

# Volvo Group Wheel Alignment



# What happens when the wheels are misaligned?



- ✓ ***Bad steering capability and driving discomfort***
- ✓ ***Mechanical wear***
- ✓ ***Increased air resistance***
- ✓ ***Increased tracking sensitivity***
- ✓ ***Increased fuel consumption***
- ✓ ***Traffic hazardous vehicle***
- ✓ ***Increased tire wear***

# Bad wheel alignment will ruin your customer's economy!

A properly aligned vehicle can reduce fuel consumption costs by up to 5%. Bad wheel alignment also increases tire wear. A wheel alignment diagnosis gives you the opportunity to plan ahead. With the help of the wheel angle measurements from a diagnosis, necessary adjustments can be made and you can avoid unnecessarily high fuel consumption and tire wear costs.

## CALCULATION EXAMPLE 1

Fuel cost reduction: 3%  
Mileage/year: 200 000 km  
Fuel price: 1.1 EUR/litre  
Fuel consumption: 4 litres/10 km  
Total cost reduction/year:  
 $0.03 \times 200\,000 \times 1.1 \times 0.4 = \mathbf{2\,640\,EUR}$

## CALCULATION EXAMPLE 2

Premature tire change, 2 tires/year  
Tire cost: 350 EUR/tire  
Cost reduction/year:  
 $350 \times 2 = \mathbf{700\,EUR}$

Estimated  
fuel/tire cost  
reduction per year:  
**3 340 EUR\***

\* Cost for wheel alignment not included in the calculation

Source, fuel cost reduction:

Survey performed during 2013 on 500 vehicles from 12 different companies by the research institute TNO, Holland





# Volvo Group Wheel Alignment

Powered by  **JOSAM®**

## Heavy vehicle alignment with camera technology

This compact wheel alignment system enables truck and bus workshops, as well as tire service centers, to offer wheel alignment services quickly and accurately.

With our patented camera technology with the chassis center line of the vehicle as reference, the following wheel angles can be measured:

- toe, steering box position, camber, out of square, parallelism and axle offset
- caster, KPI, Toe Out On Turns and max turn

Enabled by the unique rolling method, toe and camber measurements may be taken while the vehicle is in driving position. No lifting of the axles with run-out compensation is required, alternatively the system can also be operated with standard run-out procedure.

Wireless technology is used for transmitting data between measuring units and the computer. The computer software guides the user through the measuring process and prints out measurement reports of values, before and after alignment.



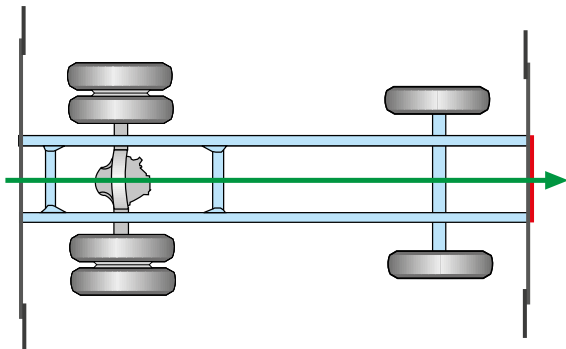
Wireless communication between the camera and the PC software.



## Why wheel alignment?

By measuring and adjusting wheel angles on a vehicle, fuel costs and tire wear are reduced. At the same time comfort, security and running characteristics are improved. This leads to a better economy and environment for everyone. It also means that the vehicle travels on the highway without taking up as much space as an incorrectly aligned vehicle would.

## Measurement principle and scalability



The Volvo Group wheel alignment system uses the centerline principle to determine the position of axes and individual wheels in relation to the centerline of the vehicle.

The system is designed to measure wheel angles on commercial vehicles such as trucks, trailers, buses and light commercial vehicles.

## Measuring caster, KPI and turnangles

This measurement is based on a single continuous movement of the wheels, from a straight ahead position to maximum left, via maximum right and back to the starting position.

During this procedure the built-in gyroscope and inclinometer are constantly transmitting data to the computer, which calculates the caster, KPI and turn angles in different wheel positions. The entire process can be carried out in a matter of minutes.





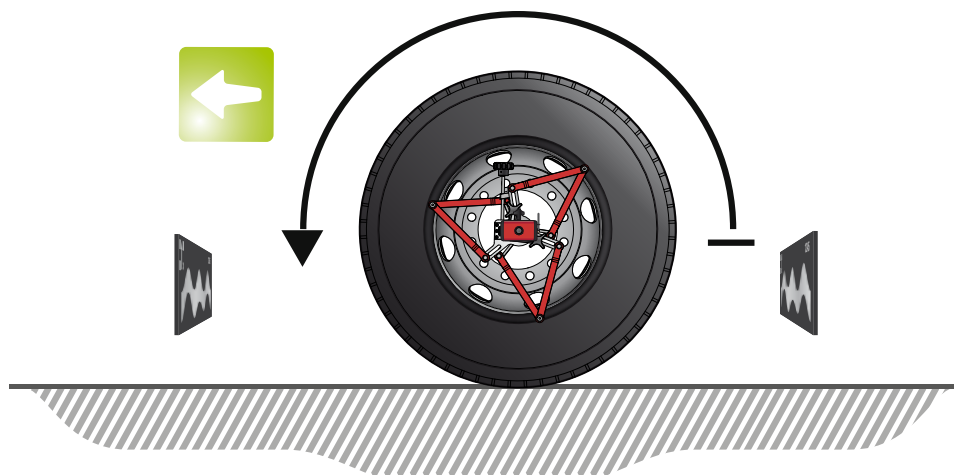
## The rolling method

The measuring is carried out as the vehicle stands on the floor, followed by rolling the vehicle so that the wheels turn half a turn and the cameras automatically take the readings.

This method allows the camera system to measure before, during and after rolling, without the need for any run-out compensation. Toe and camber values will be displayed automatically and adjustments can be made if needed.

The axle offset value together with out of square is also presented as a result of the measurement.

By adding two more wheel adapters two axles can be rolled and measured simultaneously.



*Representative:*

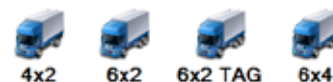
*Manufacturer:*

**CAR-O-LINER®**  **JOSAM®**

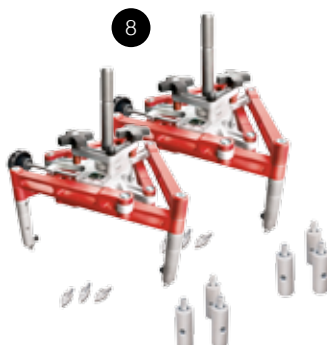
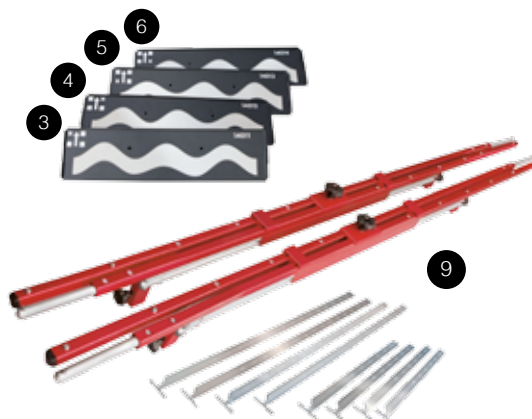
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## VOLVO BASIC K/72250

### Basic kit for camera electronic wheel alignment - PC



#	Article #	Order #	Pcs.	Description
1	AM268 A	13762	2	Non friction plate
2	TC-361	70009	1	USB cable
3	TC-233-10	70032	1	Reflective Target FL
4	TC-233-20	70033	1	Reflective Target FR
5	TC-233-30	70034	1	Reflective Target RL
6	TC-233-40	70035	1	Reflective Target RR
7	TC-395	70040	1	Charging cradle
8	CA1000	72000	2	Wheel adapter spider 14"-24"
9	CA1004	72004	2	Compact frame gauge with hangers
10	CA1009	72009	1	Wireless server
11	CA1106	72106	1	Software for Toe, Camber, paralellism, Out-of-square, Offset and Turning angles
12	CA1120	72120	1	Small cabinet for equipment
13	CA VOLVO	72251	2	Camera sensor VOLVO GROUP



PC-hardware is not included.  
For the latest PC-requirements  
please contact your representative.



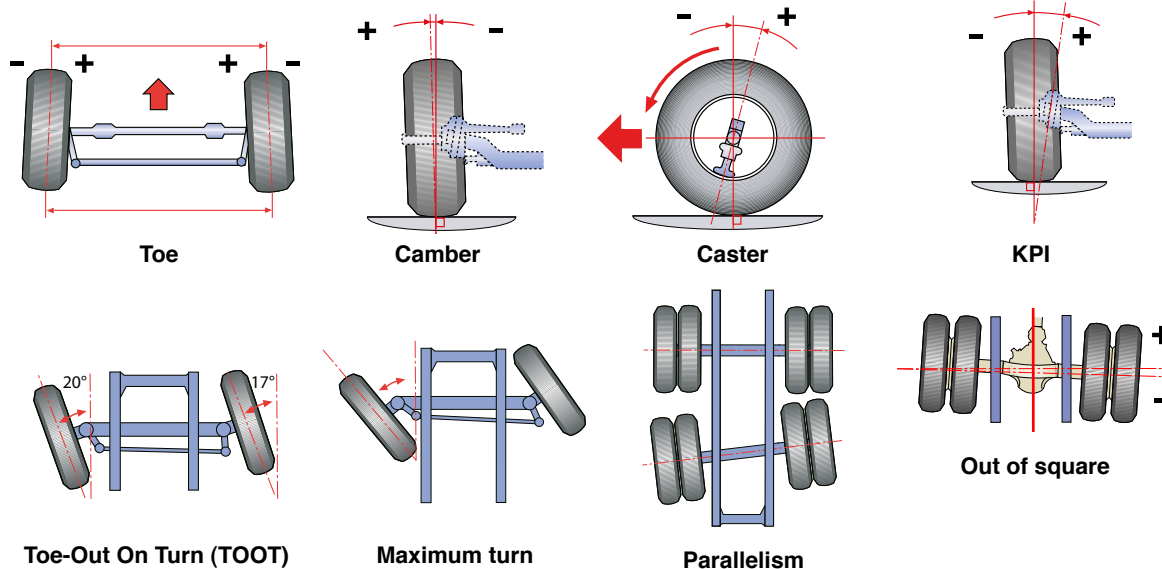
## Technical information

Description	Specification
<b>Measuring range</b>	
Toe	±40 mm/m
Camber	-6°
Caster	±20°
KPI	±20°
Max. turn	65°
<b>Measuring accuracy</b>	
Toe	±0,2 mm/m*
Camber	±3 min*
Operational time	14 h**
Charging time	3 h
Computer requirements	See latest updated information on <a href="http://www.josam.se">www.josam.se</a>

\* For each camera

\*\* On fully charged batteries

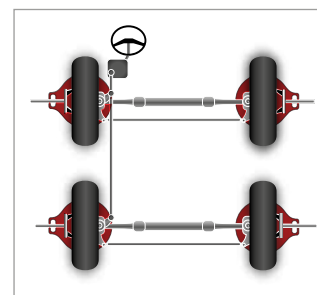
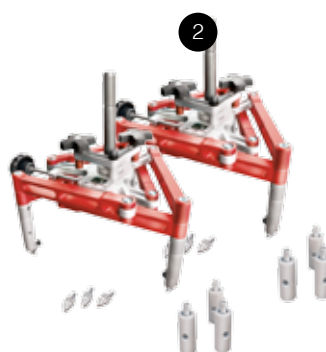
## The VOLVO BASIC K will measure these wheel angles:



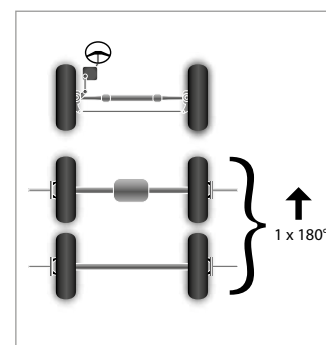
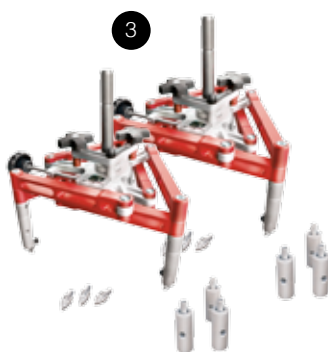


**CA TWIN K/72102****Additional kit for twin steer**

#	Article #	Order #	Pcs.	EN
1	AM268 A	13762	2	Non friction plate
2	CA1000	72000	2	Wheel adapter spider 14"-24"

**CA MULTI K/72108****Additional kit for multi axle roll**

#	Article #	Order #	Pcs.	EN	SE	DE
1	TC-416	70044	4	Reference blocks	Referensblock	Referenzblock
2	16776	70114	1	Sticker kit for multi axle roll	Dekalsats för fleraxelrullning	Aufklebersatz für Multiachse-Roll
3	CA1000	72000	2	Wheel adapter spider 14"-24"	Hjuladapter spider 14"-24"	Radhalter Spider 14"-24"
4	CA1107	72107	1	Software add-on for multi axle roll	Mjukvara för fleraxelrullning	Software für Multiachse-Roll



When performing a diagnose on a vehicle with more than two axles, two wheel adapters and two reference blocks per axle are necessary.

**CA TRAILER K/72104****Additional kit for trailer and semi-trailer**

#	Article #	Order #	Pcs.	EN	SE	DE
1	JT 290 K	11865	1	Adapterset for bumper/trailer	Adaptersats stötfångar/trailer	Adaptersatz Stossstange/Anhängers
2	JT5-8	12046	2	Hanger 870 mm	Upphångningsstång 870 mm	Aufhänge-Stange 870 mm

**Additional adapter for Volvo FH-FM front**

#	Article #	Order #	Pcs.	EN
1	AM1780	10439	1	Adapter for Volvo FM/FH



2 pcs of AM1780 are needed.

**Additional adapter for Renault T-High/T/C and Volvo FH/FHR/FM/FMX**

#	Article #	Order #	Pcs.	EN
1	AM1854	15167	1	Adapter for Renault Trucks T-High/T/C cab 2.5 m and Volvo Trucks FH/FHR/FM/FMX

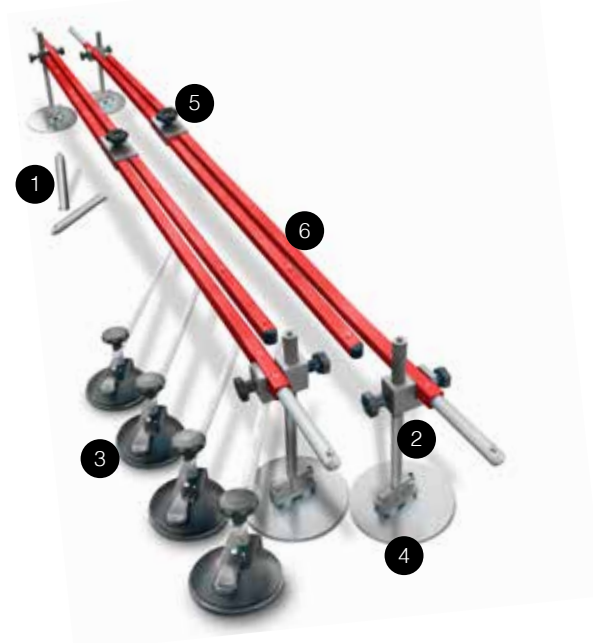


2 pcs of AM1854 are needed.

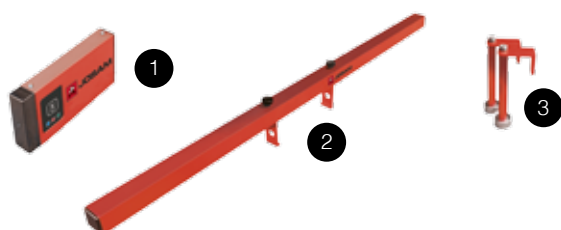


**CA BUS K/72244****Additional kit for buses**

#	Article #	Order #	Pcs.	EN
1	12278	70473	2	Round bar
2	15439	70693	4	Magnet Bracket
3	15490	70706	4	Vacuum bracket
4	16456	70844	4	Steel Plate
5	16506	70849	2	Lock
6	CA1026	72026	4	Extender Frame Gauge

**CA ANGLE K/72008****Additional kit for inclinometer**

#	Article #	Order #	Pcs.	EN
1	CA1007	72007	1	Inclinometer unit
2	CA1065	72065	1	Inclinometer bar
3	CA1067	72067	2	Medium magnet hanger for inclinometer kit



An uneven floor will influence measurements of angles like camber, caster and KPI. By use of the inclinometer kit the cam-aligner system will automatically compensate for all these effects.



## CA IFS/72245

### Additional for Individual Front Suspension (IFS)

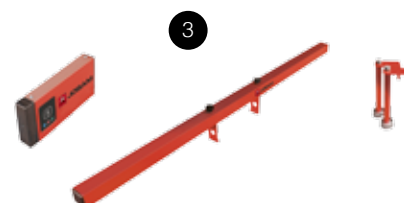
#	Article #	Order #	Pcs.	EN
1	JT295 A	14478	2	Sliding low friction plates
2	12860	70546	2	Wooden plate for height compensation
3	CA ANGLE K	72008	1	Additional kit for inclinometer



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2



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## CA ALU K/72103

### Additional kit for aluminium rims

#	Article #	Order #	Pcs.	EN	SE	DE
1	CA1006	72006	2	Magnet wheel adapter	Magnethjuladapter	Magnetradhalter



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