OptiMate, its recovery mode, BMW Gel batteries, and incorrect suggestions that the up to 20V delivered by the OptiMate in recovery mode ro restore very flat batteries can damage vehicle electronics.

Yuasa Battery (Inc., USA) explicitly state that to recover a deep-discharged battery a voltage of up to 25V is required).
Some quarters have made insinuations that OptiMate's high voltage recovery mode could cause damage to a vehicle's electronics).... we gather this is based on some statement emanating from BMW Motorcycles and/ or Panasonic who apparently will not accept any claims for warranties if the user has used a charger with high voltage. This warranty policy is a general policy, not anything specific to the OptiMate, and we know that thousands of BMW riders have OptiMates, yet we have never received any claims of damaged batteries or vehicle electronics.

In situations where the user suspects that the battery is deep-discharged, or where OptiMate indicates a deep-discharged battery, we recommend that the battery is removed from the motorcycle. There are 2 main reasons for this:
1 - OptiMate will not engage its recovery mode if it senses vehicle circuitry or if an alarm (or other accessory) is fitted which has a high current requirement.
2 - a battery which appears to be deep-discharged may actually have an internal defect – as the defect is an unknown quantity it is common sense to remove the battery from the bike as defective batteries are unpredictable. An (extremely rare) example is a battery with a hairline crack in a connecting plate which can in rare circumstances produce internal sparks – it is important to note that this is not in any way due to OptiMate's recovery charge – this can equally happen under load from the bike (e.g. starter), or when being charged by the bike's alternator or by an unregulated charger.

The following text explains why OptiMate's recovery circuit will not damage the bike's electrical components –

In order for the recovery mode to engage, the OptiMate circuit needs to "see" a high resistance across the battery terminals. In the case where the battery remains connected to the vehicle's wiring system, any battery-supported accessories will automatically lower the overall resistance (battery plus accessories) that the OptiMate is going to "read" when it tries to pass the limited maximum 200 mA to the battery. Therefore the OptiMate will not read the battery resistance as being high enough to indicate deep discharge / sulphation and therefore will not engage the recovery mode.

Normally a motorcycle's electronics would be disconnected from the battery when the key switch is in the off position, otherwise the battery would be discharged quite soon. In the case of a deep-discharged or sulphated battery, with the key switch off & no high-current draining accessory (e.g. alarm) connected, the recovery mode would engage. However, the moment the key switch is turned to "on", (in other words thereby bringing the vehicle electronics into the circuit and thereby exposing them to the supposed risk of damage), the overall resistance across the battery drops and the OptiMate will immediately go to normal charge mode, thereby automatically anulling any risk. Technically this occurs because the vehicle electronics will require a support current exceeding 200mA whereas the OptiMate in recovery mode cannot deliver more than 200mA.

Any good alarm system, and CERTAINLY any costly electronics component such as the ECU will incorporate protection against voltage spikes that could be caused by a battery or regulator / alternator malfunction. OptiMate will sense such protection and disable the recovery mode.

Finally, since OptiMate was introduced (1995) TecMate has yet to receive a claim from any user or manufacturer of damage to vehicle electronics.