

George Edens

August 3, 1960

Owen A. Harrison

Dear George:

I have a request for a special that I feel should be built. Medical research is in need of a dual beam scope with 8 or 10 cm of vertical scan and capabilities of 4 or more traces. There is one definite order and possibly two if we can deliver before December. This scope will be a popular unit with medical people. Therefore I suggest no work be done unless you want to continue. The market should be a pretty good one.

The 502/127/CA/CA fails because of bandpass. The 532/127/CA/CA works reasonably well but requires modification. We have modified 127's for New York University Medical Center for \$45.00. Modification consists of a transient blanking mod, a 2 times frequency divider for control of the 532/C unit multi and two slave resistors which lock the 127/CA units together; so a single blanking mod will blank all switching transients in the 127 and the 532 when in the chopped mode. It permits a 4 trace presentation in either chopped or alternate modes. This was claimed but not possible before. John West, Robert Hoag and I worked with manuals and I believe present manuals are correct.

The ideal unit's requirements:

1. 551 main chassis, horizontal and low voltage power supply.
2. 502 CRT and high voltage power supply with an amphenol connector to supply a slave CRT (specs at the end of this IOC).
3. 4 megacycles vertical bandpass to permit use of standard CA and M units in the chopped mode. The 531 vertical amplifier with an additional 3 times gain and 1/3 bandpass would be ideal. The 502 CRT has a sensitivity of 15 v/cm against 7 v/cm for the 531 CRT. It would be possible to eliminate the delay line since it is not required in a medical scope.
4. A blanking mod should be included with power to blank a slave CRT as well as the main CRT.
5. The C unit's multi's should be slaved by direct coupling of their grids with a 47 k isolation resistor placed in the scope, connections being made through the amphenol strip contacts. This will insure all transients will be blanked and that the sequence of the count will always be the same regardless of how the scope

George Edens

August 2, 1960

Owen A. Harrison

is triggered or if it's turned off then turned back on. This is also a very good feature when two CA units are used and two different frequencies are being displayed on a regular 551. Since production would not be interested in this feature, a write-up of the possibility as a field mod is suggested. I have suggested this several times before without results.

A scope as described without item 5 and the slave CRT terminal strip, but with two CA's would be valued up to \$2500.00 by medical research people, furnishing the research people with a multi channel display that would exceed the Electronics for Medicine and Sanborn equipment presently used. When furnished with a slave CRT for photography it could give more information than present equipment costing \$7500.00. This I quote from Dr. Kavalier, Dr. Hoffman, Dr. Stuckey and Dr. Jungi Ishiyama. The last has actually taken time to modify his 551 and assemble a slave CRT. If biologists can work out the problems of the requested equipment, we should be able to deliver quickly and at no greater cost than the present 551. It is claimed that an average of four groups a week ask for advice on equipment at this one lab.

Slave CRT Specifications:

1. Normally used with moving film so would not need horizontal sweep. However, if it contained a 2 times horizontal amplifier the CRT could be swept from the sawtooth out on the scope.
2. Should contain positioning controls capable of a range to cover differences in 502 CRT's.
3. Should contain an unblanking circuit that cuts off the slave CRT beam when the film stops to prevent film loss.
4. Consider separate intensity controls for each beam so that a CA and D unit used together could present three traces. The D unit's trace would occur each sweep, therefore beam current must not be as high for photography. The camera would be mounted on the slave unit and time markers desired. This could be a small generator like the one sent to Field Engineers and could be used as an auxiliary piece of equipment.
5. The slave CRT could contain its own high voltage supply if necessary to meet the suggested specification. Transient blanking would be necessary, unblanking would be needed when the trace was swept, and blanking would be necessary when the film was stopped.

George Edens

August 3, 1960

Owen A. Harrison

I would appreciate information on the possibilities of supplying this scope at the earliest practical date. Hope this project gets off the ground to a flying start. Feel it's worthwhile.

Owen

OAH/eg

cc: Scotty Pyle
Chuck Nolan

RECEIVED
AUG 8 1960
TELEPHONE
ELECTRONIX INC.

October 3, 1960

Mr. Carl Mohre
Project Engineer
Radiation, Inc.
P. O. Box 37
Melbourne, Florida

Dear Mr. Mohre:

This letter will confirm our telephone conversation of this date.

The Type 552, Rack Mounted Oscilloscope, which is currently in the prototype stage, will have the following features - duo beam, 4 to 5 megacycles vertical band width, with each channel accommodating our standard 530/540 plug in units. The horizontal sweep circuit will consist of a single sweep generator with two independently controlled output amplifiers so that both traces may display the same base or one trace may be a magnified portion of the other. The rack mounting height is approximately 14 inches and the depth is approximately 22-1/2 inches with standard 19 inch rack width.

The price of this instrument is not firm but is expected to be around \$1200.00. Although a production schedule has not been established it may be possible that we could provide you with three of these instruments by May or June of 1961.

The RM 15 Rack Mounted Oscilloscope is described on page H-17 of our long form catalogue, which I am sending you under separate cover. The price for the RM 15 is \$875.00 and the delivery currently running two weeks.

If you decide that the Type 552 Oscilloscope will fulfill your requirements, please let us know as soon as possible so that we may firm up the price and delivery with you.

Very truly yours,

TEKTRONIX, INC.

R. N. Browning
Field Engineer

RNB/lis
CC:Chuck Nolan



Inter-Office Communication

To: Chuck Nolan

Date: October 27, 1960

From: Kerm Fleck

SYRACUSE

Subject: Type X552"

Dear Chuck:

I didn't turn in my list of comments, opinions and reactions to the proposed Type X552 when I was in Portland, because I wanted to chat with and get the feelings of some fellows at the Upstate Medical Center in Syracuse, so as to have a better feeling for this instrument myself.

In chatting with the folks in the Electronic Section, I find a favorable reaction, particularly if the price will be substantially lower than the 551. They like a dual beam CRT, and if the beams will have 6 centimeters of overlap, they would be quite happy. They like the common sweep with 2 output amplifiers, capable of being magnified. A rack-mounted version should be fine, especially if it is completely covered, as in our regular rack-mounts.

Their comments on front panel terminology, aimed at the Medical Profession, was this. The majority of medical people who use Tek Scopes, or any Scopes, either have or will become familiar with electronic terminology, especially as time goes on, so that a special front panel should not be necessary.

Incidentally, Chuck, these folks are somewhat interested in the "M" Plug-in, especially as its chopping frequency will be at least a megacycle.

Sorry to keep you waiting for your answer.

Best regards,

Kerm Fleck

KF/imm
nr

RECEIVED
OCT 31 9 09 AM '60
TEKTRONIX, INC.
PORTLAND, OREGON

LOHLYP'D' OUECOM
LEKTRONIX, INC.
October 3, 1960
OCT 3 8 30 AM '60

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Radiation, Inc.
P. O. Box 37
Melbourne, Florida

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Very truly yours,

TEKTRONIX, INC.

R. N. Browning
Field Engineer

RNB/ls
CC:Chuck Nolan

Name Ted Brandt

Date 9/15/60

Type X552

Please let us have your comments, opinions, and reactions to this proposed instrument.

1. Almost all medical groups are committed to dual beam. X552 seems to be a good start. I think a majority of users could use a 503 type or 500 series, dual beam separate time base instrument.

3. Hi. Voltage PIV mod. - yes

516 A only triggering position

Name MARVIN CROUCH

Date SEPT. - 15/60

Type X552

Please let us have your comments, opinions, and reactions to this proposed instrument.

medical people in my area would like
in addition to what you have said

A- intensity modulation for writing rate
circuitry that is differentiating the signal etc

B- signals out both channels to run
pen recorders or audio devices
1 ma movement 1 v full scale

C- a mixer circuit to allow mixing in
time marks back panel (moving film etc) with out losing
any different advantages

D- CA chopped blanking

E- A plug-in narrowband differential dual trace

F- Calibrator to permit cal. real low level preamps

G-

Name

C J M Murphy

Date

Sept 15, 1968

Type X552

Please let us have your comments, opinions, and reactions to this proposed instrument.

- 1- More + more demand for each mount. We should really consider more thinking
- 2- Strive for more insulation and/or ability of 507 to stand high transients,
- 3- 516 install "A" input trigger ability when using for phase measurement, etc. to eliminate triggering necessity.
- 4- provision for remote location of bridge circuit in "D" unit up to 500 feet
- 5 no report of failure of H.V. (50 meg. resist.) in 507 mod 2M-A since we installed the new external resistor.

Name Bob Seaberg

Date 9-15-60

Type X552

Please let us have your comments, opinions, and reactions to this proposed instrument.

Dual B 5" 1 Swp 2 Sep Out Amp 100:1 Cal Horiz Pos
Sem e beam OVERLAP 4-5 MC Single Sweep, Trig ^{with} ~~lower~~
3-4KV - Rackmount - 14" HI \$1200

CONVENTIONAL INST FIRST — THEN POSSIBLY A RACK MOUNT.
(REGULAR INST ~~WITH~~ RACK PANEL)

CRT Anode Voltage 6^{KV} or higher.

Name Leo Wulff
Date Sept. 16, '60

Type X552

Please let us have your comments, opinions, and reactions to this proposed instrument.

1. Bravo! glad to see this and so will
some of my customers
 2. I'm in favor of doing the RM version
first because most medical researchers
prefer that -- and it won't be hard
to go to cabinet style later.
 3. Maybe this would be a better instru-
ment with some more accelerating
voltage on crt -- could sacrifice
some BW if that would help get
gain increase needed.
 4. In medical work a front panel output
for both vertical signals (via C.F.'s)
would be very useful to supply signals
to chart recorders, tape recorders,
slave crt's, etc.
 5. I think we can get orders for
this scope from other industry's
besides the medical people.
-
-

Name Dick Ellstrom

Date Sept 19 1960

Type X552

Please let us have your comments, opinions, and reactions to this proposed instrument.

A higher accelerating voltage than 4KV would seem desirable. This is based upon common complaints from 536 customers who aren't even using the bandwidth capabilities of the 536.

The bandwidth of 5 MC sounds reasonable. There seems to be many groups building or planning new instruments with Plugins. In my personal opinion this is being overdone. I would prefer to see a good basic scope with a very well regulated power supply, good writing rate, and a dual trace amplifier. Something like our 516 with 10KV acc potential. In addition to this make it easy to feed the CRT ^{vertical} from an external source. The source could be from an accessory line of amplifiers patterned after the 530/540 plugins. Perhaps the DC level setting circuit could be in the ~~scope~~ scope or it could be built into every accessory amplifier so these amplifiers could be used with other scopes. This didn't tell you much about the X552 but I do believe a system comprised of the above mentioned pieces would be attractive to ~~any~~ many customers. Would like to talk with you more about this.

Name Warren E. Dixon

Date Sept. 29, 1960

Type X552

Please return this sheet (before you leave Portland) with your comments, opinions, and reactions to this proposed instrument.

2-X amplifiers Cal X pos. dual beam 8 cm 4-5 Mc

I have no feel for any real need for a specific application but it looks like this instrument will fill a hole that some other com^{pany} will certainly do. ~~in~~ in time

IF This instrument is to be aimed at low frequency applications, our past experience with CRTs may give reason to consider chopping between horizontal amplifiers rather than going to ~~a~~ two sets of horizontal deflection plates.

Name Tom Long

Date _____

Type X552

Please let us have your comments, opinions, and reactions to this proposed instrument.

#1200

Bandwidth 4 to 5 mc
3 1/2 to 4 kv mono. ← TO low

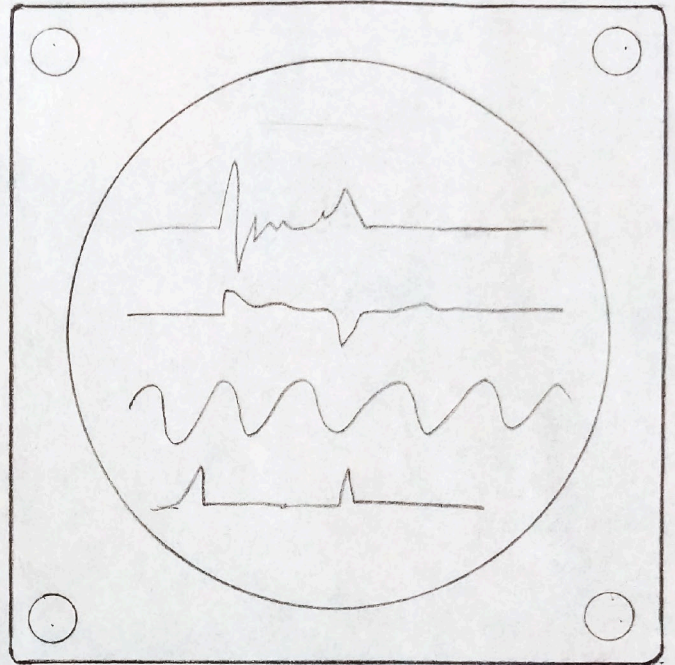
Should not be rack mount

Need high sensitivity Plug-in
10 u watts per cm

UPPER BEAM

TYPE 553 OSCILLOSCOPE

CA



CAL OUT

10V 100mV 10V

VERT SIG, OUT

SWEEP TRIGGER

UPPER BEAM

LOWER BEAM

SCALE ILL

f2 f5.6 f11 f22

f1A PWR OFF

LOWER BEAM

FOCUS INTENSITY

FOCUS INTENSITY

HORIZ DISPLAY

HORIZ POSITION

HORIZONTAL

EXT HORIZ

SWEEP TRIG

CA

T unit

001-364 D

SPECIAL Transformer ORDER

ORDER NO: _____
DATE REQUIRED: _____

FOR CAPITAL ASSETS INDICATE
TEK SERIAL NUMBER _____

STARTED DATE: 10/7/60
COMPLETED DATE: 10/12/60

REQUESTED BY: B. Barnes
DEBIT DEPARTMENT: Special Products.
DEPARTMENT NO.: _____
DEL. ADDRESS: 81-330

ISSUED BY: Bob Cogan
CREDIT DEPARTMENT: Transformers
DEPARTMENT NO.: 2064
DEL. ADDRESS: 76-562

ORDER DESCRIPTION: Build 552 Power.

DIRECT LABOR:

602 INDIRECT-604 TOOLING

All labor will be posted as direct unless indicated in columns below;

603 SUPERVISION-605 ENG.

DATE	TIME		TOTAL	EMPLOYEE				ACCOUNTING USE ONLY		
	START	FINISH		NAME	NUMBER	602	603	604	605	PER HOUR
10/10/60			2.00			X				
			.25				X			
			.25					X		
TOTALS:			2.50 Hr.							

MATERIAL

DATE	QUAN.	TEK. NO.	DESCRIPTION	ACCOUNTING USE ONLY	
				EACH	TOTAL
10/12/60	1	-----	\$14.00 Misc. Transformer Material.		
TOTALS:					