

Strains

Another Insulator



**THEY COME IN DIFFERENT
SHAPES AND COLORS**

According to *WEBSTER'S DICTIONARY* . . .
a Strain is a nonconducting substance or body, as
porcelain or glass, used in insulating wires, etc.
Cf. (compare) Conductor, nonconductor.

Radio Antenna and Electrical ... STRAINS



Glass Radio Antenna Strains in Various Colors ...
Sharp Ribs - and - Round Ribs

cross-arms by means of a wooden or metal rod or pipe. The large styles were composed of a smaller porcelain part cemented inside the larger diameter porcelain sleeve.

Radio antenna strains were used in homes, on military antennas, aircrafts, commercial repeaters, TV and Radio Broadcast antennas, and boats. Electrical strains were used on power lines.

They were made by various glass, bottle, and insulator manufacturers; porcelain manufacturers; and marble manufacturing companies.

There are hundreds of different names of strains from various places. A few names are Pyrex (NY), Fleron (NJ), Brilliant (OH), Sensory (PA), A.G.K. (NY), Locke (MD), Ohio Brass (OH), Knox (TN), Zicme (Columbia), L. S. Brach (NJ), Birnbach (NY), and Lapp (NY).

Strains were made of porcelain, glass, Steatite, plastic, metal, resin, fiberglass, composite, wood, etc.

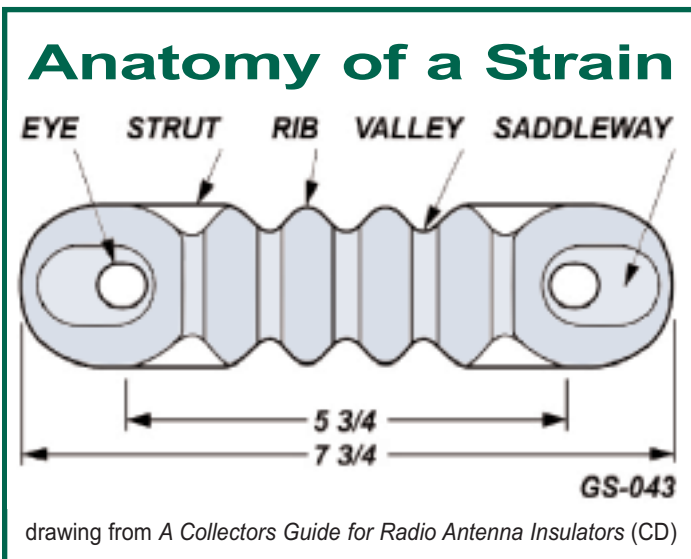
Where can you find old strains today? . . . You can find them on/in barns, houses, old poles, sales, flea markets, antique shops, and on the internet.

STRAIN INSULATORS were first used in telegraph systems to isolate the signal wire from the ground while still supporting the radio antennas.

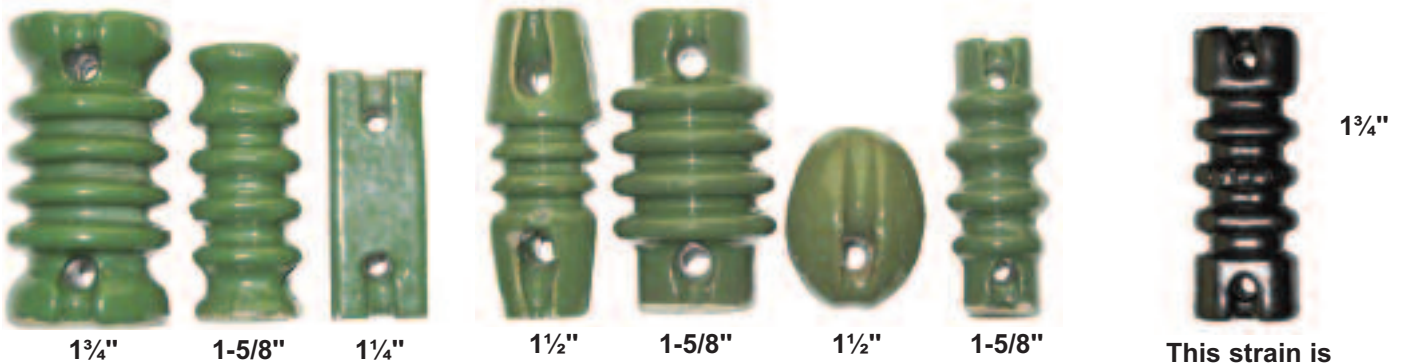
A "typical" strain insulator is a piece of glass or porcelain that is shaped to accommodate two cables. The shape of the insulator maximizes the distance between the cables while also maximizing the loading transfer capacity of the insulators.

The total measurement of the ribs and the space between the ribs determines the electrical length of the insulator from eye to eye. A short, compact insulator with more ribs and deeper valleys has more electrical length than a longer one with less or no ribs. Some strains are smooth – some have ribs.

They were used to break the electrical path in any wire link, such as in guy wires used to support utility poles, dead-ending the ends of electrical power lines, and overhead power lines. Note that the interlocking connection wires on all strain insulators (except radio antenna strains) prevent the wire from falling should the insulator become broken. Several older styles of high voltage strain insulators intended to dead-end feeder wires were mounted vertically between two



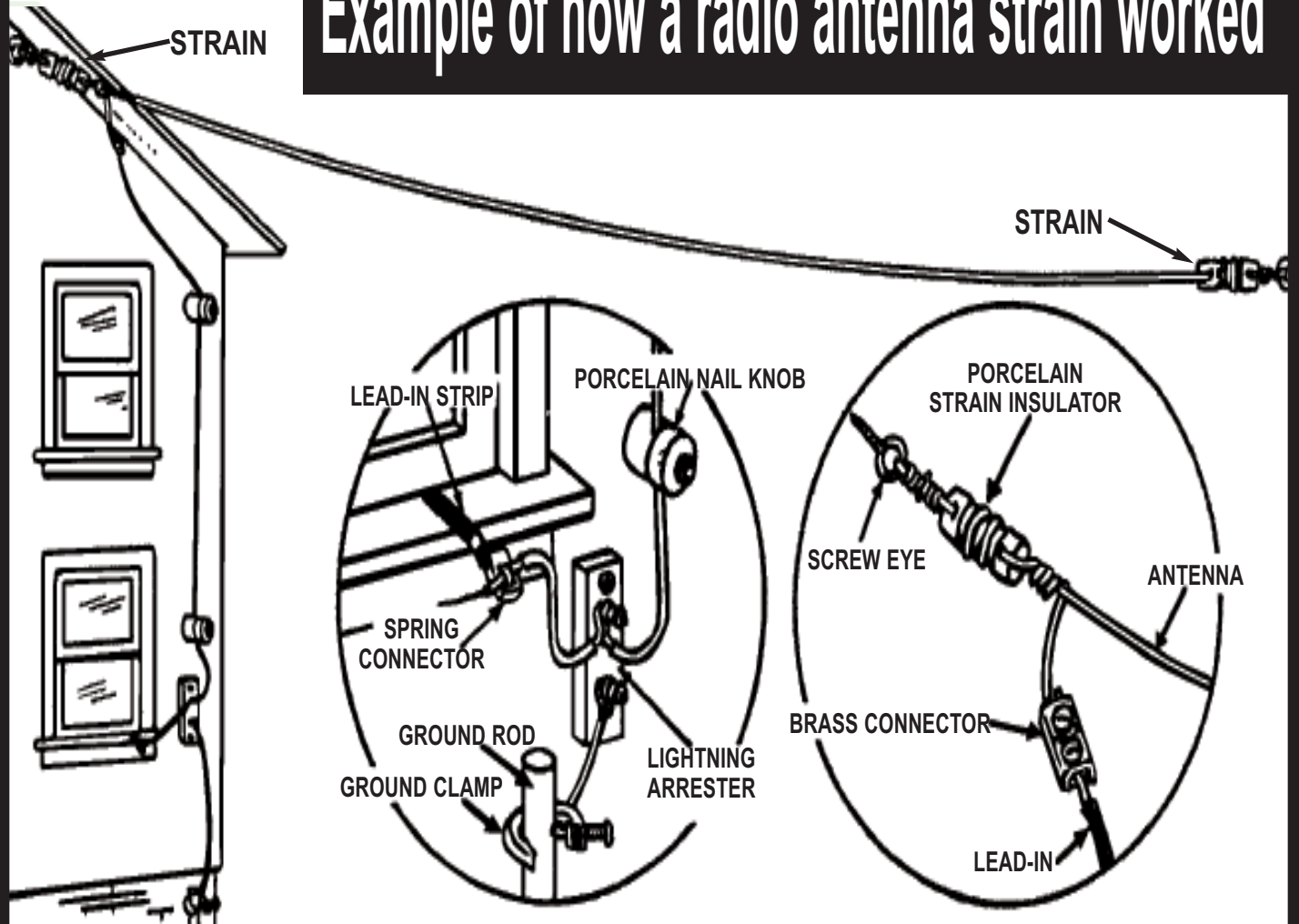
Radio Antenna and Electrical ... STRAINS



Notice the different shapes and number of ribs and no ribs of these strains

This strain is embossed FLERON and was made by Star. The color *Nu-Blac* is a trademark dark gray color.

Example of how a radio antenna strain worked



Artwork Courtesy of Old Familiar Strains. . . A great publication devoted to research on strains.

Egg and Johnny Ball Strains

compression style

4"



NICKNAMED "Hand Grenade"
Duquesne Light Co. / Embossed: D L Co

EGGS



Folembray Egg
(Aisne, France)

3"



2½"

Airplane Style
?Cook Pottery
(Trenton, NJ)



2¼"

JOHNNY BALLS

← (Guy Wire Strains) →



3"

Probably made by
Hemingray or
Brookfield (NJ)

Wooden and Glass Strains

tension style



2½"

L. S. BRACH
(Newark, New Jersey)



1¾"

ZICME Spiral Groove
marked with backward ⊖
(Columbia)

Wooden
Trolley
Strain
9½"



2½"

Even strains got fancy!

This jeweled-looking strain
was made by
D.C. Jenkins Glass Co.
(Kokomo, Indiana)

Porcelain Strains

tension style



2½"



2"



1½"



1¾"



2¼"



2"



2"



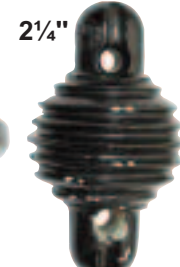
2¼"



1½"



2½"



2¼"



1½"

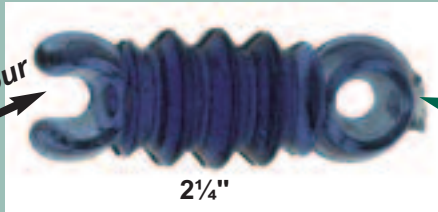
Pontil Glass and Errors

overpour – in eye



2"

underpour



2 1/4"

CUT

PONTIL GLASS –

Notice a piece of the eye of a strain still attached from when it was poured.



Notice at the ends where the strain was CUT from the pontil ... most are ground off at the ends



What are they?

AWNING RINGS ...

They were NOT designed to be an insulator ... BUT were sometimes used as radio strains

Acknowledgements

A Collectors Guide for Radio Antenna Insulators (CD) – Bob Alexander and Jim Dombrowski

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David Sztramski • Bernie Warren

“THANK YOU TO ALL”

... and a Special Thank You to Jim Dombrowski for his support and inspiration

We sincerely hope that those of you who have ever said “WHAT IS A STRAIN?” or “WHAT DOES A STRAIN DO?” ... will be able to answer that question now and be able to recognize a strain the next time you see one. **THANK YOU!!** Charles and Sandi Irons