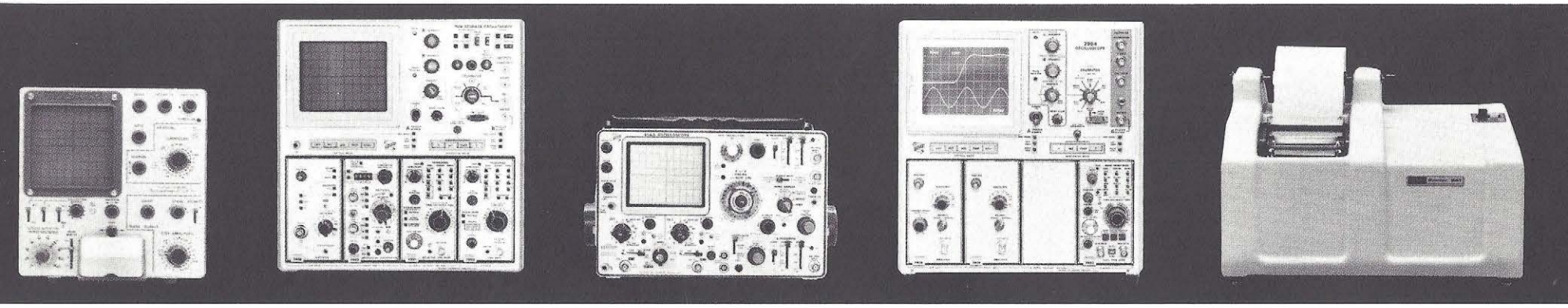
One Hundred Ten New Products

From the 1971 Tektronix Annual Report



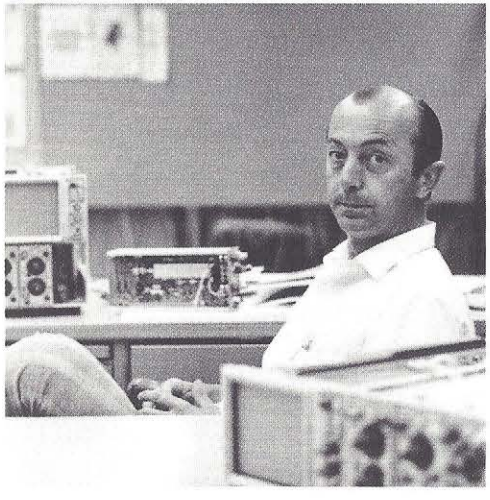
TELEQUIPMENT CT71
Curve Tracer

7514
90-MHz Storage Oscilloscope

454A
150-MHz Dual-Trace Portable Oscilloscope

7904
500-MHz General-Purpose Oscilloscope

941
Printer



ONE HUNDRED TEN NEW PRODUCTS

A competitor, overlooking a sea of new Tektronix products at a recent electronics show, remarked that we'd obviously been busy. Our Engineering vice-president agreed:

"Tickle a tiger," he said, "and that's what you get."

One hundred ten new products, announced or introduced. That's what it amounts to, in the 15 months that have elapsed since the fiscal year began.

Last year this report told you Tektronix had begun to streamline its organization in order to speed up product introduction. It's obviously working.

But sheer numbers tell only part of the story. The rest of it has to do with the impact of individual products, and with Tektronix' greatly enhanced competitive posture.

In *oscilloscopes,* we bolstered our position in market areas where we already were strongest, and recaptured the lead in those segments where competition was keenest. And, by offering performance never before available, we have begun to create entirely *new* markets.

In *information display,* our product line, our marketing force, and our reputation increased; manufacturing costs decreased. Another encouraging sign: In a total market that went down, Tektronix sales went up.

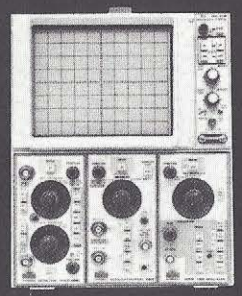
And we moved into two new fields, with unique and exceptional products: *Machine-control units* and *programmable scientific calculators.*

Much of our oscilloscope effort goes to *maintain* our pre-eminent position. (Most often, when a Tek scope becomes obsolete, it's because a more advanced Tek scope has been developed; thus, we are our own strongest competitor.)

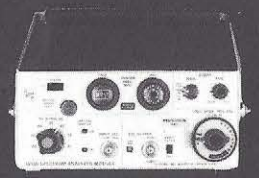
But in these two new Tektronix markets, because our initial share is small, we're competing with others and not ourselves; the result is undiluted "add-on" business.

The 7904: Ahead in the Horse Race

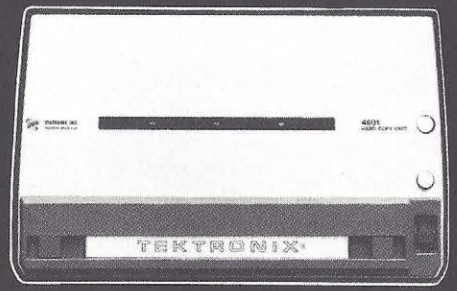
Leadership is a hard thing to define. To some it means having the lion's share of the market; to some, marking up a lot of "firsts" and "bests"; to others, merely the satisfaction of being followed. In oscilloscopy, a traditional measure of leadership has been "horsepower" —that is, bandwidth.



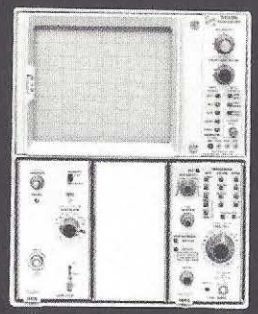
5103N
2-MHz Oscilloscope, with
Dual-Beam Storage Module



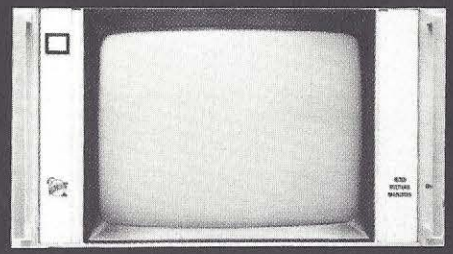
1401A
Spectrum Analyzer Module



4601
Hard-Copy Unit



7403N
60-MHz General-Purpose
Oscilloscope



630
Black-and-White Television Picture
Monitor

In the high-frequency area, Tektronix has nearly always led. This year we reinforced that lead with the 500-MHz 7904. The world's fastest general-purpose oscilloscope, it offers unequalled performance, clearly at the frontier of the state of the art.

Typical users will be developers of very fast computer memories; and, once superfast computers are built, this instrument will be bought to maintain them.

(A quibbler may point out that a scope with twice that bandwidth has existed for 12 years. That's correct; however, it is a special-purpose instrument used solely for extremely fast random or one-shot signals, such as in nuclear phenomena. We're not knocking that instrument; after all, we built it: The 1-GHz Tektronix 519. Designed in 1959 and unsurpassed in bandwidth, it has continued to meet the specialized needs of some customers.)

But the 7904 is a versatile general-purpose instrument. It accepts a wide variety of signals; it offers scale-factor readout on a bright CRT screen; and it can use, at one time, as many as four of 24 existing plug-ins, including meters and counters.

Also, for users with even higher-frequency requirements and no need for great sensitivity, we offer, through direct signal access to the CRT, the option of 1-GHz bandwidth.

The first 7904 will be available by December 1. Despite this relatively long waiting period, we have a large number of orders already in-house.

The 5103: Modularity Plus

In the past, the low-frequency oscilloscope user always had an awkward choice. He could meet his needs by buying an expensive general-purpose instrument. Or, he could buy a non-plug-in scope to meet a specific need; then, as his criteria changed, he'd have to buy another instrument.

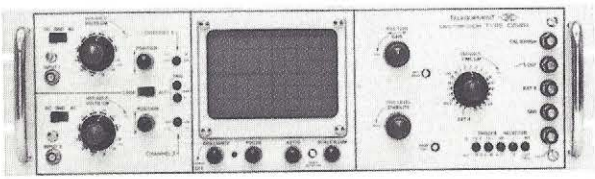
He no longer must face this choice.

The Tektronix 5100 series is the world's only plug-in low-frequency system. Its first mainframe, the 5103N, accepts up to three of 13 plug-in units at a time. It thus offers the user as little or as much of the available performance as he wants.

Versatility has always been a strong selling point at Tektronix. But in the 5100 we've extended it to new limits.

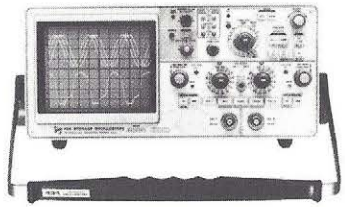
The display modules, like the plug-ins, are also interchangeable, a feature never before offered in a scope system. The user now has

"Competitively, we're in a position to put up a whale of a scrap..."

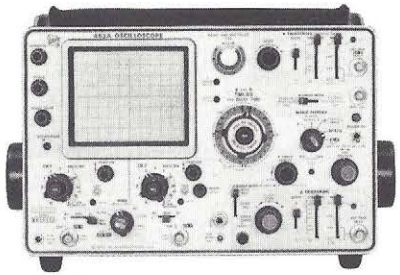


TELEQUIPMENT D54R
10-MHz Rack-mount Oscilloscope

453A-4
60-MHz Dual-Beam Portable Oscilloscope



434
25-MHz Portable Storage Oscilloscope



453A
60-MHz Dual-Beam Portable Oscilloscope

"Don't your engineers ever sleep?"

his choice of four CRTs: Storage or non-storage, single-trace or dual-trace.

Another versatile feature: The instrument converts, in just minutes, from a cabinet model, with the display module on top, to a rack-mount unit, with the module on the left.

Other features include a large (6½-inch) CRT, and scale-factor readout through the use of back-lighted skirt knobs.

The 5100 has 10 times the sensitivity and twice to four times the bandwidth of competing scopes, and equals or exceeds them in all measurement capabilities. On top of all that, it has the advantage in price.

This series, which also features simplified construction, has had an exceptional early order rate, and is clearly "the scope to beat" in the low-frequency market.

Strength in the Middle of the Line

Sales of our new 7400-series instruments are doing excellently.

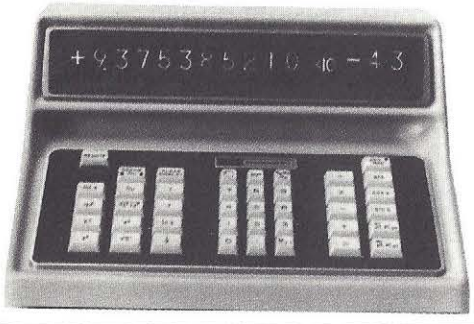
The "bread-and-butter" area—where most scopes are sold—is the 25 to 50-MHz range, which meets more customer measurement needs than any other. That center of the line is now firmly anchored by the 7403.

This series, which brings high performance down into a lower price range, owes a lot to the hard work that went into our first "new generation" scopes, introduced in 1969. You'll find many features of those more advanced instruments in the 7400 also, at much less cost due to simplified construction.

This small, lightweight 50-MHz scope, with its 6½-inch CRT, is a formidable entry, priced to compete with any laboratory instrument on the market. It offers three-plug-in capability; no competitor offers more than two.

Three plug-ins constitute a greater advantage over two than two did over one. The second plug-in was a horizontal one, giving simply time-base variety. But a couple of time bases will take care of most requirements. However, in the vertical system, where the signal to be measured is introduced, there is a need for *many* specialized plug-ins. The ability to insert and compare any two, by time-sharing the CRT beam, is a great asset to the user.

One of the most popular instruments at the IEEE electronics show at New York City in March was Telequipment's 25-MHz D67, designed and built by our subsidiary in London. This dual-trace delayed-sweep scope sells for less than $1000—an excellent value.

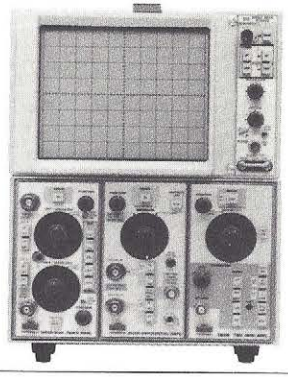


911 STATISTICIAN
Calculator

P6054
Miniature Voltage Probe

C-5
Oscilloscope Camera

172
Programmable Test Fixture



5103N
2-MHz General-Purpose Oscilloscope
with Single-Beam Storage Module

Portable Storage is Here

It was just a matter of time—and considerable ingenuity—until Tektronix merged two features whose development it has spearheaded—storage and portability. The result: The new 25-MHz 434.

It offers the advantages of a conventional portable with those of split-screen storage. Waveform comparison is easy on this scope; the full screen, or its upper or lower half, may be operated in stored or conventional mode. One stored waveform thus provides a stable reference against which to compare another, either stored or conventional.

Simple to operate, the 434 can store a bright trace up to four hours. It can even be set up to "capture" a random waveform while the operator is away, so he may view it at his convenience.

Lighted knob skirts automatically provide scale-factor readout—compensating, when needed, for use of a 10-times probe.

The portable weighs just over 20 pounds, and stands only 5¾ inches tall. It comes in a rack-mount model also, as does its non-storage version, the 432.

Also in the area of portables:

From a strictly marketing standpoint, the 453A and 454A rank among our strongest new products. They are significantly upgraded models of the 453 and 454, the standard instruments of the large computer-service market, and widely used by others who also need compact laboratory performance.

The 453A has a brighter CRT and increased bandwidth (from 50 to 60 MHz) than its predecessor; the 150 MHz 454A has increased sweep speed.

Both have larger CRTs than the models they replace; and both use a new "mixed sweep" technique, that lets the user switch in mid-waveform from one time base to another, allowing closer inspection of some desired portion of the electrical event.

If you talk about "portable portables," you must mention the handy 10-MHz SONY/Tektronix 324, designed and built by our jointly owned Tokyo subsidiary. It weighs only eight pounds.

Plugging Away

Along with this year's many scope advances, we made equivalent progress in the development of plug-in units.

Probably chief in importance are the 7D13 and 7D14, briefly mentioned in last year's annual report. The former is a digital multimeter; the latter an extremely fast

"Tickle a tiger, and that's what you get."

(500 MHz) real-time counter. The 7D13 measures voltage, current, resistance and temperature; the 7D14 counts electronic events in some chosen time span, and thus can measure, for instance, frequency.

Meters and counters are very common electronic tools, but normally must be bought as separate products, not plug-ins. Since they are *part of* our scope, it becomes a true integrated test system. The operator gets all the information he needs, in its most useful forms, by looking in just one place. Not only is this convenient and helpful in preventing error; but having one instrument instead of three also is a great space saver.

You save money, too, by not having to pay for a separate power system and a separate readout; the scope provides them. And you can make otherwise-impossible measurement combinations by letting plug-ins interact with one another. For instance, the signal-processing ability of the scope's vertical preamplifier plug-in may be used to beef up weak signals (such as from communications equipment) so that the counter can count them.

The idea of making these instruments as plug-ins has clearly been validated. So it's worth mentioning in passing that there are as many kinds of meter and counter as there are things to meter and count. So far, we've built two.

Other plug-ins worth special mention:

- The 5CT1N and 7CT1 are semiconductor curve-tracer units for 5000-series and 7000-series oscilloscopes respectively.

These plug-ins enable CRT display of the "family" of typical waveforms representing the behavior of a transistor or similar device under test. Until now, curve tracers have been available only as self-contained instruments, never as plug-ins.

These two units, which perform the more common curve-tracer functions, are very low in cost.

- The 7S12, a double-width plug-in combining vertical and horizontal elements, is a time-domain reflectometer for our 7000 series.

This TDR unit extends our ability in the area of sampling, a method of re-creating a waveform of an event too fast for a conventional oscilloscope to measure, by assembling successive bits of a repetitive signal.

Time-domain reflectometry is a way to measure length of electrical cable and connectors, or for detecting and measuring faults in

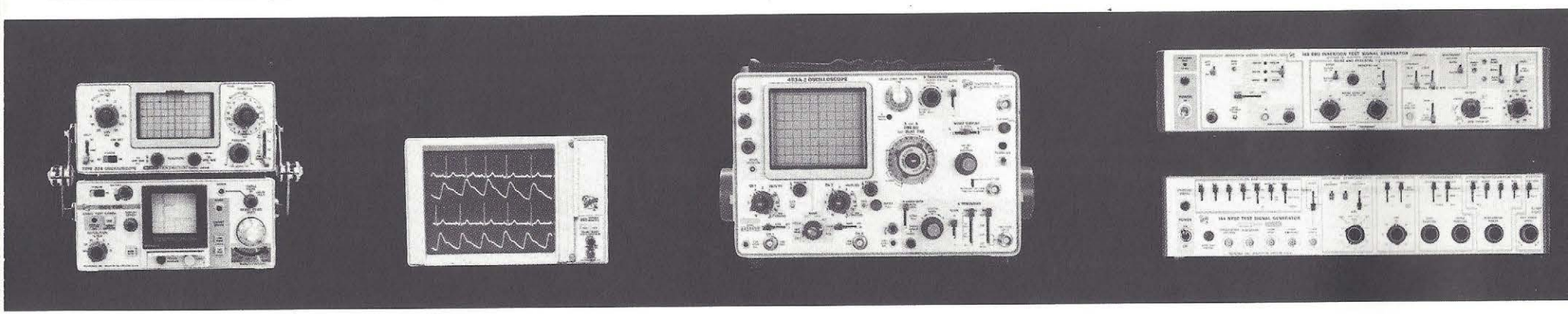
1501
Time-Domain Reflectometer (shown with SONY/Tektronix 324 Oscilloscope)

603
Storage Monitor

453A-2
60-MHz Portable Oscilloscope

148
Test Signal Generator (top)

144
NTSC Test-Signal Generator



them. A pulse sent into an electrical line is reflected back and observed on the scope CRT. The line length and the presence of any faults may be deduced from the characteristics of the displayed reflection—like shouting into a cave and analyzing the echo.

The state-of-the-art 7S12 has a reflected risetime of 45 picoseconds. That's 45 millionths of a millionth of a second.

A Whiz-Bang Year for TV Products

We had our best year ever in television instruments. Exclamation point.

Sales continued to reflect Tektronix' leadership. No company in the television measurement field has the instrument breadth or the worldwide acceptance that we enjoy.

Even at that, a number of our significant new products came out near or after the fiscal year's end; so their sales impact is yet to be felt. They were, however, extremely well received.

• *Picture monitoring.* We brought out our first black-and-white picture monitor, the 630, engineered and built by Tektronix Holland; and our first color monitor, the 650, which uses the SONY single-gun Trinitron tube to produce a sharp, bright, stable picture that enables critical quality measurements.

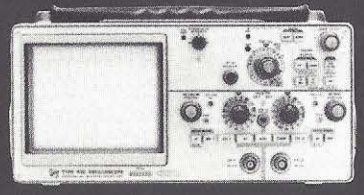
Unlike television waveform monitors, which exhibit the transmitted signal in a variety of ways, picture monitors display the actual TV image, for visual analysis.

Whereas most competing monitors merely let the user "eyeball" the picture to assess its quality, both our new products are professional-grade measuring instruments that can perform, for example, waveform analysis of studio timing errors or signal jitters.

• *Signal generation.* To our line of color-bar and television sync generators, we have added the capability of transmission testing, with the 147, for TV systems in the Western Hemisphere and Japan, and the 148, for Europe. These instruments allow insertion of test signals *while the program is being broadcast,* permitting continuous transmission quality control.

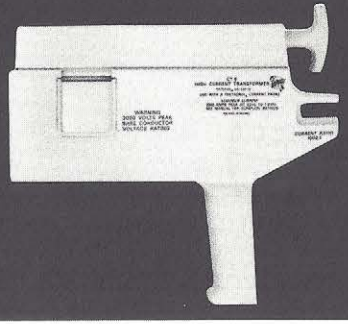
The 147 and 148, the most inclusive generators now on the market, let the user perform all known tests of any portion of the television signal anywhere along the line. For instance, a local station now may compare its received signal against prescribed standards. If it is deteriorated, the station may reject the telephone circuit and get alternative service from the phone company.

432
25-MHz Dual-Beam Portable Oscilloscope

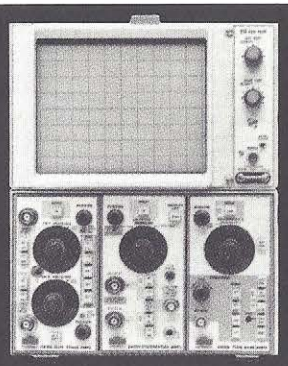


1401A-1
Spectrum-Analyzer Module

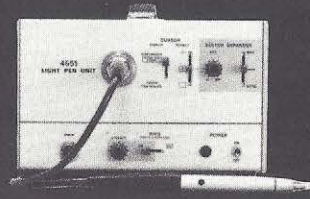
CT-5
High-Current Transformer

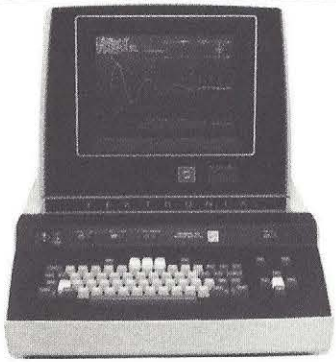


5103N
2-MHz General-Purpose Oscilloscope with Dual-Beam Display Module

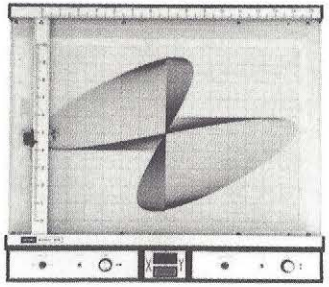


4551
Light Pen Unit



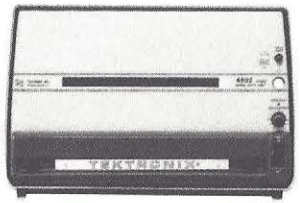


T4002A
Graphic Terminal



915
Plotter

1701
Machine-Control Unit



4602
Video Hard-Copy Unit

T-4005
Graphic Display Unit

"If we're not changing, we probably have no new problems—which probably isn't a very good thing..."

The 148 and the 650 series have met with particular interest in the growing Eastern European market.

Competing generators cost more than ours, and are bulkier and less flexible. Compactness offers a particular advantage for installation in mobile video trailers, commonly used for coverage of remote events.

• *Cable television.* We introduced two products designed for the growing CATV market. The 1401A is an improved version of our 1401 spectrum analyzer. The 1501 is a time-domain reflectometer.

The 1501 produces an oscilloscope trace and a permanent paper recording, "fingerprinting" the performance of part of a cable system. A user, by comparing recordings of a normal and a degraded signal, may detect the exact point in a line where a flaw is present, such as might be caused by intrusion of water into the cable.

• *A Worldwide Commitment.* Tektronix is a vigorous and highly respected participant in all major national and international television exhibitions. And our commitment is clear: To supply measuring instruments for all television systems, anywhere.

As a result of these continuing efforts, your TV picture, and those of viewers throughout the world, will continue to be sharper and better.

People Discover Graphics

Sales of information-display products were up.

This field still represents just a small portion of our business. Also, the *total* information-display market shrank. Still, up is up, which is the way Tektronix sales went. And next year promises to be better.

• *Terminals.* Two years ago we introduced a terminal that displayed not only computerized words and numbers but also pictorial material. This year much of the industry has come to agree with our assessment of graphics as an important feature.

At the Spring Joint Computer Conference in Atlantic City, most terminal manufacturers had added graphics capability. Even those who hadn't were "making do" with their alphanumeric terminals, drawing "pictures" with keyboard symbols.

So, it is into a growing area of awareness that we've introduced the 4002A, an advanced graphic terminal. Like its predecessors, it gives two-way communication, in characters and pictures, back and forth between man and computer. It can display over 3000 letters or numbers without flicker or drift (or equivalent fine-line graphics), and

do so inexpensively, thanks to our patented storage CRT, which holds the information on its screen, once it's received. By contrast, TV-type "refreshed" tubes must either eat up time and money "rewriting" the information while it's being viewed, or be accompanied by expensive memory units to provide storage.

In addition, the 4002A offers new capabilities:

- An easy-viewing display. Even when you stand back six to eight feet in a lighted room, the on-screen information is bright and clear.
- A "scratch pad" on the bottom of the display area, for alphanumeric composing and editing. Unlike the main portion of the display, which is a storage screen, the scratch pad works in "refreshed" mode. This feature lets you (or the computer) make *selective* additions, deletions or changes—such as correcting one number in a series of 50. The information may then be sent to the computer, or to the display area, or both.
- Strong software support. For a terminal to be used in particular applications, written computer programs and electronic "interfacing" are needed. This all comes under the heading, "software." We believe we now can interface with more kinds of computer than any other terminal manufacturer.

Interfacing and software support will couple our terminal to the very popular IBM 360-series computers; into data-communications systems that time-share the services of a very powerful computer, and to the growing array of compact "minicomputers."

And—an uncommon achievement in these times of rising prices—the 4002A costs no more than its predecessors.

There has never been a low-cost graphic terminal. This fall we will show you one: the 4010, that will offer the business-oriented user the same kinds of capability the 4002A provides the scientific user. The 4010 has at least twice the alphanumeric capacity of any competitive terminal. And it will do something none of them can—provide the ability to make charts, graphs and other very useful visual analyses.

Selective previews of this compact unit have reinforced our feeling that it's a winner.

- *Other display products.* We broadened our offerings for both storage and refreshed display systems.

The 4601 hard-copy unit, introduced last year, has sold very well. It makes an inexpensive 8½x11-inch dry paper copy from the display on a Tektronix terminal or other storage display device. Now we've introduced the 4602 *video* hard-copier, which does the same thing for television images—from refreshed terminals, CATV systems or closed-circuit video. It can make a half-tone copy of any continuously transmitted picture that's stable for 18 seconds. A typical user might be a law-enforcement agency, transmitting photographs of wanted persons.

The 4701, an eight-channel analog multiplexer, accepts up to eight signals and processes them for display on a viewer, such as a Tektronix 611 display unit or 630 picture monitor. A hospital might use this product to let physiological information on eight patients be time-shared for display on a storage screen.

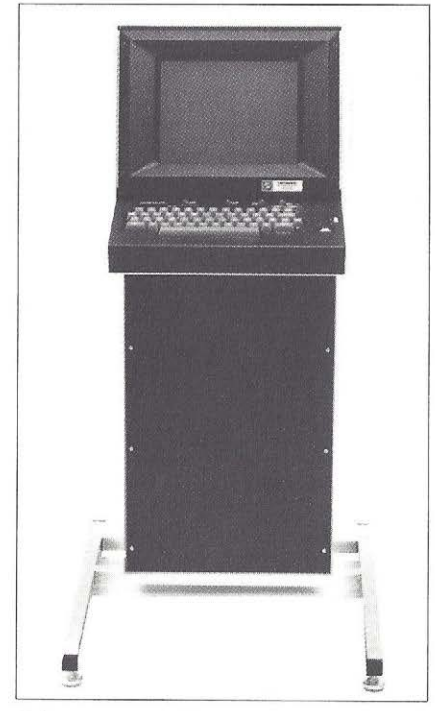
The 4551 light pen is a means of "drawing" on a TV image and transmitting that superimposed information (for instance, weather notations drawn on a satellite photo) to other video viewing devices.

To our line of display monitors, we're adding the 603 (storage) and 604 (refreshed). They offer bigger, brighter, faster displays than their predecessors, the 601 and 602. And they cost considerably less.

Machine Control: Sleeping Giant

The machine-tool market is a tremendous one. It's also tremendously depressed, having dropped 20 per cent this year, and over 50 per cent the year before that.

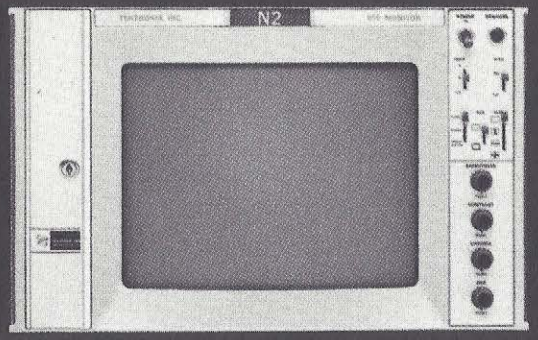
But a recession, when no one is out buying competitors' products, is a good time for a newcomer to make itself known. And that's what Tektronix has done this year. Our six machine-control products are earning an excellent name for themselves, in a market which appears to have nowhere to go but up.



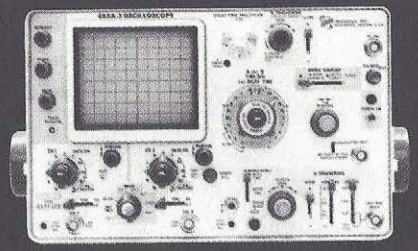
4010
Low-Cost Graphic Terminal

We've introduced five models of machine controller, which use computer-generated punched-paper tapes to automatically direct the action of production machinery; and one program verifier, which very rapidly checks tapes for human or computer error.

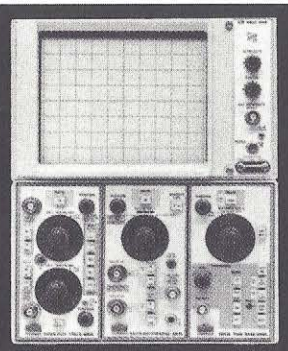
Three of the MC units, the 1701, 1702 and 1704, are contouring machines. They direct two or three-dimensional cutting, milling, forming or turning operations. They are



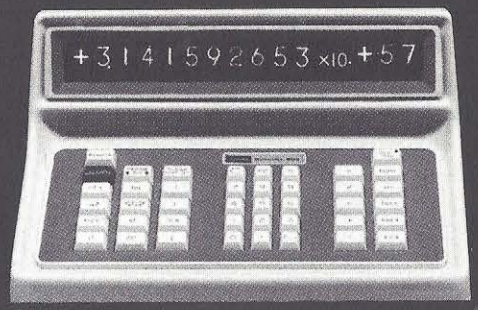
650
Television Color Picture Monitor



453A-3
60-MHz Portable Oscilloscope



5103N
2-MHz Oscilloscope with
Single-Beam Display Module



909 SCIENTIST
Calculator

also available with a Tektronix 611 display unit, which on its CRT screen traces the machine-tool path, thus "drawing" a part as the coded tape directs.

The 1791 program verifier doesn't control machinery but merely checks the tape. Even if the machine-tool industry doesn't grow dramatically this year, the 1791 has a ready market in the thousands of existing machine-controller owners, who now must actually build the part to verify the tape program—that, or check the tape on a slow mechanical plotter. The 1791, which "draws" the part as fast as the tape can be fed to it, can check for program errors in seconds instead of minutes—or minutes instead of hours.

The 1711 and 1712 are "point-to-point" machines, or positioning controls. They do not direct cutting or routing, but merely move the tool quickly from one spot to another, to bore or punch or weld.

Our MC units are competitive packages. Their cost is low; they are compact, table-top-sized in comparison to most competitors' floor-standing racks of gear; and they are reliable. There are two additional plusses: One is the 611 visual feature, for users who desire it; the other is close-at-hand service, worldwide.

The latter feature is of great importance; when an MC unit is down, so is the machinery it controls—and that's costly. Not only are many machine tools made in foreign countries; those built in the US are often installed overseas. Whether you're in Brussels or Tokyo, it's reassuring to have a field engineer nearby.

The Instant Mathematician is Here

Our purchase of the assets of Cintra Incorporated gave us an exceptional new product line: Programmable scientific calculators.

A programmable calculator is like a small computer, but designed to do mathematics at electronic speeds, not data processing.

Ours is unique in a pretty special way: That is, you can walk right up and use it.

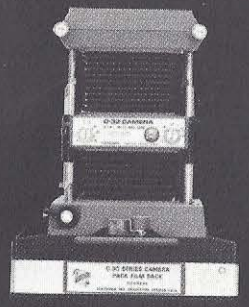
Interestingly, you won't be able to add 2 and 2 on other programmable calculators—not until you learn the necessary keyboard procedures.

Tektronix calculators respond directly to the language of mathematics. For instance, when a roomful of five- and six-year-olds was given access to our instrument—with no instructions in its use—they were immediately able to use it to do arithmetic at their level.

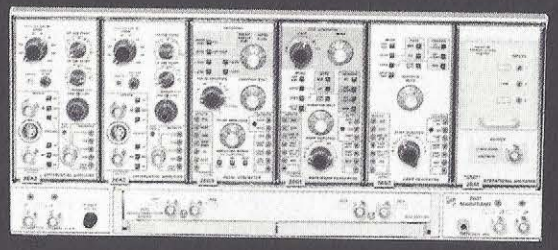
Our calculators recognize what's called the "mathematical hierarchy"—a long-established sequence for solving numerical problems (first multiply, then divide, then add, then subtract). You just plunk in the problem in the proper sequence, and the calculator gives you the answer at the push of one key—accurate up to 12 significant figures.

This means that if you were to insert the problem 1 + 2 x 3, you'd get 7, the right answer. On competing calculators, you'd get 9, because, not recognizing the hierarchy, they would process the steps in sequence: 1 + 2 equals 3, times 3, equals 9.

Since there are no complex machine set-ups to learn, the infrequent user of a Tektronix calculator doesn't have to *re*-learn them each time. To operate calculators that require more complicated procedures is like playing golf; you get rusty if you don't keep at it.

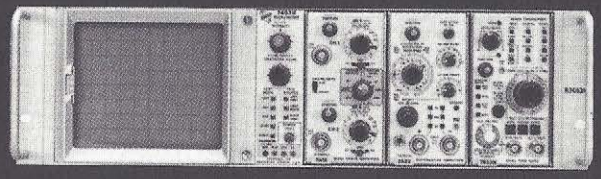


C-32
Oscilloscope Camera



2600 SERIES
Modular Signal System

926 PROGRAMMER



R7403N
60-MHz General-Purpose Rack-mount
Oscilloscope

Re-learning takes time; thus it costs money.

The market for scientific calculators is a growing one. What's more, oscilloscope users tend also to be users of scientific calculators. Thus we are now able, through our worldwide marketing organization, to offer customers two very useful closely related products.

Calculator products include the 909 "Scientist"; the 911, a calculator for statistical functions; the 915 plotter (to be shown this fall), which provides an *x-y* graph of the solution; the 941 printer, which gives you a "hard" copy of the answer or the programmed instructions, or both; the 926 programmer, which multiplies the program-step storage 60-fold, thus giving more nearly minicomputer capability; and other peripherals that make calculator use faster or more versatile.

A unique product is the 928 Instructor. It can interface any cassette tape-recorder with the calculator. As a result, someone can, on the same tape, provide digitally coded commands to the calculator and voice instructions to the user. This audiovisual playback is an exceptional teaching device, of understandable interest to the educational field.

ET CETERA: THE PRODUCTS KEEP COMING

Once upon a time, not too long ago:

The oscilloscope user, to display a waveform, had to synchronize the sweep repetition rate (or try to) with the frequency of the signal to be viewed—much like a photographer "pans" his camera along with a fast-moving subject. But, because the sweep or the signal frequency (or both) would vary, displays tended to wobble and blur. You'd get a good look at the waveform, once in a while. But displays of one-shot events were generally impossible.

Another problem was that bumping and flickering power-line voltages made the scope misbehave. The CRT spot, for instance, might get so bright as to burn the phosphor screen; or, on the other hand, it might just fade from sight. Also, any scope adjustment was likely to affect all the others, like turning on the shower affects the water pressure in some old homes.

Probes posed another problem. Their job is to connect the scope to a circuit under test. Early probes were merely shielded wire, which had a resonant frequency of its own; when a sudden voltage change occurred, the wire would

resonate at that frequency. (In the same way, when you rap your knuckles on an empty barrel, the resulting hollow "boom" is a characteristic of the barrel, not the rap.) Thus the scope received distorted signal information.

Today's scope users seldom face such problems. They have a *triggered sweep* and *trigger-level selection*, so the sweep circuit doesn't have to be synchronous with the measured event, but starts instead when the waveform hits some predetermined voltage level. They have *regulated power supplies*, letting the scope operate unhampered by power-line foibles. They have *non-resonant probes*, whose center cores of resistive wire dissipate unwanted frequencies and present an undistorted signal.

These features, common to almost all oscilloscopes today, were all developed or introduced by Tektronix.

Other innovations have included *alternate-sweep* dual or multi-trace amplifier circuitry, which lets the user view, on the same screen at the same time, two or more intact and different waveforms; *plug-in units*, that allow an oscilloscope to operate at a wide variety of frequencies and sensitivities; (our competitors poked fun at this idea, but our customers didn't); *direct-view bistable storage*, with cathode-ray tubes whose stored image doesn't fade; and *portability*, packing increasingly more performance into compact, rugged, lightweight packages.

The point of this story is that a *very* great many of the basic oscilloscope features and functions—things so common to almost all scopes that we now take them for granted—began as Tektronix innovations.

And those innovations continue.

If the same person invented the wheel and the sandal, he'd be the likely one to also become the inventor of the roller skate. That is, the necessary pieces are there.

In any field, the leading company is responsible for most of the technical advances. These achievements rarely have only a one-time application; in fact, sometimes they're so basic as to gain almost immediate widespread use. But, most often, they're put together later in new ways whose benefit exceeds the sum of their parts.

Through this kind of combination, Tektronix has created some of its most useful products. And, because our past two years have seen such a large number of ad-

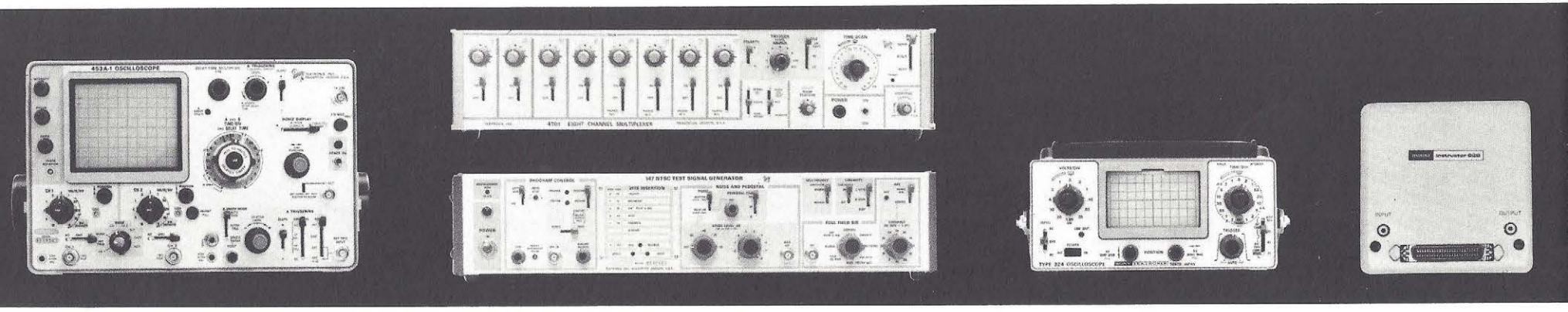
453A-1
60-MHz Portable Oscilloscope

147
NTSC Test-Signal Generator (top)

4701
Eight-Channel Multiplexer

SONY/Tektronix 324
10-MHz Portable Oscilloscope

928 INSTRUCTOR



vances, our potential for productive combinations may never have been greater than it is today.

Our history has been one of making as many useful features available to as many kinds of user as could benefit from them. Thus we combined storage (once limited to a single instrument, then called "the storage oscilloscope") with general-purpose plug-in versatility; with spectrum analysis, and, this year, with portability. A portable storage scope is not merely convenient; it also lets the user make measurements he couldn't otherwise economically make—of one-shot phenomena, for instance, that happen away from the laboratory.

Similarly, we combined high-frequency with portability, and thus have maintained a strong position in the computer-service market, which needs both. And this year we brought plug-in flexibility into the low-frequency use domain.

No one has stopped designing new instruments just so the total could be reckoned for this annual report. The same outpouring that has characterized this past year is still going on. For instance, at the August WESCON show in San Francisco, we're bringing out 13 new products.

So, as our new-instrument output continues at full speed through the coming year, you can expect to see useful new combinations of capabilities. The pieces are there, ready for combining.

Here are some—almost all of them unique to Tektronix:

Scale-factor readout. The CRT beam provides on the screen—in letters, numbers and symbols—exact information related to the displayed waveform. Users who have the option are buying readout over non-readout, despite some added cost.

Multiple plug-in capability. It looks from here like the three-plug-in scope is destined to become the standard general-purpose instrument of the future, because of the variety of signal processing it makes available. We also offer four-plug-in capability for those who need it.

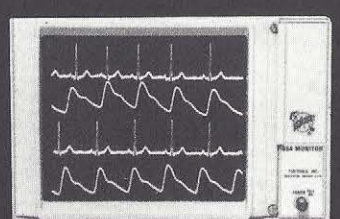
Display modularity. The 5100 series this year proved the value of interchangeable display modules, containing CRTs and related circuitry. They give the same kind of flexibility in display that plug-ins do in signal processing.

Simplified construction. Streamlined fabrication and design techniques, exemplified in the 5100 and 7400, allowed us to bring three-plug-in "new generation" performance down into a lower price range—in a year when price was a prime consideration.

Miniaturization. Tektronix has always led in the ability to get more and more electronics into less and less space. SONY/Tektronix portables, very small and lightweight, offer performance near that of bulky bench models of not too many years back. Our growing skills in integrated-circuit development also let us build more compactly; the four ICs that provide character generation contain the equivalent of 112 emitters each.

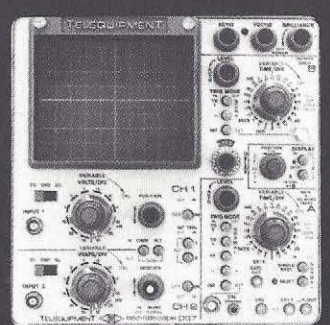
Innovative plug-ins. Meters and counters, formerly available only as self-contained instruments, have proved their worth as plug-ins, and have expanded the user's concept of just what an oscilloscope is. May other kinds of digital instruments be useful as plug-ins? It's an interesting question.

604
Display Monitor



4951
Joystick

TELEQUIPMENT D67
25-MHz Dual-Trace Portable
Oscilloscope



R7704
150-MHz Rack-mount General-
Purpose Oscilloscope