Huazheng®

HZ1141
Transformer Oil Gas Content Tester

User Manual

Huazheng Electric Manufacturing (Baoding) Co., Ltd

Dear user:

Thank you for choosing HZ1141 Transformer Oil Gas Content Tester.

We hope that this instrument can make your work easier and more enjoyable, so that you can get the feeling of office automation in the test and analysis work.

Before using the instrument, please read this manual, and operate and maintain the instrument according to the manual to prolong its service life. "Just a light press, the test will be completed automatically" is the operating characteristics of this instrument.

If you are satisfied with this instrument, please tell your colleagues; if you are not satisfied with this instrument, please call (0312) 6775656 to tell you to serve you at all times-Baoding Huazheng Electric Manufacturing Co., Ltd., our company will definitely make you satisfied !

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I. Overview

In order to prevent transformer failure better and more comprehensively, the power industry has set higher requirements for the safe operation of transformers at all levels, and the test requirements for the gas content of transformer oil have also increased accordingly.

The insulating oil gas content tester is based on the DL423-91 power industry standard and relevant national standards. It uses imported high-precision sensors and the latest sensor technology. The determination of gas content in ultra-high pressure oil-filled equipment is an ideal test equipment in the laboratory. It will make your work easier!

Its main features are as follows:

1, all metal structure, to avoid the glassware tester fragile, poor sealing and other problems.

2. The inlet differential pressure sensor with high precision and stability is applied to make the test data more accurate and more repeatable.

3. The test circuit contains sensors for measuring atmospheric pressure and ambient temperature. No matter when and where you are, you can automatically measure the temperature and atmospheric pressure of the environment you are in, automatically convert to the air content at 0 degrees of standard atmospheric pressure, and display it directly on the LCD screen, making your work easier.

4. The unique anti-calibration test procedure of gas injection can conveniently test whether the calibration or measurement of the instrument is correct.

5. The test time of oil sample is short, and the whole test time only needs about seven minutes.

6. During the test of the instrument, the operation of the vacuum pump is controlled by the instrument itself according to the state, which greatly reduces the noise and prolongs the service life of the vacuum pump.

7. The instrument can automatically store dozens of last test data, and simultaneously store test time, temperature, atmospheric pressure, etc., so as to check the data

conveniently.

8. New printing function can print test data as required.

9. The number of tests can be selected for the same oil sample. After the test, the single and average results will be displayed on the display screen or printed out.

II.Main Technical Indicators

1、High-precision electronic differential pressure sensor: the resolution shall be no less than 0.1%。

2、Minimum detection limit: no higher than 0.2%。

3、Accuracy: the relative error of the results of repeated measurement shall not exceed the following values：

Gas content in oil (volume fraction)，%	relative error，%
< 0.5	10
0.5 – 1.0	8
1.0 – 3.0	5
> 3.0	3

4、Temperature control range of degassing chamber: from 5℃ to 70℃ above room temperature

5、Working power supply： AC220V±10% 50HZ

6、Dimensions： L 450×W 325×H 350mm

7、Weight： About 20kg

III.Complete Machine and Main Components and Functions

1. Display system: Display all the parameters and operating conditions to be displayed on the screen.

2. Printing system: print the test results to be printed according to the requirements.

3. Oil sample quantification system: introduce a certain amount (about 50mL) of oil sample into the degassing system for degassing.

4. Degassing system: using vacuum pressure spray, electric stirring, high degassing efficiency.

5. Data detection and processing system; using a high-precision, high-stability differential pressure sensor to collect the pressure difference signal generated between the internal pressure of the degassing tank after degassing and the pressure before entering the oil, which is amplified and processed by the data System progress count

According to the processing, the calculated volume percentage of gas content in the oil is directly displayed on the display screen.

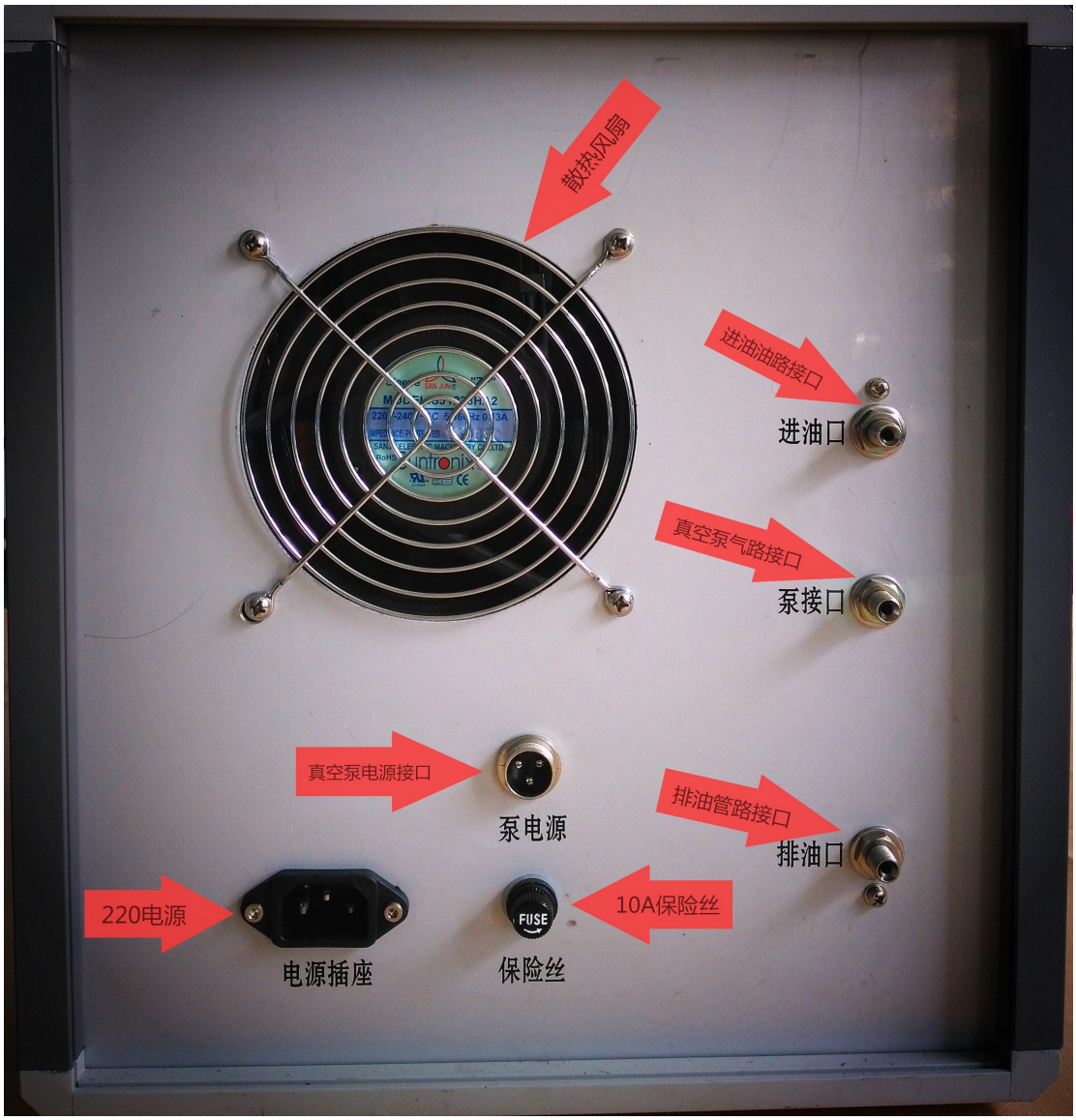
6. Waste oil collection system: Collect the cleaning and test oil samples that enter the

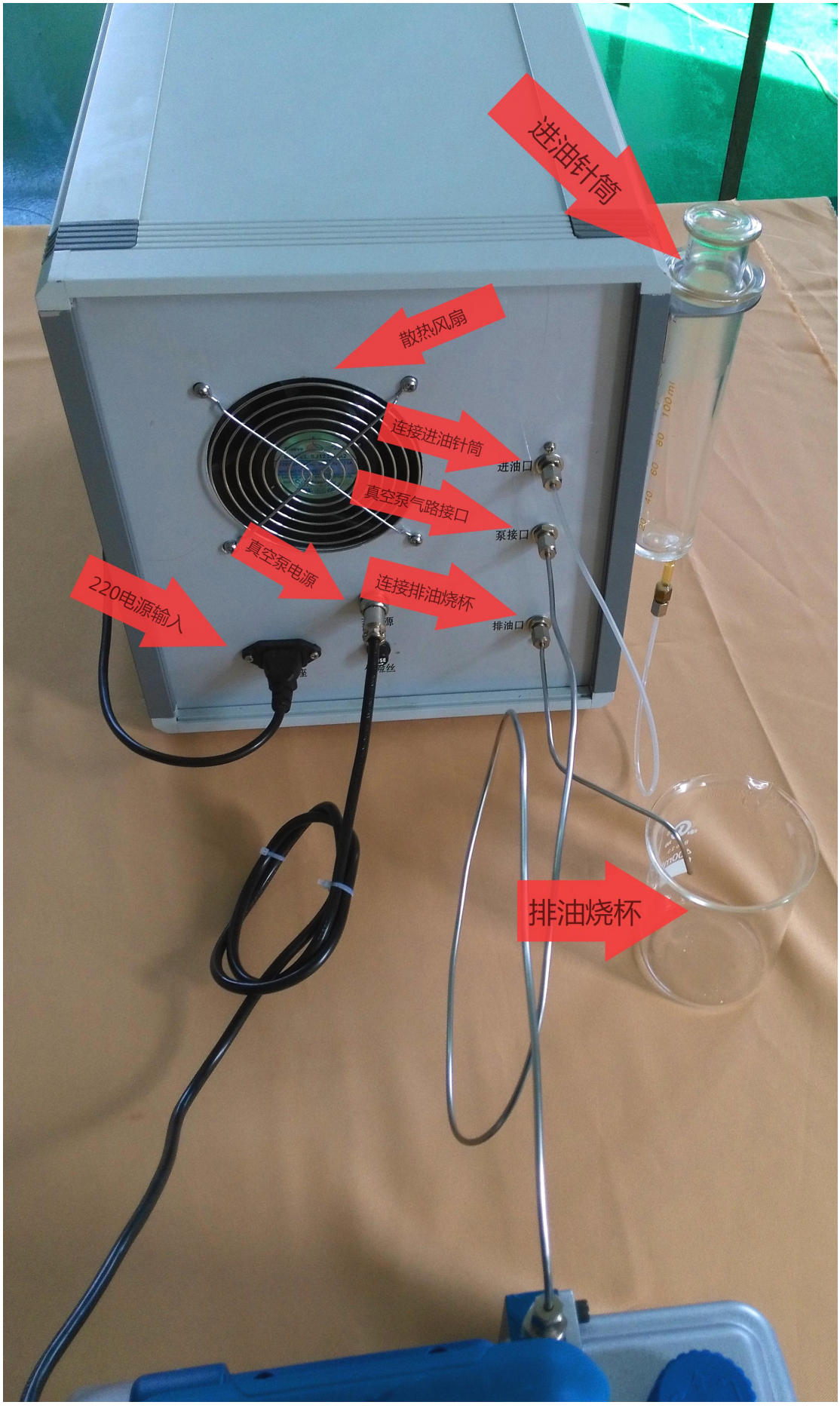
instrument and discharge them automatically after each test.

IV.Installation and Precautions of the Instrument

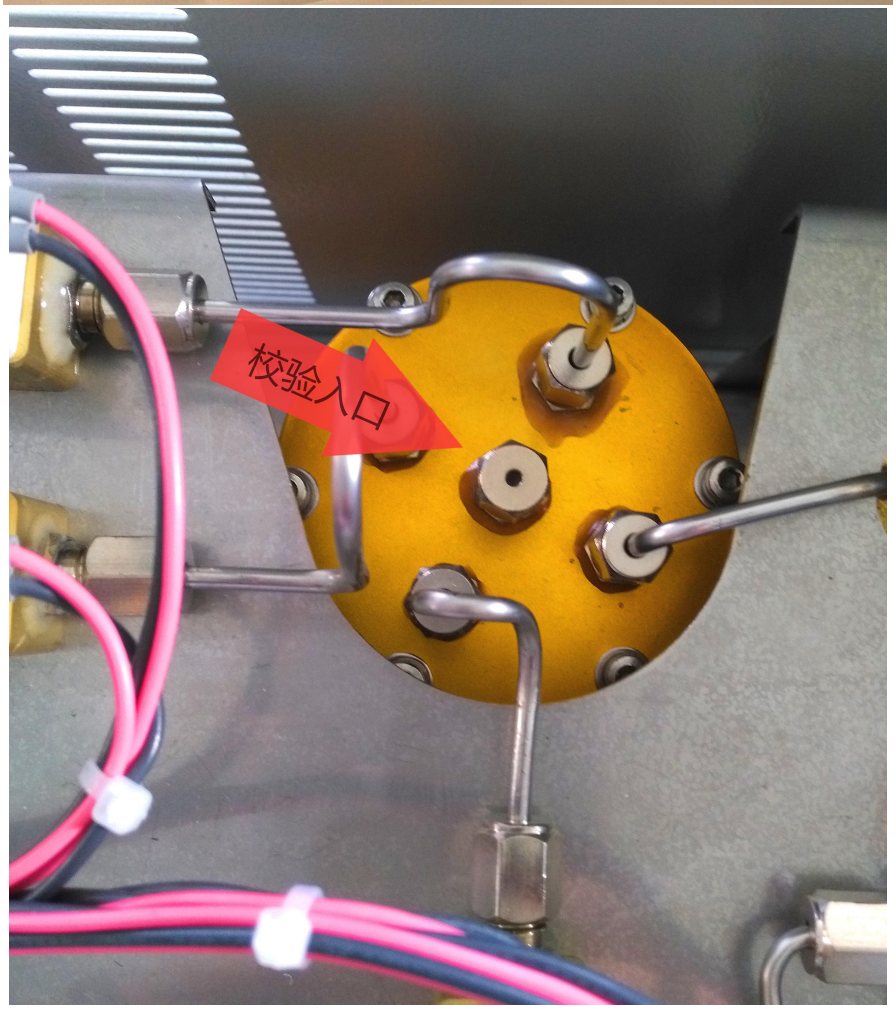
1. After unpacking the instrument, first perform the unpacking inspection according to the packing list at the end of the manual. In the case that the instrument may be severely dropped, open the upper cover of the instrument for inspection, and check the circuit board installed on the front panel in detail Check whether there is pressure breakage and disconnection of the power cord, whether the cable of the whole machine is broken, and whether the connections on the rear panel are normal. Install it only after confirming that it is intact. Otherwise, it should be restored before installation.

2. Install all additional equipment and connecting pipes according to the following figure:




进油针筒
散热风扇
连接进油针筒
进油口
真空泵气路接口
泵接口
真空泵电源
220电源输入
连接排油烧杯
排油口
排油烧杯


进样针筒
真空泵


校验入口

The rear panel of the instrument has oil inlet, vacuum pump interface, oil drain connector, vacuum pump (power supply), power socket, fuse holder, power switch, etc.

a, a short section of 3mm polyethylene tube in the oil inlet connection connection fitting, the other end of which is connected to the syringe connector of the sampling syringe;

b. The longer 3mm stainless steel tube in the vacuum pump connection is connected to the rotary vane vacuum pump;

c. The oil drain interface is connected with the shorter general 3mm stainless steel pipe in the fitting, and the other end is connected with the waste oil discharged from a container; d. The vacuum pump (power supply) is connected with the three-core aviation plug on the vacuum pump;

e. The power socket is connected to the power plug in the accessory;

f, the fuse in the fuse holder should be 5A;

g. The power switch is used to control the total power of the instrument;

h. The two M3 screws in the accessories for the syringe holder are fixed in the M3 threaded holes in the upper rear corner of the left side of the instrument according to the number, and the openings face outward.

3. Please note that the instrument must be drained every time the oil is drained. There is a gas discharge in the oil drain pipe during the oil draining process to prove that the oil has been drained. .

4. After the instrument tests an oil sample, the gas content result will remain on the display screen. If you want to make the next oil sample, you must press the reset key to return the instrument to the standby state. After the display, please start and press the start key. Only the next test procedure will be executed.

5. In the standby state, if the instrument is not operated within 1 minute. The instrument will automatically turn off the power of the solenoid valve to enter the sleep state, which can prevent the solenoid valve from being damaged due to prolonged power.

V.Simple Operation of the Instrument

1. Switch on: Turn on the power of the instrument. The display shows the power-on self-test, which passes the self-test and enters the main screen.


累计时间:
S
工作次数:
含 气 量:
%
气罐压力:
kPa
温控:
°C
大气压力:
kPa
室温:
°C
工作流程:
报警状态:
温控
压力
打印
缺纸
管路
气罐
其他
复位
启动
排油

Home screen

Function description of the main screen operation buttons：

1. The accumulated time column shows the time that has been worked.

2. The number of work can be increased or decreased according to the actual work needs.

3. The gas content column displays the gas content value of the previous work.

4. The gas tank pressure column shows the pressure value of the degassing tank.

5. The temperature control column shows the temperature of the degassing tank.

6. The barometric pressure column displays the current barometric pressure.

7. The room temperature column shows the internal temperature of the machine.

8. Workflow bar shows the current work program.

9. The alarm bar shows the parts of the alarm.

10. The curve bar shows the pressure change curve.

11. The reset button resets the running program and can forcibly stop the running program.

12. The start button can start the gas content test.

13. The drain button performs the drain procedure.

14.Print button can print the value of gas content.

15. The setting button can set the operating parameters.

2 Setting of parameters

Press the setting button on the main screen to enter the parameter setting screen

Parameter setting screen

1. Press the cleaning time to set the time required for cleaning. Enter the time on the numeric keypad of the keypad in seconds. Press the key to confirm the entry and the key to cancel. The original value is 120 seconds.
2. Set the analysis time according to the analysis time. Enter the time in seconds on the numeric keypad. Press the confirm key on the keypad to confirm the entry and the cancel key to cancel. The original value is 60 seconds.
3. Press the oil drain time to set the time required for oil drain. Enter the time on the numeric keypad of the keypad in seconds. Press the key to confirm the entry and the key to cancel. The original value is 18 seconds.
4. Press the oil filter time to set the time required for draining oil. Use the numeric keypad to enter the time in seconds. Press the enter key to confirm the entry and the cancel key to cancel. The original value is 180 seconds.
5. Set the oil sample volume according to the oil sample volume. Enter the oil sample volume in mL using the numeric keys on the keypad. Press the OK key on the keypad to confirm the entry and the Cancel key to cancel. The original value is 25 mL.
6. Press the calibration key to execute the calibration procedure.
7. Press the verification key to execute the verification procedure.
8. Press the drain button to execute the drain procedure.
9. Press the write parameter key to save the setting input.
10. Push ↖ to return to the main screen.

1）、Calibration: Press the calibration button to enter the calibration program, the instrument will automatically quantify 25ml of oil, and after the oil filter is prompted to use a 1ml syringe to inject air into the degassing tank 0.15, 0.35, 0.5, 0.5, 0.5, 0.5ml, It is used to find a calibration curve within 10% of the gas content in the oil. When making an oil sample, the gas content in the oil is calculated based on this curve. Note that the instrument has been calibrated in detail before it leaves the factory. Generally, calibration is not required during use. If it is necessary to recalibrate, you must choose a syringe with a good seal, and immerse one end of the needle core with some transformer oil before inserting it into the needle tube. It is best that the joint between the core and the needle tube is filled with oil. This oil

can help the syringe to better seal, and you can also apply some silicone grease to help seal.

2) Calibration: It is used to check whether the calibration of the instrument is accurate. After pressing the calibration button, the instrument enters the inspection procedure. After the automatic oil feeding and oil filtering, the instrument will prompt to inject gas. You can inject any amount of gas as needed. After injecting the gas, press the confirmation key. The instrument will prompt you to inject the gas at the same time as the gas content is displayed at the end of the measurement. This can be measured any number of times. Drain the oil and exit the menu.

3、Make oil samples

Connect the oil sample with the syringe connector connected in the above five, 3, and b, try to ensure its tightness and free movement of the needle core, and then hang the syringe into the syringe holder on the rear panel of the instrument Inside the hole. At this time, you can press the start key to make an oil sample, and the gas content of the oil sample will be displayed on the display after more than seven minutes. If you want to do the next, you just need to change the oil sample, press the reset button, and then press

the start button.

After the gas content work is completed, it will automatically jump to the print screen. You can print the items according to your needs. Press the print button to print.

Gas content printing

4、**Data retrieval, printing and deletion**

Press the data search button on the main screen to enter the data search screen.

Press the recycle button to delete all records, press the print button to print the records, and press the back button to return to the main screen.

5、To turn it off

It is strictly prohibited to turn off the machine when the machine is running, that is, turn off the machine when the gas content is displayed at the end of the test or when the machine is started.

VI.Instrument Simple Fault Detection and Maintenance


累计时间:
S
工作次数:
含 气 量:
%
气罐压力:
kPa
温控:
℃
大气压力:
kPa
室温:
℃
工作流程:
报警状态:
温控
压力
打印
缺纸
管路
气罐
其他
复位
启动
排油

No.	The fault	Maintenance instructions
1	the fault value has corresponding display	Instrument sensor malfunction, report to manufacturer for maintenance.
2	Printer is offline, out of paper, or other malfunction	Restart the printer after changing the printer paper.
3	Test data shows 0.0% when waste oil is made	Check that the solenoid valve connected to the sensor is intact
4	No display after booting	Check whether the power supply voltage of the instrument is normal, whether the fuse on the rear panel is blown, and whether the connectors on the instrument display board and the main board are off.
5	Does not drain oil	Check whether the air pump is damaged, check whether there is a sound of the pump starting when draining manually? Check whether the pipe connected to the air pump has fallen off? Replace or reconnect to normal.
6	Test data is too large	Check that the nuts at all external connection pipe connections are tightened? Check for damaged hoses? Tighten the nut or replace the hose.

Note: The above are general faults. You can eliminate them according to the situation. If you encounter other faults, solve them according to the actual situation.

VII.Instrument Accessories List

No.	Name	Qty
1	Gas content measuring instrument	1 set
2	user's manual	1 copy
3	power cable	1 pc
4	Vacuum pump and connector	1 set
5	3mm stainless steel tube	1.5 meters (connected with gas content tester and vacuum pump 0.5 meters (connecting the oil drain port to the oil drain container)各一段
.6	Syringe connector	1 set （Connect the oil inlet to the sampling syringe）
7	10A fuse	3 pcs

10	M8 × 1 nut	10 pcs
11	Seal	10 pcs
12	Syringe holder	1 pc（installed on the left rear pillar of the gas content tester）
13	1mL calibration syringe	1 pc（For calibration equipment）

VIII.Supporting Equipment Required for this Instrument

1. A rotary vane vacuum pump (distributed randomly).
2. Air source (built-in)