

5ESS® SWITCHING EQUIPMENT
6 FAN BI-DIRECTIONAL UNIT
CIRCUIT

CHANGES

B. CHANGES IN APPARATUS

- B.1 Remove three fans: E, F, and G, and leave the finger guard to cover the opening (option W-fan down). Also, remove these three alarm diodes from the alarm circuit.
- B.2 Remove three fans: A, B, and C, and leave the finger guard to cover the opening (option V-fan up). Also, remove these three alarm diodes from the alarm circuit.

D. DESCRIPTION OF CHANGES

- D.1 Create option for individual fan fusing and a three-fan unit blowing up and down. The options are listed below with a brief description of each fan unit as it is wired and equipped.
- Z Option is a basic six-fan unit with the power for two fans, one up and one down, being supplied by one fuse.
 - Y Option - Previously assigned PDI 2 - nonlatching alarm fans.
 - X Option is a basic six-fan unit with the power for each of the six fans being supplied by a separate fuse.
 - W Option is a three-fan unit with air blowing down only. Three fan guards are placed over the empty fan positions.
 - V Option is a three-fan unit with air blowing up only. Three fan guards are placed over the empty fan positions.

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DEPT 55531-JW-GJM

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CIRCUIT DESCRIPTION

CD-5D168-01
ISSUE 1
APPENDIX 1B
DWG ISSUE 2B
DISTN CODE BT13

5ESS® SWITCHING EQUIPMENT
6 FAN BI-DIRECTIONAL UNIT
CIRCUIT

CHANGES

B. CHANGES IN APPARATUS

B.1 Fan KS23912L1A, latching alarm circuit fan option Z, and a new fan will be KS23912L5, non-latching alarm circuit fan option Y.

D. DESCRIPTION OF CHANGES

D.1 This change makes a non-latching alarm circuit fan an option for RISLU2 application. The standard latching alarm circuit fan for normal applications is option Z. The non-latching alarm circuit fan for RISLU2 is option Y.

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5ESS® SWITCHING EQUIPMENT
6 FAN UNIT BIDIRECTIONAL
UNITSECTION I - GENERAL DESCRIPTION1. PURPOSE OF CIRCUIT

1.01 The six fan bidirectional fan unit is a new fan unit designed to improve the cooling capacity of the six fan unit while providing reduced acoustic noise. The fan unit is currently used in the SM2000 SMC cabinet and the ISLU2 cabinet. The fan unit provides air flow for maintaining adequate operating temperatures.

2. GENERAL DESCRIPTION OF OPERATION

2.01 Six separate fans are used in the six-fan bidirectional fan unit. Three of the fans direct air upward through the cabinet, and the other three fans direct air downward through the cabinet. Only two of the three fans are required to provide sufficient air flow, thereby ensuring that correct operating temperatures can be maintained in the event of a single fan failure.

2.02 Circuitry to detect and report a fan failure to the Input/Output Processors (IOP) or to the Switch Module Processor (SMP) is provided. This is done via a scan point from the unit. A fan failure alarm can be retired manually, or under software control using a distribute point to the fan unit.

SECTION II - DETAILED DESCRIPTION

1.01 The CM233A fan alarm circuit pack is used for detecting and reporting fan failures in the six-fan bidirectional fan unit. This requires

detecting a fan failure and activating the corresponding visual displays for the faulted fan in both the unit and the cabinet. A scan point is also activated to be used for software detection of the "fan failure."

1.02 The CM233A provides a reset capability for retiring a fan failure alarm. This is accomplished by momentarily removing power to the alarm detection circuitry integral to each fan, and can be activated by a momentary switch or software controllable distribute point. Each fan of the fan unit is powered by a separate -48V feeder. The alarm circuit board (CM233A) obtains power (-48V) from two of those six fans.

1.03 The six-fan bidirectional unit performs the following functions:

- (a) It detects the loss of any one of the six fans through the "fan failure" scan point. Upon detecting a fan failure, the appropriate LED for the failed fan on the fan unit is lit, as well as the "fan failure" LEDs at the top of the cabinet where the faulted fan is located. No other LEDs on the six-fan unit will have their LEDs lit.
- (b) The "clear fan failure" distribute point is used to clear a "fan failure" alarm in software. If the failure condition no longer exists, the LEDs on the six-fan unit and on the cabinet are extinguished.
- (c) A reset button on the back of the six-fan unit is provided to

clear a "fan failure" alarm manually. If the failure condition no longer exists and the reset button is pressed, the LEDs on the six-fan fan unit and on the cabinet extinguish themselves.

2. CAD 01:

2.01 CAD 01 contains the following information:

- (a) The inputs (-48V, 48RTN) for the CM233A circuit pack are provided by terminal block 0 (TS0).
- (b) The inputs (+5V, GRD) for the fans in the unit are provided by the CM233A circuit pack.
- (c) The two leads for the reset button (SW1, SW2) are also listed.

3. CAD 02:

3.01 CAD 02 lists the scan point (SCANR, 3BSCAN0) and the reset distribute point (RSTR, 3BRST1) of the CM233A circuit pack. This scan point and distribute point goes to IO/P0 or a preceding six-fan unit.

4. CAD: 03:

4.01 CAD 03 lists the scan point (SCANR, 3BSCAN0) and the reset distribute point (3BRST1, RSTR) of the CM233A circuit pack. This scan point and distribute point goes to IO/P1.

5. CAD 04:

5.01 CAD 04 lists the scan point (SCANR, 3BSCAN0) and the reset distribute point (RSTFANS, RSTFAN) of the CM233A circuit pack. This scan point and distribute point goes to a succeeding fan unit.

6. CAD 05:

6.01 CAD 05 lists all of the leads for the alarm LEDs (A,B,C,E,F,G) which connect to the appropriate LEDs on the six-fan unit.

7. CAD 06:

7.01 CAD 06 lists all the leads for the cabinet alarm LEDs connected at the appropriate LEDs on the top of the cabinet.

8. CAD 07:

8.01 CAD 07 lists a scan point for potential future use.

9. CAD 08:

9.01 CAD 08 lists the alarm signals from the fans. These leads are used by the CM233A circuit pack to detect a faulty fan.

10. CAD 09:

10.01 The CAD contains information on two Terminal Strips, (TSs) TS0 and TS1. These TSs are used to interface between the fuse/filter panel, the LEDs, and the fan unit. CAD 09 lists the following information:

- (a) the power inputs (-48V, 48RTN) from the fuse/filter panel, which are used to run the fans,
- (b) the power inputs (+5V, GRD) of the CM233A circuit pack, which are provided to the fans, and
- (c) the alarm leads of the fans, which are used to indicate an alarm to the CM233A circuit pack when a faulty fan is detected.

SECTION III - REFERENCE DATA

1. WORKING LIMITS

1.01 Voltages:

(a) -39.5 to -57 volts (nominal -48 volts).

1.02 Ambient Temperature

(a) 0 to 70 degrees centigrade (at circuit pack).

(b) 0 to 50 degrees centigrade (office aisle ambient).

2. CONNECTING CIRCUITS

2.01 Fuse/filter panel: SD-5D146-01

2.02 Input/output processor: SD-5D053-01

2.03 Switching Module Processing Unit,
SD-5Di29-01

2.04 Module Controller and Time Slot Interchanger
Unit, SD-5D094-01

2.05 Switch Module Control Cabinet, SD-5D118-03

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