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Mounting a (pretty) SUZO 500 in an EGRET II

XBox 360 | ESPGALUDA II Black Label – CAVE

APR
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How to fine-tune the picture in your EGRET II

Av [emphatic](#) i [Articles](#)



NANA MS9 chassis controls - [click image to enlarge](#)

Stuff you need to know

RGB CUT OFF: I like to say that this is the "canvas" upon which the game board then will draw the graphics (using the RGB GAIN/DRIVE channels) by pushing RED, GREEN and BLUE in the amount and mixture needed to get all the colours used by the game's palette. *CUT OFF = The background colour.* These pots are on the main chassis under the front of the screen.

RGB GAIN/DRIVE: Using these channels the game board can produce any colour it needs by mixing the amount of each together. Anything from one single red dot, fill the whole screen with white or nothing at all = black (if the RGB CUT OFF is correctly tuned). *GAIN/DRIVE = The foreground colour.* These pots are on the remote board inside the door with the coin mechanism.

Conclusion: The CUT OFF is like a lamp screen and the GAIN is the colour of the light bulb.

One *could* say that the formula used to show a picture on a CRT screen looks like this:

Video = (Colours pushed out from the game board x GAIN/DRIVE) + RGB CUT OFF.

If the CUT OFF for example has the GREEN turned up a bit too high, the whole screen will be out of the colour balance "sweet spot" all the time, even when the game board isn't pushing out any green on the RGB GAIN/DRIVE. For example if the game board was showing a completely white screen, it would have a light green tint.

One other important factor to consider with the EGRET II monitor tube is the "anti glare" coating which has a magenta tint. Some EGRET II private owners prefer to remove this coating as scratches on the tube surface will "light up". This will show the

LÄNKLISTA

[GameEx](#) In my opinion the best emulator frontend for Windows

[World Of Arcades](#) A wonderful site filled to the brim with info about CAVE, Raizing and Psikyo shmups

[Toaplan.org](#) A buddy of mine cleverly grabbed this address for his personal arcade blog/collection

[Retroblast](#) (Waybackmachine link) – A great site with arcade hardware reviews and much more, too bad it's gone now

[MAME World](#) A great source of emulation news

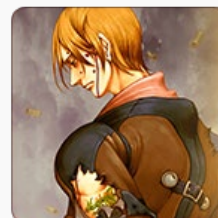
[Shmups Forum](#) If you like to shoot and blow stuff up – this is for you

[Arcade Otaku](#) If you want to find out more about Japanese arcade cabinets – go here

[Arkadtorget](#) Swedish community – this is where it all began for me

[STG FAN](#) Swedish Shmups (ShooTing Game) community

ABOUT ME



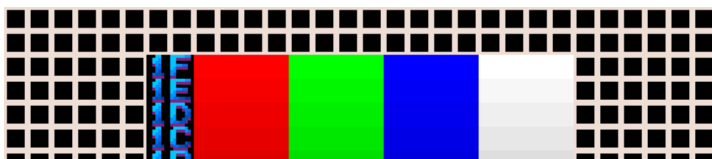
Hi folks,

I'm a bit too old (born 1974), father of two

true colour of the tube, that is green. So if you fine-tune your video picture to perfection, then remove the coating, the screen will again need to be readjusted as the basic conditions has been changed. The GREEN CUT OFF will most likely have to be adjusted as the green tint of the tube glass would affect the balance otherwise.

It's best to do these adjustments in a dark room.

01. Boot up a game that has a nice TEST MODE. A grid and colour bars where the contrast is clear so you have "steps" in the bars. PGM or CPS2 games for example. For my example below I've used the grid from Do-Donpachi.

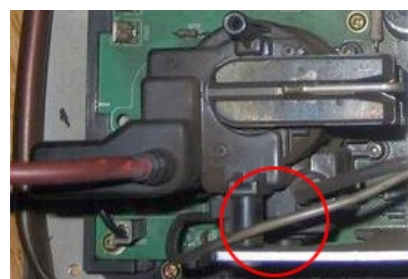


The important parts of the grid

Note: If you plan on using a CAVE SH3 board, don't forget that those games have a built in contrast/brightness in the TEST menu, if so, make sure that those settings are set to neutral (defaults) or all of your other games will need adjusting.

02. Open the back door to get easy access to the SCREEN and FOCUS pots that are situated on the flyback (that black block on the monitor chassis) and also lift up the hood that holds the bezel so you have access to the chassis situated pots under the front of the tube

Note: If you're comfortable around your monitor you can reach these pots from the front door (right above the PCB mounting board). Reaching up from the front door is much better in my opinion, as you can see the results right away in front of you. Especially for the FOCUS setting. I suggest you get acquainted with where they are situated with the **power off**. It's not dangerous, but when you are nervous around hot electronics you tend to make mistakes, and that often leads to stuff breaking. Safety first.



Flyback - pots are inside the circle

03. Start up your cabinet and bring up a grid in the TEST MENU and then let the chassis warm up for 15-20 minutes

04. On the remote inside the coin door, turn all of your RGB GAIN/DRIVE pots all the way down, and put the BRIGHTNESS pot in the midnight/neutral position

05. On the chassis under the front of the tube, turn down the RGB CUT OFF pots to a neutral position (50/50)

06. Now adjust the SCREEN pot on the flyback until the screen is totally black (you want to go just past the last trace of the grid)

07. Turn each RGB CUT OFF pot up until you see the black space around the white grid turn into the colour you're adjusting, then turn it down until the black is perfectly black again

girls and one boy and have been an avid arcade game fan since I first got to play Knuckle Joe (the game's really crap, what was Taito thinking?) but it got me hooked. Me and a couple of my friends used to ride our bikes around town just to check out the latest games. And we're really good at playing them. Luckily for me, the game operators responsible for the machines around my home town really had a great feel for what games would be popular.

Look at my collection to see some of the titles that I now as an adult had do have. I was too young to play at the local video rental (they had two NSM cabinets and later switched one of them to a JK Cabinet) and the best operator in town, Video Games was their name.

I stood there watching the older kids play. There was the 15 year age-limit and I was only about 13 at the time. I also played a lot on Aleph cabinets. The operator that favoured those is called Adon-Bolagen.

/Jorgen

SENASTE KOMMENTARER

[emphatic](#) om [Ultracade Universal Video Converter](#)

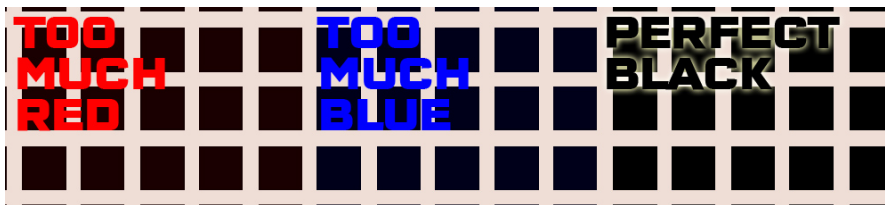
[Justin](#) om [Ultracade Universal Video Converter](#)

[emphatic](#) om [Ultracade Universal Video Converter](#)

[emphatic](#) om [Ultracade Universal Video Converter](#)

[emphatic](#) om [SUZO 500 Rubber edition](#)

HIT COUNTER



Correct levels - black is black

08. Adjust the RGB GAIN/DRIVE controls on the remote board until the grid is really white without bleeding out/turning blurry

09. In the game's TEST MENU, select a COLOUR test picture instead of the grid (you want columns of RED, GREEN and BLUE and a contrast/brightness column (shades from black to white) then adjust each colour's GAIN/DRIVE until you get the brightest, yet sharpest setting (for the colour) and also the white in grey-scale column sharp and bright

Tip: The "sweet spot" for the RGB GAIN/DRIVE is when the white and the first grey have the same glow up close but when you back away from the screen clearly are distinguishable from each other – WHITE and GREY, side by side.



When the contrast is perfect, the grey and white near blend

10. Take a final look at the grey scale column to make sure that there is no tints of RED, GREEN or BLUE – adjust if needed

11. Adjust the FOCUS pot on the flyback on the chassis to ensure maximum sharpness

If you have succeeded in following this guide, you will have a picture that has pure blacks and sharp RGB graphics. Enjoy!

0 24 kommentarer

Hoppa till kommentarformuläret

Yuk på 01/11/2012 kl. 09:31 # Svvara

Hello,

What a nice "how to do" for a beginner like me?

I am trying to set my 2x EGRET 2 monitors (one is really bright and the other one pretty dark = white is almost grey) as you can see on both pictures attached.

I am using both Cave SH3 board.

<http://imageshack.us/photo/my-images/854/img0669bd.jpg/>

<http://imageshack.us/photo/my-images/215/img0670vs.jpg/>

Do you know if the colors on the color grid have to go from "F" down to "0" or could it stop before?

I am having hard times setting up my monitors.

Thank you in advance for your help.

Yuk



emphatic på 01/11/2012 kl. 17:29 # [Svara](#)

[Författare](#)

Hi Yuk,

Did you follow my guide from the start or did you skip ahead? If your Brightness setting is in the middle (12 o'clock) you should adjust the R G B gain/drive until the white and the nearest gray are equally bright up close but when you take a step back from the cabinet, you should now clearly see that white and gray are two different shades. It's important though that you've set the G2 (on the flyback of the chassis) correctly (to get a totally black screen behind the RGB cut off.

I made a small drawing that maybe will make stuff easier to understand (how the screen's "layers" interact with each other):

https://emphatic.se/adjust_screen.png

Good luck, your EGRET II looks very nice.

Yuk på 01/11/2012 kl. 22:33 # [Svara](#)

Hi Emphatic,

Thanks for your reply.

I followed your instructions from point n° 1 to 3.

Point n° 4 : I turned all the RGB Gain/Drive all the way down and brightness pot in the middle.

Point n° 5 : I turned all RGB cut off down to the middle position.

Monitor was at this time really clear (clear grey).

Pointn° 6 : I adjusted the screen pot on the flyback and i turned it slowly down until i got a black screen (in the meantime grid became pink and then monitor went black).

Point n° 7 : I don't really understand this point but i tried to adjust each cut off pot in order to get black color.

Point n° 8 : I adjusted RGB Gain pots til i got white color.

Point n° 9 & 10 : Tried to adjust colors.

Point n° 11 : I did not touch to this pot. Do not know if it would change something?

Here is the result. Not 100% satisfy.

Maybe i miss something.

<http://imageshack.us/photo/my-images/854/dsc03616c.jpg/>

<http://imageshack.us/photo/my-images/834/dsc03617gi.jpg/>

<http://imageshack.us/photo/my-images/855/dsc03618fg.jpg/>

<http://imageshack.us/photo/my-images/560/dsc03620t.jpg/>

What's your opinion?

Thanks in advance.

yuk



emphatic på 01/12/2012 kl. 16:37 # [Svara](#)

[Författare](#)

Hi again Yuk,

Now I have a better understanding of your tweaking so far. In **point 7 (R G B cutoffs)** the goal is to have the background truly black. Starting with the R cutoff, you turn it up until the black turns dark red, then lower it until there is no red – just black. To make this as easy as possible, we always turn down all three of the R G B pots, or you might have a harder time for example if the BLUE is slightly too high and you adjust the RED, this might result in too high levels of these as RED + BLUE might trick you into thinking this deep purple they mix into is black. Especially on the EGRET II, as the screen is coated with a purple anti-reflecting goo.

So, with all three at the bottom level, turning one until you see it's color, then turning it down to get a true black, then onto the next one. I hope this makes everything clear? After step 7, you should never need to touch the cutoff pots again.

As you're using an SH3 game for screen adjustments, **make sure the BRIGHTNESS and CONTRAST settings on the game is in the neutral position.** When I adjusted my EGRET II's, I used ESPGALUDA for setting the colors etc, but later put IBARA in and it had the brightness turned up a bit in the PCB's SYSTEM setting. That had me scratching my head for a while. . Better to have the default screen settings if possible if you plan on playing other systems than CAVE SH3.

The last point in the guide, FOCUS should be adjusted with a TEST SCREEN grid. You need to turn it ever so slightly until the middle of the screen is as sharp as possible (look at the scanlines, they should be really crisp).

Also, wait about 20 minutes with the monitor running until you start adjustments so that the chassis have a warm-up period. Good luck!

Yuk på 01/13/2012 kl. 17:03 #

Hi Emphatic,

I followed your instructions and stepped back to when the screen was all black (turning once again all RGB gain down and brightness to neutral position).

Then I got the black screen.

I turned all RGB cut off all the way down (clock counterwise) and then adjusting each one one after another.

For this i used the following method :

Red cutt off : I turned it up a bit to see dark red and then turned it down a bit until i got black screen.

I memorized the position and turned it all the way down again. I did the same for the green and blue.

Right after I tried to set the RGB gain in order tho get a real white without bleeding (i am not sure that i managed to do it but the white i got now seems to be brighter than the initial one).

I finally came to a screen which is quite blurry but i have not touch the "Focus" pot yet.

Do you think "Focus" pot will set this blurry image or do i have reset the RGB gain before?

Thank you in advance.

Yuk



emphatic på 01/13/2012 kl. 17:54 #

Författare

Hey Yuk,

FOCUS is the difference between blurry and sharp, yes. It's not like brightness or contrast, on/off scenario, but you need to fine-tune the pot like you did with the G2/Screen. The goal is to not adjust it too much, but the perfect middle. You can't make the whole screen razor sharp, it's more like a compromise. I'd make sure to get the center of the screen as sharp as possible first, as a reference point. Then look at the corners when adjusting and see if it can look better/worse. If you can make the corners and middle of the screen equally sharp, that might be the sweet spot. Always use a grid when adjusting the FOCUS pot as moving graphics is harder to focus on (pun intended).

Did you remember to set your SH3 PCB's picture setting to default/neutral?

Yuk på 01/14/2012 kl. 17:54 # Svava

Hi Emphatic,

Yep I set everything to "default".

Finally set the focus. In test grid the middle was a bit too sharp as there were no more scanlines in that area but there were some on the other sides of the screen.

So i turned Focus pot down a bit to get a sharp picture as well as scanlines everywhere!

I guess this is the point you have to get at the final!!

Is that right?

But I have got another issue. When I launched the game the CAVE logo (red one) is ok but not the cave in letters (green color). it is like the color is bleeding.

Same on the next screen when you have "AMI" logo. "A" and "M" are ok but the "I" is bleeding.

It is like there is too much green (cut off or gain?). During the cut scenes when you finish the level the characters are surrounded by a green line (should it mean that there is too much green in the grey scale?). That is really weird.

What's your opinion?

Thanks in advance

Yuk



emphatic på 01/14/2012 kl. 20:11 # [Svara](#)

[Författare](#)

Hi,

Glad to hear that you've reached (what sounds like) a successful ending to your screen tweaking. Yes, equal amount of scanlines across the screen sounds good. About the green's "bleeding" like that, I'm not sure at it might be an issue with the PCB (which game is it?) – I've heard some people getting some strange artifacts with ESPGALUDA II on EGRET II monitors – or it might be a convergence problem. The convergence isn't something I can recommend you to try and fix, as it involves turning the rings on the neck of the monitor's tube, something that can give you a much worse result in the end.

I put up my monitor tweak guide as I consider it pretty safe, but I wouldn't recommend trying to tweak convergence, especially when we're not 100% sure that's the issue. Try another game and see if the green's still do that.

Cheers!

Yuk på 01/14/2012 kl. 20:31 # [Svara](#)

Hi,

It is DS MBL PCB i am using.

Will try with another game before touching again the pots.

However game played ok before adjusting the pots so i can consider this is not a PCB issue.

I don't know exactly why it is only on the green color it happens?

I will check it tomorrow and let you know.

Lates

Yuk

man9child på 02/17/2012 kl. 05:19 # [Svara](#)

Fantastic guide. I've had my E2 for a few months now, and I've tweaked the settings, but used this to start from scratch. Looks like a completely new monitor, the difference is like night and day!

One word of advice though, when adjusting the screen pot on the flyback (it's the bottom one) only nudge it a tiny bit at a time. First time I moved it, I was behind the cab so I couldn't see the screen, and I turned it too much and overloaded the monitor, which promptly shut off. No damage done, but it scared the hell out of me. The pot is very sensitive, so just take it slow.



emphatic på 02/17/2012 kl. 17:44 # [Svara](#)

[Författare](#)

Glad it helped you! It's a re-worded take on some other guides I've seen with some of my own additions (reaching the flyback from the PCB door). Following this guide really give your monitor's a new life. Too bad you can't get rid of burn-in with it. And yes, I should probably warn people about turning the bottom knob on the flyback too much without seeing the screen.

PC Engine Fan X! på 02/28/2012 kl. 01:23 # [Svara](#)

Thanks for this helpful Nanao MS9 monitor tuning guide. Should come in handy if the need arises.



emphatic på 02/28/2012 kl. 19:35 # [Svara](#)

[Författare](#)

Hey, thanks for stopping by, man!

markedkiller78 på 04/15/2014 kl. 11:58 # [Svara](#)

I've been meaning to follow your guide for years. Finally made the time today and would just like to thank you.

My E2 had never looked as good. The guide was easy to follow and the results are priceless. It took me 30 mins from start to finish (wish I had done years ago now)

Excellent work emphatic many thanks



emphatic på 04/15/2014 kl. 17:23 # [Svara](#)

[Författare](#)

This makes me all warm inside.



Badwhite på 06/18/2014 kl. 08:48 # [Svara](#)

Hello!

Is there any information to make the same in a Egret 3?



emphatic på 06/18/2014 kl. 10:43 # [Svara](#)

[Författare](#)

Hello,

The basics are the same, but as the EGRET 3 doesn't come with a NANA O MS9, the controls for the monitor is different, naturally. You can still go through the

same steps as in this guide. Good luck!



Badwhite på 06/21/2014 kl. 10:17 # [Svara](#)

I have done something like that (in E3) , but by the way has left me a worst geometry. Better contrast, sharpness and brightnes...but poor geometry in one corner
I'll try anderstand what i have done



emphatic på 06/21/2014 kl. 18:57 # [Svara](#)

[Författare](#)

Badwhite, my guess is that since you've altered the flow of electronic charge coming from your chassis to the tube, the magnetism in the tube behaves differently than before you tuned the colours, contrast etc. Therefore, you will have to counter this in the geometry settings for your (Wei-Ya?) monitor and/or use magnetic strips to fix this. Have a look here:
<http://forum.arcadeotaku.com/viewtopic.php?f=4&t=17322>

Mark på 02/21/2015 kl. 16:55 # [Svara](#)

Good Afternoon!

Not sure if you can help here but on the photo of the lopt with the red circle on it, there are a resistor and a diode just to the right of the lopt. Could you be kind enough to tell me the value of that resistor please? It's R519 on my board if that helps. Mine has gone open circuit and the colour bands have seen better days!

Many thanks

Mark



emphatic på 02/21/2015 kl. 19:40 # [Svara](#)

[Författare](#)

Hello Mark,

I don't have time to open the back of my cabinet right now to have a proper look at it, but I found some schematics here which I really hope will be of use to you:

http://wiki.arcadeotaku.com/w/Nanao_MS9 If not, you can post a topic and ask either here: <http://forum.arcadeotaku.com/viewforum.php?f=4> or here: <http://forum.arcadecontrols.com/index.php/board,4.0.html>

Cheers

Mark på 02/21/2015 kl. 22:48 # [Svara](#)

Thank you Emphatic. Not a problem if you have to open it up, don't go to that much trouble!
I think it may be a 470 Ohm resistor. Have replaced it and I have life again but the whole screen brightness is varying with the brightness of objects on the screen now!
A few bright objects bring the whole screen brightness level too high and darker objects bring the whole screen brightness too low to see anything properly! A bit strange but I'll post on those other links you kindly mentioned.
Thanks for your time and all the best

Mark

Subotai på 03/14/2019 kl. 13:53 # [Svara](#)

I have some issue with my monitor my you can help me.

When looking at color bar test patterns (such as the service menu color bars in the Capcom CPS2 games), I am not seeing some of the darker shades of color. They show up fine on the PC, but the arcade monitor just draws everything below a certain brightness as black.

For example, if there are 16 shades of red, the darkest 4 shades aren't visible at all — they are just black.

For the most part the monitor image looks fantastic — whites are bright and clear, etc.

On the front of the monitor are RGB Gain controls and a brightness control. Tweaking these makes the image brighter and darker but does not reveal the hidden bars of color.

On the back of the monitor are RGB "BKG" controls as well as "Drive" controls for I believe G and B (it's two of the three anyway). Toyed with these a bit and was unable to reveal the hidden bars of color.

In the attached image, the shot on the left is what I would expect to see. The middle shot is what I actually see. The shot on the right is what happens when I tweak with the R "BKG" control.

Can anyone give me any tips on how to adjust an RGB monitor? I don't even know what some of these knobs actually do electrically. I understand black point and white point but I don't know how those relate to the controls available on this monitor.



emphatic på 07/09/2019 kl. 22:30 # [Svara](#)

[Författare](#)

Hey,

Maybe it will need a re-cap (new capacitors)? The best advice I can give you is to read my guide here, as while I have written it around the NANA0 MS-9, most of it translates well for all arcade monitors.

Lämna ett svar

Din e-postadress kommer inte att publiceras.

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