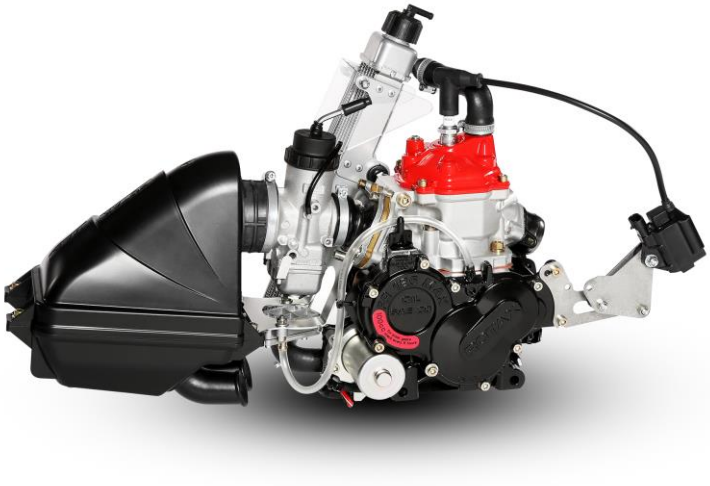
BNL KARTING SERIES

TECHNICAL REGULATIONS 2019

MICRO MAX

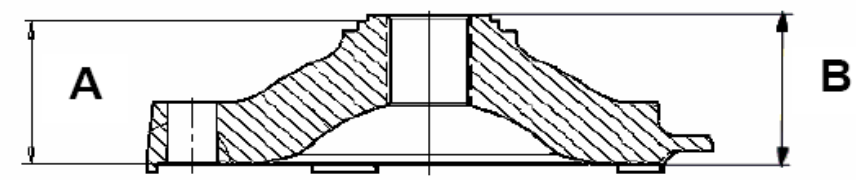


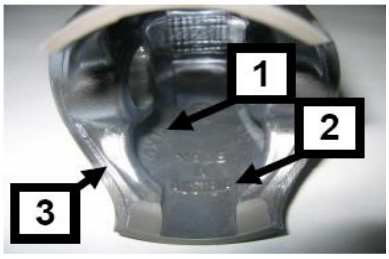
Technical Regulations EVO MICRO MAX

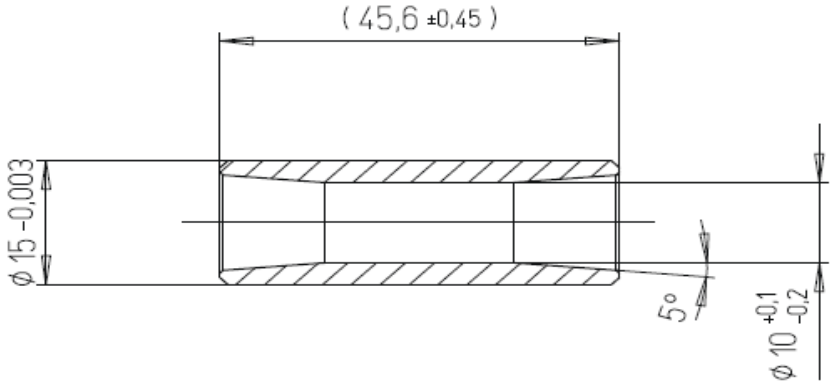
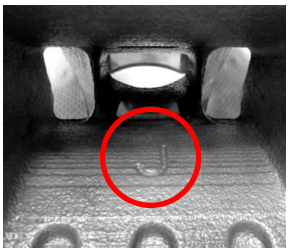
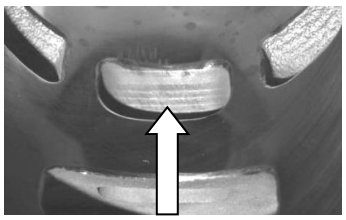
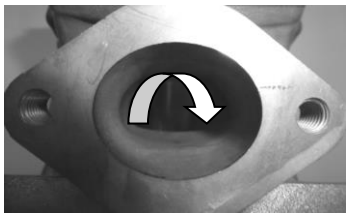
1.00 / Chassis	Maximum one chassis by competitor/team per event (weekend). Only CIK/FIA homologated chassis after 2006 are allowed. The homologation sheet has to be available at any time		
Wheelbase	Minimum 850mm	Maximum 950mm	
Chassis pipe	Ø 28 Magnetic steel / Wall thickness 2mm ± 0,2mm		
1.01 / Brakesystem	Mechanic or hydraulic. Between the master brake cylinder and the brake pedal an extra security brake cable is mandatory. Minimum 1,8mm thickness. Also an extra security clip is mandatory at the brakepads. A ceramic brake disc is not allowed.		
1.02 / Rear axle	Magnetic material in a whole		
Diameter	Maximum Ø30mm		
Wall thickness	Minimum 4,9mm (entire length)		
1.03 / Rims	Aluminium or magnesium / diameter 5 inch		
Front rim	115mm (tolerance +/- 6mm) measured to the outside of the rim		
Rear rim	145mm (tolerantie +/- 6mm) measured to the outside of the rim		
	Any additions to the rims are not allowed. Except : adhesive balancing lead. Bead retaining screws are mandatory.		
1.04 / Tyres	MOJO®		
Dry	MOJO C2 with barcode	Front 10x4.00x5	Rear 11x5.00x5
Rain	MOJO CW with barcode	Front 10x3.60x5	Rear 11x4.50x5
	Slick race tires must be ordered in advance through the organization by means o a voucher. (See Sporting Regulations). One set per event is allowed. (Two front and two rear tires) Tires must be mounted according to the direction of rotation defined on the tire. If it's detected on the pre-grid area that a driver has fitted his tires incorrectly (wrong direction) then he will be moved to the repair zone. The driver has the possibility to assemble his tires correctly, with the help of one (1) mechanic. Afterwards he may start, but only when the start is given. He is not entitled to participate in the formation laps. If the observation takes place after the race, the driver will excluded for the relevant part of the competition. It is not allowed to modify the tires. The brand name, code number, barcode and the indications always need to be visible on the tires. Only normal air is allowed to fill the tires.		
1.05 / Rearbumper	The plastic bumper must be homologated. And cover at least 2/3 of the rear wheels, and may not protude the rear tires. A 'Mini chassis' adjustable rear bumper is allowed.		
1.06 / Side-pods Frontbumper Steering column	Only a complete homologated plastic spoilerset is allowed. The complete spoiler set should have the same homologation number. The homologation sheet has to available at any time. Using composite like carbon fiber is not allowed. For security reasons it is mandatory to use a front bumper with a minimum width of 82 centimeters. Only plastic frame protection parts (left, right, front) is allowed. The complete set should be free of damage.		

1.07 / Fuel tank	The plastic fuel tank should be mounted in a correct way, at the appropriate place. All vents must be culminate in a reservoir
1.08 / Age	From 7 till 11 year. (11 included)
1.09 / Weights and clothing	Minimum 110 kg op each moment of the even. Kart + complete race gear. A driver must be equipped and appear for inspection with the following gear: (see time table) Complete equipment must comply with the CIK regulations A turbo visor is allowed in case of rain Gloves which cover the entire hand High shoes that cover and protect the ankles. The responsible doctor on the event may, for safety reasons, disapprove certain types of breast, neck or rib protections. A neck protection is **mandatory.** From the moment when the driver goes on track, he must wear the mandatory race gear as described in this article.
1.10 / Race numbers	Red plate with white digits (Numbers 1 t/m 99) (Front, rear, left and right sides)
1.11 / Data systems	Data logging with or without a GPS module is allowed. Data from the GPS module may only be saved systems which has been mounted on the kart. Every other form of telemetry or radio communication is not allowed. Transferring data during sessions to a device, other than the data logger on board is not allowed. Power to activate the data system should be taken from a separate battery. It is not allowed to take power from the battery that is mend for the engine.
1.12 / Seat	The seat has to be fixed at minimum 4 places, 2 at the top (left and right) and 2 on the bottom (left and right) All seat supports have to be fixed with washers with a minimum thickness of 1,5mm and a diameter of 40mm
1.13 / Lead	Drivers who are lighter than the required minimum weight shall attach extra weight on their kart, until they reach the prescribed weight. Lead may only be installed on the chassis or on the seat. The Technical Scrutineering can force each driver to mount the lead on another place. The lead shall be mounted so that everyone's security is guaranteed at all times: • Up to 3kg: at least with 2x M6 bolts • Up to 6kg: at least with 2x M8 bolts • Up to 10kg: at least with 4x M8 bolts
1.14 / Camera's	Drivers may use a camera if mounted in an appropriate way **and accepted** by the Scrutineers. Helmet cameras are not allowed. Clips, etc, for mounting a camera may not be fit on the helmet.

ENGINE – Rotax EVO MICRO MAX

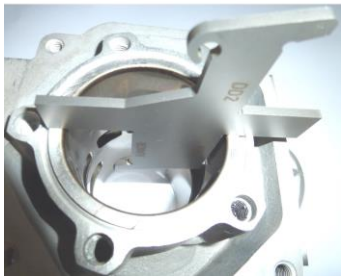
1.15 / Foreword	These regulations will be valid as of 1st of February 2019 and will replace all previous regulations. Only originals spare parts which are manufactured by Rotax BRP are legal to be used. Any modifications are not allowed. Eventually helix reparations with heli coils and/o wire bushes are allowed.
1.16 / Engines	Each race-meeting its allowed to enter two engines. The engines should be sealed with an official Rotax seal. The engine registration card has to be available at any time.
1.17 / Squish	Minimum 2,40mm (including possible carbon deposits) Om deze maat te bereiken is het verplicht om een metalen cilinder restrictieplaat (Rotaxnr. 626420) te gebruiken samen met de originele voetpakkingen.
Way of measuring	Engine temperature below 30 degrees Celcius. The squish gap must be measured with a certified slide gauge and by using a 3 mm tin wire (Rotax part no. 580 132). The crankshaft must be turned by hand slowly over top dead centre to squeeze the tin wire. The squish gap must be measured on the left and right side in the direction of the piston pin. The average value of the two measurements counts.
1.18 / Combustion chamber insert	Cast identification code has to be "223 389" or "223 389 1" or "223 389 2" or 223 389 2/1" or "223 389 2/2". Casted wording "ROTAX" and/or "MADE IN AUSTRIA" must be shown Height of the combustion chamber insert has to be **27,55mm, (+0,0/-0,1mm)(A)** and **28,80mm ± 0,2mm (B)** 

	The profile of the combustion chamber insert has to be checked with a template (ROTAX part no. 277390). The crack of light between the template and the profile of the combustion chamber insert has to be the same over the whole profile.
1.19 / Cylinder head	It is allowed to change the colour of the cilinderhead cover for indentification.
1.20 / Piston wih ring assembly	Original, coated, aluminium, cast piston with one piston ring. The piston has to show on the inside the cast wording "ELKO" (1) and "MADE IN AUSTRIA" (2)  Machined areas are: Top end of piston, outside diameter, groove for the piston ring,bore for the piston pin, inside diameter at bottom end of piston and some pre -existing factory removal (3) of flashing at the cut out of the piston skirt. All other surfaces are not machined and have cast surface. Any mechanical treatment or rework of the piston is forbidden, (e.g. removal of carbon deposits). Cleaning without changing the original surface is allowed. Original, magnetic, rectangular piston ring. Ring height : 0,98 +/- 0,02 mm. Piston ring is marked either with "Rotax 215 547", "Rotax 215 548" or **Rotax 215 548X** The piston ring is legal also if just parts of the marking are still visible.

1.21 / Piston pin	Piston pin is made out of magnetic steel. Dimensions must be according to the drawing. The minimum weight of the piston pin must not be lower than : 32,10 grams 
1.22 / Cylinder	Cylinder types >2017, partnr.: 223994 marked with the letter **"J" are the only types that are allowed. All other typers are banded.** The upper edge of the central boost port may show factory machining. See pictures below   
1.23 / Maximum bore	54,035mm (measured 10mm above the exhaust port)
1.24 / Cylinder	Height of cylinder should be 87mm (-0,05 / + 0,10mm)

Cylinder

Exhaust port timing
The "exhaust port timing" (distance from the top of the cylinder to the top of the
exhaust port) has to be checked by means of the template (ROTAX part no.
277 402).
Insert the template for Senior Max cylinder into the cylinder, and move the template (at the
highest point of the exhaust port) as far as possible into the exhaust port.

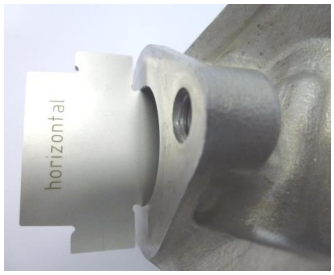


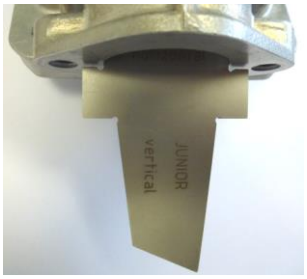
In this position the template may not touch the cylinder wall.

Any modification is strictly forbidden!

The horizontal and vertical dimensions of the exhaust port
with fully CNC machined exhaust port only) have to be checked with the template (Rotax part no. 676 245).

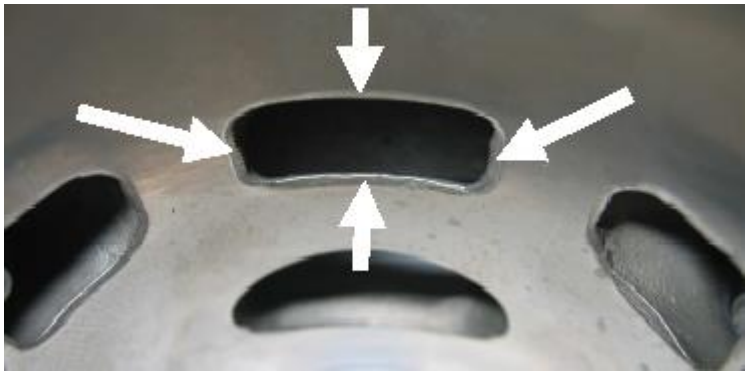
The template has to be moved in horizontal and vertical position as far as possible into the exhaust port. In both directions
the template may not touch the exhaust socket flange.



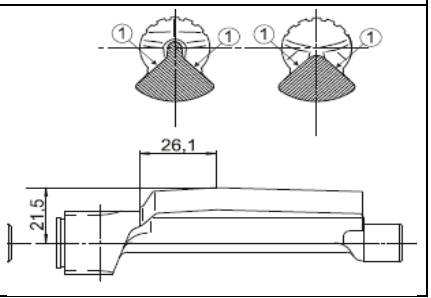


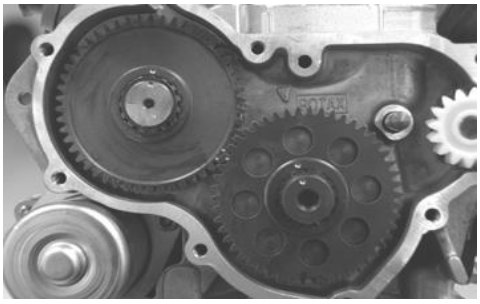
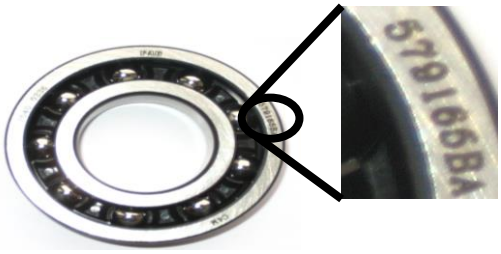
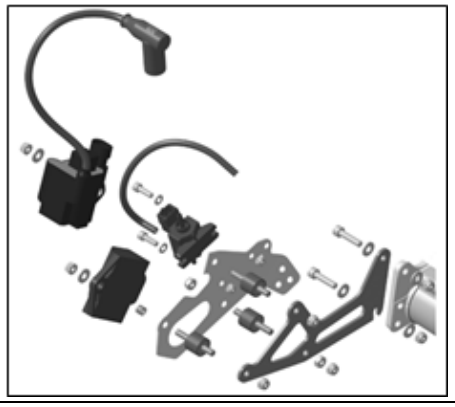
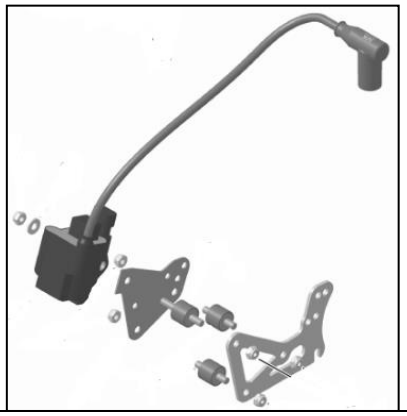
All transfer ports and passages have cast finish surface except some removal (done by the manufacturer) of cast burr at the inlet passage, exhaust port and passages. All ports have chamfered edges to prevent ring snagging. Any additional machining is not permitted. The top edge of exhaust port may show some pre-existing
machining from the manufacturer. The sealing flange for the exhaust socket may show signs of machining from the manufacturer.
All ports have chamfered edges. Any additional machining is not permitted.

Cylinders with code 223 994 the upper edge of the central boost may show factory machining. See picture.



The top edge of the exhaust port may show either just a cast finish surface or signs of a CNC machining or sign of CNC machining in combination with sign of

1.25 / Inlet system	The inlet manifold is marked with the identification code 267915 of 267916 Some factory flash removal may be present at the conjunction of the inside contour and the carburettor stop mounting face. No additional grinding or machining is permitted. The reed valve assy. is equipped with 2 petal stops and 2 reeds, each having 3 petals. The thickness of the reeds is 0,60 mm +/- 0,10mm. Modification is not allowed.
1.26 / Conrod/crankshaft	Stroke: 54,5mm ± 0,1mm Con rod has to show forged numbers “367” or “362” (see pictures) Shafts of con rods are not machined. Grinding or polishing of shaft of con rod is not permitted. Crankshaft has to be unprocessed and may not be damaged. Ignition signal on crankshaft : Fit the template (Rotax 277391) on the crankshaft. Align the hole in the template for the big end pen with the big end pin of the crankshaft. The two edges of the signal machining on the crankshaft must be in line (+/-0,5mm) with the corresponding edges (MAX) of the template.
1.27 / Balance shaft / drive	Balance shaft and balance gears must be installed. Configuration of part (Rotax nr. 237 949) only is legal. Surface (1) is not machined and must show cast surface. Measurement from centre of 

	balance shaft to outer diameter of fly weight of balance shaft at defined length must not be lower than specified : (21,50mm) see drawing. The minimum weight of the dry balance shaft must not be lower than: 255 gram for balance shaft. (Rotax nr. 237 949) **Balance drive** Balance gears must be installed and must be aligned according to the instruction in the repair manual. Latest steel balance gears (Rotax nr/ 234435 or 234436) in combination with the new clutch is allowed. Mixing the two types of balance gears is not allowed! 
1.28 / **Crancase**	As supplied by the manufacturer. No grinding/polishing is permitted in the two main transfer passages as well as in the crank area. Uncoated as well as black coated crankcases are legal to be used.
1.29 / **Crankshaft main bearings**	Crankshaft main bearing 6206 from FAG is allowed only. The bearings must be marked with 579165BA or Z-579165.11.KL (see picture) 
1.30 / **Ignition system**	Senior EVO Dellorto ignition system. Ignition coil with separate electronic ECU box (Rotax nr. 666813). The ECU box is still legal to be used if the sticker is removed. Ignition coil and ECU box and magnet valve have to be fitted with all components according to the illustrations below :  

Ignition system

In case the mounting bracket is in conflict with a chassis component, the additions of 2 spaces, one per mounting hole, with a maximum thickness of 20mm between the mounting bracket and the gearbox cover is allowed.
Two different mounting versions (left illustrations and right illustration) are legal.

At the mounting version as shown in the left illustration, the ground cable of the cable harness has to be connected to the lower rubber buffer of the support plate.
Removing the black coating of the gearbox in specific areas, for mass connection between cable harness and engine, is a legal modification.

The visual appearance of the ignition coil must be identical with the pictures below:

Ignition coil must show two pins at the terminal. The ignition coil is labelled with two stickers : “BRP 666820” and “NIG 0105”. The ignition coil is still legal to be used if one or both stickers disappeared.

The minimum length of the high tension cable of the ignition coil is 210mm (from outlet of ignition coil to outlet of spark plug connector = visible length of cable)

The organization reserves the right at all times to exchange ignitions coils and / or ECU boxes with ignition coils and or ECU boxes from other drivers or organization.

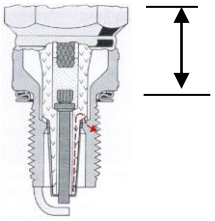
The ECU box can be checked with the ECU box tester (Rotax nr. 276230)

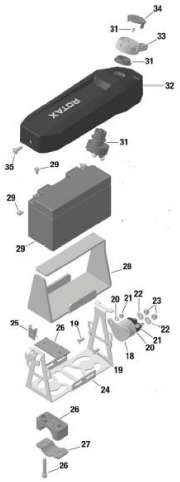
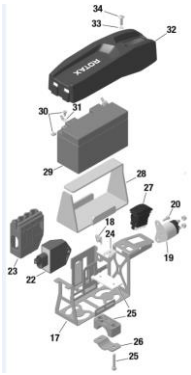
Start the test by pressing the button ✓ **.** After approx. 3 seconds the type of ECU box that is actually testes will be indicated in the second line of the display. After aprrox. 30 seconds the result of the test will be indicated in the first line of the display.

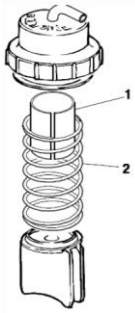
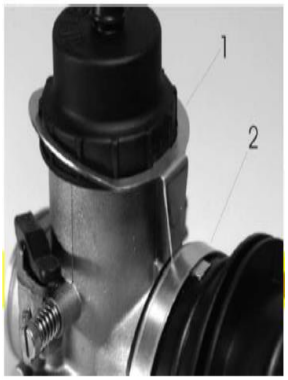
The ECU box tester has to indicate following results:
125 MAX category
1. 666815MAX
2. !! Test OK !!

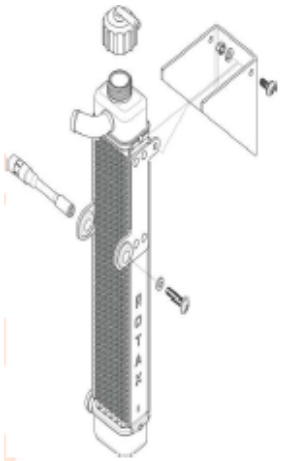
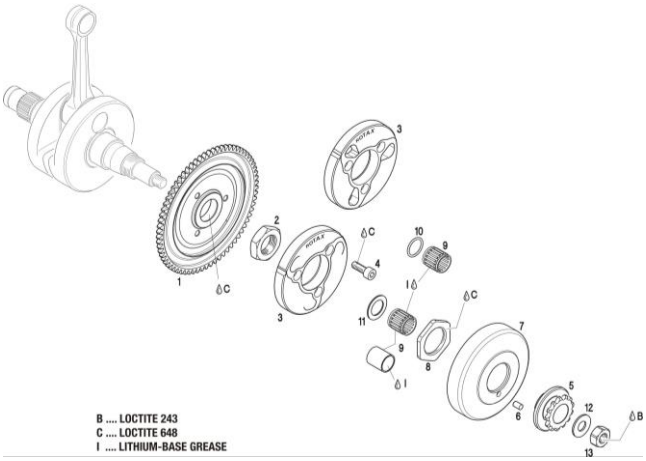
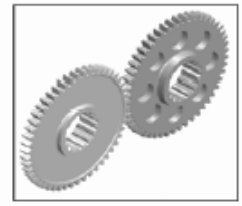
The marking of the pick-up must show the following numbers in the first line : 029600-0710 followed by a variable production serial number.

Additional gasket, Rotax 431 500, gasket thickness = 0,8 mm
Maximum two gaskets (Rotax 431 500) are allowed to be fitted.

1.31 / **Spark plugs / Caps**	Following spark plugs are legal to be used : NGK GR8DI / NGK GR9DI Merk : Denso Iridium IW 24 / 27 / 29 / 31/ 34 Electrode distance maximum 1,20 mm Maximum spark plug shaft including ring : 18,00mm. Two versions of spark plug caps are legal to be used : Version 1. Black, marked with “NGK TB05EMA” Version 2. Red, marked with “NGK” 

1.32 / Battery	Original batteries with following specifications are legal to be used : • Rotax type RX7-12B • Rotax type RX7-12L (lithium iron phosphate type) • YUASA YT7B-BS Specifications of the batteries should be readable at all times. Battery must be fitted with the original battery clamp and battery cover (pictures below) and must be fixed to the chassis with both clamps (4 screws). Battery clamp must be mounted on the left side of the seat. 1 Evo  2 Evo  Only original plugs from the Rotax wiring harness are legal to connected to the battery.
1.33 / Carburetor	**DELLORTO Type VHSB 34**. Housing has to show the cast wording “VHSB 34”. Carburettor housing is stamped with “XS”. The complete inlet bore of the carburettor must show cast surface. Carburettor slide shows digits “45” in casting <u>Following specifiacations:</u> • Carburettor venturi insert 12,5. • Needle jet stamped with “DP267”. • Jet needle stamped with “K57”. • Start jet stamped with “60”. • Idle jet stamped with “60”. • Idle emulsion tube stamped with “45”. • Float lever according template (Rotax nr. 277400.) • Floats marked “4,0 gr” are legal to be used only. • Needle valve assembly stamped “150”. Needle of needle valve marked with diamond symbol “INC” only. • All jets must be correctly seated and securely fitted at any time (tightened)! • Settings of the carburettor adjustment screws (idle and idle air) are free. • Settings of main jets is free. • Optional carburettor plug (Rotax nr. 261030) is legal to be used.

Carburetor	 The carburetor stop sleeve (nr. 1, Rotax 251 730) is mandatory and should be mounted between the gas valve and the top cover, so that the gas valve/slide only can open partly. The length of the stop sleeve should be 32,0mm (+/- 0,2mm)  Also the fixation plate (nr. 1, Rotax 251 790) is mandatory and should be mounted under the top cover. The air filter clamp (nr. 2, Rotax 951 791) has to go over het fixationplate. Only original Dellorto parts are legal to be used. Even if not supplied by Rotax. **See checklist DELLORTO for further info.**
1.34 / **Fuel pump**	MIKUNI fuel pump, type DF 44-210 is mandatory. Fuel pump must be mounted on the bottom side of the support bracket for the intake silencer
1.35 / **Fuel filter**	It is **not mandatory** to mount a fuel filter, but if a fuel filter is mounted only the version showed in the picture below is allowed : Except the fuel line, the fuel pump and the original fuel filter no additional parts are legal to be mounted between the fuel tank and carburettor.

1.36 / Radiator	Only the original radiator, with or without radiator flap (ROTAX partnr. 295923) is legal to be used. Height: 280 / 300mm Width: 58 / 60mm Thickness of radiator: 30 / 34mm  The removal of the thermostat from the cylinder head cover is an allowed modification. Radiator must be mounted wilt all components. Tape is allowed but may not loosen or removed during racing. It is an allowed modification to use a plastic plate/flap to control the air flow through the radiator. Any other non-original device to control the air flow through the radiator is prohibited. The radiator has to be mounted on the right side of the engine.
1.37 / Engine coolant	Plain water without any additives has to be used. The venting of the radiator should end in a reservoir.
1.38 / Clutch	Engagement speed of centrifugal clutch at maximum 4.000rpm (the kart without driver must start to move). Latest clutch version with steels balancing gears.  B .... LOCTITE 243 C .... LOCTITE 648 I .... LITHIUM-BASE GREASE  Only original Rotax clutch parts with Rotax logo are legal to be used.

Clutch

Clutch must be mounted with bearing 15x19x17 (Rotax nr. 632415) including O-ring (Rotax nr. 950815)

Signs of emission of grease from the needle/plain bearing into the clutch drum may not exceed the picture below. Contact area between clutch and clutch drum has to be dry at any time. No lubrication allowed.

Clutch specifications at any time :

Height of the clutch : minimum 11,45mm

Thickness of the clutch shoe : minimum 24,10mm

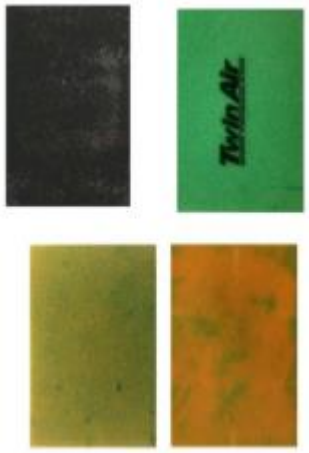
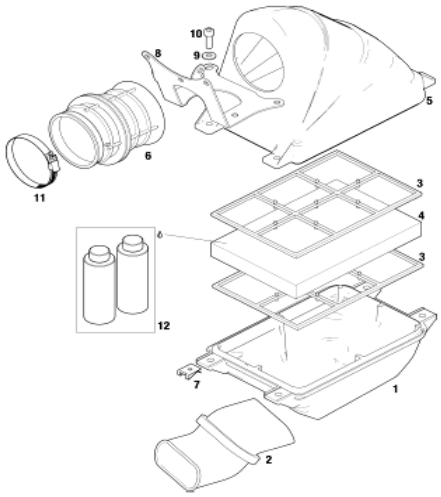
Measurement has to be done at the 3 open ends of the clutch, 5 – 10mm from the machined groove (all clutch shoes must be completely closed at measurement – no gap)

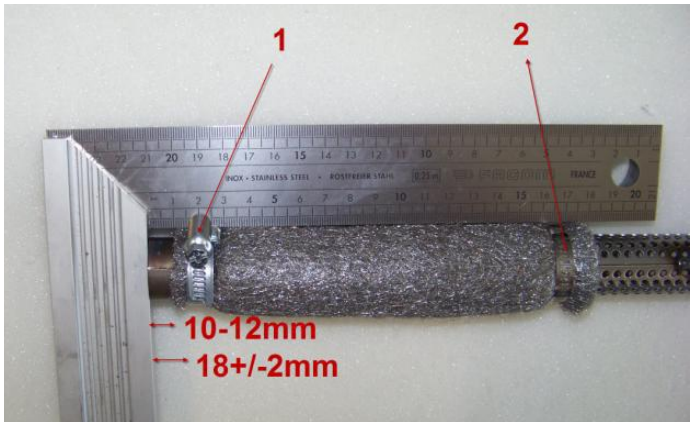
Clutchdrum : (Rotax nr. 659930 and Rotax nr. 659937) are legal to be used.

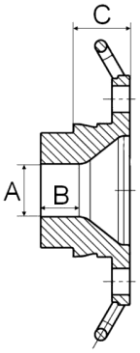
The outer diameter of the clutch drum : minimum 89,50mm. Diameter has to be measured with a sliding calliper just beside the radius from the shoulder. (Not at the open end of the clutch drum).

The inner diameter of the clutch drum : maximum 84,90mm. The inner diameter has to be measured with a sliding calliper. The measurement has to be done in the middle of the clutch drum (in the contact area between clutch and clutch drum).

The height of the clutch drum with sprocket : minimum 33,90mm

1.39 / **Airbox filter**	Intake silencer with integrated, washable air filter has to be used with all parts. and has to be mounted on the support bracket with two screws (in dry and wet conditions). Intake silencer tube (pos2) and carburettor socket (pos 6) are marked with the wording “Rotax”. Intake silencer case bottom is marked on the inside with the Rotax part nr. 225015. Intake silencer case, top is marked on the inside with the Rotax part nr. 225025 Three versions of original air filters (pos 4) are legal to be used. See pictures below. Air filter (pos 4) must be installed as as shown in the illustration between the two holders (pos 3) and must cover the complete area of the intake silencer case bottom. Using elements with the wording “Aprillia” is not allowed !  
1.40 / **Exhaust system**	Original exhaust system as supplied by Rotax is mandatory to be used. Exhaust system, Rotax EVO (Rotax part nr. 273132) is mandatory. **The original Rotax isolating mat (Rotax nr. 297981) is mandatory. Each event, the exhaust should be fitted with a new isolating mat in the presence of the technical scrutineer during Technical Scrutineering. Once the isolating mat is fitted, the exhaust will be sealed with a barcode seal. All exhausts stays in Parc-Ferme area during the event.** The isolating mat should cover the perforated cover at any time. Replacing the original rivets of the silencer end cap by 4mm metric screws and

Exhaust system	corresponding locking nuts is an allowed modification. Additional to the standard isolation mat a steel isolation mat (Rotax part nr. 297983) of the square dimension of 165 (+10mm) is legal (not mandatory) to be assembled underneath the standard isolating mat according to the illustration below :  Clamp (1) must be fitted at a distance of 18 (+/-2mm), measured from the end of the tube. Clamp (2) must be fitted at the end of the perforated tube to the beginning of the steel isolating mat is a specification for assembly purpose only. Both clamps (1 and 2) are mandatory to be fitted and tightened. The exhaust system should be mounted to the chassis by using the two original mounting brackets. Rubber buffers are mandatory to be placed between the system and chassis. The use of maximum 4 pieces of original Rotax exhaust springs, to fix the exhaust system to the cylinder is allowed. Any other item is not allowed. Welding a socket on the top of the exhaust system for measuring the exhaust gas temperature is an allowed modification. Distance : 50-80mm from the ball joint. Welding at the exhaust system is only allowed in case of a repair. Modifications are not allowed. The organization reserves the right at all times to change exhaust systems from drivers with exhaust systems from the organization.

Exhaust restrictor	Only exhaust restrictor (ROTAX part 273192) including seal ring is legal to be used. Diameter : 18mm +0,3 / -0,3mm. Modification is not allowed. B measurement : min. 12mm C measurement : min. 18,5mm 
1.41 / Gear / Sprocket	Rear sprocket type 219. Engine sprocket : 14t Rear sprocket : 72t
1.42 / Fuel test	The organization has the reserves to test the race fuel at any time.
1.43 Fuel	It is only allowed to use fuel with a maximum of 98 octane. We strongly discourage fuel with an octance of 95. **Notice : In Belgium 95 octane includes ethanol which effects the values.** Checks will be done with a Digatron DT-47FT fuel tester which is calibrated in pure liquid cyclohexane. If the value (result) of the check is higher than +60 the driver will be disqualified. Each race the organisation will recommend a fuel station. If fuel is changed by the organisation, the driver will receive, from the designated fuel station, 98 octane fuel that is mixed with 2% Denicol Syn 100.
1.44 / 2-takt olie	It is not allowed to add any product to the fuel, except 2-stroke oil.