

**Hako system maintenance:**

**Hako-Citymaster 1650 (1491.15)**

Die Ordnungsgemäße Ausführung der Hako- System- Wartung stellt die Verfügbarkeit der Maschine für den Kunden sicher und dient dernachhaltigen Werterhaltung des Hako- Produktes. Der Nachweis der ordnungsgemäßen Durchführung ist die Vorraussetzung für den Erhalt der Gewährleistungs- und Garantieansprüche gegenüber dem Hersteller.

Proper execution of Hako system maintenance ensures machine availability for the customer and serves to maintain the retention value of the Hako product. Proof that the maintenance has been properly carried out is a prerequisite for the receipt of warranty and guarantee claims made against the manufacturer.

La maintenace correcte de Hako system maintenance garantit la disposition de machine pour l`acheteur et sert une valorisation de longue durée de produit Hako. La preuve de la maintenance correcte est la condition pour les pretentions de garantie et des droit à garantie envers le vendeur.

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To be carried out by an authorised Hako service centre. **Pages 55 - 59.**

Hako system maintenance II extended, **4000** operating hours (8000 OH).

To be carried out by an authorised Hako service centre. **Pages 60 - 64.**

<b>Overview of maintenance parts Hako-Citymaster 1650</b>		
<b>Hako system maintenance A1 – Inspection after 50 operating hours (once)</b>		
<i>Quantity</i>	<i>SP No.</i>	<i>Designation</i>
1	01500200	Engine oil filter
1	01500310	Fuel filter (until WHW14911531403500)
1	01509030	Fuel filter (from WHW14911531403500)
1	01493180	Hydraulic oil filter
1	01501190	Oil drain screw
1	01501200	Seal of oil drain screw
<i>Litres</i>	<i>Operating media</i>	
approx. 7.2	Engine oil	<b>Fuchs Titan CARGO 5W-40</b> , specification ACEA E9, API CK-4, or similar.
<b>Hako system maintenance I – every 500 operating hours or annually</b>		
<i>Quantity</i>	<i>SP No.</i>	<i>Designation</i>
1	01500200	Engine oil filter
1	01501190	Oil drain screw
1	01501200	Seal of oil drain screw
1	01500530	Oil separator crankcase venting
1	01500420	Fuel pre-filter (until WHW14911531403500)
1	01500310	Fuel filter (until WHW14911531403500)
1	01508990	Fuel pre-filter (from WHW14911531403500)
1	01509030	Fuel filter (from WHW14911531403500)
1	01500640	Air filter insert
2	01472250	Roller (Suction Unit). If required!
1	01470830	Rubber apron (Suction Unit). If required!
1	01470860	Rubber apron (Suction Unit). If required!
1	01470890	Circulation water serrated (Suction Unit). If required!
1	01231950	Hose, cpl. (Circulating water system) If required!
<i>Litres</i>	<i>Operating media</i>	
approx. 7.2	Engine oil	<b>Fuchs Titan CARGO 5W-40</b> , specification ACEA E9, API CK-4, or similar.
<b>Hako system maintenance II – every 1000 operating hours</b>		
<b>Please note: after 5000 operating hours, also carry out system maintenance I extended</b>		
<i>Quantity</i>	<i>SP No.</i>	<i>Designation</i>
1	01500200	Engine oil filter
1	01501190	Oil drain screw
1	01501200	Seal of oil drain screw
1	01500530	Oil separator crankcase venting
1	01500420	Fuel pre-filter (until WHW14911531403500)
1	01500310	Fuel filter (until WHW14911531403500)
1	01508990	Fuel pre-filter (from WHW14911531403500)
1	01509030	Fuel filter (from WHW14911531403500)
1	01500640	Air filter insert
1	01500750	Safety cartridge
1	01493180	Hydraulic oil filter
1	01497120	Hydraulic oil tank venting filter
1	00009720	Oil check kit (sample bottle for sending in for oil check)
1	01065540	Cab air filter for CM 1650
2	01472250	Roller (Suction Unit). If required!
1	01470830	Rubber apron (Suction Unit). If required!
1	01470860	Rubber apron (Suction Unit). If required!
1	01470890	Circulation water serrated (Suction Unit). If required!
1	01231950	Hose, cpl. (Circulating water system) If required!

<b>Hako system maintenance II – every 1000 operating hours</b>		
<b>Please note: after 5000 operating hours, also carry out system maintenance I extended</b>		
<i>Litres</i>	<i>Operating media</i>	
approx. 7.2	Engine oil	<b>Fuchs Titan CARGO 5W-40</b> , specification ACEA E9, API CK-4, or similar.
0.5	Brake fluid	DOT 4, e.g. FTE Type 9368 Check proportion of water in the brake fluid. If the proportion of water is greater than 3 % the brake fluid must be replaced. Check brake fluid oil level and top up if necessary. <b>Or replace brake fluid every 2 years!</b>
<b>Hako system maintenance I – after 1500 operating hours</b>		
<i>Quantity</i>	<i>SP No.</i>	<i>Designation</i>
1	01500200	Engine oil filter
1	01501190	Oil drain screw
1	01501200	Seal of oil drain screw
1	01500530	Oil separator crankcase venting
1	01500420	Fuel pre-filter (until WHW14911531403500)
1	01500310	Fuel filter (until WHW14911531403500)
1	01508990	Fuel pre-filter (from WHW14911531403500)
1	01509030	Fuel filter (from WHW14911531403500)
1	01500640	Air filter insert
2	01493820	Bearing block (2-broom- system)
4	01060940	Bushing (2-broom- system)
4	01060950	Bushing (2-broom- system)
2	01493640	Comb (2-broom- system)
2	01472250	Roller (Suction Unit). If required!
1	01470830	Rubber apron (Suction Unit). If required!
1	01470860	Rubber apron (Suction Unit). If required!
1	01470890	Circulation water serrated (Suction Unit). If required!
1	01231950	Hose, cpl. (Circulating water system) If required!
<i>Litres</i>	<i>Operating media</i>	
approx. 7.2	Engine oil	<b>Fuchs Titan CARGO 5W-40</b> , specification ACEA E9, API CK-4, or similar.

<b>Hako system maintenance II extended – after 2000 operating hours</b>		
<i>Quantity</i>	<i>SP No.</i>	<i>Designation</i>
1	01500200	Engine oil filter
1	01501190	Oil drain screw
1	01501200	Seal of oil drain screw
1	01500530	Oil separator crankcase venting
1	01500420	Fuel pre-filter (until WHW14911531403500)
1	01500310	Fuel filter (until WHW14911531403500)
1	01508990	Fuel pre-filter (from WHW14911531403500)
1	01509030	Fuel filter (from WHW14911531403500)
1	01500640	Air filter insert
1	01500750	Safety cartridge
1	01493180	Hydraulic oil filter
1	01497120	Hydraulic oil tank venting filter
1	00009720	Oil check kit (sample bottle for sending in for oil check)
1	01065540	Cab air filter for CM 1600
1	01167520	Bowden cable coarse material flap at the suction mouth
1	01220790	V-belt suction fan (CASAPPA Hydraulic-motor)
1	48601960001	V-belt suction fan (DANA Hydraulic-motor)
1	01493620	Hydraulic hose suction fan
1	01493670	Hydraulic hose suction fan
2	01490530	Rubber- Metal- Buffer front axle
2	01472250	Roller (Suction Unit). If required!
1	01470830	Rubber apron (Suction Unit). If required!
1	01470860	Rubber apron (Suction Unit). If required!
1	01470890	Circulation water serrated (Suction Unit). If required!
1	01231950	Hose, cpl. (Circulating water system) If required!
<i>Litres</i>	<i>Operating media</i>	
approx. 7.2	Engine oil	<b>Fuchs Titan CARGO 5W-40</b> , specification ACEA E9, API CK-4, or similar.
0.5	Brake fluid	DOT 4, e.g. FTE Type 9368 Check proportion of water in the brake fluid. If the proportion of water is greater than 3 % the brake fluid must be replaced. Check brake fluid oil level and top up if necessary. <b>Or replace brake fluid every 2 years!</b>

**Hako system maintenance I extended – after 2500 operating hours**

**Please note: after 5000 operating hours carry out additional system maintenance II**

<i>Quantity</i>	<i>SP No.</i>	<i>Designation</i>
1	01500200	Engine oil filter
1	01501190	Oil drain screw
1	01501200	Seal of oil drain screw
1	01501230	Poly V-belt
1	01501210	Tensioning element
1	01503800	Idler pulley
1	01500530	Oil separator crankcase venting
1	01500420	Fuel pre-filter (until WHW14911531403500)
1	01500310	Fuel filter (until WHW14911531403500)
1	01508990	Fuel pre-filter (from WHW14911531403500)
1	01509030	Fuel filter (from WHW14911531403500)
1	01500640	Air filter insert
2	01472250	Roller (Suction Unit). If required!
1	01470830	Rubber apron (Suction Unit). If required!
1	01470860	Rubber apron (Suction Unit). If required!
1	01470890	Circulation water serrated (Suction Unit). If required!
1	01231950	Hose, cpl. (Circulating water system) If required!
<i>Litres</i>	<i>Operating media</i>	
approx. 7.2	Engine oil	<b>Fuchs Titan CARGO 5W-40</b> , specification ACEA E9, API CK-4, or similar.

**Hako system maintenance II extended – after 3000 operating hours**

<i>Quantity</i>	<i>SP No.</i>	<i>Designation</i>
1	01500200	Engine oil filter
1	01501190	Oil drain screw
1	01501200	Seal of oil drain screw
1	01500530	Oil separator crankcase venting
1	01500420	Fuel pre-filter (until WHW14911531403500)
1	01500310	Fuel filter (until WHW14911531403500)
1	01508990	Fuel pre-filter (from WHW14911531403500)
1	01509030	Fuel filter (from WHW14911531403500)
1	01500640	Air filter insert
1	01500750	Safety cartridge
1	01493180	Hydraulic oil filter
1	01497120	Hydraulic oil tank venting filter
1	01065540	Cab air filter for CM 1650
2	01472330	Rear bolt of front lift
2	01493820	Bearing block (2-broom- system)
4	01060940	Bushing (2-broom- system)
4	01060950	Bushing (2-broom- system)
2	01493640	Comb (2-broom- system)
2	01472250	Roller (Suction Unit). If required!
1	01470830	Rubber apron (Suction Unit). If required!
1	01470860	Rubber apron (Suction Unit). If required!
1	01470890	Circulation water serrated (Suction Unit). If required!
1	01231950	Hose, cpl. (Circulating water system) If required!

<b>Hako system maintenance II extended – after 3000 operating hours</b>		
<i>Litres</i>	<i>Operating media</i>	
approx. 7.2	Engine oil	<b>Fuchs Titan CARGO 5W-40</b> , specification ACEA E9, API CK-4, or similar.
0.5	Brake fluid	DOT 4, e.g. FTE Type 9368 Check proportion of water in the brake fluid. If the proportion of water is greater than 3 % the brake fluid must be replaced. Check brake fluid oil level and top up if necessary. <b>Or replace brake fluid every 2 years!</b>
58	Hydraulic oil	HVLP 46, e.g. Mobiloil DTE 10 Excel (DIN 51524 Part 3)
approx. 1000 g	Refrigerant air conditioning system	R134a
<b>Hako system maintenance I – after 3500 operating hours</b>		
<i>Quantity</i>	<i>SP No.</i>	<i>Designation</i>
1	01500200	Engine oil filter
1	01501190	Oil drain screw
1	01501200	Seal of oil drain screw
1	01500530	Oil separator crankcase venting
1	01500420	Fuel pre-filter (until WHW14911531403500)
1	01500310	Fuel filter (until WHW14911531403500)
1	01508990	Fuel pre-filter (from WHW14911531403500)
1	01509030	Fuel filter (from WHW14911531403500)
1	01500640	Air filter insert
2	01472250	Roller (Suction Unit). If required!
1	01470830	Rubber apron (Suction Unit). If required!
1	01470860	Rubber apron (Suction Unit). If required!
1	01470890	Circulation water serrated (Suction Unit). If required!
1	01231950	Hose, cpl. (Circulating water system) If required!
<i>Litres</i>	<i>Operating media</i>	
approx. 7.2	Engine oil	<b>Fuchs Titan CARGO 5W-40</b> , specification ACEA E9, API CK-4, or similar.



<b>Hako system maintenance II extended – after 4000 operating hours</b>		
<i>Quantity</i>	<i>SP No.</i>	<i>Designation</i>
1	01500200	Engine oil filter
1	01501190	Oil drain screw
1	01501200	Seal of oil drain screw
1	01500530	Oil separator crankcase venting
1	01500420	Fuel pre-filter (until WHW14911531403500)
1	01500310	Fuel filter (until WHW14911531403500)
1	01508990	Fuel pre-filter (from WHW14911531403500)
1	01509030	Fuel filter (from WHW14911531403500)
1	01500640	Air filter insert
1	01500750	Safety cartridge
1	01493180	Hydraulic oil filter
1	01497120	Hydraulic oil tank venting filter
1	01065540	Cab air filter for CM 1650
1	01167520	Bowden cable coarse material flap at the suction mouth
1	01220790	V-belt suction fan (CASAPPA Hydraulic-motor)
1	48601960001	V-belt suction fan (DANA Hydraulic-motor)
1	01493620	Hydraulic hose suction fan
1	01493670	Hydraulic hose suction fan
1	01501600	Hydraulic hose to bypass valve
1	01501740	Hydraulic hose to bypass valve
2	01490530	Rubber- Metal- Buffer front axle
2	01472250	Roller (Suction Unit). If required!
1	01470830	Rubber apron (Suction Unit). If required!
1	01470860	Rubber apron (Suction Unit). If required!
1	01470890	Circulation water serrated (Suction Unit). If required!
1	01231950	Hose, cpl. (Circulating water system) If required!
<i>Litres</i>	<i>Operating media</i>	
approx. 7.2	Engine oil	<b>Fuchs Titan CARGO 5W-40</b> , specification ACEA E9, API CK-4, or similar.
0.5	Brake fluid	DOT 4, e.g. FTE Type 9368 Check proportion of water in the brake fluid. If the proportion of water is greater than 3 % the brake fluid must be replaced. Check brake fluid oil level and top up if necessary. <b>Or replace brake fluid every 2 years!</b>
12	VW- G13 or similar, e.g. Total Glaself Auto Supra.	Ensure the mixing ratio is <b>at least 40 % coolant additive</b> to 60 % water (distilled water). Never exceed the mixing ratio <b>60 % coolant additive</b> to 40 % water (distilled water). Never drive without coolant additive, even in warmer climates, as the coolant additive increases the boiling point, prevents corrosion in the engine and lubricates the water pump and thermostat. The coolant also prevents the build-up of limescale and air inclusions in the engine.

## Hako system maintenance Citymaster 1650 – times for maintenance

The specified times for maintenance refer to the maintenance and checking work.  
Any repairs will be charged separately!

The specified times for maintenance refer to maintenance tasks carried out in a workshop with a lifting platform.  
For maintenance tasks carried out at the customer's premises without a workshop, longer working hours must be calculated.

Hako system maintenance after 50 operating hours (once) 3.50 hours	
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Hako system maintenance I after 250 operating hours (once) 3.00 hours	
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Hako system maintenance I after 500 operating hours or annually 3.50 hours	
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Hako system maintenance II after 1000 operating hours 4.25 hours	
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Hako system maintenance I after 1500 operating hours 4.75 hours	
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Hako system maintenance II after 2000 operating hours 6.00 hours	
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Hako system maintenance I <b>ext.</b> after 2500 operating hours 4.50 hours	
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Hako system maintenance II after 3000 operating hours with hydraulic oil change 6.75 hours	
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Hako system maintenance I after 3500 operating hours 3.50 hours	
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Hako system maintenance II after 4000 operating hours with engine coolant change 7.25 hours	
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Hako system maintenance I after 4500 operating hours 3.50 hours	
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Hako system maintenance II after 5000 operating hours ( <b>including system maintenance I extended</b> ) 5.25 hours	
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Hako system maintenance I after 5500 operating hours 3.50 hours	
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Hako system maintenance II after 6000 operating hours with hydraulic oil change 7.00 hours	Hako system maintenance I after 6500 operating hours 3.50 hours
Hako system maintenance II after 7000 operating hours 4.25 hours	Hako system maintenance I ext. after 7500 operating hours 4.50 hours
Hako system maintenance II after 8000 operating hours with engine coolant change 6.50 hours	Hako system maintenance I after 8500 operating hours 3.50 hours

<b>Hako-Citymaster 1650 – Hako system maintenance</b>			
Hako system maintenance before delivery <b>A</b> (factory specification). To be carried out by an authorised Hako service centre.			
Mach. No.:			
Operating hrs.:			
Customer:			
<b>Work to be carried out:</b>			<b>✓</b>
<b>Specifications:</b>			
<b>Component:</b>			
Engine	C	Check engine oil level and top up if necessary.	Fuchs Titan CARGO, 5W-40
	C	Check coolant level in expansion tank and top up if necessary.	VW- G13 40 - 60 % coolant additive (antifreeze)
Brake	C	Check service and parking brakes for proper functioning.	
Electrical system	C	Check lighting work functions, horn, etc. for proper functioning.	
	C	<b>Fully charge the battery before delivery!</b>	
Check software status of control units A01, A03, A04 and P01.	P	<b>Check the software status of the working hydraulics, display, engine and drive control unit (hydrostat) and carry out software updates if necessary!</b>	
Wheels	C	Re-tighten wheel nuts.	180 Nm
Tyres	C	Check tyre air pressure.	
	C	215/ 70 R15	6.0 bar
	C	225/ 70 R15 C (standard tyres)	5.0 bar
	C	255/ 65 R16 (all-purpose tyres)	3.0 bar
	C	285/ 65 R16 C	3.2 bar
	C	320/ 55-15 T559 (lawn surface tyres)	2.8 bar
	C	325/ 60 R15	2.5 bar
Vehicle	C	Check for transport damage.	
	C	Equip and refuel.	
	C	Check scope of delivery, including all attachments.	
	C	Operating manual – basic machine	
	C	Operating manuals – attachments	
Test drive – functional check	C	Functional check for all attachments to be delivered according to the order, check completeness of the coding plugs for attachments purchased from other manufacturers.	

<b>Work to be carried out:</b>			✓	<b>Specifications:</b>
Hydraulics	C	Visual inspection of the hydraulic system at the hydraulic cylinders, screw connections and hydraulic pipes for leaks and function test. The visual inspection must be carried out after the test drive.		
Hydraulics	C	Check hydraulic oil level after attaching the work equipment and the function test.		HVLP 46
<b>Component:</b>				
Driver briefing		incl. safety instructions and function of the coding plugs.		
Driver training ** at extra charge		Substitute driver, holiday representation, shift work		

<b>Hako-Citymaster 1650 – Hako system maintenance</b>			
Servicing and maintenance work to be carried out by the operator			
<b>Servicing and maintenance work to be carried out daily</b>			<b>Specifications:</b>
			✓
<b>Component:</b>			
Engine	C	Check engine oil level, top up engine oil if necessary.	Fuchs Titan CARGO, 5W-40
Radiator	C	Check coolant level in expansion tank and radiator antifreeze, top up if necessary. Observe antifreeze for winter operation!	VW- G13 40 - 60 % coolant additive (antifreeze)
Radiator	C	Check combination radiator and radiator grille for contamination, clean with compressed air if necessary.	
Steering	C	Check emergency steering function.	
Brake	C	Check service and parking brakes for proper functioning.	
Electrical system	C	Check lighting work functions, horn, etc. for proper functioning.	
Machine cleaning		Vehicle, dirt hopper, circulating water system, suction mouth, suction tube, suction fan	
<b>Servicing and maintenance work to be carried out weekly</b>			<b>Specifications:</b>
			✓
<b>Component:</b>			
Engine	C	Check engine oil level, top up engine oil if necessary.	7.2 litres. Fuchs Titan CARGO, 5W-40
Radiator	C	Check coolant level in expansion tank and radiator antifreeze, top up if necessary. Observe antifreeze for winter operation!	VW- G13 40 - 60 % coolant additive (antifreeze)
Radiator	C	Check combination radiator and radiator grille for contamination, clean with compressed air if necessary.	
Fuel line	C	Empty water trap of fuel system.	
Steering	C	Check emergency steering function.	
Brake	C	Check service and parking brakes for proper functioning.	
Electrical system	C	Check lighting work functions, horn, etc. for proper functioning.	
Hydraulics	C	Check hydraulic oil level, top up if necessary.	HVLP 46
Machine cleaning		Vehicle, dirt hopper, circulating water system, suction mouth, suction tube, suction fan	

Servicing and maintenance work to be carried out weekly			✓	Specifications:
<b>Component:</b>				
Suction mouth	C	Check for wear and damage.		
	C	Check suction mouth setting, gap between sealing strip and ground.		at the side 5 mm, at the rear 10-15 mm
Suction duct	C	Check suction hose for damage and correct seating.		
	C	Check the seal between suction duct and dirt hopper.		
Dirt hopper	C	Check seals		
	C	Check impact plate in the dirt hopper for wear and damage, replace if necessary		
Lubrication service:		Door hinges front lift cylinder front lift sweeping unit dirt hopper/ loading platform		
<b>C = Check: function, seal-tightness, top up, adjust</b>				
<b>R = Replace, (R) = Replace if technically necessary</b>				

<b>Hako-Citymaster 1650 (1491.15) – Hako system maintenance</b>				
Hako system maintenance after <b>50</b> operating hours (to be carried out once). To be carried out by an authorised Hako service centre.				
Mach. No.:	WHW1491.15			
Operating hrs.:				
Customer:				
Work to be carried out: Hako system maintenance after 50 operating hours (to be carried out once).			✓	Specifications:
Component:				
		Read the error memory of the engine control unit, delete sporadic errors, repair clear errors if necessary.		
		Check condition of diesel particulate filter and perform service regeneration if necessary.		
Engine	R	Replace engine oil.		approx. 7.2 litres, Fuchs Titan CARGO, 5W-40
	R	Replace engine oil filter.		SP No. 01500200
	R	Oil drain screw		SP No. 01501190
	R	Seal of Oil drain screw		SP No. 01501200
	R	Replace fuel filter (until WHW14911531403500)		SP No. 01500310
	R	Replace fuel filter (from WHW14911531403500)		SP No. 01509030
	C	Check coolant hoses and radiator for leaks.		
	C	Check coolant level, top up if necessary. Only top up distilled water or engine coolant!		VW- G13 or similar, e.g. Total Glaself Auto Supra.
Combination radiator	C	Check engine, charge air and hydraulic oil for contamination, clean with compressed air if necessary.		
Engine bearing assembly	C	Check engine bearings for damage, cracks and tight fit.		
V-ribbed belt	C	State and function		
Generator	C	Check generator for contamination, clean.		
Exhaust system	C	Functional and seal tightness check		
Fuel lines	C	Functional and seal tightness check		
Air intake pipe	C	Functional and seal tightness check		



Work to be carried out: Hako system maintenance after 50 operating hours (to be carried out once).			✓	Specifications:
Component:				
Vehicle control system (work hydraulics control unit)	C	Read entries in the work hydraulics control unit, eliminate fault if necessary. Check software status, update software if necessary.		
Vehicle control system (work hydraulics control unit)	C	Read entries in the hydrostatic control unit, eliminate fault if necessary. Check software status, update software if necessary.		
Hydraulics	R	Replace hydraulic oil filter		SP No. 01493180
	C	Check hydraulic oil level and top up if necessary.		HVLP 46, e.g. Mobiloil DTE 10 Excel
	C	Check hydraulic pipes and hydraulic hoses for abrasion points and damage.		
Hydraulic cylinder – sweeping unit	C	Functional and seal tightness check		
Lifting cylinder (front power lift)	C	Functional and seal tightness check		
Lifting cylinder (sweeper set-up)	C	Functional and seal tightness check		
Hydraulic pipes of basic unit	C	Functional and seal tightness check		
Hydraulic pipes of implements and attachments	C	Functional and seal tightness check		
Hand pump	C	Check function of the hand pump (raise the dirt hopper or loading platform with the hand pump).		

Work to be carried out: Hako system maintenance after 50 operating hours (to be carried out once).			✓	Specifications:
Component:				
Chassis / axles	C	Check chassis springs for damage and ease of movement (visual inspection).		
	C	Check shock absorbers for any leaks.		
	C	Check bearing bushes of the axle suspension for cracks and damage (visual inspection).		
	C	Check stop buffers for cracks and damage (visual inspection).		
Front axle	C	Re-tighten bolts (M14 x 1.5) of the bearing bushes of the axle guides and the Panhard rod to 140 Nm (8 bolts on the axle guides and 2 bolts on the Panhard rod).		
Rear axle	C	Re-tighten bolts (M14 x 1.5) of the bearing bushes of the axle guides and the Panhard rod to 140 Nm (8 bolts on the axle guides and 2 bolts on the Panhard rod).		
Steering	C	Functional and seal tightness check		
	C	Check steering cylinder for play. Lubricate steering cylinder (4x).		
Electrical system	C	Functional check, lighting, blinkers, work functions, horn, etc.		
Electrical lines (cables)	C	Check cables (electrical lines) for abrasion points and damage.		
	C	Check positive and ground connections to the battery and frame for tight fit and abrasion points, clean if necessary. Protect battery terminals with terminal grease.		
	C	Check battery charge condition.		
Brake	C	Test service brake for proper functioning. Test brakes.		
	C	Test parking brake for proper functioning.		
	C	Check brake hoses and brake lines for damage.		

Work to be carried out: Hako system maintenance after 50 operating hours (to be carried out once).			✓	Specifications:
Component:				
Sweeping unit	C	Check for wear and damage.		
	C	Check sweeping level, adjust if necessary.		
Suction mouth	C	Check coarse material flap and Bowden cable as to function and damage.		
	C	Check the rod ends of the suction mouth lift for wear and damage, replace if necessary.		SP No. 01498260    SP No. 01492810
	C	Check and if necessary adjust the suction mouth setting.		Distance: at the side 5 mm, at the rear 10 mm
Suction duct	C	Check suction hose for damage and correct seating.		
	C	Check seal between suction duct and dirt hopper.		
Suction fan	C	Check suction fan for contamination, clean if necessary.		
	C	Check V-belt at the suction fan for correct V-belt tension and damage, re-tension if necessary.		
Hopper flap of the dirt hopper	C	Check seals of the hopper flap for leaks and damage.		

Work to be carried out: Hako system maintenance after 50 operating hours (to be carried out once).			✓	Specifications:
Component:				
Cab	C	Check and if necessary top up the windscreen washing agent level.		
	C	Functional check of heater		
With air conditioning system	C	Functional check of air conditioning system		
	C	Check condenser of the air conditioning system (radiator) for contamination, clean with compressed air if necessary.		
Wheels / tyres	C	Re-tighten wheel nuts.		180 Nm
Tyres	C	Check any damage, air pressure and tread depth.		
	C	215/ 70 R15		6.0 bar
	C	225/ 70 R15 C (standard tyres)		5.0 bar
	C	255/ 65 R16 (all-purpose tyres)		3.0 bar
	C	285/ 65 R16 C		3.2 bar
	C	320/ 55-15 T559 (lawn surface tyres)		2.8 bar
	C	325/ 60 R15		2.5 bar
Lubrication service:		Door hinges (4x)		
		Front lift cylinder (4x)		
		Front lift (2x)		
		Upper link (2x)		
		Steering cylinder (4x)		
<b>C = Check: function, seal-tightness, top up, adjust</b>				
<b>R = Replace, (R) = Replace if technically necessary</b>				
Remarks; service information for the customer:				
Town / city:			Date:	
Signature – Customer:				
Signature – Service technician:				

## Hako-Citymaster 1650 (1491.15 ) – Hako system maintenance

Hako system maintenance after **250** operating hours (to be carried out once).  
To be carried out by an authorised Hako service centre.

Mach. No.:	WHW1491.15		
Operating hrs.:			
Customer:			
Work to be carried out: Hako system maintenance after 250 operating hours (to be carried out once).		✓	Specifications:
Component:			
Engine	C	Read the error memory of the engine control unit, delete sporadic errors, repair clear errors if necessary.	
	C	Check condition of diesel particulate filter and perform service regeneration if necessary.	
	C	Check engine oil level, top up if necessary.	Fuchs Titan CARGO, 5W-40
	C	Check coolant hoses and radiator for leaks.	
	C	Check coolant level, top up if necessary. Only top up distilled water or engine coolant!	VW- G13 or similar, e.g. Total Glaself Auto Supra.
Combination radiator	C	Check engine, charge air and hydraulic oil for contamination, clean with compressed air if necessary.	
Engine bearing assembly	C	Check engine bearings for damage, cracks and tight fit.	
V-ribbed belt	C	State and function	
Generator	C	Check generator for contamination, clean.	
Exhaust system	C	Functional and seal tightness check	
Fuel lines	C	Functional and seal tightness check	
Air intake pipe	C	Functional and seal tightness check	

Work to be carried out: Hako system maintenance after 250 operating hours (to be carried out once).			✓	Specifications:
Component:				
Hydraulics	C	Check hydraulic oil level and top up if necessary.		HVLP 46, e.g. Mobiloil DTE 10 Excel
		Check hydraulic pipes and hydraulic hoses for abrasion points and damage.		
Hydraulic cylinder – sweeping unit	C	Functional and seal tightness check		
Lifting cylinder (front power lift)	C	Functional and seal tightness check		
Lifting cylinder (sweeper set-up)	C	Functional and seal tightness check		
Hydraulic pipes of basic unit	C	Functional and seal tightness check		
Hydraulic pipes of implements and attachments	C	Functional and seal tightness check		
Hand pump	C	Check function of the hand pump (raise the dirt hopper or loading platform with the hand pump).		

Work to be carried out: Hako system maintenance after 250 operating hours (to be carried out once).			✓	Specifications:
Component:				
Chassis / axles	C	Check chassis springs for damage and ease of movement (visual inspection).		
	C	Check shock absorbers for any leaks.		
	C	Check bearing bushes of the axle suspension for cracks and damage (visual inspection).		
	C	Check stop buffers for cracks and damage (visual inspection).		
Front axle	C	Re-tighten bolts (M14 x 1.5) of the bearing bushes of the axle guides and the Panhard rod to 140 Nm (8 bolts on the axle guides and 2 bolts on the Panhard rod).		
Rear axle	C	Re-tighten bolts (M14 x 1.5) of the bearing bushes of the axle guides and the Panhard rod to 140 Nm (8 bolts on the axle guides and 2 bolts on the Panhard rod).		
Steering	C	Functional and seal tightness check		
	C	Check steering cylinder for play. Lubricate steering cylinder (4x).		
Electrical system	C	Functional check, lighting, blinkers, work functions, horn, etc.		
Electrical lines (cables)	C	Check cables (electrical lines) for abrasion points and damage.		
	C	Check positive and ground connections to the battery and frame for tight fit and abrasion points, clean if necessary. Protect battery terminals with terminal grease.		
	C	Check battery charge condition.		
Brake	C	Test service brake for proper functioning. Test brakes.		
	C	Test parking brake for proper functioning.		
	C	Check brake hoses for damage.		

Work to be carried out: Hako system maintenance after 250 operating hours (to be carried out once).			✓	Specifications:
Component:				
Sweeping unit	C	Check for wear and damage.		
	C	Check and if necessary adjust the sweeping level.		
Suction mouth	C	Check coarse material flap and Bowden cable as to function and damage.		
	C	Check the rod ends of the suction mouth lift for wear and damage, replace if necessary.		SP No. 01498260    SP No. 01492810
	C	Check and if necessary adjust the suction mouth setting.		Distance: at the side 5 mm, at the rear 10 mm
Suction duct	C	Check suction hose for damage and correct seating.		
	C	Check seal between suction duct and dirt hopper.		
Suction fan	C	Check suction fan for contamination, clean if necessary.		
	C	Check V-belt at the suction fan for correct V-belt tension and damage, re-tension if necessary.		
Hopper flap of the dirt hopper	C	Check seals of the hopper flap for leaks and damage.		



Work to be carried out: Hako system maintenance after 250 operating hours (to be carried out once).			✓	Specifications:
Component:				
Cab	C	Check and if necessary top up the windscreen washing agent level.		
	C	Functional check of heater		
With air conditioning system	C	Functional check of air conditioning system		
	C	Check condenser of the air conditioning system (radiator) for contamination, clean with compressed air if necessary.		
Wheels / tyres	C	Re-tighten wheel nuts.		180 Nm
Tyres	C	Check any damage, air pressure and tread depth.		
	C	215/ 70 R15		6.0 bar
	C	225/ 70 R15 C (standard tyres)		5.0 bar
	C	255/ 65 R16 (all-purpose tyres)		3.0 bar
	C	285/ 65 R16 C		3.2 bar
	C	320/ 55-15 T559 (lawn surface tyres)		2.8 bar
	C	325/ 60 R15		2.5 bar
Lubrication service:		Door hinges (4x)		
		Front lift cylinder (4x)		
		Front lift (2x)		
		Upper link (2x)		
		Steering cylinder (4x)		
<b>C = Check: function, seal-tightness, top up, adjust</b>				
<b>R = Replace, (R) = Replace if technically necessary</b>				
Remarks; service information for the customer:				
Town / city:			Date:	
Signature – Customer:				
Signature – Service technician:				

<b>Hako-Citymaster 1650 (1491.15) – Hako system maintenance</b>				
Hako system maintenance I, 500 operating hours. To be carried out by an authorised Hako service centre.				
Mach. No.:	WHW1491.15			
Operating hrs.:				
Customer:				
Work to be carried out: Hako system maintenance I, <b>500</b> operating hours (1500 OH, 3500 OH, 4500 OH, 5500 OH, 6500 OH, 8500 OH, 9500 OH).			✓	Specifications:
Component:				
Engine	C	Read the error memory of the engine control unit, delete sporadic errors, repair clear errors if necessary.		
	C	Check condition of diesel particulate filter and perform service regeneration if necessary.		
	R	Replace engine oil.		approx. 7.2 litres, Fuchs Titan CARGO, 5W-40
	R	Replace engine oil filter.		SP No. 01500200
	R	Oil drain screw		SP No. 01501190
	R	Seal of oil drain screw		SP No. 01501200
	R	Fuel filter (until WHW14911531403500)		SP No. 01500310
	R	Fuel pre-filter (until WHW14911531403500)		SP No. 01500420
	R	Fuel filter (from WHW14911531403500)		SP No. 01509030
	R	Fuel pre-filter (from WHW14911531403500)		SP No. 01508990
	R	Oil separator crankcase venting		SP No. 01500530
	R	Air filter insert		SP No. 01500640
	C	Check coolant hoses and radiator for leaks.		
	C	Check coolant level, top up if necessary. Only top up distilled water or engine coolant!		VW- G13 or similar, e.g. Total Glaself Auto Supra.
Combination radiator	C	Check engine, charge air and hydraulic oil for contamination, clean with compressed air if necessary.		
Engine bearing assembly	C	Check engine bearings for damage, cracks and tight fit.		
V-ribbed belt	C	State and function		
Generator	C	Check generator for contamination, clean.		
Exhaust system	C	Functional and seal tightness check		
Fuel lines	C	Functional and seal tightness check		
Air intake pipe	C	Functional and seal tightness check		

Work to be carried out: Hako system maintenance I, 500 operating hours (1500 OH, 3500 OH, 4500 OH, 5500 OH, 6500 OH, 8500 OH, 9500 OH).			✓	Specifications:
Component:				
Vehicle control system (work hydraulics control unit)	C	Read entries in the work hydraulics control unit, eliminate fault if necessary. Check software status, update software if necessary.		
Vehicle control system (work hydraulics control unit)	C	Read entries in the hydrostatic control unit, eliminate fault if necessary. Check software status, update software if necessary.		
Hydraulics	C	Check hydraulic oil level and top up if necessary.		HVLP 46, e.g. Mobiloil DTE 10 Excel
	C	Check hydraulic pipes and hydraulic hoses for abrasion points and damage.		
Hydraulic cylinder – sweeping unit	C	Functional and seal tightness check		
Lifting cylinder (front power lift)	C	Functional and seal tightness check		
Lifting cylinder (sweeper set-up)	C	Functional and seal tightness check		
Hydraulic pipes of basic unit	C	Functional and seal tightness check		
Hydraulic pipes of implements and attachments	C	Functional and seal tightness check		
Hand pump	C	Check function of the hand pump (raise the dirt hopper or loading platform with the hand pump).		
Chassis / Axles	C	Check chassis springs for damage and ease of movement (visual inspection).		
	C	Check shock absorbers for any leaks.		
	C	Check bearing bushes of the axle suspension for cracks and damage (visual inspection).		
	C	Check stop buffers for cracks and damage (visual inspection).		
Steering	C	Functional and seal tightness check		
	C	Check steering cylinder for play. Lubricate steering cylinder (4x).		

Work to be carried out: Hako system maintenance I, <b>500</b> operating hours (1500 OH, 3500 OH, 4500 OH, 5500 OH, 6500 OH, 8500 OH, 9500 OH)			✓	Specifications:
Component:				
Electrical system	C	Functional check, lighting, blinkers, work functions, horn, etc.		
Electrical lines (cables)	C	Check cables (electrical lines) for abrasion points and damage.		
	C	Check positive and ground connections to the battery and frame for tight fit and abrasion points, clean if necessary. Protect battery terminals with terminal grease.		
	C	Check battery charge condition.		
Brake	C (R)	Check service brake for proper functioning and wear and carry out a brake test, replace required parts if necessary.		
	C	Check rear axle parking brake as to function.		
	C	Check proportion of water in brake fluid. If the proportion of water is greater than 3 % the brake fluid must be replaced. Check brake fluid oil level and top up if necessary. Or replace brake fluid every 2 years!		0.5 litres, DOT 4, e.g. FTE Type 9368
	C	Check brake hoses for damage.		

Work to be carried out: Hako system maintenance I, <b>500</b> operating hours (1500 OH, 3500 OH, 4500 OH, 5500 OH, 6500 OH, 8500 OH, 9500 OH)			✓	Specifications:
Component:				
Front tool carrier	C	Check upper link for wear and damage.		
Sweeping unit	C	Check for wear and damage.		
	C	Check and if necessary adjust the sweeping level.		
Suction mouth	C	Check coarse material flap and Bowden cable as to function and damage.		
	C (R)	Check the rod ends of the suction mouth lift for wear and damage, replace if necessary.		SP No. 01498260, SP No. 01492810
	C (R)	Check rollers, rubber aprons and circulation water compartments for wear and damage. Defective or worn parts must be replaced!		SP No. 01472250 (2X) SP No. 01470890 SP No. 01470830 SP No.. 01470860
	C	Check and if necessary adjust the suction mouth setting.		Distance: at the side 5 mm, at the rear 10 mm
Suction duct	C	Check suction hose for damage and correct seating.		
	C	Check seal between suction duct and dirt hopper.		
Suction fan	C	Check suction fan for contamination, clean if necessary.		
	C	Check V-belt at the suction fan for correct V-belt tension and damage and, if necessary, re-tighten or replace.		
	C	Check suction fan for vibration, check bearings if necessary.		
	C	Check impeller for wear.		
Hopper flap of the dirt hopper	C	Check seals of the hopper flap for leaks and damage.		
	C	Check impact plate for wear.		
	C	Check cover joints and bearing.		
	C	Check exhaust side of hopper flap for contamination.		
Hopper, circulating water system	C (R)	Hose, cpl. (Circulating water system) If required!		SP No. 01231950

Work to be carried out: Hako system maintenance I, <b>500</b> operating hours (1500 OH, 3500 OH, 4500 OH, 5500 OH, 6500 OH, 8500 OH, 9500 OH)			✓	Specifications:
Component:				
Cab		Clean cab air filter.		
	C	Check and if necessary top up the windscreen washing agent level.		
	C	Functional check of heater		
With air conditioning system	C	Functional check of air conditioning system		
With air conditioning system	C	Check condenser of the air conditioning system (radiator) for contamination, clean with compressed air if necessary.		
Wheels / Tyres	C	Re-tighten wheel nuts.		180 Nm
Tyres	C	Check any damage, air pressure and tread depth.		
	C	215/ 70 R15		6.0 bar
	C	225/ 70 R15 C (standard tyres)		5.0 bar
	C	255/ 65 R16 (all-purpose tyres)		3.0 bar
	C	285/ 65 R16 C		3.2 bar
	C	320/ 55-15 T559 (lawn surface tyres)		2.8 bar
	C	325/ 60 R15		2.5 bar
Lubrication service:		Door hinges (4x)		
		Front lift cylinder (4x)		
		Front lift (2x)		
		Upper link (2x)		
		Steering cylinder (4x)		
<b>C = Check: function, seal-tightness, top up, adjust</b>				
<b>R = Replace, (R) = Replace if technically necessary</b>				
Remarks; service information for the customer:				

Town / city:	Date:
Signature – Customer:	
Signature – Service technician:	

<b>Hako-Citymaster 1650 (1491.15) – Hako system maintenance</b>				
Hako system maintenance II, <b>1000</b> operating hours (5000 OH, 7000 OH). To be carried out by an authorised Hako service centre. <b>Please note:</b> After <b>5000</b> operating hours, carry out additional system maintenance I extended.				
Mach. No.:	WHW1491.15			
Operating hrs.:				
Customer:				
Work to be carried out: Hako system maintenance II, <b>1000</b> operating hours (5000 OH, 7000 OH).			✓	Specifications:
Component:				
Engine	C	Read the error memory of the engine control unit, delete sporadic errors, repair clear errors if necessary.		
	C	Check condition of diesel particulate filter and perform service regeneration if necessary.		
	R	Replace engine oil.		approx. 7.2 litres, Fuchs Titan CARGO, 5W-40
	R	Replace engine oil filter.		SP No. 01500200
	R	Oil drain screw		SP No. 01501190
	R	Seal of oil drain screw		SP No. 01501200
	R	Fuel filter (until WHW14911531403500)		SP No. 01500310
	R	Fuel pre-filter (until WHW14911531403500)		SP No. 01500420
	R	Fuel filter (from WHW14911531403500)		SP No. 01509030
	R	Fuel pre-filter (from WHW14911531403500)		SP No. 01508990
	R	Oil separator crankcase venting		SP No. 01500530
	R	Air filter insert		SP No. 01500640
	R	Safety cartridge air filter		SP No. 01500750
	C	Check coolant hoses and radiator for leaks.		
	C	Check coolant level, top up if necessary. Only top up distilled water or engine coolant!		VW- G13 or similar, e.g. Total Glaself Auto Supra.
Combination radiator	C	Check engine, charge air and hydraulic oil for contamination, clean with compressed air if necessary.		
Engine bearing assembly	C	Check engine bearings for damage, cracks and tight fit.		
V-ribbed belt	C	State and function		
Generator	C	Check generator for contamination, clean.		
Exhaust system	C	Functional and seal tightness check		
Fuel lines	C	Functional and seal tightness check		
Air intake pipe	C	Functional and seal tightness check		

Work to be carried out: Hako system maintenance II, <b>1000</b> operating hours (5000 OH, 7000 OH)			✓	Specifications:
Component:				
Vehicle control system (work hydraulics control unit)	C	Read entries in the work hydraulics control unit, eliminate fault if necessary. Check software status, update software if necessary.		
Vehicle control system (work hydraulics control unit)	C	Read entries in the hydrostatic control unit, eliminate fault if necessary. Check software status, update software if necessary.		
Hydraulics	R	Hydraulic oil filter		SP No. 01493180
	R	Venting filter hydraulic tank		SP No. 01497120
	C	Remove hydraulic oil sample and send it in. <b>If the sample result is negative, the hydraulic oil must be replaced prematurely!</b>		SP No. 00009720
	C	Check hydraulic oil level, top up if necessary. Please note topping up with organic oil or other oils. <b>Do not mix hydraulic oils!</b>		HVLP 46, e.g. Mobiloil DTE 10 Excel
	C	Check hydraulic pipes and hydraulic hoses for abrasion points and damage.		
Hydraulic cylinder – sweeping unit	C	Functional and seal tightness check		
Lifting cylinder (front power lift)	C	Functional and seal tightness check		
Lifting cylinder (sweeper set-up)	C	Functional and seal tightness check		
Hydraulic pipes of basic unit	C	Functional and seal tightness check		
Hydraulic pipes of implements and attachments	C	Functional and seal tightness check		
Hand pump	C	Check function of the hand pump (raise the dirt hopper or loading platform with the hand pump).		



Work to be carried out: Hako system maintenance II, <b>1000</b> operating hours (5000 OH, 7000 OH)			✓	Specifications:
Component:				
Chassis / axles	C	Check chassis springs for damage and ease of movement (visual inspection).		
	C	Check shock absorbers for any leaks.		
	C	Check bearing bushes of the axle suspension for cracks and damage (visual inspection).		
	C	Check stop buffers for cracks and damage (visual inspection).		
Steering	C	Functional and seal tightness check. Lubricate steering cylinder (4x).		
	C	Check steering cylinder for play.		
	C	Remove covers (plastic) of the articulated joints (top + bottom) and check the joints underneath for dirt, if necessary clean <b>dry</b> with a brush.		
	C	Check bearing bushings (top + bottom) of the articulated joints for damage		
Electrical system	C	Functional check, lighting, blinkers, work functions, horn, etc.		
Electrical lines (cables)	C	Check cables (electrical lines) for abrasion points and damage.		
	C	Check positive and ground connections to the battery and frame for tight fit and abrasion points, clean if necessary. Protect battery terminals with terminal grease.		
	C	Check battery charge condition.		
Brake	C (R)	Check service brake for proper functioning and wear and carry out a brake test, replace required parts if necessary.		
	C	Test parking brake for proper functioning.		
	(R)	Check proportion of water in brake fluid. If the proportion of water is greater than 3 % the brake fluid must be replaced. Check brake fluid oil level and top up if necessary. Or replace brake fluid every 2 years!		0.5 litres, DOT 4, e.g. FTE Type 9368
	C	Check brake hoses for damage.		
Front tool carrier	C	Check upper link for wear and damage.		

Work to be carried out: Hako system maintenance II,			✓	Specifications:
Component:				
Sweeping unit	C	Check for wear and damage.		
	C	Check and if necessary adjust the sweeping level.		
Suction mouth	C	Check coarse material flap and Bowden cable as to function and damage.		
	C	Check the rod ends of the suction mouth lift for wear and damage, replace if necessary.		SP No. 01498260, SP No. 01492810
	C (R)	Check rollers, rubber aprons and circulation water compartments for wear and damage. Defective or worn parts must be replaced!		SP No. 01472250 (2X) SP No. 01470890 SP No. 01470830 SP No.. 01470860
	C	Check and if necessary adjust the suction mouth setting.		Distance: at the side 5 mm, at the rear 10 mm
Suction duct	C	Check suction hose for damage and correct seating.		
	C	Check the seal between suction duct and dirt hopper.		
Suction fan	C	Check suction fan for contamination and, if necessary, clean.		
	C	Check V-belt at the suction fan for correct V-belt tension and damage, re-tension or replace if necessary.		
	C	Check suction fan for vibration, check bearings if necessary.		
	C	Check impeller for wear.		
Hopper flap of the dirt hopper	C	Check the seals of the hopper lid for tightness and damage.		
	C	Check impact plate for wear.		
	C	Check cover joints and bearing.		

	C	Check exhaust side of hopper flap for contamination.		
Hopper, circulating water system	C (R)	Hose, cpl. (Circulating water system) If required!		SP No. 01231950
Work to be carried out: Hako system maintenance II,			✓	Specifications:
Component:				
Cab	R	Cab air filter		SP No. 01065540
	C	Check and if necessary top up the windscreen washing agent level.		
	C	Functional check of heater		
With air conditioning system	C	Functional check of air conditioning system		
With air conditioning system	C	Check condenser of the air conditioning system (radiator) for contamination, clean with compressed air if necessary.		
Wheels / tyres	C	Re-tighten wheel nuts.		180 Nm
Tyres	C	Check any damage, air pressure and tread depth.		
	C	215/ 70 R15		6.0 bar
	C	225/ 70 R15 C (standard tyres)		5.0 bar
	C	255/ 65 R16 (all-purpose tyres)		3.0 bar
	C	285/ 65 R16 C		3.2 bar
	C	320/ 55-15 T559 (lawn surface tyres)		2.8 bar
	C	325/ 60 R15		2.5 bar
Lubrication service:		Door hinges (4x)		
		Front lift cylinder (4x)		
		Front lift (2x)		
		Upper link (2x)		
		Steering cylinder (4x)		

**C** = Check: function, seal-tightness, top up, adjust  
**R** = Replace, **(R)** = Replace if technically necessary

Remarks; service information for the customer:	
Town / city:	Date:
Signature – Customer:	
Signature – Service technician:	

<b>Hako-Citymaster 1650 (1491.15) – Hako system maintenance</b>			
Hako system maintenance I, 500 operating hours ( <b>1500 OH</b> , 2500 OH, 3500 OH, 4500 OH, 5500 OH, 6500 OH, 7500 OH, 8500 OH, 9500 OH). To be carried out by an authorised Hako service centre.			
Mach. No.:	WHW1491.15		
Operating hrs.:			
Customer:			
Work to be carried out: Hako system maintenance I, 500 operating hours ( <b>1500 OH</b> , 3500 OH, 4500 OH, 5500 OH, 6500 OH, 7500 OH, 8500 OH, 9500 OH).		✓	Specifications:
Assembly			
Engine	C	Read the error memory of the engine control unit, delete sporadic errors, repair clear errors if necessary.	
	C	Check condition of diesel particulate filter and perform service regeneration if necessary.	
	R	Replace engine oil.	approx. 7.2 litres, Fuchs Titan CARGO, 5W-40
	R	Replace engine oil filter.	SP No. 01500200
	R	Oil drain screw	SP No. 01501190
	R	Seal of oil drain screw	SP No. 01501200
	R	Fuel filter (until WHW14911531403500)	SP No. 01500310
	R	Fuel pre-filter (until WHW14911531403500)	SP No. 01500420
	R	Fuel filter (from WHW14911531403500)	SP No. 01509030
	R	Fuel pre-filter (from WHW14911531403500)	SP No. 01508990
	R	Oil separator crankcase venting	SP No. 01500530
	R	Air filter insert	SP No. 01500640
	C	Check coolant hoses and radiator for leaks.	
	C	Check coolant level, top up if necessary. Only top up distilled water or engine coolant!	VW- G13 or similar, e.g. Total Glaself Auto Supra.
Combination radiator	C	Check engine, charge air and hydraulic oil for contamination, clean with compressed air if necessary.	
Engine bearing assembly	C	Check engine bearings for damage, cracks and tight fit.	
V-ribbed belt	C	State and function	
Generator	C	Check generator for contamination, clean.	
Exhaust system	C	Functional and seal tightness check	
Fuel lines	C	Functional and seal tightness check	
Air intake pipe	C	Functional and seal tightness check	

Work to be carried out: Hako system maintenance I, 500 operating hours ( <b>1500 OH</b> , 3500 OH, 4500 OH, 5500 OH, 6500 OH, 7500 OH, 8500 OH, 9500 OH)			✓	Specifications:
Assembly				
Vehicle control system (work hydraulics control unit)	C	Read entries in the work hydraulics control unit, eliminate fault if necessary. Check software status, update software if necessary.		
Vehicle control system (work hydraulics control unit)	C	Read entries in the hydrostatic control unit, eliminate fault if necessary. Check software status, update software if necessary.		
Hydraulics	C	Check hydraulic oil level, top up if necessary. Please note topping up with organic oil or other oils. <b>Do not mix hydraulic oils!</b>		HVLP 46, e.g. Mobiloil DTE 10 Excel
	C	Check hydraulic pipes and hydraulic hoses for abrasion points and damage.		
Hydraulic cylinder – sweeping unit	C	Functional and seal tightness check		
Lifting cylinder (front power lift)	C	Functional and seal tightness check		
Lifting cylinder (sweeper set-up)	C	Functional and seal tightness check		
Hydraulic pipes of basic unit	C	Functional and seal tightness check		
Hydraulic pipes of implements and attachments	C	Functional and seal tightness check		
Hand pump	C	Check function of the hand pump (raise the dirt hopper or loading platform with the hand pump).		
Chassis / Axles	C	Check chassis springs for damage and ease of movement (visual inspection).		
	C	Check shock absorbers for any leaks.		
	C	Check bearing bushes of the axle suspension for cracks and damage (visual inspection).		
	C	Check stop buffers for cracks and damage (visual inspection).		
Steering	C	Functional and seal tightness check		
	C	Check steering cylinder for play. Lubricate steering cylinder (4x).		

Work to be carried out: Hako system maintenance I, 500 operating hours ( <b>1500 OH</b> , 3500 OH, 4500 OH, 5500 OH, 6500 OH, 7500 OH, 8500 OH, 9500 OH)			✓	Specifications:
Assembly				
Electrical system	C	Functional check, lighting, blinkers, work functions, horn, etc.		
Electrical lines (cables)	C	Check cables (electrical lines) for abrasion points and damage.		
	C	Check positive and ground connections to the battery and frame for tight fit and abrasion points, clean if necessary. Protect battery terminals with terminal grease.		
	C	Check battery charge condition.		
Brake	C (R)	Check service brake for proper functioning and wear and carry out a brake test, replace required parts if necessary.		
	C	Test parking brake for proper functioning.		
	(R)	Check proportion of water in brake fluid. If the proportion of water is greater than 3 % the brake fluid must be replaced. Check brake fluid oil level and top up if necessary. Or replace brake fluid every 2 years!		0.5 litres, DOT 4, e.g. FTE Type 9368
	C	Check brake hoses for damage.		
Front tool carrier	C	Check upper link for wear and damage.		

Work to be carried out: Hako system maintenance I, 500 operating hours ( <b>1500 OH</b> , 3500 OH, 4500 OH, 5500 OH, 6500 OH, 7500 OH, 8500 OH, 9500 OH)			✓	Specifications:
Assembly				
Sweeping unit	C	Check for wear and damage.		
	C	Check and if necessary adjust the sweeping level.		
	R	Bearing block (2-broom- system) (2X)		SP No. 01493820
	R	Bushing (2-broom- system) (4X)		SP No.01060940
	R	Bushing (2-broom- system) (4X)		SP No.01060950
	R	Comb (2-broom- system) (2X)		SP No.01493640
Suction mouth	C	Check coarse material flap and Bowden cable as to function and damage.		
	C	Check the rod ends of the suction mouth lift for wear and damage, replace if necessary.		SP No. 01498260, SP No. 01492810
	C (R)	Check rollers, rubber aprons and circulation water compartments for wear and damage. Defective or worn parts must be replaced!		SP No. 01472250 (2X) SP No. 01470890 SP No. 01470830 SP No.. 01470860
	C	Check and if necessary adjust the suction mouth setting.		Distance: at the side 5 mm,
Suction duct	C	Check suction hose for damage and correct seating.		
	C	Check seal between suction duct and dirt hopper.		
Suction fan	C	Check suction fan for contamination, clean if necessary.		
	C	Check V-belt at the suction fan for correct V-belt tension and damage and, if necessary, re-tighten or replace.		
	C	Check suction fan for vibration, check bearings if necessary.		
	C	Check impeller for wear.		
Hopper flap of the dirt hopper	C	Check seals of the hopper flap for leaks and damage.		
	C	Check impact plate for wear.		
	C	Cover joints and bearing		
	C	Check exhaust side of hopper flap for contamination.		
Hopper, circulating water system	C (R)	Hose, cpl. (Circulating water system) If required!		SP No. 01231950

Work to be carried out: Hako system maintenance I, 500 operating hours ( <b>1500 OH</b> , 3500 OH, 4500 OH, 5500 OH, 6500 OH, 7500 OH, 8500 OH, 9500 OH)			✓	Specifications:
Assembly				
Cab	C	Clean the cab air filter.		
	C	Check and if necessary top up the windscreen washing agent level.		
	C	Functional check of heater		
With air conditioning system	C	Functional check of air conditioning system		
With air conditioning system	C	Check condenser of the air conditioning system (radiator) for contamination, clean with compressed air if necessary.		
Wheels / Tyres	C	Re-tighten wheel nuts.		180 Nm
Tyres	C	Check any damage, air pressure and tread depth.		
	C	215/ 70 R15		6.0 bar
	C	225/ 70 R15 C (standard tyres)		5.0 bar
	C	255/ 65 R16 (all-purpose tyres)		3.0 bar
	C	285/ 65 R16 C		3.2 bar
	C	320/ 55-15 T559 (lawn surface tyres)		2.8 bar
	C	325/ 60 R15		2.5 bar
Lubrication service:		Door hinges (4x)		
		Front lift cylinder (4x)		
		Front lift (2x)		
		Upper link (2x)		
		Steering cylinder (4x)		
<i>C = Check: function, seal-tightness, top up, adjust</i>				
<i>R = Replace, (R) = Replace if technically necessary</i>				
Remarks; service information for the customer:				
Town / city:		Date:		
Signature – Customer:				
Signature – Service technician:				



<b>Hako-Citymaster 1650 (1491.15 ) – Hako system maintenance</b>			
Hako system maintenance II extended, <b>2000</b> operating hours. To be carried out by an authorised Hako service centre.			
Mach. No.:			
Operating hrs.:			
Customer:			
Work to be carried out: Hako system maintenance II extended, <b>2000</b> operating hours.		✓	Specifications:
Component:			
Engine	C	Read the error memory of the engine control unit, delete sporadic errors, repair clear errors if necessary.	
	C	Check condition of diesel particulate filter and perform service regeneration if necessary.	
	R	Replace engine oil.	approx. 7.2 litres, Fuchs Titan CARGO, 5W-40
	R	Replace engine oil filter.	SP No. 01500200
	R	Oil drain screw	SP No. 01501190
	R	Seal of oil drain screw	SP No. 01501200
	R	Fuel filter (until WHW14911531403500)	SP No. 01500310
	R	Fuel pre-filter (until WHW14911531403500)	SP No. 01500420
	R	Fuel filter (from WHW14911531403500)	SP No. 01509030
	R	Fuel pre-filter (from WHW14911531403500)	SP No. 01508990
	R	Oil separator crankcase venting	SP No. 01500530
	R	Air filter insert	SP No. 01500640
	R	Safety cartridge air filter	SP No. 01500750
	C	Check coolant hoses and radiator for leaks.	
	C	Check coolant level, top up if necessary. Only top up distilled water or engine coolant!	VW- G13 or similar, e.g. Total Glaself Auto Supra.
Combination radiator	C	Check engine, charge air and hydraulic oil for contamination, clean with compressed air if necessary.	
Engine bearing assembly	C	Check engine bearings for damage, cracks and tight fit.	
V-ribbed belt	C	State and function	
Generator	C	Check generator for contamination, clean.	
Exhaust system	C	Functional and seal tightness check	
Fuel lines	C	Functional and seal tightness check	
Air intake pipe	C	Functional and seal tightness check	

Work to be carried out: Hako system maintenance II extended, <b>2000</b> operating hours.			✓	Specifications:
Component:				
Vehicle control system (work hydraulics control unit)	C	Read entries in the work hydraulics control unit, eliminate fault if necessary. Check software status, update software if necessary.		
Vehicle control system (work hydraulics control unit)	C	Read entries in the hydrostatic control unit, eliminate fault if necessary. Check software status, update software if necessary.		
Hydraulics	R	Hydraulic oil filter		SP No. 01493180
	R	Venting filter hydraulic tank		SP No. 01497120
	C	Remove hydraulic oil sample and send it in. <b>If the sample result is negative, the hydraulic oil must be replaced prematurely!</b>		SP No. 00009720
	C	Check hydraulic oil level, top up if necessary. Please note topping up with organic oil or other oils. <b>Do not mix hydraulic oils!</b>		HVLP 46, e.g. Mobiloil DTE 10 Excel
	C	Check hydraulic pipes and hydraulic hoses for abrasion points and damage.		
Hydraulic cylinder – sweeping unit	C	Functional and seal tightness check		
Lifting cylinder (front power lift)	C	Functional and seal tightness check		
Lifting cylinder (sweeper set-up)	C	Functional and seal tightness check		
Hydraulic pipes of basic unit	C	Functional and seal tightness check		
Hydraulic pipes of implements and attachments	C	Functional and seal tightness check		
Hand pump	C	Check function of the hand pump (raise the dirt hopper or loading platform with the hand pump).		

Work to be carried out: Hako system maintenance II extended, <b>2000</b> operating hours.		✓	Specifications:
Component:			
Chassis / axles	C	Check chassis springs for damage and ease of movement (visual inspection).	
	C	Check shock absorbers for any leaks.	
	C	Check bearing bushes of the axle suspension for cracks and damage (visual inspection).	
	C	Check stop buffers for cracks and damage (visual inspection).	
	R	Rubber- Metal- Buffer front axle (2X)	SP No. 01490530
Steering	C	Functional and seal tightness check	
	C	Check steering cylinder for play. Lubricate steering cylinder (4x).	
	C	Remove covers (plastic) of the articulated joints (top + bottom) and check the joints underneath for dirt, if necessary clean <b>dry</b> with a brush.	
	C	Check bearing bushings (top + bottom) of the articulated joints for damage	
Electrical system	C	Functional check, lighting, blinkers, work functions, horn, etc.	
Electrical lines (cables)	C	Check cables (electrical lines) for abrasion points and damage.	
	C	Check positive and ground connections to the battery and frame for tight fit and abrasion points, clean if necessary. Protect battery terminals with terminal grease.	
	C	Check battery charge condition.	
Brake	C (R)	Check service brake for proper functioning and wear and carry out a brake test, replace required parts if necessary.	
	C	Test parking brake for proper functioning.	
	C (R)	Check proportion of water in brake fluid. If the proportion of water is greater than 3 % the brake fluid must be replaced. Check brake fluid oil level and top up if necessary. Or replace brake fluid every <b>2 years!</b>	
	C	Check brake hoses for damage.	
Front tool carrier	C	Check upper link for wear and damage.	

Work to be carried out: Hako system maintenance II extended, ✓			Specifications:
Component:			
Sweeping unit	C	Check for wear and damage.	
	C	Check and if necessary adjust the sweeping level.	
Suction mouth		Bowden cable coarse material flap at the suction mouth.	SP No. 01167520
Suction mouth	C	Check coarse material flap as to function and damage. Replace Bowden cable.	SP no. 01167520
	C	Check the rod ends of the suction mouth lift for wear and damage, replace if necessary.	SP No. 01498260, SP No. 01492810
	C (R)	Check rollers, rubber aprons and circulation water compartments for wear and damage. Defective or worn parts must be replaced!	SP No. 01472250 (2X) SP No. 01470890 SP No. 01470830 SP No.. 01470860
	C	Check and if necessary adjust the suction mouth setting.	Distance: at the side 5 mm, at the rear 10 mm
Suction duct	C	Check suction hose for damage and correct seating.	
	C	Check the seal between suction duct and dirt hopper.	
Suction fan	R	V-belt suction fan	with Casappa Motor: SP No. 01220790 with Dana Motor: SP No. 48601960001
	C	Check suction fan for contamination, clean if necessary.	
	C	Check V-belt at the suction fan for correct V-belt tension and damage and, if necessary, re-tighten or replace.	
	C	Check suction fan for vibration, check bearings if necessary.	
	C	Check impeller for wear.	
	R	Replace hydraulic hoses from suction fan	SP No. 01493620    SP No. 01493670
Hopper flap of the dirt hopper	C	Check seals of the hopper flap for leaks and damage.	
	C	Check impact plate for wear.	
	C	Cover joints and bearing.	
	C	Check exhaust side of hopper flap for contamination.	
Hopper, circulating water system	C (R)	Hose, cpl. (Circulating water system) If required!	SP No. 01231950

Work to be carried out: Hako system maintenance II extended, ✓		Specifications:
Component:		
Cab	R	Cab air filter
		SP No. 01065540
	C	Check and if necessary top up the windscreen washing agent level.
	C	Functional check of heater
With air conditioning system	C	Functional check of air conditioning system
With air conditioning system	C	Check condenser of the air conditioning system (radiator) for contamination, clean with compressed air if necessary.
Wheels / tyres	C	Re-tighten wheel nuts.
		180 Nm
Tyres	C	Check any damage, air pressure and tread depth.
	C	215/ 70 R15
		6.0 bar
	C	225/ 70 R15 C (standard tyres)
		5.0 bar
	C	255/ 65 R16 (all-purpose tyres)
		3.0 bar
	C	285/ 65 R16 C
		3.2 bar
	C	320/ 55-15 T559 (lawn surface tyres)
		2.8 bar
	C	325/ 60 R15
		2.5 bar
Lubrication service:		Door hinges (4x)
		Front lift cylinder (4x)
		Front lift (2x)
		Upper link (2x)
		Steering cylinder (4x)
<b>C = Check: function, seal-tightness, top up, adjust</b>		
<b>R = Replace, (R) = Replace if technically necessary</b>		
Remarks; service information for the customer:		
Town / city:	Date:	
Signature – Customer:		
Signature – Service technician:		

<b>Hako-Citymaster 1650 (1491.15) – Hako system maintenance</b>			
Hako system maintenance I extended, <b>2500</b> operating hours (5000 OH, 7500 OH, 10000 OH).			
To be carried out by an authorised Hako service centre.			
<b>Please note:</b> after <b>5000</b> operating hours, carry out additional system maintenance II			
Mach. No.:			
Operating hrs.:			
Customer:			
Work to be carried out: Hako system maintenance I extended, <b>2500</b> operating hours (5000 OH, 7500 OH, 10000 OH)		✓	Specifications:
Component:			
Engine	C	Read the error memory of the engine control unit, delete sporadic errors, repair clear errors if necessary.	
	C	Check condition of diesel particulate filter and perform service regeneration if necessary.	
	R	Replace engine oil.	approx. 7.2 litres, Fuchs Titan CARGO, 5W-40
	R	Replace engine oil filter.	SP No. 01500200
	R	Oil drain screw	SP No. 01501190
	R	Seal of oil drain screw	SP No. 01501200
	R	Fuel filter (until WHW14911531403500)	SP No. 01500310
	R	Fuel pre-filter (until WHW14911531403500)	SP No. 01500420
	R	Fuel filter (from WHW14911531403500)	SP No. 01509030
	R	Fuel pre-filter (from WHW14911531403500)	SP No. 01508990
	R	Oil separator crankcase venting	SP No. 01500530
	R	Air filter insert	SP No. 01500640
	C	Check coolant hoses and radiator for leaks.	
	C	Check coolant level, top up if necessary. Only top up distilled water or engine coolant!	VW- G13 or similar, e.g. Total Glaself Auto Supra.
Combination radiator	C	Check engine, charge air and hydraulic oil for contamination, clean with compressed air if necessary.	
Engine bearing assembly	C	Check engine bearings for damage, cracks and tight fit.	
V-ribbed belt	R	Poly V-belt	SP No. 01501230
	R	Tensioning element	SP No. 01501210
	R	Idler pulley	SP No. 01503800
Generator	C	Check generator for contamination, clean.	
Exhaust system	C	Functional and seal tightness check	
Fuel lines	C	Functional and seal tightness check	
Air intake pipe	C	Functional and seal tightness check	

Work to be carried out: Hako system maintenance I extended, <b>2500</b> operating hours (5000 OH, 7500 OH, 10000 OH)		✓	Specifications:
Component:			
Vehicle control system (work hydraulics control unit)	C	Read entries in the work hydraulics control unit, eliminate fault if necessary. Check software status, update software if necessary.	
Vehicle control system (work hydraulics control unit)	C	Read entries in the hydrostatic control unit, eliminate fault if necessary. Check software status, update software if necessary.	
Hydraulics	C	Check hydraulic oil level, top up if necessary. Please note topping up with organic oil or other oils. <b>Do not mix hydraulic oils!</b>	HVLP 46, e.g. Mobiloil DTE 10 Excel
	C	Check hydraulic pipes and hydraulic hoses for abrasion points and damage.	
Hydraulic cylinder – sweeping unit	C	Functional and seal tightness check	
Lifting cylinder (front power lift)	C	Functional and seal tightness check	
Lifting cylinder (sweeper set-up)	C	Functional and seal tightness check	
Hydraulic pipes of basic unit	C	Functional and seal tightness check	
Hydraulic pipes of implements and attachments	C	Functional and seal tightness check	
Hand pump	C	Check function of the hand pump (raise the dirt hopper or loading platform with the hand pump).	
Chassis / axles	C	Check chassis springs for damage and	
		ease of movement (visual inspection).	
	C	Check shock absorbers for any leaks.	
	C	Check bearing bushes of the axle suspension for cracks and damage (visual inspection).	
	C	Check stop buffers for cracks and damage (visual inspection).	

Work to be carried out: Hako system maintenance I extended, <b>2500</b> operating hours (5000 OH, 7500 OH, 10000 OH)			✓	Specifications:
Component:				
Steering	C	Functional and seal tightness check		
	C	Check steering cylinder for play. Lubricate steering cylinder (4x).		
Electrical system	C	Functional check, lighting, blinkers, work functions, horn, etc.		
Electrical lines (cables)	C	Check cables (electrical lines) for abrasion points and damage.		
	C	Check positive and ground connections to the battery and frame for tight fit and abrasion points, clean if necessary. Protect battery terminals with terminal grease.		
	C	Check battery charge condition.		
Brake	C (R)	Check service brake for proper functioning and wear and carry out a brake test, replace required parts if necessary.		
	C	Test parking brake for proper functioning.		
	(R)	Check proportion of water in brake fluid. If the proportion of water is greater than 3 % the brake fluid must be replaced. Check brake fluid oil level and top up if necessary. Or replace brake fluid every 2 years!		0.5 litres, DOT 4, e.g. FTE Type 9368
	C	Check brake hoses for damage.		
Front tool carrier	C	Check upper link for wear and damage.		



Work to be carried out: Hako system maintenance I extended, <b>2500</b> operating hours (5000 OH, 7500 OH, 10000 OH)		✓	Specifications:
Component:			
Sweeping unit	C	Check for wear and damage.	
	C	Check sweeping level, adjust if necessary.	
Suction mouth	C	Check coarse material flap and Bowden cable as to function and damage.	
	C	Check the rod ends of the suction mouth lift for wear and damage, replace if necessary.	SP No. 01498260, SP No. 01492810
	C (R)	Check rollers, rubber aprons and circulation water compartments for wear and damage. Defective or worn parts must be replaced!	SP No. 01472250 (2X) SP No. 01470890 SP No. 01470830 SP No.. 01470860
	C	Check and if necessary adjust the suction mouth setting.	Distance: at the side 5 mm, at the rear 10 mm
Suction duct	C	Check suction hose for damage and correct seating.	
	C	Check seal between suction duct and dirt hopper.	
Suction fan	C	Check suction fan for contamination, clean if necessary.	
	C	Check V-belt at the suction fan for correct V-belt tension and damage and, if necessary, re-tighten or replace.	
	C	Check suction fan for vibration, check bearings if necessary.	
	C	Check impeller for wear.	
Hopper flap of the dirt hopper	C	Check seals of the hopper flap for leaks and damage.	
	C	Check impact plate for wear.	
	C	Cover joints and bearing.	
	C	Check exhaust side of hopper flap for contamination.	
Hopper, circulating water system	C (R)	Hose, cpl. (Circulating water system) If required!	SP No. 01231950

Work to be carried out: Hako system maintenance I extended, <b>2500</b> operating hours (5000 OH, 7500 OH, 10000 OH)		✓	Specifications:
Component:			
Cab	C	Clean cab air filter	
	C	Check and if necessary top up the windscreen washing agent level.	
	C	Functional check of heater	
With air conditioning system	C	Functional check of air conditioning system	
With air conditioning system	C	Check condenser of the air conditioning system (radiator) for contamination, clean with compressed air if necessary.	
Wheels / tyres	C	Re-tighten wheel nuts.	180 Nm
Tyres	C	Check any damage, air pressure and tread depth.	
	C	215/ 70 R15	6.0 bar
	C	225/ 70 R15 C (standard tyres)	5.0 bar
	C	255/ 65 R16 (all-purpose tyres)	3.0 bar
	C	285/ 65 R16 C	3.2 bar
	C	320/ 55-15 T559 (lawn surface tyres)	2.8 bar
	C	325/ 60 R15	2.5 bar
Lubrication service:		Door hinges (4x)	
		Front lift cylinder (4x)	
		Front lift (2x)	
		Upper link (2x)	
		Steering cylinder (4x)	
<b>C = Check: function, seal-tightness, top up, adjust</b>			
<b>R = Replace, (R) = Replace if technically necessary</b>			
Remarks; service information for the customer:			
Town / city:		Date:	
Signature – Customer:			
Signature – Service technician:			

<b>Hako-Citymaster 1650 (1491.15 ) – Hako system maintenance</b>			
Hako system maintenance II extended, <b>3000</b> operating hours (6000 OH, 9000 OH). To be carried out by an authorised Hako service centre.			
Mach. No.:			
Operating hrs.:			
Customer:			
Work to be carried out: Hako system maintenance II extended, <b>3000</b> operating hours (6000 OH, 9000 OH).		✓	Specifications:
Component:			
Engine	C	Read the error memory of the engine control unit, delete sporadic errors, repair clear errors if necessary.	
	C	Check condition of diesel particulate filter and perform service regeneration if necessary.	
	R	Replace engine oil.	approx. 7.2 litres, Fuchs Titan CARGO, 5W-40
	R	Replace engine oil filter.	SP No. 01500200
	R	Oil drain screw	SP No. 01501190
	R	Seal of oil drain screw	SP No. 01501200
	R	Fuel filter (until WHW14911531403500)	SP No. 01500310
	R	Fuel pre-filter (until WHW14911531403500)	SP No. 01500420
	R	Fuel filter (from WHW14911531403500)	SP No. 01509030
	R	Fuel pre-filter (from WHW14911531403500)	SP No. 01508990
	R	Oil separator crankcase venting	SP No. 01500530
	R	Air filter insert	SP No. 01500640
	R	Safety cartridge air filter	SP No. 01500750
	C	Check coolant hoses and radiator for leaks.	
	C	Check coolant level, top up if necessary. Only top up distilled water or engine coolant!	VW- G13 or similar, e.g. Total Glaself Auto Supra.
Combination radiator	C	Check engine, charge air and hydraulic oil for contamination, clean with compressed air if necessary.	
Engine bearing assembly	C	Check engine bearings for damage, cracks and tight fit.	
V-ribbed belt	C	State and function	
Generator	C	Check generator for contamination, clean.	
Exhaust system	C	Functional and seal tightness check	
Fuel lines	C	Functional and seal tightness check	
Air intake pipe	C	Functional and seal tightness check	

Work to be carried out: Hako system maintenance II extended, <b>3000</b> operating hours (6000 OH, 9000 OH).			✓	Specifications:
Component:				
Vehicle control system (work hydraulics control unit)	C	Read entries in the work hydraulics control unit, eliminate fault if necessary. Check software status, update software if necessary.		
Vehicle control system (work hydraulics control unit)	C	Read entries in the hydrostatic control unit, eliminate fault if necessary. Check software status, update software if necessary.		
Hydraulics	R	Hydraulic oil filter		SP No. 01493180
	R	Venting filter hydraulic tank		SP No. 01497120
	R	Replace hydraulic oil. Check hydraulic oil level, top up if necessary. Note: Please note topping up with organic oil or other oils. <b>Do not mix hydraulic oils!</b>		approx. 58 litres HVL P 46, e.g. Mobiloil DTE 10 Excel
	C	Check hydraulic pipes and hydraulic hoses for abrasion points and damage.		
Hydraulic cylinder – sweeping unit	C	Functional and seal tightness check		
Lifting cylinder (front power lift)	C	Functional and seal tightness check		
Lifting cylinder (sweeper set-up)	C	Functional and seal tightness check		
Hydraulic pipes of basic unit	C	Functional and seal tightness check		
Hydraulic pipes of implements and attachments	C	Functional and seal tightness check		
Hand pump	C	Check function of the hand pump (raise the dirt hopper or loading platform with the hand pump).		

Work to be carried out: Hako system maintenance II extended, <b>3000</b> operating hours (6000 OH, 9000 OH).			✓	Specifications:
Component:				
Chassis / axles	C	Check chassis springs for damage and ease of movement (visual inspection).		
	C	Check shock absorbers for any leaks.		
	C	Check bearing bushes of the axle suspension for cracks and damage (visual inspection).		
	C	Check stop buffers for cracks and damage (visual inspection).		
Steering	C	Functional and seal tightness check		
	C	Check steering cylinder for play. Lubricate steering cylinder (4x).		
	C	Remove covers (plastic) of the articulated joints (top + bottom) and check the joints underneath for dirt, if necessary clean <b>dry</b> with a brush.		
	C	Check bearing bushings (top + bottom) of the articulated joints for damage		
Electrical system	C	Functional check, lighting, blinkers, work functions, horn, etc.		
Electrical lines (cables)	C	Check cables (electrical lines) for abrasion points and damage.		
	C	Check positive and ground connections to the battery and frame for tight fit and abrasion points, clean if necessary. Protect battery terminals with terminal grease.		
	C	Check battery charge condition.		
Brake	C (R)	Check service brake for proper functioning and wear and carry out a brake test, replace required parts if necessary.		
	C	Test parking brake for proper functioning.		
	(R)	Check proportion of water in brake fluid. If the proportion of water is greater than 3 % the brake fluid must be replaced. Check brake fluid oil level and top up if necessary. Or replace brake fluid every 2 years!		0.5 litres, DOT 4, e.g. FTE Type 9368
	C	Check brake hoses for damage.		
Front lift	R	Rear bolt of front lift.		SP No. 01472330
Front tool carrier	C	Check upper link for wear and damage.		

Work to be carried out: Hako system maintenance II extended,			✓	Specifications:
Component:				
Sweeping unit	C	Check for wear and damage.		
	C	Check sweeping level, adjust if necessary.		
	R	Bearing block (2-broom- system) (2X)		SP No. 01493820
	R	Bushing (2-broom- system) (4X)		SP No.01060940
	R	Bushing (2-broom- system) (4X)		SP No.01060950
	R	Comb (2-broom- system) (2X)		SP No.01493640
Suction mouth	C	Check coarse material flap and Bowden cable as to function and damage.		
	C	Check the rod ends of the suction mouth lift for wear and damage, replace if necessary.		SP No. 01498260, SP No. 01492810
	C (R)	Check rollers, rubber aprons and circulation water compartments for wear and damage. Defective or worn parts must be replaced!		SP No. 01472250 (2X) SP No. 01470890 SP No. 01470830 SP No.. 01470860
	C	Check and if necessary adjust the suction mouth setting.		Distance: at the side 5 mm, at the rear 10 mm
Suction duct	C	Check suction hose for damage and correct seating.		
	C	Check the seal between suction duct and dirt hopper.		
Suction fan	C	Check suction fan for contamination, clean if necessary.		
	C	Check V-belt at the suction fan for correct V-belt tension and damage and, if necessary, re-tighten or replace.		
	C	Check suction fan for vibration, check bearings if necessary.		
	C	Check impeller for wear.		
Hopper flap of the dirt hopper	C	Check seals of the hopper flap for leaks and damage.		
	C	Check impact plate for wear.		
	C	Cover joints and bearing.		
	C	Check exhaust side of hopper flap for contamination.		
Hopper, circulating water system	C (R)	Hose, cpl. (Circulating water system) If required!		SP No. 01231950

Work to be carried out: Hako system maintenance II extended, ✓			Specifications:
Component:			
Cab	R	Cab air filter	SP No. 01065540
	C	Check and if necessary top up the windscreen washing agent level.	
	C	Functional check of heater	
With air conditioning system	C	Functional check of air conditioning system	
With air conditioning system	C	Check condenser of the air conditioning system (radiator) for contamination, clean with compressed air if necessary.	
Wheels / tyres	C	Re-tighten wheel nuts.	180 Nm
Tyres	C	Check any damage, air pressure and tread depth.	
	C	215/ 70 R15	6.0 bar
	C	225/ 70 R15 C (standard tyres)	5.0 bar
	C	255/ 65 R16 (all-purpose tyres)	3.0 bar
	C	285/ 65 R16 C	3.2 bar
	C	320/ 55-15 T559 (lawn surface tyres)	2.8 bar
	C	325/ 60 R15	2.5 bar
Lubrication service:		Door hinges (4x)	
		Front lift cylinder (4x)	
		Front lift (2x)	
		Upper link (2x)	
		Steering cylinder (4x)	
<b>C = Check: function, seal-tightness, top up, adjust</b>			
<b>R = Replace, (R) = Replace if technically necessary</b>			
Remarks; service information for the customer:			
Town / city:		Date:	
Signature – Customer:			
Signature – Service technician:			

<b>Hako-Citymaster 1650 (1491.15) – Hako system maintenance</b>				
Hako system maintenance I, 500 operating hours (1500 OH, <b>3500 OH</b> , 4500 OH, 5500 OH, 6500 OH, 7500 OH, 8500 OH, 9500 OH).				
To be carried out by an authorised Hako service centre.				
Mach. No.:				
Operating hrs.:				
Customer:				
Work to be carried out: Hako system maintenance I, 500 operating hours (1500 OH, <b>3500 OH</b> , 4500 OH, 5500 OH, 6500 OH, 7500 OH, 8500 OH, 9500 OH).			✓	Specifications:
Component:				
Engine	C	Read the error memory of the engine control unit, delete sporadic errors, repair clear errors if necessary.		
	C	Check condition of diesel particulate filter and perform service regeneration if necessary.		
	R	Replace engine oil.		approx. 7.2 litres, Fuchs Titan CARGO, 5W-40
	R	Replace engine oil filter.		SP No. 01500200
	R	Oil drain screw		SP No. 01501190
	R	Seal of oil drain screw		SP No. 01501200
	R	Fuel filter (until WHW14911531403500)		SP No. 01500310
	R	Fuel pre-filter (until WHW14911531403500)		SP No. 01500420
	R	Fuel filter (from WHW14911531403500)		SP No. 01509030
	R	Fuel pre-filter (from WHW14911531403500)		SP No. 01508990
	R	Oil separator crankcase venting		SP No. 01500530
	R	Air filter insert		SP No. 01500640
	C	Check coolant hoses and radiator for leaks		
	C	Check coolant level, top up if necessary. Only top up distilled water or engine coolant!		VW- G13 or similar, e.g. Total Glaself Auto Supra.
Combination radiator	C	Check engine, charge air and hydraulic oil for contamination, clean with compressed air if necessary.		
Engine bearing assembly	C	Check engine bearings for damage, cracks and tight fit.		
V-ribbed belt	C	State and function		
Generator	C	Check generator for contamination, clean.		
Exhaust system	C	Functional and seal tightness check		
Fuel lines	C	Functional and seal tightness check		
Air intake pipe	C	Functional and seal tightness check		



Work to be carried out: Hako system maintenance I, 500 operating hours (1500 OH, <b>3500 OH</b> , 4500 OH, 5500 OH, 6500 OH, 7500 OH, 8500 OH, 9500 OH).			✓	Specifications:
Component:				
Vehicle control system (work hydraulics control unit)	C	Read entries in the work hydraulics control unit, eliminate fault if necessary. Check software status, update software if necessary.		
Vehicle control system (work hydraulics control unit)	C	Read entries in the hydrostatic control unit, eliminate fault if necessary. Check software status, update software if necessary.		
Hydraulics	C	Check hydraulic oil level, top up if necessary. Check hydraulic oil level, top up if necessary. Note: Please note topping up with organic oil or other oils. <b>Do not mix hydraulic oils!</b>		HVLP 46, e.g. Mobiloil DTE 10 Excel
	C	Check hydraulic pipes and hydraulic hoses for abrasion points and damage.		
Hydraulic cylinder – sweeping unit	C	Functional and seal tightness check		
Lifting cylinder (front power lift)	C	Functional and seal tightness check		
Lifting cylinder (sweeper set-up)	C	Functional and seal tightness check		
Hydraulic pipes of basic unit	C	Functional and seal tightness check		
Hydraulic pipes of implements and attachments	C	Functional and seal tightness check		
Hand pump	C	Check function of the hand pump (raise the dirt hopper or loading platform with the hand pump)		
Chassis / axles	C	Check chassis springs for damage and ease of movement (visual inspection).		
	C	Check shock absorbers for any leaks.		
	C	Check bearing bushes of the axle suspension for cracks and damage (visual inspection).		
	C	Check stop buffers for cracks and damage (visual inspection).		
Steering	C	Functional and seal tightness check		
	C	Check steering cylinder for play. Lubricate steering cylinder (4x).		

Work to be carried out: Hako system maintenance I, 500 operating hours (1500 OH, <b>3500 OH</b> , 4500 OH, 5500 OH, 6500 OH, 7500 OH, 8500 OH, 9500 OH).			✓	Specifications:
Component:				
Electrical system	C	Functional check, lighting, blinkers, work functions, horn, etc.		
Electrical lines (cables)	C	Check cables (electrical lines) for abrasion points and damage.		
	C	Check positive and ground connections to the battery and frame for tight fit and abrasion points, clean if necessary. Protect battery terminals with terminal grease.		
	C	Check battery charge condition.		
	C	Test parking brake for proper functioning.		
Brake	C (R)	Check service brake for proper functioning and wear and carry out a brake test, replace required parts if necessary.		
	C	Check proportion of water in brake fluid. If the proportion of water is greater than 3 % the brake fluid must be replaced. Check brake fluid oil level and top up if necessary. Or replace brake fluid every 2 years!		0.5 litres, DOT 4, e.g. FTE Type 9368
	C	Check brake hoses for damage.		
Front tool carrier	C	Check upper link for wear and damage.		

Work to be carried out: Hako system maintenance I, 500 operating hours (1500 OH, <b>3500 OH</b> , 4500 OH, 5500 OH, 6500 OH, 7500 OH, 8500 OH, 9500 OH).			✓	Specifications:
Component:				
Sweeping unit	C	Check for wear and damage.		
	C	Check sweeping level, adjust if necessary.		
Suction mouth	C	Check coarse material flap and Bowden cable as to function and damage.		
	C	Check the rod ends of the suction mouth lift for wear and damage, replace if necessary.		SP No. 01498260, SP No. 01492810
	C (R)	Check rollers, rubber aprons and circulation water compartments for wear and damage. Defective or worn parts must be replaced!		SP No. 01472250 (2X) SP No. 01470890 SP No. 01470830 SP No.. 01470860
	C	Check and if necessary adjust the suction mouth setting.		Distance: at the side 5 mm, at the rear 10 mm
Suction duct	C	Check suction hose for damage and correct seating.		
	C	Check seal between suction duct and dirt hopper.		
Suction fan	C	Check suction fan for contamination, clean if necessary.		
	C	Check V-belt at the suction fan for correct V-belt tension and damage and, if necessary, re-tighten or replace.		
	C	Check suction fan for vibration, check bearings if necessary.		
	C	Check impeller for wear.		
Hopper flap of the dirt hopper	C	Check seals of the hopper flap for leaks and damage.		
	C	Check impact plate for wear.		
	C	Cover joints and bearing.		
	C	Check exhaust side of hopper flap for contamination.		
Hopper, circulating water system	C (R)	Hose, cpl. (Circulating water system) If required!		SP No. 01231950

Work to be carried out: Hako system maintenance I, 500 operating hours (1500 OH, <b>3500 OH</b> , 4500 OH, 5500 OH, 6500 OH, 7500 OH, 8500 OH, 9500 OH).			✓	Specifications:
Component:				
Cab	C	Clean cab air filter		
	C	Check and if necessary top up the windscreen washing agent level.		
	C	Functional check of heater		
With air conditioning system	C	Functional check of air conditioning system		
With air conditioning system	C	Check condenser of the air conditioning system (radiator) for contamination, clean with compressed air if necessary.		
Wheels / tyres	C	Re-tighten wheel nuts.		180 Nm
Tyres	C	Check any damage, air pressure and tread depth.		
	C	215/ 70 R15		6.0 bar
	C	225/ 70 R15 C (standard tyres)		5.0 bar
	C	255/ 65 R16 (all-purpose tyres)		3.0 bar
	C	285/ 65 R16 C		3.2 bar
	C	320/ 55-15 T559 (lawn surface tyres)		2.8 bar
	C	325/ 60 R15		2.5 bar
Lubrication service:		Door hinges (4x)		
		Front lift cylinder (4x)		
		Front lift (2x)		
		Upper link (2x)		
		Steering cylinder (4x)		
<b>C = Check: function, seal-tightness, top up, adjust</b>				
<b>R = Replace, (R) = Replace if technically necessary</b>				

Remarks; service information for the customer:	
<b>Town / city:</b>	<b>Date:</b>
<b>Signature – Customer:</b>	
<b>Signature – Service technician:</b>	

<b>Hako-Citymaster 1650 (1491.15) – Hako system maintenance</b>			
Hako system maintenance II extended, <b>4000</b> operating hours (8000 OH). To be carried out by an authorised Hako service centre.			
Mach. No.:			
Operating hrs.:			
Customer:			
Work to be carried out: Hako system maintenance II extended, <b>4000</b> operating hours (8000 OH).		✓	Specifications:
Component:			
Engine	C	Read the error memory of the engine control unit, delete sporadic errors, repair clear errors if necessary.	
	C	Check condition of diesel particulate filter and perform a service regeneration.	
	R	Replace engine oil.	approx. 7.2 litres, Fuchs Titan CARGO, 5W-40
	R	Replace engine oil filter.	SP No. 01500200
	R	Oil drain screw	SP No. 01501190
	R	Seal of oil drain screw	SP No. 01501200
	R	Fuel filter (until WHW14911531403500)	SP No. 01500310
	R	Fuel pre-filter (until WHW14911531403500)	SP No. 01500420
	R	Fuel filter (from WHW14911531403500)	SP No. 01509030
	R	Fuel pre-filter (from WHW14911531403500)	SP No. 01508990
	R	Oil separator crankcase venting	SP No. 01500530
	R	Air filter insert	SP No. 01500640
	R	Safety cartridge air filter	SP No. 01500750
	C	Check coolant hoses and radiator for leaks.	
	C	Clean EGR system (valve and main radiator).	
	R	Replace engine coolant, VW- G13. Note: Only use distilled water for mixing. Tap or well water does not meet the required quality standards that guarantee the coolant is fully functional.	VW- G13 or similar, e.g. Total Glaself Auto Supra.
Combination radiator	C	Check engine, charge air and hydraulic oil for contamination, clean with compressed air if necessary.	
Engine bearing assembly	C	Check engine bearings for damage, cracks and tight fit	
V-ribbed belt	C	State and function	
Generator	C	Check generator for contamination, clean.	
Exhaust system	C	Functional and seal tightness check	
Fuel lines	C	Functional and seal tightness check	
Air intake pipe	C	Functional and seal tightness check	

Work to be carried out: Hako system maintenance II extended, <b>4000</b> operating hours (8000 OH).		✓	Specifications:
Component:			
Vehicle control system (work hydraulics control unit)	C	Read entries in the work hydraulics control unit, eliminate fault if necessary. Check software status, update software if necessary.	
Vehicle control system (work hydraulics control unit)	C	Read entries in the hydrostatic control unit, eliminate fault if necessary. Check software status, update software if necessary.	
Hydraulics			
	R	Hydraulic oil filter	SP No. 01493180
	R	Venting filter hydraulic tank	SP No. 01497120
	C	Remove hydraulic oil sample and send it in. <b>If the sample result is negative, the hydraulic oil must be replaced prematurely!</b>	SP No. 00009720
	R	Hydraulic hose to bypass valve	SP No. 01501600
	R	Hydraulic hose to bypass valve	SP No. 01501740
	C	Check hydraulic oil level, top up if necessary. Note: Please note topping up with organic oil or other oils. <b>Do not mix hydraulic oils!</b>	HVLP 46, e.g. Mobiloil DTE 10 Excel
	C	Check hydraulic pipes and hydraulic hoses for abrasion points and damage.	
Hydraulic cylinder – sweeping unit	C	Functional and seal tightness check	
Lifting cylinder (front power lift)	C	Functional and seal tightness check	
Lifting cylinder (sweeper set-up)	C	Functional and seal tightness check	
Hydraulic pipes of basic unit	C	Functional and seal tightness check	
Hydraulic pipes of implements and attachments	C	Functional and seal tightness check	
Hand pump	C	Check function of the hand pump (raise the dirt hopper or loading platform with the hand pump).	
Chassis / axles			
	C	Check chassis springs for damage and ease of movement (visual inspection).	
	C	Check shock absorbers for any leaks.	
	C	Check bearing bushes of the axle suspension for cracks and damage (visual inspection).	
	C	Check stop buffers for cracks and damage (visual inspection).	
	R	Rubber- Metal- Buffer front axle (2X)	SP No. 01490530

Work to be carried out: Hako system maintenance II extended, <b>4000</b> operating hours (8000 OH).			✓	Specifications:
Component:				
Steering	C	Functional and seal tightness check. Lubricate steering cylinder (4x).		
	C	Check steering cylinder for play.		
	C	Remove covers (plastic) of the articulated joints (top + bottom) and check the joints underneath for dirt, if necessary clean <b>dry</b> with a brush.		
	C	Check bearing bushings (top + bottom) of the articulated joints for damage		
Electrical system	C	Functional check, lighting, blinkers, work functions, horn, etc.		
Electrical lines (cables)	C	Check cables (electrical lines) for abrasion points and damage.		
	C	Check positive and ground connections to the battery and frame for tight fit and abrasion points, clean if necessary. Protect battery terminals with terminal grease.		
	C	Check battery charge condition.		
Brake	C (R)	Check service brake for proper functioning and wear and carry out a brake test, replace required parts if necessary.		
	C	Test parking brake for proper functioning.		
	C	Check proportion of water in brake fluid. If the proportion of water is greater than 3 % the brake fluid must be replaced. Check brake fluid oil level and top up if necessary. Or replace brake fluid every 2 years!		0.5 litres, DOT 4, e.g. FTE Type 9368
	C	Check brake hoses for damage.		
Front tool carrier	C	Check upper link for wear and damage.		

Work to be carried out: Hako system maintenance II extended,			✓	Specifications:
Component:				
Sweeping unit	C	Check for wear and damage.		
	C	Check sweeping level, adjust if necessary.		
Suction mouth	C	Check coarse material flap as to function and damage. Replace Bowden cable.		SP no. 01167520
	C	Check the rod ends of the suction mouth lift for wear and damage, replace if necessary.		SP No. 01498260, SP No. 01492810
	C (R)	Check rollers, rubber aprons and circulation water compartments for wear and damage. Defective or worn parts must be replaced!		SP No. 01472250 (2X) SP No. 01470890 SP No. 01470830 SP No.. 01470860
	C	Check and if necessary adjust the suction mouth setting.		Distance: at the side 5 mm, at the rear 10 mm
Suction duct	C	Check suction hose for damage and correct seating.		
	C	Check seal between suction duct and dirt hopper.		
Suction fan	R	V-belt suction fan		with Casappa motor SP No. 01220790 with Dana motor SP No. 48601960001
	C	Check suction fan for contamination, clean if necessary.		
	C	Check V-belt at the suction fan for correct V-belt tension and damage and, if necessary, re-tighten or replace.		
	C	Check suction fan for vibration, check bearings if necessary.		
	C	Check impeller for wear.		
	R	Replace hydraulic hoses from suction fan		SP No. 01493620 SP No. 01493670
Hopper flap of the dirt hopper	C	Check seals of the hopper flap for leaks and damage.		
	C	Check impact plate for wear.		
	C	Cover joints and bearing.		
	C	Check exhaust side of hopper flap for contamination.		
Hopper, circulating water system	C (R)	Hose, cpl. (Circulating water system) If required!		SP No. 01231950



Work to be carried out: Hako system maintenance II extended, ✓			Specifications:
Component:			
Cab	R	Cab air filter	SP No. 01065540
	C	Check and if necessary top up the windscreen washing agent level.	
	C	Functional check of heater	
With air conditioning system	C	Functional check of air conditioning system	
With air conditioning system	C	Check condenser of the air conditioning system (radiator) for contamination, clean with compressed air if necessary.	
Windscreen washing agent	C	Check and if necessary top up the windscreen washing agent level.	
Wheels / tyres	C	Re-tighten wheel nuts.	180 Nm
Tyres	C	Check any damage, air pressure and tread depth.	
	C	215/ 70 R15	6.0 bar
	C	225/ 70 R15 C (standard tyres)	5.0 bar
	C	255/ 65 R16 (all-purpose tyres)	3.0 bar
	C	285/ 65 R16 C	3.2 bar
	C	320/ 55-15 T559 (lawn surface tyres)	2.8 bar
	C	325/ 60 R15	2.5 bar
Lubrication service:		Door hinges (4x)	
		Front lift cylinder (4x)	
		Front lift (2x)	
		Upper link (2x)	
		Steering cylinder (4x)	
<b>C = Check: function, seal-tightness, top up, adjust</b>			
<b>R = Replace, (R) = Replace if technically necessary</b>			
Remarks; service information for the customer:			
Town / city:		Date:	
Signature – Customer:			
Signature – Service technician:			