

# **ADAS**

## **RECALIBRATION SYSTEM**

# **User Guide**

North America  
and  
Europe

EAZ0139L01A Rev. B

**NOTES**

A large, empty rectangular box with a thin black border, occupying most of the page below the 'NOTES' header. It is intended for the user to write their notes.

# Sections

---

Component Identification	<b>1</b>
Getting Started	<b>2</b>
Pre-Checks	<b>3</b>
Front Camera Recalibration	<b>4</b>
Rear Camera Recalibration	<b>5</b>
Front Radar Recalibration	<b>6</b>
Using the Diagnostic Tool	<b>7</b>

**NOTES**

A large, empty rectangular box with a thin black border, occupying most of the page below the 'NOTES' header. It is intended for the user to write their notes.

# Contents

<b>Section i: Safety Information</b> .....	<b>i-i</b>
READ ALL INSTRUCTIONS .....	i-i
Safety Signal Words.....	i-ii
Safety Message Conventions .....	i-ii
Safety Message Example .....	i-ii
Important Safety Instructions .....	i-ii
Product Safety Labels .....	i-iii
<b>Section ii: Important Information</b> .....	<b>ii-v</b>
<b>Section 1: Component Identification</b> .....	<b>1-1</b>
TS100 Target Stand .....	1-1
Alignment Fixtures and Components .....	1-2
<b>Section 2: Getting Started</b> .....	<b>2-1</b>
Serial Number Information .....	2-1
User Guide and Target Placement Instructions .....	2-1
Basic Laser Operation and Setup Reference.....	2-2
Laser Specifications.....	2-2
Laser Battery Installation / Removal .....	2-2
Battery Safety and Disposal .....	2-2
Laser Operation On/Off .....	2-3
Laser Assembly Installation / Removal from AS10 and TS100 .....	2-3
AS10 Laser Assembly Alignment .....	2-4
AS10 Laser Assembly (Vertical Beam Adjustment).....	2-4
Rotating / Storing the Cross Beam.....	2-5
<b>Section 3: Pre-Checks</b> .....	<b>3-1</b>
Vehicle .....	3-1
Shop Area .....	3-1
Equipment .....	3-2
<b>Section 4: Front Camera Recalibration</b> .....	<b>4-1</b>
Quick Reference .....	4-1
Front Camera Recalibration (Overview).....	4-2
Basic Hardware Needed.....	4-2
Setup Reference (Routine Operations) .....	4-3
Using the Clutch Brake Lift (TS100) .....	4-4
Using the Brake Levers (TS100) .....	4-5
Locating the Vehicle Centerline (Step 1).....	4-6
Using the Front Camera Target Placement Instructions (Step 2) .....	4-8
Setting the Target Distance (Step 3).....	4-9
Setting Target Distance (From Front of Vehicle) .....	4-9
Setting Target Distance (From Front Axle Centerline).....	4-13
Setting the Target Height (Step 4) .....	4-17
Installing the Targets (Step 5) .....	4-19
Special Setup Information .....	4-22
Using One Target / Multiple Positions .....	4-22
Multi-Target Recalibration Using Extension Arms .....	4-23

---

Zero Stop - Two Position Target Distance Setup .....	4-24
Zero Stop - Single Position Target Distance Setup .....	4-31
<b>Section 5: Rear Camera Recalibration.....</b>	<b>5-1</b>
Quick Reference .....	5-1
Rear Camera Recalibration (Overview) .....	5-1
Basic Hardware Needed .....	5-2
Locating the Vehicle Centerline (Step 1) .....	5-2
Using the Rear Target Placement Instructions (Step 2) .....	5-5
Rear Camera Recalibration Setup (Step 3) .....	5-6
Quick Reference.....	5-6
Volkswagen / Audi Models Using Target VAG-RC-01 .....	5-6
Mercedes-Benz Models Using Target MB-RC-01 .....	5-10
<b>Section 6: Front Radar Recalibration.....</b>	<b>6-1</b>
Quick Reference .....	6-1
Front Radar Recalibration (Overview) .....	6-2
Basic Hardware Needed .....	6-2
Locating the Vehicle Centerline (Step 1) .....	6-3
Using the Front Radar Target Placement Instructions (Step 2) .....	6-5
Front Radar Recalibration Setup (Step 3) .....	6-6
Quick Reference.....	6-6
Honda Front Radar Recalibration .....	6-6
Toyota / Lexus and Mazda Front Radar Recalibration .....	6-9
<b>Section 7: Diagnostic Tool Operation.....</b>	<b>7-1</b>
Important Information.....	7-1
Performing Recalibration Functional Tests.....	7-1
Special Toyota / Lexus Information .....	7-2
Troubleshooting .....	7-2

---



# Safety Information

## READ ALL INSTRUCTIONS

For your own safety, the safety of others, and to prevent damage to the product and vehicles upon which it is used, it is important that all instructions and safety messages in this guide and the accompanying *Important Safety Instructions* be read and understood by all persons operating, or coming into contact with the product, before operating. We suggest you store a copy of each manual near the product in sight of the operator.

For your safety, read all instructions. Use your diagnostic tools only as described in the tool user's manual. Use only manufacturer recommended parts and accessories with your diagnostic tools.

This product is intended for use by properly trained and skilled professional automotive technicians. The safety messages presented throughout this guide and the accompanying *Important Safety Instructions* are reminders to the operator to exercise extreme care when using this product.

There are many variations in procedures, techniques, tools, and parts for servicing vehicles, as well as in the skill of the individual doing the work. Because of the vast number of test applications and variations in the products that can be tested with this instrument, we cannot possibly anticipate or provide advice or safety messages to cover every situation. It is the responsibility of the automotive technician to be knowledgeable of the system being tested. It is essential to use proper service methods and test procedures. It is important to perform tests in an appropriate and acceptable manner that does not endanger your safety, the safety of others in the work area, the equipment being used, or the vehicle being tested.

It is assumed that the operator has a thorough understanding of vehicle systems before using this product. Understanding of these system principles and operating theories is necessary for competent, safe and accurate use of this instrument.)

Before using the equipment, always refer to and follow the safety messages and applicable test procedures provided by the manufacturer of the vehicle or equipment being tested. Use the product only as described in its user manual.

**Read, understand and follow all safety messages and instructions in this user guide, the accompanying *Important Safety Instructions*, and on the test equipment.**



### **WARNING**

**Risk of personal injury, unsafe conditions and equipment damage.**

- **During use, follow the procedures provided in this user guide, the target placement instructions, and the *Important Safety Instructions*.**

*Not following proper operating and safety procedures can result in personal injury, unsafe conditions and equipment damage.*

## **Environmental Conditions:**

- This product is intended for indoor use only
- This product is rated for Pollution Degree 2 (normal conditions)

## Safety Signal Words

All safety messages contain a safety signal word that indicates the level of the hazard. An icon, when present, gives a graphical description of the hazard. Safety Signal words are.



Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury to the operator or to bystanders.



Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury to the operator or to bystanders.



Indicates a potentially hazardous situation which, if not avoided, may result in moderate or minor injury to the operator or to bystanders.

## Safety Message Conventions

Safety messages are provided to help prevent personal injury and equipment damage. Safety messages communicate the hazard, hazard avoidance and possible consequences using three different type styles:

- Normal type states the hazard.
- **Bold type states how to avoid the hazard.**
- *Italic type states the possible consequences of not avoiding the hazard.*

An icon, when present, gives a graphical description of the potential hazard.

## Safety Message Example



Risk of unexpected vehicle movement.

- **Block drive wheels before performing a test with engine running.**

*A moving vehicle can cause injury.*

## Important Safety Instructions

For a complete list of safety messages, refer to the accompanying *Important Safety Instructions manual*.






# SAVE THESE INSTRUCTIONS



# Product Safety Labels

The following safety labels are affixed to the TS100 assembly. Do not remove these labels. The examples shown here are in the English language, other markets may use localized labels.

**Read, understand and follow all safety messages and instructions in this user guide, the accompanying *Important Safety Instructions*, and on the test equipment.**

 <b>WARNING</b>	
 <p><b>RISK OF INJURY OR DAMAGE</b></p> <ul style="list-style-type: none"> <li>Read safety manual and user manual prior to use.</li> </ul> <p><i>Improper use can result in injury or damage.</i></p>	
 <p><b>RISK OF ENTANGLEMENT</b></p> <ul style="list-style-type: none"> <li>Use caution when operating the winch, keep fingers and loose clothing away from the winch and moving parts.</li> </ul> <p><i>Improper use and contact with moving parts can cause injury.</i></p>	
 <p><b>RISK OF EYE INJURY OR IMPAIRED VISION</b></p> <ul style="list-style-type: none"> <li>Never look into a laser light when it is on.</li> </ul> <p><i>Laser light can impair vision and cause eye injury.</i></p>	
<p><b>RISK OF PERSONAL INJURY OR EQUIPMENT DAMAGE</b></p> <ul style="list-style-type: none"> <li>Use caution when using or moving the unit.</li> <li>Use the unit only to lift the supplied targets.</li> <li>Do not use the unit as a lift or support for other objects or people.</li> <li>Do not use unit outside, or in high winds.</li> <li>Secure moving parts before moving unit.</li> <li>Be aware of your surroundings, avoid obstacles on the floor.</li> <li>Follow the procedures provided.</li> </ul> <p><i>Improper setup and operation can result in personal injury or cause equipment.</i></p>	

EAL0483L14A REV B

© 2019 IDSC HOLDINGS, LLC. ALL RIGHTS RESERVED. MODEL: EESE900  
ADAS RECALIBRATION SYSTEM

---

**WARNING / AVERTISSEMENT**

 **RISK OF INJURY OR DAMAGE**

- Read safety manual and user manual prior to use.

*Improper use or procedures can result in injury or damage.*



**RISQUE DE BLESSURES OU DE DOMMAGES**

- Lisez le guide de sécurité et le manuel de l'utilisateur avant utilisation.

*Une utilisation inappropriée ou l'application de procédures inadéquates peuvent entraîner des blessures ou des dommages.*





Serial Number

**UP**



---

**DOWN**

EAL0483L15A

**WARNING**

**RISK OF PERSONAL INJURY AND EQUIPMENT DAMAGE**

- Before rotating beam, remove targets and lock target mounts at an equal distance from the center.
- After rotating beam, ensure locking pin is fully engaged and locking knob is clamped tight.

*Improper use can result in damage and/or personal injury.*

EAL0483L19A REV A

**NOTES**

A large, empty rectangular box with a thin black border, occupying most of the page. It is intended for the user to write their notes.

# Important Information

---

## Copyright Information

© 2019 IDSC Holdings, LLC. All Rights Reserved.

## Disclaimer of Warranties and Limitation of Liabilities

All pictures and illustrations shown are for reference purposes only. All information, specifications and illustrations in this manual are based on the latest information available at the time of printing and are subject to change without notice. While the authors have taken due care in the preparation of this manual, nothing contained herein:

- Modifies or alters in any way the standard terms and conditions of the purchase, lease, or rental agreement under the terms of which the equipment to which this manual relates was acquired.
- Increases in any way the liability to the customer or to third parties.

IDSC Holdings LLC, reserves the right to make changes at any time without notice.

---

### **\*\*IMPORTANT\*\***

Before operating or maintaining this unit, please read this guide carefully, paying extra attention to the safety warnings and precautions.

---

While the authors have taken due care in the preparation of this manual, nothing contained herein increases in any way the liability to the customer or to third parties.

All pictures and illustrations shown are for reference purposes only. All information, specifications and illustrations in this manual are based on the latest information available at the time of printing and are subject to change without notice.

**Prior to using any of the targets referenced in this User Guide, the user should check the applicable automotive manufacturer's service information to make certain that the most recently published targets are used. Do not use the targets published in this User Guide if the automotive manufacturer has published targets that are more recent.**

The information and procedures within this user guide, the target placement instructions and the Important Safety Instructions:

- are intended solely as guidelines and are not a replacement of OEM service information, specifications or procedures. Before performing any automotive repair, always refer to and follow the safety messages and applicable test and repair procedures provided by the manufacturer of the vehicle being serviced. All content included in this document and in the diagnostic software were accurate at the time of publishing and are subject to change without notice.
- are intended for use by properly trained and skilled professional automotive technicians that have a thorough understanding of vehicle systems, principles and operating theories necessary to complete vehicle repair in a competent, safe and accurate manner.

## Business Contact Information

IDSC Holdings, LLC

2801 80th Street

Kenosha, WI 53143

## **Important Information**

### **Trademarks**

The following registered trademarks, are the sole property of their respective holders.

ACURA®

AUDI®

HONDA®

HYUNDAI®

INFINITI®

KIA®

LEXUS®

MAZDA®

MERCEDES-BENZ®

MITSUBISHI®

NISSAN®

SUBARU®

TOYOTA®

VOLKSWAGEN®

### **User Guide Information**

Changes to this document are first published in English, therefore the authoritative version of this document is English. In the event of interpretation divergences in translated versions of this document, the latest English text version has precedence.

This guide is intended for use in multiple markets, therefore some vehicle-specific information and or procedures may not be applicable in your market.

# Component Identification

## TS100 Target Stand

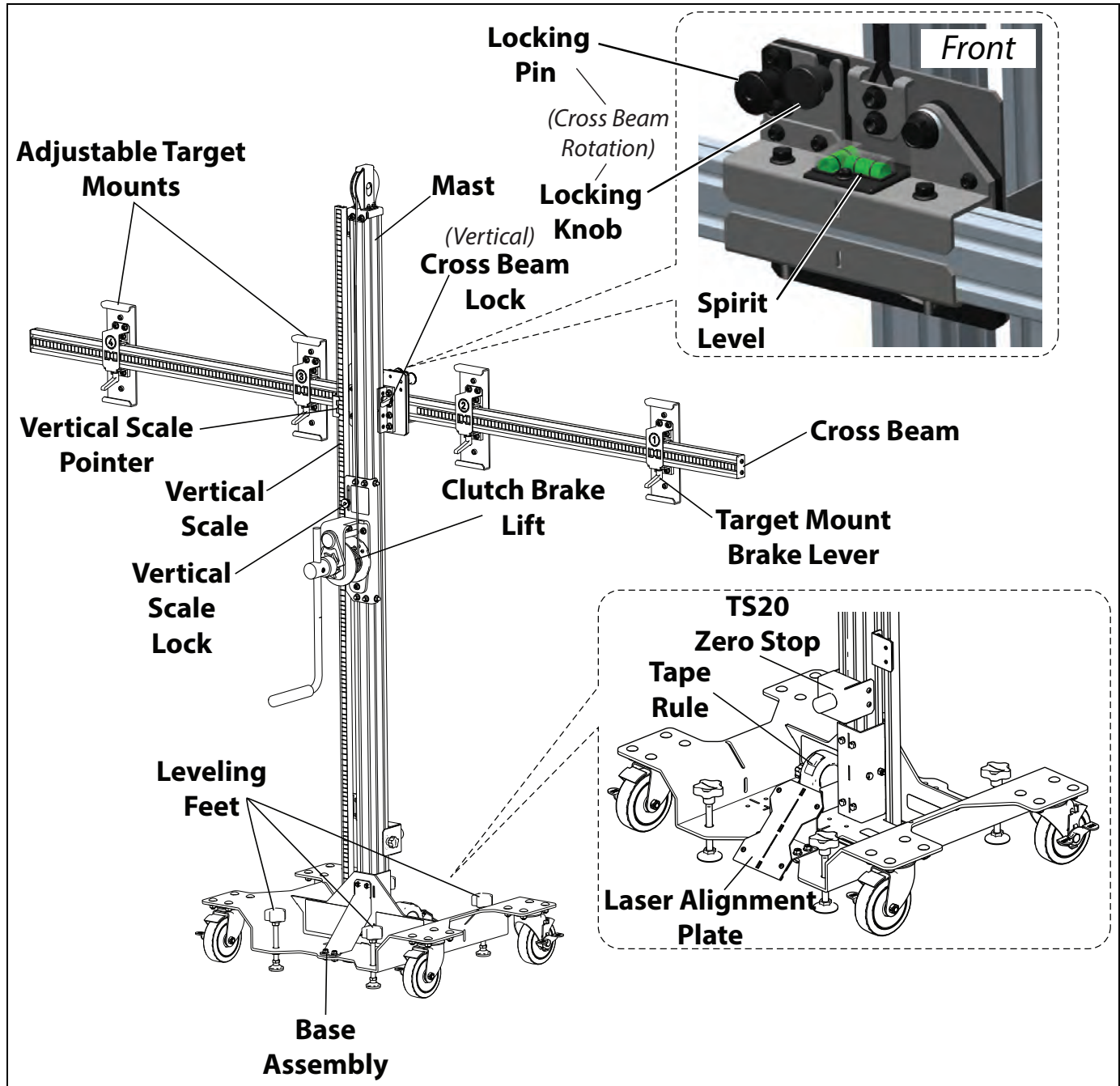


Figure 1-1

# Alignment Fixtures and Components

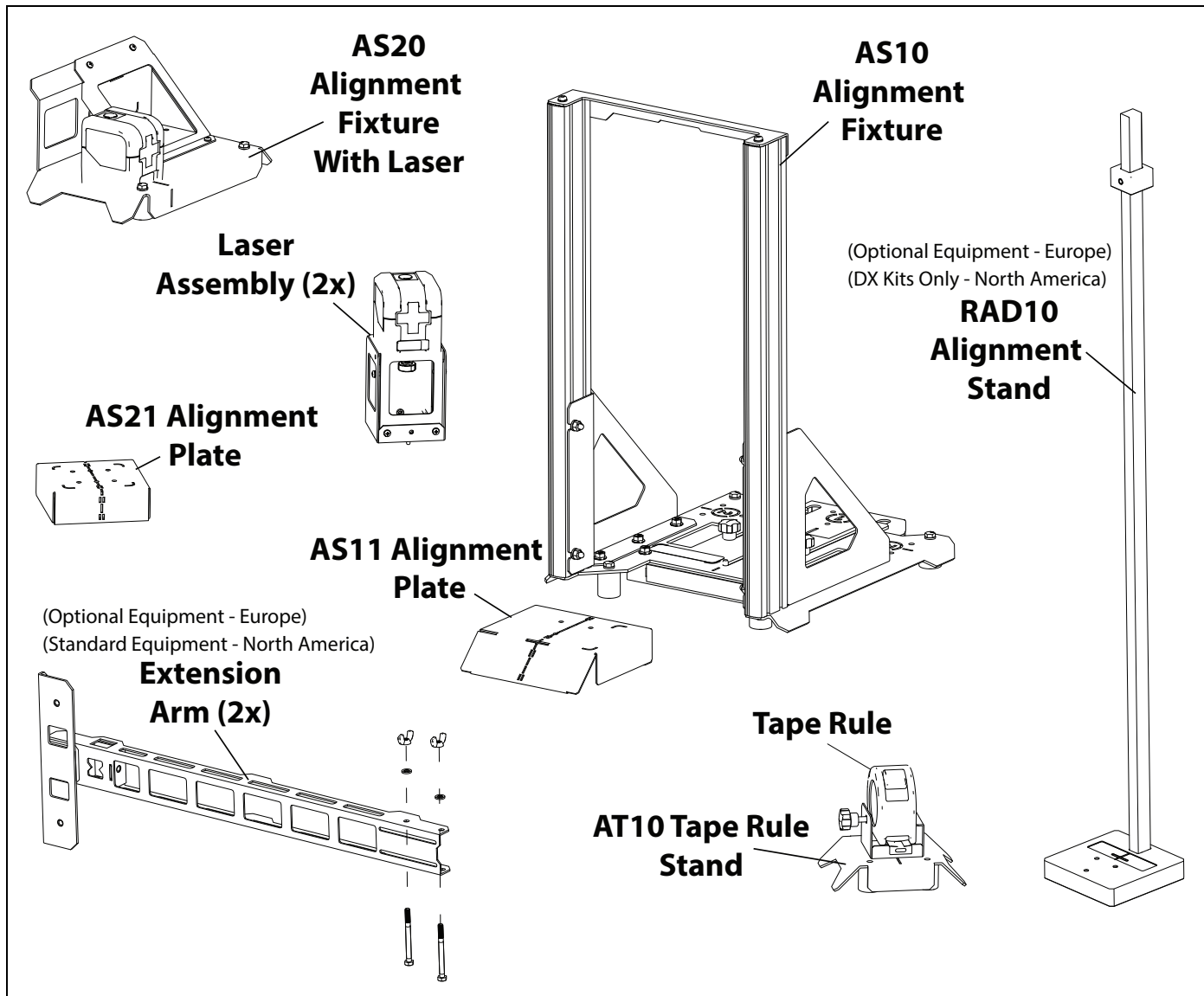


Figure 1-2

# Getting Started

This section includes important information and describes basic setup and routine operation procedures of the ADAS Recalibration System. It is recommended that you review the information in this section before starting any recalibration procedure.

---

**NOTE:**

This guide is intended for use in multiple markets, therefore some vehicle-specific information and or procedures may not be applicable in your market.

---

2

## Serial Number Information

The serial number is located on the base assembly (Figure 2-1).

It is recommend that you write the serial number down and keep it in a safe place for future reference.

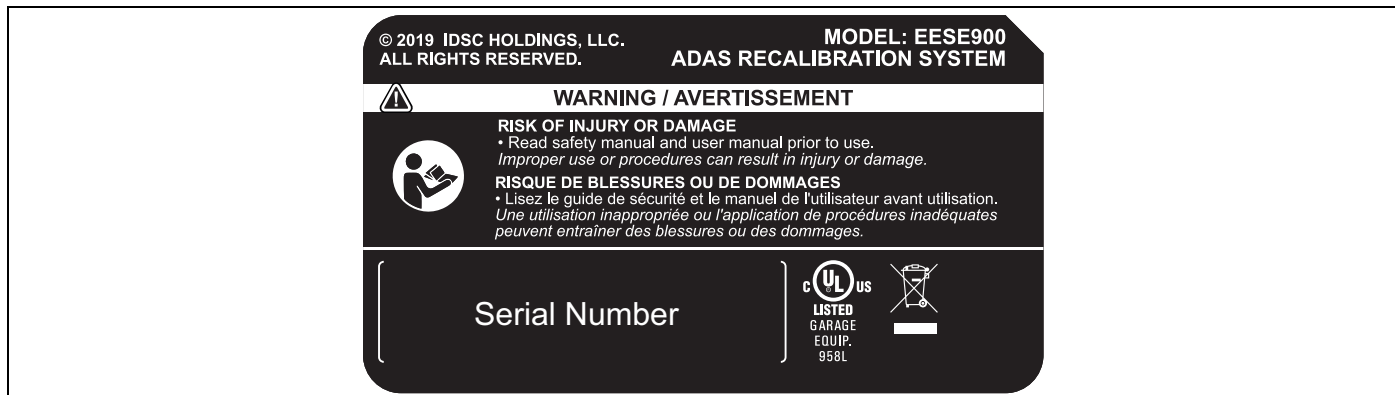


Figure 2-1

## User Guide and Target Placement Instructions

---

**\*\*IMPORTANT\*\***

This user guide and the target placement instruction sheets include instructions and information that are proprietary to this ADAS Recalibration System. Never use this ADAS Recalibration System user guide, or the target placement instruction sheets with any other ADAS system or software.

---

To use the ADAS Recalibration System you will need this [User Guide](#) and the applicable [Target Placement Instruction Sheets](#) to recalibrate front camera and radar systems.

# Basic Laser Operation and Setup Reference

Three lasers are provided. Laser specifications and basic operation are identical as outlined in the following sections.

## Laser Specifications

**Laser** - Class 1 laser (<1mW)

**Power Supply** - AA 1.5V batteries (quantity 2).

## Laser Battery Installation / Removal

The laser battery cover is located on the bottom of the laser.

1. Open the cover to access and service the batteries.  
Battery polarity orientation is shown on the battery cover. Install batteries as indicated.
2. Close and lock battery cover after replacing batteries.

## Battery Safety and Disposal

Keep the following in mind when using and handling the laser batteries:

- Do not short circuit battery terminals.
- Do not immerse the laser in water, or allow water to enter the laser.
- Do not crush, disassemble, or tamper with the batteries.
- Do not heat the batteries, or dispose of them in a fire.
- Do not expose the batteries to excessive physical shock or vibration.
- Keep the batteries out of the reach of children.
- Do not use batteries that appear to have suffered abuse or damage.
- Store batteries in a cool, dry, well ventilated area.
- To prolong the life of the batteries, turn off the laser when not in use.

Always dispose of batteries according to your local regulations. As disposal regulations vary across different countries and regions, always contact your local or regional recycling center for battery disposal and recycling information. The batteries, while non-hazardous waste, do contain recyclable materials. If shipping is required, ship the batteries to a recycling facility in accordance with local, national, and international regulations.

For additional information within the **United States of America** contact:

- Rechargeable Battery Recycling Corporation (RBRC) at [www.call2recycle.org](http://www.call2recycle.org)  
Phone - 800 822-8837

For additional information within **Canada** contact:

- Rechargeable Battery Recycling Corporation (RBRC) at [www.call2recycle.ca](http://www.call2recycle.ca)  
Phone - 888 224 9764

For additional information within the **United Kingdom** contact:

- Electrical Waste Recycling Company at <http://www.electricalwaste.com>

**For all other countries and regions not listed above contact your local or regional recycling center for battery disposal and recycling information.**

Products bearing the WEEE logo (Figure 2-2) are subject to European Union regulations.



Figure 2-2 WEEE logo



## Laser Operation On/Off



### Risk of eye injury or impaired vision.

- Never look or stare into a laser light when it is on.
- Do not point the laser into the face of someone else.
- Do not allow children to be in the area of a laser that is in use, or use the laser.
- Do not point the laser into mirrors, doors, windows, or at reflective surfaces.

*Laser light can impair vision and cause eye injury.*

The laser must be in the locked position to turn on/off. Push the slide to lock the laser, then push and release the power button on top of the laser. The laser also turns on automatically when the slide is moved from lock to unlock (Figure 2-3).

To use the laser, push the slide to unlock the laser. The laser **MUST** always be used in the unlocked position (self-leveling mode).

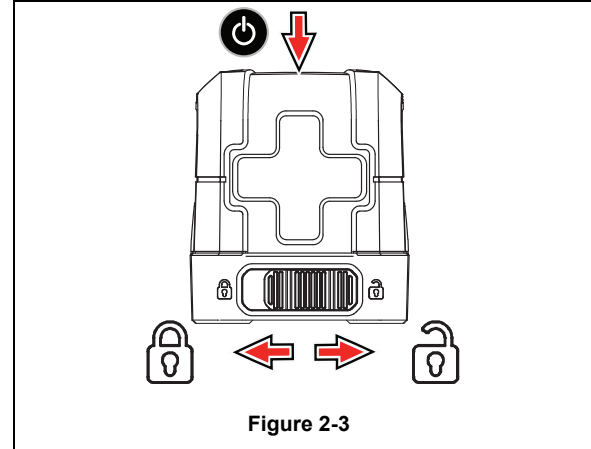


Figure 2-3

## Laser Assembly Installation / Removal from AS10 and TS100

The laser is mounted in a stand and includes three locating pins that must be aligned with matching holes in each fixture. Figure 2-4 shows an example of the laser assembly as used with the AS10 fixture. Use is similar with the TS100 stand. A magnet is used in the laser stand to help keep the laser in place on the fixture.

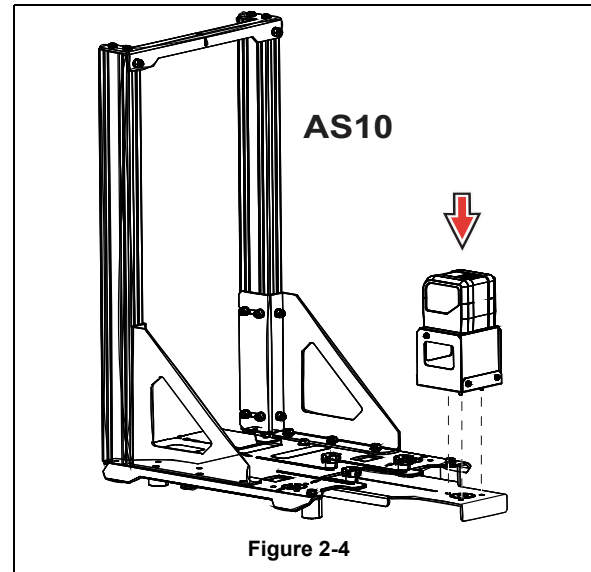


Figure 2-4

### AS10 Laser Assembly Alignment

See [Figure 2-5](#) for reference.

When using the laser assembly with the AS10 alignment fixture, it must be aligned with the fixture.

1. Set the laser assembly in the number "1" position (aligning the three locating pins on base), then turn it on.  
The three locating pins on the base allow limited rotational movement of the laser to align the laser with the alignment slot on the AS10 alignment fixture and AS11 alignment plate.
2. Rotate the laser assembly as needed, to align the beam with the slot on the AS10 alignment fixture.

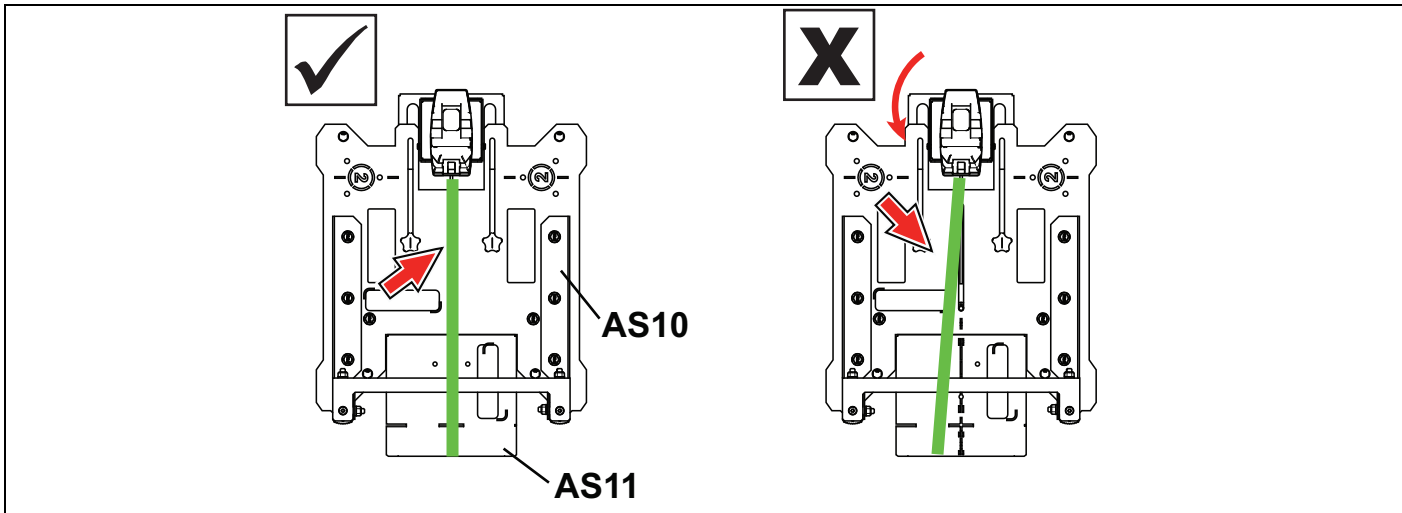


Figure 2-5

### AS10 Laser Assembly (Vertical Beam Adjustment)

See [Figure 2-6](#) for reference.

If the vertical height of the laser is too low or high, adjust as needed. Loosen the laser mount and adjust it in/out as necessary.

**To Widen:** Move the laser mount out (away from vehicle).

**To Narrow:** Move the laser mount in (toward the vehicle).

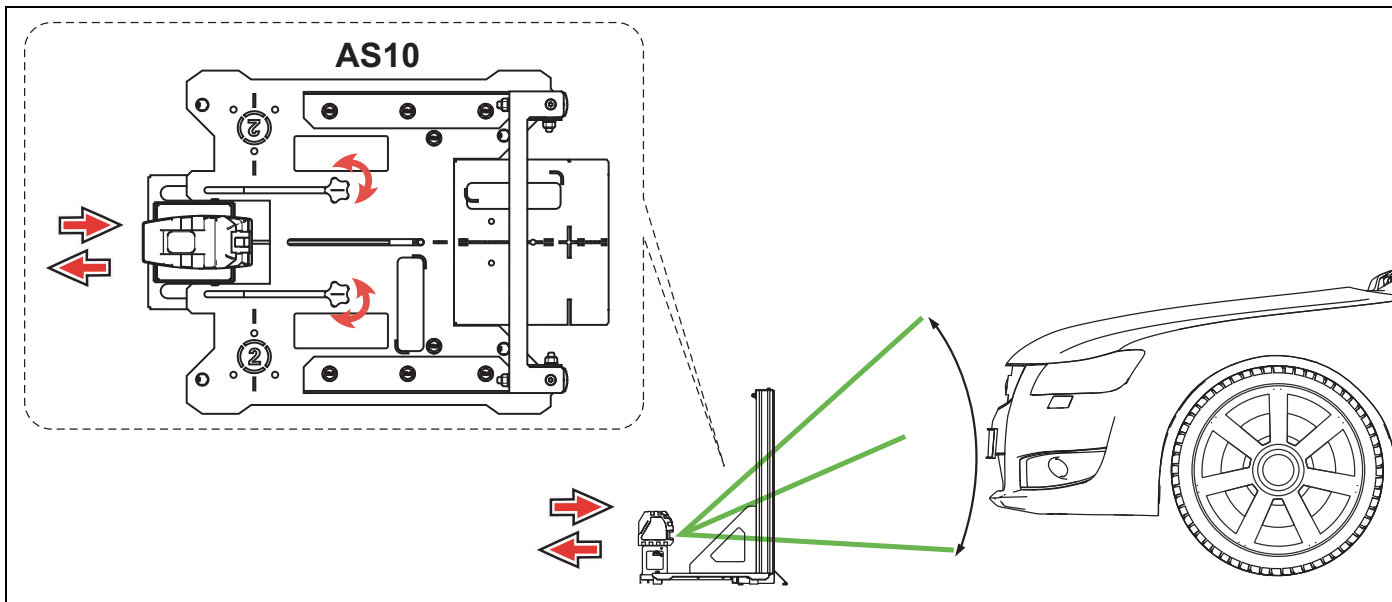
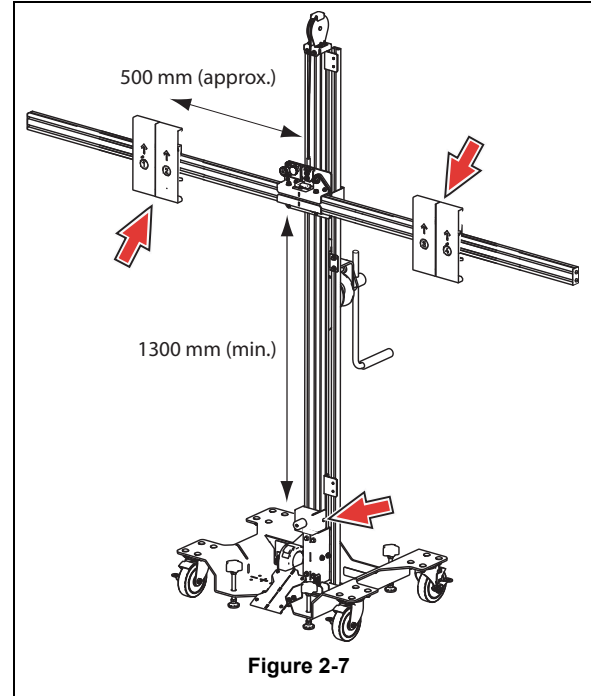


Figure 2-6

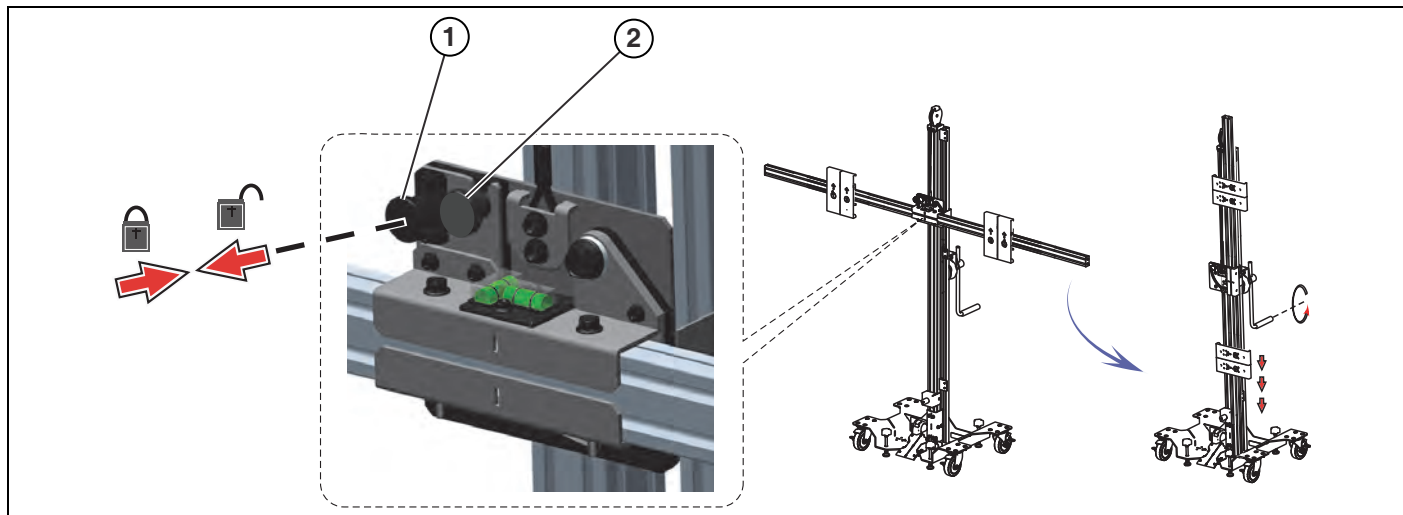
# Rotating / Storing the Cross Beam

## Moving / Storage Position

1. With the cross beam in the horizontal position, remove all targets (Figure 2-7).
2. Slide the target mounts together and lock them in place, centered at the 500 mm (approx.) position on each side (Figure 2-7).
3. Raise the cross beam to a minimum height of 1300 mm (Figure 2-7).
4. Lower the zero stop to its lowest position and lock it in place (Figure 2-7).
5. While holding the cross beam with one hand, use your other hand to loosen the locking knob (Figure 2-8 (2)).
6. Continuing to hold the cross beam with one hand, pull the locking pin (Figure 2-8 (1)) out, and then start to rotate the cross beam down. Release the pin after the safety stop position (approximately 10 degrees below the top hole) and allow it to slide as you continue to rotate the cross beam. The pin will lock into place at the full vertical position.
7. Using the clutch brake lift, lower the cross beam to fit the end of the cross beam into the bracket on the base (Figure 2-9). Manually guide the cross beam down into the bracket as needed.



2



8. Insert the storage pin (Figure 2-9 (1)) through the bracket (Figure 2-9 (2)) and cross beam (Figure 2-9 (3)) to secure the cross beam in the vertical position.

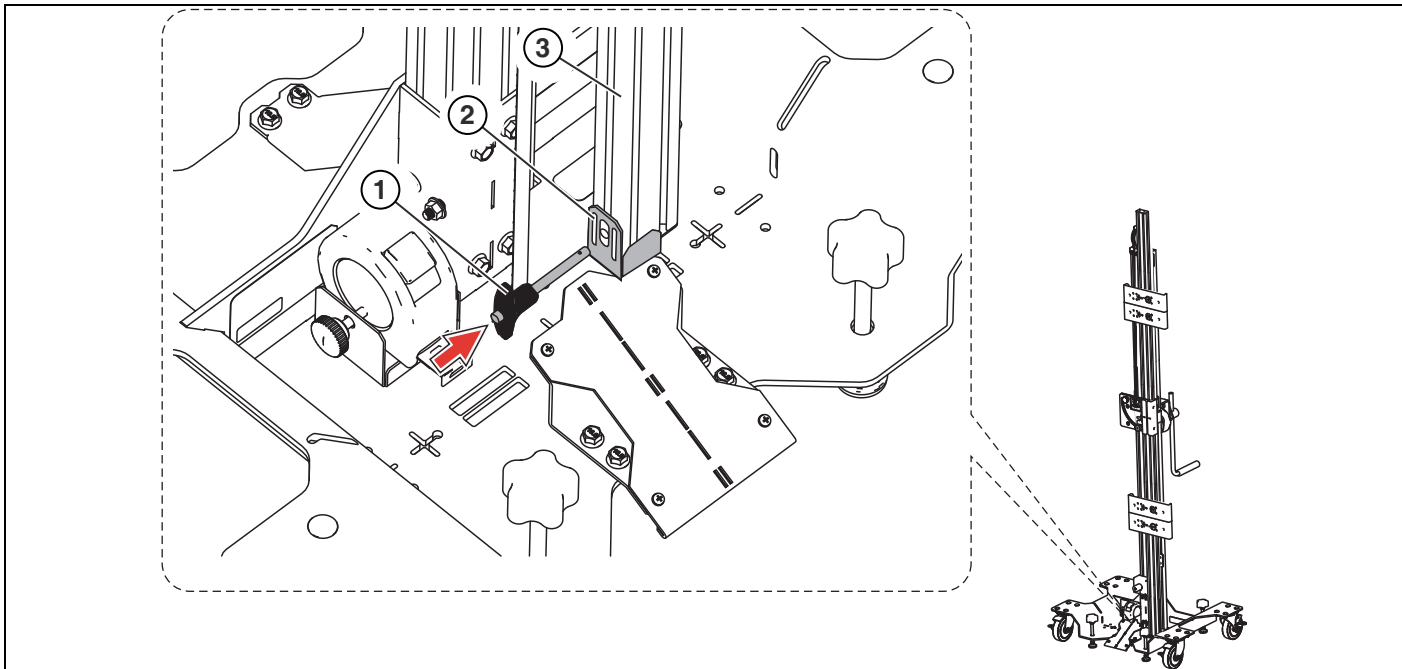


Figure 2-9

**Operational Position**

1. With the cross beam in the vertical position, pull the locking pin (Figure 2-10 (1)) out, and then start to rotate cross beam up. Release the pin and allow it to slide as you continue to rotate the cross beam up into the horizontal position.
2. Near the top of the rotation, pull the pin out again to bypass the safety stop and continue to rotate the cross arm up to the horizontal position and then release the pin to engage the top hole in the bracket. If needed, loosen the locking knob (Figure 2-10 (2)) just enough to allow the cross beam bracket to slip under it.

**NOTE:**

There are two locking pin positions at the top of the rotation. Ensure you lock the pin in the top hole. The second hole is located approximately 10 degrees below the top hole and is intended as a safety stop only.

3. Tighten the locking knob (hand tight).
4. Verify the cross beam locking pin is fully engaged and the locking knob is clamping the cross beam bracket. The locking knob should be hand tight.

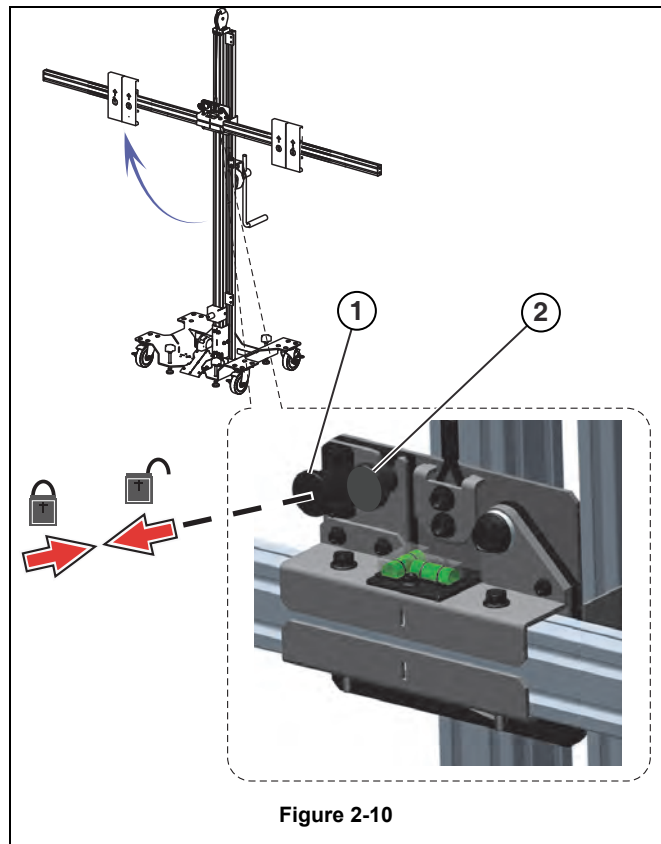


Figure 2-10

# Pre-Checks

---

**\*\*IMPORTANT\*\***

**Before starting a recalibration, read all the information in this section and make corrections as necessary.**

---

## Vehicle

Before starting a recalibration, check the following and make corrections as necessary.

- Verify the front license plate (if applicable) is straight and parallel with the front surface of the vehicle. For most vehicles in the North American and European markets, the front alignment stand must be positioned directly against the front license plate, so that the stand is parallel with the front axle centerline and/or front body surface of the vehicle.
- Check all suspension components for damage and improper operation. Suspension components must meet OEM specifications.
- Unload the vehicle suspension (e.g. remove all occupants and cargo except for the spare tire, jack and other items as it was equipped from manufacturer).
- Check tire condition, size and pressure. Tires must meet OEM specifications.
- Verify vehicle wheel alignment. The wheel alignment must be within OEM specifications.
- Turn the front wheels to the straight ahead position.  
**Note:** Use the steering angle readout on your diagnostic tool (If supported by the vehicle) to verify wheel position, and turn the steering wheel to the zero angle position.
- Using your diagnostic tool, perform a Vehicle System Code Scan. Verify there are no diagnostic trouble codes (DTCs) other than the related camera/radar codes present. Correct all other codes before performing the recalibration.
- Clean the area around the vehicle camera(s)/radar. Verify there is no debris or blockage (e.g. water, dirt, stickers, etc.) in front of the camera(s)/radar.
- If the camera/radar, windshield or other related parts were replaced or adjusted, ensure the camera/radar, mount plate etc. are installed to OEM specifications.
- Turn all vehicle lights off (e.g. headlights, running lights, turn signals etc.).

3

## Shop Area

Before starting a recalibration, check the following and make corrections as necessary.

- Do not perform a recalibration outdoors.
- The shop area should be out of direct sunlight, so that sunlight does not directly penetrate the camera/radar, target(s) or immediate surroundings.
- The shop area should have adequate and level lighting, and should be free of excessive shadows on the camera/radar, targets and surrounding area.
- Verify the shop area floor is level. The vehicle and target stand must be on the same level surface.
- Allow adequate space in front of the vehicle. Some vehicles may require over 4.9 m (16 ft.) of free space (follow the vehicle-specific instructions provided).
- Remove all obstructions from the camera/radar viewing field and from around and behind the target. The only objects in the camera/radar field of view should be the target(s) and target fixture. Use a white canvas to cover any object or surface (e.g. other targets, painted walls, etc) behind the target or in the field of view that may disrupt the recalibration.
- When recalibrating front radar systems, ensure metal objects are removed from the radar viewing field and from around and behind the target.

## Equipment

Before starting a recalibration, check the following and make corrections as necessary.

- Check all components for wear and damage.
- Verify the correct target is being used (vehicle-specific target part numbers are provided in the Target Placement Instructions).
- Verify the targets are clean and not damaged.
- Ensure all recalibration lasers are off before starting the recalibration process on the diagnostic tool.
- Check the cross beam lift cable for damage, wear, binding, looseness, and misalignment.
- Verify the cross beam locking pin is fully engaged and the locking knob is clamping the cross beam bracket. The locking knob should be hand tight.

# Front Camera Recalibration

---

This section describes general Front Camera Recalibration operation procedures using the ADAS Recalibration System.

## Quick Reference

- [Front Camera Recalibration \(Overview\)](#), on page 4-2
  - [Basic Hardware Needed](#), on page 4-2
- [Setup Reference \(Routine Operations\)](#), on page 4-3
- [Locating the Vehicle Centerline \(Step 1\)](#), on page 4-6
- [Using the Front Camera Target Placement Instructions \(Step 2\)](#), on page 4-8
- [Setting the Target Distance \(Step 3\)](#), on page 4-9
- [Setting the Target Height \(Step 4\)](#), on page 4-17
- [Installing the Targets \(Step 5\)](#), on page 4-19
- [Special Setup Information](#), on page 4-22
  - [Using One Target / Multiple Positions](#), on page 4-22
  - [Multi-Target Recalibration Using Extension Arms](#), on page 4-23
  - [Zero Stop - Two Position Target Distance Setup](#), on page 4-24
  - [Zero Stop - Single Position Target Distance Setup](#), on page 4-31

## Front Camera Recalibration (Overview)

This section outlines the basic steps and hardware needed for the Front Camera Recalibration process using the ADAS Recalibration System.

The information in this section is intended as a general procedure. Depending on the vehicle there may be special procedures used in ADDITION to, or in PLACE of the general procedure. Refer to [Special Setup Information](#), on page 4–22 for applicable information.

Read the following:

- [Safety Information](#), on page i–i
  - [Getting Started](#), on page 2–1
  - [Pre-Checks](#), on page 3–1
1. Locate the centerline of the vehicle, see [Locating the Vehicle Centerline \(Step 1\)](#), on page 4–6.
  2. Locate the correct **Target Placement Instructions** for the vehicle, see [Using the Front Camera Target Placement Instructions \(Step 2\)](#), on page 4–8.
  3. Set target distance, see [Setting the Target Distance \(Step 3\)](#), on page 4–9.
  4. Set target height, see [Setting the Target Height \(Step 4\)](#), on page 4–17.
  5. Install the target(s), see [Installing the Targets \(Step 5\)](#), on page 4–19.
  6. Start the front camera recalibration using the diagnostic tool, see [Diagnostic Tool Operation](#), on page 7–1.

---

### **\*\*IMPORTANT\*\***

After successful recalibration, test drive the vehicle and confirm the vehicle and ADAS system is operating properly, and the warning indicator light is off.

---

7. Test drive the vehicle.

## Basic Hardware Needed

Targets not shown.

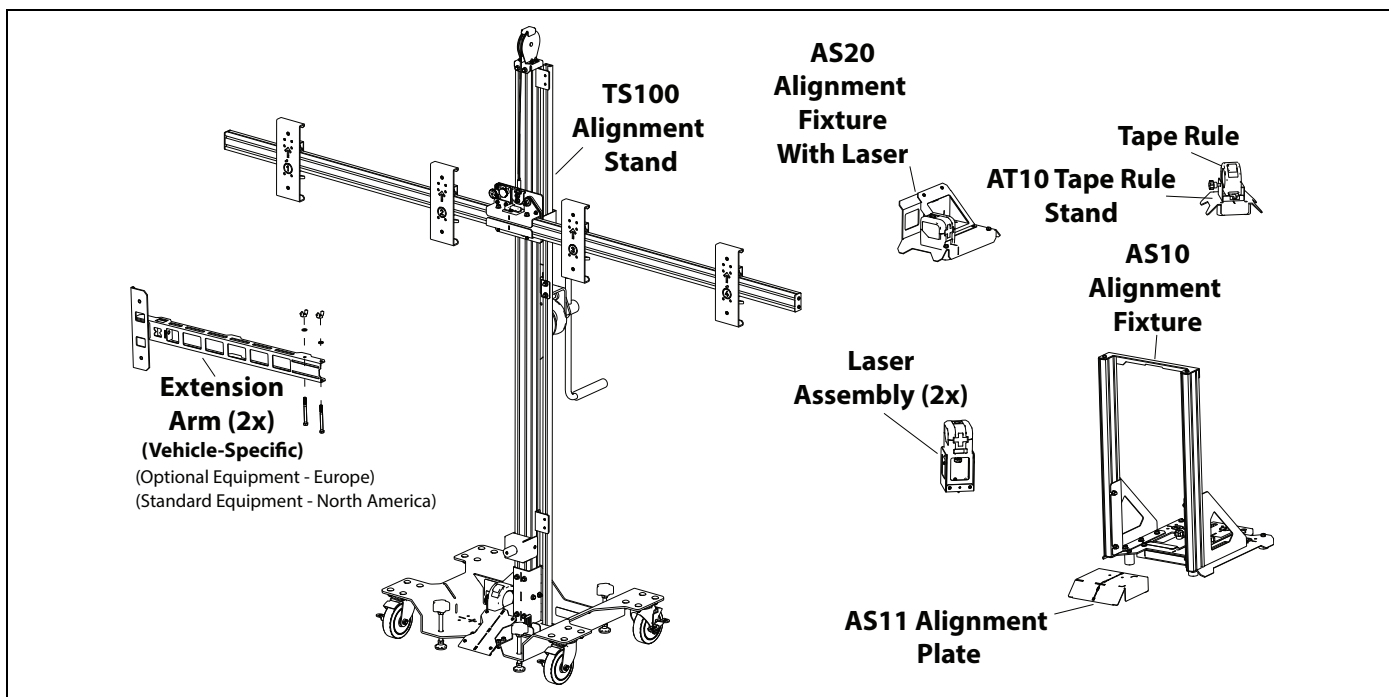


Figure 4-1



## Setup Reference (Routine Operations)

### TS100 Target Stand (Figure 4-2)

- The laser assembly may be positioned on either side depending on setup.
- The tape rule is installed by placing it into the mounting bracket and securing it with the thumbscrew. The tape rule is secured in the separate tape rule stand in the same manner.

### AS10 Alignment Fixture (Figure 4-2)

- The laser may be positioned in locations marked "1" or "2" depending on setup. See instructions for usage information.
- The AS11 alignment plate may be used depending on setup. The plate slides into the fixture, and slides out to remove. See instructions for usage information.

**NOTE:**

Laser assemblies may also be used on the floor to make alignments.

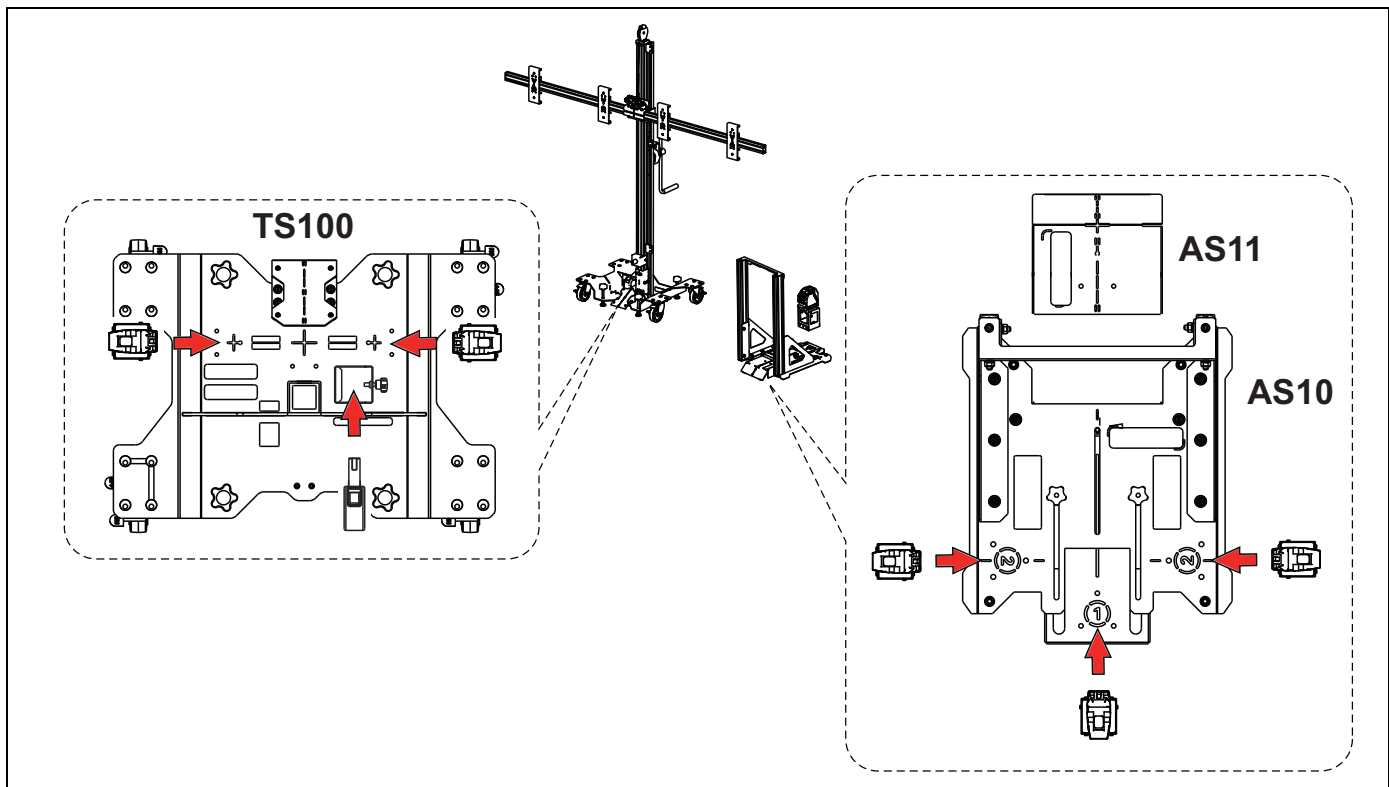


Figure 4-2

## Using the Clutch Brake Lift (TS100)

### Clutch Brake Lift Safety Information

**⚠ WARNING** Risk of Personal Injury or Harm, and/or Equipment Damage. Improper setup and operation can cause equipment damage and result in personal injury. See accompanying Important Safety Instruction manual for additional information.

- The clutch brake lift is equipped with a load pressure brake (see [Figure 4-3](#)), which holds the load at any required height and ensures that it undergoes controlled lowering. Never lubricate the load pressure brake in any manner, this will permanently damage and disable the brake feature. The load pressure brake must remain clean and dry.
- Do not use the clutch brake lift as a lift or to support other objects or people. The clutch brake height adjuster, cross beam and TS100 assembly are designed only to lift the supplied targets.
- Do not attempt to motorize the clutch brake lift in any manner, hand operate only.
- Inspect the clutch brake lift for damage and improper operation before use, do not use if damaged.
- Never modify the clutch brake lift in any manner.
- Use caution when operating the clutch brake height adjuster, keep fingers and loose clothing away from the clutch brake lift and all moving parts during operation.

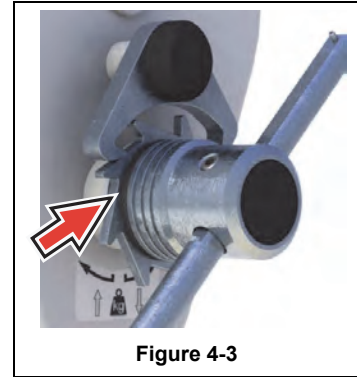


Figure 4-3

### Basic Operation

The clutch brake lift (see [Figure 4-4](#)) is used to move the cross beam up/down to the desired target height.

**To Lower:** Unlock the cross beam brake lock (see [Using the Clutch Brake Lift \(TS100\)](#), on page 4–4), then turn the handle counterclockwise. Slight resistance is felt when lowering due to the load pressure brake, this is normal. When lowering, vertical movement is slower and more precise than when raising. This fine adjustment feature allows you to set the height to an exact measurement, by raising the cross beam higher than the desired measurement and then lowering to the exact measurement.

**IMPORTANT :** When lowering do not continue to rotate the handle once the cross beam reaches its stop point at the bottom of the mast, as this will cause the cable to unspool.

**To Raise:** Unlock the cross beam brake locks, then turn handle clockwise.

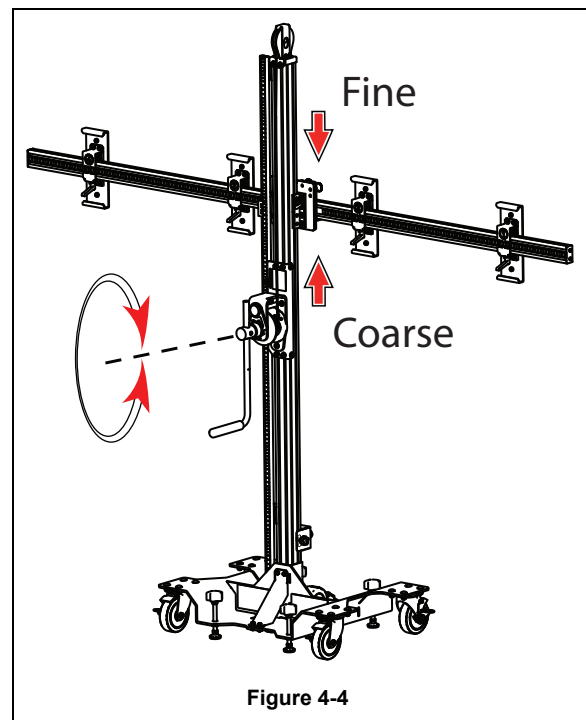


Figure 4-4

## Using the Brake Levers (TS100)

See [Figure 4-5](#) for reference.

The target mount and cross beam brake levers are used to loosen and secure their respective assemblies. The levers are adjustable to any position to allow for adequate rotation when locking and unlocking.

To adjust, pull the (spring tensioned) lever out (cross beam brake) or down (target mount brake) and rotate it in the desired direction, allow it to return to its detent position and then rotate as needed to lock/unlock. (Repeat as necessary)

**To Lock:** rotate clockwise until resistance is felt.

**To Unlock:** rotate counterclockwise.

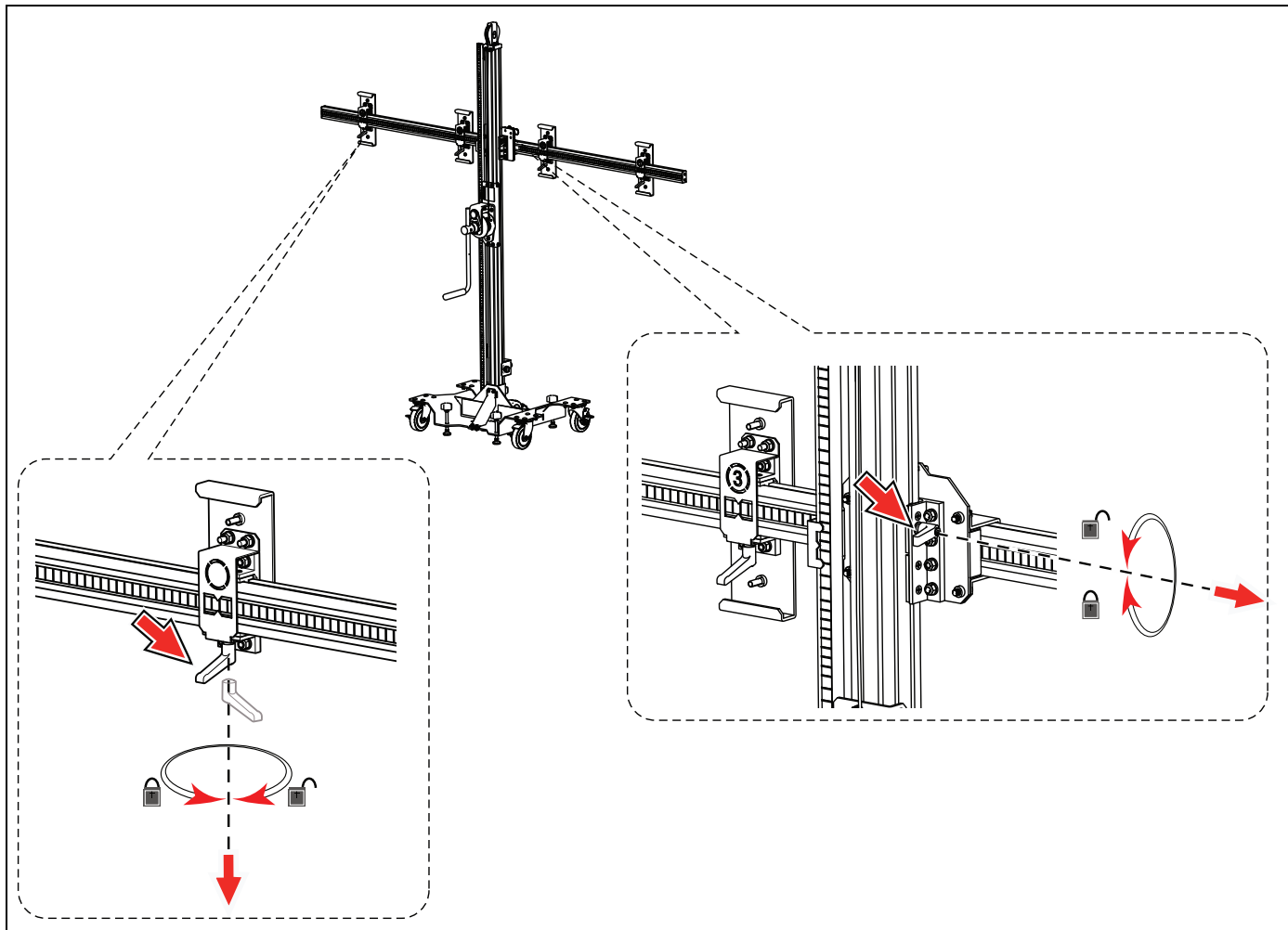


Figure 4-5

## Locating the Vehicle Centerline (Step 1)

This section describes and illustrates the first step in the front camera recalibration process, using the AS10 and AS20 alignment fixtures to locate the center of the vehicle.

1. Read [Pre-Checks](#), on page 3–1, and make any needed corrections as necessary.  
Use [Figure 4-6](#) as reference for the following steps.
2. Slide the AS11 alignment plate into the AS10 alignment fixture.
3. Place the laser assembly at position “1” on the AS10 alignment fixture, then turn it on in **self-leveling mode**, see [Laser Operation On/Off](#), on page 2–3.  
If necessary, align the laser assembly with the AS10 alignment fixture, see [AS10 Laser Assembly Alignment](#), on page 2–4.
4. Move the AS10 fixture to align the laser with the center of the vehicle emblem (or other vehicle center feature), then move the fixture so that the upright guides contact the license plate or forward-most surface of the vehicle.  
If necessary, adjust the laser mount to widen or narrow the beam, see [AS10 Laser Assembly \(Vertical Beam Adjustment\)](#), on page 2–4.
5. Turn the laser off, and remove it from the AS10 fixture.
6. Set the AS20 alignment fixture on the ground at rear of vehicle, then turn the laser on in **self-leveling mode**.
7. Move the AS20 fixture to align the laser with the center of the vehicle emblem (or other vehicle center feature).

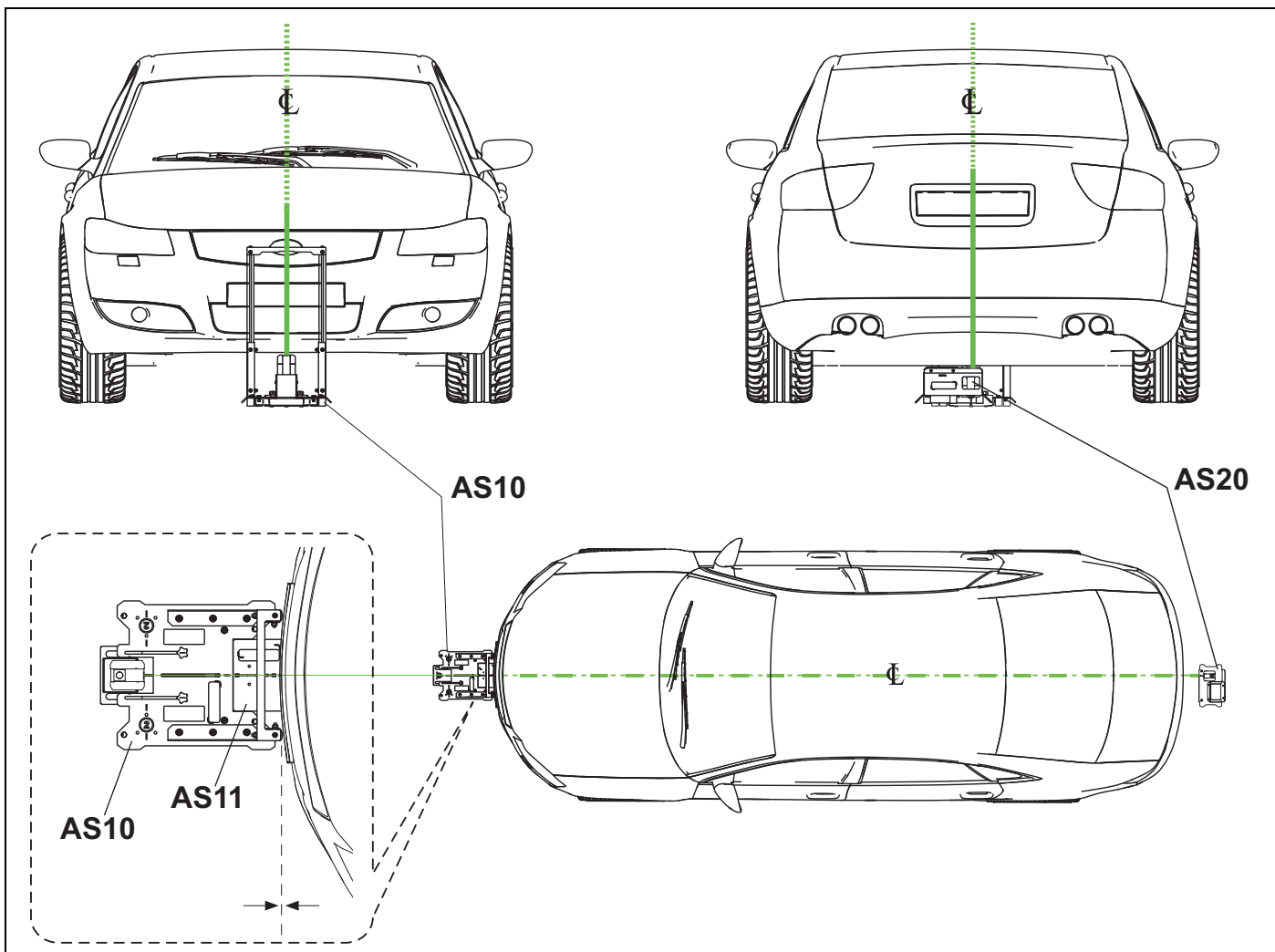


Figure 4-6

**NOTE:**

Make sure there are no obstructions under the vehicle that could interfere with the alignment of the laser.

8. While maintaining the AS20 laser alignment with the vehicle centerline, simultaneously align it (under the vehicle) with the center mark on the AS11 alignment plate at the front of the vehicle (Figure 4-7).  
Use the mirror on the AS20 fixture to aid in alignment, see item 1 in Figure 4-7.
9. Proceed to [Using the Front Camera Target Placement Instructions \(Step 2\)](#), on page 4–8.

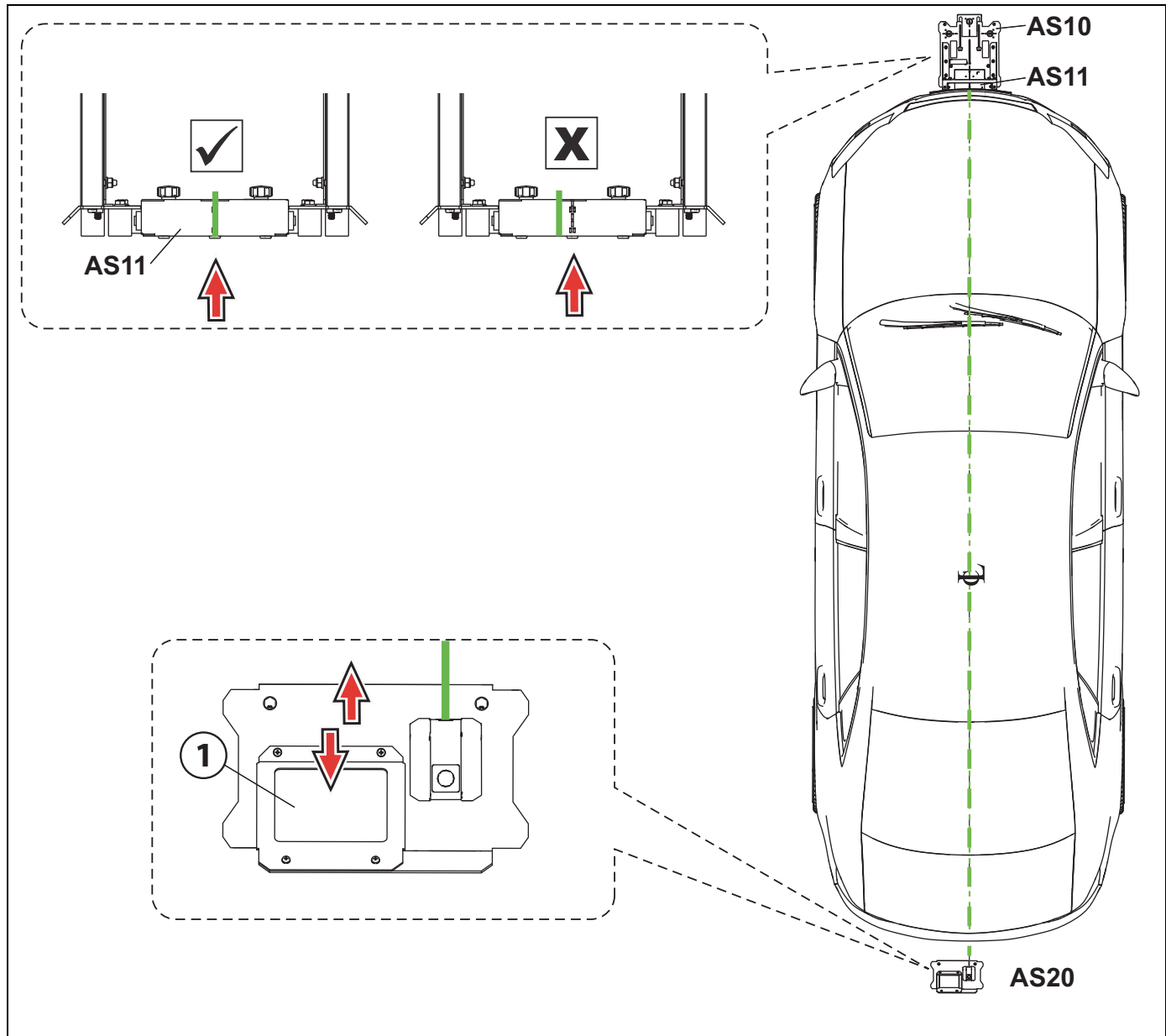


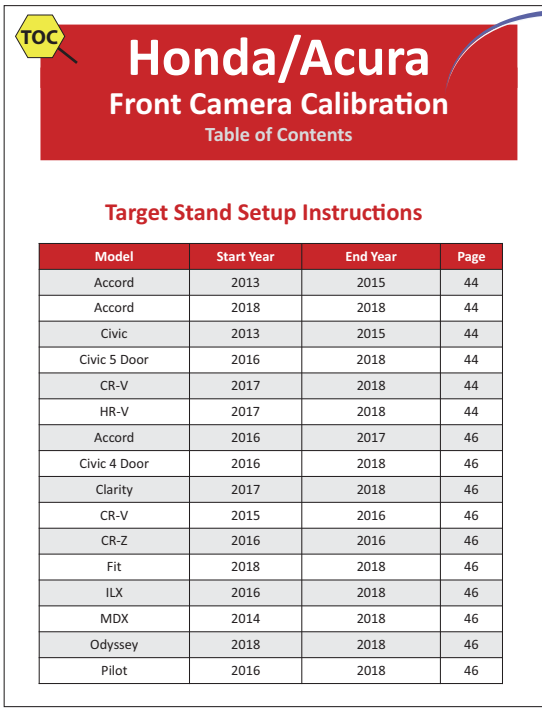
Figure 4-7

## Using the Front Camera Target Placement Instructions (Step 2)

The Front Camera Target Placement Instructions (provided separately) include vehicle-specific target setup values. These values are required to complete the recalibration setup.

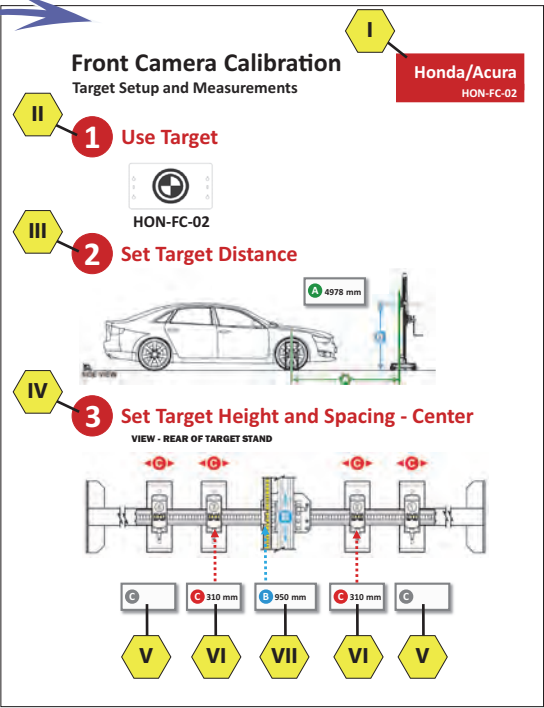
1. Find the Target Placement Instructions for the vehicle you are working on.
2. Proceed to [Setting the Target Distance \(Step 3\)](#), on page 4–9.

### Front Target Placement Instructions (typical)



**Table of Contents**

Model	Start Year	End Year	Page
Accord	2013	2015	44
Accord	2018	2018	44
Civic	2013	2015	44
Civic 5 Door	2016	2018	44
CR-V	2017	2018	44
HR-V	2017	2018	44
Accord	2016	2017	46
Civic 4 Door	2016	2018	46
Clarity	2017	2018	46
CR-V	2015	2016	46
CR-Z	2016	2016	46
Fit	2018	2018	46
ILX	2016	2018	46
MDX	2014	2018	46
Odyssey	2018	2018	46
Pilot	2016	2018	46



**Front Camera Calibration**  
Target Setup and Measurements

**I** Honda/Acura HON-FC-02

**II** 1 Use Target

**III** 2 Set Target Distance

**IV** 3 Set Target Height and Spacing - Center

**V** C

**VI** C 310 mm

**VII** B 950 mm

**VI** C 310 mm

**V** C

Callout	Description
<b>TOC</b>	Table of Contents Section - Use this section to find the vehicle-specific Target Placement Instructions.
<b>I</b>	Manufacturer Name / Target Part Number
<b>II</b>	Target Image and Part Number Section
<b>III</b>	Target Distance Values and Illustration Section "A" Values (green color code) indicate the distance of the target from the vehicle. For some vehicles there may be two "A" values (A1, A2): <b>A1</b> - Indicates the first position in a two distance position setup. This distance is either measured from the centerline of the front axle or from the front bumper (forward-most surface). The type of measurement used is dependent on the vehicle, and indicated in the vehicle-specific Target Placement Instructions. <b>A2</b> - Indicates the second position in a two distance position setup.
<b>IV</b>	Target Height and Spacing Values and Illustration Section Target spacing configurations may either be centered or offset. The illustration shows a "Center" example where one target is used and is centered on the cross beam using the two inner target mounts. Other setups may require two targets mounted typically equally offset from the center. In this situation all four mounts are used
<b>V</b>	"C" (gray color code) - indicates this target mount is not used in the setup. Position the mount in a location that will not interfere with the other mounts during setup.
<b>VI</b>	"C" (red color code) - value indicates the target mount distance setting from center. Slide each target mount to the indicated distance value on the scale, and lock in place.
<b>VII</b>	"B" (blue color code) - value indicates the target height setting. Move the cross beam to the indicated height value on the vertical scale.

## Setting the Target Distance (Step 3)

After the vehicle centerline has been determined, the target(s) must be positioned at a specified distance in front of the vehicle.

**IMPORTANT** - Refer to the Target Placement Instructions to determine which one of the following two methods to use for the vehicle you are working on. The target placement instructions will show an image with the AS10 fixture either at the front bumper position or at the front axle centerline position.

**To proceed, use the applicable procedure:**

- [Setting Target Distance \(From Front of Vehicle\)](#), on page 4–9 (below)

**OR**

- [Setting Target Distance \(From Front Axle Centerline\)](#), on page 4–13

---

**\*\*Special Vehicle-Specific Setup Note\*\*:**

For Hyundai / KIA models requiring two position distance setup (e.g. A1 and A2), see [Zero Stop - Two Position Target Distance Setup](#), on page 4–24.

---

**\*\*Special Vehicle-Specific Setup Note\*\*:**

For Mercedes-Benz models requiring a single position zero distance setup, see [Zero Stop - Single Position Target Distance Setup](#), on page 4–31.

---

**4**

### Setting Target Distance (From Front of Vehicle)

1. Before starting this procedure, ensure the AS10, AS11 and AS20 alignment fixtures are in place, with the vehicle centerline located. See [Locating the Vehicle Centerline \(Step 1\)](#), on page 4–6.

For the following steps, see [Figure 4-8](#), [Figure 4-9](#), and [Figure 4-10](#) for reference.

2. Raise the leveling feet and position the TS100 target stand in front the AS10 alignment fixture and then clip the end of the tape rule in the slot on the AS11 alignment plate.
3. Roll the TS100 target stand back (extending the tape rule) until the “A” measurement aligns with the target indicator slot in the base plate.
  - Refer to Target Placement Instructions for distance value “A” (or A1 / A2 if applicable).
4. Move the TS100 target stand into a position that is centered and square with the vehicle and is at the “A” target distance value on the tape rule.

---

**NOTE:**

For vehicles requiring a two position distance setup (e.g. A1 and A2), perform the first recalibration at the A1 distance and then the next at the A2 distance.

---

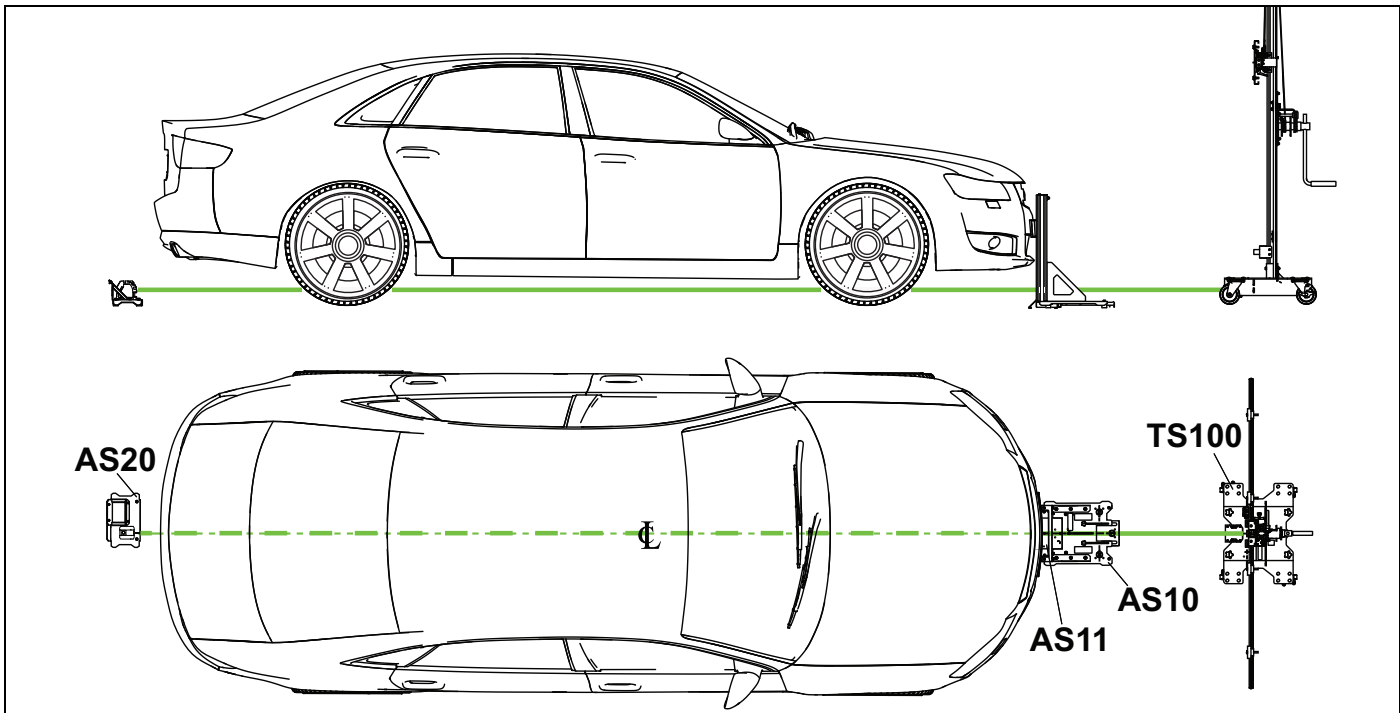


Figure 4-8

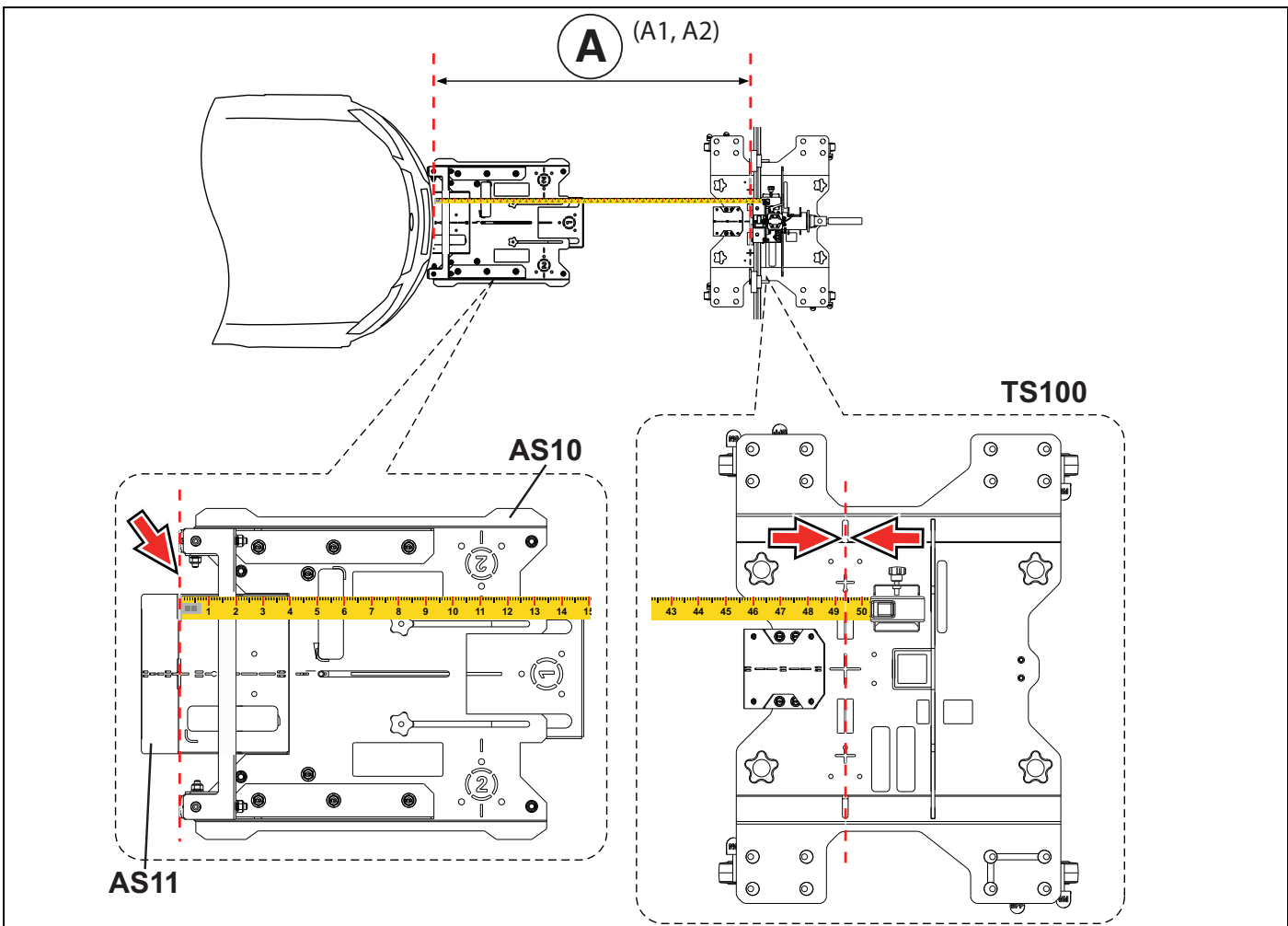
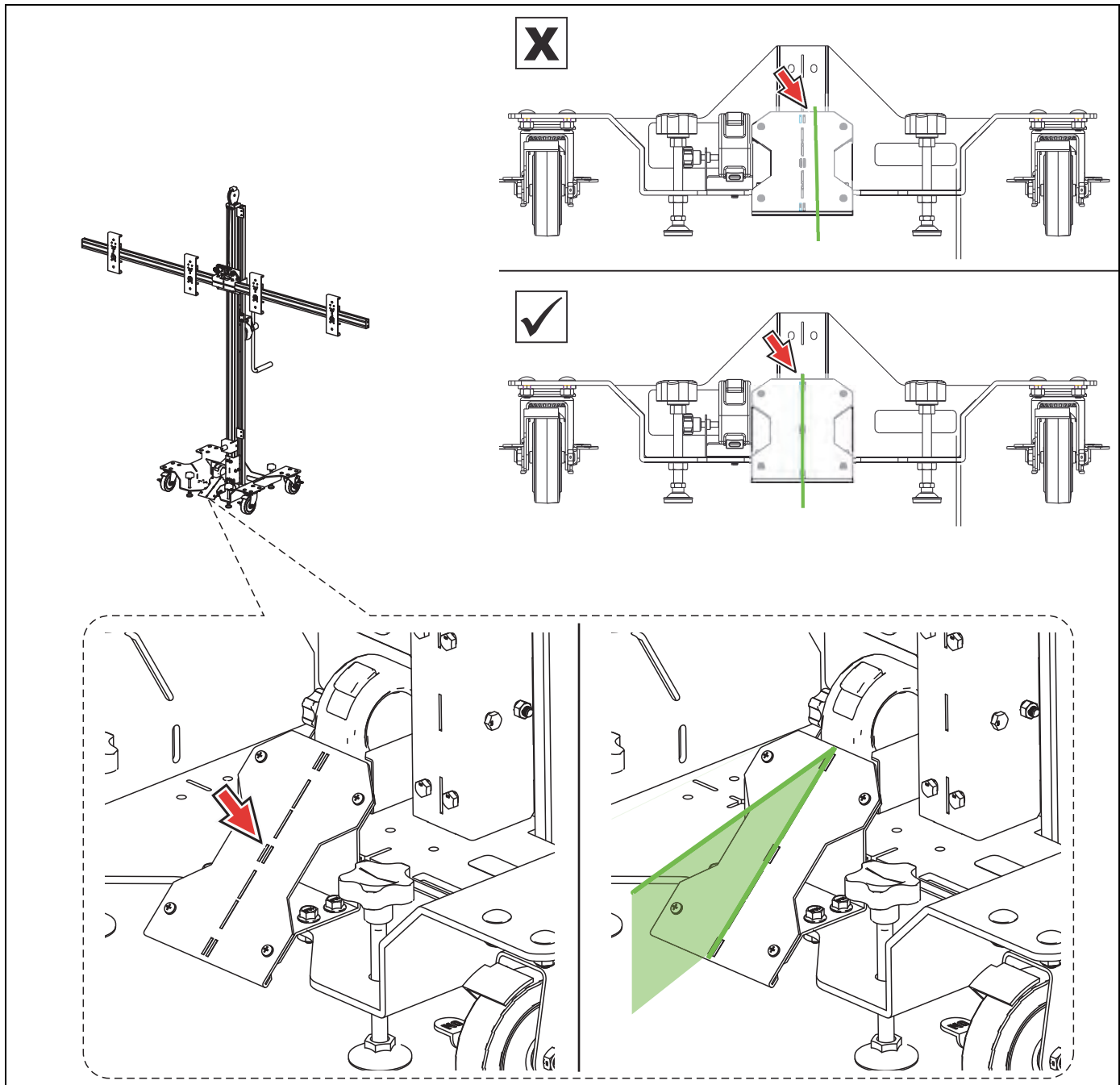


Figure 4-9





4

Figure 4-10

Once the target distance position is set, the TS100 target stand must be leveled at the position.

5. Without moving the TS100 target stand, lower the target cross beam (using the clutch brake height adjuster) to the lowest position (Figure 4-11).

---

**NOTE:**

Clutch Brake Lift rotation - Clockwise = raise (course adjustment) / Counterclockwise = lower (fine adjustment). See [Using the Clutch Brake Lift \(TS100\)](#), on page 4-4 for operation instructions.

---

6. Lower the leveling feet to raise the fixture off the casters, then adjust the leveling feet to level the cross beam (Figure 4-11). A spirit level is located on top of the cross beam.

---

**NOTE:**

The leveling feet should only need minimal adjustment to contact the floor. If excessive height adjustment is needed, recheck that the floor surface is level. If the leveling feet are turned down too far, the vertical scale used to measure target height will not contact the floor and cannot be set properly.

---

7. Recheck the TS100 target stand to ensure:
  - It is inline with the vehicle centerline
  - It is at the correct distance setting "A"
  - The cross beam is level
8. Proceed to [Setting the Target Height \(Step 4\)](#), on page 4-17.

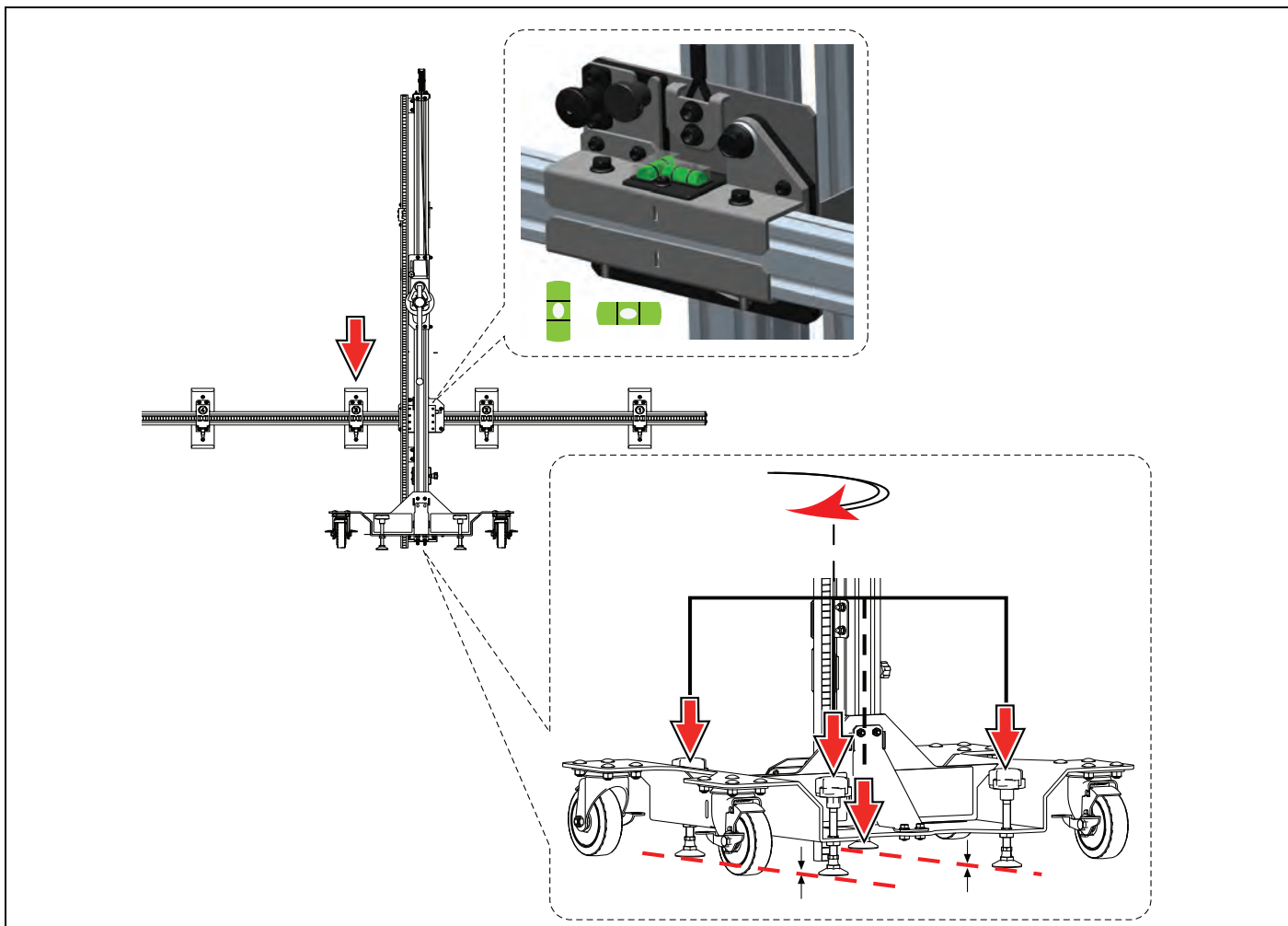


Figure 4-11

## Setting Target Distance (From Front Axle Centerline)

### Finding the Front Axle Centerline

**NOTE:**

Left or right-side vehicle setup can be used. Instructions illustrate right-side setup as example.

See [Figure 4-12](#) for reference.

1. Remove the AS11 alignment plate from the AS10 alignment fixture.
2. Move the AS10 alignment fixture to the front wheel position, so that both posts are touching the tire.
3. Set the laser assembly at position “1” on the fixture, then move the alignment fixture as needed to align the laser with the center of the wheel hub (front axle centerline).
4. Proceed to next section [Setting the Target Distance](#), on page 4–14.

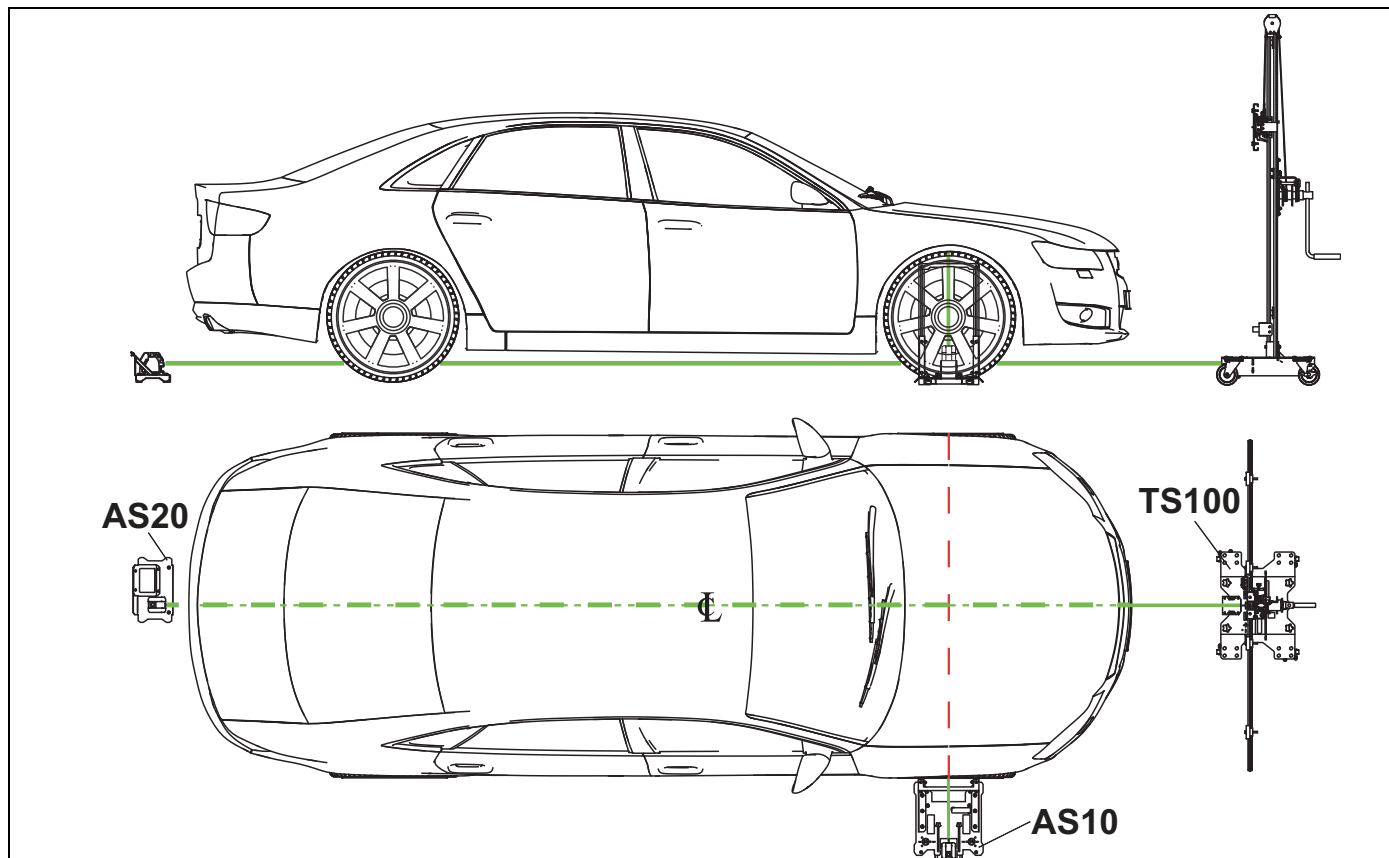


Figure 4-12

### Setting the Target Distance

1. Set the laser assembly on the AS10 alignment fixture in position “2” (laser pointing forward) (Figure 4-13).
2. Pull the tape rule forward from the AS10 fixture centerline notch (parallel to laser) to just past the target distance “A” value (Figure 4-13). Place the tape rule on the AT10 stand.

  - Refer to Target Placement Instructions for distance value “A”.

3. Set a laser assembly on the TS100 target stand, so the laser intersects with the tape rule (Figure 4-13).
4. Move the TS100 target stand into a position that is centered and square with the vehicle and where its laser intersects with the “A” target distance value on the tape rule (Figure 4-13).

**NOTE:**

If the laser is difficult to see at the tape rule intersect, use a paper or cardboard sheet to help see the beam.

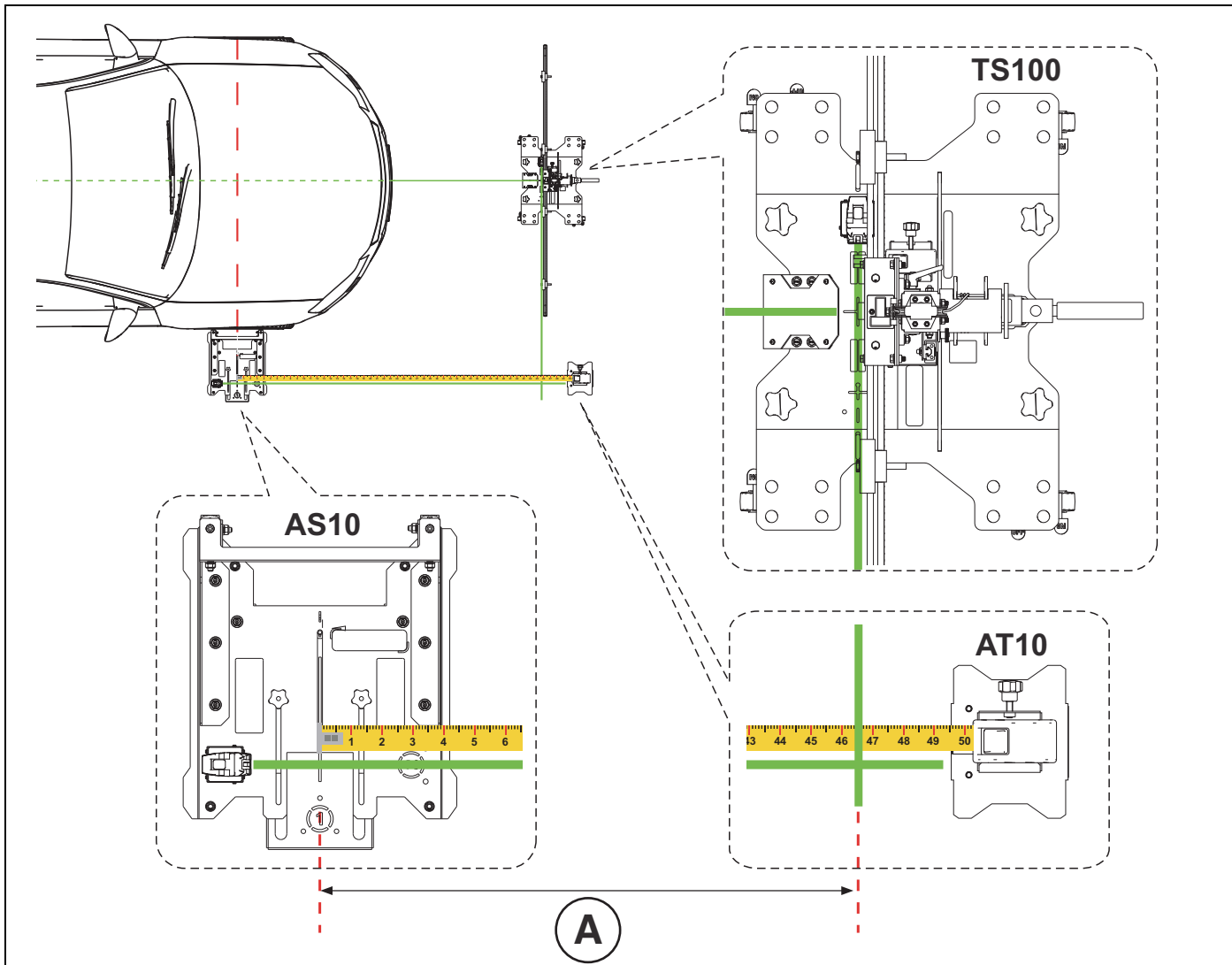


Figure 4-13

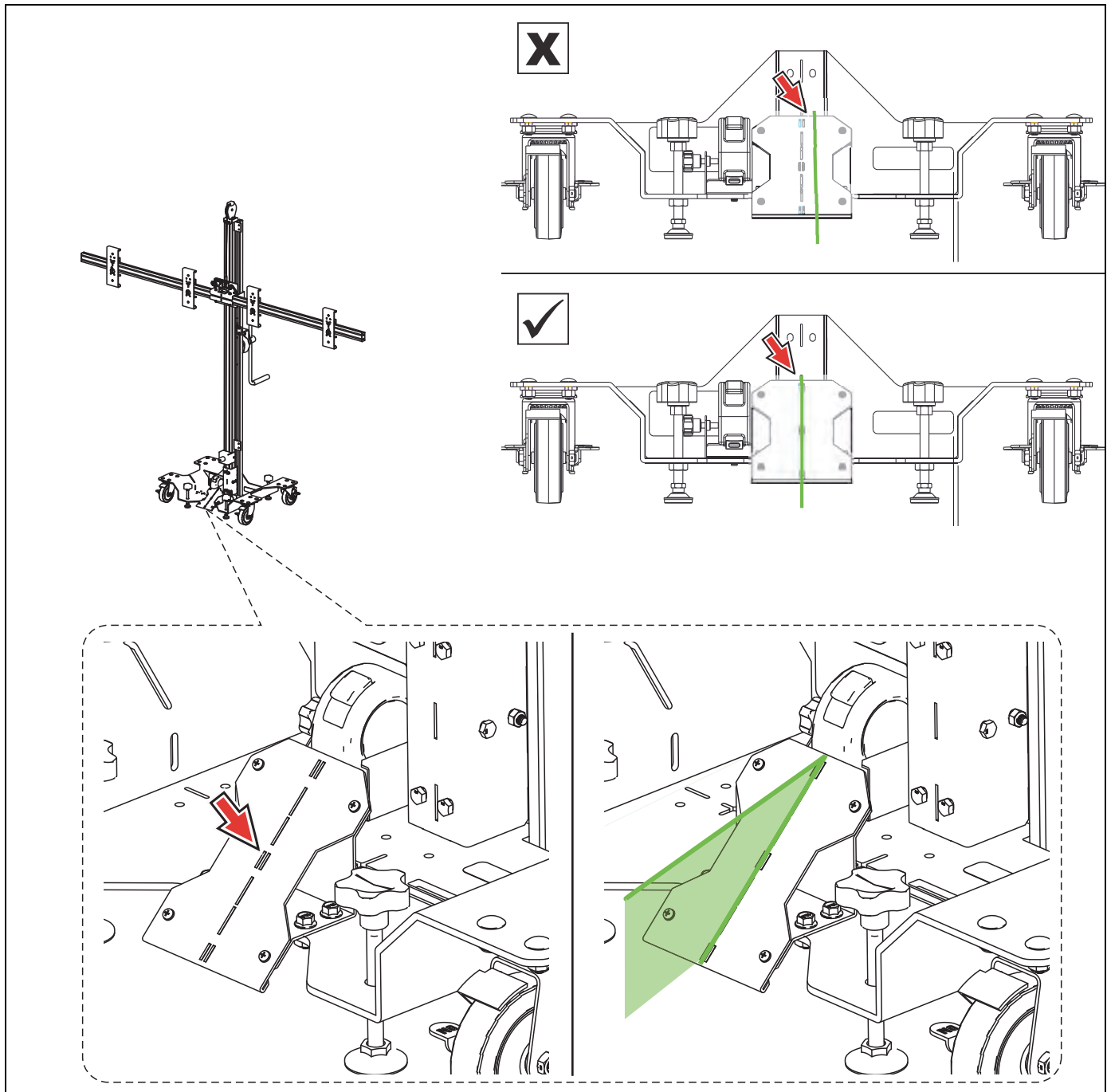


Figure 4-14

Once the distance position is located, the TS100 target stand must be leveled.

- Without moving the TS100 target stand, lower the target cross beam (using the clutch brake height adjuster) to the lowest position (Figure 4-15).

**NOTE:**

Clutch Brake Lift rotation - **Clockwise** = raise (course adjustment) / **Counterclockwise** = lower (fine adjustment). See [Using the Clutch Brake Lift \(TS100\)](#), on page 4-4 for operation instructions.

- Lower the leveling feet to raise the fixture off the casters, then adjust the leveling feet to level the cross beam (Figure 4-15). A spirit level is located on top of the cross beam.

**NOTE:**

The leveling feet should only need minimal adjustment to contact the floor. If excessive height adjustment is needed, recheck that the floor surface is level. If the leveling feet are turned down too far, the vertical scale used to measure target height will not contact the floor and cannot be set properly.

- Recheck the TS100 target stand to ensure:
  - It is inline with the vehicle centerline
  - It is at the correct distance setting "A"
  - The cross beam is level
- Proceed to [Setting the Target Height \(Step 4\)](#), on page 4-17.

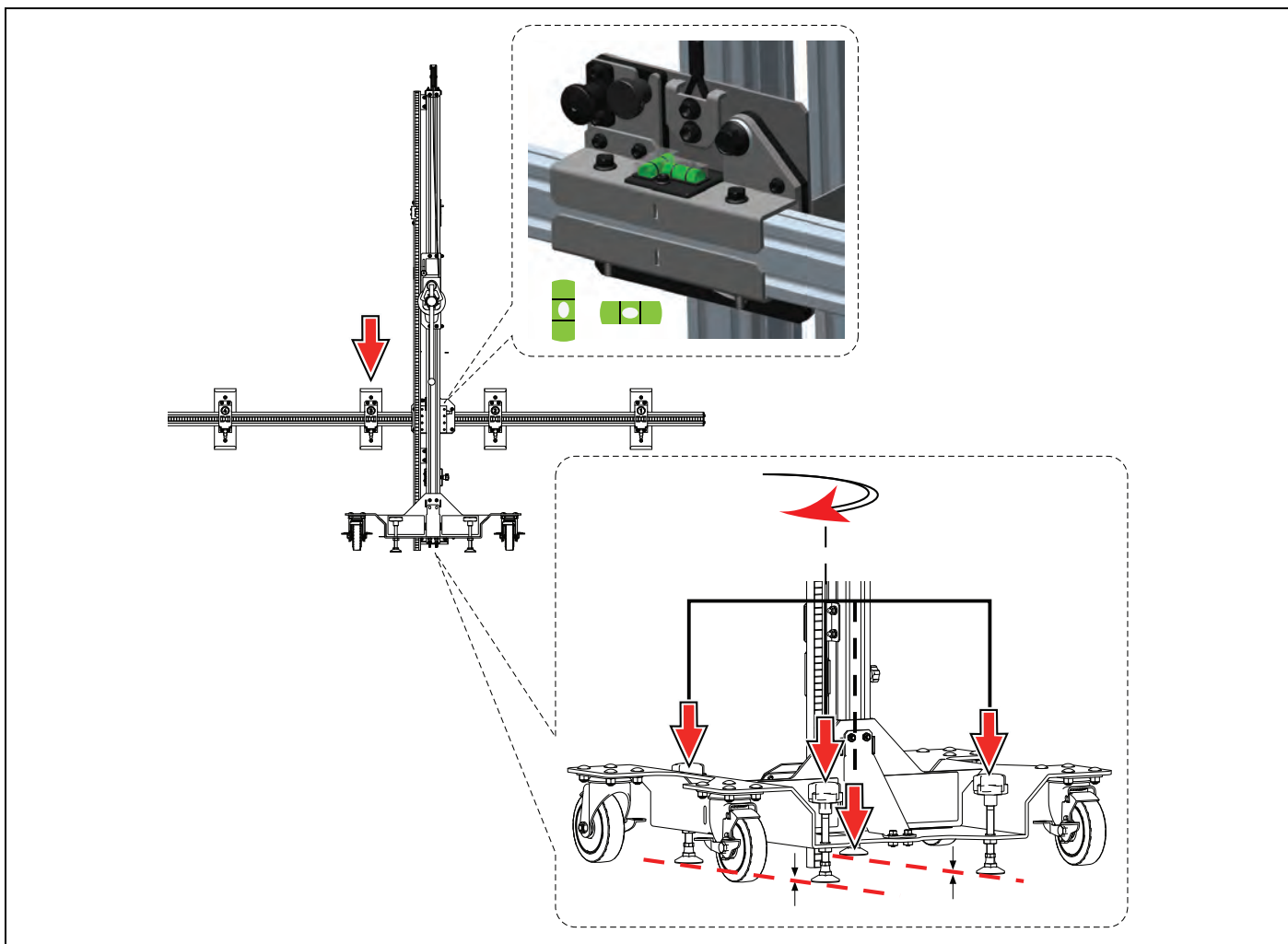


Figure 4-15

## Setting the Target Height (Step 4)

**NOTE:**

Do not move the TS100 target stand while performing the following steps.

1. Unlock the vertical scale thumbscrew, and move the scale down to touch the floor then lock the scale (Figure 4-16).

**NOTE:**

It is important that the vertical scale is touching the floor. It is recommended that you recheck it and adjust if necessary.

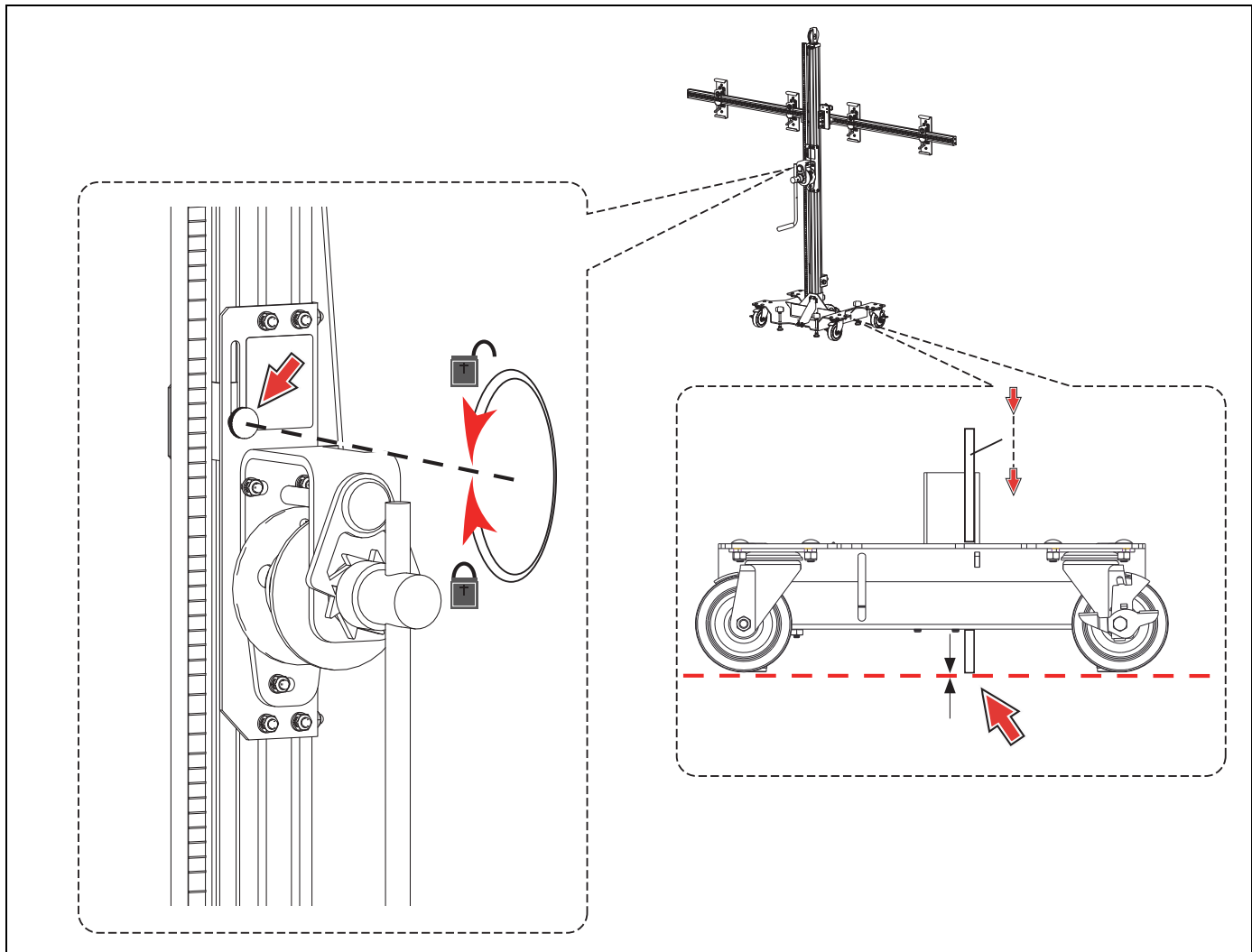


Figure 4-16

2. Unlock the cross beam brake. See [Using the Brake Levers](#), on page 4–29 for brake lever operation.
3. Use the clutch brake lift to raise the cross beam to the specified height “H”, then lock the cross beam ([Figure 4-17](#)).
  - Refer to Target Placement Instructions for distance value “H”.

**NOTE:**

Clutch Brake Lift rotation - **Clockwise** = raise (course adjustment) / **Counterclockwise** = lower (fine adjustment).  
 See [Using the Clutch Brake Lift \(TS100\)](#), on page 4–4 for operation instructions.

4. Proceed to [Installing the Targets \(Step 5\)](#), on page 4–19.

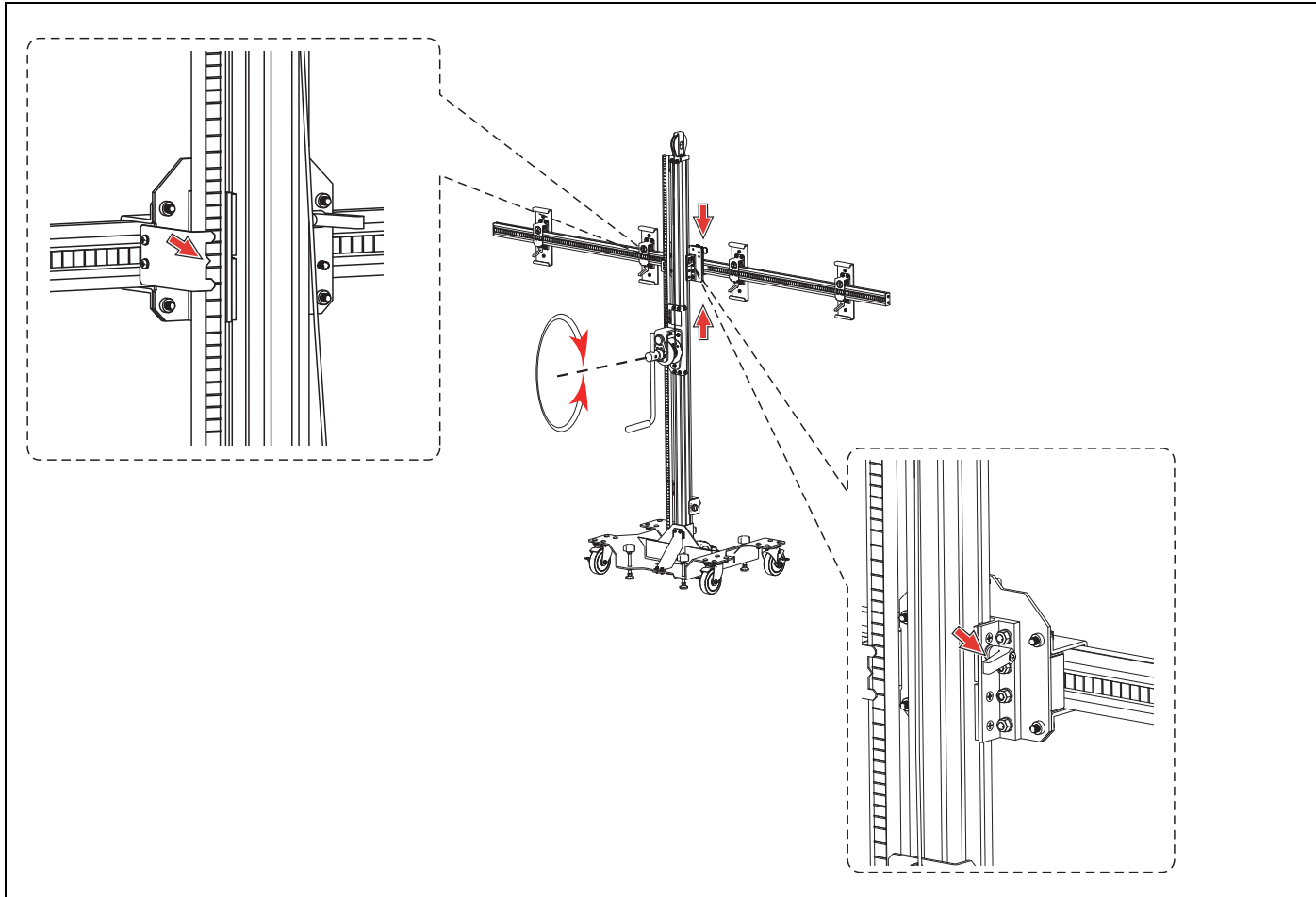


Figure 4-17



## Installing the Targets (Step 5)

**NOTES:**

- Targets are labeled with the target name on the front face [Figure 4-18](#).
- Targets are designed to be installed in one direction, the up position is identified with an arrow on the front face of the target [Figure 4-18](#).
- For multi target sets, a single key slot is provided on the two outer targets ([Figure 4-18](#)) in the set, this ensures the targets can only be installed in one direction. Target mounts 1 and 4 include a locating pin (key) that mates with the slot in the target ([Figure 4-18](#)).
- Most single targets that use mounts 2 and 3 have key slots in both sides of the target ([Figure 4-18](#)), however the slots are not required for installation, as mounts 2 and 3 do not have locating pins.

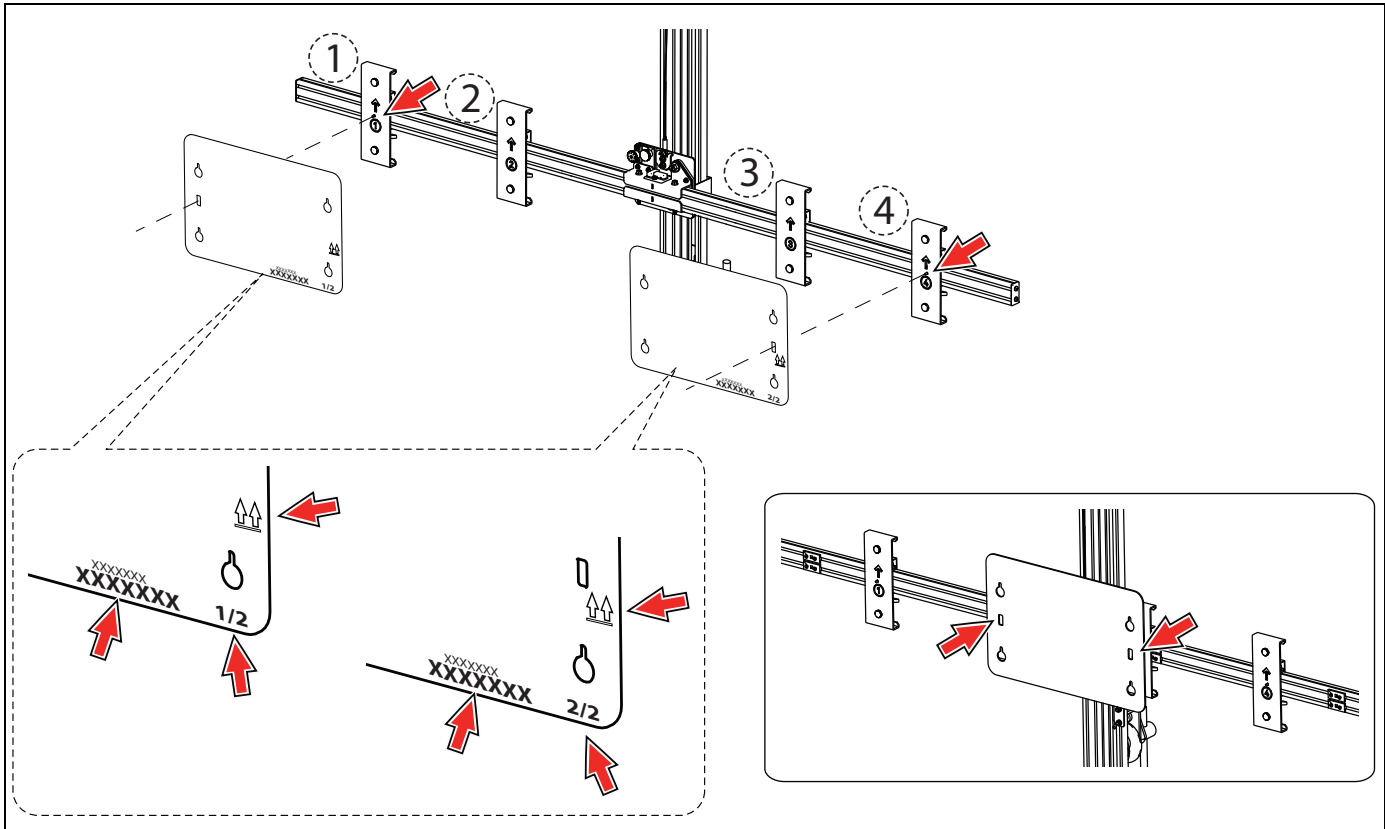


Figure 4-18

**NOTE:**

To avoid having to realign the TS100 target stand, do not move the stand while performing the following steps.

**NOTE:**

If the setup requires using one target in multiple positions, see [Using One Target / Multiple Positions](#), on page 4–22 for additional information.

**\*\*Special Vehicle-Specific Setup Note\*\*:**

For Hyundai / KIA models requiring the use of one target calibrated in multiple positions, see [Using One Target / Multiple Positions](#), on page 4–22, for reference then continue to [Setting the Target Height \(Step 4\)](#), on page 4–17.

**\*\*Special Vehicle-Specific Setup Note\*\*:**

For Honda / Acura models requiring the use of two targets and extension arms, see [Multi-Target Recalibration Using Extension Arms](#), on page 4–23, for reference then continue to [Setting the Target Height \(Step 4\)](#), on page 4–17.

1. Using the Target Placement Instructions [Figure 4-19](#), select the target(s) needed for the vehicle.
2. Unlock and move the adjustable target mounts to the specified distance from center ([Figure 4-19](#)) (see Target Placement Instructions) using the scale on the cross beam. See [Using the Brake Levers \(TS100\)](#), on page 4–5 for brake lever operation instructions.
3. Lock the mounts in place.

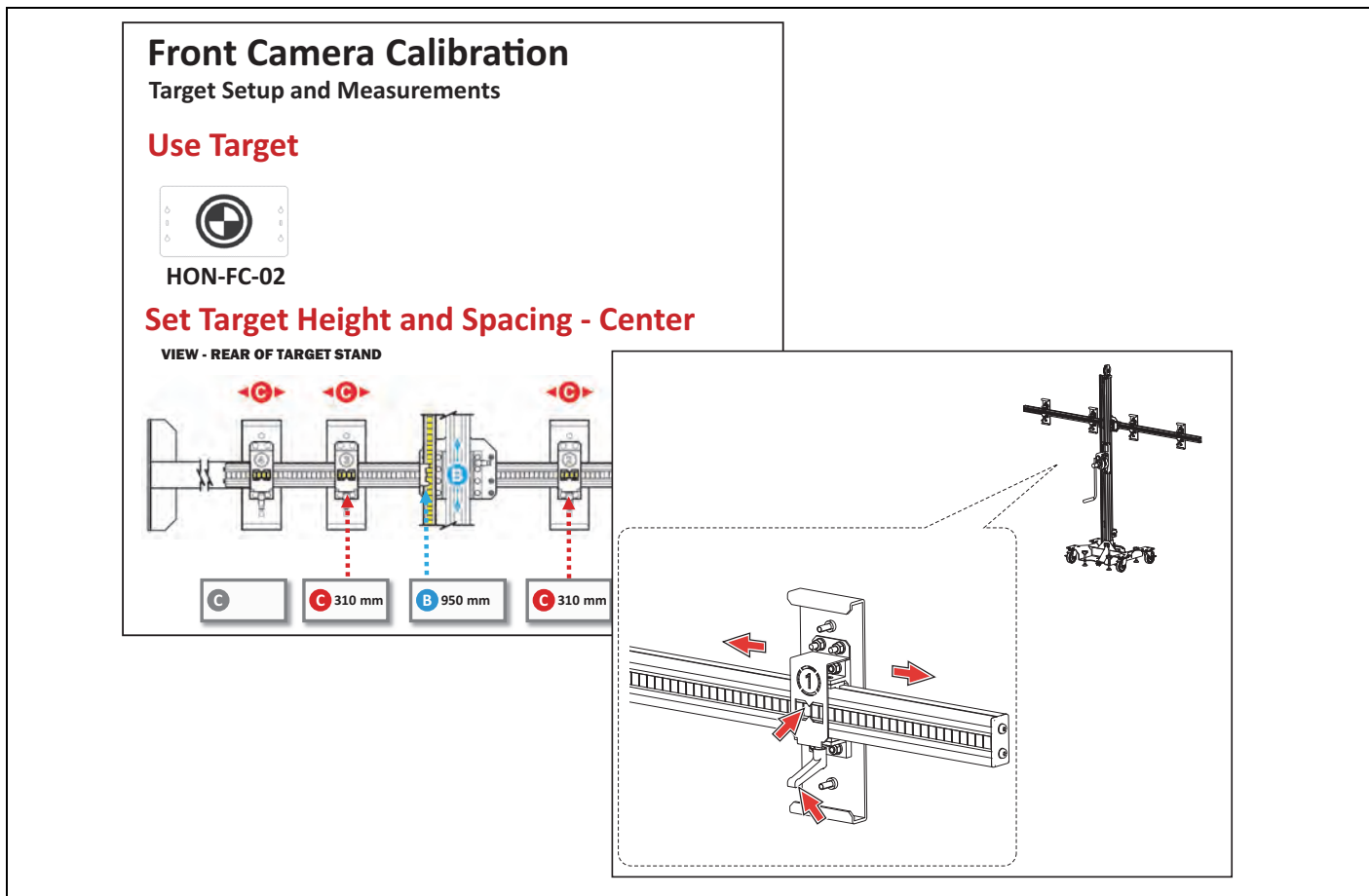
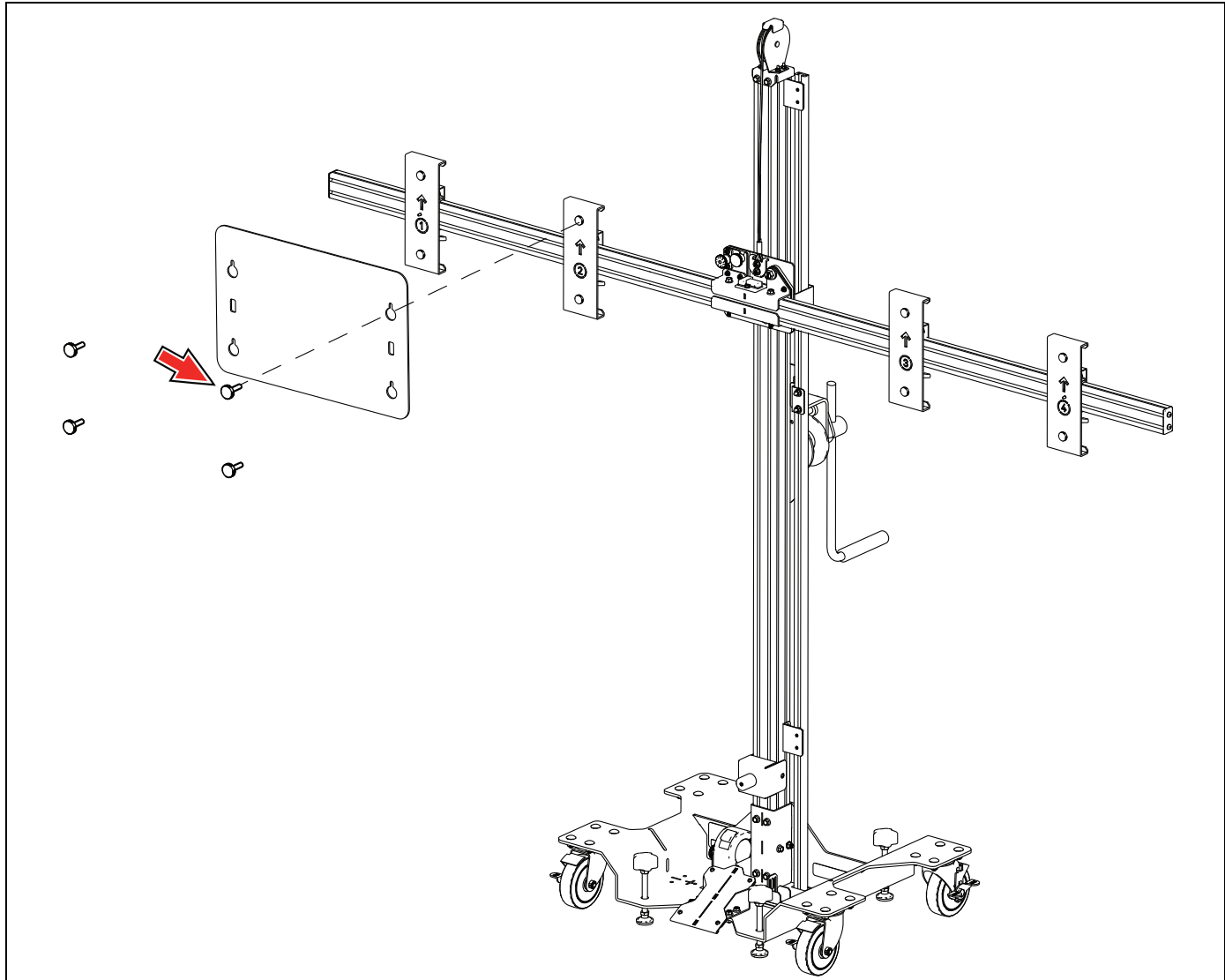


Figure 4-19

4. Attach the specified target(s) to the mounts and tighten all thumbscrews (Figure 4-20). Ensure each target is fully seated (level) in its thumbscrew grooves.
5. Start the front camera recalibration using the diagnostic tool, see [Diagnostic Tool Operation](#), on page 7-1.



4

Figure 4-20

## Special Setup Information

### Using One Target / Multiple Positions

The following instructions may apply to, but are not limited to:

- Toyota / Lexus

Some models require a multiple step target recalibration. This process requires one target to be positioned (in sequence) in multiple different locations on the cross beam.

The example shown in [Figure 4-21](#) illustrates a typical three sequence process: (Illustrated targets are for reference only)

- 1.) Position 1 - (P1) centered
- 2.) Position 2 - (P2) on Left
- 3.) Position 3 - (P3) on Right

The diagnostic tool recalibration functional test is run at each position (P1, P2, and P3) to complete the process.

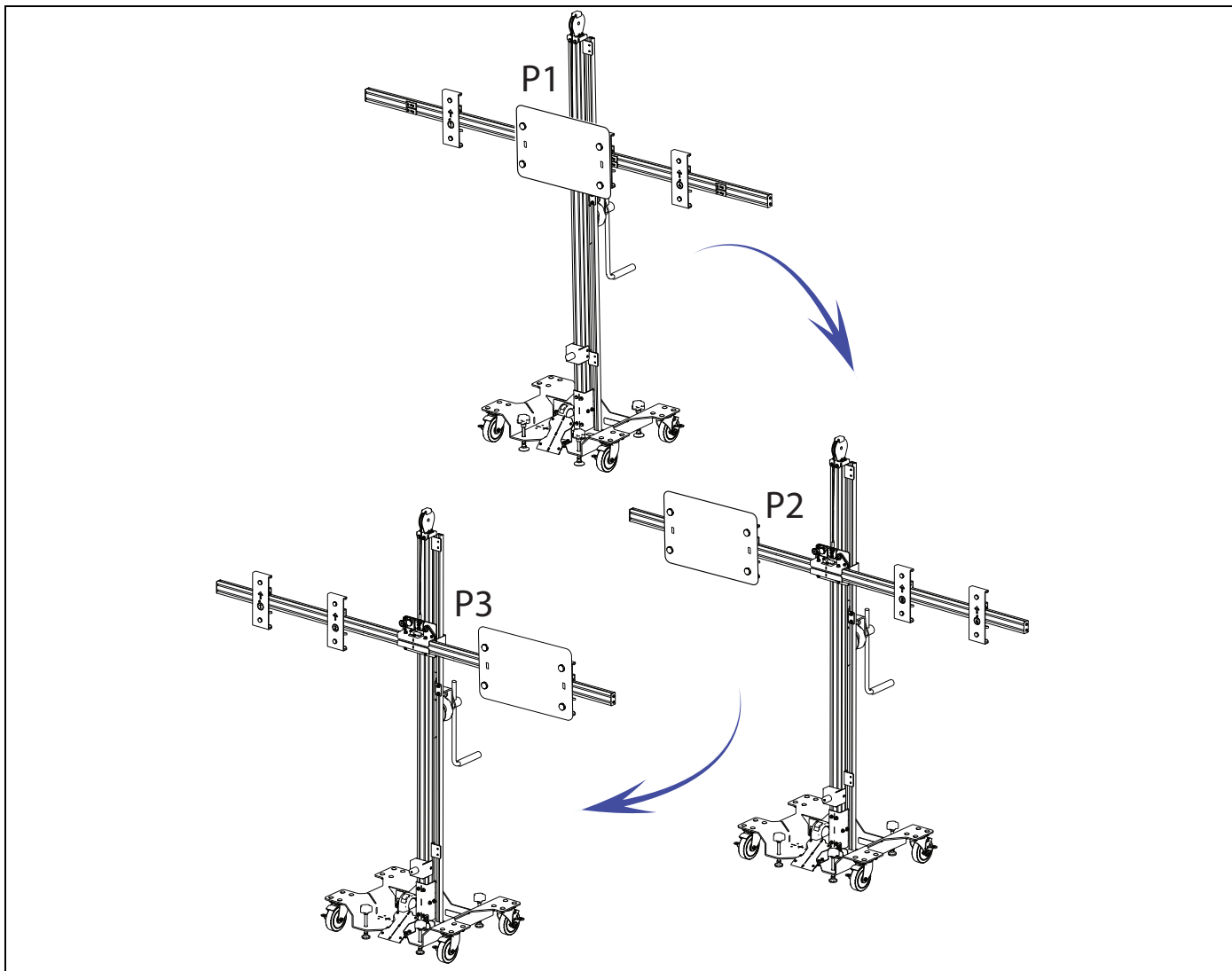


Figure 4-21

## Multi-Target Recalibration Using Extension Arms

The following instructions may apply to, but are not limited to:

- Honda /Acura (North America)

For models that use a target spacing beyond the standard spacing, two extension arms may be installed.

- Refer to the Target Placement Instructions for extension arm part numbers and target mount spacing values.

To install the extension arms, align the holes in each arm with matching holes on each end of the cross beam, then insert the bolts (2) and secure with wingnuts (Figure 4-22). Do not overtighten.

Figure 4-22 illustrates the installation of the extension arms, and a multi-target setup used on some models.

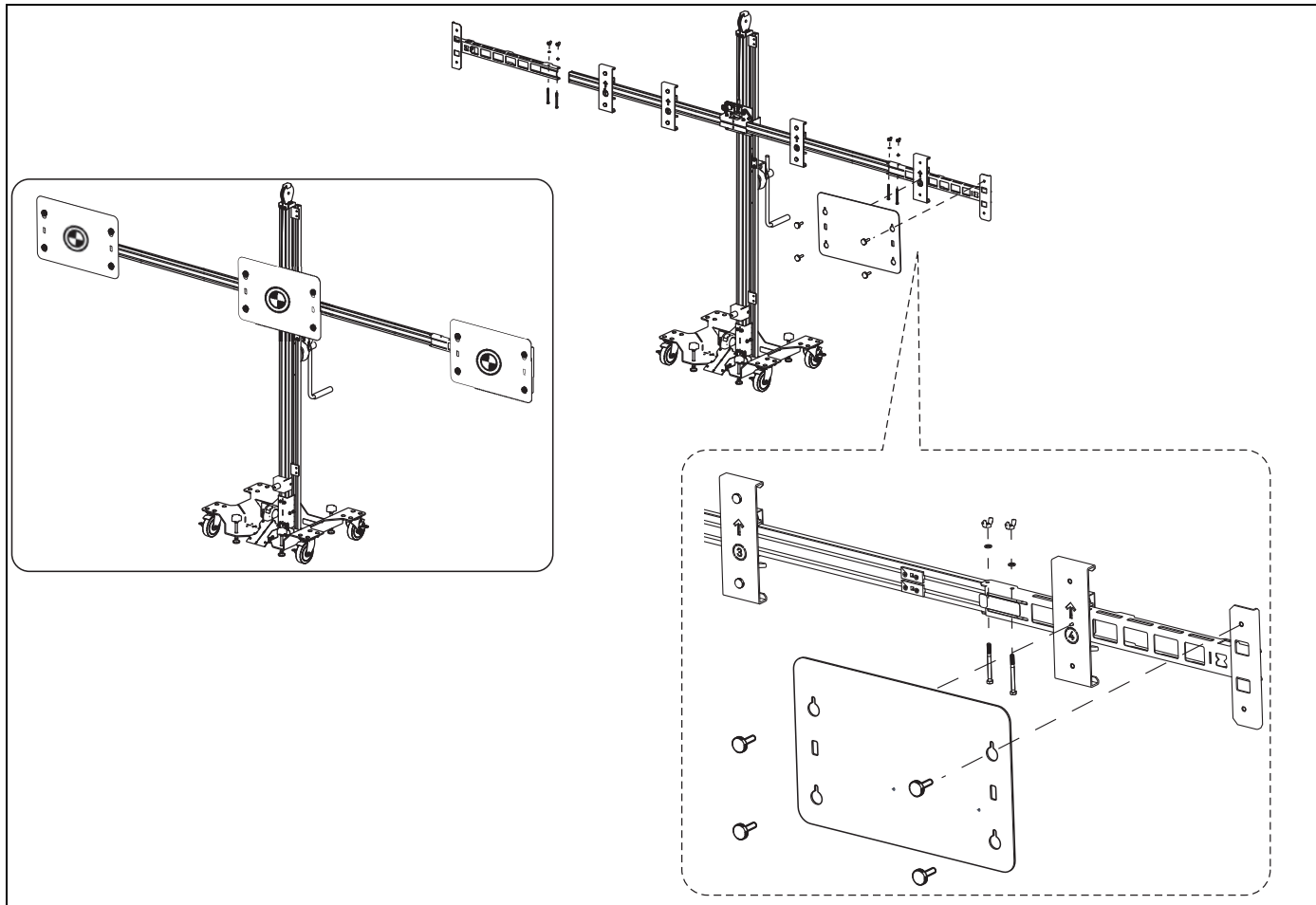


Figure 4-22

## Zero Stop - Two Position Target Distance Setup

The following instructions may apply to, but are not limited to:

- Hyundai / KIA

For models requiring a two position target distance “A1” and “A2” as shown in [Figure 4-23](#) - sample from Target Placement Instructions, recalibration is first performed at the A1 position (zero distance) and then at the A2 position.

- Refer to Target Placement Instructions for distance values “A1” and “A2”.

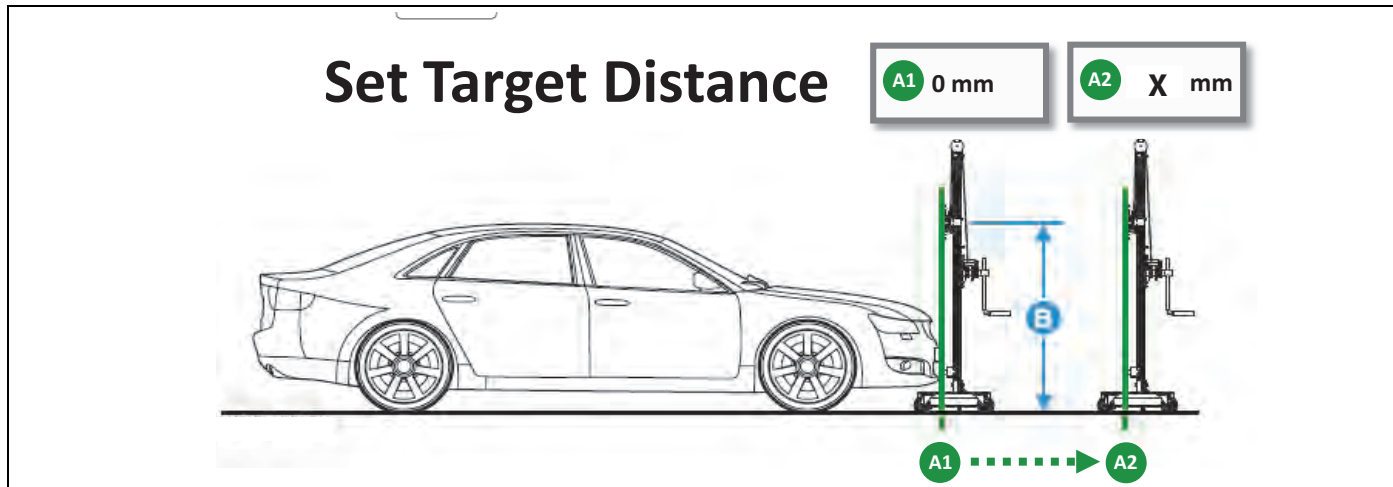


Figure 4-23

### NOTE:

Due to the special setup needed for this application, some of the typical procedures mentioned previously are used out of sequence for this application.

1. Refer to and complete [Locating the Vehicle Centerline \(Step 1\)](#), on page 4–6. Leave the AS20 fixture in place at the rear of the vehicle with the laser on. Remove the AS10 and AS11 fixtures from the front of the vehicle.
2. Review [Using the Front Camera Target Placement Instructions \(Step 2\)](#).
3. Refer to and complete [Installing the Targets \(Step 5\)](#), on page 4–19.
4. Temporarily raise the cross beam if needed, so that the targets do not touch the vehicle as the TS100 stand is moved close to the vehicle in the next step.
5. Move the TS100 stand to the front and center of the vehicle, so that the TS20 zero stop is almost touching the front of the vehicle ([Figure 4-24](#)).
6. Adjust the TS20 zero stop to align with the forward most surface of the vehicle ([Figure 4-24](#)), and lock in position.

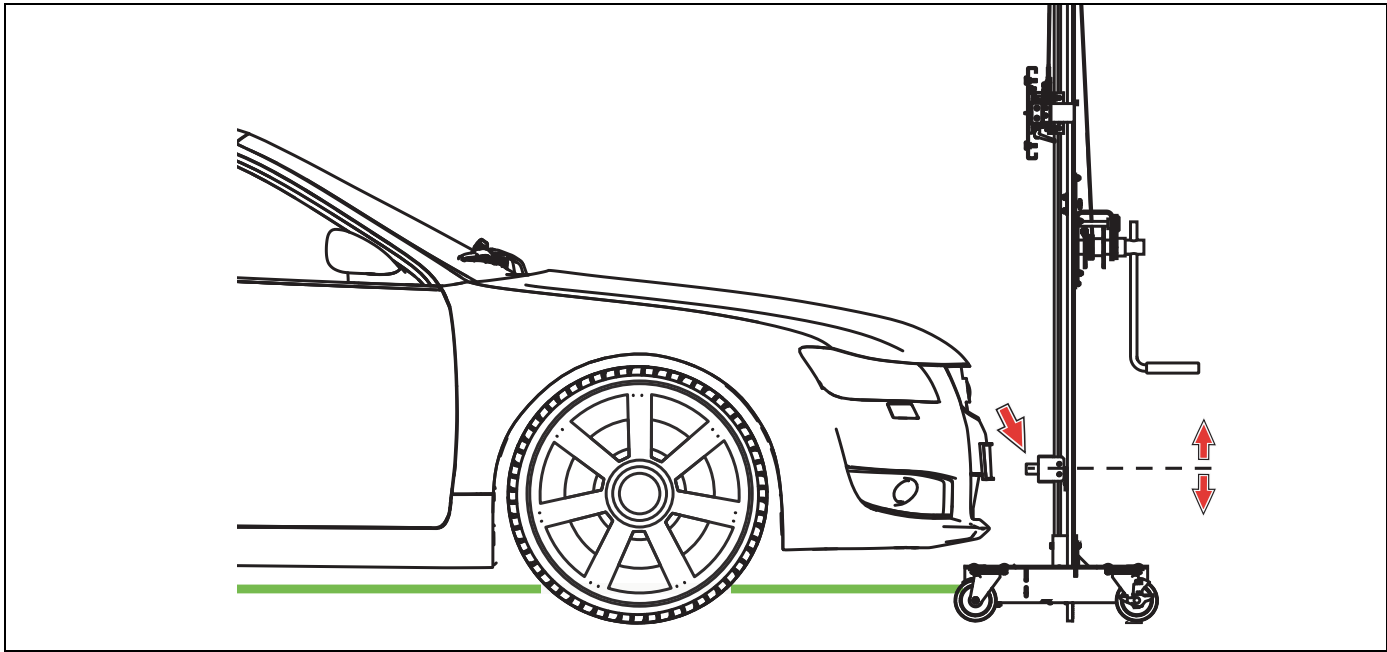


Figure 4-24

4

7. Simultaneously move the TS100 stand so that the TS20 zero stop contacts the forward most surface, and is in alignment with the AS20 laser (vehicle centerline) (Figure 4-25).
  - This is first recalibration position "A1" = 0 (zero).

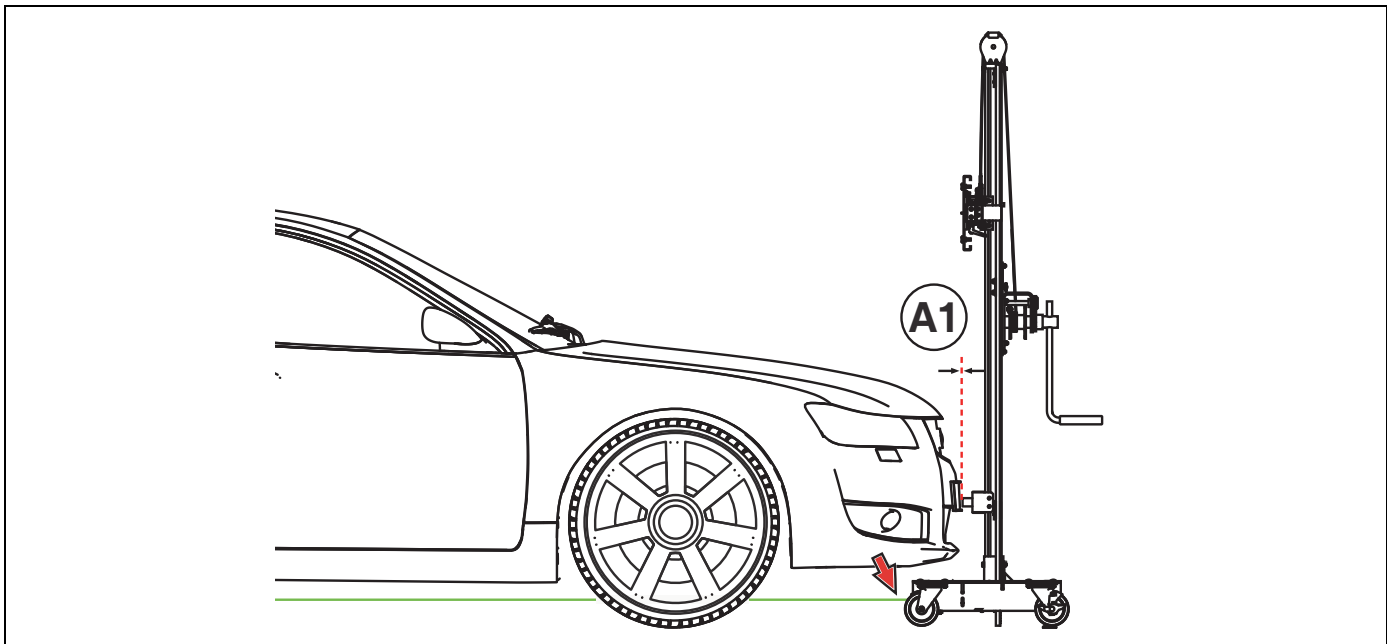


Figure 4-25

Once the target distance position is set, the TS100 target stand must be leveled at the position.

8. Without moving the TS100 target stand, lower the target cross beam (using the clutch brake height adjuster) to the lowest position possible, without allowing the targets or the arm to touch the vehicle (Figure 4-26). Figure 4-26 is shown without targets installed for clarity and for reference purposes only.

**NOTE:**

Clutch Brake Lift rotation - Clockwise = raise (course adjustment) / Counterclockwise = lower (fine adjustment). See [Using the Clutch Brake Lift \(TS100\)](#), on page 4-4 for operation instructions.

9. Lower the leveling feet to raise the fixture off the casters, then adjust the leveling feet to level the cross beam (Figure 4-26). A spirit level is located on top of the cross beam.
10. Recheck the TS100 target stand to ensure:
  - It is inline with the vehicle centerline
  - The zero stop is touching the vehicle
  - The cross beam is level

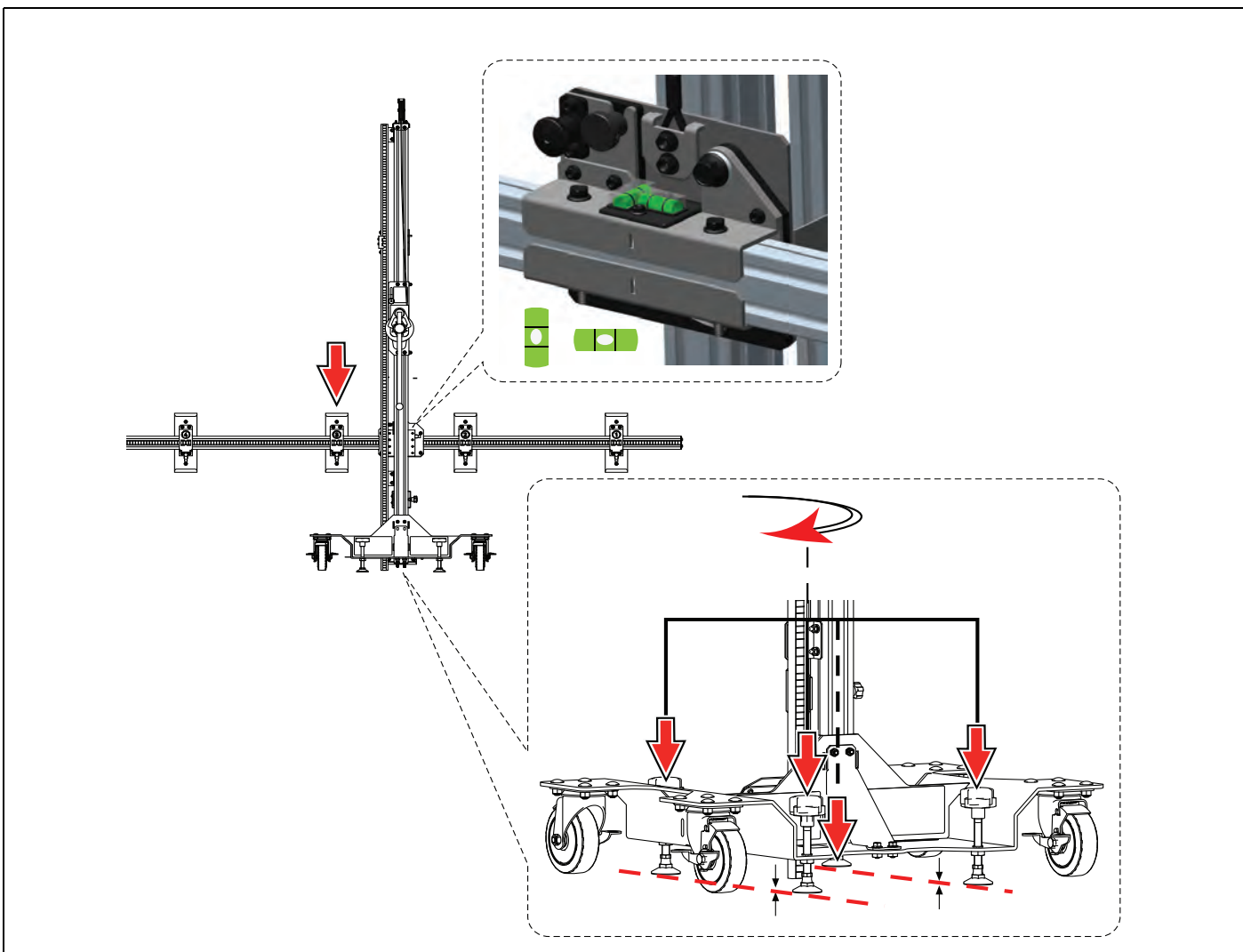


Figure 4-26



11. Refer to and complete [Setting the Target Height \(Step 4\)](#), on page 4–17.
12. Start the diagnostic tool recalibration functional test at position “A1”, see [Diagnostic Tool Operation](#), on page 7–1.
13. Once recalibration has been completed at position “A1”, raise the leveling feet and move the TS100 stand back away from the front of the vehicle.
14. Reposition the AS10 and AS11 fixtures as they were previously in the front of the vehicle in alignment with the AS20 laser (vehicle centerline) ([Figure 4-27](#)).

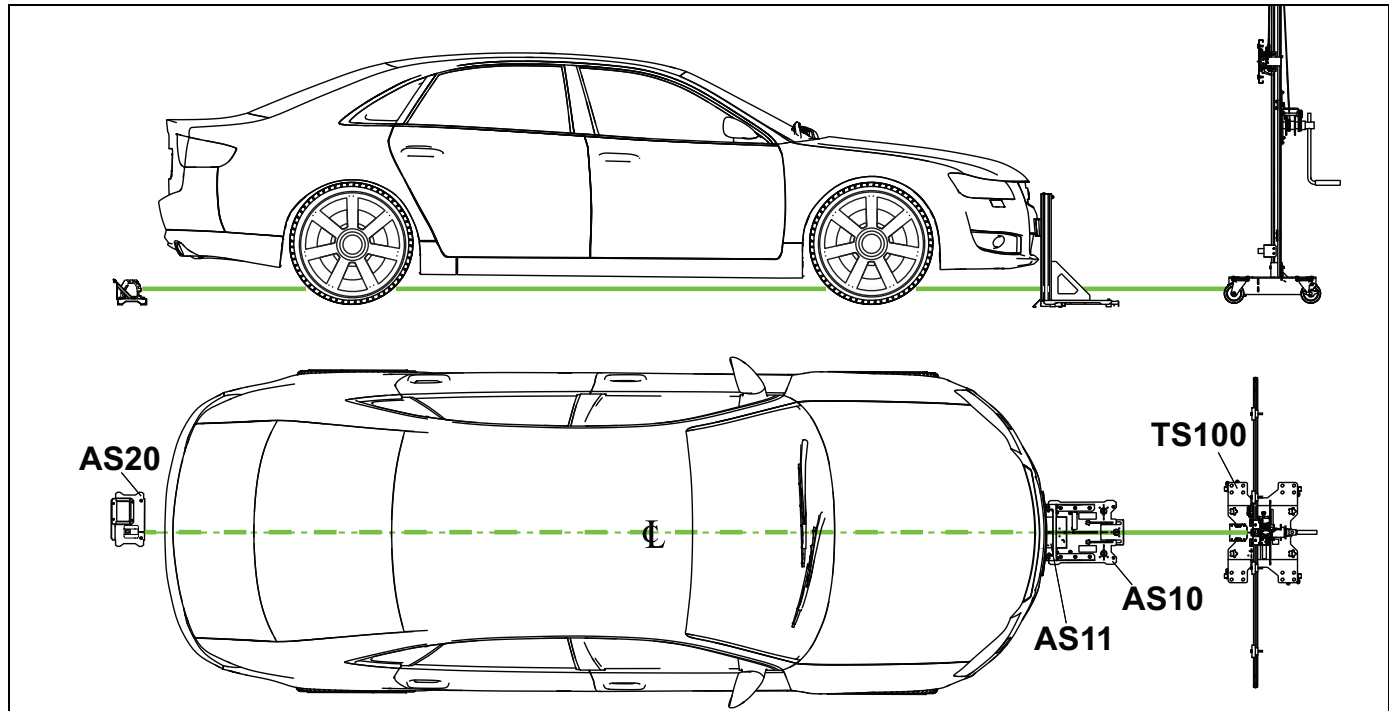


Figure 4-27

15. Simultaneously align the TS100 stand with the AS20 laser (vehicle centerline) at the “A2” distance position (Figure 4-28 and Figure 4-29). Use the tape rule on the TS100 stand to measure the distance from the AS11 fixture (Figure 4-28).
- This is the second recalibration position “A2” = X (variable)

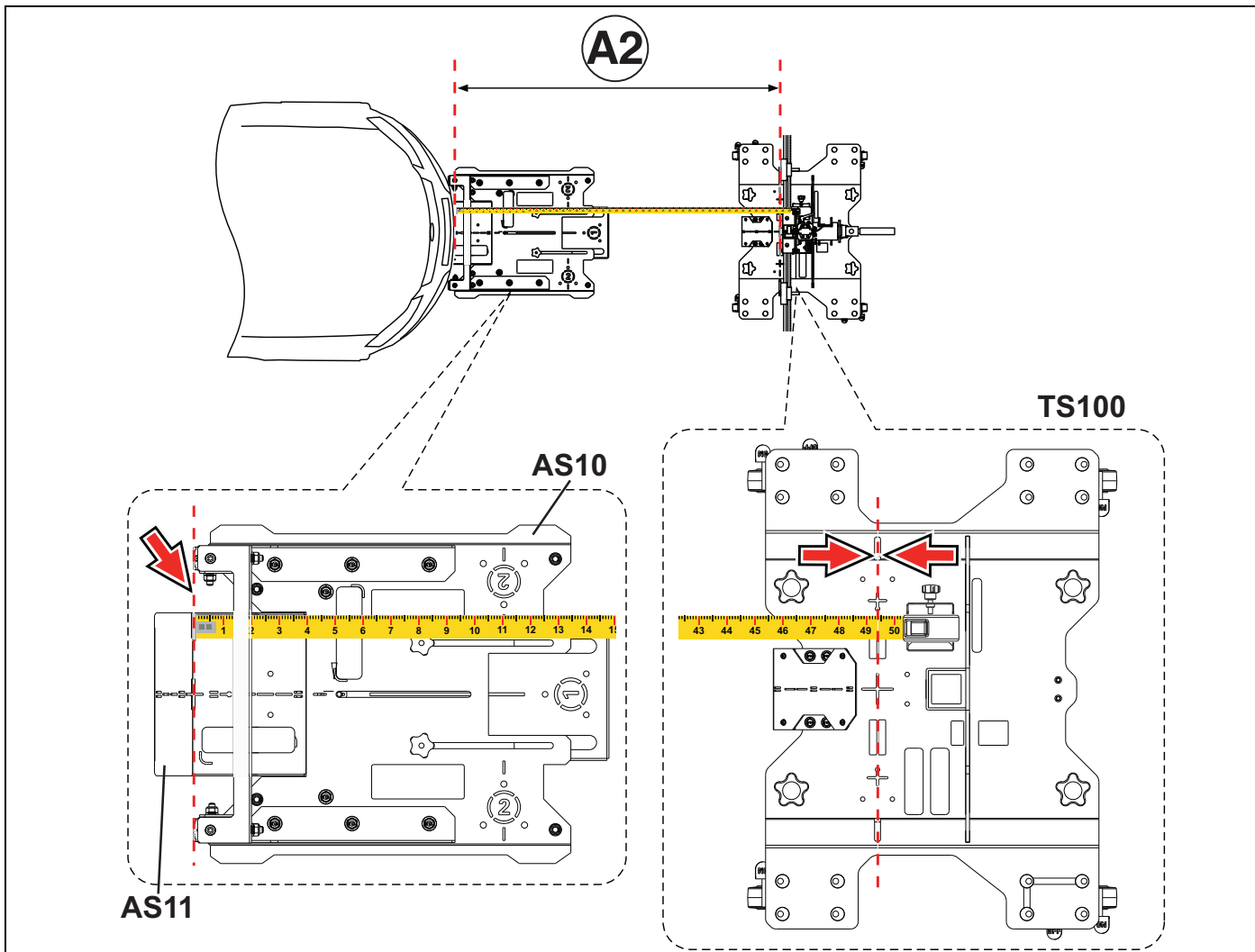
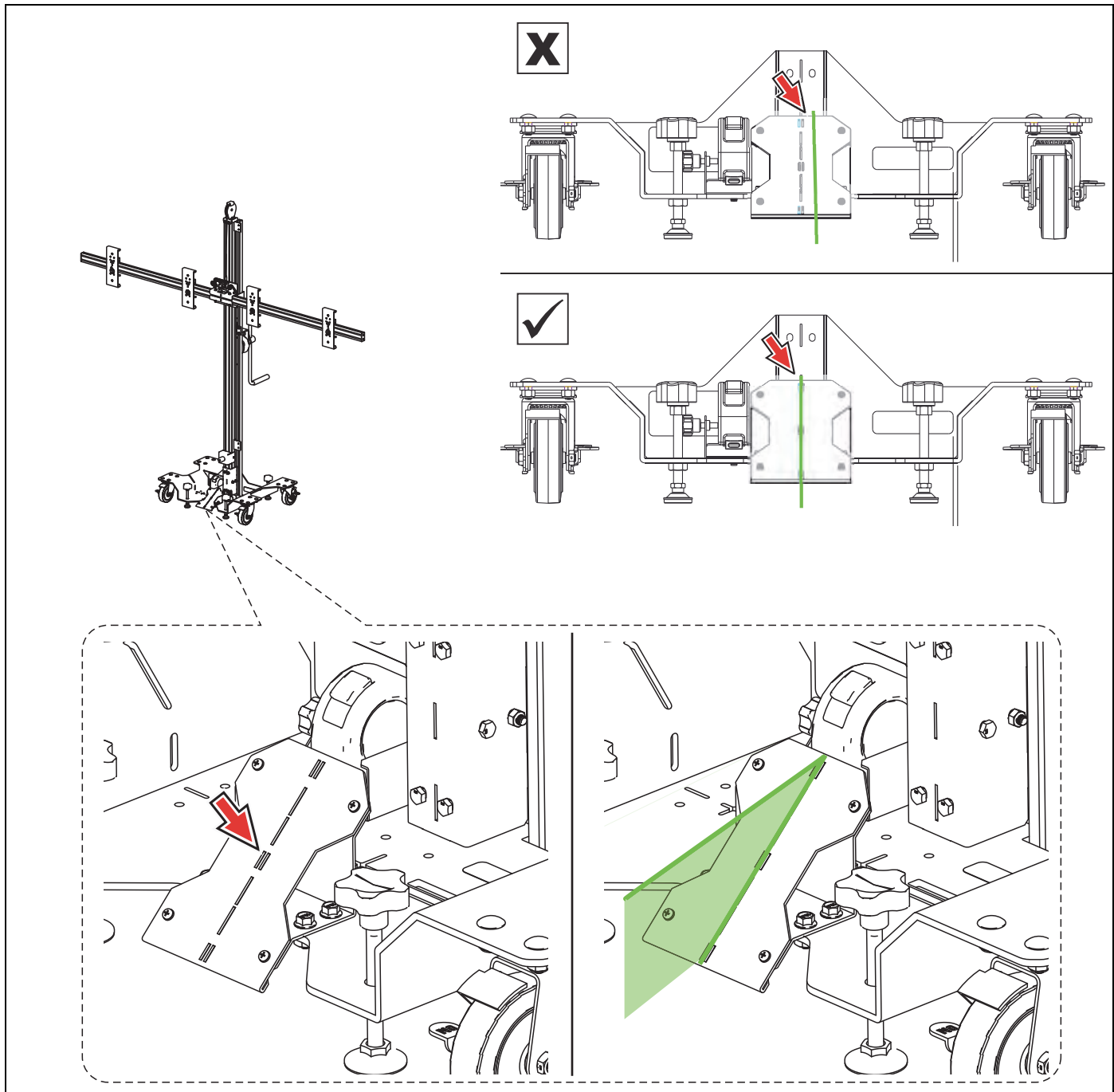


Figure 4-28



4

Figure 4-29

Once the target distance is set at the “A2” position, the TS100 target stand must be leveled at the position.

16. Without moving the TS100 target stand, lower the target cross beam (using the clutch brake height adjuster) to the lowest position (Figure 4-30).

**NOTE:**

Clutch Brake Lift rotation - Clockwise = raise (course adjustment) / Counterclockwise = lower (fine adjustment). See [Using the Clutch Brake Lift \(TS100\)](#), on page 4-4 for operation instructions.

17. Lower the leveling feet to raise the fixture off the casters, then adjust the leveling feet to level the cross beam (Figure 4-30). A spirit level is located on top of the cross beam. Figure 4-30 is shown without the targets installed for clarity and reference purposes only.
18. Recheck the TS100 target stand to ensure:
- It is inline with the vehicle centerline
  - It is at the correct distance setting “A2”
  - The cross beam is level

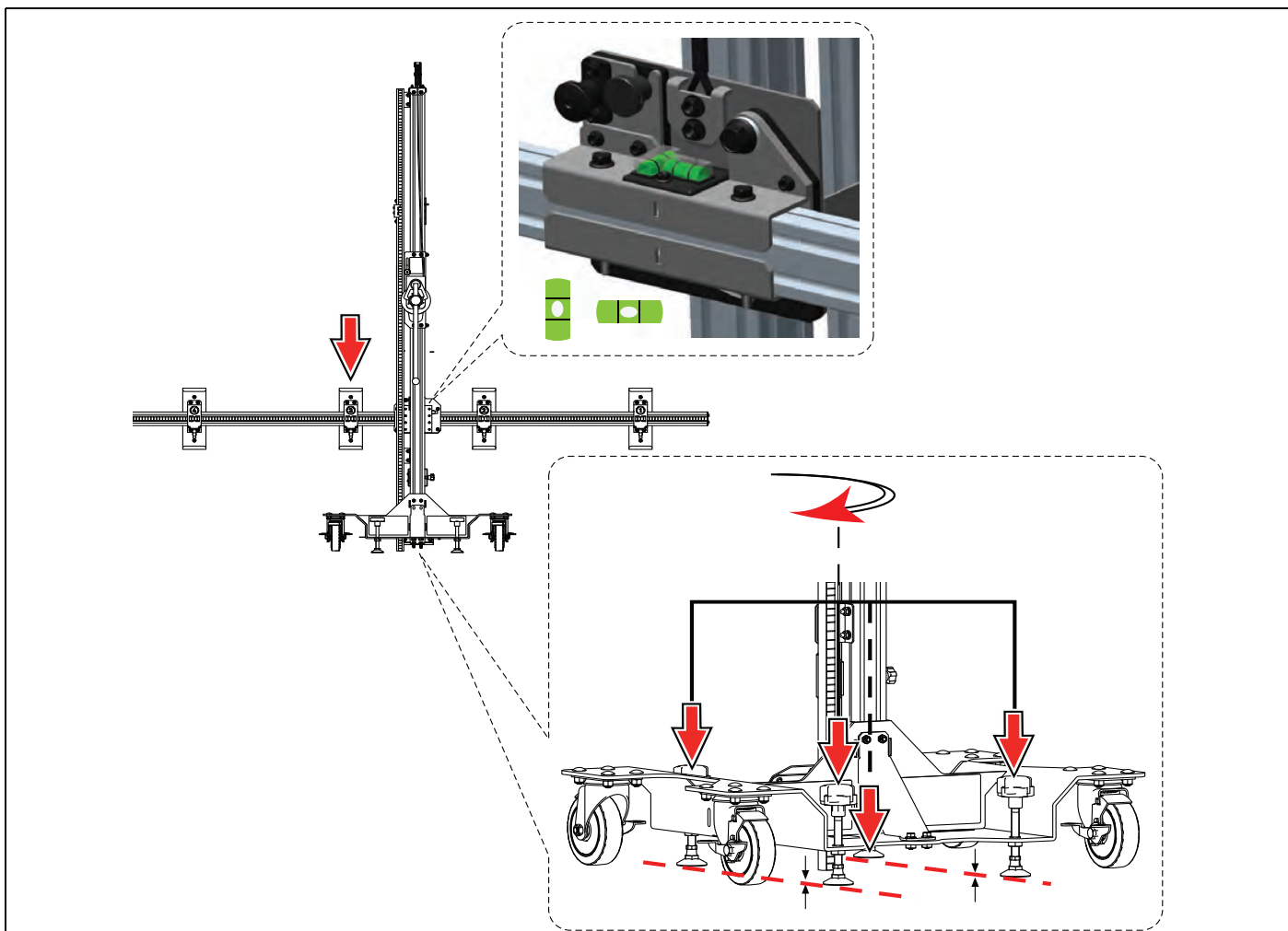


Figure 4-30

19. Refer to and complete [Setting the Target Height \(Step 4\)](#), on page 4-17
20. Start the diagnostic tool recalibration functional test at position “A2”, see [Diagnostic Tool Operation](#), on page 7-1. The process is complete after successful recalibration at the “A2” position.

## Zero Stop - Single Position Target Distance Setup

The following instructions may apply to, but are not limited to:

- Mercedes-Benz

For models requiring a single zero stop target distance position “A” as shown in (Figure 4-31 - sample from Target Placement Instructions), the TS100 stand is set directly at the front center of the vehicle.

- Refer to Target Placement Instructions for distance value “A”.

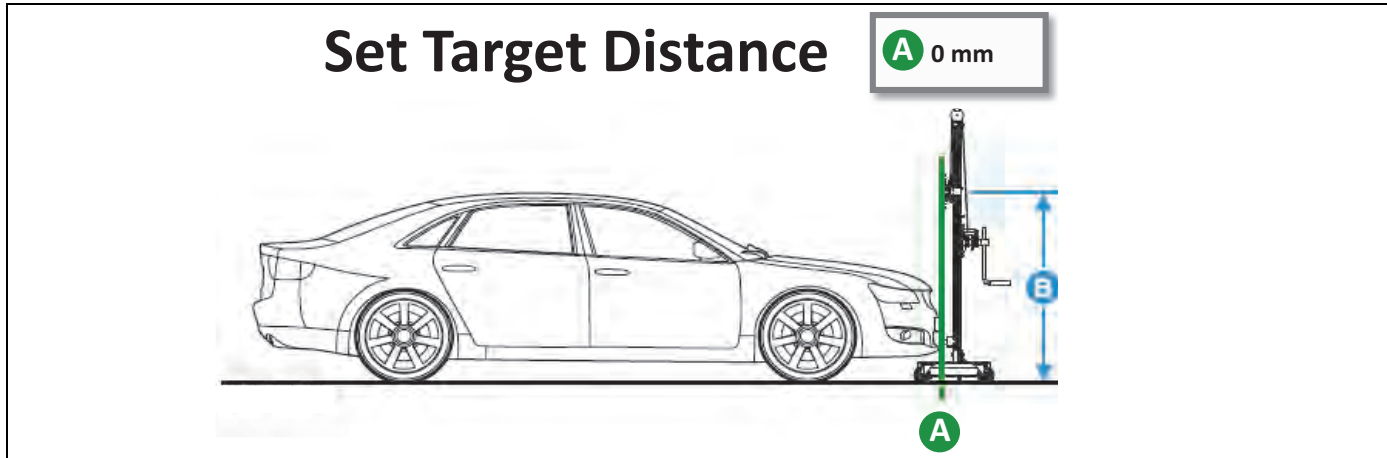


Figure 4-31

1. Refer to and complete [Locating the Vehicle Centerline \(Step 1\)](#), on page 4–6. Leave the AS20 fixture in place at the rear of the vehicle with the laser on. Remove the AS10 and AS11 fixtures from the front of the vehicle.
2. Review [Using the Front Camera Target Placement Instructions \(Step 2\)](#)
3. Refer to and complete [Installing the Targets \(Step 5\)](#), on page 4–19.
4. Temporarily raise the cross beam if needed, so that the targets do not touch the vehicle as the TS100 stand is moved close to the vehicle in the next step.
5. Move the TS100 stand to the front and center of the vehicle, so that the TS20 zero stop is almost touching the front of the vehicle ([Figure 4-24](#)).
6. Loosen the TS20 zero stop thumbscrew and adjust the TS20 vertically to align with the forward most surface of the vehicle ([Figure 4-24](#)), and lock in position.

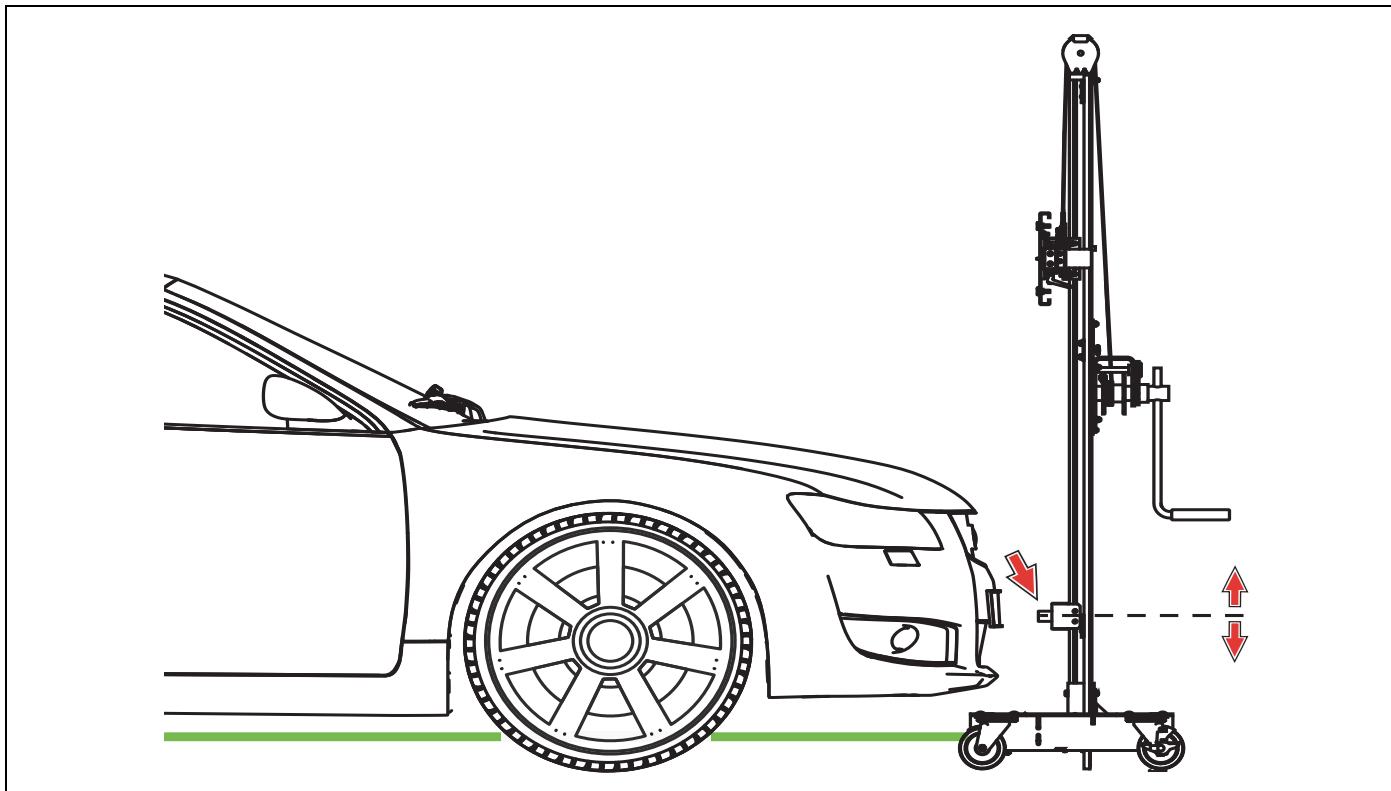


Figure 4-32

7. Simultaneously move the TS100 stand so that the TS20 zero stop contacts the forward most surface, and is in alignment with the AS20 laser (vehicle centerline) (Figure 4-25).

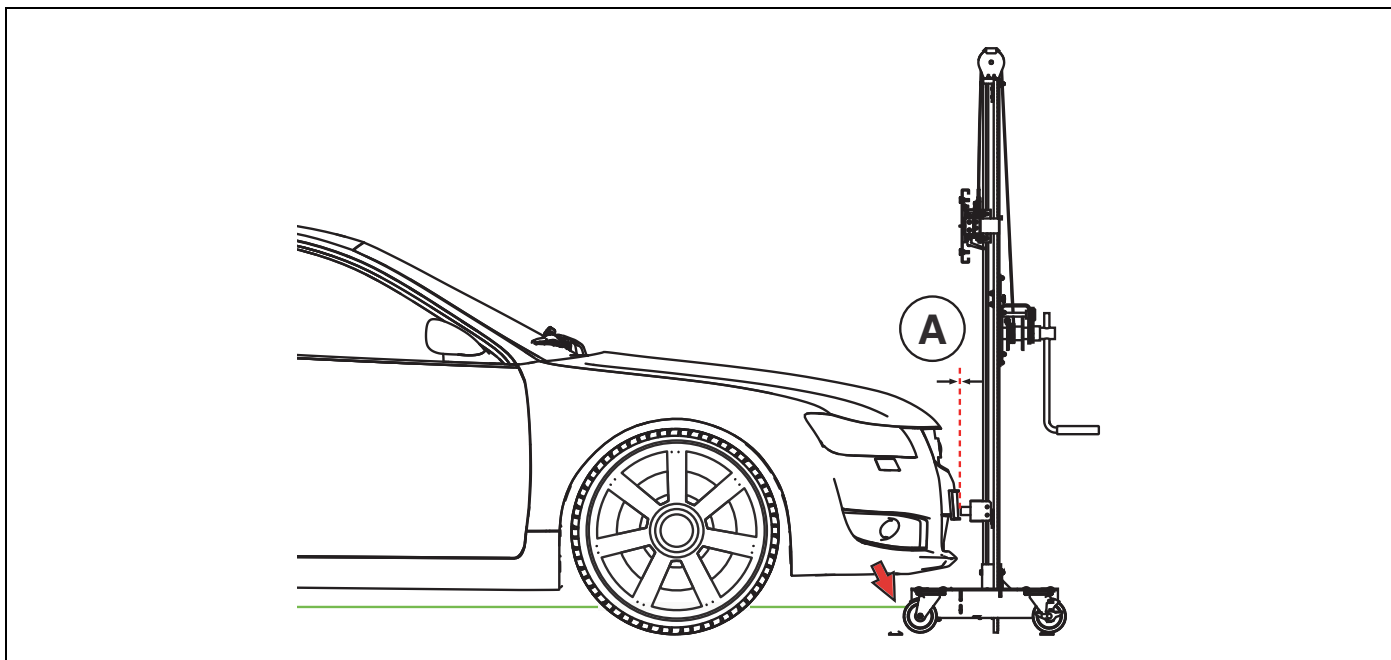


Figure 4-33

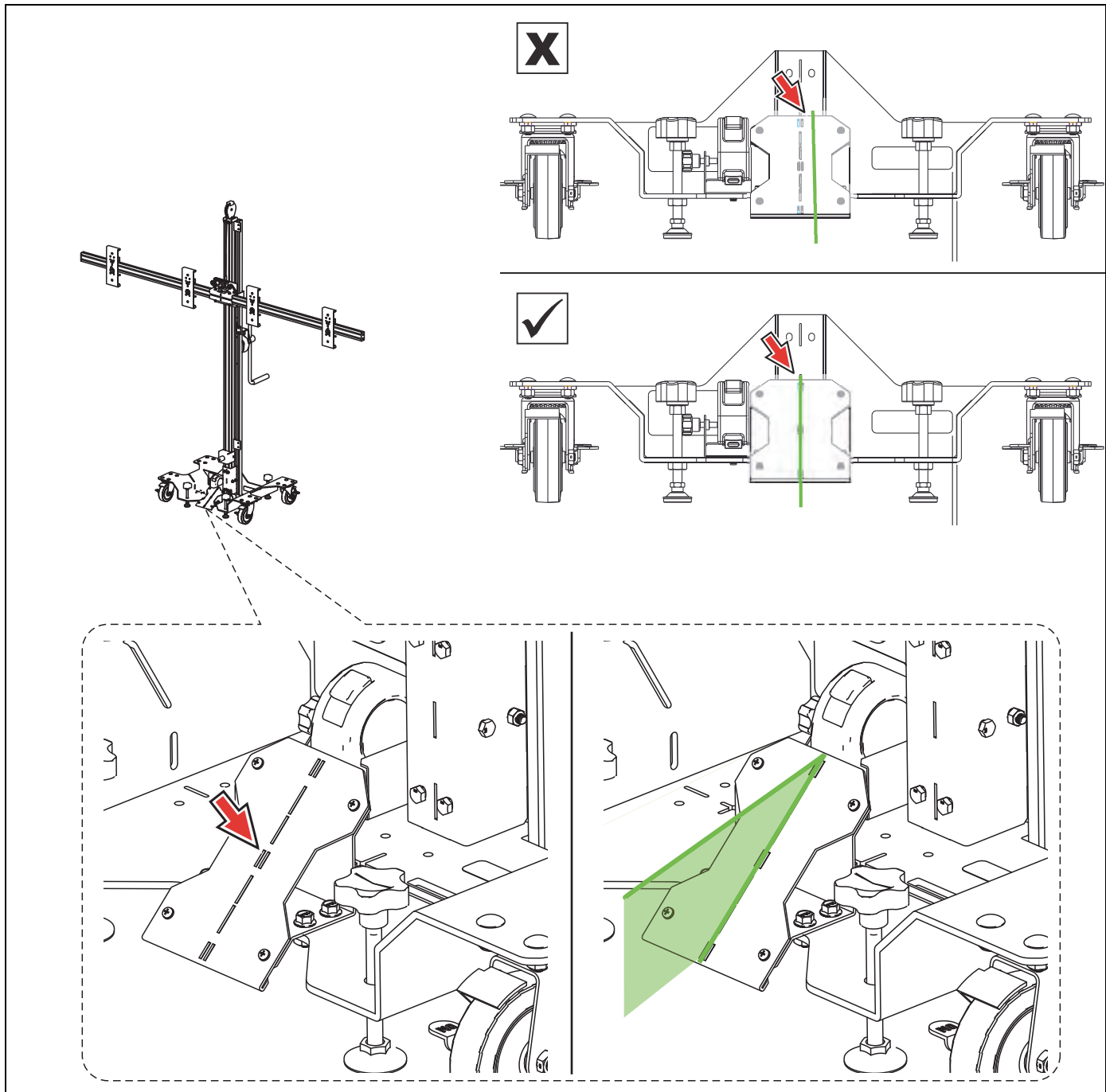


Figure 4-34

Once the target distance position is set, the TS100 target stand must be leveled at the position.

- Without moving the TS100 target stand, lower the target cross beam (using the clutch brake height adjuster) to the lowest position possible, without allowing the targets or the arm to touch the vehicle (Figure 4-26). Figure 4-26 is shown without targets installed for clarity and for reference purposes only.

**NOTE:**

Clutch Brake Lift rotation - Clockwise = raise (course adjustment) / Counterclockwise = lower (fine adjustment). See [Using the Clutch Brake Lift \(TS100\)](#), on page 4-4 for operation instructions.

- Lower the leveling feet to raise the fixture off the casters, then adjust the leveling feet to level the cross beam (Figure 4-26). A spirit level is located on top of the cross beam.

10. Recheck the TS100 target stand to ensure:

- It is inline with the vehicle centerline
- The zero stop is touching the vehicle
- The cross beam is level

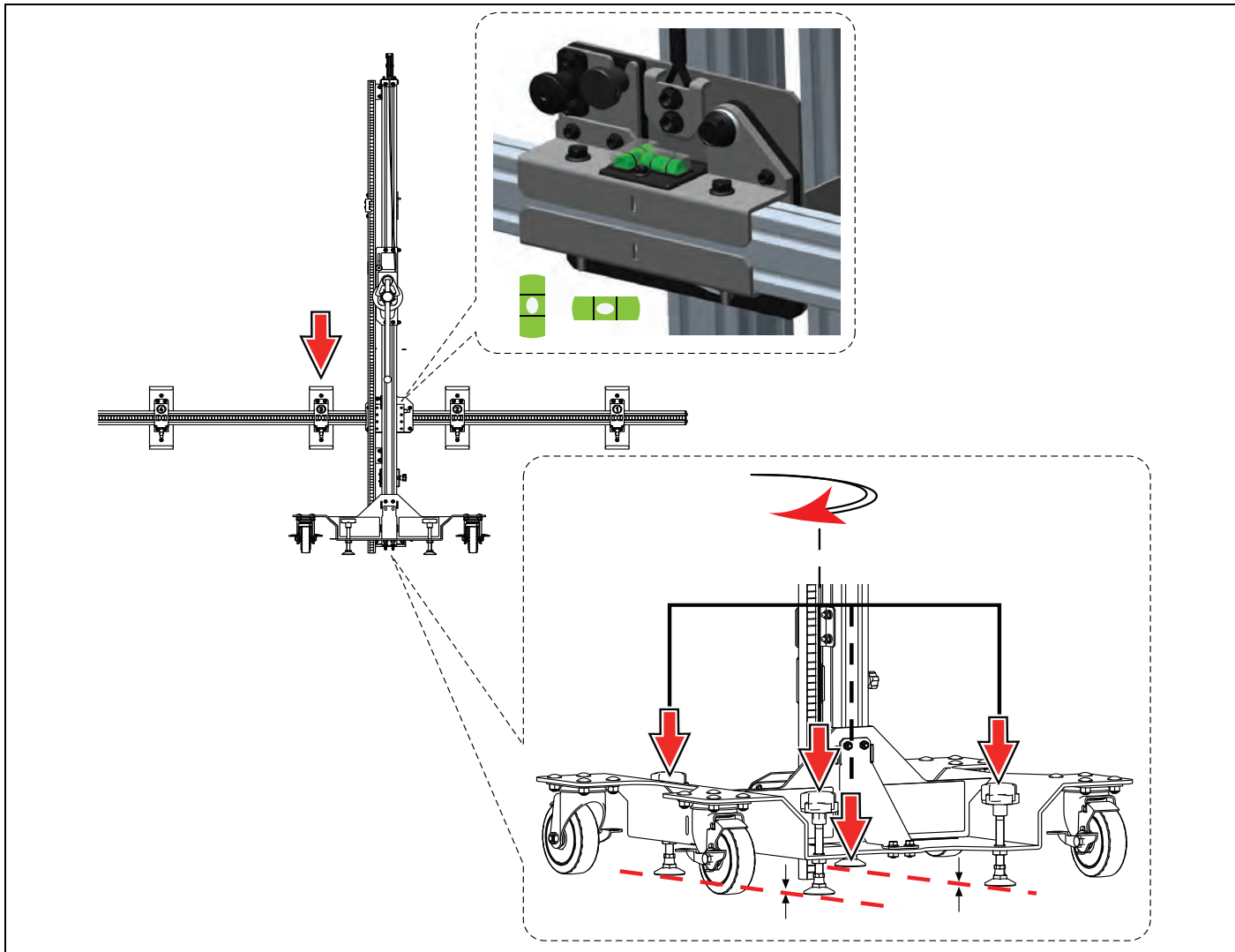


Figure 4-35

11. Refer to and complete [Setting the Target Height \(Step 4\)](#), on page 4-17.

12. Start the front camera recalibration using the diagnostic tool, see [Diagnostic Tool Operation](#), on page 7-1.



# Rear Camera Recalibration

This section describes general Rear Camera Recalibration operation procedures using the ADAS Recalibration System.

---

**NOTE:**

Rear Camera recalibration equipment may not be included with your kit. Contact your sales representative to purchase Rear Camera recalibration equipment.

---

## Quick Reference

- [Rear Camera Recalibration \(Overview\)](#), on page 5–1
- [Locating the Vehicle Centerline \(Step 1\)](#), on page 5–2
- [Using the Rear Target Placement Instructions \(Step 2\)](#), on page 5–5
- [Rear Camera Recalibration Setup \(Step 3\)](#), on page 5–6
  - [Mercedes-Benz Models Using Target MB-RC-01](#), on page 5–10
  - [Volkswagen / Audi Models Using Target VAG-RC-01](#), on page 5–6

5

## Rear Camera Recalibration (Overview)

This section outlines the basic steps and hardware needed for the Rear Camera Recalibration process using the ADAS Recalibration System.

Read the following:

- [Safety Information](#), on page i–i
  - [Getting Started](#), on page 2–1
  - [Pre-Checks](#), on page 3–1
1. Locate the centerline of the vehicle, see [Locating the Vehicle Centerline \(Step 1\)](#), on page 5–2.
  2. Locate the correct **Target Placement Instructions** for the vehicle, see [Using the Rear Target Placement Instructions \(Step 2\)](#), on page 5–5.
  3. Perform the rear target setup procedure, see [Rear Camera Recalibration Setup \(Step 3\)](#), on page 5–6.
  4. Start the rear camera recalibration using the diagnostic tool, see [Diagnostic Tool Operation](#), on page 7–1.

---

**\*\*IMPORTANT\*\***

After successful recalibration, test drive the vehicle and confirm the vehicle and ADAS system is operating properly, and the warning indicator light is off.

---

5. Test drive the vehicle.

## Basic Hardware Needed

Targets not shown.

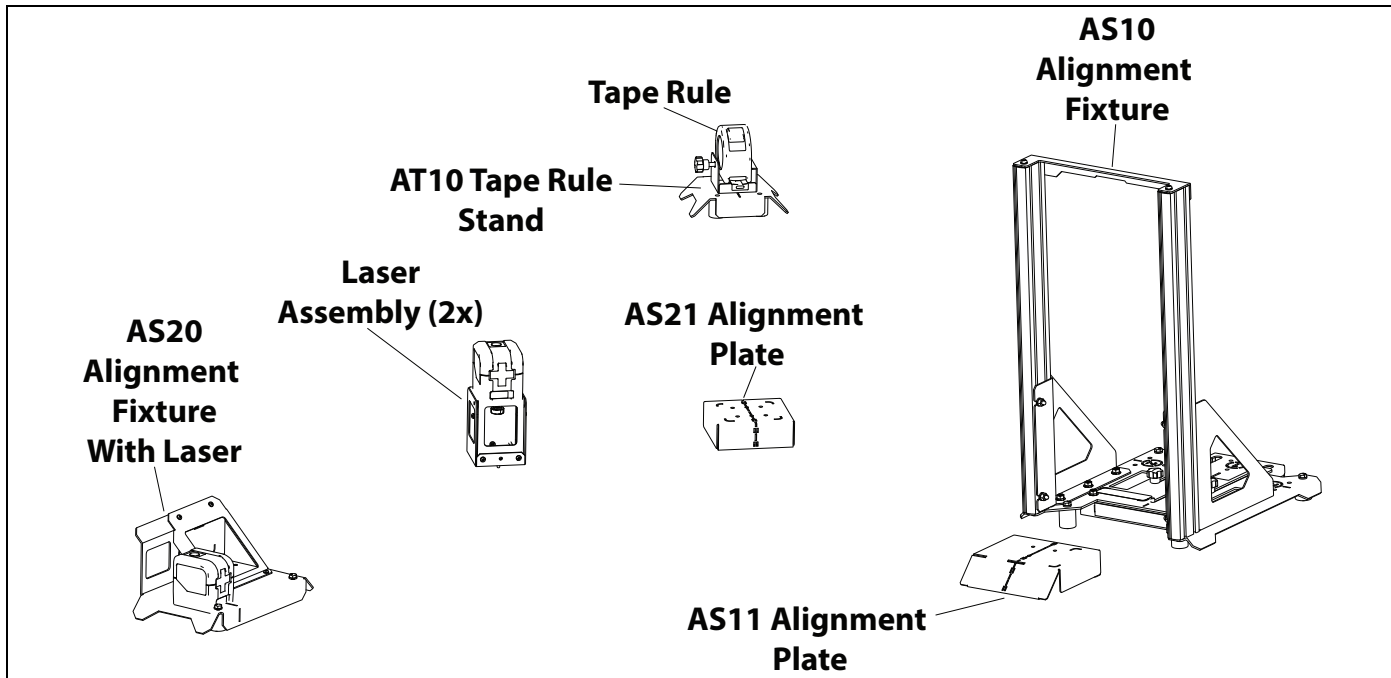


Figure 5-1

## Locating the Vehicle Centerline (Step 1)

1. Before starting this procedure read [Pre-Checks](#), on page 3–1, and make any needed corrections as necessary. Use [Figure 5-2](#) as reference for the following steps.
2. Slide the AS11 alignment plate into the AS10 alignment fixture.
3. Place the laser assembly at position “1” on the AS10 alignment fixture, then turn it on in self-leveling mode, see [Laser Operation On/Off](#), on page 2–3.  
If necessary, align the laser assembly with the AS10 alignment fixture, see [AS10 Laser Assembly Alignment](#), on page 2–4.
4. At the rear of the vehicle, move the AS10 fixture to align the laser with the center of the vehicle emblem (or other vehicle center feature), then move the fixture so that the upright guides contact the vehicle.  
If necessary, adjust the laser mount to widen or narrow the beam, see [AS10 Laser Assembly \(Vertical Beam Adjustment\)](#), on page 2–4.
5. Turn the AS10 laser off, and remove it from the fixture.
6. Set the AS20 alignment fixture on the ground at the front of the vehicle, then turn the laser on in self-leveling mode.
7. Move the AS20 fixture to simultaneously align its laser with the center of the vehicle emblem (or other vehicle center feature) and the center slot in the AS11 alignment plate ([Figure 5-3](#)).  
Use the mirror on the AS20 fixture to aid in aligning the laser under the vehicle, see item 1 in [Figure 5-3](#).  
Make sure there are no obstructions under the vehicle that could interfere with the alignment of the laser.
8. Proceed to [Using the Rear Target Placement Instructions \(Step 2\)](#), on page 5–5.

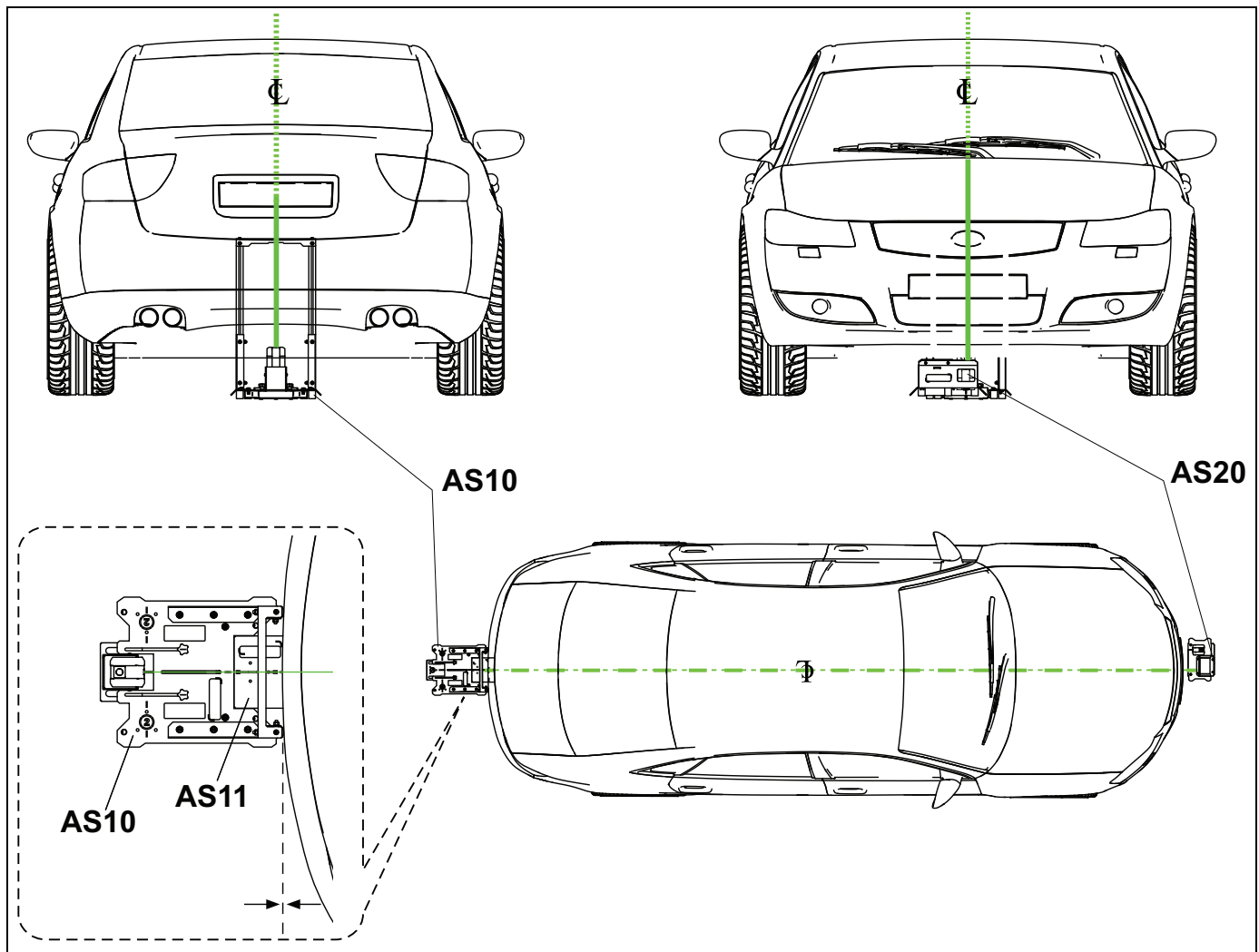


Figure 5-2

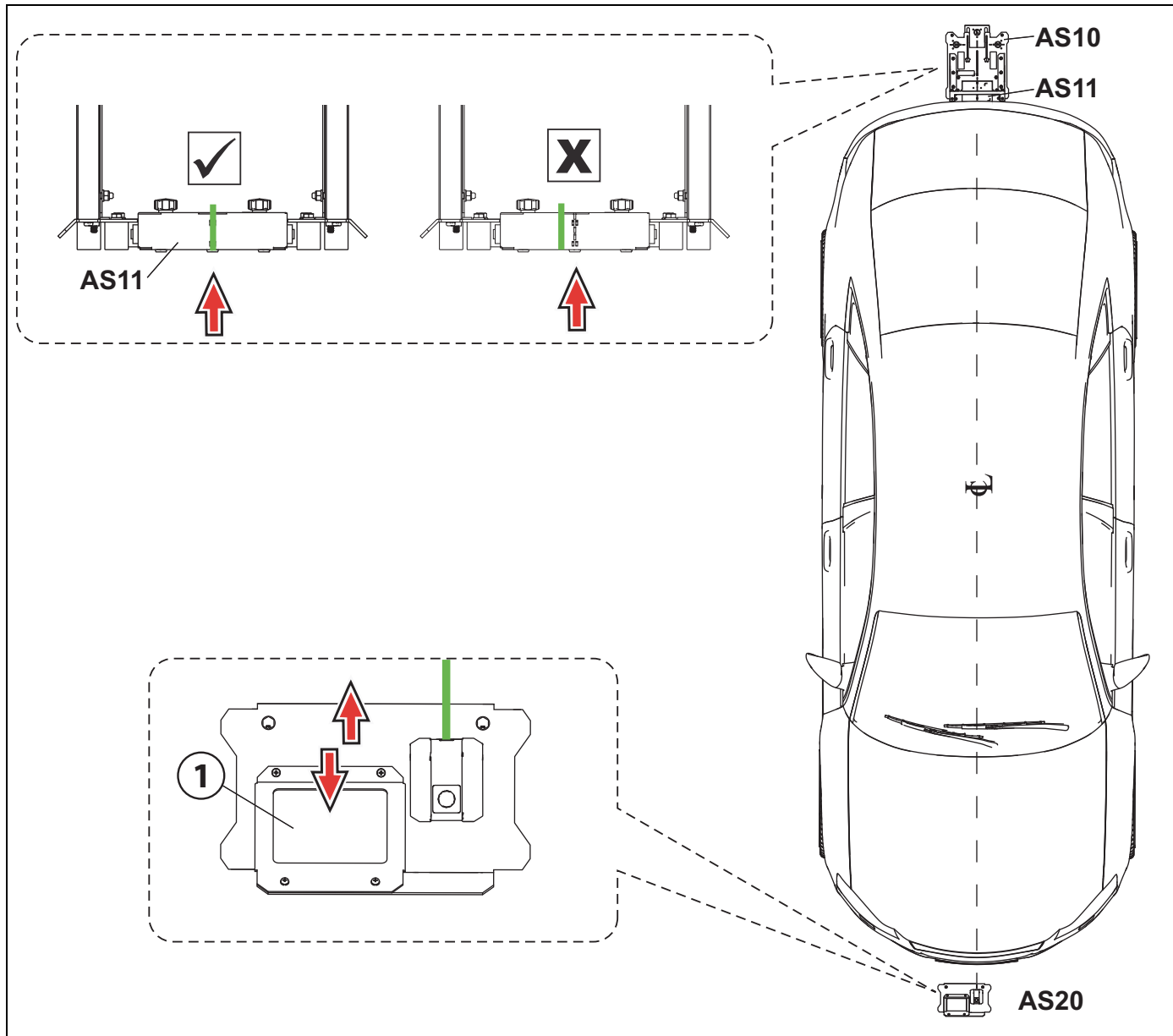


Figure 5-3

# Using the Rear Target Placement Instructions (Step 2)

The Target Placement Instructions (provided separately) include the vehicle-specific target setup values. These values are required to complete the setup.

1. Find the Target Placement Instructions for the vehicle you are working on.
2. Proceed to Rear Camera Alignment. See [Rear Camera Recalibration Setup \(Step 3\)](#), on page 5–6.

**Rear Target Placement Instructions (typical)**

**Volkswagen/Audi**  
Rear Camera Calibration  
Table of Contents

**Target Stand Setup Instructions**

Model	Start Year	End Year	Page
A3	2015	2017	231
A4	2012	2017	231
A5	2012	2017	231
A6	2012	2017	231
A7	2012	2017	231
A8	2012	2017	231
Beetle	2017	2019	229
E-Golf	2016	2019	233
E-Tron	2019	2017	231
Q3	2015	2017	231
Q5	2012	2017	231
Q7	2012	2017	231
Tiguan	2012	2017	229
Touareg	2012	2017	229

**Diagnostic Tool Input Values**

Model	Start Year	End Year	Page
All Models	-	-	235

**Rear Camera Calibration**  
Target Setup and Measurements

**Volkswagen/Audi**  
VAG-RC-01

**1 Use Target**

**2 Set Target Distance**

1450 mm

Callout	Description
<b>TOC</b>	Table of Contents Section - Use this section to find the vehicle-specific Target Placement Instructions.
<b>I</b>	Manufacturer Name / Target Part Number
<b>II</b>	Target Image and Part Number Section - Rear camera targets are labeled with the target name on the front face.
<b>III</b>	Target Distance Values and Illustration Section - "A" Values (green color code) indicate the distance of the target from the vehicle.

## Rear Camera Recalibration Setup (Step 3)

Choose the applicable rear camera recalibration procedure for the vehicle you are working on, see Quick Reference below.

### Quick Reference

Mercedes-Benz Models Using Target MB-RC-01, on page 5–10

Volkswagen / Audi Models Using Target VAG-RC-01, on page 5–6

### Volkswagen / Audi Models Using Target VAG-RC-01

1. Locate the vehicle centerline, see [Locating the Vehicle Centerline \(Step 1\)](#), on page 5–2. Leave the AS20 alignment fixture in place at the front of the vehicle.
2. Remove the AS11 alignment plate from the AS10 alignment fixture.
3. Place the AS10 alignment fixture at the rear wheel, so that both posts are touching the tire ([Figure 5-4](#)).

---

#### NOTE:

*Left or right-side vehicle setup can be used. Instructions illustrate right-side setup as example.*

---

4. Set the laser assembly at position “1” on the AS10 fixture, then move the fixture as needed to align the laser with the center of the wheel hub ([Figure 5-4](#)).

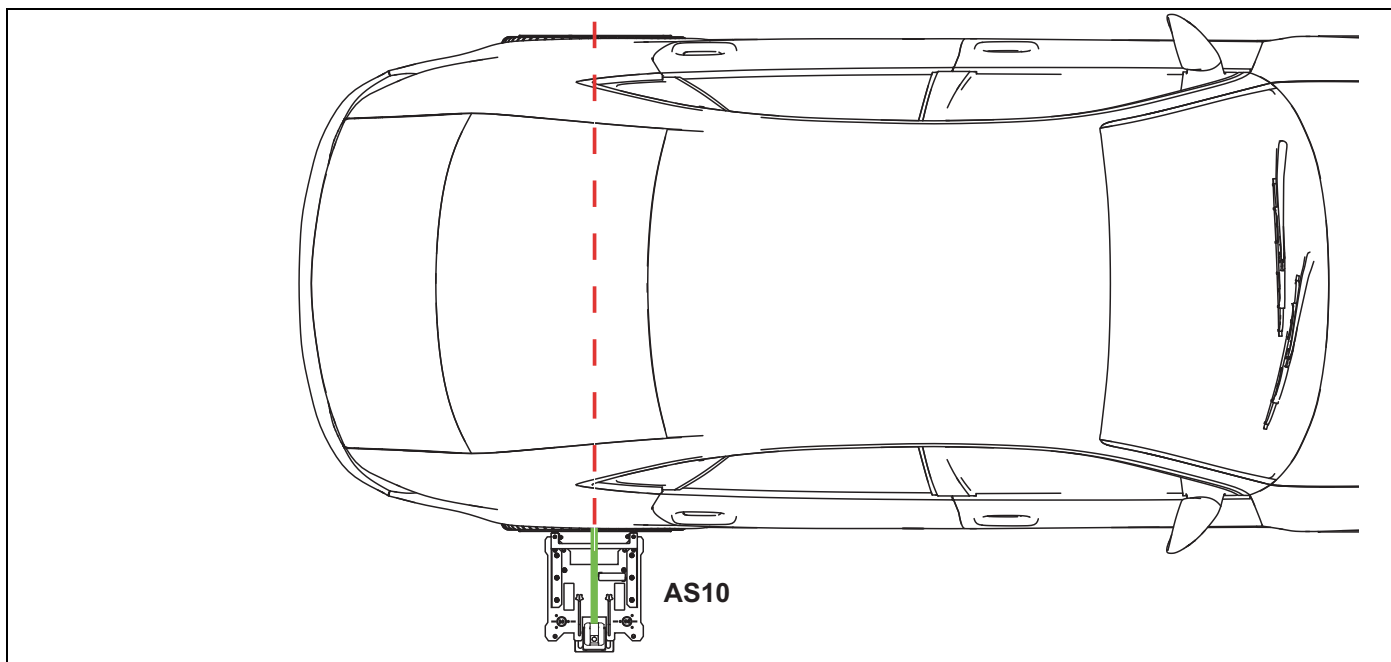


Figure 5-4

5. Move the laser assembly to position “2” on the AS10 alignment fixture.
6. Pull the tape rule on the AT10 stand perpendicular to the laser from the AS10 fixture centerline notch past target distance value “A” (see Rear Camera Target Placement Instructions) and lock in place ([Figure 5-5](#)).

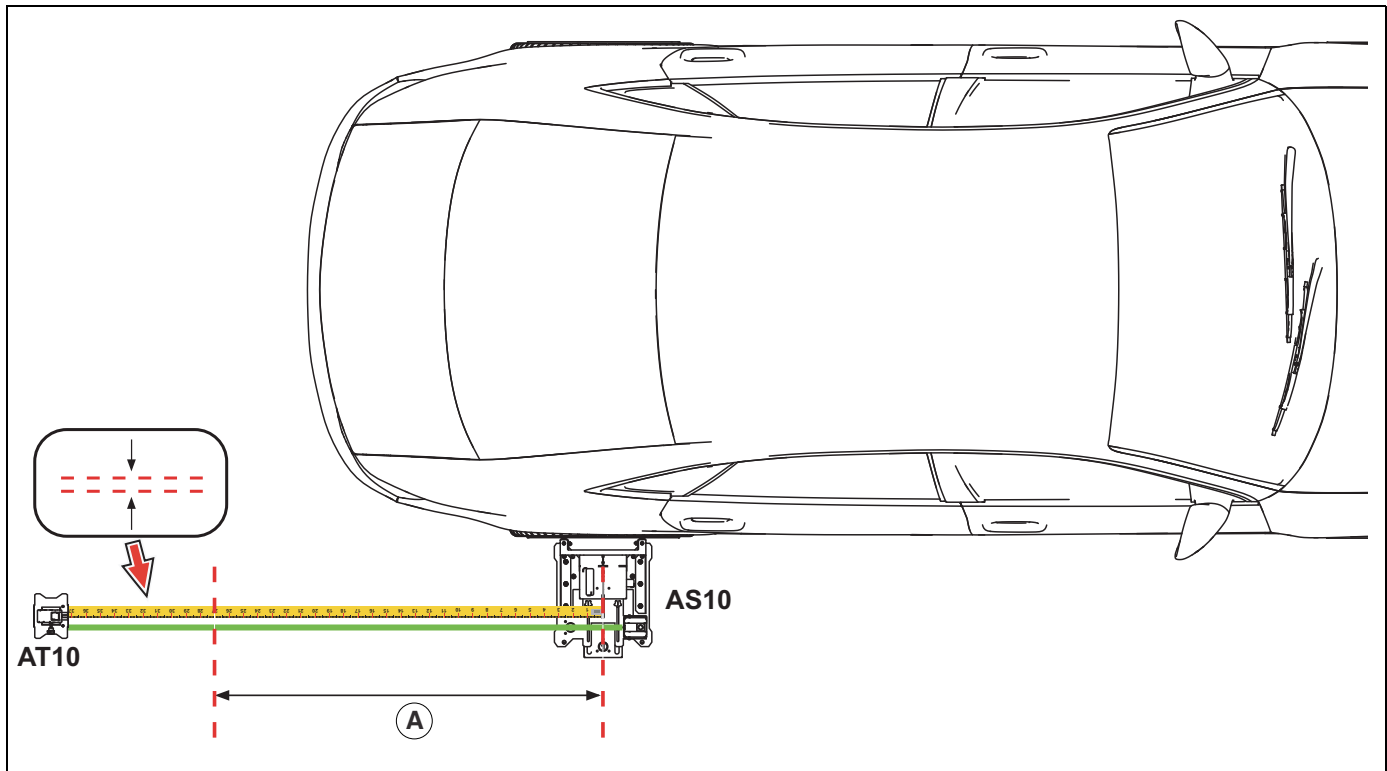


Figure 5-5

5

7. Assemble the two piece target on the floor behind the vehicle. The indicator arrows (on forward target edge) should face away from the vehicle (Figure 5-6 and Figure 5-7). Refer to Rear Camera Target Placement Instructions for the target part number.

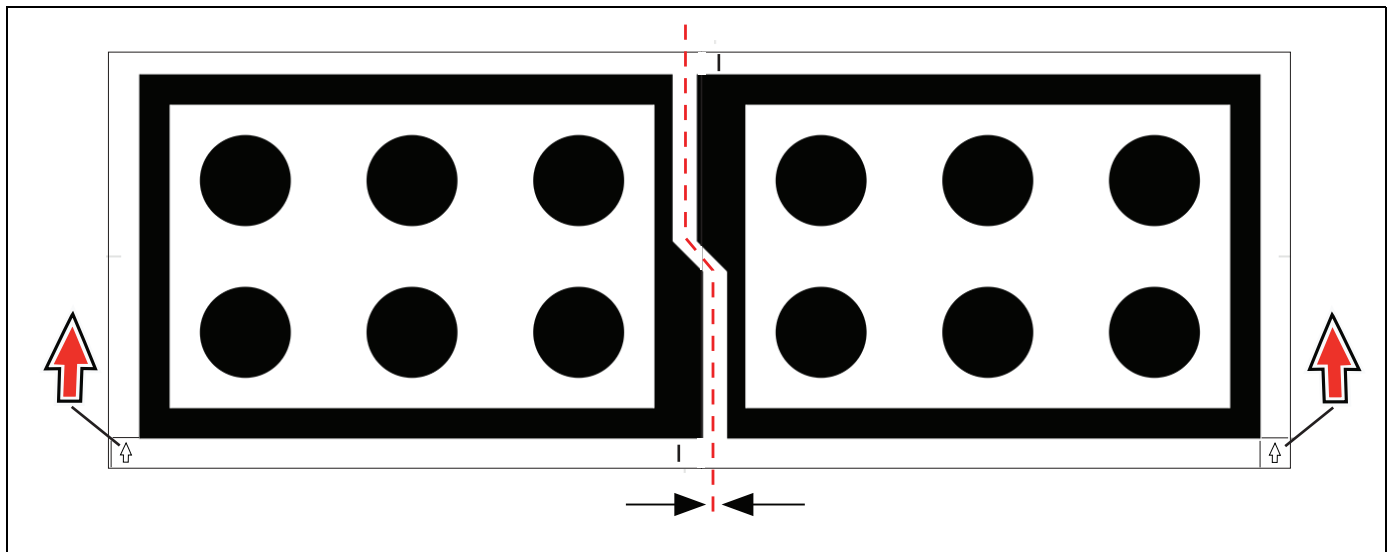


Figure 5-6

8. Place the AS21 alignment plate under the tape rule aligning its center mark with the "A" distance value on the tape rule (Figure 5-7).
9. Remove the laser assembly from the AS10 fixture and position it on the floor to align the forward edge of the target to the center mark on the AS21 alignment plate ("A" value on the tape rule) (Figure 5-7).
10. Simultaneously align the target centerline to the AS20 laser, and the forward target edge at distance "A" with the other laser (Figure 5-7). Move target as needed until (parallel and perpendicular) alignment is achieved as shown in Figure 5-7.

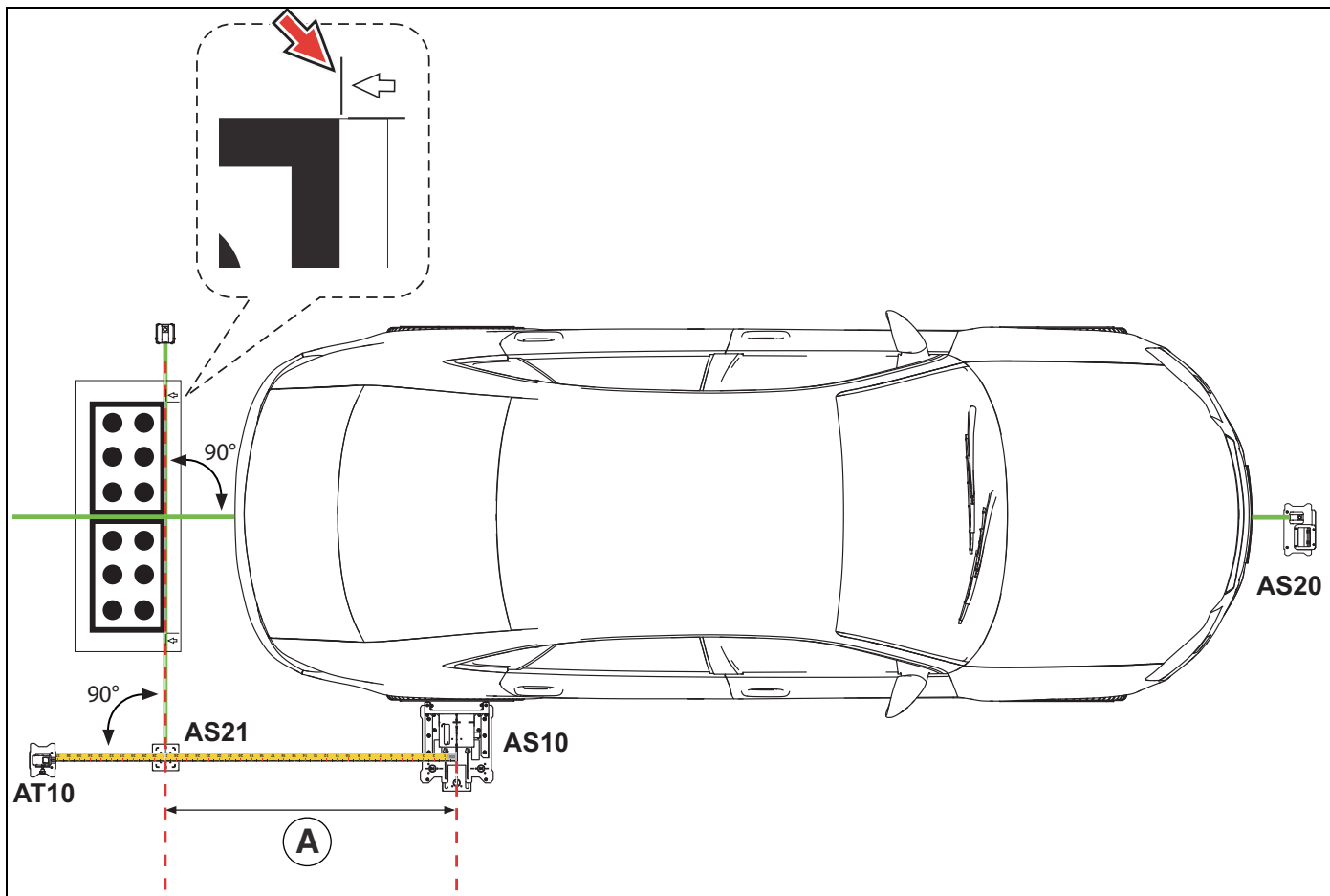


Figure 5-7



- If needed, use the AS11 alignment plate as an alignment tool to assist in lining up the target centerline with the laser from the AS20 fixture (vehicle centerline) (Figure 5-8).

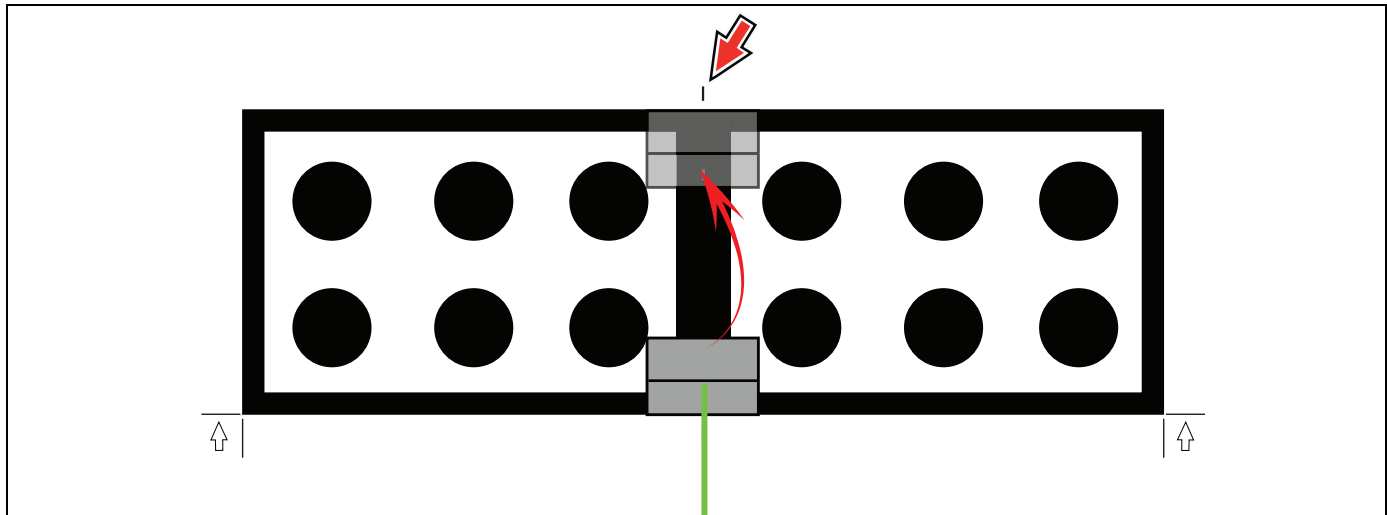


Figure 5-8

11. Initiate the recalibration functional test on the diagnostic tool, see [Diagnostic Tool Operation](#), on page 7-1.

## Mercedes-Benz Models Using Target MB-RC-01

1. Locate the vehicle centerline, see [Locating the Vehicle Centerline \(Step 1\)](#), on page 5-2. Leave the AS20 alignment fixture in place at the front of the vehicle, and the AS10 fixture in place at the rear of the vehicle.
2. Remove the laser assembly from the AS10 fixture ([Figure 5-9](#)).
3. Using the tape rule, measure target distance “A” from the slot in the AS11 alignment plate, and make a mark on the floor at distance “A” ([Figure 5-9](#)). Use of AT10 stand is optional.

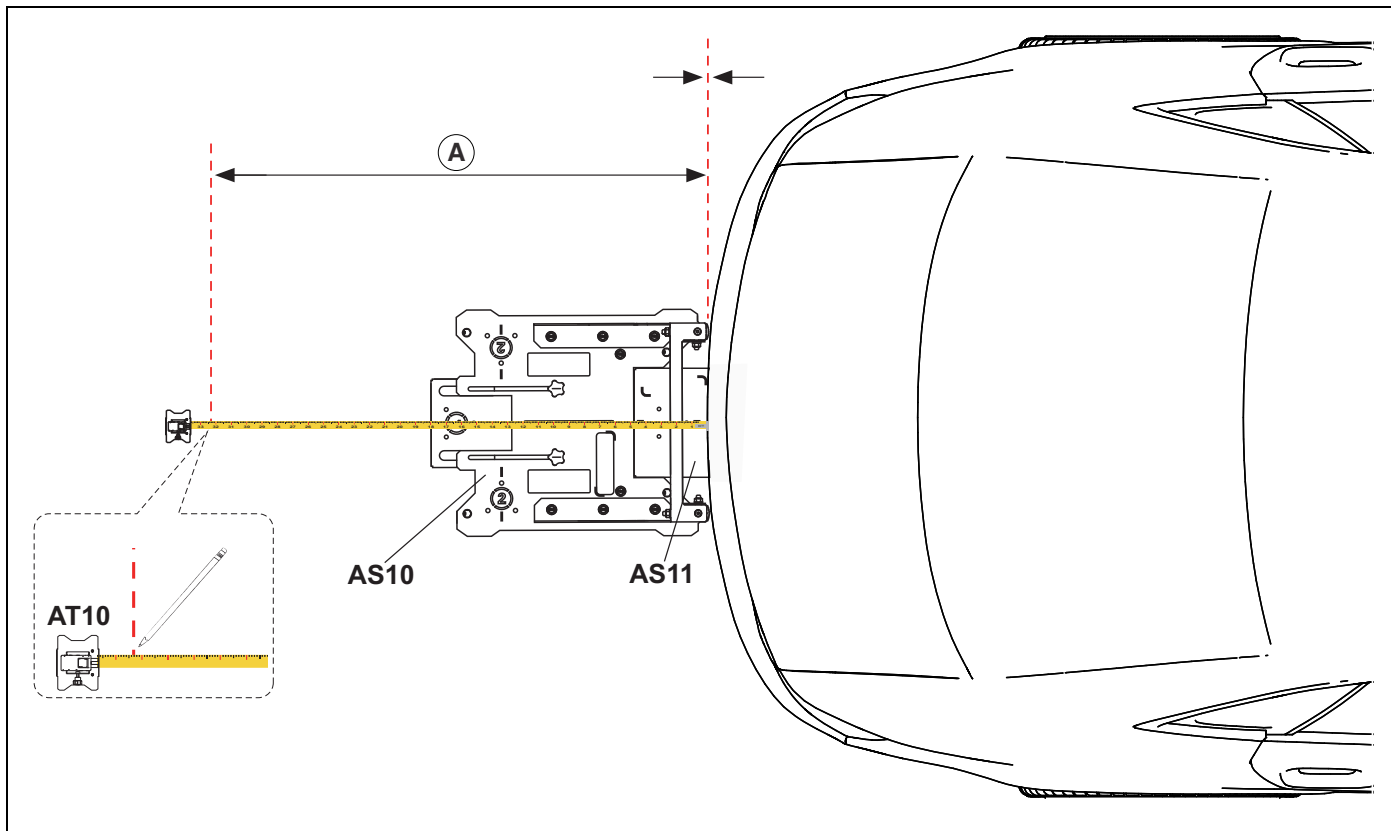


Figure 5-9

4. Align and position the two piece target as shown in Figure 5-10, on the floor. Align the forward edge of the targets with the "A" mark on floor.
  - Refer to Rear Camera Target Placement Instructions for the target part number.
5. Set the laser assembly (removed from AS10 fixture) behind the target, and align the laser with the center alignment slot in the AS11 alignment plate. Then move the targets to align the center of the targets (split edge) with the laser (Figure 5-10).

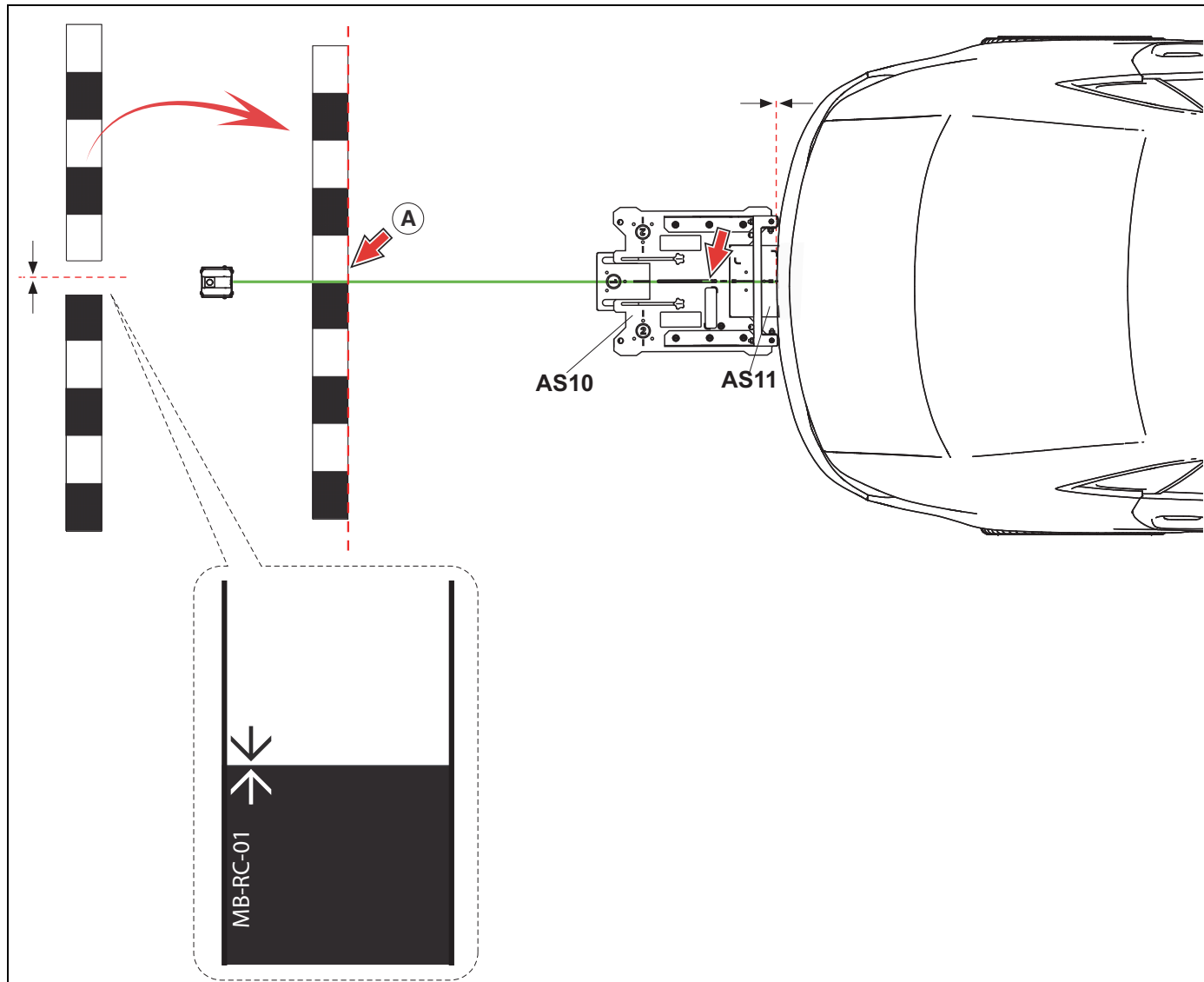


Figure 5-10

6. To ensure the targets are perpendicular to the vehicle centerline, use the tape rule to set the outer forward edge of the targets at equal distance from the center pin of the AS10 fixture (Figure 5-11). Use of AT10 stand is optional.
7. Measure from AS10 center pin, to left/right forward edge of targets and move targets (as one) to achieve equal distance on both sides while maintaining center alignment and distance "A" (Figure 5-11).
8. Start the rear camera recalibration using the diagnostic tool, see Diagnostic Tool Operation, on page 7-1.

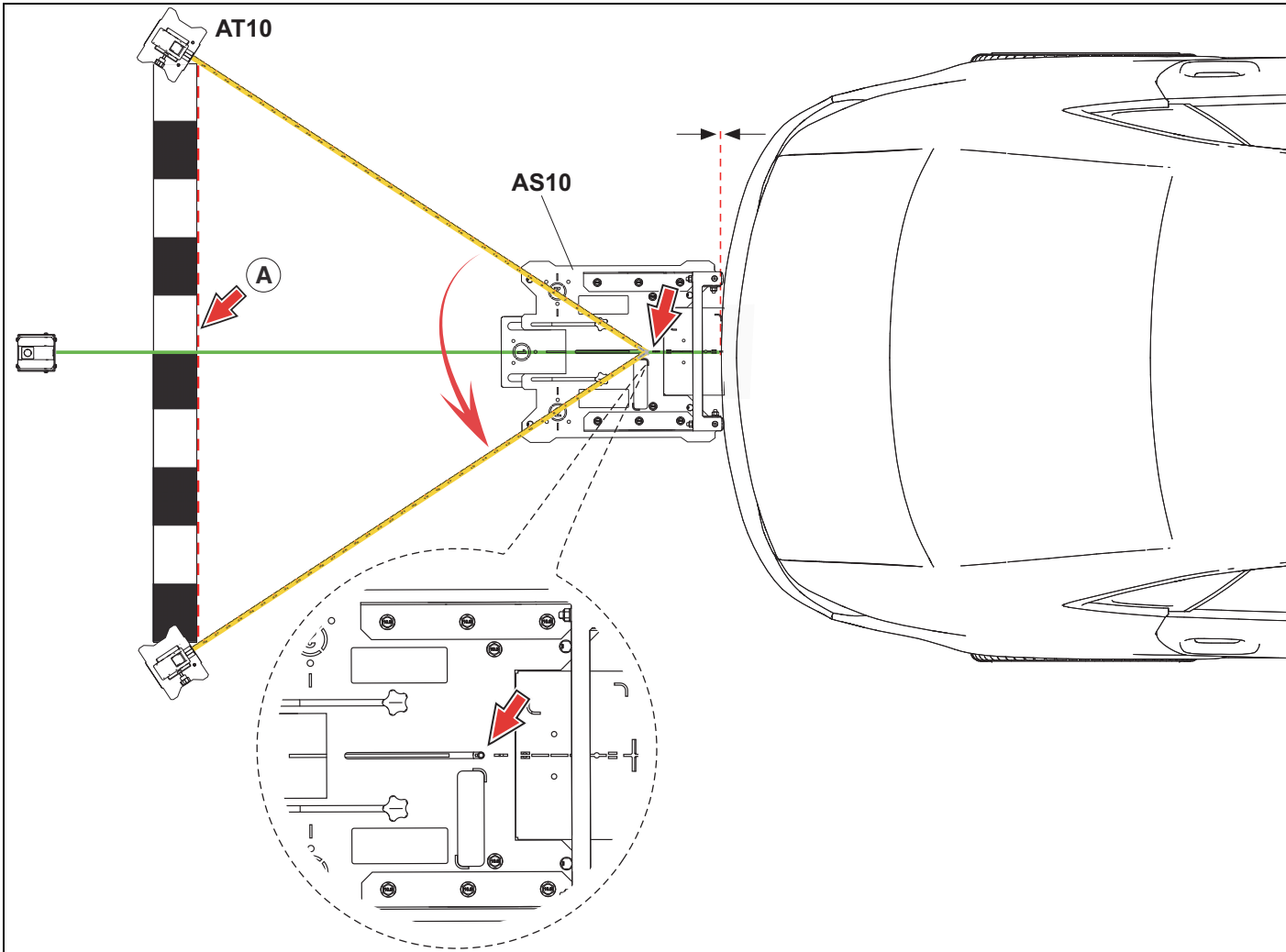


Figure 5-11

# Front Radar Recalibration

---

This section describes general Front Radar Recalibration procedures using the ADAS Recalibration System.

---

**NOTE:**

Front Radar recalibration equipment may not be included with your kit. Contact your sales representative to purchase Front Radar recalibration equipment.

---

## Quick Reference

- [Front Radar Recalibration \(Overview\)](#), on page 6–2
- [Locating the Vehicle Centerline \(Step 1\)](#), on page 6–3
- [Using the Front Radar Target Placement Instructions \(Step 2\)](#), on page 6–5
- [Front Radar Recalibration Setup \(Step 3\)](#), on page 6–6
  - [Honda Front Radar Recalibration](#), on page 6–6
  - [Toyota / Lexus and Mazda Front Radar Recalibration](#), on page 6–9

## Front Radar Recalibration (Overview)

This section outlines the basic steps and hardware needed for the Front Radar Recalibration process using the ADAS Recalibration System.

Read the following:

- [Safety Information](#), on page i-i
  - [Getting Started](#), on page 2-1
  - [Pre-Checks](#), on page 3-1
1. Locate the centerline of the vehicle, see [Locating the Vehicle Centerline \(Step 1\)](#), on page 6-3.
  2. Locate the correct **Target Placement Instructions** for the vehicle, see [Using the Front Radar Target Placement Instructions \(Step 2\)](#), on page 6-5.
  3. Perform the front radar target setup procedure, see [Front Radar Recalibration Setup \(Step 3\)](#), on page 6-6.
  4. Start the front radar recalibration using the diagnostic tool, see [Diagnostic Tool Operation](#), on page 7-1.

---

### **\*\*IMPORTANT\*\***

After successful recalibration, test drive the vehicle and confirm the vehicle and ADAS system is operating properly, and the warning indicator light is off.

---

5. Test drive the vehicle.

## Basic Hardware Needed

*Targets not shown.*

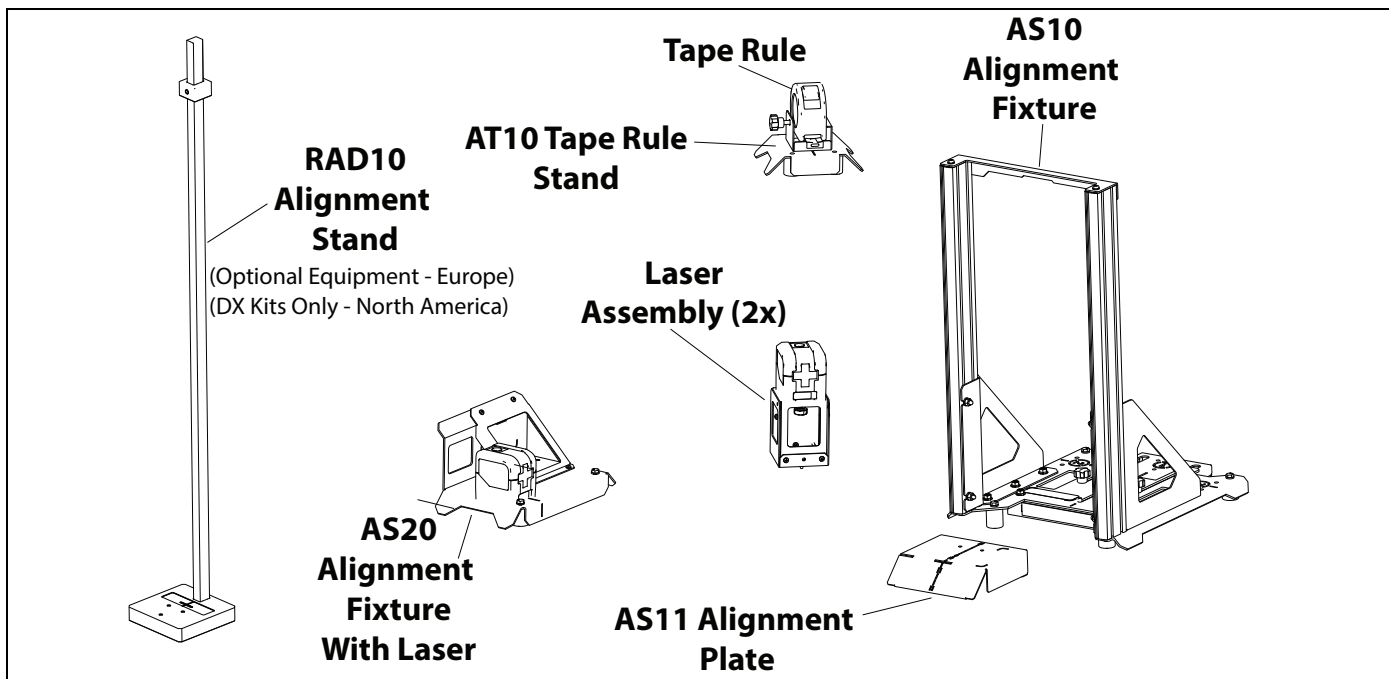


Figure 6-1

## Locating the Vehicle Centerline (Step 1)

This section describes and illustrates the first step in front radar recalibration using the AS10 and AS20 alignment fixtures to locate the center of the vehicle.

1. Read [Pre-Checks](#), on page 3–1, and make any needed corrections as necessary.  
Use [Figure 6-2](#) as reference for the following steps.
2. Slide the AS11 alignment plate into the AS10 alignment fixture.
3. Place the laser assembly at position “1” on the AS10 alignment fixture, then turn it on in **self-leveling mode**, see [Laser Operation On/Off](#), on page 2–3.  
If necessary, align the laser assembly with the AS10 alignment fixture, see [AS10 Laser Assembly Alignment](#), on page 2–4.
4. Move the AS10 fixture to align the laser with the center of the vehicle emblem (or other vehicle center feature), then move the fixture so that the upright guides contact the license plate or forward most surface of the vehicle.  
If necessary, adjust the laser mount to widen or narrow the beam, see [AS10 Laser Assembly \(Vertical Beam Adjustment\)](#), on page 2–4.
5. Turn the laser off, and remove it from the AS10 fixture.
6. Set the AS20 alignment fixture on the ground at rear of vehicle, then turn the laser on in **self-leveling mode**.
7. Move the AS20 fixture to align the laser with the center of the vehicle emblem (or other vehicle center feature).

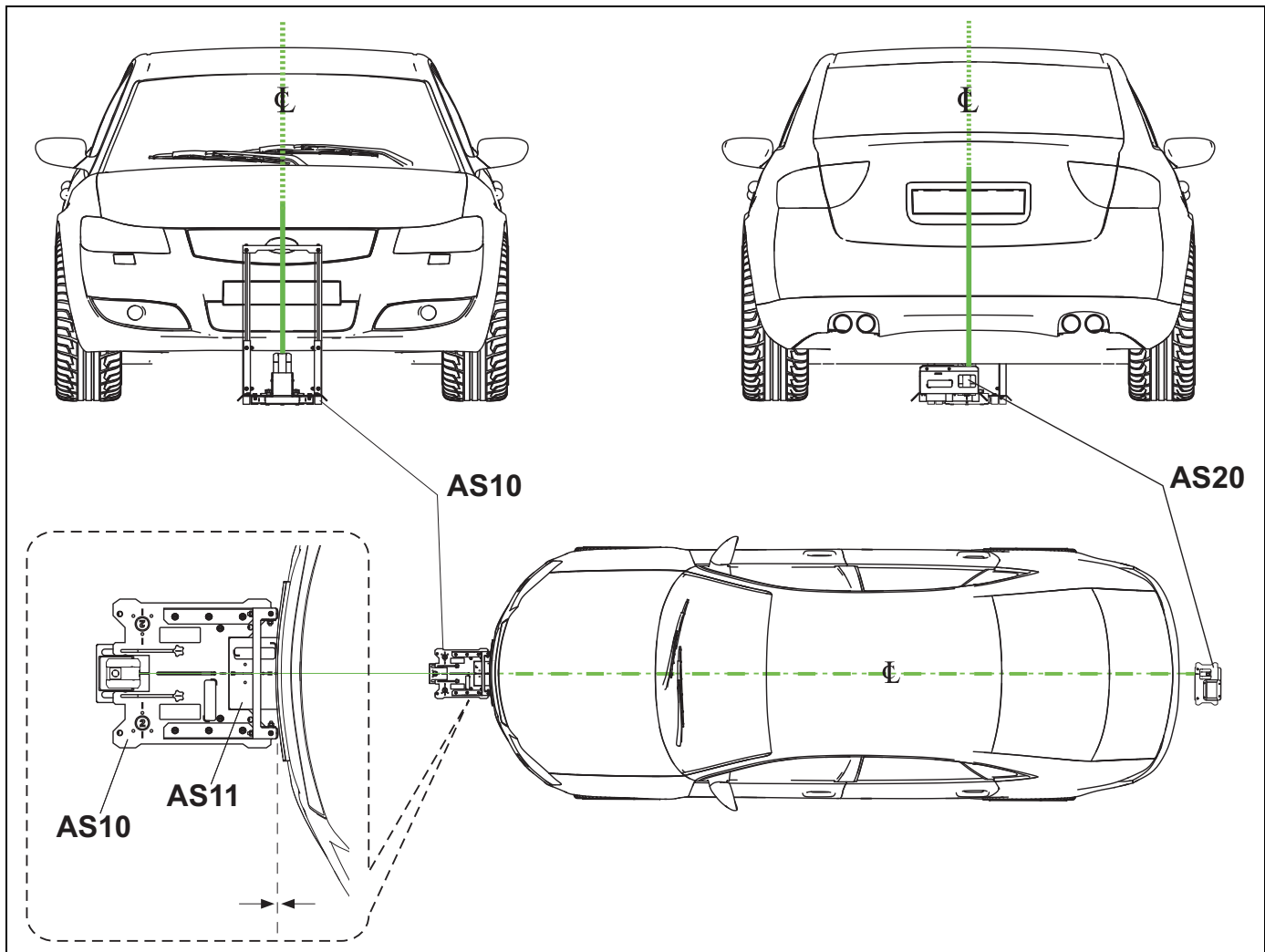


Figure 6-2

**NOTE:**

Make sure there are no obstructions under the vehicle that could interfere with the alignment of the laser.

8. While maintaining the AS20 laser alignment with the vehicle centerline, simultaneously align it (under the vehicle) with the center mark on the AS11 alignment plate at the front of the vehicle (Figure 6-3).  
Use the mirror on the AS20 fixture to aid in alignment, see item 1 in Figure 6-3.
9. Proceed to [Using the Front Radar Target Placement Instructions \(Step 2\)](#), on page 6-5.

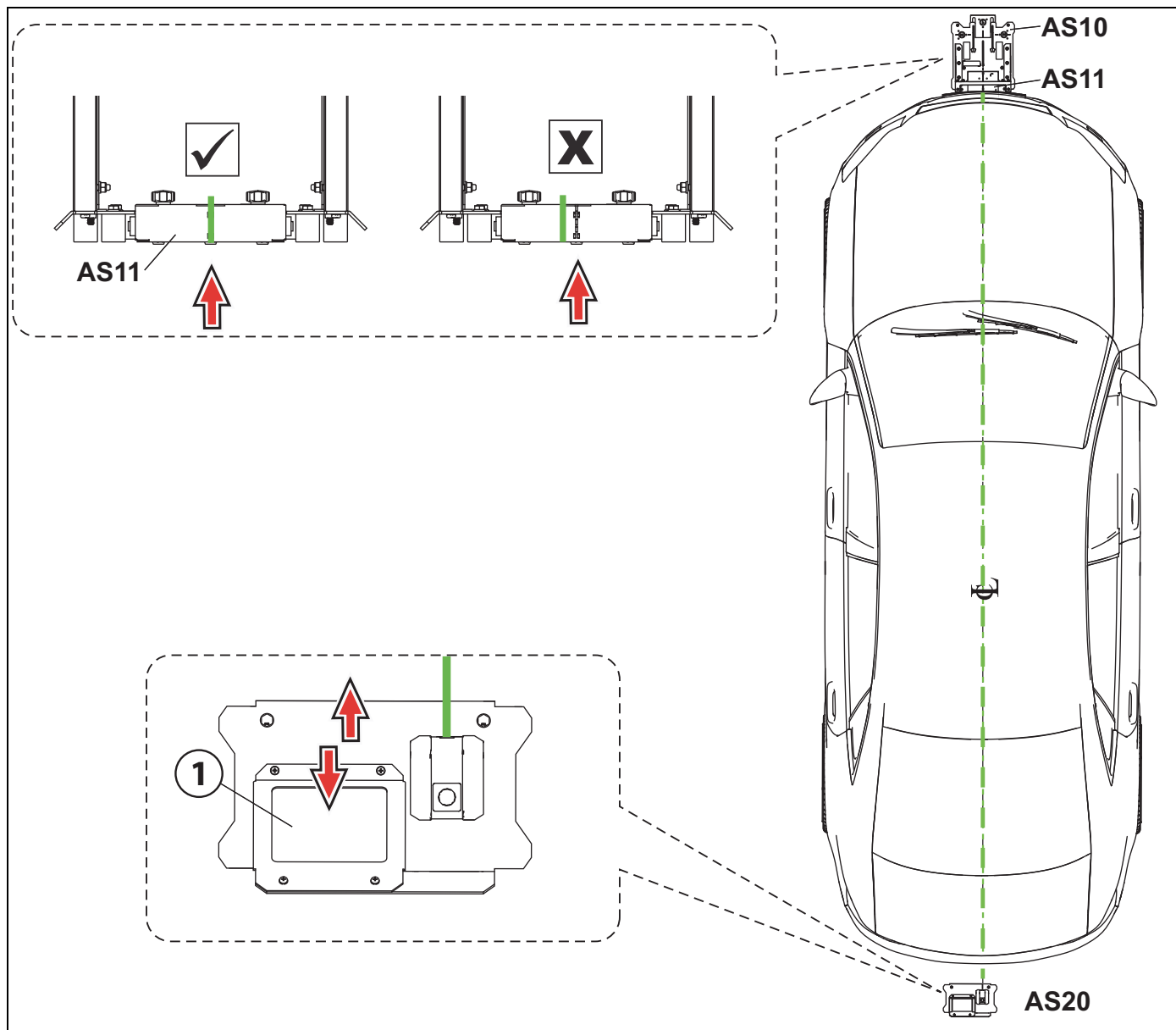


Figure 6-3



# Using the Front Radar Target Placement Instructions (Step 2)

The Target Placement Instructions (provided separately) include the vehicle-specific target setup values. These values are required to complete the setup.

1. Find the Target Placement Instructions for the vehicle you are working on.
2. Proceed to Front Radar Recalibration, see [Front Radar Recalibration Setup \(Step 3\)](#), on page 6–6.

### Front Radar Target Placement Instructions (typical)

**Toyota/Lexus**  
Front Radar Calibration  
Table of Contents

**Target Stand Setup Instructions**

Model	Start Year	End Year	Page
Avalon	2013	2015	255
Avalon	2016	2018	257
Camry	2015	2017	255
Camry	2018	2018	259
Corolla	2017	2018	261
Corolla iM	2017	2018	261
CT 200h	2012	2017	255
ES 300h	2016	2018	263
ES 350	2012	2015	255
ES 350	2016	2018	263
GS 200t	2016	2017	265
GS 300	2018	2018	265
GS 350	2013	2015	255
GS 350	2016	2018	265
GS 450h	2013	2015	255
GS 450h	2016	2018	265

**Front Radar Calibration**  
Target Stand Setup and Measurements

**Toyota**  
RAD-01

**1 Target Selection and Position**

**2 Set Target Distance and Height**

**3 Set Target Spacing**

Callout	Description
<b>TOC</b>	Table of Contents Section - Use this section to find the vehicle-specific Target Placement Instructions.
<b>I</b>	Manufacturer Name / Target Part Number
<b>II</b>	Target Image, Part Number and Position Section - Radar targets have the target name stamped into the target and may be used in one of two positions, point up or point down. Refer to the vehicle-specific target placement instructions for correct target orientation.
<b>III</b>	Target Distance Values and Height Section "A" Value (green color code) - indicates the distance of the target from the vehicle. "B" Value (blue color code) - indicates the target height setting on the stand.
<b>IV</b>	Target Spacing Section "C" Value (red color code) - indicates the target offset distance setting from center (left and right). "C" (gray color code) - indicates this target position is not used in the setup.

## Front Radar Recalibration Setup (Step 3)

Choose the applicable front radar recalibration procedure for the vehicle you are working on, see Quick Reference below.

---

**NOTE:**

During recalibration the radar sensor may emit a buzzing or chattering sound, this is normal.

---

### Quick Reference

[Honda Front Radar Recalibration](#), on page 6–6

[Toyota / Lexus and Mazda Front Radar Recalibration](#), on page 6–9

### Honda Front Radar Recalibration

---

**NOTE:**

These instructions apply only to models requiring the radar target directly centered with the front of the vehicle.

---

1. Locate the vehicle centerline. see [Locating the Vehicle Centerline \(Step 1\)](#), on page 6–3 for reference.
2. Remove the AS10 and AS11 fixtures from the front of the vehicle.

---

**NOTE:**

Target height “B” measurements are not provided for Honda / Acura in the Front Radar Target Placement Instructions. Target height is manually determined and set for each vehicle.

---



---

**NOTE:**

Refer to the Front Radar Target Placement Instructions to determine the radar target, target distance, and orientation for the vehicle you are working on, see [Using the Front Radar Target Placement Instructions \(Step 2\)](#), on page 6–5.

---

3. Attach the specified radar target to the RAD10 radar stand in the proper orientation.
4. To set the target height, start by moving the RAD10 radar target stand to a position facing away from the vehicle and directly centered in front of the vehicle as shown in [Figure 6-4](#).
5. Using a straight edge as shown in [Figure 6-4](#), adjust the target height so that the top of the target bracket is in line with the vehicle emblem (centerline). Place the straight edge on top of the target bracket to translate the centerline. Loosen the thumbscrew and move the radar target as needed (up/down), then tighten the thumbscrew.

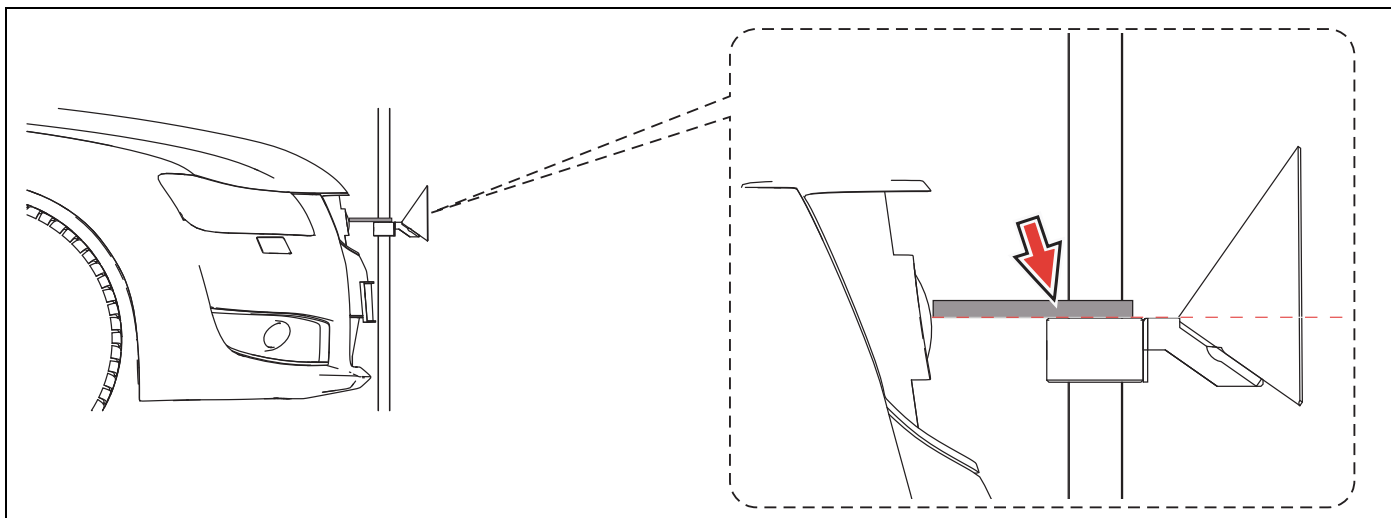


Figure 6-4

6. Remove the RAD10 radar stand away from the front of the vehicle.
7. Reposition the AS10 and AS11 fixtures back into position at the front of the vehicle in alignment with the AS20 laser from the rear of the vehicle, as they were from the "Locating the Vehicle Centerline" procedure (Step 1).
8. Measure and set the target distance "A", from the slot in the AS11 alignment plate to the slot on the top of the RAD10 radar stand base, using the AT10 tape rule stand [Figure 6-5](#).

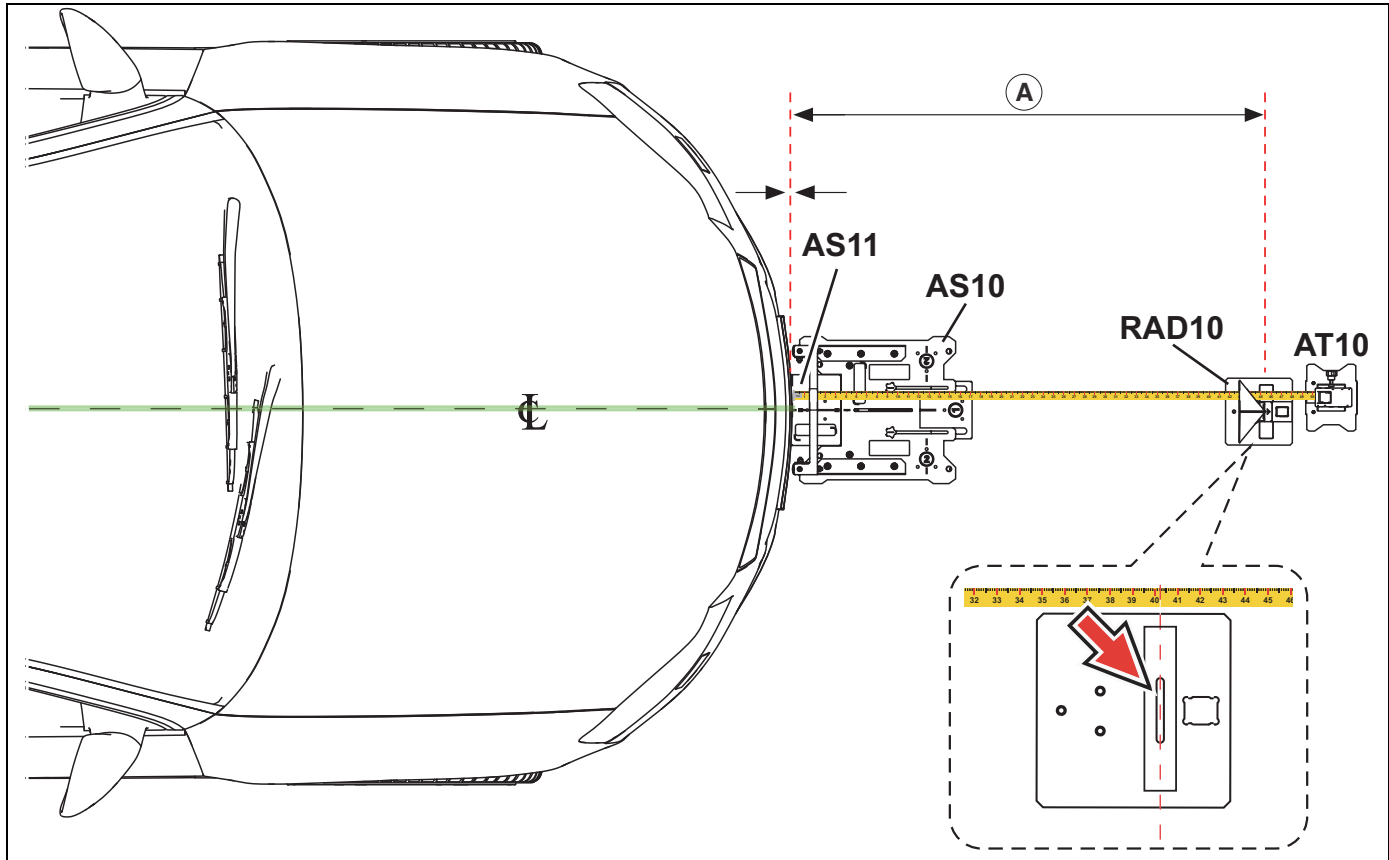


Figure 6-5

9. Align the center of the RAD10 radar stand with the AS20 laser from the opposite side of the vehicle (from vehicle centerline setup) (Figure 6-6 and Figure 6-7). The laser should be in the center of the vertical radar stand.
10. Recheck and set distance measurement as needed to simultaneously achieve correct distance and centerline alignment.
11. Remove the AS10 and AS11 fixtures from the front of the vehicle.

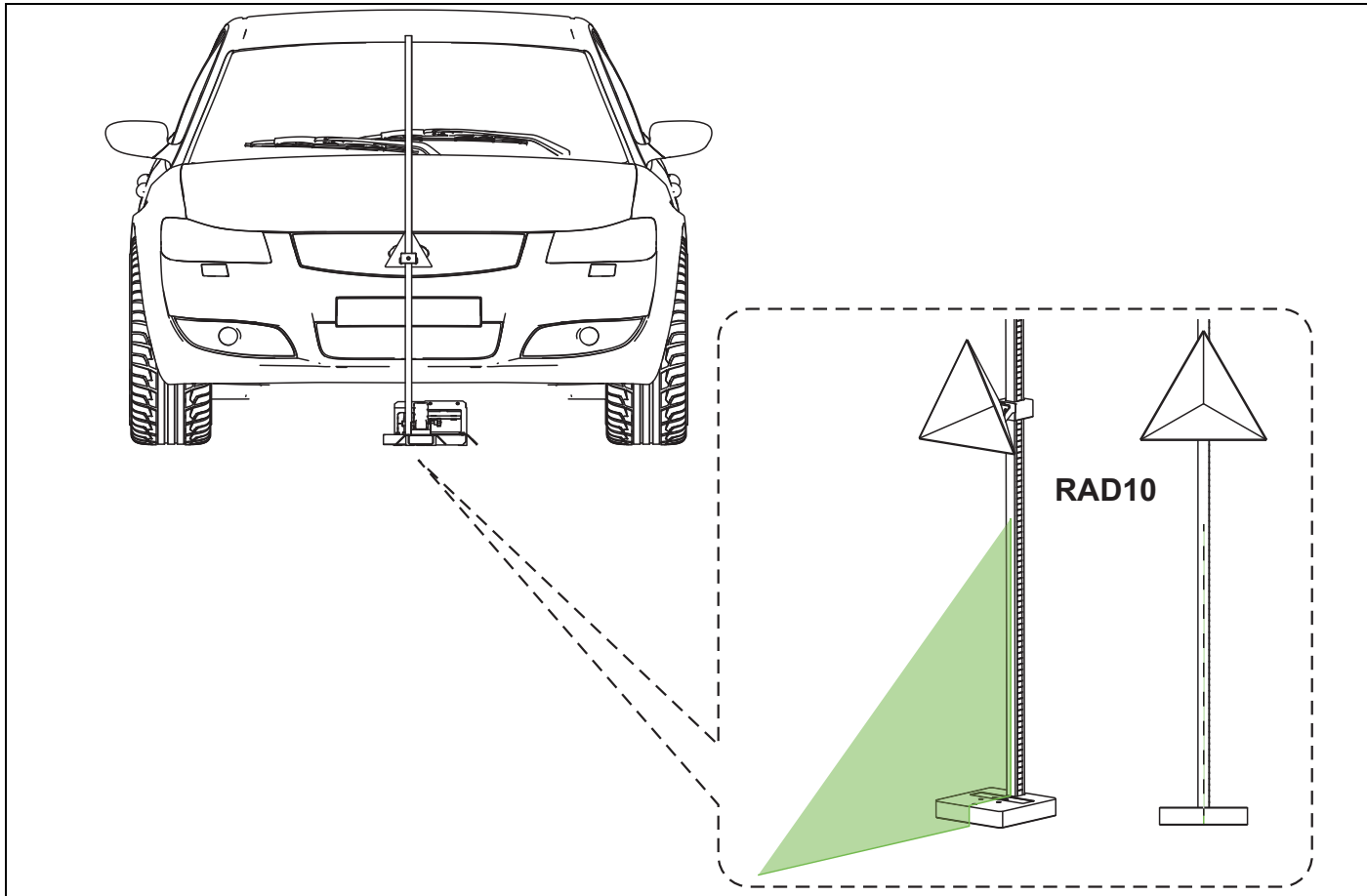


Figure 6-6

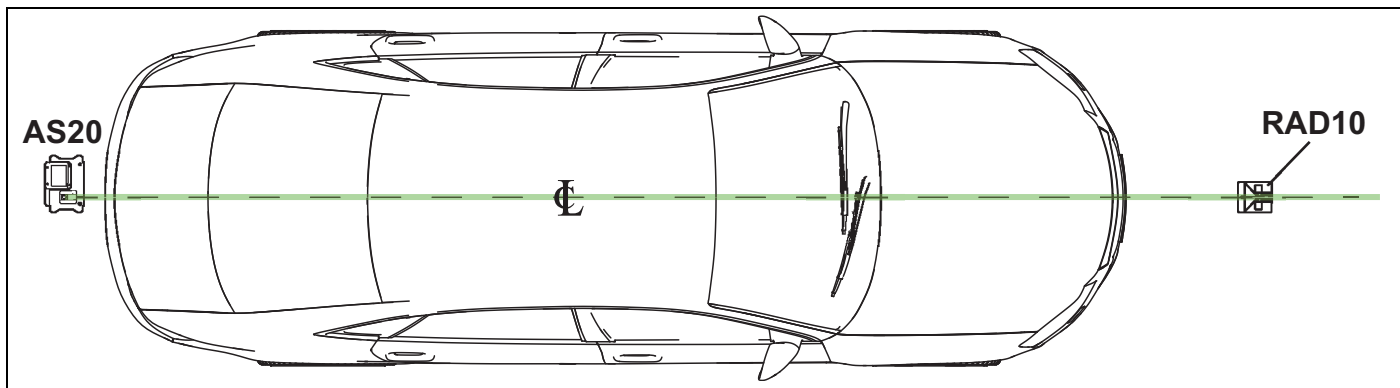


Figure 6-7

12. Proceed with radar recalibration using the diagnostic tool, see [Diagnostic Tool Operation](#), on page 7-1.

## Toyota / Lexus and Mazda Front Radar Recalibration

**NOTE:**

These instructions apply only to models requiring the radar target directly centered with the front of the vehicle.

1. Locate the vehicle centerline. see [Locating the Vehicle Centerline \(Step 1\)](#), on page 6–3 for reference. Leave the AS20 alignment fixture in place at the rear of the vehicle and the AS10 and AS11 fixtures in place at the front. Remove the laser from the AS10 fixture.

**NOTE:**

Refer to the Front Radar Target Placement Instructions to determine the radar target, target distance, height and orientation for the vehicle you are working on, see [Using the Front Radar Target Placement Instructions \(Step 2\)](#), on page 6–5.

2. Attach the specified radar target to the RAD10 radar stand in the proper orientation.
3. Set the radar target at the required height “B” using the vertical scale on the target stand. Loosen the thumbscrew and move the radar target as needed, then tighten the thumbscrew.
4. Measure and set the target distance “A”, from the slot in the AS11 alignment plate to the slot on the top of the RAD10 radar stand base, using the tape rule stand assembly [Figure 6-8](#).

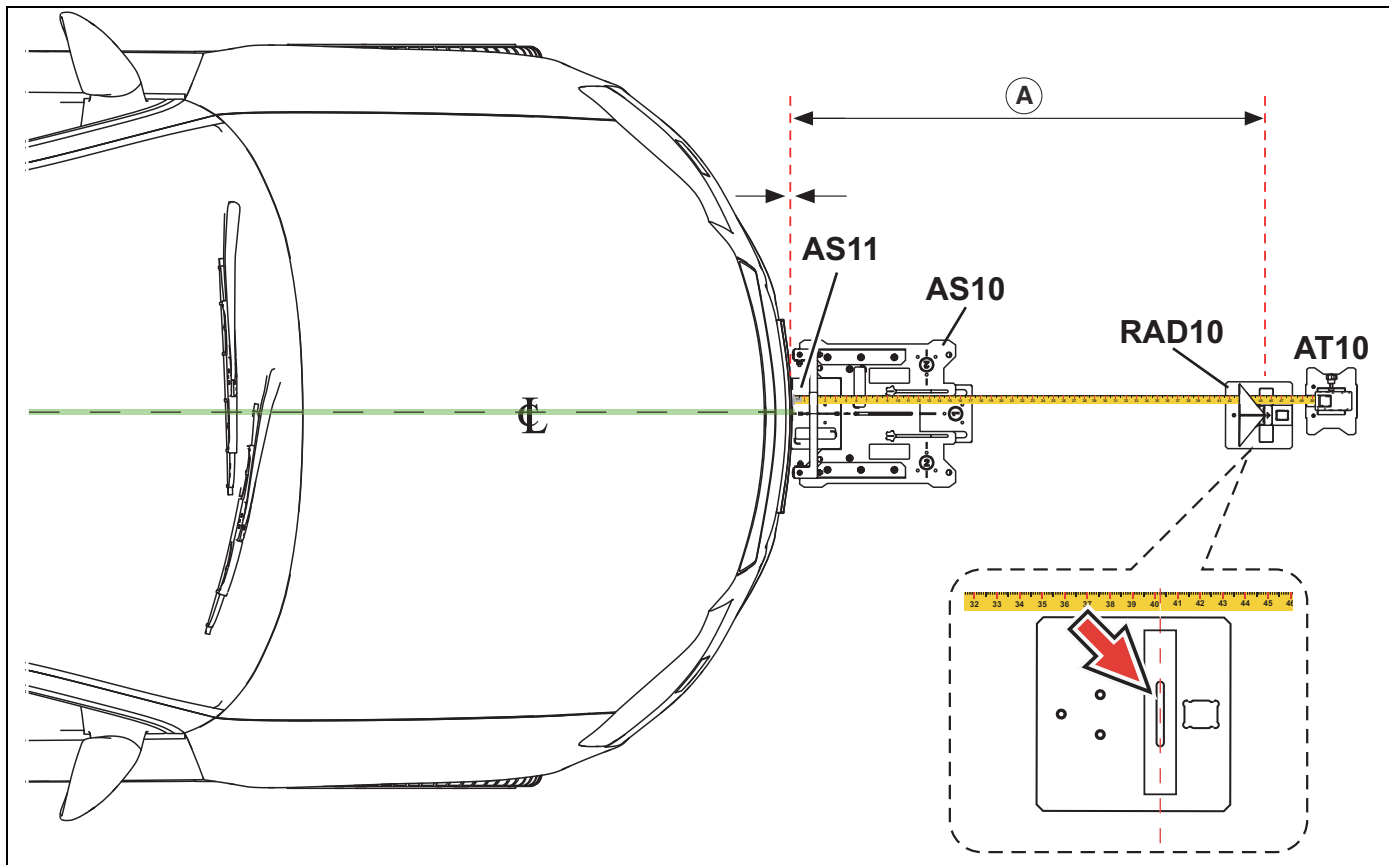


Figure 6-8

5. Align the center of the RAD10 radar stand with the AS20 laser from the opposite side of the vehicle (from vehicle centerline setup) (Figure 6-9 and Figure 6-10). The laser should be in the center of the vertical radar stand.
6. Recheck and set distance measurement as needed to simultaneously achieve correct distance and centerline alignment.
7. Remove the AS10 and AS11 fixtures from the front of the vehicle.
8. Start the front radar recalibration using the diagnostic tool, see [Diagnostic Tool Operation](#), on page 7-1.

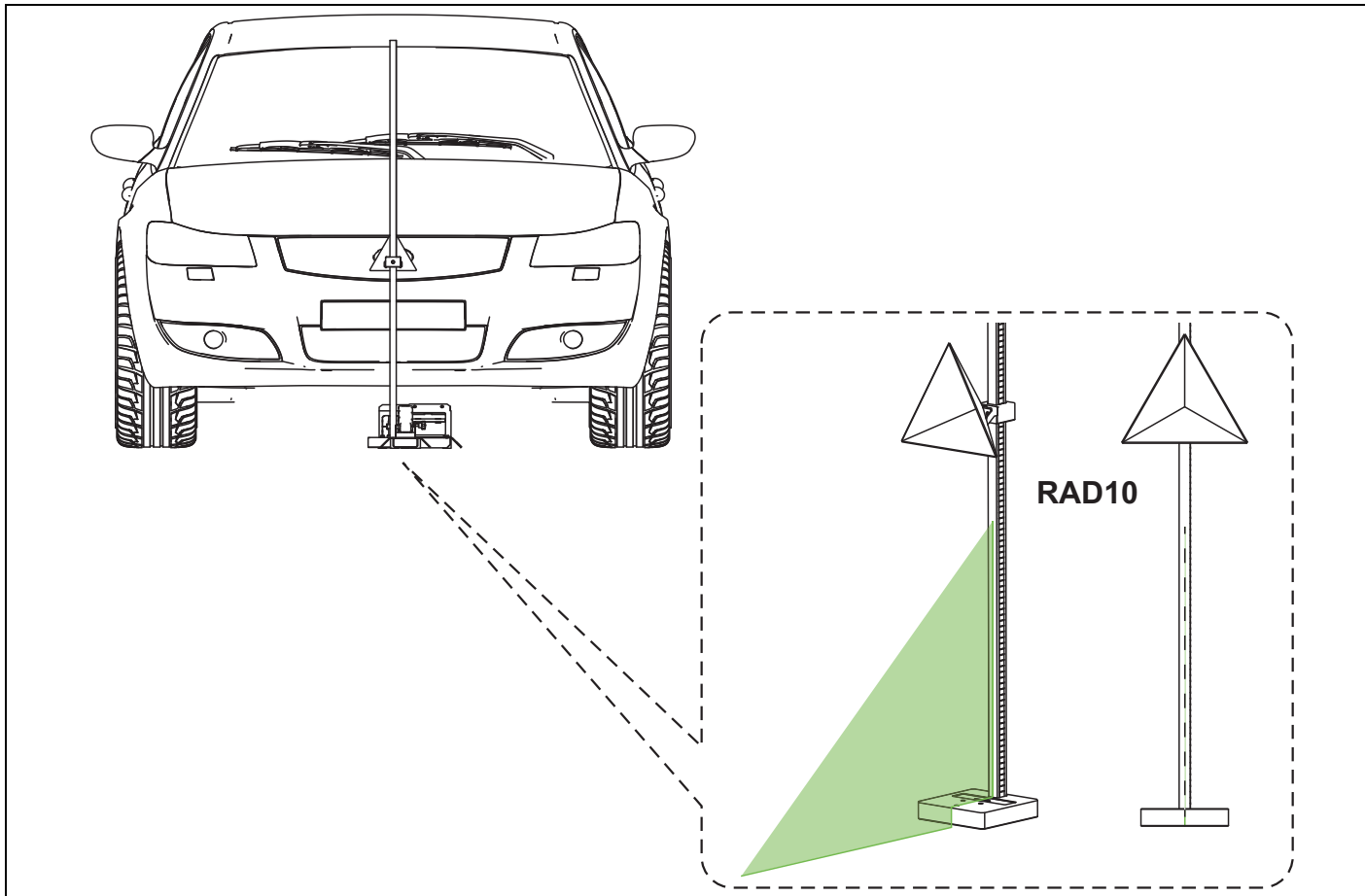


Figure 6-9

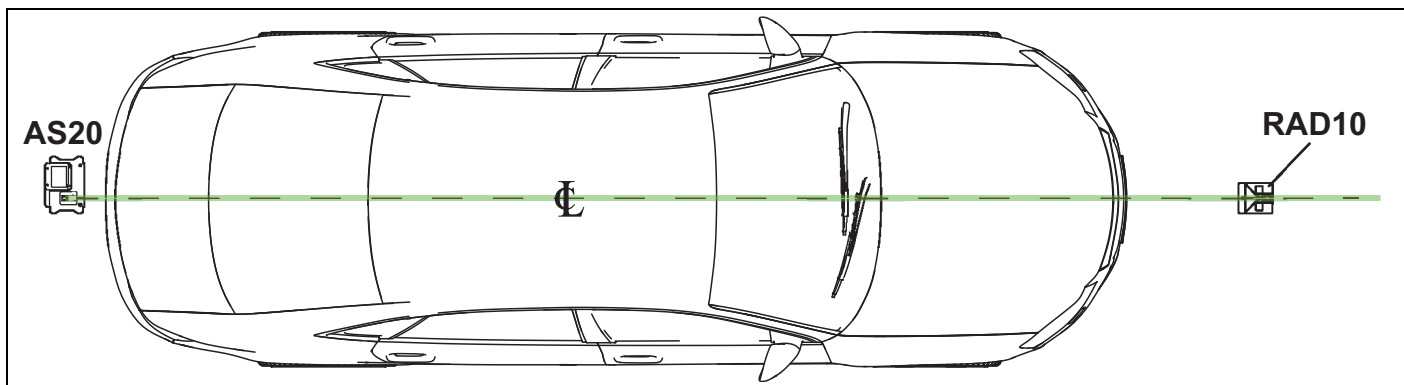


Figure 6-10

# Diagnostic Tool Operation

## Important Information

- Recalibration functionality, menu navigation, and terminology will vary across vehicle manufacturers. Recalibration functionality may be limited or not available, depending on the vehicle.
- Vehicle coverage is continually updated to include the most recent information and tests. Obtain the current diagnostic software for the latest coverage.

## Performing Recalibration Functional Tests

1. Ensure all recalibration lasers are off.
2. Turn the vehicle ignition on and connect the diagnostic tool to the vehicle.

---

### NOTE:

During the diagnostic tool recalibration process do not sit in the vehicle. Perform all diagnostic tool functions from outside the vehicle.

---

3. Select **Scanner** from the home screen and then select the vehicle manufacturer and follow the screen prompts to identify the vehicle.
4. Select the applicable vehicle system. Typical selections may include (e.g. Forward Sensing Camera, Rear Camera, Front Radar or a similar variation).

---

### \*\*Special Vehicle-Specific Setup Note\*\*:

For additional menu navigation information on TOYOTA / LEXUS vehicles, see [Special Toyota / Lexus Information](#), on page 7–2.

---

5. Select the applicable main menu option. Typical selections may include (e.g. Functional Tests, Special Functions or a similar variation). Select an appropriate sub-menu option if applicable.

---

### NOTE:

Menu options may include “Dynamic” recalibration options. Dynamic recalibration is not applicable with the ADAS Recalibration System. Only “Static” recalibration options are to be used with the ADAS Recalibration System.

---

6. Select the applicable test menu option. Typical selections may include (e.g. Forward Sensing Camera Static Aiming, Rear Camera Recalibration, Front Radar Alignment or a similar variation). Select an appropriate sub-menu option if applicable.
7. Follow the screen prompts and any displayed information to start the recalibration procedure.
8. Using the vehicle-specific **Target Placement Instructions** and the ADAS Recalibration System User Guide, position the target(s) as specified. See the applicable section in this guide.
9. Continue to follow the screen prompts and enter any values as required.
10. Initiate the recalibration test when prompted. Do not turn the diagnostic tool or vehicle off or touch the screen or buttons on diagnostic tool during the recalibration test.
11. After successful recalibration, select applicable option to exit the procedure.

If the recalibration is unsuccessful see [Troubleshooting](#), on page 7–2 for possible causes. Correct any setup issues and perform the recalibration again.

---

### \*\*IMPORTANT\*\*

After successful recalibration has completed, test drive the vehicle and confirm the vehicle and ADAS system is operating properly, and the warning indicator light is off.

---

12. Test drive the vehicle.

## Special Toyota / Lexus Information

While recalibrating some Toyota / Lexus vehicles, the diagnostic tool menu options may include the need to enter target setup values and/or perform sequential target recalibration. Always follow the instructions as prompted to complete the recalibration.

Typical menu options and their descriptions:

- **Recognition Camera/Target Position Memory** - Initiates the data entry of the specifications
- **Recognition Camera Axis Adjust** - Initiates the recalibration
  - **One Time Recognition** - Initiates the recalibration using 3 targets at the same time
  - **Sequential Recognition (recommended option)** - Initiates the recalibration using 1 target at 3 different positions (targets manually moved)

## Troubleshooting

If recalibration is unsuccessful, check the following:

- Review [Pre-Checks](#), on page 3–1 and make any corrections needed.
- Is the target area free from obstructions and other targets?
- Is the lighting in the shop acceptable? Keep camera/sensor out of direct light and shadows.
- Is the proper target being used?
- Is the target set at proper height?
- Is the target(s) set at the correct spacing?
- Is the TS100 setup correctly? Is it aligned to vehicle centerline and square to vehicle?
- Have the correct values been entered into the diagnostic tool?



**NOTES**

A large, empty rectangular box with a thin black border, occupying most of the page below the 'NOTES' header. It is intended for the user to write their notes.

EAZ0139L01A Rev. B 5/H/19 NAEU

© 2019 IDSC Holdings, LLC. All Rights Reserved. All pictures and illustrations shown are for reference purposes only.

All information including specifications herein are subject to change without notice.

IDSC Holdings, LLC, 2801 80th Street, Kenosha, WI 53143