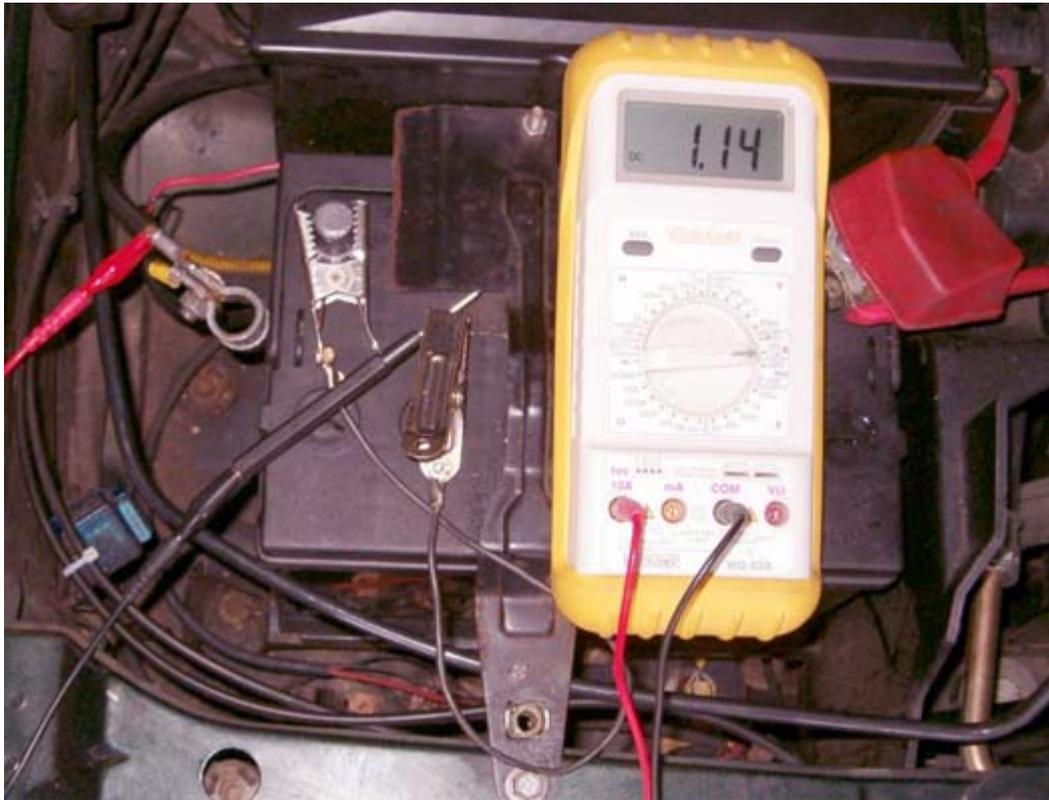


Mysterious [Battery](#) Drain on a P38

Diagnosis and A Novel Cure



Introduction

Andrew Walne was one of the many owners who has experienced mysterious [battery](#) drain on his 1996 [4.6HSE](#). After finding the source of the problem was, as usual, the [BECM](#) being "woken up" by spurious [radio](#) transmissions, Andy cured the problem by installing a switch so he could turn off the RF receiver at will. He was kind enough to share his story with readers of Rangerovers.net so we can all benefit from his experience.

Photo at right: Andy's multimeter registers over an [amp](#) of drain with the BECM awake.

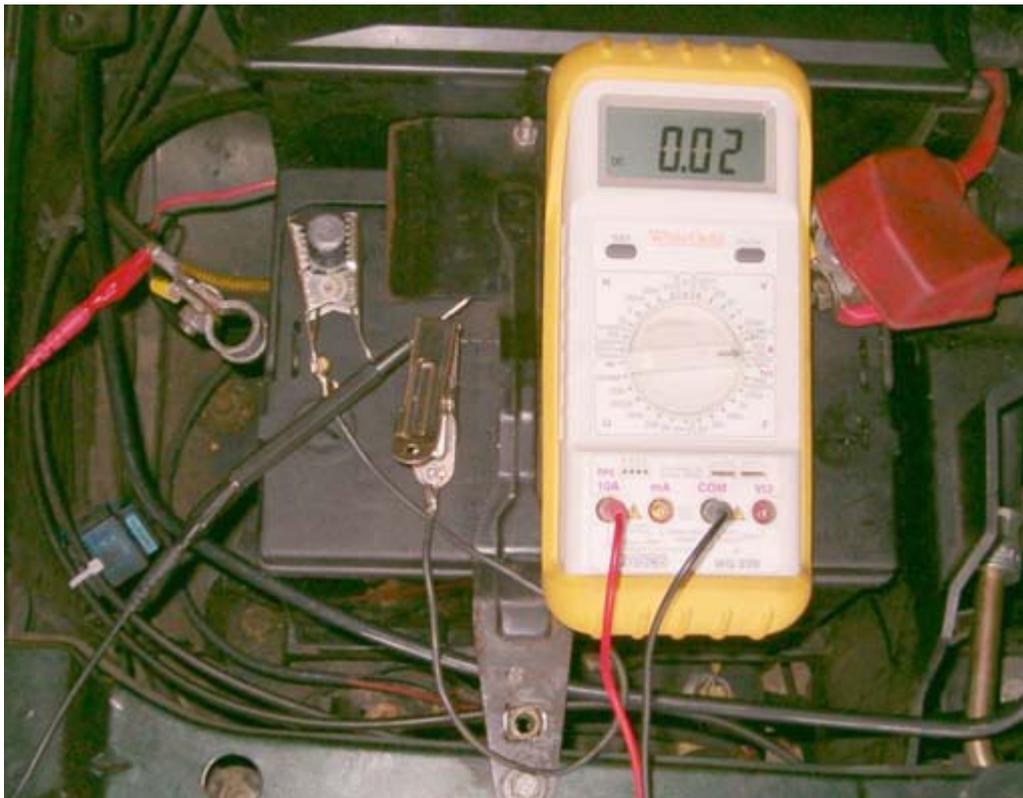
Problem

A brand new [battery](#) was unable to turn over the engine after standing for 2 days, any longer and [lights](#), windows etc. did not work, and occasionally there was a completely dead [battery](#). When I used Rangey every day there was no problem. This was caused by the BeCM sleeping for 20 seconds, waking up for 2 minutes, sleeping again for 20 seconds, 24 hours a day, continuously for most of the 3 months she has been in my possession.

Solution

To establish the BeCM activity I used a multi-meter between the [battery](#) negative terminal and the negative lead to measure current drain. When the Rangey was shut, locked and alarmed the current drain was about 1.1A initially, then dropped to 0.57A and after 2 minutes went down to 0.02A (see photos above and below of the drain with the [BeCM](#) awake and asleep respectively). This is what Rangey should do and she had no traceable fault, as was confirmed by a Landrover main dealer. (It seems that the selected gear position LED glows very faintly as an indicator that the [BeCM](#) is awake).

Photo: Andy's multimeter registers .02 [amps](#) (20 mA) with the [BeCM](#) asleep.



However, when Rangey was at home, after a further 20 seconds the [BeCM](#) woke up and the cycle started all over again without

any physical action on my [part](#), the only time she slept for any length of time was when the [RF receiver](#) was disconnected which implied the RF receiver was waking it up. The aerial was disconnected, a new receiver was fitted but still a radio signal was causing the BeCM to stay awake. Using a radio frequency scanner with a strength meter, I found a strong, regular pulse from somewhere near to my home being transmitted every 46 seconds on 433.875Mhz, close to the remote key frequency of 433.92Mhz. I was able to trace this signal to a faulty [window](#) sensor for a wireless burglar alarm on a neighbour's house further up the road. When the alarm sensor batteries were changed the signal ceased and Rangey has slept soundly ever since with no more battery drain problems.

Until I found the problem I fitted a concealed double pole [switch](#) to turn off the [RF receiver](#) and locked up using the key. According to the handbook the receiver draws current through [Fuse](#)15 but when that was taken out the receiver still worked so it had to be double pole. If Rangey is to be left for more than two days, I can leave her and know that the battery will be OK, albeit without the volumetric [alarm](#) armed.

Conclusions

Before you buy a new battery, disconnect the RF receiver's 3 pin multi-plug and check with a meter if there is no other obvious reason for a [flat battery](#). The multi-meter can be connected without disconnecting the battery. Make a short lead with a [crocodile clip](#) at each end, loosen the negative battery terminal, clip the positive from the meter to the negative battery lead, clip one end of your new lead to the meter negative probe and use the probe to touch the bottom of the negative battery post, take the battery lead away and clip the other end of the new lead to the negative battery terminal. Make sure the meter is set correctly before connecting and leave the driver's [door](#) open in case, like me the first time I did this, you break the [circuit](#) for too long and Rangey [locks](#) up.

Common RF Sources that Wake Up the BeCM

Andy reports that the RF receivers in cars are all built to a price. "I have

heard of one in a prestige car which is made for the equivalent of 10 pence, therefore they are susceptible to interference from a wider waveband than it's [key](#) fob transmits. This means that here in the UK there are several things that could cause the [BeCM](#) to wake up and drain the battery. Radio Amateurs in the UK can transmit on the same frequency as car [key](#) remote controls and the power they are allowed is the same at 250m from the car as a [keyremote](#) is at 5m. I have heard of numerous car owners on a housing estate who could not use remote keys because a [radio](#) amateur had set up a different aerial. I have heard of a garage that could not use remote keys for cars on the forecourt for hours after the postman rang the faulty wireless doorbell switch at a nearby house. I have heard of someone who pressed the remote for his electric garage [door](#) before he reached his house and unlocked his neighbour's car every night. Several everyday items that do not need a radio licence also use 433Mhz in the UK. For example, through trial and error, I have found that in normal use a wireless doorbell can wake Rangey, a wireless weather station transmits a signal every few seconds that can keep her awake all the time at up to 150m, and a radio release for a clay trap will wake her at up to 250m. All of these and more would only wake a BeCM if one was unlucky enough to be within range given the power and distance as well as the frequency being close to that required by the [RF receiver](#)".

Alistair Brown of Thirsk, Yorkshire, found his battery drain problem started when his neighbour got a wireless broadband Internet connection.

Official Fixes:

Note also that [Land Rover](#) belatedly recognized this problem and has had two attempts at curing it. A partial official fix from [Land Rover](#) became available in 2004 from the UK dealer network whereby the stock [RF receiver](#) (Part # AFR1953) was superseded by a new one (YWY500010). Gunnar Arthursson reports that this receiver was less subject to interference, but did not completely cure the interference problem. Accordingly, it has since been superseded by an even newer design, part number YWY500170. Gunnar reports that Owners with this latest update have not reported any further problem.

More Information

[BECM/Alarm System main page](#)

[Inoperability of Remote locking due to Interference](#)

[Battery Drain, Unexplained, Overview of Causes in "Common Problems and Fixes" Section](#)

[Mysterious Battery Drain section of Alarm/Security System section](#)

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