



#### TO-45000 UAZ-SGR

Repair instructions number 00504

Repair instructions name TO-45000 UAZ-SGR

Model BUS

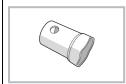
**Production period** 

Applies to

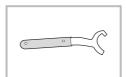
UAZ 220695000046204

Modification Not selected





**Hub wrench** 315100390114310



Wrench for holding the water pump shaft 005500000404900

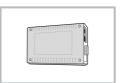


Fan viscous clutch removal key 005500000355600

# **General equipment**



Grease gun



Diagnostic system UAZ



A device for measuring the total backlash of the steering



Oil filter remover



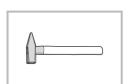
Tire pressure gauge



Caliper



Locksmith's beard



Bench hammer



Tool for pressing in cuffs



A device for measuring the density of a coolant (refractometer)



Universal belt tension tester



Brake bleeder



Load fork





### Brake pipe wrench

### **Materials**



Sealant-gasket

Refer to the instructions - COMBI - Car installation on lift (C) (00410)

Refer to the instructions - UAZ SANITARY CAR FOR MEDICAL SERVICES, BUS, GLAZED VAN, HATCH, RIGID VEHICLE - Right engine mudguard - Removal / Installation (C) (28011)

Refer to the instructions - UAZ SANITARY CAR FOR MEDICAL SERVICES, BUS, GLAZED VAN, HATCH, RIGID VEHICLE - Left engine mudguard - Removal / Installation (C) (28012)

Refer to the instructions - UAZ SANITARY CAR FOR MEDICAL SERVICES - Radiator grille assembly - Removal / Installation (C) (84001)

## 1. Work outside the car:

## IMAGE



#### **OPERATION DESCRIPTION**

1. Check by inspection for chips, cracks and foci of corrosion of the body paintwork.

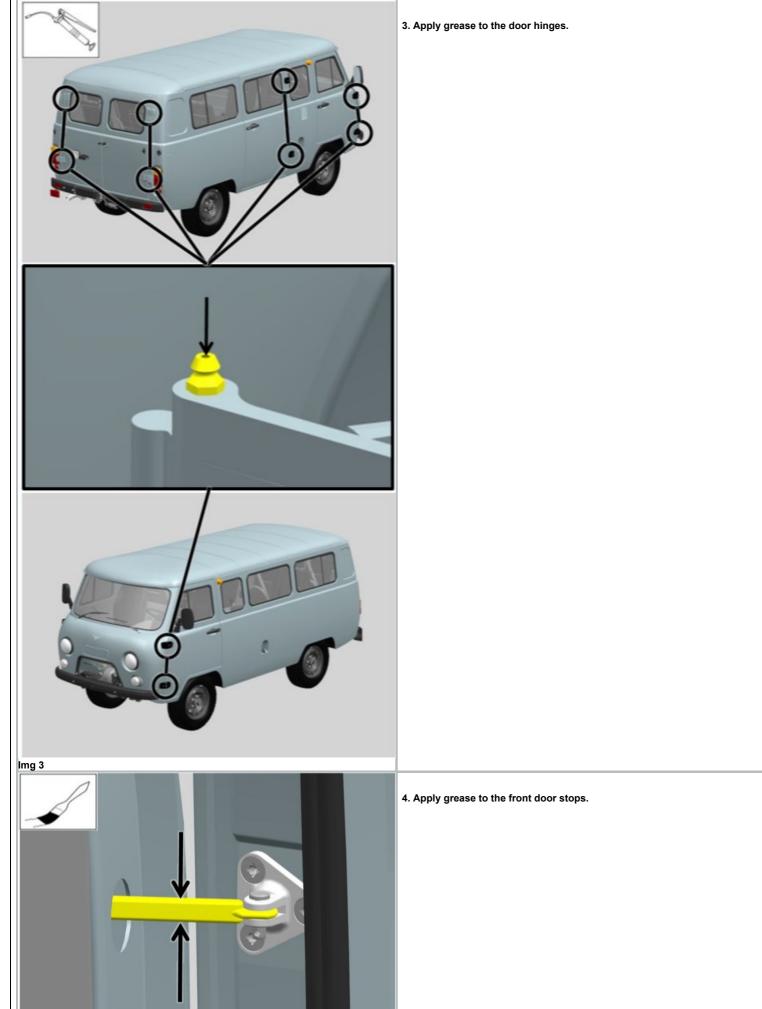
The presence of chips, cracks and centers of corrosion of the body paintwork is not allowed.





2. Check by inspection for chips, cracks on glass and rear-view mirrors, lighting and light signaling devices.

The presence of chips, cracks on glass and rear-view mirrors, lighting and light signaling devices is not allowed.



# 2. Work inside the car:



- 2. Switch on the ignition.
- 3. Check for DTCs in the ECM.
- 4. Check for fault codes in the ABS control unit.

1. Connect the UAZ diagnostic system to the OBD-2 connector.



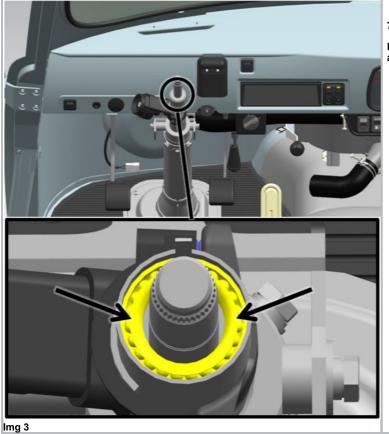


- 5. Install the parts of the device for measuring the total backlash of the steering on the steering wheel and on the left front wheel of the car.
- 6. Check the total backlash of the steering according to the operating instructions of the device.

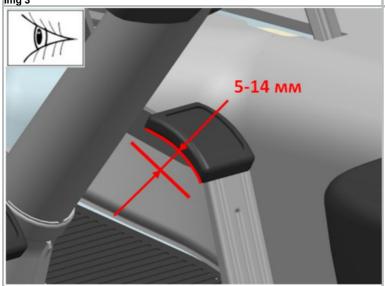
The total backlash should not exceed 20 degrees.



lmg 2

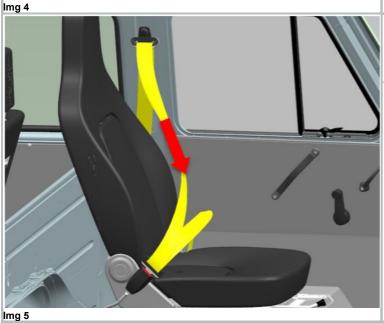


7. Lubricate the steering wheel shaft bearing.



8. Check the free play of the brake pedal.

The amount of free travel of the brake pedal should be 5-14 mm.

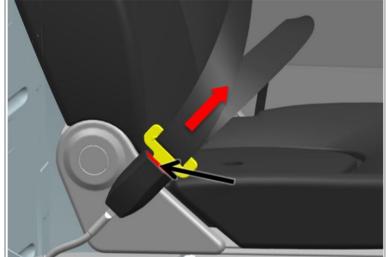


9. Check the operation of the seat belt retractor.

The device should wind the belt around the reel easily and without jamming.

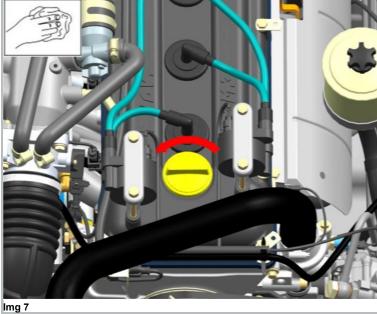
10. Check the functionality of the inertia reel of seat belts.

When pulling sharply at different lengths, the inertial coil should block the change in the length of the belt.



11. Check the operation of the seat belt locking device.



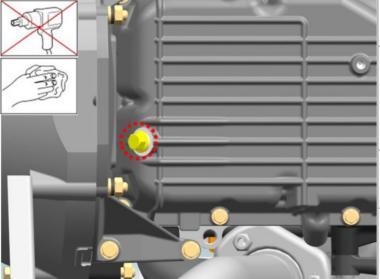


- 12. Warm up the engine to operating temperature.
- 13. Remove the engine oil filler cap.

## 3. Work under the car bottom:

## **IMAGE**

lmg 1



### **OPERATION DESCRIPTION**

- 1. Place a container under the oil sump to drain the oil.
- 2. Unscrew the drain plug on the engine crankcase.

tightening torque- 28 N·м

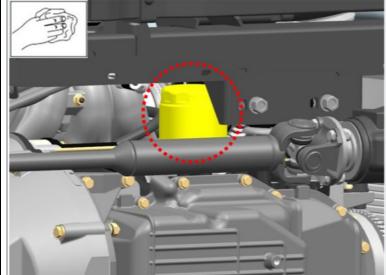
## ⚠ NOTIFICATION: Reuse of the O-ring is not permitted.

3. Let the oil drain.

Waiting time is 3-5 minutes.

4. Close the drain plug.

tightening torque- 28 N·м



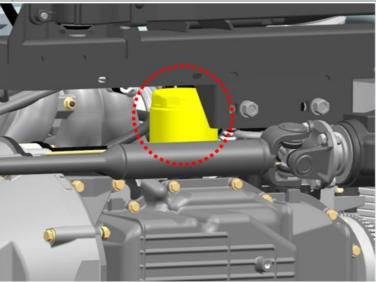
5. Unscrew the oil filter.

tightening torque- 20 N·м

Make sure the filter O-ring is not left on the heat exchanger.

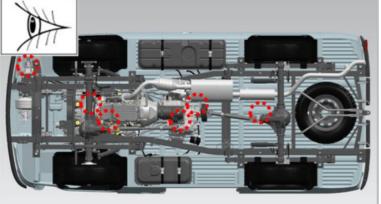
NOTIFICATION: Filter reuse is not allowed.

lmg 2



6. Screw on the filter.

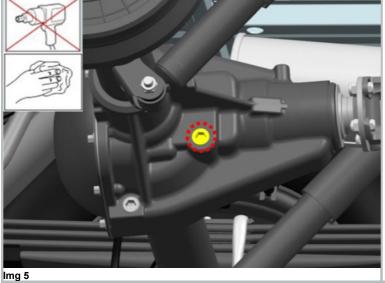
Screw in the filter until the O-ring touches the plane on the heat exchanger, and then turn the filter  $3/4\ \text{turn}.$ 



7. Visually inspect the gaskets and seals of the engine, transfer case, steering gear, front and rear axles.

Oil leakage and ejection are not allowed.

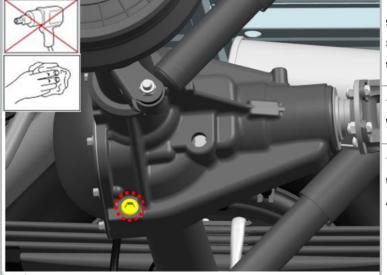
lmg 4



8. Unscrew the filler plugs of the front and rear axles.

SW=12

tightening torque- 80 N·м



9. Unscrew the drain plugs of the front and rear axles.

SW=12

tightening torque- 80 N·м

10. Let the oil drain.

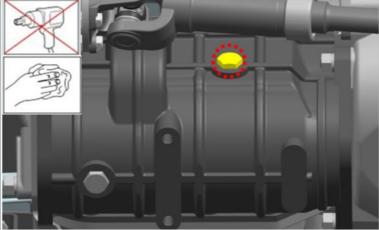
Waiting time is 3-5 minutes.

11. Screw on the drain plugs.

tightening torque- 80 N·м

Apply sealant to the plug threads before installation.



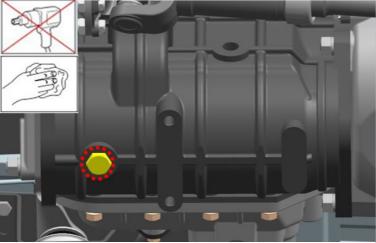


12. Unscrew the transmission filler plug.

S=22

tightening torque- 60 N·м





13. Remove the transmission drain plug.

S=22

tightening torque- 60 N·м

Clean the plug from wear debris.

14. Let the oil drain.

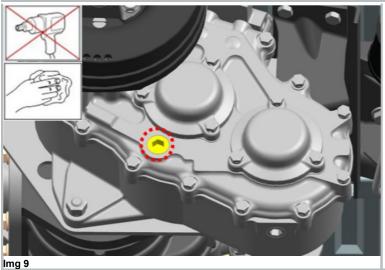
Waiting time is 3-5 minutes.

15. Close the drain plug.

tightening torque- 60 N·м

Apply sealant to the plug threads before installing.

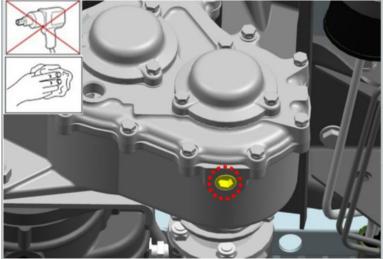
lmg 8



16. Remove the transfer case filler plug.

SW=12

tightening torque- 60 N⋅м



17. Remove the transfer case drain plug.

tightening torque- 60 N·м

Clean the plug from wear debris.

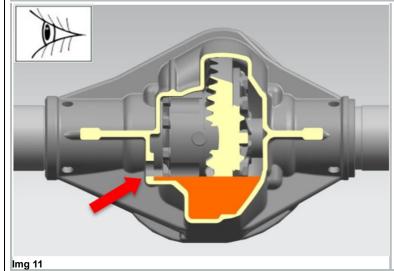
18. Let the oil drain.

Waiting time is 3-5 minutes.

19. Close the drain plug.

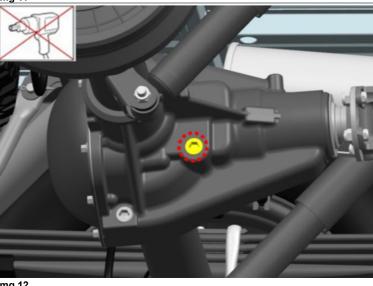
tightening torque- 60 N·м

Apply sealant to the plug threads before installing.



20. Bring the oil level in the front and rear axles to normal.

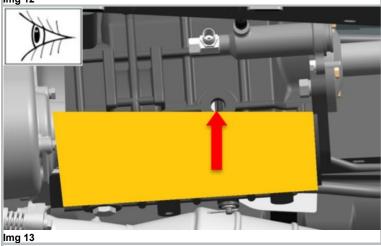
The oil level should be at the level of the lower edge of the filler hole.



21. Screw in the filler plugs of the front and rear axles.

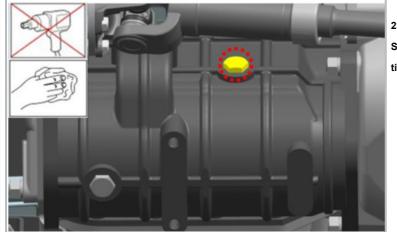
tightening torque- 80 N·м

Apply sealant to the plug threads before installation.



22. Bring the oil level in the gearbox to normal.

The oil level should be at the level of the lower edge of the filler hole.

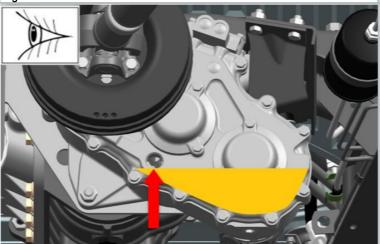


23. Screw in the transmission filler plug.

S=22

tightening torque- 60 N·м

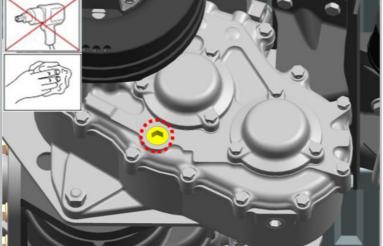




24. Bring the oil level in the transfer case to normal.

The oil level should be at the level of the lower edge of the filler hole.

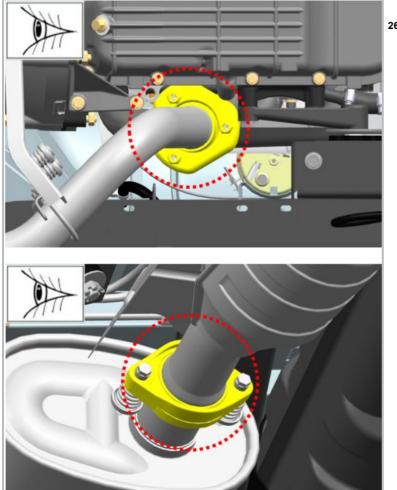




25. Screw on the filler cap of the transfer case.

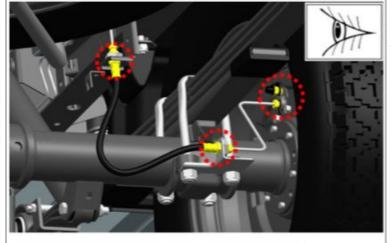
SW=12

tightening torque- 60 N·м



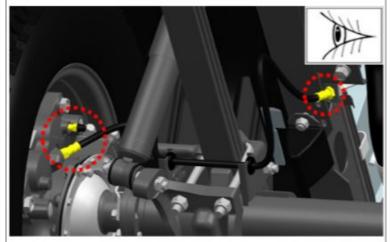
lmg 17

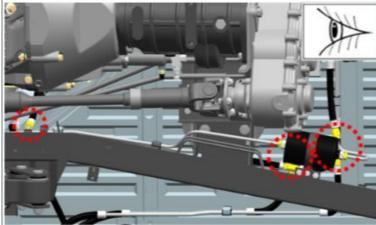
26. Visually check the connections of the exhaust system for leaks.



27. Visually check the connections of the pipelines of the cooling systems, heating, power supply, hydraulic brake drive, vacuum take-off system from the vacuum brake booster, the condition of pipes and hoses.

Leakage of coolant, fuel, brake fluid, leaks in the vacuum hose (vacuum booster) are not allowed. Cracks and ruptures of the hydraulic brake hoses are not allowed. Operation of deformed pipes of the hydraulic drive of brakes, parts of the vacuum take-off system is not allowed.



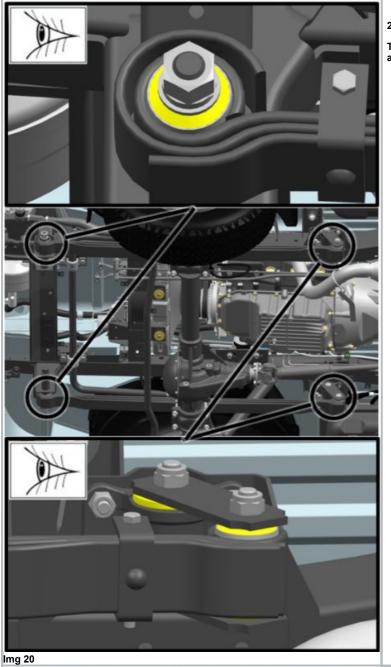


lmg 18



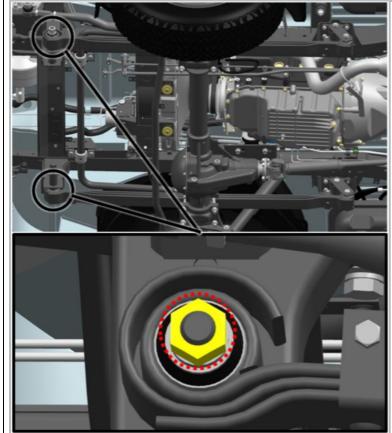
28. Inspect the front suspension springs.

The springs should not have sheet cracks, their longitudinal or transverse displacement.



29. Inspect the hinges of the front suspension springs.

The hinges should not have cracks, breaks, undercutting and wear of rubber along the outer end of the hinge.

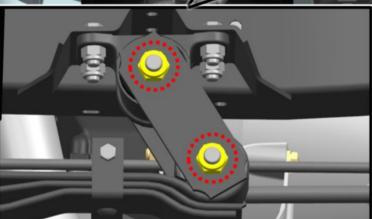


30. Tighten the nuts securing the axle of the front end of the spring.

S=27

tightening torque- 170 N·м

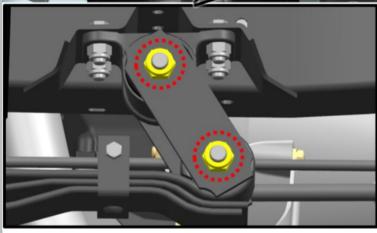




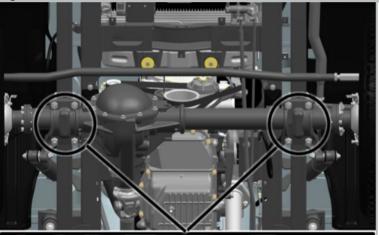
31. Tighten the nuts securing the spring shackles.

S=22

tightening torque- 90 N·м



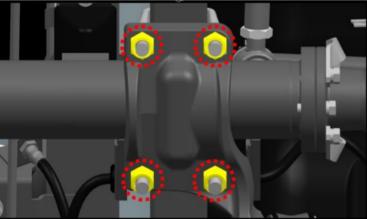
lmg 22





S=22

tightening torque- 90 N·м

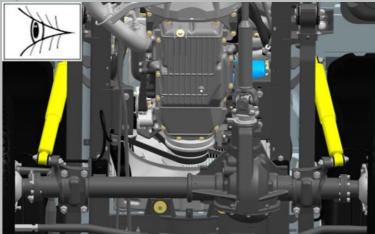




33. Inspect the front suspension compression bumpers.

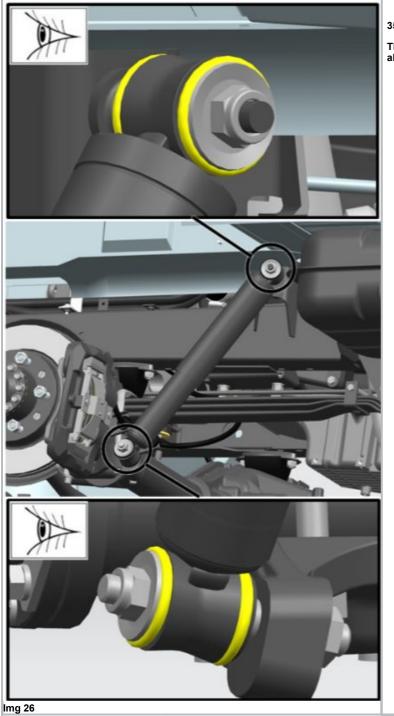
Buffers should not have cracks, breaks and deformations.

lmg 24



34. Inspect the front suspension shock absorbers.

Oil fogging of the shock absorber does not indicate a malfunction and is acceptable. The appearance of drips on the shock absorber body, indicating a loss of tightness, is not allowed.



35. Inspect the front suspension shock absorber joints.

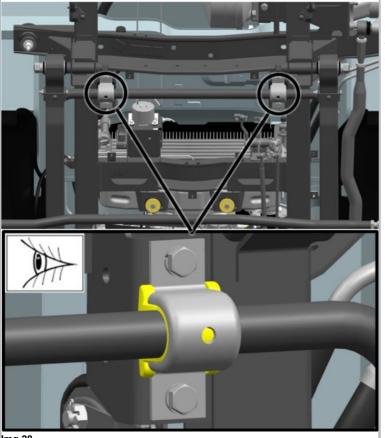
The hinges should not have cracks, breaks, undercutting and wear of rubber along the outer end of the hinge.



36. Tighten the front suspension shock absorber retaining nuts.

S=19

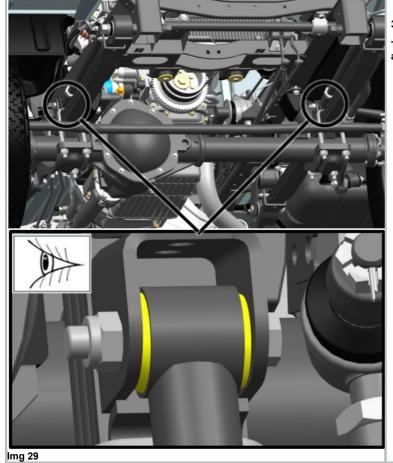
tightening torque- 58 N·м



37. Inspect the anti-roll bar joints.

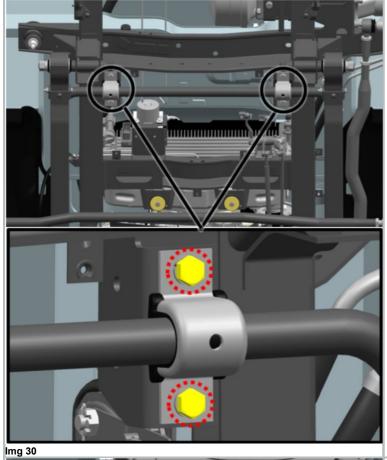
The hinges should not have cracks, breaks, undercutting and wear of rubber along the outer end of the hinge.





38. Inspect the anti-roll bar joints.

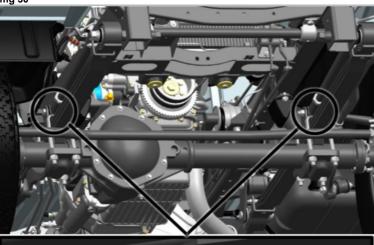
The hinges should not have cracks, breaks, undercutting and wear of rubber along the outer end of the hinge.



39. Tighten the anti-roll bar mounting bolts.

9-17

tightening torque- 50 N⋅м

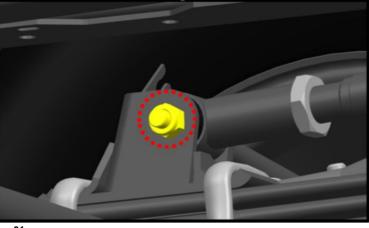


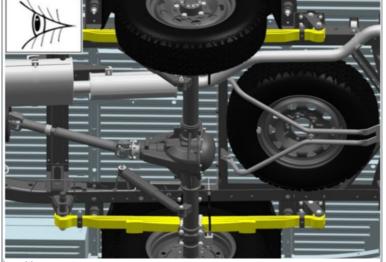
40. Tighten the nuts securing the anti-roll bar.

S=17

S=19

tightening torque- 58 N·м

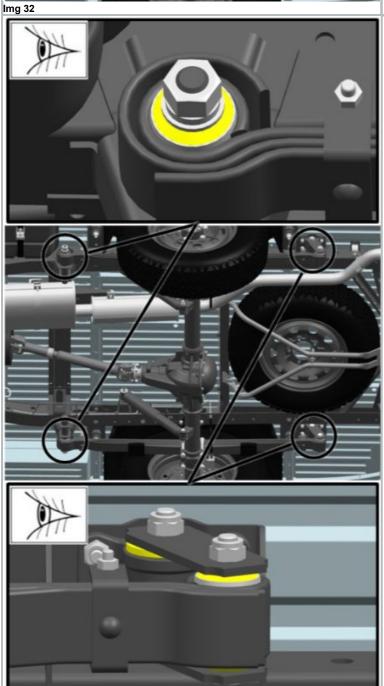




41. Inspect the rear suspension springs.

The springs should not have sheet cracks, their longitudinal or transverse displacement.

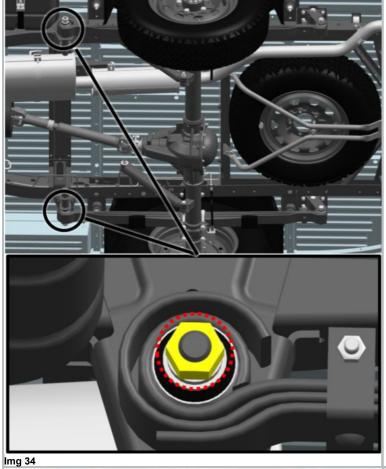




42. Inspect the hinges of the rear suspension springs.

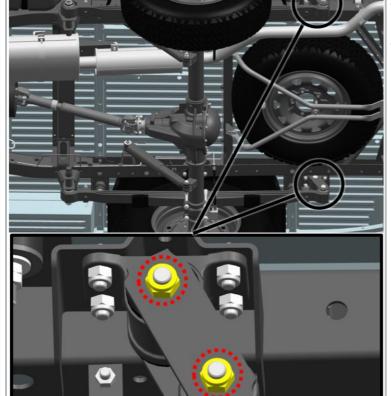
The hinges should not have cracks, breaks, undercutting and wear of rubber along the outer end of the hinge.

lmg 33



43. Tighten the nuts securing the axle of the front end of the spring.

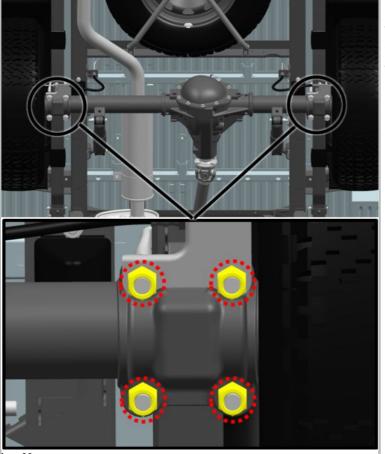
tightening torque- 170 N⋅м



44. Tighten the nuts securing the spring shackles.

S=22

tightening torque- 90 N·м

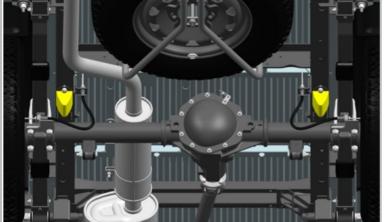


45. Tighten the nuts securing the spring ladders.

S=22

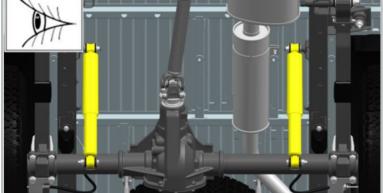
tightening torque- 93 N·м





46. Inspect the rear suspension compression bumpers.

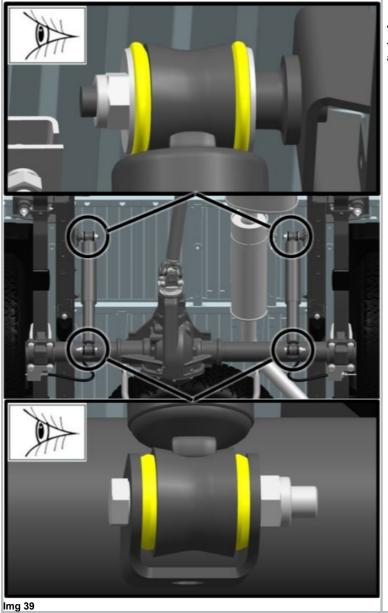
Buffers should not have cracks, breaks and deformations.



47. Inspect the rear suspension shock absorbers.

Oil fogging of the shock absorber does not indicate a malfunction and is acceptable. The appearance of drips on the shock absorber body, indicating a loss of tightness, is not allowed.

lmg 38



48. Inspect the rear suspension shock absorber joints.

The hinges should not have cracks, breaks, undercutting and wear of rubber along the outer end of the hinge.

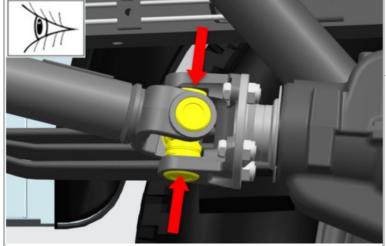


tightening torque- 58 N⋅м

S=17 S=19

49. Tighten the rear suspension shock absorber retaining nuts.





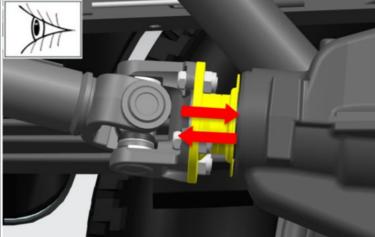
50. Check the backlash in the crosspieces of the cardan shafts by applying an alternating hand force along the axes of the crosspieces.

Backlash in the crosspieces is not allowed.

51. Rotate the crosspiece 90 degrees and recheck.

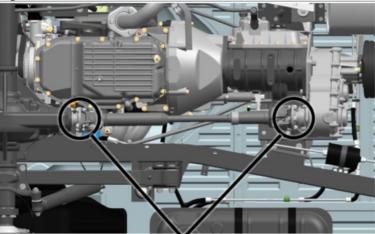
Backlash in the crosspieces is not allowed.

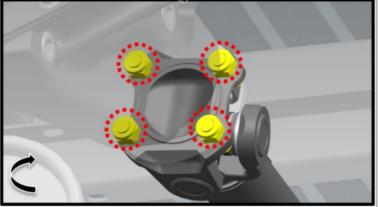




52. Check the presence of axial play in the bearings of the main gears by moving the drive gear behind the propeller shaft flange.







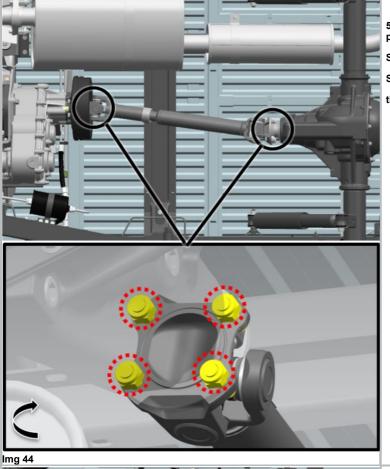
 $53.\ Tighten$  the nuts of the bolts securing the front propeller shaft flanges to the front axle and transfer case flanges.

S=17

S=14

tightening torque- 50 N·м

lmg 43

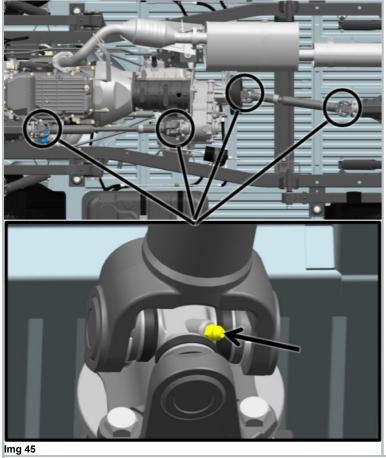


 $\bf 54.$  Tighten the nuts and bolts of the rear propeller shaft flanges to the parking brake and rear axle flanges.

S=1

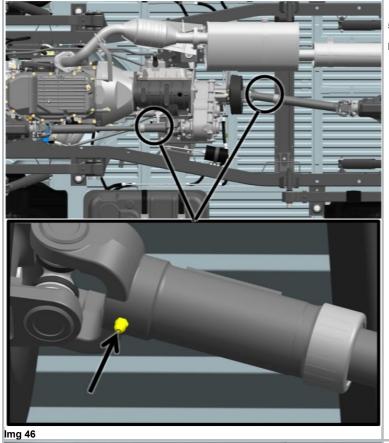
S=14

tightening torque- 50 N·м



55. Lubricate the joints of the front and rear propeller shafts.

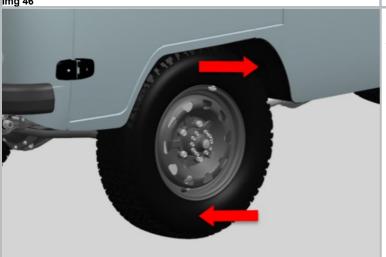
Lubricate until it comes out from under the working edges of the crosspiece cuffs.



56. Lubricate the splines of the front and rear propeller shafts.

Make 3-5 strokes without waiting for the lubricant to come out.





57. Check the play in the wheel hub bearings by swinging the wheels in a vertical plane.

No play in the hub bearings is allowed.





58. Check the smoothness of rotation of the wheels.

Rolling of the hub bearings and wedging of the wheels during rotation is not allowed.

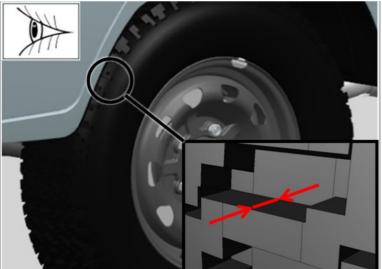
lmg 48



- 59. Inspect the tires of the wheels.
- 60. Inspect the wheel rims.
- 61. Check the value of the pressure in the tires of the wheels.

Tire pressures must comply with the values in Table 1.

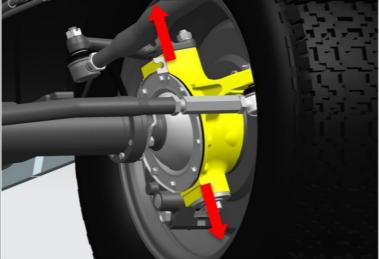




62. Measure the residual depth of the tread pattern.

The residual tread depth must be more than 1.6 mm.





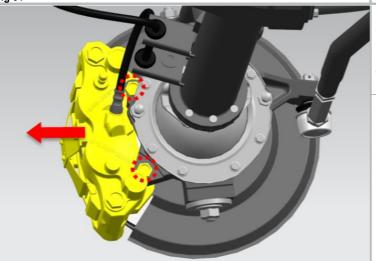
63. Check the backlash of the pivots of the steering knuckles.

If there is an axial clearance of the pivots, remove the clearance by tightening the clamping sleeve.

64. Remove the wheels from the vehicle.



lmg 52

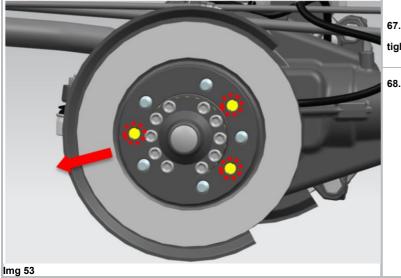


- 65. Remove the brake mounting bolts.
- S=18

tightening torque- 150 N·м

 $\begin{tabular}{ll} \bf 66. \ Take \ the \ front \ brake \ assembly \ to \ the \ side. \end{tabular}$ 

Hose tension is not allowed.

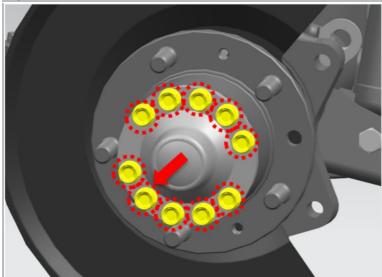


67. Remove the screws securing the brake disc.

tightening torque- 16 N·м

68. Remove the disc.





69. Remove the flange mounting bolts.

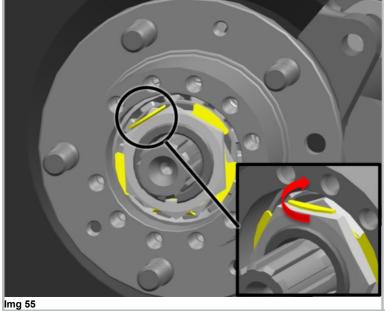
tightening torque- 65 N·м

70. Remove the leading flange together with the gasket.

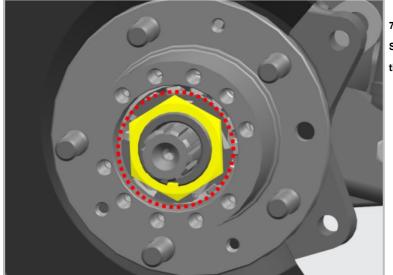


**⚠** NOTIFICATION: Re-use of the spacer is not permitted.





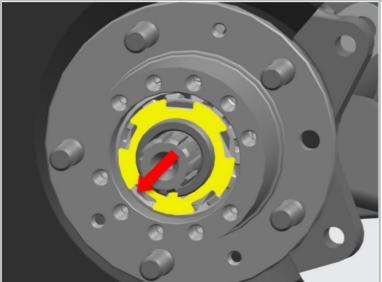
71. Bend the tab of the lock washer.



72. Unscrew the locknut.

tightening torque- 25 N·м

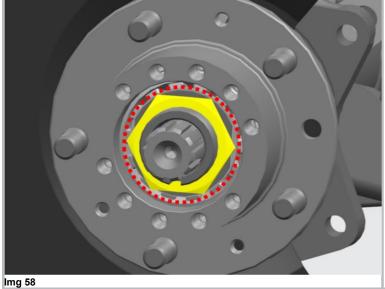




73. Remove the lock washer.

**↑** NOTIFICATION: Re-use of the washer is not permitted.

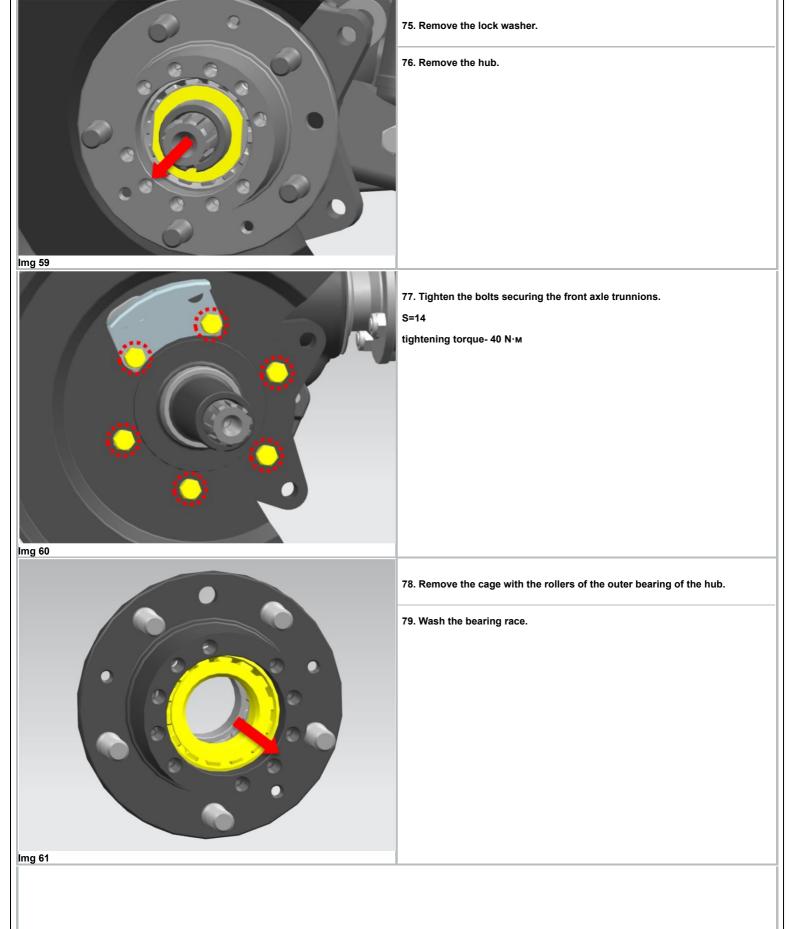


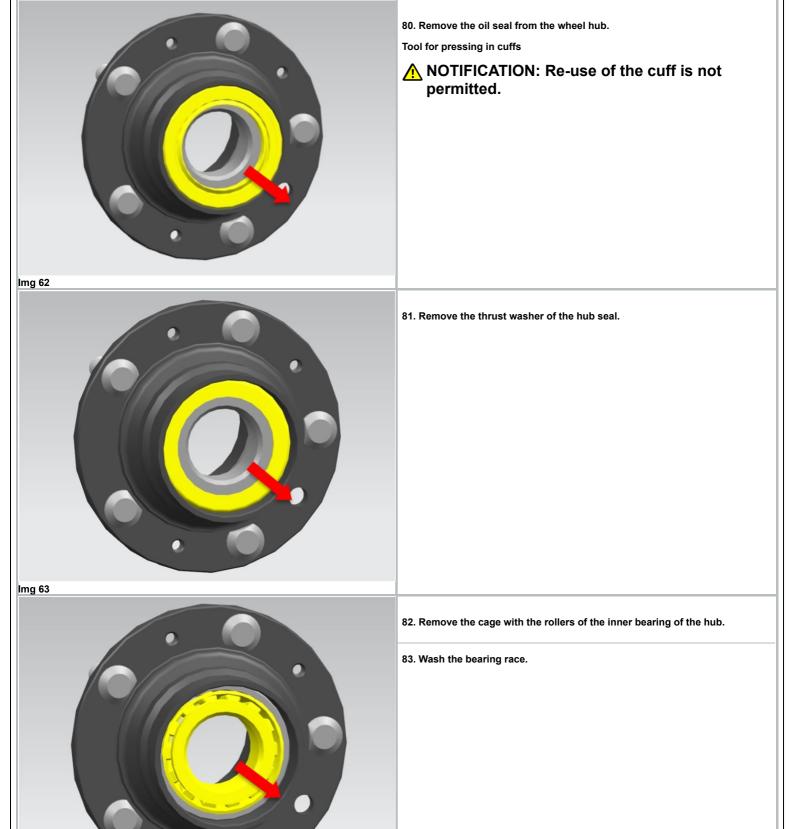


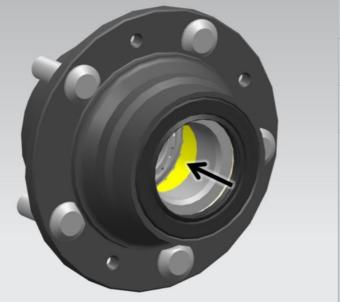
74. Unscrew the bearing adjustment nut.

S=55

tightening torque- 30 N·м





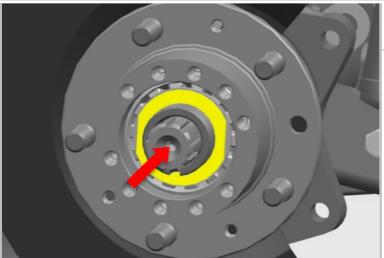


- 84. Install the bearing cages with rollers.
- 85. Install the thrust washer of the hub seal.
- 86. Install the wheel hub seal.
- 87. Place a layer of grease 10-15mm thick between the bearings.



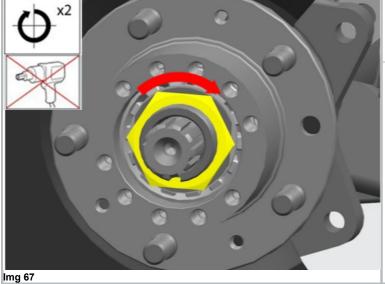
NOTIFICATION: ATTENTION: Do not put more than 200 grams of grease in the hub to avoid it getting into the wheel brakes.



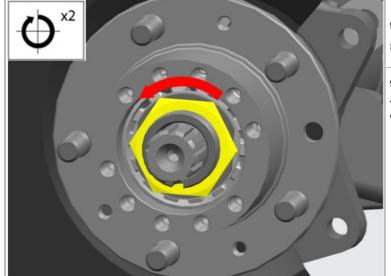


- 88. Install the hub onto the journal.
- 89. Install the lock washer.





- 90. Screw on the adjusting nut by hand.
- 91. Tighten the adjusting nut while turning the wheel by hand. tightening torque- 140 N·м



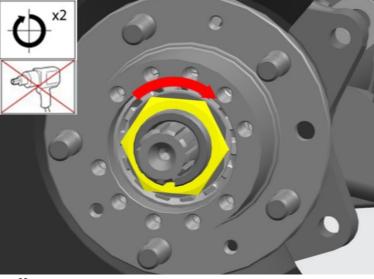
92. Unscrew the adjusting nut 1/6 - 1/3 turn.

S=55

93. Turn the wheel 1-2 turns.

The wheel should rotate freely without touching the brake pads on the disc or drum.





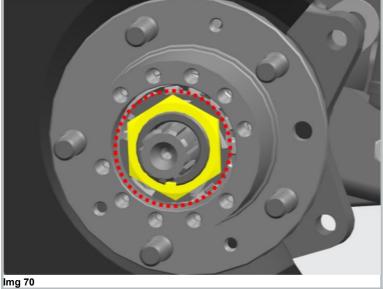
94. Tighten the adjusting nut.

S=55

tightening torque- 30 N·м

When tightening the nut, press the key knob smoothly, without jerks, while turning the wheel to correctly position the rollers on the raceways of the bearing rings.



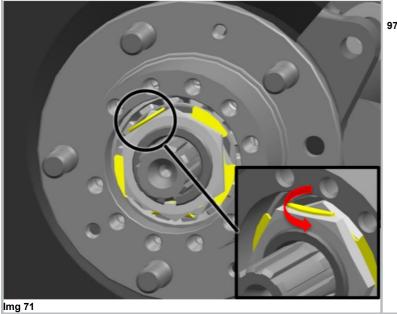


95. Install the lock washer.

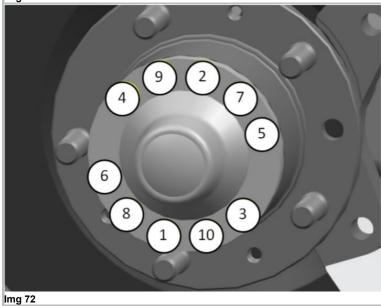
96. Tighten the lock nut.

tightening torque- 25 N·м

When properly adjusted, the wheel should rotate freely without binding, noticeable axial play or wobbling.



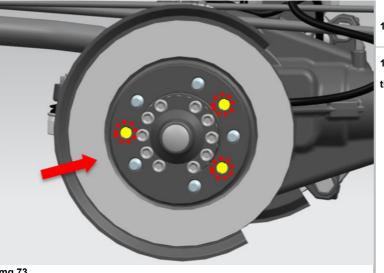
97. Bend the tabs of the lock washer onto the adjusting nut and locknut.



98. Install the leading flange together with the gasket.

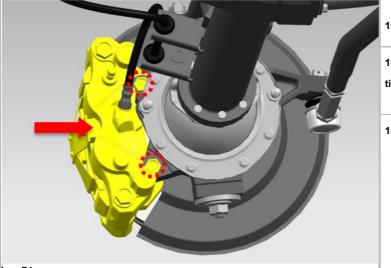
99. Tighten the flange mounting bolts. tightening torque- 10 N·м

100. Finalize the bolts. tightening torque- 65 N⋅м



101. Install the brake disc.

102. Tighten the screws that secure the brake disc. tightening torque- 16 N·м



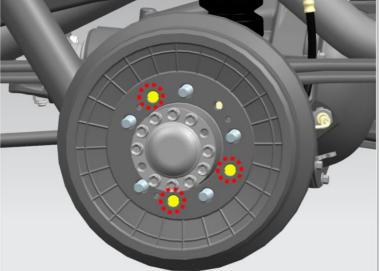
103. Install the front brake.

104. Tighten the brake mounting bolts.

tightening torque- 150 N·м

105. Perform steps 65 - 104 for the other front wheel hub.



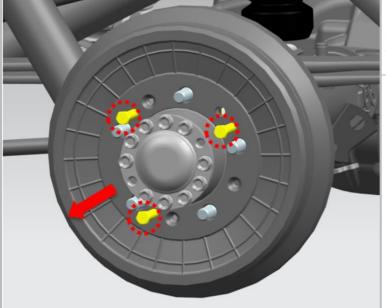


106. Remove the screws securing the brake drum.

tightening torque- 16 N·м



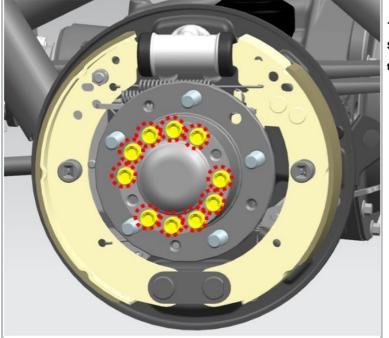
lmg 76



107. Screw three bolts into the threaded holes of the drum to press out the drum.

Tighten the bolts alternately (by 1/4 turn), avoiding the drum skewing.

108. Press out the drum.

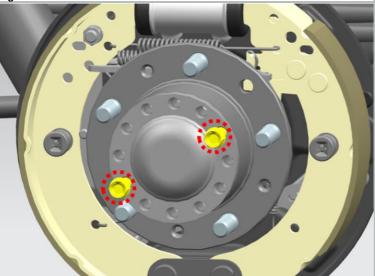


109. Unfasten the rear axle shaft securing bolts.

S=14

tightening torque- 65 N·м





110. Screw two bolts into the threaded holes of the half-shaft flange to press out the half-shaft.

S=14

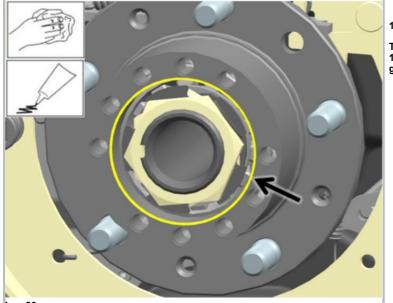
Tighten the bolts alternately (1/4 of a turn), not allowing the axle shaft flange to be skewed.

111. Press out the axle shaft.





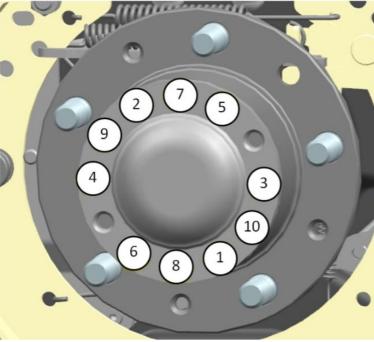
112. Perform operations 71 - 97 for the rear wheel hubs.



113. Apply sealant to the inner surface of the hub.

The width of the sealant bead is at least 2 mm, the layer thickness is at least 1 mm. The area where the sealant is applied must be clean and free of grease.





114. Install the semiaxis.

When installing, align the splines of the axle shaft with the splines of the differential gear.  $\label{eq:control}$ 

115. Wrap the bolts securing the rear axle half shaft.

tightening torque- 10 N·м

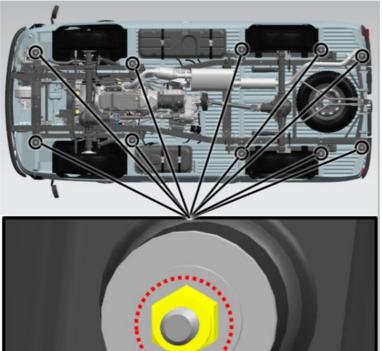
116. Complete the final tightening of the bolts.

tightening torque- 65 N·м

117. Install the wheels on the car.



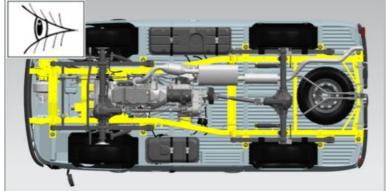
lmg 82



118. Tighten the nuts of the body-to-frame bolts.

S=17

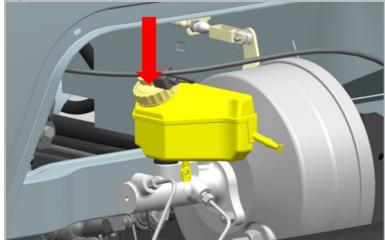
tightening torque- 32 N⋅м



119. Inspect the frame for paint chips, cracks and corrosion centers.

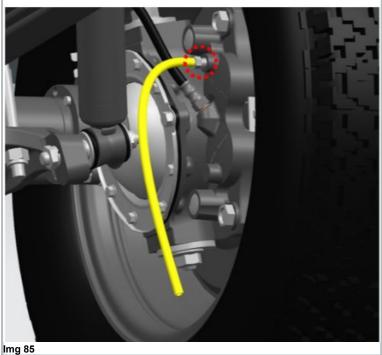
The presence of chips of paintwork, cracks and foci of corrosion of the frame is not allowed.





120. Install the bleeding device on the brake master cylinder reservoir.







Place the free end of the hose in a container with brake fluid.

122. Pressurize the brake system by pressing the valve on the bleeder.

123. Unscrew the bypass valve 1/2 - 3/4 turn.

tightening torque- 12 N·м

124. Let the fluid out, screw the valve back on.

tightening torque- 12 N·м

Let the fluid out until the "new" fluid appears from the bypass valve. Remove the rubber hose. The "new" liquid differs from the "old" in a light shade.

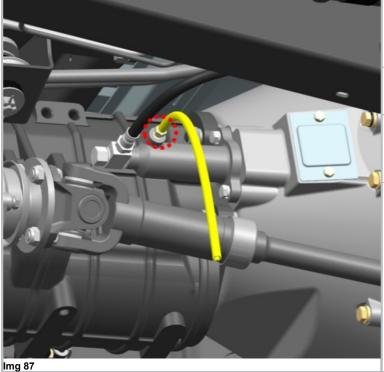
125. Repeat the operations for the remaining wheels in the following sequence:

- rear left working brake cylinder; - front right working brake cylinder; - front left working brake cylinder.



126. Install the bleeding device on the clutch master cylinder reservoir.

Img 86



127. Install the hose to the bypass valve of the clutch slave cylinder.

Place the free end of the hose in a container with brake fluid.

128. Pressurize the clutch system by pressing the bleeder valve.

129. Unscrew the bypass valve 1/2 - 3/4 turn.

tightening torque- 12 N·м

130. Let the fluid out, screw the valve back on.

tightening torque- 12 N·м

Let the fluid out until the "new" fluid appears from the bypass valve. Remove the rubber hose. The "new" liquid differs from the "old" in a light shade.

## Lower the car down on a lift.

## 4. Work in the engine compartment:

#### **IMAGE**



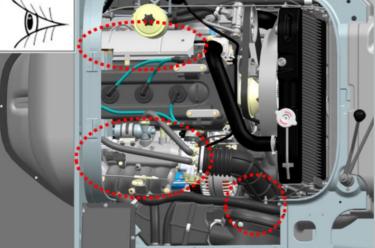
#### **OPERATION DESCRIPTION**

1. Carry out an external inspection of hoses, branch pipes, pipes, engine wires.

If there are traces of contact on the parts of the car, change their position relative to the engine. Scuffs and wear on hoses, branch pipes, pipes, wires are not allowed.

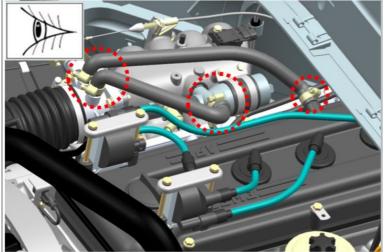


lmg 2



2. Visually check the connections of the intake and exhaust systems for leaks.

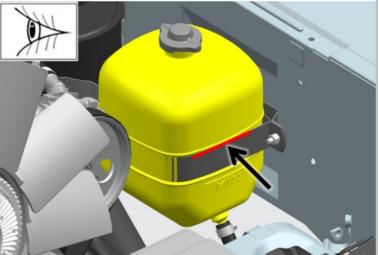
Leakage of connections is not allowed.



3. Check visually the connections of hoses, branch pipes, pipes of the crankcase ventilation system for leaks.

Leakage of connections and damage to hoses are not allowed.





4. Check the coolant level in the expansion tank.

Check the coolant level only on a cold engine. The liquid level in the expansion tank should be 3-4 cm above the "min" mark.

lmg 4

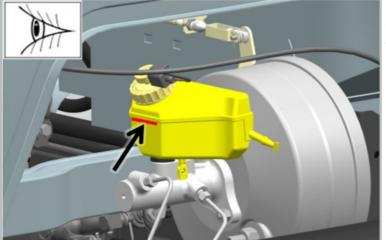


5. Check the freezing point of the coolant using a refractometer.

The freezing temperature of the coolant should be as follows: - for regions with a temperate climate: -40-45  $^\circ$  C; - for the regions of the Far North: -60-65  $^\circ$  C.

lmg 5

lmg 6



6. Check the fluid level in the reservoir of the brake master cylinder.

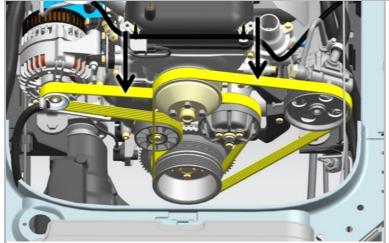
The brake fluid level should be at the "max" mark.



7. Check the fluid level in the reservoir of the clutch master cylinder.

The brake fluid level should be 15-20 mm below the top edge of the reservoir.

lmg 7



8. Check the tension of the accessory and fan drive belts.

The deflection of the accessory drive belt should be 13-15 mm with a load of 80 N. The deflection of the fan drive belt should be 5-8 mm with a load of 40 N. Damage or excessive stretching of the belts is not allowed.



9. Tighten the accessory drive belt tensioner pulley bolt.

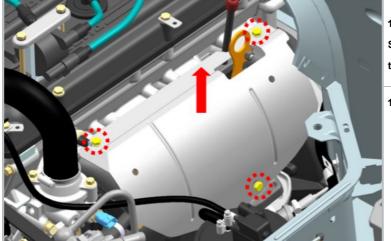
S=12

tightening torque- 16 N·м



10. Tighten the fan clutch mount.

tightening torque- 55 N⋅м



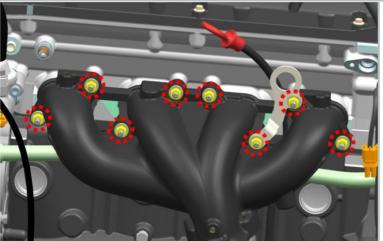
11. Remove the bolts with washers securing the exhaust manifold shield.

S=12

tightening torque- 16 N·м

12. Remove the exhaust manifold shield.



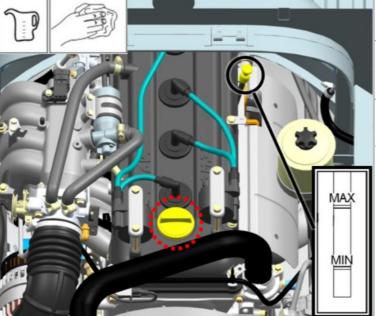


13. Tighten the exhaust manifold retaining nuts.

S=12

tightening torque- 23 N·м





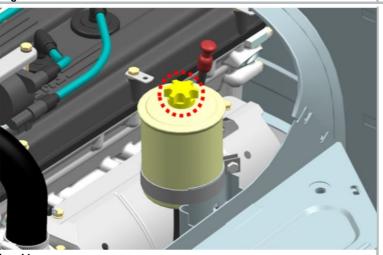
- 14. Fill the engine with oil up to the upper mark on the oil level indicator.
- 15. Start the engine.

Warm up the engine to operating temperature.

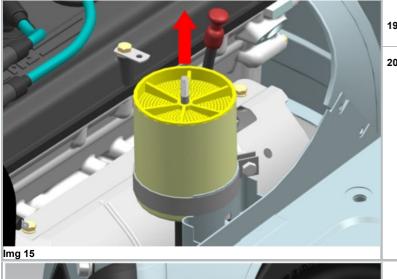
- 16. Stop the engine.
- 17. Check the oil level.

Check the oil level after 2 - 3 minutes. after stopping the engine. If necessary, add oil to the upper mark.

lmg 13



18. Unscrew the nut with the O-ring of the oil tank cover.



- 19. Remove the oil tank cover with a gasket.
- 20. Remove the strainer.

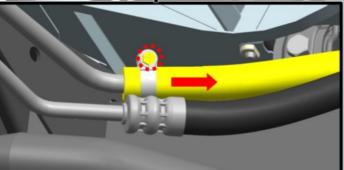




21. Loosen the drain hose clamp.

tightening torque- 5 N·м

- 22. Disconnect the hose.
- 23. Drain the oil from the oil tank into a container for draining the oil.
- 24. Install the hose.



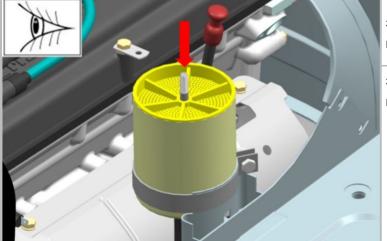
25. Tighten the clamp. tightening torque- 5 N·м

lmg 16



- 26. Remove the cotter pin from the hairpin.
- 27. Remove the spring washers.
- 28. Remove the filter element from the oil tank housing.
- 29. Install a new filter element in the oil tank.
- 30. Install washers with a spring.
- 31. Install the split pin.

Spread the ends of the cotter pin in different directions.



32. Install the strainer.

Before installation, clean the oil tank strainer from dirt.

33. Pour oil into the hydraulic booster tank.

Fill in oil until it appears above the strainer (no more than 5 mm).





34. Turn the steering wheel from lock to lock until air bubbles exit from the oil in the reservoir.

The operation should be performed with the engine off and the front wheels suspended.





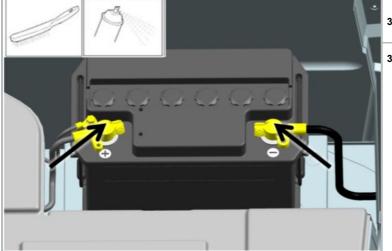
35. Bleed the power steering system by turning the steering wheel from lock to lock, without holding it in the extreme positions, 3 times in each direction.

The operation should be performed with the engine running and the front wheels suspended. During the operation, add oil to the hydraulic booster tank, preventing its level from dropping below the level of the grid.



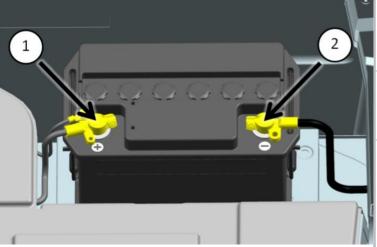


- 36. Install the oil tank cover with a gasket.
- 37. Tighten the nut with the O-ring of the oil tank cover.



- 38. Clean the leads and wire tips from oxides.
- 39. Treat leads and wire ends with a means to protect electrical contacts.





40. Connect the terminal of the load plug with "plus" to the similar terminal of the battery.

Make the connection without turning on the load coil.

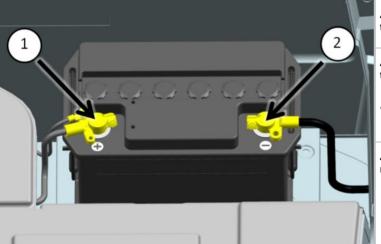
41. Touch the negative pin on the case of the load plug to the negative terminal of the battery.

Record voltmeter readings.

42. Compare the obtained data with the value in Table 2.

If the battery is more than 75% charged, measure under load. If the battery is less than 75% charged, it must be charged.

lmg 23



- 43. Switch on the load coil in the load plug, connect its terminal with "plus" to the same terminal of the battery.
- 44. Touch the negative pin on the body of the load plug to the negative terminal of the battery, and fix the voltmeter readings at the 5th second.

NOTIFICATION: DO NOT measure for more than 5 seconds.

45. Compare the obtained data with the value in Table 3 and take the recommended actions.

lmg 24



46. Fill in the TO-45000 Card for UAZ-SGR vehicles, Table 4.

