

Dear Client,

Thank you for purchasing our OBV-80B 80KV Dielectric Oil Tester . Please read the manual in detail prior to first use, which will help you use the equipment skillfully.



Our aim is to improve and perfect the company's products continually, so there may be slight differences between your purchase equipment and its instruction manual. You can find the changes in the appendix. Sorry for the inconvenience. If you have further questions, welcome to contact with our service department.



The input/output terminals and the test column may bring voltage, when you plug/draw the test wire or power outlet, they will cause electric spark. PLEASE CAUTION RISK OF ELECTRICAL SHOCK!

◆ **SERIOUS COMMITMENT**

All products of our company carry one year limited warranty from the date of shipment. If any such product proves defective during this warranty period we will maintain it for free. Meanwhile we implement lifetime service. Except otherwise agreed by contract.

◆ **SAFETY REQUIREMENTS**

Please read the following safety precautions carefully to avoid body injury and prevent the product or other relevant subassembly to damage. In order to avoid possible danger, this product can only be used within the prescribed scope.

Only qualified technician can carry out maintenance or repair work.

--To avoid fire and personal injury:

Use Proper Power Cord

Only use the power wire supplied by the product or meet the specification of this produce.

Connect and Disconnect Correctly

When the test wire is connected to the live terminal, please do not connect or disconnect the test wire.

Grounding

The product is grounded through the power wire; besides, the

ground pole of the shell must be grounded. To prevent electric shock, the grounding conductor must be connected to the ground.

Make sure the product has been grounded correctly before connecting with the input/output port.

Pay Attention to the Ratings of All Terminals

To prevent the fire hazard or electric shock, please be care of all ratings and labels/marks of this product. Before connecting, please read the instruction manual to acquire information about the ratings.

Do Not Operate without Covers

Do not operate this product when covers or panels removed.

Use Proper Fuse

Only use the fuse with type and rating specified for the product.

Avoid Touching Bare Circuit and Charged Metal

Do not touch the bare connection points and parts of energized equipment.

Do Not Operate with Suspicious Failures

If you encounter operating failure, do not continue. Please contact with our maintenance staff.

Do Not Operate in Wet/Damp Conditions.

Do Not Operate in Explosive Atmospheres.

Ensure Product Surfaces Clean and Dry

— **Security Terms**

Warning: indicates that death or severe personal injury may result if proper precautions are not taken

Caution: indicates that property damage may result if proper precautions are not taken.

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preface

Thanks for you selecting UHV-680 Transformer Oil BDV Tester. Be easy for you to know the tester ,we are is equipped with the detail operation manual. you can get the product introduction, the use of methods, equipment performance, and security considerations, and many other aspects of the information from the operation manual.

Please read the operation manual carefully before using the tester the first time, and according to the manual for instrument operation and maintenance. This will help you better use tester, and it can prolong the service life of the instrument.

When we write the manual,our though we are working with the scientific and rigorous attitude and provide accurate and reliable information, No man is wise at all times, This manual is also hard to avoid having errors and omissions. If you find the errors in the manual, please in spite of being very busy to glance take time, try to let us know it as soon as possible. And please supervise us to correct errors quickly! The company all staff will be appreciated!

The company reserves the right to improve the instrument function. If it is found that the instrument inconsistent in the process of using the function and operation manual , The instrument shall be the actual function. We hope that the instrument can make your job easier, happy, to realize you in the busy work of office automation of relaxed and happy feeling!

When you are satisfied with our instruments, please recommend to your friends! When you have valuable advice and suggestions of instrument, Please be sure to contact us. The company will try our best to give you a satisfactory answer. Thank you more for your support to our company!

1. Summary

UHV-680 Transformer Oil BDV Tester . My company all the scientific and technical personnel, according to international standard IEC156, and American Standard ASTM D877、ASTM D1816, give full play to our advantages with a lot of field test and long-term unremitting efforts, carefully researching and development of high accuracy, full digitalization to the Automatic Oil Breakdown Voltage Tester. This tester is easy to operate, beautiful shape. Because of adopting the automatic digital computer control, the tester is high precision measurement, antijamming capability powerfully, safe and reliable.

2.Feature

2.1.The instrument adopts the large capacity single-chip microcomputer control,works stably and reliably.

2.2 Instrument can eliminate the phenomenon of crash with wide range of watchdog circuit

2.3. A variety of operation to choose, Instrument program with IEC156, ASTM D877 and ASTM D1816 three methods of national standard and custom operations for different users' multiple choice

2.4. Instrument test cell is made of a special glass casting form once to eliminate the phenomenon of oil leaking and other interference

2.5. instrument can take articularly high voltage terminal sampling design for test values to analogue-digital converter, to avoid the error caused in the analog circuit, to make more accurate measurement results.

2.6. Instrument internal functions of overflowing, overvoltage, short circuit be protected,and are good for antijamming capability and

electromagnetic compatibility

2.7. Instruments are portable structure , easy to move, used inside and outside rooms.

3.Technical indicator

3.1. step-up transformer capacity 1.5 kVA

3.2. rate of voltage rise

0.5 kV/s, 1kV/s ,2.0kV/s, 3.0kV/s , 5.0kV/s five gears

3.3. output voltage 0~80 kV

3.4. Voltage accuracy $\pm$ (3% reading+2 words)

3.5. aberration rate of power supply $<1\%$

3.6. display mode Big LCD display Chinese characters

3.7. electrode gap standard 2.5 mm

3.8. boundary dimension 409 mm $\times$ 393 mm $\times$ 388 mm

3.9. Instrument weight 29 kg;

4.service condition

4.1. environment temperature 0~40°C

4.2. relative humidity $\leq 85\%$

4.3. working power supply AC 220V $\pm 10\%$

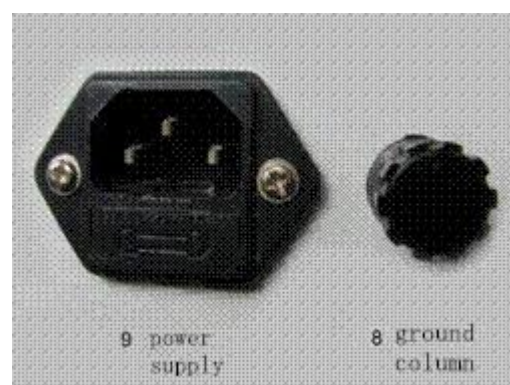
4.4. supply frequency 50 /60 ± 5 Hz

4.5. power consumption <200 W

5.External illustration



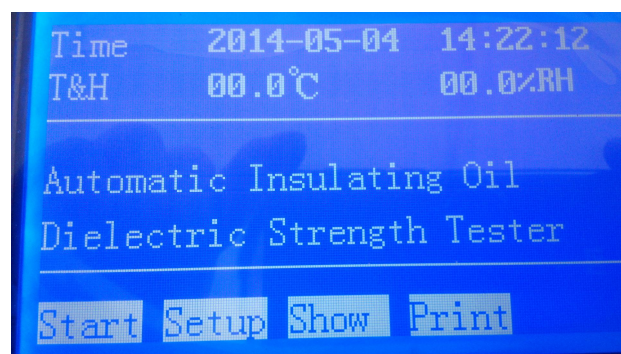
1. LCD; 2. function keys; 3. printer; 4. selector switch of voltage rise ;
 5. indicator light 6. Case lid of the test cell; 7. temperature and humidity
 sensor ; 8. ground wire fastener ; 9. power socket; 10. power switch;
 11. safety sign of high voltage



- 5.1. LCD :display related Information ,date ,time,
(liquid crystal display) operating parameter, test result, menu
- 5.2. function keys :select and set up operating parameter
- 5.3. printer; print mean value of test result once and more than once
- 5.4. selector switch of voltage rise: select rate of voltage rise
- 5.5. indicator light :When the light is shined ,it means that related steps is now under way;
- 5.6. Case lid of the test cell: Open lid ,put in or put out test cell, after closing lid, can be tested;
- 5.7. Temperature and humiditysensor: the measurement of centigrade degree and relative humidity can convert to figure signal on LCD.
- 5.8. ground wire fastener: connect ground wire fastener of reliability
- 5.9. power socket:plug in power cord of AC 230V 50/60Hz
- 5.10. power switch: control tester power on-off
- 5.11.safety sign of high voltage: triangle marker of reminding dangerous high voltage

6. Chart of operating steps

- 6.1. (picture 1) plug the power cord in ,and turn the power switch on, LCD display starting up



Picture 1 starting up

- 6.2. (picture 2); at the button of the frame 1, to press setup ,and enter into lower level frame (picture2)



Picture2 select subframe

6.3. (picture 3) 。 At the button of the subframe of setup, to press opt and move cursor ✓ to ASTM D877, to press OK to enter into subframe of ASTM D877



Picture 3 ASTM D877 subframe

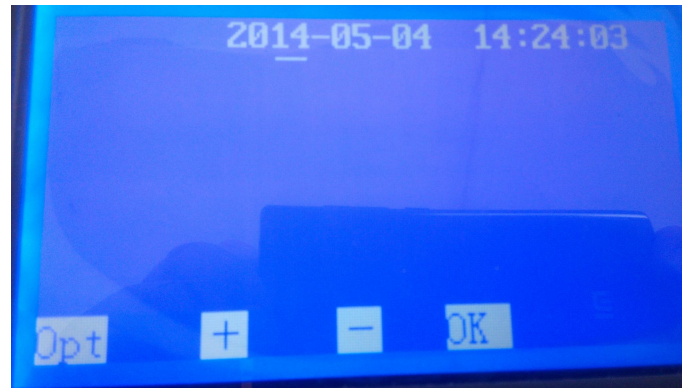
At the button of **ASTM D877** subframe, to press **opt** and move cursor ○ to MTV (maximun test voltage), to press **+** or **-** to set figure of MTV, the default is 80KV, The optional scope is $10\text{ kV} \sim 80\text{ kV}$ (the increment $\Delta = 10\text{ kV}$). After the choice, to press **OK** , to return the starting-up frame, to press **start** , it is testing.

If do not connect ground wire, instument will give an alarm, show **please ground wire !** on LCD. Then you should turn off the power, you will connect the ground wire, turn on the power again. If do not have the ground wire or have no ground wire, you can press any key , skip the

alarm, do not affect test result.

6.4. Picture2 , to press and move cursor ☒ to *IEC 156 95* To press to enter into subframe of *IEC 156 95*. it is mostly similar to *IEC156*. you can refer to the picture 3 of Chart of operating steps

6.5. Picture 2 ,to press , and move cursor ☒ to time set , to press ,to enter into the subframe of time set,(picture 4).



picture 4 ,the subframe of time set

To press , and move cursor ☐ to year month day hour minute. to press or for true time.After the choice, to press , to return the starting-up frame.

6.6.Picture 2, to press and nd move cursor ☒ to *user's set* , to press , to enter into the subframe of *user's set* .(picture 5)



Picture 5 the subframe of user's set

Picture 5 at the button of the subframe of *user's set* .to press and move cursor to options.

Wait time default 15min scope 1-15 min (the increment $\Delta = 1$)

Pause default 5min scope 1-10 min (the increment $\Delta = 1$)

Stir default 10s scope 5-90s (the increment $\Delta = 5s$)

MTV (maximun test voltage)

default 60KV scope 10-80KV (the increment $\Delta = 10KV$)

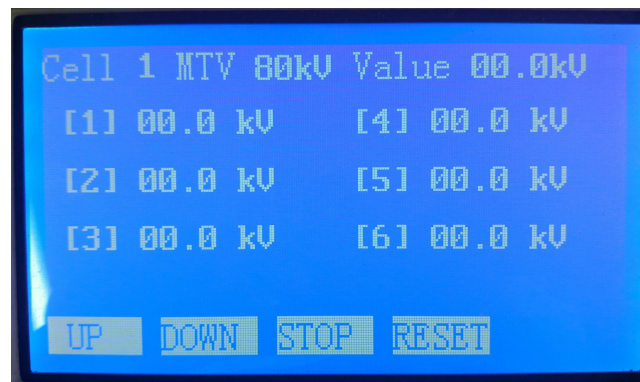
instrument will stop raising voltage, when voltage has been raised MTV (maximun test voltage) ,to hold mode, go on 50 seconds with no breakdown, the default of MTV (maximun test voltage) is the breakdown voltage of the electric insulating oil

Breakdowns default 6 times

scope 1-6 times (the increment $\Delta = 1$)

After the choice, to press **OK** , to return the starting-up frame, to press **start** , it is testing.

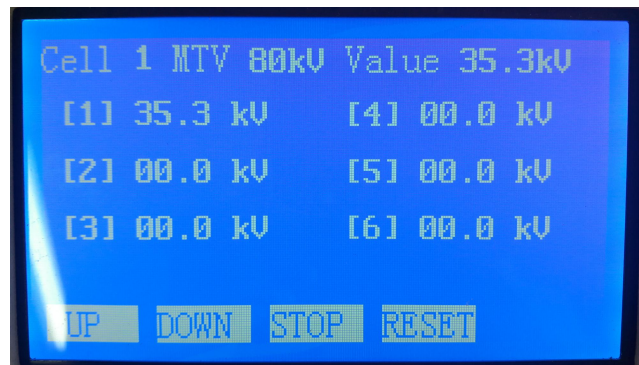
6.7. In Figure 2 under the page, press the select key to move the cursor ✓ to the manual, press the OK key to enter the manual page (Figure 6).



Picture 6 the subframe of manual

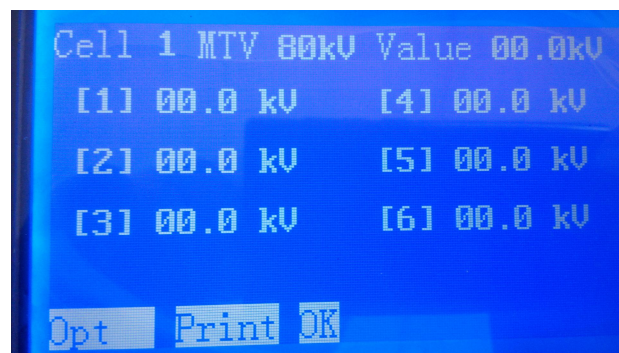
In the manual testing interface, the operator can perform manual testing according to the UP, DOWN, STOP key, press the key equipment of the automatic booster, booster, when testing the oil sample after the breakdown test results show the interface, automatic depressurization and

mixing equipment, as shown in Figure 7, and the interface will stay in this interface, equipment no automatic countdown to the operators can be carried out the next experiment, this interface boosterprocess can press a button and stop button to buck up equipment or stop buck boost, press the reset button, automatically back to the main interface in Figure 1, the customer can freely test 1-6, equipment automaticcalculation of average value, and save the data.



Picture 7 the subframe of manual

6.8 After selecting ASTM D1816/IEC 156 95 as well as custom tests, the device is automatically tested,the subframe of voltage values' record of once and mean value.



Picture 8

To press print ,LCD displays the frame of the last test result. To press opt and enter into NO.1,the subframe of the data storage, Picture8.at the NO.1,the subframe, you press opt, and enter into NO.2,the subframe of the data storage. Do the same steps,ant enter into NO.3~~~~, it wil cycle from NO.1 to NO.7 with opt key .

```
No. 1          Value 00.0kV
[1] 11.0 kV    [4] 00.0 kV
[2] 00.0 kV    [5] 00.0 kV
[3] 00.0 kV    [6] 00.0 kV
Text Time 2014-05-04 14:09
Opt  Print OK
```

picture 9

```
No. 2          Value 00.0kV
[1] 21.4 kV    [4] 00.0 kV
[2] 00.0 kV    [5] 00.0 kV
[3] 00.0 kV    [6] 00.0 kV
Text Time 2014-04-29 16:50
Opt  Print OK
```

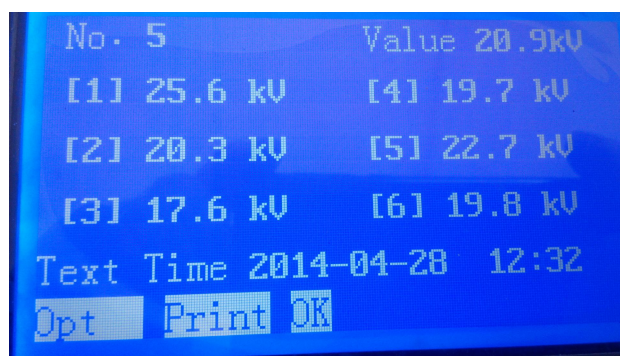
picture 10

```
No. 3          Value 33.7kV
[1] 54.6 kV    [4] 33.8 kV
[2] 40.4 kV    [5] 31.6 kV
[3] 24.4 kV    [6] 17.8 kV
Text Time 2014-04-28 12:32
Opt  Print OK
```

picture 11

```
No. 4          Value 00.0kV
[1] 80.0 kV    [4] 00.0 kV
[2] 00.0 kV    [5] 00.0 kV
[3] 00.0 kV    [6] 00.0 kV
Text Time 2014-04-28 12:32
Opt  Print OK
```

picture 12



picture 13

At the subframe of NO.1--- NO.7, to press **print** and print the test result of subframe of the data storage

Notice: Insulating Oil Breakdown Voltage Tester can connect PC in the system of the data storage of the reversed order. You can find that the particularity about time sequence and number of pictures. NO.1 is the last test data, NO.2 is the time before the last .and like that. Because the storage can only record latest test data five times , the system will rerecord after 5 times, instead of .

At the subframe , to press **print** ,and print the data storage which you have chosen, the press **OK** and eturn the starting-up frame

7.Precautions

7.1. Please read the operation manual carefully before using the instrument.

7.2. The instrument operators should have a good knowledge of the electrical equipment and the analytical instrument.

7.3. Instrument can be used inside and outside the door, but to avoid the rain, corrosive gas, dusts of high concentration, high temperature, the sun.

7.4. Test cells keep clean. During the outage, please put some qualified electric insulating oil in them, keep them not damp, electrodes not oxidative.

7.5. The electrodes must be check-out and maintenance after one month .to check and adjust the gap between the electrodes,let them recover to the standard values . you observe surface of the electrodes with the magnifying glass, if the surfaces of the electrodes have dark spots, you will scrub them with cloths, let them rehabilitate.

7.6. Instrument maintenance and debugging must be done by professionals

7.7. Before the power on , you must check out the ground wire fastener fast and secure, the shell of instrument must be connected the ground wire

7.8. After the power on , the operators strictly prohibit to touch the case cover of test cells , refrain dangerous shock.

7.9. During woking,if you find it abnormal, you can shut off the power.

8.Trouble removal

8.1. No work for tester : check out the power wire is or isn't socketed, the protective tube is or isn't intact

8.2. voltage don't rise : check out the lip of test cell is or isn't shut

8.3. Voltage rises normally,but no breakdown: check out if you set up the MTV (maximun test voltage)

8.4. After breakdown,no show: check out if there is somethings in test cell

8.5. Printer don't appear paper : check out if there is paper in printer.

8.6. Change printing paper : we have fixt a roll of paper in the printer, if paper is done , you will fix printing paper by yourself,

Operating instruction:

8.6.1 To press circle key of the printer front lip.

8.6.2 Put a roll of paper into printer ,and pull some paper out of exit, please keep paper neat, pay attention to direction of paper, surface of paper toward print head.

8.6.3 Shut the lid of printer,let axle return back

9. Cleanout of cells

9.1. cleaning method of test cells

9.1.1 You can clean the surface of the electrode and the electrode stem with cloths over and over again

9.1.2 To adjust the gap of electrodes with the master gauge

9.1.3 To clean cells with ethanol absolute 3 or 4 times, then let them dry in blower, and clean cells with insulating liquids 2 or 3 times

9.2. cleaning method of stirring paddle

9.2.1 To clean the stiring paddles with cloth over and over again,untill no particle, don't touch them with hands.

9.2. 2 to nip stiring paddles with the tweezers. To clean cells with ethanol absolute 3 or 4 times, then let them dry in blower

9.2.3 to nip stiring paddles with the tweezers, and clean cells with insulating liquids 2 or 3 times

10.Complete set

1. instrument	1
2. test cell	1
3. the power wire	1

4. master gauge	1
5. protective tube	2 (3A)
6. stirring paddle	2
7. tweezers	1
8. printing paper	1 roll
9. operation manual	1 book
10. warranty card	1 sheet
11. certification	1

11. After service

There are product quality problems within one year from the date of purchase ,it is free warranty. We can provide maintenance and technical services all instrument's life. If it is found that the instrument is not normal or defective, please contact with our company, In order to arrange scheme of the most convenient and effective treatment.