



Customer Service Bulletin Commercial Business Group

Workman® 1100/2100 Series

January 2, 2002

<u>Model/Serial Range:</u>	<u>Model Numbers:</u>	<u>Serial Numbers:</u>
	07252	210000101 - 220099999
	07252TC	210000101 - 220099999
	07253	200000101 - 220099999
	07253TC	200000101 - 220099999

Subject: Updated Front Suspension Adjustment Procedure.

This updated Front Suspension Adjustment Procedure replaces all previous adjustment/checking procedures in all Operators Manuals, Service Manuals and Training Materials.

The procedure is a multi-step process. To ensure proper settings are achieved, the Ride Height must be adjusted before the Toe-in is adjusted. If this procedure is not followed or a process is skipped, accelerated tire wear may occur.

Follow the adjustment process in the order listed:

1. Front Suspension Ride Height Adjustment procedure.
2. Toe-in Adjustment.

Suspension Ride Height Adjustment Procedure

The ride height of the vehicle should be checked and adjusted before proceeding further with this procedure. The ride height specification for each model series is:

Workman 1100: 7-1/2" to 8-1/4" (19.1–21 cm)

Workman 2100: 8-3/4" to 9-1/2" (22.2–24.1 cm)

NOTE: The ride height is based on the front tire size.

Workman 1100: 20" diameter tire

Workman 2100: 22.5" diameter tire

The following pre-check must be done before proceeding with the Ride Height or adjustments:

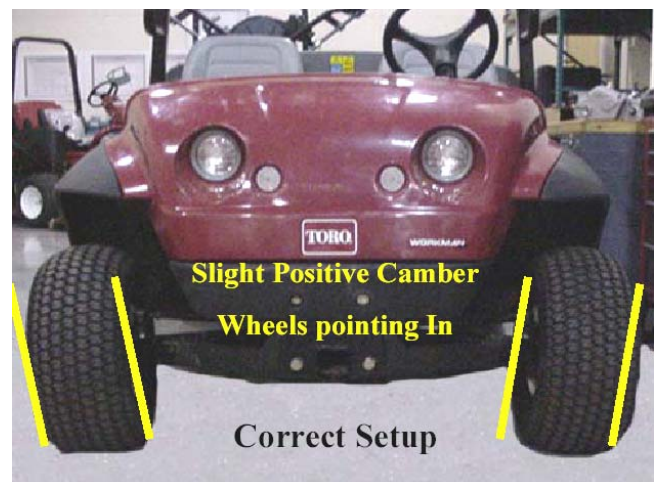
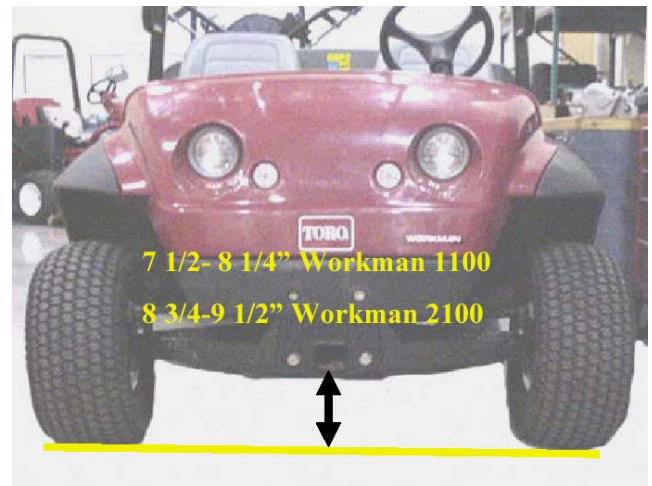
- The tire pressure should be 12 psi (83 kPa).
- The vehicle should be driven back and forth approximately 10 ft. (3.0 M) to relax the A-Arms.
- The front wheels must be facing straight ahead (even if steering wheel is not centered).
- A 175–225 lb. (79–102 kg) operator in the driver's seat.

Note: The driver should drive up to the measurement area and stay seated in the vehicle while the measurement is being taken.

- Measure the ride height on a flat surface, from the bottom of the front tongue to the ground.

(A properly adjusted Ride Height will have both front tires exhibiting a slight camber in with the operator in place)

The lines in the photo represent an extreme "camber in" for illustration purposes only.



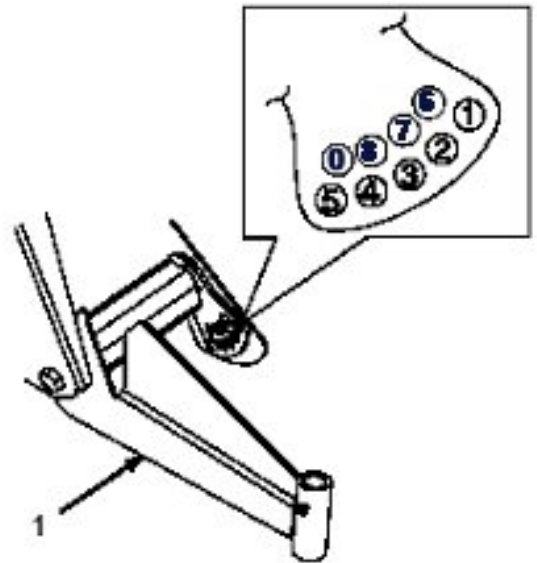
Proceed with the Suspension Ride Height adjustment next and then complete the Toe-in setting.

If adjustment is required, proceed with the following adjustment steps.

1. Remove ignition key from ignition switch.
2. Set parking brake.
3. Jack the front end of the vehicle off of the ground just so the tires are off the ground. Use Jack stands to secure the vehicle and prevent personal injury.
4. Remove the travel-limiting bolt.
5. Loosen the centering bolts in the front and rear of A-arms.
6. Remove the ride height adjustment bolt.
7. Rotate the front A-Arm to the desired position (refer to the note below) and replace the ride height adjustment bolt in the appropriate hole. Torque to 135 to 165 ft lb (183 to 224 N-m).
8. Move both the Right and Left hand A-Arms up or down in equal amounts to keep the front of the vehicle level from side to side.
9. Reassemble the front suspension by performing the above steps 3 ~ 6 in reverse.
10. Adjust Toe-in (see Toe-in Adjustment Procedure).

Note:

Each hole equals about 3/4 in. (19 mm) of adjustment at the wheel. Check and re-adjust to the next highest hole number on each side if you are adding heavy attachments or carrying heavy loads often.



Toe-in Adjustment Procedure

Adjusting Front Wheel Toe-In

To prevent rapid tire wear due to wheel alignment concerns, check the front wheel toe-in after every 100 operating hours, or annually, whichever occurs first.

The toe-in specification of each model series is:

Workman 1100: 1/8–5/8 in. (3–16 mm)

Workman 2100: 1/8–5/8 in. (3–16 mm)

The following pre-check must be done before checking or adjustments are performed. Assure that the Ride Height pre-check parameters called out in Ride Height Adjustment are met.

If the vehicle

- Will be run with medium to heavy loads most of the time, set the toe-in on high side (5/8") of the recommended specification.
- Will be run with a light load most of the time, set the toe-in on the low side (1/8") of the recommended specification.

To measure the toe-in at axle height use a toe-in tool.

A toe-in tool can be purchased from an alignment service tool facility or can be found searching the Internet. The tool described below was purchased from J.C. Whitney at:

<http://www.jcwhitney.com>

This tool is low cost and provides a consistent means of measuring and adjusting the vehicle toe-in. The tool may also be used on a wide variety of equipment.



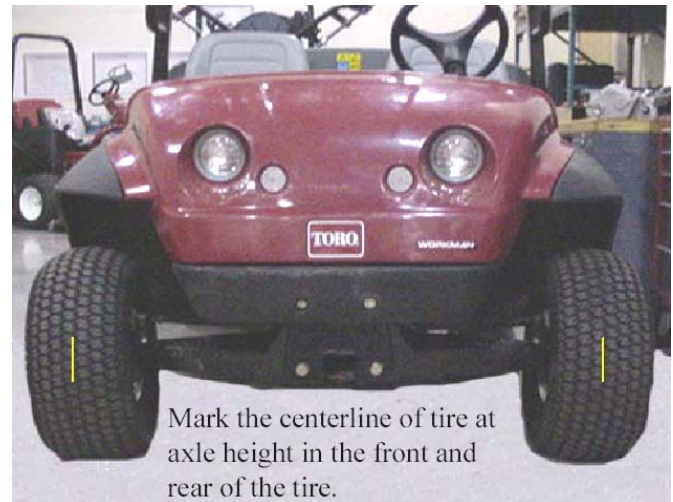
The instructions for using that tool are included with this bulletin. Refer to the "Instructions for using Manco wheel alignment gage" on separate page. If you purchase a different toe-in tool, use that manufacturer's procedure for toe-in checking and adjustment.

When checking or adjusting Toe-in proceed with the following adjustment steps.

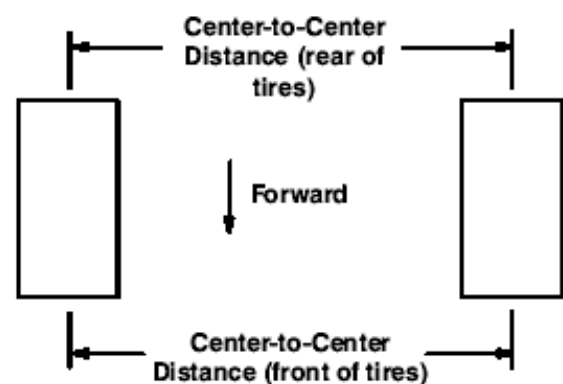
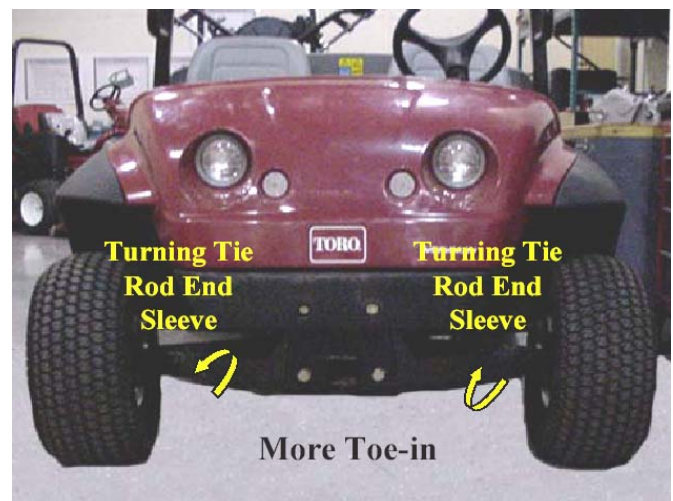
Standard Toe-in setting method (using tape measure):

1. Ensure that the front suspension ride height is adjusted properly; adjust if necessary.

2. Mark the centerline of the tire all the way around the tire, or use the center parting line visible from the original tire manufacturing process.
3. Measure the distance between both of the front tires at axle height at the centerline marking. Begin in the back of the tires. Record measurement.
4. Measure the distance between both of the front tires at axle height at the centerline marking. Begin in the front of the tires. Record measurement.
5. Compare measurements.



6. If the measurement does not fall within the specified range, loosen the jam nuts at both ends of both tie rods.
7. Rotate both tie rods equally to move the front of the tire inward or outward.
8. Tighten the tie rod jam nuts when the adjustment is correct.
9. Ensure that there is full travel of the steering wheel in both directions.



INSTRUCTIONS FOR USING

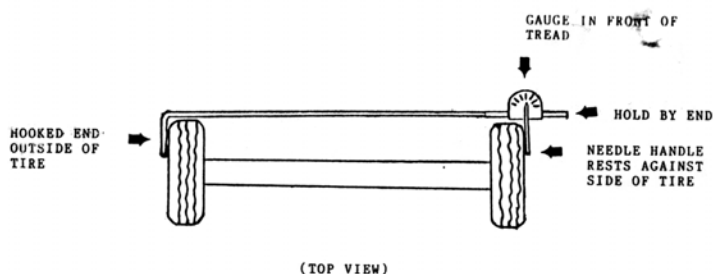
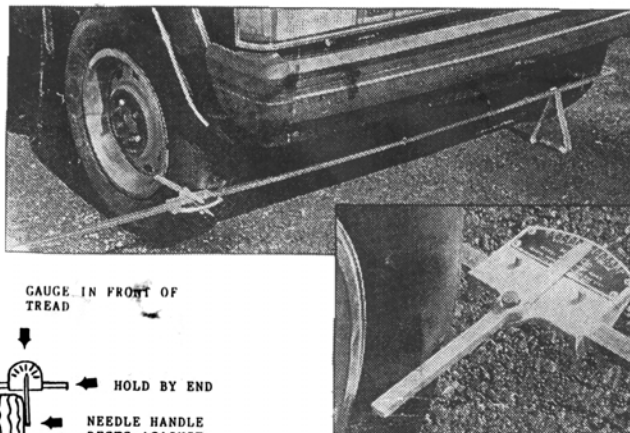
MANCO

WHEEL ALIGNMENT GAGE

Assemble the MANCO Gage

by means of the

"CONNECTOR SCREW"



— TO CHECK ALIGNMENT OF WHEELS —

- 1st. Hold Gage by dial end, and place it back of front wheels so that leg rests on floor. Hook outside of right tire (bar should be against tread—see photo). Pull bar, and push in rear of left tire so as to take up any slack that may exist in the tie-rod bolts. With bar resting against tread of tires, and needle arm against left tire, slide gage head on bar until needle points to zero. Tighten thumb screw.
- 2nd. Remove Gage and place it in front of tires (do not pull front of tires together). With leg resting on floor and needle arm against right tire, read the dial. The numbers on the dial represent THIRTY-SECONDS OF AN INCH. (If the reading is 4, on the toe-in side, there is $4/32$ " or $1/8$ " toe-in.) To bring the wheels parallel, it is necessary to adjust tie-rod until dial reading is 2, or one-half of the first reading. We suggest that the mechanic using the Gage for the first time recheck tires after making adjustment.
- 3rd. To check wobble in wheel, hold gage against side of tire and spin wheel.

Due to the fact that the forward motion of the car tends to spread the wheels in front, nearly all car manufacturers recommend a slight toe-in of the front wheels. We recommend that the wheels be set in accordance with the car manufacturer's specifications. However, in the absence of such specifications, we suggest that the front wheels be set so that they toe-in $1/16$ of an inch.

IMPORTANCE OF PROPER WHEEL ALIGNMENT

The importance of proper wheel alignment can only be realized when you know that with the wheels $1/16$ of an inch out of line, the front tires are being dragged sideways 1,375 feet every hundred miles the car is driven—with the weight of the car on them. Think what this will do to those tires in a distance of ten thousand miles. Then imagine what happens when the wheels are $1/4$ inch out of line.

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Manufacturers Since 1923

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