

SINGLE 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

- 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).
- SINGLE PHASE VOLTAGE SENSING OF EMERGENCY SOURCE. NON-ADJUSTABLE DROPOUT SETTING AT 75% OF NOMINAL. NON-ADJUSTABLE PICKUP SETTING AT 90% OF NOMINAL.
- FREQUENCY SENSING OF EMERGENCY SOURCE. NON-ADJUSTABLE SETTING AT 5% OF NOMINAL. NON-ADJUSTABLE PICKUP SETTING AT 95% OF NOMINAL.

TIME DELAYS

- MOMENTARY NORMAL SOURCE OUTAGE DELAY - ACTIVATED WHEN THE NORMAL SOURCE FAILS. DEACTIVATED WHEN THE NORMAL SOURCE IS ACCEPTABLE. PROVIDES A DELAY OF 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).
- 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 COMMITTED TO 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).
- 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).
- 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.
- 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 MEMBRANE TYPE

- 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.
- 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.
- 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 3 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).
- 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.
- 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 SAME DELAY AS SET FOR PRE-SIGNAL BEFORE. 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

INHASE 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).

- REMOTE TEST FEATURE - REQUIRES A CUSTOMER SUPPLIED, REMOTE, NORMALLY CLOSED CONTACT. OPENING OF THE CONTACT SIMULATES A FAILURE OF THE NORMAL SOURCE SIMILAR TO THE SEQUENCE OUTLINED FOR THE TRANSFER SWITCH TEST PUSH-BUTTON. THE TRANSFER SWITCH WILL REMAIN CONNECTED TO THE EMERGENCY SOURCE UNDER ALL CONDITIONS WHILE THE CONTACT IS OPEN.
- 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.
- 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.
- 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

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

OPTIONAL ACCESSORIES

PROGRAMMABLE ENGINE EXERCISER (ACCESSORY 11CD)

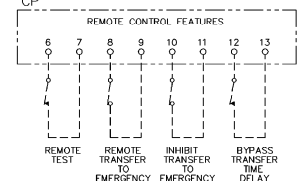
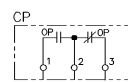
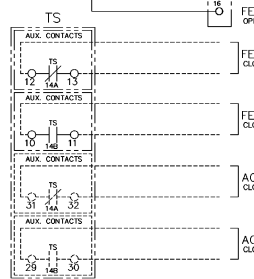
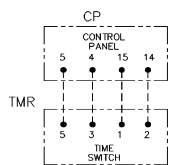
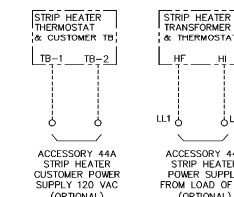
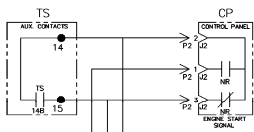
A PROGRAMMABLE SEVEN (7) DAY ELECTRONIC TIME SWITCH FOR AUTOMATIC WEEKLY TESTING OF THE ENGINE GENERATOR SET EITHER WITH OR WITHOUT LOAD. EACH DAY OF THE WEEK IS INDIVIDUALLY PROGRAMMABLE. THE TIME OF DAY IS PRESERVED FOR UP TO 150 HOURS BY A BATTERY BUILT INTO THE ELECTRONIC TIME SWITCH. THE FEATURE 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

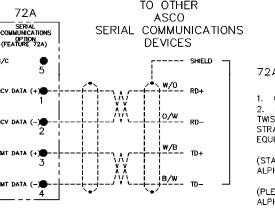


LOAD DISCONNECT CONTACTS
5 AMPS RESISTIVE
28 VDC OR 120 VAC MAX.
(LOCATED ON CONTROL PANEL)

CUSTOMER SUPPLIED CONTACTS FOR FEATURES AS DESCRIBED IN STANDARD CONTROL FEATURES NOTES. CONTACT MUST BE SUITABLE FOR 5V DC LOW ENERGY CIRCUIT. ACTIVATED BY SETTING OF DIP SELECTOR SWITCHES ON CONTROL PANEL. (REFER TO OPERATOR'S MANUAL FOR REQUIRED SETTINGS.)

ACC. 72A SERIAL COMMUNICATIONS OPTION

COMMUNICATING WITH GROUP 1 CONTROL PANEL (CP)



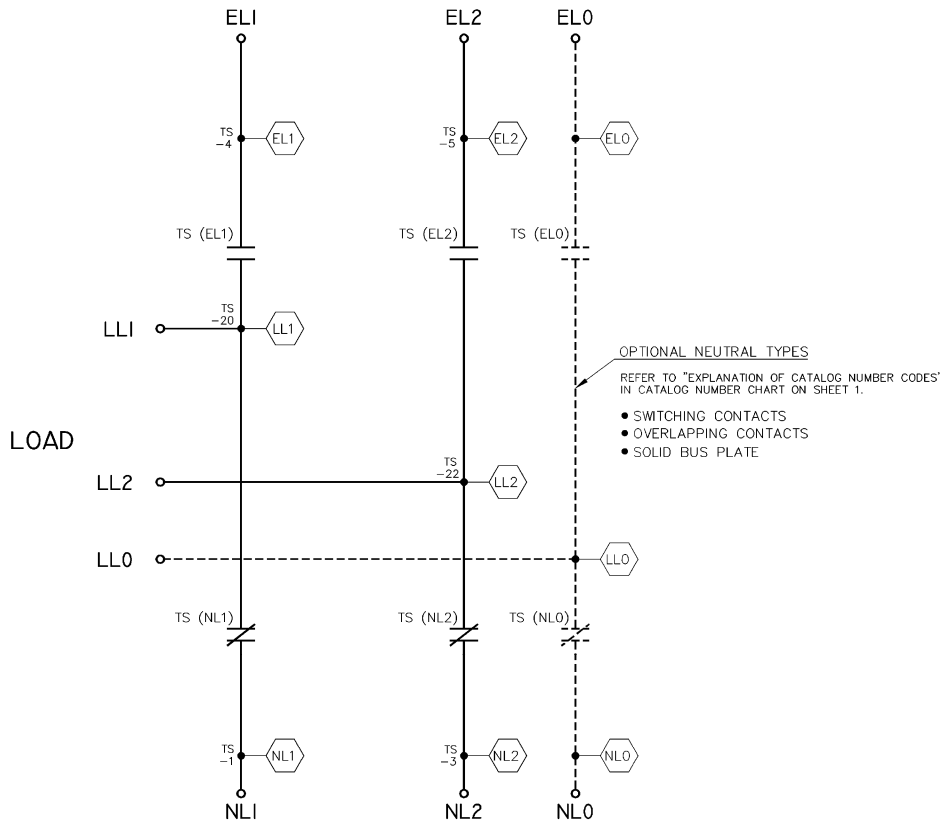
72A NOTES:
1. GROUND SHIELD AT HOST DEVICE ONLY.
2. FIELD WIRING: USE UL LISTED, STRANDED, TWISTED PAIRS, OVERALL FOIL SHIELD WITH STRANDED DRAIN WIRE. SUITABLE FOR RS-422 EQUIVALENT.
(STANDARD 80°C) BELDEN 9842 OR 9829 OR ALPHA 6220C OR 6222C
(PLENUM RATED) BELDEN 89729 OR 82729 OR ALPHA 5802

BASE CATALOG NUMBER		CATALOG NUMBER SUFFIXES		EXPLANATION OF CATALOG NUMBER CODES															
TS	FRAME	CATALOG	NEUTRAL	PHASE	NEUTRAL	ENCLOSURE	NEUTRAL TYPE		VOLTAGE CODES		ENCLOSURE CODES								
TYPE	TYPE	NO.	TYPE	POLES	TYPE	ACCESSORY	CODE	DESCRIPTION	CODE	TYPE	CODE	TYPE	DESCRIPTION						
D	300	B	2	104	H	J	1	X	C	208	F	3R	4	OUTDOOR, RAINPROOF, SLEET & ICE RESISTANT INDOOR/OUTDOOR, WATER TIGHT & DUST TIGHT					
				150	H	J			H	380	L	12	INDOOR, INDUSTRIAL ENVIRONMENTS, OIL TIGHT & DUST TIGHT						
				200	K	L			K	415									
					M	L			L	440									
					N	M			M	460									
					P	N			N	480									
					Q	O			O	550									
					R	P			P	575									
						Q			Q	600									

CATALOG NUMBER _____
CERTIFIED TO _____
BY **ASCO** S.O. _____
DATE _____
FORM REV - _____
PROJECT NAME: _____
WIRING DIAGRAM _____
SERIES 300 ATS GROUP 1 CONTROLS
DRAWN BY: BWM 6/02
CHECKED BY: SDH 6/02
DATE: 6/02
SCALE: 1:1
ACAD FILE
SIZE: 11x17
DATE: 05/18/16
DWG NO: 10160946
SHEET 1 OF 4

EMERGENCY

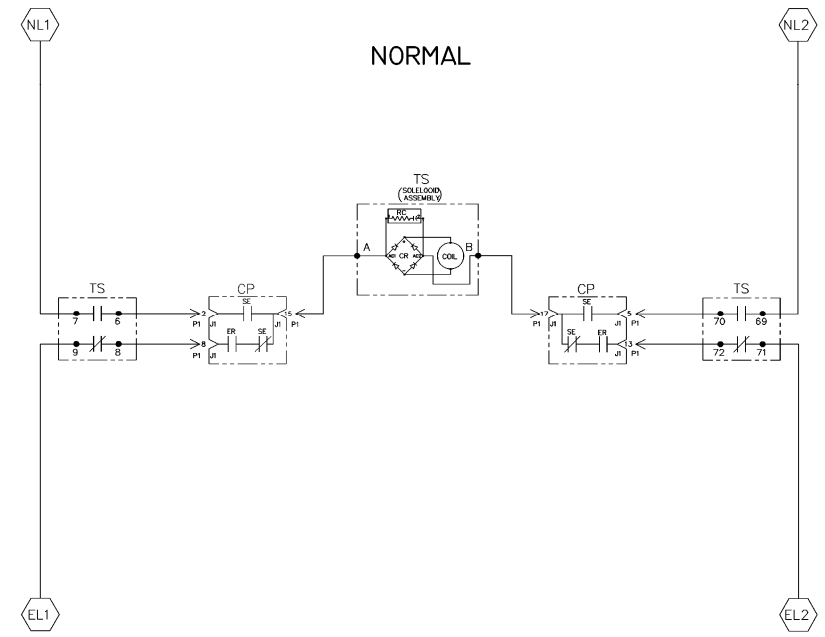
NORMAL



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

- SWITCHING CONTACTS
- OVERLAPPING CONTACTS
- SOLID BUS PLATE

NOTE:
 ATS SHOWN CLOSED ON NORMAL SOURCE.



EMERGENCY

TS CONTROL CONTACTS		SOLENOID POSITION	
TS	CLOSED BEFORE NORMAL	BEFORE CLOSED (TRIP, EMERG)	BEFORE CLOSED (TRIP, 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:		ISSUE	
WIRING DIAGRAM		EOR NO. BY APP. DATE	
SERIES 300 ATS		GROUP 1 CONTROLS	
DRAWN BY: BWM 6/02		ASSEMBLY	
CHECKED: SDH 6/02		THIRD ANGLE PROJECTION	
FINAL APPROVAL: SDH 6/02		COMPUTER GENERATED DRAWING	
SCALE: 1:1		ACAD FILE	
SIZE: 11x17		DATE: 6/02	
DRAWING NO.: DS718516		SHEET: 2 OF 4	
ASCO POWER TECHNOLOGIES, L.P.		160946	

WIRE RUN LISTING

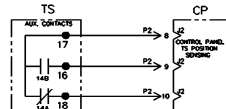
FOR 30-200 AMPS

WIRE No.	DESCRIPTION	CLR	AWG
1	IS-8,P1-8		16
2	IS-A,P1-15		
3	IS-8,P1-2		
4	IS-8,P1-4		
5	IS-8,P1-17		
6	IS-5,P1-12		
7	IS-8,P1-12		
8	IB-14,P2-2		
9	IB-15,P2-3		
10	IS-17,P2-8		
11	IS-2,P1-10		
12	IS-1,P1-1		
13	IS-16,P2-9		
14	IS-18,P2-10		
15	IS-20,P1-5		
16	IS-22,P1-13		
17	IS-4,IS-1		
18	IS-7,IS-1		
19	IS-3,IS-9		
20	IS-5,IS-9		
23	IB-16,P2-1		
DEAD END WIRES			
11	IS-2,P1-10		
ADD WIRES			
21	IS-14,IB-14		
22	IS-15,IB-15		

OPTIONAL ACC. 11CD

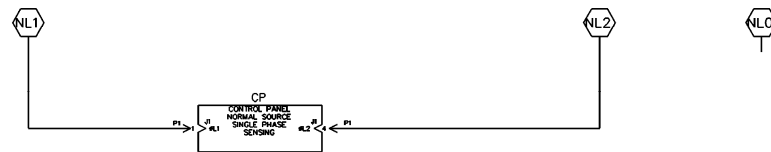
WIRE No.	DESCRIPTION	CLR	AWG
28	SP-4,TMR-3		
29	SP-5,TMR-5		
30	SP-14,TMR-2		
31	SP-15,TMR-1		

CONTROL SIGNALS & INDICATION



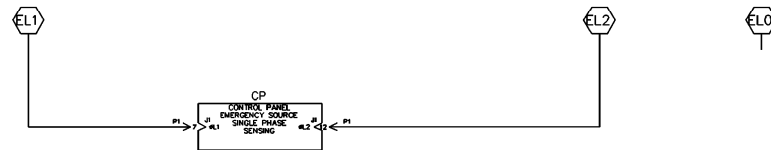
NORMAL SOURCE CIRCUITS

NORMAL



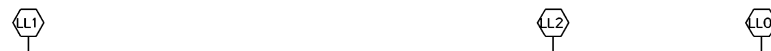
EMERGENCY SOURCE CIRCUITS

EMERGENCY



LOAD TERMINAL CIRCUITS

LOAD

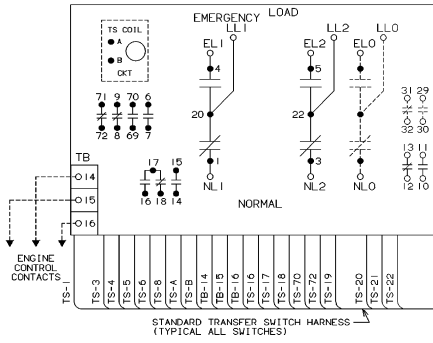


PROJECT NAME:		166946	EVN	SDH	6/92
ISSUE					
CHANGE ORDER	ISSUE NO.	BY	APP.	DATE	
WIRING DIAGRAM		SUPERSEDES			
SERIES 300 ATS		THIRD ANGLE PROJECTION			
GROUP 1 CONTROLS		COMPUTER GENERATED DRAWING			
DRAWN BY	DATE	MANUFACTURING TOLERANCES TO BE IN ACCORDANCE WITH ASQC PROCEDURE SP-11-003. FOR FRACTION PARTS USE SP-11-002.		ASQC REF. NO.	
SDH	6/92	PROPERTY OF ASCO POWER TECHNOLOGIES, INC. WORK ONLY. ALL RIGHTS OF DESIGN OR INVENTION ARE RESERVED.		SCALE 1:1 ACAD FILE	
CHECKED BY	DATE	ASCO		PART NO. DS718516	
SDH	6/92	ASCO POWER TECHNOLOGIES, L.P. FLORHAM PARK, NEW JERSEY STREET U.S.A.		DRAWN BY EVN DATE 160946 3 OF 4	

PHYSICAL DIAGRAM

ENCLOSURE

TS (TRANSFER SWITCH)
VIEW FROM INSIDE FRONT
30, 70, 104, 150, & 200 AMPS



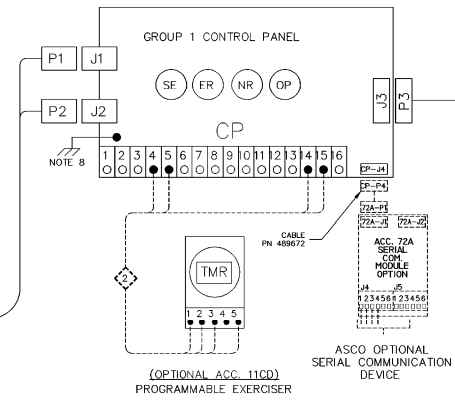
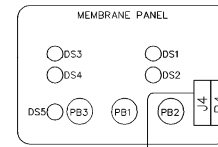
TO LOAD OF ATS
(OPTIONAL ACC. 44G)
OR
TO CUSTOMER POWER
SUPPLY 120VAC
(OPTIONAL ACC. 44A)



DOOR HINGE

BONDING STRAP
PN 098323-019

DOOR (INSIDE)



FLAT CABLE

OPERATOR CONTROLS

ID	DESCRIPTION
DS1	TS CONNECTED TO NORMAL
DS2	TS CONNECTED TO EMERGENCY
DS3	NORMAL SOURCE AVAILABLE
DS4	EMERGENCY SOURCE AVAILABLE
DS5	ENGINE EXERCISER
PB1	BYPASS TIME DELAY
PB2	TRANSFER SWITCH TEST
PB3	SET ENGINE EXERCISER

PROJECT NAME:		160946		BWM	SDH	6/02
WIRING DIAGRAM		EOR NO.		BY	APP	DATE
SERIES 300 ATS		GROUP 1 CONTROLS		THIRD ANGLE PROJECTION		
DRAWN BY: BWM		DATE: 6/02		MANUFACTURING TOLERANCES TO BE AS ACCORDANCE WITH ASCO PROCEDURE 98-1-003. FOR PLASTER PARTS SEE 98-1-005.		
CHECKED BY: SDH		DATE: 6/02		PROPERTY OF ASCO POWER TECHNOLOGIES. USE PERMITTED FOR OUR WORK ONLY. ALL RIGHTS OF DESIGN OR INVENTION ARE RESERVED.		
FINAL APPROVAL: SDH		DATE: 6/02		ASCO POWER TECHNOLOGIES, L.P. FLORHAM PARK, NEW JERSEY 07001 U.S.A.		
SCALE: 1:1		ACAD		FILE		
SIZE: 11x17		DS718516		SHEET 4 OF 4		