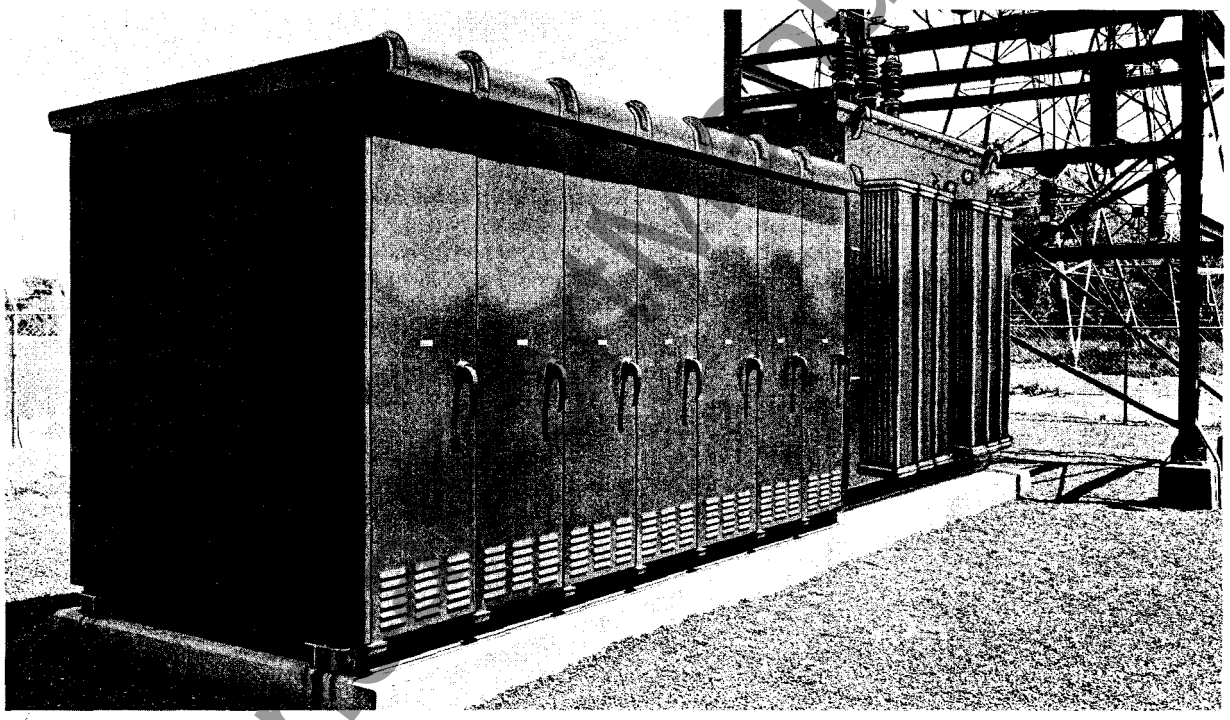
PRIMARY UNIT SUBSTATIONS

Ratings: | **Incoming—6900 through 69,000 volts**
Outgoing—2400 through 13,800 volts



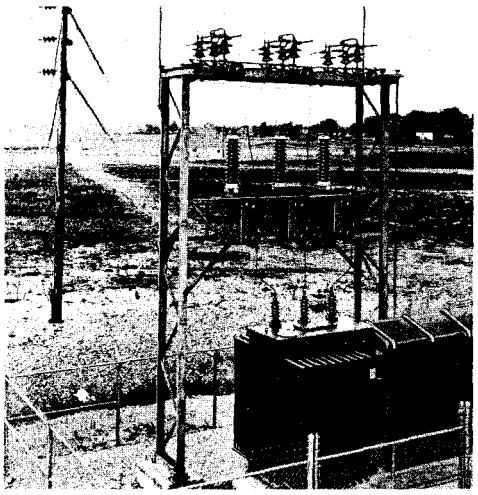
DESIGNED AND BUILT TO MEET YOUR OWN REQUIREMENTS EXACTLY—yet costs no more

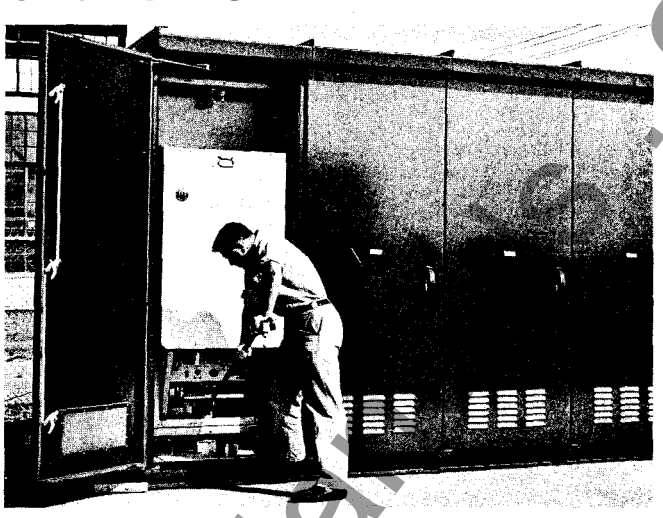
Here's how to get more substation value for your dollar. I-T-E engineers design a substation to meet your particular needs . . . then skillfully select from the broad line of quality I-T-E substation components to give you the advantages of maximum economy, reliability, safety and convenience. In custom designing your substation, I-T-E places particular emphasis on ease of installation and on meeting whatever may be your special requirements for growth and relocation. Standard components are used to save design time. Factory production and prefabrication save installation cost by keeping work at the site to a minimum. I-T-E engineers coordinate the selected equipment so that it is structurally and electrically mated. When you purchase a complete I-T-E substation, drawings are promptly forwarded for site preparation. Manufacturing proceeds without the delays experienced when equipment from more than one manufacturer must be coordinated. Experienced engineering supervision carries through to installation. Shipping is scheduled so that all parts arrive on time to assure you of early availability for service.

I-T-E CIRCUIT BREAKER COMPANY
Printed in U. S. A.

NEW
Distribution—List 16.1

INCOMING SECTION





OUTDOOR STATION

This is a common method of terminating incoming powerlines ahead of primary unit substations. I-T-E can supply outdoor stations of steel or aluminum in any arrangement dictated by circuit requirements. Units are designed simply and economically, but in every case with ample strength for wind, ice and line loads. Disconnecting switches in ratings 6.9 through 69 kv available from I-T-E's broad line.

OIL SWITCH AND TERMINAL CHAMBER

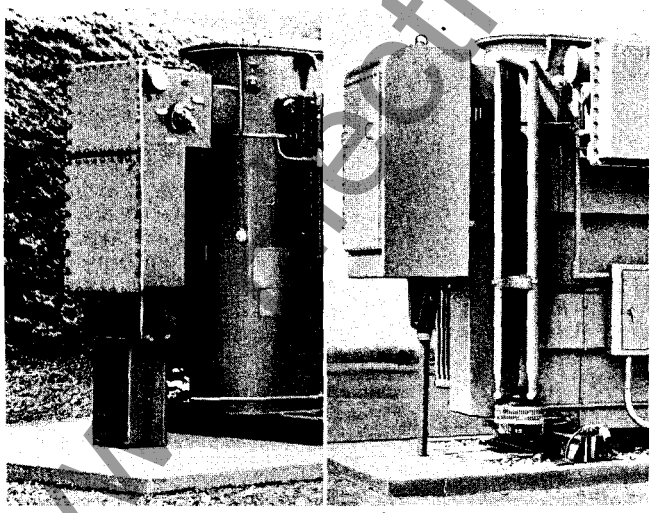
A combination of oil switch and terminal chamber provides for transformer isolation without service interruption on the high-voltage line. The switch is key-interlocked with the associated transformer power circuit breaker to prevent opening under load current. Oil switches are applicable as standardized equipment up to 15 kv and as nonstandardized equipment up to 69 kv. Terminal chambers for incoming cable are available air filled up to 15 kv, oil filled through 69 kv.

METAL-CLAD SWITCHGEAR

When incoming line voltage is 13.8 kv or less, I-T-E metal-clad switchgear with air-magnetic circuit breakers can be used as the primary disconnect. Throat-connected to the transformer primary, it protects the transformer from fault currents besides providing a means of transformer isolation. It also permits differential relaying. Range of ratings is 150 to 1000 mva in standard current ratings.

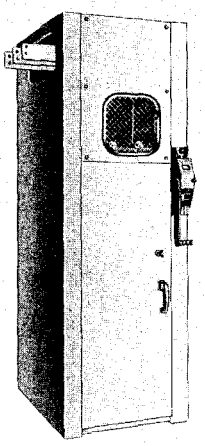
AIR INTERRUPTER SWITCH

I-T-E Type HPL-C air interrupter switches are furnished completely enclosed in metal and normally throat-connected to the transformer. The Type HPL-C switch closes into faults in complete safety for personnel. May be safely opened under full load. Available in a variety of arrangements, fused or unfused. Either current-limiting or non-current-limiting fuses are available, depending upon requirements. Ratings up to 14.4 kv, 2000 amp continuous and 95 BIL.

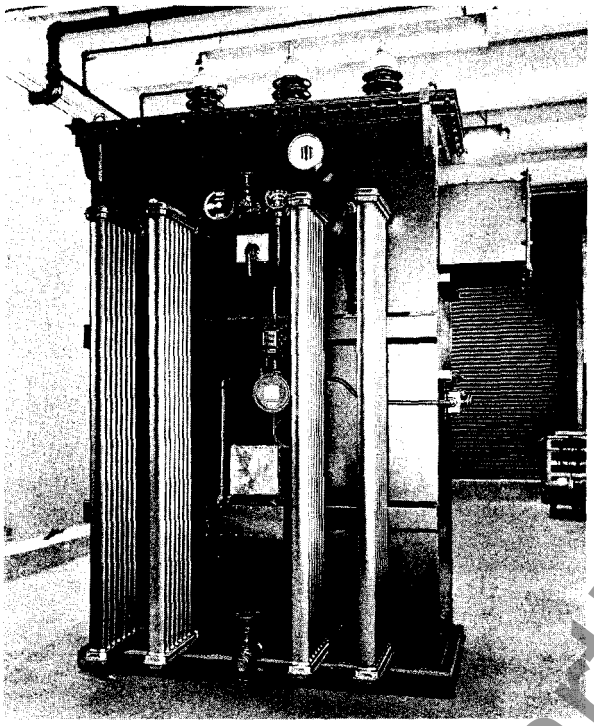


Oil switch

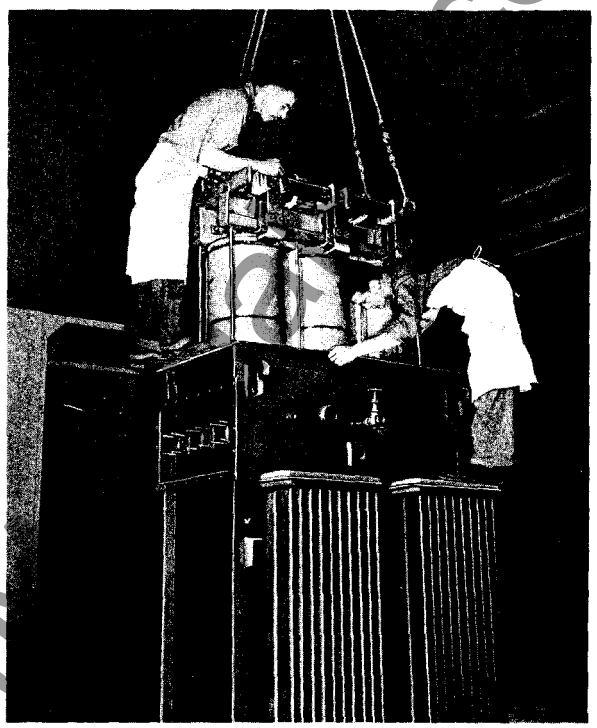
Terminal chamber



TRANSFORMER SECTION



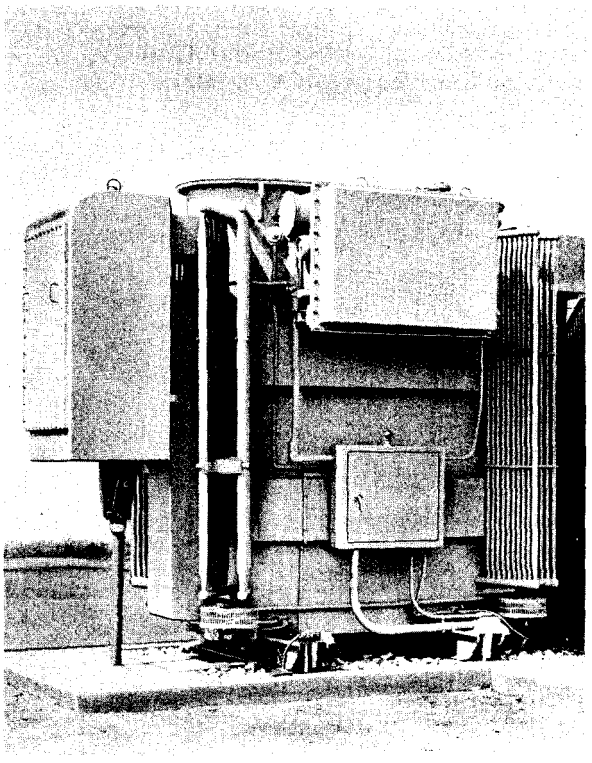
Typical I-T-E primary unit substation transformer



Tanking a core and coil assembly

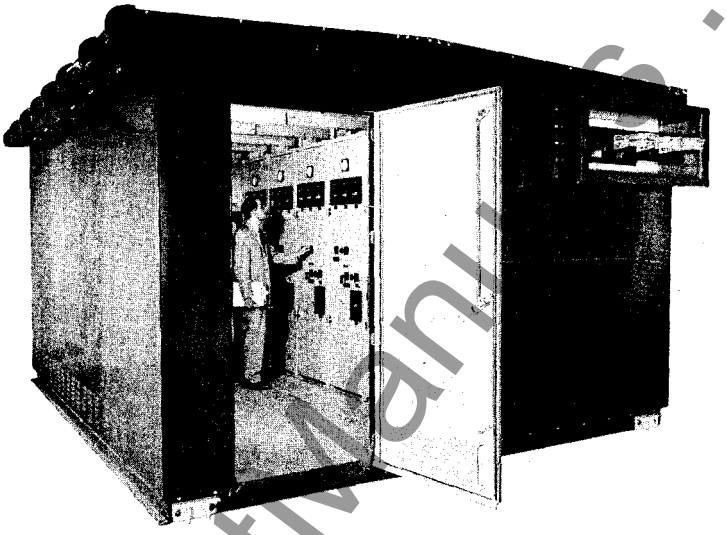
I-T-E supplies a full range of substation transformers manufactured in accordance with industry standards. They are available with or without provisions for tap changing under load.

I-T-E transformers are built to resist the heaviest stresses. As a result, you have less risk of trouble in service, virtual freedom from transformer damage due to abnormal stresses, and greater length of service. Of all transformer manufacturers, only I-T-E assembles cores on a flat bed prior to assembling coils. This insures better alignment of laminations in completed transformers for quieter operation and less heat generation. Tanks for liquid-filled transformers are double welded inside and out to prevent risk of leakage. Sides and cover are reinforced for extra strength.



Transformer with load ratio control

OUTGOING SECTION



Better workmanship quickly identifies I-T-E switchgear. Equipment has a better appearance in the beginning . . . keeps it longer.

I-T-E metal-clad switchgear is available in a complete line, including walk-in and non-walk-in types. Ratings are continuous from 75 through 350 mva in the 4160 volt class and up to 1000 mva in the 13.8 kv class.

Horizontal drawout circuit breakers roll out easily on permanently attached wheels. Safety shutters automatically close over bus openings when breaker is moved to test position or away from enclosure. Breakers are fully interchangeable in same ratings. So power outage time can be kept to a minimum. This is possible because of the precise dimension control on I-T-E breakers and enclosures during manufacture.

All parts of I-T-E switchgear are accessible for quick, easy inspection. Both front and rear doors are hinged. Essential breaker components are mounted on the circuit breaker itself for easier access.

Horizontal drawout circuit breakers. One man can move breaker into or out of compartment in complete safety. Breakers cannot be moved in or out of connected position unless open.

Simplified maintenance. Circuit breaker in 13.8 kv class illustrates pivoting arc chute assembly which gives easy access to contacts. Uniform magnetic flux density over entire length of arc chute speeds quenching of even high fault current arcs.