

**INFORMATION REPORT INFORMATION REPORT**

**CENTRAL INTELLIGENCE AGENCY**

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REPORT

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[redacted] a four-page report containing production and technical information on the following types of Hungarian high-voltage equipment: cascade generators, impulse generators, and statically excited high-voltage generating equipment. Special requirements for this equipment are also briefly covered in this report.

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HUNGARY

Scientific/Economic

PRODUCTION OF SPECIAL HIGH VOLTAGE EQUIPMENT

Among the departments of the Hungarian enterprise TRANSFORMATOR in BUDAPEST, there is a special section working on high voltage, low current generating equipment. The more important types at present being designed in this section are cascade generators, impulse generators and statically excited high-voltage generating equipment.

CASCADE GENERATORS

I. 2. A number of cascade generators has been produced in the last few years. These are destined



for the Hungarian Nuclear Research Institute on the SCHWABENBERG

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(CSILLEBERG) near BUDAPEST, The standard type of cascade generator is required to have a capacity of 800 KV at currents averaging 10, 15 or 20 milliampères working from a mains supply of 500 Herz. These

generators are constructed in double units, with a central zero (earth) point, enabling the two units to be used either in series or in parallel.

When the Nuclear Institute



warned by TRANSFORMATOR that

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there was a danger of resonance effects if the units were connected in parallel,



two special requirements should be satisfied, viz:

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(a) the dimensions of the generators should be kept as small as possible.

(b) the undulation (heterodyne) of the high tension output must be below 0.5 per cent and if possible not more than 0.25 per cent.


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3. In addition to the more or less "standard" type producing 800 KV, variants of this type have occasionally been manufactured with capacities between 200 KV and 1,200 KV.

4. One cascade generator, having a capacity of 250 KV but otherwise following the standard requirements as set out above, is known to have been ordered for the REMIX factory in BUDAPEST.  TRANSFORMATOR assumed that it was probably required for use in connection with high tension condensers, which REMIX is known to be producing).

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5. Apart from this one case in which the final user has been identified,  TRANSFORMATOR have no knowledge of the destination of the cascade generators they design and manufacture. (In some cases, TRANSFORMATOR only supplies a design and three to five prototypes, and manufacture on a larger scale is carried out elsewhere). In contrast to normal practice, according to which the manufacturing organisation would expect to send one of its own technicians to set up the apparatus or correct any faults which might develop, and also to be fully briefed as to the use to which its product will be put, TRANSFORMATOR is never permitted to send its technicians to the end-user (unknown, in any case, to TRANSFORMATOR), but is always asked to explain to ELEKTROIMPEX (BUDAPEST) who invariably act as intermediaries, verbally or in writing, what should be done to correct the fault.

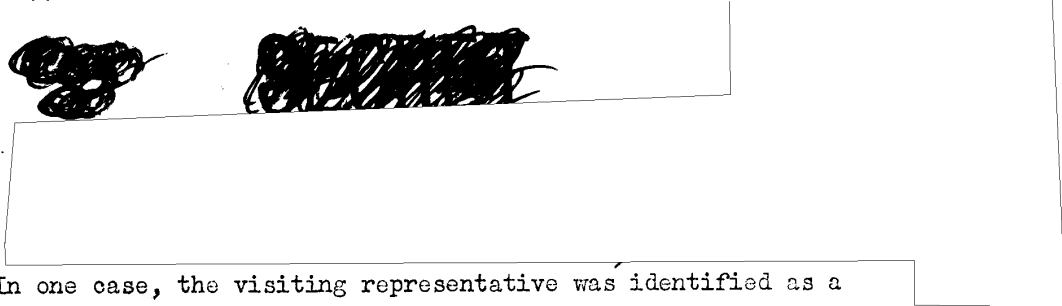
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6. Normally, orders are always placed by ELEKTROIMPEX, and follow up discussions (e.g. concerning technical faults) are discussed with TRANSFORMATOR by ELEKTROIMPEX officials. On some occasions representatives of the user organisation accompany ELEKTROIMPEX officials to the TRANSFORMATOR workshops, but the name of their parent organisation is not disclosed.



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7. In one case, the visiting representative was identified as a Russian, speaking perfect German and quite good Hungarian, from the Russian nuclear research organisation DUBNO. However,

TRANSFORMATOR have been extremely puzzled at the idea that these cascade generators should still be ordered in appreciable quantities, especially in connection with nuclear research, since they have long since been superseded by other and more modern systems.

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IMPULSE GENERATORS

II. 8. Impulse generators designed by TRANSFORMATOR are always for voltages between 800 and 1,000 KV. Here again, the TRANSFORMATOR have no knowledge of where they are sent, what organisation orders them, or what they are used for. The orders and instructions always reach TRANSFORMATOR via ELEKTROIMPEX, but the latter only acts as a postbox. There are various small indications that the orders come in fact from the U.S.S.R.

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III. STATICALLY EXCITED GENERATORS

9. have been puzzled by a requirement for comparatively large numbers of statically excited high-voltage generators. (the static method of generating high voltages, which was much used many years ago, had been "forgotten and buried" and should have been "dug up again" to be used under modern conditions).

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10. One of the special requirements passed to TRANSFORMATOR was that the driving mechanism of the generators should be powered by air turbines, not e.g. by electric motors. the

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purpose of this must be that the generators had to be extremely well insulated, and that cable connections to an electric motor would create a metallic connection which would be excessively great in view of the (unknown) purpose for which the generators were required.

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[REDACTED]

11. A further requirement was that the generators should be housed in a plastic shell which could be hermetically sealed, allowing the generators to be operated in helium. When the first orders for static generators of this type were placed with TRANSFORMATOR, the requirement was that the shells should be able to contain helium at a pressure of 20 atmospheres, but the requirement has been gradually increased until the orders at present coming in stipulate a pressure of 100 to 120 atmospheres. This requirement is taken as a further indication that the generators are intended to operate in series at very high voltages, as the high pressure of helium is assumed to be required to prevent "corona" effect at extremely high voltages.

12. The entire shell and generator has to be heavily insulated, the only connections with the outside being two plastic air pipes (intake and exhaust) and the two heavily insulated high-tension output leads.

13. [REDACTED] these generators must be intended for use in series, since the standard of insulation called for is greater than would be required for the voltage produced by a single generator.

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14. On one occasion TRANSFORMATOR was visited, in connection with these static generators, by a Russian from the DUBNO research unit. He refused to disclose anything about the purpose for which the generators were required, but on being repeatedly pressed, answered with an enigmatic smile that they were required for "painting". [REDACTED] TRANSFORMATOR [REDACTED]

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[REDACTED]

decided that the generators were perhaps required for some sophisticated adaptation of the RANSCHBURG painting process. (Note: This process is used when spraying objects of irregular shape with expensive paint: the spray of paint is electrically charged, and the object to be painted is given an opposite electric charge, so that the paint is attracted to the object and waste is reduced to a minimum). [REDACTED] TRANSFORMATOR [REDACTED] came to the conclusion that the generators were perhaps used for the "painting" of wire mesh with some extremely costly coating. *[Handwritten signature]*

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