

LINE CONCENTRATOR NO. 1A KS-15917, LIST 3 BATTERY SUPPLY

1.00 INTRODUCTION

1.01 This section covers the identification, and maintenance of inservice and spare KS-15917, List 3 batteries used as the power source for No. 1A line concentrator remote unit.

1.02 This section is reissued to clarify information on removing batteries from cold temperature areas.

2.00 GENERAL

2.01 The KS-15917, List 3 battery is the only power source available to power the concentrator remote unit.

2.02 The battery is mounted in the remote unit in the equipment rack front gate (Fig. 1). Four screws through holes in the mounting brackets fastened to the battery box provide support.

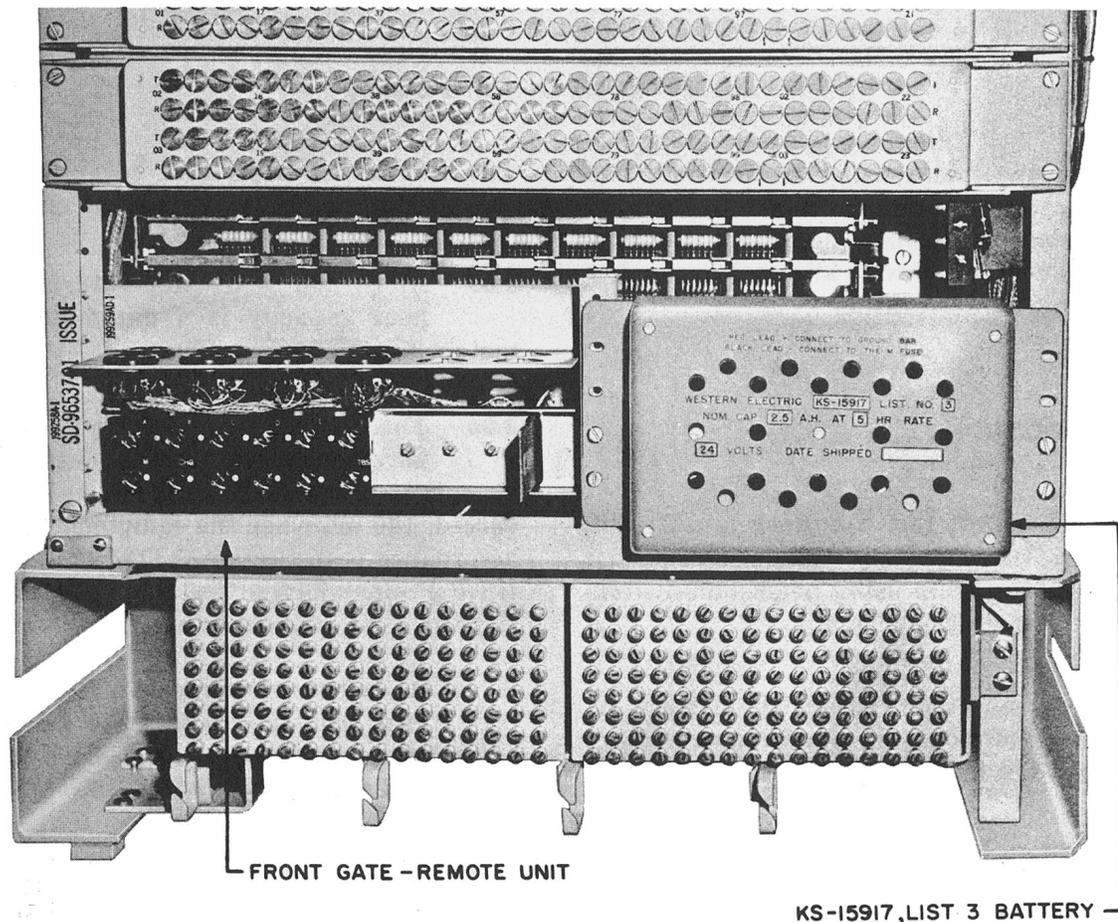


Fig. 1 - KS-15917, List 3 Battery Located in Front Gate of Remote Unit

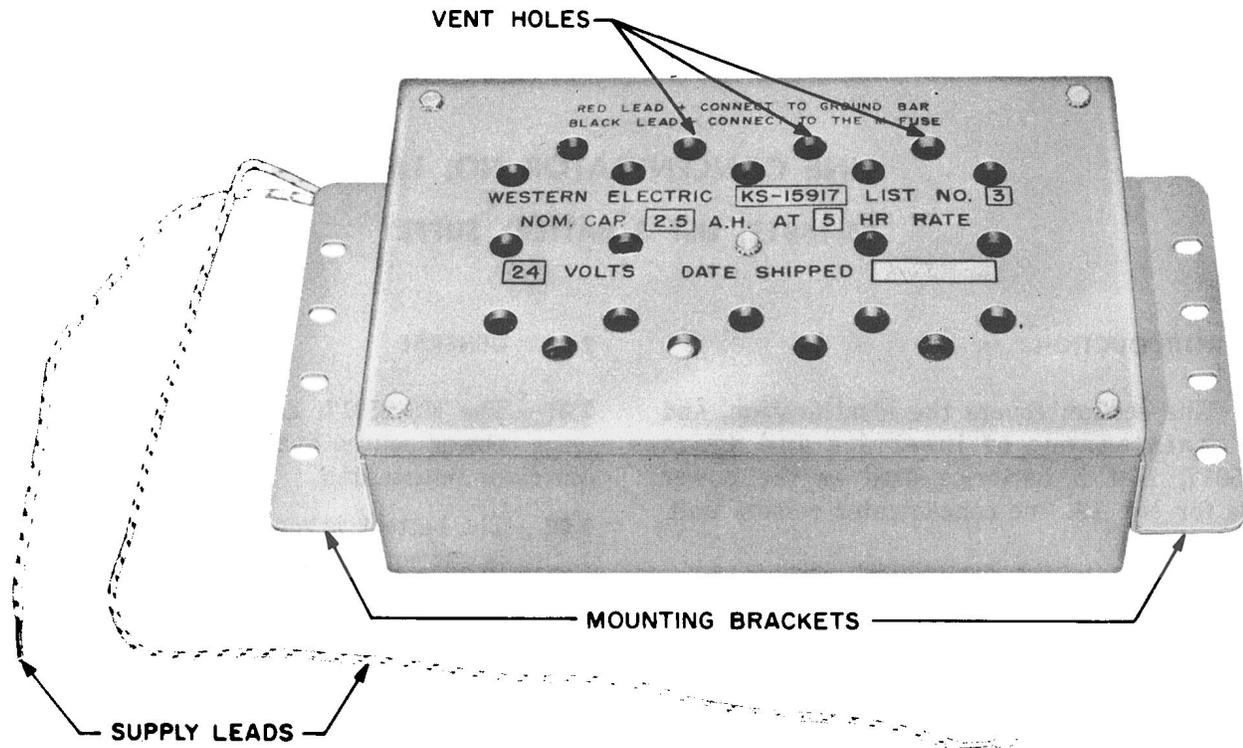


Fig. 2 – KS-15917, List 3 Battery

2.03 No routine maintenance is required with this battery. Maintenance shall consist of complete replacement when defective. Replacement must be performed with all possible rapidity to expedite service restoration.

3.00 IDENTIFICATION

3.01 The KS-15917, List 3 battery is a 24-volt, 19-cell, sealed battery. The electrodes are made of nickel-cadmium using potassium-hydroxide for electrolyte. (See Fig. 2.)

3.02 The over-all dimensions of the battery, including the mounting brackets, are 10-3/4 inches wide, 5-1/4 inches high, and 2-13/16 inches deep.

3.03 An electrically-insulated metal box fully encloses the 19-cell cases. Red and black connecting leads are brought out of the box for terminating on the equipment.

3.04 Terminal posts and covers of individual cells are sealed to prevent electrolyte loss.

3.05 At normal room temperatures the ampere-hour capacity is a minimum of approximately 2.

3.06 The battery design allows its use in a temperature range of -40 F to 140 F. The charging current is adjusted near to, but not to exceed, 140 ma when the equipment is installed in accordance with Section A204.508/C85.020.01 entitled Preinstallation Tests and Tests and Inspections at Time of Installation.

- At below zero temperatures, charging current adjustments must be made before an overcharge current can drive the open circuit voltage above 28 volts.
- At very low temperatures, charging current nominally adjusted to 140 ma at above freezing temperatures may drop to 100 ma due to an increase in battery voltage at low temperatures.

3.07 A spare battery may be ordered with each concentrator remote unit as an emergency replacement and should be retained in a stand-by, fully-charged condition for emergencies (see 5.03). When several concentrator systems are installed in one maintenance area, it will not be necessary to supply a spare battery for each remote unit.

4.00 INSTALLATION

4.01 The KS-15917, List 3 concentrator battery is installed and connected in a space provided on the front gate of the concentrator remote unit at the factory. The two leads provided with the battery are colored red and black. The red lead denotes positive and the black, negative.

4.02 The battery is shipped from the factory in a fully-charged condition. Normally it should not be necessary to charge the battery prior to installation of a new concentrator remote unit. However, if the remote unit is not installed within the quarter following the quarter of remote unit manufacture (see quarter of manufacturer date stamped on remote unit framework) the battery should be checked as specified in 6.00 and recharged if necessary prior to placing the remote unit into service.

4.03 If a used remote unit has been out of service for more than one quarter, the battery should be checked as specified in 6.00 and recharged if necessary prior to placing remote unit into service.

5.00 MAINTENANCE OF SPARE AND INSERVICE BATTERIES

5.01 No routine maintenance is required with the KS-15917, List 3 battery. When the voltage falls below the minimum of 22 volts (as measured under load with a KS-14510 volt-ohm-

milliammeter or equivalent) because of failure of the charging circuit or some other fault, a spare battery must be installed to provide service while the trouble is found and the first battery is recharged.

Caution: *Do not remove cover of battery container. Possible build-up of gas pressure may cause a violent cell rupture.*

5.02 To replace battery:

1. Unsolder and disconnect the battery lead at the ground bar.
2. Tape the bare end of the lead.
3. Unsolder and disconnect the battery lead at the M fuse.
4. Tape bare end of the lead.
5. Remove the battery from its mounting.
6. Mount the replacement battery.



Do not remove the tape from the bare end of a lead until you are ready to connect it.

7. Connect and solder black lead to M fuse holder.
8. Connect and solder red lead to ground bar.

5.03 To keep the spare KS-15917, List 3 battery in a fully charged condition, it is necessary to maintain the battery in a stand-by charging circuit. The circuit with current limiting resistors and a load resistor is shown in Fig. 3.

6.00 BATTERY TESTING AND CHARGING

A battery removed from a remote unit because it is suspected of being defective or because its state of charge is questionable should be placed in the stand-by charging circuit (Fig. 3) and the CHG key operated. Allow the battery to charge for two or more days. The voltage should then be approximately 26.5 volts with no load

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applied and no less than 24 volts with the 7-ohm load applied by the operation of the TST key.

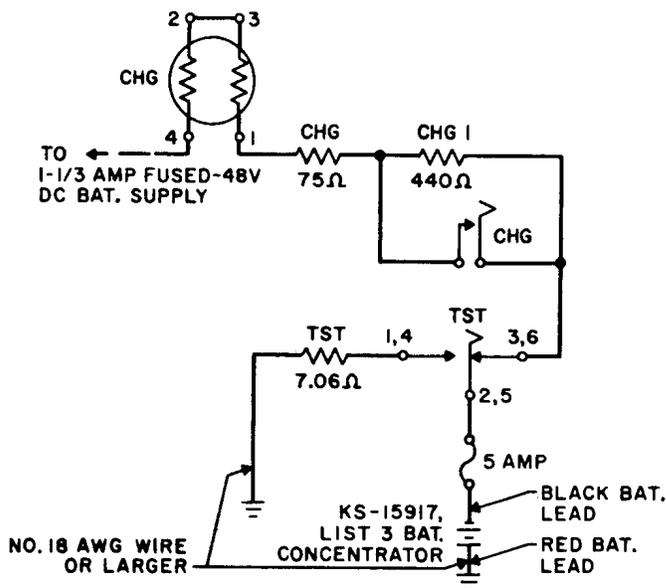


When any battery is removed from a cold temperature area and placed in a heated area FOR ANY REASON, its temperature should not be allowed to rise to room temperature at a rapid rate. To provide for a slow temperature rise, securely wrap the battery in ten thicknesses of newspaper or similar material and store in a cool area until the battery has reached room temperature. If this is not done, excessive gas pressure may build up within the cells and cause severe damage.



The TST key should not be operated for more than three seconds.

Restore the CHG key when these requirements are met. This will reduce the current to a value that will maintain the charge. If the battery does not meet these requirements, it is defective and should be replaced.



Note 1: Operate CHG key when maximum charge rate of 140 ma is required.

Note 2: Operate TST key briefly (2 or 3 sec) to read battery voltage (minimum .23 volts).

Equipment:

- Key CHG — 479AR
- Switch TST — KS-13674, List 20
- Lamp CHG — 11B
- Resistor CHG — 18ED
- Resistor CHG 1 — 18CK
- Resistor TST — KS-8512, List 17
- Fuse Block No. 20A — 5 amperes AGS Bussman type

Fig. 3 — Charging Circuit for Spare KS-15917, List 3 Battery When SD-96560-01 Line Concentrator No. 1A, Battery Charging Is Not Used