








/  Topics (<https://groups.io/g/TekScopes/topics?p=,,,0,0,0,0>) /  Lot of threads on 24xxB but few on 24xx"A" ...  Mute This Topic (<https://groups.io/g/TekScopes/ft/80586614?csrf=5513314409256117711&mute=1&p=Created%2C%2C%2C20%2C1%2C0%2C0>)**Lot of threads on 24xxB but few on 24xx"A" ...** Date  <https://groups.io/g/TekScopes/topic/80586614?p=Created%2C%2C%2C20%2C20%2C0%2C0>Ulf Kylenfall (</g/TekScopes/profile/91687>)2021-02-12  (<https://groups.io/g/TekScopes/message/178558>)

Gentlemen,

Over the years, I have seen and read a lot of threads about 24xxB but very few regarding the "A" version. Are there any similar "ouch" information apart from immediate replacment of the RIFA capacitors in the AC power line filtering?

Cheers

Ulf Kylenfall
SM6GXV Reply Like MoreJean-Paul (</g/TekScopes/profile/164475>)2021-02-12  (<https://groups.io/g/TekScopes/message/178563>)

Hello and fine to hear from Scandanavia.

I had all three types, presently 2465B and 2467. There are many common parts and boards between 2465A and 2465B. But 2465A were not manufactured in as large a quantity.


The power supplies all had similar recapping drills and RIFAs, especially important for 240V mains use! Others on the forum can mention if the 2465A had A5 boards had the notorious SMD ELCOM/Lytics that leak or the battery powered NVRAM.

One great source is the TekWiki, with manuals, specs and PSU notes.

<https://w140.com/tekwiki/wiki/2465A> (<https://w140.com/tekwiki/wiki/2465A>)

Bon Chance,

Jon

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Chuck Harris <cfharris@...>

2021-02-12  (<https://groups.io/g/TekScopes/message/178566>)

The following is my opinion, and should not be taken as anything else:

The only "immediately fix" problem in *any* of the 2465 family is the SMD capacitors on the post B050000 2465B scopes. Not even the RIFA caps have that status. In the USA, the RIFA caps are not a problem at all. I believe that Tektronix didn't care about the European market much at all; their only concession to Europe was to put a 220V power position on the back panel. They didn't go out of their way to make sure that the parts they specified would work well long term in the realities of a 240V utility... hence the RIFA problem. Metric? What's that?

The 2465 was the penultimate version of the scope. It was intended to be the flagship of the portable scopes, and Tektronix designed it in a very organic way. There was just enough CPU to handle the scope's needs, as designed. If there was a major flaw, it would be the LED's behind the front panel were too dim for use in well lit areas.

The success of the 2465 caused tektronix to throw everything they had at the upgrade, including cheapening it by removing most mechanical switches and knobs that kept any state information. Their cheapening also included using the same speed CPU as the 2465, but inserting the CPU between virtually all of the switches and knobs in the scope and the circuits they control. The only exceptions are probably the POWER, TRACE ROTATION, GRATICULE ILLUMINATION, FOCUS, and ASTIGMATISM.

[In the "Stupid pet trick" category, try turning the intensity up too bright on your 2465A or B scope, and then turn the scope off. Next, turn the intensity control fully CCW, then turn your scope back on. Enjoy!]

I believe that the 2465B project spent too much money, and wound on too long, as such projects often do, and Tektronix decided they needed to get some return on their investment early, so they put out the 2465A scopes.

The 2465A models have all of the electronic changes as the 2465B, but lack most of the software bells and whistles that the 2565B introduced.

As I stated earlier, there are no "must fix" parts in any 2465 family scope, except the SMD electrolytic capacitors in the 2465B post B050000 scopes.

-Chuck Harris

ulf_r_k via groups.io wrote:

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 3 people liked this



Jean-Paul (/g/TekScopes/profile/164475)

2021-02-12 (<https://groups.io/g/TekScopes/message/178571>)

Chuck many thanks and BRAVO for your fine history and analysis of the 2465...A...B progression.

I greatly appreciate the extra features and options on the B series although the 2467s are very close to 2465B in controls and features.

The RIFA caps were the best X and Y safety caps at that time, and I think Ericsson never imagined they would still be in service 40 years later.

Kind Regards,

JOn

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John Gord (/g/TekScopes/profile/88617)

2021-02-12 (<https://groups.io/g/TekScopes/message/178582>)

Chuck,

Even on the plain 2465, most of the front panel control is still routed through the CPU. The difference is that the later scopes use incremental rather than absolute encoders on the controls. I guess they really wanted to offer auto setup in the later versions.

--John Gord

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Siggie

2021-02-12  (<https://groups.io/g/TekScopes/message/178586>)

On Fri, Feb 12, 2021 at 5:09 PM John Gord via groups.io <johngord=verizon.net@groups.io> wrote:

Even on the plain 2465, most of the front panel control is still routed through the CPU. The difference is that the later scopes use incremental rather than absolute encoders on the controls. I guess they really wanted to offer auto setup in the later versions.

I've been pondering this, especially as Chuck called this a "cheapening" of the scope.

Personally I prefer the tactile and visual feedback from the horizontal/vertical controls on the 2465 to the rotate-forever controls on the 2467.

Note however that the 2465 does have SOME incremental controls with indicators - namely the coupling controls. I think the idea with those was to allow for the implementation of the 50Ohm overload protection, which couples the scope out of 50Ohm to 1M GND on overload. The visual LED indication of the coupling mode provides the operator feedback - plus there's an overload OSD indication.

By contrast, my 485 has a toggle switch for 50Ohm mode that drives a relay. On overload, the relay cuts out, and the toggle switch is lit up red.


Also note that the auto setup goes with instrument setup save/recall as well as setup sequencing. There's even a jack on the back of my 2467 for a switch - presumably a foot pedal - to sequence the scope between setups. This seems to have required plumbing the 1-4 channel vertical positions and the trace separation signals through the MCU, in addition to everything else that went through the DAC.

I guess intensity and readout intensity needed to be routed through the MCU to implement the intensity protection for the MCP CRT.

I remember I was surprised when my 2467 gave me cursor time & voltage measurements even when I used variable gain or timing, I don't recall that the 2465 does that, but both plumb the var gain and var timing pots through the MCU.

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Stephen (/g/TekScopes/profile/4804086)

2021-02-12  (<https://groups.io/g/TekScopes/message/178591>)

Speaking of which... this has probably been discussed before, but if I were, someday, to buy a 2465B, aside from openly it up, which I may not have the luxury to do, is there a way (serial number range) I should stay away from to avoid the SMD components? I read somewhere that earlier ones still have through hole boards. Am I correct?

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Chuck Harris <cfharris@...>

2021-02-13  (<https://groups.io/g/TekScopes/message/178628>)

It certainly has been discussed before, and even the manuals available on the internet show the answer:

Any 2465B made from serial number B050000 on will have had SMD electrolytic capacitors on its A5 controller card.... Unless some one swapped out the card for an earlier model.

The pre B050000 A5 cards bear a striking similarity to the "A" scope model's A5 cards. In actuality, there is a small modification necessary for them to interchange, which I don't remember.

There is no reason to avoid the SMD electrolytic cap cards, just get a good one. If the scope is working, the A5 card can be fixed, if you do it in a timely fashion.

On that, the best way I have found for removing the SMD electrolytic caps on any such board is to grab them with a pair of flat billed pliers, and give them a twist, without any lift. The cap's leads will snap off at a built-in fracture line, and the capacitor will be removed.

Remove the remaining lead from the solder pad, and clean the pad of solder.

Clean the board thoroughly using hot water and dish detergent. If the board is corroded, give it a prewash with distilled white vinegar before a quick soak in a dilute baking soda and water solution, before the wash.

Blow off the water, and set the board aside in a warm spot for 24 hours to dry. Or, put it in a convection oven at 150F for an hour or two.

If the SMD pad breaks free, it was already too damaged to use, and simply replace the cap with a small leaded electrolytic cap, using a convenient pad to make the connection. Repair any missing via's, or damaged 10K resistors.

The after B050000 cards contain software revisions that make the scope run a little better, and easier to calibrate, so I don't think they should be shunned.

-Chuck Harris

Stephen wrote:

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Lawrance A. Schneider (/g/TekScopes/profile/1869076)

2021-02-14  (<https://groups.io/g/TekScopes/message/178695>)

If a "like" vote is considered a thank you, I wish I could vote a few more times.

Thank you!!! larry

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Jean-Paul (/g/TekScopes/profile/164475)

2021-02-14 (<https://groups.io/g/TekScopes/message/178697>)

Chuck as always a perfect information.

Most of my scopes had the later SMD boards, and the recap and cleanup not difficult.

The NVRAM batt is another issue.

I have noticed the subtle improvements in the later SN revs, also that a later SN over 050 or even B060 will be a newer machine with perhaps less use.

So my preference is the later models.

Jon

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- (<https://groups.io/g/TekScopes/topic/80620375?p=%2C%2C%2C20%2C0%2C0%2C0%3A%3A%2C%2C%2C0%2C0%2C0%2C80620375>)
- (<https://groups.io/g/TekScopes/topic/80639156?p=%2C%2C%2C20%2C0%2C0%2C0%3A%3A%2C%2C%2C0%2C0%2C0%2C80639156>)