



APPROVED



ROTAX MOJO MAX Challenge
Technical Regulations 2009
(The Technical Regulations 2009 replace the Technical Regulations 2008)
Version 2009.02.27

1. Categories:

Categories racing in the ROTAX MOJO MAX Challenge GRAND FINALS (RMCGF) and International ROTAX MOJO MAX Challenge Events (IRMCE) like the ROTAX MOJO MAX EURO Challenge are divided into the following groups:

- ROTAX 125 Junior MAX (cylinder capacity 125 cc)
- ROTAX 125 MAX (cylinder capacity 125 cc)
- ROTAX 125 MAX DD2 (cylinder capacity 125 cc, 2-speed)

Categories racing in the ROTAX MOJO MAX Challenge (RMC),

- ROTAX 125 Micro MAX (cylinder capacity 125 cc)
- ROTAX 125 MINI-MAX (cylinder capacity 125 cc)
- ROTAX 125 Junior MAX (cylinder capacity 125 cc)
- ROTAX 125 MAX (cylinder capacity 125 cc)
- ROTAX 125 MAX DD2 (cylinder capacity 125 cc, 2-speed)

2. Amount of equipment:

For each race event, from non-qualifying practice to the final, maximum following amount of equipment is allowed:

- 1 chassis
- 2 sets of dry tires + 1 front + 1 rear spare tires
- 2 sets of wet tires + 1 front + 1 rear spare tires
- 2 engines

For Canada, the equipment allowed is from qualifying session to the final race. The event organizer may specify the number of tires allowed for the event in the supplemental regulation of the event

3. Kart:

3.1 Chassis:

For national RMC's any chassis sanctioned by an authorised ROTAX distributor is allowed.

For 125 Micro-Max and 125 Mini-Max, see the specific technical regulation for these classes.

Junior MAX and 125 MAX classes

Maximum diameter of chassis tubing = 32 mm, round tubing only.

Maximum diameter of rear axle = 50 mm, minimum wall thickness according to CIK-FIA rules.

At IRMCE and RMCGF chassis with a valid CIK-FIA homologation only are allowed.

Any brake system must have a valid CIK-FIA homologation.

Front brakes are not allowed in the 125 Mini-Max and 125 Junior MAX classes.
Front brakes are allowed in 125 MAX class only.

For Canada, all braking systems must be operated simultaneously by a single foot pedal unless necessitated by physical handicap and approved by the event scrutineer.

125 MAX DD2 class

For all national RMC, IRMCE and the RMCGF 125 MAX DD2 classes, chassis approved by BRP-ROTAX only are allowed to be used (approved chassis will be listed at the web page: www.maxchallenge-rotax.com).

Chassis must be designed according to CIK-FIA rules for shifter classes (front- and rear brakes mandatory).

Any brake system must have a valid CIK-FIA homologation.

ROTAX Rear Tire Protection System is mandatory to be used. Either old 2 tube version or latest 3 tube version, third tube might be mounted above or below the 2 main tubes, can be used. No part shall be added or removed from original content.

3.2 Bodywork

125 Junior MAX- and 125 MAX classes

For RMC, in accordance with regulations of national Federations or CIK-FIA.

At RMCGF and IRMCE, only bodywork with current CIK-FIA homologation validity is allowed, including the rear wheel protection system.

125 MAX DD2 class

In accordance with regulations of national Federations or CIK-FIA.

At RMCGF and IRMCE bodywork with current CIK-FIA homologation validity only is allowed. Only the current ROTAX rear wheel protection system is allowed.

4. Tires

125 Micro-Max and 125 Mini-Max

See the specific technical regulation for these classes.

125 Junior Max, 125 Max and Max DD2

At all RMC, IRMCE following only tires are allowed:

Dry (slick) tires:	MOJO Type: D1, D2 or D3
	Front: 4.5 x 10.0 - 5 Rear: 7.1 x 11.0 - 5
Wet tires:	MOJO Type: W2 (In Canada, W1 are allowed)
	Front: 4.0 x 10.0 - 5 Rear: 6.0 x 11.0 - 5

At RMCGF only following tires are allowed:

125 Junior MAX:

Dry (slick) tires:	MOJO Type: D1
	Front: 4.5 x 10.0 - 5 Rear: 7.1 x 11.0 - 5
Wet tires:	MOJO Type: W2
	Front: 4.0 x 10.0 - 5 Rear: 6.0 x 11.0 - 5

125 MAX / MAX DD2 :

Dry (slick) tires:	MOJO Type: D2
	Front: 4.5 x 10.0 - 5 Rear: 7.1 x 11.0 - 5
Wet tires:	MOJO Type: W2
	Front: 4.0 x 10.0 - 5 Rear: 6.0 x 11.0 - 5

Strictly no modifications or tire treatment allowed.

MAX DD2 :

Dry (slick) tires:	MOJO Type: D3
	Front: 4.5 x 10.0 - 5 Rear: 7.1 x 11.0 - 5
Wet tires:	MOJO Type: W2
	Front: 4.0 x 10.0 - 5 Rear: 6.0 x 11.0 - 5

Strictly no modifications or tire treatment allowed.

Note: with W2 tires, marked direction of rotation must be adhered to arrow on the sidewall.

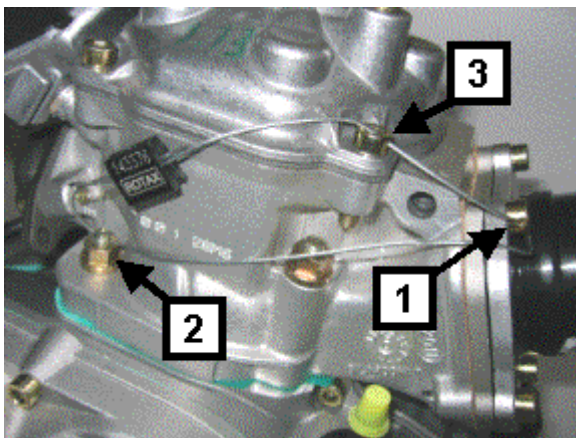
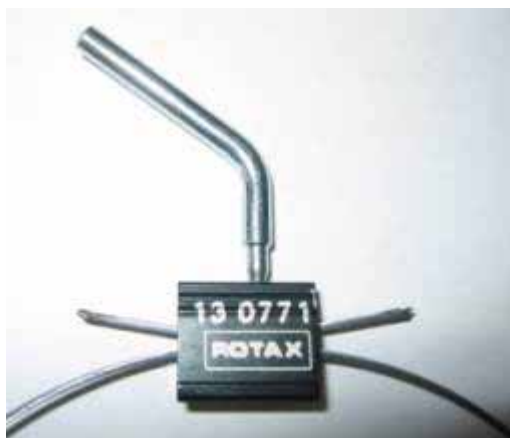
5. **Data acquisition:**
Any data acquisition device for recording and displaying of any data is allowed.
6. **Composite materials:**
Composite materials (carbon fibre etc.) are banned except for the seat and the floor tray.
7. **Safety of equipment**
For RMC GF and IRMCE article 3 of CIK-FIA technical regulations apply.
For RMC overalls, helmets, kart shoes, gloves and other kind of driver protection must comply with the regulations of the national Federation or CIK-FIA.
8. **Petrol:**
Unleaded commercial quality from petrol station, maximum 98 octane.
9. **Engines:**
At RMC, RMC GF and IRMCE races, only engines which are in conformity with the following technical specification, are legal to be used.
For national RMC's, the only engines allowed to be used are engines which have been checked and sealed by the ROTAX Authorised Distributor of this territory or one of the Service Centres appointed by the Authorised Distributor.
For national RMC's, the ROTAX Authorised Distributor of this territory has to publish the lists of Service Centres which are legal to check and seal engines. For Canada, it will be posted on www.maxchallenge.ca .
For IRMCE all ROTAX Authorised Distributors and their Service Centres only are allowed to check and seal engines.
ROTAX will publish a list of Authorized Distributors and their Service Centres which are legal to check and seal engines.
For RMC GF only ROTAX employees are allowed to check and seal engines.

By sealing an engine, the ROTAX Authorised Distributors and their Service Centres take over the responsibility for the conformity of the engine according to the valid Technical Specification. Also a brand new engine must be checked according to the Technical Specification before sealing.

The engines have to be sealed with specific ROTAX engine seals (black anodised aluminium seal with "ROTAX"-logo and a 6 digit serial number see attached picture).

Further legal seals are, for 125 MAX class, black anodised aluminium seals with "JAG"-logo and 6 digit serial number and for 125 Junior MAX class, red anodised aluminium seals with "JAG"-logo and 6 digit serial number.

By means of the steel cable, the engine must be sealed on one Allen screw (1) of the intake flange, on one stud screw (2) of cylinder and one Allen screw (3) of the cylinder head cover (see attached pictures).



At every new sealing of an engine, the authority (ROTAX Authorised Distributor or their Service Centres) that checks and seals an engine is responsible for following indications at the Engine Identity Card which belongs to the owner of the engine:

- Serial number of the engine
- Serial number of the engine seal
- Stamp and signature of the company to be able to detect at scrutineering which authority has checked and sealed the engine.



At scrutineering the driver has to present:

- the engine(s) with the undamaged engine seal(s)
- the Engine Identity Card(s), showing the matching engine serial no.(s), the matching engine seal no.(s) and the stamp(s) and signature(s) of the authority(ies) that has (have) checked and sealed the engine(s).

The ROTAX Authorised Distributor organizing a national RMC may appoint before every RMC race a neutral Service Centre which will be the only one allowed to re-seal an engine between scrutineering and the final in the case of an engine failure. **For Canada**, if no Service Centre has been appointed, an engine can be opened between the scrutineering and the final with the approval of the technical inspector. The check and repair, if needed, and re-sealing of the engine must be done under the technical inspector supervision.

During an IRMCE ROTAX Authorised Distributors and their Service Centres are not allowed to re-seal an engine between scrutineering and the final. The sealing of engines helps to reduce the times for scrutineering at races as during the race event just the accessories (carburettor, exhaust, radiator, etc) must be checked. Of course scrutineers can request to open and re-check an engine according to the Technical Specification, before or after a race or in case of a protest. If an engine seal has been broken (for which reason ever), the engine has to be checked completely according to the Technical Specification and must then be re-sealed by an ROTAX Authorised Distributor or one of its Service Centres.

Genuine ROTAX components only that are specifically designed and supplied for the 125 Junior MAX-, the 125 MAX- and the 125 MAX DD2 engines and for 125 Micro Max and 125 Mini-Max are legal, unless otherwise specified.

Neither the engine nor any of its ancillaries may be modified in any way. "Modified" is defined as any change in form, content or function that represents a condition or difference from that originally designed. This includes the addition and/or omission of parts and/or material from the engine package assembly unless specifically allowed within these rules. The adjustment of elements specifically designed for that purpose shall not be classified as modifications, i.e. carburettor and exhaust valve adjustment screws.

Internal additions:

No additional material may be added except in the case of engine repairs and shall only restore the engine or components to original specifications.

The use of thermal barrier coatings/ceramic coatings on or in the engine and on or in the exhaust system is prohibited.

The use of anti-friction coatings in or on the engine/engine components is prohibited.

Customizing the cylinder head cover by painting is legal.

Legal additions:

Chain guard, engine mount, temperature gauge and tachometer/hour meter, inline fuel filter, catch can mounting brackets and supplemental ignition coil mounting brackets, within the limits specified in this document.


Non-tech items:

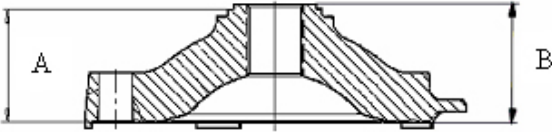

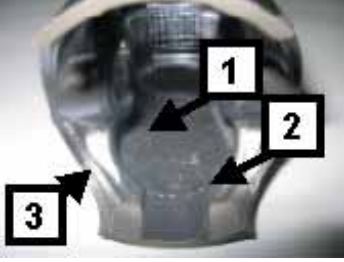

Non-original fasteners, circlips, washers, electrical mass cable, throttle cable housing, fuel and pulse line (type and size) are allowed unless otherwise specified.

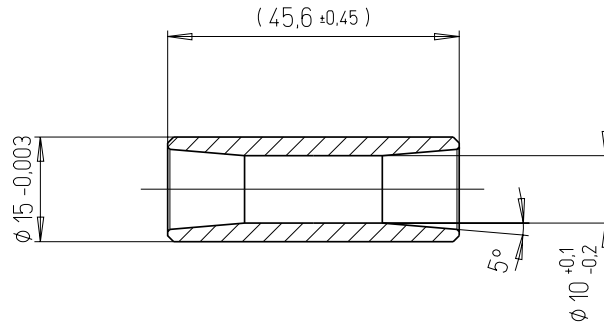
Note: When taking any dimensional reading, of the following technical regulation, in the order of accuracy of 0,1 mm or even more precise, the temperature of the part must be between +10°C and +30°C.

Note: Before taking any decision based on this regulation a check for available bulletins is mandatory. They can be found under www.maxchallenge-rotax.com and www.maxchallenge.ca.

9.1 Technical Specification (within the engine seal) for ROTAX kart engines 125 Junior MAX (15 kW) 125 MAX (21 kW).

Squish gap	1.1 1.2	125 Junior MAX 125 MAX	1,20 mm – 1,80 mm 1,00 mm – 1,50 mm The squish gap must be measured with a certified slide gauge and by using a 2 mm tin wire. The crankshaft must be turned by hand slowly over TDC (top dead centre) to squeeze the tin wire. Recommended 2 mm tin wire: BRP-ROTAX part no. 580 130 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.
Combustion Chamber insert	2.1 2.2 2.3	Cast identification code has to be "223 389" or "223 389 1" or "223 389 2" Cast wording "ROTAX" and/or "MADE IN AUSTRIA" must be shown.  Heights of combustion chamber insert have to be 27,55 mm with a tolerance of +0,0/-0,1 mm (A) and 28,80 mm with a tolerance of +/- 0,2 mm (B).	

	2.4	 <p>The profile of the combustion chamber insert has to be checked with a template (ROTAX part no. 277 390). The crack of light between the template and the profile of the combustion chamber insert has to be the same over the whole profile.</p> <p>NOTE: This check is just for reference, in case of doubt, detailed measurements have to be performed to define conformity or non conformity.</p> 
Piston with ring assembly	3.1 3.2 3.3	<p>Original, coated or uncoated, 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).</p> <p>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.</p>  <p>Original, 1 mm, magnetic, rectangular piston ring. Piston ring is marked either with "E CRY K" or "ROTAX 215 547".</p> 
Gudgeon pin	4.1 4.2 4.3	<p>Gudgeon pin is made out of magnetic steel.</p> <p>Dimensions must be according to the drawing.</p> <p>The minimum weigh of the gudgeon pin must not be lower than 32,10 grams.</p>



Cylinder

- 5.1 Light-alloy-cylinder with GILNISIL-plating. Any re-plating of cylinder is not allowed.
- 5.2 Cylinder with one main exhaust port.
- 5.3 Maximum bore of cylinder = 54,035 mm (measured 10 mm above the exhaust port).
- 5.4 Cylinder must be marked with the "ROTAX" logo (see pictures below).
- 5.5.1 125 Junior MAX

Cylinder without pneumatic timed exhaust valve. Cylinder has to be marked either with identification code 223 999, 223 998 or 223 994.



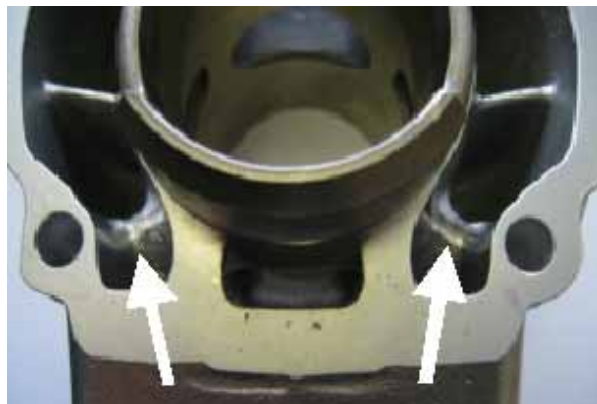
- 5.5.2 125 MAX
 Cylinder with pneumatic timed exhaust valve. Cylinder has to be marked either identification code 223 997, 223 996 or 223 993



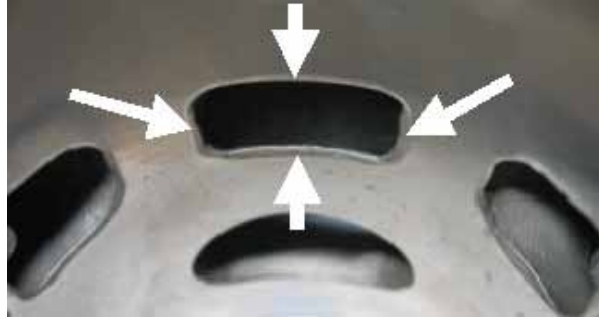
5.6 Height of cylinder has to be 87 mm $-0,05/+0,1$ mm.



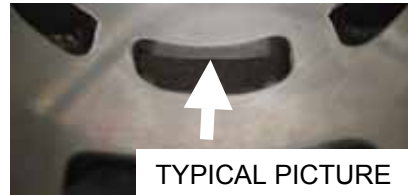
5.7.1 All transfer ports and passages have cast finish surface except some removal (done by the manufacturer) of cast burr at the inlet passage.



- 5.7.2 All ports have chamfered edges.
Any additional machining is not permitted.



Cylinders marked 223 993 and 223 994 may show CNC machining done by the manufacturer at the upper edge of the central boost.



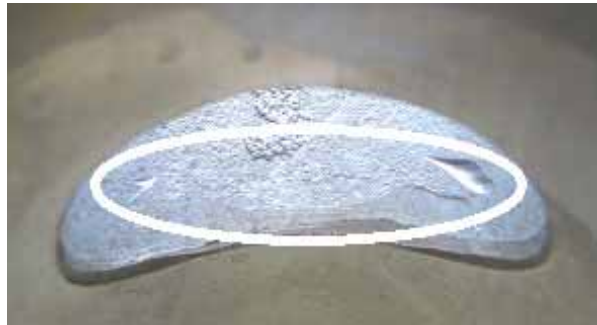
- 5.7.3 The sealing flange for the exhaust socket may show either cast finish surface or signs of machining from the manufacturer.



5.7.4 The top edge of the exhaust port may show either just a cast finish surface,



or signs of a CNC machining,



or signs of CNC machining in combination with signs of manual grinding.



The exhaust port may show partial manual grinding done by the manufacturer to eliminate minor casting defects and to eliminate the NIKASIL burr at the end of the NIKASIL plating.

Cylinders 223 993 and 223 994, exhaust port may show machining done by the manufacturer all around.



5.8

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. 277 397). Insert the template into the cylinder, that the template is touching the cylinder wall and that the finger of the template is located in the middle of the exhaust port (highest point). Move the template upwards, until the finger is touching the top edge of the exhaust port. Insert a filler gauge between the top of the cylinder and the filler gauge. It may not be possible to fit the filler gauge specified below.

125 Junior MAX: 0,90 mm

125 MAX: 0,75 mm

Cylinders marked 223 993 are legal if the template doesn't fit in at all.

For cylinder 223 993 (125 Max), it is also legal if the template doesn't fit in at all.

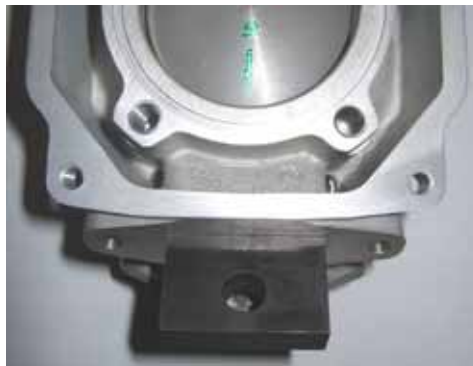
NOTE: Take care to use the corresponding gauge (JUN or MAX) of the template for the respective cylinder!





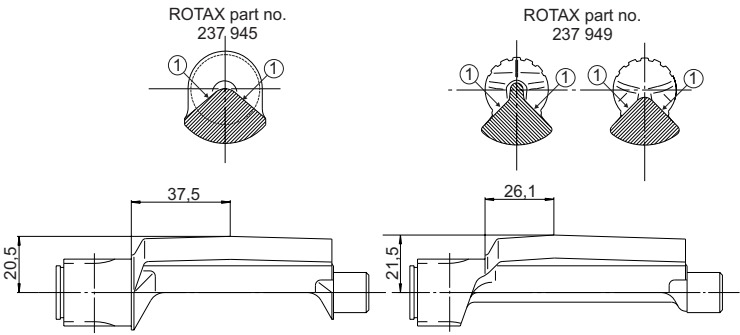
5.9

Exhaust valve (125 MAX only)

If the piston is moved in direction top of cylinder and first time covering completely the exhaust port, it must be possible to insert the exhaust valve gauge (ROTAX part no. 277 030) until it stops at the surface of the cylinder (a feeler gauge of 0,05 mm must not be possible to fit in).

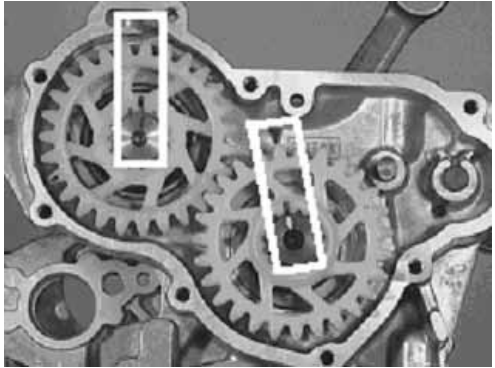
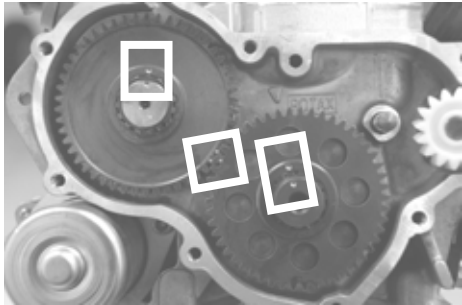



Inlet system	6.1	<p>Inlet manifold is marked with the name "ROTAX" and the identification code "267 915".</p>  <p>6.2 Some factory flash removal may be present at the conjunction of the inside contour and the carburettor stop mounting face. This is a manual trimming operation consisting of a small corner break of less than 3 mm in width. No additional grinding or machining is permitted. .</p> <p>6.3 The reed valve assembly is equipped with 2 pedal stops and 2 reeds, each having 3 pedals.</p> <p>6.4 The thickness of the reeds is 0,6 mm +/- 0,08 mm</p>
Crankshaft	7.1 7.2 7.3	<p>7.1 Stroke 54,5 mm +/-0,1 mm</p> <p>7.2 Con rod has to show forged numbers "213", "365" or "367" on shaft.</p>  <p>7.3 Shaft of con rod is not machined (copper plated). Grinding or polishing of shaft of con rod is not permitted.</p>
Balance shaft	8.1 8.2 8.3 8.4	<p>8.1 Balance shaft and balance gears must be installed.</p> <p>8.2 Different configurations of part no. 237 945, 237 948 and 237 949) are legal.</p> <p>8.3 Surface (1) is not machined and must show cast surface.</p> <p>8.4 Measurement from centre of balance shaft to outer diameter of fly weight of balance shaft at defined length must not be lower than specified.</p>

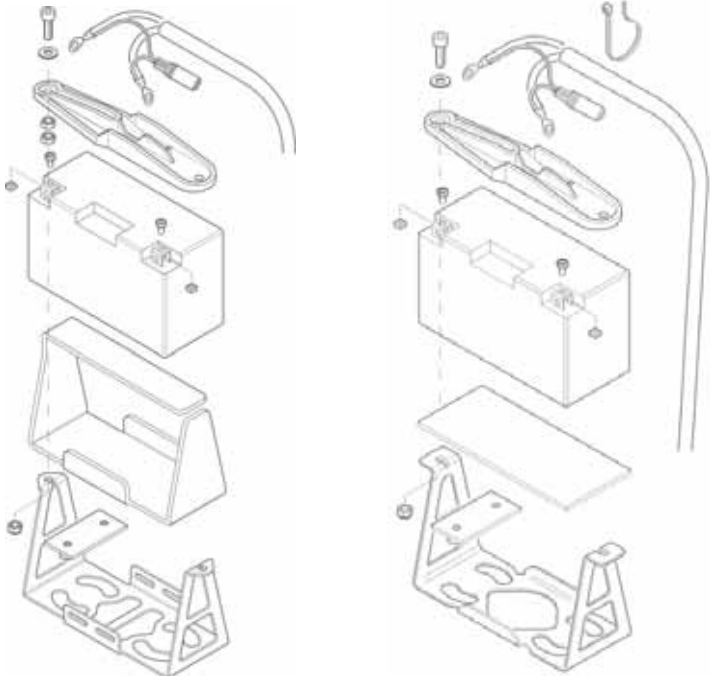
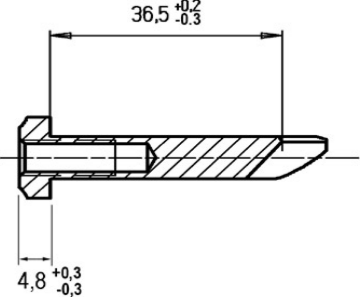
	8.5	<p>The minimum weight of the dry balance shaft must not be lower than 355 grams for balance shaft ROTAX part no. 237 945 and 255 grams for balance shaft ROTAX part no. 237 949 (equal with 237 948).</p> 
Crankcase	9.1	As supplied by the manufacturer. No grinding/polishing is permitted in the two main transfer passages as well as in the crank area.

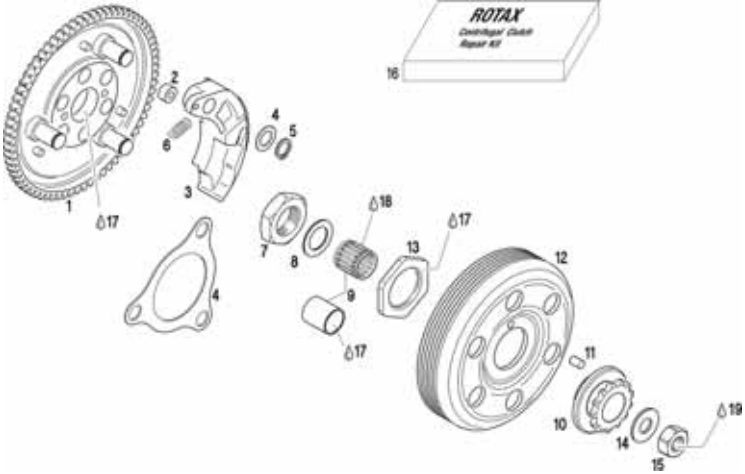
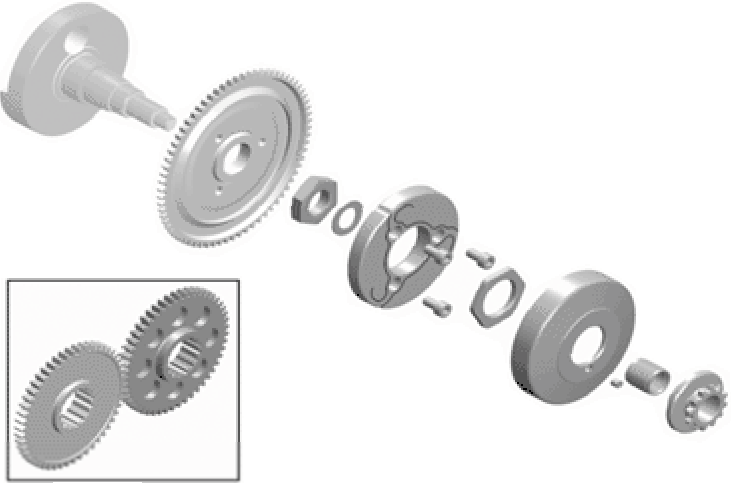
**9.2 Technical Specification (outside the engine seal) for ROTAX kart engines
125 Junior MAX (15 kW)
125 MAX (21 kW).**


It is the responsibility of the competitor to check his equipment (all components outside the engine seal and mentioned below), to assure that his equipment is in line with the technical specification below!

Balance drive	10.1	<p>Balance gears must be installed and must be aligned according to the instruction in the repair manual. Old “plastic” version of the balance gears must only be used with old type of centrifugal clutch.</p> <div data-bbox="581 1073 751 1121" style="border: 1px solid black; padding: 2px; display: inline-block;">Version 1</div> 
	10.2	<p>Balance gears must be installed and must be aligned according to the instruction in the repair manual. New version “steel” balance gears can be used with old as well as new type of centrifugal clutch.</p> <div data-bbox="581 1614 751 1663" style="border: 1px solid black; padding: 2px; display: inline-block;">Version 2</div> 

Ignition system	11.1	DENSO digital battery ignition, variable ignition timing, no adjustment necessary and possible. Race officials may request at any time that the competitor replace the ignition coil with a new unit provided by the race administration.
	11.2	The casting of the ignition coil has to show the following in casting "129000-" and "DENSO".
	11.3	Ignition coil must show 3 pins at the terminal.
	11.4	The ignition coil has to be fixed by means of 2 original silent blocks to the gearbox cover. Only in case of chassis component interference with the original mounting location of the ignition coil, a supplementary extension bracket, rigidly constructed and fabricated of solid metal, of minimum dimensions and attached to the original case mounting holes, is permitted for mounting of the coil.
	11.5	The pick up must be marked with the numbers 029600-0710, followed by a variable production code in the 2nd line. 
	11.6	Spark plug: DENSO Iridium IW 24 or 27 or 29 or 31 or 34 For Canada: NGK BR ... EIX is also legal
	11.7	Spark plug cap must be marked with "NGK TB05EMA".
	11.8	Original battery must be used,FIAMM-GS type FG20651 or FG20722 or FGHL 20722 or FGH 20902 or YUASA 6,5 or ROTAX RX7-12B.
	11.9	Battery must be fitted with the original battery clamp and battery cover (see illustration below) and must be fixed to the chassis with at least 2 screws. Position of the battery is free.

	11.10	<p>Battery must be mounted with all components as shown in the illustration either like version 1 or like version 2.</p> 
Exhaust valve	<p>12.1</p> <p>12.2</p> <p>12.3</p>	<p>Configuration 125 MAX only!</p> <p>As supplied by the manufacturer with no modification allowed. Compression spring must be fitted.</p> <p>Length of the exhaust valve is 36,5 mm $+0,20$ mm $-0,30$ mm.</p> <p>Width of colar is 4,8 mm $\pm 0,3$ mm</p> 

Centrifugal clutch	13.1	<p>Dry centrifugal clutch, engagement r.p.m. maximum at 3.000 r.p.m.</p> <p>That means that the kart (without driver) must start to move latest at an engine speed of maximum 3.000 r.p.m. This is valid for old as well as new centrifugal clutch.</p> <p>Old version version</p> 
	13.2	<p>New steel clutch version</p> <p>Clutch element can be either untreated or nitrated configuration.</p> 

	15.2	"VHSB 34" cast in the housing of the carburettor.
	15.3	"QD" or "QS" stamped in the housing of the carburettor.
	15.4	The complete inlet bore in the casing of the carburettor must show cast surface
	15.5	Needle jet stamped with "FN 266"
	15.6	The carburettor slide must show with size "40" in casting and the bottom end of the slide must show cast surface.
	15.7	Jet needle stamped with "K27" or "K98"
	15.8	Following two combination of floats, idle jets and idle jet inserts are legal:
	15.8.1	Combination 1: Floats are marked with "gr 5.2" Idle jet is stamped with the digits "30" Idle jet insert is stamped with the digits "30"
	15.8.2	Combination 2: Floats are marked with "gr 3.6" Idle jet is stamped with the digits "60" Idle jet insert is stamped with the digits "60"
	15.9	Start jet is stamped with the digits "60"
	15.10	Settings of the carburettor adjustment screws are free.
	15.11	Except for Micro-Max, main jets smaller than size 160 or bigger than 200 are not recommended by ROTAX (except in high altitude conditions)
	15.12	Main jets smaller than size 160 and bigger than size 200 are legal also if they are not available from ROTAX.
	15.13	A minimum required size of main jet may be determined for each race event by a "Supplementary Regulation".
Fuel pump	16.1	MIKUNI diaphragm pump, must be mounted on the support bracket (on the bottom or sideways) of the intake silencer.
Fuel filter	17.1	The original fuel filter only (see attached picture) is allowed to be fitted between the fuel tank and the fuel pump.  Any non-original fuel filter has to be fitted between the fuel pump and the carburettor.
Radiator	18.1	Single aluminium radiator as shown in illustration below.
	18.2	Cooling area: Height = 290 mm, width = 133 mm
	18.3	Thickness of radiator = 32 mm
	18.4	Place of fixing the radiator is on right side of engine.

- 18.5 Radiator must be mounted with all components as shown in the illustration either like version 1 or like version 2. At version 2, there is 2 legal options to mount the radiator to the retaining plate (see drawing for details). At version 2, there is 2 different radiators with 2 different positions of the retaining plates (either pointing forward or backwards).
- 18.6 No additional cooling device is allowed. Tape applied around the radiator is the only allowed airflow control. Tape may not be removed from the radiator during operation on the track. All other means of airflow control through the radiator are prohibited.
- 18.7 The removal of the thermostat from the cylinder head cover is an acceptable configuration.

Version 1

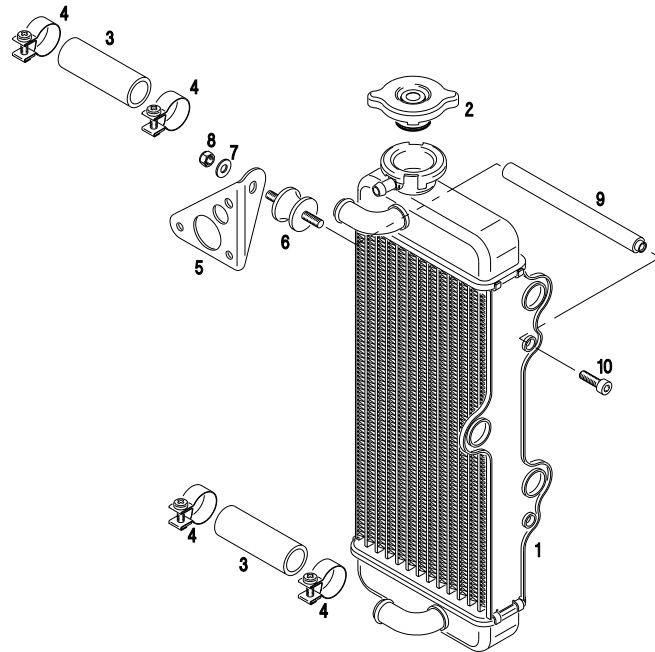
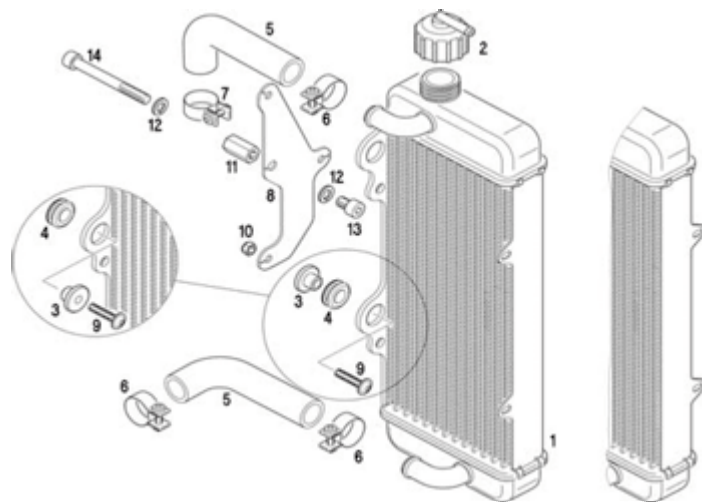


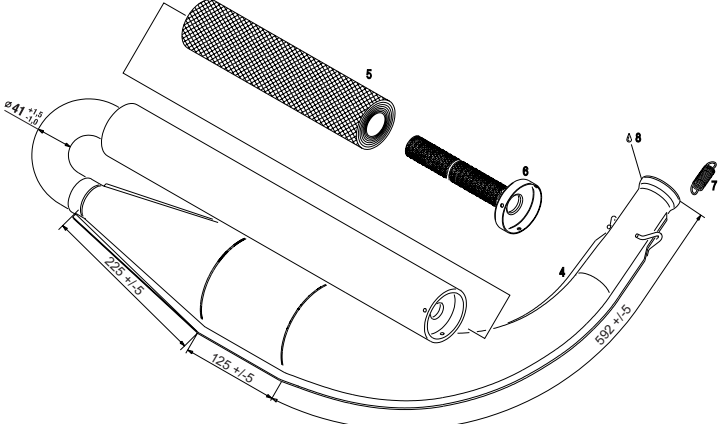
Illustration 5

Version 2


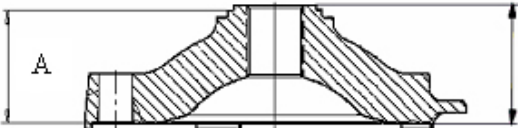



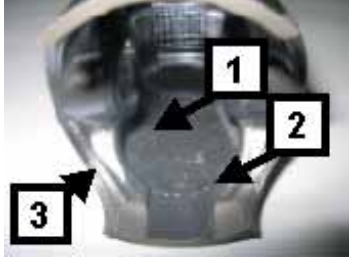

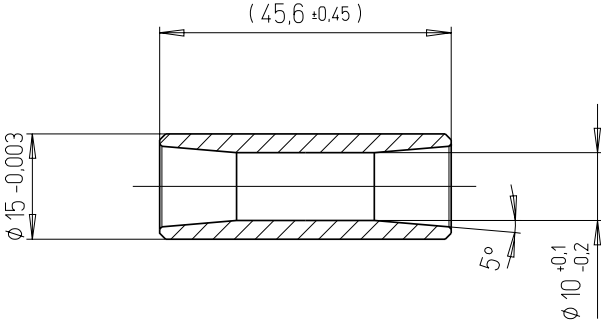
Radiator coolant

- 19.1 As glycol coolants are prohibited, plain water without any additives has to be used.

<p>Exhaust system</p>	<p>20.1 20.2 20.3 20.4 20.5 20.6 20.7 20.8 20.9 20.10 20.11 20.12</p>	<p>Must be as supplied by ROTAX and cannot be modified except for the replacement of the silencer absorption material and the use of threaded fasteners in place of the rivets for securing the silencer end cap.</p> <p>Standard exhaust socket must be used.</p> <p>Exhaust pipe with after muffler as shown in illustration.</p>  <p style="text-align: right;">Illustration 7</p> <p>Diameter of hole of end cap of (pos 6 on illustration above):. Max 21,0 mm</p> <p>Length of inlet cone: 592 mm +/-5 mm (measured on outside from beginning of exhaust pipe until beginning of cylindrical part).</p> <p>Length of cylindrical part of exhaust pipe: 125 mm +/-5 mm.</p> <p>Length of end cone: 225 mm, +/-5 mm</p> <p>Outside diameter of 180° bent tube: 41mm +1,5 mm/-1,0 mm (measured at beginning and end of bend).</p> <p>Just one piece of original isolating mat is allowed to be used.</p> <p>The original exhaust system (tuned pipe and silencer) may not be modified, except for the addition of extra elements for further noise reduction.</p> <p>For measuring the exhaust gas temperature, it is allowed to weld on a socket on top of the exhaust, 50 mm from the ball joint.</p> <p>The use of maximum 4 pieces of original ROTAX exhaust springs to fix the exhaust to the cylinder is allowed. (no safety wire allowed in exhaust flange area).</p>
<p>Noise emissions</p>	<p>21.1 21.2</p>	<p>Noise isolating mat (see illustration exhaust system) has to be replaced by an original ROTAX spare part, if the noise emission is exceeding 92 dB (A).</p> <p>Noise emission measuring procedure:</p> <p>The measuring place has to be at section of the track where the engine is operated under full load and at a rpm range of 11.000 to 12.000 rpm.</p> <p>The microphone has to be installed 1 meter above the level of the track in a rectangular angle to the track.</p> <p>The distance between the microphone and the kart on the ideal line on the track has to be 7,5 meters.</p> <p>The kart has to be operated under full load at the ideal line on the track.</p>

**9.3 Technical Specification (withing the engine seal) for Rotax kart engine
125 MAX DD2 (24 kW)**

Squish gap	1.1	<p>125 MAX DD2 0,90 mm - 1,30 mm</p> <p>The squish gap must be measured with a certified slide gauge and by using a 2 mm tin wire. The crankshaft must be turned by hand slowly over TDC (top dead centre) to squeeze the tin wire. Recommended 2 mm tin wire : BRP-ROTAX part no. 580 130</p> <p>The squish gap must be measured on the left and right side in the direction of the piston pin.</p> <p>The average value of the two measurements counts.</p>
Combustion chamber insert	<p>2.1</p> <p>2.1</p> <p>2.3</p> <p>2.4</p>	<p>Cast identification code has to be "223 389" or "223 389 1" or "223 389 2"</p> <p>Cast wording "ROTAX" and/or "MADE IN AUSTRIA" must be shown.</p>  <p>Heights of combustion chamber insert have to be 27,55 mm with a tolerance of +0,0/-0,1 mm (A) and 28,80 mm with a tolerance of +/- 0,2 mm (B).</p>  <p>The profile of the combustion chamber insert has to be checked with a template (ROTAX part no. 277 390). The crack of light between the template and the profile of the combustion chamber insert has to be the same over the whole profile.</p> <p>NOTE: This check is just for reference. In case of doubt detailed measurements have to be performed to define conformity or non-conformity.</p> 

<p>Piston with ring assembly</p>	<p>3.1 3.2 3.3</p>	<p>Original, coated or uncoated, 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).</p> <p>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.</p>  <p>Original, 1 mm, magnetic, rectangular piston ring. Piston ring is marked either with "E CRY K" or "ROTAX 215 547".</p> 
<p>Gudgeon pin</p>	<p>4.1 4.2 4.3</p>	<p>Gudgeon pin is made out of magnetic steel.</p> <p>Dimensions must be according to the drawing</p> <p>The minimum weigh of the gudgeon pin must not be lower than 32,10 grams.</p> 
<p>Cylinder</p>	<p>5.1 5.2 5.3 5.4</p>	<p>Light-alloy-cylinder with GILNISIL-plating. Any re-plating of cylinder is not allowed.</p> <p>Cylinder with one main exhaust port and two sides exhaust ports.</p> <p>Maximum bore of cylinder = 54,035 mm (measured 10 mm above the exhaust port).</p> <p>Cylinder has to be marked with the "ROTAX" logo (see picture below).</p>

- 5.5 Cylinder with pneumatic timed exhaust valve. Cylinder has to be marked with the identification code 613 930, 613 931 or 613 933.



- 5.6 Height of cylinder has to be 86,7 mm $-0,05/+0,1$ mm.



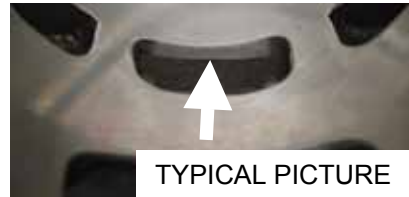
- 5.7.1 All transfer ports and passages have cast finish surface except some removal (done by the manufacturer) of cast burr at the inlet passage.



- 5.7.2 All ports have chamfered edges.
Any additional machining is not permitted.



Cylinders marked 223 933 may show CNC machining done by the manufacturer at the upper edge of the central boost.



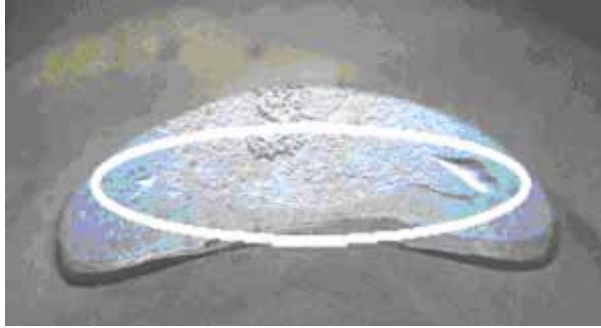
- 5.7.3 The sealing flange for the exhaust socket may show either cast finish surface or signs of machining from the manufacturer.



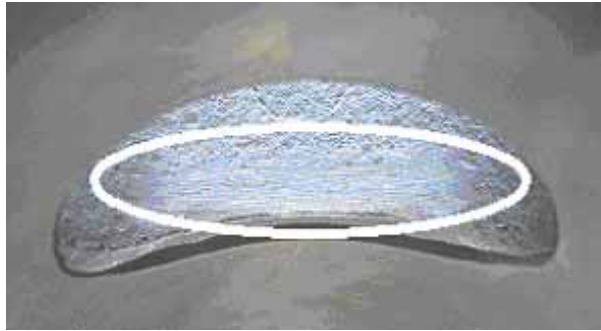
- 5.7.4 The top edge of the exhaust port may show either just a cast finish surface...



or signs of a CNC machining ...



or signs of CNC machining in combination with signs of manual grinding.



The exhaust port may show partial manual grinding done by the manufacturer to eliminate minor casting defects and to eliminate the NIKASIL burr at the end of the NIKASIL plating.

Cylinder 613 933 exhaust port may show factory machining all around.



5.8

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. 277 397). Insert the template into the cylinder, that the template is touching the cylinder wall and that the finger of the template is located in the middle of the exhaust port (highest point). Move the template upwards, until the finger is touching the top edge of the exhaust port. Insert a filler gauge between the top of the cylinder and the filler gauge. It may not be possible to fit the filler gauge specified below.

125 MAX DD2: 0,90 mm

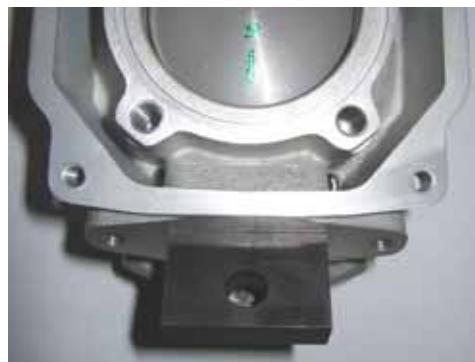
Cylinders marked 613 933 are legal even if the template doesn't fit in at all.



NOTE: Take care to use the corresponding gauge of the template (DD2) for the respective cylinder!



5.9

If the piston is moved in direction top of cylinder and first time covering completely the exhaust port, it must be possible to insert the exhaust valve gauge (ROTAX part no. 277 030) until it stops at the surface of the cylinder (a feeler gauge of 0,05 mm must not be possible to fit in).




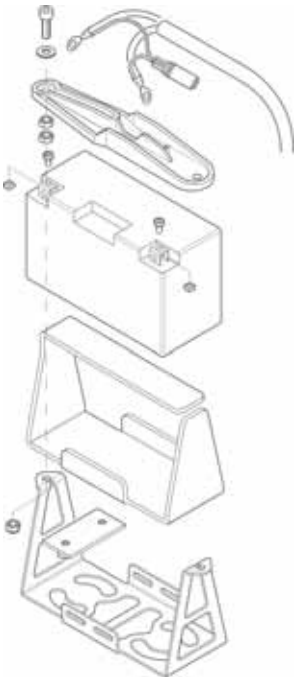
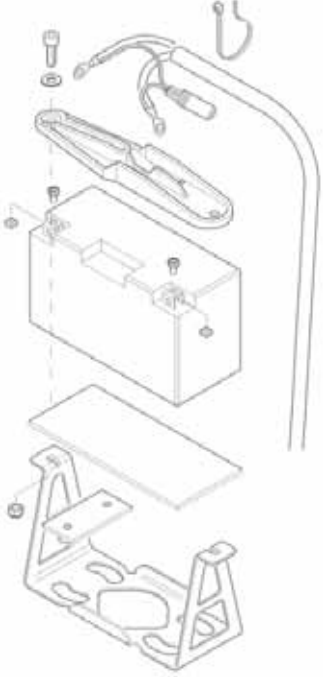
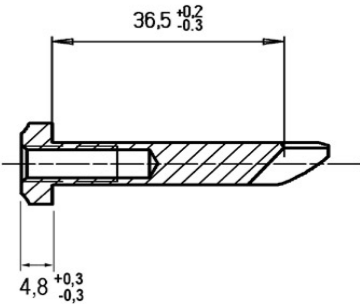
Inlet system	6.1	Inlet manifold is marked with the name "ROTAX" and the identification code "267 410". 
	6.2	Some factory flash removal may be present at the conjunction of the inside contour and the carburettor stop mounting face. This is a manual trimming operation consisting of a small corner break of less than 3 mm in width. No additional grinding or machining is permitted.
	6.3	The reed valve assembly is equipped with 2 pedal stops and 2 reeds, each having 3 pedals.
	6.4	The thickness of the reeds is 0,6 mm +/- 0,08 mm.
Crankshaft	7.1	Stroke 54,5 mm +/-0,1 mm
	7.2	Con rod has to show forged numbers "213", "365" or "367" on shaft. 
	7.3	Shaft of con rod is not machined (copper plated). Grinding or polishing of shaft of con rod is not permitted.
2-speed gearbox	8.1	Primary shaft with 19 teeth for 1st gear and 24 teeth for 2nd gear.
	8.2	Idle gear for 1st gear has to have 81 teeth.
	8.3	Idle gear for 2nd gear has to have 77 teeth.
Crankcase	9.1	As supplied by the manufacturer. No grinding/polishing is permitted in the two main transfer passages as well as in the crank area.

9.4 Technical Specification (outside the engine seal) for ROTAX kart engine 125 MAX DD2 (24 kW)

It is the responsibility of the competitor to check his equipment (all components outside the engine seal and mentioned below), to assure that his equipment is in line with the technical specification below!

Ignition system	10.1	DENSO digital battery ignition, variable ignition timing, no adjustment necessary and possible. Race officials may request at any time that the competitor replace the ignition coil with a new unit provided by the race administration.
-----------------	------	--

	<p>10.2</p> <p>10.3</p> <p>10.4</p> <p>10.5</p>	<p>The casting of the ignition coil has to show the following in casting "129000-" and "DENSO".</p> <p>Ignition coil must show 4 or 6 pins at the terminal.</p> <p>The ignition coil has to be fixed by means of 2 original silent blocks to the crankcase. Only in case of chassis component interference with the original mounting location of the ignition coil, a supplementary extension bracket, rigidly constructed and fabricated of solid metal, of minimum dimensions and attached to the original case mounting holes, is permitted for mounting of the coil.</p> <p>The pick up must be marked with the numbers 029600-0710, followed by a variable production code in the 2nd line.</p>  <p>HINT: In case of doubt an easy check is to place a steel ball (3-5 mm in diameter) on the pickup (engine side), the steel ball must stay in the center of the pickup surface.</p>
	10.6	Spark plug: DENSO Iridium IW 24 or 27 or 29 or 31 or 34 For Canada: NGK BR ... EIX is also legal
	10.7	Spark plug cap must be marked with "NGK TB05EMA".
	10.8	Original battery must be used, FIAMM-GS type FG20651 or FG20722 or FGHL 20722 or FGH 20902 or YUASA 6,5 or ROTAX RX7-12B
	10.9	<p>Battery must be fitted with the original battery clamp and battery cover (see illustration below) and must be fixed to the chassis with at least 2 screws.</p> <p>Position of the battery is free.</p> <p>RM1 kart has to have fitted the battery on the left side in front of the radiator. Original battery clamp and battery cover must be used.</p>

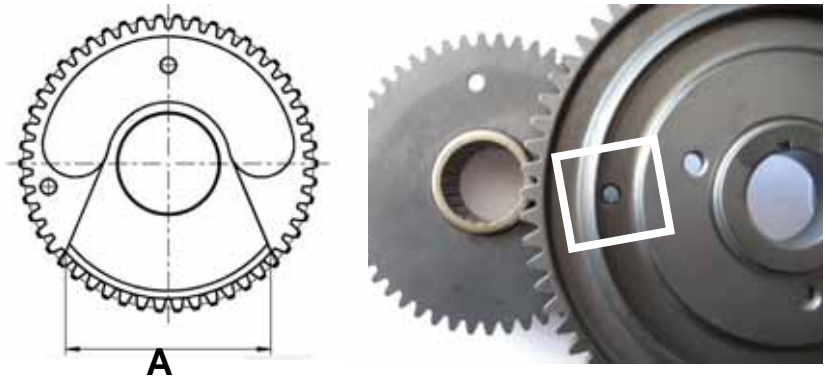
	10.10	<p>Battery must be mounted with all components as shown in the illustration either like version 1 or like version 2.</p> <p>Version 1</p>  <p>Version 2</p> 
Exhaust valve	<p>11.1</p> <p>11.2</p> <p>11.3</p>	<p>As supplied by the manufacturer with no modification allowed. Compression spring must be fitted.</p> <p>Length of the exhaust valve is 36,5 mm +0,20 mm /-0,30 mm.</p> <p>Width of colar is 4,8 mm +/-0,3 mm</p> 
Balance drive	<p>12.1</p> <p>12.2</p>	<p>Balance drive gear must be fitted on crankshaft.</p> <p>Balance gear must be fitted on primary shaft and must be aligned with the balance drive gear according to the instruction in the repair manual.</p>

12.3 One the old version, flyweight of balance gear must show cast surface.



12.4 On the new version, flyweight of balance gear can show machined surface.

Dimension A (widest part of the balance weight) must be either 53 mm +/- 0,5 mm or 55 mm +/- 0,5 mm.

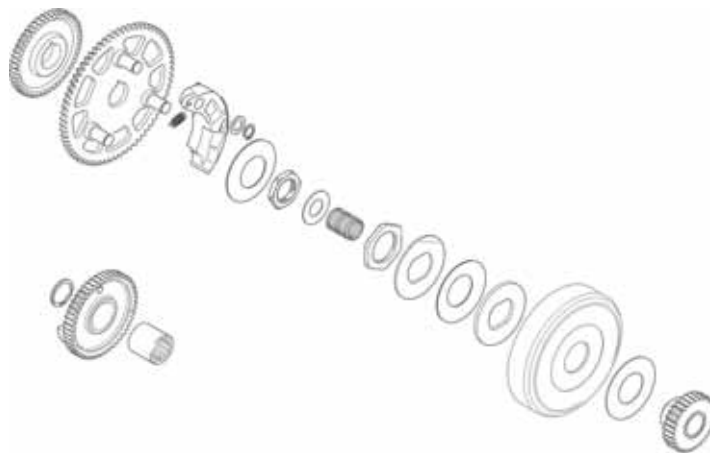


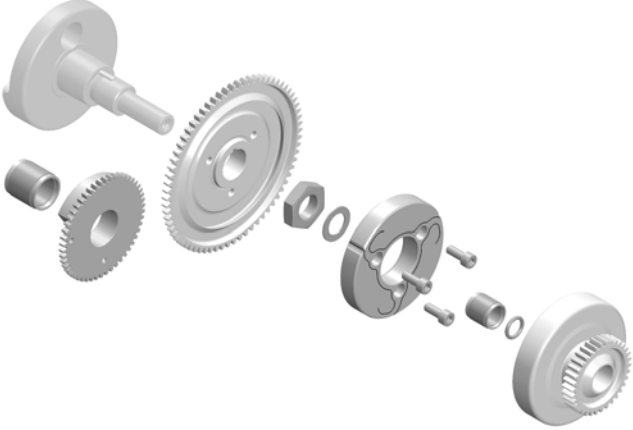

Centrifugal clutch

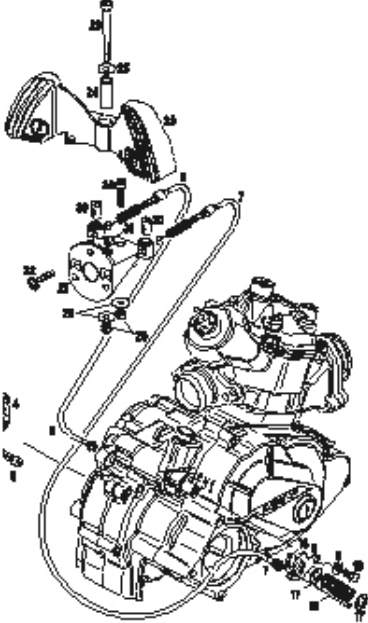
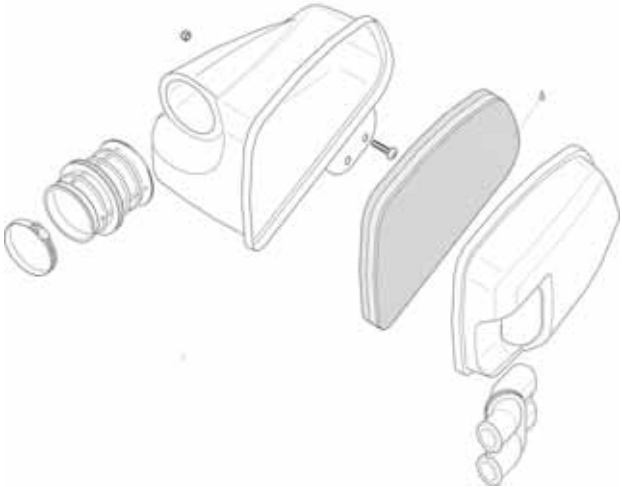
13.1 Centrifugal clutch in oil bath, engagement r.p.m. maximum at 4.000 r.p.m.

That means, that the kart (without driver) must start to move latest at an engine speed of maximum 4.000 r.p.m. This is valid for old as well as the new version of the centrifugal clutch.


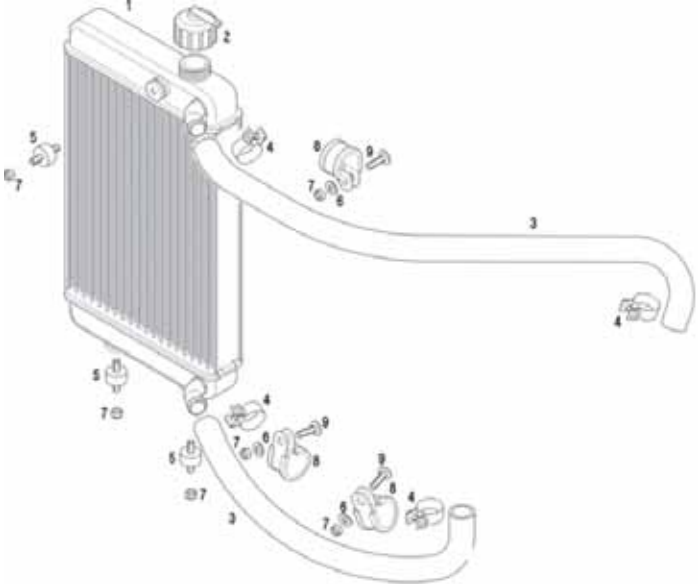
Clutch old version.



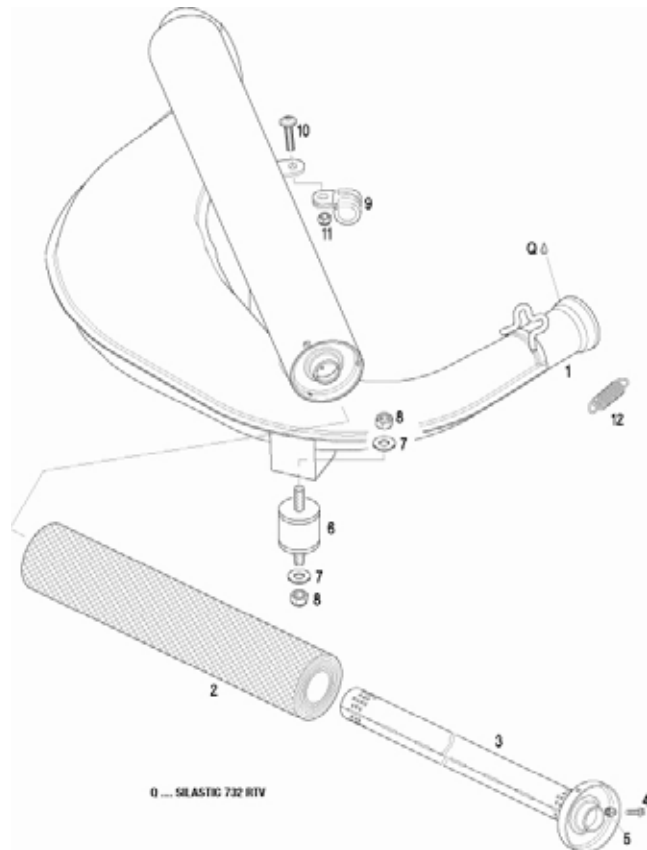
	13.2	<p>Clutch new version</p> 																
Primary drive	14.1	<p>Original primary drive gears of following gear ratio options must be used.</p> <table border="1" data-bbox="573 758 889 1010"> <thead> <tr> <th>Drive gear</th> <th>Driven gear</th> </tr> </thead> <tbody> <tr><td>32</td><td>65</td></tr> <tr><td>33</td><td>64</td></tr> <tr><td>34</td><td>63</td></tr> <tr><td>35</td><td>62</td></tr> <tr><td>36</td><td>61</td></tr> <tr><td>37</td><td>60</td></tr> <tr><td>38</td><td>59</td></tr> </tbody> </table>  <p>14.2 A specific primary gear ratio may be determined for each race event by a "Supplementary Regulation".</p>	Drive gear	Driven gear	32	65	33	64	34	63	35	62	36	61	37	60	38	59
Drive gear	Driven gear																	
32	65																	
33	64																	
34	63																	
35	62																	
36	61																	
37	60																	
38	59																	
Gear shifting	15.1	<p>The 2-speed gearbox has to be operated with the original supplied shift paddle (pos. 23) on the steering wheel via the two cable bowden (pos. 6 + pos. 7).</p>																
	15.2	<p>Cutting of the original shift paddle or adding of pads to the shift paddle is allowed to adjust the paddle to specific steering wheels.</p>																

	15.3	<p>Original hub for steering wheel (pos. 27) must be used.</p> 
Intake silencer	<p>16.1</p> <p>16.2</p> <p>16.3</p> <p>16.4</p> <p>16.5</p> <p>16.6</p>	<p>Intake silencer with integrated, washable air filter as shown in illustration below.</p> <p>The intake silencer case is marked on the inside with the ROTAX part no. 225 012.</p> <p>The intake silencer cover is marked on the inside with the ROTAX part no. 225 022.</p> <p>The air filter is marked with the ROTAX part no. 225 052.</p> <p>The air filter must be assembled between the intake silencer case and the intake silencer cover that the whole area of the intake silencer case is covered.</p> <p>In case of a wet race it is allowed to seal the top of the air box using adhesive tape. For Canada, it is allowed to put tape on the top of the air box to avoid the opening of the air box.</p> 
Carburettor	<p>17.1</p> <p>17.2</p> <p>17.3</p>	<p>DELL'ORTO carburettor</p> <p>"VHSB 34" cast in the housing of the carburettor.</p> <p>"QD" or "QS" stamped in the housing of the carburettor.</p>

	<p>17.4 The complete inlet bore in the casing of the carburettor must show cast surface.</p> <p>17.5 Needle jet stamped with "FN 266"</p> <p>17.6 The carburettor slide must show with size "40" in casting and the bottom end of the slide must show cast surface.</p> <p>17.7 Jet needle stamped with "K27" or "K98"</p> <p>17.8 Following two combination of floats and idle jets are legal:</p> <p>17.8.1 Combination 1: Floats are marked with "gr 5.2" Idle jet is stamped with the digits "30" Idle jet insert is stamped with the digits "30"</p> <p>17.8.2 Combination 2: Floats are marked with "gr 3.6" Idle jet is stamped with the digits "60" Idle jet insert is stamped with the digits "60"</p> <p>17.9 Start jet is stamped with the digits "60"</p> <p>17.10 Settings of the carburettor adjustment screws are free.</p> <p>17.11 Main jets smaller than size 160 or bigger than 200 are not recommended by ROTAX (except in high altitude conditions)</p> <p>17.12 Main jets smaller than size 160 and bigger than size 200 are legal also if they are not available from ROTAX.</p> <p>17.13 A minimum required size of main jet may be determined for each race event by a "Supplementary Regulation".</p>
Fuel pump	<p>18.1 Original diaphragm fuel pump (grey or black colour) must be fitted by means of two original silent blocks to the chassis or the engine.</p> <p>Optionally the MIKUNI diaphragm pump (as used on the 125 MAX engine) can be used.</p> <div data-bbox="641 1171 1357 1514" data-label="Image"> </div> <p>18.2 Centre line of fuel pump may not be higher than the centre line of the carburettor.</p>

Fuel filter	19.1	<p>The original fuel filter only (see attached picture) is allowed to be fitted between the fuel tank and the fuel pump.</p>  <p>Any non-original fuel filter has to be fitted between the fuel pump and the carburettor.</p>
Radiator	<p>20.1 20.2 20.3 20.4 20.5 20.6 20.7 20.8</p>	<p>Single aluminium radiator (see illustration below).</p> <p>Name "ROTAX" is stamped in the top of the radiator.</p> <p>Cooling area: Height = 284 mm, width = 202 mm</p> <p>Thickness of radiator = 32 mm</p> <p>The radiator must be mounted on the left side side of the kart beside the seat.</p> <p>The highest point of the radiator with cap may not be higher than 400 mm above the main tube of the kart chassis.</p> <p>No additional cooling device is allowed. Tape applied around the radiator is the only allowed air flow control. Tape may not be removed from the radiator during operation on the track. All other means of airflow control through the radiator are prohibited.</p> <p>The removal of the thermostat from the cylinder head cover is an acceptable configuration.</p> 
Radiator coolant	21.1	As glycol coolants are prohibited, plain water without any additives has to be used.
Exhaust system	<p>22.1 22.2</p>	<p>Must be as supplied by ROTAX and cannot be modified except for the replacement of the silencer absorption material and the use of threaded fasteners in place of the rivets for securing the silencer end cap.</p> <p>Standard exhaust socket must be used.</p>

22.3 Exhaust pipe with after muffler (see illustration below).



22.4 Diameter of hole of end cap of (pos 5, illustration above): 19,6 mm +/- 0,2 mm.

22.5 Just one piece of original isolating mat is allowed to be used.

22.6 The original exhaust system (tuned pipe and silencer) may not be modified, except for the addition of extra elements for further noise reduction.

22.7 For measuring the exhaust gas temperature, it is allowed to weld on a socket on top of the exhaust, 50 mm from the ball joint.

22.8 The use of maximum 4 pieces of original ROTAX exhaust springs to fix the exhaust to the cylinder is allowed. (no safety wire allowed in exhaust flange area).

Noise emissions

23.1 Noise isolating mat (see illustration exhaust system) has to be replaced by an original ROTAX spare part, if the noise emission is exceeding 94 dB (A).

23.2 Noise emission measuring procedure:

The measuring place has to be at section of the track where the engine is operated under full load and at a rpm range of 11.000 to 12.000 rpm.

The microphone has to be installed 1 meter above the level of the track in a rectangular angle to the track.

The distance between the microphone and the kart on the ideal line on the track has to be 7,5 meters.

The kart has to be operated under full load at the ideal line on the track.