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COMMON SYSTEMS

TOLL POWER DISTRIBUTING UNIT
CIRCUITFOR USE WITH NO. 2 ESS,
2A ESS, 3 ESSSECTION I - GENERAL DESCRIPTION1. PURPOSE OF CIRCUIT

1.01 This circuit provides a focal point in the toll frame lineup for the distribution of -48 volt power from the ESS power plant.

2. GENERAL DESCRIPTION OF OPERATION

2.01 This circuit connects all toll circuits requiring -48 volt power to the appropriate power bus through distributing fuses.

SECTION II - DETAILED DESCRIPTION1. GENERAL

1.01 This circuit is located in a self-contained power distributing unit for mounting in an in-line toll frame. Power is distributed to the various equipment frames from the dual buses via the two -48 volt power distributing circuits. The maximum current capacity is 200 amperes for each bus.

2. DISTRIBUTING CIRCUIT - FS 1

2.01 FS 1 shows the distributing circuit. Fuses designated (-)0 are nonalarm-type fuses which connect the -48 volt buses to the using circuits via the power distributing circuit. The number and capacity of distributing fuses provided must be within the limits specified in Circuit Note 102. The available combinations within these limits are shown in detail in the equipment design requirements. Fuses designated (-)1 are alarm-type fuses rated at 1 1/3 amperes. Each power distributing fuse is shunted by a separate 1 1/3 ampere (alarm) fuse. When a distributing fuse blows, the associated alarm fuse also blows. The blown fuse (alarm) in turn applies -48 volts to the fuse alarm (FA) relay in the fuse alarm circuit (FS 3) through resistor FA0, FA1,

FA2, or FA3. The resistor protects the lead to the FA relay from excessive current which would otherwise occur if a trouble ground appeared on the lead at the same time a blown fuse applies power to the lead. It also limits the current through the relay windings.

3. FILTER CAPACITORS - FS 2

3.01 FS 2 shows the filter capacitors. Identical filters are used for the -48 volt buses. Each filter bank consists of three 12,000 UF capacitors wired in parallel. A 30-ampere nonalarm fuse in series with each capacitor protects the power bus from excessive current due to a shorted capacitor or trouble ground. Each nonalarm-type capacitor fuse is shunted by a separate 1 1/3 ampere alarm fuse. When a capacitor fuse blows, the associated alarm fuse also blows. The blown alarm fuse in turn applies -48 volts to the FA relay through resistors FA4 and FA5.

4. FUSE ALARM CIRCUIT - FS 3

4.01 FS 3 provides fuse alarm facilities for the distributing circuit (FS 1). A nonalarmed -48 volt fuse (PD) provides voltage to the PWR OFF lamp.

4.02 A voltage appearing on either -48 volt lead resulting from a fuse failure (FS 1) will operate the FA relay. Contacts on the relay:

- (a) Light the power-off lamp
- (b) Signal the scanner applique circuit
- (c) Signal the major alarm to the office alarm circuit (both audible and visual) through leads ABG and MJ and leads MJV and MJVR.

4.03 Removal of the blown alarm fuse will deactivate the alarm and reset the fuse alarm relay.

5. DISTRIBUTING CIRCUIT - FS 4

5.01 FS 4 is the distributing circuit for the 20-30 ampere fuses. The operation is similar to FS 1 with the alarm signal applied to the alarm relay through resistors FA6 and FA7. As before, the resistor limits the current through the relay coils.

SECTION III - REFERENCE DATA

1. WORKING LIMITS

1.01 The maximum current per bus is 200 amperes.

2. FUNCTIONAL DESIGNATIONS

2.01 Lamps

<u>Designation</u>	<u>Meaning</u>
PWR OFF	Power off, fuse blown

3. FUNCTIONS

3.01 Connects all toll frames requiring -48 volts to the appropriate power bus.

4. CONNECTING CIRCUITS

4.01 When this circuit is listed on a keysheet, the connecting information thereon should be followed.

- (a) Control Frame Circuit - SD-3H902-01 (Office Alarm Circuit).
- (b) -48 Volt Power Distributing Circuit - SD-3H907-01.

5. MANUFACTURING TESTING REQUIREMENTS

Intermediate Requirements

5.01 None.

End Requirements

5.02 This circuit should be tested to verify that it is wired in accordance with the schematic and wiring drawings, that the requirements of the circuit requirements table are met, and that the circuit is capable of performing all functions stated in this circuit description.

BELL TELEPHONE LABORATORIES, INCORPORATED

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