

UPS F59 Image Processing Module (IPM) (Camera) Alignment 8/15/23



Job Requirements

- Ford software: IDS (2000 – 2022 model years), FDRS (2023 & newer model years)
- Ford VCM adapter
- 7mm or 9/32in combination wrench
- 7mm or 9/32in socket and wrench
- Inclinometer
- Up to 15 min road test above 40 MPH on straight road with highly visible lane markers. Average time is 5 minutes.
 - 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
- Parts for reference

DESCRIPTION	SERVICE PART # (Part # to order)	ENGINEERING PART # (Part # on part)
Camera - Image Processing Module (IPM) NOTE: Requires Ford IDS/FDRS tool for replacement	2020-2022: LU9Z-19H406-A 2023: PU9Z 19H406 A	2020-2022: LU9T 19H406 CC 2023: PU9T 19H406 CB
Camera (IPM) heater jumper harness	LU9Z-14A411-C	LU9T 14C210 AA
Camera (IPM) windshield mounting assembly (glareshield, heater & adhesive)	Utilimaster: LU9Z-18A456-D Morgan Olson: LU9Z-18A456-E	Utilimaster: LU9T 18A456 AB Morgan Olson: LU9T 18A456 BB
Camera (IPM) windshield mounting heater adhesive strip	LU9Z-14D696-A	LU9T 18D695 AB
Camera (IPM) windshield mounting supplemental adhesive strip (2 required)	MU9Z-19E523-A	MU9T 80A213 CA

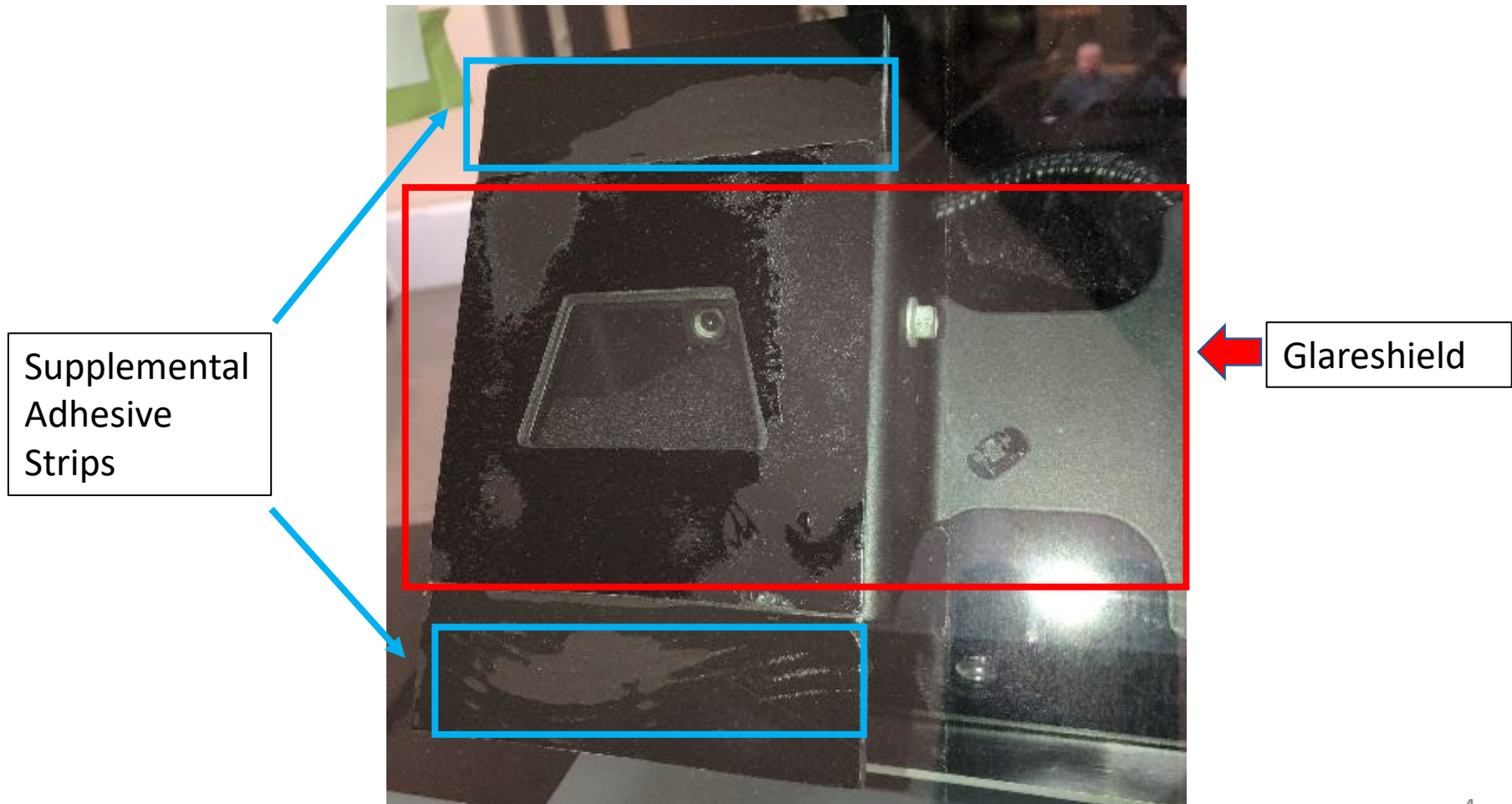


Steps

1. Address all non- IPM related fault codes
2. If a new IPM 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 camera mounting to windshield
4. Adjust camera to proper angle
5. Perform road test alignment using Ford software: IDS (2000 – 2022 model years), FDRS (2023 & newer model years) and Ford VCM adapter

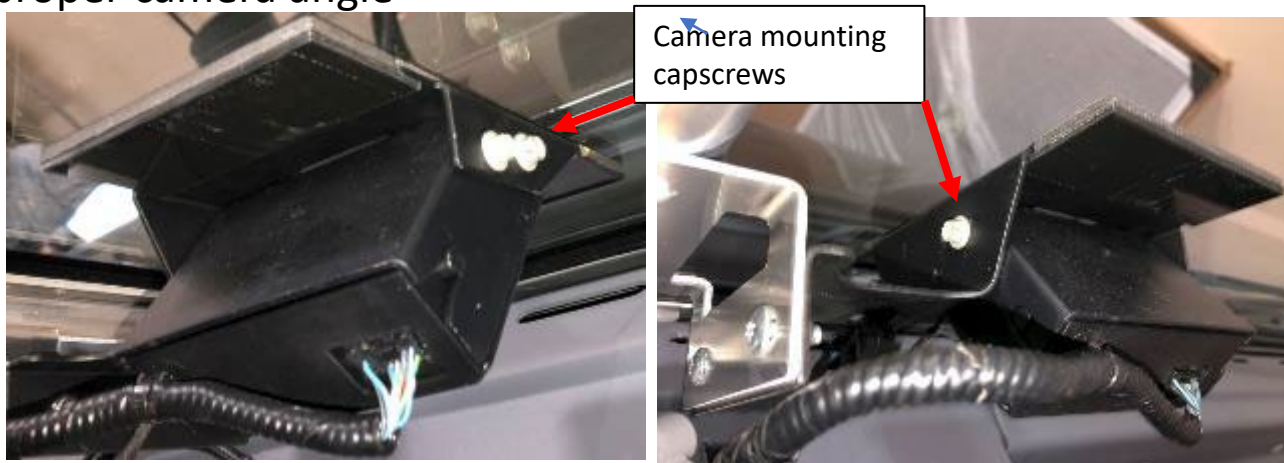
Step 3. Ensure Proper Camera Mounting to Windshield

1. Check for 80 – 100% “wetout” of glareshield (camera mounting bracket) and supplemental adhesive strips (top and bottom) to windshield
2. If < 80% can not be achieved refer to separate instructions to remove and replace the camera glareshield and supplemental adhesive strips



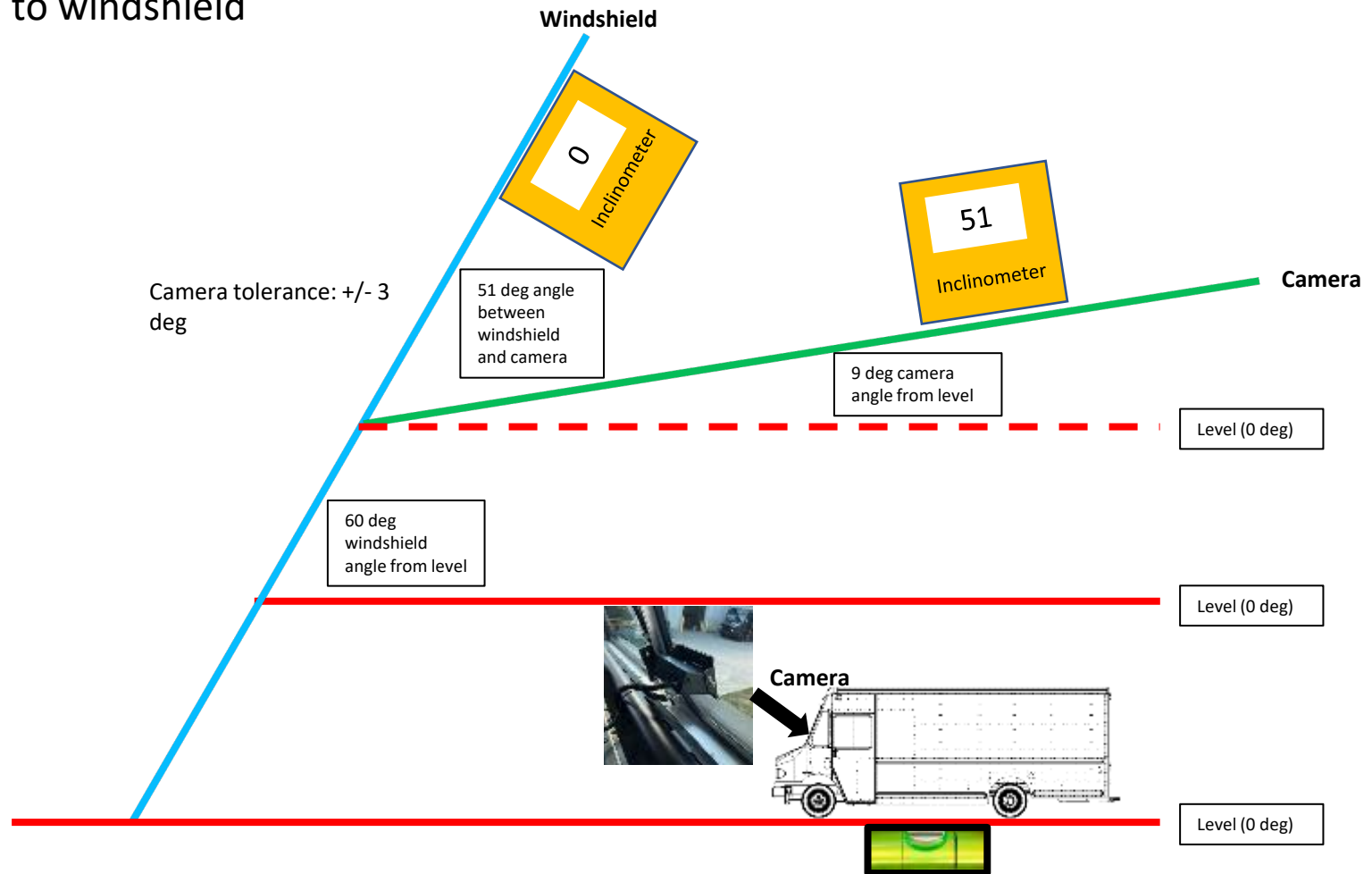
Step 4. IPM (Camera) Angle Adjustment

1. Loosen camera mounting capscrews slightly so camera can be moved when manipulated: 1 on driver's side and 2 on passenger side as shown
2. Place inclinometer on top of camera as shown and manipulate camera until proper inclinometer angle indicated. Refer to the following camera angle slides for proper adjustment setting
3. Tighten mounting screws to 57 in-lb (5 ft-lb) and recheck to confirm proper camera angle



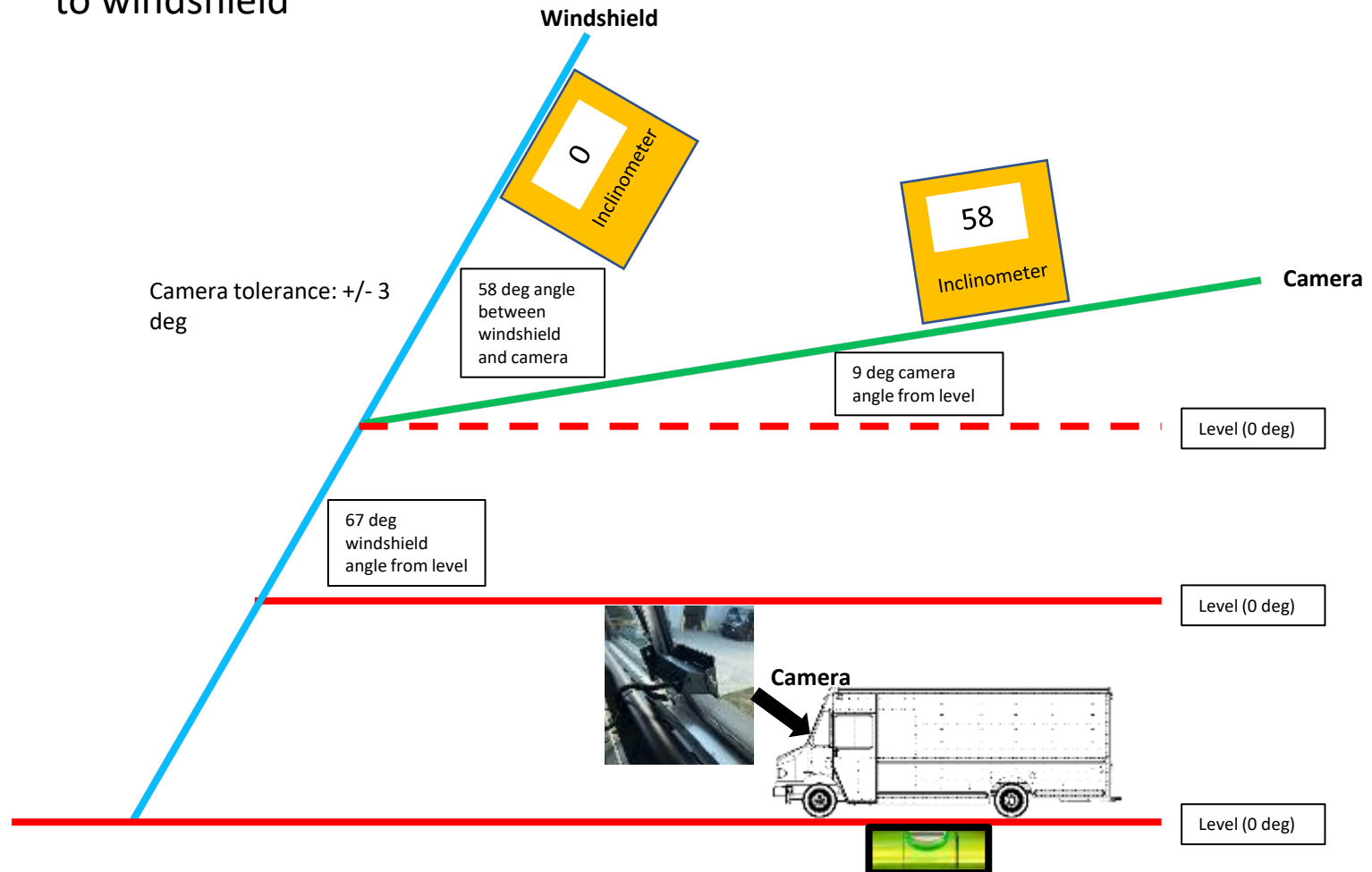
Utilimaster F59 Camera Angle (60 degree windshield angle)

- After zeroing inclinometer to windshield, proper inclinometer reading for camera shown below
- Vehicle does not have to be on level ground when using inclinometer zeroed to windshield



Morgan Olson F59 Camera Angle (67 degree windshield angle)

- After zeroing inclinometer to windshield, proper inclinometer reading for camera shown below
- Vehicle does not have to be on level ground when using inclinometer zeroed to windshield

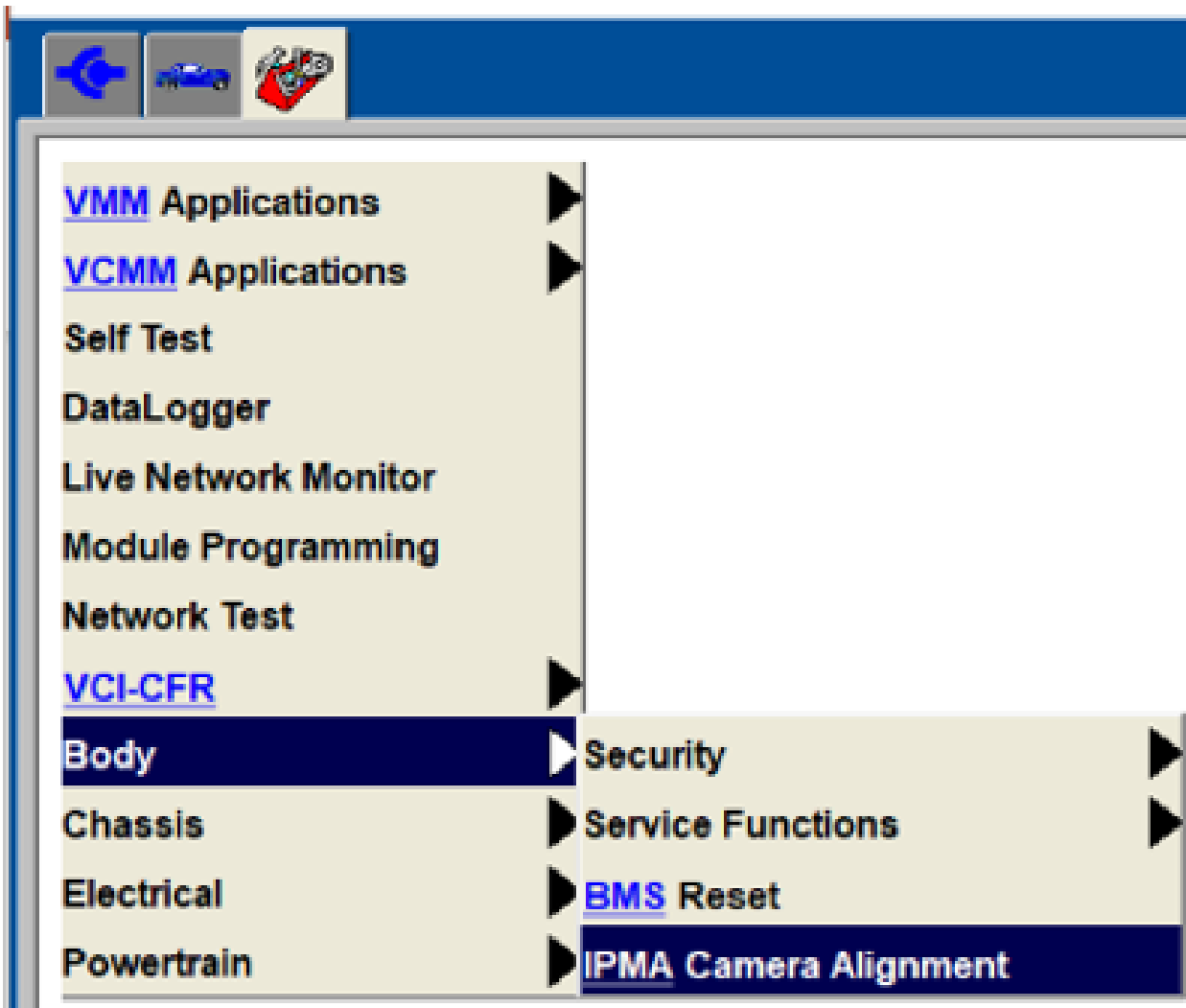


Ford IDS software (2000 – 2022 model years)

See next section for FDRS instructions

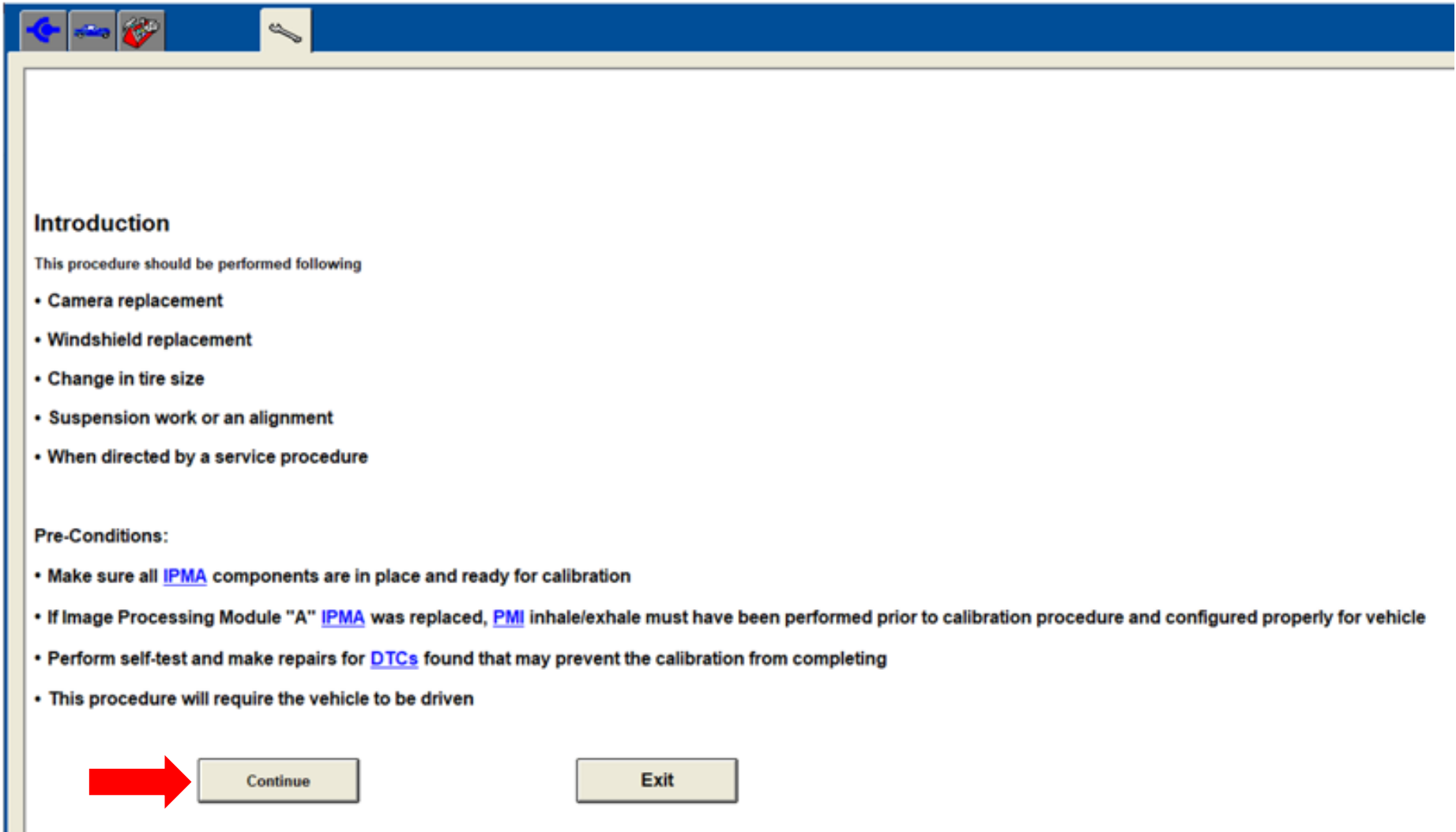
Step 6. Perform alignment using Ford IDS software and VCM adapter

- Connect Ford IDS and launch IPM alignment as shown below



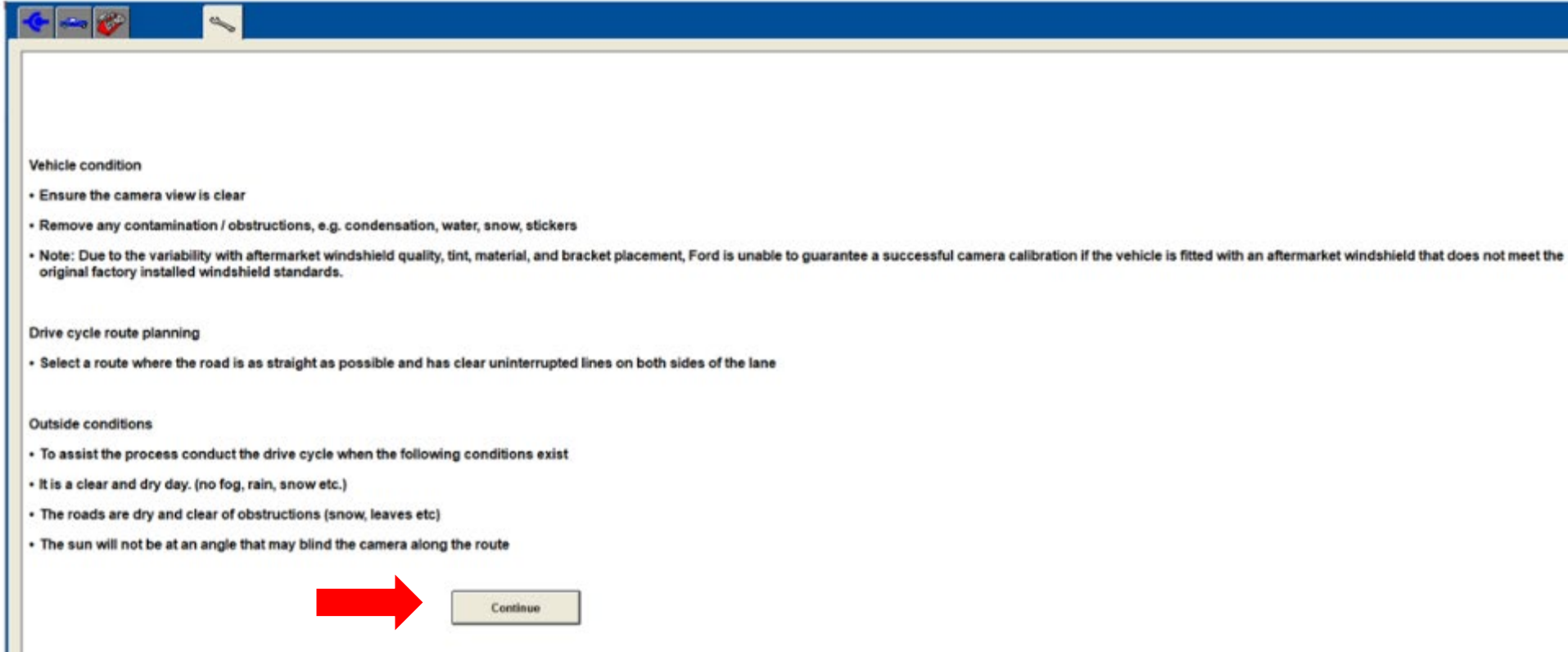
Step 6. Perform alignment using Ford IDS software and VCM adapter

- Follow instructions on IDS to proceed with alignment



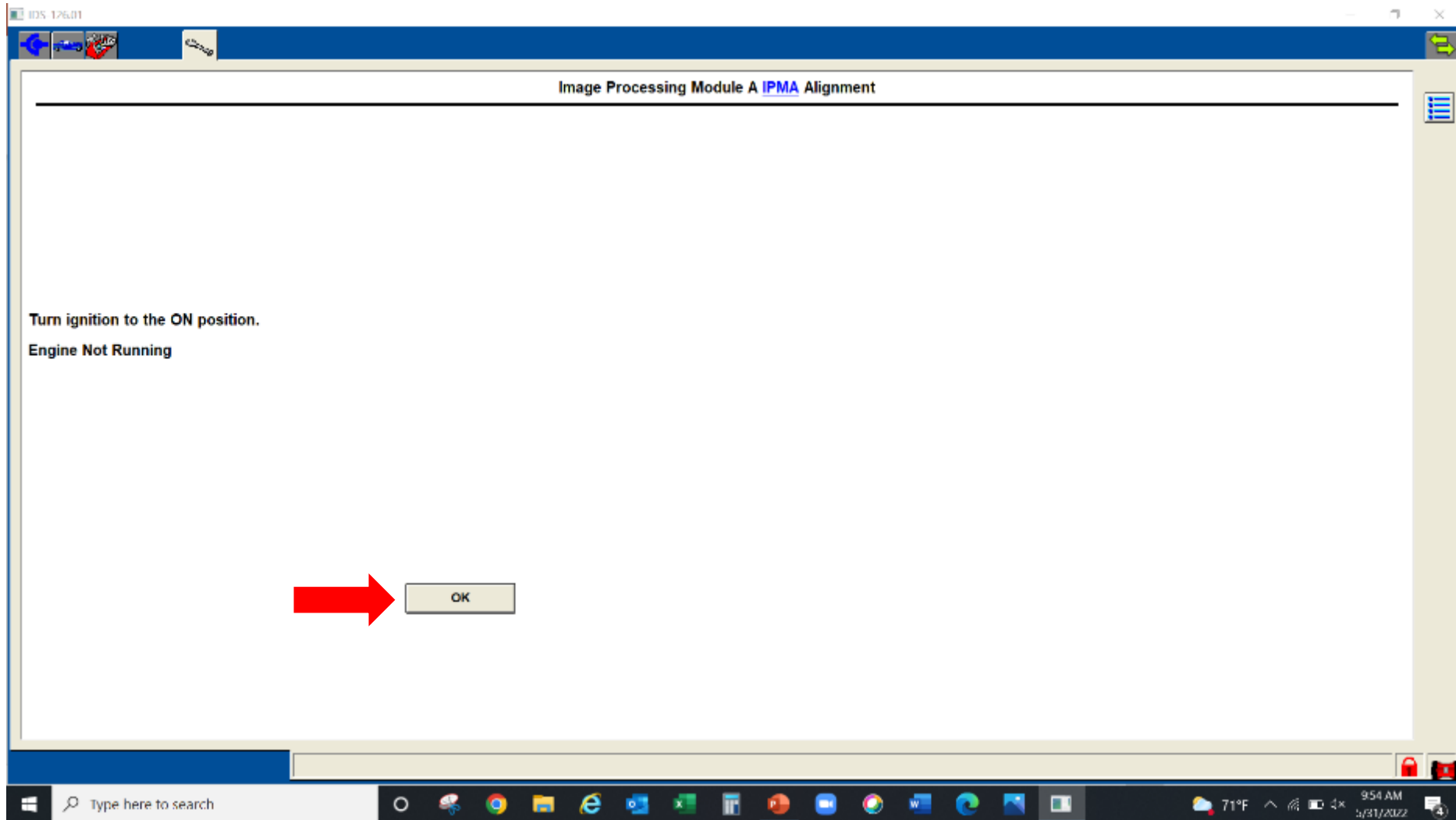
Step 6. Perform alignment using Ford IDS software and VCM adapter

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Step 6. Perform alignment using Ford IDS software and VCM adapter

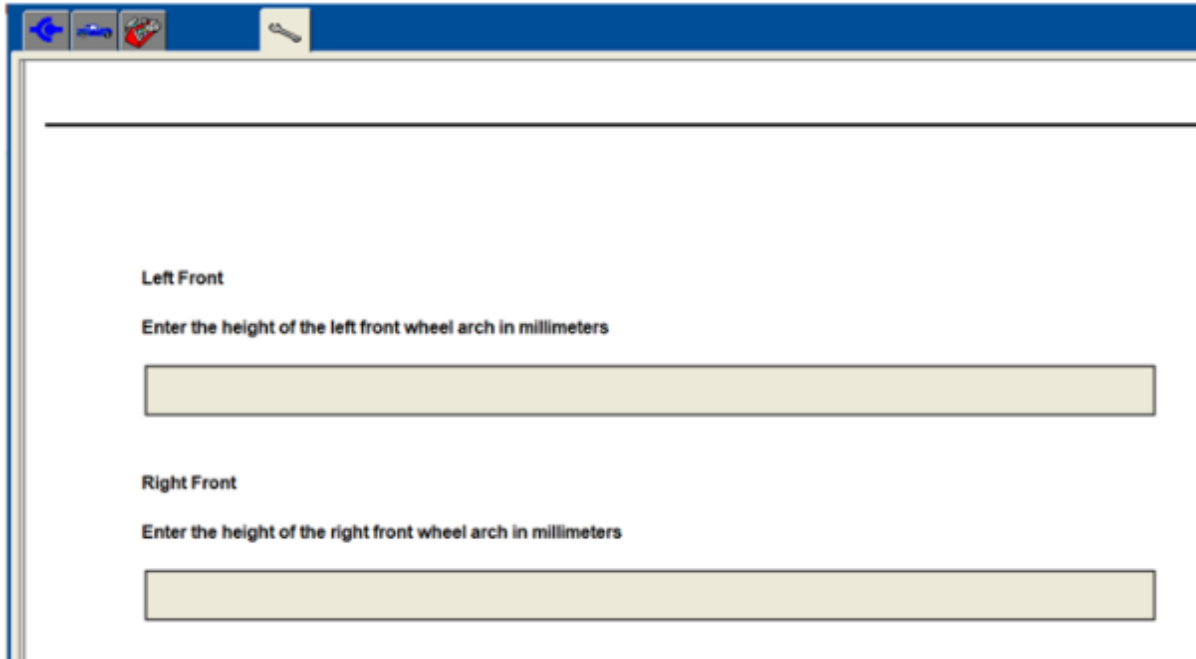
- Follow instructions on IDS to proceed with alignment



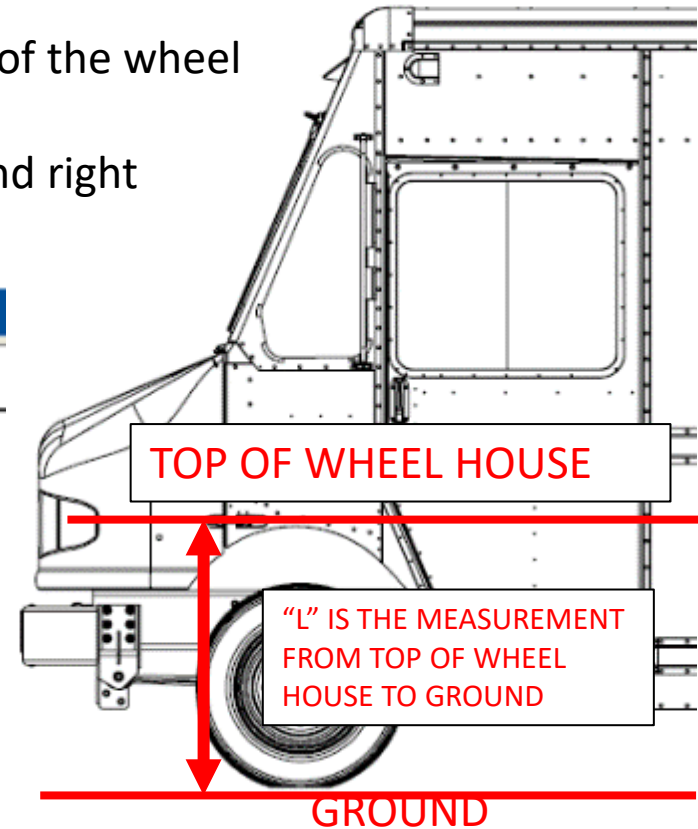
IPM alignment – Wheel Arch Heights

If wheel arch heights are already programmed they will be listed.
Measure to confirm they are correct.

1. Heights are measured from the ground to the top of the wheel house.
2. Both wheel wells need to be measured. The left and right values need to be placed in the tool *in millimeters*

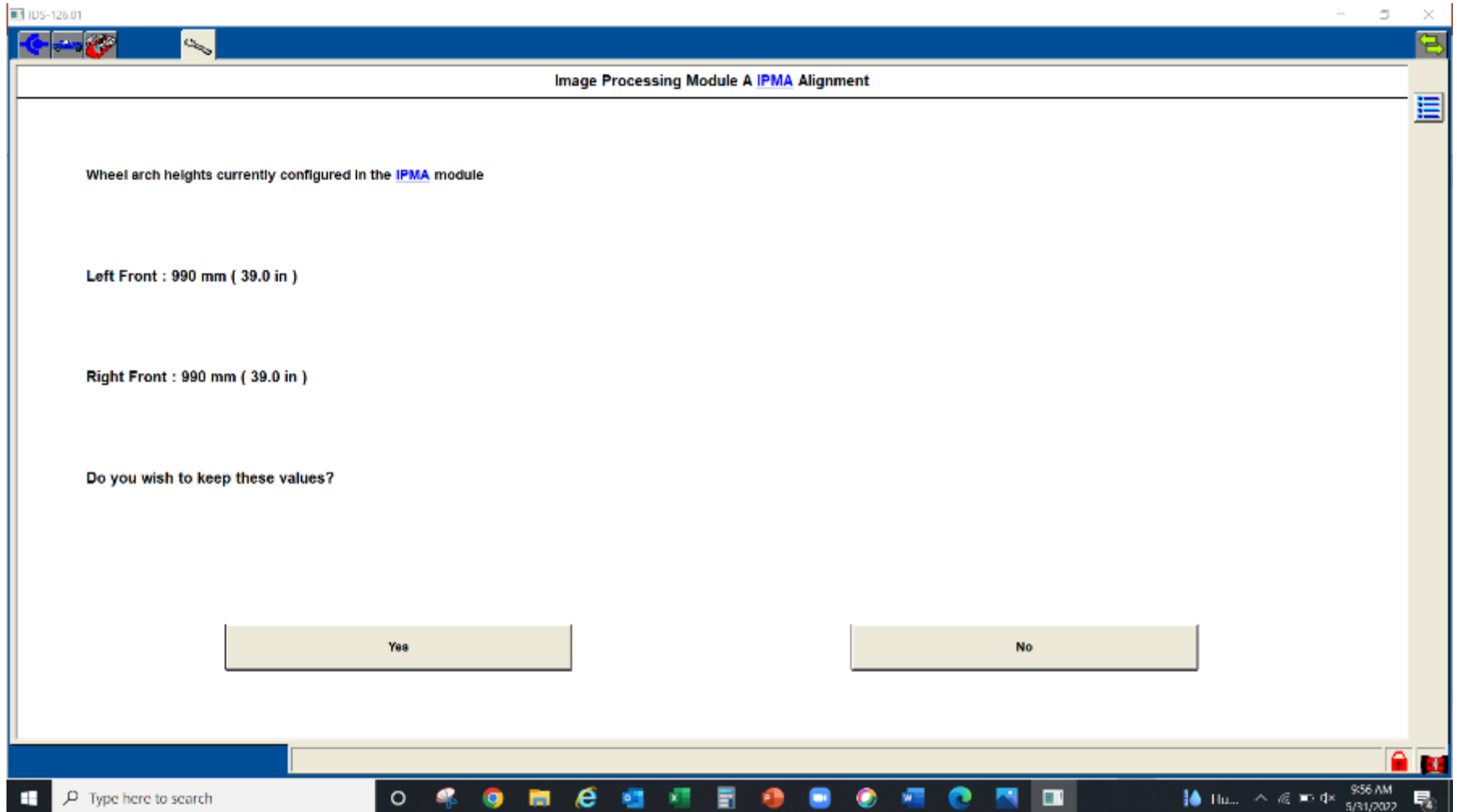


The screenshot shows a software interface with a blue header bar containing navigation icons. Below the header, there are two sections for entering wheel arch heights. The first section is labeled 'Left Front' and contains the text 'Enter the height of the left front wheel arch in millimeters' followed by a large, empty, light-yellow rectangular input field. The second section is labeled 'Right Front' and contains the text 'Enter the height of the right front wheel arch in millimeters' followed by another large, empty, light-yellow rectangular input field.



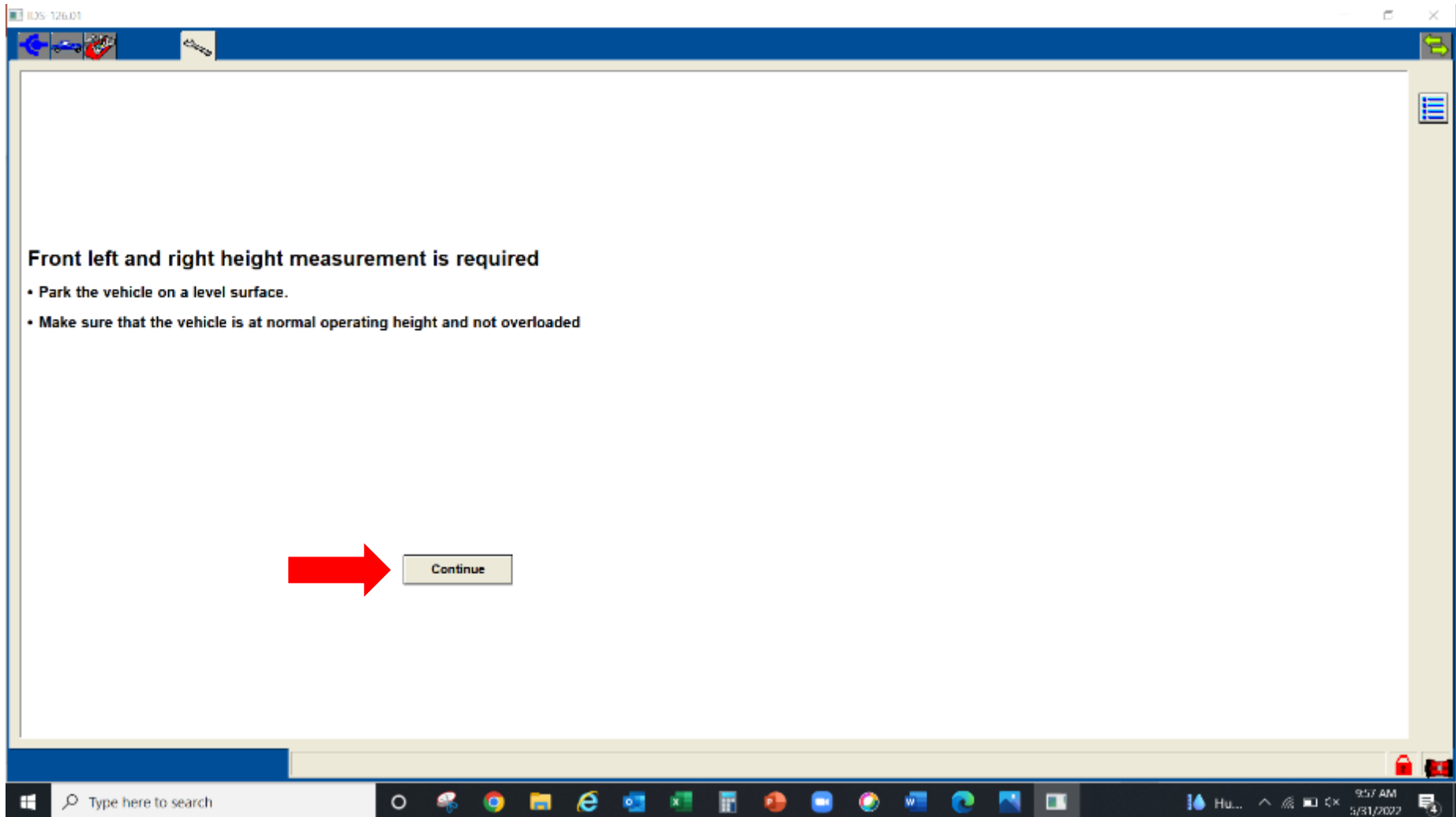
IPM alignment – Wheel Arch Heights

- If wheel arch heights are already programmed they will be listed as shown. Measure to confirm they are correct.



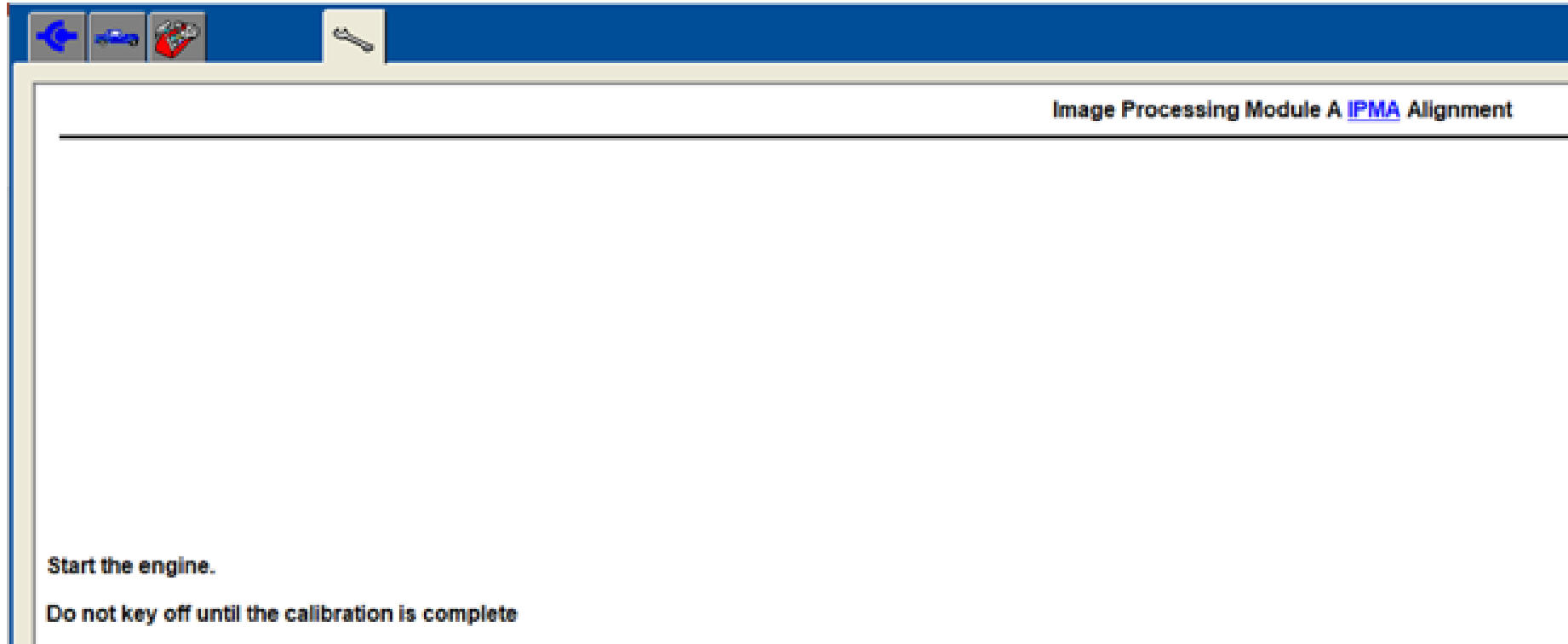
IPM alignment – Wheel Arch Heights

- If wheel arch heights are not already programmed, the screen below will be shown.



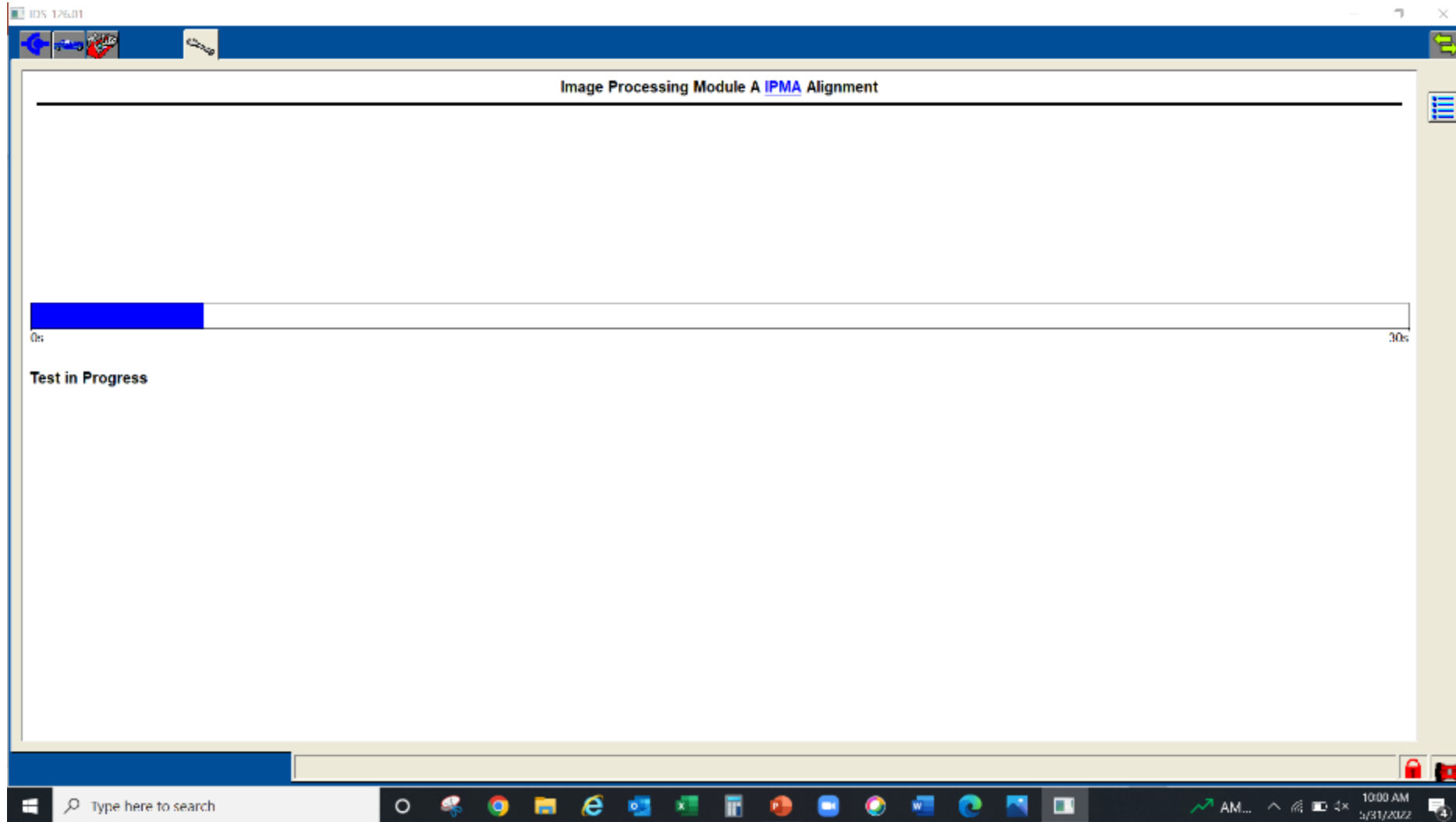
Step 6. Perform alignment using Ford IDS software and VCM adapter

- Follow instructions on IDS to proceed with alignment



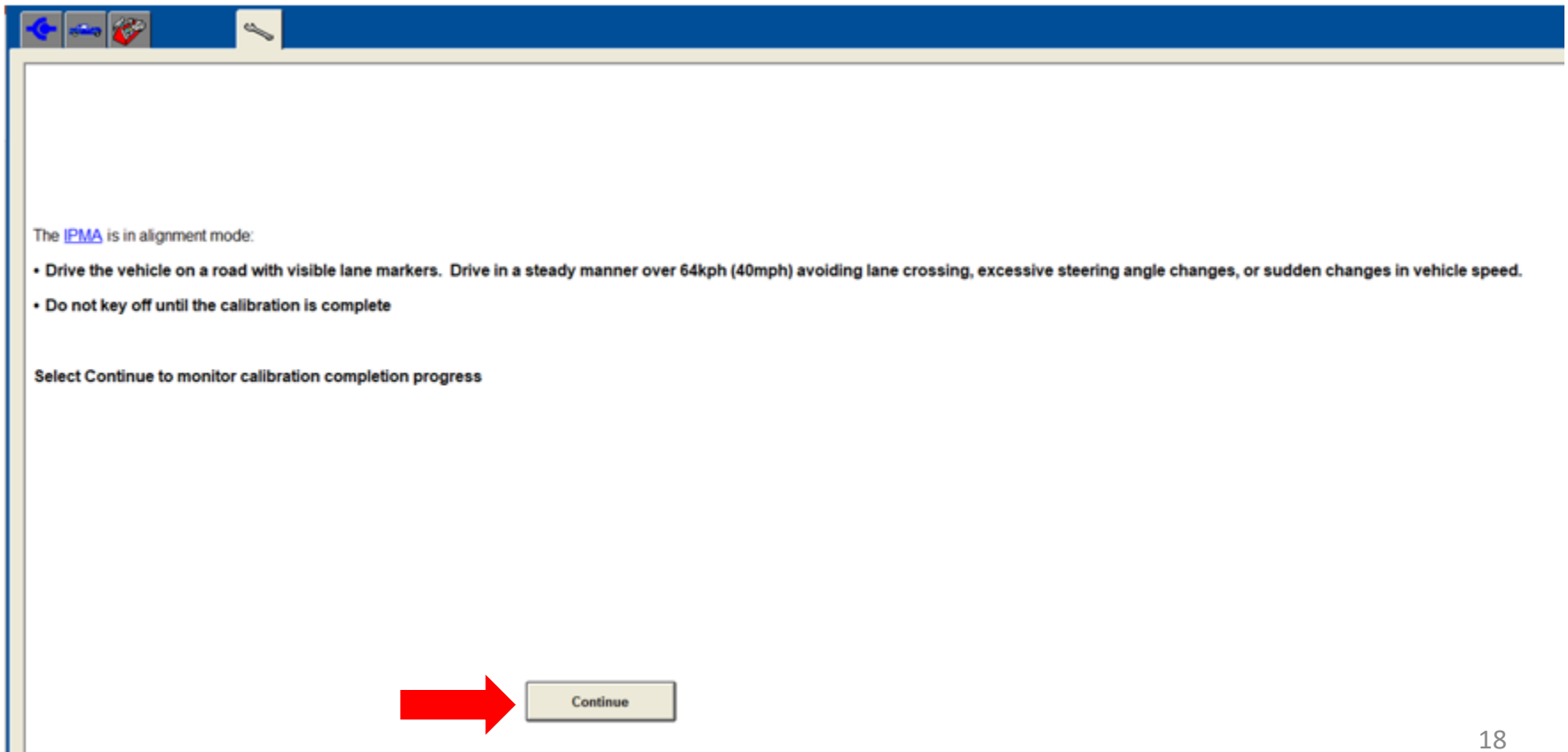
Step 6. Perform alignment using Ford IDS software and VCM adapter

- Follow instructions on IDS to proceed with alignment



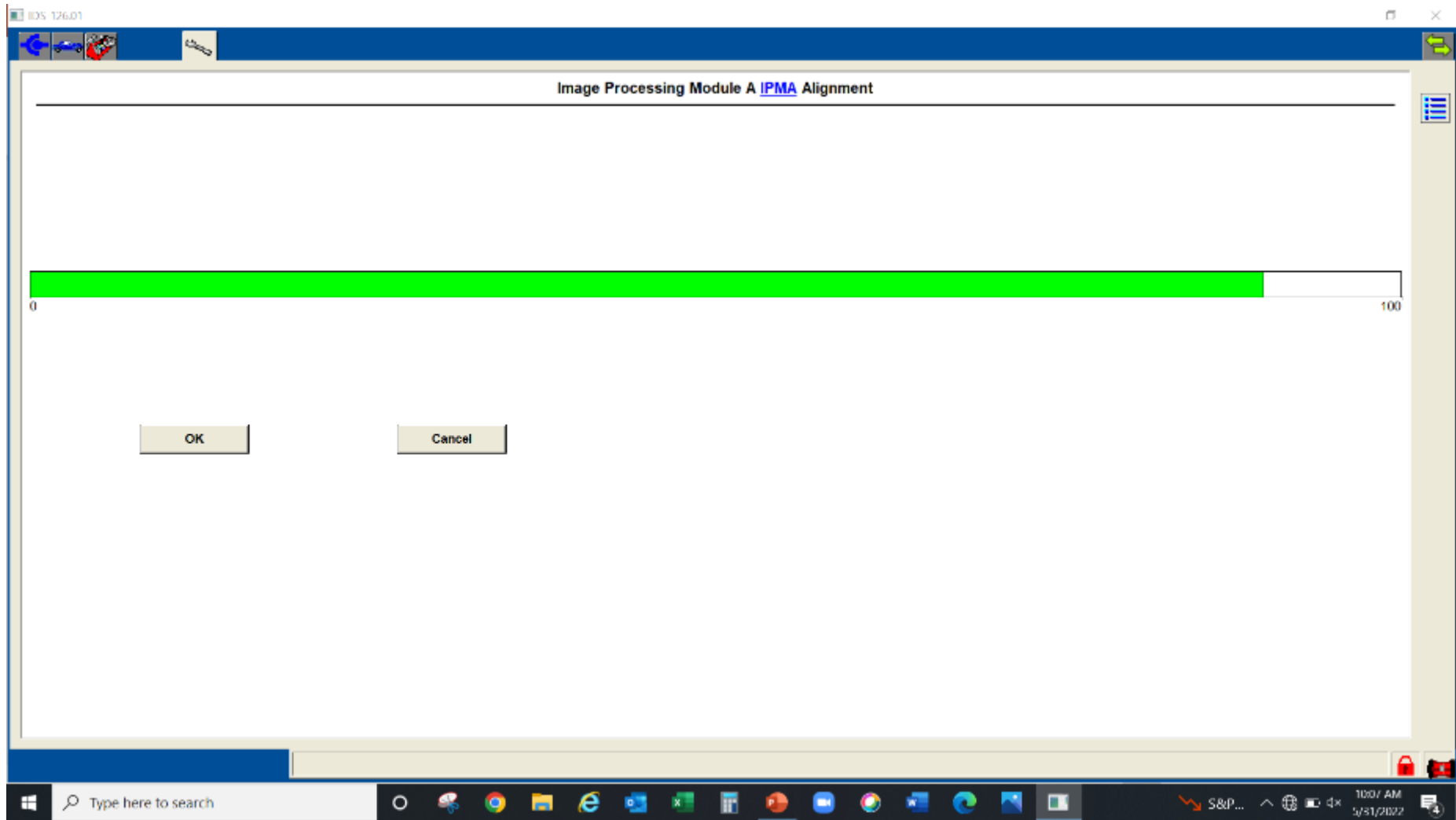
Step 6. Perform alignment using Ford IDS software and VCM adapter

- Up to 15 min road test above 40 MPH on straight road with highly visible lane markers. Average time is 5 minutes.
 - 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 alignment



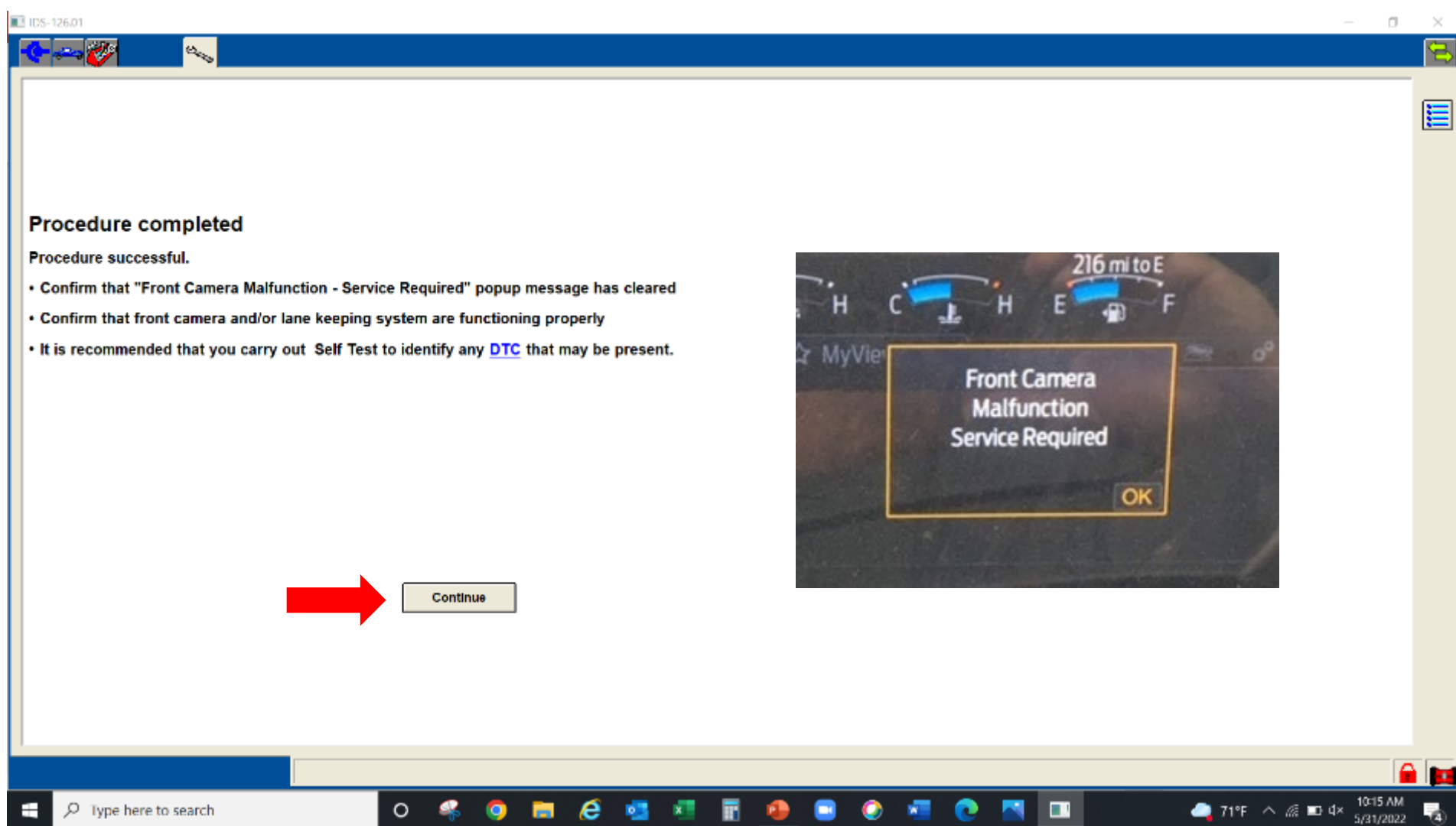
Step 6. Perform alignment using Ford IDS software and VCM adapter

- Follow instructions on IDS to proceed with alignment



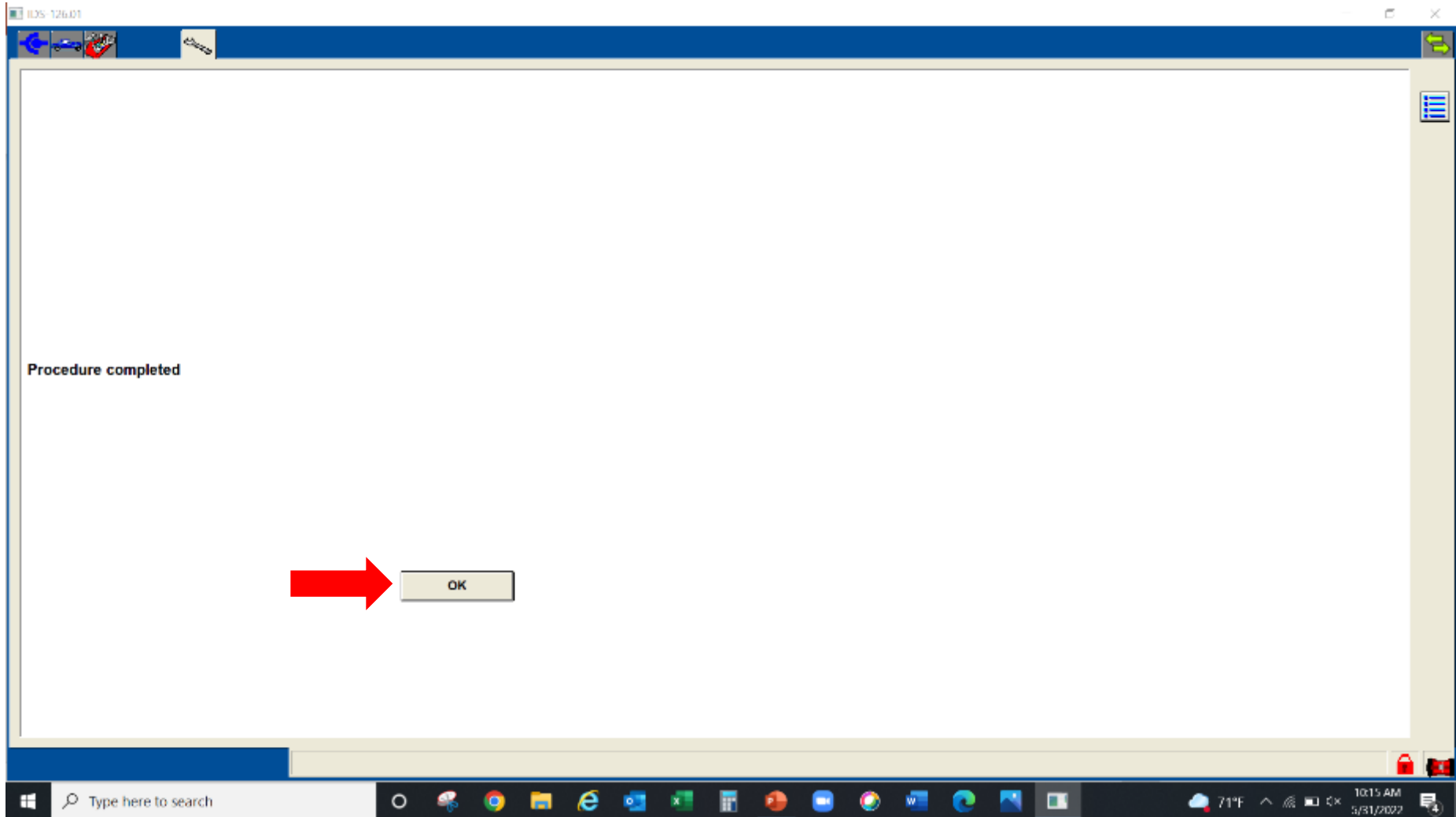
Step 6. Perform alignment using Ford IDS software and VCM adapter

- Follow instructions on IDS to proceed with alignment



Step 6. Perform alignment using Ford IDS software and VCM adapter

- Follow instructions on IDS to finish with calibration



Ford FDRS software (2023 & newer model years)

Step 6. Perform alignment using Ford FDRS software and VCM adapter

- Connect Ford FDRS and launch IPM 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 tabs for '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'. A 'Rerun Network Test' button is also present.

Below the network test results, there are three sections for vehicle modules:

- HS1:** PCM, BCM
- HS2:** ABS, CCM, GEM, GWM, **IPMA** (selected with a checkmark), PAM
- HS3:** IPC, SCCM

On the right side, there is a table with tabs for 'All', 'Favorites', 'Offline', 'Multi-Module', 'SW Updates', 'Programmable Features', 'Guided Routines', and 'IPMA'. The 'IPMA' tab is selected, showing a list of IPMA-related tasks:

Star	Signal	Task Name	Action
★		Self-Test	Run
★		Datalogger	Run
★		Network Monitor	Run
★	📶	IPMA - Programmable Module Installation (PMI)	Download
★	📶	IPMA - Image Processing Module A (IPMA) Configuration	Download
★	📶	IPMA - Image Processing Module A (IPMA) Alignment	Download

A red arrow points to the 'Download' button for the 'IPMA - Image Processing Module A (IPMA) Alignment' task.

At the bottom of the software window, the status bar shows '1F66F5KN6P0A00667 F-STRIPPED CHASSIS 7.3L 2V DEVCT NA PFI V8 GAS', 'FDRS 36.4.8', 'Connected to Device', and a battery level of '14.3V'.

The Windows taskbar at the very bottom shows the search bar, taskbar icons, and system tray information including '87°F Partly sunny' and the date '8/15/2023'.

Step 6. Perform alignment using Ford FDRS software and VCM adapter

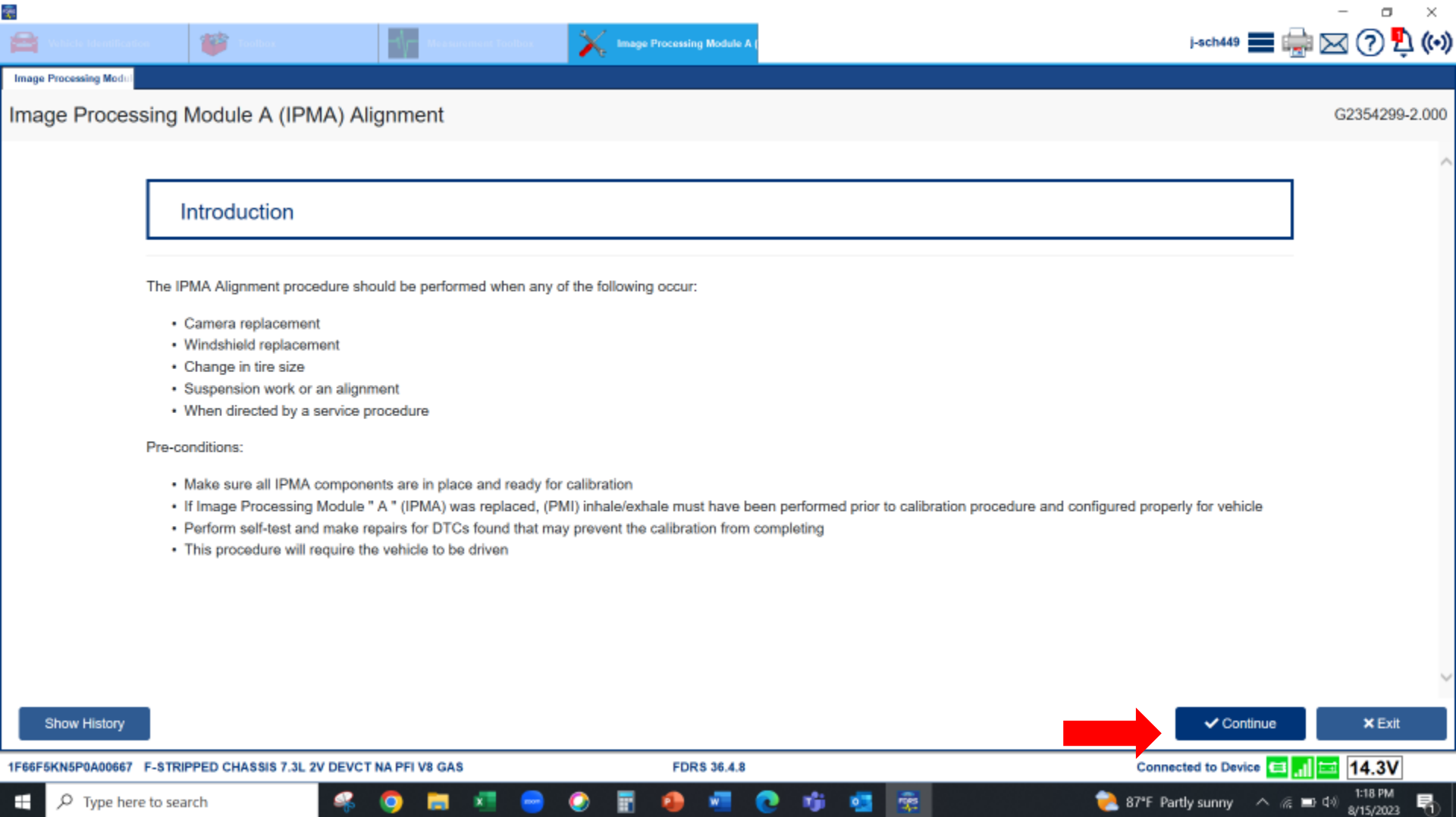
- Connect Ford FDRS and launch IPM alignment as shown below
 - NOTE an internet connection is required to download and run the alignment

The screenshot displays the Ford FDRS software interface. At the top, there are tabs for '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 sections for 'HS1', 'HS2', and 'HS3' with buttons for various modules like PCM, BCM, ABS, CCM, ECM, GWM, PMA, and PAM. The 'PMA' button in the HS2 section is highlighted with a checkmark. On the right, a table lists various routines with columns for 'All', 'Favorites', 'Offline', 'Multi-Module', 'SW Updates', 'Programmable Features', 'Guided Routines', and 'IPMA'. The 'IPMA' column is selected, showing a list of routines: 'Self-Test', 'Data Logger', 'Network Monitor', 'IPMA - Programmable Module Installation (PMI)', 'IPMA - Image Processing Module A (IPMA) Configuration', and 'IPMA - Image Processing Module A (IPMA) Alignment'. A red arrow points to the 'Run' button next to the 'IPMA - Image Processing Module A (IPMA) Alignment' routine. At the bottom, the status bar shows '1F66F5KN6P0A00667 F-STRIPPED CHASSIS 7.3L 2V DEVCT NA PFI V8 GAS', 'FDRS 36.4.8', 'Connected to Device', and a voltage reading of '14.3V'.

All	Favorites	Offline	Multi-Module	SW Updates	Programmable Features	Guided Routines	IPMA	
★							Self-Test	Run
★							Data Logger	Run
★							Network Monitor	Run
★	📶						IPMA - Programmable Module Installation (PMI)	Download
★	📶						IPMA - Image Processing Module A (IPMA) Configuration	Download
★	📶						IPMA - Image Processing Module A (IPMA) Alignment	Run

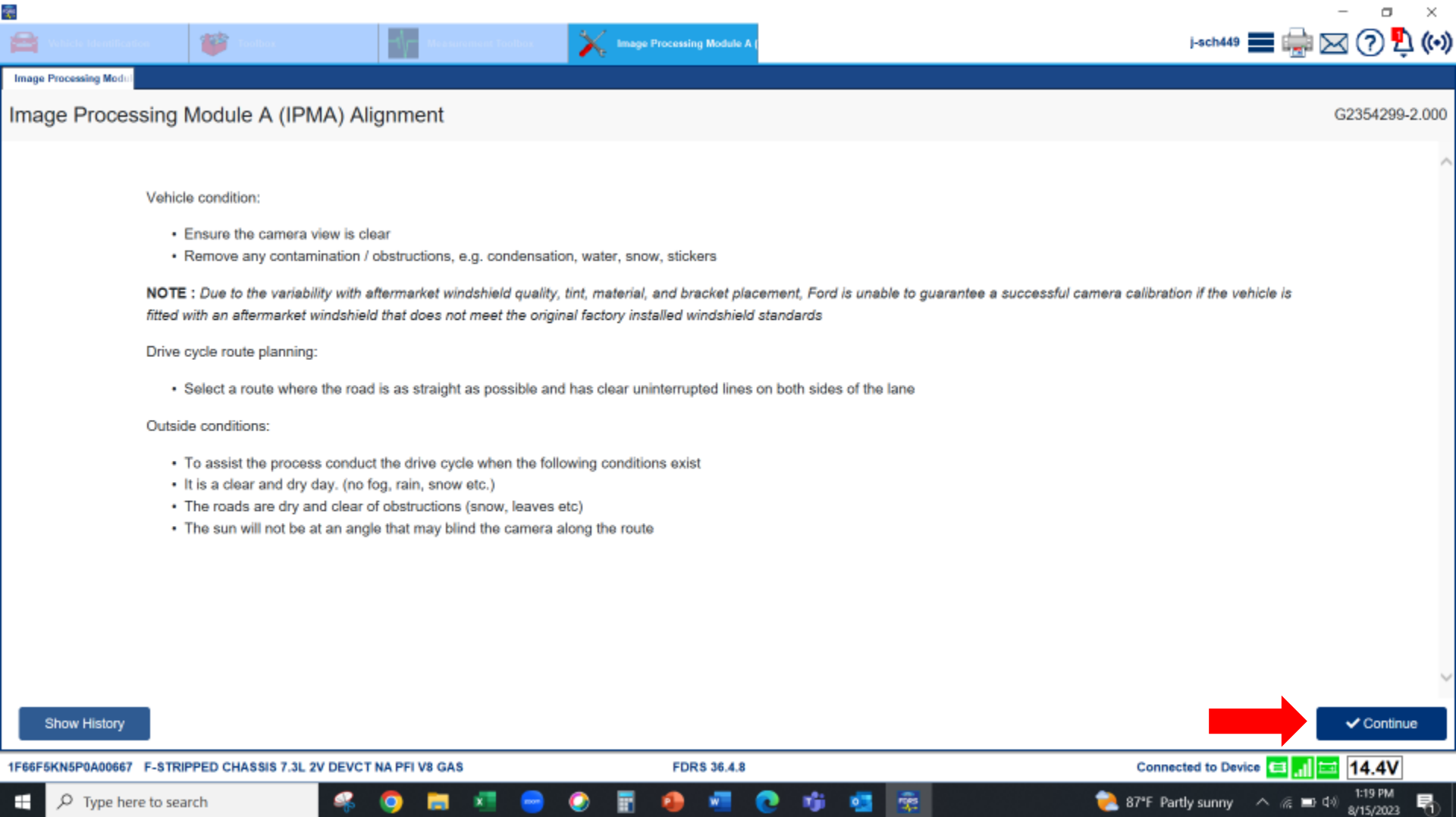
Step 6. Perform alignment using Ford FDRS software and VCM adapter

- Follow instructions on FDRS to proceed with alignment



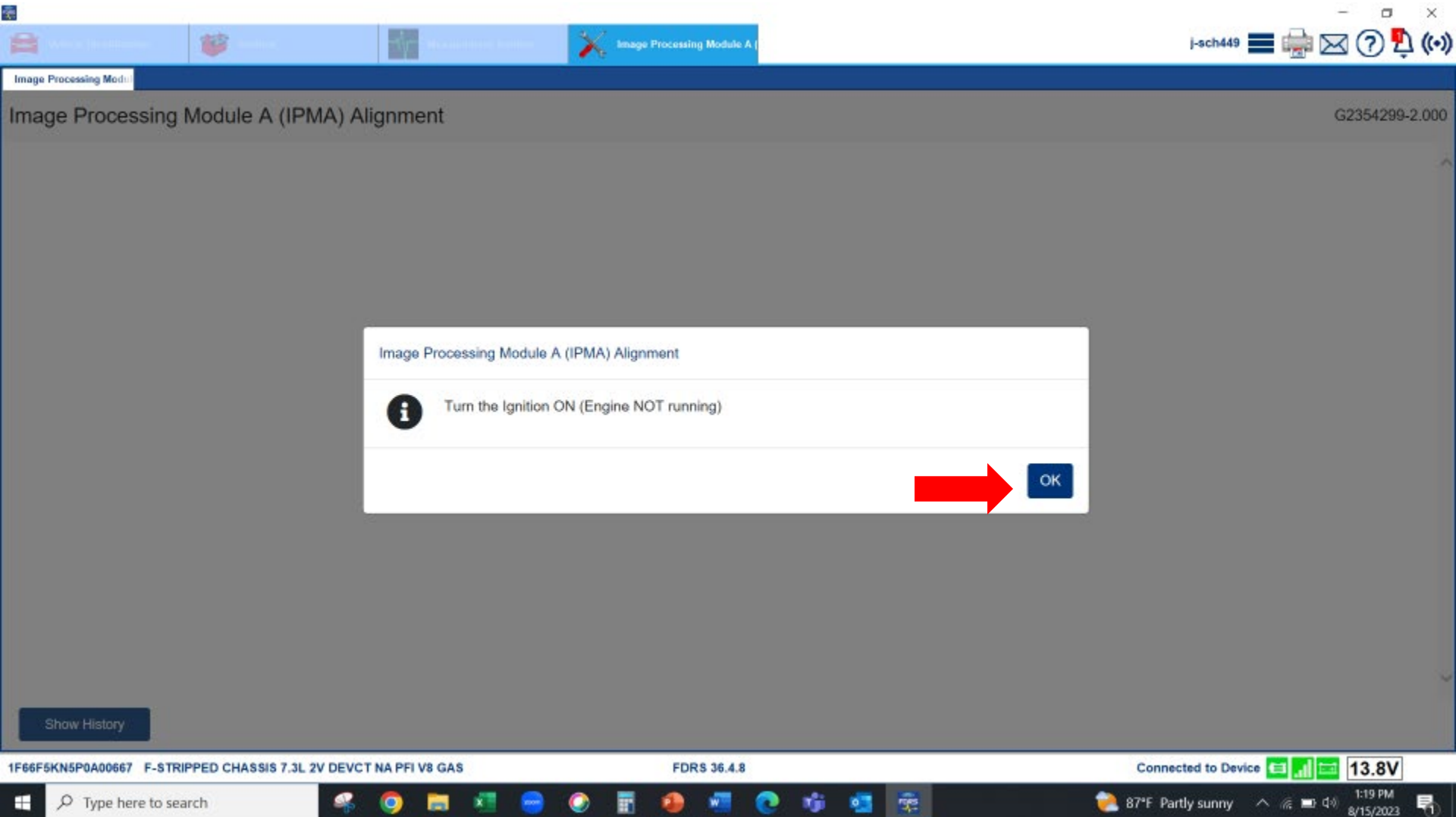
Step 6. Perform alignment using Ford FDRS software and VCM adapter

- Follow instructions on FDRS to proceed with alignment



Step 6. Perform alignment using Ford FDRS software and VCM adapter

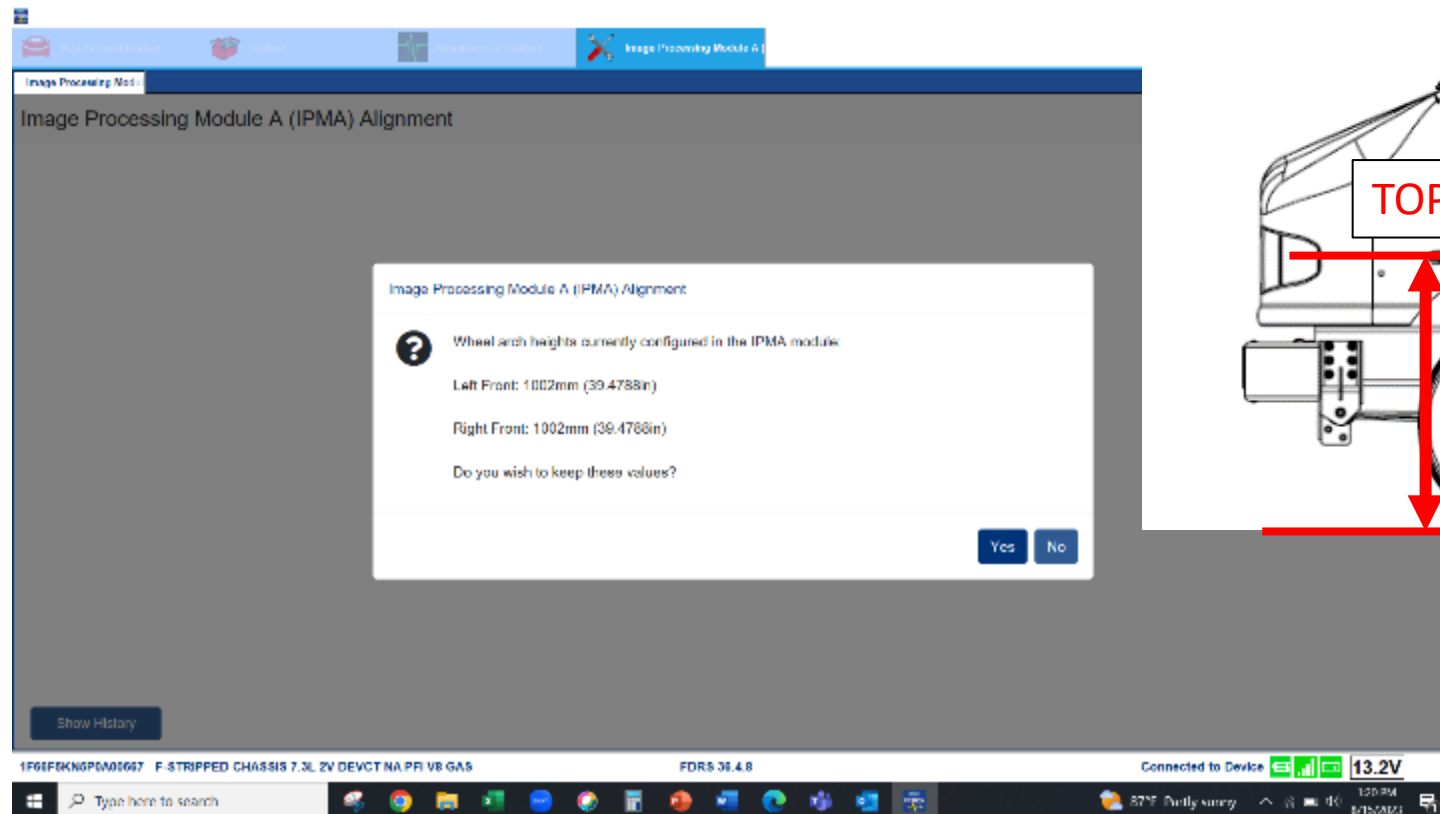
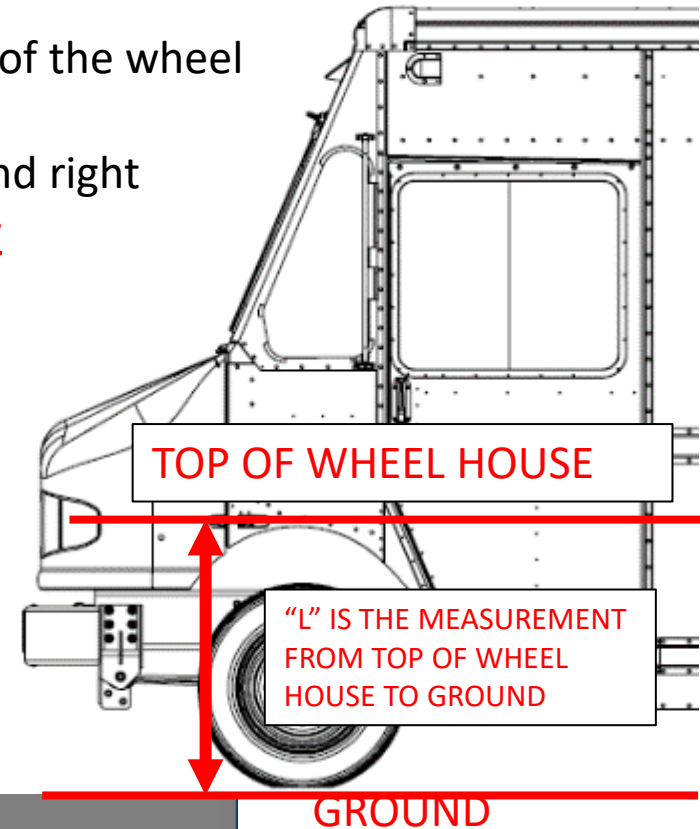
- Follow instructions on FDRS to proceed with alignment



Step 6. Perform alignment using Ford FDRS software and VCM adapter

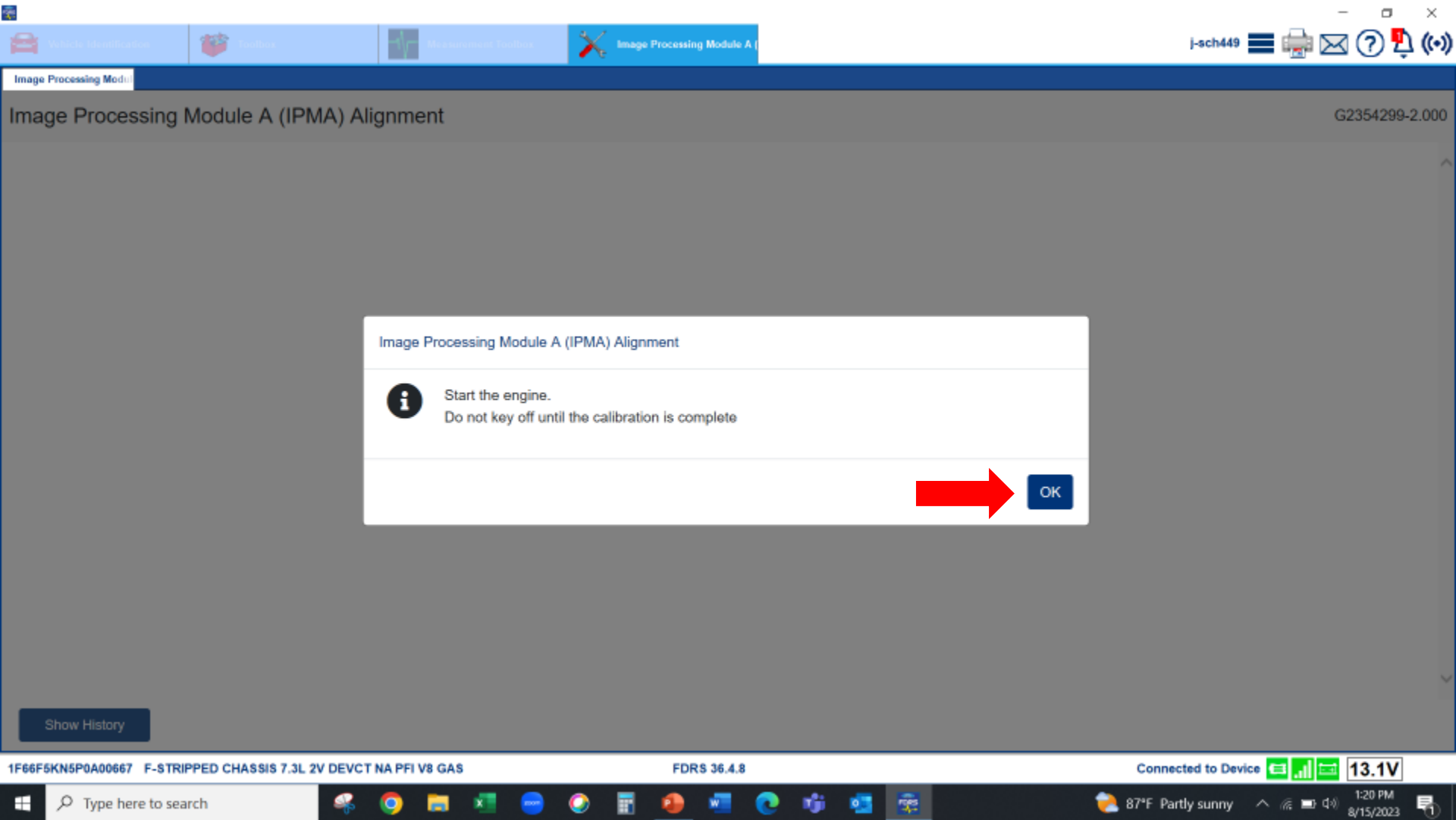
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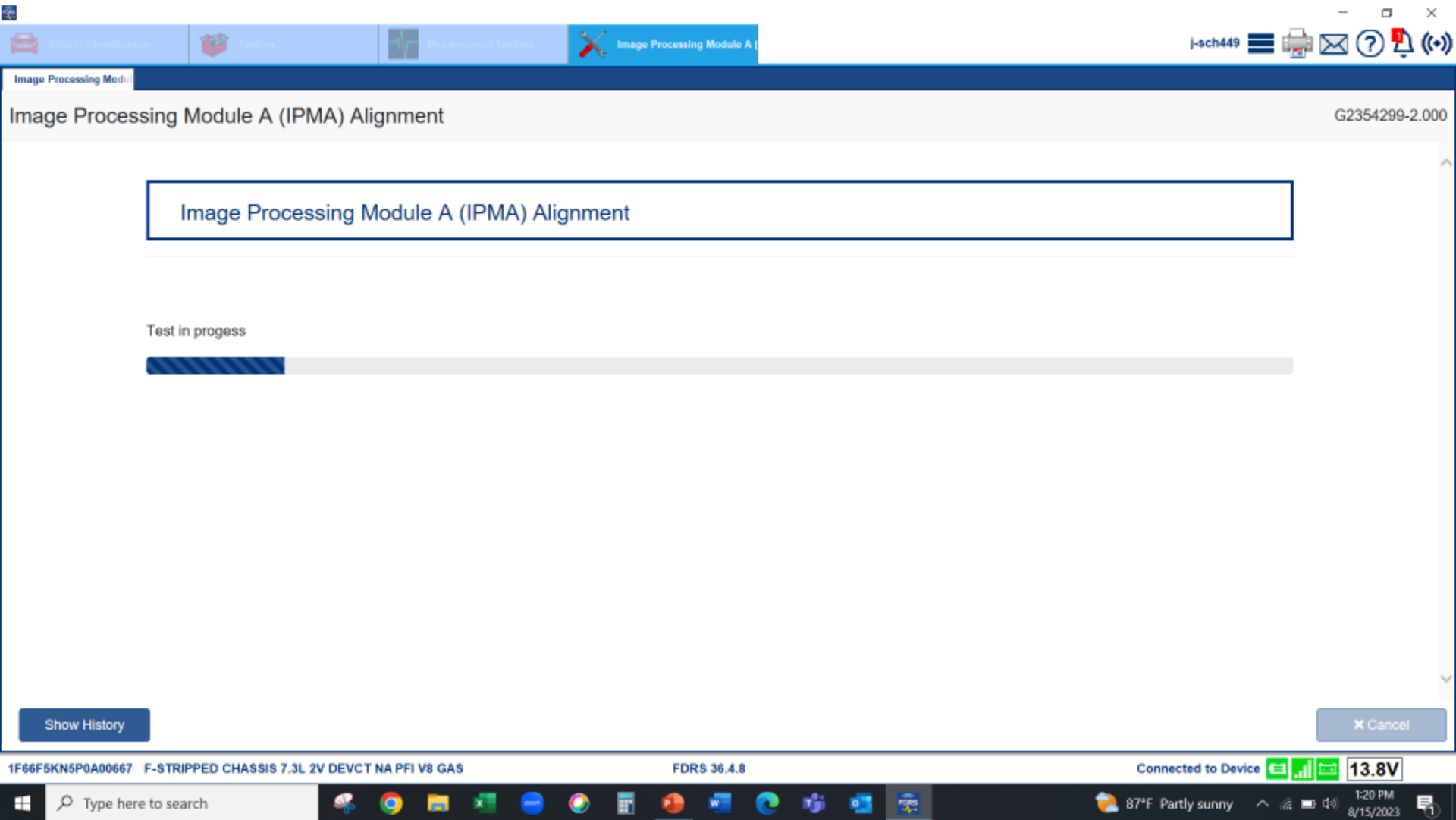
Step 6. Perform alignment using Ford FDRS software and VCM adapter

- Follow instructions on FDRS to proceed with alignment



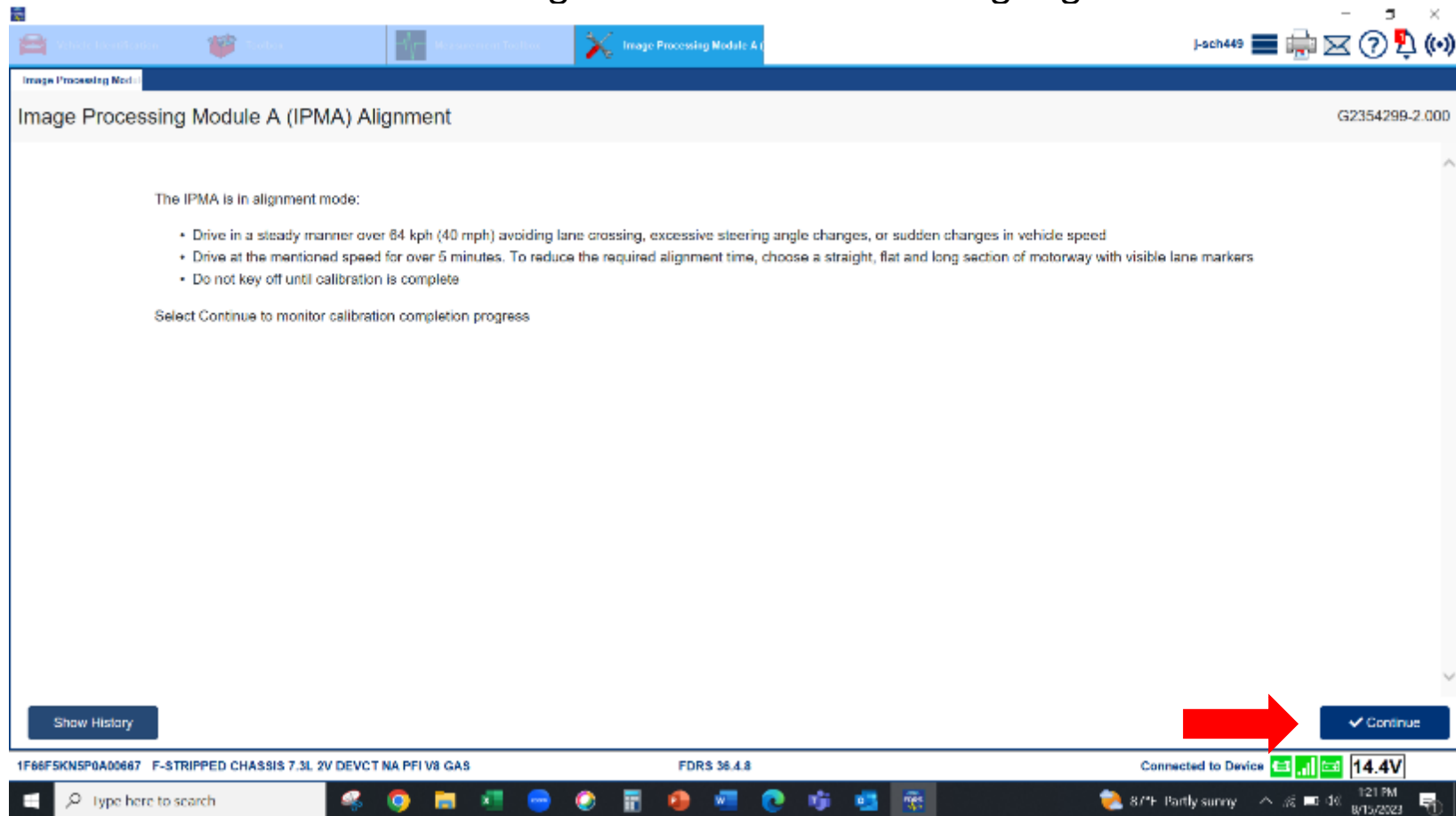
Step 6. Perform alignment using Ford FDRS software and VCM adapter

- Follow instructions on FDRS to proceed with alignment



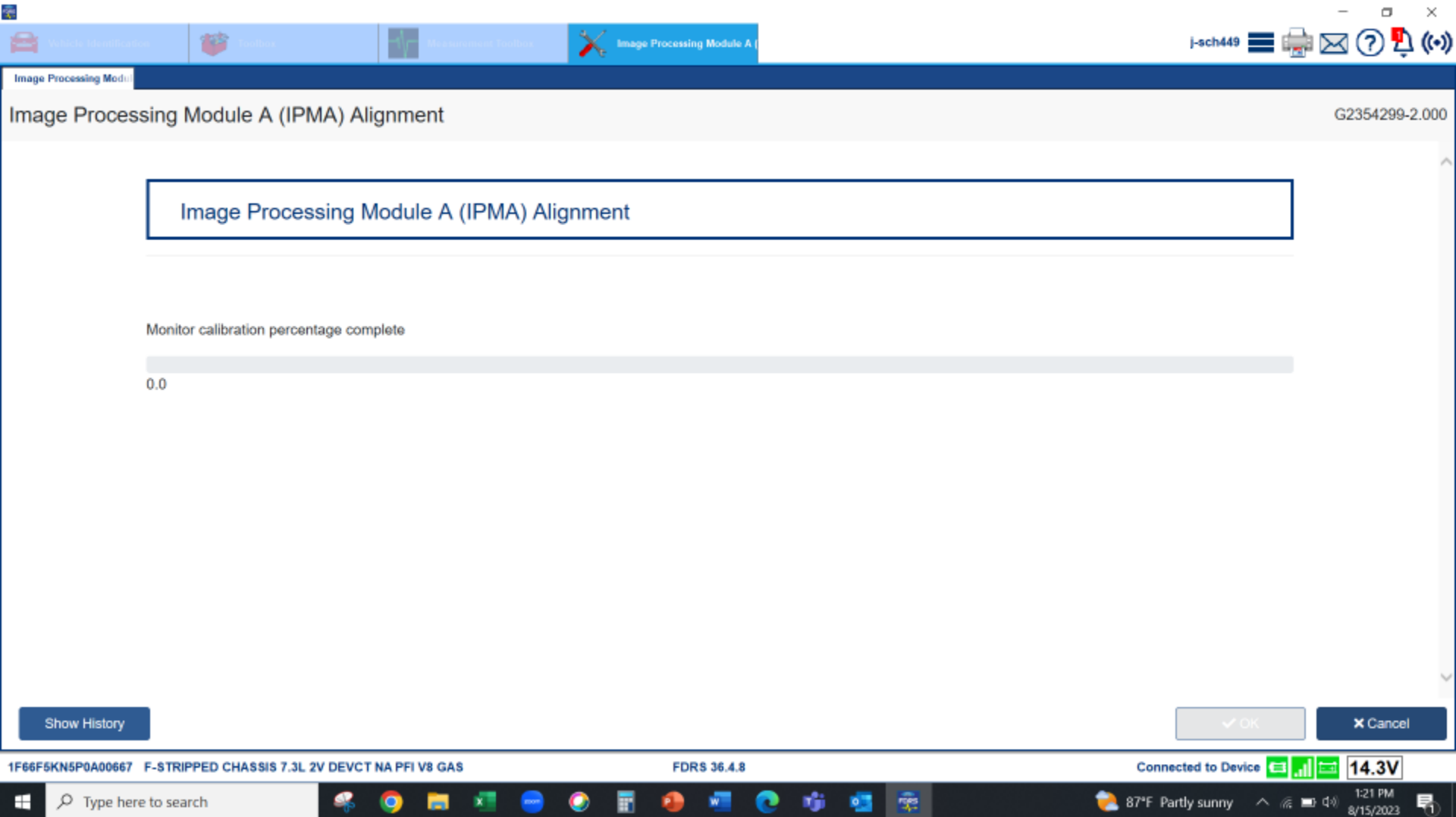
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 - OK if road is not straight and turns made during alignment



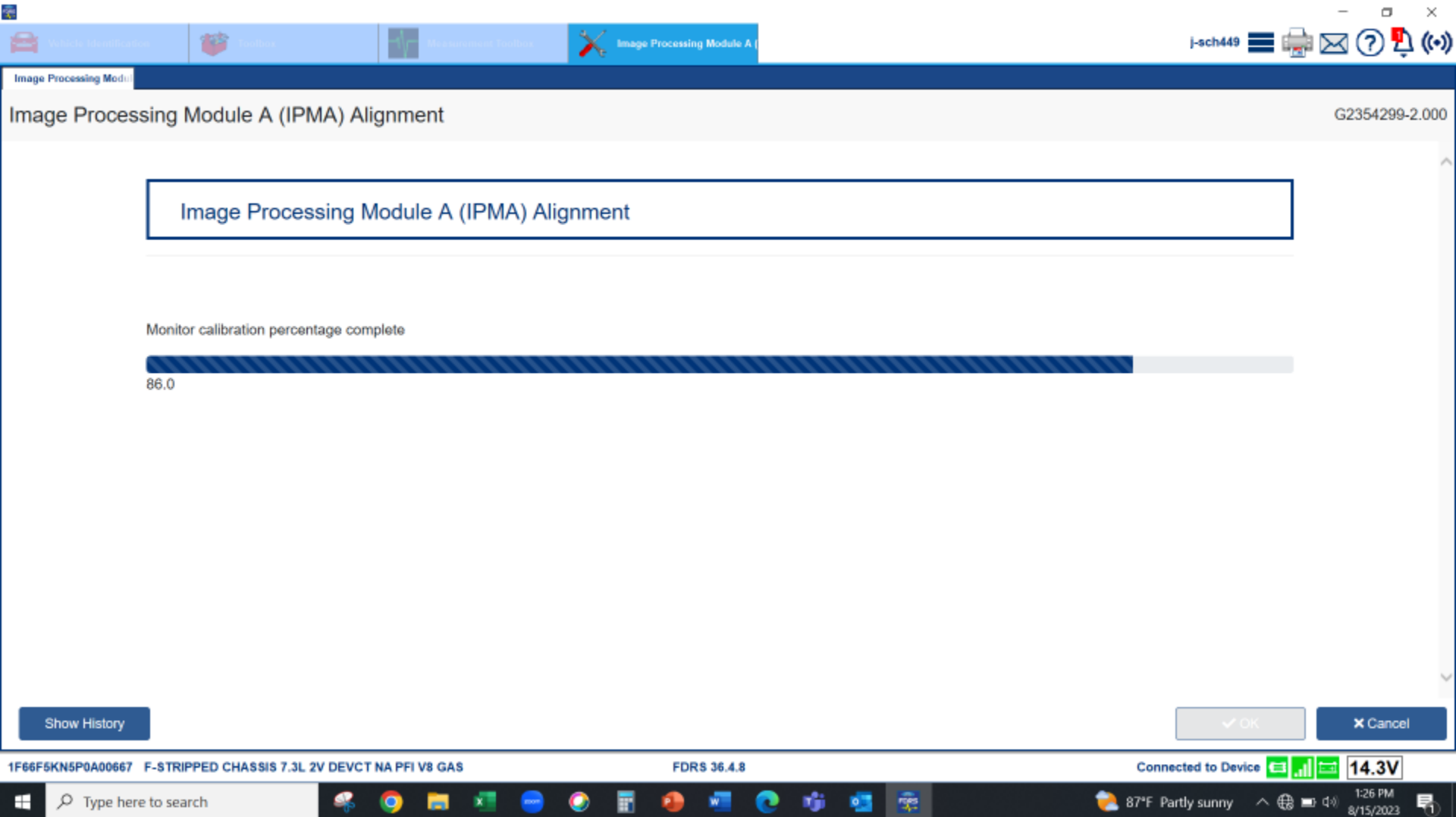
Step 6. Perform alignment using Ford FDRS software and VCM adapter

- Follow instructions on FDRS to proceed with alignment



Step 6. Perform alignment using Ford FDRS software and VCM adapter

- Follow instructions on FDRS to proceed with alignment



Step 6. Perform alignment using Ford FDRS software and VCM adapter

- Follow instructions on FDRS to proceed with alignment

The screenshot displays the Ford FDRS software interface. The top navigation bar includes tabs for Vehicle Identification, Tools, Measurement ToolBox, and Image Processing Module A. The main window title is "Image Processing Module A (IPMA) Alignment". On the left, a status panel indicates "Procedure completed" and "Procedure successful", followed by a list of instructions: confirm the "Front Camera Malfunction - Service Required" message is cleared, confirm front camera and/or LKS are functioning properly, and recommend a Self-Test to identify any DTCs. On the right, a video feed shows a car's instrument cluster with a "Front Camera Fault Service Required" warning message highlighted by an orange box. At the bottom of the software window, there is a "Show History" button on the left and a "Continue" button on the right, which is pointed to by a large red arrow. The bottom status bar shows vehicle information (1F66F5KN5P0A00667, F-STRIPPED CHASSIS 7.3L 2V DEVCT NA PFI V8 GAS), FDRS version (36.4.8), connection status (Connected to Device), and battery voltage (14.4V). The Windows taskbar at the very bottom shows the search bar and various application icons.

Image Processing Module A (IPMA) Alignment

G2354299-2.000

Procedure completed

Procedure successful

- Confirm that "Front Camera Malfunction - Service Required" popup message has cleared
- Confirm that front camera and/or LKS are functioning properly
- It is recommended that you carry out Self-Test to identify any DTCs that may be present

Front Camera Fault Service Required

OK

4174.7mi PRND421 94°

Show History

Continue

1F66F5KN5P0A00667 F-STRIPPED CHASSIS 7.3L 2V DEVCT NA PFI V8 GAS

FDRS 36.4.8

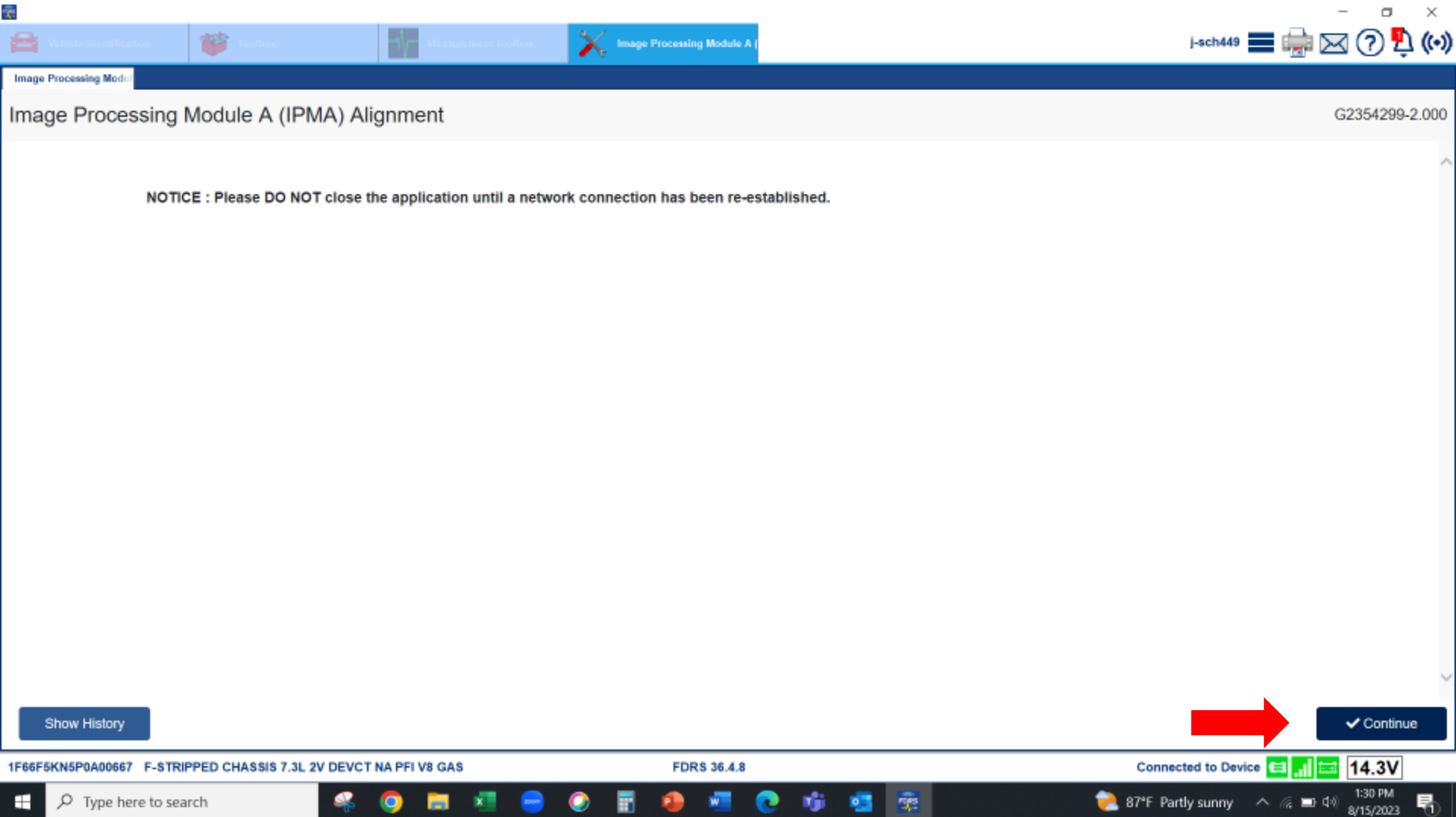
Connected to Device

14.4V

87°F Partly sunny 1:30 PM 8/15/2023

Step 6. Perform alignment using Ford FDRS software and VCM adapter

- Follow instructions on FDRS to proceed with alignment



Step 6. Perform alignment using Ford FDRS software and VCM adapter

- Follow instructions on FDRS to finish with alignment

