	Page 27	Page 28
600-3000 Amp	Page 29	Page 30	Page 31	Page 32
CTG(D) Options:	Sheet 1	Sheet 2		
A6	Page 33	Page 34		
C/D One Channel Clock	Page 35			
C/D Two Channel Clock	Page 36			
C/D-365	Page 37			
HT	Page 38			
Q2	Page 39			
Q3	Page 40			
T3/W3	Page 33	Page 34		
ZNET100	Page 41			
6A	Page 42			

Click on the page number to jump to the desired page.

NOTE: You must have the "hand tool"  to select these.

For component locations :

Component Location Index

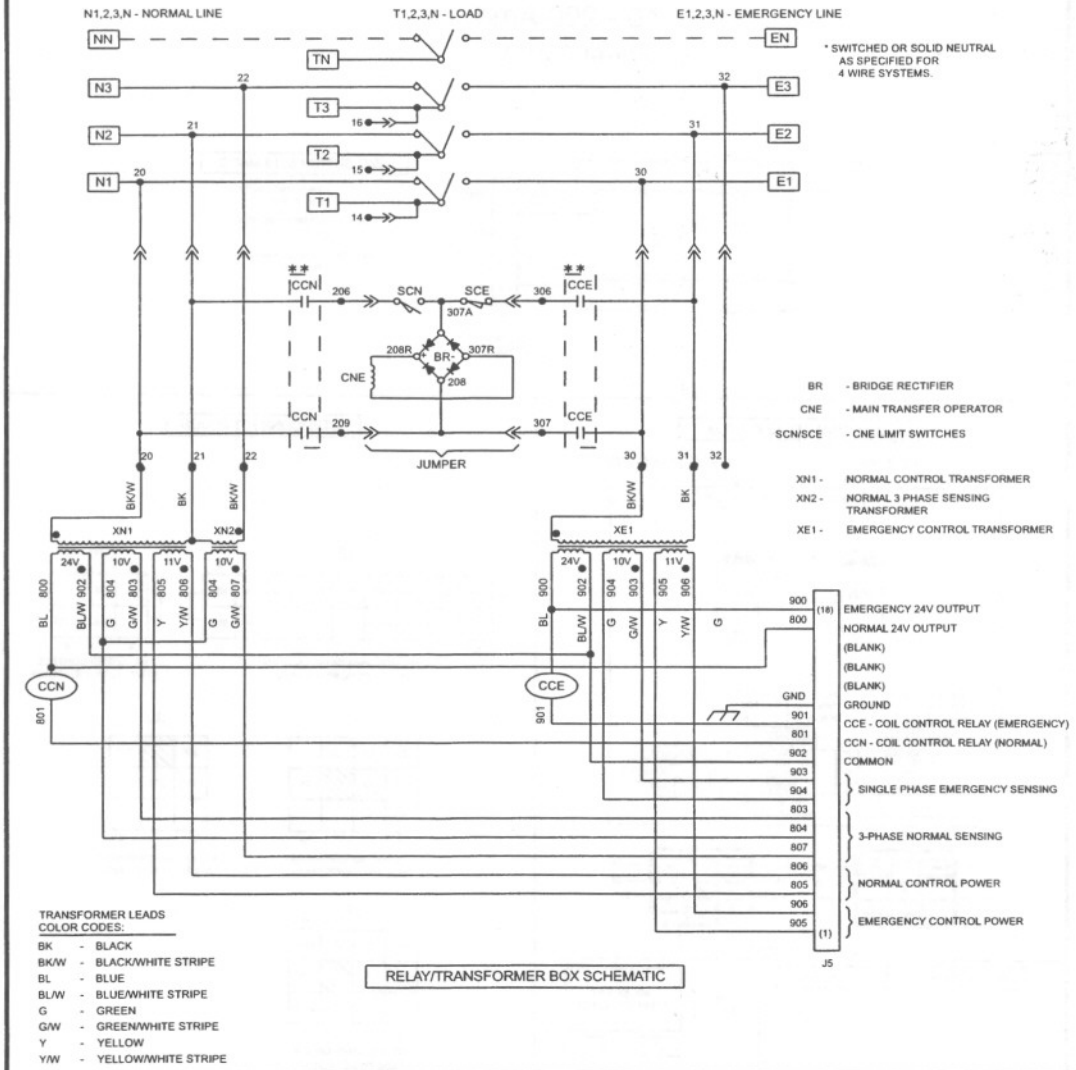
For a glossary of features and options abbreviations:

Glossary

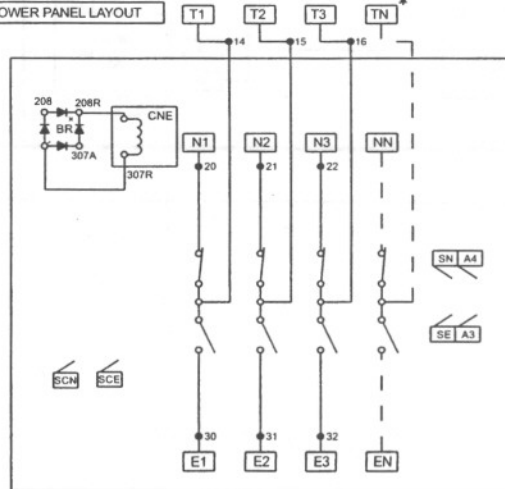
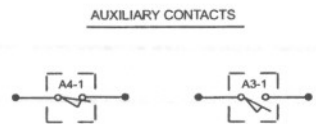
ATS Electrical Schematic

CTG 3/4 Pole

40 - 200 Amp
Sheet 1 of 2



ATS POWER PANEL LAYOUT



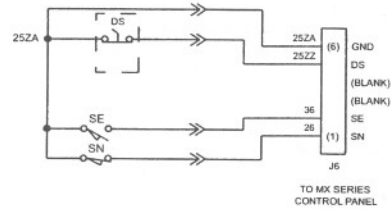
LEGEND	NOTES
● WIRE CONNECTION	ATS SHOWN IN NORMAL POSITION WITH NO POWER AVAILABLE.
○ WIRE ON TERMINAL BLOCK	
→ WIRE IN INTERCONNECT PLUG	
* OPTIONAL	
** LOCATED ON RELAY/ TRANSFORMER BOX	

ATS Electrical Schematic

CTG 3/4 Pole

40 - 200 Amp

Sheet 2 of 2

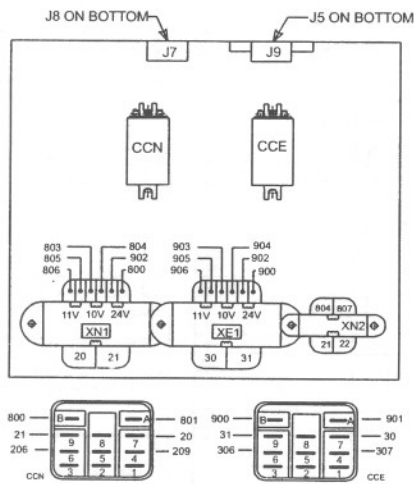


LIMIT SWITCH SCHEMATIC

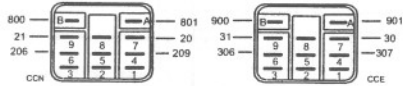
- SE - EMERGENCY POSITION LIMIT SWITCH
- DS - NORMAL POSITION LIMIT SWITCH
- SN - DISCONNECT SWITCH ON MX100

TO MX SERIES CONTROL PANEL

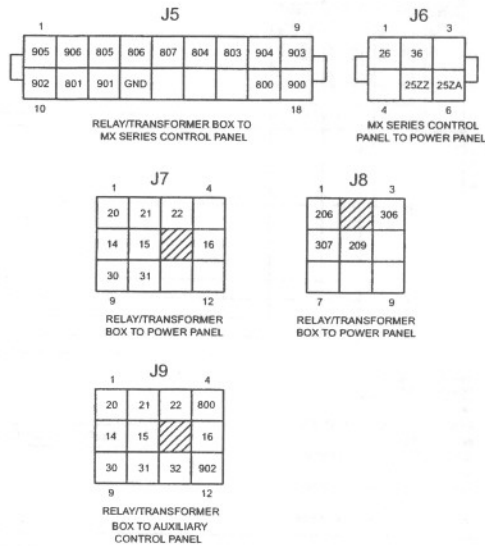
RELAY/TRANSFORMER BOX



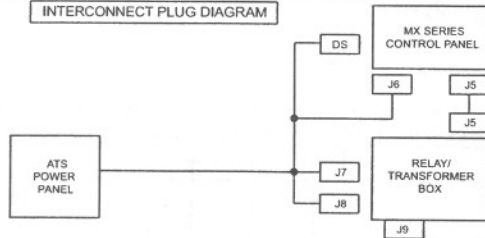
TERMINAL CONNECTION PTS.



INTERCONNECT PLUGS

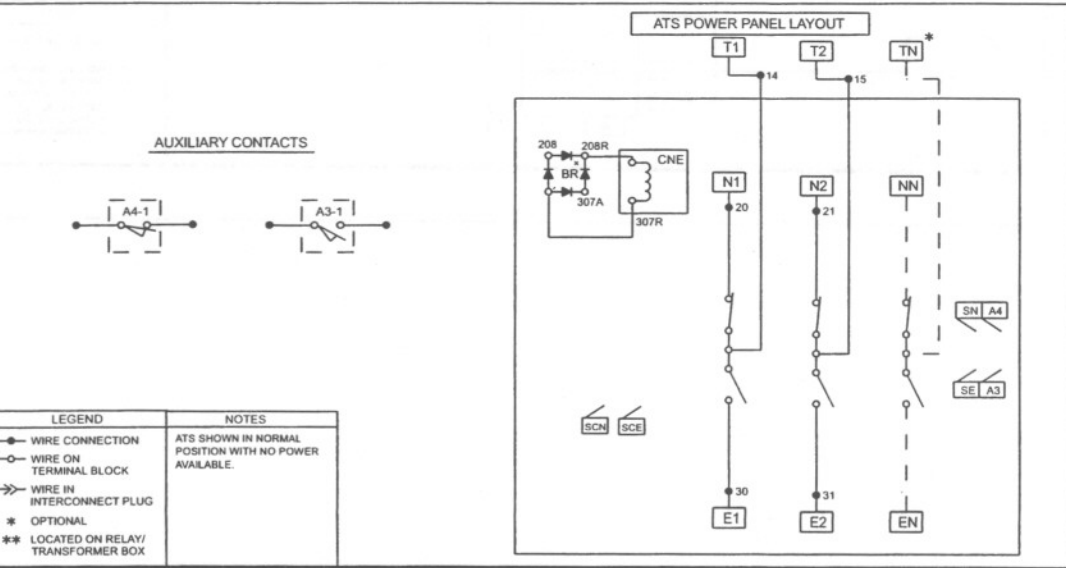
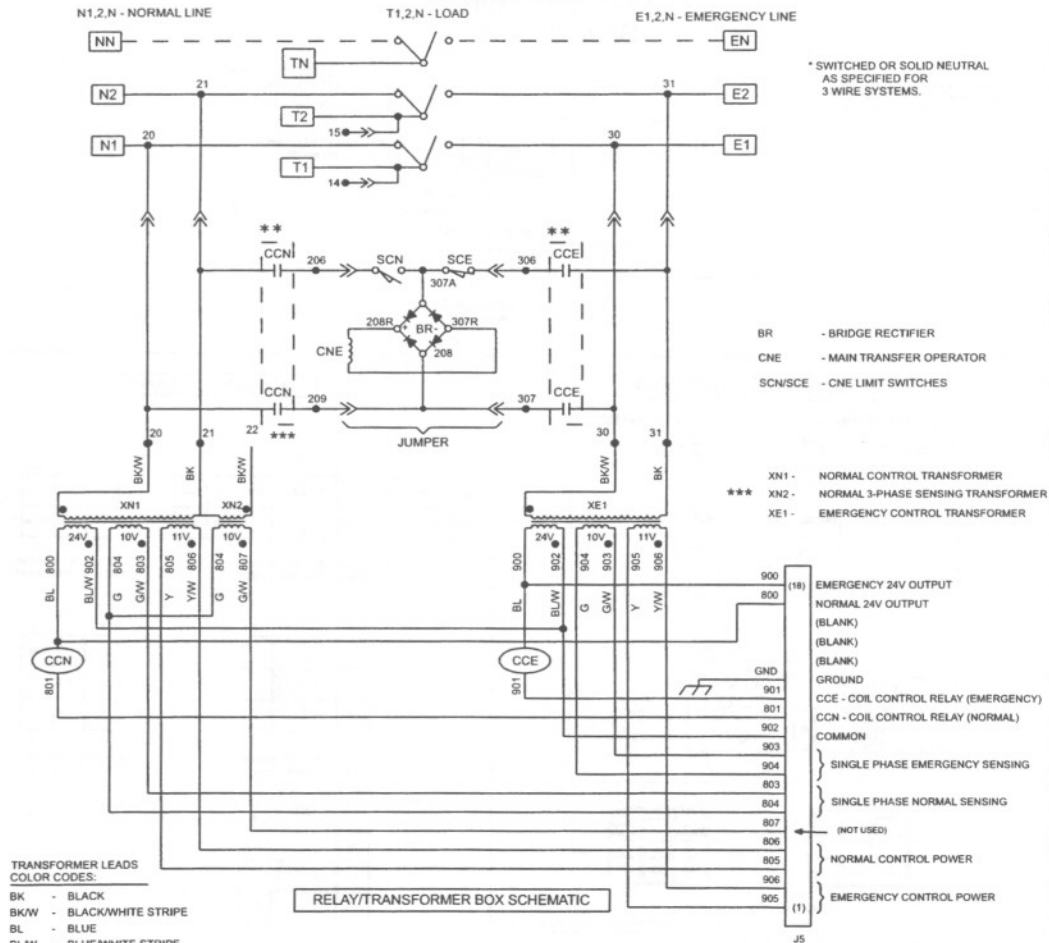


INTERCONNECT PLUG DIAGRAM



ATS Electrical Schematic

CTG 2 Pole
40 - 200 Amp
Sheet 1 of 2



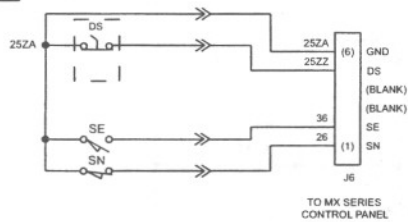
ATS Electrical Schematic

CTG 2 Pole

40 - 200 Amp

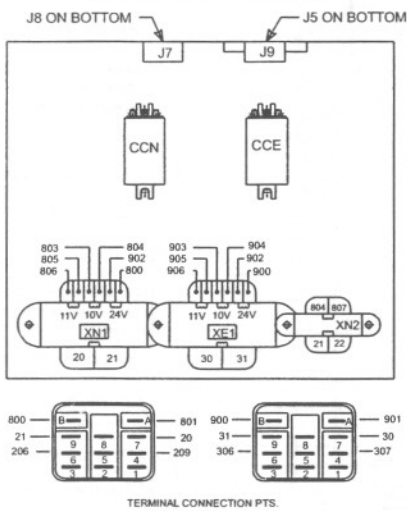
Sheet 2 of 2

LIMIT SWITCH SCHEMATIC

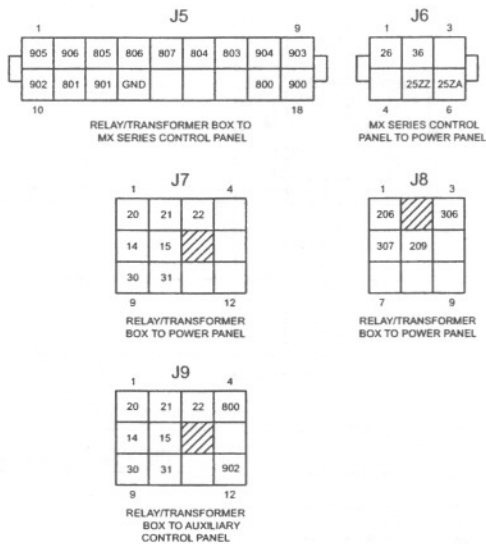


- SE - EMERGENCY POSITION LIMIT SWITCH
- SN - NORMAL POSITION LIMIT SWITCH
- DS - DISCONNECT SWITCH ON MX100

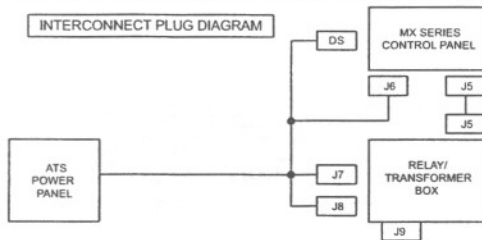
RELAY/TRANSFORMER BOX



INTERCONNECT PLUGS



INTERCONNECT PLUG DIAGRAM



LEGEND

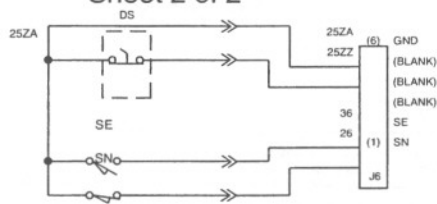
- WIRE CONNECTION
- *** WIRE #22 REMAINS WIRED IN RELAY/ TRANSFORMER BOX. WIRE #22 IS NOT CONNECTED TO ATS POWER PANEL.

ATS Electrical Schematic

CTG 3/4 Pole

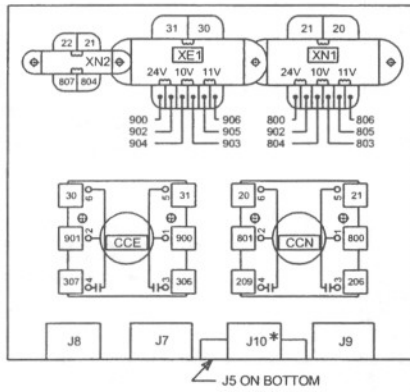
225 - 260 Amp
Sheet 2 of 2

LIMIT SWITCH SCHEMATIC

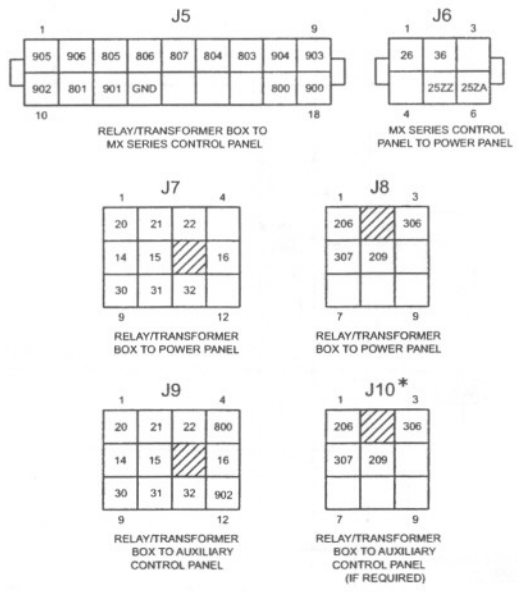


SE - EMERGENCY POSITION
LIMIT SWITCH
SN - NORMAL POSITION
LIMIT SWITCH
DS - DISCONNECT SWITCH
ON MX100

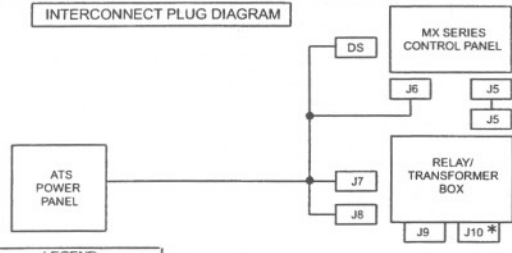
RELAY/TRANSFORMER BOX



INTERCONNECT PLUGS



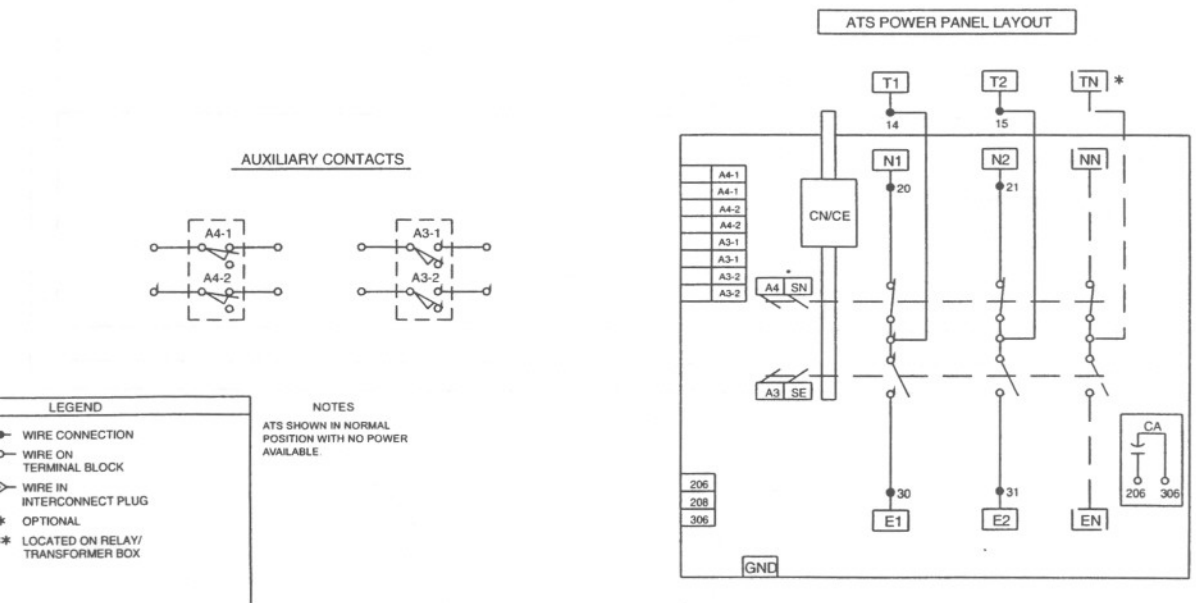
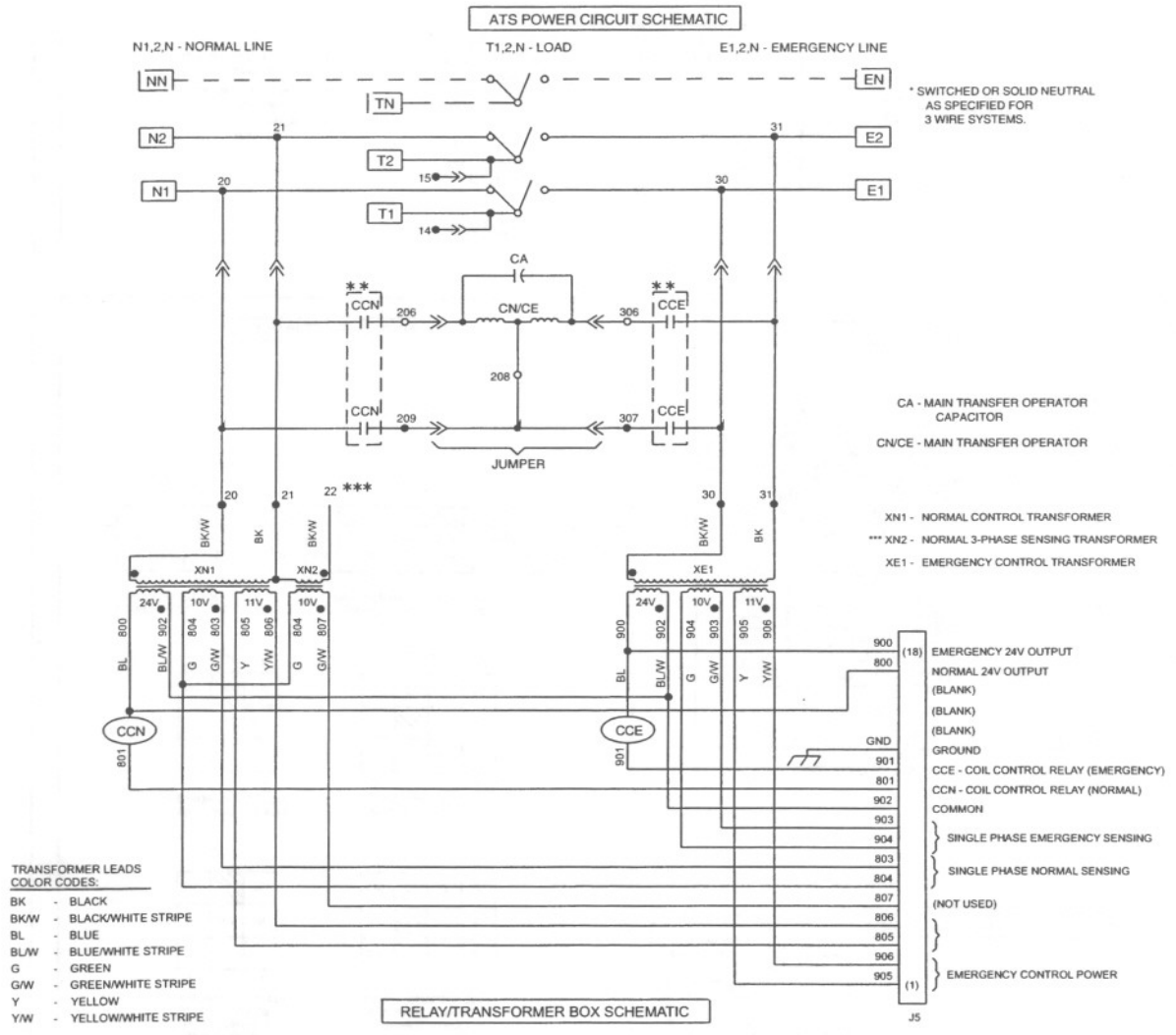
INTERCONNECT PLUG DIAGRAM



LEGEND
● WIRE CONNECTION
* OPTIONAL

ATS Electrical Schematic

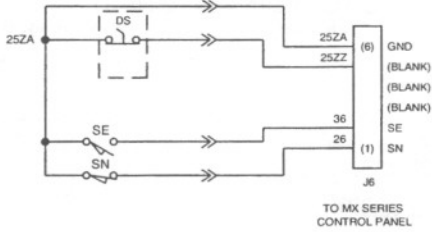
CTG 2 Pole
225 - 260 Amp
Sheet 1 of 2



ATS Electrical Schematic

CTG 2 Pole
225 - 260 Amp
Sheet 2 of 2

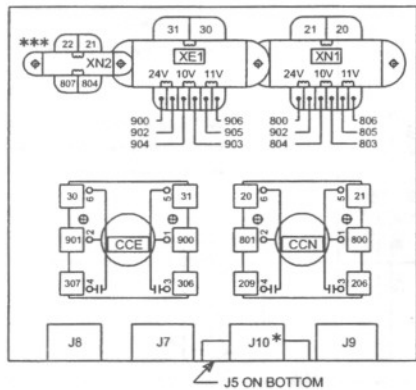
LIMIT SWITCH SCHEMATIC



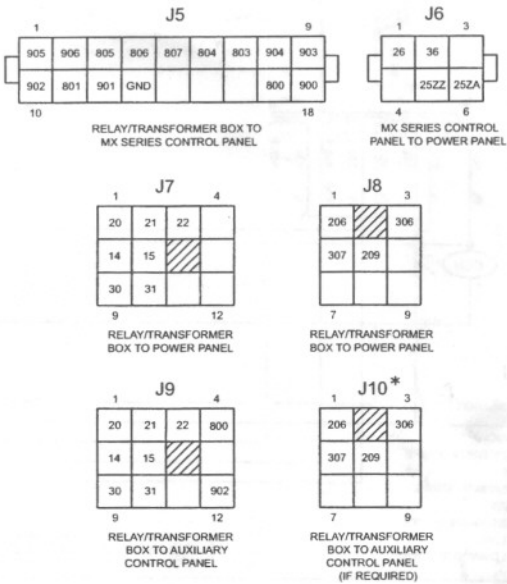
SE - EMERGENCY POSITION
LIMIT SWITCH
SN - NORMAL POSITION
LIMIT SWITCH
DS - DISCONNECT SWITCH
ON MX100

TO MX SERIES
CONTROL PANEL

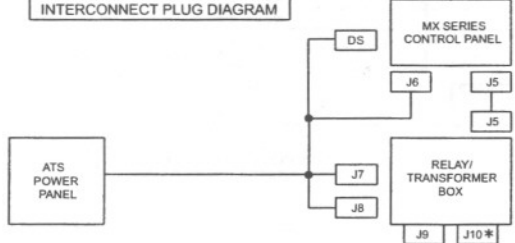
RELAY/TRANSFORMER BOX



INTERCONNECT PLUGS



INTERCONNECT PLUG DIAGRAM



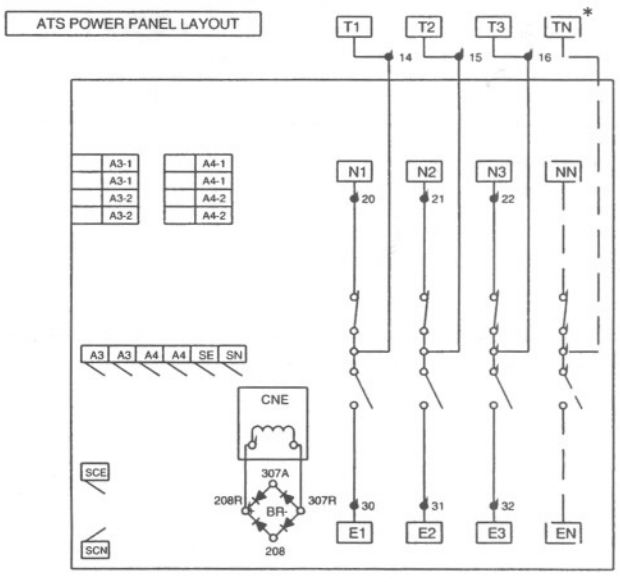
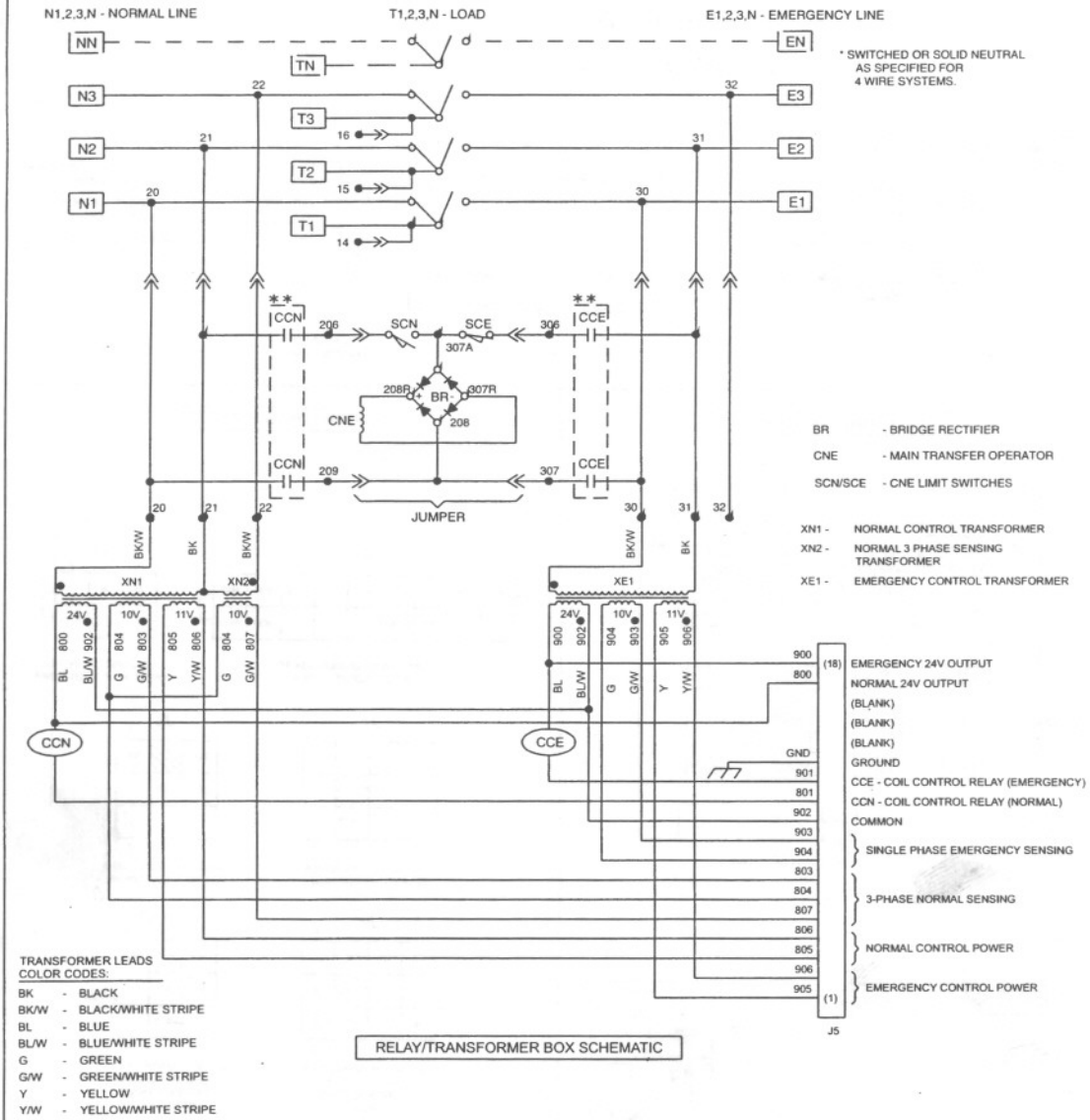
LEGEND

—●— WIRE CONNECTION
* OPTIONAL
*** WIRE #22 REMAINS WIRED IN
RELAY/ TRANSFORMER BOX.
WIRE #22, IS NOT CONNECTED
TO ATS POWER PANEL.

ATS Electrical Schematic

CTG 3/4 Pole

400 Amp
Sheet 1 of 2



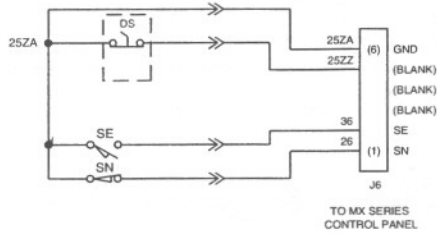
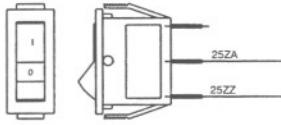
ATS Electrical Schematic

CTG 3/4 Pole

400 Amp

Sheet 2 of 2

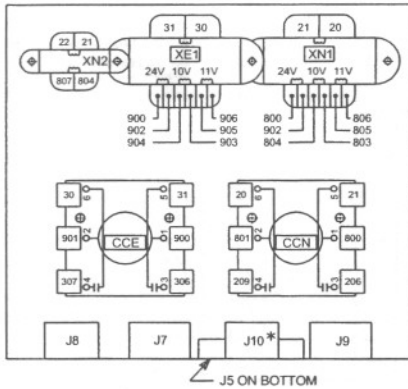
LIMIT SWITCH SCHEMATIC



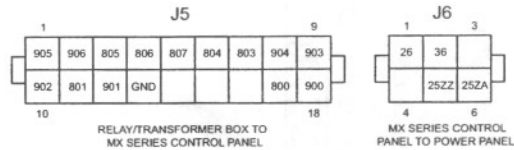
- SE - EMERGENCY POSITION LIMIT SWITCH
- SN - NORMAL POSITION LIMIT SWITCH
- DS - DISCONNECT SWITCH ON MX100

TO MX SERIES CONTROL PANEL

RELAY/TRANSFORMER BOX



INTERCONNECT PLUGS

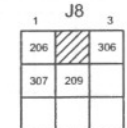


RELAY/TRANSFORMER BOX TO MX SERIES CONTROL PANEL

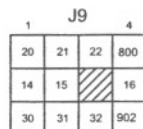
MX SERIES CONTROL PANEL TO POWER PANEL



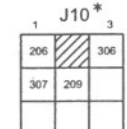
RELAY/TRANSFORMER BOX TO POWER PANEL



RELAY/TRANSFORMER BOX TO POWER PANEL

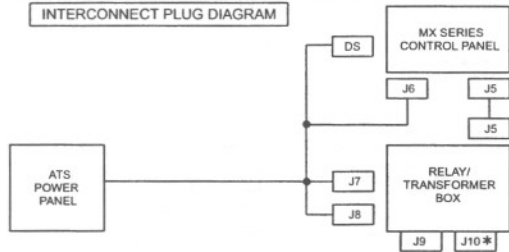


RELAY/TRANSFORMER BOX TO AUXILIARY CONTROL PANEL (IF REQUIRED)



RELAY/TRANSFORMER BOX TO AUXILIARY CONTROL PANEL (IF REQUIRED)

INTERCONNECT PLUG DIAGRAM

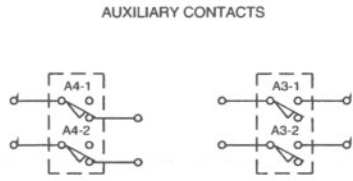
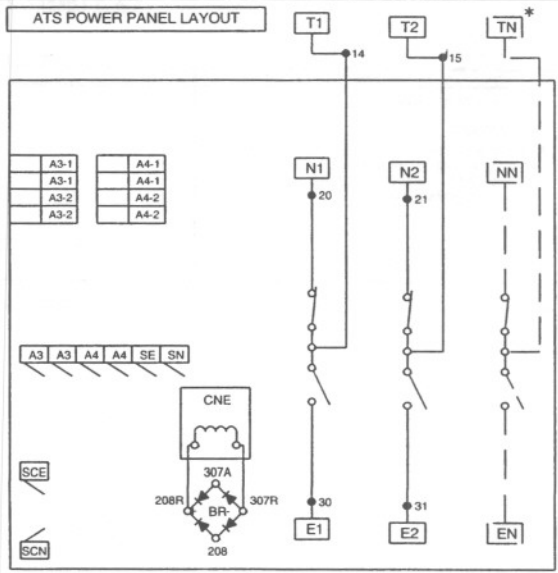
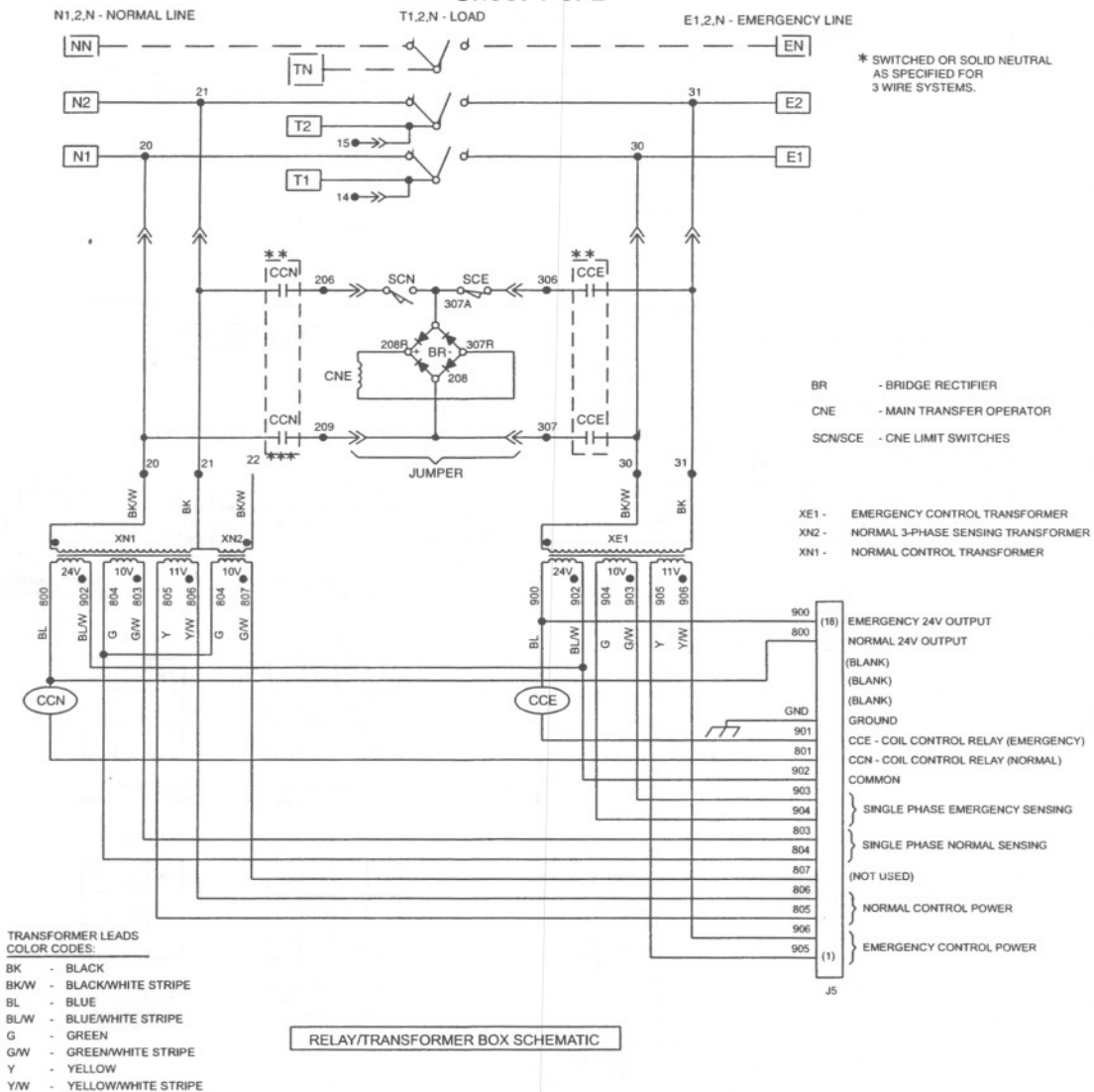


LEGEND

- WIRE CONNECTION
- * OPTIONAL

ATS Electrical Schematic

CTG 2 Pole 400 Amp Sheet 1 of 2

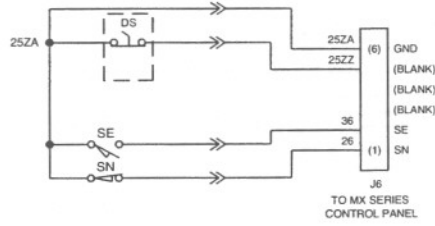


LEGEND	NOTES
●	WIRE CONNECTION
○	WIRE ON TERMINAL BLOCK
→	WIRE IN INTERCONNECT PLUG
*	OPTIONAL
**	LOCATED ON RELAY/TRANSFORMER BOX
	ATS SHOWN IN NORMAL POSITION WITH NO POWER AVAILABLE.

ATS Electrical Schematic

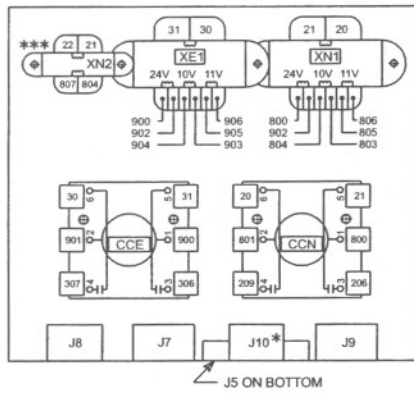
CTG 2 Pole
400 Amp
Sheet 2 of 2

LIMIT SWITCH SCHEMATIC

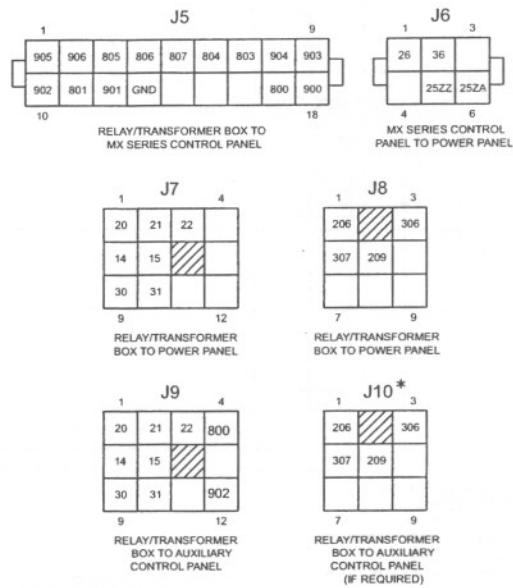


SE - EMERGENCY POSITION LIMIT SWITCH
SN - NORMAL POSITION LIMIT SWITCH
DS - DISCONNECT SWITCH ON MX100

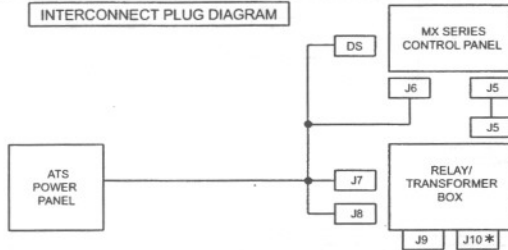
RELAY/TRANSFORMER BOX



INTERCONNECT PLUGS



INTERCONNECT PLUG DIAGRAM

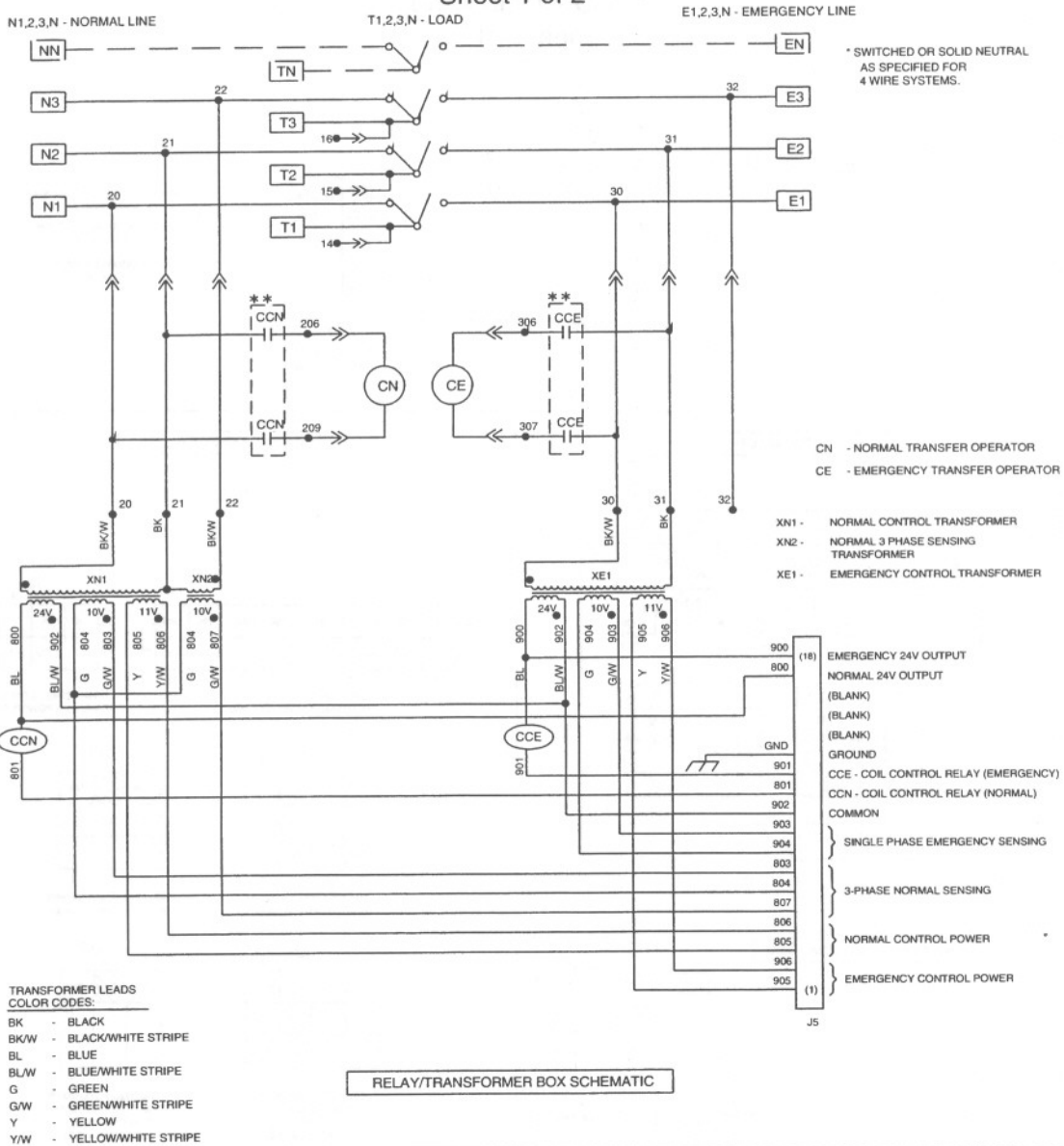


LEGEND

- WIRE CONNECTION
- * OPTIONAL
- *** WIRE #22 REMAINS WIRED IN RELAY/TRANSFORMER BOX. WIRE #22 IS NOT CONNECTED TO ATS POWER PANEL.

ATS Electrical Schematic

CTG 3/4 Pole
600 - 1200 Amp
Sheet 1 of 2

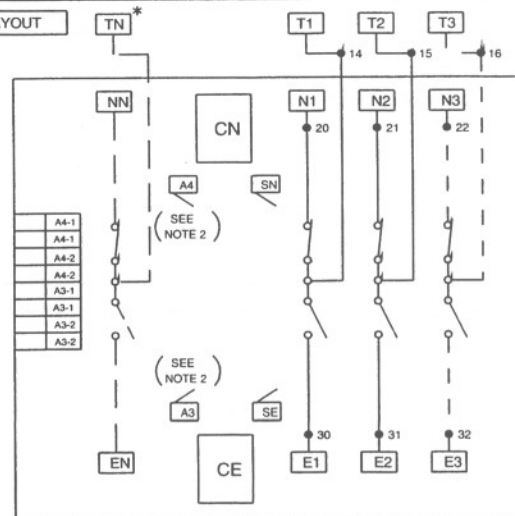


ATS POWER PANEL LAYOUT

AUXILIARY CONTACTS



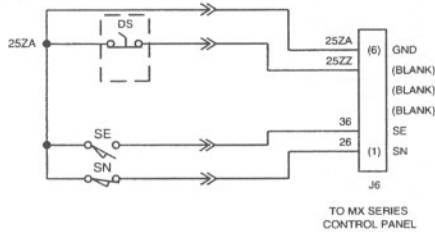
LEGEND	NOTES
● WIRE CONNECTION	NOTE 1: ATS SHOWN IN NORMAL POSITION WITH NO POWER AVAILABLE.
○ WIRE ON TERMINAL BLOCK	
⇨ WIRE IN INTERCONNECT PLUG	NOTE 2: WHEN (1) A3 & (1) A4 ARE SUPPLIED, LIMIT SWITCHES WILL MOUNT TO RIGHT OF SOLENOIDS WHEN (2) A3 & (2) A4 ARE SUPPLIED, LIMIT SWITCHES WILL MOUNT TO LEFT OF SOLENOIDS.
* OPTIONAL	
** LOCATED ON RELAY/ TRANSFORMER BOX	



ATS Electrical Schematic

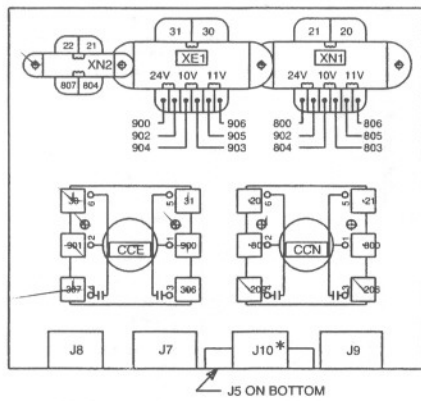
CTG 3/4 Pole
600 - 1200 Amp
Sheet 2 of 2

LIMIT SWITCH SCHEMATIC

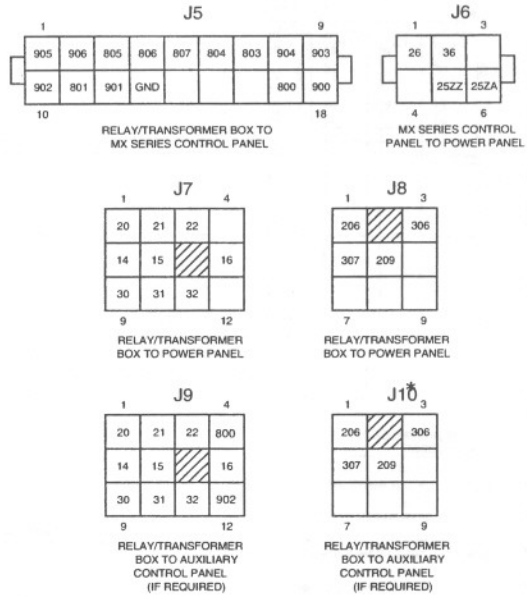


SE - EMERGENCY POSITION LIMIT SWITCH
SN - NORMAL POSITION LIMIT SWITCH
DS - DISCONNECT SWITCH ON MX100

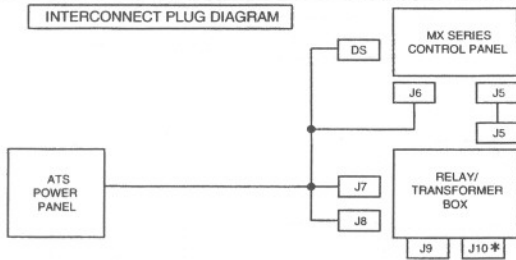
RELAY/TRANSFORMER BOX



INTERCONNECT PLUGS



INTERCONNECT PLUG DIAGRAM

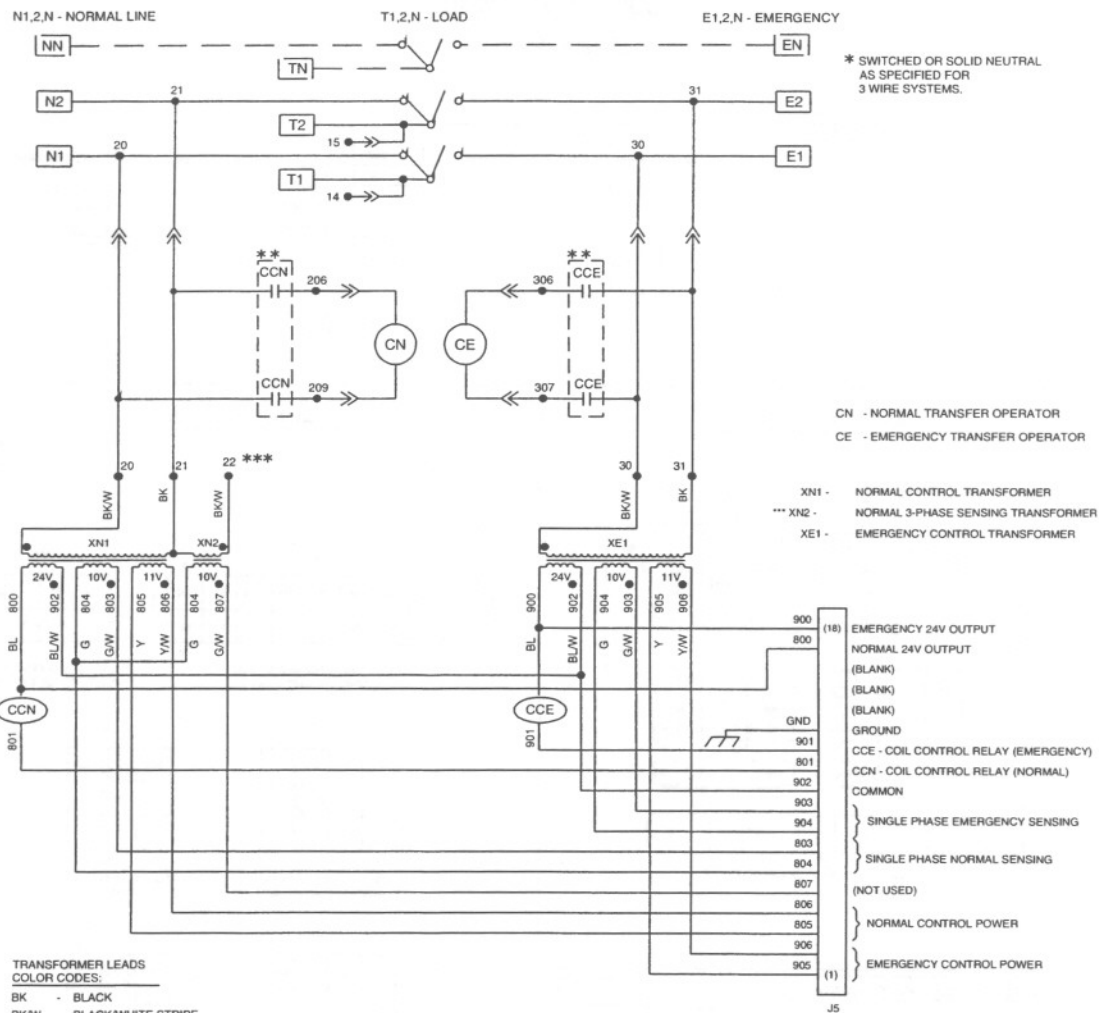


LEGEND

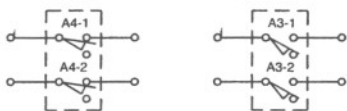
—●— WIRE CONNECTION
* OPTIONAL

ATS Electrical Schematic

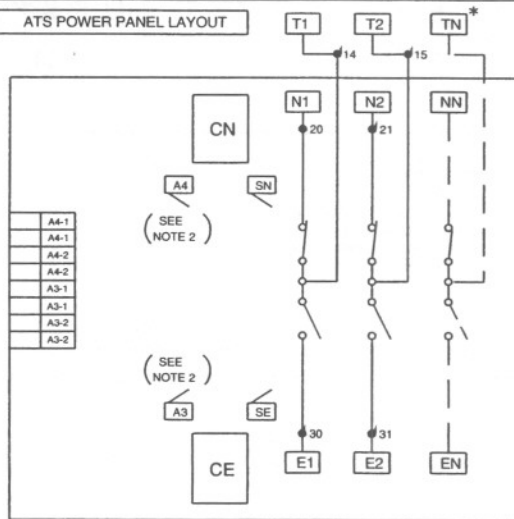
CTG 2 Pole
600 - 1200 Amp
Sheet 1 of 2



AUXILIARY CONTACTS



ATS POWER PANEL LAYOUT



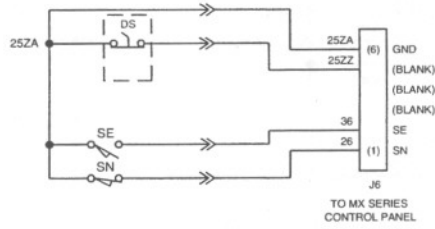
LEGEND	NOTES
● WIRE CONNECTION	NOTE 1: ATS SHOWN IN NORMAL POSITION WITH NO POWER AVAILABLE.
○ WIRE ON TERMINAL BLOCK	
→ WIRE IN INTERCONNECT PLUG	NOTE 2: WHEN (1) A3 & (1) A4 ARE SUPPLIED, LIMIT SWITCHES WILL MOUNT TO RIGHT OF SOLENOIDS WHEN (2) A3 & (2) A4 ARE SUPPLIED, LIMIT SWITCHES WILL MOUNT TO LEFT OF SOLENOIDS.
* OPTIONAL	
** LOCATED ON RELAY/TRANSFORMER BOX	

ATS Electrical Schematic

CTG 2 Pole
600 - 1200 Amp

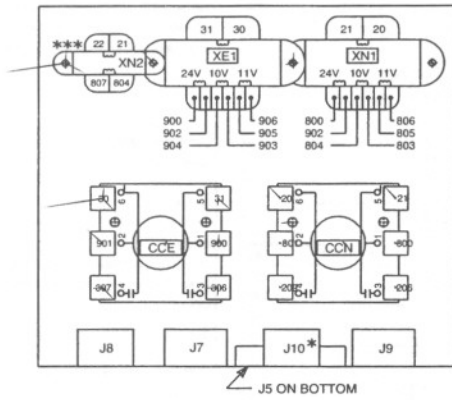
Sheet 2 of 2

LIMIT SWITCH SCHEMATIC

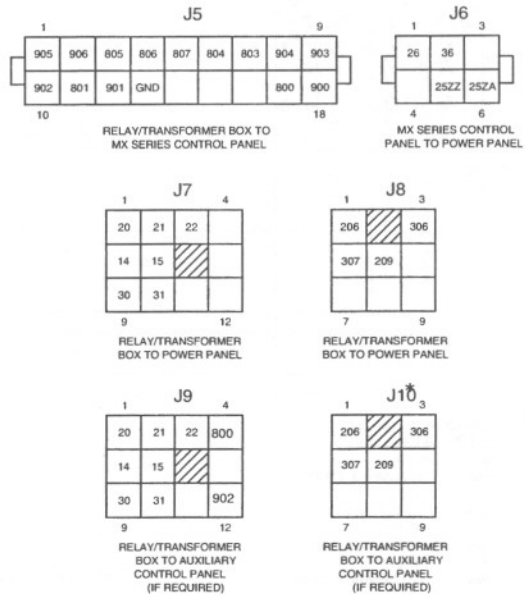


- SE - EMERGENCY POSITION LIMIT SWITCH
- SN - NORMAL POSITION LIMIT SWITCH
- DS - DISCONNECT SWITCH ON MX100

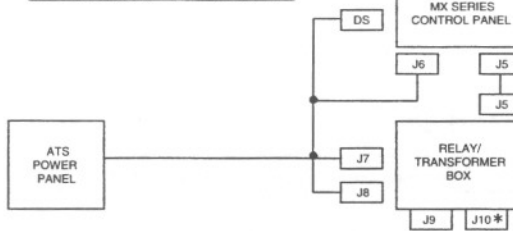
RELAY/TRANSFORMER BOX



INTERCONNECT PLUGS



INTERCONNECT PLUG DIAGRAM

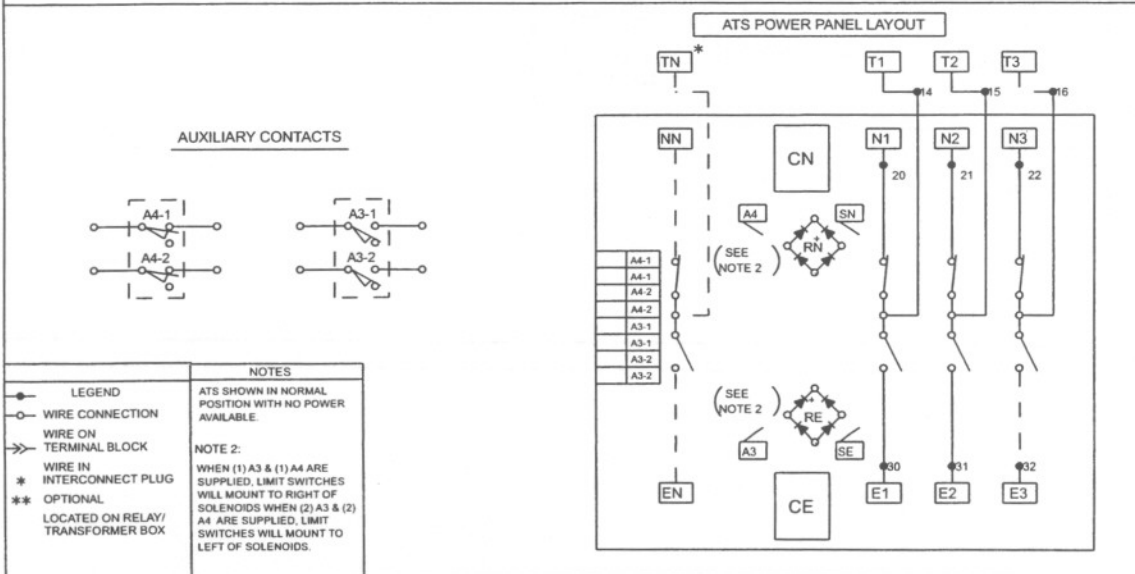
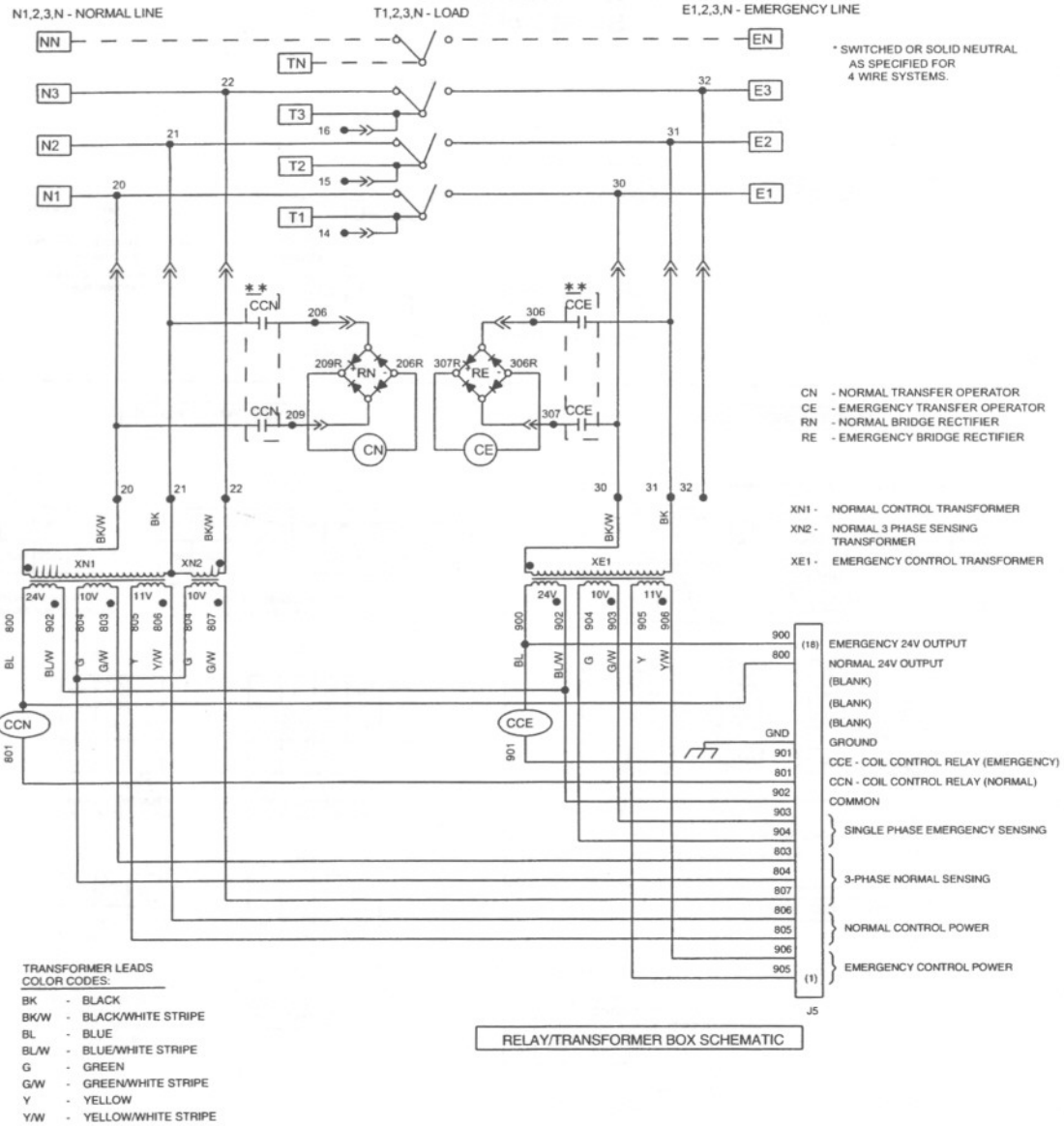


LEGEND

- WIRE CONNECTION
- * OPTIONAL
- *** WIRE #22 REMAINS WIRED IN RELAY/ TRANSFORMER BOX. WIRE #22 IS NOT CONNECTED TO ATS POWER PANEL.

ATS Electrical Schematic

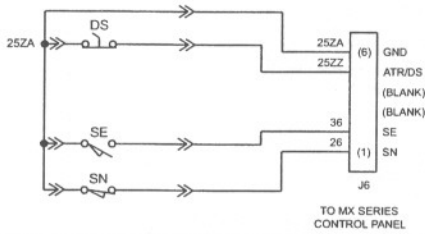
CTG 3/4 Pole
1600 - 3000 Amp
Sheet 1 of 2



ATS Electrical Schematic

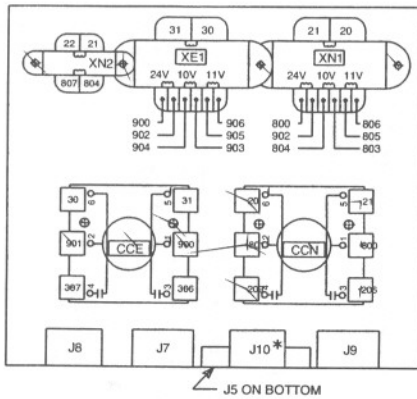
CTG 3/4 Pole
1600 - 3000 Amp
Sheet 2 of 2

LIMIT SWITCH SCHEMATIC

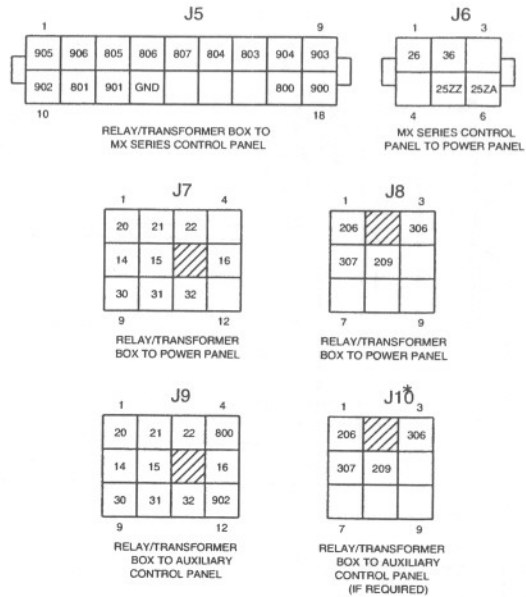


- DS - DISCONNECT SWITCH ON MX100
- SE - EMERGENCY POSITION LIMIT SWITCH
- SN - NORMAL POSITION LIMIT SWITCH

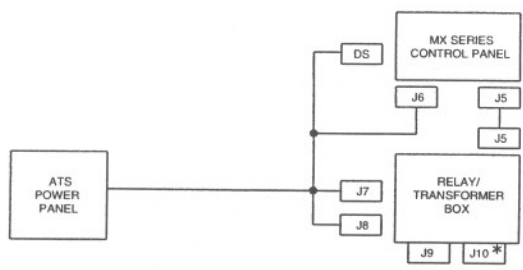
RELAY/TRANSFORMER BOX



INTERCONNECT PLUGS



INTERCONNECT PLUG DIAGRAM



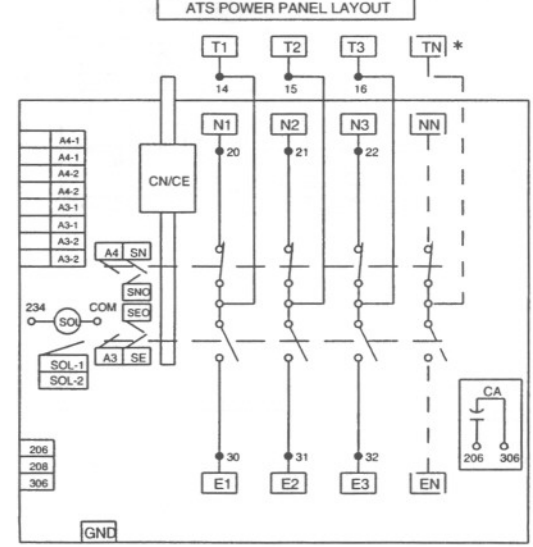
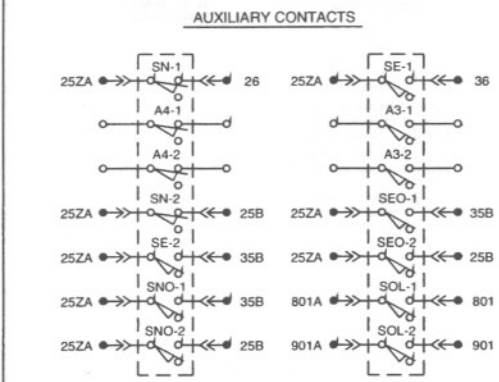
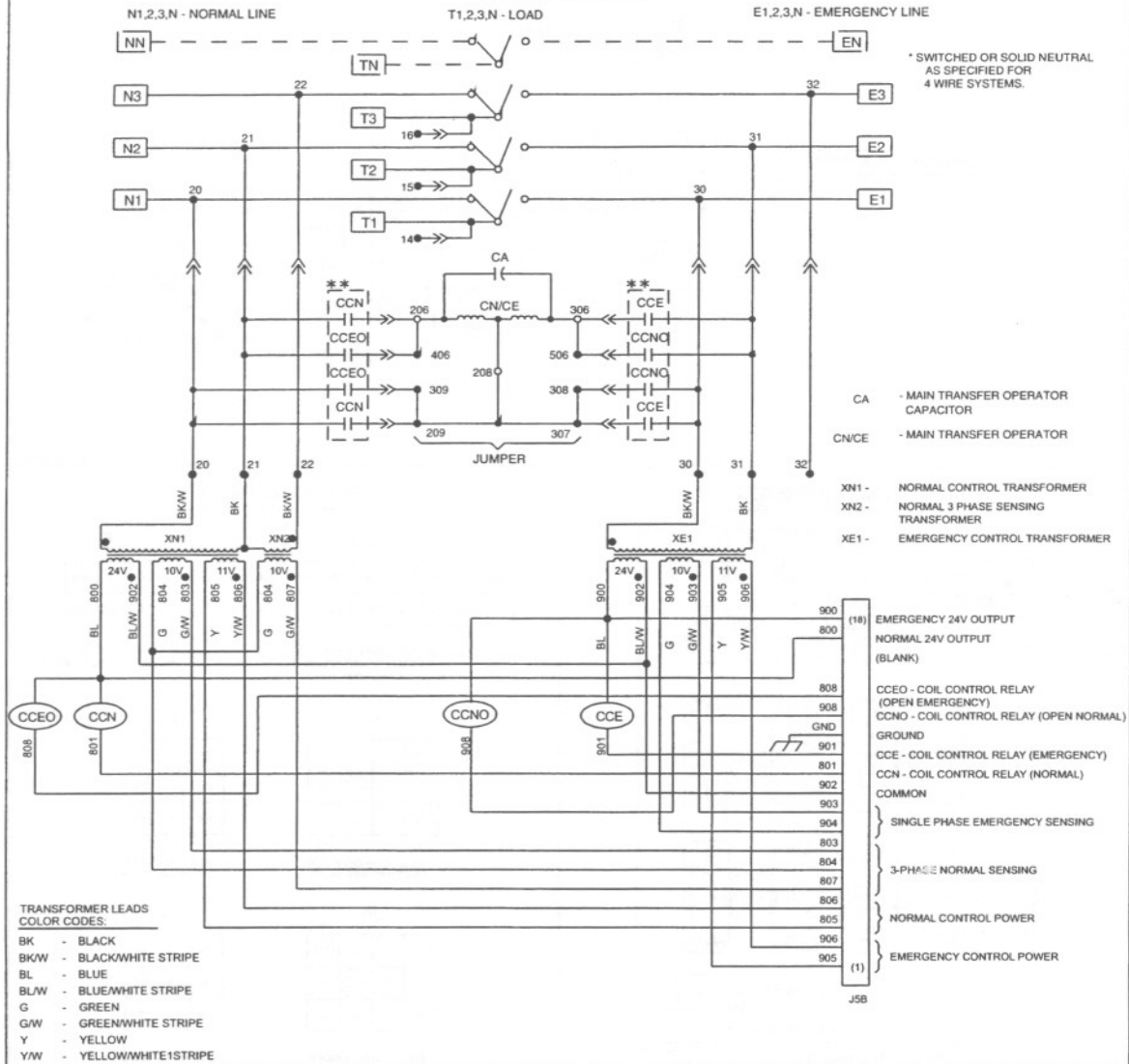
- LEGEND
- WIRE CONNECTION
 - * OPTIONAL

ATS Electrical Schematic

CTGD 3/4 Pole

40 - 260 Amp

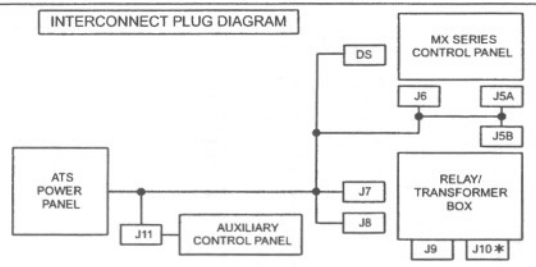
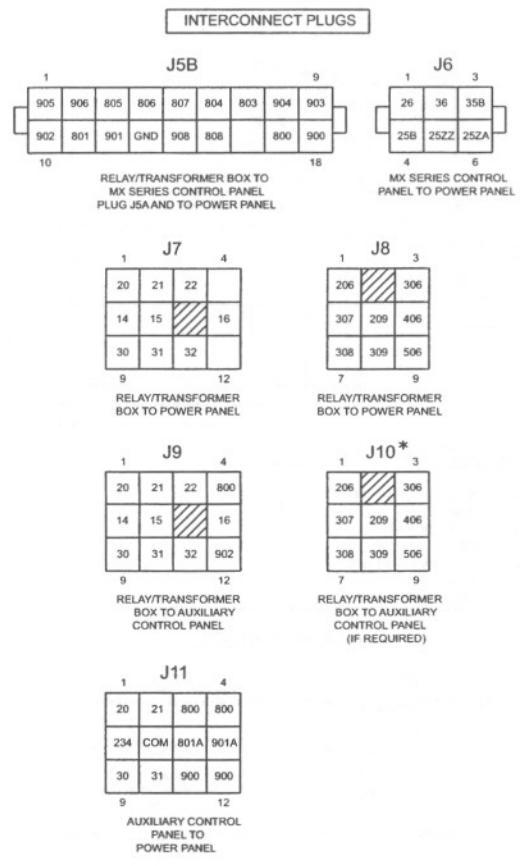
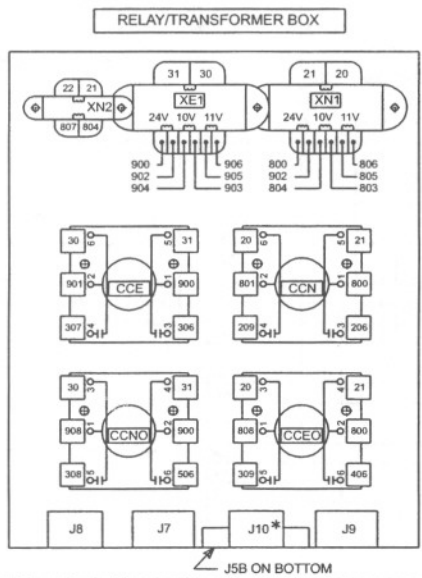
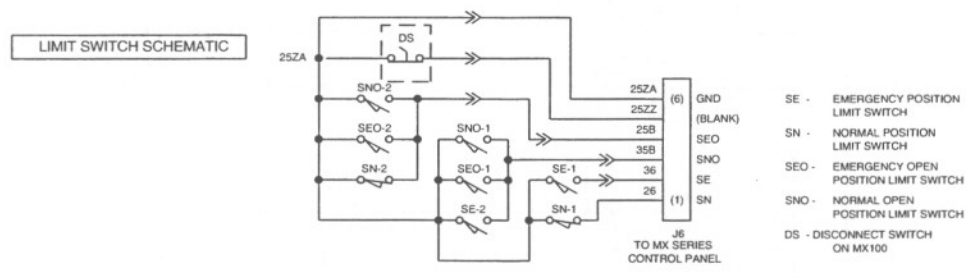
Sheet 1 of 2



LEGEND	NOTES
● WIRE CONNECTION	ATS SHOWN IN NORMAL POSITION WITH NO POWER AVAILABLE.
○ WIRE ON TERMINAL BLOCK	
→ WIRE IN INTERCONNECT PLUG	
* OPTIONAL	
** LOCATED ON RELAY/TRANSFORMER BOX	

ATS Electrical Schematic

CTGD 3/4 Pole
40 - 260 Amp
Sheet 2 of 2



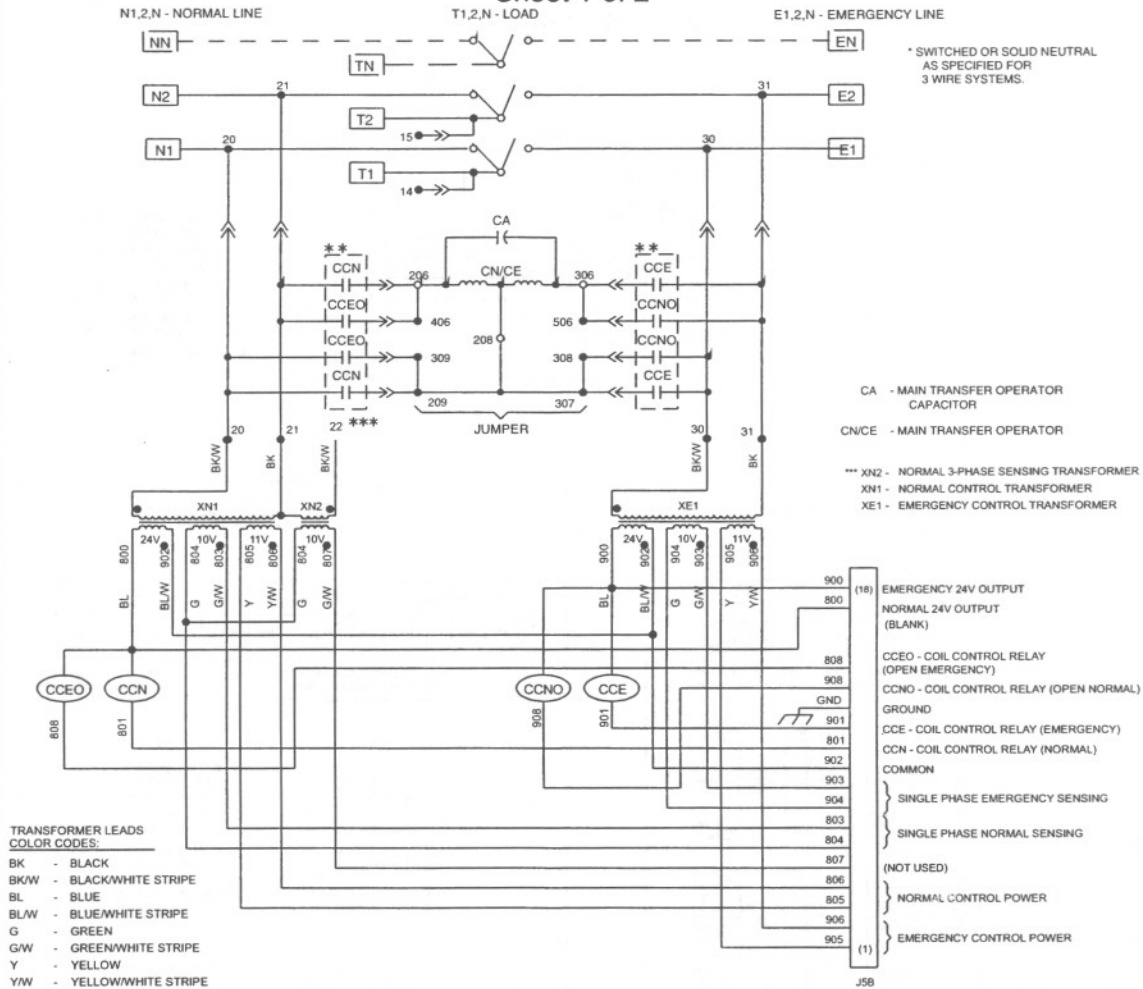
LEGEND
●— WIRE CONNECTION
* OPTIONAL

ATS Electrical Schematic

CTGD 2 Pole

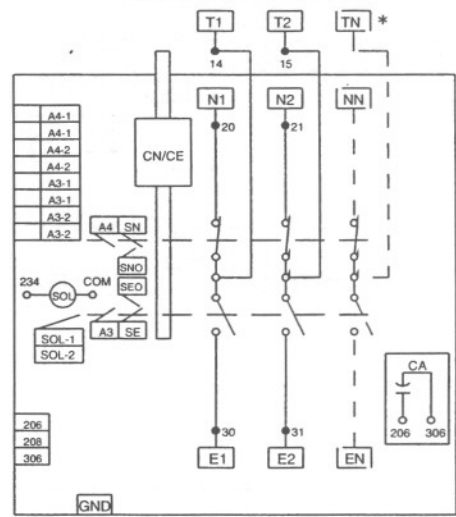
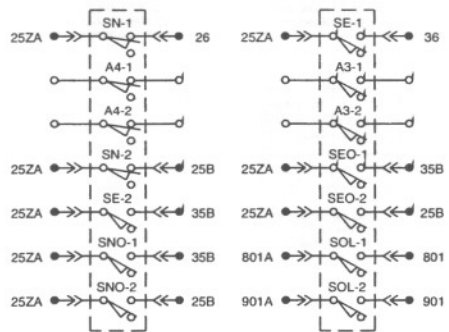
40 - 260 Amp

Sheet 1 of 2



ATS POWER PANEL LAYOUT

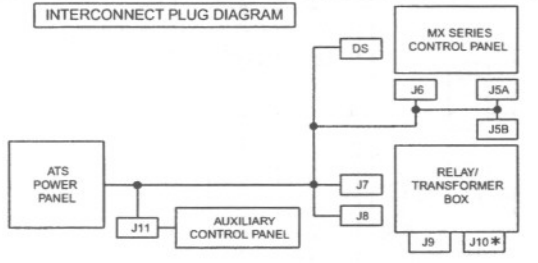
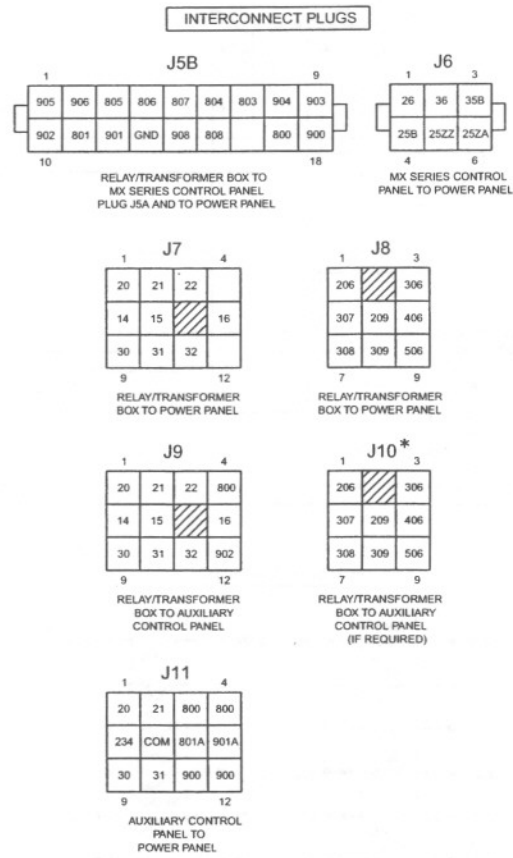
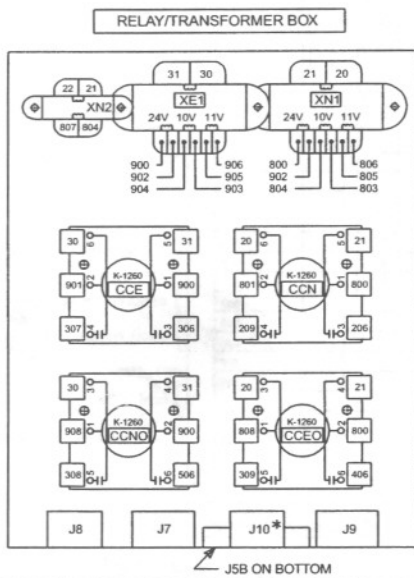
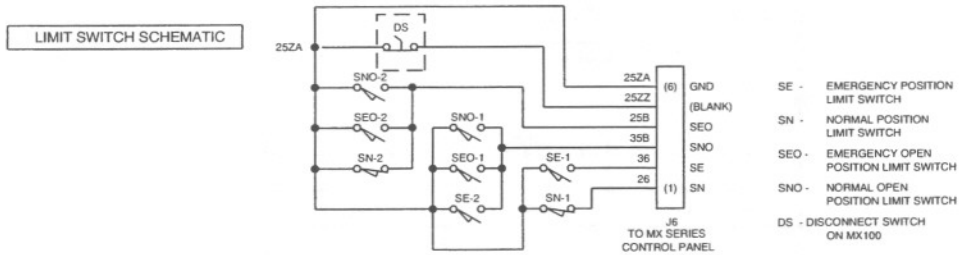
AUXILIARY CONTACTS



LEGEND	NOTES
● WIRE CONNECTION	ATS SHOWN IN NORMAL POSITION WITH NO POWER AVAILABLE.
○ WIRE ON TERMINAL BLOCK	
→ WIRE IN INTERCONNECT PLUG	
* OPTIONAL	
** LOCATED ON RELAY/ TRANSFORMER BOX	

ATS Electrical Schematic

CTGD 3/4 Pole
40 - 260 Amp



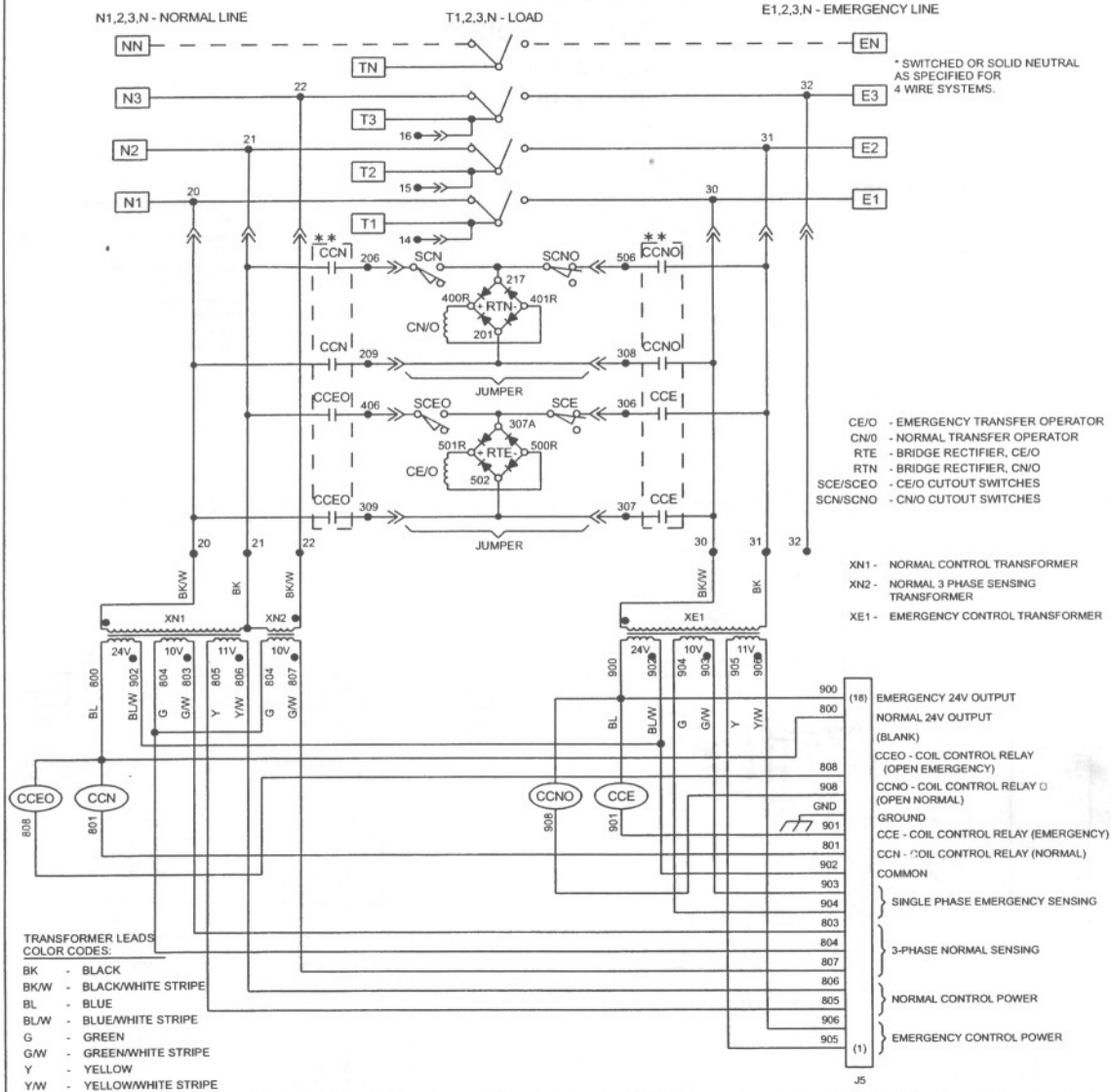
LEGEND
 ● WIRE CONNECTION
 * OPTIONAL

ATS Electrical Schematic

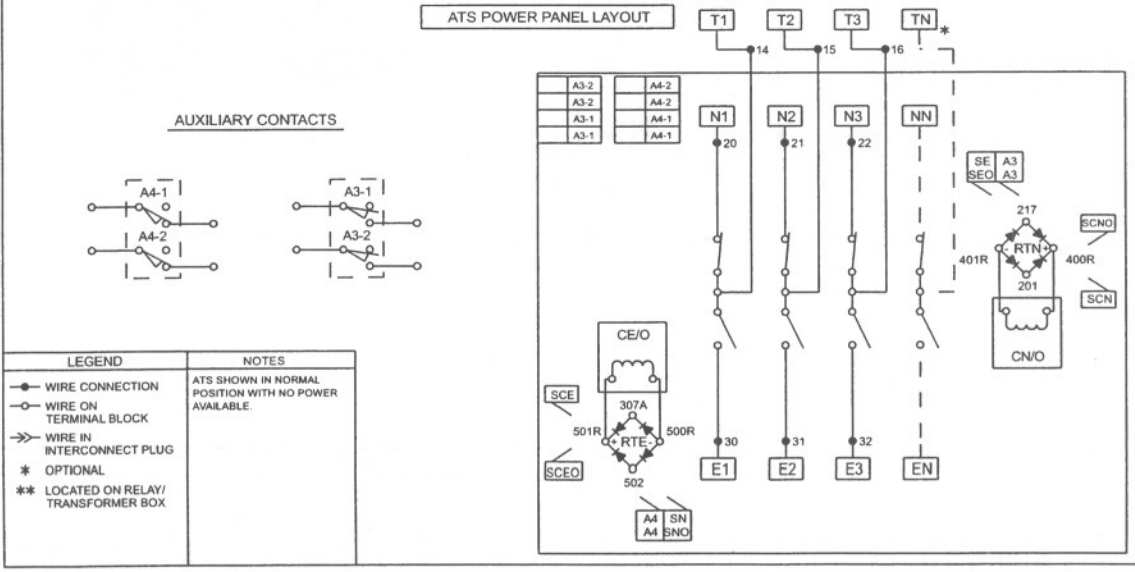
CTGD 3/4 Pole

400 Amp

Sheet 1 of 2



ATS POWER PANEL LAYOUT



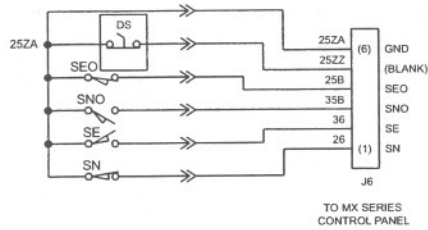
ATS Electrical Schematic

CTGD 3/4 Pole

400 Amp

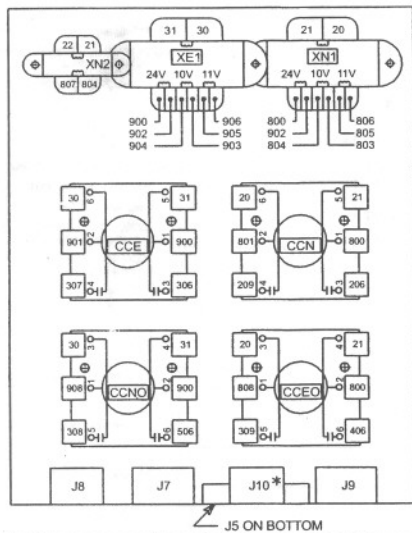
Sheet 2 of 2

LIMIT SWITCH SCHEMATIC

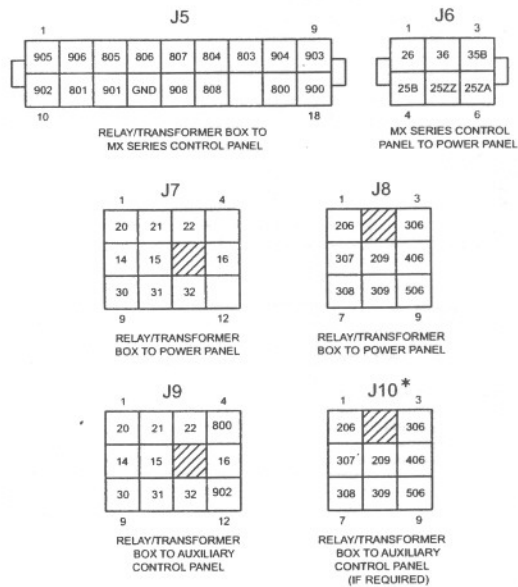


- SEO - EMERGENCY OPEN POSITION LIMIT SWITCH
- SNO - NORMAL OPEN POSITION LIMIT SWITCH
- SE - EMERGENCY POSITION LIMIT SWITCH
- SN - NORMAL POSITION LIMIT SWITCH
- DS - DISCONNECT SWITCH ON MX100

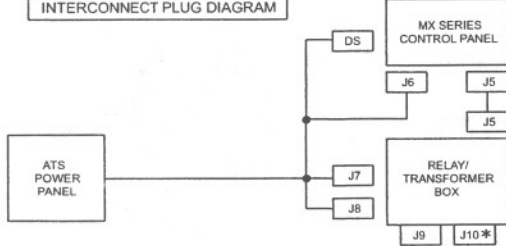
RELAY/TRANSFORMER BOX



INTERCONNECT PLUGS



INTERCONNECT PLUG DIAGRAM



LEGEND

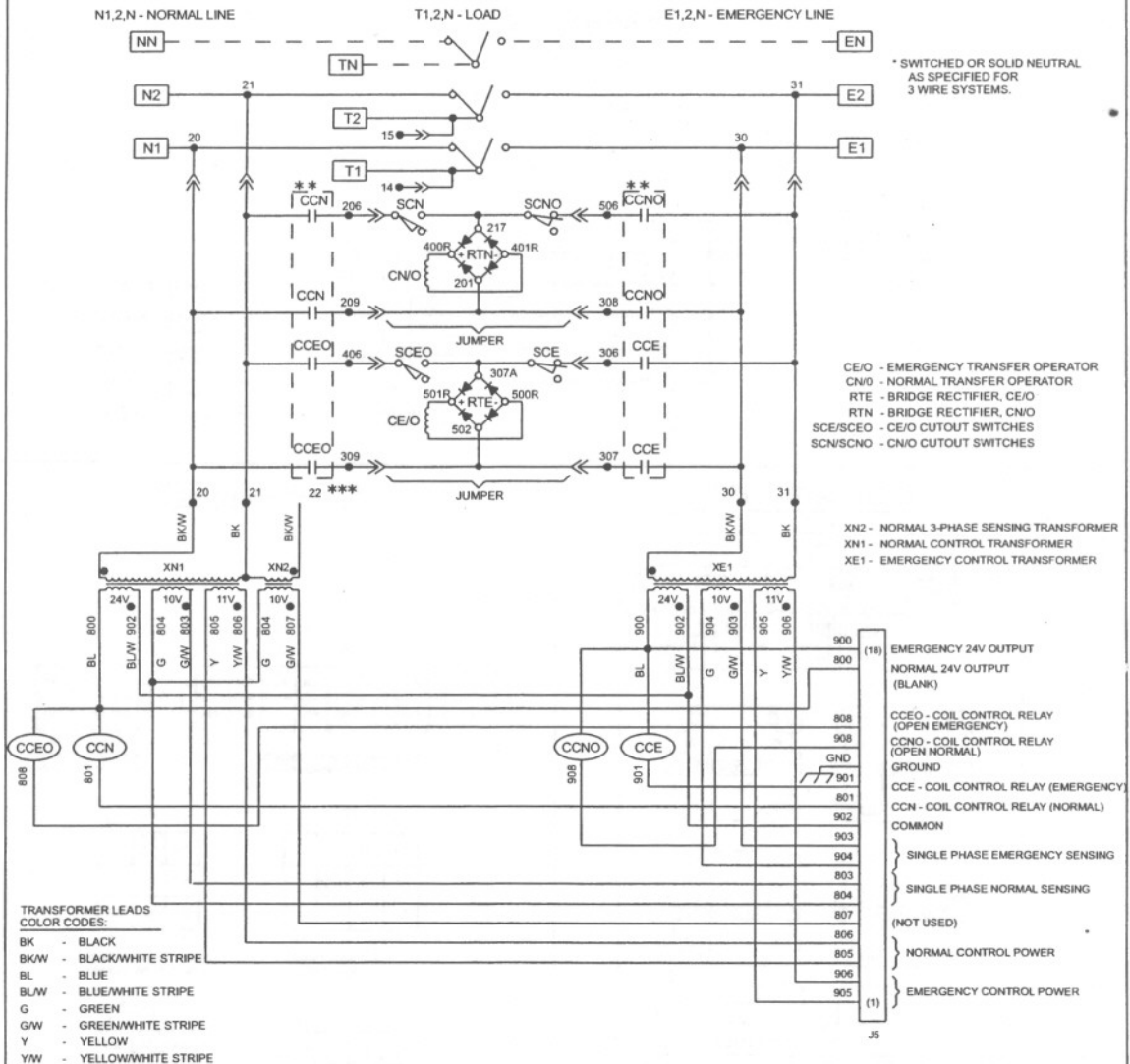
- WIRE CONNECTION
- * OPTIONAL

ATS Electrical Schematic

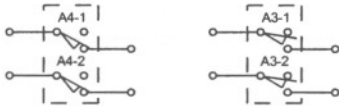
CTGD 2 Pole

400 Amp

Sheet 1 of 2

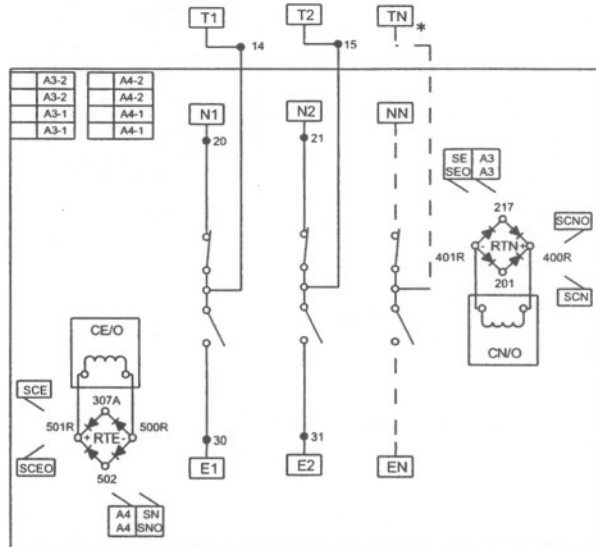


AUXILIARY CONTACTS



LEGEND	NOTES
● WIRE CONNECTION	ATS SHOWN IN NORMAL POSITION WITH NO POWER AVAILABLE.
○ WIRE ON TERMINAL BLOCK	
→ WIRE IN INTERCONNECT PLUG	
* OPTIONAL	
** LOCATED ON RELAY/ TRANSFORMER BOX	

ATS POWER PANEL LAYOUT

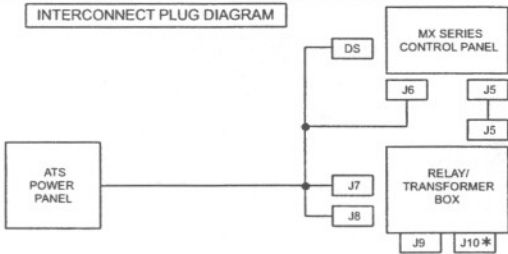
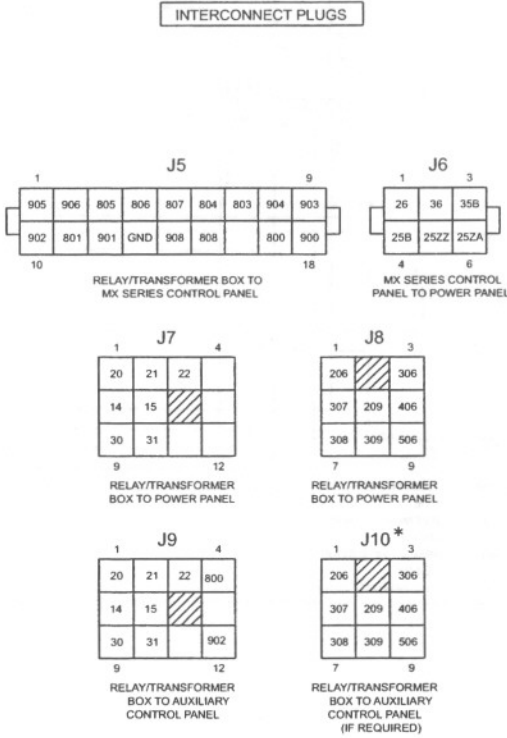
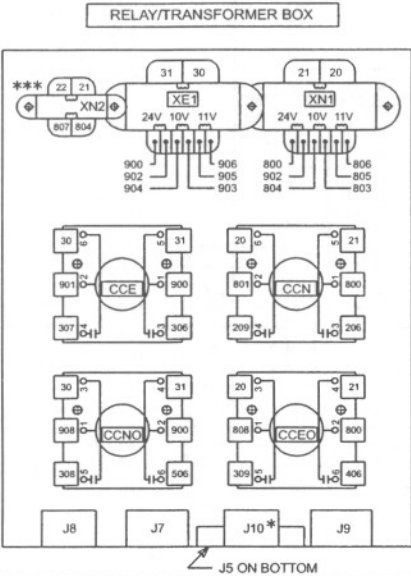
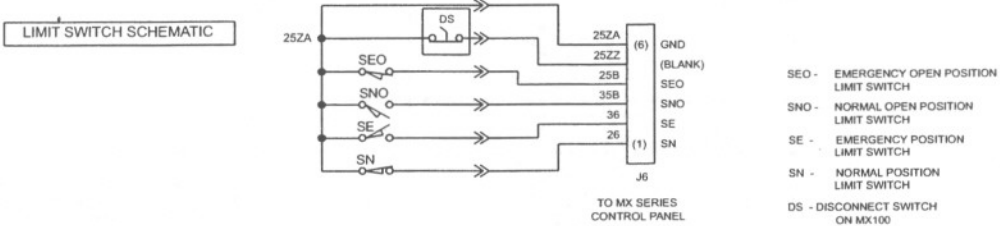


ATS Electrical Schematic

CTGD 2 Pole

400 Amp

Sheet 2 of 2



LEGEND

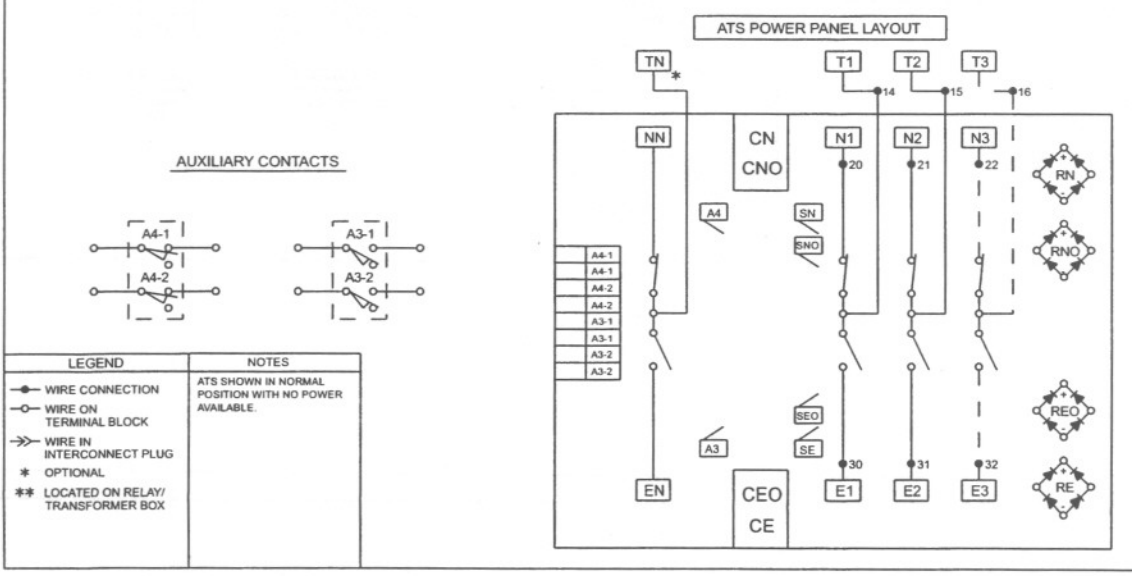
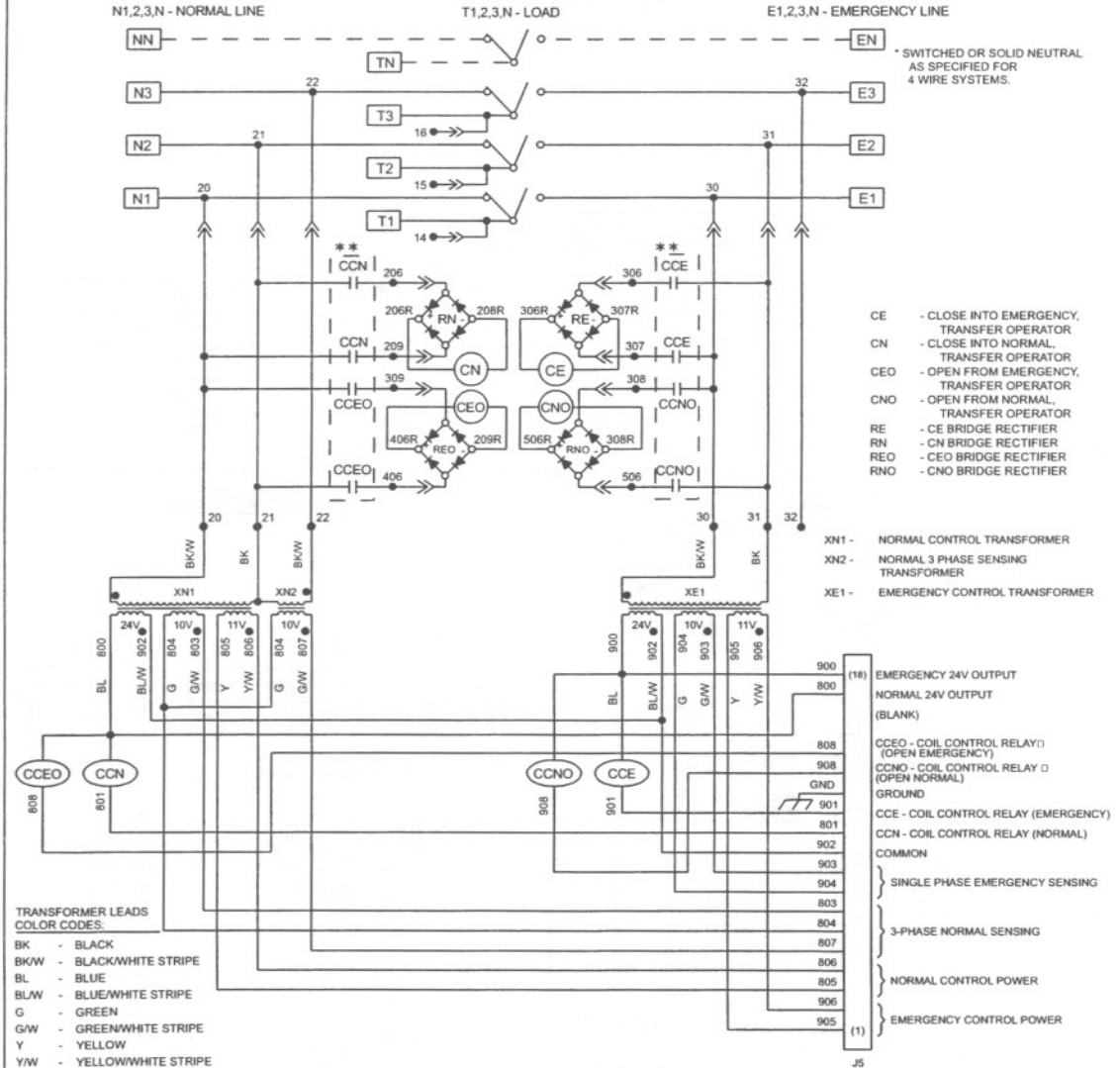
- WIRE CONNECTION
- * OPTIONAL
- *** WIRE #22 REMAINS WIRED IN RELAY/ TRANSFORMER BOX. WIRE #22, IS NOT CONNECTED TO ATS POWER PANEL.

ATS Electrical Schematic

CTGD 3/4 Pole

600 - 300 Amp

Sheet 1 of 2

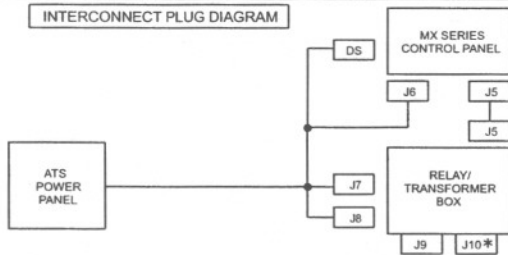
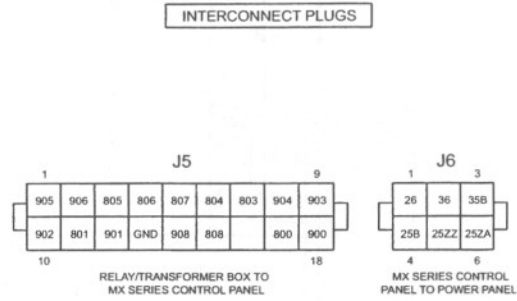
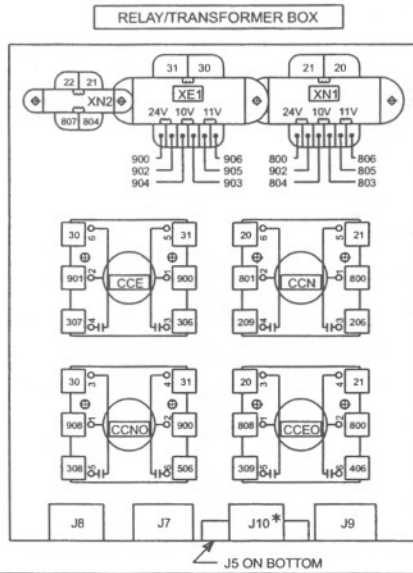
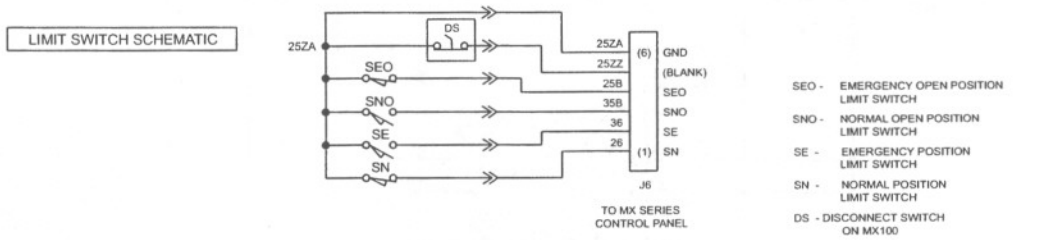


ATS Electrical Schematic

CTGD 3/4 Pole

600 - 3000 Amp

Sheet 2 of 2

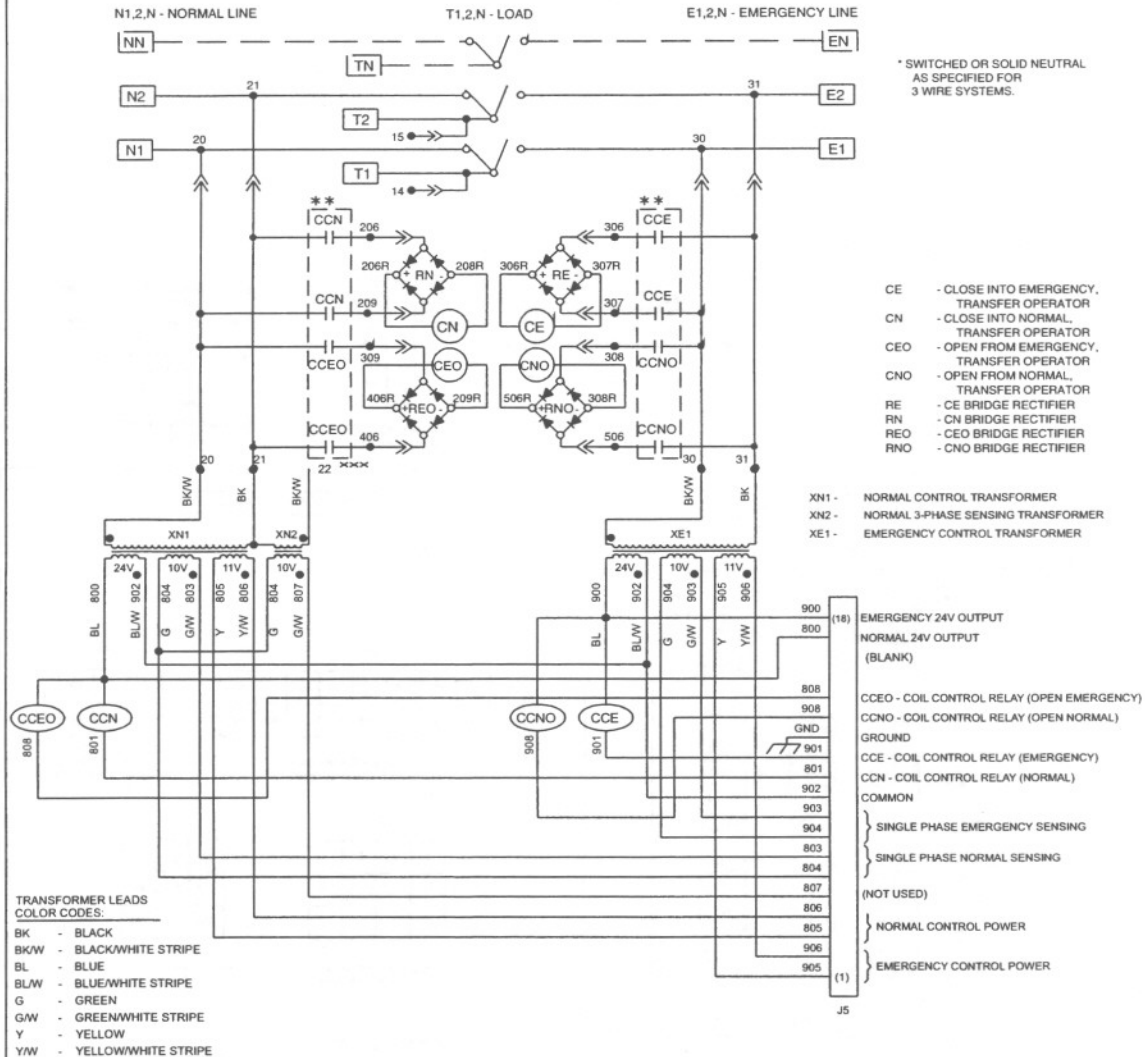


LEGEND

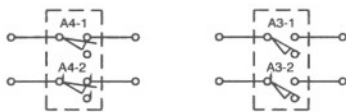
- WIRE CONNECTION
- * OPTIONAL

ATS Electrical Schematic

CTGD 2 Pole
600 - 3000 Amp
Sheet 1 of 2

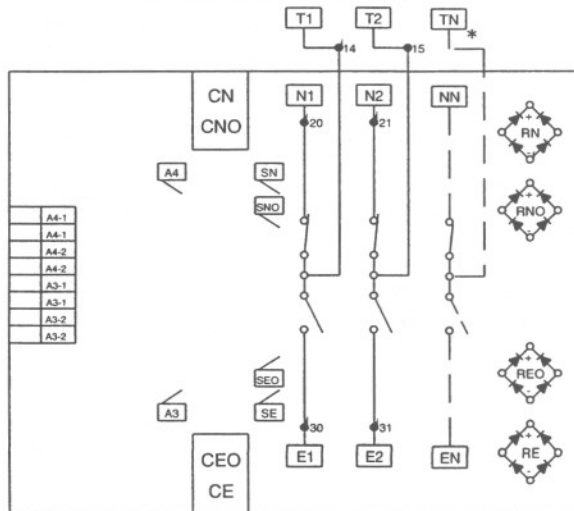


AUXILIARY CONTACTS



LEGEND	NOTES
● WIRE CONNECTION	ATS SHOWN IN NORMAL POSITION WITH NO POWER AVAILABLE.
○ WIRE ON TERMINAL BLOCK	
→ WIRE IN INTERCONNECT PLUG	
* OPTIONAL	
** LOCATED ON RELAY/ TRANSFORMER BOX	

ATS POWER PANEL LAYOUT



ATS Electrical Schematic

CTG(D) Options

A6 T3/W3

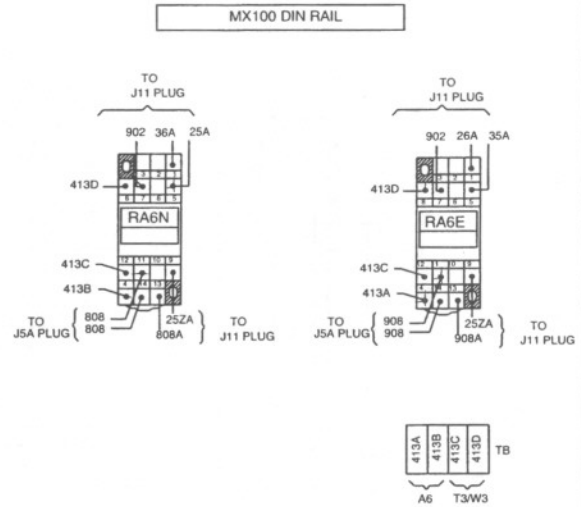
Sheet 1 of 2

LEGEND:

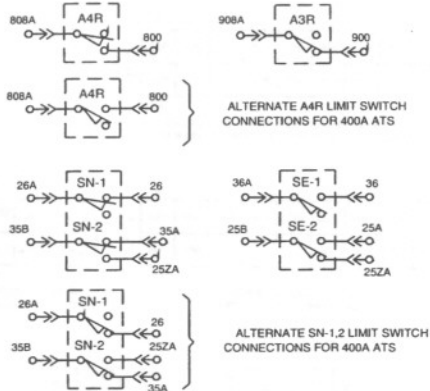
RA6N Normal Presignal Relay...24VAC. Relay
 RA6E Emergency Presignal Relay...24VAC.
 TB Terminal Block
 J8 Plug-R/T Box
 Pin mate (Qty. 3)
 Socket female (Qty. 3)
 J11 Plug Pin housing 9 pt.
 Socket receptacle 9 pt.
 Pin mate (Qty. 8)
 Socket female (Qty. 8)
 Polarization Key
 MX100 Delay Model with Presignal overlay/static shield assembly
 R/T BOX Standard ATS model
 Relay/Transformer Box
 CCE Control Relay, Close Emergency
 CCN Control Relay, Close Normal
 XE1 Control Transformer, Emergency
 XN1, XN2 Control Transformer, Normal
 Power Panel Limit Switches
 A3R Auxiliary Contact-Emergency Position
 A4R Auxiliary Contact-Normal Position
 SE-1,2 Emergency Position
 SN-1,2 Normal Position
 Interconnect Plugs
 J5A, J5B, J6, J7, J8, J11

OPERATION:

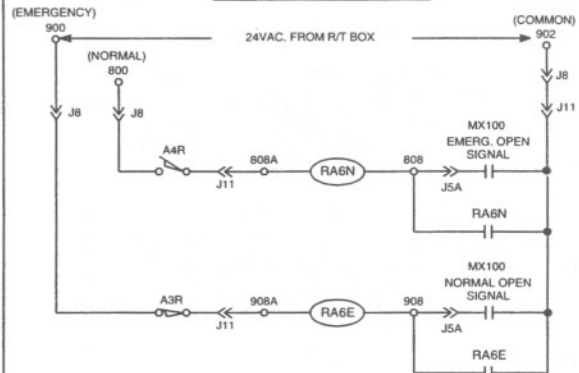
When Normal restores, A6 circuit opens (or T3/W3 circuit closes) (adjustable) until MX100 timer times out.
 The Normal transfer relay(s) picks up and closes its contacts to transfer the switch to Normal. A6 recloses (or T3/W3 circuit reopens).
 When Normal fails, A6 circuit is open (or T3/W3 circuit closes) (adjustable) until MX100 timer times out.
 The Emergency transfer relay(s) picks up and closes its contacts to transfer the switch to Emergency. A6 recloses (or T3/W3 circuit reopens).



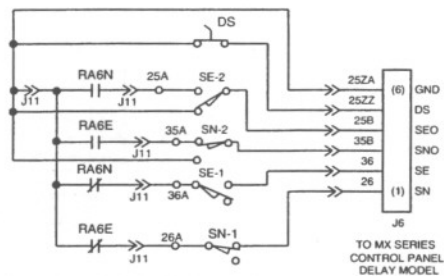
TYPICAL LIMIT SWITCHES ON POWER PANEL



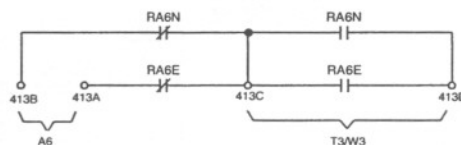
CONTROL RELAY SCHEMATIC



TYPICAL LIMIT SWITCH SCHEMATIC



CUSTOMER CONNECTIONS



LEGEND

—●— WIRE CONNECTION
 —○— WIRE ON TERMINAL BLOCK
 —>— WIRE IN INTERCONNECT PLUG

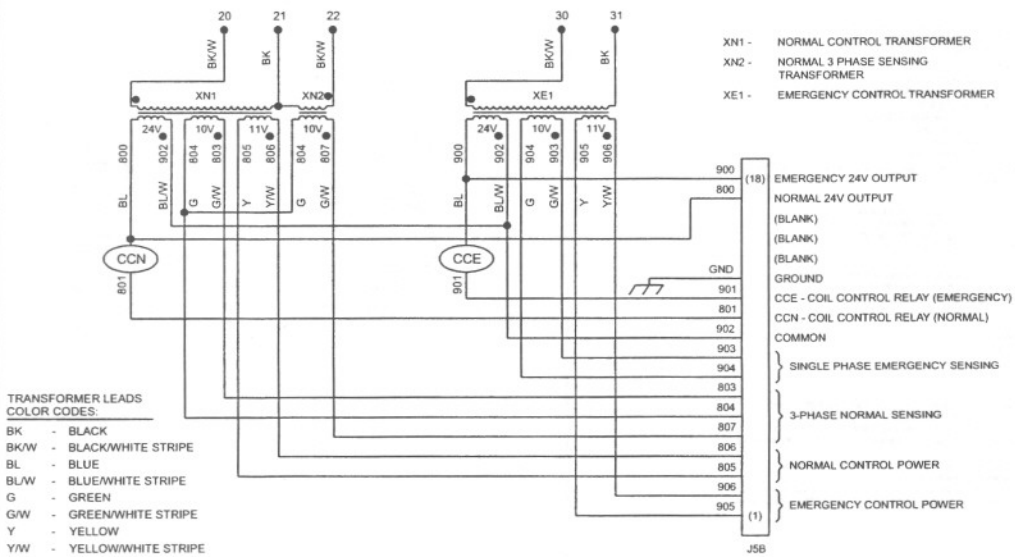
ATS Electrical Schematic

CTG(D) Options

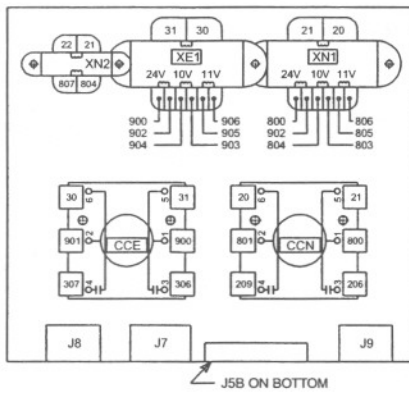
A6 T3/W3

Sheet 2 of 2

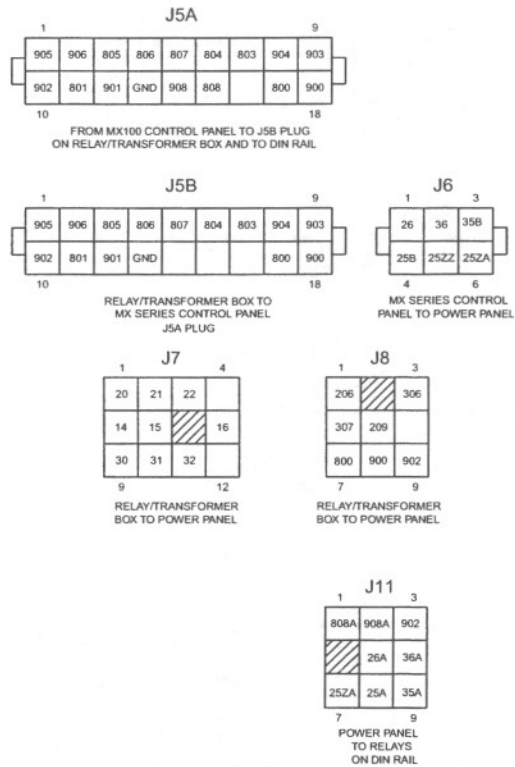
TYPICAL RELAY/TRANSFORMER BOX SCHEMATIC



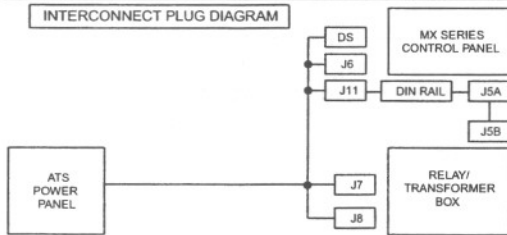
TYPICAL RELAY/TRANSFORMER BOX FOR STANDARD ATS



TYPICAL INTERCONNECT PLUGS



INTERCONNECT PLUG DIAGRAM



LEGEND

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

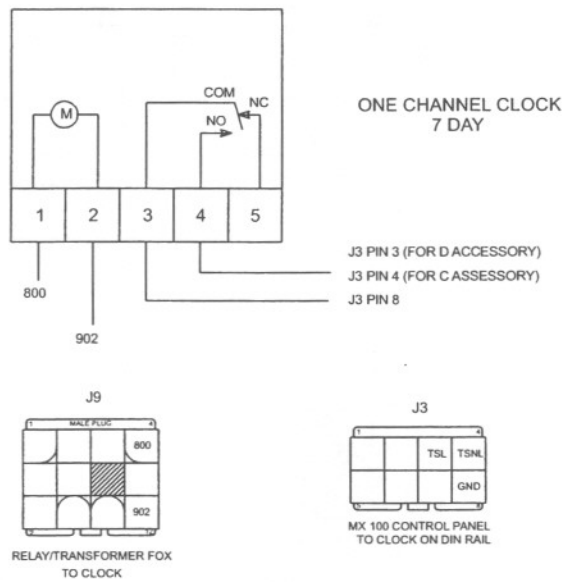
ATS Electrical Schematic

CTG(D) Option

C/D One Channel Clock

Sheet 1 of 1

CONNECTION DIAGRAM



LEGEND

See SEBU7602 for programming instructions.
Exercise clock, Weekly program with 20 settings.

J3 Plug-MX100.....	Clock 24V, 60 HZ Socket Receptacle 8 pt. Mini Socket Female Mini (Qty. 2)
J9 Plug-R/T Box.....	Socket Receptacle 12 Pt. Socket Female .093" (Qty. 2)

OPERATION

The "C" plant excersior starts the engine (No Load Test) by closing the TSNL circuit.

The "D" plant excersior simulates normal line failure, starts generator and transfers load to emergency at selected time intervals.

NOTES

1. Total GENERATOR running time = clock ON time + "U" timer ON time (if U is used).
2. Mount Clock and Transformer to Din Rail on MX100 Control Panel.

CAUTION

Before changing the time setting, turn Disconnect Switch (DS) to "OFF" position; after desired selection has been made, return DS to "ON" position

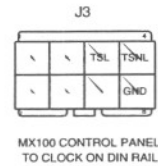
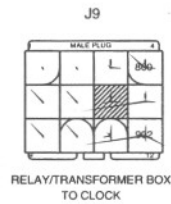
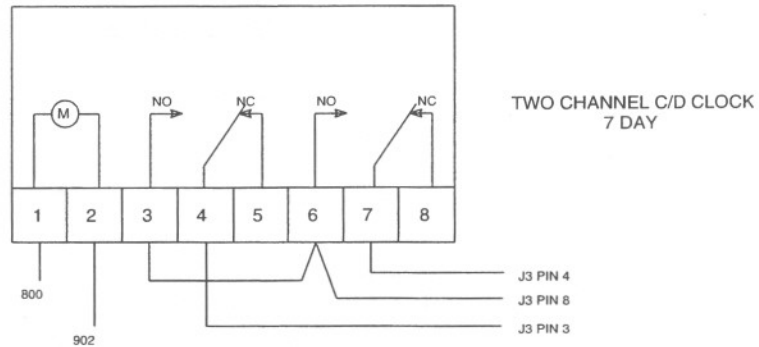
ATS Electrical Schematic

CTG(D) Option

C/D Two Channel Clock

Sheet 1 of 1

CONNECTION DIAGRAM



LEGEND

- C/D..... See SEBU7602 for programming instructions.
 Exercise clock, Weekly program with 42 set-point programs
 Clock 24V, 60 Hz
 Din Rail Mounting Base.
- J3 Plug-MX100..... Socket Receptacle 8 pt. Mini
 Socket Female Mini (Qty. 3)
- J9 Plug-R/T Box..... Socket Receptacle 12 Pt.
 Socket Female .093" (Qty. 2)

OPERATION

C-MODE: The "C" plant excisor starts the engine (No Load Test) by closing the TSNL circuit "C2".
 D-MODE: The "D" plant excisor simulates normal line failure, starts generator, and transfers load to emergency at the selected time intervals.

NOTES

1. Total GENERATOR running time = "C" ON time + "U" timer ON time (if U is used).
2. Mount Clock to Din Rail on MX100 Control Panel.

CAUTION

⚠ Before changing the time setting, turn Disconnect Switch (DS) to "INHIBIT" position; after desired selection has been made, return DS to "AUTO" position

ATS Electrical Schematic

CTG(D) Option

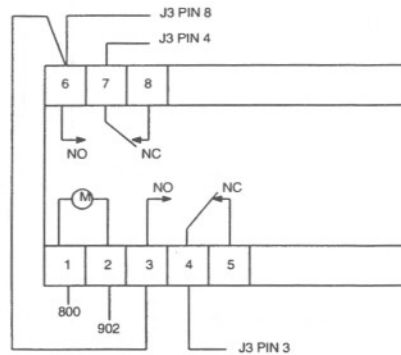
C/D - 365

Sheet 1 of 1

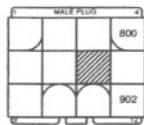
CONNECTION DIAGRAM

TWO CHANNEL C/D CLOCK
365 DAY

OPERATING INSTRUCTIONS - SEE SEBU7602

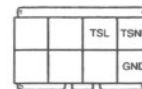


J9



RELAY/TRANSFORMER BOX
TO CLOCK

J3



MX100 CONTROL PANEL
TO CLOCK ON DIN RAIL

LEGEND

C/D..... See SEBU7602 for programming instructions.

Excise clock, 365 day program.
Clock 24V, 60 Hz (No longer available).
Clock 24V, 60 Hz

J3 Plug-MX100..... Socket Receptacle 8 pt. Mini
Socket Female Mini (Qty. 3)

J9 Plug-R/T Box..... Socket Receptacle 12 Pt.
Socket Female .093" (Qty. 2)

OPERATION

C-MODE: The "C" plant excisor starts the engine (No Load Test) by closing the TSNL circuit "C2".

D-MODE: The "D" plant excisor simulates normal line failure, starts generator, and transfers load to emergency at the selected time intervals.

NOTES

1. Total GENERATOR running time = "C" ON time + "U" timer ON time (if U is used).
2. Mount Clock and Transformer to Din Rail on MX100 Control Panel.

CAUTION



Before changing the time setting, turn Disconnect Switch (DS) to "INHIBIT" position; after desired selection has been made, return DS to "AUTO" position

ATS Electrical Schematic

CTG(D) Option

HT

Sheet 1 of 1

SCHEMATIC

CABINET MOUNTING

FIG. A (120 VAC SYSTEMS)

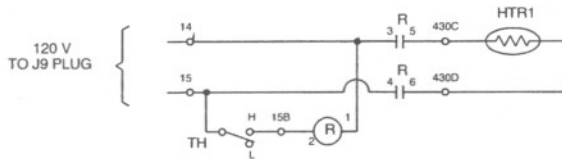
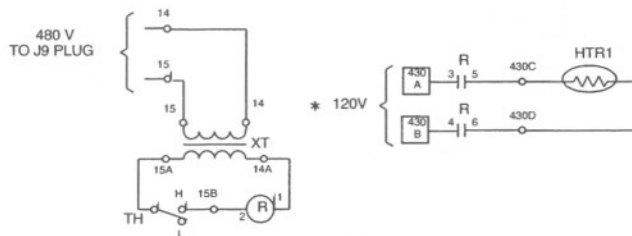


FIG. B (480 VAC SYSTEMS/120 VAC CONTROL VOLTAGE)



* Customer provides 120VAC control voltage

FIG. C (208 OR 240 VAC SYSTEMS)

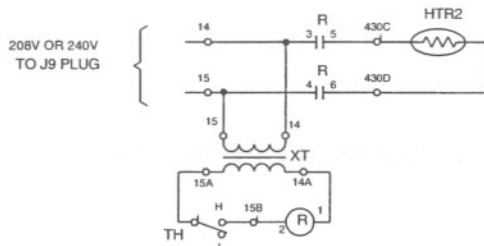
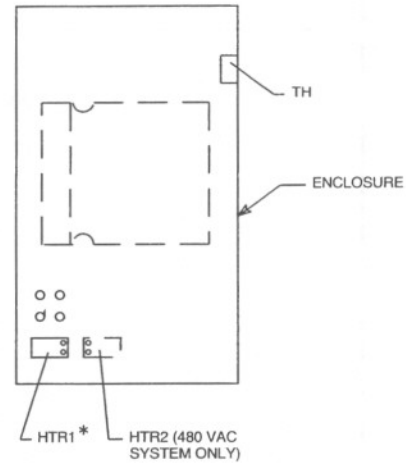
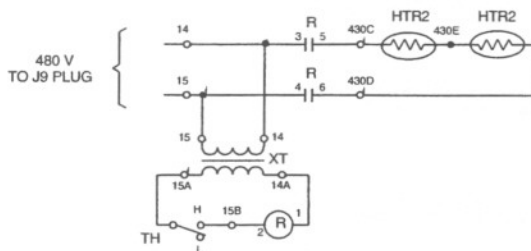
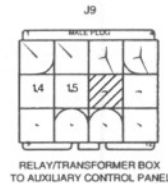


FIG. D (480 VAC SYSTEMS)



* THE HEATER WILL BE MOUNTED 1" BELOW THE NEUTRAL BAR MOUNTING HOLES.



THERMOSTAT

LEGEND:

- T1, T2..... Load voltage from ATS
- 430A..... Control voltage 120 V (for fig. B option only)
- 430B..... Control voltage 120 V (for fig. B option only)
- TH..... Thermostat
- HTR1..... Strip heater, 125W., 120V.
- HTR2..... Strip heater, 150W., 240 V.
- XT..... Transformer
- 480/120 V, 10 VA
- 240/120 V, 10 VA
- 208/120 V, 10 VA
- 277/120 V, 10 VA
- 575/120 V, 10 VA
- R..... Relay, DPDT:
- J9 Plug-R/T Box..... Socket Receptacle 12 Pt.
- Socket Female .093" (Qty. 2)

OPERATION:

When temperature in cabinet drops below thermostat set point, heater is turned "ON". Above set point, heater turns "OFF".

NOTES:

1. Thermostat factory set at 50 F unless otherwise specified.
2. (*) Use for Fig. A or Fig. B option only.
3. Mount Transformer and Relay on auxiliary control panel.

ATS Electrical Schematic

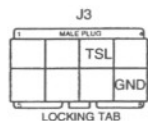
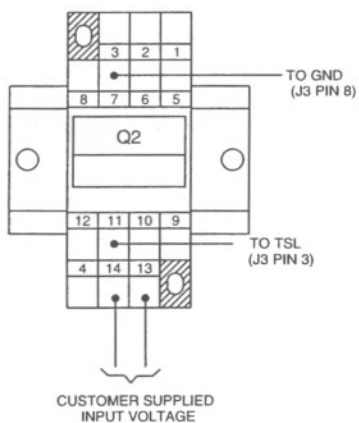
CTG(D) Option

Q2

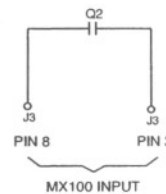
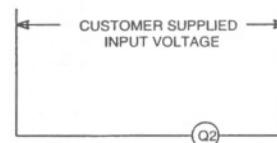
Sheet 1 of 1

CONNECTION DIAGRAM

SCHEMATIC



MX100 CONTROL PANEL TO Q2 RELAY ON DIN RAIL



LEGEND

Q2 Relay..... 12VDC

J3 Plug - MX100..... Socket Receptacle 8 pt. Mini
Socket Female Mini (Qty. 2)

OPERATION

Q2 - Remote Peak Shave or Area Protection Circuit
Energize Q2 Relay to simulate a normal line failure causing the Generator to start and transfer the load to Emergency. Should Emergency fail during this operation, the transfer switch will retransfer back to Normal.

INSTRUCTIONS

Mount Q2 Relay on Din Rail on MX100 Control Panel.

ATS Electrical Schematic

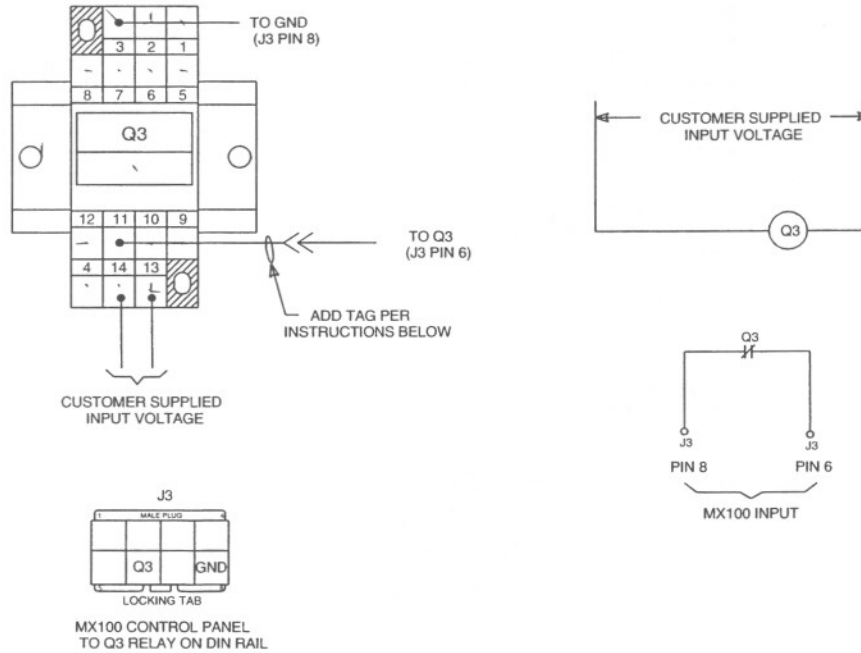
CTG(D) Option

Q3

Sheet 1 of 1

CONNECTION DIAGRAM

SCHEMATIC



LEGEND

Q3 Relay..... 24VDC

J3 Plug - MX100..... Socket Receptacle 8 pt. Mini
Socket Female Mini (Qty. 2)

OPERATION

Q3 - Remote Inhibit Transfer to Emergency Circuit.
Voltage applied to Q3 input will allow transfer to Emergency, conversely, no input on Q3 will result in no transfer to Emergency. To enable Q3 option engage Q3 jumper.

INSTRUCTIONS

1. Add tag marked "TO ENABLE Q3 OPTION ENGAGE Q3 JUMPER".
2. Q3 Relay on Din Rail on MX100 Control Panel.

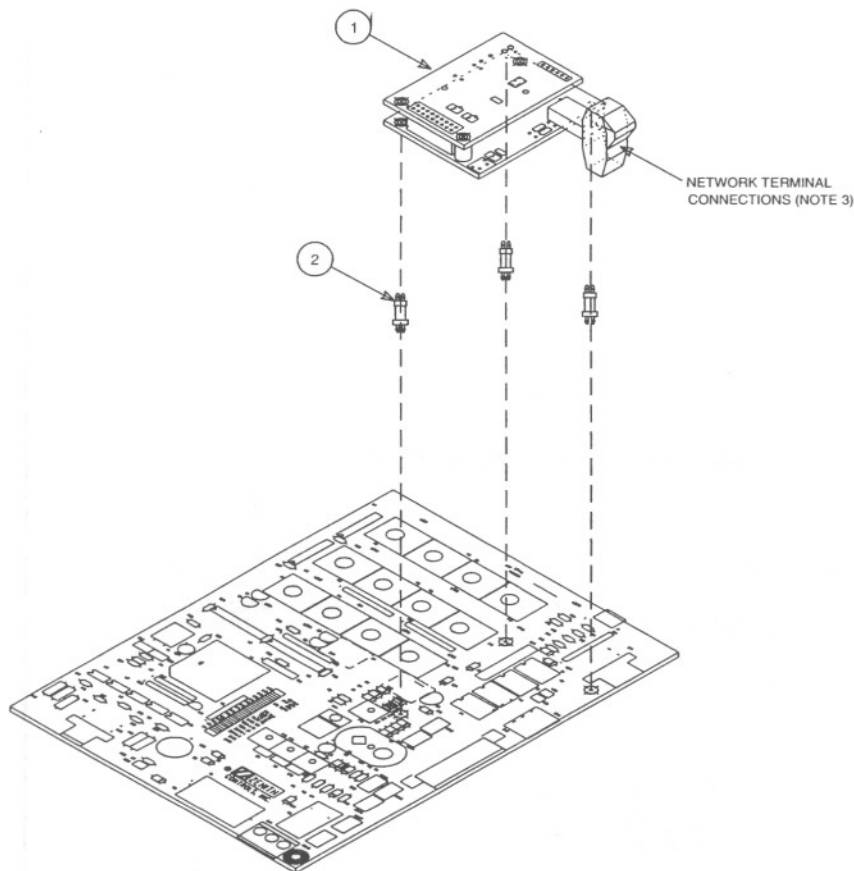
ATS Electrical Schematic

CTG(D) Option

ZNET100

Sheet 1 of 1

COMPONENT LAYOUT



INSTRUCTIONS

NOTES:

1. DISCONNECT ALL POWER TO MX100 PC BOARD AND DISCHARGE CAP BEFORE PLUGGING IN NETWORK CARD.
2. GROUND YOURSELF AND FOLLOW ESD PRECAUTIONS WHEN HANDLING NETWORK CARD AS WELL AS MX100 PC BOARD.
3. NETWORK CABLE TO BE BELDEN 8471, 16WG (UNSHIELDED TWO CONDUCTOR TWISTED PAIR) NOT INCLUDED.

OPERATION

NETWORK CARD ALLOWS COMMUNICATION OF ATS POSITION, AVAILABLE SOURCE AND TIMERS RUNNING TO A REMOTE ANNUNCIATOR PANEL, PC OR PLC VIA ONE PAIR OF TWISTED WIRES.

ATS Electrical Schematic

CTG(D) Option

6A

Sheet 1 of 1

CONNECTION TO MX100 CONTROL PANEL:



LEGEND:


- 6A..... Maintained Test Switch
2 Pos. Operator
N.O. Contact Block
Nameplate
- J3..... Plug - MX100
Socket Receptacle 8 pt. Mini
Socket Female Mini (Qty. 2)

OPERATION:

When activated in the TEST position, TS will simulate a normal line failure. The TS will automatically transfer the load to the emergency position. When the test switch is returned to the AUTOMATIC position, the transfer switch will restore the load to the normal line position. Should Emergency fail while the ATS is in the Emergency position, the ATS will transfer back to Normal.

Component Locations		
Cabinet Location		Page 44
MX100 Controller Layout		Page 45
Customer Connections		Page 46
Power Panel:		
CTG		
	40 to 225 Amps Solenoid	Page 47
	225 to 400 Amps Molded Type	Page 48
	600 to 1200 Amps	Page 49
	1600 to 3000 Amps	Page 50
CTGD		
	40 to 260 Amps	Page 51
	400 Amps	Page 52
	600 to 1200 Amps	Page 53
	1600 to 3000 Amps	Page 54
Relay/Transformer Box		
	Standard	Page 55
	Delayed	Page 56

Click on the page number to jump to the desired page.

NOTE: You must have the "hand tool"  to select these.

Cabinet Door Locations

Auto/Inhibit
Select Switch

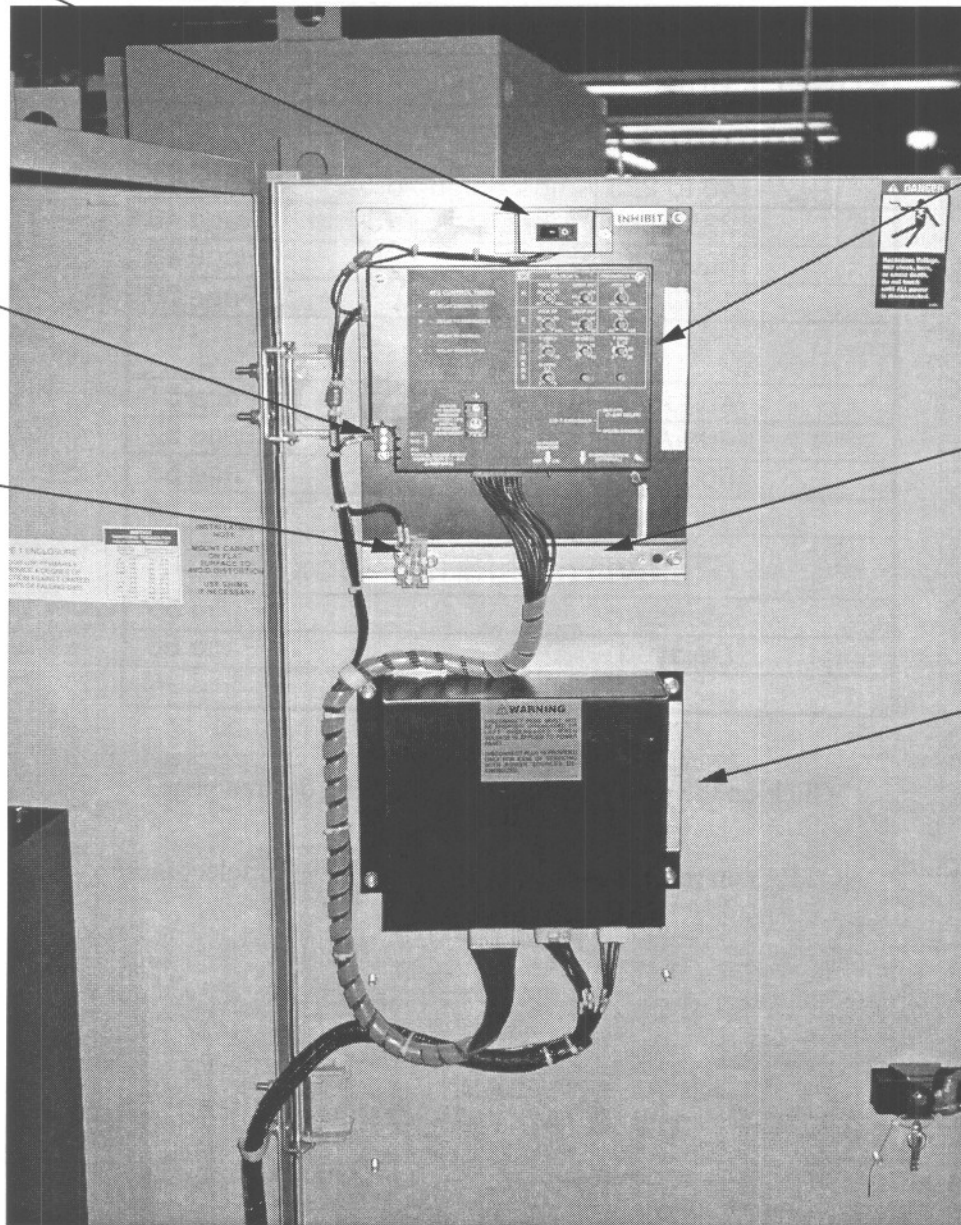
MX100
Microprocessor
Controller

Engine
Start
Control
Connection

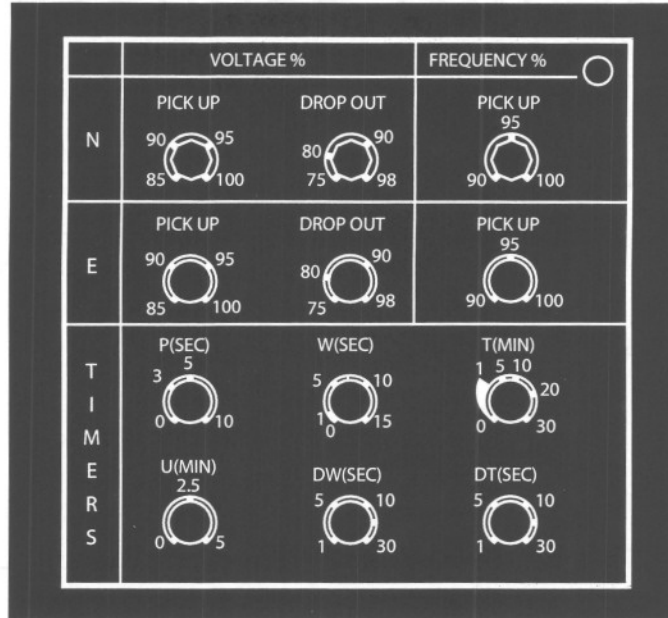
DIN
Rail

Customer
Connection

Relay/
Transformer
Box

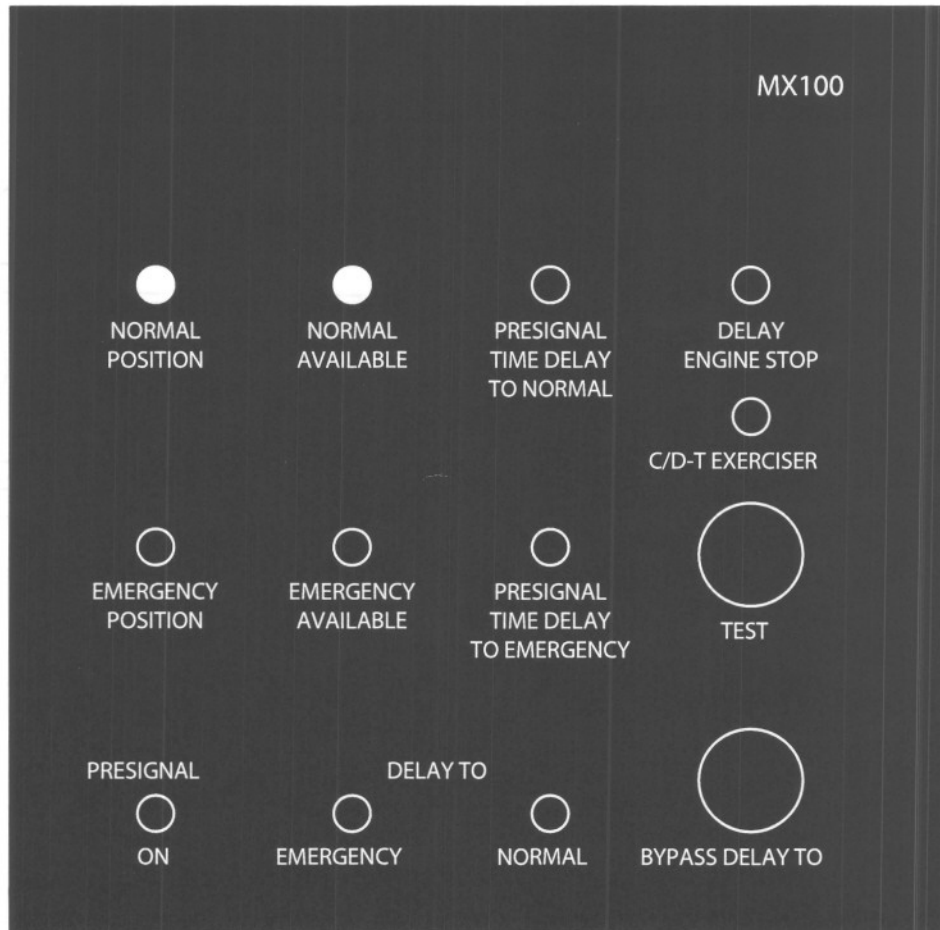


Inside



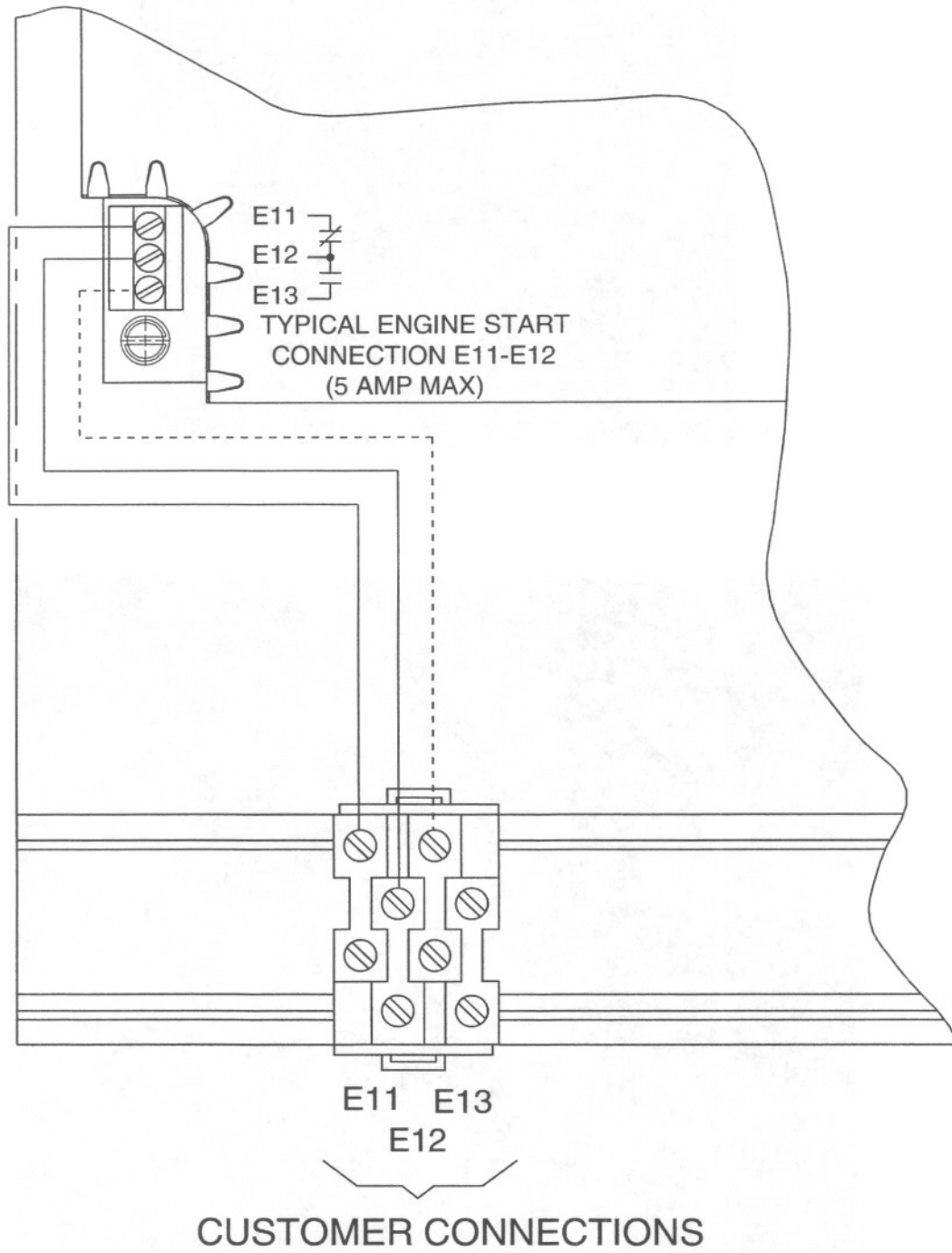
Adjustments

Outside

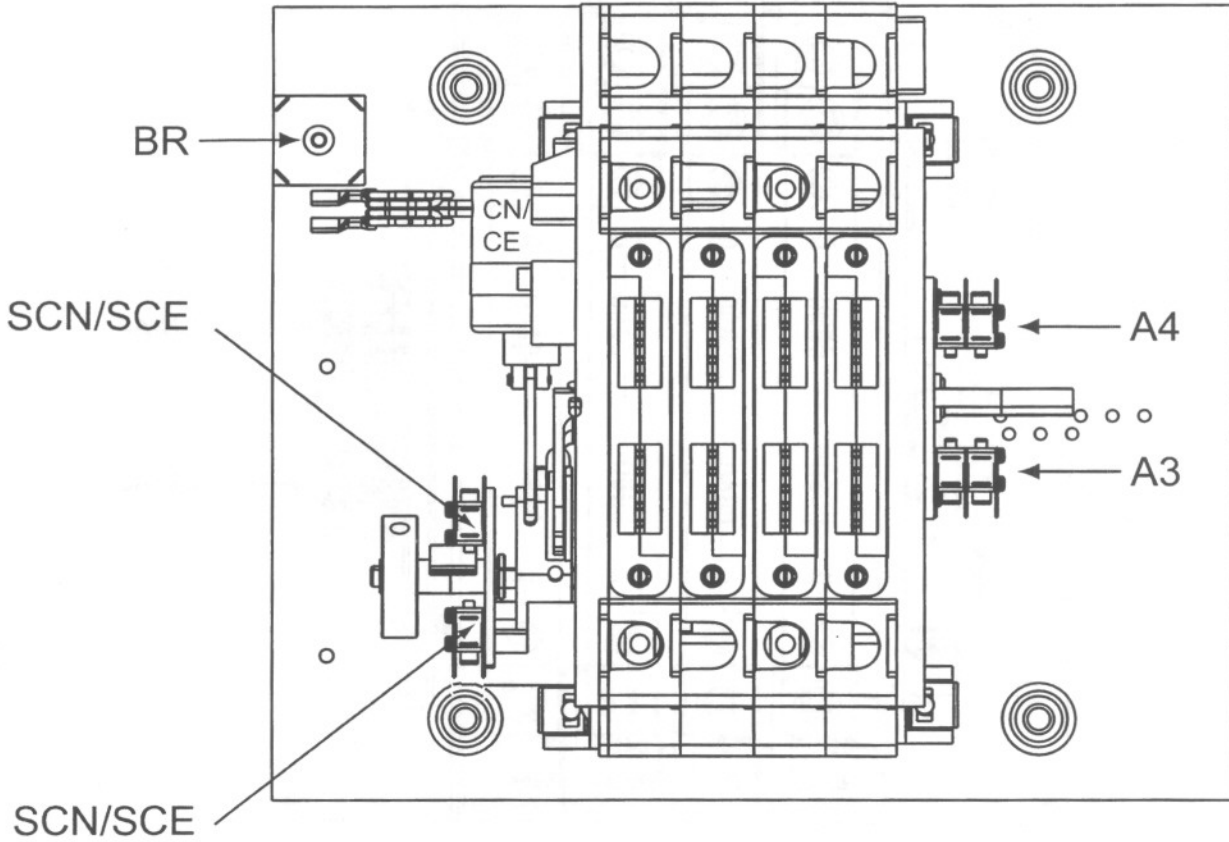


Display

Customer Connection

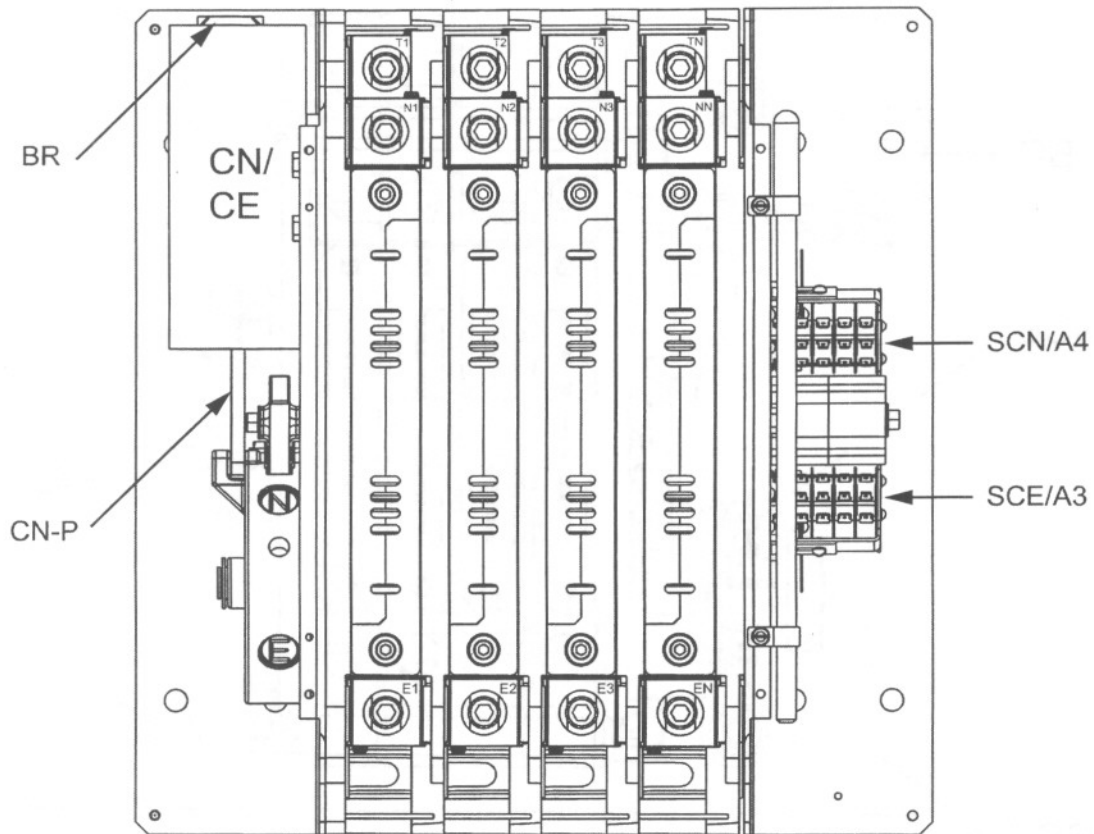


Power Panel - 40 to 225 Amps Solenoid Type



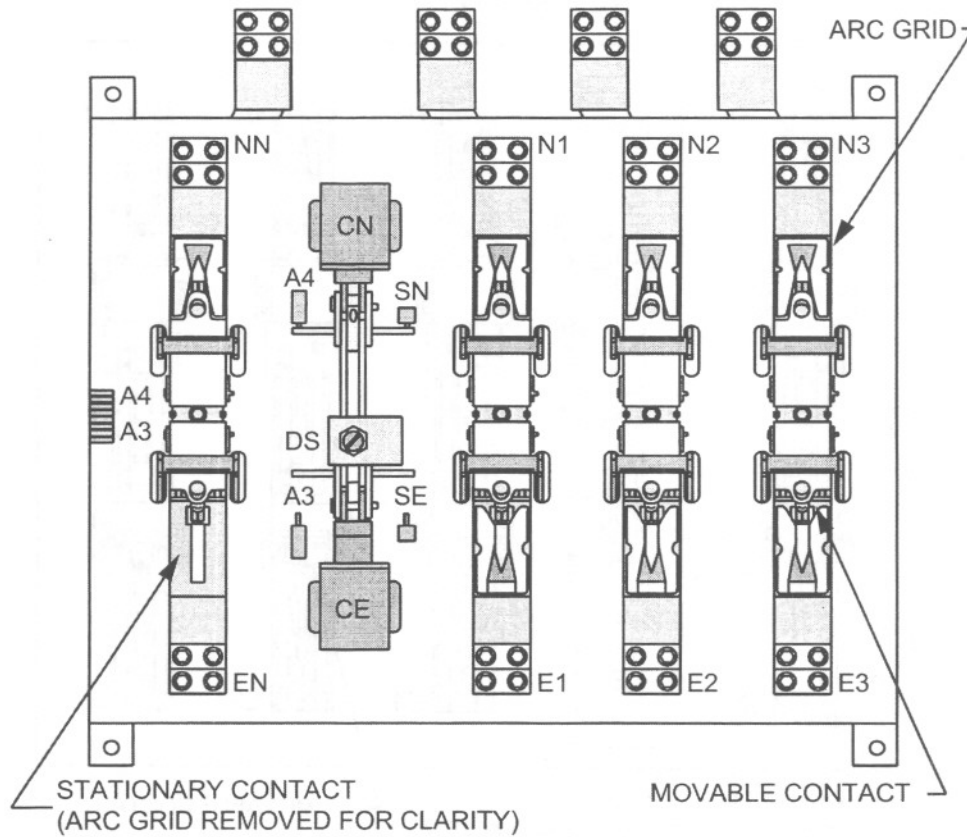
Tag	Description
CN/CE	Solenoid
SCN/SCE	Coil Cutout Switch
SCN/SCE	Coil Cutout Switch
BR	Rectifier
A3/A4	Auxiliary Contacts

Power Panel - 225 to 400 Amps Molded Type



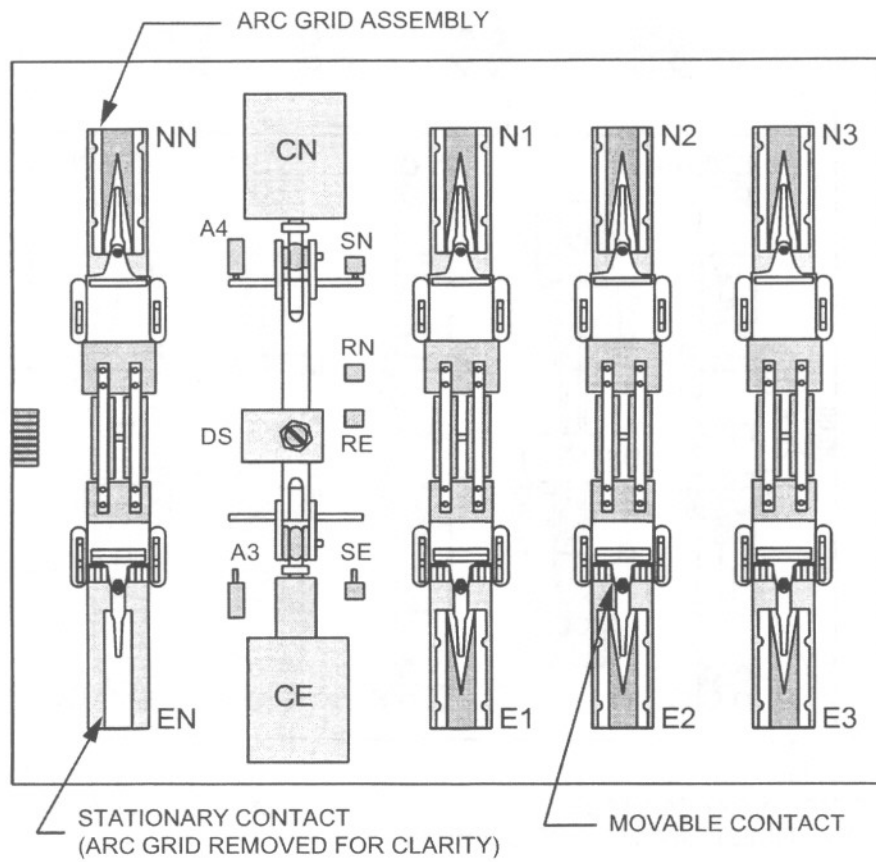
Tag	Description
N 1,2,3 N E 1,2,3 N T 1,2,3 N	Cable Connection Lug
CN/CE	Solenoid
CN-P	Solenoid Plunger and Link
SCN/SCE	Coil Cutout Switches
A3/A4	Auxiliary Contacts
BR	Rectifier

Power Panel - 600 to 1200 Amps



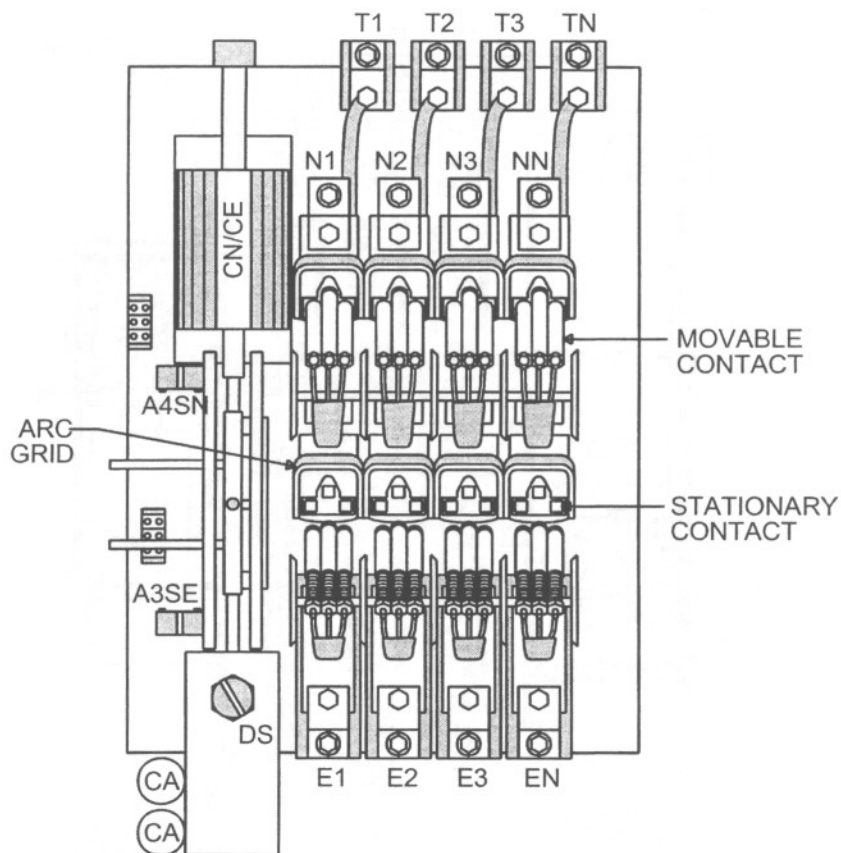
Tag	Description		
N 1,2,3, N E 1,2,3, N T 1,2,3, N	Cable Connection Lug		
	Stationary Contact Assembly Kit		
	Arc Grid Assembly Kit		
	Movable Contact Assembly Kit		
CN/CE	Main Operating Coils	Coil Volts	Poles
		120	2
		240	2
			3
		208	4
			3,4
		575/600	3
			4
	480	3	
		4	
	416	3	
SN	CCN Cutout Switch		
SE	CCE Cutout Switch		
A3	Emergency Position Auxiliary Contact		
A4	Normal Position Auxiliary Contact		
DS	Disconnect Switch		

Power Panel - 1600 to 3000 Amps



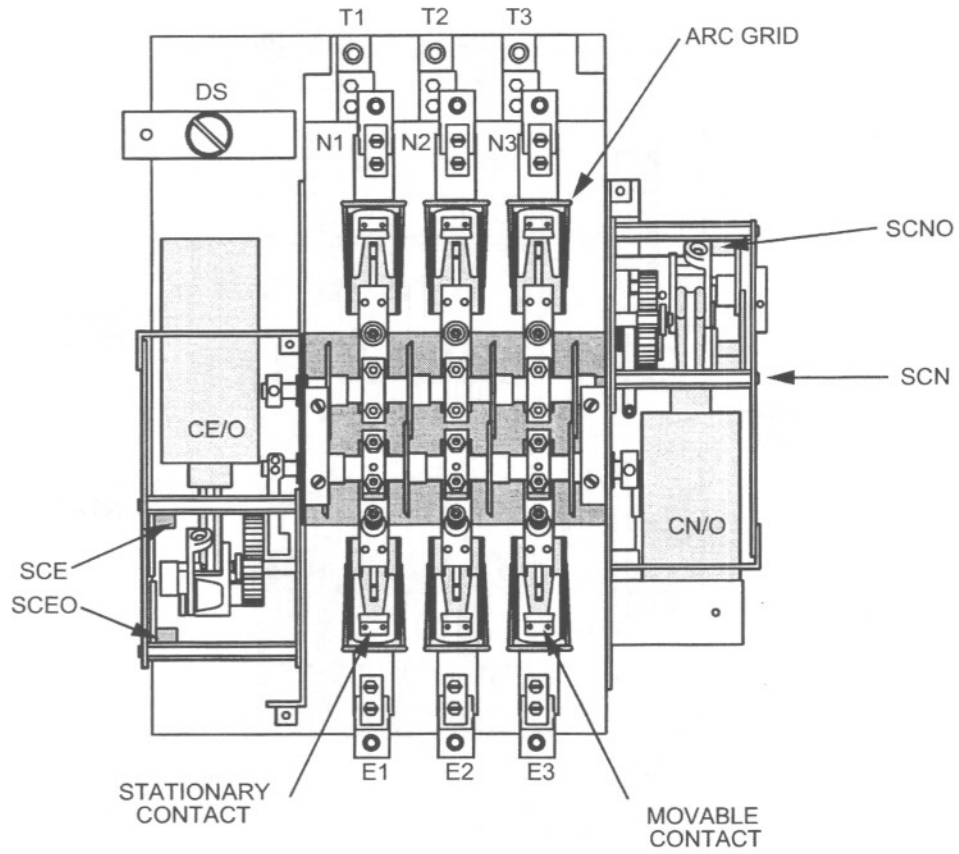
Tag	Description		
N 1,2,3 E 1,2,3 T 1,2,3	Cable Connection Lug		
CN/CE	Main Operating Coils	Coil Volts	Poles
		120	2
		240	2,3
			4
		208	3
			4
		575/600	3
			4
	480	3	
		4	
	416	3	
SN	CCN Cutout Switch		
SE	CCE Cutout Switch		
A3	Emergency Position Auxiliary Contact		
A4	Normal Position Emergency Contact		
DS	Disconnect Switch		
RN, RE	Rectifier		

Delayed Transition - 40 to 260 Amps



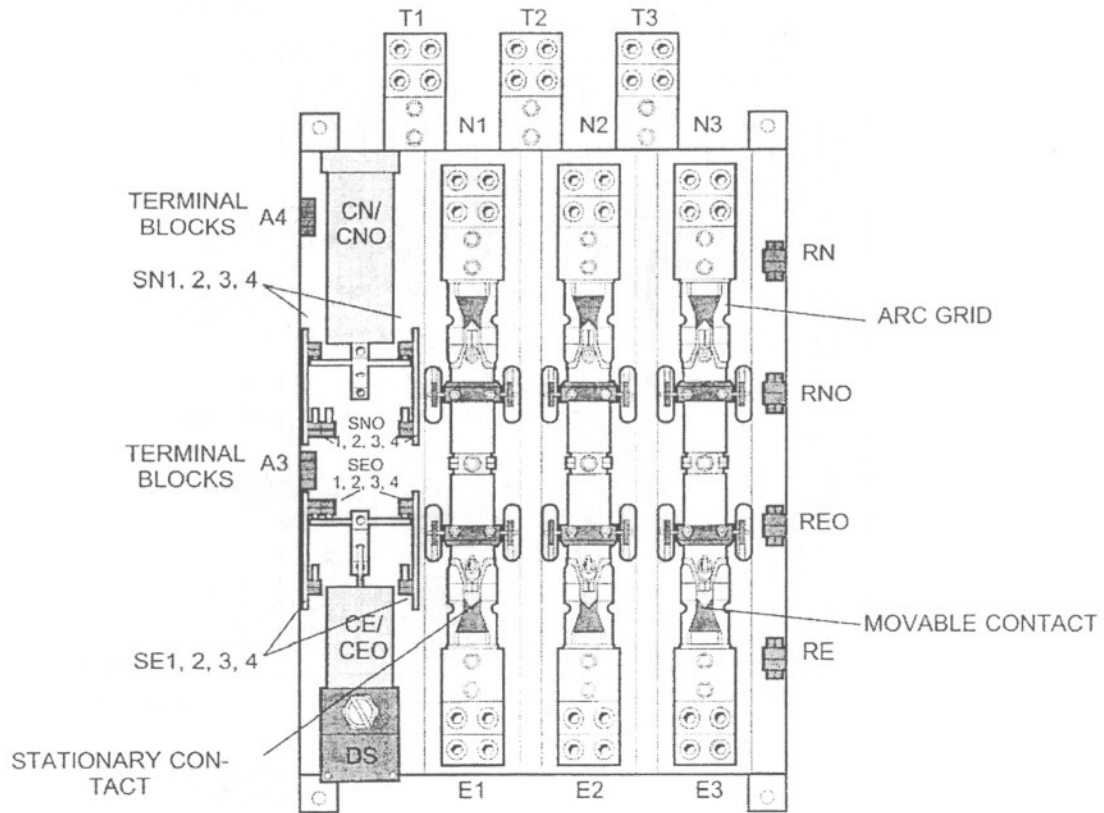
Tag	Description				
N 1,2,3, N E 1,2,3, N T 1,2,3, N	Cable Connection Lug				
	Wire Size				
	Stationary Contact Assembly Kit				
	Stationary Load Contact Assembly Kit				
	Arc Grid Assembly Kit				
	Movable Contact Assembly Kit				
CN/CE, CA	Linear Actuator and Capacitors	CA (See Note)			
Note: 2S denotes two capacitors wired in series		Coil Volts	Poles	Quantity	mf
		120	2	1	340-408
		240	2	1	108-130
			3		
		208	3	1	145-174
		575/600	4	1	145-174
			4	2S	36-43
		480	3	2S	72-86
		416	4	2S	72-86
	3		2S	72-86	
SN	CN1 Cut-out Switch				
SE	CE1 Cut-out Switch				
A3	Emergency Position Auxiliary Contact				
A4	Normal Position Auxiliary Contact				
DS	Disconnect Switch (older versions)				

Delayed Transition - 400 Amps



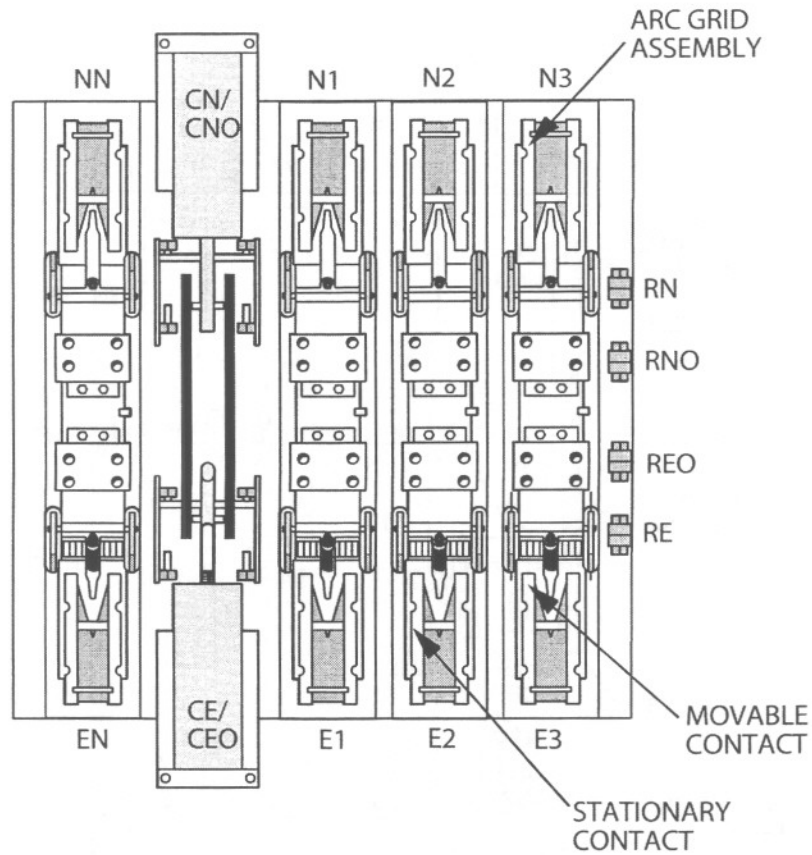
Tag	Description			
NL 1,2,3 EL 1,2,3 T 1,2,3 NLN,ELN,TN	Cable Connection Lug, CU Wire			
NL 1,2,3 NLN EL 1,2,3 ELN	Movable and Stationary Contact Assembly (For 3P Units)			
	Arc Grid Assembly Kit			
RTN/RTE	Coil Rectifier			
SCN/SCNO	Sol Limit Switch			
SCE/SCE	Sol Limit Switch			
SN/SNO	Emergency Position Contact			
SE/SEO	Normal Position Contact			
DS	Disconnect S witch			
CN/CNO CE/CEO	Main Operator Solenoids			
Voltage System				
Volts	Ph	Wire	Coil VDC	Pole
240	3	3	240	3
120/208	3	4	208	3,4
480	3	3	480	3
277/480	3	4	480	3,4
240/416	3	4	416	3

Delayed Transition - 600 to 1200 Amps



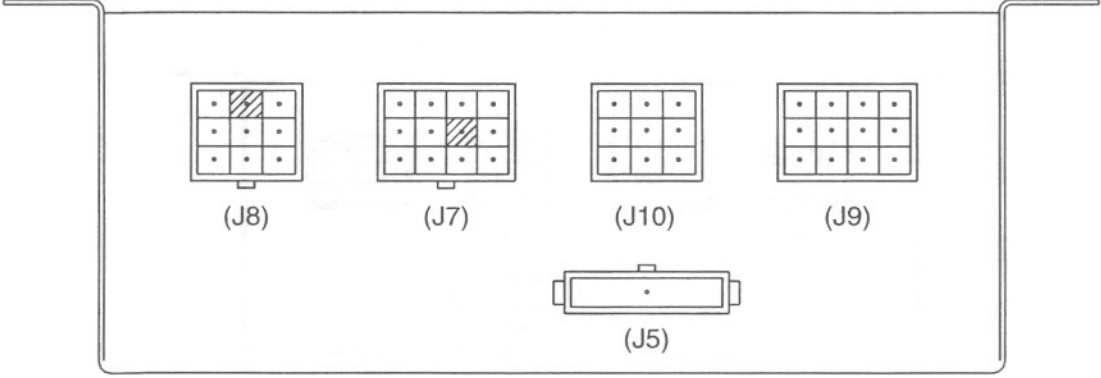
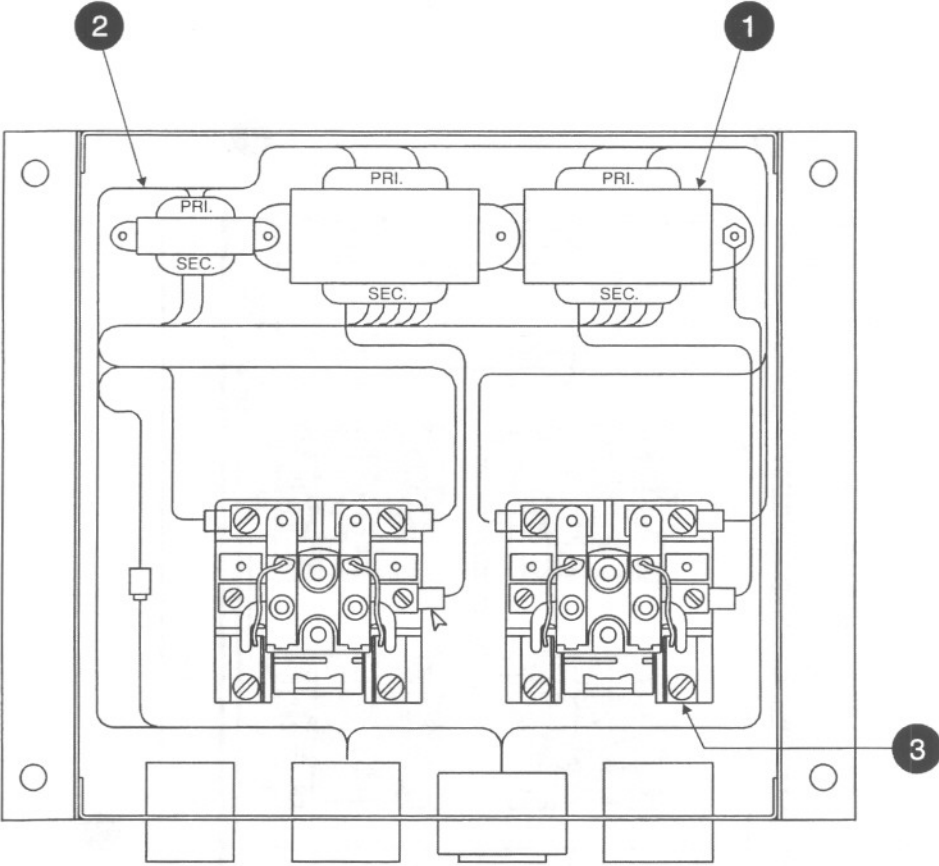
Tag	Description			
NL 1,2,3 EL 1,2,3 T 1,2,3 NN, EN, TN	Cable Connection Lug, CU Wire			
	Stationary Contact Assembly Kit			
	Arc Grid Assembly Kit			
	Movable Contact Assembly Kit			
	Movable Contact			
RN/RNO RE/REO	Coil Rectifier			
SN/SNO	Limit Switch			
SE/SEO	Limit Switch			
A3	Emergency Position Auxiliary Contact			
A4	Normal Position Auxiliary Contact			
DS	Disconnect Switch			
CN/CNO CE/CEO	Main Operator Solenoids			
Voltage System				
Volts	Ph	Wire	Coil VDC	Pole
240	3	3	240	3
120/208	3	4	208	3,4
480	3	3	480	3
277/480	3	4	480	3,4
240/416	3	4	416	3

Delayed Transition - 1600 to 3000 Amps



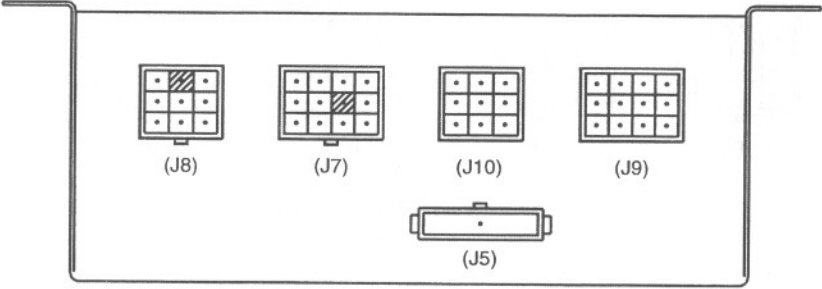
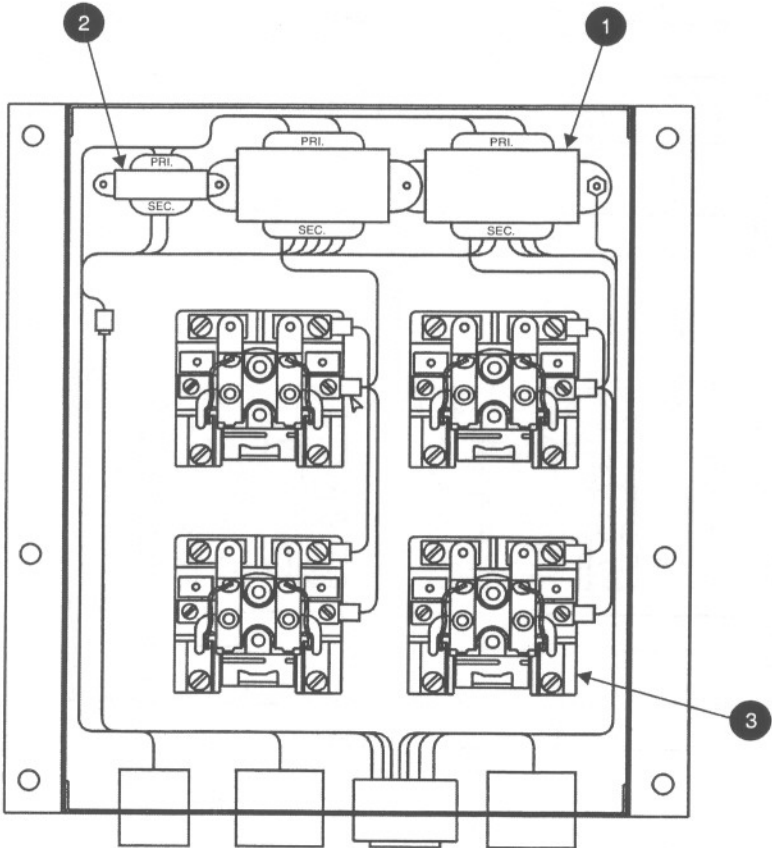
Tag	Description			
N 1,2,3 E 1,2,3 T 1,2,3 NLN,ELN	Cable Connection Lug, CU Wire			
CN/CNO CE/CEO	Main Operator Solenoids			
Voltage System				
Volts	Ph	Wire	Coil VDC	Pole
120	1	2	120	2
120/240	1	3	240	2,3
240	3	3	240	3
120/208	3	4	208	3,4
480	3	3	480	3
575	3	3	575/600	3
277/480	3	4	480	3,4
120/240	2	4	240	4
240/416	3	4	416	3
SN/SNO-1,2	Switch Bracket Assembly			
SE/SEO-1,2	Switch Bracket Assembly			
SN/SNO-3,4	Switch Bracket Assembly			
SE/SEO-3,4	Switch Bracket Assembly			

Relay Transformer Box - Standard



Item	Description	Molded	Other
1	Transformer	1VA	25 VA
2	Transformer	25 VA	1VA
3	Relay	Flange Mount	24 V Coil

Relay Transformer Box - Delayed



Item	Description
1	Transformer (25 VA)
2	Transformer (1VA)
3	Relay (24V)

Standard Features and Options

Standard Features

- A3 Auxiliary Contact: Closed when the switch is in the emergency position
- A4 Auxiliary Contact: Closed when the switch is in the normal position
- CDT 7 day timed exercise (CDT memory backup battery included), pushbutton/timer operation
- E Engine Start Contact
- L Indicating LED Pilot Lights:
 L1 Indicates switch in emergency position
 L2 Indicates switch in normal position
 L3 Indicates normal source available
 L4 Indicates emergency source available
- P1 Time Delay to Engine Start: Standard setting 3 seconds, adjustable 0-10 seconds
- R50 In-Phase Monitor, self-adjusting (not included on ZTGD models)
- T Time Delay on Retransfer to Normal: To delay retransfer to normal source (immediate retransfer on generator set failure); standard setting 30 minutes, adjustable 0-30 minutes
- U Time Delay for Engine Cool Down: Allows engine to run unloaded after switch retransfer to normal; standard setting 5 minutes, adjustable 0-5 minutes
- W Time Delay on Transfer to Emergency: To delay transfer to emergency after verifying emergency source available; standard setting 1 second, adjustable 0-15 seconds
- YEN Pushbutton Bypass of T & W Timers





When specified for use with a CTGD Series delayed transition switch, the control panel also includes the following:

- DT Time Delay from Neutral Switch Position to Normal on Retransfer: Standard setting 5 seconds, adjustable 1-30 seconds
- DW Time Delay from Neutral Switch Position to Emergency: Standard setting 5 seconds, adjustable 1-30 seconds
- LN/LD Center-Off position/Off Delay Timing indicating lights

Options

- A6 Motor Load Disconnect Circuit: 1 N.C. operates during transfer; adjustable (not available on ZTGD models or models with R50); includes timing indicator lamp; adjustable 1-30 seconds
- C Plant Exerciser (no load): Automatically starts the generator to run unloaded at selected intervals (7 day clock operation)
- C/D Plant Exerciser (load/no load): Allows the generator to start and run unloaded or to simulate a power failure, start generator and run under load (7 day clock operation)
- C/D-365 Plant Exerciser: Same as C/D with 365 day programming options
- D Plant Exerciser (load): Automatically starts the generator and transfers the load at selected intervals (7 day clock operation)
- HT Heater and Thermostat
- Q2 Peak Shave/Remote Load Test: Input for peak shave or remote load test; includes automatic return to normal if emergency source fails and normal is present; 120 VAC or 24 VDC
- Q3 Inhibit Transfer to Emergency: Input circuit to inhibit transfer to emergency; 120 VAC or 24 VDC
- T3/W3 Transfer Presignal: 1 N.O. operates during transfer; adjustable (not available on ZTGD models or models with R50); includes timing indicator lamp; adjustable 1-30 seconds
- ZNET Network communications interface card
- 6A Maintained Test Switch: Maintained Auto-Maintained Test

Helpful Shortcuts for Viewing Schematics in Adobe Acrobat

<u>Key Stroke</u>	<u>Function</u>
H	Hand Tool 
Z	Zoom Tool 
Ctrl and L	Full Screen Viewing Mode ¹
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Ctrl and + (plus)	Zoom In
Ctrl and - (minus)	Zoom Out
Ctrl and F	Find 
Ctrl and G	Find Again 

¹ Press Esc to return to normal viewing mode.

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