Genie®
A TEREX BRAND

Service Manual

Serial Number Range

GTH-2506
(Deutz Stage IIIA - IIIB)

From GTH250619M-1001
to GTH250619M-1200

GTH-3007
(Deutz Stage IIIA - IIIB)

From GTH300719M-501
to GTH300719M-600

Part No. 57.4400.9220GT
Rev A
August 2018

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Dana Axles

Steering	Integrated steer cylinder
Joints	Heavy duty double U-joints
Steering angle, maximum	40 °
Front Axle Lubrication	
Front differential	6.34 quarts 6 liters
Axle planetary end (each)	1 quart 0.95 liters
Drop Box Lubrication	
Drop Box	0.26 gallons 1 liters
Rear Axle Lubrication	
Rear differential	6.34 quarts 6 liters
Axle planetary end (each)	1 quart 0.95 liters
Oil viscosity requirements	
Differential	API GL5 (MIL L-2105)
Planetary ends	API GL4 or GL5 (MIL L-2105)
For additional axle information, refer to the ***Dana Axle Service Manual***	
Dana Axle Service Manual	
Genie part number	57.4700.0026

Continuous improvement of our products is a Genie policy. Product specifications are subject to change without notice.

A-4
Lubricate the Boom

Genie specifications require that this procedure be performed every 8 hours or daily, whichever comes first.

Greasing the specified locations is essential for good machine performance and service life. Operating the machine with little or no grease may cause the machine to perform poorly and continued use may cause component damage.

1 Fully extend and raise the boom, then retract the boom, checking to insure it operates smoothly. There should be a light film of lubricant on wear pad contact surfaces.

⊙ Result: Boom operates smoothly and a thin film of lubricant is visible. Proceed to step 4.

⊠ Result: Boom does not extend or retract smoothly and no lubricant is visible on wear pad contact surfaces. Proceed to step 2.

2 Apply a thin layer of grease to the underside of the number 2 boom tube where it makes contact with the number 1 boom tube lower wear pads.

3 Lubricate the top and side boom tube wear pads.

4 Return the boom to the stowed position.

Grease Specification	
MASCHERPA GR 529 GREASE	
Genie part number	09.4693.0007

A-5
Perform Engine Maintenance

Engine specifications require that this procedure be performed every 8 hours or daily, whichever comes first.

Deutz TD 2.9 L4
Lubricating oil level - check/add
Coolant level - check/add
Visual inspection
Suction air filter/dry air filter - check
Fuel pre-filter - check/empty water

Only for Deutz TD 2.9 L4 - Stage IIIB
Exhaust system including exhaust aftertreatment components - check for leaks

Required maintenance procedures and additional engine information is available in the ***Deutz TD 2.9 L4 Operation and Maintenance Manual*** (Deutz part number 0312 3893).

Deutz TD 2.9 L4 Operation and Maintenance Manual	
Genie part number	57.4700.0006

Checklist D Procedures

D-1
Inspect the Forks

Genie specifications require that this procedure be performed every 1000 hours or annually, whichever comes first OR whenever permanent deformation of the forks is suspected.

Maintaining the lifting forks in good condition is essential to safe operation and good machine performance. Failure to detect damage to the forks could result in a hazardous operating condition.

1 Thoroughly clean the lifting forks.

2 Inspect the forks for the following:
- Surface cracks
- Straightness of the blade and shank
- Fork angle at 90 ± 3 degrees
- Relative height of fork tips shall not differ more than 3% of blade length
- Excessive wear to the forks, fork mount or legible markings

☒ Result: If any of the above criteria are not met, forks shall be removed from service until they are repaired or replaced.

a - shank
b - blade

How to Remove the Boom

⚠WARNING Bodily injury hazard. This procedure requires specific repair skills, lifting equipment and a suitable workshop. Attempting this procedure without these skills and tools could result in death or serious injury and significant component damage. Dealer service is strongly recommended.

Note: When removing a hose assembly or fitting, the O-ring on the fitting and/or hose end must be replaced and then torqued to specification during installation. Refer to Section 2, ***Hydraulic Hose and Fitting Torque Specifications***.

1 Remove the forks from the boom.

2 Disconnect the electric cables from the boom, if present.

3 Lift the boom until the pin locking the lift cylinder is in a position above the cab roof.

4 Place a stand under the lift cylinder to properly support it once the pin connecting the cylinder to the boom will be removed.

5 Attach a lifting strap from an overhead crane to the fork support and slightly lift the boom. Do not apply any lifting pressure.

6 Attach a second strap from the overhead crane to the lifting cylinder, rod side, and put some tension on it.

7 Using a soft metal drift, remove the slave cylinder locking pin from the boom support.

⚠DANGER Crushing hazard. The cylinder will fall if not properly supported when the pivot pin is removed from the machine.

8 Flip the slave cylinder towards the cab.

9 Using a soft metal drift, remove the lift cylinder locking pin, boom side.

10 Operate the 2 overhead cranes at the same time to lower the boom being careful to rest the lift cylinder onto the support previously placed underneath, and the boom tip onto another stand positioned to support the front part of the boom.

11 Hook the 3 lifting points and then slowly lift the boom.

12 Tag, disconnect and plug the hydraulic hoses that go to the extend, retract, fork tilt and fork leveling cylinders, and the quick coupling cylinder (if equipped).

⚠WARNING Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

13 Using a soft metal drift, remove the pin securing the boom to the machine.

⚠DANGER Crushing hazard. The boom will fall if not properly supported when the pivot pin is removed from the machine.

14 Carefully remove the boom assembly from the machine and place it on a structure capable of supporting it.

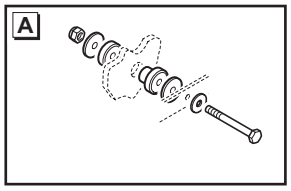
8 Remove the 4 retaining fasteners "a-b"of the cabin.

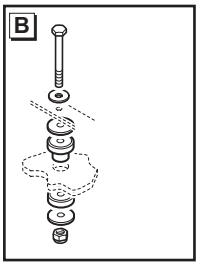
9 Install and secure two eyebolts to the top the cabin in the special seats.

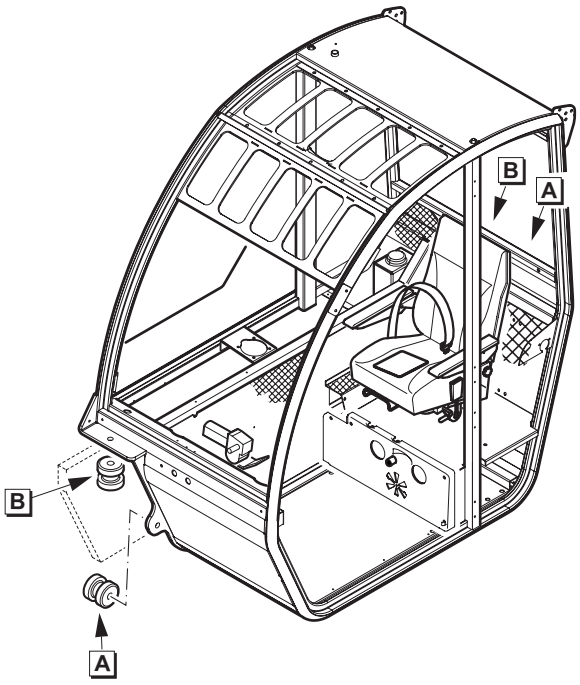
10 Using a sling chain and an overhead crane, slowly raise the cabin away from the machine and set it on a supporting device.

NOTICE Component damage hazard. Wrapping a strap around the cab and lifting using an overhead crane can put excessive pressure on the glass windows of the cab, causing the windows to break. Do not lift the cab using a strap from an overhead crane.

Bolt torque specification	
Operator's cab mounting bolts	155 ft-lbs 210 Nm (plus Locktite compound)







5-2 Axle

How to Remove the Axle

⚠WARNING Bodily injury hazard. This procedure requires specific repair skills, lifting equipment and a suitable workshop. Attempting this procedure without these skills and tools could result in death or serious injury and significant component damage. Dealer service is required.

1 Chock the wheels.

2 Remove the fasteners securing the driveshaft to the axle. Remove the driveshaft from the machine.

3 Tag and remove the hydraulic hoses from the axle.

⚠WARNING Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

4 Loosen the lug nuts of both wheels on the axle to be removed. Do not remove the lug nuts.

5 Raise the end of the machine until the tires are off the ground. Place blocks under the chassis for support.

⚠WARNING Crushing hazard. The chassis will fall if not properly supported.

6 Remove the lug nuts. Remove the tire and wheel assembly from both ends of the axle.

7 Support and secure the axle to an appropriate lifting device.

8 Use a soft metal drift to remove the pivot pin.

9 Remove the fasteners securing the axle to the chassis. Remove the axle from the machine.

⚠WARNING Crushing hazard. The axle will fall if not properly supported when the fasteners are removed from the machine.

Bolt torque specification	
Front Axle mounting bolts	560 ft-lbs 760 Nm
Rear Axle mounting bolts	331 ft-lbs 450 Nm

How to Test the Fork Tilt Relief Valves

1 Connect a 0 to 5000 psi / 0 to 350 bar pressure gauge to port TP1 on the function manifold (boom and steering functions hydraulic test port).

2 Start the engine.

3 Increase the engine speed to maximum rpm.

4 Fully retract the boom without releasing the joystick.

5 Act on the pressure relief valve "**d**" until the pressure gauge connected to port TP1, reads 310 bar.

6 Tilt the forks up or down.

⊙ Result: the pressure gauge reads 4350 psi / 300 bar. The pressure setting is correct.

⊠ Pressure is not within specification. Adjust the fork tilt relief valve "**b**" located on the Function Manifold.

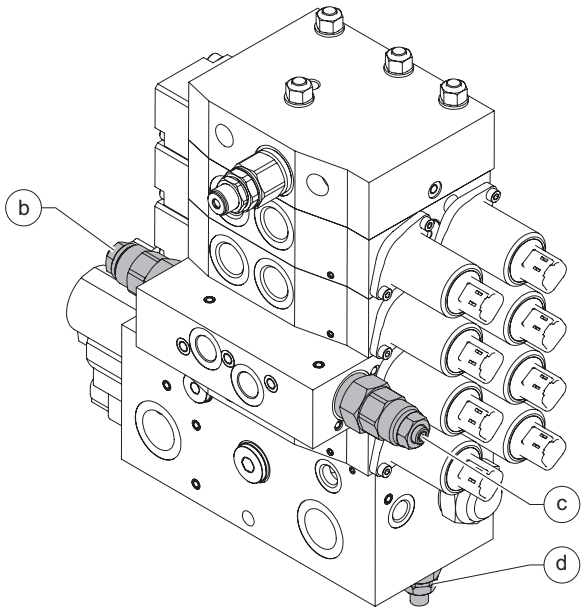
7 Tilt the forks in the opposite direction as before.

⊙ Result: the pressure gauge reads 4350 psi / 300 bar. The pressure setting is correct.

⊠ Pressure is not within specification. Adjust the fork tilt relief valve "**c**" located on the Function Manifold.

8 Act on the pressure relief valve "c", until the pressure gauge connected to port TP1, reads 280 bar.

9 Turn the machine off. Remove the pressure gauge from the test port.



Settings

Observe and Obey:

- ☑ Troubleshooting and repair procedures shall be completed by a person trained and qualified on the repair of this machine.
- ☑ Immediately tag and remove from service a damaged or malfunctioning machine.
- ☑ Repair any machine damage or malfunction before operating the machine.
- ☑ Unless otherwise specified, perform each repair procedure with the machine in the following configuration:
  - Machine parked on a firm, level surface
  - Boom in the stowed position
  - Key switch in the off position with the key removed
  - Wheels chocked

Before Repairs Start:

- ☑ Read, understand and obey the safety rules and operating instructions in the appropriate operator's manual on your machine.
- ☑ Be sure that all necessary tools and parts are available and ready for use.
- ☑ Use only Genie approved replacement parts.
- ☑ Read each procedure completely and adhere to the instructions. Attempting shortcuts may produce hazardous conditions.

FAULT CODES

SPN	FMI	Short Text Detail
523615	3	Metering unit (Fuel-System); short circuit to battery highside
523615	4	Metering unit (Fuel-System); short circuit to ground high side
523615	3	Metering unit (Fuel-System); short circuit to battery low side
523615	4	Metering Unit (Fuel-System); short circuit to ground low side
1323	12	Too many recognized misfires in cylinder 1 (in firing order)
1324	12	Too many recognized misfires in cylinder 2 (in firing order)
1325	12	Too many recognized misfires in cylinder 3 (in firing order)
1326	12	Too many recognized misfires in cylinder 4 (in firing order)
1327	12	Too many recognized misfires in cylinder 5 (in firing order)
1328	12	Too many recognized misfires in cylinder 6 (in firing order)
1322	12	Too many recognized misfires in more than one cylinder
523612	12	Internal ECU monitoring detection reported error
523612	12	Internal ECU monitoring detection reported error
523612	12	Internal ECU monitoring detection reported error
523612	12	Internal ECU monitoring detection reported error
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523008	1	Manipulation control was triggered
523008	2	Timeout error in Manipulation control
100	3	Sensor error oil pressure; signal range check high
100	4	Sensor error oil pressure sensor; signal range check low
100	0	High oil pressure; warning threshold exceeded
100	0	High oil pressure; shut off threshold exceeded
100	1	Low oil pressure; warning threshold exceeded

FAULT CODES

SPN	FMI	Short Text Detail
524045	9	Master-Slave CAN; Message-Counter-Error of CAN-Receive-Frame ComMSMoFOvR
524046	9	Master-Slave CAN; Checksum-Error of CAN-Receive-Frame ComMSMoFOvR
524047	9	Master-Slave CAN; Messsage-Length-Error of CAN-Receive-Frame ComMSMoFOvR
524048	9	Timeout error CAN message ComMSMoFOvR1TO error memory Slave
524049	9	Message copy error in the Master / Slave data transfer
523788	0	CAN-Transmit-Frame ComTrbChActr "BusOff-Satus"; Wastegate
523788	0	CAN-Transmit-Frame ComTrbChActr disable error; wastegate
523788	0	CAN-Transmit-Frame ComTrbChActr plausibility error; wastegate
523788	0	Timeout Error of CAN-Transmit-Frame ComTrbChActr; Wastegate
524024	11	Deviation of the exhaust gas temperature setpoint to actual value downstream (DOC) too high
523995	13	check of missing injector adjustment value programming (IMA) injector 7 (in firing order)
523996	13	check of missing injector adjustment value programming (IMA) injector 8 (in firing order)
523998	4	Injector cylinder bank 2 slave; short circuit
523999	12	Injector powerstage output Slave defect
524000	5	Injector 7 (in firing order); interruption of electric connection
524001	5	Injector 8 (in firing order); interruption of electric connection
524000	3	Injector 7 (in firing order); short circuit
524001	3	Injector 8 (in firing order); short circuit
524000	4	High side to low side short circuit in the injector 7 (in firing order)
524001	4	High side to low side short circuit in the injector 8 (in firing order)
2797	4	Injector diagnostics; timeout error of short circuit to ground measurement cyl. Bank 0
2798	4	Injector diagnostics; timeout error of short circuit to ground measurement cyl. Bank 1
2798	4	Injector diagnostics; short circuit to ground monitoring Test in Cyl. Bank 0
2798	4	Injector diagnostics; short circuit to ground monitoring Test in Cyl. Bank 1
524035	12	Injector diagnostics; time out error in the SPI communication
524036	12	Injector diagnostics Slave; time out error in the SPI communication
524004	12	Too many recognized misfires in cylinder 7 (in firing order)
524005	12	Too many recognized misfires in cylinder 8 (in firing order)
524069	9	Timeout Error of CAN-Receive-Frame MSMon_FidFCCTO; Master-Slave CAN communication faulty
524052	11	Error memory Slave reports FID MSMonFC2; Shut-Off Path test error of fuel injection system
524052	11	Error memory Slave reports FID MSMonFC3; timeout of engine state messages (ComMS_Sys17) from master ECU
523919	2	Sensor air pump airpressure; plausibility error
523920	2	Sensor exhaust gas back pressure burner; plausibility error
3253	2	Sensor differential pressure (DPF); plausibility error

FAULT CODES

SPN	FMI	Short Text Detail
2621	12	Flush valve burner (EPV DPF-System); powerstage over temperature
2659	0	Physical range check high for EGR exhaust gas mass flow
2659	1	Physical range check low for EGR exhaust gas mass flow
2659	2	Exhaust gas recirculation AGS sensor; plausibility error
2659	2	AGS sensor temperature exhaust gas mass flow; plausibility error
2659	12	Exhaust gas recirculation; AGS sensor has "burn off" not performed
2797	4	Injector diagnostics; timeout error of short circuit to ground measurement cyl. Bank 0
2798	4	Injector diagnostics; timeout error of short circuit to ground measurement cyl. Bank 1
2798	4	Injector diagnostics; short circuit to ground monitoring Test in Cyl. Bank 0
2798	4	Injector diagnostics; short circuit to ground monitoring Test in Cyl. Bank 1
3031	0	AdBlue-Tank temperature: maximum exceeded
3031	1	DEF-Tank temperature: below minimum
3031	3	Sensor error urea tank temperature; short circuit to battery
3031	4	Sensor error urea tank temperature; short circuit to ground
3224	1	Nox sensor upstream of SCR Catalysator; low signal not plausible
3224	2	DLC Error of CAN-Receive-Frame AT1IG1 NOX Sensor (SCR-system upstream cat; DPF-system downstream cat); length of frame incorrect
3224	2	DLC Error of CAN-Receive-Frame AT1IG1Vol NOX Sensor (SCR-system upstream cat; DPF-system downstream cat); length of frame incorrect
3224	9	Timeout Error of CAN-Receive-Frame AT1IG1; NOX sensor upstream
3224	9	Timeout Error of CAN-Receive-Frame AT1IG1Vol; NOX sensor (SCR-system upstream cat; DPF-system downstream cat)
3234	2	DLC Error of CAN-Receive-Frame AT1O1Vol NOX Sensor (SCR-system downstream cat; DPF-system downstream cat); length of frame incorrect
3234	9	Timeout Error of CAN-Receive-Frame AT1OG1; NOX sensor (SCR-system downstream cat; DPF-system downstream cat)
3234	9	Timeout Error of CAN-Receive-Frame AT1OG1Vol; NOX sensor (SCR-system downstream cat; DPF-system downstream cat)
3234	11	Nox Sensor downstream of SCR Catalysator; plausibility error "stuk in range"
3241	0	Sensor SCR catalyst upstream temperature too high; plausibility error
3241	1	Sensor SCR catalyst upstream temperature too low; plausibility error
3248	0	Physical range check high for exhaust gas temperature particulate filter downstream
3248	0	Physical range check high for exhaust gas temperature particulate filter downstream; shut off regeneration
3248	0	Physical range check high for exhaust gas temperature particulate filter downstream; warning
3248	1	Physical range check low for exhaust gas temperature particulate filter downstream
3248	1	Physikal range check low for exhaust gas temperature particulate filter downstream; shut off regeneration
3248	1	Physical range check low for exhaust gas temperature particulate filter downstream; warning

FAULT CODES

SPN	FMI	Short Text Detail
523942	9	Timeout Error (BAM to BAM) for CAN-Receive-Frame AT1OGCVol2 information; factors & Sensorcalibration for NOX Sensor (SCR-system downstream cat; DPF-system downstream cat)
523943	9	Timeout Error (PCK2PCK) for CAN-Receive-Frame AT1OGCVol2 information; factors & Sensorcalibration for NOX Sensor (SCR-system downstream cat; DPF-system downstream cat)
523946	0	Zerofuel calibration injector 1 (in firing order); maximum value exceeded
523946	1	Zerofuel calibration injector 1 (in firing order); minimum value exceeded
523947	0	Zerofuel calibration injector 2 (in firing order); maximum value exceeded
523947	1	Zerofuel calibration injector 2 (in firing order); minimum value exceeded
523948	0	Zerofuel calibration injector 3 (in firing order); maximum value exceeded
523948	1	Zerofuel calibration injector 3 (in firing order); minimum value exceeded
523949	0	Zerofuel calibration injector 4 (in firing order); maximum value exceeded
523949	1	Zerofuel calibration injector 4 (in firing order); minimum value exceeded
523950	0	Zerofuel calibration injector 5 (in firing order); maximum value exceeded
523950	1	Zerofuel calibration injector 5 (in firing order); minimum value exceeded
523951	0	Zerofuel calibration injector 6 (in firing order); maximum value exceeded
523951	1	Zerofuel calibration injector 6 (in firing order); minimum value exceeded
523960	0	Physical range check high for EGR cooler downstream temperature
523960	0	High exhaust gas temperature EGR cooler downstream; warning threshold exceeded
523960	1	Physical range check low for EGR cooler downstream temperature
523960	1	High exhaust gas temperature EGR cooler downstream; shut off threshold exceeded
523973	14	SCR Tamper detection; derating timer below limit 1
523974	14	SCR Tamper detection; derating timer below limit 2
523975	14	Urea quality; derating timer below limit 1
523976	14	Urea qulaity; derating timer below limit 2
523977	14	Urea tank level; derating timer below limit 1
523978	14	Urea tank level; derating timer below limit 2
523980	14	Bad quality of reduction agent detected
523981	11	Urea-tank without heating function (heating phase)
523982	0	Powerstage diagnosis disabled; high battery voltage
523982	1	Powerstage diagnosis disabled; low battery voltage
523988	3	Charging lamp; short circuit to battery
523988	4	Charging lamp; short circuit to ground
523988	5	Charging lamp; open load
523988	12	Charging lamp; over temperature
523989	0	Fuel Balance Control integrator injector 7 (in firing order); maximum value exceeded

ELECTRICAL SCHEMATIC

GTH-2506 From GTH250619M-1001 & GTH300719M-501 ***Sheet 5 of 16***