# User Manual

## Motorcycle injector tester & cleaner machine

# Preface

With the rapid development of auto industry, the main system of automobile also have been controlled by computer, but it's easily to shorten its lift if cann't be maintained and safeguarded well. As we know, the engine system always works in a varying state, for example, starting coldly and hotly startup, running rapidly, acceleration and deceleration etc. Under different operating state of medium low or full load, the motorcycle need different density of mixed gas, which leads to the oil consumption of oil supply system increasing and burning incompletely, waste gas pollution, exceed the environmental protection standard much more. If it still can't get good maintenance and safeguard, which 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 on time.

## I. Technical parameter

Dimensions: 370mm (length) x460mm (wide) x440mm (height)

Weight: 20kg

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

Fuel tank capacity: 2.4L

Test tube capacity: 120cc

Ultrasonic wave frequency: 38-39KHz

Ultrasonic wave power: 100W

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

Pulse width: 0-30ms, step 0.1ms

Count: 0-9975times, step: 25times

Time: 0-9975s, step: 5s

Pressure of fuel system: 0-6.2kg/$cm^2$(can be adjusted)

Flow of fuel system: 4L/min

Test cylinder: 2 cylinder.

## II. Specifications & Functions.

Fuel Injector test and cleaner mainly apply to fuel injector testing, cleaning and quality analyze.

1.To test and analyze the injecting state

2.To test the dribbling, angle and atomizing of injector

3.To test the injecting volume and uniformity.

4.To test the physical and chemical cleaning of the blocked or trouble injector, ultrasonic cleaning, test cleaning and on-vehicle cleaning.

5.To test the open and close injecting pressure of the injector.

6.Can clean the automobile engine without dismantling (should choose matched connector).

7.Can operate the auto static test, dynamic test and selective test with the injecting dribbling, angles, atomizing, uniformity of one or six injectors, can simulate any state of the automobile to observe the complete process of injectors

8.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.

9.Can test by count mode and timing mode. With background light, can watch the working condition of injectors.

10.If use new type injector, just need to choose the matched connector and replace the O-ring.

11.If 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.

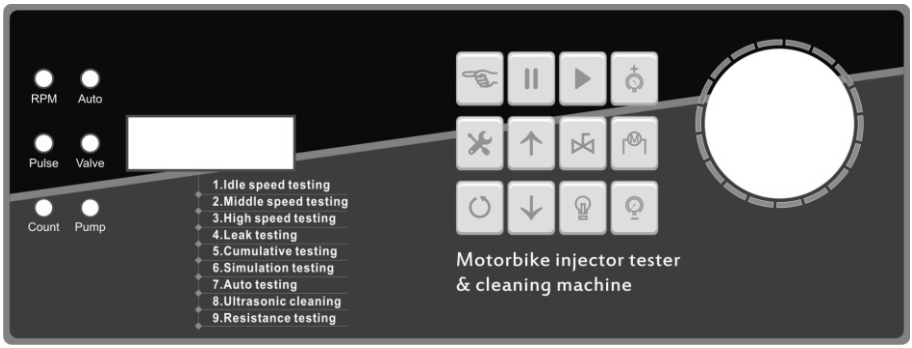
12.Have powerful, safe and time ultrasonic cleaning system.

13.If uses environmental protective and safe test fluid and cleaning detergent, accords with Montreal Agreement, innocuous, with no peculiar smell, non-voltage and can be reclaimed repeatedly and effective, its innocuous with the operators.

⚠ Warning: It would probably corroded the O-ring if using other brands test liquid. Please use our company test and cleaning liquid.

## III. The operation of injector test and clean machine

### i. Panel direction and Key description:




## A. Function Key 

Press and display in turn:

1. Idle speed testing 2. Middle speed testing

3. High speed testing 4. Leaking testing

5. Cumulative testing 6. Simulation testing

7. Auto testing 8. Ultrasonic cleaning

9. Resistance testing: After select, at the first digital display number ( blue number) indicates current option. Press  to confirm. In this process, the pump work automatically after five seconds, the injector pulse starts to output, after the end of the work, the pump automatically shut down.

## B. Pause 

Press this key to pause Current procedures, press again to continue.

## C. Enter 

Press this key the selected function is working.

## D. Param 

When power on and default light on. Press this key to select rmp, pulse, count. Which light on when select which parameters. Within 1, 2, or 3 can be arbitrarily set its parameters; Or in the option 1, 2, or 3 work can be set arbitrary parameters.

**E. Reset** 

Press this key to return initial state.

**F. Up and down** 

Press this key to increase or decrease the speed, pulse and count number.

**G. Backlight** 

Press this key to turn on the backlight and press again to turn off.

**H. Valve** 

Press this key to open solenoid valve and fuel return, the test liquid will return back fuel tank. Press again to close.

**I. Pump** 

Press this key to open the pump and press again to close.

**J. Increace pressure** 

Press this key to increace the fuel pressure.

**K. Decrease pressure** 

Press this key to decrease the fuel pressure.

## ii. The detail step of injector test and clean machine.

**The first step**: remove the injector from car, and mark out one by one, test the resistance of injector by digit multimeter, the test result should be, the resistance difference of injector should not be less than 1Ω,or else, the injector should be changed.

**The second step**: connect with power

Connect the power with the right side power plug, use 220V alternating current, and turn on the power switch at the right side of machine.(the screen shows 1600)

**The third step**: Test the height level of the test liquid.

Check the right side of the machine ( please close the solenoid valve). As usual, put 1L, if more than 1L or keep putting, the liquid will overflow from the behind hole.

⚠ Pay attention: Please do not turn on the pump when the test liquid is not enough, or else, the pump maybe burn out.

⚠ Pay attention: The test machine use testing liquid, the ultrasonic use cleaning liquid. Do not using wrong.

## iii. Choose the test item

### 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 injector (replace it if damaged).Put the injectors on the test stand, set the pressure to the manufacturer specified value (10% higher is the best), 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, and enter into the cleaning test, and observe injecting angle 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.

**iv. Automatic testing and cleaning**

Before automatic testing and cleaning, press Option 7 and press Enter  to work. Please adjust pressure within test system range (10% higher is the best), then press AUTO key to enter into the automatic test and cleaning mode, during this program, press Reset  , the system will back to initial state.

**1. Test mode at idling speed (showing 1)**

Conduct the injecting test as follows:

Injecting RPM: 1600/min

Pulse width: 2.2ms

Count: 3000

When the producer is over, observe the injecting uniformity, and replace

or clean it if the volume over 9%

**2. Test mode at maximum loading (showing 2)**

Conduct the injecting test as following:

Injecting RPM 4000r/min

Pulse width 3.75ms

Count 3000

This program can observe the injecting volume at the maximum loading

**3. Test mode at high speed (showing 3)**

Conduct the injecting test as following:

Injecting RPM 6500r/min

Pulse width 2.4ms

Count 3000

This program can observe the working state at the high speed.

**4. Dribbling test (showing 4)**

Pump working and time decrease from 60s to 0.

**5. Cumulative testing (showing 5)**

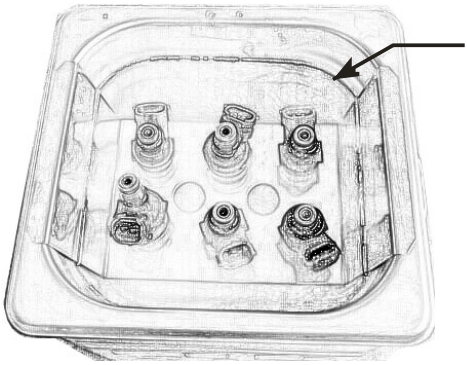
In this program, 750rpm,1500rpm,3000rpm do 500 times for each one, to check the total fuel amount after cumulative.

**6. Simulation testing (showing 6)**

In this program, injectors simulate engine from low to high speed.

## IV. The ultrasonic cleaner operation

Connect the cleaned injectors with pulse line and put it in the ultrasonic injectors frame. Put into the special cleaning liquid (normally the liquid level is 2/3 of the cleaning groove), turn on the ON/OFF. Moreover, to select 8 (Ultrasonic cleaning) and enter, then the injectors have pulse signal output.



Cleaning liquid: Please add as the picture shows

## V. Resistance testing

To select number 9 and connect injector with pulse line which has marked “1”. Press enter and then the resistance data will showing in the screen.

# VI. Parameter of Fuel System Pressure

| Brand | Model | System Pressure（Kg/cm²） |
|---|---|---|
| MAZDA | 323 | 2.0-2.2 |
| | 626 | 2.5-2.9 |
| | 929 | 2.5-2.9 |
| BMW | 528 | 2.7-2.9 |
| MERCEDES-BENZ | 2.3L | 2.04-4.08 |
| | 2.6L | 2.04-4.08 |
| | 3.0L | 2.04-4.08 |
| VOLVO | VOLVO | 2.7-2.9 |
| NISSAN | BLUE BIRD | 2.5 |
| | MAXIMA | 2.5 |
| | 300ZX | 2.06-2.55 |
| FORD | TEMPO2.3L | 2.8 |
| | LINCOLN CITY | 2.06-3.08 |
| GM | BUICK CENTURY | 2.9-3.3 |
| | BUICK AVENUE | 2.9-3.3 |
| | CADILLAC5.7 | 2.9-3.3 |
| | CHEVROLET LUMINA | 2.9-3.0 |
| | CHEVROLET CORSICA | 2.9-3.0 |
| MITSUBISHI | V6 | 3.5 |
| VW | JETTA | 2.7-2.9 |
| VW | SANTANA 2000 | 2.2-2.65 |
| DAEWOO | DAEWOO | 2.8-3.0 |
| HYUNDAI | SONATA | 2.65-2.75 |
| TOYOTA | CROWN3.0 | 2.84 |
| | PREVIA | 2.7-3.3 |
| | LEXUS 300L、S400 | 2.65-3.04 |
| | CAMRY3.0 | 2.65-3.04 |
| | LAND CRUISE | 3.0 |
| | CORONA | 2.7-3.1 |
| | ACCORD2.0、2.2 | 2.85 |
| HONDA | CIVIC1.5L | 2.55-2.85 |
| | LEGEND3.2L | 2.7-3.04 |
| CHRYSLER | CHEROKEE213 | 2.73 |
| | DODGE3.3L | 3.73 |
| AUDI | SIX CYLINDER | 2.8-3.0 |
| | FOUR/FIVE CYLINDER | 4.5-5.0 |