

**J2 AND "K" CARRIER TELEPHONE
MAIN REPEATER AND TERMINAL STATIONS
POWER REQUIREMENTS
EQUIPMENT DESIGN REQUIREMENTS
POWER SYSTEMS**

1. GENERAL

Scope

1.01 This specification, together with the supplementary information listed herein, covers the requirements for power supply to J2 and "K" carrier telephone equipment in main repeater and terminal stations.

1.02 This specification is reissued to revise filter requirements and add distribution requirements for K2 carrier systems.

Capacity

1.03 The requirements covered herein are such as to care for any number of J2 or "K" systems.

Description

1.04 It is assumed that all main repeater and terminal stations for "K" will be in existing voice frequency repeater stations and for J2 will be in existing offices in which "C" carrier equipment is supplied from the local power plant and that the existing power plants will be of sufficient capacity to serve the added carrier equipment. Battery feeders for plate and 24 volt supply shall be obtained from the existing power plants as covered hereinafter.

2. SUPPLEMENTARY INFORMATION

802-000-000 - Power Systems Index
AA128.006 - List of General Equipment Requirement Sections
J68742 (Mfr Disc.) - Flat Gain and Twist Regulating Equipment
J68744 (Mfr Disc.) - "K" Carrier Telephone Equipment - Main Repeater and Terminal Stations
J68745 (AA264.033) - "K" Carrier Telephone Terminal Equipment in Terminal Stations
J68764 (AA264.044) - J2 Carrier Terminal Equipment
J68765 (AA264.045) - J2 Carrier Main and Auxiliary Repeaters
J68766 (Mfr Disc.) - J2 Carrier Line Equipment
J68767 (AA264.047) - J2 Carrier Miscellaneous Equipment
J86578 (802-757-150) - 420A Power Plant for 150 Volt 6-30 Ampere Loads with Pilot Wire Regulator Supply - J2 and "K" Carrier Telephone Auxiliary Stations

3. DRAWINGS

SD-80934-01 - "K" Carrier 24 and 130 volt Applique Discharge Circuit - Main and Terminal Stations

4. REQUIREMENTS FOR TRANSMISSION REGULATOR POWER SUPPLY FOR "J" AND "K" STATIONS

4.01 Specification J86578 covers the equipment units for supplying power to the transmission regulating equipment.

4.02 Specification J68742 covers the requirements for furnishing and mounting these units for pilot wire regulator supply in K1 stations.

4.03 Specification J68767 covers the requirements for furnishing and mounting these units for pilot channel regulation supply in J2 stations.

4.04 Specification J68776 covers the requirements for furnishing and mounting these units for pilot channel deviation regulation supply in K1 stations.

5. REQUIREMENTS FOR 24 AND 130 VOLT SUPPLIES AT "K" MAIN AND TERMINAL STATIONS

5.01 To split the load fusing, multiple sets of 24 and 130 volt feeders shall be run to the equipment fuse panels as shown on SD-80934-01. Fuses for these feeders shall be located on the existing power boards and mounted in the most convenient available space, adjacent to the fuses for the corresponding supplies to the voice repeater equipment. In stations using battery distributing fuse panels for quiet 24 volt supply, it will be satisfactory to fuse at this point when it is more economical to do so, or when so specified by the Telephone Company. SD-80934-01, Fig. 10 provides a battery distributing fuse panel circuit for use in terminal stations, or when specified to reduce the number of feeders between the power plant and the terminal room.

5.02 When decentralized filters are required for carrier terminal equipment filament supply, as covered on SD-80934-01, the retardation coils for these filters shall be mounted by means of metal details above and on the auxiliary framing bars. These coils shall be located as near as possible to the bay on which the associated originating fuse panels are mounted, and shall be

arranged so as not to interfere with the cabling to the bay. When coils with short circuiting links are furnished, the links shall be discarded. In all cases, coil terminals and lugs shall be completely taped to guard against accidental grounding. The condensers associated with these coils are furnished and mounted with the carrier equipment.

5.03 Fixed sizes of leads and fuses are given where possible to reduce engineering. Voltage drops are covered on SD-80934-01 for calculating leads where fixed sizes are impractical.

6. REQUIREMENTS FOR 24 AND 130 VOLTS AT MAIN REPEATER STATIONS FOR J2

6.01 The power supply in these stations includes the 24 volt heater and 130 volt plate supplies to the repeater and pilot channel control circuits together with the 24 volt signalling supply to alarm and pilot channel control circuits.

6.02 Two sets of feeders for 24 and 130 volts shall be run to and multiplied through the fuse panels. One set of feeders shall be run for odd numbered repeaters and the other for even numbered repeaters. The 24 volt feeders shall be taken from filament battery using a centralized power filter when it is available. As the battery noise is chiefly at voice frequencies, and the repeaters are not sensitive to noise at these frequencies, decentralized filters may be omitted in the 24 volt feeders in stations not equipped with a centralized power filter. The 24 volt leads should, however, be run as quiet leads. Individual fuses instead of fuse and switch units shall be provided for each of these feeders. These fuses shall be located on the existing power boards and mounted in the most convenient space adjacent to fuses for the corresponding supplies for "C" carrier equipment.

6.03 The allowable voltage drops for calculating the 24 volt leads shall be taken from the following table.

<u>No. of Cells Nor. Regulated</u>	<u>Allowable Loop Volt- age Drop P.Bd. to Most Distant F.P.</u>
11 or 12 Cells - All Arrangements except Dischg. Rheo.	2.0 Volts
12 Cells - Using Dischg. Lead Rheo.	1.5 Volts
11 Cells - Using Dischg. Lead Rheo.	.5 Volts

6.04 The signaling battery supply for the pilot channel control and alarm trunk

circuits shall be taken from the existing power board using a No. 14 lead fused at 15 amperes. The signaling and filament grounds shall be strapped at the fuse board except in those bays where there is no filament ground, the signaling ground shall be strapped to relay rack or frame ground.

7. REQUIREMENTS FOR 24 AND 130 VOLTS AT TERMINAL STATIONS FOR J2

7.01 In addition to 24 volt signal supply, which shall be provided in the same manner as covered under part 6 for main repeater stations, 24 and 130 volt leads are also required as covered below for the channel circuits, terminal group circuits, and channel and group carrier supply circuits.

7.02 For terminal stations using 11'-6" frames for the J2 equipment, three or more 24 volt feeders and three or more 130 volt feeders shall be fused at and run from the power board to the terminal equipment fuse panels. These feeders shall be run as follows: One set to the regular group and channel carrier supply fuse panel and 50% of the channel modem fuse panels (systems 1-3, 7-9, 13-15). A second set to the emergency group and channel carrier supply fuse panel and 50% of the channel modem fuse panels (systems 4-6, 10-12, 16-18). A third set to 50% of the group terminal fuse panels (systems 1-2, 5-6, 9-10, 13-14, 17-18). A fourth set when more than 2 systems are provided for 50% of the group terminal fuse panels (systems 3-4, 7-8, 11-12, 15-16).

7.03 For terminal stations using 10'-6" frames for the J2 equipment, two 24 volt feeders and two 130 volt feeders shall be fused at and run from the power board to the terminal equipment fuse panels. One set shall be run to the regular group and channel carrier supply fuse panel and 50% of the channel modem fuse panels and 50% of the group terminal fuse panels (systems 1-2, 5-6, 9-10, 13-14, 17-18). A second set shall be run to the emergency group and channel carrier supply fuse panel and 50% of the channel modem fuse panels and 50% of the group terminal fuse panels (systems 3-4, 7-8, 11-12, 15-16).

7.04 The 24 volt feeders shall meet the voltage drop requirements outlined in paragraph 6.03. The 130 volt leads shall each be calculated to meet a 1 volt drop from the power board to the most distant fuse panel.

7.05 The 24 volt filament supply feeders shall be taken from a centralized power filter when such is available. If no centralized filter is available, the feeders shall be taken from signal battery and a decentralized filter per SD-96211-01 provided for each set of feeders.