

THREE PHASE WIRING FOR ASCO® 4000 SERIES AUTOMATIC CLOSED TRANSITION TRANSFER SWITCHES TYPE 4ACTS RATED 4000 AMPERES

FEATURES, SETTINGS, OPERATION, ACCESSORIES & NOTES

THE FOLLOWING FEATURES AND RELATED SETTINGS ARE PART OF THE GROUP 5 CONTROL PANEL'S USER CONFIGURABLE PARAMETERS. FOR DETAILED INFORMATION REGARDING THE CONFIGURATION OF THESE PARAMETERS AND OTHER FEATURES OF THE GROUP 5 CONTROL PANEL, REFER TO THE **GROUP 5 CONTROL PANEL FOR ASCO® 4000 SERIES AUTOMATIC TRANSFER SWITCHES** USER'S GUIDE (PART NO. 381333-126) PROVIDED WITH EVERY 4000 SERIES AUTOMATIC TRANSFER SWITCH.

THE NOMINAL OPERATING VOLTAGE & FREQUENCY IS PRE-PROGRAMMED AT THE FACTORY BASED ON THE NAMEPLATE DATA PRINTED ON THE TRANSFER SWITCH & CONTROL PANEL NAMEPLATES.

VOLTAGE & FREQUENCY SENSING

THE FOLLOWING SETTINGS ARE EXPRESSED AS A PERCENTAGE OF THE CONTROL PANEL'S NOMINAL VOLTAGE SETTING UNLESS STATED OTHERWISE. ALL SETTINGS ARE ADJUSTABLE IN INCREMENTS OF 1%.

A. RMS VOLTAGE SENSING ON ALL PHASES OF THE NORMAL & EMERGENCY SOURCES.

| PARAMETER | RANGE OF SETTINGS | DEFAULT SETTING |
|-------------------------------------|---------------------------------|-----------------|
| NORMAL VOLTAGE DROPOUT | 70-98% | 85% |
| NORMAL VOLTAGE PICKUP | 85-100% | 90% |
| NORMAL OVER VOLTAGE TRIP | 102-115% | OFF |
| NORMAL VOLTAGE UNBALANCE | YES/NO | NO |
| NORMAL VOLTAGE UNBALANCE DROPOUT | 5-20% OF AVG. NORMAL VOLTAGE | 20% (if ON) |
| NORMAL VOLTAGE UNBALANCE PICKUP | 3-18% OF AVG. NORMAL VOLTAGE | 10% (if ON) |
| EMERGENCY VOLTAGE DROPOUT | 70-98% | 75% |
| EMERGENCY VOLTAGE PICKUP | 85-100% | 90% |
| EMERGENCY OVER VOLTAGE TRIP | 102-115% | OFF |
| EMERGENCY VOLTAGE UNBALANCE | YES/NO | NO |
| EMERGENCY VOLTAGE UNBALANCE DROPOUT | 5-20% OF AVG. EMERGENCY VOLTAGE | 20% (if ON) |
| EMERGENCY VOLTAGE UNBALANCE PICKUP | 3-18% OF AVG. EMERGENCY VOLTAGE | 10% (if ON) |

B. FREQUENCY SENSING OF THE NORMAL & EMERGENCY SOURCES.

| PARAMETER | RANGE OF SETTINGS | DEFAULT SETTING |
|-------------------------------|-------------------|-----------------|
| NORMAL FREQUENCY DROPOUT | 85-98% | 90% |
| NORMAL FREQUENCY PICKUP | 90-100% | 95% |
| NORMAL OVER FREQUENCY TRIP | 102-110% | OFF |
| EMERGENCY FREQUENCY DROPOUT | 85-98% | 90% |
| EMERGENCY FREQUENCY PICKUP | 90-100% | 95% |
| EMERGENCY OVER FREQUENCY TRIP | 102-110% | OFF |

TIME DELAYS

THE FOLLOWING TIME DELAY SETTINGS ALL HAVE AN ADJUSTABLE RANGE OF 0-60 min 59 sec UNLESS STATED OTHERWISE. ADJUSTABLE IN INCREMENTS OF 1 sec.
NOTE: SOME TIME DELAYS MAY BE EFFECTED BY CUSTOMER REQUESTED ACCESSORIES PROVIDED WITH THE UNIT. REFER TO THE DESCRIPTIONS PROVIDED UNDER THE "ACCESSORIES" NOTES ON THIS PAGE.

| FEATURE | NAME | DEFAULT SETTING |
|---------|---|-----------------|
| 1C | NORMAL SOURCE FAILURE TO ENGINE START | 1 sec |
| 2B | TRANSFER TO EMERGENCY ON AVAILABILITY OF EMERGENCY SOURCE | 0 sec |
| 1F | EMERGENCY SOURCE FAILURE RETRANSFER (NORMAL SOURCE AVAILABLE) | 0 sec |
| 2E | ENGINE COOLDOWN FOLLOWING RETRANSFER TO NORMAL | 5 min |
| 3A | RETRANSFER TO NORMAL (NORMAL FAILURE MODE) | 30 min |
| 3A | RETRANSFER TO NORMAL (TEST MODE) | 30 sec |
| - | DELAYED TRANSFER (LOAD "OFF" TIME), [0-5 min 59 sec] | 3 sec |

DESCRIPTIONS OF TIME DELAYS:

- FEAT. 1C - DELAY ON NORMAL SOURCE OUTAGE. STARTS ON FAILURE OF NORMAL SOURCE. RESETS IF NORMAL SOURCE IS ACCEPTED BEFORE EXPIRATION. INHIBITS ENGINE STARTING AND AUTOMATIC TRANSFER UNTIL EXPIRATION.
- FEAT. 2B - DELAY PRIOR TO TRANSFER TO THE EMERGENCY SOURCE. DELAY STARTS ON EXPIRATION OF FEAT. 1C AND WHEN THE EMERGENCY SOURCE HAS BEEN ACCEPTED. DELAY RESETS IF THE EMERGENCY SOURCE FAILS PRIOR TO EXPIRATION. UPON EXPIRATION, TRANSFER TO EMERGENCY IS INITIATED ON AUTOMATIC UNITS (4ACTS) UNLESS THE NORMAL SOURCE HAS RECOVERED AND THE "COMMIT TO TRANSFER" FEATURE IS SET TO "NO" COMMIT. PROVIDES A PERIOD FOR EMERGENCY SOURCE STABILIZATION OR STAGING OF MULTIPLE TRANSFER SWITCH CONTROLLED LOADS TO THE EMERGENCY SOURCE.
- FEAT. 1F - DELAY ON RETRANSFER TO NORMAL IN THE EVENT OF EMERGENCY SOURCE FAILURE. DELAY BEGINS ON FAILURE OF THE EMERGENCY SOURCE IF THE NORMAL SOURCE IS ACCEPTABLE. UPON EXPIRATION OF THE DELAY, RETRANSFER TO NORMAL WILL BE INITIATED ON AUTOMATIC UNITS (4ACTS).
- FEAT. 2E - DELAY ON ENGINE SHUTDOWN (ENGINE COOL DOWN PERIOD). DELAY STARTS FOLLOWING RETRANSFER TO THE NORMAL SOURCE. PROVIDES A PERIOD FOR THE ENGINE-GENERATOR SET TO RUN UNLOADED PRIOR TO SHUTDOWN.
- FEAT. 3A - RETRANSFER TO NORMAL DELAY (NORMAL FAILURE MODE)
DELAY STARTS WHEN NORMAL SOURCE IS ACCEPTED (FOLLOWING IT'S FAILURE) AND WHILE THE LOAD IS CONNECTED TO EMERGENCY. RESETS IF NORMAL FAILS PRIOR TO EXPIRATION OR IF THE EMERGENCY SOURCE FAILS BEFORE EXPIRATION AND FEAT. 1F EXPIRES (AUTOMATIC BYPASS ON EMERGENCY SOURCE FAILURE). PROVIDES A PERIOD FOR THE NORMAL SOURCE TO STABILIZE PRIOR TO AUTOMATIC (4ACTS) OR MANUAL (4NCTS) RETRANSFER.
- FEAT. 3A - RETRANSFER TO NORMAL DELAY (TEST MODE)
DELAY STARTS FOLLOWING A USER INITIATED "TRANSFER TEST" WHEN THE "RETRANSFER TO NORMAL" KEYPAD IS DEPRESSED ON AUTOMATIC UNITS (4ACTS) AND WHILE THE LOAD IS CONNECTED TO EMERGENCY. RESETS IF NORMAL FAILS PRIOR TO EXPIRATION OR IF THE EMERGENCY SOURCE FAILS BEFORE EXPIRATION AND FEAT. 1F EXPIRES (AUTOMATIC BYPASS ON EMERGENCY SOURCE FAILURE).

IN SYNC - IN SYNC TIME DELAY BEGINS BEFORE A CLOSED TRANSITION TRANSFER FOLLOWING ACCEPTANCE OF THE SOURCE TO WHICH TRANSFER IS BEING MADE. ON EXPIRATION OF THE DELAY, THE LOGIC AWAITS AN IN SYNC CONDITION FOR SUBSEQUENT CLOSED TRANSITION TRANSFER.

EXTENDED PARALLEL - EXTENDED PARALLEL TIMER BEGINS WHEN THE SOURCES ARE PARALLELED (CN & CE CLOSED). IF THE TWO SOURCES REMAIN IN PARALLEL WHEN THE DELAY EXPIRES, THE CONTROL LOGIC TAKES THE FOLLOWING ACTIONS:

- THE LOGIC WILL ATTEMPT TO OPERATE THE TRANSFER SWITCH TO A "SAFE" STATE WHERE THE SOURCES WILL NO LONGER BE PARALLELED AND THE LOAD WILL BE SERVICED BY AN AVAILABLE SOURCE.
- THE CONTROL PANEL IS LOCKED OUT FROM ANY FURTHER AUTOMATIC OPERATION.
- THE "TS LOCKED OUT" INDICATOR (RED LED) IS LIT.
- THE UNIT WILL REMAIN LOCKED OUT UNTIL THE "TS LOCKED OUT" PUSH-BUTTON IS DEPRESSED FOR RESET.

FAIL TO SYNC - FAILURE TO SYNC TIMER BEGINS WHEN THE LOGIC BEGINS TO CHECK FOR AN IN SYNC CONDITION FOR WHICH TO ALLOW CLOSED TRANSITION TRANSFER. IF THE DELAY EXPIRES PRIOR TO AN IN SYNC CONDITION OCCURRING, THE "FAILURE TO SYNCHRONIZE" SIGNAL IS ACTIVATED (RED LED) AND CLOSURE OF THE TFR RELAY CONTACT AVAILABLE AT THE FIELD CONNECTIONS TERMINAL BLOCK (TB).

FEAT. 62F - EXTENDED PARALLEL ALARM TIMER BEGINS TIMING WHEN THE SOURCES ARE PARALLELED (CN & CE CLOSED). THE ENABLING OF THE EXTENDED PARALLEL ALARM TIMER OCCURS AT THE SAME TIME THAT THE CONTROLLER'S EXTENDED PARALLEL TIMER BEGINS.

THE FEATURE 62F EXTENDED PARALLEL ALARM TIMER IS INDEPENDENT OF THE CONTROLLER'S EXTENDED PARALLEL TIMER DESCRIBED UNDER "DESCRIPTION OF TIME DELAYS".

ON EXPIRATION OF THE FEATURE 62F EXTENDED PARALLEL ALARM TIME DELAY, OUTPUT RELAY (RL3) (2) FORM C CONTACTS, TRANSFER.

THE FEATURE 62F EXTENDED PARALLEL ALARM DELAY IS ADJUSTABLE VIA POTENTIOMETER (P2) LOCATED ON THE DUAL OPERATOR CONTROL (DOC) WHICH IS ADJUSTABLE FROM 0-1 SECOND. FACTORY SET AT 1 SEC.

NOTE: THE TIMER SHOULD BE SET ABOVE 0.7 SECONDS TO PERMIT THE CONTROLLER TO ATTEMPT TO OPERATE THE TRANSFER SWITCH TO A "SAFE" STATE WHERE THE SOURCES WILL NO LONGER BE PARALLELED. THE TIMER CAN BE SET LOWER TO BE USED TO ISOLATE THE TWO SOURCES WITH AN EXTERNALLY CONTROLLED FEEDER CIRCUIT BREAKER. HOWEVER THE CONTROLLER MAY NOT BE ABLE TO PLACE THE TRANSFER SWITCH IN A "SAFE" STATE.

ENGINE EXERCISER

THE ENGINE EXERCISER FEATURE PROVIDES A MEANS TO PERFORM AUTOMATIC EXERCISING OF THE ENGINE-GENERATOR SET EITHER WITH OR WITHOUT LOAD TRANSFER FOR AUTOMATIC UNITS (4ACTS) OR WITHOUT LOAD TRANSFER FOR NON-AUTOMATIC UNITS (4NCTS).

THE USER CAN PROGRAM UP TO SEVEN DIFFERENT EXERCISE ROUTINES. EACH ROUTINE INCLUDES:

1. ENABLE OR DISABLE THE ROUTINE
2. ENABLE OR DISABLE TRANSFER OF THE LOAD DURING THE ROUTINE
3. SET START TIME OF ROUTINE -
- TIME OF DAY
- DAY OF WEEK
- WEEK OF MONTH (1st, 2nd, 3rd, 4th, ALTERNATE OR ALL)
4. SET THE DURATION OF THE ROUTINE

| PARAMETER | RANGE OF SETTING | DEFAULT SETTING |
|------------------------------|---|-----------------|
| MONTH (CLOCK SET) | JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC | CURRENT DATE |
| DAY | 1-31 | 1-31 |
| YEAR | 00-99 | 00-99 |
| HOUR | 0-23 | 0-23 |
| MINUTE | 0-59 | 0-59 |
| ENABLE ROUTINE (ROUTINE 1-7) | YES/NO | NO |
| TRANSFER LOAD | YES/NO | NO |
| START HOUR | 0-23 | 0 |
| START MINUTE | 0-59 | 0 |
| RUN WEEK | ALL, ALTERNATE, 1st, 2nd, 3rd, 4th, 5th | ALL |
| RUN DAY | SUN MON TUE WED THU FRI SAT | SUN |
| DURATION HOURS | 0-23 | 0 |
| DURATION MINUTES | 0-59 | 0 |

OPERATION

IF THE NORMAL SOURCE FAILS, THE TRANSFER SWITCH INITIATES STARTING OF THE ENGINE-GENERATOR SET. WHEN PROPER VOLTAGE AND FREQUENCY HAVE BEEN ATTAINED, THE LOAD WILL BE TRANSFERRED ON AUTOMATIC UNITS (4ACTS) OR PERMITTED TO BE MANUALLY TRANSFERRED NON-AUTOMATIC UNITS (4NCTS) IN AN OPEN TRANSITION (BREAK BEFORE MAKE) OPERATION TO THE EMERGENCY SOURCE.

WHEN THE NORMAL SOURCE IS RESTORED FOR THE DURATION OF THE FEATURE 3A, (RETRANSFER TO NORMAL TIME DELAY) SETTING, AND FOLLOWING OPERATION OF THE "TRANSFER TO NORMAL" KEYPAD ON NON-AUTOMATIC UNITS (4NCTS), THE CONTROLS WILL BEGIN MONITORING PHASE, FREQUENCY, AND VOLTAGE DIFFERENTIAL BETWEEN NORMAL AND EMERGENCY SOURCES.

WHEN THE TWO SOURCES ARE APPROACHING SYNCHRONISM, A CLOSED TRANSITION (MAKE BEFORE BREAK) TRANSFER TO THE NORMAL SOURCE WILL BE INITIATED. THE NORMAL AND EMERGENCY CONTACTORS (CN & CE) WILL BE IN AN OVERLAP CONDITION FOR LESS THAN 0.1 SECONDS.

CLOSED TRANSITION TRANSFER WILL ALSO BE INITIATED DURING A TRANSFER TEST OPERATION INITIATED BY OPERATION OF THE FEATURE 5 "TRANSFER TEST" KEYPAD ON AUTOMATIC UNITS (4ACTS) OR AFTER OPERATION OF THE "TRANSFER TO EMERGENCY" KEYPAD ON NON-AUTOMATIC UNITS (4NCTS). RETRANSFER WILL ALSO OCCUR IN A CLOSED TRANSITION MANNER AT THE END OF THE TEST ON AUTOMATIC UNITS (4ACTS) OR ACTIVATION OF THE TRANSFER TO NORMAL KEYPAD ON NON-AUTOMATIC UNITS (4NCTS).

CLOSED TRANSITION BYPASS OPERATION: THE "CT BYPASS OPTIONS" DISPLAY OF THE CONTROL PANEL ALLOWS SETTING THE TRANSFER SWITCH'S CLOSED TRANSITION BYPASS BEHAVIOR. CLOSED TRANSITION BYPASS CAUSES THE TRANSFER SWITCH TO INTERRUPT POWER TO THE LOAD DURING TRANSFER. THE AVAILABLE OPTIONS ARE:

- **FAIL TO SYNC AUTO BYPASS ENABLE** - CAUSES A "FAILURE TO SYNCHRONIZE" CONDITION TO RESULT IN A CLOSED TRANSITION BYPASS. DEFAULT SETTING IS **NO** AUTOMATIC BYPASS.
- **CT BYPASS** - ALLOWS SELECTIONS AS TO WHETHER THE CLOSED TRANSITION BYPASS WILL OCCUR WITH OR WITHOUT A DELAYED TRANSITION (LOAD "OFF" TIME). DEFAULT SETTING IS OPEN TRANSITION (NO DELAY).

| BASE CATALOG NUMBER | | | | CATALOG NUMBER SUFFIXES | | | | EXPLANATION OF CATALOG NUMBER CODES | | | | | | | | | | | | | | | | | |
|---------------------|---------|----------------|--------|-------------------------|------------------|---|-----------|-------------------------------------|--------------|----------------|----------------------|----------------------------|--|---|------------------|------------------------------------|--|---------------------|--|--|--|--|--|--|--|
| TS | CATALOG | NEUTRAL | PHASE | AMPS | VOLT | CONTROLLER | OPTIONAL | ENCLOSURE | CATALOG TYPE | | NEUTRAL TYPE | | VOLTAGE CODES (3 OR 4 WIRE) 50 OR 60 Hz | | ENCLOSURE CODES | | | | | | | | | | |
| FRAME | TYPE | TYPE | POLES | | CODE | | ACCESSORY | CODE | CODE | DESC. | CODE | DESCRIPTION | CODE | NOMINAL VOLTAGE | CODE | TYPE | DESCRIPTION | | | | | | | | |
| | | | | | C D E F | | | | | 4ACTS 4NCTS | BLANK A B | NONE SOLID SWITCHING | C D E F G H J K L M N P Q R | 208 220 230 240 380 400 415 440 460 480 550 575 600 | BLANK C | 1 2 3R 4 4X 7 12 | OPEN TYPE (NO ENCLOSURE) GENERAL PURPOSE, INDOOR INDOOR, WATER & DUST RESISTANT OUTDOOR, RAINPROOF, SLEET & ICE RESISTANT INDOOR/OUTDOOR, WATERTIGHT & DUST TIGHT TYPE 4 PLUS CORROSION RESISTANCE (STAINLESS STEEL) TYPE 4 PLUS CORROSION RESISTANCE (FIBERGLASS) EXPLOSION PROOF INDOOR, INDUSTRIAL ENVIRONMENTS, OIL TIGHT & DUST TIGHT | | | | | | | | |
| | G | 4ACTS 4NCTS | A B | 3 | 4000 | H J K L M N P Q R | | X | | | | | | | M N P Q | 3R 4 4X 12 | (SECURE ENCLOSURES) OUTDOOR, RAINPROOF, SLEET & ICE RESISTANT INDOOR/OUTDOOR, WATERTIGHT & DUSTTIGHT TYPE 4 PLUS CORROSION RESISTANCE (STAINLESS STEEL) INDOOR, INDUSTRIAL ENVIRONMENTS, OILTIGHT & DUSTTIGHT | | | | | | | | |
| | | | | | | | | | | | BLANK FOR NONE | | | | | | | BLANK FOR OPEN TYPE | | | | | | | |

DT BYPASS - SETS THE LENGTH OF THE DELAYED TRANSFER (LOAD "OFF" TIME) IF THE PREVIOUS PARAMETER HAS BEEN SELECTED TO OPERATE WITH DELAYED TRANSITION. THE DELAY ("OFF" PERIOD) BEGINS FOLLOWING THE OPENING OF THE SOURCE CONTACTOR, (CN OR CE), CONNECTED TO THE SOURCE FROM WHICH TRANSFER IS BEING MADE. UPON EXPIRATION, CLOSURE OF THE OPPOSITE SOURCE CONTACTOR IS INITIATED.

SIGNALS & AUXILIARIES

A. FEATURES 7 & 8 - ENGINE START SIGNAL
SIGNAL INITIATED BY DROPOUT OF CONTROL PANEL RELAY (NR) FOLLOWING EXPIRATION OF THE FEATURE 1C TIME DELAY (DELAY TO OVERRIDE MOMENTARY NORMAL SOURCE OUTAGES). THE 1C DELAY IS BYPASSED ON NON-AUTOMATIC UNITS (4NCTS) WHEN TRANSFER IS INITIATED BY OPERATION OF THE "TRANSFER TO NORMAL" KEYPAD AND THE NORMAL SOURCE IS AVAILABLE. FEATURE 7 CLOSURES TO SIGNAL ENGINE START. FEATURE 8 OPENS TO SIGNAL ENGINE START. ENGINE STARTING SIGNAL RESETS FOLLOWING RETRANSFER TO THE NORMAL SOURCE AND EXPIRATION OF THE FEATURE 2E (ENGINE COOL DOWN) TIME DELAY. FEATURES 7 & 8 ARE PROVIDED AS A SINGLE FORM C CONTACT CONNECTED TO THE FIELD CONNECTIONS TERMINAL BLOCK (TB) MOUNTED ON THE FRONT OF THE TRANSFER SWITCH FRAME. CONTACT RATED 5 AMPS AT 32 VDC/120VAC RESISTIVE.

B. FEATURES 14AA & 14BA - TRANSFER SWITCH AUXILIARY POSITION INDICATING CONTACTS. TWO (2) FORM C CONTACTS EACH TO INDICATE CONNECTION OF THE TRANSFER SWITCH TO NORMAL (14A) OR EMERGENCY (14B). CONTACTS CONNECTED TO THE FIELD CONNECTIONS TERMINAL BLOCK (TB) MOUNTED ON THE FRONT OF THE TRANSFER SWITCH FRAME. CONTACTS RATED 10 AMPS, 32 VDC, 250 VAC.

C. FEATURE 17 - REMOTE TRANSFER TO EMERGENCY.
REQUIRES A CUSTOMER SUPPLIED NORMALLY OPEN CONTACT. CLOSING OF THE CONTACT CAUSES ENGINE START AND TRANSFER TO THE EMERGENCY SOURCE ON AUTOMATIC UNITS (4ACTS). OPENING OF THE CONTACT ACTIVATES THE FEATURE 3A (RETRANSFER TO NORMAL) DELAY PRIOR TO RETRANSFER. IN THE EVENT THE EMERGENCY SOURCE FAILS WHILE THE TRANSFER SWITCH IS CONNECTED TO EMERGENCY AND THE REMOTE CONTACT IS CLOSED, THE TRANSFER SWITCH WILL RETRANSFER TO THE NORMAL SOURCE. LOCATED ON TERMINAL BLOCK TB1 ON THE REAR OF THE OPERATOR INTERFACE MODULE ON THE FRONT DOOR.

USER CONTROLS AND INDICATIONS

A. FEATURES 5 & 6B - "TRANSFER TEST" & "RETRANSFER TO NORMAL" KEYPAD CONTROLS. STANDARD ON AUTOMATIC UNITS (4ACTS).

TRANSFER TEST KEYPAD:

OPERATION CAUSES A NORMAL SOURCE FAILURE SEQUENCE. ACTIVATE AND HOLD FOR AT LEAST 15 SECONDS TO ALLOW TIME FOR THE ENGINE-GENERATOR TO START.

"RETRANSFER TO NORMAL" KEYPAD:

OPERATION WILL BYPASS THE FEATURE 3A (RETRANSFER TO NORMAL DELAY) INITIATING RETRANSFER TO THE NORMAL SOURCE.

FEATURE 6Z & 6C - MANUAL TRANSFER CONTROL, "TRANSFER TO EMERGENCY" & "TRANSFER TO NORMAL" KEYPAD CONTROLS. STANDARD ON NON-AUTOMATIC UNITS (4NCTS).

"TRANSFER TO EMERGENCY" KEYPAD:

OPERATION CAUSES IMMEDIATE ENGINE START IF NORMAL IS AVAILABLE AND TRANSFER TO THE EMERGENCY SOURCE WHEN THE EMERGENCY SOURCE IS AVAILABLE. TRANSFER SWITCH WILL REMAIN CONNECTED TO THE EMERGENCY SOURCE UNTIL THE UNIT IS MANUALLY RETRANSFERRED TO THE NORMAL SOURCE.

"TRANSFER TO NORMAL" KEYPAD:

OPERATION CAUSES TRANSFER TO THE NORMAL SOURCE IF IT IS AVAILABLE. THE ENGINE START SIGNAL WILL RUN FOR THE ACCESSORY 2E DELAY ON ENGINE SHUTDOWN FOLLOWING TRANSFER. THE TRANSFER SWITCH WILL REMAIN CONNECTED TO THE NORMAL SOURCE UNTIL THE UNIT IS MANUALLY TRANSFERRED TO THE EMERGENCY SOURCE.

B. FEATURES 9A & 9B - TRANSFER SWITCH POSITION INDICATORS.
FEATURE 9A: TRANSFER SWITCH CLOSED ON NORMAL (GREEN LED)
FEATURE 9B: TRANSFER SWITCH CLOSED ON EMERGENCY (RED LED)

C. FEATURES 9C & 9D - SOURCE ACCEPTANCE INDICATORS.
FEATURE 9C: NORMAL SOURCE ACCEPTED (GREEN LED)
FEATURE 9D: EMERGENCY SOURCE ACCEPTED (RED LED)

D. "EXTENDED PARALLEL TIME" INDICATOR - INDICATES THAT THE MAIN CONTACTORS (CN & CE) HAVE BEEN SIMULTANEOUSLY CLOSED FOR A PERIOD EXCEEDING THE TIME ALLOTTED. (RED LED)

E. "FAILURE TO SYNCHRONIZE" INDICATOR - INDICATES THE TWO SOURCES DID NOT MEET THE PARAMETERS REQUIRED FOR A CLOSED TRANSITION TRANSFER. (RED LED)

F. "TRANSFER SWITCH LOCKED OUT" INDICATOR - INDICATES THAT A FAILURE OF THE TRANSFER SWITCH OPERATOR HAS OCCURRED AND THAT THE TRANSFER SWITCH HAS TAKEN CORRECTIVE ACTION AS REQUIRED. ONCE THIS FAILURE RECOVERY OPERATION TAKES PLACE, THE TRANSFER SWITCH IS PREVENTED FROM FURTHER OPERATION UNTIL THE CONDITION IS CORRECTED. ONCE THE CONDITION IS CORRECTED, THE TS LOCKED OUT SWITCH MAY BE DEPRESSED TO RESET THE CONTROL PANEL (RED LED).

G. "ALARM RESET" KEYPAD - ONCE A LOCK OUT CONDITION IS CORRECTED, THE "ALARM RESET" KEYPAD MAY BE ACTUATED TO RESET THE CONTROL PANEL. THIS CONTROL ALSO RESETS THE "FAILURE TO SYNCHRONIZE" AND "EXTENDED PARALLEL TIME" ALARMS.

H. "CLOSED TRANSITION BYPASS" KEYPAD - BYPASSES CLOSED TRANSITION TRANSFER WHEN ACTUATED DURING THE PERIOD WHILE THE TRANSFER SWITCH CONTROL PANEL IS MONITORING FOR AN INPHASE CONDITION. CAUSES OPEN TRANSITION TRANSFER TO THE OPPOSITE SOURCE IF CONDITIONS PERMIT.

OPTIONAL ACCESSORIES

- A. ACCESSORY 14AC & 14BC - TWO (2) ADDITIONAL TRANSFER SWITCH AUXILIARY POSITION INDICATING CONTACTS EACH TO INDICATE CONNECTION OF THE TRANSFER SWITCH TO NORMAL (14A) OR EMERGENCY (14B). CONTACTS CONNECTED TO THE FIELD CONNECTIONS TERMINAL BLOCK (TB) MOUNTED ON THE FRONT OF THE TRANSFER SWITCH FRAME. CONTACTS RATED 10 AMPS, 32 VDC, 250 VAC.
- B. ACCESSORY 18Z & 18Z2 - OPTION RELAY MODULE. PROVIDES A RELAY MODULE ASSEMBLY THAT CONNECTS TO THE REAR OF THE USER INTERFACE MODULE. ACCESSORY 18Z PROVIDES ONE (1) RELAY MODULE & ACCESSORY 18Z2 PROVIDES TWO (2) RELAY MODULES.

EACH RELAY MODULE PROVIDES 4 INDEPENDENT, FORM C RELAY OUTPUTS EACH RATED 2 AMPS, 30 VDC MAX. THE RELAY PROVIDE THE FOLLOWING SIGNALS:

RELAY 1 (RL1) ENERGIZES IF THE EMERGENCY SOURCE HAS BEEN ACCEPTED BY THE CONTROLLER.

RELAY 2 (RL2) ENERGIZES IF THE NORMAL SOURCE HAS BEEN ACCEPTED BY THE CONTROLLER.

RELAY 3 (RL3) ENERGIZES IF THE CONTROLLER'S LOAD DISCONNECT SIGNAL IS ACTIVE. (FEATURE 31, REFER TO THE GROUP 5 CONTROLLER USER'S MANUAL, PN 381333-126).

RELAY 4 (RL4) USER CONFIGURED OUTPUT THAT CAN BE USER DEFINED TO OPERATE AS FOLLOWS:

- * SAME AS RELAY 1.
- * SAME AS RELAY 2.
- * ENERGIZES IF "EXTENDED PARALLEL TIME" INDICATOR IS ON.
- * ENERGIZES IF "TRANSFER SWITCH LOCKED OUT" INDICATOR IS ON.
- * ENERGIZES IF "FAILURE TO SYNCHRONIZE" INDICATOR IS ON.
- * ENERGIZES IF "EXTENDED PARALLEL TIME" OR "TRANSFER SWITCH LOCKED OUT" OR "FAILURE TO SYNCHRONIZE" INDICATORS ARE ON.
- * DE-ENERGIZES IF BOTH SOURCES ARE UNACCEPTABLE AND PROVIDES ONBOARD JUMPER TO PERMIT THE RELAY TO BE USED TO ALLOW AN EXTERNAL 24 VDC SOURCE TO POWER THE CONTROLLER FOR EXTENDED ENGINE STARTING TIME DELAY SETTINGS WHEN POWER IS NOT AVAILABLE.

REFER TO INSTRUCTION SHEET PN 381339-260 FOR INSTRUCTIONS.

GENERAL NOTES

1. SWITCH SHOWN DE-ENERGIZED AND CONNECTED TO THE NORMAL SOURCE.
2. DEVICE SYMBOLS AND DESIGNATIONS ARE IN ACCORDANCE WITH NEMA PUBLICATION ICS 1-1983, PART 1-101A.
3. ALL WIRING IS #16 AWG, TINNED, STRANDED COPPER UNLESS OTHERWISE INDICATED.
4. ○ ON TERMINAL BLOCKS INDICATES AVAILABLE FIELD CONNECTION POINT.
5. ● ON TERMINAL BLOCKS INDICATES FACTORY CONNECTION POINT.
6. CONTROL AND ACCESSORY WIRING IS ROUTED IN ACCORDANCE WITH ASCO ASSEMBLY PROCEDURE 6S451261.
7. AN OPERATOR'S MANUAL IS FURNISHED WITH EACH AUTOMATIC TRANSFER SWITCH. REFER TO THIS PUBLICATION PRIOR TO INSTALLATION AND OPERATION OF THE UNIT.

CATALOG NUMBER _____

ASCO® CERTIFIED TO

S.O. _____

BY _____

DATE _____

FORM REV A

PROJECT NAME: _____

WIRING _____

DIAGRAM _____

4000 SERIES (G4ACTS/G4NCTS) 3PH 4000 AMPS

"G" FRAME, GROUP 5 CONTROLS

MANUFACTURING TOLERANCES TO BE IN ACCORDANCE WITH ASCO PROCEDURE MP-1-003. FOR PLASTIC PARTS SEE MP-1-005.

PROPERTY OF ASCO POWER TECHNOLOGIES. USE PERMITTED FOR OUR WORK ONLY. ALL RIGHTS OF DESIGN OR INVENTION ARE RESERVED.

ASCO® ASCO POWER TECHNOLOGIES, L.P. FLOHAM PARK, NEW JERSEY 07932 U.S.A.

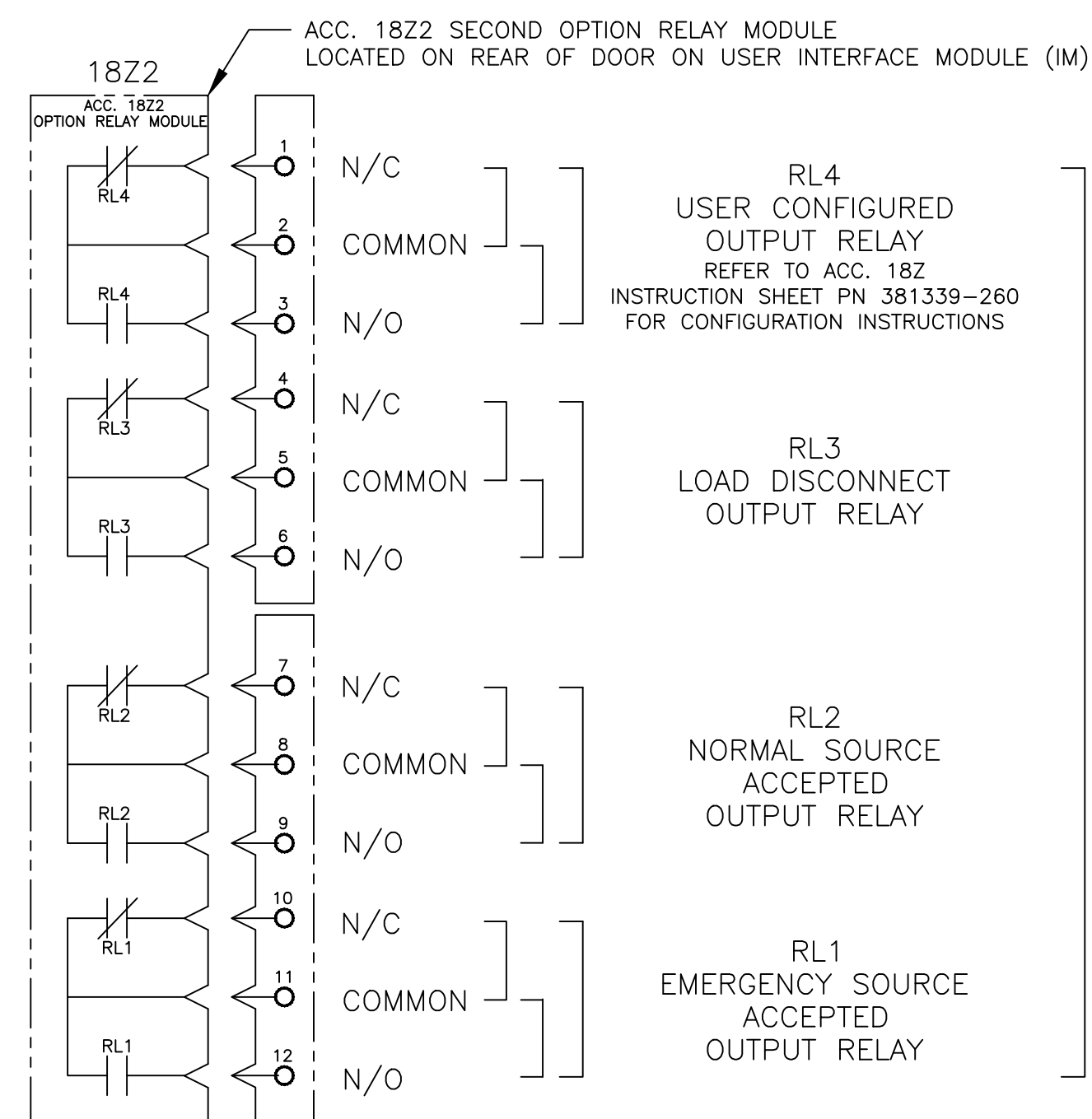
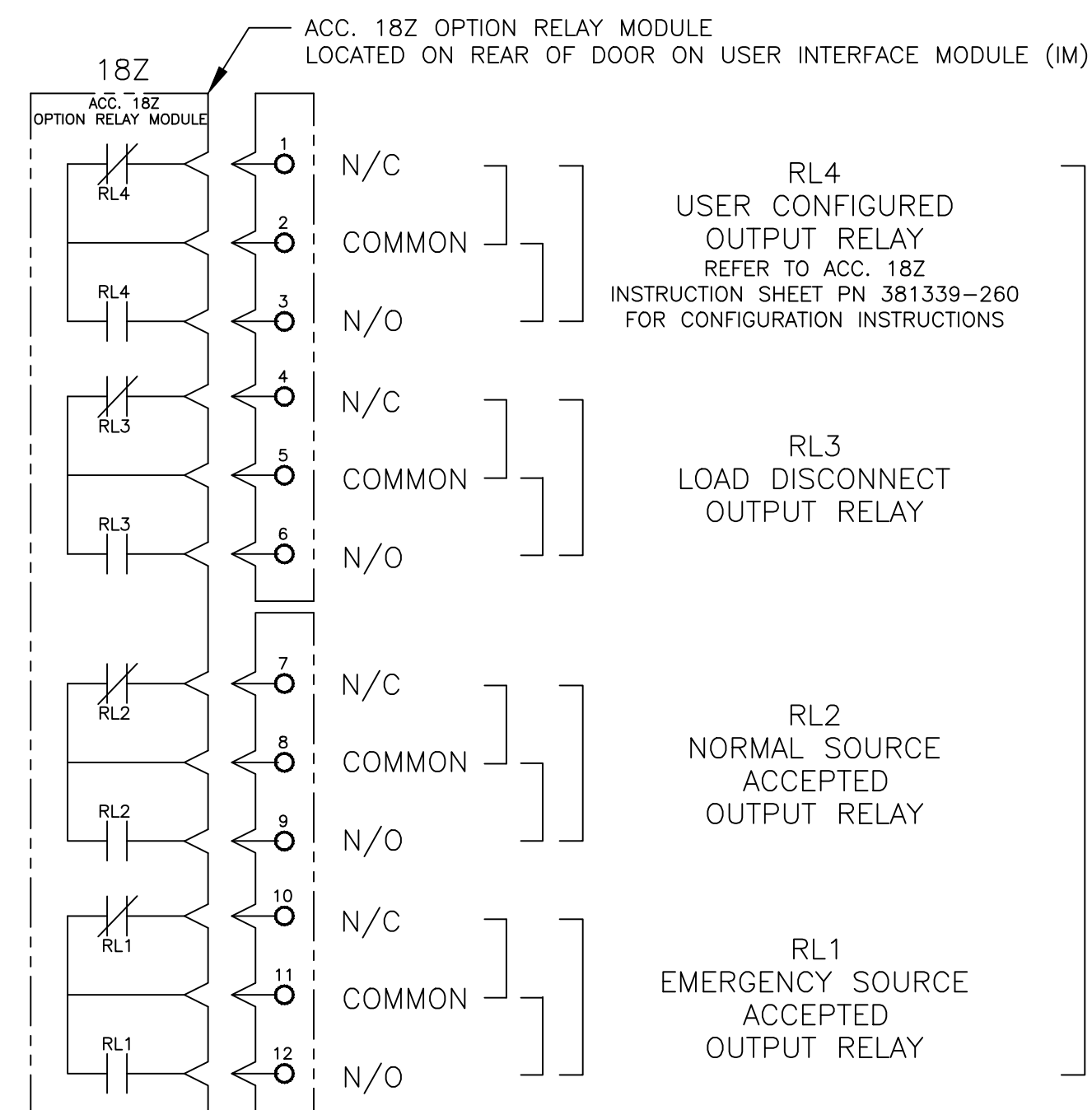
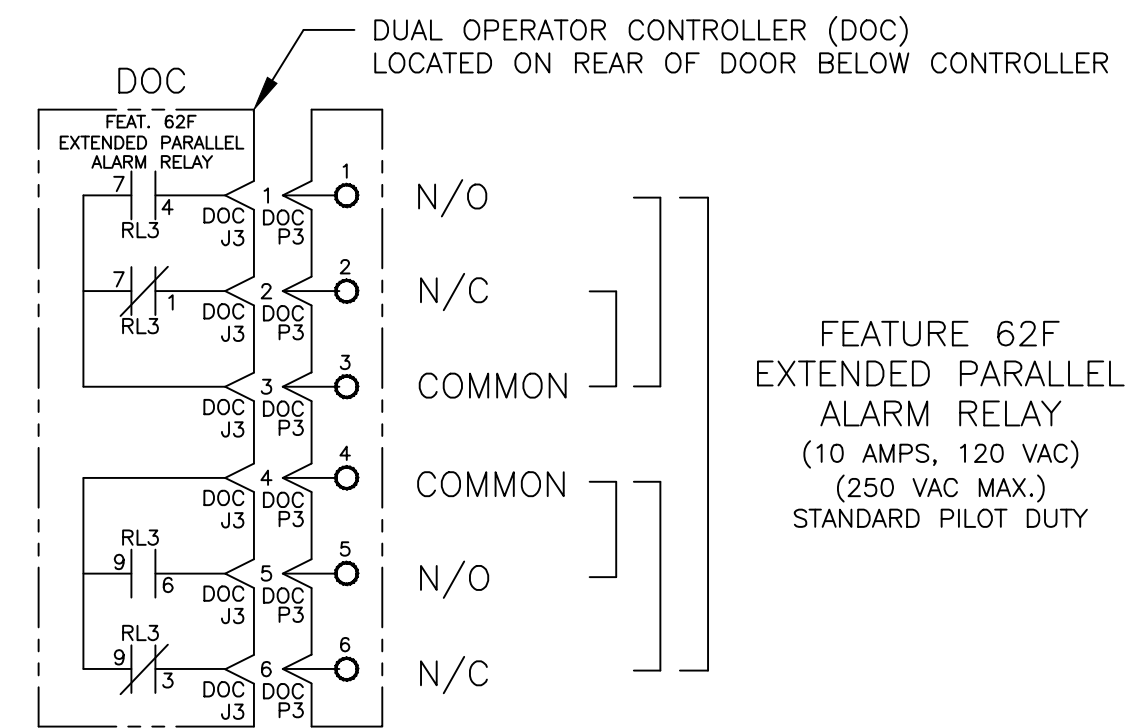
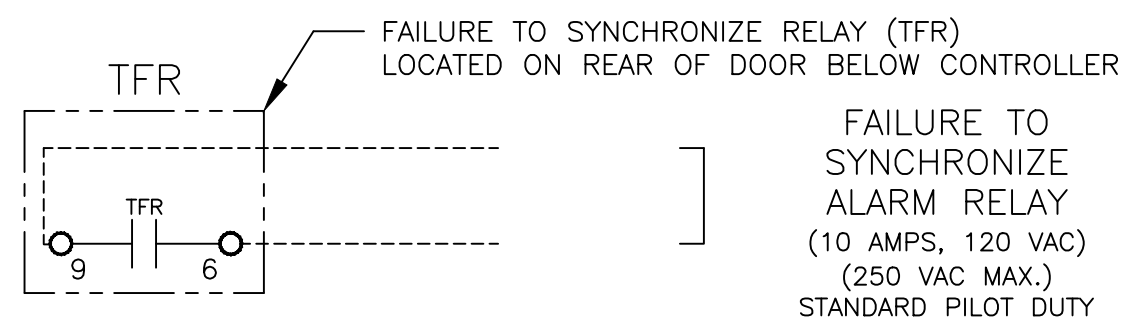
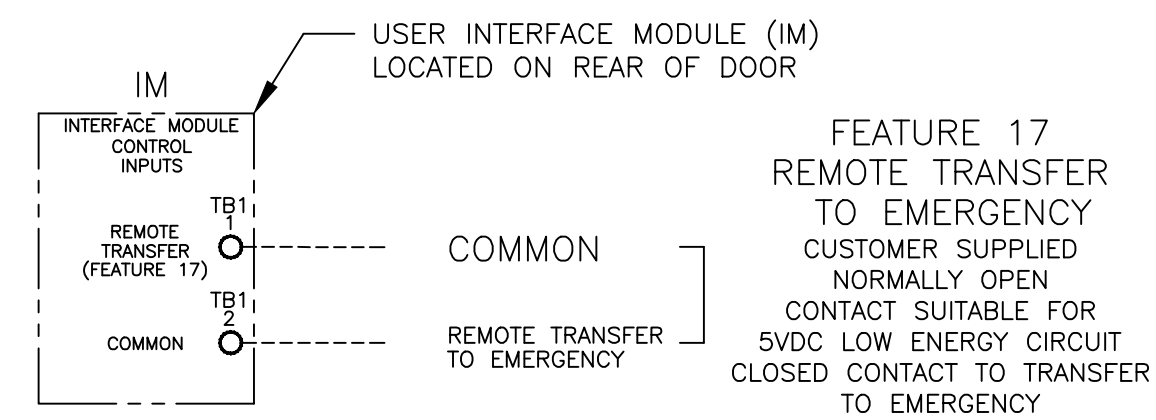
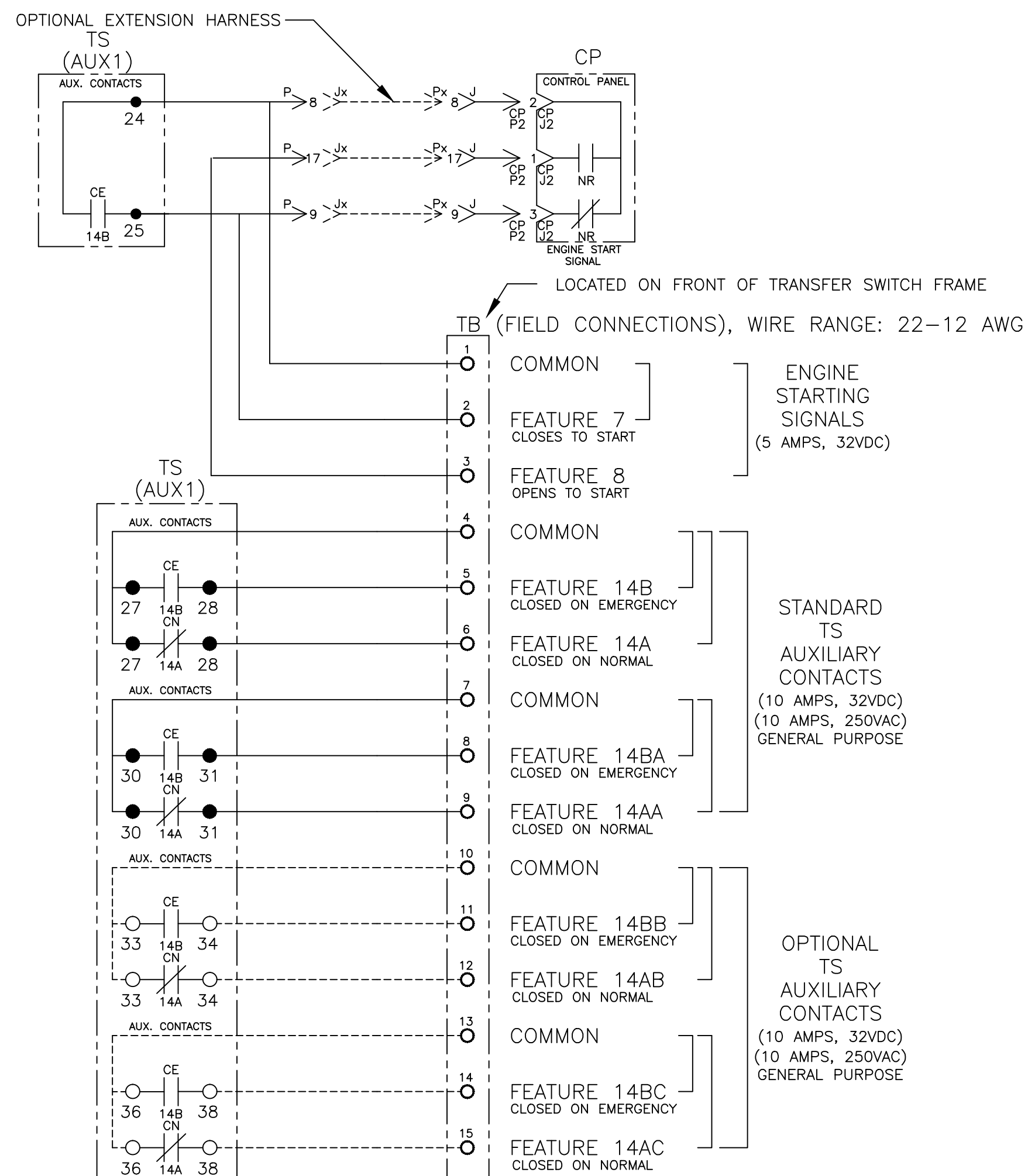
877833

DRAWING A REV. _____

ECN NO. 239774

SHEET 1 OF 6

FIELD CONNECTIONS



| | | | | |
|---|--------|----|----|----------|
| A | 239774 | TR | BK | 11/08/12 |
| | 224561 | TR | BK | 09/29/09 |

| | | | | | | |
|---|------|---|---------|-----------------|----------------------------|--------|
| PROJECT NAME: | | REV. TO SHEET | ECN NO. | BY | APP. | DATE |
| WIRING DIAGRAM | | | | | | |
| 4000 SERIES (G4ACTS/G4NCTS) 3PH 4000 AMPS | | | | | | |
| "G" FRAME, GROUP 5 CONTROLS | | | | | | |
| DRAWN BY | DATE | MANUFACTURING TOLERANCES TO BE IN ACCORDANCE WITH ASCO PROCEDURE MP-1-003. FOR PLASTIC PARTS SEE MP-1-005. | | ASSEM. REF. NO. | COMPUTER GENERATED DRAWING | |
| CHECKED | DATE | PROPERTY OF ASCO POWER TECHNOLOGIES. USE PERMITTED FOR OUR WORK ONLY. ALL RIGHTS OF DESIGN OR INVENTION ARE RESERVED. | | SCALE | SIZE | DS |
| PROJECT APPROVAL | DATE | | | DWG. NO. | 877833 | |
| FINAL APPROVAL | DATE | | | DRAWING REV. | ECN NO. | SHEET |
| | | | | A | 239774 | 2 OF 6 |



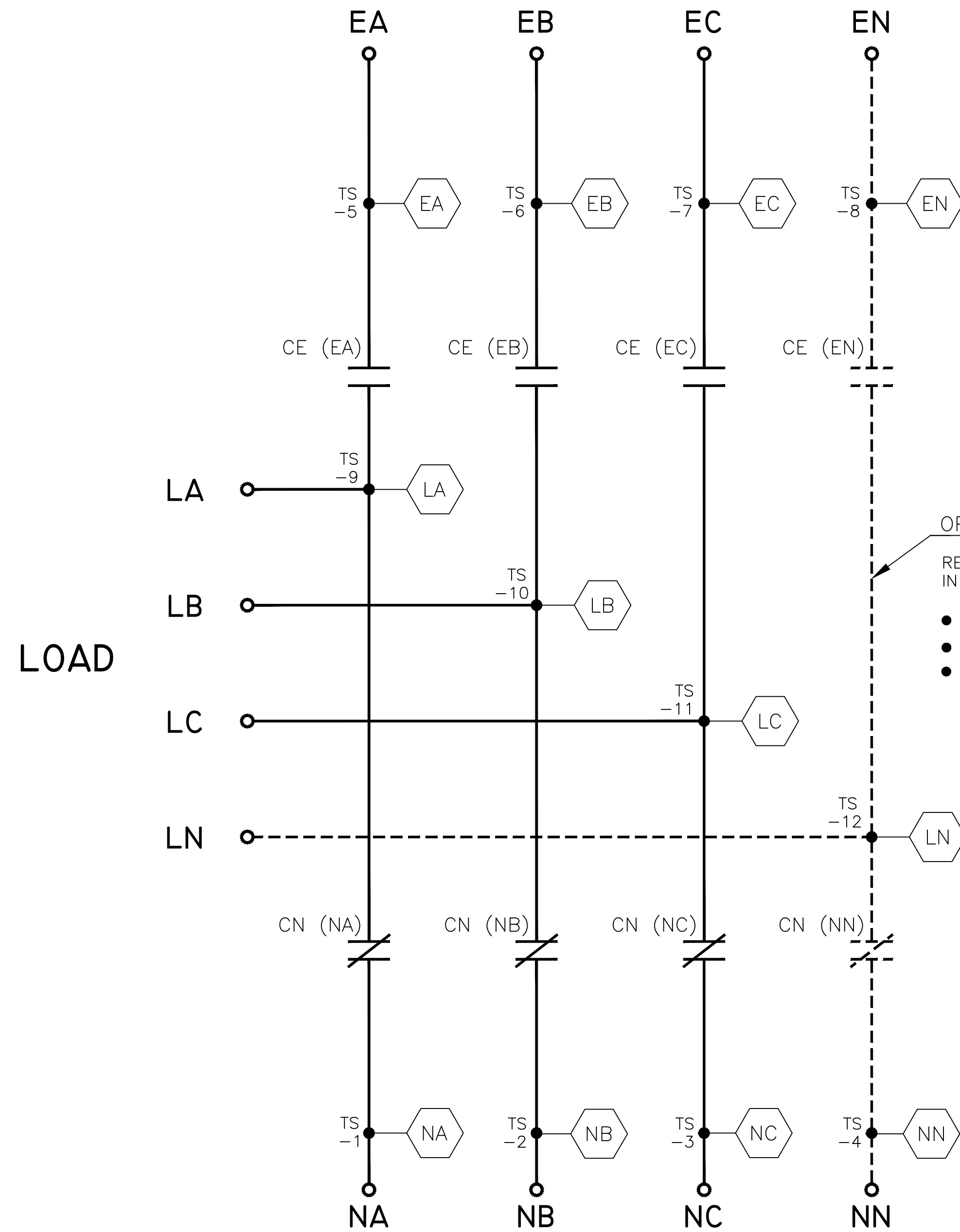
MAIN POWER POLES

TS OPERATOR CIRCUIT

EMERGENCY

NORMAL

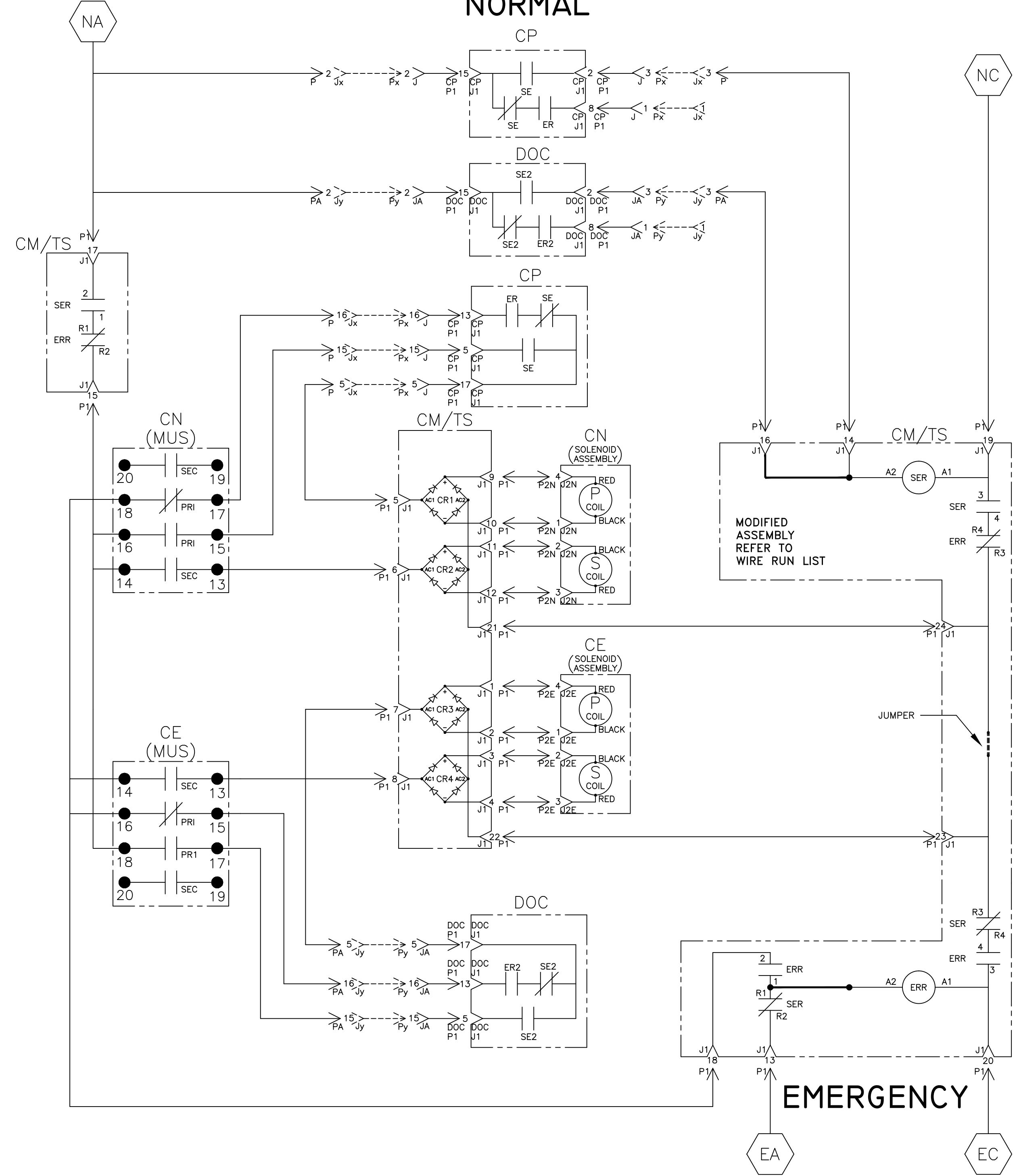
EMERGENCY



OPTIONAL NEUTRAL TYPES
 REFER TO "EXPLANATION OF CATALOG NUMBER CODES" IN CATALOG NUMBER CHART ON SHEET 1.

- NONE
- SWITCHING
- SOLID BUS PLATE

NOTE:
 TS SHOWN CLOSED ON NORMAL SOURCE.



| CN (MUS) CONTACTS | | SOLENOID POSITION | | | | |
|-------------------|--|-------------------|---|------------|---|------|
| MUS | | NORM | > | AFTER TDC* | < | OPEN |
| 13-14 | | | X | | | |
| 15-16 | | | X | | | |
| 17-18 | | | X | | | |
| 19-20 | | | X | | | |

| CE (MUS) CONTACTS | | SOLENOID POSITION | | | | |
|-------------------|--|-------------------|---|------------|---|------|
| MUS | | OPEN | > | AFTER TDC* | < | EMER |
| 13-14 | | | X | | | |
| 15-16 | | | X | | | |
| 17-18 | | | X | | | |
| 19-20 | | | X | | | |

* AFTER SOLENOID CORE PASSES THROUGH TOP DEAD CENTER POSITION.

PROJECT NAME: **WIRING DIAGRAM**
 4000 SERIES (G4ACTS/G4NCTS) 3PH 4000 AMPS
 "G" FRAME, GROUP 5 CONTROLS

| | | | | |
|---------------|---------|----|------|----------|
| REV. TO SHEET | ECN NO. | BY | APP. | DATE |
| A | 239774 | TR | BK | 11/08/12 |
| | 224561 | TR | BK | 09/29/09 |

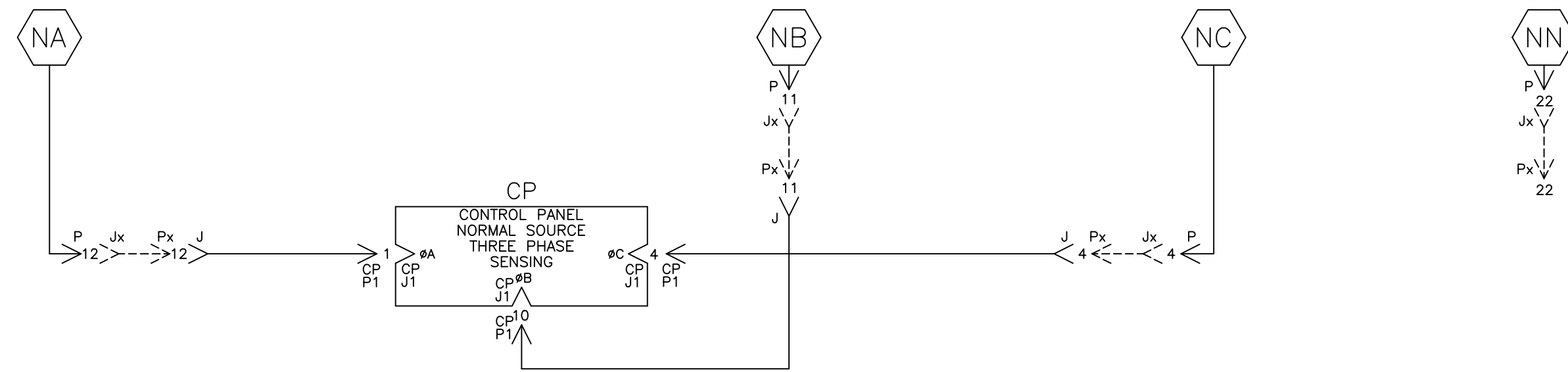
SCALE: NONE SIZE: DS
 DWG. NO. 877833
 DRAWING A ECN NO. 239774 SHEET 3 OF 6

ASCO POWER TECHNOLOGIES, L.P.
 FLORHAM PARK, NEW JERSEY 07932 U.S.A.

NORMAL SOURCE CIRCUITS

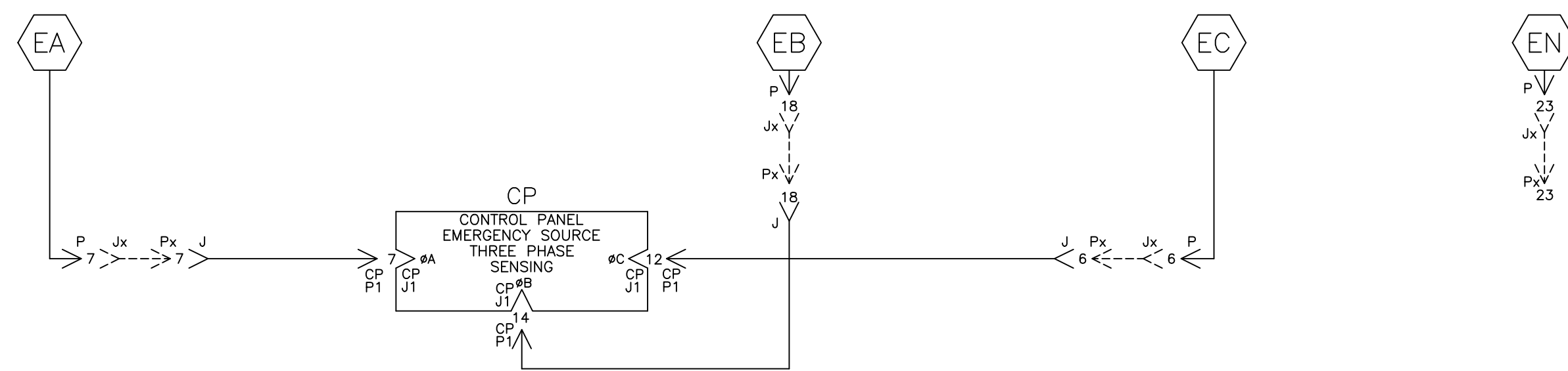
CONTROL SIGNALS & INDICATION

NORMAL



EMERGENCY SOURCE CIRCUITS

EMERGENCY



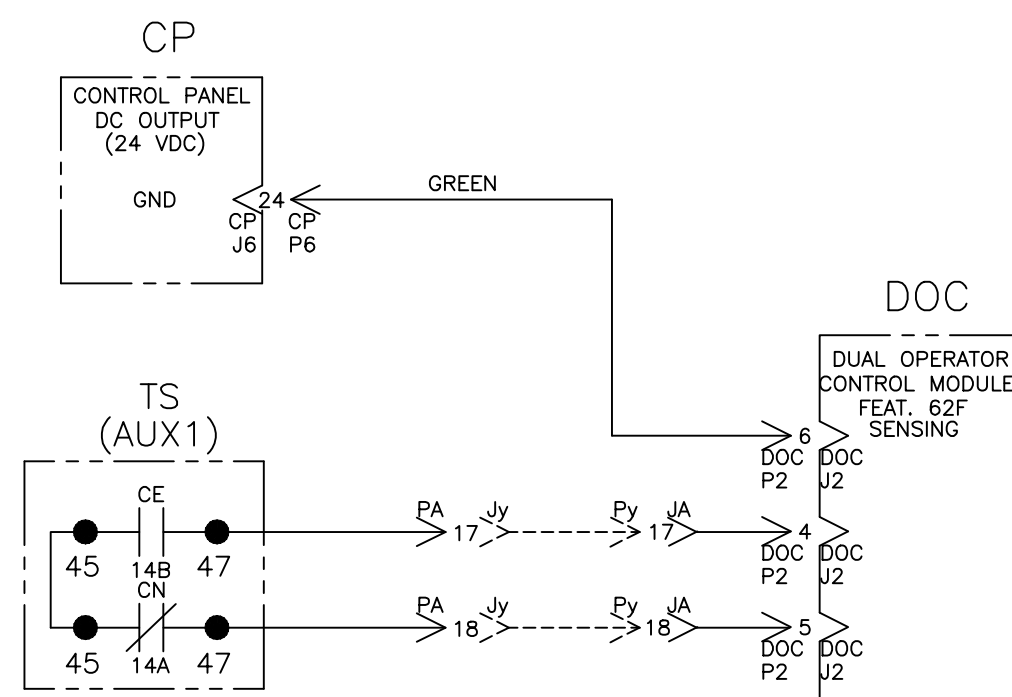
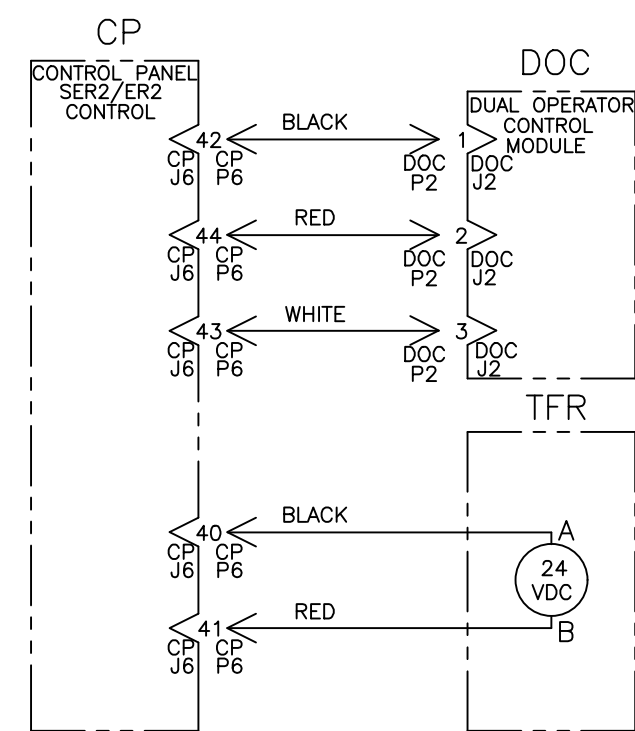
LOAD TERMINAL CIRCUITS

LOAD

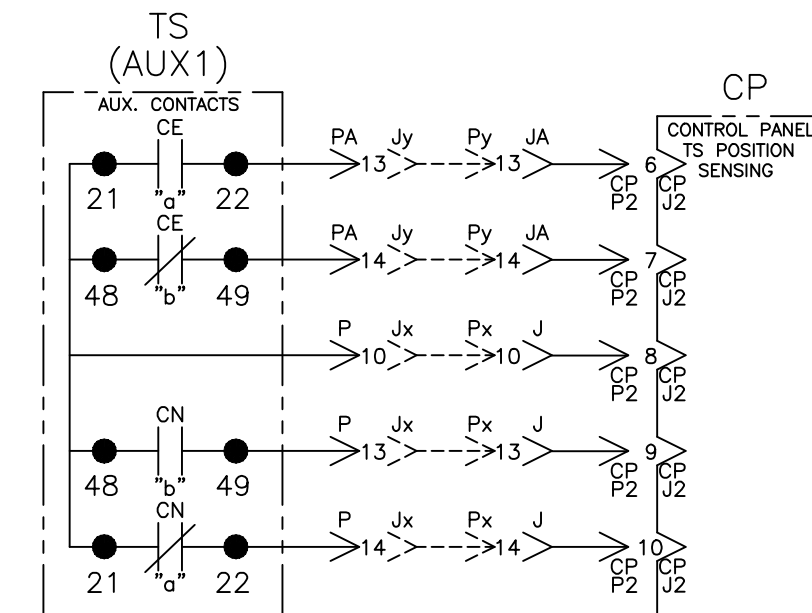


CONTROL SIGNALS & INDICATION

SER2/ER2 CONTROL



TS POSITION SENSING

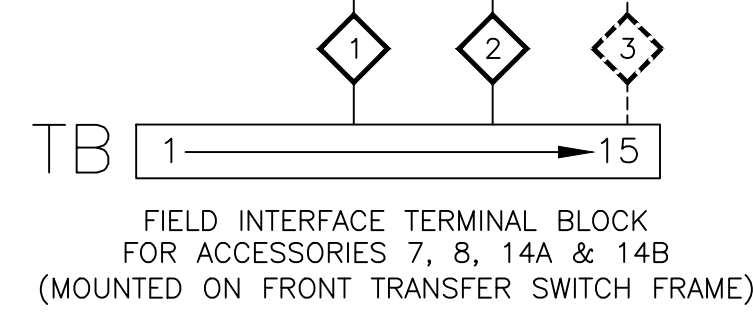
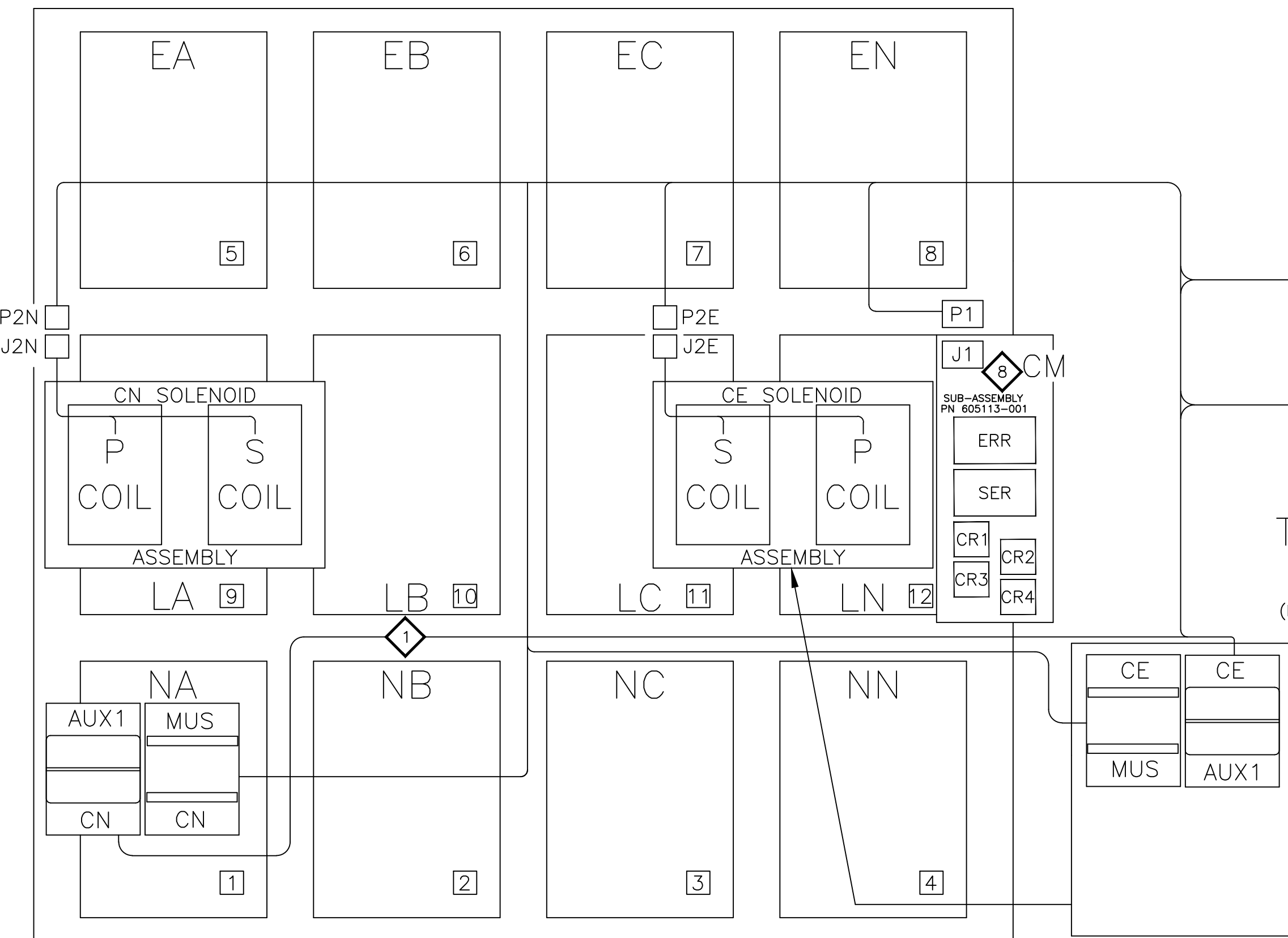


| | | | | |
|---------------|---------|----|------|----------|
| REV. TO SHEET | ECN NO. | BY | APP. | DATE |
| A | 239774 | TR | BK | 11/08/12 |
| | SEE ECN | | | |
| | 224561 | TR | BK | 09/29/09 |
| | ISSUE | | | |

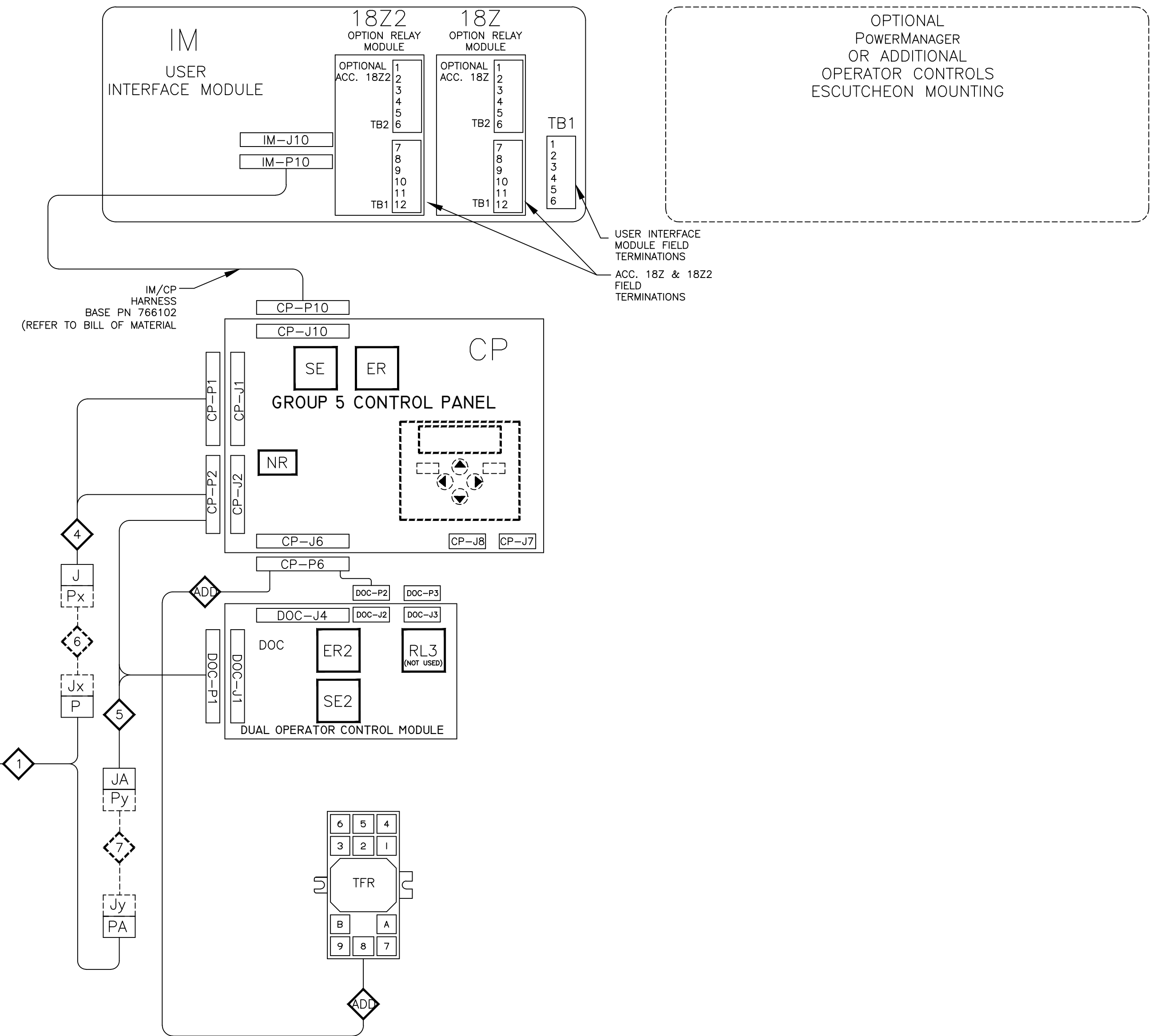
| | | | | | | | | | |
|----------------------|--|---|--|---|--|-----------------|--|--------------|--|
| PROJECT NAME: | | DIAGRAM | | SCALE | | SIZE | | DS | |
| WIRING | | 4000 SERIES (G4ACTS/G4NCTS) 3PH 4000 AMPS | | COMPUTER GENERATED DRAWING | | 877833 | | SHEET 4 OF 6 | |
| DRAWN BY: DJB | | DATE: 09/29/09 | | MANUFACTURING TOLERANCES TO BE IN ACCORDANCE WITH ASCO PROCEDURE MP-1-003. FOR PLASTIC PARTS SEE MP-1-005. | | ASSEM. REF. NO. | | DRAWING NO. | |
| CHECKED: BK | | DATE: 09/29/09 | | PROPERTY OF ASCO POWER TECHNOLOGIES. USE PERMITTED FOR OUR WORK ONLY. ALL RIGHTS OF DESIGN OR INVENTION ARE RESERVED. | | SCALE | | REV. A | |
| PROJECT APPROVAL: WK | | DATE: 09/29/09 | | ASCO® ASCO POWER TECHNOLOGIES, L.P. FLORHAM PARK, NEW JERSEY 07932 U.S.A. | | ECN NO. 239774 | | SHEET 4 OF 6 | |
| FINAL APPROVAL: | | | | ASCO | | | | | |

PHYSICAL DIAGRAM

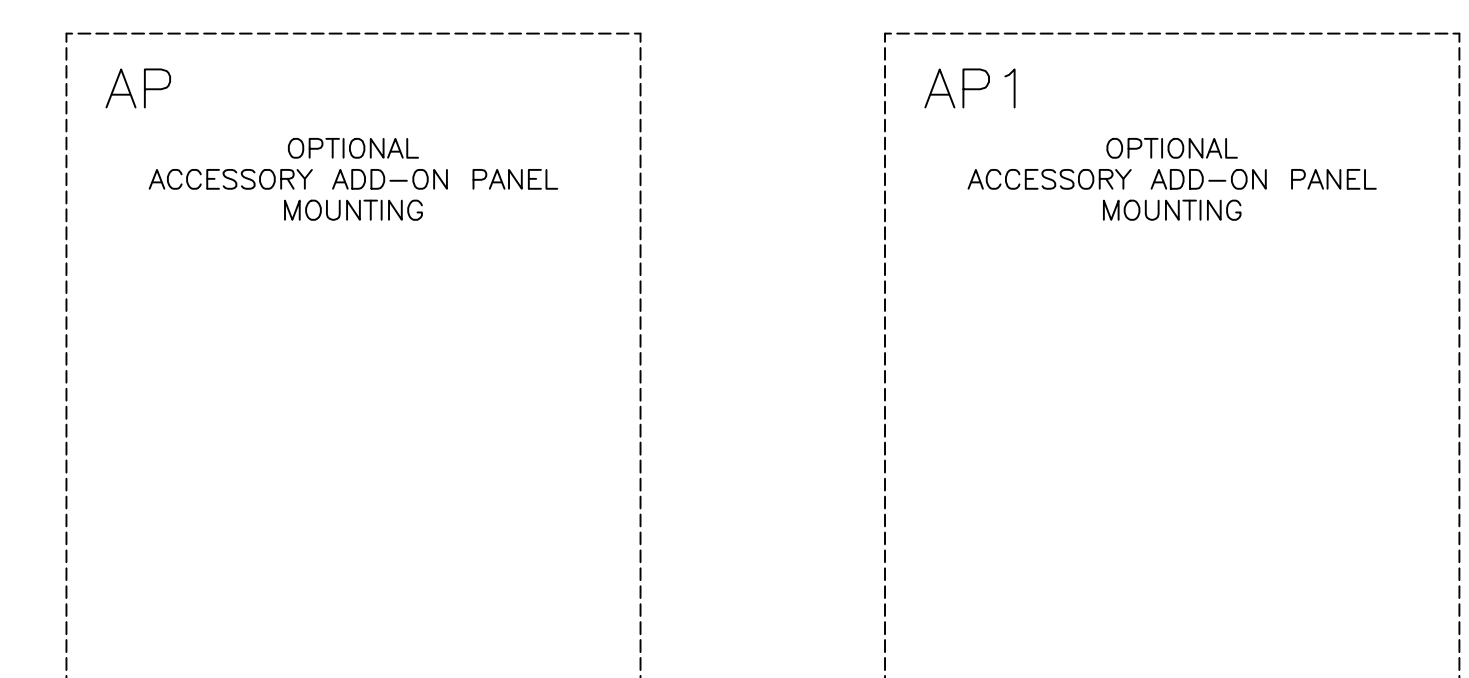
ENCLOSURE



TOP DOOR (INSIDE)



BOTTOM DOOR (INSIDE)



BONDING STRAP PN 098323-019

| | | | | |
|---------------|---------|----|------|----------|
| REV. TO SHEET | ECN NO. | BY | APP. | DATE |
| A | 239774 | TR | BK | 11/08/12 |
| - | 224561 | TR | BK | 09/29/09 |
| | | | | ISSUE |

| | | | |
|---|------|---|-----------------|
| PROJECT NAME: | | DIAGRAM | |
| 4000 SERIES (G4ACTS/G4NCTS) 3PH 4000 AMPS | | | |
| "G" FRAME, GROUP 5 CONTROLS | | | |
| BY | DATE | MANUFACTURING TOLERANCES TO BE IN ACCORDANCE WITH ASCO PROCEDURE MP-1-003. FOR PLASTIC PARTS SEE MP-1-005 | ASSEM. REF. NO. |
| DRAWN BY | DJB | 09/29/09 | |
| CHECKED | BK | 09/29/09 | |
| PROJECT APPROVAL | WK | 09/29/09 | |
| FINAL APPROVAL | | | |
| SCALE | | NONE | |
| SIZE | | DS | |
| DWG. NO. | | 877833 | |
| DRAWING A | | ECN NO. 239774 | |
| REV. | | 5 OF 6 | |

ASCO POWER TECHNOLOGIES, L.P.
FLORHAM PARK, NEW JERSEY 07932 U.S.A.

