

# FORMULA TKM 2-STROKE

## TECHNICAL REGULATIONS - 2009

**B3.0 Group** Junior and Senior

**B3.1 Class** Formula TKM

**Affiliation** Commercial - Tal-Ko/ABkC

**B3.2 Introduction.** Commercial economy class for juniors and seniors with chassis and engine price control. Super One ABkC Championship class. The Junior age classes have three weight/restrictor size bands and it is intended that normally all three bands will race together for the same trophies with blue number plates. Where a club has sufficient numbers they may if they wish run different weight/restrictor bands of the Junior class on separate grids. The Junior *Extreme* class is a potential premier championship class which may be introduced subject to sufficient entries.

The optional use of clutches (mandatory for Junior Extreme). All seniors should now be on *Extreme* class engines, though any that are not should race within the normal grid. The class regulations have been developed by Tal-Ko with the help of Formula TKM drivers, the BKIA, and the ABkC. The control of the class regulations rest with Tal-Ko. Additional regulations for the ABkC follow the main text. Further copies of the full regulations are available from Tal-Ko, 54 Sunderland Road, Sandy, Bedfordshire SG19 1QY, Tel. 01767 682020. 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 MSA clarifications and changes to regulations at short notice if required.

**B3.3 Chassis.**

**B3.3.1** Each manufacturer may only produce two homologated chassis at any one time. When a manufacturer already has two homologated chassis, if he homologates a new design, he cannot continue to produce chassis to the old homologation. From 1.1.2007 a new chassis homologation period came into force. Manufacturers may only produce and sell a maximum of two homologated model styles at any one time. All karts must carry appropriate chassis markings. Reference in this document to 2007 homologation karts means any kart listed in the appendix of karts covered by the 2007 homologation period.

**B3.3.2** Drivers may compete in any homologated chassis that appears in the Appendix list providing it meets all other requirements. The next homologation registration period will commence 1.1.2010.

All chassis made after 1-1-98 must carry the official Formula TKM sequential plate securely riveted to the brake side bearing hanger together with the manufacturer's stamped chassis number. These sequential plates are

unique to each kart, non transferable and must only be applied by the manufacturer at the time of manufacture. Karts under the 1998, 2001, 2004 & 2007 homologation list must not have detachable plates carrying the manufacturer's chassis number and year of manufacture. Chassis number must incorporate the year of manufacture. In the case of lost/damaged sequential plates, a special procedure is used to issue replacements via the manufacturer. Brake disc protectors and bracket must not obscure view of sequential plate and chassis number.

**B3.3.3** Chassis to be constructed from magnetic steel tubing, cross section free. The method of welding/brazing is free but for all main chassis joins welding/brazing is obligatory - i.e. no clamping, sliding members or torsional adjustments including additional bolt-in torsion bars. The use of any type of hydraulic or similar damping device for any purpose is specifically prohibited.

**B3.3.4** Engine must be mounted to the right hand side, driver seated facing to the front.

**B3.3.5** The rear axle must be of parallel magnetic steel, 30mm nominal diameter, with hub retention. The axle can be either solid or hollow with a minimum nominal parallel wall thickness throughout its length of 5mm. It must be supported in two bearings only, using any type of bearing and retention method including cassette type. No other bearings or stiffening devices may be attached to the rear axle for any purpose. It is permitted to use circular collars around the rear axle immediately next to the axle bearings to prevent axle movement. They must not exceed 16mm in width and must be fitted for the sole purpose of axle location. It is permitted to semi-drill the axle for grub screw location.

**B3.3.6** Rear axle quick release fittings are permitted. Hubs may overhang the ends of the rear axle providing they are expressly designed to do so. Bearing spacers or adapters are permitted. Adjustable rear ride height not permitted. Use of non original parts to effect changed rear ride height not permitted. Ride height axle position as homologated.

**B3.3.8** The steering must have non-adjustable castor and camber angles. Castor and camber angles of the chassis must be as homologated. Steering column may have more than one hole which can be utilised for twin-hole Ackerman type steering operation. Stub axles may contain more than one bolt hole in their drag arm. Any hole may be used. Stub axles must be as supplied and fitted to new karts by the manufacturer homologating the kart. In other respects such as length of axle shaft and its

angle, and the drag arm length and attachment holes, the stub is free. The king pin bolts must be centrally positioned in both the frame stub axle mounts and stub axles. The position of the holes must be non adjustable and permanently mounted. Detachable hole inserts not permitted.

**B3.3.9** Front ride height adjustment is permitted by movement of washers/spacers between the frame stub axle mounts and stub axle. On 1998, 2001, 2004 & 2007 homologated chassis the maximum permitted adjustment by this method is 12mm. No modifications may be carried out to the homologated design to achieve or increase this.

**B3.3.10** All karts must have the steering column mounted in such a way that even if the bottom retaining bolt is removed it cannot pull free from its lower bearing.

**B3.3.11** The only additions permitted to homologated chassis are: Equipment to meet latest MSA safety regulations. The following must not be added: Rear, front or side torsion bars, or any parts not homologated other than the exceptions indicated in these regulations.

**B3.3.12** The following parts are specifically prohibited: Components made from Kevlar, Carbon Fibre, Titanium or other similar exotic materials, other than for the seat and floor tray which is optional. Magnesium front and rear wheel hubs, engine mount, brake disc hub, sprocket carrier and steering wheel mounting boss may be used. The use of plastic or similar materials for components such as wheels, wheel hubs/bosses, sprocket and brake disc carriers is expressly forbidden.

**B3.3.13** Additional bolt on seat stays/mountings are permitted position and style free.

**B3.3.14** Use of CIK homologated crash tested bodywork consisting sidepods, a front fairing and Nassau panel is mandatory and must conform to MSA technical regulations. A CIK rear protection system is not permitted. The sidepods should be a matching pair of same homologation on either side and the front fairing and Nassau should also be a pair from the same homologation, but these two sets of body pairs can be from different homologations. It is permitted to modify the bodywork mounting points on the chassis to accept CIK crash tested bodywork but it must be undertaken in a professional manner. Karts homologated for the period up to 2006 where they are fitted with a traditional front bumper incorporating two vertical front uprights are permitted to make use of the CIK front fairings without the CIK associated metalwork. In this case, as long as the two vertical uprights remain in place, the requirement for an aluminium or steel securing block as per MSA rule 14.13.2 is waived and the fairing may be attached to the kart by any safe

and secure method in two places, not necessarily the CIK type clips.

TKM homologated karts for the period up to 2006 inclusive with old style diagonal bar fixing points may use side bumpers with a minimum of one to be with a minimum size of 18mm diameter (19/20mm recommended) and a wall thickness of 1.4mm minimum securely fixed to the chassis by a minimum of two points on each side and must allow for the attachment of mandatory side bodywork. The plastic elements of the bodywork must be CIK crash tested and homologated as per MSA regulations but the sidepods must be of the fully enclosed type with closed ends. Sidepods may incorporate suitable holes for starter shaft, airbox trumpet, etc where MSA rules permit. 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.

**B3.3.15** Front & rear bumpers must comply to MSA Technical Regulations. Neither may incorporate adjustable torsion by design. Bolt in type torsion bars are specifically prohibited. Front bumper must not use rubber, nylon or similar material in its fastenings/mountings. Rear bumper may use rubber, nylon or similar material for a maximum of two of its fastenings/mountings to the frame but may be secured by more than these two fixings and may for example have bracing struts to the axle housing providing these were part of the original homologation.

**B3.3.16** Drivers may make use of tank tape, cable ties, 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. One or more fixings may be used, however the item used must only be there for secondary security and reliability purposes and must not be attached in such a manner that it affects torsional adjustment of the kart or provides any other performance advantage.

**B3.3.17** Seat type is free including material. Use of commercially available and manufactured variable rigidity adjustment systems for seats is permitted subject to the following criteria. The device must be mounted to the seat itself and must not be attached or have contact with the seat mounting points or chassis. It is not permitted to use 'home constructed' non-commercially available torsional adjustments.

**B3.3.18** Floor tray shape and material free but must comply to MSA Technical Regulations. Aluminium, plastic or other composite type floor trays may be used providing they provide suitable protection. Rubber mountings may be used. It is permitted to drill additional holes for the specific purpose of mounting such items as

pedal heel stops and fuel tank, and access hole for steering column lower location nut, provided that the holes are restricted to the minimum size and number required to meet the purpose. They must not cause undue weakening of the floor-tray at critical points. It is permissible to use suitable size metal, rubber or other washers in the fitment of the above items. It is permitted to use floor trays with decorative holes or slots so long as they are provided by the manufacturer and that the holes etc are in the raised sector(s) of the tray.

**B3.3.19** The fuel tank must be floor tray mounted beneath the steering column, forward of the driver. Type free. Fuel filter permitted either in-line or within the fuel tank or both. Maximum fuel tank capacity 9.25 litres. A catch-tank must be used.

**B3.3.20** At all times the following must be original equipment parts as supplied by the manufacturer of the chassis:- Chassis frame, rear bumper, stub axles, pedals, steering column. They may not be replaced with bandit, non-standard, equivalents. These parts must always remain as supplied or homologated.

**B3.3.21** The insertion of an internal chassis strengthening steel tube, maximum length 320mm, to prevent or repair cracking of the main side rail tubes is permitted to a maximum of one per side rail. This internal tube must be positioned at the rear of the kart encompassing at least 40% of the rear axle bearing hanger area.

**B3.3.22** On the grounds of safety the use of aluminium nuts and bolts is prohibited throughout the whole of the kart including the engine.

**B3.3.23** In the interests of safety and driver comfort, particularly for junior drivers, it is permitted to use a brake/throttle pedal/mount which has been amended to that originally homologated with the kart subject to the following criteria. The pedals must follow the original basic design but may have different diameter tubing, vary in height and have revised lugs for connections/stops. It must be made by the original manufacturer. Revised mountings must be either welded in place by the manufacturer or bolted on. They must be strong enough for the task but must not provide any other benefit. It is also permitted to use add-on devices which make the pedals easier to operate. Use of devices which clamp/bolt onto the central steering column bottom support may be used as a heel stop but must only be attached in their centre section and must only be used for heel support.

**B3.3.24** It is not permitted to extend the width of the sidebars by use of an additional sleeve or other extension between the bar and chassis.

**B3.3.25** It is permitted to repair a chassis by welding providing the fundamental design is not changed and no other material is used except for the weld.

#### **B3.4 Engine**

**B3.4.1** TKM BT82 Piston Port two stroke engine fitted with a standard Walbro WB19 carburettor stamped TKM, carb spacer block marked TKM, ignition Motoplat 9600903-1 or PVL system marked Formula TKM, TKM exhaust system complete with flex and standard TKM carb induction box complete with original filter. The BT82 engine as raced, including induction box and ancillaries, must conform, in all respects with the Homologation Fiche with its Extension and Amendments, as clarified and elaborated on within these regulations and any official TKM technical bulletins. New style noise induction box introduced from 1.1.2007 as an option. Note new style TKM exhaust may be introduced as an option.

**B3.4.2** The engine and ancillary components such as carburettor and ignition, must be raced in standard condition as manufactured and/or supplied by Tal-Ko with no other brand or tuner identity added. Filing, grinding, polishing, surface treating or lightening of any component is expressly forbidden. This expressly includes any chemical or other treatments intended to smooth the flow of air/fuel within the carburettor.

**B3.4.3** The 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. External wear and tear such as accident damage causing fin breakage, or throttle spring rubbing, will be permitted.

**B3.4.4** While it is accepted that a minimal amount of damage is permitted to the exterior of the induction/noise box system including its trumpet, any damage that affects the course of airflow into the engine is prohibited. This particularly applies to the shape of the inlet trumpet at its flared end and along its length.

**B3.4.5** Old style noise boxes. The use of any sort of tuner name, identification or colouring on the noise box (other than TKM) is not permitted. The noise box assembly cannot be modified except for the use of secondary securing methods such as cable ties and tank tape, provided that they are not used to gain any performance advantage other than reliability. No additional holes may be drilled in the assembly for cable ties. Tank tape must not be used to alter the passage of air into or through the air trumpet. Tank tape may be used to effect repairs but such tape must not incorporate any trade name or identification. Old style airboxes are fitted with a black back plate incorporating a TKM logo. Previous back plates were either blue

or white without logo. Air trumpets are black plastic replacing the previous alloy type. All are permissible for use.

**B3.4.6** 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!**

**B3.4.7** The 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 carb swivel assembly and carb 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.
  - Up to three self tapping screws may be used to strengthen the fitting of the old style induction box to the back-plate and up to 3 holes drilled expressly for their fitment. No other additional holes are permissible in the noise box assembly other than those provided when the unit was supplied.
  - Drilling of scrutineer's sealing wire holes up to a maximum diameter of 3mm, 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 redrill 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 tickover on the carb can be fitted either way round. It is beneficial to reverse it when setting up tickover on a clutch type engine.
    - It is permitted to repair broken ignition wires providing original type connectors are used.
- B3.4.8** 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.

**B3.4.9 Junior TKM** (using 100cc TKM BT82 engine) and **Junior Extreme** (using 115cc TKM BT82 *Extreme* engine) must use a single TKM manufactured aluminium anodised carb restrictor plate between the carburettor and engine. This is a flat metal plate with a 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. 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. Coloured anodising must be intact.

**B3.4.10** Junior weight/restrictor sizes as follows: In each case the weight is total of driver and kart as raced. Restrictor sizes quoted are maximum diameter permitted:

**Junior 128** kilos with Gold anodised 20.5mm restrictor.

**Junior 136** kilos with Blue anodised 22mm restrictor.

**Junior 142** kilos with Purple anodised 24mm restrictor.

**B3.4.11** Junior *Extreme* engine must use Purple anodised 24mm restrictor.

**B3.4.12** 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.

**B3.4.13** On **Motoplat Ignition**, the timing must be set to between 2.0mm and 3.0mm Before Top Dead Centre. On the PVL system, ignition timing must be set to between 1.5mm and 2.1mm BTDC. Ignition timing to be measured statically using a dial indicator on the piston crown and the original ignition timing lines.

**B3.4.14** Engine management systems and additional fuel pumps are prohibited.

**B3.4.15** Connection between the carburettor and throttle pedal to be of one bowden type cable. No other means of throttle actuation permitted except for hand throttles used as easy-start mechanism.

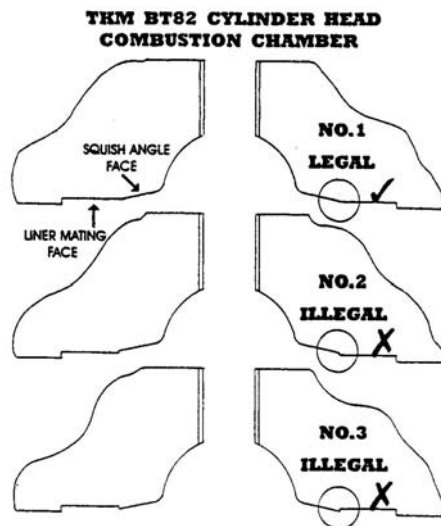
**B3.4.16** It is mandatory to use the NGK spark plug cap and HT lead as supplied by Tal-Ko with new engines. The only spark plugs permitted are as listed and must be unmodified with sealing washer in place.

The list of spark plugs is as follows:-

**DENSO** W27ES-ZU, W31ES-ZU, IW27 & IW 31  
**NGK** B9EG, B10EG, BR9EG, BR10EG, B9EGV, B10EGV, BR9EIX and BR10EIX.

**B3.4.17** A minimal amount of machining is permitted to the cylinder head subject to stringent conditions, primarily intended to allow rectification of engines that have suffered head

damage. This must be carried out in line with the drawings laid out in the fiche. Note that the squish angle face of 12 degrees plus or minus 1 degree must meet and intersect the liner mating face of the cylinder head at that angle, with no intermediary angles or curves throughout their full circumference. Any form of step, recess, groove or similar will render the cylinder head illegal since it will not follow the original shape.



**B3.4.18** The cylinder head and/or liner mating face(s) must remain flat. If machining or any other operation is carried out on the cylinder head and/or liner mating face(s), the mating faces must always remain flat over the full extent of their original surface.

**B3.4.19** It is permitted to use helicoil type thread replacements to repair critical engine fixings on the cylinder head, crankcase and cylinder barrel. 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.

**B3.4.20** When measuring the inlet and exhaust port timing it is clarified that the maximum contact pressure on the feeler gauge should be only that achieved through finger pressure on either one of the crank nuts. The dial gauge and fixture block used for this purpose must be tightened down at 13lb/ft on each of the two nuts. The nuts/studs must have threads in good condition, lubricated, and with nuts which can be easily moved by finger-only pressure at the point of being tightened.

**B3.4.21** 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.

**B3.4.22** It is permitted to fit additional silencing where required by MSA or local club regulations, provided that the original complete TKM equipment is still used in unmodified form.

**B3.4.23** The only exhaust end can permitted is that provided by Tal-Ko and marked with the TKM logo.

**B3.4.24** When taking measurement of the cylinder head volume, the cylinder head must be fitted to the engine in the manufacturer's normal manner with the standard four brass head nuts (or approved TKM sealing nuts) tightened to 13lb/ft and the two small allen headed bolts tightened to 8lb/ft. The nuts/studs must have threads in good condition, lubricated, and with nuts/studs which can be easily moved by finger-only pressure at the point of being tightened. The engine and other test equipment should be at a cold (ambient) temperature of between -5 C and + 50 C. Any readings taken within this temperature span will be accepted as definitive. The engine must be as raced - e.g. with the same gaskets in position and with no carbon removed from the top of the piston, inside of the combustion chamber, etc. The cylinder head may be removed for inspection by an authorised MSA scrutineer before being replaced for a head volume check. When carrying out such a check use must be made of the authorised and TKM marked measuring plug. Procedure should follow that laid down by Tal-Ko. An 'A' grade burette or digital burette should be used with oil which meets the specification (available from Tal-Ko).

It is recommended that the measuring oil should be inserted into the engine within a period of two minutes. Once it is determined that the oil level has reached the top of the measuring plug hole, the reading should be taken within 30 seconds with no more oil added.

Because of the variation in measurement systems, the results of volume checks will vary dependent on the type of system used – standard burette or digital burette. The minimum permitted volumes are as follows:

**Junior 100cc Std: 11.0cc Digital: 10.6cc  
Extreme 115cc Std: 12.0cc Digital: 11.6cc**

**B3.4.25** As part of TKM's commitment to noise reduction, it is mandatory to use effective heatproof webbing or similar material wrapped around the exhaust flex to help reduce noise.

**B3.4.26** The use of purpose designed TKM fin rubbers is mandatory. All new engines are now 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.

**B3.4.27** 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.

**B3.4.28** The use of both piston rings is mandatory. The rings must at all times remain predominately 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 should 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. *This rule does not apply on Extreme engines with only one piston ring.*

**B3.4.29** Where possible it is recommended that the use of officially sanctioned and part numbered Tal-Ko gauges is used in checking engine measurements. In the case of any discrepancy results using TKM approved gauges will be taken as definitive.

**B3.4.30** It is permitted to use a TKM manufactured with TKM logo flex ring to help increase the life of the exhaust flex.

**B3.4.31 Permitted Rebore (Extreme Specification Engines Only).** It is permitted to rebore the barrel in order to take new TKM Extreme oversize pistons 54.25 – 54.75mm. This modification may be carried out to any age engine. It is also permissible to carry out minor machining to the cylinder head to match as detailed in the latest fiche additions. The pistons in these Extreme engines will have only one piston ring. In all other respects normal Formula TKM rules apply.

**B3.4.32** A TAG on-board starter system engine and associated equipment may be used as supplied by Tal-Ko and detailed in an engine fiche extension.

### **B3.5 Transmission**

**B3.5.1** The drive must be direct, i.e. the crankshaft and rear axle are connected only by a single length of chain. No belt drive, reduction

gears, etc., permitted. Engine sprocket to be 9, 10, or 11 tooth.

**B3.5.2** Karts may be fitted with the optional Formula TKM Horstman dry clutch. If fitted this must carry the Formula TKM markings and be used in unmodified form as manufactured. This clutch is mandatory for Junior *Extreme*.

**B3.5.3** Engines fitted with a clutch must use the genuine TKM clutch safety cover in unmodified form. An effective and working ignition on/off switch must be fitted to the kart and clearly marked in the off position.

### **B3.6 Brakes**

**B3.6.1** Brakes must be hydraulic disc brake operating on the rear wheels only - no ABS or similar systems. On-board adjustment by driver not permitted.

**B3.6.2** The brake disc must be made from cast iron or steel. Type free – may be ventilated. The brake to consist of one caliper, with two pads and maximum of two pistons per pad. Twin master cylinders permitted. Disc carrier free. Any brake system may be used. Pads free.

**B3.6.3** Rule no longer applies.

**B3.6.4** 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 back up in the case of failure. 2001/2004/2007 karts will come with such fitment as standard to which no modifications to the brake system may be made. On older karts minimal safe alteration of the brake system to accommodate these dual connections will be permitted.

### **B3.7 Wheels & Tyres**

**B3.7.1** The only tyres permitted are Maxxis green label with the words Formula TKM moulded in their sidewalls. Dry slick tyres will have green labels, wet tyres will have red labels. They must not be modified in any way including hand or machine cutting.

Tyre sizes/types as follows:

**Dry:** (SLC) Front 10x4.50-5, Rear 11x7.10-5

**Wet:** F/ TKM Front 10x4.50-5, Rear 11x6.00-5

**B3.7.2** Heating of tyres by any artificial method, or their treatment by any chemical substance, is prohibited. Tyre pressures are free.

**B3.7.3** 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.

**B3.7.4** 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.

**B3.7.5** 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.

### **B3.8 General**

**B3.8.1 Retail Price** The maximum retail price for the chassis is **£1595 (plus VAT)** assembled. To include wheels, CIK bodywork, engine mount, exhaust mount, fully enclosed chain guard and be ready to use except for engine, noisebox, tyres, seat, chain and axle sprocket.

**B3.8.2 Weight** (on completion of any part of the event)

**Junior TKM 128:** min **128kg** with driver. Maximum kart weight without driver is 94kg.

**Junior TKM 136:** min **136kg** with driver. Maximum kart weight without driver is 89kg.

**Junior TKM 142:** min **142kg** with driver. Maximum kart weight without driver is 83kg.

**Junior Extreme:** min **138kg** with driver. Maximum kart weight is 94kg.

**Senior TKM Extreme** – min **148kg** with driver

**Senior TKM Extreme Heavy** – min **163kg** with driver. The driver must in full racing equipment weigh a minimum of 80kg.

### **B3.8.3 Plates**

**Senior TKM Extreme** - red with white numbers.

**Junior TKM** - blue with white numbers.

**Junior Extreme** – white with black numbers

### **B3.8.4 Ages**

**Junior TKM** – From 11<sup>th</sup> birthday. As per K116.

**Junior Extreme** – From 13<sup>th</sup> birthday to 31<sup>st</sup> December of calendar year in which 17<sup>th</sup> birthday falls.

**Senior TKM Extreme** The Class is open to any driver aged 16 or over. A Junior may transfer to this senior class at any time during the year that he/she achieves the sixteenth birthday, subject to K.13.2.1 of the MSA Competitors Yearbook. Having moved into the senior class he/she may not revert to a junior class.

### **B3.8.5 Additional Notes**

- While taking part in racing or official practice a revolution counter/data logging device may be fitted provided it meets these criteria. It is permitted that this rev counter or another device may record lap times, split times, speed, revs and length of engine running time. If such equipment is fitted with temperature sensing capability/g-force sensors these connections must not be used. The information gathered may be downloaded when the kart is off the track into any type of memory equipment including PC. It is not permitted to transmit a signal to another receiver whilst the kart is in motion. Any sensors not permitted must be removed from the kart for racing and official practice if this equipment does not comply. 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 organiser's requirements for that race meeting.

- The use of "Easystart" wheels is permitted.

- Only the TKM BT82 name may be used under the heading "engine" in event programmes. No other names permitted.

- The organisers reserve the right to take away an engine complete with carburettor, noise box, exhaust system, etc. sealed by an MSA scrutineer for the purposes of power testing on the manufacturer's approved dynamometer. The competitor and an MSA scrutineer to be present for such testing and any subsequent strip down, which is carried out at the risk of the competitor.

- It is permitted to add weight to the kart in order to meet minimum weight requirements provided that MSA regulations are adhered to. Weights must be attached within the periphery of the main kart frame and must not be attached to the side pods and/or front nose cone. It is permitted to add weights to the seat but strongly recommended not to add more than a total of 2kg weight to the floor tray. No one single piece of ballast must be more than 5kg. All weights to be fixed using a minimum of two mechanical fixings, i.e. bolts with washers.

- When completing scrutineering cards for events it is required to enter both the chassis number AND the Formula TKM sequential plate number.

- It is permitted and recommended to use a protective device to prevent water being sucked into the airbox inlet trumpet. Design free but it must not be attached to any part of the airbox, carburettor or engine. It may be fixed to the sidepod. Such a device must only be used when tyres are declared either wet or open.

- In the event of any dispute the regulations and fiche with updates as published within the official Formula TKM Regulations & Technical Guide 2009 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.

All rules effective January 1, 2009,

**B3.9 ABkC Rules** (which must be read in conjunction with the above).

**B3.9.1 Chassis** In the case of any dispute relating to chassis legality the onus is on the competitor.

**B3.9.2 Eligibility Judge of Fact** The ABkC championships judge of fact on the legality of a Formula TKM engine will be Mr P. A. Klaassen, or other persons who from time to time may be appointed in writing by the ABkC.

**B3.9.3 Driver Restrictions** There are no restrictions on drivers racing in this formula but

clubs are permitted to introduce restrictions in their individual supplementary regulations, for example: 'Drivers who are competing in the current Super One Series in Formula A, ICA or Formula 100 National are not permitted to race in this class in National A events.'

**B3.9.4 It is intended that the three Junior weight/restrictor categories should normally race together with blue plates for one set of awards.**

However where numbers permit it is open to clubs to run any band or bands separately.

**A copy of the Formula TKM Regulations and Technical Guide 2009 including the engine homologation fiche is available from Tal-Ko Racing at £4.50.**

### **Chassis Homologations Appendix**

The following chassis have been homologated for use in Formula TKM:

#### **1998 Homologation**

Please note that from 1.1.98 manufacturers are not permitted to sell new karts which do not bear the appropriate 1998 chassis markings.

Tal-Ko	TKM Raider	TKM02098
Tal-Ko	TKM StealthEvo	TKM02198
Patron	Knight TK	TKM02298
Kartsport	Boxer K5	TKM02398
Biz	Biz TKM J	TKM02498
Biz	Biz TKM S	TKM02598
Project One	Project One Evo	TKM02698
Kestrel	K4 (re-homol)	TKM02798
Kestrel	K6	TKM02898
SWRD	06 Suzuki	TKM02998
SWRD	07 Garda	TKM03098
Rocket	RMS Rocket	TKM03198
Zip	CD11	TKM03298
Zip	CD16	TKM03398
Deavinsons	Sprint TKM 100/104	TKM03498
Deavinsons	Sprint TKM100/101	TKM03598
Kartpro	StratosFormulaTKM	TKM03698
Dartford	Solo Revenge	TKM03798
Dartford	Solo Taurus	TKM03898
McMahon	Shark	TKM03998
Anderson	Fontana	TKM04098
Fullerton	Tiger	TKM04198
Fullerton	Lion	TKM04298
Lovato	Smart Kart	TKM04398
ARC	ARC K2000E	TKM04498
ARC	ARC K2000C	TKM04598
Vixen	VB4	TKM04698
Bowman	Flight	TKM04798
Bowman	Arrow	TKM04898
Gillard	TKM 205	TKM04998
Gillard	TKM 206	TKM05098
Paul Carr	Venom (Re-homol)	TKM05198
Paul Carr	Venom Ultima	TKM05298
Kartell	SDB Meteor	TKM05398
Kartell	SDB Evolution	TKM05498
Wimbleton	Daytona	TKM05598
Slipstream	Pukka	TKM05698
O'Neill	Verde 28	TKM05798
O'Neill	Verde 30	TKM05898

All Turbo karts have been excluded from the homologation list and may not be raced in Formula TKM.

#### **2001 Homologation**

Tal-Ko	TKM Raider R1	TKM00101
Tal-Ko	TKM Raider R3	TKM00201
Biz	Biz TKM	TKM00301
Project One	Project One Evo 2	TKM00401
LRG	8 LRG TKM	TKM00501
LRG	2 LRG TKM	TKM00601
Dartford	Solo Tornado	TKM00701
Dartford	Solo Revenge / 2	TKM00801
JKH	Dynamite	TKM00901
Shark M/S	Shark M2	TKM01001
Shark M/S	Shark M1	TKM01101

Shrewley	Jade	TKM01201
Zip	Cougar	TKM01301
Deavinsons	TO1	TKM01401
SWRD	Braga	TKM01501
SWRD	Suzuka / 2	TKM01601
Kestrel	K7 Stinger	TKM01701
Anderson	Magic	TKM01801
John Mills	JM Kart	TKM01901
Modus M/S	Vixen VB5	TKM02001
ARC	K Zero 4-T	TKM02101
ARC	K Zero 4	TKM02201
Paul Carr	Venom Attack	TKM02301
Paul Carr	Venom Avante	TKM02401
Kartell	Spirit Excell 1	TKM02501
Kartell	Spirit Excell 2	TKM02601
Gillard	Gillard 208	TKM02701
Gillard	Gillard 209	TKM02801
TRT	RT9 Mullet	TKM02901
Longfield M/S	RMS Rocket (re-hom)	TKM03001

From Jan 1, 2004 none of the above karts may be sold as new.

#### **2004 Homologation**

Tal-Ko	TKM STORM	TKM00104
Tal-Ko	TKM BLADE	TKM00204
ARC	ELITE	TKM00304
SWRD	BRAGA 04	TKM00404
MODUS M/S	VIXEN VB6	TKM00504
RM WILSON	TEC-MEC BANSHEE	TKM00604
RM WILSON	TEC-MEC VOODOO	TKM00704
PATRON	KNIGHT	TKM00804
JADE	ELITE 2	TKM00904
JADE	ELITE 1	TKM01004
PROJECT 1	Project 1 ECLATE	TKM01104
DARTFORD	NIMROD	TKM01204
JKH	DYNAMITE V3	TKM01304
JKH	DYNAMITE V4	TKM01404
GILLARD	209 EVO	TKM01504
GILLARD	208 EVO	TKM01604
P CARR	VENOM SIDEWINDER	TKM01704
P CARR	VENOM SHADOW	TKM01804

Re-Homologation  
ARC K ZERO 4-T TKM02101

#### **2007 Homologation**

Tal-Ko	CRG Fiorano	TKM00107
Tal-Ko	TKM XTRAC	TKM00207
Tal-Ko	TKM EDGE	TKM00307
Gillard	Gillard 210	TKM00407
ARC	Parolin Spyder	TKM00507
ARC	Elite Evo	TKM00607
Paul Carr	Tonykart Viper	TKM00707
Jade	Jade Dominator	TKM00807
Modus Motorsport	Haase VB7	TKM00907
Head 2 Head	Parolin H2H Z-one	TKM01007

Re-Homologation  
RM Wilson Tec-Mec Voodoo TKM00704

## TKM 2-Stroke Regulations Appendix

### Port Measuring Gauges

Tal-Ko offers a range of gauges for measuring the internal ports of the TKM BT82 engine. All gauges are manufactured to a high level of accuracy and all carry the TKM logo together with a Part Number to verify their consistency.

Gauges should be inserted into the barrel either from above or below as appropriate and must be used at right angles to the dimension being checked. All are 'no-go' gauges. It is recommended that the engine is allowed to cool and barrel removed before testing with gauges. The barrel should be between -5c and +50c at time of testing. No-Go readings taken at any point within this temperature scale will be acceptable and definitive.

The gauges consist:

PN 3 EW Exhaust Port Width  
39.9mm Max across chord

PN 4 EH Exhaust Port Height  
21.15mm Max in both ports

PN 5 EB Exhaust Port Bar  
4.8mm Min

PN 6 IW Inlet Port Width  
33.9mm Max

PN 7 IH Inlet Port Height  
22.55mm Max

PN 8 TW Transfer Port Width  
20.25mm Max

PN 9 TW Transfer Port Width  
13mm Max

Note two different transfer port width sizes per engine

### Cylinder Head Volume Measurement

The technique recommended for measuring head volume is as follows:

1. Remove plug cap and spark plug with its sealing washer.
2. If head has been removed, re-assemble using original gaskets as raced and tighten the 4 securing nuts to 13lbs ft and the 2 smaller M6 bolts to 8lbs ft.
3. Insert measuring plug TKM tool No 003. ensuring that it is fully tightened down on plug washer face to 13lbs ft
4. Ensure engine is in upright, stable position.
5. Readings must be taken with piston at Top Dead Centre
6. Use a Standard 'A' grade burette or Digital burette with oil which meets the specification required in TKM fiche (available from Tal-Ko)
7. It is recommended that the measuring oil should be inserted into the engine within a period of two minutes. Once it is determined that the oil level has reached the top of the measuring plug, the reading should be taken within 30 seconds with no more oil added.
8. Note that the minimum permitted volume is Junior 100cc by Std burette 11cc & by Digital burette 10.6cc. Extreme 115cc by Std burette 12.0cc & by Digital burette 11.6cc. Note that the definitive measurement is the one taken with the measuring plug.
9. Please also note that this procedure has been laid down to ensure equal play for all competitors. Use of the measuring plug is intended to ensure no advantage can be gained by artificially removing threads. It does not change the readings that will be obtained from unmodified engines.