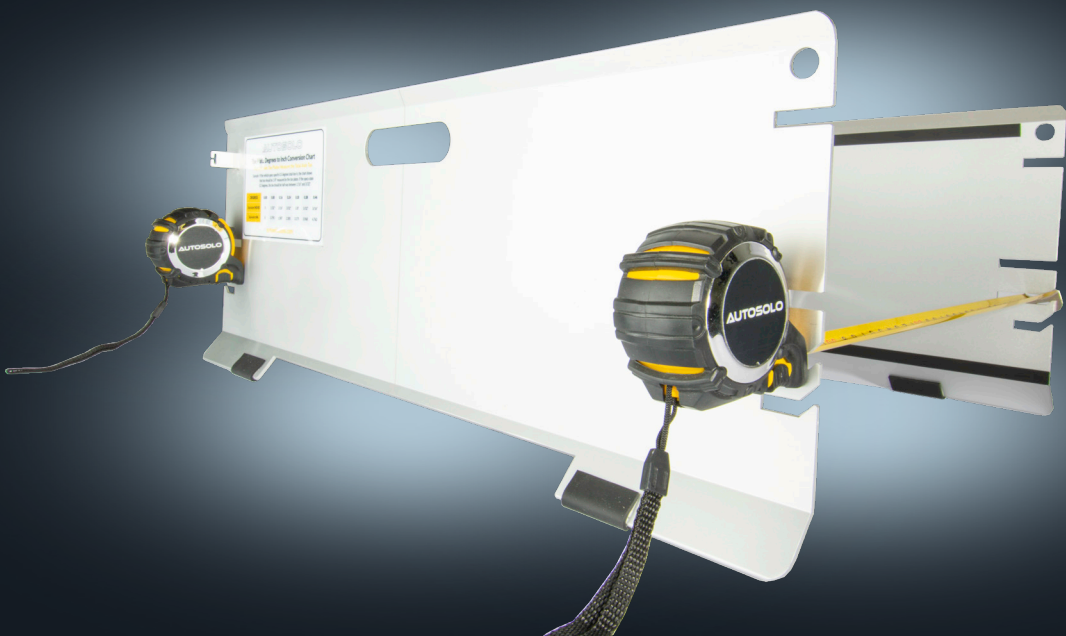


AUTOSOLO



WHEEL ALIGNMENT TOE PLATES USER MANUAL



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Video tutorials are available on our website
at **www.autosolotools.com**

PRODUCT OVERVIEW

1.1 Introduction

The Toe Plates are designed to measure the toe angle of the wheels, which is the angle when viewed looking down on the top of the vehicle.

1.2 Professional Service

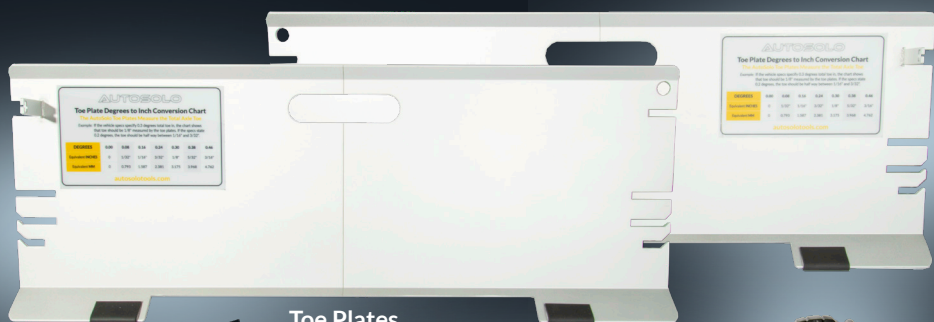
For wheel alignment adjustments, it is recommended to seek the assistance of a qualified technician.

1.3 Package Contents

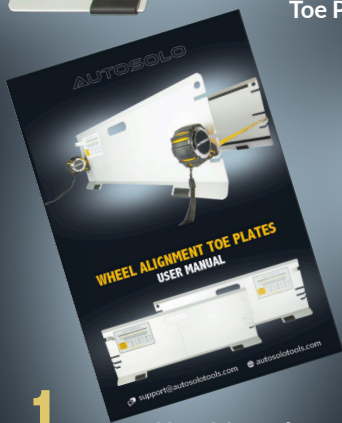
When unpacking the product, please verify that all of the following parts are included. If any parts are missing or broken, do not proceed with assembly or usage. Instead, contact AutoSolo using the contact details provided on the back cover of this manual for assistance.

The package includes:

- 2x Toe Plate
- 2x Measuring Tape
- User Manual
- 1x String



Toe Plates



1

User Manual



String



Measuring Tapes

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GENERAL SAFETY INSTRUCTIONS

2.1 Work Area Safety

- Keep the work area clean and dry to avoid accidents.
- Children should not handle this product.
- Store idle equipment in a dry location to prevent rust and keep it out of reach of children.

2.2 Avoid Impairment

- Do not use this product while under the influence of alcohol or drugs.
- Be aware of any impairments caused by prescription medications. If in doubt, do not use the equipment.

2.3 Eye Protection and Proper Attire

- Wear ANSI approved safety impact eye glasses.
- Use non-skid footwear or safety shoes.
- Avoid loose clothing or jewelry that can become caught in moving parts.
- Protect long hair by wearing a covering.
- Roll up long sleeves above the elbows.

2.4 Compliance with Industrial Standards

- Industrial applications must follow OSHA requirements.

2.5 Balance and Alertness

- Maintain proper footing and balance to prevent accidents.
- Stay alert and focused while using the equipment.

2.6 Inspection and Maintenance

- Before using the product, carefully inspect it for any damage or worn parts.
- Replace or repair damaged parts immediately.
- Regularly service and maintain the equipment for safety.

GENERAL SAFETY INSTRUCTIONS

2.7 Proper Use

- Use the product only for its intended purpose.
- Do not use a small tool or equipment for tasks that require a larger industrial tool.
- Follow the vehicle manufacturer's manual or consult a qualified technician for specific alignment tolerances.

2.8 Working Under Vehicles

- Never work underneath a vehicle without using additional safety support devices, such as jack stands, to secure the vehicle. Never raise a vehicle on a surface that is not level.

OPERATING INSTRUCTIONS

3.1 Specific Product Warnings and Precautions

3.1.1 Positioning the Toe Plates

Place the Toe Plates on a dry, flat, and level surface. Avoid using the Toe Plates on uneven surfaces or surfaces covered with ice, grease, oil, or any other substances that may cause tipping or sliding.

3.1.2 Safety Precautions

- Turn off the engine, engage the parking brake, and block the rear tires before using the Toe Plates. Do not attempt to use the Toe Plates while the engine is running.
- Carefully exit the vehicle and block the rear tires with wheel chocks or blocks of wood to prevent the vehicle from rolling during service.
- Wheel alignment is considered highly specialized work requiring training. This manual describes how to check various aspects of wheel alignment. If an issue is identified, consult a professional to perform the adjustment. AutoSolo is not responsible for improper use of the equipment or issues related to improper alignment.

3.1.3 Vehicle-Specific Alignment Tolerance

Consult the vehicle manufacturer's manual or a qualified technician to determine the acceptable degree of tolerance for front-end wheel alignment specific to the make and model of the vehicle being tested.

3.1.4 Safety Support Devices

Never work underneath a vehicle without using additional safety support devices such as jack stands to ensure proper support and prevent accidents. The Toe Plates are designed to be used with the vehicle's weight on its wheels and not raised off of the ground.

OPERATING INSTRUCTIONS

3.2 Toe Alignment

3.2.1 Understanding "Toe"

Toe refers to the angle of the wheels when viewed from the top (refer to Figure A). When the wheels on the same axle point inwards, it is called "**Toe in**" or "**positive Toe**". When the wheels on the same axle point outwards, it is called "**Toe out**" or "**negative Toe**".

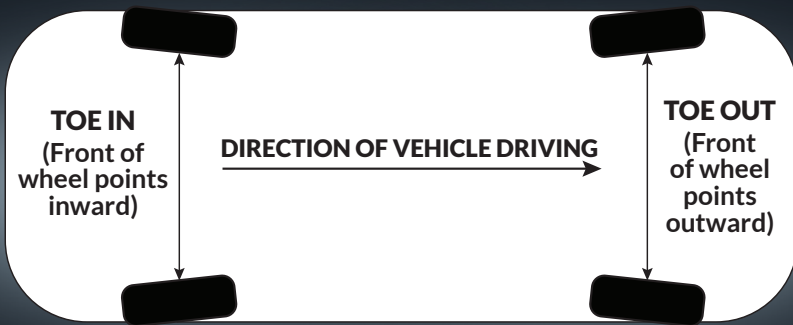


Figure A

3.2.2 Preparation

Ensure that the vehicle's steering wheel is centered. If available, use a steering wheel level device (**ASSTL1**) and a steering wheel lock (**ASSWH1**) to ensure the wheel is facing straight forward and remains locked that way. If the vehicle has hub caps, remove them before proceeding so that they do not interfere with the toe plates.

OPERATING INSTRUCTIONS

3.2.3 Align Plates

Place a toe plate against the outside of each of the wheels on the front or rear axle (whichever is being measured), ensuring that the toe plate is making contact with the tire side wall at the top right, top left, and center bottom of the plate. Ensure the toe plate “loop” is oriented so that it is closest to the front bumper for measuring Steer Ahead Angle and front toe alignment or closest to the rear bumper if measuring rear toe alignment (refer to Figure B).

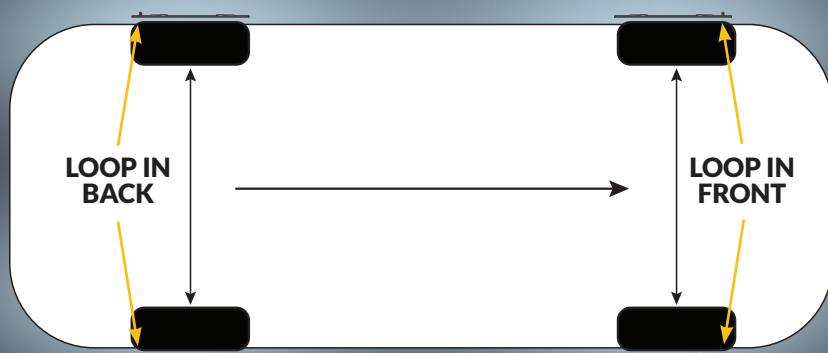


Figure B

If the loop is not oriented as described above, the toe plates need to be moved to the opposite sides of the vehicle. Ensure that each plate is properly seated in its entirety against the sidewall of the tire. Line up the vertical center line etched in the toe plate with the wheel hub to center the toe plate.



Note: Even though the bottom of the tire has a bulge due to the contact with the floor, this does not impact accuracy because it is the tire contacts at the top left and top right of the toe plate that determine the angle of the plate being measured.

OPERATING INSTRUCTIONS

3.2.4 Add Measuring Tapes

- 1) Move to the driver's side toe plate.
- 2) Extend the first tape measure from the front of the driver's side toe plate to the front of the passenger's side toe plate. Temporarily lock the tape measure.
- 3) Extend the second tape measure from the rear of the driver's side toe plate to the rear of the passenger's side toe plate. Temporarily lock the tape measure.
- 4) Move to the passenger's side toe plate.
- 5) Insert the hook of the front tape measure into a slot at the front of the passenger's side toe plate.
- 6) Insert the hook of the rear tape measure into a slot at the rear of the passenger's side toe plate.
- 7) You can choose any of the slots as long as you are consistent with all slots on both toe plates and the tire does not interfere with the tape measures. Larger tires require use of the lower slots to avoid interfering with the tire.
- 8) Return to the driver's side toe plate.

OPERATING INSTRUCTIONS

3.2.5 Measure Toe

Unlock the tape measures and insert them into the slots. Do NOT lock the tape measures; leaving them unlocked will provide the necessary tension to keep the toe plates contacting the tire sidewall. Let the tape measures hang and take an accurate note of the measurements to at least 1/16" and preferably 1/32" precision.



3.2.6 Calculate Toe

Subtract the front-vehicle tape measurement from the rear-vehicle tape measurement to obtain the total toe of the axle. A larger measurement on the front side indicates toe out, while a larger measurement on the rear side indicates toe in. Use the conversion table on the toe plates to convert distance to degrees.

Example:

AUTOSOLO							
Toe Plate Degrees to Inch Conversion Chart							
The AutoSolo Toe Plates Measure the Total Axle Toe							
Example: If the vehicle specs specify 0.3 degrees total toe in, the chart shows that toe should be 1/8" measured by the toe plates. If the specs state 0.2 degrees, the toe should be half way between 1/16" and 3/32".							
DEGREES	0.00	0.08	0.16	0.24	0.30	0.38	0.46
Equivalent INCHES	0	1/32"	1/16"	3/32"	1/8"	5/32"	3/16"
Equivalent MM	0	0.793	1.587	2.381	3.175	3.968	4.762
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Front-vehicle measurement: 64 15/16"

Rear-vehicle measurement: 65 1/16"

Rear-vehicle measurement is 1/8" longer than front-vehicle measurement

Total toe: IN .3° (from conversion table)

OPERATING INSTRUCTIONS

3.2.7 Alignment Assessment:

For most vehicles, a 0.1-0.3 degree toe in is ideal. The specific tolerance limits for toe-in/out angles should be obtained from the vehicle manufacturer's specifications or by consulting a qualified technician familiar with your vehicle. It is strongly recommended to have the front end wheel alignment serviced by a qualified technician. They will have the expertise and tools required to make the necessary adjustments.

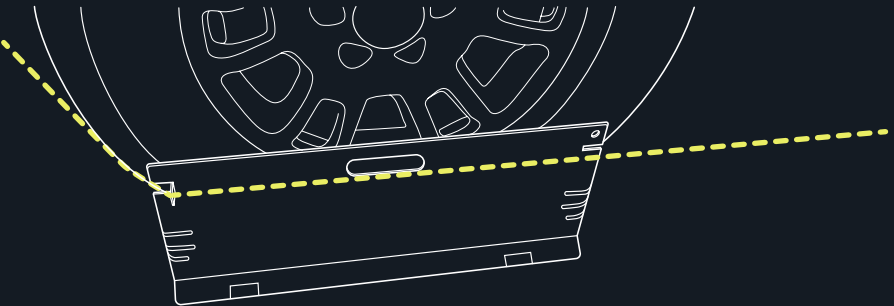
4.1 Steer Ahead Angle Measurement

4.2 Understanding Steer Ahead Angle:

The Steer Ahead Angle refers to the angle of the steering wheel when the vehicle is driving straight down a straight flat road. Ideally, the angle would be 0 degrees which means the steering wheel is pointing straight ahead when driving straight down the road.

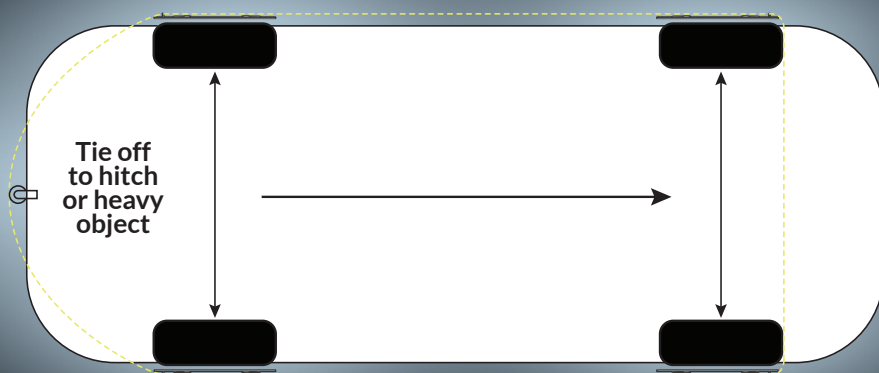
4.3 Procedure:

1. After measuring Toe alignment, you may leave the measuring tapes in place to keep the toe plates in place during the stringing procedure. Double check the steering wheel is straightened to ensure accuracy.
2. Install the included string through the loop in one of the toe plates and run the string through the second toe plate loop then run the string around both rear wheels.



OPERATING INSTRUCTIONS

This will cause the string to encircle all 4 wheels. Secure both ends of the string to something fixed on the vehicle like a trailer hitch or tow hook or some other object on the front or back of the vehicle. Do not attach the string to anything on the sides of the vehicle. If there is no mounting point for the string, it is possible to position a heavy object on the floor in the front or rear of the vehicle and use it as a tie-off point.



Position the string on the rear of the rear tires at a height equal to the height of the toe plate loop off of the floor (7.5"). Ensure the string has enough tension so there will be no sagging.

3. On both toe plates, measure the distance from the string to the rearmost end of the toe plate. Typical measurements would be from 0-1.5". If the measurements on both sides of the toe plates are equal, then the Steer Ahead Angle should be expected to be 0 degrees or straight ahead.

Note: The same procedure can be repeated with toe plates on the rear wheels or deploy two sets of toe plates at the same time to ensure the rear toes are aligned with the front axle.

DIAGNOSING STEERING WHEEL MISALIGNMENT DURING STRAIGHT-LINE DRIVING

Some vehicles do not drive straight down the road even when the alignment measurements appear to be all within specification. Alignments can require specialized and vehicle-specific knowledge. It is recommended to consult with a professional automotive technician if problems are encountered. The table below lists some things that can cause the steer ahead angle to be non-zero degrees on a straight road.

ASPECT	IMPACT ON STEERING	STEPS TO RULE OUT
Road Crown	Often roads are graded at an angle to prevent water pooling. However, this requires the car to constantly need to turn slightly uphill which causes the steering wheel to be angled toward the uphill direction.	Drive on a variety of straight highways to determine if the amount of steer ahead angle changes, verifying road crown is having an impact.
Tread pattern or uneven tire wear	Non-uniform tread patterns can cause the vehicle to pull to one side, requiring compensation by the steering wheel	Rotate the tires to verify if tires are having an impact
Not all tires are the same size	Handling issues	Replace tires with factory-specified tires of common size
Dragging brakes	Handling issues	Repair brake issues
Improperly inflated tires	An improperly inflated tire is a different diameter than designed causing handling issues	Adjust tire pressure
Worn suspension or steering parts	Worn ball joints, bushings, tie rod ends and other parts allow steering geometry to change while driving down the road compared to when stationary	Replace worn parts

TROUBLESHOOTING A CROOKED STEERING WHEEL WHEN THE VEHICLE DRIVES DOWN A STRAIGHT ROAD

ASPECT	IMPACT ON STEERING	STEPS TO RULE OUT
Toe not set correctly	Handling issues	Ensure toe for all four wheels is set to factory specification when the steering wheel is straight.
Camber or Caster not set correctly	Handling issues	Ensure Camber and Caster are set to factory specifications
Steering wheel not straight during toe measurement	Some newer vehicles with electric steering will slightly “bump” the steering wheel off center when the engine is started or stopped.	Recheck toe with the engine running and the transmission in park. Use safety precautions including wheel chocks, parking brake. Consult a professional to ensure safety.
Rear Thrust Angle not zero	The rear thrust angle is the angle that the rear wheels/rear axle are lined up with the centerline of the car, ideally 0 degrees.	Consult a professional since this condition may indicate the vehicle has been in a geometry altering accident.

*Minor adjustments to caster may help compensate for road crown. This is considered an advanced procedure and is best left to a professional.

INSPECTION, MAINTENANCE & CLEANING

To ensure the optimal performance and longevity of your Toe Plates, please follow these inspection, maintenance, and cleaning instructions:

Regular Inspection: Before each use, thoroughly inspect the Toe Plates for any signs of damage or wear that may affect their safe operation. Pay attention to the following:

- Cracks or fractures on the plates
- Dents or deformations that may affect their accuracy
- Any loose or missing parts

If any issues are detected, immediately discontinue the use of the Toe Plates and contact a qualified technician for inspection and servicing. **DO NOT use damaged equipment.**

Maintenance: To maintain the functionality and accuracy of the Toe Plates, we recommend the following maintenance practices:

- Store the Toe Plates in a dry and clean environment, protected from extreme temperatures and humidity.
- Avoid subjecting the Toe Plates to excessive force, impacts, or rough handling.
- Avoid letting the tape measures kink. Avoid contacting your fingers or other body parts with sharp edges on the side of the tape measures. Avoid letting the tape measures retract in an uncontrolled manner. Use gentle pressure on the lock button (without having it fully locked) to control the retraction speed.
- Do not modify or alter the Toe Plates in any way, as it may affect their performance and accuracy.

INSPECTION, MAINTENANCE & CLEANING

Cleaning: To keep the Toe Plates in optimal condition, follow these cleaning guidelines:

- Keep the Toe Plates free from oil, grease, or other contaminants. These substances can affect the accuracy of the measurements.
- Use a mild detergent and a damp cloth to clean the Toe Plates. Gently wipe the surfaces to remove any dirt or debris.
- DO NOT use flammable or combustible solvents for cleaning purposes, as they can damage the Toe Plates or pose a safety hazard.
- Allow the Toe Plates to dry completely before storing them to prevent the accumulation of moisture.



By following these inspection, maintenance, and cleaning instructions, you can ensure that your Toe Plates remain in good working condition and provide accurate wheel alignment measurements.

WARRANTY

Limited 1-Year Replacement Warranty

AutoSolo warrants that the Wheel Alignment Toe Plates will be free from manufacturing defects for a period of one year from the date of its original retail purchase.

Coverage Period

This warranty is valid for one year from the date of its original retail purchase. It is non-transferable, and the coverage terminates if the product is sold or transferred to another party.

Manufacturer's Responsibility

If the product is found to have a manufacturing defect within the warranty period, when used as directed, the manufacturer will, at its sole discretion, either repair the defective product by requesting the customer to return it or replace the product. The replacement product will be covered for the remaining period of the original warranty.

Exclusions

This limited warranty does not cover problems or damages arising from:

- (a) Abuse, misuse, neglect, or accident.
- (b) Alteration of the product or any component thereof.
- (c) Shipping.
- (d) Improper installation, operation, or maintenance.
- (e) Use of parts from another manufacturer.
- (f) Problems or damages due to natural disasters, force majeure events, or acts of God.

WARRANTY

Limitation of Liability

Except as expressly provided herein, there are no other warranties, expressed or implied, including but not limited to warranties of merchantability or fitness for a particular purpose. To the extent permissible by applicable law, the manufacturer shall not be liable under any legal theory for indirect, incidental, special, consequential, or similar damages, including lost profits, damage to person or property, loss of use, or inconvenience. Your sole remedy shall be limited to the repair or replacement of the product at the manufacturer's discretion.

Making a Warranty Claim

To be eligible for service under this warranty, please follow these steps:

1. Within 30 days of discovering a manufacturing defect covered by the warranty, contact us at support@autosolotools.com.
2. Upload a proof of purchase receipt along with the warranty request.
3. Note that returns received 30 days or more after the claim file has been opened may be refused and returned at your expense.
4. For further assistance regarding warranty claims, please refer to the contact details provided on the back cover of this manual.



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Visit our website:
autosolotools.com

For technical questions
please email or call us at:
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