

# Engine Service / Parts

## 2003 CM ENGINE ASSEMBLY REFERENCE DRAWING

REF. #	PART #	DESCRIPTION	REF. #	PART #	DESCRIPTION
1	CAKG0002	Clutch, Complete	44	ZCKG0002	Gasket, Base
2	CAKG0004	Shoes, Clutch w/ Washer Springs	45	ECKG0041	Cylinder, 50cc
3	CAMU0008	Spring Set, Washer type for Clutch	46	ZCMUOR07	Oring, Exhaust Flange
4	CCMU0031	Arbor for 3 Shoe Clutch	47	ECKG0015	Exhaust Flange
5	ECMU0018	Nut, Crankshaft Starter	48	HCBC0602	Screw, 6x20
6	ECMU0033	Clutch Hub w/ Gear	49	ECMU0008	Stud, Cylinder
7	ECMU0040	Clutch to hub spacer	50	ZCMUOR03	Oring, Cylinder head, Small
8	ECDC0105	90 Degree Crankcase Vent	51	ZCMUOR05	Oring, Cylinder head, Medium
9	ECMU0017	Seal, Crankshaft	52	ECKG1121	Cylinder Head Dome-Insert
10	ECMU0016	Bearing, Crankshaft	53	ECMU0403	Spring, Kickstarter Return
11	ECMU0001	Bearing, Trans., Secondary Gear	54	HCNS1401	Nut, 1/4-20
12	ECMU0020	Bearing, Trans., Precision	55	ZCMUOR02	Oring, Cylinder head, Large
13	ECMU0105	Gear, Trans., Primary	56	ZCMUOR08	Oring, Cylinder head
14	HCNS1202	Nut, 1/2-20, Left Hand	56A	ZAKGOR02	Oring Kit, Top End
15	ECKG0018	Crankcase, Clutch side	57	ECKG0025	Cylinder Head - Outer Cap
16	ECMU0131	Water Elbow	58	HCWF1401	Washer, 1/4"
17	HCBH0805	Screw, M8x12mm, coolant drain	59	ICMU0006	Rotor
18	ECMU0103	Shaft, Trans., Secondary w/gear	60	ICMU0007	Stator
19	ECMU0104	Shaft, Trans., Output w/gear	60A	MCKGGR00	Grommet, Engine case
20	ECKGBR01	Bearing, Trans., Output shaft	61	ECKG0073	Impeller, Waterpump
21	ZCKG2001	Gasket, Crankcase	62	ECKG0074	Seal, Waterpump
22	HCDP1401	Dowel, for Engine Cases	63	ECKG0203	Intake Manifold
23	ECMU0038	Crankshaft, Welded and Balanced	64	ZCMU0032	Gasket, Reed to case
24	ECKG0017	Crankcase, Ignition side	65	ZCMU0031	Gasket, Intake to Reed
25	ECKG0004	Snap Ring, Int. for Water Pump	66	ECKG0202	Reed Assembly
26	ECKGSE01	Seal, Output shaft	66A	ECKG0204	Reed Kit
27	HCBC0606	Screw, M6x45	67	ZCKG0101	Gasket, Ignition Cover
28	HCBC0604	Screw, M6x35	68	ECKG0001	Cover, Ignition
28A	HCBC0603	Screw, M6x30	69	HCBC0802	Screw, 8-32x1-3/4
29	HCBC0608	Screw, M6x55	70	ECMU0043	Piston Kit
30	PCKG0013	Sprocket, 13T for output shaft	70A	ECMU0055	Piston Ring
30A	ECKGSR03	Snap Ring, Ext., for output shaft	71	ECKG0012	Wrist pin
31	HCWP0001	Washer, Stator	72	ECMU0077	Bearing, Wrist Pin
32	HCBH0803	Screw, 8-32x7/8	73	ECMUSR00	Snap Ring for Piston
33	HCBC0801	Screw, 8-32x1-1/2	74	ECMUSP01	Spring, Kick Start Dog
34	HCNS1001	Nut, 10mm	75	ECMU0207	Gear, Kickstarter, Small
35	ECKG0042	Pulley, Waterpump-Crank	76	ZCMU0030	Gasket, Clutch Cover
36	ECKG0070	Belt, Waterpump	77	ECMU0205	Kick Starter Rubber
37	HCBB0001	Screw, 10-32x1/2"	78	HCWC0000	Gasket, Copper
37A	HCBC1033	Screw, 10-32x3/4"	79	HCBH0805	Screw, M8x12mm, oil drain
38	HCWF0601	Washer, 6mm	80	ECMU0204	Kick Starter Dust Shield
39	ECMU0080	Belt Retainer	81	ZCMU0001	Gasket, Oil fill plug
40	ECKG0075	Pulley, Waterpump-Fan	82	ECMU0037	Oil fill plug
41	HCSS8201	Screw, 8-32x3/8	83	ECMU0202	Kickstarter Lever
42	ECKG0072	Bearing, Waterpump	84	ECMU0206	Kickstarter, complete
43	ECKG0141	Shaft, Waterpump	85	ECMU0003	Brass Clutch Bushing

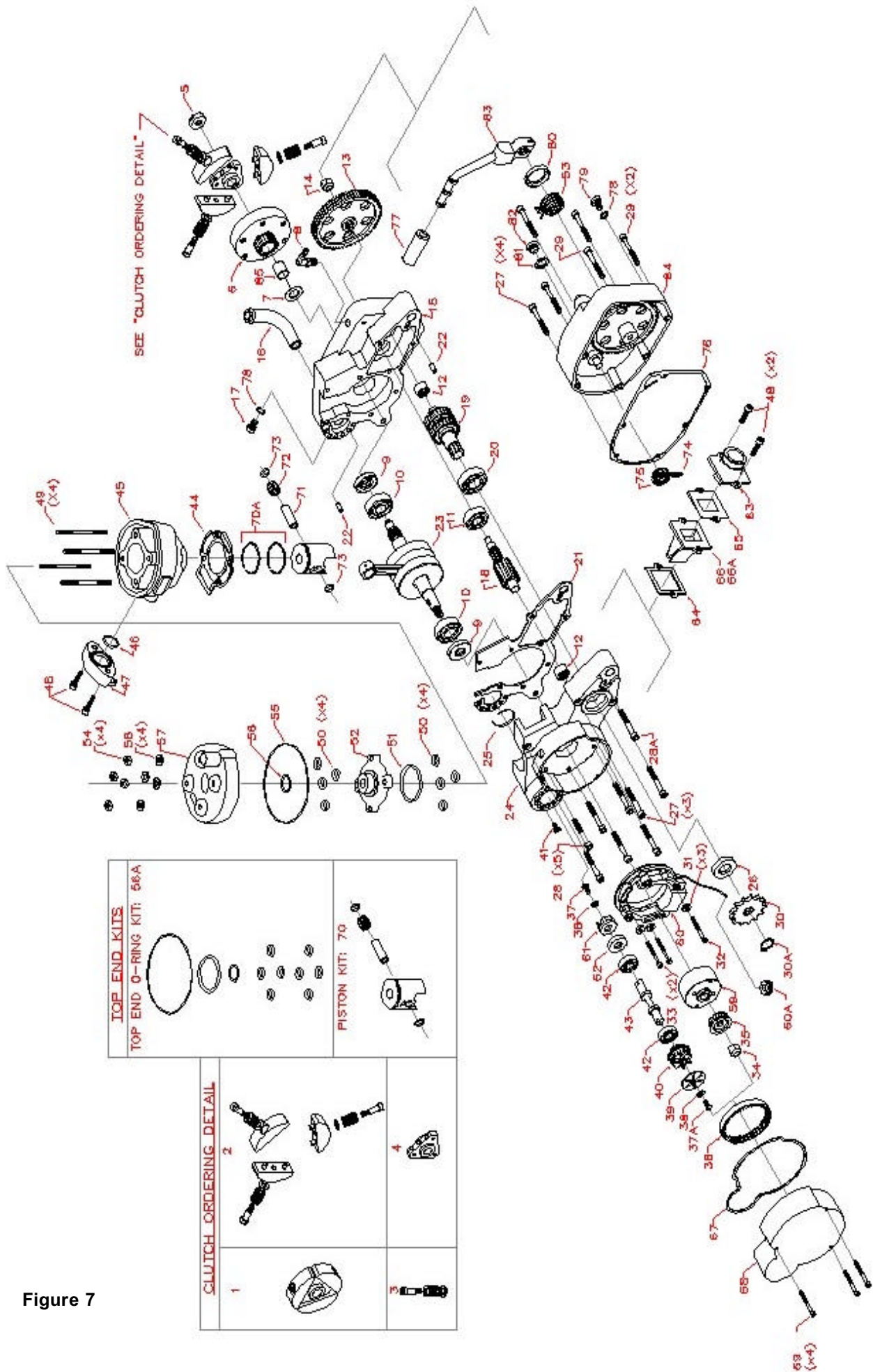


Figure 7

Your Cobra is equipped with an adjustable carburetor. Some fine-tuning may be needed according to weather condition and altitude. Proper jetting is **very** important for engine performance and engine life. Serious damage to the engine can occur if not properly adjusted.

### **IDLE ADJUSTMENT:**

On the left side of the carburetor, there are two adjustment screws. The larger screw with the knurled head is the idle adjustment screw. To raise the idle, turn the screw in clockwise (in 1/4 turn increments) and rev the engine after each adjustment. To lower the idle, turn the screw counter-clockwise.

### **TOP END JETTING:**

Indications that the engine is running too rich (too much fuel for the air) are:

- Engine not revving out or blubbering at high RPMs.
- Engine will not 'clean out'
- Wet or black spark plug

**NOTE:** Before changing jetting be sure that the air filter is properly cleaned and has the usual amount of air filter oil. An overly dirty air filter can cause the engine to run rich.

If the engine is running rich on the top end it should be leaned out. Leaning it out can be done by:

1. Changing the main jet to a smaller number.
2. Raising the needle clip (this lowers the jet needle) one notch at a time on the slide.

Indications that the engine is running too lean are:

- Engine cutting out on top end.
- Engine overheating and ultimately seizure.
- White spark plug

### **CAUTION:**

It is much safer to operate the engine slightly rich as opposed to slightly lean. This is because an overly rich engine will just run poorly while an overly lean engine will seize, potentially causing an expensive top end rebuild and a DNF.

To richen the carburetor:

1. Change the main jet one number at a time (larger).
2. Lower the needle clip (raising the jet needle) one notch at a time until the engine starts to blubber on the top end, then move the clip back up one notch or until you get the blubber out.

### **FUEL MIXTURE SCREW**

The smaller brass screw that is towards the front of the engine is a fuel mixture screw. This screw will also richen and lean your engine more on the bottom and mid-range. In warmer conditions, turn the screw in. In colder conditions, turn the screw out. Be sure to keep the carburetor very clean and make sure you don't

## 2003 CM50 FRONT FORK PARTS LIST

REF #	PART #	DESCRIPTION
1	KCMZ0001	8 X 50 CS
2	KCMZ0002	TOP HANDLE BAR CLAMP
3	KCMZ0003	LOWER HANDLE BAR CLAMP
4	KCMZ0004	FORK PLUG – BLACK
5	KCMZ0005	TRIPLE CLAMP UPPER
6	HCBC0806	8 X 30 CS PINCH BOLT FOR TOP TRIPLE CLAMP
7	KCMZ0007	SNAP RING FOR FORK CAP
8	KCMZ0008	INNER FORK CAP - WHITE
9	KCMZ0009	O-RING UNDER FORK CAP
11	KCMZ0011	PRELOAD SLEEVE
12	KCMZ0012	FORK SPRING
13	KCMZ0013	SWIPER
14	KCMZ0014	SNAP RING
15	KCMZ0015	FORK SEAL
16	KCMZ0016	WASHER
17	KCMZ0017	SNAP RING FOR PISTON
18	KCMZ0018	PISTON ROD - REBOUND
18A	KCMZ0018A	PISTON ROD - COMPRESSION
19	KCMZ0019	REBOUND SPRING
20	KCMZ0020	FORK LEG OUTER LEFT
21	KCMZ0021	FORK LEG – 5 PIECE UNIT – LEFT
22	HCWC0000	WASHER
23	HCBC0806	8 X 30 CS
25	KCMZ0025	TRIPLE CLAMP BOTTOM W/STEM
26	KCMZ0026	FORK TUBE – INNER RIGHT
27	KCMZ0027	FORK TUBE – INNER LEFT
28	KCMZ0028	TOP OUT BUMPER
29	KCMZ0029	FORK LEG – OUTER RIGHT
31	KCMZ0031	FORK LEG – 5 PIECE UNIT – RIGHT
32	HCBC0609	6 X 20 CS
33	HCBC0525	6 X 25 CS

# Troubleshooting

## **1) Engine not behaving properly**

- a) Carburetor top is installed backwards (happens a lot)
- b) The carburetor slide indexing pin is missing

## **2) Engine is down on power**

- a) Clutch engagement is not set properly
- b) Jetting is incorrect
- c) Silencer needs repacked
- d) Exhaust pipe
  - i) Has excess carbon buildup
  - ii) Has large dent in it
- e) Compression is low
  - i) Piston
  - ii) Rings
- f) Reeds are damaged
- g) Ignition timing is incorrect

## **3) Engine is excessively loud**

- a) Silencer needs repacking

## **4) Engine 'blubbers' at high RPMs**

- a) Jetting too rich

## **5) Engine won't start**

- a) Fuel
  - i) None in tank
  - ii) Is sour or bad
- b) Carburetor is dirty
- c) Ignition
  - i) Spark plug fouled
  - ii) Spark plug cap off
  - iii) Engine Shut-off 'kill' switch is shorted
  - iv) Bad electrical ground
  - v) Stator winding damaged
- d) Exhaust is plugged

## **6) Engine won't idle**

- a) Idle knob needs adjusted
- b) Carburetor jets are dirty