



R.O. RELAY FUNCTIONS

ALL RELAYS OPERATE ON 24 VAC

CR-1

THE CR-1 CONTROL RELAY IS INSTALLED ONLY WHEN AN R.O. WATER STORAGE TANK OR AN R.O. BLADDER TANK SYSTEM IS USED. THE COIL OF CR-1 RELAY IS IN SERIES WITH ONE OF ITS' NORMALLY OPEN CONTACTS AND IS ALSO IN SERIES WITH THE CONTACTS OF THE "CUT-IN" AND "CUT-OUT" SWITCHES INSTALLED WITH THE STORAGE TANK. THIS RELAY WILL START THE RO SYSTEM WHEN THE "UNIT ON" SWITCH IS PRESSED WHEN THE LEVEL IN THE TANK IS BETWEEN THE FULL AND RE-START LEVELS. IF THE TANK IS FULL, THE R.O. WILL NOT START.

CR-2

CR-2 CONTROL RELAY IS THE LOW PRESSURE SHUT-OFF RELAY. THE COIL OF THIS RELAY IS IN SERIES WITH ONE SET OF ITS' OWN CONTACTS AND IS ALSO IN SERIES WITH THE NORMALLY OPEN CONTACT ON THE LOW PRESSURE SWITCH. THIS RELAY WILL SHUT OFF THE RO SYSTEM WHEN ACTIVATED BY TDR-3 LOW PRESSURE TIME DELAY RELAY.

CR-3

CR-3 CONTROL RELAY COIL IS IN SERIES WITH THE HIGH PUMP PRESSURE SHUT-OFF SWITCH. THIS RELAY WILL SHUT OFF THE RO SYSTEM WHEN THE RO PUMP PRESSURE EXCEEDS THE HIGH PUMP PRESSURE SWITCH SETTING, USUALLY 350-PSI.

CR-4

CR-4 CONTROL RELAY COIL IS WIRED IN SERIES WITH A MICRO SWITCH LOCATED IN THE CONTROLLER OF WATER SOFTENER NUMBER "1". IF THE WATER SOFTENER STARTS REGENERATING WHILE THE RO SYSTEM IS OPERATING, THE MICRO SWITCH WILL ACTIVATE THE COIL OF CONTROL RELAY CR-4, WHICH WILL SHUT OFF THE RO SYSTEM. THIS IS DONE TO PREVENT THE BRINE FROM ENTERING THE SYSTEM WHILE ALERTING THE STAFF THE WATER SOFTENER IS IN REGENERATION. ONE SET OF CONTACTS ON CR-4 WILL ACTIVATE A "SOFT. IN REGEN." OR "PRE-TREAT. IN REGEN." LIGHT ON THE RO SYSTEM. THIS RELAY IS ALSO USED TO INTERLOCK THE RO WITH ALL OTHER PRE-TREATMENT TANKS.



CR-5

INSTALLED IN SYSTEMS MANUFACTURED PRIOR TO 2002

CR-5 CONTROL RELAY PROVIDES THE SAME FUNCTION AS CR-4 RELAY WHEN A SECOND WATER SOFTENER IS USED IN CONJUNCTION WITH THE FIRST WATER SOFTENER. WHEN TWO WATER SOFTENERS ARE USED, THE RO SYSTEM WILL SHUT OFF ONLY WHEN BOTH WATER SOFTENERS ARE IN REGENERATION

TDR-2

TDR-2 TIME DELAY RELAY IS INSTALLED WHEN THE RO SYSTEM IS USED WITH AN RO WATER STORAGE TANK OR AN RO WATER BLADDER TANK. THIS RELAY ALLOWS FOR A 3 SECOND TIME DELAY BEFORE THE RO PUMP STARTS. THIS WILL ALSO ALLOW THE INLET SOLENOID TO OPEN AND THE BOOSTER PUMP TO START BEFORE THE RO PUMP STARTS. THIS WILL PREVENT THE RO PUMP FROM STARTING DRY.

TDR-3

THE TDR-3 TIME DELAY RELAY PROVIDES A 3 SECOND DELAY DURING A LOW FEED WATER PRESSURE CONDITION. THE COIL OF THIS RELAY IS IN SERIES WITH THE NORMALLY CLOSED CONTACT ON THE LOW PRESSURE SWITCH. WHEN THE LOW PRESSURE SWITCH IS ACTIVATED BY A LOW FEED WATER CONDITION, THE LOW PRESSURE SWITCH THEN ACTIVATES THE 3 SECOND TIME DELAY. IF THE LOW PRESSURE CONDITION CONTINUES TO EXIST AFTER THE 3 SECOND TIME DELAY HAS ELAPSED, THE RO SYSTEM WILL SHUT OFF. IF THE PRESSUE CONDITION CESSSES TO EXIST DURING THE 3 SECOND TIOME DELAY, THE RO SYSTEM WILL STAY ON.

THIS TIME DELAY RELAY IS PROVIDED TO PREVENT THE R.O. SYSTEM FROM SHUTTING OFF WHEN SHORT PERIODS OF LOW PRESSURE CONDITIONS EXEST. A RECIRCULATING VALVE AT THE DISCHARGE OF THE RO PUMP PREVENTS THE RO FROM OPERATING DRY DURING THIS PERIOD.

TDR-4

WHEN THE "FLUSH" SWITCH IS PRESSED, THIS TIME DELAY RELAY OPENS THE FLUSH SOLENOID FOR 5 MINUTES, WHICH BYPASS THE FLOW CONTROL VALVE, TO PROVIDE A HIGHER REJECT FLOW TO FLUSH THE OUTSIDE SURFACE OF THE R.O MEMBRANES. AT THE END OF THE 5 MINUTE FLUSH CYCLE, THE RELAY RETURNS TO ITS'NORMAL STATE, AND THE RO SYSTEM RETUENS TO THE NORMAL RO MODE.



TDR-5

THIS RELAY IS THE INITIAL "ON" TIME DELAY RELAY. WHEN THE "LOW PRESSURE" SWITCH IS PRESSED TO START THE RO SYSTEM, A 5 TO 10 SECOND DELAY IS INITIATED. THIS ALLOWS THE BOOSTER PUMP TO START AND THE INLET WATER SOLENOID TO OPEN BEFORE THE RO PUMP STARTS. THIS PREVENTS THE RO PUMP FROM STARTING DRY.

TDR-6

THE TDR-6 TIME DELAY RELAY WILL PROVIDE A 5-MINUTE MUTE TO THE STOP THE AUDIBLE ALARM AT THE NURSES MONITOR. IF THE ALARM CONDITION IS NOT CORRECTED WITHIN THE 5-MINUTE DELAY, THE AUDIBLE ALARM WILL RETURN. THIS TIME DELAY WILL NOT MUTE THE DISINFECT AUDIBLE ALARM OR THE LOW VELOCITY ALARM.

TDR-7

THE TDR-7 TIME DELAY RELAY IS ACTIVATED WHEN THE DISINFECT KEY SWITCH IS TURNED ON, THIS 15 MINUTE DELAY SHUTS OFF THE RO SYSTEM FOR THIS 15-MINUTE PERIOD WHILE THE AUDIBLE ALARM REMAINS ACTIVATED. AT THE END OF THE 15-MINUTE DELAY, THE RO SYSTEM CAN BE STARTED. IF THE RO SYSTEM IS EQUIPPED WITH AN RO STORAGE AND PUMP SYSTEM, THE RO WILL START AUTOMATICALLY. IF THE SYSTEM WAS INSTALLED AS A DEMAND SYSTEM, THE LOW PRESSURE LIGHT WILL BE ACTIVATED. THE DISINFECT OUTLET ON THE SIDE (OR BACK) OF THE RO SYSTEM WILL ALSO BE ACTIVATED.