

INSTALLING STORAGE BATTERIES

ACCESSORIES

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1. GENERAL

1.1 For definitions and descriptions of battery accessories refer to Section 17A of this handbook.

1.2 It is recommended the cell accessories be placed after the cell is installed and connected. This is to reduce the hazard of breaking the accessories with cleaning cloths, battery wrenches etc.

2. SCOPE

2.1 This section covers the accessories furnished for storage battery installations. It is to be used with the other sections in the 17 series.

3. SHIPPING DETAILS

3.1 Various methods are employed to prevent electrolyte from spilling during shipment and at the same time release pent up gasses.

3.2 Some cells such as C & D List 100 to 130 are shipped with serrated buttons which should be left in place unless the telephone company requests they be removed.

3.3 The C & D List 140 to 151 cells are shipped with the combination vent and filling funnel in place. A small wad of spun glass is secured in the neck of the filling funnel with tape. This spun glass and tape are to be removed and discarded. (See Figures 5 and 8)

3.4 The larger sizes of cells are frequently shipped with hard rubber or plastic caps that are removed from the cover by turning counterclockwise. Corks may also be used and removed by turning to prevent grating the cork into the cell.

3.5 Some shipping plugs, such as those on Exide 50- and 100-AH cells, are designed for permanent use in the top of filling funnels as spray caps. Others, originally meant for discard, are now used by some telephone companies permanently in the vents to prevent dirt or other foreign matter from entering the cells. (See Figures 7 and 9). All unused shipping plugs for battery cells shall be turned over to the telephone company. This applies to the Exide KS-5562 shipping plugs which have no return value. These plugs shall be rinsed, before being stored, in a weak soda solution and then plain water.

4. VENTS AND EXPLOSION CONTROL DEVICES

4.1 Each lead-antimony and lead-calcium cell used for central office battery requires some method of venting during shipment as well as after being placed in use.

4.2 Vents vary both in appearance and style even with the same battery manufacturer. The simplest may be an opening in the cover or a cap with a small breather hole such as used on automotive type batteries. On larger cells, where vents are explosion control devices, these may be a ceramic type vent (See Figures 2, 3, 5, 6, 8 and 10) or a submerged gas collecting canopy with a vent tube, which in turn requires a loose fitting spray cap. (See Figure 1, 7 and 9).

4.3 Unpack and inspect each vent and explosion control device for absence of packing material, cracks, breaks or other defects.

4.4 On 100 AH cells and smaller, the removable ceramic vents shipped in place shall be removed and washed in clean water. Shake out as much water as possible and replace. On large cells, removable type vents of porous material need be washed only if there is evidence of clogging by electrolyte.

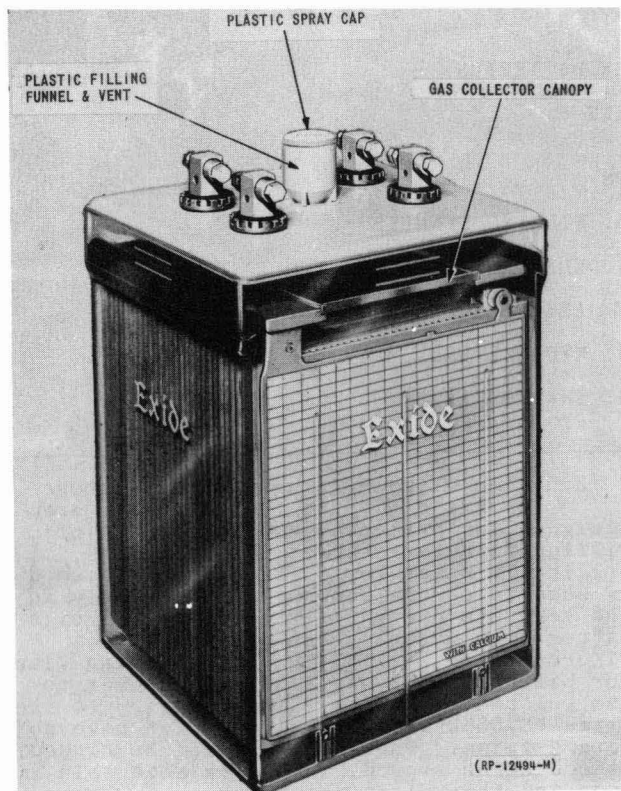


FIG. 1 KS-15544 L508 EXIDE CELL
(PAR. 4.2)

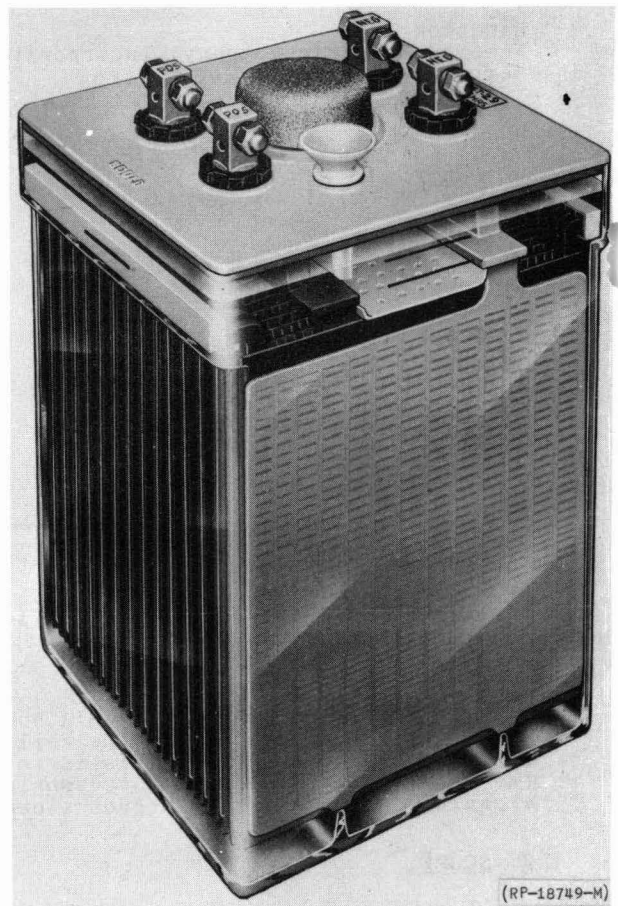


FIG. 2 KS-15544 L508 GOULD CELL
(PAR. 4.2)

4.5 Install all vents and explosion control devices taking care they are firmly tightened and properly seated. Exide vents sit into a submerged canopy and do not require tightening. Verify each vent, whether job or factory installed. Install spray caps when provided.

4.51 When there is a choice of openings locate the combination filling funnel and vent on the aisle side or side most accessible for water additions.

4.52 The effectiveness of the vent as an explosion control device will be destroyed if they are improperly seated, loose, cracked or broken.

4.6 In no case shall paint or grease be allowed on any porous ceramic part.

5. FILLING FUNNELS

5.1 Funnels furnished are made of lead-antimony, lead-calcium or plastic.

5.2 Lead-antimony funnels shall only be used in lead-antimony cells. They shall not be installed in lead-calcium cells. Lead-antimony will contaminate the highly purified lead-calcium grids. See Section 18A for determining by KS number, whether cells are lead-antimony or lead-calcium.

5.3 Before installing, examine for packing material or any other foreign deposit that may have lodged in the filling funnels. Also inspect for chips and cracks.

5.4 Install all filling funnels and tighten securely. Install spray caps when provided. When there is a choice of openings, locate the filling funnel on the aisle side or side most accessible for water additions.

5.41 To assemble the Gould funnel, unscrew and remove the hard rubber gland on the top of the cell cover and slide it all the way up on the stem of the funnel. Place the soft rubber gasket on stem of the funnel next to the packing gland and place the funnel in the well of the cell cover and screw down the gland to a snug fit.

5.42 Exide KS-5562 filling funnels are screwed directly in the cell cover.

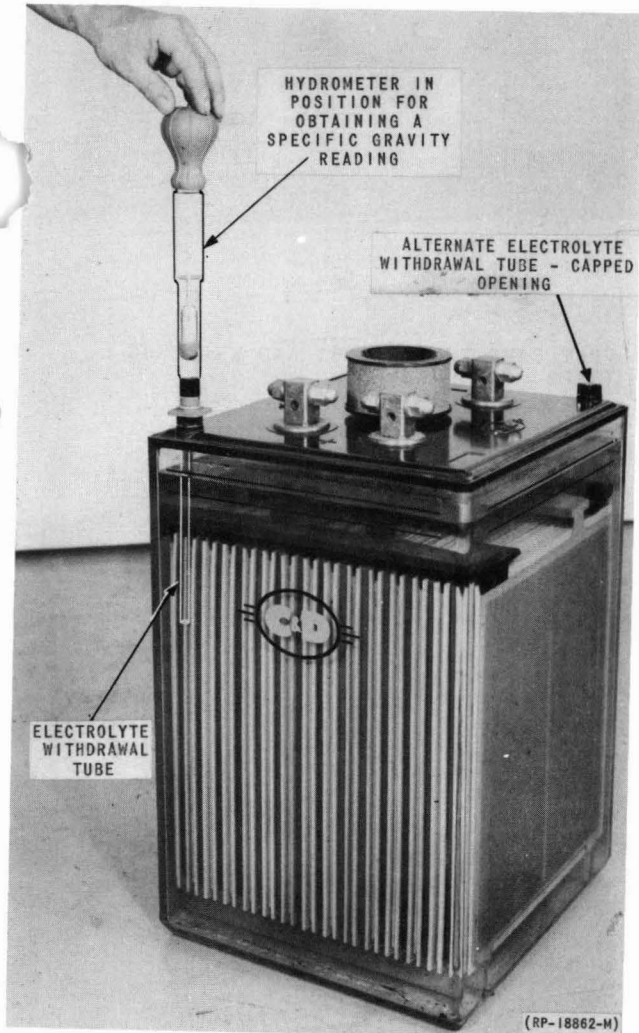


FIG. 3 KS-15544 L508 C & D CELL WITH ELECTROLYTE SAMPLING TUBE (PARS. 4.2, 7.1)

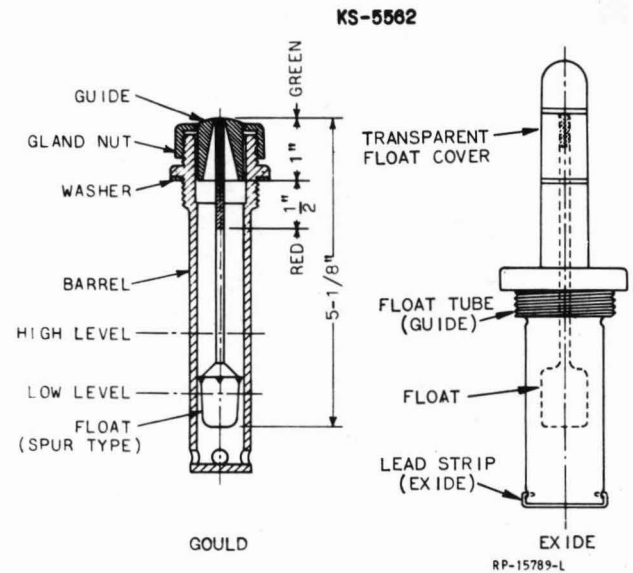


FIG. 4 ELECTROLYTE LEVEL INDICATORS (PARS. 6.2, 6.5, 6.6)

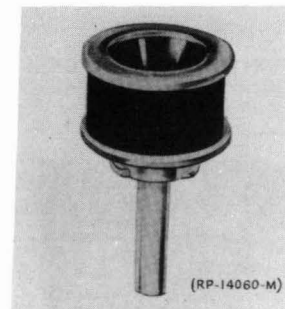


FIG. 5 C & D EXPLOSION CONTROL VENT AND FILLING FUNNEL BAYONET TYPE (PARS. 3.3, 4.2)



FIG. 6 GOULD VENT FOR KS-5361 L140A, 141A, 150A AND 151A CELLS (PAR. 4.2)

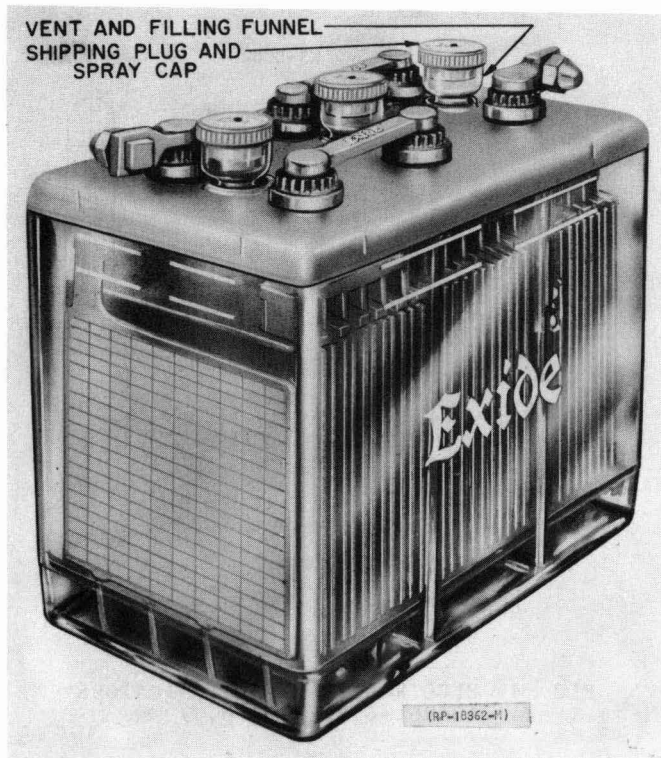


FIG. 7 KS-5361 LIST 151A EXIDE PLASTIC CELL
(PAR. 3.5, 4.2)

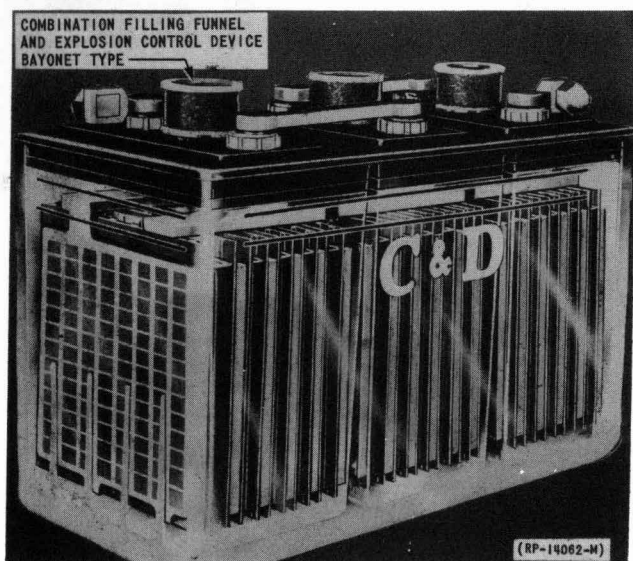


FIG. 8 KS-5361 LIST 151A C & D PLASTIC CELL
(PARS. 3.3, 4.2)

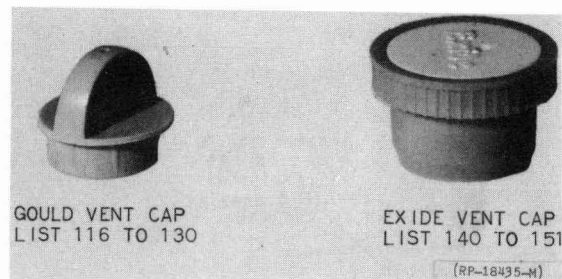


FIG. 9 VENT CAPS FOR KS-5361 AND KS-15886
(PARS. 3.5, 4.2)

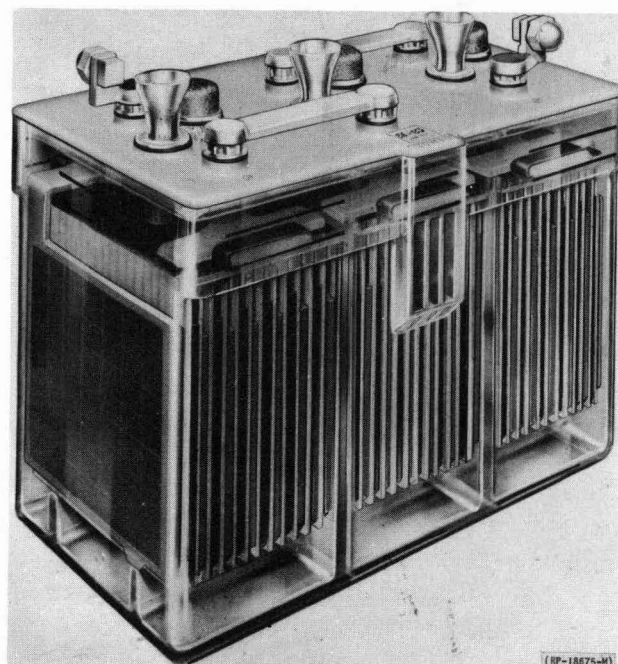


FIG. 10 KS-5361 LIST 151A GOULD PLASTIC CELL (PAR. 4.2)

6. ELECTROLYTE LEVEL INDICATORS

6.1 Rubber jar cells require level indicators for determining the electrolyte height. They consist of a float and a guide.

6.2 A transparent float cover is fitted over the exposed part of the float in Exide floor mounted cells. The stem of the float for an Exide KS-5562 cell is colored at the top. Lines are etched on the float cover to indicate high and low levels of electrolyte. See Figure 4.

6.3 The stem of the indicator on Gould Cells without a cover is colored part way so that a change in color indicates

the electrolyte is at the maximum level as soon as it appears. The minimum level occurs when the top of the stem is flush or level with the hole in the top of the cover.

6.4 The Exide guide and cover may be assembled by slightly warming the guide, wetting the cover with water and inserting it onto the guide. The cover may be fitted on the guide by a straight push action. Circular action may result in damaging it. If there is a gasket on this guide it shall be discarded. Examine the float. Any cracked or broken floats shall be replaced.

6.5 To assemble Exide level indicators having float covers, bend both ears of the lead strip at right angles to body of strip using a pair of R-2291 short nose pliers. See Figure 4. Insert float stem up into bottom of float tube. Engage bent ears of lead strip by pressing ends into side holes on body of the float tube. This strip acts as a stop for the float.

6.6 To install Gould level indicators remove the hard rubber packing gland from the barrel, place the float guide in the gland with the small opening at the top. Place the stem of the float through the float guide and place on the barrel in the cell cover with the bulb part of the float down in the well and then screw the gland in place to a snug fit. When the float guide is properly placed the top of the guide extends past the top of the gland about 1/16". See Figure 4.

6.7 Indications of maximum and minimum levels are defined in Section 17A.

6.8 Install the level indicator and guide in the cell cover hole opposite to the filling funnel. They shall be fully and securely seated in the cover.

6.9 After assembling float indicators without covers gently depress the indicators to be sure they are not sticking in the guide.

7. ELECTROLYTE WITHDRAWAL TUBES

7.1 Cells in the KS-15544 List 500 Series are or soon will be equipped with electrolyte withdrawal tubes. These tubes are intended to permit truer measurement of specific gravity by taking electrolyte from about 1/3 the way down the side of the cell instead of from the top. See Figure 3. Do not place thermometer in this opening.

7.11 Some cells may have two tubes. From these, the installer removes the stopper of the tube that is accessible.

7.12 Some cells may have a tube in one opening and a plug in the other. The installer is to see that the tube is in the most accessible opening and that the plug is removed. The other opening should be plugged.

7.13 Some cells may have plugs in both openings and the tubes shipped loose. The installer is to remove the plug from the most accessible opening and insert the tube.

8. HYDROMETERS

8.1 Hydrometers are furnished in either plastic or glass. If received disassembled insert the float into the barrel bottom first. Wet the barrel ends and the rubber plug, bulb and tip before attempting to assemble. Grasp the barrel with a gloved hand or with several thicknesses of cloth and press the plug, tip and bulb in place with a slight twisting motion.

8.2 The ends of the flexible nozzles of the hydrometers shall be cut off so that they extend just below the minimum level line. This will reduce the tendency of the hydrometer to throw or flip electrolyte when moved from cell to cell or from holders and permit permanent mounting in a pilot cell, if desired. A convenient means of obtaining the correct length of flexible nozzle where the cells have removable filling funnels is as follows; before installing all of the filling funnels, insert the hydrometer in one of them as far as it will go and cut off the flexible nozzle 1/16 to 1/8 inch beyond the funnel end.

8.3 The hydrometer may be used interchangeable in the lead-calcium or lead-antimony cell without causing contamination.

8.4 Normally only one hydrometer per voltage is required.

8.5 Mount the hydrometer holder in position as covered on the job drawing or as the telephone company desires. Check for damage to the float or holder.

9. THERMOMETERS

9.1 In the past, a small rubber collar was usually shipped with each battery thermometer. These were to be slipped on the lower end of the thermometer and serve, on the smaller cells at least, to position the thermometer in the cell and make it stand upright. Future thermometers with barrels of uniform diameter will have no rubber collar. They will be inserted until they rest on the plates or separators and when left in the cell, they will stand at an angle instead of being perpendicular. The older instruments were special and had an enlarged upper section to permit showing 4-digit specific gravity correction values, for example, +0.002. The new slim barrel instruments have single-digit specific gravity correction values, for example +2, which means two points or 0.002 specific gravity.

9.2 The thermometer can be used interchangeable in either lead-antimony or lead-calcium cells.

9.3 Install the thermometer in the permanent pilot cell, (the one selected by the telephone company).

➔ Arrowed lines indicate new or changed information.

[Vertical line at side of paragraphs indicates requirements.

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Reason for Reissue:

- (1) To mention that Exide vents are an exception and do not require "tightening"
- (2) To indicate that normally, only one hydrometer per voltage is required.
- (3) To warn against placing thermometer in electrolyte withdrawal tube.

Replaces Section 17F dated 6-15-61.