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Countries: ISIS, Bus ISIS, Fleet!SIS, IsSIR

Availability: FRONT AXLE

Major System: English

Current Language: Français, Español,

Other Languages: 8757

Document ID: IK0200013

Revision: 17

Created: 9/12/2011

Last Modified: 2/21/2024

Author: David Horner

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Coding Information

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Title: Suggested alignment target values when performing a vehicle axle alignment

Applies To: Models Except: LT, RH, MV, HV, CE Bus

CHANGE LOG

Please refer to the change log text box below for recent changes to this article:

03/04/2021 - Excluded LT, RH, MV, HV, CE Bus from this article
02/21/2024 - Added CV
01/21/2020 - Correct Hyperlink
08/22/2019 - Update author for feedback
05/20/2019 - Updated formatting, added part numbers, links to manuals and added note about radar alignments and SAS cal

DESCRIPTION

A proper vehicle alignment will maximize tire life and driving comfort. However, the alignment should not drift over time under normal operating conditions. If there is a repair performed on the suspension or an accident the alignment should be checked and adjusted as needed.

NOTE: This article does not apply to LT, RH, MV, HV, CE Bus, or newer product lines. Information for those vehicle platforms resides in the Diagnostic & Service Manuals for each respective model.

SYMPTOMS

Some indications of the need for an alignment may include a drift or pull while driving or abnormal tire wear.

Ensure the ride height is set correctly on air suspensions before checking or adjusting any alignment measurements. Please refer to the appropriate service manual for setting the ride height

CV

- CV 4x4 caster and camber can be adjusted- [HERE](#)

Front	Spec.	Tolerance +/-
Left Camber	.42	.27
Right Camber	.42	.27
Cross Camber	.26	.26
Left Caster	4.25	.75
Right Caster	4.75	.75
Cross Caster (RH Lead)	.75	.25
Toe	.06	.03
Rear	Spec.	Tolerance +/-
Thrust Angle (Deg.)	0	.20

- Camber value can also be read as +.15-+.68 deg.

SERVICE PARTS INFORMATION

Description	Part Number	Required	Size
0.5 Degree Caster Shim	89500HA	As needed	2.75 x 5.75
1.0 Degree Caster Shim	520339C2	As needed	2.75 x 5.75
2.0 Degree Caster Shim	92825HA	As needed	2.75 x 5.75
3.0 Degree Caster Shim	63656R2	As needed	2.75 x 5.75
0.5 Degree Caster Shim	471170C1	As needed	3.75 x 6.8
1.0 Degree Caster Shim	692453R1	As needed	3.75 x 6.8
1.3 Degree Caster Shim	692454R1	As needed	3.75 x 6.8
2.0 Degree Caster Shim	692455R1	As needed	3.75 x 6.8
2.75 Degree Caster Shim	1654036C1	As needed	3.75 x 6.9
3.0 Degree Caster Shim	2015313C1	As needed	3.75 x 6.8
3.5 Degree Caster Shim	2020883C1	As needed	3.75 x 6.8
4.0 Degree Caster Shim	2015314C1	As needed	3.75 x 6.8
0.010 Inch Rear Axle Shim	1516023C1	As needed	
0.033 Inch Rear Axle Shim	488917C1	As needed	
0.056 Inch Rear Axle Shim	488916C1	As needed	
0.119 Inch Rear Axle Shim	590752C1	As needed	

RESOLUTION



Park vehicle on a hard, flat surface, turn the engine off, set the parking brake, and block the wheels to prevent the vehicle from moving in either direction. Failure to do so may result in property damage, personal injury, and/or death.



If the vehicle must be raised, do not work under the vehicle supported only by jacks. Jacks can slip or fall over, potentially resulting in property damage, personal injury, and/or death.



Always wear safe eye protection when performing vehicle maintenance. Failure to do so may result in personal injury and / or death.

Refer to [IK0200023 - Navistar Wheel Alignment Policy](#) before performing any alignments to vehicles under warranty.

For front axle alignments please refer to [S02001K Steering General Service Information and Front Wheel Alignment](#) manual.

For rear axle alignments please refer to [S03003 Suspension Alignment](#) manual.

In-Service Specifications:

Steering Axle

	Minimum	Maximum	Unit
Toe in	.00	.18	Degrees
	.00"	.125"	Inches
	0	1/8"	Fractions
	.00	3.19	Millimeter
	.00	3.14	mm/M

Rear Axles

	Minimum	Maximum	Unit
Thrust	-.18	.18	Degrees
	-.250"	.250"	Inches
	-6.4	6.4	Millimeter
	-3.1	3.1	mm/M

Tram/Scrub	-0.08	.08	Degrees
	-.125	.125	Inches
	-3.2	3.2	Millimeter
	-1.4	1.4	mm/M

NOTES:

Due to variation in equipment and measuring techniques do NOT make any adjustments if the initial readings are inside the "In Service Specifications".

NOTES:

Negative degree tolerance denotes the left tire behind the right (Josam alignment equipment inverse).

NOTES:

For caster and camber specifications refer to [S02001K](#)

If out of "In Service Specifications" re-adjust to below target values:

Steering Axle

	Minimum	Maximum	Unit
Toe in	0.03	0.09	Degrees
	0.021"	0.063"	Inches
	1/32	1/16	Fractions
	0.54	1.60	Millimeter
	0.54	1.62	mm/M

Rear Axles

	Minimum	Maximum	Unit
Thrust	-0.05	0.05	Degrees
	-0.084"	0.084"	Inches
	-2.13	2.13	Millimeter
	-0.9	0.9	mm/M
Tram/Scrub	-.08	0.00	Degrees
	-.125	0.000	Inches
	-3.2	0.0	Millimeter
	-1.4	0.0	mm/M

NOTES:

Negative degree tolerance denotes the left tire behind the right (Josam alignment equipment inverse).

NOTES:

On vehicles equipped with forward radar. The radar alignment procedure should be followed anytime the rear axles are adjusted. (Refer to the radar manufacturer for this procedure.)

NOTES:

On vehicles equipped with ESC. The steering wheel angle sensor calibration should be performed anytime the toe is adjusted. (Refer to the ABS manufacturer for this procedure.)

NOTES:

For caster and camber specifications refer to [S02001K](#)

WARRANTY INFORMATION

Warranty Claim Coding:

Refer to the [Warranty Coding Manual](#) for Group and Noun Codes.

Standard Repair Time(s):

Refer to the [SRT Manual](#) for Repair Times

OTHER RESOURCES

MaxxPower Front Air Suspension: [S03015 Service Manual](#) ([PDF Version](#))

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