INSTRUMENT FUNCTION OUTLINE DEPARTMENT 246

TITLE #1 Absorber Steam Tracing Temperature Control LOOP NUMBER 036

SHEET 4 OF 4 CLASSIFICATION TIC-36

WRITTEN BY _____ DATE _____ REV. BY _____ DATE _____ REV. NO. _____

## 3.0 OPERATION OF THE LOOP

### 3.1 NORMAL OPERATION

Activate steam heating system for absorber and set control point at a temperature corresponding to the surge tank temperature.

#### 3.1.1 Start Up Instructions

A. Open Manual valves in steam line to absorber
B. Check air pressures to controller and control valves
C. Set controller as per Instructions

#### 3.1.2 Shut Down Instructions

A. Close manual valves in steam line
B. Set controller to lowest point.

#### 3.1.3 Manual Control

None

### 3.2 INTERLOCK

There are no interlocks in this system.

### 3.3 ABNORMAL OPERATIONS

#### 3.3.1 Air Failure

Air failure to this loop will cause loss of temperature control due to the control valve closing.

#### 3.3.2 Power Failure

Power failure to this loop will have no effect on this loop.

REVIEW

James E Rehstock

[illegible] 8/15

RMM McCatchen 11/20/69

[illegible] 9/20/69

INSTRUMENT FUNCTION OUTLINE | DEPARTMENT 246

TITLE #2 and #3 Absorbers Inlet Flow Control & Alarm | LOOP NUMBER 032

SHEET 1 OF 4 | CLASSIFICATION FICA-32

WRITTEN BY _____ DATE 6/69 REV. BY _____ DATE _____ REV. NO. _____

## 1.0 NEED FOR LOOP

This loop is needed to insure proper flow of aroclor to the absorber.

## 1.1 DESCRIPTION OF LOOP

### 1.1.1 Function

The function of this loop is to control the flow of material into the absorbers and to sound an alarm if flow is too low.

### 1.1.2 System Performance Required

The flow rate should be maintained $\pm \frac{1}{2}$ GPM of set point.

### 1.1.3 Accomplishment of Function

The flow rate is sensed by a flow transmitter with integral orifice plate. The transmitter sends a 3 - 15 psig air signal to a flow indicating controller. The controller compares this signal to a set point and sends a 3 - 15 psig air signal to a control valve to compensate for variation from set point. The transmitter also sends an air signal to a pressure switch which activates an alarm on low flow.

PCB-ARCH-EXT0374010

INSTRUMENT FUNCTION OUTLINE | DEPARTMENT 246

TITLE #2 and #3 Absorbers Inlet Flow Control & Alarm | LOOP NUMBER 032

SHEET 2 OF 4 | CLASSIFICATION

## 2.0 COMPONENT AND CALIBRATION DATA

### OPERATING DATA

A. FT-32 Differential Press. Trans.

Supply: 20 psig
Output: 3 - 15 psig
Flow: 0 - 10 GPM
Span: 0 - 400" W.C.
Location: 14' Level, NE of Tank 530

B. FIC-32 Flow Indicating Controller

Input: 3 - 15 psig
Output: 3 - 15 psig
Action: Inc. Input
Dec. Output
Supply: 20 psig
Location: Panel

C. FV-32 Control Valve

Input: 3 - 15 psig
Action: Air to open
Fails Close
Location: 14' level, NE of Tank 530

D. FSA-32 Pressure Switch

Input: 3 - 15 psig
Set Point: 33%
FCT: Lo Flow alarm at 3.3 GPM
SPDT contact/115 V., 10A
Location: Panel

### MECHANICAL DATA

A. Foxboro Integral Orifice Diff. Press. Trans. W/Piped & Mt'd. Air Set W/Gage

Model #: 13A-HS2
Range: 0 - 200 to 0 - 850" W.C.
Calibrated range 0 - 400" W.C.
316 SS Body
Process Conn: ½" NPT
Orifice: .350" Bore
·316 S.S.
Accuracy: ½%
Serial #: 1947915
IPMO: 001

B. Fischer & Porter Flow Ind. Controller

Model#: 51-1351 ABEC
Range: 3 - 15 psig sq.rt.
Scale: 0 - 100 sq. rt.
Prop. Band: 2 - 500%
Reset Rate: .02 to 5 min.
Accuracy: ½%
IMO:
IPMO: 165

C. Fisher Gov. Control Valve #667-BF

Actuator Size 30 Travel 3/4"
1" 150# Flg. 316 SS Body
Packing Set 1U2546-0101
3/4" 316 SS Trim, Micro-Flute
Valve Plug 2J7335-3507
Valve Ring 1R1262-3507
Teflon Packing, Skirt-Top Guiding
Spare valve S.C. 07-75671
IMO: 45
IPMO: 126
Serial: 4435034

D. Barksdale Pressure Switch #DIT-H18

Range: 0 - 18 psig
Bronze Diaphragm, ¼" IPS
Conduit Conn: ½" NPS
Setting trips at 4.08# on drop
Stores Code: 44-73246

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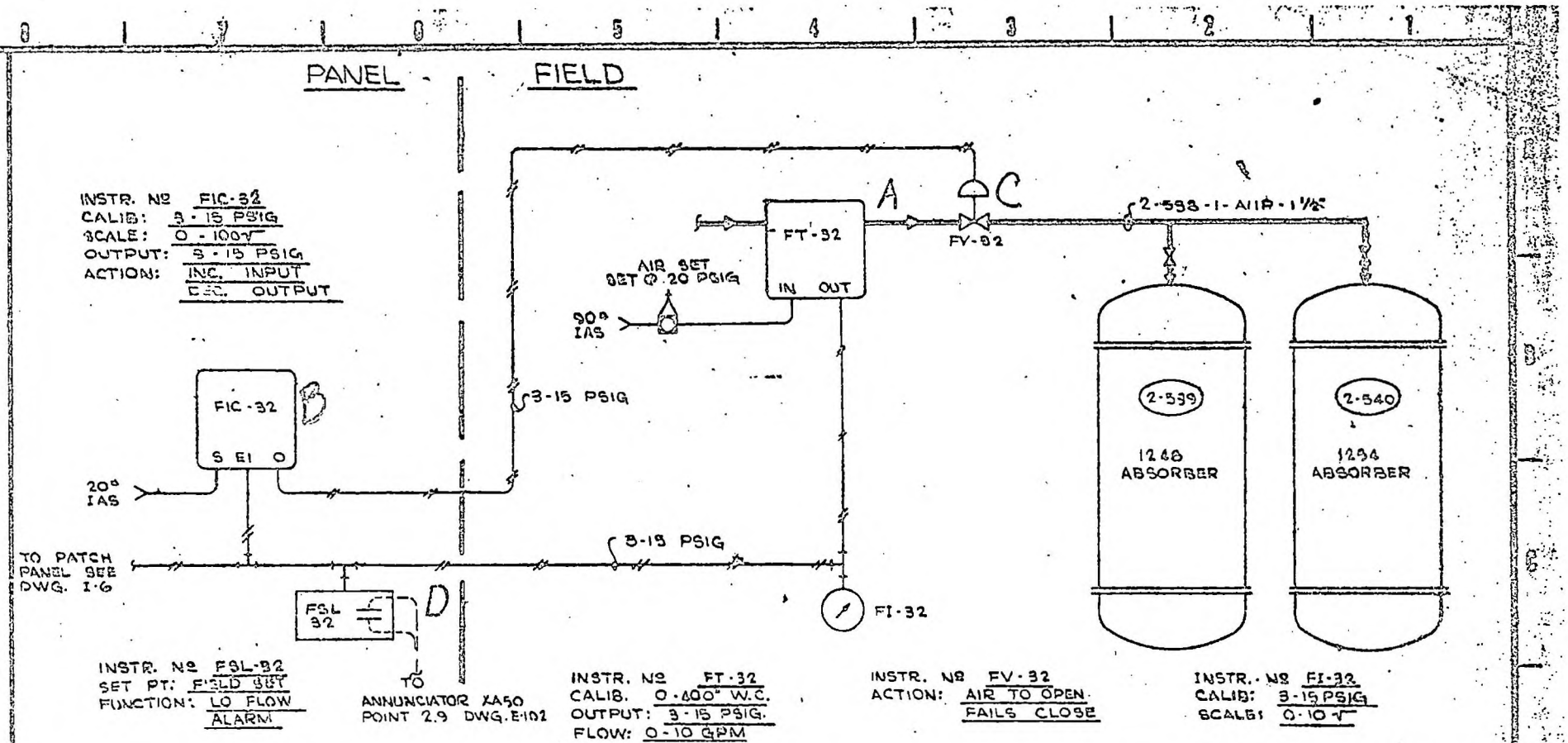


## BILL OF MATERIAL

| MARK NO. | QUAN | SPEC. 1800 | P.O. NO 1800-9 | DESCRIPTION |
|---|---|---|---|---|
| FIC-32 | 1 | 12.1 | 0079 | FISCHER & PORTER #51-1351ABEC INDICATING CONTROLLER |
| FT-32 | 1 | 17.3 | 0125 | FOXBORO 13A-HS2 INTEGRAL ORIFICE DIFF. PRESS. TRANSMITTER W/PIPED & MTD. AIR SET W/ GAGE |
| FI-32 | 1 | 17.3 | 0125 | FOXBORO 5 ½" RECEIVER GAGE FURN. W/FT-32 |
| FV-32 | 1 | 10.2 | 0055 | FISHER GOV. #667-8F-1", CONTROL VALVE FOR 150# FLGS. |
| FSL-32 | 1 | 13.1 | 0112 | BARKSDALE DIT-H1B PRESSURE SWITCH |

| MARK NO | QUAN | SPEC. | P.O. NO. | DESCRIPTION |
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MONSANTO COMPANY
CENTRAL ENGINEERING DEPARTMENT, ST. LOUIS, MISSOURI

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INSTRUMENT SCHEMATIC DIAGRAM
LOOP NO. FICA-32
FUNCTION ABSORBERS INLET FLOW CONTROL

| C.E.A. NO. | DRAWING NO. |
|---|---|
| 1800 | I-12 B |

PCB-ARCH-EXT0374012

INSTRUMENT FUNCTION OUTLINE DEPARTMENT 246

TITLE #2 and #3 Absorbers Inlet Flow Control & Alarm LOOP NUMBER 032

SHEET 4 OF 4 CLASSIFICATION FICA-32

WRITTEN BY _____ DATE _____ REV. BY _____ DATE _____ REV. NO. _____

## 3.0 OPERATION OF LOOP

### 3.1 NORMAL OPERATION

Set the flow control to absorbers to correspond to the flow from the still condensers. Normally this will be 4 to 6 gallons per minute.

Note: Scale of the flow indicator is 0 to 100. A reading of 100 is equal to 10 Gal. per minute.

#### 3.1.1 Start Up Instructions

A. Align manual valves from surge tank to absorbers.
B. Check all air supply pressures.
C. Align valves from absorber to filter and return to surge tank.
D. Start transfer pump.
E. Adjust flow controller to correspond with Operating Instructions. If there is no flow an alarm will sound, or if flow drops below 3.3 GPM.

#### 3.1.2 Shut Down Instructions

A. Close manual valves.
B. Shut off feed transfer pump to absorbers.

#### 3.1.3 Manual Operations

A. Place flow controller on "Manual" and regulate air pressure to control valve to achieve desired flow rate.

REVIEW

### 3.2 INTERLOCKS

There are no interlocks in this system.

J. E. Relstock

### 3.3 ABNORMAL OPERATIONS

GW 8/5

#### 3.3.1 Air Failure

Air failure to this loop will cause loss of flow, due to the control valve closing, and an alarm will sound.

RCM Mt Cutchen 11/20/69

#### 3.3.2 Power Failure

PS Neuhoff 9/20/69

Power failure to this loop will cause loss of alarm and flow if failure is to feed pump.