COMER SW80

TECHNICAL SPECIFICATIONS

VERSION 3 / 2013
UPDATED AUGUST 20th, 2013

COMER SW80
TECHNICAL SPECIFICATIONS
DOCUMENT UPDATE SCHEDULE

It is certified that the updates listed below have been approved by the Australian Karting Association and have been incorporated into the document under the relevant rule numbers.

VERSION NUMBER	DESCRIPTION	UPDATED BY	DATE
1	Addition of rules SW 1.05.4, .5 and .6 approved at 2011 August NKC meeting.	Brian Sparrow	1-1-2012
1	Addition to preamble; 'The use of thermal .....' approved by NKC PV2012/04 16-2-2012	Brian Sparrow	1-1-2012
1	Addition to preamble; 'The use of anti friction .....' approved by NKC PV2012/04 16-2-2012	Brian Sparrow	1-1-2012
2	Addition to rule SW 1.05 Carburettor comparison photo approved by NKC 17/18-2-2013	Brian Sparrow	18-2-2013
3	Addition to rule SW 1.03 to cover cooling slot maximum dimensions NKC 18-8-2013.	Brian Sparrow	20-8-2013
3	Add wording 'a minimum of' to rule 1.04.4	Brian Sparrow	20-8-2013
3	New rule 1.02.6 Hard Chroming to crankshaft.	Brian Sparrow	20-8-2013
3	New wording to rule SW 1.10 Engine Fan.	Brian Sparrow	20-8-2013
3	Update to table SW 1.02 'WEIGHT IN GRAMS'.	Brian Sparrow	20-8-2013

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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 fibreglass 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.

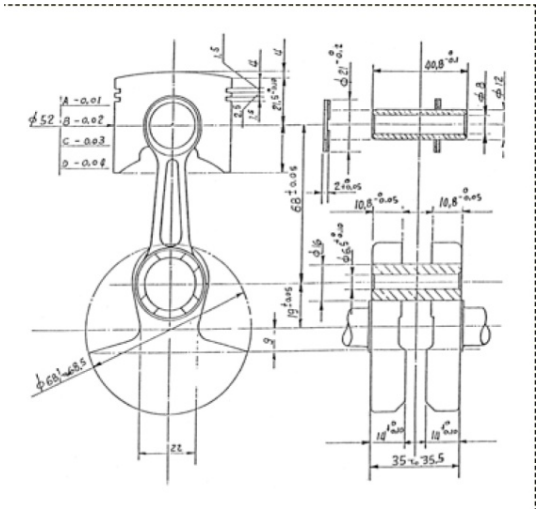
IF THESE SPECIFICATIONS DO NOT SAY YOU CAN MAKE A MODIFICATION, THEN YOU CANNOT.

SW 1.01 Engine:

CHROME BORE	Bore	Stroke
No re-chroming or re-plating allowed	52.1mm.	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.
6. Crankshaft can be hard chromed at bearing and seal surfaces.



WEIGHTS IN GRAMS

USA spec piston inc 2 x rings	93 - 98	Little End spacer (each)	2 - 4
Piston ring (each)	3 - 4	Complete crankshaft & piston (inc 2 x rings, 2 x LE washers, LE cage, piston pin and 2 x circlips)	845 to 861
Piston pin	19 - 23		
Piston pin needle bearing	6 - 8	Flywheel complete	645 - 675

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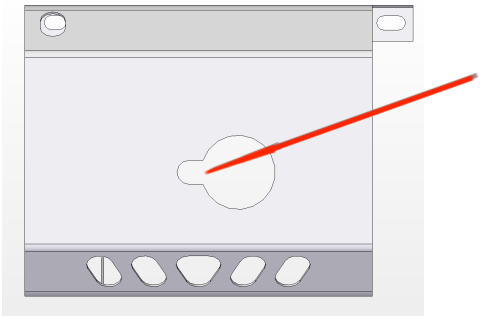
SW1.03 Engine Additions:

Motor Mount, Cylinder/Head Temperature Probe (cover cooling slot may be modified for fitting as per diagram AA below. One (1) slot only.), 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/adapter 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.



Rotation position of slot is free.
Maximum one (1) slot only
Maximum slot width 10mm
Maximum slot length 10mm

Diagram AA

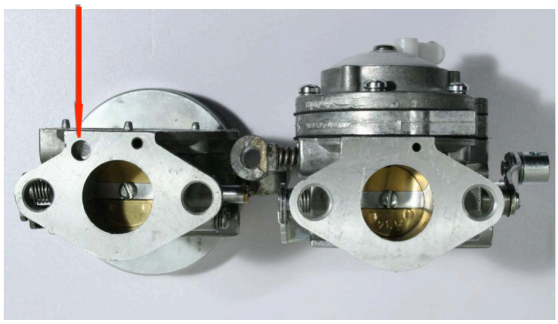
SW1.04 Cylinder Head:

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 a minimum of 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.

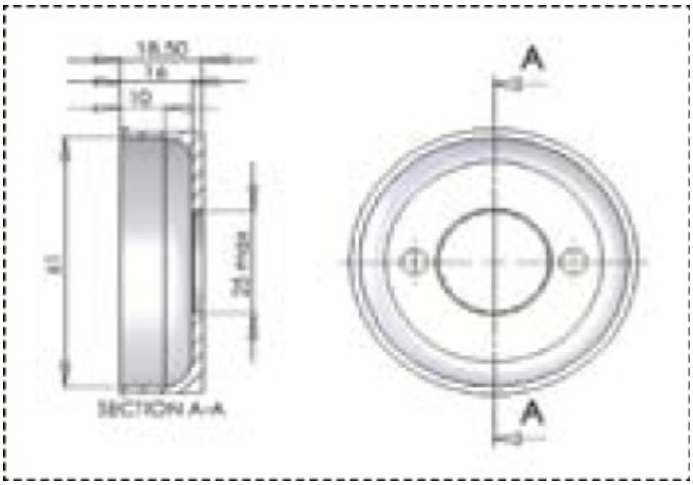
SW1.05 Carburettor:

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.

The carburetor on the left in the below picture with the 'location lug hole' and larger 'pulse hole' DOES NOT COMPLY to the current AKA Manual or these Comer SW80 Technical Specifications and cannot be used in any AKA sanctioned events.



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 carburettor jet needles must be done by manually turning the jet needle (or its extension) only.
5. Carburettor throttle cannot be actuated by electro mechanical means.
6. It is permissible to fit a mechanical stop to limit the range of carburettor jet needle movement, however no modifications to the carburettor are permitted to mount such a stop.

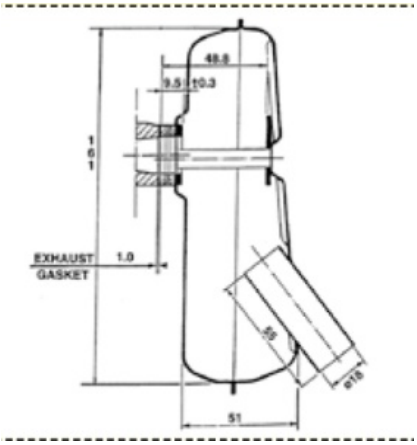


SW1.06 Pressurised Fuel Systems:

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

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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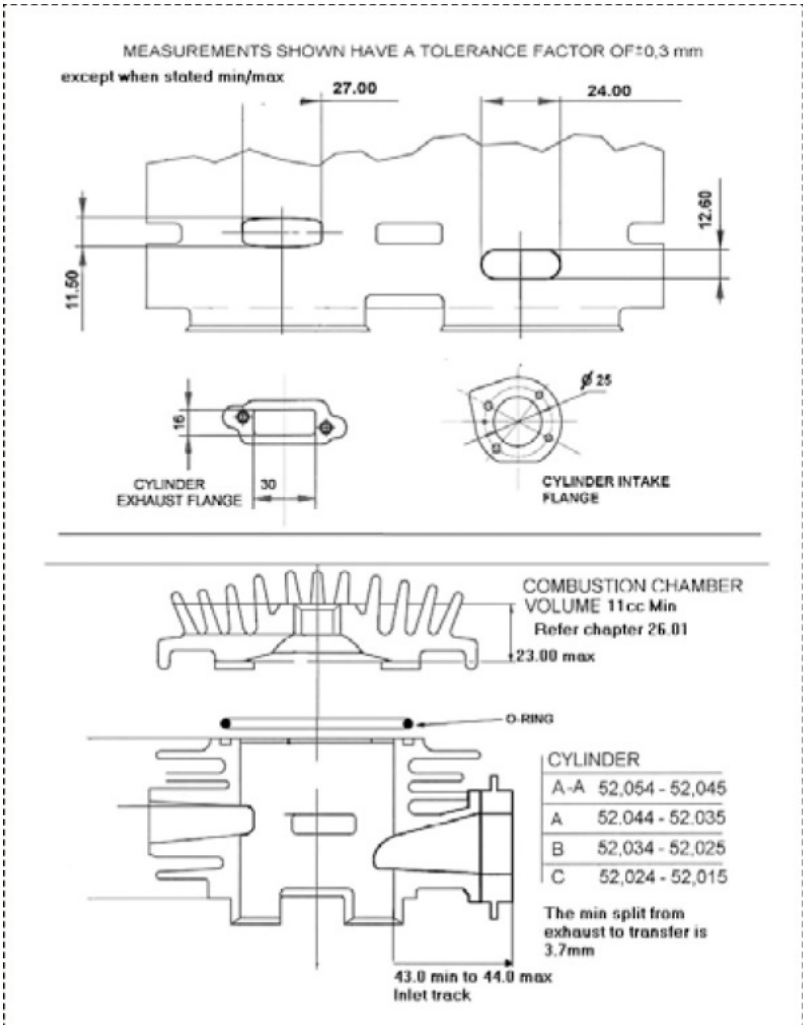

SW1.08 Exhaust

1. Engine must be run with muffler. Must be OEM
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 are to be 125mm.dia. minimum by 37.7mm. minimum width and this finned rotor fan cannot have any fins missing or not completely intact. Must be OEM.

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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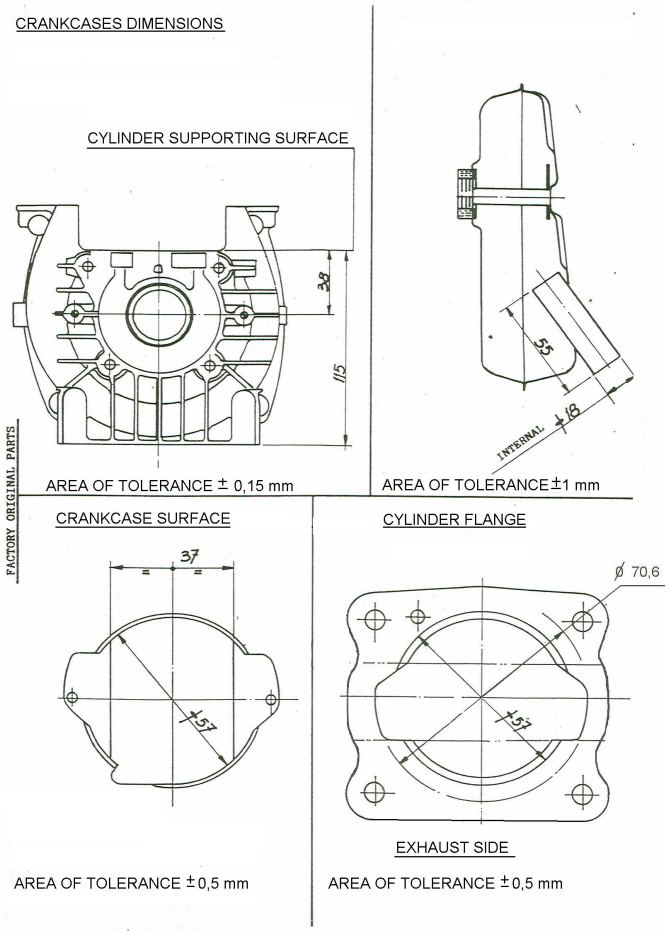

SW1.12 Gaskets:

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.