**Monsanto**

FROM (NAME & LOCATION) D. A. OLSON - ST. LOUIS

DATE : JULY 23, 1970 cc: G. R. GRAHAM

SUBJECT : SALES PLAN - RANDY GRAHAM

REFERENCE :

TO : P. G. BENIGNUS
PBENI

Attached is Randy's comprehensive sales plan for the present fiscal year. Rather than making copies now and disseminating, I'd appreciate your thinking through it thoroughly and then returning it. I'll read it then and we can get back to Randy with any comments, following which we can send it to other concerned people.

Please try to have it back by early next week.

D. A. Olson

ph

Attach.

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EASTERN REGION
SALES PLAN
June 1970 - June 1971
by
Randall Graham
Senior Fluids Specialist

Copies to:
M.F. Baber
P.G. Benignus
D.A. Olson

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## I. INTRODUCTION

Aroclor is a product of major importance to the business group and to Monsanto. We all realize this and today maximum effort to understand and to pay attention to this business, on the part of all our fluids team, is evident as never before.

Things are not, however, as clear as they were even a year ago. A good question to ponder is .... Where are we going? Our business climate is changing but there appears no immediate reason for panic.

Over a longer term period, several things can affect our electrical Aroclor business. Uncertainty has been caused by the ecology question (how Aroclor affects our environment) and new technology and designs in electrical apparatus have and may continue to adversely affect our Aroclor business. Some things can be foreseen, others may happen overnight without our knowledge and over which we'll have little control.

Where it is within our power to do something to protect and improve our position, we should do it. Hopefully, the field sales effort will help provide guidance needed to keep this business healthy. With this thought in mind, a sales plan to accomplish this and other business objectives is set forth.

## II. BACKGROUND INFORMATION

Historically, we have been pretty much tied in with the growth rate of the electrical industry. In 1966, 1.0 trillion KW-Hr. of electricity was generated. This will grow to ca ~~3.2~~ 4.3* trillion KW-Hr. in 1985 ( a ~~2½~~ 2.59% growth rate in ~~19~~ 15 years).

Hopefully, our growth in some applications will exceed this pedestrian pace. In others, we should be happy being able to maintain our position (areas where we can't seem to affect market).

### 1. ASKAREL TRANSFORMERS

One area where we can perhaps improve on this growth rate is through greater participation of Askarel in the transformer market. An active field sales program to expand the use of Askarel will be developed and implemented during 1970. This is a virgin area, from a field sales standpoint, so we have much to learn. Hopefully, we can effect sales in this area and, if not, can make

* Electrical World, July 6, 1970, p. 30-32

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recommendations necessary to change growth rate of these products to the electrical industry.

Utilities will be screened by sales contact and several will be selected for a concentrated sales effort to sell Askarel into network systems and pad-mounted transformers in residential areas.

Additionally, the use of Askarel in secondary substations will be pursued at several major industrial accounts.

Details of these programs will be covered in later sections on these subjects.

## 2. CAPACITOR AROCLOR

With present design changes in the wind, it is hard to see how we can continue growth in the capacitor area.

G.E. purchasing and technical personnel can't see a decline in Aroclor or in the capacitor paper business within the next several years.

The facts are, however, that G.E. continues to seek design changes which will reduce Aroclor usage and in some applications remove it altogether. Their long range research goal is to remove paper totally, converting to an all film system. This would reduce Aroclor requirements by ca 75% in those product lines adopting this design. It now appears that Aroclor 1242 will stay in the all film units.

A discussion of each capacitor product area and the market situation seems in order. In the following discussions figures relating to market size, percentage participation, etc. were obtained from multitudinous sources and are best estimates possible. While not 100% accurate, these data are considered reliable.

### A. POWER FACTOR CORRECTION CAPACITORS

This market has a value of $30M. Additionally, the EHV series capacitor (same type capacitor) will run from $2M to $5M each year depending on contract activity. An annual growth rate of 8% is forecast for next five years (Canada 12%) for power capacitor sales.



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Major producers and their market participation, along with pounds of Aroclor used to manufacture power capacitors, are:

| | % Market | Consumption Estimate lb./Aroclor (M) |
|---|---|---|
| G.E. | 35 | 2.3* |
| Westinghouse | 30 | 3.6** |
| Sangamo | 15 | 1.2*** |
| McGraw Edison | 15 | 1.2 |
| Cornell Dubilier | 5 | 0.4 |
| Totals | 100 | 8.7 |

* G.E. film design uses less Aroclor than the Westinghouse and Westinghouse plant now running 80 to 90% film/paper with the balance in paper units. Westinghouse currently feels economics don't justify switch to film in ratings now using all paper (reason:-cost of film, shrinkage of film in winding process, and poorer life with one layer film).

** G.E. had on development of film capacitor. Westinghouse just phasing in during 1970 which will explain forecast on page 34 of 2.5 M lbs.

*** G.E. licensee. Is interesting to note that 15% market penetration and 1.2 M lbs. jibes with G.E.'s 35% and 2.3 M lb. consumption.

Of interest is fact G.E. has recently filed suit against Westinghouse for violation of their film capacitor patents. Will probably soon see Westinghouse take G.E. license.

Sangamo capacitor sales will drop in present market participation because competitors have failed to follow suit in Sangamo's price increase earlier this year. They plan to remain firm on price and are now losing considerable business. By July, remaining 20% of their production now on paper will be switched to film/paper so that total 1970 Aroclor sales will drop to ca 1 M lbs.

The reason G.E. developed the film unit for power capacitors was:

(1) Material savings.
(2) Reduced losses (lower p.f.).
(3) Able to manufacture higher ratings (400 KVAR Slimvar unit).
(4) Bring higher selling price - more profit.

Present design of film power capacitors uses two layers of polypropylene film separated by a layer of capacitor tissue paper (a sandwich). The film now serves as the dielectric and the paper only as a means (wick effect) to impregnate the interstices or voids in the film.

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Elimination of paper as the dielectric greatly reduced amount of Aroclor used in this type capacitor as is noted in table below comparing both types of capacitors:

| KVAR Rating | Dielectric System (With Aroclor) | G. E. p.f. Correction Capacitor Lbs. Aroclor/KVAR | Cost ($) Aroclor/KVAR |
|---|---|---|---|
| 100** | Paper | 0.5 | 0.08 |
| 100 | Film/Paper | 0.22 (.25)* | 0.04 |
| 150 | " | 0.25 (.1875) | 0.03 |
| 400 | " | 0.25 (.2188) | 0.035 |

* Based on cost data, it would appear lbs./KVAR would be that enclosed in parentheses. Both columns list reported data.

The 150 KVAR is most popular size unit and is major portion of G. E.'s production. It contains from 1/2 to 2/3 less Aroclor than the paper design (depends which data prefer to believe, weight or cost).

At G. E., Aroclor usage in power capacitors dropped from 37% of their total annual Aroclor purchases eight years ago to 27.5% today (remainder used in small industrial units). So, it becomes evident that some Aroclor volume lost to film has been offset through expanded use of power capacitors.

This growth in use of power units has occurred because:

(1) Shortage electrical utility generation capacity (poor forecasting).
(2) Long delivery time for new capital equipment (steam turbines, nuclear reactors, etc., require 3 to 5 years lead time).
(3) High interest rates.
(4) Lower power factor and higher rating of film capacitors (gives greater savings than paper units; fewer units to do job at lower losses).

Power capacitors are temporary solution until new capacity can be put into service.

10 M KVAR in EHV series capacitors, required 2-1/2 M lbs. of Aroclor from 1966 to the first quarter of 1968 (as noted earlier, this business comes in spurts -- $2 M to $5 M/year) for use in the west coast tieline system.

** We just announced dropping the 100 KVAR/all paper capacitor in high voltage ratings (2400 volts & higher) below 2400 volts will capacitor will stay w/all paper construction.

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In September, 4.5 M KVAR in EHV series units worth $16 M will come up for bid on the Navaho Project (Arizona Public Service and four other utilities as cooperative effort). It is felt G. E. Doesn't have capacity to handle any of this business.

The Canadian Peace River Project will soon purchase the third and last batch of EHV series capacitors.

Early next year, American Electric Power and the Churchhill Falls Project in Labrador will decide between EHV and A.C. distribution lines in systems currently under study. Hopefully, this is where some of our excess capacity will find a home.

B. FLUORESCENT LAMP BALLAST CAPACITORS

This market is forecast to grow at about a 7-1/2% rate. Last year, 40M ballast capacitors worth ca. 45¢ each were manufactured and 1970 should be a 43 M capacitor year. A sales history below shows growth over a six-year period:

| Year | Quantity (1,000 Ballasts) | Value ($1,000) |
|---|---|---|
| 1969 | 40,000 | 131,400 |
| 1968 | 37,200 | 122,172 |
| 1967 | 31.822 | 106,821 |
| 1966 | 35,009 | 117,794 |
| 1965 | 29,061 | 95,044 |
| 1964 | 25,314 | 86,361 |

General Electric is a real giant is this business. They manufacture 65 to 70% of all ballast capacitors in the United States. Both G. E. and Electronic Components are captive producers, allowing them considerable pricing leverage in the market place.

Second in size, Electronic Components will manufacture ca. 8 M ballast capacitors this year. Most of their production is used internally by the mother company, Universal Manufacturing.

Aerovox currently manufactures about 2.5 M units and the "Japs" have about 3% of the ballast capacitor market with 1.2 M.

Ballast capacitors are the "sand and gravel" of the capacitor industry -- high volume, low profit. For this reason, one by one, other capacitor manufacturers have dropped this line.

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The problem really is G. E. turns out so many* they have to keep them moving for lack of storage space and their divisor, as such a large captive producer, allows them control over the market. Actually GE's Ft Edward Plant turns out close to 1 M AC capacitors/week. ca 50% are ballasts.

Today, ballast designs and economics favor the Aroclor/paper system. A pinhole-free 1/4 mil film, able to stand up to high ambient temperature of the ballast, is what will be required** for film to be competitive and this technological breakthrough doesn't appear likely soon.

C. MERCURY VAPOR LIGHTING CAPACITORS

This market is forecast at 5 M to 6 M capacitors in 1970. Sales in 1968 and 1969 were 3.0 M and 3.5 M respectively. Average value of this unit is $2.00.

G. E. is major supplier, with Aerovox second and Cornell Dubilier somewhat smaller. Electronic Components beginning to penetrate and now supply all Westinghouse - Cleveland requirements (at a horribly low price). Also supply some to Sylvania who came to Electronic Components, in spite of fact not on approved suppliers list, due to short supply in industry. Even so, Electronic Components is today hardly a factor in this market. However, they do have excess capacity available because of new Totowa, N. J. plant.

In conclusion, this market is becoming a real powerhouse with a forecasted 10 to 15% growth rate in 1970 and doubling of market in next 2 to 5 years. There is the possibility that present hot and large iron core/capacitor system will be replaced by electronics in about 5 years.

D. MOTOR RUN CAPACITORS

These units are used on air conditioner motors and fans for starting purposes (avg. 1.6 capacitors per air conditioner units manufactured).

This market is divided among many of our capacitor customers. Due to fragmentation of market, have not developed market participation data to date. G. E., Sprague, Cornell Dubilier, P. R. Mallory, and Aerovox are major suppliers in about that order. A lot of new capacity has come on stream and must be considered (JardCo, Electrical Utilities Co., Sangamo, Electronic Components,

EUC,

* Approximately 74 M capacitor/day based on 67% of market, ca 520M/wk.
** Additionally, paper can't be used with film - would drive cost up.

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Plastic Capacitors, York, and others).

For two years straight, this business has "sported" a 25 to 35% annual growth rate (depending on to whom you talk). A 25% rate is forecast by many in the industry for 1970.*

Long range forecasts by industry publications call for market doubling by the 1975 model year (late 1974). Sales data re number of units sold and forecast is of interest.

| Type Unit | 1969 Sales No. Units (M) | 1975 Forecast No. Units (M) |
|---|---|---|
| Central | 1.6 | 4.5 |
| Room | 5.3 | 10.0 |
| | 6.9 | 14.5 |

Home air conditioning has moved from luxury to necessity classification. Only 30% of the home market has been tapped. As can be seen from Attachment I, "AIR CONDITIONING INDUSTRY NEW PLANTS", the industry does not share G. E. pessimism. The industry is confident and have put their capital on the line. We hope to share in this dynamic growth barring technological breakthroughs.

(1) MOTOR RUN CAPACITOR DESIGN.

A word on design is certainly in order at this point. One can't discuss this subject without mention of General Electric. In fact, this section will center around the General Electric Company, since they are the innovators in the industry.

A large volume of Aroclor is used by G. E. (approximately 1/3 Aroclor consumed goes to motor run units). Even more dollars are spent for paper (a rule of thumb: paper ca. 2:1 to foil, and Aroclor is ca. 10% or less of cost of both oil and paper).

It should be obvious the next design step will be to go to film in motor run capacitors to reduce these raw material costs. In fact, G. E. is now making plastic film** capacitors (believe paper still in these units).

* G. E. forecast 10% for 1970. They feel capacitor sales distorted last year due to stock piling -- inventory building to prepare for G. E. strike and loss of P. R. Mallory due to fire. With Sprague ~~new~~ ~~on~~ strike, capacitor market tight. However, their feelings don't explain delivery delays from 20-30 weeks in industry which has been going on for over a year. G. E. admits missing forecast of demand over last 2 years but feels can't keep going at this high rate.

** G. E. has own film which changes economics. An advantage their competition doesn't have.

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Sprague also has a similar development program underway. (G. E. film and foil group actively trying to sell in industry. ~~One wonders if they haven't reached some kind of agreement with Sprague. John Lehman, G. E. film salesman, seems to spend a lot of time there~~).

G. E.'s long range objective is to develop an all film - no paper capacitor. Such units would use 75% less Aroclor. Timing before G. E. introduces these units commercially will be at least a year away.

Paper manufacturers have reached near panic. G. E. has assured them that only selected lines will go to all film and "there will still be a lot of capacitor tissue used for a long time". Almost in the next breath, G. E. management advises not to install new paper making machinery (recent visit Luke Hart).

Another development of deep concern is G. E.'s plans for metallized film motor run capacitors. They plan to go to metallized film in low voltage ratings about the same time they switch to film-Aroclor motor run units.

These capacitors will use either mineral or castor oil as the impregnant. Actually, G. E. would like something better but these are best candidates to date. They would like a dielectric equivalent to Aroclor 1242 in electrical chemical properties but which will stand up to the clearing action common to metallized film. Both motor run and power capacitor engineers have expressed desire for a "dielectric constant as high as possible -- the higher the better". One engineering manager asked for a DK of 80!???

Today the big question at G. E. is just how much and where the motor run capacitor line will be split between low voltage rating metallized film capacitors and the film/Aroclor motor run units of higher ratings.

While there has been pressure of sorts by Underwriters Laboratories for plastic cases for motor run capacitors, G. E. has been unable to develop a plastic which will provide long term life in field service and stay sealed.

Perhaps we can participate in these technological changes by developing dielectric impregnants for both film (Aroclor with additive to assist impregnation) and metallized film. Hopefully our research efforts are not a case of "too little, too late".

*less than the film/paper system, which uses ca. ½ to 2/3 less than all paper system.

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E. INDUCTION CAPACITORS

Induction heating capacitor demand has been described as a "yo-yo" market because it varies up and down from $3M to 5M/year.

Good future growth is expected because induction heating does not pollute the atmosphere as does other methods of metal refining.

Two factors make up this market: (1) steady bread and butter business-composed of small replacement orders (furnices) or small installations of new plants and furnice equipment (small foundries); and (2) wind fall business from major expansions-where large increase in capacity suddenly developes (GM, Ford, Internat'l Harvester etc). These large installations require banks of stack racked induction capacitors.

G.E. supplies from 50 to 60% of this market with E.U.C. capturing remainder. E.U.C. has singled out this market and is considered to be aggressive. They provide excellent service to their customers. The percentage market participation depends on who gets major jobs from year to year. In 1969 E.U.C.'s motor run business passed the induction capacitor business for the first time.

Westinghouse, Bloomington manufactures this type unit in small numbers for captive use.

High Energy Corp., Malvern, Pa. is partially owned by Inductotherm. They apparently have been unable to get beyond the development stage in this type capacitor. Once production is underway there, Inductotherm will probably buy about half their requirements from High Energy. Would estimate Inductotherms requirements at $2.0M/year.

Major users of induction capacitors are: Ajax Magnatherm, Brown Boveri, Inductotherm, Lindbergh,-Hevi-duty, and Tacco (Div. Ohio, Crankshaft-Cleveland Mfg. high frequency heat treating equipment).

Heat loads of induction capacitors require water cooling (coils inside unit). For this reason Aroclor/~~paper will~~ remain until a low cost high temperature film can be developed.

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F. COMPUTER CAPACITORS

Capacitors similar to motor run units are used for A.C. voltage regulation in computer power supplies.

The market has a value estimated at $3M to $5M annually. Everyone able to make motor run capacitors can supply this market. However, this business is not actively selecited by major manufacturers. Companies with the best distribution system get this business.

Small companies, such as High Energy Corp. (ca. $250,000 sales to electronic industry) depend on odd lot orders of specialized capacitors with non standard ratings (which larger producers can't make profitably) to stay in business. This type business is definately growth limited.

III. Sales Plan June 1970 to June 1971

This sales plan will attempt to balance available calling time between customers representing over $6M of business and on sales program at transformer users and specifiers.

Since the capacitor and transformer parts of our Askarel business are really two discrete markets, this sales plan will treat them as such in seperate sections.

A. First Half 1970 Performance vs. Objectives:

Before getting into specific sales plans for the next year, a review of what's been accomplished during the first part of 1970 seems in order.

During a January St. Louis sales meeting a "vest pocket" field sales plan was agreed upon for the first half of 1970. Basic objectives and how we performed against them are as follows:

(1) Objective: Meet new accounts, develop rapport and penetrate in depth.

Results: Calls on schedule as of June 1, 1970 (see minimum calls per year page 32). Small accounts handled on a request basis. Good relationship well on way at all new accounts, i.e., G.E. Rome, Sangamo, P.R. Mallory, Allis Chalmers, Westinghouse-

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Sharon and Bloomington, E.U.C., Mc Graw Edison.

(2) Objective: Obtain market and technical information on capacitor industry and pass on via call and special reports.

Results: Done on a continuing basis. This report gives evidence of this, as also reflected by ~~does~~ call reports.

(3) Objective: Keep accounts appraised of the environmental pollution problem and waste disposal.

Results: All major accounts are current on this subject. This is covered on continuing basis, during routine visits.

(4) Objective: Discuss Aroclor 1242 and Inerteen 70/30 at major transformer accounts.

Results: Arranged and held technical meetings with presence of Dr. Munch and P.G. Benignus at Allis Chalmers and ITE Imperial. Both decided against Aroclor 1242. ~~Allis using~~ 70/30. Expect ITE to follow.

(5) Objective: Develop better product forecasts from customers (especially new accounts).

Results: Forecasts for 1970 up-to-date (see page 34). Current as of July.

(6) Objective: Coordinate commercial aspects between customers and Monsanto Service Centers.

Results: Handled recent price increases working with Service Center personnel in all 8 offices. They are also set up to handle customer complaints per Monsanto policy.

Have personally visited 5 of the 8 offices during first half of year. Plan to meet Sales Correspondents in

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Atlanta, Cincinnati, and Detroit when next in these areas on business.

(7) Objective: Provide technical service at accounts.

Results: Assisted at plant startups at Jardco (1st quarter 1970) and Cornell Dubilier (2nd quarter 1970). Helped Westinghouse, Cleveland design and start engineering for new capacitor plant.

Arranged for technical service calls by other Monsanto personnel at Jardco, Cornell Dubilier, and P.R. Mallory (without salesman present).

(8) Objective: Study utility and transformer user market and formulate sales plan.

Results: Completed with this report.

(9) Objective: Arrange for and make rounds of capacitor industry with Dr. Munch, to study capacitor life test equipment and procedures.

Results: Completed in January.

(10) Objective: Once price increase has been determined, make customer rounds with Director of Marketing to explain.

Results: Mission accomplished. Three weeks with Don Olson, also salesman covered smaller customers re this matter.

(11) Objective: Assist Mike Baber in learning Askarel technology, and make rounds of both the capacitor and transformer industries.

Results: Spent ca. 4 weeks on road with Mike Baber; feel all objectives accomplished.

(12) Objective: Arrange visit to major Askarel accounts, and travel with new environmental

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Manager to discuss scrap pollution problems.

Results: As of June 30, spent 2 weeks making rounds with W. Papageorge. One more week scheduled for July.

B. CAPACITOR INDUSTRY SALES PLAN

This industry is currently undergoing ~~numerous~~ some basic product design changes which will most likely effect our business. For this reason, as well as providing good technical sales service to our customers, regular sales calls are planned on major accounts (see customer list page 31 ).

By account penetration we should be able to keep up with what's going on, and such an input of information should prove valuable in our research and development efforts.

Will stress quality calls and avoid "drop-in" visits. This means a low call frequency (no. calls/year) but while at an account will spend as much time as necessary to call on marketing, manufacturing, engineering, product development, research and purchasing. This may mean spending several days at major accounts. Will use every call as an opportunity to penetrate account, and to find out what's going on there.

Objectives: Considering the serious technical and business problems facing us in the next year; (1) ecology/pollution, (2) capacitor design changes and other technological developments, the following sales objectives are set forth:

a. Maintain regular sales contact at major accounts.

b. Penetrate major accounts at all levels in major departments.

c. Relay market and product information (commercial and technical), via call reports, especially on developments which effect our business.

d. Investigate and keep alert to new business opportunities for Monsanto.

e. Keep accounts appraised of pollution and scrap Aroclor situation. Police disposal where necessary.

f. Keep abreast of customers Aroclor require-



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ments and make appropriate forecasts on a continuing basis via call report.

g. Provide technical service to customers, and request help from home office as needed.

h. Present new Monsanto products (or other developments as available) to customer at both commercial and technical level, and/or arrange for necessary Monsanto technical personnel to handle.

i. Coordinate all Monsanto personnel contacts with customer. Arrange all meetings.

j. Arrange customer visits to St. Louis and plan call schedule in mid-west to be present when major accounts are there on business.

k. Work with business group keeping abreast of new developments. Relay information to customer when appropriate.

l. Contact film and paper suppliers.

m. Visit customer service centers.

(1) Specific Action Who/What/When (see next two fold out sheets).

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| | D. Investigate & keep alert to new business opportunities | E. Keep Accounts appraised of Pollution & Scrap | F. Keep abreast of customer Aroclor req. & forecast | G. Provide Technical service and request help from home office |
|---|---|---|---|---|
| | M.B. 3 Q | B. Papageorge continuous with R.G. and customers as necessary | R.G. Continuous for all accounts and make annual | R.G. Continuous for all accounts P G B & R G 3 or 4 qt. |
| | R.G. Continuous | R.G. Continuous | forecast | assist scrap system 3 qt, |
| | " | " | " | |
| | " | " | " | RG & PGB 3 qt. |
| | " | " | " | RG & PGB 3 qt. |
| | " | " | " | RG assist. monks corners startup; RG&PGB 3 qt. |
| | " | " | " | |
| | " | " | " | PB & RG Last wk. June |
| | " | " | " | PB & RG 3 qt. |
| | " | " | " | PB & RG Last wk. June |
| | " | " | " | assist Ky. plant startup - RG |
| | " | " | " | |
| | " | " | " | R.G. & P.G.B. 3 Qt. |
| | " | " | " | |
| | " | " | " | |
| | " | " | " | |
| | " | " | " | |
| | " | " | " | |
| | " | " | " | |
| | " | " | " | |
| | " | " | " | |

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| r | J. Arrange customer St. Louis visits & attend when possible | K. Work with business group & vice versa keep appraised dev. | L. Contact film and paper supplies | M. Visit customer service centers |
|---|---|---|---|---|
| gt. | R.G. Continuous for all accounts | R.G. Continuous | R.G. as able | R.G. as able |
| | | " | | |
| | | " | | |
| | | " | | |
| | Sept. 9, & 10, 1970 | " | | |
| | Sept. 10, & 11, 1970 | " | | |
| | | " | | |
| | | " | | |
| | | " | | |
| | Sept. "70" | " | | |
| | | " | | |
| | | " | | |
| | | | | |
| | | | | |
| | |

(1) Specific Action - Who/What/When Capacitor and Transformer Manufacturers

| Objective | a. Maintain sale contact & major accounts-R.G. calls/yr. | b. Penetrate Account at all levels in major department. | C. Relay market & product information | D. ale opi |
|---|---|---|---|---|
| Capacitor Customers: | | | | M. |
| G.E. Hudson Falls | 6 - 9 | R.G. continuous | R.G. continuous | R. |
| Westinghouse-Bloomington | 6 | " | " | |
| Cornell Dubilier | 4 | " | " | |
| Electronic Components | 4 | " | " | |
| Sprague | 4 | " | " | |
| Sangamo | 4 | " | " | |
| Electrical Utilities | 4 | " | " | |
| Aerovox Corp. | 4 | " | " | |
| McGraw Edison | 4 | " | " | |
| P.R. Mallory | 4 | " | " | |
| Jardco | 4 | " | " | |
| Film & Paper Mfg's: | | | | |
| DuPont-Circleville | 1 - 2 | | | |
| Hercules Power | 1 - 2 | | | |
| Stevens | 1 - 2 | | | |
| Schweitzer | 1 - 2 | | | |
| Weyerhauser | 1 - 2 | | | |
| Transformer Customers: | | | | |
| GE-Pittsfield | 6 | " | " | |
| GE-Rome | 4 | " | " | |
| Westinghouse-Bloomington | 6 | " | " | |
| Westinghouse-Sharon | 4 | " | " | |
| Westinghouse-So. Boston | 6 | " | " | |
| ITE | 4 | " | " | |
| Allis Chalmers | 4 | " | " | |
| Research Cottrell | 2 | " | " | |
| Niagara Transformer | 2 | " | " | |
| Hevi-duty | 2 | " | " | |

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| Objective | H. Present new Monsanto Products. . . & arrange for Monsanto Tech. Personnel | I. Coordinate customer contact and arrange meetings | J. Arrange custome St. Louis visits & attend when possib |
|---|---|---|---|
| **Capacitor Customers:** | R.G. Continuous for all accounts RM & PGB 3rd q-4th qt | R.G. Continuous for all accounts W.P. RE. Pollut. 2-3 qt. | R.G. Continuous for all accounts |
| G.E. Hudson Falls | " | " PGB, RM, WR 8/25 | |
| Westinghouse-Bloomington | " | " | |
| Cornell Dubilier | " | " | |
| Electronic Components | " | " | Sept. 9, & 10, 197 |
| rague Electric | " | " | Sept. 10, & 11, 19 |
| Sangamo | " | " | |
| Electrical Utilities | " | " | |
| Aerovox Corp. | | " | |
| McGraw Edison | | " | Sept. "70" |
| P.R. Mallory | | " | |
| Jard Co. | | " | |
| **Film & Paper Mfg's:** | | | |
| DuPont-Circleville | | | |
| Herculese Power | | | |
| Stevens | | | |
| Schweitzer | | | |
| yerhauser | | | |
| **Transformer Customers:** | | | |
| GE-Pittsfield | " | W.P. & R.G. 2Qt. | |
| GE-Rome | " | W.P. & R.G. 2 Qt. | |
| Westinghouse-Bloomington | " | W.P. & R.G. 3 Qt. | |
| Westinghouse-Sharon | " | W.P. & R.G. 3 Qt. | |
| Westinghouse-So. Boston | " | W.P. & R.G. 2 Qt. | |
| ITE | " | W.P. & R.G. 4 Qt. | |
| Allis Chalmers | " | W.P. & R.G. 3 Qt. | |
| Research Cottrell | " | W.P. & ..G. 4 Qt. | |
| Niagara Transformer | " | W.P. & R.G. 4 Qt. | |
| Hevi-Duty | " | W.P. & R.G. 2 Qt. | |

C. TRANSFORMER ASKAREL SALES PLAN

1. GENERAL DISCUSSION & IDEAS:

Transformer Askarel ~~does~~ offer reasonable ~~great~~ potential growth. Askarel should ~~be able to~~ obtain a greater participation in the transformer market.

How Monsanto can, with full assurance, induce growth in this market is not fully clear at this time.

Some of our past efforts, i.e., advertising, publication technical papers on this subject, and attendance at IEEE, ASTM etc. are certainly part of what is required. But, we must have a voice and be heard at many levels and locations, both technically and nontechnically; and at the utility as well as the industrial user. Our effort must be a sustained and continuous one, not the occasional contact of technical meetings.

~~There should be no doubt that~~ A field sales effort is required to sell Askarel to the transformer user. It is clear that Monsanto cannot rely on the transformer manufacturer to do our selling for us. We must make our own commitment to do our own selling if we truely want accelerated growth in the transformer market place.

The main question at this time is how to approach this market most effectively. This is one of the goals of this sales plan.

There are a number of determinations which must be made:

(1) Can Monsanto influence transformer specification?

(2) What would it take to get Askarel in?

(3) Can Askarel objections be overcome?

(4) Can Monsanto change attitudes re Askarel?

(5) Can Monsanto sell the "Safety Concept" of Askarel?

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The answer to these questions will not come easy. A full time sales effort is needed to make these determinations.

Additionally, it appears that for Monsanto to realize dynamic growth of Askarel the following would probably be necessary:

1. Product change via creative research to solve these problems:
   (a) odor (TCB)
   (b) "tacky" residue (A1260)
   (c) weight
   (d) high cost
   (e) improved impulse strength

   Solution of these "weaknesses" would catalyze growth in present markets, and open entirely new markets now filled by oil, i.e., pad mounts-both industrial and residential, and other borderline applications. Today, the need particularly centers around pad mounts, and the fastest growing market of all-underground residential units.

2. Implement a creative marketing program to sell the excellent performance of Askarel in the field. Some suggested actions are:
   (a) Marketing/Advertising Program might consider:
      (1) Holding Askarel seminar at St. Louis H.Q. and invite:
         (a) Transformer manufacturers.
         (b) Specifiers from Industry, Utilities, and A & E firms.
         (c) Several publications such as "Insulation and Circuits", Magazine and "Electrical World."

      The environmental topic could be covered as well as transformer design

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discussions, insulation materials, major problems and areas of need, etc. One of the magazines could report on this unique seminar held by Monsanto. Monsanto should consider underwriting expenses of key people.

An Askarel seminar could be held on an annual basis, and attendance might become a prestige symbol in the electrical industry (like the Vickers Conference is in the Aerospace Industry.)

(2) Make 16 MM movie on Askarel which sells performance and safety.

The utility does have a primary concern re safety and their liability from transformer fires. There is a need and the "Safety Concept" should be sold in such a movie.

(b) Major field sales effort (several men).

Today the crux of the whole problem in selling Askarel revolves around the market approach. It appears that first Monsanto must improve the Askarel image by:

1. Dispelling unfounded fears, i.e., won't be killed by poison gas or arm won't rot off if Askarel contacts it.

2. Provide service through regular contact. Good service is basic to keeping customers happy. We must be interested in his problems with our product.

3. From standpoint of increasing sales point out to transformer manufacturers what the user is unhappy about with Askarel transformer design (poor gaskets, leaks etc.)

Our image may be suffering at user

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because of design. Don Pogue heard about leaks, vapor phase corrosion, lines in potting material corroded away. Many complaints are about old units, but there may still be room for improvement. More importantly, the fact that we care enough to listen to problems will go a long way towards improvements of our image.

4. Utilities reported to D. Pogue that Askarel installations are more expensive than oil because building codes require vaults for both types, vent lines for Askarel, catch troughs for Askarel equal to fluid volume. Monsanto must determine:
   (a) What are the codes.
   (b) What are the actual costs of codes.

   Once we know this and can obtain cost data we should study, and develop means for reducing code costs. Then approach NEMA and Nat'l Electric Code (Nat'l Fire Protection Association), and push for needed code changes, i.e., don't need vault or vent line etc.

5. Determine actual cost of oil unit outside, and next to building vs. Askarel indoors in substation. Pogue reports that no one had idea of actual cost. Askarel may offer savings because do not need fog spray equipment and shorter lines (transformer located at power user).

   Field sales should approach several utilities such as Public Service, New Jersey, or Baltimore G&E, and feel them out on their carrying out study and calculations on:
   (1) Primary substation next to building-can Askarel be installed at lower cost?
      (a) What are their practices and how do they do it.



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(b) What are costs of:
(1) Transformer
(2) Fog Spray
(3) Trench or gravel pit
(4) Cable from that point to inside plant.

(2) Secondary Substations (less than 15KV) above 15KV the transformer must be vaulted (article 450 Nat'l Electric Code), Con-Ed puts all secondary substation inside.

(3) Network Systems-cost studies in order here (in relation to codes). For example, Con-Edison places this type transformer in vault and switch gear in seperate vault. Double vaulting runs 150 to 200% more than single vault for both. Monsanto needs to determine if Askarel transformers and switch gear can be put in same vault and resultant savings.

These are some ideas of what might be done to induce growth in the Askarel business. A field sales effort on its own is not enough to swing things around. It will take the best possible effort on the part of the entire Monsanto "team" to accomplish the needed growth.

It is felt a major portion of our business group effort should be concentrated in this product area over the next several years. This is especially true in light of the pollution situation, and if we are to save this business in tact.

Within the next year or so utilities will be making policy decisions regarding Askarel. These decisions will be made with or without our help. Once they go against us it will be difficult, if not impossible, to reverse these decisions.

It appears imperative that Monsanto maintain sales contact at major utilities to educate them, and dispel their fears concerning the Askarel fluids.

It would seem we need to consider what transformer Askarel means to our group both short and long term. If we wish to induce growth, we must decide how badly we want it and what effort we're willing to put out to achieve accelerated growth.

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## 2. SALES PLAN FOR TRANSFORMER MANUFACTURERS:

The transformer manufacturer can influence the specification of transformers. For example, Hevi-Duty prefers supplying dry type over Askarel. Westinghouse, South Boston prefers selling Askarel over dry type. McGraw Edison (formerly Pennsylvania Transformer, Cannonsburg, Pennsylvania) discontinued Askarel manufacturing five years ago, and today convert their customers requesting Askarel to either a dry type or mineral oil transformer.

Why one manufacturer prefers Askarel over another may be based on a bad experience in the past, or may be non-emotional. Our sales goal will be to improve on customer relationships, and to persuade manufacturers to respond favorably towards building Askarel transformer units.

With this thought in mind, the same general objectives outlined for capacitors and shown on the Specific Action Section page 15 will also apply to transformer manufacturers. Specific actions at transformer manufacturers are shown there. These objectives are considered part of the routine sales job of servicing accounts.

Apart from these routine objectives the following Major Objectives are set for the coming year:

(1) Select several transformer manufacturers favorable to Askarel and dove-tail with effort at utilities.
   (a) Program at Virginia Light and Power re pad-mounted transformers with marketing people at Westinghouse South Boston.

(2) Discuss "wear-dated" program, suggested by Norm Johnson with manufacturers for their reaction. Determine if this can be used as incentive for both the manufacturer and the user.

(3) ITE just entering the industrial pad-mounted transformer field. Pursue the idea of standardizing on Askarel as a safety feature with Chief Engineer.

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(4) First quarter 1971 review major objectives and evaluate what has been accomplished. Establish target dates for concrete results based on accomplishments to date.

In conclusion, the pad-mounted transformer offers a good starting place for a new Askarel field sales effort. There is a need for safety from fire when pad-mounted transformers are next to schools, homes, churches, and businesses. It appears both utility and manufacturer are liable when fires occur and Askarel was not used. This idea should be explored by our legal people to determine whether this is a valid sales point.

As our ideas crystalize, we should pursue this theme with both the manufacturer and the utility. Hopefully, this approach will create a trend to Askarel in pad-mounted transformers.

3. UTILITY SALES PLAN

Utilities can use Askarel in auxillary power transformers in generating plants, and in electrical transmission networks and distribution systems.

Utility owned networks and commercial/utility owned indoor secondary substations represent over 70% of our Askarel sales volume to the commercial and utility market according to Pogue's survey. Since the utilities seem to be specifiers in this case, no sales plan is made for the commercial area.

There are approximately 90 utilities east of the Mississippi (see Attachment II) which should be screened by either personal or phone contact, to determine the following:

(1) Current policy regarding Askarel.

(2) Number of network transformers-oil or Askarel.

(3) Auxillary units-oil or Askarel.

(4) Determine potential as sales candidates (progressive, open to change, etc.)

During coming year, attempt to screen as many utilities



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as possible, but with present work load in capacitor and transformer industry, this effort must take a back seat.

During the next year, a concentrated field sales effort will be made at the following utilities:

Con Edison, New York-currently own 45% of all network transformers, and ~~all~~ most are on oil. Engineering policy against Askarel. Will explore with engineering personnel. Additionally, contact staff member concerned with forward thinking. Determine if attitudes towards Askarel can be changed.

American Electric Power New York-this is a progressive forward thinking utility, and is favorable towards Askarel. Contact both New York headquarters and West Virginia engineering laboratories. Propose standardization on Askarel in pad-mounted transformer via staff personnel and safety people.

Virginia Electric and Power Company, Richmond-a progressive utility but anti-Askarel. Develop rapport with transformer specifying influence in engineering, and work with Westinghouse Electric on selling Askarel into pad-mounted transformers.

Other utilities where one to two calls per year will be made if time permits are:

Baltimore Gas & Electric, Baltimore-all Askarel user may approach regarding calculations on Askarel verses oil in substations.

Commonwealth Edison, Chicago-an old Askarel user but in need of sales effort.

Duke Power, Charlotte-a progressive utility no other information.

DuQuesne Light, Pittsburgh-about 15 years ago made policy decision against Askarel and replaced about 40 Askarel transformers with other types. Perhaps new personnel and new thinking could change situation.

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Public Service, Newark-a very progressive utility but very little Askarel used (only in New York Port Authority.)

At least one call should be made within the next six months at the following utilities to discuss the PCB pollution problem and to encourage continued use of Askarel. Should determine present status and thinking regarding Askarel. All are presently users, however, we may be loosing out. Now is the time to affect their thinking regarding Askarel and the pollution problem. These utilities are: influence

Alabama Power, Birmingham
Boston Edison
Detroit Edison
Florida Power & Light, Miami
Georgia Power, Atlanta
Louisville Gas & Electric, Providence
Niagara Mohawk-Albany/Syracuse
TVA, Knoxville/Chattanooga

The above is considered the minimum effort Monsanto should put forth to protect this business and to sell Askarel to utilities. This program offers opportunity to:

(1) Alleviate customers fears by covering environmental pollution and disposal. ~~Access~~ its effect on this business. Askarel

(2) Propose consideration of fire hazard in pad-mounts both residential and industrial.

(3) Suggest standardizing on Askarel in these applications.

(4) Discuss "wear-dated" type program and find out willingness to buy transformer with Askarel guarantee. ?

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4. INDUSTRIAL SALES PLAN

The use of Askarel in industrial substations is a prime market for this product. For many years, our division has had good sales coverage throughout a number of industries where Askarel is used, however, we have not had an Askarel Sales Program which takes advantage of our field sales forces.

Where at the utilities, plans are to contact the safety director and general superintendent transmission and distribution, the important sales contact at large industrial plants seems to be the plant engineer, and in larger corporations there is usually a staff group making decisions on electrical apparatus.

Sales calls on industrial Askarel users will be made when possible. Again heavy work load and travel schedule does not allow coverage deemed necessary to affect specifying influences at industrial accounts.

Ideally, the use of Askarel in the steel industry should be pursued by the Pydraul salesman during his contacts.

The following list is not all inclusive. Have selected a number of major corporations which appear worth sales calls, Objectives will be based on accounts listed:

a. STEEL INDUSTRY

Armco
Bethlehem Steel*
Budd Company
Carpenter Steel
U.S. Steel* (both HQ and Fairless works)

Objectives:

(1) Write memo to Pydraul salesman asking them to establish who we should contact regarding Askarel transformers at their major steel accounts.

(2) Concentrate on Bethlehem Steel and U.S. Steel headquarters.

b. ALUMINUM INDUSTRY

Alcoa*
Reynolds Metals*

*Major emphasis accounts

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Objectives:

(1) Ask Pydraul salesman to talk about Askarel transformers at various Alcoa and Reynolds plants.

(2) Meet key specifier of transformers at Alcoa and Reynolds Metals.

c. COPPER INDUSTRY

Anaconda Copper
Chase Brass

Objectives:

(1) If time permits get acquainted with transformer specifier at corporate headquarters.

d. CHEMICAL INDUSTRY

Allied Chemical
DuPont*
Hercules*
Union Carbide

Objectives:

(1) Attempt to make at least one call on each company listed above.

e. PAPER INDUSTRY

American Can Co., Fairlawn
Continental Can Co.
Central Engineering Augusta, Georgia
Corporate Headquarters New York
International Paper Co., New York
Kimberly Clark
Central Headquarters Nena, Wisconsin
Regal Paper
Headquarters New York
Research & Development-Milford, N.J.
Union Camp, New York
Central Engineering Savannah, Georgia

*Major emphasis accounts

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U.S. Plywood-Champion Paper, New York
West Virginia Pulp & Paper, New York
Scott Paper Co., Philadelphia, Pa.

(1) CONSULTANTS TO THE PAPER INDUSTRY:

Charles T. Main, Boston Mass.
(Laymand Mower)

The paper industry is a major area of interest for a concentrated sales effort. An effort to penetrate the industry, and really "push" Askarel will be made during the next year.

Objectives:

(1) Attempt to contact each company at least once during year.

(2) Select several accounts to concentrate on until rapport is developed.

5. ARCHITECTURAL & ENGINEERING CONSULTING FIRMS

There are a number of engineering and consulting firms which have a specifying influence on selection of transformers. A few companies of this type on which calls will be made-if possible are listed below:

Ebasco, New York-this company is a recognized leader in design of generating plants. They consult with Kansas City Power and Light (a good Askarel customer). Bill Wallace is Vice President of electrical design and is located on Rector Street in New York.

Gilbert Associates, Reading-have dealt with this company in past and have good rapport with Vice President. Bill Shields is Chief Electrical Engineer, and Dean Langdon is Chief Engineer for transmission, distribution, and substations.

John Head, Chief Safety Engineer and Vice President of GAI Realty, would like to see Askarel used across the board.

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Harza, Philadelphia-an influential firm and a key A&E which consults with smaller utilities.

Pioneer, Chicago-another A&E, ~~unfamiliar with~~.

Sabaico Co., Cincinnati-electrical engineering consultants with Cincinnati Gas & Electric.

Rust Engineering, Birmingham-have contacted this consultant. Monsanto is a house account. Attempt to influence specification of Askarel transformers especially in Monsanto plants. The Decator Textile Plant currently using dry type transformers, in plant substations.

Stone & Webster Inc., Boston-this is a key A&E and should be contacted.

Charles T. Main Inc., Boston-key A&E in the paper industry, should get to know Laymond Mower, Chief Electrical Engineer.

Gibson Hill Inc., New York-James Welford Electrical Engineer. This company is a consulting firm, and have contacted us in past regarding use of Askarel.

Myer, Strong & Jones, New York-Bill Broderick has contacted us in past re Askarel.

Badger Corporation, New York-key A&E to chemical industry.

Scientific Design, New York-key consultant to chemical industry.

To be able to contact all various industries listed would be a "Herculean Task". Will put forth maximum effort to contact as many A&E's as possible, but they must be of necessity worked in with other calls. To correctly do the

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job calls at consulting and engineering firms are extremely important and should be made.

Objectives:

(1) Contact at least two A&E's in next six months.

(2) During next year make one Askarel presentation to A&E firm.

6. MISCELLANEOUS CALLS RE ASKAREL

There are a number of companies requiring calls from time to time, but are not in categories previously mentioned. Examples are:

Penn Central Railroad
State of Maryland
Delco, Dayton
Frigidaire, Dayton
Acme Electric, Cuba, New York
F.J. Stokes, Philadelphia
(manufacturer impregnantion equipment contact Joe ~~Levini~~ DUNLEAVY).

Co-suppliers are included in this group. Plan to call on companies re; products used with Askarel.

DuPont, Circleville & Wilmington
re polyprophenylene film.

Stevens Paper Mills Inc., Westfield, Mass. & East Windsor Locks, Ct. capacitor paper.

Schweitzer Paper Co., Lee, capacitor paper

Weyerhaeuser Paper Co., Fitchburg, capacitor paper.

Herculese, Wilmington, polyprophenylene film.

Republic Foil Corp., Danbury, capacitor aluminum foil.

Sexton Can Co., Everett

Clark Can Co.,

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Hilton Co., Hudson Falls

Objectives:

(1) Call on these accounts if able. Make no special effort work in as schedule allows.

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## IV CUSTOMER LISTS

### A. Large Manufacturers (>$50M/Yr.)

| Company | 1969 SALES $ M | 1969 SALES Lb.M | 1970 GOAL* $ M | 1970 GOAL* LB M | Min. Call/ Yr. |
|---|---|---|---|---|---|
| G. E. Hudson Falls | 1,159 | 8,420 | 1,544 | 10,500 | 6 |
| Westinghouse Bloomington* | 407 | 3,560 | 441 | 3,857 | 6 |
| Cornell Dubilier | 363 | 2,490 | 298 | 2,030 | 4 |
| Westinghouse Sharon* | 349 | 2,590 | 735 | 5,000(a) | 4 |
| I.T.E. Imperial | 296 | 1,890 | 336 | 1,960 | 4 |
| Electronic Components | 294 | 1,960 | 269 | 1,820 | 4 |
| Sprague Electric | 287 | 1,910 | 260 | 1,730 | 4 |
| Allis Chalmers * | 259 | 1,656 | 294 | 1,800 | 4 |
| G. E. Rome | 258 | 1,870 | 411 | 3,000(b) | 4 |
| Sangamo | 250 | 1,740 | 477 | 3,200(c) | 4 |
| Electrical Utilities +* | 202 | 1,380 | 188 | 1,250 | 4 |
| Aerovox | 193 | 1,280 | 223 | 1,520 | 4 |
| McGraw Edison * | 184 | 1,240 | 191 | 1,300 | 4 |
| P. R. Mallory * | 169 | 1,150 | 196 | 1,330 | 4 |
| Westinghouse So. Boston | 105 | 800 | 284 | 1,965 | 6 |
| G. E. Pittsfield | 96 | 640 | 96 | 640 | 4 |
| Research Cottrell | 96 | 528 | 96 | 528 | 2 |
| Jard Co. | -- | -- | 80 | 500 | 4 |
| Niagara Transformers * | 54 | 350 | 49 | 300 | 2 |
| | 5,021 | 35,454 | 6,468 | 44,230 | 78 |

(a) Sharon requirements should be ca 2M lb. This figure is incorrect.

(b) G. E. Rome should use 3.3 M in 1970. This figure is incorrect.

(c) Sangamo should use 1 M lbs. in 1970.

* This information taken directly from IBM run. Accounts new to this salesman, figures were forecast by predecessor.

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B. Small Manufacturers (<$50 M/Yr.)

| Company | 1969 SALES $ M | 1969 SALES LB. M | 1970 GOAL $ M | 1970 GOAL LB. M | Min. Call/ Yr. |
|---|---|---|---|---|---|
| Westinghouse Cleveland | -- | -- | -- | -- | 2 |
| Standard Transformer + | 49 | 310 | 48.9 | 300 | 2 |
| Hevi Duty + | 48 | 260 | 60 | 355 | 2 |
| R. E. Uptegraff Mfg. | 22 | 140 | 12 | 70 | 1 |
| York Capactior | 22 | 126 | 12 | 81 | 1 |
| Kuhlman + | 13 | 69 | 6 | 30 | * |
| High Energy | 9 | 47 | 9 | 47 | * |
| Reliance Electric + | 4 | 21 | 4 | 21 | * |
| Gudeman + | 3 | 16 | 4 | 20 | * |
| American Rectifier | 3 | 16 | 3 | 16 | * |
| Nytronics | 2 | 10 | 2.3 | 14 | * |
| Axel | 1.0 | 5 | 1.0 | 5 | * |
| R. F. Interonics | 1.2 | 6 | 1.2 | 6 | * |
| Plastic Capacitors + | .7 | 3.6 | 1.5 | 10 | * |
| Magnetic Engineering | .5 | 2.7 | .5 | 2.7 | |
| Magna Transformer | .3 | 1.4 | .3 | 1.4 | |
| | 178.7 | 1033.7 | 165.7 | 979.1 | 8 |

C. Transformer Service Shops**

| | 1969 SALES $ M | 1969 SALES LB. M | Calls/Yr. |
|---|---|---|---|
| 43 General Electric | 52 | 260 | * |
| 56 Westinghouse | 55 | 155 | * |
| 2 Allis Chalmers | 3 | 14 | * |

* Service calls on request only - none on planned basis.
** Purchasing locations data from IBM run.
+ Remarks as on preceding page regarding IBM run.

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CURRENT FORECAST*
MAJOR ACCOUNTS

| | 1970 Est. lb. - M | 1971 Est. lb. - M |
|---|---|---|
| G.E. Hudson Falls | 9.3 | 8.5 |
| Westinghouse-Bloomington | 2.4 | 2.5 |
| Cornell Dubilier | 2.7 | 3.3 |
| Westinghouse-Sharon | 2.0 | 1.5 |
| I.T.E. Imperial | 2.4 | 2.0 |
| Electronic Components | 2.5 | 2.5 |
| Sprague Electric | 2.0 | 2.5 |
| Allis Chalmers | 1.8 | 1.8 |
| G.E. Rome | 3.3 | 3.7 |
| Sangamo | 1.0 | 1.0 |
| Electrical Utilities | 2.0 | 2.0 |
| Aerovox Corp. | 2.2 | 1.5 |
| McGraw Edison | 1.3 | 1.3 |
| P.R. Mallory | 2.6 | 3.0 |
| Westinghouse-South Boston | 2.8 | 3.5 |
| G.E.-Pittsfield | 1.0 | 0.8 |
| Research Cottrell | 0.5 | 0.6 |
| Jard Co. | 0.4 | 0.9 |
| Niagara Transformer | 0.3 | 0.3 |
| Hevi-Duty | 0.1 | 0.1 |
| | 42.6 | 43.3 |

*A revised 1971 Forecast will be made in September 1970.

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ATTACHMENT I

AIR CONDITIONING INDUSTRY NEW PLANTS

I. COMPRESSOR MANUFACTURING.

A. Tecumseh. New $20 M, 225 M sq.ft. plant in Somerset, Ky. to manufacture compressors for refrigerators and air conditioners. Now have three manufacturing locations: (1) Tecumseh, Mich., headquarters, (2) Marion, Ohio, and (3) Somerset, Ky.

II. AIR CONDITIONER MANUFACTURERS.

A. Carrier, Day & Night Div. Have built three plants in 3 years: (1) Collierville, Tenn, (2) McMinnville, Tenn. (just completed), and (3) Forks River Industrial Park, Knoxville, Tenn. (multi-million dollar plant under construction). Additionally, have older plant on West Coast.

B. Amana. Moved all air conditioning into new plant in Fayetteville, Tenn. (moved from Amana, Iowa).

C. Heil-Quaker. A new 350 M sq.ft. plant at Lewisburg, Tenn. manufacturing central and room air conditioners (for Sears, Roebuck, Montgomery-Ward, and other name brands). Floor space has doubled in three years. Now building another new plant near Lewisburg.

D. York, Div. Borg Warner. Has a new 430 M sq.ft. facility under construction in Madisonville, Ky. scheduled for completion last quarter 1971.

E. Rheem. A new $13 M plant under construction in Ft. Smith, Ark. All air conditioner manufacturing will move to Ft. Smith.

F. Edward Friedrich Co. A $10.3 M facility for both air conditioners and refrigerators under construction in San Antonio, Texas.

G. Gaffers & Sattler, Div. Magic Chef. A new $3 M plant to manufacture air conditioners in Los Angeles, Calif. under construction.

H. Frazer & Johnson, Div. Westinghouse. Has a new facility under construction in Oakland, Calif.

I. Westinghouse, Columbus, Ohio. Has outgrown facility here. Central units will probably stay here, while window units have moved to new high volume plant which just opened in Edison, N.J.

J. Whirlpool, Div. R.C.A. Currently operating plant in Evansville, Ind. and new plant for air conditioners underway in Finley, Ohio.

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ATTACHMENT I

AIR CONDITIONING INDUSTRY NEW PLANTS
(Page 2)

K. Gibson, Div. of White Corp. Dedicated a new 300 M sq.ft. air conditioner manufacturing facility in Greenville, Mich. late last year.

L. The Climatrol, Div. Worthington (Madison, Wis.). Have air conditioner manufacturing facility in Decator, Ala. This plant is several years old.

COMMENT:

Many new plants have moved to Tennessee because of cheap electricity and special tax concessions. Additionally, it places these plants in the center of the market.

Our customers selling capacitors must obtain approval for designs from corporate engineering and purchasing, usually located at company headquarter location.

To date, P. R. Mallory, Waynesboro, Tenn, is the only capacitor manufacturer located close to southern air conditioner manufacturing plants. Motivation for Mallory to locate here was same as mentioned above plus the town of Waynesboro gave them their facility.

One disadvantage to this location is fact capacitor tissue is manufactured in New England. Normally all widths of paper are stocked at paper manufacturer's warehouse and capacitor producers draw on this with delivery only hours away. Thus, Mallory is faced with longer delivery time plus increased transportation cost of paper. But this can be offset by buying in large rolls and slicing themselves.

It would seem that other motor run capacitor manufacturers would move production into this area.

*Just recently Sprague began installing new motor run capacitor plant in Aerovox's electrolytic plant in Monks Corners, S.C., which Sprague bought.
P.R. Mallory is expanding with another new facility in Glaskow, Ky. Will manufacture 50 M motor run/week here, and 100M/week at Waynesboro.

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STLCOPCB4058280

ATTACHMENT II

List of Major Utilities East of Mississippi

A. NORTHEAST.

New York

Allegheny Power Systems, Inc.
320 Park Ave.
New York, N. Y. 10022
(212) 752-2121
Customers - 884,000

American Electric Power Co., Inc. and Service Corp.
2 Broadway
New York, N. Y. 10004
(212) 422-4800
Customers - 1,571,000

Consolidated Edison of New York, Inc.
4 Irving Place
New York, N. Y. 10003
(212) 460-4600
Customers - 2,905,000

General Public Utilities
80 Pine Street
New York, N. Y. 10005
(212) 943-5600
Executive Office only.

Long Island Lighting Co.
Central Operations Headquarters
175 E. Old Country Rd.
Hicksville, N. Y. 11801
(516) 931-6300
Customers - 755,000

Middle South Utilities, Inc.
280 Park Ave.
New York, N. Y. 10017
(212) 687-7181
Executive Office only.

New York State Electric & Gas Corp.
4500 Vestal Parkway East
Binghamton, N. Y. 13902
Customers - 542,000

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STLCOPCB4058281

New York (Cont'd)

Niagara Mohawk Power Corp.
300 Erie Blvd. West
Syracuse, N. Y. 13202
(315) 474-1511
Customers - 1,187,000

Orange & Rockland Utilities, Inc.
10 North Broadway
Nyack, N. Y. 10960
(914) 352-6000
Customers - 113,000

Rochester Gas & Electric Corp.
89 East Avenue
Rochester, N. Y. 14604
(716) 546-2700
Customers - 245,000

Connecticut

Connecticut Light & Power Co.
107 Selden St.
Berlin, Conn. 06037
(203) 666-2431
Subsidiary of N. E. Utilities
Customers - 463,000

Hartford Electric Light Co.
176 Cumberland Ave.
Wethersfield, Conn. 06109
(203) 249-5722
Subsidiary of N. E. Utilities
Customers - 260,000

Northeast Utilities & N.E.U. Service Co.
176 Cumberland Ave.
Wethersfield, Conn. 06101
(203) 529-7471
Holding company controlling 9 companies incl. Western Massachusetts Electric.
Customers - 873,000

United Illuminating Co.
80 Temple Street
New Haven, Conn. 06506
(203) 777-7981
Customers - 239,000

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Massachusetts

Boston Edison Co.
800 Boylston St.
Boston, Mass. 02199
(617) 424-2400
Customers - 514,000

Brockton Edison Co.
36 Main Street
Brockton, Mass.
(617) 583-3700
Controlled by Eastern Utilities Associates
Customers - 81,000

Eastern Utilities Associates
225 Franklin St.
Boston, Mass. 02107
(717) 542-8686
Holding Association, 4 companies
Executive Office only

Massachusetts Electric Co.
441 Stuart St.
Boston, Mass. 02116
(617) 266-5800
Controlled by N. E. Electric System
Customers - 661,000

New Bedford Gas & Edison Light Co.
693 Purchase St.
New Bedford, Mass. 02741
(617) 996-8211
Controlled by N. E. Gas & Electric Assoc., 130 Austin St.,
Cambridge, Mass. 02139
Customers - 86,000

New England Electric System
441 Stuart St.
Boston, Mass. 02116
(617) 266-5800
Controls 5 companies
Customers - 909,000

New England Power Co.
441 Stuart St.
Boston, Mass. 02116
Controlled by New England Electric System

New England Power Service Co.
441 Stuart St.
Boston Mass. 02116
Controlled by New England Electric System

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Massachusetts (Cont'd)

New England Gas and Electric Association
130 Austin St.
Cambridge, Mass. 02139
(617) 864-3100
Holding Company controls 5 companies
Executive Office only

Western Massachusetts Electric Co.
174 Brush Hill Ave.
W. Springfield, Mass. 01089
(413) 785-5871
Subsidiary of Northeast Utilities
Customers - 148,000

New Hampshire

Public Service Co. of New Hampshire
1087 Elm St.
Manchester, N. H. 03105
(603) 669-4000
Customers - 205,000

Vermont

Central Vermont Public Service Corp.
77 Grove St.
Rutland, Vt. 05701
(802) 773-2711
Customers - 85,000

Maine

Central Maine Power Co.
9 Green St.
Augusta, Maine 04330
(207) 623-3521

Rhode Island

The Narragansett Electric Co.
15 Westminster St.
Providence, R. I. 02903
(401) 781-0100
Controlled by New England Electric System
Customers - 228,000

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STLCOPCB4058284

B. EAST

New Jersey

Atlantic City Electric Co.
1600 Pacific Ave.
Atlantic City, N. J. 08404
(609) 345-4191
Customers - 276,000

Jersey Central Power & Light Co.
Madison Ave. @ Punch Bowl Rd.
Morristown, N. J. 07960
(201) 539-6111
Subsidiary of General Public Utilities Corp.
Customers - 375,000

New Jersey Power & Light Co.
Madison Ave. @ Punch Bowl Rd.
Morristown, N. J. 07960
(201) 539-6111
Also subsidiary of General Public Utilities Corp.
Customers -141,000

Public Service Electric & Gas Co.
80 Park Place
Newark, N. J. 07101
(201) 622-7000
Customers - 1,569,000

Pennsylvania

Duquesne Light Co.
435 Sixth Ave.
Pittsburgh, Pa. 15219
(412) 471-4300

Metropolitan Edison Co.
2800 Pottsville Pike
Muhlenberg Township
Berks County, Pa.
(215) 929-3601
P. O. Box 542
Reading, Pa. 19603
Subsidiary of General Public Utilities Corp.
Customers - 291,000

DSW 200221

Pennsylvania (Cont'd)

Pennsylvania Electric Co.
10001 Broad St.
Johnstown, Pa. 15907
(814) 536-6611
Customers - 441,000

Pennsylvania Power Co.
1 E. Washington St.
New Castle, Pa. 16103
(412) 652-5531
Controlled by Ohio Edison-Akron
Customers - 101,000

Pennsylvania Power & Light Co.
901 Hamilton St.
Allentown, Pa. 18101
(215) 434-5151
Customers - 806,000

Philadelphia Electric Co.
1000 Chesnut St.
Philadelphia, Pa. 19105
(215) WA2-4700
Controls 4 companies
Customers - 1,161,000

West Penn Power Co.
Cabin Hill
Greensburg, Pa. 15601
(412) 837-3000
Controlled by Allegheny Power System, N. Y.
Customers - 43,000

Delaware

Delmarva Power & Light Co.
600 Market St.
Wilmington, Del. 19899
(302) 658-9211
Customers - 139,000

Maryland

Baltimore Gas & Electric Co.
Gas & Electric Bldg.
Baltimore, Md. 21203
(301) 539-8000
Customers - 660,000

DSW 200222

STLCOPCB4058286

Maryland (Cont'd)

The Potomac Edison Co.
Downsville Pike
Hagerstown, Md. 21740
(301) 731-3400
Customers - 100,000

Virginia

Appalachian Power Co.
40 Franklin Rd., S.W.
Roanoke, Va. 24009
(703) 344-1411
Controlled by American Electric Power Co.
Customers - 545,000

Virginia Electric & Power Co.
7th and Franklin Sts.
Richmond, Va. 23209
(703) 771-3000
Customers - 959,000

West Virginia

Monongahela Power Co.
1310 Fairmont Ave.
Fairmont, W. Va. 26554
(304) 366-3000
Customers - 242,668

C. SOUTHEAST

North Carolina

Carolina Power & Light Co.
336 Fayetteville St.
Raleigh, N. C. 27602
(919) 828-8211
Customers - 533,000

Duke Power Co.
422 So. Church St.
Charlotte, N. C. 28201
(704) 332-8521
Customers - 906,000

DSW 200223

South Carolina

South Carolina Electric & Gas Co.
328 Main St.
Columbia, S. C. 29201
P. O. Box 764
Columbia, S. C. 29202
(803) 779-3111
Customers - 252,000

Florida

Florida Power & Light Co.
4200 Flager St.
Miami, Fla. 33134
(305) 445-6211
Customers - 1,147,000

Florida Power Corp.
101 - 5th St., South
P. O. Box 14042
St. Petersburg, Fla. 33733
(813) 898-2141
Customers - 409,000

Gulf Power Co.
75 N. Pace Blvd.
P.O. Box 1151
Pensacola, Fla. 32502
(904) 432-7451
Subsidiary of Southern Co.
Customers - 131,000

Tampa Electric Co.
111 N. Dale Mabry Highway
P. O. Box 111
Tampa, Fla. 33601
(813) 876-4111
Customers - 195,000

Georgia

Georgia Power Co.
270 Peachtree St.
Atlanta, Ga. 30303
(404) 521-3400
Customers - 932,000

DSW 200224

Alabama

Alabama Power Co.
600 North 18th St.
Birmingham, Ala. 35202
(205) 323-5341
Customers - 752,000

Southern Electric Generating Co.
600 North 18th St.
Birmingham, Ala. 35203
(205) 323-5341

Mississippi

Mississippi Power Co.
2992 W. Beach
Gulfport, Miss. 39501
(601) 864-1211
Subsidiary of the Southern Co.
Customers - 134,000

Mississippi Power & Light
Electric Bldg.
Jackson, Miss. 39205
(701) FL4-4771
Controlled by Mid.-South Utilities, N.Y.
Customers - 216,000

Tennessee

Chattanooga Electric Power Co.
6th and Market Sts.
Chattanooga, Tenn. 37402
(615) 698-8711
Customers - 97,000

Knoxville Utilities Board
626 Gay St., S. W.
Knoxville, Tenn. 37901
(615) 524-2911
Customers - 93,000

Nashville Electric Service
1214 Church St.
Nashville, Tenn. 37203
(615) 747-3981
Customers - 155,000

DSW 200225

Tennessee (Cont'd)

Memphis Light, Gas & Water
179 Madison Ave.
P. O. Box 388
Memphis, Tenn. 38101
(901) 525-2552
Customers - 233,000

Tennessee Valley Authority
New Sprankle Bldg.
Knoxville, Tenn. 37902
Customers - 2,028,000

Kentucky

Kentucky Power Co.
Carter Ave. @ 15th St.
Ashland, Ky. 41101
Controlled by Am. Elec. Power Co., N.Y.
Customers - 101,000

Kentucky Utilities Co.
120 South Limestone
Lexington, Ky. 40507
(606) 255-1461
Owns and Operates The Old Dominion Power Co., Lexington, Ky.,
Customers - 17,000
Customers - 252,000

Louisville Gas & Electric Co.
311 W. Chestnut St.
Louisville, Ky. 40201
(502) 582-3511

D. MIDWEST

Ohio

Cincinnati Gas & Electric Co.
139 E. 4th Street
Cincinnati, Ohio 45202
(513) 381-2000
Customers - 402,000

DSW 200226

Ohio (Cont'd)

Cleveland Electric Illuminating Co.
55 Public Square
Cleveland, Ohio 44101
(216) 623-1350
Customers - 639,000

Columbus & Southern Ohio Electric Co.
215 No. Front St.
Columbus, Ohio 43215
(614) 228-6411
Customers 350,000

The Dayton Power & Light Co.
25 No. Main St.
Dayton, Ohio 45401
(513) 222-0441
Customers - 337,000

Ohio Edison
47 North Main St.
Akron, Ohio 44308
(216) 762-9661
Controls Penns. Power Co.
Customers - 674,000

Ohio Power Co.
301-315 Cleveland Ave., S.W.
Canton, Ohio 44702
(216) 455-8931
Controlled by Am. Electric Power Co., N.Y.
Customers - 518,000

Toledo Edison Co.
420 Madison Ave.
Toledo, Ohio 43601
(419) 242-5731
Customers - 220,000

Indiana

Indiana & Michigan Electric Co.
2101 Spy Run Ave.
Fort Wayne, Ind. 46801
(219) 743-0331
Controlled by Am. Electric Power Co., N. Y.
Customers - 344,000

DSW 200227

STLCOPCB4058291

Indiana (Cont'd)

Indianapolis Power & Light Co.
25 Monument Circle
Indianapolis, Ind. 46206
(317) 635-6868
Customers - 264,000

Northern Indiana Public Service
5265 Hohman Ave.
Hammond, Ind. 46325
(219) 932-5200
Customers - 301,000

Public Service Co. of Indiana, Inc.
1000 East Main St.
Plainfield, Ind. 46168
(317) 839-6511
Customers - 430,000

Southern Indiana Gas & Electric
20-24 N. W. 4th St.
Evansville, Ind. 47703
(812) 424-6411
Customers - 81,000

Illinois

Central Illinois Light Co.
300 Liberty St.
Peoria, Ill. 61602
(309) 674-7751
Customers - 128,000

Central Illinois Public Service
607 E. Adams St.
Springfield, Ill. 62701
(217) 523-3601
Customers - 261,000

Commonwealth Edison Co.
72 West Adams St.
Chicago, Ill. 60690
(312) 726-1200
Customers - 2,484,000

Illinois Power Co.
500 South 27th St.
Decatur, Ill. 62525
(217) 428-7711
Customers - 414,000

DSW 200228

STLCOPCB4058292

Michigan

Consumers Power Co.
212 W. Michigan Ave.
Jackson, Mich. 49201
(517) 788-0550
Customers - 1,032,000

Detroit Edison Co.
2000 Second Ave.
Detroit, Mich. 48226
(313) 962-2100
Customers - 1,476,000

Wisconsin

Northern States Power Co.
100 North Barstow St.
Eau Claire, Wis. 54701
(715) 834-4121
Customers - 106,000

Wisconsin Electric Power Co.
231 W. Michigan St.
Milwaukee, Wis. 53201
(414) 273-1234
Customers - 587,000

Wisconsin Power & Light Co.
122 W. Washington Ave.
Madison, Wis. 53701
(608) 256-3151
Customers - 227,000

Wisconsin Public Service Corp.
1029 N. Marshall St.
Milwaukee, Wis. 53201
(414) 271-3125
Customers - 204,000

DSW 200229