Monsanto	INSTRUMENT FUNCTION OUTLINE		CED LOOP NO. FIC-303-1		
	PLANT W. G. Krummrich		ISSUED BY C. J. Hans	DATE 7/19/71	PLANT LOOP NO.
DIVISION Organic	BLDG/DEPT 811.00	AUTH NO. 2417	REV. BY	DATE	REV / SHEET 1 OF

1.0 COLUMN DISTILLATE CONTROLLER

The column distillate draw-off rate serves indirectly to control the column reflux ratio. This reflux ratio is automatically reset via this controller from 3:1 to 5:1 for 1016 and from 4:1 to 8:1 for "mono".

1.1 DESCRIPTION OF LOOP

1.1.1 Function

The function of this loop is to control the flow of product to storage and thereby set the reflux ratio.

1.1.2 System Performance Required

1.1.3 Accomplishment of Function

The distillate flow rate is controlled by measuring the rate of flow in the line using an armored tube rotameter transmitter. This transmitter sends a pneumatic signal to the panel mounted indicating controller. The indicating controller compares this signal with a set point signal and sends a varying 3-15 psig signal to the control valve which adjusts the valve to compensate for variation of the set point.

The same rotameter transmitter signal is also sent to an analogue computing station which squares the signal (to be compatible with the integration on the panel). This analogue computing station sends its output to the integrator on the new panel which totalizes the amount of distillate to storage. Upon a preset number of counts, a contact in the integrator closes causing a solenoid to energize and switch an air signal to the set point of the flow controller. This air signal comes from one of two manual loading stations which are preset to give a 3:1 and a 5:1 reflux ratio. At the predetermined count, the solenoid switches air from the 3:1 signal to the 5:1 signal.

On the "mono" operation these signals will be set for a 4:1 and 8:1 reflux ratio. Settings for these points or any intermediate reflux ratio may be found with the attached table D-10.

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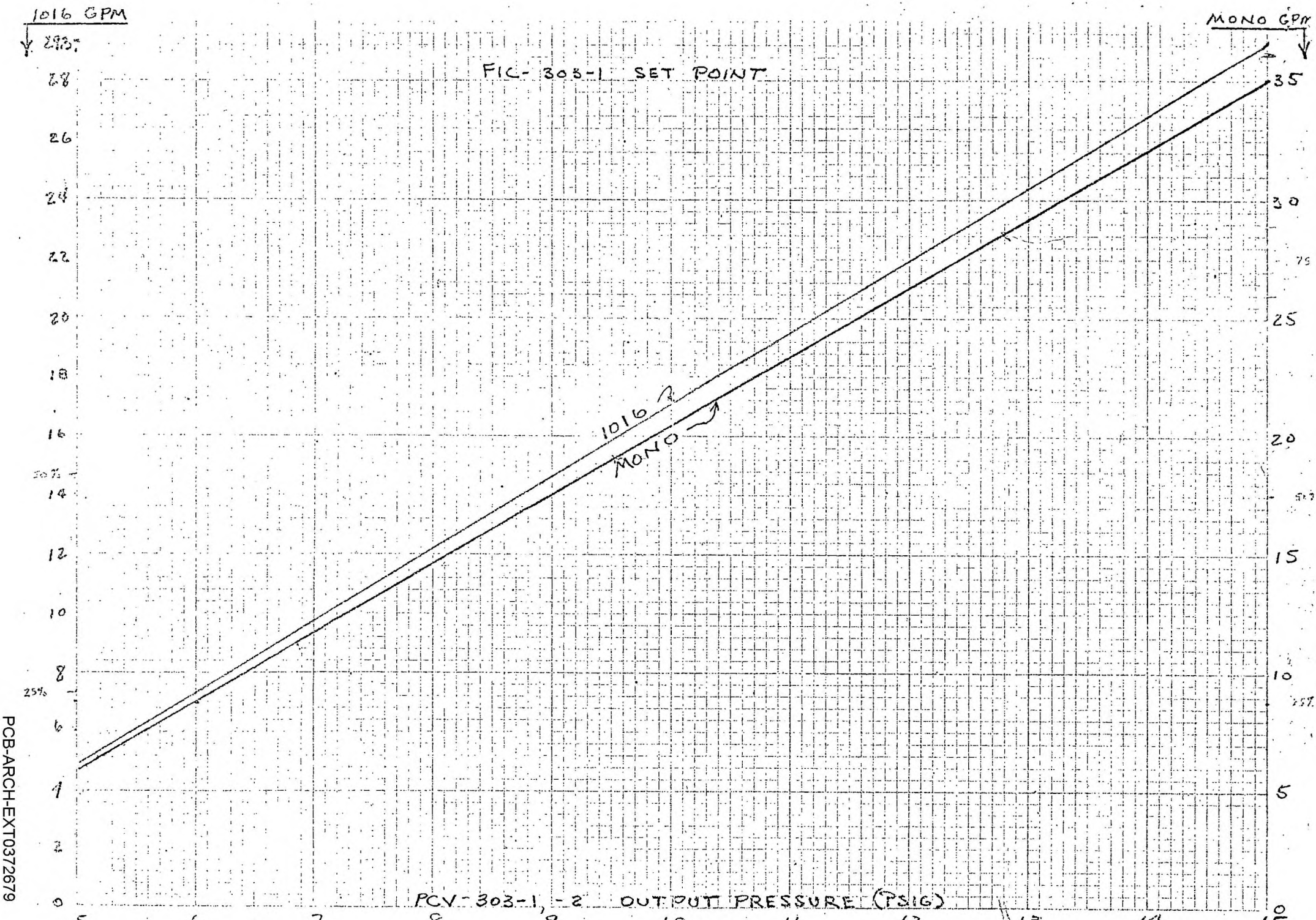

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3.0 OPERATION

3.1 NORMAL

a. At the start of batch the controller set point should be at 0 with the controller in automatic position (for total reflux). Remote-local switch in local position, set the integration total to read 0 counts. Set the predetermining counter to read 3585 counts. (3585 x 2.44 factor = 8750 gallons. Forecut + No. of gallons @ 3:1 ratio). Check setpoint regulator outputs so that reflux ratios will be 3:1 and 5:1 for 1016 operation and 4:1 and 8:1 for "mono" operation.

After column has lined out switch controller local-remote switch to "remote". Setpoint should move up to correct reflux ratio with red pen immediately following.

If a forecut is taken it will be necessary to observe the integration reading to know where to switch XCV-303-2 closed and XCV-303-1 open to divert product to the receiver.

When the predetermining counter reaches the number of counts previously set, the reflux ratio will automatically move to the correct reflux ratio for the last half of the distillation step.

3.1.1 Startup Instructions

a. Set controller setpoint on 0 auto + local.

b. Set PCV-303.1 and PCV-303.2 in field cabinet.

c. Set counter to zero

d. Set predetermining register to correct setting.

3.1.2 Shut Down Instructions

a. Switch local remote switch to "local" on FIC-303-1 with set joint at 0 to go on total reflux.

3.1.3 Manual Operating Instructions

a. Switch local remote switch to "local" and manual-automatic switch to "manual" to control flow through FV-303-1 to receiver.

3.2 INTERLOCKS

None.

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3.3 ABNORMAL OPERATIONS

3.3.1 Air Failure

Air failure to the loop will cause control valve FV-303-1 to close.

3.3.2 Power Failure

Power failure will cause reflux ratio set point to go to the ratio used in the first half of batch.

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