

## STAR ONLINE PUBLICATION

**Case Number:** S2008000031

**Release Date:** 03/26/2020

**Symptom/Vehicle Issue:** Low Charging Voltage Displayed On Cluster

**Customer complaint/ technician observation:** Owner Complains of low charging voltage displayed on cluster. Technician has observed the same.

**Discussion:** Newer vehicles charging system now incorporate a SMART CHARGE function that closely monitors the charging systems output to improve battery life and fuel efficiency through the vehicles various drive cycle modes. The new strategy can give a false perception that the charging system is not charging properly and lead to improper component replacement.

Do not replace the main or aux battery, IBS sensor, alternator, or other components unless fault code diagnostics lead to the replacement of the suspect component. **See the pg 2 charge mode strategies when considering any of the listed components for improper charging complaints.**



**Example: 3.0L diesel (DT,JL & JT) seems to be most aggressive at idle.**

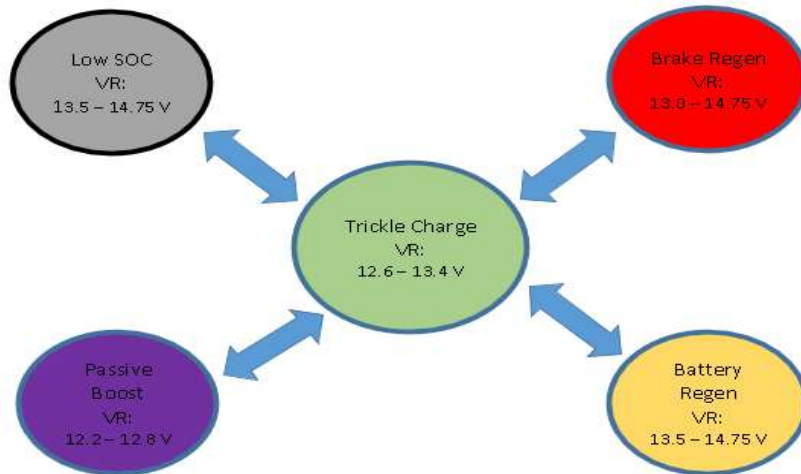
This document does not authorize warranty repairs. This communication documents a record of past experiences. STAR Online does not provide any conclusions about what is wrong with the vehicle. Rather, it captures all previous cases known that appear to be similar or related to the vehicle symptom / condition. You are the expert, and you are responsible for deciding on the appropriate course of action.

**Contact STAR Center, or your Technical Assistance Center Via TechCONNECT or eCONTACT ticket if no solution is found**

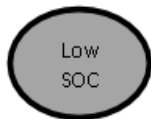
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## Smart Charge Mode Voltage Range

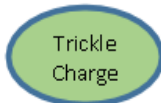
VR = Voltage Range



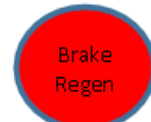
## Smart Charge Mode Description



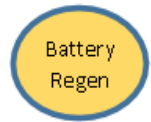
Low SOC – like the typical charge conditions used for years... Strict target voltage / battery temperature relationship. Used for Low SOC and low accuracy SOC levels



Trickle Charge – used when the battery SOC is at an acceptable level to reduce over charging and battery internal heating



Brake Regen – raises the target voltage above trickle charge during vehicle brake events to charge the battery



Battery Regen – under certain battery conditions on the amount of trickle time and battery parameters, charges the battery for a fixed period of time to boost the state of charge



Passive Boost – under certain vehicle heavy acceleration maneuvers, the alternator voltage is reduced or turned off to boost engine performance

These modes require the IBS to have high level of accuracy and battery state of charge. Disconnecting the IBS for example, will reset the accuracy and these modes will not function until the IBS "relearns".

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