

To: Ebikes Information <info@ebikes.ca>
From: "James A. Kirk" <jak1@fareinc.com>
Subject: Re: CA screen changes by itself?
Cc:
Bcc:
Attached:

Hi Justin,
I can solder the caps and try the fix. Send to:

James A. Kirk
2869 NE 24th Place
Fort Lauderdale, FL 33305 USA
Tel: 954-564-2908

Here's the circuit board:
http://www.fareinc.com/65/Pics/cap_location.jpg
So, you think 2 caps? B2-G and B1-G? Or just 1 cap and if so where?
Jim

At 02:54 PM 8/15/2012, you wrote:

Hi James and sorry to take a while to get back to you. Yes, I think that adding the 10nF cap to the button input on one of your old devices would be most informative here. It's a fairly easy soldering job, just put the two leads of the cap to the two pins on the button header, so rather than doing the back and forth shipping of the entire CA we could easily send you a handfull of caps in the mail if you have the ability to solder them at your end. Let us know if that works and if so give us your shipping address and we can have them on their way. Otherwise yes we can issue the RMA details for return shipping your small screen CA here.

-Justin

On Wed, Aug 8, 2012 at 5:00 AM, James A. Kirk <jak1@fareinc.com> wrote:

Hi Justin,
A bit more background on my CA problem.

The problem started June 27, 2012 and appeared suddenly starting that day. I have had the bike since August 2011 and had 4,100 miles on it at that time. I described the problem to John this way:

When I first turn on the bike I get the standard CA screen I've seen since the bike arrived. Now when I go out for a ride I get random screen changes to the other CA screens. Not touching the left or right arrow pads just normal riding.

Thinking it was the CA that caused the problem John sent me a new CA.

When I removed the original Bomber CA I found it was mounted with foam tape that

went completely around the CA periphery including passing right over the membrane switches (was surprised at this-didn't even know there were membrane switches there till I removed the CA and the triangular inserts fell off). The triangular inserts just push through the frame cutout and stick to the top of the double sided foam tape. Clean cosmetics but has potential activation problems because the inserts have a large surface area which is bearing against the tape which then bears against the top of the membrane switch. Just overlaying the insert on top of the membrane switch and pushing I found I didn't always get a nice click sound which I always get pushing the membrane switch directly.

So, thinking this was contributing to my display changing problem, with sticking switches caused by the tape and the inserts, I made the modifications shown here (last photo in the gallery is my Fighter, have 2 Stealth bikes):

<http://www.fareinc.com/65/6CA/>

The frame cutout did not solve the problem.

I then did further testing and sent these results to John. In these tests the battery was removed from the frame and I made a 3 foot Anderson to Anderson jumper cable to get the power into the bike frame.

1. Holding the CA inside the bike (light pressure only and no tape) the problem is present.
2. Taping the display inside the frame with the membrane button plug disconnected. Works fine.
3. Remove CA from test 2, reattach membrane button plug and move CA to outside of frame. Set in place. Works fine. Tape is still present on the display face but display face is not touching anything.
4. Same test and tape as 3 but I turned the CA over so the face and buttons pointed toward the battery cavity but the CA was still on top of the frame. Aligned the CA with the frame openings so I wasn't pushing the buttons accidentally. Used a mirror to look at the display since the display was toward the frame interior. Problem was present.

Theory: Taping the display to the frame (when the membrane buttons are attached) turns the display face into an antenna which picks up electrical noise and causes screen changes. Looking at the wires going from the membrane button plug to the membrane switches and I can see why this could be functioning as an antenna as it looks like a large loop antenna.

Justin, No. 2 is very interesting. Does it give you any further thoughts on why the problem suddenly showed up at 4,100 miles?

John is stumped. I am stumped. Then I sent the results of my testing to you in an email. You asked:

1. so the only difference is the slight position change of the CA relative to the rest of the stealth bomber circuitry with the two different mounting methods?

Ans: Yes. Mount the CA on top of the frame and the problem is gone. Mount the CA inside the frame in any of the ways shown in <http://www.fareinc.com/65/7CA/> and the

problem is present.

2. But it looks like you tried a metal foil shield, and that didn't have any effect? Did you ground the foil by chance or was it electrically floating?

Ans: The foil shield was electrically floating. When mounted inside the frame the problem was still present.

3. The other thing I would try would be the addition of some capacitance on the B2 button line. Just like a 10nF capacitor or so.

Ans: As an alternative I've ordered a large screen CA from you which Ben tells me is shipping today (can you check to be sure). This will attach directly to the Stealth controller as a plug in substitute for the existing CA. I'll try both handle bar and external frame surface mounting. It doesn't really solve the problem but since I can't get one to work inside the frame I may as well have a big display if its on the outside of the bike.

Here's a suggestion. I could send you my original CA and wonder if you could check it out and modify it with the 10nF capacitor or any other mod you feel is worth trying to solve this problem. Send it back for me to test and I'll make a video with it inside the frame to see if it solves the problem. Are you willing to give this a go? I'll also keep John informed of these results-maybe it will help him.

Jim

At 06:51 PM 8/7/2012, you wrote:

Hi Jim, so the only difference is the slight position change of the CA relative to the rest of the stealth bomber circuitry with the two different mounting methods? If it's a funny electrical noise coupling issue, then that sounds plausible to be the cause. I know that John has ran into a few situations of the screens randomly changing in the stealth bomber builds which is something we don't see at all in any other CA applications. But it looks like you tried a metal foil shield, and that didn't have any effect? Did you ground the foil by chance or was it electrically floating? The other thing I would try would be the addition of some capacitance on the B2 button line. Just like a 10nF capacitor or so.

-Justin

On Tue, Aug 7, 2012 at 1:56 PM, James A. Kirk <jak1@fareinc.com> wrote:

Hi,

I have a Stealth Electric bike and have a problem with the CA which I have fully documented here:

<http://www.fareinc.com/65/7CA/>

John Karabalis has no idea why this is happening and I've installed a new CA from John (see it in the video by clicking the link at the bottom of the photo gallery page).

Could use some help here. If I can give you more information to help you let me

know.

Thanks.

Jim Kirk

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