THREE PHASE WIRING FOR ASCO® 7000 SERIES AUTOMATIC CLOSED TRANSITION TRANSFER SWITCHES TYPE J7ACTS RATED 150, 260, 400, & 600 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® 7000 SERIES AUTOMATIC TRANSFER SWITCHES USER'S GUIDE (PART NO. 381333–126) PROVIDED WITH EVERY 7000 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. ON EXPIRATION, TRANSFER TO EMERGENCY IS INITIATED 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. ON EXPIRATION, RETRANSFER TO NORMAL WILL BE INITIATED.

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 RETRANSFER.

FEAT. 3A – RETRANSFER TO NORMAL DELAY (TEST MODE)
DELAY STARTS WHEN THE "TRANSFER TEST" SWITCH IS RESET TO "AUTO" (FOLLOWING A USER INITIATED TRANSFER TEST) 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 EXTENDED PARALLEL ALARM TIMER LOCATED ON THE DUAL OPERATOR CONTROL (DOC) IS ENABLED.
- 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 ENABLED FOLLOWING EXPIRATION OF THE EXTENDED PARALLEL TIMER OF THE CONTROL PANEL. THE ENABLING OF THE EXTENDED PARALLEL ALARM TIMER INDICATES THAT THE UNIT HAS ATTEMPTED TO RECOVER TO A "SAFE STATE" AND THAT IT HAS BEEN LOCKED OUT. ON EXPIRATION OF THE DELAY, OUTPUT RELAY (RL3) (2) FORM C CONTACTS, CONNECTED TO THE FIELD CONNECTIONS TERMINAL BLOCK (TB0, TRANSFER. THE DELAY IS ADJUSTABLE VIA A POTENTIOMETER (P2) LOCATED ON THE DUAL OPERATOR CONTROL (DOC) WHICH IS ADJUSTABLE FROM 0–1 SECOND. FACTORY SET AT 1 SEC.

ENGINE EXERCISER

THE ENGINE EXERCISER FEATURE PROVIDES A MEANS TO PERFORM AUTOMATIC EXERCISING OF THE ENGINE–GENERATOR SET EITHER WITH OR WITHOUT LOAD TRANSFER.
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	
YEAR		00–99	
HOUR		0–23	Eastern Standard Time
MINUTE		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 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, 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 CAUSED BY OPERATION OF THE FEATURE 5 TRANSFER TEST SELECTOR SWITCH. RETRANSFER WILL ALSO OCCUR IN A CLOSED TRANSITION MANNER AT THE END OF THE TEST.

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 AN AUTOMATIC 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).
- 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 IN 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). FEATURE 7 CLOSES 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). CONTACT RATED 5 AMPS AT 32 VDC/120VAC RESISTIVE.

B. FEATURES 14AE & 14BE – TRANSFER SWITCH AUXILIARY POSITION INDICATING CONTACTS. SIX (6) FORM A CONTACTS EACH TO INDICATE CONNECTION OF THE TRANSFER SWITCH TO NORMAL (14A) OR EMERGENCY (14B). CONTACTS CONNECTED TO THE FIELD CONNECTIONS TERMINAL BLOCK (TB). 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. 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. CONNECTED TO THE FIELD CONNECTIONS TERMINAL BLOCK (TB).

USER CONTROLS AND INDICATIONS

A. FEATURES 5 & 6B – TRANSFER TEST/RETRANSFER TIME DELAY BYPASS CONTROLS.

TRANSFER TEST:
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 TIME DELAY BYPASS:
OPERATION WILL BYPASS THE FEATURE 3A (RETRANSFER TO NORMAL DELAY).

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 – INDICATES THAT THE MAIN CONTACTORS (CN & CE) HAVE BEEN SIMULTANEOUSLY CLOSED FOR A PERIOD EXCEEDING THE TIME ALLOTTED. (RED LED)

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

F. TS LOCKED OUT – 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. TS LOCKED OUT RESET – ONCE A LOCK OUT CONDITION IS CORRECTED, THE TS LOCKED OUT RESET MAY BE ACTUATED TO RESET THE CONTROL PANEL.

H. ALARM RESET – RESETS FAILURE TO SYNCHRONIZE AND EXTENDED PARALLEL ALARMS.

I. CLOSED TRANSITION BYPASS – 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.

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 GS451261.
7. AN OPERATOR'S MANUAL IS FURNISHED WITH EACH AUTOMATIC TRANSFER SWITCH. REFER TO THIS PUBLICATION PRIOR TO INSTALLATION AND OPERATION OF THE UNIT.

BASE CATALOG NUMBER					CATALOG NUMBER SUFFIXES			
TS FRAME	CATALOG TYPE	NEUTRAL TYPE	PHASE POLES	AMPS	VOLT CODE	CONTROLLER	OPTIONAL ACCESSORY	ENCLOSURE CODE
J	7ACTS	A B BLANK FOR NONE	3	150 260 400 600	C D E F H J K L M N P Q R	5	X BLANK FOR NONE	C E F G H J K L M N P Q BLANK FOR OPEN TYPE

EXPLANATION OF CATALOG NUMBER CODES

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

CATALOG NUMBER ____________
ASCO® CERTIFIED TO
S.O. ____________
BY____________
DATE ____________

FORM REV B

CHANGE LETTER	ECN NO.	BY	APP.	DATE
B	206834	TR	WK	12/6/05
	SEE ECN			
A	205857	JPB	JPB	9/12/05
	SEE ECN			
—	204419	BWM	SDH	5/05
	ISSUE			

PROJECT NAME:

WIRING DIAGRAM
7000 SERIES (J7ACTS)
GROUP 5 CONTROLS

THIRD ANGLE PROJECTION

SUBSIDIARY DISTRIBUTION
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CH ☐ AV ☐ AA ☐ PS ☐ AR ☐ ☐
AG ☐ AP ☐ AC ☐ AS ☐ ☐ ☐

	BY	DATE
DRAWN BY	BWM	5/05
CHECKED		
DRAFTING APPROVAL		
FINAL APPROVAL	SDH	5/05

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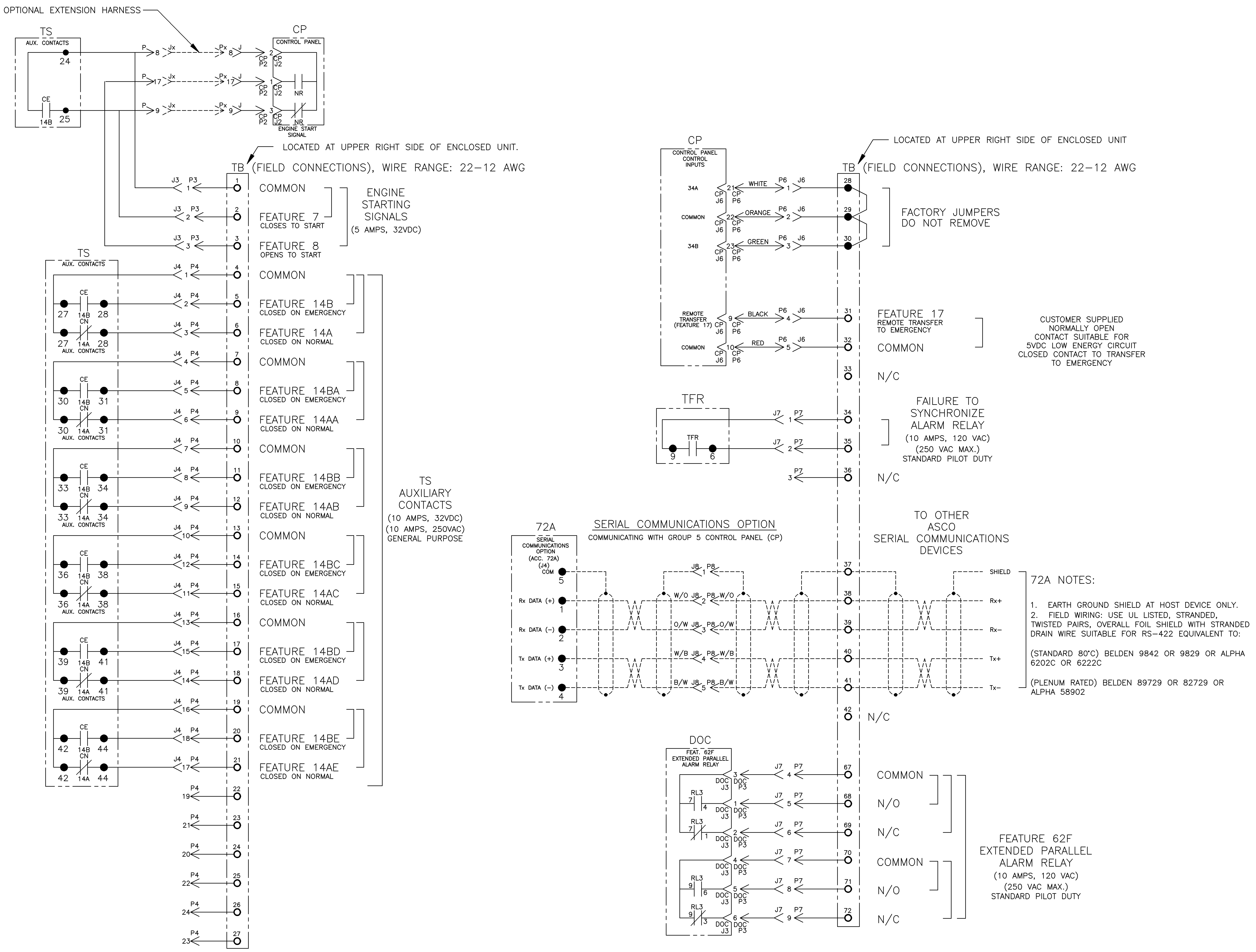
FLORHAM PARK, NEW JERSEY 07932 U.S.A.

COMPUTER GENERATED DRAWING

SCALE 1:1 | ACAD | FILE
SIZE DS | DWG. NO. 777226
CHANGE LETTER B | ECN NO. 206834 | SHEET 1 OF 6

FIELD CONNECTIONS



72A NOTES:

1. EARTH GROUND SHIELD AT HOST DEVICE ONLY.
2. FIELD WIRING: USE UL LISTED, STRANDED, TWISTED PAIRS, OVERALL FOIL SHIELD WITH STRANDED DRAIN WIRE SUITABLE FOR RS–422 EQUIVALENT TO:

(STANDARD 80°C) BELDEN 9842 OR 9829 OR ALPHA 6202C OR 6222C

(PLENUM RATED) BELDEN 89729 OR 82729 OR ALPHA 58902

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	BY	DATE
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CHECKED		
DRAFTING APPROVAL		
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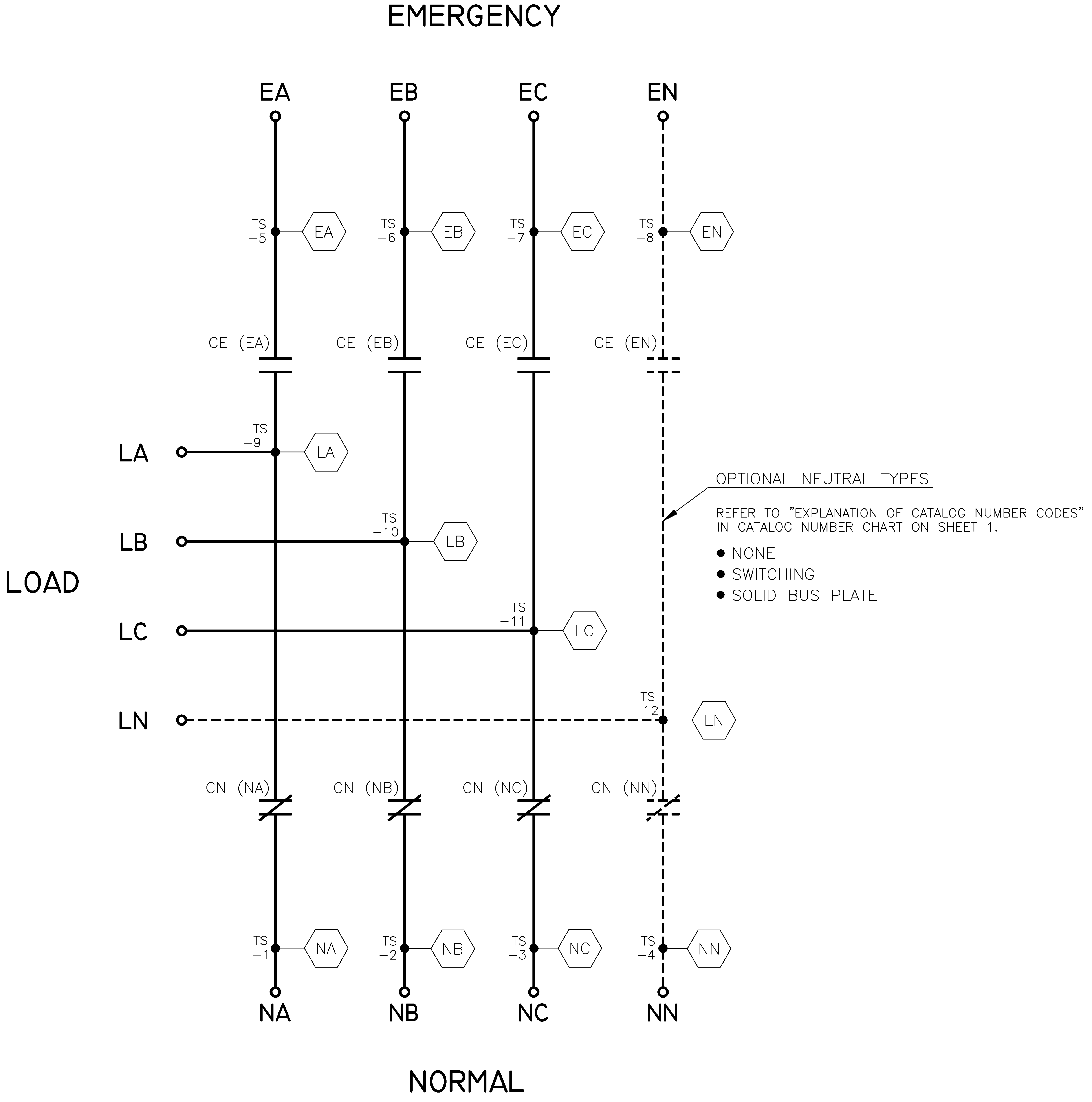
CHANGE LETTER B ECN NO. 206834 SHEET 2 OF 6

MAIN POWER POLES



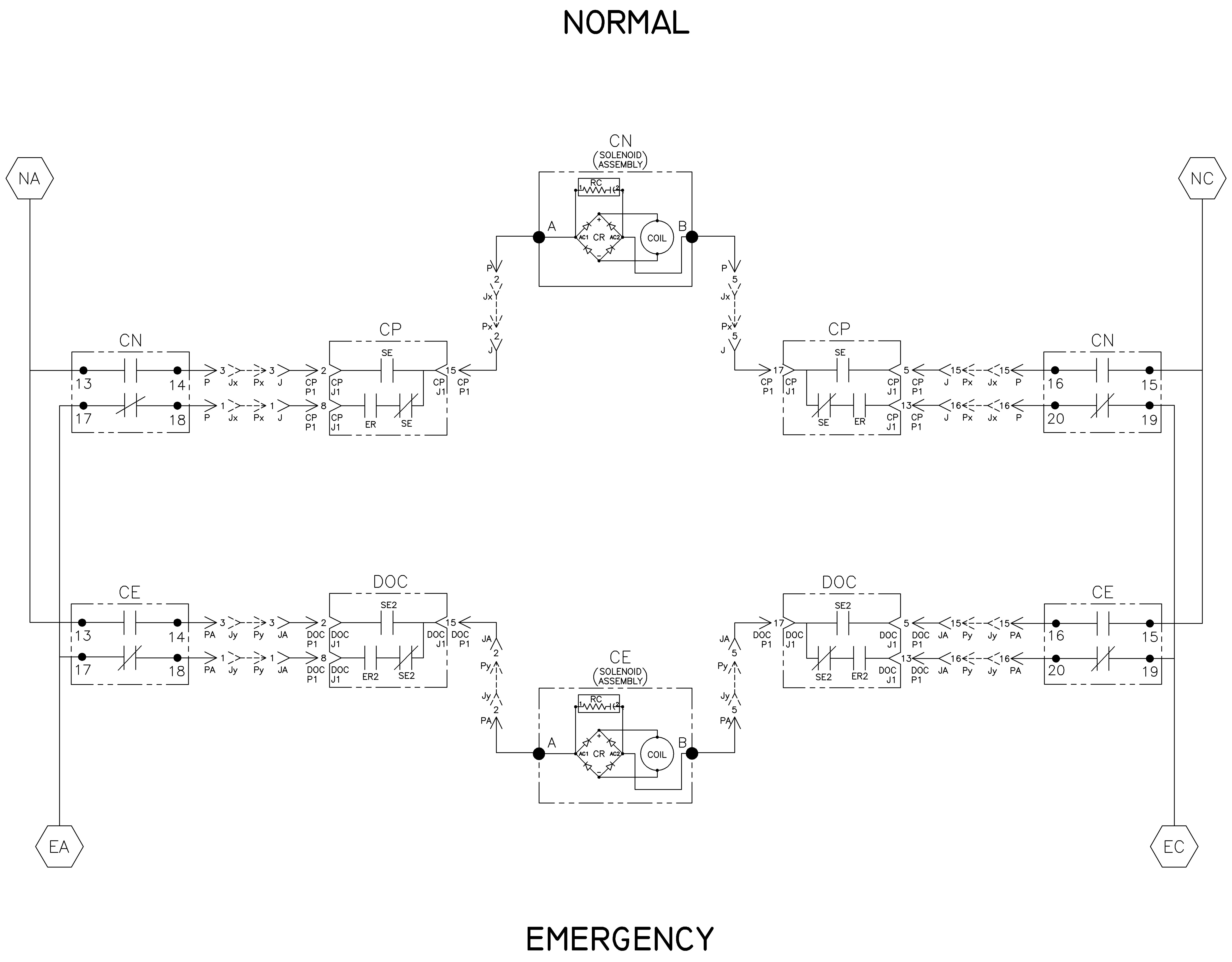
OPTIONAL NEUTRAL TYPES

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

- NONE
- SWITCHING
- SOLID BUS PLATE

NOTE:
ATS SHOWN CLOSED ON NORMAL SOURCE.

TS OPERATOR CIRCUIT



CN CONTROL CONTACTS					
CN	SOLENOID POSITION				
	CLOSED NORMAL	BEFORE TDC*>	> <	BEFORE <*TDC	OPEN
13–14				X	X
15–16				X	X
17–18	X	X			
19–20	X	X			

CE CONTROL CONTACTS					
CE	SOLENOID POSITION				
	OPEN	BEFORE TDC*>	> <	BEFORE <*TDC	CLOSED EMERG.
13–14				X	X
15–16				X	X
17–18	X	X			
19–20	X	X			

TDC (TOP DEAD CENTER)
TRANSFER SWITCH TEST & ADJUSTMENT PROCEDURE SPECIFIES CONTROL CUT–OFF (CONTACT OPENING) SETTING.

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	BY	DATE
DRAWN BY	BWM	5/05
CHECKED		
DRAFTING APPROVAL		
FINAL APPROVAL	SDH	5/05

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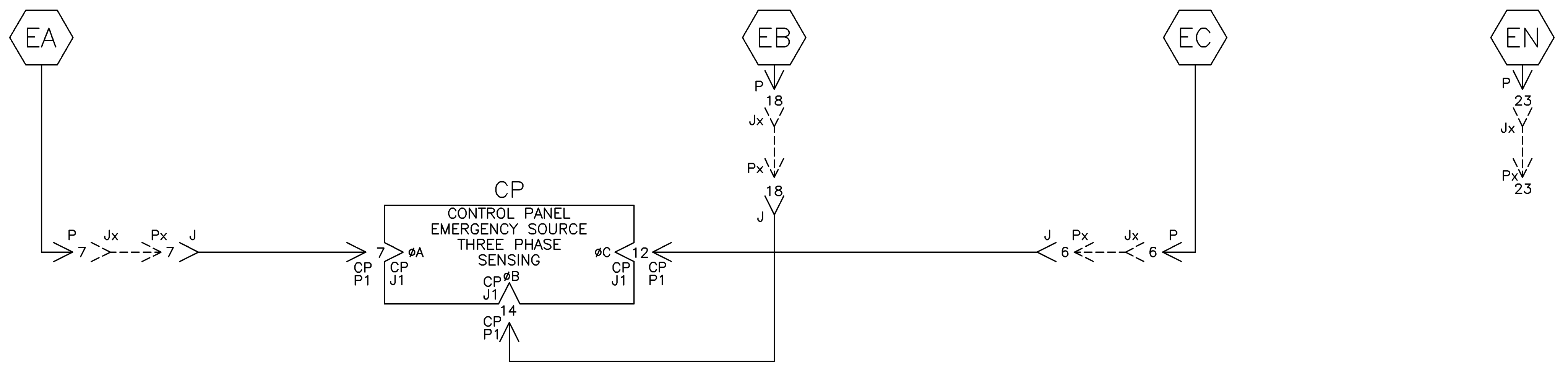
SHEET 3 OF 6

EMERGENCY SOURCE CIRCUITS

EMERGENCY



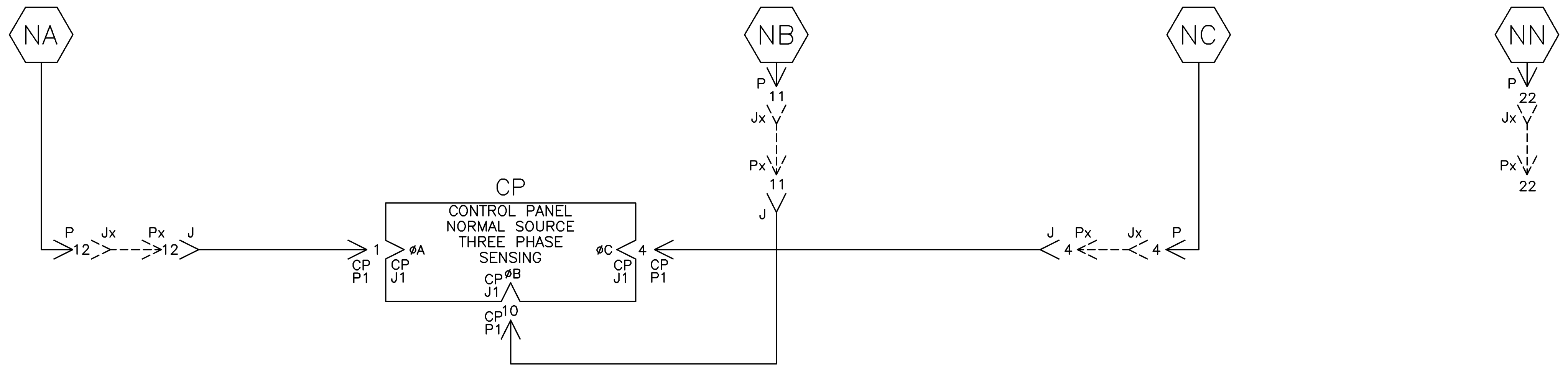
ADDITIONAL CIRCUITS

LOAD TERMINAL CIRCUITS

LOAD

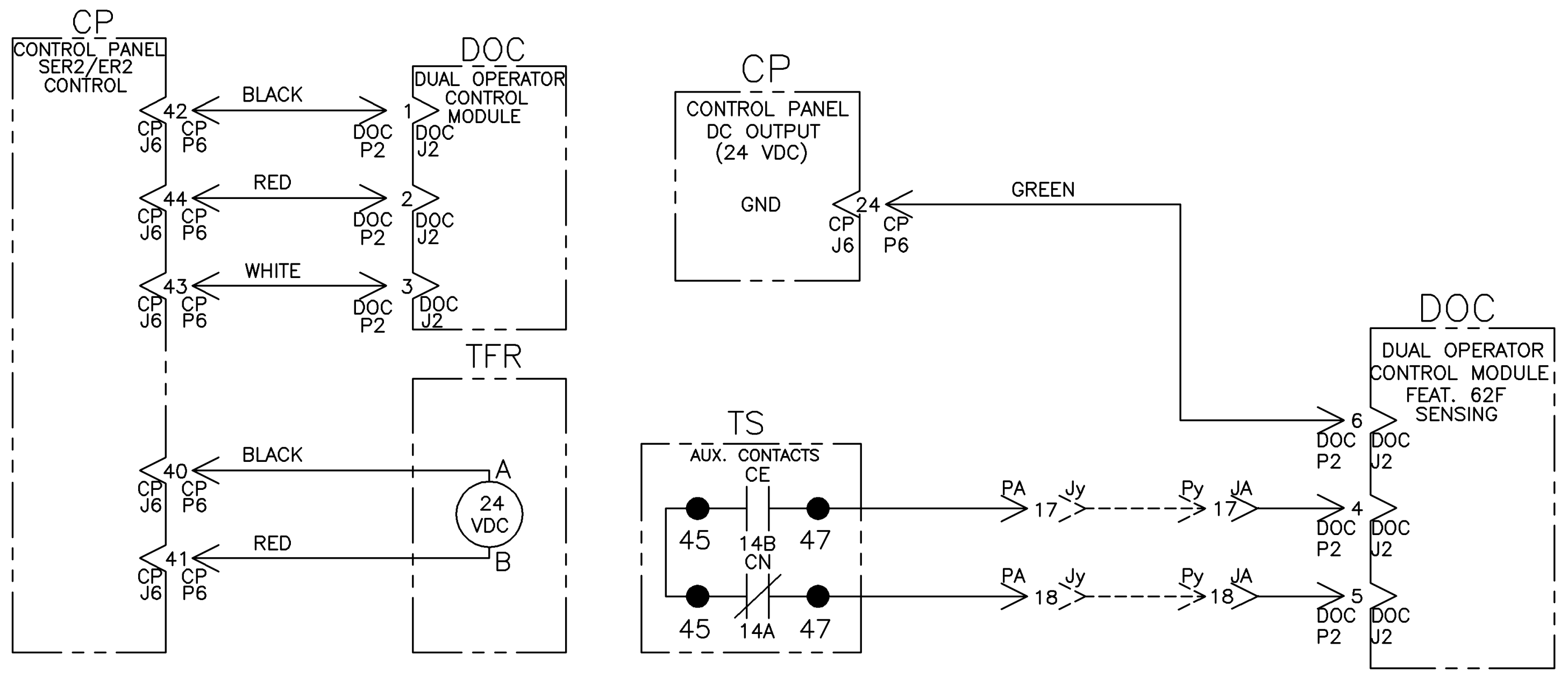
NORMAL SOURCE CIRCUITS

NORMAL

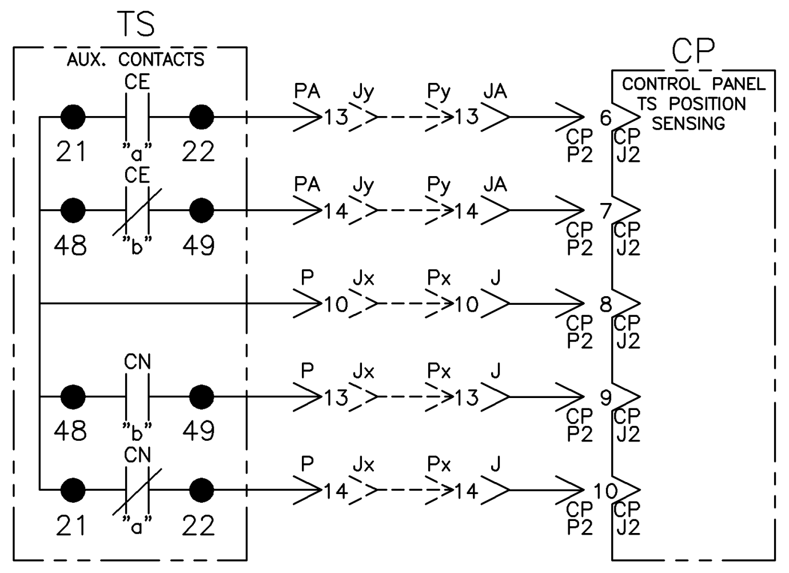


CONTROL CIRCUITS

SER2/ER2 CONTROL



TS POSITION SENSING



CHANGE LETTER	ECN NO.	BY	APP.	DATE
B	206834	TR	WK	12/6/05
	SEE ECN			
A	205857	JPB	JPB	9/12/05
	SEE ECN			
—	204419	BWM	SDH	5/05
	ISSUE			

SUBSIDIARY DISTRIBUTION

AE ☐	AN ☐	AM ☐	AJ ☐	AL ☐	☐
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PROJECT NAME:

WIRING DIAGRAM
7000 SERIES (J7ACTS)
GROUP 5 CONTROLS

THIRD ANGLE PROJECTION

	BY	DATE
DRAWN BY	BWM	5/05
CHECKED		
DRAFTING APPROVAL		
FINAL APPROVAL	SDH	5/05

MANUFACTURING TOLERANCES TO BE IN ACCORDANCE WITH ASCO PROCEDURE MP-I-003. FOR PLASTIC PARTS SEE MP-I-055

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CHANGE LETTER B ECN NO. 206834 SHEET 4 OF 6

PHYSICAL DIAGRAM

CHANGE LETTER	ECN NO.	BY	APP.	DATE
B	206834	TR	WK	12/6/05
	SEE ECN			
A	205857	JPB	JPB	9/12/05
	SEE ECN			
—	204419	BWM	SDH	5/05
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WIRING DIAGRAM
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CHANGE LETTER B ECN NO. 206834 SHEET 5 OF 6

WIRE RUN LISTING

1 ◄— HARNESS LOCATOR — BOX CHECKED IF HARNESS IS MODIFIED ☐

WIRE No.	HARNESS 619510-061 (P,PA,J3,J4) MAIN TS	CLR	AWG
1	P-1,CN-18		18
2	P-2,CN-A		
3	P-3,CN-14		
4	P-4,TS-3		
4	TS-3,CE-15		
4	CE-15,CN-15		
5	P-5,CN-B		
6	P-6,TS-7		
6	TS-7,CE-19		
6	CE-19,CN-19		
7	P-7,TS-5		
7	TS-5,CE-17		
7	CE-17,CN-17		
8	P-8,CE-24		
8	CE-24,J3-1		
9	P-9,CE-25		
9	CE-25,J3-2		
10	P-10,CE-21		
10	CE-21,CN-21		
10	CN-21,CN-48		
10	CE-48,CN-48		
11	P-11,TS-2		
12	P-12,TS-1		
12	TS-1,CE-13		
12	CE-13,CN-13		
13	P-13,CN-49		
14	P-14,CN-22		
15	P-15,CN-16		
16	P-16,CN-20		
17	P-17,J3-3		
18	P-18,TS-6		
19	P-19,TS-9		
20	P-20,TS-10		
21	P-21,TS-11		
22	P-22,TS-4		
23	P-23,TS-8		
24	P-24,TS-12		
25	J4-1,CE-27		
25	CE-27,CN-27		
26	J4-2,CE-28		
27	J4-3,CN-28		
28	J4-4,CE-30		
28	CE-30,CN-30		
29	J4-5,CE-31		
30	J4-6,CN-31		
31	J4-7,CE-33		
31	CE-33,CN-33		
32	J4-8,CE-34		
33	J4-9,CN-34		
34	J4-10,CE-36		
34	CE-36,CN-36		
35	J4-11,CN-38		
36	J4-12,CE-38		
37	J4-13,CE-39		
37	CE-39,CN-39		
38	J4-14,CN-41		
39	J4-15,CE-41		
40	J4-16,CE-42		
40	CE-42,CN-42		
41	J4-17,CN-44		
42	J4-18,CE-44		
43	J4-19,CE-45		
43	CE-45,CN-45		
107	PA-1,CE-18		
108	PA-2,CE-A		
109	PA-3,CE-14		
111	PA-5,CE-B		
119	PA-13,CE-22		
120	PA-14,CE-49		
121	PA-15,CE-16		
122	PA-16,CE-20		
123	PA-17,CE-47		
124	PA-18,CN-47		
	REMOVE WIRES		
	ADD WIRES		
97	J3-4		
110	PA-4		
112	PA-6		
113	PA-7		
114	PA-8		
115	PA-9		
116	PA-10		
117	PA-11		
118	PA-12		
125	PA-19		
126	PA-20		
127	PA-21		
128	PA-22		
129	PA-23		
130	PA-24		

2 ◄— HARNESS LOCATOR — BOX CHECKED IF HARNESS IS MODIFIED ☐

WIRE No.	HARNESS 483763 (J,CP-P1,CP-P2) CONTROL PANEL	CLR	AWG
1	J-1,CP-P1-8		16
2	J-2,CP-P1-15		
3	J-3,CP-P1-2		
4	J-4,CP-P1-4		
5	J-5,CP-P1-17		
6	J-6,CP-P1-12		
7	J-7,CP-P1-7		
8	J-8,CP-P2-2		
9	J-9,CP-P2-3		
10	J-10,CP-P2-8		
11	J-11,CP-P1-10		
12	J-12,CP-P1-1		
13	J-13,CP-P2-9		
14	J-14,CP-P2-10		
15	J-15,CP-P1-5		
16	J-16,CP-P1-13		
17	J-17,CP-P2-1		
18	J-18,CP-P1-14		
	ADD WIRES		
19	J-19		
20	J-20		
21	J-21		
22	J-22		
23	J-23		
24	J-24		

3 ◄— HARNESS LOCATOR — BOX CHECKED IF HARNESS IS MODIFIED ☐

WIRE No.	HARNESS 309320-005 OPTIONAL 8" EXTENSION HARNESS	CLR	AWG
1	Jx-1,Px-1		16
2	Jx-2,Px-2		
3	Jx-3,Px 3		
4	Jx-4,Px-4		
5	Jx-5,Px-5		
6	Jx-6,Px-6		
7	Jx-7,Px-7		
8	Jx-8,Px-8		
9	Jx-9,Px-9		
10	Jx-10,Px-10		
11	Jx-11,Px-11		
12	Jx-12,Px-12		
13	Jx-13,Px-13		
14	Jx-14,Px-14		
15	Jx-15,Px-15		
16	Jx-16,Px-16		
17	Jx-17,Px-17		
18	Jx-18,Px-18		
19	Jx-19,Px-19		
20	Jx-20,Px-20		
21	Jx-21,Px-21		
22	Jx-22,Px-22		
23	Jx-23,Px-23		
24	Jx-24,Px-24		

4 ◄— HARNESS LOCATOR — BOX CHECKED IF HARNESS IS MODIFIED ☒

WIRE No.	HARNESS 619385 (JA,CP-P2,DOC-P1) CONTROL MODULE	CLR	AWG
107	JA-1,DOC-P1-8		16
108	JA-2,DOC-P1-15		
109	JA-3,DOC-P1-2		
111	JA-5,DOC-P1-17		
119	JA-13,CP-P2-6		
120	JA-14,CP-P2-7		
121	JA-15,DOC-P1-5		
122	JA-16,DOC-P1-13		
	ADD WIRES		
110	JA-4		
112	JA-6		
113	JA-7		
114	JA-8		
115	JA-9		
116	JA-10		
117	JA-11		
118	JA-12		
123	JA-17,DOC-P2-4		
124	JA-18,DOC-P2-5		
125	JA-19		
126	JA-20		
127	JA-21		
128	JA-22		
129	JA-23		
130	JA-24		

5 ◄— HARNESS LOCATOR — BOX CHECKED IF HARNESS IS MODIFIED ☐

WIRE No.	HARNESS 309320-005 OPTIONAL 8 IN. EXTENSION HARNESS	CLR	AWG
107	Jy-1,Py-1		16
108	Jy-2,Py-2		
109	Jy-3,Py-3		
110	Jy-4,Py-4		
111	Jy-5,Py-5		
112	Jy-6,Py-6		
113	Jy-7,Py-7		
114	Jy-8,Py-8		
115	Jy-9,Py-9		
116	Jy-10,Py-10		
117	Jy-11,Py-11		
118	Jy-12,Py-12		
119	Jy-13,Py-13		
120	Jy-14,Py-14		
121	Jy-15,Py-15		
122	Jy-16,Py-16		
123	Jy-17,Py-17		
124	Jy-18,Py-18		
125	Jy-19,Py-19		
126	Jy-20,Py-20		
127	Jy-21,Py-21		
128	Jy-22,Py-22		
129	Jy-23,Py-23		
130	Jy-24,Py-24		

6 ◄— HARNESS LOCATOR — BOX CHECKED IF HARNESS IS MODIFIED ☐

WIRE No.	HARNESS 619510-005 (P6) FIELD INPUTS	CLR	AWG
49	P6-1,CP-P6-21	WHT	22 (12 COND)
50	P6-2,CP-P6-22	ORG	
51	P6-3,CP-P6-23	GRN	
52	P6-4,CP-P6-9	BLK	
53	P6-5,CP-P6-10	RED	
	ADD WIRES		
54	P6-6		
55	P6-7		
56	P6-8		
57	P6-9		
58	P6-10		
59	P6-11		
60	P6-12		
61	P6-13		
62	P6-14		
63	P6-15		
64	P6-16		
65	P6-17		
66	P6-18		
67	P6-19		
68	P6-20		
69	P6-21		
70	P6-22		
71	P6-23		
72	P6-24		

7 ◄— HARNESS LOCATOR — BOX CHECKED IF HARNESS IS MODIFIED ☒

WIRE No.	HARNESS (J7) OPTIONAL FIELD OUTPUTS	CLR	AWG
	ADD WIRES		16
73	J7-1,TFR-9		
74	J7-2,TFR-6		
75	J7-3		
76	J7-4,DOC-P3-3		
77	J7-5,DOC-P3-1		
78	J7-6,DOC-P3-2		
79	J7-7,DOC-P3-4		
80	J7-8,DOC-P3-5		
81	J7-9,DOC-P3-6		
82	J7-10		
83	J7-11		
84	J7-12		
85	J7-13		
86	J7-14		
87	J7-15		
88	J7-16		
89	J7-17		
90	J7-18		
91	J7-19		
92	J7-20		
93	J7-21		
94	J7-22		
95	J7-23		
96	J7-24		

8 ◄— HARNESS LOCATOR — BOX CHECKED IF HARNESS IS MODIFIED ☐

WIRE No.	HARNESS 605454-005 (J8) OPTIONAL SERIAL I/O	CLR	AWG
98	J8-1,72A-5	SHLD	22 (4 COND)
99	J8-2,72A-1	WHT/ORG	
100	J8-3,72A-2	ORG/WHT	
101	J8-4,72A-3	WHT/BLU	
102	J8-5,72A-4	BLU/WHT	
	ADD WIRES		
103	J8-6		
104	J8-7		
105	J8-8		
106	J8-9		

9 ◄— HARNESS LOCATOR — BOX CHECKED IF HARNESS IS MODIFIED ☐

WIRE No.	HARNESS 605454-007 (P8,TB) OPTIONAL SERIAL I/O	CLR	AWG
98	P8-1,TB-37	SHLD	22 (4 COND)
99	P8-2,TB-38	WHT/ORG	
100	P8-3,TB-39	ORG/WHT	
101	P8-4,TB-40	WHT/BLU	
102	P8-5,TB-41	BLU/WHT	
	ADD WIRES		
103	P8-6		
104	P8-7		
105	P8-8		
106	P8-9		

10 ◄— HARNESS LOCATOR — BOX CHECKED IF HARNESS IS MODIFIED ☒

WIRE No.	SUB-ASSEMBLY 605659 (P3,P4,J6,P7,TB) STD. FIELD TB	CLR	AWG
8	TB-1,P3-1		16
9	TB-2,P3-2		
17	TB-3,P3-3		
25	TB-4,P4-1		
26	TB-5,P4-2		
27	TB-6,P4-3		
28	TB-7,P4-4		
29	TB-8,P4-5		
30	TB-9,P4-6		
31	TB-10,P4-7		
32	TB-11,P4-8		
33	TB-12,P4-9		
34	TB-13,P4-10		
36	TB-14,P4-12		
35	TB-15,P4-11		
37	TB-16,P4-13		
39	TB-17,P4-15		
38	TB-18,P4-14		
40	TB-19,P4-16		
42	TB-20,P4-18		
41	TB-21,P4-17		
43	TB-22,P4-19		
45	TB-23,P4-21		
44	TB-24,P4-20		
46	TB-25,P4-22		
48	TB-26,P4-24		
47	TB-27,P4-23		
49	TB-28,J6-1		
50	TB-29,J6-2		
51	TB-30,J6-3		
52	TB-31,J6-4		
53	TB-32,J6-5		
73	TB-34,P7-1		
74	TB-35,P7-2		
75	TB-36,P7-3		
	JUMPERS		
–	TB-28,TB-29		
–	TB-29,TB-30		
	ADD WIRES		
97	P3-4		
54	J6-6		
55	J6-7		
56	J6-8		
57	J6-9		
58	J6-10		
59	J6-11		
60	J6-12		
61	J6-13		
62	J6-14		
63	J6-15		
64	J6-16		
65	J6-17		
66	J6-18		
67	J6-19		
68	J6-20		
69	J6-21		
70	J6-22		
71	J6-23		
72	J6-24		
76	P7-4,TB-67		
77	P7-5,TB-68		
78	P7-6,TB-69		
79	P7-7,TB-70		
80	P7-8,TB-71		
81	P7-9,TB-72		
82	P7-10		
83	P7-11		
84	P7-12		
85	P7-13		
86	P7-14		
87	P7-15		
88	P7-16		
89	P7-17		
90	P7-18		
91	P7-19		
92	P7-20		
93	P7-21		
94	P7-22		
95	P7-23		
96	P7-24		

WIRE No.	ADDITIONAL WIRING	CLR	AWG
132	CP-P6-40,TFR-A	BLK	22 (2 COND)
133	CP-P6-41,TFR-B	RED	
134	CP-P6-42,DOC-P2-1	BLK	22 (4 COND)
135	CP-P6-43,DOC-P2-3	WHT	
136	CP-P6-44,DOC-P2-2	RED	
137	CP-P6-24,DOC-P2-6	GRN	
			16

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THIRD ANGLE PROJECTION

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