INSTRUMENT FUNCTION OUTLINE | DEPARTMENT 246

TITLE CHLORINATOR LEVEL CONTROL | LOOP NUMBER 016

SHEET 1 OF 4 | CLASSIFICATION LICA-16

1.0 NEED FOR LOOP

THIS LOOP IS NEEDED TO MAINTAIN A CONSTANT LEVEL IN #9 CHLORINATOR REGARDLESS OF THE TANK PRESSURE.

1.1 DESCRIPTION OF LOOP

1.1.1 FUNCTION

THE FUNCTION OF THIS LOOP IS TO CONTROL THE LEVEL OF CHLORINATED BIPHENYL IN #9 CHLORINATOR AND TO ALARM FOR HI & LOW LEVEL.

1.1.2 SYSTEM PERFORMANCE REQUIRED

THE LEVEL SHOULD BE MAINTAINED ± 5" OF SET POINT.

1.1.3 ACCOMPLISHMENT OF FUNCTION

THE LEVEL IN THE TANK IS DETERMINED BY THE LEVEL TRANSMITTER, WHICH SENDS A CORRESPONDING 3-15 PSIG AIR SIGNAL TO THE CONTROLLER. THE CONTROLLER COMPARES THIS SIGNAL WITH A SET POINT AND SENDS A 3-15 PSIG AIR SIGNAL TO THE CONTROL VALVE TO COMPENSATE FOR VARIATION FROM SET POINT. THE TRANSMITTER ALSO SENDS AN AIR SIGNAL TO A DUAL UNIT PRESSURE SWITCH WHICH ACTIVATES AN ALARM ON HIGH OR LOW LEVEL.

PCB-ARCH-EXT0373863

INSTRUMENT FUNCTION OUTLINE

DEPARTMENT 246

TITLE CHLORINATOR LEVEL CONTROL

LOOP NUMBER 016

SHEET 2 OF 4

CLASSIFICATION LICA-16

2.0 COMPONENT AND CALIBRATION DATA

	OPERATING DATA	MECHANICAL DATA
LT-16	LEVEL TRANSMITTER & CONTROLLER	FISHER GOV. LEVEL TRANS. #2500T-249B & CONTR. #2516
LC-16	LOCATION: 14' LEVEL, ON TANK 418 AIR SUPPLY: 20 PSIG OUTPUT: (TRANS) 3-15 PSIG (CONTR) 3-15 PSIG CONTR. ACTION: INC. LEVEL INC. OUTPUT	2" 150# R.F. FL'G., CARBON STEEL BODY SENSOR: MONEL DISPLACER, 32" (LENGTH) X 2" OD RANGE: 3-15 PSIG PROP BAND: 10-200 %
LV-16	CONTROL VALVE	FISHER GOV. CONTROL VALVE # 667-A
	LOCATION: 14' LEVEL, EAST OF TANK 418 INPUT: 3-15 PSIG ACTION: AIR TO OPEN FAILS CLOSE	1" 150# FL'G CARBON STEEL BODY 3/4" SS MICRO-FLUTE TRIM TEFLON PACKING, SKIRT-TOP GUIDING

PCB-ARCH-EXT0373864

INSTR. Nº: LT/LC 16
DISPLACER LENGTH: 32"
TRANS. OUTPUT: 3-15 PSIG
CONTR. OUTPUT: 3-15 PSIG
CONTR. ACTION: INC. LEVEL
INC. OUTPUT

INSTR. Nº: LV-16
ACTION: AIR TO OPEN
FAILS CLOSE

SP. GR.: 1.28 @ PT

FIELD

FIELD

PANEL

AIR SET
SET @ 20PSIG

90# IAS

LT 16

LC 16

3-15 PSIG

CONTR. OUTPUT

2-419-4-FIIP-1½"

LV-16

15# LSH

5# LSL

LSH/LSL 16

TO ANNUN. XA50
SEE DWG E102
PT. 4-2

1

INSTR. Nº LSH/LSL16
SET POINT FIELD SET
FUNCTION HI-LO LEVEL ALARM

9'-8"

2'-8"

7'-8"

2-418

#9 CHLORINATOR

2-419

BILL OF MATERIAL

MARK NO.	QUAN	SPEC 1800	P.O. NO. 1800-9	DESCRIPTION
LT/LC 16	1	20.1	0128	FISHER 2500T-249B LEVEL TRANSMITTER W/2516 CONTR. PIPED & MT'D. AIR SET
LV-16	1	10.2	0055	FISHER GOV. #667A-1"-150# FLG CONTROL VALVE
1 LSL-16 LSH-16	1	13.2	0213	BARKSDALE D2T-H18 PRESSURE SWITCH

MARK NO.	QUAN	SPEC.	P.O. NO.	DESCRIPTION

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INSTRUMENT SCHEMATIC DIAGRAM

LOOP NO. LIC-16
FUNCTION CHLORINATOR LEVEL CONTROL

C.E.A. NO	REFERENCE NO.
1800	I-9C

PCB-ARCH-EXT0373865

INSTRUMENT FUNCTION OUTLINE

DEPARTMENT 246

TITLE Chlorinator Level Control

LOOP NUMBER 016

SHEET 4 OF 4

CLASSIFICATION LICA 16

3.0 Operation of The Loop

3.1 Normal Operation

The instrument is field set. Flow is controlled away from chlorinator as per operating instruction.

3.1.1 Start up Instructions

Check to see that manual valves are lined up. and that pump is Running. check all air pressures! Manualy check alarms.

3.1.2 Shut down Instructions

Close manual valves in Level loop. This Level control should be kept on line if at all possible! watch for Hi Level or low Level alarm.

3.1.3 Manual Operating Instructions

None

3.2 Interlocks

None

3.3 Abnormal Operation

3.31 Air Failure

Air Failure to the loop, will cause control valve to close and the level will rise. watch for Hi Level Alarm.

3.32 Power Failure

Power failure to the loop will cause loss of Hi & Low Level alarms

PCB-ARCH-EXT0373866

INSTRUMENT FUNCTION OUTLINE

TITLE BLOW TANK LEVEL CONTROL & ALARM

SHEET 1 OF 4

DEPARTMENT 346

LOOP NUMBER 017

CLASSIFICATION LICA-17

1.0 NEED FOR LOOP

THIS LOOP IS NEEDED TO PROVIDE THE "BEST" LEVEL OF MATERIAL FOR BLOW TANK OPERATION AND TO PREVENT THE PUMP FROM RUNNING DRY AND TO PREVENT OVERFLOW.

1.1 DESCRIPTION OF LOOP

1.1.1 FUNCTION

THE FUNCTION OF THIS LOOP IS TO CONTROL THE LEVEL OF MATERIAL IN THE BLOW TANK AND TO ACTIVATE A HIGH AND LOW ALARM.

1.1.2 SYSTEM PERFORMANCE REQUIRED

THE LEVEL SHOULD BE MAINTAINED ± 3" OF SET POINT.

1.1.3 ACCOMPLISHMENT OF FUNCTION

THE LEVEL OF THE TANK IS DETERMINED BY THE LEVEL TRANSMITTER, WHICH SENDS A 3-15 PSIG AIR SIGNAL TO THE CONTROLLER. THE CONTROLLER COMPARES THIS SIGNAL WITH A SET POINT AND SENDS A CORRESPONDING 3-15 PSIG AIR SIGNAL TO THE CONTROL VALVE TO COMPENSATE FOR VARIATION FROM SET POINT. THE TRANSMITTER ALSO SENS AN AIR SIGNAL TO A DUAL UNIT PRESSURE SWITCH WHICH ACTIVATES AN ALARM ON LOW OR HIGH LEVEL.

PCB-ARCH-EXT0373867

INSTRUMENT FUNCTION OUTLINE | DEPARTMENT 246

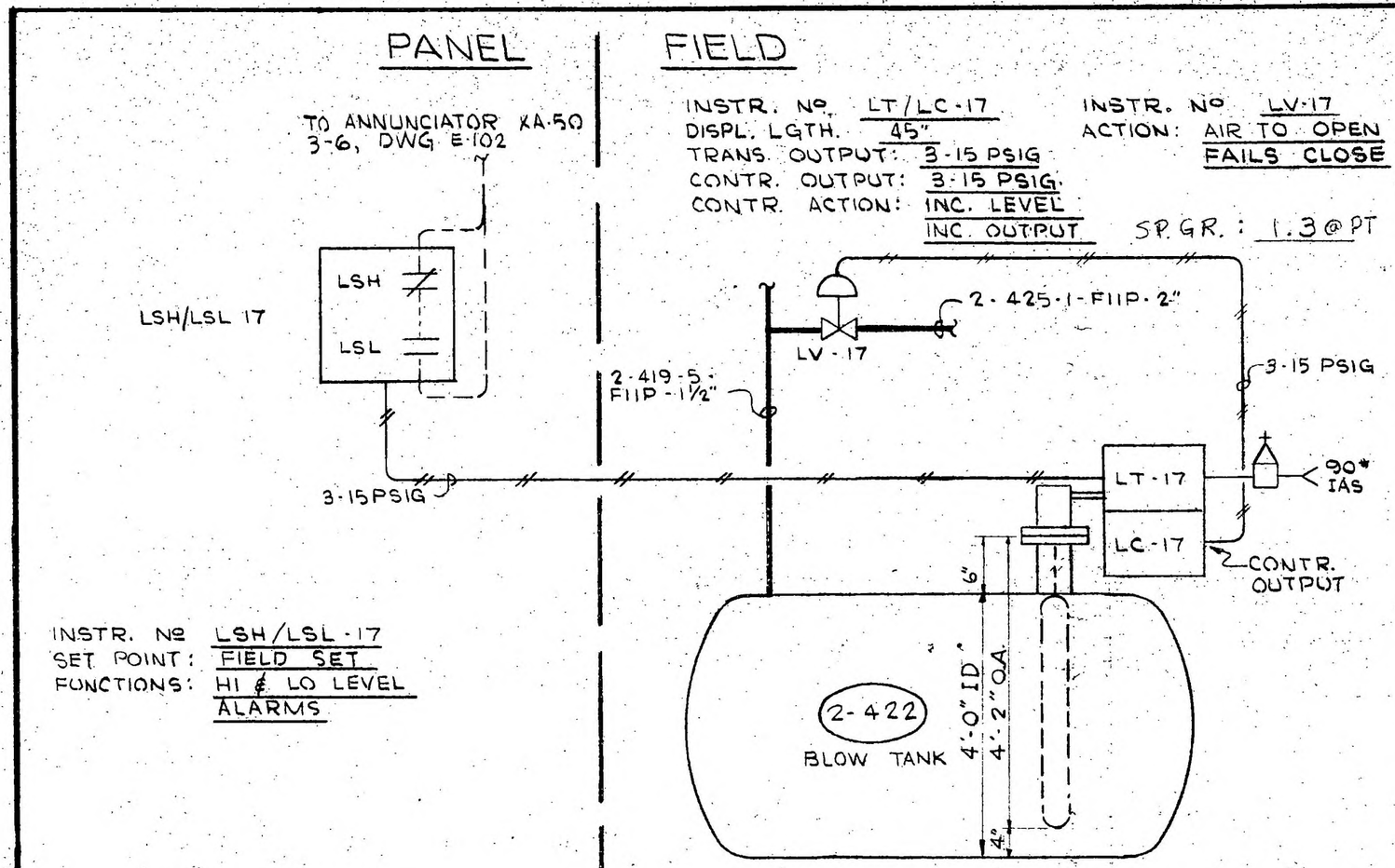
TITLE BLOW TANK LEVEL CONTR. & ALARM | LOOP NUMBER 017

SHEET 2 OF 4 | CLASSIFICATION LICA-17

2.0 COMPONENT AND CALIBRATION DATA

	OPERATING DATA	MECHANICAL DATA
LT-17 LC-17	LEVEL TRANSMITTER & CONTROLLER LOCATION: GND. LEVEL, ON TANK 422 AIR SUPPLY: 20 PSIG OUT PUT: (TRANS) 3-15 PSIG (CONTR) 3-15 PSIG CONTR. ACTION: INC. LEVEL INC. OUTPUT	FISHER GOV LEVEL TRANS #2500T-249 BP & CONTR #2516 4" 150# R.F. FL'G CARBON STEEL BODY SENSOR: MONEL DISPLACER, 45"/5" EXT. PROP. BAND: 10-200 % DISPLACER: 1 1/2" O.D.
LV-17	CONTROL VALVE LOCATION: 14' LEVEL, WEST OF STAIRS, NORTH OF TANK 418 INPUT: 3-15 PSIG ACTION: AIR TO OPEN FAILS CLOSE	FISHER GOV. CONTROL VALVE #667-A 1" 150# FL'G, CARBON STEEL BODY 1" 316 SS MICRO-FLUTE TRIM TEFLON PACKING, SKIRT-TOP GUIDING
LSA-17	PRESSURE SWITCH LOCATION: PANEL INPUT: 3-15 PSIG FIELD SET FCT: HI & LO LEVEL ALARMS RATING: 115V, 10 A. SPDT CONTACT	BARKSDALE DUAL PRESS. SWITCH #D2T-H18 RANGE: 0-18 PSIG BRONZE DIAPHRAGM, 1/4" IPS CONDUIT CONN: 1/2" NPS

PCB-ARCH-EXT0373868



FOR GENERAL NOTES, SYMBOLS, LEGEND, REFERENCE DRAWINGS, ETC. SEE DRAWING 1800-I-1

REV	DATE	DESCRIPTION	BY	CHKD	APPD
1	8/13/68	ADD. LSH/LSL16 & MK 9 TO 19B	WS	L.V.M.	L.V.
0	6/21/68	APP'D FOR CONST.	—	—	RSY

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DIVISION ORGANIC 2 PLANT KRUMMRICH

SCHEMATICS

SHEET 2 MFG. AREA

	BY	DATE	APPROVED	DATE	APPROVED	DATE
DRAWN	HAMMONDS	4-29-68	D. Parker	6-19-68	RSYates	6-21-68
CHECKED	L. VAN M.	6-19-68	L. Vehige	6-21-68		
SCALE	NONE		W. Brown	6/21/68		

C.E.A. NO.	PLANT	SIZE	DEPARTMENT	TYPE	NUMBER	REV.
1800	3	D	811.00	I	9	1

BILL OF MATERIAL

MARK NO.	QUAN	SPEC. 1800	P.O. NO. 1800-9	DESCRIPTION
LT/LC-17	1	20.1	0128	FISHER 2500T-249BP LEVEL TRANSMITTER W/2516 CONTR. & PIPED & MT'D AIR SET
LV-17	1	10.2	0055	FISHER GOV. 667-A-1"-150# FLG. CONTROL VALVE
LSL-17 LSH-17	1	13.2	0112	BARKSDALE D2T-H18 DUAL UNIT PRESSURE SWITCH

MARK NO.	QUAN	SPEC.	P.O. NO	DESCRIPTION

INSTRUMENT SCHEMATIC DIAGRAM

LOOP NO. LICA-17
FUNCTION BLOW TANK LEVEL CONTR. & ALARM

REFERENCE NO.	
1800	I 9D

PRINTS ISSUED TO FIELD—BY L. Vehige DATE ~~6-21-68~~ 8-13-68 REV. ~~0~~ 1

PCB-ARCH-EXT0373869

INSTRUMENT FUNCTION OUTLINE | DEPARTMENT 346

TITLE Blow Tank Level Control & Alarm | LOOP NUMBER 017

SHEET 4 OF 4 | CLASSIFICATION LICA-17

3.0 Operation of The Loop

3.1 Normal Operation

This instrument is field set to control Blow Tank Level at 20" set point for low level is 12", Hi Level is 36".

3.1.1 Start up Instructions

Regulate air pressure to each of the Blow Tank Compartments to 2 psig. align circulating valve on Blow Tank. Start Blow Tank Transfer Pump. when Blow Tank Level is 50% of normal start Air Blower and regulate outlet pressure to 8 psig.

3.1.2 Shut down Instructions.

Shut down all air to Compartments, Shut down pump and close manual valves.

3.1.3 Manual Operating Instructions

None

3.2 Interlocks

None

3.3 Abnormal Operation

3.31 Air Failure

Air Failure To The loop will cause valve To close.

3.32 Power Failure

Power Failure To loop will cause Loss of Alarms.

PCB-ARCH-EXT0373870

INSTRUMENT FUNCTION OUTLINE | DEPARTMENT 246

TITLE INTERMEDIATE STG. TANK LEVEL INDICATOR | LOOP NUMBER 018

SHEET 1 OF 4 | CLASSIFICATION LIA-18

1.0 NEED FOR LOOP

THIS LOOP IS NEEDED FOR INVENTORY PURPOSES AND TO PREVENT OVERFLOW.

1.1 DESCRIPTION OF LOOP

1.1.1 FUNCTION

THE FUNCTION OF THIS LOOP IS TO INDICATE THE LEVEL IN THE INTERMEDIATE STORAGE TANK AND TO ACTIVATE A HIGH LEVEL ALARM IF NECESSARY.

1.1.2 SYSTEM PERFORMANCE REQUIRED

THIS SYSTEM SHOULD INDICATE THE LEVEL IN THE TANK WITHIN ±3" OF ACTUAL LEVEL.

1.1.3 ACCOMPLISHMENT OF FUNCTION

THE LEVEL IN THE TANK IS DETERMINED BY A LEVEL TRANSMITTER WHICH SENDS A 3-15 PSIG AIR SIGNAL TO A LEVEL INDICATOR (PANEL MOUNTED & FIELD MOUNTED) WHICH INDICATES THE LEVEL IN THE TANK. THE TRANSMITTER ALSO SENDS AN AIR SIGNAL TO A PRESSURE SWITCH WHICH ACTIVATES AN ALARM ON HIGH LEVEL.

PCB-ARCH-EXT0373871

INSTRUMENT FUNCTION OUTLINE | DEPARTMENT 246

TITLE INTERMEDIATE STG. TANK LEVEL INDICATOR | LOOP NUMBER 018

SHEET 2 OF 4 | CLASSIFICATION LIA-18

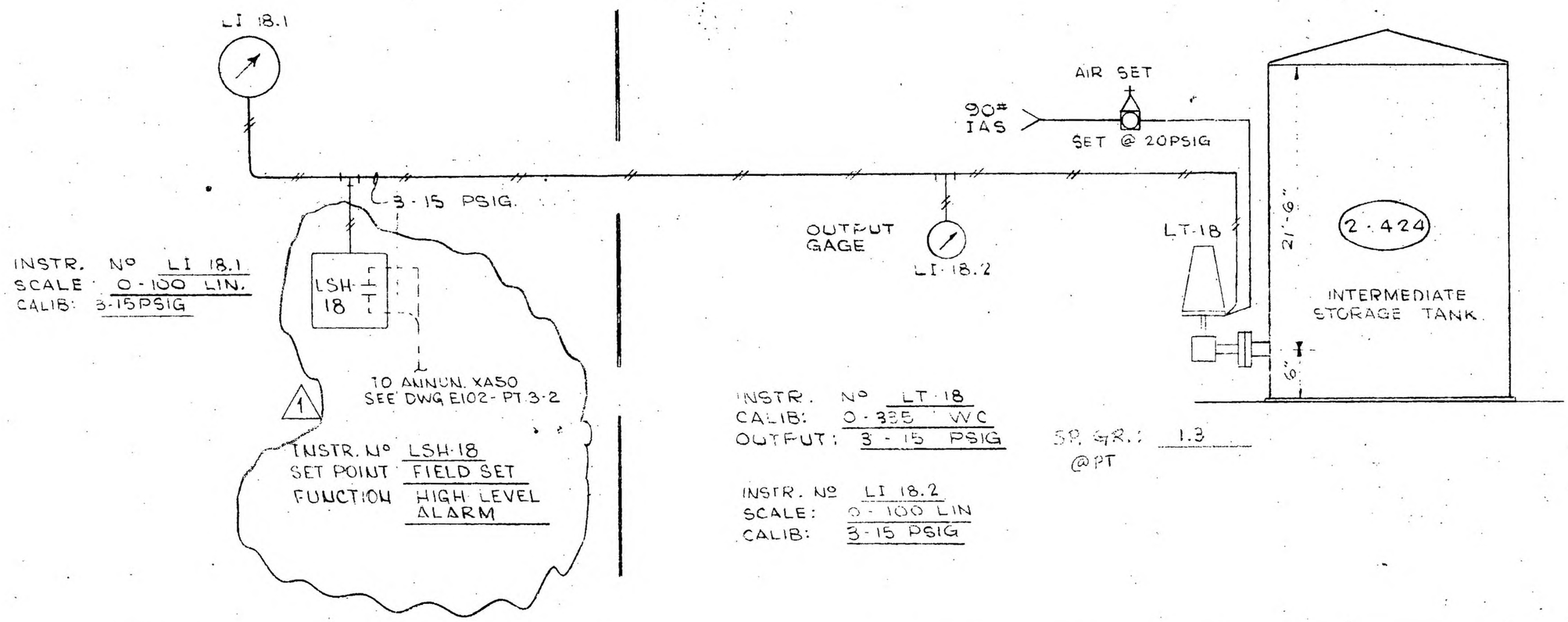
2.0 COMPONENT AND CALIBRATION DATA

	OPERATING DATA	MECHANICAL DATA
LT-18	LEVEL TRANSMITTER LOCATION: GND. LEVEL, ON TANK 424. AIR SUPPLY: 20 PSIG OUTPUT: 3-15 PSIG SPAN: 0-335" W.C.	FOXBORO LEVEL TRANS. #13FA1-HS315 W/PIPED & MT'D AIR SUPPLY REG. W/GAGE RANGE: 0-200" TO 0-850" W.C. CARBON STEEL BODY TANK CONN: 3", 150# FL'G ACCURACY: ½ %
18	PRESSURE GAUGE LOCATION: PANEL INPUT: 3-15 PSIG SPAN: 3-15 PSIG	ASHCROFT PRESSURE GAUGE #1223 LC BRONZE, BOURDON W/BRASS SOCKET ¼" NPT CONN. 3½" DIAL SCALE: 0-100 LIN.

PCB-ARCH-EXT0373872

16 | 15 | 14 | 13 | 12 | 11 | 10 | 9

PANEL | FIELD



BILL OF MATERIAL

MARK NO	QUAN	SPEC. 1800	P.O NO. 1800-9	DESCRIPTION
LT-18	1	17.1	0125	FOXBORO #13FAI[H]S315 LEVEL TRANSMITTER W/ PIPED & MT'D AIR SET
LI 18.1		07.3	0113	ASHCROFT #1223 JC PRESS. GAGE - 3 1/2" DIAL
LI 18.2	1	17.1	0125	FOXBORO 3 1/2" RECEIVER GAGE, FURN. W/LT-18
1 LSH-18	1	13.1	0112	BARKSDALE DIT-H18 PRESSUSE SWITCH

MARK NO.	QUAN	SPEC	P.O NO	DESCRIPTION

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INSTRUMENT SCHEMATIC DIAGRAM

LOOP NO. LI-18

FUNCTION INTERMEDIATE STG. TANK LEV. INDICAT

C.E.A. NO.	REFERENCE NO.
1800	I 10A

PCB-ARCH-EXT0373873

INSTRUMENT FUNCTION OUTLINE

TITLE INTERMEDIATE STG. TANK LEVEL INDICATOR.

SHEET 2 OF 4

DEPARTMENT 241

LOOP NUMBER 018

CLASSIFICATION LTA 18

3.0 Operation of The Loop

3.1 Normal Operation

Keep Level at 90% or as per operating instructions.

3.1.1 Start up Instructions

Check all air pressures, and align circulating lines on the intermediate storage tank. check level closely. manualy check alarm (Hi level)

3.1.2 Shut down Instructions

The Level Transmitter can not be removed unless the tank is empty.

3.1.3 Manual Operation

None

3.2 Interlocks

None

3.3 Abnormal Operations

3.3.1 Air Failure

Air Failure To The loop will cause a Loss of Level Reading a 0% Reading will show on panel.

3.3.2 Power failure

Power Failure To The Loop will cause a Loss of alarm, will not cause a change in Level Reading.

PCB-ARCH-EXT0373874

INSTRUMENT FUNCTION OUTLINE

TITLE THERMINOL TO HEAT EXCH. FLOW CONTROL

SHEET 1 OF 4

DEPARTMENT 246

LOOP NUMBER 021

CLASSIFICATION FIC-21

1.0 NEED FOR LOOP

THIS LOOP IS NEEDED TO HEAT PROCESS STREAM TO A TEMPERATURE SUCH THAT THE CORRECT BOILING PROCESS OCCURS IN THE CONSTANT PRESSURE STILL POT.

1.1 DESCRIPTION OF LOOP

1.1.1 FUNCTION

THE FUNCTION OF THIS LOOP IS TO CONTROL THE FLOW OF THE HOT THERMINOL.

1.1.2 SYSTEM PERFORMANCE REQUIRED

THE FLOW RATE SHOULD BE MAINTAINED ± 5 GPM OF SET POINT.

1.1.3 ACCOMPLISHMENT OF FUNCTION

THE RATE OF FLOW OF THERMINOL IS DETERMINED BY AN ORIFICE PLATE AND FLOW TRANSMITTER. THE TRANSMITTER SENDS A 3-15 PSIG AIR SIGNAL TO A FLOW INDICATING CONTROLLER WHICH COMPARES THIS SIGNAL TO A SET POINT AND SENDS A CORRESPONDING 3-15 PSIG AIR SIGNAL TO A CONTROL VALVE TO COMPENSATE FOR VARIATION FROM SET POINT.

PCB-ARCH-EXT0373875

INSTRUMENT FUNCTION OUTLINE — DEPARTMENT 246

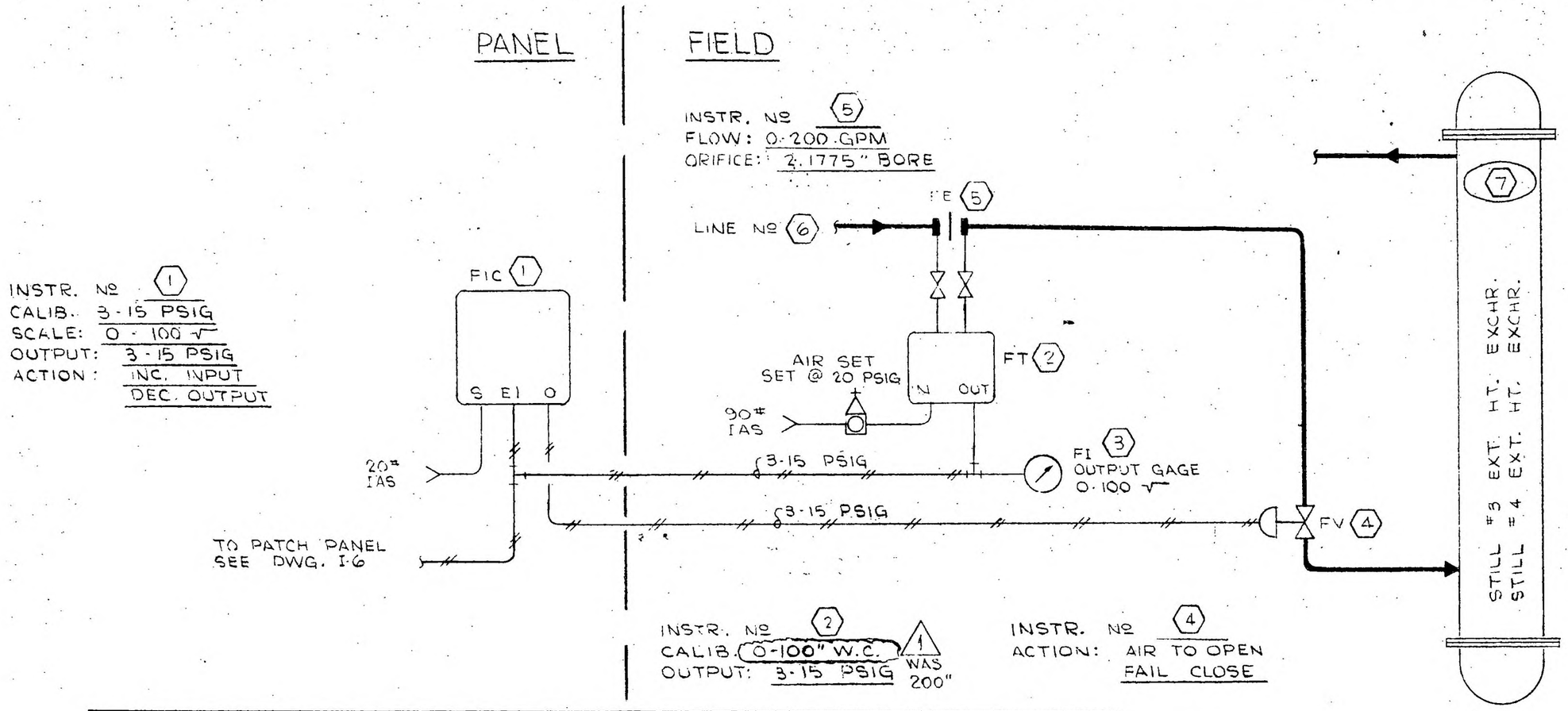
TITLE THERMINOL TO HEAT EXCH. FLOW CONTROL — LOOP NUMBER 021

SHEET 2 OF 4 — CLASSIFICATION FIC-21

2.0 COMPONENT AND CALIBRATION DATA

	OPERATING DATA	MECHANICAL DATA
FE-21	ORIFICE METER RUN LOCATION: 14' LEVEL, SE OF TANK 530 FLOW: 0-200 GPM	DANIEL ORIFICE METER RUN # 520 3" SCH. 40 STEEL PIPE PLATE: 316 SS, 1/8" THICK ID: 2.17751" SCALE: 0-100 T
FT-21	FLOW TRANSMITTER LOCATION: 14' LEVEL, SE OF TANK 530 AIR SUPPLY: 20 PSIG OUTPUT: 3-15 PSIG SPAN: 0-100" W.C.	FOXBORO FLOW TRANS. #13A1-MK2 W/PIPED & MT'D AIR SET W/GAUGE RANGE: 20 TO 205" W.C. 1/2" NPT PROCESS CONN: OUTPUT GAGE: 3 1/2", 0-10 T ACCURACY: 1/2 %
FIC-21	FLOW INDICATING CONTROLLER LOCATION: PANEL AIR SUPPLY: 20 # IAS OUTPUT: 3-15 PSIG ACTION: INC. INPUT DEC. OUTPUT	FISCHER & PORTER FLOW IND. CONTR. # 51-1351ABEC SCALE: 0-100 T PROP BAND: 2-500 % RESET RATE: .02-5 MIN. ACCURACY: 1/2 %
FV-21	CONTROL VALVE LOCATION: 28' LEVEL, ABOVE TANK 530 INPUT: 3-15 PSIG ACTION: AIR TO OPEN FAILS CLOSE	FISHER GOV. CONTROL VALVE #667 ED 3" 150# FLG CARBON STEEL BODY 3" SS TRIM, EQUAL % DURAMETALLIC PACKING SKIRT-TOP GUIDING

PCB-ARCH-EXT0373876



(1)	(2)	(3)	(4)	(5)	(6)	(7)
FIC-21	FT-21	FI-21	FV-21	FE-21	HL2-3-F42-3"	ITEM 2.504
FIC-26	FT-26	FI-26	FV-26	FE-26	HL2-4-F42-3"	ITEM 2.526

BILL OF MATERIAL

MARK NO.	QUAN	SPEC 1800	P.O. NO. 1800-9	DESCRIPTION
(1)	2	12.1	0079	FISCHER & PORTER # 51-1351ABEC INDICATING CONTROLLER
(2)	2	17.3	0125	FOXBORO # 1BAI-MK2 FLOW TRANSMITTER W/PIPED & MT'D AIR SET W/GAGE
(4)	2	10.2	0055	FISHER - GOV. # 667 - ED - 3" 150# CONTROL VALVE
(5)	2	3.1	0139	DANIEL 520 ORIFICE METER RUN, 3" SCH. 40
(3)	2	17.3	0125	FOXBORO 3 1/2" RECEIVER GAGE FURN. W/ MARK 2

MARK NO	QUAN	SPEC.	P.O. NO.	DESCRIPTION

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INSTRUMENT SCHEMATIC DIAGRAM

LOOP NO FIC-21, FIC-26

FUNCTION THERMINOL TO HEAT EXCH. FLOW CONTROL

CEA NO.	REFERENCE NO
1800	I-10C

PCB-ARCH-EXT0373877

INSTRUMENT FUNCTION OUTLINE | DEPARTMENT 246

TITLE Therminol To Heat Exch. Flow Control | LOOP NUMBER 071

SHEET 4 OF 4 | CLASSIFICATION FIC 71

3.0 OPERATION OF LOOP

3.1 NORMAL OPERATION.

SET Therminol Flow as per operating instructions (0-100%). 100% is equal to 200 gpm. INCREASE IN Therminol Flow will RESULT in larger Boil-up, DECREASE IN Flow will RESULT in SLOWER Boil-up.

3.1.1 START-UP INSTRUCTIONS

Check all air pressures, Align manual Valves To HT. EXCHR. START Therminol pump.

3.1.2 SHUTDOWN INSTRUCTIONS

SET Flow CONTROLLER To 0gpm, close manual Valves To HT. EXCHR. Stop Therminol pump.

3.1.3 Manual Operations

SET Flow CONTROLLER To Manual, Regulate air pressure To Control Valve with SET point.

3.2 INTERLOCKS

NONE

3.3 ABNORMAL OPERATIONS

3.3.1 Air Failure

Air Failure To THE Loop will Cause Loss of Control, The Control Valve will close, The Flow To HT EXCHR. will STOP.

3.3.2 Power Failure

Power Failure To The loop will NOT affect control

Power Failure To Therminol pump will cause Loss of Flow.

PCB-ARCH-EXT0373878

INSTRUMENT FUNCTION OUTLINE

TITLE STILL POT FLOW TOTALIZATION & ALARM

SHEET 1 OF 4

DEPARTMENT 246

LOOP NUMBER 022

CLASSIFICATION FQA-22

1.0 NEED FOR LOOP

THIS LOOP IS NEEDED TO DETERMINE THE AMOUNT OF INPUT TO THE TANK. THIS INFORMATION THEN DETERMINES WHEN THE PROCESS IS TO BE TEMPORALLY TERMINATED AND LIME ADDED OR THE TANK EMPTIED.

1.1 DESCRIPTION OF LOOP

1.1.1 FUNCTION

THE FUNCTION OF THIS LOOP IS TO COUNT THE NUMBER OF GALLONS PUT INTO THE STILL POT. AND TO SOUND AN ALARM WHEN A PRESET AMOUNT IS REACHED.

1.1.2 SYSTEM PERFORMANCE REQUIRED

THIS SYSTEM SHOULD TOTALIZE THE FINAL GALLON COUNT WITHIN ± 150 GALLONS OF ACTUAL TOTAL INPUT AND SHOULD METER THE FLOW RATE WITHIN ± ½ GPM OF ACTUAL RATE.

1.1.3 ACCOMPLISHMENT OF FUNCTION

THE FLOW METER TRANSMITTER OPERATES ON A POSITIVE DISPLACEMENT PRINCIPLE AND SENDS AN ELECTRICAL PULSE TO A COUNTER FOR EVERY GIVEN AMOUNT OF DISPLACEMENT. THE COUNTER RECEIVES THE PULSES FROM THE TRANSMITTER AND COUNTS ONE FOR EVERY TEN PULSES RECEIVED.

PCB-ARCH-EXT0373879

INSTRUMENT FUNCTION OUTLINE | DEPARTMENT 246

TITLE STILL POT FLOW TOTALIZATION & ALARM | LOOP NUMBER 022

SHEET 2 OF 4 | CLASSIFICATION FQA-22

2.0 COMPONENT AND CALIBRATION DATA

OPERATING DATA

FT-22 FLOW METER TRANSMITTER

LOCATION: 14' LEVEL, OVER TANK 502
FLOW: 6-37 GPM
WORKING PRESSURE: 30-80 PSIG
PULSES/GAL: 1
SWITCH RATING: .2 AMP
TOTALIZER: 5 DIGIT-NON RESET
10 GAL/COUNT

A-22 FLOW BATCH TOTALIZER

LOCATION: PANEL
INPUT: 6-37 GPM (PULSES/MIN)
PULSE SOURCE: 115 VAC, .5 A.
DISPLAY: 5 DIGITS
COUNTING COIL: 115 VDC
CONTACT: SPDT @ 250 VAC, 2A.
POWER SUPPLY: 115 VAC
OPERATING VOLTAGE: DC
* BUILT-IN DC RECTIFIER FOR COIL OPERATION.

MECHANICAL DATA

BROOKS INST. CO. FLOW METER TRANS.

#9455-B7C-01-C-111-010
METER SIZE: 1"
CONN: 1", 150# FL'G. R.F. ASA
MAT'L: HOUSING, GEARS, SHAFT, FLANGES } 316 SS
BEARINGS: HARD CARBON
GASKET & SEALS: TEFLON

PRESIN FLOW BATCH TOTALIZER #F185

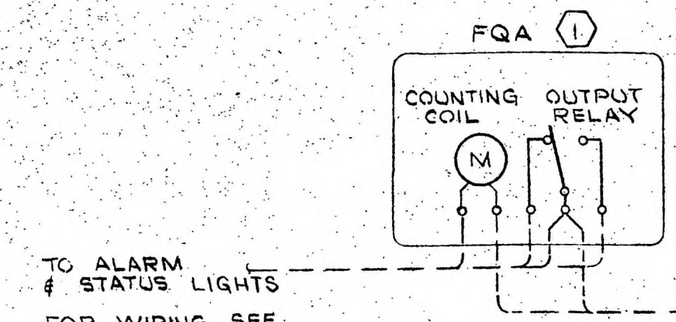
PCB-ARCH-EXT0373880

16 | 15 | 14

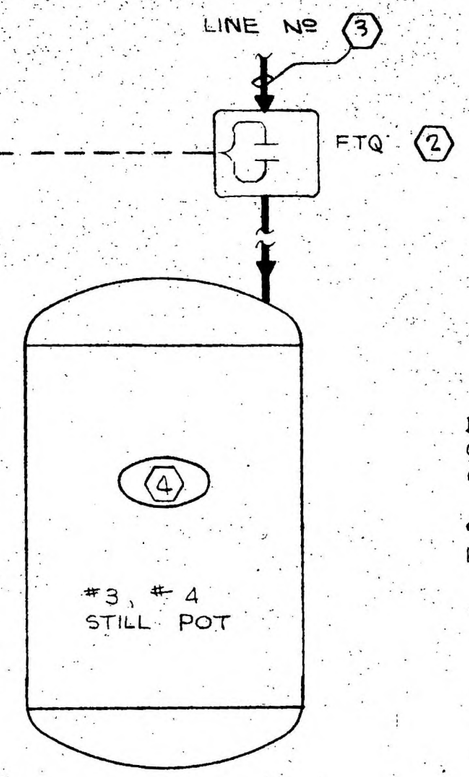
INSTR. Nº (1)
CALIB. 0-37 PULSES / MIN.
COUNTER: 5 DIGIT
OUTPUT: SWITCH CLOSURE ON PRE-DETERMINED COUNT

PANEL

FIELD



FOR WIRING SEE SCH. DWG E-103



INSTR. Nº (2)
CALIB: 0-37 GPM
OUTPUT: 0-37 PULSES/MINUTE
SCALE: 10 GAL./REV.
REGISTER: 5 DIGIT @ 10 GAL./COUNT

(1)	(2)	(3)	(4)
FQA-22	FTQ 22	2-423-3-FIIP-2"	ITEM 2-502
FQA-27	FTQ 27	2-423-1-FIIP-2"	ITEM 2-511

BILL OF MATERIAL

MARK NO.	QUAN	SPEC.	P.O. NO.	DESCRIPTION
(1)	2	1800	1800-9	PRESIN® F185, 5 DIGIT BATCH TOTALIZER
(2)	2	15.6	0115	BROOKS INSTR. CO. #9455-B7C-01-C-111-010 POSITIVE DISPL. METER W/TYPE PG-2 PULSER

MARK NO.	QUAN	SPEC.	P.O. NO.	DESCRIPTION

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INSTRUMENT SCHEMATIC DIAGRAM

LOOP NO. FQA-22 & FQA-27
FUNCTION STILL POT FLOW TOTALIZATION & ALARM

C.E.A. NO.	REFERENCE NO.
1800	I-11A

PCB-ARCH-EXT0373881

INSTRUMENT FUNCTION OUTLINE

TITLE STILL POT Flow TOTALIZATION

SHEET 4 OF 4

DEPARTMENT 246

LOOP NUMBER 022

CLASSIFICATION FQA 22

3.0 Operation of Loop

3.1 Normal Operation

THE Flow INTEGRATOR is used To measure input To STILL FROM INTERMEDIATE STORAGE TANK & Sound AN ALARM when A PRE-SET AMOUNT IS REACHED.

3.1.1 START UP INSTRUCTIONS

CHECK ELECTRICAL Supply To Loop + MANUALLY TEST ALARM System.

3.1.2 SHUT DOWN INSTRUCTIONS

NONE

3.1.3 MANUAL OPERATING INSTRUCTIONS

None

3.2 INTERLOCKS

None

3.3 Abnormal Operations

3.3.1 AIR FAILURE

No effect on Loop.

3.3.2 Power FAILURE

Loss of CONTROL of measurement of MATERIAL from INTERMEDIATE STORGE TO STILL POT.

PCB-ARCH-EXT0373882

INSTRUMENT FUNCTION OUTLINE

TITLE STILL POT LEVEL CONTROL & ALARM

SHEET 1 OF 4

DEPARTMENT 246

LOOP NUMBER 023

CLASSIFICATION LICA-23

1.0 NEED FOR LOOP

THIS LOOP IS NEEDED TO INSURE THAT THERE IS A CONSTANT LEVEL IN THE STILL POT AND THAT THERE WILL ALWAYS BE UNDISTILLED MATERIAL IN THE POT AVAILABLE FOR DISTILLATION.

1.1 DESCRIPTION OF LOOP

1.1.1 FUNCTION

THE FUNCTION OF THIS LOOP IS TO CONTROL THE LEVEL OF UNDISTILLED MATERIAL IN THE STILL POT. AND TO ACTIVATE A HIGH OR LOW ALARM WHEN REQUIRED.

1.1.2 SYSTEM PERFORMANCE REQUIRED

THE LEVEL SHOULD BE MAINTAINED ± 5" OF SET POINT.

1.1.3 ACCOMPLISHMENT OF FUNCTION

THE LEVEL TRANSMITTER SENSES THE LEVEL IN THE TANK AND SENDS A 3-15 PSIG AIR SIGNAL TO THE LEVEL INDICATING CONTROLLER. THE CONTROLLER COMPARES THIS SIGNAL WITH A SET POINT AND SENDS A 3-15 PSIG AIR SIGNAL TO A CONTROL VALVE TO COMPENSATE FOR VARIATION FROM SET POINT. THE CONTROL VALVE ALLOWS EITHER MORE OR LESS MATERIAL INTO THE TANK DEPENDENT UPON THE SIGNAL FROM THE CONTROLLER. THE TRANSMITTER ALSO SENDS AN AIR SIGNAL TO A DUAL UNIT PRESSURE SWITCH WHICH ACTIVATES A HIGH OR LOW LEVEL ALARM.

PCB-ARCH-EXT0373883

INSTRUMENT FUNCTION OUTLINE | DEPARTMENT 216

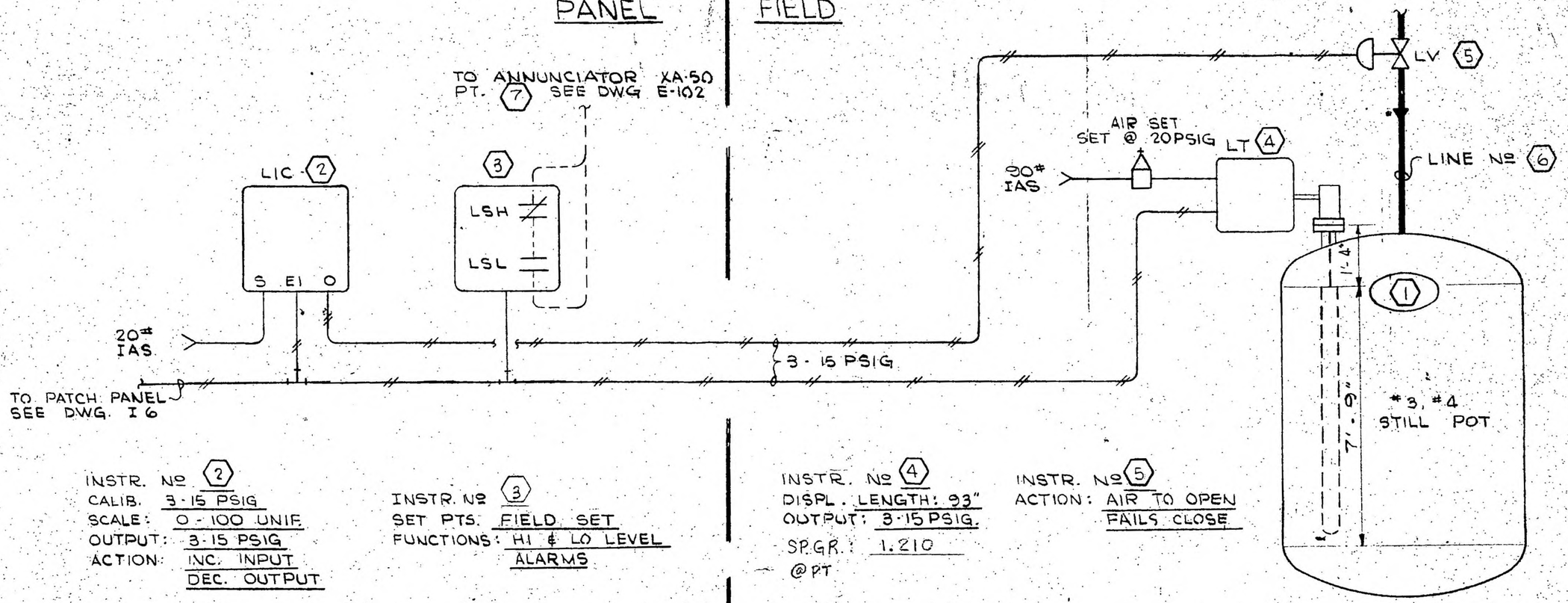
TITLE STILL POT LEVEL CONTROL & ALARM | LOOP NUMBER 023

SHEET 2 OF 4 | CLASSIFICATION LICA-23

2.0 COMPONENT AND CALIBRATION DATA

	OPERATING DATA	MECHANICAL DATA
LT-23	LEVEL TRANSMITTER LOCATION: 14' LEVEL, OVER TANK 502 AIR SUPPLY: 20 PSIG OUTPUT: 3-15 PSIG	FISHER GOV LEVEL TRANS. #2500T-249BP 4" 150# R.F. FL'G CARBON STEEL BODY 316 SS 1"x93" DISPLACER W/16" EXT. W/PIPED & MT'D AIR SET
LIC-23	LEVEL INDICATING CONTR. LOCATION: PANEL AIR SUPPLY: 20 #IAS OUTPUT: 3-15 PSIG ACTION: INC. INPUT DEC. OUTPUT	FISCHER & PORTER LEVEL IND. CONTR. #51-1351ABEC RANGE: 0-100 LIN. PROP BAND: 2-500 % RESET RATE: .02 - 5 MIN. ACCURACY: ½ %
LV-23	CONTROL VALVE LOCATION: 14' LEVEL, OVER TANK 502 INPUT: 3-15 PSIG ACTION: AIR TO OPEN FAILS CLOSE	FISHER GOV. CONTROL VALVE #667-A 1" 150# FL'G CARBON STEEL BODY 1" 316 SS MICRO-FLUTE TRIM TEFLON PACKING; SKIRT-TOP GUIDING
LSA-23	PRESSURE SWITCH LOCATION: PANEL INPUT: 3-15 PSIG FIELD SET FCT: HI & LOW LEVEL ALARMS SPDT CONTACT/115 V., 10A.	BARKSDALE PRESSURE SWITCH #D2T-H18 BRONZE DIAPHRAGM, 1/4" IPS RANGE: 0-18 PSIG CONDUIT CONN.: ½" NPS.

PCB-ARCH-EXT0373884



INSTR. Nº 2
CALIB. 3-15 PSIG
SCALE: 0-100 UNIF.
OUTPUT: 3-15 PSIG
ACTION: INC. INPUT
DEC. OUTPUT

INSTR. Nº 3
SET PTS. FIELD SET
FUNCTIONS: HI & LO LEVEL ALARMS

INSTR. Nº 4
DISPL. LENGTH: 93"
OUTPUT: 3-15 PSIG.
SP.GR.: 1.210 @ PT

INSTR. Nº 5
ACTION: AIR TO OPEN
FAILS CLOSE

1	2	3	4	5	6	7
2-502	LIC-23	LSH/LSL 23	LT-23	LV-23	2-423-3-FIIP-2"	1-6
2-511	LIC-28	LSH/LSL 28	LT-28	LV-28	2-423-1-FIIP-2"	1-7

BILL OF MATERIAL

MARK NO.	QUAN	SPEC. 1800	P.O. NO 1800-9	DESCRIPTION
2	2	12.1	0079	FISCHER & PORTER MODEL 51-1351ABEC INDICATING CONTR.
3	2	13.2	0112	BARKSDALE D2T-H18 DUAL UNIT PRESSURE SWITCH
4	2	20.1	0128	FISHER-GOV. #2500T-249BP LEVEL TRANSMITTER W/ PIPED & MT'D. AIR SET.
5	2	10.2	0055	FISHER-GOV. # 667-A-1"-150# CONTROL VALVE

MARK NO.	QUAN	SPEC.	P.O. NO.	DESCRIPTION

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INSTRUMENT SCHEMATIC DIAGRAM

LOOP NO. LICA 23, LICA 28
FUNCTION STILL POT LEVEL CONTROL & ALARM

C.E.A. NO.	REFERENCE NO.
1800	I-11B

PCB-ARCH-EXT0373885

INSTRUMENT FUNCTION OUTLINE — DEPARTMENT 246

TITLE STILL POT LEVEL CONTROL & ALARM — LOOP NUMBER 023

SHEET 4 OF 4 — CLASSIFICATION LICA 23

3.0 OPERATION OF LOOP

3.1 NORMAL OPERATION

The NORMAL OPERATION OF THIS LOOP IS TO CONTROL THE LEVEL OF THE MATERIAL IN THE STILL POT AT A FIELD SET POINT. AN ALARM will SOUND WHEN LEVEL IS HIGH OR LOW.

High Level is 85" FROM BOTTOM Bend line.

Low Level is 12" FROM Bottom Bend line.

3.1.1 START UP INSTRUCTIONS

A. Open VALVES IN AIR LINE & check AIR SUPPLY TO Loop.

B. Check Level CONTROLLER READING against STICK MEASUREMENT FOR ACCURACY.

C. MAINTAIN Level IN TANK AS PER OPERATING INSTRUCTIONS.

3.1.2 SHUT DOWN INSTRUCTIONS

A. PUT CONTROLLER ON MANUAL & Close CONTROL VALVE by moving SET POINT TO Highest SETTING.

B. Close All Block VALVES IN loop.

3.1.3 MANUAL OPERATING INSTRUCTIONS

A. PUT CONTROLLER ON "MANUAL" SET POINT ON 9# AIR TO VALVE, check Level FREQUENTLY

B. There IS No By-PASS ON LV-23.

3.2 INTERLOCKS

NONE

3.3 ABNORMAL OPERATIONS

3.3.1 AIR FAILURE

AN AIR FAILURE TO The Loop will CAUSE The CONTROL VALVE TO FAIL closed & The Level IN The STILL POT will DECREASE. Check Level FREQUENTLY.

3.3.2 POWER FAILURE

LOSS OF POWER will CAUSE Loss of ALARM SYSTEM.

PCB-ARCH-EXT0373886

INSTRUMENT FUNCTION OUTLINE | DEPARTMENT 246

TITLE AIR TO STILL EJECTOR, ABSOLUTE PRESSURE CONTR. | LOOP NUMBER 024

SHEET 1 OF 4 | CLASSIFICATION PIC-24

1.0 NEED FOR LOOP

THIS LOOP IS NEEDED TO MAINTAIN THE CONSTANT PRESSURE DESIRABLE FOR OPTIMUM DISTILLATION CONDITIONS.

1.1 DESCRIPTION OF LOOP

1.1.1 FUNCTION

THE FUNCTION OF THIS LOOP IS TO CONTROL THE PRESSURE IN THE DISTILLATION SYSTEM.

1.1.2 SYSTEM PERFORMANCE REQUIRED

THE PRESSURE SHOULD BE MAINTAINED ±1 mm Hg ABS. OF SET POINT.

1.1.3 ACCOMPLISHMENT OF FUNCTION

THE ABSOLUTE PRESSURE IN THE STILL POT IS SENSED BY AN ABSOLUTE PRESSURE TRANSMITTER WHICH SENDS A 3-15 PSIG AIR SIGNAL TO A PRESSURE 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 CONTROL VALVE CONTROLS AN AIR BLEED INTO THE STILL EJECTOR AND THUS CONTROLS THE PRESSURE IN THE SYSTEM.

PCB-ARCH-EXT0373887

INSTRUMENT FUNCTION OUTLINE | DEPARTMENT 246

TITLE AIR TO STILL EJECTOR, ABS. PRESS. CONTR. | LOOP NUMBER 024

SHEET 2 OF 4 | CLASSIFICATION PIC-24

2.0 COMPONENT AND CALIBRATION DATA

	OPERATING DATA	MECHANICAL DATA
PT-24	ABS. PRESSURE TRANSMITTER LOCATION: 14' LEVEL, EAST OF TANK 502 OUTPUT: 3-15 PSIG AIR SUPPLY: 20 PSIG SPAN: 0-100 mm Hg Abs.	FOXBORO ABS. PRESS TRANS. # 11AM-M52 W/ PIPED & MT'D AIRSET & GAGE RANGE: 0 TO 400 mm Hg. 316 SS BODY GAUGE: 3-15 PSIG CALIB 0-100 LIN. SCALE ACCURACY: 1%
PIC-24	PRESSURE INDICATING CONTROLLER LOCATION: PANEL INPUT: 3-15 PSIG OUTPUT: 3-15 PSIG ACTION: INC INPUT INC. OUTPUT AIR SUPPLY: 20#IAS	FISCHER & PORTER PRES. IND. CONTR. # 51-1351 ABFC RANGE: 0-100 UNIF. PROP. BAND: 2-500 % RESET RATE: .2 to 30 MIN. ACCURACY: ½ %
PV-24	CONTROL VALVE LOCATION: 28' LEVEL, NE OF TANK 523 INPUT: 3-15 PSIG ACTION: AIR TO CLOSE FAILS OPEN	FISHER GOV. CONTROL VALVE #657A 1" 150# FLG CARBON STEEL BODY 3/8" 316 SS MICRO-FLUTE TRIM TEFLON PACKING; SKIRT-TOP GUIDING

PCB-ARCH-EXT0373888

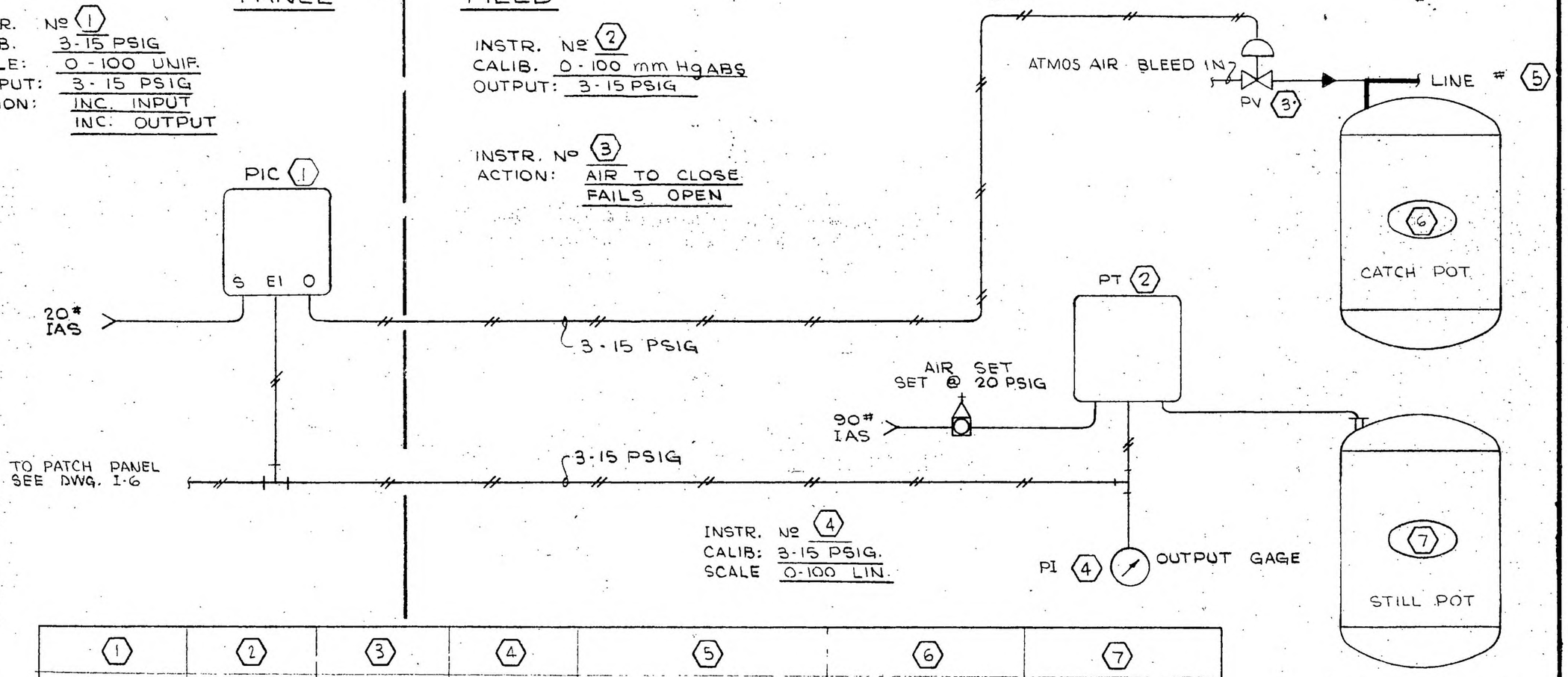
PANEL

INSTR. Nº (1)
CALIB. 3-15 PSIG
SCALE: 0-100 UNIF.
OUTPUT: 3-15 PSIG
ACTION: INC. INPUT
INC. OUTPUT

FIELD

INSTR. Nº (2)
CALIB. 0-100 mm HgABS
OUTPUT: 3-15 PSIG

INSTR. Nº (3)
ACTION: AIR TO CLOSE
FAILS OPEN



(1)	(2)	(3)	(4)	(5)	(6)	(7)
PIC-24 PIC-29	PT-24 PT-29	PV-24 PV-29	PI-24 PI-29	2-523-2-F42-4" 2-524-1-F42-4"	ITEM 2-523 ITEM 2-524	ITEM 2-502 ITEM 2-511

BILL OF MATERIAL

MARK NO.	QUAN	SPEC 1800	P.O. NO. 1800-9	DESCRIPTION
(1)	2	12.1	0079	FISCHER & PORTER # 51-1351ABFC INDICATING CONTROLLER
(2)	2	17.4	0125	FOXBORO # 11AM-MS2-ABS. PRESSURE TRANSMITTER W/ PIPED & MT'D. AIR SET & GAGE
(3)	2	10.2	0055	FISHER GOV. # 657-A-1"-150# FLG. CONTROL VALVE
(4)	2	17.4	0125	FOXBORO 3½" RECEIVER GAGE, FURN. W/ MARK 2

MARK NO.	QUAN	SPEC.	P.O. NO.	DESCRIPTION

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INSTRUMENT SCHEMATIC DIAGRAM

LOOP NO. PIC-24 & PIC 29
FUNCTION AIR TO STILL EJECTOR, ABS PR. CONTR.

C.E.A. NO.	REFERENCE NO.
1800	I-11C

PCB-ARCH-EXT0373889

INSTRUMENT FUNCTION OUTLINE DEPARTMENT 246

TITLE AIR TO STILL EJECTOR, ABSOLUTE PRESS. CONT. LOOP NUMBER 024

SHEET 4 OF 4 CLASSIFICATION PIC-24

3.0 OPERATION OF LOOP

3.1 NORMAL OPERATION

SET VACUUM RECORDERS TO MAINTAIN 40 MM HG ABSOLUTE PRESSURE AT THE STILL POT. OBSERVE THE SCHEDULED START OF THE STILLS TO INSURE THAT THE OPERATING TEMP. IS REACHED BEFORE THE BOILING TEMP. IS REACHED. IF VACUUM IS LOWERED TO QUICKLY THE AROCLOR WILL FLASH + BELCH OVER CRUDE MATERIAL.

3.1.1 START UP INSTRUCTIONS

OPEN MAIN VALVE TO STILL IN THE VACUUM LINE JUST ABOVE THE RECEIVER, START STEAM TO FIRST + SECOND STAGES, OPEN WATER VALVE TO AFTER CONDENSOR, VACUUM SHOULD PULL DOWN TO 40 MM HG & HOLD STEADY.

3.1.2 SHUT DOWN INSTRUCTIONS

RELEASE VACUUM BY RE-ADJUSTING THE VACUUM CONTROLLER TO 760 MM HG ABS.

3.1.3 MANUAL OPERATING INSTRUCTIONS

SET PRESSURE CONTROLLER ON MANUAL, REGULATE AIR PRESSURE TO CONTROL VALVE, AS PER OPERATING INSTRUCTIONS.

3.2 INTERLOCKS

NONE

3.3 ABNORMAL OPERATIONS

3.3.1 AIR FAILURE

LOSS OF AIR TO LOOP WILL CAUSE LOSS OF VACUUM. CONTROL VALVE WILL OPEN & LET ATMOSPHERIC AIR BLEED IN.

3.3.2 POWER FAILURE

NO AFFECT ON THIS LOOP.

PCB-ARCH-EXT0373890

INSTRUMENT FUNCTION OUTLINE | DEPARTMENT 246

TITLE STILL RECEIVER LEVEL CONTROL & ALARM | LOOP NUMBER 025

SHEET 1 OF 4 | CLASSIFICATION LCA-25

1.0 NEED FOR LOOP

THIS LOOP IS NEEDED TO INSURE THAT THE RECEIVER TANK DOES NOT OVERFLOW OR RUN DRY, EITHER ONE OF WHICH WOULD DISRUPT THE PRESSURE CONDITIONS IN THE DISTILLATION SYSTEM.

1.1 DESCRIPTION OF LOOP

1.1.1 FUNCTION

THE FUNCTION OF THIS LOOP IS TO CONTROL THE LEVEL IN THE STILL RECEIVER AND TO SOUND AN ALARM ON HI OR LOW LEVEL.

1.1.2 SYSTEM PERFORMANCE REQUIRED

THE LEVEL SHOULD BE MAINTAINED ±5" OF SET POINT.

1.1.3 ACCOMPLISHMENT OF FUNCTION

THE LEVEL IN THE TANK IS SENSED BY A LEVEL TRANSMITTER WHICH SENDS A 3-15 PSIG AIR SIGNAL TO A LEVEL CONTROLLER. THE LEVEL CONTROLLER COMPARES THIS SIGNAL WITH 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 DUAL UNIT PRESSURE SWITCH WHICH ACTIVATES AN ALARM ON HIGH OR LOW LEVEL.

PCB-ARCH-EXT0373891

INSTRUMENT FUNCTION OUTLINE — DEPARTMENT 246

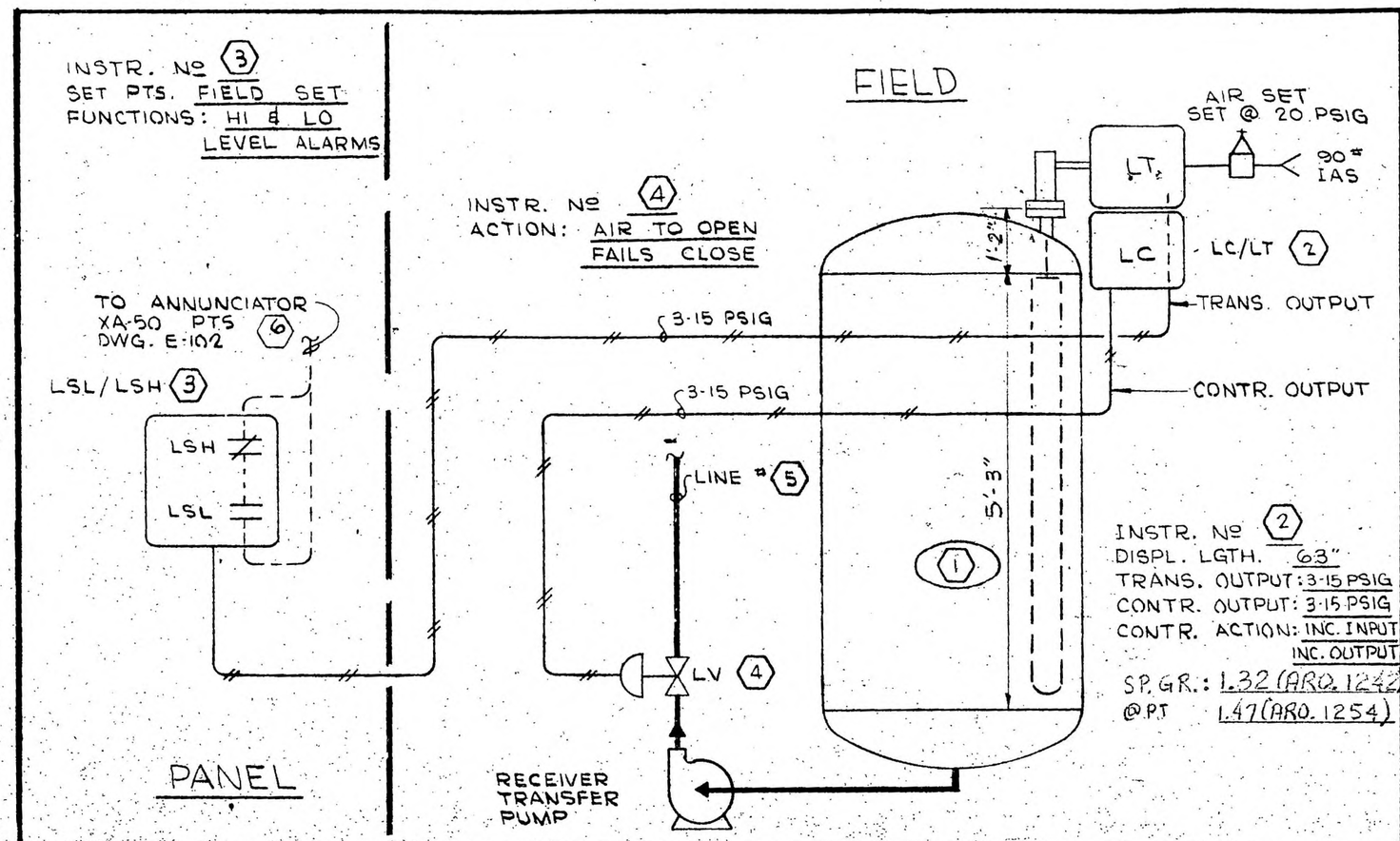
TITLE STILL RECEIVER LEVEL CONTR. & ALARM — LOOP NUMBER 025

SHEET 2 OF 4 — CLASSIFICATION LCA-25

2.0 COMPONENT AND CALIBRATION DATA

	OPERATING DATA	MECHANICAL DATA
LT-25	LEVEL TRANS. & CONTROLLER	FISHER GOV LEVEL TRANS #2500T-249BP
LC-25	LOCATION: 14' LEVEL, OVER TANK 508	& LEVEL CONTR. #2516 W/PIPED & MT'D AIR SET
	AIR SUPPLY: 20 PSIG	4" R.F. FL'G. 316 SS BODY
	OUTPUT: 3-15 PSIG (TRAN'S. & CONTR.)	316 SS DISPLACER; 1⅛" O.D. x 63" LG.
	ACTION = INC. INPUT INC. OUTPUT	EXT. LENGTH: 14"
		PROP BAND: 10-200 %
LV-25	CONTROL VALVE	FISHER GOV. CONTROL VALVE #667-BF
	LOCATION: GND. LEVEL, NE OF TANK 508.	1" 150# FL'G 316 SS BODY
	INPUT: 3-15 PSIG	¾" 316 SS MICRO-FLUTE TRIM
	ACTION: AIR TO OPEN FAILS CLOSE	TEFLON PACKING, SKIRT-TOP GUIDING
LSA-25	PRESSURE SWITCH.	BARKSDALE DUAL UNIT PRES. SWITCH #D2T-H18
	LOCATION: PANEL	BRONZE DIAPHRAGM, ¼" IPS
	INPUT: 3-15 PSIG	RANGE: 0-18 PSIG
	FIELD SET	CONDUIT CONN: ½" NPS
	FCT: Hi & LOW LEVEL ALARMS	
	SPDT CONTACT/115 V., 10 A.	

PCB-ARCH-EXT0373892



1	2	3	4	5	6
ITEM 2-508	LT/LC 25	LSH/LSL-25	LV-25	2-510-1-A11P-1 1/2"	2-6
ITEM 2-515	LT/LC 30	LSH/LSL-30	LV-30	2-517-1-A11P-1 1/2"	2-7

BILL OF MATERIAL

MARK NO.	QUAN	SPEC. 1800	P.O. NO. 1800-9	DESCRIPTION
2	2	20.1	0128	FISHER-GOV.#2500T-249BP TRANSMITTER & #2516 CONTROLLER W/PIPED & MT'D. AIR SET
3	2	13.2	0112	BARKSDALE D2T-H18 DUAL UNIT PRESSURE SWITCH
4	2	10.2	0055	FISHER-GOV. #667-BF-1", CONTROL VALVE FOR 150# FLGS

MARK NO.	QUAN	SPEC.	P.O. NO.	DESCRIPTION

INSTRUMENT SCHEMATIC DIAGRAM

LOOP NO. LCA-25 & LCA-30

FUNCTION STILL RECEIVER LEVEL CONTR. & ALARM

REFERENCE NO.	
1800	I-11D

FOR GENERAL NOTES, SYMBOLS, LINE LEGEND, REFERENCE DRAWINGS, ETC. SEE DRAWING 1800 - I1

REV	DATE	DESCRIPTION	BY	CHKD	APPD
0	6/21/68	APP'D. FOR CONST.	—	—	RSY

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DIVISION ORGANIC 2 PLANT KRUMMRICH

SCHEMATICS

SHEET 4 MFG. AREA

	BY	DATE	APPROVED	DATE	APPROVED	DATE
DRAWN	HAMMONDS	4-30-68	J.E. Parker	6-19-68	R.S. Yates	6-21-68
CHECKED	L. VAN M.	6-19-68	K.J. Veluz	6-21-68		
SCALE	NONE			6/21/68		

C.E.A. NO.	PLANT	SIZE	DEPARTMENT	TYPE	NUMBER	REV
1800	3	D	811.00	I	11	0

PRINTS ISSUED TO FIELD BY L. Veluz DATE 6-21-68 REV. 0

PCB-ARCH-EXT0373893

INSTRUMENT FUNCTION OUTLINE

TITLE Still Receiver Level Control & Alarm

SHEET 4 OF 4

DEPARTMENT 246

LOOP NUMBER 025

CLASSIFICATION LCA-25

3.0 Operation of Loop

3.1 Normal Operation

The Operation of this Loop is to maintain a Constant Level in the Still Receiver, Will activate an Alarm if the Level is to high or To Low.

High Level is 55" from Botton Bend Line

Low Level is 19" from Botton Bend Line

3.1.1 Start Up Instructions

Align Manual Valves & Check Air supply. Start Receiver Transfer Pump. The Level Controller on the Receiver Tank will Allow Continuous Pump out without Dead-Heading the Pump.

3.1.2 Shut Down Instructions

Shut Down Receiver Transfer pump & Close Manual Valves.

3.1.3 Manual Operations

Place Level Controller on "Manual" & Regulate Air to Control Value.

3.2. Abnormal Operations

3.2.1 Air Failure

Air Failure to this Loop will cause Loss of Level Control due to the Level control value opening & letting Receiver Empty.

3.0.2 Power Failure

Power Failure To this Loop will cause loss of Alarm & Control if Failure is to Receiver Transfer.

3.3 Interlocks

None

PCB-ARCH-EXT0373894

INSTRUMENT FUNCTION OUTLINE

TITLE THERMINOL TO HEAT EXCH. FLOW CONTROL

SHEET 1 OF 4

DEPARTMENT 246

LOOP NUMBER 026

CLASSIFICATION FIC-26

1.0 NEED FOR LOOP

THIS LOOP IS NEEDED TO HEAT PROCESS STREAM TO A TEMPERATURE SUCH THAT THE CORRECT BOILING PROCESS OCCURS IN THE CONSTANT PRESSURE STILL POT.

1.1 DESCRIPTION OF LOOP

1.1.1 FUNCTION

THE FUNCTION OF THIS LOOP IS TO CONTROL THE FLOW OF THE HOT THERMINOL.

1.1.2 SYSTEM PERFORMANCE REQUIRED

THE FLOW RATE SHOULD BE MAINTAINED ± 5 GPM OF SET POINT.

1.1.3 ACCOMPLISHMENT OF FUNCTION

THE RATE OF FLOW OF THERMINOL IS DETERMINED BY AN ORIFICE PLATE AND FLOW TRANSMITTER. THE TRANSMITTER SENDS A 3-15 PSIG AIR SIGNAL TO A FLOW INDICATING CONTROLLER WHICH COMPARES THIS SIGNAL TO A SET POINT AND SENDS A CORRESPONDING 3-15 PSIG AIR SIGNAL TO A CONTROL VALVE TO COMPENSATE FOR VARIATION FROM SET POINT.

PCB-ARCH-EXT0373895

2.0 COMPONENT AND CALIBRATION DATA

	OPERATING DATA	MECHANICAL DATA
FE-26	ORIFICE METER RUN LOCATION: 14' LEVEL, EAST OF TANK 537 FLOW: 0 - 200 GPM	DANIEL ORIFICE METER RUN # 520 3" SCH. 40 STEEL PIPE PLATE: 316 SS, 1/8" THICK ID: 2.17751" SCALE: 0-100 ▽
FT-26	FLOW TRANSMITTER LOCATION: 14' LEVEL, EAST OF TANK 537 AIR SUPPLY: 20 PSIG OUTPUT: 3-15 PSIG SPAN: 0-100" W.C.	FOXBORO FLOW TRANS. #13A1-MK2 W/PIPED & MT'D AIR SET W/GAUGE RANGE: 20 TO 205" W.C. 1/2" NPT PROCESS CONN: OUTPUT GAGE: 3 1/2", 0-10 ▽ ACCURACY: 1/2 %
FIC-26	FLOW INDICATING CONTROLLER LOCATION: PANEL AIR SUPPLY: 20 # IAS OUTPUT: 3-15 PSIG ACTION: INC. INPUT DEC. OUTPUT	FISCHER & PORTER FLOW IND. CONTR. # 51-1351ABEC SCALE: 0-100 ▽ PROP BAND: 2-500 % RESET RATE: .02 - 5 MIN. ACCURACY: 1/2 %
FV-26	CONTROL VALVE LOCATION: 28' LEVEL, ABOVE & NE OF TANK 537 INPUT: 3-15 PSIG ACTION: AIR TO OPEN FAILS CLOSE	FISHER GOV. CONTROL VALVE # 667 ED 3" 150# FL'G CARBON STEEL BODY 3" SS TRIM, EQUAL % DURAMETALLIC PACKING SKIRT-TOP GUIDING

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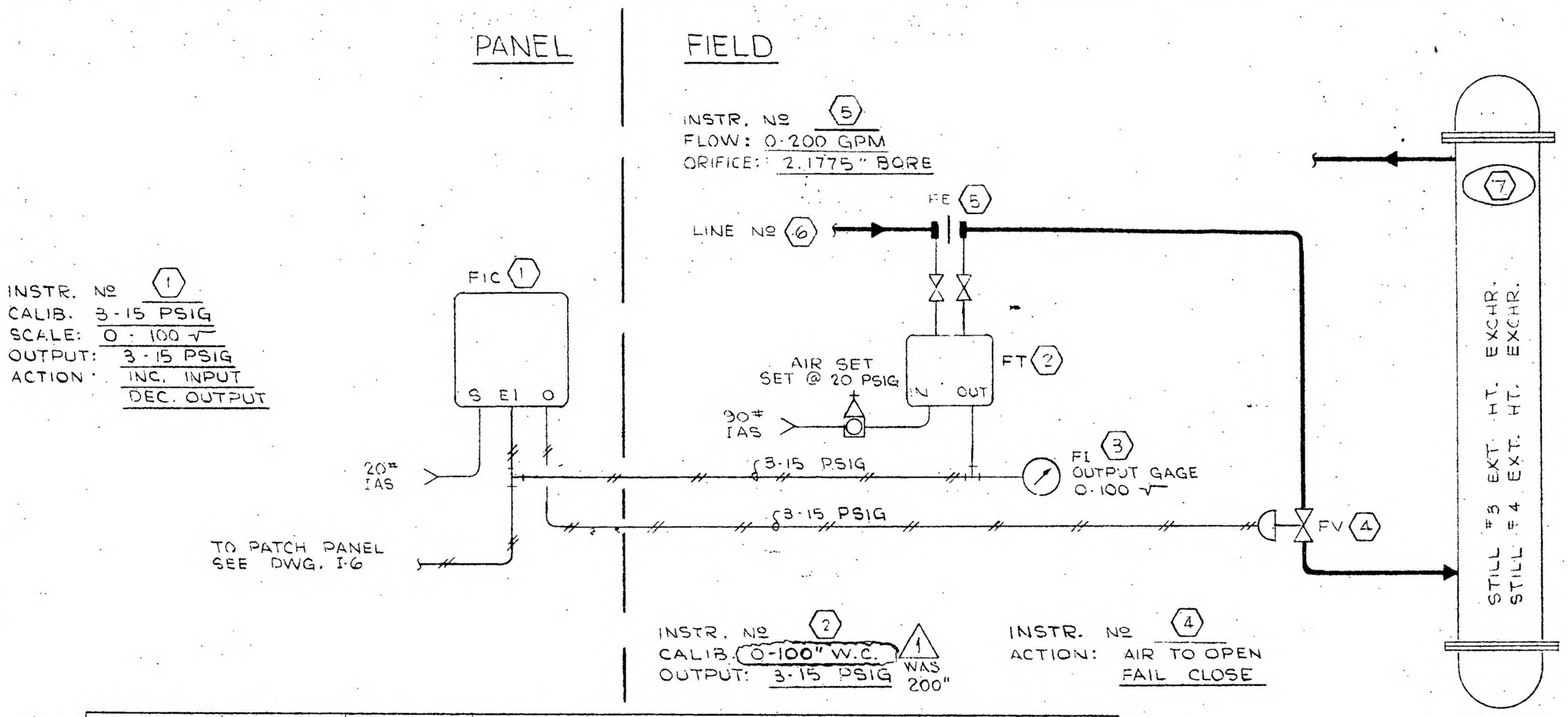

(1)	(2)	(3)	(4)	(5)	(6)	(7)
FIC-21	FT-21	FI-21	FV-21	FE-21	HL2-3-F42-3"	ITEM 2.504
FIC-26	FT-26	FI-26	FV-26	FE-26	HL2-4-F42-3"	ITEM 2.526

BILL OF MATERIAL

MARK NO.	QUAN	SPEC 1800	P.O. NO. 1800-9	DESCRIPTION
(1)	2	12.1	0079	FISCHER & PORTER # 51-1351ABEC INDICATING CONTROLLER
(2)	2	7.3	0125	FOXBORO # 13AI-MK2 FLOW TRANSMITTER W/PIPED & MT'D AIR SET W/GAGE
(4)	2	10.2	0055	FISHER - GOV. # 667 - ED - 3" 150# CONTROL VALVE
(5)	2	3.1	0139	DANIEL 520 ORIFICE METER RUN, 3" SCH. 40
(3)	2	17.3	0125	FOXBORO 3 1/2" RECEIVER GAGE FURN. W/MARK 2

MARK NO	QUAN	SPEC.	P.O. NO	DESCRIPTION

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INSTRUMENT SCHEMATIC DIAGRAM

LOOP NO. FIC-21, FIC-26

FUNCTION THERMINOL TO HEAT EXCH. FLOW CONTROL

CEA NO.	REFERENCE NO.
1800	I-10C

PCB-ARCH-EXT0373897

INSTRUMENT FUNCTION OUTLINE | DEPARTMENT 246

TITLE Thermino/ To Heat Exch. Flow Control | LOOP NUMBER 0760

SHEET 4 OF 4 | CLASSIFICATION FIC 760

3.0 OPERATION OF LOOP

3.1 NORMAL OPERATION.

SET Thermino/ Flow as per operating instructions (0-100%).
100% is equal to 200 gpm.
INCREASE IN Thermino/ Flow will RESULT in larger Boil-up,
DECREASE IN Flow will RESULT in SLOWER Boil-up.

3.1.1 START-UP INSTRUCTIONS

Check all air pressures, Align manual Valves To HT. EXCHR. START Thermino/ pump.

3.1.2 SHUT down INSTRUCTIONS

SET Flow CONTROLLER To 0gpm, close Manual Valves To HT. EXCHR. STOP THERMINAL pump.

3.1.3 Manual OPERATIONS

SET Flow CONTROLLER To Manual, Regulate air pressure To Control Valve with SET point.

3.2 INTERLOCKS

NONE

3.3 ABNORMAL OPERATIONS

3.3.1 AIR Failure

AIR Failure To The Loop will cause Loss of Control, The Control Valve will close, The Flow To HT EXCHR. will STOP.

3.3.2 POWER Failure

POWER Failure To The loop will NOT affect control
POWER Failure To Thermino/ pump will cause Loss of Flow.

PCB-ARCH-EXT0373898

INSTRUMENT FUNCTION OUTLINE

DEPARTMENT 246

TITLE STILL POT FLOW TOTALIZATION & ALARM

LOOP NUMBER 027

SHEET 1 OF 4

CLASSIFICATION FQA-27

1.0 NEED FOR LOOP

THIS LOOP IS NEEDED TO DETERMINE THE AMOUNT OF INPUT TO THE TANK. THIS INFORMATION THEN DETERMINES WHEN THE PROCESS IS TO BE TEMPORALLY TERMINATED AND LIME ADDED OR DA THE TANK EMPTIED.

1.1 DESCRIPTION OF LOOP

1.1.1 FUNCTION

THE FUNCTION OF THIS LOOP IS TO COUNT THE NUMBER OF GALLONS PUT INTO THE STILL POT. AND TO SOUND AN ALARM WHEN A PRESET AMOUNT IS REACHED.

1.1.2 SYSTEM PERFORMANCE REQUIRED

THIS SYSTEM SHOULD TOTALIZE THE FINAL GALLON COUNT WITHIN ±150 GALLONS OF ACTUAL TOTAL INPUT AND SHOULD METER THE FLOW RATE WITHIN ± ½ GPM OF ACTUAL RATE.

1.1.3 ACCOMPLISHMENT OF FUNCTION

THE FLOW METER TRANSMITTER OPERATES ON A POSITIVE DISPLACEMENT PRINCIPLE AND SENDS AN ELECTRICAL PULSE TO A COUNTER FOR EVERY GIVEN AMOUNT OF DISPLACEMENT. THE COUNTER RECEIVES THE PULSES FROM THE TRANSMITTER AND COUNTS ONE FOR EVERY TEN PULSES RECEIVED.

PCB-ARCH-EXT0373899

INDUSTRIAL WASTE TREATMENT FACILITY — 246

TITLE STILL POT FLOW TOTALIZATION & ALARM — LOOP NUMBER 027

SHEET 2 OF 4 — CLASSIFICATION FQA-27

2.0 COMPONENT AND CALIBRATION DATA

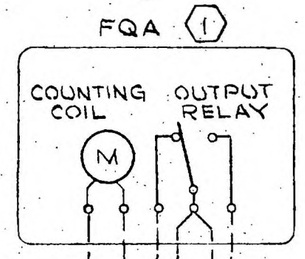
	OPERATING DATA	MECHANICAL DATA
FT-27	FLOW METER TRANSMITTER LOCATION: 141 LEVEL, OVER TANK 511 FLOW: 6-37 GPM WORKING PRESSURE: 30-80 PSIG PULSES/GAL: 1 SWITCH RATING: .2 AMP TOTALIZER: 5 DIGIT-NON RESET 10 GAL/COUNT	BROOKS INST. CO. FLOW METER TRANS. # 9455-B7C-01-C-111-010 METER SIZE: 1" CONN: 1", 150# FL'G. R.F. ASA MAT'L: HOUSING, GEARS, SHAFT, FLANGES } 316 SS BEARINGS: HARD CARBON GASKET & SEALS: TEFLON
FQA-27	FLOW BATCH TOTALIZER LOCATION: PANEL INPUT: 6-37 GPM (PULSES/MIN) PULSE SOURCE: 115 VAC, .5 A. DISPLAY: 5 DIGITS COUNTING COIL: 115 VDC CONTACT: SPDT @ 250 VAC, 2A. POWER SUPPLY: 115 VAC OPERATING VOLTAGE: DC * BUILT-IN DC RECTIFIER FOR COIL OPERATION.	PRESIN FLOW BATCH TOTALIZER #F185

PCB-ARCH-EXT0373900

INSTR. Nº (1)
CALIB. 0-37 PULSES / MIN.
COUNTER: 5 DIGIT
OUTPUT: SWITCH CLOSURE ON PRE-DETERMINED COUNT

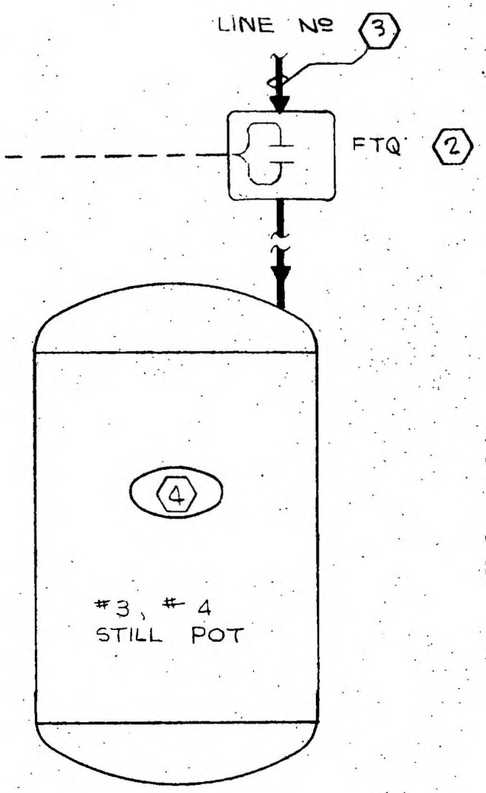
PANEL

FIELD



TO ALARM & STATUS LIGHTS

FOR WIRING SEE SCH. DWG E-103



INSTR. Nº (2)
CALIB: 0-37 GPM
OUTPUT: 0-37 PULSES/MINUTE
SCALE: 10 GAL./REV.
REGISTER: 5 DIGIT @ 10 GAL./COUNT

(1)	(2)	(3)	(4)
FQA-22	FTQ 22	2-423-3-FIIP-2"	ITEM 2-502
FQA-27	FTQ 27	2-423-1-FIIP-2"	ITEM 2-511

BILL OF MATERIAL

MARK NO.	QUAN	SPEC. 1800	P.O. NO. 1800-9	DESCRIPTION
(1)	2	15.7	0116	PRESIN # F185, 5 DIGIT BATCH TOTALIZER
(2)	2	15.6	0115	BROOKS INSTR. CO. #9455-B7C-01-C-111-010 POSITIVE DISPL. METER W/TYPE PG-2 PULSER

MARK NO.	QUAN	SPEC.	P.O. NO.	DESCRIPTION

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INSTRUMENT SCHEMATIC DIAGRAM

LOOP NO. FQA-22 & FQA-27
FUNCTION STILL POT FLOW TOTALIZATION & ALARM

C.E.A. NO.	REFERENCE NO.
1800	I-11A

PCB-ARCH-EXT0373901

INSTRUMENT FUNCTION OUTLINE

TITLE STILL POT FLOW TOTALIZATION

SHEET 4 OF 4

DEPARTMENT 246

LOOP NUMBER [illegible]

CLASSIFICATION [illegible]

3.0 OPERATION of Loop

3.1 NORMAL OPERATION

THE FLOW INTEGRATOR is used To measure input To STILL FROM INTERMEDIATE STORAGE TANK & Sound AN ALARM when A PRE-SET AMOUNT IS REACHED.

3.1.1 START UP INSTRUCTIONS

CHECK ELECTRICAL Supply To Loop + MANUALLY TEST ALARM SYSTEM.

3.1.2 SHUT DOWN INSTRUCTIONS

NONE

3.1.3 MANUAL OPERATING INSTRUCTIONS

None

3.2 INTERLOCKS

None

3.3 ABNORMAL OPERATIONS

3.3.1 AIR FAILURE

No effect on Loop.

3.3.2 POWER FAILURE

LOSS OF CONTROL of measurement of MATERIAL from INTERMEDIATE STORGE TO STILL POT.

PCB-ARCH-EXT0373902

INSTRUMENT FUNCTION OUTLINE

TITLE STILL POT LEVEL CONTROL & ALARM

SHEET 1 OF 4

DEPARTMENT 246

LOOP NUMBER 028

CLASSIFICATION LICA-28

1.0 NEED FOR LOOP

THIS LOOP IS NEEDED TO INSURE THAT THERE IS A CONSTANT LEVEL IN THE STILL POT AND THAT THERE WILL ALWAYS BE UNDISTILLED MATERIAL IN THE POT AVAILABLE FOR DISTILLATION.

1.1 DESCRIPTION OF LOOP

1.1.1 FUNCTION

THE FUNCTION OF THIS LOOP IS TO CONTROL THE LEVEL OF UNDISTILLED MATERIAL IN THE STILL POT. AND TO ACTIVATE A HIGH OR LOW ALARM WHEN REQUIRED.

1.1.2 SYSTEM PERFORMANCE REQUIRED

THE LEVEL SHOULD BE MAINTAINED ± 5" OF SET POINT.

1.1.3 ACCOMPLISHMENT OF FUNCTION

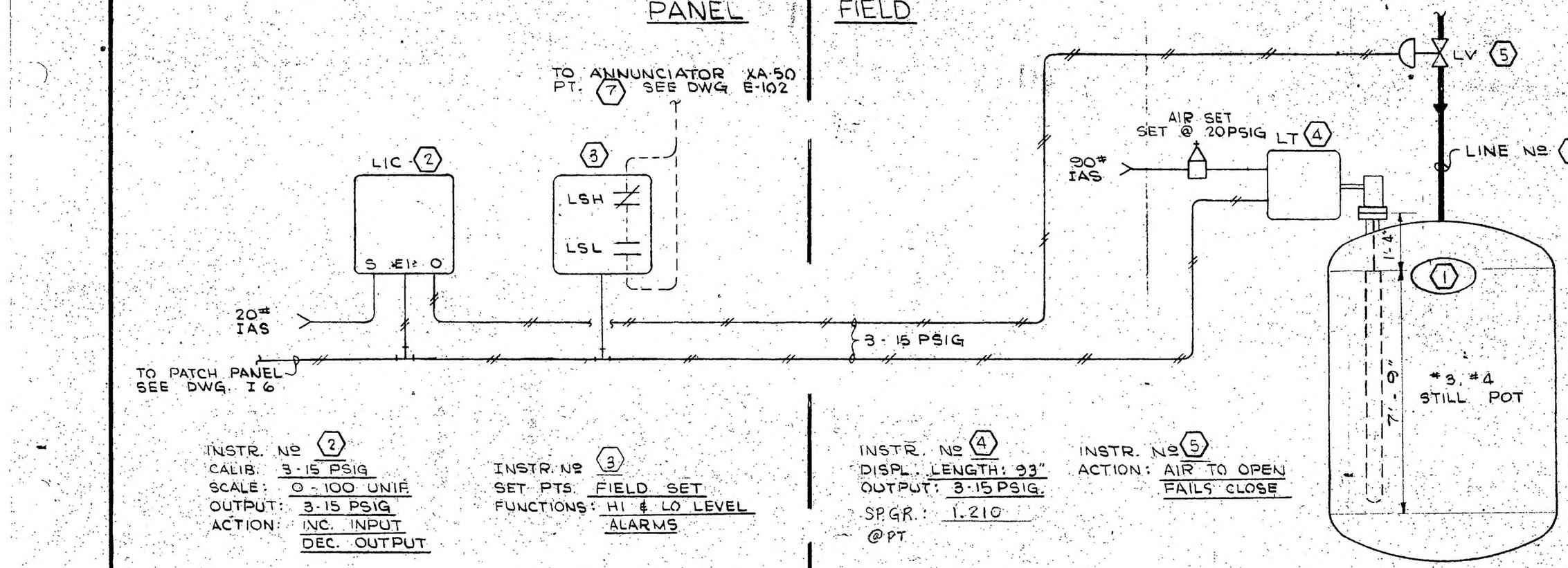
THE LEVEL TRANSMITTER SENSES THE LEVEL IN THE TANK AND SENDS A 3-15 PSIG AIR SIGNAL TO THE LEVEL INDICATING CONTROLLER. THE CONTROLLER COMPARES THIS SIGNAL WITH A SET POINT AND SENDS A 3-15 PSIG AIR SIGNAL TO A CONTROL VALVE TO COMPENSATE FOR VARIATION FROM SET POINT. THE CONTROL VALVE ALLOWS EITHER MORE OR LESS MATERIAL INTO THE TANK DEPENDENT UPON THE SIGNAL FROM THE CONTROLLER. THE TRANSMITTER ALSO SENDS AN AIR SIGNAL TO A DUAL UNIT PRESSURE SWITCH WHICH ACTIVATES A HIGH OR LOW LEVEL ALARM.

PCB-ARCH-EXT0373903

2.0 COMPONENT AND CALIBRATION DATA

	OPERATING DATA	MECHANICAL DATA
LT-28	LEVEL TRANSMITTER LOCATION: 14' LEVEL, OVER TANK 511 AIR SUPPLY: 20 PSIG OUTPUT: 3-15 PSIG	FISHER GOV LEVEL TRANS. #2500T-249BP 4" 150# R.F. FL'G CARBON STEEL BODY 316 SS 1"x93" DISPLACER W/16" EXT. W/PIPED & MT'D AIR SET
LIC-28	LEVEL INDICATING CONTR. LOCATION: PANEL AIR SUPPLY: 20 #IAS OUTPUT: 3-15 PSIG ACTION: INC. INPUT DEC. OUTPUT	FISCHER & PORTER LEVEL IND. CONTR. #51-1351 ABEC RANGE: 0-100 LIN. PROP BAND: 2-500 % RESET RATE: .02 - 5 MIN. ACCURACY: ½ %
LV-28	CONTROL VALVE LOCATION: 14' LEVEL, OVER TANK 511 INPUT: 3-15 PSIG ACTION: AIR TO OPEN FAILS CLOSE	FISHER GOV. CONTROL VALVE #667-A 1" 150# FL'G CARBON STEEL BODY 1" 316 SS MICRO-FLUTE TRIM TEFLON PACKING; SKIRT-TOP GUIDING
LSA-28	PRESSURE SWITCH LOCATION: PANEL INPUT: 3-15 PSIG FIELD SET FCT: HI & LOW LEVEL ALARMS SPDT CONTACT/115 V., 10A.	BARKSDALE PRESSURE SWITCH #D2T-H18 BRONZE DIAPHRAGM, 1/4" IPS RANGE: 0-18 PSIG CONDUIT CONN.: ½" NPS

PCB-ARCH-EXT0373904



INSTR. Nº (2)
CALIB. 3-15 PSIG
SCALE: 0-100 UNIF.
OUTPUT: 3-15 PSIG
ACTION: INC. INPUT
DEC. OUTPUT

INSTR. Nº (3)
SET PTS. FIELD SET
FUNCTIONS: HI & LO LEVEL
ALARMS

INSTR. Nº (4)
DISPL. LENGTH: 93"
OUTPUT: 3-15 PSIG.
SP.GR.: 1.210
@PT

INSTR. Nº (5)
ACTION: AIR TO OPEN
FAILS CLOSE

(1)	(2)	(3)	(4)	(5)	(6)	(7)
2-502	LIC-23	LSH/LSL 23	LT-23	LV-23	2-423-3-FIIP-2"	I-6
2-511	LIC-28	LSH/LSL 28	LT-28	LV-28	2-423-1-FIIP-2"	I-7

BILL OF MATERIAL

MARK NO.	QUAN	SPEC 1800	P.O. NO 1800-9	DESCRIPTION
(2)	2	12.1	0079	FISCHER & PORTER MODEL 51-1351ABEC INDICATING CONTR.
(3)	2	13.2	0112	BARKSDALE D2T-H18 DUAL UNIT PRESSURE SWITCH
(4)	2	20.1	0128	FISHER-GOV. #2500T-249 BP LEVEL TRANSMITTER W/ PIPED & MT'D. AIR SET.
(5)	2	10.2	0055	FISHER-GOV. #667-A-1"-150# CONTROL VALVE

MARK NO.	QUAN	SPEC.	P.O. NO.	DESCRIPTION

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INSTRUMENT SCHEMATIC DIAGRAM

LOOP NO. LICA 23, LICA 28
FUNCTION STILL POT LEVEL CONTROL & ALARM

C.E.A. NO.	REFERENCE NO.
1800	I-11B

PCB-ARCH-EXT0373905

INSTRUMENT FUNCTION OUTLINE — DEPARTMENT 246

TITLE STILL POT LEVEL CONTROL & ALARM — LOOP NUMBER 028

SHEET 4 OF 4 — CLASSIFICATION LICA-28

3.0 OPERATION OF LOOP

3.1 NORMAL OPERATION

The NORMAL OPERATION OF THIS LOOP is TO CONTROL The Level OF The MATERIAL IN The STILL POT AT A Field SET POINT. AN ALARM will SOUND When Level is High OR Low.

High Level is 85" FROM Bottom Bend line.

Low Level is 12" FROM Bottom Bend line.

3.1.1 START UP INSTRUCTIONS

A. Open VALVES in AIR Line & check AIR supply To Loop.

B. Check Level CONTROLLER READing against STICK MEASUREMENT FOR ACCURACY.

C. MAINTAIN Level in TANK AS PER OPERATING INSTRUCTIONS.

3.1.2 SHUT DOWN INSTRUCTIONS

A. PUT CONTROLLER ON MANUAL & Close CONTROL VALVE by moving SET POINT TO Highest SETTING.

B. Close All Block VALVES IN loop.

3.1.3 MANUAL OPERATING INSTRUCTIONS

A. PUT CONTROLLER ON "MANUAL" SET POINT ON OF AIR TO VALVE, Check Level FREQUENTLY

B. There IS No By-PASS ON LV-23.

3.2 INTERLOCKS

NONE

3.3 ABNORMAL OPERATIONS

3.3.1 AIR FAILURE

AN AIR FAILURE To The Loop will CAUSE The CONTROL VALVE To FAIL closed & The Level IN The STILL POT will DECREASE. Check Level FREQUENTLY.

3.3.2 POWER FAILURE

LOSS OF POWER will CAUSE Loss of ALARM SYSTEM.

PCB-ARCH-EXT0373906

INSTRUMENT FUNCTION OUTLINE | DEPARTMENT 246

TITLE AIR TO STILL EJECTOR, ABSOLUTE PRESSURE CONTR. | LOOP NUMBER 029

SHEET 1 OF 4 | CLASSIFICATION PIC-29

1.0 NEED FOR LOOP

THIS LOOP IS NEEDED TO MAINTAIN THE CONSTANT PRESSURE DESIRABLE FOR OPTIMUM DISTILLATION CONDITIONS.

1.1 DESCRIPTION OF LOOP

1.1.1 FUNCTION

THE FUNCTION OF THIS LOOP IS TO CONTROL THE PRESSURE IN THE DISTILLATION SYSTEM.

1.1.2 SYSTEM PERFORMANCE REQUIRED

THE PRESSURE SHOULD BE MAINTAINED ± 1 mm Hg ABS. OF SET POINT.

1.1.3 ACCOMPLISHMENT OF FUNCTION

THE ABSOLUTE PRESSURE IN THE STILL POT IS SENSED BY AN ABSOLUTE PRESSURE TRANSMITTER WHICH SENDS A 3-15 PSIG AIR SIGNAL TO A PRESSURE 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 CONTROL VALVE CONTROLS AN AIR BLEED INTO THE STILL EJECTOR AND THUS CONTROLS THE PRESSURE IN THE SYSTEM.

PCB-ARCH-EXT0373907

INSTRUMENT EVALUATION OUTLINE — DEPARTMENT 246

TITLE AIR TO STILL EJECTOR, ABS. PRESS. CONTR. — LOOP NUMBER 029

SHEET 2 OF 4 — CLASSIFICATION PIC-29

2.0 COMPONENT AND CALIBRATION DATA

	OPERATING DATA	MECHANICAL DATA
PT-29	ABS. PRESSURE TRANSMITTER LOCATION: 14' LEVEL, EAST OF TANK 511 OUTPUT: 3-15 PSIG AIR SUPPLY: 20 PSIG SPAN: 0-100 mm Hg Abs.	FOXBORO ABS. PRESS TRANS. # 11AM-MS2 W/PIPED & MT'D AIRSET & GAGE RANGE: 0 TO 400 mm Hg. 316 SS BODY GAUGE: 3-15 PSIG CALIB 0-100 LIN. SCALE ACCURACY: 1%
PIC-29	PRESSURE INDICATING CONTROLLER LOCATION: PANEL INPUT: 3-15 PSIG OUTPUT: 3-15 PSIG ACTION: INC. INPUT INC. OUTPUT AIR SUPPLY: 20#IAS	FISCHER & PORTER PRES. IND. CONTR. # 51-1351 ABFC RANGE: 0-100 UNIF. PROP BAND: 2-500 % RESET RATE: .2 TO 30 MIN. ACCURACY: ½ %
PV-29	CONTROL VALVE LOCATION: 28' LEVEL, SE OF TANK 524 INPUT: 3-15 PSIG ACTION: AIR TO CLOSE FAILS OPEN	FISHER GOV. CONTROL VALVE #657A 1" 150# FL'G CARBON STEEL BODY 3/8" 316 SS MICRO-FLUTE TRIM TEFLON PACKING; SKIRT-TOP GUIDING

PCB-ARCH-EXT0373908

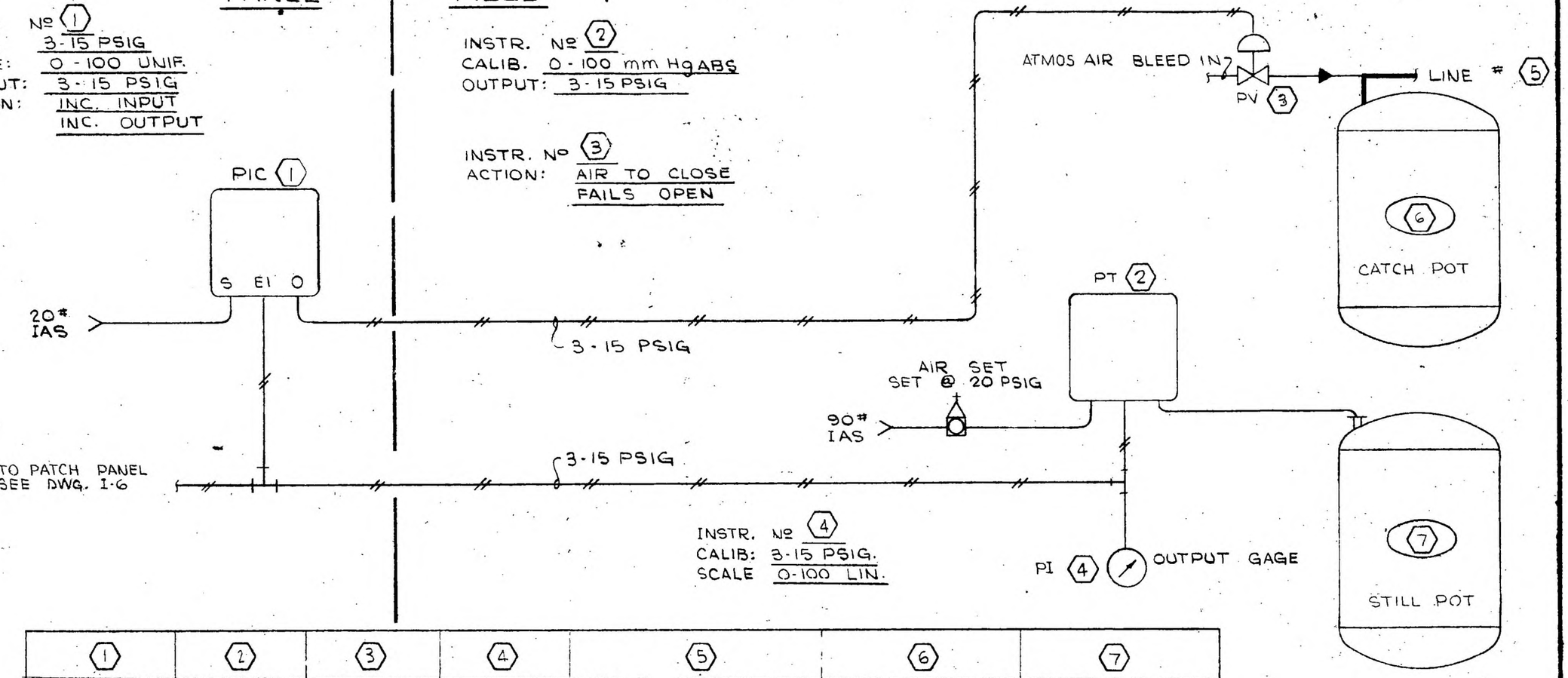
PANEL

INSTR. Nº (1)
CALIB. 3-15 PSIG
SCALE: 0-100 UNIF.
OUTPUT: 3-15 PSIG
ACTION: INC. INPUT
INC. OUTPUT

FIELD

INSTR. Nº (2)
CALIB. 0-100 mm HgABS
OUTPUT: 3-15 PSIG

INSTR. Nº (3)
ACTION: AIR TO CLOSE
FAILS OPEN



(1)	(2)	(3)	(4)	(5)	(6)	(7)
PIC-24 PIC-29	PT-24 PT-29	PV-24 PV-29	PI-24 PI-29	2-523-2-F42-4" 2-524-1-F42-4"	ITEM 2-523 ITEM 2-524	ITEM 2-502 ITEM 2-511

BILL OF MATERIAL

MARK NO.	QUAN	SPEC	P.O. NO.	DESCRIPTION
(1)	2	12.1	0079	FISCHER & PORTER # 51-1351ABFC INDICATING CONTROLLER
(2)	2	17.4	0125	FOXBORO # 11AM-MS2-ABS. PRESSURE TRANSMITTER W/ PIPED & MT'D. AIR SET & GAGE
(3)	2	10.2	0055	FISHER GOV. # 657-A-1"-150# FLG. CONTROL VALVE
(4)	2	17.4	0125	FOXBORO 3½" RECEIVER GAGE, FURN. W/ MARK 2

MARK NO.	QUAN	SPEC.	P.O. NO.	DESCRIPTION

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INSTRUMENT SCHEMATIC DIAGRAM

LOOP NO. PIC-24 & PIC 29
FUNCTION AIR TO STILL EJECTOR, ABS PR. CONTR.

C.E.A. NO.	REFERENCE NO.
1800	I-11C

PCB-ARCH-EXT0373909

INSTRUMENT FUNCTION OUTLINE DEPARTMENT 246

TITLE AIR TO STILL ELECTRIC, ABSOLUTE PRESS. CONTR. LOOP NUMBER 029

SHEET 4 OF 4 CLASSIFICATION PIC 29

3.0 OPERATION OF LOOP

3.1 NORMAL OPERATION

SET VACUUM RECORDERS TO MAINTAIN 40 MM HG ABSOLUTE PRESSURE AT THE STILL POT. OBSERVE THE SCHEDULED START OF THE STILLS TO INSURE THAT THE OPERATING TEMP. IS REACHED BEFORE THE BOILING TEMP. IS REACHED. IF VACUUM IS LOWERED TO QUICKLY THE AROCLOR WILL FLASH + BELCH OVER CRUDE MATERIAL.

3.1.1 START UP INSTRUCTIONS

OPEN MAIN VALVE TO STILL IN THE VACUUM LINE JUST ABOVE THE RECEIVER, START STEAM TO FIRST + SECOND STAGES, OPEN WATER VALVE TO AFTER CONDENSOR, VACUUM should Pull down TO 40 MM HG & Hold STEADY.

3.1.2 SHUT DOWN INSTRUCTIONS

RELEASE VACUUM BY RE-ADJUSTING THE VACUUM CONTROLLER TO 760 MM HG ABS.

3.1.3 MANUAL OPERATING INSTRUCTIONS

SET PRESSURE CONTROLLER ON MANUAL, REGULATE AIR PRESSURE TO CONTROL VALVE, AS PER OPERATING INSTRUCTIONS.

3.2 INTERLOCKS

NONE

3.3 ABNORMAL OPERATIONS

3.3.1 AIR FAILURE

LOSS OF AIR TO LOOP will CAUSE LOSS OF VACUUM. CONTROL VALVE will OPEN & LET ATMOSPHERIC AIR BLEED IN.

3.3.2 POWER FAILURE

NO AFFECT ON THIS LOOP.

PCB-ARCH-EXT0373910

INSTRUMENT FUNCTION OUTLINE

DEPARTMENT 246

TITLE STILL RECEIVER LEVEL CONTROL & ALARM

LOOP NUMBER 030

SHEET 1 OF 4

CLASSIFICATION LCA-30

1.0 NEED FOR LOOP

THIS LOOP IS NEEDED TO INSURE THAT THE RECEIVER TANK DOES NOT OVERFLOW OR RUN DRY, EITHER ONE OF WHICH WOULD DISRUPT THE PRESSURE CONDITIONS IN THE DISTILLATION SYSTEM.

1.1 DESCRIPTION OF LOOP

1.1.1 FUNCTION

THE FUNCTION OF THIS LOOP IS TO CONTROL THE LEVEL IN THE STILL RECEIVER AND TO SOUND AN ALARM ON HI OR LOW LEVEL.

1.1.2 SYSTEM PERFORMANCE REQUIRED

THE LEVEL SHOULD BE MAINTAINED ± 5" OF SET POINT.

1.1.3 ACCOMPLISHMENT OF FUNCTION

THE LEVEL IN THE TANK IS SENSED BY A LEVEL TRANSMITTER WHICH SENDS A 3-15 PSIG AIR SIGNAL TO A LEVEL CONTROLLER. THE LEVEL CONTROLLER COMPARES THIS SIGNAL WITH 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 DUAL UNIT PRESSURE SWITCH WHICH ACTIVATES AN ALARM ON HIGH OR LOW LEVEL.

PCB-ARCH-EXT0373911

[redacted] | DRAWING 246

TITLE STILL RECEIVER LEVEL CONTR. & ALARM | LOOP NUMBER 030

SHEET 2 OF 4 | CLASSIFICATION LCA-30

2.0 COMPONENT AND CALIBRATION DATA

	OPERATING DATA	MECHANICAL DATA
LT-30	LEVEL TRANS. & CONTROLLER	FISHER GOV LEVEL TRANS #2500T-249BP
LC-30	LOCATION: 14' LEVEL, OVER TANK 515 AIR. SUPPLY: 20 PSIG OUTPUT: 3-15 PSIG (TRANS. & CONTR.) ACTION: INC. INPUT INC. OUTPUT	& LEVEL CONTR. #2516 W/PIPED & MT'D AIR SET 4" R.F. FL'G. 316 SS BODY 316 SS DISPLACER; 1⅛" O.D. x 63" LG. EXT. LENGTH: 14" PROP BAND: 10-200 %
LV-30	CONTROL VALVE LOCATION: GND. LEVEL, SE OF TANK 515 INPUT: 3-15 PSIG ACTION: AIR TO OPEN FAILS CLOSE	FISHER GOV. CONTROL VALVE # 667-BF 1" 150# FL'G 316 SS BODY 3/4" 316 SS MICRO-FLUTE TRIM TEFLON PACKING, SKIRT-TOP GUIDING
LSA-30	PRESSURE SWITCH LOCATION: PANEL INPUT: 3-15 PSIG FIELD SET FCT: HI & LOW LEVEL ALARMS SPDT CONTACT/115 V., 10 A.	BARKSDALE DUAL UNIT PRES. SWITCH # D2T-H18 BRONZE DIAPHRAGM, 1/4" IPS RANGE: 0-18 PSIG CONDUIT CONN: ½" NPS

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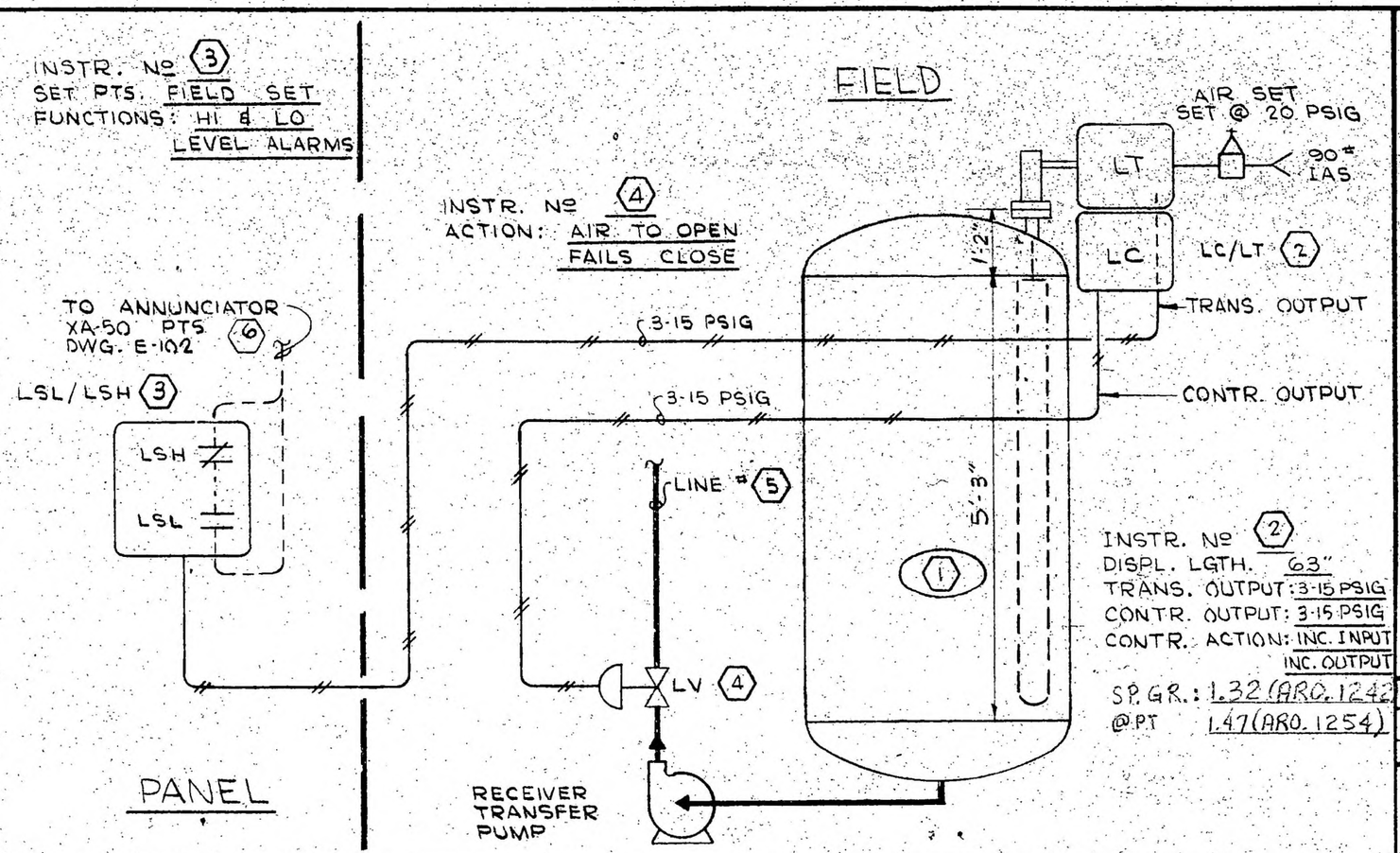

1	2	3	4	5	6
ITEM 2-508	LT/LC 25	LSH/LSL-25	LV-25	2-510-1-A11P-1 1/2"	2-6
ITEM 2-515	LT/LC 30	LSH/LSL-30	LV-30	2-517-1-A11P-1 1/2"	2-7

BILL OF MATERIAL

MARK NO.	QUAN	SPEC. 1800	P.O. NO. 1800-9	DESCRIPTION
2	2	20.1	0128	FISHER-GOV. # 2500T-249BP TRANSMITTER & # 2516 CONTROLLER W/PIPED & MT'D. AIR SET
3	2	13.2	0112	BARKSDALE D2T-H18 DUAL UNIT PRESSURE SWITCH
4	2	10.2	0055	FISHER-GOV. #667-BF-1" CONTROL VALVE FOR 150# FLGS

MARK NO.	QUAN	SPEC.	P.O. NO.	DESCRIPTION

INSTRUMENT SCHEMATIC DIAGRAM

LOOP NO. LCA-25 & LCA-30

FUNCTION STILL RECEIVER LEVEL CONTR. & ALARM

REFERENCE NO.
1800 I-11D

FOR GENERAL NOTES, SYMBOLS, LINE LEGEND, REFERENCE DRAWINGS, ETC. SEE DRAWING 1800-I1

REV	DATE	DESCRIPTION	BY	CHKD	APP'D
0	6/21/68	APP'D. FOR CONST.	—	—	RSY

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CENTRAL ENGINEERING DEPARTMENT, ST. LOUIS, MISSOURI

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DIVISION ORGANIC 2 PLANT KRUMMRICH

SCHEMATICS

SHEET 4 MFG. AREA

	BY	DATE	APPROVED	DATE	APPROVED	DATE
DRAWN	HAMMONDS	4-30-68	J. Parker	6-19-68	RSYders	6-21-68
CHECKED	L. VAN M.	6-19-68	R. D. Dehaye	6-21-68		
SCALE	NONE		W. Brown	6/21/68		

C.E.A. NO.	PLANT	SIZE	DEPARTMENT	TYPE	NUMBER	REV
1800	3	D	811.00	I	11	0

PRINTS ISSUED TO FIELD BY L. Dehaye DATE 6-21-68 REV. 0

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INSTRUMENT FUNCTION OUTLINE

TITLE STILL Receiver Level Control & Alarm

SHEET 4 OF 4

DEPARTMENT 24

LOOP NUMBER 030

CLASSIFICATION LCA 30

3.0 OPERATION OF LOOP

3.1 NORMAL OPERATION

The OPERATION OF THIS LOOP IS TO MAINTAIN A CONSTANT Level IN The STILL Receiver, Will ACTIVATE AN ALARM IF the Level IS TO high OR TO Low.

High Level is 55" FROM BOTTON Bend Line

Low Level IS 12" FROM BOTTOM Bend Line

3.1.1 START UP INSTRUCTIONS

ALign MANUAL VALVES & Check AIR supply. START Receiver TRANSFER PUMP. The Level CONTROLLER ON the Receiver TANK will Allow CONTINUOUS PUMP OUT WITHOUT Dead-Heading The PUMP.

3.1.2 SHUT DOWN INSTRUCTIONS

SHUT DOWN Receiver TRANSFER pump & Close MANUAL VALVES.

3.1.3 MANUAL OPERATIONS

PLACE Level CONTROLLER ON "MANUAL" & Regulate AIR TO CONTROL VALVE.

3.2. ABNORMAL OPERATIONS

3.2.1 AIR FAILURE

AIR FAILURE TO THIS Loop will CAUSE LOSS OF Level CONTROL due To The Level CONTROL VALVE opening & letting Receiver EMPTY.

3.2.2 Power FAILURE

Power FAILURE To This Loop will CAUSE Loss OF ALARM & CONTROL IF FAILURE IS TO Receiver TRANSFER.

3.3 INTERLOCKS

NONE

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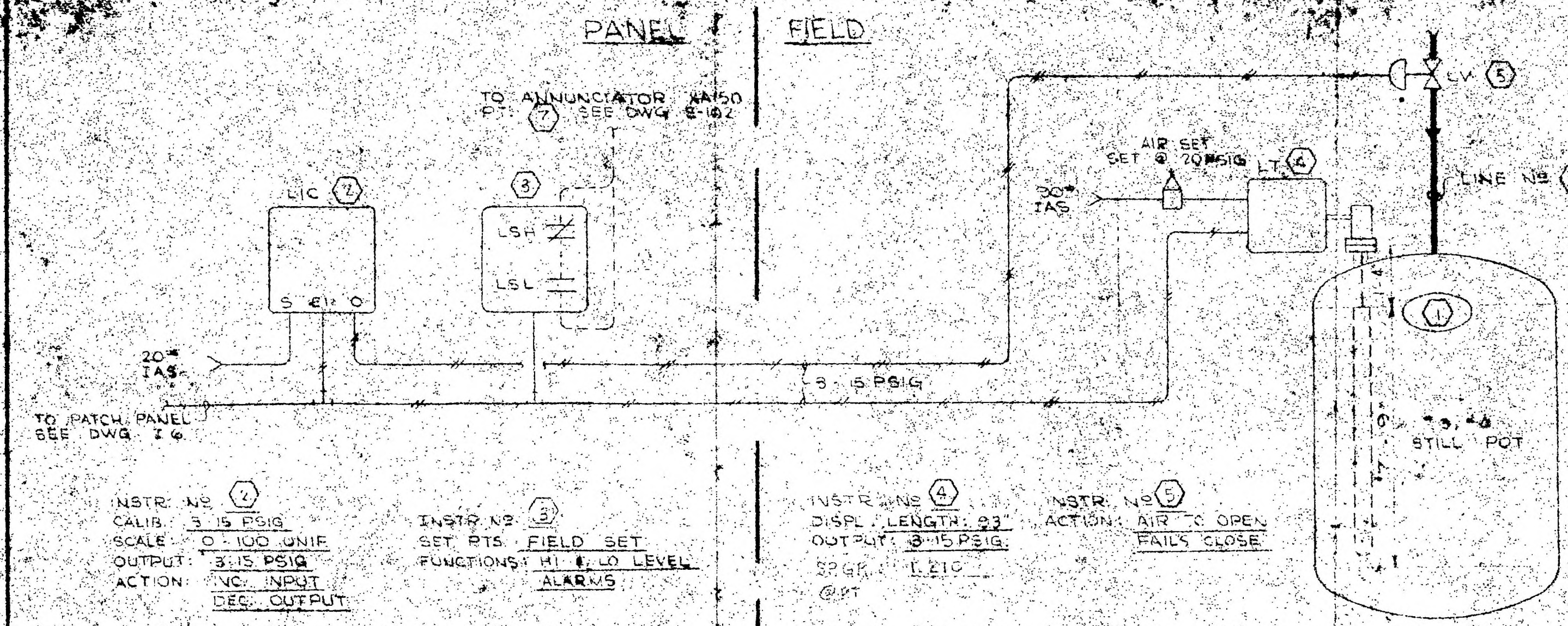

INSTR. NO. (2)
CALIB. 3-15 PSIG
SCALE 0-100 UNIF
OUTPUT 3-15 PSIG
ACTION INC. INPUT
DEC. OUTPUT

INSTR NO (3)
SET PTS FIELD SET
FUNCTIONS HI & LO LEVEL
ALARMS

INSTR. NO (4)
DISPL. LENGTH 93"
OUTPUT 3-15 PSIG
SPGR. 1.210
@ PT

INSTR. NO (5)
ACTION AIR TO OPEN
FAILS CLOSE

(1)	(2)	(3)	(4)	(5)	(6)	(7)
2-502 2-511	LIC-23 LIC-28	LSH/LSL-23 LSH/LSL-28	LT-23 LT-28	LV-23 LV-28	2-423-3-FIIP-2" 2-423-1-FIIP-2"	I-6 I-7

BILL OF MATERIAL

MARK NO.	QUAN.	SPEC. 600	SPEC. 600-9	DESCRIPTION
(2)	1	21	0025	FISCHER & PORTER MODEL 51-1351 AREC INDICATING CONTR.
(3)	1	11	0412	CLARKSDALE D2T-HIR DUAL UNIT PRESSURE SWITCH
(4)	1	20	0128	FISHER GOV. 2500T 249 BP LEVEL TRANSMITTER W/ PIPED & MT'D. AIR SET
(5)	1	16.2	0065	FISHER 30V-667-A-1"-150# CONTROL VALVE

MARK NO.	QUAN.	SPEC. NO.	DESCRIPTION

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INSTRUMENT SCHEMATIC DIAGRAM
LOOP NO. LICA 23 LICA 28
FUNCTION STILL POT LEVEL CONTROL & ALARM
C.E.A. NO. 1800
REFERENCE NO. E-11B

PCB-ARCH-EXT0373915