

Eastwood

DO THE JOB RIGHT.

Part #14383

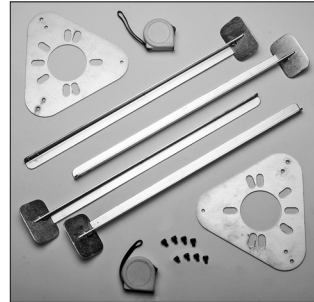
TOE ALIGNMENT SYSTEM INSTRUCTIONS



The **Eastwood Toe Alignment System** is designed to provide an accurate front wheel toe setting on virtually any car or light truck after vehicle reassembly following the completion of restoration or repairs on front suspension and steering components.

WARNINGS

- Work in a clean, dry, well lit environment allowing plenty of room around the vehicle.
- Place suitable chocks behind and in front of the rear wheels and apply parking brake before jacking the vehicle.
- Follow all instructions and use a floor jack in good condition fully capable of lifting the front end of the vehicle to be aligned.
- Be sure to support the front suspension as outlined in instructions before removing front wheels or working with this tool.



INCLUDES

- (2) Triangular Hub Mounting Plates.
- (2) Leading Measurement Arms.
- (2) Trailing Measurement Arms.
- (8) Socket Head Cap Screws.
- (2) Retractable Tape Measures.

REQUIRED USER SUPPLIED ITEMS

- (4) 4" x 6" x 12" Long Pressure Treated Wooden Blocks (or appropriate thickness solid wood blocks stacked to equal ride height. See Step 6 of Set-Up Instructions).
- (1) Roll of Waxed Paper or Plastic Food Wrap.
- (1) Container of Wheel Bearing Grease.
- A shop manual specific to your vehicle make and model year with full alignment procedures or web sourced alignment specifications and full alignment procedure with manufacturers toe settings for your particular vehicle.



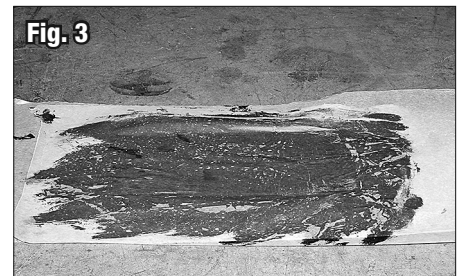
SET UP

All manufacturer's alignment settings are specified at normal ride height, on a level surface with the wheels on the vehicle and in the straight ahead position.

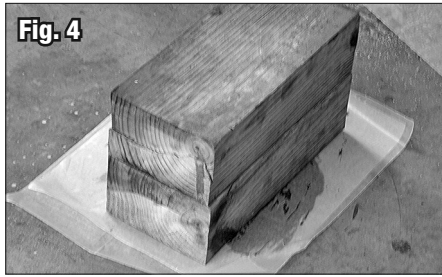
The Eastwood Toe Alignment System is designed to be used with the front wheels **off the vehicle**. To achieve an accurate toe setting with this system, it is absolutely necessary to support the vehicle under the front suspension load points with the full vehicle weight at normal ride height.

NOTE: Stationary supports such as jack stands, floor jacks etc. **WILL NOT WORK** as the vehicle needs to be supported at the suspension load points and the suspension components will move when the vehicle weight is applied requiring sliding supports.

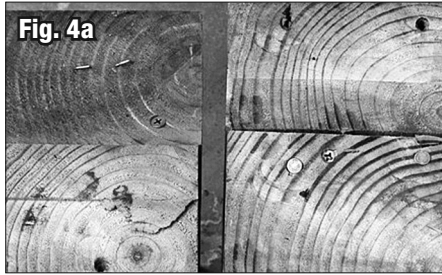
1. Locate the vehicle on a clean, level floor.
NOTE: It is critical that the work area floor be flat, level AND CLEAN otherwise the accuracy of your measurements will be compromised.
2. Tear off 4, 18" long sheets of waxed paper or plastic food wrap (Fig 1).
3. Spread the wheel bearing grease in an even coat in a 6" wide strip down the center of and the length of two of the sheets (Fig 2).
4. Place the second sheets of waxed paper or food wrap over the greased pair lengthwise (Fig 3).



5. Taking a pair of the 4" x 6" x 12" pressure treated wooden blocks, securely attach them with nails, drywall or deck screws driven in at an angle from the sides and ends. (Figs 4, 4a).

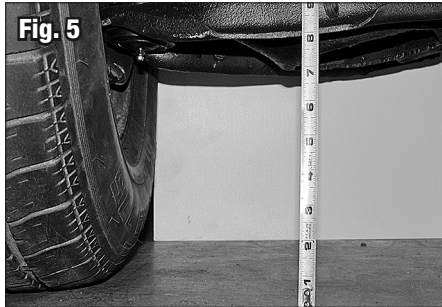


6. Place the sandwich of greased sheets lengthwise UNDER the wooden blocks. BE ABSOLUTELY SURE THE FLOOR IS SWEEPED CLEAN TO ALLOW THE BLOCKS/SHEETS TO SLIDE!



NOTE: Before finalizing this step, take a measurement from the most outboard suspension pivot point (usually under the ball joint) and the floor surface (Fig 5). The height of two stacked 4" x 6" blocks will equal 7" and is suitable for most vehicles.

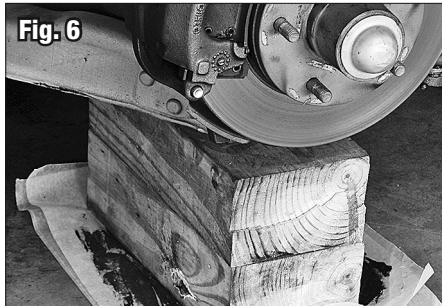
Some light trucks will require additional block height while some small cars may require less block height. Substitute thicker or thinner wooden blocks as required.



7. Repeat for the second pair of blocks and prepared sheets.

8. Apply the parking brake and chock the rear wheels.

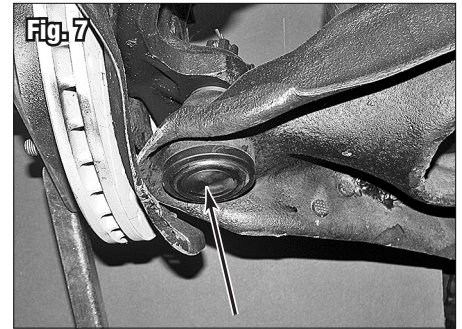
9. Place a floor jack at the specific manufacturers jacking point on the vehicle. Raise the vehicle and remove the front wheels.



10. Set one of the prepared wooden block supports and greased sheets with the 12" length toward the center of the vehicle and located under an outboard suspension pivot point or ball joint, as close to the brake as possible. (Fig 6).

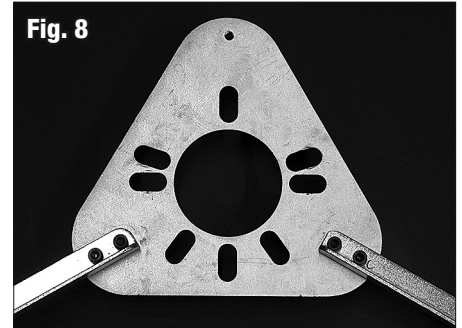
NOTE: Do not place blocks under brake rotor.

NOTE: on some vehicles it may be necessary to unthread and remove a protruding grease fitting (Fig 7).



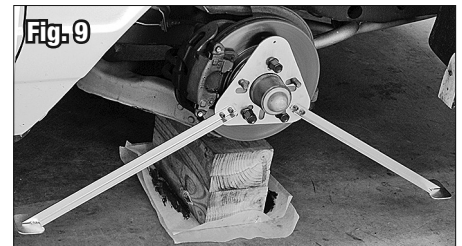
11. Repeat for opposite side.

12. Once you are certain the block supports are placed in a secure location under the suspension arms and as near to the ball joint or outboard pivot point as possible, lower the jack slowly and let the vehicle weight fully rest on the support blocks. The suspension will compress moving the support blocks outward toward the sides of the vehicle.



NOTE: BE ABSOLUTELY SURE THE FLOOR IS SWEEPED CLEAN TO ALLOW THE BLOCKS/SHEETS TO SLIDE! The grease and waxed paper will permit the blocks to slide outward over the greased sheets on the floor. This is absolutely necessary and will allow the suspension geometry to be equal to that of the vehicle with wheels on and at ride height.

13. Lay out one of the triangular steel hub plates and select one Leading and one Trailing Measurement Arm.



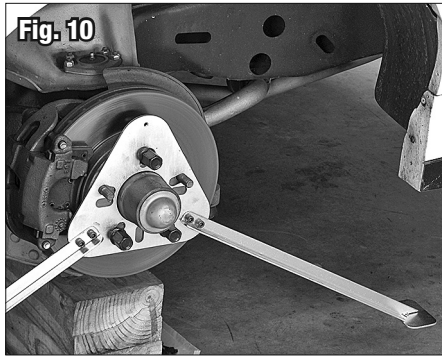
NOTE: The formed 90° angle portion of the legs should be arranged with the one side facing upward toward you and toward the bottom and the measuring pads or "feet" parallel to the bottom of the triangle (Fig 8).

14. Line up the through holes in the Measurement Arms with the threaded holes in the Triangular Hub Plate and thread the supplied socket head cap screws in and tighten them with a 5 mm hex key (Fig 9).

15. Repeat for opposite set of Measurement Arms and Triangular Hub Plate.

16. Mount each of the Measurement Arm/Plate assemblies to the vehicle hubs by sliding 4 or 5 of the slotted holes over the vehicle wheel studs (Fig 10).

17. Thread on 3 wheel lug nuts per side to retain the Measurement Arm/Plate assemblies in place.



NOTE: Be absolutely sure the faces of the wheel hubs are free of debris or dirt that would prevent the Measurement Arm/Plate assemblies from lying flat against them.

ALIGNMENT PROCEDURE

NOTE: With the vast array of procedure and toe adjustment differences and specifications, it is absolutely necessary to have a shop manual specific to your vehicle make and model year with full alignment procedures or web sourced alignment specifications and full alignment procedures with manufacturers toe settings for your particular vehicle before beginning.

- Begin by making sure the steering box or rack is on true center. To do so, follow this procedure:
 1. Turn steering wheel completely to the left until it stops.
 2. Count the number of revolutions while turning the wheel completely to the right until it stops.
 3. Divide that number by 2.
 4. Turn steering wheel back to the left the number of revolutions counted in step 3.

EXAMPLE: If a vehicle requires 4-1/2 turns from full left to full right, rotate wheel 2-1/4 turns from full right to center.

NOTE: A piece of masking tape placed at the “top” center of the wheel is a great help in this step.

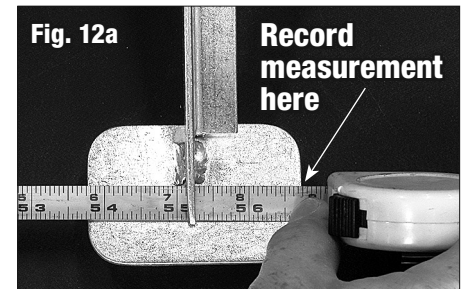
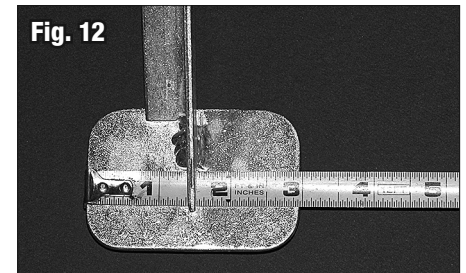
- Your steering wheel should now also be centered with spokes aligned with horizontal and or vertical spokes parallel or perpendicular (Fig 11).



- Once the wheel is centered and the tape is at the top, let the ignition lock hold it in place from turning. Note: for pre 1969 vehicles without locking columns, a suitable length bungee cord attached to the bottom of the steering wheel rim and a brake or clutch pedal arm should keep it in place.
- Remove cotter pins and nuts then remove outer tie rod ends from steering knuckles. Note: Follow procedures described for tie rod end removal in an appropriate service manual.

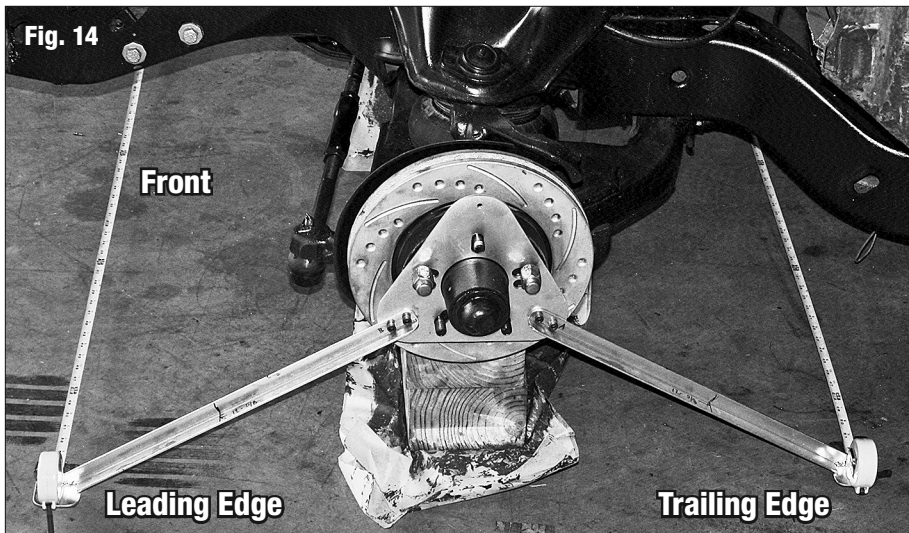
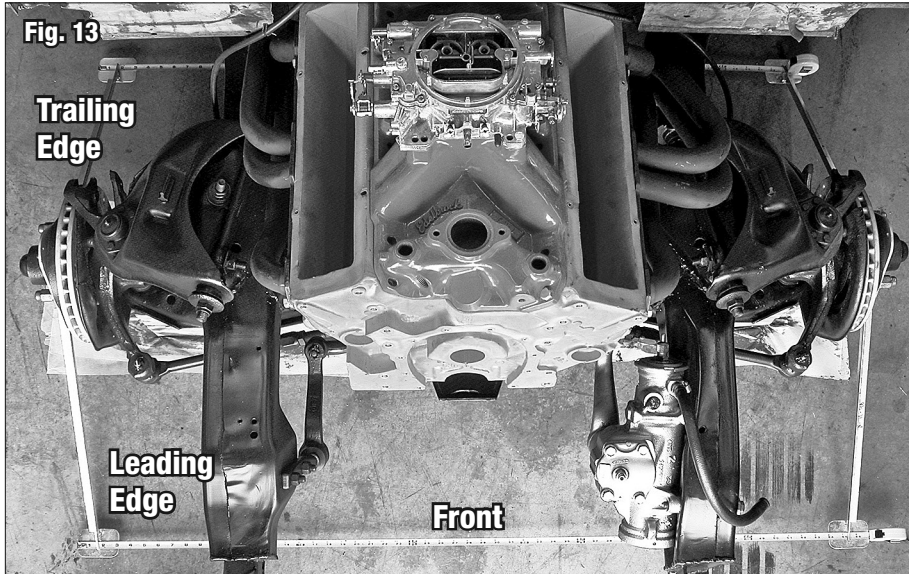
NOTE: Although an individual can perform the following measurements working alone, a capable helper is recommended.

- Beginning with the trailing (rear) Measurement Arm, hook the end tab of one of the included tape measures over the outside edge of the Measuring Pads then slide the measuring tape through the guide slot at the Measurement Arm/Pad welded joint, under the car then through the opposite side guide slot and let the body of the tape measure rest against the outer edge of the opposite Measuring Pad. (Fig 12), (Fig 12a).



- Repeat the previous step for the leading (front) pair of Measurement Arms. (Figs 13, 14).
- At this point you can observe and record (on page 11) the dimensions that are in line with the outer edges of the Measuring Pads ahead of (leading edge) and behind the wheels (trailing edge) then compare them. The goal is to achieve “Zero Toe” by having both leading and trailing measurements be equal.

It may be necessary to turn each spindle assembly a slight amount to achieve equal dimensions. Once equal dimensions have been achieved DO NOT bump the spindle assemblies or allow them to move!

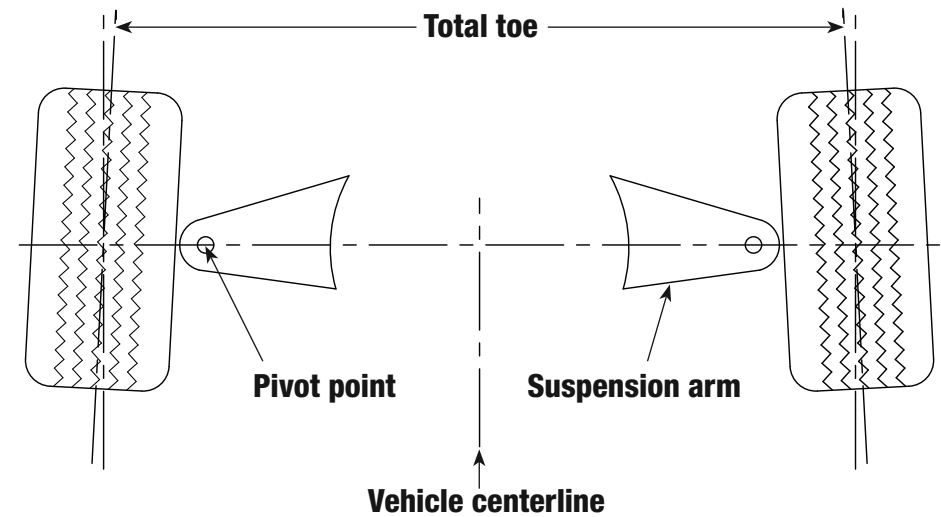


- Without letting the spindles move, try inserting the previously removed tie rod ends into their respective steering knuckle holes. If the tie rod end stub is too far in to line up with the steering knuckle hole, the rod needs to be lengthened. If it is too far out to line up with the hole, it needs to be shortened. Note: Follow the tie rod end adjustment procedure in accordance with the shop manual or online narrative outlined for your specific vehicle.
- Once the leading and trailing measurements are equal, and the tie rod end stubs have been placed back into the steering knuckles, you have achieved “Zero Toe” with both front wheels completely parallel.

NOTE: Do not torque nuts or install cotter pins at this time. Now the specified factory toe setting for your vehicle may be done.

NOTE: An important concept to remember is that virtually all vehicle specifications call out “Total Toe”. That is the difference in measurements between the leading edges of the wheels and the trailing edges (Fig 15).

Fig. 15 Front of vehicle, viewed from above



To find “Total Toe” on vehicles requiring “Toe-In”; subtract the dimension recorded on the measuring pads from in front of the wheels (Leading Edge) from the dimension recorded behind the wheels (Trailing Edge). The remaining number is “Total Toe”.

For those vehicles that require a “Toe-Out” setting, subtract the dimension taken behind the wheels from the one recorded in front of the wheels. Your remaining number will be the “Total Toe” for “Toe-Out” specifications.

- Some mathematical calculations will need to be done to determine how much per side to adjust to obtain proper Total Toe for your specific vehicle. Here is an example:
When beginning, the leading measurement may be 59-7/8", while the trailing measurement is 60-1/8". Subtract 59-7/8" from 60-1/8", the resulting difference is 1/4" and is the current Total Toe. This reflects a 1/8" difference per side.
- As you adjust the tie rod ends in or out, leave the tape measures in place and frequently check your leading and trailing dimensions.

NOTE: A very small amount of tie rod length change can translate into a significant dimensional change.

IMPORTANT NOTE: When done, be sure that all tie rod nuts have been tightened to manufacturers specs and all cotter pins or locking hardware has been installed.
For optimal tire wear, handling and safety; it is recommended that a professional wheel alignment be done when feasible.

NOTE: Most later model vehicles will have the toe specifications listed in Decimal Degrees while many older model vehicles have toe specifications listed as Fractional Inches. The Eastwood Toe Alignment System provides Fractional Inch measurements. The following conversion chart will allow you to convert Fractional Inches to any other units that may be found in specific vehicle alignment specifications.

EASTWOOD TOE ALIGNMENT SPECIFICATIONS CONVERSION CHART

UNITS	CONVERSIONS			
Fractional Inches	1/16"	1/8"	3/16"	1/4"
Decimal Inches	0.063"	0.125"	0.188"	0.250"
Decimal Degrees	0.125°	0.25°	0.375°	0.5°
Degrees/Minutes	0° 8'	0° 15'	0° 23'	0° 30'
Fractional Degrees	1/8°	1/4°	5/8°	1/2°
Millimeters	1.60mm	3.18mm	4.76mm	6.35mm

WORKSHEET FOR RECORDED DIMENSIONS

LEADING EDGE	TRAILING EDGE

NOTES

If you have any questions about the use of this product, please contact

The Eastwood Technical Assistance Service Department: 800.544.5118 >> email: techelp@eastwood.com

PDF version of this manual is available online >> eastwood.com/14383manual

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