

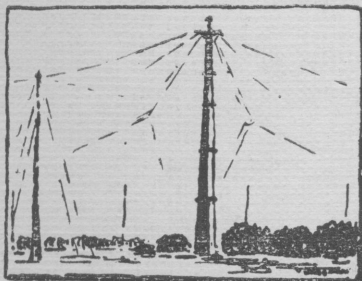
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THE IWAKI RADIO STATION



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THE IWAKI RADIO STATION

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THE IWAKI RADIO STATION

The Iwaki Station consists of a transmitting station situated at Haranomachi, about 90 km. south of Sendai, and a receiving station at Tomioka, about 30 km. further south. These two stations are connected by land lines, and the transmitting set at Haranomachi is controlled at the receiving station. This station was constructed by radio-engineers of the Teishinshō (Department of Communications) and first operated for trans-pacific radio service on the 26th of March, 1921. Until October 20th, 1925, the station was owned and operated by the Teishinshō. Now it is owned and maintained by the Nippon Musen Denshin Kabushiki Kaisha (Japanese Wireless Telegraph Company, Ltd.), but is operated by the Teishinshō.

THE HARANOMACHI STATION

The antenna of the transmitting station consists of 54 SWG 7/15 silicon bronze wires spread in umbrella fashion from a concrete tower. This tower is 200 meters high, with a diameter of 16 meters at the base and about 1 meter at the top. The lengths of the ribs are about 300 meters and the edges are insulated and stretched by wire ropes, which run to the tops of eighteen wooden masts 60 meters high, standing at equal intervals on the circumference of a circle of 400 m. radius with the concrete as its center. The antenna has a capacity of 0.032 micro-farads and an effective height of 110 meters at the normal wave length of 14.600 meter wave, the natural wave length being 4.300 meters.

The earth system consists of radial earth and earth plates. The radial earth is made of SWG 7/15 copper wires spread under the aerial area and buried 1 meter deep; and the earth plates consist of

copper plates buried about 10 meters deep and connected with the entrance of the radial earth by SWG 7/15 copper wires, the combined earth resistance being 0.5 ohm.

The main building, in which all the equipment is installed, covers an area of 660 square meters. The necessary power is supplied by the Tobu Electric Power Company in the form of an alternating current at 3.500 volts three-phase, 60 cycles.

The main installation consists of one high frequency generator and two arc converters, all of which were manufactured by Japanese firms according to the designs of engineers of the Teishinshō. These transmitters have a capacity of 400 kilowatts each and any of them can be connected with the transmitting antenna by means of a change-over switch.

To each transmitter is attached such necessary apparatus as inductance coils, keying device, cooling pumps, speed regulators, controlling switch boards, etc.

The annexed diagram shows the schematic connection of the transmitting set.

THE TOMIOKA STATION

The receiving antennae are the wave antenna and the loop antenna, the former being generally employed with the long-distance receiving set. The wave antenna has two parallel copper wires about 16.000 m. long extending west from the station building, and directed to Honolulu in a straight line and nearly at right angles to the direction of the transmitting station.

The wires are supported by 8 m. wooden poles, each with a 1.2 m. wooden cross-arm at the top. There are two loop antennae and a Bellini-Tosi type antenna. The latter has a height of 60 m. with 200 m. span and is used for direction-finding purposes and the former are installed for use in cases of emergency.

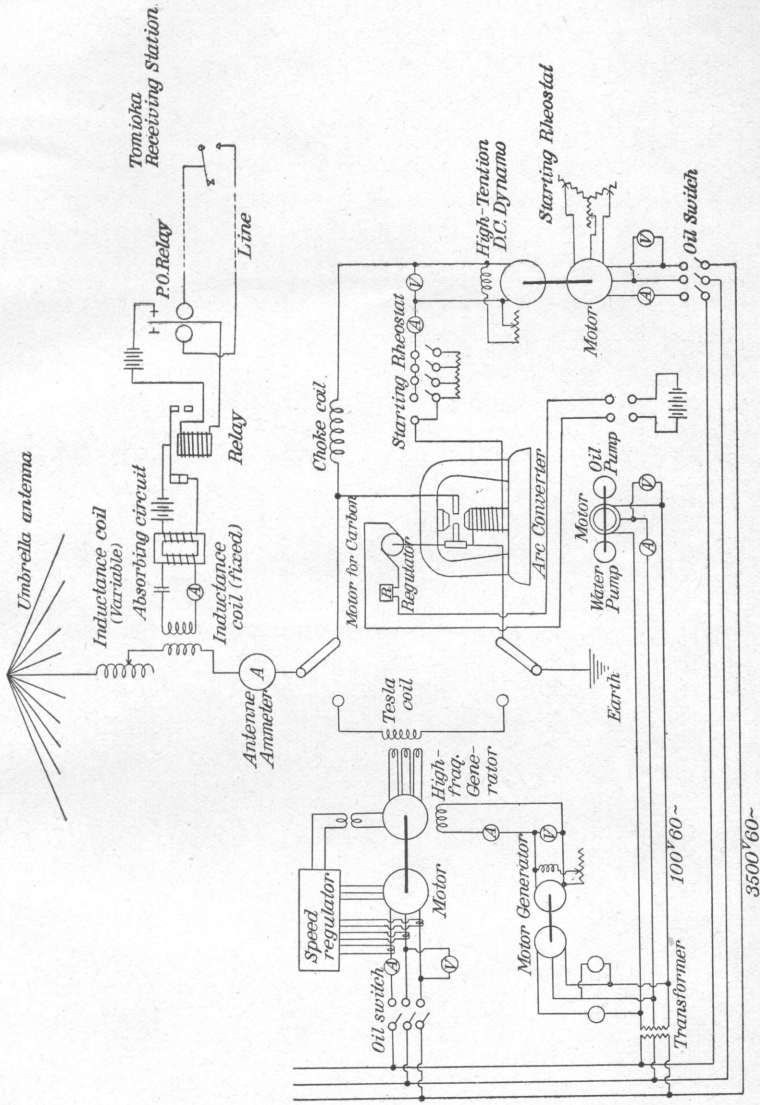
There are two receiving sets for long waves. These sets have a normal wave-length range of from 6.000 to 25.000 m. and are made of several units, each unit being contained in a metal case which is grounded.

Each set consists of an antenna coupling unit, two coupler units, a 3-stage high frequency amplifier unit, a detector unit, and an audio amplifier unit. The signals received by this set are then amplified by a tone amplifier and rectifier unit and recorded on tape by a Weinberger ink recorder.

The power required for the filaments, anodes and other purposes is supplied by storage batteries, the capacity of which is 290 ampere hours for filament supply.

The station is connected directly by telegraph line with Tokyo, Yokohama and Kobe, and the messages received are transmitted at once by the Wheatstone automatic transmitters to the city telegraph offices. The messages from these cities are received by Wheatstone receivers and then transmitted on radio circuit by Wheatstone transmitters.

Connection Diagram of Haramomachi Station



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