

5ESS® SWITCHING EQUIPMENT
6 FAN EXHAUST UNIT
CIRCUIT

SECTION I - GENERAL DESCRIPTION

1. PURPOSE OF CIRCUIT

1.01 The exhaust six fan unit is a part of the LTP cabinet equipped with PSU's for the 5ESS switching system of four or more PSU's in one cabinet. The configuration includes one six-fan unit and one exhaust six-fan unit. The six-fan units provide air flow for maintaining correct operating temperatures.

2. GENERAL DESCRIPTION OF OPERATION

2.01 Six separate fans are used in the exhaust six-fan unit. Only five are required to provide sufficient air flow, thereby ensuring that correct operating temperature 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 exhaust six-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 functions of the exhaust six-fan unit are:

- (a) Detect the loss of any one of the six fans through the "fan failure" scan point. The appropriate LED for the failure fan on the fan unit must also be 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 can have their LEDs lit.
- (b) The "clear fan failure" distribute point is used to clear a "fan failure" alarm in software. If the faulty condition no longer exists, the LEDs on the six-fan unit and the cabinet cannot be lit.
- (c) A reset button on the back of the six-fan unit is provided to clear a "fan failure" alarm

manually. If the faulty condition no longer exists, the LEDs on the six-fan fan unit and the cabinet must extinguish themselves.

2. CAD 01:

2.01 CAD 01 contains the following information:

- (a) the input (-48V, 48RTN) for the CM233A circuit pack [provided by terminal block 0 (TS0)],
- (b) the input (-5V, GRD) for the fans in the unit (provided by the CM233A circuit pack), and
- (c) the two leads for the reset button (SW1, SW2).

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. The scan point and distribute point go 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 go 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 go to a succeeding fan unit.

6. CAD 05:

6.01 CAD 05 lists all 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 scan point for potential future use.

9. CAD 08:

9.01 CAD 08 listed 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 the two terminal strips 0 and 1 (TS0,TS1). These TSs are used to interface between the fuse/filter panel, the LEDs and the fan unit. CAD 09 listed the following information:

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

SECTION III - REFERENCE DATA

1. WORKING LIMITS

1.01 Voltages:

- (a) -42.75 to -52.5 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-5D129-01

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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