

Table 4-6: Commissioning and Initial Operations: FCBs – Challenges and Best Practice Solutions.

Challenges	Best Practice Solutions
<p>Technical Issues/Faults</p> <p>The issues reported have been more to do with the standard bus components or the electrical system than with the H₂/FC related components. For example:</p> <ul style="list-style-type: none"> • Coolant pressure • Malfunctioning doors /lights <p>Electrical System</p> <ul style="list-style-type: none"> • Drive train wiring • Power distribution unit incorrectly installed <p>FC System</p> <ul style="list-style-type: none"> • FC stacks: water leak • FC drive system e.g., battery problems that led to reduced speed, especially on hilly routes 	<ul style="list-style-type: none"> • Expect and be prepared to overcome faults • Testing phase should be adequate for new technology and the planned work cycle and route. Once the bus has passed this phase, they should perform equivalent to any other bus (diesel or BEB) • If bus testing is local, then test close to the depot so that return to base can be easier if faults are discovered. Alternatively, some sites have chosen to test at the manufacturer’s premises <u>but test with local conditions in mind</u>, e.g., fully loaded with hill starts • Arrange timelines so that about 10% of the buses are delivered some months ahead, to have most “teething issues” cleared away before the rest of the order arrives. • Set up regular communication arrangements between onsite technicians/drivers/operators and the supplier in the early stages <div style="background-color: #00c853; color: white; padding: 10px; margin-top: 10px;"> <p>Bright Idea: Close the Feedback Loop</p> <p>One site made the following suggestion: Have a weekly presence of a technical inspector from the manufacturer when the first vehicles to arrive are tested. This person can report back any changes that need to be made in the bus production line. This ensures real time updating of FCB construction.</p> </div>

Data Logging / Data Delivery

Challenges that have arisen include:

- Data collection software don't all deliver the operational data required
- No access to CAN Bus data
- Faulty data logger and no authorisation for the data logging dashboard, so that possible data issues could not be checked
- Not all of the required data in the dashboard available
- Dashboard wasn't ready at the beginning of operations
- Poor WiFi connections

Technology Performance

- Different starting process of the FCBs compared with diesel buses
- New symbols and (error) messages at the driver-dashboard

- Find out early about the most useful data collection software (and prescribe an adequate system in your tender documents)
- Aim for one system for all buses, otherwise you may have different systems / dashboards with different data point availability for every individual supplier.
- Make sure that the data system can be integrated with other operational systems, such as depot planning.
- If data availability and provision is not adequate, keep the final retention payment until this is resolved
- Be in regular contact with the relevant person who has to do updates or swaps of the data logger and chase them early

- Adequate training of drivers
- Have the appropriate expertise on hand to answer queries