REV NO. C

TITLE

BOARD TEST SPECIFICATION - VOLTAGE SENSOR, 24 VDC
1P3-E005 - SCHEMATIC 117D7368
FIRST MADE FOR

P3K-AL-0334-A01
CONT ON SHEET 2 SH NO. 1

REVISIO

1. PURPOSE

A. The purpose of this specification is to convey the proper information needed to test the referenced circuit board for its correct function.

B. To enable the skilled Test Engineer to produce the detailed Test Procedure for the referenced circuit board.

2. DOCUMENTS PERTAINING TO THIS SPECIFICATION

A. Voltage Sensor - 24 VDC - 117D8509

B. AC/DC Power Ground System - 117D7762

C.

ACTIVE FOR 1,2
BY HL DATE 1/10/97

3. EQUIPMENT NEEDED TO TEST

A. DC Power Supply - 24 VDC nominal, 2 ampere rating.

B. DC Power Supply - 0 to 28 VDC nominal, 1 ampere rating.

C. 2 switches - SPST - 1 ampere rating, 24 VDC nominal.

D. 3 Push-button Switches - SPST - 1 ampere rating, 24 VDC nominal each.

E. 3 Indicating devices - 24 VDC nominal, 80 ma rating each.

F.

4. CIRCUIT DESCRIPTION

This board consists of a Voltage Sensor and associated components to monitor the output voltage of the 24 VDC Power Supply. The outputs of the board logic are brought out to allow indication and control functions.

5. CIRCUIT INTEGRATION

The voltage sensor continuously monitors the output voltage of the Power Supply. Whenever this voltage exceeds a pre-set limit, a latching relay energizes, sending a signal to an indicator and the Malfunction Bus. If the voltage falls to within the pre-set value, this signal can be overriden.

If the voltage falls below a pre-set limit, a different relay will send a signal to another indicator and the Malfunction Bus. As before, if the voltage rises above the preset value, logic circuitry can be activated to override the signal.

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PRINTS

MADE BY D.Mone June 11, 1973
ISSUED JUN 1 2 1973

APPROVALS

Steam Turbine DIV OR DEPT.
Schenectady, N.Y. LOCATION

P3K-AL-0334-A01
CONT ON SHEET 2 SH NO. 1

CODE IDEN

TITLE

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REVISIO

6. TEST SPECIFICATION

A. Connect the board as shown in Figure 1.

B. With PS1 set at 0 volts and 24 VDC set on PS2, close S1 and S2. Indicators 1 and 2 shall indicate, indicator 3 shall not.

C. Press in succession PB1, PB2, and PB3. No change shall occur in the indicators.

D. Increase the voltage between TP52 [PS2] and TP53 at a 1 volt per second rate. Stop when the voltage reaches 24 ± 0.5 VDC. There shall be no change in the indicators.

E. Press and release PB1. Indicators 1 and 2 shall cease indicating.

F. Reduce the PS1 voltage at a 1 volt per second rate. Stop when the voltage reaches 20 ± 0.5 VDC.

G. Indicators 1 and 2 shall indicate where the voltage between TP52 and TP53 is 22 + 1 - 0 VDC. Increase the voltage to 24 ± 0.5 volts.

H. Press and release PB2. Indicators 1 and 2 shall cease to indicate.

I. Press and release PB3. There shall be no change in the status of the indicators.

J. Increase the voltage between TP52 [PS2] and TP53 at the 1 volt per second rate to 28 ± 0.5 VDC. Indicators 2 and 3 shall indicate when the voltage reads 26 + 0, -1 VDC.

K. Reduce the voltage between TP52 [PS2] and TP53 to 24 ± 0.5 VDC. There shall be no changes in the status of the indicators.

L. Press and release PB3. Indicators 2 and 3 shall cease indicating.

M. Repeat steps J and K. Press and release PB2. Indicators 2 and 3 shall cease indicating.

N. Reduce PS1 and PS2 to 0 VDC. Open S1 and S2.

7. REPORT SHEET

ACTION	REACTION	YES	NO
A. Close S1 & S2	Ind. 1, 2 indicate Ind. 3 not indicate		

PRINTS

7. REPORT SHEET (continued)

	ACTION	REACTION	YES	NO
B.	PB1, PB2, PB3 pressed.	Ind. 1,2,3; No change		
C.	PS1: Increase 0 → 24 VDC.	Ind. 1,2, indicate Ind. 3, not indicate		
D.	PB1 pressed.	Ind. 1,2,3 not indicate		
E.	PS1: Decrease 24VDC → 20.5 VDC.	Ind. 1,2 indicate Ind. 3 not indicate		
F.	PS1: Increase 20.5 VDC → 24.5 VDC.	Ind. 1,2 indicate Ind. 3 not indicate		
G.	PB2 pressed.	Ind. 1,2 de-indicate Ind. 3 no change		
H.	PB3 pressed.	Ind. 1,2,3, no change		
I.	PS1: Increase 24.5 VDC → 28.5 VDC.	Ind. 2,3 indicate Ind. 1, not indicate		
J.	PS1: Decrease 28.5 VDC → 24.5 VDC.	Ind. 1,2,3 no change		
K.	PB3 pressed.	Ind. 2,3 de-indicate Ind. 1, no change		
L.	PB2 pressed.	Ind. 2,3 de-indicate Ind. 1, no change		

8. NOTES

1. If any indicator does not indicate as described, the board shall be rejected.

PRINTS

REV NO.

P3K-AL-0334-A01
CONT ON SHEET 5 SH NO. 4

TITLE

BOARD TEST SPECIFICATION - VOLTAGE SENSOR, 24 VDC
1P3-E005 - SCHEMATIC 117D7368

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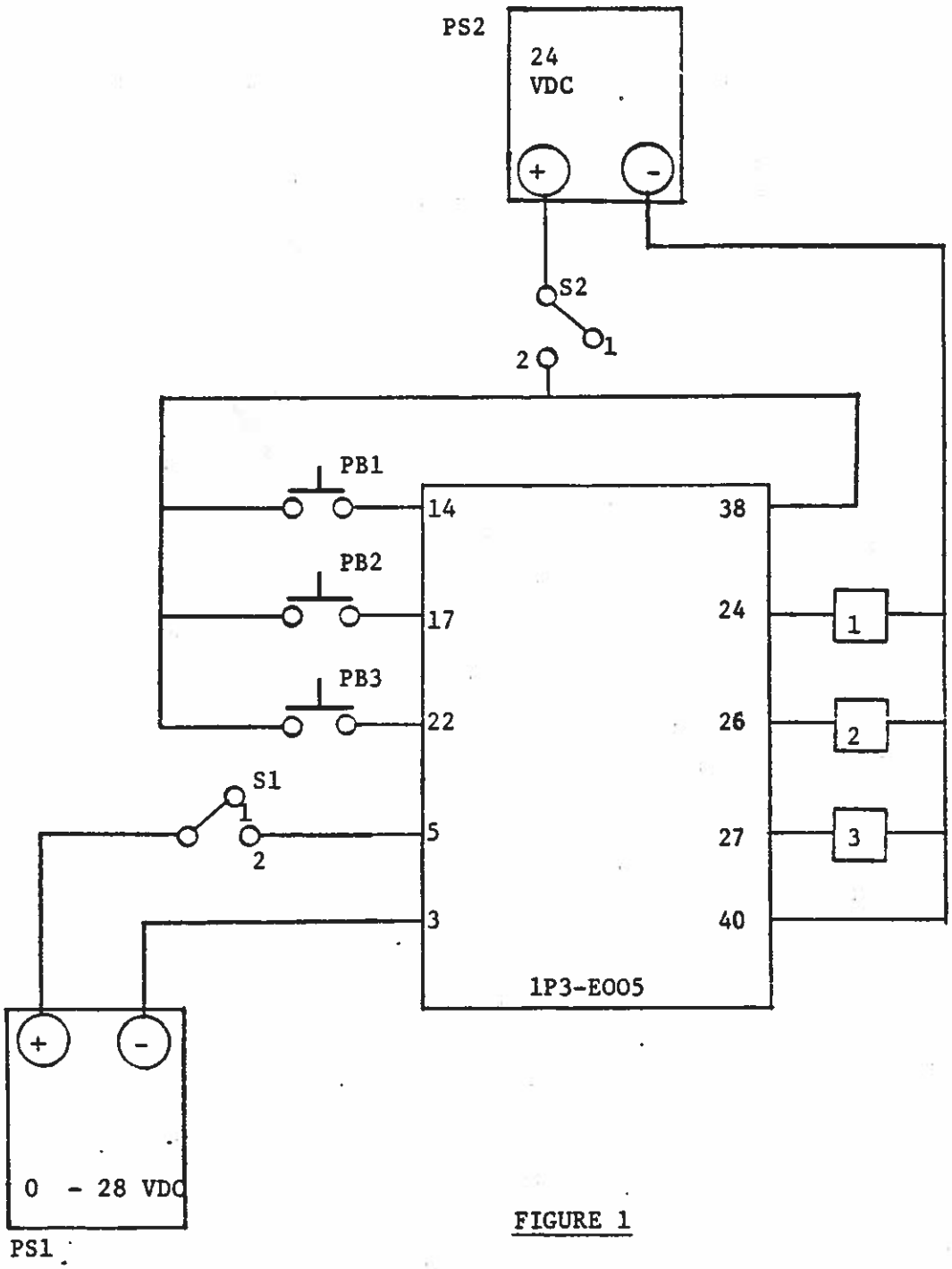

FIGURE 1

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P3K-AL-0334-A01

CONT ON SHEET 6 SH NO. 5

TITLE
BOARD TEST SPECIFICATION - VOLTAGE SENSOR, 24 VDC
1P3-E005 - SCHEMATIC 117D7368

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Assm. 117D8509
Sch. 117D7368
Patchboard No.______
PCR______

The 24 VDC sensor monitors the output voltage level of its specific power supply. If the voltage level falls below 22 to 23 VDC, K1 de-energizes, contact K1-1 closes to apply a signal to pins 24 and 26. If the voltage level rises above 25 to 26 VDC, KL-1 energizes, contact KL1-1 closes to apply a signal to pins 27 and 26. A reset signal applied to pins 14 or 17 will pick up K2 allowing K1-1 to latch in. Similarly, a reset signal applied to pins 22 or 17 will pick up KL1- .

Test Procedure

1. Patched program is as shown in Fig. A.

2. All switches down.

3. Read voltage of VS1 from TP53 to TP52.

4. Adj. VS1 for 0 VDC

5. Procedure:

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P3K-AL-0334-A01

CONT ON SHEET 7 SH NO. 6

REV NO. 0

P3K-AL-0334-A01

CONT ON SHEET 7 SH NO. 6

TITLE

BOARD TEST SPECIFICATION - VOLTAGE SENSOR, 24 VDC
1P3-E005 - SCHEMATIC 117D7368

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	PROCEDURE	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12		
6	Initial conditions				X	X									
7	S3 up	X			X	X									
8	S3 down - S4 up		X		X	X									
9	S4 down - S5 up			X	X	X									
10	S5 down				X	X									
11	Adj. VS1 for +24.00 VDC				X	X									
12	S3 up	X													
13	S3 down														
14	Decrease VS1 volts until L4 goes on				X	X									
15	Check VS1 volts for +22.00 to 23.00 VDC				X	X									
16	Adj. VS1 for +24.00 VDC				X	X									
17	S4 up		X												
18	S4 down														
19	Adj. VS1 for +27.00					X	X								
20	S3 up	X				X	X								
21	S3 down - S4 up		X			X	X								

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MADE BY D. Y. Pine June 11, 1973

APPROVALS

Steam Turbine

DIV OR DEPT.

REV. P3K-AL-0334-A01

CONT ON SHEET 8 SH NO. 7

TITLE
BOARD TEST SPECIFICATION - VOLTAGE SENSOR, 24 VDC
1P3-E005 - SCHEMATIC 117D7368
FIRST MADE FOR

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	PROCEDURE	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12
22	S4 down - S5 up					X	X						
23	S5 down					X	X						
24	Adj. VS1 for +24.00 VDC			X		X	X						
25	S5 up												
26	S5 down												
27	Increase VS1 volts until L6 goes on					X	X						
28	Check VS1 volts for +25.00 to 26.00 VDC					X	X						
29	Adj. VS1 for +24.00 VDC		X			X	X						
30	S4 up												
31	S4 down												
32	End of Test												

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MADE BY [illegible] - 11.1973 | APPROVALS | Steam Turbine | DIV OR DEPT. | P3K-AL-0334-A01

TITLE

BOARD TEST SPECIFICATION - VOLTAGE SENSOR, 24 VDC

1P3-E005 - SCHEMATIC 117D7366

FIRST MADE FOR

P3K-AL-0334-AC1

CONT ON SHEET 9 SH NO. 8

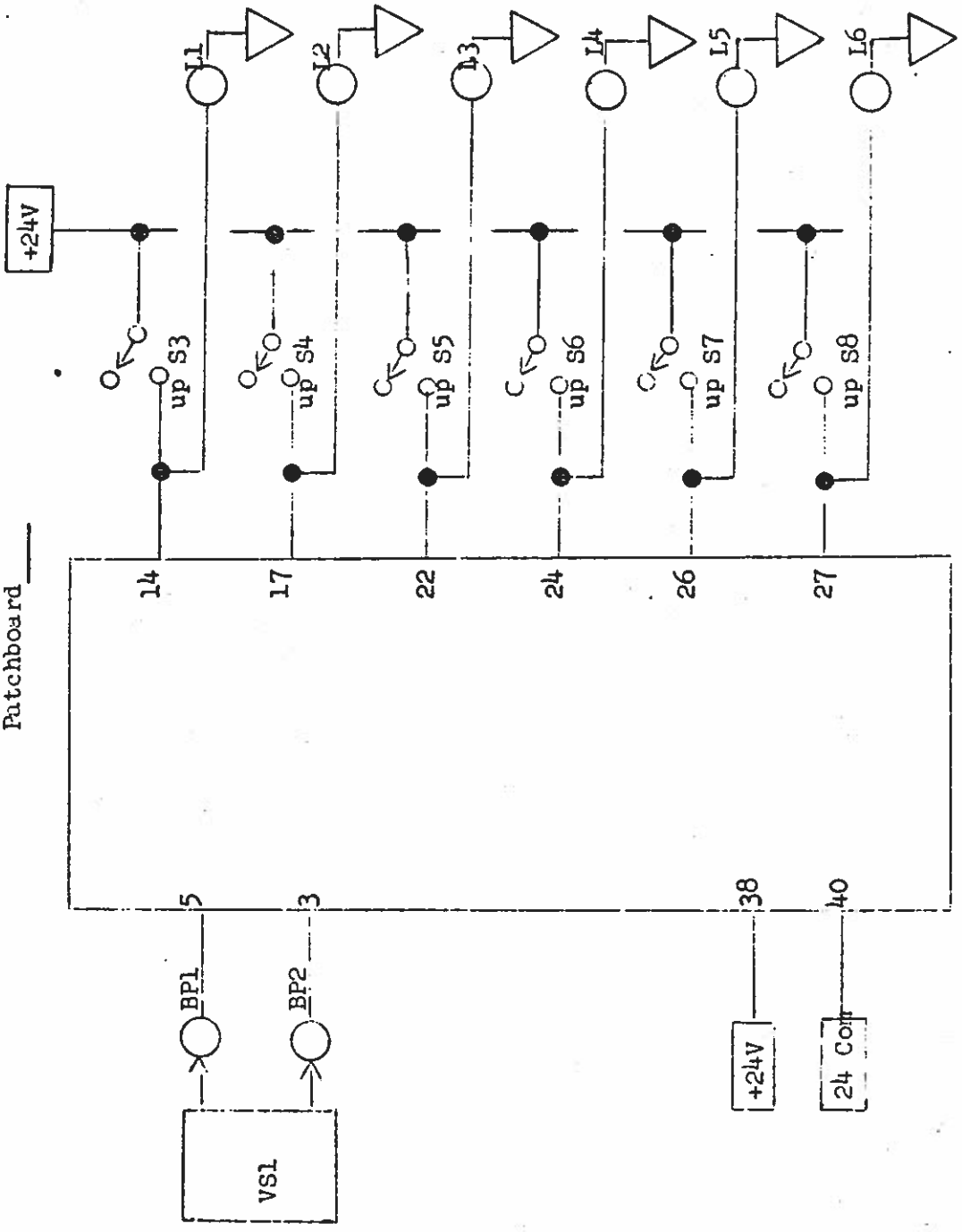

Figure A

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REV NO. 0

P3K-AL-0334-A01

CONT ON SHEET --- SH NO. 9

TITLE
BOARD TEST SPECIFICATION - VOLTAGE SENSOR, 24 VDC
1P3-E005 - SCHEMATIC 117D7368
FIRST MADE FOR

REVISIONS

PREPARED BY C.J. Barrigher DATE 3/8/73

C.J. Barrigher
EHC DESIGN ENGINEERING

APPROVED BY P.C. Callan DATE 6-4-73

P.C. Callan - MANAGER
EHC DESIGN ENGINEERING

TEST PROCEDURE PREPARED BY C R Bugg DATE 5/15/73

C. Bugg
EHC TEST ENGINEER

TEST PROCEDURE APPROVED BY C.J. Barrigher DATE 5/29/73

C.J. Barrigher
EHC DESIGN ENGINEERING

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