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TOP CUT SAMPLER

Congratulations on the purchase of your new Top Cut Sampler! Caron Measurement and Controls is confident this Top Cut Sampler will meet all your expectations. Please examine your new sampler for any shipping damage and report it immediately to the carrier.

Section 1: Safety Precautions

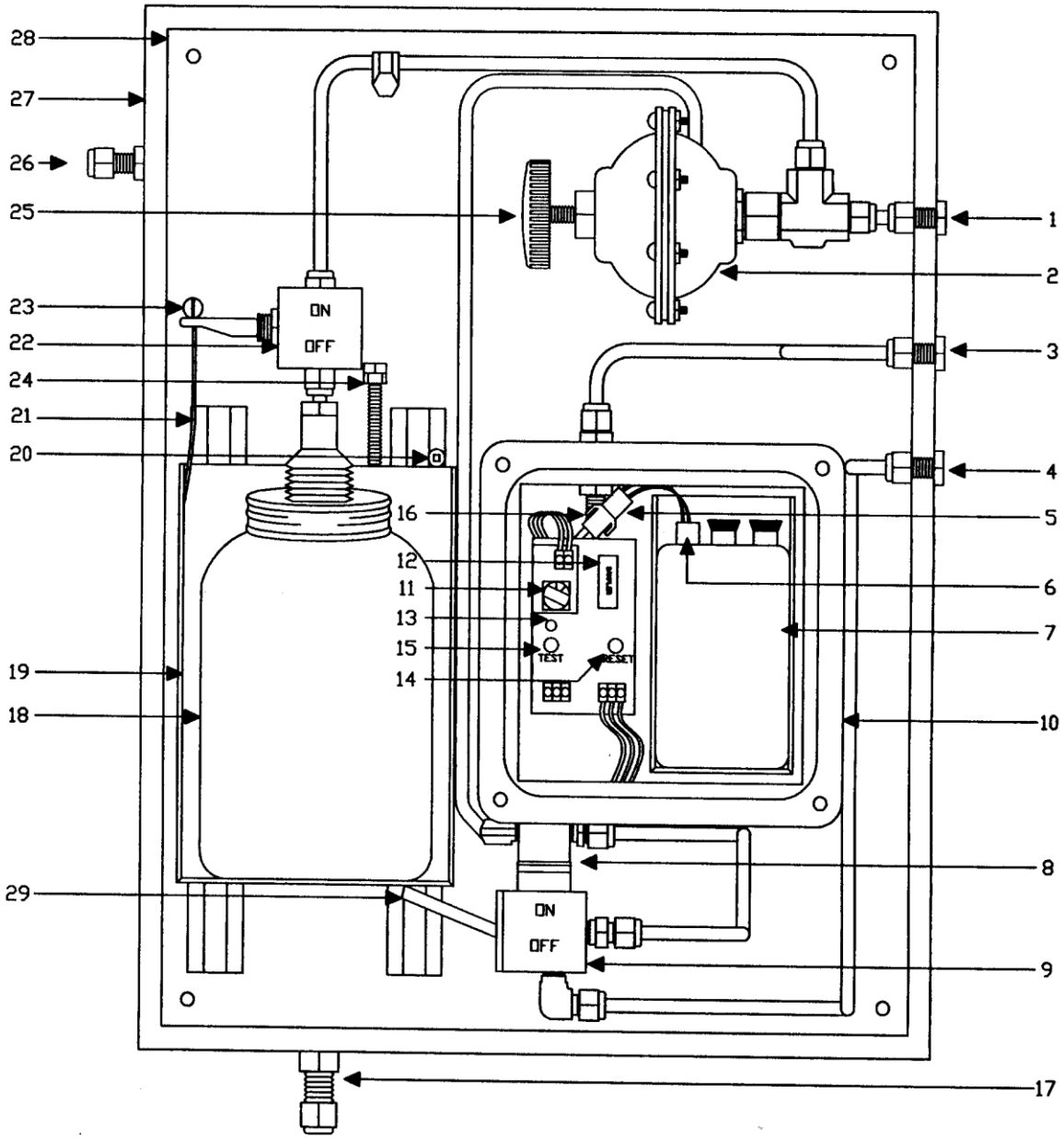
- battery should only be changed in a safe environment
- make sure both on/off switches are in the off position when sampler not in use
- do not exceed 1400 psi on sample point
- vent independently to outside of building
- for sour applications, purge the sampler properly before opening door

Section 2: Top Cut Operation

The Top Cut Sampler electronics use one 6-volt PC915 alkaline battery. Operating life of battery will vary with on/off cycle times and ambient operating temperatures (6–18 mos).

A signal sent from the level controller or other signal device turns on the electronic timer. The timer then begins counting the predetermined seconds. When the specified time has elapsed, it then signals the pulse valve to open. The pulse valve receives the supply from the lower on/off switch (Micro Valve). When the pulse valve opens it sends a signal to the high-pressure sample valve, thereby giving a sample in the jug. The high-pressure sample valve handles inlet pressure up to 1440 psi. The red hand wheel will adjust sample size for as small or large a quantity required. The valve is factory set to take a 3-5 ml sample at an inlet pressure of 500 psi. This can be adjusted to best accommodate your Top Cut Sampler's application. See section 4 on optimizing a 24-hour sample using the high-pressure sample valve and timer settings together.

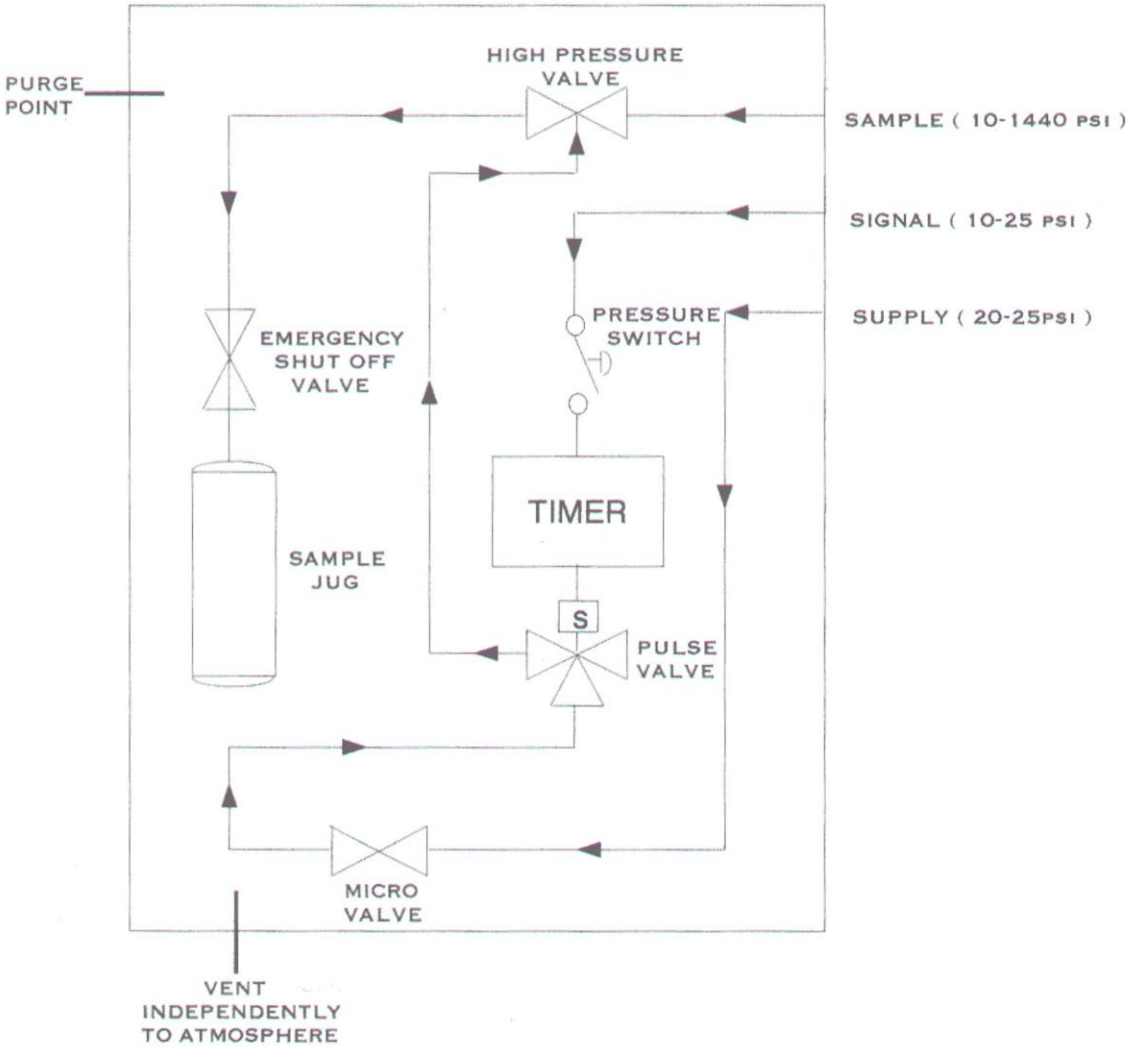
Section 3: Schematic Drawing & Parts List



Section 3 cont'd:

1	"Sample IN" ¼" Tube to Tube Bulkhead	TC 100
2	High Pressure Sample Valve	TC HPV 101
3	"Signal IN" ¼" Bulkhead	TC 100
4	"Supply IN" ¼" Bulkhead "25 psi"	TC 100
5	Battery Quick Connect	TC 105g
6	Battery Test Button	TC 105h
7	Alkaline 6V Battery, or Gel Battery also available	PO 915 Industrial Gel GV
8	Pulse Valve (Solenoid)	TC 102
9	Micro Valve (On/Off Switch for Air Supply)	TC 104
10	Complete Timer Assembly	TC 105
11	Pot Timer	TC 105a
12	IC Sampler Computer Chip	TC 105b
13	Indication Light	TC 105c
14	Reset Button	TC 105d
15	Test Button	TC 105e
16	Pressure Switch	TC 105f
17	"Vent Independently" 3/8" Bulkhead	TC 106
18	Sample Jug	TC 107 "20 L"
19	Basket	TC 108
20	Basket Set Screw	#8 Machine Screw
21	Cable	TC 109
22	Emergency Shut Off Valve (Toggle Valve; on/off Switch)	TC 110
23	Cable Lock	TC 111
24	Adjusting Nuts (1/4" nuts)	TC 112
25	Red Hand Wheel for High Pressure Valve	TC 113
26	"Purge Point" ¼" Bulkhead	TC 100
27	Cabinet 20168T Hammond	
28	Mounting Back Plate Aluminum	
29	TFE Sample Basket Track	

Section 3 cont'd:



Section 4: Installation

Your new sampler should be installed as close as possible to the sample point. A sample quill is recommended to be used in the process pipe. The sample quill must be located at a point in the line where the flow stream is well mixed. A sample quill must be used at the sample point and will have optimum results installed in a horizontal position with a

45^0 angle into flow. A level controller or other signal device is tubed into the ¼" bulkhead on the side of sampler box labeled "**Signal**". This signal should be a clean, oil-free supply of 20-30 psi. An additional 20-30 psi supply will also need to be tubed into the ¼" bulkhead on the side of the box labeled "**Supply**". Process product is tubed into the ¼" bulkhead labeled "**Sample**" (1440 psi maximum).

The "**Vent Independently**" 3/8" bulkhead must be tubed to the outside of the building. The "**Purge Point**" is to be used in sour applications.

Section 5: Start-up Procedures

1- Install sample jug into basket.

2- Turn the two on/off switches to the on position.

3- Pressure up sample line.

4- Ensure a 20 psi supply to sampler is on.

5- Set sample time with timer pot on electronic board. Adjusting timer pot (between 0-7) tells the electronics when to energize the pulse valve solenoid, allowing sample into jug.

i.e. If the timer pot is set at #2 (40 sec.), then the electronics is waiting for a signal to sampler. When the signal time has accumulated 40 seconds, the electronics will pulse the solenoid allowing the high-pressure sample valve to open.

6- Set sample size:

-Press the Test Button on electronic board (this will cycle the sampler)

-Adjust red handle on high-pressure sample valve **CLOCKWISE TO DECREASE** sample or **COUNTER-CLOCKWISE TO INCREASE** sample.

Section 6: Preventative Maintenance

- Signal and supply must be kept clean and dry to give years of trouble-free sampler operation.
- Sample line may have to be cleaned and de-waxed periodically.
- The enclosure doors should be kept closed.

Section 7: Troubleshooting

If there is no sample in the jug:

- make sure both on/off switches are in the on position
- make sure that both the signal and supply pressure are at least 20 psi; if the pressure is lower the sampler may not work
- make sure the sample line does not have some kind of blockage; if there is a possibility of this, turn the red hand wheel on the high-pressure valve counter-clockwise to increase sample size and remove blockage or clean tubing line to sample
- In order for the high-pressure sample valve to give a sample, the pulse valve must send a signal for it to open. The pulse valve is located at the bottom of the electronic box (see schematic drawing). You should be able to hear the pulse valve click when it is sending this signal. If this is not occurring, check the sampler electronics (see next point).

- The sampler electronics can be tested by pressing the test button identified on the electronic board. This will override the pot timer allowing you to confirm proper operation without waiting for the timer to send a signal. A reset button is also identified on the electronic board. This will reset the pot timer by erasing its most recent memory, thus restarting the timing process.
- To test battery condition on older models, press the black button on top of the battery for at least 5 seconds. A green light indicates good battery condition, whereas a red light shows the voltage is too low to operate the sampler. On newer models the LED indication light will flash to indicate a low battery.

Adjusting Sample Size

- There are two ways to adjust this sample size: **1)** adjust the size of **each sample** taken (preset to 3-5ml) **OR**, **2)** adjust the **total amount** of sample taken. The sampler is preset to take a **total** sample size of 1000 ml (or 15 litres on the pipeline sampler).

  1) To adjust the size of **each sample** taken, the *red hand wheel* on the high-pressure sample valve is used. Turn the red knob **clockwise** to **decrease** sample size or **counter-clockwise** to **increase** until the desired quantity is reached. Take 5 samples in the syringe and use the average of these 5 volumes to get an accurate sample size reading. The syringe is necessary to ensure accurate readings will be obtained.

  2)In order to increase or decrease the **total amount** of sample taken in jug, the *spring adjusting nuts* must be used. Unlock the

nuts by securing the bottom one while loosening the upper (turn counter-clockwise). Two 7/16" wrenches are required for these adjustments. To **increase** the total sample, the spring needs to be **tightened**. This is done by simply turning the nuts clockwise. To **decrease** the total sample, the spring needs to be **loosened** (counter-clockwise).

- To test the above adjustment, place an empty sample jug into the basket and pour similar sample liquid into it until the basket drops and sampler is off. Do this 3 times to ensure a proper setting was achieved. When the desired amount is reached, lock the spring adjusting nuts in position by again securing the bottom nut and tightening the upper nut (turn clockwise).

If you have gone through all of the troubleshooting procedures and the Top Cut Sampler is still not sampling, the electronics may have failed. Either the timer board (part #TC 105), the pressure switch (part of #TC 105) or the pulse valve (part #TC 102) may need to be replaced. Each of these is available only as a unit assembly and can be ordered from Caron Measurement & Controls.

For more technical support call (780) 524-5954.