

THREE PHASE WIRING FOR ASCO SERIES 300 AUTOMATIC TRANSFER SWITCHES RATED 30, 70, 104, 150, & 200 AMPERES WITH GROUP I CONTROLS

CONTROL FEATURES

VOLTAGE AND FREQUENCY SENSING

- A. DIFFERENTIAL TYPE VOLTAGE SENSING ON ALL PHASES OF NORMAL SOURCE. DROPOUT SETTING SELECTABLE AT 90, 85, 80 OR 70% OF NOMINAL. FACTORY SET AT 85% PICKUP VOLTAGE ADJUSTABLE AT 90 OR 95% OF NOMINAL. (DEFAULT IS 95% IF DROPOUT IS SET TO 90%). FACTORY SET AT 90% (REFER TO THE OPERATOR'S MANUAL FURNISHED WITH EACH TRANSFER SWITCH REGARDING CONTROL PANEL SETTINGS).
- B. SINGLE PHASE VOLTAGE SENSING OF EMERGENCY SOURCE. NON-ADJUSTABLE DROPOUT SETTING AT 75% OF NOMINAL. NON-ADJUSTABLE PICKUP SETTING AT 90% OF NOMINAL.
- C. FREQUENCY SENSING OF EMERGENCY SOURCE. NON-ADJUSTABLE SETTING AT 5% OF NOMINAL. NON-ADJUSTABLE PICKUP SETTING AT 95% OF NOMINAL.

TIME DELAYS

- A. MOMENTARY NORMAL SOURCE OUTAGE DELAY - ACTIVATED WHEN THE NORMAL SOURCE FAILS. DEACTIVATED WHEN THE NORMAL SOURCE IS ACCEPTABLE. PROVIDES A SELECTABLE (1 OR 3 SECONDS) DELAY ON TRANSFER AND ENGINE STARTING SIGNALS. FACTORY SET AT 3 SECONDS. (REFER TO THE OPERATOR'S MANUAL FURNISHED WITH EACH TRANSFER SWITCH REGARDING CONTROL PANEL SETTINGS).
- B. TRANSFER TO EMERGENCY DELAY - ACTIVATED AFTER THE MOMENTARY NORMAL SOURCE OUTAGE DELAY EXPIRES. AND THE EMERGENCY SOURCE IS SENSED TO BE ACCEPTABLE. TRANSFER TO EMERGENCY IS COMPLETED ON INITIATION OF DELAY. DEACTIVATED WHEN THE EMERGENCY SOURCE IS UNACCEPTABLE. PROVIDES AN ADJUSTABLE DELAY FROM 0 TO 5 MINUTES. FACTORY SET AT 0 MINUTES. (REFER TO OPERATOR'S MANUAL FURNISHED WITH EACH TRANSFER SWITCH REGARDING CONTROL PANEL SETTINGS).
- C. RETRANSFER TO NORMAL DELAY - ACTIVATED WHEN THE NORMAL SOURCE IS ACCEPTABLE. DEACTIVATED WHEN THE NORMAL SOURCE FAILS WITH NO TRANSFER TO NORMAL. ALSO DEACTIVATED WHEN THE EMERGENCY SOURCE FAILS WHILE THE NORMAL SOURCE IS ACCEPTABLE WITH TRANSFER TO NORMAL. ADJUSTABLE DELAY FROM 1 SECOND TO 30 MINUTES. FACTORY SET TO 30 MINUTES. (REFER TO THE OPERATOR'S MANUAL FURNISHED WITH EACH TRANSFER SWITCH REGARDING CONTROL PANEL SETTINGS).
- D. UNLOADED RUNNING (ENGINE COOL DOWN) DELAY - ACTIVATED ON EXPIRATION OF RETRANSFER TO NORMAL DELAY OR FOLLOWING EXPIRATION OF THE NORMAL SOURCE OUTAGE DELAY WITHOUT A COMMIT TO TRANSFER TO EMERGENCY. NON-ADJUSTABLE DELAY OF 5 MINUTES.
- E. MOMENTARY EMERGENCY SOURCE OUTAGE DELAY - ACTIVATED WHEN THE SWITCH IS IN THE EMERGENCY POSITION AND THE EMERGENCY SOURCE FAILS. FACTORY SET AT 4 SECONDS. RESET IF EMERGENCY RESTORES WITHIN 4 SECONDS.

ENGINE CONTROL CONTACTS

ONE SET OF FORM C CONTACTS (1 N/O & 1 N/C) THAT CHANGE POSITION ON EXPIRATION OF THE NORMAL SOURCE OUTAGE DELAY AND RESET ON EXPIRATION OF THE UNLOADED RUNNING (ENGINE COOL DOWN) DELAY. OUTPUT CONTACTS (NR) ARE RATED 5 AMPS RESISTIVE AT 28V DC OR 120V AC MAXIMUM.

OPERATOR INTERFACE INDICATORS & CONTROLS

- A. TRANSFER SWITCH TEST - MOMENTARY PUSH-BUTTON TO SIMULATE NORMAL SOURCE FAILURE SEQUENCE OF OPERATION. PRESS AND HOLD FOR AT LEAST 15 SECONDS TO ALLOW TIME FOR ENGINE-GENERATOR SET TO START.
- B. BYPASS TIME DELAY - MOMENTARY PUSH-BUTTON TO BYPASS EITHER THE TRANSFER TO EMERGENCY DELAY, ENGINE EXERCISER PERIOD OR THE RETRANSFER TO NORMAL DELAY DEPENDING ON WHICH DELAY IS ACTIVE AT THE TIME THE PUSH-BUTTON IS ACTIVATED.
- C. SET ENGINE EXERCISER - MOMENTARY PUSH-BUTTON TO ACTIVATE A SEVEN (7) DAY TIMER FOR AUTOMATIC WEEKLY TESTING OF THE ENGINE GENERATOR SET EITHER WITH OR WITHOUT LOAD TRANSFER. THE TIMER IS POWERED BY A NON-RECHARGEABLE 9V BATTERY WHEN NORMAL AND EMERGENCY SOURCES ARE UNAVAILABLE. DEPRESSING THE MOMENTARY PUSH-BUTTON FOR 5 SECONDS SETS THE TIME OF WEEK AT WHICH TESTING IS TO OCCUR. THE FEATURE IS ACTIVATED BY SETTING A DIP SELECTOR SWITCH ON THE CONTROL PANEL. ENGINE START WITH OR WITHOUT LOAD TRANSFER IS SELECTED WITH A SECOND DIP SELECTOR SWITCH ON THE CONTROL PANEL. FACTORY SET TO DISABLED, NO LOAD. (REFER TO THE OPERATOR'S MANUAL FURNISHED WITH EACH TRANSFER SWITCH REGARDING CONTROL PANEL SETTINGS).
- D. LOAD CONNECTED TO INDICATORS. GREEN LED INDICATOR TO INDICATE WHEN THE TRANSFER SWITCH LOAD IS CONNECTED TO THE NORMAL SOURCE. RED LED INDICATOR TO INDICATE WHEN THE TRANSFER SWITCH IS CONNECTED TO THE EMERGENCY SOURCE.
- E. SOURCE AVAILABLE INDICATORS. GREEN LED INDICATOR TO INDICATE WHEN THE NORMAL SOURCE IS AVAILABLE. RED LED INDICATOR TO INDICATE WHEN THE EMERGENCY SOURCE IS AVAILABLE.

LOAD DISCONNECT FEATURE

ONE SET OF FORM C CONTACTS (1 N/O & 1 N/C) THAT CHANGE POSITION ON ACTIVATION OF A SELECTABLE TIME DELAY BEFORE TRANSFER (LD TDBT) AND RESET EITHER IMMEDIATELY FOLLOWING TRANSFER OR FOR THE GAME DELAY AS SET FOR PRE-SIGNAL BEFORE TRANSFER. SELECTABLE AS 0, 3, 10 OR 20 SECONDS. FACTORY SET AT 0. (REFER TO THE OPERATOR'S MANUAL FURNISHED WITH EACH TRANSFER SWITCH REGARDING CONTROL PANEL SETTINGS). OUTPUT CONTACTS (OP) ARE RATED 5 AMPS RESISTIVE AT 28 VDC OR 120 VAC MAXIMUM.

MOTOR LOAD TRANSFER FEATURE

INPHASE TRANSFER CONTROL LOGIC TO INITIATE AN INPHASE TRANSFER OF MOTOR LOADS BETWEEN LIVE SOURCES. USED TO HELP PREVENT NOISE/NUISANCE TRIPPING OF DISTRIBUTION CIRCUIT BREAKERS AND POSSIBLE DAMAGE TO MECHANICAL LOADS ASSOCIATED WITH OUT OF PHASE TRANSFER. ACTIVATED BY SETTING A DIP SWITCH ON THE CONTROL PANEL. FACTORY SET AS DISABLED. (REFER TO OPERATOR'S MANUAL FURNISHED WITH EACH TRANSFER SWITCH REGARDING CONTROL PANEL SETTINGS).

REMOTE CONTROL FEATURES

THE FOLLOWING CONTROL PANEL INPUTS PROVIDE REMOTE CONTROL FUNCTIONS FOR THE AUTOMATIC TRANSFER SWITCH. EACH CONTROL FUNCTION CAN BE IMPLEMENTED BY THE CUSTOMER PROVIDING THE FORM OF CONTROL CONTACT DESCRIBED. EACH CONTROL CONTACT MUST BE SUITABLE FOR A 5 VDC LOW ENERGY CIRCUIT. EACH CONTROL FEATURE IS ACTIVATED BY SETTING A DIP TYPE SELECTOR SWITCH ON THE CONTROL PANEL. (REFER TO THE OPERATOR'S MANUAL FURNISHED WITH EACH TRANSFER SWITCH REGARDING CONTROL PANEL SETTINGS).

- A. REMOTE TEST FEATURE - REQUIRES A CUSTOMER SUPPLIED, REMOTE, NORMALLY CLOSED CONTACT. OPENING OF THE CONTACT SIMULATES A FAILURE OF THE NORMAL SOURCE. IN THE EVENT THAT THE EMERGENCY SOURCE FAILS WHILE THE TRANSFER SWITCH IS CONNECTED TO EMERGENCY AND THE REMOTE CONTACT IS OPEN, THE TRANSFER SWITCH WILL AUTOMATICALLY RETRANSFER TO THE NORMAL SOURCE.
- B. REMOTE TRANSFER TO EMERGENCY FEATURE - REQUIRES A CUSTOMER SUPPLIED, REMOTE, NORMALLY CLOSED CONTACT. OPENING OF THE CONTACT CAUSES ENGINE START AND TRANSFER TO THE EMERGENCY SOURCE. RECLOSURE OF THE CONTACT ACTIVATES THE RETRANSFER TO NORMAL DELAY PRIOR TO RETRANSFER. IN THE EVENT THAT THE EMERGENCY SOURCE FAILS WHILE THE TRANSFER SWITCH IS CONNECTED TO EMERGENCY AND THE REMOTE CONTACT IS OPEN, THE TRANSFER SWITCH WILL AUTOMATICALLY RETRANSFER TO THE NORMAL SOURCE.
- C. INHIBIT TRANSFER TO EMERGENCY FEATURE - REQUIRES A CUSTOMER SUPPLIED, REMOTE, NORMALLY CLOSED CONTACT. OPENING OF THE CONTACT WILL PROHIBIT THE TRANSFER SWITCH FROM TRANSFERRING TO THE EMERGENCY SOURCE WHILE CONNECTED TO THE NORMAL SOURCE.
- D. BYPASS TRANSFER TIME DELAY FEATURE - REQUIRES A CUSTOMER SUPPLIED, REMOTE, NORMALLY CLOSED CONTACT. OPENING OF THE CONTACT BYPASSES THE RETRANSFER TO NORMAL DELAY IF ACTIVE.

GENERAL NOTES

1. SWITCH SHOWN DE-ENERGIZED CONNECTED TO NORMAL SOURCE. DEVICE SYMBOLS AND DESIGNATIONS ARE IN ACCORDANCE WITH NEMA PUB. ICS 1-1983, PART 1-101A.
2. ALL WIRING IS #16 AWG, TINNED, STRANDED COPPER UNLESS OTHERWISE INDICATED.
3. INDICATES CUSTOMER CONNECTION POINTS.
4. INDICATES FACTORY CONNECTION POINTS.
5. CONNECTION POINTS THAT HAVE BOTH CUSTOMER CONNECTIONS AND FACTORY CONNECTIONS ARE SHOWN OPEN AS CUSTOMER CONNECTION POINTS.
6. THE TRANSFER UNIT IS MOUNTED ON THE BACK INSIDE SURFACE OF THE ENCLOSURE. THE CONTROL PANEL AND ANY OPTIONAL ACCESSORIES ARE MOUNTED ON THE INSIDE SURFACE OF THE DOOR.
7. AN OPERATOR'S MANUAL IS FURNISHED WITH EACH AUTOMATIC TRANSFER SWITCH. REFER TO THIS PUBLICATION PRIOR TO INSTALLATION AND OPERATION OF THE SWITCH.
8. GROUND STRAP ON CONTROL PANEL IS AFFIXED TO CHASSIS (ENCLOSURE) AT LOWER LEFT CONTROL PANEL MOUNTING SITE.

OPTIONAL ACCESSORIES

PROGRAMMABLE ENGINE EXERCISER (ACCESSORY 11CD)

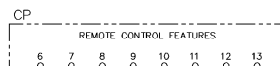
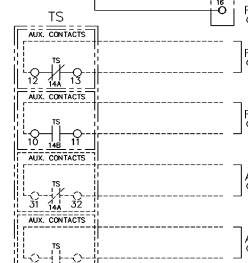
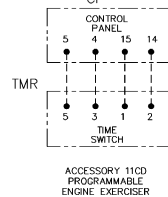
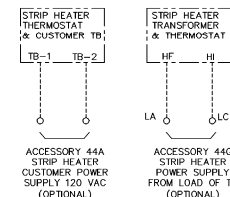
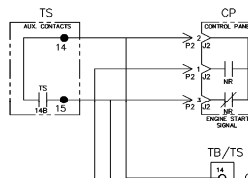
A PROGRAMMABLE SEVEN (7) DAY ELECTRONIC TIME SWITCH FOR AUTOMATIC WEEKLY TESTING OF THE ENGINE GENERATOR SET EITHER WITH OR WITHOUT LOAD. EACH DAY OF THE WEEK IS INDIVIDUALLY PROGRAMMABLE. THE TIME OF DAY IS PRESERVED FOR UP TO 150 HOURS BY A BATTERY BUILT INTO THE ELECTRONIC TIME SWITCH. THE FEATURE IS ACTIVATED BY SETTING A DIP SELECTOR SWITCH ON THE CONTROL PANEL. ENGINE START WITH OR WITHOUT LOAD TRANSFER IS SELECTED WITH A SECOND DIP SELECTOR SWITCH ON THE CONTROL PANEL. (REFER TO THE OPERATOR'S MANUAL FURNISHED WITH EACH TRANSFER SWITCH REGARDING CONTROL PANEL AND TIME SETTINGS).

SERIAL COMMUNICATIONS INTERFACE (ACCESSORY 72A)

RS-485 SERIAL INTERFACE TO CONTROL PANEL FOR REMOTE MONITORING AND CONTROL FROM ASCO COMMUNICATIONS BASED PRODUCTS.

- ACC. 14AA (2) AUXILIARY CONTACT CLOSED ON NORMAL.
- ACC. 14BA (2) AUXILIARY CONTACT CLOSED ON EMERGENCY.
- ACC. 44A STRIP HEATER, THERMOSTAT & TB. CUSTOMER POWER SUPPLY 120VAC.
- ACC. 44G STRIP HEATER, THERMOSTAT & TRANSFORMER. POWER SUPPLY FROM LOAD TERMINALS OF TRANSFER SWITCH.

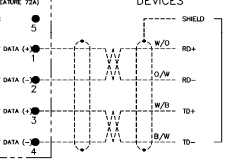
FIELD CONNECTIONS



ACC. 72A SERIAL COMMUNICATIONS OPTION

COMMUNICATING WITH GROUP 1 CONTROL PANEL (CP)

TO OTHER ASCO SERIAL COMMUNICATIONS DEVICES



BASE CATALOG NUMBER				CATALOG NUMBER SUFFIXES				EXPLANATION OF CATALOG NUMBER CODES				CATALOG NUMBER	
TS FRAME	CATALOG TYPE	NEUTRAL TYPE	PHASE TYPE	POLES	AMPS	VOLT CODE	CONTROLLER	OPTIONAL ENCLOSURE ACCESSORY CODE	NEUTRAL TYPE	VOLTAGE CODES 50 OR 60 HZ	ENCLOSURE CODES	DESCRIPTION	CERTIFIED TO
													ASCO® S.O.
D	300	B	C	3	30	H	J	1	X			OPEN TYPE (NO ENCLOSURE) GENERAL PURPOSE, INDOOR	DATE
					70	K						OUTDOOR, RAINPROOF, SLEET & ICE RESISTANT INDOOR/OUTDOOR, WATERIGHT & DUSTIGHT	FORM REV -
					104	L						INDOOR, INDUSTRIAL ENVIRONMENTS, OLIGHT & DUSTIGHT	PROJECT NAME: _____
					150	M							ISSUE
					200	N							EDN NO. BY APP. DATE
						P							CHANGED BY
						Q							DATE
						R							ISSUE
													DATE

ASCO® S.O. CERTIFIED TO

DATE

FORM REV -

PROJECT NAME: _____

ISSUE

EDN NO. BY APP. DATE

CHANGED BY

DATE

WIRING DIAGRAM

ASCO SERIES 300 ATS GROUP 1 CONTROLS

THIRD ANGLE PROJECTION

COMPUTER GENERATED DRAWING

SCALE 1:1 ACAD FILE

SIZE 11x17

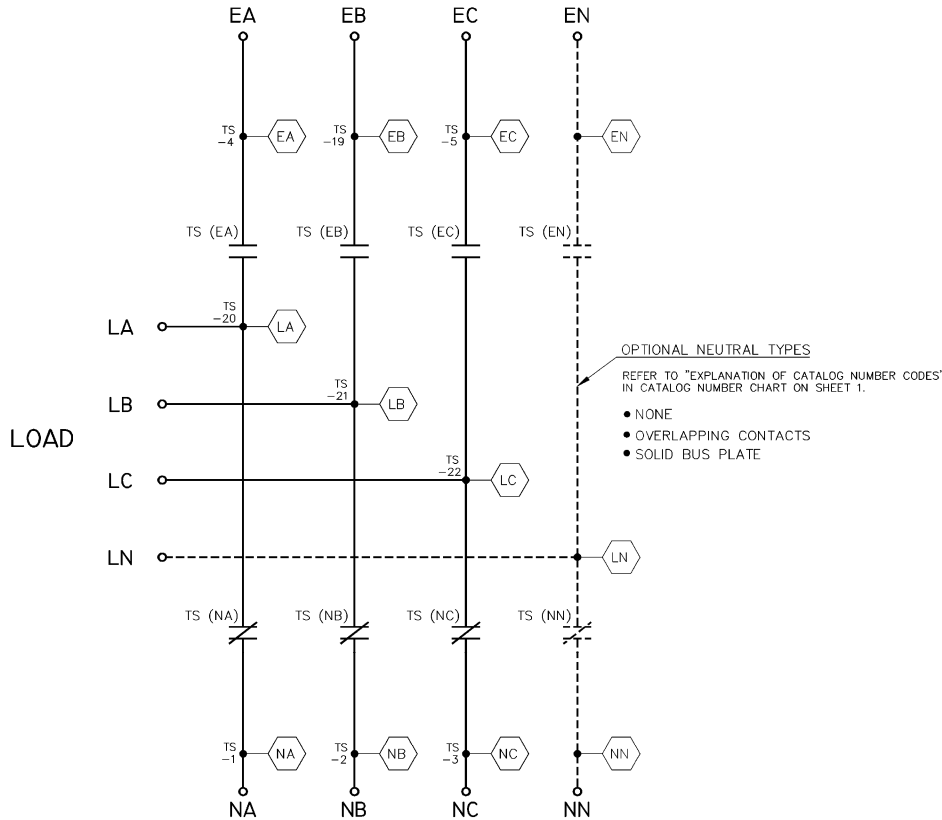
DATE 11/18/17

ASCO® ASCO Power Technologies, L.P. FLOUHAM PARK, NEW BRUNSWICK, U.S.A.

FORM 160946 1 OF 4

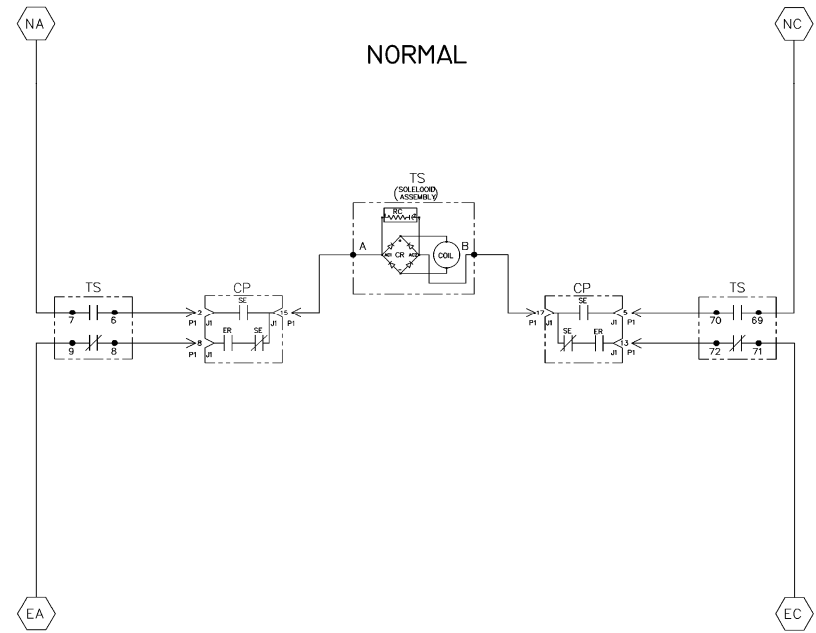
EMERGENCY

NORMAL



NORMAL

EMERGENCY



NOTE:
ATS SHOWN CLOSED ON NORMAL SOURCE.

TS CONTROL CONTACTS			
TS	SOLENOID POSITION		
	CLOSED BEFORE NORMAL	BEFORE CLOSED (TDC)	BEFORE CLOSED (EMERG)
6-7			
69-70			
8-9			
71-72			

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

PROJECT NAME:		160946		BWM	SDH	6/02
WIRING DIAGRAM		CHANGE		ISSUE	BY	DATE
SERIES 300 ATS		GROUP 1 CONTROLS		THIRD ANGLE PROJECTION		
DRAWN BY: BWM		DATE: 6/02		ASSEMBLY IDENTIFICATION		
CHECKED BY: SDH		DATE: 6/02		COMPUTER GENERATED DRAWING		
DATE: 6/02		DATE: 6/02		SCALE: 1:1		
DATE: 6/02		DATE: 6/02		ACAD FILE		
DATE: 6/02		DATE: 6/02		SIZE: 11x17		
DATE: 6/02		DATE: 6/02		DS: 718517		
DATE: 6/02		DATE: 6/02		CHANGE CENTER: 160946		
DATE: 6/02		DATE: 6/02		SHEET: 2 OF 4		



WIRE RUN LISTING

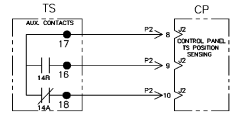
FOR 225-400 AMPS

WIRE No.	337012-003 (P1,P2) MAIN TS FOR 225-400 AMPS	CLR	AWG
1	TS-9,P1-8		16
2	TS-9,P1-15		
3	TS-6,P1-2		
4	TS-3,P1-4		
5	TS-8,P1-17		
6	TS-5,P1-12		
7	TS-4,P1-7		
8	TS-14,P2-2		
9	TS-15,P2-3		
10	TS-17,P2-18		
11	TS-2,P1-10		
12	TS-1,P1-1		
13	TS-16,P2-9		
14	TS-18,P2-10		
15	TS-10,P1-5		
16	TS-7,P1-13		
17	TS-4,TS-9		
18	TS-7,TS-1		
19	TS-3,TS-69		
20	TS-5,TS-71		
21	TS-14,TS-14		
22	TS-15,TS-15		
23	TS-16,P2-1		

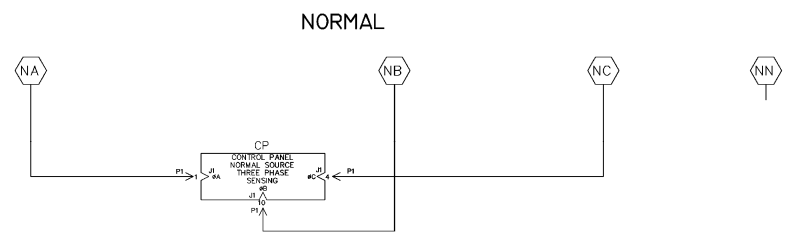
OPTIONAL ACC. 11CD

WIRE No.	OPTIONAL ACC. 11CD CKTS.	CLR	AWG
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29	CP-5,IMR-5		
30	CP-14,IMR-2		
31	CP-15,IMR-1		

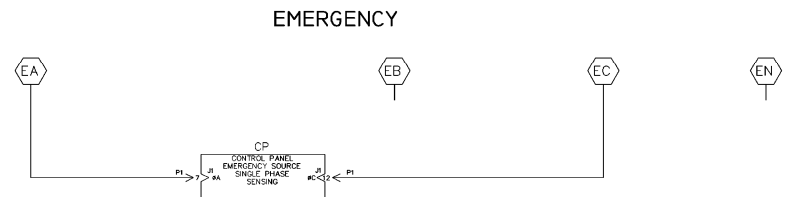
CONTROL SIGNALS & INDICATION



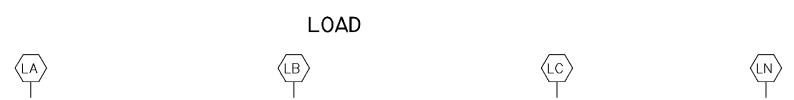
NORMAL SOURCE CIRCUITS



EMERGENCY SOURCE CIRCUITS



LOAD TERMINAL CIRCUITS



PROJECT NAME:		160946		BWM SDH		6/02	
CHANGE LETTER:		ISSUE		BY:		DATE:	
WIRING DIAGRAM		SERIES 300 ATS		GROUP 1 CONTROLS		THIRD ANGLE PROJECTION	
DRAWN BY: BWM		6/02		ASSEMBLER:		DATE:	
CHECKED: SDH		6/02		SCALE: 1:1		ACAD FILE	
DATE: 6/02		DATE: 6/02		SIZE: 11x17		DRAWING NO: DS718517	
DATE: 6/02		DATE: 6/02		DATE: 6/02		DATE: 6/02	
DATE: 6/02		DATE: 6/02		DATE: 6/02		DATE: 6/02	



ASCO POWER TECHNOLOGIES, L.P.
FLORHAM PARK, NEW JERSEY 07033 U.S.A.

