Type "TF" No Load Tap Changer
INSTRUCTIONS

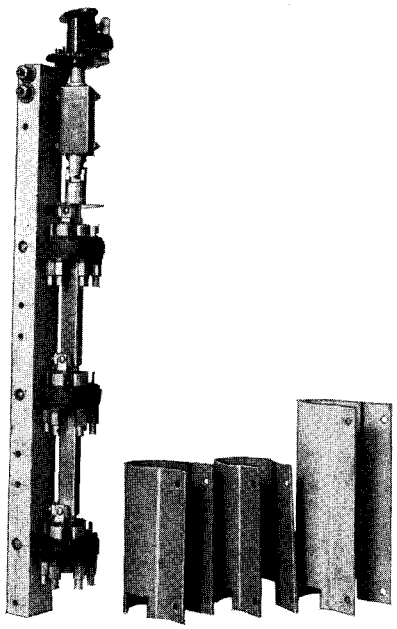

FIG. 1—3-50 AMP. TYPE TF TAP CHANGERS, BARRIERS REMOVED

GENERAL

The type "TF" tap changer provides a quick and convenient method for changing transformer tap connections from outside of the transformer case. The tap changer is mounted under oil in the transformer case and it is intended for operation only when the transformer is disconnected from the line. Therefore, it requires a minimum of maintenance.

CAUTION: No-load tap changers must not be operated with the transformer energized and vice-versa the transformer must not be energized unless the tap changer is latched on position.

CONSTRUCTION

The broad stationary contacts are rigidly mounted on a heavy Moldarta or a Micarta base and are so designed that they conform to the circle in which they are arranged. They are of silver coated copper and are connected to the transformer taps by means of suitable studs through the base.

Three, 50 ampere tap changers arranged for a 3 phase transformer with insulating barriers are shown in Fig. 1. A 200 ampere tap changer without barriers is shown in Fig. 2. A 400 ampere tap changer is shown in Fig. 3.

An operating shaft in the center of the circle of fixed contacts carries a copper alloy arm. The stationary contacts are bridged by the cast alloy arm on which are mounted finger type contacts. The contact fingers are riveted or bolted to the bridging arm. Bearing surfaces of the moving contacts are also silver coated to reduce contact resistance. Heavy cantilever type springs carry the contacts, insuring permanent alignment and adequate contact pressure with the stationary contacts. Flexible copper shunts parallel the springs and prevent possible annealing of the springs due to current passing through them.

The contacts are self-cleaning, as each operation of the tap changer furnishes a positive wiping action. A large bearing at the center provides ample support for the moving contact arm and operating shaft thus insuring long life without danger of misalignment.

The tap changer is moved by an external operating mechanism which has a shaft that passes into the transformer case through a special oil and air tight stuffing gland. The end of the operating mechanism shaft is connected to the tap changer shaft by a flexible joint and an insulating member. A position indicator is combined with the operating mechanism and provision is made for locking the mechanism on any tap changer position.

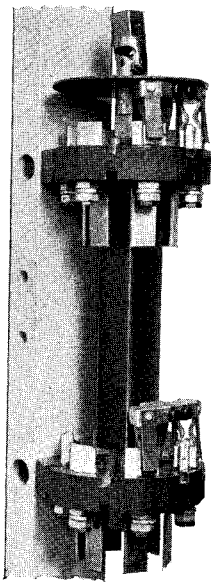

FIG. 2—200 AMP. TYPE TF TAP CHANGER

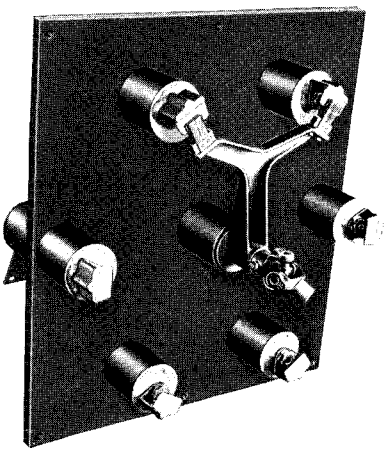

FIG. 3—400 AMP. TYPE TF TAP CHANGER

Type "TF" tap changers are made in a variety of sizes and arrangements to meet voltages and current requirements. When more than one tap changer is operated from a single shaft they are mounted in decks with an insulated shaft connecting the rotating elements.

Fig. 4 shows a typical operating mechanism for cover mounting. Provision is made for locking on position. An overhang on the gland and hand wheel forms weather proof skirts to keep out dirt and water. An arrow on the hand wheel indicates the tap changer position.

No-load tap changers may be arranged to be electrically interlocked with the circuit-breakers through which the transformer is energized. This interlocking prevents operation of the tap changer with the transformer energized. Interlocked tap changers may be operated from a handwheel on the side of the transformer tank or may be motor operated by remote manual control. For installation and operation of tap changers interlocked in this manner refer to the special instruction leaflets supplied with this equipment.

INSTALLATION

The tap changers are usually shipped mounted on the transformer assembly

Type "TF" No Load Tap Changer—Continued

INSTRUCTIONS—Continued

and connected to the operating mechanism. For transformers with the tank or cover shipped separately from the core and coil it is necessary that the tap changer drive shaft be connected to the operating handwheel in the field. Care should be taken to see that the numbers on the dial plate line up with the corresponding connections shown on the diagram name plate.

Tap changer drive shafts are provided with slip joints. These slip joints permit slight displacement of the transformer tank cover with respect to the transformer core and coils without damaging the tap changer parts.

Two universal joints are provided on each tap changer drive shaft to take care of eccentricity between the tap changer and the mechanism shafts. The insulating drive shafts will be shipped as details and must be kept absolutely dry until installed. When more than one tap changer is supplied per transformer, the insulating shafts are match marked in order to facilitate assembly with the proper tap changer.

Should a drive shaft be installed in the field the slip joints and universal joints should be checked for free operation.

MAINTENANCE

The packing around the shaft of the operating mechanism should be tightened when necessary. Aside from this no maintenance is required. However, whenever the transformer is inspected for any reason the tap changer should be inspected at the same time.

RENEWAL PARTS

Renewal parts should be ordered from the nearest Westinghouse Electric and Mfg. Co. office or directly from the Sharon, Pa., Works, giving serial and stock order number as stamped on the transformer nameplate.

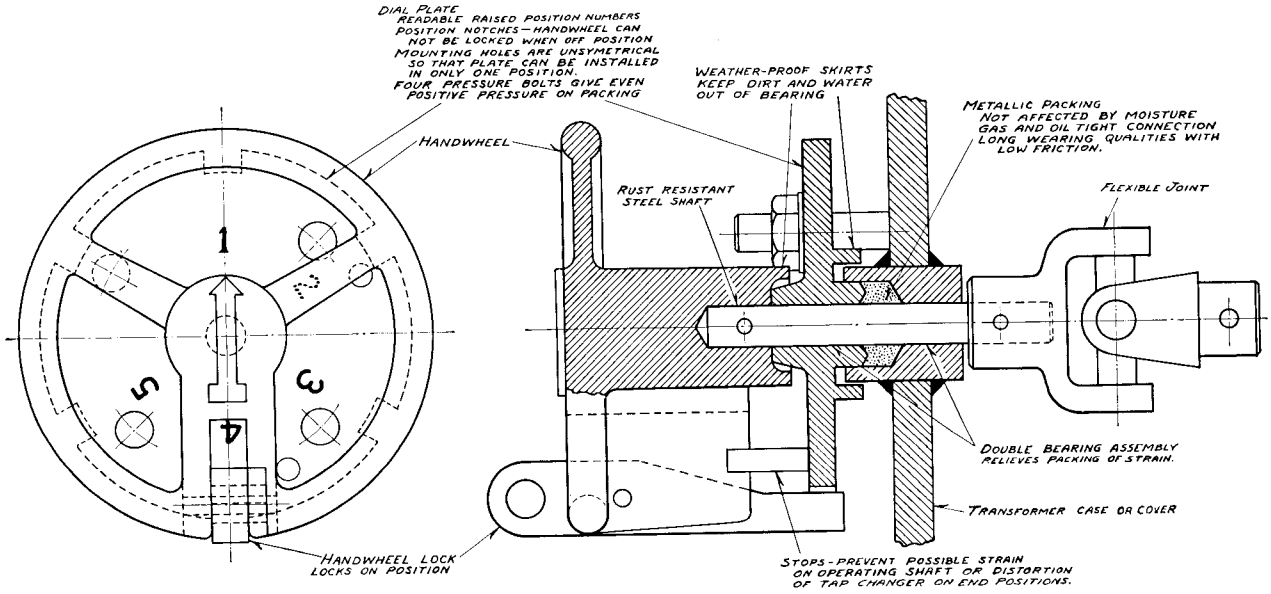

FIG. 4—TYPICAL OPERATING MECHANISM FOR COVER MOUNTING

Westinghouse Electric & Manufacturing Company
Sharon, Pa.

Westinghouse Press
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