

SPR - 20A
January 21, 1955

To: All TEKTRONIX Field Activities
From: Field Engineering Department
Subject: TEKTRONIX Type 524AD Oscilloscope

Starting with serial number around 1900, about March 15, 1955, the Type 524AD will come into being. The purpose and general use of the Type 524AD is identical to that of the Type 524D. The differences are -----

1. 0.025H time marker added, providing 40 pips per television line.
2. Time-marker phasing control added, permits markers to be positioned on any desired point of the observed waveform.
3. Three-turn helipot for sweep delay control -- function still the same except three turn now instead of one turn.
4. A probe power output receptacle supplies 6.3V ac at +120V dc, and +120V dc.
5. A new cathode-follower probe, ac-coupled, will be available for use with the Type 524AD. Complete information on the probe will be supplied at a later date.
6. Vertical input and calibrated voltage range controlled by separate switches.
7. New panel layout features functional grouping of controls, identical to the method used in Type 531, 535, etc.

The price of the 524AD is the same as the Type 524D---\$1, 180.00
FOB Portland, (Beaverton) Oregon

SPR - 21A
January 21, 1955

To: All Tektronix Field Activities

From: Field Engineering Department

Subject: Type 532 Oscilloscope

Another new 530 Series instrument is about to be released that will be of considerable interest to a large number of people. As with the previous 530 Series instruments, it will feature wide sweep range, versatile triggering circuitry, low distortion CRT, and the plug-in pre-amp feature.

This new instrument will be called the Type 532 Oscilloscope. It will be aimed specifically at replacing the Type 512 which, in the light of recent sweep circuit developments, is rather limited in its capabilities.

The characteristics of the basic oscilloscope follow:

1. Sweep Range 1 μ sec/cm - 5 sec/cm
 (.2 μ sec/cm - 12 sec/cm, with magnifier
 and/or uncalibrated)
2. Horizontal Sensitivity .2 v/cm - 20 v/cm
3. CRT and Accelerating Low-voltage version of T51PA. 4 kv, ± 4 cm deflection
 Potential
4. Vertical Output DC - 5mc basic bandwidth
 Amplifier
5. Price: \$825.00 plus plug-ins

For those whose main oscilloscope interest has been the Type 512, the 53D Plug-in will be the most useful. This will give a sensitivity of 1 mv/cm at the rated bandwidth of DC-250 kc. As with the other 530 Series Oscilloscopes, the 532 will have its sensitivity determined by the particular plug-in unit in use.

The question may be raised of "why another instrument that apparently covers only a limited portion of the regular 530 Series capabilities." Two main reasons exist:

Many users just don't need the high intensity and very fast sweeps of the 531/535. With the 532, they needn't feel they're paying for unneeded and unused features.

An extra margin of reliability appears in the 532 as a result of the first reason. It's obvious that circuit simplicity means minimum maintenance, yet the stability and accuracy that have come to be associated with Tektronix instruments are completely retained.

The 532 will be on display at the New York Show in March. You'll be pleased when you see it.

SPR-23A
March 30, 1955

TO: All Tektronix Field Activities
FROM: Field Engineering Department
SUBJECT: Obsolescence of Type 513D

Regular production of the Type 513D is being discontinued this month. It is replaced by the new 540 Series.

Listed below is a short comparison of the 540 Series with the Type 513D:

	<u>Type 541 with 53K/54K Plug-in Unit</u>	<u>Type 513D</u>
Band-width (3 db)	DC to 30 MC	DC to 18 MC
Rise-time (10%-90%)	12 millimicroseconds	25 millimicroseconds
Sweep Range	5 Sec/cm to .02 μ Sec/cm	.01 Sec/cm to 0.1 μ Sec/cm
Sweep Linearity and Accuracy	3%	5%

In addition to the above characteristics, Type 545 also has a Trigger-Rate source continuously variable from 10 CPS to 50 KC, delayed trigger, and the Delaying Sweep with its lockout-reset feature.

Considering the additional performance and lower price, we feel the 540 Series is an excellent replacement for the Type 513D.

It will be to the customers' advantage to point out the greater possibilities of the 540 Series.

Availability of the 540 Series is currently estimated at 90 to 120 days.

SPR-25B
May 23, 1955

TO: All Tektronix Field Activities
FROM: Field Engineering Department
SUBJECT: Obsolescence of Type 512

Please destroy SPR-25A and replace with this release.

Regular production of Type 512 is being discontinued this month, since it is being replaced by Type 532. Henceforth Type 512 will only be built to special order, on a "when-we-get-to-it" basis.

GENERAL COMPARISON

	<u>TYPE 532</u>	<u>TYPE 512</u>
1. Horizontal Sensitivity	.2 V/CM Maximum	1 V/CM Maximum
2. Sweep Range	1 μ Sec/CM to 5 Sec/CM (12 Sec/CM Uncalibrated) Accuracy $\pm 3\%$	3 μ Sec/CM to .3 Sec/CM Accuracy $\pm 5\%$
3. Sweep-Starting Time	0.2 μ Sec	5 to 10 μ Sec
4. Sweep Magnifier	5X magnification accurate on all ranges Provides for fastest sweep of 0.2 μ Sec/CM	5X magnification
5. Vertical Bandwidth	5 MC Maximum (with 53A, B, C, or G Plug-in)	2 MC Maximum
6. Sensitivity	1 mv/CM (with 53D/54D)	5 mv/CM
7. CRT & Acceleration	Tektronix Type T52P2 4000V (other phosphors optional)	Type 5ABP7 3000V
8. Cooling	Forced Air Convection	Normal Convection

Type 532 retains all the important features that have made Type 512 so valuable, such as delayed gate, voltage calibrator and plus-gate, and sawtooth outputs.

In addition, Type 532 has a new front panel layout with controls grouped for naturally convenient operation. Special mention should be made that Type 532 will do a commendable dual-trace job with Type 53C Plug-in. With new plug-in units coming into development Type 532 is a truly universal general-purpose scope.

Please refer to the catalog for complete specifications on the Type 532.

SPR - 26A
June 10, 1955

To: All TEKTRONIX Field Activities

From: Field Engineering Department

Subject: Tektronix Type 517A

Beginning with serial number 926, Type 517 will change to 517A. The significant improvements are listed below.

New CRT - Type T54P11 (other phosphors optional)

Vertical Amplifier Sensitivity at 24 KV05 v/cm
Vertical Deflection Capability at 24 KV	4 cm
Signal-displacement error for ± 2 cm	less than 3%
Sweep-displacement error for 8 cm	less than 1%

The sweep duty cycle is automatically limited to 15% to avoid inadvertent overloading of sweep circuits.

According to our aluminized crystal ball, we should see the new Type 517A's by the first of July.

All of the current 517's will be absorbed by orders now in process. For this reason, please quote and acknowledge only on 517A.

To: All TEKTRONIX Field Activities
From: Field Engineering Department
Subject: Comparison of Type 531 to the 514AD Oscilloscope

With the development of the Type 530 Series Oscilloscopes, it became apparent that a side-by-side comparison of specifications might be helpful, to aid in the selection of these instruments over some other types. A great deal of effort has gone into combining human engineering with electronic know-how to provide the optimum in front panel design, chassis layout and ventilation, along with completely new concepts in circuitry. These efforts have paid off in terms of extreme versatility and ease of operation, in addition to important gains in overall performance and reliability.

Some of the more significant improvements in the 530 series instruments will be found listed below. For convenience, comparison has been made with a Type 514AD Oscilloscope.

Versatility is the keynote, made possible by a wide selection of plug-in preamplifiers. Almost any requirement may be met by selecting the appropriate preamplifier for the job at hand. Included are the following types: fast rise wide band, differential input, and dual trace, with sensitivities to 1 millivolt/cm D.C. and into the microvolt region for A.C. All units are accurately calibrated so that voltage amplitudes may be read directly in terms of volts/cm of deflection. Greater assurance against obsolescence is provided by the promises of newer and better preamplifiers, as the state of the art permits.

VERTICAL AMPLIFIER

	514AD	531 (With 53B Preamplifier)
Pass Band	dc to 10 mc	dc to 10 mc
Rise Time	.04 μ Sec.	.035 μ Sec *
D. C. Sens.	.3 v/cm	.05 v/cm
A.C. Sens.	.03 v/cm	.005 v/cm

* A better rise time figure is realized because the 531/53B exceeds its 10 mc passband specification by a wider margin than the Type 514

A more versatile horizontal sweep circuit was necessary to realize the full advantage of the wide selection of vertical preamplifiers. This requirement has been met by the development of the new Miller Runup type, where circuit characteristics make possible sweep speeds ranging from a factor of 1200 times slower to 5 times faster than has heretofore been practical. Inverse feed back in the timing circuit assures excellent linearity and timing accuracy.

SWEEP GENERATOR

	514AD	531
Sweep Type	Gated RC	Miller Runup
Sweep Speed Ratio	100,000 to 1	600,000,000 to 1
Sweep Speed Range	.1 μ Sec to .01 Sec/cm	.02 μ Sec to 12 Sec/cm
Sweep Mag.	Any 20% of sweep except on fastest range	5x from center of screen on all ranges
Accuracy	5%	3%

TRIGGERING FACILITIES

	514AD	531
Trigger Type	Standard, Int., Ext., Pos., Neg. and Line Freq.	Discriminator, providing control of trigger level plus automatic triggering in addition to standard modes

A major contribution to operating ease has been made by the development of the new discriminator-type trigger circuit. The amplitude level where triggering will occur may be set at any point in either a simple or complex waveform. Either a rising or falling voltage point may be selected from internal, external or line frequency signals. Stable triggering may be accomplished from any type of signal, from a slowly rising or falling D.C. voltage to a sine wave as high as 30 mc. In addition an automatic position is provided which will lock the sweep to any signal whose frequency is between 60 cycles and 2 megacycles, without readjustment by the operator. In the absence of an input signal the sweep will automatically trigger at a 50 cycle rate to provide a zero voltage reference trace on the screen.

CATHODE RAY TUBE

	514AD	531
CRT Type	5AB Flat Face	Tektronix T51PA Flat Face
Aluminized	No	Yes
Acc. Potential	3 KV	10 KV
Unblanking	DC Coupled	DC Coupled

A high voltage cathode ray tube was considered necessary to provide adequate brightness at the higher sweep speeds provided by the 530 Series instruments. Years of research and a new concept in cathode ray tube design, have resulted in a high-voltage tube with better focusing characteristics and a higher degree of linearity than existing types. This new cathode ray tube in combination with the improved sweep circuitry makes it possible to guarantee sweep time calibration to better than 3% on all ranges.

In general, requirements for oscilloscopes have changed from the highly specialized research applications of a few years ago. Today they must satisfy many applications in both research and production. Heretofore this trend has led to the development of many excellent, but highly specialized types of instruments. It is our conviction that the industry can best be served by an instrument so versatile that its usefulness will increase in the face of future development.