

THREE PHASE WIRING FOR ASCO® 7000 SERIES NON-AUTOMATIC TRANSFER SWITCHES TYPE J7NTS RATED 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 TRANSFER SWITCHES USER'S GUIDE (PART NO. 381333-126) PROVIDED WITH EVERY 7000 SERIES 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
-	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 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.

MOTOR LOAD TRANSFER FEATURE

FEAT. 27 - INPHASE TRANSFER CONTROL LOGIC TO INITIATE AN INPHASE TRANSFER OF LOADS BETWEEN LIVE SOURCES. USED TO PREVENT NOISANCE TRIPPING OF CIRCUIT BREAKERS AND POSSIBLE DAMAGE TO MECHANICAL LOADS CAUSED BY OUT OF PHASE TRANSFER.

ACTIVATED VIA THE GROUP 5 CONTROL PANEL USER INTERFACE (TRANSFER CONTROL CENTER) BY SELECTING "IN-PHASE MONITOR ENABLE" = YES. AN ADJUSTABLE DELAY (0.0-3.0 sec, FACTORY SET TO 1.5 sec, IN INCREMENTS OF 0.1 sec) DELAYS SENSING TO PERMIT STABILIZATION OF THE SOURCES PRIOR TO SENSING. FACTORY SETTING IS DISABLED UNLESS SPECIFIED TO BE FACTORY ACTIVATED AT THE TIME OF ORDER.

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

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 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). CONTACT RATED 5 AMPS AT 32 VDC/120VAC RESISTIVE.

B. FEATURES 14AG & 14BG - TRANSFER SWITCH AUXILIARY POSITION INDICATING CONTACTS. EIGHT (8) FORM C CONTACTS 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.

OPERATION

ALL TRANSFERS TO AND FROM EMERGENCY ARE PERFORMED MANUALLY WITH THE USE OF A MANUALLY OPERATED SELECTOR SWITCH.

TRANSFER TO EMERGENCY:
IF THE NORMAL SOURCE FAILS, THE TRANSFER SWITCH INITIATES STARTING OF THE ENGINE-GENERATOR SET. WHEN PROPER VOLTAGE AND FREQUENCY HAVE BEEN ATTAINED, AND AFTER THE MANUALLY OPERATED SELECTOR SWITCH HAS BEEN SET TO EMERGENCY, THE LOAD WILL BE TRANSFERRED TO THE EMERGENCY SOURCE.

RETRANSFER TO NORMAL:
1. IF THE MANUAL SELECTOR SWITCH IS SET TO NORMAL PRIOR TO THE NORMAL SOURCE BEING RESTORED, TRANSFER TO NORMAL WILL OCCUR ONLY AFTER THE NORMAL SOURCE IS RESTORED FOR THE DURATION OF THE FEATURE 3A (RETRANSFER TO NORMAL) TIME DELAY SETTING.
2. IF THE NORMAL SOURCE IS RESTORED AND THE MANUAL SELECTOR SWITCH IS THEN SET TO NORMAL, THE LOAD WILL BE TRANSFERRED TO THE NORMAL SOURCE IMMEDIATELY.

THE ENGINE WILL CONTINUE TO RUN FOR THE ENGINE COOLDOWN PERIOD, FEATURE 2E.

USER CONTROLS AND INDICATIONS

A. MANUALLY OPERATED SELECTOR SWITCH TO AFFECT TRANSFER TO THE NORMAL OR 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)

FACTORY CP SETTINGS

PARAMETER	SETTING	
	DEFAULT	FACTORY
<TEST OR MANUAL MODE INPUT>	"YES"	"NO"
TEST OPERATION	"NO"	"YES"
MANUAL OPERATION		
TD E>N (TEST MODE)	"30 sec"	"0 sec"

GENERAL NOTES

- SWITCH SHOWN DE-ENERGIZED AND CONNECTED TO THE NORMAL SOURCE.
- DEVICE SYMBOLS AND DESIGNATIONS ARE IN ACCORDANCE WITH NEMA PUBLICATION ICS 1-1983, PART 1-101A.
- ALL WIRING IS #16 AWG, TINNED, STRANDED COPPER UNLESS OTHERWISE INDICATED.
- ON TERMINAL BLOCKS INDICATES AVAILABLE FIELD CONNECTION POINT.
- ON TERMINAL BLOCKS INDICATES FACTORY CONNECTION POINT.
- CONTROL AND ACCESSORY WIRING IS ROUTED IN ACCORDANCE WITH ASCO ASSEMBLY PROCEDURE GS451261.
- AN OPERATOR'S MANUAL IS FURNISHED WITH EACH TRANSFER SWITCH. REFER TO THIS PUBLICATION PRIOR TO INSTALLATION AND OPERATION OF THE UNIT.

BASE CATALOG NUMBER				CATALOG NUMBER SUFFIXES				EXPLANATION OF CATALOG NUMBER CODES					
TS	CATALOG	NEUTRAL	PHASE	AMPS	VOLT	CONTROLLER	OPTIONAL	ENCLOSURE	NEUTRAL TYPE	VOLTAGE CODES	ENCLOSURE CODES		
FRAME	TYPE	TYPE	POLES		CODE		ACCESSORY	CODE	CODE	1 PHASE (2 OR 3 WIRE) 50 OR 60 HZ	CODE	TYPE	DESCRIPTION
J	7NTS	A B C	3	260 400 600	C D E F H J K L M N P Q R	5	X	C E F G H J K L M N P Q	BLANK A B C	208 220 230 240 380 400 415 440 460 480 550 575 600	BLANK C E F G H J K L	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 & DUSTTIGHT TYPE 4 PLUS CORROSION RESISTANCE (STAINLESS STEEL) TYPE 4 PLUS CORROSION RESISTANCE (FIBERGLASS) EXPLOSION PROOF INDOOR, INDUSTRIAL ENVIRONMENTS, OILTIGHT & DUSTTIGHT
		BLANK FOR NONE					BLANK FOR NONE	BLANK FOR OPEN TYPE			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

CATALOG NUMBER _____

ASCO® CERTIFIED TO S.O. _____

BY _____ DATE _____

FORM REV - _____

PROJECT NAME: _____

WIRING DIAGRAM
7000 SERIES (J7NTS)
GROUP 5 CONTROLS

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

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

ASCO®

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

CHANGE LETTER _____ ECN NO. 208564 SHEET 1 OF 6

208564 TR WK 05/04/06

ISSUE

CHANGE LETTER _____ ECN NO. _____ BY _____ APP. _____ DATE _____

PROJECT NAME: _____

WIRING DIAGRAM

7000 SERIES (J7NTS)

GROUP 5 CONTROLS

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

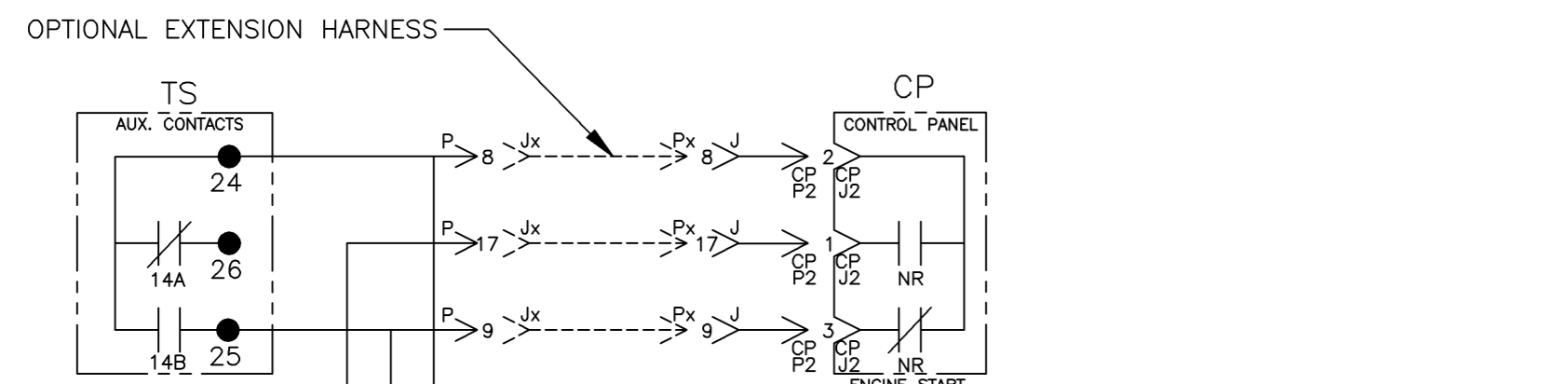
ASCO POWER TECHNOLOGIES, L.P.
FLORHAM PARK, NEW JERSEY 07932 U.S.A.

ASCO®

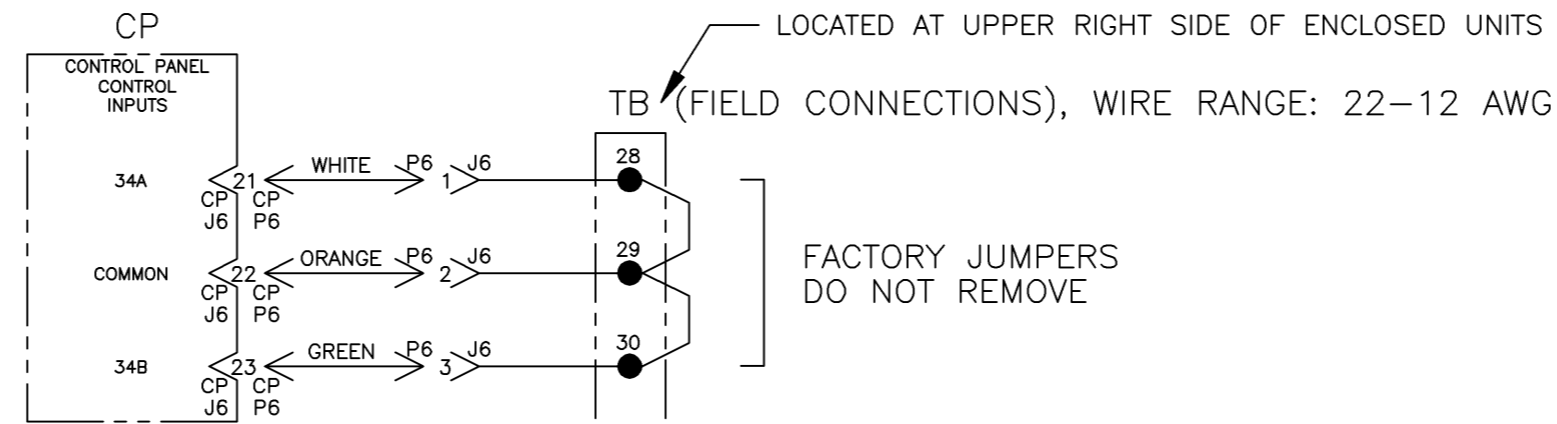
ASCO POWER TECHNOLOGIES, L.P.
FLORHAM PARK, NEW JERSEY 07932 U.S.A.

CHANGE LETTER _____ ECN NO. 208564 SHEET 1 OF 6

FIELD CONNECTIONS

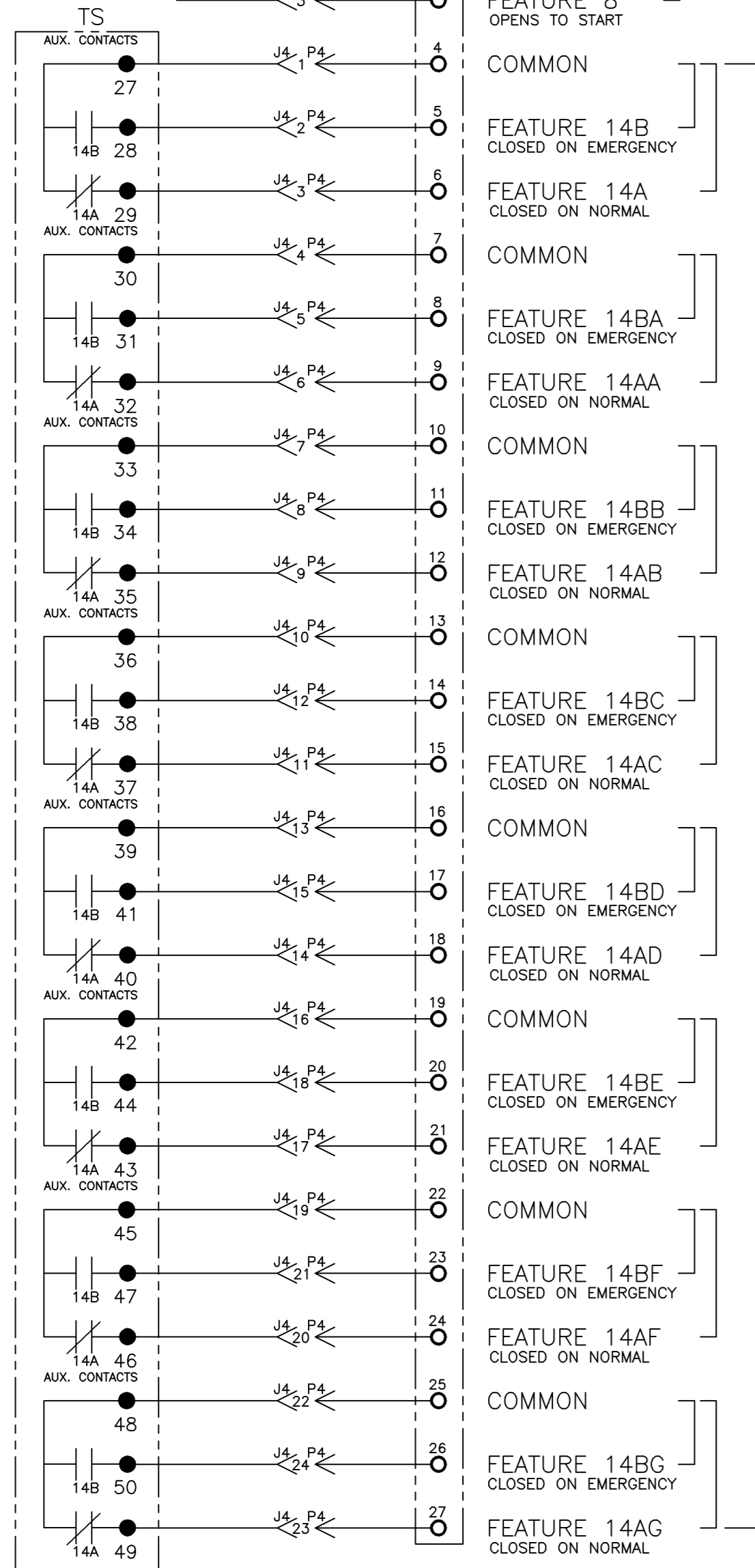


LOCATED AT UPPER RIGHT SIDE OF ENCLOSED UNITS
 TB (FIELD CONNECTIONS), WIRE RANGE: 22-12 AWG



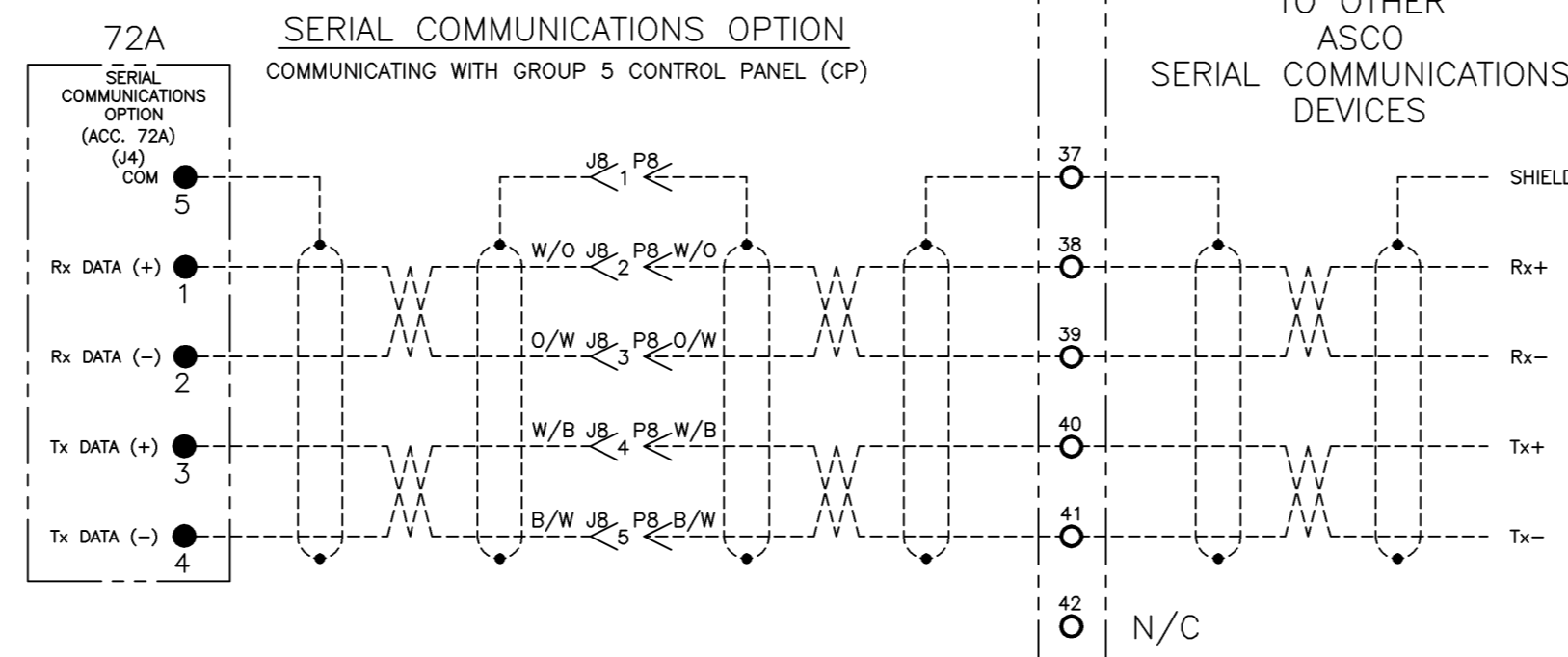
LOCATED AT UPPER RIGHT SIDE OF ENCLOSED UNITS
 TB (FIELD CONNECTIONS), WIRE RANGE: 22-12 AWG

FACTORY JUMPERS
 DO NOT REMOVE



ENGINE STARTING SIGNALS
 (5 AMPS, 32VDC)

TS AUXILIARY CONTACTS
 (10 AMPS, 32VDC)
 (10 AMPS, 250VAC)
 GENERAL PURPOSE



TO OTHER ASCO COMMUNICATIONS DEVICES

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

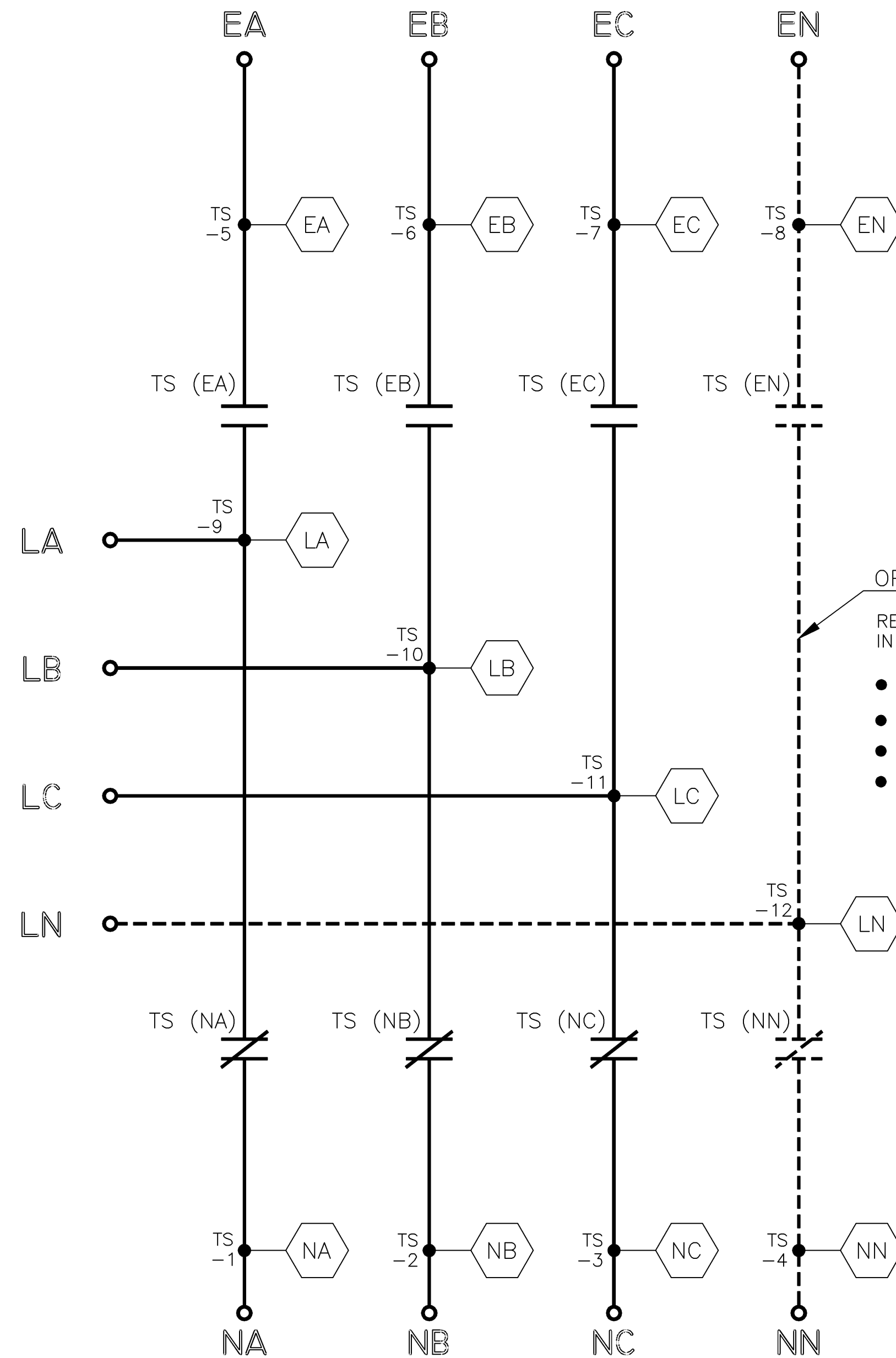
PROJECT NAME:		208564 TR WK 05/04/06	
ISSUE		CHANGE LETTER	
WIRING	DIAGRAM	ECN NO.	BY APP. DATE
7000 SERIES (J7NTS) GROUP 5 CONTROLS		SUBSIDIARY DISTRIBUTION	
AE	AN	AM	AJ
CH	AV	AA	PS
AG	AP	AC	AS
THIRD ANGLE PROJECTION		COMPUTER GENERATED DRAWING	
DRAWN BY	DATE	MANUFACTURING TOLERANCES TO BE IN ACCORDANCE WITH ASCO PROCEDURE MP-1-003. FOR PLASTIC PARTS SEE MP-1-005	ASSEM. REF. NO.
CHECKED	DATE	PROPERTY OF ASCO POWER TECHNOLOGIES. USE PERMITTED FOR OUR WORK ONLY. ALL RIGHTS OF DESIGN OR INVENTION ARE RESERVED.	SCALE 1:1 ACAD FILE
DRAFTING APPROVAL	DATE	ASCO	SIZE DWG. NO. DS796898
FINAL APPROVAL	DATE	ASCO POWER TECHNOLOGIES, L.P. FLOHAM PARK, NEW JERSEY 07932 U.S.A.	CHANGE LETTER ECN NO. 208564 SHEET 2 OF 6

MAIN POWER POLES

TS OPERATOR CIRCUIT

EMERGENCY

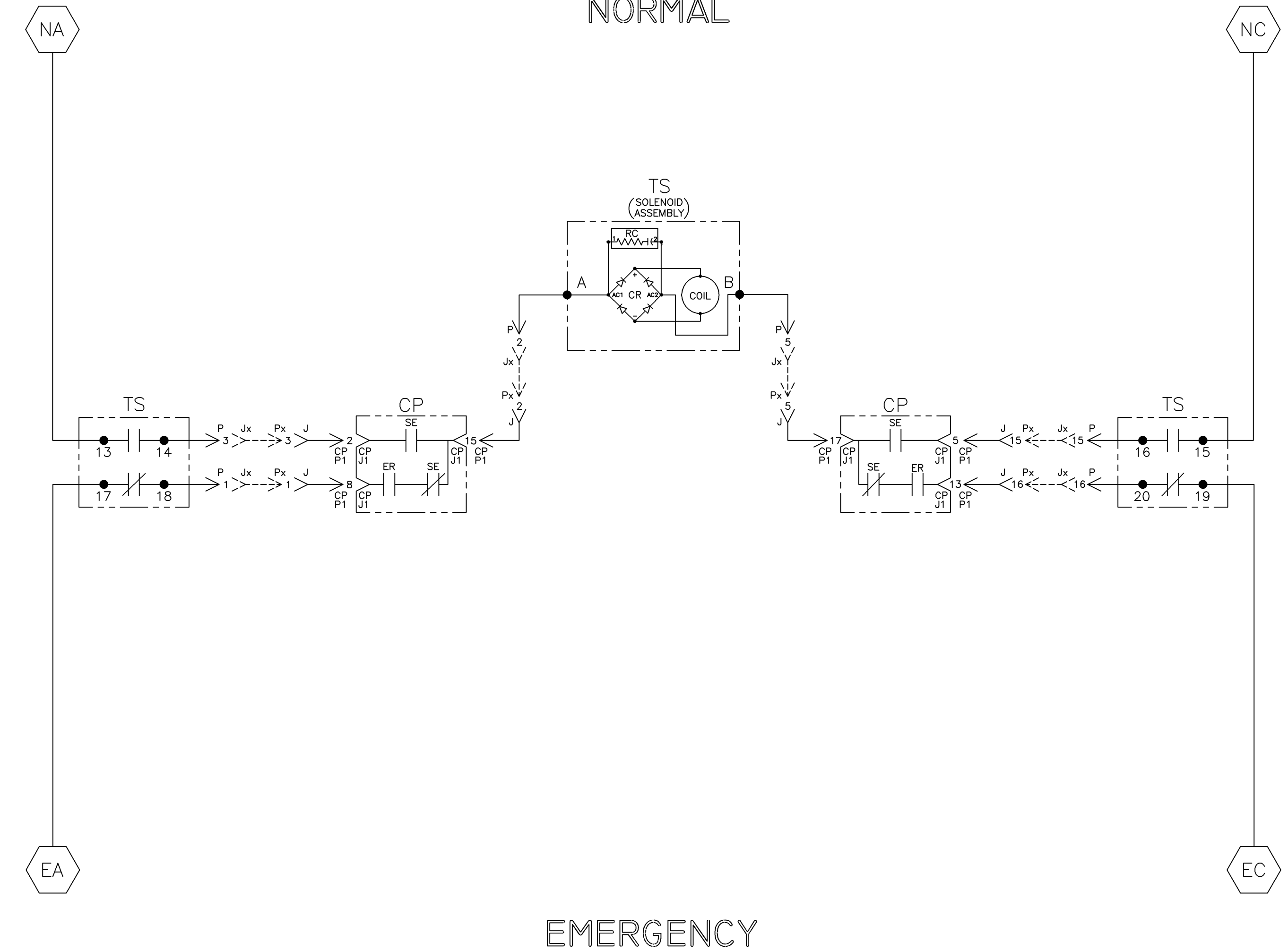
NORMAL



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

- NONE
- SWITCHING CONTACTS
- OVERLAPPING CONTACTS
- SOLID BUS PLATE

NOTE:
 TS SHOWN CLOSED ON NORMAL SOURCE.



TS	SOLENOID POSITION			
	CLOSED BEFORE NORMAL	BEFORE TDC	BEFORE CLOSED	EMERG
13-14				
15-16				
17-18				
19-20				

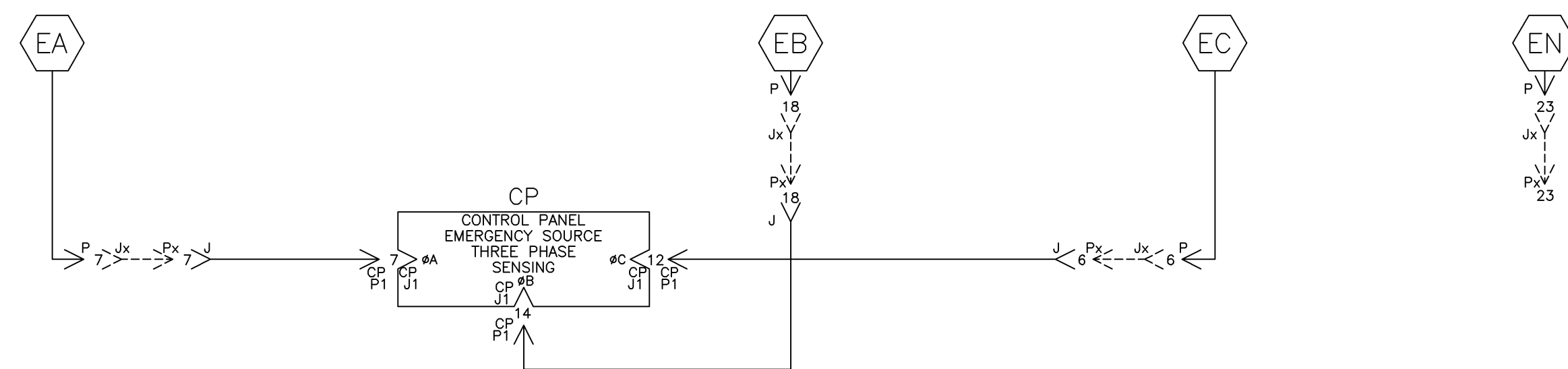
TDC (TOP DEAD CENTER)
 TRANSFER SWITCH TEST & ADJUSTMENT PROCEDURE
 SPECIFIES CONTROL CUT-OFF (CONTACT OPENING)
 SETTING.

PROJECT NAME:		208564 TR WK 05/04/06	
WIRING DIAGRAM		ISSUE	
7000 SERIES (J7NTS)		SUBSIDIARY DISTRIBUTION	
GROUP 5 CONTROLS		THIRD ANGLE PROJECTION	
BY: DJB	DATE: 05/04/06	MANUFACTURING TOLERANCES TO BE IN ACCORDANCE WITH ASCO PROCEDURE MP-1-003. FOR PLASTIC PARTS SEE MP-1-055	ASSEM. REF. NO.
CHECKED: BK	DATE: 05/04/06	PROPERTY OF ASCO POWER TECHNOLOGIES. USE PERMITTED FOR OUR WORK ONLY. ALL RIGHTS OF DESIGN OR INVENTION ARE RESERVED.	
DRAWING APPROVAL: WK	DATE: 05/04/06	SCALE: 1:1 ACAD FILE	
FINAL APPROVAL:		COMPUTER GENERATED DRAWING	
ASCO POWER TECHNOLOGIES, L.P.		SIZE: DWG. NO. DS796898	
FLORHAM PARK, NEW JERSEY 07932 U.S.A.		CHANGE LETTER: ECN NO. 208564 SHEET 3 OF 6	

EMERGENCY SOURCE CIRCUITS

ADDITIONAL CIRCUITS

EMERGENCY



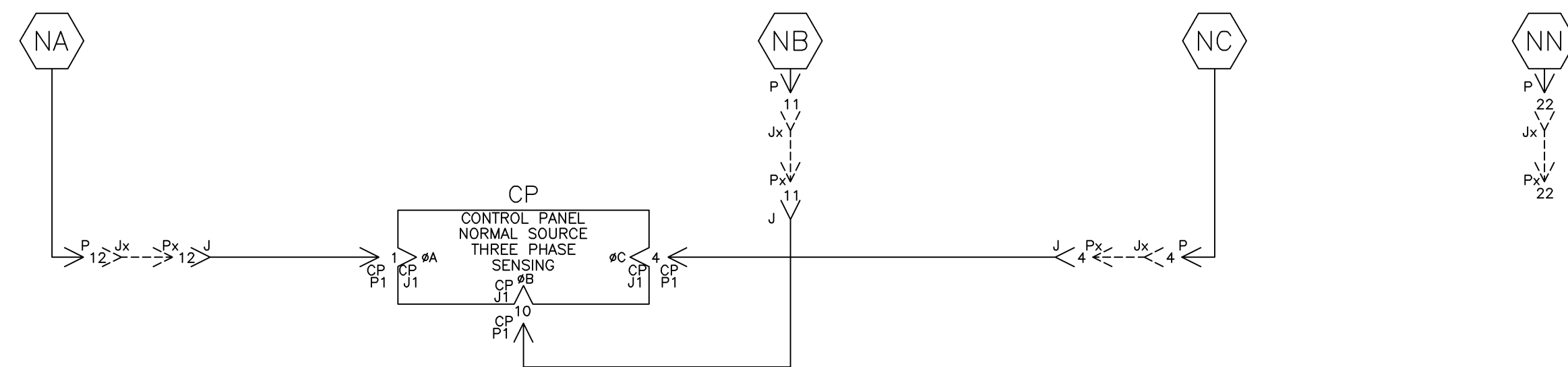
LOAD TERMINAL CIRCUITS

LOAD

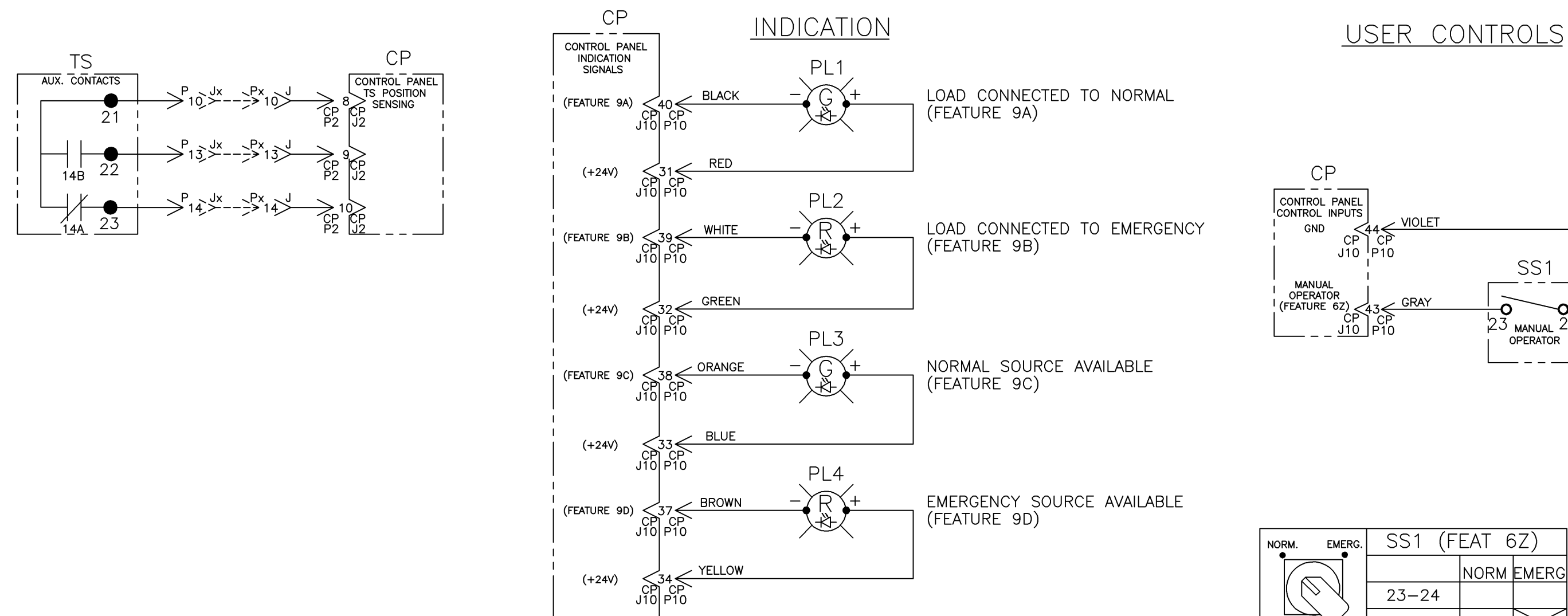


NORMAL SOURCE CIRCUITS

NORMAL



CONTROL CIRCUITS



PROJECT NAME:		208564 TR WK 05/04/06	
WIRING DIAGRAM		ISSUE	
7000 SERIES (J7NTS)		SUBSIDIARY DISTRIBUTION	
GROUP 5 CONTROLS		THIRD ANGLE PROJECTION	
BY	DATE	MANUFACTURING TOLERANCES TO BE IN ACCORDANCE WITH ASCO PROCEDURE MP-1-003. FOR PLASTIC PARTS SEE MP-1-005.	ASSEM. REF. NO.
DJB	05/04/06	PROPERTY OF ASCO POWER TECHNOLOGIES. USE PERMITTED FOR OUR WORK ONLY. ALL RIGHTS OF DESIGN OR INVENTION ARE RESERVED.	COMPUTER GENERATED DRAWING
CHECKED	BK	05/04/06	SCALE 1:1 ACAD FILE
DRAFTING APPROVAL	WK	05/04/06	SIZE DWG. NO. DS796898
FINAL APPROVAL			CHANGE LETTER ECN NO. 208564 SHEET NO. 4 OF 6

