

TECHNICAL REQUIREMENTS (COMMON)

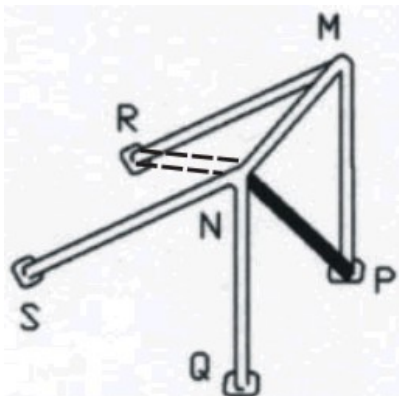
To vehicles, Participating in a trophy-raid “Ladoga”

Technical requirements for cars SAFETY EQUIPMENT (for all groups)

1. Safety cage

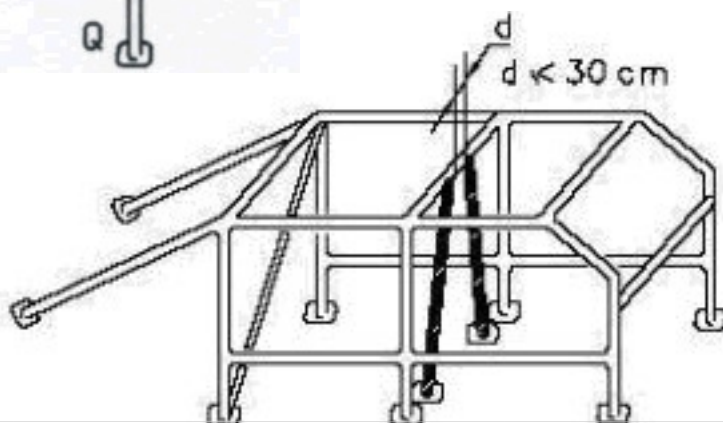
For group TR1 - recommended. Technical characteristics for safety cage:

Main frame.



Pic.1

Cage for 3 crew members



Pic.2

Material	Minimal range of hardness	Dimensions(mm)	Use
Cold-drawn weld-free tube made of carbonic steel, containing maximum 0,22% of carbon	45 kg/mm ²	45 x 2.5 or 50 x 2.0	Main, side frame and their joints, according to construction
		38 x 2.5 or 40 x 2.0	Other elements of safety cage

Requirements to cage tubes

1.1 There must be at least main safety frame. Main frame construction is on pic.1. Construction of main frame for 3 crew members is on pic.2

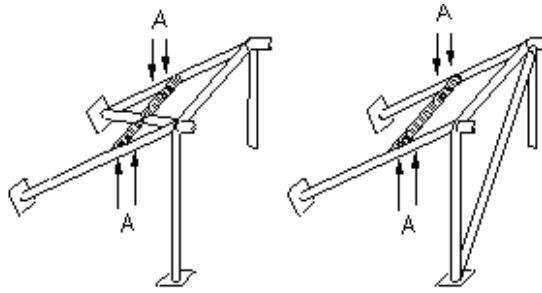
1.2 On parts, where driver's and co-driver's body or their helmets may touch safety cage, it is recommended to put protective covers, made of material, which does not support burning.

2. Safety belts.

2.1 Car must have at least three point car safety belts, factory produced, for all crew members.

Belts must be fixed on body or frame of the car. It is recommended to use original points of fixation.

2.2 For TR3 group and TR2, not equipped with safety belts, allowed to fix belts to an additional crossover element of safety cage. See pic.



3. Main electrical equipment switch:

For group TR1 – recommended. Since 2009 – obligatory.

Car must be equipped with main electrical equipments switch (battery, generator, lighting elements, alarm system, ignition, starter and other). It must work with out sparking and must be **in reachable area for any crew member**. Turning off all electrical equipment must be followed by engine stop apart from it's type (diesel or petrol).

4. Towing eyes

Car must be equipped with towing eyes: Car must have at least one towing-eye in front and one in back side of car, and towing-eyes must be demonstratively marked.

Towing eyes' diameter must be not less than 30mm.

This towing-eye must be very firmly fixed to cars body if there is no frame, otherwise to frame. It will be clearly visible and painted in yellow, red or orange. Allowed to adjust original "hook" towing eye.

5. Roof:

5.1 Cars having soft roof coverage, must have metallic roof (protection) over crew, and in mean time width of firm part must be not less than upper part of every screen width and length not less than from upper part of every screen to back edge of crew seat or to main safety circle. Minimal metal thickness: 1mm – steel, 2mm – aluminium.

5.2 Allowed to use plastic roof, factory made.

6. Extinguisher

6.1 Every car must be equipped with extinguishers, factory made, it must contain not less than 4 kg (2+2) extinguish structure (Freon-12, bromethylen, carbonic acid, extinguishing powder), concentrated in one or two bottles.

6.2 Usage of foam extinguisher is forbidden.

6.3 Extinguisher must be easily reachable for pilot and co-pilot. It must be safely fixed, and must ensure quick and easy removal without using any tool. On bottle must be shown: net weight, extinguisher weight, and bottle weight.

7. Helmets (recommended)

Helmets, used during all stages of official trophy-raids must have hard outside surface, energy absorbing (polyurethane, foam plastic, etc) inside embedment, and ventilation holes. It is recommended to use rafting helmets (standards EN 1078, EN 1077 – Europe, and ASTM 2040- USA); mountain biking helmets (standard Snell 90 - USA), mountain skiing or hockey helmets. Allowed to use automobile or motorbike helmets (standard E22 and higher). Forbidden to use builder's helmets, road-biking helmets, tank or other soft helmets.

8. First aid kit.

Car has to be fitted with special first aid kit. All kit components must be with legal period of use and with no visible damage of wrapping. First aid kit must be in easy reachable place, and have waterproof package.

9. Communications

To ensure safety, and temporary medical assistance, it is **recommended** to equip car with radio station MW-diapason (27 MHz). As intermedia can be used any radio station using other diapason, radio, cellular and satellite phones.

10. Additional equipment.

For installing of electronic result controller, each car must have a fixation point, which is integral with a car. It has to be located on front part of the car (front spar, etc.), performed like a loop or an eyelet with inside diameter minimum 5mm.

Serial off-road cars (Original) (TR1)

Any car, which was admitted dangerous by Technical commission, may not participate in a competition.

1. Definition

1.1 Serial off-road car with wheel formula 4x4, produced at least 1000 identical units, equipped with at least 2 car seats.

1.2 It is under participant's responsibility to prove serial and original nature of the car and its separate units and assemblage. It is allowed to compare car parts with serial parts during technical inspection.

2. Acceptable modifying.

2.1 Any changes, not talked out in these requirements, are certainly FORBIDDEN.

2.2 Any worn-out or damaged part may be replaced only with an identical part.

2.3 All cars must be registered in traffic police institutions and allowed to participate in road traffic (must have ticket or mark that car has passed roadworthiness test)

3. Enhancement.

Enhancement of any car part should follow: used material repeats shape of part, and is in a direct contact with a part, if enhancement is not talked out in concrete paragraph of these rules.

4. Car weight

4.1 Car weight must not be less than 800 kg and not more than 3500 kg.

4.2 Car weight must be checked "as car is" and the result compared with limits.

All tanks consisting fluids (oil, cooling, brake, heating and others) must be filled to normal level mentioned by producer. Exceptions: windscreen and light cleaner fluid tanks, brake cooling tanks, fuel tank, and water spray system tanks, those tanks must be empty during weight control.

Following elements must be removed from the car:

- Crew, their equipment and baggage
- Instruments, high-lift, sand-tracks and spare parts
- Survival equipment
- Food

4.3 Any type of ballast is forbidden

5. Engine.

5.1 Air filter:

It is allowed to make holes in body panels/ engine compartment panels (excluding engine tunnel), with a maximum diameter 150mm (not bigger than 177cm²), for supplying air to engine, and place a snorkel in this hole. Under no circumstances snorkel may end in a cockpit or go through it. Air filter body may be voluntary (limited by engine compartment).

5.2 Feed system

5.2.1. It is allowed to install additional fuel filters and fuel pumps, under condition that they are not placed in a cockpit.

5.2.2. Accelerator drive may be changed or doubled with another, no matter if it is original or not.

5.3 Ignition system

5.3.1 Changes of placement of ignition system elements are limited by engine compartment.

5.3.2 Using of mud-protecting cover for ignition coil, distributor and high-voltage cables is allowed.

5.3.3 It is allowed to change contact ignition system with non-contact system and non-contact system with contact.

5.4 Cooling circuit

5.4.1 It is allowed to install or remove screen and its drive in front of radiator, but it must not affect cars exterior.

5.4.2 Fan and its drive may be changed or removed. Amount and size of ventilators are not limited.

5.5 Exhaust:

In general, on an outer inspection, exhaust must correspond with a manufacturer's construction. But additionally are allowed:

- Additional fixations of exhaust system to body or frame.

- For a competition period exhaust may be extended up or to the side after last exhaust silencer. A defence system must be provided to avoid burn injury from hot elements of the exhaust system, which may be touched by people outside of the car.

6. Transmission.

6.1 It is allowed to install blocking system, on the condition that it is installed in an original case.

6.2 Portal axles are forbidden.

7. Suspension

7.1 Any dampers are allowed, on the condition of their type (telescopic, lever-type, etc.), action (hydraulic, friction) and fixation points retaining.

Note: gas-filled dampers must be distinguished as hydraulic on their action.

7.2 Springing element: coil springs: length, loops amount, rung diameter, external diameter, coil type (progressive or not), external diameter of coils – are voluntary.

Leaf springs: length, width, thickness and vertical crook – are voluntary

Torsion bar: Diameter is not limited

7.3 It is allowed to move suspension travel limits.

7.4 It is forbidden to use "castor kit" or other equipment for upgrading suspension parameters.

8. Wheels(wheel disks) and tires.

8.1 Discs must be factory produced.

8.2 Additional side tire fixing (beadlocks, airlocks, hump height change, etc) is forbidden except glue.

8.3 It is forbidden to change tire protector by cutting

8.4 It is allowed to use automobile pneumatic wheels not more than 820 mm, measured at 1,5 atm. It is prohibited to use wheels from special cars, agricultural machines, and special road technique units.

8.5 Tires width is not depending on cars weight and must not be more than 292 mm.

8.6 Diameter is measured when tyre pressure is 1,5 atm., in straight diametric line traversing centre point of tyre, and is not vertical anent ground (during measurement tyre squeeze should not be taken in account). Measuring must be performed on every tyre (including spare wheels and other), going to use in competition.

9. Electric system

Additional installation of relays and protective fuses to electric system is allowed. Also elongation or supplement of electric cables is allowed. Electric cables and their covering are voluntary.

9.1 Battery.

9.1.1 Type and capacity of batteries are not limited, but their amount and placement must correspond to manufacturer's standard.

9.1.2 Battery must be safely fixed, and its terminal screws must be covered by dielectric cover (plastic/rubber).

9.2 Generator.

9.2.1 Type and power output of generator is not limited, as well as its placement in an engine compartment . But drive system (belt, chain, etc) may not be changed.

9.2.2 Voltage controller is not limited. Its placement may be changed, but it may not be put in a cockpit, if it is not its original placement.

9.3 Lighting system:

Lighting elements are not limited, but must correspond country laws, the competition is taking place. Present lighting elements must be in working order in moment of technical commission.

10. Fueling system

10.1 Filling neck and cap must not be put out of car body. As fuel tank cap can be used every lock system which can eliminate accidental cap opening in case of hit or incomplete lock.

11. Steering system

11.1 It is allowed to replace a steering wheel by another, factory manufactured.

11.2 It is allowed to install steering booster, which is installed on any serial modification of a present car and a damping unit.

12. Body and frame.

12.1 Exterior:

12.1.1 It is allowed to install roof top carriers and bars for fixing additional equipment.

12.1.2 It is allowed to install bars for external carrying of a spare wheel, on a condition that these bars do not have any other purpose.

12.1.3 Minimal necessary changes (radiators guard, front body panel, bumper etc) may be done for installing of winch.

12.1.4 If there are sectional side doors used on a car, it is allowed to dismount upper part of such door. In this case it is not necessary to carry dismounted parts in this car during a competition.

12.1.5 It is allowed to restore body parts which have been cut before, with welding, rivet or other method.

12.1.6 Changes of material and shape of radiators guard are allowed.

12.1.7 Mounted wheels (disks and tires) must be covered with must be covered with arches or arch extenders if looking from top. Arch extenders installation must be injury-safe.

12.2 Body protection:

12.2.1 Allowed to use additional protecting elements under body to realize protection of the following car parts: engine, cooler, suspension, gearbox, transfer box, tank, transmission, exhaust.

Roll-bar is allowed. It must not carry any other function then protecting and carrying additional headlights and winch

Allowed to install wires to protect car from tree-branches. They must not carry any other function then protection.

Allowed to install doorsteps/sills for body protection.

12.3 Bumper

12.3.1 Voluntary

12.3.2 Original. In case if original bumper has been changed, a producer's certificate must be provided (since 2009)

12.4 High-lift

It is allowed to enhance place of high-jacks fixing points and/or change their position. Unused bars may be removed.

12.5 Seats

12.5.1 Any serial produced seats may be installed.

12.5.2 Third row seats and bars may be dismounted.

12.6 Interior

12.6.1 Carpets and insulation material may be removed.

12.6.2 Allowed to change or remove door armrests and holders upon doors.

12.6.3 Allowed to remove decorative panels from sills.

12.6.4 Allowed to change material of the inside cockpit coating.

12.6.5 Rear removable shelf and its fixing bars in two-box cars may be removed.

12.6.6 Any measuring equipment may be installed, but its installation must be safe.

12.6.7 All controls must correspond to a stock car in their location an working principal. It is allowed to modify controls in order to make them more convenient (levers elongation, additional pedal pads, etc).

12.6.8 Additional comfort equipment (heating, airing, lighting, radio, etc) is allowed.

12.6.9 Additional partitions for door pockets and glove box are allowed.

12.6.10 Electrical window lifters may be replaced with manual, and backwards, with minimal necessary changes of door panel.

12.6.11 Windows behind driver's and co-driver's doors may be replaced with panels, made of:

- steel, not thinner than 0,8 mm
- aluminium, not thinner than 1,5 mm
- unbreakable plastic, not thinner than 3mm

Several windows, which cover one aperture may be replaced with one panel. Fixation type is not limited. As a result of these changes body construction and shape must retain (actual only in 2008)

13 Winch and additional equipment

13.1 Term "WINCH" in an actual technical requirement means equipment, consisting of the following elements (maximum 1 per each category):

- main lead (including electric drive)
- reducer
- roll
- body or frame
- brake system
- rope

13.2 It is allowed to install not more than one winch with electric, hydraulic or originally installed by manufacturer of the car mechanical drive.

13.3 It is allowed to have equipment used to reduce pressure of the car on the ground (sand tracks, etc.) –with total area not more than 3 m².

Specially prepared off-road cars (Modified) (TR2)

Any car, which was admitted dangerous by Technical commission, may not participate in a competition.

1. Definition

1.1 Serial off-road car with wheel formula 4x4, produced at least 1000 identical units, equipped with at least 2 car seats, specially prepared to participate in off-road competitions

1.2 It is under participant's responsibility to prove serial and original nature of the car and its separate units and assemblage. It is allowed to compare car parts with serial parts during technical inspection.

2. Acceptable modifying.

2.1 If there is a list of allowed rebuilding, changes and additions in any point of Technical requirements, any technical changes, not mentioned in this list are definitely FORBIDDEN.

2.2 Range of allowed changes and adjustments are stipulated below. Besides, any worn-out or damaged part may be replaced only with an identical part.

2.3 All vehicles must be registered in a state traffic inspectorate and have an official permission for being used on public roads and highways (have a registration number, valid card of technical inspection or mark about passed technical inspection).

3. Enhancement.

3.1 Enhancement of any car part should follow: used material repeats shape of part, and is in a direct contact with a part, if other is not talked out in concrete paragraph of these rules.

4. Car weight

4.1 Car weight must not be less than 800 kg and not more than 3500 kg.

4.2 Car weight must be checked "as car is" and the result compared with limits.

All tanks consisting fluids (oil, cooling, brake, heating and others) must be filled to normal level mentioned by producer. Exceptions: windscreen and light cleaner fluid tanks, brake cooling tanks, fuel tank, and water spray system tanks, those tanks must be empty during weight control.

Following elements must be removed from the car:

- Crew, their equipment and baggage
- Instruments, high-lift, sand-tracks and spare parts
- Survival equipment
- Food

4.3 Ballast.

4.3.1 It is allowed to enlarge car weight up to acceptable minimum with a ballast. It must be executed like solid blocks, each not heavier than 25 kg, fixed on a floor or on a frame of the car.

4.3.2 Fixation of each block must be done with at least 2 screws M8. Each fixation point must be enhanced with a steal plate not thinner than 2mm and not smaller than 16 cm², welded or riveted to a side, opposite to a side where ballast is set. There must be a possibility to seal ballast.

5. Engine.

5.1 Allowed to use any petrol and diesel engine, inter alias equipped with air blow up systems. Interchange of engine must not conflict with country laws, where competition is taking place.

5.2 Air filter:

Air filter construction, its body, nozzles, connecting air filter with atmosphere and engine, as well as their placement in engine compartment – are voluntary.

It is forbidden to take air from (or lay any airline through) cockpit

5.3 Cooling circuit, ventilation system and cockpit heating system

5.3.1 If placed as original (f.ex. in engine compartment), radiator and its fixing points (bars, their placement, number, shape and size) are voluntary, as well as pipes, connecting it with engine. Allowed to install a screen in front of the radiator.

5.3.2 Thermostat is voluntary (maybe changed, replaced, added or removed).

5.3.3 Size, material and quantity of water pump spinners are voluntary. Allowed to install additional circulation pumps.

5.3.4 Radiator cap may be blocked.

5.3.5 Expansion tank may be changed, but not removed. If it is not stipulated, it may be added.

5.3.6 Cockpit heater(s) radiators may be changed, but must remain in a standard size, provided by manufacturer.

5.3.7 Ventilator and its drive may be changed or removed. Allowed to install additional ventilators.

5.3.8 Forbidden to take air from engine compartment for cockpit airing and heating.

5.4 Exhaust:

5.4.1 Allowed to use any exhaust system. But under no circumstances any elements of an exhaust system may go through cockpit.

5.4.2 A defence system must be provided to avoid burn injury from hot elements of the exhaust system, which may be touched by people outside of the car.

6 Transmission.

6.1 Gear box:

6.1.1 Transmission type must correspond to car and engine model.

6.1.2 Allowed to change fixing carriers of gear box.

6.2 Transfer box:

6.2.1 Any transfer box is allowed, except hand-made and multi-row transfer boxes (f.ex. "Atlas")

6.2.2 Allowed to change transfer box fixing carriers. Transfer box inside system is not limited, but exterior must remain.

6.2.3 Allowed to change fixing carriers of transfer box.

6.3 Axles.

6.3.1 Allowed to use any kind of axles, if axles are produced in series for given car brand.

6.3.2 Allowed to use differential gear with blocking system. There are no limits on number or type of differential gear with blocking system.

6.3.3. Allowed to change reducers' pinion and ring gears.

6.3.4 Central inflating system is allowed

7 Suspension

7.1 Allowed to change vertical suspension fixing points on body or axles in order to use wheels with greater diameter. If such changes made, it should be safely fixed (weld, on bolt or other). Allowed to put leaf springs upon axles. Allowed to extend suspension travel.

7.2 Springing element

7.2.1 coil springs:

length, loops amount, rung diameter, external diameter, coil type (progressive or not), external diameter of coils – are voluntary.

7.2.2 Leaf springs:

length, width, thickness and vertical crook – are voluntary

7.2.3 Torsion bar:

Diameter is not limited

7.3 Dampers.

7.3.1 Allowed to add dampers but it has to be not more than two dampers per one wheel. Allowed to change dampers with no limits.

Standard dampers fixation points may be relocated. If additional dampers installed or fixation points changed, it is allowed to change or make new holes in inside panels of the body.

8. STEERING SYSTEM.

8.1. Allowed to make changes of steering trapeze's elements for bodylift or suspension lift.

8.2. Anti-theft system may be removed.

8.3. It is allowed to replace a steering wheel by another, factory manufactured.

8.4. It is allowed to install steering booster, which is installed on any serial modification of a present car and a damping unit.

9. Wheels and tyres.

9.1 Allowed to use only car pneumatic tyres as following:

9.1.1 Until 2009 through – diameter not more than 920 mm, width not more than 365mm

9.1.2 Since 2010 – up till 900 mm, width not more than 317mm.

9.2 For cars with hub drives.

9.2.1 Until 2009 through – diameter not more than 870 mm, width not more than 365mm

9.2.2 Since 2010 – up till 850 mm, width not more than 317mm.

Diameter is measured when tyre pressure is 1,5 atm., in straight diametric line traversing centre point of tyre, and is not vertical anent ground (during measurement tyre squeeze should not be taken in account). Measuring must be performed on every tyre (including spare wheels and other), going to use in competition.

9.3 Tyre bolt fastening could be changed with threaded studs, screw-nuts if number of fastening points and component thread diameter stays as was.

9.4 Allowed to use any system for tires fixation on a wheel disk.

10 Brake system

10.1 Allowed to use brake system according to Country roadworthiness test demands.

10.2 Allowed to dismount brake effort regulator.

10.3 Allowed to change brake artery placement and protection.

11 Electric system

11.1 Allowed to change and add elements to standard electrical wires.

11.2 Electric cables are voluntary

11.3 If anything is changed in electric wiring, all connections must be isolated.

11.4 Battery.

11.4.1 Not more than 2 hooked up batteries are allowed.

11.4.2 Type and capacity of batteries are not limited.

11.4.3 Battery must be safely fixed, and its terminal screws must be covered by dielectric cover (plastic/rubber).

11.4.4 If batteries are placed in a cockpit, well airing of battery compartment must be provided.

11.5 Generator

11.5.1 Not more than 2 generators are allowed. Type and power output of generator is not limited, as well as its placement in an engine compartment . But drive system (belt, chain, etc) may not be changed.

11.6 Lighting system

11.6.1 Original headlights may be changed with other, factory produced.

11.6.2 Additional lighting equipment is not limited/

12 Fuel system

12.1 Fuel tank:

12.1.1 Allowed to interchange, change or replace original fuel tank. Fuel tanks must be separated from cockpit with flame-proof material.

12.1.2 If tanks and fillers are in a cockpit, there must be outlets for occasionally spilled fuel.

12.1.3 Forbidden to lead out fuel tank ventilation into cockpit.

12.1.4 Filling neck and cap must not be put out of car body. As fuel tank cap can be used every lock system which can eliminate accidental cap opening in case of hit or incomplete lock.

12.2 Fuel pipes:

12.2.1 Allowed to interchange, replace, move and reinforce fuel pipes, taking in account that in cockpit it must be in entire metallic piece.

12.2.2 Any fuel pipe joints in cockpit are forbidden except pairs metal-metal, metal – homologued fuel pipe.

13 Body and frame.

13.1 Allowed to install additional fixation points between frame and body

13.2 Body lift is allowed not more than 76 mm

13.3 Exterior:

13.3.1 It is allowed to install roof top carriers and bars for fixing additional equipment.

13.4 Wheels and wheel arches

13.4.1 Minimal change of wheel arches is allowed for mounting of bigger wheels

13.4.2 Mounted wheels (disks and tires) must be covered with arches or arch extenders if looking from top. Arch extenders installation must be injury-safe.

13.5 Additional front engine cover lock:

13.5.1 Front engine cover must have at least 2 additional lock mechanisms, preventing from self opening during car movement.

13.6 Body protection:

13.6.1 Allowed to use additional protecting elements under body to realize protection of the following car parts: engine, cooler, suspension, gearbox, transfer box, tank, transmission, exhaust.

13.7 Bumper and other protection equipment

13.7.1 No limits. But its installation must be safe (no sharp parts, edges, etc.)

13.8 Doors:

13.8.1 Allowed to change (cut) inside door panels, on the condition that outside shape of the door retains.

13.8.2 For UAZ 469, 3151 and their modifications, it is allowed to cut original doors down till bottom hinge

13.8.3 If there is a mechanical or electrical window lifter, whole mechanism must be insulated from people with a defence shield (aluminium or fireproof plastic)

13.8.4 Forbidden to change original front side door. In case if there are no original front door or it is not firm, firm door must be installed and it should open/close and has to be equipped with lock device which

excludes door self opening. In that case it is allowed to add firmly fixed parts in door aperture in stead of doors, then distance from seat level to upper part of fixed part must be not less than 30 cm. Each door must have an aperture, which can comprise a parallelogram, with horizontal size minimum 400mm. Window height must be at least 250mm. Parallelograms corners may be rounded with a radius maximum 50 mm.

13.8.5 If sectional doors are used, it is allowed to remove top part. It is not necessary to carry top part with, but car's weight must correspond with point 4.1

13.9 Windows.

13.9.1 Only multy-layer front window shield "triplex" is allowed.

13.9.2 Allowed to change, interchange or remove window lifters of front doors.

13.9.3 Front doors window may be removed or replaced with transparent non-cleavable plastic not thinner than 4 mm; In this case there **must be** possibility to open it.

13.9.4 Windows behind driver's and co-driver's doors may be replaced with panels, made of:

- steel, not thinner than 0,8 mm
- aluminium, not thinner than 1,5 mm
- unbreakable plastic, not thinner than 3mm

Several windows, which cover one aperture may be replaced with one panel. Fixation type is not limited. As a result of these changes body construction and shape must retain (actual only in 2008)

13.10 Doorsteps:

13.10.1 Allowed to cut off body doorsteps.

13.10.2 Allowed to strengthen doorsteps with no limits.

13.11 Interior

13.11.1 Carpets and insulation material may be removed.

13.11.2 Decorative ceiling panel may be removed.

13.11.3 Allowed to change or remove door armrests and holders upon doors.

13.11.4 Allowed to remove decorative panels from sills.

13.11.5 Allowed to change material of the inside cockpit coating.

13.11.6 Rear removable shelf and its fixing bars in two-box cars may be removed.

13.11.7 Any measuring equipment may be installed, but its installation must be safe.

13.11.8 Doors coating may be interchanged with other material, which does not support burning. Composite materials or aluminum are recommended.

It is allowed to modify controls in order to make them more convenient (levers elongation, additional pedal pads, etc).

13.11.9 Any equipment, which might be dangerous, must be insulated and firmly fixed.

13.12 Seats

13.12.1 Allowed to dismount all seats, except driver's and front passenger's seat.

13.12.2 Allowed to replace front seats with any automobile seats. They must be firmly fixed.

13.13 Spare wheel

Spare wheels can be moved into cockpit, if they are safely fixed. Forbidden to fix spare wheel to safety cage elements.

13.14 Jack

Hi-jacks, and jacking points are not limited.

14 Winch and additional equipment

14.1 Term "WINCH" in an actual technical requirement means equipment, consisting of the following elements (maximum 1 per each category):

- main lead (including electric drive)
- reducer
- roll
- body or frame
- brake system
- rope

14.2 Allowed to use winch of any type (electrical, mechanical, hydraulic), with condition, that winch is produced serially and by one of registered trade marks.

14.3 Necessary changes of body or front/rear cross-members are allowed for winch installation.

14.4 To avoid tree damaging during winch usage, car must be equipped with flat, corrosion-resistant sling (minimal wide 50 mm).

14.5 Wheel self-extractors are allowed

14.6 It is allowed to have equipment used to reduce pressure of the car on the ground (sand tracks, etc.) –with total area not more than 3 m².

Special off-road cars (TR3/ PROTO)

Any car, which was admitted dangerous by Technical commission, may not participate in a competition.

1 Definition

1.1 Off-road car with wheel formula 4x4, free construction, or original cars, corresponding to this group's requirements.

1.2 Equipped with a cockpit and at least 2 car seats.

2. Acceptable modifying.

If there is a list of forbidden rebuilding, changes and additions in any point of Technical requirements, any technical changes, not mentioned in this list are definitely ALLOWED.

3. Car weight

3.1 Car weight must not be less than 800 kg and not more than 3500 kg.

3.2 Car weight must be checked "as car is" and the result compared with limits.

All tanks consisting fluids (oil, cooling, brake, heating and others) must be filled to normal level mentioned by producer. Exceptions: windscreen and light cleaner fluid tanks, brake cooling tanks, fuel tank, and water spray system tanks, those tanks must be empty during weight control.

Following elements must be removed from the car:

- Crew, their equipment and baggage
- Instruments, high-lift, sand-tracks and spare parts
- Survival equipment
- Food

3.3 Ballast.

3.3.1 It is allowed to enlarge car weight up to acceptable minimum with a ballast. It must be executed like solid blocks, each not heavier than 25 kg, fixed on a floor or on a frame of the car.

3.3.2 Fixation of each block must be done with at least 2 screws M8. Each fixation point must be enhanced with a steal plate not thinner than 2mm and not smaller than 16 cm², welded or riveted to a side, opposite to a side where ballast is set. There must be a possibility to seal ballast.

4. Engine.

4.1 Allowed to use any petrol and diesel engine.

4.2 Air filter: it is forbidden to take air from cockpit

4.3 Cooling circuit: it is forbidden to remove radiator from engine room.

4.3.1 It is forbidden to equip car cooling circuit with extra radiator in cockpit.

If any radiator is installed in cockpit, it must be separated from cockpit with a hermetic fence.

4.3.2 Airlines, which supply air to engine, and any pipes, contenting liquids, must have an additional metal or plastic cover, if they go through cockpit.

4.4 Exhaust:

4.4.1 Allowed to use any exhaust system. But under no circumstances any elements of an exhaust system may go through cockpit.

4.4.2 A defence system must be provided to avoid burn injury from hot elements of the exhaust system, which may be touched by people outside of the car.

5. Transmission

No limits

6. SUSPENSION

No limits

7. STEERING SYSTEM

No limits

8. Wheels (wheel disks) and tires.

8.1 It is prohibited to use wheels from special cars, agricultural machines, and special road technique units.

8.2 It is allowed to use next tires:

- TR3 - automobile pneumatic tires, not more than 939 mm. Tires width must not be more than 365 mm.
- PROTO - any type of tires, not more than 1043 mm. Tires width must not be more than 425 mm.

8.3 Tyre bolt fastening could be changed with threaded studs, screw-nuts if number of fastening points and component thread diameter stays as was.

8.4 Forbidden to install any contra slip out equipment (e.g. chains, special framing, and other)

8.5 Allowed to use inflate/deflate systems

Diameter is measured when tyre pressure is 1,5 atm., in straight diametric line traversing centre point of tyre, and is not vertical anent ground (during measurement tyre squeeze should not be taken in account). Measuring must be performed on every tyre (including spare wheels and other), going to use in competition.

9. BRAKE SYSTEM

9.1 There must be at least dual braking system, affecting wheels of both axles with one pedal, and independent parking brake, affecting at least wheels of one axle.

9.2 Brake arteries placement is voluntary. Additional enhancement is recommended.

10. ELECTRICAL SYSTEM

All wires and wire joints must be insulated.

10.1 Battery:

10.1.1 Type, capacity and cables for battery connections are not limited.

10.1.2 Allowed to install not more than three batteries.

10.1.3 Batteries must be safely fixed. In case the battery is located in cockpit it must be in hermetic partition and as obligatory is ventilation system ensuring ventilation system which can conduct steam out of battery partition, and it must lead to outside of car.

10.2 Generator

10.2.1 Type and power output of generator is not limited, as well as its placement in an engine compartment . But its mechanical drive must be provided by main car's engine

10.3 Lighting system:

10.3. Additional lighting equipment is not limited, but amount of additional headlights must be even, and placement must be symmetric relatively to lengthwise axis of the car

11. FUEL SYSTEM

11.1 Fuel tank.

11.1.1 Allowed to use factory-produced or self-made fuel tanks. Tanks must be installed in a safe place (Above or in front of rear axle is recommended)

11.1.2 Fuel tanks must be separated from cockpit with flame-proof material.

11.1.3 Filling neck and cap must not be put out of car body. As fuel tank cap can be used every lock system which can eliminate accidental cap opening in case of hit or incomplete lock.

11.1.4 Forbidden to lead out fuel tank ventilation into cockpit.

If tanks and fillers are in a cockpit, there must be outlets for occasionally spilled fuel.

11.2 Fuel pipes:

Allowed to interchange, replace, move and reinforce fuel pipes, taking in account that in cockpit it must be in entire metallic piece. Any fuel pipe joints in cockpit are forbidden except pairs metal-metal, metal – homologued fuel pipe.

12 Body and frame.

12.1 Articulated frame construction is forbidden

12.2 Exterior

12.2.1 Outside panels of body must be made of hard non-transparent material.

12.2.2 Body must completely cover all mechanical components, seen from above

12.3 Wheels and wheel arches

12.3.1 Mounted wheels (disks and tires) must be covered with must be covered with arches or arch extenders if looking from top. Arch extenders installation must be injury-safe.

12.4 Additional front engine cover lock:

Front engine cover must have at least 2 additional lock mechanisms, preventing from self opening during car movement.

12.5 Bumper and other protection equipment

No limits

12.6 Passengers' convenience:

12.6.1 Cockpit must be fenced off with fireproof fence from engine compartment and fuel tank.

12.6.2 Forbidden to adjust rotating engine, transmission, suspension, steering trapezium parts into cockpit.

12.6.3 Any equipment, that might be dangerous, must be fenced off or insulated.

12.7 Doors:

12.7.1 Front door must be firm and it should open/close and has to be equipped with lock device which excludes door self opening. It is allowed to add firmly fixed parts in door aperture in stead of doors, then distance from seat level to upper part of fixed part must be not less than 30 cm

12.7.2 Each door must have an aperture, which can comprise a parallelogram, with horizontal size minimum 400mm. Window height must be at least 250mm. Parallelograms corners may be rounded with a radius maximum 50 mm.

12.7.3 If there is a mechanical or electrical window lifter, whole mechanism must be insulated from people with a defence shield (aluminium or fireproof plastic)

12.7.4 If sectional doors are used, it is allowed to remove top part. It is not necessary to carry top part with, but car's weight must correspond with point 3.1

12.8 Windows

12.8.1 Only multy-layer front window shield "triplex" is allowed.

12.8.2 Front doors window may be removed or replaced with transparent non-cleavable plastic not thinner than 4 mm; In this case there **must be** possibility to open it.

12.9 Seats.

Allowed to adjust any car seats. Seats must be firmly fixed.

12.10 Spare wheel

Spare wheels can be moved into cockpit, if they are safely fixed.

12.11 Jack

12.11.1 Hi-jacks, an jacking points are not limited.

12.11.2 Forbidden use of stationary adjusted, jacking systems of any type (mechanical, pneumatic, hydraulic and other).

13 Winch and additional equipment

13.1 Term "WINCH" in an actual technical requirement means equipment, consisting of the following elements (maximum 1 per each category):

- main lead (including electric drive)
- reducer
- roll
- body or frame
- brake system
- rope

13.2 Car may be equipped with no more than 3 winches, with a drive, whose strength parameters must exceed cars weight at least 1,4 times.

13.3 Allowed to use winch of any type (electrical, mechanical, hydraulic)

13.3 To avoid tree damaging during winch usage, car must be equipped with flat, corrosion-resistant sling (minimal wide 60 mm).

13.4 Wheel self-extractors are allowed

13.5 It is allowed to have equipment used to reduce pressure of the car on the ground (sand tracks, etc.) –with total area not more than 3 m².

Technical requirements for ATV

P R O J E C T

SAFETY EQUIPMENT

(for all classes)

1. Extinguisher

Every car must be equipped with extinguishers, factory made, it must contain not less than 1 kg extinguish structure (Freon-12, bromethylen, carbonic acid, extinguishing powder), concentrated in one or two bottles.

Usage of foam extinguisher is forbidden.

Extinguisher must be easily reachable for pilot and co-pilot. It must be safely fixed, and must ensure quick and easy removal without using any tool. On bottle must be shown: net weight, extinguisher weight, and bottle weight.

2. Helmets (recommended)

Helmets, used during all stages of official trophy-raids must have hard outside surface, energy absorbing (polyurethane, foam plastic, etc) inside embedment, and ventilation holes. Allowed to use automobile or motorbike helmets (standard E22 and higher).Forbidden to use builder's helmets, road-biking helmets, tank or other soft helmets.

3. First aid kit.

ATV has to be fitted with special first aid kit. All kit components must be with legal period of use and with no visible damage of wrapping. First aid kit must be in easy reachable place, and have waterproof package.

Serial ATV (Original class)

1. Definition

Serial off-road ATV with wheel formula 4x4, produced at least 1000 identical units.

It is under participant's responsibility to prove serial and original nature of the car and its separate units and assemblage. It is allowed to compare car parts with serial parts during technical inspection. No modifications are allowed except changes, talked out in actual requirements.

2. Acceptable modifying.

Any changes, not talked out in these requirements, are certainly FORBIDDEN.

2.1 Any worn-out or damaged part may be replaced only with an identical part.

2.2 All ATVs must be registered in traffic police institutions and allowed to participate in road traffic (must have ticket or mark that car has passed roadworthiness test)

3. Wheels(wheel disks) and tires.

3.1 Discs must be factory produced.

3.2 Additional side tire fixing (beadlocks, airlocks, hump height change, etc) is forbidden except glue.

3.3 It is forbidden to change tire protector by cutting

3.4 It is allowed to use ATV pneumatic wheels not more than 650 mm. It is prohibited to use wheels from special cars, agricultural machines, and special road technique units.

Tires width is not depending on cars weight and must not be more than 292 mm.

Diameter is measured when tyre pressure is minimum 4,5 psi, in straight diametric line traversing centre point of tyre, and is not vertical anent ground (during measurement tyre squeeze should not be taken in account). Measuring must be performed on every tyre (including spare wheels and other), going to use in competition.

4. BATTERY

4.1 Type and capacity of batteries are not limited, but their amount must correspond to manufacturer's standard.

5. Lighting system:

5.1 Lighting elements are not limited.

Present lighting elements must be in working order in moment of technical commission.

6. PROTECTION

6.1 Allowed to use additional removable protection under body to realize protection of engine, radiator and transmission

6.2. Roll-bar is allowed

It must not carry any other function then protecting and carrying additional headlights and winch

7. BUMPER:

7.1 Allowed to change, but not remove bumper. Construction and material are not limited.

8. WINCH:

8.1. Only one winch is allowed.

Modified ATV (Open-class)

1. Definition

Serial off-road ATV with wheel formula 4x4, produced at least 1000 identical units.

It is under participant's responsibility to prove serial and original nature of the car and its separate units and assemblage. It is allowed to compare car parts with serial parts during technical inspection.

2. Acceptable modifying.

Any changes, not talked out in these requirements, are certainly ALLOWED

Any worn-out or damaged part may be replaced only with an identical part.

All ATVs must be registered in traffic police institutions and allowed to participate in road traffic (must have ticket or mark that car has passed roadworthiness test)

3. Wheels(wheel disks) and tires.

3.1 Discs must be factory produced.

3.2 Additional side tire fixing (beadlocks, airlocks, hump height change, etc) is allowed.

3.3 It is forbidden to change tire protector by cutting

3.4 It is allowed to use ATV pneumatic wheels not more than 740 mm. It is prohibited to use wheels from special cars, agricultural machines, and special road technique units.

Tires width is not depending on cars weight and must not be more than 292 mm.

Diameter is measured when tyre pressure is minimum 4,5 psi, in straight diametric line traversing centre point of tyre, and is not vertical anent ground (during measurement tyre squeeze should not be taken in account). Measuring must be performed on every tyre (including spare wheels and other), going to use in competition.

4. BATTERY

4.1 Amount, type and capacity of batteries are not limited

5. Lighting system:

5.1 Lighting elements are not limited. Present lighting elements must be in working order in moment of technical commission.

6. PROTECTION:

6.1 Any construction of protection is allowed. Material is not limited

6.2. Roll-bar is allowed

7. BUMPER:

7.1 Construction and material are not limited.

8. WINCH:

8.1. It is allowed to install not more than 2 winches.