

## Artifact Context Report - 2021/10/08

Catalogue number / No de catalogue: 2010.0006.001 of/de 1 part(s)/pièces

Article / Nom de l'article: Motor & generator set;;Ensemble de moteur et générateur

Model / Modèle:

Serial number / No de série: 102409; 1026313

Manufacturer / Constructeur:

Manufacturer address / Adresse du constructeur: Hamilton Ontario Canada

Manufacturer Acronym / Acronyme de constructeur: Westinghouse

Date Manufactured / Date de fabrication: 1929

### Measurements / Dimensions

Length;;longueur	2.0	M
Width;;largeur	0.91	M
Height;;hauteur	1.2	M
Weight;;poids	9072.0	kg

### Context - Function / Contexte - Fonction

To convert electrical energy into mechanical energy, and convert rotary mechanical energy into DC electrical power.

### Context - Canada / Contexte - Canada

This is Canadian made equipment, used in Quebec, which documents developments within the most significant power industry in that province. The significance of hydroelectric power production is extensively covered in the historical assessments on the subject. The HAs identify Ontario, Quebec and Manitoba as the most important sites of the hydroelectric developments.

The M&G set was made between 1925 and 1929 in Hamilton by the Canadian Westinghouse for the Bryson Hydroelectric Station. It is on the plans for the station dated 1924. The Bryson Hydroelectric Station was built between 1923 and 1925 by the Ottawa and Hull Power and Manufacturing Company subsidiary the Ottawa River Power. The construction began in October 1923 under the supervision of the Shawinigan Engineering Co. Ltd. The name of the construction firm is not known, but most likely the workers were hired among local tradesmen. The Bryson is a run-of-river generating station, which means that it generates current from the river flow, and does not require a reservoir. The station was built on the Ottawa River, on a channel away from the main river path and hydro developments in Ottawa-Hull. This location was chosen for two reasons. The lumber industry still had the right-of-way on the Ottawa River in the 1920s. Each power station had to ensure that its facilities did not block lumber routes. At Bryson, two slides were built to allow log traffic around the station, but since the power station was located on a channel, the slides were rarely used. The location, chosen in a distance from the cities, made the supplier of electricity invisible and reinforced the perception of hydro as clean energy. In 1925, the station was furnished with one set of generating equipment. In 1927, the station was acquired by the Gatineau Power, which added the second set of generating equipment and in 1929 auxiliary M&G set to operate hosting systems. With the nationalization of the power grid in 1963, the Bryson station became a property of the Hydro-Quebec. The station has been first designed as a heritage site in 1995. In 2002, it has been reevaluated by Hydro-Quebec and is now listed as one of the most significant sites; it ranks eight on the list of 89 sites.

"Westinghouse began operations in Hamilton, Ont. in February 1897 as a branch plant of the American company. It was incorporated as a Canadian company in 1903. It established plants across Canada, and its products have included air brakes, household appliances, and steam and gas turbines. In 1995, the parent company, Westinghouse Electric, bought CBS broadcasting company, changed its name to CBS Corporation and focused its attention on the media. In 1998 the Power Generation Unit, including the plants on Sanford Avenue and Beach Road in Hamilton, were sold to Siemens AG of Germany. They were renamed Siemens Westinghouse and subsequently became divisions of Siemens Canada Ltd." (McMaster. Canadian Westinghouse Archives) [Ref. 1]

### Context - Technical / Contexte - Technique

Motor & Generator sets are applied to convert current, voltage and phase. The sets were designed to economize the space. The Westinghouse claimed that the set took up less space than two machines interconnected. The esthetic was also important and the sets' "fine appearance" was often discussed in trade literature.

In this set, the 3-phase motor rates at 293 HP, 2200 volts and 700 RPM. The generator rates at 200 K.W., 250 volts, 700 R.P.M. The motor is a HS induction, constant speed type. This was an entirely new line of Westinghouse motors, designed to eliminate hot spots and prevent overheating. The frame allowed for more air circulation; the primary core punchings were turned at 45° providing larger cooling surface; and fans were mounted on the rotors. This is a large M&G set, typically found in hydro stations powering a turbine. This motor and generator set is used to power the hosting systems in the station. It operates the crane above the generators. The crane moves any machinery inside the station; it is also used to position repair equipment on top of generators. Such a crane is standard equipment in any station, but it is usually operated by small M&G sets. The set of this size is generally connected to a governor and powers the main turbine. The set was built for the Bryson and installed in the station by the Canadian Westinghouse in 1929. However the motor and the generator are of different vintage. Although the motor was most likely made in the 1920s, the generator dates to ca. 1905. The M&G set was obviously put together by assembling two separate machines despite the Westinghouse claim that it was especially designed to save space and work esthetically as one unit. The generator, which was originally black, was repainted to match the green motor and frame.

The unit still operates. It has been serviced over the years by outside companies, which documented the work. It has also been repaired by the engineers at the station, who interestingly enough, based their work on a 1929 General Electric catalogue. [Ref. 1]

### Groups / Groupes

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