

## 611 COMER K-80

NOTE: This section covers the stock Comer K-80 engine, muffler, and clutch. This section is a complete rewrite of the Comer K-80 specifications. Unless otherwise specified, all parts are to be of original manufacture and be stock in appearance. Engines must have 2 identification plates attached to the crankcase, one IKF, one WKA. Effective 12/20/09 pre 2001 engines with integral head and cylinder are no longer allowed,

NOTE: Unless otherwise specified, non-tech items include gaskets, oil seals, bearings, bearing cages and fasteners. Bearings are a non-tech item but must be of same width and outside diameter as original parts.

### 611.1 CYLINDER:

82cc displacement. Maximum bore 2.055", maximum stroke 1.505" and minimum stroke 1.495". Original O.E.M. Nicasil bore may not be re plated.

### 611.2 EXHAUST, INTAKE AND TRANSFER PORTS:

All Ports must be "as cast". No grinding, polishing, media blasting allowed on any portion of the exhaust, intake or transfer ports. All port measurements shown are chord measurements. See Figure 611.2 for specifications.

### 611.3 PORT HEIGHT CHECK:

Primary port height check will be made using the LAD port gauge, and the secondary check will be the Visible Light Check. Using the LAD gauge, exhaust port height is 1.140" minimum and Intake port height is 0.460" maximum. Exhaust port Visible Light Check is 1.000". (See Sections 505 and 506 for inspection procedures).

### 611.4 EXTERNAL MODIFICATIONS:

Those, which do not increase performance, are legal.

### 611.6 CARBURETOR:

Tillotson HL166A, HL166B AND HL166C are only carburetors legal. Throttle shaft and butterfly shutter must be stock as factory supplied. Butterfly stop pin is non-tech. Only three low speed orifice holes allowed. Hole sizes are non-tech. Hi and Low needle seat hole size is non-tech. Hi and Low speed adjusting screws are non-tech. High speed dump tube may be altered, but ball check must be in place. Carburetor is supplied with a butterfly choke. Choke assembly may be removed. Phenolic spacer between carburetor and cylinder must be as manufactured; no modifications allowed. The length of the inlet tract is measured from the carburetor-mounting surface to the face of piston (with carburetor base gasket removed). Minimum throttle shutter thickness 0.028". (See Figure 611.6 for all specifications)

### 611.7 PISTON:

Stock Comer K-80 USA Piston only (identified with "USA" stamped on top of piston). Bottom of piston may be machined for port timing adjustment but must be flat. Top of piston may not be modified in any way. Chamfer on top of piston is 0.001". No scalloping of transfer or exhaust area; top must be dome shaped with 80 mm radius  $\pm$  4 mm. Bottom of piston must be flat and 90 degrees to sides, maximum corner break inside and outside of bottom only, 0.030". If bottom of piston is machined, both sides must be equal distance front and back,  $\pm$  0.015". Top ring must be in place and functional. Top ring cannot drop through cylinder. Second ring is optional. Circlips are open.

PISTON PIN: Piston pin ID is 0.3101" maximum, 0.3085" minimum.

CRANKSHAFT: Crankshaft must be stock except polishing is allowed. Crank pin 1.409" minimum length. Hole in crank pin maximum 0.258" diameter. Minimum crank/rod assembly weight: TBA. Flywheel key slot is 0.120" maximum. See additional dimensions in Section 611.7.

BEARINGS: Bearings must be same width and outside diameter as OEM bearings. Single or double row self aligning or non self-aligning bearings allowed. No ceramic ball or other types of exotic design main bearings are permitted.

OIL SEALS: Oil seals are open but must be the same ID and OD as stock seals.

ROD: Rod must be stock and may not be polished.

## 611.8 IGNITION

### 611.8.1 COIL:

Bosch stator is slotted for adjustment. Adjustment slots are cast in and cannot be machined for more adjustment. Stator attachment bolts may not be altered to alter ignition timing. Minimum diameter 0.148"

### 611.8.2 FLYWHEEL:

Flywheel key must be in place. Minimum key thickness is 0.115". Maximum key slot in flywheel is 0.120". No broken or removed fins from flywheel. Part number S60 9690-02.

### 611.8.3 SPARK PLUG:

1/2" reach only.

### 611.8.4 SPARK PLUG WIRE:

Must be stock OEM

### 611.8.5 SPARK PLUG BOOT:

Open

**611.9 CYLINDER HEAD:**

Cylinder head must have Comer OEM casting identification. O-ring or head gasket may be used. Head gasket is to be located with cylinder studs. Cylinder head gasket surface may not be stepped to center or locate head gasket, flat surface area only at gasket surfaces. The combustion chamber volume shall be a minimum of 8.5 cubic centimeters and spherical in shape. A 0.200" washer is to be used with LAD cc measuring plug. See Section 504 for procedures of checking combustion chamber volume. No welding in chamber or spark plug area allowed. Combustion chamber may not be relocated. Spark plug hole must remain over the center of the piston. Stud hole in cylinder head is 0.260" maximum diameter. Stud diameter is 0.240" minimum.

**611.10 CRANKCASE:**

Must meet specifications in Figure 611.10. Bearing pockets may be repaired, but stock crankshaft centerline must be maintained.

**611.11 EXHAUST GASKET:**

One gasket only, maximum thickness 0.060". Must remain unmodified and not leaking. (See Figure 611.11 for other specifications)

**611.13 NON-TECH ITEMS:**

Unless otherwise specified, non-tech items include gaskets and fasteners.

**611.15 CLUTCH:**

Comer Clutch is required and must be raced as manufactured. Shoes must have "Comer" name cast into them. Shoes must be stock appearing; no polishing or removal of material. Minimum allowed width of shoes and assembly is 0.650". Shoe length minimum is 2.500" chord measurement. Spring maximum diameter 0.430" and 9 coils. Wire diameter 0.075" to 0.080". 12 tooth clutch hub. #219 chain.

**611.16 MUFFLER:**

Stock Comer K-80 muffler as supplied with the engine. No exhaust leaks allowed. If hole exists in muffler for EGT sensor, EGT sensor probe must be in place or hole must be plugged. See Figure 611.11 for muffler dimensions.

**611.17 AIR BOX:**

WKA Approved Air Box and Air Box Adapter are required. See Section 551 for specifications.

**611.18 STARTER:**

Recoil starter may be not removed and must be functional. Starter nut may be added to clutch.

**611.19 STARTER / IGNITION COVER:**

Air flow through vents on starter/ignition cover or cylinder assembly may not be restricted in any way.

**611.20 FILTER ADAPTER:**

Filter adapter (restrictor) for Rookie class to be run as manufactured with no modifications. Anodizing must be intact. Inlet hole is 0.647" max diameter. Thickness of floor area adjacent to inlet hole is 0.150" max. May be compared to a known stock part to ensure legality.