

INDUSTRIAL DATA PROCESSING APPLICATIONS REPORT

Applications	Sales and Market Statistics
Type of Industry	Heating, Plumbing and Air-Conditioning Manufacturer
Name of User	American-Standard (The American Radiator and Standard Sanitary Corp.) Amstan Supply Division New Brunswick, N.J.
Equipment Used	NCR 315 Data Processing System

Synopsis

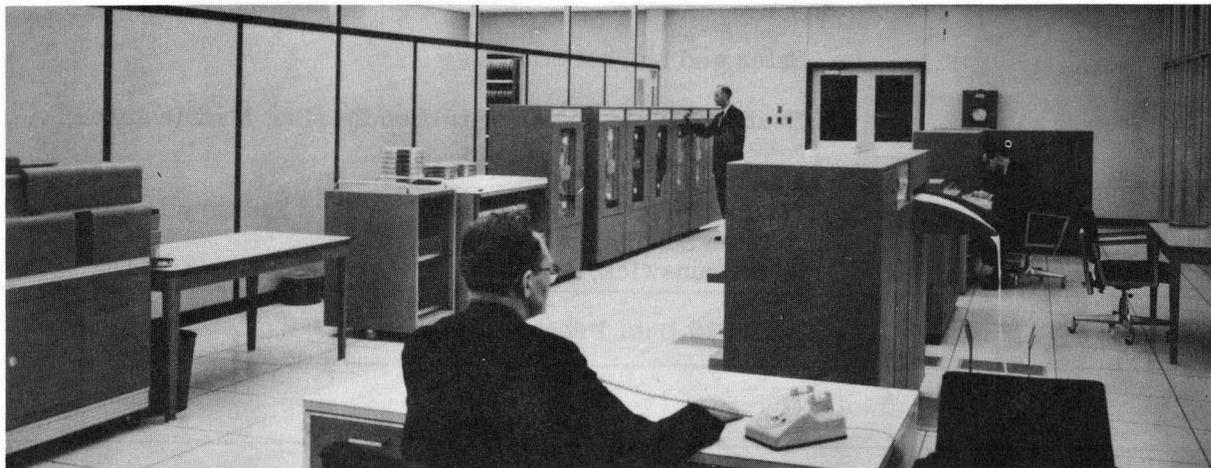
At the New Brunswick, N. J., data processing center of American-Standard, an NCR 315 data processing system provides support for the operations of the company's Amstan Supply Div. which wholesales and distributes American-Standard products in 68 major U. S. cities. One of the 315's most significant functions is the production of "Trendcharts," plotted graphs which, at a glance, display sales and market statistics in pictorial form.

Amstan maintains 11 key performance measures for each of its 68 whole-sale distribution units. Production of Trendcharts to delineate these measures involves the use of data already available for normal accounting and statistical functions, together with market data which is introduced for this program only. Punched card information for the month's transactions is entered to update the master file of transaction data for the preceding 47 months. After the oldest month has been removed, the edited master tape provides input for the Trendchart program. Moving 12-month totals are computed and projections are made for comparison with predetermined objectives. Graphic displays are automatically generated, properly scaled and printed. Lines connecting points on the graphs are manually drawn to simplify reading. The graphs are then photographed, reduced, and distributed to the proper management levels for analysis.

The Trendchart concept today permits the company's regional managers to see at a glance the condition of each branch, rather than having to read numerous sheets of detailed sales figures. If a more detailed analysis is indicated by the graphs, the sales figures are always available. Similarly, if a market is increasing while sales are not, management can spot this trend in time to initiate corrective measures.

No firm can do business with yesterday's figures, and sometimes even today's prove to be insufficient. At least, they do for American-Standard, a world-wide family of industrial companies and divisions. American-Standard requires tomorrow's figures, the projected sales and

marketing statistics that permit management to anticipate future activity and take appropriate action. To get them, the company has implemented its automated "Trendchart" concept. Under this scheme, projected figures are automatically plotted in graph form by the firm's NCR 315 data processing system. In this way, management not only disposes of the necessary information but receives it in a pictorial form which permits prompt decision.



NCR 315 DATA PROCESSING SYSTEM performs as a data center for American-Standard's Amstan Supply Div.

Founded before the turn of the century as a manufacturer of central heating and plumbing equipment, American-Standard (The American Radiator and Standard Sanitary Corp.) has today become a vast industrial family producing and marketing a wide variety of products in the U. S., Europe, Canada and Latin America. Company sales in 1964 were almost \$560 million.

Through research, development of new products and expansion of facilities, the corporation has grown steadily and is now engaged in a diversity of industrial activities. These include the manufacturing and marketing of products ranging from basic materials to consumer goods. The family of companies and visions which handle these products is composed of:

In the United States

- | | |
|----------------------------------|-------------------------------|
| Air Conditioning Division | Controls Division |
| Amstan Supply Division | Industrial Division |
| C. F. Church Division | Plumbing and Heating Division |
| Advanced Technology Laboratories | Tonawanda Iron Division |

In Canada and Overseas

Subsidiaries in Canada, Austria, Belgium, Brazil, England, France, Germany, Italy, Mexico, Netherlands, and Switzerland.

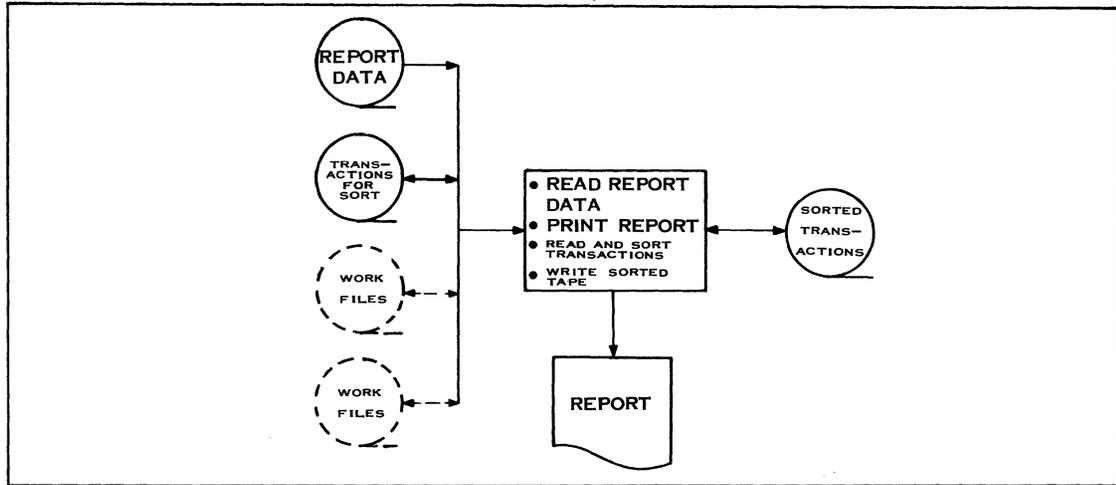
American-Standard is also engaged in joint ventures in Australia, Columbia and the Philippines.

EDP at American-Standard

The company's NCR 315 system is installed at the American-Standard research and data processing center at Brunswick, N. J. There, it is part of a complex of computers and tabulating equipment employed in the various operating divisions. The 315 serves primarily as a data center for several divisions, including the Amstan Supply Div. which wholesales plumbing, heating, air conditioning and industrial supplies in 68 major U. S. cities.

The 315's central processor has a memory capacity of 20,000 positions of alphanumeric core storage. Its system configuration includes: six 60KC magnetic tape drives, a buffered printer, a buffered card reader, a card punch, and two CRAM (Card Random Access Memory) magnetic card handlers. The system's major applications include the following:

- Sales and Market Analysis - "Trendcharts" (Amstan Supply Div.)
- Sales Analysis (manufacturing)
- Accounts Receivable
- Accounts Payable
- Stock Transfer and Dividend Checks
- General Ledger
- Payroll and Personnel Statistics (administrative)
- Inventory Management



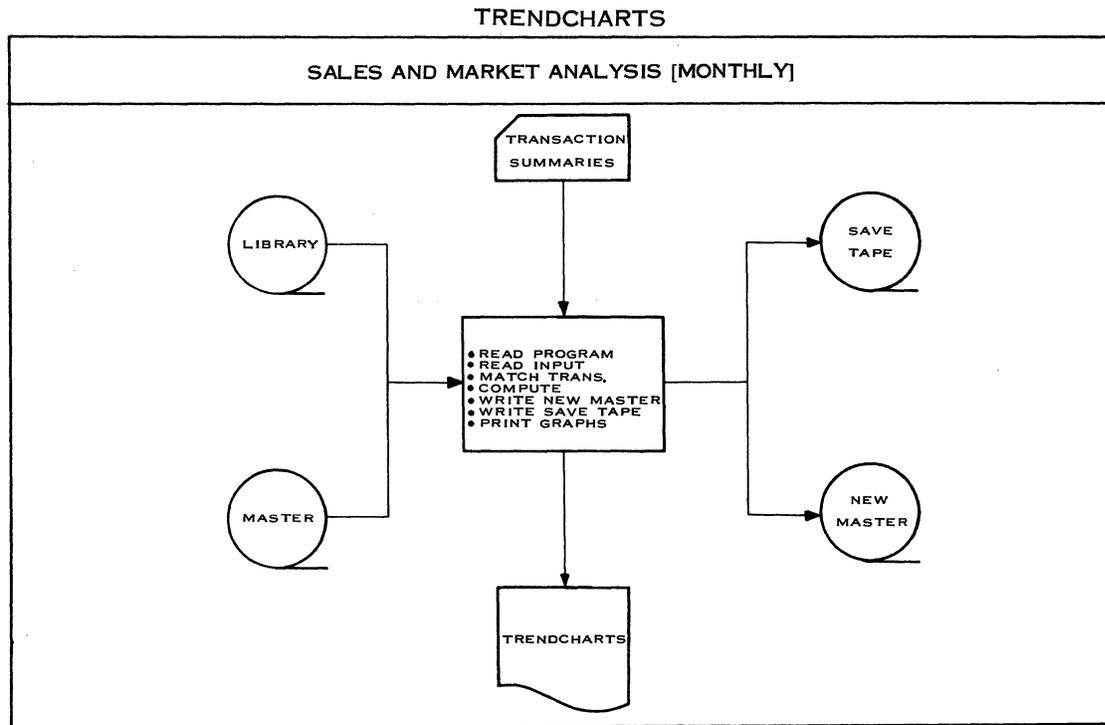
Flow Chart: SPORT (Simultaneous Print and Sort) routine.

A significant programming feature peculiar to this installation is the modification of the standard NCR SPRINT (Simultaneous Print) routine. Using it as a basis, American-Standard programmers have created a SPORT (Simultaneous Print and Sort) routine which is adapted to the company's particular requirements.

Under SPORT, a sort run of three hours has been combined with a print run of 12 hours. By using demand interrupt plus a function factor which determines the optimum time to jump out of the sort, American-Standard has been able to complete both runs in the original print run time of 12 hours. This enables the installation to resequence one file during a straight print run of another file.

The "Trendchart " System

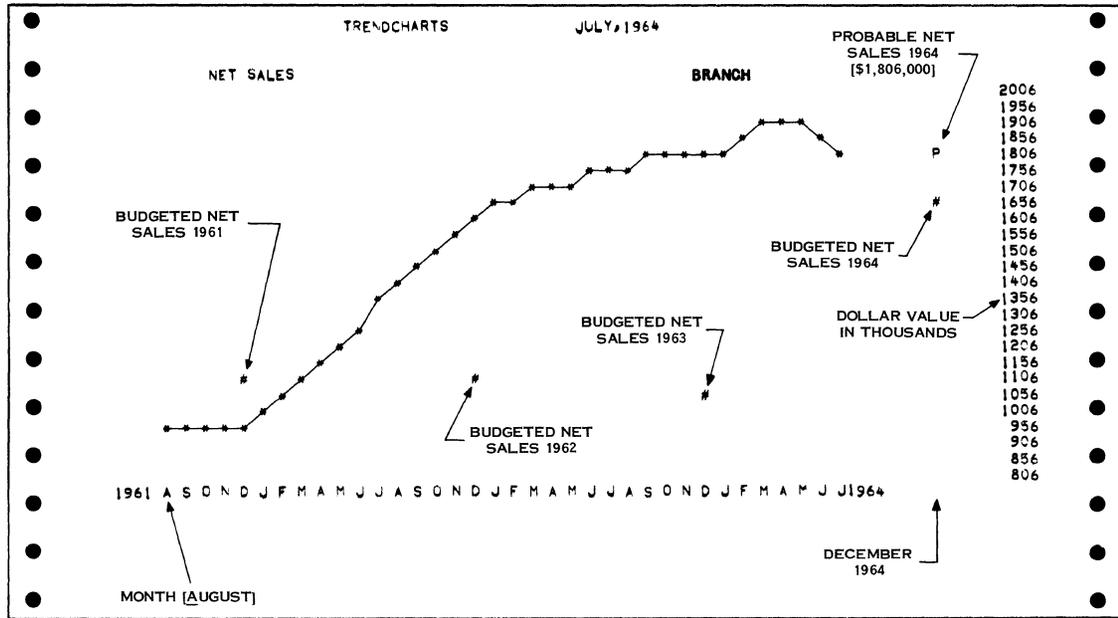
One of the 315 system's most imaginative applications falls in the sales and market analysis area. This is the production of "Trendcharts," computer-plotted graphs which provide a visual dimension not available in classic financial documents. The purpose of these graphs, which set forth trends and rates visually, is to swiftly and automatically detect hazards and to assess risks to performance. This is accomplished by anticipating probable market performance behavior early enough to permit meaningful management response. "Trendcharts" thus are displays in visual chart form of key performance and market information, showing at a glance past and present activity, the outcome of trends unaltered by management action, and probable year-end results.



As used by the Amstan Supply Div., the "Trendchart" concept maintains the following 11 key performance measures for each of the division's 68 wholesale distribution units:

- Net Sales
- Gross Profit
- Expense
- Old Residential Sales
- Industrial Sales
- New Residential Sales
- New Residential Market
- New Residential Penetration
- Non-Residential Sales
- Non-Residential Market
- Non-Residential Penetration

Computer production of "Trendcharts" involves the use of data already available for normal accounting and statistical functions together with market data which is introduced for this program only. Information for the month is accepted and added to historical data in the master file. Moving 12-month totals are computed, and projections are made for comparison with predetermined objectives. Graphic displays are automatically generated, properly scaled and printed.



NET SALES TRENDCHART — Amstan Supply Div.

The graphs are then photographically reduced, printed and distributed to the proper management levels for analysis.

The 68 input records used in Trendchart production represent a summary of over 200,000 transactions. Some for the preceding month come in the form of punched card transaction summaries. The others are stored on a magnetic tape master file which contains data for the preceding 47 months for each branch. As each new month's data is added to the master file, the oldest month is removed and written on a "save" tape, and a new master tape is edited.

The new master tape then provides input processed under the Trendchart program which performs the following basic functions:

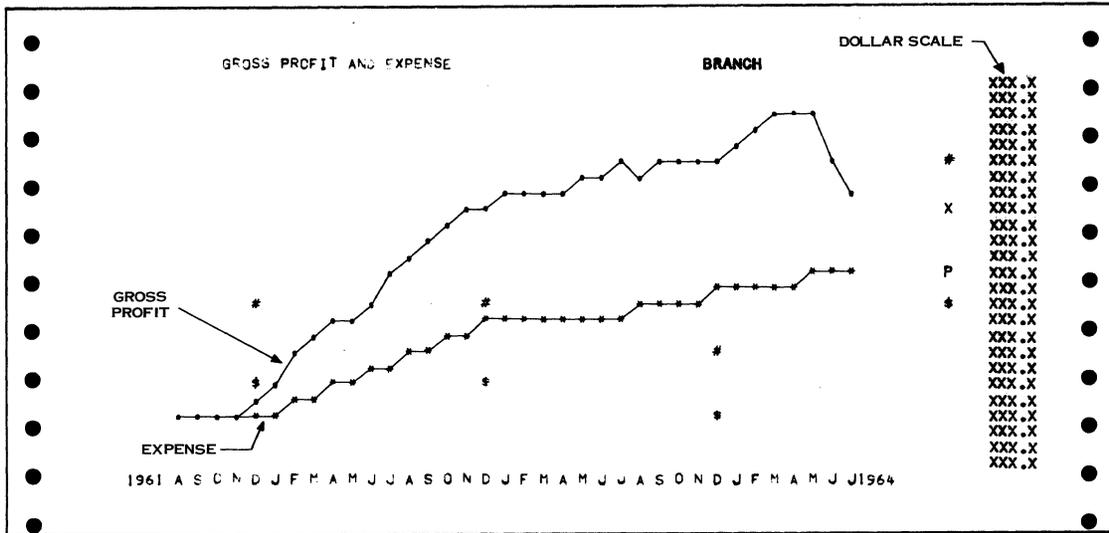
- Calculates the amounts to be plotted, based on a 12-month cycle, thus reducing seasonal fluctuation.
- Analyzes the latest six month's curve plus the current month's total, and creates a six month's projection based on the findings.
- Analyzes all amounts (predetermined budgets, six month projections, etc.) to determine the range of the graph for this branch.
- Using the high and low, plots each amount within a matrix.
- Moves each line of the matrix to an output area and prints.

Each graph normally reflects one of the 11 key performance standards measured by the Amstan Supply Div. Each point for each month is the sum of the last 12 months' data. This summation removes most of the seasonal fluctuations and expresses all the data in annual terms, the basis for most corporate budgeting. The actual lines between the points are drawn manually to simplify reading. Identifying symbols include (#) for planned objectives and (\$) for the expense curve. Predicted year-end values for each chart are represented by the letter "P" positioned over December.

A chart such as that for gross profit and expense uses a double plot graph. The gross profit curve consists of dots connected by a solid line, while the expense curve consists of

asterisks connected by a dashed line. The distance between the two is the pre-tax income. This chart permits management to spot short-term earning trends at a glance and to decide if corrective action must be taken. In it, the probable end-of-the-year gross profit is indicated by the letter "X" and the probable end-of-the-year expense is indicated by the letter "P".

Other charts such as those for new residential or non-residential sales and markets are measured against each other to measure the effectiveness of branch sales against the actual market. In both the residential and non-residential areas, a penetration chart is produced. This chart indicates on a month-to-month basis the ratio obtained by dividing the branch sales by the total potential market. This ratio is expressed to five decimal points.



GROSS PROFIT AND EXPENSE TRENDCHART — Amstan Supply Div.

Trendcharts representing old residential and industrial sales reflect the performance and probable year-end point for each area. A final bar Trendchart summarizes all of the branch sales. Unlike the other graphs, these figures refer to the actual percentage of sales for a specific month. The overall average of the past eight to 10 months must also be considered in the evaluation of sales for the latest month.

Results

American-Standard reports that its data processing innovations have brought the company substantial advantages in both its commercial and internal operations. Among the latter, it cites its modification of NCR's basic SPRINT routine for the 315 system. It has the potential of saving many hours of processing. It permits a computer to read a magnetic tape file and print the data and also be performing another operation during the same run. Modification by American-Standard permits a sort run which processes a different file to be accomplished during the original print run. Both are accomplished in the same processing time as the original print run.

In the commercial area, the Trendchart concept enables a regional manager to see at a glance the condition of each branch, rather than having to read numerous sheets of detailed sales figures. If the graphs indicate the need for a more detailed analysis, the sales figures are always available. If a market is increasing while sales are decreasing, or at best remaining steady, management may initiate a new sales effort.

Similarly, if new residential sales are increasing while the non-residential market is being relatively neglected, the branch management becomes aware of the condition. A branch is also able to compare its performance with the budgeted figures and the projection points. In these ways, Trendcharts are providing Amstan Supply management with the means to direct a successful sales effort.