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Rotating Machines

11-01. *H.N. Scherer, Jr., M.R. Hajny, J.H. Provanzana and T.E. White (United States). – Monitoring of large generators on the American Electric Power system.*

11-02. *H. Kaminosono, M. Iwamoto, H. Fujino and N. Maki (Japan). – Development of superconducting synchronous machines in Japan.*

11-03. *D. Lambrecht, H. Duffert, M. Liese, M. Pluschke and E. Weghaupt (Federal Republic of Germany). – An advanced 700 MVA turbine generator in its own independent test field for permanent testing and development. A new way to improve consistently turbine generator capability, economy and reliability.*

11-04. *M. Qingyuan (China). – Development of turbine generators with water-cooled stator and rotor windings in China.*

11-05. *Y. Mao-Hong and W. Guang-Hao (China). – Some problems on the magnetic vibration of large turbogenerator stators.*

11-06. *C. Coperchini, A. Fises, M. Hérouard, S. Panni and R. Poulet (France). – Qualification of a safety motor for a 1300 MW PWR nuclear power station.*

11-07. *B. Barker and J.M. Hodge (United Kingdom). – A decade of experience with generator and large motor reliability.*

11-08. *J.M. Hodge, T. Miller, A. Roberts and J.G. Steel (United Kingdom). – Generator monitoring systems in the United Kingdom.*

11-09. *V.D. Ambrosovich, V.M. Bykov, O.S. Golodnova, L.G. Mamikoniants, A.B. Netsievsky and V.A. Tsvetkov (USSR). – Some aspects of technical diagnosis of large turbo- and hydrogenerators at power plants.*

11-10. *G.L. Ruelle (France). – Elaboration of reliability in the generator design.*

11-11. *G. d'Ans and G. Pleeck (Belgium). – Diagnosing mechanical failures through the vibration monitoring of turbogroups.*

11-12. *V. Tawtel, R. Arcand, J. Lemay and D.M. Coulson (Canada). – Improvement of the reliability of hydroelectric generator windings with rigid insulation.*

11-13. *R. Jeffreys. – Paper presented in the name of Study Committee 11 (Rotating Machines). – Reliability of rotating electrical machines. A review of definitions and data collection systems.*

11-14. *I.A. Glebov, L.I. Chubraeva (USSR), J.S. Edmonds, W.R. McCown (United States) and G. Ruelle, J.L. Sabrié (France). – Superconducting turbogenerators. Current situation and prospects.*

GROUP 12

Transformers

12-01. *M. Thibault-Carballeira, D. Allaire, J. Delhaye, P. Moro and J. Samat (France). – Fault detection and location in transformers.*

12-02. *B.F. Hampton, D.R. Medhurst, A.J. Rogers, M.E. Woollard and C.C. Stinton (United Kingdom). – The measurement of transformer winding temperature.*

12.03. *I. Miyachi, Y. Ozaki, M. Yasuda, S. Matsumura, K. Okuyama, H. Kan and H. Murata (Japan). – Development of UHV transformers in Japan.*

12-04. *M. Gallay, G. Messé and J. Poittevin (France). – UHV shunt reactors. Technical problems and test facilities.*

12-05. *H.J. Rindfleisch, J. Schmidt and D. Woltunik (German Democratic Republic). – Testing of paraffinic oils in transformer models.*

12-06. *B. Máthé (Rumania). – Transformer and reactor insulation diagnosis based on pre-evaluated oscillograms.*

12-07. *R.J. Musil, G. Preininger, E. Schopper and S. Wenger (Austria). – Response of transformers to various types of overvoltages and related problems of dielectric testing.*

12-08. *E. Hiironniemi and J. Takala (Finland). – Location of partial discharges and electrical failures in power transformers by means of automatic ultrasonic method.*

12-09. *Channakeshava, B.I. Gururaj and B.N. Jayaram (India). – Studies on partial discharge measurement in transformer windings.*

12-10. *H.R. Moore. – Paper presented in the name of Study Committee 12 (Transformers). – Present and future trends in the development, design and operation of large power transformers and shunt reactors.*

12-11. *A.M. Corvo (Brazil). – Diagnostic technique and proceedings of preventive maintenance of large transformers.*

12-12. *W. Olech, S. Partyga, Z. Rozewicz and J. Szpotański (Poland). – Diagnostic testing in maintenance practice of HV transformers.*

12-13. *R. Baehr, W. Breuer, F. Flottmeyer, J. Kotschnigg, R. Müller and H. Nieschwietz (Federal Republic of Germany). – Diagnostic techniques and preventive maintenance procedures for large transformers.*

12-14. *F.C. Pratt. Paper presented in the name of Study Committee 12 (Transformers). – Determination of transformer condition and preventive maintenance procedures in service.*

GROUP 13

Switching Equipment

13-01. *J.A. de Lima (Brazil), G. Santagostino and E. Corradi (Italy). – Short-circuits near large synchronous machines Evaluation of the short-circuit currents and general circuit-breaker stresses during its interruption.*

13-02. *S.O. Frontin, S.A. Morais, L.E. Nora Dias and F.M. Salgado (Brazil). – Limitation of short-circuit stresses applied to switchgear on the Brazilian south-east system.*

13-03. *K. Nakanishi, M. Ishikawa, S. Matsumura, Y. Teranishi, S. Tominaga, S. Yanabu and K. Hirasawa (Japan). – Verification test of tank-type gas circuit-breakers considering the actual stresses expected in the field.*

13-04. *Y. Sunada, N. Ito, S. Yanabu, H. Awaji, H. Okumura and Y. Kanai (Japan). – Research and development on 13.8 kV 100 kA vacuum circuit-breaker with huge capacity and frequent operation.*

13-05. R. Gert and J. Valášek (Czechoslovakia). – Stresses imposed on medium voltage generator circuit-breakers and on breakers connected to the tertiary winding of large power transformers by the transient recovery voltage occurring in service.

13-06 O. Bosotti, W. Mosca, G. Rizzi (Italy), L. Hashoff, E. Kynast and H. Lührmann (Federal Republic of Germany). – Phenomena associated with switching capacitive currents by disconnectors in metal enclosed SF_6 insulated switchgear.

13-07. F. Bachofen, P. Steinegger and R. Glauser (Switzerland). – A novel solution for high-speed SF_6 puffer type power circuit-breakers of high rated capability with low operating mechanism energy.

13-08. W. Rieder and W. Widl (Austria). – High voltage testing of vacuum interrupters.

13-09. E. Thuriès, R. Jeanjean and M. Collod (France). – Control of temperature rises in generator circuit-breakers.

13-10 E. Ruoss and J. Vadaszi (Switzerland). – Special requirements for generator circuit-breakers in large power plants.

13-11. G. St. Jean, M. Landry and G.A. Baril (Canada). – Inductance tolerances in synthetic circuits for producing equivalence between direct and synthetic tests on high voltage circuit-breakers.

13-12. H. Lipken, H. Suiter, U. Habedank, R. Kugler and H. Lührmann (Federal Republic of Germany). – Studies of interruption of very high short-circuit currents 80 kA and 100 kA by SF_6 circuit-breakers.

13-13. J.J. Richters, J.H.F.G. Lipperts, H. Schellekens, W. Coppoolse, A.C. Klaassen, B.N. de Koning and B. Noordhuis (Netherlands). – Experiences related to the development of vacuum interrupters.

13-14. M. Lissandrin, S. Manganaro, G. Mazza and A. Porrino (Italy). – Dielectric performance of metal-clad circuit-breakers after short-circuit interruption.

GROUP 14

DC Links

14-01. R.L. Hauth, F. Nozari, G.D. Breuer and D.J. Melvold (United States). – Multi-terminal HVDC control techniques for future integrated AC-DC networks.

14-02. O. Ruiz Diaz (Paraguay), D. Povh, W. Feldmann and D. Tröller (Federal Republic of Germany). – Acaray HVDC back-to-back station.

14-03. P. Lips (Switzerland), H. Rötting, G. Thiele and K.H. Weck (Federal Republic of Germany). – Design and testing of thyristor valves and their components for the HVDC back-to-back link Dürnrohr in Austria.

14-04. H. Allon, G.E. Gardner, L.A. Harris, I.M. Welch, H.L. Thanawala and D.J. Young (United Kingdom). – Dynamic compensation for the England-France 2 000 MW HVDC link.

14-05. E.F. Raynham and P.V. Goosen. – Paper presented in the name of Study Committee 14 (DC Links). – Apollo inverter station HVDC operating experience.

14-06. J. Knudsen and P.F. Albrecht. – Paper presented in the name of Study Committee 14 (DC Links). – A survey of the reliability of HVDC systems throughout the world during 1979-1980.

14-07. S. Berggren, K.-E. Olsson, B. Nilsson and L. Weimers (Sweden). – A new concept for mechanical design of thyristor valves for HVDC.

GROUP 15

Insulating Materials

15-01. M.M. Epstein, B.S. Bernstein and M.T. Shaw (United States). – Ageing and failure in solid dielectric materials.

15-02. Y. Kako, K. Kadowaki, S. Hirabayashi, I.T. Tani, S. Kenjo and F. Natsume (Japan). – Multistress degradation of insulation systems for high voltage rotating machines.

15-03. P.N. Nikolopoulos, G.C. Sakkas and D.N. Diamantopoulos (Greece). – The practical aspects of the behaviour of the pressboard oil insulation of large electric equipment under impulse and alternating voltages.

15-04. K. Herstad, A.P. Brede, W. Hansen, Ø. Nicolaysen and E. Henriksen (Norway). – Ageing of mica composite HV machine insulation accelerated by voltage and frequency.

15-05. G.C. Stevens, A.G. Day (United Kingdom) and B. Fallou (France). – Complementary methods in the thermal endurance testing of electrical insulating materials.

15-06. W. Boeck, W. Taschner, F. Grogger and R. Zoro. – Paper presented in the name of Study Committee 15 (Insulating Materials). – V-T curves of SF_6 insulation. Proposal for a new presentation and compilation of published measurements.

15-07. J.G. Head, P.S. Gale, D.J. Skipper and A.W. Stannett (United Kingdom). – Ageing of oil-filled cable insulation.

15-08. B. Florkowska, Z. Lechowski and R. Wlodek (Poland). – Application of partial discharge detection to the quality control of the insulating systems for high voltage rotating machines.

15-09. H. Meyer, J. Laar, W. Ihlein and F.J. Pollmeier (Federal Republic of Germany). – Evaluation of an insulation system for stator windings of high voltage machines.

15-10. G.A. Alexeyev, I.M. Bortnik, V.N. Varivodov, S.G. Trubatchev and V.N. Shamrai (USSR). – Endurance of moulded epoxy insulation subjected to partial discharges.

15-11. B. Fallou, Ph. Despiney, J. Perret, J. Samat and P. Vuarchex (France). – Assessment of mineral insulating oils from paraffinic crudes.

15-12. F. Viale, J. Polttevin, B. Fallou, J.F. Morel (France), R. Bucciarelli, S. Yakov, S. Cesari and E. Serena (Italy). – Study of a correlation between energy of partial discharges and degradation of paper-oil insulation.

15-13. L. Gherardi, P. Metra and B. Vecellio (Italy). – Study of ageing and breakdown phenomena in extruded insulation by tests on models.

15-14. C.M. Cooke, R. Nakata, M. Ouyang, S.J. Dale and T.F. Garrity (United States). – Compressed gas insulation for advanced HVDC transmission equipment.

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21-01. H.J. Künisch, P. Blasius, B. Harjes, M. Henschel and

W. Märtin (Federal Republic of Germany). – Testing a 110 kV low pressure oil-filled cable with a water cooled conductor in Berlin (West).

21-02. A.M.F.J. van de Laar (Netherlands). – Silane cross-linked power cable : an investigation of cable properties.

21-03. W. Boone and G.M.L.M. van de Wiel (Netherlands). – Field trials of 400 kV externally cooled cables.

21-04. A.H. Cookson, P.C. Bolin, J. Corbett, J.F. Shimshock and T.F. Garrity (United States). – Development and test installation of three conductor and UHV compressed gas insulated transmission lines for heavy load transmission.

21-05. L. Elgh and B. Sonnerup (Sweden). – Repair of 400 kV AC submarine cable.

21-06. C.A. Arkell, W. Holdup and D.J. Skipper (United Kingdom). – Improvements in self-contained oil-filled cable systems.

21-07. W. Kalkner, U. Müller, E. Peschke, H.J. Henkel and R. von Olshausen (Federal Republic of Germany). – Water treeing in PE and XLPE insulated high voltage cables.

21-08. S.E. Gleizer, D.A. Goldobin, K.P. Kadomskaja, M.G. Khanukov, Yu.V. Obraztsov and I.B. Peshkov (USSR). – Insulation development of oil-filled cables for heavy load transmission.

21-09. K. Hosokawa, B. Yoda, K. Kojima, T. Kasahara, N. Yoshida and R. Kaneko (Japan). – The present situation of XLPE insulated high voltage cables in Japan.

21-10. E. Crowley, J.E. Hardy, L.R. Horne and B.G. Prior (Canada). – Development programme for the design, testing and sea trials of the British Columbia mainland to Vancouver Island 525 kV alternating current submarine cable link.

21-11. B. Dellby, G. Hjalmarsson and S.-O. Olsson (Sweden). – Water-tight XLPE cables.

GROUP 22

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22-01. A.B. Wood (United Kingdom). – Transmission line design – the ultimate load concept.

22-02. D.G. Havard (Canada), A.S. Paulson and J.C. Pohlman (United States). – The economic benefits of controls for conductor galloping.

22-03. E. Bauer, E. Brandt, R. Brand, H. Klein, L. Möcks and H. Schlotz (Federal Republic of Germany). – Dynamic processes during load transposition in multiple sets with long rod-type insulators.

22-04. G. Elsner, H. Patrunky, G. Schlinsog, K.-V. Boos, K.-H. Herzig and H. Mors. – Paper presented in the name of Study Committee 22 (Overhead Lines). – Special design reduces environmental impact of the 400 kV Berlin line.

22-05. V.N. Rikh (India). – Insulation levels and problems on Indian high voltage lines.

22-06. M. Veledar, Z. Timić, S. Skok and Z. First (Yugoslavia). – Improvement of grounding properties by using bentonite.

22-07. S.V. Krylov, V.P. Redkov and B.I. Smirnov (USSR). – Structures of insulator strings for UHV transmission lines.

22-08. A.M. DiGioia Jr., J.C. Pohlman (United States) and P. Ralston (Canada). – A new method for determining the structural reliability of transmission lines.

22-09. J.S. Barrett, P. Ralston and O. Nigol (Canada). – Mechanical behaviour of ACSR conductors.

22-10. J. Bourbeau and Y. Bourget (Canada). – Measurements and control techniques on the site of the significant parameters affecting the construction of the James Bay 735 kV line network.

22-11. G. Diana, M. Gasparetto, F. Tavano and U. Cosmai (Italy). – Field measurement and field data processing on conductor vibration. (Comparison between experimental and analytical results).

GROUP 23

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23-01. H. Troger, W. Boeck, P. Högg, H. Larrue, D. Lightle, G. Mazza, K. Pettersson, P. Tutein and J. Vigreux. – Paper presented in the name of Study Committee 23 (Substations). The state of international development and experience with SF_6 gas insulated high voltage switchgear.

23-02. K.P. Lau, W.R. Block, D.F. Koenig, B.D. Russell and D.M. Raikoglo (United States). – Scada's state-of-art and future U.S. trends in substation control.

23-03. B.P. Raju, K.C. Parton and T.C. Bartram (United Kingdom). – Fault current limiting reactor with superconducting d.c. bias winding.

23-04. T. Kawamura, T. Ishii, K. Satoh, Y. Hashimoto, K. Tokoro and Y. Harumoto (Japan). – Operating experience of gas insulated switchgear (GIS) and its influence on the future substation design.

23-05. J.N. Pais Gromicho (Portugal) and P. Pringels (Belgium). – Electricidade de Portugal's Rio Maior and Palmela 400 kV substation controls by programmed facilities.

23-06. G. Gallet, H. Larrue, R. Pariselle, J. Pasteau, R. Mayoux and B. Trolliet (France). – Design and construction of EHV gas insulated substations with regard to their flexibility and ease of maintainability.

23-07. W. Zaengl, F. Bernasconi, B. Bachmann, W. Schmidt and K. Spinnler (Switzerland). – Experience of a.c. voltage tests with variable frequency using a lightweight on-site series resonance device.

23-08. W. Lehmann, J.L. Lilien and J. Orkisz. – Paper presented in the name of Study Committee 23 (Substations). The mechanical effects of short-circuit currents in substations with flexible conductors. Numerical methods – computer approach.

23-09. V.V. Ershevich, L.F. Krivushkin, B.N. Neklepaev, V.D. Shlimovich and G.A. Slavi (USSR). – Short-circuit current levels and basic concepts for limiting them.

23-10. S.A. Boggs, F.Y. Chu, M.A. Hick, A.B. Rishworth (Canada), B. Trolliet and J. Vigreux (France). – Prospects for improving the reliability and maintainability of EHV gas insulated substations.

23-11. B.S. Sharma, R.P. Agarwal, S.A. Bajpai and L.K. Gupta (India). – Microprocessor based integrated substation control, monitoring and protection system for developing countries.

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31-02. *N. Martins and R. Baitelli (Brazil). – Analysis of low-damped electro-mechanical oscillations in large power systems.*

31-03. *A. Halk, D. Hass and B. Wienhold (Federal Republic of Germany). – Extension of a 420/245 kV interconnected transmission network under consideration of uncertain load development and delays concerning the extension of power plants.*

31-04. *H. Persoz and F. Maury (France). – System development policy limiting space requirements.*

31-05. *R.L. Bolden, P.J. Wallace and A.W. Grainger (Australia). – Considerations in the improvement of system damping on the south east Australian interconnected system.*

31-06. *T. Johansson, B. Wrang (Sweden), L. Mäkelä, Y. Laiho (Finland) and T. Carlsen (Norway). – Stability problems in the Nordic power system.*

31-07. *L. Ahlgren, K. Walve, N. Fahlén and S. Karlsson (Sweden). – Countermeasures against oscillatory torque stresses in large turbogenerators.*

31-08. *W. Fairney, A. Myles, T.M. Whitelegg and N.S. Murray (United Kingdom). – Low frequency oscillations on the 275 kV interconnectors between Scotland and England.*

31-09. *G.N. Alexandrov, Yu.N. Astakhov, V.A. Venikov, Yu.I. Lyskov, G.V. Podporkyn and V.M. Postolatiy (USSR). – Electric transmission lines of increased capacity and reduced ecological effect.*

31-10. *O. Hauge, P. Meringdal (Norway), H. Frank and K. Engberg (Sweden). – The 360 Mvar static compensator in Hasle, Norway.*

31-11. *K.R. McClymont (Canada). – Transmission delays – the effects and countermeasures.*

31-12. *J. Tveit, A. Vinjar, A. Johannesen and B. Stene (Norway). – Integrated planning of the electrical energy market and the power generation system in Norway.*

31-13. *A. Invernizzi, G. Manzoni, L. Salvaderi and M. Valtorta (Italy). – Delays in the construction of generation and transmission facilities: their consequences on the electric system costs.*

31-14. *N. de Franco, A. Ventura F°, J. Kelman, P.A.S. Pegado and A. Vian (Brazil). – Impact of construction delays on the reliability of a hydro system. A Brazilian planning experience.*

31-15. *V. Arcidiacono, E. Ferrari, R. Marconato and G. Manzoni (Italy). – Problems posed in power system planning by electromechanical oscillation damping and means for solution.*

GROUP 32

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32-02. *R.A. Fernandes, F. Lange, R.C. Burchett, H.H. Happ and K.A. Wirgau (United States). – Improved system operations through reactive power management.*

32-03. *Z. Motlí and B. Sadecký (Czechoslovakia). – Operational control of power systems (PS) under uncertain conditions.*

32-04. *P. Haren and F. McDyer (Ireland). – A flexible on-line programme for the short-term operation of a multi-fuel system to dynamic security levels.*

32-05. *F.H.D. Conradie and J.S. Els (South Africa). – Experience gained by Escom on the influence of power station operation on the total power system.*

32-06. *D. Rumpel. – Paper presented in the name of Study Committee 32 (System Operation and Control). The performance of power plants in cycling and disturbed grid conditions.*

32-07. *R. Manninen and L. Mäkelä (Finland). – Testing power plant performance during system faults.*

32-08. *R.R. Booth, I.P. Bates, A.J. Webb, P.J. Hoare and P. Williams (Australia). – Interactions between generating plant and transmission systems in Australia.*

32-09. *M.S. Ćalović and A.S. Martinoli (Yugoslavia). – Determination and optimal allocation of operating reserves.*

32-10. *Th. van Cutsem, M. Ribbens-Pavella, Ph. Vandeloise and Y. Hella (Belgium). – Single-level and two-level state estimation. Principle and applications.*

32-11. *P. Burri and G. Zajc (Switzerland). – A quality index for evaluating network equivalents.*

32-12. *J. Augé, B. Jacob, M.-D. Bucher, A. Merlin, F. Broussolle and Ph. Clavel (France). – A new method for daily security analysis of EDF's EHV networks based on hierarchized state estimation.*

32-13. *R. Benejean, P. Blanchet, J.P. Meyer and P. Hugoud (France). – A new voltage regulator for large French alternators.*

32-14. *O. Egeland, J. Hegge, E. Kylling and J. Nes (Norway). – The extended power pool model. Operation planning of a multi-river and multi-reservoir hydro-dominated power production system. A hierarchical approach.*

32-15. *V.H. Ishkin, Ya.N. Luginski, Yu.N. Rudenko, V.A. Semenov, S.A. Sovalov and Yu.A. Tikhonov (USSR). – Improvement of operating and emergency control in the United Power Grid of the USSR.*

32-16. *L. Wiklund and E. Paulsson (Sweden). – Control centre functions for real time operation and short term planning at the Swedish State Power Board.*

32-17. *T. Cegrell and J. Schubert (Sweden). – Operator training aids in control centres.*

32-18. *R. Marconato and L. Vergelli (Italy). – Problems concerning the design of automatic load-shedding plans.*

32-19. *M. Ribbens-Pavella, P.G. Murthy, J.L. Horward (Belgium) and J.L. Carpentier (France). – On-line transient stability assessment and contingency analysis.*

32-20. *F. van de Meulebroeke and J. Debelle (Belgium). – "Fast controlled valving": a new philosophy for turbine control.*

32-21. *G. Fusco, D. Venturini, F. Mazzoldi and A. Possenti (Italy). – Thermal units contribution to the electric power system restoration after a black-out.*

32-22. *E. Insunza, F.J. Arriola, J.A. Garrido, V. Echave and R. Zabalza (Spain). – The predictive and real time application functions in Iberduero's energy control centre.*

32-23 *A.M. Adatia, A.B. Baker, E.D. Farmer, W.D. Laing and D.G. Robertson (United Kingdom). – Interactive load forecasting and reserve allocation.*

32-24. *F. Aschmoneit, G. Becker, W. Sprenger and E. Handschin (Federal Republic of Germany). – The allocation of control functions to central and decentral equipment.*

32-25. **J. Kowal and J.P. Waha. – Paper presented in the name of Study Committee 32 (System Operation and Control). – Influence of decentralised automatic devices in substations and plants on remote control and control centre design.**

GROUP 33

Overvoltages and Insulation Coordination

33-01. *R.G. Houlgate, P.J. Lambeth and W.J. Roberts (United Kingdom). – The performance of insulators at extra and ultra high voltage in a coastal environment.*

33-02. *J.H. Cooper and A.R. Hileman (United States). – A probabilistic approach in estimating the BIL for 1 200 kV gas insulated stations.*

33-03. *C.H. Shih, B.J. Ware, J.G. Anderson and J.J. Laforest (United States). – The effect of metal oxide arresters on switching overvoltages on EHV systems.*

33-04. *J. Kučera and M. Plechanová (Czechoslovakia). – A probabilistic choice of insulators for alternating voltage and electric strength at switching impulses in the areas with pollution.*

33-05. *G. Drescher, H. Koettnitz, W. Mosch, J. Schwarz, H. Bauer, W. Hauschild (German Democratic Republic). – Statistical calculation of overvoltages and breakdown-voltage-time-characteristics as a contribution to the insulation-coordination of GIS.*

33-06. *Li Qi-Sheng, Zeng Zhao-Hua and Yan Wen (China). – Protection of ungrounded neutral point of transformer by zinc oxide gapless arrester.*

33-07. *He Pei-zhong and Xu Cheng-dong (China). – The test and investigation results on naturally polluted insulators and their application to insulation design of power system in the polluted areas.*

33-08. *V.P. Fotin, L.P. Kubarev, A.K. Lokhanin and A .I. Yaroshenko (USSR). – Deep overvoltage limitation in EHV transmission lines.*

33-09. *M.A.B. El-Koshairy, M.M. Khalifa, A.R. Nosseir, E. El-Sharkawi, M.M. Awad and H.E.M. Zarzoura (Egypt). – Pollution performance of high voltage insulator. strings in a desert environment.*

33-10. *P.O. Geszti, G. Bán, A. Dán, I. Horváth, J. Kisvölcsey, I. Benkó, S. Csida (Hungary), Ju.I. Lyskov and N.P. Antonova (USSR). – Problems of single-pole reclosing on long EHV transmission lines.*

33-11. *P.J. Robinson, A. Edlinger and D.W. Schlicht (Switzerland), E. Souza d'Avila Melo and V.F. Salatko (Brazil). – Lightning overvoltage protection of the 550 kV Itaipu SF_6 gas insulated substation.*

33-12. *A. Bargigia, G. Mazza, A. Pigini, L. Thione and B. Mazzoleni (Italy). – Study of the dielectric strength of SF_6 insulated metal-clad substations and application to their design and testing.*

33-13* *R. Cortina et al. (Italy). – Insulation design criteria for polluted areas.*

(*) This paper will be distributed at the Session.

GROUP 34

Protection

34-01. *C. Corroyer and H. Chorel (France). – Protection of multi-terminal EHV links.*

34-02. *J. Berdy, P.G. Brown C.A. Mathews, D.N. Walker and S.B. Wilkinson (United States). – Automatic high speed reclosing near large generating stations.*

34-03. *S. Matuoka, Y. Ohura, H. Hashimoto, M. Yuki, Y. Miki, F. Andow and K. Suzuki (Japan). – The protective relaying system for preventing power failure extension in bulk power systems.*

34-04. *J. Pospíšil, O. Daniel, P. Dohnálek and P. Stuchl (Czechoslovakia). – Protection and control of large turbogenerators under abnormal operating conditions.*

34-05. *H. Rijanto, H. Prutzer, B. Wienhold and F. Schindele (Federal Republic of Germany). – HV-line-differential-protection with digital data transmission using light-fibre-optic-transmisson systems.*

34-06 *J Esztergalyos (United States) and T. Einarsson (Sweden). – Ultra high speed protection of three terminal lines.*

34-07 *J.P. Barret, M. Paward, P. Bornard, J.M. Tesseron, M. Souillard, I. Heller and B. Carrichon (France). – Digital processing of control and protection functions in EHV substations.*

34-08. *Ya. S. Gelfand, A.M. Naumov and V.A. Ribinchik (USSR). – Multi-terminal transmission line protective relaying.*

34-09. *E. Hagenmeyer and E. Zurowski (Federal Republic of Germany). - Decentralized fault location combined with centralized computer evaluation in a main control centre gives optimized network operation.*

34-10. *M. Monseu and L. Sœnen (Belgium). – Protection of large size turbogenerators against high dynamic torsional stresses in case of multi-phase fault in the power system.*

GROUP 35

Communication

35-01. *P. Dey, B. Gaylard, G. Holden, J.E. Taylor, C.N. Carter, B.J. Maddock, P. Smith and A .H. Kent (United Kingdom). - Optical communication using overhead power transmission lines.*

35-02. *F. Crofts (United Kingdom). – Communication network security using optical fibre.*

35-03. *M. Yamanoi, S. Kubota, G. Hirao, M. Kajitani and T. Kudo (Japan). – Application of optical fibre communication systems for electric power utilities.*

35-04. *M.A. Monteiro de Sá (Brazil). – An emergency plan of telecommunications.*

35-05. *F. Gonzalo and A. Rivera (Spain). – Telecontrol system survey results. Development of a simulation model of availability. Economic impact and maintenance cost.*

35-06. *A. Schiavi and A. Varriale (Italy). – ENEL power generation and transmission control (PGTC) system. Technical and managerial aspects of the development of the software for a large scale system.*

35-07. *K.G. Mityushkin and V.G. Ornov (USSR). – Adaptive microcomputer telecontrol system for operation control of the USSR United Power Grid.*

35-08. *R. Ruchet, P. Bongard, H.P. Koch, A. Meier, C. Weber and J.-F. Zürcher (Switzerland). – Transmission of information by means of optical fibres incorporated in an overhead earth conductor.*

35-09. *E. Sandström, I. Ofverholm (Sweden) and W. Smit (Netherlands). – Operational experience concerning maintainability and availability of computer-based control centres.*

35-10. *Ö.A. Kerényi, K. Wierdl, M. Szanisziò, M. Madas-Dobler, G. Pintz and A. Szilagyi (Hungary). – The hierarchical power system control in Hungary.*

GROUP 36

Interference

*36-01. **R. Sander, J. Brinkmann and B. Kühne** (Federal Republic of Germany). – Laboratory studies on animals and human beings exposed to 50 Hz electric and magnetic fields.*

*36-02. **W.V. Baeckmann, K.-H. Feist and H.-U. Paul** (Federal Republic of Germany). – Contribution to the interference on conductors acting as earth electrodes.*

*36-03. **F. Bishop, A.C. Campling and I.A. Reid** (United Kingdom). – The design, installation and testing of the earth-electrode system for the Dinorwic pumped storage generating station.*

*36-04. **M. Lahtinen and Y. Laiho** (Finland). – Harmonic impedance of the high voltage transmission network.*

*36-05. **J. Arciszewski, K. Drewnik and I. Grabowska** (Poland). – Additional no load losses in transmission lines.*

*36-06. **M.S. Libkind, V.M. Sorokin and K.O. Tsereteli** (USSR). – Device for voltage fluctuation limitation in electric networks.*

*36-07. **V.H. Ishkin, L.I. Izmailova, G.I. Kurilina, L.D. Razumov and V.B. Sokolov** (USSR). – Probabilistic approach to determining dangerous interference of power transmission lines on communication lines.*

*36-08. **P. Meynaud, J. Bergeal, E. Clerici, H. Heikkilä, P. Kendall, K. Murotani, M. Pilegaard, A. Robert, J. Smid and E. Waldmann.** – Paper presented in the name of Study Committee 36 (Interference). – Special problems encountered in the study of harmonic distortion in networks. Present and future aspects.*

*36-09. **W. Janischewskyj, P. Sarma Maruvada and G. Gela** (Canada). – Corona losses and ionized fields of HVDC transmission lines.*

*36-10. **L. Lagostena, A. Porrino, G. Santagostino and E. Clerici** (Italy). – Harmonic distortion from disturbing loads in electric networks. Origin, propagation and problems related to the limitation of the disturbances.*

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GROUP 41

Future of Electric Power Transmission and Systems

*41-01. **P.A. Lewis, S.A. Mallard and W. Wood** (United States). – Experience of a large north-eastern utility in assessing and applying dispersed energy technologies.*

*41-02. **R.A. Bell, T.H. Lee, A.F. Corry and W.R. Tackaberry** (United States). – The role of the engineer in shaping energy policy.*

*41-03. **A. Hadfield and M.E. Price** (United Kingdom). – UK supply authority experience with combined heat and power.*

*41-04. **Tang Zhong-nan and Huo Hong-lie** (China). – The development of rural electric power in China.*

*41-05. **P. Ledent and V. Berlemont** (Belgium). – Prospects for the underground gasification of coal and its impact on the electricity supply system.*

*41-06. **D. Saumon, S. Scalcino, T.R. Schneider and A.B. Hart.** – Paper presented in the name of Study Committee 41 (Future of Electric Power Transmission and Systems). – Storage batteries for utility networks.*

*41-07. **T.H. Lee, S.B. Alpert, K. Dawson, G.A. Sparham and O. Voelcker.** – Paper presented in the name of Study Committee 41 (Future of Electric Power Transmission and Systems). – Coal gasification for power generation.*

*41-08. **B. Lescoeur and Ph. Penz** (France). – Optimum control of an electrical energy generating and consumption system.*