Electri-fire's sk-1 auto power off

The summary:

Jesse "Tablebeast" wrote:

>the internal power regulator circuitry is designed for auto shut off .....

>The secret to cracking this code is changing the way the SK1 turns on and off. It uses a pulse (as described in the service manual) to do this instead of simply closing and opening a power lead to the circuit.

electri-fire :

The r/c at the power input (point 2 at page 13) creates the pulse with power on and off.

The problem is the voltage at PO1 pin 86, going Low after 7-8 minutes.

As the CPU Low is -5V, High is 0 Volts.

Disconnect PO1, connect at 0 volt instead. No more auto power down.
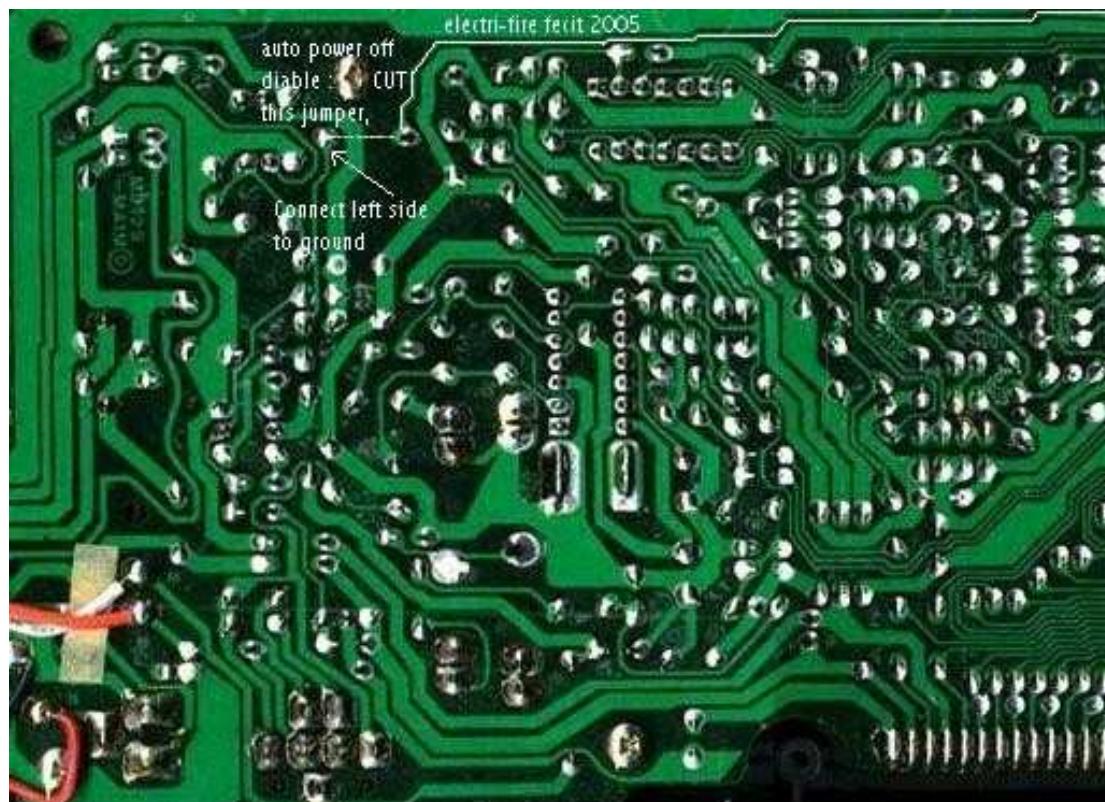
More tips and explanation:

No need to grind through the trace. There's a jumper that can be disconnected.

PO1 at pin 86 runs along the top of the PCB (solder side, speaker left).
The top THINNEST trace underneath the Fat trace that leads to a jumper.
Remove this jumper, wire left side to 0 Volt.
For 0V I used the solder point most left/down of the board, at the green and blue wires.

Jesse wrote:
>the internal power regulator circuitry is designed for auto shut off ...

yea, it's a niusance (how's that spelled)

and
>The secret to cracking this code is changing the way the SK1 turns on and off. It uses a pulse (as described in the service manual) to do this instead of simply closing and opening a power lead to the circuit.

Turning on and off is the easiest bit. The r/c at the power input (point 2 at page 13) creates the pulse with power on and off.

The problem is the voltage at PO1 pin 86, going down after 7-8 minutes.
I tried to just connect this pin to +5V somewhere, but it didn't work.
Couln't we disconnect pin 86 and keep the point high otherwise?

update: Found it!

As the cpu Low is -5V , High is 0 Volts.
Disconnect PO1 , connect at 0 volt instead. No more auto power down.

More tips and explanation:

No need to grind through the trace. There's a jumper that can be disconnected.

PO1 at pin 86 runs along the top of the PCB (solderside, speaker left).
The topmost THIN trace underneeth the Fat trace that leads to a jumper.
Remove this jumper, wire left side to 0 Volt.
For 0V I used the solder point most left/down of the board . At he green and blue wires.

[Edited by electri-fire]
[Edited by electri-fire]

http://www.electri-fire.com

god-player
Member

Posts: **8**
Registered: **Aug 2005**

Posted August 3rd, 2005 09:41 PM   IP

Electri-fire said:

"As the cpu Low is -5V , High is 0 Volts.
Disconnect PO1 , connect at 0 volt instead. No more auto power down.

More tips and explanation:

No need to grind through the trace. There's a jumper that can be disconnected.

PO1 at pin 86 runs along the top of the PCB (solderside, speaker left).
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Remove this jumper, wire left side to 0 Volt.
For 0V I used the solder point most left/down of the board . At he green and blue wires."

Could you post a picture of this? That would be quite helpful to me...

Thanks!

electri-fire
Moderator

Posts: **48**
Registered: **Nov 2004**

QUOTE   EDIT   DELETE

Finding PO1 (meaning power off signal) at pin 86 is easy.

The CPU is the flat ic that has 100 pins. The larger sides have 30 pins, the smaller sides have 20 pins.

So: Open up the sk-1. Do this first, so you can follow these directions.

You see the board on the solder side. Have the speaker on the left side.

now count the pins clockwise: starting upper right side of the CPU is pin number 1. Lowest pin on the right side is number 30.

Pin 81 starts at the upper left side. You need pin 86. You see it goes to a small jumper leading to the top of the board?

Follow the trace after the jumper. It leads to the left side of the board to another jumper.

CUT THIS JUMPER . This disconnects the PO1 signal .

(for good measure I soldered the left side of this jumper to ground. I don't know wether this is absolutely nescesary)

Update: Finally, making the discussion that followed later obsolete, I have a picture of this here:

http://www.electri-fire.com/sk1autopoweroff.htm

(Edited by electri-fire)

http://www.electri-fire.com

PROFILE   PM   GUESTBOOK   WWW

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god-player
Member

Posts: **8**
Registered: **Aug 2005**

QUOTE   EDIT   DELETE

Thanks for the reply electri-fire,

I located the jumper and cut it. Now the sk-1 powers up but doesn't play - I didn't connect the left side to ground yet because (don't laugh) I'm not sure where you mean...

When you say "for 0V I used the solder point most left/down of the board . At the green and blue wires" do you mean you used the same point that the green wire is connected to? That would be the most left/down point on the board...

I've posted a couple pics of the damage I've done, feel free to check them out here:

http://photobucket.com/albums/y202/smalltimestudios/SK-1/

Sorry I'm such an idiot - I know it's really not supposed to be this complicated. I appreciate your help!

August 15th - REVISION!

Well, I connected the left side of the jumper to the same solder point as the green wire and it didn't work. Now, it powers up and plays but it still turns off after 7 minutes. Also, the red power indicator is always on (even when the SK-1 is switched off). Any tips?

[Edited by god-player]

PROFILE   PM

god-player
Member

Posted August 18th, 2005 03:23 PM IP

Posts: **8**
Registered: **Aug 2005**

Anyone? Bueller?

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craigcu
Member

Posted August 19th, 2005 09:45 PM IP

Posts: **8**
Registered: **Aug 2005**

> **Quote:**
> god-player wrote:
> Anyone? Bueller?

Alright, alright.
I'll be taking mine apart in the near future so I'll try to pay attention to this to reply intelligently. Don't hold your breath waiting - it's summer, the weather is good, life is short, etc.

c-squared

c-squared

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god-player
Member

Posted August 31st, 2005 12:05 AM IP

Posts: **8**
Registered: **Aug 2005**

cool - I appreciate it. Thanks for shutting me up for a little while!

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craigcu
Member

Posted September 3rd, 2005 11:28 AM IP

Posts: **8**
Registered: **Aug 2005**

Well I finally made the time to open up my SK-1 and investigate boosting the input mic gain. Craig.

> **Quote:**
> electri-fire wrote:
>
> (for good measure I soldered the left side of this jumper to ground. I don't know whether this is absolutely nescesary)

I have confirmed that this *** IS *** absolutely necessary. Leaving this "left side of the jumper" floating did not work. Period. Craig.

> **Quote:**
> god-player wrote:
>
> I've posted a couple pics of the damage I've done, feel free to check them out here: http://photobucket.com/albums/y202/smalltimestudios/SK-1/
> August 15th - REVISION!
> Well, I connected the left side of the jumper to the same solder point as the green wire and it didn't work. Now, it powers up and plays but it still turns off after 7 minutes. Also, the red power indicator is always on (even when the SK-1 is switched off). Any tips?

OK, here goes: The pics look OK to me but it is a little difficult to tell with my tired old eyes. Also from your text it *appears* that you followed directions properly. So what assumptions are we making?
Is the jumper that was supposedly cut still making contact somehow (when I do cuts like

this I physically separate the remaining ends a little bit)?
Is the new connection from the "left-side of the jumper" to the green wire point really there? i.e. are the new solder joints adequately reflowed? is the newly added wire defective?
I supppose you do not have access to an ohm-meter or continuity tester of some flavour?
My suggestion from here: Undo all the mods that were done; i.e. restore the SK-1 to factory original status and make sure it works accordingly. Then re-perform the necessary steps again.

Sorry I couldn't help better.
Craig

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c-squared

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god-player
Member

Posts: **8**
Registered: **Aug 2005**

◉ Posted September 7th, 2005 01:52 AM   IP

> **Quote:**
> craigcu wrote:
> Is the jumper that was supposedly cut still making contact somehow (when I do cuts like this I physically separate the remaining ends a little bit)?
> Is the new connection from the "left-side of the jumper" to the green wire point really there? i.e. are the new solder joints adequately reflowed? is the newly added wire defective?
> I supppose you do not have access to an ohm-meter or continuity tester of some flavour?
> My suggestion from here: Undo all the mods that were done; i.e. restore the SK-1 to factory original status and make sure it works accordingly. Then re-perform the necessary steps again.

Thanks craigcu,

I am confident that the jumper isn't making contact, the solder joints are good and the wire isn't defective. I do not have an ohm-meter or the like. I will do as you suggest and reverse the modifications and restore the SK-1 to it's original status and try again.

Were you able to make this modification work using the same point as I did for ground? I'm wondering if I messed that up. I'm also confused why the power indicator light stays on... oh well... tomorrow I'll try again.

Thanks for taking the time... I really appreciate it.

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craigcu
Member

Posts: **8**
Registered: **Aug 2005**

◉ Posted September 12th, 2005 09:48 PM   IP

> **Quote:**
> god-player wrote:
>
> Were you able to make this modification work using the same point as I did for ground? I'm wondering if I messed that up. I'm also confused why the power indicator light stays on... oh well... tomorrow I'll try again.

Huh, I just noticed on Sunday that the LED does indeed stay on. I'm not going to let that bother me as I will use this so infrequently.
I didn't have much time to play with it to find out if the auto-pwr-shutdown
was actually disabled, but technically the mod should do it.

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c-squared

jamesalvinb
Member

Posts: **1**
Registered: **Nov 2005**

I can confirm that this mod works (even with well-below novice soldering skills). Thanks for the tip and welcome the SK-1 back to the stage.