

Re: 555 RFI problem: reprise

Source: <http://sci.tech-archive.net/Archive/sci.electronics.basics/2006-01/msg01485.html>

- *From:* shoppa@xxxxxxxxxxxxxxxxxxxxx
 - *Date:* 31 Jan 2006 06:42:20 -0800
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Jordan wrote:

- > Some weeks ago I asked for help with a car blinker circuit, that was
- > prone to being affected by the (magneto) ignition system.
- >
- > I think I've found the cause – the 555 IC itself.

"Cause" is a little strong here. It's a mix of the brand of 555, the circuit you designed, the construction technique, and the environment. Some of those are under your control, others aren't!

- > I've only checked it on a bench so far, using a spark generator to
- > simulate the unsuppressed high tension ignition spark.
- > After breadboarding the circuit for the umpteenth time, I used a
- > different brand of 555 – a National Semiconductor. I'd previously used
- > KIA brand, thinking they'd all behave the same. Not the case – the NS
- > 555 doesn't behave erratically with the spark nearby, whereas the KIA
- > 555 always does.
- > No filtering was used either, just a cap on pin 5.

Presumably the EMI is being conducted in through either ground, power, or load lines.

Or possibly more than one of the above. (Although common-mode EMI for such a simple circuit may not be a big deal.)

The cap on pin 5 is very important in any but the most gentle environments. Bypassing and maybe regulation on the power will help too (while not really keeping out any sort of truly harsh RFI).

Possibly RF chokes or ferrite beads (I'd lean towards the RF chokes at first) would help too.

Certainly not all 555's are equal. Just as not all 7805's etc. In the perfect world we'd engineer our designs so that it didn't matter which brand the purchasing department bought this week :-).

Tim.

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- **References:**

- ◆ **555 RFI problem: reprise**

- ◇ *From: Jordan*

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