PEOPLE
ELECTRIC

使用说明书

ZN85-40.5型
户内高压真空断路器

产品安装使用前，请仔细阅读使用说明书，
并妥善保管，以备查阅。

1、 概述Brief Introduction

ZN85-40.5(3AV3)户内高压真空断路器适用于额定电压40.5kV，三相交流50HZ的户内高压系统，可供工矿企业、发电厂及变电站作为电气设备的控制和保护，并适用于频繁操作的场所。ZN85-40.5(3AV3)Type indoor high-voltage vacuum circuit breaker is used in indoors AC50Hz,rate voltage at 40.5kV of three-phase electrical power indoors system ,Available for industrial and mining enterprises, power plants and substations for the control and protection of the electrical equipment and it is suitable for frequent work place.

2、使用环境working condition

2.1 海拔高度：不超过2000m；Altitude :Do not exceed 2000m;

2.2 环境温度：上限为40℃，下限为-25℃；Ambient temperature :Within the rang of -25℃~40℃;

2.3 相对湿度：日平均值不大于95%，月平均值不大于90%；Relative humidity :daily average no greater than 95%,the monthly average no greater than 90%

2.4 地震烈度：不超过8度： The earthquake intensity: Not exceeds 8 degree

2.5 没有火灾爆炸危险，没有剧烈震动及化学腐蚀等严重污秽的场所。超过上述环境条件时，用户应与制造厂共同协商。Unsuitable for the location with explosion danger, violent vibration chemistry corrosion gas as well as the fire. more then the above conditions ,the user should negotiate with factory together.

3、 特点characteristic

3.1 断路器采用灭弧室在上，机构在下的整体布置的结构，利于调试。Circuit breaker arc quenching chamber in the overall layout, structure and mechanism in down, easy to debug

3.2 采用空气与有机材料复合绝缘结构，设计紧凑，重量轻。Circuit breaker using air and organic material composite insulation structure, compact design and light weight.

3.3 可配美国Cutler-Hammer 公司的真空灭弧室和国产真空灭弧室，两种灭弧室均采用纵磁场灭弧，低截流，非称开断性能好。This product can match the vacuum arcing chamber manufactured by Cutler-Hammer company ,or Chinese-made vacuum arcing chamber. all of them adopt longitudinal magnetic field, low chopping current ,and the asymmetric current breaking capacity is good

3.4 简单的弹簧操作机构，10000次操作免维护。The product has simple spring operating mechanism, 10000 times maintenance-free operation.

3.5 丝杠推进机构，省力、平稳、自锁性好Screw feed mechanism, energy, smooth, self-locking performance is good.

4、技术参数Technical parameters accord as table 1

表1 Table 1

序号 number	项目 Item	单位 Unit	参数 Data
1	额定电压 Rated voltage	kV	40.5
2	额定1min工频耐受电压（有效值） 1min withstand operating frequency(effective values)	kV	95

序号 number	项目 Item	单位 Unit	参数 Data
3	额定雷电冲击耐受电压（峰值） Withstand thunderbolt impact(peak value)	kV	185
4	额定频率Rated frequency	Hz	50
5	额定电流Rated current	A	1250，1600，2000,2500
6	4S额定短时耐受电流 4s rated short-time withstand current	kV	25 31.5
7	额定峰值耐受电流 Rated withstandPeak current	kV	63 80
8	额定短路开断电流 Rated short-circuit breaking current	kV	25 31.5
9	额定短路关合电流 Rated short-circuit on-off current	kV	63 80
10	额定操作须序 Rated operating circle		O-0.3s-CO-180s-CO
11	额定短路开断电流开断次数 Rated short-circuit breaking current	次	20
12	额定电容器组开断电流 Rated Capacitor Bank breaking current	A	630
13	机械寿命 Mechanical life	次	10000

断路器整体调整完毕后，应符合表2所列参数要求

The parameter should accord as table 2 after the product being regulated

表2 Table 2

序号 Number	项目 Item	单位 Unit	参数 Data
1	触头开距 Contact opening distance	mm	20±2
2	超行程Contact over- travel	mm	5±1
3	触头允许烧损厚度 Contact allows burning thickness	mm	3

序号 number	项目 Item	单位 Unit	参数 Data
4	平均合闸速度 Average speed of closing contact	m/s	0.65±0.15
5	平均分闸速度（触头分离12mm） Average speed of opening contact (contact separation of 12mm	m/s	1.8±0.2
6	触头合闸弹跳时间 Bouncing time of closing contact	ms	≤2
7	三相触头合闸不同期 Synchronism time difference of 3-phase closing contact	ms	≤2
8	三相触头分闸不同期 Synchronism time difference of 3-phase closing opening contact	ms	≤2
9	分闸触头反弹幅值 Bouncing amplitude of opening contact	mm	≤2
10	缓冲器缓冲行程 Buffer buffering travel	mm	13±1
11	主回路电阻 Main circuit resistance	μ Ω	≤70

操作机构储能电机技术参数见表3

Operating mechanism Stored energy electric machinery main technical parameter accord as table 3

表3 table 3

型号 TYpe	额定电压 Rated voltage		额定输出功率 Rated electric power	正常工作电压 Working voltage
ZYJ-66-3AV3	DC110V AC110V	DC220V AC220V	≤230W	85%~110%额定电压

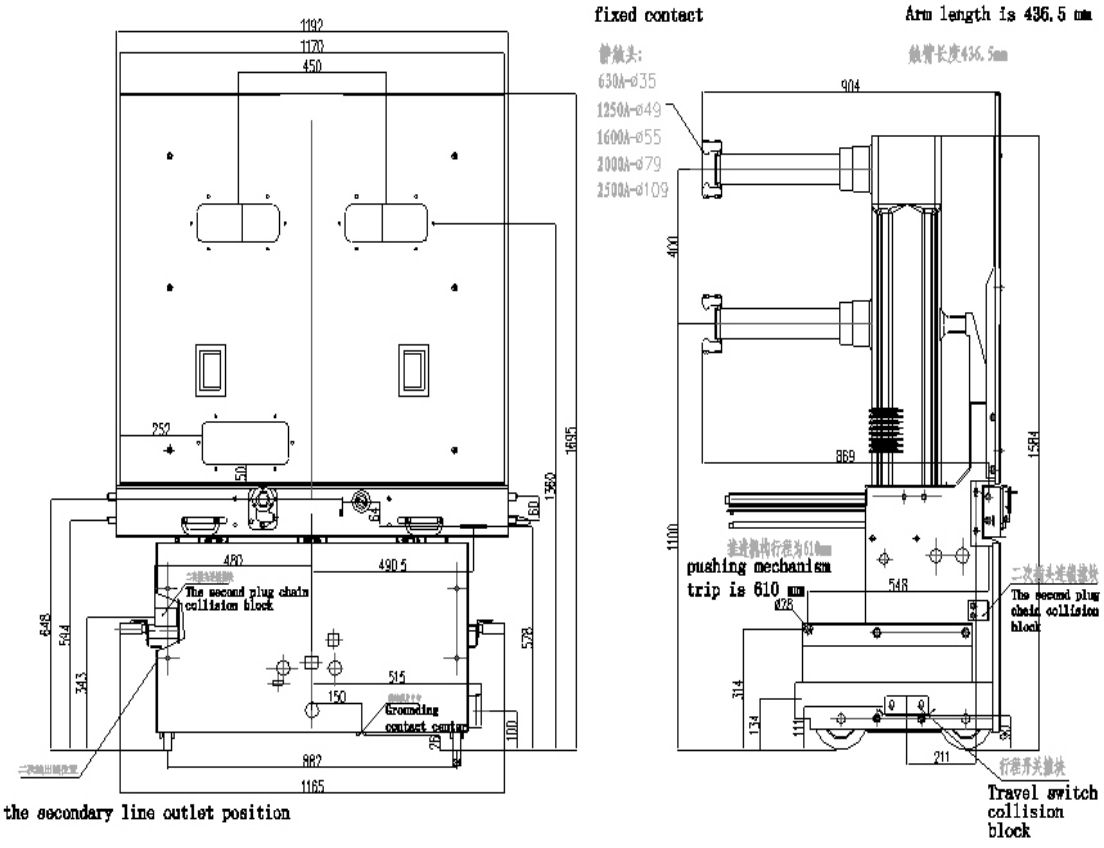
分合闸脱口器技术参数见表4。technical parameter of Switching closing trip shown in table 4

表4 table 4

额定工作电压 Rated operating voltage	DC110	DC220
额定工作电流 Rated operating current	1.05	0.96
额定电功率 Rated electric power	<115	<210
20℃时线圈电阻值 Resistance value in 20℃	105±3	230±5
正常工作电压范围 Normal operating voltage scop	65%-120%额定工作电压应可靠分闸，小于30%额定工作电压时不得分闸 Rated operating voltage，and requested that can not off switch when rated voltage lower than 30% when rated voltage lower than 30%	

5、结构功能 Structure and functions

产品外形图（见图1） outline example (drawing 1)



5.1 结构 Structure

ZN85-40.5(3AV3)型户内高压交流真空断路器本体和操作机构采用上下布置结构，有效地缩短了断路器的深度。其绝缘采用复合绝缘，灭弧室和相联带电体由三只独立的环氧树脂绝缘罩相隔离，减少了断路器的体积。相间距仅为300毫米。主回路电气连接全部采用固定式连接，具有很高的可靠性。本断路器主要有两种型号的真空灭弧室可供选择：美国Cutler-Hammer 公司的WL-35855X和国产真空灭弧室。真空灭弧室内的气体压力均低于1.33 * 10^3Pa。ZN85-40.5(3AV3)Type indoor high-voltage vacuum circuit breaker ontology and operating mechanism adopts the arc quenching chamber in the overall layout, structure and mechanism in down, that short circuit breaker depth effectively .The insulation used composite insulation, arc quenching chamber and associative charged body is composed of three independent epoxy resin insulation cover isolated, reduce the volume of the circuit breaker. and the Phase space is only 300mm.The primary loop electrical connections all adopt the fixed connection，it has high reliability. There are two type arc quenching chambers for choose from: Cutler-Hammer company from USA, or Chinese-made vacuum arcing chamber.gas pressure in the vacuum interrupters were lower than in 1.33* 10^3Pa.

操作机构是采用专门为这种新型断路器设计的弹簧操作机构，并成为断路整体结构中不可分割的一部分。机构设计简单，输出曲线与灭弧室的要求配合良好。其性能更适合40.5kV真空断路器的特点和要求。Spring Operating mechanism is specially designed for this new type of circuit breaker，and become an inseparable part of the whole structure of circuit breaker. Operating mechanism is simple in design, curve of output and requirements of arcing chamber coordinates well .Its performance is more suitable for the characteristics and requirements of 40.5kVvacuum circuit breaker.

断路器其总体布局合理、美观、简洁。体积小巧，操作灵活 ，具有电气性能可靠、使用寿命长、检修方便。适用于多种场合和运行条件比较苛刻的工作场所。The circuit breaker overall layout is reasonable，beautiful appearance and simple. compact design, flexible operating ,with reliable electrical performance ,long service life, easy maintenance .Applicable to a variety of occasions and operating conditions are harsh workplace.

5.2工作原理 working principle

电气原理 Electrical principle

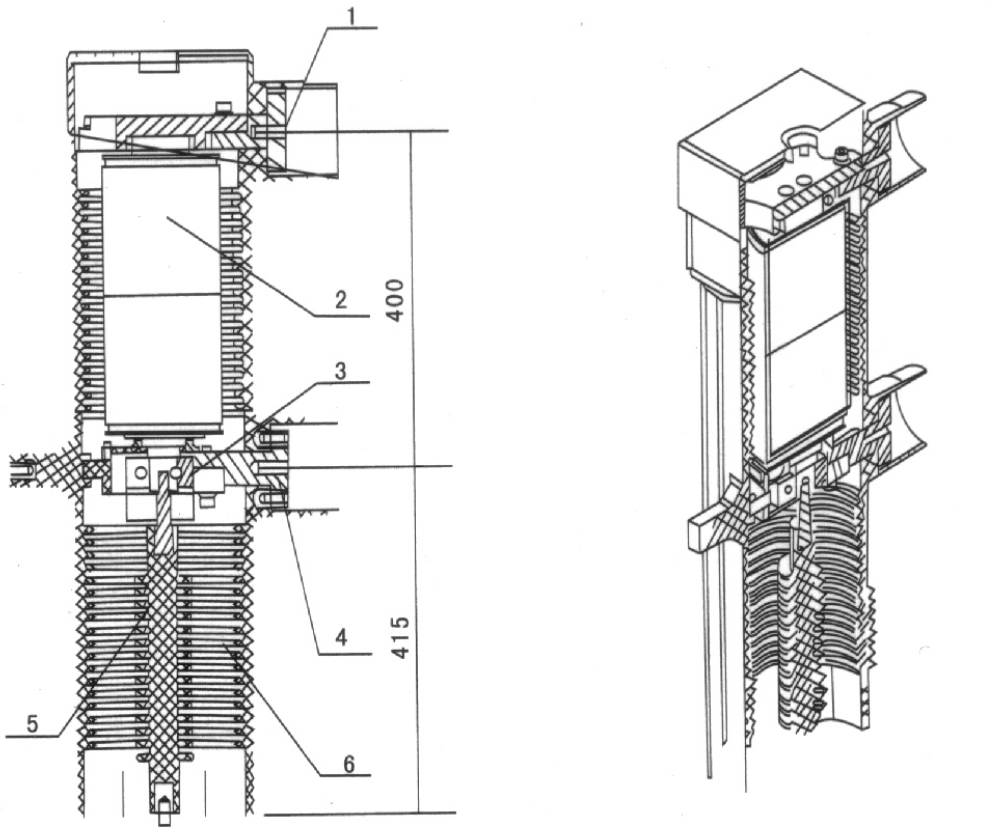
断路器在合闸位置时的主回路电流路径是：从上导电块1经固定在绝缘筒6上的灭弧室静支座到真空灭弧室2内部的静触头，而后经过动触头及软连接至下导电块4。The main circuit current path breaker in the closing position is: from the conductive block 1 is fixed on the **insulating clingers** 6 arc chamber static bearing to the vacuum interrupter 2 internal static contact, and then after the moving contact and soft connected to the conductive block 4.

灭弧原理arc quenching principle

动、静触头在操动机构作用下带电分闸时，在触头间将会产生真空电弧。同时，由于触头的特殊结构，在触头间隙中产生适当的纵磁场， 使真空电弧保持扩散型号， 并使电弧均匀的分布在触头表面燃烧，,并维持低的电弧电压。在电流自然过零时，残留的离子、电子和金属蒸汽在微秒量级的时间内就可复合或凝聚在触头表面和屏蔽罩上使电弧熄灭， 灭弧室断口的介质绝缘强度很快被恢复，达到分断的目的。由于本真空断路器采用纵向磁场控制真空电弧，因而具有强而稳定的开断电流的能力。when the movable contact and the static contact opening in the operating mechanism charged, there will be an arc between contacts .At the same time, due to the special structure of contact ,there will produce the longitudinal magnetic field on the contact

gap, keeping vacuum arc diffusion and let the arc uniformly distributed on the surface of the contact and combustion on it, It also maintain a low arc voltage. when the current over zero, residues of ions , electrons and metal vapor can be compsited or condensed on the contact surface and shield, forcing arc extinction ,and dielectric strength of interrupter of fracture will be restored quickly .To achieve the purpose of breaking .because of vacuum circuit breaker with longitudinal magnetic field to control vacuum arc, So which has a Strong and stable capability of current interrupting.

主导电回路如图二 The main conductor circuit as drawing 2



1 上导电块 the conductive block

2 真空灭弧室 vacuum arcing chamber

3 软连接 soft connection

4下导电块 the conductive block

5 操作绝缘子 operating insulator

6 绝缘筒 The insulation cylinder

5.3机构储能原理energy storage principle of mechanism

5.3.1电动机储能操作 energy storage operating of motor

机构储能单元采用单级减速结构，电动机从小链轮轴的一端输入功率，经滚子链带动大链轮。大链轮转动同时带到驱动爪，驱动爪在运动过程中与驱动块咬，实现合闸弹簧储能，弹簧储能到位，行程开关被推动，切断电动机电源。同时，离合推轮将驱动爪抬起脱离驱动块。从而保证储能机械系统在惯性力作用下不被损坏。energy storage unit of mechanism with single stage reducer structure, power will be input in one end of the small Chain wheel by motor ,The roller Chain driver sprocket .the big chain wheel rotate ,at the same time the driving claw be driven ,and when driving claw in the process of movement the driving block is holding-on to make closing spring energy then spring energy storage completed storage ,and the stroke switch is pushed in the meantime，power of motor will be cut. Meanwhile ,clutch push wheel will drive the claw lifting from the drive block, Thus，ensure energy storage mechanical system not to be damaged in the inertial force

5.3.2人力储能操作human energy storage operating.

将人力储能操作手柄（约420mm长，附件）插入储能摇臂的插孔中，然后左右摆动（约60度）利用单项轴承带动储能轴转动，实现对合闸弹簧储能。The human energy storage operation handle (about 420 mm long, attachments) inserted into a socket in the energy storage rocker arm, And then swing (about 60 degrees) using single bearing drives the energy storage shaft to rotate ,thus，the closing spring energy storage.

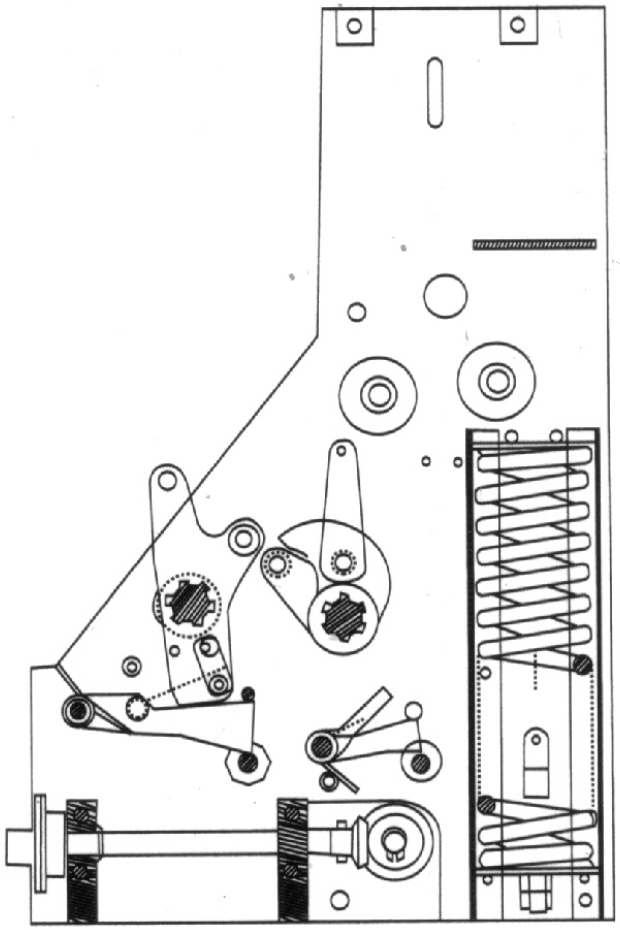
5.3.3合闸操作closing operation

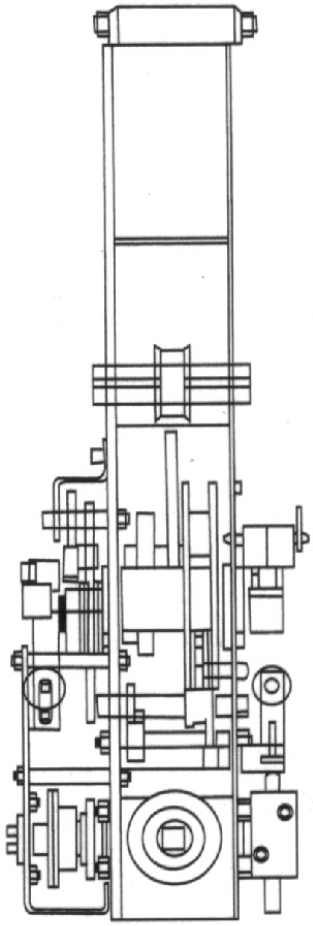
当机构的合闸弹簧储能完毕后，合闸弹簧因挚子的作用而保持在储能状态，储能挚子扣板在凸轮滚子力的作用下有向解扣方向运动的趋势，此时若将合闸半轴按顺时针方向转动至脱扣位置（约20度），储能保持挚子扣板将向顺时针方向迅速运行，储能保持状态被解除，合闸弹簧快速释放能量，并带动凸轮逆时针转动。同时连杆机构在凸轮的驱动下运行至合闸位置，从而完成机构的合闸动作。此时行程开关复位，电动机通电并再次为合闸弹簧储能，使机构处于合闸储能状态。为再次合闸操作做好准备。When the closing spring of mechanism energy storage is completed，because of quantum effect，the closing spring keep in storage. The gusset plate of closing latch has a tendency to movement in the direction of trip, under the action of CAM roller force. If the closing half shaft rotate clockwise to trip position(about 20 degrees) at this time, storage keeping gusset plate will run in the direction of clockwise quickly, storage keeping state is released, closing spring release of energy rapidly. and drive the CAM rotate counterclockwise. at same time, Connecting rod mechanism is driven by the cam to closing position，In order to complete the switching action of mechanism The travel switch is reset, the motor is energized and the closing spring energy storage again, so that the mechanism can be in a state of closing reservoir. Prepare for closing operation again.

5.3.4分闸操作The opening operation

机构的合闸状态是由连杆机构的扣板的半轴来保持的。扣板在断路器负载力的作用下有向解扣方向运行的趋势，此时或将分闸半轴沿逆时针方向至脱扣位置（约20度），扣板将迅速沿逆时针方向运行，连杆机构的平衡状态被解除。在断路器负载力的作用下运动至分闸位置，从而完成机构的分闸动作。The closing state of mechanism is by the linkage of gusset plate of half shaft to maintain. Gusset plate under the action of residual circuit breaker has a tendency to run in the direction of trip, this time or will brake axle shaft along thecounterclockwise to tripping position (about 20 degrees), gusset plate will quickly run along

anticlockwise, linkage equilibrium has been lifted. Under the action of circuit breaker load, movement to opening position, and complete institutions of opening action.





5.3.5断路器合闸动作原理 the switch action principle of breaker

断路器呈现分闸操作机构已储能时，当接到合闸指令，断路器即迅速合闸。机构输出拐臂通过传动杆4推动断路器大轴2转动，大轴转动时，大轴上的三相拐臂3、10分别推动与之相连的传动连板9，传动连板1推动传动连板2向前运动，与传动连板2相连的传动连板7顶起轴销和杆端关节轴承11，推动传动绝缘子及灭弧室动端向合闸方向运动，与传动连板2相连的传动板8在动静触头接触后拉动触头弹簧产生超行程。大轴上拐臂推动传动绝缘子的同时，两边相拐臂另一端压缩分闸弹簧1，使之完成储能：中间相的拐臂压动断路器合分指示牌，使指示牌指示合闸状态，断路器完成合闸操作。Circuit breaker present, When the circuit breaker operating mechanism has the storage time ,and receives the closing instructions, the circuit breaker closing quickly. Output turn arm through a transmission rod 4 to promote the breaker shaft 2 to rotate. when the big shaft turns, three-phase turn arm 3 and 10 respectively drive the connecting plate 9,and then , The transmission connecting plate 1 to promote the transmission connecting plate 2 to move forward, With the transmission connecting plate connected with the transmission of 2 connecting plate 7 top pin and rod end joint bearing 11, Push the transmission insulators and interrupter dynamic end to the closing direction, and the transmission connecting plate drive plate 2 which is connected with the 8 in the dynamic contact pull the contact spring over travel. The big shaft turn arm push transmission insulators, at the same time , both sides turn phase arm to the other end of the compression opening spring 1. make the complete energy storage: The middle phase turn arm push breaker on-off indicator, the indicator closing state, the circuit breaker closing operation.

5.3.6断路器分闸动作原理the opening action principle of breaker

断路器呈合闸已储能或合闸未储能状态时，当接到分闸指令，机构即解锁合闸状态，在分闸弹簧力的作用下迅速分闸，断路器断口打开，电弧熄灭后形成开路。拐臂传动绝缘子、大轴、分闸弹簧、分合指示牌处于分闸状态，断路器分闸操作完成。Circuit breaker is closing has energy storage or closing without an energy storage state, when received opening instruction, the mechanism will unlock the closing state quickly, under the action of opening spring force ,the breaker opening quickly ,the breaker is open, after the arc extinction. The turn arm transmission insulators, shaft, brake spring, on-off indicator is in a closing state, the circuit breaker opening operation is completed.

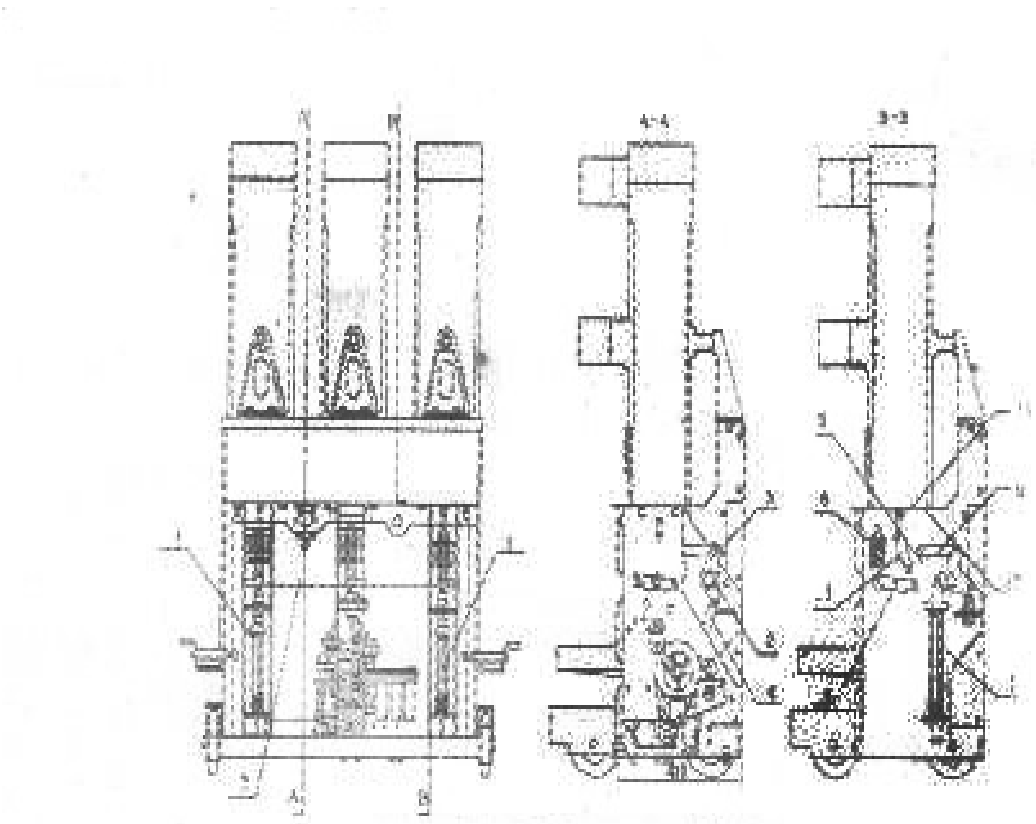


图4断路器机构简图 draw4 circuit breaker mechanism diagram

1：分闸弹簧opening spring

2：大轴shaft

3：中相拐臂middle phase turn arm

4：传动杆drive rod

5：传动连板2 The transmission connecting plate2

6：触头弹簧The contact spring

7：传动连板3 The transmission connecting plate 3

8：传动连板3 The transmission connecting plate 3

9：传动连板1 The transmission connecting plate1

10：边相拐臂 both sides turn phase arm

11：杆端关节轴承Rod end joint bearing

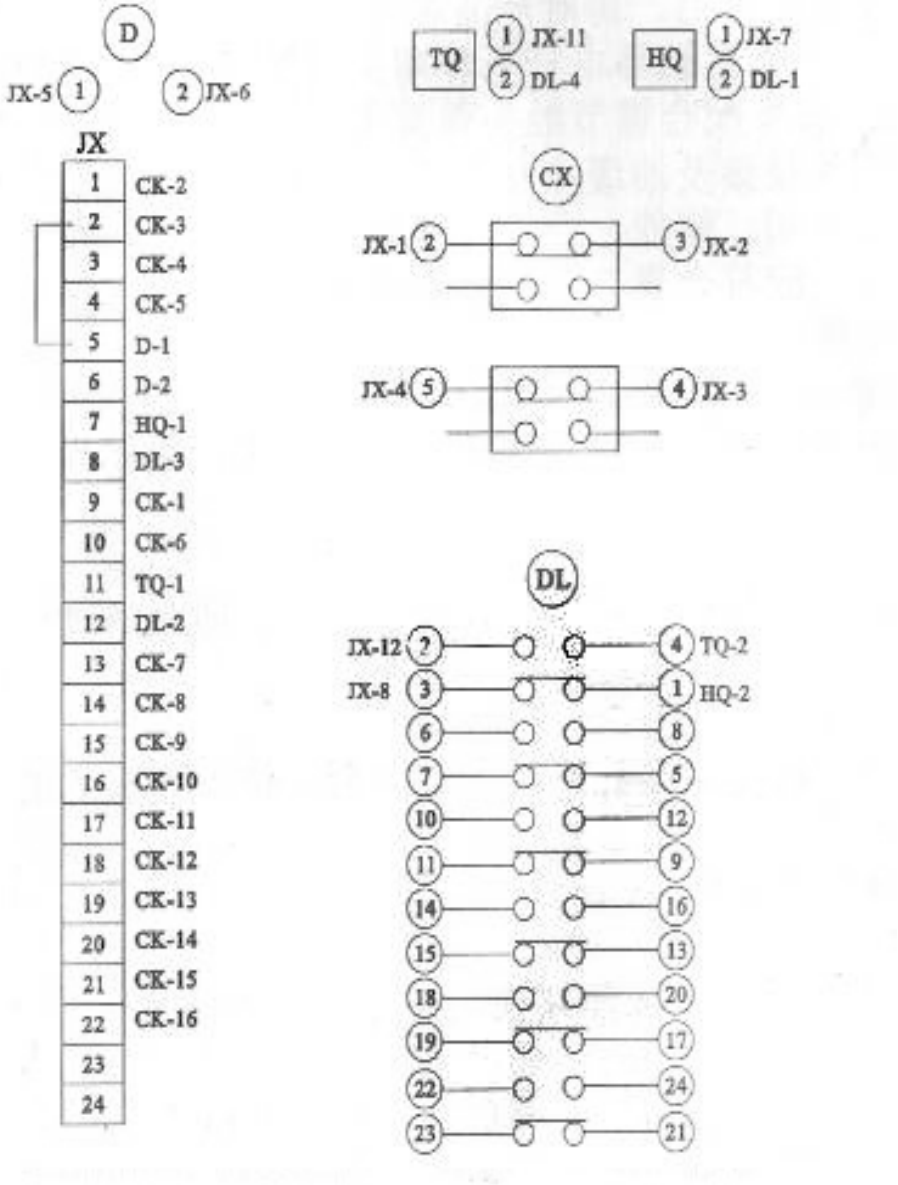


图5 ZN85-40.5(3AV3)弹簧操动机构接线图

draw5 ZN85-40.5 (3 av3) spring operating mechanism wiring diagram

注：

X-接线端子

DL-辅助开关

CK-行程开关

TQ-分闸线圈

HQ-合闸线圈

D-电动机

Remark:

JX-connection terminal

DL-Auxiliary switch

CK-Travel switch

TQ-opening winding

HQ-Closing winding

D- motor

6、运输、验收及储存 Transport, acceptance and storage

6.1运输 Transport

ZN85-40.5(3AV3)户内高压真空断路器是单独包装，它固定在木架内并复盖纸板。搬运及运输时应注意包装箱上的包装标志，避免损坏产品。Indoor high voltage vacuum circuit breaker is a separate package, it is fixed on the frame and cover board. Handling and transportation should pay attention to the packaging logo on the packaging, to avoid damage to the product

6.2用户收到断路器后的验收User acceptance after the receipt of the breaker

检查包装是否完好，对照产品装箱单检查文件、附件、备件是否齐全。

Check the packaging is intact,check product packing list check file, accessories, spare parts are complete

检查断路器铭牌上的技术参数、产品合格证等是否符合订货要求。

Check the breaker nameplate on the technical parameters, such as product certificate is in accordance with the order

6.3储存storage

断路器应放在干燥、通风、防潮、防震及防有害气体侵蚀的室内，长期存放，在传动部分涂润滑油，并定期检查环境是否符合要求。Circuit breaker should be kept in dry and ventilated, moisture, shock and against corrosion of indoor harmful gas, long-term storage, transmission part with lubricating oil, and regularly check whether environment meets the requirements.

7.安装与调试Installation and debugging

7.1安装前检查 check it before installation

断路器开箱后，按装箱单检查组件是否齐全，断路器是否受潮、受损、动作是否正常。检查完好后清理表面污垢。用工频耐压法检查真空灭弧室的真空度（断路器分闸，在断口施加工频95kV一分钟）。所有检查合格后，即可进行安装。After opening the case according to the packing list to check if the component is complete, the breaker whether be affected with damp be affected with damp, damage, movement is normal. clean surface dirt after Check in good condition. With power frequency withstand voltage to test of vacuum interrupter of vacuum (circuit breakers, the fracture was processing frequency 95kV a minute). After all inspection qualified, can be installed

7.2调试debugging

开箱检查完好的产品一般不需要重新调试，仅当发现断路器不符合其技术要求或更换重要零部件后，需对产品进行调试。Unpacking check intact products generally do not need to debug, found only when the circuit breaker does not meet the technical requirements or replace important parts, need to debug products

首先调节真空灭弧室动导电杆下杆端关节轴及油缓冲器高度，使真空灭弧室触头开距20±2毫米，配合调节触头弹簧上的螺母，使触头接触行程为7.5±1.5；再检查大轴各部件联接及油缓冲是否正常。最后调节机构，使机构动作正常，无论手动、电动控制，储能、合、分闸等各项动作不应出现卡滞现象。断路器整体调节完毕后，应符合表二所列参数要求。Firstly adjust the vacuum arcing chamber under dynamic conductive rod rod end joint axis and the height of oil damper, the vacuum arcing chamber contact electrode separation from 20 + / - 2 mm, cooperate to adjust the contact spring nut, make contact trip was 7.5 + / - 1.5; Check shaft connection parts and oil buffer is normal. The regulating mechanism, make the mechanism

action is normal, whether manual, electric control, energy storage, such as the action, should not appear blocking phenomenon. after the overall adjustment, Circuit breakers hould conform to the requirements of the parameters listed in table 2

断路器额定操作顺序为：Circuit breaker rated operating sequence is

分-0.3s-合分-180s-合 opening-0.3s-closing&opening-180s-closing

断路器的断开与闭合操作允许两种操作方式：电动操作方式与手动操作方式。

Opening and closing of circuit breaker operation allows two operation modes: electric operation mode and manual mode

电动操作方式electric operation mode

断路器二次插头与外部控制回路联接好后，即可通过合分电磁铁对断路器施行远程操作。Circuit breaker secondary plug connected to external control circuit, can be made by electromagnet to execute remote circuit breaker operation

手动操作方式manual mode

用储能棒插入机构储能孔中手动储能后，按下面板的合闸按钮，即可实现合闸操作，再按下分闸按钮即可分闸。Energy storage bar to be inserted into the mechanism energy storage hole then , operated by hand ， press the switch button panel, closing operation can be realized, then press the opening button to opening the breaker.

8、使用与维护The use and maintenance

断路器在投入运行之前，应仔细核对操作元件的额定电压，额定电压与实际情况是否相符。Before put into operation, carefully check the operating components of the rated voltage, rated voltage is matched with actual situation

并对机构分别进行手动、电动储能，进行合、分闸操作，检查各项指标是否合格。check manual, electric energy storage, , opening, closing operation, check whether the indicators qualified

运行中的断路器应定期检查，检查内容包括：Operation of circuit breaker should be regularly check, check included

8.1检查真空灭弧室真空度；Check the vacuum arcing chamber vacuum degree

8.2检查接触行程、触头开距是否符合要求；Check the contact travel, contact distance whether it meets the requirements

8.3检查 紧固是否松动；Check whether the fastening is loose

8.4检查断路器是否干燥、清洁；Check whether the circuit breaker is dry and clean

8.5检查辅助开关触点烧蚀情况。Check the auxiliary switch contact ablation

发现断路器受潮后，应及时对所有绝缘件进行检查，将已受潮的零件在70-80℃烘箱中干燥48小时再重新装配，调试，直至符合表三参数要求。Found that the circuit breaker damp, should be timely to all insulations examined, will have been affected with damp parts at 70-80 ℃ oven to dry for 48 hours and then re assembly, commissioning, until it meets the requirements of table three parameters.

每操作2000次应对机构各部件进行检查，发现松动、润滑不良、及时改正。

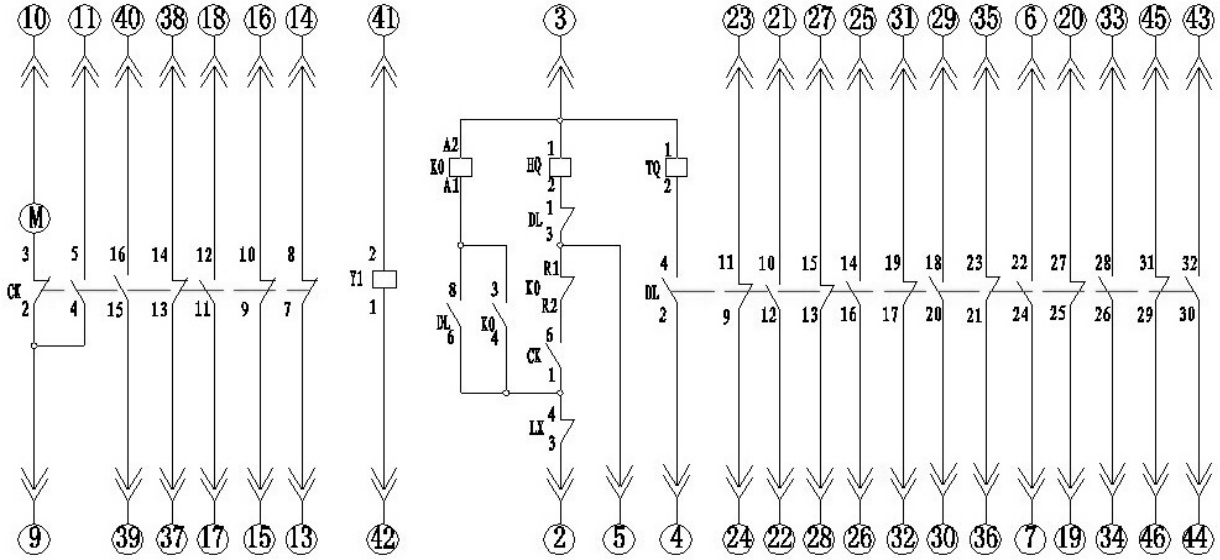
after 2000 times per operation ， mechanism parts should be inspected, found loose, bad lubrication, and timely correction

灭弧室开断故障电流30次，应检查灭弧室的真空度、触头烧蚀情况，若不合乎要求，则更换灭弧室。Arcing chamber open circuit fault current 30 times, check the arcing chamber of vacuum degree, the contactor ablation situation, if not required, replace the arcing chamber

使用及维护过程中，严禁用坚硬的物体（如工具）撞击真空灭弧室外壳

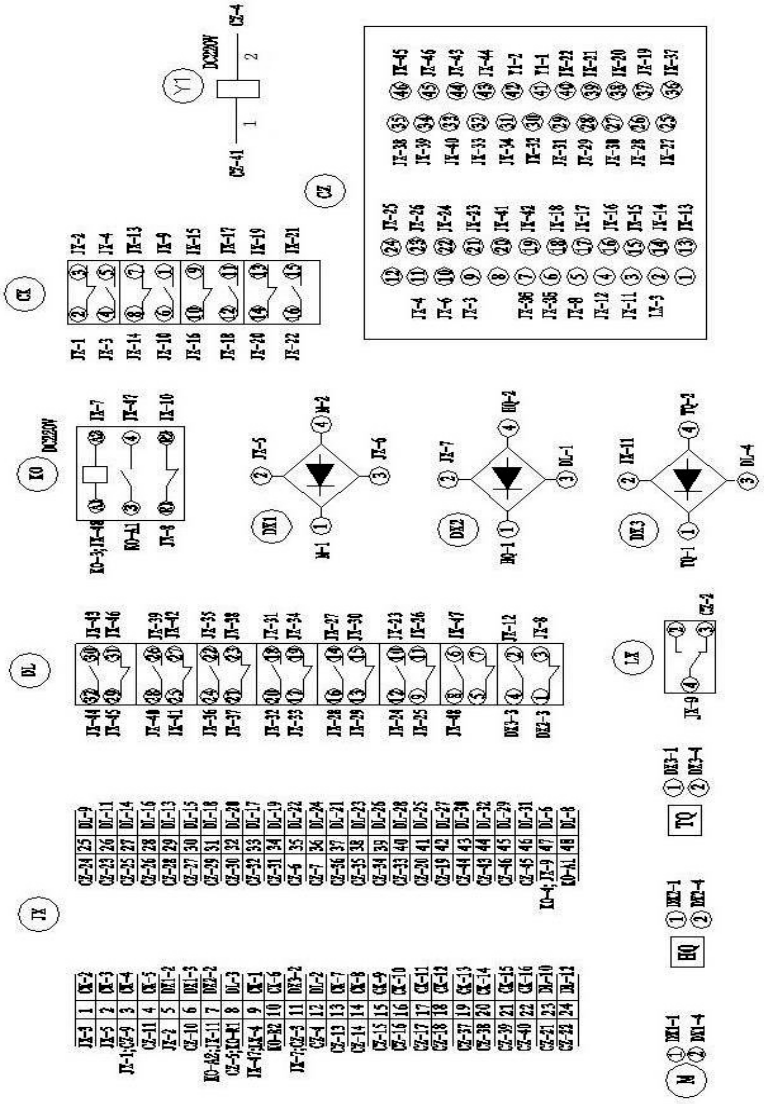
Use and maintenance process, prohibit the use of hard objects (such as tool) impact of vacuum interrupter enclosures

电机储能回路 Motor energy storage circuit of Electrical	储能信号回路 Energy storage signal circuit	闭锁回路 The locking loop	防跳回路 Spring prevention circuit	合闸回路 closing circuits	分闸回路 opening circuits	辅助回路 The auxiliary circuit



注：M-电机 DX1-整流块 DL-辅助开关 JX-接线端子K0-防跳继电器 TQ-分闸线圈
HQ-合闸线圈 CK-行程开关 CZ航空插座 LX微动开关 Y1-闭锁电磁铁
Remark :M:-motor DX1-Rectification block JX-Connection k0- Defend jump relay
TQ-opening winding HQ-closing winding CK-Travel switch CZ-Aviation socket
LX-Micro switch Y1- Electromagnet
辅助开关和行程开关的同一间隔请使用相同的极性，以防开关动作时火花引起短路
At the same interval of the auxiliary switch and travel switch, please use the same polarity, the sparks set fire to the short circuit when the switch action in case

图6 ZN85-40.5二次原理图
Draw6 ZN85-40.5 The principle diagram of the secondary



注：M-电机 DX1-整流块 DL-辅助开关 JX-接线端子K0-防跳继电器 TQ-分闸线圈
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Remark :M- motor DX1-Rectification block JX-Connection k0- Defend jump relay
TQ-opening winding HQ-closing winding CK-Travel switch CZ-Aviation socket
LX-Micro switch Y1- Electromagnet
辅助开关和行程开关的同一间隔请使用相同的极性，以防开关动作时火花引起短路
取消防跳功能的方法：拆除接线K0-A2；
At the same interval of the auxiliary switch and travel switch, please use the same polarity, the sparks set fire to the short circuit when the switch action in case
Cancel the Defend jump function methods: demolition of K0 .- A2;

图7 ZN85-40.5二次接线图
Draw7 ZN85-40.5 secondary connection diagram

注意：对于本手册的内容，若因技术升级或采用更新的
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