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**NATIONAL STANDARD OF THE PEOPLE'S
REPUBLIC OF CHINA**

中华人民共和国国家标准

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GB 50150-2006

Standard for Hand-Over Test of Electric Equipment

Electric Equipment Installation Engineering

电气装置安装工程

电气设备交接试验标准

Issued on June 20, 2006

Implemented on November 01, 2006

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**General Administration of Quality Supervision, Inspection and
Quarantine of the People's Republic of China**

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Chief Development Department: China Electricity Council

Approving Department: Ministry of Construction of the People's Republic of China

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NOTICE

This code is written in Chinese and English. The Chinese text shall be taken as the ruling one in the event of any inconsistency between the Chinese text and the English text.

**Announcement of Ministry of Construction of the People's
Republic of China**

No. 438

Notice on Promulgation of the national standard "Standard for Hand-Over Test of Electric
Equipment-Electric Equipment Installation Engineering" by Ministry of Construction.

Hence "Standard for Hand-Over Test of Electric Equipment-Electric Equipment Installation Engineering" has been approved as the national standard with a serial number of GB 50150-2006, which shall come into force upon November 1st, 2006. Herein, Clauses 3.0.1 (1, 4, 5 and 18), 4.0.1 (1, 8 and 9), 6.0.1 (1), 7.0.1 (2, 3, 4 and 8), 8.0.1 (2), 9.0.1 (1, 7 and 8), 12.0.1 (2 and 3), 13.0.1 (2, 12 and 13), 14.0.1 (1, 2, 3 and 4), 18.0.1 (1 and 5), 21.0.1 (1), 25.0.1 (1 and 3) and 26.0.1 (2) are mandatory clauses, which must be forced strictly. At the same time, the former Standard for Hand-Over Test of Electric Equipment-Electric Equipment Installation Engineering GB 50150-91 is superseded.

This Standard is published and issued by China Planning Press under the organization of the Institute of Norm and Ration of the Ministry of Construction of the People's Republic of China.

Ministry of Construction of the People's Republic of China

June 20, 2006

Foreword

According to the requirement of “Notice on Promulgation of “Plan for Preparation and Modification of National Standards for Project Construction 2002-2003” Document JB [2003] No. 102 the Ministry of Construction of PRC, this Standard is revised by Beijing Electric Power Construction Research Institute of State Grid Corporation of China, jointly by other relevant units, based on the former Standard for Hand-Over Test of Electric Equipment-Electric Equipment Installation Engineering GB 50150-91.

This Standard consists of 27 chapters and 7 appendixes, in which the main contents are: general, terms, synchronous generator and phase modifier, direct-current machine (DC), intermediate-frequency generator, alternate-current (AC) motor, power transformer, reactor and arc-suppression coil, instrument transformer, oil circuit breaker, air and magnetic blow-out circuit breaker, vacuum circuit breaker, sulfur hexafluoride (SF₆) circuit breaker, SF₆ enclosed switchgear, the disconnecting and load switches and high-voltage fuse, bushing, the suspension and post insulators, power cable lines, capacitor, the insulation oil and SF₆ gas, lightning arrester, electrical precipitator, secondary circuit, the distribution equipment and feeder circuits with voltage not above 1kV, overhead power lines above 1kV, grounding connection and the low-voltage electrical apparatus.

Compared with the former standard, the standard is added with following contents:

- (1) Terms;
- (2) Implementation principles for the standard of hand-over test about imported equipment;
- (3) Natural-vibration frequency test and modal analysis on stator-end winding of generator;

Note: “Measurement and Evaluation on Dynamic Characters of Stator End Winding of Large Turbo-Generator—Natural Frequency Test on Winding End and Its Modal Analysis” DL/T735-2000.

(4) Test items of gas insulated transformer and the inspection and test items about on-load tap changers (OLTC) of transformer;

(5) Partial items and standards of test about instrument transformer, circuit breaker, and electrical precipitator;

(6) AC voltage withstanding test and cross interconnected test of power cable lines;

(7) Test items about ground connection and provisions on ground-impedance value;

(8) Four appendixes are added: methods of partial discharge test of transformer; measuring methods of protective-level excitation curve of current transformer; methods and requirements of cross interconnected system tests of power cable lines; special test items.

Those clauses in block are mandatory clauses, which must be forced strictly.

The Ministry of Construction will be responsible for the management and explanation on the mandatory clauses. Beijing Electric Power Construction Research Institute of State Grid Corporation of China will be responsible for the explanation on the detailed technical contents.

During the implementation, the users of this Standard are kindly required to combine engineering practice, carefully summarize experience and send any suggestion and comment in case of revision or complementation to Beijing Electric Power Construction Research Institute of State Grid Corporation of China (Address: No.33 South Binhe Road, Xuan Wu District, Beijing. Tel: 010-63424285).

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1 General

1.0.1 This Standard has been worked out for the purpose of meeting demands of hand-over test of electric equipment-electric equipment installation engineering and promoting the extension and application on new technologies of hand-over test of electric equipment.

1.0.2 The standard applies to hand-over tests of electric equipment newly installed as 500 kV voltage grade and the below and qualified through tests according to national relevant standards of routine test. The standard does not apply to electric equipment installed under coal mine or in other places with explosive hazards.

1.0.3 Hand-over tests about the devices of relay protection, automation, telemechanics, communication, measurement, and rectification and the mechanical part of electric equipment, shall be carried out respectively according relevant standards or criteria.

1.0.4 AC voltage withstanding tests shall be done for electric equipment according to the standard, but as to electric equipment with 110 kV voltage level and the above, the AC voltage withstanding test may not be employed in case of no provisions in clauses of the standard.

Upon AC voltage withstanding test, the duration after the increase of the voltage of test standard shall be 1 min in case of no special instruction.

Voltage value of withstanding test is calculated according the multiples of rated voltage, the one for generator and electric motor according to rated voltage of nameplate. The one for cable may be calculated by methods stipulated in Chapter 18 of the standard.

The voltage value of AC withstanding test of electric equipment with non-standard voltage level can be calculated by interpolation method according to proportions based on adjacent voltage levels stipulated in the standard, if with no stipulations.

Upon insulation test, except the whole sets of equipment assembled by manufacturers, all equipment connected may be separated for single test. Equipment with the same test standard can be connected to be tested. For the convenience to the in-situ test, electric equipment at the same voltage level with different test standards and routine test records can also be connected for tests, if single test will have difficulty. The test standard shall be the lowest standard among all connected equipment.

Insulating tests of Oil-immersed transformer and reactor can be started after they are filled with qualified oil and allowed to stand for a certain period of time to eliminate bubbles. The standing time shall be implemented according to requirements of manufacturer. In case of no regulations by manufacturer, the time must be over 72 h if the voltage level is 500 kV, over 48h if the voltage level is 220-330 kV and over 24h if the voltage level is 110 kV and the below.

1.0.5 Upon the measurement and test about electric insulation, if only a few items cannot satisfy provisions of the standard, comprehensive judgment shall be made based on the all-round test records. Those which are judged that they can be operated can be put into operation.

1.0.6 If the rated voltage of electric equipment is different from the rated working voltage in actual uses, the standards of test voltage shall be determined according to following provisions:

1 When the insulation is enhanced on electric equipment with higher rated voltage, it shall be done according to test standards of rated voltage;

2 When electric equipment with higher voltage level meets the generality of products and requirements on mechanical strength, it can be done according to test standards of rated working voltage in actual uses of equipment;



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