Homologation N °

109H

REHOMOLOGATED 3 AUGUST 2023

NATIONAL HOMOLOGATION FORM
KARTING ENGINE

Manufacturer	**AUSTECH INDUSTRIES PTY. LTD.**
Make	**TORINI**
Model	**CLUBMAXX 210 (TC210)**
Validity of the homologation	*6 years*
Number of pages	**46**

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.

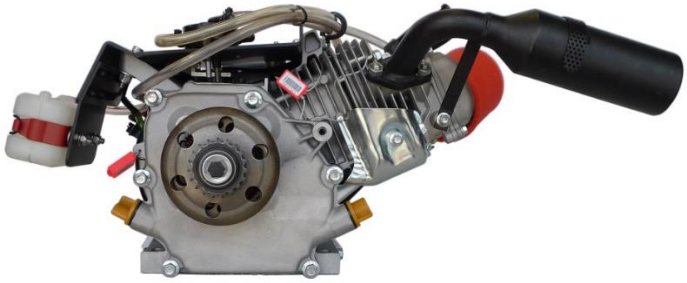

PHOTO OF DRIVE SIDE OF ENGINE

PHOTO OF OPPOSITE SIDE OF ENGINE

Signature and Stamp of Karting Australia

Homologated
14 November 2017

Rehomologated
August 2023

Updated
January 2024

Les Allen
National Technical Commissioner

Kelvin O'Reilly
Chief Executive Officer

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REHOMOLOGATED 3 AUGUST 2023

PHOTO OF DRIVE SIDE OF THE COMPLETE ENGINE

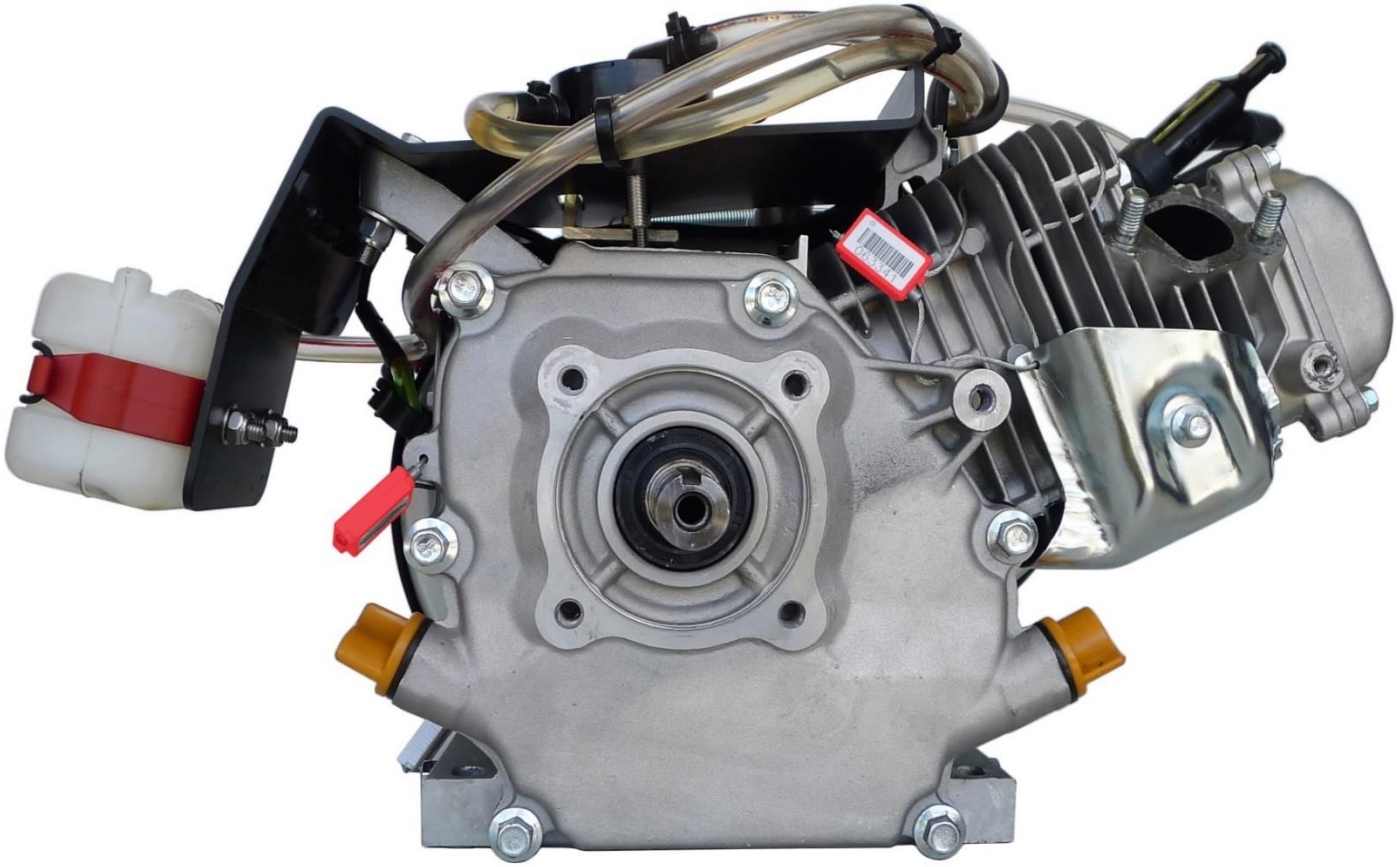

PHOTO OF OPPOSITE DRIVE SIDE OF THE COMPLETE ENGINE

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REHOMOLOGATED 3 AUGUST 2023

PHOTO OF THE REAR OF THE COMPLETE ENGINE

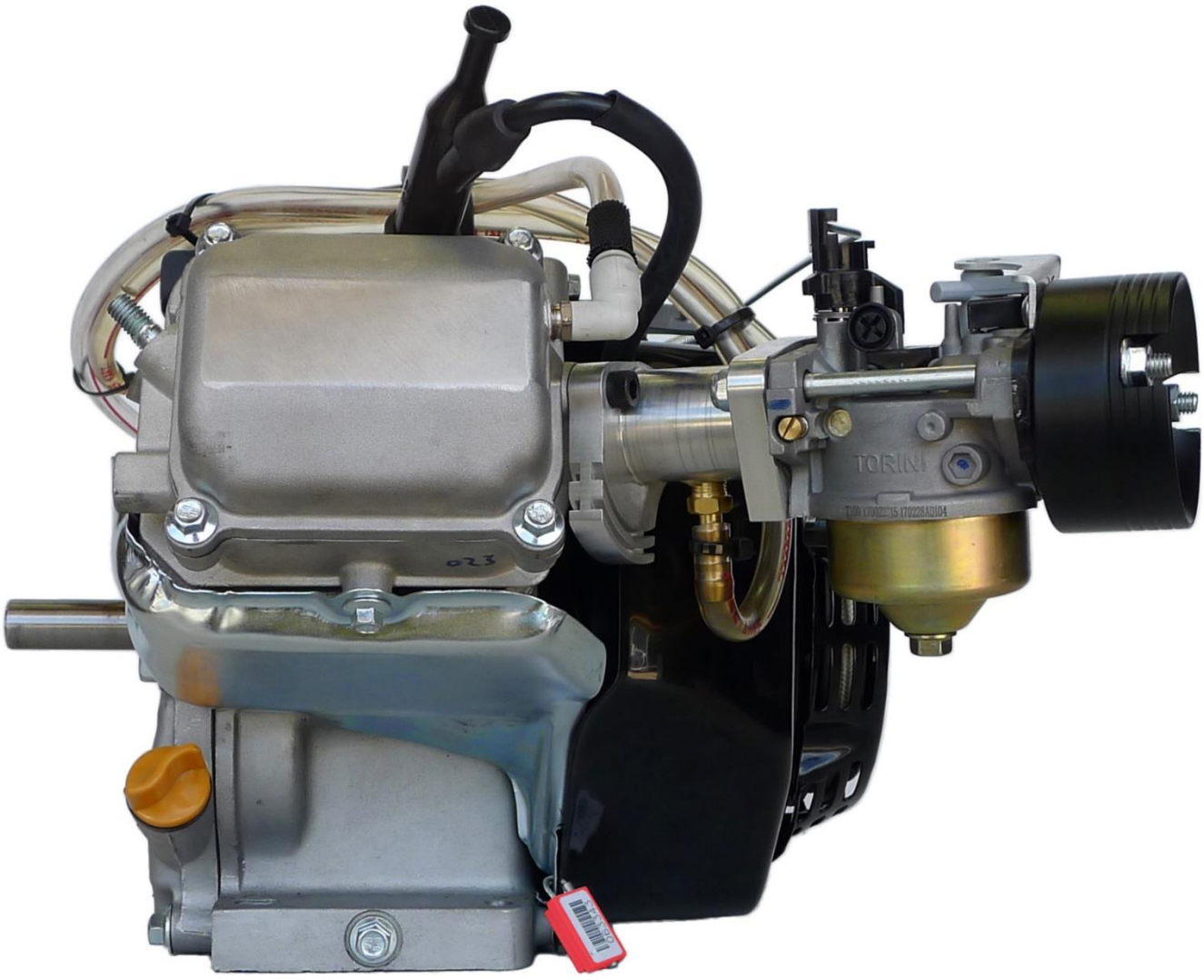
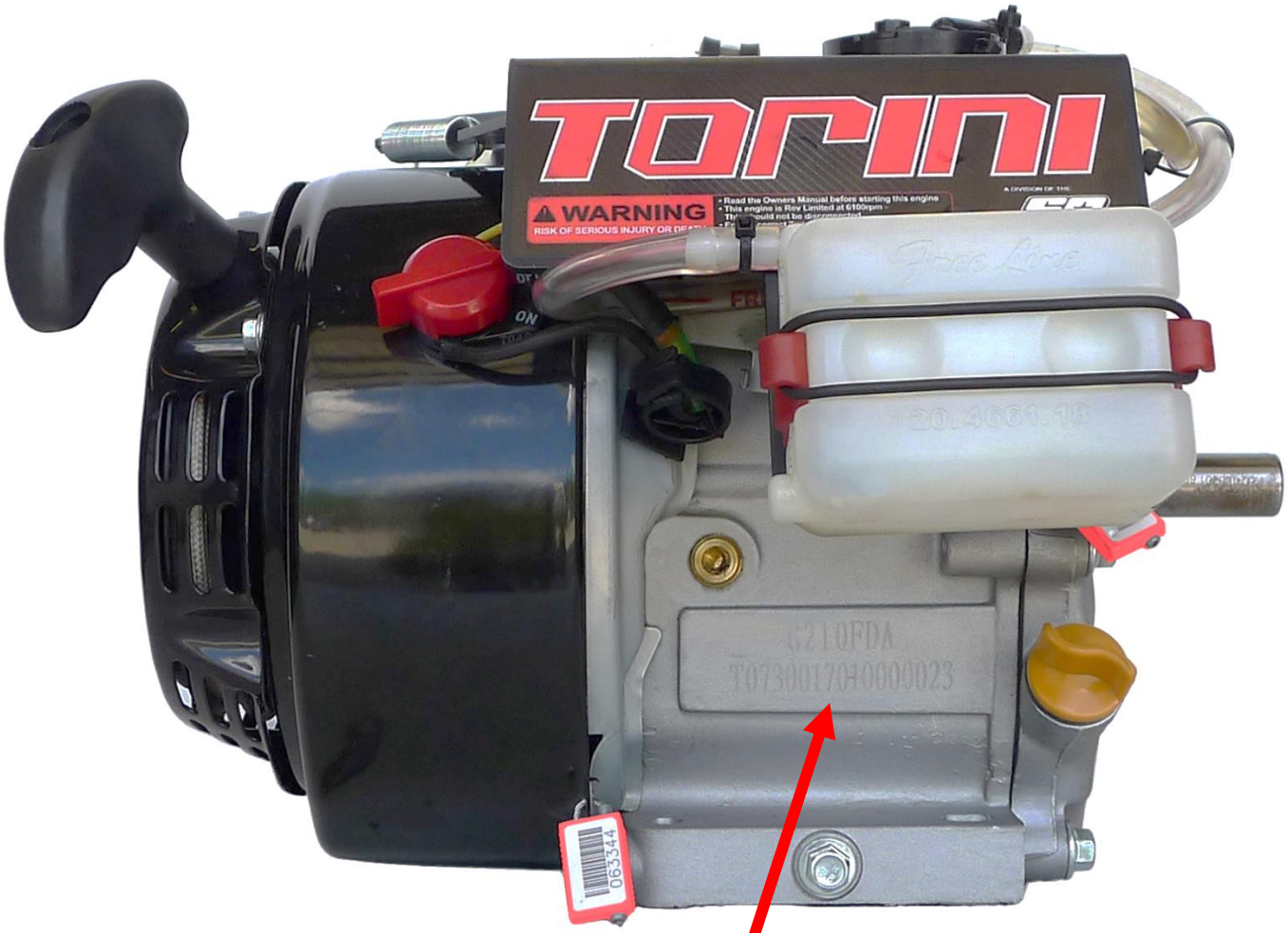


PHOTO OF THE FRONT OF THE COMPLETE ENGINE



Serial Number
(Bottom Number)

No deviation from the manufacturer's engine specification is allowed.

All components must remain OEM. **The engine serial number must be visible at all times** and must comply with the Australian Homologation records.

PHOTO OF THE COMPLETE ENGINE TAKEN FROM ABOVE

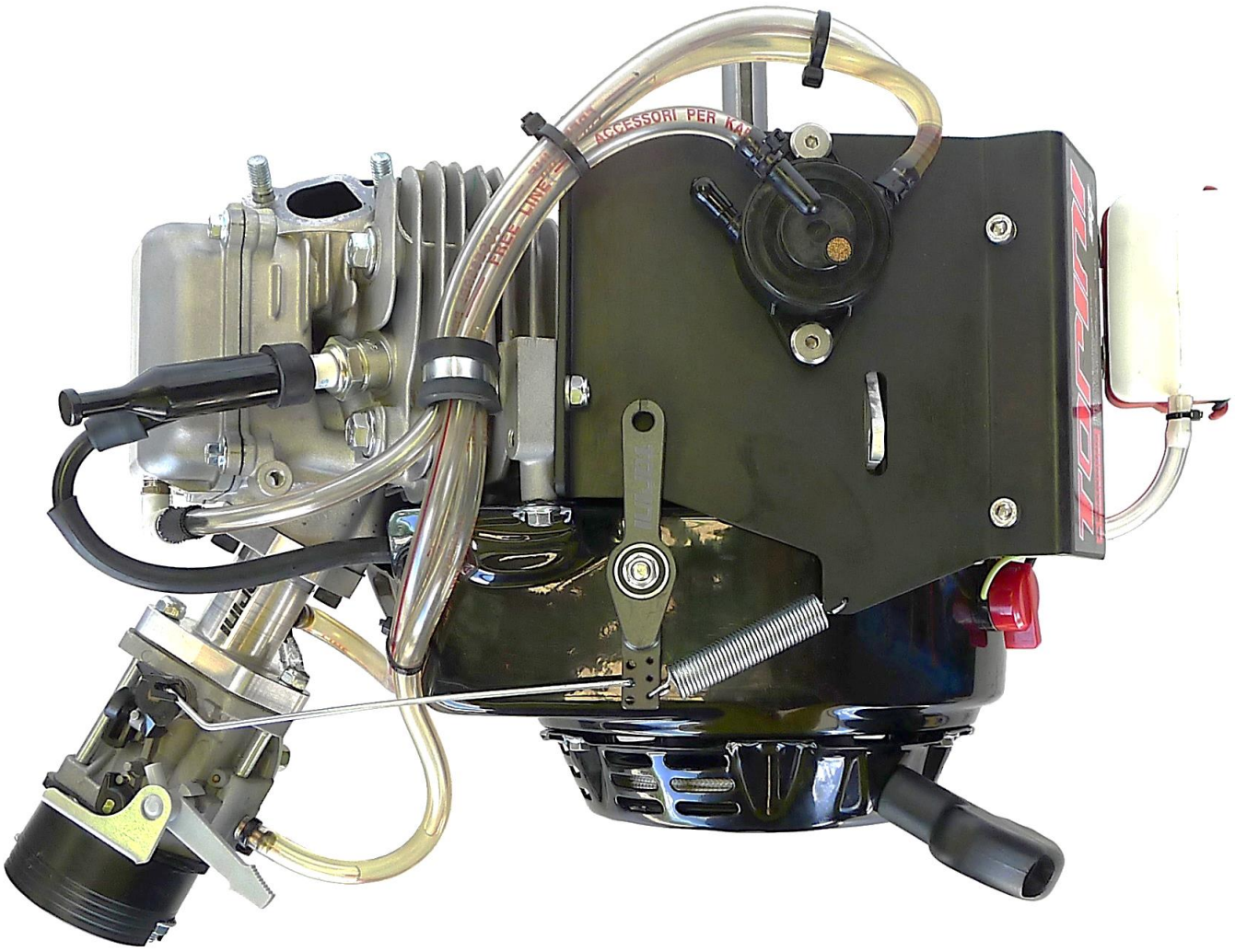
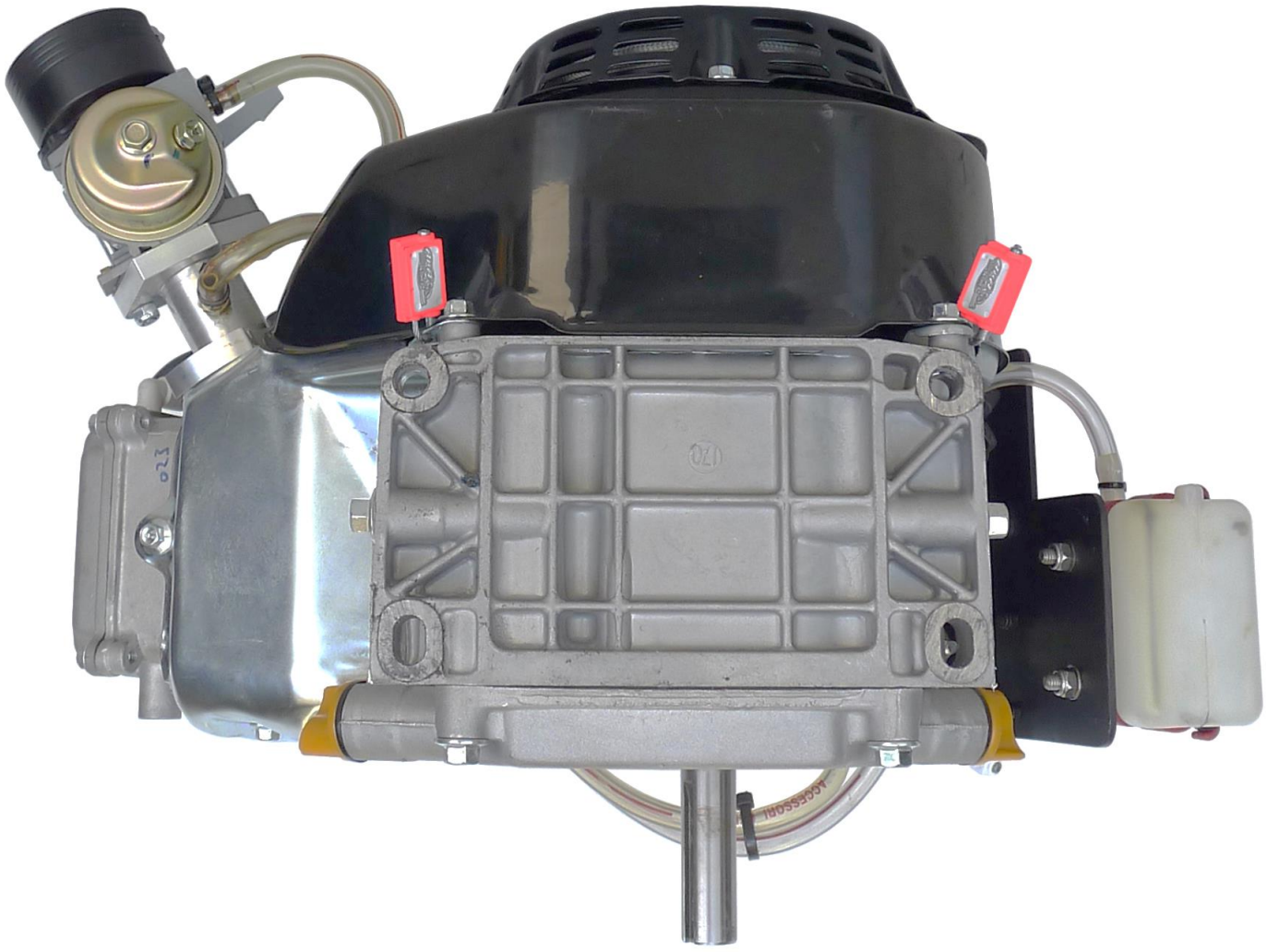


PHOTO OF THE COMPLETE ENGINE TAKEN FROM BELOW



Engine Seals

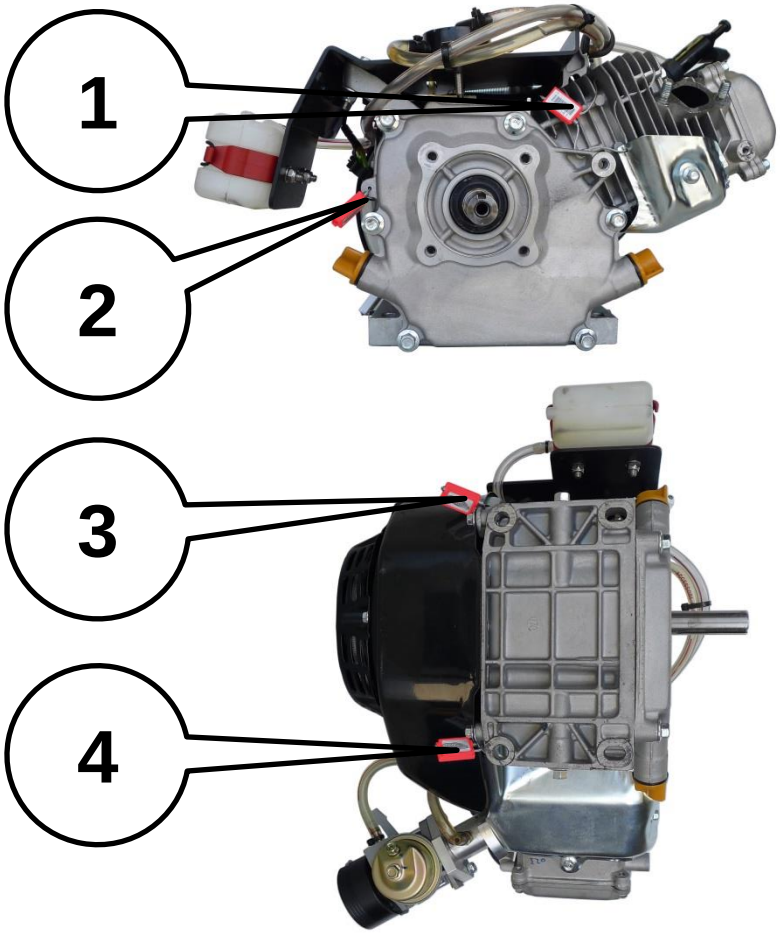
TAMPER-EVIDENT CABLE SEALS

Engine Seals (Anti-Tamper)

Manafacturer: **TORINI** Part No: **TCSEAL** Description: **RACE ENGINE SEAL (Anti-tamper) Red / White 800mm**

Engine Seals : **Qty 4**

1. **Head to Crankcase**
2. **Side Cover to Crankcase**
3. **Cowel to Crancase (front)**
4. **Cowel to Crankcase (rear)**



Tampering with the seal/s is not permitted.

Should the seal/s be tampered with, or any of the seals be broken, the engine is no longer eligible for competition.

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REHOMOLOGATED 3 AUGUST 2023

TECHNICAL INFORMATION

A	*CHARACTERISTICS*	
The number of decimal places must be 2 or comply with the relevant tolerance.		*Tolerances & remarks*
Cylinder		
Volume of cylinder	**211.66CC**	--
Original bore	**70.000mm**	--
Theoritical maximum bore	**70.165mm**	--
Original Stroke	**55mm**	--
Number of transfer ducts, cylinder/sump	**n/a**	--
Number of exhaust ports / ducts	**n/a**	--
Volume of the combustion chamber		minimum
Volume of the combustion chamber in the cylinder head		minimum
Crankshaft		
Number of bearings		
Diameter of bearings		
Minimum weight of crankshaft	**1750g**	minimum
All parts represented on page 17 photo		
Balance shaft		
Minimum weight of balance shaft	**n/a**	minimum
Percentage of balancing	**n/a**	minimum
Connecting rod		
Connecting rod centreline	**84.5mm**	±0.5mm
Diameter of big end	**30.25mm**	±0.02mm
Diameter of small end	**18.002**	
Min. weight of the connecting rod & cap (with bolts)	**110g**	minimum

Piston		
Number of piston rings	**3**	
Min. weight of the bare piston	**145g**	minimum
Gudgeon pin		
Diameter	**18mm**	
Length	**54mm**	±0.5mm
Minimum weight	**45g**	Minimum
Clutch		
Minimum weight	**0.97Kg**	minimum
Of all the parts represented on the page18 technical drawing		

B	*OPENING ANGLES*	
Of the inlet (main transfer ports)	**n/a**	
Of the inlet (secondary transfer ports, for 5 transfer ducts engine)	**n/a**	
Of the exhaust	**n/a**	
Of the boosters	**n/a**	

C	*MATERIAL*
Cylinder head	**YL113 GB/T15115-1994**
Cylinder	**ADC12**
Cylinder wall	**CAST IRON**
Sump	**ADC12**
Crankshaft	**40CR GB/T3077-199**
Connecting rod	**BILLET 7075 T6**
Piston	**ZL109 GBT/T 1173-1995**

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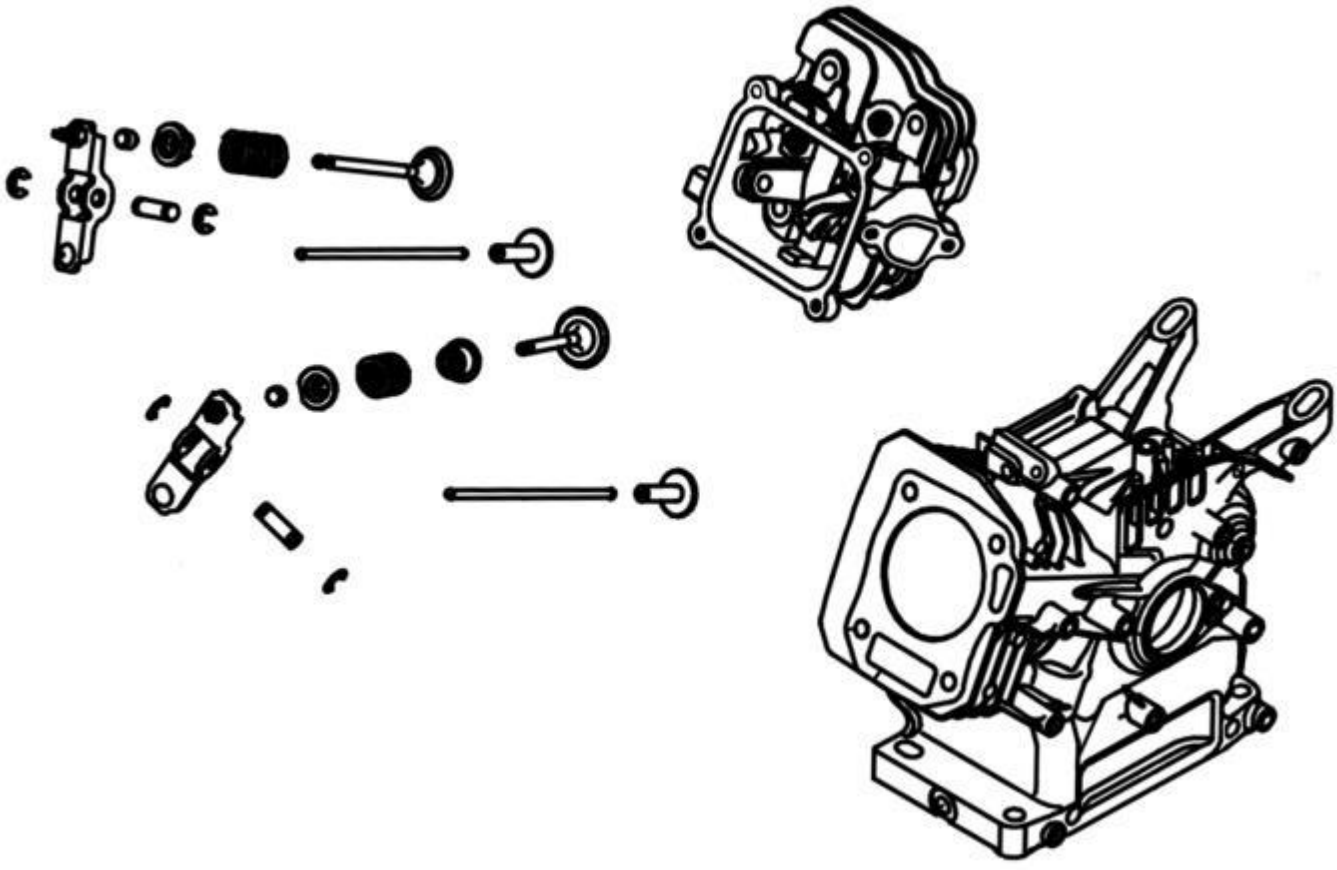
D	*PHOTOS, DRAWINGS & GRAPHS*

D.1 *CYLINDER UNIT*

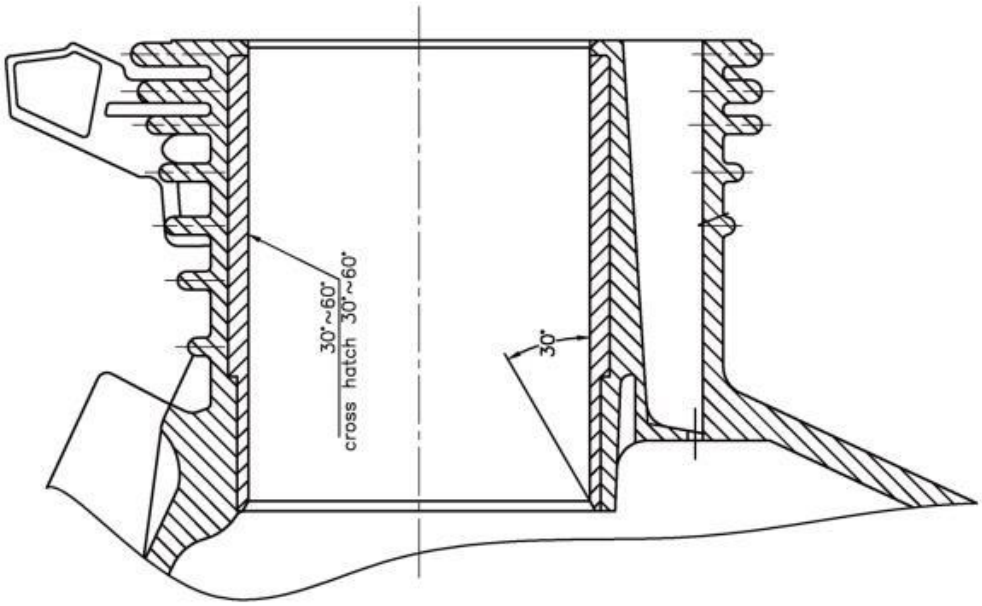
EXPLODED DRAWING OF THE CYLINDER, CYLINDER HEAD AND EXHAUST MANIFOLD UNIT



Without screws or gaskets.	***The aim of the exploded drawings is to identify the principles, the functioning, and the whole mechanical unit***

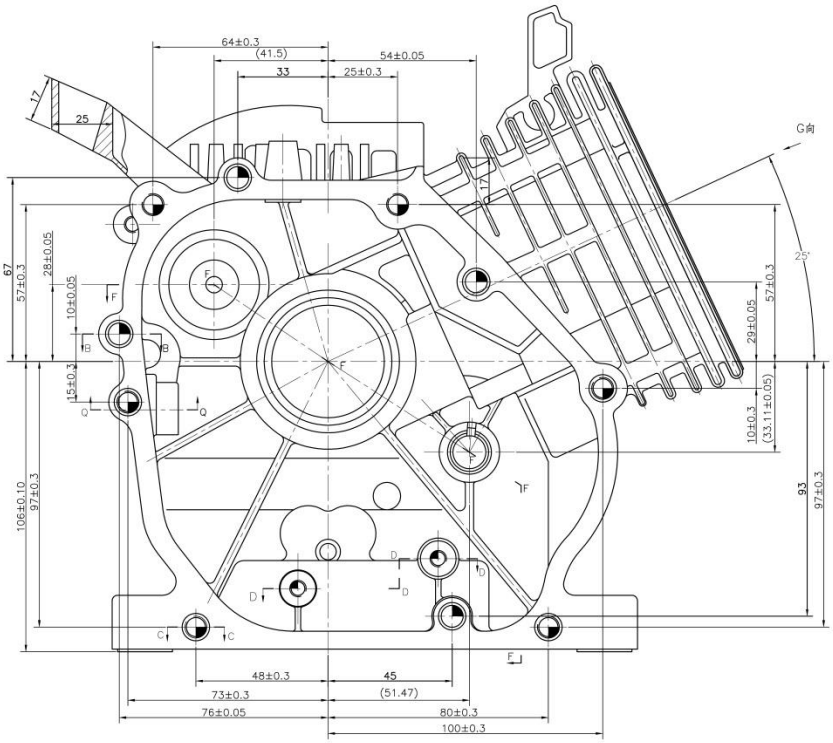
... Section

DRAWING OF THE CYLINDER DEVELOPMENT



Indicate on the drawing:
B1/B2 = minimum thickness of the inlet (transferts) ribs.
A1/A2/A… = maximum inlet width measured at the chord.
E1/E2 = minimum thickness of the exhaust rib (if existing).
C1/C2/C… = maximum exhaust width measured at the chord.

DRAWING OF THE CYLINDER BASE



... Section

DRAWING OF THE CYLINDER HEAD AND OF THE COMBUSTION CHAMBER without dimensions	

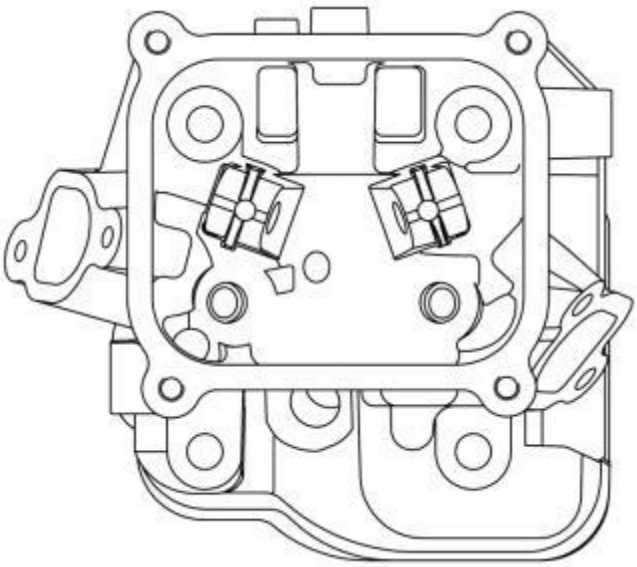
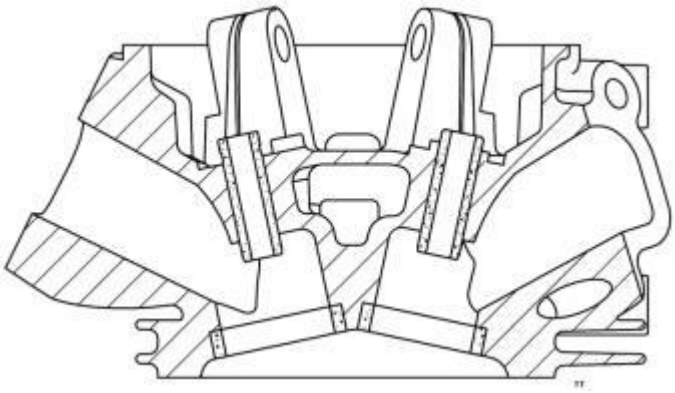
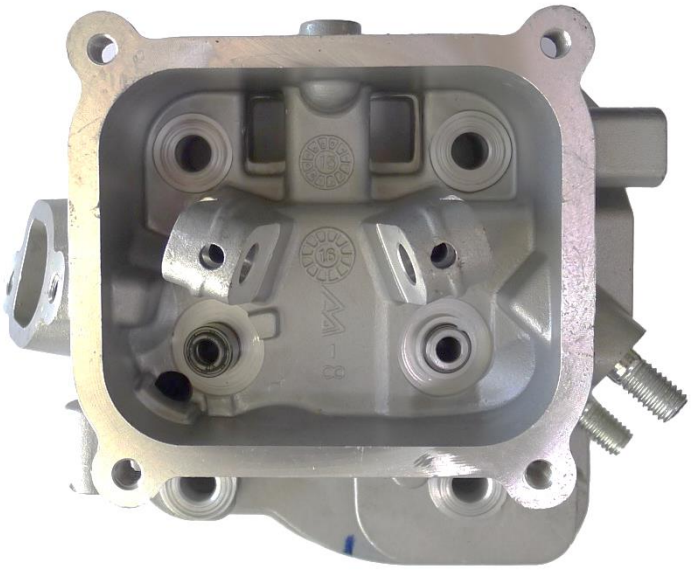
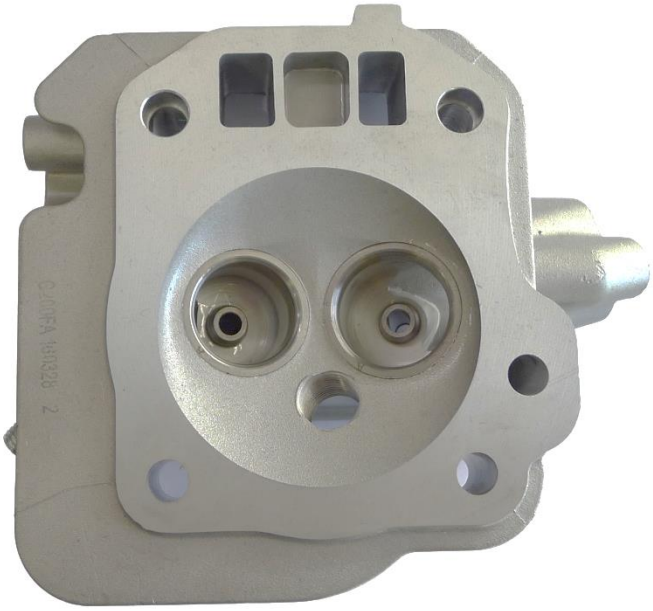

	

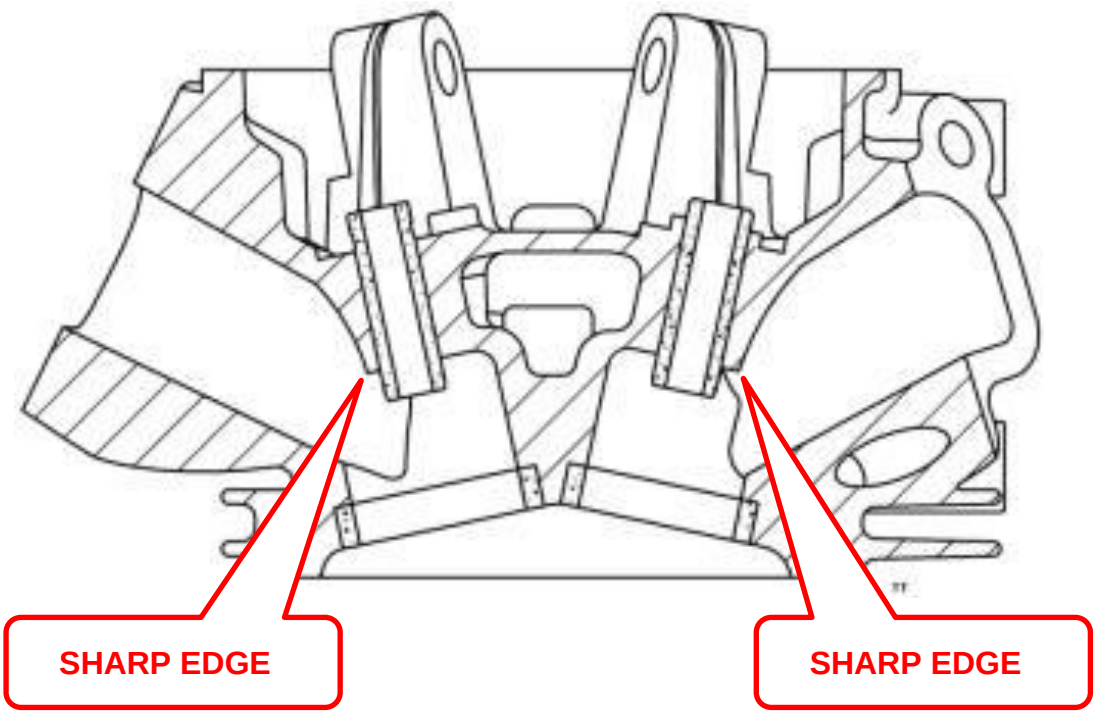
PHOTO OF THE CYLINDER HEAD	*PHOTO OF THE COMBUSTION CHAMBER IN THE CYLINDER HEAD*
	

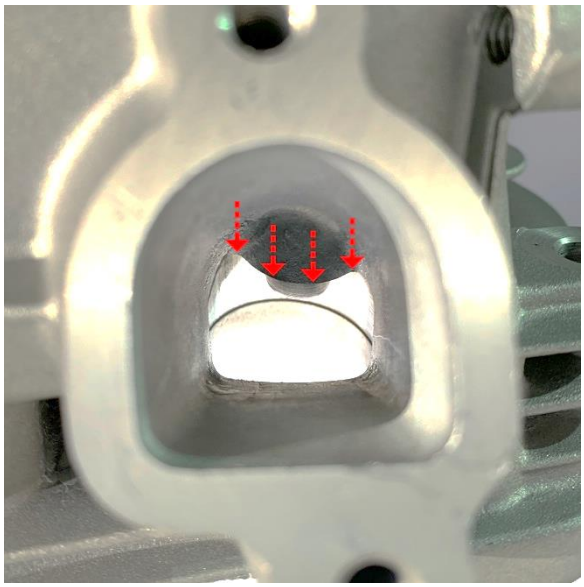
... Section

DRAWING OF THE CYLINDER HEAD AND OF THE COMBUSTION CHAMBER without dimensions

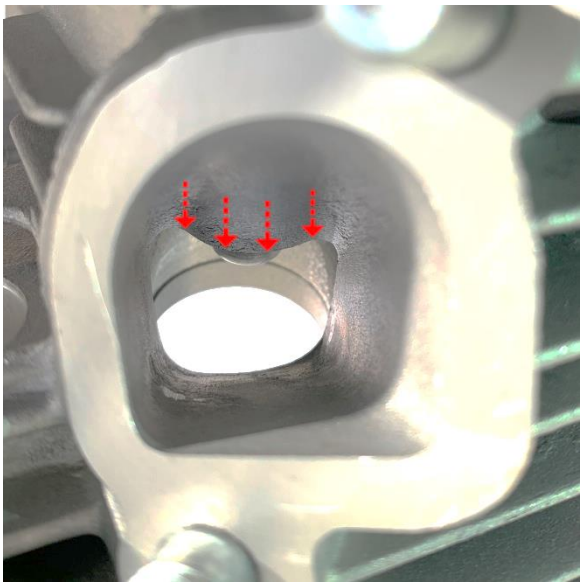
Scrutineer's Note : Head Port Checks – **Visual Check**

Both Inlet and Exhaust Ports are factory standard.
There should be no evidence of porting. Look for sharp edge.





INLET SIDE



EXHAUST SIDE

... Section

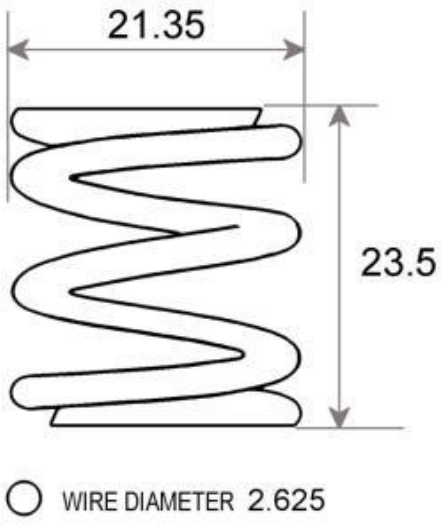
PHOTO OF THE ROCKER ARM

Scrutineer's Note : Rocker Arms – **Measure**

Both Inlet and Exhaust rocker arms at the same dimentions.
Rocker arms can be measured with valve cover removed.

PHOTO OF THE VALVE SPRING

Note: *Both valve springs are the same dimentions*



Scrutineer's Note : Valve Springs – **Measure**

Both Inlet and Exhaust springs are the same dimentions.
Wire diameter can be measured with valve cover removed

... Section

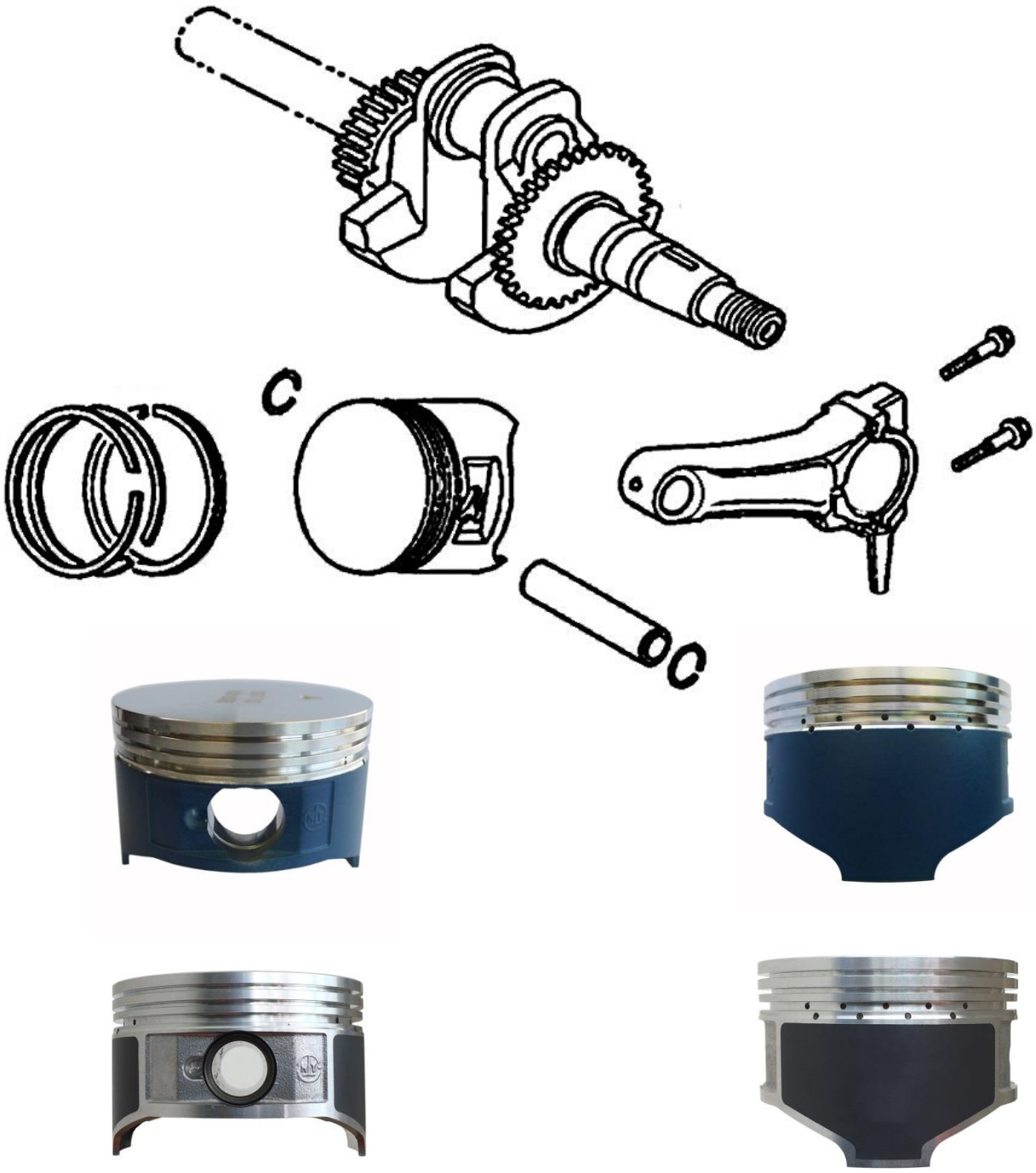
PHOTO OF THE CYLINDER FROM ABOVE

PHOTO OF THE CYLINDER FROM RH SIDE

... Section

D.2 *CONROD, CRANKCASE, CAMSHAFT, CRANKSHAFT & PISTON*

EXPLODED DRAWING OF THE PISTON, CRANKSHAFT, CONNECTING ROD AND CRANKCASE

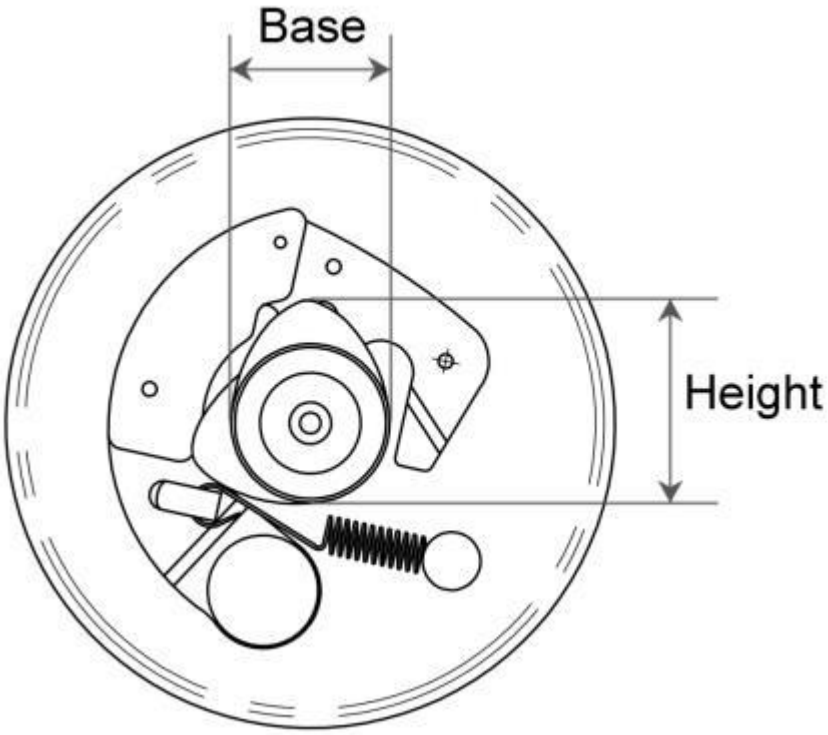


Without screws or gaskets.	***The aim of the exploded drawings is to identify the principles, the functioning and the whole mechanical unit***

... Section

PHOTO OF THE CAMSHAFT

Camshaft Description



Inlet Cam :

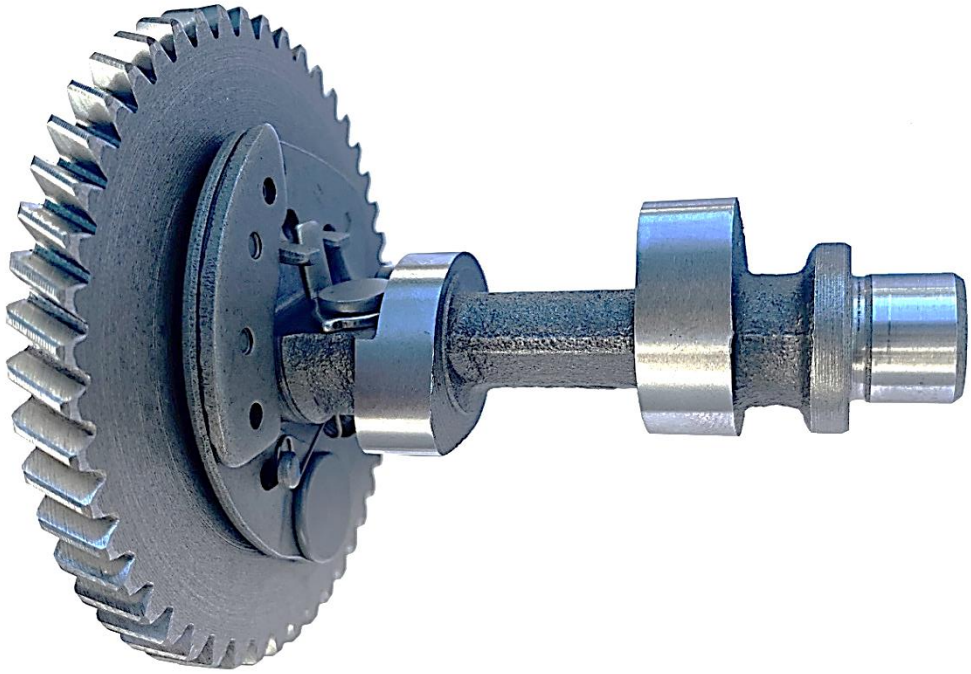
Base : **22.05**

Height : **27.70**

Exhaust Cam :

Base : **22.10**

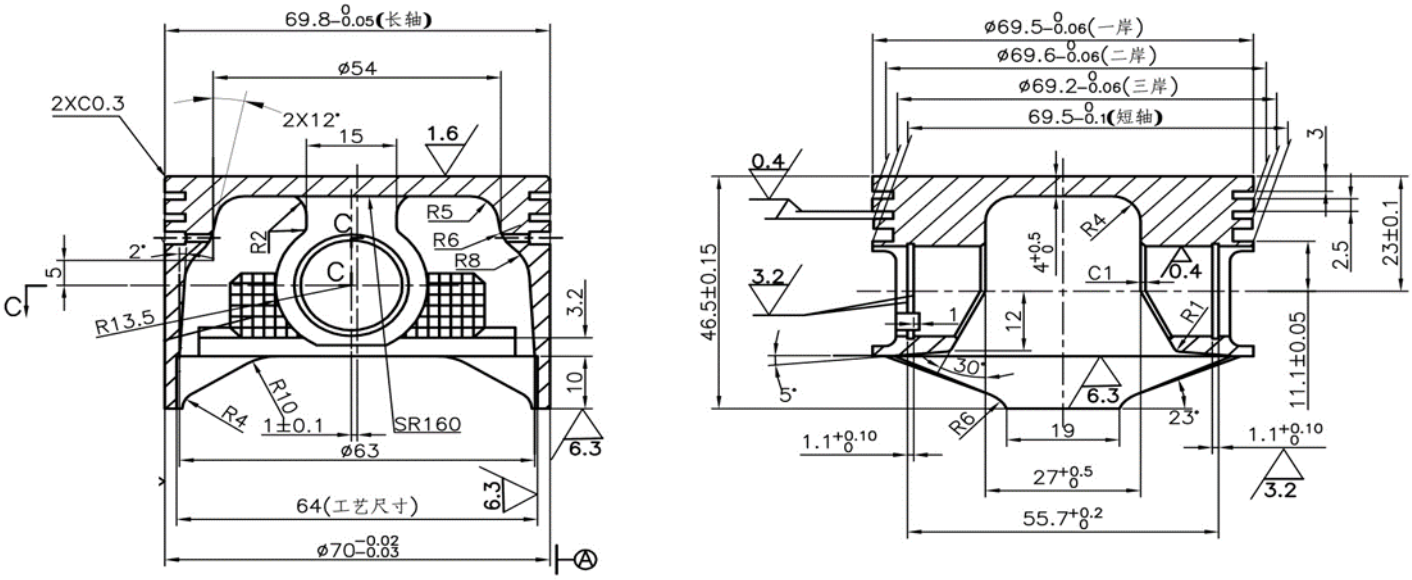
Height : **27.70**



...Section

PHOTO OF THE CRANKSHAFT & CONROD	*PHOTO OF THE CONROD* *Bare Rod Part Number:* ***TC2505*** *Conrod assy. with cap & bolts, Part Number:* ***TC25005***
	

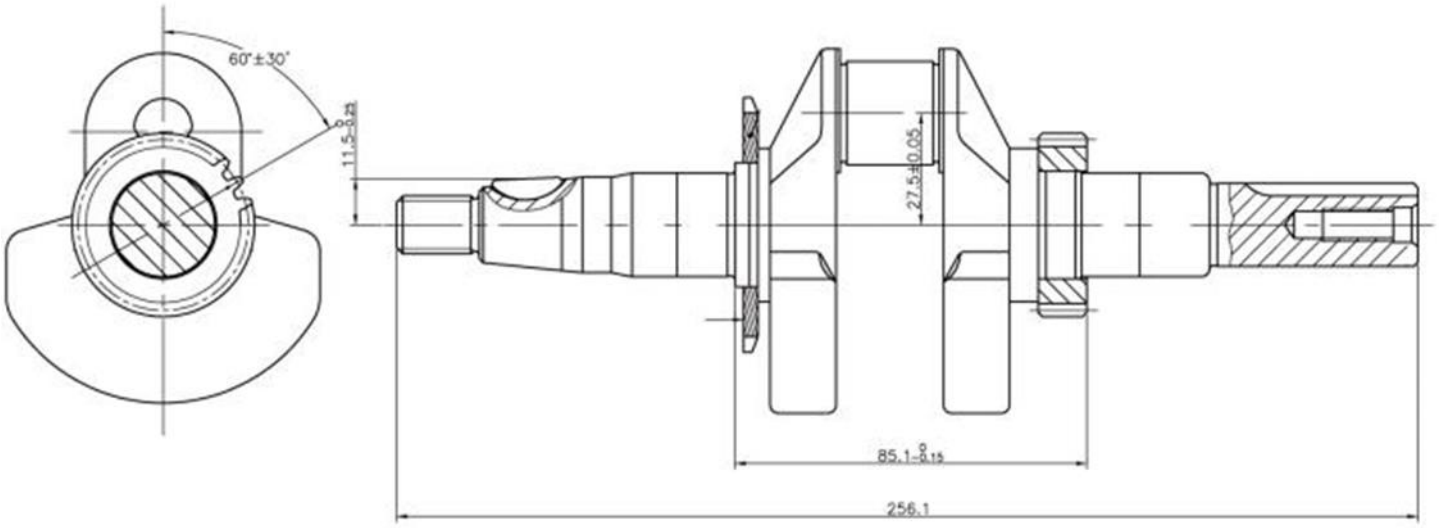
DRAWING OF THE PISTON (MAIN DIMENSIONS incl. tolerances)



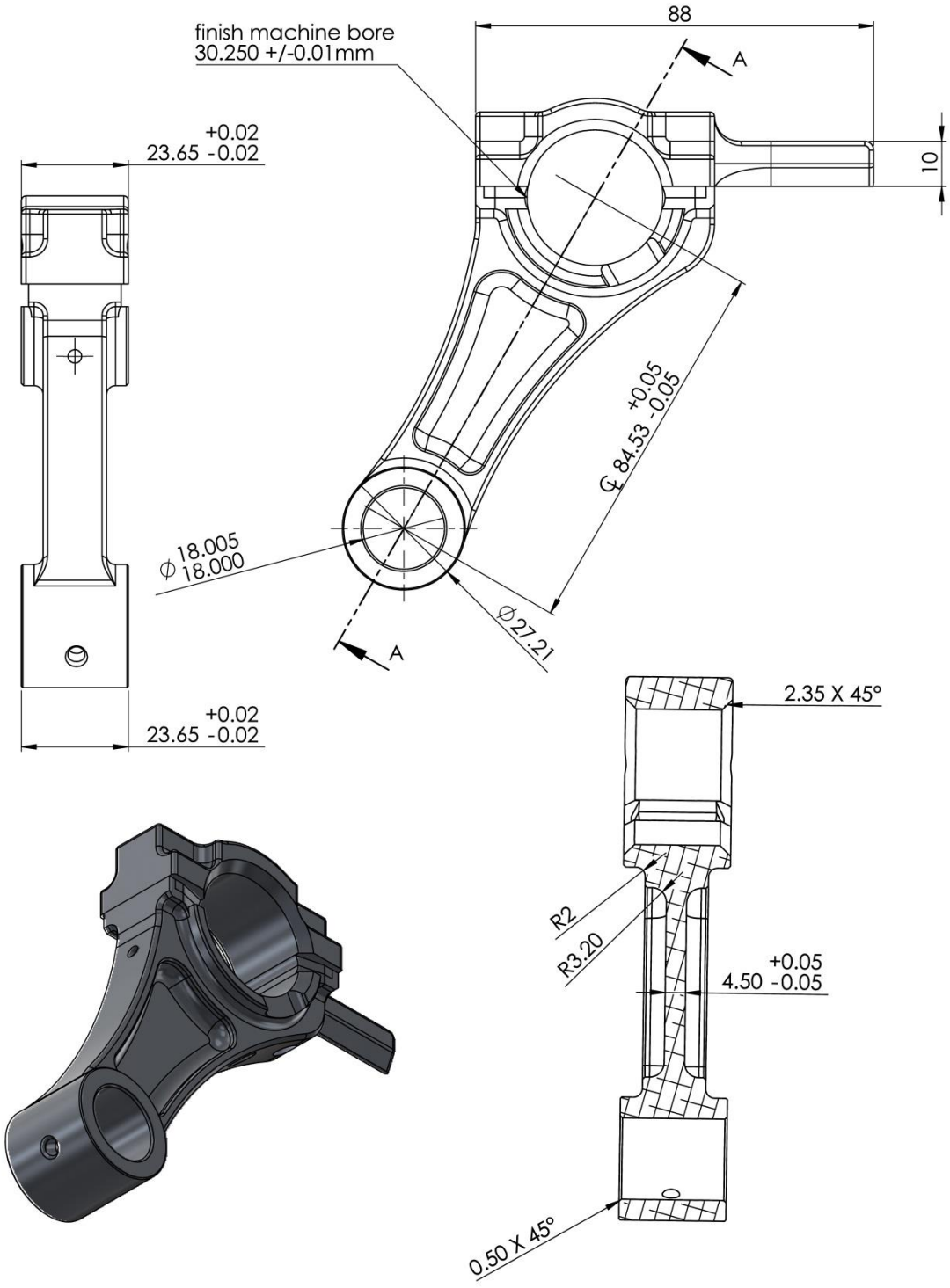
...Section

PHOTO OF THE INSIDE OF THE RH CRANKCASE	*PHOTO OF THE INSIDE OF THE LH CRANKCASE*
	

DRAWING OF THE CRANKSHAFT - CON ROD UNIT
(DIMENSIONS incl. tolerances, big & small ends thickness, crank mass thickness & diameter)



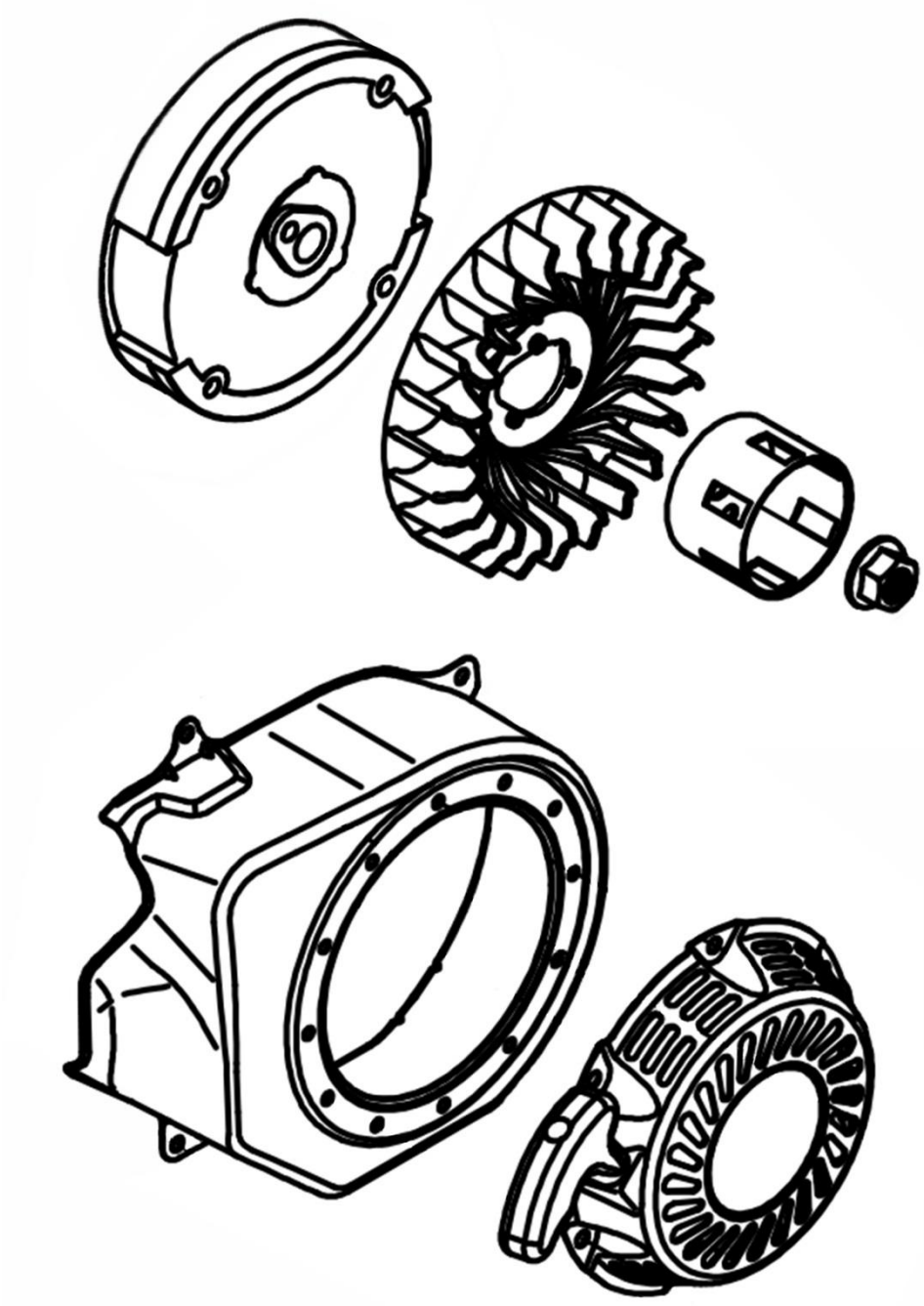
DRAWING OF CON ROD UNIT
(DIMENSIONS incl. tolerances, big & small ends thickness, crank mass thickness & diameter)



STARTER

EXPLODED DRAWING OF THE STARTING UNIT AND OF ITS HOUSING
(Recoil start only)

RECOIL START SYSTEM

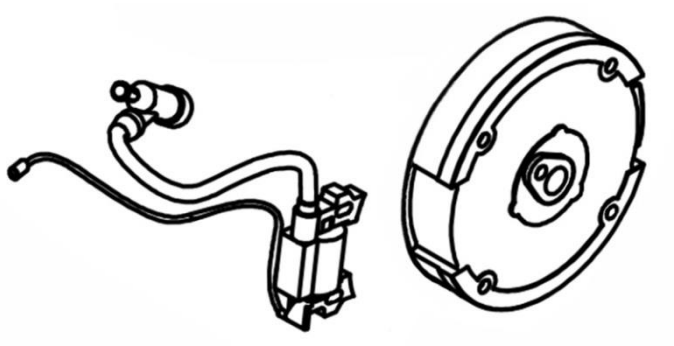


Without screws or gaskets.	***The aim of the exploded drawings is to identify the principles, the functioning and the whole mechanical unit***

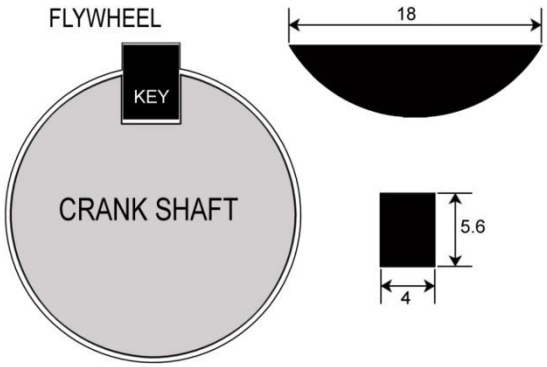
ELECTRICAL SYSTEM

IGNITION SYSTEM

ADVANCE CURVE GRAPHS



- **25° BTDC Fixed**
- **Rev Limited**
- **Max RPM 6100**



Rev Limited Coil Part Number : TCRL6100

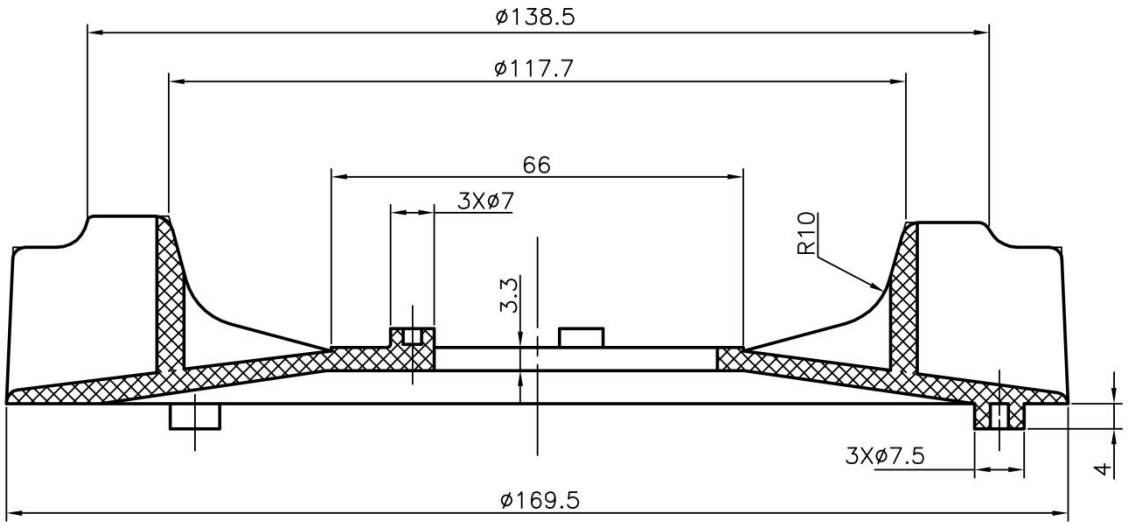
Ignition homologation No.														
Ignition homologation No.														
Ignition homologation No.														
Ignition homologation No.														
Code														
Tr/min	*1000*	*2000*	*3000*	*4000*	*5000*	*6000*	*7000*	*8000*	*9000*	*10000*	*11000*	*12000*	*13000*	*14000*
° adv														

COOLING SYSTEM

FAN FORCED AIR COOLING

FAN DESCRIPTION

- Number of fan blades: **24**
- Minimum fan wheel weight: **0.11kg**
- Minimum flywheel weight: **2.48kg**
- Outside Blade Diameter: **169.5mm**
- Outside Body Diameter: **170mm**
- Minimum blade height: **29mm**



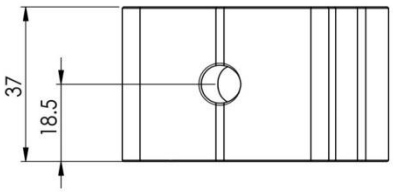
MANIFOLD

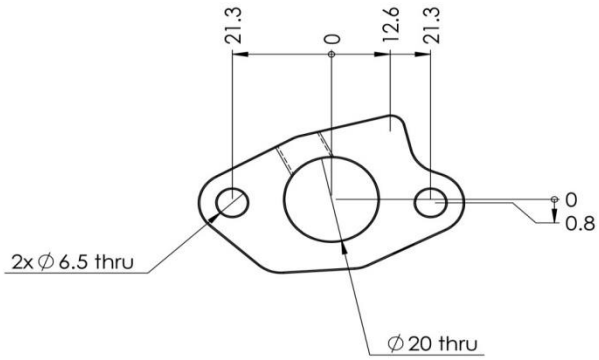
INLET MANIFOLD's

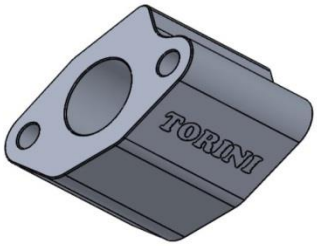
*INLET MANIFOLD DESCRIPTION - **Clubmaxx CADET***

Manafacturer: **TORINI** Part Number: **TC21045** Description: **Inlet manifold**

Matching Carburettor : **TC25TECK**







Scrutineer's Note: ANNODISED Manifold – **Visual Check**

Any attempt to increase bore diameter will damage the annodising.
Some scratching around the pulse fitting thread is acceptable.

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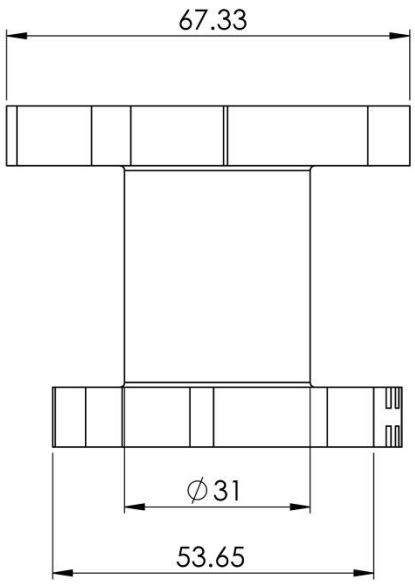
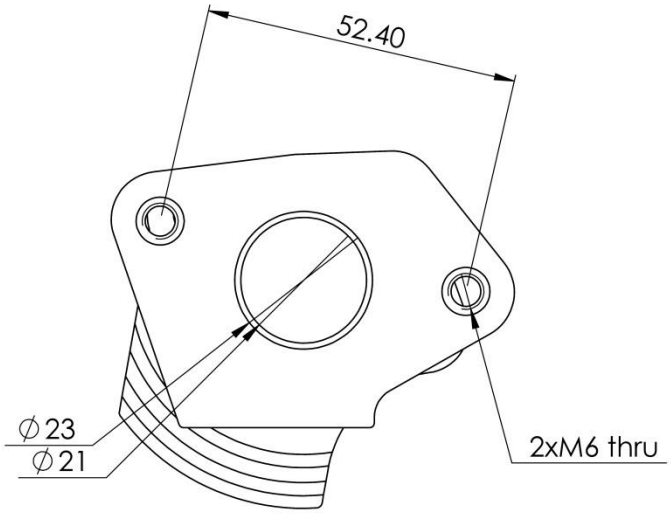
MANIFOLD

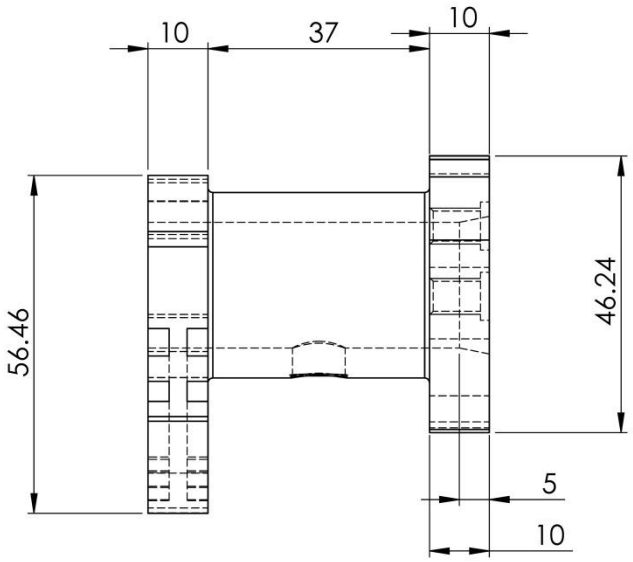
INLET MANIFOLD DESCRIPTION - ***Clubmaxx JUNIOR / SENIOR***

Manafacturer: **TORINI** Part Number: **TC21046** Description: **Inlet manifold**

Matching Carburettor : **TC25SECK**







Scrutineer's Note: ANNODISED Manifold – **Visual Check**

Modification to increase bore diameter will remove the annodising.
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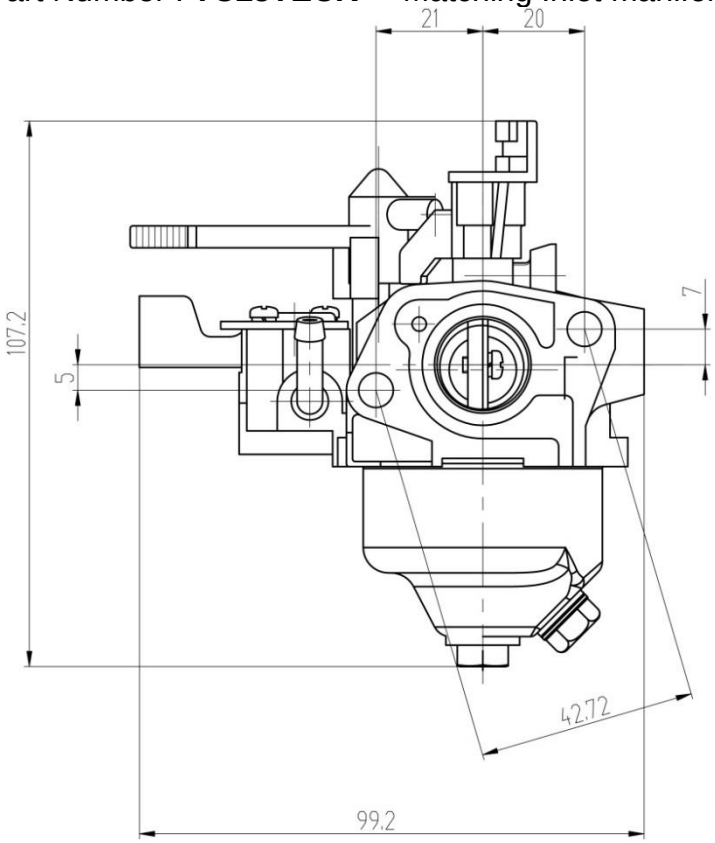
CARBURATION

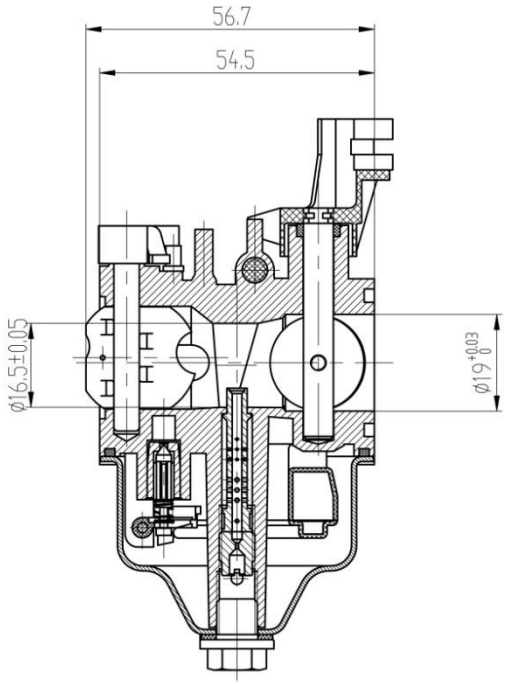
CARBURATION

*CARBURETOR DESCRIPTION – **Clubmaxx CADET***

Manufacturer: **TORINI** Description: **Butterfly Carburettor, 16.5mm Venturi**

Part Number : **TC25TECK** Matching Inlet manifold : TC21045



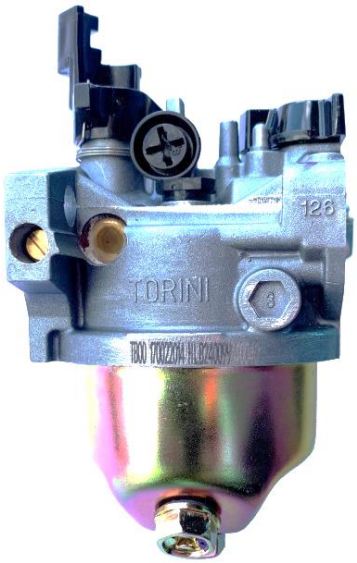


Jet Kit - *Clubmaxx* ***Cadet***

Part No : TC25079 *(Supplied with below jet sizes)*


Main Jet sizes :
88 > 97


Pilot Jet sizes :
40, 43, 45



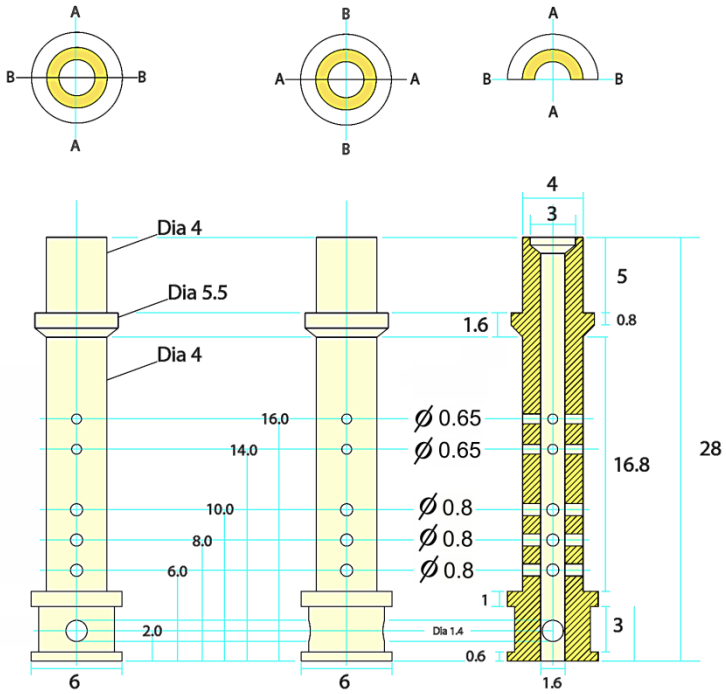
Emulsion Tube

(2017)

CARBURATION

TECHNICAL DRAWING of EMULSION TUBE for ***Clubmaxx CADET***

Emulsion Tube - *Clubmaxx CADET*



TORINI Emulsion Tube - 2017 - to suit Clubmaxx Cadet

(2017)

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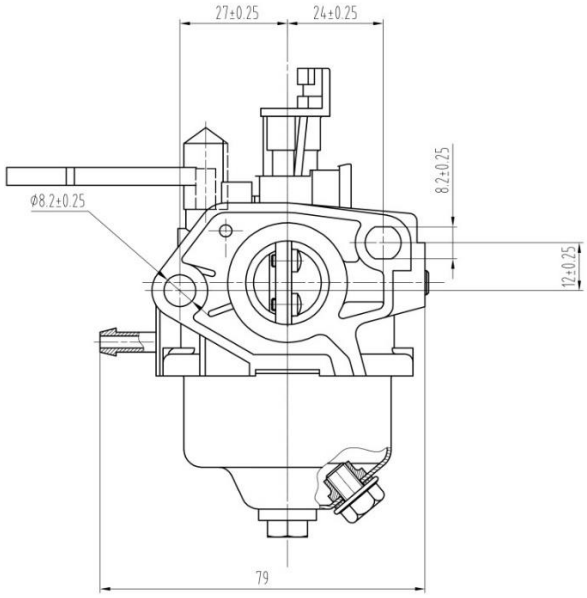
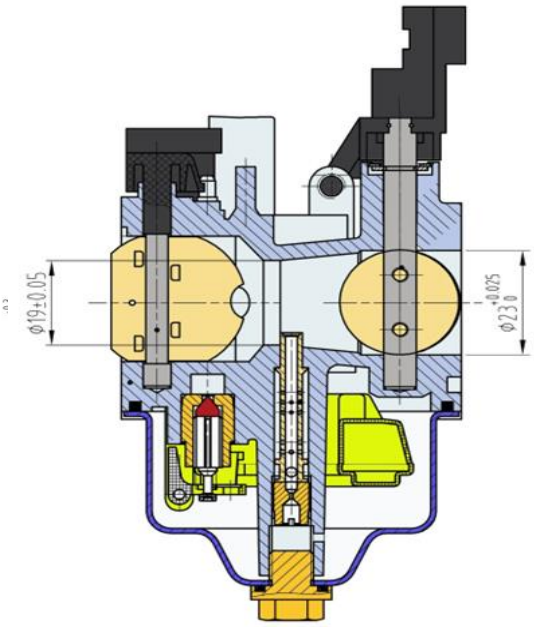
REHOMOLOGATED 3 AUGUST 2023

*CARBURETOR DESCRIPTION - **Clubmaxx JUNIOR / SENIOR***

Manufacturer: **TORINI** Description: **Butterfly Carburettor, 19mm Venturi**

Part Number : **TC25SECK / TC25048** (Matching Inlet manifold : TC21046)





NEW : Laser Etched Logo	Original: Cast logo	
		The 2023 model carburettor is manufactured with a laser etched Torini Logo. Both the Original and the New Carburettors are permitted for use. There is no performance difference between them, it is simply the external cast/laser etched markings.

Jet Kit - *Clubmaxx (**Junior & Senior**)*

Part No : TC25079 *(Supplied with below jet sizes)*

Main Jet sizes :
88 > 97

Pilot Jet sizes :
40, 43, 45

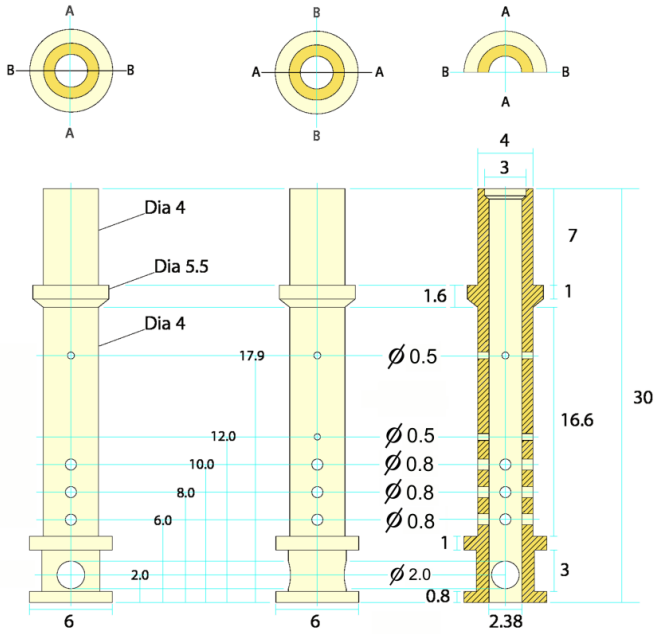
Emulsion Tubes
Clubmaxx
Junior / Senior

(2017) (01/09/2021)

CARBURATION

TECHNICAL DRAWING of EMULSION TUBE - ***Clubmaxx JUNIOR / SENIOR***

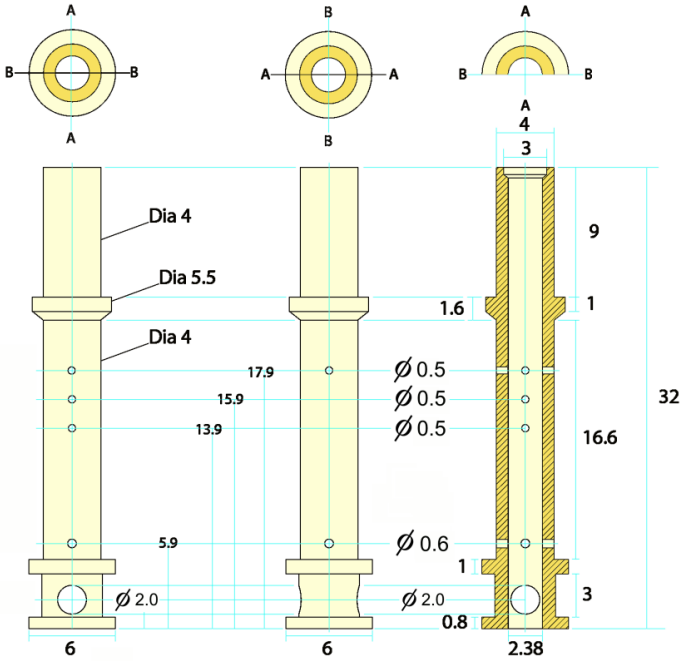
Emulsion Tube *(Clubmaxx Junior / Senior)*



TORINI Emulsion Tube - 2021 version

Part No: ***TC250ET***

(01/09/2021)



TORINI Emulsion Tube - 2017 original version

(Original)

AIR FILTRATION

AIR FILTER SYSTEM

Description: **RACE AIR FILTER**

Manafacturer: **TORINI** Part No: **TC25057**

Description: **FOAM PRE FILTER**

Manafacturer: **TORINI** Part No: **TC25058**

NOTE: Air Filter Oil must be applied to both the Main element and the pre filter. Failure to oil the filters will cause ingress of dirt, leading to engine failure.

Description: **RACE AIR FILTER**

Manufacturer: **TORINI** Part No: **NLA**

NOTE: Air Filter Oil must be applied to both the Main element and the pre filter. Failure to oil the filters will cause ingress of dirt, leading to engine failure.

Description: **FOAM PRE FILTER**

Manufacturer: **TORINI** Part No: **NLA**

AIR FILTRATION

*Air Filter – **Wet Weather Kit***

Wet Weather Kit Part No: **TC25050**

KIT INCLUDES

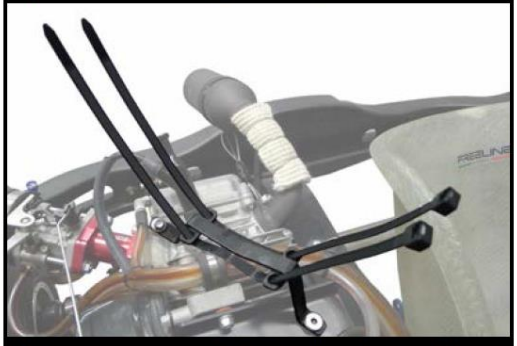
- SNORKEL WITH BUILT IN FOAM FILTER ELEMENT
- WATER REPELLENT FILTER SOCK
- MOUNTING BRACKET
- HOSE CLAMP
- TIE STRAPS (2)

1) Remove the dry weather filter assembly

2) Fit snorkel adaptor to carburetor

3) IMPORTANT - Filter opening must be pointed towards rear of the kart

4) Thread tie straps through filter bracket



Note: Once mounted, the bracket itself can be left on the engine for use at a moment's notice.

5) Secure the filter assembly to the bracket using tie straps

Note: Ensure hose clamp is done up

TECHNICAL DESCRIPTIONS OF THE EXHAUST (Art. 8.9.3 of HR)		
Weight in g	**620~660**	*Minimum*

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

EXHAUST SYSTEM

PHOTO OF THE EXHAUST MANIFOLD

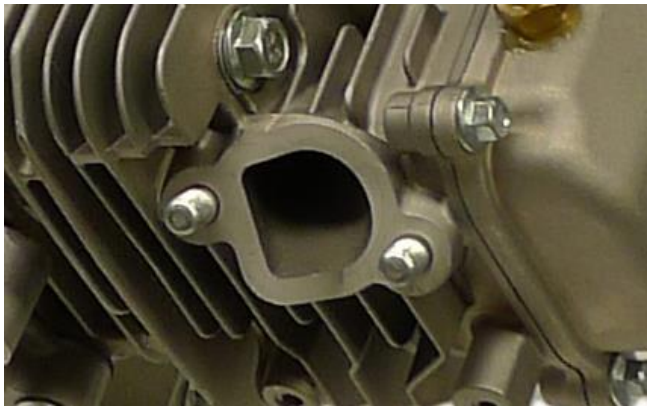


PHOTO OF THE EXHAUST

For surface protection, this muffler is has been coated with high temprature paint. Over time it will burn off.

To prevent corrosion damage, periodic reapplication using a similar high temprature paint (commonly available at most auto stores) is highly reccomended.

EXHAUST SYSTEM

TECHNICAL DRAWING

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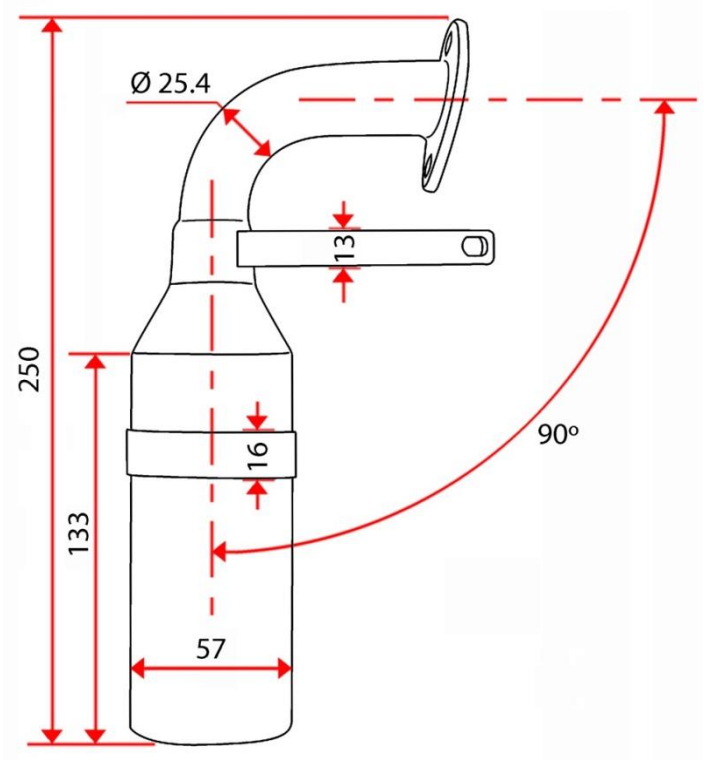
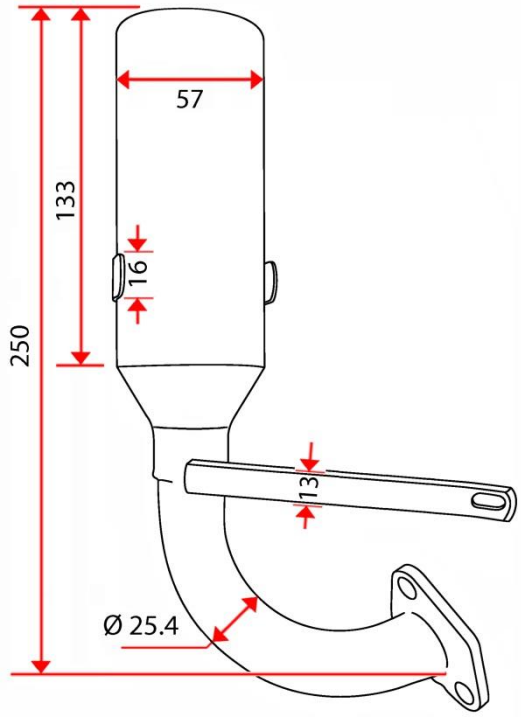
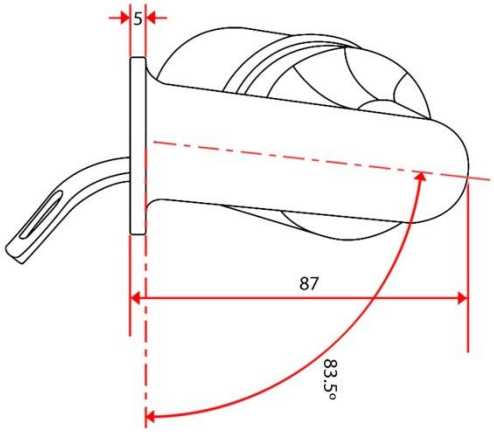
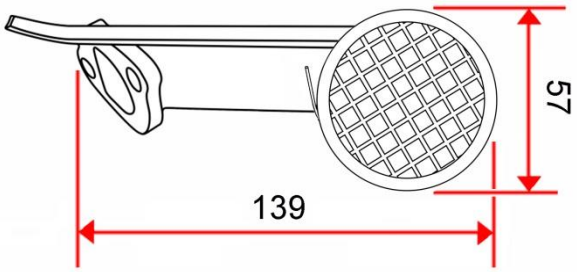
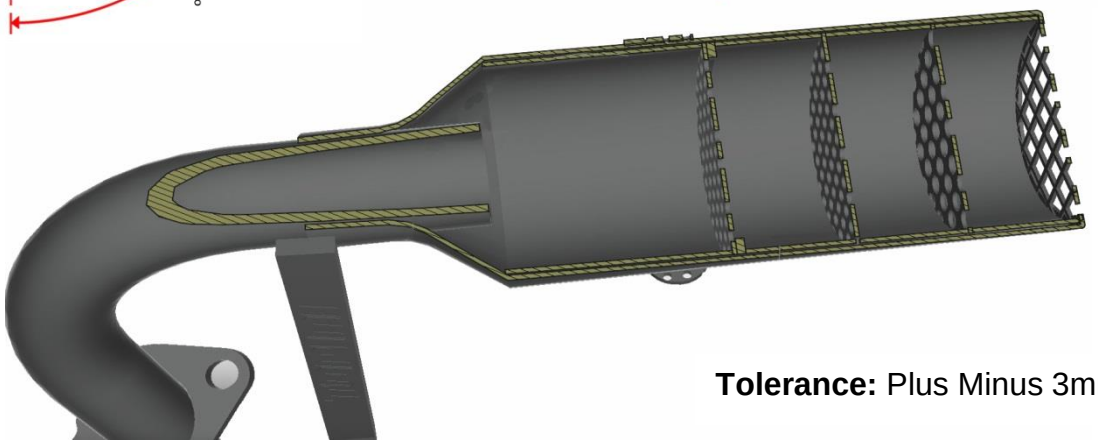










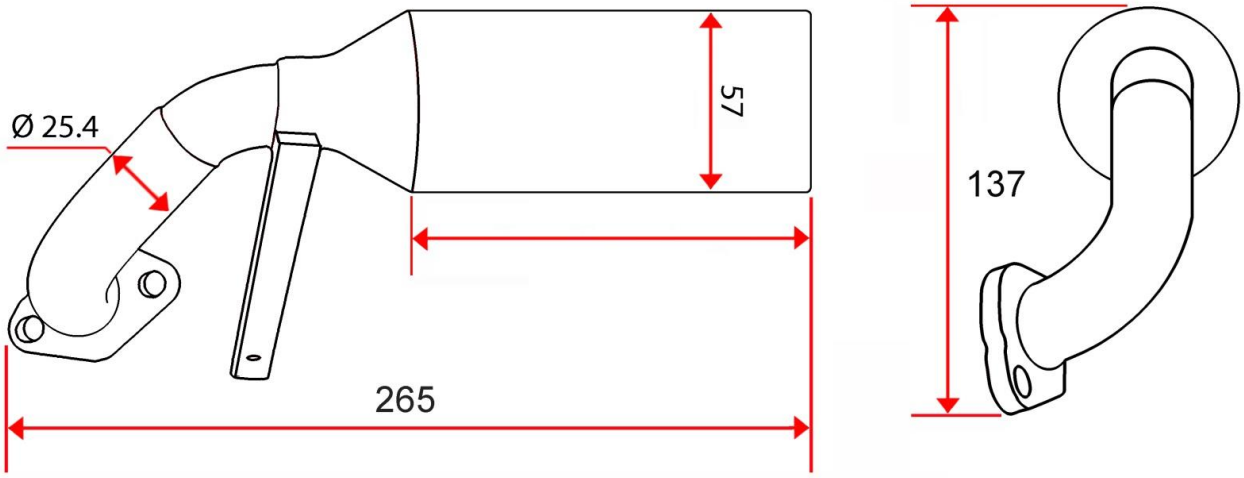
Tolerance: Plus Minus 3mm

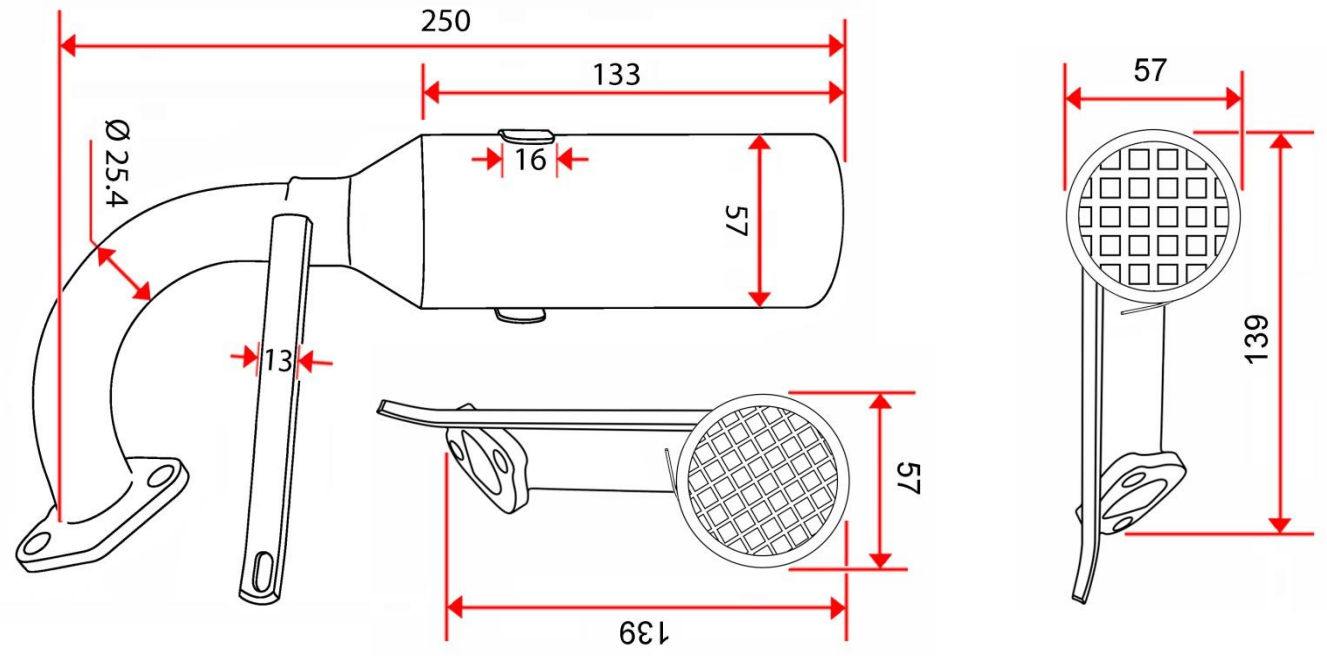
EXHAUST SYSTEM

The exhaust system is designed to:

- Direct hot gas away from the vehicle and its operator
- Attenuate the noise output from the engine

Tolerance: Plus Minus 3mm





CLUTCH

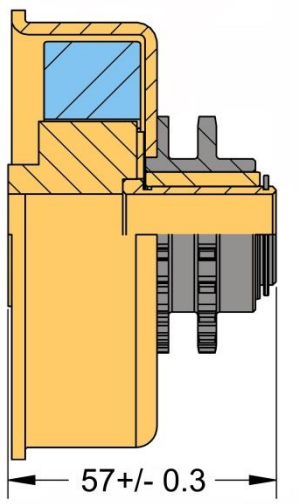
CLUTCH SELECTION

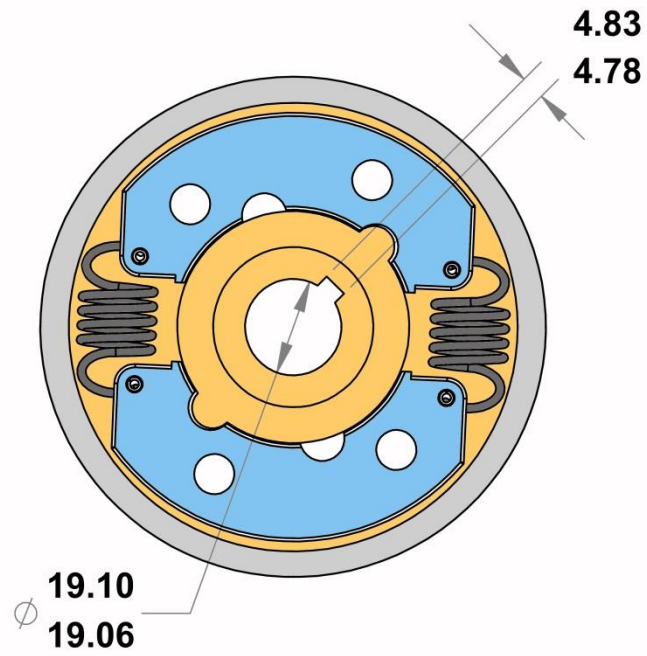
Identification Page	*Description*
 Inboard Mount  Outboard Mount	Type: Centrifical Clutch Full metal shoe (2) Manafacturer: NORAM Part Number: TC-GE20219 Scope • Clubmaxx Cadet • Clubmaxx Jnr. & Snr.
 Inboard Mount  Outboard Mount	Type: Centrifical Clutch Friction shoe (2) Manafacturer: NORAM Part Number: TC-GEL19219 Scope • Clubmaxx Cadet • Clubmaxx Jnr. & Snr.
 Inboard Mount  Outboard Mount	Type: Centrifical Clutch Full metal, shoe (6) Manafacturer: TORINI Part Number: TC2300 Scope • Clubmaxx Cadet • Clubmaxx Jnr. & Snr.

CLUTCH

TECHNICAL DRAWING (exploded view) OF THE CLUTCH ASSEMBLY

TCGE20219 NORAM Clutch





Drum Dimentions :

OD 93.5 +/- 0.2mm

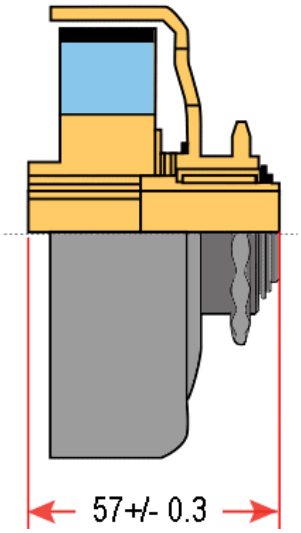
ID 89mm
(Wear limit + 1mm)

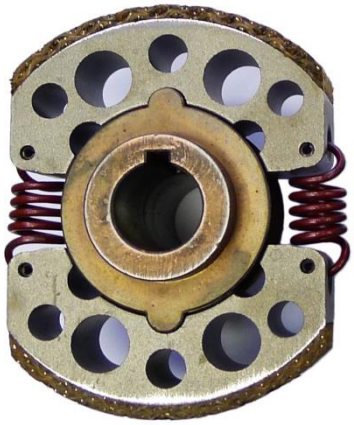
The aim of the exploded drawings is to identify the principles, the functioning and the whole mechanical unit

CLUTCH

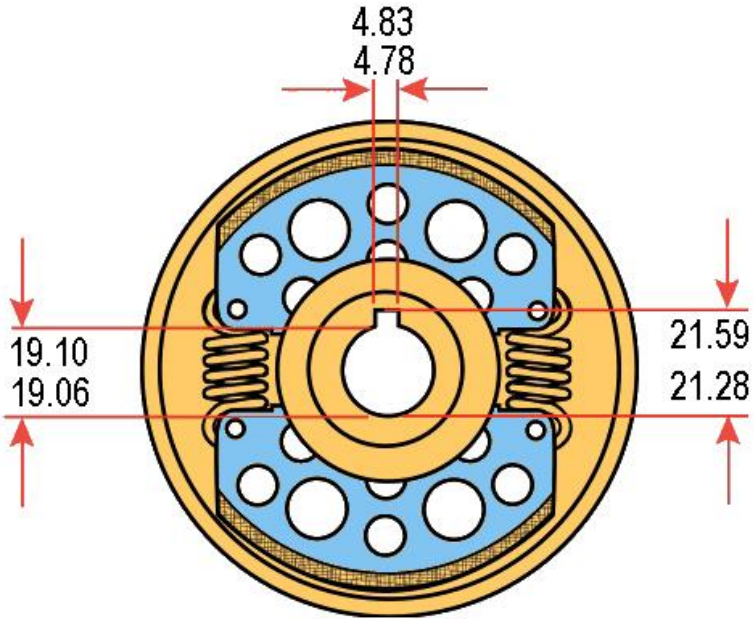
TECHNICAL DRAWING (exploded view) OF THE CLUTCH ASSEMBLY

TC-GEL19219 NORAM Clutch





Sprocket Variants:
T17, T18, T19, Y20, T21



Drum Dimentions :

OD 101.7 +/- 0.2mm

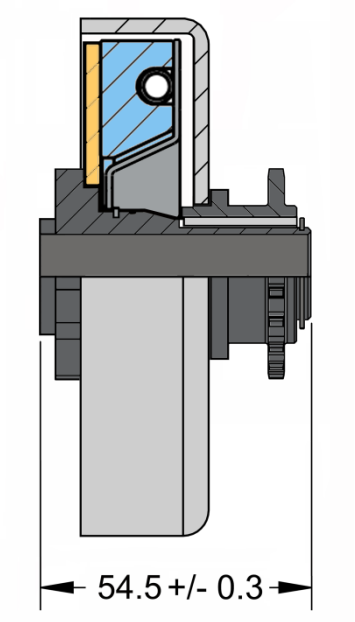
ID 95mm
(Wear limit + 1mm)

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

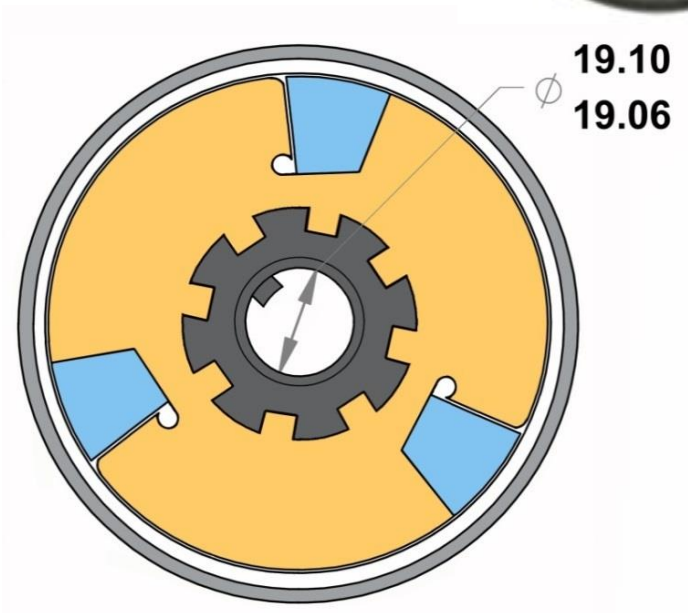
CLUTCH

TECHNICAL DRAWING (exploded view) OF THE CLUTCH ASSEMBLY

TC2300 TORINI Clutch



Sprocket Variants:
T17, T18, T19, Y20, T21



Drum Dimentions :

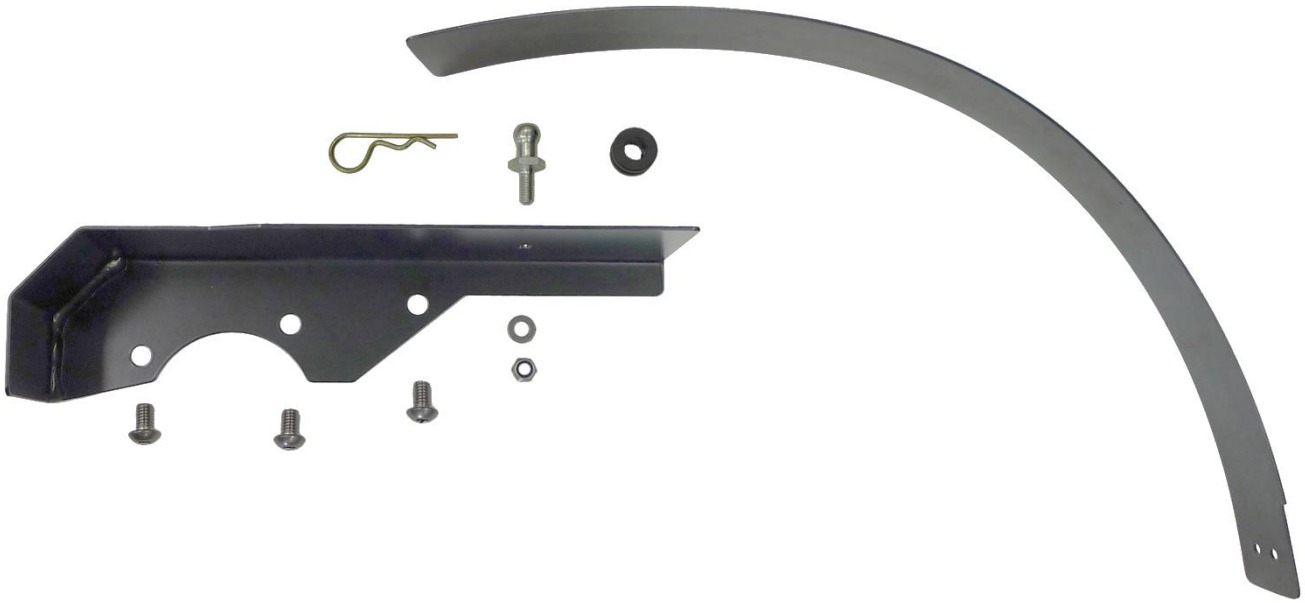
OD 107. +/- 0.2mm

ID 101mm
(Wear limit + 1mm)

CHAIN GUARD

PHOTOS OF THE CHAIN GUARD ASSEMBLY

TC25080 Chain Guard - TC210 Jnior / Seinor



TC22582 Cadet Class – Safety Guard

Polycarbonate Safety Guard

NOTE: for use where the manner of engine mounting leaves unrestricted access to the the clutch & drive sprocket.

ENGING BASE PLATE

ENGINE MOUNTING

Engine Adaptor Plate

Manufacturer: **TORINI** Part No: **TC25000** Description: **ENGINE MOUNT ADAPTOR PLATE**

Function: The Engine Mount Adaptor Plate is provided pre-drilled to suit multiple kart and engine mounts. The plate is part of the engine assemably, it provides structual integerty to the crankcase under high load conditions. The plate also maintains a forward angle on the motor to ensure adaquate lubrication is maintained under race conditions.

ENGING BASE PLATE

Additional Hole Positions

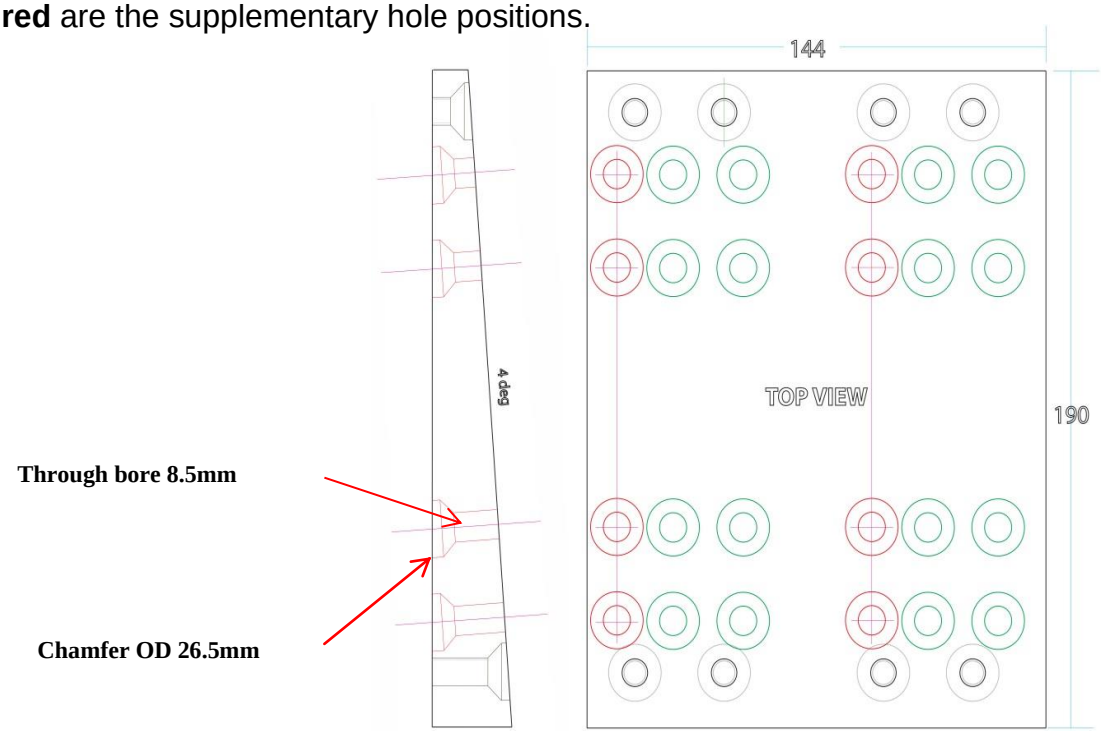
Manufacturer : **TORINI** Part No: **TC25000** Description: **ADDITIONAL HOLE POSITIONS**

Rational: Allows for additional holes to be machined in order to mount an engine to frame

- Provides additional mounting option, (which would otherwise be unmanageable).
- **Caution :** The possible negative effects of increased engine off set are : Reduced performance, Higher vibration, Increased risk of metal fatigue.

Where no other mounting soloution exists, additional mounting holes can be machined in the engine base plate as shown below.

- This should only be done as a last resort due to the risk of increased vibration.
- Shown in **red** are the supplementary hole positions.



Note :
Ensure holes are machined at the correct angle.

Scrutineer's Note : Engine Base Plate – **Visual Check**
Additinoal holes are permited, as highlighted below in **red**.

ENGING BASE PLATE

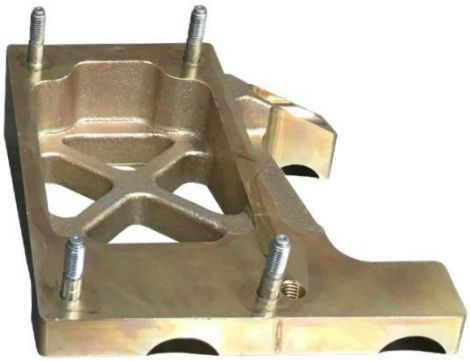
PHOTO OF APPROVED ENGING MOUNTS

Scrutineer's Note: Factory Approved Third Party Engine Mounts
These Engine Mounts are approved for use without the TC25000 Adaptor Plate.

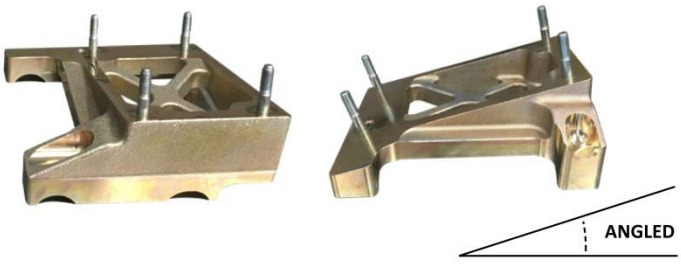
a) **The Odenthal 8 degree 4-cycle EZ Set slider mount**

b) **The CRG038N Small Offset Mount & CRG038M Large Offset Mount**

SMALL OFFSET ENGINE MOUNT
P/N: CRG038N



LARGE OFFSET ENGINE MOUNT
P/N: CRG038M



ENGINE BASE PLATE

PHOTO OF APPROVED ENGINE MOUNTS

Scrutineer's Note: Approved Engine Mounts
These Engine Mounts are approved for use without the TC25000 Adaptor Plate.

c) Torine Engine Adaptor Plate

Manufacturer : **DPE Kart Technology**
Part No : **TC25100** Description : **4S ADAPTOR PLATE**

- The adaptor plate is an integrial part of the engine assembly.
- It provides structural integrity to the crankcase under high load conditions.
- It also maintains a forward angle on the motor to ensure adequate lubrication.

(Rear)  (Front)

NOTE : It is Not permitted to use the engine without an Approved Adaptor Plate, or in its place an approved third party engine mount, that delivers the requisite ridgidness to maintain crankcase integrity under high load conditions as well as sufficient forward angle to ensure adaquate lubrication.

Engine Lubrication

ENGINE OIL

At all times, no less than 400ml of Torini 4s Racing Engine Oil must be retained in the Engine and be capable of being drained from the Engine for the purpose of determining compliance with the homologation.

Engine Oil Types

TORINI 4s RUN-IN ENGINE OIL 1L

1 Litre Part No: **TRO1031**

Attention:

Run-In Period = 3 hours

The initial start up of a new engine is critical to its performance and life expectancy.

How well the rings seal can make all the difference in engine performance.

Warning: Torini Race Oil must not be used to run engines in.

TORINI 4s RACING ENGINE OIL

500ml Part No: **TRO500**

4L Part No: **TRO4000**

Designed for:

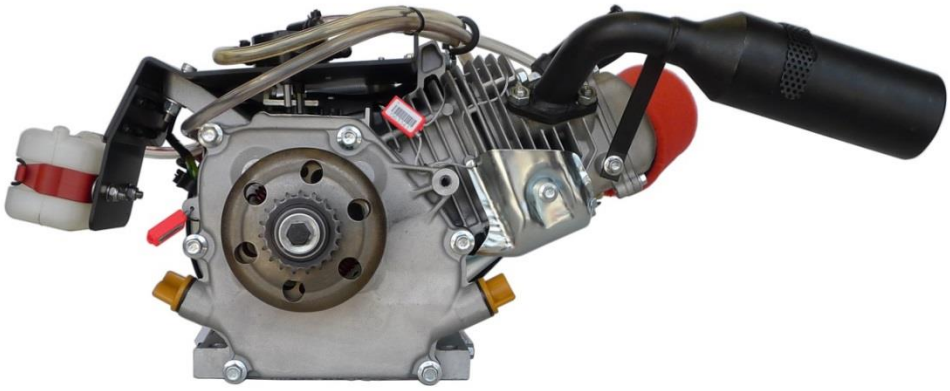
- Air cooled
- High performance
- Splash lubricated
- 4 Stroke engines
- ✓ Friction modified
- ✓ Anti foam

Only Torini Engine Oils must be used in the Engine.

Homologation N °

109H

REHOMOLOGATED 3 AUGUST 2023

1-1 Product Specifications Engine model	**TC210 Clubmaxx**
Image	 
Spark Plug	NGK – **BPR6ES**
Engine type	Single cylinder, 4-Stroke, Forced Air Cooling, OHV25°
Head Gasket	1.28 +/- .25 Uncompressed (Compressed 1.1 +/-0.1)
Bore × stroke (mm)	70 × 55
Displacement (cc)	211.66
Engine oil capacity (L)	0.5
Idle speed (r/min)	1800±150
Max permissable engine speed	6100 RPM
Starting mode	Recoil
Lubrication mode	Splash
Cooling system	Forced air cooling
Stopping mode	Grounding
Fuel	Premium Unleaded
PTO shaft rotation	Counterclockwise (seen from the end of output shaft)
Ignition system	T.C.I. Rev Limited 6100 RPM
Carburetor (Option 1)	P23
Carburetor (Option 2)	P19 (Cadet)

No deviation from the manufacturer's engine specification is allowed.

All components must remain OEM. The engine serial number must be visible at all times and must comply with the Australian Homologation.

Attention: ALL THE ENGINE PARTS MUST BE ORIGINAL BY TORINI MOTOR CO., LTD.
Neither engines nor accessories can be modified. By this we mean any shape, content or function changes which may differ from what previously conceived. Furthermore, this includes any addition and /or removal of material and /or parts from the engine set-up package unless provided by this regulation. No ceramic component coatings.

Homologation N °

109H

REHOMOLOGATED 3 AUGUST 2023

UPDATE LOG

Date	Section	Page
3 August 2023	New Laser Etched Image of Torini Butterfly Carburettor	29
3 August 2023	TC-GEL 19219 NORAM Clutch Sprocket Variants Added	38
3 August 2023	Torini TC2300 Clutch Sprocket Variants Added	39
1 January 2024	Torine Engine Adaptor Plate	44