

structural damage to the undercarriage of all the vehicles. Repairs are currently being planned for all the cars.

- There was a change in the traction motor style from D.C. to A.C., a sound engineering decision for many economic and reliability reasons. However, in the specification process, the main and auxiliary power invertors that enable this technology were under designed, resulting in the requirement to now replace the invertors on all 26 cars.
- As referenced above, the same traction motors were not shielded properly causing RF interference with the Cab signaling system. This is obviously a safety issue that has plagued the operation of the cars since their arrival. Work is progressing to resolve this issue.
- Leveling valves which, SEPTA has learned recently, have high duty cycles in this service were “hidden” within the car’s chassis making service costly. Since they require high maintenance, they are being relocated to a new, more accessible position on the car.
- The A/C system has had numerous failures and is in the process of being redesigned and reinstalled on all 26 cars. Even the new design is experiencing operational problems and is a continued high maintenance item.
- All of the traction motor bearings on all of the cars needed to be removed and replaced because the original design was flawed. In addition, the blower motor associated with this motor needed modification for it to fit the chassis area.
- A structural soft spot in the floor of the cars has been found, requiring replacement of the floors in all of the cars. This is currently in process.
- As a result of all the modifications to the standard design, the ABB maintenance manuals did not accurately depict the cars as delivered. SEPTA has spent two years, at its own cost, correcting the manuals to reflect the difference between the actual cars built and the maintenance manuals and procedures for the “stock” cars. Similarly, the parts manuals did not match the cars as received and additional man-years were required to correct this problem as well.

Much of the cost of fixing these problems result from the internal designing of