4x4 competition cars' technical conditions 2013-2018

1. GENERAL DEFINITIONS

1.1 Appearance of the competition car must be correct without any dangerous rust and accident traces.

1.2 Reinforcement of any detail/assembly of the competition car is allowed presumed that the used material follows the shape of reinforced detail/assembly and it does not contradict other clauses of these technical specification.

1.3. The technical commissaire of the competitions is obliged not to let to the start competition cars which may endanger the competitors or third persons.

2. SECURITY EQUIPMENT

1.2 Safety belts:

2.1.1 It is mandatory to have at least 3-point seat belt per each person in the competition car.

2.1.2 Seat belts must have E or FIA marking and they must not have any mechanical damages.

2.2 First aid package

2.2.1 Competition car must be supplied with a first aid package. Content of the package must conform to provisions of legislation of the Republic of Estonia. Package content must not have expired date of appropriate of use. First aid package must be in easily available place and be watertight.

2.3 Fire extinguishers

2.3.1 Competition cars must be equipped with at least 2 × 2 powder fire extinguishers. Fire extinguisher must have an indicator which index must be in a green area of the indicator. The inspection term must be valid as well. Fire extinguishers must be in a handy place.

2.3 Towing rope

2.4.1 The competition car must be equipped with at least 5 m long, 5000 kg rupture strength towing rope, belt or cable.

3. COMPETITION CLASSES

3.1. There are two competition classes

- ET1
- ET2

3.2. For all classes:

3.2.1 Competition car's tire size formula must be 4×4 which means

3.2.1.1. number of wheels in contact with ground is 4.

3.2.1.2. possible number of driving wheels is 4.

3.2.2 Competition car must have a windscreen and it must be intact. Windscreen must be made of laminated glass. Other solutions are permitted only on permission of a technical committee.

3.2.1 Competition car must be equipped with towing-eye – at least one on front part of the competition car and at least one at the rare part. Towing-eyes must be attached to the body, in

case of competition cars with frames – to the frame. Eyes must have sufficient strength reserve. Eyes must be closed; opening diameter is of at least 30 mm. Towing-eyes must be of bright colour (yellow, red, orange).

3.2.4 Car fuels for combustion engines marketed through retail network can be used. Charging methods for power supply of electric and hybrid drives Is not restricted. It is allowed to use fuel additives of combustion engines sold in retail.

3.2.5. Stop lights, reversing light and audio signal are mandatory lighting and light signalization equipment. Supplementary lighting devices are not restricted, their electrical connections must enable their simultaneous switching off and this must not influence other electrical connections. Lighting devices according to EU directives can be installed.

3.2.6. Changing of a windscreen is forbidden, it must be of laminated glass. Material of other glasses is free but in case of breaking or falling apart for other reasons there must not be any sharp fragments.

3.2.7. When the competition car is moving, entire additional equipment must be securely attached.

3.2.8. Leakage of fuel, lubricants or cooling liquid is not allowed.

3.3. **ET1**

3.3.1.General.

3.3.1.1. Serial production offroad vehicles with tire size formula 4x4 belong to this class.

3.3.1.2. Permitted reconstructions.

This technical specification must be treated following the nest rules: when prohibited actions are dealt with in some clause then everything not forbidden is allowed. When permitted actions are dealt with in some clause then everything not permitted is forbidden.

3.3.1.3. All competition cars must have technical card issued by EAL or valid technical scrutineering.

3.3.1.4. Changes made to the competition cars must conform to the situation certified at the moment of issuing the technical card and accompanying scrutineering.

3.3.2 Reinforcement and appearance

3.3.2.1. Reinforcement of any detail/assembly of the competition car is allowed presumed that the used material follows the shape of reinforced detail/assembly and it does not contradict other clauses of these technical specifications.

3.4.3.Seats

3.3.3.1. The competition car must have a cockpit with at least two seats.

3.3.3.2. Seats can be original or non-original serial production car seats guaranteeing sufficient safety.

3.3.3.3. Seats must be correctly and firmly fixed.

3.3.4 Competition car mass

3.3.4.1. Competition mass of the competition car must be within the range of 900 to 3500 kg.

3.3.4.2. Upon weighing of the competition cars, all vessels containing liquid (oil, cooling, brake, heating and other liquids) must be filled to the standard limit prescribed by the manufacturer. Fuel tank must be full. The following liquid vessels form an exception: window cleaning liquid and headlights cleaning vessel, brake coolant vessel. These vessels must be empty when the competition car is weighed.

3.5.5 Engine

3.3.5.1. Any kind of diesel or petrol engines can be used. Supply system is free, air supercharging is permitted, chemical supercharging is prohibited.

3.3.5.2. Cooling system and pipes Cooling radiators must be separated from the cockpit in a way which excludes bursting of coolant towards the drivers when breaking.

3.3.5.3. Air intake: air intake from cockpit is forbidden, other changes are allowed.

3.3.5.4. Exhaust system: Free. It is forbidden to control exhaust gases through the construction parts of the car (frame, security roll bars and chassis, cockpit and other). Spraying of exhaust gases or crank case gases in the extent of the whole system is forbidden.

3.3.6 Transmission

3.3.6.1. Free. Rotating parts of transmission cannot be used in a cockpit.

3.3.7.Suspension and axles

3.3.7.1. Suspension

3.3.7.1.1. All suspension types can be used.

3.3.7.1.2. Moving parts of suspension cannot be used in a cockpit.

3.3.7.2. Shock absorbers

3.3.7.2.1. Shock absorbers are free. It is allowed to install additional shock absorbers but the competition car must not have more than 2 (two) shock absorbers per one tire.

3.3.7.3. Axles

3.3.7.3.1. Use of hub drives and side transmissions is prohibited.

3.3.7.3.2. Axles of trucks, agricultural equipment and other special technology with full mass Eeceeding 3500 kg is prohibited.

3.3.7.3.3. It is allowed to install differential locks.

3.3.8 Wheels and tires

3.3.8.1. Air tires can be used.

3.3.8.2. Maximum permitted wheel diameter is 838 mm (33”).

3.3.8.3. Cutting of tire pattern is allowed.

3.3.8.4. Checking measuring of tire diameter is performed at the pressure of 1.0 bar in horizontal direction, along the line passing the central point of the wheel. All wheels, including extra wheel(s) can be measured.

3.3.8.5. Wheels must be covered with wing extensions or mudguard observed from all vertical directions with the following exceptions: Mudguard can be shorter than 350 mm from the first vertical direction of the front wheel and up to 250 mm from the rare vertical direction of the rare wheel.

3.3.8.6. Studded tires can be used during the times prescribed by law as anti-skidding means. It is prohibited to use chains and other anti-skidding means.

3.3.8.7. Number of spikes in the tire must not exceed 130, spikes can extend from the tire surface 3 mm, core of the spike must not be sharpened.

3.3.8.8. Use of spikes is permitted only during the period of use permitted by the Road Administration.

3.3.8.9. Central pumping and/or possibility to change tire pressure from the cockpit is forbidden.

3.3.8.10. Wheels are free.

3.3.8.11. Fixing method of wheel to the hub can be changed.

3.3.8.12. Any kind of supplementary fixing of the tire sides on hubs by the means of tire locks (Beadlock, Airlock, etc) is permitted.

3.3.8.13. Number and location of extra tires is free, they must be securely fixed.

3.3.9.Brake system

3.3.9.1. Free, but all driving wheels must have brakes.

3.3.9.2. Brake system must be of at least dual circuit, not taking the parking brake into account.

3.3.9.3. Structure of a parking brake can be changed.

3.3.9.4. Brakes must be functional.

3.3.10. Steering system

3.3.10.1. Free but the steering system must operate also with an idle engine.

3.3.10.2. Use of stronger steering column and reinforcement of steering columns is permitted.

3.3.10.3. Parts of steering system must not have visible damages or dangerous clearances.

3.3.11. Body and frame

3.3.11.1. Reinforcement of a body and frame is permitted.

3.3.11.2. Serial production frames or frames integrated into the bearing body can be used.

3.3.11.3. Articulated frame is forbidden.

3.3.11.4. It is permitted to add additional fasteners and brackets.

3.3.11.5. Cutting or a frame or otherwise changing is permitted, but safety requirements prescribed by this instruction must be preserved.

3.3.11.6. Engine room cover must be supplied with fixing elements which exclude spontaneous opening of the cover.

3.3.12. Roof

3.3.12.1. Soft or plastic roof competition cars must have a metal protective plate above the drivers. Width of the plate must be at least the width of the windscreen frame, length at least to the main roll bar behind the front seat. Thickness of steel protective plate must be at least 2 mm, thickness of an aluminum protective plate must be at least 3 mm. Use of plastic roof produced by the manufacturer is permitted.

3.3.12.2.Protection of assemblies protection of the competition car with supplementary protective elements is permitted.

3.3.12.3. Bumpers: Free.

3.3.13. Cockpit

3.3.13.1. Changing of all steering equipment (steer, pedals, levers) is permitted.

3.3.13.2. Rotating and moving parts of an engine, suspension or transmission must not be located in the cockpit.

3.3.13.3. Cooling or heating system parts in the cockpit must be covered so that it excludes bursting of coolant towards the drivers when breaking.

3.3.13.4. Structure of the doors must be strong, openable and closable from both sides and have locks which exclude spontaneous opening.

3.3.13.5. Height of upper edge of front doors from the seat must not be less than 300 mm.

3.3.13.6. When the doors are supplied with mechanical or electrical window lifts, the team must be separated from the mechanism with a protective panel (it is recommended to use aluminum or fire proof plastic).

3.3.14. Power system

3.3.14.1. All wires and contacts of the power system must be properly insulated.

3.3.14.2. Battery type, size and number is not limited. Batteries must be firmly fixed. In case the batteries are in the cockpit, they must be surrounded with a cover excluding

bursting of battery acid towards the drivers when breaking. Battery ventilation discharged from the cockpit must be separately ensured.

3.3.14.3. There are no limits to the number, capacity and location of generations.

3.3.14.4. Reversing light must switch on when reversing is activated.

3.3.14.5.Competition car must be supplied with functioning sound signal with the volume of at least 106db.

3.3.14.6. Competition car must have a switch which switches off the entire electrical system of the car. Switch must be sparkle free and available to the driver as well as co-driver from their seat with fastened seatbelts. Switching off of electrical system must involve stopping of an engine.

3.3.15. Supply system

3.3.15.1. Fuel tank

3.3.15.1.1. It is permitted to change the location and form and shape of fuel tanks. Fuel tanks must be separated from the cockpit with fire resistant partition wall. Fuel tank ventilation discharged from the cockpit must be separately ensured.

3.3.15.1.2. Filler neck of fuel tanks must not extend out of the perimeter of the competition car. Fuel tank cap must be of the kind not opening spontaneously.

3.3.15.2. Fuel pipes

3.3.15.2.1. Changing, relocating and supplementary protection of fuel pipes is allowed. In case the fuel piping are brought to the cockpit, it must be made of metal to its full extent. Other materials are prohibited. There must be no connection places of fuel pipes in the cockpit except solution homologated by FIA

3.3.16. Jacks

3.3.16.1. Any kind of mechanical, hydraulic or pneumatic lifting devices amounted permanently to the competition car are forbidden.

3.3.17. Winch and additional equipment

3.3.17.1. Competition car must be equipped with at least one winch (not manual winch) which pulling power exceeds 1.4 times the competition mass of a competition car at least. It is permitted to use any kind of winches provided that it is a serial production winch. Self-made winch equipment is not allowed.

3.3.17.2. Competition vehicle must be supplied with at least 90 mm wide tree protection belt. All and any kind of additional equipment (cables, blocks, hooks, shackles, etc) must have double strength reserve of maximum pulling power of the winch and also exceed twice the maximum authorised mass of the car.

3.3.18. Safety roll bars

3.3.18.1. It is mandatory to install the steel main roll bar behind the first seat row attached to the body from at least four points for hard roofed competition car with changed roof structure. Safety chassis Is required for the competition cars with more than two seats.

3.3.18.2. All competition cars with soft roof or without roof must have steel safety chassis installed which structure must conform to at least FIA Annex J articles 253-1 to 253-14.

3.3.18.3. Material of safety cage main roll bar and side roll bar must be drawn steel tube with minimum dimensions of 4.5 × 2.5 mm. In case of bigger tube diameter the minimum wall thickness is 2.0 mm. Bolted safety structure parts are also allowed except main and side roll bars. Safety chassis can be part of the body and body's covering elements can be attached there.

3.3.18.4. In places where the drivers can be in contact with safety cage, the cage must have upholstery.

3.3.18.5. Self-made cages must have a 4 mm inspection hole in vertical part of main roll bar.

3.3.18.6. It is recommended that all safety roll bar parameters conform to FIA requirements.

3.4. **ET2**

3.4.1.General

3.4.1.1. Serial production off-road vehicles with tire size formula 4x4 and original cars which conform to the technical specifications of specified class belong to this class. Minimum number of manufactured cars is not determinate.

3.4.1.2. Permitted reconstructions. This technical specification must be treated following the nest rules: when prohibited actions are dealt with in some clause then everything not forbidden is allowed. When permitted actions are dealt with in some clause then everything not permitted is forbidden.

3.4.1.3. All competition cars must have technical card issued by EAL or valid technical scrutineering.

3.4.1.4. Changes made to the competition cars must conform to the situation certified at the moment of issuing the technical card and accompanying scrutineering.

3.3.2 Reinforcement and appearance

3.4.2.1. Reinforcement of any detail/assembly of the car is allowed presumed that the used material follows the shape of reinforced detail/assembly and it does not contradict other clauses of these technical specifications.

3.4.3.Seats

3.4.3.1. The car must have at least two seats.

3.4.3.2. Seats can be original or non-original serial production car seats guaranteeing sufficient safety.

3.7.3.3. Seats must be correctly and firmly fixed.

3.4.4. Car mass

3.4.4.1. Competition mass of the car must not exceed 3500 kg.

3.4.4.2. Upon weighing of the competition cars, all vessels containing liquid (oil, cooling, brake, heating and other liquids) must be filled to the standard limit prescribed by the manufacturer. Fuel tank must be full. The following liquid vessels form an exception: window cleaning liquid and headlight cleaning vessel, brake coolant vessel. These vessels must be empty when the competition car is weighed.

3.4.5.Engine

3.4.5.1. Any kind of diesel or petrol engines can be used. Supply system is free, supercharging is permitted.

3.4.5.2. Cooling system Cooling radiators must be separated from the cockpit in a way which excludes bursting of coolant towards drivers when breaking.

3.4.5.3. Air intake: Air intake from cockpit is forbidden, other changes are allowed.

3.4.5.4. Exhaust system: Exhaust system is free but it must not pass the cockpit. Spraying of exhaust gases or crank case gases in the extent of the whole system is forbidden.

3.4.6.Transmission

3.4.6.1. Free.

3.4.6.2. Rotating parts of transmission cannot be used in a cockpit.

3.3.7.Suspension and axles

3.4.7.1. Suspension

3.4.7.1.1. Free.

3.4.7.1.2. Moving parts of suspension cannot be used in a cockpit.

3.4.7.2. Shock absorbers

3.4.7.2.1. Free. It is permitted to add shock absorbers.

3.4.7.3. Axles

3.4.7.3.1. Free.

3.4.7.3.2. Moving parts of axles cannot be used in a cockpit.

3.4.7.3.3. It is allowed to install differential locks.

3.3.8 Wheels and tired

3.4.8.1. Air tires can be used.

3.4.8.2. Minimum permitted wheel diameter is 815 mm.

3.4.8.3. Cutting of tire pattern is allowed.

3.4.8.4. Checking measuring of tire diameter is performed at the pressure of 1.0 atm in horizontal direction, along the line passing the central point of the wheel. All wheels, including extra wheel(s) can be measured.

3.4.8.5. When looked downwards in vertical direction, the wheel must be covered with a wing or wing extension.

3.4.8.6. It is prohibited to use chains and other anti-skidding means. Studded tire can be used during the period fixed in the law according to the competition instruction.

3.4.8.7. Number of spikes in the tire must not exceed 150, spikes can extend from the tire surface 3 mm, core of the spike must not be sharpened.

3.4.8.8. Use of spikes is permitted only during the period of use permitted by the Road Administration.

3.4.8.9. Wheels are free.

3.4.8.10. Any kind of supplementary fixing of the tire sides on hubs by the means of tire locks (Beadlock, Airlock, etc) is permitted.

3.4.8.11. Location of extra tire is free, it must be securely fixed.

3.4.9.Brake system

3.4.9.1. No restrictions, but all wheels must have brakes.

3.4.9.2. Structure of a parking brake can be changed.

3.4.9.3. Brakes must be functional.

3.4.10. Steering system

3.4.10.1. No restrictions, but the steering system must operate also with an idle engine.

3.4.10.2. Four wheel steering is permitted.

3.4.10.3. Use of stronger steering column and reinforcement of steering columns is permitted.

3.4.10.4. Parts of steering system must not have visible damages or dangerous clearances.

3.4.11. Body and frame

3.4.11.1. No restrictions.

3.4.11.2. Articulated frame is forbidden.

3.4.11.3. Cutting or a frame or otherwise changing is permitted, but safety requirements prescribed by this instruction must be preserved.

3.4.11.4. Wheels must be covered with wing extensions or mudguard observed from all vertical directions with the following exceptions: Mudguard can be shorter than 350 mm from the first vertical direction of the front wheel and up to 250 mm from the rare vertical direction of the rare wheel.

3.4.11.5. Engine room cover must be supplied with fixing elements opened from outside which exclude spontaneous opening of the cover. Opening of engine room cover from cockpit must be removed, wind latch can remain.

3.4.12. Roof

3.4.12.1 Soft-roofed or roofless cars must be equipped with metal protective plate above the drivers. Width of the plate must be at least the width of the windscreen frame, length at least to the main roll bar behind the front seat. Thickness of steel protective plate must be at least 2 mm, thickness of an aluminum protective plate must be at least 3mm.

3.4.12.2. Protection of assemblies. Protection of the competition car with supplementary protective elements is permitted.

3.4.12.3. Bumpers and supplementary bumpers. Any kind of changes are permitted.

3.4.13. Cockpit

3.4.13.1. Changing of all steering equipment (steer, pedals, levers) is permitted.

3.4.13.2. Rotating and moving parts of an engine, suspension or transmission must not be located in the cockpit.

3.4.13.3. Cooling or heating system parts in the cockpit must be covered so that it excludes bursting of coolant towards the drivers when breaking.

3.4.13.4. Structure of the doors must be strong, openable and closable from both sides and must have locks which exclude spontaneous opening of doors.

3.4.13.5. Height of upper edge of front doors from the seat level must not be less than 300 mm.

3.4.13.6. Non-opening panels can be used instead of rest of the doors and hatches.

3.4.13.7. When the doors are supplied with mechanical or electrical window lifts, the team must be separated from the mechanism with a protective panel (it is recommended to use aluminum or fire proof plastic).

3.4.14. Power system

3.4.14.1. All wires and contacts of the power system must be properly insulated.

3.4.14.2. Battery type, size and number is not limited. Batteries must be firmly fixed. In case the batteries are in the cockpit, they must be surrounded with a cover excluding bursting of battery acid towards the drivers when breaking. Battery ventilation discharged from the cockpit must be separately ensured.

3.4.14.3. Generator has no restrictions.

3.4.14.4. Reversing light must switch on when reversing is activated.

3.4.14.5. Car must be supplied with functioning sound signal with volume of at least 106 dB.

3.4.14.6. Car must have a switch which switches off the entire electrical system of the car. Switch must be sparkle free and available to the driver as well as co-driver from their seat with fastened seatbelts. Switching off of electrical system must involve stopping of an engine.

3.4.15. Supply system

3.4.15.1. Fuel tank

3.4.15.1.1. It is permitted to change the location and form and shape of fuel tanks. Fuel tanks must be separated from the cockpit with fire resistant partition wall. Fuel tank ventilation discharged from the cockpit must be separately ensured.

3.4.15.1.2. Filler necks of fuel tanks must not extend out of the perimeter of the competition car. Fuel tank cap must be of the kind not opening spontaneously.

3.4.15.2. Fuel piping Changing, relocating and supplementary protection of fuel pipes is allowed. In case the fuel piping are brought to the cockpit, it must be made of metal to

its full extent. Other materials are prohibited. There must be no connection places of fuel pipes in the cockpit except solution homologated by FIA.

3.4.16. Jacks

3.4.16.1. Any kind of mechanical, hydraulic or pneumatic lifting devices amounted permanently to the car are forbidden.

3.4.17. Winch and additional equipment

3.4.17.1. Competition car must be equipped with at least one winch (not manual winch) which pulling power exceeds 1.4 times the competition mass of a competition car at least.

3.4.17.2. Competition vehicle must be supplied with at least 90 mm wide tree protection belt. All and any kind of additional equipment (cables, blocks, hooks, shackles, etc) must have double strength reserve of maximum pulling power of the winch and also exceed twice the maximum authorized mass of the car.

3.4.17.3. When the competition car is moving, entire additional equipment must be securely attached.

3.4.18. Safety roll bars

3.4.18.1. Metal-roofed cars must have steel main roll bar installed behind the first seat row and attached to the body from at least 4 points. Safety chassis is required for the cars with more than two seats.

3.4.18.2. All competition cars with soft roof or without roof must have steel safety chassis installed which structure must conform to at least FIA Annex J articles 253-1 to 253-14.

3.4.18.3. Material of safety cage main roll bar and lateral roll bar must be drawn steel tube with minimum dimensions of 4.5 × 2.5 mm. In case of bigger tube diameter the minimum wall thickness is 2.0 mm. Bolted safety structure parts are also allowed except main and side roll bars. Safety chassis can be part of the body and body's covering elements can be attached there.

3.4.18.4. In places where the drivers can be in contact with safety cage, the cage must have upholstery.

3.4.18.5. Self-made cages must have a 4 mm inspection hole in vertical part of main roll bar.

3.4.18.6. It is recommended that all safety roll bar parameters conform to FIA requirements.