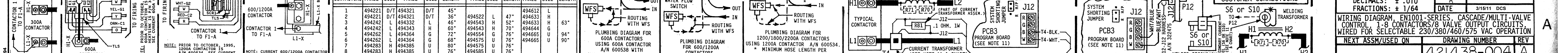
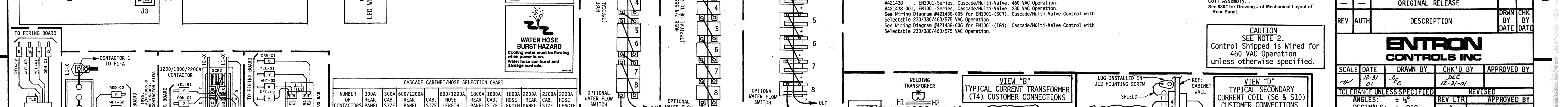
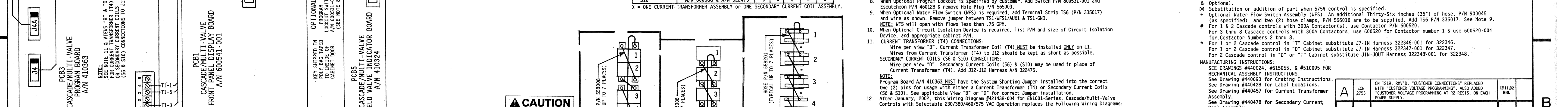
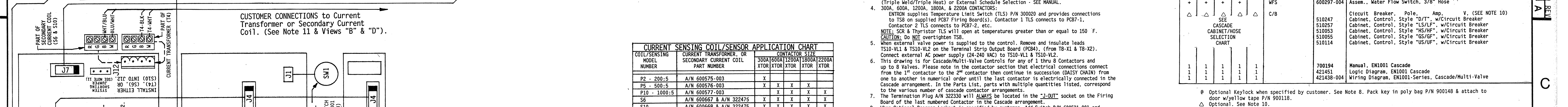
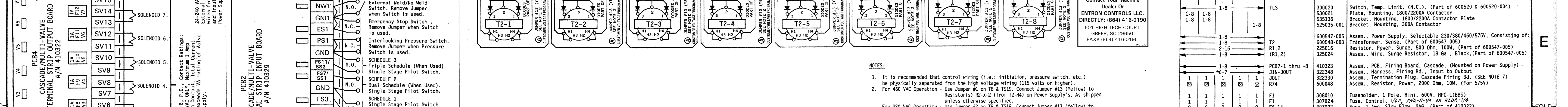
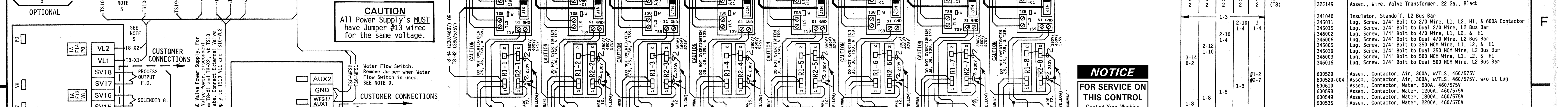
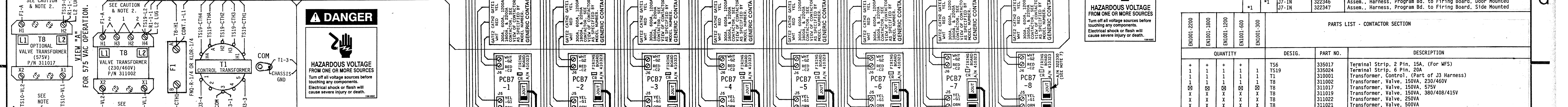
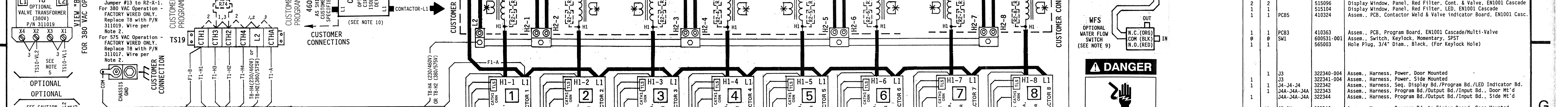


CAUTION - READ MANUAL & ALL NOTES BEFORE INSTALLING OR OPERATING CONTROL - SEE NOTE 1.  
NO CIRCUIT CALIBRATION OR ADJUSTMENT EVER REQUIRED.



421438-004 A

QTY	DESIG.	PART NO.	DESCRIPTION
1	PCB1	600685	Assem., Dial Plate, EN1001 Cascade, Consisting of:
1	1	600541-001	Terminal Strip, 6 Pin, 20A.
1	1	540298	Display Panel, Front Panel Display Board
1	1	515996	Illustrated Panel, Dial Plate, EN1001 Cascade/Multi-Valve
1	1	410324	Display Window, Panel, Red Filter, Cont. & Valve, EN1001 Cascade
1	1	410324	Display Window, Panel, Red Filter, LED, EN1001 Cascade
1	1	410324	Assem., PCB, Contactor Weld & Valve Indicator Board, EN1001 Casc.
1	PCB3	410363	Assem., PCB, Program Board, EN1001 Cascade/Multi-Valve
1	SW1	600531-001	Assem., Switch, Keylock, Momentary, SPST
1	1	565003	Note Plug, 3/4" Diam., Black, (For Keylock Hole)
1	J33	322340-004	Assem., Harness, Power, Door Mounted
1	J33	322341-004	Assem., Harness, Power, Side Mounted
1	J34	322342	Assem., Harness, Seq. Display Bd./Program Bd./LED Indicator Bd.
1	J4A-J4A-J4A	322343	Assem., Harness, Program Bd./Output Bd./Input Bd., Door Mt'd
1	J4A-J4A-J4A	322344	Assem., Harness, Program Bd./Output Bd./Input Bd., Side Mt'd
1	J7-IN	322346	Assem., Harness, Program Bd. to Firing Board, Door Mounted
1	J7-IN	322347	Assem., Harness, Program Bd. to Firing Board, Side Mounted

QTY	DESIG.	PART NO.	DESCRIPTION
1	TS6	335017	Terminal Strip, 2 Pin, 15A, (For WFS)
1	TS6	335024	Terminal Strip, 6 Pin, 20A
1	T1	310001	Transformer, Control, (Part of J3 Harness)
1	T1	311002	Transformer, Valve, 150VA, 230/460V
1	T1	311011	Transformer, Valve, 150VA, 380/408/415V
1	T1	311022	Transformer, Valve, 250VA
1	T1	311021	Transformer, Valve, 500VA
1	T8	325149	Assem., Wire, Valve Transformer, 22 Ga., Black
1-3	1-10	341040	Insulator, Standoff, L2 Bus Bar
1-3	1-10	346011	Lug, Screw, 1/4" Bolt to Dual 2/0 Wire, L1, L2, H1, & 600A Contactor
1-3	1-10	346015	Lug, Screw, 1/4" Bolt to Dual 2/0 Wire, L1, L2, & H1
1-3	1-10	346020	Lug, Screw, 1/4" Bolt to Dual 4/0 Wire, L1, L2, & H1
1-3	1-10	346025	Lug, Screw, 1/4" Bolt to Dual 4/0 Wire, L2 Bus Bar
1-3	1-10	346035	Lug, Screw, 1/4" Bolt to 350 MCM Wire, L1, L2, & H1
1-3	1-10	346010	Lug, Screw, 1/4" Bolt to Dual 350 MCM Wire, L2 Bus Bar
1-3	1-10	346003	Lug, Screw, 1/4" Bolt to 500 MCM Wire, L1, L2, & H1
1-3	1-10	346015	Lug, Screw, 1/4" Bolt to Dual 500 MCM Wire, L2 Bus Bar
1-8	1-8	600520	Assem., Contactor, Air, 300A, w/LS, 460/575V
1-8	1-8	600520-004	Assem., Contactor, Air, 300A, w/LS, 460/575V, w/o L1 Lug
1-8	1-8	600610	Assem., Contactor, Water, 600A, 460/575V
1-8	1-8	600598	Assem., Contactor, Water, 1200A, 460/575V
1-8	1-8	600540	Assem., Contactor, Water, 1800A, 460/575V
1-8	1-8	600535	Assem., Contactor, Water, 2200A, 460/575V
1-8	1-8	300020	Switch, Temp. Limit, (N.C.), (Part of 600520 & 600520-004)
1-8	1-8	530021	Plate, Mounting, 1800/2200A Contactor
1-8	1-8	535136	Bracket, Mounting, 1800/2200A Contactor Plate
1-8	1-8	525035-001	Bracket, Mounting, 300A Contactor
1-8	1-8	600547-005	Assem., Power Supply, Selectable 230/380/460/575V, Consisting of:
1-8	1-8	600548-003	Transformer, Sense, (Part of 600547-005)
1-8	1-8	600549	Resistor, Power, Surge, 500 Ohm, 100W, (Part of 600547-005)
1-8	1-8	325024	Assem., Wfr. Surge Resistor, 18 Ga., Black, (Part of 600547-005)
1-8	1-8	410323	Assem., PCB, Firing Board, Cascade, (Mounted on Power Supply)
1-8	1-8	322348	Assem., Harness, Firing Bd., Input to Output
1-8	1-8	322330	Assem., Termination Plug, Cascade Firing Bd. (See Note 7)
1-8	1-8	600048	Assem., Resistor, Power, 2000 Ohm, 10W, (For 575V)
1	1	308010	Fuseholder, 1 Pole, Mini, 600V, HPC-(LBS)
1	1	307024	Fuse, Control, 1/4", 250V, 1/4" x 1/4" x 1/4" x 1/4"
1	1	307022	Fuse, 1 Amp, Slow Blow, 250V, (Part of 410323)
1	1	346004	Lug, Screw, Chassis GND, 5/16" Bolt to 2/0 Wire
1	1	410323	Assem., PCB, Terminal Strip Input Bd., Cascade
1	1	410322	Assem., PCB, Terminal Strip Output Bd., Cascade
1	1	510236	Plate Mounting, Terminal Strip Input & Output Boards
1	1	SEE 74/56/S10 CHART	Assem., Transformer, Current, 200V, P2
1	1	SEE CHART	Assem., Transformer, Current, 500V, P3
1	1	SEE CHART	Assem., Transformer, Current, 1000V, P4
1	1	SEE 74/56/S10 CHART	S6
1	1	SEE 74/56/S10 CHART	S10
1	1	SEE 74/56/S10 CHART	J12-J12
1	1	900045	Hose, 3/8" I.D.
1	1	558008	Hose, 3/8" I.D. x 12" Long
1	1	558001	Hose, 3/8" I.D. x 2-3/8" Dia. Coil x 18" Long
1	1	556010	Hose Clamp, 3/8" Hose
1	1	600179	Assem., Water Fitting, 3/8" Hose
1	1	600297-004	Assem., Water Flow Switch, 3/8" Hose
1	1	C/B	Circuit Breaker, Pole, Amp
1	1	510247	Cabinet, Control, Style "DT", w/Circuit Breaker
1	1	510257	Cabinet, Control, Style "LS/LF", w/Circuit Breaker
1	1	510053	Cabinet, Control, Style "HS/HF", w/Circuit Breaker
1	1	510055	Cabinet, Control, Style "SS/SP", w/Circuit Breaker
1	1	510114	Cabinet, Control, Style "US/UF", w/Circuit Breaker
1	1	700194	Manual, EN1001 Cascade
1	1	421451	Logic Diagram, EN1001 Cascade
1	1	421438-004	Wiring Diagram, EN1001-Series, Cascade/Multi-Valve

**HAZARDOUS VOLTAGE**  
FROM ONE OR MORE SOURCES  
Turn off all voltage sources before touching any components.  
Electrical shock or flash will cause severe injury or death.

**NOTICE**  
FOR SERVICE ON THIS CONTROL  
Contact Your Machine Dealer Or  
ENTRON CONTROLS LLC  
DIRECTORIES: (864) 416-0190  
601 HIGH TECH COURT  
GREEN, SC 29650  
FAX: (864) 416-0195

- NOTES:
- It is recommended that control wiring (i.e., initiation, pressure switch, etc.) be physically separated from the high voltage wiring (115 volts or higher).
  - For 460 VAC Operation - Use Jumper #1 on T8 & TS19. Connect Jumper #15 (Yellow) to Resistor(s) R2-X-2 (from T2-H4) on Power Supply's. As shipped unless otherwise specified.
  - For 380 VAC Operation - Use Jumper #2 on T8 & TS19. Connect Jumper #13 (Yellow) to Resistor(s) R2-X-2 (from T2-H4) on Power Supply's. Factory Wired Only. See VIEW "B" - Replace T8 with P/N 311019. Wire per view "B". Use Jumper #3 on T8 & TS19. Connect Jumper #15 (Yellow) to Resistor(s) R2-X-2 (from T2-H4) on Power Supply's.
  - For 575 VAC Operation - Use Jumper #1 on T8 & TS19. Connect Jumper #15 (Yellow) to Resistor(s) R2-X-2 (from T2-H4) on Power Supply's. Factory Wired Only. See VIEW "A" - Replace T8 with P/N 311017. Wire per view "A". Use Resistor R74 (2000 Ohm, 10 Watt) in place of Jumper #1 between CTH2 & CTR3 on TS19. Use Jumper #1 between CTH4 & L2 on TS19. Connect Jumper #15 (Yellow) to Resistor(s) R2-X-2 (from T2-H4) on Power Supply's.

- When external valve power is supplied to the control, remove and insulate leads TS10-VL1 & TS10-VL2 on the Terminal Strip Output Board (PCB4), (from T8-X1 & T8-X2). Connect external AC power supply (24-240 VAC) to TS10-VL1 & TS10-VL2.
- This drawing is for Cascade/Multi-Valve controls for any of 1 thru 8 contactors and up to 8 valves. Please note in the contactor section that electrical connections connect from the 1st contactor to the 2nd contactor then continue in succession (DAISY CHAIN) from one to another in numerical order until the last contactor is electrically connected in the Cascade arrangement. In the Parts List, parts with multiple quantities listed, correspond to the various number of cascade contactor arrangements.
- The Termination Plug A/N 322330 will ALWAYS be located in the "OUT" socket on the Firing Board of the last numbered contactor in the Cascade arrangement.
- When Optional Program Lockout is specified by customer, Add Switch P/N 600531-001 and Escutcheon P/N 460128 and remove Note Plug P/N 565003.
- When Optional Water Flow Switch (WFS) is required, add Terminal Strip TS6 (P/N 335017) and wires as shown. Remove jumper between TS1-WFS1/AUX1 & TS1-GND.
- NOTE: WFS will open with flows less than .75 GPM.
- When Optional Circuit Isolation Device is required, list P/N and size of Circuit Isolation Device, and appropriate cabinet P/N.
- CURRENT TRANSFORMER (T4) CONNECTIONS:  
Wire per view "B" - Current Transformer Coil (T4) MUST be installed ONLY on L1.  
Wires from Current Transformer (T4) to J12 should be kept as short as possible.
- SECONDARY CURRENT COILS (S6 & S10) CONNECTIONS:  
Wire per view "D" - Secondary Current Coils (S6 & S10) may be used in place of Current Transformer (T4). Add J12-J12 Harness A/N 322475.

NOTE:  
Program Board A/N 410363 MUST have the System Shorting Jumper installed into the correct "C" pins for usage with either a Current Transformer (T4) or Secondary Current Coils (S6 & S10). See applicable view "B" or "D" for correct Jumper installation.

NOTE:  
After January, 2002, this Wiring Diagram #421438-004 for EN1001-Series, Cascade/Multi-Valve Controls with Selectable 230/380/460/575 VAC Operation replaces the Following Wiring Diagrams:  
#421438 - EN1001-Series, Cascade/Multi-Valve, 460 VAC Operation.  
#421438-001, EN1001-Series, Cascade/Multi-Valve, 230 VAC Operation.  
See Wiring Diagram #421438-005 for EN1001-(ISCR), Cascade/Multi-Valve Control with Selectable 230/380/460/575 VAC Operation.  
See Wiring Diagram #421438-006 for EN1001-(IGM), Cascade/Multi-Valve Control with Selectable 230/380/460/575 VAC Operation.

**CAUTION**  
SEE NOTE 2.  
Control Shipped is Wired for 460 VAC Operation unless otherwise specified.

MANUFACTURING INSTRUCTIONS:  
SEE DRAWINGS #440024, #510555, & #510095 FOR MECHANICAL ASSEMBLY INSTRUCTIONS.  
See Drawing #440024 for Crating Instructions.  
See Drawing #440428 for Label Locations.  
See Drawing #440457 for Current Transformer Assembly.  
See Drawing #440478 for Secondary Current Coil Assembly.  
See 8809 for Drawing of Mechanical Layout of Rear Panel.

REV	DATE	DESCRIPTION	DRWN	CHK'D	BY	DATE
1	12-31-01	ORIGINAL RELEASE	DEC	12-31-01		
2	12-31-01	REVISED	DEC	12-31-01		

ANGLES: ± 0.010  
DECIMALS: ± 0.010  
FRACTIONS: ± 1/64

WIRING DIAGRAM, EN1001-SERIES, CASCADE/MULTI-VALVE CONTROL, 1-8 CONTACTORS/8 VALVE OUTPUT CIRCUITS, WIRED FOR SELECTABLE 230/380/460/575 VAC OPERATION

REVISED DATE: 3/18/11 DCB

421438-004 A