



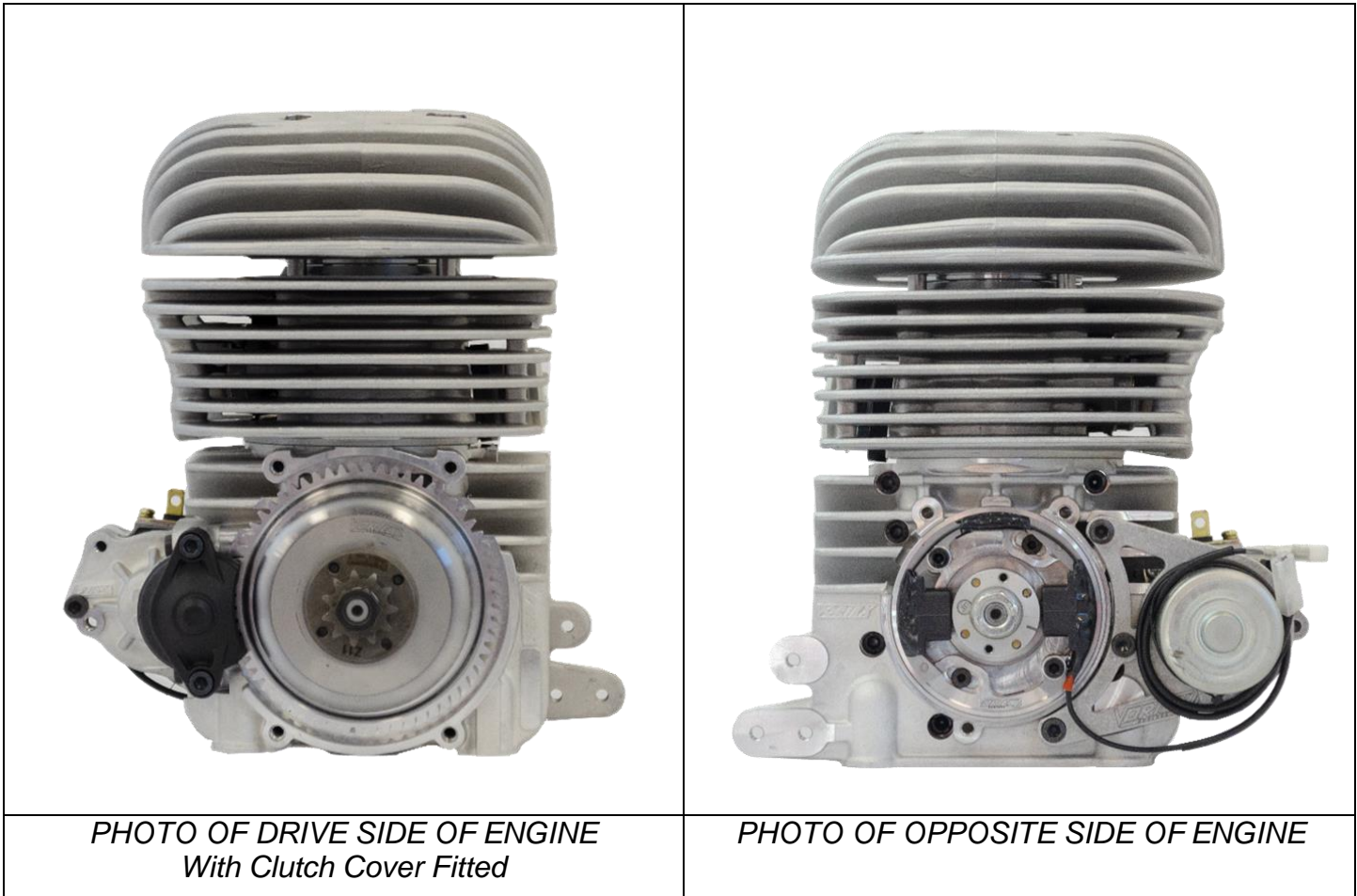
**Homologation
Number H107/RH**

NATIONAL HOMOLOGATION FORM – ENGINE



<i>Manufacturer</i>	VORTEX
<i>Make</i>	MINI ROK
<i>Model</i>	60CC
<i>Validity of the homologation</i>	6 years
<i>Number of pages</i>	33

This Homologation Form reproduces descriptions, illustrations and dimensions of the engine at the time that Karting Australia conducted the homologation. The height of the complete engine on all photographs must be as a minimum 7 cm.



Signature and Stamp of Karting Australia

Original Homologation December 2014
 Amended: 29 May 2015 and 19 August 2017
 Further Amended 6 October 2020
 Further Amended 1 September 2021
 Further Amended 11 October 2021
Re-homologated 11 March 2023
 • **Effective Date 17 April 2023**

Shaune English



**Homologation
Number H107/RH**

**PHOTO OF DRIVE SIDE OF THE COMPLETE ENGINE
With Clutch Cover Fitted**



The Clutch Cover is compulsory for use in National Championship, National Series and National Cup Competition from **17 April 2023** and all other levels of Competition from **1 January 2024**.

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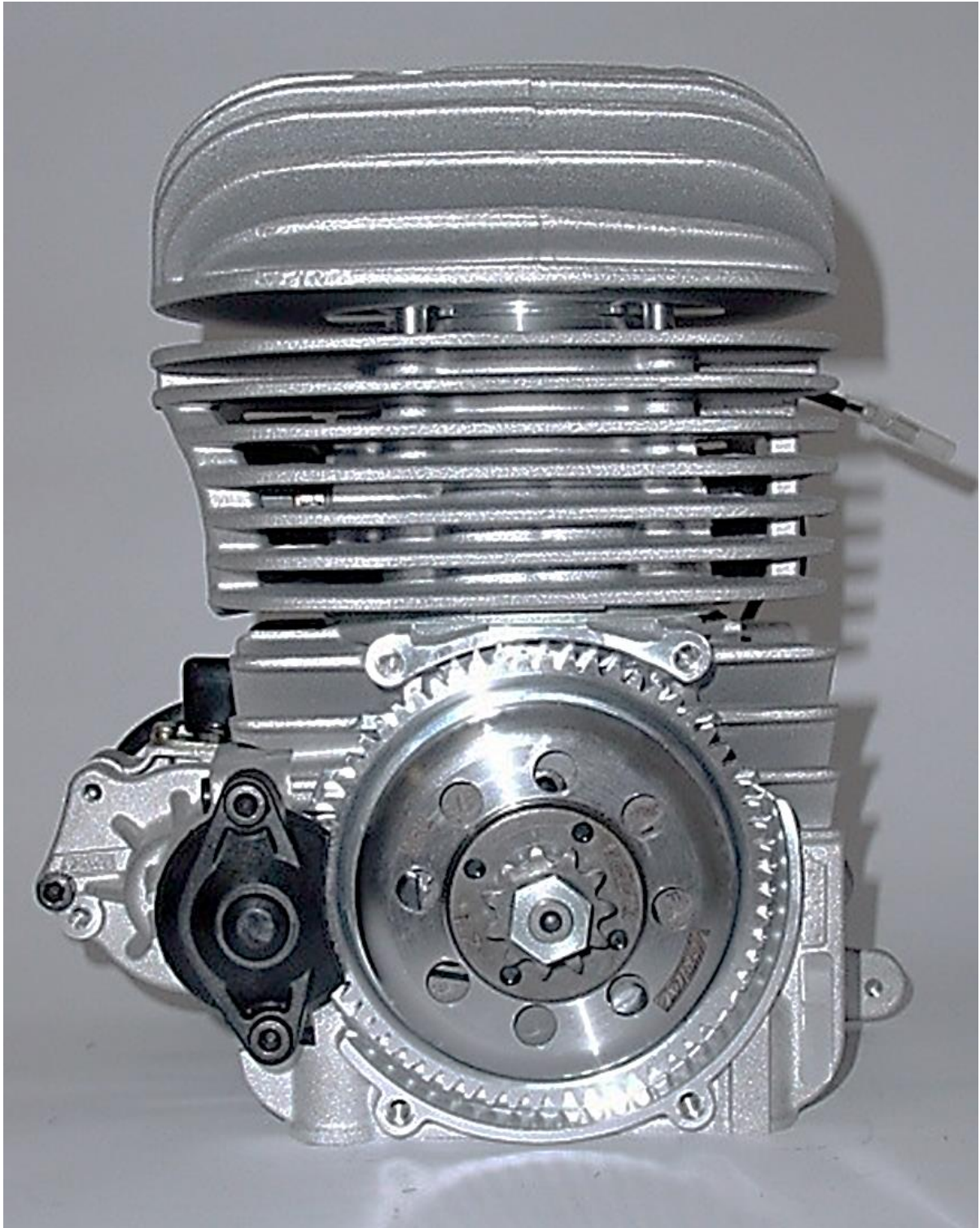
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**PHOTO OF DRIVE SIDE OF THE COMPLETE ENGINE
Without Clutch Cover Fitted**



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PHOTO OF OPPOSITE DRIVE SIDE OF THE COMPLETE ENGINE



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PHOTO OF THE REAR OF THE COMPLETE ENGINE



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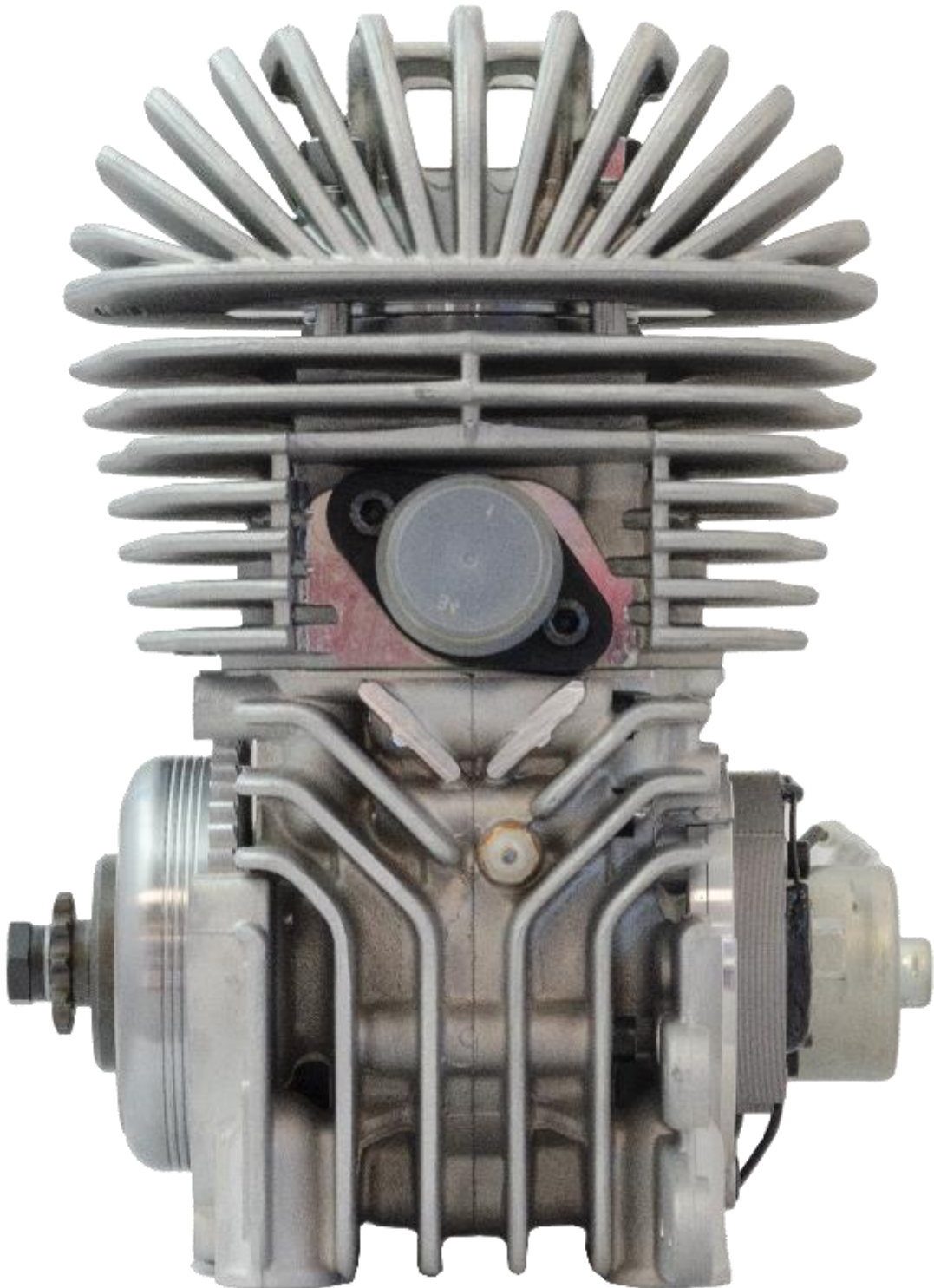
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PHOTO OF THE FRONT OF THE COMPLETE ENGINE



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**Homologation
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PHOTO OF THE COMPLETE ENGINE TAKEN FROM ABOVE



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**Homologation
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PHOTO OF THE COMPLETE ENGINE TAKEN FROM BELOW



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**Homologation
Number H107/RH**

UNIQUE "AU" SERIAL NUMBER SAMPLE FOR COMPLIANCE WITH KA HOMOLOGATION



No deviation from the manufacturer's Australian "AU" spec engine is allowed.

All components must remain OEM and therefore only engines stamped with the "AU" as the second and third identifier in the engine serial number for example 4AU0001 will comply with Australian Homologation.

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TECHNICAL INFORMATION

A

CHARACTERISTICS

The number of decimal places must be 2 or comply with the relevant tolerance.

Tolerances & remarks

Cylinder

Max displacement	<u>60 cc.</u>	
Max allowed bore	<u>42.10mm</u>	
Stroke	<u>43.00</u>	±0.10mm
Admission system in the cylinder	<u>Piston Port</u>	
Cooling system	<u>Air cooling</u>	
Carburettor:	<u>Carburettor DELL'ORTO PHBG 18 BS</u>	
Number of transfers	<u>2</u>	
Shape of exhaust transfer	<u>At 4 angles</u>	
<i>Cylinder head Volume with Vortex CC check tool WA050</i>	<u>6.8 cc</u>	Minimum

Crankshaft

<i>Number of bearings</i>	<u>2</u>	--
<i>Diameter of bearings</i>	<u>47mm</u>	±0.05mm
<i>Weight of crankshaft with Conrod</i>	<u>1312g</u>	±10.0g

Crankpin (Big End)

<i>Diameter</i>	<u>18mm</u>	±0.05mm
<i>Length</i>	<u>40.7mm</u>	±0.02mm
<i>I.D.</i>	<u>6mm</u>	±0.02mm
<i>Weight of crankpin</i>	<u>71g</u>	±1.0g

Connecting Rod

<i>Connecting rod centreline</i>	<u>90mm</u>	±0.10mm
<i>Weight of the connecting rod</i>	<u>94g</u>	±2.0g ±0.0g

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Piston

Number of piston rings	1	
Weight of the piston	59g	±5.0g
Squish minimum measurement (use 2.0 mm solder)	0.8mm	Minimum

Gudgeon pin

Diameter	12mm	±0.05mm
Length	34mm	+0.1 / -0.2mm
Minimum weight	15g	Minimum
I.D.	8mm	±0.20mm

Clutch

Minimum weight	855g	±15.0g
Engine Sprockets Option <u>Only</u>	Z10-Z11-Z12	

B OPENING ANGLES

Of the inlet	143°	±1.5°
Of the transfer ports	116°	±1.5°
Of the exhaust	154°	Maximum

No deviation from the manufacturer's Australian "AU" spec engine is allowed.

All components must remain OEM and therefore only engines stamped with the "AU" as the second and third identifier in the engine number for example 4AU0001 will comply with Australian Homologation. Opening Angles adjustable via base gasket thickness only.

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... Section D.1

PHOTO OF THE CYLINDER BASE



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... Section D.1

DRAWING OF THE CYLINDER HEAD COMBUSTION CHAMBER

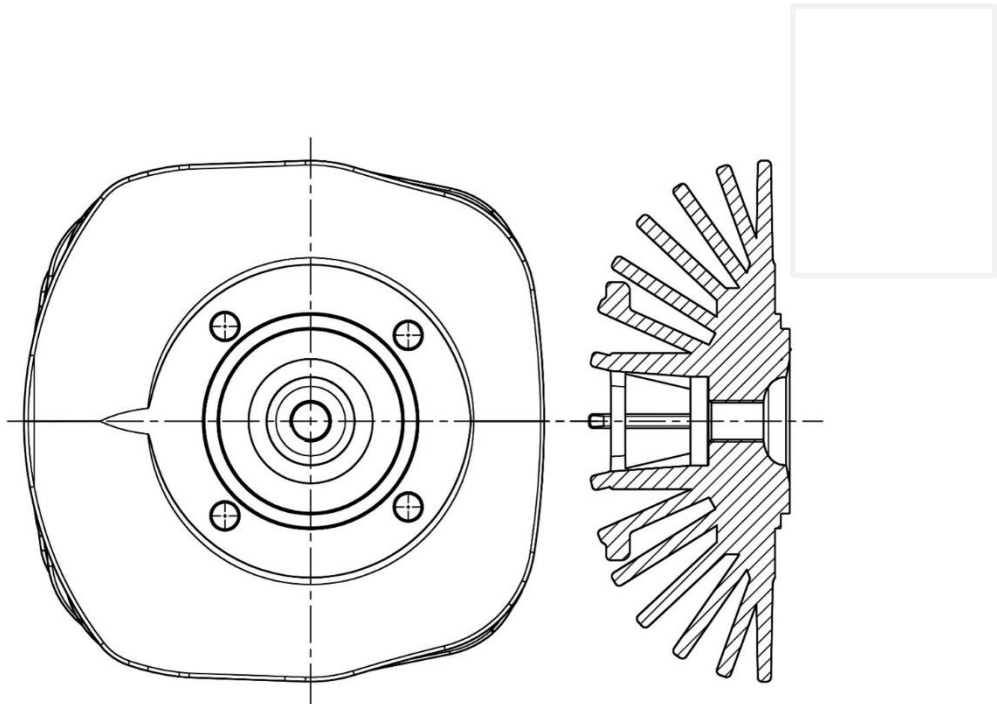


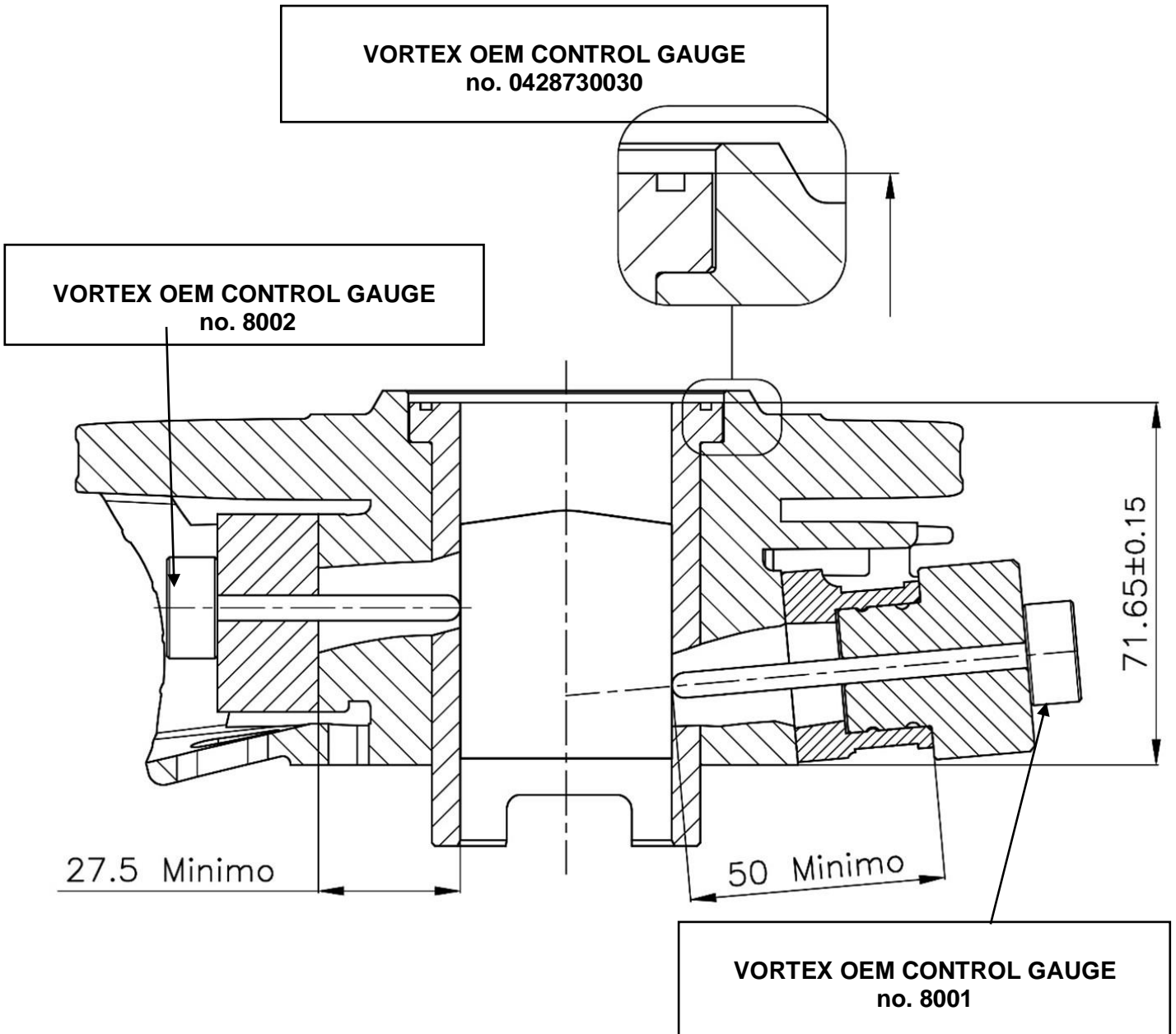
PHOTO OF THE CYLINDER HEAD

**PHOTO OF THE COMBUSTION CHAMBER
IN THE CYLINDER HEAD**



... Section D.1

**CYLINDER SECTION
MINIMUM DISTANCE OF THE CARBURETTOR SUPPORTING PLATE FROM**

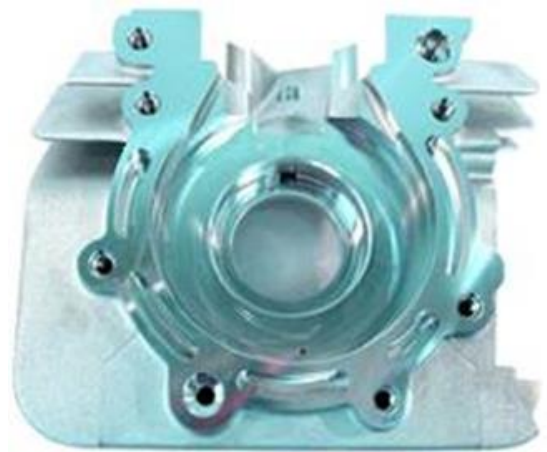
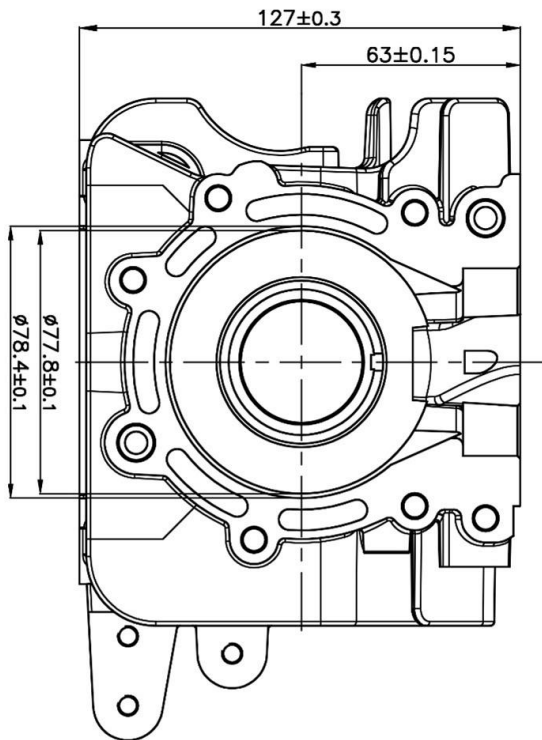


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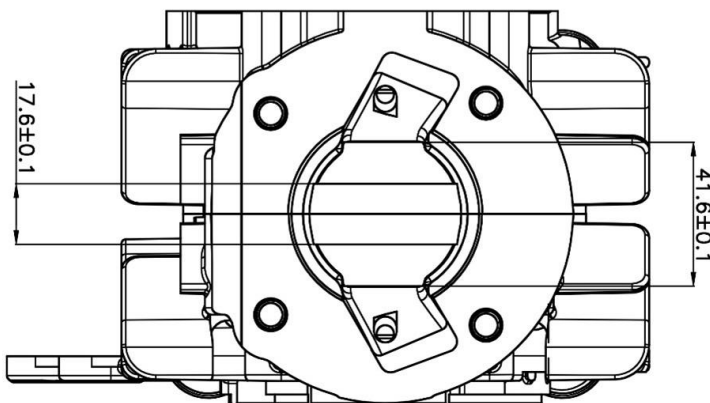
D.2 CRANKCASE

EXPLODED DRAWING OF THE CRANKCASES UNIT

**INTERIOR PICTURE OF THE
CRANKCASE**



PICTURE OF THE CRANKCASE



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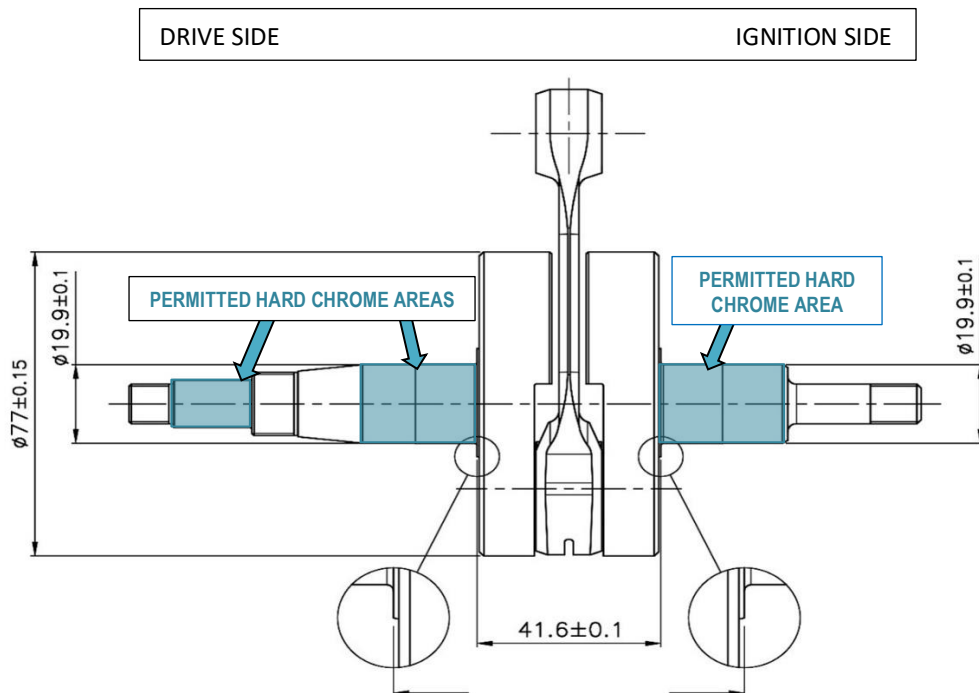
PHOTO OF THE CRANKSHAFT



PHOTO OF THE CONROD



**DRAWING OF THE CRANKSHAFT (MAIN DIMENSIONS - INCLUDING TOLERANCES)
Crankshaft Repair by Hard Chroming (indicated by blue panels)**

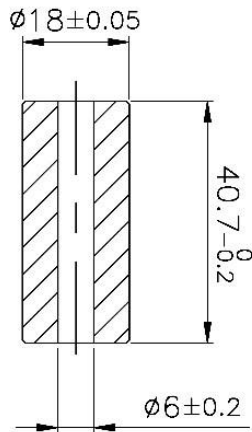


**CRANKSHAFT WEIGHT WITH CONROD
1312 gr.± 10gr**

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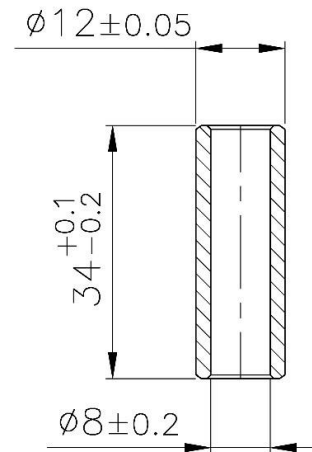
...Section D.2

BIG END CRANK PIN DIMENSIONS



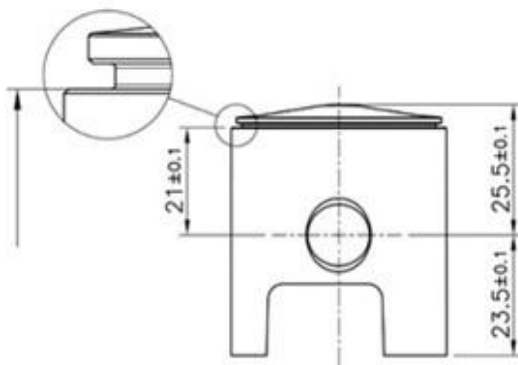
WEIGHT OF CRANKSHAFT CRANKPIN
71gr. +/- 1gr

PISTON PIN DIMENSIONS



PISTON PIN WEIGHT
15 gr Min

PISTON DIMENSIONS



WEIGHT OF PISTON
59 gr +/- 5 gr

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PISTON

PICTURE AND MARKING OF THE PISTON

Mandatory to have the brand VORTEX cast piston as shown in the picture.

Mandatory to have the number of the mold cast as shown in the picture.

OPTION 1



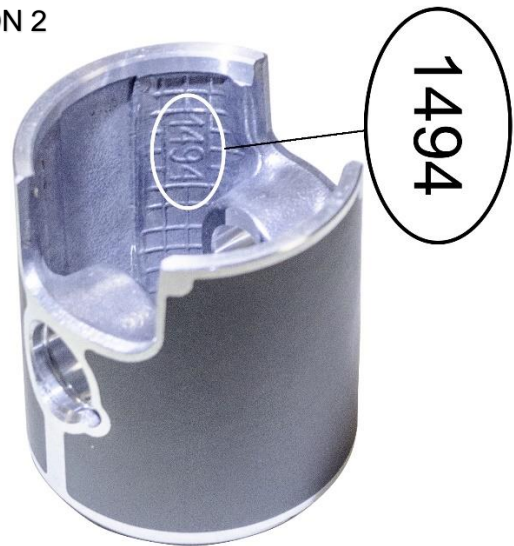
OPTION 1



OPTION 2



OPTION 2



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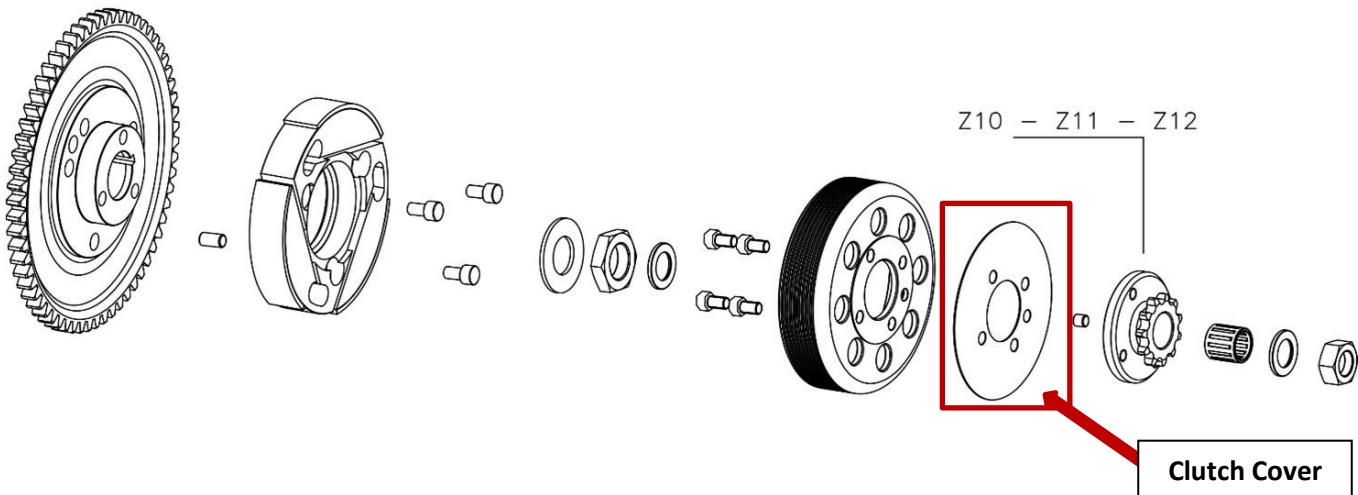
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COMPLETE CLUTCH ROTOR WITH STARTING GEAR

NUMERO DI PARTI: 20
PARTS QUANTITY: 20



WEIGHT OF COMPLETE CLUTCH ROTOR WITH COVER and STARTING GEAR: **855g +/- 15g**

WEIGHT OF COMPLETE CLUTCH ROTOR WITH STARTING GEAR: **815g +/- 15g**

ENGAGEMENT SPEED (MAXIMUM) CAN BE VERIFIED IN EVERY MOMENT OF THE EVENT: **3500 RPM**

WEIGHT OF CLUTCH ROTOR: **356g +/- 10g 345g +/- 15g**

WEIGHT OF CLUTCH HOUSING: **177g +/- 5g 178g +/- 10g**

INSIDE DIMENSION OF CLUTCH HOUSING: **84.5mm +/- 0.1 mm**

TOTAL WEIGHT OF CLUTCH ROTOR AND HOUSING: **533g - 15g**

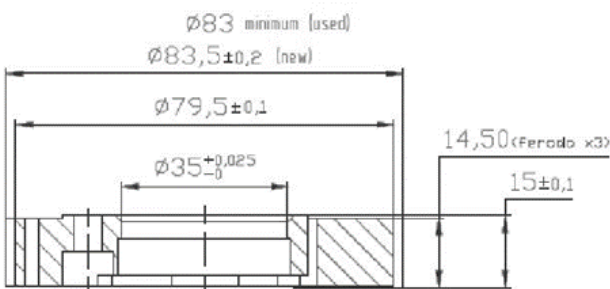
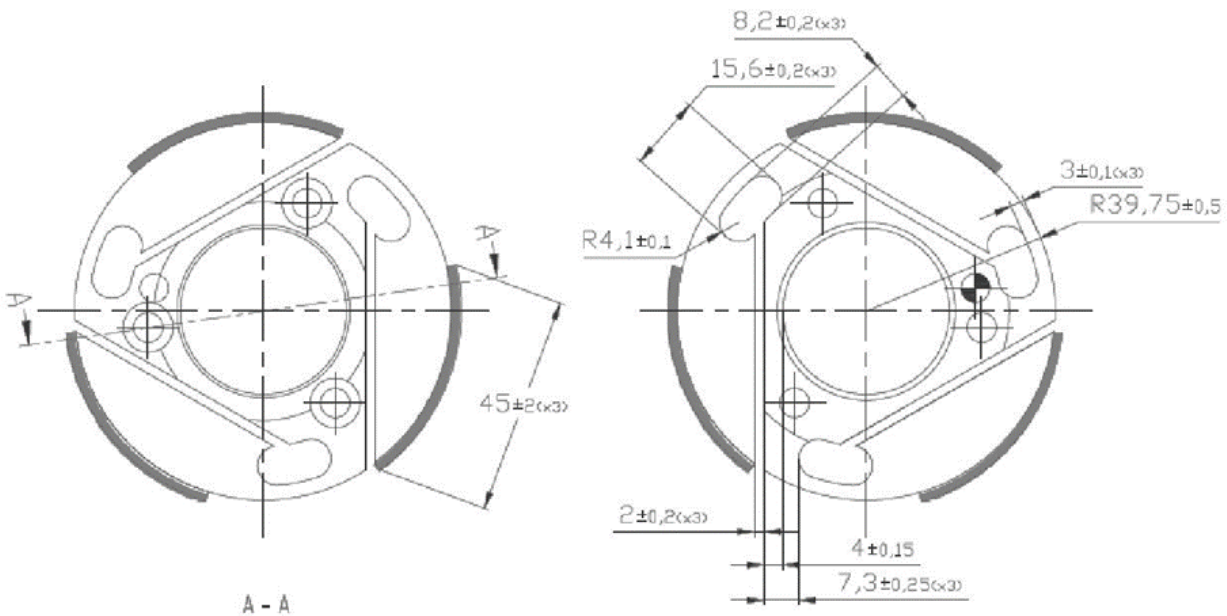
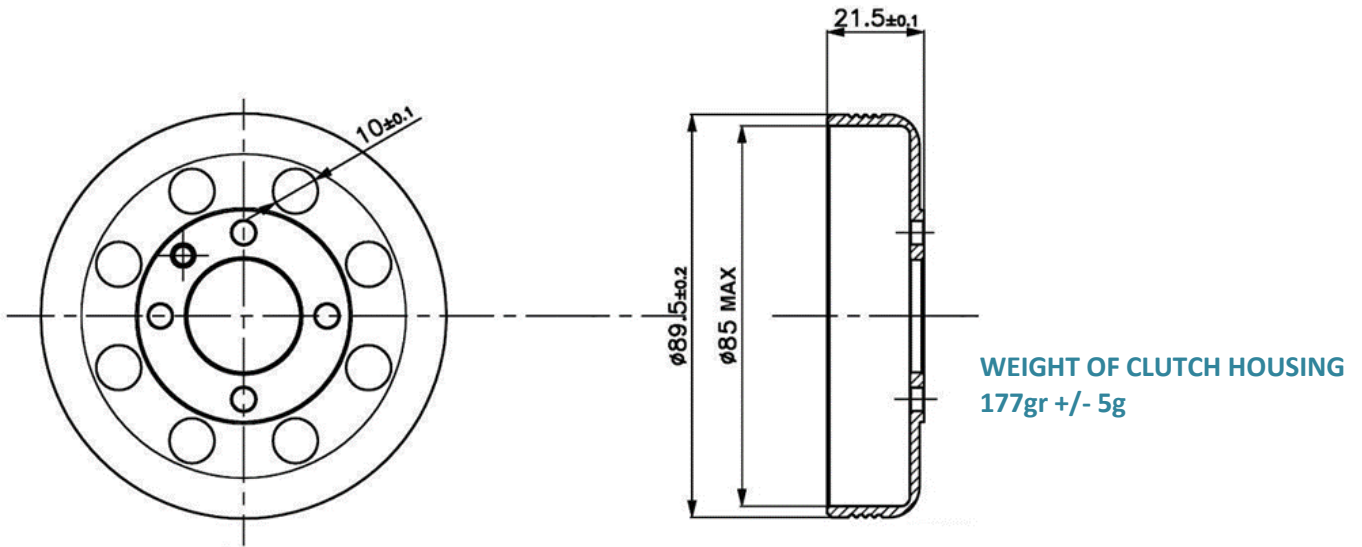
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CLUTCH HOUSING AND ROTOR



WEIGHT OF CLUTCH ROTOR
356g +/- 10g

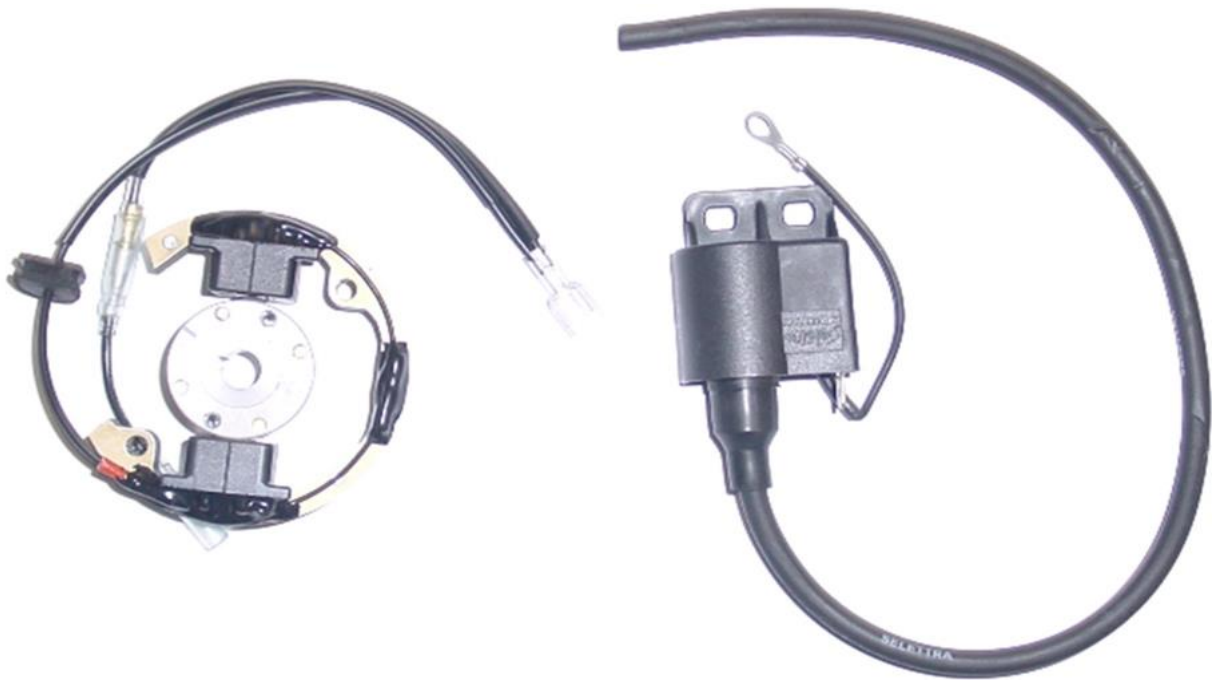
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..Section D.3

PHOTO OF SELETTA IGNITION



PERMITTED SPARK PLUG CAPS



Code PVL 401 222

Part W420/2

Code Selettra w7002246000100

SPARK PLUG:

- Spark plug must be standard NGK B9EG or NGK B10EG and have the original washer fitted when no head temperature sensor is in use.
- Shank length with washer 18.5mm maximum, or 19mm maximum without washer. No machining permitted.
- Vortex OEM wiring loom, connectors and start/stop buttons must be used.

No wiring loom repairs are permitted, **except:**

- The HT lead may be shorted as a repair. HT lead must not have a join.
- The loom wire connectors to the coil may be replaced/repaired with like for like components.

Stator mounting ring must be Vortex OEM. All mounting bolts must be in original condition. Selettra Coil Part W410/MR. The Coil must be mounted on the Vortex OEM mounting bracket.

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WIRING LOOM



...Section D.4

BATTERY AND BATTERY CRADLE

Battery can be either the factory supplied lead acid type, or an alternative lightweight Lithium Ion Battery.

It must be mounted within the **Vortex OEM battery cradle**, on the left side of the chassis, within easy reach of the driver. (Start/stop buttons bracket end facing towards front of kart).

Extra padding material is permitted.

Additional holes are permitted in the base of the battery cradle to enable a second chassis mount to be fitted.

Engines shall be mandatory switched on and off by means of onboard starting system.

Technical Inspectors may check the on-off onboard system anytime.



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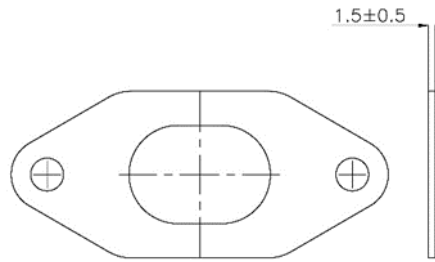
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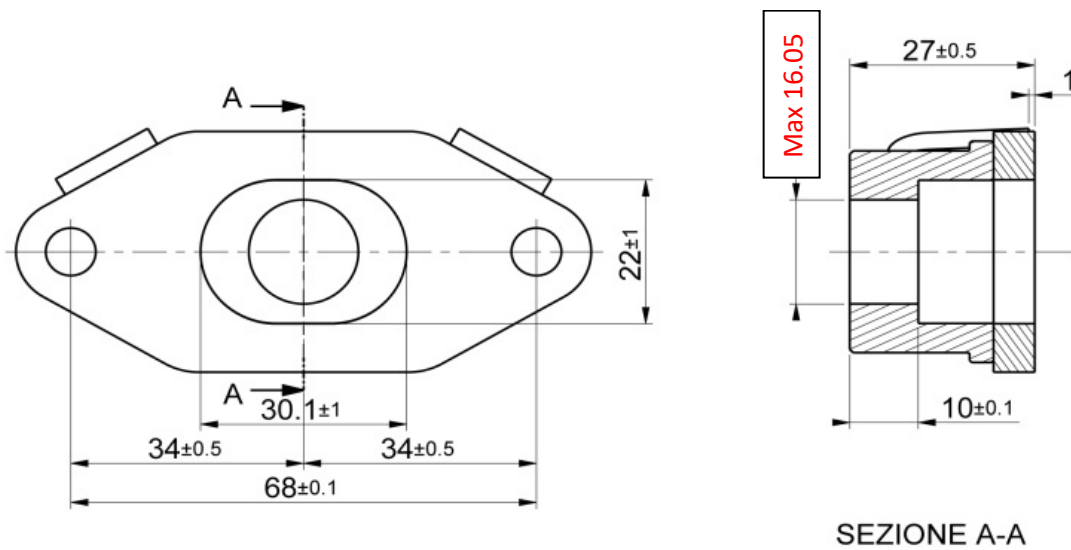
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D.5 EXHAUST SYSTEM (Exploded view)

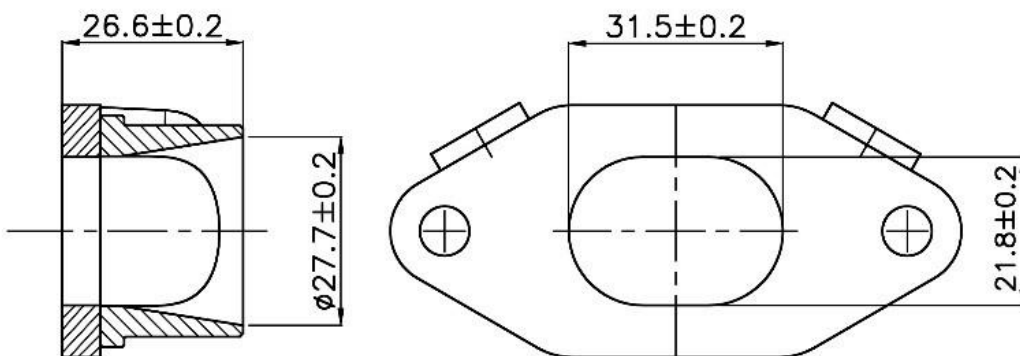
EXHAUST GASKET



DIMENSIONS OF THE EXHAUST MANIFOLD (RESTRICTED TYPE) Cadet 9



DIMENSIONS OF THE EXHAUST MANIFOLD (OPEN TYPE)



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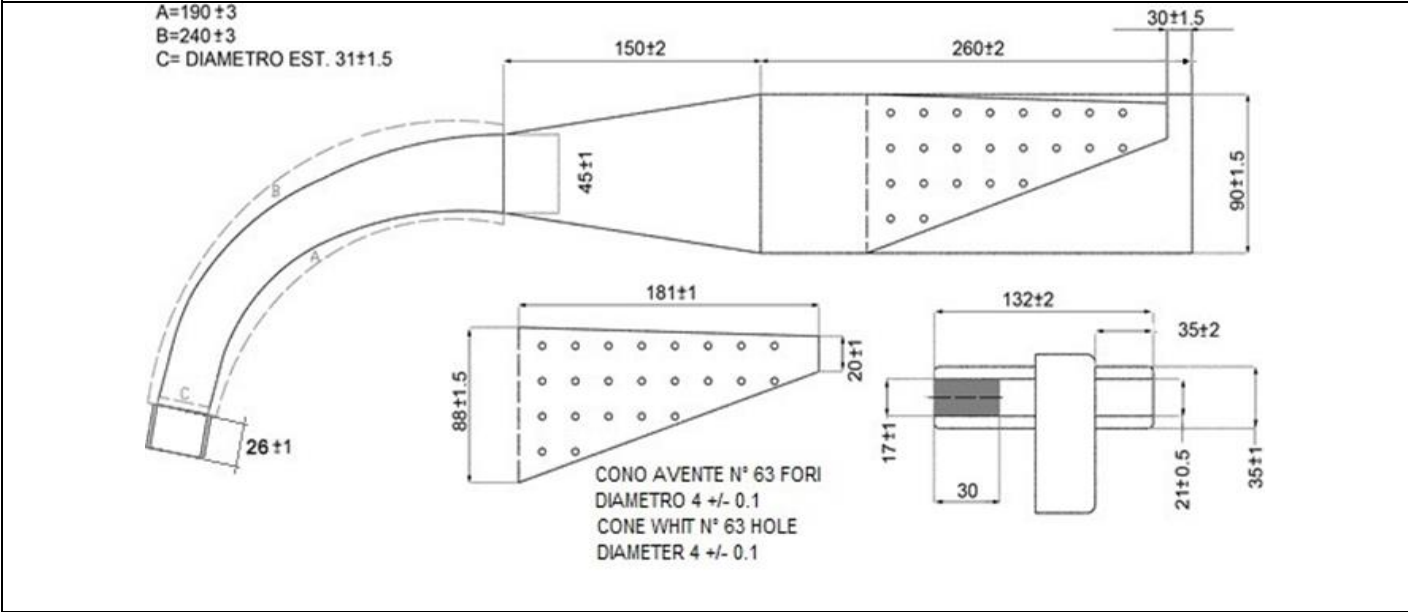
... Section D.5

TECHNICAL DESCRIPTIONS OF THE EXHAUST

Weight (In grams)	1372 g	+/- 5%
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TECHNICAL DRAWING

It must include all the information necessary to build this exhaust.



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PHBG 18BS CARBURETOR SPECIFICATIONS:

Note: Please note that there have been **NO** changes to the carburetor specifications. This document is used to clarify the standard homologated carburetor and jets.

No machining or drilling of jets is allowed on the carburetor and its internal parts. The carburetor must remain standard as supplied by the Vortex Mini Rok Importer.

The importer also has the right to supply competitors with new jets should it be required.

This is a working document and will be updated as and when required. The responsibility is on the competitor to check that the carburetor meets the required specification.

Carburetor Specifications for all Karting Australia 60cc Mini Rok classes.

CARBURETOR DELL'ORTO OHBG 18BS

1. Throttle Valve Slide	=	40
2. Mixture Needle	=	W23
3. Atomiser / Emulsion Tube (Mini Rok)	=	266 AN
4. Insert		
5. Idle Diffuser	=	50
6. Starter Jet	=	60
7. Main Jet	=	92-97
8. Needle Valve Diameter		
9. Float	=	4g
10. Air Screw		
11. Surge Plate	=	Compulsory
A. Other Dimensions		
B. Other Dimensions		



Measuring of Components:

Some components will be measured with aid of a vernier.

Measurement of Diameters applicable to the entire document:

Diameters of jets / holes will be measured using GO / NO GO gauges.

Special Tools / Drill bits will be used to measure some holes and used as GO / NO GO gauges.

These gauges can be verified with use of a 0-25mm micrometer.

“GO” Gauge will be required to slide into the required hole.

“NO GO” Gauges must not be able to slide into the required hole.

Should a part be found to be out of specification, it will be impounded for further measurement if required.

Carburetor: Dell’Orto PHBG 18mm

Slide: #4.0

Needle: W23

Starter Jet: #60

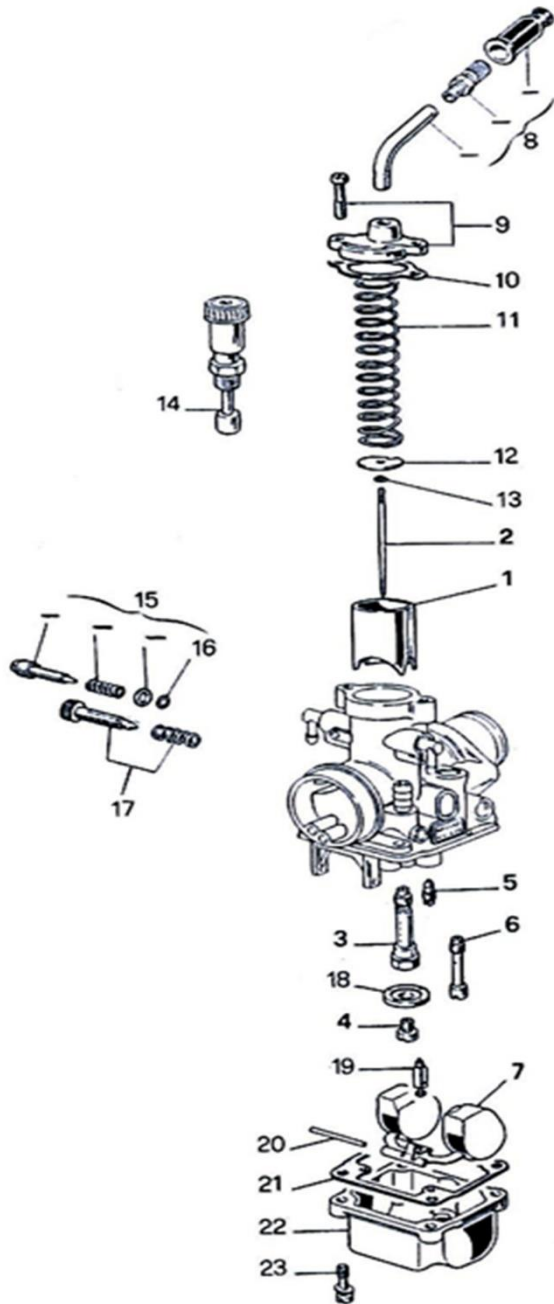
Inner pilot: #50 Emulsion tube: 266AN

Floats: 4gm

Maximum venturi size (go/no-go): 18mm +/-0.05mm

The ONLY permitted changes to the carburetor are Main Jet changes in 92-97 size range and Needle Clip Position. Air screw adjustment. Any other change or modification is not permitted.

CARBURETOR DELL'ORTO PHBG 18 BS AND COMPONENTS LIST



COMPONENTS

- 1- GAS VALVE 40X64 (4.0)
- 2- CONICAL NEEDLE W23
- 3- SPRAY NOZZLE AN266
- 4- JET MAIN. Range **92 - 97**
- 5- JET PILOT. 50
- 6- STARTING JET 60
- 7- FLOAT 4 gr.
- 8- TUBE 90° KIT
- 9- CHAMBER MIXTURE COVER KIT
- 10- CHAMBER MIXTURE COVER GASKET
- 11- GAS VALVE SPRING
- 12- CONICAL NEEDLE FASTENER FIX PLATE
- 13- CONICAL NEEDLE FASTENER
- 14- STARTING DEVICE
- 15- ADJUSTMENT MINIMUM SCREW KIT
- 16- ADJUSTMENT MINIMUM SCREW GASKET
- 17- ADJUSTMENT GAS VALVE SCREW KIT
- 18- SURGE PLATE (**Compulsory**)
- 19- GAS NEEDLE CLOSING
- 20- FLOAT PEG
- 21- FLOAT CHAMBER GASKET
- 22- FLOAT CHAMBER
- 23- FLOAT CHAMBER FIXING SCREW

The aim of the exploded drawings is to identify the principles, the functioning and the whole mechanical unit.

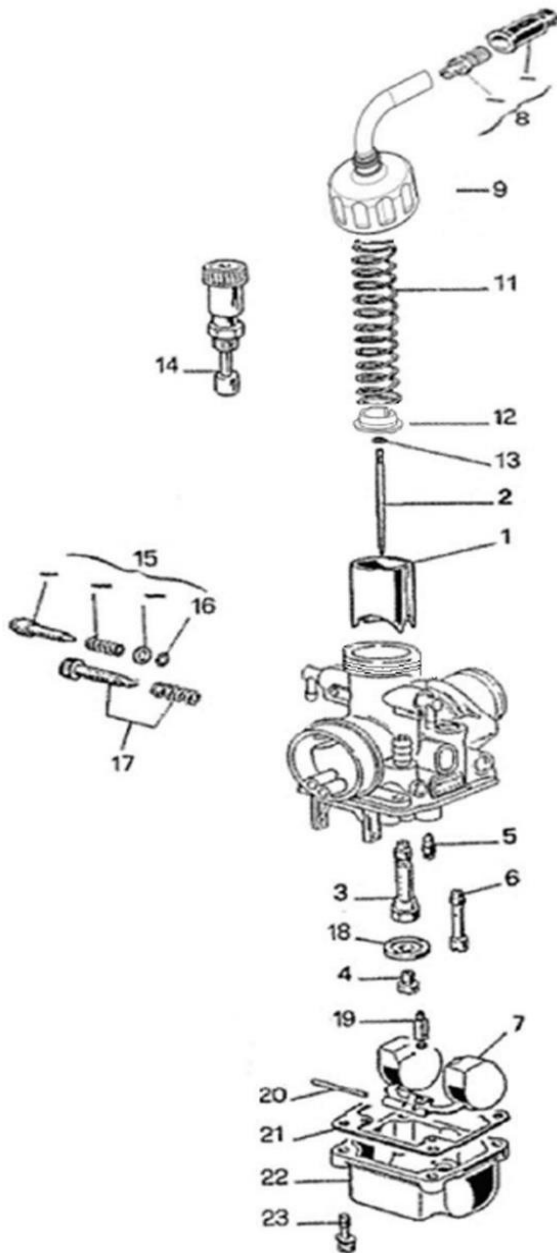
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CARBURETOR DELL'ORTO PHBG 18 BS AND COMPONENTS LIST



COMPONENTS

- GAS VALVE 40X64 (4.0)
- CONICAL NEEDLE W23
- SPRAY NOZZLE AN266
- JET MAIN. Range **92 - 97**
- JET PILOT. 50
- STARTING JET 60
- FLOAT 4 gr.
- ADJUSTMENT KIT
- COMPLETE COVER
- GAS VALVE SPRING
- 2- CLAMP PLATE
- 3- CLAMP
- 4- STARTING DEVICE
- 5- ADJUSTMENT MINIMUM SCREW KIT
- 3- ADJUSTMENT MINIMUM SCREW GASKET
- 7- ADJUSTMENT GAS VALVE SCREW KIT
- 3- SURGE PLATE (**Compulsory**)
- 9- GAS NEEDLE CLOSING
- 0- FLOAT PEG
- 1- FLOAT CHAMBER GASKET
- 2- FLOAT CHAMBER
- 3- FLOAT CHAMBER FIXING SCREW

The aim of the exploded drawings is to identify the principles, the functioning and the whole mechanical unit

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Furthermore, this includes any addition and /or removal of material and /or parts from the engine set-up package unless provided for by this regulation.



**Homologation
Number H107/RH**

FUEL PUMP

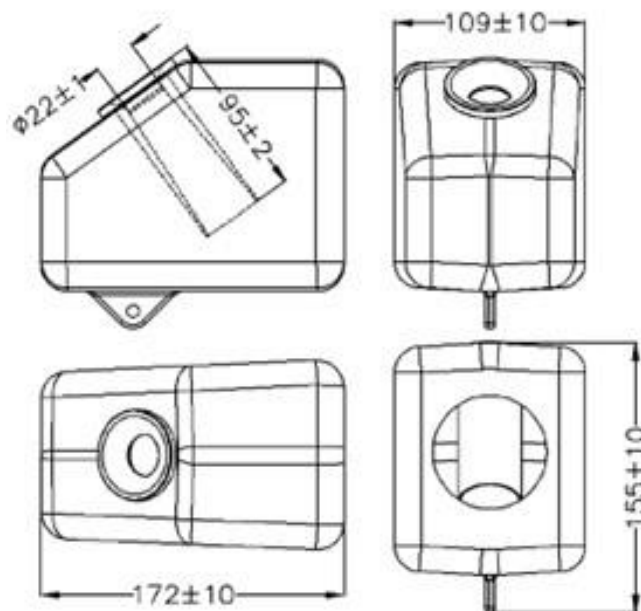


FUEL PUMP, PULSE LINE, FUEL LINES, FUEL FILTER:

OEM Dell 'Orto fuel pump and components as supplied by Vortex only.

- Only one fuel pump permitted.
- The fuel pump must be mounted On the Vortex OEM mounting bracket. Length of pulse line 100mm maximum.
- All fuel lines must be continuous (one piece without restriction, spigots, junctions, taps and similar devices) apart from the fuel tank pick up, the fuel filter and the fuel pump.
- Between tank, pump it is allowed to mount only one (1) fuel filter.

INLET SILENCER



OEM Vortex (As Marked)

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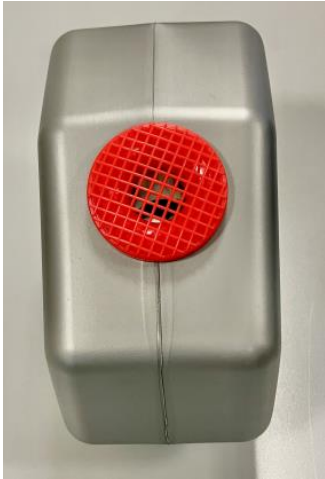
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The fitting of the Vortex OEM mesh stone guard is optional.
All dimensions as per diagram.

The only allowable modification is the drilling of an 8mm (maximum) drain hole positioned at the front centre line of lowest point of the intake silencer box.

The fitting of a rain cover (non-OEM) is optional.



FOAM FILTER CONNECTOR FIXING – CARBURETOR IN PLASTIC MATERIAL - FILTER



Vortex OEM intake silencer with ADDITIONAL (mandatory) **Vortex AU** foam filter in either Black, Red or Yellow which must be fitted in all events. (See pictures).

Foam filter must be free of damage, tears and modification





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CRANKCASE SEALS



Seals must be original Vortex OEM (see pictures) and fitted in the original Vortex factory location/direction and maintaining the seal spring.

Main bearings must be original Vortex OEM SNR or KOYO used.

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FRONT SPROCKET / CLUTCH COVER



Clutch cover may be modified only as stated herein:

Only on the underside, in a manner not to breach the first vent slot as pictured.

Clutch cover may be modified to accept the external starter. A maximum diameter hole 30mm is permitted.

Top and Side view must remain unmodified in its shape.

Rationale: Improved chain clearance when using larger rear axle sprockets.

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Appendix A to Vortex Mini ROK Homologation Documents

OEM means: Original Engine Manufacturer (Vortex) or an organisation that makes component parts used by and supplied by Vortex for exclusive use in the Vortex Mini Rok Engine.

The following notes are additional to the details contained in these Homologation documents for the Vortex Mini Rok engine (the “**Engine**”) and are to be read in conjunction with the specifications and details contained therein. They form part of the Homologation documents for the Engine.

The Engine must always be used and be presented in strict conformity with the specifications detailed in the homologation documents. Unless otherwise expressly permitted by Karting Australia, only Vortex OEM parts that have been manufactured and/or supplied by Vortex for the Engine are permitted to be used in the Engine at any time.

Neither the Engine nor any of its ancillary components may be modified other than in accordance with the Rules and these homologation documents. Any removal, addition or polishing of material is strictly forbidden. Sandblasting, glass bead blasting, vapor blasting, wet blasting, liquid honing, peening, acid etching, spark eroding and/or any other method of metal removal or displacement is strictly forbidden.

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

The use of anti-friction coatings on or in the Engine/Engine components other than OEM pistons is prohibited.

UNLESS IN THE KARTING AUSTRALIA RULES AND/OR THESE HOMOLOGATION DOCUMENTS IT SAYS THAT YOU CAN, THEN YOU CANNOT.

A Cylinder

1. All ports must be of intended design conforming to the homologation documents.
2. Cylinder length 71.65mm +/- 0.15mm

B Cylinder Head

1. No material is to be added except for the purpose of spark plug thread repair.
2. Cylinder head profile must not vary from the original profile and will be checked with the VORTEX Cylinder Head Profile Gauge
3. Only one (1) cylinder head gasket may be used at any time.

~~C Base Gasket~~

- ~~1. Only one (1) cylinder base gasket may be used at any time.~~

C Squish Gap

1. The Cylinder Head Squish clearance shall be a minimum of 0.8mm as per the homologation documents.
2. Shall be measured using 2.0mm solder wire (tin).

D Carburetor

1. Carburetor throttle cannot be actuated by electro-mechanical means.
2. Breather tube is required. The breather tube may be 2 pieces but must be joined.

E Exhaust

1. Only one (1) exhaust temperature gauge probe maybe fitted
2. Only one (1) exhaust gasket is permitted to be fitted



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G. Vortex AU Speedway Foam Filter

- 1. Vortex AU foam filters are yellow in colour and are to be procured through the AU Vortex Mini Rok Dealer Network.

F Spark Plug

- 1. Only permitted spark plug is NGK-B10EG or NGK-B9EG

G. Non-Technical Items

- 1. Unless otherwise specified, non-tech items are to be of the same specification as the original item.
- 2. No alteration from the original manufacturer’s specifications is permitted to fit a non-tech item.
- 3. Anderson plug housing is a non-tech item. (Different colour Anderson plugs are permitted as replacement components.)
- 4. Stickers’ that may be removed when requested by the technical inspector are allowed on the engine or induction silencer.
- 5. Engraving, stamping a name, stickering or marking an engine to allow you to identify your engine is permitted. Any such engraving, stamping, stickering or marking must not partially or wholly obscure the essential homologation identification markings on the Engine and its ancillary components.

Updates February 2023	
Page 10	Connecting Rod weight tolerance
Page 11	Engine Sprocket – Z12 permitted
Page 16	Crankshaft repair by hard chroming
Page 18	Optional OEM piston
Page 20	Weight of Clutch Rotor and Clutch Housing
Page 21	Optional Selettra spark plug cap
Page 22	Optional battery cradle
Page 23	Ignition Timing deleted
Page 28	Inlet Silencer Tube length tolerance
Page 28	Permitted use of T-Junction in return Fuel line removed.
Page 32	Requirement to use only one 91) Base Gasket removed
Page 33	Speedway foam filter reference removed – Refer Page 29
Page 33	Spark plug NGK 9EG and NGK 10EG only permitted.

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