TCM Adaptive Learning – Clutch Learning

Applicable for

All Ford models

Function Introduction

This function is used to learn the clutch parameters to improve its performance after replacement of transmission control system or when the clutch pedal is not functioning well.

Test Conditions and Attentions

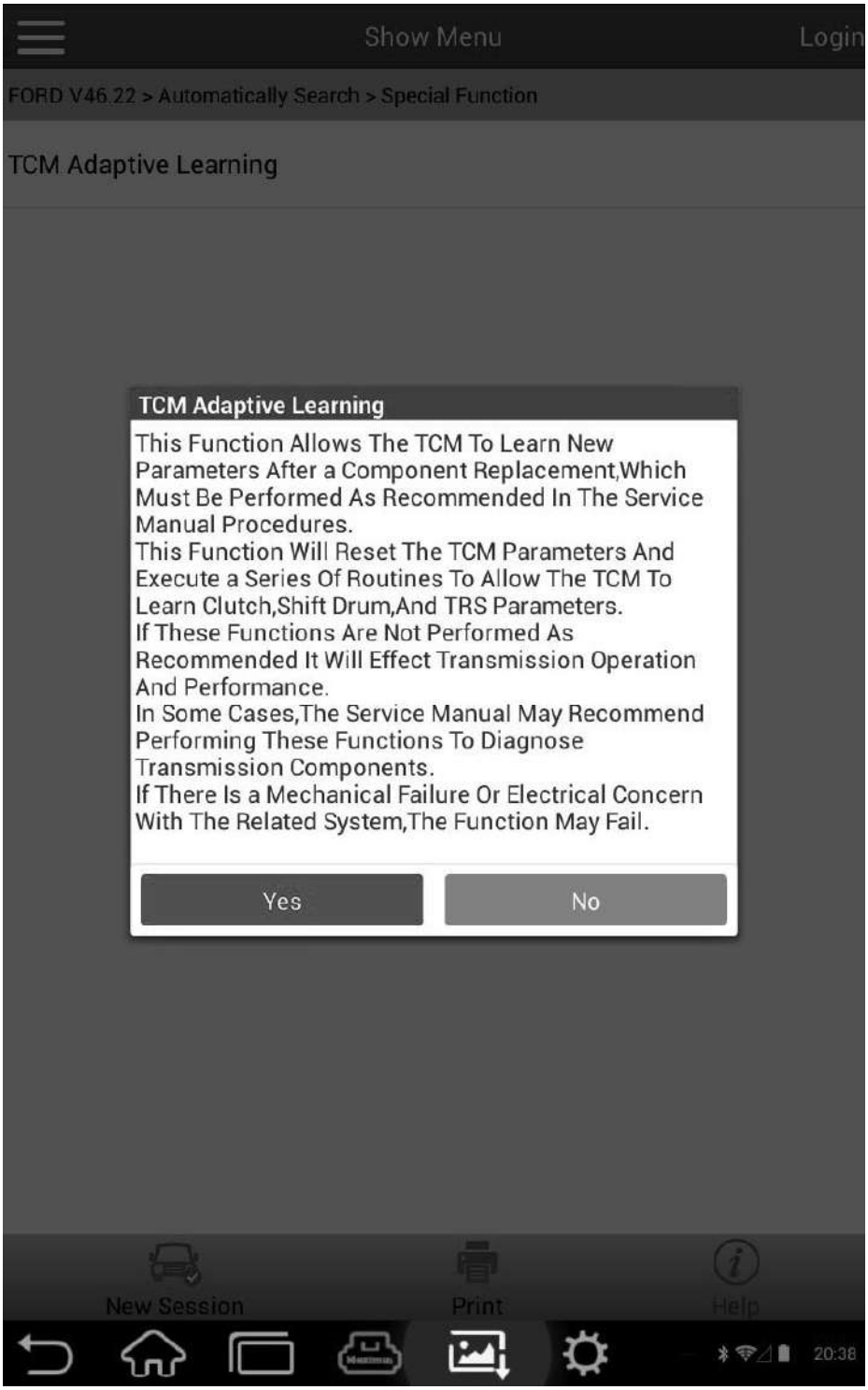
Vehicle has a certain quantity of oil, turn off all electrical systems (A/C, blower, headlamp, etc.).When the engine runs at full speed, it makes a lot of noise and may last 2-3 minutes. During this process, do not release the gas pedal! Almost during the whole test, the brake pedal is pressed .

When this function is done, some DTC may be set (usually appear in PCM, causing engine lamp illuminated), it is normal, but do clear the DTC manually to remove the MIL abnormity.

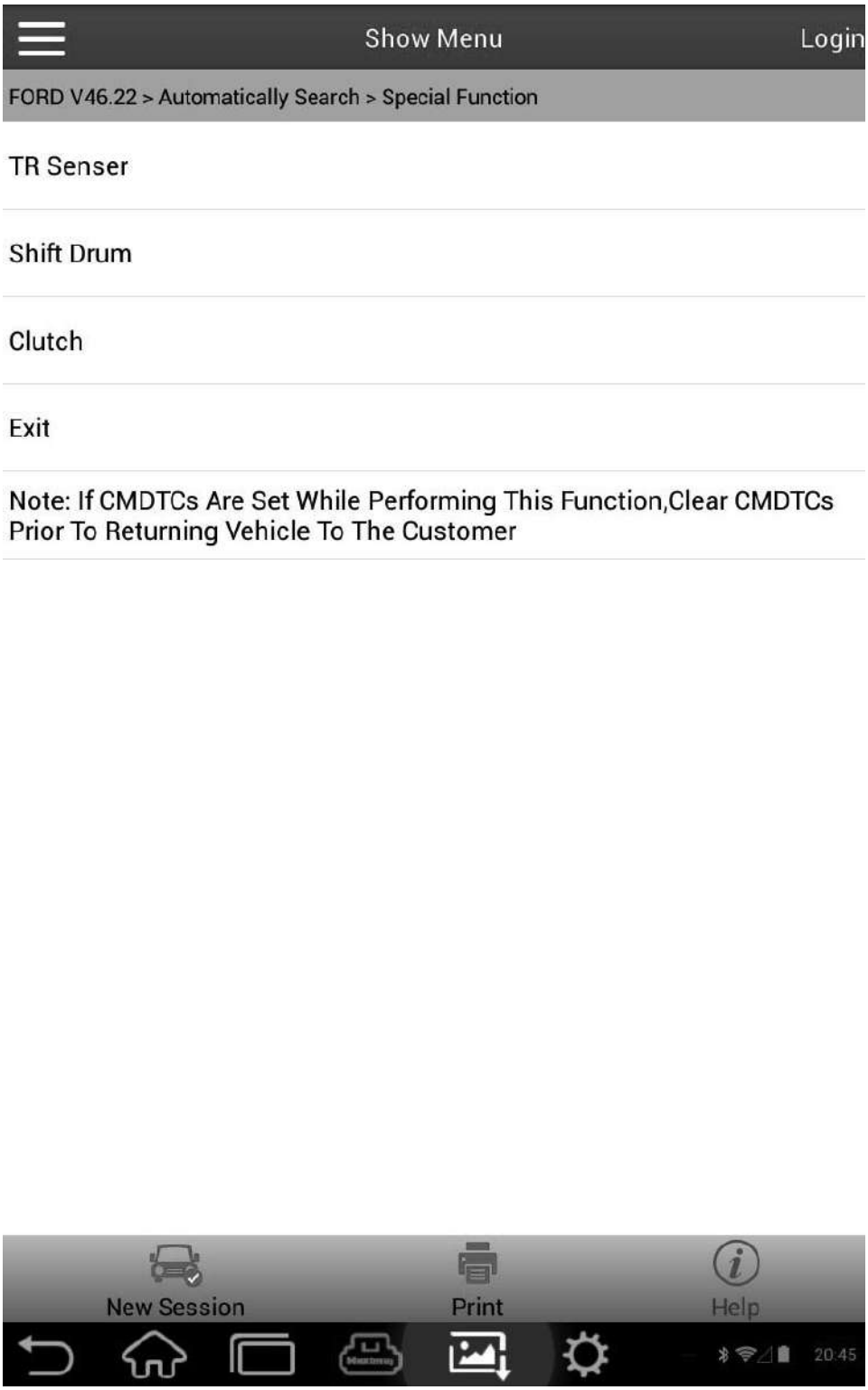
LAUNCH

Operation Procedure

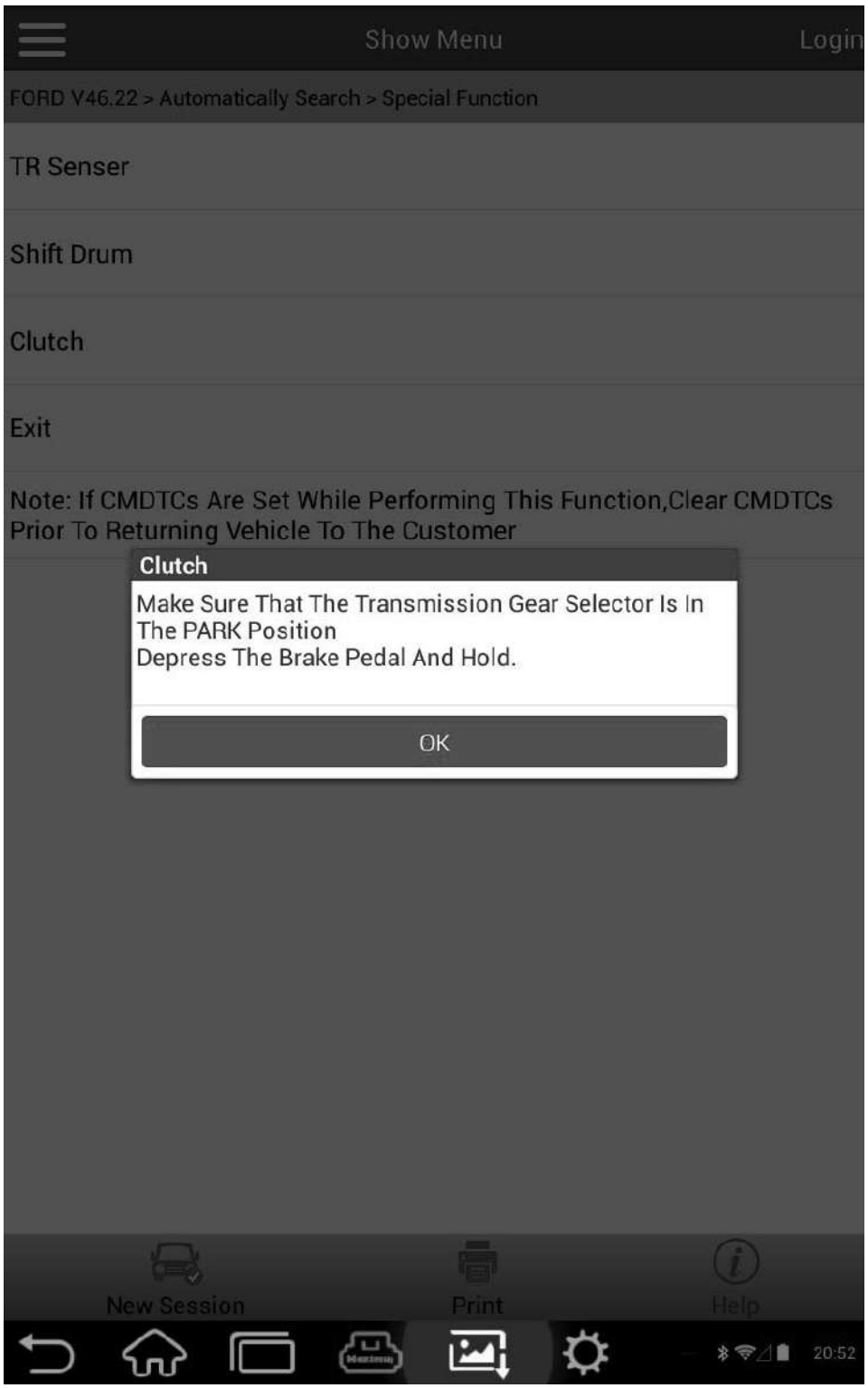
1).Select Special Function - TCM Adaptive Learning under TCM according to the path shown in the below picture. Click YES to start this function after read the prompts and confirm the conditions are met.



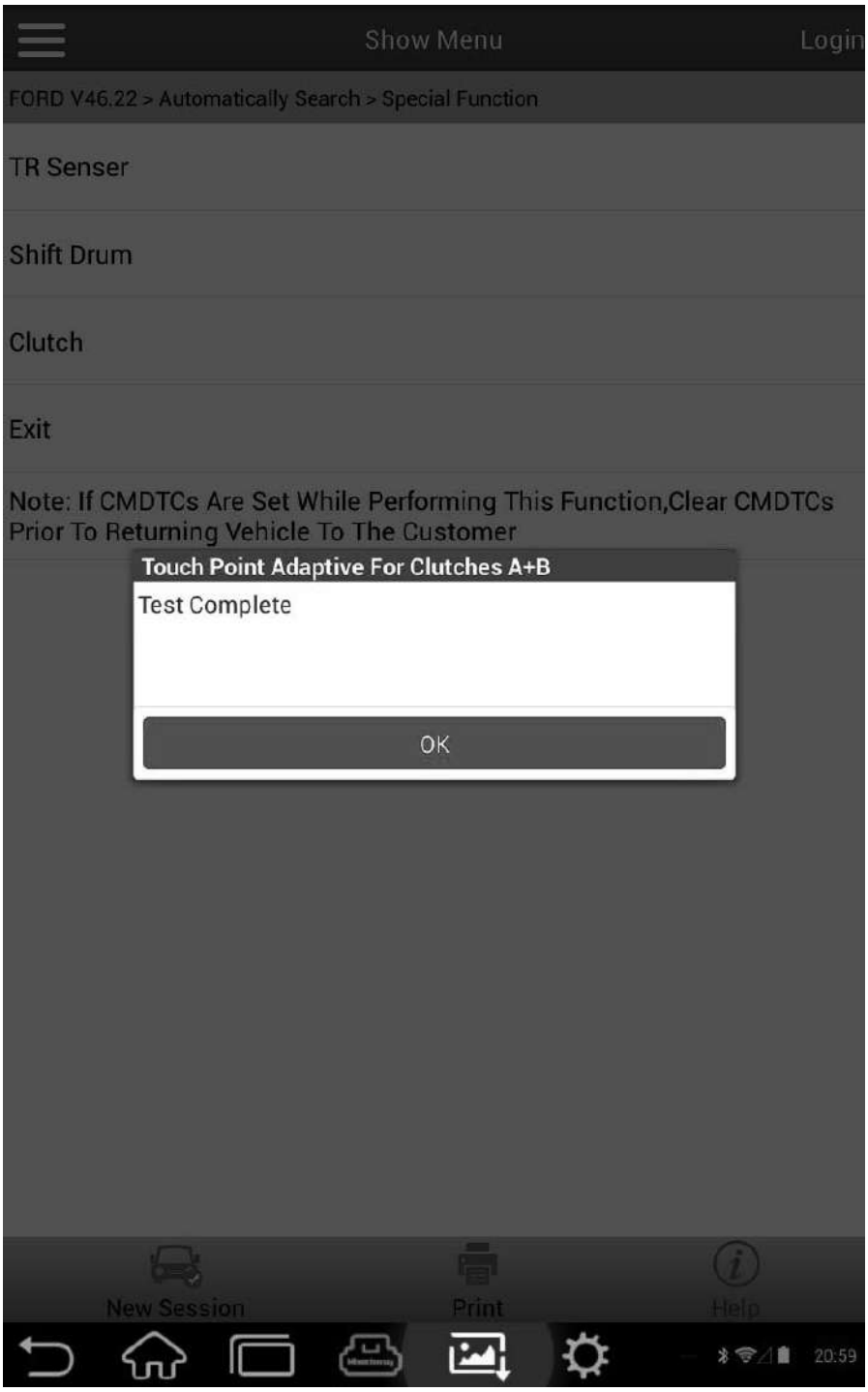
2).TCM Learning function has following 3 sub-functions. Here we take sub-function "Clutch" for example. Note, performing this function may generate some DTC, causing the MIL illuminated. After this function completed, do clear the DTC manually to remove the generated DTC.



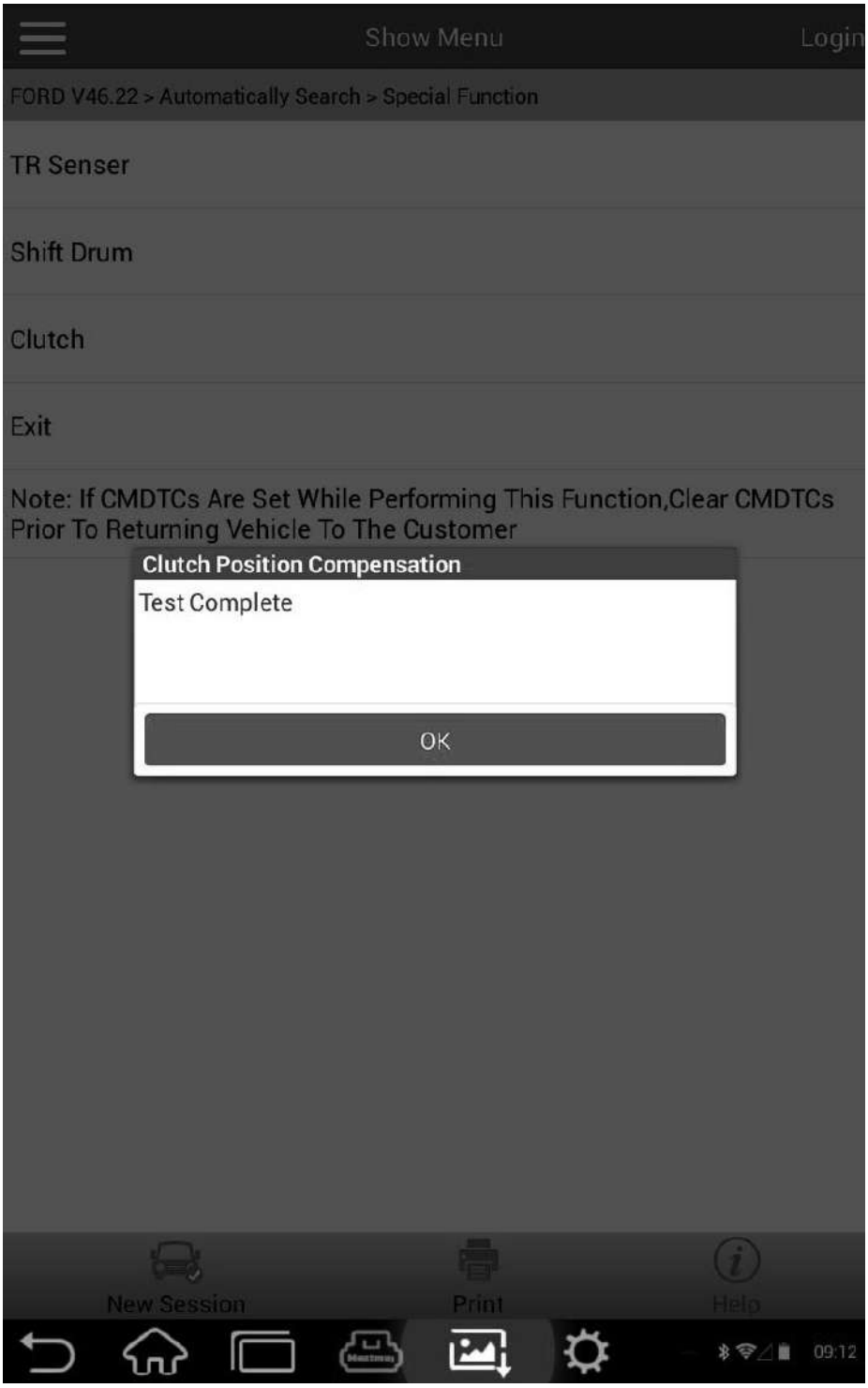
3).According to the prompt, ensure the gear selector is at P position, press and hold the brake pedal, then click OK to start the function initialization. Wait for 15 seconds.



4).Press and hold the brake pedal. Now the tool starts to set the clutch parameter one by one and check the pairing, including reset adaptive values, adapt clutch A+B touch points, A+B friction coefficient, clutch offset, clutch position offset, clutch torque offset, learn clutch reference position, steering roller adaptive learning, neutral state gear position command of both drive shafts, gear stroke test unit A, gear stroke test unit B and false memory deletion. It enters the next step only when every item is succeeded. Any one of them failed, the function will fail.

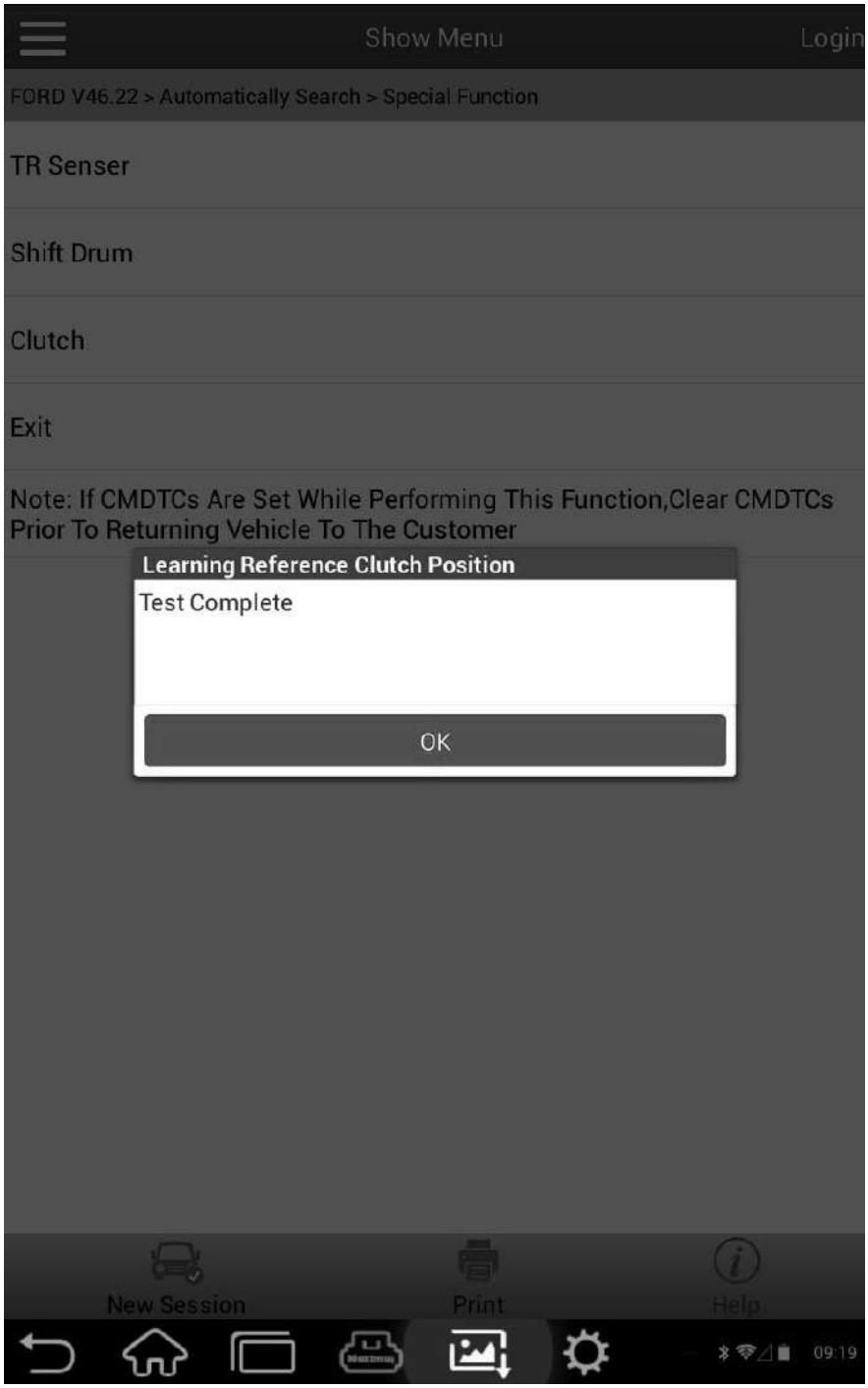


Adapt clutch A+B touch points

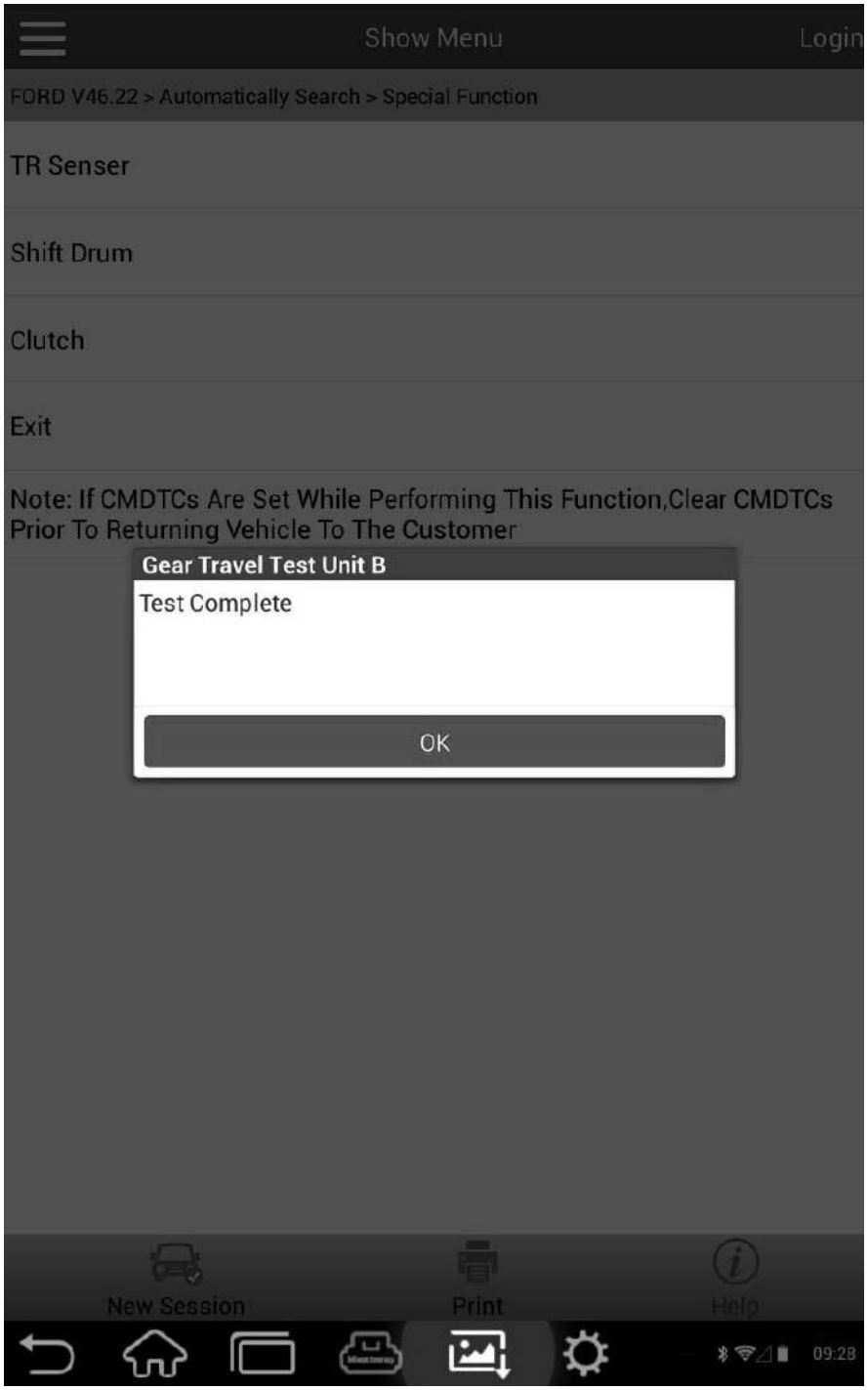


Clutch position offset

A).The roller moving in the front cover will be clearly heard when performing the steering roller adaptive learning.

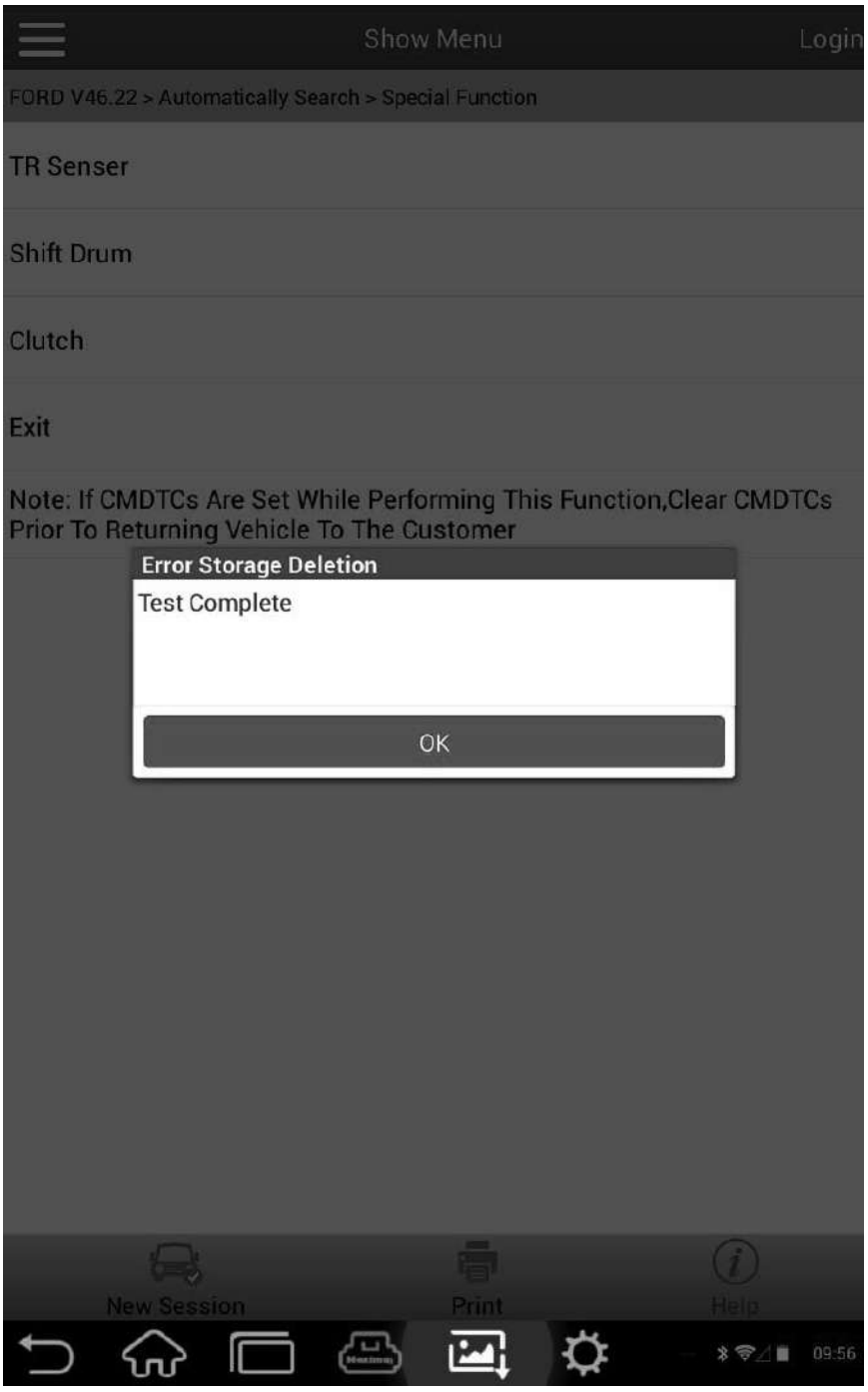


Steering roller adaptive learning



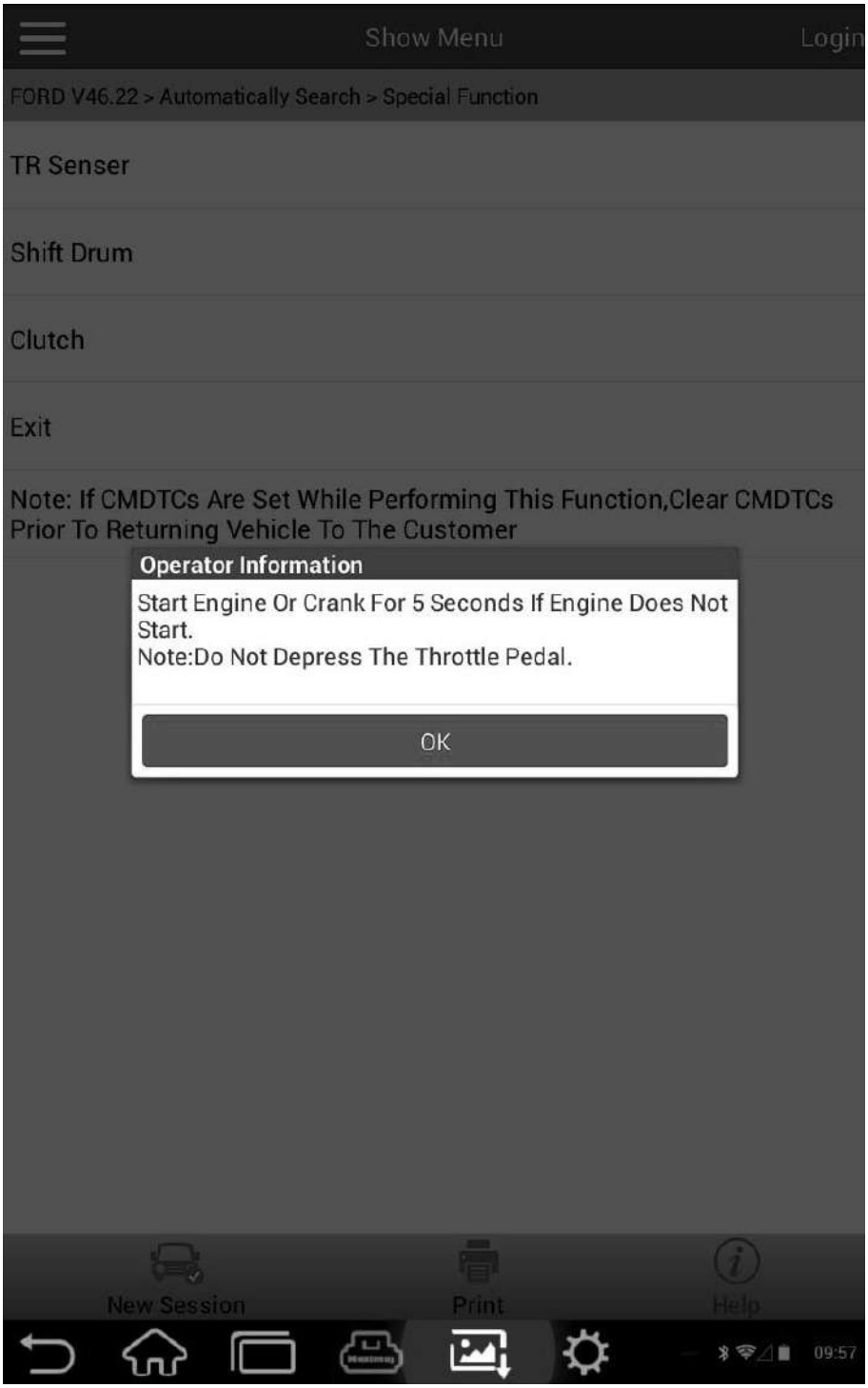
Gear stroke test unit B

B).After completed the last "False memory deletion", it enters the next step normally.

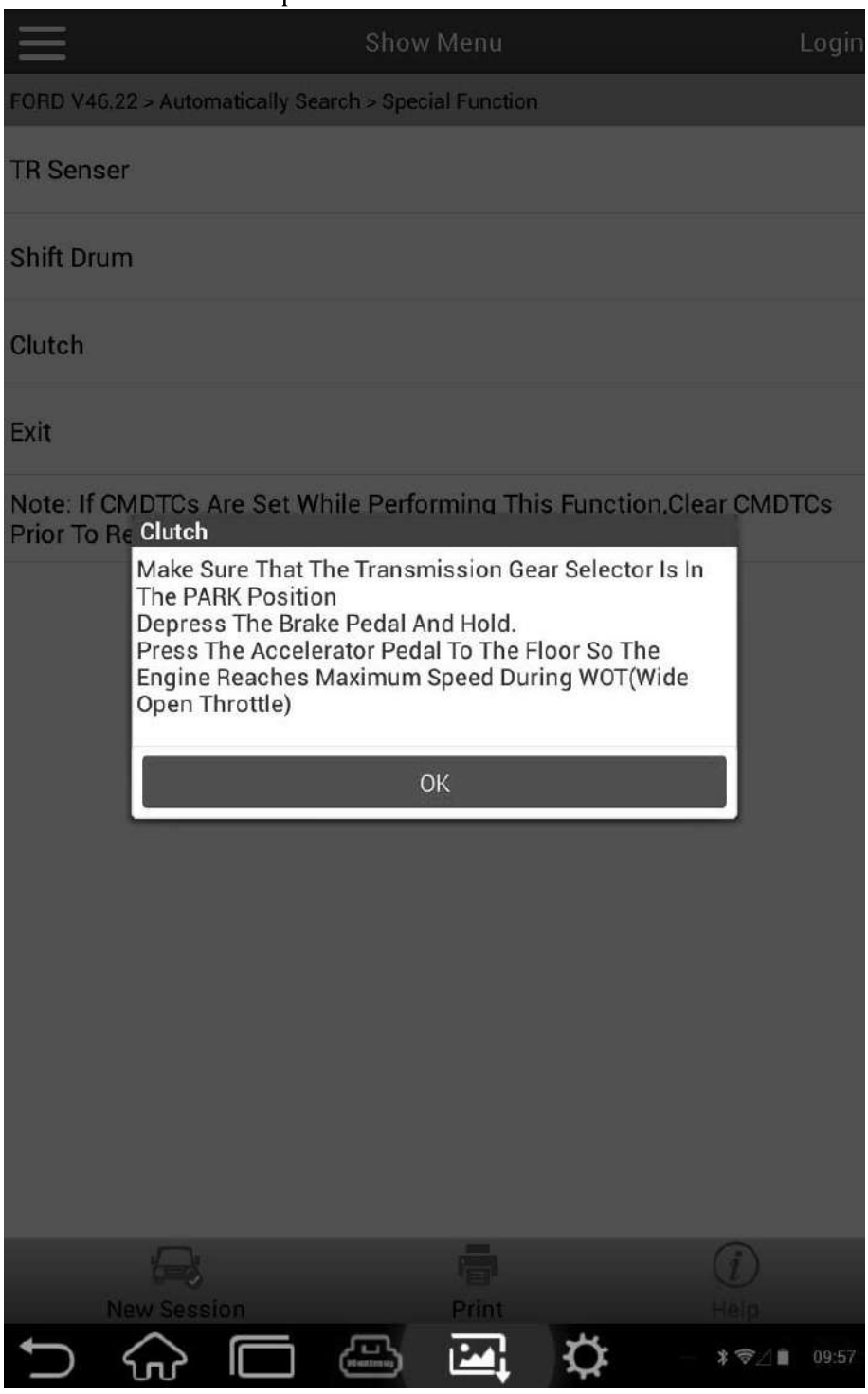


False memory deletion

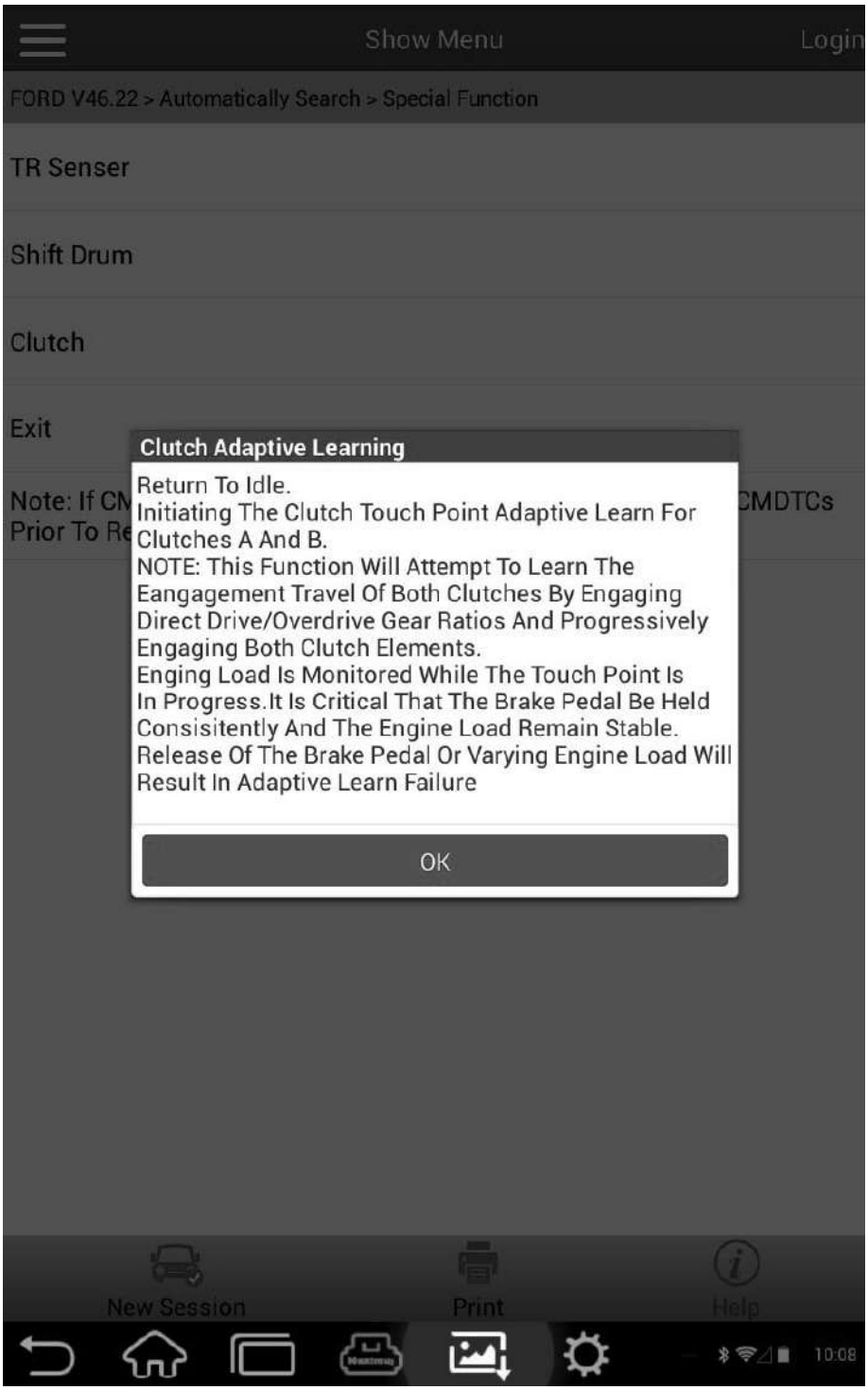
5).Start engine, or crank for 5 seconds if engine failed to start (usually this will start the engine successfully). Note, do not press the gas pedal! Meanwhile, the brake pedal must not be released.



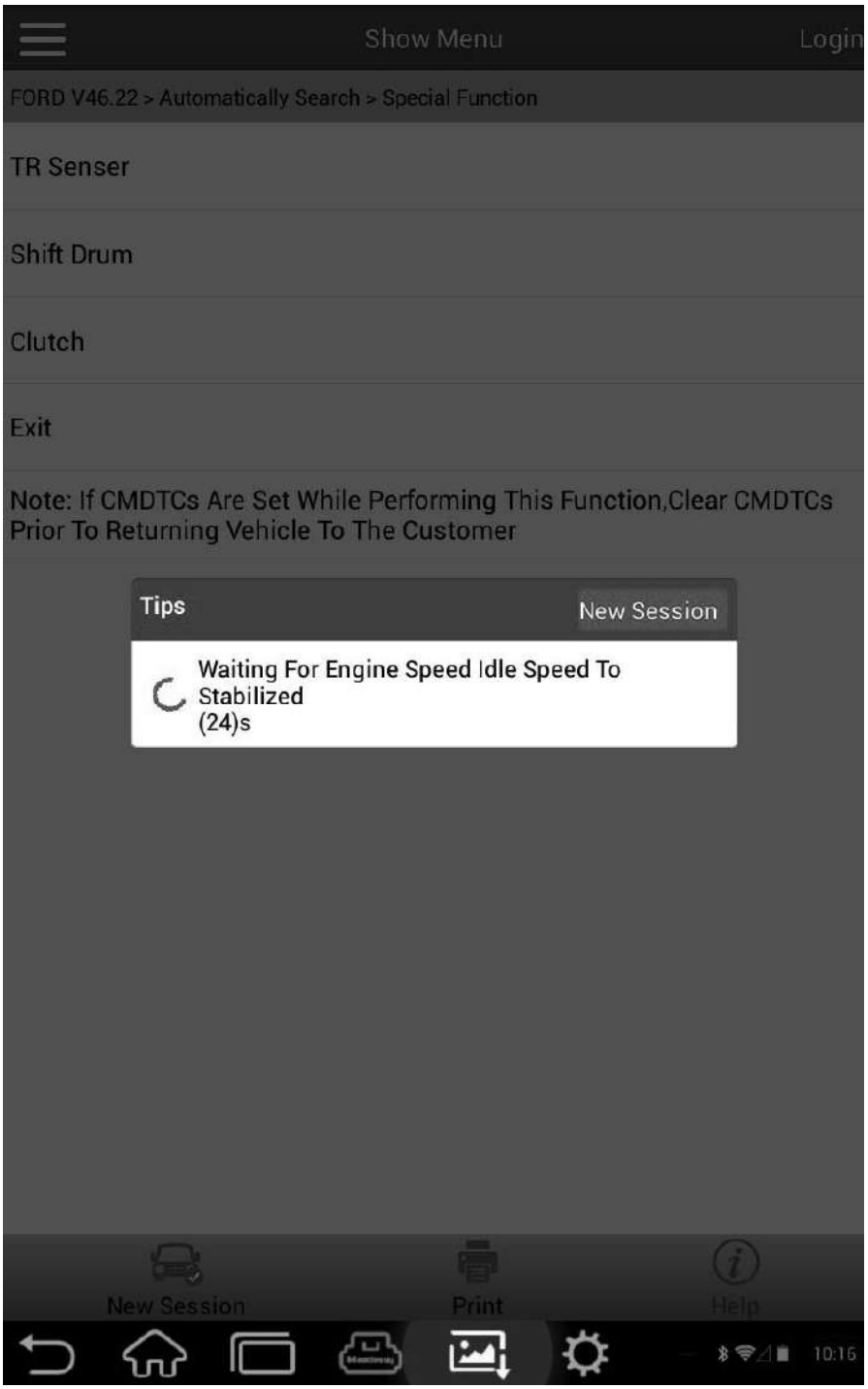
6).Check and ensure the gear selector is at P position. Press and hold the brake pedal. Press the gas pedal to the floor and keep the throttle wide open, so the engine runs at maximum speed for the clutch initialization in the next step.



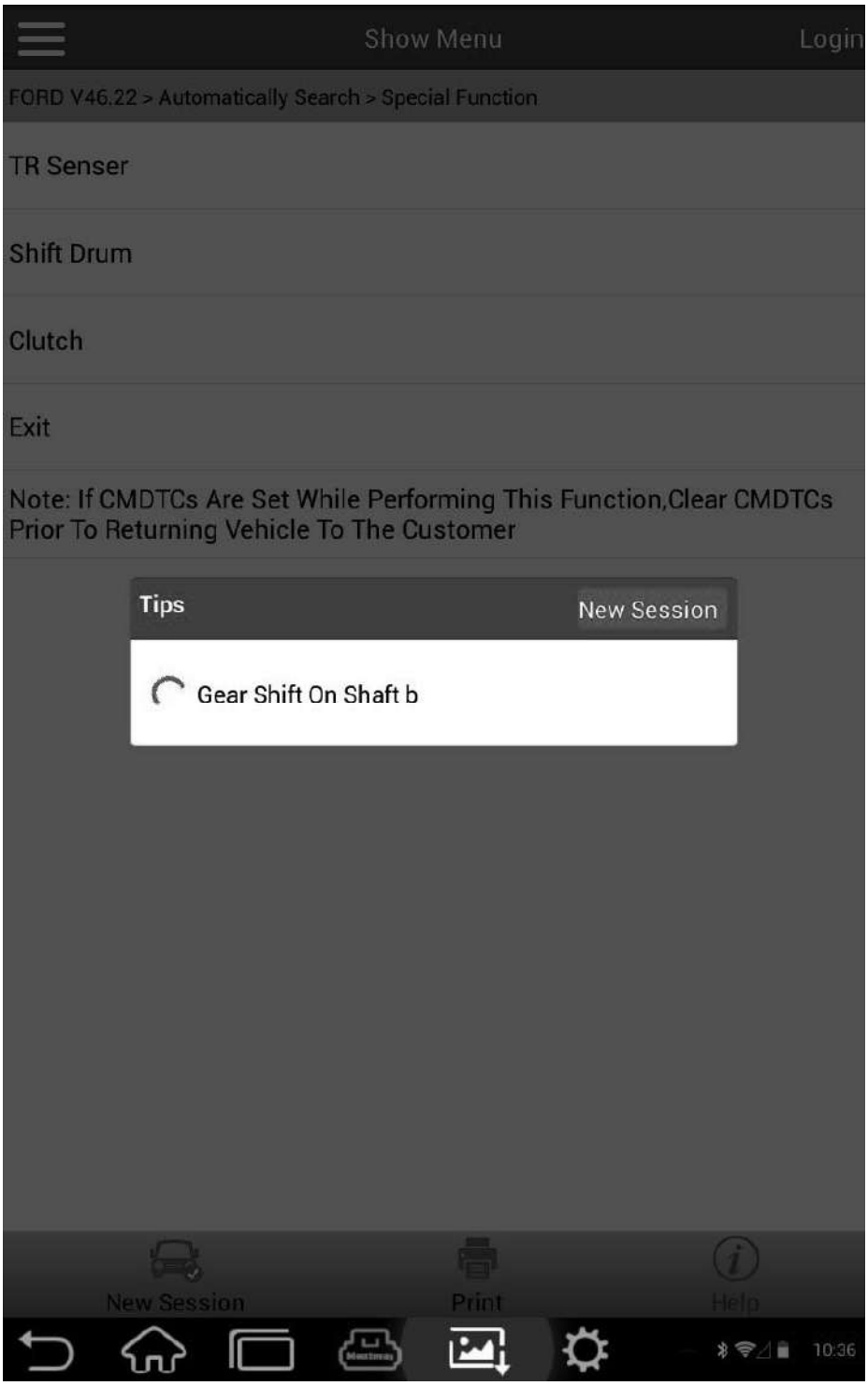
7).Return to idle. Click OK button after release the gas pedal and return to idle (ensure the engine load is stable). During the process, the brake pedal must not be released.



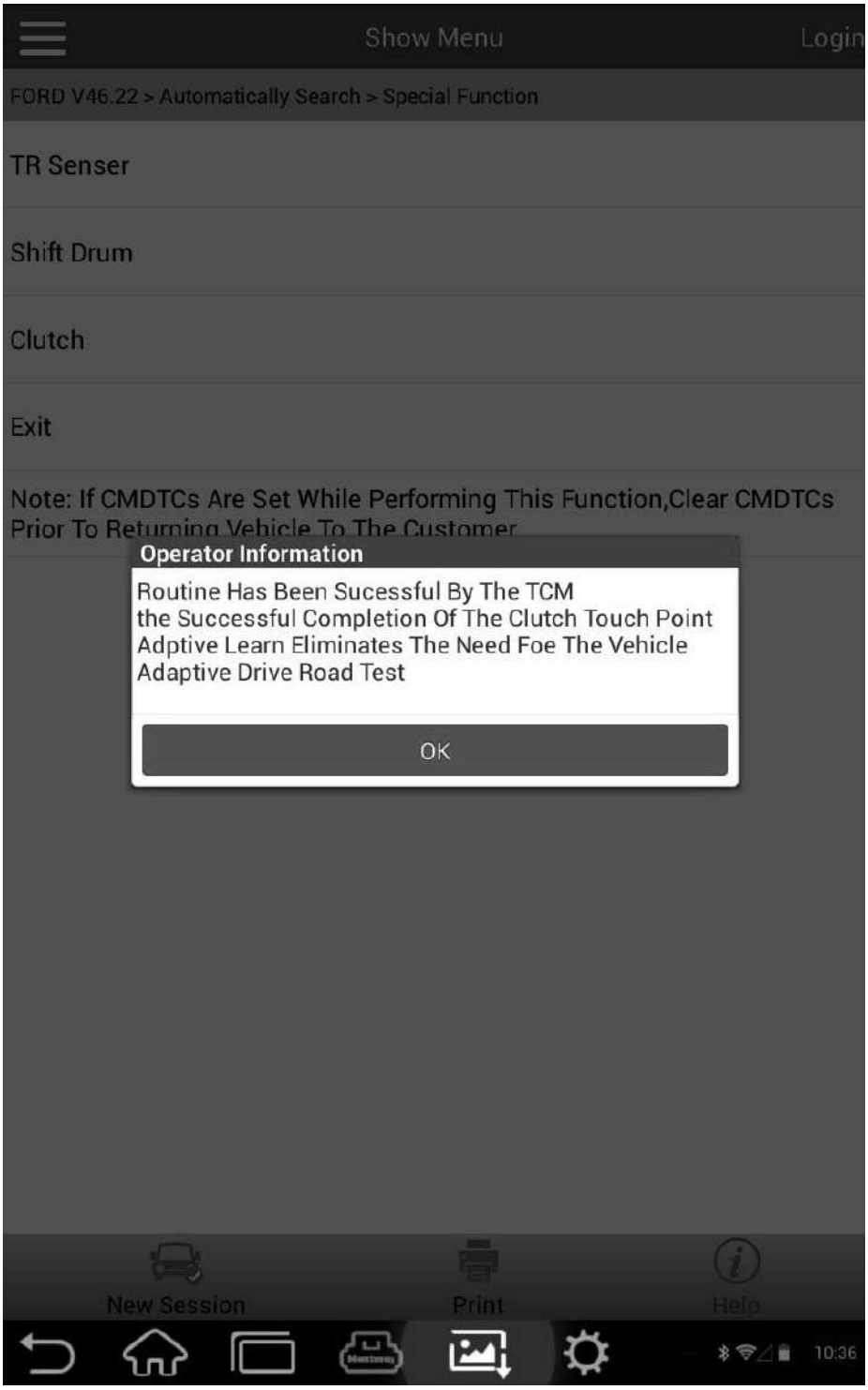
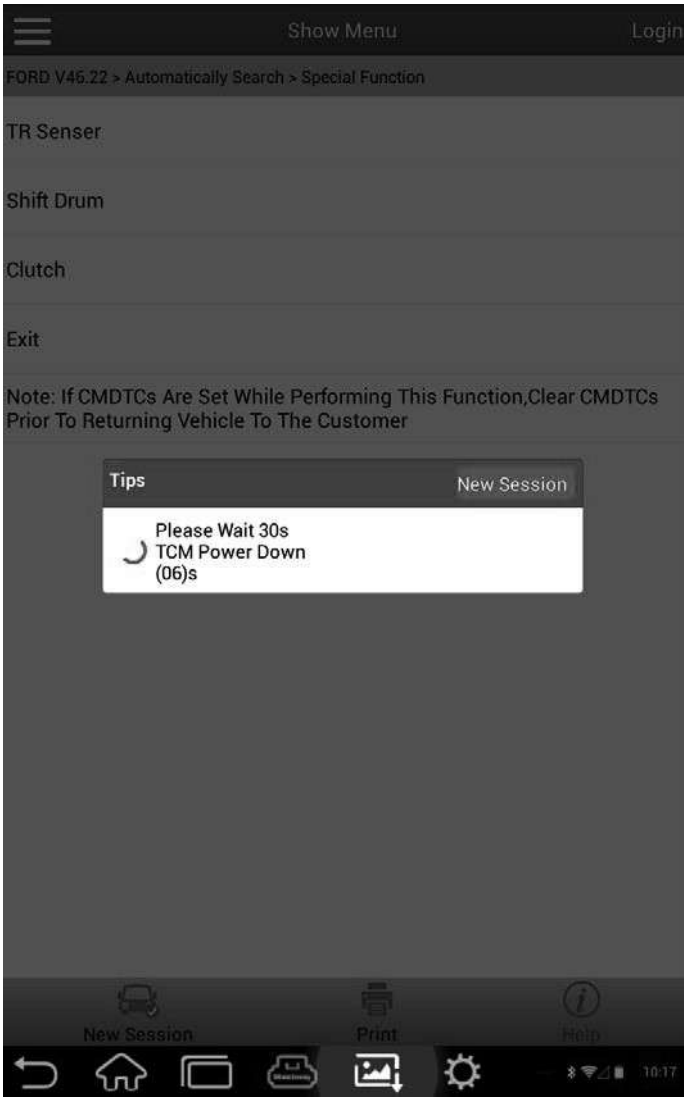
8).Counting down 45 seconds to wait for the engine get stable idle. The brake pedal must not be released.



9).Shaft B touch point learning



10).Clutch adaptive learning succeeded



11).Turn the ignition key to OFF, count down 30 seconds to wait for TCM OFF. Function completed and exit.