

MiX 4000 – Time synchronisation

Description of the problem

The MiX 4000 hardware is fitted with a Real Time Clock (RTC) and this clock is running faster than real-time (a few seconds per hour). In the operational system, the RTC is synchronized with GPS time (real-time) at the end of every trip and therefore a fast running clock is not ordinarily a problem visible to users.

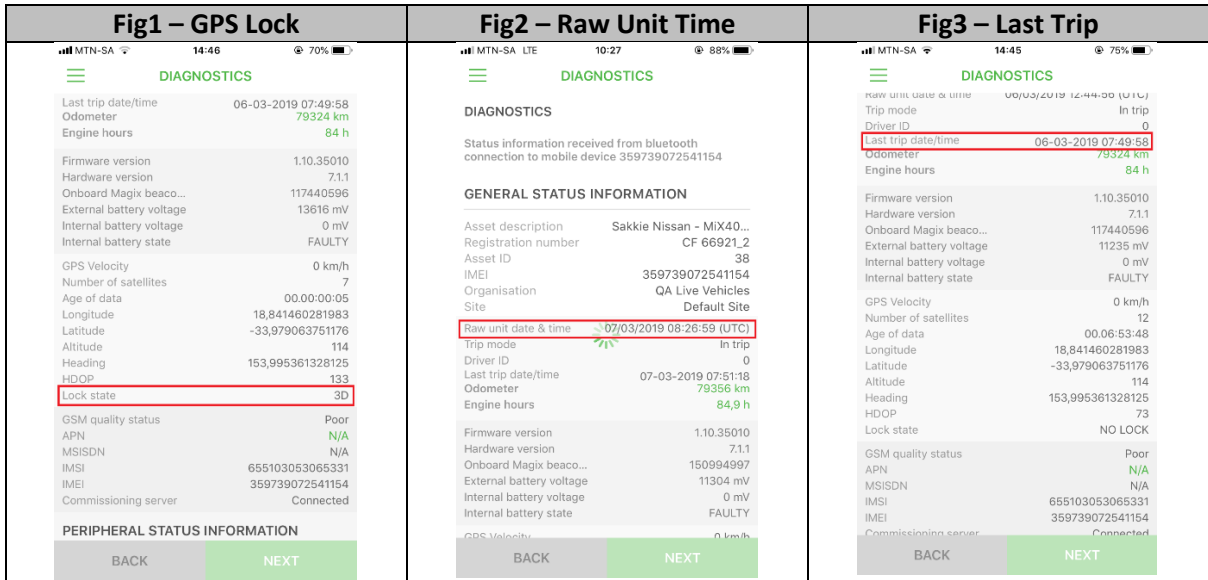
When a MiX 4000 is powered up for the first time it **must** get GPS lock and complete a trip in order to synchronise time. If GPS lock is not achieved during the first trip and the MiX 4000 connects to MiX Fleet Manager, this “trip” will have the incorrect time and will not be visible as expected in the system. In exceptional cases where the units have been powered up (and the RTC begins running) and then the units are subsequently returned to stores for an extended period of time (e.g. as a result of a stock firmware upgrade) the unit could be running up to 1 -2 hours ahead of real time.

This situation creates delays and confusion during the commissioning or installation process as from a user’s perspective it looks as if the unit is “not working” or not communicating with MiX Fleet Manager.

The solution and process to get the RTC synchronized

The process below should be implemented as standard for the MiX 4000, to ensure accurate time synchronization and visibility of the test trip in MiX Fleet Manager:

- 1) Ensure the MiX 4000 unit has power
- 2) Switch **Ignition ON**
- 3) Use the MiX TechTool to check that the unit **GPS has 3D Lock** (Fig1). If lock is not achieved in 60 seconds the installation needs to be repositioned or an external antenna should be fitted. This will require configs to be updated and uploaded.
- 4) When GPS Lock is achieved, switch **Ignition OFF**
- 5) Use the MiX TechTool to ensure that the “**Raw Unit Time**” is the correct real-time (Fig2)
- 6) If the Unit Time is still incorrect, repeat steps until the raw unit time is correct.
- 7) When the time is correct, ensure the “**Last Trip**” time shows correctly (Fig3). *Note this time is UTC so you have to allow for time zone offset.* If “**Last Trip**” trip time is incorrect repeat the steps to generate a valid test trip.



It is not necessary to do a “real trip” i.e. to drive or to switch the engine ON during this procedure – the only requirement is that “Ignition” must be ON to generate a “trip” in Mix Fleet Manager.