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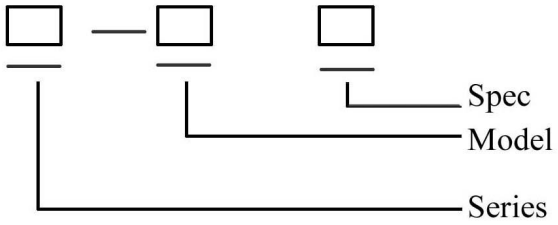
Model Size and Technology Parameters

1. Model Size

1.1 Desk-top configuration

1.2 Model size and Instruction



2. Functions and Purpose

2.1 Purpose

The unit is used for checking and cleaning the auto fuel injector and is the first choice for auto's maintenance, curing, even the departments of auto's teaching and researching.

2.2 Function

2.2.1 Both the checking and cleaning operation are controlled by micro computer including dealing with dribbling, blocking, pulverization and the injector's angle. The unit can also control the quantity and proportion of fuel spray when injectors are in different running speed

2.2.2 The operation items are shown by digital tube with high definition making the operation easy and convenient.

2.2.3 The powerful ultrasonic cleaning trough (70w) can clean several injectors at the same time. The filter pot of the injector can also be cleaned by ultrasonic wave.

2.2.4 You can adjust the time , frequency, injecting times, the minimum switch cyc freely in allowable range.

2.2.5 The patent compound bounder and general bonder base are applicable to US, Japan and Europe vehicles' side-oiling injectors.

2.2.6 The liquid level of the oil box be shown directly, and the testing agent can be used circularly.

2.2.7 The operating pressure can be regulated .

2.2.8 The main components are all imported ensuring the quality.

2.2.9 The bright back lights makes it convenient to observe the injector's working situation.

3. Working Conditions

3.1 Power Supply: AC220±10%

3.2 Frequency: 50/60HZ* 0.5

3.3 Power :<120W

3.4 Environment Temperature :+10℃ ~+30℃

3.5 Relative Humidity :<85%

3.6 Magnetic Field Strength :<400A /m

3.7 Intermittent Working

3.8 No naked fire and combustible gas.

4. Main Technology Parameters

4.1 Rev range: 0~7500r/min.

4.2 Oil Injecting times : 0~9900times step length :100

4.3 Pulse duration : 0~20.0ms step length : 0.1ms

4.4 Timing :0~10min adjustable

4.5 System pressure :0~0.5Mpa adjustable

4.6 Oil tank capacity :2000ml

4.7 Ultrasonic cleaning power :70W (intermittent working)

4.8 Ultrasonic Cleaning Frequency :28KHZ 0.5KHZ

4.9 Cylinder capacity :140ml

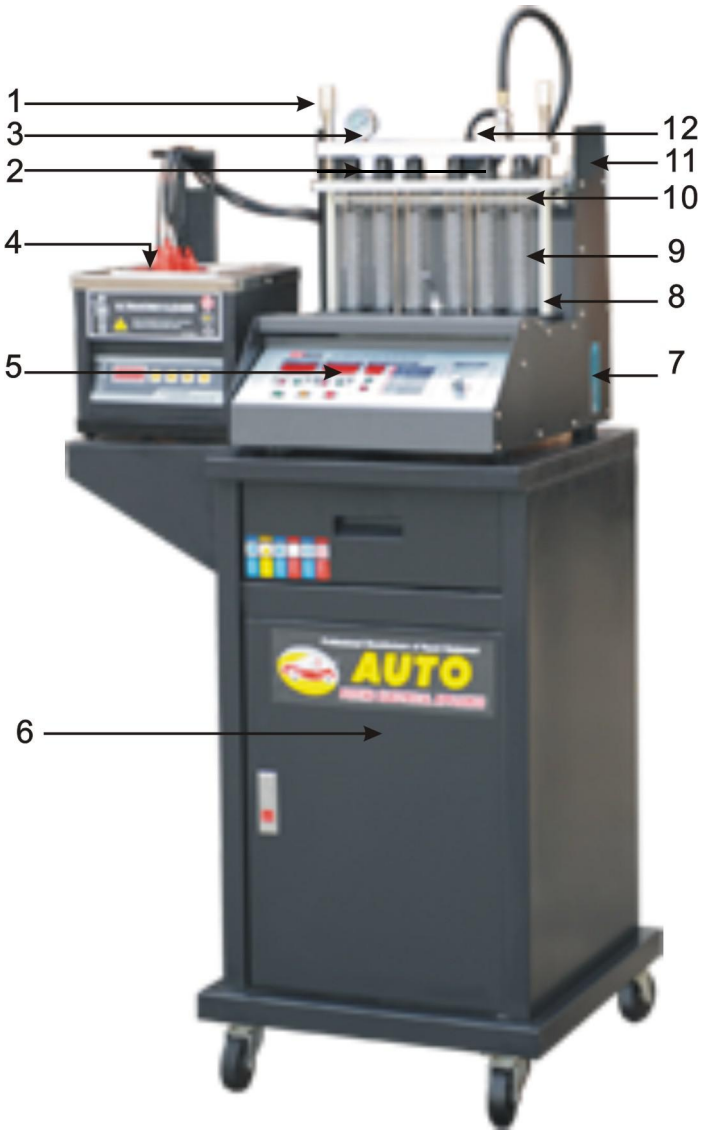
4.10 Cylinder reticule accuracy :0.2ml

4.11 Exterior size :380mm *485mm *470mm

4.12 Weight: 30Kg

STRUCTURE

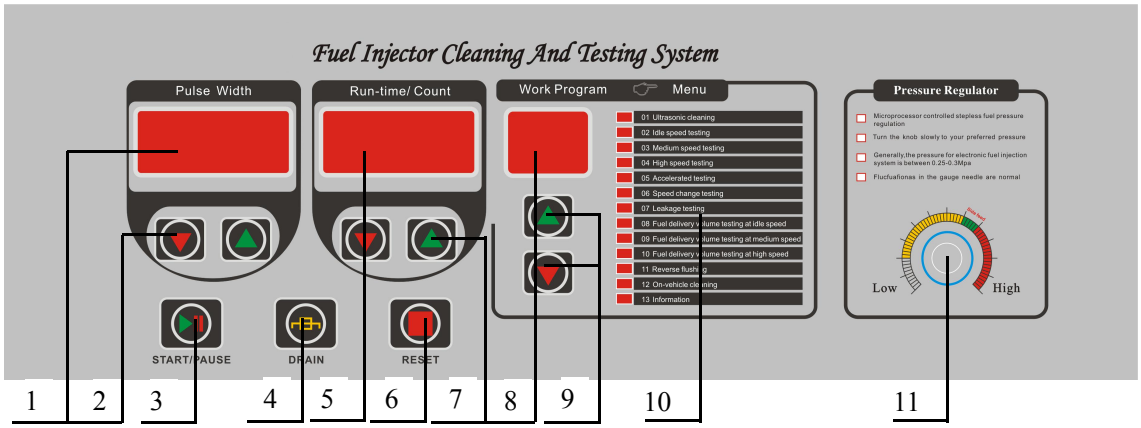
STRUCTURE



1, Lock Pole	5, Operation Panel	9, Measuring Bottle
2, Fuel Distributor	6, Tool Troiiey	11, Coupler
3, Pressure Meter	7, View Window	10, Cover
4, Ultrasonic Bath	8, Fuel Release Handle	12, High Pressure Adaptor

Function Instruction

Operation Panel Sketch Map



1. Showing Pulse Duration: displaying the pulse duration as injector working.
2. The keys for regulating the pulse duration.

   Press ▲ for increasing

   Press ▼ for decreasing
3. Start/Stop key： press it to begin/stop a function.
4. Drain Key: Stop/Strat to Drain;
5. Showing Working Time and Injecting Times.
6. Clear key ■ : Stop all the function,.
7. Adjusting the working time/injecting times.

   Keys for regulating the working time/injecting times.

   Press ▲ for increasing

   Press ▼ for decreasing
8. Displaying the choosed function/item.

9/10. Press the ▲ ▼ key to select function items.

11. Pressure adjustment knob.

For different models with different panels, please conform to entity!

Testing Items and Instruction

1 Ultrasonic Cleaning Clean the injector needle valve.

2 Idling Test 750 revs/min Simulate injector‘s working state and distributive value as engine is idling.

3 Medium Speed Test 4000revs/min Simulate injector’s working state and distributive value as engine is in medium speed.

4 High Speed Test 7500 revs/min Simulate injector’s working state and distributive value as engine is in high speed.

5 Accelerating Speed Test Simulate injector’s working state and distributive value as engine is in acceleration.

6 Shifting Test Simulate injector’s working state and distributive value as engine is in continuous states of idling/medium speed/high speed/acceleration.

7 Leaking Detecting 0.3MpaCheck if there was a leaking in case of 0.3Mpa.

8 Preset for Idling Speed Injecting Times (0-9900times) Simulate injector’s working state and distributive value in idling speed and a defined times.

9 Preset for Medium Speed Injecting Times (0-9900times) Simulate injector’s working state and distributive value in medium

speed and a defined times.

10 Preset for High Speed Injecting Times (0-9900times) Simulate injector's working state and distributive value in high speed and a defined times.

11 Reverse Flushing Flushing the injector inversely and eliminate the impurity.

12 No-Dismantled Cleaning Cleaning the oil system and accessories to eliminate the impurity and c-deposit.

13 Unit Info Serial number and date of production.

Follow the instruction on panel when model and function changed!

Preparation and Checking Criteria

Preparation

1. No naked fire or smoking around the unit.
2. Connect the unit with AC220V ,50/60Hz power supply.

   Turn on the switch to run the unit.
3. Injecting Testing Agent.

   Pour two bottles of the special testing agent (about 1800ml) into circular holes above measuring cylinder.

   After leaving the agent unused for long time, change new ones for using again!
4. Injecting Cleaning Agent

step 1: Fix the cleaning bracket in the ultrasonic cleaning trough.

step 2: Pour the special cleaning agent into the trough to soak the bracket surface.

Note: A damage will occur if running the machine without cleaning agent in trough!

5. Prepare the Injectors

step 1: Remove injectors from vehicles.

step 2: Take off the dustproof rubber mat and “O” shape rubber coil on the bottom.

step 3: Check if the coil was damaged, if it was, change for a new one.

step 4: Cleaning the external of the injector with petrol or some cleaning agent to remove the impurity and smear, then rub-up.

step 5: Blow-Drying the injector with purified compressed air.

Fix Injector to Unit

1. Fix the Head-Oiling Injector (Illustration 2.1)

1.1 Fix the injector to a balance position on the oil distributor with incidental multiple bonder.

1.2 Plug the vacancy oil hole with sealer.

1.3 Lay some lube on the “O” shape rubber coil and compound bonder.

1.4 Rotate the injector lightly and press it into the compound bonder.

1.5 Put the oil distributor and injectors flatly on the panel-16, then fasten by the lock-poles-2.

1.6 Connect oil distributor and oil-output tube with inserting connector.

1.7 Select the idling speed test function, turn the knob left to make the pressure in the lowest level.

1.8 Press to start the function.

1.9 Turn the knob right slowly to increase the pressure to 0.25Mpa and check if there was a leaking on connecting point of bonder.

If a leaking was found, regulate again till wholly sealed.

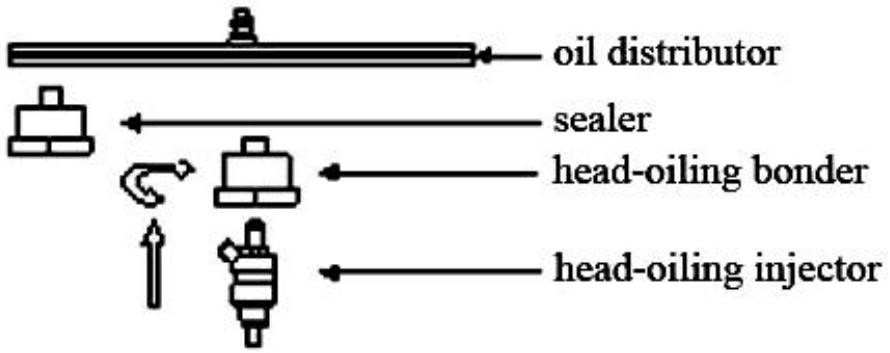


Illustration 2.1 Scheme of Installation of Head-Oiling Injector Bonder

2. Fixing Injector for Reverse Flushing (Illustration 2.4)

2.1 Fix the extension bar (8) on the two sides of measuring cylinders bracket.

2.2 Screw the reverse flushing bonder (5) on the oil distributor.

2.3 Put the reverse flushing bonder (9) on the cylinder bracket.

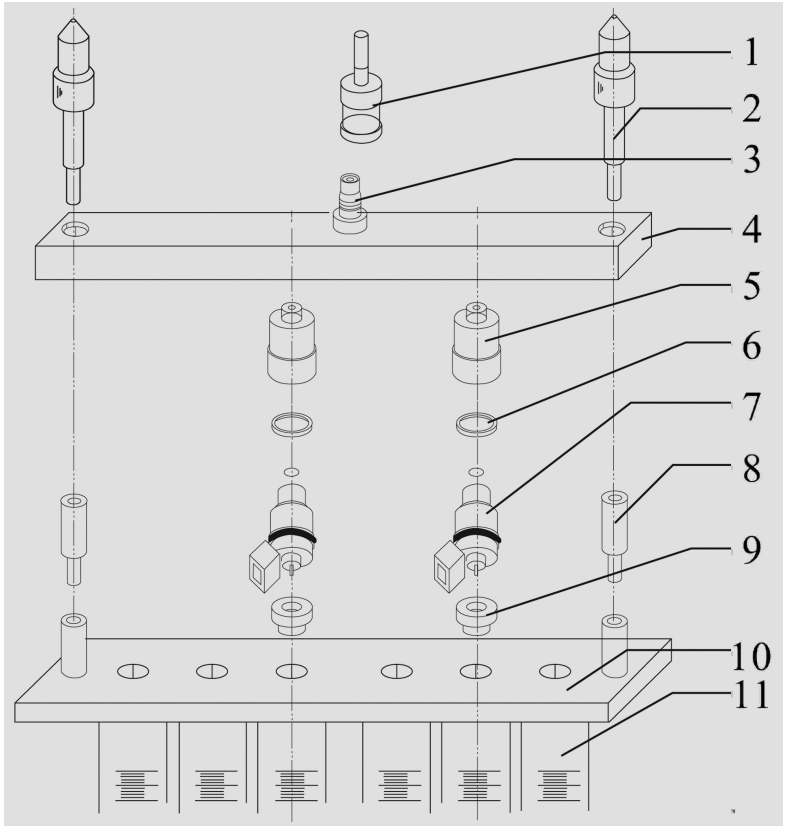
2.4 Put Φ22×3.1"O"shape loop on the output of injector.

2.5 Regulate and fix it on reverse flushing bonders(5/9).

2.6 Fasten the lock-pole(2).

2.7 Fix the high pressure tube connector.

2.8 Insert the drive line plugs into injectors.



1 inserting connector
2 lock-pole
3 oil distributor connector
4 oil distributor
5 up-bonder
6 sealing coil φ24
7 head-oiling injector
8 extension bar
9 down-bonder
10 inserting plate
11 measuring cylinder

Illustration 2.4 Scheme of Installation of Reverse Flushing Bonder

Checking Criteria

1. Discharge Proportionality

1.1 Regulate the system pressure to fit the injectors.

1.2 Test the discharge proportionality in different rev speed.

1.3 Pause or stop the function and observe the distributive value when cleaning agent's amount is less than 2/3 of cylinder capacity.

1.4 The warp of injectors for one vehicle should not surpass 2%.

2. Leak Detecting Test

The function is used to check the leak tightness of injector's needle valve in high pressure.

2.1 Select this function, press the ▶ key to start.

2.2 Regulate the system pressure to 0.3Mpa.

Diagnose: No leaking should be found in one minute.

3. Observe the Spray State

Simulate the working state of all injectors on one vehicle in different rev speed.

3.1 Check the spray shape and angle to make sure if they are identical.

3.2 Regulate the pulse duration, check if the injectors' min running pulse duration were identical.

Diagnose: The spray shape, spray angle and the min running

pulse duration should be identical.

Operation Guidelines

Ultrasonic Cleaning

Note: The initial cleaning time is 10 mins, you can reset it before starting.

1 Arrange the injectors on the cleaning bracket.

2 Connect the drive line plugs with injectors.

3 Select the ultrasonic cleaning item, press key to start.

The function will stop automatically as timing out!

4 Pick up the injectors and eliminate the cleaning agent with soft cloth.

Damage will occur if running the function without adding cleaning agent in the trough!

Reverse Ultrasonic Cleaning

1 Arrange the injectors on the cleaning bracket and keep oil input port below.

No need driving lines.

2 Run the function for one min, the filter could be cleaned.

3 Pick up the injectors and eliminate the cleaning agent with soft cloth.

Reverse Flushing

1 Following the Illustration 2.4, fix the injectors between oil distributor and cylinders bracket.

2 Fasten with lock-pole (2), select the reverse flushing item, regulate the system pressure to 0.25-0.3Mpa, start the function.

The function will stop automatically as timing out!

3 Pick up the injectors and remove the “O” shaped loop.

Discharge Proportionality Test & Leak Hunting Test

1 Preparation

1.1 Following illustrations 2.1 and 2.3, fasten the injectors between oil distributors and cylinders bracket.

1.2 Tighten the lock-pole.

1.3 Keep the system pressure between 0.25-0.3Mpa.

1.4 Make sure that there is no leaking.

1.5 Select the idling injecting item.

2 Discharge Proportionality Test

2.1 Turn off the oil releasing handle valve.

2.2 Press ▼▲ (9) to select the items of idling test/medium speed test/high speed test/accelerating test/shifting test.

2.3 Press ▶ to run these functions.

2.4 Pause or stop it when liquid level reaches 2/3 of cylinder.

2.5 Checking the discharge proportionality in different working states.

2.6 Pick out the unqualified ones to clean again.

If it was still unqualified after many times’ cleaning, exchange for a new injector!

2.7 At last turn on the oil releasing handle valve to release the agent back to tank.

3 Leak Detecting Test

3.1 Fix the injectors.

3.2 Press ▼▲ to select the leak detecting item.

3.3 Regulate pressure to 0.3Mpa.

3.4 Press ▶ to start.

3.5 Checking injectors' leak tightness.

3.6 Pick out the unqualified ones to clean again.

If it was still unqualified after many times' cleaning, exchange for a new injector!

Setting for Injecting Times

1 Press ▼ ▲ (9) to select the idling/medium/high speed injecting times setting items.

2 Press ▼▲ (6) to set the times.

3 Press ▶ to start.

Keep observing the spray shape and amount as running.

The function will stop automatically as timing out.

Tidy and Maintenance

Tidy

step 1: Shut down the power supply.

step 2: Put the agent back to the original bottle, clean the machine with dry soft cloth.

step 3: The testing agent in tank should be put back to original bottles for preservation.

Maintenance

Exchange Cleaning Agent

After being used for long time, the agent must be changed to avoid that the injector being blocked by the impurity.

Exchanging Process

step 1: Remove off the oil-release screw cap to let all the liquid out.

step 2: Pour some new agent in to wash the inside and release.

step 3: Fix the screw cap on, add two bottles of new cleaning agent.

Exchange Protector Tube

step 1: The protector case is on the unit's power receptacle.

step 2: Open the case, you will see the tube.

step 3: Change for a new one if the tube was melted.

Notice

1. The measuring cylinders are made of quartz glass, and fragile. **Please avoid striking!**
2. Before start the unit, please check the power supply, connector plugs and protector tube to ensure that they are in good condition.
3. Warranty will cancel if dismantle the unit without permission.
4. Damage will occur if running the ultrasonic cleaning function without special cleaning agent.
5. Before exchanging for new testing agent, the used ones must be released entirely, then adding two bottles (1800ml) for using.
6. Taking use of the special testing or cleaning agents which designed for unit, for other ones will flake the surface painting coat off.
7. Never using coal oil, petrol or thinner for as cleaning or testing agent.
8. Never mix the testing and cleaning agents for usage.

9. The trouble caused by using other agents or liquid is beyond the repairing guarantee range.

The Cleaning and Testing Agents

Safety and Iniquity, the agents are specially designed for the unit and composed of sediment controlling agent, with high stability and oxidation resistance, resuming injector unimpeded, normal spray, eliminate the troubles of idling unsteadiness, accelerating hard, and improve combustion performance, saving the petrol cost. To avoid burning the unit's core oil pump and fretting the oil piping system, the agents are kept from any acid or base component. from any acid or base component.