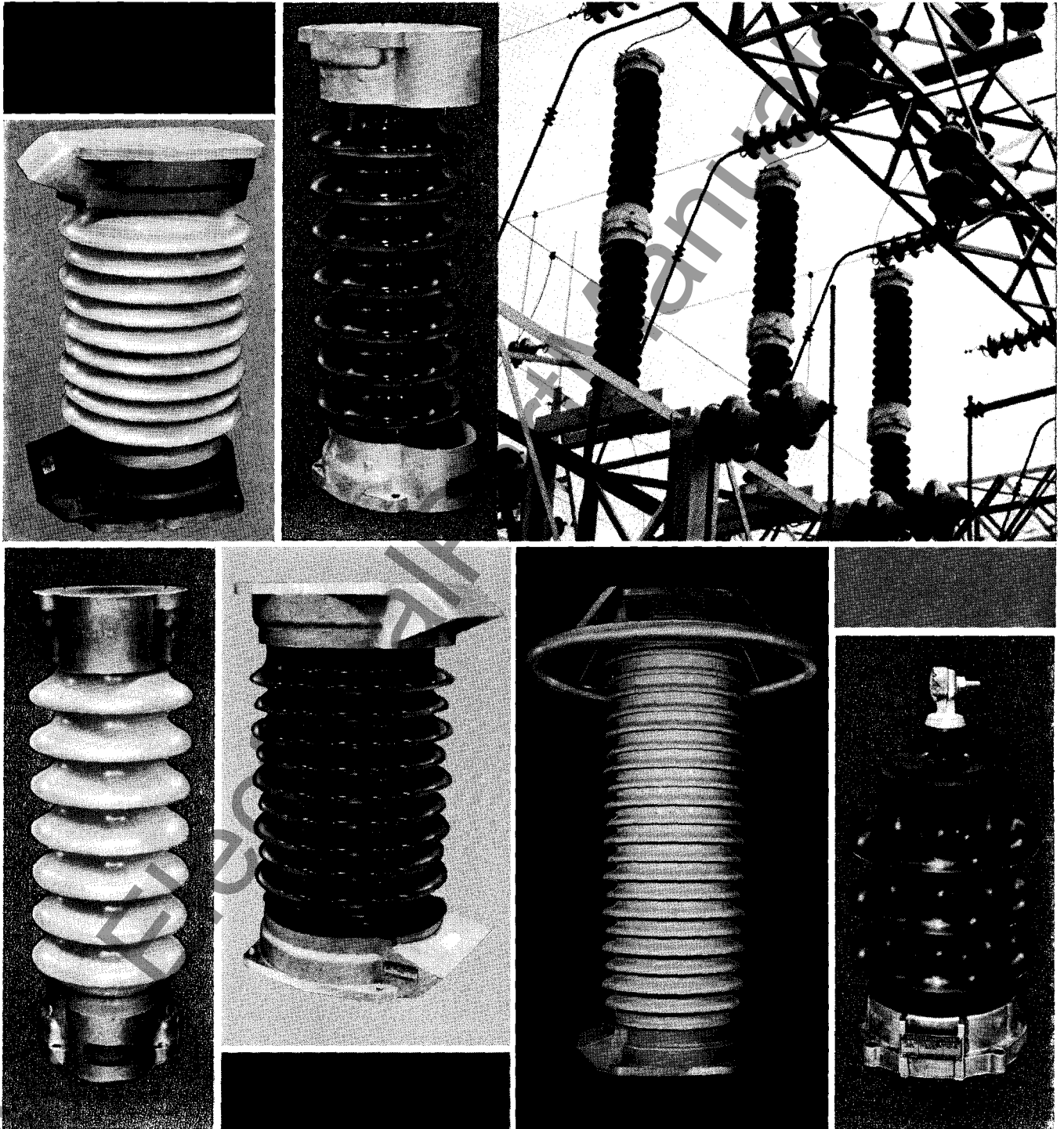


Westinghouse



Lightning Arresters, Station Type, SV and SVS,

Indoor and Outdoor, 0 to 10,000 Feet
Altitude, Single Pole, 3 to 240 Kv.



**Proven, Economical
Over-Voltage Protection**

Thirty five years of field experience and design refinements mean that with Westinghouse station class arresters, You can be sure . . ."

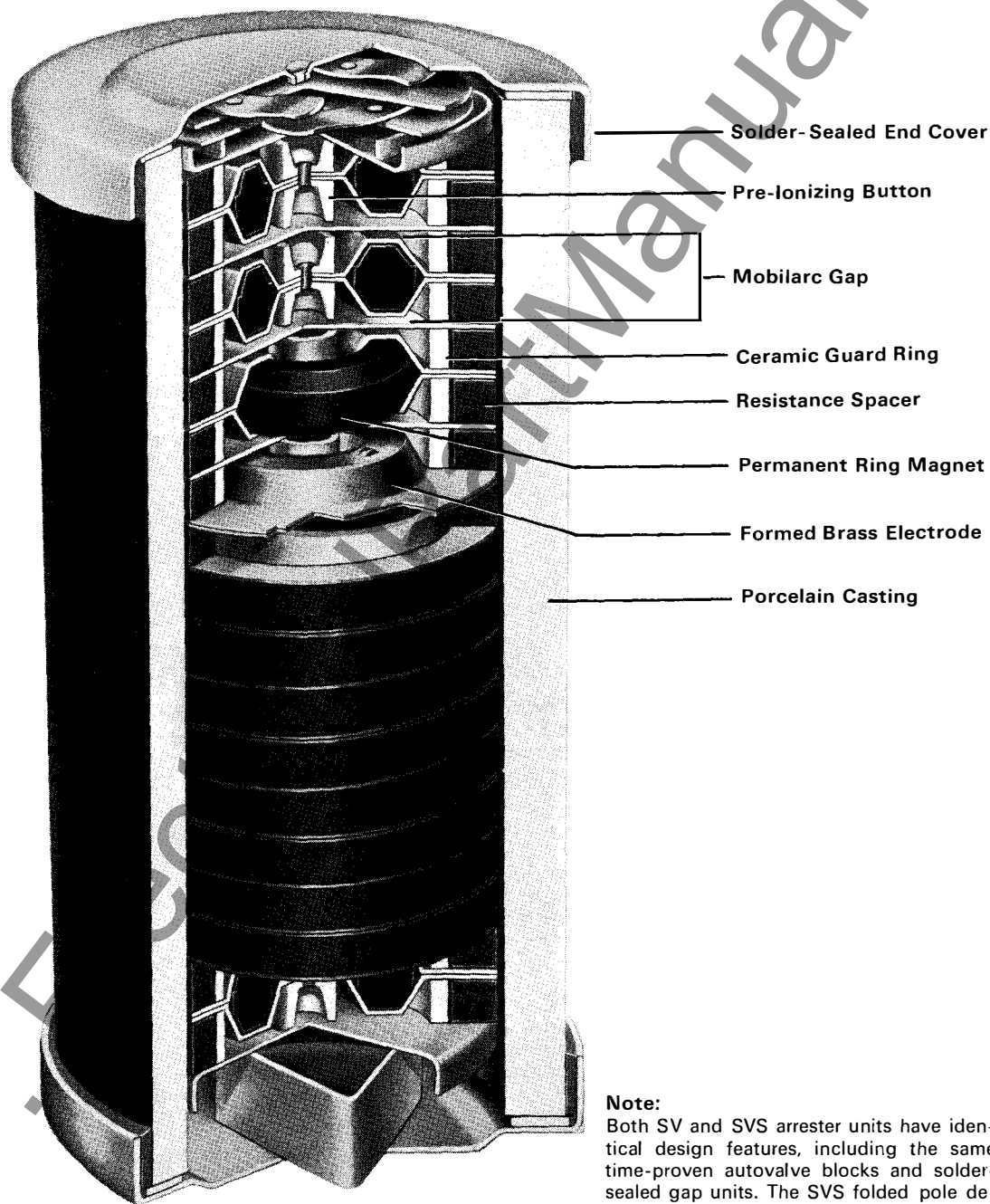
June, 1970
Supersedes DB 38-120 pages 1-12, dated
February, 1958
E. D. C/1981/DB

Westinghouse



You Have Proven, Economical Over-Voltage Protection Because of These Design Features

Typical Solder-Sealed Gap Unit



Note:

Both SV and SVS arrester units have identical design features, including the same time-proven autovalve blocks and solder-sealed gap units. The SVS folded pole design is available in ratings from 36 to 240 kv and requires a minimum of space for mounting.

Lightning Arresters, Station Type, SV and SVS,

Indoor and Outdoor, 0 to 10,000 Feet
Altitude, Single Pole, 3 to 240 Kv

Hermetically Solder-Sealed Gap Units

The Mobilarc series gaps are designed to "sparkover" at a predetermined voltage level. By limiting the possible overvoltage to a known maximum, system insulation is protected. Mobilarc gaps are designed to operate in a controlled, dry atmosphere. The exclusive Westinghouse solder-sealing process hermetically seals the gaps in a separate porcelain casing. This permanent mechanical seal assures the integrity of the gap atmosphere. Since moisture is sealed out, radio and television interference is eliminated. No contaminant can reach the gap elements, so the arrester characteristics remain constant. The gap unit casing is sealed inside the arrester porcelain providing a "double seal", two separate sealing systems between the gap elements and the outside.

Mobilarc™ (Permanent Magnet) Gaps

This design feature "spins" the arc on the gap electrode surfaces assuring consistent performance and long arrester life. The permanent magnet field instantly moves the arc whenever the arrester operates and prevents arc damage to the gap.

Autovalve® Blocks

The time-proven semi-conductor blocks act as a "valve" element allowing large surge currents to pass harmlessly to ground while limiting any power follow current to low values that the gaps can easily interrupt. Silicon carbide granules are mixed with a binder and molded into shape under hydraulic pressure. The ends of the blocks are metal-sprayed for good electrical contact and the sides are coated with a baked-on insulating paint to eliminate flashover. The large size of the blocks provides for high thermal capacity. The coordinated discharge voltage made possible by the autovalve block means more proven system protection.

Housing

The sturdy porcelain glaze giving the arrester high cantilever strength. The porcelain casing not only protects the internal parts of the arrester but also provides the external creep distance, insulation, and mechanical strength necessary for a balanced arrester design. The length of the porcelain is held to close tolerances and the ends are carefully ground to provide effective gasket seats. Available in either chocolate brown or #70 Sky Gray, the porcelain casing assures the arrester a long lifetime of system protection.

Structural Integrity

The SVS arrester utilizes spring rings which provide an effective means of keeping internal parts of the arrester properly seated at all times. This protects against damage during shipment and installation. The pressure from the spring rings also assures good electrical contact between the arrester parts.

Sealing System

Moisture cannot enter these arresters. Special neoprene gaskets at each end of the arrester are compressed and held under pressure. The end castings are securely fastened to both ends of the porcelain casings. The high melting point sulphur cement contains no corrosive constituents, is extremely strong, closely matches the expansion rate of porcelain, and contains a plasticizer which prevents mechanical stresses. This sealing system eliminates moisture ingress and thereby prevents the major cause of arrester failure.

Directional Pressure Relief

In the remote event of an arrester malfunction, directional pressure relief means safety for personnel and associated equipment. A diaphragm and exhaust port at each end of the arrester vent high internal pressures and transfer ionized gases from inside the arrester to the outside. The exhaust ports provide directional venting so that exhaust gases can be aimed away from nearby equipment. This important safety feature prevents the porcelain casing from shattering if high internal pressures should ever develop.

Rigidly Tested to Assure Performance

SV and SVS arresters are thoroughly tested before and after assembly. Components are checked under simulated service conditions. Each completed arrester is tested not only for electrical performance, but thoroughly tested for mechanical assembly as well. This rigid test program assures reliable performance.

Lightning Arresters, Station Type, SV and SVS,

Indoor and Outdoor, 0 to 10,000 Feet
Altitude, Single Pole, 3 to 240 Kv

Mobilarc™ Gap

The Mobilarc series gap element (see fig. 1) contains a permanent ceramic ring magnet, radially magnetized, which is mechanically in series with the air gap. It provides a constant magnetic field in the gap which is always present at full strength regardless of the current of the discharge.

The spark discharge takes place in the annular space indicated by the zigzag symbol in fig. 2. When the arc is initiated, it is at right angles to the magnetic field and is forced by this field to spin around on the gap electrode surfaces. Due to the rapid movement of the arc, the electrodes are not affected and maintain their original condition. Currents of over 100,000 amperes have been measured in the gaps with no effect on the retentivity of the magnets.

The gap electrodes are separated by high resistance spacers which fix the length of the air gaps, and being of equal resistance, divide the voltage uniformly among the series gaps. Ceramic guard rings protect the resistance spacers from the spark discharge. In the center of each gap is a pre-ionizing button made of rutile, an insulating ceramic with a dielectric constant of 80. When the voltage rises across the gap, there is a high voltage stress between the end of the rutile cup and the opposite flat plate electrode. At a certain threshold voltage, which is above the rated voltage but below the sparkover voltage of the gap, corona forms between the rutile and the plate. This generates a radiation in the wave band of ultraviolet which ionizes the gap space and insures low and consistent sparkover. The rutile does not carry the discharge current—it acts as a control.

The time proven features of formed brass electrodes, resistance spacers, pre-ionizing buttons, ceramic guard rings, and permanent magnets combine to make the Mobilarc series gap most effective not only for severe lightning conditions, but also for switching surges on high voltage lines. Consistent performance and long arrester life are assured.

Further Information:

Price List 38-120

Dimension Sheet 38-122

Performance Data 38-126

Lightning Protection for Electric Systems by Edward Beck; Westinghouse Transmission and Distribution Reference Book. USAS C62.2-1964; Guide for Application of Valve-Type Lightning Arresters for Alternating Current Systems

Figure 1. Sectional View of Mobilarc Gap Element

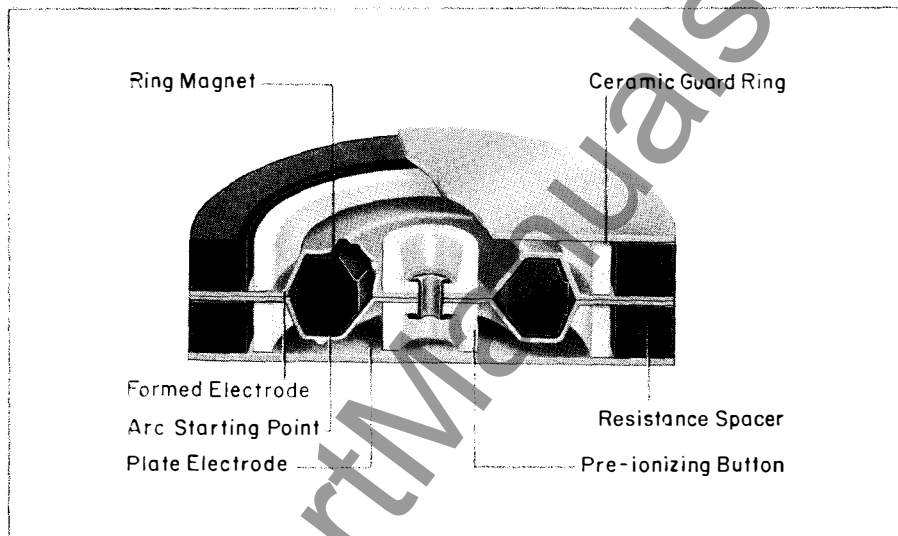
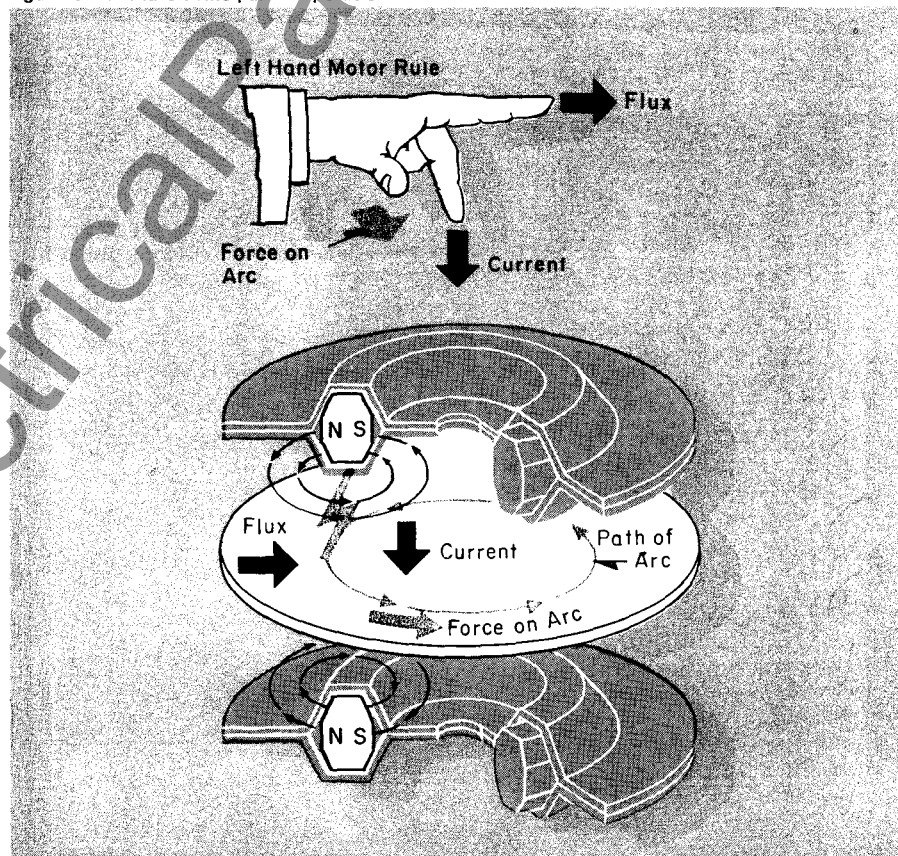


Figure 2. Mobilarc Principle of Operation



Westinghouse Electric Corporation

Distribution Apparatus Division, Bloomington, Indiana 47401

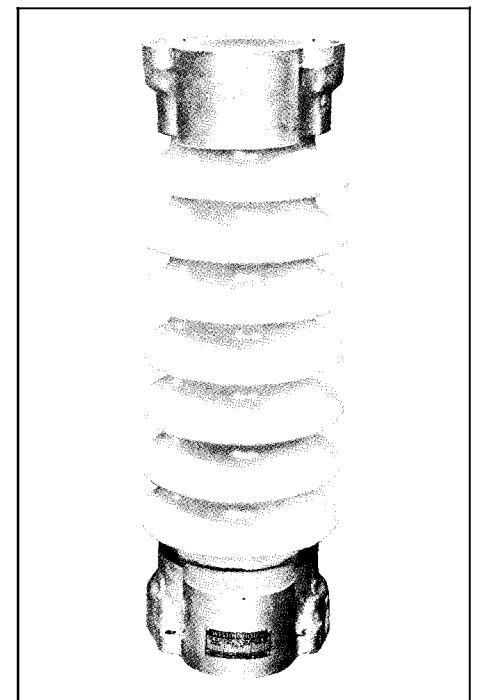
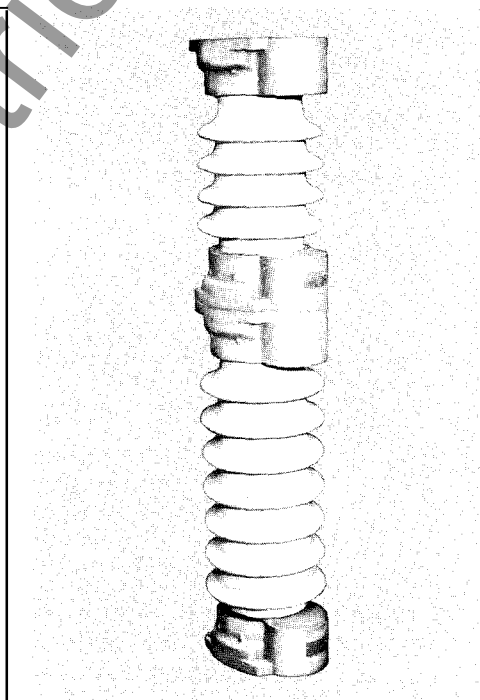
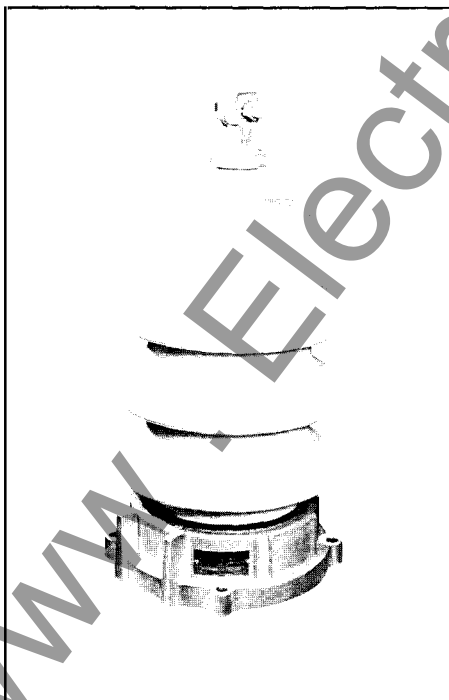
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Lightning Arresters, Station Type SV

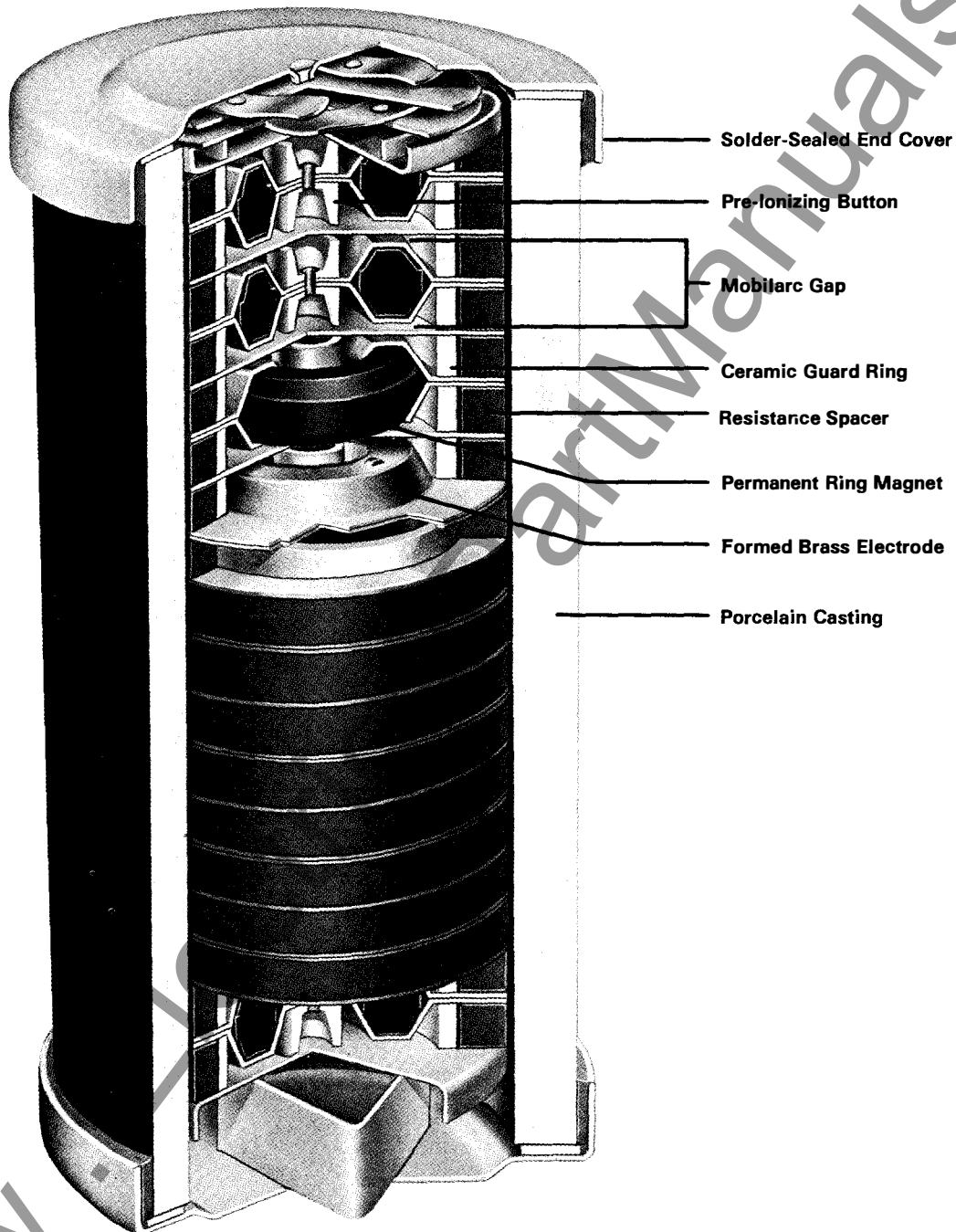
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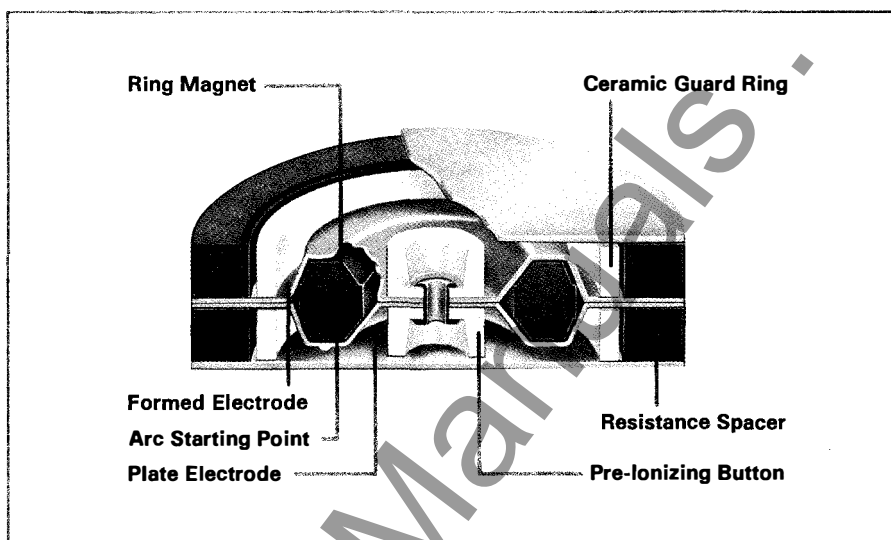
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Westinghouse Electric Corporation
Distribution Apparatus Division
Bloomington, Indiana
47401



Left Hand Motor Rule

