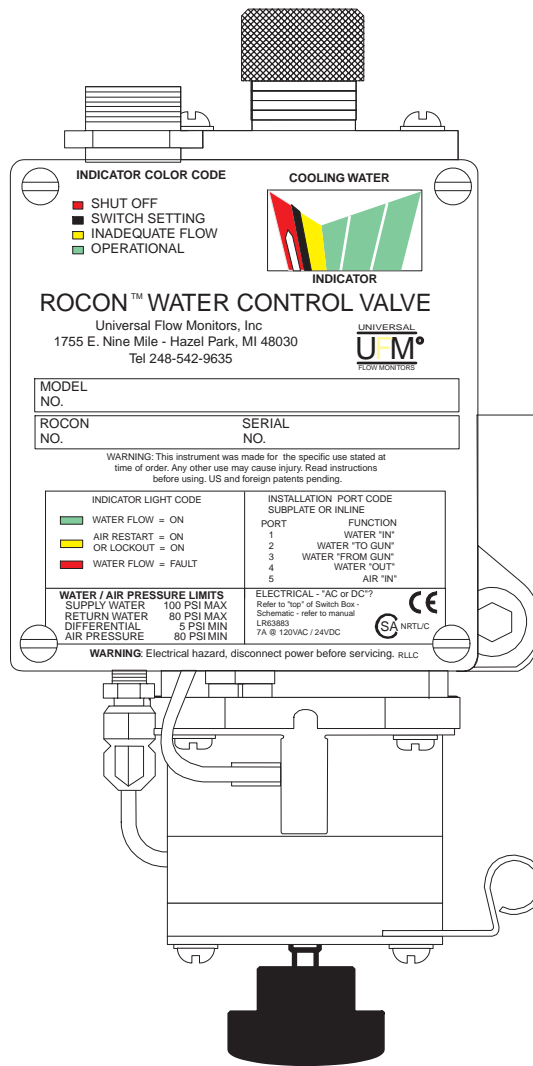


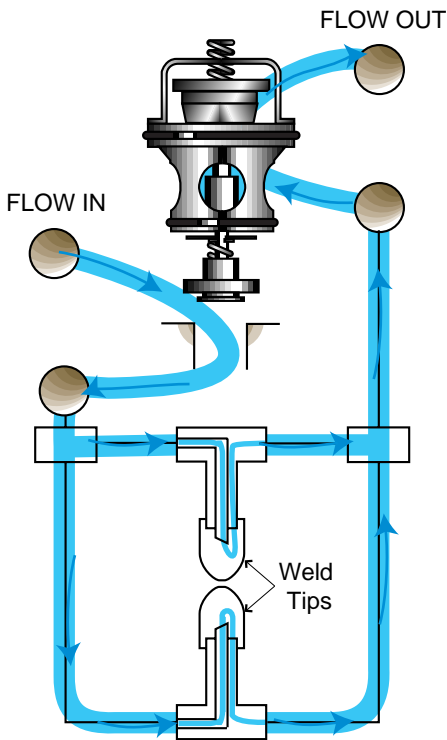
# ROCON

## (WCV) WATER CONTROL VALVE OPERATION & TROUBLESHOOTING MANUAL

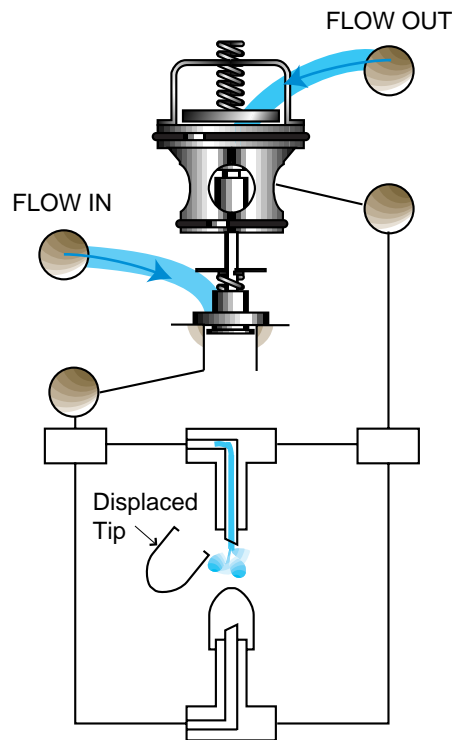


**For Service or Application Questions Contact Factory  
 Ph - 248-542-9635, Fax - 248-584-1490**

# How It Works

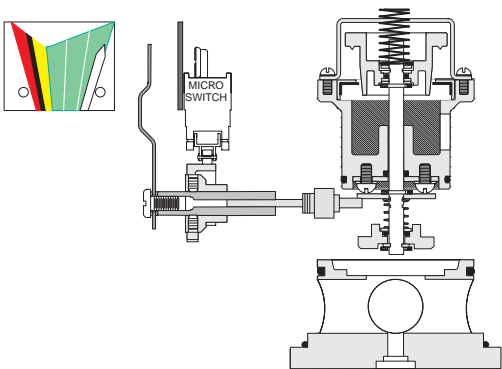


Water flows through the valve to the weld tips. Return flow holds the valve opened.

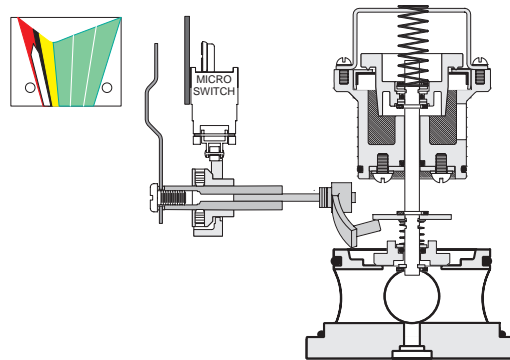


Weld tip displacement cause valve to close which immediately shuts off the water supply and return. This actuates the switch alarm. Minimum leakage of 2 oz. or less occurs.

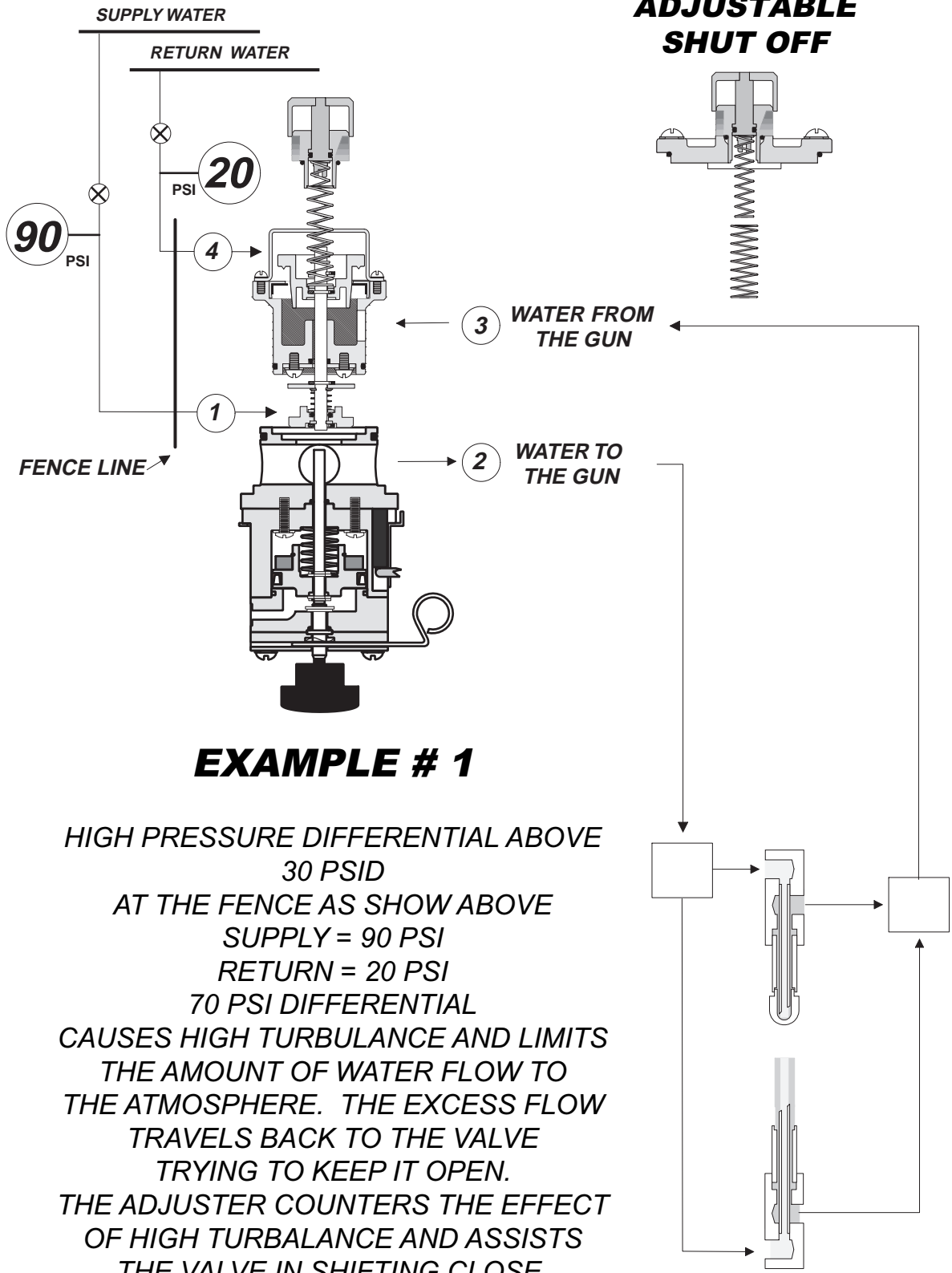
## CARTRIDGE OPEN



## CARTRIDGE CLOSED



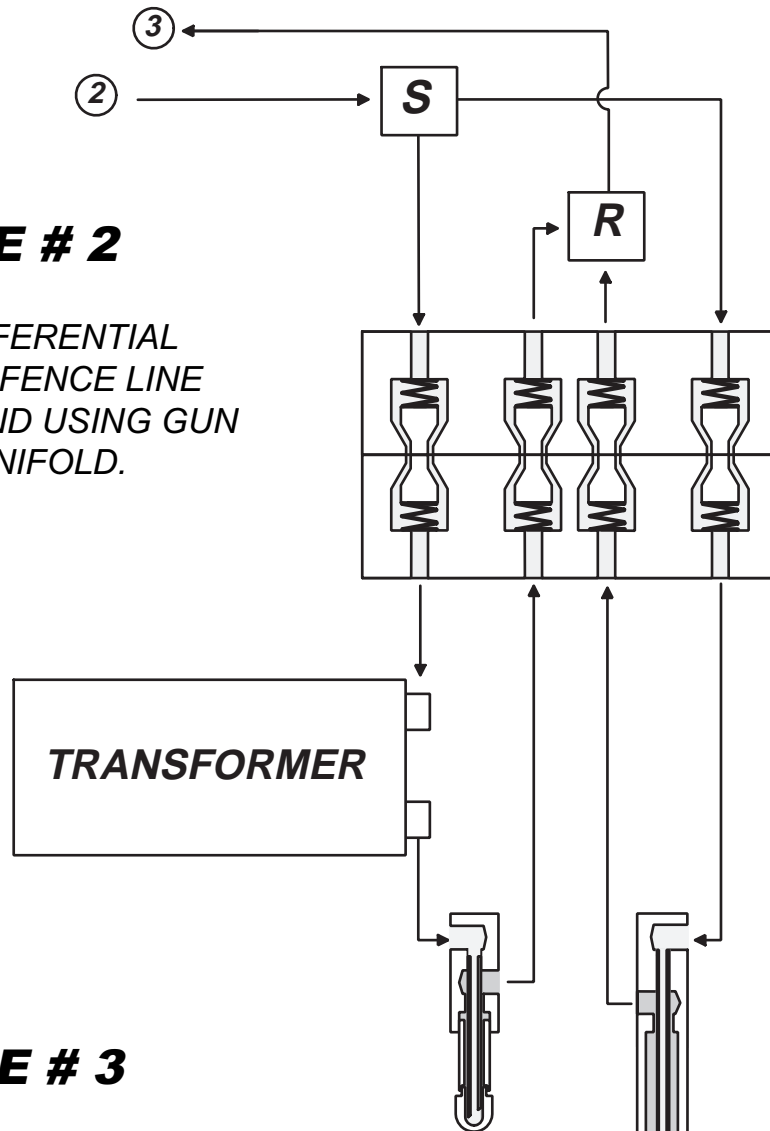
# How It Works-Adjuster Shut Off



# How It Works-Adjuster Shut Off

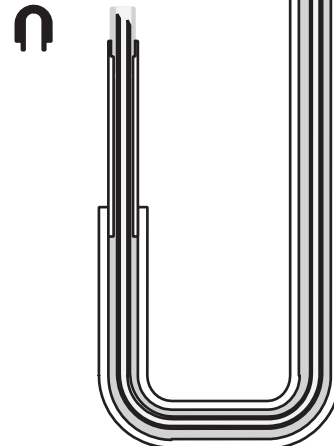
## **EXAMPLE # 2**

*HIGH WATER DIFFERENTIAL  
ABOVE 30 PSID AT FENCE LINE  
AT ROBOTIC CELL AND USING GUN  
CHANGER MANIFOLD.*



## **EXAMPLE # 3**

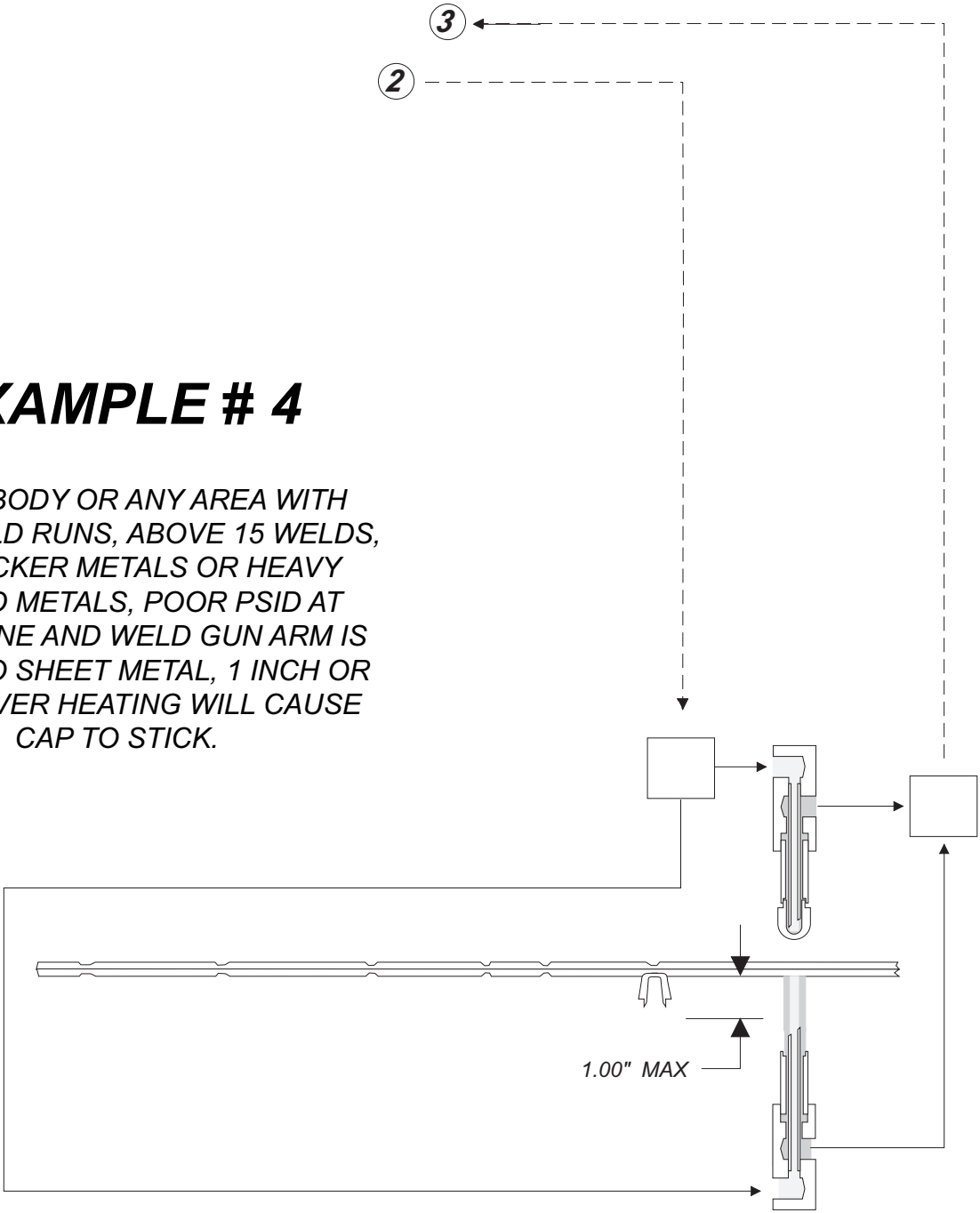
*C WELD GUN STYLE  
80 / 20 RULE  
80% WATER FLOW ONE ARM  
20% WATER FLOW THE OTHER ARM*



# How It Works-Adjuster Shut Off

## **EXAMPLE # 4**

*UNDERBODY OR ANY AREA WITH LONG WELD RUNS, ABOVE 15 WELDS, ON THICKER METALS OR HEAVY COATED METALS, POOR PSID AT FENCE LINE AND WELD GUN ARM IS CLOSE TO SHEET METAL, 1 INCH OR LESS. OVER HEATING WILL CAUSE CAP TO STICK.*



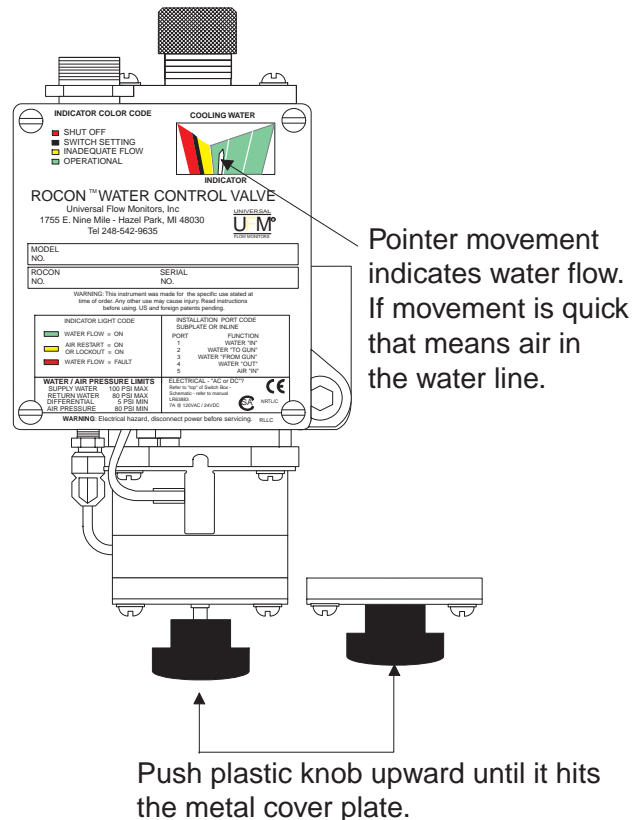
# INLINE or SUBPLATE STYLE VALVE STARTUP

- 1 -- Observe all safety rules before entering robotic cell.
- 2 -- Turn cooling water shut off valves OPEN.
- 3 -- Turn electrical power ON to robot cell.
- 4 -- Turn air shut off valve OPEN.
- 5 -- Are there water pressure gauges at the fence line?
  - A If yes record Supply and Return Water Pressure.
  - B If no try to get some 0 – 100 psi gauges and determine what the pressure differential is at the fence line.

6 -- Energize the Rocon Valve to the OPEN position:

### Manually Mode:

Push plastic knob upward as shown in graphic. If the water pressure differential is above 30 psid it will be hard to push plastic knob upward. (Suggest to make test easier close the ball valves part way closed to reduce the differential below 30 psid) Valve will not open until the plastic knob hits the metal plate – see graphic. You must HOLD KNOB in the restart position for 5 seconds or until the Flow Indicator Pointer registers water flow and all the air is removed from weld gun arms and Pointer stops moving.



If the valve does not start – Check:

- A - Confirm that water shut off valves are OPEN
- B - Are Supply / Return water legs correctly connected to header supply & return?
- C - The hoses to and from valve to weld gun arms hoses correctly?
- D - Pull caps from gun arms and confirm water tubes installed correctly?
- E - Is there adequate water flow + 0.5 GPM
- F - If valve still will not start refer to Trouble Shooting section in this manual.

# INLINE or SUBPLATE STYLE VALVE STARTUP

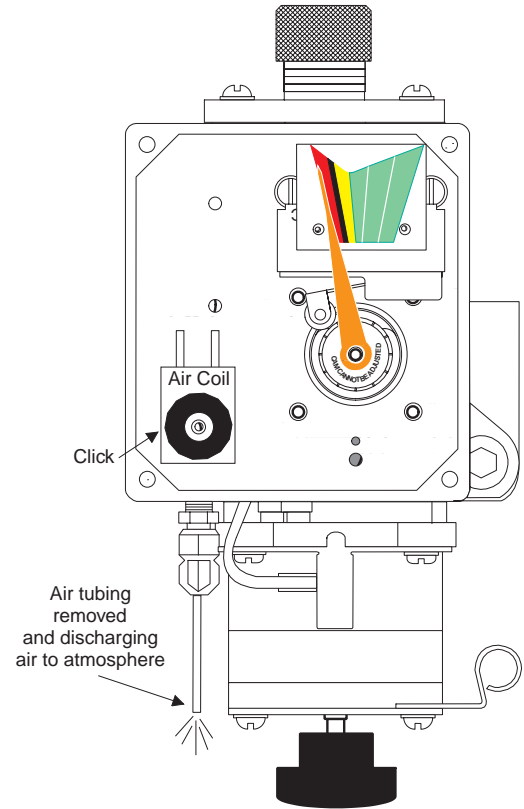
6 -- Energize the Rocon Valve to the OPEN position continued:

## Air Assist Restart Mode:

Energize Reset button (Customer supplied), if no timer is used hold push button **IN** or continue to energize button for 3 to 5 seconds or until all the air is removed and the cooling water indicator pointer registers water flow – stops movement.

If the valve does not start – Check:

- A - Follow steps in Manual Mode A – E.
- B - Confirm air supply valve is OPEN. Yes – go to step C, No – open air valve.
- C - Remove switch box cover, energize air coil. Do you hear clicking? Yes – proceed to D, No – check for power to coil, review electrical circuit is the voltage correct? Install new coil and contact factory.
- D - If coil is clicking remove air tubing from fitting (push in ferrule to remove) – see graphic. Energize coil, is air coming out of tubing? Yes – check that air regulator is set (E5C2 Air Cover) at 60 psi or above, (E5B2 Air Cover) set at 90 psi or 24 psi above return water pressure. No – Confirm Valve port #5 Air “IN” hoses correctly, main air ball valve open.
- E - If Valve still will not RESTART refer to the Trouble Shooting Section “Valve will not Restart or Stay Open - Air Restart”.



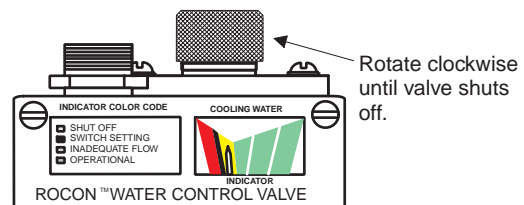
7 – After the valve is operational check for water flow fault at weld controller:

With the valve in the OPEN position (pointer indicating water flow) close one of the water shut off ball valves to the robot cell.

- A - Did the Flow Indicator Pointer shift to closed position? Yes - proceed to B. NO – If Pointer still will not shift to closed position refer to the Trouble Shooting Section.
- B - Did the weld controller or robot controller indicate a WATER FLOW FAULT? Yes - proceed to Step 9. NO -
  - 1 - Check wiring diagram to confirm proper installation.
  - 2 – Pull electrical connector and see if fault occurs.
  - 3 – Check for jumpers.
  - 4 – Remove switch box cover and confirm switch will click on and off.

8 – Pull weld gun arm caps one at a time

- A - Valve shut-off water. — Normal function.
- B - Valve DIDN'T shut-off. Turn shut off adjuster until water shuts Off. Refer to graphic.

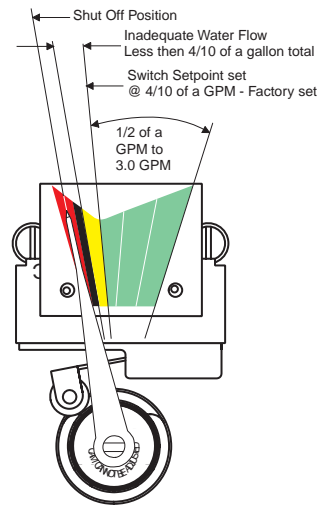


# INLINE or SUBPLATE STYLE VALVE STARTUP

- 9 -- Inspect Weld Gun arm when cap removed:  
 Is water tube orifice the proper distance from cap? If not correct.  
 Is the water tube orifice fully open? If not correct.  
 Is the water tube properly secured to the adapter? If not correct.  
 Is the water tube the correct size? If not correct.
- 10 -- Repeat step 9 and 10 for the other gun arm.
- 11 -- Optional - With both weld gun caps removed, manually force valve open, hold for 2 seconds. Repeat 3 times. This will remove any contamination that has been trapped in valve and gun arms during installation.

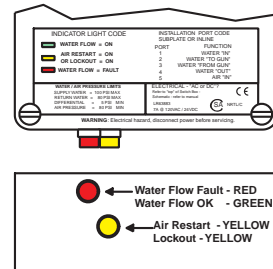
- 12 -- The Cooling Water Indication Window Pointer shows the amount of water flow to the weld gun arms. If at start up the Pointer stays in the Yellow Zone (total water flow is less than 12 GPM), expect to have nuisance tripping when Robot moves from home position to first weld. (low flow condition)

Water Flow testing Should be performed. Review "Test Procedure to Check and Balance Water Flow in Robot Cell" found in the "Trouble Shooting" Section of this manual.



- 13-- Optional On / Off /Bypass Lights:  
 Operation: Red Light = Valve Closed, Green Light = Valve Open.

When the Rocon Valve was in the closed position was the RED light ON? When the Rocon Valve was in the open position was the GREEN light ON? If both lights do not operate confirm that the proper voltage is present AC = 120 V, DC = 24V. If the air coil and electrical switch work but the lights do not contact factory.



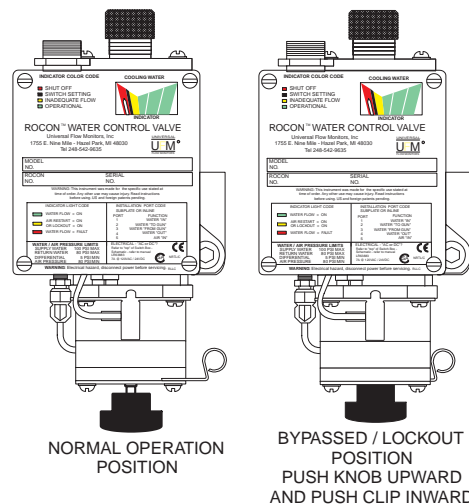
- 14-- Optional Air Lockout:  
 Operation: If the Rocon Valve malfunctions during production hours, the Manual Bypass feature when applied forces Cartridge Spools to stay in **OPEN** Position.

**Normal Operation:** The Rocon Valve operates as designed.

**Bypass Operation:** The Rocon Valve, Cartridge Spools are forced to stay in **OPEN** Position

- A – Force plastic knob upward
- B – Slide metal bypass clip inward
- C – Note pointer is in OPEN position and valve will never shut off.

**PLEASE NOTE:** When the Manual Bypass feature is in the **BYPASS** Mode the Cartridge Spools will not shift to **CLOSED** position when weld gun cap is removed. The Valve will not **SHUT OFF** the cooling water or **SEND** fault to weld controller.





# TROUBLESHOOTING

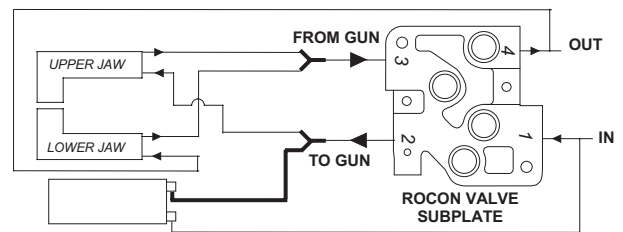
## PROBLEM: VALVE WON'T SHUT OFF- CAP REMOVED

### Probable Cause

- 1 **Water Circuit** - Improper hose dress.
- 2 **Water Circuit** – Weld Gun, Water Tube (Flexible) broke near inlet source
- 3 **Water Circuit** – “C” Weld Gun Style: Water tubes unequal length. Valve shuts-off when short gun arm cap is pulled but will not shut-off when long gun arm cap is removed.
- 4 **Water Circuit** – Weld Gun Changer used and plant cooling water pressure differential is above 30 PSID at fence – Valve sometimes does not shut off water when cap is pulled.
- 5 **Water Circuit** – Weld Gun arm close to sheet metal (Less then 1 inches) and cap is pulled.
- 6 **Water Circuit** – Weld Gun arms use different size adapters or tip holders: Valve shuts-off water when one gun arm cap is pulled but will not shut-off when other gun arm cap is removed.
- 7 **Water Circuit** - Valve monitoring Multiple Devices.
- 8 **Water Circuit** – Foreign object trapped in Cartridge - Spools not allowed to shift close.
- 9 **Air Circuit** - Air valve energized (Open) all the time or Air Valve spool malfunction, shifted to open position and can not close.
- 10 **Valve Mechanical** – Optional - Manual Lockout or Bypass feature in energized position.

### Solution

- 1 **Water Circuit** - Improper hose dress. Confirm that valve *PORTS* are hose dressed as graphic illustrates. Confirm that Port 1 is “Water IN” that Port #4 is “Water OUT”, Confirm that the hose to the weld gun from port #2 of valve is connected to the “IN” port of the weld gun arm. Confirm that the hose from the weld gun to port #3 of valve is connected to the “OUT” port of the weld gun arm.



- 2 **Water Circuit** – Weld Gun, Water Tube (Flexible) broke near inlet source.  
If weld gun has flexible water tube there is high probability that over time the tube will erode near inlet, break loose and restrict water flow trying to get to cap. The water entering the weld gun no longer is forced through the water tube therefore it will take path of least resistance and go to the outlet port of weld gun. When the cap is pulled the water can't freely flow to atmosphere because the water tube is restricting flow. A high percentage of the cooling water is allowed to come back to the Rocon Valve not allowing the Cartridge to shift close and shut off the water. To determined if this is problem shut off the supply and return water legs, pull weld gun cap, force Rocon Valve open. Turn supply water ball valve open observe if water is coming out of water tube or around water tube. If through tube – tube is OK.

**3 Water Circuit** –Weld Gun “C” Style: Water tubes unequal length. Valve shuts-off when short gun arm cap is pulled but will not shut-off when long gun arm cap is removed.

We call this the 80 / 20 rule. 80% of the water flow is through the shorter arm. The valve works on a water flow principal, if 50% of the water flow disappears the valve will shut off. “C” weld guns have always presented problems for Rocon. In the past we suggested that the valve be hose dressed in series but this restricted the water flow through the gun by about 40%. Rocon’s new Adjustable Shut Off allows the user to hose dress gun arms in parallel.

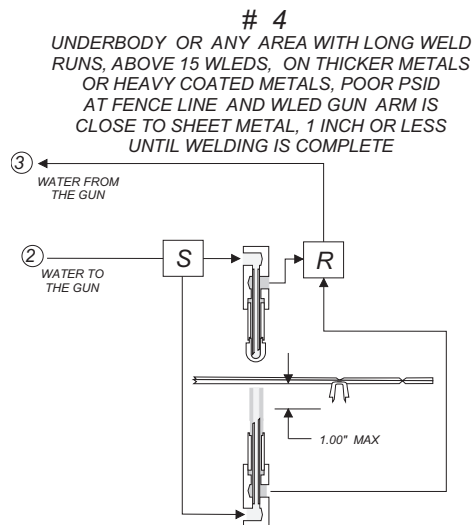
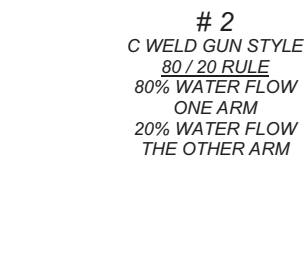
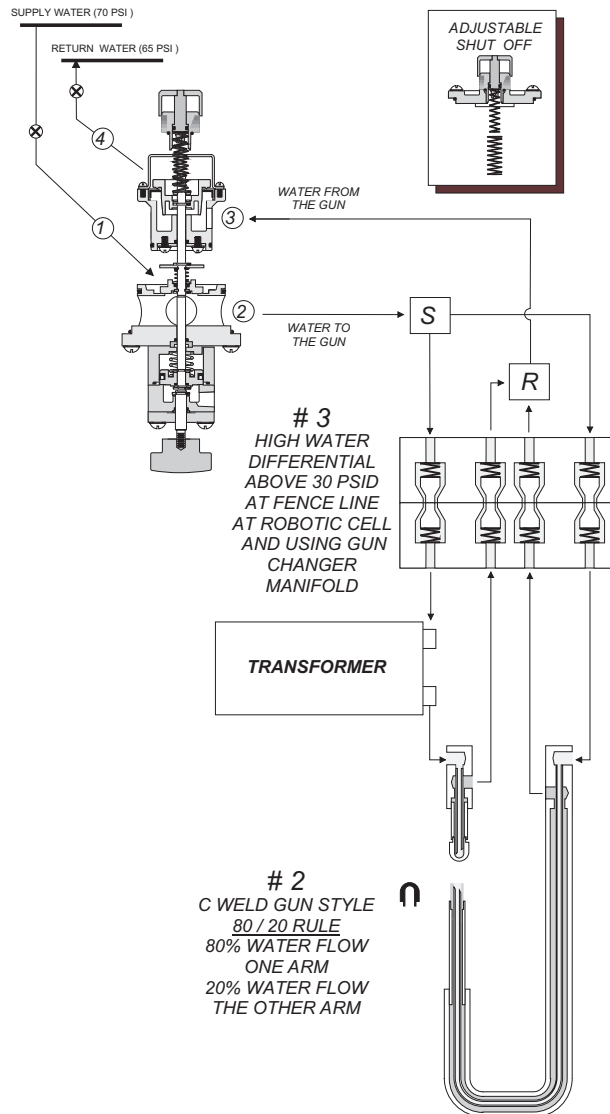
If the cap is pulled on any gun arm and the valve did not shut off water – Turn adjustment knob until the valve shuts off the water. Valve is now programmed to shut off when any cap is pulled.

**4 Water Circuit** – When Weld Gun Changer Manifold is used and plant cooling water pressure differential is above 30 PSID at fence – Valve sometimes does not shut off water when cap is pulled.

At the higher water pressure differentials the pressure drop through the gun change manifold check valves increases. The valve has a hard time sensing water flow changes when the cap comes off because it has to go through the gun change manifold. To compensate for pressure changes when the weld gun cap is removed and won’t shut off water turn adjustment knob inward until water shuts off. Valve is now program to shut off with high PSID and weld gun change manifold.

**5 Water Circuit** – Weld Gun arm close to sheet metal (Less then 1 inches) and cap is pulled.

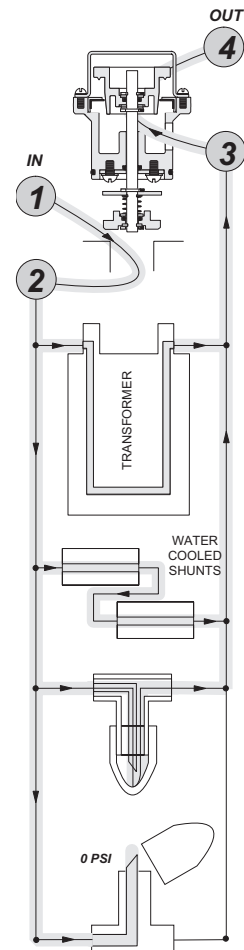
Typical problem in Underbody when minimal cooling water is present, weld cycle is heavy, and multiple thick pieces of sheet metal. When the cap comes off the weld gun arm is only 1 to + inch from sheet metal. The water flow can not disperse to 0 psi atmosphere because the sheet metal is acting as restriction. Therefore the valve does not sense 50% loose of water flow and does not shut off. If this should happen adjust knob inward until valve shuts off water. Valve is now programmed to shut off when weld gun is 1 inch or closer to sheet metal.



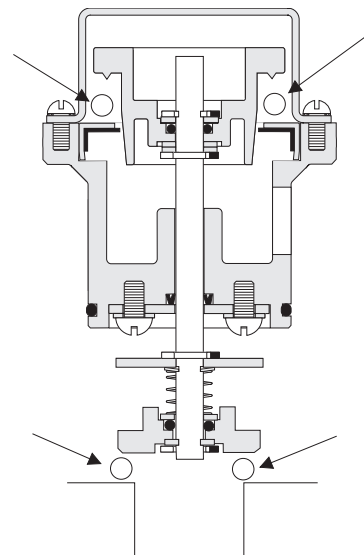
- 6 Water Circuit** – Weld Gun arms use different size adapters or tip holders or return passage of gun arm is slowly collecting dirt and causing restriction: Valve shuts-off water when one gun arm cap is pulled but will not shut-off when other gun arm cap is removed.  
Please refer to question #3.

- 7 Water Circuit - Valve monitoring Multiple Devices.**  
The valve was designed to monitor the weld gun arms traveling through it is dumped to atmosphere. When multiple devices are added to the circuit, all hose dressed in parallel, water flow through the weld gun arms will be limited because the other devices will have only 1 or 2 psi drop and each gun arm will be about 6 – 9 psi drop. Therefore the gun arms will be starved for flow. When the weld gun cap comes off the excess flow from the other devices will continue to flow back to the valve as shown in graphic. The valve will not shut off on reliable bases. If the Robot is hose dressed with the Rocon Valve monitoring multiple devices (Transformer, shunt, cable — Parallel hose dress circuit) it will not function properly.  
Refer to “INSTALLATION SECTION - SUGGESTED ROBOT HOSE DRESS”.

*Optional* - If monitoring multiple devices is desirable suggest hose dress transformer and gun arms in series.  
I.E. Gun arms in parallel, discharge the return water from gun to feed the transformer, return from transformer is connected to port #3 of valve.



- 8 Water Circuit** – Foreign object trapped in Cartridge.  
If foreign object is trapped where arrows indicate, this will prevent the spools from shifting and cartridge will not shut off water.  
If Valve has been working for long period +24 months - and then stops. If dirt is suspect, back flush as described in maintenance section - “Procedure to Remove Dirt from Valve and Weld Gun” If Valve still does not close after above procedure followed suggest install new cartridge and rebuild old per instruction in maintenance section.



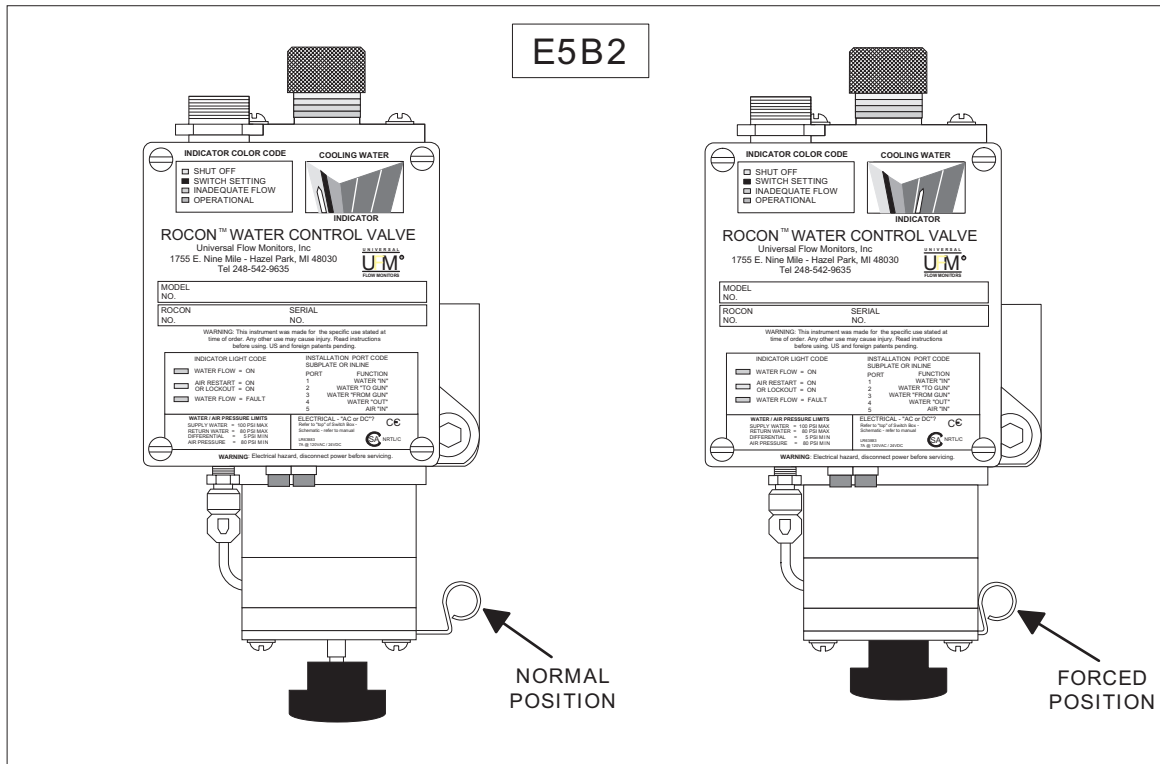
**9 Air Circuit** - Air valve energized (Open) all the time or Air Valve spool malfunction, shifted to open position and can not close.

If the air valve coil is energized all the time (Pin #4) it forces the cartridge spools to shift to the open position never allowing the valve to close when the weld gun cap is removed – NO FAULT SIGNAL WILL BE SENT TO WELD CONTROLLER. To confirm if this is problem, pull the air tubing from the Air Cover as describe in the Start-Up Section on page 24.

If the air valve receives to much oil or exposed to a water and oil mixture, varnish will collect in the valve plunger. When this occurs the pilot hole for air to exhaust to atmosphere could become plugged. When this happens the air piston used to push the cartridge off its seats will be forced in the open position not allowing the cartridge spools to shut off the water removed – NO FAULT SIGNAL WILL BE SENT TO WELD CONTROLLER. To confirm if this is problem, pull the air tubing from the Air Cover as describe in the Start-Up Section on page 24.

**10 Valve Mechanical** – Optional - Manual Lockout or Bypass feature in energized position.

If the Manual Lockout clip is pushed in all the way the valve will never shut off or NO FAULT SIGNAL WILL BE SENT TO WELD CONTROLLER.



# **PROBLEM: VALVE WILL NOT RESTART OR STAY ENERGIZED**

## **Probable Cause**

- 1 **Water Circuit** - Improper hose dress.
- 2 **Water Circuit** – Supply or Return water Ball Valves closed.
- 3 **Water Circuit** – Low Cooling Water pressure differential.
- 4 **Water Circuit** – Air trapped in cooling water circuit.
- 5 **Water Circuit** – Weld Gun Water Tube; Too close to cap, too small, too large for adapter, orifice crushed, plugged or acting as restriction.
- 6 **Water Circuit** – Knob is too hard to push and will not restart valve.
- 7 **Air Circuit** – Air supply ball valve turned off.
- 8 **Air Circuit** – Air Regulator set to low
- 9 **Electrical Circuit** – Air Valve Coil is not energized when restart mode is activated.

## **Solution**

- 1 **Water Circuit** – Improper hose dress.  
If the Supply and Return water legs are reversed the cartridge will not stay in an open position and therefore the valve will not be able to restart.
- 2 **Water Circuit** – Supply or Return water Ball Valves closed.  
All shut off valves must be open.
- 3 **Water Circuit** – Low Cooling Water pressure differential.  
The valve requires a minimum of 5 PSID to stay open - approximately 3/10 to 4/10's tenths of a gallon total. Based on automotive specs this is below required cooling water required for weld gun arms. Suggest checking water pressure differential and water flow through all devices being cooled – ie SCR, transformer, shunts, weld gun arms and cable if used. Water pressure differential should be checked at fence line, if below 20 psid determine why – this pressure is minimum goal. Compare manufacture required gpm per actual gpm. If a device is above manufacture spec, restrict flow unit. If this does not increase water flow to weld guns contact factory.
- 4 **Water Circuit** – Air trapped in cooling water circuit.  
When weld gun caps are changed, water is drained from circuit and air will fill the void. The valve will only restart when all the air is removed. Therefore you must hold reset plastic knob in for 3 - 10 seconds or energize the air coil (pin #4) to allow all the air to be forced out of water circuit. The Cooling Water indicator pointer will move from open to closed position several times until all the air is removed from water line.
- 5 **Water Circuit** – Weld Gun Water Tube; Too close to cap, too small, too large for adapter, orifice crushed, plugged or acting as restriction.  
If valve was restarting or during start up never restarted, then suggest checking weld gun for above problems. Remove caps and fix as needed.
- 6 **Water Circuit** – Knob is too hard to push and will not restart valve.  
If you manually try to restart valve and pointer never moves, you must push harder upward. When the system return water pressure is 30 psi, 39 inch #'s of force is required to push manual knob, 40 psi = 49 in #'s, 50 psi = 61 in #'s, 60 psi = 73 in #'s, 70 psi = 86 in #'s of force.

## **PROBLEM: VALVE WILL NOT RESTART OR STAY ENERGIZED**

### ***Solution-Continued***

**7 Air Circuit** – Air supply ball valve turned off.

The Air Valve shut off ball valve must be opened if water shut off valve is to restart remotely.

**8 Air Circuit** – Air Regulator set to low.

The E5B2 style water shut off valve must have 25 psi air pressure above the RETURN WATER PRESSURE because the cartridge Control Valve Spool is larger than the air remote restart piston.

Example: If the Return Water Pressure is 63 psi, the Air Regulator must be set at 88 psi to remotely restart the water shut off valve.

**9 Electrical Circuit** – Air Valve Coil is not energized when restart mode is activated.

Insure that power is present (Pin 4) when valve is in restart mode.

## **PROBLEM: VALVE RESTARTS WHEN WATER SHUT OFF BALL VALVES ARE OPENED.**

### ***Probable Cause / Solution***

**1 Water Circuit** – Valve restarts when water shut off ball valves are opened.

When the cartridge restarts when both of the ball valves are opened it means that the cartridge spools were not completely shifted to the closed position. Either a foreign object prevented the spool to close or the assist spring is set at its lowest point. To prevent turn the Shut-Off Adjustment until valve stops restarting or back flush or pull and check cartridge for any foreign objects and remove.

# **PROBLEM: WELD GUN CAP REMOVED, VALVE SHUTS OFF WATER BUT THE WELD CONTROLLER DOESN'T REGISTER FAULT.**

## **Probable Cause**

- 1 **Valve Mechanical** – Cam / Switch Assembly out of adjustment.

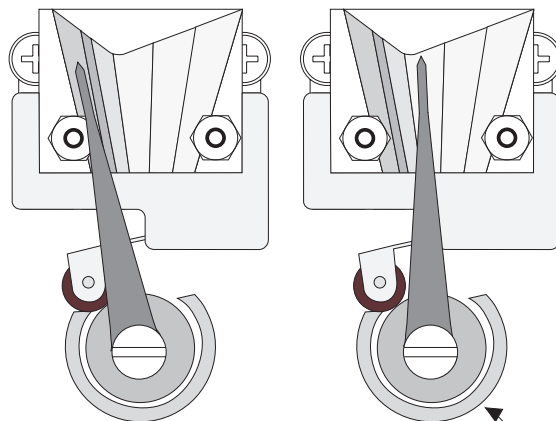
## **Solution**

- 1 **Valve Mechanical** – Cam / Switch Assembly out of adjustment.

To adjust cam read below.

**Warning: Shut off the electric power to the switch box before opening it.**

- 1 Remove the nameplate, window, and gasket from switch box.
- 2 The cam that actuates the switch is located under the pointer. The position of the cam dictates no water flow at which the cam will trip the switch.
- 3 Push the manually restart knob until the pointer is in the Red zone.
- 4 While holding the knob or pointer in the shut off position, depress the cam ring fully (approx. 1/16 inch) and rotate it until the switch actuates (clicks). Release your downward pressure and the cam ring will lock at that position.
- 5 If you can't hear the switch click, you can determine contact closure with an ohmmeter connected across the switch terminals. Connect to the common and normally open or normally close on the switch.
- 6 To check the setting, direct the pointer again to the desired shut off point, noting where the switch actuates. Make adjustments as necessary.
- 7 Replace window, nameplate, and gasket before turning on power.

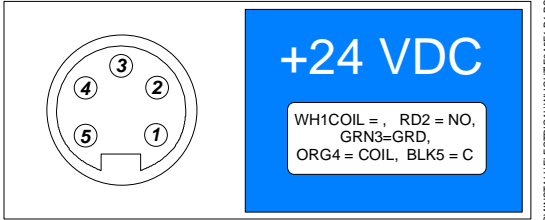


*Cam Ring push and rotate  
until switch "clicks"*

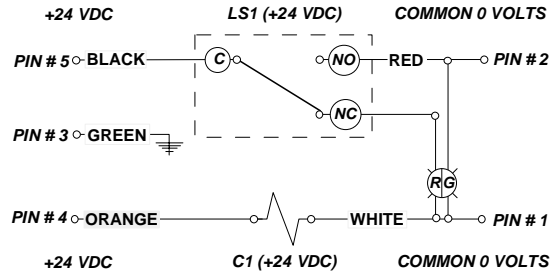
# WCV - ELECTRICAL

With Lights

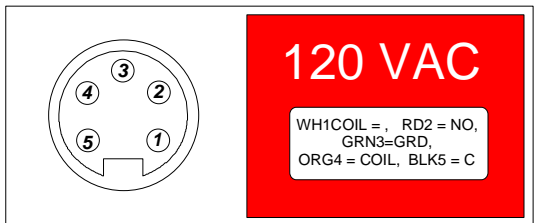
## E3A5F1-D1



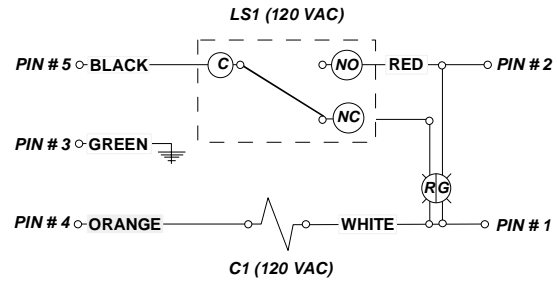
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## E3A5F1-A

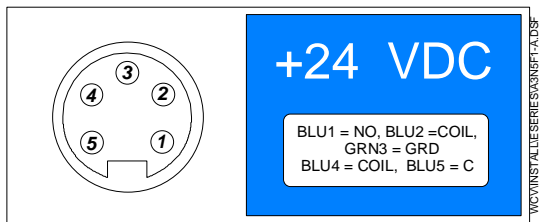


WCVINSTALLELECTRICALW/LIGHT/E3A5F1-A.DSF

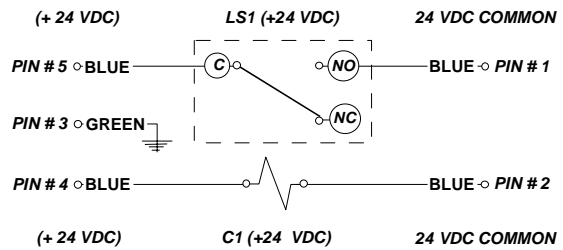


Without Lights

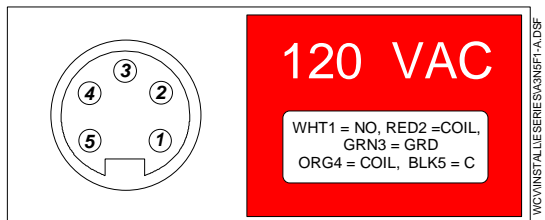
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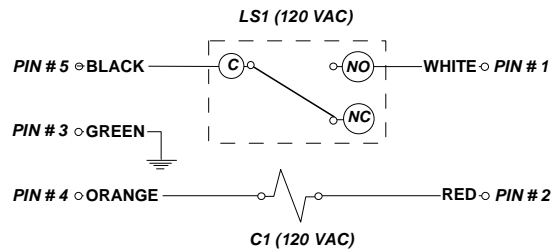
WCVINSTALLELECTRICALSERIES/A3N5F1-D1.DSF



## A3N5F1-A



WCVINSTALLELECTRICALSERIES/A3N5F1-A.DSF





# Rocon Water Control Valve

HOW TO ORDER Select appropriate symbols and build a model code number, as in example shown:

**EXAMPLE :** WCV - S - 4 - H - 7 - E3C5F1 - D1 - L - \*\*\*\* - \*\*\*\*\*

**STYLE**

Inline .....	= I
Inline Manual .....	= IM
Valve Body w/ Subplate.....	= S
Valve Body Manual w/ Subplate .....	= SM
Valve Body wo/ Subplate .....	= B
Valve Body Manual wo/ Subplate.....	= BM
Subplate Only.....	= SO

**PORT SIZE**

Style I, S or SO (1/2 NPTF) .....	= 4
Style I, S or SO (1/2-14 BSPT) .....	= BT4
Style I, S or SO (1/2-14 BSPP) .....	= G4*
Style I, S or SO (3/4 NPTF) .....	= 6
Style I, S or SO (3/4-14 BSPT) .....	= BT6
Style I, S or SO (3/4-14 BSPP) .....	= G6*
Style B (Valve Body ONLY) .....	= 0
Style BM (ManualValveBodyONLY)....	= 0

\*ISO 1179

Subplate only, "SO" style order code ends here.

**CARTRIDGE SIZE**

GPM PSIG - Differential	
1/2 - 3.0 Low to High .....	= H

**ASSIST SPRING RATE**

Adjustable Shut Off	
1X - 4X Spring Rate (10 - 90 PSID) ...	= 7

**Control Number If Required**

**DESIGN NUMBER**  
Factory to provide at time of quote  
(Internal reference number)

**OPTIONS**

No Options Picked .....	= N
BYPASS - Manual Clip - Fixed .....	= L
BYPASS - Manual Clip - Removable ..	= LR
IN5061 Fly Back Diode (DC Only) .....	= CR
Metric Design (Consult Factory) .....	= M

**VOLTAGE-NEW!**

No Switch Box .....	= N
120 Volt AC .....	= A
24 Volt DC Current Sourcing .....	= D1
24 Volt DC Current Sinking .....	= D2

<p><b>1 - RESTART</b></p> <table border="0"> <tr><td>Manual .....</td><td>= M</td></tr> <tr><td>Remote - Air <b>without</b> Lights .....</td><td>= A</td></tr> <tr><td>Remote - Air <b>with</b> Lights .....</td><td>= E</td></tr> </table> <p><b>2 - OUTPUT SIGNAL</b></p> <p><b>Mechanical Switch</b></p> <table border="0"> <tr><td>No Switch .....</td><td>= N</td></tr> <tr><td>3 Wire SPDT .....</td><td>= 3</td></tr> <tr><td>4 Wire TCDB .....</td><td>= 4</td></tr> </table> <p><b>3 - LIGHTS</b></p> <table border="0"> <tr><td>No Lights .....</td><td>= N</td></tr> <tr><td>ON (Green) / OFF (Red) .....</td><td>= A***</td></tr> <tr><td>ON (Green) / OFF (Red) / BYPASS (Yellow) <b>with</b> fault output / fuses .....</td><td>= C****</td></tr> <tr><td>ON (Green) / OFF (Red) / BYPASS (Yellow) <b>without</b> fault output / fuses ...</td><td>= Y****</td></tr> </table> <p>*** Options: L or LR can not be selected **** Options: L or LR required</p>	Manual .....	= M	Remote - Air <b>without</b> Lights .....	= A	Remote - Air <b>with</b> Lights .....	= E	No Switch .....	= N	3 Wire SPDT .....	= 3	4 Wire TCDB .....	= 4	No Lights .....	= N	ON (Green) / OFF (Red) .....	= A***	ON (Green) / OFF (Red) / BYPASS (Yellow) <b>with</b> fault output / fuses .....	= C****	ON (Green) / OFF (Red) / BYPASS (Yellow) <b>without</b> fault output / fuses ...	= Y****	<p><b>4 - ELECTRICAL CONNECTOR</b></p> <table border="0"> <tr><td>No Connector .....</td><td>= N</td></tr> <tr><td>4 Pin .....</td><td>= 4</td></tr> <tr><td>5 Pin .....</td><td>= 5</td></tr> <tr><td>6 Pin .....</td><td>= 6</td></tr> <tr><td>Others: Consult Factory</td><td></td></tr> </table> <p><b>5 - MANUFACTURER-NEW!</b></p> <table border="0"> <tr><td>No Connector .....</td><td>= N</td></tr> <tr><td>Factory Standard .....</td><td>= F</td></tr> <tr><td>Brad Harrison .....</td><td>= B</td></tr> <tr><td>Molex .....</td><td>= M</td></tr> <tr><td>DDK .....</td><td>= D</td></tr> <tr><td>Others: Consult Factory</td><td></td></tr> </table> <p><b>6 - CONNECTOR TYPE-NEW!</b></p> <table border="0"> <tr><td>No Connector .....</td><td>= N</td></tr> <tr><td>Mini .....</td><td>= 1</td></tr> <tr><td>Micro .....</td><td>= 2</td></tr> <tr><td>Amphenol (circular type) .....</td><td>= 3</td></tr> <tr><td>Others: Consult Factory</td><td></td></tr> </table>	No Connector .....	= N	4 Pin .....	= 4	5 Pin .....	= 5	6 Pin .....	= 6	Others: Consult Factory		No Connector .....	= N	Factory Standard .....	= F	Brad Harrison .....	= B	Molex .....	= M	DDK .....	= D	Others: Consult Factory		No Connector .....	= N	Mini .....	= 1	Micro .....	= 2	Amphenol (circular type) .....	= 3	Others: Consult Factory	
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QUESTION ? Call the Factory 248-542-9635 or Fax 248-584-1490. Information needed:  
**New Valve :** 1 - What is the flow required per weld gun arm, 2 - What is body shop Supply / Return Water Pressure? ,  
 3 - What is Supply and Return Water Pressure at Robot Cell fence line?, 4 - Is electrical Connector required for electrical hook up? , 5 - If Yes, how many pins, style and manufacture preferred. We will need wiring diagram if factory standard is not used. 6 - AC or DC?  
**Spare Parts :** Model Code Number or Serial Number or N Number required. They are located on Switch Box Cover.