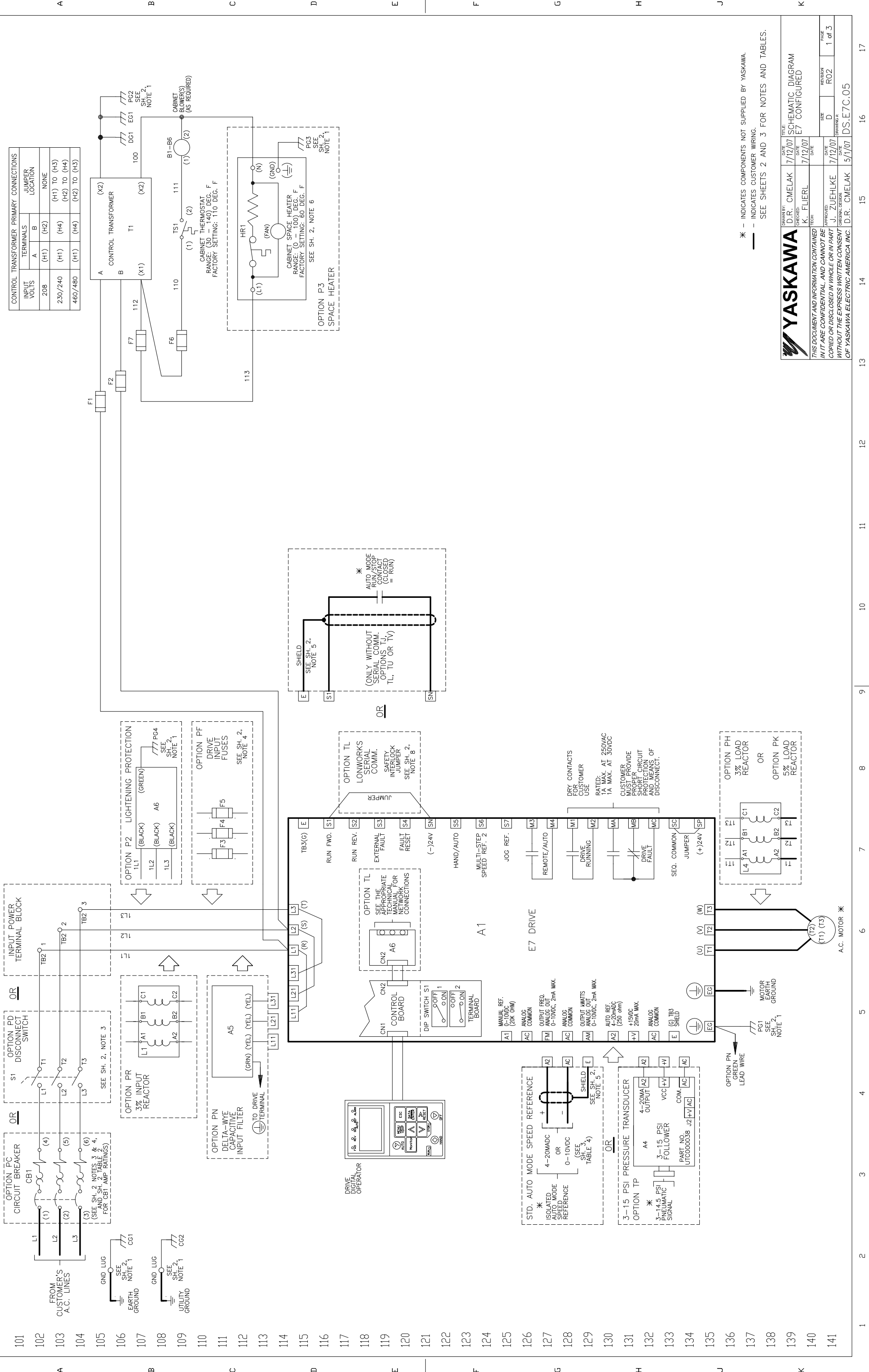


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17



* - INDICATES COMPONENTS NOT SUPPLIED BY YASKAWA.
 - - SEE SHEETS 2 AND 3 FOR NOTES AND TABLES.

YASKAWA

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DRAWN BY: D.R. CMELAK	DATE: 7/12/07	TITLE: SCHEMATIC DIAGRAM E7 CONFIGURED
CHECKED BY: K. FLIERL	DATE: 7/12/07	
APPROVED BY: J. ZUEHLKE	DATE: 7/12/07	
DESIGNED BY: D.R. CMELAK	DATE: 5/7/07	

SIZE: D	REVISION: R02	PAGE: 1 of 3
DRAWING NO.: DS-E7C.05		

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

NOTES:

- CONNECTED TO THE CABINET. CUSTOMER TO CONNECT THE CABINET GROUND LUGS TO EARTH GROUND AND UTILITY GROUND.
- THE CUSTOMER MUST USE TYPE 3R RATED HUBS OR FITTINGS (OR EQUIVALENT) TO MAINTAIN THE ENCLOSURE RATING.
- WITHOUT THE CIRCUIT BREAKER (OPTION PC) OR DISCONNECT SWITCH (OPTION PD), THE DISCONNECT MEANS MUST BE SUPPLIED BY THE CUSTOMER.
- IF THE CIRCUIT BREAKER (OPTION PC) OR DRIVE INPUT FUSES (OPTION PF) ARE NOT ADDED, THEN BRANCH CIRCUIT PROTECTION (CIRCUIT BREAKER OR AC INPUT FUSES) MUST BE SUPPLIED BY THE CUSTOMER.
- INSULATED TWISTED SHIELDED WIRE IS REQUIRED. 2 CONDUCTOR #18GA. (BELDEN NO. 8760, OR EQUIVALENT). SHIELD TO CONNECT TO PROPER TERMINAL AS SHOWN. CONNECT THE SHIELD ONLY AT THIS END, STUB AND ISOLATE THE OTHER END.
DO NOT RUN THESE WIRES IN THE SAME CONDUIT AS THE AC POWER AND AC CONTROL WIRES.
- CUSTOMER TO ADJUST THE THERMOSTAT ON THE SPACE HEATER HR1 FOR THE MINIMUM DESIRED TEMPERATURE INSIDE THE DRIVE CABINET. THIS SET TEMPERATURE IS NORMALLY SELECTED TO BE SLIGHTLY HIGHER THAN THE MINIMUM AMBIENT TEMPERATURE OF THE AIR SURROUNDING THE CABINET, AND IS THE TEMPERATURE AT WHICH THE SPACE HEATER HR1 WILL SHUT OFF.
- SERIAL COMMUNICATIONS OPTIONS T.J, T.U, T.V, OR T.L (SEE TABLE 4 ON SHEET 3);
OPTION T.J = EMBEDDED METASYS N2;
OPTION T.U = EMBEDDED APOGEE FLN;
OPTION T.V = EMBEDDED MODBUS AND LOWWORKS OPTION CARD.
THE DRIVE KEYPAD MUST BE IN "AUTO" MODE, IF SERIAL COMMUNICATIONS IS TO BE USED TO CONTROL THE DRIVE.
- WHEN OPTION T.L IS ORDERED, A JUMPER IS REQUIRED FROM DRIVE TERMINALS (S1) TO (SN), SO THAT THE LOWWORKS SERIAL COMMUNICATIONS CAN CONTROL THE RUN, STOP AND SPEED OF THE AC MOTOR IN THE "AUTO" MODE.
CUSTOMER TO REPLACE THE JUMPER WITH NORMALLY CLOSED SAFETY INTERLOCKS, IF APPLICABLE.

TABLE 1 FACTORY SET E7 CONFIGURED DRIVE PARAMETERS

PARAMETER	DATA	UNIT	DESCRIPTION/REMARKS
b1-01	SEE TABLE 4	N/A	FREQUENCY REFERENCE SELECTION
b1-02	SEE TABLE 4	N/A	RUN COMMAND SELECTION
b1-08	1	N/A	RUN COMMAND SELECTION DURING PROGRAMMING - ENABLED
b5-01	SEE TABLE 4	N/A	PI MODE SETTING
d1-01	10.0	HZ.	FREQUENCY REFERENCE 1 - SEE TABLE 4
E1-01	240(480)	VOLTS	STANDARD INPUT VOLTAGE SETTING
	208	VOLTS	INPUT VOLTAGE SETTING FOR BASE NUMBER "D-----"
E1-05	230(460)	VOLTS	STANDARD MAXIMUM OUTPUT VOLTAGE SETTING
	208	VOLTS	MAXIMUM OUTPUT VOLTAGE SETTING FOR BASE NUMBER "D-----"
H1-03	SEE TABLE 4	N/A	TERMINAL S5 SELECTION
H3-08	SEE TABLE 4	N/A	TERMINAL A2 SIGNAL SELECTION
H3-09	SEE TABLE 4	N/A	TERMINAL A2 FUNCTION SELECTION
H3-13	SEE TABLE 4	N/A	TERMINALS A1 AND A2 MASTER FREQUENCY REFERENCE SELECTION
H5-02	SEE TABLE 4	N/A	SERIAL COMMUNICATIONS SPEED SELECTION BAUD RATE
H5-07	SEE TABLE 4	N/A	REQUEST TO SEND (RTS) CONTROL SELECTION
H5-08	SEE TABLE 4	N/A	SERIAL COMMUNICATIONS PROTOCOL SELECTION
H5-09	10.0	SEC.	SERIAL COMMUNICATIONS ERROR DETECTION TIME
L4-05	0	N/A	FREQUENCY REFERENCE LOSS DETECTION DISABLED
L5-01	10	N/A	NUMBER OF AUTO RESTART ATTEMPTS
L5-03	10.0	SEC.	MAXIMUM RESTART TIME AFTER FAULT
o2-03	1	N/A	USER INITIALIZATION FACTORY SET PARAMETER DEFAULT VALUES (FOUND IN A1-03="1110")
o3-02	1	N/A	DIGITAL OPERATOR KEYPAD READ ALLOWED ENABLED

SEE SHEET 3 FOR TABLE 4.

CUSTOMER WIRING REQUIREMENTS

- FOR 0 TO 100 AMPS, USE A MINIMUM OF 60°-75°C COPPER WIRE.
- FOR ABOVE 100 AMPS, USE A MINIMUM OF 75°C COPPER WIRE.
(UNLESS SPECIFIED OTHERWISE)

TABLE 2 A.C. LINE WIRING

E7 CONFIG. MODEL NO. BASE NUMBER E7CRXXXX	WITH OPTION PC, TO CIRCUIT BREAKER CB1			OR, WITH OPTION PD, TO DISCONNECT SWITCH S1			OR, WITHOUT OPTIONS PC OR PD, TO TERMINAL BLOCK TB2			
	MFG. PART NUMBER	CURRENT RATING (AMPS)	WIRE SIZE RANGE (AWG)	TIGHTENING TORQUE (LB.-IN.)	MFG. PART NUMBER	CURRENT RATING (AMPS)	WIRE SIZE RANGE (AWG)	TIGHTENING TORQUE (LB.-IN.)	WIRE SIZE RANGE (AWG)	TIGHTENING TORQUE (LB.-IN.)
208V D343	A312	500	(1-3) x (3/0 - 500 kcmil)	(1-3) x 300	MHL36006M	600	(1-3) x (3/0 - 500 kcmil)	(1-3) x 300	2 x (4 - 350 kcmil)	2 x 275
D396	A360	600			MAL36600					
	B414	700			MAL36700				2 x (4 - 500 kcmil)	2 x 500
	B477	800			MAL36800					
	B515	800								
	B590	900							2 x (4 - 600 kcmil)	2 x 500

TABLE 3 A.C. MOTOR WIRING

E7 CONFIG. MODEL NO. BASE NUMBER E7CRXXXX	WITH OPTION PH, TO OUTPUT REACTOR L4			OR, WITH OPTION PK, TO OUTPUT REACTOR L4			OR, WITHOUT OPTIONS PH OR PK, TO STANDARD AC DRIVE			GROUND WIRING		
	MFG. PART NUMBER	WIRE SIZE RANGE (AWG)	TIGHTENING TORQUE (LB.-IN.)	MFG. PART NUMBER	WIRE SIZE RANGE (AWG)	TIGHTENING TORQUE (LB.-IN.)	MFG. PART NUMBER	WIRE SIZE RANGE (AWG)	TIGHTENING TORQUE (LB.-IN.)	WIRE SIZE RANGE (AWG)	TIGHTENING TORQUE (LB.-IN.)	GROUND LUGS
208V D343	A312	500	(1-3) x (3/0 - 500 kcmil)	RL-3200X	6	250 kcmil	RL-3200X	6	250 kcmil	6	250 kcmil	275
D396	A360	600		RL-4000X	CUSTOMER TO SUPPLY A UL LISTED CLOSED-LOOP CONNECTOR		RL-4000X	CUSTOMER TO SUPPLY A UL LISTED CLOSED-LOOP CONNECTOR				
	B414	700		RL-5000X			RL-5000X					
	B477	800										
	B515	800		RL-6000X			RL-6000X					
	B590	900										



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DRIVER:	D.R. CMELAK	DATE	7/12/07	TITLE	SCHEMATIC DIAGRAM
CHECKER:	K. FLIERL	DATE	7/12/07	DATE	E7 CONFIGURED
TECH:		DATE		DATE	
APPROVED:	J. ZUEHLKE	DATE	7/12/07	DATE	
DATE	7/12/07	DATE	7/12/07	DATE	
DATE	7/12/07	DATE	7/12/07	DATE	
DATE	7/12/07	DATE	7/12/07	DATE	
DATE	7/12/07	DATE	7/12/07	DATE	
DATE	7/12/07	DATE	7/12/07	DATE	

TABLE 4 DRIVE OPERATION MODE SELECTION

OPTION	FACTORY SET E7C CONFIGURED DRIVE PARAMETERS										DRIVE CONTROL BOARD SWITCH S1 SETTING		DRIVE MODE SPEED COMMAND				DRIVE MODE PI CONTROL			
	b1-01	b1-02	b5-01	H1-03 (SS)	H3-08	H3-09	H3-13	H5-02	H5-07	H5-08	1	2	DRIVE KEYPAD d1-01	DRIVE KEYPAD d1-01	SPEED CMD.	SETPOINT	AUTO MODE		DRIVE RUN/STOP CONTROL	
																	DRIVE TERMINAL A2 SIGNAL	DRIVE TERMINAL A2 SIGNAL		DRIVE TERMINAL A2 SIGNAL
PRESENT	1	1	0	3	2	2	1	3	1	0	OFF	ON	YES	YES			4-20 MADC	0-10 VDC	HAND MODE	AUTO MODE
NONE +	1	1	0	3	2	2	1	3	1	0	OFF	ON	YES	YES						
NONE	1	1	0	3	0	2	1	3	1	0	OFF	OFF	YES	YES						
TP	1	1	0	3	2	2	1	3	1	0	OFF	ON	YES	YES						
TJ +	2	2	0	3	2	2	0	3	1	1	OFF	ON	YES	YES			YES	8		AUTO MODE RUN/STOP CONTACT AT DRIVE TERMINALS S1 & SN
TJ	1	2	0	3	0	2	1	3	1	1	OFF	OFF	YES	YES						
TJ AND TP	1	2	0	3	2	2	1	3	1	1	OFF	ON	YES	YES			YES	8		
TU +	2	2	0	3	2	2	0	2	1	2	OFF	ON	YES	YES						
TU	1	2	0	3	0	2	1	2	1	2	OFF	OFF	YES	YES						
TU AND TP	1	2	0	3	2	2	1	2	1	2	OFF	ON	YES	YES			YES	8		
TV +	2	2	0	3	2	2	0	3	1	0	OFF	ON	YES	YES			YES	8		DRIVE KEYPAD IN THE "HAND" MODE
TV	1	2	0	3	0	2	1	3	1	0	OFF	OFF	YES	YES						
TV AND TP	1	2	0	3	2	2	1	3	1	0	OFF	ON	YES	YES			YES	8		
TL +	2	2	0	3	2	2	0	3	0	0	ON	ON	YES	YES						
TL	1	2	0	3	0	2	1	3	0	0	ON	OFF	YES	YES				8,9		
TV AND TP	1	2	0	3	2	2	1	3	0	0	ON	ON	YES	YES			YES	8,9		
PI CONTROL	1	1	1	19	2	B	0	3	1	0	OFF	ON	YES	YES			YES		YES	
PI CONTROL	1	1	1	19	0	B	0	3	1	0	OFF	OFF	YES	YES			YES		YES	
TJ AND PI	2	2	1	19	0	B	0	3	1	1	OFF	OFF	YES	YES			YES	8		AUTO MODE RUN/STOP CONTACT AT DRIVE TERMINALS S1 & SN
TU AND PI	2	2	1	19	0	B	0	2	1	2	OFF	OFF	YES	YES			YES	8		
TV AND PI	2	2	1	19	0	B	0	3	1	0	OFF	OFF	YES	YES			YES	8		
TL AND PI	2	2	1	19	0	B	0	3	0	0	ON	OFF	YES	YES			YES	8,9		

+ = STANDARD E7C CONFIGURED SET UP
 ■ = FACTORY 2-WIRE INITIALIZATION/DEFAULT SETTING

SEE SHEET 2 FOR NOTES, AND TABLES 1, 2 AND 3.

YASKAWA	DATE	7/12/07	DATE	7/12/07	TITLE	SCHEMATIC DIAGRAM E7 CONFIGURED	
DRAWN BY:	D.R. CMELAK	CHECKED:	K. FLIERL	TECH:		SIZE	D
APPROVED:	J. ZUEHLKE	DATE:	7/12/07	DATE:	7/12/07	REVISION	RO2
ORIGINAL DESIGNER:	D.R. CMELAK	DRAWING #:	DS.E7C.05	DATE:	5/1/07	PAGE	3 of 3
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