

TECHNICAL BRIEFS

ENGINEERING DEVELOPMENTS HERE AND
ABROAD DIGESTED FOR BUSY POWER MEN

REVIEWED IN THIS ISSUE

PANEL HEATING

Present Status of the Panel Heating Art
Comparative Performance: Panel, Convection
Steam Heating Control Practice

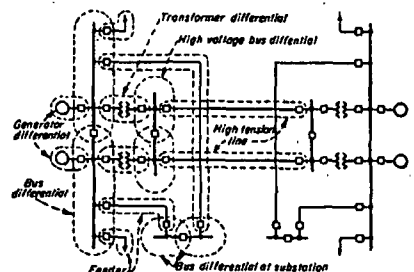
POWER RELAYS

Principles and Practices of Relaying in the
United States

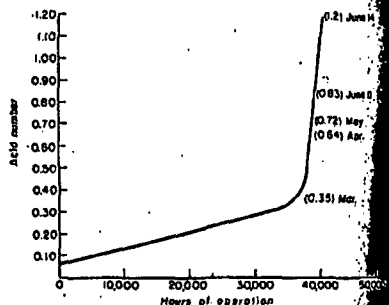
TURBINE OILS

Service Experience With Turbine Oils
Reported for a Range of Turbine Indus-
tries in an Industrial

Directions for ordering papers are given on page 130



1 Typical power system with overlapping relay protective zones. Adequate relaying disconnects small section of fault



2 Typical analysis for type B turbine oil. Sludging occurred; rapid rise in acid number. Interfacial test was later added

POWER RELAYS

Principles And Practices of Relaying In The United States, by W E Marter, Duquesne Light Co and E L Harder, Westinghouse Electric Corp. After reviewing general principles of relaying, the paper covers operation of basic elements in commonly used relays. Among these are instantaneous, induction, multiple-disk, balance-beam units, and various combinations.

Relay practice in connection with generator protection is outlined, covering both stator winding and field protection. Differential relaying is used generally to protect stator windings against grounds and short-circuits within the machine zone of protection. General trend is towards using relays to detect undervoltage as well as under-current in machine's field circuit.

In protection of transformers, differential relaying continues to be the principle form of relay protection. A suppressor is generally provided to temporarily desensitize the relay for a time interval sufficient to allow inrush cur-

rent to die out. Use of gas-pressure, gas-accumulator and thermal relays on transformers is discussed in this AIEE paper.

Satisfactory bus protection is often obtained with a straight differential relay scheme. Multi-restraint ratio-differential relays will not operate falsely even when used with normal-size current transformers, which saturate due to the dc component of current under fault conditions. The paper includes a general discussion of linear coupler and impedance schemes as well as directional relays in connection with bus protection.

In addition to a general discussion of high-voltage line protection, principles of pilot wire and carrier-pilot relaying are covered. General practice in connection with motor protective relaying is also presented.

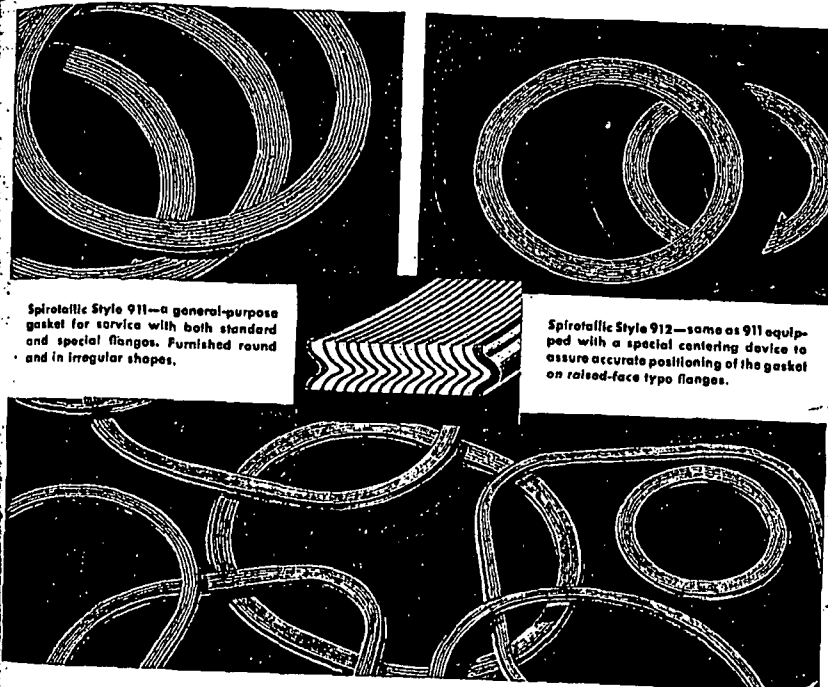
The general idea of providing overlapping protective zones, shown in sketch above, is stressed in this paper. List of subject references is included as well as schematic sketches showing relay components and vector analysis. Several one line diagrams, Fig. 1, are

shown which illustrate typical protective relay problems and their solution. AIEE Paper No. 48-186.

TURBINE OILS

Service Experience With Turbine Oils by C L Pope and O V Sprague, General Electric Co. The paper was written from the results of operating experience on lubricating systems of steam-turbine generating equipment at Kodak Park, Rochester, N. Y. Turbines in this plant range from 1500 to 3000 kw with steam at 260 psi, 570 to 800 psi, 750 F. All turbines operate with a centrifuge continuously separating the oil.

Weekly inspection of the centrifuge is made and monthly oil samples are taken, analyzed, and recorded. Oil samples are taken and run through EK-Oxidation-Corrosion Tester. The main oil tank is drained, inspected, governor mechanism cleaned, oil-cooler water pressure tested and bearing covers lifted. Every



Spirotallic Style 911—a general-purpose gasket for service with both standard and special flanges. Furnished round and in irregular shapes.

Spirotallic Style 912—same as 911 equipped with a special centering device to assure accurate positioning of the gasket on raised-face type flanges.

Spirotallic Boiler Gaskets are furnished for nearly all existent handhole, tube, cap and manhole covers for standard makes of boilers, economizers and superheaters.

For a perfect seal on any type flange —J-M Goetze Spirotallic Gaskets

If you need a gasket with great mechanical strength plus resilience... designed to give a perfect seal under practically any service condition... Goetze Spirotallics will do the job for you.

like characteristics compensate for any expansion or contraction of the joined members due to temperature changes. A tight seal is made and maintained with relatively light bolting and their rugged construction frequently makes it possible to re-use them a number of times.

Johns-Manville makes a complete line of industrial gaskets—both metallic and non-metallic types—to meet every service requirement. If you have a special gasket problem write us. Our 75 years of experience is at your disposal to help you solve it.

Spirotallics owe their unique sealing action to their special construction consisting of a preformed corrugated metal strip combined with an asbestos filler spirally wound.

For complete information write for catalog PK-35A. Johns-Manville, Box 290, New York 16, N. Y.



Johns-Manville Goetze Gaskets