

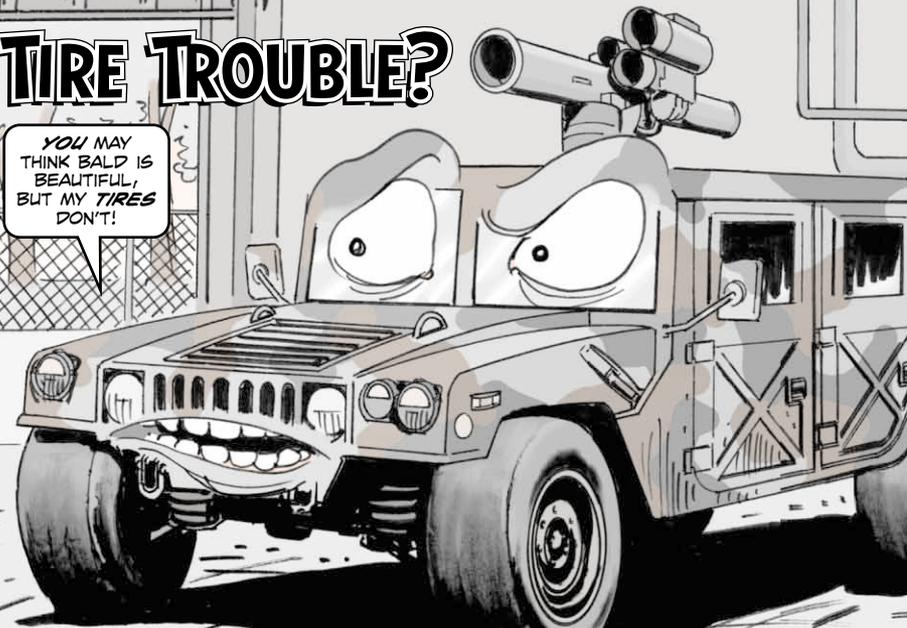
HMMWVs...

TIRED OF TIRE TROUBLE?



WHADDYA THINK OF MY NEW HAIRCUT?

YOU MAY THINK BALD IS BEAUTIFUL, BUT MY TIRES DON'T!



NINE OUT OF 10 DRIVERS AND MECHANICS WILL TELL YOU THE BIGGEST PROBLEM THEY HAVE WITH HMMWVS IS TIRES.

AND ONLY ONE OF 'EM WOULD BE WRONG!

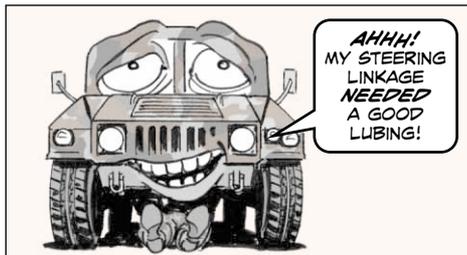
MAKING YOUR HMMWV TIRES HOLD UP FOR THE LONG HAUL TAKES LOTS OF PM. SO LOAD UP ON THESE TIRE ESSENTIALS!



Steering Linkage

You may think you can skip an inspection or lubing of the steering linkage every now and then. But when a linkage part fails and someone is injured or killed, you'll find out just how wrong you are!

A couple of inspections and a liberal lubing every six months or 3,000 miles (whichever comes first) is vital for keeping your HMMWV's steering linkage in good shape during normal operations. You'll need to up the number of inspections and lubings when operating in mud, snow or desert conditions, though.



AHHH! MY STEERING LINKAGE NEEDED A GOOD LUBING!

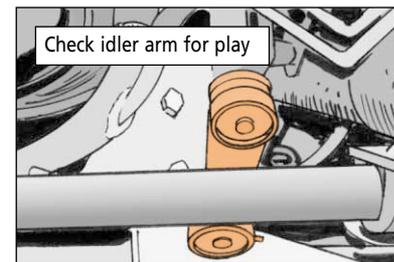
HERE'S WHAT YOU OPERATORS AND MECHANICS NEED TO DO TO KEEP THE WHEELS TURNING SAFELY...



PS 607

• Idler arm:

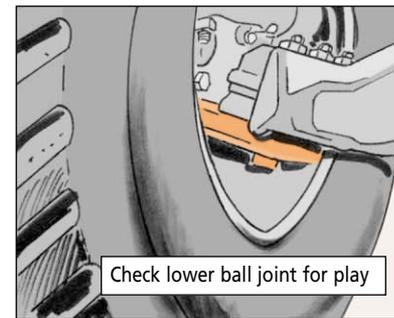
Mechanics, check out Pages 8-54 through 8-57 of TM 9-2320-280-20-2 (Jan 96) and Pages 8-46 through 8-49 of TM 9-2320-387-24-1 for the procedures to measure play in the idler arm. No more than 1/4-in play is allowed.



Check idler arm for play

• Lower ball joint:

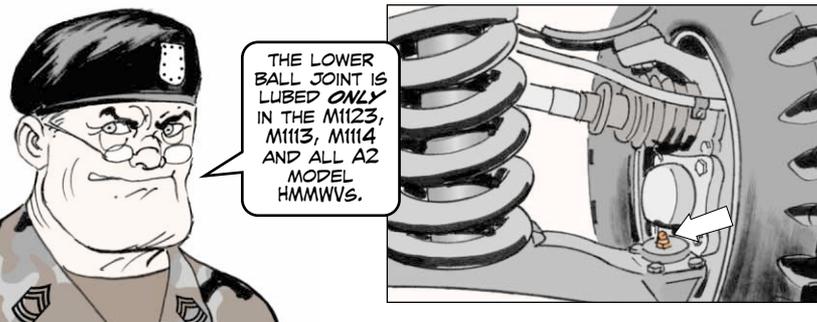
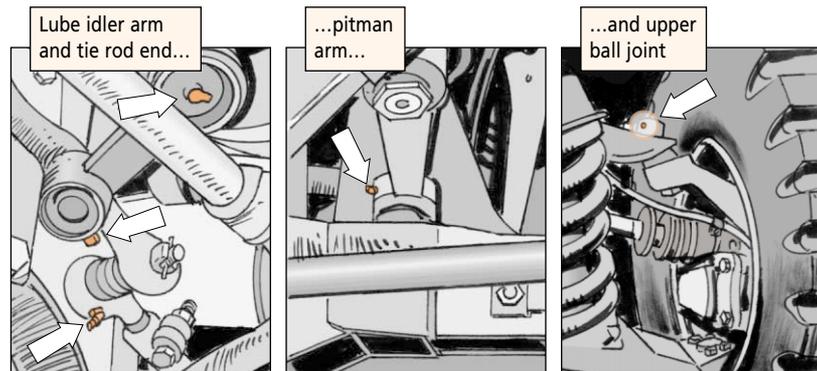
Mechanics, Page 6-60 of the 280-20-2 TM and Page 6-54 of the 387-24-1 TM have the procedures for measuring play in the lower ball joint. No more than 1/8-in play is allowed.



Check lower ball joint for play

● **Lubing:**

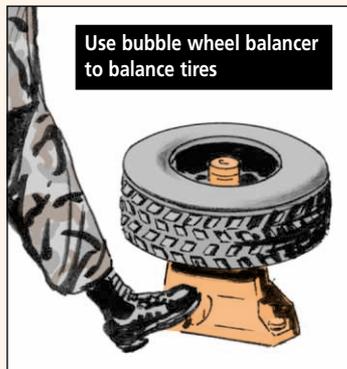
Operators, use GAA on the idler arm, tie rod ends, pitman arm, radius rod and upper ball joint as spelled out in the lubrication instructions in Appendix G of TM 9-2320-280-10 and TM 9-2320-387-10.



Wheel Balancing

Generally, the steering wheel will shake when the front wheels aren't properly balanced. If the shaking gets serious enough, the wheel studs can loosen or break off, leaving you with no control over the vehicle as you move down the road.

To put an end to shaky driving, your mechanic needs to start with the bubble wheel balancer, NSN 4910-01-093-0167, from the No. 1 or No. 2 Common shop sets. Tire balancing procedures are found on Pages 8-30 and 8-31 of the -280-20-2 TM and Pages 8-22 and 8-23 of the -387-24-1 TM.



Wheel weights for balancing are listed in Fig 167 of TM 9-2320-280-24P-1. Here they are along with a few extra weights...

Size (Ounces)	NSN	Qty
1/2	2530-01-261-6844	50
1/2	2530-01-235-8688	360
1	2530-00-848-4581	1
1 1/2	6670-01-261-6845	50
2	6670-01-261-6846	50
2 1/2	6670-01-262-8646	50
3	6670-01-261-8011	50
3 1/2	6670-01-261-8012	25
4	6670-01-261-8013	1
5	6670-01-262-8647	25
5 1/2	6670-01-263-2268	25
6	2530-00-050-2064	1
6	2530-01-028-1307*	25
8	2530-01-027-6943*	1
16	2530-00-709-5922	1

*Order on a DD Form 1348-6 and put "NSN not on AMDF" in the REMARKS block.



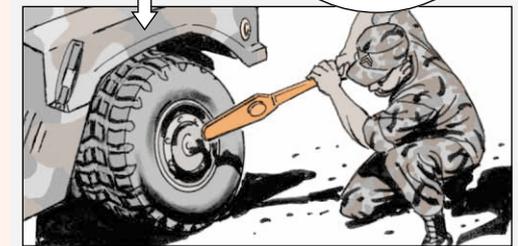
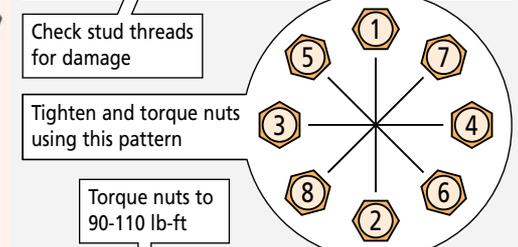
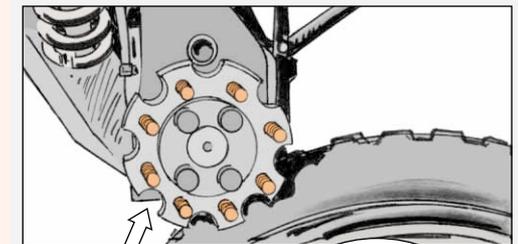
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Tire Studs and Nuts

Loose stud nuts can also lead to serious shaking problems. So make sure studs and nuts are properly cleaned, inspected and tightened. Here's how:

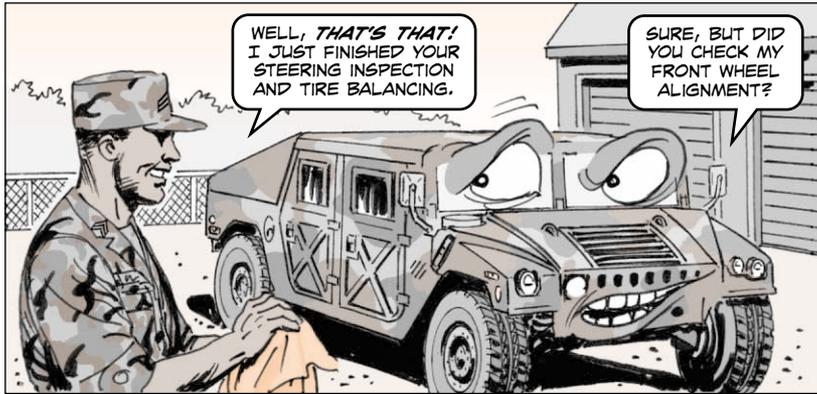
- Use a wire brush to break loose dirt from studs. Clean the studs with soap and water and allow them to dry completely.
- Look for studs that are cracked, broken, rusted, pitted, bent, or loose. Pay special attention to the threads for damage. Replace damaged studs.
- Stud nuts have to be tightened gradually and in the proper sequence to avoid bent and broken studs. You'll find the right tightening order on Page 8-7 of the -280-20-2 and -387-24-1 TMs.

Tighten all the nuts by hand first, then torque the nuts to 90-110 lb-ft following the proper pattern.



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Front Wheel Toe-in Check and Alignment



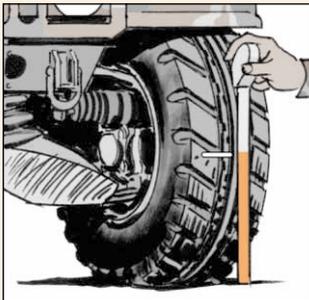
All the steering inspections and tire balancing in the world won't do much good unless you mechanics make sure the front wheels are properly aligned.

That means performing a front wheel toe-in check during every scheduled semi-annual or 3,000 mile maintenance interval. 'Course, if abnormal vehicle handling or control is reported earlier, you'll need to do it then, too.

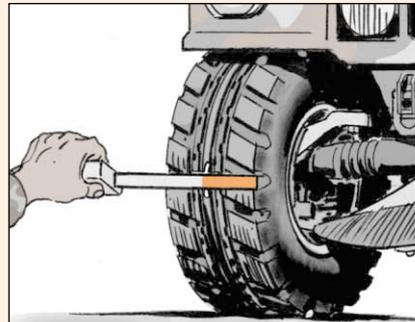


IF YOU'RE CHECKING AN M1037 OR M1042 MODEL HMMWV, MAKE SURE THE S250 SHELTER IS INSTALLED **BEFORE** PERFORMING THE TOE-IN CHECK. THEN FOLLOW THESE STEPS...

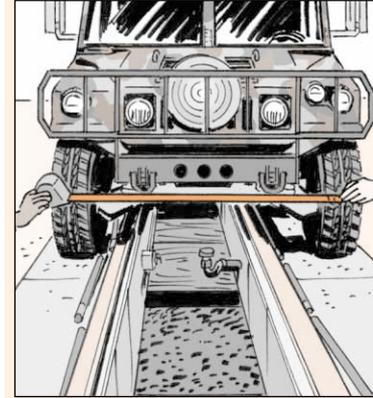
1. Place the vehicle on level ground with the wheels set straight ahead.
2. On the front side of a front tire, mark a line on the center tread 16 1/2 inches up from the ground.



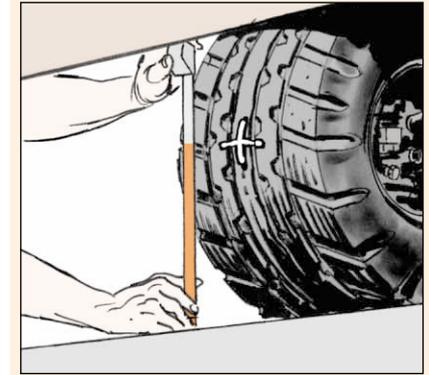
3. Mark a second line at the center point of the tire's width. At that point, both lines should form a +.
4. Repeat steps 2 and 3 for the other front tire.



5. Measure the distance between the center points of the two + marks and write it down.



6. Rotate the tires by moving the vehicle straight forward until the center points of the two + marks are 16 1/2 inches above the ground at the rear side of the tires.



7. Measure the distance between the center points of the two + marks again and write it down.

NOTE: If the front-side tire measurement is larger than the back-side tire measurement, the tires have toe-out.

8. Subtract the front-side tire measurement from the rear-side tire measurement. Then compare the result with the specifications in the following chart:

Vehicle Payload	Bias Tire		Radial Tire			
	Models: M998, M1025, M1035, M1038, M1043, M1044	Models: M966, M996, M937, M1036, M1037, M1042, M1045, M1046	Models: M996, M996A1, M1025, M1025A1, M1025A2, M1026, M1026A1, M1035, M1035A1, M1035A2, M1036, M1038, M1038A1, M1043, M1043A1, M1043A2, M1044, M1044A1, M1045, M1045A1, M1045A2, M1046, M1046A1	Models: M997, M997A1, M997A2, M1037, M1042	Models: M1097, M1097A1, M1097A2	Models: M1113, M1114
Vehicle at curb weight	7/16 ± 1/8 in.	5/16 ± 1/8 in.	1/4 ± 1/16 in.	5/16 ± 1/16 in.	5/16 ± 1/16 in.	1/4 ± 1/4 in.
Vehicle at normal operating weight (optional)	1/4 ± 1/8 in.	1/4 ± 1/8 in.	1/16 ± 1/16 in.	1/16 ± 1/16 in.	1/16 ± 1/16 in.	1/4 ± 1/4 in.



IF THE RESULT MEETS THE SPECIFICATION LISTED IN THE CHART ON THE PREVIOUS PAGE, YOUR VEHICLE IS IN ALIGNMENT.

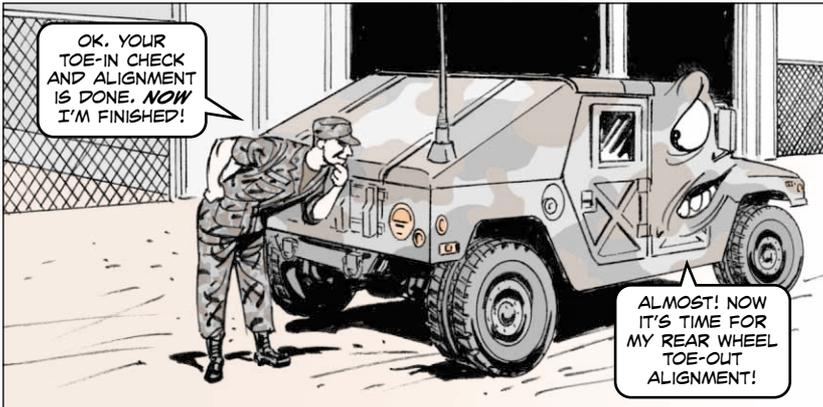
IF *NOT*, YOU'LL NEED TO ADJUST IT LIKE SO...

1. Loosen the two locknuts from the clamps on each adjusting sleeve.
2. Turn each adjusting sleeve an equal amount, but in opposite directions. For example, if the difference in measurement was 1 inch, you should turn each adjusting sleeve 1/2 inch. Remember, both tie rods *must* be the same length ($\pm 1/8$ inch) after the adjustments have been made or the toe-in is out of adjustment.
3. Roll the vehicle backward and then forward to the original position.
4. Repeat the toe-in check and alignment until the measurement falls within the specifications outlined in the chart.
5. Retighten the two clamp locknuts to 30 lb-ft.



Loosen lock nuts and turn adjusting sleeve

Rear Wheel Toe-out Alignment



OK. YOUR TOE-IN CHECK AND ALIGNMENT IS DONE. NOW I'M FINISHED!

ALMOST! NOW IT'S TIME FOR MY REAR WHEEL TOE-OUT ALIGNMENT!

1. Place the vehicle on level ground with the wheels set straight ahead.
2. On the forward side of a rear tire, mark a line on the center tread 16 1/2 inches up from the ground.
3. Mark a second line at the center point of the tire's width. At that point, both lines should form a +.
4. Repeat steps 2 and 3 for the other rear tire.
5. Measure the distance between the center point of the two + marks and write it down.
6. Rotate the tires by moving the vehicle forward until the center points of the two + marks are 16 1/2 inches above the ground at the rear of the vehicle.

7. Measure the distance between the center point of the two + marks and write it down.

NOTE: If the rear-side tire measurement is larger than the front-side tire measurement, the tires have toe-in.

8. Subtract the rear-side tire measurement from the front-side tire measurement. Then compare the result with the specifications in the following chart:

Vehicle Payload	Bias Tire		Radial Tire			
	Models: M998, M1025, M1026, M1035, M1038, M1043, M1044	Models: M966, M996, M997, M1036, M1037, M1042, M1045, M1046	Models: M996, M996A1, M998, M998A1, M1025, M1025A1, M1025A2, M1026, M1026A1, M1035, M1035A1, M1035A2, M1036, M1038, M1038A1, M1043, M1043A1, M1043A2, M1044, M1044A1, M1045, M1045A1, M1045A2, M1046, M1046A1	Models: M997, M997A1, M997A2, M1037, M1042	Models: M1097, M1097A1, M1097A2	Models: M1113, M1114
Vehicle at curb weight	7/16 ± 1/8 in.	5/16 ± 1/8 in.	1/2 ± 1/16 in.	1/2 ± 1/16 in.	1/2 ± 1/16 in.	1/2 ± 1/4 in.
Vehicle at normal operating weight (optional)	1/4 ± 1/8 in.	1/4 ± 1/8 in.	1/16 ± 1/16 in.	1/16 ± 1/16 in.	1/16 ± 1/16 in.	1/2 ± 1/4 in.



IF THE RESULT MEETS THE SPECIFICATION LISTED IN THE CHART, YOUR VEHICLE IS IN ALIGNMENT.

IF *NOT*, YOU'LL NEED TO ADJUST IT LIKE SO...

1. Loosen the two locknuts from the clamps on each adjusting sleeve.
2. Turn each adjusting sleeve an equal amount, but in opposite directions. For example, if the difference in measurement was 1 inch, you should turn each adjusting sleeve 1/2 inch.
3. Roll the vehicle backward and then forward to the original position.
4. Repeat the toe-out check and alignment procedures until the measurement falls within the specifications outlined in the chart.
5. Retighten the two clamp locknuts to 30 lb-ft.