

FORMULA TKM 4-STROKE REGULATIONS 2022

Note: All rule amendments/changes from last year to this year are highlighted in YELLOW

D6 Group Mini-Junior / Senior
D6.1 Class Formula TKM 4-stroke

Affiliation Commercial, Tal-Ko/ABkC

D6.2 Introduction. 4-stroke class providing close & cost effective racing with sealed high performance engines. The Mini/Junior age class has two weight/restrictor size bands and covers both Mini and Junior age ranges. It is intended that normally both bands will race together within their class for the same trophies with same colour number plates. Where a club has sufficient numbers they may if they wish run different weight/restrictor bands on separate grids. There is a minimum height and weight for drivers in the Mini/Junior class. TKM 4-stroke karts may race with TKM 2-stroke karts in appropriate classes and any format preferred by clubs.

D6.3 Chassis. Any make of chassis conforming to Motorsport UK Yearbook and those herein.

D6.3.1 Bodywork. As per Motorsport UK regulations. Sidepods may incorporate suitable holes for starter shaft and radiator catch tank fitment in line with Motorsport UK technical rules. The combination of homologated bodywork elements of different makes or models is authorised, save and except that the two side bodywork elements must be used together as a set. Components from the same element cannot be mixed, i.e. side bars from one homologation cannot be used with side pods from another homologation. The Front Fairing and Nassau Panel, providing they compatibly connect with each other, may be from different makes and models. When wet weather tyres are fitted, it is permitted for the wheels and tyres to be inside the sidepods, so long as the sidepods have closed solid ends.

D6.3.2 Bumpers. To Motorsport UK specification. Rear bumpers may additionally be fitted with a vertical protection loop for the carburettor/airbox in which case the loop must be welded/brazed to the bumper and not exceed a height of 35 cm from the ground.

D6.3.3 Materials. Unless listed here for a specific purpose, use of the following materials for chassis/kart parts is specifically prohibited: Components made from Kevlar, Carbon Fibre, Titanium alloys, Magnesium alloys, Cobalt alloys, Tungsten Alloys and Beryllium Alloys, Metal Matrix Composites and Ceramics. The seat, floor tray and chain guard can be made from Plastic or similar materials, Fibre Glass, Aluminium, Kevlar or Carbon Fibre. It is permitted to use Magnesium Alloys for the following specific parts: wheels, front and rear wheel hubs, engine mount, brake disc hub, brake caliper mount, rear axle bearing mounts, sprocket carrier and steering wheel mounting boss. The use of plastic or similar materials for components such as wheels, wheel hubs/bosses, sprockets and brake disc carriers is expressly forbidden. Engine spark plugs made with Ceramic are permitted. Lubricants on kart only, excluding engine, are free. On grounds of safety the use of aluminium nuts and bolts is prohibited throughout the whole of the kart including the engine. The only exception is the engine oil drain plug bolt which is made from aluminium.

D6.3.4 Other. Front and rear ride heights may be adjustable. Torsion bars and adjustments permitted. Drivers may make use of tank tape, cable ties, rubber type piping, thin wire or throttle cable type Bowden cable in ensuring that items such as exhaust, bumpers, electrical wiring, chain guard, etc do not come off during the course of racing. The item used must only be there for secondary security and reliability purposes.

D6.3.5 Rear Axle. The rear axle must be of parallel magnetic steel, 50mm maximum nominal diameter. The axle can be either solid or hollow. It must be supported in two or three bearings. Quick release and/or cassette type axle bearing assemblies may be used. Axle inserts may be used.

D6.3.6 Steering. Ackerman steering with double mounts on the centre steering column bush for track rods permitted. Nylon type track rod links of suitable strength may be used. Adjustable front castor and camber permitted. Multi-point stub axle track-rod arm bolt fixings permitted. Rack operated steering not permitted. All karts must have the steering column mounted in such a way that even if the bottom retaining bolt/nut is removed it cannot pull free from its lower bearing.

D6.3.7 Seat. Seat type is free including material. Additional bolt on seat stays/ mountings are permitted, position free.

D6.3.8 Fuel Tank. The fuel tank must be floor tray mounted beneath the steering column, forward of the driver, type free. A fuel filter is allowed in the fuel tank and/or an in-line filter. Maximum fuel tank capacity 9.25 litres. A fuel overflow catch tank must be fitted.

D6.4 Engine. TKM K4S 4-stroke. 200cc. Engine must be fitted with the official TKM numbered seal as fitted by Tal-Ko or any other nominated fitter. The engine must be raced in as supplied & manufactured form with no modifications or changes to the original sealed specification other than those detailed in these regulations. It is stressed that this is a class with no engine modifications permitted. Any attempt to modify the engine in any way not specifically authorised here renders it outside these regulations.

Only Tal-Ko or nominated dealers are authorised to strip, inspect and seal engines. Every engine must carry an official anodised TKM numbered seal attached to the cylinder head and cam cover nuts. If this seal is broken the engine cannot be raced and must be returned to Tal-Ko for checking and re-sealing. The only persons allowed to strip and validate an engine for the purposes of checking its compliance with regulations is Tal-Ko in conjunction with an eligibility scrutineer. In such cases Tal-Ko's signed ruling will be final.

D6.4.1 Carburettor. Dellorto PHBH28 (BS) TKM logo marked. No modifications permitted to any component including any filing, grinding, polishing, etc. This includes the bolt on carb flange for the induction box. Note all carbs must now be fitted with TKM looped overflow system.

Carb system mandatory settings (Junior & Senior): Main jet any available between and including 116-145. Pilot jet 35-60. Atomiser 268T. Float assembly 9010.2. Needle valve 150. Slide 40. Choke jet 60. Needle X6 with circlip position free. All jets must be Dellorto unmodified.

D6.4.2 Fuel system. Mikuni pulse pump DF 44-211-D. As supplied, no modifications. Recommended mounting on TKM provided fitting plate fixed to rear of seat. Return fuel pipe must include the return jet 70.

D6.4.3 Restrictors – Mini/Junior Class Must include TKM manufactured and logo marked anodised carb inlet restrictor in unmodified form with a central round bore. No polishing or changes permitted. Coloured anodising must always be intact. Restrictor sizes quoted are maximum diameter permitted:

Junior 140 kilos with Gold anodised 19.0mm restrictor.

Junior 148 kilos with Black anodised 20.0mm restrictor.

D6.4.4 Noise Box. R&R K4S type TKM logo marked as supplied by Tal-Ko with no modifications. Both induction filters must be used. Cable ties can be used to secondary secure the filters. Must be mounted on a support bracket. Both induction tubes to have standard 29mm nominal inside diameter. Note that due to unavailability of old R&R K4S type noise box that a new KILT K4S replacement noise box is now permissible with TKM logo marked and as supplied by Tal-Ko with no modifications. Both types are still permitted.

D6.4.5 Breather. The engine oil breather system must be used as supplied with no modifications and mounted on the TKM provided fitting plate to the rear of the seat. The use of a cable tie or other secure means is permitted to attach the plastic oil retention bottle. Note an Enduro larger breather system is available as an option to the standard fitment.

D6.4.6 Ignition. PVL Digital System complete with red coil 500159 with standard programmed K4S ignition curve and rev limiter. Must be as supplied and stamped & marked with the official TKM logo markings. Stator marked with Ident-Nr 1035 . Rotor must include TKM logo. It is mandatory to use the PVL black spark plug cap 401 222 with 5k resistor and HT lead as supplied with new engines. Maximum permitted ignition timing 7.45mm BTDC. No modifications permitted to complete ignition system throughout including any re-mapping. It is permitted to repair broken wires providing the original type terminals are used. An effective and working ignition on/off switch must be fitted to the kart and clearly marked in the off position. We recommend the on-off switch should be mounted in the area of the steering wheel/Nassau panel.

D6.4.7 Cooling. Water cooled system. Radiator, water pump, hoses, brackets etc must remain as supplied and unmodified. Use of either straight or offset radiator position permitted using optional TKM brackets & pipes. It is permitted to wrap the cooling hoses with heat protective tape or similar and to use tank tape or similar or an adjustable blind to mask part of the radiator in order to control operating temperature. Anti-freeze or inhibitor mixed with water should be used in cooling system. Water pump with aluminium impeller must be used unmodified as supplied. Radiator must be as supplied by Tal-Ko mounted in standard position with TKM logo stamped supplied mounting brackets. Additional mountings may be attached to radiator and associated

components to secure catch tank pipes, blinds, etc. Standard radiators as supplied from Tal-Ko may have the top mounting brackets either welded or riveted in place. This is due to a change in manufacturing method. Both are acceptable. It is permitted to carry out external repairs including welding/brazing to the radiator and its brackets to repair damage. It is not permitted to replace the radiator core. The use of the larger Enduro type Tal-Ko supplied radiator with its associated brackets and pipes is also permitted. The radiator caps are interchangeable.

Note that the water temperature sensor must be fitted in the location hole provided within the engine and must not be fitted within any hose or other section of the cooling system. It is also permissible to use a thermostat in the coolant pipes.

D6.4.8 Exhaust. Only the complete TKM manufactured and/or supplied exhaust system permitted with no modifications. It is permitted to paint the TKM manufactured exhaust silencer provided that only black paint is used and that the original TKM logo is still visible. It is expressly prohibited to use any other coating or plating or to use any colour other than black. Note two types of exhaust manifold and exhaust available to suit individual fitments. TKM logo on exhaust body and the end with tailpipe must be present. The only exhaust end can permitted is that provided by Tal-Ko and marked with the TKM logo. When using the Enduro style radiator it is recommended to use heat-proof webbing or a heat shield around the manifold anywhere from the point where it exits the engine through to the joint with the silencer unit.

D6.4.9 Fuel. Unleaded to Motorsport UK specification. LRP must **not** be used.

D6.4.10 Spark plug. Only permitted plugs:- **DENSO:** U27ES-NZU, U31ES-NZU, U34ES-NZU, IU27, IU31, IU01-34 and **NGK:** CR8EIX, CR9EIX & CR10EIX. Spark plugs must be in unmodified form and must be used with original sealing washer.

D6.4.11 Lubrication. Oil circulation pump, no modifications permitted.

D6.4.12 Starter. By remote electric starter any make (Coleman heavy duty recommended), or by TKM TAG on-board system as supplied and specified.

D6.5 Transmission. The drive must be clutch direct, i.e. the clutch sprocket and rear axle sprocket are connected only by a single length of chain. No belt drive, reduction gears, etc, permitted. The only clutch engine sprockets permitted are 12 or 13 tooth, TKM manufactured and marked with TKM logo. Engine must be fitted with the mandatory Formula TKM 4-stroke dry clutch. This must carry the Formula TKM markings and be used in unmodified form as manufactured and supplied. The TKM supplied and logo marked clutch protection guard must also be used.

D6.6 Brakes. Brakes must be hydraulic operating on the rear wheels only - no ABS or similar pulsing systems or on-board adjustment operated by the driver while in motion. The brake disc must be made from cast iron or steel. For the purposes of safety it is mandatory for all karts to make use of a dual connection between the brake pedal and master cylinder. The prime connection may be either solid or cable operated, with a secondary safety cable minimum 1.8mm nominal diameter set slightly looser to act as a backup in the case of failure.

D6.7 Wheels & Tyres - The only tyres permitted are Maxxis with the word 'TKM' moulded in their sidewalls. Dry slick tyres will have green labels, wet tyres will have red with a white outline labels. They must not be modified in any way including hand or machine cutting. Note a new wet tyre has been in use from 01.01.2013. The older style wet tyres with labels in just red are no longer permitted.

Tyre sizes/types as follows:

Dry – TKM	Front 10x4.50-5,	Rear 11x7.10-5
Wet – TKM	Front 10x4.50-5,	Rear 11x6.00-5

Heating of tyres by any artificial method, or their treatment by any chemical substance, is prohibited.

Wheels are free but must not be made of plastic type material. Wheels must be of one moulding/casting. The use of wheels which have been cut and joined to increase or reduce width is expressly prohibited. It is permitted to use wheel balance weights affixed to the wheels. Maximum wheel width should be a nominal 122mm front and 210mm rear as measured across the inside edge of the beads. Maximum permitted width across the outer edges of the rims to be 133mm at the front and 217mm at the rear.

D6.8 Rule no longer applies

D6.9 Weight. On completion of any part of the event. Driver weights subject to U17.29.6.

Junior 140: min **140kg** with driver. Minimum driver weight 37kg.

Junior 148: min **148kg** with driver. Minimum driver weight 48kg.

Senior – min **162kg** including driver at all times. Minimum driver weight for any driver under the age of 16 as per Motorsport UK rule U15.3.2 is 54kg.min.

Senior Heavy – **175kg** with driver. Minimum driver weight is 80kg.

D6.10 Plates/Numbers.

Junior TKM – blue with yellow numbers

Senior TKM – red with yellow numbers

Senior Heavy – red with yellow numbers and yellow flash.

D6.11 Ages.

Mini/Junior – From 11th birthday to 31st December of the year in which 16th birthday falls. Minimum driver height wearing race boots but no crash helmet nominally 135cm. Minimum weight 37kg. See Motorsport UK rule U15.2.

Senior - The Class is open to any driver aged 16 or over. A Junior who is no longer a Novice may transfer to the Senior class at any time during the year of their 16th birthday, subject to U15.4.1 of the Motorsport UK Yearbook. A holder of a Kart National licence may transfer to the Senior class from their 15th birthday, subject to U15.4 and the minimum weight in 3.8.2. Additionally, a holder of an International A or B kart licence may transfer to the Senior class at any time. Having moved into the Senior class he/she may not revert to a Junior class.

D6.12 General. Only the TKM K4S name may be used under the heading “engine” in event programmes. No other names permitted.

D6.12.1 Data Logging/Cameras. While taking part in racing or official practice a revolution counter, data logger, timer, GPS, and temperature sensor equipment may be used. A transmitter may be used which sends/receives one short burst of data from a kart to a land-based receiver once each lap. All other equipment used for measuring data or for transmitting a signal to another receiver is prohibited. The only exception to this rule applies to the fitting of officially sanctioned cameras and other recording devices and to transponders and other equipment required as part of the organisers requirements for that race meeting. On-board still and motion cameras may be fitted subject to Motorsport UK regulations.

D6.12.2 Ballast. It is permitted to add weight to the kart in order to meet minimum weight requirements.

D6.12.3 Warm Up. Organisers should allow a minimum of 5 minutes for the engines to warm up before being used for racing or practice. When the engine is running a driver must be in the seat at all times.

D6.12.4 Compliance. The organisers reserve the right to take away an engine complete with carburettor, noise box, exhaust system, clutch, etc sealed by a Motorsport UK scrutineer for the purposes of power testing on the manufacturer's approved dynamometer. The competitor and a Motorsport UK scrutineer to be invited for such testing and any subsequent strip down, which is carried out at the risk of the competitor. In the event of any dispute the regulations and fiche as published by Tal-Ko together with any appropriate Technical Bulletins will be taken as the definitive documents. It is the responsibility of each and every competitor to obtain these regulations and fully implement them. Ignorance of any rule will not be a defence. Any engine component officially deemed to have been illegally modified will be rendered unusable before return to the owner once all periods of appeal etc are finalised.

D6.12.5 Sealing. Only Tal-Ko or nominated dealers are authorised to strip, inspect and seal engines. Every engine must carry an official anodised TKM numbered seal attached to the cylinder head and cam cover nuts. If this seal is broken the engine cannot be raced and must be returned to Tal-Ko for checking and re-sealing.