

2016 PDF edition

Old Familiar Strains

a newsletter for collectors of radio strain insulators and related items

Volume 7 No. 4/5

October 2000

There's a "HALL MARK"
on INSULATORS, too!



THERE'S a "Sterling" mark on silver—and the "Johnson" name on insulators—each with the same quality significance. And nowhere in your rig is quality and correct design more important.

Johnson insulators are made of highest quality, low-absorption ceramics, designed strictly according to modern engineering practice for best dielectric value and mechanical strength.

Smooth glazed surfaces prevent the accumulation of dust, dirt and moisture and minimize leakage.

You can be sure, when you purchase a Johnson part, whether it's an insulator, condenser or any equipment that bears the Johnson name that you are getting top quality and modern engineering design.

Your rig will operate more efficiently with Johnson equipment.

E. F. JOHNSON CO.

WASECA, MINNESOTA

EXPORT: 25 WARREN ST., NEW YORK, N. Y.

"MANUFACTURERS OF RADIO TRANSMITTING EQUIPMENT"

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Key dates in E F Johnson History

February 13, 1895	Ethel Jones (Johnson) born in California
June 13, 1899	Edgar Johnson born near Waseca, MN
July 28, 1923	Edgar and Ethel Johnson are married in Claremont, CA
October 10, 1923	E F Johnson founded in shop at 117 Second Ave.
November 1924	Johnson's first ad appears in <i>QST</i> magazine
1924	E F Johnson moves to store at 104 N. Main St.
1925	E F Johnson hires its first outside employee.
1925	Marvin L. Johnson joins the business
1926	Don Wallace becomes the company's first outside sales representative
1927	Edgar Johnson becomes an associate member of the Institute of Radio Engineers
June 9, 1936	Patent 2,043,754 issued for the Johnson transposition insulator
Fall 1936	E F Johnson opens its first factory on at 206 2 nd Ave. SW
Spring 1941	Everett R. Johnson joins the business
January 9, 1942	Fire destroys the retail storefront on Main St., ending the company's retail sales efforts.
March 11, 1944	Johnson's first Army-Navy "E" for Excellence award is announced.
1947	Johnson changes its part numbers to include a class code before the number
Summer 1947	Johnson acquires the Speed-X line of telegraph keys from Les Logan and the pilot light line from Gothard Manufacturing
November 1953	E F Johnson converts form a partnership to a corporation
1955	Edgar Johnson becomes a full member of the IRE
1959	CB radio and Commercial band radio sales become significant
June 2, 1961	Johnson opens a new factory and offices on 10 th Ave.
November 1964	The closely-held corporation becomes publicly-traded and is listed on the National over-the-counter market.
1968	Johnson acquires Communications Company (Comco)
October 1972	Johnson sells the telegraph key line to William Nye
November 21, 1975	Edgar Johnson is awarded the Sarnoff Citation from the Radio Club of America
October 10, 1983	Edgar Johnson retires from the board of directors
February 11, 1991	Edgar Johnson passes away
February 13, 1991	Ethel Johnson passes away

This information is from the sources listed at the end of the Johnson article.

The E F Johnson Company

By Dan Howard

Introduction

Edgar Johnson founded the E F Johnson Company of Waseca, MN, in 1923. In addition to being a major supplier of commercial radio equipment, for many years the company prided itself in selling “everything” a radio amateur might need. Naturally, this included strain insulators.

The 1920's and before

Edgar F. Johnson was born on a farm near Waseca, MN, in 1899. In 1903, Edgar's father, Charles J. Johnson, moved the family from the farm into the city of Waseca where he worked as a homebuilder, and later owned a hardware store. The picture below shows Charles Johnson in his store with

a display of stoves.

“Edgar's first experience with electronics occurred when his half brother, Charlie Nelson, strung lines between two neighborhood houses for Morse telegraphy,”¹(1:1) “It didn't work very well, likely because of the many questionable splices in our discarded rusty telegraph wire. But our eyes were opened to a whole new world.”(2:4)

“I discovered *The Experimenter* magazine, and acquired treasured catalogs of the Electro Importing

¹ Charlie Nelson went on to run his own business, the C H Nelson Company in Radpidan, Minnesota . C H Nelson subcontracted for Johnson during World War II (*The Viking News* 4/14/44).



Company of New York and the William B. Duck Company of Toledo. My few pennies went for gadgets and hardware such as a coherer, headphones, and the like which I couldn't very well make."(2:4)

While still in high school, Edgar built an experimental amateur radio station, employing a crystal detector and spark transmitter. "There was no one within listening range of my feeble spark transmitter, and there was apparently no other transmitter near enough for me to hear, if indeed I ever succeeded in locating the cat whisker on the sensitive spot of my galena crystal."(2:4) Restrictions imposed during World War I put a temporary hold on his budding amateur activities.(3)

Edgar's experiences in radio were a deciding factor in his choice of an Electrical Engineering degree at the University of Minnesota. "I was in their first course in radio theory."(2:4) Arriving home for Christmas during his senior year, Edgar set up Waseca's first broadcast receiver.(1:1) "I brought home a regenerative receiver I had put together. I recall I borrowed the single vacuum tube it needed. Only the month before, KDKA had made broadcasting history on November 2, 1920, by airing the results of the Harding-Cox presidential election. A few friends eagerly listened with headphones to KDKA in Pittsburgh."(2:4)

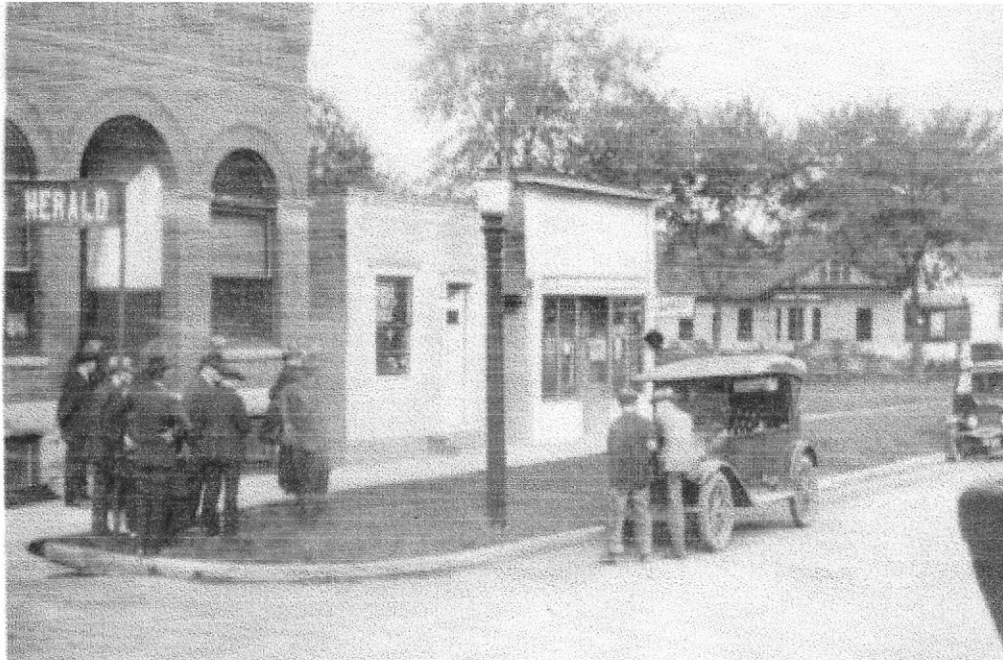
Following his graduation in 1921, Mr. Johnson entered into a partnership with another Waseca radio enthusiast, Howard Deichen. Mr. Deichen had started an electrical business in Waseca, and he and Edgar Johnson did business together for a year and a half. Together

the young men constructed electric lines and sold radios and parts. According to one account, Mr. Deichen caused a real sensation with his mobile radio outfit in the early 1920's. Mounting a commercially built battery-operated radio in his Willys automobile, he hung a multi-wire flattop antenna front-to-back about two feet above the roof of the car. It must have been quite a sight running around town! (3)

Edgar met his future wife, Ethel Jones, at the University of Minnesota where she was studying to be a teacher. Graduating before Edgar, she taught school briefly in North Dakota prior to their July 28, 1923, marriage in Clairmont, CA.

In October 1923, Deichen and Johnson went their separate ways. Deichen continued building rural electric lines under the name Electric Construction Company. Edgar Johnson joined his wife in forming the E F Johnson Company on October 10, 1923.

Beginning with assets of about \$2,500, mostly in inventory of parts used for home broadcast receivers, E F Johnson's first location was the front of the small building on the right in the photo. Edgar's father Charles was manufacturing furniture and cabinetry at the location and he offered Edgar space rent-free. During the 1924 World Series, Edgar set up a radio with an outdoor speaker that drew large crowds of baseball fans to his store. The early business focused on selling radio parts to amateur radio operators by mail and selling broadcast receivers and parts locally.(4)



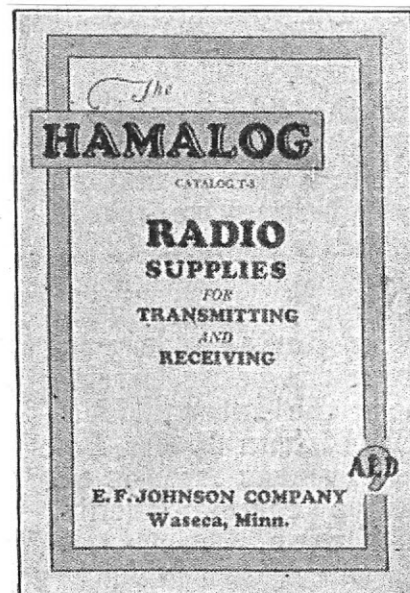
At first, income from the radio business was not overwhelming. To supplement his income, Edgar Johnson worked part time for his father in the woodworking shop making and repairing window sashes or screens. The Johnson's maintained an office at home, where space was available for tracking orders and handling paperwork. Mrs. Johnson managed the office details while Mr. Johnson took care of the sales and technical aspects of the business.(4)

In late 1924, after a year of operation, the Johnson Radio Store was moved to a new location at 104 N. Main St.(3) The additional space allowed the company to deal with growth and gave Edgar the chance to respond to requests from customers for parts not in stock. The extra space was necessary, but the stiff \$65 per month rent expense threatened to pull the fledgling company under.

After only a few months in business, Mr. Johnson had the opportunity to buyout stocks of radio transmitting parts from

distributors who were quitting business. While the transmitting parts were in demand from commercial broadcasters and amateur radio operators, the market in Waseca was rather limited. Selling quantities of parts necessitated opening a mail order business.

Ethel Johnson contributed her savings from teaching to fund the first one-page flyers. Mailings went out to schools, broadcasters, and the thousands of hams who were listed in the *Call Book*.



E F Johnson's early catalogs were called HAMALOGS. At the time Johnson had not established a regular line of its own parts. Instead, the HAMALOGS cataloged radio equipment from other manufacturers:

- Telegraph keys and sounders made by Signal Electric and Vibroplex were listed.²
- Corning Pyrex strain insulators had only recently been introduced, but Johnson was carrying them.
- Rod-shaped porcelain strains from the Sure Fire Radio Laboratories were listed.³ These closely resembled units that Johnson was later to sell under its own Johnson brand name.
- General Radio stand-offs were sold (Johnson had not yet introduced its own stand-off insulators).⁴ The Star Porcelain Company made these brown-glaze units of gray "Nu-Blac" porcelain. General Radio stand-off insulators were available with either a binding post top or a top with a plug-in jack. This was to be a popular option for several sizes of Johnson stand-offs made in the 1930's and later.
- Fleron thru-panel insulators and the Fleron Home Guard arrester were listed.⁵
- The Findlay 1922 break strain insulator is shown as well as several styles of Findlay stand-offs.
- Johnson was a distributor for Jewell,⁶ but I don't know if they

carried the company's lightning arresters or just the meters.

- Barkeley, a 1920's manufacturer, made glass-fuse type lightning arresters and large antenna switches. HAMALOGS list their antenna switches but not the company's other products.
- A General Porcelain strain is also shown.

When the company discontinued its mail-order sales to amateurs in the late 1920's, the HAMALOG sales booklets were replaced by numbered Bulletins or Catalogs. While Johnson gladly provided the catalogs to anyone who wanted them, they made it clear that customers should contact their local dealers to purchase Johnson parts.

Johnson's ad in the November 1924 issue of *QST* magazine was the first in a series of monthly ads that lasted for decades. *QST* is the magazine of the Amateur Radio Relay League, the largest organization of ham radio operators in the United States. Johnson also took out multiple-page ads in the annual *Radio Amateur's Handbooks* that the ARRL published. Print ads in *QST*, *Radio*, *Radio's Master*, and other amateur publications were a way of introducing new products and supporting Johnson's network of dealers. Ads always encouraged amateurs to write for a catalog or to contact a dealer.

1925 saw the hiring of E F Johnson's first outside employee, Amos Sorenson.⁽⁵⁾ After seeing the company's mailings, he inquired if a position might be available. Mr. Sorenson had knowledge of radio and accounting, making him doubly

² See the Speed-X article in this issue.

³ See the Illinois Porcelain article in this issue.

⁴ *OFS* 12/96.

⁵ *OFS* 10/96.

⁶ *OFS* 6/98.

attractive to the company. While she remained a full-partner in the business, after Mr. Sorenson began helping Edgar with front-office chores, Mrs. Johnson was able to take a lesser roll in the day-to-day operations.

Even with Mr. Sorenson's help, by the fall of 1925 work was still piling up. At this point Edgar turned to his brother Marvin L. Johnson for help. Marvin had been coaching high school sports and had helped out at the store during summer vacations. The school found a mid-season replacement for Marvin, and he joined the firm full-time. Marvin Johnson managed the radio parts store and also sold home appliances.

According to Roy Myers, "Marvin had his "white goods" (refrigerators, washing machines, and such) in the front part of the store, and we did assembly in the back part. Marvin also sold Philco brand radios in the 1930's."⁽⁶⁾

Don Wallace, W6AM, became the company's first outside sales rep in 1926.⁷ By the end of the decade, the company had shifted to selling its products through dealers and distributors and had discontinued mail-order sales to amateurs.

⁷ See the Don Wallace story in this issue.



New Stand-off Insulators

Our own product, insulation equivalent to other similar types, but requiring much less mounting space. Brown glazed porcelain. Each \$0.20.

E. F. Johnson Co.

Waseca, Minnesota

The No. 20 stand-off insulator, the first of Johnson's own design, was introduced in 1927. As Johnson added more insulators of its own design, sales of competitor's products quickly ceased. The only exception was for a large Corning Pyrex feed thru bowl that Johnson continued to catalog into the 1950's.

Edgar Johnson's ham radio call sign, 9ALD, appeared in early ads and was prominent on the cover of the company's HAMALOG catalogs. I believe that Mr. Johnson's ham license may have opened some important doors in the early days of the company:

- Johnson's first sales representative, Don Wallace, was an active ham.
- C.W. Kettron of Illinois Porcelain⁸ was one of Johnson's first insulator suppliers. He was also a licensed ham.
- And we've already mentioned the company's long-term relationship with the Amateur Radio Relay League.

One of Mr. Johnson's stated goals in starting the company was to provide supplies that hams might need. Hams continued to be avid consumers of the company's products until most of its amateur equipment lines were sold in the 1970's. Strangely, Mr. Johnson apparently let his own amateur license lapse in the late 1920's (probably because he was so busy with his work and his family commitments).

⁸ See the Illinois Porcelain article in this issue.

The 1930's

In the 1930's E F Johnson's line of insulators grew to include additional sizes of stand-off insulators as well as strain insulators, feeder spreaders, and transposition insulators.

The first Johnson-brand strain insulator, introduced in early 1933, was a 20" white porcelain rod similar in design to the "Sure Fire" insulators that the company had sold in the 1920's.⁹ By the end of the year, the company had two additional strains, a 7" rod, and a 12" rod. A 6" feed line spreader was introduced at the same time.

By the end of 1933, the company had added the No. 32 airplane ("egg") insulator to the line. Mr. Myers said that they probably sold more egg insulators than any other single item.

Unfortunately, the egg insulators were all plain white (like everyone else's) and were never marked with a company name or logo.

The earliest Johnson antenna insulators carried fragile red and gold decals with the company's name and logo. Roy Myers said that the insulators used to arrive at the Johnson factory glazed but unmarked. Arriving parts were packed in wooden crates filled with sawdust for padding. He recalls seeing Ethel Johnson and Ruth Johnson (Everett's wife) soaking and hand-applying decals to insulators. The decals were not

⁹ I think that it is likely that Illinois Porcelain produced some of the strains that were sold under the Johnson brand name, but I have no evidence of that fact. Steward Manufacturing and Wisconsin Porcelain also made insulators for Johnson. Both companies are profiled in this issue.

varnished or shellacked over, making them easily damaged. Before leaving the Johnson factory, finished insulators were individually wrapped in corrugated cardboard sheets that were taped shut, forming a cushioned tube.

The company continued packing insulators in tubes for years. Later tubes were sometimes sealed with paper tapes with the company's name and the part number pre-printed on it.

Transposition insulators were typically sold in sets, because many would be required for a feed line. Tramps were packed in single-ply cardboard boxes, separated internally by small cut-sheets of cardboard.

By the late 1930's Johnson had begun purchasing insulators that were stamped with under-glaze ink markings.¹⁰ Johnson continued to use decals on condensers and some styles of stand-off insulators until the 1960's. Thus a decal, by itself, is not always a mark of age.

Edgar Johnson co-authored an article that appeared in the January 1934 issue of *QST* magazine. "A Practical Transmission-Line System for the Doublet Antenna" is not just a useful reference on antenna theory. It also forecasted three of the company's future products: the patented transposition insulator, the Q antenna, and the Johnson Matchbox antenna tuner.

➤ The Patented Johnson Transposition Insulator

Without going too deeply into feed line theory, transposing the conductors in a

¹⁰ These markings are cataloged in the catalog section.

two-wire feed line has several advantages. After explaining the desirability of using a transposed feed line, Mr. Johnson writes:

Transposition is accomplished by means of insulators, spaced at regular intervals along the line, so that the conductors cross over at each point of transposition. Thus each conductor occupies opposite sides of the line in successive sections. The usual block type transposition insulators have necessitated rather sharp bends in the wires where they pass through the slots, thereby introducing stresses, which all too often have resulted in broken conductors after a short period of service. A newer type of skeletonized transposition insulator eliminates sharp bends and keeps the wires in a continuous line throughout their length. This skeleton-type construction reduces weight and affords a long surface-leakage path.(7:18)

Johnson's ad on page 89 of the same issue featured a large ad for E.F. Johnson's new skeletonized transposition insulator under a banner head of "Feeding the Doublet."

Although Johnson applied for a patent on its skeletonized design in April 1934, the patent was not issued until June 1936. The earliest examples of the transposition insulator have a red and gold decal with the company's name and logo and are embossed "Johnson." Later examples replace the decal with an embossed "Pat. Pend." The

2,043,754

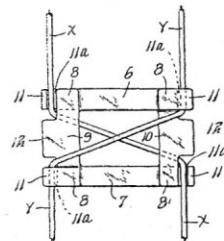
TRANSPPOSITION INSULATOR

Edgar F. Johnson, Waseca, Minn.

Application April 25, 1934, Serial No. 722,303

3 Claims. (Cl. 173-28)

1. An insulator for transposing the respective wires of a parallel pair thereof comprising a generally rectangular body formed of insulating material and having a wire engaging means adjacent each corner thereof, wire engaging surfaces of said several wire engaging means facing and spaced approximately one-half the diameter of said wires from a common plane parallel to and intermediate of the faces of said body and alternate ones of said surfaces being arranged to face oppositely, said body having a depressed



portion adjacent each of said means and toward the center of said insulator therefrom providing a wire guiding surface facing oppositely from the wire engaging surface associated therewith and away from said plane and slightly spaced from said plane whereby wires respectively engaging diagonally opposed pairs of said surfaces and passing diagonally of said body over corresponding pairs of said surfaces will be spaced apart a slight distance at their point of crossing.

transposition insulators were only available in white.

➤ The Johnson Q Antenna System

The famous Johnson Q antenna system was also introduced in 1934. Designed for use with standard dipole wire antennas, the "Q system" was a length of parallel tubing that acted to match the impedance of the antenna with the impedance of the feed line.¹¹ Starting with a system cut to function on the 5-meter ham band, the company went on

¹¹ In his 1973 company retrospective, Edgar Johnson credits Lloyd W. Olander with the design for the Q antenna system. Mr. Olander became the company's chief engineer in 1937.

to offer a variety of sizes of Q antennas through the 1940's.

The No. 39 one-piece center insulator did not come out until the end of 1938. Instead, early Q antennas used a No. 40 "suspension assembly."¹² The No. 40 was made from a pair of Johnson 7" strain insulators in parallel (with a lot of stainless hardware). I found a No. 40 a few years ago at a radio swap meet. Never having seen one, I thought that a ham had assembled a "home-brew" center insulator from a pair of very nice early Johnson strains. Fortunately, before I began stripping off the hardware, I found ads for the Q antenna systems and identified it properly. These are my only 7" examples with intact decals!

As you can see, 1934 was a very good year for the company. In September, Edgar hired his thirteenth employee, Roy Myers. Mr. Myers spent his entire career with the company and was a tremendous resource for this article. A college graduate in botany, Mr. Myers was having trouble finding work at what was the height of the depression. In early September, Edgar hired him to replace an employee who failed to show up for work. His first job at the company was sweeping the sidewalk in front of the building at 40 cents per hour. Mr. Myers soon found himself working in various capacities in the factory including running presses, plating metal, and doing various kinds of assembly work. He recalls Ethel and Ruth Johnson assembling parts as well. Even the Johnson's children made spending-money working part time for their father.

¹² The Q antenna and the 39 and 40 assemblies are illustrated in the photo section.

Lois Johnson speaks of assembling No. 44 thru-panel insulators in her free time.

Johnson introduced a "dual doublet" receiving antenna in 1935. Instead of using a tubular matching section like the Q system, the all-wire No. 320A doublet antenna was matched directly to a transposed feed line. Hams assembled the antenna from a kit using egg insulators in place of the Q's center insulator. The antenna could be used for any band by adding or cutting wire from the antenna elements. Although it was advertised briefly in QST, it was apparently never cataloged. Targeted for the receiving market, the Johnson doublet had to compete with literally hundreds of other brands. And the Johnson antenna was sold in kit form, while the others were generally pre-assembled and ready to install. I suspect that Johnson quickly withdrew from this market and focused on its presence in the amateur and commercial markets instead.



And 1935 marked the introduction of a new form of egg insulator called the No. 38 cruciform (cross-shaped) insulator. Although it was not patented, Johnson's cruciform has a number of innovative features. The insulator's large, but paper-thin, fins¹³ give it a long leakage path for such a small size. Its compression-style design gives it good strength with little weight. The small "tabs" in the center of each side serve to keep the conductors centered in the wire

¹³ You may have to really hunt if you want to find an unchipped example for your collection.

grooves. Without the centering tabs, the insulator might become canted under strain, causing the conductors to bear on the fragile fins, leading to failure. Like other Johnson egg-style strains, the cruciform insulators were only available in white and were never marked. This design was apparently unique to Johnson, although I've seen a similar unit cataloged by National.

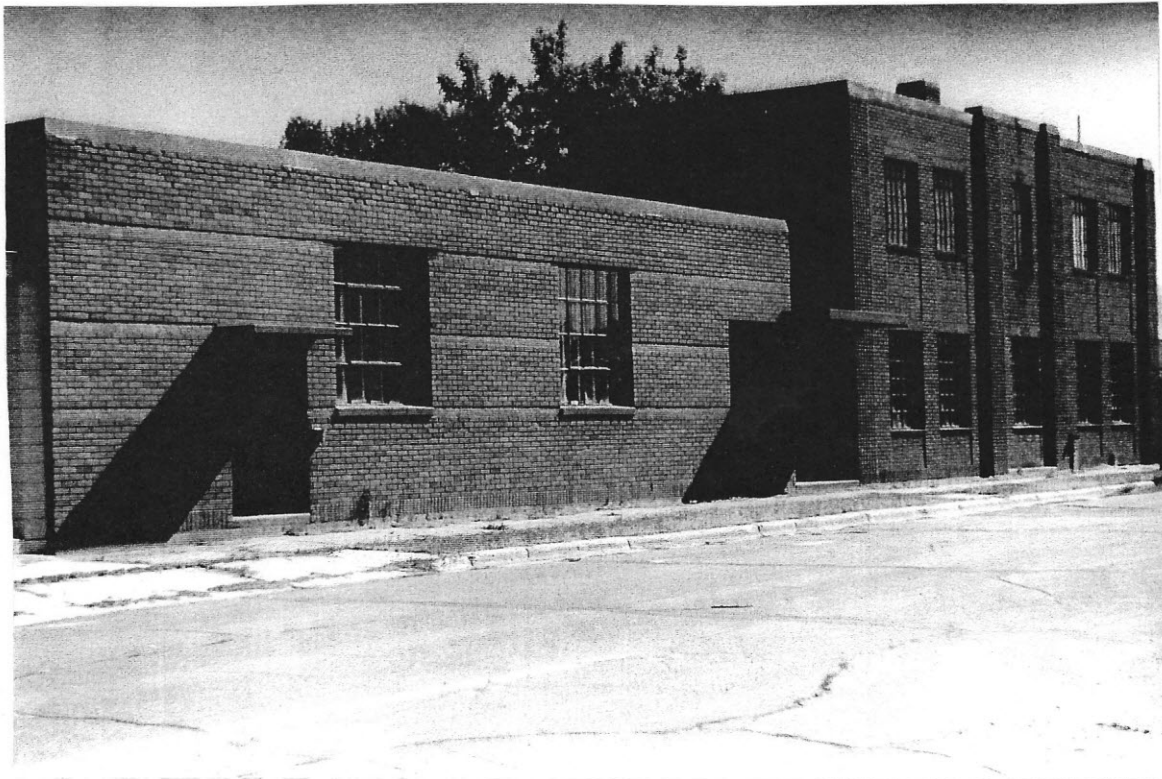
Johnson's commercial-type strains were first advertised in 1935. These heavy-duty rods resembled Corning's "Navy Insulator" series,¹⁴ having metal end fittings. Johnson purchased wet process porcelain insulating rods and brought them to the factory for assembly. Roy Myers recalls putting them together:

We sand-cast the metal end bells ourselves in the basement of the

building. (The fumes from the casting and plating got kind of bad sometimes). Using a cement of some kind that we mixed up, we glued one end first and set them in the racks, probably a dozen at a time. Then the next day, we'd go back and reverse them and cement the other end cap on. We didn't clamp them or anything like that. We made three different sizes for the commercial antennas: 15-1/2", 19-1/2", and 25-1/2". We didn't do that on Main St. We did that in the basement of the new building. (6)

In 1936, the company opened a 5,000 square foot factory on 206 2nd Ave. SW. Its cost, including land, was \$12,500. At the time the company had 17 employees.

¹⁴ See *OFS* 4/98.



In 1937, Johnson began advertising its 600-series porcelain cone insulators in a new material, AISiMag 196 (steatite).¹⁵ Johnson created 500-series part numbers for these insulators. All 5 sizes were identical to their porcelain counterparts.

The company's best-known trademark is E F Johnson's own name of course. But the company also used several other famous logos. In the 1920's, HAMALOGS featured a "9ALD" logo based upon Mr. Johnson's ham radio call sign. Ads from the late 1920's until early 1938 feature a trademark circle with a lightning bolt crossing it. Lightning, or sparks, has long symbolized electricity and radio, probably dating from the days when spark transmitters were the primary means of radio communication.

In the summer of 1938, Johnson first utilized the now-familiar Viking head logo. Though I'm not sure of the origin of the symbol, I believe that it was a tribute to Mr. Johnson's Swedish heritage and the Scandinavian population of Minnesota. Later, the Viking head symbol and the name "Viking" became almost synonymous with E F Johnson.

In 1939, Johnson again had the opportunity to educate *QST* readers on the topic of impedance and the Q antenna system. Lloyd W. Olander, Johnson's Chief Engineer, penned an article for the February issue entitled "The 'Q' Beam Antenna." In it, the theory of the Q antenna and the importance of the quarter wave matching section are described.

¹⁵ See *OFS* 12/97 and the AISiMag story in this issue.

Johnson gave hams all the options. The company sold Q antenna kits that came complete with precut tubing, all the necessary insulators, and hardware. Or, armed with Olander's article, or perhaps Johnson's 1938 *Antenna Handbook*, the enterprising amateur could assemble his own antenna from parts.

The 1940's

We didn't realize it, when orders for our radio components gradually accelerated by 1940 and 1941, that much of it was related to preparations for war. More help was needed, and Marvin and I asked our brother Everett to join us. That occurred in the spring of 1941 when he could be released from his teaching position.... This completed the family partnership of Edgar and Ethel, Marvin and Mildred, and Everett and Ruth Johnson.¹⁶(5)

Once war was declared, the company's output went exclusively to approved defense purposes. Production and employment levels soared as the company did its part for the war effort. One published report says that the company's plant expanded every year 1941 through 1945.(4:1) A Johnson ad in the January 1943 *QST* says that in two years the company expanded its floor space by a factor of 4, its employees by a factor of 10, and its dollar production to fifteen times!

Because of the defense work going on, Federal inspectors were a regular sight at

¹⁶ The three brothers and their wives continued to operate the company as a partnership until 1953 when they incorporated.

the plant. Special guards were employed to protect the vital production from spying and from sabotage.

An internal newsletter, *The Viking News*, was started for purposes of morale and for disseminating information through the now-larger company and its many employees who were absent while serving their country. A typical letter published in 1944 was from an employee serving the military at an overseas station. In it he sends greetings to his friends and family and thanks the company for sending a Christmas care package to him.(8:2). A bi-weekly, the first *Viking News* was published April 22, 1942. The last issue came out September 17, 1948. Today these magazines provide an invaluable insight into the activities at Johnson and the state of the county at the time.

“E” for Excellence awards were an important mark of prestige during World War II, and Johnson won three of them for its defense efforts.

Quoting here from *The Viking News*:

The Navy “E” award was originated by the Navy in 1906 to be used in the fleet. First awarded to ships for ‘Excellence’ in gunnery, it was later extended to include outstanding performance in engineering and communication. As a tribute to outstanding production, it was still later available as a joint Army-Navy award to a very few manufacturers or other organizations.

Some of the more important factors taken into account in

making the award were quantity and quality of production, procurement of materials, utilization of existing facilities and provision of additional capacity. Other factors were plant protection, effective management, good accident record, conservation of critical materials, and overcoming of production obstacles.(9:1)

Johnson’s first “E” award was announced in a letter from the War Department dated March 11, 1944. An awards ceremony was booked at the Central High School auditorium on the evening of April 11th. Johnson had special invitations printed, and an illustrated commemorative brochure was produced.

On the evening of the event, a representative of the Under Secretary of War presented special “E” pins to a ten-member employee delegation.¹⁷ Edgar Johnson and an employee representative received the company’s “E” pennant, which was flown with pride atop the company’s building. An employee chorus sang. The high school band played. And, after the colors were retired, and a closing benediction, the evening was capped off with cigars and dancing.

Under the terms of the award, the company was allowed to receive an additional Excellence award every six months. When the second “E” was awarded at a ceremony on October 30, 1944, all employees hired since March 11th (and still on the payroll on

¹⁷ Hundreds of others received their pins in the school gymnasium after the formal ceremony concluded.

September 23 – the date of the second award) received their pins. Johnson was given a new “E” pennant with a white star on it to signify that it was their second award. The third award was dated March 24, 1945, and the company’s “two-star” pennant was received at an afternoon ceremony on April 25th.

Roy Myers said that they primarily made radio components during the war. They also made a few complete radios including several-hundred smaller base-station transmitters for the U.S. Signal Corps. Roy supervised 300 employees, in three shifts daily, making condensers. Mr. Myers was eventually moved into the office as an order-expediter, rubbing elbows with reps from RCA, Motorola, and other major companies.

Johnson’s Manufacturer’s Designated Symbol was CEJ, their Federal Source Code, 74970.(10) Telegraph keys are known with this number, but we believe that the company did not sell strain insulators to the military. I recently found a No. 62 stand-off with the both a rubber stamped mark (CEJ-61) and a decal marking (CEJ-61474). It may have been a component of one of the radios the company sold under military contract, or it could have been a spare part for one.

At the close of the war, Johnson was providing employment to 500¹⁸ and had expanded into space “in the Lewer garage, a grocery store, and the Oddfellows Hall.”(1) Once the need for secrecy had passed, an open house was held at the company’s facilities, and

¹⁸ According to Roy Myers, the town had a population of about 4,000 at the time.

thousands toured during the two-day event.(5)

Returning to non-defense production in 1947, Johnson updated its part numbering system. Part numbers now started with a three-digit equipment class code. Stand-off and thru-panel part numbers now started with “135-“. Antenna insulator part numbers now started with “136-“. Aside from the class code, the actual part numbers did not change (i.e., the No. 20 stand-off became 135-20).

Johnson had been selling the 500-series steatite stand-offs since 1937. In 1947, the company began selling other types of steatite insulators. Ads no longer mentioned AISiMag 196 steatite by name. This leads me to believe that after World War II, the company may have been buying steatite insulators from other suppliers.

In the early 1920’s Johnson was essentially a radio parts jobber. The HAMALOGS of the 1920’s featured telegraph keys and other products that hams needed but did not include many Johnson-brand items. These “non-Johnson” lines were dropped in the late 1920’s when the company began focusing on the promotion of its own Johnson-brand products. In 1947, the company again offered telegraph keys for sale, this time under the Johnson brand name.¹⁹ Clearly, the acquisition of the Speed-X line of keys in the summer of 1947, was a strategic move for Johnson. It not only expanded the number of products that Johnson could offer, but it allowed Johnson to continue to utilize the employee base and

¹⁹ See the Speed-X article in this issue.

production capacity that had been developed during the War.

And another strategic acquisition took place at this time. E F Johnson added pilot lights to its catalog when it acquired the Gothard line of indicator lights from the Gothard Manufacturing Company of Springfield, IL. All tools, dies, inventories and rights were transferred to Johnson's Waseca, MN, campus where production continued.

Despite the new acquisitions, post-war employment levels dropped as low as 218 in 1948, before growing again later.(4)

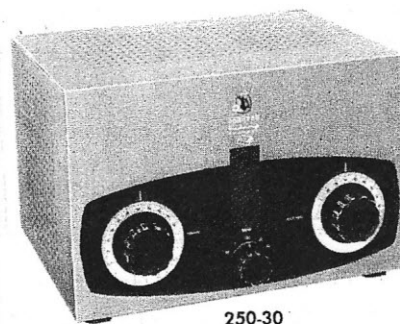
Amateur radio privileges had been suspended since the declaration of war. After the war, would-be hams could not wait to get their amateur radio licenses and get back on the air. This caused an unprecedented demand for amateur radio equipment. Cheap and plentiful war-surplus parts offset some of this demand.²⁰ The balance had to be satisfied through new domestic production because overseas industry was still rebuilding.

Technological advancements during the war were reflected in the new products being offered to hams. Coaxial cable was now available for feed lines. Rotable Yagi-style beam antennas began to made inroads in the prewar wire antenna market.

During the War, Johnson had gained experience assembling complete transmitting and receiving units for defense purposes. In the late 1940's the

²⁰ Some radio parts manufactured during World War II are still available new through surplus dealers.

company introduced a line of radio equipment for amateurs. The first amateur transmitter, The Viking I, was available in kit form. Later sets were also available in kit form or "factory wired." Roy Meyers says when the company would get behind filing orders for factory-wired sets, he, and other employees, earned extra money assembling and wiring the sets at home. The sets were tested and inspected at the factory and came with the same warranty as the other sets. Soon pre-assembled Johnson Viking transmitters, receivers, amplifiers, and accessories were being offered.



About this time Johnson introduced the legendary Johnson Matchbox antenna tuner. Even today, thirty years after the line was sold to The William Nye Company, Johnson Matchboxes are held in high esteem in amateur circles. Many hams will testify that they are the finest antenna tuners ever made. Johnson sold the Matchbox in two sizes. The company first introduced the 250-23, which was rated for up to 250 watts. Later the 250-30 (the "Johnson Kilowatt") became available. It could handle the maximum legal power for all amateur bands, 10 meters through 80, with no changing of tuning coils. We close the discussion of the 1940's with an important, but sad, moment in

the company's story. In January 1942 a fire started in a business next door to the company's Main St. location. The fire eventually spread to Johnson's store, bringing to an end the company's retail activities. Roy Myers recalls standing and watching the store burn from the windows of the 2nd Avenue factory, which was just around the corner.

The 1950's

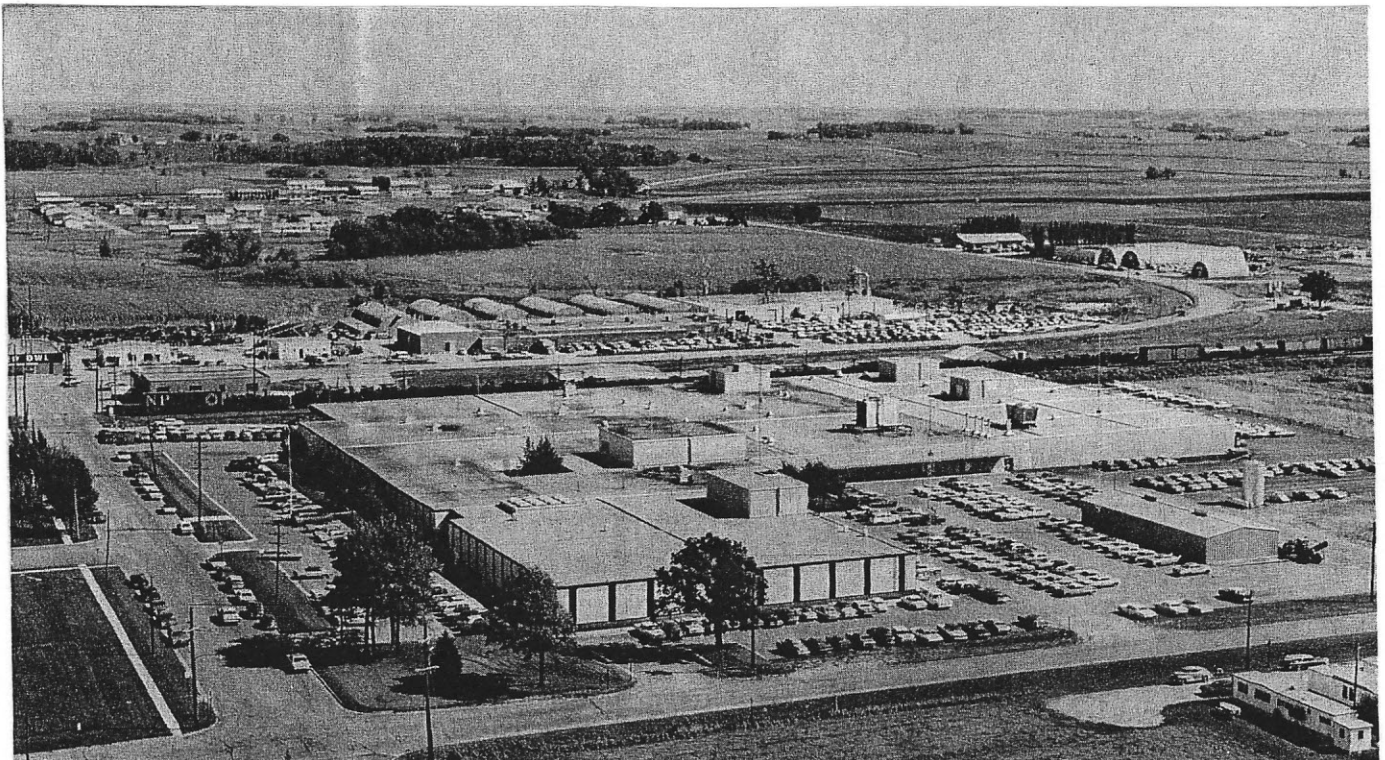
According to Roy Myers, Johnson built as many as 20 transmitters for Voice of America radio stations during the cold war.

In November 1953, the Johnson's three-family partnership was converted to a corporation. Everett Johnson became the corporation's first secretary and treasurer, and eventually became a vice president. Marvin Johnson became vice

president, later chairman of the board of directors. Edgar became the company's president.

In 1956, the first phase at the company's new location was completed. This 22,000 square foot building was used first for equipment assembly. Later it was converted to shipping and receiving and sheet metal and machine shops. Ground was broken on a second phase in 1959.

The 1950's saw the company's continued growth in the area of amateur communications and the commercial communications market. In the late 1950's, Johnson began its domination of the newly created markets for business band and citizens band communications equipment.



The 1960's and on

In 1960, work was finished on the company's new campus location. For the first time in twenty years, all of the company's manufacturing and administrative functions were housed under one roof.(3) Functions that had previously been housed in six different locations were brought onto the new campus. Phase II included 113,000 square feet of office, laboratory, manufacturing, and storage space.(3)

An open house was held June 2 and 3, 1961, to show off the newly completed facilities on 10th Ave. SW.(5)

On August 14, 1968, Johnson acquired Communications Company (COMCO), a Coral Gables, Florida, company. (11:5) Johnson retained COMCO's Coral Gables facilities and continued manufacturing there. This marked the company's first expansion outside of Waseca. COMCO's lines of FM communications equipment were a good fit with the lines already under development, or in production, at Johnson.

In October 1972, Johnson sold its line of telegraph keys, its matchbox, and its antenna coupler to William Nye of Bellevue, WA.²¹

On the fiftieth anniversary of the company in October 1973, the company celebrated with its third-ever public open house.

²¹ For more information on the acquisition, please see the article on Johnson keys in this issue.



Edgar F. and Ethel Johnson

On November 21, 1975, The Radio Club of America awarded its prestigious Sarnoff Citation to Edgar Johnson. He was the second person so honored. The Sarnoff Citation is presented to club members who have made significant contributions to the advancement of electronic communications. In 1975, the RCA created the Pioneer Award for club members who have contributed substantially to the success of the club or to the art of radio. The award was later renamed the Edgar F. Johnson Pioneer Award in his honor.

Edgar Johnson retired from the board of directors of the E F Johnson Company on October 10, 1983, the 60th anniversary of the day that he and Ethel founded it.

Conclusion

The Johnson Company still manufactures radio components. However, they no longer sell antenna insulators. We've not been able to

establish a specific date that the line was continued. Sources only say that the line was most likely discontinued in the mid-1970's.

I must again thank the many, many people and organizations that have helped with this project. I had no idea when we started that I would be meeting and working with so many people before the article was in the mail.

And by the way, this issue will probably be arriving in your mailbox during the first week of October. If you think about it, mark October 10th on your calendar and joining me in toasting the E F Johnson Company on the occasion of their 77th birthday!

End Notes

1. "In Memory of Edgar F. Johnson and Ethel Johnson," *Johnson Week* February 1991.
2. Johnson, Edgar F., "A Lifetime of Radio," *Proceedings of the Radio Club of America* Midsummer 1972.
3. Hanson, Gordon, "E F Johnson Co. Open House Recalls 'Early Days' and Small Beginning of Electronic Firm," June 2, 1961.
4. "Waseca Couple's Partnership Expands Local Radio Enterprise Becomes Three Family Affair," *The Waseca Journal*, March 17, 1948.
5. Johnson, Edgar F., "A Nostalgic Look Back," October 1973.
6. Myers, Roy, interview with Phillip Drexler, July 28, 2000.
7. Johnson, E.F. and Ralph P. Glover, "A Practical Transmission-Line System for the Doublet Antenna," *QST* 1/34 pp. 17-21.
8. Boeke, Jack, letter, *The Viking News*, March 17, 1944.
9. "Army-Navy 'E' Award Given to Company – One of Few Firms so Recognized," *The Viking News*, March 17, 1944, pg. 1.
10. Chesson, F W, "Electronic Military Equipment Naval Equipment Manufacturers," *AWA Review*, Vol. 7, 1991, Holcomb, NY.
11. "Johnson Company Acquires COMCO," *The Waseca Journal*, April 27, 1973.

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Pg. 13 courtesy Phillip Drexler.
Pg. 18 courtesy Phillip Drexler.
Pg. 19 *Johnson Week*, 2/91.
Pg. 21 *QST* 1/35 pg. 96.

Acknowledgements

The Waseca County Historical Society and the E F Johnson Museum made key donations of materials from their collections and kindly granted permission for us to reprint them. We are grateful for your generosity.

Additionally, the following individuals and organizations provided significant help with this project:

Bob and Lois Chaffin
Phillip Drexler
Stan Griffiths
Bruce Herring
Alan Honhorst
The E F Johnson Company
The Minnesota Historical Society
Minneapolis, MN
Roy Myers

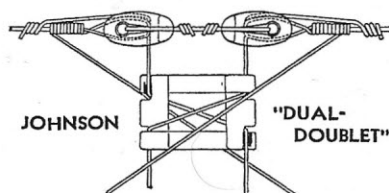
Pavek Museum of Broadcasting, St.
Louis Park, MN
The Radio Club of America, New York
Bob Stahr
Bill Shaw
Manly Youngberg

Sources

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- "Within the Industry," *Radio News* 7/47 pg. 28.
- "Within the Industry," *Radio News* 9/47 pg. 28.

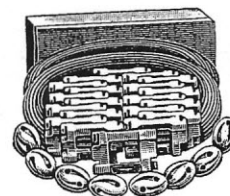
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WASECA, MINNESOTA, U. S. A.

E F Johnson Strain Insulators

30

Dimensions: 2" (egg)
Material: porcelain
Glaze Colors: white
Known Markings: unmarked
Estimated Dates of Manufacture: 1945-1946



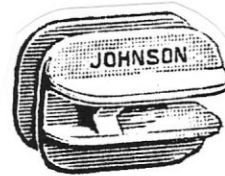
32 (136-32)

Dimensions: 1-1/2" (egg)
Material: porcelain
Glaze Colors: white
Known Markings: unmarked
Estimated Dates of Manufacture: 1933 -



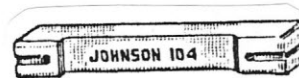
38

Dimensions: 1-1/2" (cruciform)
Material: porcelain
Glaze Colors: white
Known Markings: unmarked
Estimated Dates of Manufacture: 1935 - 1945



104 (136-104)

Dimensions: 4" x 5/8" square
Material: dry process porcelain
Glaze Colors: white
Known Markings: Johnson 104 (embossed)
Estimated Dates of Manufacture: 1943 -



107 (136-107)

Dimensions: 7" x 1" dia.
Material: wet process porcelain
Glaze Colors: white, brown
Known Markings: "transmitting" decal, under-glaze ink markings: Johnson (black, large), Johnson (black, small), Johnson (black, italics), Johnson (silver), Johnson 107 (black), Johnson-136-107 (blue, small), Johnson-136-107 (blue, large), Johnson 136-107 (blue in box), Johnson 136.107.001 Made in U.S.A. (black)
Estimated Dates of Manufacture: 1933 -



112 (136-112)

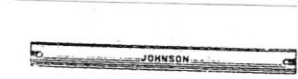
Dimensions: 12" x 1" dia.

Material: wet process porcelain

Glaze Colors: white, brown

Known Markings: "transmitting" decal,
under-glaze ink markings: Johnson (tan),
Johnson (black), Johnson 136-112 (red),
Johnson 136.0112.001 Made in U.S.A. (black)

Estimated Dates of Manufacture: 1933 -



120

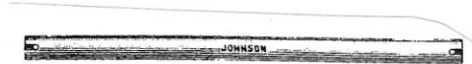
Dimensions: 20" x 1" dia.

Material: wet process porcelain

Glaze Colors: white, brown

Known Markings: Johnson (black ink)

Estimated Dates of Manufacture: 1933 - 1946



151 (136-151)

Dimensions: 15-1/2" (overall), 8" (net), 1-1/2" dia.

Material: wet process porcelain, aluminum alloy hubs

Glaze Colors: white, brown

Known Markings: Johnson, Johnson Made in U.S.A.
(black under-glaze ink marking), Johnson
(embossed on ends)

Estimated Dates of Manufacture: 1935 -



152 (136-152)

Dimensions: 19-1/2" (overall), 12" (net), 1-1/2" dia.

Material: wet process porcelain, aluminum alloy hubs

Glaze Colors: white, brown

Estimated Dates of Manufacture: 1935 -



153 (136-153)

Dimensions: 25-1/2" (overall), 20" (net), 1-1/2" dia.

Material: wet process porcelain, aluminum alloy hubs

Glaze Colors: white, brown

Estimated Dates of Manufacture: 1935 -



E F Johnson Feeder Spreaders

136-122

Dimensions: 2" x 3/8" x 1/2"

Material: silicon-impregnated porcelain

Glaze Colors: unglazed

Known Markings: Johnson (recess embossed),

Silicone Treated (red ink stamp)

Estimated Dates of Manufacture: 1950 -



136-124

Dimensions: 4" x 3/8" x 1/2"

Material: silicon-impregnated porcelain

Glaze Colors: unglazed

Known Markings: Johnson (recess embossed)

Estimated Dates of Manufacture: 1950 -



136-126

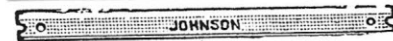
Dimensions: 6" x 3/8" x 1/2"

Material: silicon-impregnated porcelain

Glaze Colors: unglazed

Known Markings: Johnson (recess embossed)

Estimated Dates of Manufacture: 1950 -



132 (136-132)

Description: also found without notches in back

Dimensions: 2" x 3/8" x 1/2"

Material: porcelain

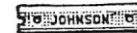
Glaze Colors: white

Known Markings: (recess embossed) Johnson,

Johnson-132 (rectangular recess),

Johnson-132 (oval recess)

Estimated Dates of Manufacture: 1935 - 1950



132

134 (136-134)

Dimensions: 4" x 3/8" x 1/2"

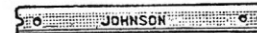
Material: porcelain

Glaze Colors: white

Known Markings: (recess embossed) Johnson 134,

Johnson No. 134

Estimated Dates of Manufacture: 1935 - 1950



134

136 (136-136)

Dimensions: 6" x 3/8" x 1/2"

Material: porcelain

Glaze Colors: white

Known Markings: "transmitting" decal, Johnson
No. 136, Johnson 136 (rectangular recess),
Johnson 136 (oval recess)

Estimated Dates of Manufacture: 1935 - 1950



136

146 (136-146)

Description: commercial grade version of 136

Dimensions: 6" x 5/8" x 7/16"

Material: porcelain

Glaze Colors: white

Estimated Dates of Manufacture: 1935 - 1938

E F Johnson Transposition Insulator

31

Dimensions: 2-1/2" x 1-5/8"

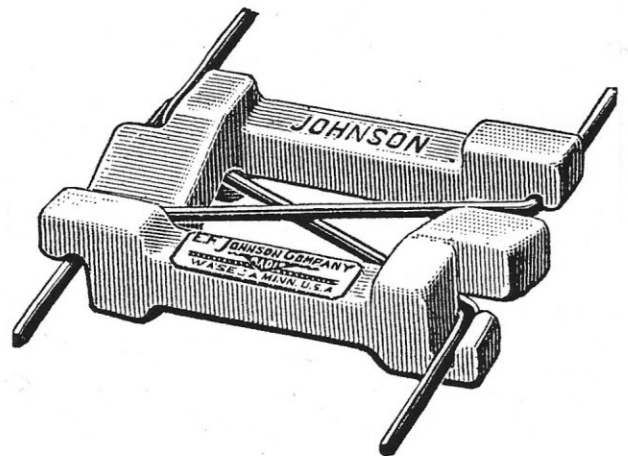
Material: porcelain

Glaze Colors: white

Known Markings:

- 1: "transmitting" decal, Johnson (embossed)
- 2: Johnson Pat. Pend. (embossed)

Estimated Dates of Manufacture: 1933 -



E F Johnson Cone Insulators

500/600 (135-500)

Dimensions: 5/8" high

Material: 500 – steatite, 600 - porcelain

Glaze Colors: white

Known Markings: Johnson No 500, Johnson 600
(recess embossed)

Estimated Dates of Manufacture:
500 1937- , 600 1937 - 1950

501/601/601J (135-501)

Description: 601J has a jack top

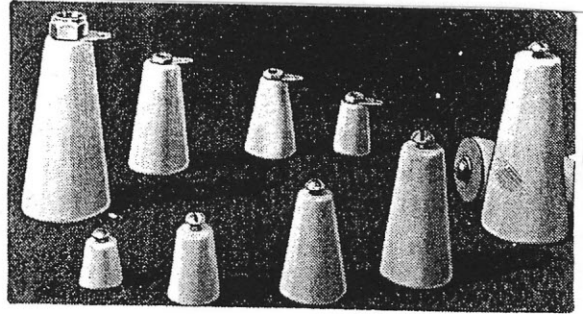
Dimensions: 1" high

Material: 501 – steatite, 601/601J - porcelain

Glaze Colors: white

Known Markings: Johnson 601 (recess embossed)

Estimated Dates of Manufacture:
501 1937 -, 601/601J 1937 - 1950



502/602/602J (135-502)

Description: 602J has a jack top

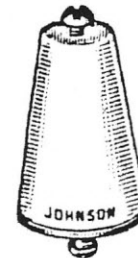
Dimensions: 1-1/2" high

Material: 502 – steatite, 602/602J - porcelain

Glaze Colors: white

Known Markings: Johnson 602 (recess embossed)

Estimated Dates of Manufacture:
502 1937 -, 602/602J - 1937 - 1950



600-604
500-504

503/603/603J (135-503)

Description: 603J has a jack top

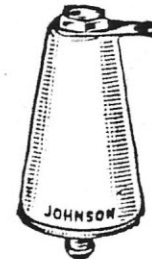
Dimensions: 2" high

Material: 503 – steatite, 603/603J - porcelain

Glaze Colors: white

Known Markings: Johnson 603 (recess embossed)

Estimated Dates of Manufacture:
503 1937 -, 603/603J 1937 - 1950



601-604J

504/604/604J (135-504)

Description: 604 has a jack top

Dimensions: 3" high

Material: 504 – steatite, 604/604J - porcelain

Glaze Colors: white

Estimated Dates of Manufacture:
504 1937 -, 604/604J 1937 - 1950

E F Johnson Stand-off Insulators
(All-porcelain types)

20/20J (135-20/135-20-2)

Description: 20J has a jack top
 Dimensions: 1-5/8" high
 Material: porcelain (until 1950), steatite (1950 -)
 Glaze Colors: white, brown
 Known Markings: Johnson No. 20 (recess embossed)
 Estimated Dates of Manufacture: brown '27-'50, white '33 - '50



20



20J

22/22J (135-22/135-22-2)

Description: 22J has a jack top, nickname "Tinymite"
 Dimensions: 1" high
 Material: porcelain (until 1950), steatite (1950 -)
 Glaze Colors: white, brown
 Known Markings: E F Johnson Co No. 22, Johnson No. 22, Johnson Co. No. 22, Johnson 22, Johnson No. 22 (all recess embossed)
 Estimated Dates of Manufacture: 1933 -



22



22J

24 (135-24)

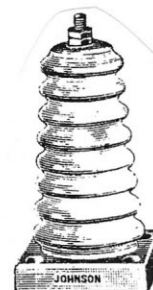
Description: nickname "Micro-mite"
 Dimensions: 1/2", 5/8" both sizes are found, and appear in advertisements
 Material: porcelain (until 1950), steatite (1950 -)
 Glaze Colors: white, brown
 Known Markings: J 24 (recess embossed), both round and rectangular recesses are found
 Estimated Dates of Manufacture: 1933 -



24

60 (135-60)

Dimensions: 4-1/2" high
 Material: porcelain
 Glaze Colors: white, brown
 Known Markings: E. F. Johnson Co. .N 60. Waseca . Minn. (recess embossed)
 Estimated Dates of Manufacture: 1928 -



62 (135-62)

Dimensions: 2-3/4" high

Material: porcelain

Glaze Colors: white, brown

Known Markings: E.F. Johnson. Co. No. 62

(recess embossed), CEJ-61474 (decal),

CEJ-61 (under glaze ink stamped),

Viking head decal

Estimated Dates of Manufacture: 1936 -



**E F Johnson Stand-off Insulators
(Metal-base types)**

65/65B/65J (135-65/135-65-2)

Description: 65B has a brass base,

65J and 35-2 have jack tops

Dimensions: 1-3/8" high

Material: porcelain

Glaze Colors: white, brown

Known Markings: Johnson 10060

(recess embossed)

Estimated Dates of Manufacture: 1936 -,

(65B 1940 - 1949)



65

66/66B/66J (135-66/135-66-2)

Description: 66B has a brass base,

66J and 66-2 have jack tops

Dimensions: 2-3/4" high

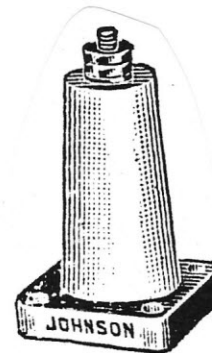
Material: porcelain

Glaze Colors: white, brown

Known Markings:

Estimated Dates of Manufacture: 1936 -,

(66B 1940 - 1949)



67/67B/67J (135-67/135-67-2)

Description: 67B has a brass base,

67J and 67-2 have jack tops

Dimensions: 4-1/2" high

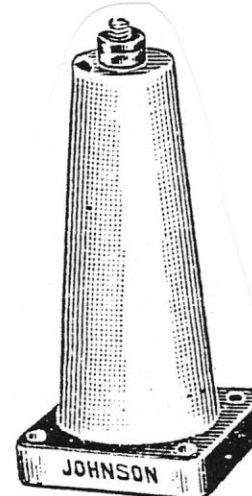
Material: porcelain

Glaze Colors: white, brown

Known Markings: Johnson (recess embossed)

Estimated Dates of Manufacture: 1936 -,

(67B 1940 - 1949)



67

68/68B/68J (135-68/135-68-2)

Description: 68B has a brass base,

68J and 68-2 have jack tops

Dimensions: 2" high

Material: porcelain

Glaze Colors: white, brown

Known Markings: Johnson (recess embossed)

Estimated Dates of Manufacture: 1940 -,
(68B 1940 - 1949)



68-68B



40



40J

E F Johnson Thru-Panel Insulators

40/40J (135-40/135-40-2)

Description: 40J and 40-2 have jack tops

Dimensions: 1-1/4" high (top), 1/2" high (bottom)

Material: porcelain (1935 - 1950), steatite (1950 -)

Glaze Colors: white, brown

Known Markings: unmarked

Estimated Dates of Manufacture: 1935 -

42/42J (135-42/135-42-2)

Description: 42J and 42-2 have jack tops

Dimensions: 7/8" high (top), 3/8" high (bottom)

Material: porcelain (1935 - 1950), steatite (1950 -)

Glaze Colors: white, brown

Known Markings: unmarked

Estimated Dates of Manufacture: 1935 -



42



42J

44 (135-44)

Dimensions: 5/8" high (top), 5/16" high (bottom)

Material: porcelain (1935 - 1950), steatite (1950 -)

Glaze Colors: white, brown

Known Markings: unmarked

Estimated Dates of Manufacture: 1935 -



44

45/45J/4576J (135-45/135-45-2)

Description: 45J & 45-2 have jack tops,

4576J has deep socket top

Dimensions: 1-3/8" high (top), 11/16" high
(bottom)

Material: porcelain

Glaze Colors: white, brown

Known Markings: Johnson 100?? (recess
embossed)

Estimated Dates of Manufacture: 1935 -,
(4576J '38 - '45)



45



4576J

46/46J (135-46/135-46-2)

Description: 46J has a jack top

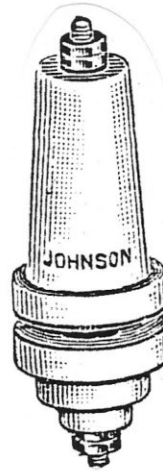
Dimensions: 2-3/4" high (top), 1" high (bottom)

Material: porcelain

Glaze Colors: white, brown

Known Markings: Johnson (recess embossed)

Estimated Dates of Manufacture: 1935 -



46

47/47J (135-47)

Description: 47J has a jack top

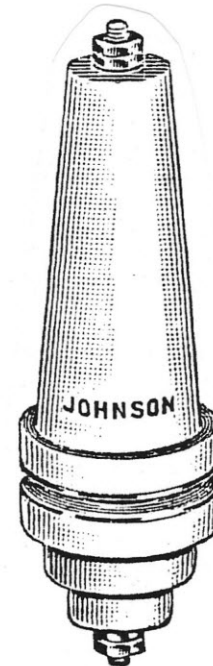
Dimensions: 4-1/2" high (top), 1-1/2" high (bottom)

Material: porcelain

Glaze Colors: white, brown

Known Markings:

Estimated Dates of Manufacture: 1935 -



47

48 (135-48/135-48-2)

Description: 48-2 has jack top

Dimensions: 2" high (top), 7/8" high (bottom)

Material: porcelain

Glaze Colors: white

Known Markings:

Estimated Dates of Manufacture: 1940 -

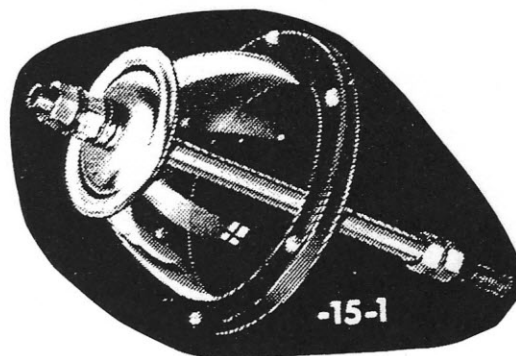


48

E F Johnson Lead-in Bushings

15 (135-15-1)

Description: glass lead-in bowl
Dimensions: 6-15/16" max. dia.
Material: glass (Pyrex)
Estimated Dates of Manufacture: 1925 -

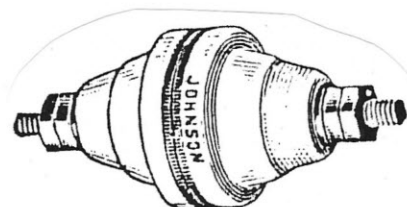


50 (135-50)

Dimensions: 1/2" high
Material: porcelain (1937 - 1950), steatite (1950 -)
Glaze Colors: white
Known Markings:
Estimated Dates of Manufacture: 1937 -

51 (135-51)

Dimensions: 13/16" high
Material: porcelain (1937 - 1950), steatite (1950 -)
Glaze Colors: white
Known Markings: Johnson (recess embossed)
Estimated Dates of Manufacture: 1937 -



50, 51, 52

52 (135-52)

Dimensions: 1-1/8" high
Material: porcelain (1937 - 1950), steatite (1950 -)
Glaze Colors: white
Known Markings: (recess embossed) Johnson,
Johnson No. 52
Estimated Dates of Manufacture: 1937 -



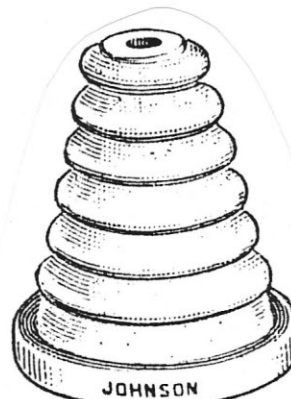
53

53 (135-53)

Dimensions: 1-3/4" high
Material: porcelain
Glaze Colors: white
Known Markings: Johnson No. 53 (recess embossed)
Estimated Dates of Manufacture: 1937

54 (135-54)

Dimensions: 4" high
Material: porcelain
Glaze Colors: white
Known Markings: Johnson - 54 (recess embossed)
Estimated Dates of Manufacture: 1937



54

55 (135-55)

Dimensions: 1/4" high

Material: steatite

Glaze Colors: white

Known Markings: Johnson No 55 (embossed),

Johnson No 55 (recess embossed)

Estimated Dates of Manufacture: 1937 -



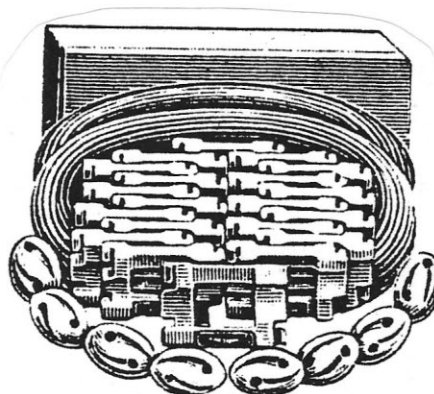
55

E F Johnson Antenna Kit

320

Description: dual doublet antenna kit

Estimated Dates of Manufacture: 1935



E F Johnson Q Antennas & Accessories

33 spacing bar (136-133)

Description: used to maintain spacing on tubular matching sections

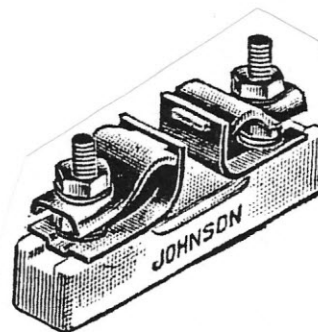
Dimensions: 3-1/8" long x 1/2" square

Material: porcelain

Glaze Colors: white

Known Markings: Johnson . 33 (recess-embossed)

Estimated Dates of Manufacture: 1934-1950



33

34 suspension insulator

Description: assembled from 2 Johnson 107 strains

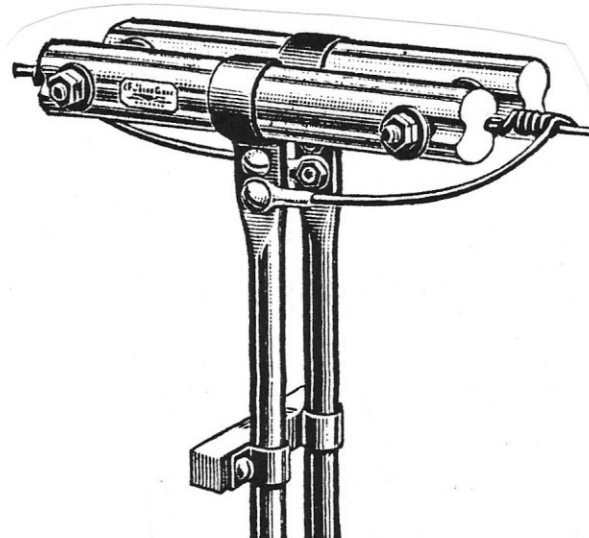
Dimensions: 7" x 2-1/2"

Material: porcelain

Glaze Colors: white

Known Markings: decals

Estimated Dates of Manufacture: 1934 - 1940



35 mounting jack strip

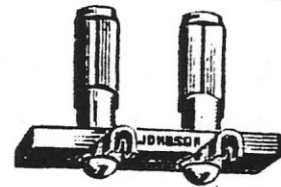
Description: used to mount 5 meter Q antenna

Dimensions: about 3"

Material: Mycalex

Known Markings:

Estimated Dates of Manufacture: 1934 - 1945



36 double plug strip

Description: connects antenna to jack strip

Dimensions: about 3"

Material: Mycalex

Known Markings:

Estimated Dates of Manufacture: 1934 - 1945



37 lug terminal strip

Description: provides lugs for connecting to Q antenna

Dimensions: about 3"

Material: Mycalex

Known Markings:

Estimated Dates of Manufacture: 1934 - 1945



39 suspension assembly (136-139)

Description: one-piece cruciform center insulator (replaces No. 34)

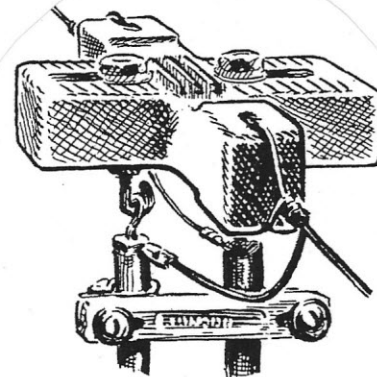
Dimensions: 4" x 4-1/2"

Material: porcelain

Glaze Colors: white

Known Markings: unmarked

Estimated Dates of Manufacture: 1941 - 1950



106 suspension insulator (136-106)

Description: same as No. 39, without the hardware

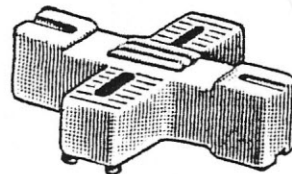
Dimensions: 4" x 4-1/2"

Material: porcelain

Glaze Colors: white

Known Markings: unmarked

Estimated Dates of Manufacture: 1941 - 1950



106

2Q antenna (137-2Q)

Description: 2 meter antenna

Estimated Dates of Manufacture: 1950

5 Q antenna, 5QM, 5QS

Description: 5 meter antenna,

5QS sold with straight tubing

Material: porcelain, 5QM supplied with Mycalex insulation

Estimated Dates of Manufacture: 5Q 1934-1941, 5QM 1936- 1941, 5QS 1945

6 Q antenna (137-6Q)

Description: 6 meter antenna

Estimated Dates of Manufacture: 1950

6-2/3 Q antenna

Description: 6-2/3 meter (television) antenna

Estimated Dates of Manufacture: 1940-1941

10 Q antenna, 10 QS (137-10Q, 136-ST10)

Description: 10 meter antenna, 10 QS sold with straight tubing

Estimated Dates of Manufacture: 1936 - 1950

14Q antenna (137-14Q, 136-ST14)

Description: 14 meter antenna (possibly used for 15 meter band)

Estimated Dates of Manufacture: 1950

20 Q antenna, 20 QS (137-20Q, 136-ST20)

Description: 20 meter antenna, 20 QS sold with straight tubing

Estimated Dates of Manufacture: 1936 - 1950

40 Q antenna (137-40Q, 136-ST40)

Description: 40 meter antenna

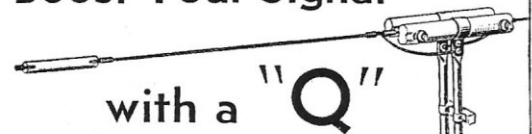
Estimated Dates of Manufacture: 1936 - 1950

80 Q antenna

Description: 80 meter antenna

Estimated Dates of Manufacture: 1936 - 1942

Boost Your Signal



with a "Q"

(JOHNSON TYPE "Q" ANTENNA)

DON'T handicap your transmitter with an inefficient antenna system. Wasted watts can't help your signal.

You're sure of antenna efficiency with the famous Johnson "Q". Adaptable for half-wave, long-wire harmonic or directional arrays. Full information in Bulletin 100Q from any Johnson Distributor or direct.

Ask also for Catalog 961 which shows our complete line, including antenna materials such as insulators, feeder spreaders, and Enameled Copperweld (high tensile strength) Wire.

Export Office: 25 Warren St., New York, N. Y.
Cable: "SIMONTRICE"

E. F. JOHNSON COMPANY
MANUFACTURERS OF Radio Transmitting Equipment
WASECA MINNESOTA U.S.A.

Now A NEW JOHNSON "Q" BEAM ANTENNA

For 2 Band Operation!

A Matched Impedance, Two Band Beam Antenna.
4 db gain on fundamental. Approximately 6 db on second harmonic.
Easy to construct — easy to erect.
No critical matching units to adjust — all calculations made at factory.
For any two adjoining harmonically related bands from 80 to 3 1/2 meters inclusive.
The efficiency of the world-famous Johnson "Q" and the gain of closely spaced elements.
Compact — only 1/2 wave length at fundamental frequency (20 and 30 meter beam 32 ft.)

Close-up of improved one-piece suspension insulator

A COMPACT, 2 Band, Matched Impedance Antenna, consisting of two half-wave Johnson "Q" Antennas, designed for fundamental frequency, spaced 1/2 wave and fed 180° out of phase with a 600 ohm line — with resulting matched impedances between antenna and transmission line on both fundamental and second harmonic operation.

Present owners of standard Johnson "Q" Antennae can easily convert them to the New Johnson "Q" Beam Antenna with the addition of another "Q" for the same band. With a new one-piece suspension insulator equipped with slots permitting spacing adjustments of the "Q" bars and taking of the "Q" bars and transmission line in any

direction — new connecting plugs and new clamps for "Q" bar spacing insulators, possibilities of breakage are reduced to a minimum, and the entire antenna is greatly improved mechanically.

Johnson "Q" matching systems are ideal for other types of antennae such as reflector-director systems, two half-waves in phase, harmonic "longwire" radiators and "Y" Beams. Tubing for 5, 10 and 20 meter "Q" antennae can be supplied in straight lengths if so desired, instead of coiled.

Watch for the announcement of the "Q" in a Can", a NEW Johnson antenna matching system for use with 40, 80 and 160 meter antennae where the conventional "Q" is mechanically inconvenient.

Ask your jobber or write for Antenna Handbook 102J available soon, describing application of "Q" antennae.

E. F. JOHNSON CO.
WASECA, MINNESOTA
MANUFACTURERS OF RADIO TRANSMITTING EQUIPMENT

Speed-X Keys

Edited by Dan Howard

(Much of this information is from the *N7CFO Keyletter*)

Beginning with his storefront and the HAMALOG mail-order catalogs, Edgar Johnson maintained a commitment to provide "everything" that an amateur radio operator would need. While they contained no Johnson-brand products, HAMALOGS listed transmitting and receiving components, antenna accessories, and microphones and telegraph keys made by other companies.

Telegraph keys are nothing more than spring-loaded switches for closing and opening a circuit. A huge number of companies sold them for use on telegraph lines, and later for radio work. Although the company was not manufacturing keys in the 1920's, Johnson's HAMALOG T-3 listed Signal Electric keys and Vibroplex-brand semi-automatic keys.

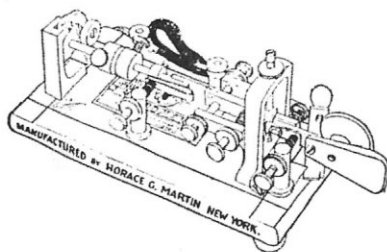
Signal Electric keys (Signal Electric Manufacturing Company of Menominee, Michigan) were widely sold for amateur use. Several models were available with different designs and contacts of different diameter for various levels of transmitter current.

Vibroplex semi-automatic keys were hugely popular among commercial operators and amateurs as well. The keys soon became known as "bugs" due to the company's beetle trademark that appeared on later labels.

In the late 1930's Les Logan became E F Johnson's sales representative in the San Francisco Bay area. Samuel Leslie Logan was born in Chicopee Falls, MA, in 1889. Mr. Logan was a tool and die maker, and served his apprenticeship at the Stevens Armory in Massachusetts. He later worked for the Remington Arms Company. He did not go into the military during World War I because he was in a defense industry and his services were required in manufacturing. After the war he made his way to San Francisco via merchant ship working as a radio operator. He worked in the Bay area, and at one time was involved in manufacturing crystal radio sets.

In the late 1920's or early 1930's he opened a salvage electronics store on Market Street. Ira Offenbach, who also had a retail merchandise store next door, owned the

VIBROPLEX



We offer two models of the famous Vibroplex, the original Martin Vibroplex, and the Radio Vibroplex. The former is used for all purposes, both radio and land line telegraphy, while the latter is provided with large contacts enabling it to handle heavy current without a relay. The value of the Vibroplex needs no mention to those operators who are familiar with its perfect sending, with an ease and speed impossible on an ordinary key.


Martin Vibroplex\$17.00
Radio Vibroplex 25.00

(Shipping Wt. 5 lbs.)

store. Logan worked for Offenbach on a percentage basis.

In 1937, Logan left Offenbach and bought a partnership in The Speed-X Manufacturing Company from its founder, Stewart "Red" Johnson. Speed-X manufactured several lines of sending keys for radio and telegraph work. Tom French places the founding of the company in the mid-1920's, shortly after the Vibroplex key patents expired. (1:26) Their first recorded location was on Jessie St. in San Francisco. After the two became partners, Red Johnson ran the Speed-X operation, and Les Logan was a salesman.

About the time that Logan joined Speed-X, he started his own business as a manufacturer's representative for electronics parts under the name of Logan Sales Company. It was under this name that Logan sold E F Johnson radio products, and Speed-X keys, in northern California.



SPEED-X THE COMPLETE LINE OF TELEGRAPH KEYS

THE LAST WORD
in appearance and performance. One-quarter inch coin silver contacts — well insulated for heavy duty work. All parts chromium plated — choice of black wrinkle or chromium base.

No. 320. Black base..... List \$3.25
No. 321. Chrome base..... List \$3.50
Other models of hand keys from \$1.50 to \$3.50 list — Available at leading jobbers everywhere.
Write for new literature and amateur discounts

LES LOGAN CO. San Francisco
646 Jessie St.

Several years later, Logan bought out Red Johnson's interest in Speed-X and became the sole owner. In the early 1940's the Greyhound Company bought the property on Jessie Street and the Speed-X Company moved to 530 Gough St. in San Francisco.

Les Logan did all of the design work on his keys. The factory operation was small, employing a dozen people at most. Metal plating was sent offsite, and molding was done in the shop for buzzers and inexpensive plastic keys. During World War II, Speed-X sold to the military (source code "CSE"), and stores continued to carry their products. They kept up production hiring older women for the assembly work. They had one man that was 4F to run the molding press and grinder and to do the shipping. Les Logan, who was in his 50's by this time, set up the jigs for the drill presses and did final testing nights, weekends, and whenever time was available.

All the Logan family worked in the shop at one time or another during school vacations assembling, running drill presses, etc. Later on, all of the brothers, Bob, Jack, and Bill, worked as salesmen for Logan Sales Company. Each eventually quit to start his own business.

Although E F Johnson sold manufactured keys to the military during World War II, the company did not have a line of civilian keys. In mid-1947, the company bought the Speed-X inventory, tools, and the rights to the Speed-X name. The materials were shipped to Johnson's manufacturing facility in Waseca, MN, where production resumed. Acquiring the Speed-X line helped E F Johnson meet at least four strategic goals:

- It provided instant brand recognition in the domestic key market.
- It provided growth for the company and utilized manufacturing and labor capacity that had been developed during the War.
- It gave the company access to Logan's distribution network.

- It helped Johnson reach its goal of providing a broad range of products of interest to hams.

Logan continued as E F Johnson's Bay Area representative until his retirement in 1961. Les's son-in-law ran the company from 1961 until his death in 1964. In 1965, Mr. Logan sold the company to four of his salesmen.

After World War II, Johnson added class prefixes to its part numbers. A prefix of "114" was added to Logan's part numbers (i.e. the Les Logan 501, became the Johnson 114-501). Semi-automatic keys were numbered in the 114-500 series. Straight keys were numbered in the 114-300 series. Speed-X "practice sets" were a key and a buzzer that could be used for learning the Morse code. Practice sets were cataloged with 114-400 series numbers and were often shipped with a copy of E F Johnson's booklet "Suggestions for Learning the Code."

On the following page, a sheet from Johnson's Catalog 977B shows a representative sample of the Johnson Speed-X line in the mid 1950's. The company made at least six semi-automatic keys and eight straight keys (not counting variations in finish and design).(1)

In October 1972, E F Johnson sold the Speed-X line of keys to the William M. Nye Company of Seattle, WA. According to William Nye, Jr., they purchased the tooling for the straight keys, telegraph sounders, low-pass filters, and antenna matchboxes, but *not* the semi-automatic keys.

Today, Nye's keys are manufactured on site in Bellevue, WA, though casting, painting, and some machine functions are contracted

out. Nye is using the same key casting molds that were used by the Les Logan and E F Johnson.

Tom French said that, "of the few names associated with keys today, only that of Vibroplex has been around longer."(1:28).

Photo Credits

Pg. 35 Vibroplex ad Johnson HAMALOG T-4 circa 1926.

Pg. 36 Les Logan ad QST 1/38 pg. 95.

Pg. 38 E F Johnson Catalog 977B (circa 1955) pg. 18.

Sources

E F Johnson, The HAMALOG Catalog T-3 & T-4 (circa 1926).

French, Tom, W1IMQ, "Introduction to Key Collecting," Artifax Books Maynard, MA, 1990.

Roy Meyers

N7CFO Keyletter #4 (10/30/92) pg. 11.

N7CFO Keyletter #8 (2/28/94) pp. 82-83.

Lynn Burlingame publishes the *N7CFO Keyletter* as a forum for telegraph key collectors. A resident of the Seattle area, Lynn has collected telegraph instruments for many years and has been my personal friend for the last 15. For additional information about Speed-X or other telegraph instruments, please contact Lynn Burlingame at n7cfo@ix.netcom.com.

Keys and Practice Sets



DELUXE SEMI-AUTOMATIC KEYS

Adjustable from lowest to highest speeds, this handsomely finished semi-automatic key has a smooth, easy action. Vibrator, posts, circuit closing switch, and all machine parts heavily chrome plated. Five adjustments with lock nuts — molded plastic paddles adjust separately to best height. Steel base $6\frac{1}{4}'' \times 3\frac{1}{2}'' \times \frac{1}{2}''$ — complete with adjustable weight and rubber feet.

Cat. No.	Net Price
114-500 $\frac{1}{8}''$ contacts, black wrinkle base	\$17.95
114-501 $\frac{1}{4}''$ contacts, polished chrome base	20.65



SPECIAL SEMI-AUTOMATIC KEY

Many operating features — attractively finished, black wrinkle enamel base. All hardware and vibrator heavily chrome plated. Same vibrator as on deluxe key. Easy action, adjustable from lowest to highest speeds. $\frac{1}{8}''$ coin silver contacts — circuit closing switch — rubber mounting feet.

114-520 Special Model, Semi-Automatic	\$13.95
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HEAVY DUTY KEYS

Heavy die cast base, chrome plated key arm. Well insulated for heavy duty service. Large $\frac{1}{4}''$ coin silver contacts. Improved Navy-type knob. Adjustable steel bearings and spring design give light keying touch.

114-320 Black wrinkle enamel base	\$4.70
114-321 Polished chrome plated base	5.85



STANDARD KEYS

Heavy die cast base. Smooth adjustable bearings. Provision for plugging in semi-automatic keys. $\frac{1}{8}''$ coin silver contacts. A high quality key at a low cost.

114-310 Black wrinkle, no switch	\$3.10
114-310-3 Black wrinkle with switch	3.90
114-311 Chrome plated, no switch	5.20
114-311-3 Chrome plated with switch	6.10



HIGH SPEED STANDARD KEYS

Fully adjustable spring tension, contact spacing and bearings. Brass base and binding posts — instrument lacquer finish. .072" platinum contacts.

114-100 R48 Key, satin brass, no switch	\$5.95
114-100-3 M100 Key, satin brass with switch	6.85



PONY RELAY

Polished, plated steel armature — all other metal parts brass with lacquer finish. Heavy duty magnets. Mahogany finished wood sub-base — cast iron black enamel base.

114-105 (20 ohms)	\$13.80
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PRACTICE KEY

An inexpensive practice key — perfect in design for the average beginner. All the metal parts are nickel plated. Furnished with an adjustable key arm, spring and smooth action bearings. Contacts are of $\frac{1}{8}''$ coin silver.

114-300 Molded phenolic base	\$2.25
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PHENOLIC BASE KEYS

High quality key with adjustable bearings. Improved spring-pigtail connection. $\frac{1}{8}''$ coin silver contacts — nickel plated metal parts.

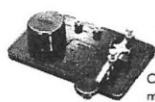
114-301 Molded phenolic base, no switch	\$2.50
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CORD AND WEDGE

Cord and wedge for easy attachment of semi-automatic key across circuit-closing switch of a standard hand key. Used almost universally by railroad telegraphers — ideal for amateur service where both hand key and semi-automatic are used.

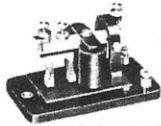
114-380 Cord and wedge	\$1.15
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PRACTICE SET

Constant frequency buzzer and key on a 4"x6" molded bakelite base. Buzzer tone is fully adjustable. Coin silver contacts. Uses two dry cells or "C" battery. Connect singly or in pairs for code practice.

Cat. No.	Net Price
114-450 Practice Set	\$4.90
Buzzer only as used on set above	
114-400 Buzzer	\$1.85



TELEGRAPH SOUNDER

Designed for instant response, brass sounder provides clear, resonant tone. Steel bar frame, black enamel finish. Brass bridge and adjustment screws, instrument lacquer finish. Sounder plate is black lacquered steel. Mahogany finished wood base, brass binding posts and rubber mounting feet.

114-112 Sounder (4 ohms)	\$9.95
114-113 Sounder (20 ohms)	10.45



LEARNER SET

Telegraph practice set. Bar frame steel, brass bridge and adjustment screws. Brass lacquer finish. Brass sounding bar — black lacquered steel sounder plate. Adjustable, brass finished key arm. Mahogany finished wood base, brass binding posts, rubber feet.

114-110 (4 ohms)	\$14.95
114-111 (20 ohms)	15.45



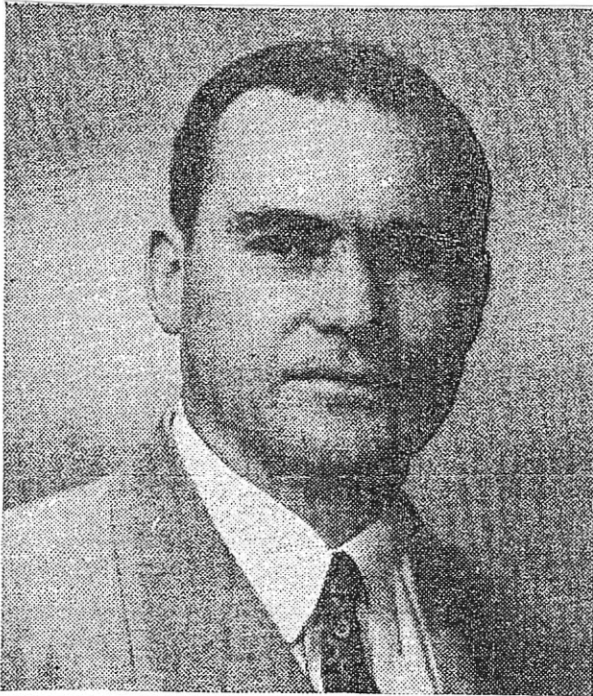
E. F. Johnson Company

WASECA, MINNESOTA

Don Wallace Johnson's First Sales Rep

Edited by Dan Howard

(Much of the information in this article appeared in "Meet Our Reps" from *The Viking News* December 8, 1944. Additional biographical information is from Jan Perkin's 1990 biography of Don Wallace.)



Don C. Wallace

In 1944, *The Viking News*, E F Johnson's in-house newsletter, began a series of articles profiling their sales representatives. The column, "Meet our Reps," first ran on December 8, 1944, profiling Don Wallace, Johnson's representative in Los Angeles.

Prior to becoming Johnson's first sales representative in 1926, Don Wallace had already established quite a reputation for himself.

Donald Clair Wallace was born in Minnesota in 1898. Mr. Wallace first went on the air in 1911, before the first radio regulations (NB). While still in high school, Don put up a radio transmitter in the garage of his Long Beach, CA, home. He soon passed his first class commercial telegraph

operator's license and spent summers at sea working as a wireless operator for the Marconi Company.

Attendance at Hamline University brought Don back to St. Paul, MN. Don had charge of the school's radio station, 9BU. When World War I broke out, Don joined the Navy as a Radioman and was assigned to operate NPG, the Mare Island Navy Yard radio stations near San Francisco. After becoming Maintenance Chief-in-charge of the station, Don traveled to other naval installations repairing equipment. Don had the opportunity to become a radio operator at KET (Bolinas, CA) when an operator suffered a broken arm. As part of the transpacific communication system,²² the 300 KW station communicated regularly with Japan and Honolulu on 5000 meters.

After serving as Radio Chief-in-Charge for eight months on a submarine, Mr. Wallace transferred to the Atlantic Transportation Service. In 1919, he served aboard the USS George Washington, President Wilson's Peace Ship at the Versailles Peace Conference.

Returning to Hamline University, he put up a new station 9DR-9DX. Shortly there after, he joined Edgar Johnson at the University of Minnesota where they shared an interest in radio. While pursuing his studies, Don was the manager and chief engineer of the first broadcast station with regular programming in the Great Northwest, 9XI.

²². See also "High Power in Hawaii - Locke to the Rescue" OFS 6/98 pg. 11.

After graduating from the University of Minnesota, he continued as an amateur radio operator holding several amateur call signs including 9DR, 9ZT, and finally W6AM.

Mr. Wallace was hired to manage the radio department of Peerless Electric Company, returning to California in 1926 as the company's West Coast representative.

Mr. Wallace's biographer tells the following story of how Don Wallace became E F Johnson's first sales representative:

Don wrote him [Edgar Johnson] and told him that he would like to represent the E.F. Johnson Company. Johnson replied with a letter and said that every sales rep he had ever met was a bum; no offense intended. He would handle his company's sales by advertising, thank you. Not to be discouraged, Don carried an ad containing E.F. Johnson Company products along while he was out visiting his various customers. When he was taking orders for his assorted product lines, Don would write up any product from Johnson in which his customers were interested. In a short period of time he had accepted enough orders to literally fill a boxcar - the freight rates were most favorable when an entire car was filled. Don sent the stack of orders in to Johnson and said that this was for old times sake, no charge. Mr. Johnson, realizing the effort involved in taking this large number of orders, sent back a thank you note and a commission check for 10 percent of the total order. So Don continued to take orders for the E.F. Johnson Company and pass them along when a boxcar was filled, and the commission

checks kept rolling in. In this manner Don soon became the exclusive West Coast representative for the E.F. Johnson Company.(1:92)

Mr. Wallace's biographer goes on to say:

Don's relationship with Edgar Johnson proved to be very beneficial for both of them. Aside from the business he was bringing in, Don also used the various products made by Johnson in his amateur station. As he saw improvements that could be made, or additional products that could be offered, Don would make a sketch of the modifications (or proposals) and send it in. A great many of these were implemented by the company.(1:92)

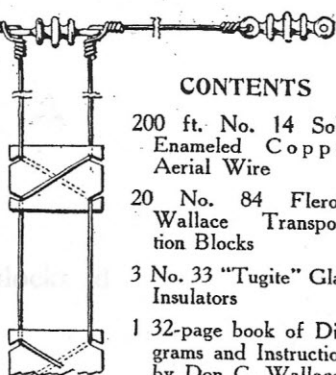
In 1933, while still representing Johnson, Don Wallace lent his name to a competing venture with the Fleron Company.²³ As discussed in the Johnson article, significant developments in feed line technology were taking place during this period. In conjunction with Don Wallace, Fleron developed white-glazed Fleron-Wallace transposition blocks. Besides being sold separately, they were incorporated into a "Fleron-Wallace Shortwave Doublet Antenna Kit." A 32-page book of diagrams and instructions authored by Mr. Wallace accompanied the kit. E F Johnson's own patented transposition block went on the market at about this same time.²⁴ Although I've seen some of the Fleron-Wallace transposition blocks, I doubt that many were sold.

²³ See also "M.M. Fleron" *OFS* 8/10, 1996.

²⁴ See pg. 11.

FLERON-WALLACE SHORT WAVE DOUBLET ANTENNA KIT

Adapted by Don C. Wallace (Hoover Cup winner) after tests on hundreds of types of aerials for S-W work. Most favorable design for amateur frequencies and "All Wave" receivers. Lead-in construction eliminates noise and static. Complete with Fleron Glazed Transposition Blocks and complete diagrams and directions for the best installation.



CONTENTS

- 200 ft. No. 14 Solid Enameled Copper Aerial Wire
- 20 No. 84 Fleron-Wallace Transposition Blocks
- 3 No. 33 "Tugite" Glass Insulators
- 1 32-page book of Diagrams and Instructions by Don C. Wallace

Catalog
Number
495

Carton
10

List Price
Each
\$4.95

FLERON-WALLACE ALL GLAZED TRANSPPOSITION BLOCKS



Complete glazing is an important feature of the Fleron-Wallace Block. It eliminates absorption of moisture and reduces the accumulation of soot and dirt. Only F-W Blocks have this important feature. This is the original Block adapted by Don C. Wallace on his now famous Doublet Antenna System, specifying 20 Blocks per Lead-in. White Glaze.

Catalog
Number
84 White
Glaze

Carton
20

Standard
Package
100

List Price
Each
\$0.20

Mr. Wallace achieved fame throughout the world for his achievement in amateur radio. In 1945, he acquired a 120-acre site atop Palos Verdes Peninsula. With almost boundless space to erect antennas and an unrivaled location, he built what was the most powerful amateur radio station in the world. With it, he was able to establish communications with literally every corner of the world.

Both of Don's sons, William and Don, Jr., assisted with sales calls when on leave during World War II. Later, William joined the business full time and the firm eventually became known as Wallace and Wallace. As E.F. Johnson opened sales offices and became affiliated with additional representatives, Wallace and Wallace's sales

territory was scaled back to Southern California only.

Don Wallace passed away May 25, 1985, and his station was dismantled a year later, according to his wishes.

End Notes

1. Perkins, Jan, "Don Wallace - W6AM" Vestal, NY: Vestal Press, 1990.

Photo Credits

- Pg. 39 *The Viking News*, 12/8/44, pg. 5.
Pg. 41 Fleron Price Circular No. 653 (Sept 1, 1933).

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- Battles, Brian, "Don C. Wallace, W6AM: Amateur Radio's Pioneer," New Books, *QST* 9/91 pg. 42.
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"Meet Our Reps," *The Viking News*, December 8, 1944, pg. 5. (Courtesy of The Minnesota Historical Society).
"New Book Tells the W6AM Story," *Strays QST* 11/90 pg. 17.
Perkins, Jan, "Don Wallace - W6AM" Vestal, NY: Vestal Press, 1990.
Perkins, Jan, "The W6AM Rhombic Antenna Farm Dismantled," *QST* 12/88 pp. 62-63.
United States Dept of Commerce, "Amateur Radio Stations of the United States," 6/30/22 pg. 263.
United States Dept of Commerce "Amateur Radio Stations of the United States," 6/30/25 pg. 260.

Illinois Electric Porcelain Inc.

by Dan Howard

EF Johnson catalogs, "HAMALOGS," from the mid 1920's include insulators from several companies, none of which were sold under the Johnson trademark. Some of the insulators are from familiar companies such as Corning Pyrex²⁵ and Star Porcelain-General Radio.²⁶ However, another brand featured in early HAMALOGS, "Sure Fire," was unknown in the literature. Research for the Johnson articles lead me to discover that Sure Fire Radio Labs was a previously undocumented endeavor by the Illinois Electric Porcelain Company Inc.

Illinois Porcelain

Illinois Porcelain was founded in Macomb, Illinois, in 1910 by Charles W. Kettron Jr. (1:86). Before starting Illinois Porcelain, Mr. Kettron had worked for many years both in the sales and production of stoneware (2:145). Seeing an opportunity to move "out west" away from the porcelain centers of Ohio and New Jersey, he settled on Illinois. Mr. Kettron founded the company with an investment of \$25,000.



This new "Triangle" Strain Insulator has 50% more leakage distance than any other porcelain strain insulator of equal size.

"TRIANGLE"
Electric Porcelain



The Porcelain
of Quality

The company began as a manufacturer of dry process porcelain. Early products included electrical tubes, wiring knobs and strain insulators. This 1915 ad shows an unusual Johnny-ball style strain that the company called a Triangle Strain. Note the

²⁵ See *OFS* 2/98 and *OFS* 4/98.

²⁶ See *OFS* 12/96.

triangular grooves on the sides. A more traditional Johnny Ball was pictured on the cover of the 10/99 issue.

Illinois Porcelain began making wet process pin insulators in 1915 (1:86) and eventually became one of the country's leading manufacturers. During the 1920's, the company made radio strain insulators under its own name and also under the name of "Sure Fire Radio Labs."

Sure Fire Strains

Like Edgar Johnson, Charles Kettron, the founder of Illinois Porcelain, was an amateur radio operator during the 1920's. His call sign was 9DNH. I believe that his interest in radio probably lead to the creation of the sideline "Sure Fire Radio Laboratories." Surely the market for the 20" strains must have been modest when compared with the company's sales to commercial accounts.

The earliest Sure Fire ad that I have is from 1923. The pictured insulator was white glazed, with an effective length of 18" and an overall length of 20". The insulator is clearly marked with a Triangle M underglaze stamping (although I've not had a specimen to examine and verify). It is not stated whether it was wet or dry process. Ads appeared in *QST* magazine in 1923 and 1924, and the insulator was also sold through the Joslyn catalog at least as late as 1926.

Very early E F Johnson ads in *QST* and in the HAMALOGS also feature the Sure Fire insulator. However, Johnson did not advertise the other Macomb strains. In 1933, Johnson began advertising its own 20" white porcelain strain that was very similar

to the Sure Fire strain. I suspect, but have now way of proving, that the Johnson insulator was made by Illinois, at least at first. Roy Myers joined Johnson in 1934 and has no recollection of receiving insulators from Illinois Porcelain.

Charles W. Kettron died in 1941 and his son, H.P. Kettron, became president of the company.(2:146) The company was sold to T.M. Evans in 1951 and eventually became part of the Line Material division of McGraw-Edison.(1:86)

Markings

Many collectors know Illinois Porcelain by its familiar triangle-M trademark. The M stands for "Macomb," the company's trade name.

The triangle M hand stamp marking was adopted around 1915 and early markings were generally done in blue ink. A map of Illinois was introduced in the early 1920's, but the triangle marking continued to be used. Johnny-ball strains are also found with an embossed triangle M marking.

Joslyn Strains

Early investors in Illinois Porcelain included Marcellus Joslyn, the founder of the Joslyn Company. As a jobber of electrical construction equipment, it was only natural that Joslyn cataloged Illinois Porcelain insulators. This illustration from a late 1920's Joslyn advertisement shows several more styles of Illinois Porcelain radio strain insulators.

End Notes

1. Tod, Jack, *A History of the Electrical Porcelain Industry in the United States*, 1977, Buna, TX.
2. Mills, Brent, "Porcelain Insulators and How They Grew," Leroy, NY, 1970.

Photo Credits

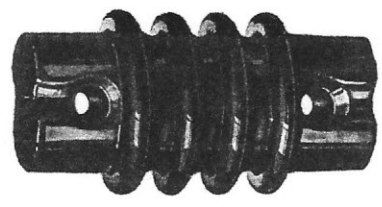
- Pg. 42 *Electrical Review & Western Electrician*, 11/6/15 pg. 7.
Pg. 44 (Top) Joslyn Catalog #10.
Pg. 44 (Bottom) *QST* 9/23 pg. 84.

Sources

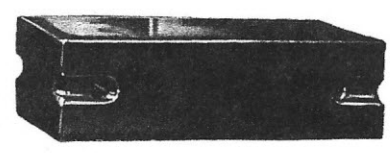
- 9DNH Sure Fire Radio Laboratory ad *QST* 9/23 pg. 84.
Consolidated Radio Callbook 5/22
Mills, Brent, "Porcelain Insulators and How They Grew," Leroy, NY, 1970.
E F Johnson ad *QST* 12/24 pg. 86.
Joslyn Catalog #10 1926 (courtesy of Bob Stahr)
Tod, Jack, *A History of the Electrical Porcelain Industry in the United States*, 1977, Buna, TX.
Tod, Jack, *Porcelain Insulators*, 3rd edition, 1988, Buna, TX.
United States Dept of Commerce "Amateur Radio Stations of the United States," June 30, 1925.

JOSELYN MANUFACTURING & SUPPLY COMPANY

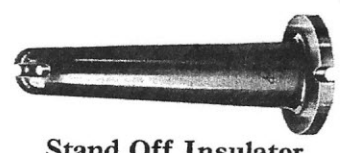
Radio Insulators



No. 0—Color, Green, Length, 2½ inches, Diameter, 1¾ inches.
 No. 1—Color, Brown, Length, 3 inches, Diameter, 1¾ inches.



No. 00
 Length, 2½ inches Diameter, ¾ inch
 Color, Green



Stand Off Insulator
 To hold wires six inches from building surface
 Diameter of base 2½ inches
 Height to wire hole 6 inches
 Color, Green

Sure Fire Antenna Insulator for Sending Stations



20 inches long, 1 inch in diameter. Wet process, tensile strength 1500 lbs. Color, white. Dry Flash-over, 170,000 volts. Wet Flashover, 70,000 volts.

LOOK

A Long and Skinny Antenna Insulator 18 inches between wire holes one inch in diameter



MADE of the best highly vitrified high tension white glazed porcelain, especially prepared for making these insulators. Low capacity between terminals; a good dielectric with low electric absorption; will not absorb moisture.

Greater DX transmission with Sure Fire Antenna Insulators.

**In Lots of Six or More
 One Dollar Each**

Express C.O.D.

**9DNH SURE FIRE RADIO LABORATORY
 Macomb, Illinois**

American Lava Part I

(This story originally appeared in the August, 2000 *Old Timer's Bulletin*. It is reprinted by permission of the author and the Antique Wireless Association)

The AlSiMag Story

by Walter H. Smartt, M.D.

Few radio hobbyists will recall the American Lava Corporation, which was on the cutting edge of electronics development over most of the 20th century. Its first logo was "ALCO" (for American Lava Corp.) and later "AlSiMag" for aluminum, silicon, and magnesium; the principal elements of their products). The firm was the largest and finest producer of ceramic insulation worldwide. My family was deeply involved early on, and my dad was secretary.

I want to tell the AlSiMag story from a hobbyist's standpoint while I can still remember the details. Unlike Isolantite, which was a French company,²⁷ ALCO did not place its name or logo on any electronic product. There was no retail business; they made ceramic products for other corporations.

Before World War I the company was called "Sunshine Lava," and was owned by the Thurnauer family of Germany. Sunshine originally made only tips for gas

²⁷ See OFS 2/99.



PJ Kreusi (at desk) surrounded by ALCO staff about 1904. Kreusi, a son of Edison's key assistant, would serve at American Lava for some fifty years.

burners.²⁸ These were machined from solid soapstone [steatite or talc, chemical formula: $H_2Mg_3(SiO_2)_4$].

The most popular of the tips was the "Cabot," which was used in home lighting. This tip caused the flame to burn red and in a fan shape. The auto headlights of the time also used a gas flame, but the fan shape was useless for this purpose.²⁹

For headlight use, ALCO developed what was called the "Lava Tip." This burner was y-shaped with holes on the inside of each end of the tip so gas could exit. Additional holes were provided to admit and mix ambient air. The flames were bluish and, where they crossed, very intense and concentrated. This made it possible to collimate and magnify the beam as required in spotlights.

The first manager hired by the Germans was P.J. Kreusi of Swiss descent, the son of Edison's assistant in the development of electric lighting, telegraphic equipment, the phonograph, and other inventions. Kreusi selected Chattanooga as a location because he wanted to marry Myra Smartt, a Chattanooga girl, and because soapstone could be obtained from nearby Hewitt, North Carolina. In 1902 operation began in Market Square near the original Coca-Cola bottling plant.

During World War I the company, being German, was seized by the U.S. Government. However Kreusi was allowed to stay on as operator. After the war he bought the plant, later selling 51% of the stock to his brother John and the rest to other employees. After John

died in testate, P.J. had to return as president to look after his family's holdings.

The products were produced by machining raw soapstone on small turret lathes run by belts from a central power plant. Operators would clamp a small square piece of soapstone in a chuck and bring various steel tools to bear on it, eventually producing the gas-burner tip (or, later, the coil form, spark plug core, or standoff insulator). Fair wage was 14 cents per hour and talcum powder was everywhere.

Everything had to be made oversize because the sintering process, carried out in periodic kilns, made items shrink. The kilns were fired by kerosene that cost 8 cents per gallon. If something came out large, it was run back through the kiln at higher temperature; smalls were discarded.

What couldn't be shipped to customers was my treasure trove. The myriad of shapes was better than Lincoln Logs or Erector Sets as childhood plaything, and they were free. Sadly, I have saved fewer than a dozen pieces!

As the business became more technical, the shrinkage in firing necessitated the use of oversized drill and taps, which had to be made in house. Firing was at around 1800 degrees Fahrenheit. Watching pyrometer cones through a peephole controlled the temperature. These would sag and collapse at the proper temperature. The same method of temperature control was use in the firing of pottery and porcelain.

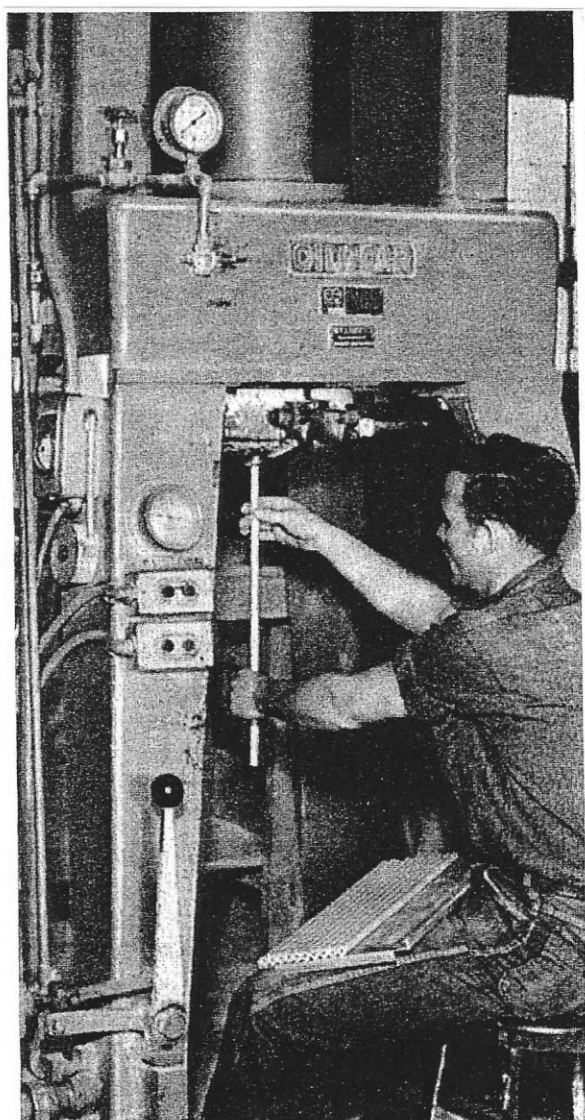
The "Lava" in the company name referred to the extreme heat used in the

²⁸ See also D M Steward in this issue.

²⁹ The first electric headlights were not introduced until 1909.

manufacturing process – similar to that of the molten rock produced by volcanoes. This cause much confusion because many people thought that the company made “Lava” soap.

I remember conducting “industrial espionage” on Sunday afternoon rides with my father. A competitor, D.M. Steward (still I existence), was close by, and Dad would drive past to see how many lights were on in the building and



Worker removing piece from extrusion press, early 1950s.

to study their junk heap for a glimpse of what they were making. He was always trying to get a jump on the competition.

The company’s first pressed-talc (ground-up soapstone) product was a holder, about the size of a pack of cigarettes, for a glass-vial mercury switch. It was made on a hand-operated porcelain press looking much like Ben Franklin’s printing press.

Adding a pressing department required new methods, and machinery like grinders, sifters and a mixer called a “melanger.” Borrowed from the chocolate industry, the mixer crushed and mixed dampened talc in a granite dish about eight feet in diameter rotating under two giant granite rollers.

Automatic machines, later called “pill presses,” were made from used Aspirin presses. These could sift powder into a mold or die, bring top and bottom presses to bear with great pressure, and spit out things like toaster hooks, trimmer bases, radio-tube support elements, switch plates, and the ceramic beads used in early coaxial cables. These machines were also used during the 1930’s Depression to make underwear buttons.

Products so made were damp and had to be dried before firing. When finished, the piece was hard enough to cut glass. This process finally could produce a uniform product held to very close tolerances. Customers flocked in, knowing that their orders could be filled with absolute uniformity.

Old-fashioned ingenuity was supplied by a natural-born genius, one Blake Hullender. Blake was capable of de-

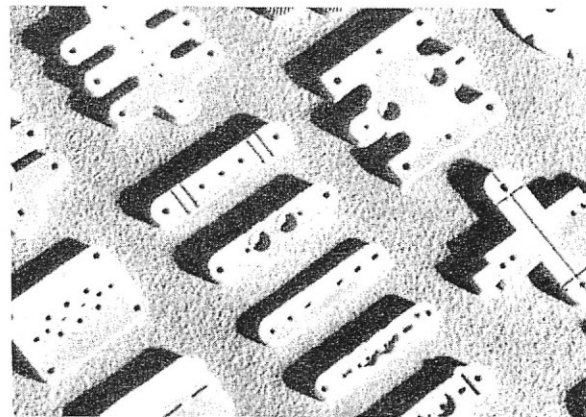
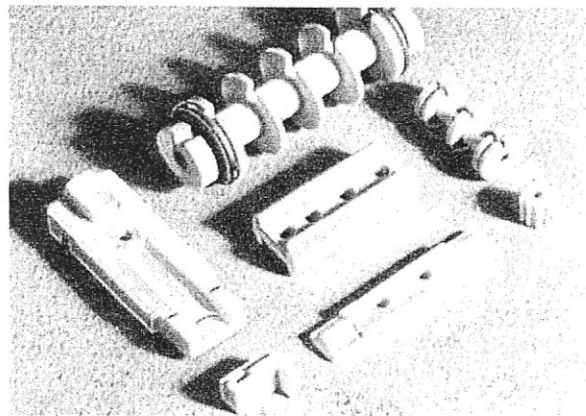
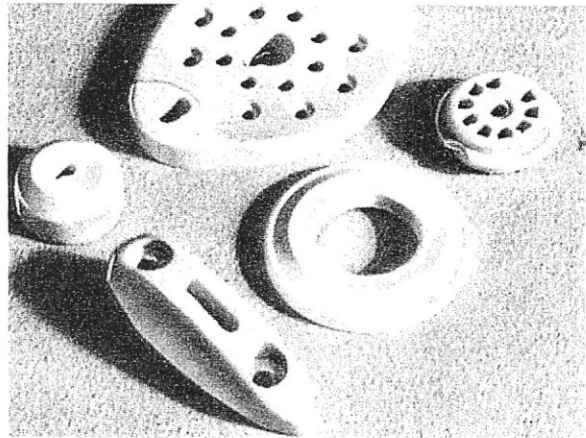
bugging anything coming from the engineers and making it work clear through the shipping department. Tube bases, tube sockets and condenser disks were made by the millions.

The most ticklish product to be developed was a result of the need for radio-tube manufacturers to insulate filaments in the new AC-heated tubes from their surrounding cathodes. Early AC-heated tubes like the Sonora RA-1 used 14-volt toy-train transformers to heat a filament wound around a threaded soapstone insulator about half the size of a pencil. This took forever to heat up, due to the mass of the insulator. What seemed to be needed was an insulator about the size of a pencil lead, or smaller, which had one or more longitudinal holes through which the filament wire could be pulled.

GE developed a way to do this and, through the Edison-Kreusi connection, rights to the process were given to ALCO to perfect and mass-produce. The process involved making small batches of mostly magnesium oxide in ball mills, tumbling for a very long time to grind and mix the ingredients to a very small particle size. (This process was locally called "MGO" for its principal ingredient.)

The prepared powder was moistened and loaded into an ordinary Alemite grease gun. A die at the outlet formed a spaghetti-like strand with a concentric hole. As the operator cranked the grease gun with one hand, he used the other to move a grooved wooden plate to accept the extruded product. Quite a feat of coordination!

The complete strands were dried, cut to length, and then fired in an electric muffle furnace the size of a carton of cigarettes. The furnace was kept supplied with 100% hydrogen to keep the heating



Alco-manufactured parts for the electronics industry. Items at right are spacers used in vacuum tubes.

elements, made of molybdenum wire, from burning up. This was a lucrative activity until the manufacturers found that all they had to do was dip or spray their filaments with an insulating coating and stuff them into a cathode.

The ALCO insulator sped up the heating of the cathode, as in the 227 tube, but the sprayed filaments gave quicker heating and lower cost to the manufacturer. And so a profitable enterprise went down the drain!

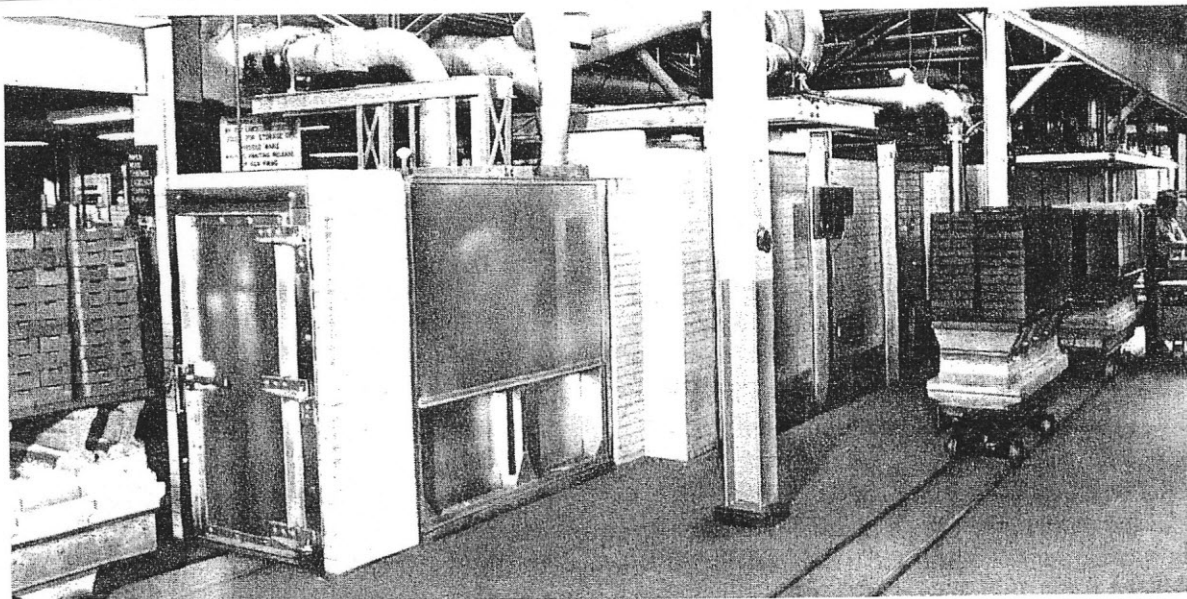
About the same time, an extrusion process was developed for much larger insulators. It used the same powder as the presses, but dampened and placed in a large cylinder with a die on one end. This die was selected to produce whatever size tube was required. A hydraulic ram was brought down on the cylinder, all air evacuated, and the material was shot out under pressure through the die.

Tubes of material up to four inches in

diameter and four feet long could be formed. After drying they could be cut, drilled and grooved to customer's specifications. Solid bars and many other shapes were made by extrusion.

Very few insulators, unless of heroic size, were made by a potter's wheel or by filling a mold with slip. This was the common method used by companies making things like toilets and insulators for high-tension power lines, where tolerances did not have to be held to close limits.

The soapstone originally obtained from North Carolina was not terribly pure, but sufficiently so for making gas burners. As electronic uses expanded, a need developed to find talc that did not contain iron. Italy supplied much purer talc, but it often blistered on firing. A similar raw material was found in South Africa. Consisting of almost pure aluminum silicate, it came over at irregular intervals as ship's ballast.



One of several types of kilns in use at Alco for final firing of products.

During World War II, this source began to dry up. The English owner of the mine in South Africa would not help, but he did tell Dad he could come over and dig all the talc he wanted. The first plane flight of Dad's life, then, was to South Africa. He doubled his life insurance and bid all of us goodbye forever. Natives were hired, the talc was cut out in blocks and floated down the river on logs for shipment to the U.S. Dad got back also.

After that experience, he was determined to find suitable talc at home. On an expedition to Sedro-Woolley, Washington, he found his needed source and made a local farmer rich. Later, additional deposits were found in California and Montana.

I remember when Ford began to order products from ALCO. The first item was a grooved tube used to make a resistor for the primary of the spark coil. Next was a ceramic base for a rheostat to control the brightness of dash lights, then spark-plug cores, then something else until about a third of ALCO's business was with Ford. Then the axe fell!

Ford made an offer to purchase the company much below its real worth. Kreusi wisely refused the deal. Ford threatened to withdraw all its orders unless he sold. He would not, so the orders vanished! ALCO sank into the doldrums; things got tight. ALCO sold its insulators to anybody it could, even at a loss.

Cornell-Dubilier benefited; they bought ceramic tubes to put their capacitors in at a rate lower than the paper tubes they had been using.

A Thurnauer son, hired just prior to World War II, was a ceramic engineer who had been run out of Germany by Hitler. He was gifted at developing insulating materials of different properties. In a pilot plant, many sorts of raw products were tested and procedures perfected to produce insulation for various possible uses. Always "firstest with the mostest."

His crowning achievement was developing insulators, thread guides and cutting tools from titanium dioxide. The process was perfected before it was needed. Titanium dioxide, at the time, was mined only for the making of white paint.

Dad agreed to purchase all the raw material that was not used for paint. It was stockpiled until a gargantuan need developed in television for its special properties. Other companies soon became able to make the same product, but they could not buy the raw material. Later another bonanza developed. ALCO was in on the development of the secret proximity fuse in World War II. They outstripped almost all their competitors and were early into producing ceramic substrates for mounting electronic parts.

The company was sold in the fifties to 3M, and Dad retired after 45 years. He had been fired as a youngster by Brach Candy Company because he did not open the retail store one Christmas morning. He was lucky.

Walter H. Smartt, M.D.

As a boy, Walter was obsessed by industry - roaming the Chattanooga area, where he grew up pleading with local manufacturers for tours of their facilities. However, though his brother studied Ceramic Engineering, Walter became a doctor. Neither Smartt ever worked at American Lava except in summer jobs while at school.

Smartt graduated from VMI, taught physics there after graduation, and later graduated from University of Virginia in medicine. He was a flight surgeon for six years during the Korean War, winning an Air Medal for combat flights. After a 15-year career with the Los Angeles Health Department, he returned home in 1976 and started a general practice, then retired again.

Walter's boyhood interest in radio was piqued again when he discovered a mint Radiola 29 in a junk store in 1962. After finding enough '199's to make it work, he began picking up other early radio items - accumulating a good collection before the hobby really took off. He has a special interest in early vacuum tubes.

The Antique Wireless Association

The Old Timers Bulletin is the official publication of the Antique Wireless Association. The AWA is one of the world's leading associations for antique radio collectors. The Association can be contacted at www.antiquewireless.org.



LAVA INSULATORS

Lava Insulators are unexcelled in instruments requiring a fixed relation of their parts under all conditions.

Permanent in nature, lava is not subject to variations in structure and composition.

AMERICAN LAVA CORPORATION
27-67 Williamson St.,
Chattanooga Tennessee
Manufacturers of Heat Resistant Insulators

American Lava Part II

by Dan Howard

When Dr. Smartt's article came out in August, I had already learned of the company's relationship with E F Johnson and was beginning to gather information for an article of my own. Dr. Smartt kindly allowed me to reprint his work, and I wanted to share it in its original form. However, I do have some additional details and illustrations that would be of special interest to insulator collectors. So here, in outline form, are some additional "AISI Mag notes" for your review.

- Hans Thurnauer, of American Lava, wrote a technical article on

steatite for *QST* in November 1937. The article, entitled "Notes on Steatite-Type High-Frequency Insulation," served as an introduction the new high frequency applications of steatite. It also helped to differentiate the material from similar-looking, but electrically inferior, porcelains.

- "During the 1930's American Lava published continually updated tables of properties of available ceramic bodies. Not only was this a wise marketing strategy, but it also put American Lava squarely in the center of the standards activity. Electrical engineers and designers used these tables so regularly that they became industry standards."(1:76)
- Ads from the 1930's picture a variety of steatite forms including stand-offs, feed thru insulators, and strain insulators. Ads from the 1940's picture strains of all sizes including the large metal-ended commercial types.
- Beginning in 1937, E F Johnson began purchasing steatite products from American Lava. Of the various grades available, E F Johnson settled upon AlSiMag 196 steatite. The first product that AlSiMag produced for Johnson was wafer-type (chassis-mounted) tube sockets. Neutralizing and tuning condensers were also made with AlSiMag 196. According to Roy Myers, AlSiMag only provided the steatite parts. Johnson made all the metal parts and the condensers were assembled in Waseca.
- By October 1937, Johnson ads in *QST* pictured five sizes of cone shaped standoff insulators ranging in size from 5/8" to 3" high. These were identical to the parts that Johnson sold in porcelain. Johnson porcelain cones were numbered in the 600 series. Johnson AlSiMag 196 insulators were numbered in the corresponding 500 series, according to size. I don't know if American Lava supplied the porcelain cones as well, but they certainly could have.
- Readers will remember the steatite "crisis" in the early 1940's from the December 1997, issue. I wonder if the shortage of talc mentioned by Dr. Smartt may have contributed to the brief steatite shortage that we looked at.
- American Lava produced steatite under military contract during World War II. The company was awarded its first excellence award July 27, 1942. A star was added in early 1943, and a second star was awarded September 25, 1943. By 1947, the company had received a total of 5 "E" awards! American Lava's military contract work included strain insulators, coil forms, tube sockets, and tube bases. The company's MDS was CAS and their FSCM was 70371.(2)

- At the end of World War II, Johnson made the No. 24 standoff insulator available to the public in steatite for the first time.(3). By 1950, all of the 20-series stand-offs were available in steatite as well as the company's thru-panel and lead-in bushings. However, the post-war Johnson ads referred to the material as "steatite" instead of "AlSiMag." This leads me to believe that they were now using a new supplier in the place of American Lava.

Mills, William, "A Steatite Diary I: Technical Ceramics: The Early Years," *The American Ceramic Society Bulletin*, January 1996, pp. 75-76.

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Myers, Roy interviews 8/2000.

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1. Mills, William, "A Steatite Diary I: Technical Ceramics: The Early Years," *The American Ceramic Society Bulletin*, January 1996.
2. Chesson, F W, "Electronic Military Equipment Naval Equipment Manufacturers," *AWA Review* Vol. 7, 1991, Holcomb, NY.
3. E F Johnson ad *Radio News* 12/47 pg 100.

Photo Credits

Pg 51. AIEE 8/27. Courtesy Bob Stahr.

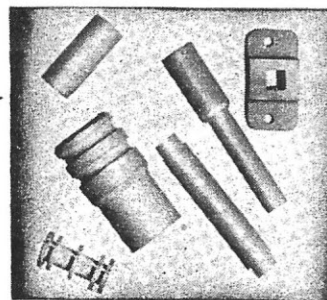
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- American Lava ad, *QST*, 12/43 pg. 86.
- American Lava ad, *Radio Amateur's Handbook*, 1947 edition.
- Chesson, F W, "Electronic Military Equipment Naval Equipment Manufacturers," *AWA Review* Vol. 7, 1991, Holcomb, NY.

Drexler, Phillip

E F Johnson ad, *Radio News*, 12/47 pg. 100.

Lavite STEATITE CERAMIC



CHARACTERISTICS

Specific gravity of only 2.5 to 2.6.
 Water absorption 5. 1.5-0.001 per cent. Per cent power factor.
 S. 1.5 to 60 cycles was only 0.0165.
 Dielectric constant at 60 cycles was 5.9-1000 KC 5.4.

Makers of electrical and radio apparatus destined for war service are finding in LAVITE the precise qualities called for in their specifications . . . high compressive and dielectric strength, low moisture absorption and resistance to rot fumes, acids, and high heat. The exceedingly low loss-factor of LAVITE plus its excellent workability makes it ideal for all high frequency applications.

We will gladly supply samples for testing.

D. M. STEWARD MFG. COMPANY

Main Office & Works: Chattanooga, Tenn.
 New York Needham, Mass. Chicago Los Angeles

The D M Steward Manufacturing Company

By Dan Howard

I was pretty surprised when Phillip Drexler sent me a story from the March 1944 *Viking News* about Marvin and Ruth Johnson's train trip to Chattanooga, TN. While I'm pleased that the Johnson's were able to enjoy some relief from the Minnesota winter, what does this have to do with insulators? Well, the article went on to say that, while in Chattanooga, the Johnsons enjoyed the hospitality of the owners of American Lava and The D M Steward Manufacturing Company. Such an innocent-sounding article provided helped us discover two of Johnson's porcelain and steatite suppliers! The American Lava story is covered elsewhere in this issue. Here's what I've learned about D M Steward Manufacturing.



Demetrius Minor Steward

In 1876, Demetrius Minor Steward established The D M Steward Manufacturing Company in Chattanooga, TN.

According to William Mills, "If ceramics are defined as fire-hardened earth products, the D.M. Steward Manufacturing Co.'s 'Lava' products were the first technical ceramics produced in this country."(1:75)

"Technical Ceramics' is an inclusive term for parts varying in size from large castings to tiny threads, and for materials ranging from antique electrical porcelains and machined soapstone (lava) to sophisticated mixtures of the titanates and ferrites."(1:75)

Among other early products, Steward designed, patented, and produced lava tips for gaslights before most homes had electricity.

According to Jack Tod, the company advertised lava electric knob insulators as early as 1891.(2:94)

Another early product was soapstone marking-crayons for railroads and the metalworking industry. Such crayons were a product of the same talc mines that produced the raw material for steatite insulation. While the crayons were band-sawed from raw material, steatite insulation is made from ground and purified soapstone.

Steward trademarked the name "Lavite" in 1902. Thomas Edison used Lavite ceramic insulation as early as 1900, for his pioneering DC electric lighting projects.(3:1)

Later the company made ceramics as diverse as switch bases, bases for trimmer capacitors, and stand-off insulators. Any, or all, of these products could have been sold to E F Johnson.

Much of Steward's work was on custom products. However, the company also made a line of standard porcelain and published catalogs.(4)

Steward made both steatite and porcelain insulation during World War II. Later, production expanded in other directions. "In the 1940's Steward started in the production of ferrites under license from Philips of the Netherlands..."(5:57)

Steward spawned at least one spin-off company. S.A. Clowes left Steward to organize Clowes Ceramic Co. in Chattanooga in an effort to answer post-war demand for technical ceramics.(5:57)

The company's steatite and ceramics lines were sold in the late 1980's. Today Steward works mainly with Ferrite products and ferrous and non-ferrous magnetic products.

Mr. John Woody, a current Steward employee, told me of another "tie-in" that would be of interest to many *OFS* readers. Steward Manufacturing sold a "Stewardyne" radio in the late 1920's. It was a lowboy model with an internal phonograph. He believes that it used a superheterodyne circuit. I would expect the radio chassis to have been supplied by an RCA licensee, with Steward focusing on assembly or possibly cabinetwork.

None of my radio references mentions the Stewardyne, meaning that it was likely of limited production. Mr. Woody's mother's Stewardyne was eventually converted to a sideboard for storing the good silverware. At least one other Stewardyne radio-phonograph still exists today. It resides in the company's Chattanooga office but the radio chassis has been lost over the years.

End Notes

1. Mills, William, "A Steatite Diary I: Technical Ceramics: The Early Years," *The American Ceramic Society Bulletin*, January 1996.
2. Tod, Jack, "A History of the Electrical Porcelain Industry in the United States." 1977, Buna, TX.
3. <http://www.Steward.com/history.html>
4. Woody, John, interview Aug 28, 2000
5. Mills, William, "A Steatite Diary III: Technical Ceramics: The Years after World War II," *The American Ceramic Society Bulletin*, May 1996.

Photo Credits

- Pg. 53 Lavite ad – *Electronics* 9/43 pg. 296.
Pg. 54 D M Steward portrait – courtesy DM Steward Manufacturing (reprinted by permission).

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Wisconsin Porcelain

By Dan Howard

Former E F Johnson employees consistently mention that Wisconsin Porcelain was one of the company's suppliers of ceramics. Since so little had been written about the company, Phillip Drexler and I undertook the challenge to learn more. Much of the following information has never been previously reported within the hobby.

Sun Prairie, Wisconsin, is located just a few miles east of Madison, the state capitol. After World War I, area businessmen, eager to promote employment, conceived the idea of an industrial porcelain works in the town.³⁰ A consortium of five investors, Henry Schey, George Kroncke, Ben Chase, Jake Fuhreman, and Otto Weisenthal capitalized the endeavor with \$25,000. Hugo Horn was the president of the corporation. The porcelain plant

commenced operation in 1919 in the vacant Roach and Seeber Creamery.

The investors planned to make wares from local clay deposits. To their dismay, the local clay proved to be unsuitable, so clay was purchased elsewhere and shipped to the plant by railroad. In its one-year or so of operation, the original company never succeeded in producing a product, let alone turning a profit for its investors.

In a desperate attempt to salvage their investment, the consortium hired Ludwig A. Stohl to manage the plant. Ludwig Stohl was born in Bohemia and studied at the Imperial Ceramic Academy of Berlin. Upon completing his studies, Mr. Stohl worked at the Imperial Porcelain Company in Meissen. In 1910, Mr. Stohl immigrated to Halifax, Nova Scotia. A return trip to Bohemia in 1911 saw Mr. Stohl's marriage to Rosina Plosche. After returning to Canada in

³⁰ Details of the company's earliest history are from in Klein's Sun Prairies People as noted in the list of sources.

October 1912, he worked with refractory materials and also was employed as a train engineer on the Sidney and Louisburg Railroad.

The Stohls came to the United States in 1918 and Mr. Stohl took a position as general manager of Westinghouse's pilot plant in Newell, West Virginia. During his tenure, the plant manufactured both cast and pressed high voltage insulators.(1) He resigned from Westinghouse in 1920 and moved to Sun Prairie to take over the Wisconsin Porcelain plant.

It was thought that the company might find a niche in the market for spark plug insulators. The plant began operation as The American Spark Plug Company but later changed it name to the American Spark Plug and Porcelain Specialty Company. According to the Mr. Stohl's grandson, the company did not make it in the spark plug market but did find success manufacturing dry process porcelain products.

Mr. Stohl's management lead to success for the company, and by 1923, the company was building additional plant space.

Mills credits Wisconsin Porcelain with inventing the screw-in porcelain fuse in 1926.(2:76) These were produced in cooperation with Bussman Manufacturing Company of St. Louis, MO. In 1926, Ludwig Stohl and A.B. Bussman purchased the plant from the original investors.(2:76)

In 1934, Wisconsin Porcelain installed its first continuous firing (tunnel) kiln.³¹ Four others were added in the following years.(3)

Prior to the depression, the company employed about two hundred and eighty

³¹ For more informatin on tunnel kilns, see OFS 2/2000 pg. 5.

people. After the depression the company employed about one hundred and fifty people. Despite this drop, residents held Stohl in high esteem for the efforts he made to provide employment for those in financial need. A movie entitled "Hollywood Comes to Sun Prairie" produced in 1938 depicted porcelain workers at a company picnic along side the company management in one "happy family."(3:109)

The world's first electric fence system was made by Parker-McCroy in the 1930's. They used a special single-groove fence insulator developed by Wisconsin Porcelain as part of their system.(4) Today Wisconsin Porcelain is the last remaining manufacturer of porcelain fence insulators in the United States.(2:76)

The company produced quantities of both dry and wet process insulators for manufacturers of heavy electrical equipment including Allen-Bradly, Line Material and Allis-Chalmers.(2:76) They had begun making steatite insulation by the early 1940's.

During World War II, the company made insulators for the U S Military under contract. At the time they had 300 employees.

Doug Stohl, the grandson of the company's founder, confirmed that Wisconsin Porcelain made insulators for E F Johnson, although he said that Johnson was a rather small customer.

According to Tod, the company has "has manufactured concurrently as many as 6,000 different items with a production rate of several million pieces daily."(5:101)

Most of the company's products were made for commercial customers and bore the customer's own trademark or none at all.

However, some of the electric fence insulators were produced under their own trademarks. These include "WIS-P," "WIS-P-C.," and "WISP."(5:101)

Wisconsin Porcelain is still located in Sun Prairie. Ludwig A. Stohl was succeeded by his son Ludwig J. Stohl. His grandson, Doug Stohl, also worked at the company. Phillip Drexler's recent visit to the site finds the company now out of the hands of the Stohl family (we believe that it sold in 1988) and in the process of moving to a new campus, also in Sun Prairie.

Current figures place the number of employees at 140 with sales estimated at \$10.6 million dollars annually. Products now include insulators, electrical porcelain, abrasives (tumbling media), and chemical porcelain. Their current flyer pictures switch bases, spool insulators, fuse blocks, screw in fuses, and many other products. Standoff insulators are mentioned in the text but are not recognizable in the photo mosaic. The company manufactures in porcelain, L-3 and L-5 steatite, and wet and dry process refractories.

Sadly, the current owners of the company have told us that old production records have not been retained, meaning that further historical information may be challenging to come by.

End Notes

1. Wisconsin Porcelain Catalog F1263-3 (Courtesy of Sun Prairie Historical Society).
2. Mills, William, "A Steatite Diary I: Technical Ceramics: The Early Years," *The American Ceramic Society Bulletin*, January 1996.
3. Klein, Peter Michael, "Sun Prairie's People Part 1: Shadows and Dreams,"

1993: Sun Prairie, WI. (Courtesy of Sun Prairie Historical Society)

4. Coffman, Steve, "Collecting Electric Fence Insulators – Part 1," *Crown Jewels of the Wire*, July 1997, pp. 22-24.
5. Tod, Jack, "A History of the Electrical Porcelain Industry in the United States," 1977, Phoenix, AZ.

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Pg. 56 Courtesy of Glenn Howard

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Phillip Drexler

Glenn Howard

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Wisconsin Porcelain Catalog F1263-3 (Courtesy of Sun Prairie Historical Society).

Wisconsin Porcelain Company informational flyer (courtesy of Glenn Howard).