

Contactors (Relay) Coil Data

Device	Coil Consumption		Coil Consumption				Minimum Recommended Transformer
	DC Watts		AC				
	Inrush	Sealed	Inrush (pick-up)		Sealed (holding)		VA
			VA	Watts	VA	Watts	VA
CA8-9, CA8-12	-	-	35	32	5	1.8	50
CA8-09C, CA8-12C	3.0 cold / 2.6 warm	3.0 cold / 2.6 warm	-	-	-	-	-
CA7-9, CA7-12, CA7-16	-	-	75	50-60	9.5	2.7	50
CA7-9E, CA7-12E, CA7-16E, CA7-23E	10 avg. / 17 peak	1.7	-	-	-	-	-
CA7-23	-	-	105	60-70	12.3	3.1	50
CA7-30, CA7-37	-	-	105	70	12.3	3.1	50
CA7-30E, CA7-37E	10 avg. / 17 peak	1.7	-	-	-	-	-
CAL7-30, CA7-40	-	-	135	90-100	13.3	3.3	75
CA7-43, CA7-55	-	-	135	90-100	13.3	3.3	75
CA7-40E, CA7-43E, CA7-55E	16 avg. / 25 peak	2.5	-	-	-	-	-
CA7-60, CA7-72, CA7-85	-	-	235	110	19	6.5	100
CAL7-60, CA7-90, CA7-97	-	-	400	240	24	9	200
CA7-60D, CA7-72D, CA7-85D, CA7-97D	200	4.5	-	-	-	-	-
CA7-90D	325	5.5	-	-	-	-	-
CA9-116, CA9-146							100
CA9-190, CA9-205							100
CA9-265, CA9-305, CA9-370							100
CA9-400, CA9-460							200
CA9-580, CA9-750							200
CA9-860, CA9-1060							300
CA9-1260							200
CA9-2050, CA9-2650							300

See section A

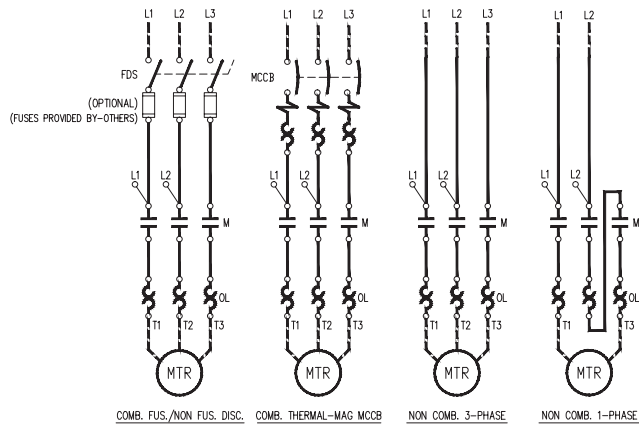
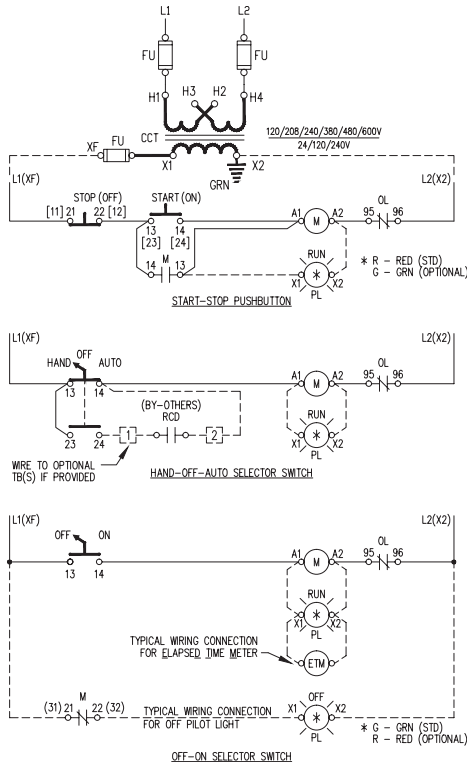
Control Circuit Transformer Voltage Specifications

Factory Modification Code	Factory Wired Connection		Voltage Taps Available	
	Primary	Secondary	Primary	Secondary
XA	208	120	208/230/460	115
XB	240	120	240/480	120
XC	480	120	240/480	120
XD	600	120	575/600	115/120
XE	240	24	240/480	24
XF	480	24	240/480	24
XG	380	110	380/400/415	110/220
XH	Must specify tap	115	208/230/460	115
XJ	600	24	600	12/24
XK	380	24	480/380/277/240/208	24
XL	415	24	480/415/400	24/120
XM	Must specify tap	24/115	208/230/460	24/115
XN	400	24	480/415/400	24/120
XO	208	24	208/230/460	24/115
XP	120	24	120/240	24

- ① 50Hz, 60Hz or 50/60Hz except CA7 which is 60Hz.
- ② For AC coils.
- ③ The "VA" values shown are the minimum requirement to energize one contactor. For multiple contactors and/or additional control circuit devices (burden) refer to control circuit transformer manufacturer's selection criteria.
- ④ Modification codes in Gray are Special Order. Contact a Sprecher + Schuh representative.

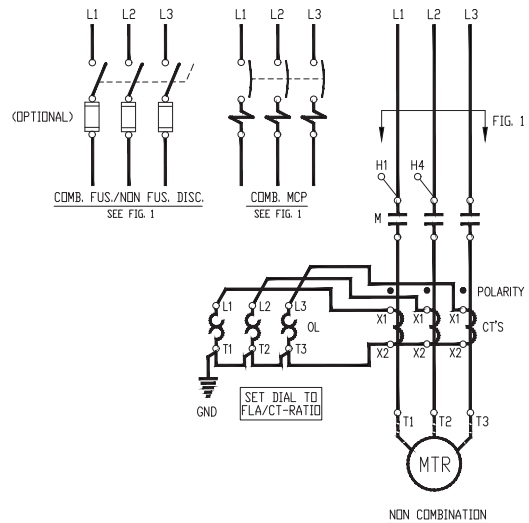
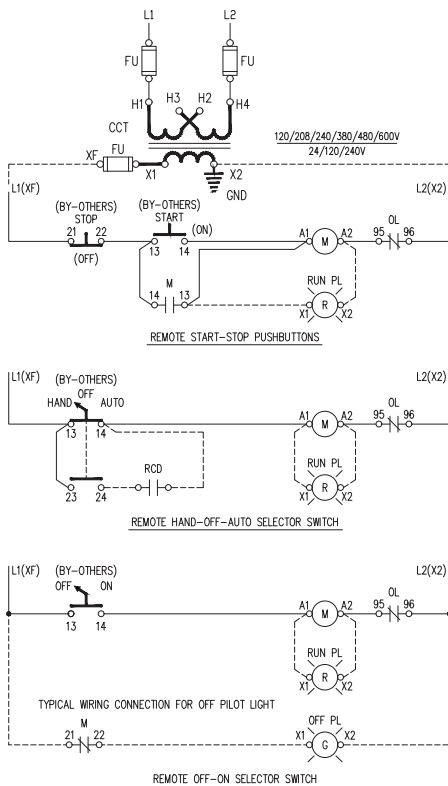
Starters & Enclosed Products

Motor Starters - Non-Reversing



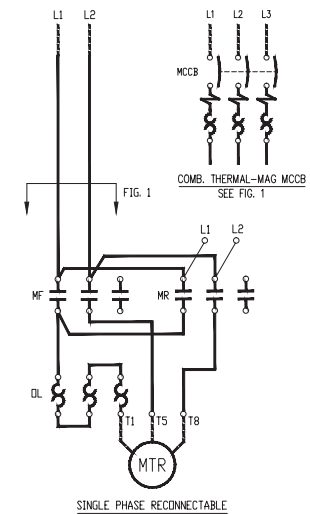
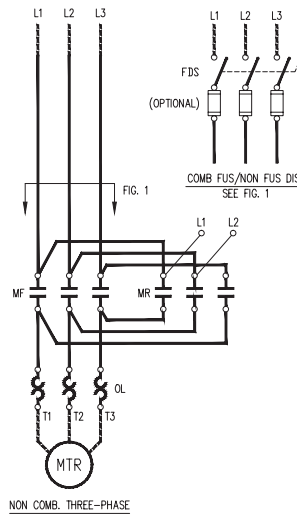
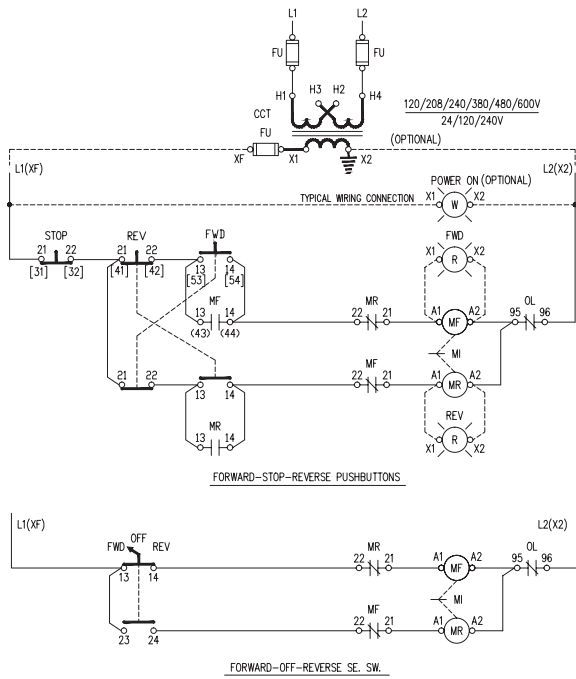
- NOTES:
- 1) X2 TERMINAL GROUNDED AS STANDARD, REMOVE GROUND IF NOT REQUIRED.
 - 2) RCD: STANDS FOR REMOTE CONTROL DEVICE BY CUSTOMER.
 - 3) [] : FOR MULTIFUNCTION TERMINAL NUMBERS.
 - 4) () : FOR ALT. AUX. CONTACT TERMINAL NUMBERS.

Motor Starters - Non-Reversing (with Current Transformers)



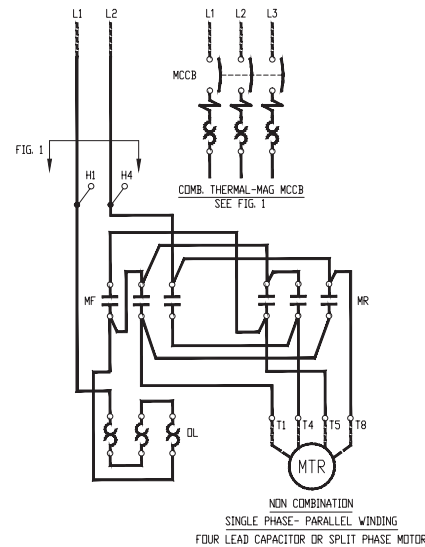
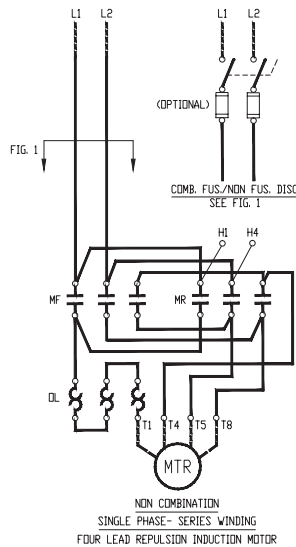
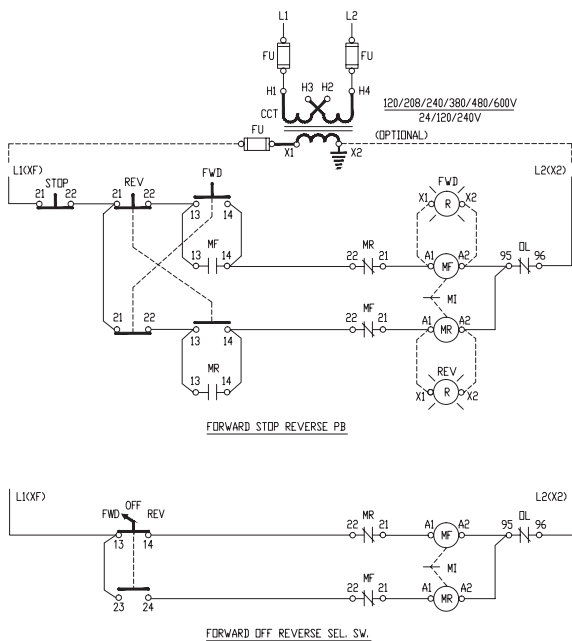
- NOTES:
- 1) RCD: STANDS FOR REMOTE CONTROL DEVICE BY CUSTOMER.
 - 2) X2 TERMINAL GROUNDED AS STANDARD, REMOVE GROUND IF NOT REQUIRED.
 - 3) REFER TO PAGE B13 FOR CURRENT SETTING GUIDANCE

Motor Starters - Reversing (three phase & single phase reconnectable)



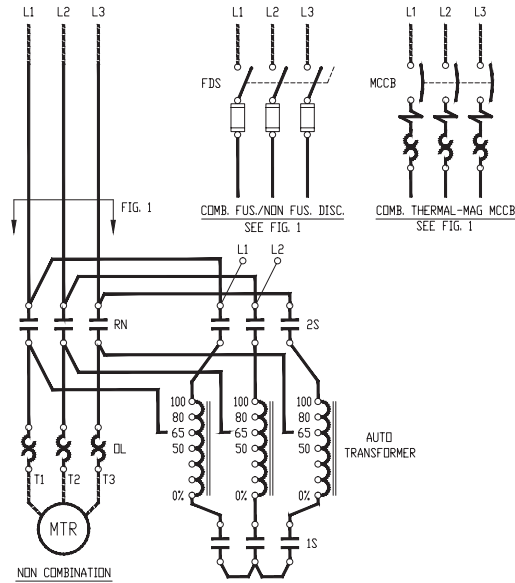
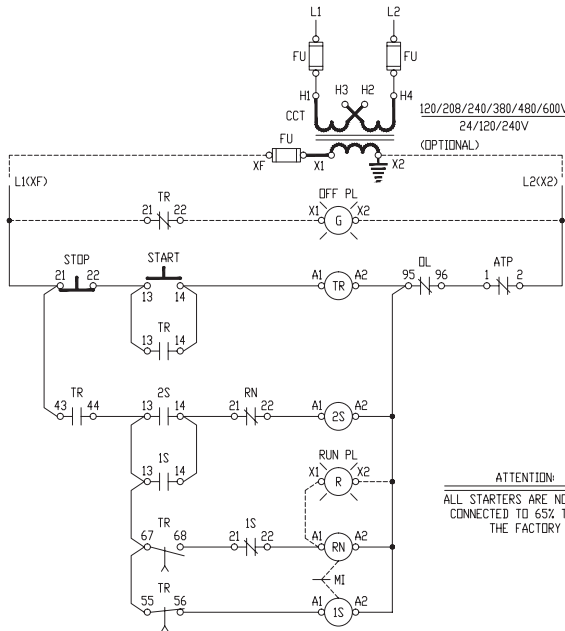
NOTES:
 1) X2 TERMINAL GROUNDED AS STANDARD. REMOVE IF NOT REQUIRED.
 2) MI: STANDS FOR MECHANICAL INTERLOCK
 3) TERMINAL NUMBERS IN () APPLIES ONLY ON CA7-30...97

Motor Starters - Reversing (single phase series & parallel winding)



NOTES:
 1) X2 TERMINAL GROUNDED AS STANDARD. REMOVE IF NOT REQUIRED.
 2) MI STANDS FOR MECHANICAL INTERLOCK.

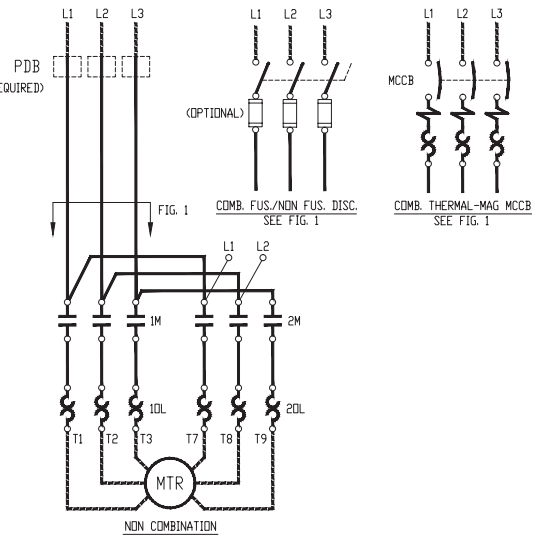
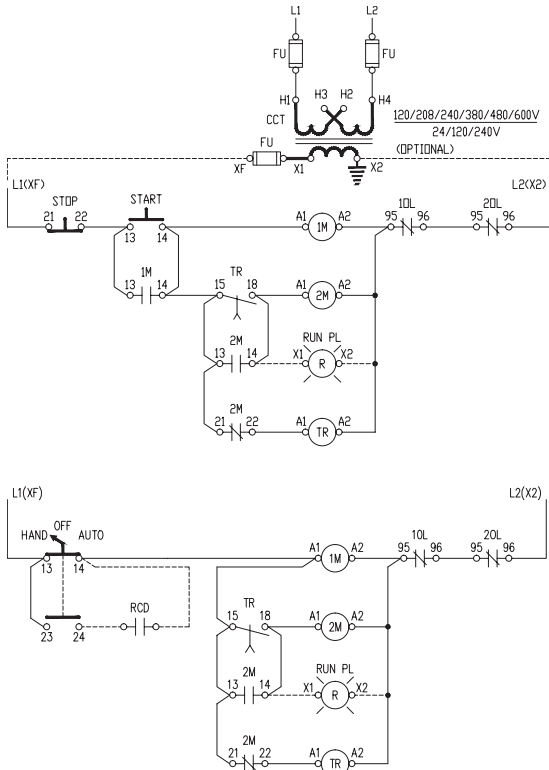
Reduced Voltage Starters - Autotransformer



ATTENTION:
ALL STARTERS ARE NORMALLY
CONNECTED TO 65% TAP AT
THE FACTORY

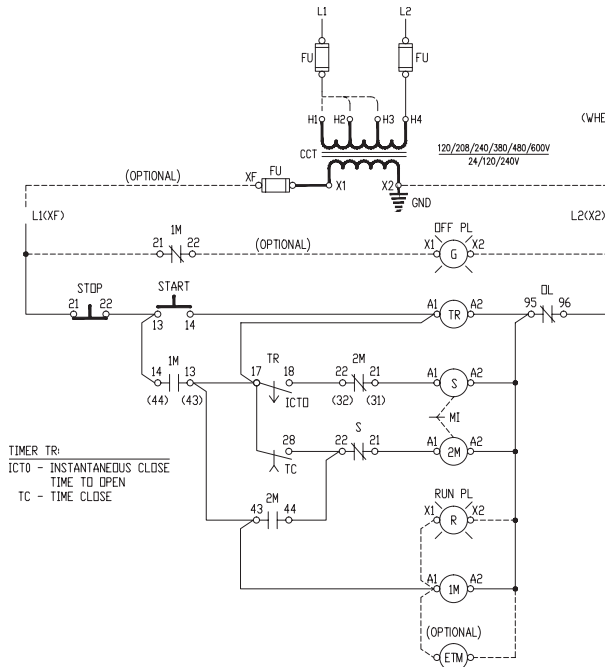
- NOTES:
1. ATP: STANDS FOR AUTO TRANSFORMER THERMAL PROTECTION.
 2. X2 TERMINAL GROUNDED AS STANDARD, REMOVE IF NOT REQUIRED.
 3. MI STANDS FOR MECHANICAL INTERLOCK.
 4. TIMING RELAY TR: CS7-22E+CZE7-30S.

Reduced Voltage Starters - Part Winding

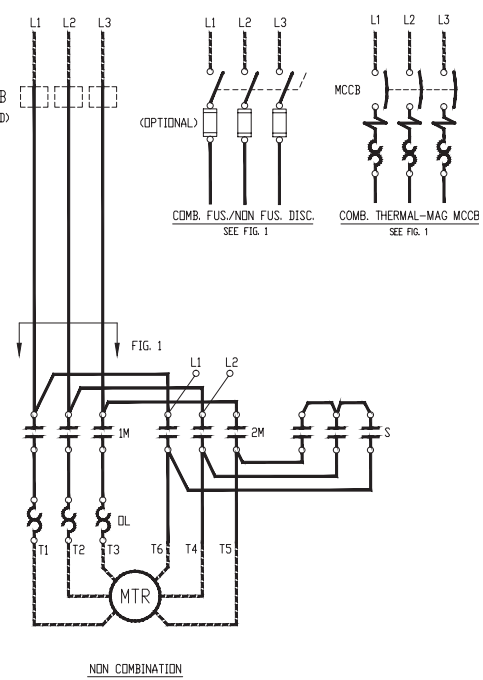


- NOTES:
1. OVERLOAD RELAY SETTING: MOTOR FLC X 0.5.
 2. X2 TERMINAL GROUNDED AS STANDARD, REMOVE IF NOT REQUIRED.
 3. TIME DELAY RELAY TR TO BE SET TO SHORTEST TIME POSSIBLE; MAX. 3 SECONDS.
- TIMING RELAY TR: RZ7-FSA3

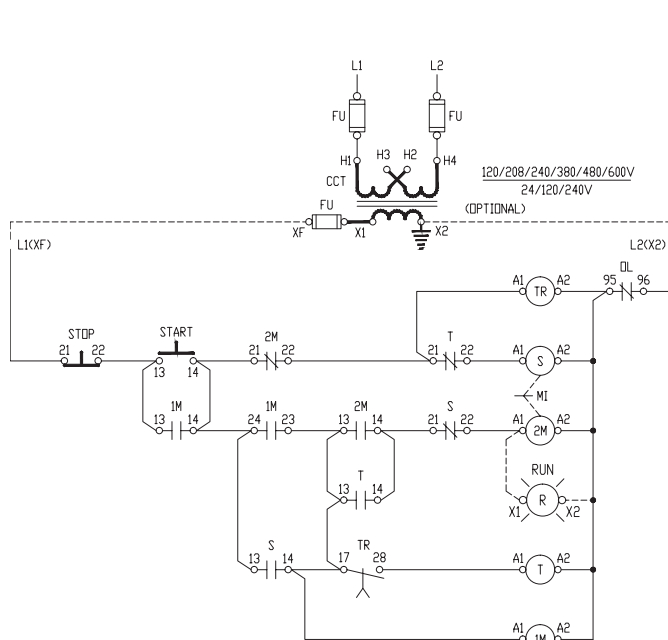
Reduced Voltage Starters - Wye Delta (Open Transition)



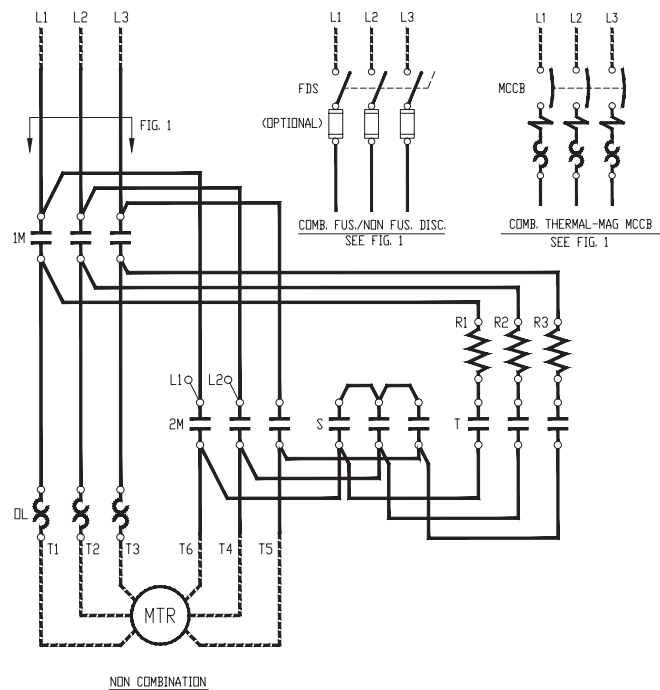
- NOTES:
- 1). OVERLOAD RELAY SETTING: MOTOR FLC X 0.58.
 - 2). X2 TERMINAL GROUNDED AS STANDARD, REMOVE IF NOT REQUIRED.
 - 3). MI STANDS FOR MECHANICAL INTERLOCK.
 - 4). TIMING RELAY TR: RZ7-FSY2 WYE DELTA TIMER.



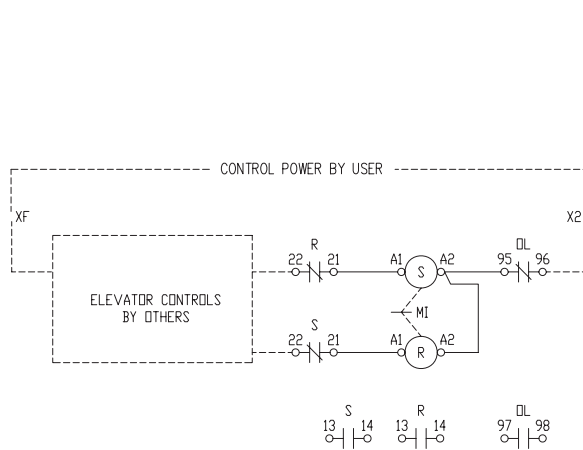
Reduced Voltage Starters - Wye Delta (Closed Transition)



- NOTES:
- 1). OVERLOAD RELAY SETTING: MOTOR FLC X 0.58.
 - 2). X2 TERMINAL GROUNDED AS STANDARD, REMOVE IF NOT REQUIRED.
 - 3). MI STANDS FOR MECHANICAL INTERLOCK.
 - 4). TIMING RELAY TR: RZ7-FSY2D

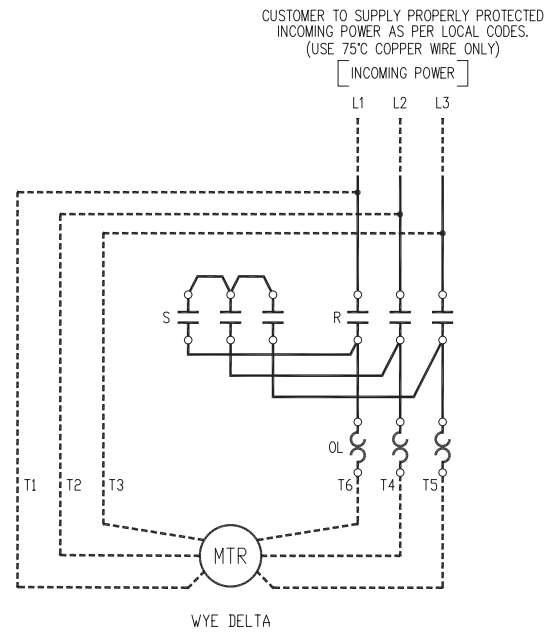


Typical Hydraulic Elevator Two-Contactor Wye-Delta Starter



NOTES:

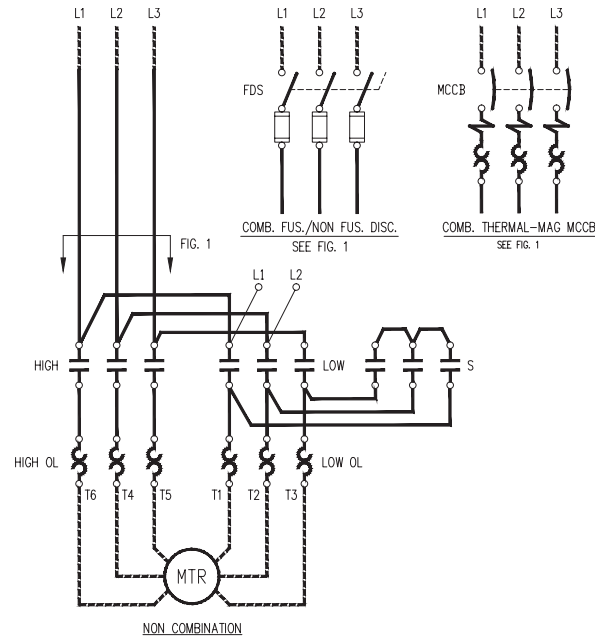
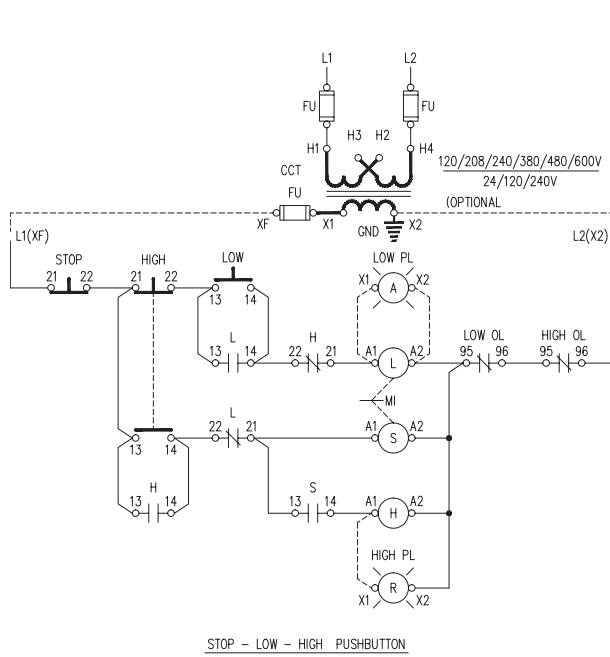
- 1). MI: STANDS FOR MECHANICAL INTERLOCK.
- 2). R: STANDS FOR RUN CONTACTOR.
- 3). S: STANDS FOR STAR (SHORTING) CONTACTOR.
- 4). OVERLOAD RELAY SETTING: MOTOR FLC X 0.58.



CUSTOMER TO SUPPLY PROPERLY PROTECTED
INCOMING POWER AS PER LOCAL CODES.
(USE 75°C COPPER WIRE ONLY)

C
Starters & Enclosed Products

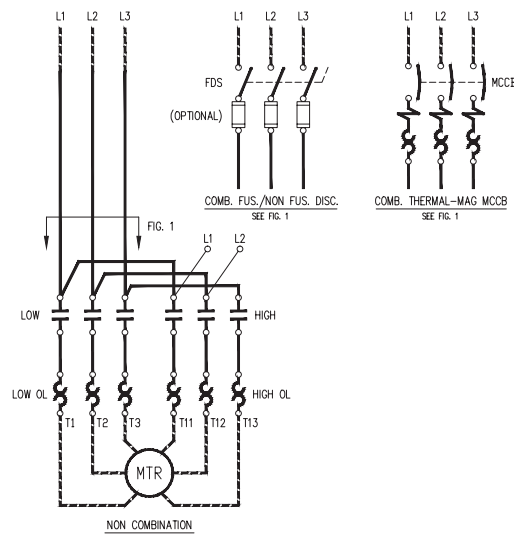
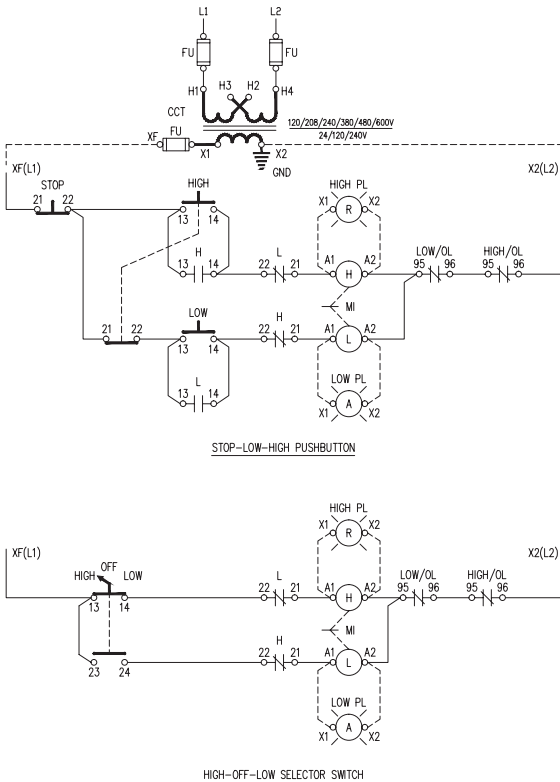
Multi Speed - One Reconnectable Winding (Selective Control)



NOTES:

- 1). X2 TERMINAL GROUNDED AS STANDARD, REMOVE IF NOT REQUIRED.
- 2). MI STANDS FOR MECHANICAL INTERLOCK.

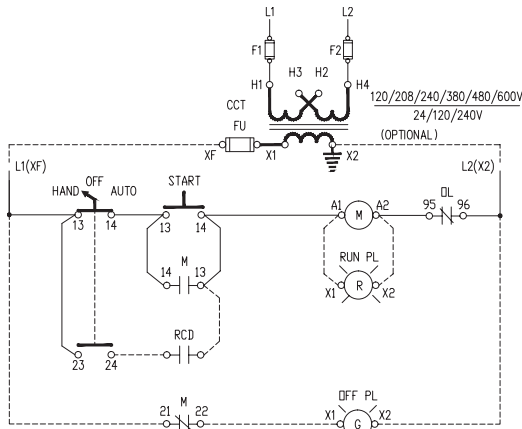
Multi Speed - Two Separate Windings (Selective Control)



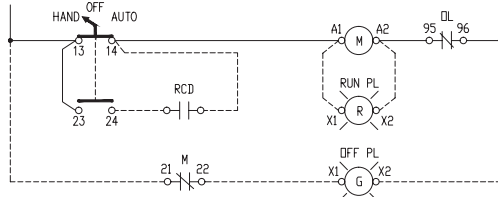
NOTES:

- 1). X2 TERMINAL GROUNDED AS STANDARD, REMOVE IF NOT REQUIRED.
- 2). MI STANDS FOR MECHANICAL INTERLOCK.

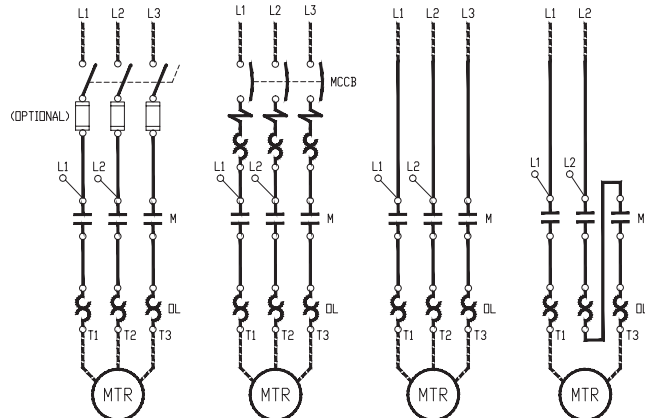
Classic Pump Control Panels



HAND-OFF-AUTO SELECTOR SWITCH WITH START PUSHBUTTON



HAND-OFF-AUTO SELECTOR SWITCH

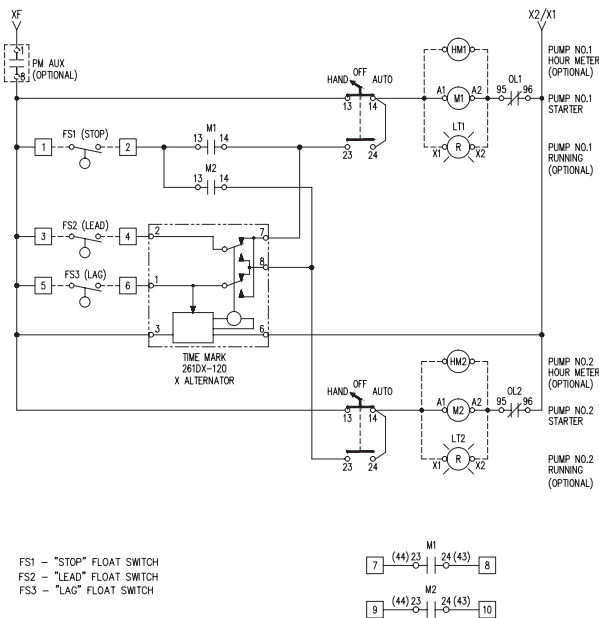


COMB. FUS./NON FUS. DISC. COMB. THERMAL-MAG MCCB NON COMB. 3-PHASE NON COMB. 1-PHASE

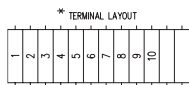
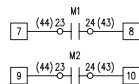
- NOTES:
- 1) RCD: STANDS FOR REMOTE CONTROL DEVICE BY CUSTOMER.
 - 2) X2 TERMINAL GROUNDED AS STANDARD, REMOVE GROUND IF NOT REQUIRED
 - 3) DO NOT WIRE CONTROL CIRCUIT TO LINE SIDE OF CONTACTOR WHEN COIL VOLTAGE IS 120V OR LESS

Combination Fusible Switch 3-PH FVNR Duplex Alternating Panel

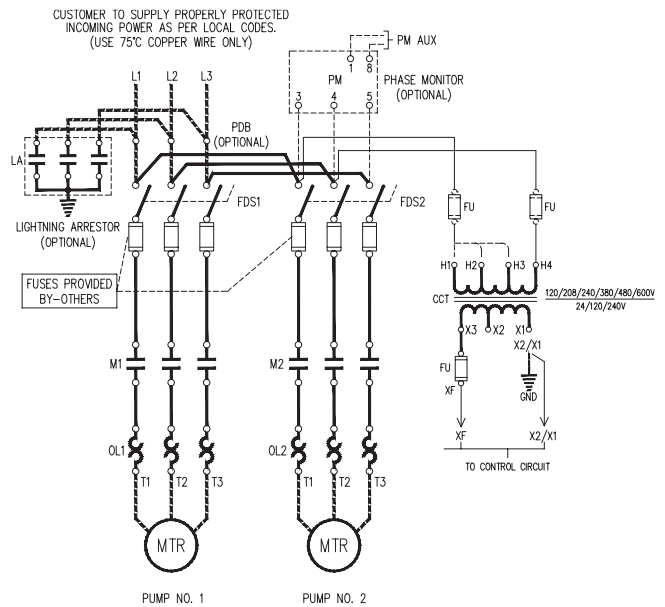
AC Control w/ D7 Series Pilot Devices



- FS1 - "STOP" FLOAT SWITCH
 FS2 - "LEAD" FLOAT SWITCH
 FS3 - "LAG" FLOAT SWITCH



COPPER ONLY
 TIGHTENING TORQUE [5-6.2 lb-in]

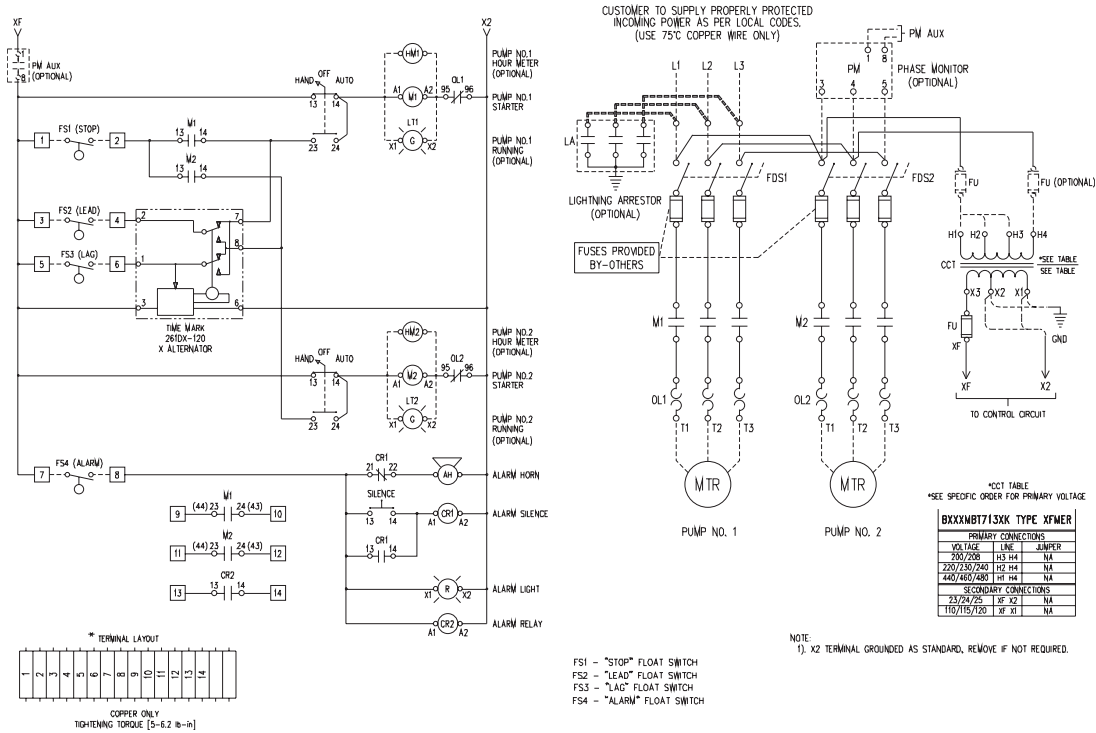


CUSTOMER TO SUPPLY PROPERLY PROTECTED INCOMING POWER AS PER LOCAL CODES. (USE 75°C COPPER WIRE ONLY)

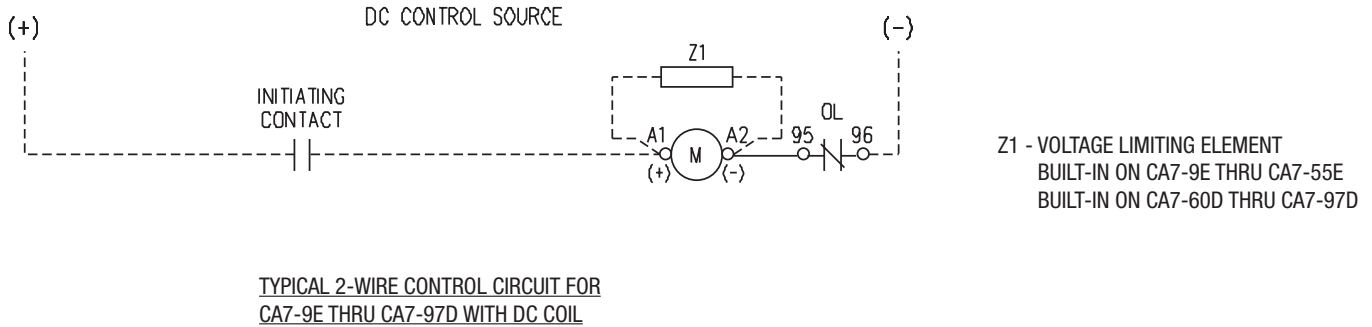
- NOTE:
- 1) X2 TERMINAL GROUNDED AS STANDARD, REMOVE IF NOT REQUIRED.

Combination Fusible Switch 3-PH FVNR Duplex Alternating Panel

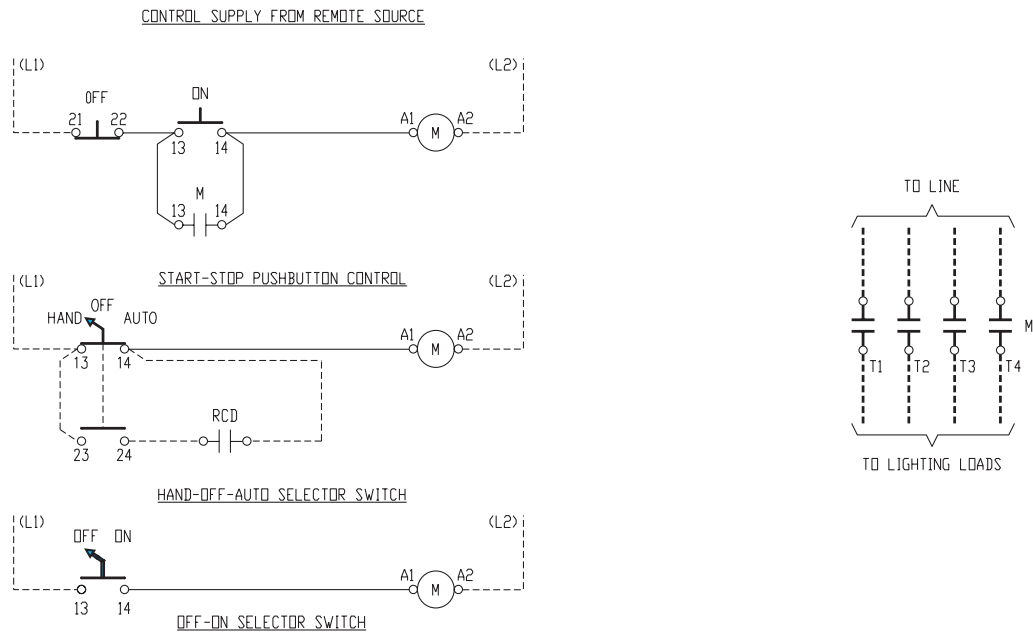
W/ H-O-A, alarm CKT, Lead, Lag, Stop, 1-Pole Float Switches, Alarm Circuit.



DC Control Configuration for CA7

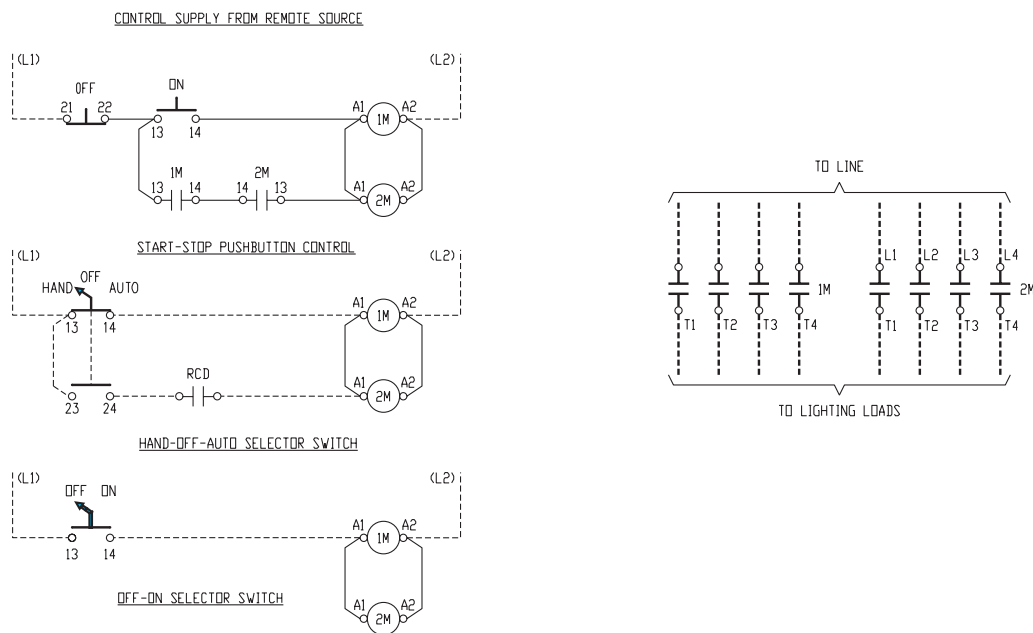


CAL7 Lighting Contactor - 4 Pole



NOTES:
1.) RCD: STANDS FOR REMOTE CONTROL DEVICE BY CUSTOMER.

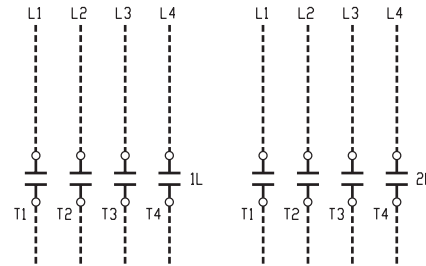
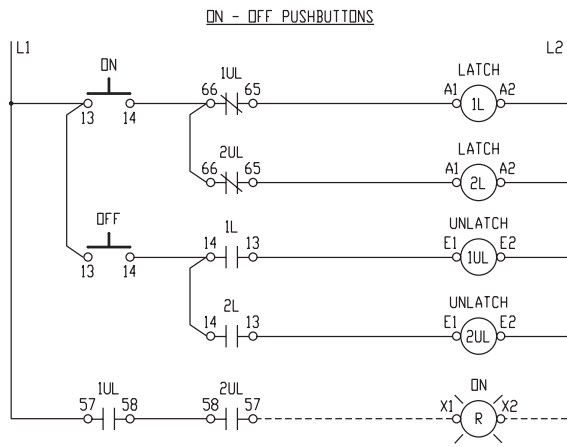
CAL7 Lighting Contactor - 8 Pole



NOTES:
1.) M1: STANDS FOR MECHANICAL INTERLOCK.
2.) RCD: STANDS FOR REMOTE CONTROL DEVICE BY CUSTOMER.

C
Starters & Enclosed Products

CAL7 Lighting Contactor with CAV Mechanical Latch B



CAV OPERATION:

CAV CONSISTS OF CA7 CONTACTOR "L" WITH CV7-11 MECHANICAL LATCH "UL".
 AFTER "L" COIL IS ENERGIZED AND THE CONTACTOR CLOSES, THE MECHANICAL LATCH MECHANICALLY LOCKS THE CONTACTOR IN THE CLOSED POSITION. THE "L" COIL IS THEN DE-ENERGIZED BY THE COIL CLEARING CONTACT "UL" TO REMOVE VOLTAGE.
 AFTER THE "UL" COIL IS ENERGIZED, THE MECHANICAL LATCH RELEASES THE CONTACTOR. THE "UL" COIL IS IMMEDIATELY DE-ENERGIZED BY THE COIL CLEARING CONTACT "L" TO REMOVE VOLTAGE. THE CONTACTOR IS NOW OPEN.

NOTES:

- 1) "L": CA7 CONTACTOR.
- 2) "UL": CV7-11 MECHANICAL LATCH. (THE CV7 COIL IS MOMENTARY RATED ONLY)
- 3) CONNECT CONTROL CIRCUIT DIRECTLY TO LINE (L1) & (L2) OF CONTACTOR IF COIL VOLTAGE IS 208V OR ABOVE.
- 4) DO NOT CONNECT CONTROL CIRCUIT DIRECTLY TO LINE (L1) & (L2) OF CONTACTOR IF COIL VOLTAGE IS 120V OR LESS. (FACTORY WIRING STANDARD)
- 5) X1 & X2 INDICATES CONNECTION TO REMOTE CONTROL SOURCE.

Enclosure Dimensions

- See enclosure drawings by Figure No. on the opposite page
- Dimensions are in decimal inches
- Dimensions not intended for manufacturing purposes
- For other dimensions, please refer to factory

TYPE 1 - GENERAL PURPOSE ENCLOSURE

Encl. ID Dim.	Figure No.	Enclosure Size			Mtg Depth		Mtg Centers		Panel Size Sub-Pan		H
		A	B	C	D	E	F				
A	2	10	8	6	5.5	7	7	8.25	6.25	N/A	
B	2	12	10	6	5.5	9	9	10.25	8.25	N/A	
C	2	16	12	6.62	6	7	13.88	13	10.5	N/A	
C2	2	16	12	8.62	8	7	13.88	13	10.5	N/A	
D	2	20	16	6.62	6	11	17.88	17	14.5	N/A	
D3	2	20	16	8.62	8	11	17.88	17	14.5	N/A	
E	2	24	20	8.62	8	15	21.88	21	18.5	N/A	
E2	2	24	20	10.62	10	15	21.88	21	18.5	N/A	
F	2	30	24	8.62	8	16.75	27.5	26	22.5	N/A	
G	2	30	24	12.62	12	16.75	27.5	26	22.5	N/A	
H	2	36	30	12.62	12	22.75	33.5	32	28.5	N/A	
I	2	42	30	13.25	12.09	22.76	39.88	39	27	N/A	
J	2	48	36	13.25	12.09	28.76	45.88	45	33	N/A	
J2	(Type 12 Enclosure, See Table Below)										
K2	(Type 12 Enclosure, See Table Below)										
K3	(Type 12 Enclosure, See Table Below)										
M	2	10	8	6	5.5	7	7	8.25	6.25	N/A	
O	2	14	12	6	5.47	10.98	11.02	12.25	10.25	N/A	
S	2	36	24	8.62	8	16.75	33.5	32	22.5	N/A	

TYPE 12 - INDUSTRIAL DUST TIGHT ENCLOSURE

Encl. ID Dim.	Figure No.	Enclosure Size			Mtg Depth		Mtg Centers		Panel Size Sub-Pan		H
		A	B	C	D	E	F				
C2	4	16	14	8	7.53	12	16.75	14.75	12.88	17.5	
C3	4	16	14	10	9.53	12	16.75	14.75	12.88	17.5	
H	5	36	30	12	12	24	37.25	33	27	38.5	
I	5	42	30	12	12	24	43.25	39	27	44.5	
J	5	48	36	12	12	30	49.25	45	33	50.5	
J2	5	48	36	16	16	30	49.25	45	33	50.5	
K2	5	60	36	16	16	30	61.25	57	33	62.5	
K3	5	60	36	12	12	30	61.25	57	33	62.5	
L	4	8	6	6	5.53	4	8.75	6.75	4.88	9.5	
M	4	10	8	6	5.53	6	10.75	8.75	6.88	11.5	
O	4	14	12	6	5.53	10	14.75	12.75	10.88	15.50	
Q	5	20	16	8	8	10	21.25	17	13	22.5	
Q2	5	20	16	10	10	10	21.25	17	13	22.5	
R	5	24	20	8	8	14	25.25	21	17	26.5	
R2	5	24	20	10	10	14	25.25	21	17	26.5	
T	5	30	24	10	10	18	31.25	27	21	32.5	
W	5	42	36	12	12	30	43.25	39	33	44.5	

TYPE 3R - RAIN TIGHT ENCLOSURE

Encl. ID Dim.	Figure No.	Enclosure Size			Mtg Depth		Mtg Centers		Panel Size Sub-Pan		H
		A	B	C	D	E	F				
L	7	10	8	6	5.46	3	11	8.25	6.25	12	
M	7	12	10	6	5.46	3	13	10.25	8.25	14	
O	8	18	18	10	8.1	13	19	15	15	20	
Q	8	20	20	8	6.98	13	21	17	17	22	
R	8	24	20	8	6.98	13	25	21	17	26	
R2	8	24	24	10	8.81	13	25	21	21	26	
T	5	30	24	10	8.81	13	31	27	21	32.5	
H	8	36	30	12	10.97	27	37	33	27	38	
I	8	42	30	12	10.97	27	43	39	27	44	
W	8	42	36	12	10.97	27	43	39	33	44	
J	8	48	36	12	10.97	27	49	45	33	50	

C Starters & Enclosed Products

Enclosure Dimensions

See dimension tables on previous page.

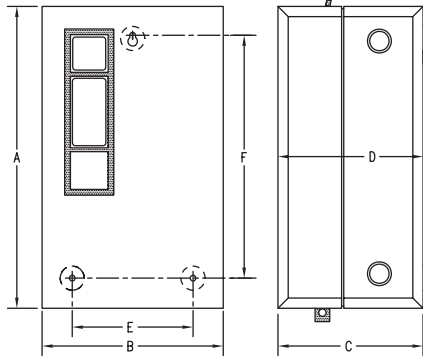


FIGURE NO. 1

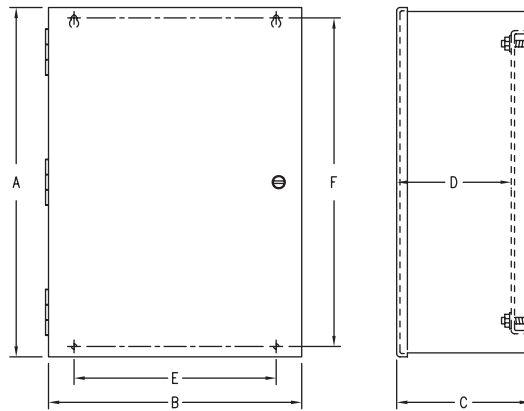


FIGURE NO. 2

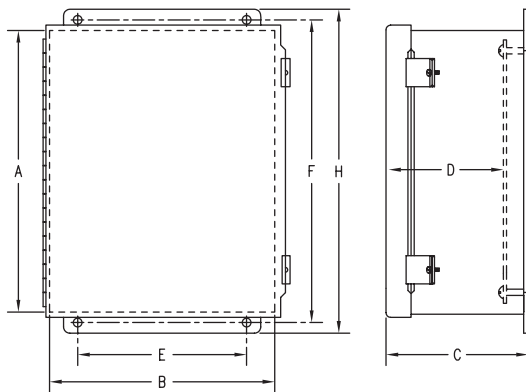


FIGURE NO. 4

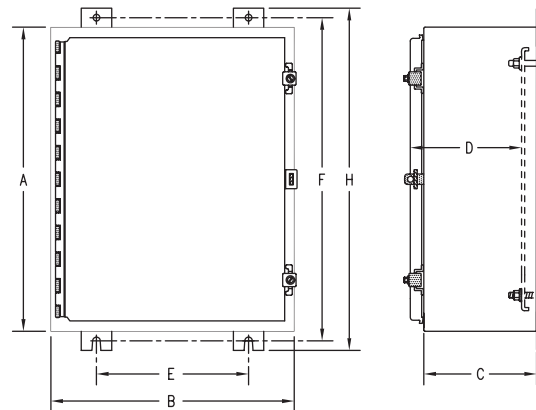


FIGURE NO. 5

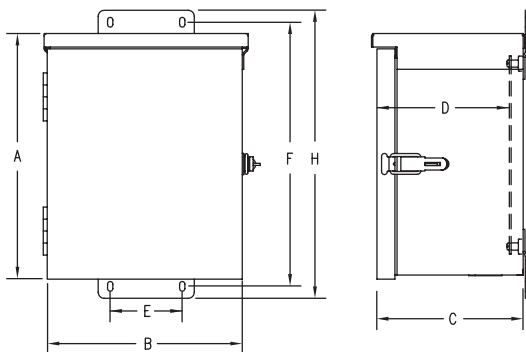


FIGURE NO. 7

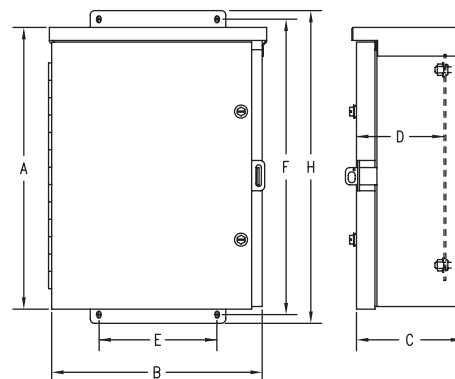


FIGURE NO. 8

Enclosure Dimensions

- See enclosure drawings by Figure No. on the opposite page
- Dimensions are in decimal inches
- Dimensions not intended for manufacturing purposes
- For other dimensions, please refer to factory

TYPE 4 - WATER TIGHT ENCLOSURE

Encl. ID Dim.	Figure No.	Enclosure Size			Mtg Depth D	Mtg Centers		Panel Size Sub-Pan		
		A	B	C		E	F			H
C	10	16	12	6	6	9.5	17.24	13	9	18.5
C2	10	16	12	8	8	9.5	17.24	13	9	18.5
H	10	36	30	12	12	24	37.24	33	27	38.5
J	10	48	36	12	12	30	49.24	45	33	50.5
M	9	10	8	6	5.53	6	10.75	8.75	6.88	11.5
N	9	12	10	5	4.53	8	12.75	10.75	8.88	13.5
O	9	14	12	6	5.53	10	14.75	12.75	10.88	15.5
Q	10	20	16	8	8	10	21.24	17	13	22.5
Q2	10	20	16	10	10	10	21.24	17	13	22.5
R	10	24	20	8	8	14	25.24	21	17	26.5
R2	10	24	20	10	10	14	25.24	21	17	26.5
T	10	30	24	10	10	18	31.24	27	21	32.5

TYPE 4X - WATER TIGHT, CORROSION RESISTANT, NON-METALLIC ENCLOSURE

Encl. ID Dim.	Figure No.	Enclosure Size			Mtg Depth D	Mtg Centers		Panel Size Sub-Pan		
		A	B	C		E	F			H
S1	13	7.32	5.94	5.50	4.52	5.16	6.54	4.13	5.5	N/A
U1	13	11.89	7.32	6.93	5.85	6.54	11.10	5.47	8.98	N/A
V1	13	14.65	11.89	6.93	5.85	11.10	13.86	10	11.73	N/A
V2	13	14.65	11.89	9.69	8.23	11.10	13.86	10	11.73	N/A
W1	13	23.74	14.65	6.93	5.85	13.78	22.91	12.76	20.78	N/A
W2	13	23.74	14.65	9.69	8.23	13.78	22.91	12.76	20.78	N/A
X1	14	30.25	24.63	11.80	10.25	18	31.95	27	21	33.13
A2	14	36.25	30.63	13.8	12.25	24	37.58	33	27	39.13
Y1	14	48.25	36.63	13.8	12.25	30	49.58	45	33	50.82
Z1	14	60.25	36.63	13.8	12.25	30	61.58	57	33	62.82

C Starters & Enclosed Products

Enclosure Dimensions

See dimension tables on previous page.

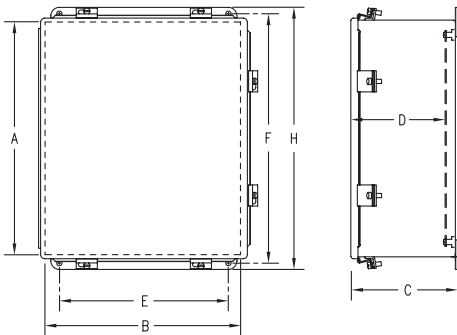


FIGURE NO. 9

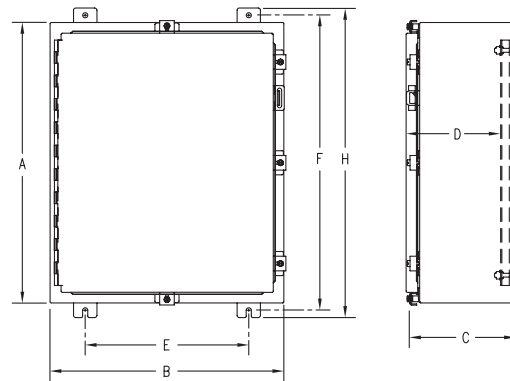


FIGURE NO. 10

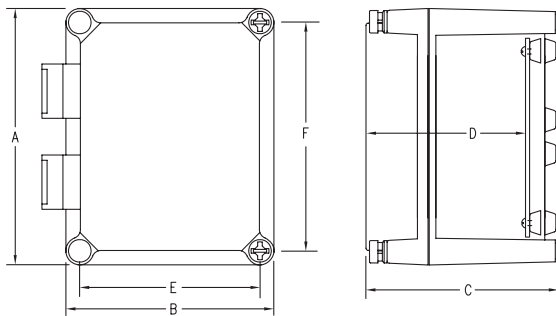


FIGURE NO. 13

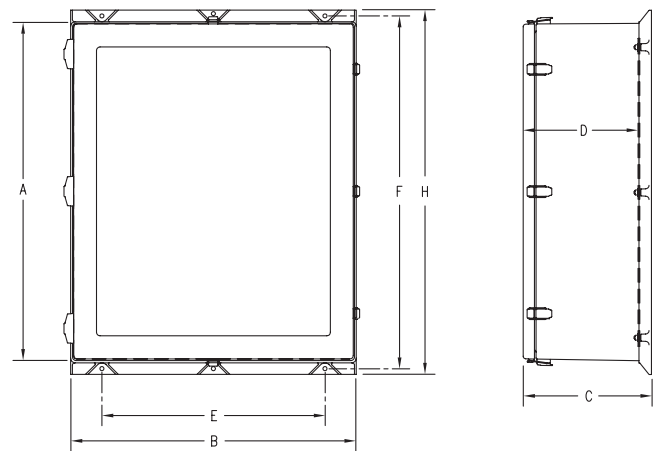


FIGURE NO. 14

G
Starters & Enclosed Products

Type 7/9 - Explosion Proof Enclosure Dimensions

Dimensions are in decimal inches. Dimensions not intended for manufacturing purposes.

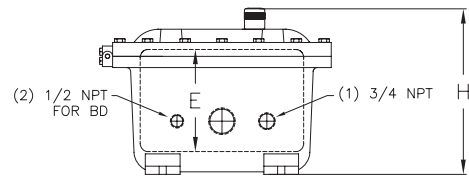
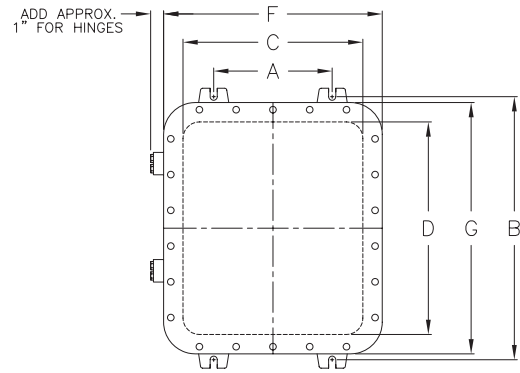
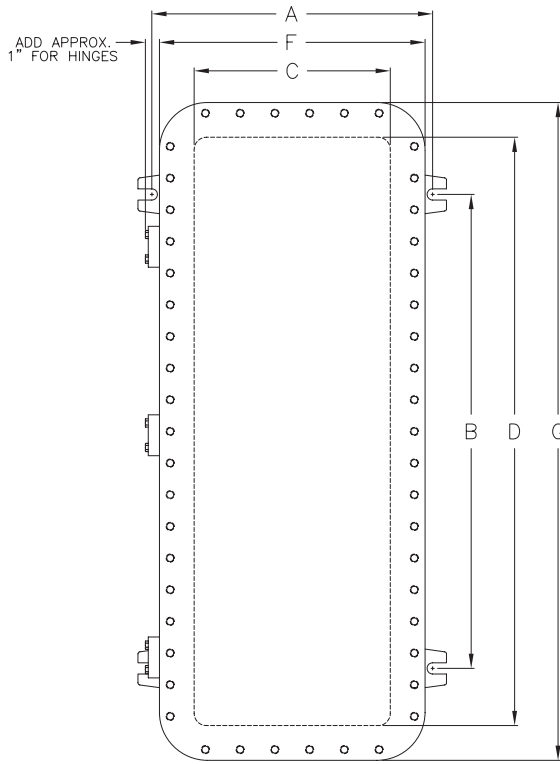


FIGURE NO. 2

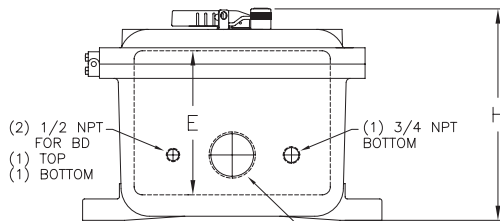


FIGURE NO. 1

Encl. ID Dim.	Figure No.	Mounting Dims		Inside Dims			Overall Dims			Panel Size Sub-Pan		Conduit Entry Top & Bot
		A	B	C	D	E	F	G	H			
A7	2	7.25	14.50	10.0	12.0	7.25	13.38	15.38	10.13	10.88	8.88	1.25
B7	2	8.50	27.13	12.0	24.0	8.94	16.25	28.25	12.5	11.0	23.0	2.0
C7	1	15.75	29.0	12.0	36.0	8.94	16.25	40.25	12.94	10.75	34.75	2.5
D7	1	19.75	39.0	16.0	46.0	11.81	20.88	50.88	15.81	14.50	44.50	4.0
E7	2	7.25	16.19	10.0	14.0	6.75	13.38	17.38	9.69	8.88	12.88	1.0
F7	2	8.50	27.13	12.0	24.0	6.94	16.25	28.25	10.50	11.0	23.0	1.5
G7	1	15.75	29.0	12.0	36.0	8.94	16.25	40.25	12.94	10.75	34.75	2.0
H7	1	19.75	39.0	16.0	46.0	11.81	20.88	50.88	15.81	14.50	44.5	4.0

C Starters & Enclosed Products