

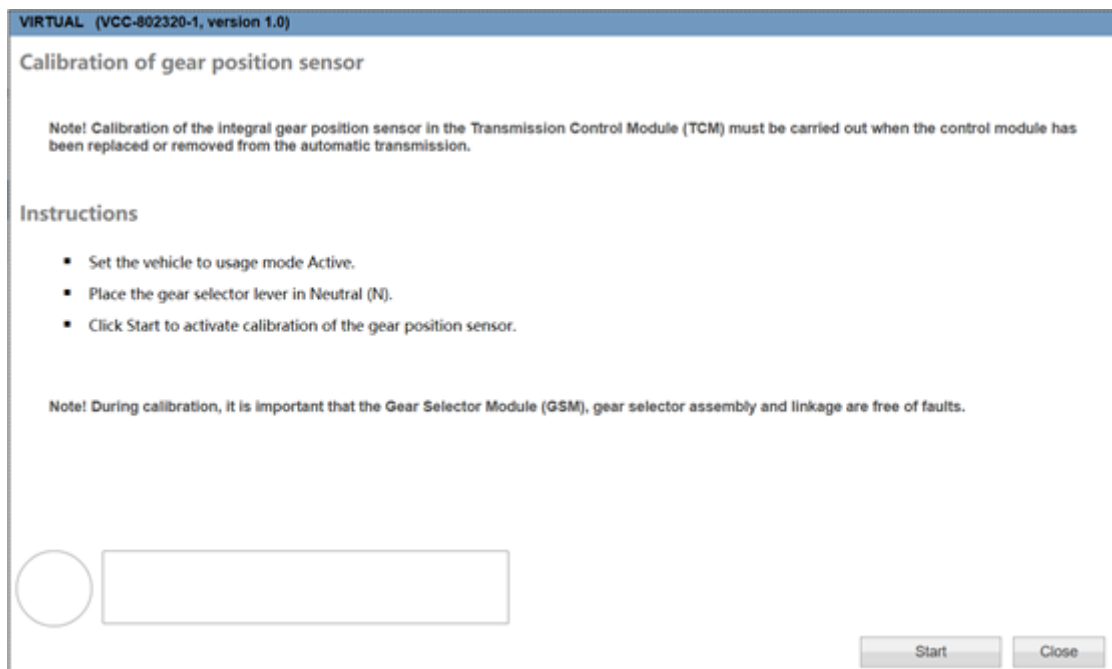
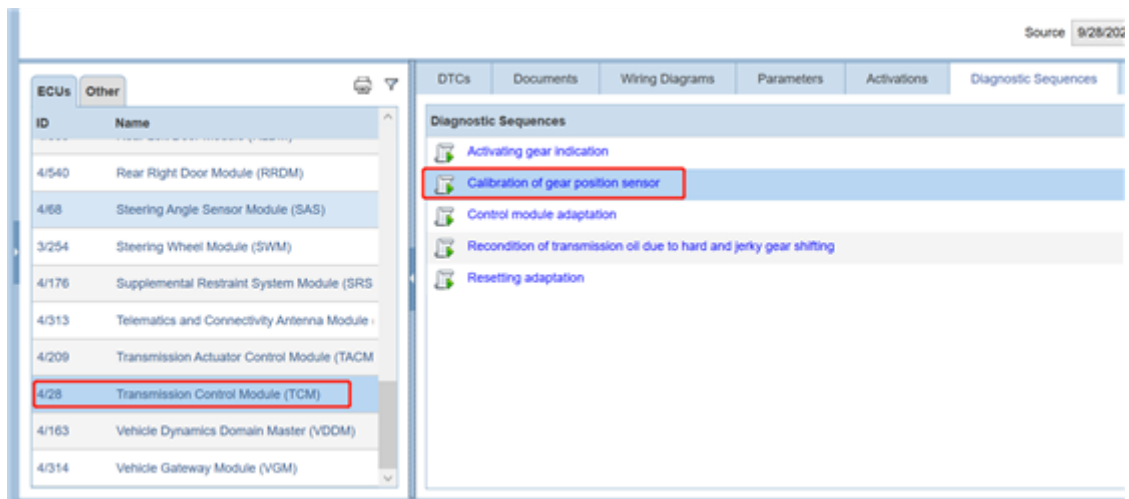
## ■ Fault symptom

A KX11 vehicle TCM malfunction, but after replacing the new TCM spare part and reloading the software, the vehicle was unable to display PDRN gear indicators and vehicle could not start.



## ■ Fault diagnosis process

1. First confirmed the fault performance and the new TCM module software reloaded successfully.
2. Confirmed with the workshop technician that he didn't make the gear position calibration operation. Tried to make the gear position calibration as the following steps but failed and calibration process couldn't pass successfully.



3. The root cause of this problem could be confirmed that the new spare part TCM could not complete the gear position calibration. Further reviewing the instructions of the gear position sensor calibration, found it need to place the gear selector lever in N. However, after removing the TACM (transmission actuator control module) , which is installed on the top of the TCM, it was found that the marked position of the TCM was not aligned and the groove hole position was facing P gear.



4. From the structure , if the groove position of the TCM was facing P , indicating that the rotary shaft and the hole of the shift actuator ( TACM ) would also in the P position.



In view of this, reinstalled the old TCM (with the groove facing P), started the vehicle, engaged the EPB, shifted to N gear, after that, long pressed the SSB switch to turn off the engine (note: in N gear, short pressing the SSB switch cannot turn off the engine), and then remove the TACM and the old TCM.

In that time, the groove of TACM and the rotary shaft direction were pointing towards N. Then used a screwdriver to rotate the groove

direction of the TCM spare part replaced from P to N and aligned the mark (note: do not rotate more than 60 ° from the marked position, otherwise it will damage the TCM).



After manually adjusted TCM spare part groove direction , it could be installed on the vehicle at N gear status.

5. Installed the TCM spare part and connected GLDS and performed gear position sensor calibration again, then it could be calibrated successfully. And then the PDNR indicators displayed normally and the vehicle could start.

## ■ Fault analysis

When the W/S replaced the TCM, the car was in P gear and turned off status, so when they installed the TCM spare part, the TCM marks could not be aligned, and could not meet the gear position calibration conditions N gear requested. The spare part TCM could not complete the gear position calibration caused this problem.

## ■ Fault solution

Used the original old TCM to shift to N gear and manually adjusted TCM spare part groove direction to N and reinstalled TCM spare part and made the gear position sensor calibration operation to solve the problem

## ■ **Quality inspection & repair confirmation**

Recheck again and confirm problem is solved.