

Tech: B&K 465 conversion help needed. Long post

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Please excuse the length of the post. This is my first post here. I also posted this in RGVAC in the hopes of finding someone who has done a similar conversion. Any help would be appreciated. To respond directly, please remove the obvious from my e-mail address.

Boy, I'm having a tough time with this one. I'm posting this information to collect it all in one area in the hopes of helping others with similar problems. If any information in here is incorrect, please let me know and I will fix it. I will then post photos etc. of my conversion and testing to assist others in the RGVAC community. I will not be using this to test anything other than arcade monitors and tubes stolen from TV sets. Try to stick with me here. The information gets a little confusing. You have to realize, I'm doing this to save a few bucks and probably will end up spending more than I care to. You don't necessarily have to read this whole thing. My specific questions are listed towards the end of the post. So if you have all the answers, jump right to the end. Thanks in advance.

Bought a B&K 465 (dated 1966) to restore my worn arcade tubes and check the color guns etc. It was fairly cheap so I figured, what the heck, give it a shot. I realize now the easiest thing to do would have been to purchase a 467 or later model but I have two of these now and really don't want to buy a third unless I have to.

I have been Googling for several hours now and know all sorts of stuff about rejuvenators etc. but still cannot figure this out. My goal is to somehow hardwire my B&K 465 to a 12 pin molex connector to use the CR-23 adaptor as well as the CR-31. I realize the SP-65 was a special adaptor made for the 465 to allow it to use the later model adaptors (SP-66 for the 466) but B&K doesn't have them anymore and there is no pinout information that I can find outlining how to make one. One of the setup charts I have states that the SP-65 allows you to select different color guns by leaving the B/W -R-G-B switch in the R position and selecting the guns with the SP-65. According to previous posts from way back, (Matt Osborn 8/15/2002) this is the info available on this particular model.

With the grey-shielded wiring bundle currently hard-wired to the 465 case and the round, hard-wired adapter stock to the 465, this is the pinout according to early sources: (Matt Osborn) {Please note: I'm not 100

percent this is correct as listed. See my comments }

pin 1 (red) – heater

pin 2 (brown) – G1–G (I think this is really G1 special)

pin 3 – NC

pin 4 (orange) – GK (I believe this is G1–G)

pin 5 – NC

pin 6 – NC

pin 7 (yellow) – G2–R (I believe this is RK)

pin 8 (purple) – G1–B (I believe this is GK)

pin 9 (blue) – G2–B (I believe this is BK)

pin 10 (white) – RK (I believe this is G3,G4 whatever that is)

pin 11 (green) – BK, G1–R, G2–G ??? (I believe this is K special— again don't know what that is)

pin 12 – heater

I'd like to hardwire this grey harness to a 12 pin molex connector to be able to use the later model adapters like the CR23 and CR31. According to follow-up posts, this is the hardwire pinout according to "Robert Henderson" provided to Matt. Again, I cannot verify this information's accuracy.

465 to CR23 round adapter (not the molex pin numbers)

Pin 1 – Pin 9 (heater)

Pin 2 – NC

Pin 3 – NC

Pin 4 – Pin 5 (G1)

Pin 5 – NC

Pin 6 – NC

Pin 7 – Pin 8 (red cathode)

Pin 8 – Pin 6 (green cathode)

Pin 9 – Pin 11 (blue cathode)

Pin 10 – Pins 1, 7 (G3, G2)

Pin 11 – NC

Pin 12 – Pin 10 (heater)

So, that begs the question: What do I do with pins 2 and 11 from the original harness? (Brown and green) Do I trace them back to the tester and remove them? Tape them up and leave them? I know I will have to run a jumper from pin 10 (465) to the pins of the molex connector that correspond

to Pins 1 and 7 of the CR23 in order for this to work.(that would be Molex pins 10 and 12 for the CR23 but probably also 9 and 11 for other adapters. Correct me if I am wrong)

My limited understanding for the change from the 465 to the 466/467 was the change in design of the color picture tubes being made at that time. I have a tech letter from B&K that outlines the steps necessary to convert the 465 Tester and the adapter to test "newer model picture tubes" but can see that it was not done to this particular unit. I purchased a second unit (1968 vintage) and it has only had half the conversion done to it. However, it has a different wiring harness on it (a thicker black rubberized cable with a rubberized connector on the end. It is also interesting to note that the color socket tester CR-61 has different color wiring than the earlier model socket adapters. It is a rubbery plug vs. the hard plastic type round plugs found with the earlier model) Included with the 2nd 465 is a letter with the following info:

"Test cable 522-032-9-001 is now obsolete. Test cable 523-039-9-001 will work on this model if wired as follows.

socket pin # Obsolete cable color
Alternate Cable color

1 Red
orange/blk white/black black/white

2 Brown
white

4 Orange
Green

7 Yellow
Red/Black

8 Violet
Green/Black

9 Blue
Blue/Black

10 White
Orange

11 Green
Black

12 Black
Blue/White Green/White Red/White

Note: The Red and Blue Wires in the alternate cable are not used

dated 12/14/78 #2022 "

I believe this tester to have the new cable installed. The colors match the 466 colors used in the conversion chart listed a few paragraphs down. Interesting to note is that the "red and Blue Wires are not used" These would correspond to the G1 red and the G1 blu connections for the molex connector.

A letter from B&K included with tester number 1 states that you need to jumper each position of the R-G-B test switch together and then run a resistor from each position of the back side of the switch to another resistor. I quote:

".....Due to some changes in color picture tubes available in the field, we find that the 465 can be updated to meet the new requirements. This is being done in production now. In the event that you want to bring your own 465 up-to-date, we are detailing the change for you.

The modifications necessary to enable the Model 465 to test all the latest CRT's as accurately as possible are:

1. Rewire the color socket assembly, each socket has a green wire on pin No. 9. This wire must be clipped so at least 2 inches of wire is left connected to pin No. 9. This will disconnect pin No. 9 from any other pin. Strip 1/4 inch of insulation from the white wires approximately 1 inch from both sockets without cutting the wires and solder the green wires from Pin No. 9 to the white wires, tape these connections. Each socket will have its connection from pin No. 9 to the white wire from the socket. {Interesting note, my color sockets do not have a green wire on Pin 9. They are on pin 7 of the small color and Pin 6 of the large color adapter. What's more, there is no white wire on either color socket assembly. This is driving me batty }
2. Remove the tester from the cabinet and locate the slide switch marked "Color", there is a violet, white, yellow and grey wire connected to this switch, add a jumper wire to connect all together.

To each of the terminals on the switch with the blue, orange and brown wire connect a 9.1 megohm resistor with approximately 1 inch lead length. Connect all three resistors to the terminal strip along side of the switch, to junction with a grey wire and an 82K, 2W resistor."

A drawing is provided but it is a little light in printing after 25+ years. I could try to scan it for posting if needed.

I contacted B&K and they provided me with the following information to convert 466 CRT testers. They told me I could use it for earlier models as well. Unfortunately, I believe he was mistaken as the 465 probably needs the mod mentioned above and the wire colors listed don't correspond to their chart. For those interested in modding their 466 unit, these should work. They are taken from page -63- of some sort of B&K manual.

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466 wire 466 Round connector
467/490 Rectangular Molex Connector

wht/blk & blk/wht--orng/blk 1
1 Heater

blu/wht grn/wht & red/wht 12
2 Heater

red 3
3 G1 red

grn 4
4 G1 grn

blu 5
5 G1 blu

red/blk 7
6 K red

grn/bl 8
7 K grn

blu/blk 9
8 K blu

G1 special white 2 No
connection

6 nc

K special black 11 nc

orange 10
(wired to 4 sockets)-----> 9 G2 red,10 G2 grn,11 G2 blu,12 G3,G4

Finally, comparing the two 465 testers I have side by side, the only obvious differences I can see in the tester's wiring etc. are the 3 resistors mentioned in the service letter. The wiring on the back side of the R-G-B switch is not connected together per the letter. I am wondering if the SP-65 adapter accomplished the same thing? Without one to look at, I cannot say. Does anyone out there know what the SP-65 did besides switch from round to Molex? Did the SP-65 only work with the later model cable?

This is all I have. If anyone can tell me these four things with a high degree of certainty, I would be more than willing to purchase a case of their favorite brew.

Question 1: Can I somehow splice a three position switch in line with my original socket pin 4 (orange) and then run lines to Molex pins 3, 4, and 5

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to allow me to test the corresponding color guns? This is assuming I have my information correct. If so, any special requirements for the switch? Could you explain to me how to wire it?

Question 2: What did connecting the 3 positions of the R-G-B switch with jumpers and resistors accomplish? I'm no electronics expert by any means but I believe it basically turned the 3-way switch on the unit into a 1-position switch and transferred the switching to the SP-65 for newer model tubes. It also allowed the unit to still be used with older color tube sets by using the resistors to reduce the current by basically 1/3 of the combined values of the three co-joined positions. (I know, this is probably wrong but I told you I wasn't an engineer).

Question 3: Assuming I am correct in Question 1, do I need to make the jumper/resistor modification in order to make these 465's work properly using the rewired cable with the additional switch to the molex connector if I leave the switch in the "R" position? What to do with wires 2 and 11 (Brown and Green) from the original harness? I don't plan on testing old color TV tubes or anything else for that matter.

Question 4: Am I an idiot for spending so much time on this project ? (Probably over 20 hours so far)

This has certainly proved to be an informative endeavor and if anything else, I learned that not all bargains are truly a bargain. I anxiously await some hearty discussion. I can post photos of anything if that would help. I also have 465 wiring diagrams.

Thanks

Pat D.