

CIRCUIT DESCRIPTION

CD-81581-01
ISSUE 5B
APPENDIX 5D
DWG ISSUE 200-
DISPN CODE 2000

POWER SYSTEMS
SLIDE NO. 1 POWER SUPPLY
FOR 757A PBX
J86808E

CHANGES

D. Description of Changes

D.1 Fig. 9 was rated A&M Only, Fig. 1, 5, and 10 rated
Mfr Disc. as a result of 757A PBX being rated
Mfr Disc.

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DEPT 2426-COR

WE DEPT 8145-SDL-JK

35
CIRCUIT DESCRIPTION

CD-81581-01
ISSUE 5B
APPENDIX 4D
DWG ISSUE 21D

POWER SYSTEMS
SLIDE NO. 1 POWER SUPPLY
FOR 757A PBX
J86808B

CHANGES

D. Description of Changes

- D.1 In FIG. 2 "U" option KS-19642 rectifier List 6 added.
- D.2 In FIG. 3 "U" option KS-19642 rectifier List 6 added.

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CIRCUIT DESCRIPTION

CD-81581-01
ISSUE 5B
APPENDIX 3B
DWG ISSUE 20B

POWER SYSTEMS
SLIDE NO. 1 POWER SUPPLY
FOR 757A PBX
J86808B

CHANGES

D. Description of Changes

D.1 In Fig. A the size of the 3-conductor portable cable has been changed from 12 gauge to 10 gauge to conform to the National Electrical Code.

D.2 Equipment Note No. 213 has been added.

D.3 In Fig. 1 the DSL lamp has been rated "Mfr Disc." (Option A) since it does not serve an important role in the functions of a maintenance craftsman.

D.4 Since the 40-line traffic capacity "A" system is rated "Mfr Disc." and Figs. B & D apply to this system, Figs. B & D are rated "Mfr Disc."

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WE DEPT 8143-EAD-TRC

POWER SYSTEMS
SLIDE NO. 1 POWER SUPPLY
FOR 757A PBX
J86808B

CHANGES

B. Changes in Apparatus

<u>B.1</u>	<u>Superseded</u>	<u>Superseded By</u>
	Connector- Plug, Hubbell, No. 9965G - Fig. B, "E" Option	Cap, Hubbell, No. 2321 - Fig. B, "B" Option
	Connector Receptacle, Hubbell No. 7310BG - Fig. B, "E" Option	Outlet, Hubbell, No. 2320 - Fig. B, "B" Option

D. Description of Changes

D.1 Added options "B" and "E" to replace the
ac supply cap and outlet to conform to
UL standards.

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DEPT 4257-RRG
WECo DEPT 8143-EAD-ET

POWER SUPPLY
SLIDE NO. 1 POWER SUPPLY
FOR 757A PBX
J86808B

CHANGES

B. Changes in Apparatus

B.1	<u>Superseded</u>	<u>Superseded By</u>
	DS1 lamp, type 2Y	DS1 lamp, type M1
	DS2 lamp, type 2Y	DS2 lamp, type M1
	DS3 lamp, type 2Y	DS3 lamp, type M1
	DS4 lamp, type 2Y	DS4 lamp, type M1
	DS5 lamp, type 2Y	DS5 lamp, type M1

D. Description of Changes

- D.1 For the lamps DS1, DS2, DS3, DS4, and DS5, the code 2Y has been rated "MFR DISC", and replaced by the M1 type lamps.
- D.2 Circuit note 111 has been deleted because it should not have been put in this circuit and it is incompatible with the schematic issue classification 17B.
- D.3 Reference to circuit note 111 in the circuit note 104 has been deleted.

F. Changes in Description of Operation

F.1 Add the following under section II paragraph 2.06:

D1 diode is connected across LV relay.
R1 resistor is connected in series with the LV1 relay coil. The C2 capacitor is connected across the LV1 relay coil. The function of components D1, R1, and C2 is to provide a time delay for the release of LV and LV1 relays.

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DEPT 8143-EAD-TRC-EAF
DEPT 5147-RRG

POWER SYSTEMS
SLIDE NO. 1 POWER SUPPLY
FOR 757A PBX
J86808B

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SECTION I - GENERAL DESCRIPTION

1. PURPOSE OF CIRCUIT

1.01 This power supply furnishes various dc and ac voltages from a commercial 117-volt, 60 Hz ac supply for operation of the 757A PBX system without battery reserve.

2. GENERAL DESCRIPTION OF OPERATION

2.01 The J86808B List 1 power supply is used with modular PBX's having capacities up to 200 lines. It is identified as Slide No. 1 for installation in a power cabinet consisting of three slide units. The other two slide units are used to accommodate additional -48 volt rectifiers and their associated load capacitors. Nominal 117-volt, 60 Hz ac power is brought to a junction box located in the crown of the power cabinet. Nominal 117-volt power for operation of the Slide No. 1 power supply is taken either from the junction box or directly from a commercial ac power service.

2.02 Small 40-Line (Plan A) 757A PBX System

The J86808B, List 2 power supply is similar to the List 1 except that here the slide unit receives 117-volt, 60 Hz ac power direct from a wall receptacle. It is the basic power plant for the 40-line (Plan A) PBX and is identified as Slide No. 1 for installation in a 757A PBX cabinet.

SECTION II - DETAILED DESCRIPTION

1. CIRCUIT FUNCTIONS

1.01 Nominal 117-volt, 60 Hz ac commercial power is connected by 3-conductor cable wiring directly to the dc distribution panel. A circuit breaker is provided on the panel to furnish protection and also to permit the ac power turndown of the slide unit. An operated neon indicating lamp (DSL) shows when the panel is energized. Five twist-lock connector receptacles are provided to serve the five ac operated units installed on Slide No. 1.

1.02 -48V Rectifier No. 1 (-48V1)

This rectifier is used to supply the marker, and other loads of a pulsating type. The dc output is connected to a load capacitor (Fig. 10) in order to reduce noise at stations served by this rectifier, during register attached time and on delayed calls. The dc output connections are wired via the block in the crown of the cabinet for external load connection.

1.03 -48V Rectifier No. 2 (-48V2)

This rectifier is used to supply steady-state type loads. The dc output is connected to load capacitors (Fig. 9) which provide the power reserve in the batteryless plant for the steady-state supply during short term commercial ac interruptions (less than 0.25 second). The load at the time of the power failure will determine the actual reserve available. A 0.25 second reserve is available if the drain on the rectifier does not exceed 5 amperes. The dc output connections are wired via the dc distribution and alarm panel to a terminal block in the crown of the cabinet for external load connection.

1.04 +48V/10V AC Rectifier (+48V/10V AC)

This rectifier has two outputs: (a) +48 volts used to supply the optional direct station selection (DSS) load and marker and

register circuits of the PBX and (b) 10 volts ac used as a lamp supply for the PBX circuits. Both outputs are wired via the dc distribution and alarm panel to terminal blocks in the crown of the cabinet for external load connection.

1.05 Ringing Machine and Interrupter (RING)

A ringing machine per KS-15985, List 1 supplies the ringing current and interruption for the PBX circuits. The output connections are brought to the crown of the cabinet for external load connection. Low voltage alarm leads "R" and "R1" are wired to the dc distribution and alarm panel, providing for the operation of relays and a single lamp.

1.06 Frequency Generator (TONE)

A type 102B frequency generator is mounted on the ringer panel and used to supply tone of approximately 540 Hz for the PBX circuits. The output of the frequency generator is brought to the crown of the cabinet for external load connections.

1.07 When there are provisions for TOUCH-TONE[®] dialing, a 404C tone generator is required. The "LT2" lead from the ringing and tone circuit is not used and the dial tone is obtained from the 404C tone generator.

2. DC DISTRIBUTION, ALARMS AND INDICATING LAMPS

2.01 The 10V AC, +48V, -48V1, and -48V2 supplies connect to circuit breakers CB1, CB2, CB3, and CB4, respectively, on the dc distribution and alarm panel and then in turn to terminal blocks in the crown of the cabinet. This provides the external load disconnect means for the power supply. The alarm circuit constitutes a closed loop through the series of closed contacts of the various alarm relays held operated by their individual supplies. A failure of any one supply causes its alarm relay to release thereby opening the alarm circuit loop transmitting an alarm to the central office. The alarm circuit terminates on terminals designated MJ and MJ1. Associated with each alarm relay is a lamp to indicate the failure of its power supply. In addition to the alarm terminals -48 volts is brought to the other slide units of the power cabinet for the operation of indicating lamps. Normally the -48 volts required for this is obtained from the -48V1 rectifier through contacts of the NV1 relay. In the event of failure of the -48V1 rectifier the NV1 relay releases, causing an alarm and switching the -48 volt indicating lamp supply to the -48V2 rectifier for standby operation. Individually the alarms and indicating lamps operate as follows:

2.02 10V AC Lamp Supply (10V AC)

The ac relay NAC is bridged across the load side of CB1 circuit breaker. The NAC1 wire spring relay is energized by the contact

of NAC relay. A failure of the 10-volt ac supply causes NAC relay to release, thereby releasing NAC1 relay which operates DS1 lamp and opens the alarm circuit loop.

2.03 +48V Rectifier (+48V)

The NV wire spring relay is connected to the load side of CB2 circuit breaker. A failure of the +48 volt supply causes NV relay to release, operating DS2 lamp and opening the alarm circuit loop.

2.04 -48V (Rectifier No. 1 (-48V1))

The NV1 wire spring relay is connected to the load side of CB3 circuit breaker. A failure of the -48V supply causes NV1 relay to release, switching the indicating lamp supply from -48V1 to -48V2 rectifier, operating DS3 lamp and opening the alarm circuit loop.

2.05 -48V Rectifier No. 2 (-48V2)

The NV2 wire spring relay is connected to the load side of CB4 circuit breaker. A failure of the -48V2 supply causes NV2 relay to release, operating DS4 lamp and opening the alarm circuit loop.

2.06 Ringing Machine (RING)

The "R" and "R1" alarm leads from the ringing machine are connected to LV ac relay. A failure of the ringing supply causes LV relay to release thereby releasing LV1 relay which operates DS5 lamp and opens the alarm circuit loop. The RMFA relay together with the F1 fuse transfer contact provides a fuse failure alarm for the ringing machine. The C1 capacitor provides current on an emergency basis in the event of fuse failure.

SECTION III - REFERENCE DATA

1. WORKING LIMITS

1.01 AC Input to Slide No. 1 power supply
 117 Volts ±10%, 60 ±0.1 Hz, 12 amperes at full load.

1.02 AC/DC Output

Supply	Output Volts	Output Amperes	
		Con- tinuous	Inter- mittent
-48V Rect.	45 to 52.6	8*	12
+48V Rect.	44 to 52	1.5	2.0
10V AC	9 to 11	13.6	-
Ring (20 Hz)	65 to 90	-	-
Tone	0.7 to 4.5	-	-

*The load on any one -48V rectifier shall be limited to a maximum continuous load of 8 amperes.

1.03 Ambient Temperature

10 to 40°C

1.04 Noise

-48V rectifier with load capacitor connected to output terminals will not exceed 34 dBA with F1A line weighting.

+48V rectifier will not exceed 50 dBA with F1A line weighting.

1.05 The rectifier working limits are covered in the respective specifications of the rectifiers.

2. FUNCTIONAL DESIGNATIONS

DC Distribution and Alarm Circuit

Designations

2.01 Relays

Meaning

LV	Low ringing voltage
LV1	Low ringing voltage
NAC	No 10V AC voltage
NAC1	No 10V AC voltage
NV	No +48V voltage
NV1	No -48V1 voltage
NV2	No -48V2 voltage
RMFA	Ringing Machine Fuse Alarm

2.02 Circuit Breakers

10V AC (CB1) 10V AC Supply

+48V (CB2) +48V Supply

-48V1 (CB3) -48V1 Supply

-48V2 (CB4) -48V2 Supply

2.03 Output Fault Indicating Lamps

10V AC (DS1) Failure 10V AC Supply

+48V (DS2) Failure +48V Supply

-48V1 (DS3) Failure -48V1 Supply

-48V2 (DS4) Failure -48V2 Supply

RING (DS5) Failure Ringing Supply

2.04 Input Power Indicating Lamp

(DS1) ac input power

3. FUNCTIONS

3.01 To furnish -48 volts dc for relay and talking power, +48 volts dc for relay operation and 10 volts ac for lamp supply; ringing, ringing interruptions and tone for 757A PBX systems without battery reserve.

3.02 To provide for an associated remote alarm to indicate loss of output voltage from any one of the power supplies and to light an associated fail lamp on the dc distribution and alarm panel.

3.03 To provide a means of connecting the various outputs to the PBX load.

3.04 To provide ringing and tone power for 608-type PBX switchboards.

4. CONNECTING CIRCUITS

4.01 This power supply connects to the following circuits:

- (a) SD-66721-01 - Position Circuits
- (b) SD-66722-01 - Auxiliary Signal, Fuse Alarm, Battery Cutoff, and Miscellaneous Circuits
- (c) SD-66735-01 - 757A PBX Cabling Diagram
- (d) SD-66744-01 - Originating Register Circuit
- (e) SD-81569-01 - Power Supply Circuit for 757A PBX
- (f) SD-81582-01 - Slide No. 2 Power Supply for 757A PBX
- (g) SD-81583-01 - Slide No. 3 Power Supply for 757A PBX

5. MANUFACTURING TESTING REQUIREMENTS

5.01 Manufacturing testing requirements are covered by specification B133387.

6. ALARM INFORMATION

6.01 A detailed description of the alarm and indicating lamp circuits is covered in Section II, Paragraphs 2.01 to 2.06. Under normal operating conditions the neon lamp on the ac distribution panel is lit indicating that the panel is energized; all fail lamps on the dc distribution and alarm panel are extinguished and the alarm circuit is in its closed loop condition. Failure of an output from the 10V AC, +48V, -48V1, -48V2 or ringing machine will light its associated fail lamp and open the alarm loop thereby bringing in an alarm at the central office.

7. TAKING EQUIPMENT OUT OF SERVICE

7.01 Removal of Rectifier

Remove the associated twist lock plug from the receptacle on the ac distribution panel and operate associated circuit breaker or breakers on the dc distribution and alarm panel to OFF position.

7.02 Safety Precautions

Hazardous voltages are present within the rectifiers and every precaution should be observed to avoid any contact with exposed terminals when the rectifiers are in operation.

SECTION IV - REASONS FOR REISSUE

B. Changes in Apparatus

B.1 Superseded

KS-19962, L1
Rectifier ("N"
Option)

Superseded By

KS-19962, L2 or L4
Rectifier ("H"
Option)

Superseded

CB2 Circuit
Breaker KS-5648,
L14 ("G" Option)

Superseded By

KS-15815, L132
("F" Option)

D. Description of Changes

D.1 "F", "G" and "H" options were added to the drawing.

D.2 The KS-19962, L1 rectifier has been replaced by the KS-19962, L2 or L4 rectifiers.

D.3 CB2 circuit breaker, KS-5648, L14 (1 ampere) has been replaced by KS-15815, L132 (2 amperes).

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