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

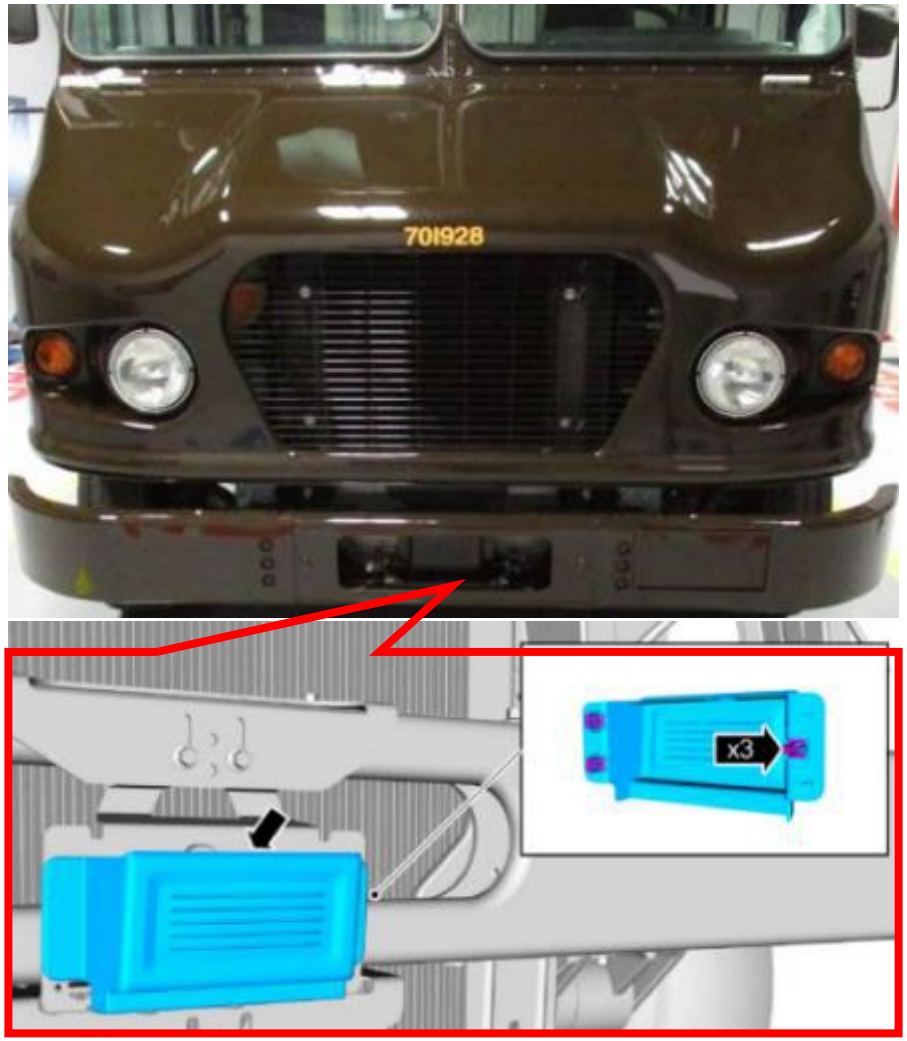
Part Name	***Ford Service Part # (FOR)*** ***(Part # used to order part)***	***Ford Engineering Part #*** *(Part # marked on actual part)*	***Comments***
Radar - Cruise Control Module (CCM) **NOTE: Requires Ford IDS/FDRS tool for replacement**	2020 - 2022: LB5Z-9E731-AB 2023: PC4Z 9E731 A	2020 - 2022: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

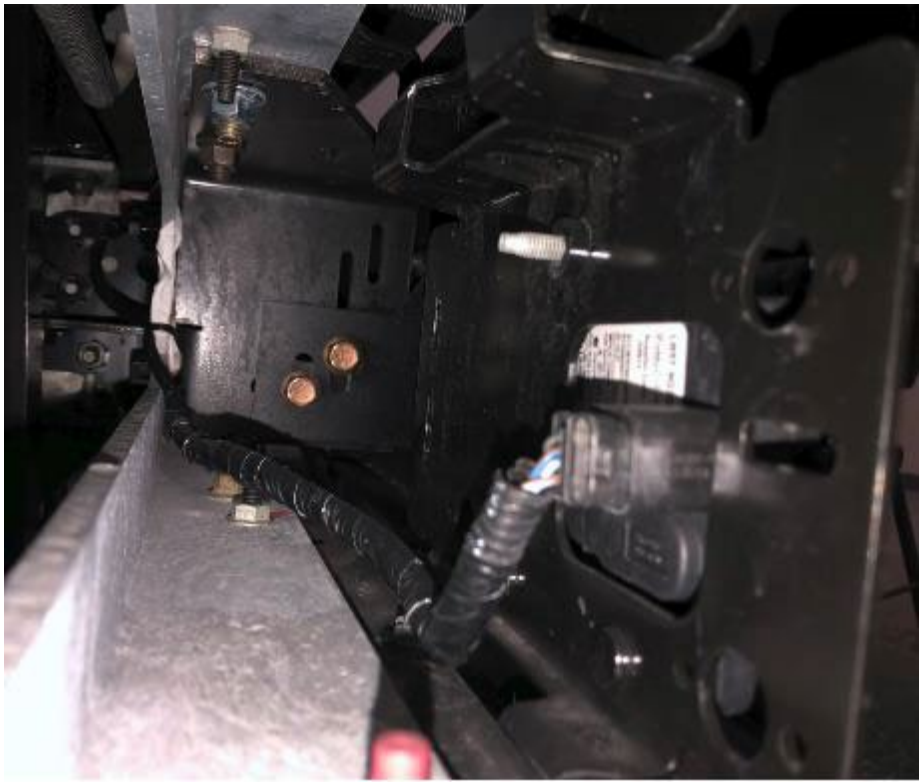
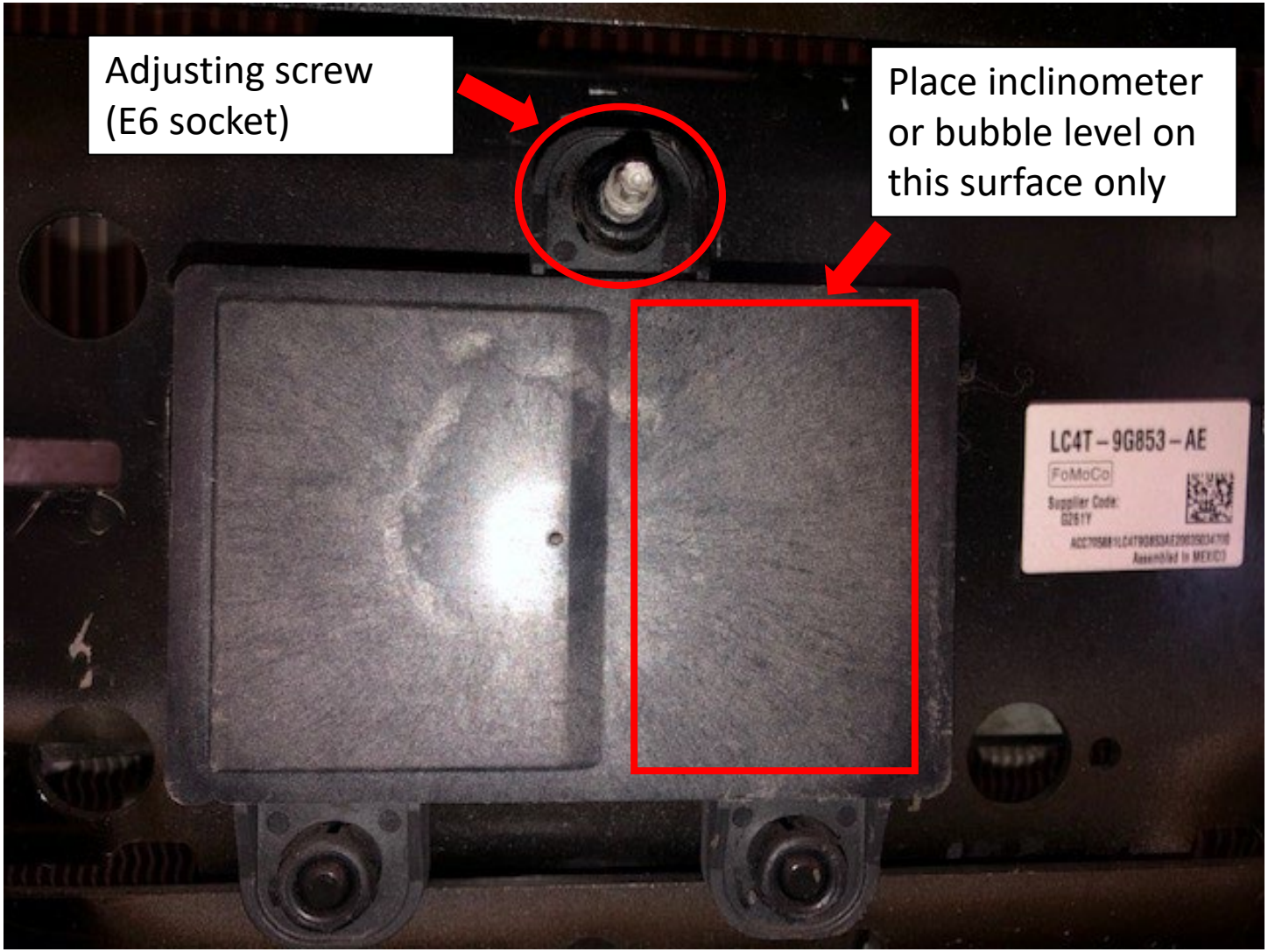


Fig. 2. Back of radar module and bracket assembly

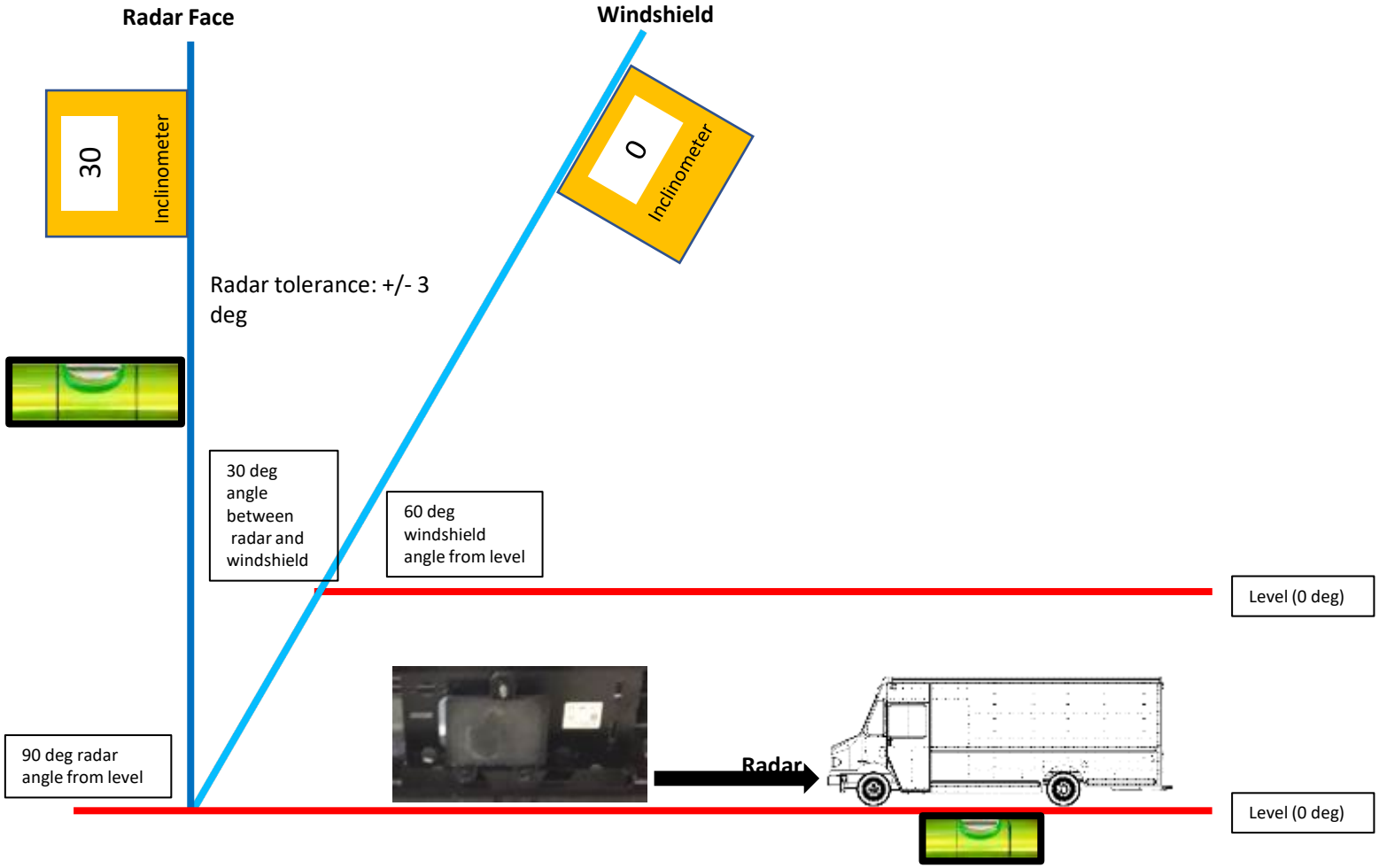
Step 4. Adjust radar to proper angle



Refer to radar and camera angle slides for adjustment settings

Utilimaster F59 Radar Angle (60 degree windshield angle)

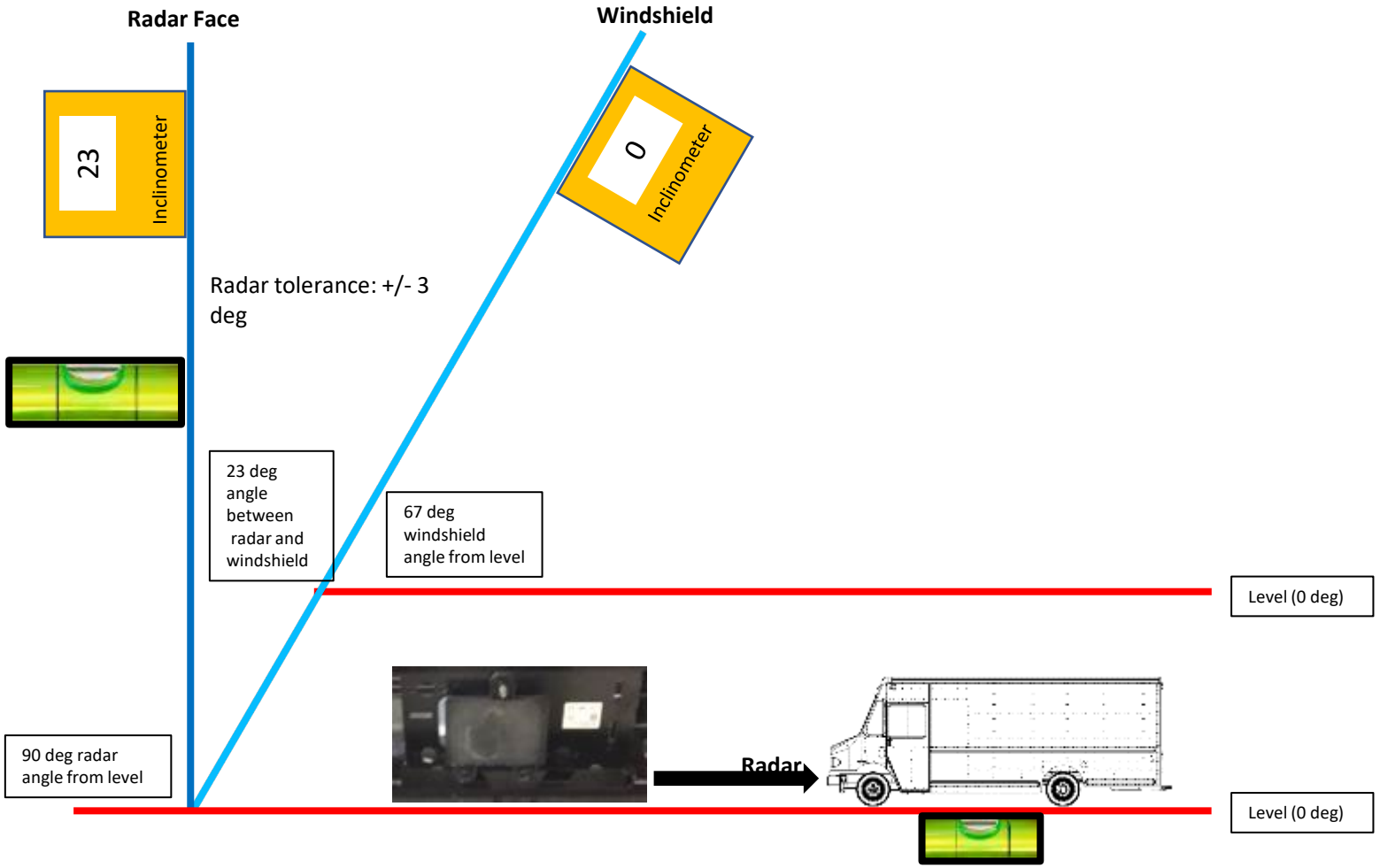
- After zeroing inclinometer to windshield, proper inclinometer reading for radar face shown below. Vehicle does not have be to on level ground when using inclinometer zeroed to windshield
- To use bubble level, vehicle must be on level ground



Radar face must be perpendicular to vehicle surface

Morgan Olson F59 Radar Angle (67 degree windshield angle)

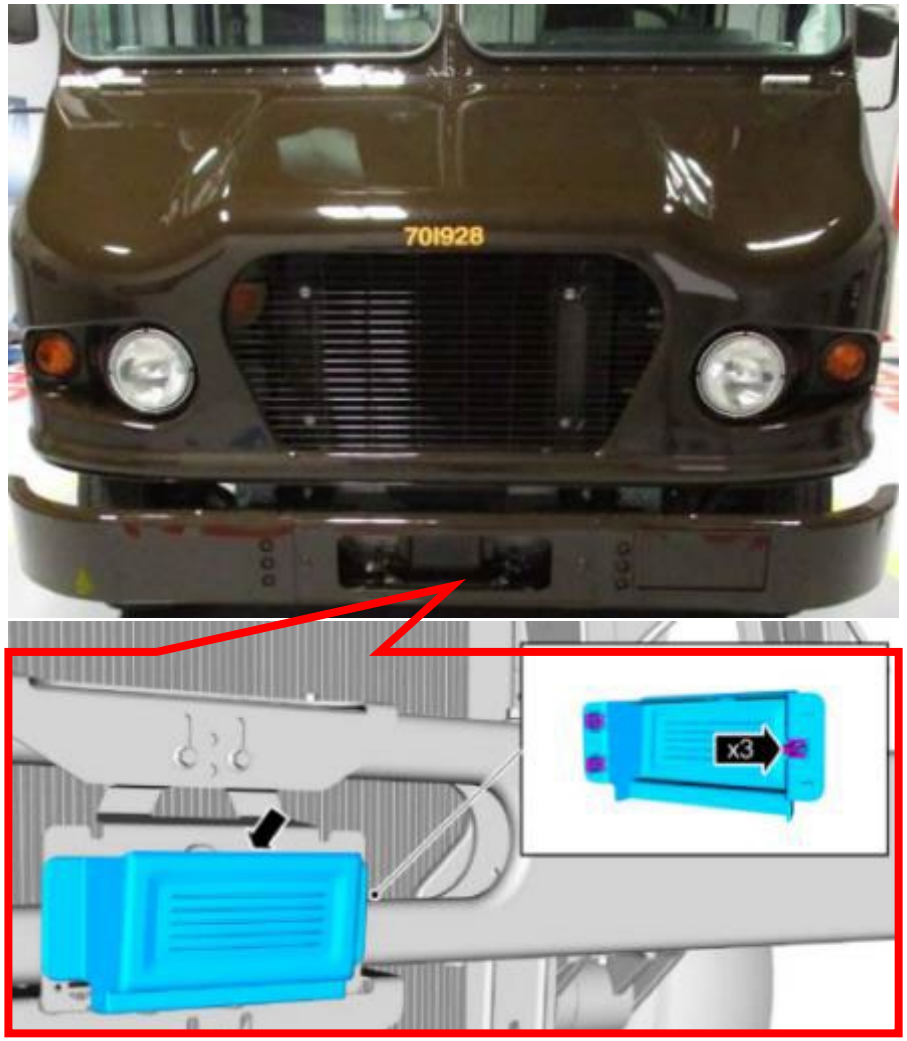
- After zeroing inclinometer to windshield, proper inclinometer reading for radar face shown below. Vehicle does not have be to on level ground when using inclinometer zeroed to windshield
- To use bubble level, vehicle must be on level ground



Radar face must be perpendicular to vehicle surface

Step 4. Adjust radar to proper angle

- Install radar cover

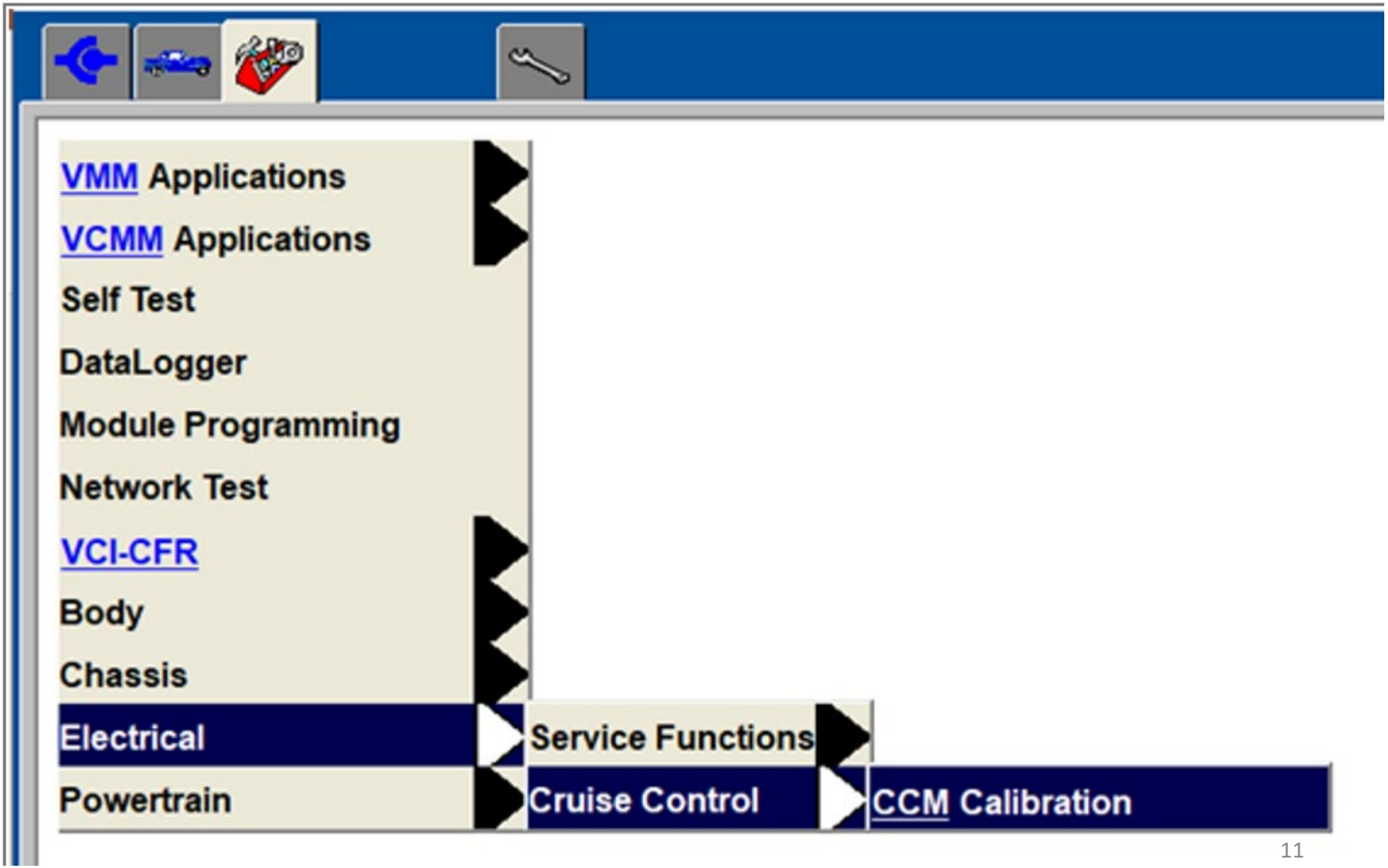


Ford IDS software (2000 – 2022 model years)

See next section for FDRS instructions

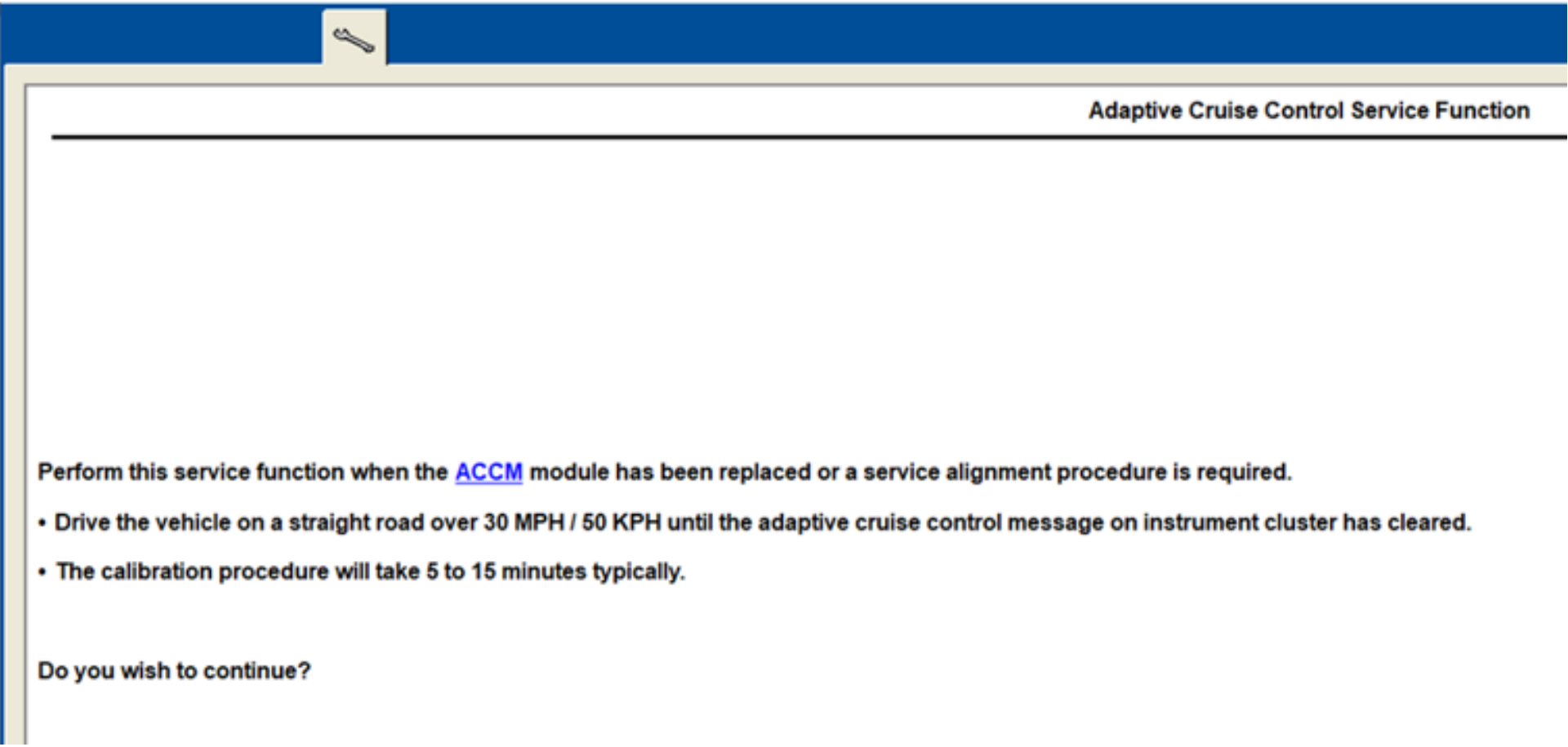
Step 5. Perform road test calibration using Ford IDS software and Ford VCM adapter

- 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



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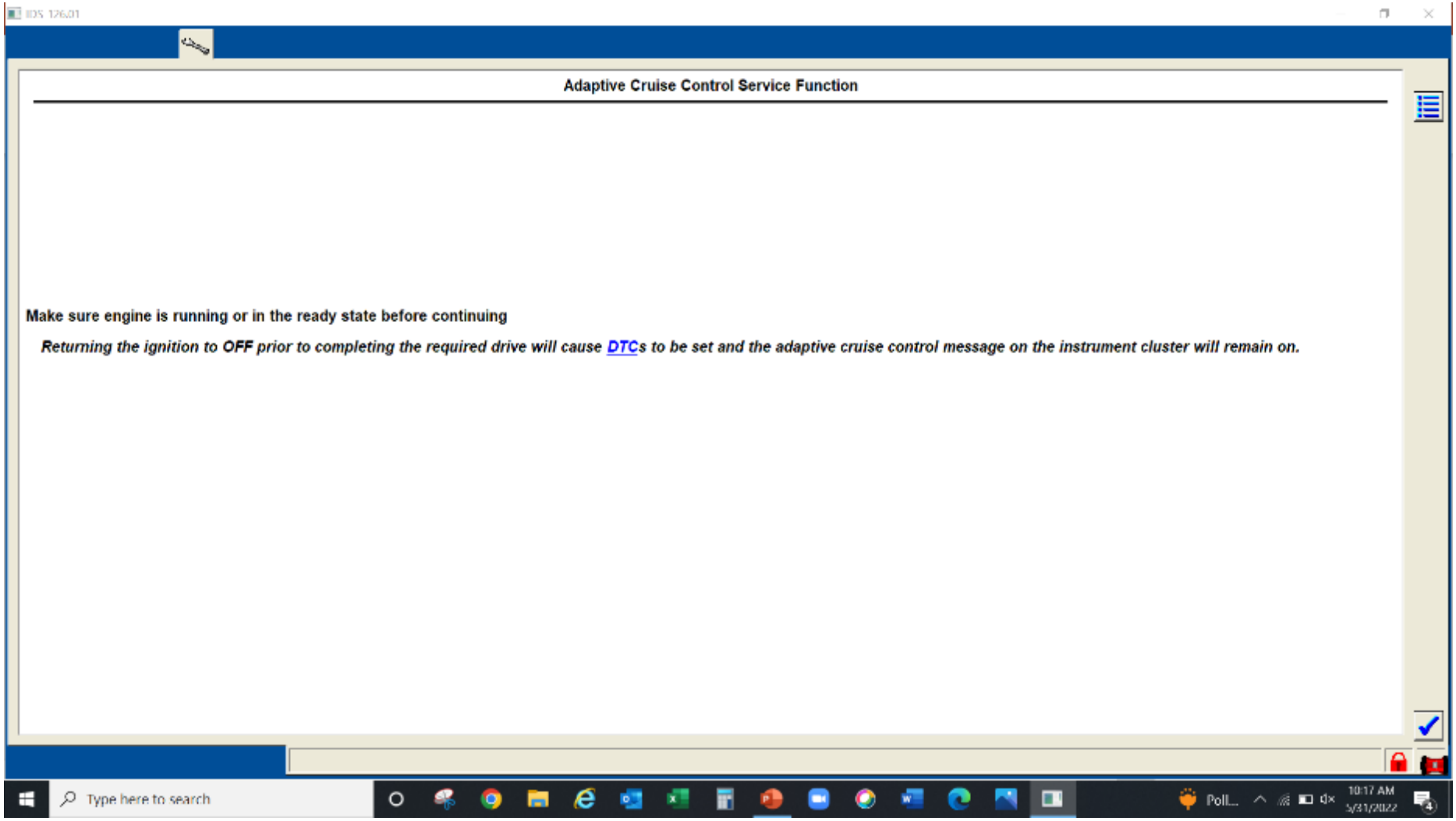

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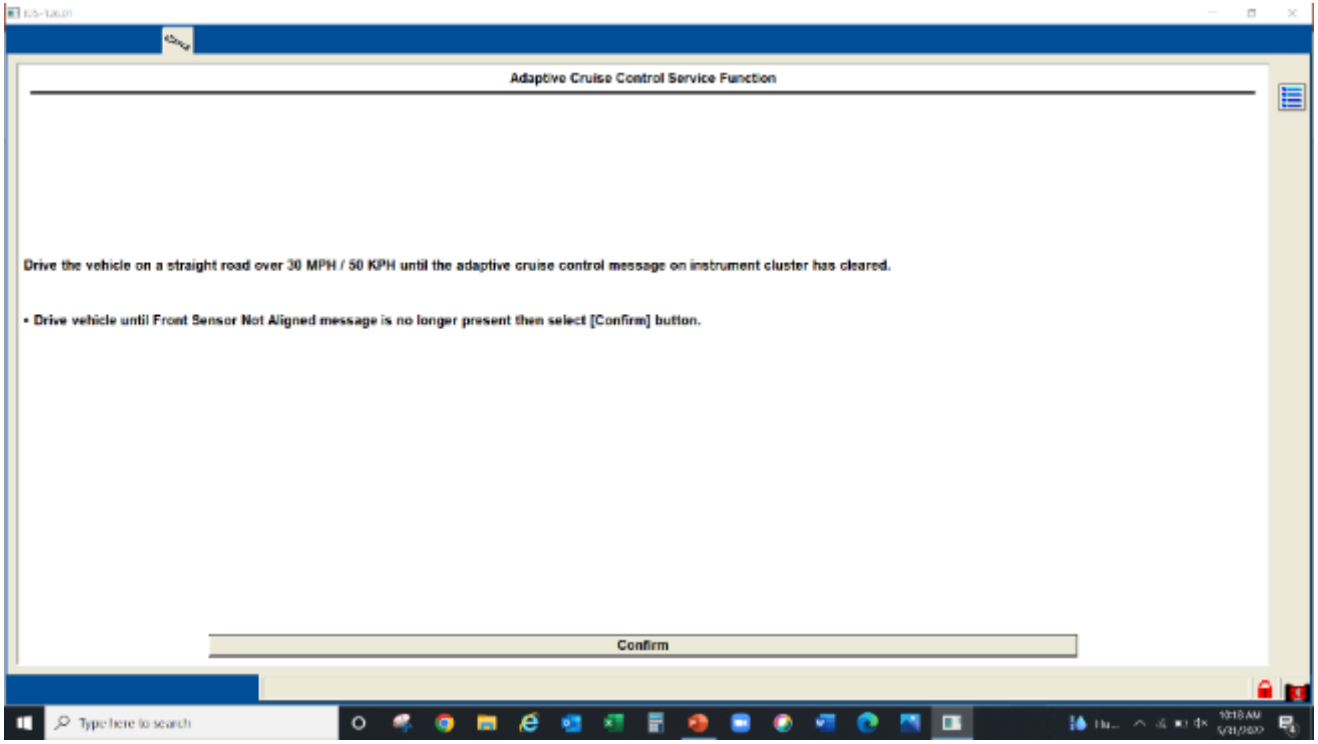
- Drive vehicle on route with as many radar targets (metal signs, fences, guard rails, cars) as possible achieving a minimum of 35 MPH.
  - OK to stop vehicle during calibration process just don't turn ignition key off until completed.
  - OK if road is not straight and turns made during calibration (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

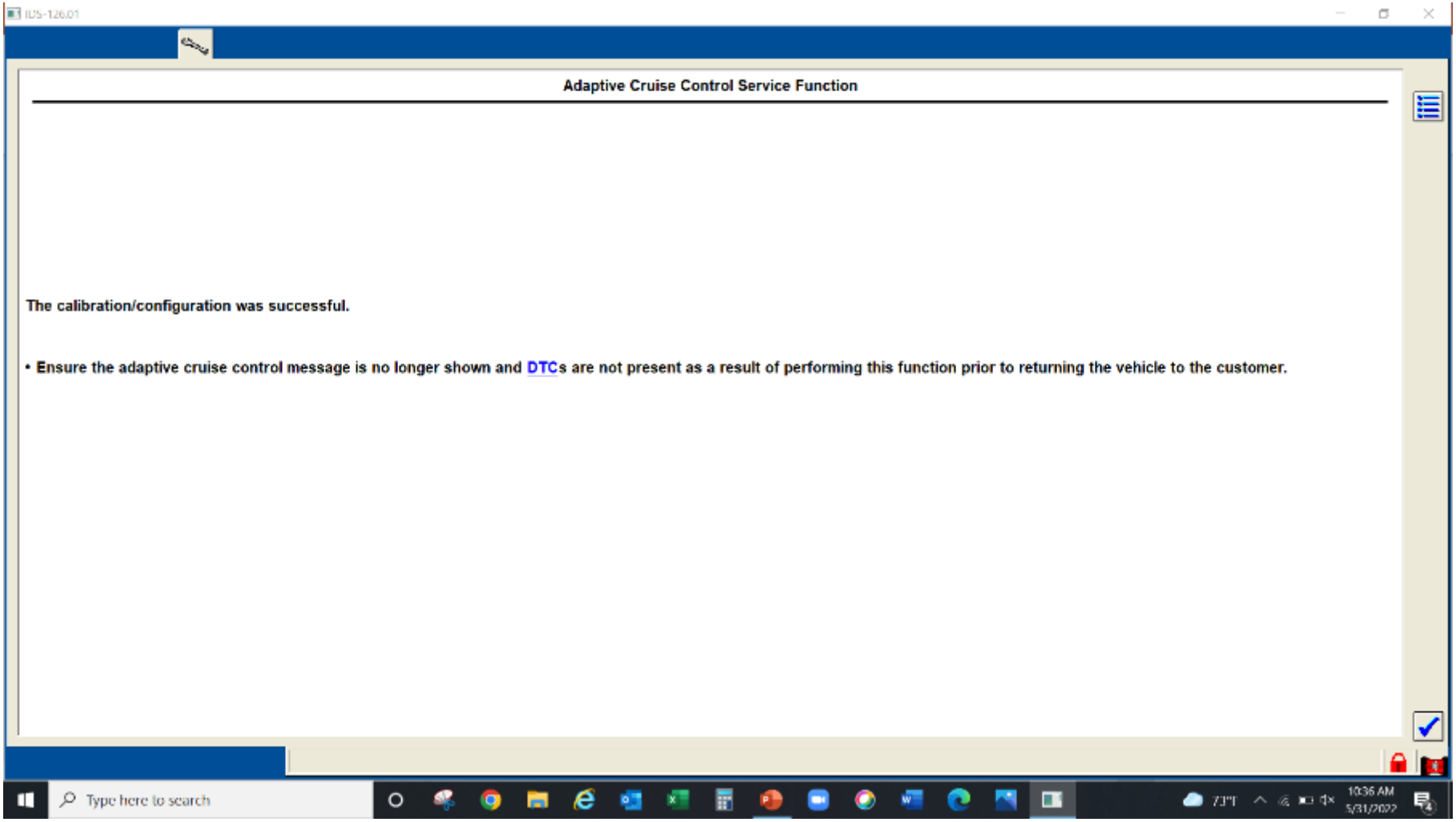


Step 5. Perform road test calibration using Ford IDS software and Ford VCM adapter

- 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

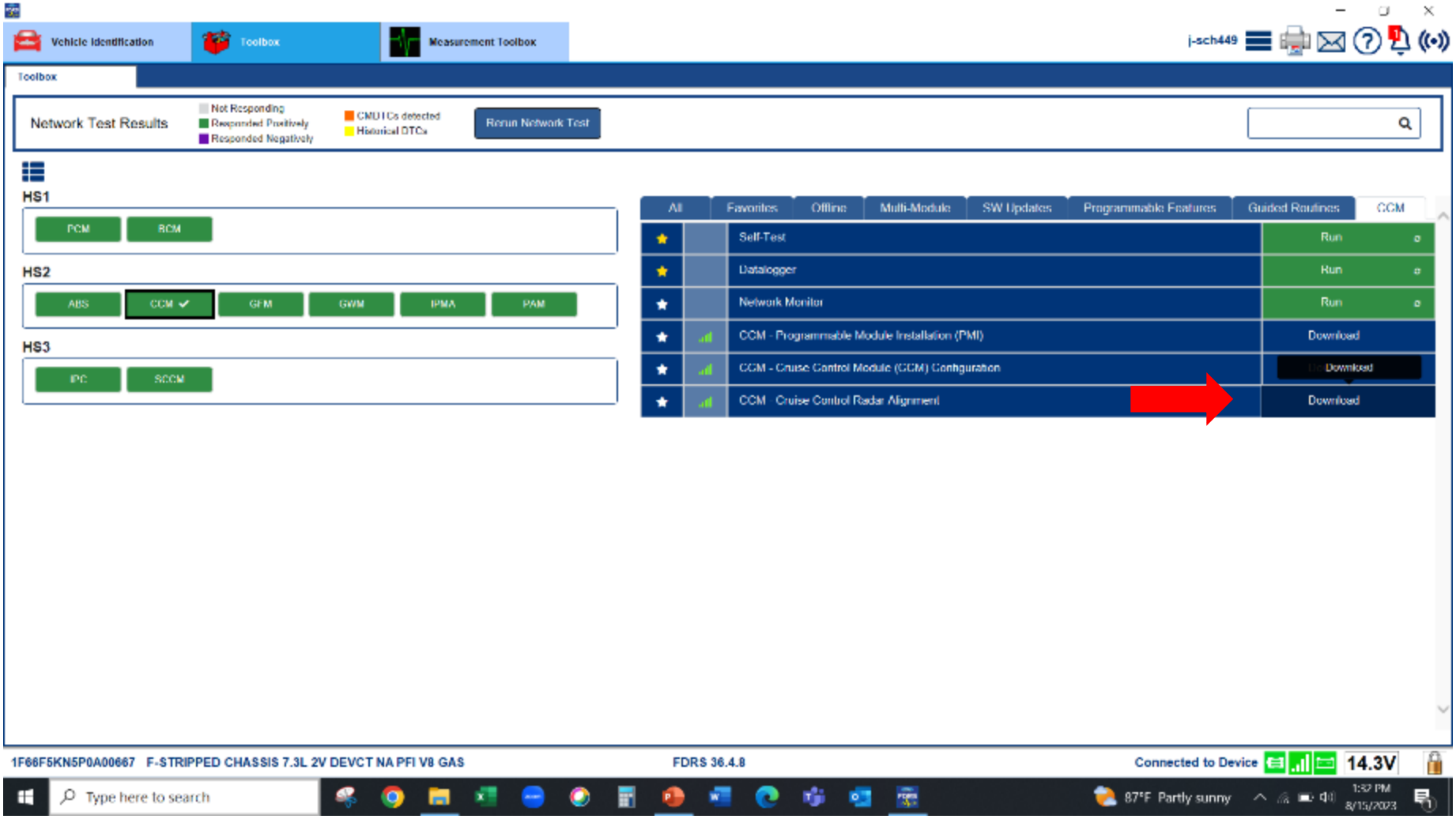
- Final IDS screen when calibration successful



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



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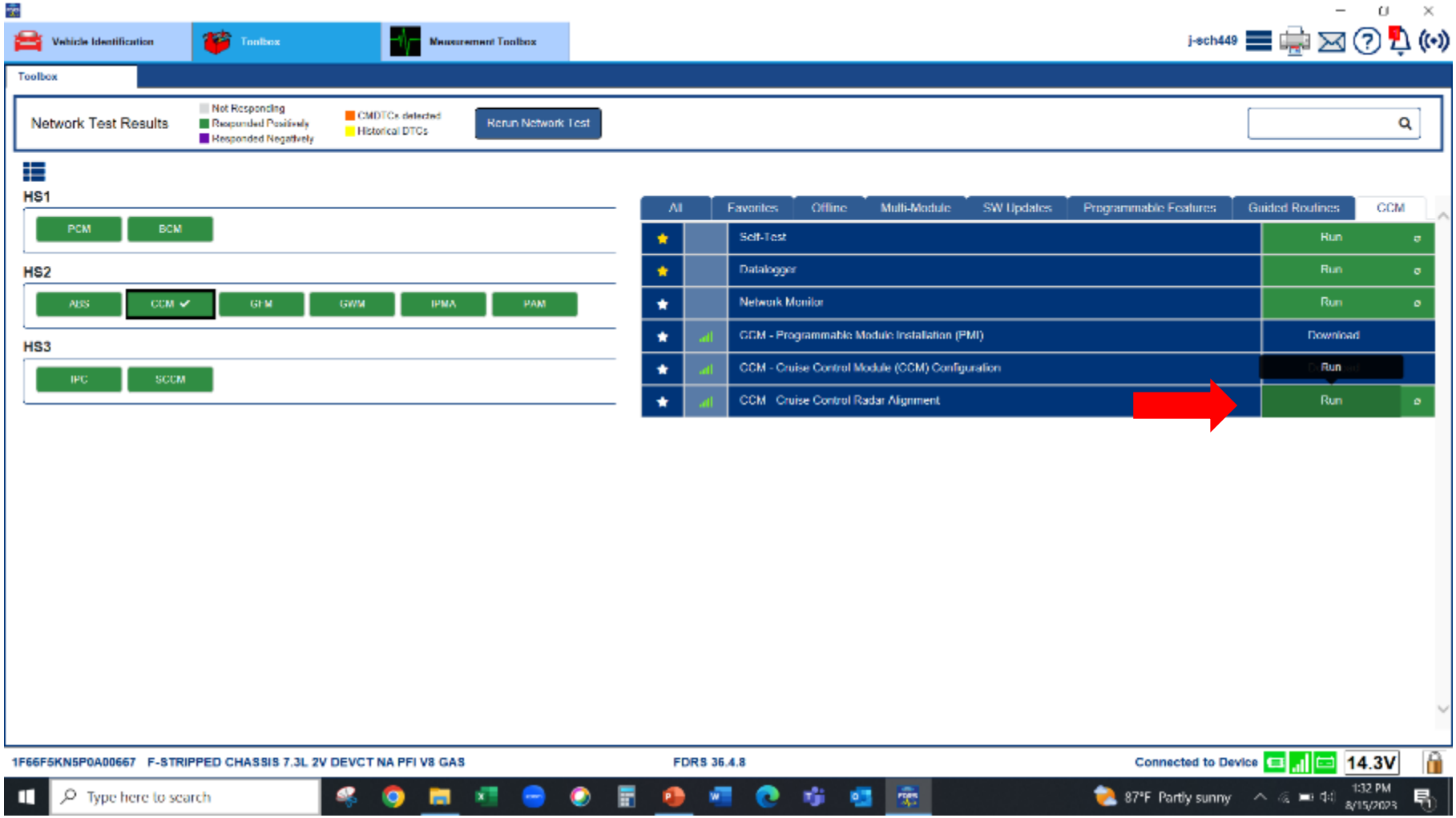
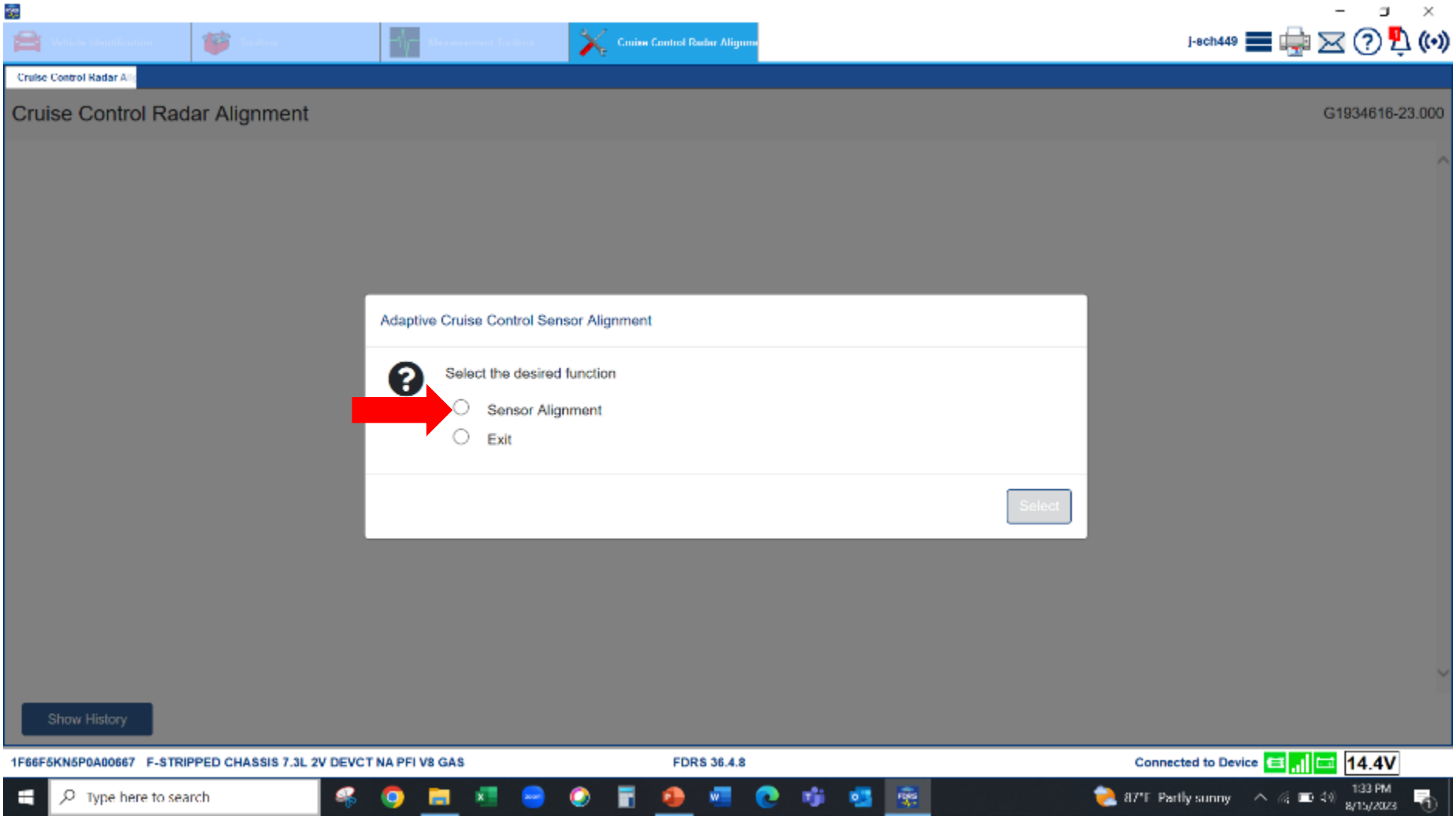


Step 5. Perform road test alignment using Ford FDRS software and Ford VCM adapter

- Follow instructions on FDRS to proceed with alignment



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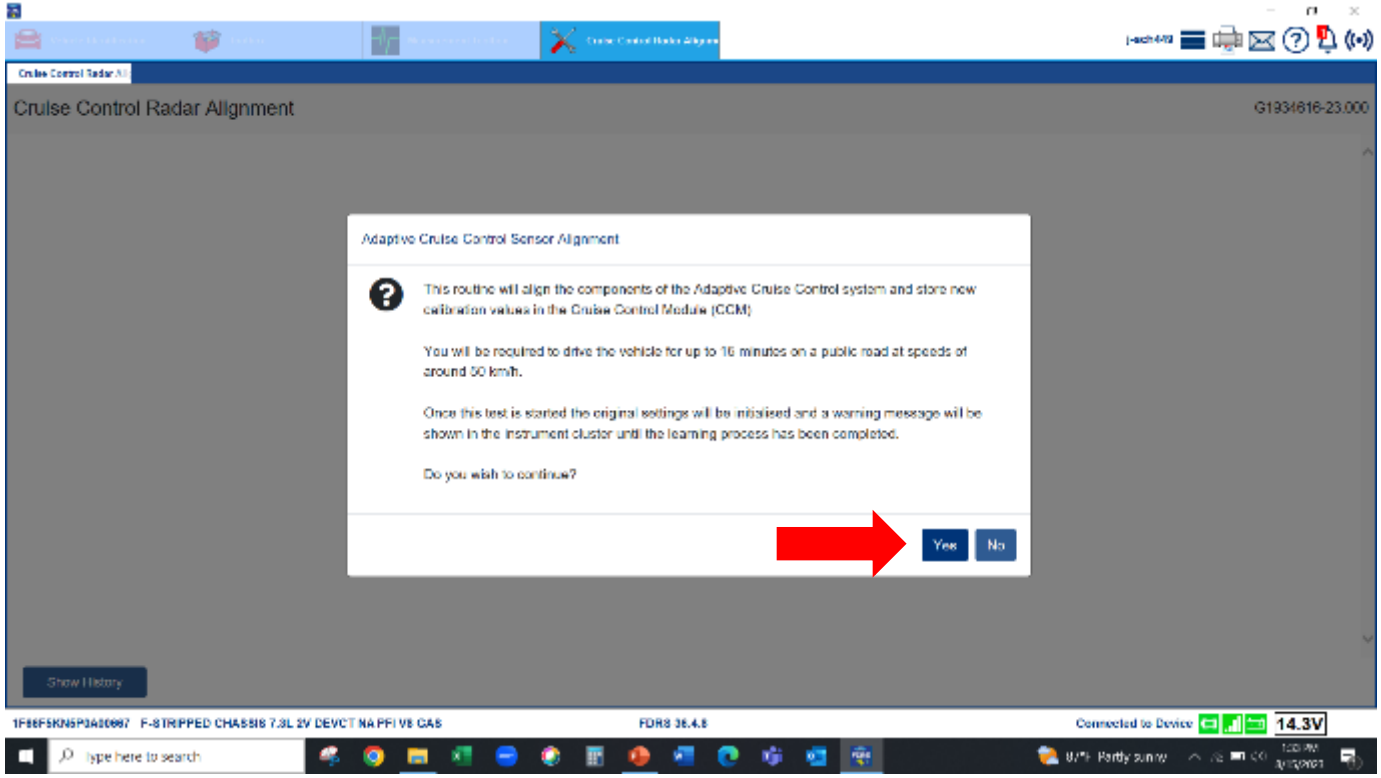

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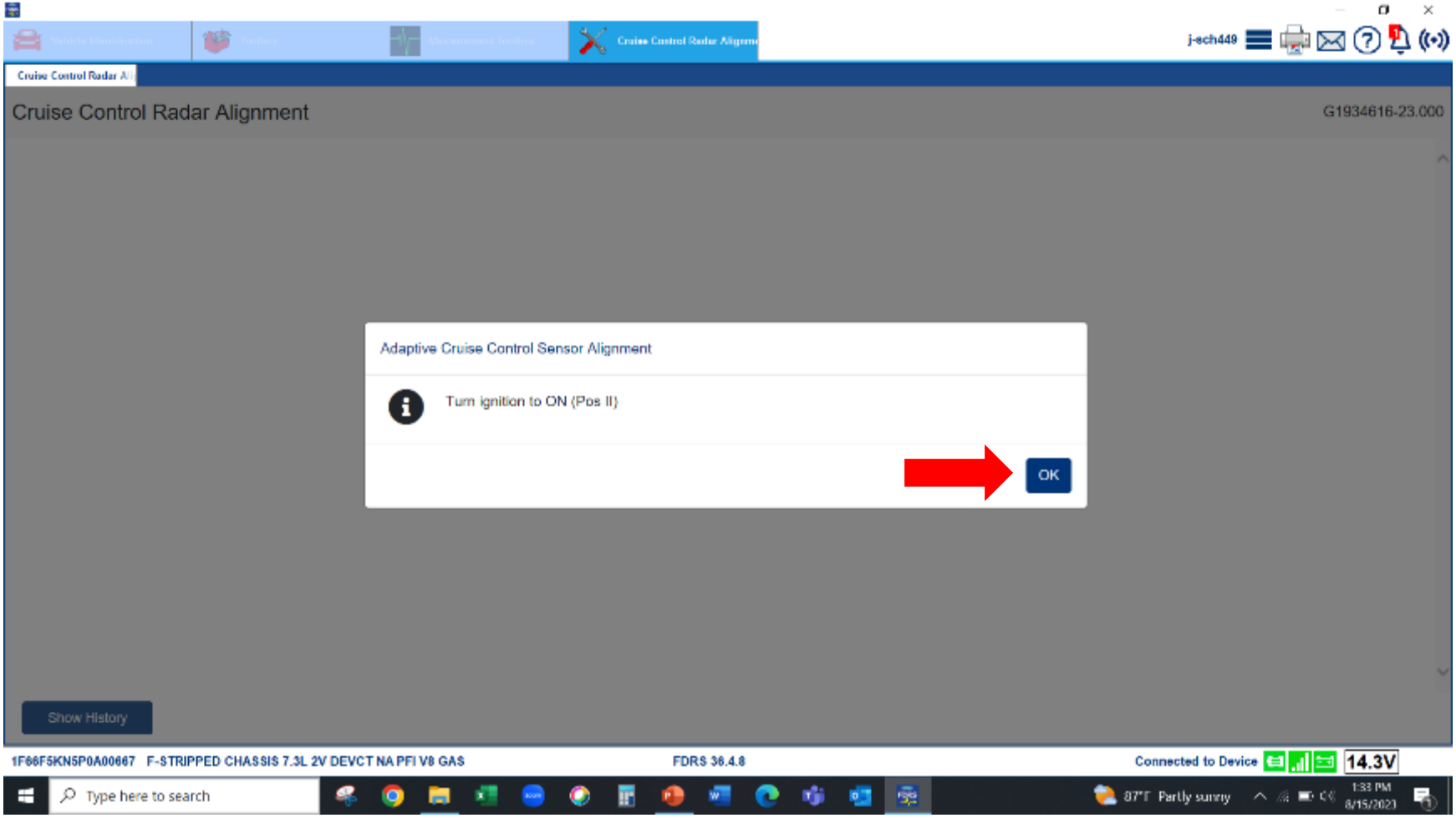

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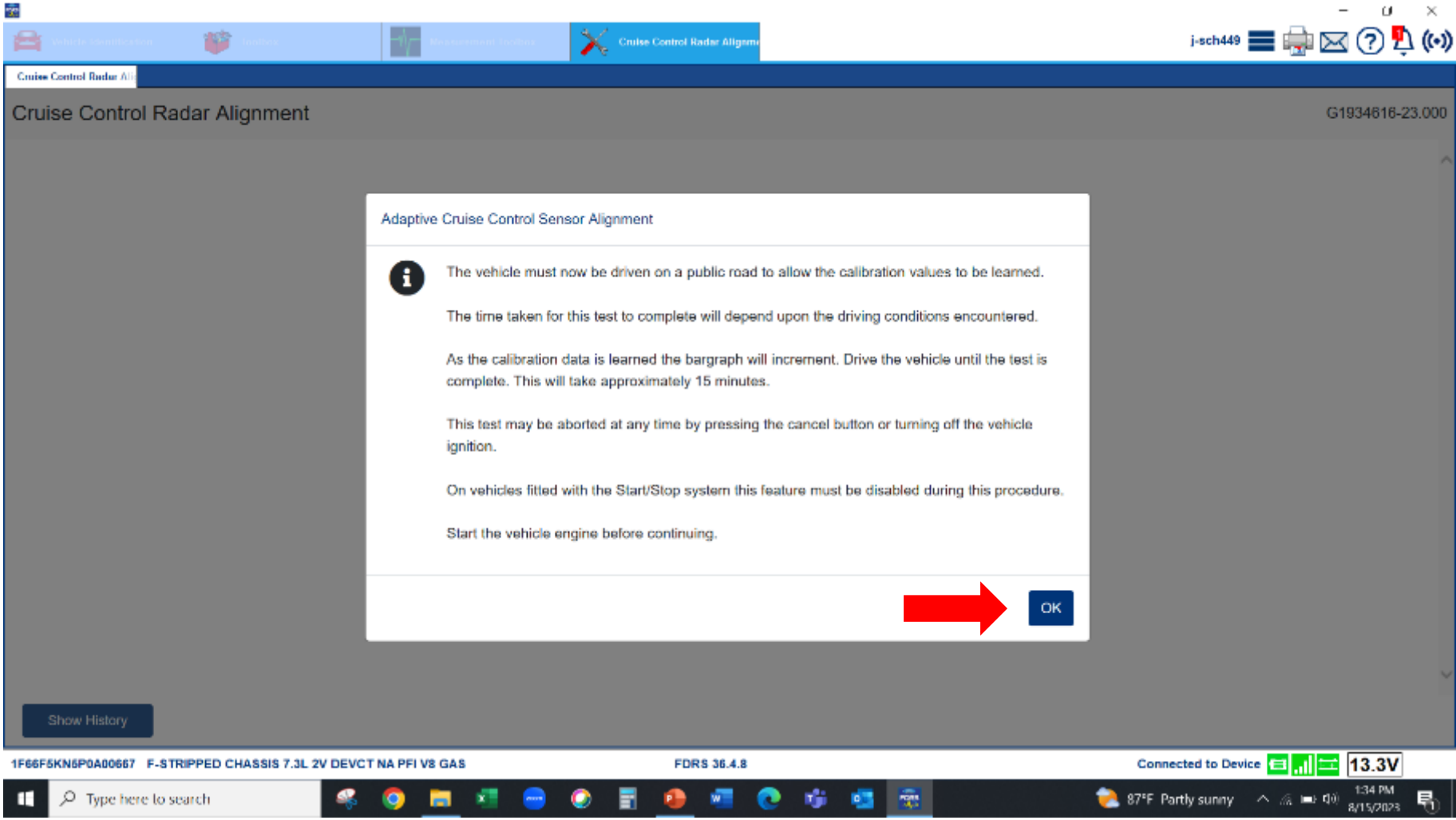
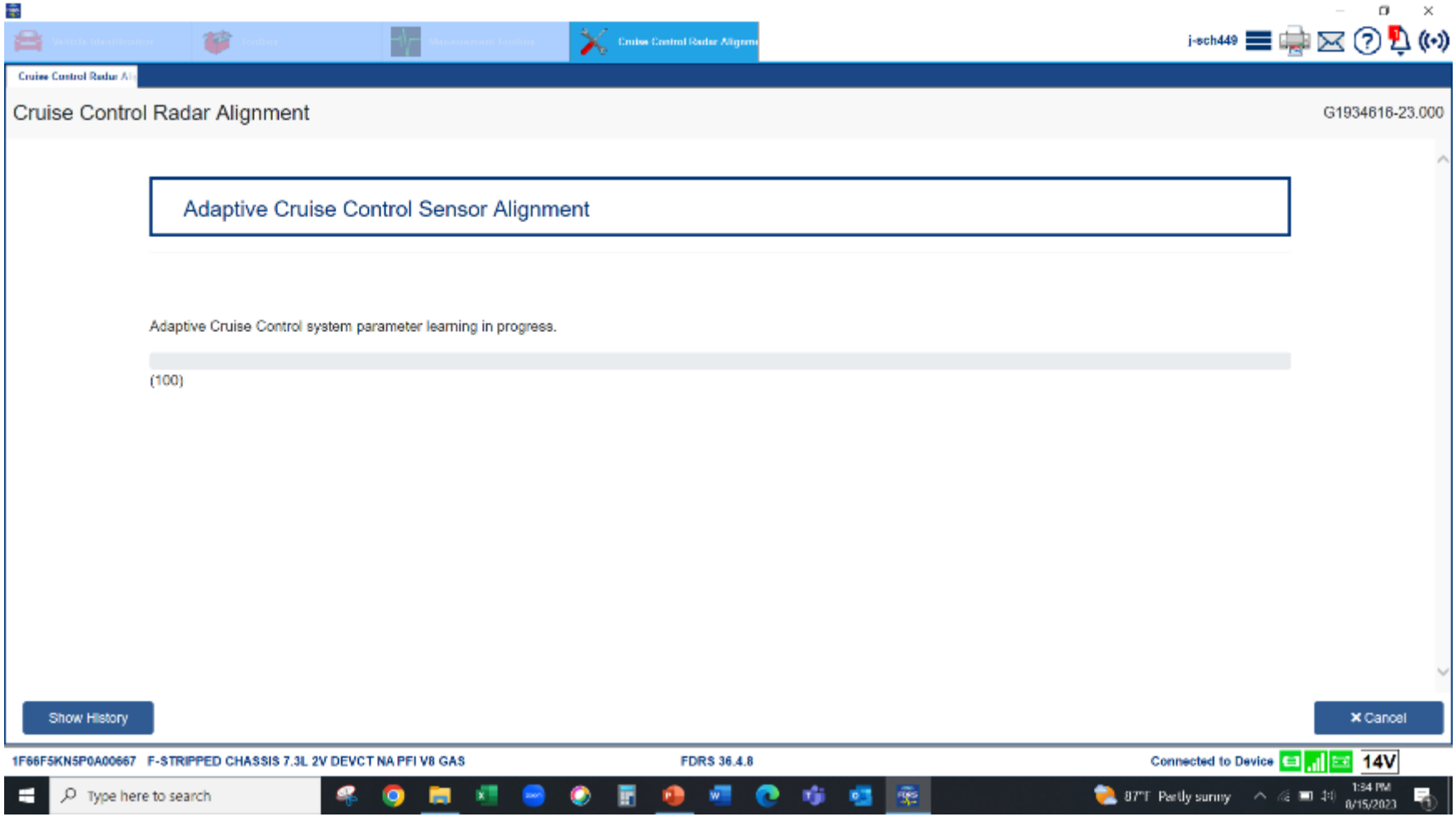


Step 5. Perform road test alignment using Ford FDRS software and Ford VCM adapter

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



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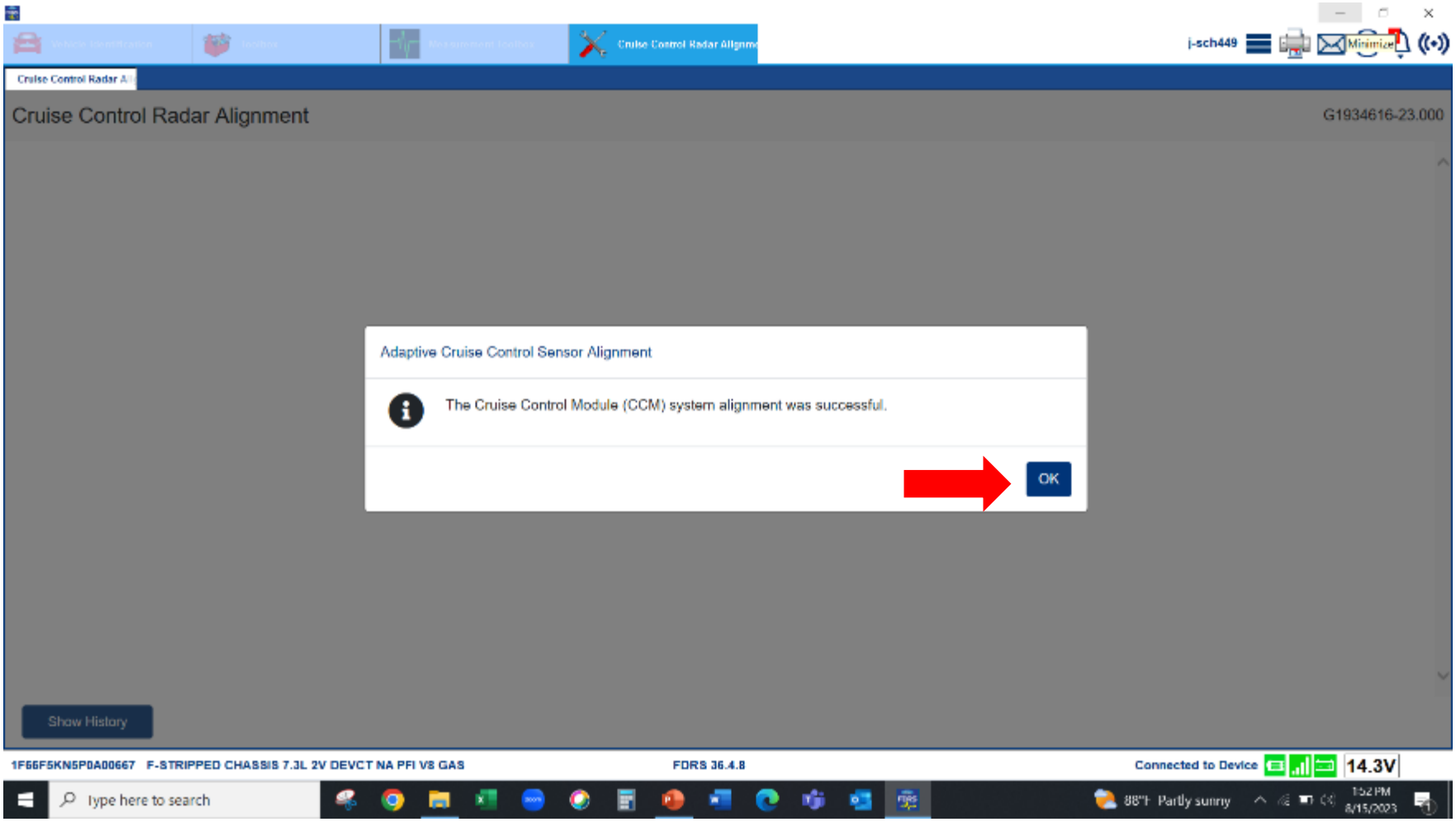
- Follow instructions on FDRS to proceed with alignment



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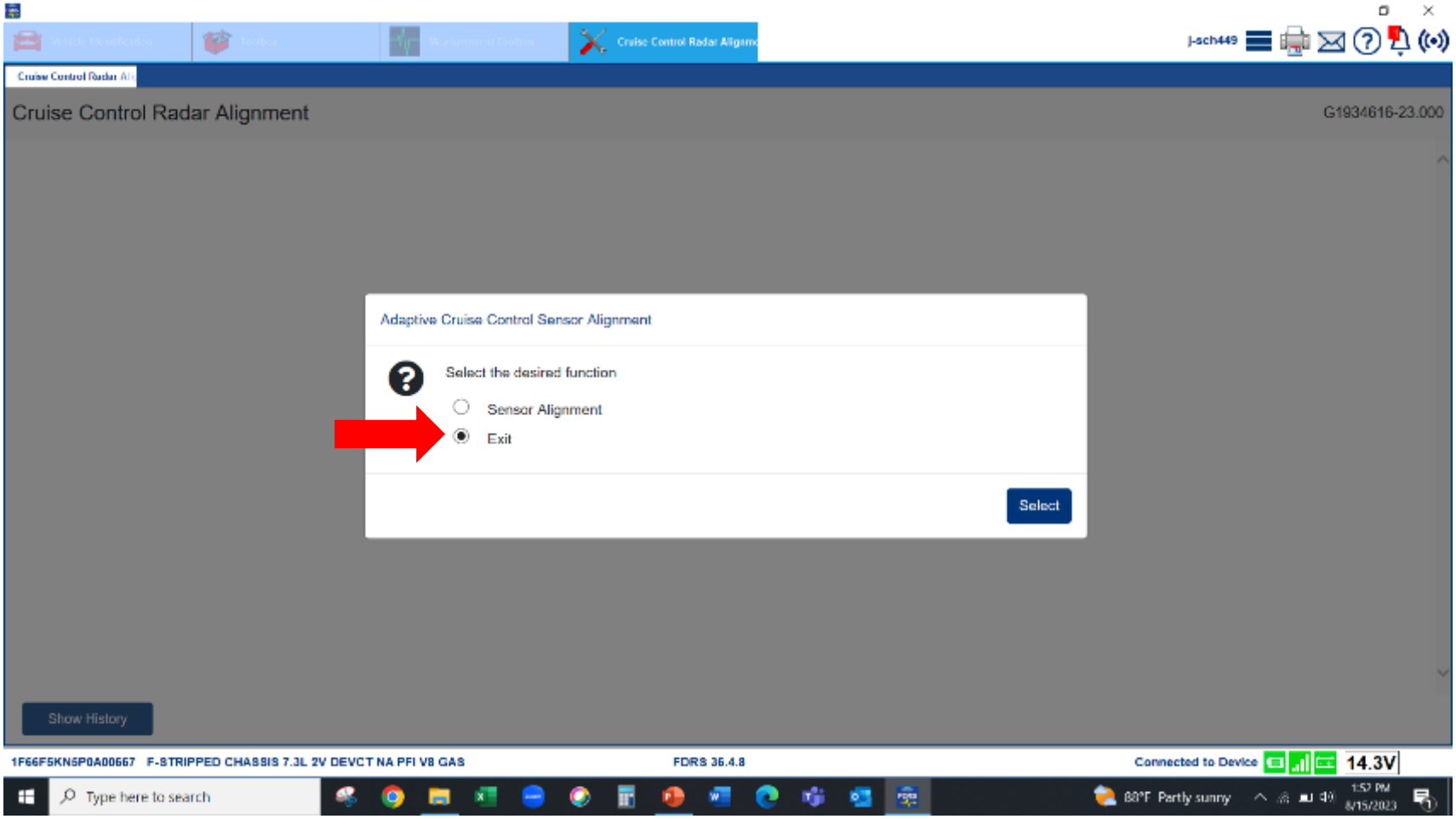

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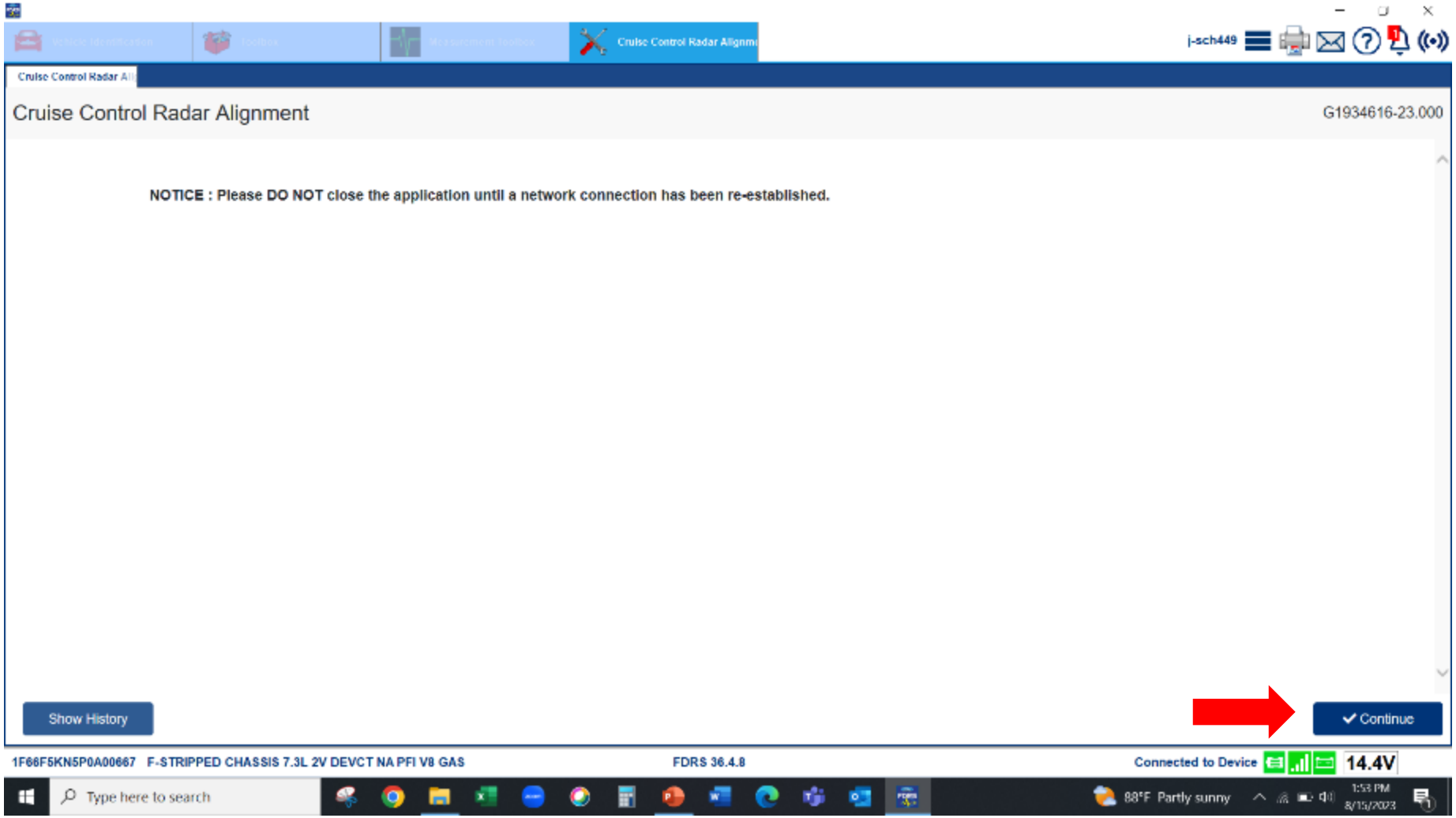

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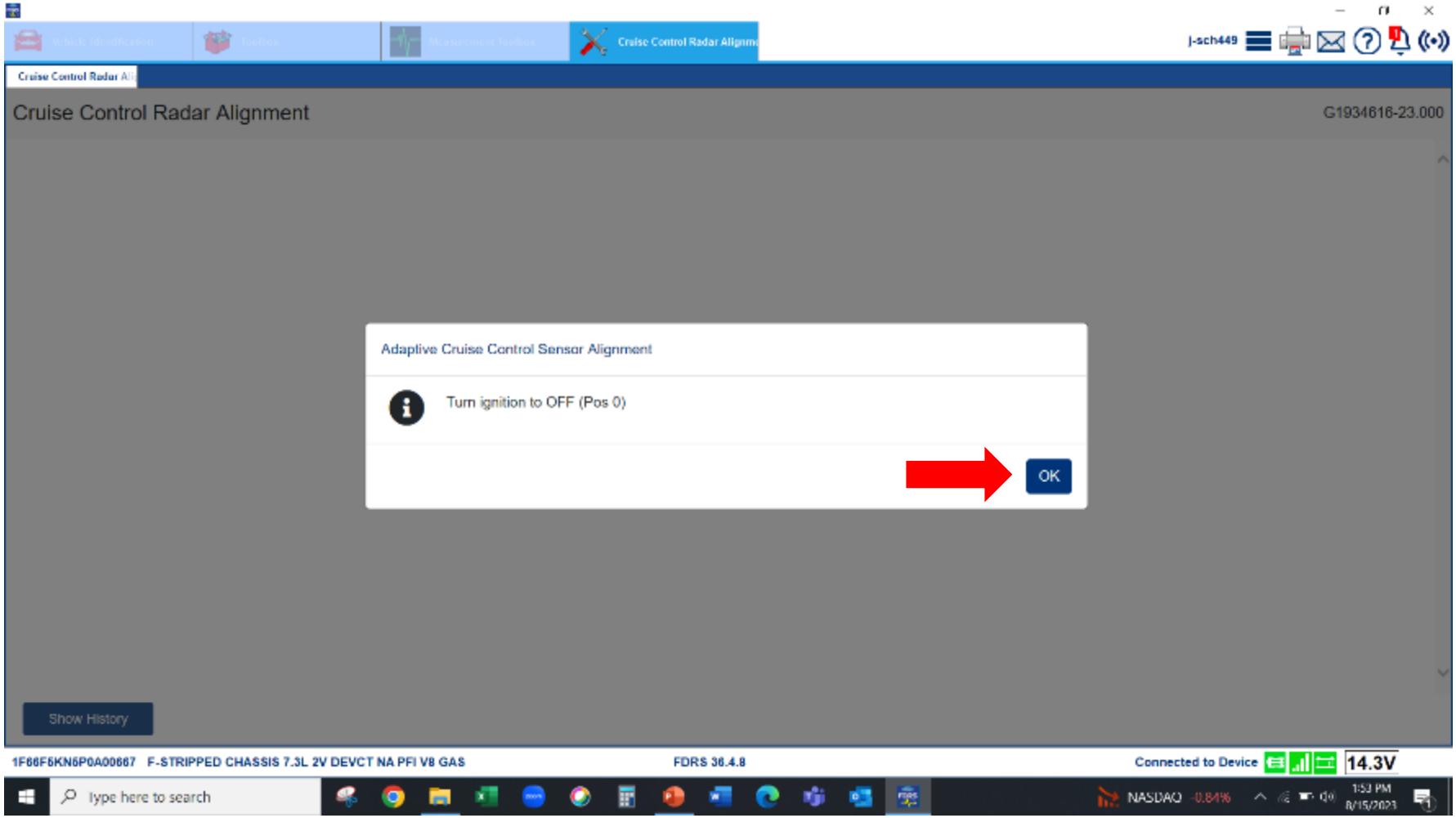

Step 5. Perform road test alignment using Ford FDRS software and Ford VCM adapter

- Final FDRS screen when alignment successful