

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Superseded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Superseded By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>
	J87205B, L1 Rectifier ("V" Option)	KS-19642 Rectifier ("U" Option)

D. Description of Changes

- D.1 "U" and "V" options were added to the dwg.
- D.2 The J87205B, L1 rectifier has been replaced by the KS-19642 rectifier.

BELL TELEPHONE LABORATORIES, INCORPORATED

DEPT 5153-HMK-DET-SPF

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FOR 757A PBX  
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<u>SECTION IV - REASONS FOR REISSUE</u>	4	The J86808B, List 2 Power Supply is similar to the List 1 except that here the slide unit receives 117 volt, 60 cycle 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 <u>PBX Cabinet</u> .
		<u>SECTION II - DETAILED DESCRIPTION</u>
		<u>1. CIRCUIT FUNCTIONS</u>
		1.01 Nominal 117 volt, 60 cycle ac commercial power is connected by 3-conductor cable wiring directly to the ac 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 (DS1) 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 7000 mfd load capacitor. This reduces 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 a load capacitor consisting of a bank of six 7000 mfd capacitors (total 42,000 mfd) which provides 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 signal 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 cycles for the PBX circuits. The output of the frequency generator is brought to the crown of the cabinet for external load connections.

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 circuit breaker, CB1. Wire spring relay NAC1 is energized by the contact of relay NAC. A failure of the 10 volt ac supply causes relay NAC to release, thereby releasing relay NAC1 which operates lamp DS1 and opens the alarm circuit loop.

2.03 +48V Rectifier (+48V)

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

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

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

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

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

2.06 Ringing Machine (RING)

Alarm leads R and R1 from the ringing machine are connected to ac relay LV. A failure of the ringing supply causes relay LV to release thereby releasing relay LV1 which operates lamp DS5 and opens the alarm circuit loop. Relay RMFA together with the

F1 fuse transfer contact provides a fuse failure alarm for the ringing machine. Capacitor C1 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  $\pm 10\%$ , 60  $\pm 0.1$  cycles, 12 amperes at full load.

Supply	Output Volts	Output Continuous	Amperes Intermittent
-48V Rect.	45 to 52.6	8*	12
+48V Rect.	40 to 52.6	0.5	1.0
10V AC	9 to 11	10	13.6
Ring (20 Cycle)	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 circuit descriptions 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	Kinging 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 608A PBX.

3.05 Specific functions of the rectifiers are covered in their respective circuit description, as listed in paragraph 7.1.

4. CONNECTING CIRCUITS

4.01 757A PBX Cabling Diagram -SD-66735-01.

4.02 Power Supply Circuit for 757A PBX -DS-81569-01.

4.03 Slide No. 2 Power Supply for 757A PBX-DS-81582-01.

4.04 Slide No. 3 Power Supply for 757A PBX-SD-81583-01.

4.05 Position Circuits -SD-66721-01

4.06 Auxiliary Signal, Fuse Alarm, Battery Cutoff, and Miscellaneous Circuits -SD-66722-01.

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 lighted indicating that the panel is energized; all fail lamps on the dc distribution and alarm panel are not lighted 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. For further information, see the following circuit descriptions:

- 48V Rectifier                    CD-81564-01
- +48V/10V AC Rectifier        CD-81574-01

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

A. Changed and Added Functions

- A.1 To rate the 102B Frequency Generator and associated input and output wiring "MFR DISC."
- A.2 To rate connector J5 and receptacle P5 "MFR DISC."

B. Changes in Apparatus

- B.1 Removed  
102B Frequency Generator, receptacle P5, connector J5

D. Description of Circuit Changes

- D.1 The 102B Frequency Generator and associated wiring and components were removed. This is due to the use of 1B and 2B attendant telephone consoles which have self-contained tone supplies.
- D.2 Circuit Note 104 - Addition of "W or X" option
- D.3 Circuit Note 105 - Rated "MFR DISC."

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