

Ulyanovsk Automobile Plant LLC



Vehicles
UAZ-374195, UAZ-396295,
UAZ-220695, UAZ-390995,
UAZ-330365, UAZ-390945
and versions

Operating Manual
PÐ 05808600.106-2007
Edition Fourteenth

CAUTION:

The Operating Manual contains the necessary rules for the operation and maintenance of the vehicle.

Before using the vehicle, we ask you to carefully read this manual and vehicle log book.

We ask you to familiarize yourself especially carefully with the chapters "Safety requirements and warnings", "Running in a new vehicle", "Starting and stopping the engine".

Your wrong actions can lead to injuries, failure of the vehicle and its components, termination of the manufacturer's warranty obligations.

For safe and trouble-free operation of the vehicle, follow all the operating and maintenance instructions in this Manual.

You can entrust the vehicle maintenance to one of the service stations recommended by the company that sold you the vehicle. Service stations are provided with the necessary spare parts, a set of special appliances and tools. All vehicle maintenance operations shall be performed by experienced professionals.

Due to the ongoing vehicle improvement, the changes not reflected in this issue may be introduced in the vehicle design.

We wish you a successful trip!

© Ulyanovsk Automobile Plant LLC, 2021

Chapter 1. GENERAL

UAZ-374195 (Figures 1.1, 1.2) is a freight car with an all-metal closed body of wagon type, divided into a two-seat cabin and a cargo compartment with or without glass house. Three reclining shelves can be installed on request in the cargo compartment (it is not allowed to use them while the vehicle is in motion). Designed for the transportation of goods.

UAZ-374195-05 (Figure 1.3) is a freight car with an all-metal closed body of wagon type with a glass house, divided into a two-seat cabin and a cargo compartment with or without glass house. Designed for the transportation of goods or passengers.

The UAZ-396295 (Fig. 1.4) and its versions is a medical service vehicle (ambulance car) made on the chassis of UAZ-3741 off-road vehicle, with a wagon-type body divided into a two-seat cabin and a sanitary compartment. Designed for serving the health care facilities.

The UAZ-220695 vehicle (figures 1.5, 1.6) and its versions are specialized passenger vehicles built on the chassis of the UAZ-3741 off-road vehicle with a wagon type body divided into a double cabin and a passenger compartment. Designed for the passenger transportation.

UAZ-390995 (figures 1.7, 1.8) and its versions - freight car with a wagon type body, divided into a five or seven-seat cabin and cargo compartment. The five-seat cabin (Fig. 1.7) can be optionally equipped with two seats for processing papers (it is not allowed to use them while the vehicle is in motion). Designed for the transportation of passengers and goods. UAZ-390995 "Trophy" version (Fig. 1.9) is equipped with additional equipment: expedition rack (for cargo transportation), disappearing stair. The "Expedition" version of UAZ-390995 (Fig. 1.10) is equipped with additional equipment: expedition rack (for cargo transportation), folding ladder, rope winch, front metal bumper, rear metal bumper, protection of steering rods, drawbar, splash guards.

UAZ-330365 (fig. 1.11) is a truck with an extended base, two-seat cabin truck with a flatbed cargo platform. Designed for the transportation of goods.

UAZ-390945 (Fig. 1.12) is a vehicle for public utilities, cooperative and individual farms, with an extended base, five-seat cabin and flatbed cargo platform. Designed for the transportation of goods and passengers.

UAZ off-road vehicles with front and rear drive axles are designed to operate on all types of roads and terrain.

The "U" version vehicles (category 1) as per GOST 15150 are intended for operation at ambient operating temperatures from minus 40 to plus 40°C, relative air humidity up to 75% at plus 15°C, dust content up to 1.0 g/m³ and wind speeds of up to 20 m/s, including areas located at an elevation of up to 3000 m above sea level, with a corresponding derating of the tractive and dynamic performance and fuel economy.

The "+" sign next to the name of the part (assembly) means that this part (assembly) is installed on vehicles depending on package.

Fig. 1.1 Outline (averaged) dimensions of the UAZ-374195 with gross weight (dimensions are given for reference)

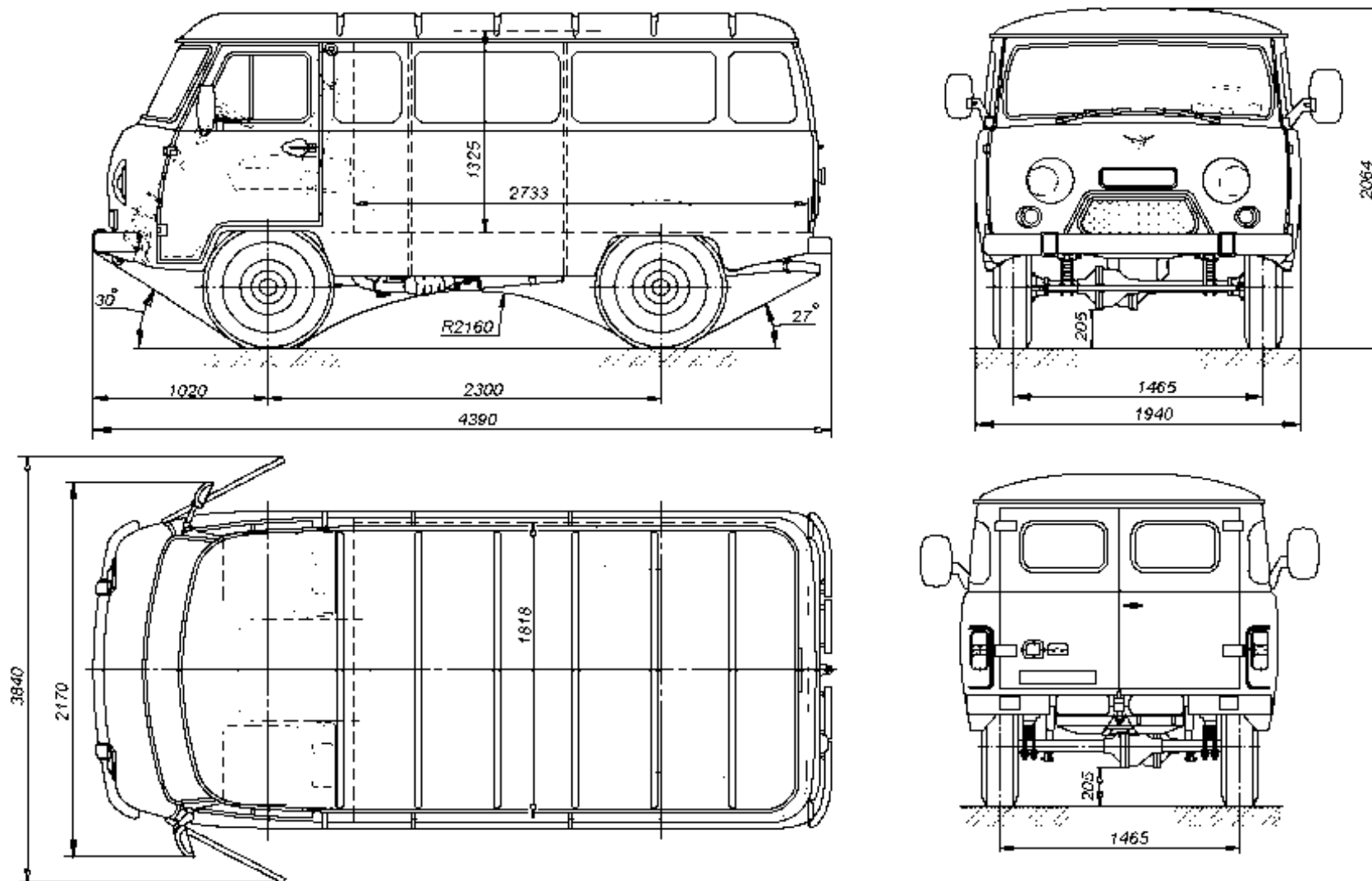


Fig. 1.2. Outline (averaged) dimensions of the UAZ-374195 with three reclining berths with gross weight (dimensions are given for reference)

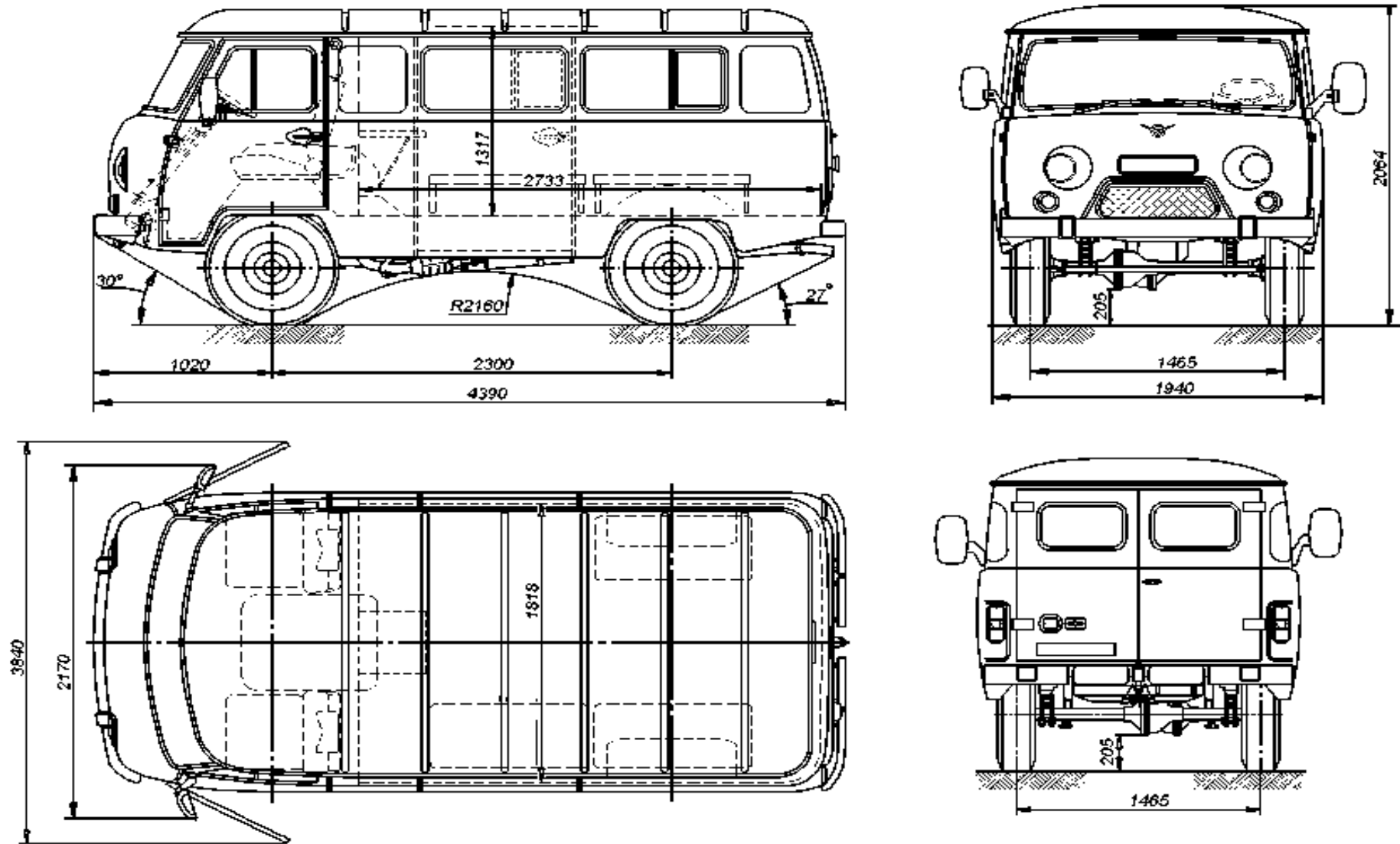


Fig. 1.3. Outline (averaged) dimensions of the UAZ-374195-05 with gross weight (dimensions are given for reference)

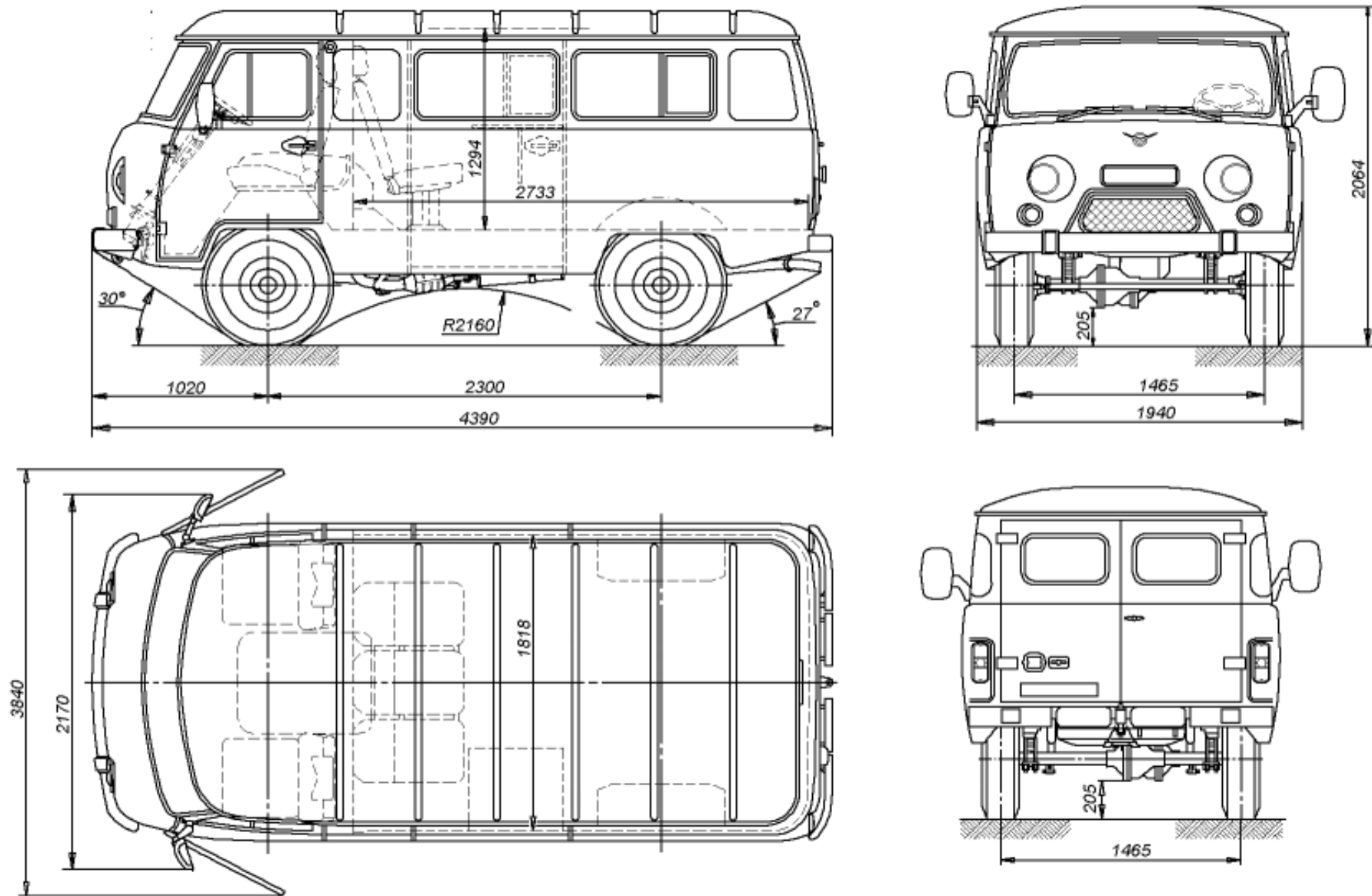


Fig. 1.4 Outline (averaged) dimensions of the UAZ-396295 with gross weight (dimensions are given for reference)

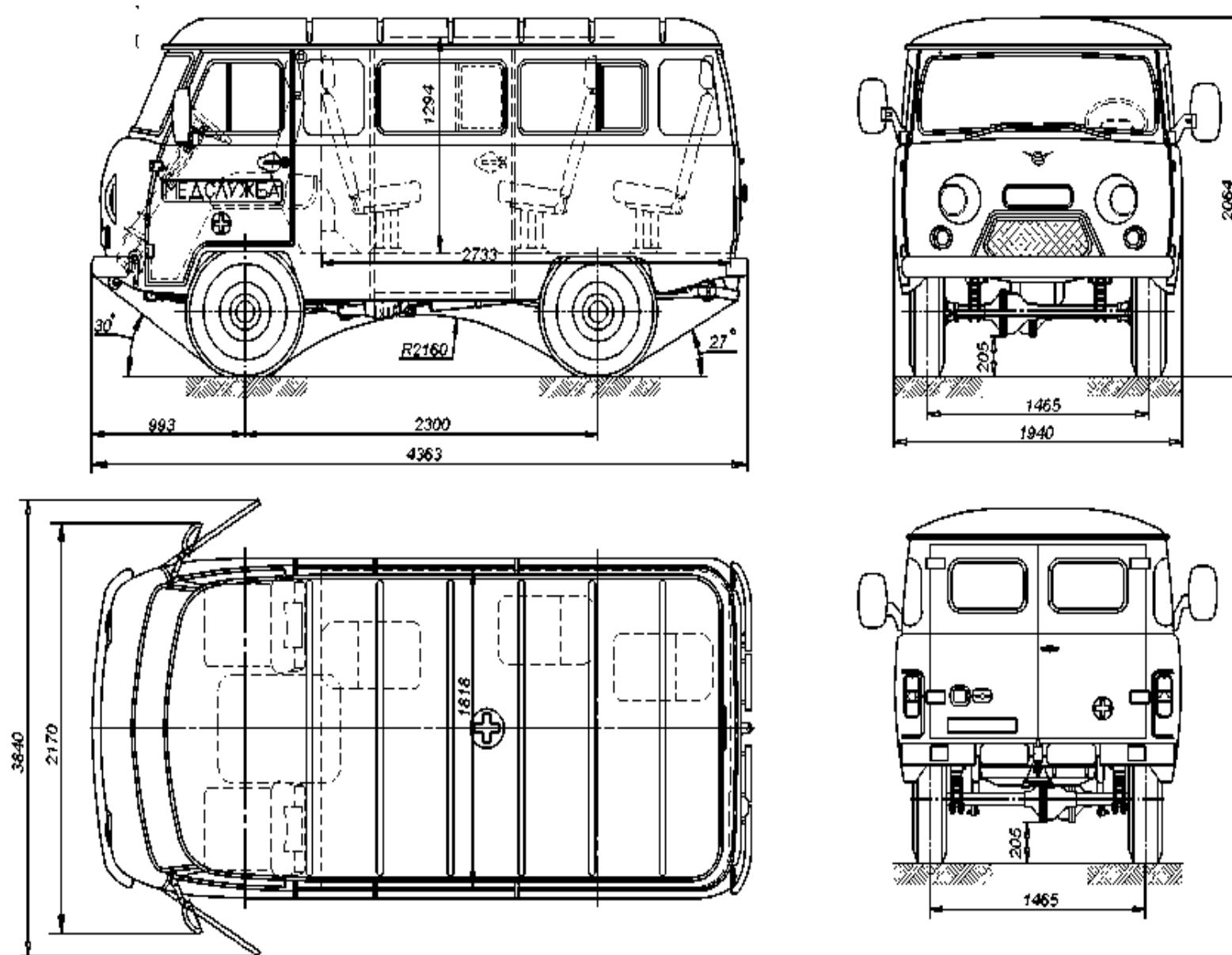


Fig. 1.5 Outline (averaged) dimensions of the UAZ-220695 with gross weight (dimensions are given for reference)

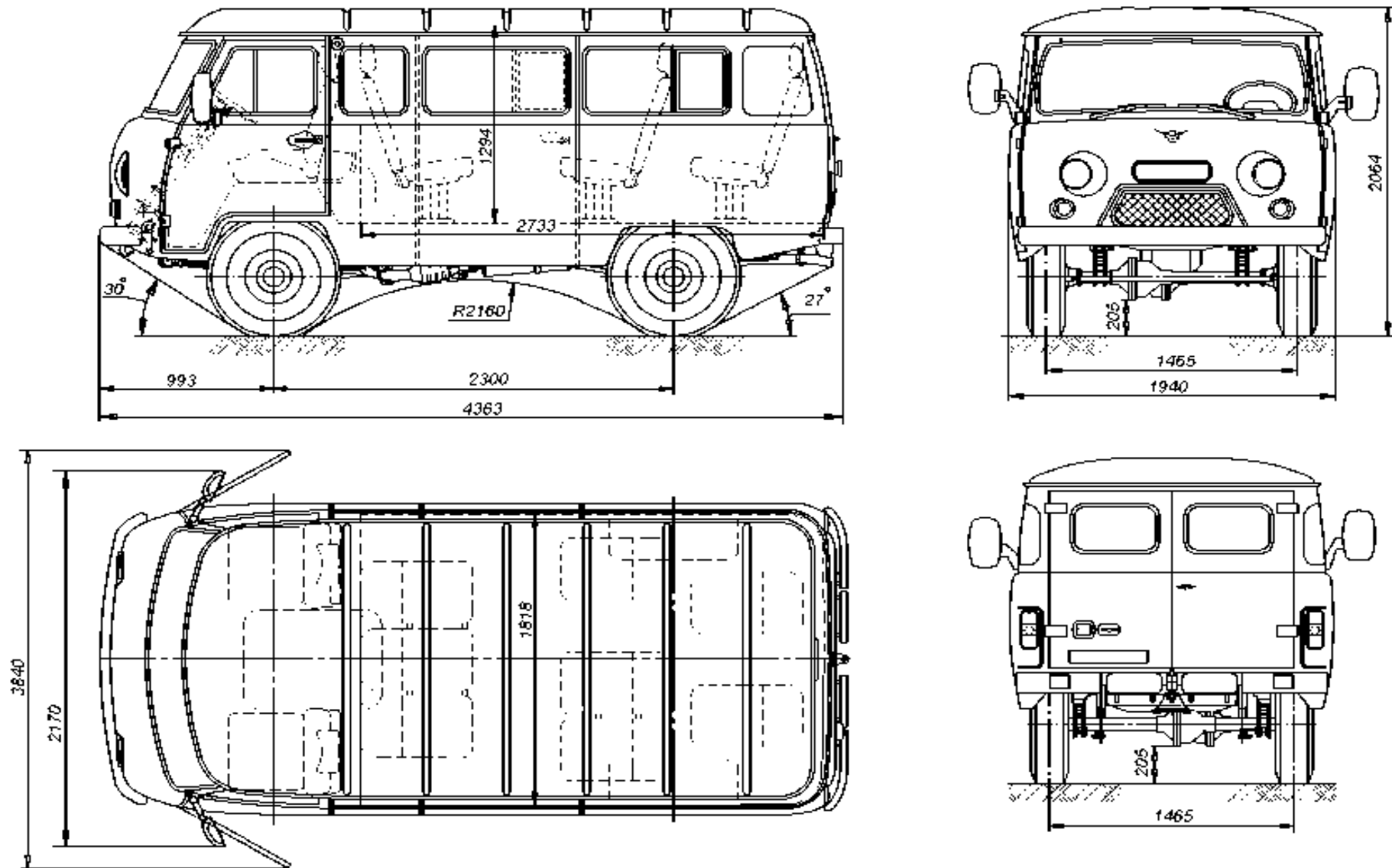


Fig. 1.6 Outline (averaged) dimensions of the UAZ-220695-04 with gross weight (dimensions are given for reference)

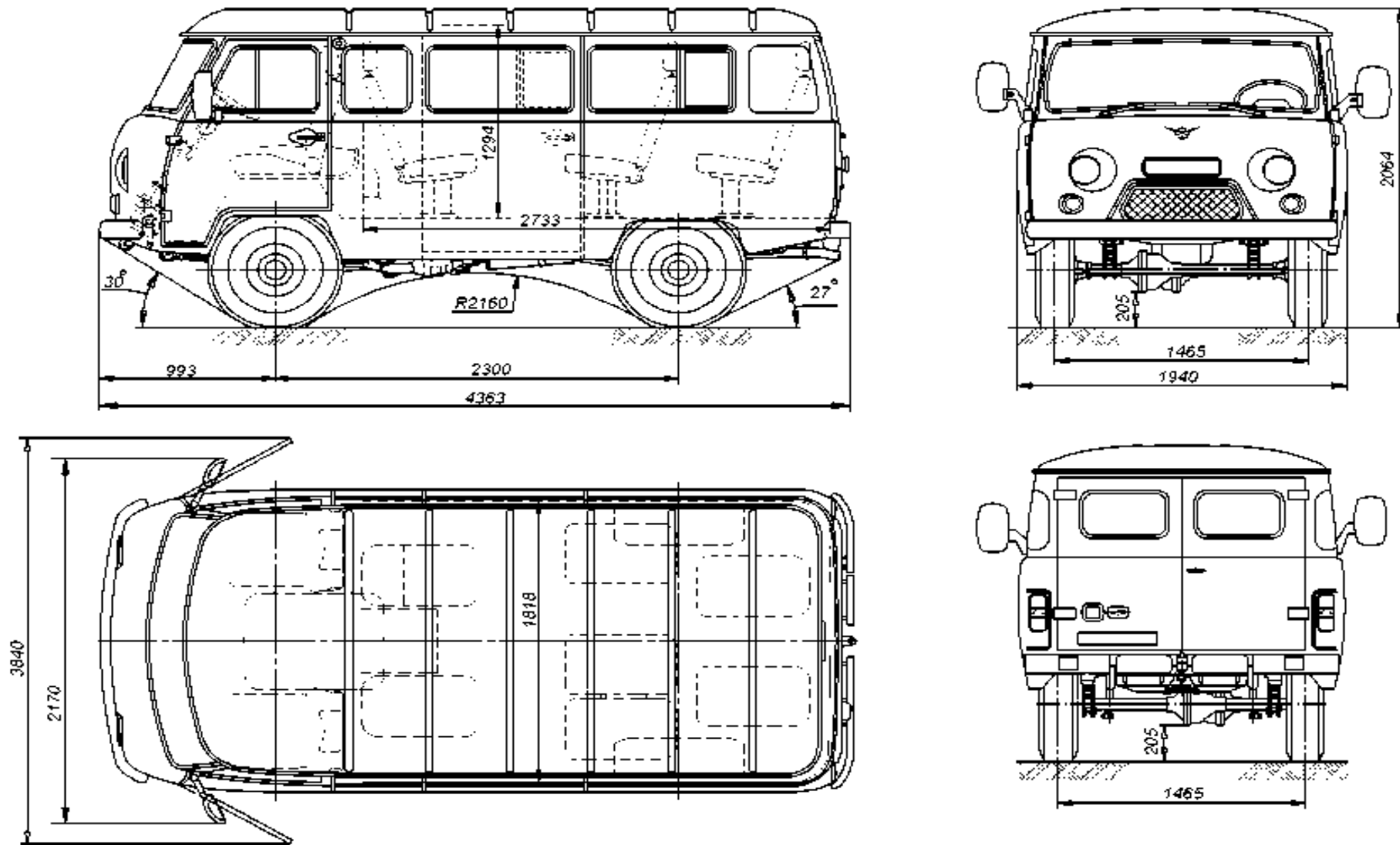


Fig. 1.7 Outline (averaged) dimensions of the UAZ-390995 with gross weight (dimensions are given for reference)

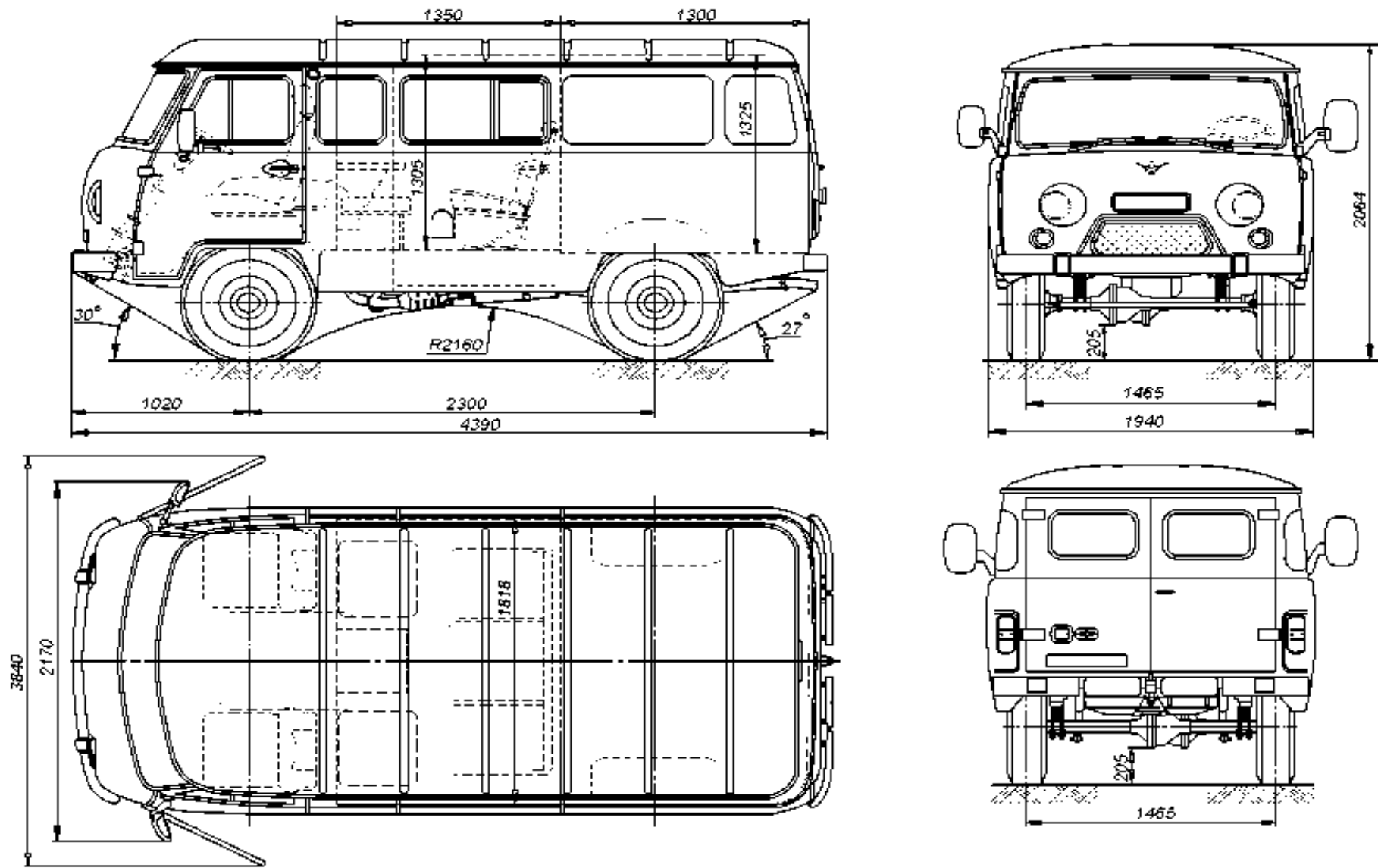


Fig. 1.8 Outline (averaged) dimensions of the UAZ-390995-04 with gross weight (dimensions are given for reference)

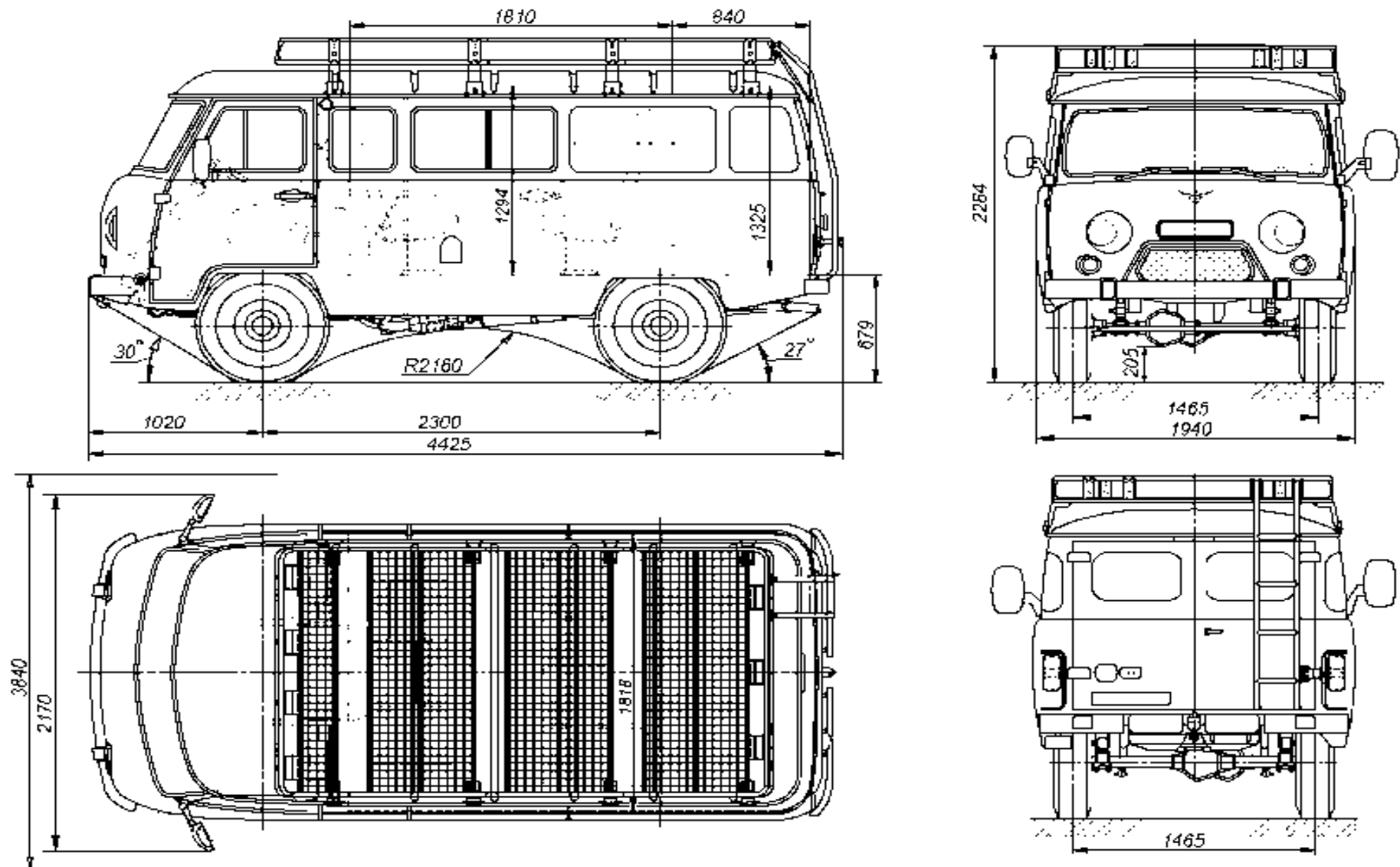


Fig. 1.9 Outline (averaged) dimensions of the UAZ-390995-04 "Trophy" with gross weight (dimensions are given for reference)

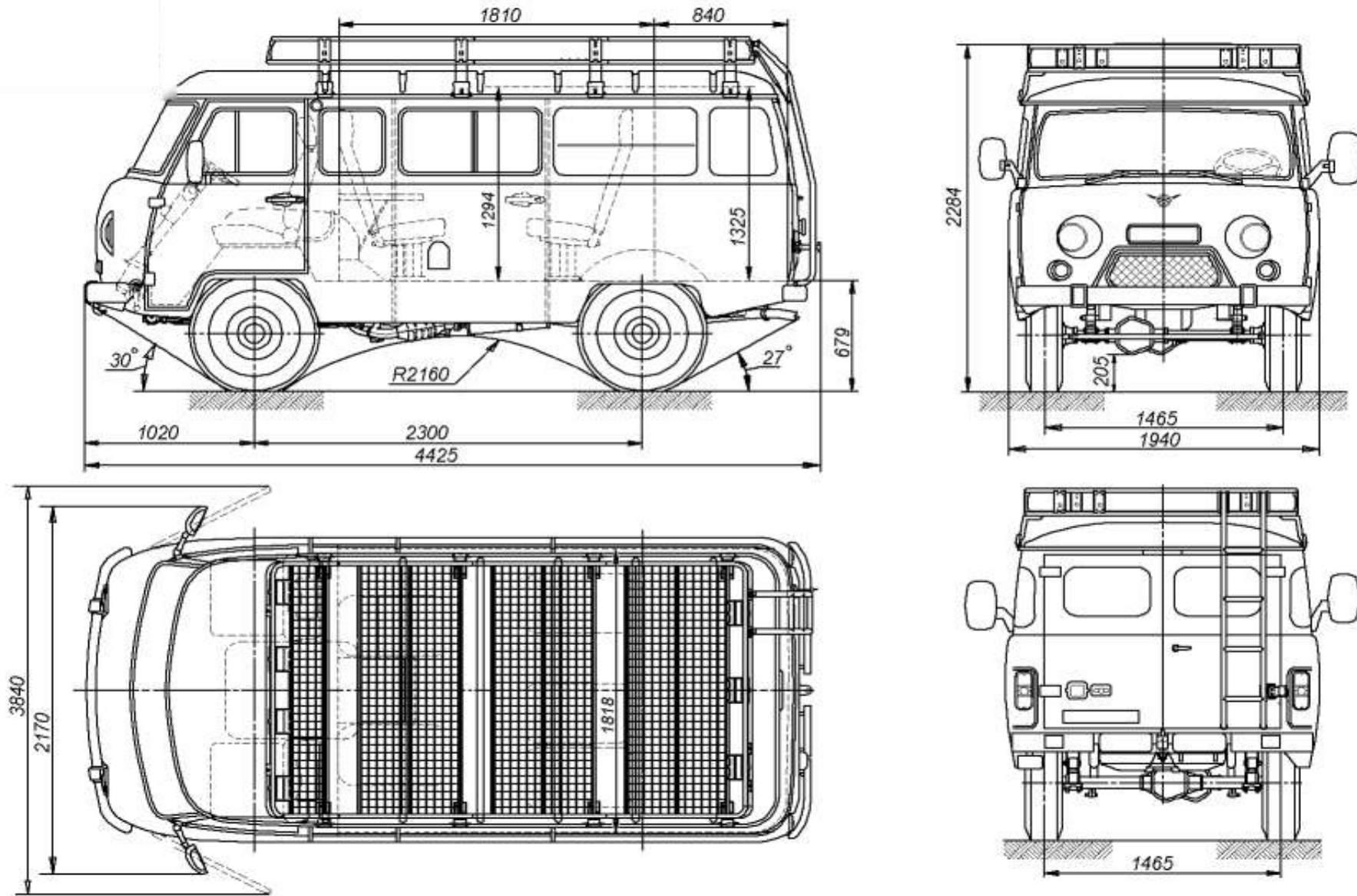


Fig.1.10 Outline (averaged) dimensions of the UAZ-390995-04 "Expedition" with gross weight (dimensions are given for reference)

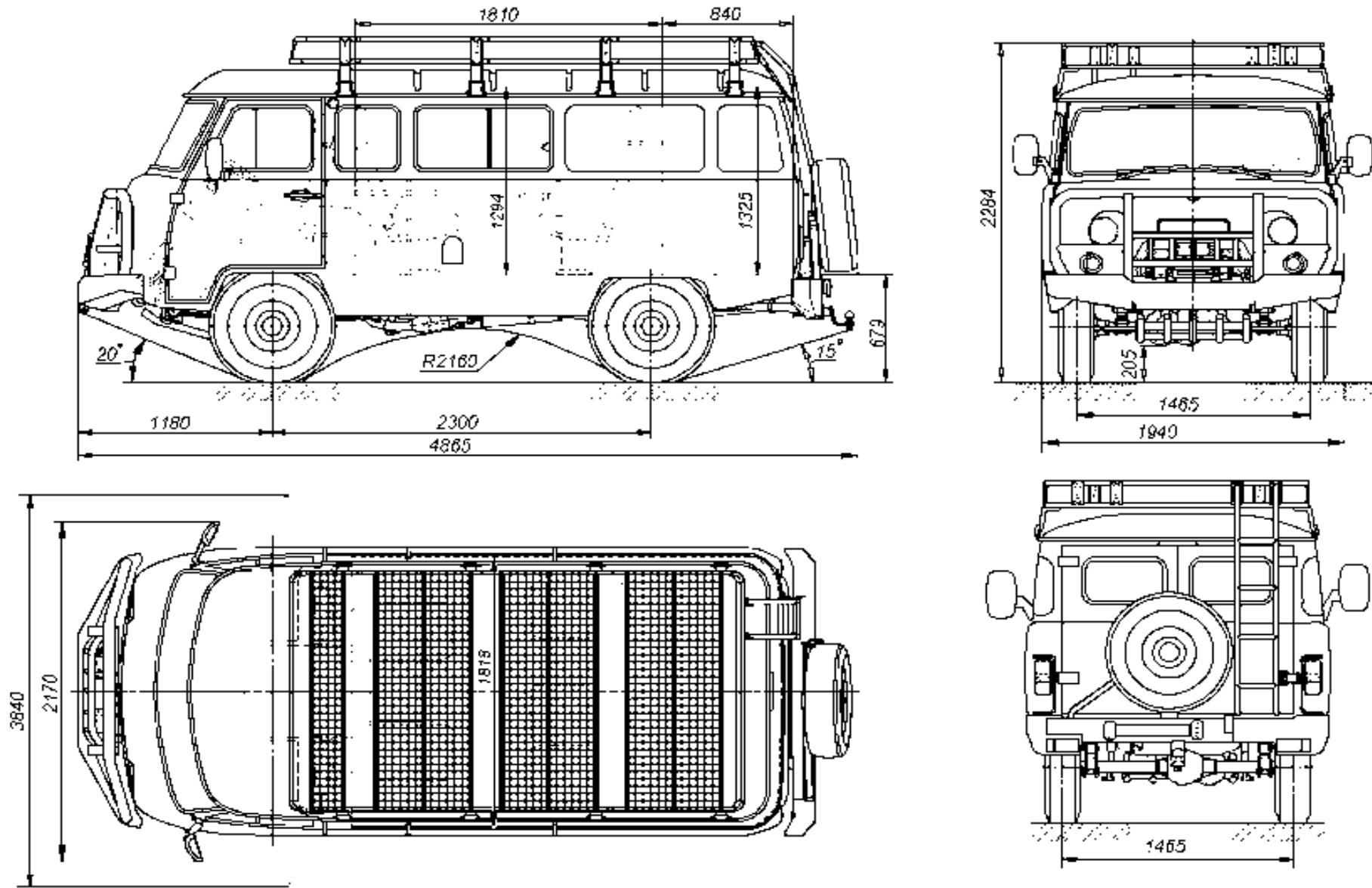


Fig.1.11 Outline (averaged) dimensions of the UAZ-330365 with gross weight (dimensions are given for reference)

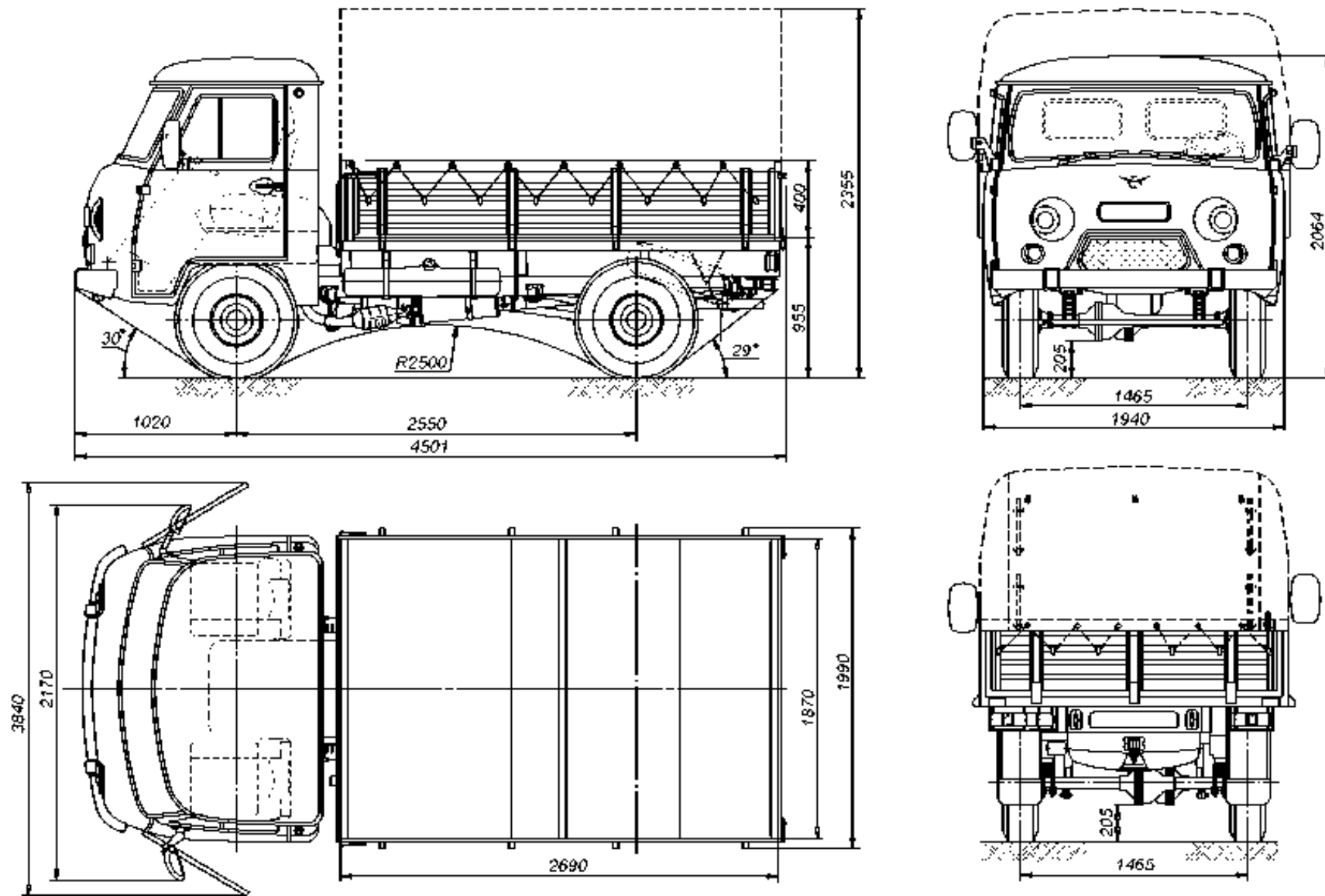
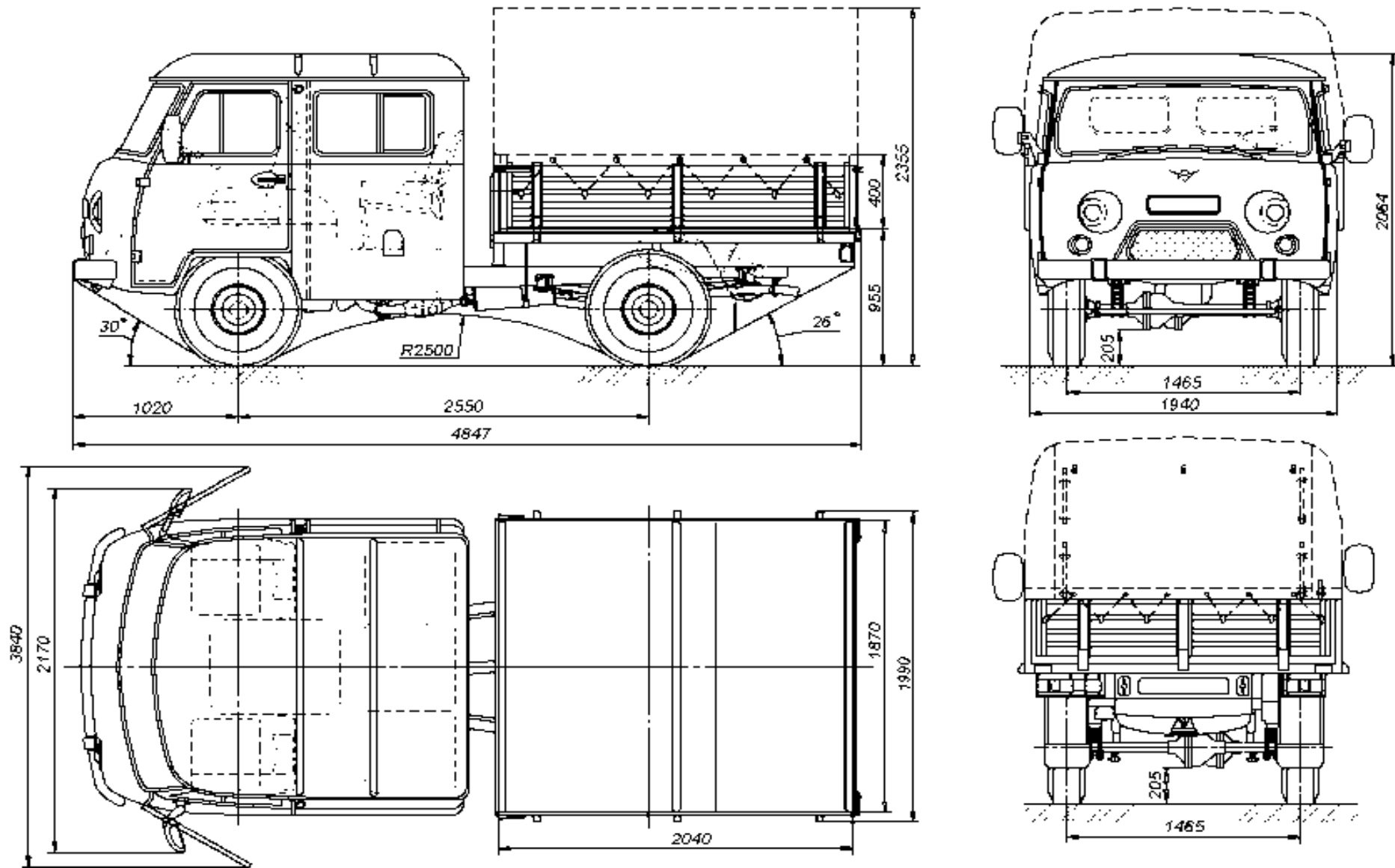


Fig.1.12 Outline (averaged) dimensions of the UAZ-390945 with gross weight (dimensions are given for reference)



VEHICLE MARKING

The vehicle identification number (Fig. 1.13) is indicated on the nameplate and on the bottom flat of the roof duct on UAZ-220695, UAZ-220695-04, UAZ-396295, UAZ-374195, UAZ-374195-05, UAZ-330365, UAZ-390995, UAZ-390995-04, UAZ-390945 and their modifications.

The identification number consists of three parts:

I - part - manufacturer's international identification code, shall mean:

X - the geographical area where the manufacturer is located;

T - country code;

T - manufacturer's code.

II descriptive part - the designation of the vehicle.

III indicating part - the model year of the vehicle; assembly plant code; vehicle production number.

The vehicle nameplate 2 (Fig. 1.14) is mounted inside the cabin on the upper front panel under the right sun visor and has the following markings:

I - full number of the vehicle type approval (VTA);

II- vehicle identification number (VIN code);

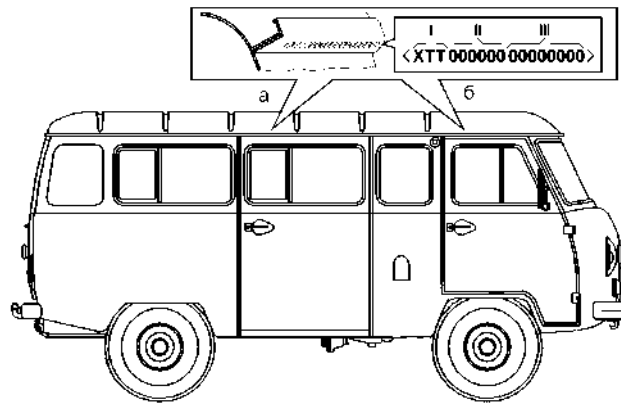


Fig.1.13 Vehicle identification number (VIN)

a, b - for UAZ-220695, UAZ-220695-04, UAZ-396295 vehicles;

b - for UAZ-374195, UAZ-374195-05, UAZ-330365, UAZ-390945; UAZ-390995; UAZ-390995-04 vehicles

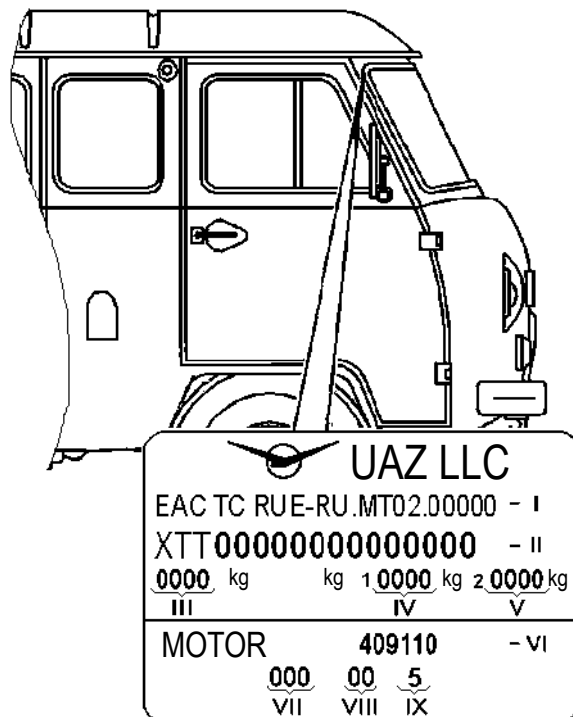


Fig.1.14 The vehicle type plate

III - maximum permissible weight of vehicle;

IV- maximum permissible front axle load;

- V - maximum permissible rear axle load;
- VI- engine make designation;
- VII - equipment code;
- VIII - version code;
- IX - emission standard.

Instruction plates are located:

- on the inside of the left sun visor;
- on the cross-wall on both sides (only on UAZ 220695, UAZ-220695-04, UAZ-396295 vehicles);
- on the left inner side (only for UAZ 220695, UAZ-220695-04, UAZ-396295 vehicles);

Engine identification number is embossed on the platform located on the left side of the cylinder block, above the bosses for fixing the front engine mount (Fig. 1.15).

I - manufacturer's international identification code of the integral part (WPMI-code).

The WPMI identification number code includes four characters:

- the first three characters of the WMI code assigned to UAZ LLC by FSUE NAMI are used as the first three characters;
- the number "0" must be used as fourth character.

II - code of the main features of the engine (descriptive part) includes six characters, including the designation of the model (modification) of the engine by EC. If the model code contains less than six characters, the empty spaces are populated with zeros.

III - conditional code of engine manufacturing year. The symbol (letter or number) indicates the year of manufacture of the engine.

IV - serial number of the engine assigned by the manufacturer, where: the first character (digit) - code of the production unit; the remaining six characters (digits) - the serial number of the engine.

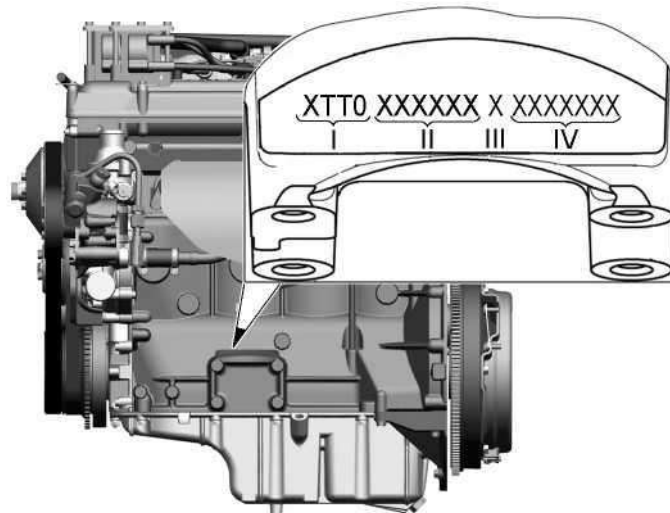


Fig.1.15 Location of the engine identification number

TECHNICAL DATA

General data

Description	UAZ vehicle models					
	374195(-05)	396295	220695(-04)	390995(-04)	330365	390945
Vehicle dimensions ¹⁾	Shown in Fig. 1.1 - 1.12					
Vehicle type	Off-road, two-axle, type 4x4					
Number of seats	2 (5)	4+1	9+1 (8+1)	5 (7)	2	5
Passenger capacity	-	4	9 (8)	-	-	-
Weight of cargo transported in the cargo compartment, kg, not more	—	—	—	475 (410)	—	—
Weight of cargo transported on the platform, not more than	—	—	—	—	1150	700
Technically permissible maximum vehicle weight, kg	2730 (2845)	2880	2880	2830	3070	3070
Distribution Technically max permissible weight distributed by axles, kg:						
on front axle	1300 (1350)	1440	1440	1360	1435	1435
on rear axle	1430 (1495)	1440	1440	1470	1635	1635
Unladen weight of car ²⁾ , kg	1805 (1920)	2000	2015 (2005)	1890 (1920)	1845	1995
Distribution of unladen weight by axles, kg:						
on front axle	1085 (1160)	1180	1195 (1185)	1135 (1155)	1180	1220
on rear axle	720 (760)	820	820 (820)	755 (765)	665	775
Max. gross weight of towed trailer: without brakes	750 ³⁾	-	-	-(750 ³⁾)	-	750 ³⁾
Minimum turning radius on the centerline of the front outer (relative to the turning center) wheel trace, m, max.	6.3				7.0	
Minimum outer turning radius as to the front bumper point, the farthest from the turning center, m, max.	6.8				7.5	
Max. grade climbed by vehicle with the vehicle, degrees	30					
The greatest depth of a ford, m	0.5					
Maximum speed, km/h	127				115	
Fuel consumption, L/100 km, when driving at 60 km/h	9,0 ⁴⁾				9,6 ⁴⁾	
Fuel consumption, L/100 km, when driving at 80 km/h	11,2 ⁴⁾				12,4 ⁴⁾	

¹⁾ Dimensions are averaged, given for reference and may vary depending on the operating conditions of the installed tires, their condition and air pressure, vehicle load, suspension condition, etc.

²⁾ With fuel, tools, extra equipment, spare tire and driver

³⁾ A trailer may only be towed with a ball-type tow hitch that has been certified as part of a haul train in the prescribed manner.

⁴⁾ Fuel consumption is used to determine the technical condition of the vehicle and shall not be regarded as the operational standard. Reliability of measurements of fuel consumption is ensured only during special tests in strict accordance with the requirements of GOST R 54810-2011 when the vehicle reaches a total mileage of 9000-10000 km.

Engine

Description	UAZ vehicle models
Make	ZMZ-40911
Type	4-stroke, gasoline, fuel-injected
No. of cylinders	Four
Cylinder arrangement	In-line, vertical
Firing order	1-3-4-2
Diameter of the cylinder, mm	95.5
Piston stroke, mm	94
Displacement, L	2,693
Compression ratio	9
Minimum crankshaft speed at idle, min ⁻¹	800-900
Maximum power, kW (hp): netto according to UN Regulation 85	82.5 (112.2) at 4250 min ¹
Maximum torque, N-m (kgf-m) according to UN Regulation 85	198.0 (20.2) at 2500 min ¹
Lubrication system	Combined: pressurized and sprinkler-type
Crankcase ventilation	Closed-type
Fuel supply system	With forced fuel feed
Fuel	Unleaded gasoline (see Annex 3)
Cooling system	Liquid-type, closed, with forced circulation

Transmission

Description	UAZ vehicle models
Clutch: clutch type drive type	Dry, single-plate Hydraulic
Gearbox: gearbox type type of control	Mechanical, synchronized, five-speed Mechanical
Transfer case: gearbox type type of control Transmission ratios direct gear downshift gear power take-off ¹⁾	Two-stage Mechanical 1.00 1.94 It is possible for the drive (when driving and when vehicle is parked) of special units installed in the body, with the installation of a power take-off box by the consumer. Allowed power take-off - 40%.

Description	UAZ vehicle models
Driveline	Open type, consisting of two shafts. Each shaft has two cardan-joint with a cross on needle bearings
Front and rear drive axles: axle type final drive gear ratio, axle differential steering knuckle pivots of the front axle	Single-stage, driven 4.625 Cone-shaped with 4 satellites Ball-type constant-velocity joints

¹⁾ Installation of a power take-off box shall be agreed with UAZ LLC as appropriate

Chassis

Description	UAZ vehicle models	
	374195, 390995, 330365, 390945	396295, 220695
Suspension: suspension type	On four longitudinal semielliptical springs with (or without) anti-roll bar in the front suspension	On four longitudinal semielliptical springs with anti-roll bar in the front suspension; rear springs with mounts
shock absorbers	Four pieces, hydraulic, telescopic bilateral, rear: hydraulic, front: hydraulic or hydro-pneumatic (if equipped with anti-roll bar	Four telescopic, bilateral, front: hydro-pneumatic, rear: hydraulic
Wheels and tires:	One-piece rim disks 61/2Jx16H2, with 225/75R16 radial tubeless tires. Wheel fastening - by five nuts. The spare wheel is made of steel, fitted with the same size tire as the wheels for normal operation. On some vehicles, the spare wheel can be equipped with a tire 225/70R16, used as a spare wheel for temporary use. The spare wheel is attached to the holder with one nut	

Control system

Description	UAZ vehicle models
Steering mechanism type	Screw-ball nut-rack-sector with power steering
Brakes: service brake type working brake actuator type parking brake type parking brake actuator type	With disc brakes on the front wheels and drum brakes on the rear wheels with ABS or pressure regulator without ABS Hydraulic with vacuum booster, separate for front and rear wheels Drum with internal pads Mechanical

Electrical equipment

Description	UAZ vehicle models
Wiring system	Single-wire, negative pole is connected to vehicle ground
Electrical system voltage (rated), V	12
Generator	5122.3771 (14B 80A OOO Pramo-Elektro); 3212.3771-10 (14B 90A OAO BATE for medical service cars - 5122.3771.000-30 (14B 120A OOO Pramo-Elektro); 32112.3771 (14B 110A OAO BATE)
Battery	6ST-66A or 6ST-66A with ventilation pipe

Spark plugs	AY14DVRM GOST R53842, DR17YC-F produced by "BRISK"
Engine controls unit	Bosch
Starter	405.3708000-01 (AZE 2203 12V 1,9kWz9 11.131.568 OOO "Pramo-Elektro"); 5112.3708 (12V 1.8kW OAO "BATE
Ignition switch with anti-theft device, with locking against secondary activation of the starter circuit	31514-3704010 or 315196-3704005
Horn	20.3721-01, electric, of vibrating type
Rear fog light	2452.3716
Fuses:	Relay and fuse box
Flasher unit	495.3747
Windshield wiper	80.5205 or 82.5205 with two brushes

Adjusting data

Description	UAZ vehicle models
Deflection of fan and power steering pump belt at force of 4 kgf, mm	5-8
Belt deflection of water pump and generator drive at 8 kgf, mm	13-15
Gap between the electrodes of the ignition spark plugs, mm:	0.7 ^{+0.15}
Coolant temperature in the cooling system, °C	80-105
Brake pedal free travel, mm	5-14
Front wheel toe-in	0°0'-0°14'
Maximum turning angle of the front inner wheel, degr.	26-27
Total steering play (angle of steering wheel turning from the position corresponding to the beginning of the steerable wheel turn in one direction to the position of the steering wheel corresponding to the beginning of the steerable wheel turn in the opposite direction), degr., max.	20

Tyre pressure, MPa (kgf/cm²)

Description	UAZ vehicle models					
	374195(-05)	396295	220695(-04)	390995(-04)	330365	390945
Front wheels: 225/75R16	0.22 (2.2) (0.23 (2.3))	0.24 (2.4)	0.24 (2.4)	0.23 (2.3)	0.24 (2.4)	0.24 (2.4)
Rear wheels: 225/75R16	0.24 (2.4) (0.25 (2.5))	0.24 (2.4)	0.24 (2.4)	0.24 (2.4)	0.27 (2.7)	0.27 (2.7)

Fueling data (liters)

Description	UAZ vehicle models					
	374195(-05)	396295	220695(-04)	390995(-04)	330365	390945
Fuel tanks:						
main	50	50	50	50	50	50
additional	27	27	27	27	-	-
Engine cooling system (including heater)	12.7 (13.7)	13.7	13.7	13.7	13.7	13.6
Engine lubrication system (without oil heater volume)	6.5					
Gearbox housing	1.7					
Transfer case housing	0.7					
Final drive housing:						
with vertically inseparable crankcases, front/rear	1,5/1,4					
with vertically separable crankcases, (each)	0.85					
Hydraulic steering system	1.3					
Hydraulic clutch actuator system	0.20					
Brake actuating hydraulic system	0.52	0.52	0.52	0.52	0.60	0.60
Reservoir of the windshield washer	5.2					

CHAPTER 2. SAFETY REQUIREMENTS AND WARNINGS

SAFETY REQUIREMENTS

1. When using the vehicle, it is necessary to observe the road traffic regulations and safety requirements strictly, as well as keep the vehicle in a technically sound condition when timely performing its maintenance and eliminating possible malfunctions so as not to cause harm to yourself and others.

2. The driver is liable for passengers. Therefore, he is obliged to control passenger compliance with safety regulations. Be especially careful if there are children in the vehicle. Do not leave children in the vehicle unattended.

3. It is forbidden to turn off the ignition and remove the key from the ignition switch when the vehicle is moving. Stopping the engine will reduce the brake performance, and with the ignition key removed, the steering shaft is blocked by an anti-theft device, and the vehicle becomes uncontrollable.

4. When leaving the vehicle, do not leave the door and ignition keys in it.

5. Before opening the door, make sure that it does not interfere with other road users.

Before closing the door, make sure that nothing is not pinched by it.

Never drive the vehicle with any door or hinged tailboard open.

Check that the body door and side locks are working properly and securely locked before you drive the vehicle.

6. Seat belts are an effective mean of the vehicle driver and passenger protection from the serious consequences of road accidents.

It is mandatory to use seat belts!

7. Worn and damaged tires, insufficient or excessive air pressure in them, deformed wheels or weakening of wheel attachment can cause an accident.

8. In case of brake system or steering malfunction, further driving or towing the vehicle with the use of a flexible towing coupler is prohibited. In this case, tow the vehicle with the use of partial loading or breakdown truck.

9. Disassembly of shock absorbers is strictly prohibited.

10. It is forbidden to warm up the engine in a closed room that does not have good ventilation, in order to avoid carbon monoxide poisoning.

11. Do not use an open flame to heat the vehicle assemblies.

12. Keep the engine clean (engine oil on the surfaces of the engine, especially in the crankcase can result in a fire).

13. Ensure that the fuel tank caps are tightly sealed and there are no leaks from the fuel lines.

14. The operating temperature of the catalyst is 400- 800 ° C. It is not allowed to operate the vehicle without catalyst protective screens. After driving on tall grass, be sure to inspect the vehicle. Remove grass or other accumulated foreign objects from parts located in a close proximity to the exhaust system to prevent possible combustion.

15. When working with a low-freezing fluid, gasoline and brake fluid, observe the following rules:

- avoid any operations in the course of which these liquids or their vapors can get into the oral cavity;

- wash off the liquid on your skin immediately with warm water and soap;

- do not allow it to be spilled in a vehicle or indoors. Rinse the splashed area with water and ventilate;

- dry clothes contaminated with liquid outside before washing;

- moisten with kerosene the gasoline sludge during scraping to prevent poisonous particles of sludge from entering the respiratory system;

- when working with fuel, comply with fire safety regulations.

16. After stopping the vehicle, engage the parking brake.

17. Take extra care when working with electrolyte.

To prevent poisoning and chemical burns, observe the following rules:

- strictly comply with safety requirements set forth in the accumulator battery manual;

- do not allow ingress of electrolyte or its vapors into the oral cavity, respiratory organs or eyes, this is extremely dangerous;

- avoid any operations, as a result of which electrolyte can get onto the skin. If this happens, gently wipe the electrolyte with cotton wool and immediately wash the remaining traces on the skin with 5% ammonia or sodium carbonate solution;

- collect spilled electrolyte with a special rubber bulb or areometer, rinse with water, ventilate the room;

- for charging the battery remove it from the vehicle and unscrew the filler plugs;

- battery shall be charged in a well ventilated room. Accumulation of electrolyte vapors is dangerous to health and explosive.

18. Do not wash the vehicle with the engine running.

19. An improperly installed jack can cause serious injury or damage to the vehicle. It is strictly forbidden to carry out work under the vehicle supported by jack.

20. It is forbidden on steep slopes:

- to move with the gearbox and transfer case gears off;

- to turn off the engine due to loss of braking capacity.

21. Follow these safety guidelines when working with the winch:

- make sure that the winch rope is properly secured to the front bumper before starting work;

- when cable is unwound, it is not allowed to leave less than three turns of cable on the drum;

- always wear thick canvas gloves when working with the rope;
 - in order to avoid injuries, it is prohibited to keep the moving cable at a distance of less than 0.5 m from the vehicle's bumper;
 - in order to avoid injuries when winding the cable on the winch drum, do not correct the turns by hand;
 - it is necessary to control the winding and condition of the cable. The cable must fit tightly with turn touching along the entire length of the winch drum. Wire breaks in the strands, kinks, knots and cable squeezing are not allowed;
 - do not operate the winch with a damaged wire rope;
 - when operating the winch with a load on the cable, it is recommended to put a cable damper or a soft object (jacket, sleeping bag, etc.) on a cable to arrest its separation in the event of cable brake. It is forbidden to stay close to the tensioned cable, on the tensioned cable, as well as step over the tensioned cable;
 - it is forbidden to use the winch cable as a towing cable, this leads to the failure of the winch;
 - it is not allowed to stay in front of the vehicle being moved by the winch. You must be either in the vehicle cab or on the side, outside the track of the vehicle.
 - in the event of an emergency situation associated with the winch, when the cable is being wound on the drum without control, it is necessary to immediately de-energize the winch by removing the power cable lug from the "+" terminal of the battery;
 - responsibility for the safe operation of the winch, prevention of damage to the vehicle and injuries is born solely by the winch operator.
22. When carrying out maintenance and repair of the vehicle, it is necessary to fulfill the following requirements:
- prior to begin the work, check the serviceability of the tool and accessories, tidy up the working clothes: fasten the cuffs, tuck in the clothes so that there are no hanging ends, hide the hair under a tight-fitting headwear;
 - when carrying out any type of work, the vehicle must be reliably braked;
 - do not carry out maintenance and repair of the vehicle when the engine is running, except for certain types of work which require engine start, concurrently particular caution shall be taken;
 - do not allow dangerous approach of hands, parts of clothes, tools to moving drive belts, pulleys, etc.;
 - fuel supply system downstream of the fuel pump is under pressure with the engine running, therefore it is not allowed to perform maintenance (for example, tighten the connections) or repair system components, while the engine is running or immediately after it stops;
 - exercise caution when opening the radiator cap of the engine cooling system in order to avoid steam burns;
 - the fuel tanks must be removed before carrying out any arc welding operations;
 - observe the rules of fire safety;
23. Waste oils and special fluids must be collected and recycled or disposed.
24. A number of safety requirements are given in detail in the relevant sections of this manual.

WARNINGS

1. During the initial period of operation, strictly follow all recommendations specified in the section "Running in a new vehicle".
2. Do not start the vehicle with a cold engine. Do not allow high speed of crankshaft after starting a cold engine. For the purpose to accelerate the engine heating, never perform it with a higher frequency of the crankshaft rotation. To prevent difficulties during engine start, strictly follow the instructions in the "Starting Engine" section.
3. If there are distinct noises and knocks in a running engine, it is necessary to find out the reason of their occurrence, and the vehicle shall not be operated until the fault is eliminated.
 - 3.1 After starting the cold engine, knocks in the valve hydraulic plunger are possible, which shall disappear as the engine warms up to a coolant temperature of 80-90 ° C, but no more than 30 minutes after reaching the specified temperature. If the knocks fail to disappear, check the oil supply to the hydraulic pushers or replace the defective hydraulic pushers.
4. Engage the reverse gear in the gearbox and reduction gearing in the transfer case only after the complete stop of the vehicle.
5. When driving on dry hard roads, the front axle must be disengaged. Do not engage the front axle when driving a vehicle with small turning radii.
6. In the event of failure of one of the brake system circuits, the brake pedal travel increases and braking performance decreases.
7. Never remove the tips of the spark plugs with the engine running and check the sparking discharge by means of a ground/frame contact.
8. Prevent contact of acids, soda solutions, brake fluid, antifreeze, fuel and lubricants with painted surface of the body, wheels, rubber parts.
9. Do not allow shock loads on the vehicle chassis. In case of front wheels hitting hard, carefully inspect all the components of the front axle, steering linkages, steering gear and repair any defects found.
10. The differential lock of rear axle (depending on package) ensures a rigid connection between the left and right wheels, eliminating their separate slipping, which in some cases improves the vehicle's off-road performance, but impairs its driving and stability, and additionally loads transmission parts. For safety reasons, the operating the differential in the

locked state is limited to a speed of 30 km/h, the engaging the lock is limited to a speed of less than 5 km/h. To ensure effective and safe use of the lock for you and others, you must comply with the following conditions:

- do not use the differential lock on roads with a dry hard surface, as this leads to increased loads on the transmission, accelerated tire wear, and worsening of the vehicle maneuverability;
- when driving on roads with a low adhesion coefficient (ice), the engaged lock results in loss of wheel grip and a skidding of the rear axle with impaired road holding. **Take special care when lock is activated on vehicles equipped with the ABS, since the ABS cannot work properly when the lock is activated, and therefore it is forcibly disabled. In case of the ABS disengaging, the vehicle tendency to skid increases dramatically when braking on slippery surfaces.** Once the lock is turned off, the ABS will engaged automatically;
- when turning with the lock engaged, the vehicle has insufficient turnability and tendency to drift to the outer turning radius, especially on roads with a low coefficient of adhesion;
- activate lock only when the engine is running after stopping the vehicle. Do not attempt to engage the lock when the wheels slip, as this will lead to shock loads and parts failure;
- activate the lock only in cases when engaging the front axle is not sufficient to overcome the obstacle and only after it has been engaged;
- do not disengage the lock during turning.

After receiving the signal to disengage the lock, the locking clutch may remain engaged for some time. The clutch is disengaged at chop deceleration, for example, during a gear change. Once an obstacle is overcome and differential lock is disengaged (manually or automatically), make sure that the clutch has unlocked the differential (when turning, there is no wheel slip and knocks in the transmission, the vehicle response is no different from the usual one).

Lock activation does not always contribute to the improvement of the vehicle off-road performance. For example, when driving on soft (marshy) soils, the activated lock may cause separation of the vegetable soil and “burying” of the wheels. Lock activation is especially effective in case of diagonal suspension of wheels or large difference in the traction of right and left wheels.

11. In order to avoid excessive loads on the axle differential, do not allow prolonged slipping of one of the wheels.

12. When operating the vehicle in the cold season (ambient temperature of 0°C and below), it is recommended to use a heat-insulating cover for the radiator grille.

13. When the vehicle is parked for more than 12 hours at an ambient temperature of below -30 ° C, the battery is recommended to be stored in a warm room.

14. In order to avoid overheating of the oil and failure of the power steering pump, it is not recommended to hold the steering wheel in extreme positions for more than 20 sec.

15. Use only recommended lubricants and special fluids as specified in operation manual.

16. Use unleaded gasoline only.

17. It is forbidden to start the engine with improperly installed high-voltage wires from the ignition coils to the spark plugs and with low-voltage wires to the ignition coils.

18. The vehicle is fitted with a rigid type towing device that can only be used for short-term (emergency) towing.

19. The simultaneous transportation of passengers and cargo (save for hand luggage) in the passenger and sanitary compartment of UAZ-220695, UAZ-390995, UAZ-396295, UAZ-390945; the cargo and passenger compartment of UAZ-374195-05 is not allowed.

20. Transportation of people on the platform of UAZ-330365, UAZ-390945 vehicles is not allowed.

21. It is prohibited to use UAZ-220695, UAZ-220695-04 vehicles as a means of public transport and commercial transportation.

22. Open hinged tailgates or tailboard of your vehicle close the rear light from other road users. Before opening the hinged tailgates or tailboard of the vehicle, install an emergency stop sign on the road in accordance with GOST R41.27-99.

23. It is prohibited to use the seats installed in UAZ-390995 for processing of documents and reclining berths in the UAZ-374195 while the vehicle is in motion.

24. Continuous, trouble-free and safe operation of the vehicle depends on the accuracy of compliance with the requirements of this manual and the service book.

25. The torque values of the main threaded connections are given in Appendix 2 to this Manual.

26. The plant improves constantly the design of its vehicles, and therefore the latest design changes that do not affect the operation may not be reflected in this issue of the Manual.

Chapter 3. CONTROLS AND EQUIPMENT OF THE DRIVER'S AND PASSENGER'S SEATS

The location of controls and equipment is shown in fig. 3.1:

- 1 - instrument panel (see "Instrument panel");
- 2 - ignition switch (fig. 3.5);-
- 3 - steering wheel;
- 4 - multifunction steering column switch and ignition switch (Fig. 3.5);
- 5 - sun visor;
- 6 - Light assembly. The switch is located next to the light assembly;
- 7 - internal mirror (on UAZ-220695, UAZ 220695-04 vehicles);
- 8 - front headrail;
- 9 - glove compartment;
- 10 inner door lock knob;
- 11 - door handrail;
- 12 - the window handle;
- 13 - front axle switch lever (Fig. 3.2). It has two positions: front - axle on; rear - axle off;
- 14 - transfer case gear lever (Fig. 3.2). It has three positions: front - forward gear is engaged, middle - neutral position, rear - downshift gear is engaged;
- 15 - gear lever (fig. 3.2);
- 16 - the control rod handle of the tap heating system;
- 17 - parking brake lever;
- 18 - throttle actuator pedal;
- 19 - brake pedal;
- 20 - clutch pedal;
- 21 - rearview mirror (exterior);
- 22 - handle of the drive of the ventilation and heating hatch cover;
- 23 - user interface unit.

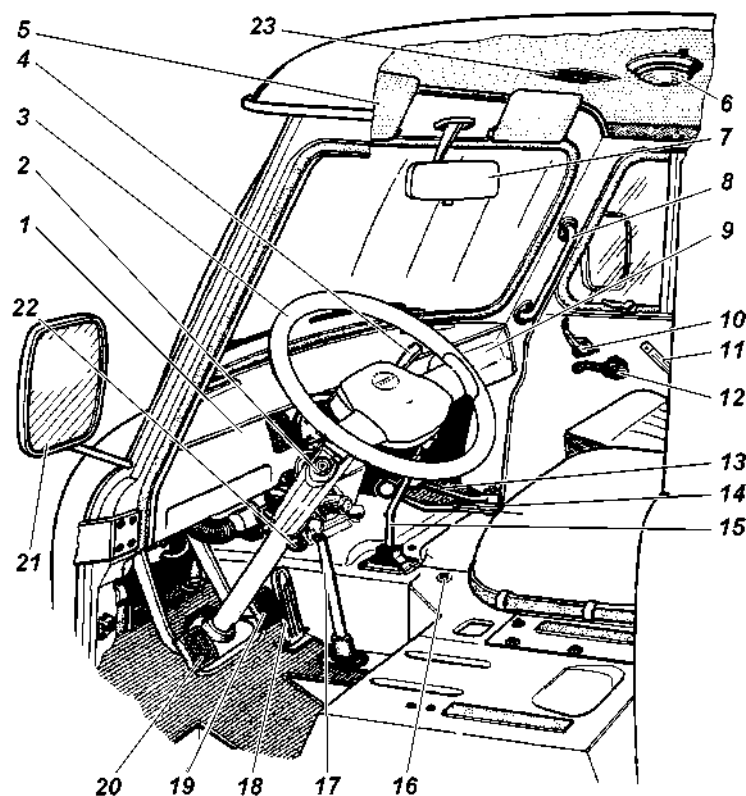


Fig. 3.1 Controls (see text below for the description of positions)

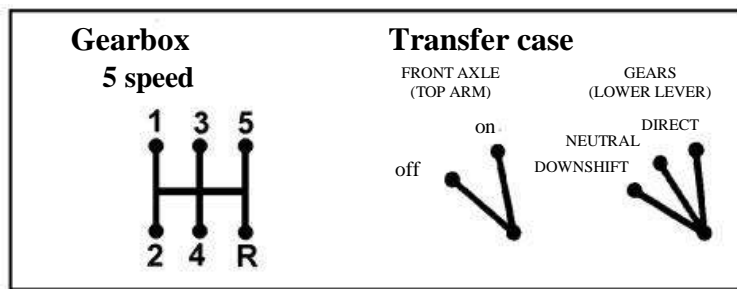


Fig. 3.2 Diagram of positions of gearbox levers and transfer case levers

INSTRUMENT CLUSTER

The instrument panel (Fig. 3.3) includes:

- 1 - diagnostic connector;**
- 2+ - Rear cross-axle differential lock switch** (see Section “Rear inter-wheel differential lock”).
- 3+ - beam adjuster** with manual adjustment. The regulator knob adjusts the angle of tilting of the headlight light beam depending on the vehicle load:
 - 0 - car with a driver;
 - 1 - all seats are occupied (only for UAZ-396295);

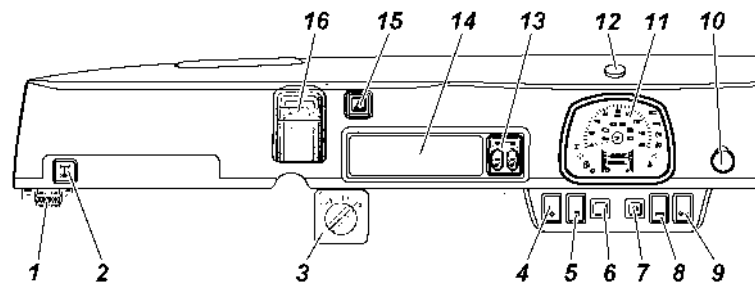


Fig. 3.3 Instrument cluster (for position description see the text):

- 1 - vehicle with a driver and the maximum allowed cargo (save for UAZ-396295);
- 2 - vehicle with a driver and the maximum allowed cargo (only for UAZ-396295).

Adjust the headlights strictly according to the marks depending on the load. In case of other load options (without exceeding the gross weight) the position is chosen so that the illumination of the road by the low beam headlight is within the normal range, and the drivers of oncoming vehicles are not blinded;

- 4 - driving lights switch;**
- 5 - fuel level gauge switch in tanks** (not installed on UAZ-330365, UAZ-390945 vehicles);
- 6 - front fog light switch or plug;**
- 7 - rear fog light switch;**
- 8 - heater switch;**
- 9 - heater switch of passenger compartment** (save for UAZ -330365, UAZ-374195);
- 10 - On-board power socket;**
- 11 - instrument cluster;**
- 12 - GLONASS/GPS antenna.**
- 13+ - seat heating control unit;**
- 14 - glove compartment;**
- 15 - hazard warning light switch;**
- 16 - hatch cover to the hydraulic clutch reservoir.**

INSTRUMENT CLUSTER


Fig. 3.4 shows instrument cluster.


Green and blue indicators inform the driver on the normal functioning of the system being switched on. Orange indicators warn the driver to take action to ensure further normal vehicle operation. Red indicators warn the driver on the emergency operation of the units.

The vehicle must not be operated with at least one red indicating light illuminated continuously (save when the indicating light  is illuminated when the differential lock is active).

- 1 - speedometer.**

Signals on the instrument cluster

 - **indicator of emergency oil pressure in the engine lubrication system (red)**. The indicator lights up after the ignition has been switched on and goes out after the engine is started when the crankshaft revs are increased.

 - **failure indicator of the engine integrated microprocessor control system components affecting toxicity of exhaust gases (yellow)**. Lights up when starting the ignition switch, and turns off upon starting the engine. **Indicator activation indicates the presence of faults of the engine components or exhaust system affecting the level of toxicity of exhaust gases. When the indicator lights up, if it is not accompanied by significant worsening of the driving characteristics, it is possible to continue driving at a low speed to the nearest authorized service station of UAZ LLC for carrying out diagnostics.**

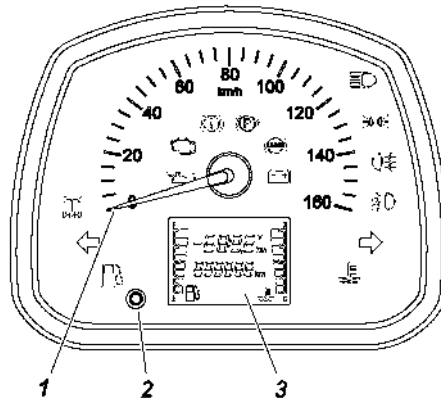



Fig. 3.4 Instrument cluster (for position description see the text):

Prolonged operation with the failure indicator on may result in failure of the engine control system components.

 - **service brake system and EBD malfunction indicator (red)**.

 - **parking brake activation indicator (red)**.

 - **ABS system failure indicator (yellow)**.


 - **battery discharge indicator (red)**. Lighting when the engine is running indicates that the battery is not charging.

 - **high beam indicator (blue)**.

 - **marker lights switch (green)**.


 - **rear fog lamps indicator (orange)**.

 - **front fog lamps indicator (green)**.

 - **right turn signal and hazard warning lights indicator (green)**.

 - **left turn signal and hazard warning lights indicator (green)**.

 - **coolant overheat indicator (red)**.

 - **low fuel indicator (yellow)**. Lights up when the remaining fuel in the tank is less than 9 liters.

 - **rear axle final drive differential lock indicator (yellow)**.

2 - the instrument cluster button. Switching is done by pressing a button.

3 - The LCD display shows the following functions of the trip computer:

- the engine coolant temperature;
- fuel level in the fuel tank;
- vehicle network voltage;
- daily mileage of the vehicle;
- total mileage of the vehicle;
- current time of day.

The LCD display mode (current time of the day, odometer per trip, on-board voltage) can be selected by briefly pressing (less than 0.5 s) the instrument cluster button.

The trip odometer can be reset to 0.0 km by long pressing (more than 2 s) of the instrument cluster button in the "trip odometer display" mode.

Switching to the clock adjustment mode in the instrument cluster, is performed by the button on the instrument cluster, while the LCD display must be switched to the mode indicating the current time of the day.

When pressing and holding the button for more than 2 sec, the clock goes to the hours adjustment mode, while the hours digits blink. A single, short pressing on the button will increase the reading of the hours by one unit. Pressing and holding the button for more than 1 sec will increase the readings quicker, first incrementing 1 sec, then 0.25 s, while the hours digits stop flashing.

If the button is not pressed within 5 seconds, the clock automatically goes to the minute adjustment mode, with the

minute digits flashing. A single, short pressing on the button will increase the reading of the minutes by one unit. Pressing and holding the button for more than 1 sec will increase the readings quicker, first incrementing 1 sec, then 0.25 sec, while the minute digits stop flashing. If the button is not pressed within 5 seconds, the clock automatically goes from minute adjustment mode to time indication mode.

MULTIFUNCTION STEERING COLUMN SWITCHES AND IGNITION SWITCH

Steering column multifunction switch and ignition switch (fig. 3.5):

1 - turn signal and headlights switch lever has the following positions:

I - the turn signals are off, the low beam headlight is on, if the head lights are switched on by the external lighting switch.

II - left turn indicators are on (unfixed position);

III - left turn indicators are on (fixed position);

IV - right turn indicators are on (unfixed position);

V - right turn indicators are on (fixed position);

VI (pull) - high beam is on regardless of the position of the external light switch (unfixed position);

VII (pushing) - the high beam is on, if the head lighting is switched on by the external lighting switch (fixed position).

2 - The wiper and washer switch lever has the following positions.

I - wiper and washer are turned off.

II - intermittent operation of the wiper is on (unfixed position);

III - intermittent operation of the wiper is on (fixed position);

IV - continuous mode (low speed) of the windshield wiper is enabled (fixed position).

V - continuous mode (high speed) of the wiper is enabled (fixed position);

VI (pull) - the washer and wiper are on (unfixed position);

VII, VIII - not used.

3 - buzzer bottom;

4 - ignition switch. The switch has four positions:

0 - all off (fixed position);

I - ignition is switched on (fixed position);

II - starter is switched on (unfixed position).

III - parking (fixed position).

The key is removed from the lock only in "III" position, concurrently the locking mechanism that locks the steering shaft is activated.

To lock the steering at the parking lot, set the key to "III" position, remove it and turn the steering wheel in any direction until it clicks indicating that the locking tab of the locking device is engaged with the groove of the steering wheel shaft stop sleeve.

When unlocking the steering, insert the key in the ignition switch and, shaking the steering wheel to the right and left, turn the key clockwise to "0" position.

In order to exclude cases of starter false switching with the engine running ("II" position), an interlock is applied in the lock mechanism, which makes it possible to restart the engine only after returning the key to "0" position.

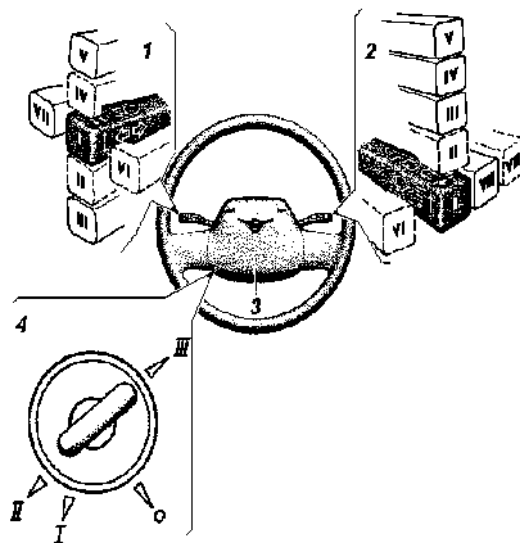



Fig. 3.5 Steering column multifunction switch and ignition switch (see text for item names)


CAUTION! *It is forbidden to turn off the ignition and remove the key from the ignition switch when the vehicle is moving. Stopping the engine will result in a loss of the brake performance, and with the ignition key removed, the steering shaft is blocked by an anti-theft device, and the vehicle becomes uncontrollable.*

ANTI-LOCK BRAKE SYSTEM


The anti-lock brake system (ABS) prevents the wheels from locking when braking, thereby maintaining the desired trajectory and minimum stopping distance. However, when braking on a loose surface road (gravel, sand, unrolled snow), a slight increase in stopping distance may occur as compared to braking in the same conditions with locked wheels.



Braking with the participation of ABS occurs at a speed of about 5 km/h and is accompanied by a slight pulsation of the brake pedal and the characteristic noise of the ABS actuators.





The ignition of the ABS  malfunction indicator (with the exception of the self-test mode when the ignition is turned on, as well as the disabling of the ABS when the rear axle differential lock is activated) indicates a system failure. And, although in this case the operation of the hydraulic brake actuator is not disturbed, the malfunction must be eliminated at the UAZ service station.


A red brake warning light  (except for the self-test mode when the ignition is turned on) indicates a critical fault (a fault in the built-in brake-force distribution (EBD) system, a leak, etc.) Operation of the vehicle with the brake system fault indicator on is not allowed.

REAR AXLE FINAL DRIVE DIFFERENTIAL LOCK SWITCH+

To activate the interlock, press and hold button 2 (Fig. 3.3) in the instrument panel until the rear axle differential lock indicator  flashes on (Fig. 3.4).

On vehicles equipped with anti-lock braking system after activating the lockout, the ABS is automatically deactivated, the indicating light of ABS malfunction  and the electronic brake force regulator (EBD) indicating lamp  will light up (Fig. 3.4) as a result. **For the EBD warning indicator is combined with the service brake warning light, if the red brake warning light is on, the vehicle may only be operated when the differential lock is active.**

Manual unlocking is possible at any time by repeated pressing and holding button 2 (Fig. 3.3) until the rear axle differential lock indicator  goes out (Fig. 3.4). Furthermore, it is switched off automatically when the ignition is turned off, or when the speed exceeds 30 km/h. Once interlock is deactivated, the indicators ,  and  in the instrument cluster (Fig. 3.4) go out.

The interlock control system diagnostics is performed by the vehicle engine control unit once the interlock is activated. In case of faults, the engine failure indicator  in the instrument cluster lights up in the instrument cluster. Reading fault codes is performed using a diagnostic scanner to carry out UAZ vehicles diagnostics.

EMERGENCY SERVICES CALL DEVICE

Your vehicle is equipped with an Emergency Service Call Device (ESCD) designed to call the Emergency Response Service Operator (ERSO) and to establish a hands-free communication between vehicle users and the ESCD in case of a road accident (including vehicle roll-over and other emergencies).

Communication is ensured via cellular mobile networks that comply with GSM/UMTS standards.

The geo-points of the vehicle are estimated using GNSS GLONASS (Global Navigation System) or GLONASS with GPS.

In case of an unsuccessful attempt to transmit data using a dial-up modem, the emergency services call device will perform the transmission using the SMS method.

The emergency services call device consists of the following components:

- ERA GLONASS unit (EGU) located on the air duct panel;
- User interface unit (UIU) with the "SOS" button 3 (Fig. 3.6) located on the inner part of the passenger compartment roof;
- antenna GLONASS/GPS 12 (Fig. 3.3) installed on the instrument panel.

CAUTION! *It is forbidden to use emergency services call device while driving unless it is absolute necessity!*

CAUTION! *The emergency services call device works only when a compatible network is available and may not function outside of a coverage area.*

The operation of emergency services call device implies several modes of operation:

Emergency call mode

Manual call can be made when the ignition is on and also when the ignition is off if less than 72 hours have elapsed since the ignition was turned off.

To make a manual emergency call, press and hold the SOS button 3 for at least two seconds.

The emergency services call device establishes a minimum data set (MDS), which contains information about the coordinates and time of the road accident, the VIN number of the vehicle and other information necessary for emergency response operation.

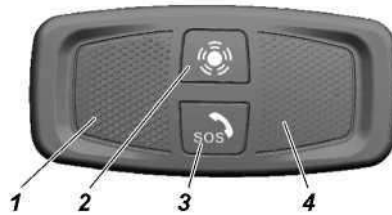


Fig. 3.6 User interface unit:

1 - speaker; 2 - button for additional functions; 3 - "SOS" emergency call button; 4 - microphone

If during the dialing, you repeatedly press the "SOS" button and hold it for at least two seconds while the "SOS" button backlight is flashing red, the emergency call will be cancelled (the red "SOS" button backlight will be turned off).

When transmitting MDS and during voice communication with the operator, the "SOS" button backlight lights up continuously in red.

At the end of an emergency call (EC), the device must remain registered with the GSM/UMTS network and automatically answer incoming calls for 60 minutes. When the connection is disconnected in the emergency call mode, the emergency services call device must re-establish the connection with the emergency response service.

Emergency Services Call Device switches into standby mode when the voice communications are over.

Auto call mode

The emergency response service is automatically called when the vehicle rolls over. The algorithm of the emergency services call device at automatic emergency response service is similar to the call mode of manual emergency response service as described above, except there is no possibility to cancel the emergency call.

Automatic call can be completed only by emergency response service after confirmation by the vehicle driver that there is no road accident or other emergency.

Standby Mode

In the "Standby" mode, the emergency services call device performs the following functions:

- reception of radio signals from global navigation satellite system (GNSS);
- calculation of navigational parameters;
- preparation of the MDS data package to ensure that it can be transmitted when an emergency call command is received;
- preparation of a package of accompanying navigation data;
- monitoring the control actions of the interface module by using the "SOS" button;
- providing a response to the user's control actions;
- performing the self-diagnostic procedure;
- error detection;
- implementation of filtering procedures and control of indication signals;
- providing indication of system status and operation modes by means of wired connections of emergency services call device and user interface unit.

"Sleep" mode

The emergency services call device goes from "Standby" mode to the "Sleep" mode when the ignition is turned off.

The emergency services call device stays in the "Sleep" mode for 72 hours. After the specified time has elapsed, the emergency services call device goes to the "Off" mode.

In the "Sleep" mode, the emergency services call device responds to pressing the "SOS" key, turning on the ignition, as well as disconnecting the battery pack.

The emergency services call device operates in the low power mode in the "Sleep" mode.

The emergency services call device also goes into sleep mode when the standard battery is disconnected. In this event, the emergency services call device is powered from the built-in backup battery. In this event, the emergency services call device stays in sleep mode for two hours, then it switches to "Off" mode to protect the backup battery from over-discharging.

"Off" Mode

The emergency services call device stays in this mode if there is no emergency call, if the ignition is off and at least

72 hours have elapsed since the ignition was turned off.

In the "Off" mode, there is no button backlight and the product status indicator is not lit. In the "Off" mode the emergency services call device shall not respond when the buttons are pressed.

When the ignition is turned on, the emergency services call device will exit the "Off" Mode.

Test Mode

The test mode is used during routine maintenance at the service station or on your own.

It is recommended to conduct test mode in an open, to avoid the occurrence of an error in determining the geo-points of the vehicle.

The following parameters of the emergency services call device are checked in this mode:

- presence of errors detected during the self-test;
- the operability of the "SOS" indicator;
- the operability of the SOS button and the "Additional functions" button;
- the operability of the product status indicator;
- microphone and speaker operability;
- communication operability of emergency services call device to exchange messages with the operator of the ERA GLONASS system

You can exit the "Test" mode by disconnecting external power, by turning off the ignition or by completing the test.

The emergency services call device goes to the test mode when the following conditions are met:

- the engine is stopped;
- key in the "Ignition on" position;
- the SOS and auxiliary function buttons are pressed and held simultaneously for at least three seconds.

The emergency services call device is considered inoperable if:

- the red indicator does not flash during the start of the functional test, but lights up continuously (no satellites are in sight, the user interface unit is not connected or external antenna, or other errors);
- the product status light turned red with no audible prompt, it means the speaker has a malfunction and no further tests can be performed.
- SOS indicator does not flash after the test mode was successfully entered and the voice prompt "self-test in progress" is played, it means the SOS indicator has a malfunction;
- after the test mode was successfully entered and the voice prompt "self-test in progress" is played, the phrase "errors detected" was subsequently reproduced.

If you successfully enter the test mode and after a successful self-testing, you must follow the voice prompts until the end of the test procedure. If errors are detected during testing, they are written to the memory of the unit and are stored there until they are cleared. You can check whether the product errors have been cleared if the status indicator of the emergency services call device does not light up after the self-test with the ignition on, or by repeating the test procedure (in order to check that the indicator, button, microphone or speaker error is cleared).

If any malfunctions of emergency services call device are detected, visit an authorized service station to repair the malfunction.

Indication

The indicator of the device is combined by design with the emergency call button "SOS" 3 (Fig. 3.6) and its indication is shown in Table 3.1 depending on the operation modes of the emergency services call device.

When the ignition is turned on, the indicator turns on and goes off for five to six seconds. After completion of the initialization (about 20 - 30 seconds), if there is a malfunction, the indicator turns on and will glow red until the malfunction is cleared, or the ignition is turned off.

The status indicator may turn red if there are no signals from GPS/GLONASS satellites, which is not a malfunction if the vehicle equipped with emergency services call device is located in places with no direct satellite visibility (in tunnels, under bridges, in closed parking lots, etc.). The status light should turn off after the vehicle has left the areas with no direct view of the satellites.

CAUTION! *If a malfunction is detected in the operation of the emergency services call device in the self-test mode or during testing (the status LED constantly lights up red after initializing the product when the ignition is turned on or after testing), we strongly recommend you to immediately visit an authorized service station in order to repair the malfunction.*

Backup Battery

The Emergency Service Call Device includes a backup battery, which is necessary to ensure operability of Emergency Service Call Device in case the car battery is damaged in a road accident.

When the ignition is on, the backup battery charge level is monitored and recharged if necessary.

Backup battery life is 3 years.

It is recommended that you replace the backup battery every 3 years.

Replace the backup battery only at certified service stations.

Table 3.1. The indication of operability status of ERA-GLONASS emergency services call device

Status of emergency services call device	Emergency services call device operation mode	Indicator status	SOS button backlight color (green/red)	
Ok	Self-test every time the ignition switch is turned on	Lights up for 5-6 sec (then goes out)	Red	
	End of self-test initiation	After 5-6 seconds SOS button backlight lights up (it is continuously on when backlight is on)	Green (when backlight is on)	
	Manual and automatic call of emergency response service	Cellular network registration	Flashes	Red
		Call completion mode		
		Call with emergency response service		
		MDS transfer		
		Voice connection to IPS	Light on	
		Test Mode	Flashes	Red
		Off mode	Light off	—
	Notification of incoming call	Incoming call	Light on	Red
Voice connection to IPS				
Defective	Malfunction of emergency services call device	Lights up continuously	Red	
	Self-test every time the ignition switch is turned on	After 20-30 seconds, it lights up continuously.		
	Test Mode	Enter test mode		Light off
		Self Test		Not flashing for 2 sec.

UAZ Connect

Your vehicle is equipped with UAZ Connect. Telematics services UAZ Connect - a service that allows you to receive data from your vehicle and display the necessary information in your smartphone or on the WEB-resource. This service can be found in Annex 5.

INTERIOR EQUIPMENT AND VEHICLE BODY EQUIPMENT

The locks of the front doors, rear side door, and right tailgate are locked by a key with locking the outside handle mechanisms. No internal door locks are provided. With the locked front and rear side door outside handles of all vehicles and the right tailgate of UAZ-220695, the locks can be opened using the inside handle drive. It is not recommended to close the front and side doors before unlocking the outside handles with the key to avoid damage to the handle mechanisms.

Vehicle bodies are equipped with a field widened rear-view mirror and an internal mirror to view the interior (no internal mirror is installed on UAZ-374195, UAZ-330365, UAZ-390945, UAZ-390995, UAZ-396295 vehicles).

The body of the UAZ-396295 is divided by a partition with sliding windows. Sanitary cabin is equipped with three single seats for attendants, brackets and straps to fasten the stretcher (it is prohibited to use the stretchers during travel), handrails in the tailgate opening.

The passenger compartment of UAZ-220695 vehicle is equipped with six single and one twin seats with seat belts.

The passenger compartment of the UAZ-220695-04 is equipped with a table on the front partition, five single and one twin seat with seat belts.

The passenger cabin UAZ-390995 is equipped with a table, a three-seater and two seats for documentation (installed on a part of the vehicle). The passenger compartment is separated from the cargo compartment by a solid partition.

The passenger compartment UAZ-390995-04 is equipped with a table, five single seats with seat belts. The passenger compartment is separated from the cargo compartment by a solid partition.

The cabin of the UAZ-390945 is equipped with a three-seat upholstered seat with seat belts.

UAZ-374195-05 interior is equipped with three single seats with seat belts and a folding table. The passenger compartment is separated from the driver's cab by a partition with a window opening without glass.

Seats

CAUTION! Do not adjust the driver's seat while driving.

The driver's seat and the position of the steering column must be adjusted so as to ensure a proper fit: the driver must lean sufficiently against the back of the seat; both hands, holding the upper part of the steering wheel, shall be slightly bent at the elbow joints; legs, when pressing the pedals to the stop, should not be fully extended.

Do not stand on knees on a seat equipped with heating elements, and do not load individual points of the seat surface in any other way so as not to damage its heating elements.

Do not place objects with irregular weight on the seats or stick sharp objects (needles, nails, etc.) into the seats.

Do not use seat heating if the seats are not occupied by passengers, or there are objects attached to them, e.g., a special child seat, a bag, etc. This may cause malfunction of the heating elements of the seat heating system. It is recommended to turn on the switches for seat heating only after starting the engine. This will significantly save battery capacity.

In the event of a voltage drop in the vehicle's electrical system, the seat heating is automatically switched off in order to provide enough electricity to control the engine.

If you or a passenger suffer from a reduced sensation of pain or temperature, for example, due to the use of any medication, paralysis or chronic disease, we recommend that you do not use heating. This can cause burns on the back, buttocks and legs. If you still want to use seat heating, we recommend turning on the seat heating for a short time.

Do not allow the use of additional pillows between the seat and the passenger or driver.

Foreign objects under the driver's seat and in the area of his feet is unacceptable.

Do not keep your hands under the seat or near moving parts, to avoid pinching and injuring your hands or fingers.

When cleaning the seats, do not use organic substances (paint thinners, petrol, alcohol, gasoline, etc.). They may damage the heater and the seat surface.

Adjustment of the reclined front seat backrest is performed by turning knob 2 (Fig. 3.7).

Adjustment of driver's seats in longitudinal direction is performed with lever 3: Push the lever, located on the outside near the backrest tilt mechanism, all the way down, slide the seats to the required position. After adjustment release the lever, and make sure that the seat is securely fixed by moving it back and forth.

Removal of the front seat:

-Unscrew the wing nut 1 (Fig. 3.7) and tilt the seat forward;

-raise the studs located on the seat from the bushings 4 located on the wheel cover. Remove the seat.

To install the seat, insert the studs in the bushings, tilt the seat back and tighten the wing-nut 1.

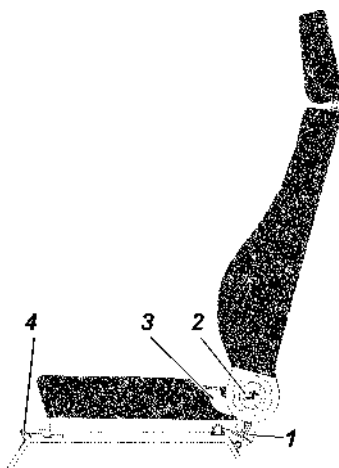


Fig.3.7 Front seat:

1 - wing nut; 2 - seat back tilt adjustment knob (kiper); 3 - seat longitudinal movement locking lever (driver's seat); 4 - bushings

Seat belts

REMEMBER! Seat belts are an effective means of protecting the driver and passengers of a vehicle from the serious consequences of road accidents. **The wearing of seat belts is mandatory!**

Seat belts are designed for individual use by drivers and adult passengers with a height of at least 144 cm and a weight no less than 36 kg.

The vehicle seats are equipped with seat belts. The front belts of driver's and right front passenger's seat are of diagonal type with retractor (Fig. 3.8).

In the cabin of UAZ-220695, UAZ-220695-04, UAZ-396295, UAZ-374195-05 the belts of the seats located in the direction of movement of the vehicle are of diagonal type with a retractor device, and the belts of the seats located against the direction of the movement of the vehicle are of lap type with a retractor device (Fig. 3.9.).

In the cabin of UAZ-390995, UAZ-390995-04, UAZ-390945 the belts of seats located in vehicle driving direction are of diagonal and lap type with a retractor device, and the seats located against the driving direction (UAZ-390995- 04) are of lap type with a retractor device (Fig. 3.10, 3.11).

To fasten the belt, take the belt locking tab 1 and, without twisting the straps, insert it into the lock 2 until it clicks. To unfasten the belt, press button 3.

Keep the straps and belt buckles clean. If contaminated, clean with alkaline-free mild soapy solution.

Protect the straps from friction against sharp edges.

It is recommended to protect from direct sunlight.

In order to clean the buckles from dust, blow it with compressed air, at least once a year.

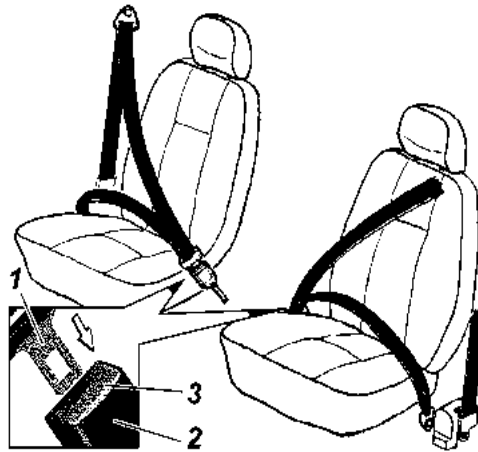


Fig. 3.8 Seat belts:
1 - locking tab; 2 - lock; 3 - lock button

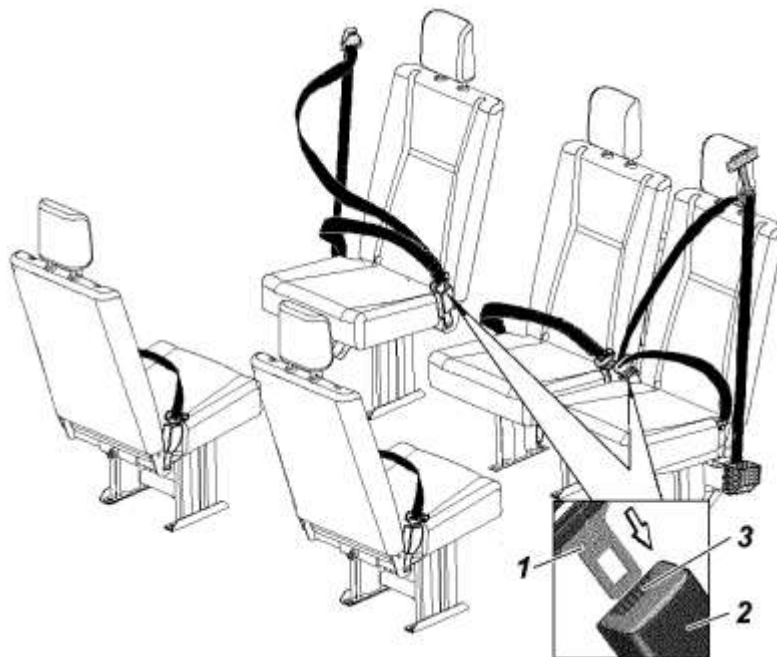


Fig. 3.9 Seat belts for vehicle UAZ-390995-04:
1 - locking tab; 2 - lock; 3 - lock button

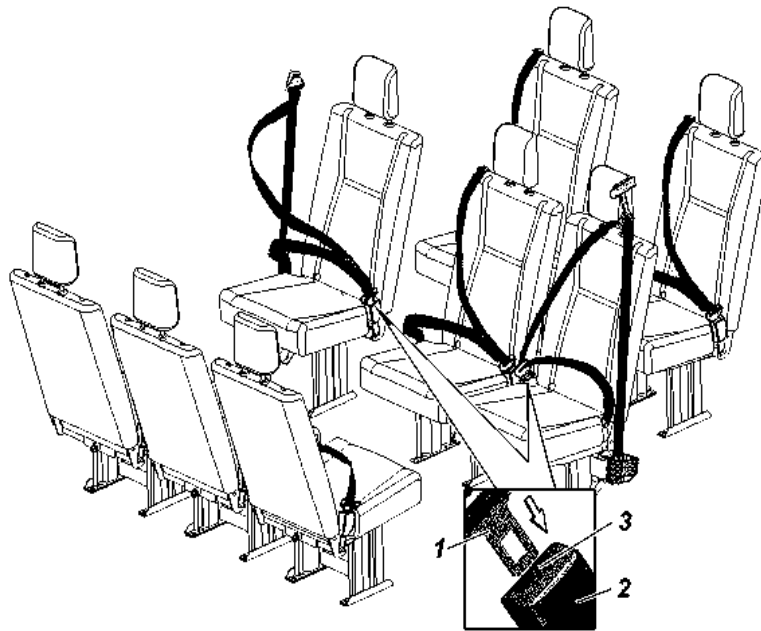


Fig. 3.10 Seat belts for vehicle UAZ-220695:
1 - locking tab; 2 - lock; 3 - lock button

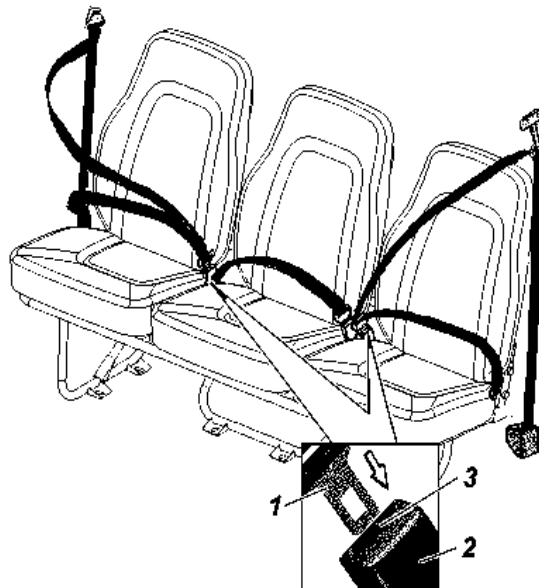


Fig.3.11 Seat belts for vehicle UAZ-390995, UAZ-390945:
1 - locking tab; 2 - lock; 3 - lock button

It is prohibited:

- to twist the strap, fold it along its length, as well as to allow that it becomes too slack;
- to flatten the straps with an iron;
- to fasten a child sitting on the passenger's lap with the seat belt;
- making any changes by the consumer in the design of the belt.

Belts must be replaced if they are worn or damaged, and if were subject to a critical load as a result of road accident.

Replacement of seat belts shall be made only at the branded service station of UAZ LLC (the service station addresses are given in the vehicle log book).

In the event of non-observance of operating rules or unauthorized replacement of seat belts, UAZ LLC disclaims all responsibility and liability for possible injuries, e.g. in case of an road accident or other damage.

Installation of child restraint devices

CAUTION! The installation of child restraint systems of the “universal” category, as per Table 3.2, 3.3, is carried out using vehicle seat belts. Children under 1.5 years of age are transported in the child restraint devices only face back.

Table 3.2

Weight group	Seat positions		
	Front passenger seat	Rear side seat	Rear central seat
	330365, 374195, 390945, 390995	390945, 390995	390945, 390995
0 - to 10 kg (0-9 months)	X	X	X
0+-to 13 kg (0-2 years)	X	X	X
I-9-18 kg (9 months- 4 years)	X	X	X
II-III-15-36 kg (4-5 years)	X	X	X

X - seat not suitable for children in this weight class

Ventilation of body (cabin)

To ventilate the driver's cabin, use the ventilation hatch in the middle part of the front, the hatch cover and the flaps in the heater distributor connection pipes, as well as the swiveling or sliding vents and the cabin door windshields. For a more efficient ventilation you can use the cabin heater fan by turning switch 8 (Fig. 3.3), however tap 15 (Fig. 3.12) of the heating system must be closed.

It is recommended to use the cabin (interior) heater fan when driving on dusty roads. In this case, the cover of the head ventilation hatch must be open, and the vent windows and windows of the cabin doors must be closed.

Fresh air enters the passenger (sanitary) compartment of the body through the vents in the side windows and also through the cabin heater casing with the fan switched on with switch 9 (Fig.3.3) and the radiator switched off with tap 15 (Fig.3.12).

The cargo zone in the body has exhaust ventilation through proof louver in the front and rear of the sides of the body.

Table 3.3 UAZ-220695 and its versions.

Weight group	Seat positions								
	Front passenger seat	second row			third row			fourth row	
		left	central	right	left	central	right	left	right
0 - 10 kg (0-9 months)	X	X	X	X	X	X	X	X	X
0+- to 13 kg (0-2 years)	X	X	X	X	UF	UF	UF	UF	UF
1-9-18 kg (9 months- 4 years)	X	X	X	X	UF	UF	UF	UF	UF
II-III-15-36 kg (4-5 years)	X	X	X	X	UF	UF	UF	UF	UF

X is a seating position unsuitable for the installation of a "all-in-one" child restraint system.

UF - a seat position suitable for the installation of a "all-in-one" child restraint system installed in the vehicle driving direction

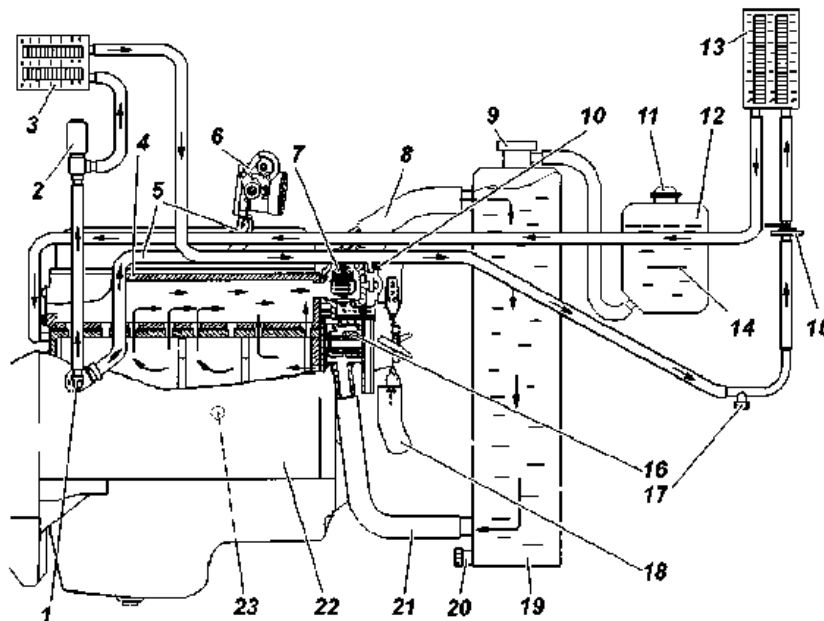


Fig. 3.12 Schematic diagram of engine cooling system and cabin heating system:

1 -connector to supply coolant the heater; 2+ -electric motor with pump; 3 - cabin heater radiator; 4 - cylinder block head; 5 - heating hoses for throttling device; 6 -throttling device; 7 -duo-valve thermostat; 8 - radiator supply hose; 9 - radiator plug; 10 - coolant temperature sensor; 11 - plug; 12 - expansion tank; 13 - cabin heater radiator; 14 - mark "min"; 15 - tap of heating system; 16 - pump with impeller; 17 - plug; 18 - fan; 19 - radiator; 20 - radiator drain plug; 21 - radiator drain hose; 22 - cylinder block; 23 - cylinder block drain plug (located on the left side of the engine)

Body (cabin) heating

For heating the driver's cabin and windshield there is a cabin heater with a radiator 13 (Fig.3.12).

For heating the passenger (sanitary) compartment of UAZ-396295, UAZ-390995, UAZ-220695 vehicles there is a cabin heater with radiator 3. The vehicle UAZ-390945 has an additional heater which is installed depending on the configuration.

To operate the heaters it is necessary to open the heating system tap 15 (Fig. 3.12) using the pull rod handle 16 (Fig. 3.1) and, if available, switch 9 (Fig. 3.3) to start the electric motor of the heater pump 2+ (Fig. 3.12).

The motors of the heater fan are switched on and off by switches 8 and 9 (Fig. 3.3).

The coolant temperature in the engine cooling system must be at least 80 °C for the heater to operate properly.

At low ambient temperatures, use the head cabin insulation attached to the vehicle. The insulator is installed on the radiator frame with screws.

Monitor the coolant temperature in the engine cooling system by adjusting the coolant temperature through closing and opening the heater valve.

When draining the fluid from engine cooling system it is also necessary to drain the liquid from the heating system through plug 17 (Fig. 3.12), after the heating system tap 15 was opened. Access to the plug at the front from the bottom of the vehicle.

Sanitary equipment of UAZ-396295 vehicle

It is possible to place two standard stretchers in the sanitary compartment of the body, depending on the configuration.

There are four hinged brackets on the sides of the sanitary cabin to install and mount a unified stretcher, and holders for mounting of two suspension straps on the ceiling.

Accompanying persons and patients who are able to move are placed on the seats located on the right side of the cabin: two - in driving direction and one against the driving direction.

To facilitate the movement of the stretcher on the floor, there are guiding rails installed that allow you to move the stretcher along the body.

Transportation of patients

The UAZ-396295 vehicle body can accommodate from 4 to 6 people (not including the driver) with the following options:

accommodation with a stretcher

(it is not allowed to use a stretcher while driving)

On the attendant seats..... 3 persons

In the driver's cabin 1 person

Chapter 4. PREPARING A VEHICLE FOR OPERATION AFTER RECEIVING IT FROM THE FACTORY

The trading organization is obliged to put the vehicle up for sale only after pre-sale preparation specified in the warranty and service book.

When vehicles are taken to the point of sale, it is required to carry out the work required under "Daily Maintenance" subsection in advance.

Chapter 5. RUNNING-IN A NEW VEHICLE

Durable and trouble-free operation of the vehicle is largely dependent on the running-in parts in the initial period of operation.

The running-in time of the vehicle is set at 2500 km of mileage.

Observe the following notes for the running-in period:

1. The load of the vehicle during the running-in period should not exceed 0.5 of the maximum load.
2. Avoid driving on heavy roads (deep mud, sand, steep climbs, etc.).
3. Trailer towing is not allowed.
4. Do not replace in the engine and components of the oils which have been filled in at plant.
5. Check the tension of the accessory drive belts, since during the period of running-in, their maximum stretching occurs.
6. Observe the temperature of the wheel hubs and, with considerable heat, loose the bearings tightness.
7. Watch the condition of all fasteners on the vehicle. Carefully watch the piping connections, and if you find oil, fuel, or fluid leaks, remedy them.
8. The scope and period of maintenance of the vehicle during the running-in period are shown in the service book.

Chapter 6. START AND STOP THE ENGINE

GENERAL PROVISIONS

Before starting the engine, check the presence of cooling liquid in the cooling system, the presence of fuel, the oil level in the engine crankcase and in the power steering reservoir.

Set the shift lever to neutral.

Immediately release the ignition switch key after the engine has started. It springs back automatically to position I (fig. 3.5). Warm up the engine to a coolant temperature of at least 60°C.

Do not start driving the vehicle with a cold engine.

For the purpose to accelerate the heating, never perform it with a higher frequency of the crankshaft rotation.

ENGINE START

Start a cold engine at a temperature of -20 °C and above*

CAUTION! *Engine oil must be of the right viscosity grade to ensure reliable engine starting at subzero temperatures. If the viscosity grade of the engine oil does not ensure reliable starting the engine at this negative temperature, it must be warmed up (with steam, hot air, etc.).*

1. Switch on the ignition. While doing so, the electric fuel pump shall turn on and its operation shall be heard with the engine not running.
2. If the start is made after a long stop, it is recommended to wait until the electric fuel pump is turned off (approximately 5 seconds).
3. With a serviceable control system, the malfunction indicator lamp (in the instrument panel) shall turn on and go out after the engine is started. If the test lamp does not go out, then it is necessary to identify and eliminate the fault (see the Diagnostics section).

CAUTION! *Engine operation with faulty systems (engine malfunction warning lamp is constantly on) may result in failure of the catalyst and in overheating or destruction of the engine (pinkings).*

4. Depress the clutch pedal until it stops.
5. Turn on the starter. Keep the starter on for no more than 10 seconds.
6. After engine starting, release the key (turn off the starter).

Re-start the engine no earlier than 60 seconds.

When starting the engine, do not depress the throttle pedal.

After starting the engine, its control system will automatically set the increased idling speed to warm up the engine and will gradually, as the engine warms up, reduce them to the minimum.

If the engine does not start after three attempts, stop the start-up, find out and correct the problem.

Starting a cold engine at temperatures below -20 °C

To facilitate the start of a cold engine at low temperatures, it is recommended to preheat it (steam, hot air, etc.).

The further sequence of operations remains the same as in the case of starting a cold engine at an ambient temperature of -20 °C and higher.

Hot start.

The sequence of operations remains the same as in the case of starting a cold engine at an ambient temperature of -20 °C and higher.

If the engine fails to start with three attempts, press the throttle actuator pedal all the way down and turn on the starter for 2-3 seconds. In this case the control unit will execute the function "Engine Cylinder Purge Mode", and then try to start again.

ENGINE STOP

To stop the engine, turn the key in the ignition switch to the "0" position. Before stopping the engine, it is necessary to allow it working for 1-2 minutes with a low crankshaft rotation speed.

Chapter 7. FEATURES OF DRIVING IN VARIOUS ROAD, METEOROLOGICAL AND CLIMATIC CONDITIONS

The manufacturer (UAZ LLC) cares about its customers and hopes that its product will be use in a prudent manner.

Acting within the framework of the All-Russian program for the reducing the rate of road accidents, the manufacturing company recommends not to exceed the speed specified in Road Regulations for public roads: **90 km/h**

Remember that the controllability, stability and braking capacities of the vehicle depend largely on the tire traction on the road surface, therefore, choose the speed according to the intensity of traffic, weather and road conditions, the condition of the road surface, the vehicle and cargo features and condition. In any situation, the driving speed must allow the driver to constantly control the movement of the vehicle in order to comply with safety requirements and the Road Regulations.

Operation of the vehicle and service life in many respects depend on features of its driving. Proper driving gives him the opportunity to move at high average speed and low fuel consumption while overcoming difficult road sections. **Driving away from rest must be started in first gear. Shift gears and engage the front axle with the clutch disengaged:**

- quickly turn off the clutch, with pedal all the way to the floor;
- turn on the clutch smoothly, avoiding both a throw of the clutch, accompanied by the tugging of the vehicle, and slow turning on with a long slipping;
- do not hold the clutch disengaged when the gear is engaged and the engine is running with the vehicle standing (at a crossing, at a traffic light, etc.). In such cases it is imperative to use a neutral gear in the gearbox and the clutch fully engaged;
- do not keep your foot on the clutch pedal when driving;
- do not use clutch slip as a way to keep the vehicle on the rise.

Switch gears by smoothly pressing the lever without jerks. If, before starting off, the required gear cannot be switched on, slightly release the clutch pedal, and then switch off the clutch again and shift the gear.

The synchromesh in the gearbox allow you to shift gears without releasing a double clutch. However, in order to speed up the process of shifting gears and increase the synchromesh service life, it is recommended to release double clutch with a short pressing on the throttle control pedal when changing from high to low gear.

Switch on the reverse gear in the gearbox only after the vehicle has completely stopped. Do not keep your foot on the clutch pedal when driving, as this will cause the clutch to partially disengage and cause disk skidding. On a slippery road, the vehicle must be driven in a smooth manner, at low speed.

When braking by the engine, fully release the throttle actuator pedal.

Brake the vehicle smoothly, gradually increasing the pressure on the brake pedal. Any braking increases tire wear and increases fuel consumption. When braking, do not allow wheels to slip, as in this case the braking distance and tire wear will increase. In addition, hard and harsh braking on slippery roads can cause the vehicle drifting.

When driving off-road (sand, mud, snow, etc.), slippery road, on large rises (over 15 °) and other heavy sections of the road, do not allow the engine to be overloaded. In these conditions engage the front axle and, before driving in particularly difficult conditions, the reduction gear in the transfer case, as well. You can turn on and off the front axle drive when the vehicle is moving, and engage the downshift in the transfer case only when the vehicle is completely stopped.

Overcoming steep ascents and descents. Driving a vehicle on roads with steep ascents and descents requires increased attention and speed of action from the driver. Determine the steepness of the rise in advance and engage the gear

in the gearbox, which will provide the necessary tractive force on the wheels so as not to shift the gears on the rise. Steep rises overcome by downshifting the gear in the transfer case and using the first gear in the gearbox. Rises must be overcome without stopping and, if possible, without turns. Short rises with a convenient approach and a relatively flat road surface can be overcome with acceleration without downshifting the gear of the transfer case, using the second or third gear of the gearbox, depending on the steepness of the rise. If, for any reason, it is impossible to overcome the rise, then take all precautions and go down slowly, engaging reverse gear. Get down gradually, without letting the vehicle to accelerate and without disengage the clutch. When overcoming steep descents, provide measures to ensure the safety of the descent. When overcoming a long descent (more than 50 m), first estimate its steepness and engage those gears in the gearbox and transfer case, on which the vehicle would have to overcome the rise of such a steepness. Such descents overcome, using engine braking.

CAUTION! *It is forbidden to climb down with the gear off in the gearbox or transfer case or with the clutch disengaged.*

Do not allow a high frequency of rotation of the crankshaft on the descent, slow down periodically the vehicle, reducing its speed of movement.

Overcome ditches, roadside ditches and trenches at low speeds with the front axle turned on in the direction perpendicular to the slope, taking into account the size of the vehicle, determining its permeability. Do not cross obstacles on the move if you can front hit the wheels.

When overcoming ditches and trenches, consider the possibility of elevating the vehicle obliquely and getting stuck due to wheel slip.

Driving on dirty country roads and profiled roads on clay and black earth sub-soil. On clay and black earth sub-soils, after a heavy rain, a vehicle can get side slippage when driving. Therefore, be very careful when choosing a drive direction. When driving, choose relatively horizontal sections of the track, if possible, using an already laid rut, which prevents side drifts of the vehicle. Specific difficulties for driving can occur when driving a vehicle on excessively wet profiled roads that have a steep profile and deep ditches. On such roads, the movement along the ridge shall be executed carefully and at low speed.

Overcome marshy areas in a straight line, without making sharp turns and stops Start moving smoothly, without jerking. Drive with the front axle engaged and downshift in the transfer case, with the transmission in the gearbox, which would provide the necessary tractive force on the drive wheels without slipping. Turn smoothly, with a large radius, without reducing the speed of the vehicle, that eliminates the possibility of disruption of the turf and wheel spin. Avoid following the track laid by the vehicle in front.

When overcoming sandy areas, move smoothly, avoiding jerks and stops. Turns smoothly and with a large radius. When driving, use as high gears as possible while the front axle is on, overcome without a pause piles and short sandy climbs. Do not allow wheel slipping. Estimate the traffic situation well in advance and shift to that gear in the gearbox that would provide the necessary tractive force on the wheels.

Overcome a ford with great care. The vehicle is able to overcome the ford with a solid ground and depth up to 500 mm at low speed. Before overcoming the ford, carefully check the condition of the bottom, make sure there are no deep hollows, large stones, bogs, and select and check the vehicle's water entry and exit points.

Drive through the ford carefully, without creating a wave in front of the vehicle, on the first or second gear in the gearbox with the front axle engaged and a reduction gear in the transfer case.

Avoid maneuvering and sharp turns.

After overcoming the ford at the earliest opportunity, but no later than the same day, check the condition of the oil in all units. If water is found in the oil, replace the oil in this unit. The presence of water in the oil is determined by the change in its color. All chassis grease nozzles shall be lubricated until fresh grease will be visible. At each vehicle exit from the ford, make several incomplete clutch disengagement and braking to dry the friction clutch linings and brake pad linings.

When vehicle engine stop while overcoming the ford, you can make two or three attempts to start the engine with a starter. If the engine fails to start, the vehicle shall be immediately evacuated out of the water by any means. In case of water getting into vehicle units, the vehicle shall not move under own power after being removed from the water. Tow the vehicle to a place where maintenance can be carried out.

Virgin snow movement vehicle can move in the snow up to 350 mm in depth. Doing turns of the vehicle in the same way as when driving on a wetland. When driving on loose snow, apply the same rules of motion as when driving on sand.

Movement in deep grass and in the forest with dense vegetation.

The following is required:

- turn off the engine when stopping the vehicle in tall grass or in a forest with dense vegetation;
- after crossing these areas, drive out and stop on a flat and free surface of the road, check and make sure that there is no grass and other inflammable material on the parts of the exhaust system. Remove, if necessary.

Chapter 8. TOWING A VEHICLE

Drawn-hooks are provided at the front of the frame for towing the vehicle, and a drawbar is installed at the rear. Tow vehicle smoothly, without jerks.

When towing, you must strictly comply with the requirements set out in the "Rules of the road."

In case of brake system or steering malfunction, further driving or towing the vehicle with the use of a flexible towing

coupler is prohibited. In this case, tow the vehicle with the use of partial loading or breakdown truck.

A trailer may only be towed with a ball-type tow hitch that has been certified as part of a haul train in the prescribed manner.

Chapter 9. VEHICLE MAINTENANCE

The volume and frequency of vehicle maintenance are given in the service book.

This section provides methods for vehicle service and adjustment of its components, as well as work, to be performed regularly between maintenance operations, provided by the service book coupons.

The torque values of the main threaded connections are given in Appendix 2 to this Manual.

DAILY MAINTENANCE

1. Perform a visual inspection to check the completeness of the vehicle, the condition of the body, tonneau cover, glass, rear-view mirrors, bodywork, license plates, paint, door locks, wheels and tires. Eliminate the detected faults.

Inspect the parking lot and make sure there are no leaks of fuel, oil, coolant and brake fluids. Eliminate the detected faults.

Check and adjust the amount of cooling liquid, oil in the crankcase, brake fluid and fuel.

2. Check the operation of the steering, brake systems, lighting devices, light and sound alarm, wiper. Eliminate the detected faults.

3. Refill the reservoir of the windshield washer. In the warm season allowed the use of water.

4. If the vehicle was operated in particularly dusty conditions or overcame the fords and sections of dirt roads filled with liquid mud, check the pollution density of the filter cartridge of the engine air filter, replace the filter cartridge if necessary.

5. After the trip, wash the vehicle if it was operated on dirty or dusty roads.

6. Check and adjust the tire pressure at least once a week.

VEHICLE MAINTENANCE EVERY 500 KILOMETERS

On a new vehicle tighten bolts and nuts fastening the steering mechanism, nuts fastening the springs and the wheels after the first 500 km mileage.

SEASONAL MAINTENANCE

Seasonal maintenance is carried out twice a year - in spring and autumn, and if possible, combined with the next service ticket coupons.

Before the summer season of operation

1. Drain the sludge from the fuel tanks.
2. Check the operation of the wiper and washer. Troubleshoot.
3. Check the effectiveness of the braking system, the operation of the pressure regulator.
4. Check the oils filled in the units and make sure that they allow operation with the temperature range of your climate zone in summer. Replace, if necessary.

Before the winter season of operation

1. If there is water in the washer reservoir, drain the water. Fill with low freezing-point washer fluid.
2. Check the operation of the heating and ventilation system of the car body. Troubleshoot.
3. Before the winter season of operation (or after 30000 km mileage) flush the fuel tanks.
4. Check the effectiveness of the brake system, the operation of the pressure regulator.
5. Check the operation of the wiper and washer. Troubleshoot.
6. Check the oils filled in the units and make sure that they allow operation with the temperature range of your climate zone in winter. Replace, if necessary.

MOTOR

Engine suspension

During operation, check the tightness of the threaded connections of the front and rear engine suspensions (see Appendix 2), as well as the condition of the mounts. Delamination and rupture of engine mounts not allowed

Engine cylinder head

At operation of the engine it is not required to tighten up the cylinder head bolts. If necessary, tighten only on a cold engine. To ensure a uniform and tight fit of the cylinder head to the gasket, tighten the bolts in the sequence shown in Fig. 9.1a in two steps (with a metal cylinder-head gasket) and Fig. 9.1b (with a cylinder-head gasket made of asbostal sheet). Tighten the bolts evenly using a torque wrench (see Annex 2).

In the event of higher oil burn rate, knock and glow ignition, remove the cylinder head and clean the surface of the combustion chambers, valve collars and pistons crowns from the burnt deposit.

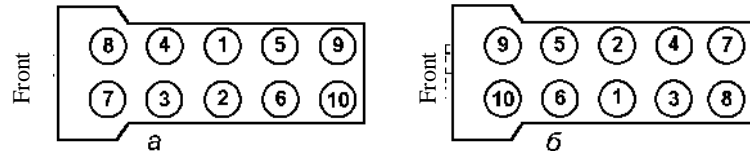


Fig. 9.1 Sequence of tightening of bolts for fastening of cylinder block head:

a - with a metal cylinder-head gasket;

b - with cylinder-head gasket of asbostal sheet

Engine valve train

The drive of camshafts - chain, two-stage. The tension of the chains is carried out by hydraulic tensioners.

CAUTION! It is not allowed to remove the hydraulic tensioner from the chain cover in order to prevent the plunger from disengaging from the housing under the action of a compressed spring, after which it will be necessary to assemble it in a special fixture.

The valves are driven from the camshafts directly through cylindrical hydraulic pushers. The use of hydraulic pushers eliminates the need to adjust the clearances.

Engine lubrication system

In the event of lubrication system fault, engine operation shall be immediately terminated.

An oil cooler is provided to cool down the oil in the lubrication system which is automatically included in the cooling process by means of a thermal valve.

Regularly check the oil level in the engine crankcase and, if necessary, refill it. Check before starting the engine. In the case of checking the oil level after engine stop, you must wait at least 15 minutes for the oil to flow into the crankcase. The vehicle shall be on a flat, horizontal site. The oil level shall be between the “0” and “F” marks of oil level indicator 9 (Fig. 9.2). When frequent trips over rough terrain, maintain the oil level near the F mark, not exceeding it. The amount of oil required to top up the engine from the “0” mark to the “F” mark is 1 liter.

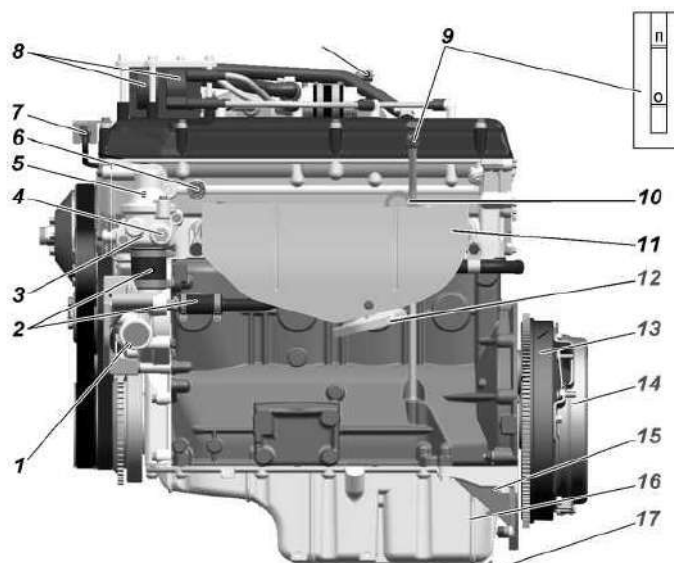


Fig. 9.2 Engine (left view):

1 - pipe supply of coolant from the radiator to the water pump; 2 - connecting hoses; 3 - thermostat housing; 4 - coolant temperature sensor of control system; 5 - coolant pipe from the thermostat to the radiator; 6+ - oil emergency pressure alarm sensor; 7 - crankshaft position sensor connector; 8 - ignition coils; 9 - oil level indicator; 10 - rear engine lift bracket; 11 - exhaust manifold screen; 12 - exhaust manifold; 13 - flywheel; 14 - clutch; 15 - clutch case reinforcer; 16 - crankcase; 17 - oil drain plug.

Use only the recommended oils.

It is forbidden to mix motor oils of various brands and manufacturers! When pouring engine oil of another brand or company, flushing the lubrication system with flushing oil is obligatory. Select the flushing oil in accordance with the recommendations of the manufacturer of the new oil to be poured.

When changing the oil, change the oil filter. Used oil shall be drained from the crankcase immediately after the ride while it is hot. In this case, the oil is drained quickly and completely.

Oil filter 13 (Fig. 9.3): in order to remove, it is necessary to turn counterclockwise. When installing a new filter, make sure that the rubber sealing ring is in good condition and lubricate it with engine oil, screw the filter until the sealing ring touches the plane on the cylinder block, and then tighten a further 3/4 of a turn. Check for oil leaks.

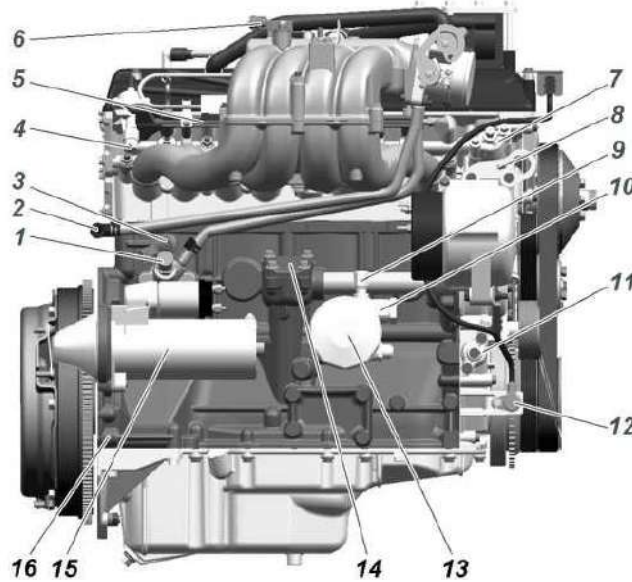


Fig. 9.3 Engine (right view):

1 - coolant outlet pipe to the heater; 2 - coolant inlet pipe from the heater; 3 - detonation sensor; 4 - fuel pipe connector; 5 - fuel rail with jet nozzles; 6 - absolute pressure sensor; 7 - upper hydraulic tensioner cover; 8 - front engine lift; 9 - oil outlet to the oil radiator; 10 - thermal valve; 11 - cover of the lower hydraulic tensioner; 12 - crankshaft position sensor (timing sensor); 13 - oil filter; 14 - cover of the oil pump; 15 - starter; 16 - the position pin of the gearbox

In case of the intact lubrication system, with the warm engine running in idle mode, the warning lamp of the emergency oil pressure can glow, but shall immediately go out as the crankshaft speed increases.

Upon two oil changes, it is recommended to flush the engine lubrication system, for which purpose the used oil shall be drained, a special cleaning oil, filled in 3-5 mm above the “MIN” mark of the oil level indicator, and the engine shall be allowed to run for 10 minutes. Then the cleaning oil shall be drained, replace the oil filter replaced and the fresh oi refilled. In the absence of wash oil, flushing can be done with clean engine oil.

Engine Crankcase Ventilation System

When servicing the ventilation system, remove the valve cover (Fig.9.4), main and small ventilation hoses and clean the removed parts. Clean the holes for drainage of the separated oil in the gear lubricant deflector, holes in the valve cover vent pipes, receiver and throttle body. Flush the oil deflector without removing it from the valve cover. When assembling, provide the tightness of the connections.

CAUTION! Do not operate the engine with a non-tight ventilation system and an open oil filler pipe. This will cause an increased oil carryover with crankcase gases and environmental pollution. To prevent depressurization of the vent system, the oil level gauge must be set as far as it will go.

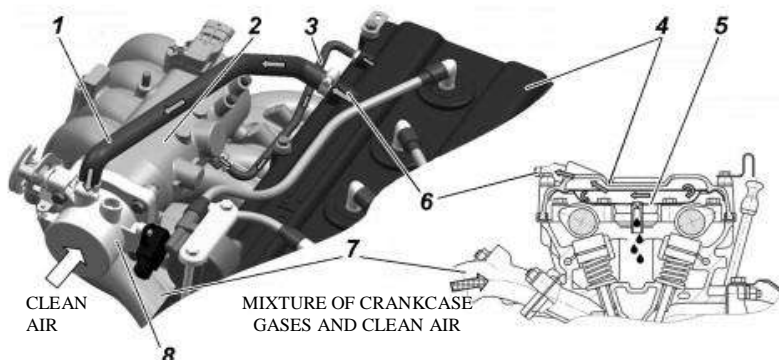


Fig. 9.4 Engine crankcase ventilation system:

1 -hose of the main branch of ventilation; 2 - receiver; 3 - hose of a small branch of ventilation; 4 - valve cover; 5 - gear lubricant deflector; 6 - crankcase gas exhaust pipe; 7 -intake pipe; 8 -throttle nozzle

Engine cooling system

CAUTION! *Cooling liquid is poisonous. Store liquid in tightly closed containers. Observe the following rules when handling with cooling liquid:*

- avoid any operations that may result in this fluid entering the oral cavity;
- do not let dry the liquid getting onto the skin, and immediately wash it off with warm water and soap;
- rinse spilled liquid with water, ventilate the room;
- take off liquid contaminated clothing, dry it outside and wash it;

Exercise caution when opening the radiator cap of the engine cooling system in order to avoid steam burns.

The low-freezing liquid OZh-40 "Lena" or "Tosol (-45) "FELIX" is used as a coolant.

Operating temperature of the coolant shall be in the range of 80 ° - 105 °C. Short-term (up to 5 minutes) engine operation is allowed when the coolant temperature rises up to 109 °C.

If the coolant overheating warning lamp is on, it is necessary to determine and eliminate immediately the cause of the overheating.

Periodically check the coolant level in the expansion reservoir 12 (Fig. 3.12) and in the radiator neck. The liquid level should be 3-4 cm above the "min" mark in the reservoir, and 10-15 mm below the neck in the radiator. Since the coolant has a high coefficient of thermal expansion and its level varies considerably depending on the temperature, check the level at the temperature in the system +15 - 20 °C.

In cases where a decrease in the coolant level in the expansion reservoir occurred within a short period of time or after short runs (up to 500 km), check the tightness of the cooling system and, by eliminating leaks, add coolant to the cooler or expansion reservoir.

Flush the cooling system as follows:

- fill the system with clean water, start the engine, let it work until it warms up, stop the engine and drain the water;
- repeat the above operation.

Due to the presence of air in the heaters and connecting hoses, it is impossible to fill in the entire rate of fluid without starting the engine. Fill the system in the following order:

- screw the drain plug 20 (Fig. 3.12) of the radiator, close the drain plug 23 of the cylinder block;
- set valve 15 of the heating system to the "open" position;
- fill the radiator with coolant 10-15 mm below the neck and the expansion reservoir 3-4 cm above the "min" mark;
- start the engine, add coolant after the level in the upper radiator reservoir has dropped and close the radiator cap;
- shut off the engine, allow it cooling down, bring the level of coolant in the expansion tank to normal and close the cap of the expansion tank;
- perform 2-3 warm-up - engine cooling cycles and again bring the level of coolant in the expansion reservoir to normal.

To drain the fluid from the engine cooling system open radiator plug 9, unscrew the drain plug 20 (Fig. 3.12) of the radiator, open the plug 23 on the cylinder block. When draining it is necessary to set the lever of the heater tap 15 in the "open" position.

Tensioning of belt 5 (Fig. 9.5) of the water pump and generator is ensured by idler pulley 2, for which it is necessary to loosen bolt 3 and, by screwing the adjusting bolt 4, to tension the belt. Tighten the bolts 3.

The belt 16 pull up (Fig. 9.5) of the fan drive and the power steering pump is made by moving the pump 12, for that it is necessary: loosen the bolts 13, adjust the belt tension by adjusting the tension bolt 14 by moving the pump along the guides. Tighten the bolts 13.

Fan drive clutch. If the clutch no longer engages or engages incompletely, the engine can overheat. Checking the serviceability of the clutch must be carried out in the UAZ service stations equipped with specialized equipment.

Keep outer surface of the clutch in clean.

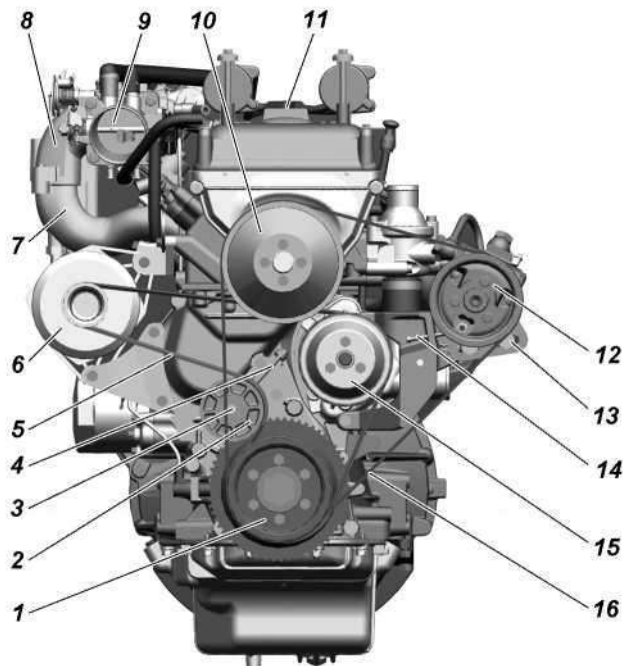


Fig. 9.5 Pull up of drive belts:

1 - pulley - crankshaft damper; 2 - idler pulley; 3 - mounting bolt of idler pulley; 4 - adjustment bolt; 5 - drive belt of water pump and generator; 6 - generator; 7 - intake pipe; 8 - receiver; 9 - throttle assembly with throttle position sensor; 10 - fan pulley; 11 - oil filler cap; 12 - power steering pump pulley; 13 - mounting bolt of power steering pump; 14 - draw bolt; 15 - water pump pulley; 16 - belt of fan drive and pump of power steering

Exhaust system

CAUTION! *The operating temperature of the catalyst is 400-800 ° C. It is not allowed to operate the vehicle without catalyst protective screens. When driving or parking the vehicle, make sure that the exhaust system shall not come into contact with flammable materials (e.g., with dry grass).*

No leakage of exhaust gases in the joints of the exhaust system with gaskets is allowed and must be repaired at the first occurrence. Stuck nuts shall be tightened (see Annex 2) with preliminary wetting of thread connections with special liquids or with kerosene.

When the fuel system or the ignition system is faulty, a great quantity of unburnt hydrocarbons ingress into the catalyst, thus temperature in the catalyst can rise above the admissible limit and it will fail. So, special attention must be paid to the operation of the fuel system and the ignition system. Three-cylinder operation of the engine is prohibited even for a short period of time.

Fuel injection system with microprocessor-controlled fuel supply and ignition (fig. 9.6)

Safety precautions

1. Prior to dismantling and installation of any components or wires of the control system, it is necessary disconnect the accumulator battery ground wire.

2. It is not allowed to start the engine without a reliable connection of the battery and the ground wire between the engine and the car body.

3. The accumulator battery may not be disconnected from the vehicle's electrical network while the engine is running.

4. In case of charging from the external source, the battery must be disconnected from the vehicle's electrical network.

5. The control unit may not be exposed to temperatures above 80°C, e.g., in an oven dryer.

6. Prior to electric welding operations, remove fuel tanks, disconnect the battery wire and the control unit connector.

7. To prevent rusting of pins during engine vapor cleaning, do not direct the nozzle towards system components.

8. The electronic components of the control systems are designed for very low voltage and are vulnerable to electrostatic discharges.

CAUTION! *To access the spark plug of the fourth cylinder, it is necessary to remove the plug on the rear panel of the hood.*

9. The fuel system, at the section from the fuel electric pump to the fuel pressure controller on the running engine, is pressurized to 3 kg/cm².

CAUTION! *It is not allowed to loosen or tighten the connections of the fuel line with the engine running or*

immediately after it stops.

10. The fuel pump's electric motor is cooled by the flowing flow of fuel, therefore, in order to avoid its failure, it is not allowed to turn the electric fuel pump "on dry" when there is no fuel in the left tank.

11. It is forbidden to start the engine with improperly installed high-voltage wires from the ignition coils to the spark plugs or with low-voltage wires to the ignition coils.

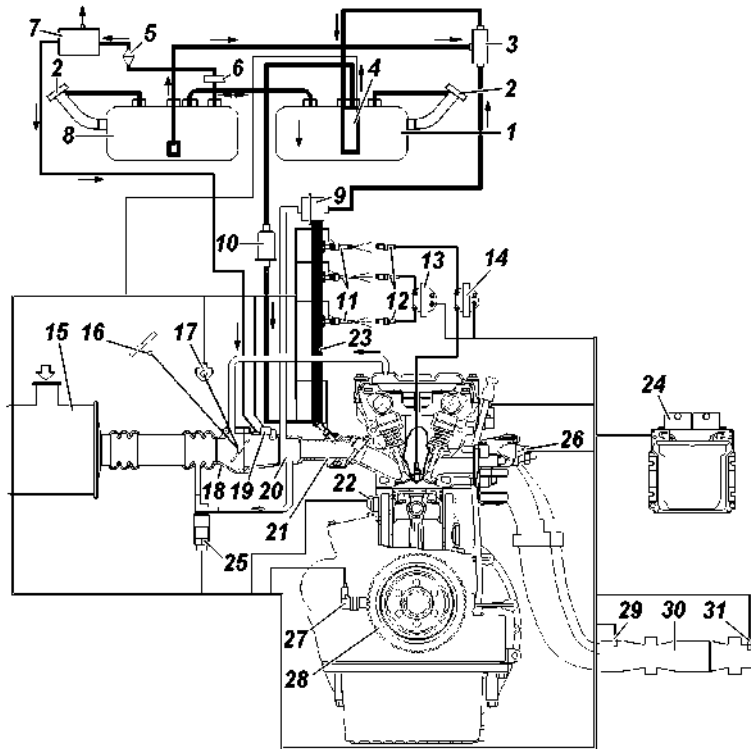


Fig. 9.6 Principle diagram of supply and control system of engine with fuel intake:

1 - left (main) tank; 2 - fuel tank plugs; 3 - jet pump; 4 - electric fuel pump (immersion-type module); 5 - gas tank valve; 6 - separator; 7 - adsorber with purge valve; 8 - right (additional) tank; 9 - fuel pressure regulator; 10 - fine fuel filter; 11 - fuel jet nozzles; 12 - spark plugs; 13 - ignition coil 2 and 3 cylinders; 14 - ignition coil 1 and 4 cylinders; 15 - air filter; 16 - throttle actuator pedal; 17 - throttle plate position sensor; 18 - throttle device; 19 - absolute pressure sensor; 20 - receiver; 21 - intake pipe; 22 - detonation sensor; 23 - fuel rail; 24 - engine control unit; 25 - idle speed regulator; 26 - coolant temperature sensor; 27 - crankshaft position sensor; 28 - notched disk for synchronization of crankshaft pulley; 29,31 - oxygen sensors for exhaust gases; 30 - catalyst

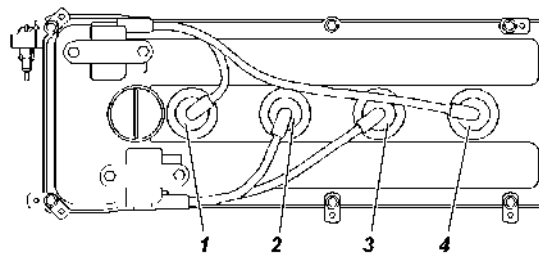


Fig. 9.7 High-voltage wires installation procedure:
1, 2, 3, 4 - engine cylinder numbers

Fuel supply system(Fig. 9.6)

CAUTION! Motor gasoline and its vapors are toxic and flammable. Observe the following rules:

- observe the rules of fire safety;
- avoid any operations that may result in gasoline entering the oral cavity;
- do not let dry the gasoline that has got on the skin, and immediately wash it off with warm water and soap;
- cover the spilled gasoline with sand or chips, brush off and dispose of, ventilate the room;
- take off any clothing contaminated with gasoline, dry it outdoors, and then wash it.

CAUTION! Only use the recommended unleaded gasoline (Lead contained in the leaded gasoline causes failure of the oxygen sensor in the exhaust gases and the catalyst).

Fuel is supplied to the electric fuel pump from the left tank. As fuel is running out, the left tank is automatically refilled from the right tank.

Fuel tank filler neck pulley and ensure a tight seal.

Due to the above specific features of the fuel supply system design, the following is recommended:

- When closing the filler necks of fuel tanks, make sure that the plugs are in good order and that the gasket is present and intact, and ensure that the plugs close tightly by applying appropriate force;
- If the vehicle is partially refueled, first fill the left-hand tank;
- control the fuel consumption taking into account the change in the amount of fuel in both tanks.

Fuel tanks. Maintenance of the fuel tanks includes periodic flushing of the electric fuel pump (left tank), flushing of filter of the fuel gauge receiver pipe (right tank) and flushing of the tanks.

Drain the sludge periodically.

Periodically check the reliability of the tank mounting and, if necessary, tighten their mounting bolts.

Remove the fuel tank from the vehicle for flushing.

It is possible to flush the electric fuel pump filter without removing the fuel tank. The electric fuel pump module is removed through a hatch in the floor of the body.

Electric fuel pump. Periodically check and clean the contacts connecting the fuel pump to the on-board network.

Pay special attention to the reliability of the "ground" connection.

It is not recommended to run the vehicle with less than 5 liters of fuel in the left fuel tank.

When coming steep rises, the minimum fuel amount in the left tank shall be at least 20 liters.

Clogging of the mesh filter of the fuel module and fuel fine filter, the presence of dirt and mechanical impurities in the fuel tank are manifested primarily in the deterioration of fuel pumpability from the right tank to the left tank, unstable operation of the engine under heavy loads and the deterioration of the vehicle's dynamics.

With these symptoms, one shall immediately visit the service station to avoid the electric fuel pump failure.

The following work must be done at the service station:

- disconnect the fuel inlet and outlet pipes;
- remove the left fuel tank;
- remove the immersion-type module;
- flush the fuel tank with clean gasoline and dry it (e.g., wipe it with a lint-free wipe);
- remove the collection cup of the electric fuel pump and flush it;
- wash the mesh filter (**do not remove the mesh filter from the electric fuel pump, as this will result in**

voidance of the manufacturer's warranty);

- install the electric fuel pump in the fuel tank (pay attention to the installation of the o-ring, which must be dried);

If after the above measures the character of engine

operation has not changed, i.e. unstable engine operation is observed, then **it is necessary:**

1. Replace fine fuel filter.
2. Make sure there is fuel in the main fuel tank. Minimum quantity is 10 liters (for tests only).
3. Measure the pressure in the supply system (on the engine running at idle):
 - a) at 800 rpm and at 2000...2500 rpm (should be approximately 2.6...2.7 kgf/cm²);
 - b) when the throttle is opened abruptly for a short time (there should be a rise up to 3.0 kgf/cm²);
 - c) when the ignition is on and the engine is not running - 3.0...3.15 kgf/cm².
4. Check the jet pump nozzle for opening cleanliness.
5. Check the connection of the right fuel tank to the atmosphere, the main line from the engine (pressure regulator) to the left tank must not be pinched.

6. Determine fuel flow rate at the fuel rail drain (it must be at least 75 L/h at back pressure of 300-10 kPa and supply voltage (13.5±0.1)V). Conduct of measurements through the fuel drain hose by disconnecting it from the jet pump.

If the fuel does not drain or drains less than 75 L/h, the electric fuel pump must be replaced.

Note. When the ambient temperature is below 0 ° C, signs of clogging may be due to the presence of water and its freezing in the fuel system. If water is found in the fuel, drain the fuel and flush the fuel tank with clean gasoline, and replace the fine fuel filter.

Jet pump. Periodically check the pump and its connections for leaks. If fuel is pumped from the auxiliary tank to the main tank, disassemble the pump (unscrew the jet nozzle), flush it and purge it with air.

The jet pump is fixed to the fuel hoses at the frame rail.

Leaks in the connections are remedied by tightening the connections (see annex 2) or by replacing defective elements.

After any maintenance of the fuel supply system associated with tightening the connections, removal or replacement of parts and components, it is necessary to check the tightness of the system:

- make sure the filler plugs are securely tightened;
- tighten the clamps and threaded joints until they are tight;
- start the engine and inspect the system when idling. Dribbling of fuel or moistening of elements of the fuel supply system is not allowed.

The throttle actuator may require adjustment of the cable tension during operation. For cable tensioning, unscrew nut 3 (Fig. 9.8) and tighten nut 4.

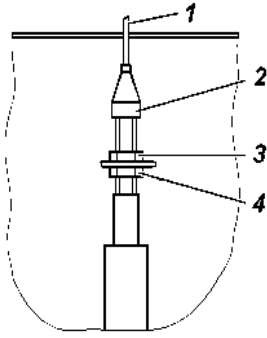


Fig.9.8 Throttle pedal actuator adjustment:
1 - cable; 2 - cable sheath with an adjusting tip; 3, 4 - nuts

Air filter. Replace the filter cartridge in the following order:

- loosen the clamps and remove the corrugated hoses from the air filter;
- unscrew the clamp nuts, remove the clamps and the air filter;
- unscrew the nut 6 (fig. 9.9) and remove the cover with filter cartridge 1 from filter housing 4;
- unscrew the nut 5 and remove the filter cartridge;
- install a new filter cartridge, assemble the air filter with the cover oriented relative to the housing as shown in Fig. 9.9;
- install the air filter.

Fuel vapor trapping system.

During the operation of the vehicle must pay attention to:

- the presence of a sharp smell of gasoline in the cabin, engine compartment, in the places of passage of fuel - and steam pipes and hoses - if present, check the tightness of the separator and its connections, the condition of the canister (no cracks or damage, the serviceability of the canister purge valve);
- serviceability of elements of the system for trapping fuel vapor (canister and fuel tank purge valve). Malfunction of these elements leads to malfunction of the fuel supply system. Replace damaged components.

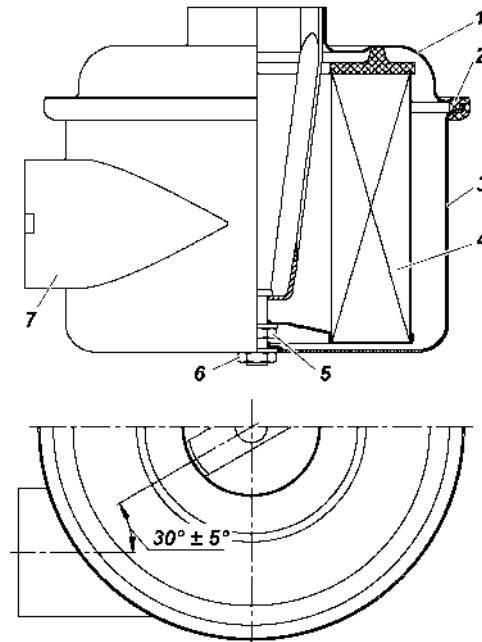


Fig. 9.9 Air Filter:

- 1 - air filter cover; 2 - gasket; 3 - filter housing; 4 - filter cartridge; 5 - nut; 6 - nut; 7 - funnel

Fuel supply and ignition control system

To connect the means of automated external diagnostics of the engine control system, a diagnostic connector is installed behind the driver's seat on the right side of the engine compartment partition wall (Fig. 9.10).

The control unit is installed in the vehicle compartment, on the right side behind the driver's seat on the partition wall. On vehicle without a partition - in the cabin on the left pile.

Diagnostic

The performance of the engine control system and the injection system depends on the health of mechanical and hydro-mechanical systems. The number of deviations that cause malfunctions can be mistaken for faults in the electronic part of the control system, these are:

- low compression;
- deviation of the valve timing caused by improper assembly of engine components;
- air inflow in the intake pipe;
- poor fuel quality;
- non-observance of the maintenance timing.

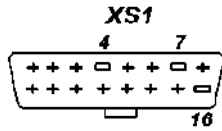


Fig.9.10 Diagnostic connector (XS1):

The control unit is able to carry out a certain amount of diagnostics of the engine control system elements.

When a fault is detected, the control unit turns on the diagnostic fault lamp on the vehicle instrument panel and a code is written in its memory that reflects this fault.

Turning on the engine fault lamp does not mean that the engine shall be immediately stopped, as the control unit has standby modes that allow the engine to operate in conditions close to normal ones.

However, in the event of a malfunction caused by misfiring (the engine malfunction indicator lamp starts to flash), in order to avoid the failure of the exhaust gas catalyst, it is necessary to reduce the engine speed to 2500 rpm (vehicle speed not exceeding 50 km / h) and move to the service station. The indicator lights up continuously when the permissible temperature of the catalyst is exceeded. It is possible to disable one of the jet nozzles of the engine.

Operation of the engine is allowed only after the elimination of the fault.

Operation of diagnostic lamp

In the operating mode when the ignition is on and the engine is not running, the lamp lights up continuously until the engine starts. If the lamp does not go out after the engine starts, it means that the self-diagnostic subsystem has detected faults in the electrical circuits of the control system.

If the diagnostic lamp does not go out after the ignition is turned on or is on while the engine is running, this means that the system and the engine must be technical serviced as soon as possible.

Clear fault codes.

Memory storing fault codes can only be cleared using a scanner tester.

If the accumulator battery is disconnected, the self-learning parameters of the control unit are not lost and can be reset using a scanner-tester.

After resetting the error codes, the controller's accumulated adaptive data (controller's self-training parameters) is automatically reset.

TRANSMISSION

Clutch

The liquid level shall be 15-20 mm below the upper rim of the tank.

The presence of air in the hydraulic drive system is indicated by the “softness” of the pedal and incomplete disengagement of the clutch. Bleed the system through pipe inlet 9 (Fig. 9.11) of the working cylinder in the same way as bleeding the hydraulic brake system.

The position of the clutch pedal is adjusted by changing the length of the pusher 6 (fig. 9.12) of the main clutch cylinder. The full stroke of the clutch pedal shall be (200 ± 20) mm. Free travel (5-30 mm) is provided by the clutch design and is not adjustable.

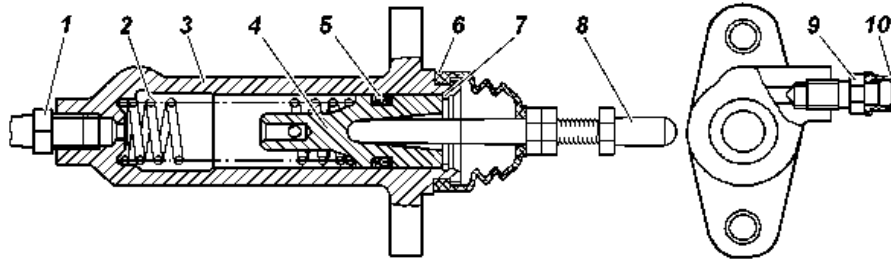


Fig. 9.11 Clutch release cylinder:

1 - connection pipe; 2 - piston spring; 3 - cylinder housing; 4 - piston; 5 - sealing collar; 6 - protective cap; 7 - lock ring; 8 - piston rod; 9 - blow-off valve; 10 - cap

Please note! The length of push rod 8 is 112 mm. Do not adjust the length of the push rod during operation.

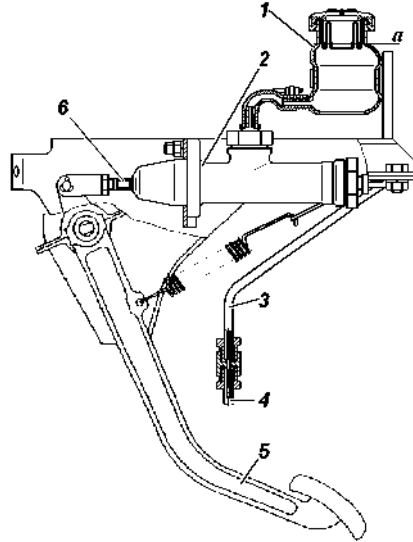


Fig. 9.12 Clutch release master cylinder drive:

a - fluid level;

1 - tank; 2 - main cylinder; 3, 4 - pipes; 5 - pedal; 6 - push rod

Gearbox and transfer case

If you find a leak, find the cause and replace defective parts (gaskets, collars), on the threads of through bolts and the planes of the connector apply car sealant-gasket. Checking the oil level and its replacement in the gearbox and transfer case must be done simultaneously. The level shall be at the bottom edge of the filling opening (Figs. 9.13, 9.14).

During vehicle operation, the lubricant level in the gearbox can be lowered down to 8 mm relative to the lower edge of the inspection hole and at the same time it can be raised in the transfer case. It is not necessary to level out the lubrication levels.

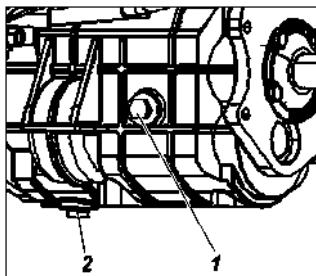


Fig. 9.13 Gearbox plugs:
1 - filler plug; 2 - drain plug

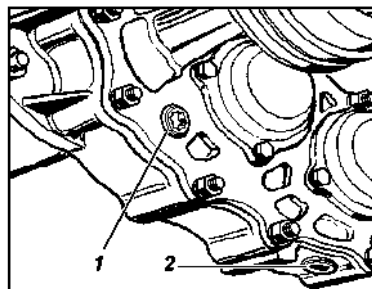


Fig. 9.14 Transfer case plugs:
1 - the filler plug; 2 - the drain plug

Driveline

The splined joint is lubricated through the grease nipple 1 (Fig. 9.15), screwed into the spline yoke and the needle bearings are lubricated through the lubricating nipple 2 on the cross-arms.

Supply the needle bearings with lubrication until it comes out from under the working edges of the crosses glands. The use of solid oil and mixtures containing it when lubricating needle bearings can cause them to quickly fail.

It is not necessary to insert excess lubricant into the splines, as it will be thrown out of the spline joint, which will

lead to premature failure of the glands and may knock out the plug of the sliding yoke.

To lubricate the hinges, use a special tip, worn on the grease gun.

Provided that the maintenance-free cardan shafts (without grease nozzles) are installed on the vehicle. It is necessary to periodically check the state of the protective gaiters on the splined joint of the shaft. In case of the cover damages, one shall visit the service center for a replacement.

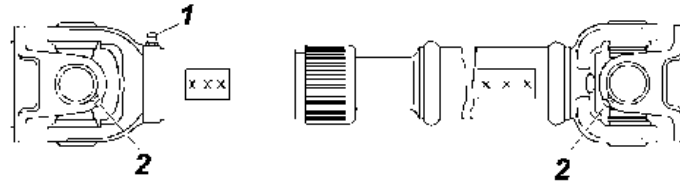


Fig. 9.15 Rear cardan shaft:

1 - lubrication nozzle for lubricating a spline joint; 2 - lubrication nozzle for lubricating needle bearings of the hinge

Driving axles

Drain the oil through the hole 2 (Fig. 9.16, 9.17), located in the lower part of the case, at the same time also unscrew plug 1 of the inspection hole.

The axial clearance in the bearings of the main drive gear of more than 0.05 mm is not allowed, because, if it is present, the gears teeth wear out quickly and the axle may be locked. Check for the presence of the axial clearance in the bearings perform by swinging the pinion gear over the flange of the cardan shaft mounting.

Axial clearance in the bearings of the main gear differential is also not allowed. Check it through the oil filler holes (axles shown in Fig. 9.16) or by rocking the driven wheel with the crankcase cover removed (axles shown in Fig. 9.17).

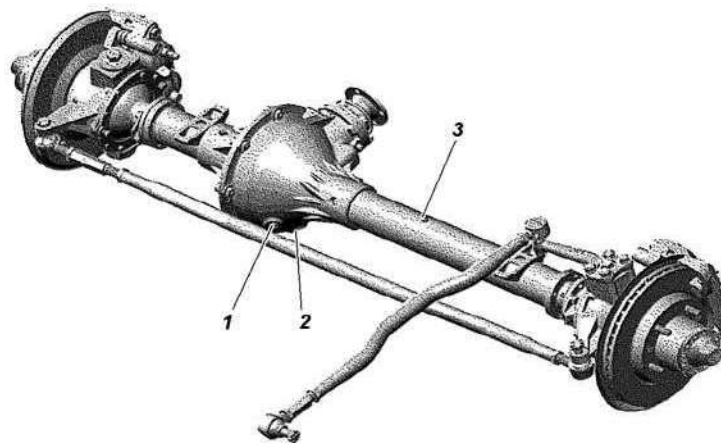


Fig. 9.16 Front axle with vertically split crankcase:

1 - level plug; 2 - drain plug; 3 - safety valve



Fig. 9.17 Front axle with a one-piece crankcase:

1 - filler plug; 2 - drain plug; 3 - safety valve

In case of gaps, the axle is subject to adjustment. Axle adjustment is a time-consuming operation that requires a certain skill and the use of a special tool, therefore we make adjustments only at authorized service stations.

The front axle and downshift are engaged and disengaged with the transfer case lever.

When inspecting steering knuckles, pay attention to serviceability of adjusting bolts 1 (Fig. 9.18) and wheel turning

limiters 3. The value of angle B of turning the right wheel rightwards and the left wheel leftwards shall be within 26-27 °. Increased wheel steering angle leads to wheel contact with suspension parts.

During operation, the addition of lubrication to the spherical pins and ball units is not required. During the repair the grease is replaced.

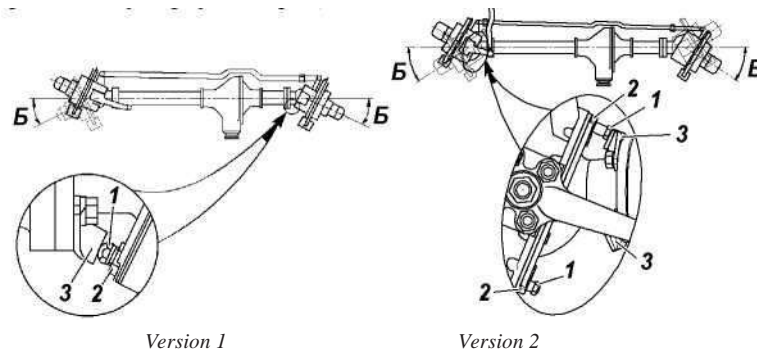
The pin tightening is adjusted at the factory with a preloading along the common axis of the pins.

When operating the vehicle, pay special attention to the knuckle pins to check that they are tightened. When the rubbing spherical surfaces of the bushings 3 (Fig. 9.19) or pins 2 are worn out, the pre-load will disappear and there will be a gap along the common axis of the pins. Eliminate this gap by tightening the clamping sleeve 10.

Operation of the front drive axle with gaps in the pin joints leads to early failure of the upper pin bushing.

Under operating conditions, it is most convenient to tighten the clamping bush of the lower pin:

- unscrew nut 13;
- remove lining 12 with gasket 11;
- tighten the clamping sleeve 10 with a special wrench to remedy the gap (first hit with a copper hammer on the threaded end of the pin);
- Turn the wrench 10-20° to retighten this bushing to create a preload pressure along the common axis of pins;
- insert lining 12 with gasket 11;
- tighten nut 13 by applying a torque of 80-100 N·m (8-10 kgf·m).



Version 1

Version 2

Fig. 9.18 Adjusting of the turning angle of the wheels:

1 - rotation restraint bolt; 2 - lock nut; 3 - rotation restraint support

CAUTION: *If the tightening torque is too high, it will result in reduced preload and malfunction of the pin assembly.*

The torque of the ball bearing 8 (or body 1 of the swivel axle assembly, if the ball bearings are not detached from the casing of the half axle) with the removed sealing rings 5, 6 and the swivel axle joint 7 in any direction relative to the common axis of pins should be within 10-25 Nm (1.0-2.5 kgf·m).

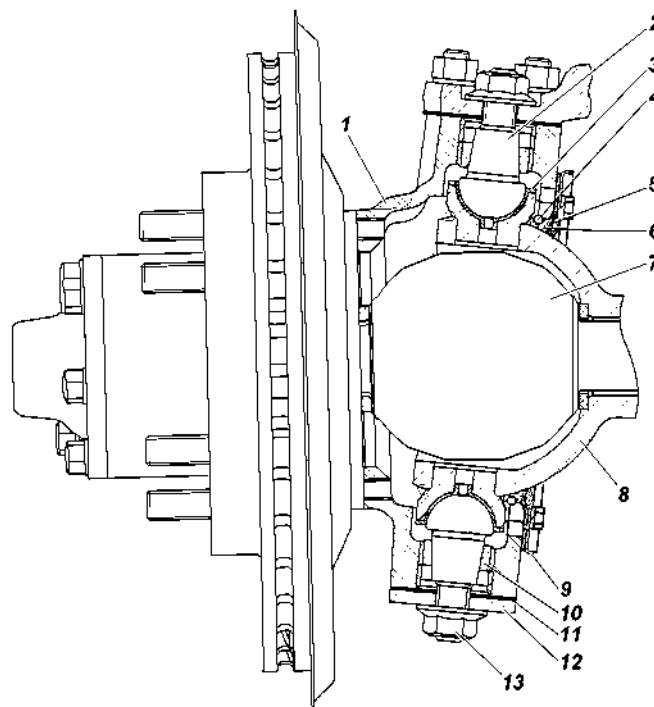


Fig. 9.19 The steering knuckle and the hub:

1 - knuckle body; 2 - pin; 3 - pin insert; 4 - spring;

5 - outer sealing ring; 6 - inner sealing ring; 7 - ball joint; 8 - ball bearing; 9 - outer casing of oil seal case; 10 - clamping sleeve; 11 - gasket; 12 - lining; 13 - nut

If the reference parameter is not achieved, retighten the clamping sleeve by turning the wrench 10- 20° more and tighten the nut 13 with the specified torque strength.

If the gap cannot be adjusted by tightening the threaded bushing, the pin bushings must be replaced. To do this, you should visit the "UAZ" service station.

CHASSIS

Suspension

CAUTION! *In order to avoid injuries, it is strictly forbidden to disassemble the shock absorbers.*

It is prohibited to operate a vehicle without or with failed shock absorbers, as well as with worn suspension joints.

During each maintenance check the tightening of spring axle nuts 23 (Fig. 9.21) and handle bar nuts 14 (Fig. 9.21), step nuts 15 (Fig. 9.20) (for vehicle without ABS), 19 (Fig. 9.21) (see Annex 2), condition of rubber-metal joints and stabilizer pads and inspect springs and shock absorbers. Lubricate the springs at least once a year to prevent corrosion, which is the main cause of spring failures, and to eliminate spring creaking. In few-leaf spring it is sufficient to apply lubricant to the surfaces of the bearing ends of the spring, as well as between the clamps and the side surfaces of the sheets. To lubricate the spring, remove it from the vehicle, disassemble it, wash it in kerosene and dry it. Use the lubricant specified in Annex 3.

Knocks and squeaks in the springs indicate wear of the rubber pads or rubber-metal joints.

When installing the springs, finally tighten the strut nuts with the springs loaded with the weight of the vehicle.

On vehicles with removed stabilizer bar 22 (Fig. 9.21), when installing it you must check the length of the stabilizer bar shoulders (Fig. 9.21). To adjust, turn the stabilizer eye ring 24 (Fig. 9.21). Do not forget to tighten lock nut 4 after making the adjustment.

CAUTION! *Incorrect installation of the stabilizer bar will result in poor handling, increased noise level, reduced service life of the front cardan shaft, and frame component failures.*

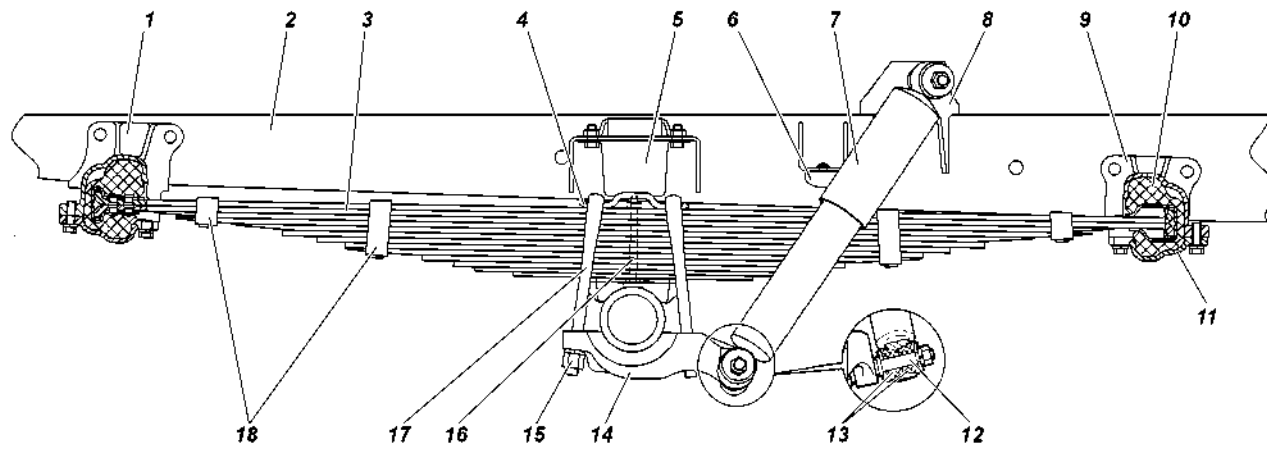


Fig. 9.20 Front suspension of vehicles without ABS:

1 -front spring bracket; 2 -frame; 3 - spring; 4 - lining; 5 - buffer; 6 -buffer; 7 - shock absorber; 8 - bracket absorber; 9 - rear bracket spring; 10 - rubber pad; 11 - bracket cover; 12 - absorber pin; 13 - rubber bushings; 14 - stepladders; 15 - nut stepladders; 16 - the tension bolt; 17 - stringer; 18 - collars

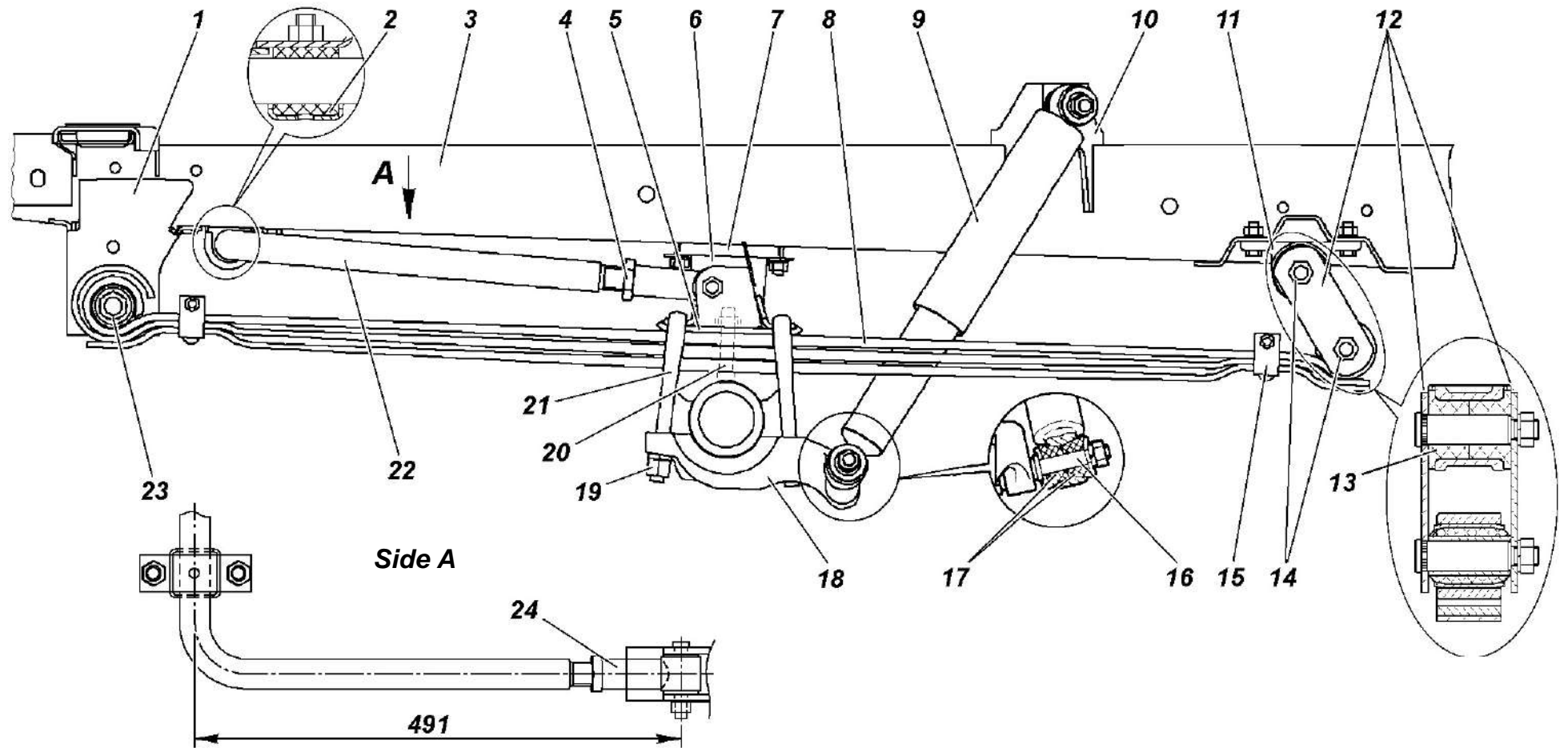


Fig. 9.21 The front suspension of vehicles:

1 -front bracket of the spring; 2 - stabilizer pad; 3 -frame; 4 -nut; 5 - lining; 6 -buffer; 7 - buffer pad; 8 - spring; 9 - shock absorber; 10 - absorber bracket ; 11 - eye-ring bracket of front spring; 12 - coupling link; 13 - spring bushing; 14 - nuts of shackle pins; 15 - clamp; 16 - shock absorber pin; 17 - rubber bushings; 18 - stringer pad; 19 - stringer nut; 20 - pinch bolt; 21 - stringer; 22 - stabilizer; 23 - spring axle nut; 24 - stabilizer pad eye

Maintenance of the shock absorbers includes periodically checks to ensure that they are tight and securely fastened. The shock absorber is made as one-piece and does not require special adjustments during the operation of the vehicle.

CAUTION! *To avoid injury it is strictly forbidden to disassemble the hydropneumatic shock absorber.*

The rapid discontinuation of the vehicle body oscillations when crossing the road irregularities indicates the normal operation of the shock absorbers.

Wheels and tires

CAUTION! *Since tires of different models (tread patterns) can have different sizes and characteristics of rigidity, use the same tires on all wheels.*

Worn and damaged tires, insufficient or excessive air pressure in them, deformed wheels or loosening of wheel mounting may cause accident. Regularly check the condition of the tires and the air pressure in them, the condition of the wheels and their attachment.

We recommend that you use tires appropriate for the season of use and your climatic region.

For more uniform tightening, tighten the nuts, observing the sequence - through one nut. See Annex 2 for wheel tightening torque.

Check the pressure on cold tires.

If intense uneven wear is found on the front tires, check and adjust the front toe-in.

Check and adjustment the toe-in must be done on a special stand ($0^{\circ}0'$ to $0^{\circ}7'$ for each wheel).

Adjust the wheel toe-in by changing the length of the steering linkage rod (Fig. 9.22). Before adjusting, make sure that there is no play in the joints of steering rod and hub bearings. After loosening the locking nuts (with the right and left threads), rotate the adjusting turnbuckle to set the desired value of wheel toe-in.

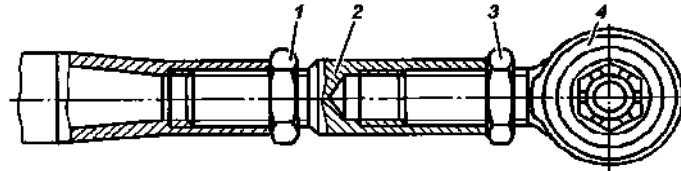


Fig. 9.22 Steering linkage rod:

1 - nut with left-hand thread; 2 - adjustment turnbuckle; 3 - nut with the right thread; 4 - steering linkages hinge

For even tire wear, rearrange the wheels. The rearrangement of the tyres shall be respectively board - front and rear wheels on one side are swapped. Spare wheel is not used in the rearrangement of the wheels.

The spare wheel mounting is shown in Fig. 9.23. The wheel must be securely fastened to the holder with sector 2 (Fig. 9.23).

To avoid situations that the tire is charred from the exhaust pipe, the wheel should be moved away from the exhaust pipe before securing it until there is a gap of at least 40 mm.

Spare wheel on the "Expedition" version of UAZ-390995 is mounted on the bracket of the rear power bumper 3 (Fig. 9.24) with three nuts 2.

CAUTION! *Do not exceed a speed of 80 km/h when the vehicle has installed spare wheel for temporary use.*

CAUTION! *Take extra care and attention when driving the vehicle with a spare wheel for temporary use installed on any of its axles .*

CAUTION! *Reduce the use of the spare wheel for temporary use as soon as possible and install the wheel for normal use as soon as possible.*

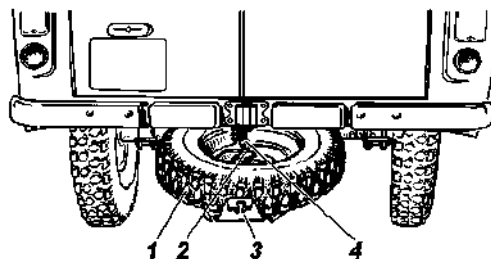


Fig. 9.23 Mounting the spare wheel:

1 - spare wheel; 2 - sector; 3 - holder; 4 - nut

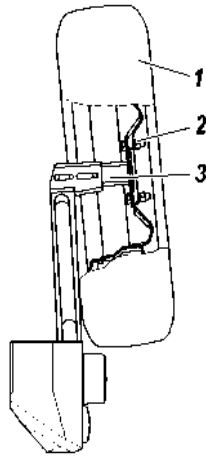


Fig. 9.24 Spare wheel mounting (UAZ-390995 "Expedition" version):

1 - spare wheel; 2 - wheel mounting nut; 3 - bracket of rear power bumper

Wheel hubs

To replace the grease, remove the hub from the center pin, remove the used grease, rinse the bearings and collar thoroughly. Lubricate the bearings and the lip of the collar. Be sure to fill the space between the bearing rollers with grease. Between the bearings lay a layer of grease with a thickness of 10-15 mm. Do not lay the lubrication in the hub more than normal in order to avoid falling it into the wheel brake mechanisms.

Check for gaps in the bearings by rocking the wheels.

Adjust bearings carefully. Weak tightening of bearings results in shocks and destroying bearings while moving. Too strong tightening of bearings results in an excessive heating causing leakage of grease and destroying of bearings. In addition, large gaps in the hubs of the front wheels increase the stroke of the brake pedal.

Adjust the wheel hubs bearings as follows:

1. Elevate the vehicle or jack it up from the side of the wheel, the bearings of which must be adjusted.
2. Remove the axle shaft 9 (Fig. 9.25) of the rear axle or the hub flange of the front axle.
3. Unbend the nib of the lock washer 6, unscrew the lock nut 7 and remove the lock washer.
4. Loosen the nut 4 bearing adjustments $1/6 - 1/3$ turns (1-2 faces).
5. When turning the wheel by hand, check the ease of its rotation (the wheel shall rotate freely without interfering with the disc or drum by the brake pads).

6. Tighten the nut for adjusting the hub bearings with a hand-held tool smoothly, without jerking, with a torque 25 - 30 N m (2.5 - 3.0 kgf m).

When tightening the nut, turn through the wheel to properly position the rollers in the bearing.

7. Install the lock washer, screw on and tighten the locknut with a tightening torque of 20 - 25 N m (2.0 - 2.5 kgf m).

When replacing the bearings, the tightening torque of the nut is 35 - 40 N m (3.5 - 4.0 kgf m), lock nuts 25 - 30 N m (2.5 - 3.0 kgf m).

Install the lock washer with an internal mustache in the groove of the center pin. If there are at least minor cracks in the lock washer, replace the washer.

8. Check the bearing adjustment after tightening the lock nut. With proper adjustment, the wheel shall rotate freely without jamming, noticeable axial clearance and pitching.

9. Bend one nib of the lock washer on the face of the nut, and the second - on the face of the locknut until it fits to the facets. Unbend the nibs of the lock washer closest to the middle of the nut facets.

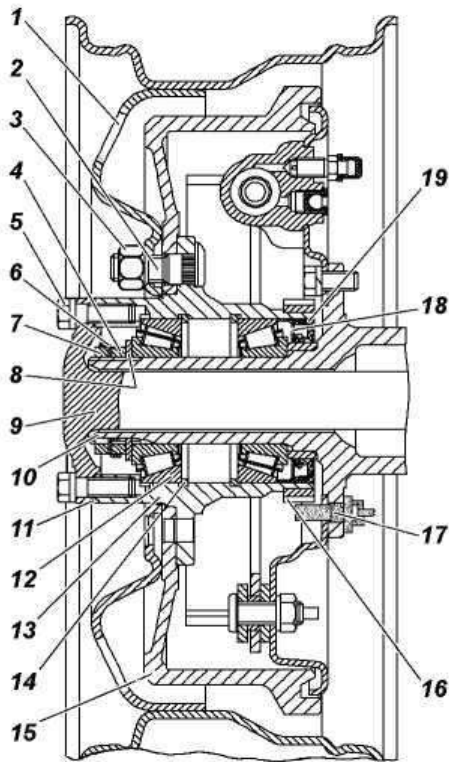


Fig. 9.25 Rear wheel hub:

1 - wheel; 2 - hub bolt; 3 - wheel nut; 4 - adjusting nut; 5 - axle shaft mounting bolt; 6 - lock washer; 7 - lock nut; 8 - thrust washer; 9 - axle shaft; 10 - center pin; 11 - gasket; 12 - bearing; 13 - hub; 14 - thrust ring; 15 - brake drum; 16 - trigger wheel (for vehicles with ABS); 17 - sensor ABS; 18 - thrust washer; 19 - collar

10. Install the rear axle shaft or put the front axle hub flange, clean the screwed part of the bolts from sealant residues, degrease and apply a new layer of UG-6 sealant, tighten the bolts.

When checking the adjustment of bearings for heating, do not use the service brakes, as the hubs can heat up from the discs and brake drums.

CONTROL SYSTEM

Steering system

CAUTION! *When the hydraulic booster fails, the force required to turn the steering wheel increases.*

It is forbidden to turn off the ignition and remove the key from the ignition switch when the vehicle is moving. When the ignition key is removed, the steering shaft is blocked by an anti-theft device and the vehicle becomes uncontrollable.

In case of steering malfunction, further driving or towing the vehicle with the use of a flexible towing coupler is prohibited. In this case, tow the vehicle with the use of partial loading or breakdown truck.

In order to avoid failure of the power steering pump and overheating of the oil, it is not recommended to hold the steering wheel in extreme positions for more than 20 seconds.

Steering service includes periodic tightening of the bolts fixing the steering mechanism to the bracket, checking of the steering rod connections, bipod connection, swivel arm connection, checking the free play of the steering wheel, adjustment of the steering mechanism, timely filling of the oil in the oil reservoir of the power steering system.

Periodically check the tightness of the rod ends and steering rod locknuts and keep the tapered joints of the links and pins free of play.

The vehicle is equipped with maintenance-free steering linkage ends. Maintenance-free ends do not require adjustment or lubrication during operation. If there is a gap in maintenance-free ends, it is necessary to replace them.

Perform the first re-tightening of the steering mechanism after 500 km mileage and subsequently according to the warranty and service book.

The total clearance must be checked when the engine is running at idle. The condition of the steering mechanism is considered normal and does not require adjustment if the total play of the steering wheel does not exceed 20°, which corresponds to 74 mm as measured at the wheel rim.

If the total play exceeds the permissible value, it is necessary to determine which node is responsible for the increased play, for this check the reliability of tightening (see Annex 2) of bolts and nuts fastening the crankcase steering mechanism, the condition of joints of steering rods, tightening of nuts (bolts) fastening the cardan shaft, gaps in joints and spline joints of cardan shaft of the steering column, as well as any gaps in the steering mechanism.

If you find a radial play in the joint of the cardan shaft of steering mechanism (axial displacement of the crossarm in

the bearings), make additional thread crushing for the bearings in the eyelets of the yokes. The thread crushing should be done in such a way as to prevent buckling of the bushing sleeve.

If there is a gap in the spline joints of the steering cardan shaft, replace the shaft.

Before installing the cardan shaft with bolts screwed into the yoke of the cardan-joint on the vehicle, apply anaerobic sealant UG-6 or glue - sealant "Anacrol-20" on the threaded part of the bolts.

If gaps in the steering mechanism are detected, adjust the mechanism. Adjust at the UAZ service station.

Hydraulic power steering system. When the steering wheels are turned to the right and to the left up to the end position, there may be a noise (roar) in the power steering system, resulting from the power steering pump reaching the maximum pressure. This noise (roar) is a specific feature of the pump and does not affect the function of the steering.

If the hydraulic booster fails due to damage to the pump, destruction of the hose or pump drive belt, or when the vehicle is towed due to an engine stop, the steering mechanism can only be used for a short time. In the absence of oil in the power steering system, it is necessary to remove the pump drive belt, otherwise it is possible that the pump will be locked and the belt is broken. With the pump drive belt removed, it is necessary to carefully monitor the coolant temperature, as the engine may overheat.

Prolonged operation of the vehicle with the broken hydraulic booster leads to premature wear of the steering mechanism.

The drive belt of power steering (Fig. 9.5) is tensioned by moving the pump along the engine mounting bracket. To do this, loosen the bolts securing the pump to the bracket, move the pump with the tension bolt until the belt tension is normal and tighten the pump bolts.

Replace the belt if it is damaged or overstretched.

Checking the level and changing the power steering oil. When checking the oil level in the oil tank 3 (Fig. 9.26), the front wheels shall be set straight. Fill oil up to the level of the oil tank filter screen. Oil must be pre-filtered through a filter with a filtering capacity of not more than 40 microns.

Fill the system in the following order:

1. Disconnect the bipod arm rod from the bipod or elevate the front wheels with a special lift.
2. Remove the oil filler cap, pour in oil up to the level of the filter screen.
3. Without starting the engine, turn the steering wheel or the input shaft of the mechanism from the stop to the stop until the air bubbles leave the oil in the tank. Fill up the oil tank.
4. Start the engine while refilling the oil at the same time.

Note. If the oil is plentifully foaming, which indicates that air has entered the system, stop the engine and allow the oil to stand for at least 20 minutes (until the bubbles leave the oil). Inspect the hose connections to the power steering system units and, if necessary, repair leaks.

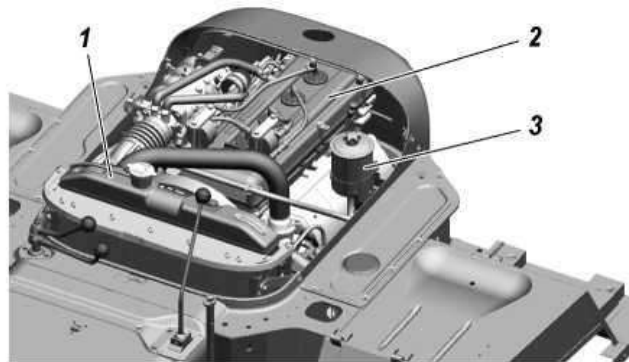


Fig.9.26 Engine compartment:

1 - engine cooling system radiator; 2 - engine; 3 - oil tank of power steering system

5. Let the engine run for 15 to 20 seconds and pump the power steering system to bleed any residual air from the steering mechanism by turning the steering wheel from end to end without stopping in extreme positions, three times to each side.

6. Check the oil level in the tank. Bring the oil level in the tank to the level of the filter screen. With the engine warmed up (with oil in the booster system warmed up) it is admissible that the oil level in the tank will rise up to 7 mm above the screen.

7. Close the tank with the cap and hand-tighten the cap nut.

8. Attach the bipod link, tighten (see Annex 2) and cotter pin nut.

Maintenance of the flow control and safety valve of the pump. If the flow and safety valves are dirty, flush them. To do this:

1. Unscrew blind plug 9 (Fig. 9.27) located above the pump outlet.
2. Remove spring 5 and spool 1 of the flow valve, and replace the plug to prevent oil leakage.
3. Unscrew seat 6 of the safety valve, remove the ball 4, guide rail 3 and spring 2. Remove the ring 8 and filter 7 from the seat of the safety valve.
4. Rinse the parts and purge them with compressed air.

5. Assemble the tank in the reverse order. Keep it clean during assembly. When disassembling and assembling, do not change the number of adjusting shims 11 in order to avoid dis-adjustment of the safety valve.

6. If the vehicle is equipped with a power steering pump marked "ZF...", do not disassemble the flow and safety valves. In the event of malfunctions visit the service station of UAZ LLC or replace the pump.

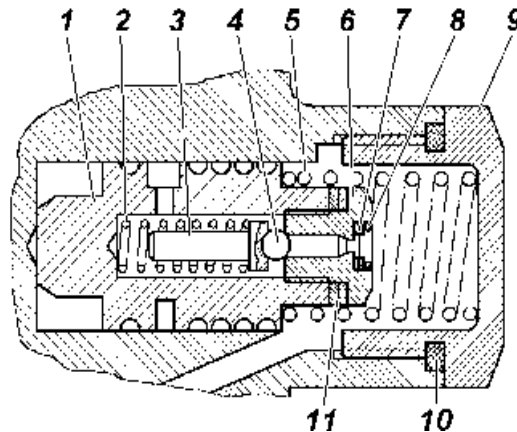


Fig. 9.27 Flow control valve and safety valve of the pump:

1 -flow valve spool; 2 - safety valve spring;

3 - safety valve spring guide; 4 - safety valve ball; 5 - spool spring; 6 - safety valve seat; 7 - filter; 8 - ring; 9 - blind plug; 10 - seal gasket;

11- adjustable shims

Brake systems

CAUTION! Remember that when the engine is not running or a vacuum booster is failed significantly increases the force that must be applied to the brake pedal to brake the vehicle.

CAUTION! In the event of failure of one of the brake system circuits, the brake pedal travel increases and braking performance decreases. In this case, do not make short-term repeated presses on the pedal, but press the pedal until you get the maximum possible effect.

In case of brake system or steering malfunction, further driving or towing the vehicle with the use of a flexible towing coupler is prohibited. In this case, tow the vehicle with the use of partial loading or breakdown truck.

CAUTION! Brake fluid is poisonous. Store liquid in tightly closed containers. Observe the following rules when handling with liquids:

- avoid any operations that may result in this fluid entering the oral cavity;
- do not let dry the liquid getting onto the skin, and immediately wash it off with warm water and soap;
- rinse spilled liquid with water, ventilate the room;
- take off liquid contaminated clothing, dry it outside and wash it;

Operating brake system with disc brakes on the front wheels and drum brakes on the rear wheels, with two separate hydraulic drive circuits to them from a dual-chamber master cylinder: one to the front wheel brakes, the other to the rear wheel brakes.

Each circuit of hydraulic drive serves as a spare brake system.

The parking brake system with a drum brake mechanism located behind the transfer case and acting on the rear cardan shaft has a manual mechanical drive.

The level of brake fluid in the reservoir 14 (Fig. 9.32) is checked visually by the marks put on the body of the reservoir, made of translucent plastic.

With the cover removed and new brake linings, the fluid level shall be on the "MAX" mark. If the hydraulic brake is serviceable, lowering the level of fluid in the tank is associated with wear of friction pads of brakes. Lowering the fluid level to the "MIN" mark indirectly indicates their marginal wear. In this case, it is necessary to conduct direct control over the condition of the pads, and it is not necessary to add liquid to the reservoir, since when installing new pads, the fluid level in the reservoir rises to normal.

The alarm lamp of the emergency level of the fluid in the reservoir lights up when the fluid level drops below the "MIN" mark, which, with partially worn or new brake shoe linings, indicates a loss of tightness of the system and fluid leakage. Replenish the fluid in this case only after the restoration of the tightness of the system.

CAUTION! On vehicles equipped with ABS, ESP, when the level of brake fluid drops below "MIN" or air enters the system, it is necessary to stop operating the vehicle and visit a service station, as brake system pumping requires additional diagnostic equipment.

On vehicles without ABS it is necessary to pump the brake system.

Check the condition of the brake hoses. If cracks appear on the outer surface, the hoses must be replaced.

Vehicles equipped with ABS are furnished with steel pipes. If there are any signs of corrosion, the pipes must be replaced.

Disc brakes of front wheels. To inspect brake shoes 2 (Fig. 9.28), place the vehicle on a level ground and set the parking brake. Inspect the pads through the window in caliper 4. If the linings wear to the thickness of 1.5–2.0 mm, replace the pads by the new one. Replace the pads on both front brakes.

On vehicles which brakes are furnished

with pads with a wear alarm, replace the pads when a rattle (ringing) appears, indicating that the pads are worn.

When replacing these pads, be sure to install them correctly. The pads equipped with a wear sound indicator are not interchangeable for the left and right brakes. These pads shall be installed on the side of the brake pistons so that the wear indicator is located at the top of the pad (brakes). On the outer side of both brakes install the pads without a signaling device.

To replace the brake pads, unscrew the bolts 16, remove the holder 18 and the spring 1.

Check the condition of the brake disc. If brake disc surface has deep notches and burrs, remove it from vehicle, clean and grind. If the disc is worn to a thickness of 20.4 mm, replace it with a new one.

Check for leaks from the cylinder block.

Check the protective caps 5 and covers 8, which shall be without damage and properly installed in the seats, and replace them if necessary.

Check the outer surface of bushings 10 in the area of boots 8 for grease and lubricate them with UNIOL 2M/1 TU 38.5901243-92 grease, if necessary.

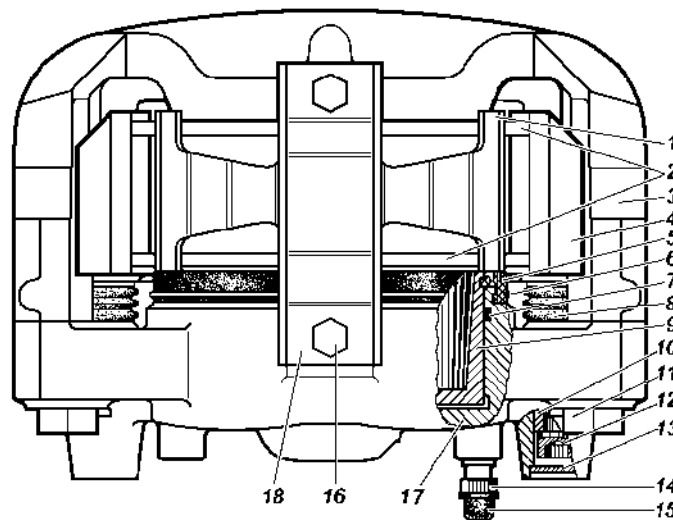


Fig. 9.28 Front disk brakes.

1 - spring; 2 - pads; 3 - clip; 4 - support; 5 - protective cap; 6 - snap ring; 7 - sealing ring; 8 - protective cover; 9 - piston; 10 - bushing; 11 - bolt; 12 - screw; 13 - plug; 14 - blow-off valve; 15 - cap; 16 - spring carrier bolts; 17 - cylinder block; 18 - spring retainer

Move clip 3 until pistons 9 rest in the inner surface of cylinder block 17. Blow-off valve 14 can be opened to ease the fluid displacement from cylinder block 17. Close valve 14 as soon as pistons 9 completely sink into the cylinder block. Before moving clip 3, remove the cap of the master cylinder reservoir and do not let the fluid overflow while moving the clip.

CAUTION! It is prohibited to use the tire iron in order to recess the pistons, as this will lead to the deformation of the guide sleeves 10, the failure of the clip 3 and the rupture of the cover 8.

Replace worn brake pads with new ones. Replace the pads completely on both sides of the front axle. To place the pads against the disc, press the brake pedal 2-3 times.

Install spring 1, spring carrier 18 and screw bolts 16.

CAUTION! Since the spring holder 18 has an asymmetrical shape, make sure that it is properly installed. A properly mounted holder provides clamp of both pads by spring 1.

During further operation, the necessary clearance between the pads and the brake disc is maintained automatically.

CAUTION! The fasteners of the disc brake, the pipe tee, the parts of the parking brake actuator, the regulator drive and the regulator itself are fixed against loosening with adhesive-sealant (without spring washers). In case of loosening these bolts and nuts add glue-sealant.

Rear wheel drum brakes (Fig.9.29). Remove brake drums periodically and clean the brake parts from dust and dirt. The frequency of this operation depends on vehicle operation conditions. Cleaning shall be done more often in the summer and when driving on dirty roads, and less frequently - in the winter.

After removing the drum, check that the wheel cylinder components are securely attached to the shields. Pay attention to the condition of the wheel cylinders, protective caps 7, as well as the condition of the brake drum.

Protective caps must be tightly installed in the piston and cylinder seats and must not be damaged.

If on the working surface of the drum there are deep risks, scuffs or uneven wear, then produce a drum rebore, based on the central hole of the drum.

The maximum permissible diameter of the working re-bored brake drum is 281 mm.

Rearranging brake drums from one hub to another is not recommended, as this leads to an increase in the run-out of the working surfaces of the drum.

The gap between the pads and the drum as the pads wear out is restored automatically.

Check the wear of the pads through the holes in the shields. To do this, remove the hole plugs, inspect the pads (the thickness of the pads should not be less than 2.5 mm), close the holes with blind plugs.

In case of large wear of the linings (rivets recessed less than 0.5 mm) they must be replaced.

In the case of glued linings, replace the pads when the linings are worn to a thickness of less than 1.5 mm.

When replacing worn pads or linings, the pistons, together with the stop rings, must be moved deep into the cylinder in order to fit the drum freely onto the pads. After assembly, it is necessary to press the brake pedal 2-3 times to set the pistons into work position.

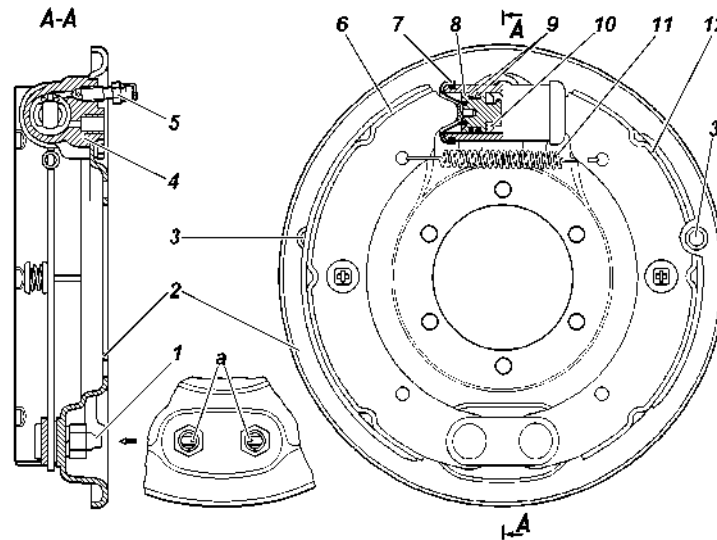


Fig. 9.29 Rear wheel brake:

a - marks on the support pins;

1 - support fingers; 2 - shield; 3 - holes for visual control of the brake lining condition; 4 - wheel brake cylinder; 5 - blow-off valve; 6, 12 - brake pads; 7 - protective cap; 8 - piston; 9 - sealing rings; 10 - retaining ring; 11 - release spring

Do not press the brake pedal with the brake drum removed or the front brake pads removed, as the pistons will be squeezed out of the wheel cylinders under the pressure of the fluid and the fluid will flow out.

To facilitate subsequent removal, with each removal of the drum, grind the shoulder on the edge of the friction surface resulting from drum wear.

With the hubs removed, tighten the brake shield mounting bolts.

Pressure regulator. Vehicles that are not equipped with anti-lock brakes have a mechanical pressure regulator acting on the rear brakes (fig. 9.30), which provides optimal distribution of braking forces on the axles of the vehicle and prevents the rear wheels from advanced locking. During service, check that the pressure regulator is operating properly. Clean any dirt from the regulator and check that it is securely fastened. Check externally that the regulator and its drive parts have no damages, there are no leakages of brake fluid, and there is no clearances in the connection between the rack and the springing arm and bracket on the rear axle.

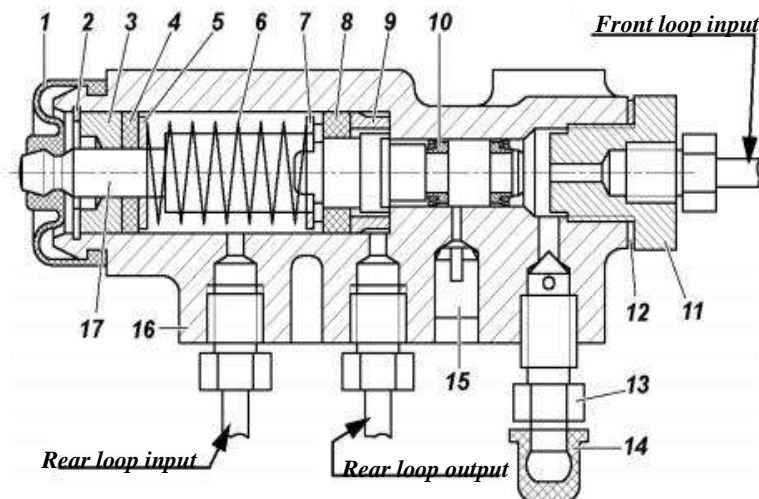


Fig. 9.30 Pressure regulator:

1 - protective cover; 2 - lock ring; 3 - sleeve; 4 - piston O-ring; 5, 7 - piston spring washer; 6 - piston spring; 8 - gasket; 9 - housing bushing; 10 - collar; 11 - plug; 12 - plug gasket; 13 - blow-off valve; 14 - cap; 15 - plug; 16 - housing; 17 - piston

When the brake pedal is depressed, the pressure regulator piston 17 (Fig. 9.30) should rise 1.7 - 2.3 mm out of the housing. Lack of piston stroke or insufficient or excessive piston stroke indicates a malfunction of the regulator or its actuator.

When inspecting the hydraulic actuator, check the condition of the protective cover 1 and the location of the gauge plug 15 and leakage of brake fluid from underneath. In its normal state, the plug should be recessed into the hole in the regulator body. If the plug protrudes from the hole and the brake fluid leaks, it is necessary to replace the regulator.

The protective cover must be firmly seated in the piston and housing seats and must have no cracks.

During operation and when replacing the rear springs it is necessary to adjust the force of the elastic lever 5 (Fig. 9.31) on the regulator piston. Adjust the headlights as follows:

1. Park the equipped vehicle on a flat, horizontal surface.
2. Loosen the locknut of the adjusting bolt 4 (fig. 9.31) and loosen the bolt by 2-3 turns.
3. Screw the bolt 4 (Fig. 9.31) until it touches the piston shank 17 (Fig. 9.30) of the regulator.
4. Tighten jam nut.
5. Check the stroke of the regulator piston (see above).

6. Check that the adjustment is correct when the vehicle is in motion. To do this, while driving on a straight horizontal road section with dry asphalt surface, brake the car until the wheels are locked up. If the regulator is operating properly and the actuator is adjusted correctly, the front wheel shall lock a bit ahead of the rear wheels. If the rear wheels are locked up first, additionally unscrew bolt 3 on 1-2 faces of the bolt head and repeat the test when the vehicle is moving.

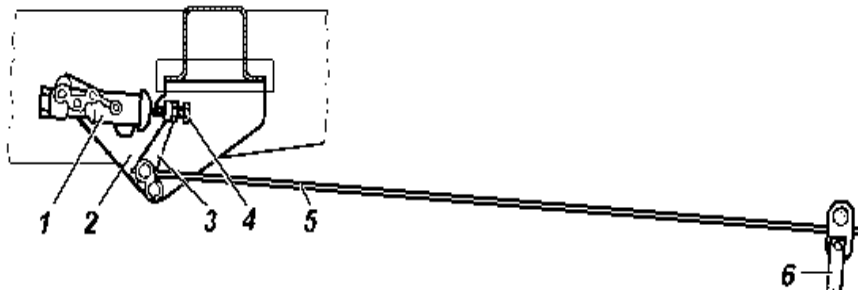


Fig. 9.31 Pressure regulator actuator:

1 - pressure regulator; 2 - bracket (base); 3 - drive lever; 4 - adjusting bolt; 5 - elastic lever; 6 - lever post

Pedal free stroke adjustment shall be carried out by changing the length of the vertical rod 9 (Fig. 9.32) of the driver. Brake pedal full travel, 200 mm Pedal free travel should be 5-14 mm.

Check the pedal's free travel with the engine not running.

Fill the brake system (e.g. when replacing a hose or line) as follows:

CAUTION! *Filling the brake system of vehicles equipped with ABS must be done at the service station, because this requires additional diagnostic equipment.*

1. Check the tightness of all hydraulic brake system connections and the condition of the flexible rubber hoses.
2. Clean off dust and dirt bypass valves and protective caps of wheel cylinders and regulator.
3. Remove the radiator frame, clean surface of the master cylinder tank from dust around the cover and unscrew the cover. Fill the reservoir with brake liquid up to the "MAX" mark.
4. Press the brake pedal several times to eliminate the effect of the vacuum present in the brake vacuum servo.
5. Pump the brake system.

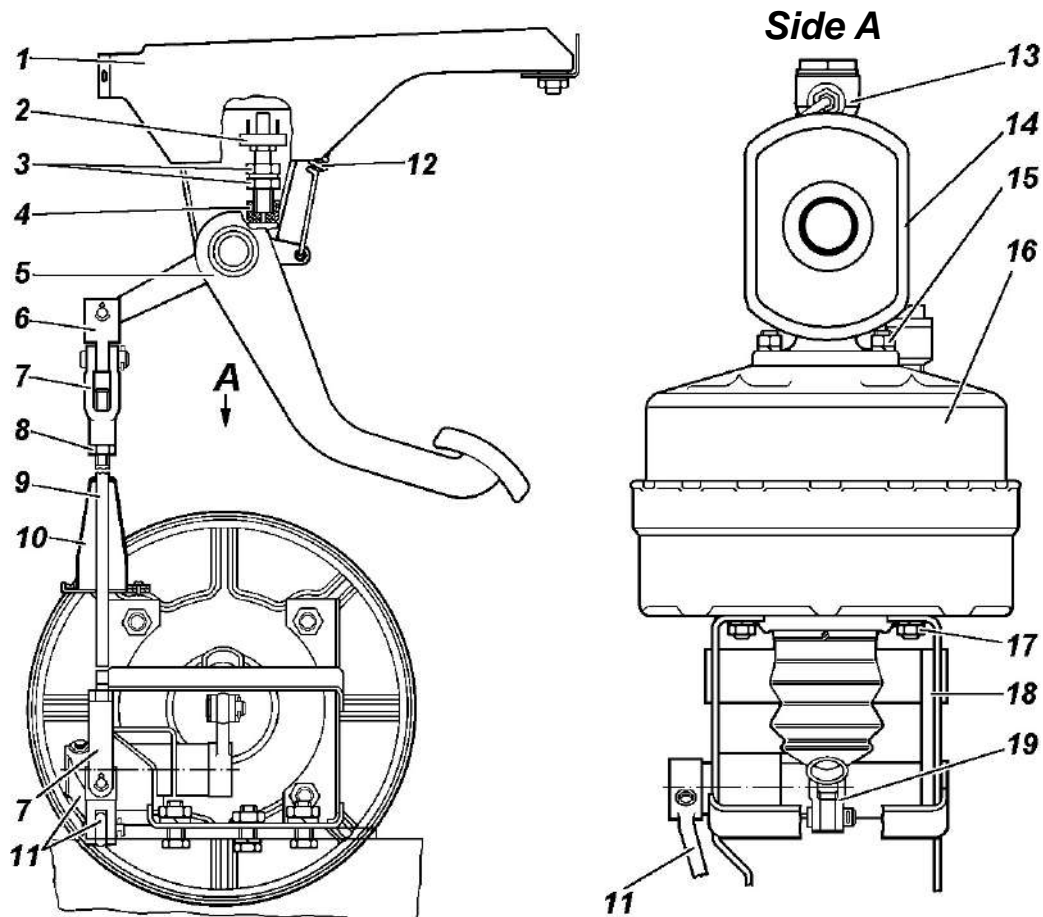


Fig. 9.32 Main brake cylinder drive:

1 and 18 - brackets; 2 - brake signal switch; 3 - nuts; 4 - overrunning stop;
 5 - brake pedal; 6 - intermediate yoke; 7 - yoke; 8 - lock nut; 9 - pull rod; 10 - cover; 11 - intermediate lever; 12 - retracting spring; 13 - brake master cylinder case; 14 - reservoir; 15 and 17 - nuts; 16 - brake vacuum booster; 19 - lifter yoke

Perform bleeding as follows:

CAUTION! While bleeding, timely fill up the liquid in the reservoir of the main cylinder, not allowing the level of liquid in the reservoir to decrease below “MIN” mark. Do not allow air to enter the system.

If air enters the brake system of a vehicle equipped with ABS, ESP, visit a service station. Never operate the vehicle until the fault is eliminated.

1. Pump the right and left rear brake cylinder, front pressure regulator circuit (for vehicles which are not equipped with ABS), right and left front brake cylinder, and right and left front brake cylinder in sequence.

2. Remove the cap from the wheel cylinder blow-off valve and put a special rubber hose about 400 mm long on the valve.

The other end of this hose dip in a transparent vessel with a capacity of at least 0.5 liters, half filled with brake fluid.

3. Press the brake pedal sharply 3-5 times and, while keeping the pedal pressed all the way, unscrew the blow-off valve 1/2-3/4 turns, releasing a portion of the liquid from the system into the valve. Tighten the blow-off valve. **Tighten the blow-off valve while the brake pedal is depressed.**

Repeat this operation until the termination of the release of air bubbles from a hose that has been lowered into a vessel with brake fluid.

4. After pumping is complete, wrap the valve and remove the hose. Wipe dry the valve head and put on the protective cap.

Add brake fluid to mark “MAX” into the reservoir of main cylinder.

Screw the reservoir cap. Tighten the cap by applying a force preventing it of breakage.

Keep the end of the hose immersed in liquid during the pumping process.

Check the operation of the brake system while the vehicle is moving. With proper adjustment of the brakes, its drive and the correct bleeding of the brakes, full braking should provided within 1/2-2/3 of the pedal stroke.

It is not recommended to add brake liquid collected to the vessel during bleeding into the reservoir of the main cylinder.

If at least one drum is removed, do not depress the brake pedal, as the pressurized fluid will squeeze the pistons out of the wheel cylinders and leak out.

For trouble-free brake operations (especially with ABS), change the brake fluid every two years. Replace

according to the rules for filling the brake system with fluid until fresh fluid starts to come from the hose.

Maintenance of the parking brake system includes periodic checks of the brake (Fig. 9.33) and its drive, the adjustment of the lever, the reliability of fasteners, cleaning dirt, lubrication of parts of unclamping and adjusting mechanisms, as well as corrective action to remedy failures that arise.

Clean the brake pads of dust and dirt, and in case of "tarring" the surfaces of the linings, clean them with sandpaper. Replace oiled linings or lower them for 20- 30 minutes in gasoline and carefully clean them with sandpaper or a metal brush.

If the pads have worn out so much that the depth of the rivets is less than 0.5 mm, replace the pads or brake-shoe linings. In the case of glued linings, replace the pads when the linings are worn to a thickness of less than 1.5 mm. On new pads, grind the linings so that their diameter is 0.2...0.4 mm smaller than the diameter of the brake drum.

Despite the labyrinth seal of the expanding and adjusting mechanisms, dirt gradually accumulates in them, it is necessary to periodically disassemble the mechanisms (especially expanding), remove dirt and apply fresh lubricant. In this case, the lubricant shall not fall on the drum and friction linings.

Adjust the brake **when the stroke of the brake lever becomes more than half of its maximum stroke and the braking efficiency becomes insufficient.**

Adjust the gaps between the pads and the drum (when the pads are worn out) as follows:

1. Set downshift lever of the transfer case in neutral position and disengage the front axle.
2. Set the parking brake lever 1 (Fig. 9.34) in the front most position.
3. lift the vehicle with a jack from the side of rear wheel.
4. Turn the adjusting screw 10 so that the brake drum is not turned by hand.
5. Unscrew the adjusting screw 10 to 4-6 clicks (1/3-1/2 turns), the drum should rotate freely.

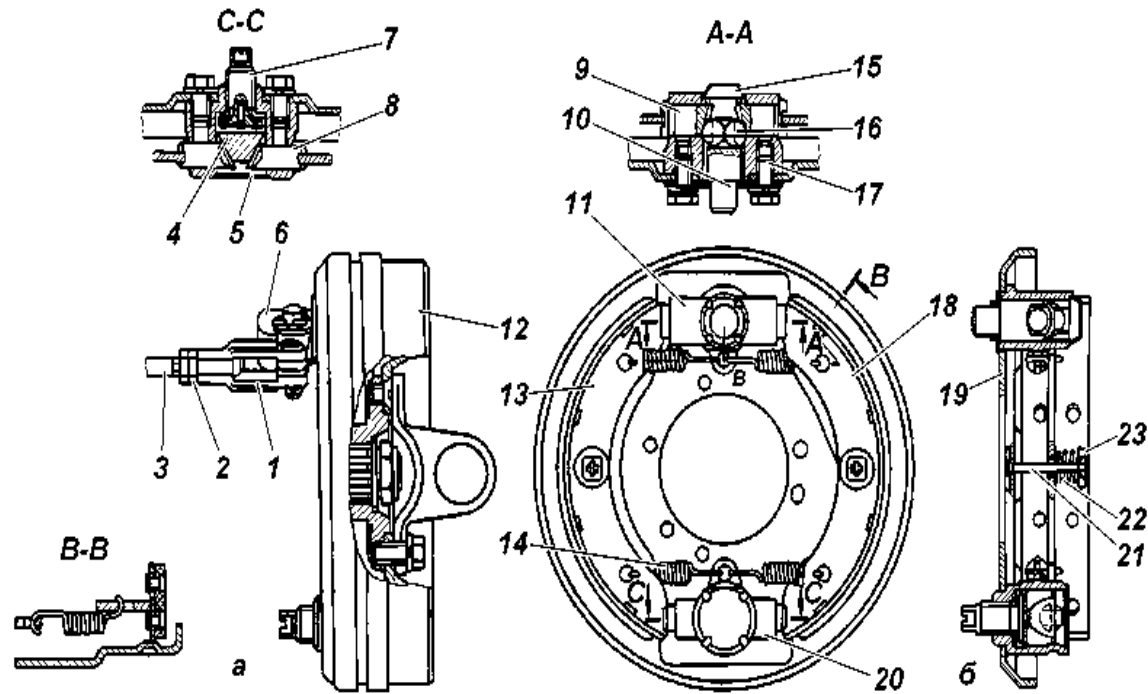


Fig. 9.33 Parking brake:

1 - adjusting yoke; 2 - lock nut; 3 - cable; 4 - extension cam; 5 - plug; 6 - drive lever; 7 - adjusting screw; 8 - pad support; 9 - pusher rod of release mechanism; 10 - balls casing; 11 - expansion mechanism casing; 12 - brake drum; 13, 18 - pads; 14 - brake release spring; 15 - bolt; 16 - ball of expansion mechanism; 17 - bolt; 19 - brake shield; 20 - casing of adjusting mechanism; 21 - rod; 22 - spring; 23 - spring cup
 a - view with brake drum; b - view without brake drum

Adjust the cable length (when replacing the cable) as follows:

1. Push brake lever 1 to its front most position.
2. Unscrew locknuts of adjusting yoke 7, unclip and remove the stud connecting the yoke and brake drive lever.
3. Adjust the cable length by turning the adjusting yoke until the holes in the yoke and the lever are aligned, with selecting slack in the cable. In doing so, the lever should touch the ball housing of the expansion mechanism.
4. Unscrew the adjusting yoke 1.5-2 turns, align the holes in the yoke and the lever, insert the pin, cotter pin and tighten the locknuts.

When the parking brake is properly adjusted, the vehicle should be braked when installing the lever pawl in the 2th - 3rd slot of the sector, counting from the rear part (2-3 clicks).

It is forbidden to **check the operation of the parking brake system when starting off or moving**. Check the operation of the parking brake only aslope.

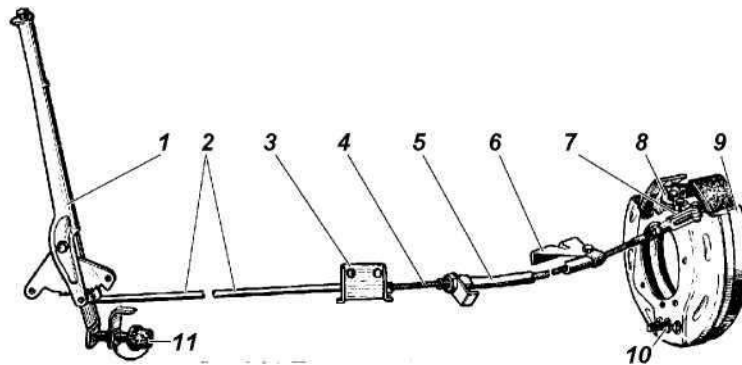


Fig. 9.34 Parking brake drive:

- 1 - drive lever; 2 - pull rod; 3 - bracket; 4 - cable 5 - protective pipe; 6 - bracket mounting of protective pipe; 7 - yoke cable; 8 - lever; 9 - drum parking brake; 10 - adjusting screw; 11 - switch signal lamp

ELECTRICAL EQUIPMENT

Relay and fuse box

The relay and fuse box is located on the front panel rail extension under the head instrument panel to the right of the passenger (Fig. 9.35, 9.36). Layout diagram of the relay and fuses located on the inside of the box cover. The differential lock relay is mounted to the left of the relay and fuse box on the head panel rack.

To access the relay and the fuses of the relay box, you must remove the cover of the box.

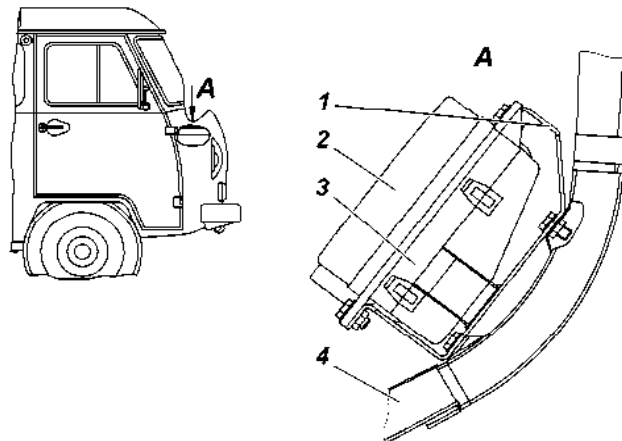


Fig. 9.35 Location of relay and fuse box:

- 1 - bracket; 2 - relay and fuse box cover; 3 - relay and fuse box; 4 - front panel rail

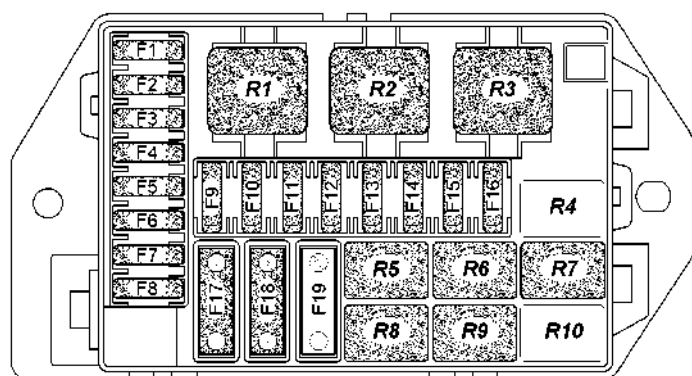


Fig. 9.36 Relay and fuse box:
R1-R10 - relay; F1-F19 - fuses (see Table 9.1)

Before replacing a blown fuse, find out the cause of its combustion and eliminate it.

When removing the relay and fuses are not allowed to use metal objects.

When operating the vehicle and checking the electric wiring diagram, do not use fuses that are not specified in the design (see Table 9.1), as well as couple to body wires (check the serviceability of the circuits by a spark test).

Table 9.1 Circuits protected by fuses

Designation	Current, A	Protected circuits
Relay and fuses box in the cabin (Fig. 9.36)		
Fuses		
F1	15	GLONASS class 30
F2	25	Buzzer, heating system
F3	20	Fuel pump, engine control system
F4*	25	ABS
F5	15	On-board power socket, interior lighting
F6	15	Alarming
F7	15	Stop light, rear fog light
F8	20	Starter
F9	10	Engine integrated microprocessor control system, class 15, GLONASS, class 15
F10	15	Instruments, general alarming
F11	20	Windshield wiper, reverse
F12*	10	ABS, self-locking differential of rear axle
F13	15	Heated seats
F14	10	Dipped beam
F15	10	High beam
F16	10	Marker lights, instrument illumination
F17	80/90	Mounting block
F18	40	ABS
F19	—	Not installed
Relay		
R1		Starter relay
R2		Flasher unit
R3		Intermittent wiper
R4		Not installed
R5		High beam triggering relay
R6		Low beam triggering relay
R7		Discharge relay
R8		Main relay of engine integrated microprocessor control system
R9		Fuel pump relay
R10		Not installed

* With the appropriate system in the vehicle

Generator

Warning. Even short-term operation of the engine when the accumulator battery is disconnected, can cause damage to the generator diodes.

When removing the starter for maintenance, disconnect the accumulator battery by disconnecting the wire from the minus terminal.

Keep the generator clean. Purge the generator with compressed air to remove dust and check the condition of the brush unit. Replace brushes if necessary.

Battery

The battery is installed in the cabin on the left side behind the wheel splash guard. On UAZ-220695, UAZ-396295 vehicles a battery with a vent pipe is used. Pipe 2 (Fig. 9.37) is installed outside the car interior into the under hood space. If during the proper operation of the vehicle, the battery is gradually discharged or overcharged by the generator, and the electrolyte starts “boiling”, check the generator operations.

Keep the accumulator battery clean and charged, protect the battery clips and the cable terminals from oxidation.

Periodically clean vents in the plugs, check electrolyte level and add distilled water if necessary.

Before operation, correct electrolyte density, corresponding to the climate area of the vehicle operation (see the Accumulator battery Operating Manual).

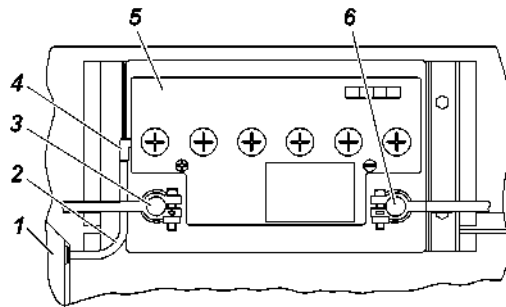


Fig. 9.37 Battery of UAZ-220695, UAZ-396295 vehicles:
1 - hood; 2 -ventilation pipe 3 -plus terminal; 4 -pipe connection; 5 -battery; 6 -minus terminal

At the factory, the vehicle is supplied with a battery with electrolyte density of 1.28 g/cm^3 .

Do not allow long battery discharge by a large current (when starting a cold engine in winter time).

Thoroughly prepare the engine for starting and turn on the starter only for a short period of time — no more than 10 seconds.

Operate the accumulator battery in correspondence with the accumulator battery operating manual. During long periods of parking, disconnect the battery by disconnecting the wire from the minus terminal.

Replace the battery on UAZ-220695, UAZ-396295 as follows:

1. Disconnect pipe 2 (Fig. 9.37) from battery 5;
2. Install a new battery;
3. Insert tube fitting 4 into the vent opening on the battery.

Starter

When removing the starter for maintenance, disconnect the accumulator battery by disconnecting the wire from the minus terminal.

Periodically do the following:

- check tightening of the bolts that mount the starter motor to the engine and clean them;
- check starter motor terminal ends for cleanliness and mounting security

When removing the starter for maintenance, disconnect the accumulator battery.

Once the starter motor has been removed:

- check the solenoid starter switch outputs and the working surface of electric contacts;
- check the starter drive — a gear, a lever and a spring;
- clean the rubbing parts from dirt and lubricate them with Litol-24 lubricant if necessary.

Starter motor drive shall move freely with no jamming at the shaft splines, and it shall return to the initial position by the return spring. The anchor shall not revolve when the drive gear goes in the working rotation direction. In case of reverse rotation the gear shall revolve with the shaft. Check the ease of rotor rotation in bearings with the lifted brushes by turning the shaft by hands.

Warnings:

1. The starter free-wheel clutch can fail if the starter remains on after the engine has started working.
2. Do not wash the starter covers and drive in gasoline or kerosene to avoid leaching of grease from bronze-graphite porous bearings.

CAUTION! *It is prohibited to move the vehicle with the starter. The starter shall work no more than 10 seconds*

uninterruptedly. The starter re-start can be performed no earlier than 1 minute, the permissible number of re-starts no more than three. If the engine cannot be started, find and eliminate the malfunction.

Lighting system, light and audio alarm system

Despite the good sealing, dust can penetrate into the optical element over time. Remove it without disassembling the optical element by abundantly washing with clean water, through the opening of the element with a subsequent drying.

To replace the lamp in the headlamp, it is necessary to unscrew screw 1 (Fig. 9.38) and remove ornamental ring 2. Loosen three screws 5 and remove the ornamental ring 4 with the optical element 3.

Adjust the headlights as follows:

1. Position the curb vehicle with 75 kg load on the driver's seat on a level horizontal platform so that the longitudinal axis of the vehicle is perpendicular to the screen located 10 m from the center of the headlights, and remove the headlight rims.

2. Turn on the lights and operate the turn signal lever and headlight switch to make sure that both headlights are switched from high to dipped beam (and vice versa) simultaneously.

3. Turn on the dipped beam and, after closing one of the headlights, adjust the other with screws 6 (see Fig. 9.38) so that the light spot on the wall or screen is positioned as shown in Fig. 9.39. Headlight adjustment screws are located symmetrically to the center of the headlights in the horizontal plane.

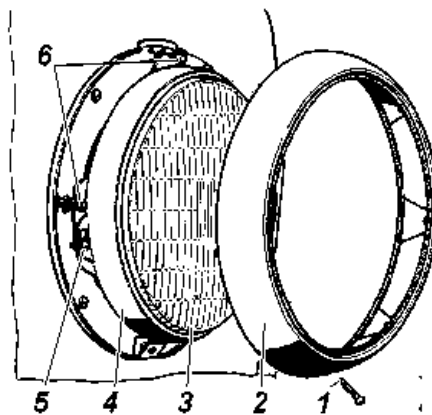


Fig. 9.38 Headlight:

1,5 - screws; 2 - decorative rim; 3 - optical element; 4 - inner rim; 6- adjustment screws

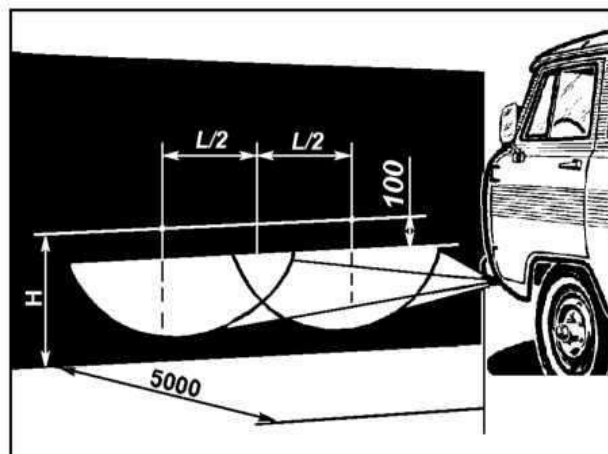


Fig. 9.39 Screen marking for headlights adjustment:

H - distance from the center of the headlights to ground level;

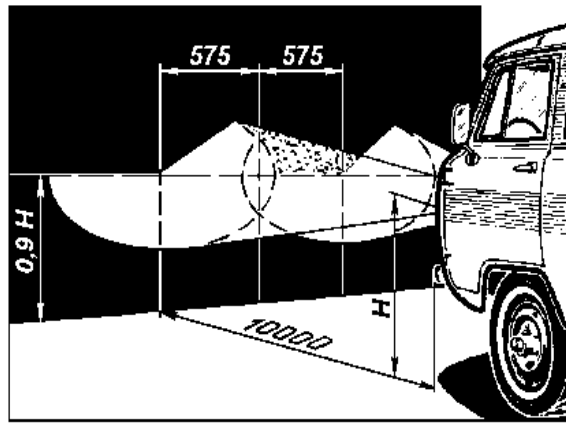


Fig. 9.40 Screen marking for front fog lights adjustment:

H - distance from the center of the headlights to ground level;

L - distance between the centers of the fog lights

4. Adjust the second headlight in the same way, make sure that the upper edges of the light spots are at the same height.

5. Secure the headlight rims.

+**Adjust the fog lights** so that the light spots on the wall or screen are positioned as shown in Fig. 9.40. To replace the lamp, turn the lamp socket assembly counterclockwise and remove it from the socket.

Front, rear lights, reverse light, side turn signal indicators, rear fog light. To replace the lamps, unscrew the screws holding the diffuser and remove it.

License plate lamps. To replace the lamps, unscrew the cover screw, remove the cover and the diffuser.

Maintenance of the horn includes periodical inspection of its mounting elements, tightening wire clamps, cleaning of dust and dirt, as well as checking the sound level and, if necessary, adjusting it.

Adjust the signal in a workshop.

Instruments, gages and alarms

Periodically check the fasteners of the devices, the reliability of their contact connections. Clean them of dirt and dust.

When removing electric sensors, isolate the wire ends to avoid short circuiting. Use a hex socket wrench or a box wrench to remove the coolant temperature sensor and the coolant emergency temperature sensor without damaging their housings.

Do not allow the fluid level in the radiator of the cooling system to drop, as this could cause the sensor to fail.

Once a year, check that the coolant temperature gauge reads correctly by immersing the gauge in hot water and measuring its temperature with a control thermometer.

Once a year, check that the oil pressure gauge shows correct readings, check the lamp sensor for emergency oil pressure in the engine lubrication system using a pressure gauge.

BODY

To maintain the good appearance of the vehicle, constantly carry out preventive care of the body paintwork. To avoid scratches on the painted surface, do not remove dust and dirt with a dry wiping material. To wash the vehicle body, use a stream of water with a small pressure and soft rags.

When washing the body with a "Karcher" type unit, water may penetrate into the interior, which is not a flaw.

Wipe dry the washed body surfaces to avoid stains appearing after drying-out in summer, and to avoid cracks appearing after water drops freezing. Do not use soda and alkaline solutions, as it leads to paint fading. When possible do not park the vehicle under direct sunlight to avoid deteriorating wheel rubber and weather strips.

To take care of the vehicle body coatings, use prophylactic polishing liquids: auto emulsion, polish (spray), AB-70 wax (for vehicles), etc. To restore shine of a faded coated surface of the vehicle body, apply purifying-polishing composition.

During vehicle operation, periodically treat the surfaces (especially closed hollows) with anti-corrosion products, such as 'Movil', 'Tectil', 'Nova' etc, to preserve the vehicle body from premature deterioration. Treat the enclosed body cavities through the holes in the floor panels and crossarms.

If necessary, recover the body floor pan, coated with plastisol sealing compound, by spreading the compound with a special spray or with a brush.

Periodically lubricate the body's mechanisms and body accessories.

LUBRICATION OF THE VEHICLE

Accurate compliance with all instructions of this manual and the service book for vehicle lubrication is mandatory. The name of lubricants is indicated in the table “Lubricants and special liquids” (see Appendix 4). The use of oils and lubricants that are not listed in the lubrication table, as well as violation of the timing of lubrication is not allowed.

A description of the methods of lubrication of components and the replacement of lubricant is given in the relevant sections of the manual.

Within a day after overcoming the ford, check the condition of the oil in all units. If water is found in the oil, replace the oil in this unit. All chassis grease nozzles shall be lubricated until fresh grease will be visible.

When carrying out lubrication operations, observe the following requirements:

1. Drain the oil from the engine and transmission units when it is replaced immediately after the vehicle stops, when the units are warm.
2. Thoroughly remove dirt from the lubrication fittings and plugs before greasing to avoid dirt getting into the vehicle mechanisms.
3. Thoroughly remove any grease that has protruded or leaked from all parts after lubricating the vehicle.
4. If the cases of the engine and the transmission units contain excessively dirty oil or the oil contains metal particles, wash the cases before filling fresh oil.
5. Mixing (adding) of engine oils of different brands and different manufacturers is not allowed. When changing the oil brand or manufacturer, flush the engine lubrication system.
6. Mixing “Litol-24” lubrication with “Lita” substituting lubrications is allowed in any proportions. When using other substitutes wash the unit with kerosene.
7. Mixing the brake fluids “Rosa”, “Rosa-3”, “RosDot”, “Tom”, “Rosa Dot-4” is allowed in any proportions.

Chapter 10. TOOLS AND APPLIANCES

Each new vehicle, delivered from the manufacturing plant, is equipped with a set of tools and appliances according to the list applicable to the vehicle.

A jack (Fig. 10.1 or 10.2) is applied for elevating vehicle wheels when servicing or repairing. The lifting capacity of the jacks as shown in Figs. 10.1, 10.2 is 2 tons. The initial lifting height in Fig. 10.1 - 170 mm, Fig. 10.2 - 200 mm. The maximum lifting height of the jack as shown in Fig. 10.1 - 400 mm, in Fig. 10.2 - 460 mm.

CAUTION! *If defective or installed improperly, the jack can cause serious injury or vehicle damage. It is strictly forbidden to carry out any work under vehicle if it stands only on the jack.*

The sequence of actions for elevation wheel when using the jack shown in Fig. 10.1:

1. Brake the vehicle with the parking brake, shift into the first or reverse gear of the gearbox, making sure that the transfer case gear lever is not in the neutral position. Place chock block under the front and rear wheels on the opposite side.
2. Install the jack on a level ground under the axle shaft case.
3. Unscrew internal jack screw 3 as high as the clearance between the axle shaft housing and the ground allows. The base of the jack is designed to work on hard surfaces and soils. Therefore, to prevent the fall of the jack on eroded, loose soil, snow, loose sand, place a piece of board, plywood or other solid material with a size of about 250x250 mm.
4. Throw latch 5 over the jack to the left-hand side, relative to the jack handle 6, so that latch projection enters the tooth space of the ratchet wheel 7.
5. Insert the handle of the standard wheel wrench into the pipe of the ratchet gearing and ensure by swinging the resulting tommy bar clockwise in the horizontal plane with a force through throw-over stop that the vehicle wheel is lifted up to the required height.
6. To lower the wheels, move the jack “pawl” to the right and deepen the jack screws into housing 1 by jiggling counterclockwise motion of the holder. At the end of work, twist external screw 2 and internal screw 3 into the housing up to the stop.

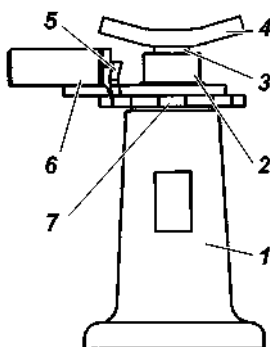


Fig. 10.1 jack
1 — housing; 2 — external screw; 3 — internal screw; 4 — head; 5 — pawl; 6 — handle; 7 — ratchet.

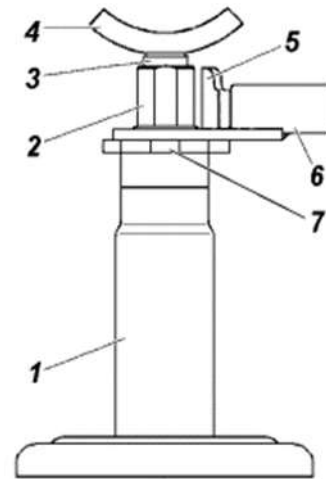


Fig. 10.2 jack

1 — housing; 2 — external screw; 3 — internal screw; 4 — head; 5 — pawl; 6 — handle; 7 — ratchet.

The sequence of actions for elevation wheel when using the jack shown in Fig. 10.2:

1. Brake the vehicle with the parking brake, shift into the first or reverse gear of the gearbox, making sure that the transfer case gear lever is not in the neutral position. Place chock block under the front and rear wheels on the opposite side.

2. Install the jack on a level ground under the axle shaft case.

3. Unscrew internal jack screw 3 as high as the clearance between the axle shaft housing and the ground allows. The base of the jack is designed to work on hard surfaces and soils. Therefore, to prevent the fall of the jack on eroded, loose soil, snow, loose sand, place a piece of board, plywood or other solid material with a size of about 250x250 mm.

4. Throw latch 5 over the jack to the left-hand side, relative to the jack handle 6, so that latch projection enters the tooth space of the ratchet wheel 7.

5. Insert the handle of the standard wheel wrench into the pipe of the ratchet gearing and ensure by swinging the resulting tommy bar clockwise in the horizontal plane with a force through throw-over stop that the vehicle wheel is lifted up to the required height.

6. To lower the wheels, move the jack “pawl” to the right and deepen the jack screws into housing 1 by jiggling motion of the wheel nut wrench. At the end of work, twist external screw 2 and internal screw 3 into the housing up to the stop.

Maintenance of jacks amounts to periodically cleaning it of mud and lubricating its threaded parts.

Monitor the condition of the screws and jack levers. No deformation or damage to screws and levers is allowed. In this case replace the jack.

Vehicular-mounted winch+

A vehicle winch powered by an on-board battery and a generator is designed to pull out your vehicle from mud and make it easier to move, and to pull out other vehicles or loads while yours will be “anchored” in a stationary position (Fig. 10.3).

The winch is controlled by a remote control console connected to the electric terminal from the winch control unit.

To use the winch, connect the positive power supply wire to the “+” terminal of the battery with the thumb screw. When you don't use hauling winch any more, disconnect the positive power lead.

All necessary information on the operation and maintenance of the winch are given in the manufacturer’s instructions (manual) attached to the vehicle.

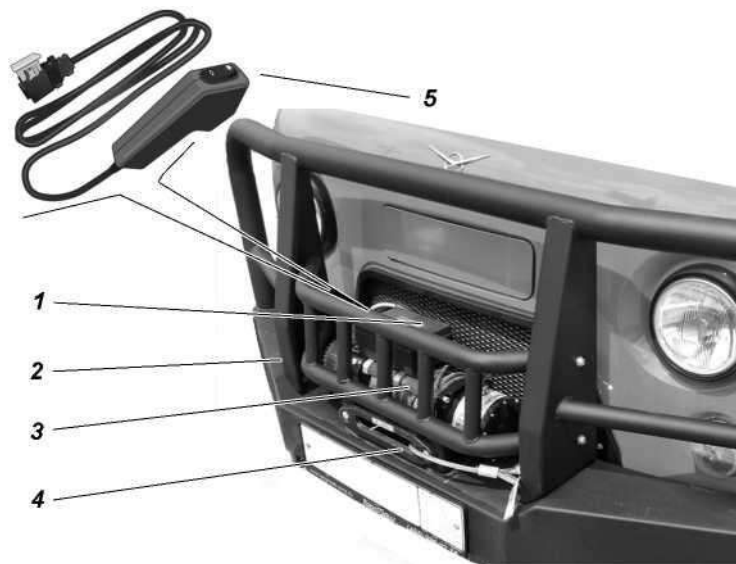


Fig. 10.3 Winch:

1 - winch control unit with electrical connector; 2 - front power bumper; 3 - winch; 4 - towing pad; 5 - remote control

Expedition rack on the roof with a ladder+

On the EXPEDITION" version of the vehicle, the rack 1 (Fig. 10.4) with ladder is installed. The maximum permissible weight of transported cargo, based on the condition of stability and controllability of the vehicle, must not exceed 70 kg, at a height of no more than 150 mm from the roof. Distribute the load evenly over the area of the trunk to ensure stability and ease of steering.

When operating a vehicle with a trunk, drive at a safe speed.



Fig.10.4 Expedition rack on the roof with a ladder
1 - expeditionary rack; 2 - ladder; 3 - pulling device; 4 - rear power metal bumper

Chapter 11. MOTHBALLING

If the vehicle will be not operated for a long time, perform its mothballing as follows:

1. Carry out scheduled maintenance.
2. Wash the vehicle and dry it. Remove corrosion and touch up where the paint is damaged.
3. Fill each cylinder with 30–50 g of hot dehydrated motor oil (used for engine) to prevent them from corroding.

Turn the engine crankshaft about 15 turns to distribute the oil over the entire cylinder surface.

4. Clean the electric wiring from dirt and dry it thoroughly.

5. Clean all the unpainted exterior metal motor vehicle surfaces and unpainted parts of joint couplings (door hinges, door locks, parking brake actuator rods, carburetor control rods, towing device and other units, spark plugs), and grease all of them with PVK plastic lubricant (or petroleum jelly).

6. Lubricate the springs with a graphite lubricant.

7. Inspect, clean the tool, accessories and ported parts kit and wrap with oiled paper or cloth.

8. Seal the windows from outside with light-tight paper (cloth) or shut with shields.
 9. Remove the wheels from the vehicle, clean the wheel rims of dirt and touch up the damaged areas. Clean the tires of dirt, wash and dry them and bring the pressure to normal level.
 10. If necessary, flush out the fuel tanks and fill them with fuel.
 11. Prepare the battery for storage according to the service and operation guidelines for automotive lead starter batteries.
 12. Cover the air filter inlet tube and the muffler tailpipe with oiled paper.
 13. Loosen the belt tension of fan, alternator and water pump drive.
 14. Drain the liquid from the cooling system, heater radiator, and windshield washer reservoir.
 15. Seal the gearbox housings, transfer case housings, front and rear axles by wrapping their safety valves in insulating tape.
 16. Seal the gap between the brake pads and the drums with oiled paper.
 17. Keep the tires and other rubber parts from direct sunlight.
 18. Put metal or wooden props under the axles so that the wheels are raised above the floor or the ground. Release the bow and springs by putting wooden spacers between the frame and the axles.
- The preserved vehicle should be located in a clean ventilated room with a relative humidity of 40–70% and temperature not less than +5 °C.
- Do not store the vehicle and poisonous chemicals (acids, alkalis, etc.) in the one room.

MAINTENANCE OF A MOTHBALLED VEHICLE

Carry out the motor vehicle maintenance every two months. Do the following:

1. Carefully inspect the vehicle from the outside.
2. Unscrew the spark plugs, disconnect them from ignition coils of power wire and turn the engine crankshaft for approximately 15 turns after shifting into the first gear of the gearbox and into the reduction gear of the transfer case. Once a year, fill the engine cylinders with 30–50 g of the engine oil (used for this engine) by turning the crankshaft.
3. Clean corroded areas and lubricate or paint them.
4. Turn the steering wheel to both sides 2–3 times.
5. Check the parking brake mechanisms and the pedal brake, the clutch, the throttle drive and lighting switches.
6. Check the working fluid level in the tank of the brake master cylinder. Fill up, if necessary.
7. Check the electrical equipment instruments.
8. Check the tools and accessories. Wipe and lubricate them if necessary.
9. Check condition of the tires and other rubber parts.
10. Eliminate any detected during inspection defects.

DEMOTHBALLING

1. Remove preservation grease from the parts by washing them with kerosene or unleaded gasoline. Thoroughly remove the grease from the parts that can contact rubber parts or painted surfaces. Thoroughly wash the spark plugs in unleaded gasoline.
2. Carry out daily vehicle maintenance.
3. Check oil level in the engine crankcase. Drain excessive oil.
4. Before starting the engine fill each cylinder with 30–50 g of the motor oil and turn the crankshaft for 10–15 turns.
5. Tension the water pump and alternator, fan and steering pump belts.

Chapter 12. TRANSPORTATION

Vehicles can be transported by railway, water or air transport.

When transporting vehicles by water or air transport, fasten them in accordance with the water transport shipment scheme or air transport shipment scheme. Use appliances that will not damage the parts and the paint of the motor vehicle.

The loading and unloading of the vehicles should be carried out by a crane with special grips.

During all transport, vehicles should be arranged with the following distances between them: 50–100 mm from the side of the engine cooling radiator, 100 mm, as minimum, from all the other sides. In the transport position must be: vehicle parking brake is on, the engine is off, the lever of the gearbox is shifted into the first gear, the accumulator battery is disconnected (the wire from the minus terminal of the battery is disconnected).

Before transporting by air, the fuel tanks should be filled with fuel to not more than 75% of their capacity.

Enter the vehicle in an airplane at first gear in the gearbox and with down gear in the transfer case or in reverse.

Chapter 13. DISPOSAL

The vehicle is scrapped in accordance with local regulations, rules and methods.

LAMPS USED IN THE VEHICLE

Lamps	Lamp type;	Wattage, W
Headlights: high and low beam	AGK12-60+55-1(H4)	60x55
Front combination lamps:		
marker lights	A12-5	5
side turn signal	A12-21-3	21
Rear combination lamps:		
turn signal	A12-21-3	21
marker lights	A12-5	5
brake signal	A12-21-3	21
Side repeat flashers	A12-5	5
Reversing light lamp	A12-21-3	21
License plate lamp:	A12-5	5
Cabin lighting lamp	A12-10	10
Front fog lights (if any)	AGK12-55-1(H1)	55
Rear fog lamp	A12-21-3	21
Instrument lights	LEDs	

TIGHTENING TORQUES FOR MAIN THREADED CONNECTIONS, KGF M

Cylinder head bolts (cylinder-head gasket of asbostal sheet)	
Preliminary tightening	6,9-8,2
holding at least 2 min	
additional turn by an angle of 70...75°	
Cylinder head bolts (metal cylinder head gasket)	
Preliminary tightening	5.1
holding at least 1 min	
additional turn by an angle of 90°	
Valve cover bolts	0,5-0,7
Chain cover screws	2,0-2,5
Securing bolts for cylinder head front cover	1,2-1,8
Fastening the fan drive coupling to the hub	5,0-6,0
Nuts fastening engine forward supports to the frame brackets on the frame	5,0-6,2
Bolts fastening engine forward support brackets to the cylinder block	2,8-3,6
Mount bolt for the front engine to the bracket on the cylinder block	9,0-11,0
Cotter pin nuts fastening the rear engine mounts to the brackets	3.2
Nuts fastening the brackets of the rear engine mounts to the frame	2,8-3,6
Crankshaft clamp bolt	17-20
Clamp screws of throttle preheater hose	0,1-0,3
Nuts fastening inlet tube	2,9-3,6
Nuts fastening exhaust manifold	2,0-2,5
Self-locking brackets of the receiver pipe	4,6-5,1
Crankcase fastening bolts	1,2-1,8
Spark plugs	2,1-3,1
Bolts and nuts for receiver mounting	2,0-2,5
Starter fastening bolts	4,4-5,6
Water pump pulley mounting bolts	1,4-1,8
Water pump mounting screws	2,0-2,5
Fastening bolt of the water pump to secure it to the chain cover	1,9-2,3
Engine fuel line mounting bolts	0,6-0,9
Throttle connection pipe fastening screws	1,2-1,8
Screws for fastening housing of regulator of temperature	2,0-2,5
Steel fuel pipe connections	2,0-2,5
Clamps of rubber hoses of the fuel system	2,5-3,5
Cooling system hose clamps	0,4-0,45
Heating system hose clamps	0,25-0,35
Cooling system radiator fastening bolts	3,2-3,6
Bolts of the clamp of the idle speed regulator	0,6-0,9
Nut for fastening detonation sensor	1,5-2,5
Bolts for fastening sensors (timing, pressure and temperature)	0,6-0,9
Engine coolant temperature sensor	1,2-1,8
Oxygen sensor	3.5
Throttle position sensor	0.3
Bolts for fastening ignition coils	0,6-0,9
The bleed fitting of the clutch release cylinder:	
metal fitting	1,5-2,2
plastic fitting	0,4-0,5
Nuts of bolts for fastening cardan shaft flanges	4,4-5,6
Bolts and nuts for mounting gearbox and transfer case	4,0-5,6
Nut fastening the flange to the drive axle pinion	17-21
Fastening bolt of the crankcase cover to the axle crankcase (non-detachable in the vertical plane)	3,6-4,4
Nut fastening the flange to the drive pinion of axles with a detachable part in the vertical plane of the crankcase	16-22
Axle crankcase nut with crankcase cover (detachable in the vertical plane)	6,5-8,0
Locking plate bolt (as one-piece in the vertical plane of the axle crankcase)	1,1-2,5
Fastening bolt of the crankcase cover to the axle crankcase (non-detachable in the vertical plane)	1,1-2,5
Differential bearing covers (non-detachable in the vertical plane of the crankcase)	14-16
Fastening nut of the swivel cam lever.	8-10

Bolts fastening the center pin	3,6-4,4
Fastening bolts of the sleeve of the swivel cam cuff.	0,25-0,35
Bolts to secure the main gear idle pinion to the differential gear housing	10-14
Differential carrier mounting bolts	3,6-5,0
Spring U-bolt nuts	9-10
Nuts of hinge pins	8,5-9,5
Spring axis nuts	16-18
Wheel nuts	10-12
Fastening bolts of driving flanges of front axle hub and rear axle shafts	6,0-7,0
Fastening nut of the bipod group to the shaft	20-28
Nuts for ball studs of steering linkages	5,0-7,0
Nut for fastening steering wheel	6,4-7,8
Bolts and nuts for fastening steering mechanism	5,6-6,2
Nut M8 for fastening steering cardan shaft	2,8-3,6
Bolt M10 fixing the cardan shaft of steering column (apply anaerobic sealant or adhesive sealant to the bolt threads)	4,8-5,6
Bolt - fittings of power steering	5,0-6,2
Nuts of pipe lines, cap, bypass valves, brake units	1,4-1,9
Mounting bolts for front disc brake caliper	14-16
Fastening bolts of brake system pressure regulator and nut of pinch bolt for pressure regulator drive terminal.	1,4-1,8
Bolt and locknut securing the elastic drive lever of brake pressure regulator in the drive lever, nut of actuator lever axle	2,8-3,6
Nuts of the bolts fastening the lever rack of the brake pressure regulator driver to the axle bracket and nuts of the bolt fastening the terminal to the rack	0,65-0,8
Mounting bolts of rear brake shields	4,4-5,6
Steering linkages lock-nuts	10,5-13,0
Bolts for fastening ball joints	3,6-5,0
Lock nuts of wheel hub bearings	2,0-2,5
Pin nut	8,0-10,0

Note - For the remaining threaded connections, the magnitude of the tightening torques:

M6 - (0.45-1.0) kgf • m;

M8 - (1.4-1.8) kgf • m;

M10 - (3.0-3.5) kgf • m;

M12 - (5.0-6.2) kgf • m.

LUBRICANTS AND SPECIAL LIQUIDS

Places of lubrication/filling	Name of lubricant or liquid
Fuel tank	<p style="text-align: center;">Fuel</p> Unleaded gasoline "Regular-92-K5" (AI-92-K5) GOST R 51105, AI-92-K5 GOST 32513 Allowed fuel: AI-95-K5, AI-98-K5 GOST 32513; "Premium Euro-95" type III, "Super Euro-98" type III GOST R 51866
Engine lubrication system	<p style="text-align: center;">Motor oils</p> Recommended: SAE 0W-30 - -30...+20 °C; SAE 0W-40 - -30...+25 °C; SAE 5W-30 - -25...+20 °C; SAE 5W-40 - -25...+35 °C; SAE 10W-30 - -20...+30 °C; SAE 10W-40 - -20...+35 °C; SAE 15W-30 - -15...+30 °C; SAE 15W-40 - -15...+45 °C; SAE 20W-40 - -10...+45 °C; SAE 20W-50 - -10...+45 °C and more; SAE 30 - -5...+40 °C SAE 40 - 0...+45 °C SAE 50 - 0...+45 °C and higher; according to operational properties: STO AAI-003-05 - B4,B4/D2,B5,B6; API - SG,SH,SJ,SL,SM,SN Acceptable are: UAZ Motor Oil Premium SAE 5W-40, SN/CF; UAZ Motor Oil SAE 10W-40, SL/CF
Crankcase of five-speed gearbox	<p style="text-align: center;">Transmission lubricants</p> Recommended: UAZ SAE 75W85 API GL-4 Allowed as per classification: SAE 75W-85 of API GL-4
Transfer case housing	Recommended: UAZ SAE 75W90 API GL-4 Allowed as per classification: SAE 75W-85 of API GL-4
Final drive housing, cases of front and rear axles	Recommended: UAZ SAE 75W90 API GL-5 Allowed as per classification: SAE 75W/90 of API GL-5
Tank of the oil system of the steering booster	Recommended: UAZ ATF Allowed as per classification: "R" TU 38.101.1282-89; Tatneft "r-Oil" TU 0253-011-94409843-2006; Mobil ATF 220; THK ATF IID; Lukoil ATF; G-BOX Expert ATF DXIII, G-BOX ATF DX II; Mobil Huile Synthetique ATF; ZIC SK

Places of lubrication/filling	Name of lubricant or liquid
	RN PSF
Splines of front and rear cardan shafts, joints of front and rear cardan shafts, shaft bearings in steering column, steering knuckle pins, steering knuckle, front and rear wheel hub bearings, front transmission drive shaft bearing, heater motor bearings, transmission control drive, parking brake release and adjustment mechanisms, parking brake cable, steering wheel slip rings, battery terminals	<p style="text-align: center;">Plastic lubricants</p> Litol-24; Litol-24RK Lithium grease — N3 of NLGJ classification
Steering knuckle joints	SHRUS-4; SHRUS-4M; Retinax HDX2
Locks, hinges and door stops	TZIATIM-201; Centuri 1180; "Lithol-24."
Springs	USS graphite grease; Lithium grease according to NLGJ 3
Rubber weather strips	Graphite powder; Barbatia Grease 2
Guide bushings of front disc brake mechanisms	UNIOL 2M-1
Hydraulic drives of clutch and brake system	<p style="text-align: center;">Fluids</p> It is recommended to use DOT 4 fluid Permitted; UAZ "DOT 4"
Engine cooling system	Ozh-40 Lena; Tosol (-45) "FELIX"
The reservoir of the windshield washer.	"Obzor", Auto window cleaner-2

INFORMATION
about the content of precious metals in the electrical equipment of the vehicle are not available

Product type	Product name	Precious metal	Weight, g
6232.3827	Fuel gauge sensor (for vehicles with two tanks)	silver palladium ruthenium	0,105751 0,0055689 0,00065518
6002.3829	Sensor of emergency oil pressure in the engine lubrication system	silver	0,0310
101.3839	Level sensor of emergency brake fluid	gold silver	0,01198 0,029064
495.374701	Flasher unit	silver palladium	0,0208 0,112
528.3747-04	Intermittent wiper	silver	0,143
379.3710-07.1H	Hazard warning light switch.	silver	0,107

UAZ CONNECT TELEMATICS SERVICES

Your vehicle is equipped with UAZ Connect. We recommend that you take the time to familiarize yourself with the capabilities of the system with this handbook.

Telematics services UAZ Connect - a service that allows you to receive data from your vehicle and display the necessary information in your smartphone or on the WEB-resource. With this service you will be able to use such functions as starting the engine, vehicle health check, search for a service center or the nearest gas station, find a car in the parking lot and much more.

If you are a natural person

- 1 Download App UAZ Connect

IOS https://apple.co/3evabZp	/qr-code/	Android https://bit.ly/3k1j2mB	/qr-code/
---	-----------	---	-----------
- 2 Sign up for the app
- 3 Connect your car by following the instructions in the app
- 4 Start using the service. Free period is 6 months, from the date of vehicle handover
- 5 After the end of free period - renew the service in your personal area.

If you are a legal entity or fleet owner

- 1 To sign up contact a representative of your technical support service
- 2 Get a free 6-month subscription and login information to access WEB-resource
- 3 Log in to the service <https://fms-uaz.c-cars.tech>
- 4 Start using the service. Free period is 6 months, from the date of vehicle handover
- 5 After the end of the free period - sign a contract for subscription services on a fee basis

Technical Support Service

Тел. +7 495 775 75 40 E-mail: support@c-cars.tech

TABLE OF CONTENTS

Chapter 1. GENERAL.....	3
VEHICLE MARKING.....	16
TECHNICAL DATA.....	18
CHAPTER 2. SAFETY REQUIREMENTS AND WARNINGS.....	23
SAFETY REQUIREMENTS.....	23
WARNINGS.....	24
Chapter 3. CONTROLS AND EQUIPMENT OF THE DRIVER'S AND PASSENGER'S SEATS.....	26
INSTRUMENT CLUSTER.....	27
INSTRUMENT CLUSTER.....	27
MULTIFUNCTION STEERING COLUMN SWITCHES AND IGNITION SWITCH.....	29
ANTI-LOCK BRAKE SYSTEM.....	30
REAR AXLE FINAL DRIVE DIFFERENTIAL LOCK SWITCH+.....	30
EMERGENCY SERVICES CALL DEVICE.....	30
INTERIOR EQUIPMENT AND VEHICLE BODY EQUIPMENT.....	33
Seats.....	33
Seat belts.....	34
Installation of child restraint devices.....	36
Ventilation of body (cabin).....	37
Body (cabin) heating.....	39
Sanitary equipment of UAZ-396295 vehicle.....	39
Wiper and washer.....	40
Chapter 4. PREPARING A VEHICLE FOR OPERATION AFTER RECEIVING IT FROM THE FACTORY.....	41
Chapter 5. RUNNING-IN A NEW VEHICLE.....	41
Chapter 6. START AND STOP THE ENGINE.....	41
GENERAL PROVISIONS.....	41
ENGINE START.....	41
Start a cold engine at a temperature of -20 °C and above*.....	41
Starting a cold engine at temperatures below -20 °C.....	42
Hot start.....	42
ENGINE STOP.....	42
Chapter 7. FEATURES OF DRIVING IN VARIOUS ROAD, METEOROLOGICAL AND CLIMATIC CONDITIONS.....	42
Chapter 8. TOWING A VEHICLE.....	43
Chapter 9. VEHICLE MAINTENANCE.....	44
DAILY MAINTENANCE.....	44
VEHICLE MAINTENANCE EVERY 500 KILOMETERS.....	44
SEASONAL MAINTENANCE.....	44
Before the summer season of operation.....	44
Before the winter season of operation.....	44
MOTOR.....	44
Engine suspension.....	44
Engine cylinder head.....	45
Engine valve train.....	45

Engine lubrication system	45
Engine Crankcase Ventilation System	46
Engine cooling system	47
Exhaust system	48
Fuel injection system with microprocessor-controlled fuel supply and ignition (fig. 9.6)	48
Fuel supply system(Fig. 9.6)	49
Fuel vapor trapping system.	51
Fuel supply and ignition control system	51
TRANSMISSION	52
Clutch	52
Gearbox and transfer case	53
Driveline	53
Driving axles	54
CHASSIS	56
Suspension	56
Wheels and tires	59
Wheel hubs.....	60
CONTROL SYSTEM	61
Steering system	61
Brake systems.....	63
ELECTRICAL EQUIPMENT	70
Relay and fuse box	70
Generator	71
Battery	72
Starter	72
Lighting system, light and audio alarm system	73
Instruments, gages and alarms.....	74
BODY.....	74
LUBRICATION OF THE VEHICLE	74
Chapter 10. TOOLS AND APPLIANCES	75
Chapter 11. MOTHBALLING.....	77
MAINTENANCE OF A MOTHBALLED VEHICLE	78
DEMOTHBALLING	78
Chapter 12. TRANSPORTATION.....	78
Chapter 13. DISPOSAL	78
Appendix 1	79
LAMPS USED IN THE VEHICLE	79
Appendix 2	80
TIGHTENING TORQUES FOR MAIN THREADED CONNECTIONS, KGF M	80
Appendix 3	82
LUBRICANTS AND SPECIAL LIQUIDS.....	82
Appendix 4	84
INFORMATION.....	84
about the content of precious metals in the electrical equipment of the vehicle are not available.....	84

Annex 585
UAZ CONNECT TELEMATICS SERVICES85

(Intentionally Left Blank)

Vehicles
UAZ-374195, UAZ-396295,
UAZ-390995/UAZ-220695,
UAZ-330365, UAZ-390945
and versions,

Operating Manual
PÐ 05808600.106-2007
Edition Fourteenth

Prepared for publishing by UAZ LLC Chief Designer Department

Editor-in-chief
Head Engineering Manager O.A. KRUPIN

Compiling editor D.A. SHEMYREV

Ulyanovsk Automobile Plant LLC
Russian Federation, 432970 Ulyanovsk,
Moskovskoye highway, 92
<http://www.uz.ru>



UAZ
BELGIUM

UAZ Belgium BV
Augustijndreef 17
2920 Kalmthout
Belgium

www.uz.be - www.uz.fr - www.uz.nl - www.uz.lu



UAZ
SPARE PARTS

UAZ Spare Parts
Heihoef 4
2275 Wechelderzande
Belgium
www.uzspareparts.com