. . . an *Engineer's* Company

GENERAL RADIO COMPANY

CONCORD

Route 2

CAMBRIDGE
Main Office and Plant

GENERAL RADIO Company

275 Massachusetts Avenue, Cambridge 39, Massachusetts, U.S.A.

Broad Avenue at Linden, Ridgefield, N. J. **NEW YORK AREA**
8055 13th St., Silver Spring, Md. **WASHINGTON, D. C.**
1000 N. Seward St. **LOS ANGELES 38**
920 S. Michigan Ave. **CHICAGO 5**
1150 York Road, Abington, Pa. **PHILADELPHIA**
1182 Los Altos Ave., Los Altos, Calif. **SAN FRANCISCO**

. . . an *Engineer's* Company

General Radio Company, pioneer manufacturer of electronic instruments, test equipment, and laboratory standards, was established in June, 1915. From the outset the founders laid stress on certain principles and aims to which it should aspire.

The basic aim was to develop and manufacture new instruments and devices that would help to keep the science of measurements in the forefront of electrical progress. A number of notable firsts in the development and commercial production of important instruments have resulted from this pioneering approach. Among these are the precision variable capacitor, the beat-frequency oscillator, the feedback-type R-C oscillator, the standard-signal generator, the quartz-controlled harmonic frequency standard, the electronic stroboscope, the radio-frequency bridge, the u-h-f admittance meter, the peak-responding vacuum-tube voltmeter, the sound-level meter, the impact-noise analyzer, the broadcast frequency-deviation and modulation monitors, the continuously adjustable autotransformer (the GR registered trade name is VARIAC), the butterfly-oscillator tank circuit, the heterodyne wave analyzer, and the R-C degenerative wave analyzer. A continuous development program lengthens this list year by year.

Another of the company's early basic objectives was to provide professionally and financially rewarding jobs of the utmost stability for the carefully chosen employee. We believe that the best way to assure this ideal is to make the employee the owner and manager. Ownership of the company is held principally by the employees, and the members of the Board of Directors are all employees.

Interwoven with these two prime objectives are the many features that make a job more than just a job. Goals like securing high caliber employees and maintaining a friendly, informal environment, liberal employee benefits, an accessible and understanding management, and a quality product have been pursued and achieved to make General Radio a really good place to work.

How successful the Company has been in these aspirations may be seen by the world-wide respect for General Radio, the proven quality of the product, and the spirit of the employees.

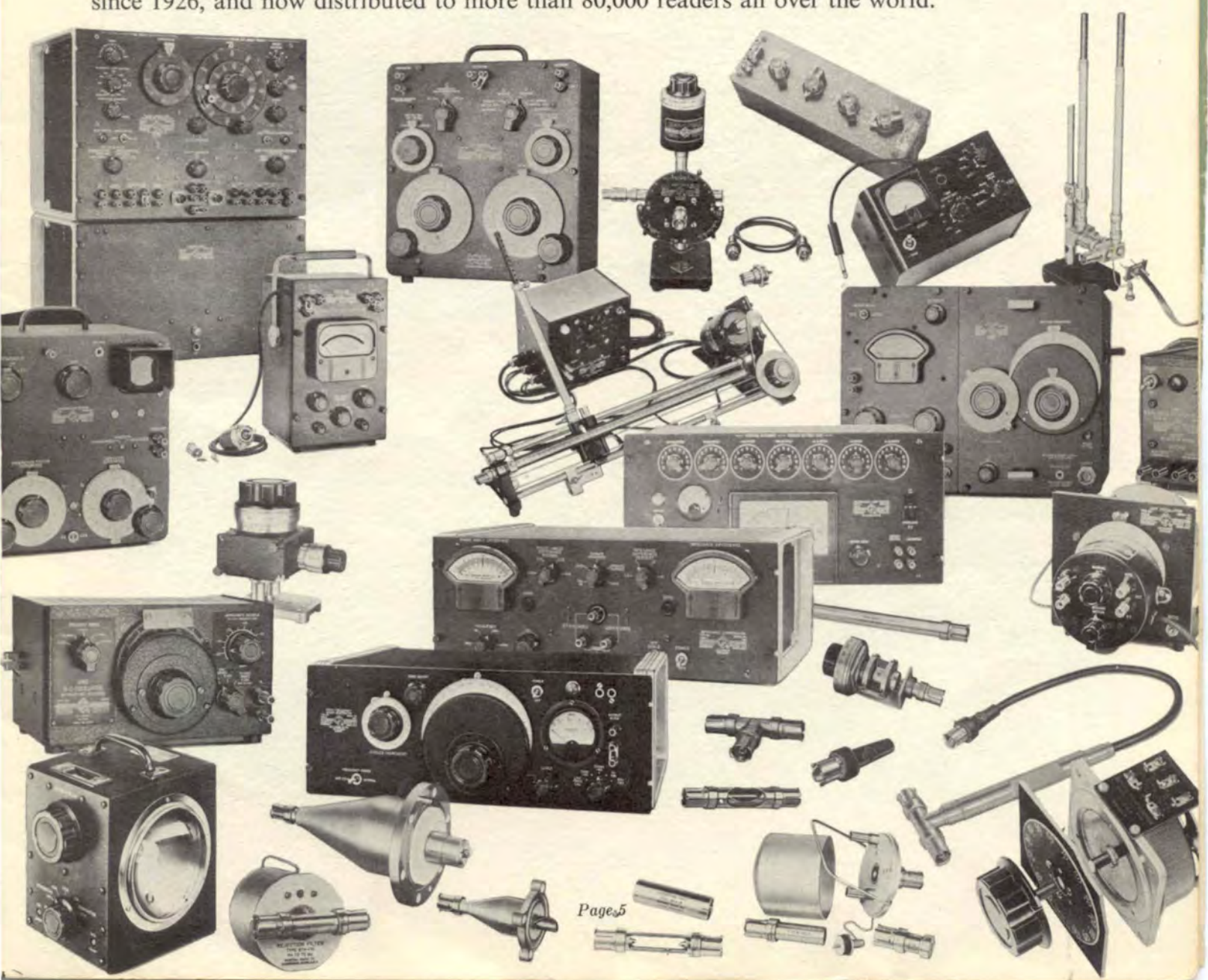
Internationally known, GR is the oldest and one of the largest companies devoted exclusively to the manufacture of electronic measuring and test equipment. It is an engineer's company. It was founded by an engineer, and the majority of its management committee have engineering training. Because of the technical nature of the Company's product, engineering training and background are required in many areas of the Company's operations.

In a company primarily run by engineers, you might expect something different from traditional management practice. This is illustrated by the novel "K" salary system. In addition, the incentive cash bonus, employee stock ownership, profit-sharing trust, and all of the progressive financially rewarding plans discussed later in the bulletin attest to the forward-looking management of the Company.

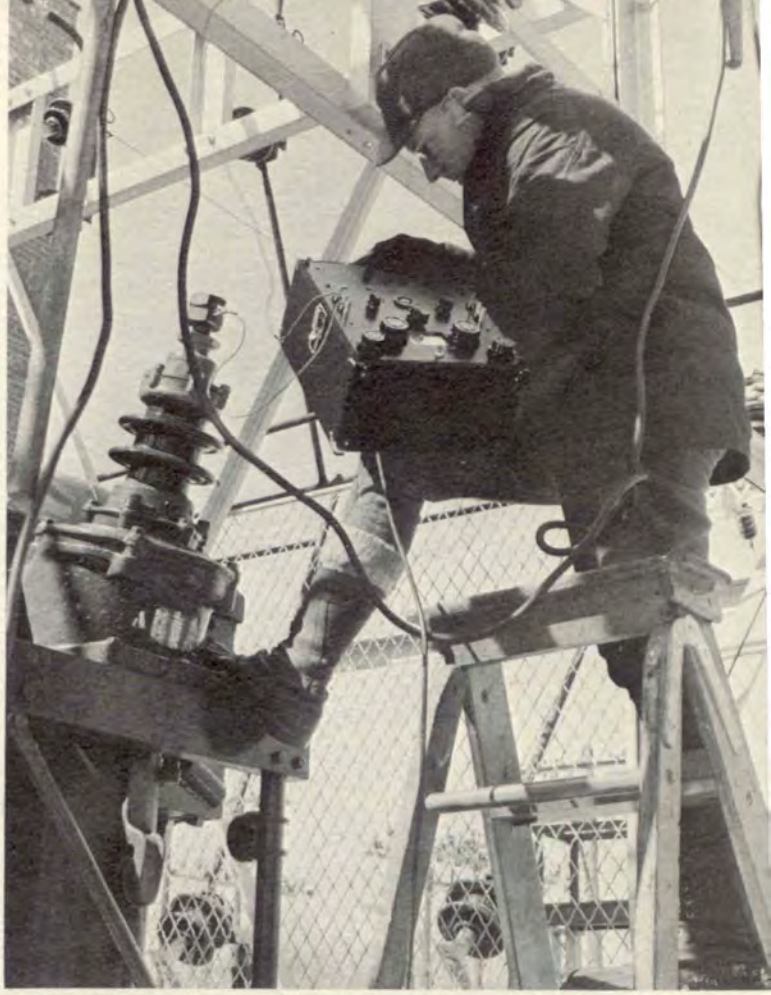
With main offices and factory in Cambridge, and with a new branch plant in West Concord, Massachusetts, the Company has a total plant floor area of more than 225,000 square feet. Six district engineering sales offices (New York, Philadelphia, Washington, D. C., Chicago, Cambridge, and Los Angeles) are manned by experienced engineers who received their training in the design and operation of GR instruments at the main engineering offices in Cambridge. Total employment is approximately 700, of which some 70 are graduate engineers. This is a good size. GR is small enough to bring the professional employee into contact with all phases of the Company's activity and with the personnel of all departments, yet large enough to offer opportunity and stability of employment seldom found in any industry.

Products

General Radio manufactures a larger and more diversified line of electronic instruments than any other company in the world. The GR line numbers hundreds of different instruments and a wide variety of precision parts and components; to describe them requires a 264-page catalog. The ideas generated by a top-notch engineering staff produce a steady stream of new instruments — instruments that can make the fundamental measurements that produce the data for the new fields of electronics: computers, transistors, missiles, etc. Since the close of World War II and up to the time of this writing, General Radio has placed on the market over 150 major new products, averaging better than one a month. These are described in a monthly engineering journal, the General Radio EXPERIMENTER, published continuously since 1926, and now distributed to more than 80,000 readers all over the world.



Laboratory Investigations with precision G-R Capacitance Measuring Assembly take the guesswork out of plastics. *Electrical* properties of new resins are studied to gain additional insight into the *physical* compositions of these materials. Both dielectric constant and dissipation factor are determined with a high degree of accuracy.



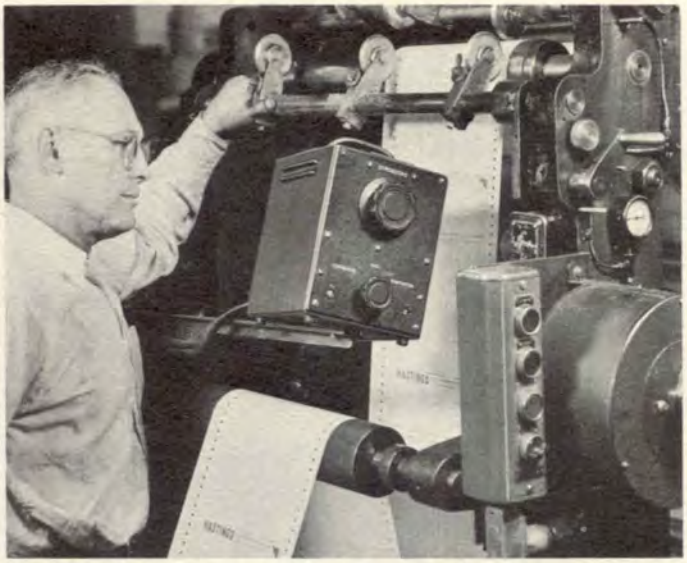
Measuring Leakage Resistance of a large power transformer with a GR Impedance Bridge. Many General Radio instruments are portable and completely self-contained, bringing laboratory accuracy to the field.

Our Customers

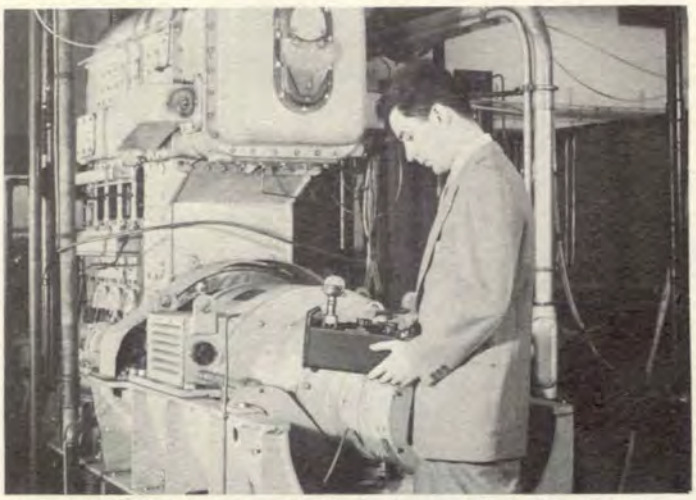
Although our main market is the electronics industry, the extensiveness of the GR line and the technological growth of industry accounts for GR products reaching practically all branches of industrial activity. General Radio instruments are used in development, investigation, quality control, and a myriad of other applications. We are a manufacturer's manufacturer as well, since many of our precision components are built into customer products. Purchasers of GR equipment are a Who's Who of American Industry.

General Radio's world-wide reputation is indicated by the resident representation maintained in 22 major countries abroad, through whom foreign customers purchase some 15% of the total plant output.

Electron Tube Manufacturer Uses GR Vacuum-Tube Bridge as standard to calibrate all the other tube checkers in his plant. Wide ranges of tube and transistor dynamic characteristics are measured with high accuracy using this precision bridge.



Print Can Be Read even though the paper roll is moving at a speed of several hundred feet per minute. Using the GR Strobotac,® a stroboscopic light, the print is monitored to assure that pattern is positioned correctly.



Industrial Noise is measured with the General Radio Sound-measuring System. Above, the noise from a diesel engine is measured to an accuracy of ±1 decibel with a Sound-Level Meter.

For The Broadcasting Station GR manufactures a complete line of frequency and modulation monitors for AM, FM and TV stations, as well as equipment for measuring noise, harmonics and many other transmitter properties. There are more G-R monitors in U. S. broadcast stations than all other makes combined. No broadcast on TV stations can go on the air without an FCC-approved monitor in operation.

Automatic Sorting of capacitors is accomplished using a General Radio Impedance Comparator and auxiliary GR Precision Capacitors and Decade Resistors. This instrument's circuits are designed to facilitate automatic control techniques and recording. GR equipment is designed with an eye to the future.

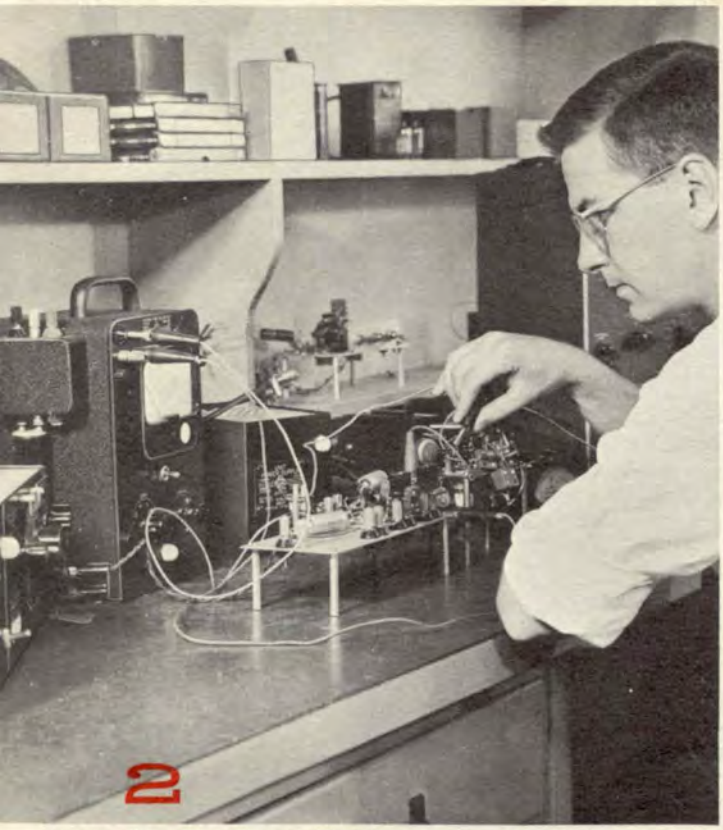
Automotive Research Engineer uses highly-precise GR wave-analyzing equipment. The particular model being tuned above has been in use for over fifteen years and still gives exact readings; a good example of the long life built into all General Radio instruments.

Research and Development

GR instruments are designed by engineers who have a diversity of educational backgrounds acquired from leading universities in this country and abroad. Many of these men are recognized authorities in their respective fields.

Along with a great amount of freedom in the management of his particular projects, the young engineer, through informal contacts with his associates, has many years of product development experience in nearly all phases of electronic and mechanical engineering at his call. He has intimate contact with the shop personnel manufacturing his device, the sales engineer applying it, and oftentimes, the buyer using it. He is involved in many phases of company operation, and as a result is gaining valuable experience that will enable him to do a better job.

Discussing Proposed New Instrument with his group leader; the development engineer has an opportunity to benefit from the experience of the senior man. Here a high-speed, precise Impedance Comparator is being considered.



Testing The Breadboard Model is the step that follows the "go ahead" from the group leader who is convinced that the basic idea has merit. The breadboard, built by a completely equipped Experimental Shop within the engineering department, gives the development engineer an idea of the practical problems of his design.

Prototype Is Drawn by the draftsman, who has consulted with the development engineer and one of the mechanical engineers. Above, the draftsman and the development engineer are clearing up last-minute questions.

Prototype Is Built by expert technicians and machinists in the Experimental Shop. Above, a technician, working from a circuit diagram, is mounting components on a panel that was made by the machinists from drafting sketches.

Development Engineer Tests Prototype with aid of standard resistors and capacitors to see how the new design performs in the finished package. When these tests are concluded, most mechanical and electrical problems will have been solved.

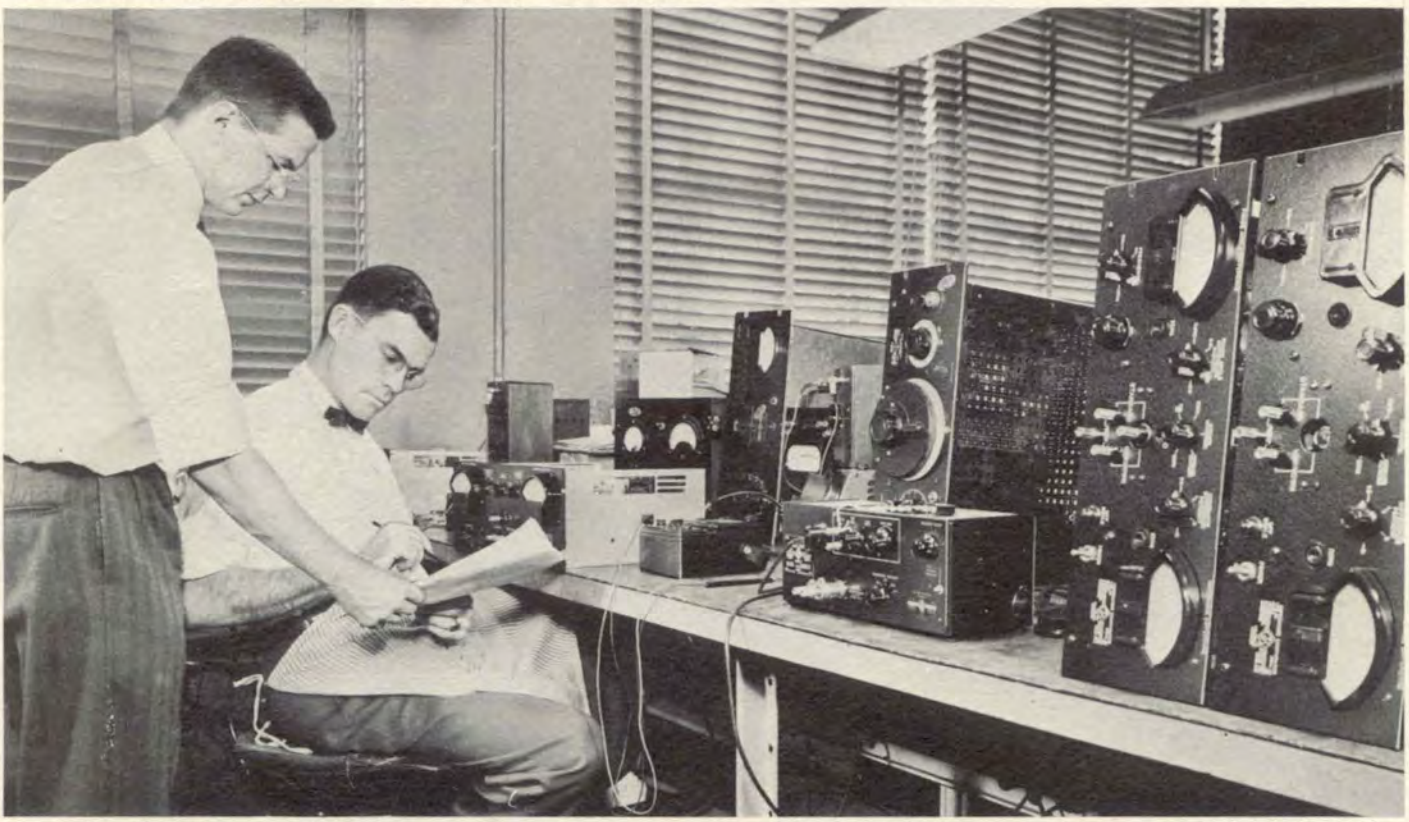
Setting of Instrument Specifications is accomplished after all the "bugs" have been taken out of the prototype. Thorough tests are made on the prototype not only to determine what the instrument will do, but to determine the correct calibration procedures for future production lots.

Manufacturing

Quality in manufacture starts with component parts and extends through the manufacturing process to final performance tests on the completed product. Accordingly, many of the critical components of an instrument are developed and manufactured by GR. In production, supplementing individual skills of the versatile craftsman are automatic and semi-automatic machines (many of which are GR designed and constructed), which are used wherever the quantity and nature of the work make them practical. Finally, to test the final products, GR maintains a standardizing laboratory, where every instrument undergoes inspection, test, adjustment, and calibration to meet exacting specifications.

To date, General Radio Company is the only instrument manufacturer to offer a two-year warranty for its products. This is concrete testimony to the quality and long life built into equipment bearing the GR trademark.

Instrument Is Assembled by skilled craftsmen working from the prototype and detailed drafting prints. A small quantity of instruments is assembled by one man to assure highest quality. Oftentimes, as above, the assemblers will have recommendations concerning the actual building of the instrument.



Laboratory Calibration is performed on every instrument to assure top performance in accordance with the rigid specifications previously established. The development engineer answers technician's questions so that he may have a complete understanding of the instrument.

"WE SELL DIRECT" is a long-established General Radio policy. The G-R sales engineer is responsible not only to his Company, but also to the customer. His job is not only to sell G-R products, but also to be sure that the customer buys the instrument best suited to his needs. Through this method of selling, the interests of both manufacturer and customer are best served.

Sales

General Radio sales engineers are engineering graduates (many with advanced degrees). They are salaried employees, thoroughly familiar with the design, manufacture, and use of products they sell. It is the engineering training and extensive knowledge of their Company's operations and capabilities that permit them to serve the numerous fields in which General Radio instruments find application. Sales engineers provide the connecting link between manufacturer and customer, translating customer needs into equipment recommendations, and instrument capabilities into customer applications.

The sales engineer has unlimited possibilities for his professional development. Through engineering affiliations, he keeps abreast of scientific progress, while his contacts with customers in all phases of the electronic industry keep him informed of industrial developments and future instrumentation needs. This knowledge helps him to do his job, and allows him to make valuable contributions to the Company's new products development.

The extensiveness of the General Radio product line involves him with electronics work in all areas of the frequency spectrum — from dc, audio and broadcasting to microwaves and pulse techniques. Working with engineers in these fields is interesting and challenging, and insures that technical training is utilized fully. Training customers in the use of latest measuring equipment and occasional talks at engineering gatherings make him a good-will ambassador as well.

Aside from obvious technical requirements, the sales engineer must have a good deal of judgment. Engineer, Consultant, and Businessman, the GR Sales Engineer is an able and important member of the professional group that guides the operations of his Company.

Advertising and Publicity is prepared by engineers since most GR literature is quite technical in nature. The development engineer, who knows his instrument best, points out the more subtle features of the instrument for the engineer preparing the ad.

Sales Engineers Learn fine points of the Impedance Comparator from the development engineer responsible for the instrument. They have been following progress from the earliest stages, and now that production models are available, they are able to perform measurements, study design features, and become completely familiar with the new product.

Service

Closely allied to sales are the functions of the Service Department, which provides the continuity of contact between manufacturer and customer after a sale is made. Prompt, efficient, and satisfactory service when needed is an important factor in building and maintaining the customer's confidence in General Radio instruments, the confidence upon which future sales must depend.

Sales Engineers Sell to other engineers so they must be strong technically. Acting as a consultant, adviser and general answer man, the sales engineer must be able to discuss instruments with confidence and accuracy.

After The Sale the service engineer is responsible for taking care of customer problems. Many of these problems can be handled over the telephone since all Service Department personnel are engineers who are well acquainted with G-R instruments, their use, testing and repair.

Training

After study of all departments for a comprehensive understanding of the Company, the new engineer starts on-the-job training. For development engineers, experimental and design assignments, as part of a productive project, lead to a specific project responsibility. In sales, product familiarity followed by customer contacts lead to district office assignments and management. All engineers have the benefit of working with top engineers who are always available for consultation and advice. No matter where the engineer starts, every effort is made to provide job opportunities that will be more satisfying, and where the greatest contribution may be made. Many of our engineers have worked both in sales and development.

Advancement and Job Stability

In a smaller company, such as GR, individual abilities are recognized and men with initiative have their accomplishments noticed and rewarded. Wherever possible, and this is almost always, promotions are made from within the Company. Men with engineering degrees have the following management positions:

Chairman of the Board of Directors
Vice President (2)
Management Committee Member (7)
Director of Planning
Engineering Manager
Sales Manager
Chief Mechanical Engineer
Commercial Manager
Publicity Manager
Export Manager
Service Manager
District Office Manager (4)
Purchasing Agent
Branch Plant Manager
Chief, Calibration Laboratory

One of the Company's basic policy objectives is to maintain stable employment. GR has grown steadily over the years. Expansion is geared to the growing electronic industry and its expanding markets. Spectacular growth during boom times is avoided.

Salary and Stock Ownership

GR's salary-incentive and stock-ownership plans are designed to reward individual achievement and to give each employee-owner an active interest in the successful operation of the Company. Base salaries are set to compare favorably with the industry average. Four-times-a-year pay reviews recognize individual progress and achievement. New employees are immediately eligible to participate in semi-annual bonuses as they may be declared by the Directors. Later, there is participation in the Profit-Sharing Trust to which the Company, depending on profits, may contribute for each employee as much as 15 per cent of his annual earnings.

Employees in responsible professional and administrative positions are included in a monthly incentive plan (K-Plan), which results in "take-home" salary that is keyed to the Company's volume of business for the preceding month. Over the years, employees under this plan have received a substantial percentage over their base pay.

Company stock is distributed to key "K-Plan" employees in amounts as determined by the Board of Directors through an annual stock bonus plan at no cost to the employee. The Company even pays the income tax. Through this plan, nearly all of the Company's voting stock is held by its employees.

Working Conditions

Along with a 35-hour week, 10 holidays, and a 3-week paid vacation, GR has excellent working conditions. Roomy offices, a clean building and factories, a well-stocked engineering library, an experimental shop manned by expert machinists and technicians, and individual work facilities are a few of the many advantages available to every engineer. Employee-ownership and management accounts for the friendly, helpful atmosphere, and the overall feeling of "pulling together."

Benefit Program

GR recognizes the importance of having a well-rounded program of benefits available to its employees. Taken together, they amount to a significant percentage of base pay. These benefits include:

Blue Cross and Blue Shield coverage — Company pays for coverage for the employee and one half the cost of coverage for his dependents.

Free medical advisory service, eye glasses, and other ophthalmological services.

Company-paid life insurance up to twice annual base pay (Maximum coverage — $35,000).

Retirement Income Plan — Company contributes three times amount contributed by the employee.

Profit Sharing Trust — Each year the Company pays into an irrevocable trust a percentage of the annual payroll which varies with the profitability of the year. These funds accumulate to the account of each employee, pro rata with his pay, and when he leaves the Company the Trustees make payment to him or his heirs as a lump sum in cash, or in other ways. The funds never revert to the Company.

Company cafeterias provide food at cost, and the Company provides facilities and assistance for the employee-run Credit Union, Mutual Benefit Association, and monthly newspaper. (Other employee activities include Winter Party, Summer Outing, Glee Club, Bowling, and Soft-ball.)

If you are interested in professional employment at General Radio Company, please fill out the attached application blank, fold and mail. You will hear from us shortly thereafter.

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Variable Capacitors from Solid Extruded Aluminum Blocks are produced by an advanced manufacturing process at GR. The machine automatically mills capacitor rotors and stators for exceptional ruggedness, excellent stability, and high-frequency performance.

Coils For Variac® autotransfomers are wound on this unique GR-designed machine, which applies an evenly spaced winding, accurately banked on the inner face, to the toroidally shaped core.

. . . an *Interesting* Place to Work

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Quartz Crystals are manufactured at GR on an individual basis in the laboratory. This assures the stability required for use in GR primary frequency standards and GR broadcast station frequency monitors.

Two Parts in 100 Million is the accuracy of this primary frequency standard, the result of 30 years of continuous G-R development. One of these instruments, a standard catalog item, supplies frequencies throughout the Cambridge plant.

To Speed Production on the thousands of control knobs that go into GR instruments, this semi-automatic machine, designed and built at GR, drills, counterbores, taps and inserts setscrews into each knob.

Form 952 A Printed in U.S.A.

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