



# GE Power Generation Engineering

Materials and Processes Engineering  
Schenectady, NY 12345

PROCESS SPECIFICATION

P3K-AL-0023

## TEST INSTRUCTIONS FOR TESTING M.S.V. NO. 2 VALVE POSITION UNIT

DOCUMENT REVISION STATUS: DETERMINED BY THE LAST ENTRY IN THE "REV" AND "DATE" COLUMN

REV.	AN NO.	DESCRIPTION	SIGNATURE	REV. DATE
A	YA00096	SPECIFICATION LISTED IN STEAM TURBINE/GENERATOR INDEX AS "INACTIVE" HAS BEEN FORMALLY REVISED AS "INACTIVE FOR NEW DESIGN". (PR BUDKA)	C.R. Tripp	DEC 02 1991
<div>INACTIVE FOR NEW DESIGN AS OF 12/02/91</div>				

© COPYRIGHT 1991 GENERAL ELECTRIC COMPANY

PROPRIETARY INFORMATION - THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION OF GENERAL ELECTRIC COMPANY AND MAY NOT BE USED OR DISCLOSED TO OTHERS. EXCEPT WITH THE WRITTEN PERMISSION OF GENERAL ELECTRIC COMPANY.

PREPARED BY: P.R. BUDKA

ORIG. ISSUE DATE: --

# GENERAL ELECTRIC

P3K-AL-0023

REV. NO. **14**

TITLE

CONT ON SHEET **3**

SH NO. **2**

P3K-AL-0023

TEST INSTRUCTIONS FOR TESTING  
M.S.V. NO. 2 VALVE POSITION UNIT

CONT ON SHEET **3**

SH NO. **2**

FIRST MADE FOR 170X374

REVISIONS

## SCOPE

M.S.V. NO. 2 VALVE POSITION UNIT

- (A) GENERAL
- (B) TEST EQUIPMENT
- (C) SET-UP
- (D) ADJ. OF OPENING RATE LIMIT
- (E) ADJ. OF CLOSING RATE BIAS
- (F) GAIN & CP ADJ.
- (G) METER TEST (Delete in case of Hand Driven Chest Warming)

THIS DOCUMENT CONTAINS THE INFORMATION IT CONTAINS IS CONFIDENTIAL AND PROPRIETARY TO GENERAL ELECTRIC COMPANY AND IS MADE AVAILABLE SOLELY TO THE RECIPIENT TO AN EXTENT TO MAKE A USE AS A POTENTIAL VENDOR OR TO PERFORM A CONTRACT WITH GENERAL ELECTRIC. IT MAY NOT BE REPRODUCED OR COPIED AND SHALL BE RETURNED IMMEDIATELY UPON REQUEST. RECIPIENT WILL TAKE ALL NECESSARY STEPS TO PROTECT THIS DOCUMENT AND THE INFORMATION IT CONTAINS.

COPYRIGHT 1983 GENERAL ELECTRIC CO.

MADE BY

I.B. White Oct. 7, '69

APPROVALS

Steam Turbine

DIV OR DEPT.

P3K-AL-0023

ISSUED

JAN 30 1970

Schenectady, N. Y.

LOCATION

CONT ON SHEET **3**

SH NO. **2**

PRINTS TO

275-314

273-71

273-05

273-12

273-132

273-138

R2A

# GENERAL ELECTRIC

P3K-AL-0023

REV. NO. **A**

TITLE

CONT ON SHEET **4**

SH NO. **3**

P3K-AL-0023

TEST INSTRUCTIONS FOR TESTING  
M.S.V. NO. 2 VALVE POSITION UNIT

CONT ON SHEET **4**

SH NO. **3**

FIRST MADE FOR 170X374

REVISIONS

## (A) GENERAL

This circuit board consists of circuitry to drive the SADI unit and 0-100% meters.

This test is designed to check the proper operation of these circuits. The voltage tests determine that proper voltage levels are obtained with the pot ranges.

Next the circuitry is tested with a test op-amp so that gain adjustment and proper operation of associated circuitry can be observed.

Next the meter circuit is tested. This test assures that proper meter ranges can be obtained.

This test will assure that proper voltage levels are provided when the over-all system tests are performed.

*FL-1*

*FL-1*

*ET-273*

273-71<sup>2</sup>

273-2

273-12<sup>4</sup>

273-132

273-138

*FL-4*  
R2A

PRINTS TO

MADE BY  
T.B. White Oct. 7, '69

APPROVALS

Steam Turbine

DIV OR  
DEPT.

P3K-AL-0023

ISSUED  
**JAN 30 1970**

Schenectady, N. Y.

LOCATION

CONT ON SHEET **4**

SH NO. **3**

# GENERAL ELECTRIC

P3K-AL-0023

REV. NO. **A**  
 P3K-AL-0023  
 CONT ON SHEET **5** SH NO. **4**

TITLE  
 TEST INSTRUCTIONS FOR TESTING  
 M.S.V. NO. 2 VALVE POSITION UNIT  
 FIRST MADE FOR 170X374

CONT ON SHEET **5** SH NO. **4**

## REVISIONS

### (B) TEST EQUIPMENT

- (1) STANDARD TEST PANEL
- (2) PRE-WIRED PATCH BOARD MARKED "VALVE POS. BD."
- (3) SIMPSON OR EQUAL
- (4) DO-180 0-1.0 MA.
- (5) DVM

*FL-1*  
*FL-1*  
*ET-273*  
 273-71<sup>2</sup>  
 273-2  
 273-12<sup>4</sup>  
 273-132  
 273-138  
*FL-1*  
 R2A  
 PRINTS TO

MADE BY  
 T.B. White Oct. 7, '69  
 ISSUED  
**JAN 30 1970**

#### APPROVALS

Steam Turbine  
 Schenectady, N. Y.

DIV OR  
 DEPT.

P3K-AL-0023

CONT ON SHEET **5** SH NO. **4**

P3K-AL-0023

REV  
NO.

**A**

TITLE

CONT ON SHEET

**6**

SH NO.

**5**

P3K-AL-0023

CONT ON SHEET

**6**

SH NO.

**5**

TEST INSTRUCTIONS FOR TESTING M.S.V. NO. 2  
VALVE POSITION UNIT  
FIRST MADE FOR 170X374

REVISIONS

## C. SET-UP

- (1) Refer to sketch, page 8.
- (2) Connect SW1 SPDT, Arm to pin 33, Pos. No. 1 N.C. to pin 16, pos. No. 2 to pin 19.
- (3) Connect SW2 SPDT, Arm to pin 14, pos. No. 1 to pin 35, pos. No. 2 N.C. to pin 19.
- (4) Connect SW3 SPDT, arm to pin 20, pos. 1 N.C., pos. 2 to pin 19.
- (5) SW4 SPDT Arm to pin 11, pos. 1 N.C., pos. 2 to pin 12.
- (6) 5.1K lw from pin 3 to pin 19.
- (7) 1K Pot Low Side to pin 19, High Side to pin 15 and wiper to pin 14 **35**
- (8) Connect input of op-amp to pin 20 and output to pin 1.
- (9) DO 180-0-1.0 MA meter and SW5 SPDT connected as shown on sketch page 8, arm to pin 14, pos. 1 N.C., pos 2 to meter amp.

PRINTS TO

MADE BY

APPROVALS

Steam Turbine

DIV OR

DEPT.

P3K-AL-0023

ISSUED

Schenectady, N.Y.

LOCATION

CONT ON SHEET

**6**

SH NO.

**5**

CODE IDENT NO.

REV  
NO.

**A**

TITLE

TEST INSTRUCTIONS FOR TESTING  
M.S.V. NO. 2 VALVE POSITION UNIT

CONT ON SHEET

**7**

SH NO.

**6**

P3K-AL-0023

CONT ON SHEET

**7**

SH NO.

**6**

FIRST MADE FOR

170X374

REVISIONS

For D and E -- SW1 - Pos. 2  
SW2 - Pos. 1  
SW3 - Pos. 2

R7 fully CCW.

Pin 18 connected to pin 19.

(D) ADJ. OF OPENING RATE LIMIT

(1) SW4 - Pos. 1.

(2) Verify that -22 volts are applied to pin 21 and that pin 19 is grounded; e.g., connected to the PLUS terminal of 22 V power supply.

(3) Adjust variable resistor R26 until voltage at ~~TP1~~ (WH) **TP6** reads  $V_{OP}$  LIMIT\* (from data sheets)

(E) ADJ. OF CLOSING RATE BIAS

(1) Verify that +30 V is applied to pin 21 and ground pin 19 is connected with the common potential of +30V and -22V power supplies.

(2) Connect pin 11 with pin 12. (SW4 to pos. 2)

(3) Adjust R4 until voltage at ~~TP1~~ (WH) **TP6** reads  $V_{CL}$  LIMIT\*

(4) Return SW4 to Pos. 1. Remove ground on pin 18.

**1-4**  
**1-64**  
**ET-273**  
**273-71**<sup>2</sup>  
**273-2**  
**273-12**<sup>4</sup>  
**273-132**  
**273-138**  
**R2A**  
**PRINTS TO**

MADE BY

I.B. White Oct. 7, '69

APPROVALS

Steam Turbine

DIV OR  
DEPT.

P3K-AL-0023

ISSUED

**JAN 30 1970**

Schenectady, N. Y.

LOCATION

CONT ON SHEET

**7**

SH NO.

**6**

# GENERAL ELECTRIC

P3K-AL-0023

REV NO. **1 A**  
P3K-AL-0023  
CONT ON SHEET **4** SH NO. **7**

TITLE  
TEST INSTRUCTIONS FOR TESTING  
M.S.V. NO. 2 VALVE POSITION UNIT  
FIRST MADE FOR 170X374

CONT ON SHEET **8** SH NO. **7**

REVISIONS

## (F) GAIN & CP ADJ.

### (1) Switches in following positions:

SW1 - Pos. 2 Gnd pin 33  
2 - 1 Pin 35 to wiper  
3 - 1 op amp on  
4 - 1 pin 10 & 11 open  
5 - 1

### (2) Turn 1K pot to pin 15 end.

### (3) Adjust R5 checking for a range of .49 max < 2.74V, at TP5. Leave at ~~2.74~~ +1.14V

### (4) Connect DVM to TP6.

### (5) Apply voltage on pin 18 (-1.00 to -1.5 V) until meter reads zero.

### (6) Measure voltage at TP4 with DVM. Reading should be between -1.27 and -1.47.

### (7) SW2 to pos. 2.

### (8) Apply voltage at pin 18 of $-V_4$ .

### (9) Adjust R8 to give $V_5$ on DVM at TP6.

### (10) Adjust voltage at pin 18 to +5.250 on DVM.

### (11) SW1 to pos. 1.

### (12) Adjust R6 for zero volts on DVM at TP6.

### (13) Adjust voltage at pin 18 to +5.000 V.

### (14) SW1 to pos. 2.

### (15) Adjust R7 for -0.25 V at TP6.

Not for G6

FL-4  
FL-1  
ET-273  
273-71<sup>2</sup>  
273-2  
273-12  
273-132  
273-138  
R  
PRINTS TO

MADE BY  
I.B. White Oct. 7, '69

ISSUED  
JAN 30 1970

APPROVALS

Steam Turbine

Schenectady, N. Y.

DIV OR  
DEPT.

LOCATION

P3K-AL-0023

CONT ON SHEET

SH NO

P3K-AL-0023

CONT ON SHEET

SH NO.

REV NO.

P3K-AL-0023

CONT ON SHEET

SH NO.

TITLE

TEST INSTRUCTIONS FOR TESTING  
M.S.V. NO. 2 VALVE POSITION UNIT  
FIRST MADE FOR 170X374

REVISIONS

(G) METER TEST (Delete in case of Hand Driven Chest Warming)

- (1) With 1K pot CW on test panel adjust R5 to +.60V at pin 14.
- (2) Connect DO 180-0-1.0 MA meter as shown on sketch.
- (3) SW5 to pos. 2.
- (4) Adjust range pot of meter amplifier for 100%.
- (5) Adjust 1K pot to 0.00 volts at pin 14 (CCW).
- (6) Adjust zero pot of meter amplifier for 0%.

PRINTS TO

MADE BY

APPROVALS

ISSUED

Steam Turbine

Schenectady, N.Y.

DIV OR  
DEPT.

LOCATION

P3K-AL-0023

CONT ON SHEET

SH NO.



REV NO. **A**

TITLE

CONT ON SHEET

SH NO. **10 9**

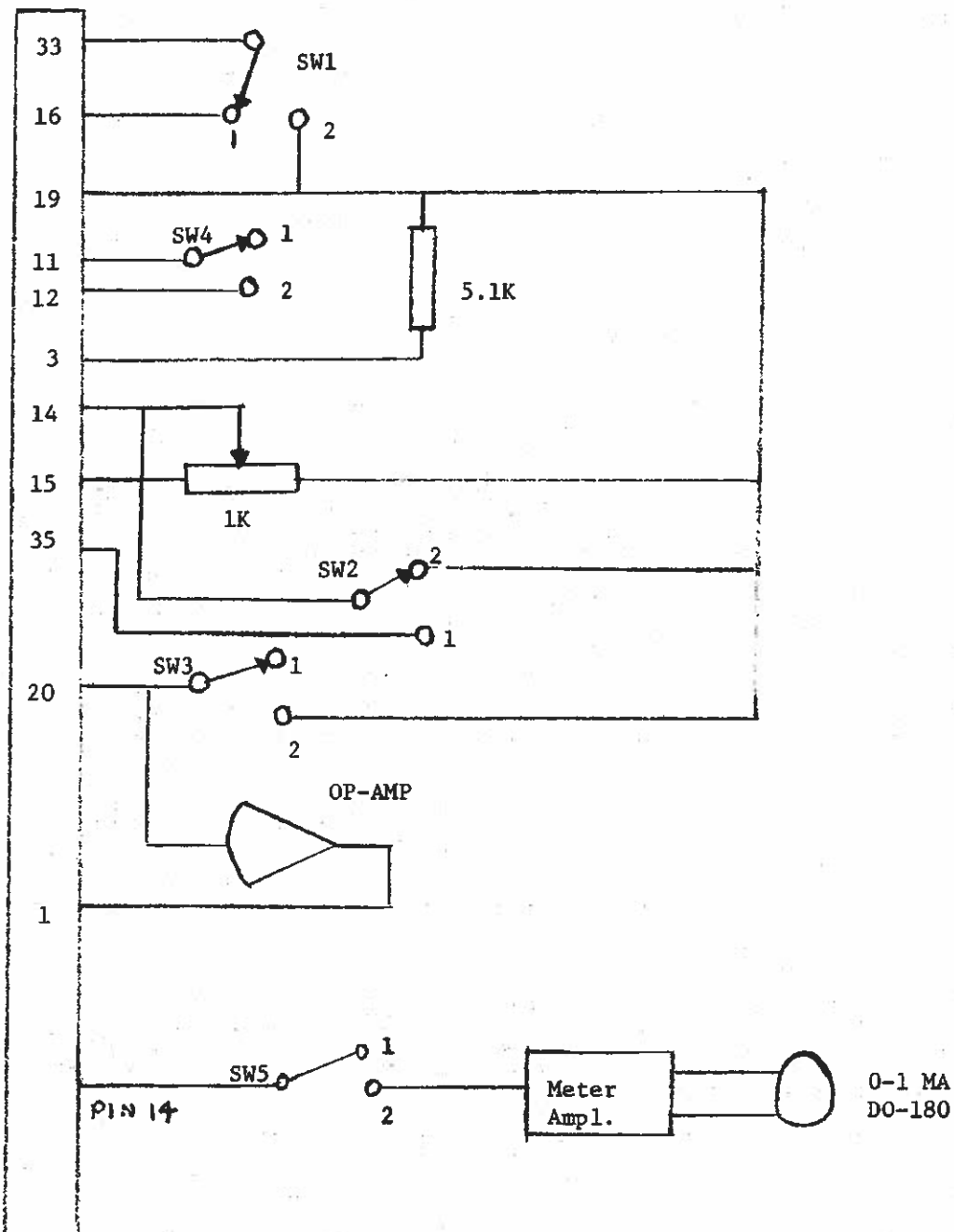
P3K-AL-0023

TEST INSTRUCTIONS FOR TESTING  
M.S.V. NO. 2 VALVE POSITION UNIT  
FIRST MADE FOR 170X374

CONT ON SHEET **10**

SH NO. **9**

REVISIONS



PRINTS TO

MADE BY

APPROVALS

Steam Turbine

DIV OR DEPT.

ISSUED

Schenectady, N.Y.

LOCATION

P3K-AL-0023

CONT ON SHEET

**10**

SH NO. **9**

GENERAL  ELECTRIC

P3K-AL-0023

REV  
NO.

*A*

TITLE

TEST INSTRUCTIONS FOR TESTING  
M.S.V. NO. 2 VALVE POSITION UNIT

CONT ON SHEET

SH NO.

*10*

P3K-AL-0023

CONT ON SHEET

SH NO.

*10*

FIRST MADE FOR

170X374

REVISIONS

PREPARED BY:

*T B White*

DATE

*OCT '69*

T. B. White

Control Design Engineering

APPROVED BY:

*P C Callan*

DATE

*10/27/69*

P. C. Callan, Manager

Control Design Engineering

REVIEWED BY:

*R J Dell Orfano*

DATE

*10/28/70*

R. J. Dell Orfano

EHC Test Engineer

*FL4*  
*FL-1*

*ET-273*

273-71<sup>2</sup>

273-2

273-12<sup>4</sup>

273-132

273-138

*FL-4*

R2A

PRINTS TO

MADE BY

T.B. White Oct. 7, '69

APPROVALS

Steam Turbine

DIV OR  
DEPT.

P3K-AL-0023

ISSUED

JAN 20 1970

Schenectady, N. Y.

LOCATION

CONT ON SHEET

SH NO.

*10*

CORE IDENT NO