



HANDLING • INSTALLATION • MAINTENANCE INSTRUCTIONS

BULK TYPE BUSHINGS

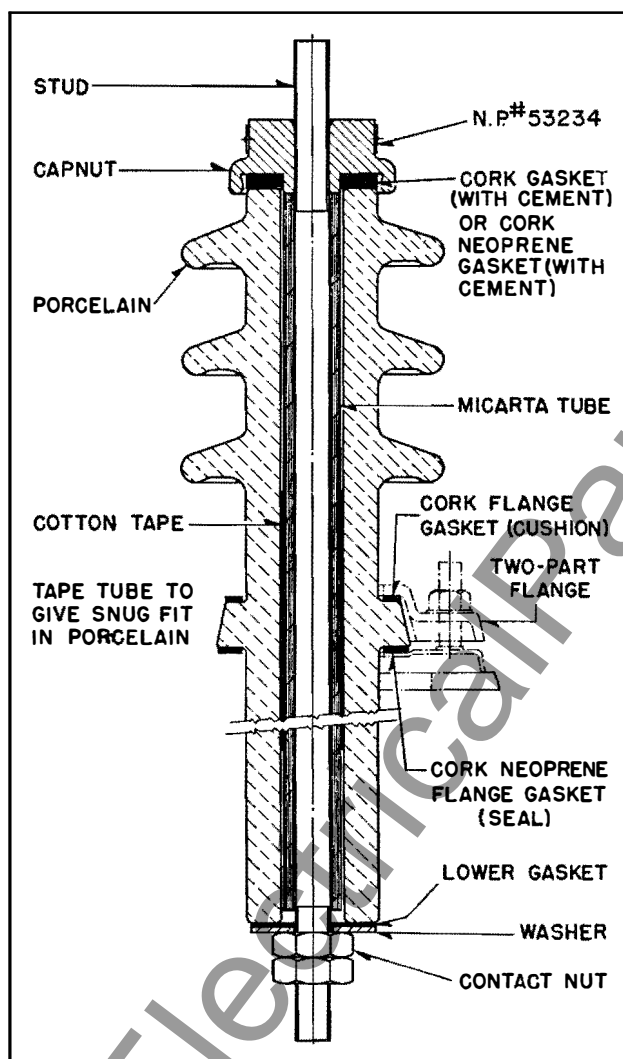


FIG. 1. Cross Section of a Typical Bulk Type Bushing

BULK TYPE BUSHINGS are used for voltage classes of 25 Kv and lower. The standard bulk type bushings consist of single-piece wet-process porcelains with a lead through the center. Type J-2 bushings have solid copper studs while Type J-1 bushings have copper tubes through which a bare copper cable carries the current. For low voltage classes the leads are centered within the porcelains with

cotton tape. For higher voltage classes a Micarta tube is inserted between the leads and the porcelains. The lead and the metal cap are sweated together to form a solder-seal joint. A gasket cemented to the cap and porcelain forms a gas-tight seal. At the lower end a cushion gasket is placed between the porcelain and the washer against which the locknut is tightened to complete the assembly of the porcelain and the lead.

Note: Cork-neoprene sealing gaskets are used on bushings for oil-filled transformers and cork gaskets for Inerteen-filled transformers.

HANDLING AND STORING

Care must be taken in handling not to crack the porcelain or damage its surface. Instead of a solid lead, some of the older bulk-type bushings have a cable lead on which the insulation may be damaged if not handled properly.

Store spare bulk-type bushings in a clean dry place.

INSTALLATION

Bulk type bushings are usually shipped mounted in place on the transformer. The bushing is mounted on the cover by a collar on the porcelain which fits into a recess in a pressed metal boss welded to the cover. A gasket cemented between the collar and the boss provides a cushion for the porcelain and forms a gas-tight joint. Care must be taken to prevent breaking or chipping the mounting collar where the gasket seat is made when it is necessary to install the bushings after delivery. Two gaskets are used, one above and one below the collar. The upper one acts as a cushion between the split clamping flange and the collar; the lower gasket is a seal between the porcelain and the cover boss.

When tightening down the split flange, there should be no pressure contact between metal and porcelain. Tighten the nuts gradually all the way around until both gaskets are evenly compressed.

BULK TYPE BUSHINGS

MAINTENANCE AND REPAIR

Inspect the bushings periodically for broken or cracked porcelains and faulty gaskets. Power factor tests are not necessary since they will not show defects in these bushings.

For all bulk-type bushings for 6600 volts and over the exposed metal parts below the cover should be under oil.

Damaged porcelains and gaskets can be replaced in the field with new parts. When there is further damage, a complete bushing should be ordered from the factory. Include the stock order and serial number of the transformer as well as the data on the bushing nameplate when ordering spare parts or complete bushings.



WESTINGHOUSE ELECTRIC CORPORATION

SHARON PLANT • TRANSFORMER DIVISION • SHARON, PA.

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PORCELAIN BUSHINGS TYPE "RJ"

"RJ" PORCELAIN BUSHINGS are used for voltages 15 KV and lower. The standard "RJ" porcelain bushing is made up of a single piece, wet process porcelain with a flange rolled into grooves

in the porcelain over Silastic gaskets. Three types of leads are used in these bushings: A solid stud which goes through the cap, a solid stud which screws into the cap, and a hollow tube with a cable conductor inside of it. For the low voltage class (5 KV), the leads are centered within the porcelains with cotton tape and for the higher voltage classes (15 KV), a Micarta tube is inserted between the leads and porcelains. The leads and the metal caps are sweated together to form a solder-sealed joint. External threading of the caps meets the ASA standard threading for these voltage classes. A gasket is cemented to the cap and porcelain to form a gas-tight seal at the top end. At the lower end a cushion gasket is placed between the porcelain and the washer against which the locknut is tightened to complete the assembly of the porcelain and the lead. See Fig. 1.

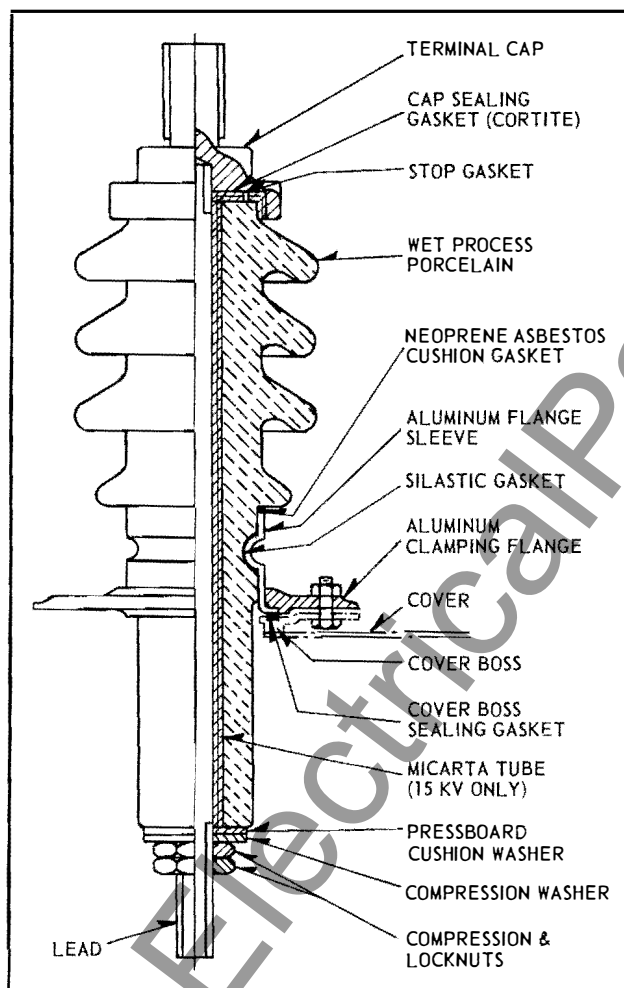


FIG. 1 Typical Cross-Section of "RJ" Porcelain Bushing.

HANDLING AND STORAGE

Care must be taken in handling the bushing to avoid cracking the porcelain or damaging its surface.

Store spare "RJ" porcelain bushings in a clean, dry place in a vertical or horizontal position.

INSTALLATION

"RJ" porcelain bushings are usually shipped mounted in place on the transformer. The bushing is mounted on a boss which is welded to the transformer tank cover. A gasket which fits snugly around the porcelain body is cemented to the recess in the boss and to the groove of the rolled-on flange. The flange pulls these surfaces together and compresses the gasket when the nuts are tightened on the clamping bolts thus giving a metal-to-metal gasket stop.



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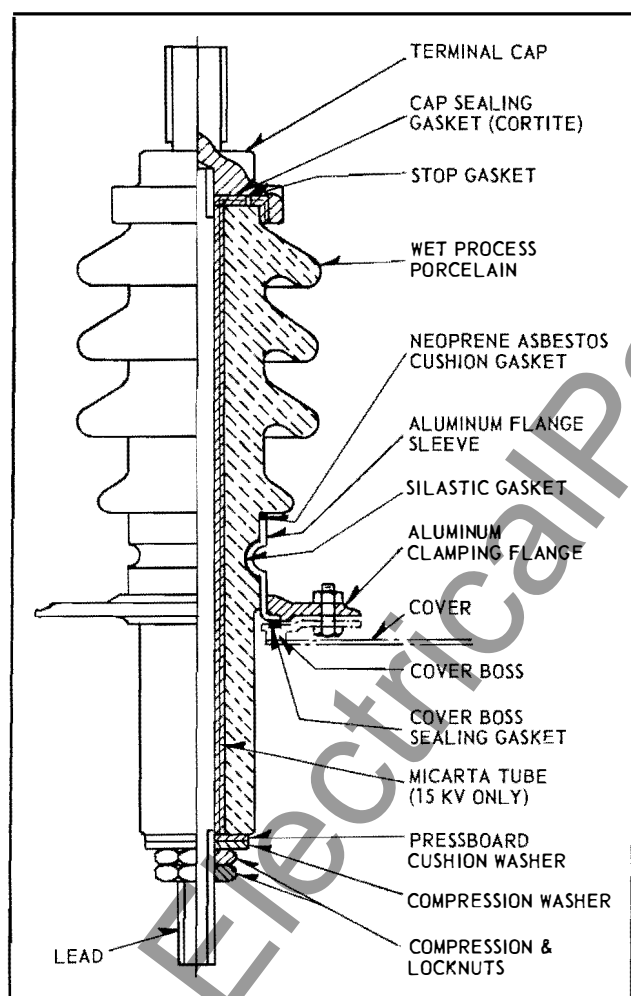


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SUPERSEDES I.L. 46-718-2

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