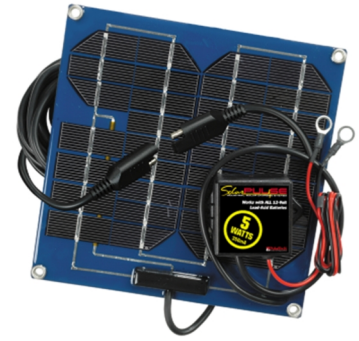


## SP-5 Solar Panel Proven To Improve Battery Voltage and CCA

### Challenge:

One of the nation's largest commercial vehicle dealers experienced trouble with dead batteries on their trucks and buses. They needed a low cost, low maintenance way to ensure the 12-Volt lead-acid batteries in vehicles sitting on their lot not only started when needed, but remained in peak condition even if they weren't used over an extended period of time.



### Implementation:

One SP-5 Solar Panel was attached to each set of batteries in each one of six vehicles. The voltage and CCA were tested with a 390PT+ Battery Analyzer at the beginning of the study and then tested again in two week intervals over a nine week period.

In order to be able to compare these batteries with batteries on a regular vehicle, six similar vehicles were also tested at the same intervals over the same period, but **without** the SP-5 Solar Panels attached. Note: all vehicles remained unused over the two month period.

### Results:

Both battery voltage and CCA showed an upward trend each week as they improved on the vehicles with the SP-5 attached – see Figure 1 and 2. Whereas on vehicles **without** an SP-5 attached, both voltage and CCA continued to decrease each week – see Figure 3 and 4.

If a battery is not being maintained or charged it remains in a constant state of discharge as is the case here in the six vehicles with no maintainer attached. Hence, on these vehicles the batteries continued to show lower voltage and CCA.

The opposite is the case with the six vehicles with the SP-5, 5-Watt Solar Charger Maintainer attached. These vehicles' batteries were consistently maintained. In addition to this maintenance, the SP-5 also contains PulseTech's patented Pulse Technology which is delivered to the battery through a circuit independent of the charging circuit. This patented, high-frequency pulse waveform is of specific amplitude and frequency that is precisely controlled by microprocessors and reduces and prevents sulfate crystal build up on the battery plates.

Reducing these sulfate crystals, which are responsible for claiming the life of 80% of batteries in use worldwide, improve battery performance by:

- Increasing the battery's ability to discharge power
- Increasing the battery's ability to recharge
- Extending battery life by 3 times

### Conclusion:

The SP-5, 5-Watt Solar Charger Maintainer works! These tests prove that the health of the vehicle batteries attached to a SP-5 improved steadily over a two month period. Proactively maintaining batteries eliminates jumpstarts, reduces maintenance man hours, extends battery life and reduces battery expenditures.

## Battery Voltage Improvement With SP-5 Solar Charger Attached

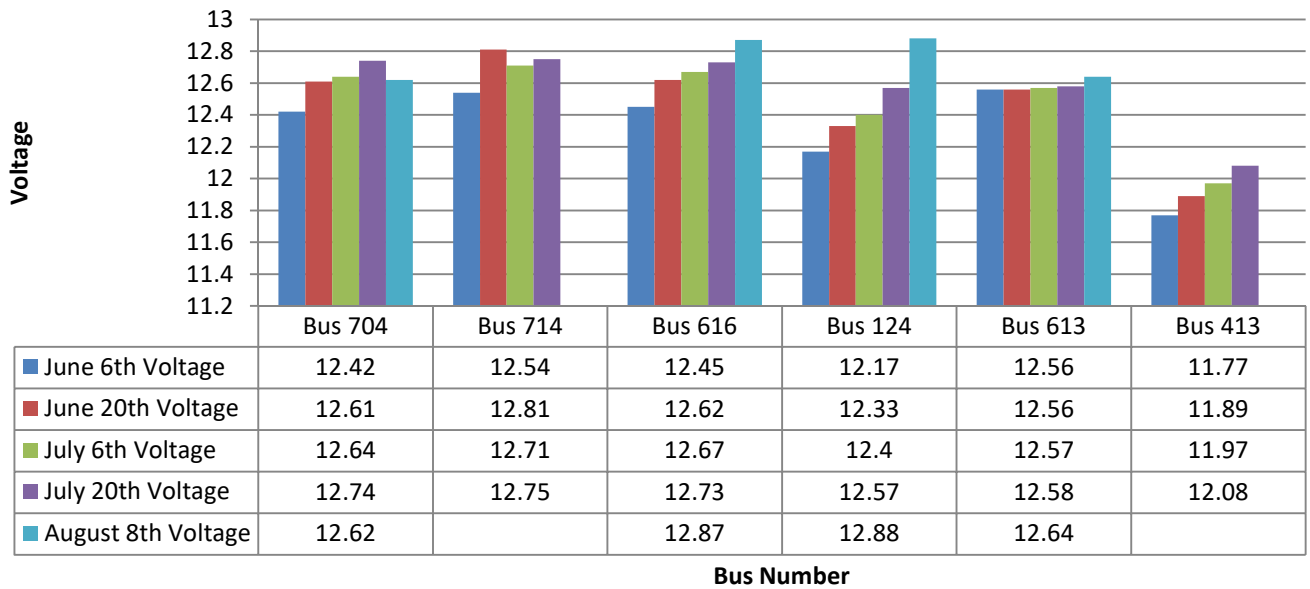


Figure 1 (Note: Buses without the August 8<sup>th</sup> Data were sold)

## Battery CCA Improvement With SP-5 Solar Charger Attached

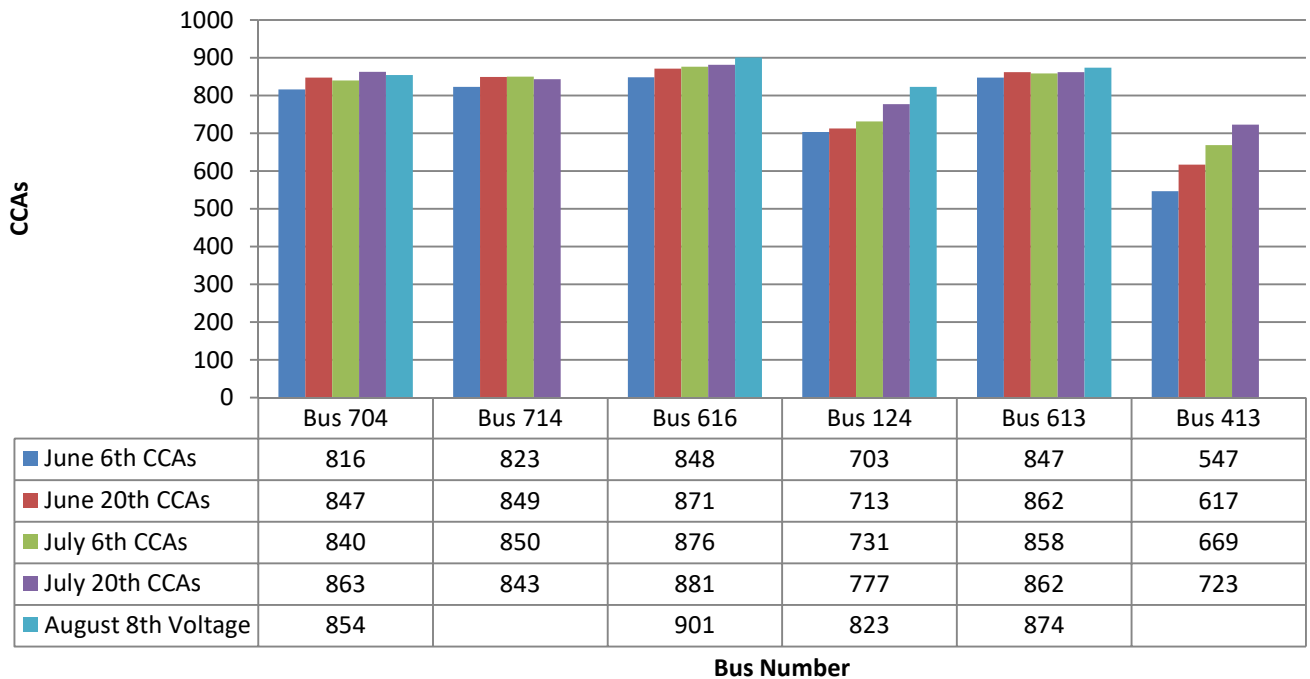


Figure 2 (Note: Buses without the August 8<sup>th</sup> Data were sold)

## Battery Voltage Change Without SP-5 Solar Charger Attached

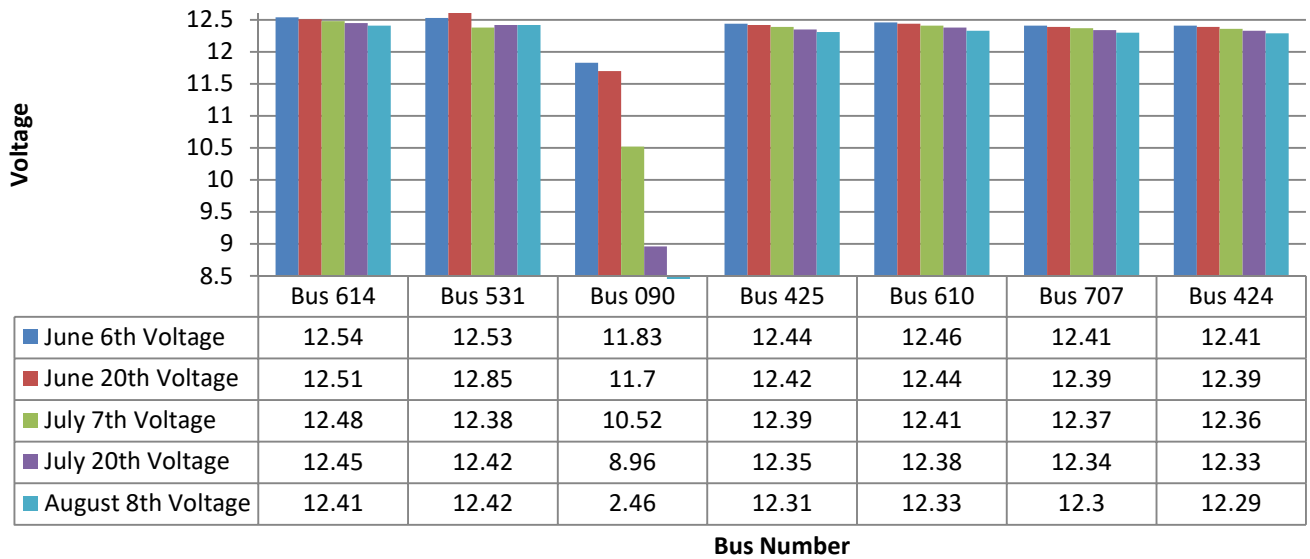


Figure 3

## Battery CCA Change Without SP-5 Solar Charger Attached

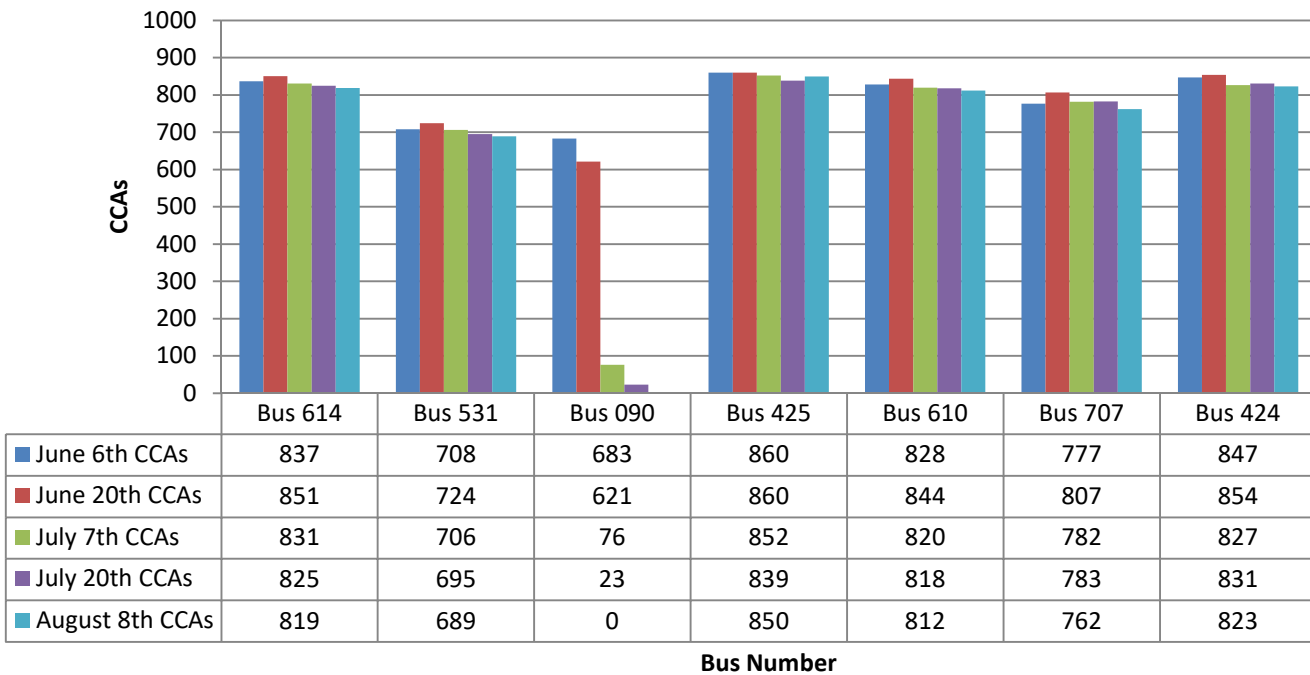


Figure 4