



Service Scope

USEFUL INFORMATION FOR USERS OF TEKTRONIX INSTRUMENTS

NUMBER 23

DECEMBER 1963

PRINTED IN U.S.A.

UHF TO BNC CONVERSION

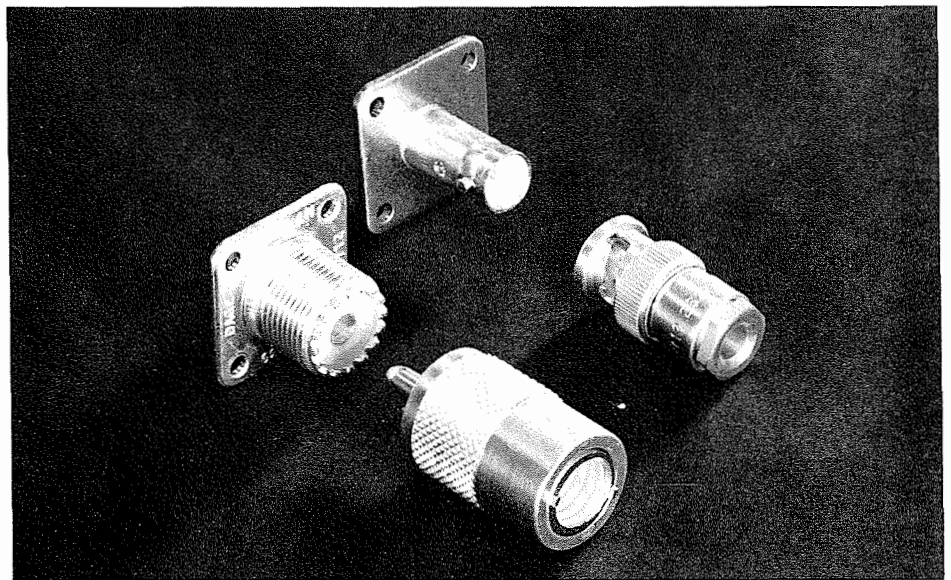
Recently, Tektronix, Inc. made the decision to convert all Tektronix instruments having UHF connectors to BNC connectors and, also, that Tektronix instruments of future design will employ BNC connectors.

The decision to convert the Tektronix product line to BNC connectors was based on the following facts:

1. BNC connectors offer lower input capacitance — an extremely important consideration in some applications.
2. BNC connectors have the requirements demanded by high-frequency instruments for good performance.
3. BNC connectors require less panel space and provide more finger room. Growing panel-density problems dictate their use.
4. BNC connectors are employed by the majority of manufacturers producing instruments used in conjunction with oscilloscopes.
5. BNC connectors are quicker and easier to connect and disconnect.

First, because it is not desirable to perpetuate the compatibility of problems of hybrid systems (main frames, plug-ins, probes, etc.) having non-matching connectors, and, second, because it would be more costly for us (and, therefore, our customers) to maintain production on both UHF and BNC connectors, we feel we should make a complete conversion from UHF to BNC connectors.

We include here a visible comparison of the new BNC accessories and their UHF counterparts.



Included are:

- Panel Connectors
- Binding Post Adapters
- Terminations
- Attenuators
- Minimum Loss Networks
- Input RC Standardizers
- Cable Assemblies
- N-Unit Calibration Adapters

For purposes of quick identification, the UHF connector has visible threads; the BNC connector is smooth except for two little bumps that serve as guide pins.

Where BNC counterparts are not available, it may be necessary to use one of the two BNC-to-UHF adapters — BNC female to UHF male, or UHF female to BNC male.

The hexagonal-case attenuators and terminations with BNC connectors, Tektronix

Part Number 010-314 to 010-320 inclusive, are being discontinued and replaced by those in the new cylindrical plastic case as illustrated under "Attenuators". The six digit numbers under each illustration are Tektronix part numbers.

Also included is a chart of the probes currently manufactured by Tektronix, Inc. It lists the probes by type number and cable length, gives the Tektronix part number for the BNC and/or UHF versions, and indicates the function for which the probe is designed.

The P6025 and P6032 Cathode-Follower probes and the P6026 Passive and P6034 and P6035 Low-Capacity, Miniature Passive probes are not listed on this chart. They are designed and intended primarily for use with Tektronix sampling systems and are supplied with GR connectors only.

Tektronix Instrument-Repair Facilities: There is a fully-equipped and properly-staffed Tektronix Instrument Repair Station near you. Ask your Field Engineer about Tektronix Instrument-Repair facilities.

PANEL CONNECTORS

BNC



131-277



131-278

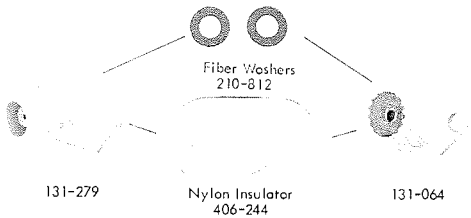
UHF



131-051



131-038



131-279

Nylon Insulator
406-244

131-064



131-274

Insulated connectors.
Includes mounting
hardware.



131-320



131-126

Single-hole, 1/2 inch
mount, includes
mounting hardware.



131-081



131-106
Single-hole 3/8 inch
mount. Includes
hardware.

No UHF
Counterpart

ADAPTERS

BNC

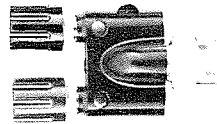


103-015
BNC Female to
UHF Male



103-033

Binding Post Adapter
Single



103-035

Binding Post Adapter
Double

UHF



103-032
UHF Female to
BNC Male



013-004



013-009

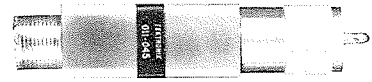
ATTENUATORS

BNC



011-059
011-060
011-061
011-062

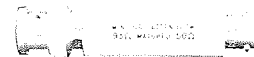
UHF



50 Ω , 10X
50 Ω , 5X
75 Ω , 10X
93 Ω , 10X

011-031
011-032
011-033
011-035

MINIMUM LOSS NETWORKS

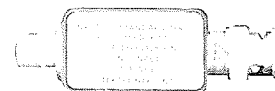


011-057
011-058

50 Ω -75 Ω
50 Ω -93 Ω

011-041
011-042

INPUT RC STANDARDIZERS

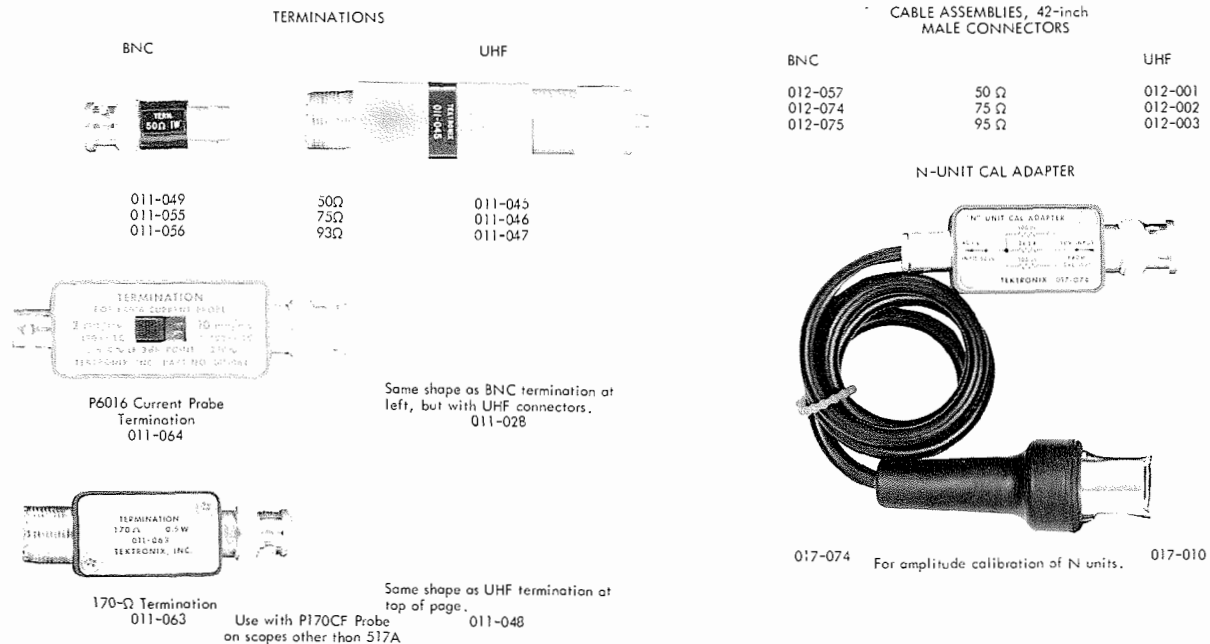


011-065
*011-073
011-066
011-067
011-068

1 M X 12 pf
1 M X 15 pf
1 M X 20 pf
1 M X 24 pf
1 M X 47 pf

None
None
011-022
011-029
011-030

*Used with later Types 82 and 86 that have 50 μ /cm position.



PROBE	ATTEN.	CABLE LENGTH	BNC PART NUMBER	UHF PART NUMBER	FUNCTION
P6006*	10X	3.5'	010-127	010-125	General Purpose
		6'	010-160	010-158	General Purpose
		9'	010-146	010-142	General Purpose
		12'	010-148	010-144	General Purpose
P6007**	100X	3.5'	010-150	010-134	General Purpose
		6'	010-165	010-162	General Purpose
		9'	010-152	010-136	General Purpose
		12'	010-154	010-138	General Purpose
P6027	1X	3.5'		010-070	General Purpose
		6'		010-071	General Purpose
		9'		010-072	General Purpose
		12'		010-073	General Purpose
P6028	1X	3.5'	010-074		General Purpose
		6'	010-075		General Purpose
		9'	010-076		General Purpose
		12'	010-077		General Purpose
P6023	10X	3.5'	010-167	010-065	Designed for use with Differential Amplifiers.
P6008	10X	3.5'	010-129		Type 82 and Type 86 Plug-In Units
P6009	100X	9'	010-140		Type 82 and Type 86 Plug-In Units
P170CF	2X	3.5'		010-101	Cathode Follower Probe
P500CF	10X	3.5'		010-109	Cathode Follower Probe
P6013	1000X	10'		010-106	High Voltage Probe
P6015	1000X	10'		010-132	High Voltage Probe
P6016		3.5'	010-037		AC Current Probe

* Replaces P6000, P6003, P6017 and P6018 General-Purpose Probes.

** Replaces P6002 and P6005 General-Purpose Probes.

A CORRECTION

We wish to thank Mr. J. K. Grierson of the Research and Development Laboratories of the Northern Electric Company, Ltd. in Ottawa, Ontario for calling our attention to an error in the article "Noise — Some Basic Data" in the August, 1963, issue of Service Scope.

On page 1 under "Resistance Noise" we stated: "Thermal or 'Johnson' noise power is proportional to temperature, resistance and bandwidth. The rms noise *voltage* is proportional, then, to the *square root* of these factors".

We should have said: "Thermal or 'Johnson' noise power is directly proportional to bandwidth and temperature; for a given power level, voltage is proportional to the square root of resistance. The rms noise voltage, then, is proportional to the square root of the factors bandwidth, temperature and resistance".

We hope this correction will clear up the confusion our mis-statement may have caused our readers.

There is also a typographical error in this article. On page two, column three, about the middle of the column, I_s should be given as "290 μ A" — not "430 μ A". [$I_s + I_b$ must (approximately) equal I_k].



TYPE 561 AND TYPE RM561 OSCILLOSCOPES — INTERMITTENT INTENSITY MODULATION PROBLEM

In the October, 1963 issue of Service Scope we stated that some Type 561 and Type RM561 Oscilloscopes can develop an intensity modulation problem. That statement is still valid — but the cure we offered is not!

Although the Pyrofilm resistor we recommended performed very well during the tests we conducted to find a replacement, it has since proven just as susceptible to failure as the original resistor.

A more satisfactory replacement for R842 in these instruments is a series string of four 2w, 10% composition resistors — two of 2.7 megohms and two of 3.3 megohms — totaling 12 megohms. The high-voltage environment and limited available space of R842 require a special arrangement and careful wiring of these resistors into a series string. These resistors, properly arranged and wired and with instructions for installation are available as a kit. For Type 561 Oscilloscopes specify Tektronix Part Number 050-118; for Type RM561 Oscilloscopes specify Tektronix Part Number 050-147.

TYPE 561A, TYPE RM561A, TYPE 564, TYPE 565 AND TYPE RM565 OSCILLOSCOPES — INTERMITTENT INTENSITY MODULATION PROBLEM

The above instruments can also develop the same intermittent-intensity-modulation problem that plagues the Type 561 and Type RM561 Oscilloscopes. The offending resistor in all these instruments is R842 in the high voltage circuit. When R842 goes out completely, the operator will have no control over the intensity; the beam will be full on.

The Tektronix replacement part number for R842 in the Type 561A and Type 564, all serial numbers is 050-118; in the Type RM561A, serial numbers below 5610, it is 050-147; and in the Type 565, serial numbers below 470 and Type RM565, serial numbers below 350, it is 050-146.

TYPE 519 OSCILLOSCOPE—TRIGGER JITTER

In certain cases of trigger jitter in the Type 519 Oscilloscope the cause can be

traced to poor wire dress of the High-Voltage Anode lead near the Sweep Time/CM switch. Try dressing the lead away from the switch. With a little experimentation you may cure the problem.

TYPE 502A OSCILLOSCOPE — FAILURE OF DIODE D126

The failure of diode D126 in the time-base generator circuit of the Type 502A Oscilloscope is most generally caused by inductive kickback from the high-voltage transformer, T801. The cure for this problem is:

1. Replace R137, a 100 Ω , $\frac{1}{2}$ w, 10% resistor, located between pins 6 and 2 of V135 (a 6AN8 tube in the time-base generator circuit) with a 47 k, $\frac{1}{2}$ w, 10% resistor (Tektronix Part Number 302-473).
2. Add an 8 pf, 500 v capacitor (Tektronix Part Number 281-503) between pins 6 and 2 of V135.

Designate the new capacitor C137 and make the necessary changes and additions to your Type 502A's instruction manual.

TYPE 515A AND OTHER OSCILLOSCOPES — FAN BLADE ARCING

Occasionally a combination of high insulation leakage resistance in a fan motor and fan mounts plus a certain spacing between fan blade and filter will induce intermittent arcing between the blade and filter. Static electricity buildup on the motor and fan blade causes the arcing. The phenomena has been seen on the Type 515A; it may occur in other instruments.

Its most noticeable effect is to cause misfire of a single-sweep. The occurrence is, however, too rare to be noticed with a repetitive sweep.

One cure is to change the spacing between the fan blade and the filter. A better cure is to bypass one of the rubber shockmounts with a short length of flexible wire braid.

TEKTRONIX 5" OSCILLOSCOPES — POLARIZED LIGHT FILTER

A polarized light filter is available for use with Tektronix Oscilloscopes with 5"

crt's. The filter is punched for use with nearly all 5" round crt's. A little trimming may be necessary for installation on the Type 503 or Type 504 Oscilloscopes.

To mount the polarized light filter, remove the four graticule-cover nuts. Dismount the graticule cover but leave the graticule in place over the crt. Mount the polarized light filter on the graticule studs, remount the graticule cover and replace the four graticule nuts.

Though it lacks the non-glare feature of the polarized viewer, the light filter can do a good job of increasing trace contrast with minimum light loss wherever space or other considerations preclude the use of the polarized viewer.

The Tektronix Part Number of the Polarized Light Filter is 378-539.

TYPE 82 AND TYPE 86 PLUG-IN UNITS — USING THE P170CF CATHODE FOLLOWER PROBE

With one of the above units in a Type 580 Series Oscilloscope the P170CF Cathode-Follower probe will give a 6 nsec rise-time and about 60 mc bandwidth when terminated with a 170 Ω termination (Tektronix Part Number 011-048). You'll need a UHF-to-BNC adapter (Tektronix Part Number 103-032) to connect the termination to the Type 82 or Type 86 input. There is some overshoot, generally under 5%.

REMINDING YOU



NEW FIELD MODIFICATION KITS

TYPE 503, TYPE 504, TYPE 560, TYPE 561, TYPE 561A, AND TYPE 564 OSCILLOSCOPES — CRADLE MOUNT

This modification is applicable to any of the above instruments, all serial numbers. It provides a means of rack mounting these instruments in a standard 19-inch relay rack. Modified instruments require 15 $\frac{3}{4}$ " of rack height. Order from your Tektronix Field Engineer or local Field Office. Specify Tektronix Part Number 040-321. Price: \$45.00

TYPE 555 OSCILLOSCOPE — ADDITIONAL TRIGGER SOURCES

This modification provides the Type 555 Oscilloscope with additional triggering sources when the Type 21A and Type 22A Sweep Plug-In Units are used. It permits direct triggering from the Type J Plug-In Unit when that unit is operating in the CHOPPED or ALTERNATE modes. Triggered in this manner, the Type 555 will display input signals in true time or phase relationship. The modification applies to Type 555 Oscilloscopes with serial numbers 101 through 6999. Order through your Tektronix Field Engineer or local Field Office. Specify Tektronix Part Number 040-328. Price: \$1.10

TYPE M PLUG-IN UNIT — IMPROVED CHANNEL SWITCHING

This modification improves the performance of the Type M Plug-In Unit's channel switching circuit by:

1. Improving the timing of the chopped blanking to minimize the switching transients visible on the crt display.
2. Insuring that the blocking oscillator will stop in the CHOPPED mode with only one channel in the ON position; or will operate with only two channels in the ON position, as the temperature varies.
3. Increasing the blocking-oscillator switching rate to 1mc to insure that it will trigger properly in all instruments.
4. Increasing the ring-counter shut-off currents to prevent possible one-channel lock-up.
5. Replacing the +12.6-volt supply zener diode (D5390) with a series zener diode combination totaling +13.6 volts ($\pm 2\%$) to increase the supply voltage and improve stability when the Type M Unit is used in the Type 581 or Type 585 Oscilloscopes.

This modification applies only to Type M Units, serial numbers 101 through 824, that *have not* had Field Modification Kit

040-294 installed. Order through your Tektronix Field Engineer or local Field Office. Specify Tektronix Part Number 040-333. Price: \$14.75.

Special Note: Type M Units with serial numbers 101 through 824 that *have had* Field Modification Kit 040-294 installed may be up-dated by installation of Field Modification Kit 040-334 which is described below.

TYPE M PLUG-IN UNIT — IMPROVED CHANNEL SWITCHING

This modification improves the performance of the channel switching in Type M Plug-In Units not covered by Field Modification Kit 040-333 described elsewhere in this column. It is applicable to Type M Units, serial numbers 825 through 3479; and Type M Units, serial numbers 101 through 824, that have had Field Modification Kit 040-294 installed.

The improvement in performance is accomplished by:

1. Increasing the ring-counter shut-off currents to prevent possible one-channel lock-up.
2. Decreasing the value of R6356 to give a higher chopping rate in the CHOPPED mode and a faster recovery in the ALTERNATE mode.
3. Replacing the +12.6 volt supply zener diode (D5390) with a series zener diode combination totaling +13.6 volts ($\pm 2\%$) to increase the supply voltage and improve stability when the Type M Unit is used in the Type 581 or Type 585 Oscilloscopes.

Order through your Tektronix Field Engineer or local Field Office. Specify Tektronix Part Number 040-334. Price: \$18.85

TYPE 561 OSCILLOSCOPES — 3B1 AND 3B3 COMPATIBILITY

This modification permits the Type 3B1 and Type 3B3 Plug-In Units to be used with the Type 561 Oscilloscopes and utilize their trace-intensifying feature.

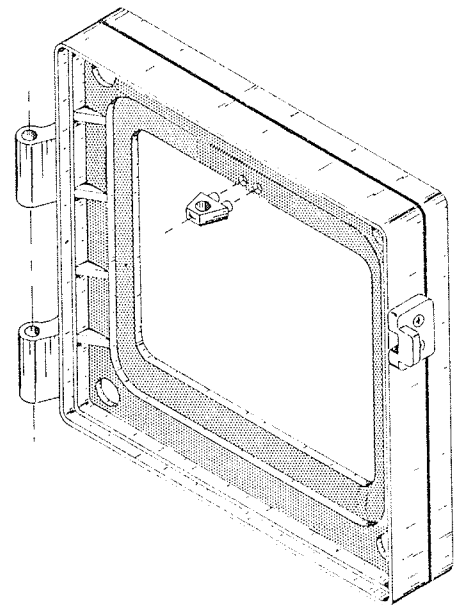
The High Voltage circuit is replaced by a new assembly which has separate secondary windings for the crt grid and cathode. This permits insertion of intensifying pulses on the crt grid and/or chopped blanking (or external) pulses on the cathode.

A crt CATHODE SELECTOR switch is added to permit selection of CHOPPED BLANKING or CRT CATHODE inputs.

Order through your Tektronix Field Engineer or local Field Office. Specify Tektronix Part Number 040-320. Price: \$43.40.

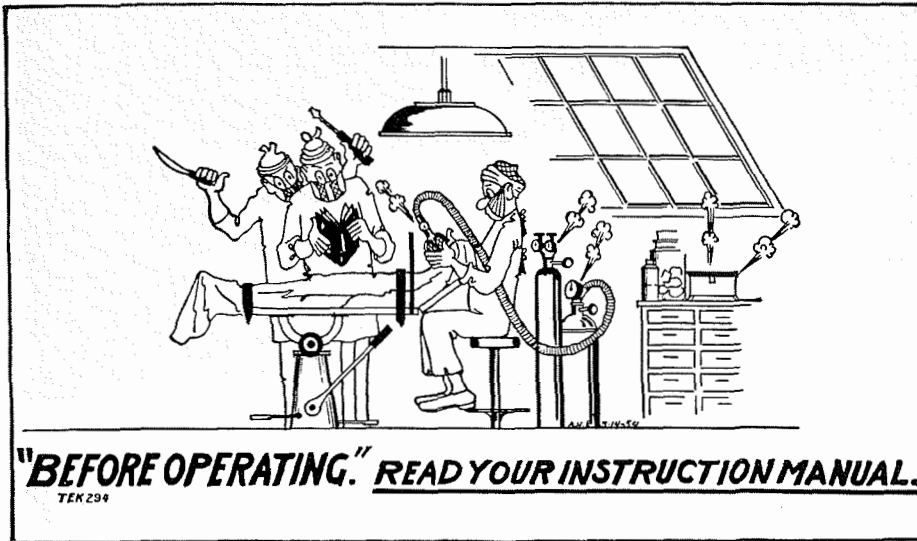
Special Note: As a further improvement in the performance of the Type 561 Oscilloscope with the Type 3B1 or Type 3B3 Plug-In Units, we suggest the installation of two previously-announced field modification kits. They are: Field Modification Kit 040-267 for Type 561 Oscilloscopes, serial numbers 102 through 578 (with some exceptions—see your Tektronix Field Engineer before ordering). This modification improves stability and reduces ripple in the -12.2 volt supply. And, Field Modification Kit 040-288 for Type 561 Oscilloscopes, all serial numbers. This modification improves regulation and reduces ripple in the -100 volt supply.

CAMERA-MOUNTING BEZEL FOR TEKTRONIX 5"-ROUND-CRT OSCILLOSCOPES* — MOUNT FOR RECTANGULAR POLARIZED VIEWER



This modification is applicable to Tektronix camera-mounting bezels for Tektronix 5"-round-crt oscilloscopes*. It installs a plastic mount which permits the use of a Tektronix rectangular polarized viewer (Part Number 016-039) when the camera is not in photographic position. Order through your Tektronix Field Engineer or local Field Office. Specify Tektronix Part Number 040-338. Price: \$0.35

Note: Camera-mounting bezels (for Tektronix 5"-round-crt oscilloscopes*) with this modification already installed are available. In circumstances where one Tektronix camera must serve several oscilloscopes of this type, we suggest the installation of this bezel on each oscilloscope. This



eliminates the need to remove and reinstall a bezel each time the camera is moved from one oscilloscope to another and allows the use of a rectangular polarized viewer except when the camera is in the photographic position. Order through Tektronix Field Engineer or local Field Office. Specify Tektronix Part Number 016-226. Price: \$15.00

* Not applicable to bezels supplied with Type 519 Oscilloscopes.

TYPE 3B1 PLUG-IN UNITS — VARIABLE-TIME/DIV SHAFT AND COUPLER

This modification replaces the VARIABLE TIME/DIV shaft and coupler. The new shaft prevents damage to the shaft coupling if the knob is bumped. The modification applies to Type 3B1 Plug-In Units with serial numbers 101 through 1400. Order through your Tektronix Field Engineer or local Field Office. Specify Tektronix Part Number 040-340. Price: \$0.50.

TYPE 561A OSCILLOSCOPES — SILICONE RUBBER CRT LEADS

This modification replaces the high voltage leads to the crt cathode and control grid with silicone-rubber insulated leads. Silicone rubber — highly resistant to environmental conditions that cause a rapid deterioration in conventional rubber insulation — tends to prevent insulation breakdown and subsequent arcing.

This modification is applicable to Type 561A Oscilloscopes with serial numbers 101 through 8159, with these exceptions: Serial numbers 5766, 7691, 7692, 7695, 7696, 7699, 7750, 7751, 7752, 7753, 7860 through 7894, 7920 through 7954, and 7980 through 8014.

Order through your Tektronix Field Engineer or local Field Office. Specify Tektronix Part Number 040-341. Price \$0.65.

TYPE 530 SERIES, TYPE 530A SERIES, TYPE 540 SERIES AND TYPE 540A SERIES OSCILLOSCOPES — EXTERNAL-TRIGGER DECOUPLING

This modification eliminates the possibility of a large voltage spike appearing at the TRIGGER INPUT connector when the TRIGGERING MODE control is rotated from INT to EXT triggering positions.

A decoupling network is added to the INT position of the oscilloscope's Trigger Selector (TRIGGERING MODE/TRIGGER SLOPE) switch. The Type 535A, Type RM35A, Type 545A and Type RM45A Oscilloscopes have two time base generators — TIME BASE A and TIME BASE B — and each time base has its own Trigger Selector switch. On these instruments, a decoupling network is added to the INT position on each of the Trigger Selector switches.

This modification is applicable to the following oscilloscopes:

Type	Serial Numbers
531A	20001 through 25079
533	301 through 3000
533A	3001 through 4694
535A	20001 through 31259
541A	22899
543	301 through 3000
543A	3001 through 4489
545A	20001 through 38829
RM31A	1001 through 2439
RM33	101 through 1000
RM33A	1001 through 1249
RM35A	1001

RM41A	1001
RM43	101 through 1000
RM43A	1001
RM45A	1001 through 3839

Order through your Tektronix Field Engineer or local Field Office. Specify Tektronix Part Number 040-326. Price: \$1.50.

TYPE 515, TYPE 515A, TYPE RM15, TYPE RM15-209C, AND TYPE 516 OSCILLOSCOPES — EXTERNAL-TRIGGER DECOUPLING

This modification eliminates the possibility of a large voltage spike appearing at the TRIGGER INPUT connector when the TRIGGER SELECTOR control is switched from INT to EXT triggering positions.

A decoupling network is added to the INT position of the TRIGGER SELECTOR switch.

This modification is applicable to the following oscilloscopes:

Type	Serial Numbers
515	101 through 1000
515A	1001 through 2869
RM15	101 through 2869
RM15-209C	101 through 2869
516	101 through 1958

Order through your Tektronix Field Engineer or local Field Office. Specify Tektronix Part Number 040-329. Price \$1.80.

TYPE 519 OSCILLOSCOPE — FUSE PROTECTION

This modification installs a 15 ampere fuse (F651) to protect the Regulated Heater supply from cable burnouts caused by the shorting of capacitor C650. It is applicable to Type 519 Oscilloscopes, serial numbers 101 through 521, with these exceptions: Serial numbers 458, 471, 487, 493, and 501 through 520.

Order through your Tektronix Field Engineer or local Field Office. Specify Tektronix Part Number 040-348. Price: \$N/C

TYPE 128 PROBE POWER SUPPLIES — SILICON RECTIFIER

This modification replaces the selenium rectifier (SR650), used in the probe filament supply, with silicon diodes which offer better reliability and longer life. It is applicable to Type 128 Probe Power Supplies with serial numbers 101 through 714 and serial numbers 718 and 719. Order through your Tektronix Field Engineer or local Field Office. Specify Tektronix Part Number 040-327. Price: \$7.25.

USED INSTRUMENTS WANTED

1 Type 516 Oscilloscope. Edward C. Regan, 6331 Templeton, Huntington Park California. Telephone LU 1-8348.

1 Type 561 and Plug-Ins. John Davis, 8029 Quentin Street, Hyattsville, Maryland.

1 Type 561A or will consider a Type 561 Oscilloscope. C. J. Hire, Advanced Engineer, Therm-O-Disc, Inc., Mansfield, Ohio. Telephone LA 2-4311.

1 Type 531 or Type 531A Oscilloscope in any condition. Henry Steigers, Rt. 2, Box 787, Puyallup, Washington. Telephone TH 5-9729.

1 Type 524 Oscilloscope or 1 Type 535 Oscilloscope with a Type L Plug-In Unit. Tom Landers, 84 Flower Street, Hartford 5, Connecticut.

USED INSTRUMENTS FOR SALE

1 Type 551 Oscilloscope, s/n 515; 1 Type 53/54C Dual-Trace Plug-In; 2 Type D High-Gain Differential Plug-Ins. Dr. B. Libet or Gus Winston, U. C. Medical Center, 2nd and Parnassus, San Francisco, California. Telephone MO 4-3600, Ext. 735.

1 Type 551 Oscilloscope, s/n 4281; 1 Type CA Dual-Trace Plug-In Unit, s/n 45892; 1 Type L Plug-In Unit, s/n 14151. These instruments are about 17 months old. Contact Mr. Stanley, Jerguson Gage and Valve Company, Adams Street, Burlington, Massachusetts.

1 Type 541 Oscilloscope; 1 Type CA Dual-Trace Plug-In Unit; 1 Type 53/54K Fast-Rise Plug-In Unit and a Type 500/53A Scopemobile® (no serial numbers given). These instruments were overhauled by Tektronix in November of 1962. Price complete \$1100.00. Bob Haskins, Phillips Applied Research, 1640 21st Street, Santa Monica, California. Telephone CL 1-1642.

2 Type 555 Oscilloscopes and Power Supplies; 1 Type CA Plug-In Unit; 2 Type L Plug-In Units and 1 Type G Plug-In Unit (no serial numbers given). All instruments are in A-1 condition, completely recalibrated, etc. by Tektronix. Contact Mr. Dean DeLue, Molectro Corporation, 2950 Ysidro Way, Santa Clara, California. Telephone 245-4320.

1 Type 517A Oscilloscope, s/n 1508, with Power Supply; 500A Scopemobile; P170-CF Cathode-Follower Probe and B170A Attenuator. Address inquiries to Pearl Horwitz Meckelburg, Decisions, Inc., 142 Second

Street, Fall River, Massachusetts. Telephone Area Code 617 OS 2-7448.

4 Type 512 Oscilloscopes; 4 Type 514AD Oscilloscopes; 1 Type 524D Oscilloscope; 1 Type 315D Oscilloscope; and 5 Scopemobiles (older type). All instruments will be repaired and recalibrated before shipment to buyers. Details as to prices and serial numbers may be obtained by contacting Mr. Art Eberhardt, Univac Division of Sperry-Rand Corporation, 311 Turner Street, Utica, New York.

1 Type 321 Oscilloscope, s/n 1473. Mr. R. Klein, 651 Ambleside Road, Des Plaines, Illinois.

1 Type 502 (no serial number given) with a 500A Scopemobile. Price \$800.00. Contact Bernie Borane, Arizona Journal, Phoenix, Arizona.

1 Type 543 Oscilloscope, s/n 624 and 1 Type CA Plug-In Unit, s/n 2083. Instruments are approximately 5 years old and in good condition. Price \$1000.00. Contact Mr. Dwight Lord, Rutherford Electronics. Telephone Area Code 213 UP 0-7393.

Bob Wells, Texas Crystal Company, 4117 West Jefferson, Los Angeles, California has a Type 502 Oscilloscope he would like to trade for a Type 531 or Type 541 Oscilloscope. His telephone number is 731-2258.

MISSING INSTRUMENTS



In May of this year, a Type 310A, s/n 13137, disappeared from the Vandenberg Air Force Base in California. This instrument carries Air Force Tag #441921 and is believed to have been stolen.

Information regarding the whereabouts of this Type 310A should be forwarded to Bill Davies, Arma Division, A. Bosch Arma Corporation, P. O. Box 1585, Vandenberg Air Force Base, California. The Telephone number is 866-1611, extension 6925 or 7242.

The Marine Radio Service in San Pedro, California also suffered the loss of an os-

cilloscope in May of this year. This was a Type 321, s/n 1895 and it, like the 310A above, is believed to have been stolen. Marine Radio Service would appreciate hearing from anyone with information on the whereabouts of this Type 321.

Here's another report of a Type 310 stolen from a car. Instruments left in automobiles seem to offer an exceptional attraction to car prowlers. A good move before *locking* an instrument in a car is to conceal it from covetous eyes by some kind of a covering—coat, blanket, paper, etc.

The s/n of this stolen 310 is 4893. Donald Brasnan of the Univac Division of Sperry-Rand Corporation says it was removed from the car of one of their service personnel at 63rd and Western in Chicago, Illinois, on the evening of Monday, October 21, 1963.

Mr. Brasnan asks anyone with information on this missing Type 310 to please contact him at 440 N. Michigan in Chicago, Illinois.

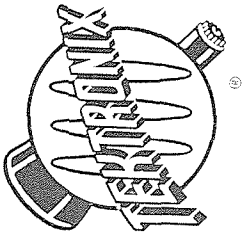
In another car prowl a Type 133 Plug-In Unit Power Supply, s/n 209, and a Type E Plug-In Unit, s/n 4721 were removed from a car in the Manhattan section of New York City. These instruments belong to the Geophysics Department of Rensselaer Poly-

technic Institute in Troy, New York.

Anyone with information regarding these instruments is asked to please contact the Tektronix Field Office at 12 Raymond Avenue in Poughkeepsie, New York or the Geophysics Department of Rensselaer Polytechnic Institute in Troy, New York.

A Type 72 Dual-Trace Plug-In Unit, s/n 276, is missing from the Tektronix Field Office in Baltimore, Maryland. This is a Tektronix-owned instrument and we would appreciate having anyone with information on the location of this instrument contacting either their local Tektronix Field Office or our Field Office in Baltimore. The address of the Baltimore Office is 1045 Taylor Avenue, Towson 4, Maryland. Their telephone number is Area Code 301 825-9000.

The University of Minnesota is missing a Type 531 Oscilloscope, s/n 5199, and a Type 53/54C Dual-Trace Plug-In Unit, s/n 18622. These instruments disappeared from the Electrical Engineering Department. Information concerning the whereabouts of these instruments should be directed to Al Larson, Electrical Engineering Department, University of Minnesota, Minneapolis, Minnesota 55414. Telephone Number 373-2494.



Service Scope

USEFUL INFORMATION FOR

USERS OF TEKTRONIX INSTRUMENTS

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