

# FORMULA TKM INTER REGULATIONS 2024

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

**Class** Formula TKM Inter

**Affiliation** Commercial – Tal-Ko

**Introduction.** TKM is the UK's own unique class catering for drivers of all ages from 9 (with a national licence) upwards through to Juniors and Seniors. A cost-efficient class with strict technical and cost controls. Motorsport UK British Championship class.

The TKM Inter category enables drivers to go from Inter class to Junior with simple low-cost restrictor changes to the same engine. Weight/restrictor size bands make for equal racing for all ages and sizes.

The TKM BT82 100cc engine is race designed. Simple and air-cooled with electric TAG starter and a clutch.

The control of the class regulations rest with Tal-Ko who are the class owners. Further copies of the full regulations are available from Tal-Ko, 54 Sunderland Road, Sandy, Bedfordshire SG19 1QY. Tel. 01767 682020. Email: [info@tal-ko.com](mailto:info@tal-ko.com). Can be downloaded from [www.tal-ko.com](http://www.tal-ko.com). Full engine details are contained in the TKM BT82 official engine fiche also available from Tal-Ko.

While long term stability is at the heart of the classes, in the interests of fairness, clarity, safety, and drivers, Tal-Ko reserves the right to agree with the Motorsport UK clarifications and changes to regulations at short notice if required.

**Eligibility - From 10th birthday, or the calendar year of their 10th birthday with a National licence, and continue until the 31st December of the year of 13th birthday.**

**1. Kart Chassis must comply to the following:**

- 1.1 CIK/FIA homologated Mini Kart or approved by Motorsport UK.
- 1.2 Engine mounted on chassis to the right side of driver
- 1.3 Front fairing mount kit CIK approved
- 1.4 Rear axle hollow 30mm max diameter
- 1.5 Wheelbase 950mm (+/- .5mm)
- 1.6 Max rear track 110cm
- 1.7 Brake hydraulic or mechanical on rear only
- 1.8 Front camber/caster adjustment permitted
- 1.9 Ceramic ball bearings forbidden
- 1.10 Brake disc steel or cast iron only
- 1.11 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.
- 1.12 Steering column mounted in such a way that even if the bottom retaining bolt is removed it cannot pull free from its lower bearing.
- 1.13 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. Front wheels may have a separate detachable hub. It is permitted to use wheel balance weights affixed to the wheels.
- 1.14 Fuel tank floor mounted. Overflow catch tank mandatory
- 1.15 Use of CIK-homologated crash tested bodywork consisting of Side Pods, a Front Fairing and Nassau Panel is mandatory and must conform to Motorsport UK Yearbook regulations.
- 1.16 CIK/FIA Rear Protection System is mandatory.
- 1.17 It is not permitted to modify the bodywork, except sidepods may incorporate a suitable hole for handheld starter shaft.
- 1.18 The battery for the starter must be mounted on the main chassis in a metal tray in the correct MSUK specified position.
- 1.19 The on/off switches for the engine must be mounted in a clearly accessible position. The red kill switch MUST be marked as 'OFF'. A blue triangle may also be used to clearly identify to marshals.

- 2 Engine – See also 2024 TKM BT82 Engine Fiche for all detailed information**
- 2.1 TKM BT82** Piston Port two stroke 100cc TAG engine fitted with a standard Walbro WB19 carburettor stamped TKM, carb spacer block marked TKM, ignition PVL system marked TKM, TKM exhaust system complete with flex and standard TKM Carburettor induction box complete with original filter. The engine as raced, including induction box and ancillaries, must conform, in all respects with the 2024 TKM BT82 Homologation Fiche with its Extension and Amendments, as clarified and elaborated within these regulations and any official TKM technical bulletins.
- 2.2** The engine and ancillary components such as carburettor, ignition, exhaust, and noise induction box must be raced in standard condition as manufactured and/or supplied by Tal-Ko with no other brand or tuner identity added. Filing, grinding, machining, polishing, surface treating, surface coating, plasma metal spraying and lightening of any component including bearings is expressly forbidden unless specifically authorised in these regulations and/or the official TKM BT82 fiche. This expressly includes any chemical or other treatments intended to smooth the flow of air/fuel within the carburettor.
- 2.3** Addition of materials to any component is not allowed. Black anodising of the head and barrel must remain, subject to fiche requirements. It is permitted to mark engine measurements and engine number on the barrel/head. Where components are found to be in breach of regulations and not capable of being rectified, they may be marked prominently and permanently as such by Tal-Ko. External wear and tear such as accident damage causing fin breakage, or throttle spring rubbing, will be permitted.
- 2.4** While it is accepted that a minimal amount of damage is permitted to the exterior of the induction/noise box system including its trumpets, any damage that affects the course of airflow into the engine is prohibited. This particularly applies to the shape of the inlet trumpets.
- 2.5** New style noise induction box mandatory. Note that for wet use it is permitted and recommended to use a protective device to prevent water being sucked into the air box inlet trumpets. Design free and may be fitted externally to the airbox using cable ties, tape etc provided no holes are drilled into the air/mixture internal path. May also be fitted to sidepod. May only be fitted when the official conditions set as wet or open.
- 2.6** All parts used in or on this engine must be of original TKM manufacture or source, except where expressly allowed. **UNLESS IT STATES THAT YOU CAN DO IT, YOU CANNOT!!!**
- 2.7** Following minor modifications are permitted:
- Drilling of a hole in a head or barrel fin to fit a throttle return spring.
  - Modification to, and addition of, a slot in the carburettor swivel assembly and carburettor spacer to allow for ease of throttle cable fitment.
  - Drilling holes in component mounting nuts and bolts to allow the fitting of locking devices.
  - Extension to the high jet to ease adjustment while driving is permissible, providing the original jet is still used and the extension does not exceed 50mm in length. Extension to the low jet is **not** permitted.
  - Drilling of scrutineer's sealing wire holes, one per component in the fins of the head, barrel, and two crankcase halves. It is also permitted for authorised scrutineers at a race meeting to mark engines with paint.
  - Where spring location holes in the TKM exhaust and manifold bend flex spring flanges have become worn through, it is permissible to re-drill additional holes further around the flanges solely for spring retention purposes. It is also permitted to repair broken spring holes and or cracked flanges with a local weld/braze repair.
  - TKM manufactured brass main bearing shims may be used to facilitate correct crankshaft end float clearance.
  - As an alternative to the standard black carburettor fuel pump diaphragm, it is permitted to use the beige colour fuel pump diaphragm as supplied in the Walbro WB19 repair kits, part nos. D10-WB and K10-WB.
  - The small butterfly adjustment screw and spring screw which sets tick over on the carburettor can be fitted either way round. It is beneficial to reverse it when setting up tick over.
  - It is permitted to repair broken ignition wires providing original type connectors are used.
  - It is permitted to mark the carburettor with personal identification marks like 1, 2 or A, B etc, but this must not interfere with the TKM logo or the model and batch number or have tuner recognition.
- 2.8** 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. It is also clarified that on all engine types, while the exhaust may be superficially cleaned and/or painted black on the external surface, it is not permitted to carry out extensive polishing and any accompanied weight reduction.

- 2.9** Single TKM manufactured aluminium anodised carb restrictor plate mounted between the carburettor and engine. This is a flat metal plate with a nominal minimum thickness of 3mm and a central parallel round bore of varying sizes and identifying colour according to driver weight through which all the mixture feeding the engine must pass.
- 2.10** Single TKM manufactured steel exhaust restrictor plate mounted between the exhaust manifold flange and the engine. This is a flat metal plate with a nominal minimum thickness of 6mm and a central parallel round bore with large 45-degree chamfer on one side of its restriction hole which all the exhaust gases leaving the engine must pass through. Chamfered restriction hole side of plate to be fitted engine inwards. No blenders of any configuration are allowed. This part must not be modified or polished in any way and must be as made and supplied by Tal-Ko. It must display the genuine TKM logo. Longer M8 exhaust manifold studs as supplied by Tal-Ko are recommended when this restrictor plate is used with its extra exhaust gasket.

- 2.11** Weight/restrictor sizes as follows, in each case the weight is total of driver as per U17.29.6 and kart as raced. Restrictor sizes quoted are maximum diameter permitted:

Carb and Exhaust restrictors must be used as detailed in the table

Inter TKM Class	Carb Restrictor Size / Colour	Exhaust Restrictor Size
Inter 108	18.5mm / Red	16.75mm
Inter 113	19.0mm / Silver	16.75mm

Tal-Ko reserves the right, with Motorsport UK approval, to amend restrictor size/minimum weight with one month's notice to correct any apparent advantage/disadvantage.

- 2.12** Ignition timing is limited as detailed. When it is set it must be locked so that it cannot be adjusted by the driver with the kart in motion or by any mechanical and or vacuum/electronic device. Full details in engine fiche
- 2.13** Engine management systems and additional fuel pumps are prohibited.
- 2.14** Connection between the carburettor and throttle pedal to be of one bowden type cable. No other means of throttle actuation permitted.
- 2.15** The fitting of any device used to manually adjust the flow of fuel from tank to carburettor while on track is not permitted
- 2.16** It is mandatory to use the appropriate TAG HT lead, spark plug cap and approved spark plug (with its original sealing gasket washer in place)

The only spark plugs permitted are:

NGK – B9EG, B10EG, BR9EG, BR10EG, B9EGV, B10EGV, BR9EIX and BR10EIX.

**DENSO – IW27 and IW 31 no longer permitted**

- 2.17** It is permitted to use Helicoil and Timesert type thread replacements to repair all stripped threads on engine fixings on the crankcase and cylinder barrel. On the spark plug thread only a Helicoil type thread repair is permitted. Any other type of repair or insert is prohibited. Such repairs must not be used to derive any benefit other than rectification of damage. In the case of the spark plug thread, no portion of the Helicoil may protrude outside of the normal thread area. The coil must be inserted to the full length of the original thread and only one continuous coil to be used per repaired thread. In all cases the size of the repaired threads must remain as standard. On the carburettor, it is permitted to repair the non-metric threads with M3 or M4 threads providing they do not perform any other function.
- 2.18** All gaskets used in or on the engine must be of original TKM supply and must be fitted in accordance with the engine fiche. Only one gasket is permitted on any engine part with the exception of the barrel to crankcase mating face where it is permitted to use up to a total of any three of the standard 3 alternative thickness TKM supplied gaskets. Use of gasket sealer/grease is permitted.
- 2.19** It is permitted to fit additional silencing where required by Motorsport UK or local club regulations, provided that the original complete TKM equipment is still used in unmodified form.
- 2.20** Use of an exhaust end can is mandatory and must be that provided by Tal-Ko and marked with the TKM logo. It must be fitted with the three large exhaust exit holes 180 degrees opposite to the main exhaust tailpipe exit.
- 2.21** As part of TKM's commitment to noise reduction, it is mandatory to use effective heatproof webbing or similar sleeve material wrapped around the exhaust flex to help reduce noise. Make is free.

- 2.22** The use of purpose designed TKM fin rubbers is mandatory as a noise reduction method. All new engines are fitted with noise reducing fin rubbers as supplied by Tal-Ko. These comprise 10 special rubbers all with TKM logo and either marked H or B to indicate whether for head or barrel. Competitors must use a full set of these rubbers, which may be fitted to older engines. The use of more than 10 rubbers is allowed but not advised. Only TKM rubbers permitted. Where fins have become broken on an engine it is permitted to remove excess sections of the rubbers at this point. At post-race/qualifying scrutineering, loss of one rubber will be accepted provided it is then replaced before the next race.
- 2.23** The use of one or more TKM manufactured with TKM logo special steel cylinder head retaining nuts with hole for sealing wire is permitted, even if sealing is not required. Use of such nuts may be mandatory at championship meetings as specified in their regulations.
- 2.24** Piston rings must at all times remain free to operate in the manner in which they were designed and supplied. It is the responsibility of the driver to ensure that the rings are not 'coked' in place with carbon or prevented from their normal 'spring' effect by other methods. The rings must be appropriate to the piston size used and have a maximum ring gap of 0.5mm when measured with the ring placed squarely 5-10mm down from the top of the cylinder bore. Only the standard unmodified earless type piston circlips as supplied by Tal-Ko must be used. The TKM Inter 100cc engine may use one or two piston rings. The bottom piston ring for the engine can be removed for racing if required.
- 2.25** It is permitted to use the optional TKM manufactured with TKM logo flex ring to help increase the life of the exhaust flex.
- 2.26** The TAG on-board starter system engine and associated equipment must be used as supplied by Tal-Ko and detailed in the official TKM BT82 engine fiche. It is clarified that when using a TAG specification engine it is mandatory to always have the full system in place as applicable and connected to enable the starter to be used to start the engine. An external hand-held starter may be used to start the engine in case of any problem, but at any time before or after a race the driver may be required to demonstrate that the starter system with its on-board battery is fully fitted and functioning. Exceptionally at a race meeting if a fault occurs which means the starter cannot be used, with agreement of a scrutineer the engine may be started externally providing that all the components of the starter, battery etc are in place. No test will then be required.
- 2.27** When measuring and checking for the maximum permitted piston bore size in the cylinder barrel, the bore may be measured at any position within its full length where the circumference is continuous – i.e. not where there are port openings or con rod clearance cut outs. If the maximum permitted bore size is exceeded at any point, then the cylinder barrel is illegal.
- 2.28** The cylinder piston bore must be nominally perpendicular to the cylinder base and central to the cylinder liner. Out of centre and/or angled cylinder piston bores are not permitted.
- 2.29** For the avoidance of doubt, where dimensions and tolerances are stated in the official TKM BT82 engine fiche these are for information only and it is stressed that unless specifically stated as permissible, it is NOT permitted to alter any component to the fiche dimensions.

### **3 Transmission, Wheels & Tyres**

- 3.1** The drive must be direct, i.e. the crankshaft and rear axle are connected only by a single length of chain. Engine sprocket to be 10 or 11 tooth.
- 3.2** The only permissible clutch assembly complete is the 'V' clutch as supplied by Tal-Ko with no modification and the TKM logo stamped on all of the three clutch shoe outer faces. It is not permissible to relined the clutch shoes or add substances to either the shoes or drum.
- 3.3** The only tyres permitted are Maxxis with TKM logo marked on their sidewalls. They must not be modified in any way including hand or machine cutting.

Tyre sizes/types as follows:

Maxxis TKM ROOKIE Dry –	Front 10x4.00-5	Rear 11x5.00-5
Maxxis TKM BLUE LABEL Wet –	Front 10x4.00-5	Rear 11x5.00-5

All Dry & Wet tyres must be as supplied by Tal-Ko and have the official TKM logo marked on them.

- 3.4** Heating of tyres by any artificial method, or their treatment by any chemical substance, is prohibited.
- 3.5** 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. Front wheels may have a separate detachable hub. It is permitted to use wheel balance weights affixed to the wheels. Front wheel bearings must be of metal type. Ceramic not permitted.

#### **4 General.**

**4.1 Weight** (on completion of any part of the event). Driver weights subject to U17.29.6.

**Inter TKM 108:** min 108kg with driver. Minimum driver weight 31kg.

**Inter TKM 113:** min 113kg with driver. Minimum driver weight 32.5kg.

**4.2** Number plates - U17.25 applies.

Inter TKM – Yellow with black numbers.

- Only the TKM BT82 name may be used under the heading “engine” in event programmes. No other names permitted.
- As class owners Tal-Ko reserve the right to have an engine complete with carburettor, noise box, exhaust system, etc. sealed by an Motorsport UK scrutineer for the purposes of checking that it conforms to the BT82 engine fiche and TKM rules and if required power testing on the manufacturer’s approved dynamometer. The competitor and a Motorsport UK scrutineer will be invited to be present for such strip down and any required testing, which is carried out at the risk of the competitor.
- Tal-Ko have the right to clearly and permanently mark any component which is found to be in breach of regulations and not able to be rectified.
- In the event of any dispute the regulations and fiche with updates as published within the official Formula TKM Regulations and TKM BT82 engine fiche 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.
- Tal-Ko reserves the right to refuse to serve any trader found to be carrying out modifications not permitted in the class regulations.
- Formation laps for a rolling start must be maintained as per U7.7 at a steady pace, neither too fast nor excessively slow. For the avoidance of doubt that speed relates to engine running between 5000 and 6000rpm once karts are starting to form into grid.
- The eligibility specialist to the TKM class is Paul Klaassen. In addition, Ernie Salmon is also added as a TKM eligibility specialist scrutineer with responsibility for the TKM British Championships.

A copy of the Formula TKM Regulations and Technical Guide 2024 including the official TKM BT82 engine homologation fiche is available free from Tal-Ko Racing at [www.tal-ko.com](http://www.tal-ko.com).