

UPS F59 Cruise Control  
Module (CCM) (Radar)  
Calibration (IDS)  
Alignment (FDRS)

8/16/23

# Job Requirements

- Ford software: IDS (2000 – 2022 model years), FDRS (2023 & newer model years)
- Ford VCM adapter
- Spade screwdriver to remove radar cover
- E6 (external torx) socket and wrench
- Inclinometer or bubble level
- Drive vehicle on route with as many radar targets (metal signs, fences, guard rails, cars) as possible achieving a minimum of 35 MPH.
  - OK to stop vehicle during calibration process just don't turn ignition key off until completed.
  - OK if road is not straight and turns made during calibration (ignore message in IDS / FDRS)
- Test time will vary but can range from 5 to 30 min of drive time depending on radar targets encountered. Average time is around 10 minutes.
- Parts reference

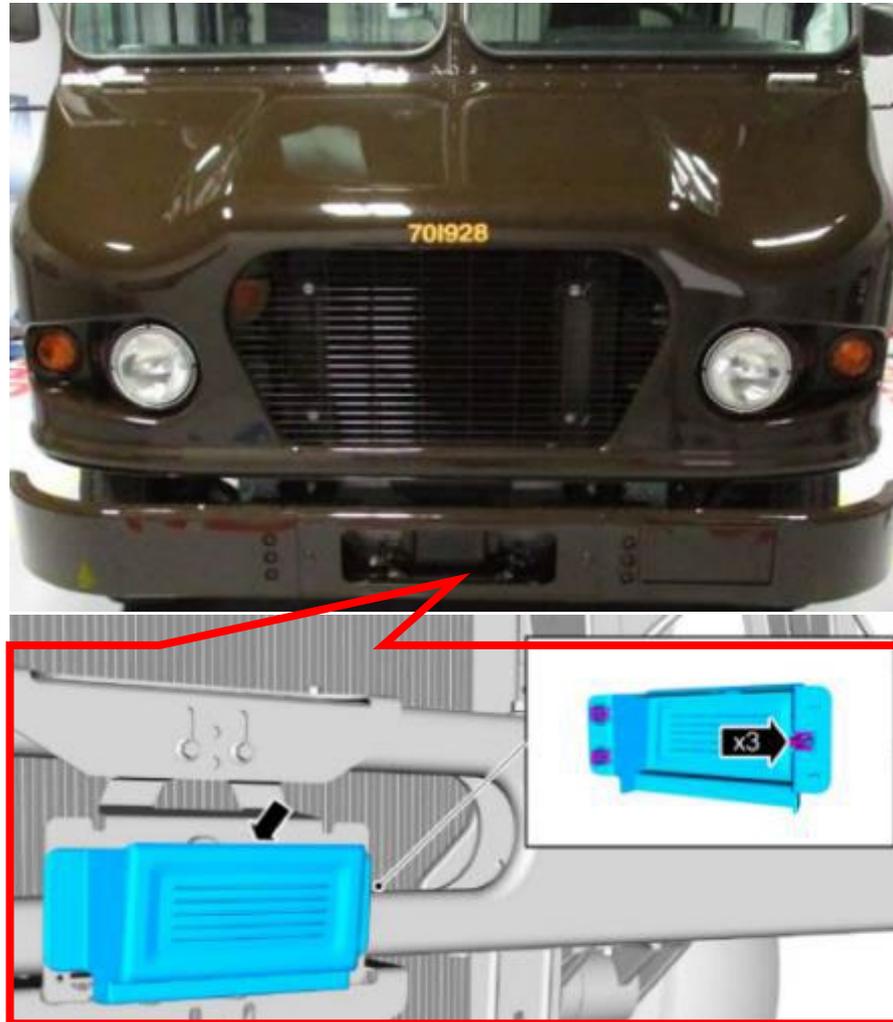
<i>Part Name</i>	<i>Ford Service Part # (FOR) (Part # used to order part)</i>	<i>Ford Engineering Part # (Part # marked on actual part)</i>	<i>Comments</i>
<b>Radar - Cruise Control Module (CCM)</b> <b>NOTE: Requires Ford IDS/FDRS tool for replacement</b>	2020 - 2022: LB5Z-9E731-AB 2023: PC4Z 9E731 A	2020 - 2022: LB5T 9G768 AB 2023: PC4T 9G768 AA	
<b>Radar - Cruise Control Module (CCM) Cover</b>	LC2Z-17E811-AA	LC24 17K947 AB5YGY	
<b>Radar - Cruise Control Module (CCM) mounting brackets</b>	<b>Top &amp; Bottom Brackets:</b> Utilimaster: (2) LU9Z-14C022-A Morgan Olson: Top: 210007401, Bottom: 210007400 <b>Middle bracket:</b> LC4Z-14C022-A <b>Hardware:</b> (7) -W500225-S307 (M8X1.25X30mm bolt) (7) -W520413-S440 (M8x1.25 nut)	<b>Top &amp; Bottom Brackets:</b> Utilimaster: (2) LU9T 14C022 AA Morgan Olson: Does not use Ford parts <b>Middle bracket:</b> LC4T 14C022 CD <b>Hardware:</b> (7) -W500225-S307 (M8X1.25X30mm bolt) (7) -W520413-S440 (M8x1.25 nut)	NOTE: Morgan Olson uses their own brackets top and bottom brackets to mount the radar that must be sourced from Morgan Olson.

# Steps

1. Address all non- CCM related fault codes
2. If a new CCM is being installed, perform:
  - As-Built programming on it w/ IDS (2000 – 2022 model years)
  - Configuration on it w/ FDRS (2023 & newer model years)
3. Ensure proper radar mounting to front bumper
4. Adjust radar to proper angle
5. Perform road test calibration / alignment using Ford software: IDS (2000 – 2022 model years), FDRS (2023 & newer model years) and Ford VCM adapter

## Step 3. Ensure proper radar mounting to chassis front bumper

- Remove cover to expose CCM (radar) module (cover held on by 3 clips, pry cover off with spade screwdriver)



### Step 3. Ensure proper radar mounting to chassis front bumper

- Inspect all radar module and bracket fasteners to ensure they are tight
- Make sure connector is plugged into the radar module

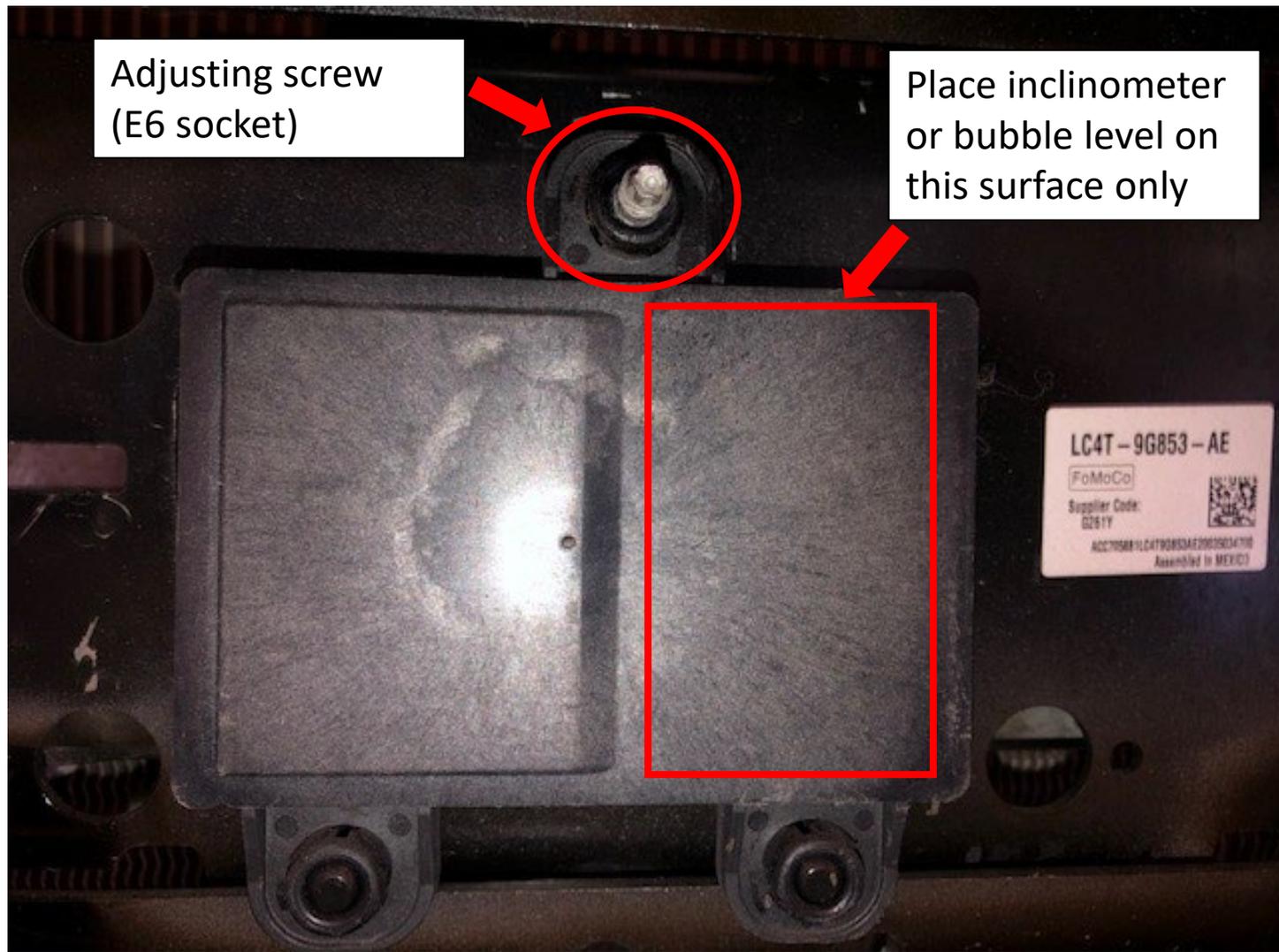


Fig. 1. Front of radar module and bracket assembly with cover removed



Fig. 2. Back of radar module and bracket assembly

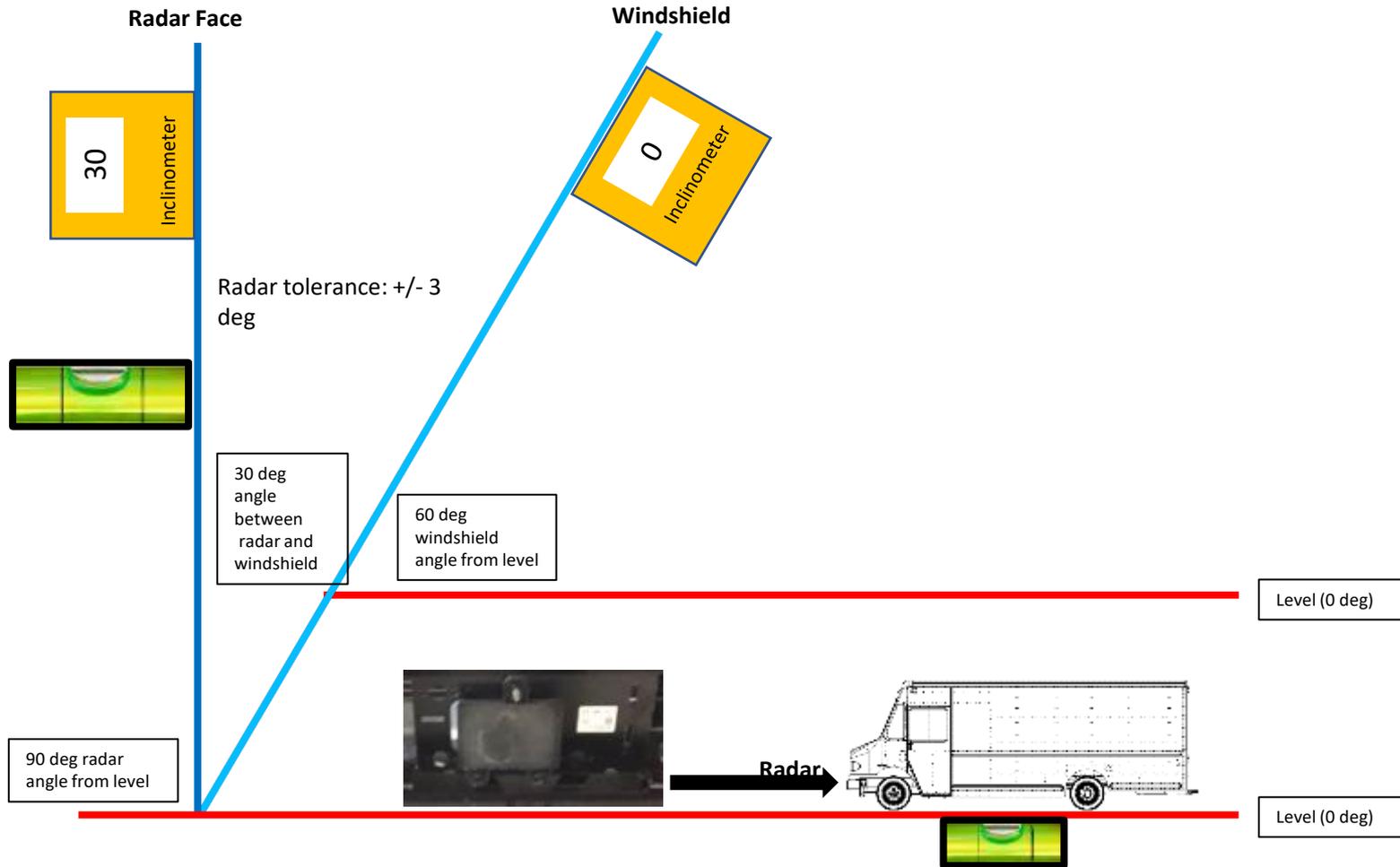
## Step 4. Adjust radar to proper angle



Refer to radar and camera angle slides for adjustment settings

# Utilimaster F59 Radar Angle (60 degree windshield angle)

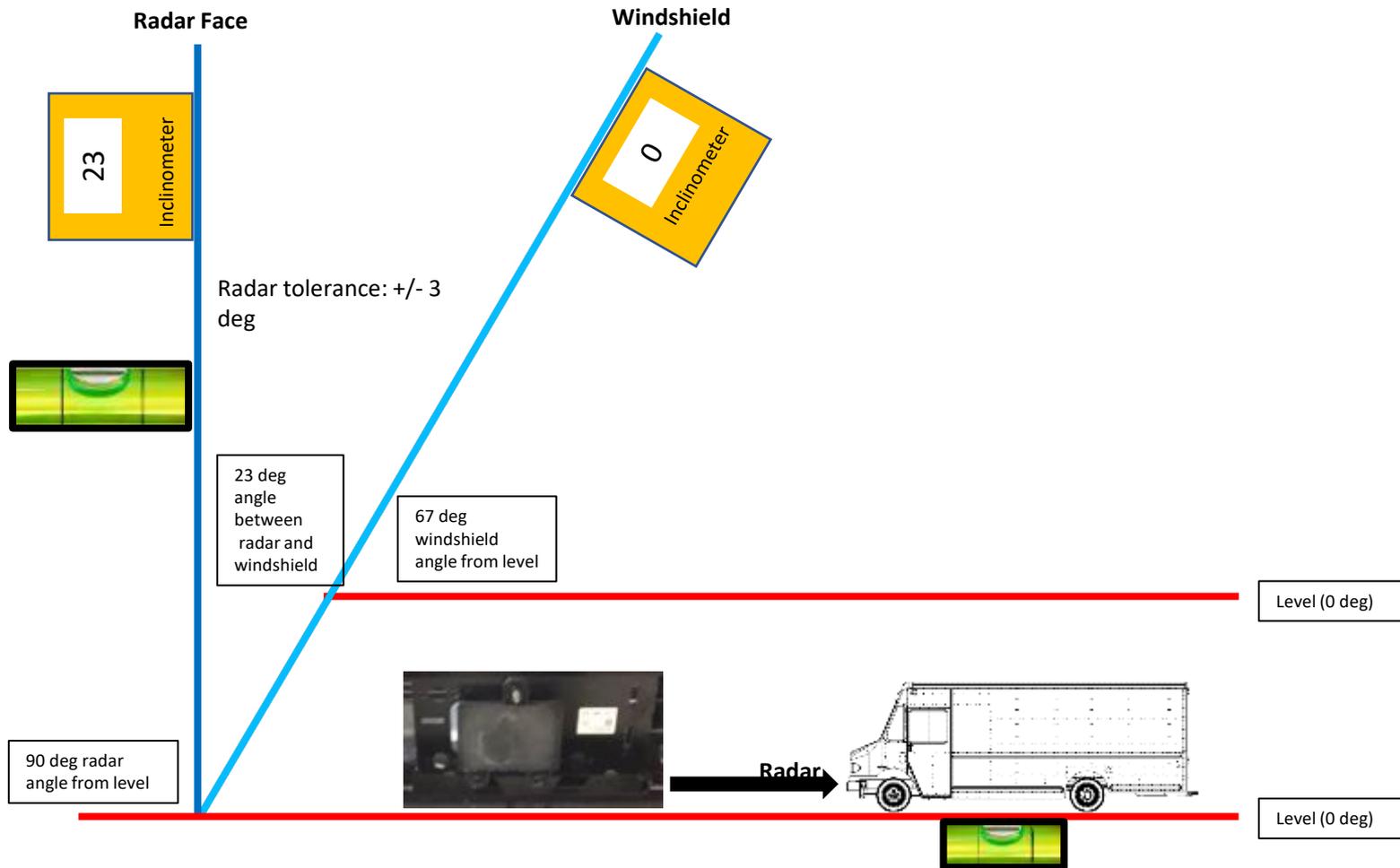
- After zeroing inclinometer to windshield, proper inclinometer reading for radar face shown below. Vehicle does not have to be on level ground when using inclinometer zeroed to windshield
- To use bubble level, vehicle must be on level ground



Radar face must be perpendicular to vehicle surface

# Morgan Olson F59 Radar Angle (67 degree windshield angle)

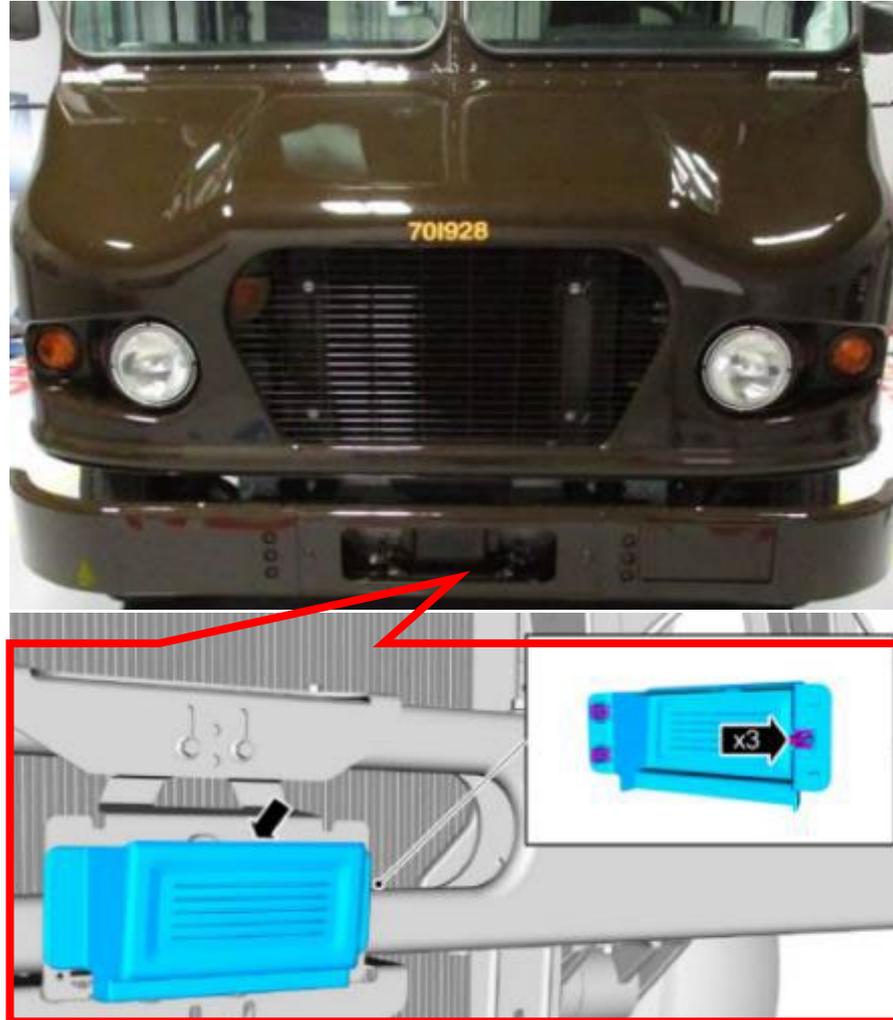
- After zeroing inclinometer to windshield, proper inclinometer reading for radar face shown below. Vehicle does not have to be on level ground when using inclinometer zeroed to windshield
- To use bubble level, vehicle must be on level ground



Radar face must be perpendicular to vehicle surface

## Step 4. Adjust radar to proper angle

- Install radar cover

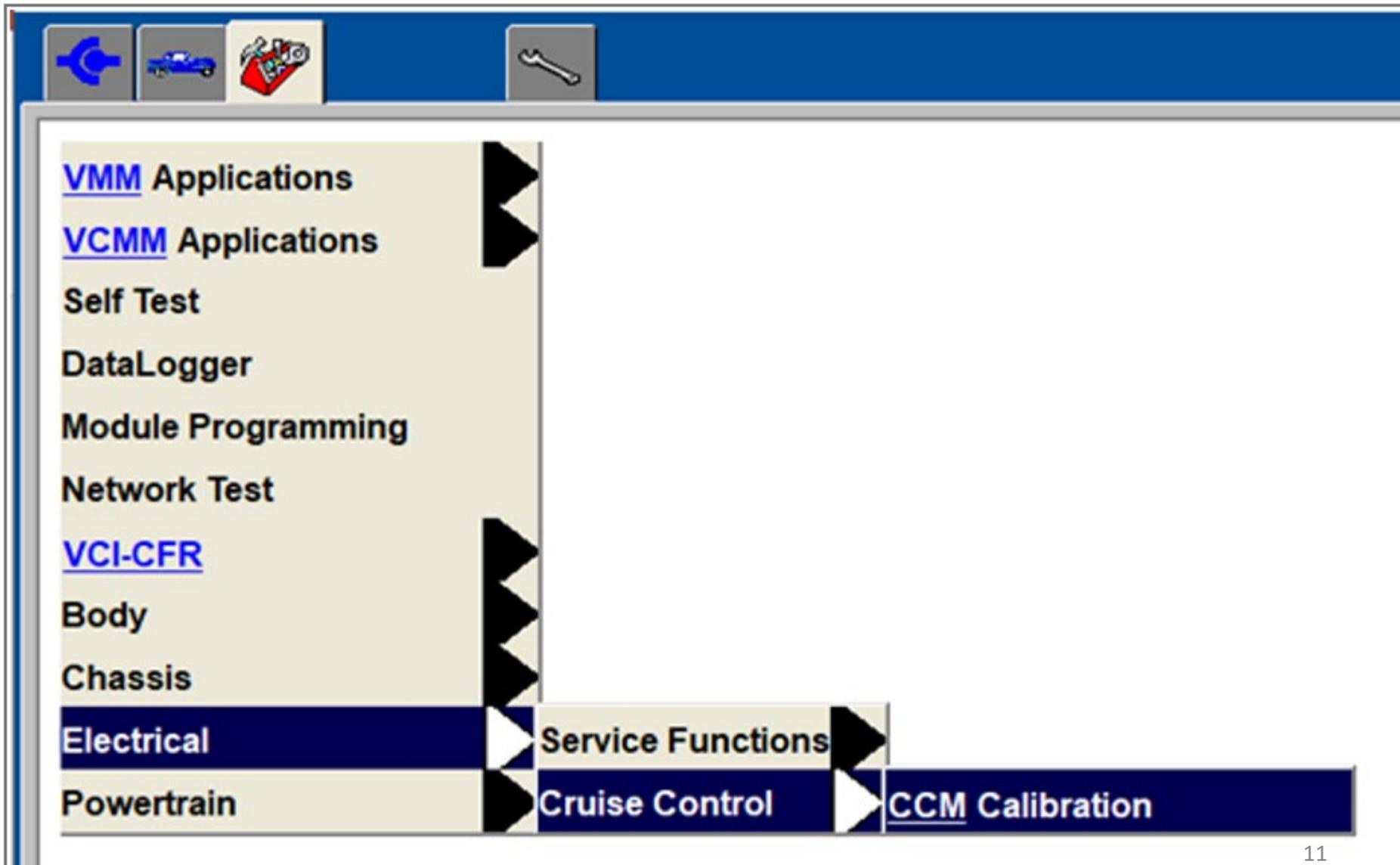


# Ford IDS software (2000 – 2022 model years)

See next section for FDRS instructions

# Step 5. Perform road test calibration using Ford IDS software and Ford VCM adapter

- Connect Ford IDS and launch CCM calibration as shown below



# Step 5. Perform road test calibration using Ford IDS software and Ford VCM adapter

- Follow instructions on IDS to proceed with calibration



## Adaptive Cruise Control Service Function

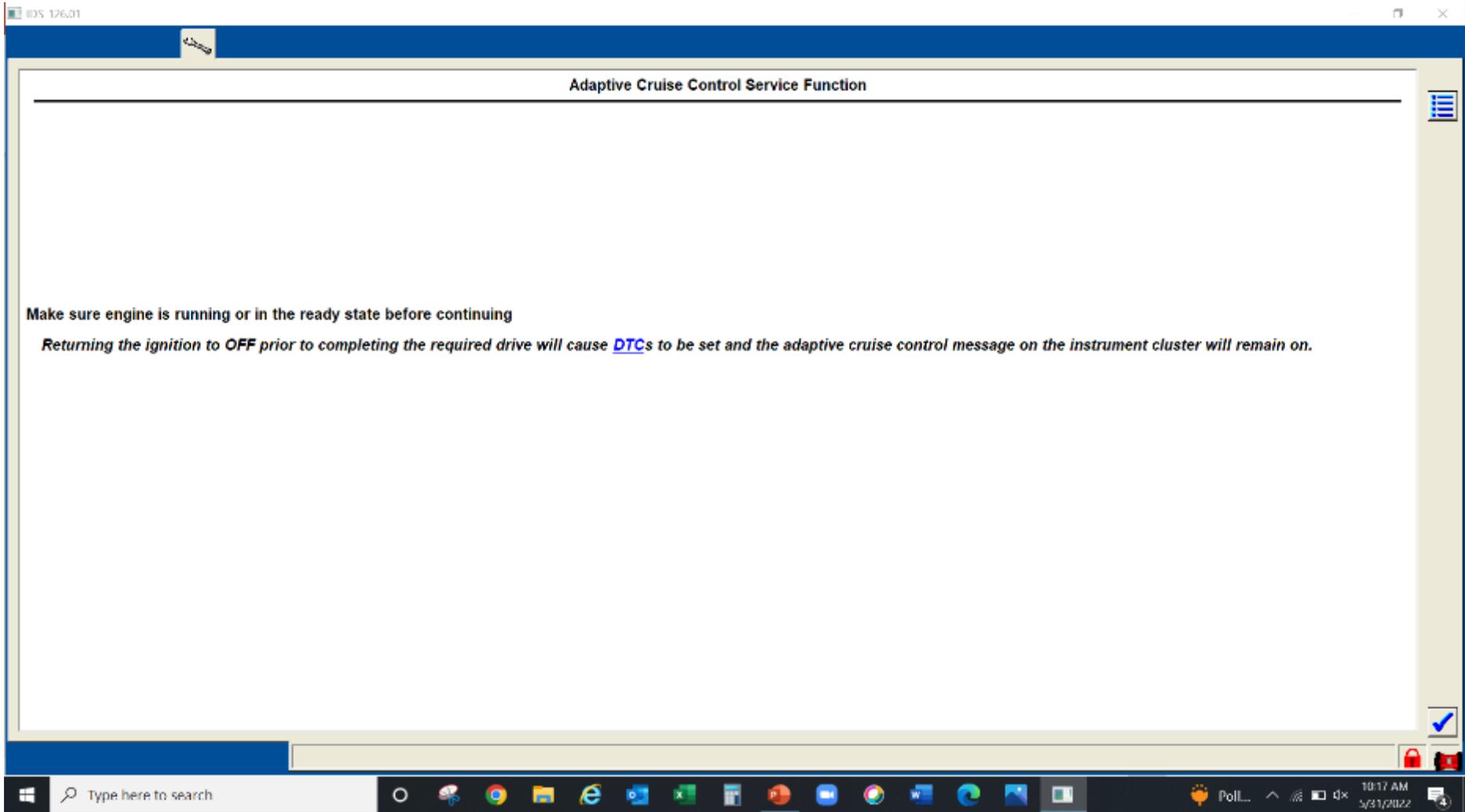
Perform this service function when the [ACCM](#) module has been replaced or a service alignment procedure is required.

- Drive the vehicle on a straight road over 30 MPH / 50 KPH until the adaptive cruise control message on instrument cluster has cleared.
- The calibration procedure will take 5 to 15 minutes typically.

Do you wish to continue?

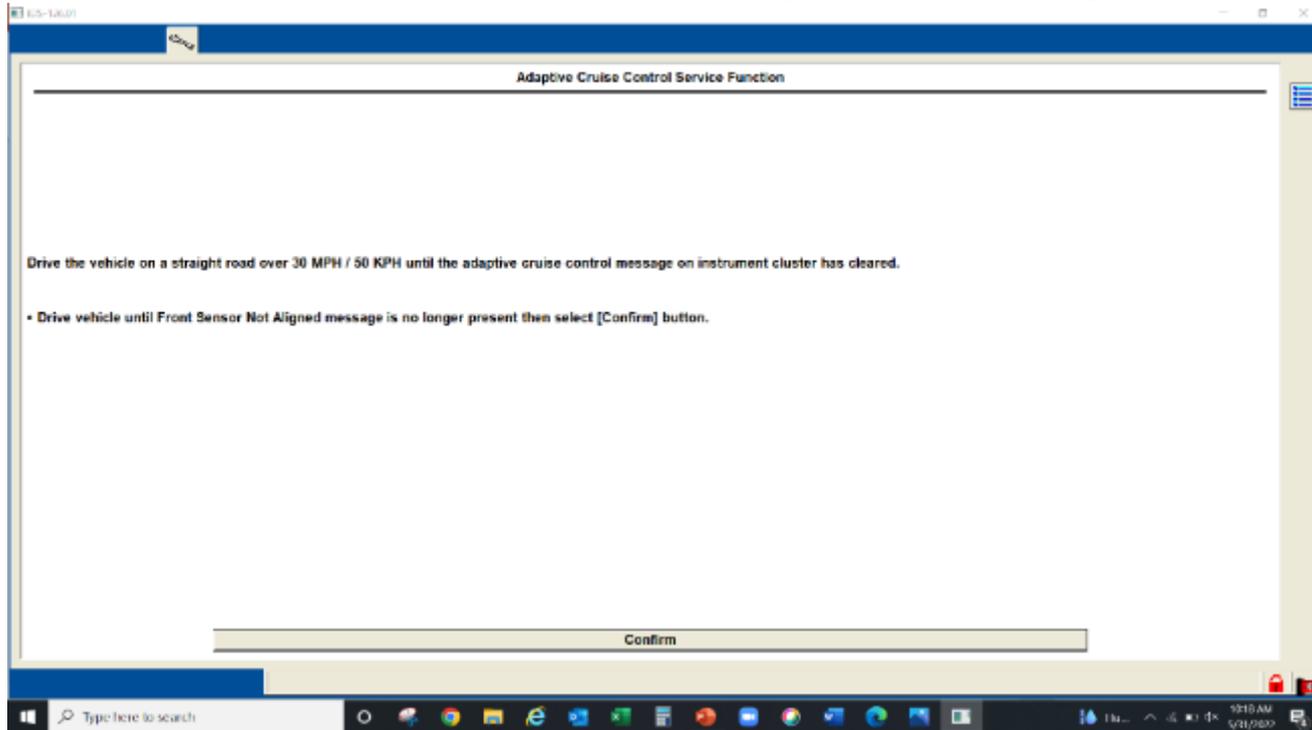
# Step 5. Perform road test calibration using Ford IDS software and Ford VCM adapter

- Follow instructions on IDS to proceed with calibration



# Step 5. Perform road test calibration using Ford IDS software and Ford VCM adapter

- Drive vehicle on route with as many radar targets (metal signs, fences, guard rails, cars) as possible achieving a minimum of 35 MPH.
  - OK to stop vehicle during calibration process just don't turn ignition key off until completed.
  - OK if road is not straight and turns made during calibration (ignore message in IDS)
- Test time will vary but can range from 5 to 30 min of drive time depending on radar targets encountered. Average time is around 10 minutes
- "Front Sensor Not Aligned" message on cluster will go away when calibration complete

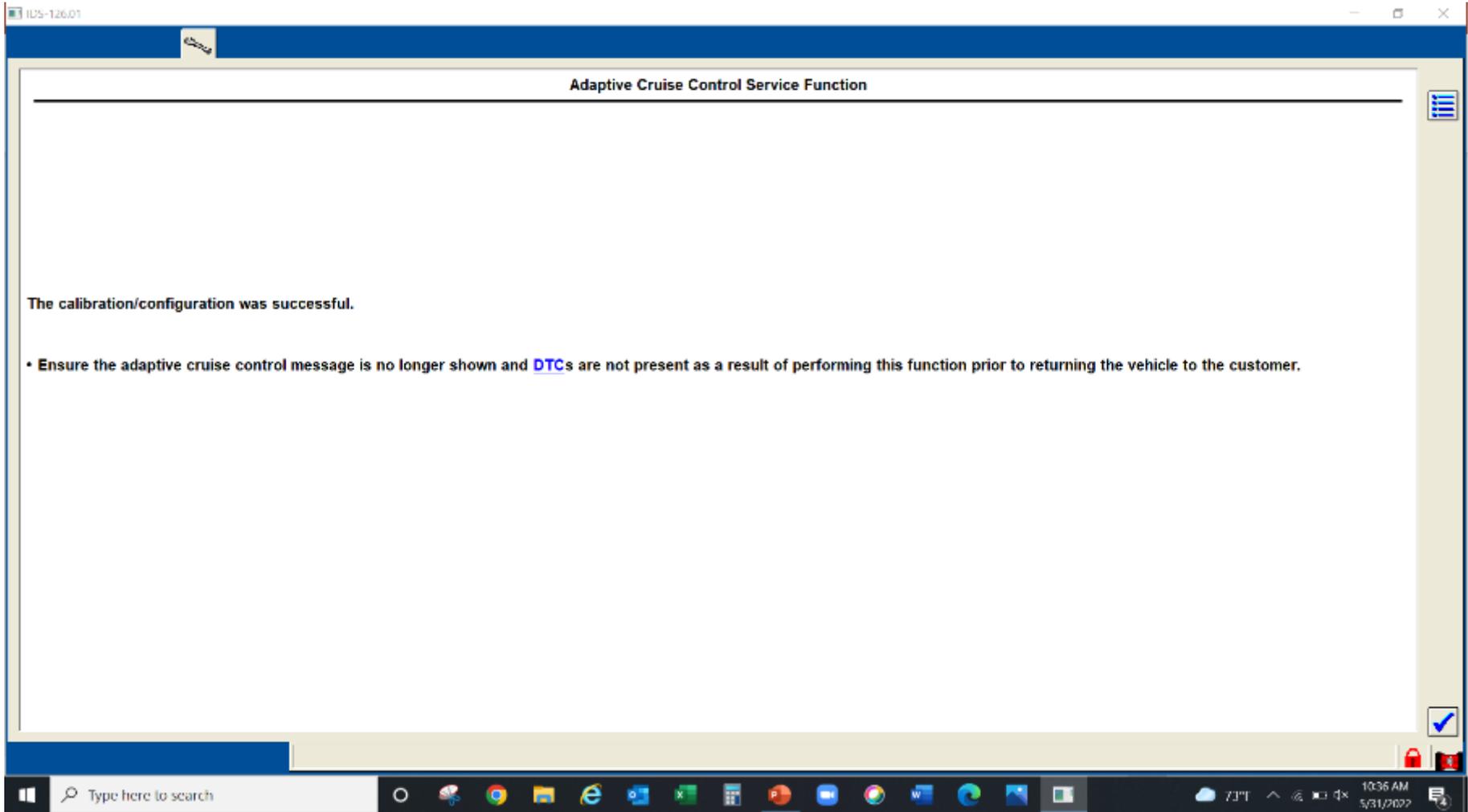


## Step 5. Perform road test calibration using Ford IDS software and Ford VCM adapter

- NOTE: If a camera (IPMA) calibration also needs to be performed it can be started at this time as well so both the camera and radar calibrations can be performed simultaneously while driving reducing the time required to perform both calibrations

# Step 5. Perform road test calibration using Ford IDS software and VCM adapter

- Final IDS screen when calibration successful



# Ford FDRS software (2023 & newer model years)

# Step 5. Perform road test alignment using Ford FDRS software and Ford VCM adapter

- Connect Ford FDRS and launch CCM alignment as shown below
  - NOTE an internet connection is required to download and run the alignment

The screenshot displays the Ford FDRS software interface. The top navigation bar includes 'Vehicle Identification', 'Toolbox', and 'Measurement Toolbox'. The main area is divided into several sections:

- Network Test Results:** A legend indicates 'Not Responding' (grey), 'Responded Positively' (green), 'Responded Negatively' (purple), 'CMU I/Cs detected' (orange), and 'Historical DTCs' (yellow). A 'Run Network Test' button is present.
- HS1:** A row of buttons for PCM and BCM.
- HS2:** A row of buttons for ABS, CCM (selected with a checkmark), GFM, GWM, IPMA, and PAM.
- HS3:** A row of buttons for IPC and SCCM.
- Task List:** A table with columns for 'All', 'Favorites', 'Offline', 'Multi-Module', 'SW Updates', 'Programmable Features', 'Guided Routines', and 'CCM'. The table lists several tasks, with a red arrow pointing to the 'CCM - Cruise Control Radar Alignment' task, which has a 'Download' button.

The bottom status bar shows the vehicle ID '1F68F5KN5P0A00667', chassis type 'F-STRIPPED CHASSIS 7.3L 2V DEVCT NA PFI V8 GAS', software version 'FDRS 36.4.8', and connection status 'Connected to Device' with a voltage of '14.3V'. The Windows taskbar at the bottom shows the search bar, application icons, and system tray information including '87°F Partly sunny' and the date '8/15/2023'.

# Step 5. Perform road test alignment using Ford FDRS software and Ford VCM adapter

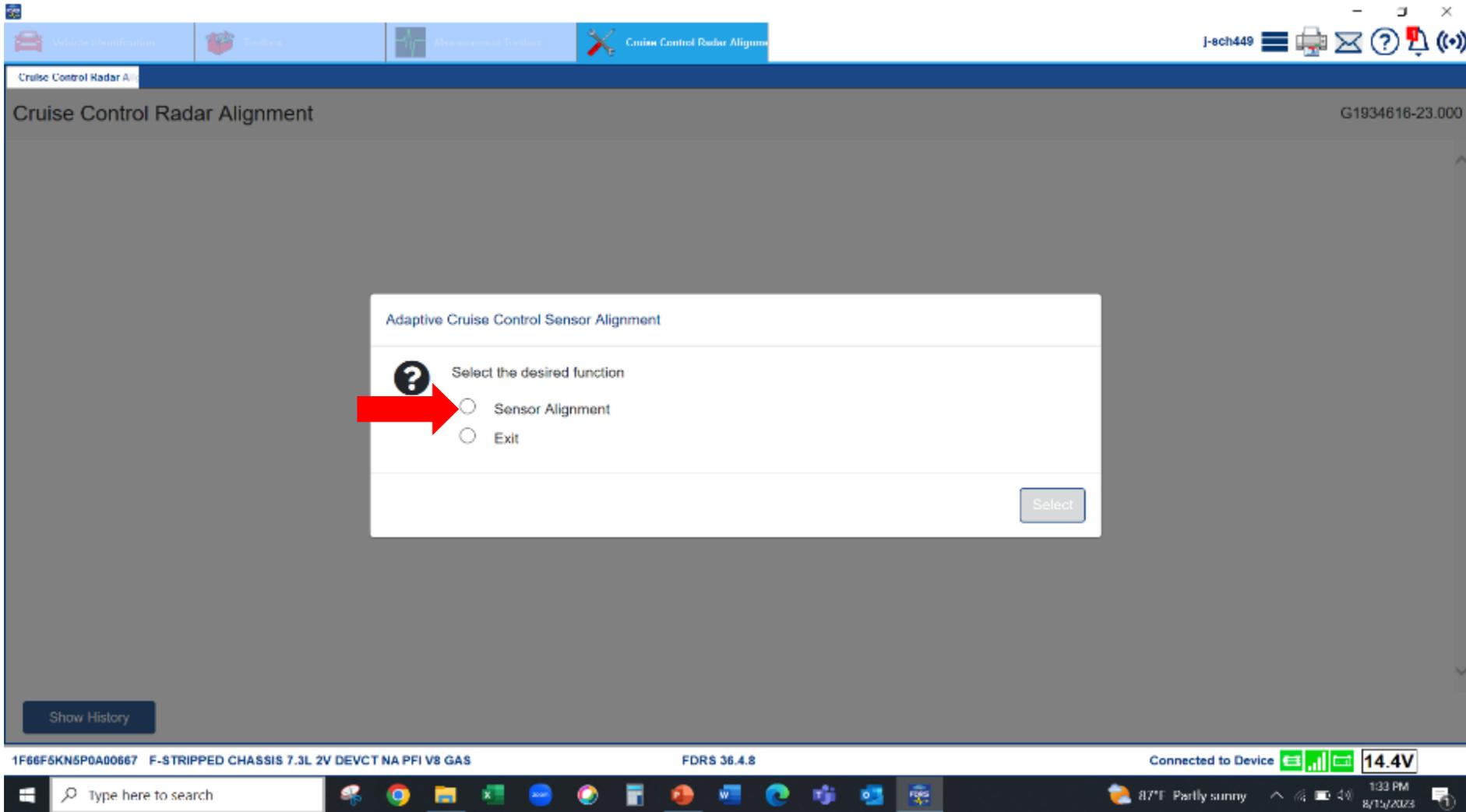
- Connect Ford FDRS and launch CCM alignment as shown below
  - NOTE an internet connection is required to download and run the alignment

The screenshot displays the Ford FDRS software interface. At the top, there are three tabs: 'Vehicle Identification', 'Toolbox', and 'Measurement Toolbox'. The 'Toolbox' tab is active, showing 'Network Test Results' with a legend for 'Not Responding', 'Responded Positively', 'Responded Negatively', 'CMDTCs detected', and 'Historical DTCs'. Below this, there are three sections for HS1, HS2, and HS3, each containing several module buttons. The 'CCM' button in the HS2 section is highlighted with a checkmark. On the right side, there is a table with columns for 'All', 'Favorites', 'Offline', 'Multi-Module', 'SW Updates', 'Programmable Features', 'Guided Routines', and 'CCM'. The table lists several items, with the last row, 'CCM - Cruise Control Radar Alignment', highlighted in blue and having a red arrow pointing to its 'Run' button. The bottom of the screen shows the Windows taskbar with the search bar, taskbar icons, and system tray information including 'Connected to Device', '14.3V', and the date '8/15/2023'.

All	Favorites	Offline	Multi-Module	SW Updates	Programmable Features	Guided Routines	CCM
★							Run
★							Run
★							Run
★	📶						Download
★	📶						Run
★	📶						Run

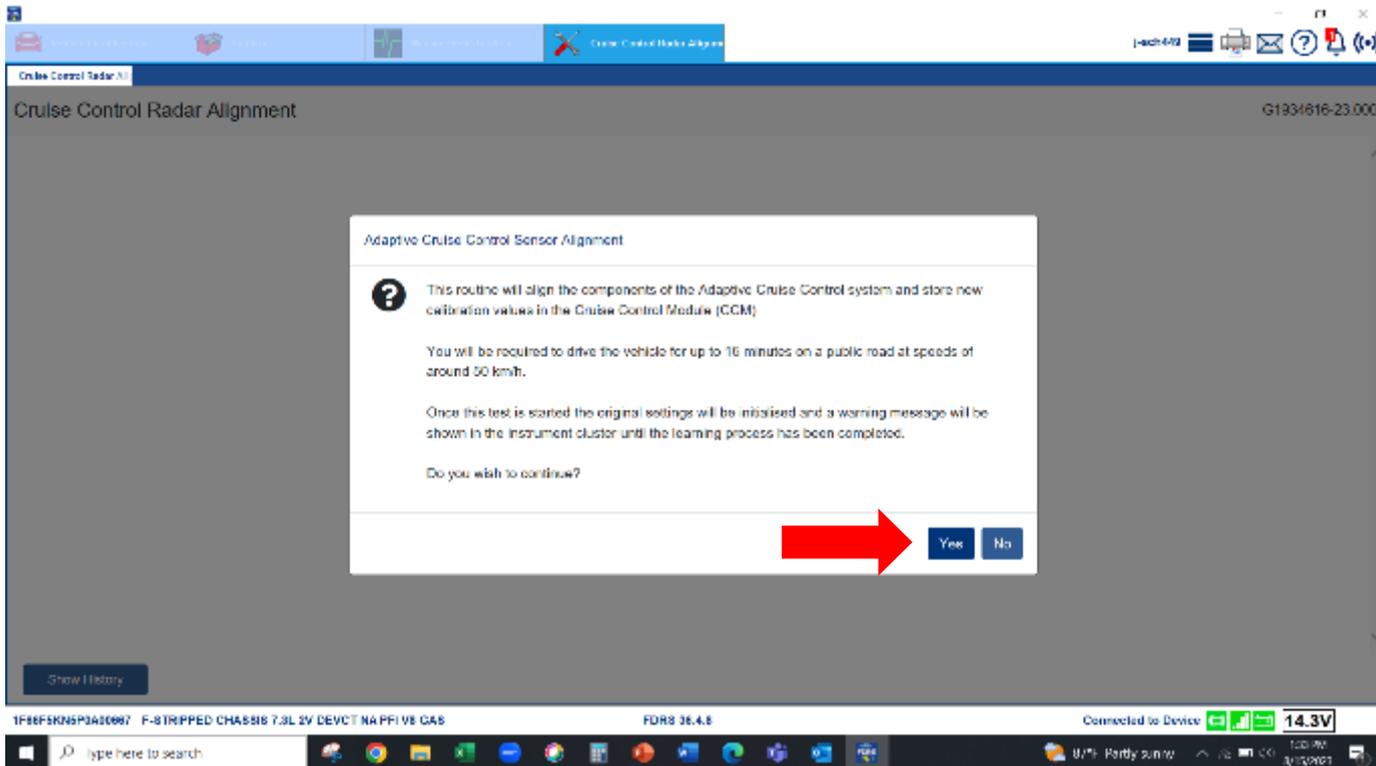
# Step 5. Perform road test alignment using Ford FDRS software and Ford VCM adapter

- Follow instructions on FDRS to proceed with alignment



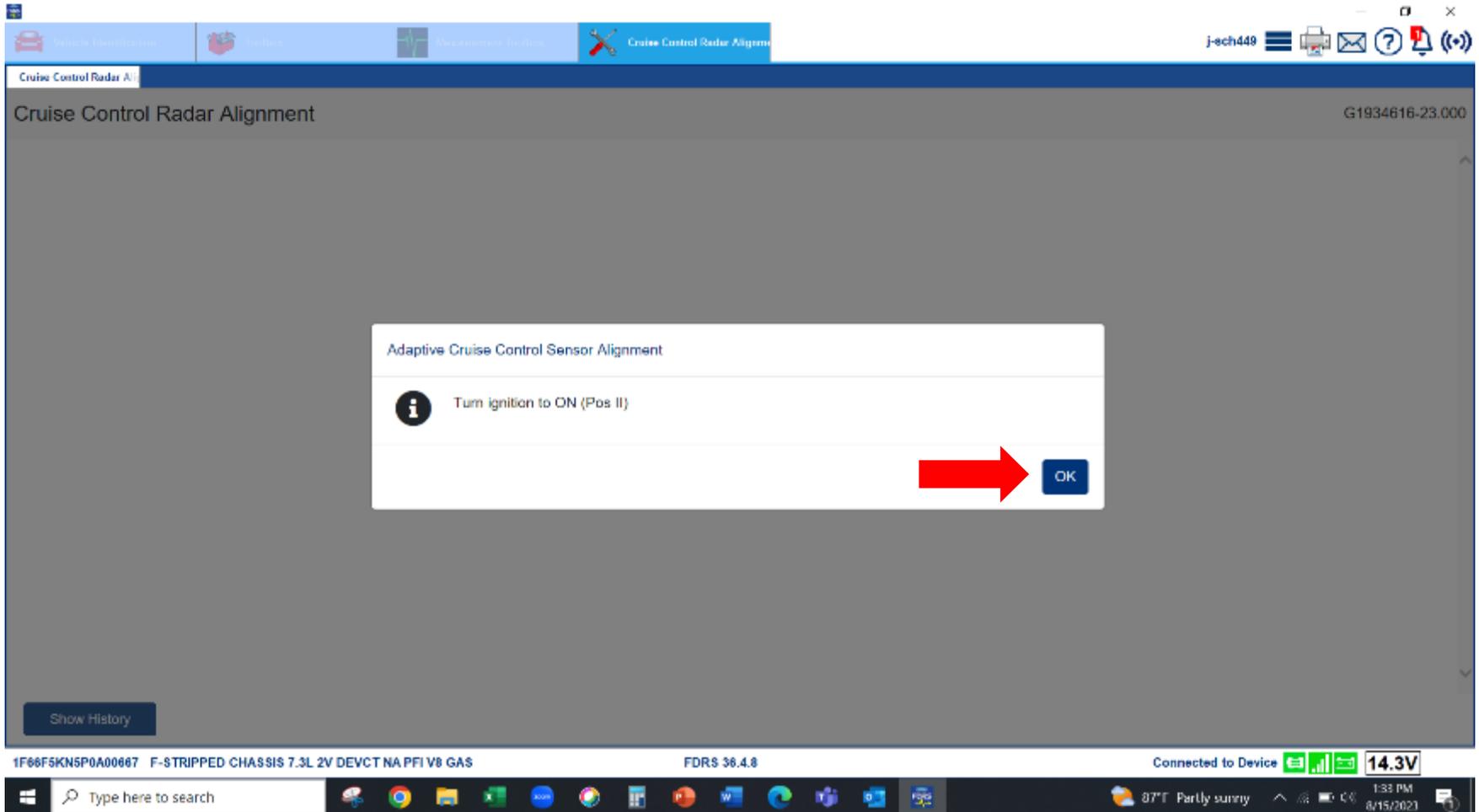
# Step 5. Perform road test alignment using Ford FDRS software and Ford VCM adapter

- Drive vehicle on route with as many radar targets (metal signs, fences, guard rails, cars) as possible achieving a minimum of 35 MPH.
  - OK to stop vehicle during calibration process just don't turn ignition key off until completed.
  - OK if road is not straight and turns made during calibration (ignore message in IDS)
- Test time will vary but can range from 5 to 30 min of drive time depending on radar targets encountered. Average time is around 10 minutes
- "Front Sensor Not Aligned" message on cluster will go away when calibration complete



# Step 5. Perform road test alignment using Ford FDRS software and Ford VCM adapter

- Follow instructions on FDRS to proceed with alignment



# Step 5. Perform road test alignment using Ford FDRS software and Ford VCM adapter

- Follow instructions on FDRS to proceed with alignment

The screenshot displays the Ford FDRS software interface. At the top, there are several tabs: 'Vehicle Information', 'Diagnosis', 'Measurement Tools', and 'Cruise Control Radar Alignment'. The 'Cruise Control Radar Alignment' tab is active. The main window title is 'Cruise Control Radar Alignment' and the ID 'G1934616-23.000' is visible in the top right corner. A central dialog box titled 'Adaptive Cruise Control Sensor Alignment' contains the following text:

**i** The vehicle must now be driven on a public road to allow the calibration values to be learned.

The time taken for this test to complete will depend upon the driving conditions encountered.

As the calibration data is learned the bargraph will increment. Drive the vehicle until the test is complete. This will take approximately 15 minutes.

This test may be aborted at any time by pressing the cancel button or turning off the vehicle ignition.

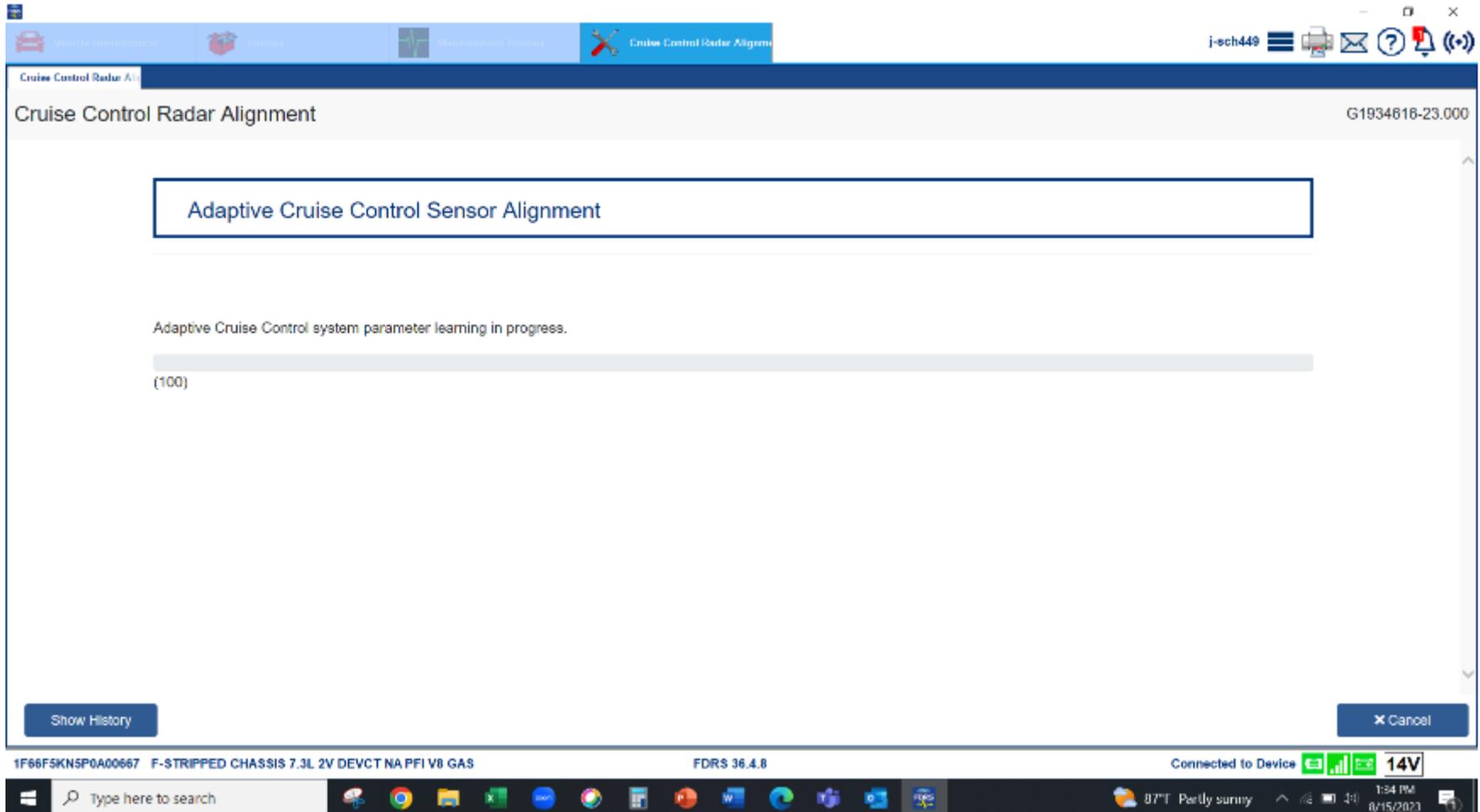
On vehicles fitted with the Start/Stop system this feature must be disabled during this procedure.

Start the vehicle engine before continuing.

A red arrow points to the 'OK' button at the bottom right of the dialog box. At the bottom left of the main window, there is a 'Show History' button. The bottom status bar shows the vehicle ID '1F66F5KN6P0A00667', chassis type 'F-STRIPPED CHASSIS 7.3L 2V DEVCT NA PFI V8 GAS', software version 'FDRS 36.4.8', and connection status 'Connected to Device' with a battery level of '13.3V'. The Windows taskbar at the very bottom shows the search bar, taskbar icons, and system tray with weather '87°F Partly sunny' and time '1:34 PM 8/15/2023'.

# Step 5. Perform road test alignment using Ford FDRS software and Ford VCM adapter

- This screen will show during the alignment process
- **NOTE: Unlike the camera alignment, the progress bar DOES NOT fill in during the alignment process**

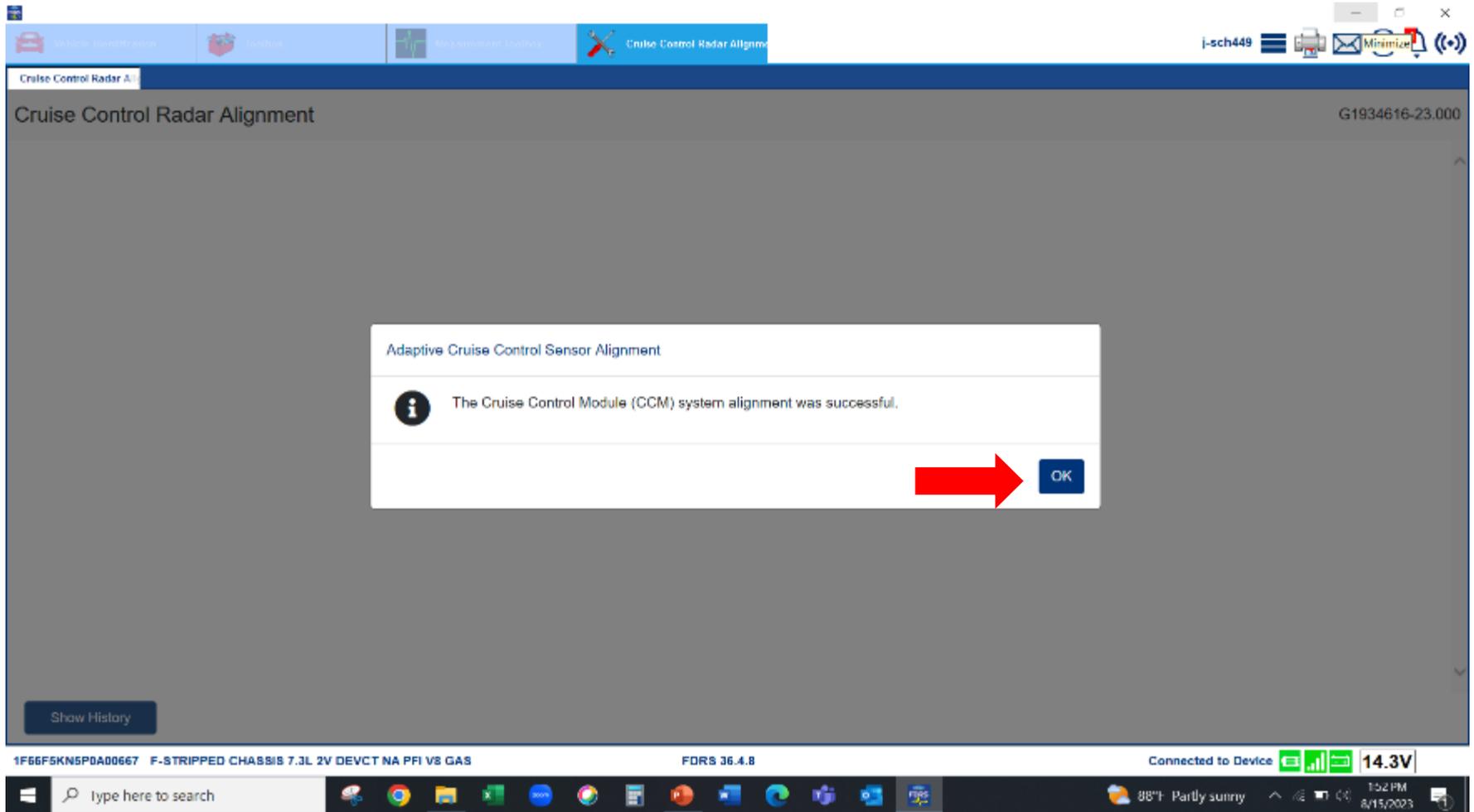


## Step 5. Perform road test alignment using Ford FDRS software and Ford VCM adapter

- NOTE: If a camera (IPMA) calibration also needs to be performed it can be started at this time as well so both the camera and radar calibrations can be performed simultaneously while driving reducing the time required to perform both calibrations

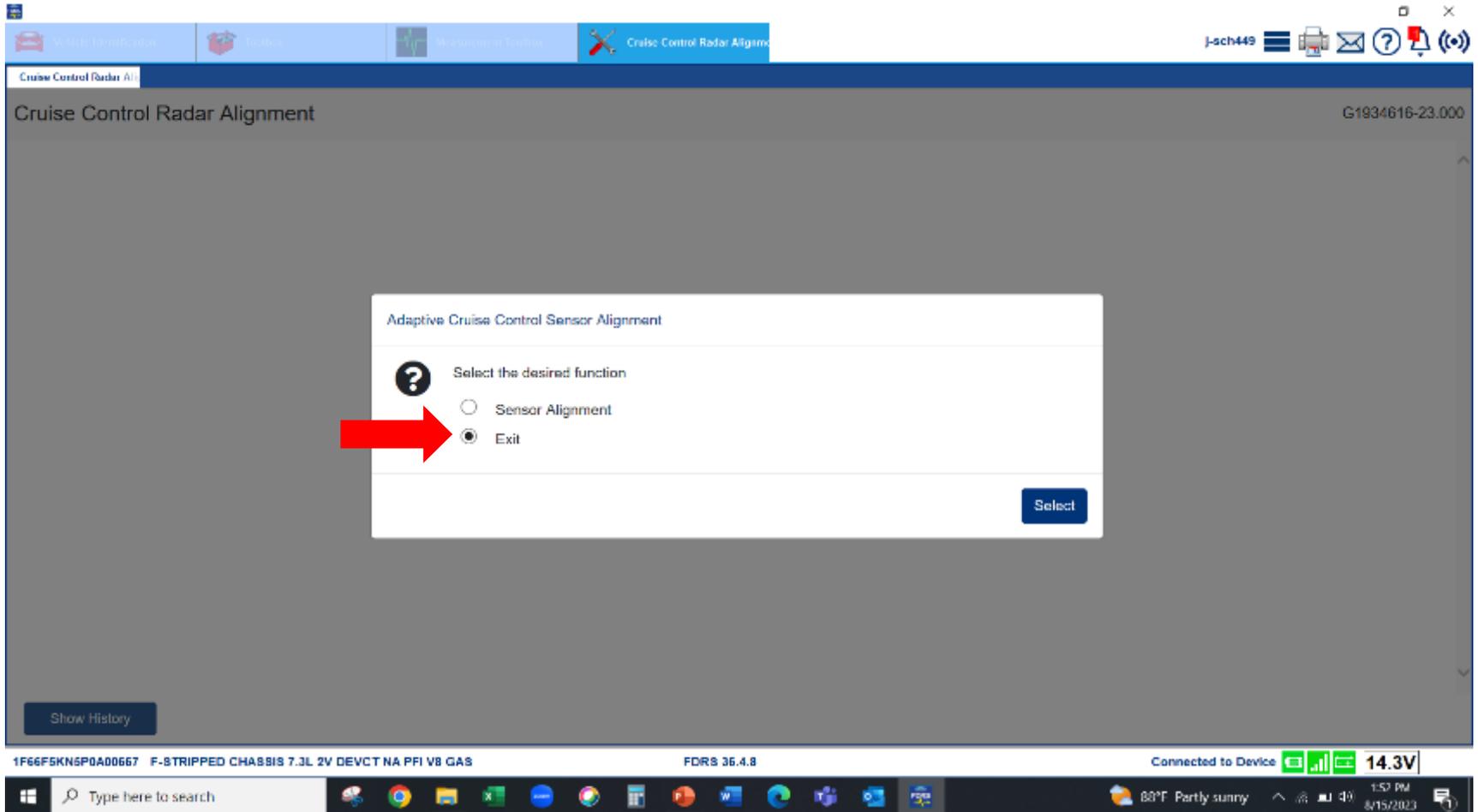
# Step 5. Perform road test alignment using Ford FDRS software and Ford VCM adapter

- Follow instructions on FDRS to proceed with alignment



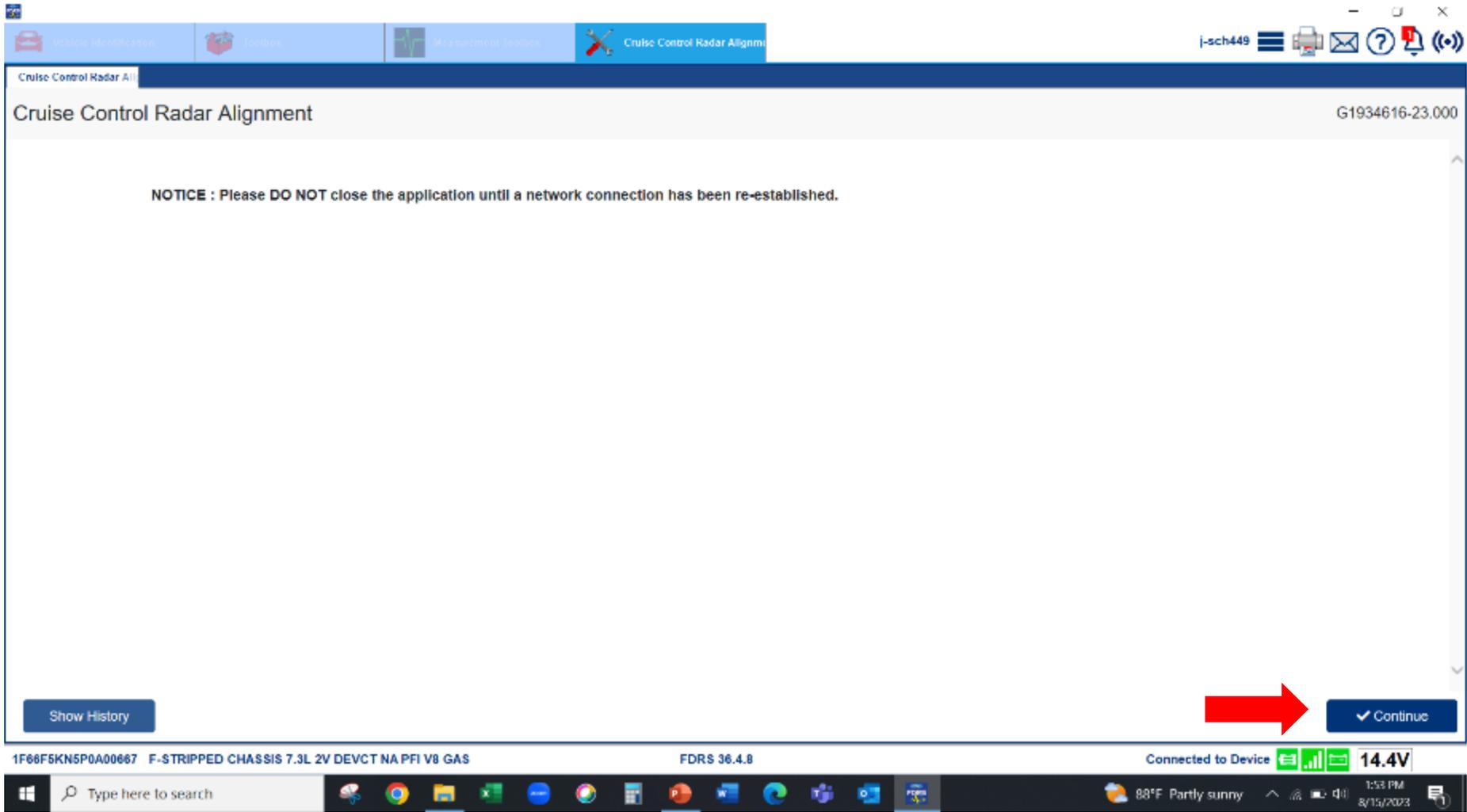
# Step 5. Perform road test alignment using Ford FDRS software and Ford VCM adapter

- Follow instructions on FDRS to proceed with alignment



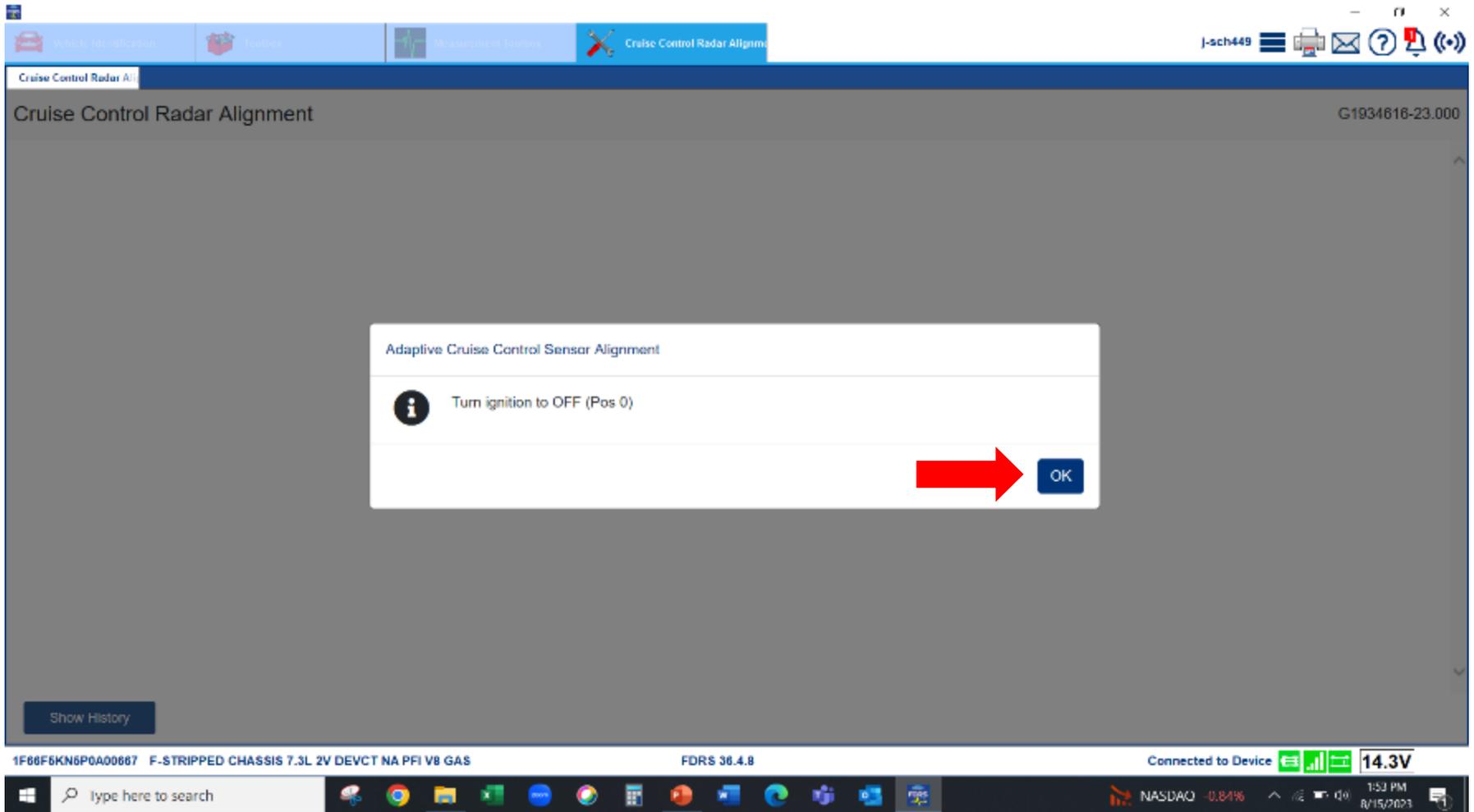
# Step 5. Perform road test alignment using Ford FDRS software and Ford VCM adapter

- Follow instructions on FDRS to proceed with alignment



# Step 5. Perform road test alignment using Ford FDRS software and Ford VCM adapter

- Follow instructions on FDRS to proceed with alignment



# Step 5. Perform road test alignment using Ford FDRS software and Ford VCM adapter

- Final FDRS screen when alignment successful

