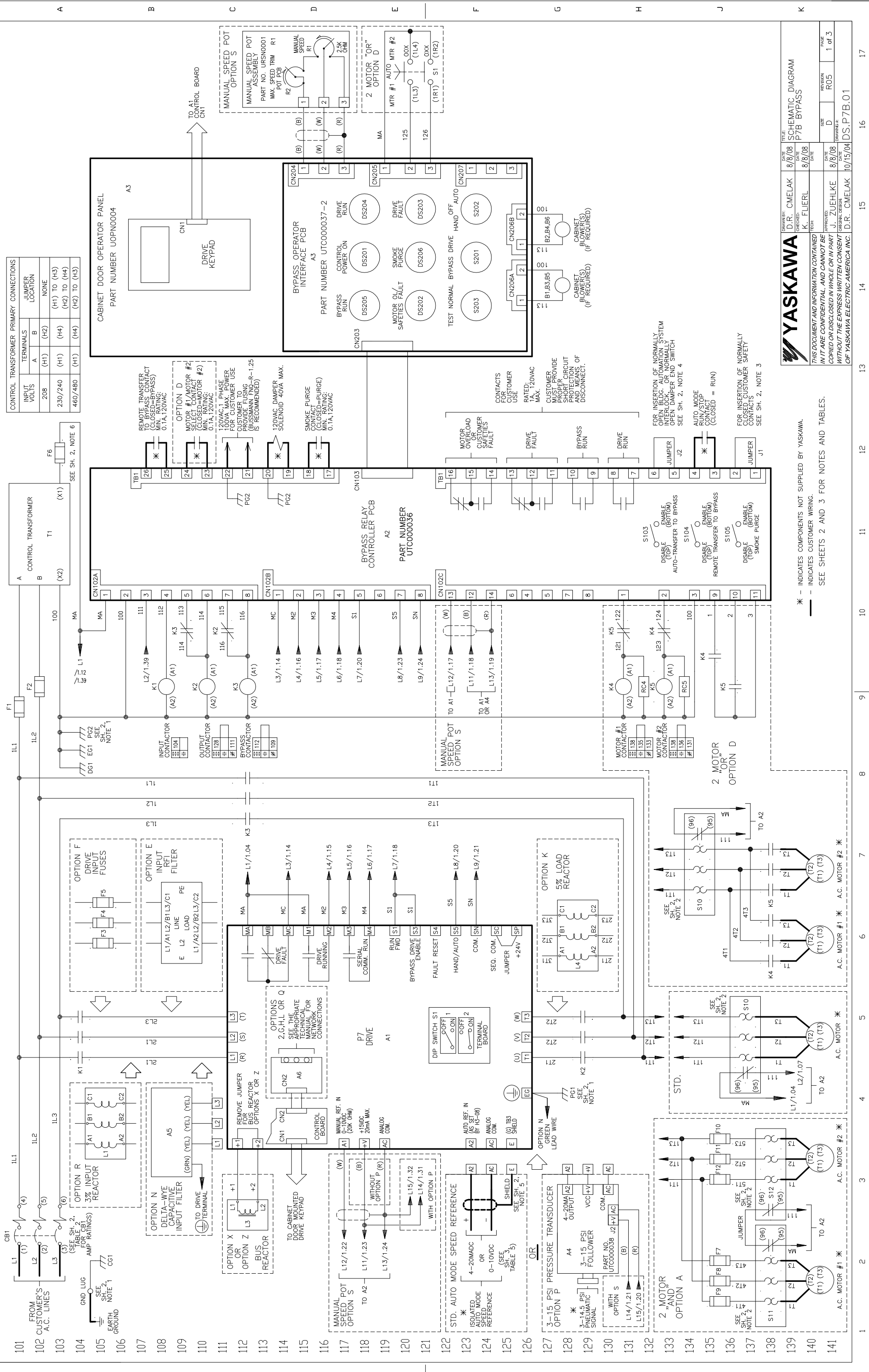


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17



CONTROL TRANSFORMER PRIMARY CONNECTIONS		
INPUT VOLTS	TERMINALS	JUMPER LOCATION
208	A (H1) B (H2)	NONE
230/240	(H1) (H4) (H4)	(H1) TO (H3) (H2) TO (H4)
460/480	(H1) (H4) (H4)	(H2) TO (H3)

YASKAWA

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DATE: 8/8/08
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TITLE: SCHEMATIC DIAGRAM
 P7B BYPASS

SIZE: D
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* - INDICATES COMPONENTS NOT SUPPLIED BY YASKAWA.
 - - INDICATES CUSTOMER WIRING.
 SEE SHEETS 2 AND 3 FOR NOTES AND TABLES.

NOTES:

- CONNECTED TO THE CABINET. CUSTOMER TO CONNECT THE CABINET GROUND LUG TO EARTH GROUND.
- THE MOTOR OVERLOAD RELAY IS FACTORY SET FOR MANUAL RESET. CUSTOMER TO ADJUST THE MOTOR OVERLOAD RELAY TRIP SETTING FOR THE ACTUAL AC MOTOR'S FULL LOAD AMPS.
- TERMINALS TB1(1) AND TB1(2) ARE SUPPLIED FOR INSERTION OF CUSTOMER SUPPLIED NORMALLY CLOSED SAFETY CONTACTS (I.E., FIRESTAT, FREEZESTAT, WINDING OR BEARING TEMPERATURE ACTIVATED SWITCHES). IF APPLICABLE, REMOVE FACTORY INSTALLED JUMPER J1.
- TERMINALS TB1(5) AND TB1(6) ARE SUPPLIED FOR INSERTION OF A CUSTOMER SUPPLIED NORMALLY OPEN DAMPER END SWITCH (OPEN = DAMPER CLOSED, AND CLOSED = DAMPER FULLY OPEN), OR A NORMALLY OPEN BUILDING AUTOMATION SYSTEM (BAS) INTERLOCK. IF APPLICABLE, REMOVE THE FACTORY INSTALLED JUMPER J2.
- INSULATED TWISTED SHIELDED WIRE IS REQUIRED. 2 CONDUCTOR #18GA. (BELDEN #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.
- FOR P7B BYPASSES WITH A CONTROL TRANSFORMER, T1, POWER RATING OF 350VA OR GREATER, SECONDARY FUSE F6 IS ADDED.
- SERIAL COMMUNICATIONS OPTIONS. 2, G, H, J, L, Q, U OR V (SEE TABLE 5 ON SHEET 3):
 OPTION 2 = ETHERNET/IP, OPTION G = DEVICENET, OPTION H = PROFIBUS, OPTION J = METASTAS N2, OPTION L = LONWORKS,
 OPTION Q = ETHERNET MODBUS TCP/IP, OPTION U = APOGEE FLN AND OPTION V = DRIVE EMBEDDED MODBUS PROTOCOL.
 A. THE HAND/OFF/AUTO SWITCH MUST BE IN THE "AUTO" POSITION, IF SERIAL COMMUNICATION IS TO BE USED TO CONTROL THE DRIVE.
 B. TO OBTAIN AN ANALOG REFERENCE AT DRIVE TERMINAL A2 WHEN IN THE "AUTO" MODE, THERE MUST BE JUMPERS ADDED TO THE DRIVE, FROM TERMINAL S4 TO TERMINAL SN, AND FROM TERMINAL S5 TO TERMINAL S6.
 C. THERE MUST BE A JUMPER ADDED TO THE DRIVE, FROM TERMINAL S5 TO TERMINAL S6.

TABLE 1 FACTORY SET DRIVE PARAMETERS

PARAMETER	DATA	UNIT	DESCRIPTION/REMARKS
b1-01	SEE TABLE 5	N/A	FREQUENCY REFERENCE SELECTION
b1-08	1	N/A	RUN COMMAND SELECTION DURING PROGRAMMING - ENABLED
b2-03	0.0	SEC.	DC INJECTION BRAKING TIME AT START
b5-01	SEE TABLE 5	N/A	PI MODE SETTING
d1-01	10.0	HZ.	FREQUENCY REFERENCE 1 - SEE TABLE 5
d1-02	6.0	HZ.	FREQUENCY REFERENCE 2 - SEE TABLE 5
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_----"
H1-01	70	N/A	TERMINAL S3 SET FOR BYPASS DRIVE ENABLE
H1-02	SEE TABLE 5	N/A	TERMINAL S4 SELECTION
H1-03	SEE TABLE 5	N/A	TERMINAL S5 SELECTION
H1-04	SEE TABLE 5	N/A	TERMINAL S6 SELECTION
H2-02	3B	N/A	TERMINALS M3-M4 SET FOR SERIAL COMM. RUN COMMAND
H3-08	SEE TABLE 5	N/A	TERMINAL A2 SIGNAL SELECTION
H3-09	SEE TABLE 5	N/A	TERMINAL A2 FUNCTION SELECTION
H3-13	SEE TABLE 5	N/A	TERMINALS A1 AND A2 MASTER FREQUENCY REFERENCE SELECTION
H5-02	SEE TABLE 5	N/A	SERIAL COMMUNICATIONS SPEED SELECTION BAUD RATE
H5-07	SEE TABLE 5	N/A	REQUEST TO SEND (RTS) CONTROL SELECTION
H5-08	SEE TABLE 5	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
o2-02	0	N/A	DIGITAL OPERATOR KEYPAD "OFF" KEY DISABLED
o2-03	1	N/A	USER INITIALIZATION FACTORY SET PARAMETER DEFAULT VALUES (FOUND IN A1-03="1110")
o2-15	0	N/A	DIGITAL OPERATOR KEYPAD "HAND" KEY DISABLED
o3-02	1	N/A	DIGITAL OPERATOR KEYPAD READ ALLOWED ENABLED

SEE SHEET 3 FOR TABLE 5.

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.

TABLE 2 P7 BYPASS MODEL NO. BASE NUMBER P7B*XXXX				TABLE 3 P7 BYPASS PART NUMBER P7B*XXXX			
208V	240V	480V	PART NUMBER	208V	240V	480V	PART NUMBER
D002	A002	B001	FAL36003	D002	A002	B001	D002
D003	A003	B003	FAL36007	D003	A003	B002	D003
D004	A006	B004	FAL36015	D004	A004	B003	D004
D007	A009	B007	FAL36030	D007	A006	B004	D007
D010	A015	B011	FAL36030	D010	A009	B007	D010
D016	A022	B014	FAL36030	D016	A015	B011	D016
D024	A028	B021	FAL36050	D024	A022	B014	D024
D030	A042	B040	FAL36100	D030	A028	B021	D030
D046	A054	B052	FAL36100	D046	A042	B040	D046
D059	A068	B065	FAL36100	D059	A054	B052	D059
D074	A080	B077	KAL36150	D074	A068	B065	D074
D088	A104	B124	KAL36150	D088	A080	B077	D088
D143	A130	B156	KAL36250	D143	A104	B124	D143
D169	A192	B180	LAL36400	D169	A130	B156	D169
D211	A248	B240	LAL36400	D211	A192	B180	D211
D273	A312	B361	MAL36600	D273	A248	B240	D273
D343	A360	B414	MAL36600	D343	A312	B361	D343
D396	A477	B515	MAL36800	D396	A360	B414	D396
		B590			A477	B515	
					B590		

TABLE 4 STANDARD BYPASS OVERLOAD RELAY OR WITH OPTION A OVERLOAD RELAYS

P7 BYPASS MODEL NO. BASE NUMBER P7B*XXXX	MFG. PART NUMBER	WIRE SIZE RANGE (AWG)	TIGHTENING TORQUE (LB.-IN.)	OR WITH OPTION A OVERLOAD RELAYS		OR WITH OPTION D A.C. CONTACTORS	
				MFG. PART NUMBER	TIGHTENING TORQUE (LB.-IN.)	MFG. PART NUMBER	TIGHTENING TORQUE (LB.-IN.)
208V	240V	480V					
D002	A002	B001	LRD06	15	LRD05	15	LC1 D09
D003	A003	B003	LRD07	15	LRD06	15	
D004	A004	B004	LRD15	15	LRD07	15	
D007	A006	B007	LRD15	15	LRD15	15	
D010	A015	B011	LRD15	15	LRD15	15	
D016	A022	B014	LRD15	15	LRD15	15	
D024	A028	B021	LRD15	15	LRD15	15	
D030	A042	B040	LRD15	15	LRD15	15	
D046	A054	B052	LRD15	15	LRD15	15	
D059	A068	B065	LRD15	15	LRD15	15	
D074	A080	B077	LRD15	15	LRD15	15	
D088	A104	B124	LRD15	15	LRD15	15	
D143	A130	B156	LRD15	15	LRD15	15	
D169	A192	B180	LRD15	15	LRD15	15	
D211	A248	B240	LRD15	15	LRD15	15	
D273	A312	B361	LRD15	15	LRD15	15	
D343	A360	B414	LRD15	15	LRD15	15	
D396	A477	B515	LRD15	15	LRD15	15	
		B590	LRD15	15	LRD15	15	

WHERE * = V (NEMA 1) OR B (NEMA 12)



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SEE SHEET 3 FOR TABLE 5.

TABLE 5 DRIVE OPERATION MODE SELECTION

Table with columns for Option Present, Factory Set P7B Bypass Drive Parameters (b1-01 to H5-08), Drive Control Board Switch S1 Setting, Drive Mode (Hand Mode, Drive Terminal A2 Signal, Drive Terminal A2 Signal), Drive Mode PI Control (Hand Mode, Auto Mode), and Run/Stop Control (Hand Mode, Auto Mode).

Table with columns A through K containing detailed drive parameters and control settings for various options.



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+ = STANDARD P7B BYPASS SET UP

■ = FACTORY 2-WIRE INITIALIZATION/DEFAULT SETTING

SEE SHEET 2 FOR NOTES, AND TABLES 1, 2, 3 AND 4.