Battery Drain - the cause of and solution to.

One of the most infamous problems across all breeds of P38 is the battery going flat.

Not only is this a nuisance, but more often than not it has the more problematic consequence of immobilising the engine when power is restored.

The Problem

In a standard vehicle (ie, one that hasn't had other electrical items added to it causing the drain), the number 1 cause of this problem is RF interference being picked up by the P38's remote fob receiver.

This receiver dutifully passes on transmissions it receives to the BeCM, to check for a valid lock/unlock signal from your key.

The BeCM has to 'wake up' to process these transmissions, during which time, various other parts of the car are also woken up. This draws a considerable current from the battery, for about two minutes.

The problem is, the receiver passes on **any** transmission it receives on the frequency it operates within - not just those from the P38 remote fob.

That includes wireless door bells, thermostats, weather stations, other car remote fobs, energy monitors, wireless alarm sensors, garage door openers... the list goes on.

Consider that some of these devices, like weather stations and thermostats, will transmit repeatedly constantly, updating their receiving devices. Just say you (or someone in your vicinity) has a weather station, that updates its display every 60 seconds. That alone could keep the BeCM in your vehicle awake permanently while it is in range, causing a permanent draw on the battery while the BeCM is processing these transmissions.

We have also seen spurious RF transmissions cause strange, repeatable behaviour within the vehicle also, such as triggering ignition tamper alarms and triggering the interior light overrides. These certainly seem to be rarer occurrences, but they do happen - we have one such source of interference, a particular wireless thermostat, kept aside for testing purposes. We will soon demonstrate this behaviour in a series of videos.

The Solution

There are some options regarding this issue:

1. **Unplug the antenna from the receiver. (Partial fix / improvement)**

   The idea here is to reduce the effective range of the receiver, thus cutting out the interference from reaching the car. While this might work if you are already some distance from the source, it is not that effective. The P38 receivers are very sensitive, and can pickup signals even when inside buildings. On the other hand, if your remote fob batteries aren't the strongest, you may find you then have to hold the fob right next to the rear window to operate, which can make the 'friendly sync' and mobilisation functionality on later P38s intermittent in operation.

2. **Replace the receiver with an updated version. (Complete fix, if 3rd gen fitted)**

   Land Rover released two additional versions of the P38 receiver that were designed to tackle this problem. The second generation receiver was not much of an improvement on the first generation, merely adding some actual RF filtering to tighten the frequency range it worked upon somewhat. The third generation receiver however fixed the problem, as it employed some actual filtering of transmissions it sent on to the BeCM. This is part number YWY500170, retailing at approx £300 inc vat in the UK.

3. **Add an aftermarket filter device to the existing receiver. (Complete fix)**

   A filtering device has been developed to emulate the functionality of the official third generation receiver, that is a plug and play installation using the original first or second generation receiver in the vehicle. These units retail for approx £80 inc vat in the UK. See below for more details.

4. **Unplug the receiver entirely. (Fixes drain, loss of remote fob)**

   A final 'fix' to this problem could be considered unplugging the receiver entirely. This however will mean losing the remote fob functionality, and may actually cause issues with the engine immobilisation and alarm. The state of the door latches can also throw similar issues into the mix that may be avoidable with a functioning remote fob. Of course, these should be addressed either way if they are known to be problematic.

The P38 Fob Filter - Aftermarket filtering device

The filtering device mentioned above is a unit that has been developed by ourselves, to deliver a far more cost-effective solution over the Land Rover third generation receiver. We have developed this as P38 enthusiasts that would rather see these problems fixed properly, without the ever-increasing price tag associated with the official fix.

Check out our P38 Fob Filter on the p38webshop.co.uk

Using either our filter or a third generation receiver is ultimately the best way to resolve this problem, as there are no downsides affecting the functionality or range of the remote fob. Convenience features such as the lazy locking and unlocking or superlocking are all retained.

The only issue that both our aftermarket filter and the Land Rover third generation receiver cannot overcome is a constant transmission of data blocking the airwaves on the same frequency - this is just the nature of a shared radio space.

What we have done as an optional feature on our filter units is add a status LED that can be used to see when the device is processing transmissions. If the remote fob was failing to function and this LED was permanently lit, it is likely that an ongoing transmission of data is blocking the remote fob. Towing the vehicle at this point if it cannot be re-mobilised with the EKA through the door latch to an area outside the interference should then allow the fob to function once again.

In addition, while we have not yet proved or disproved this hypothesis in test conditions as of yet, it is believed that the random loss of sync between the key fob and the vehicle is also eliminated using either solution.