

1. Introduction.

Bus building was made on cab leading – gear of motor truck Mercedes Benz Atego 970.24 type according to regulations required EKG ONZ and supplier guidelines “Truck body/ equipment mounting directives Atego (BM 97X)”

The bus using security

The supplier of the AUTOMET bus does not face the music for the vehicle’s damages or unhappy accidents according to not conforming the supplier recommendations in range of bus exploitation, supplier recommendations of the undercarriage and supplier of the elements of the vehicle equipment tighten in the instructions of the use delivered with the bus to the Customer.

Obligation for the user of the bus is to follow the accepted security principles in general not mentioned in the instruction of the use but enclosing the obligations of the driver and the technical-manufacturing personnel heaving the supervision on the bus exploitation.

Before approaching to the bus exploitation get to know with the instructions and recommendations according to the principles of the exploitations enclosed by the supplier of the undercarriage.

2. Equipment and use of the bus

Body – one-deck, closed, steel profile welded

External sheathing – polyester-glass laminate (back wall, frontal wall, external over-wheel, frontal buffer, back buffer, frontal flop of the engine, flop of the luggage boot), sheathing of the side walls; plate double galvanized,

driver place – separated with the safe hardened glass from the passenger’s space. The glass is placed at the back of the driver seat.

Exits:

driver’s door – does not exist. Exit through the first passenger’s door (staff)

passenger’s door – double, single, placed on the right wall of the frame

Closing of the door:

Door – electro-pneumatic, steered from the place of the driver.

On the frontal panel there are switches for opening and closing with signaling about opening and closing the door, over the frontal and back door there is a lamp that is lighting until the door is fully closed.

In case of emergency opening the door there are installed two electro-pneumatic valves; first is on the external wall of the bus beside the door, second is over the internal door.

Closing of the vehicle is possible after omission the bus thanks to the micro switches which are placed on the door lock. Steering one of the micro switches causes closing or opening of the door. After closing there have to be the interlocking knob twisted. In case of opening do it conversely.

Before moving on from the place assure that all the door are closed throughout signaling opening/closing and visual observing throughout internal and external mirrors.

Do not carry the standing passengers (the bus of III class does not acquire standing places)

Care about the cleanness of the entry steps and working efficiency of the heating mechanism especially in the winter time.

The windows of the bus security are made of hardened glass fulfilling the requirement of the EKG ONZ Bye-laws 43. In the vehicle there are emergency windows, two on the right side and two on the left side of the bus. On the emergency windows there are placed writings “Emergency exit” and “Break the glass with the hammer”.

Emergency hatch – there is in the roof the emergency hatch with the glass made of hardened glass fulfilling the requirement of the EKG ONZ Bye-laws 43. The hatch is equipped with emergency hammer which is

installed on the cover of the hatch's cover. It is signed with the writing "Emergency exit break the glass with the hammer".

Engine section – do not use the inflammable or absorbing the fuel or cum materials in the engine's cave of the bus. Engine section is acoustic isolated. Access to the engine section from the external side of the bus throughout the frontal fop opening thanks to the string placed on the left side of the driver place on the height of the steering-wheel's column. Access from the internal side of the bus throughout engine fop fastened thanks to the catches being on the engine fop and in the floor.

Carrier – in the bus there are luggage hatches 2 pieces on the left side of the bus and back carrier, the volume of the carriers is 2,5 m³.

Acceptable load – capacity of the carriers and equable location of the luggage must be adhered. Efficiency of closing of the carrier's fop after every loading and unloading of the luggage must be checked.

Servicing carrier – is located on the left side of the bus behind the back axis. There are spare wheel, tools, wedges, tow hook ending and obligatory equipment.

Fuel tank – there is installed in the bus one fuel tank on the right side of the bus. It is made of artificial material and its volume is 180l.

Access to the inlet of the fuel tank after picking up of the right fop in front of the back axis.

In the fuel tank there was installed the collocation for compressing every rising of the pressure or the pressure which exceeds usual working pressure. On the fop of the access to the inlet of the fuel tank there is placed the information about the obligation;

SWITCH DOWN THE ENGINE AND ADDITIONAL HEATING BEFORE REFUELING

2.6.1 Liquid tank AdBlue® - the bus is equipped with serial liquid tank of pollution by the waste gas of the BlueTeh4 of the volume 25l (for 1018L version) or 35l (for 1022 version). Access to the inlet after opening the right fop behind the frontal axis or after opening servicing fop behind the frontal axis (in case of no fop version).

Air system – all the works connected with the change of the filter should be done in ASO Mercedes-Benz. Replacement of the main air filter of the engine reinforcement after opening the servicing fop of the accumulators and after aside of the accumulator into service position.

The condition of the junction of the air supplying system (tightness of the junction of the lines condition and eventual mechanical damages) should be checked. The mechanical damage of the lines behind the air filter can be conveyed to air suction with thick pollution that can cause the damage of the engine in the future.

Fuel reinforcement system – none element of the fuel system is not placed in the driver cabin nor passengers space. The joins of the lines are made in the way that assure inflowing without account of exploitation.

Braking system – the bus is equipped with;

- frictional brake of the frontal and back axis
- engine sluice brake
- parking brake
- brake of long time functioning Retarder TELMA AD 61-30
- ABS (Telligent ABS / ASR system in the option)
- ASR

After the start-up of the engine the control lamp of the brake have to darken.

The level of the liquid in the tanks have to be between "MIN" and "MAX" signs.

The engine brake works only when the engine works with the revolution speed above 900 r.p.m.

For parking the vehicle use only the parking brake.

Retarder; steering thanks to combined switch placed under the steering wheel on the right side (4 work degree signed on the lever). Switching of the retarder thanks to switch placed on the driver's steering panel or after directly using the switch. During the standstill while the engine works on the high turnovers, we advise to switch down the retarder in case of accumulators' discharge. All the abnormality are signed by the computer should be removed in ASO Mercedes-Benz.

Exploiting liquids; regular checking of the exploiting liquid level under computer's requirements, refilling to the required level by the manufacturer.

Shape, quantity of the exploiting liquids and way of the transiting and refilling under "Exploiting instruction Mercedes-Benz Atego 970.24 type"

Access to the liquid tanks after opening security discharged (in the driver cabin on the left side of the steering column) and frontal flop picked up.

Tyre – pressure of the tyre should be admonished under manufacturer requirements that means **7 bar**. Too much low or high pressure lowers the safety of the driving and tire lasting. During transiting the wheel pay particular attention. Position the bus on the hardened ground witch straight and horizontal pavement. If it will be road of public use then sign the stoppage in pursuance of road traffic law.

Protect the bus in case of underlying wedges under the wheels. Put out the spare wheel being on the trolley in the servicing carrier on the left side of the bus. Set up the elevator under the seat for the elevator (place signed by the arrow on the body's pit bottom). The elevator is for bus elevating until the security by backbone of adequate load capacity. Doing any actions when the bus is elevated but not preserved with underlay it may cause an accident and it is forbidden. Setting up of the elevator and elevating in the other place than it is required is forbidden, it may cause an accident and destroy the construction of the bus.

Bus towing – the bus is equipped with frontal towing hook.

In case of use in emergency towing situation, the frontal number plate should be taken off , than screw in the ending of the hook until defiance and connect with the inflexible tow of the towing vehicle. The towing hook is in the servicing carrier.

Finish of the inside – the walls, thermal isolated ceiling, acoustic finished with material elements ABS, the floor build over on the metal skeleton finished by water-resistant plywood, covered by anti-sliding cover with high resistance for grind ability, the edges of the steps are finished with the aluminum square with insert of the cover witch contrast color.

Hand-rails and barriers – the bus is equipped with hand-rails and barriers system in the frontal and back entrances, behind the driver and additionally the driver's place is separated with hand-rail from the entrance side.

Seats – in the bus 30 pcs of the seats were installed in inflexible version, bowing or bowing with side displacement. All the seats own installed seat belts. Check cyclic the state of the belts' band. They must not contact with sharp edges.

**Any changes in installing the seats and seat belts are forbidden.
Configuration of seats quantity for another than predicted and defined in the drawing is forbidden.**

Fire-extinguisher and first-aid kit – in the bus there is one first-aid kit placed on the right side of the frontal entrance and two fire-extinguishers mounted behind the driver's right seat.

3. Installation and electrical fittings.

Safety rules of using:

- Proficient electrical fitting is the guaranty of the safety
- When the accumulator is used or during activities connected with accumulator's liquid admonish the safety rules
- Around the accumulators the opened fire or arise of the electrical spark should be avoided (the danger of explosion the accumulators gases)
- Putting off all the accumulator's grips should be done when all electrical devices are switched off
- Put off the grips – **first “-“ after that “+”** and never during the work
- Putting on of the grips – **first “+” after that “-“**
- Charging a battery only in the rooms with regular working ventilation
- Before every actions with electrical installation all the devices of current should be switched off, disconnect the grip “-“ or switch on accumulator's disconnecter.
- Changing of the safety device only into supplier's value recommended – **in case of pointed out mistakes by the computer in electric installation the remove in ASO Mercedes-Benz should be done**
- Starting-up the engine from the strange accumulator should be done after checking the installation tension of both vehicles if is the same
- for starting from the other vehicle use starting lines (section 70mm²) with isolated grips and maintenance the safety conditions
- **Any changes are forbidden in electric subassemblies being as equipment of the bus**
- **Doing any changes individually in original electric installation of the vehicle Mercedes-Benz Atego 970.24 type is forbidden**

Admission type: installation of constant voltage 24V

Accumulator; 2x12V – 165 Ah placed in the valve section under the driver's place on the left side of vehicle. Access after elevating the flop of the accumulators' carrier. The space of the accumulators separated from the passengers frontal space. Accumulators are placed on the moving rotary servicing base protected from the protrusion.

external lightening and signaling

emergency switch of the current – is placed in the driver's cabin on the switches' panel on the right side of steering column.

Instruction of use:

**PICK UP THE FLOP, PRESS THE BUTTON
USE ONLY AFTER HOLDING OFF THE VEHICLE**

Additional electric installation is made of copper lines. Every electric circumference is protected with separate safety-valve according to the description.

Internal lightening – ceiling glow-like lamps, lightening lamps of steps and hall LED, lightening lamps of general entrances.

Electric specification of bus equipment

Signing on the scheme	Specification	Type (drawing no)	Quantity	Manufacturer	Basic parameters
1	Heating aggregate	HYDRONIC 10	1	Eberspacher GERMANY	24V, 9,5kW
2	Module clock Heating steering		1	Eberspacher GERMANY	24V
3	Heater of the frontal step KALORI Alize E no 120.14.105	KALORI Alize E	1	KALORI FRACE	24V, 5000W no 120.14.105
4	Electro-valve of convector heater	KALORI	1	KALORI FRANCE	No 340.52.002
5	Wipers	DOGA	1		No 248.2071.30.04 24V
6	Indoor lightening lamps - stabilizer - plate - fluorescent lamp		9 9 9	ERA Elektronik TURKEY	24- no 11-PAB21D5 no 00-EFS2.LED.24VNL
7	Lightening- blowing-in panel	06MFR 0411 06MFL 0411	15	Farplas	24V
8	Internal clock	DBC 201	1	ERA Elektronik TURKEY	24V
9	lightening steps lamp	BAL 201	5	ERA Elektronik TURKEY	24V
10	Audio DVD JVC set		1		12V
11	Monitors 15 inches		2		12V

Bus heating – is realized due to;

- original heater placed in the frontal rail
- heating aggregate HYDRONIC 10, 12V-9,5kW reinforced with fuel from bus fuel tank that is joined into cooling cycle of the engine that fulfill the function of additional heating engine, reinforcing of the steps heater and convectors on the passengers space in the bus.
The aggregate is mounted in the side left servicing carrier behind the back axis.

Switching on of the heating is done due to starting-up the aggregate thanks to module clock. Before starting-up the heating mechanism the main valve on the reinforcing of the aggregate should be opened and in the frontal part of the bus after picking-up the frontal flop. After heating the liquid in the heating collocation, that means after about 10 – 20 minutes of mechanism working switch on the blow-in of the heaters and electro-valves of the recirculation pump in case of reinforcing the convectors.

Use and conservation of the aggregate according to the instruction supplied with the bus.

Using and programming according to the instruction supplied with the bus.

Pneumatic mechanisms of opening the doors.

Electro-pneumatic mechanisms of opening are steered from the driver's place.

On the frontal panel there are switches of the opening-closing witch signaling the opening and closing the door. Over the frontal and back door there is lightening lamp which lights until the door is closed.

In case of emergency opening the door there are installed two electro-pneumatic valves ; one on the external bus floor and the second over internal door.

3.10.1 The electro-pneumatic valve of emergency opening the door; the valves are placed next to the frontal and back door outside the bus and over the door inside the bus.

4. Final decisions

Exploiting actions;

Additional instruction of use contains basic information connected with the building of the vehicle's main elements and mainly the electric subassemblies. In case of main serving actions the instructions supplied to the customer with the vehicle and after rebuilding are obliged that means;

- Instruction of use the base vehicle
- Electric scheme of the additional installation of the bus after building
- Instruction of mounting and using the independent heating

- Guaranty cards of the mentioned above product
- Guaranty card of the vehicle's building in Automet
- Others

Each guaranty cards and instructions define the conditions of exploiting and product's guaranty.

Conservation

- a) Metal and material elements of the seats should be cleaned with generally accessible cleaning abstergent. Using any dissolvent for cleaning is forbidden.
- b) Painting cover made on the base of acrylic enamels or poliuretic-acrylic should be cleaned with car shampoos that contain protecting wax.
- c) Before autumn and winter seasons all the cover should be waxed in case of protecting the lacquer of aggressive acting of the weather conditions in the seasons mentioned above.
- d) After autumn and winter seasons the cover of the lacquer and anticorrosion protecting should be checked. In case of any defects should be done refilling after strict cleaning the vehicle.

Conservation materials schedule:

- Protecting mass of closed profiles Terosol Terotex HV350
 - Smother mass Terosol Terotex-Airless 146.62M IDH No 787708
 - Protecting-sealing up DIVHTFIX Würth SaBesto 0891 628 0
- e) for cleaning the elements made of textile should be used specimens for cleaning textile upholstery of the car.
 - f) Material elements of the finishing the inside should be cleaned witch shining specimens witch antistatic abstergents.
 - g) Covering of the floor should be cleaned with abstergents for conservation the covering PCV that do not contain the wiping abstergents or chlorine.
 - h) The mechanism of opening the door, leading string should be systematically cleaned of dirtiness and in moving places should be smeared.

Manufacture's responsibility for quality of producing the building

- a. The manufacturer of the building is responsible for building quality and takes over the guaranty on the conditions mentioned in the guaranty card of the building in range of construction changes done and adaptations of the base vehicle.