



# COMER SW80

## TECHNICAL SPECIFICATIONS



VERSION 1 / 2012  
UPDATED JANUARY 1<sup>st</sup>, 2012





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### Preamble:

The following are the Technical Specifications for the COMER SW80 engine, as approved by the Australian Karting Association.

This engine is approved for use in the **CADET** class only.

Unless otherwise specified, the engines must be original in all their components according to the Comer drawings.

Any removal, addition or polishing of material is strictly forbidden.

This includes sandblasting, bead or fiberglass blasting, spark eroding, acid etching, grinding etc.

**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 is prohibited.**

**ANY ALTERATIONS / MODIFICATIONS ARE STRICTLY PROHIBITED EXCEPT AS SPECIFICALLY AUTHORISED WITHIN THESE SPECIFICATIONS.**

**IF THESE SPECIFICATIONS DO NOT SAY YOU CAN MAKE A MODIFICATION, THEN YOU CANNOT.**

### SW 1.01

#### Engine:

CHROME BORE

No re-chroming or re-plating allowed

Bore

52.1mm.

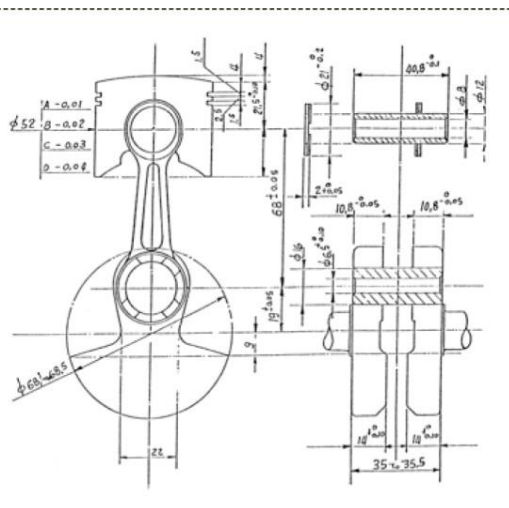
Stroke

38.1mm. Maximum.

### SW 1.02

#### Crankshaft, Conrod, Piston, Piston Rings, Piston Pin and Piston Pin Bearing: Specifications and Tolerances:

1. The piston skirt will carry a maximum chamfer of 0.5mm  
Note: skirt length must be equal distance on both sides.
2. Piston pin bore is 8.0mm +/- 0.1mm
3. Cast surfaces to have a tolerance of +/- 0.3mm
4. Compliance checks: Refer to chapter 26 of the AKA Manual for procedure steps 1,2,3 and 5
5. The second piston ring must be freely removable from its groove and must be able to support its own weight when fitted to the cylinder that is held in a vertical position. The piston and ring must not be modified in any way that could possibly prevent the ring from moving freely in its groove.



#### WEIGHTS IN GRAMS

Vertex (USA)piston (SW80)	93 to 98		
Piston ring T.C	2.75 to 2.85	Complete crankshaft + piston	845 to 861
Piston ring	0.2 to 0.3	Flywheel complete	645 - 665
Piston pin	19 to 23	Cage	INA KZK 12x17x13
Piston pin needle bearing	7	HEAD CAGE	INA KZK 16x22x12
BEARING	RIV 6202		



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### SW1.03 Engine Additions:

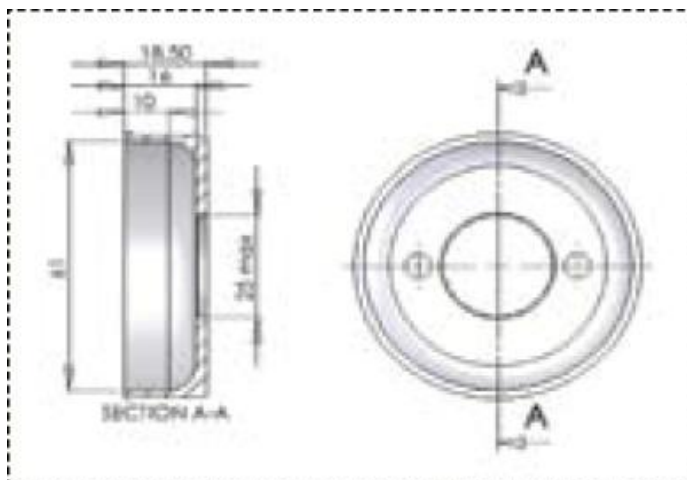
Motor Mount, Cylinder/Head Temperature Probe (cover cooling slot may be modified for fitting), Tachometer. Carburettor jet needle extensions. Carburettor return springs and fasteners, Engine must be run with supplied clutch (Part No. S080 089). Either 11 or 12 tooth Comer clutch drum can be used. Clutch retaining nut/adaptor nut is non tech Fasteners securing clutch drum are free to facilitate the use of an external starter as long as components are no bigger than 19mm hexagon. All components must be as supplied with engine and are all subject to technical specifications.

### SW1.04 Cylinder Head:

1. Must be an original Comer casting.
2. The welding and re-machining of the combustion area, gasket face and spark plug surface is allowable. Any additions/repairs must be non-adjustable and of aluminium material.
3. The combustion chamber style is required to have a squish band and chamber that are visually concentric to the spark plug.
4. Comer SW80 Cylinder head volume measurement to be 11.0cc using the AKA Comer SW80 cc plug gauge (Type 4). Refer to Rule 26.01 of the AKA Manual for the correct usage procedure.
5. The combustion chamber/squish area shall not protrude beyond the gasket sealing face of the cylinder head.
6. The spark plug thread may be repaired and shall retain its original position in relation to crankshaft axis. Helicoils and similar are permitted.
7. Spark plug must have a maximum engagement length of 12.70 mm (without the washer)
8. Maximum distance from sealing surface of spark plug to combustion chamber sealing face shall be 23.00 mm.
9. The cylinder head 'O Ring' must be retained.

### SW1.05 Carburettor:

1. Tillotson HL 326A or HL 166B with a Venturi of 15.87 mm. maximum. Carburettor to be stock as supplied by COMER and the choke is to remain attached. The back edge of the choke butterfly may be bent to allow the leading front edge to be in the fully open position. No additional machining or polishing of any cast surface. This includes throat, venturi, etc. of carburettor. All screws, etc. to remain as supplied by Manufacturer. Gasket & Diaphragm kits are free.
2. The airbox adaptor shall be stock as supplied by COMER, or a replica manufactured to original Comer specifications. Refer Diagram below
3. Maximum airflow opening is 25mm .All other dimensions have a +/- 1mm tolerance.
4. Adjustment of carburetor jet needles must be done by manually turning the jet needle (or its extension) only.
5. Carburetor throttle cannot be actuated by electro mechanical means.
6. It is permissible to fit a mechanical stop to limit the range of carburetor jet needle movement, however no modifications to the carburetor are permitted to mount such a stop.



### SW1.06 Pressurised Fuel Systems:

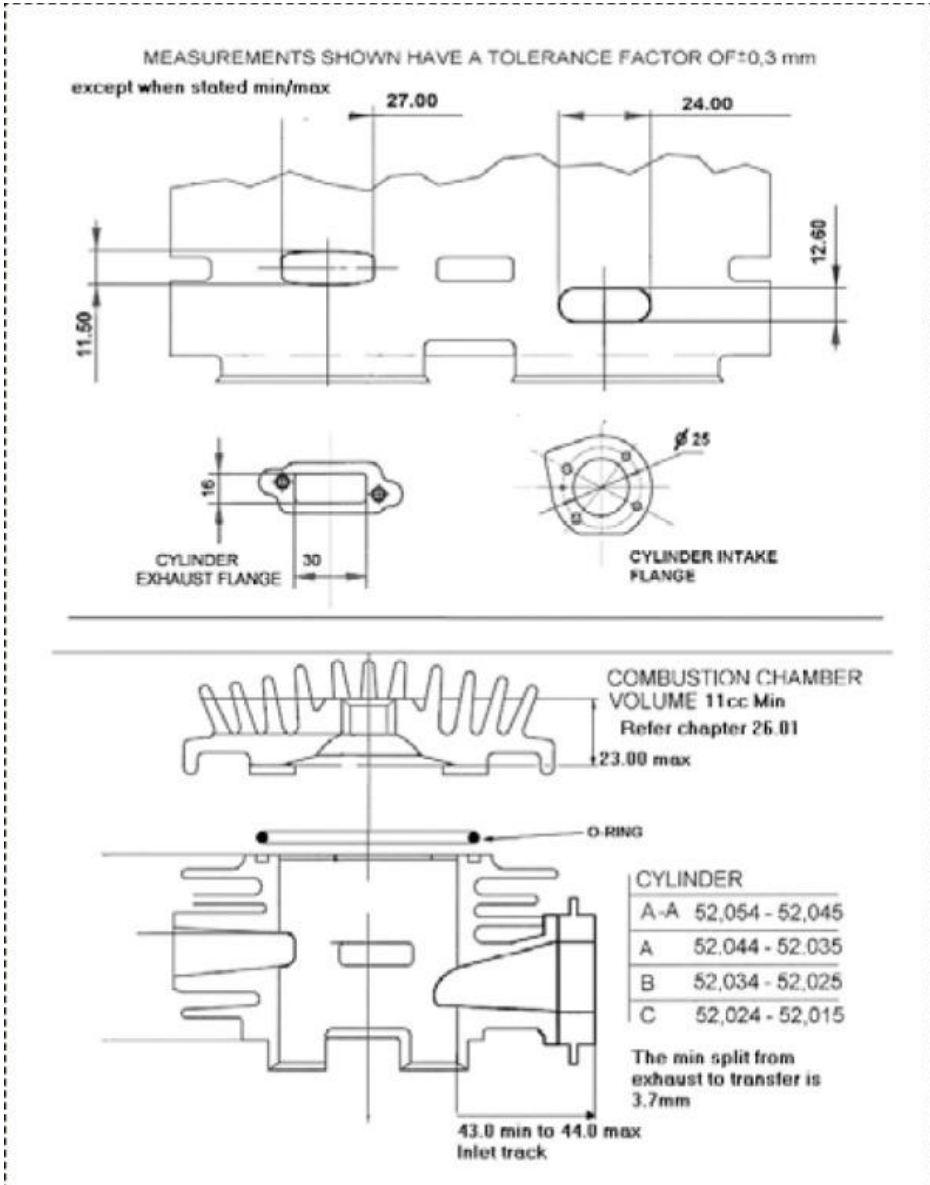
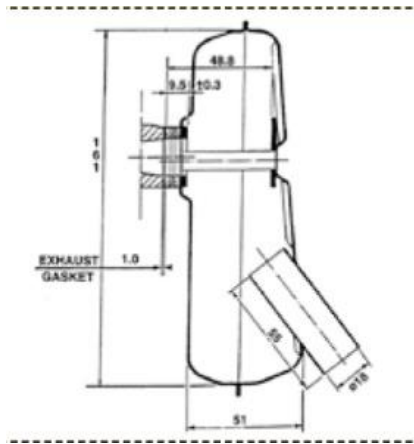
Fuel pump or pressurised fuel systems are forbidden. Squeeze type pump between fuel tank and carburettor is permitted.



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### SW1.07 Exhaust Gasket and Inlet Manifold Gasket:

Specifications and Tolerances. As per diagram otherwise where no tolerance specified then +/- 0.15mm applies.





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### SW1.08 Exhaust

1. Engine must be run with muffler (Part No. S60 5500 07)
2. With the exception of repair to fixing points, any attempt to repair damage by cutting, welding or fabrication will automatically remove eligibility of the exhaust unit.
3. The exhaust stinger will have a maximum tube internal diameter 18.5mm.
4. A maximum of one (1) Exhaust probe/fitting is permitted. The maximum diameter of the probe is 6mm.

### SW1.09 Ignition:

Ducati/Bosch KDT

1. Is slotted for adjustment.
2. Ignition timing may be adjusted by either slotting of the ignition backing plate and/or removal of the locating key or part thereof.
3. Spark plug cap is a non-tech item. Refer to Rule 25.21 of the AKA Manual for Spark Plug dimensions.

### SW1.10 Engine Fan:

The dimensions of the detachable plastic finned rotor fan - Part No. S60 9690 02 - are to be 125mm.dia. by 37.7mm. min width and this finned rotor fan cannot have any fins missing or not completely intact.

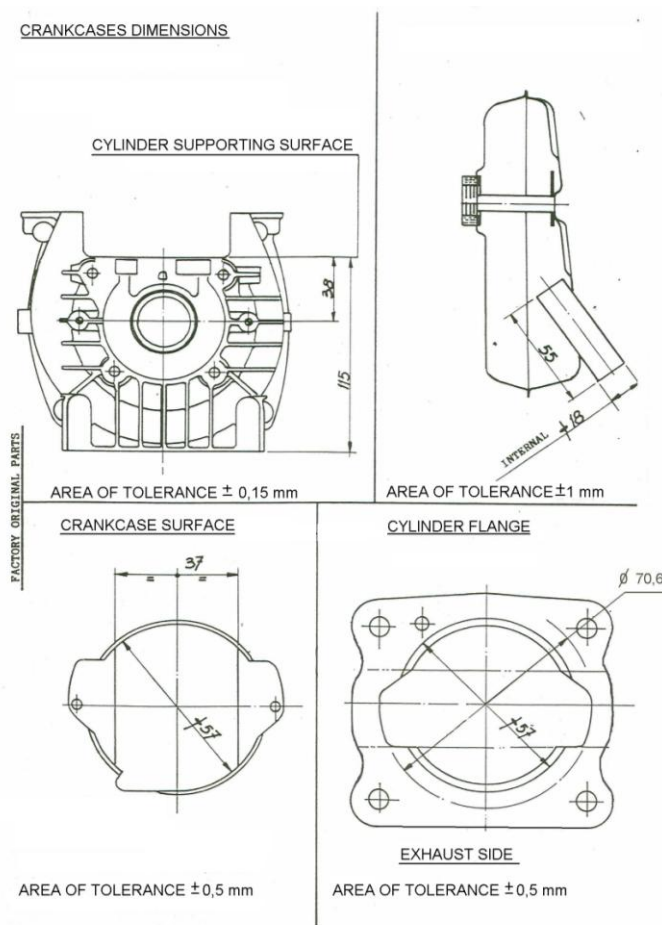
### SW1.11 Crankcase and Cylinder, Surfaces Including Gaskets:

As per specifications and tolerances detailed on following diagrams.

The crankcase ports will remain as cast.

Machining: All machined surfaces may be re-machined as long as engine is within any other specifications within the rules.

It is permissible to repair crankcase main bearing recesses by welding or with metal inserts.





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### SW1.12 **Gaskets:**

All gaskets to be used at all times and conform to the measurements on the diagrams, with the exception of the cylinder base gasket, which is dimensionally free but a gasket(s) must be used. The cylinder base gasket is subject to Rule 25.21(a).6 of the AKA Manual.

### SW1.13 **Cooling Holes:**

It is permissible to add extra holes for better cooling efficiency. These holes are to be two rows of five holes, maximum 13 mm. dia. in front panel alongside the ON/OFF switch and one row of five holes, maximum 13 mm. dia. in the opposite rear panel. These holes may be covered or uncovered. No additional cooling devices permitted.

### SW1.14 **Clean Holes:**

The air holes in the cord start panel are to be kept clean and clear at all times except for normal dirt such as can be accumulated during a normal dirt track type race.

### SW1.15 **Pulse Hole:**

The maximum pulse hole diameter in the barrel and plastic carburettor adaptor is to be 3mm. diameter.