

HAWKEYE XL™ SENSOR

HUNTER
Engineering Company

OPERATIONS INSTRUCTIONS



Form: AM08140-00

08-23



[Operation Video](#)

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1. Getting Started

1.1 About This Manual

This manual contains important operation, maintenance, and safety information for the HXL421CM6 Series Sensors. It is supplemented by the alignment system console operation manual. Read and become familiar with the contents of these publications.

A calibrated set of HXL421CM6 series sensors can be used with WinAlign HD® software, version 18 or greater.

1.2 For Your Safety

Hazard Definitions

Watch for these symbols:

 CAUTION: Hazards or unsafe practices that could result in minor personal injury or product or property damage.

 WARNING: Hazards or unsafe practices that could result in severe personal injury or death.

 DANGER: Immediate hazards that will result in severe personal injury or death.

These symbols identify situations that could be detrimental to your safety and/or cause equipment damage.

IMPORTANT SAFETY INSTRUCTIONS

Read all instructions.

Do not operate equipment with a damaged cord or if the equipment has been dropped or damaged until it has been examined by a qualified service representative.

Do not let cord hang over edge of table, bench, or counter or come in contact with hot manifolds or moving fan blades.

If an extension cord is necessary, a cord with a current rating equal to or more than that of the equipment should be used. Cords rated for less current than the equipment may overheat. Care should be taken to arrange the cord so that it will not be tripped over or pulled.

Let equipment cool completely before putting away. Loop cord loosely around equipment when storing.

To reduce the risk of fire, do not operate equipment near open containers of flammable liquids (gasoline).

Keep hair, loose clothing, neckties, jewelry, fingers, and all parts of body away from all moving parts.

To reduce the risk of electrical shock, do not use on wet surfaces or expose to rain.

Use only as described in this manual. Use only the manufacturer's recommended attachments.

ALWAYS WEAR OSHA APPROVED SAFETY GLASSES. Eyeglasses that only have impact resistant lenses are NOT safety glasses.

SAVE THESE INSTRUCTIONS

Read and follow all caution and warning labels affixed to equipment and tools.

Use caution when jacking the vehicle up or down.

Misusing this equipment can shorten the life of the equipment. To prevent accidents and/or damage to the sensors, use only Hunter recommended accessories.

Remove the sensors from the wheels before moving the vehicle.

1.3 Care and Cleaning of the Self Centering Clamp

Keep wheel adaptor rods cleaned and lubricated. Lubricate as needed with a coating of light lubricant such as WD-40.



CAUTION: Do not lubricate the center screw shaft of the wheel adaptor.

1.4 Vehicle Preparation

Drive the vehicle into the alignment bay. If rolling compensation is to be performed, position the front axle approximately 22 inches (56 mm) from the center of turnplates.

If jacking compensation is to be performed, then position the front axle on the center of the turnplates.

Install wheel chocks to prevent the vehicle from rolling.

Check and adjust the tire pressure, inspect for unevenly worn or mismatched tires.

Inspect all suspension and steering linkage components for wear or damage. A thorough inspection is important.

1.5 Position Sensors

- Lower camera beam using rear handle.

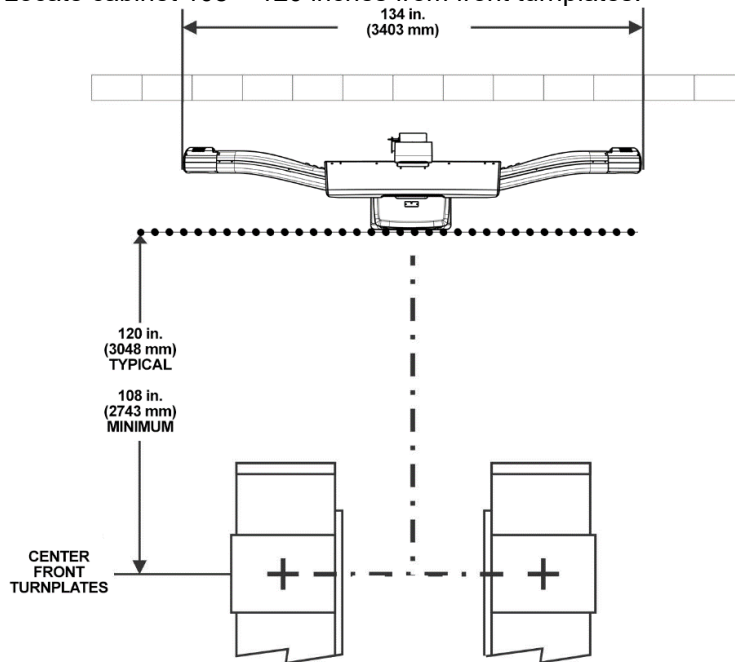


- Move console to alignment bay by pushing from cabinet base with beam in lowered position.

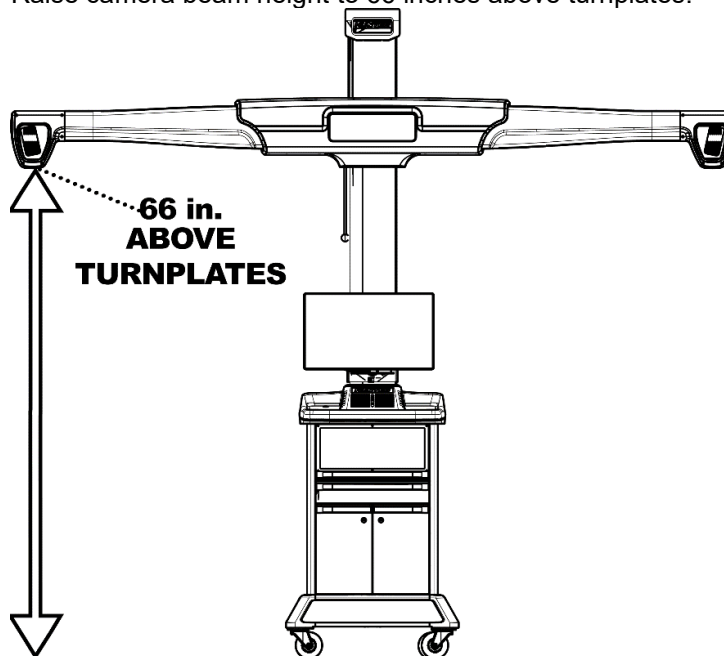


⚠ CAUTION: Lower camera beam when moving console from bay to bay.

- Locate cabinet 108 – 120 inches from front turnplates.



- Raise camera beam height to 66 inches above turnplates.



NOTE: The optimal camera beam height is 66 inches above the turnplates for maximum target visibility.

2. HXL421CM6 Sensor Compensation

2.1 Rolling Compensation

HXL421CM6 series sensors may be compensated using a rolling procedure as listed below.

NOTE: Instructions below are also shown in video [“Hawkeye XL Alignment System: Beginner's Operation Guide.”](#)

⚠ WARNING: Always make sure to properly chock wheels before starting rolling compensation. Serious injury, death or damage can result if chocks are not used to limit the mobility of the heavy-duty vehicle.

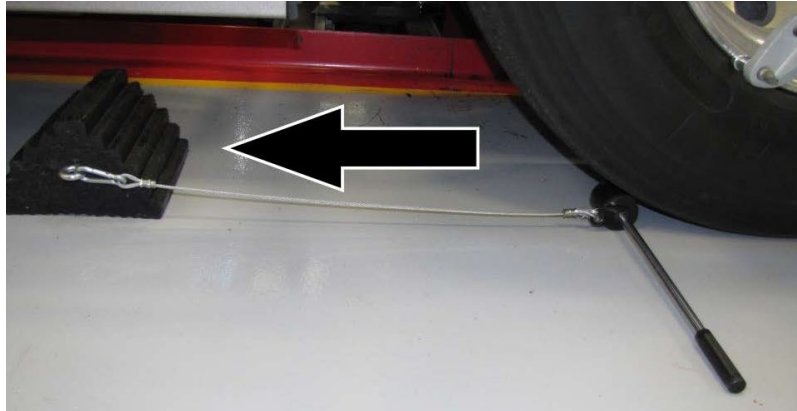
1. Position the truck right before the turnplates.



2. Chock the front side of the first drive axle.
3. Check the turnplates and make sure they are centered from the center of the turnplates to the center portion beneath the front tires.

NOTE: Chock the side of the truck that allows viewing of the console screen.

4. Place indicator under leading edge of front tire. Pull Chock until sting is tight to position chock. The best spot for roll forward compensation should come to roughly 22 inches apart.



5. Return to the console. Click on Begin Alignment that will open the Vehicle Configuration screen.
6. Choose the applicable Vehicle Configuration then hit OK.
7. From the Alignment Specification screen click the spacebar to highlight Heavy Duty Vehicles and hit ok. Locate or type the make of the vehicle then select the model and hit OK. Identify the front axle on the truck then hit OK.
8. If prompted, locate the Reference Diameter on the screen and type in the information (*Reference Diameter is the overall assembly diameter of the front tire and wheel on a truck*). Hit Enter on the keyboard and the Total Toe specification will appear.
9. Click Mount Sensor to proceed to the next screen.
10. Follow the instructions on screen.
11. Select QuickComp®.
12. Mount and secure all TDXL Targets to wheels (refer to section 2.4 for more details).
13. Put the lock pins in the turnplates and rear slip plates. Raise the turnplate bridges.
14. Roll the truck ahead until the bar graphs on screen turn green.
15. Follow the rest of the instructions on screen

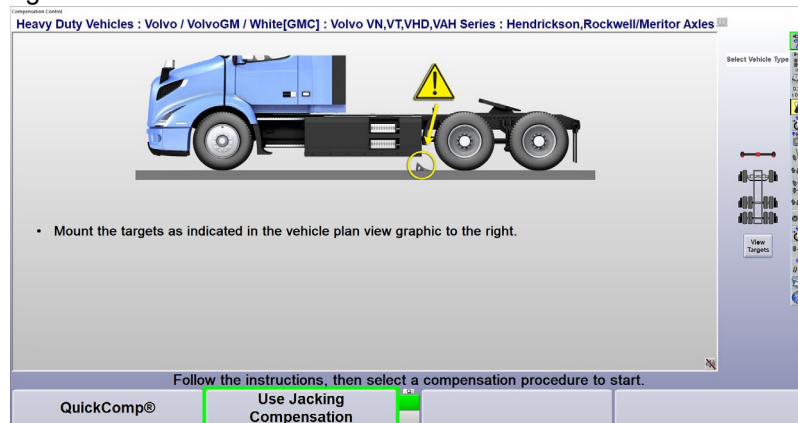
2.2 Jacking Compensation

When using Jacking Compensation, these precautions must be followed:

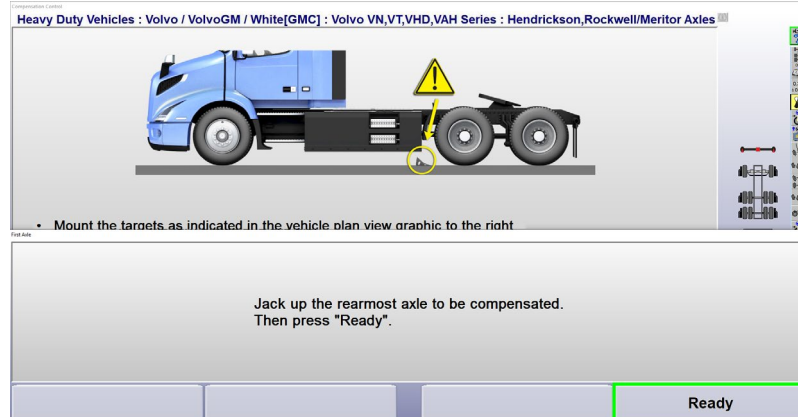
- If a target is removed from a wheel, that target must be re-compensated when re-installed. The other targets do not need re-compensation.
- When compensating targets that are mounted to drive wheels, place the transmission in a neutral and release the brakes.

- Make sure the vehicle is properly chocked.

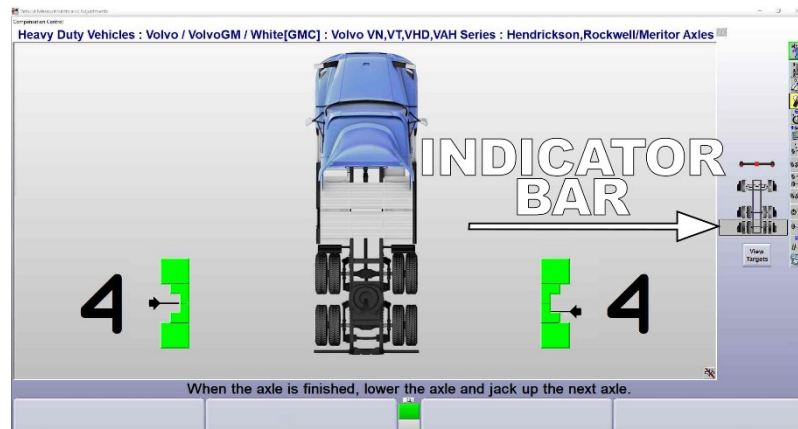
1. Mount the targets as indicated in the vehicle plan view shown on the right of the screen.



2. Select “Use Jacking Compensation” to begin.
3. Jack up the rear most axle to be compensated. Then press “Ready”.

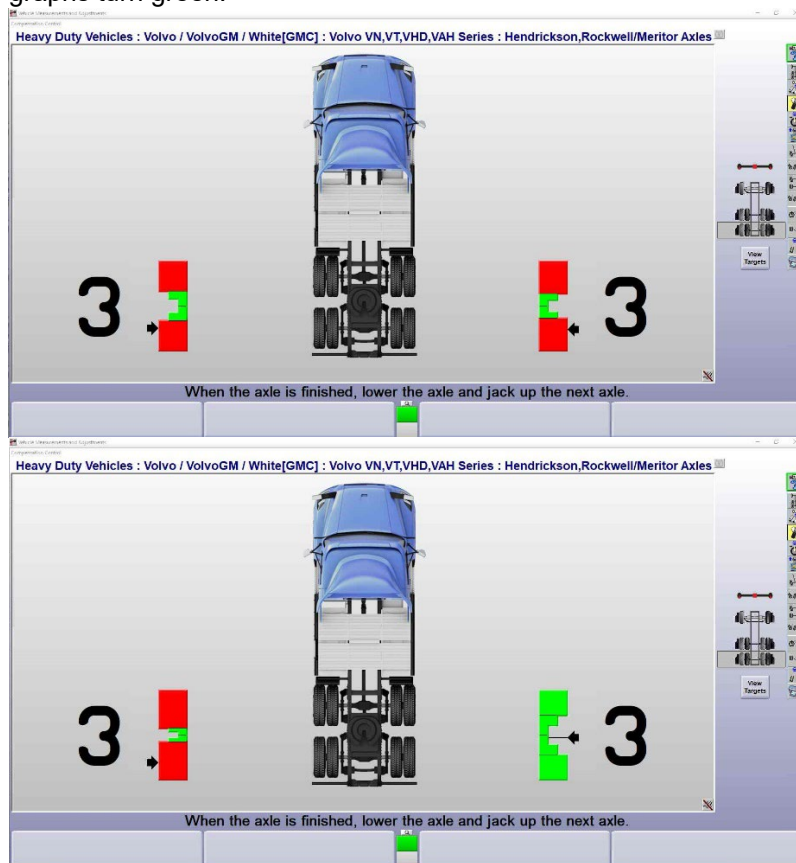


4. Rotate the wheel till the bar graph turns green then hold position. The left and right sides can be done separately or together depending on the axle rotation.

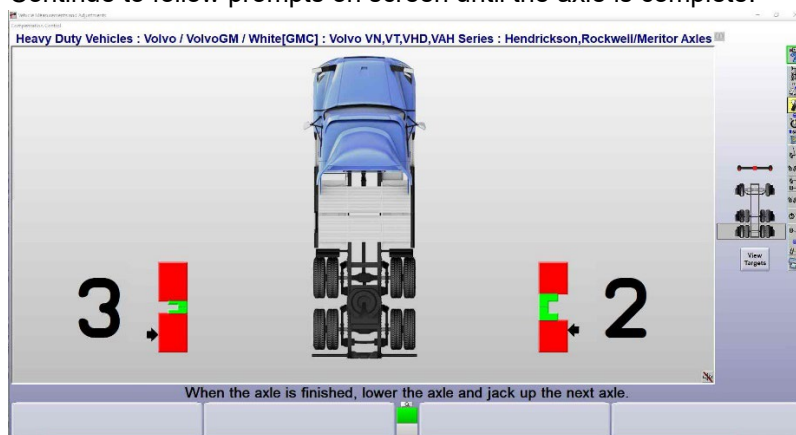


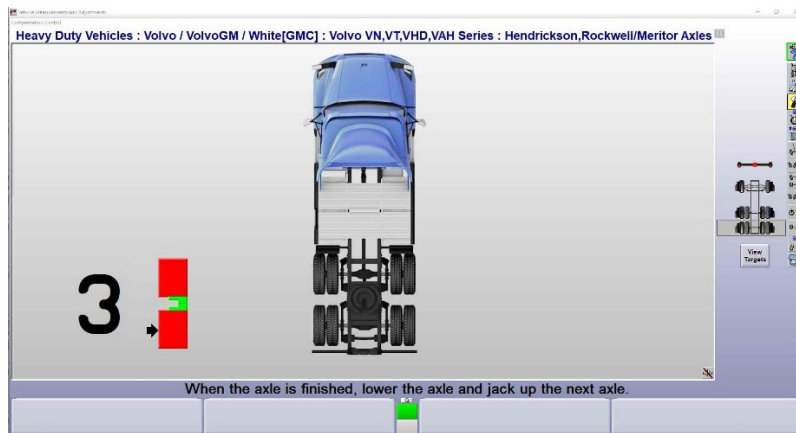
NOTE: Throughout Jacking Comp process an indicator bar will highlight the axle being currently focused on.

5. Rotate each wheel forward for each compensation position until the bar graphs turn green.



6. Continue to follow prompts on screen until the axle is complete.





7. Continue to follow prompts on screen until entire Jacking Compensation process is complete for that axle.
8. When both targets are compensated for the axle, WinAlign will proceed to the next axle. Continue this procedure for all remaining axles.



9. Lower the final axle then press "Ready" per the on-screen instructions.

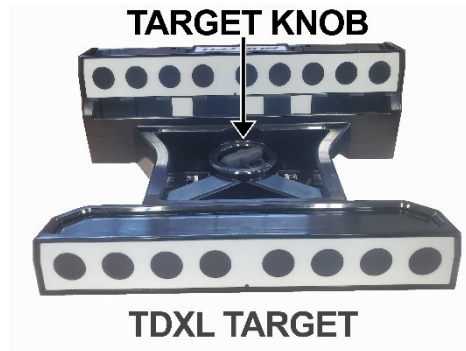
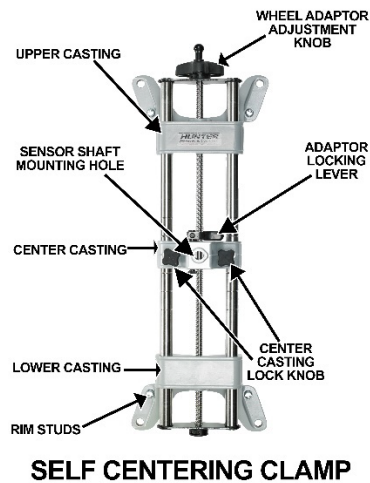


NOTE: Refer to the Winalign Operation manual [4543-T](#) for detailed software guide.

NOTE:

For vehicles with 4 or more axles, follow the guided procedure when to compensate and adjust each axle.

2.3 Target Components



2.4 Mounting Wheel adaptors onto Wheels



WARNING: If performing jacking compensation, install wheel adaptors with targets to each axle after the axle has been jacked up.

Mount the Self Centering Clamp, 175-377-1, onto the rear, middle, and front locations.



Self Centering Clamp and TDXL Target

It is easier to have the TDXL Targets mounted on the Self Centering Clamp before mounting the wheel adaptors on the vehicle. In some cases, the Self Centering Clamp may be mounted to the wheel first and then mount the TDXL Target on. Either method may be used.

NOTE:	Refer to AN08133-00 for more information on TDXL Targets.
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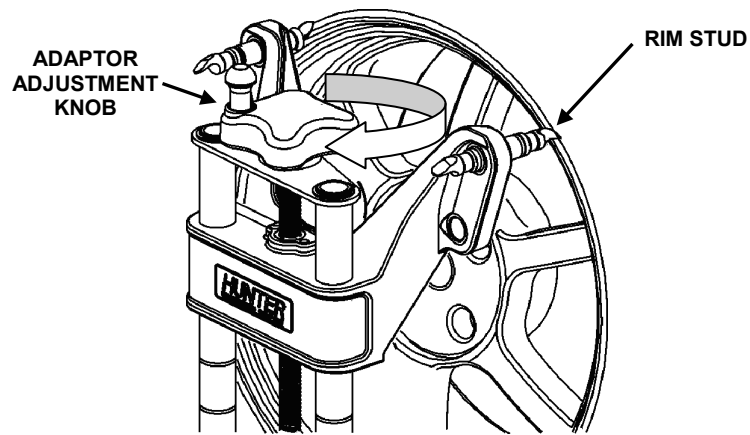
Typical Installation (Grasping the Outside of Rim Lip)

NOTE:	Rim studs are reversible. Use the spade end that best fits the rim. The two-wheel adaptors on the front wheels or back wheels need to be uniform with same end of the rim studs engaged onto the rim.
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Position the wheel adaptor with the two upper external rim studs on the outside of the wheel rim.

Align the two lower external rim studs on the outside of the wheel rim and check that all four rim studs will engage the outside of the wheel rim.

Turn the adaptor adjustment knob clockwise to firmly attach the adaptor to the wheel.



Test the security of the installation by lightly tugging on the wheel adaptor.

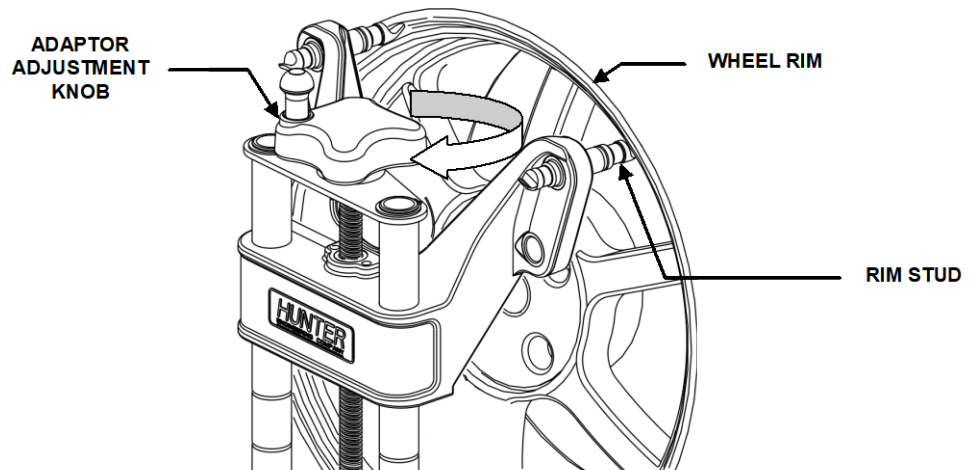
⚠ CAUTION: Do not allow the rim studs to slip on the wheel. Runout compensation and alignment accuracy will be adversely affected if the wheel adaptor is allowed to slip on the wheel.

Attaching to Inner Rim Lip

Position the wheel adaptor with the two lower rim studs engaging the inside of the lower wheel rim lip.

Align the two upper rim studs with the inside of the upper wheel rim lip and check that all four studs will engage the inner portion of the rim lip.

Turn the adaptor adjustment knob clockwise to firmly attach the adaptor to the wheel.



Test the security of the installation by tugging on the wheel adaptor.

⚠ CAUTION: Do not use rim studs on alloy or clear coat wheels. Rim studs can damage these wheels.

⚠ CAUTION: Do not allow the rim studs to slip on the wheel. Runout compensation and alignment accuracy will be adversely affected if the wheel adaptor is allowed to slip on the wheel.

Attaching to Center Bore (Optional Front Wheel Adaptor 175-284-1)

Position the wheel adaptor with the two lower rim studs engaging the inside of the center bore.

Align the two upper rim studs with the inside of the center bore and check that all four studs will engage the inner portion of the rim lip.

Turn the adaptor adjustment knob clockwise to firmly attach the adaptor to the wheel.



Optional Front Wheel Adaptor, 175-284-1, Mounted to Center Bore

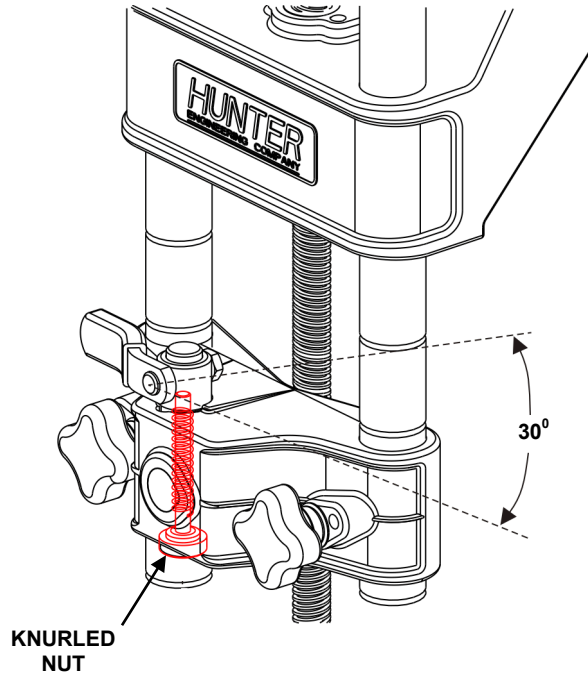
Test the security of the installation by tugging on the wheel adaptor.

⚠ CAUTION: Do not allow the rim studs to slip on the wheel. Runout compensation and alignment accuracy will be adversely affected if the wheel adaptor is allowed to slip on the wheel.

Adjusting Locking Lever

The wheel adaptor lock lever should not contact the wheel adaptor center casting before the sensor shaft is tightly secured. An adjustment can be made to the lock lever assembly to restore its full tightening capability.

Turn the adjusting thumbscrew to adjust the lock lever adjustment screw as illustrated below (do not remove the assembly). With the sensor fully seated in the adaptor and firm hand force applied to the lock lever, adjust the lock lever screw from the bottom side of the center casting so the lever will stop approximately 30° short of contacting the center casting.

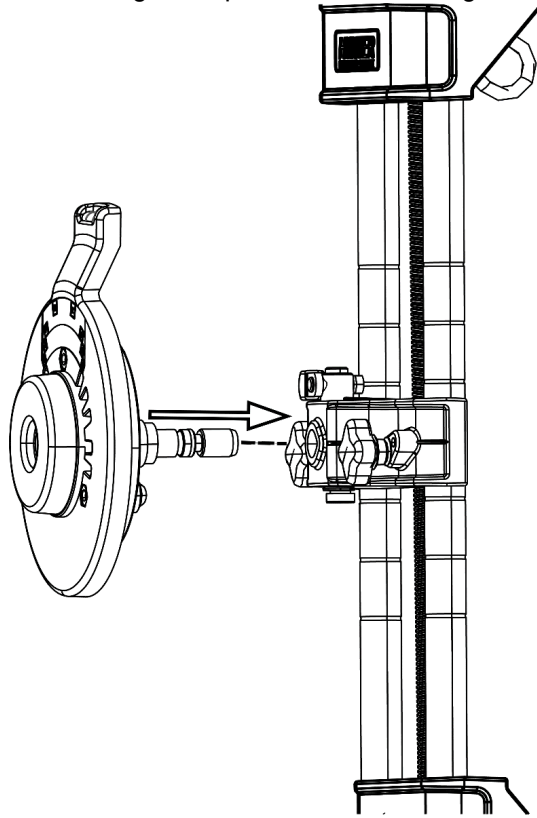


NOTE:

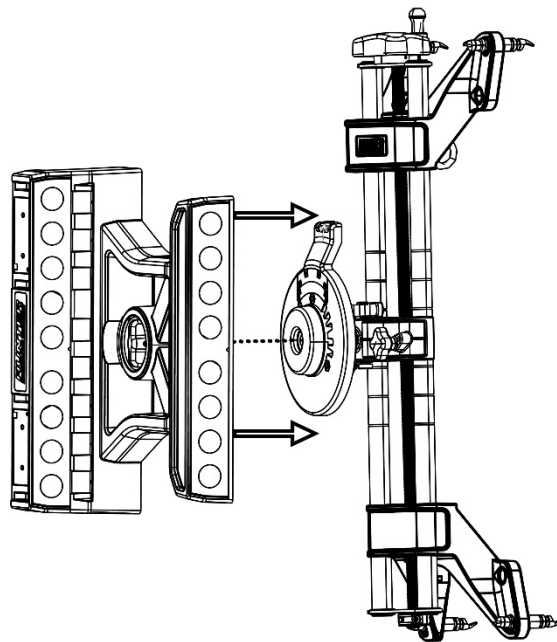
Normal manufacturing variations will allow the clearance between the lever and casting to change if different sensors are mounted to a given adaptor. This variation is acceptable if the lever has enough travel to fully tighten the lock onto the shaft.

Setup

- 1) Attach Target Adaptor to Self Centering Clamp and lock lever.



- 2) Attach the TDXL Target to Target Adaptor. Clock at 0 for left side and 1 for the right side of the vehicle.



RIGHT



LEFT



- 3) Arrow must be pointed upward at beginning of any alignment.



Rear extension

Use the extensions on the rear targets furthest from the cameras.



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