# STATION SYSTEMS — LINE CONCENTRATOR NO. 1A

## KS-15917, LIST 3 BATTERY SUPPLY

### 1.00 INTRODUCTION

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

### 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 housed in the remote unit on a shelf provided in the equipment rack front gate (Fig. 1).

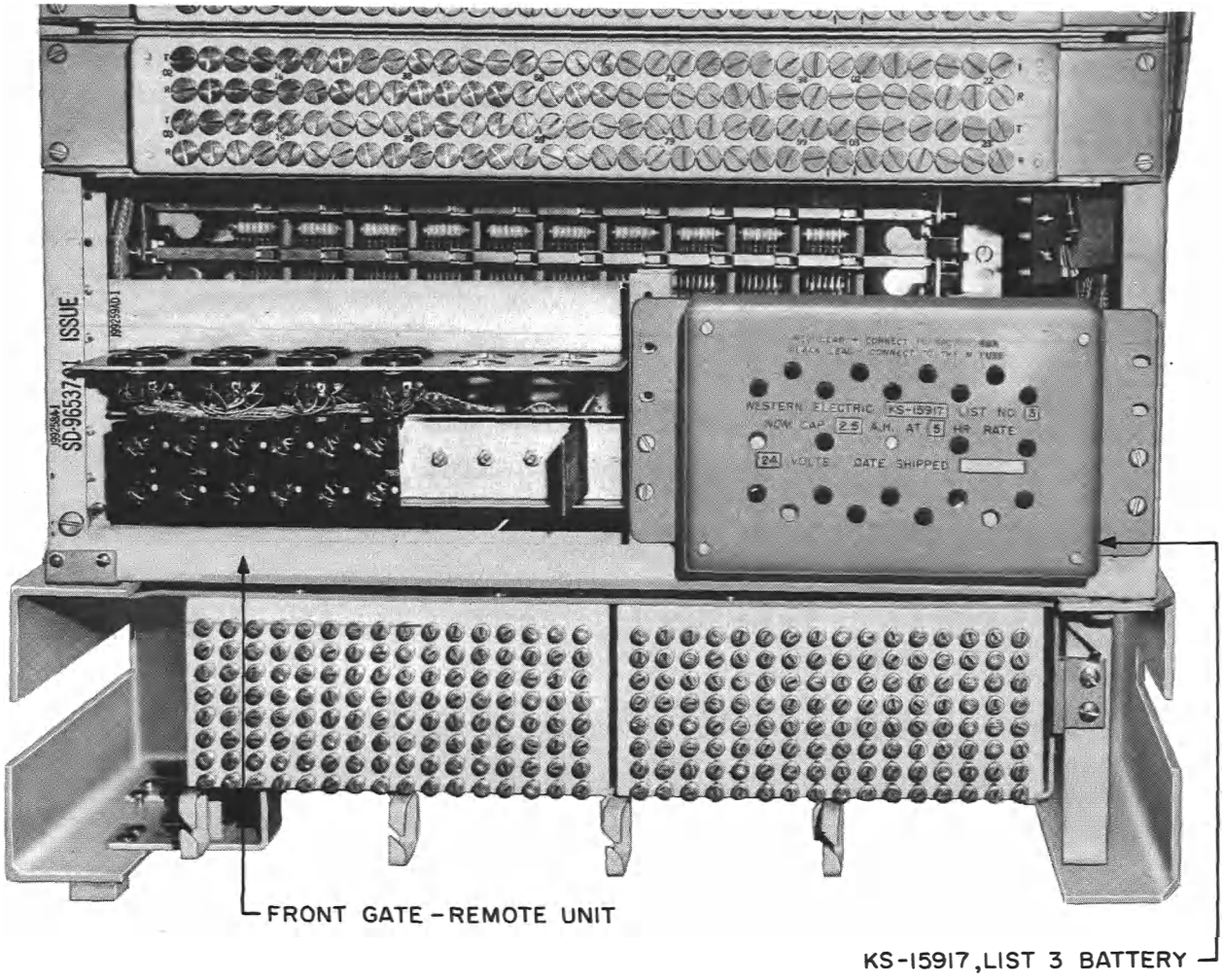



**Fig. 1 — KS-15917, List 3 Battery Located in Front Gate of Remote Unit**

**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, hermetically-sealed battery. The electrodes are made of nickel-cadmium using potassium-hydroxide for electrolyte. (See Fig. 2.)

**3.04** Individual cell cases will safely withstand all internal pressure buildup encountered in operation without electrolyte loss or short-circuiting plates during the anticipated 10-year life of the battery.

**3.05** Terminal posts and covers of individual cells are hermetically sealed to prevent electrolyte loss.

**3.06** At 77 F, the capacity of the battery is 2.5 ampere-hours at the 5-hour rate.

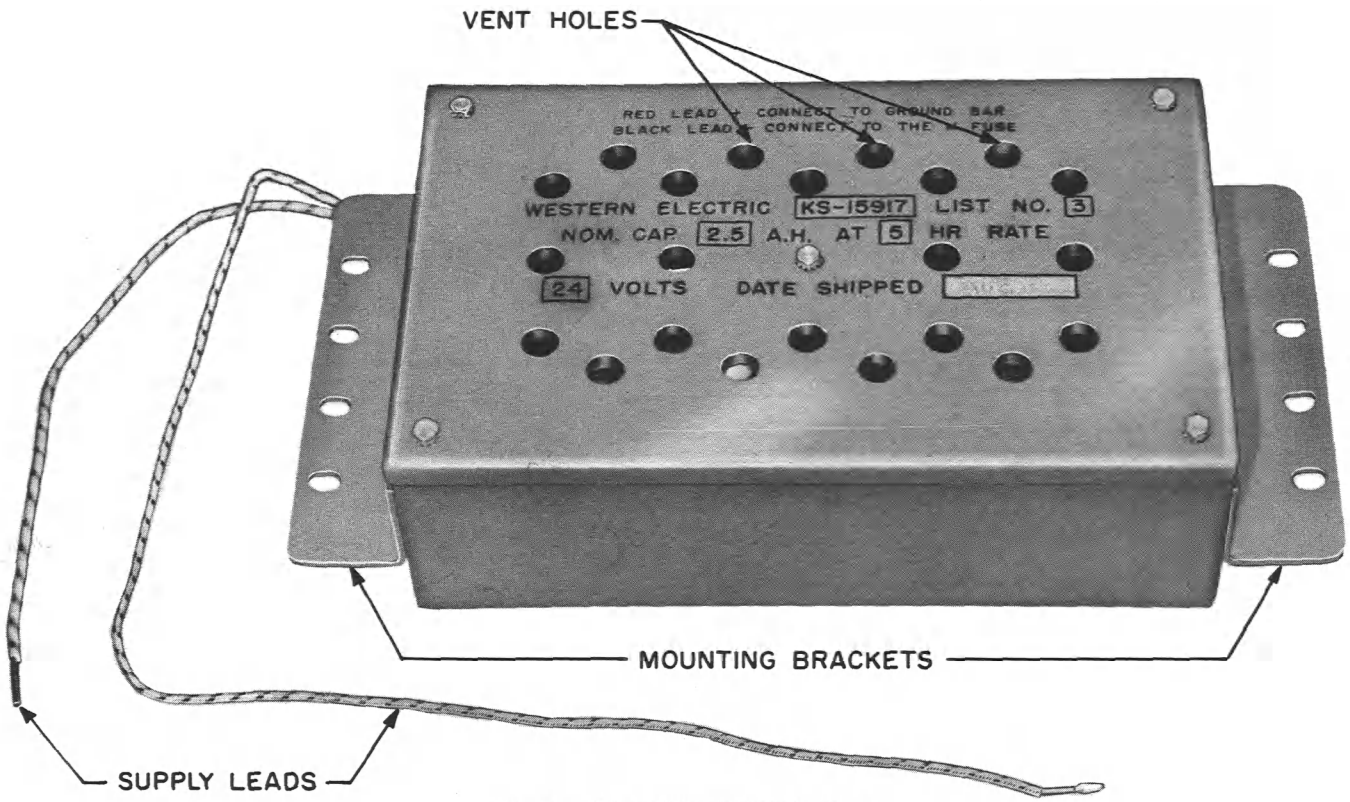



**Fig. 2 — KS-15917, List 3 Battery**

**3.02** The over-all dimensions of the battery are 10-3/4 inches wide, 5-1/4 inches high, and 2-21/32 inches thick.

**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.

**3.07** The battery design allows its use in a temperature range of —40 F to 140 F. It will not be damaged by a continuous maximum charging rate of 140 milliamperes over this temperature range.

**3.08** After 2 hours without charge and after 1 ampere-hour has been removed from the battery, its voltage will be no less than 23 volts at 140 F under normal load.

**3.09** It may not be necessary to charge the battery prior to installation as it is shipped from the manufacturer in a charged condition.

**3.10** A spare battery may be ordered with each concentrator remote unit as an emergency replacement and will be retained in a stand-by, fully-charged condition for emergencies. When several concentrator systems are installed in one maintenance area, it may 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 in a space provided on the front gate of the concentrator remote unit. The two leads provided with the battery are colored red and black. The red lead denotes positive and the black, negative.

**4.02** Install battery as follows:

- Remove mounting screws from front gate.
- Place battery in space provided.
- Reinstall mounting screws through battery into frame of front gate (see Fig. 1).

**4.03** Connect battery leads as follows:

- Red lead to the ground bar.
- Black lead to M fuse.

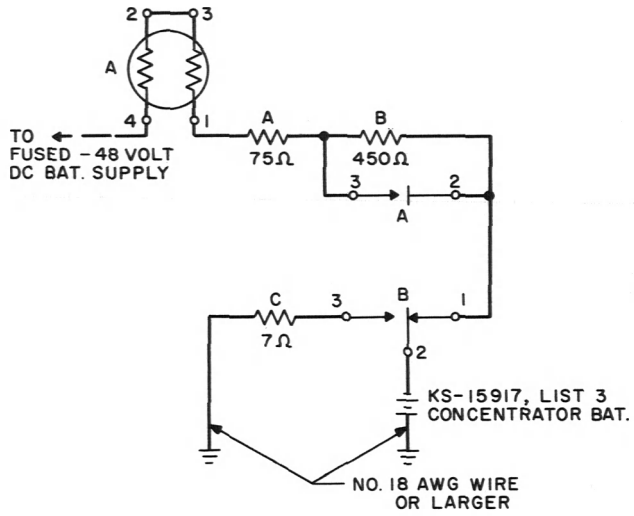
## 5.00 MAINTENANCE

**5.01** No routine maintenance is required with the KS-15917, List 3 battery. When the battery is suspected of being defective or undercharged, it must be replaced completely with the maintenance spare.

**5.02** 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. This circuit must be made up locally.

**5.03** When the KS-15917, List 3 battery being used in the remote unit falls below the minimum of 23 volts (as measured with a KS-14510 volt-ohm-milliammeter or equivalent) because of failure of the charging circuit or some other fault, the spare battery must be installed. The battery removed must be placed in the stand-by charging circuit (Fig. 3) and the *A* key operated to bring the battery to full charge. Allow the battery to charge for several days until 26.5 volts (72 F) is measured, under load, at the battery. A 7-ohm resistor, under control of the nonlocking *B* key provides battery load. Restore the *A* key to normal, and allow battery to float in this condition. (See Fig. 3.)

**5.04** If battery is replaced in the field in extreme cold weather, it should be allowed to warm up slowly to room temperature. A 20 F rise per hour is satisfactory.




***Note 1:*** Operate *A* key when maximum charge of 140 ma is required.

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

Equipment:

| | | |
|---|---|---|
| Key *A* | — 6017B | |
| Key *B* | — 6017C | |
| Lamp *A* | — 11B | |
| Resistor *A* | — 19GC | ( 75Ω portion) |
| Resistor *B* | — 19MC | (450Ω portion) |
| Resistor *C* | — 19CJ | ( 7Ω portion) |

**Fig. 3 — Charging Circuit for Spare KS-15917, List 3 Battery**