

## Preface

With the rapid development of Motorcycle Industry, the main system of Motorcycle also has adopted control by computer, but it's easy to shorten its life if can't be maintained and safeguarded well. As we know, the Engine always works in varying state, for example: starting coldly and hotly startup, running rapidly, accelerating and decelerating etc. Under different operate state of medium low or full load, the car needs different density of mixed gas, it leads to the oil consumption of oil supply system increasing and burning incompletely, waste gas pollution far to exceed the environmental protection standard. If still can't get good maintenance and safeguard, will cause the engine unable to accelerate, the fuel injector works badly in atomizing, can't startup smoothly, accelerate unsteadily and so on. So it's very important to maintain and safeguard correctly and in time.

## I 、 Technical Parameter

Dimensions:360mm × 450mm × 510mm

Weight: 20kg

Power: 85-132vac/170-264vac 47-63Hz

Fuel tank capacity: 4.5L

Test tube capacity: 120CC

Ultrasonic wave frequency: 25KHz

Ultrasonic wave power: 100W

Rotate speed: 0-9975r/min, step: 25r/min

Pulse width: 0-30ms, step: 0.1ms

Count: 0-9975r, step: 25r

Time: 0-9975S, step: 5S

System pressure: 0-6.2kg/c m<sup>2</sup> (variable regulated)

System flow: 4L/min

Test cylinder: 2 (max)

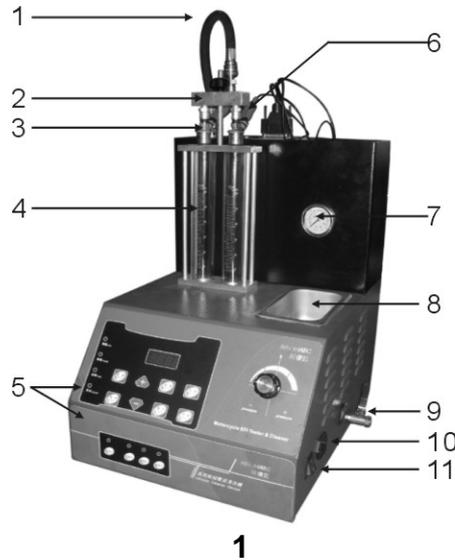
## II 、 Specifications & Functions

ECCOM Fuel Injector tester & Cleaner mainly apply to Electric Motorcycle fuel injector testing, cleaning and quality analyze. The functions as following:

1. To test and analyze the injecting state.
2. To test the injector dribbling.
3. To test the injecting angle and atomizing.
4. To test the injecting volume.
5. To test the injector uniformity.
6. To test conduct the physical and chemical cleaning of the blocked or trouble injector, ultrasonic cleaning, test cleaning and on-vehicle cleaning.
7. To test the open and close injecting pressure of the injector.
8. Can clean the Motorcycle engine without dismantling (choose matched connector).
9. Can operate the auto static test、dynamic test and selective test with the injecting dribbling、angles、atomization、uniformity of one or more(1-2) injectors, can simulate any state of the vehicle to observe the complete process of injectors.
10. Can operate automatically、reversely、and ultrasonic cleaning with one or more injectors at different state, such as high resistor、low resistor、electric voltage and electric current.
11. Can test by count mode and timing mode.

12. If use new type injector, just need choose the matched connector and replace the O-ring.
13. It adopts to united design of microcomputer skill and intelligent engine, and suppose driving power and specified injecting protection system, ensure to operate the test and clean at any mode such as high resistor、low resistor、electric voltage and electric current.
14. Have powerful、safe and time ultrasonic cleaning system.
15. It uses environmental protective and safe test fluid and cleaning detergent, accords with Montreal Agreement, innocuous、with no peculiar smell、non-volatile and can be reclaimed repeatedly and effective, it's innocuous with the operators.

### III、Appearance



Item	Components	1
1	Fuel pipe	√
2	Standard feed fuel board	√
3	Fuel injector	√
4	Metering and Inspection Tubes	√
5	Control Panel	√
6	Injector connect cable	√
7	Pressure Regulator	√
8	Ultrasonic Bath	√
9	Draining valve	√
10	Power switch	√
11	Pump Power	√

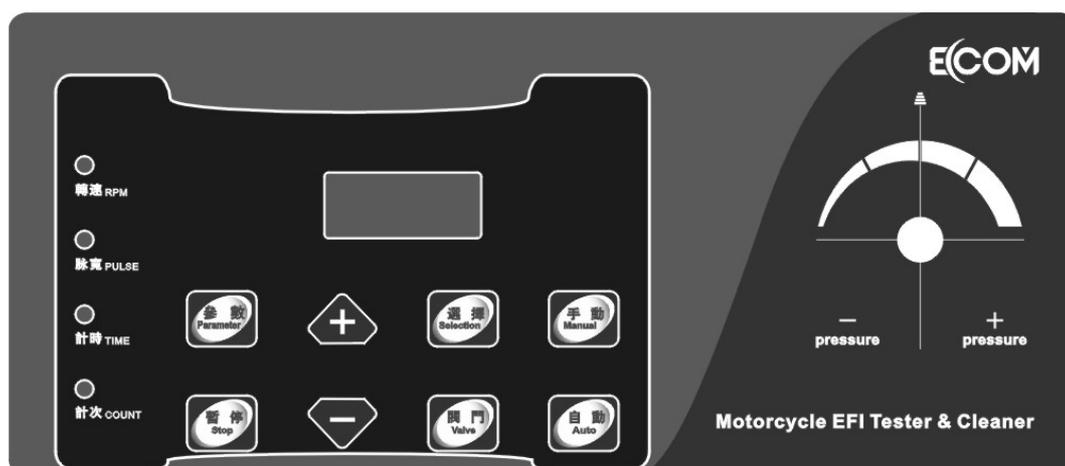


**WARNING:**

If use the test liquid of other brands, may corrupt O-ring, please use the test fluid and detergent we appointed.

### IV、Use the Fuel Injector tester & Cleaner

#### 1、panel direction



### 1) Selection

Press the key, start the test mode at idling speed, rotation speed, pulse width, timing, and count signal lamp displays in proper order, numeral tube shows 750、3、160、2000 successively; Press again start the test mode at max loading, signal lamp lights, numeral tube shows 240、12、25、1000 successively. Press it again, start the test mode at max rotational speed, numeral tube shows 3000、6、20、1000. Press again start the test mode at injecting capacity in 15S, numeral tube shows 15S.

### 2) Valve

Press the key, the signal lamp lights, valve opens, the unit begins to back drain the liquid. The signal lamp turns off, valve closes. After 10 minutes the program stops automatically.

### 3) Parameter

Press the key, select and set rotation, pulse width, timing and count. Indicator shows the current parameter state.

### 4) Auto

Press the key, starting working as the setted program.

### 5) Manual

Press the key, operate manually, press selection key firstly to set the test program, press it again, start working.

### 6) Stop

Press the key, stop during the test, only apply to manual function.

### 7) “+，-”

Press the key, increase or decrease the data of rotation, pulse width, timing and count.

## 2、Test operation

### Step 1: Test the impedance

Remove the serviced injectors from Motorcycle and mark them by sequence. Measure the impedance value of each injector by the digital multimeter, and the impedance difference of each nozzle should not be more than 1 Ω, or replace them.

### Step 2: Connect the power

Insert the power in the outlet at the back, connect 110V A.C. power, and switch on the power at the right (the screen shows 2000 finally).

### Step 3: Test the minimum liquid level

Normally it needs 1L test liquid. If the liquid level excessive, please let out the excessive test liquid.

### Step 4: Press the “Fuel pump” key (at the right of the machine)

When the fuel pump works, adjust the knob as the proper pressure needed.



**NOTICE:** If the oil in fuel tank is too little, don't open the fuel pump, or may damage it.



**NOTICE:** The main machine use test fluid, Ultrasonic wave machine use cleaning detergent. Never mix detergent into test liquid, especially not to take detergent as test fluid, otherwise it will cause damage of pump and other components.

### 3、 Selective testing and cleaning

#### 1) Dribbling test

Select the corresponding connectors and fit them on the injectors, then check the breakage and distortion of the O-ring of the injectors (replace it if damaged). Put the injectors on the test stand, and then connect them well.

Press **【Fuel Pump】** key, to start pump running. Set the pressure to the manufacturer specified value (10% higher is the best) by press **【+】** or **【-】** to observe the dribbling state. Replace the injector if the dribbles one more drop in 1 minute (or identify it according technical standard).

#### 2) Test the injector angle and atomization states

Press **【Selection】** key to start the cleaning test, and observe injecting angles and atomizing states. Injecting angles should be identical (or identify it according to technical standard), and injecting well distributed without jetting, or replace the injectors.

#### 3) Test injecting volume

Press **【Fuel Pump】** key to adjust the system pressure, then press **【Selection】** key to start cleaning and testing, press **【Manual】** key for 15S, observe the injecting volume should be 38ml-42ml (or test it according to technical standard), or replace the injectors.

#### 4) Test injecting uniformity

Press **【Selection】** key to start uniformity test, the numeral tube shows 750r/min, pulse width 3ms, timing 120s, count 2000 times. Press **【Fuel Pump】** key to set the pressure to system pressure of serviced vehicle, press **【Manual】** key, observe the injecting volume of each injectors, the uniformity less than 9% in each test tube is good (or test it according to technical standards), replace it if the volume is more than 9%.

### 4、 Automatic testing and cleaning

Before automatic testing and cleaning, press **【Fuel Pump】** key to start it, and set the system pressure to the value of the serviced vehicle (10% higher is the best), then press **【Auto】** key to start automatic testing and cleaning, during this program, press **【Selection】** key, the system will back to initial state.

#### 1) Test injecting angles, atomization, dribbling and automatic testing and cleaning

Press **【Auto】** key, keep injecting for 15s, time value decreases to 0, can observe the injecting angles、atomization and volume, replace or clean the injector, if appears gush、unusual angels and unusual volume. Stop injecting for 30s, and observe injecting volume, time value shows 30s, the liquid will back to the fuel tank in the following 30s. Then start dribbling testing for 60s, if no dribbling, the unit will starts regular testing automatically.

#### 2) Test mode at idling speed

Conduct the injecting test as following:

Injecting RMP:	750r/min
Pulse Width:	3ms

Count: 2000

Timing: 160s

When the producer is over, observe the injecting uniformity, and replace or clean it if the value is more than 9%.

### 3) Test mode at max loading

Conduct the injecting test as following:

Injecting RMP: 2400r/min

Pulse width: 12ms

Count: 1000

This program can observe the injecting volume at the max loading

### 4) Test mode at high speed

Conduct the injecting test as following:

Injecting RMP: 3000r/min

Pulse Width: 6ms

Count: 1000

Timing: 20s

This program can observe the working state at high speed.

### 5) Test injecting with complete procedure

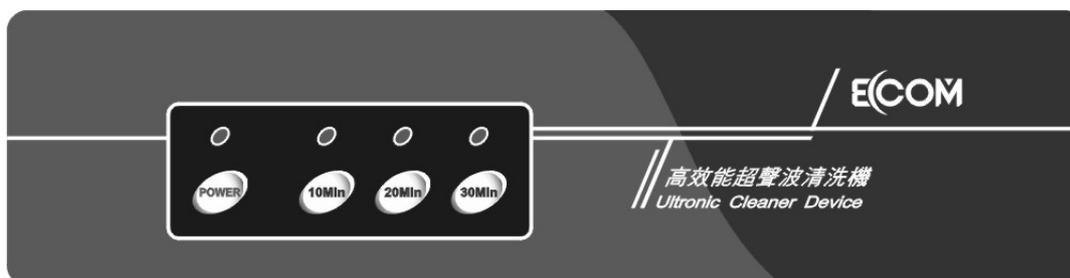
During this procedure, Pulse width is 3ms, RMP is 750r/min, then the RMP will up to 9975r/min, Pulse width will up from 3ms to 12ms, then down to 1.1ms. Total cycles is 5 times, and running time is 20s, observe for 30s after the test, then the liquid will return for 30s.

During the automatic test, press 【Selection】 to pause it as you need.

## 5、 Test mode of editing procedure

Every time press 【Selection】 key, rotation speed、 pulse width、 count and timing signal lamp displays successively. It indicates in current state when the signal lamp lights. Press 【+】 or 【-】 to select suitable rotation、 pulse width、 timing and count, then press 【Manual】 .

## V、 Use the Ultrasonic Cleaner



1. Before starting the machine, put in the special cleaning detergent, normally the liquid level is 3/4 of the cleaning groove. (Don't start the machine when the groove empty)
2. Program:
  - a. Insert the power;
  - b. Press the power key, now starts working (tacitly approve 10 minutes, then stops automatically). If need 20 or 30 minutes, press the corresponding key, and the indicator lights on.
3. If need change the cleaning detergent, let out the liquid through the switch at the right of the machine.

### Motorcycle Fuel injector Tester & Cleaner Packing List

	Components	Unit	Qty	Remarks
1.	Two-holed simple Fuel board	set	1	
2.	Φ10.6 connecor	pc	2	
3.	Φ11connector	pc	2	
4.	Φ13.6 connector	pc	2	
5.	Φ9.8 connector	pc	1	
6.	1/4 blank plug	pc	1	
7.	Φ14 flat plate	pc	2	
8.	Φ12 flat plate	pc	2	
9.	connector of Soft pipe	pc	1	
10.	Adjustable fastener	pc	1	
11.	Minisize special line	set	1	
12.	L=130 screw	pc	1	
13.	Funnel	pc	1	
14.	Pulse line	set	1	
15.	Fuel injector support frame	pc	1	
16.	110Vpower line	set	1	
17.	User guide	pc	1	