Instructions for Target Ignition Timing Adjustment

Tested Model: NISSAN X-TRAIL 2023

Function Description:

1. This function is used to reset or adjust the ignition timing values within the ECM (Engine Control Module), and calibrate the ignition timing data to the target reference to ensure ignition accuracy under all operating conditions.
2. Perform this function to calibrate ignition timing and re-establish the correlation between mechanical timing and ECU ignition reference after replacing timing system components.
3. Use this function to restore default ignition timing settings and allow the ECU to relearn the current mechanical timing characteristics of the engine after ECM replacement, reprogramming or reset.
4. Run this function for ignition timing calibration when the diagnostic tool retrieves DTCs related to ignition timing adjustment.

Supported Equipment: Launch PRO or PAD series comprehensive diagnostic equipment

Attention:

1. Engine status: Ignition ON, engine running at idle
2. Engine temperature: Ensure that the engine has been fully warmed up to normal operating temperature before executing this function.
3. Vehicle load: Turn off all unnecessary electrical loads (such as A/C and lights) during execution to prevent voltage fluctuations and additional engine load interference.
4. This function is not required for routine maintenance. Only perform it after replacing timing system parts, replacing, reprogramming or resetting the ECM, or when the diagnostic tool retrieves DTCs related to ignition timing adjustment.

Procedure:

1. On an X431 PAD 5, follow the steps shown in Figure 1 to Figure 3. Choose [Local Diagnose], choose [NISSAN], and then click [OK] to enter the Nissan vehicle model menu interface (Figure 4).

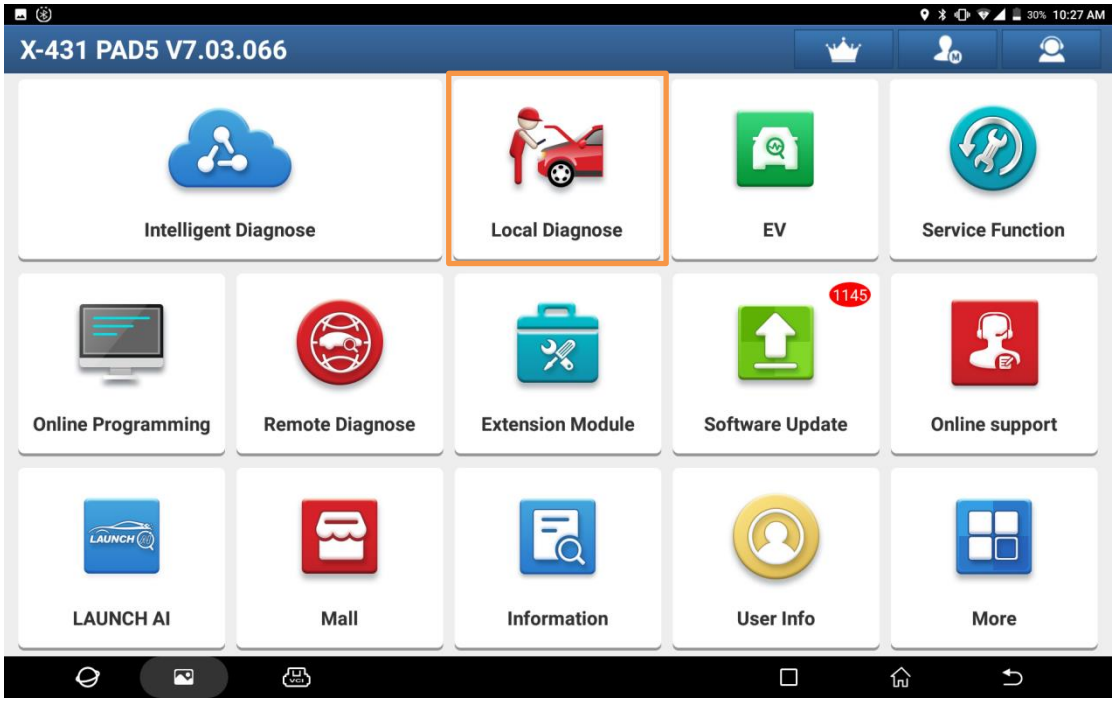

Figure 1

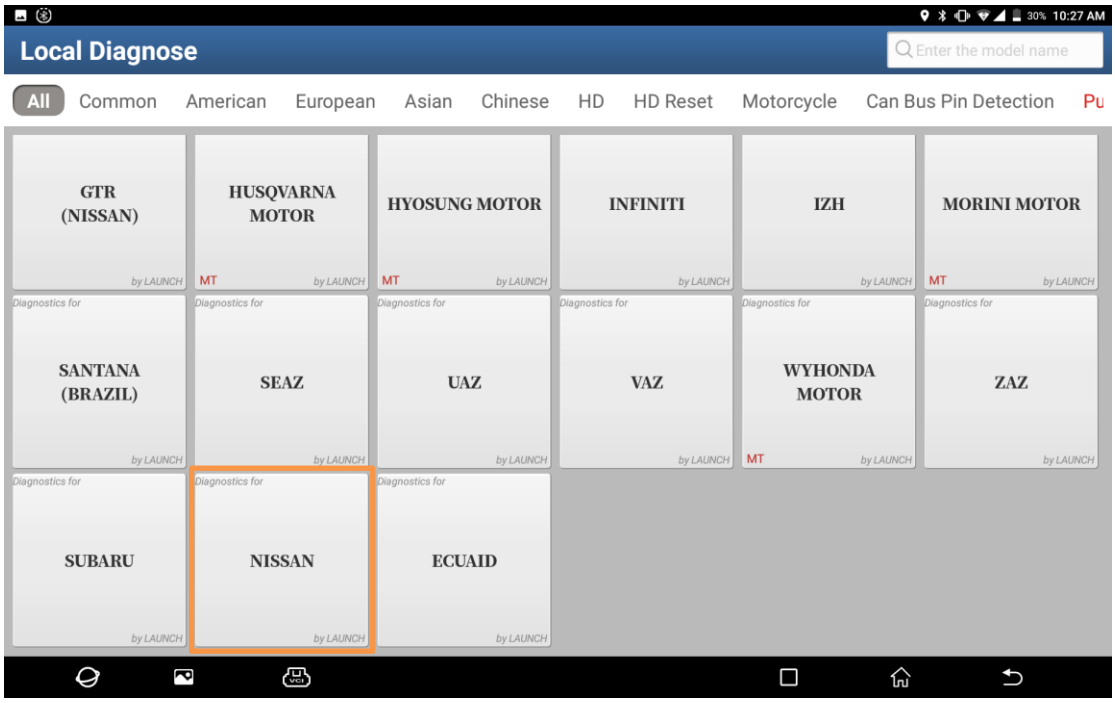

Figure 2

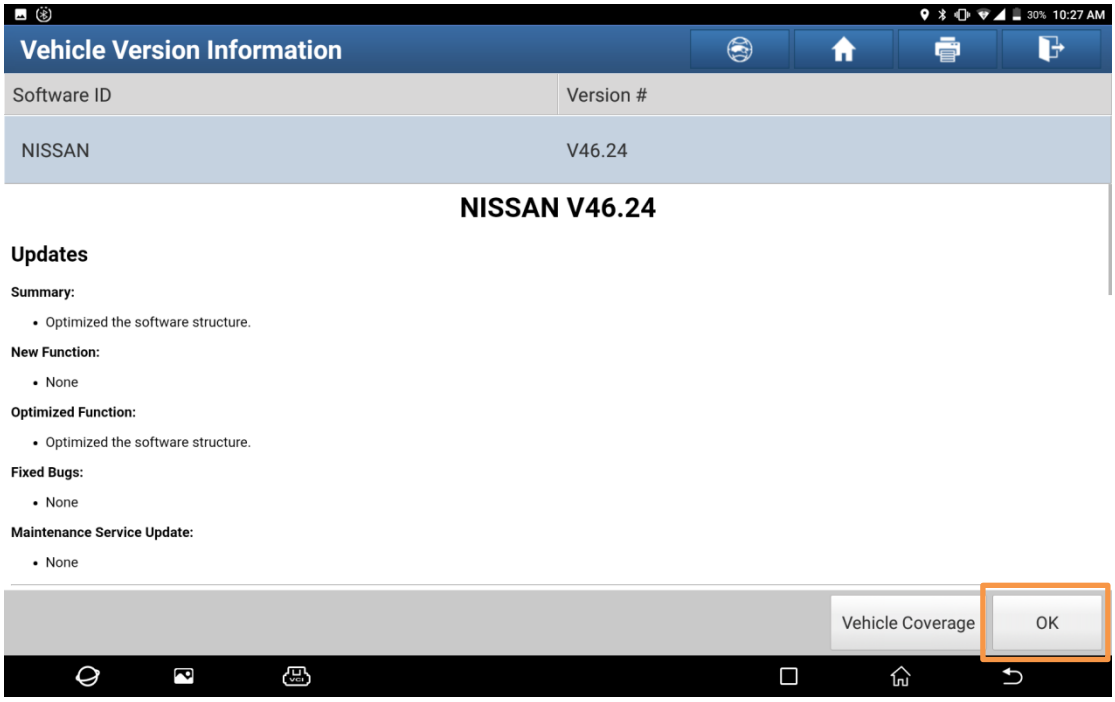

Figure 3

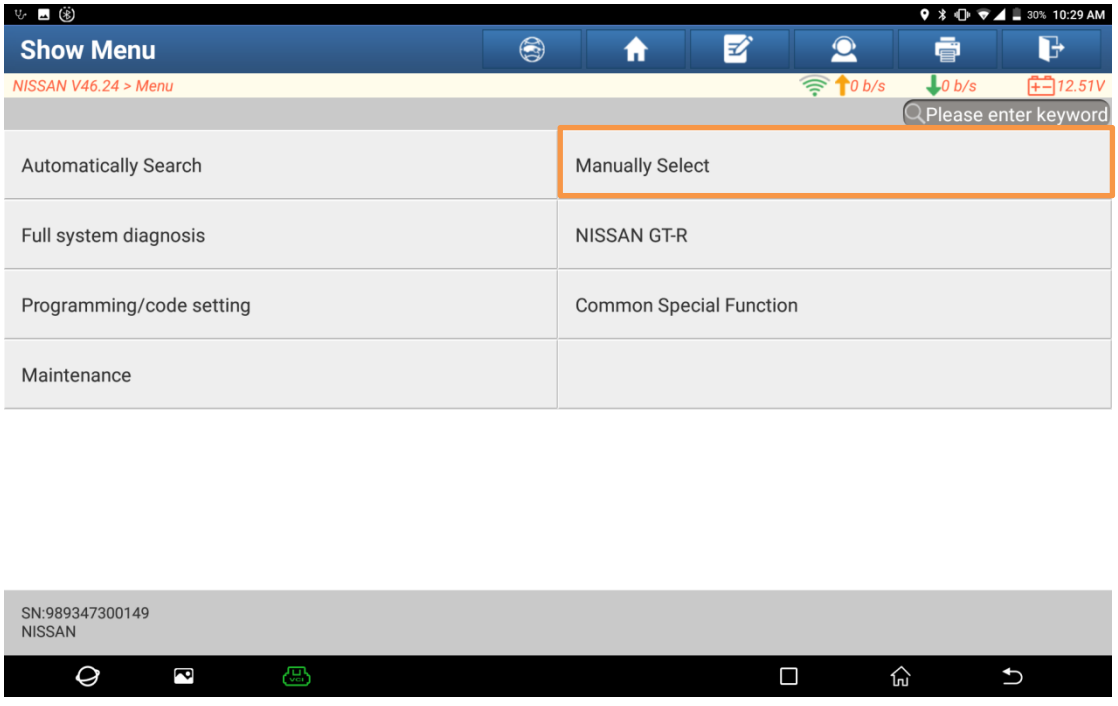

Figure 4

2. Click [Manually Select], and choose [Far East] > [People's Republic of China] > [X-TRAIL] > [T33] > [10/2023] to enter the vehicle model system interface (Figure 5).

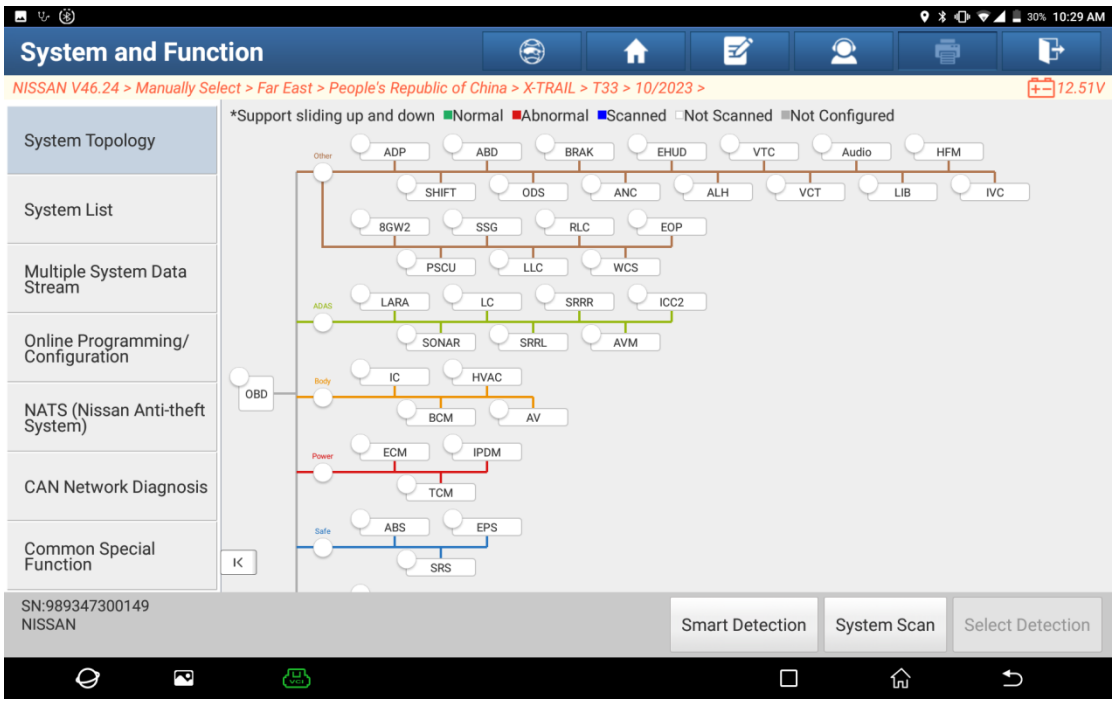

Figure 5

3. On the vehicle model system interface (Figure 6), click [System List] to enter the system list menu interface (Figure 7).

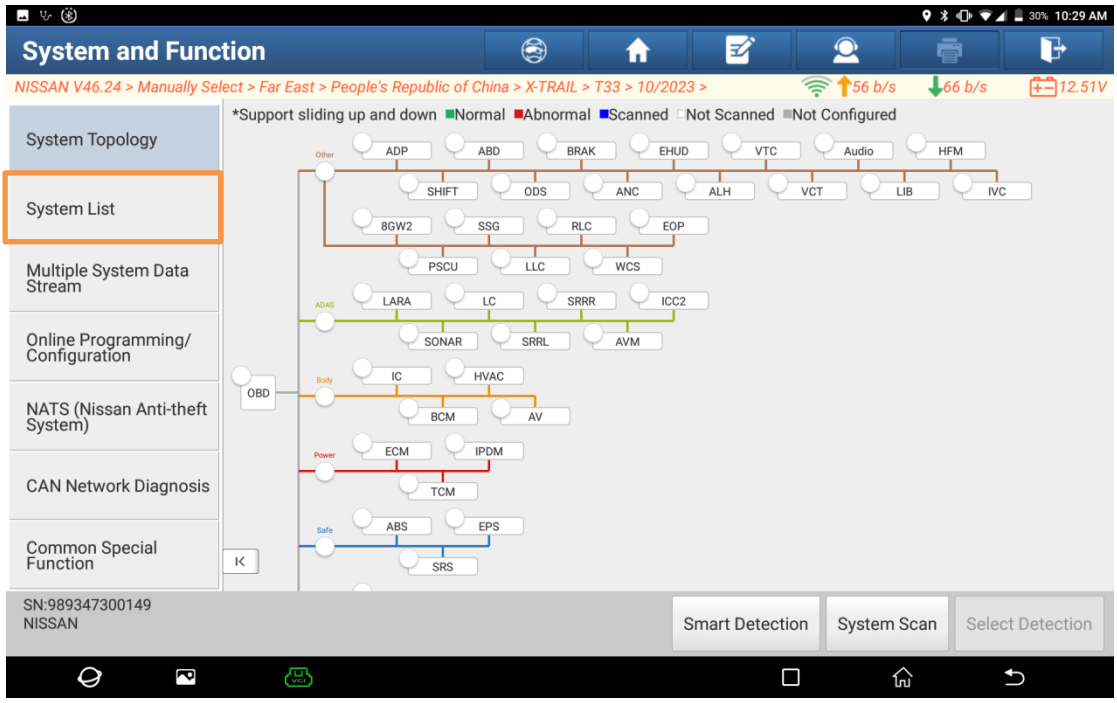

Figure 6

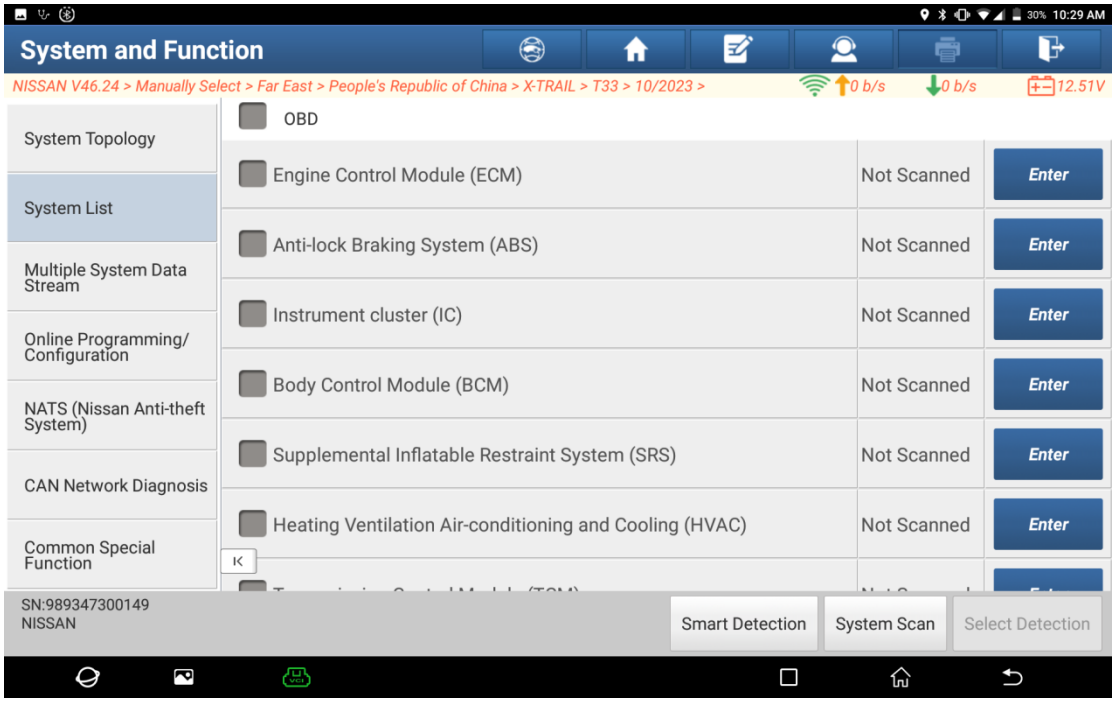

Figure 7

4. On the system list menu interface (Figure 8), click [Enter] on the right of [Engine Control Module (ECM)] to enter the ECM function menu interface (Figure 9).

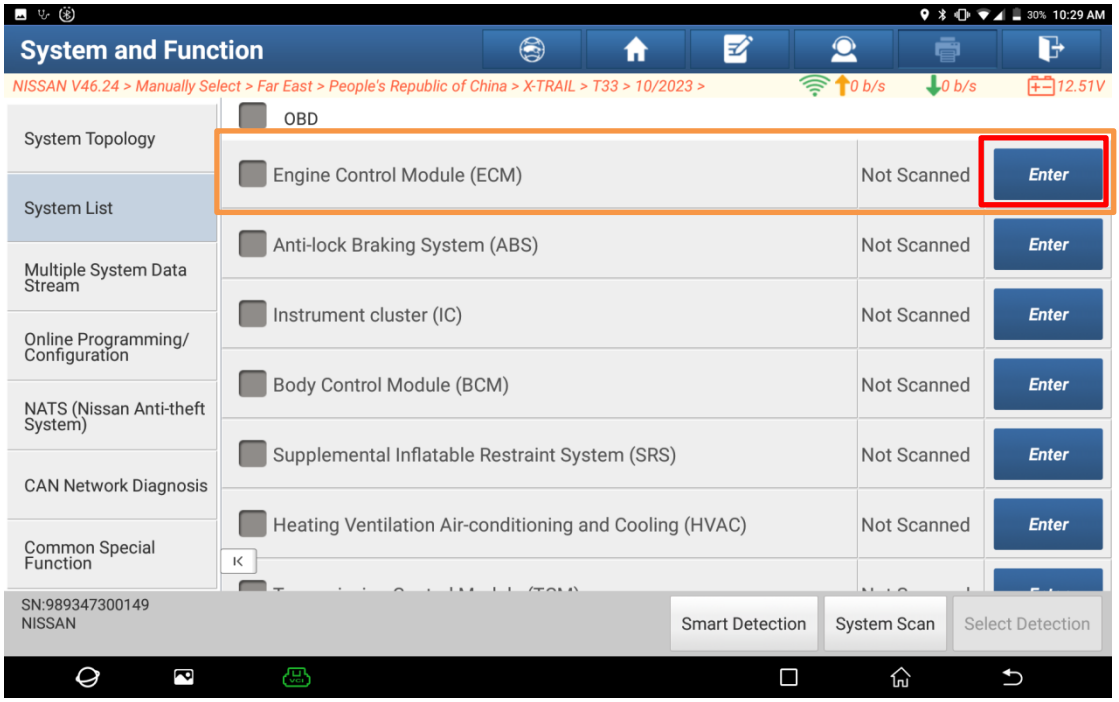

Figure 8

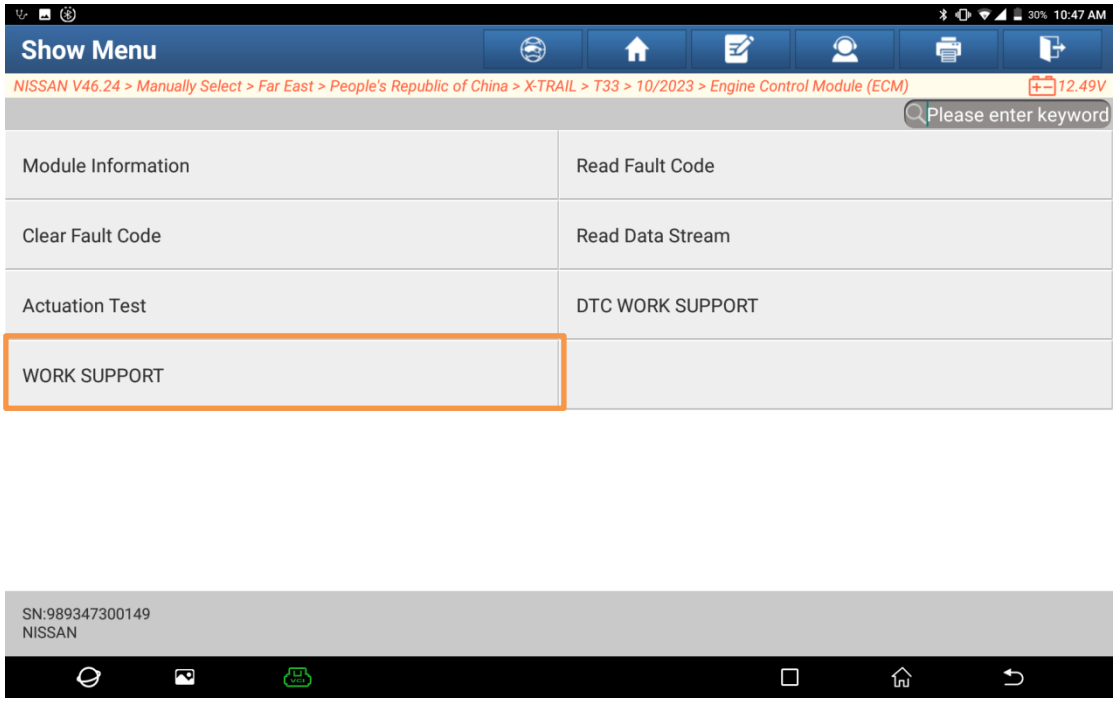

Figure 9

5. Click [WORK SUPPORT] to enter the [WORK SUPPORT] menu interface (Figure 10).

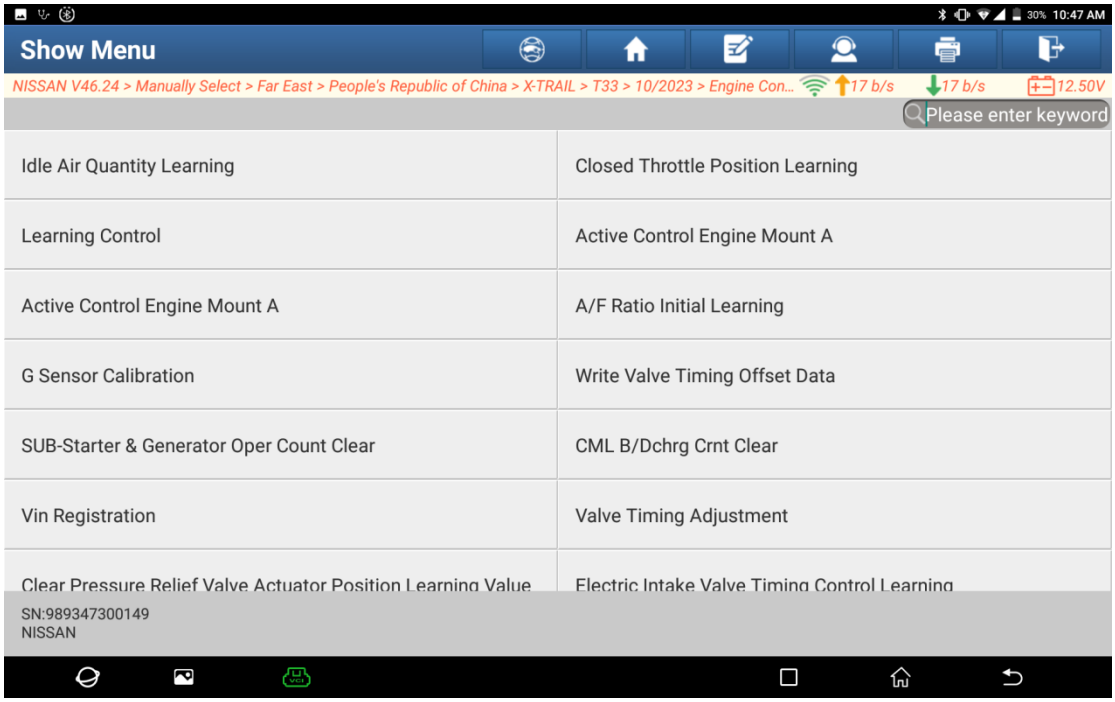

Figure 10

6. On the [WORK SUPPORT] menu interface, click [Target Ignition Timing Adjustment] (Figure 11).

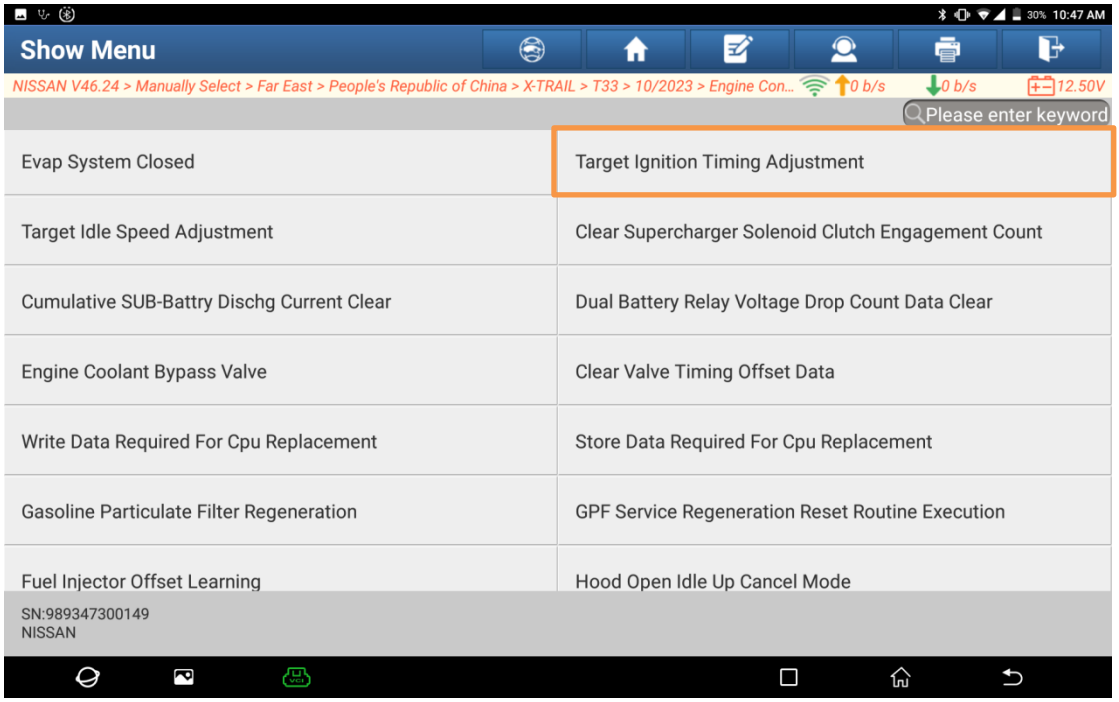

Figure 11

7. Read the pop-up prompts carefully (Figures 12 and 13). Ensure that the engine has been fully warmed up and all unnecessary electrical loads (such as A/C and lights) have been turned off before adjusting the idle ignition timing. Click [OK] to enter the interface shown in Figure 14.

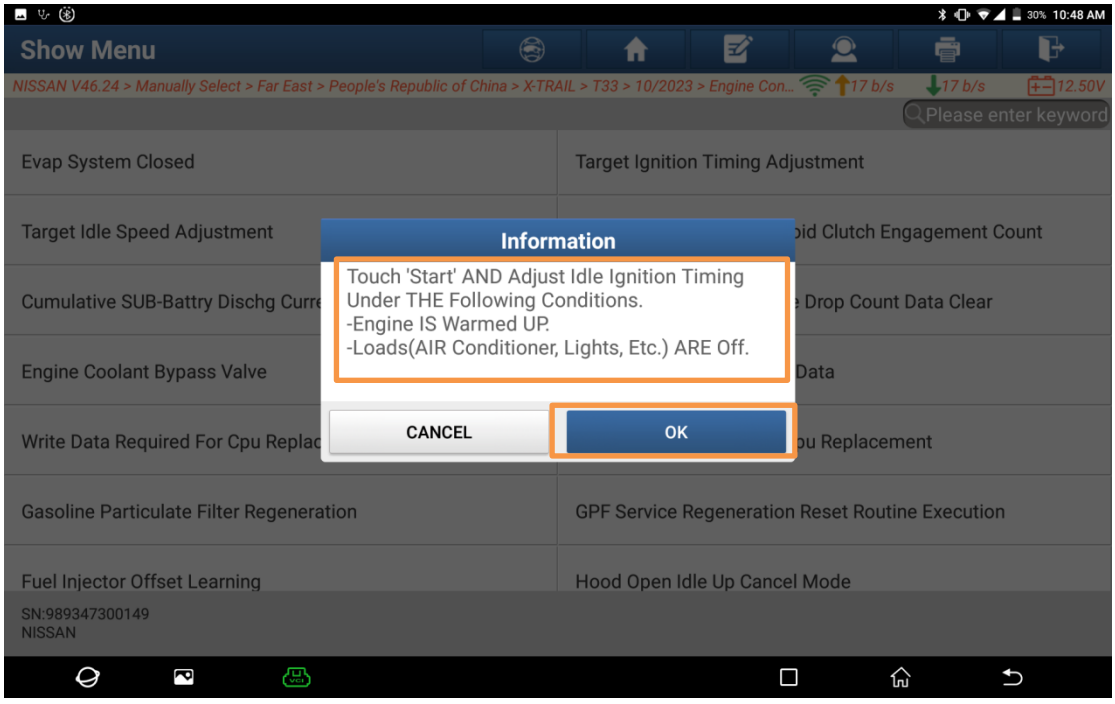

Figure 12

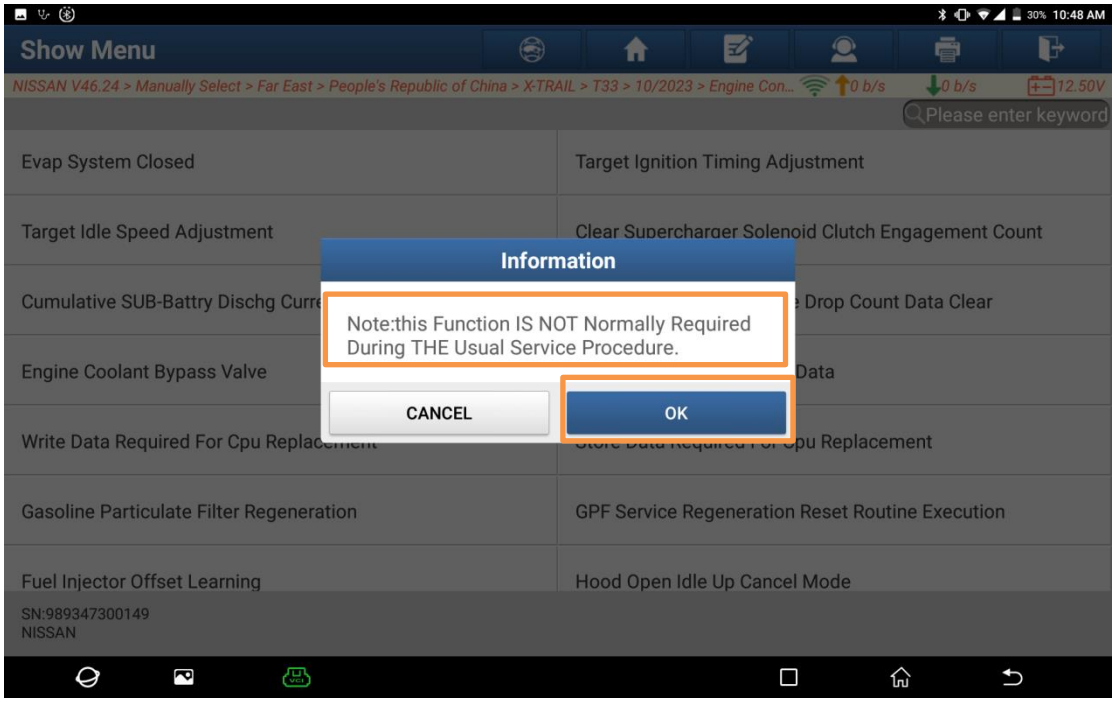

Figure 13

Figure 14

8. Based on actual conditions, input the desired value by clicking the [Up] or [Down] buttons as shown in Figure 15.

Figure 15

9. After confirming that the entered data is correct, click the [Update] button to adjust the ignition timing as shown in Figure 16.

Figure 16

10. After the program execution is completed, check whether the value in the [CRRCTD Ignition Timing] monitoring item matches the value you just input (Figure 17). If they match, the operations are successful, and the operations for the special function [Target Ignition Timing Adjustment] are now completed. If not, the operations fail. Repeat the procedure starting from Step 8.

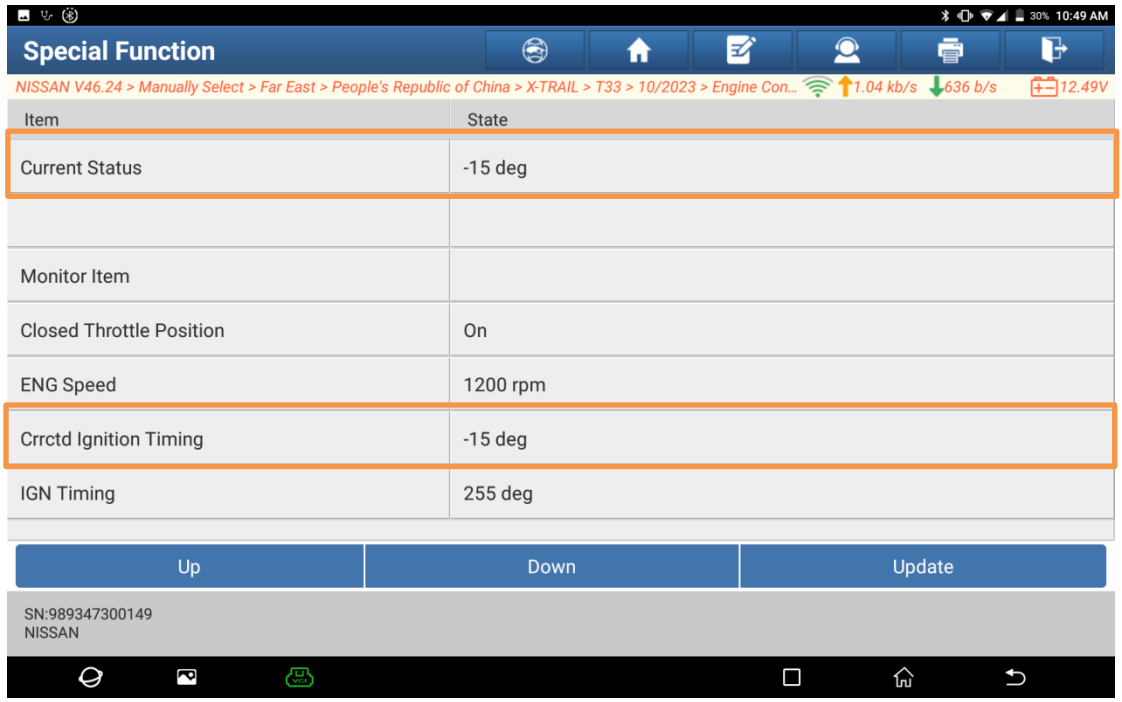

Figure 17

Statement: