

A faint, light-colored outline of a car is visible in the background, centered horizontally and occupying the upper half of the page. The car appears to be a sedan or a similar four-door vehicle.

**INDUSTRIAL  
NUCLEONICS  
CORPORATION**

**ANNUAL REPORT 1977**

*Industrial Nucleonics designs, manufactures and markets computer-based automation and management information systems for basic manufacturing processes to save raw materials and energy, increase productivity, lower costs and improve product quality. These systems are marketed under the AccuRay® trademark in 44 countries throughout the world.*

## **INDUSTRIAL NUCLEONICS PROFILE**

AccuRay process automation systems control manufacturing processes in the pulp and paper, rubber, plastics, textile, metals and tobacco industries and provide data links to factory level and corporate level management information and control systems. Industrial Nucleonics' customer base includes the following typical applications: paper and board machines, continuous and batch digesters, bleach plants, on- and off-machine coaters, metal rolling and inspection lines, calenders, extruders, treaters, heat-set range finishing lines and cigarette making and packing machines.

AccuRay systems utilize the latest micro-processor and minicomputer technologies to carry out the measurement, control and data processing functions within a typical system. The heart of each system is the measurement of the basic properties of the material being manufactured, e.g., weight, moisture, opacity, ash content, coating, thickness and width. The proprietary technologies for performing these measurements employ a variety of physical and electronic principles which include

nuclear, X-ray, infrared, radio frequency, microwave, optical, pneumatic and electromagnetic techniques. The processing power of AccuRay systems is distributed throughout a microprocessor-minicomputer hierarchy with the routine functions, such as sensor processing, being accomplished by microprocessors and the complex directive functions, such as optimizing control, being handled by the more flexible and powerful minicomputers.

Of the Company's total 1,887 employees, 1,014 are involved in research and development, manufacturing and administrative functions which are centralized in Columbus, Ohio on a 33-acre site adjacent to Ohio State University. During the past five years, an average of 12.2% of sales revenues has been invested in research and development. The Company has six sales and service divisions throughout the world with 873 personnel marketing and servicing AccuRay systems. These divisions provide systems engineering, installation and maintenance services to integrate AccuRay systems into customer businesses and to ensure continuing economic and quality results for each user.

## FINANCIAL HIGHLIGHTS

Dollars in thousands except per share data

	1977	1976 Restated
Operating Revenues	\$71,851	\$68,486
Net Income (Loss)	148	(2,869)
Net Income (Loss) per Share	0.04	(0.83)
Backlog	23,160	20,340

## TO OUR STOCKHOLDERS AND EMPLOYEES:

The year 1977 resulted in a turnaround in Industrial Nucleonics' operations as reflected in the income statement as well as a continued strengthening in our financial position as compared with 1976.

Total operating revenues from sales, service and leasing in 1977 were \$71.9 million compared with \$68.5 million in 1976. These revenues resulted in a profit in 1977 of \$148,000, or 4 cents per share, compared with the substantial loss of \$2,869,000, or 83 cents per share, as restated for 1976. In addition, we ended the year with a record backlog of \$23.2 million which was 14% higher than the ending backlog in 1976 and 30% higher than the ending backlog in 1975. This backlog includes both equipment and related commitments for services to be performed within 12 months.

The following is a financial summary of the fiscal year ended December 31, 1977:

- Sales were \$33.6 million as compared with \$33.3 million in 1976. Gross profit margins on sales of 42.2% were the same as the margins in 1976.
- Service and leasing revenues were \$38.2 million as compared to \$35.2 million in 1976. Gross profit margins on service and leasing increased to 37.7% compared with 33.7% in 1976.
- Interest expense declined to \$7.3 million in 1977 from \$8.7 million in 1976. Interest expense has been offset in part by approximately \$4.0 million of earned financing income recorded in 1977 and \$5.5 million in 1976 for systems installed under long-term installment sale and lease agreements.
- Losses on foreign currency exchange decreased to \$135,000 compared to \$1,391,000 in 1976. During both 1976 and 1977, approximately 90% of all incoming orders for equipment were in U.S. dollar contracts or the equivalent.

- The Company adopted during the year the Financial Accounting Standards Board Statement No. 13 entitled "Accounting for Leases" which established new criteria for lease accounting. The effect of retroactively applying this Statement was to increase income before taxes by approximately \$240,000 in 1977 and \$100,000 in 1976. The financial statements have been restated to reflect the effect of these changes.
- Total inventories at year end were \$22.3 million compared with \$21.0 million in 1976. During the year, we disposed of approximately \$1,000,000 of overstock and obsolete inventory with approximately \$300,000 charged against reserves established in 1976 and \$700,000 charged against 1977.
- Total bank debt at December 31, 1977 decreased \$12.4 million from January 1, 1977 with a total reduction of \$28.6 million during the past three years. As a result of this positive financial progress, a more favorable restructuring of the Company's financing has been established for 1978. A single bank group composed of Citibank, N.A., Manufacturers Hanover Trust Company, Mellon Bank N.A., The Huntington National Bank of Columbus and Society National Bank of Cleveland has made available a \$20.0 million facility for financing domestic lease, rental and installment contracts and trade receivables through June 30, 1979. The new revolving credit and term loan agreement provides greater flexibility in meeting requirements for customer financing and general working capital requirements.
- The percentage of new orders requiring direct financing by Industrial Nucleonics was 7% of new business in 1977 as compared with 13% in 1976 and 25% in 1975.

Although we were pleased to report a profit for the year 1977, we deferred approximately \$1.7 million of shipments to Eastern Europe and Latin America into 1978. These shipments were composed of AccuRay 1180 MICRO systems for paper machine control applications which were manufactured in 1977. However, the shipments were not recorded as sales revenue because of delays in receiving either the final U.S. Export License or the required Import License from the various countries. As these systems utilize the new Honeywell Level 6 minicomputer, the time period to obtain the U.S. Export License was longer than anticipated because of the export control procedures for technology under the Export Administration Act. As the required licenses are received, the shipments will be recorded as revenue early in 1978.

We also increased in 1977 our specific reserve for doubtful accounts receivable by \$1,000,000 to reflect the financial condition of two plastic extrusion customers to whom we had leased equipment on long-term lease arrangements in three separate transactions between 1973 and 1975. The total increase in reserves provided for these two customers during the year reduced income before taxes in 1977 by an equivalent amount and is included in the category "selling, administrative and other expenses."

The Company continued to invest heavily in research and development in 1977 with an expenditure of \$5.0 million compared with \$5.5 million in 1976. In the past five years, total R&D investment has been \$24.0 million which represents an average of 12.2% of total sales revenues recorded during the same period. The output from this investment has been the 1180 MICRO and 4200 systems for paper; the 2800 system for extrusion; the 2000 system for rubber, plastics and textiles; the 500 MICRO system for steel and aluminum; and the C-1700 and 1000 systems for tobacco.

Total new orders for equipment and initial services were \$52.6 million in 1977 compared with \$56.5 million in 1976. We received a record number of orders in December which became the highest single order month in our history. The following is a brief roundup of business activity through 1977 and early 1978:

- In the paper industry, we continue to enjoy a major marketing success with the AccuRay 1180 MICRO system for the paper machine control market. We have received orders to date for 146 systems from 98 paper companies for either paper machines or off-machine coaters since the initial introduction in 1976. The success of earlier installations is evidenced by the fact that 37% of the 1180 MICRO systems in our backlog at the end of 1977 represented repeat orders from prior customers. The 1180 MICRO has been the significant factor in an increase in business received in Japan where a total of eight 1180 MICRO systems have been ordered. Since Japan is the second largest country after the United States in the production of paper and paperboard, we have been encouraged by the Japanese interest and acceptance of this product.
- During 1977, we received orders for the Kamyrr/AccuRay 4200 control system for continuous digesters at International Paper Company, Camden, Arkansas and MacMillan Bloedel Inc., Pine Hill, Alabama. Because of our joint marketing and development agreement with Kamyrr, Inc., Glens Falls, New York and with Kamyrr A.B., Karlstad, Sweden, we have the resources of both companies available to offer our pulp mill customers. As a result, we now have a total of 33 installations for this application.
- In the fourth quarter, we received 2 additional orders for computer-based control systems on extrusion coating lines from the AB Tetra Pak family of companies. We now have 7 systems in backlog for installation at plants in France, Italy, Japan and Sweden. The installation of these systems, designated as the AccuRay/Tetra Pak MICRO control systems, will begin in 1978. They represent a customization of the 1180 MICRO technology for the plastics industry. AB Tetra Pak is an international manufacturer of machinery and packaging materials for the dairy and beverage industries.
- In the plastics extrusion market, we have installed or have in backlog a total of 14 AccuRay 2800 systems which will provide computer control for 54 extrusion lines.

- During the fourth quarter, we received orders for AccuRay 2000 systems on 10 large coating lines and 3 raw material inspection lines. We have installed or have in backlog 51 AccuRay 2000 systems covering 87 processing lines in the rubber, plastics and textiles industries.
- In the textile industry, we completed the development and installation of new heat-set control programs for AccuRay 2000 systems on 5 of the heat-set range finishing lines at the Fayetteville and Kinston, North Carolina facilities of Texfi Industries, Inc. These heat-set controls have achieved a substantial reduction in energy usage combined with an increase in material throughput while controlling "time at temperature" - a condition necessary for quality fabric production.
- In the metals industry, we received orders during 1977 for 48 AccuRay 500 systems, 31 of which represent aluminum industry applications. This was a record annual order volume for the AccuRay 500 product line with approximately 85% of this business representing repeat orders from existing customers. We also noted an increase in business outside the United States with orders received from Australia, Belgium, Canada, Japan and Mexico.
- We received orders for tobacco systems during 1977 from 31 tobacco companies compared with 21 tobacco companies the prior year. Approximately 68% of the new business in 1977 represented repeat orders from prior customers. Our C-700/1700 cigarette making machine control systems are now installed in 79 factories located in 27 countries.

As we enter 1978, we have the advantage of a record backlog for equipment and services combined with the marketing momentum gained from the high level of research and development spending of the past five years. The benefits of this R&D investment as symbolized by the AccuRay 1180 MICRO program will become more evident in 1978 and the years beyond.

Sincerely,



David L. Nelson  
President

# INDUSTRIAL NUCLEONICS CORPORATION

## CONSOLIDATED FINANCIAL STATEMENTS

Statement of Operations	Year Ended December 31,	
	1977	1976
	(\$ Thousands)	
		Restated (note 9)
<b>Operating Revenues</b> (notes 1, 2 and 4)		
Sales.....	\$ 33,612	\$ 33,317
Service and Leasing.....	38,239	35,169
Total Operating Revenues.....	<u>71,851</u>	<u>68,486</u>
<b>Cost of Sales</b>		
Sales (notes 6 and 9).....	19,417	19,225
Service and Leasing.....	23,811	23,325
Total Cost of Sales.....	<u>43,228</u>	<u>42,550</u>
Gross Profit.....	<u>28,623</u>	<u>25,936</u>
<b>Deductions</b>		
Selling, Administrative and Other Expenses.....	15,925	15,446
Research and Development Expenses (note 8).....	4,973	5,463
Interest Expense.....	7,292	8,655
Foreign Currency Loss (note 3).....	135	1,391
	<u>28,325</u>	<u>30,955</u>
Income (Loss) Before Income Taxes.....	298	(5,019)
<b>Provision (Credit) for Income Taxes</b> (note 5).....	<u>150</u>	<u>(2,150)</u>
<b>Net Income (Loss)</b> .....	<u>\$ 148</u>	<u>\$ (2,869)</u>
<b>Net Income (Loss) per Share</b> (Based upon 3,434,000 and 3,445,000 weighted average outstanding shares, respectively) (note 19).....	<u>\$ .04</u>	<u>\$ (.83)</u>
<b>Statement of Retained Earnings</b>		
Balance, Beginning of Year.....	\$ 9,394	\$ 12,263
Net Income (Loss).....	148	(2,869)
Balance, End of Year (note 10).....	<u>\$ 9,542</u>	<u>\$ 9,394</u>

The accompanying notes are an integral part of these statements.

# TEN-YEAR SUMMARY

(\$ Thousands)

	Years Ended December 31, 1977
<b>SUMMARY OF OPERATIONS</b>	
<b>Operations</b>	
Operating Revenues —	
Sales .....	33,612
Service and Leasing .....	38,239
Total Operating Revenues .....	71,851
Cost of Sales —	
Sales .....	19,417
Service and Leasing .....	23,811
Total Cost of Sales .....	43,228
Selling, Administrative and Other Expenses .....	15,925
Research and Development Expenses .....	4,973
Interest Expense .....	7,292
Foreign Currency Loss (Gain) .....	135
Income (Loss) Before Income Taxes .....	298
Provision (Credit) for Income Taxes .....	150
Net Income (Loss) .....	148
<b>Income and Dividends Per Share*</b>	
Primary Net Income (Loss) Per Share .....	\$ .04
Fully Diluted Net Income (Loss) Per Share .....	\$ .04
Cash Dividends Per Share .....	—
Weighted Average Number of Shares Outstanding (000) .....	3,434
<b>FINANCIAL POSITION AND GENERAL</b>	
Net Working Capital .....	34,788
Current Ratio .....	2.1:1
Total Assets .....	107,150
Stockholders' Equity .....	15,646
Employees, Year End .....	1,887

\*Based on weighted-average number of shares outstanding during the year.



1976	1975	1974	1973	1972	1971	1970	1969	1968
Restated								
33,317	37,923	48,797	42,436	29,512	25,504	16,851	9,574	7,514
35,169	34,206	27,258	19,091	14,702	12,087	10,749	10,428	9,778
68,486	72,129	76,055	61,527	44,214	37,591	27,600	20,002	17,292
19,225	20,589	30,156	24,290	16,109	13,789	8,851	4,968	3,568
23,325	22,180	17,120	12,854	8,735	6,380	5,923	4,621	4,222
42,550	42,769	47,276	37,144	24,844	20,169	14,774	9,589	7,790
15,446	17,108	16,349	12,965	9,293	8,506	6,698	5,576	6,180
5,463	4,703	4,517	4,320	2,780	2,683	2,074	1,489	1,111
8,655	9,510	9,662	4,490	2,109	1,386	1,069	820	745
1,391	1,779	(266)	140	—	—	—	—	—
(5,019)	(3,740)	(1,483)	2,468	5,188	4,847	2,985	2,528	1,466
(2,150)	(1,500)	(511)	376	2,077	2,304	1,317	1,008	389
(2,869)	(2,240)	(972)	2,092	3,111	2,543	1,668	1,520	1,077
\$ (.83)	\$(.65)	\$(.28)	\$.61	\$.93	\$.77	\$.51	\$.48	\$.36
N/A	N / A	N / A	\$.61	\$.93	\$.75	\$.48	\$.45	\$.32
—	—	\$.06	\$.06	\$.05	\$.04	\$.04	\$.03	\$.02
3,445	3,448	3,434	3,419	3,336	3,309	3,251	3,180	2,982
39,558	44,242	41,942	44,728	26,736	21,012	11,021	8,717	6,432
2.3:1	2.6:1	2.6:1	3.3:1	2.7:1	3.6:1	2.0:1	3.0:1	2.6:1
119,483	130,738	139,754	116,841	73,969	54,108	36,599	24,741	21,760
15,498	18,442	20,682	21,830	17,794	14,875	12,217	10,404	5,771
1,919	1,917	2,137	2,420	1,580	1,418	1,223	868	753

# DIRECTORS AND OFFICERS

## DIRECTORS

**Edward McC. Blair**  
Senior Partner  
William Blair & Co.  
(Investment Banking)

**Christopher J. Campbell**  
Executive Vice President  
Industrial Nucleonics Corporation

**Gordon B. Carson**  
Assistant to Chancellor  
Northwood Institute  
(College)

**H. Roy Chope**  
Executive Vice President  
Industrial Nucleonics Corporation

**John Eckler**  
Managing Partner  
Bricker, Evatt, Barton & Eckler  
(Attorneys at Law)

**Thomas F. Jones**  
Vice President For Research  
Massachusetts Institute of Technology

**David L. Nelson**  
President  
Industrial Nucleonics Corporation

**George F. Schlaudecker**  
Group Vice President—Chemicals  
The Sherwin-Williams Company  
(Paint Manufacturing and Retailing)

**Robert E. Swenson**  
Vice President and Treasurer  
Industrial Nucleonics Corporation

**George B. Young**  
Director  
Chrysler Corporation

## OPERATING OFFICERS OF INDUSTRIAL NUCLEONICS CORPORATION

**William L. Adams**  
Vice President

**Walter H. Canter, Jr.**  
Vice President

**Donald D. Danison**  
Vice President

**John E. DeWitt**  
Vice President

**Herbert J. Kahn**  
Vice President

**Ralph D. Lockhart**  
Vice President

**Richard M. McCraney**  
Vice President

**James D. Mitchell**  
Vice President

**Philip J. Robinson**  
Vice President

**Thomas L. Simpson**  
Controller

**Robert F. Zust**  
Assistant Treasurer

## AUDITOR

Arthur Andersen & Co.  
Columbus, Ohio 43215

## TRANSFER AGENT

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Chicago, Illinois 60670

## REGISTRAR

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Chicago, Illinois 60690