

Te Awamutu. The C.T.'s on the 11 kV. incoming feeder O.C.B. were replaced by reconditioned C.T.'s, and three defective 50 kV. insulators also were replaced.

Hangatiki.—Three defective 50 kV. insulators were replaced.

Ngongotaha.—The source of unusual radio interference was traced to a bank of 50/6.6 kV. transformers, and an investigation showed that a number of strands of the H.T. and L.T. leads in one of the transformers had been burned through. A 50 kV. transformer bushing was found defective during testing, and was replaced.

Rotoiti.—The original 100 kVA. three-phase 50/6.6 kV. transformer damaged by lightning on 17th February, 1938, was repaired and connected up in parallel with the existing 100 kVA. transformer in May, 1939.

Edgecumbe and Waiotahi.—The 50/5 C.T.'s on the 11 kV. incoming and metering O.C.B.'s at each substation were replaced by C.T.'s of 100/5 ratio.

Maungatapere, Huntly, and Mamaku.—These substations gave satisfactory service throughout the year.

11 kV. Substations.—Metering equipment was installed on the 11 kV. side of the transformer at the New Zealand Co-operative Dairy Co. substation at Frankton in October, when a new supply contract came into force.

The other two 11 kV. substations at Hautapu and Grand junction gave satisfactory service throughout the year.

General.—Tests were carried out on all 110 kV. and 50 kV. bushings during the year. Each bushing is being fitted with a numbered metal plate for identification purposes.

(c) TRANSMISSION AND DISTRIBUTION LINES.

(i) 110 kV.

Arapuni-Penrose.—No trouble was experienced on the tower-line circuits, but on the wood-pole line a pole was damaged by lightning in April, flashovers occurred between the 110 kV. line and the earth-wire during a storm in May, a defective 52 ft. pole broke off at the ground-line during a gale in July, and a conductor came adrift from a string of insulators in September due to the shearing of a cotter-pin on a suspension clamp. The earth-wire was dismantled from a further 203 poles, but it has yet to be removed from about fifty poles.

Arapuni-Stratford.—A pole was shattered by lightning in July, and a flashover was caused by lightning in December.

(ii) 50 kV.

Penrose-Takapuna.—A conductor was burned through in July when a flashover occurred between the 50 kV. line and the top earth-wire. Subsequently the top earth-wire was dismantled from a further fifteen towers.

Henderson-Maungatapere.—Flashovers between the 50 kV. line and the telephone-line were caused by a telephone insulator coming adrift from a span-breaker during a storm in August, and again in January. An outage of approximately 19½ hours occurred during exceptionally stormy weather in September, when a pole and two strings of suspension insulators in an inaccessible position on an exposed hill-top were shattered by lightning. Difficulty in locating the fault at night, and difficulty in transporting material to the site and in effecting repairs in the face of winds of strong-gale force, together with heavy rain, all contributed to the time required to restore the line to service.

Bombay-Kerepechi.—Lightning caused a flashover on four poles in April and on one pole in September, but no material damage was done. Two conductors were burned through by a flashover caused by a bush fire in hilly country in March.

Waikino-Aoangatele.—Flashovers occurred between the 50 kV. line and the telephone-line during a storm in May, and a 42 ft. pole was damaged by a scrub fire in February.

Horahora-Matamata.—The tops of tower stubs were treated with a rust-preventative, and corroded tower members were strengthened.

Horahora-Hamilton and Mystery Creek-Te Awamutu.—A number of poles fitted with earth guards were converted to flat-top type having double crossarms, and insulators, to enable the earths to be dispensed with.

Te Awamutu-Hangatiki.—Outages were caused by a flashover between the 50 kV. line and the telephone-line during a storm in August, and by a broken conductor in December.

Arapuni-Ngongotaha.—An outage occurred in April, but nothing was found to account for it. An insulator on an A.B.S. was shattered by lightning in December.

Ngongotaha-Edgecumbe.—A conductor was burned through by a flashover on the take-off structure at Rotoiti in April, caused by a broken binder, and an outage was caused by a broken conductor in January.

Edgecumbe-Waiotahi.—The line was fouled by a haystacker in January.

Kerepechi-Waikino, Matamata-Paeroa, Hamilton-Huntly, Arapuni-Horahora, Arapuni-Edgecumbe.—No trouble was experienced on any of these lines during the year.

(iii) 11 kV.

Horahora North and South Feeders.—Outages were caused in July by a flashover on an 11 kV. metering C.T. at Leamington due to a rat, and a flashover on an A.B.S. at Leamington when the A.B.S. was opened; in September by the breakdown of an 11 kV. pin insulator; and in November by a cross-arm being set alight and burned through due to a defective insulator.