INSTRUCTIONS:

S-2500 DRAWOUT ASSEMBLY

DESCRIPTION:

Drawout Assembly (Fig. 1 & 2) is a self-contained integral unit for use in unit sub-stations, switchboards, motor control centers and individual enclosures providing the convenience and safety inherent to drawout type construction. It permits rapid replacement and facilitates inspection and maintenance of S-2500 type circuit breakers without making it necessary to de-energize the entire system.

Unit consists of a stationary frame and a movable carriage which supports the circuit breaker. Load current is carried through primary disconnects permitting attachment of bus or terminal lugs for use with cable.

NOTE: TERMINAL LUGS NOT PROVIDED WITH DRAWOUT ASSEMBLY. MUST BE SUPPLIED BY CUSTOMER.

Spring loaded fingers of primary disconnects are mounted to movable carriage and breaker assembly, permitting maintenance of fingers without complete de-energization of bus system. Accessory control circuits are made by means of secondary disconnects mounted to stationary frame and a matching set on movable carriage.
Movable carriage and circuit breaker are supported by means of rollers which ride on two side rails permanently attached to the stationary frame.

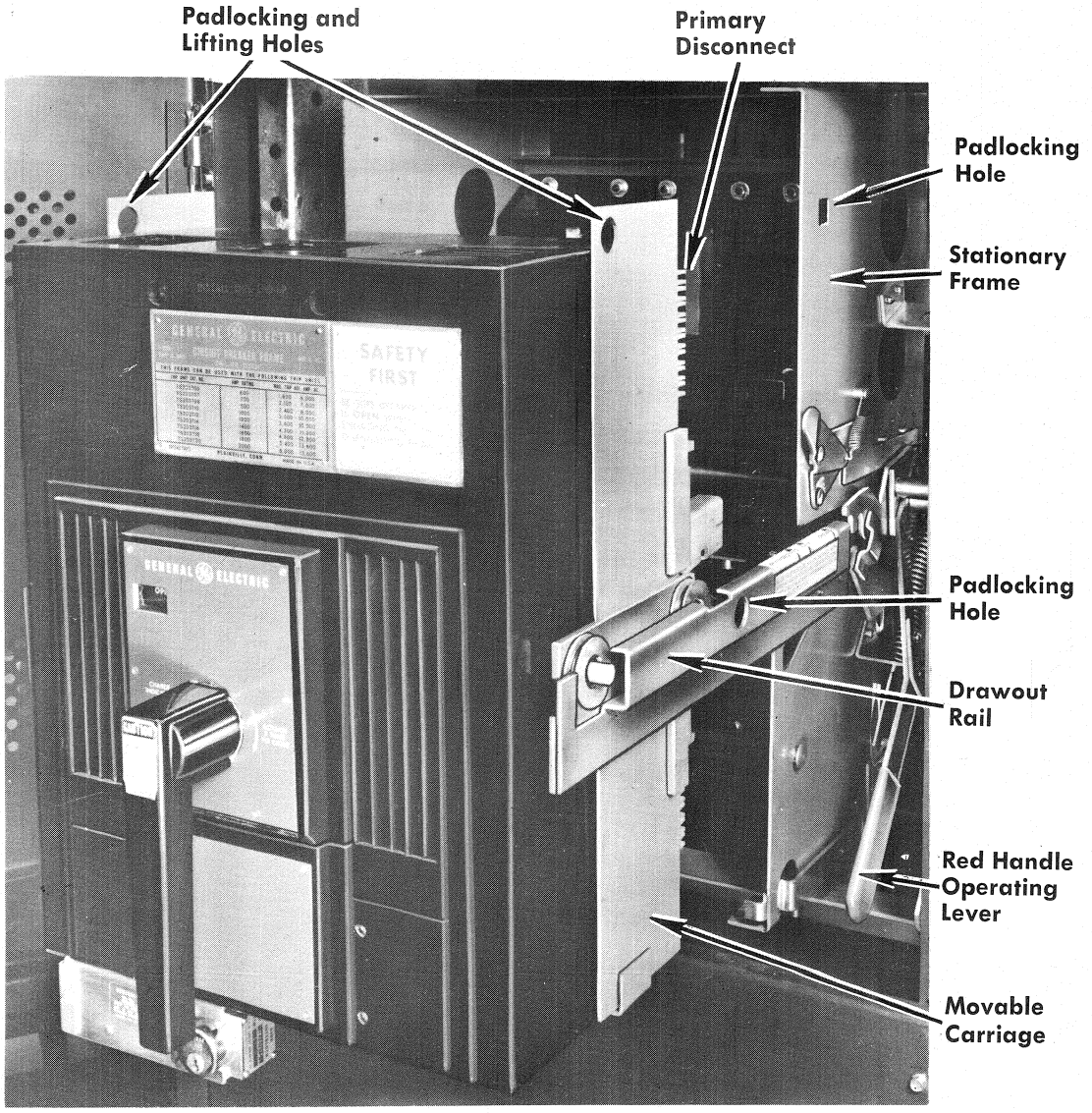


FIG. 1

Rails are pivoted for storage in vertical position when not in use as shown in figure 2. Red handle operating lever and its associated dual cams provide mechanical force for engaging and disengaging the movable carriage.

Movable Carriage/Circuit Breaker Positions — Design features four-position operation of movable carriage relative to stationary frame, *fully engaged, test position, disconnected* and *fully withdrawn. Engaged, test* and *disconnect* positions are referenced by an indicator on the right side rail. In the engaged position, primary and secondary disconnects are completely engaged. In the test position, primary disconnects are disengaged but secondary disconnects are engaged permitting check out of control circuits. In disconnect position, both primary and secondary disconnects are disengaged: breaker is electrically disconnected from control circuits and system. In fully withdrawn position, movable carriage and breaker are against stop at end of side rails. From this position, breaker can be removed from stationary frame.

Mechanical Interlocks –Mechanical Interlocks (Fig.3) areprovided on the red handle operating lever, cam, rail, and movable carriage. These are designed so that if the rails are in the stored position, or if the breaker is "on" in the engaged or test position, the cam is locked and the red handle operating lever will "break away." Also, if the carriage is in the disconnected position (and breaker "on") it will be impossible to push the movable assembly into the test position.

OPERATION

To Move From Engaged To Test Position

(1) Open breaker by pressing red PUSH-TO-OPEN button on circuit breaker escutcheon (Fig. 2).

(2) Open compartment door.

(3) Refer to instruction nameplate on left side of stationary frame. Lift and swing two side rails down to horizontal position.

(4) Pull red handle operating lever (Fig. 1) down against bottom stops.

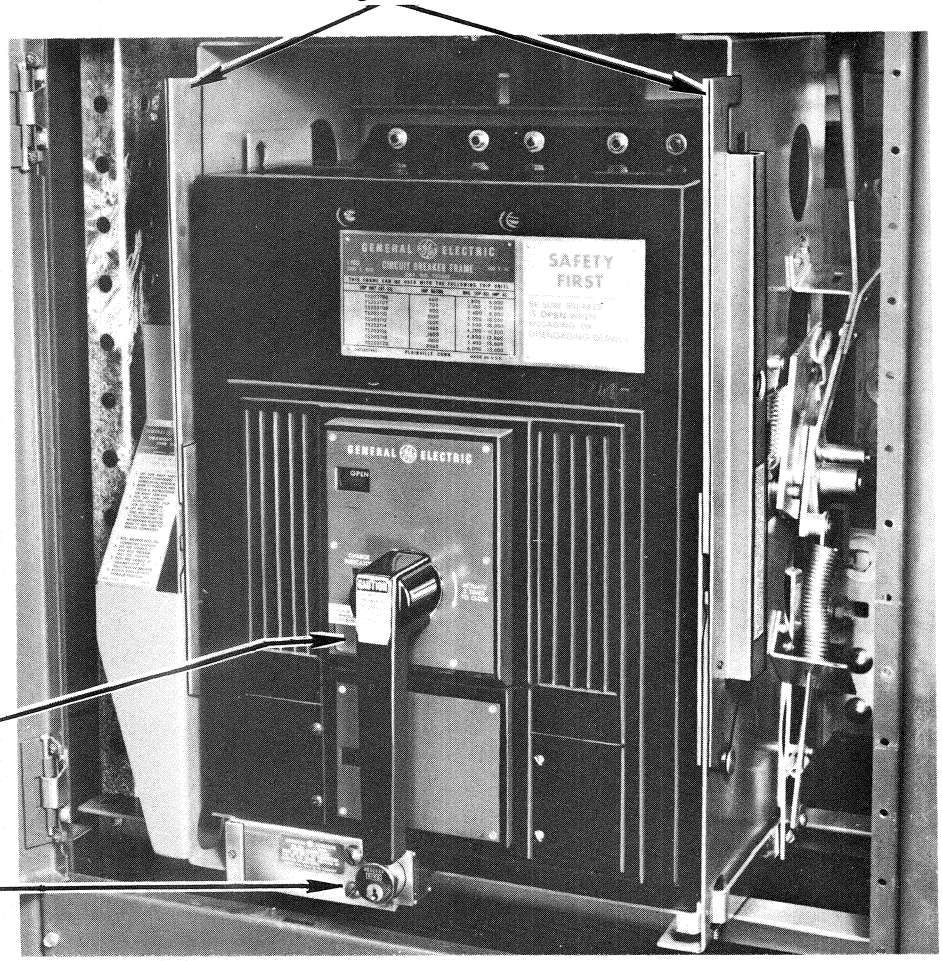


FIG. 2

NOTE: Yellow roller pin will now line up with test position indicator on right side rail. Breaker is now in test position with primary stubs disconnected (Fig. 3).

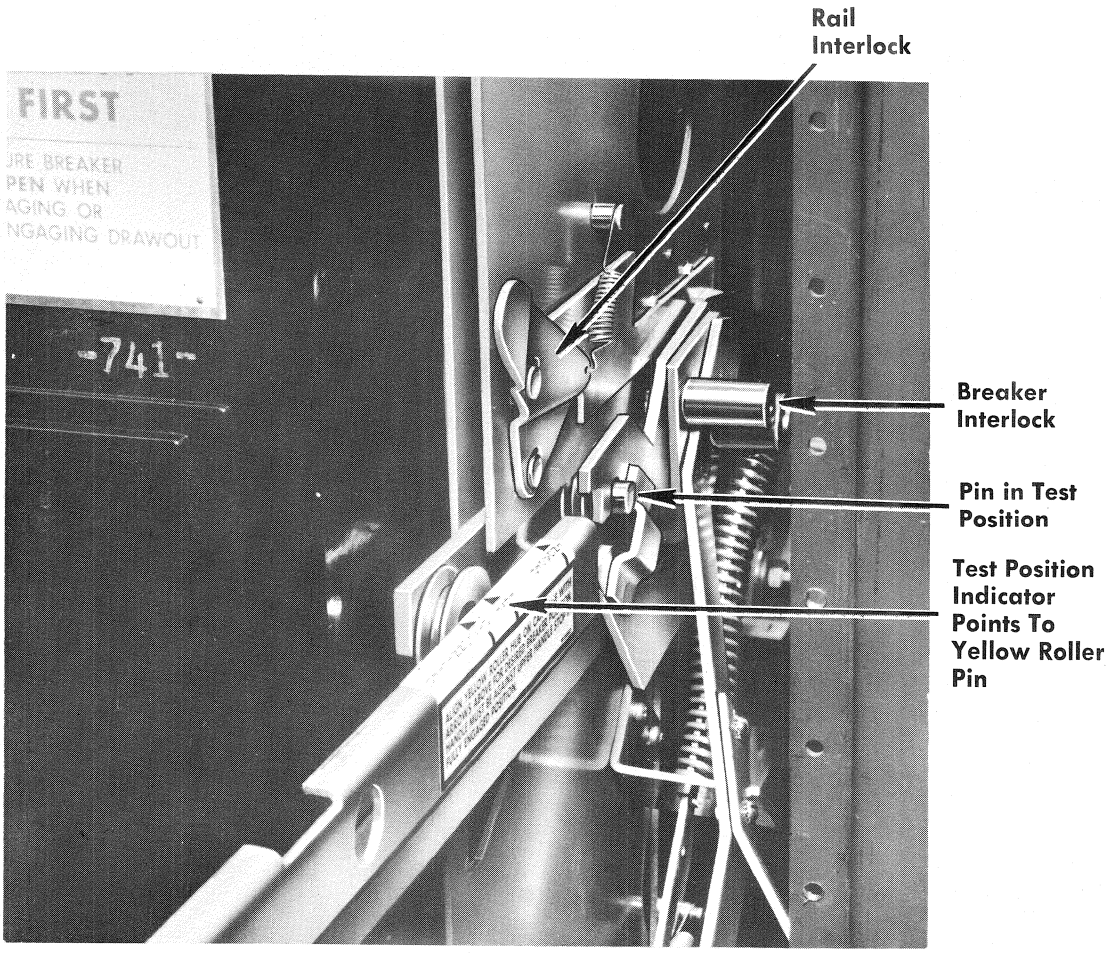


FIG. 3

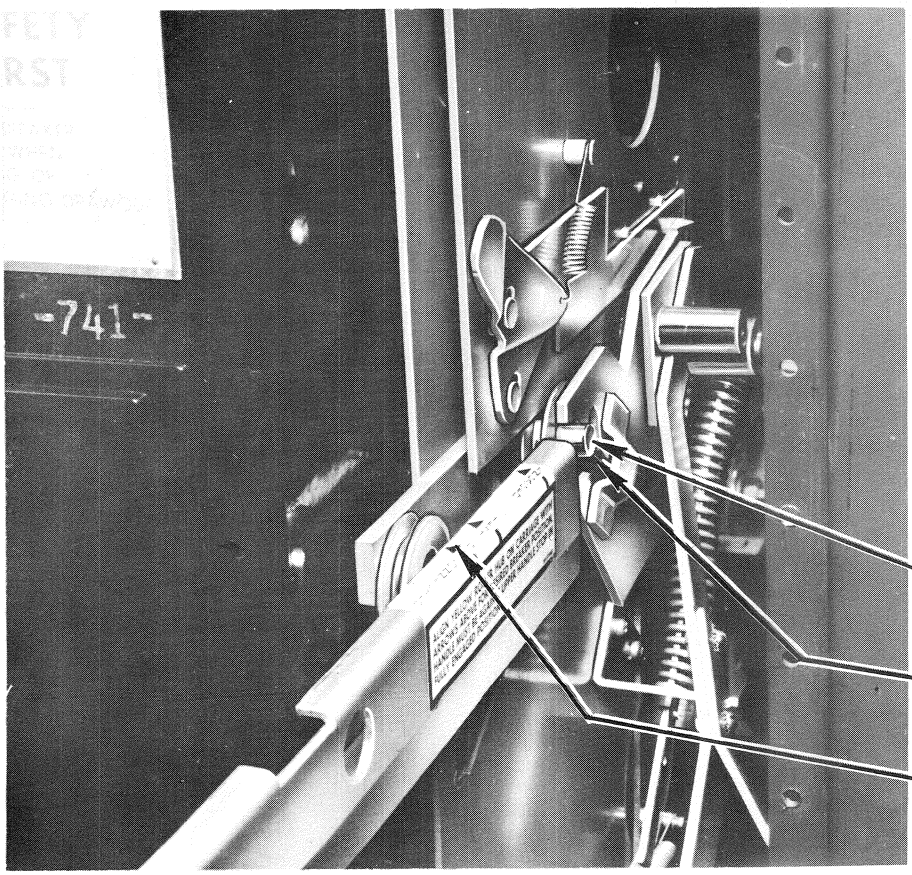


FIG. 4

To Move From Test Position to Disconnected Position

Move breaker to test position as outlined, then raise red handle operating lever approximately 2″ (to expose gate in cam) and pull movable carriage out to disconnect position.

NOTE: Yellow roller pin will line up with Disconnected Position Indicator on right side rail (Fig. 4).

To Move From Disconnected Position to Fully Withdraw Position

From disconnected position roll breaker all the way out to stop at end of side rails (Fig. 5). At this point unit may be removed using a suitable lifting device (hoist) attached to the lifting holes. Raise unit slowly and lift rollers out through notches in rails (as shown in Fig. 8).

To Engage Breaker

(1) Reverse the above procedure.

NOTE: Approximately 60 lbs. of force is required to move the red handle operating lever to the final engaged position.

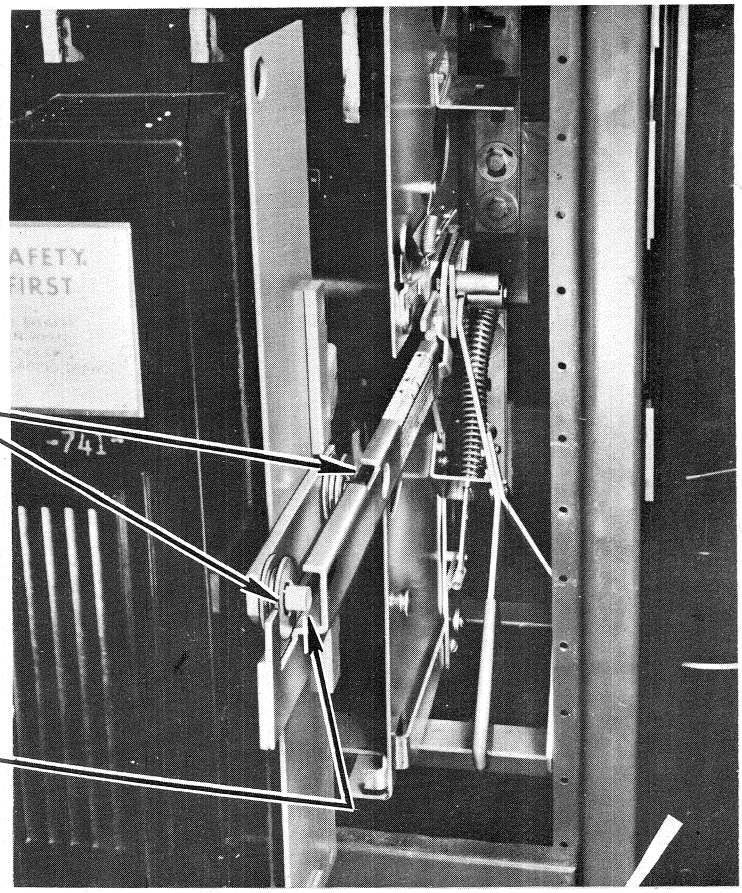
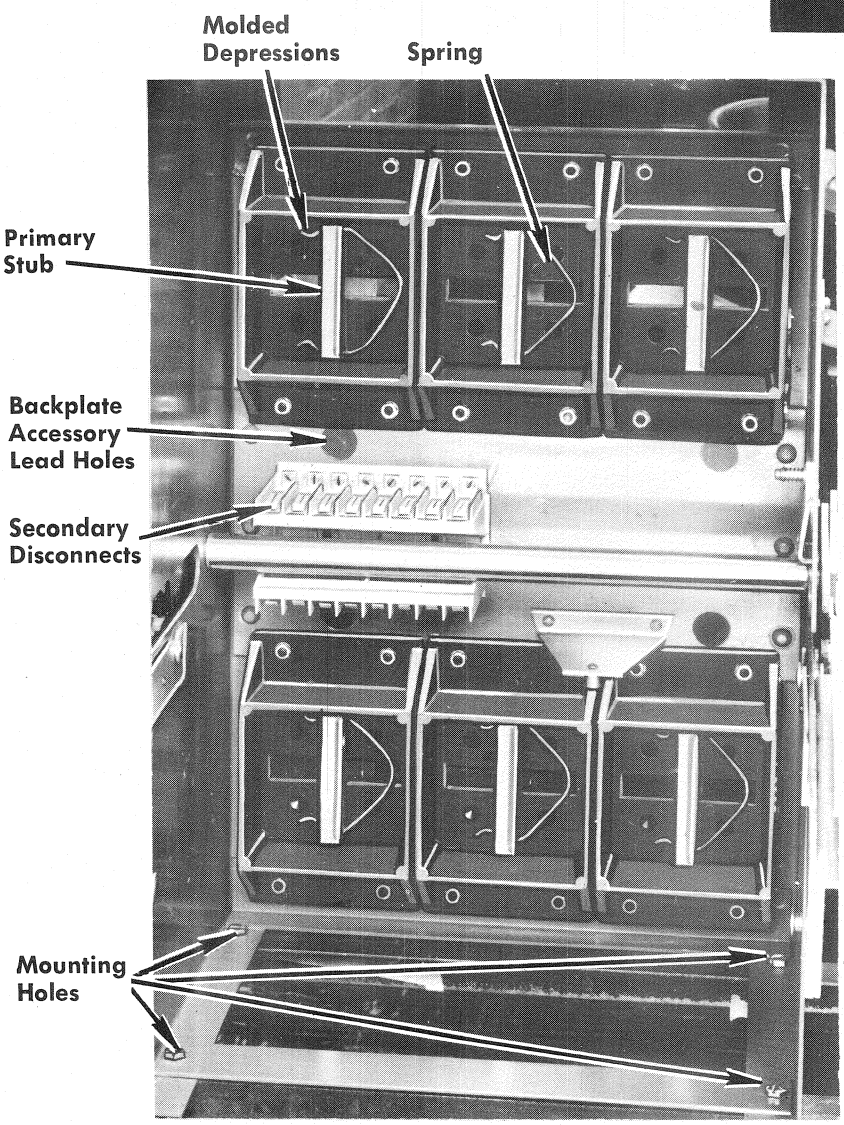


FIG. 5



Mounting Instructions

Installation of stationary frame

Place unit on supporting structure supplied by customer and bolt in place. Four mounting holes are provided as shown in Fig. 6 and outline drawing, Fig. 9 (space is available for adding other holes as desired). Complete units are supplied with primary stubs normally mounted in a vertical position. Attach bus work and cables to primary stubs and make accessory connections to secondary disconnect terminals, but do not tighten bus connections until breaker has been installed and door opening fit checked. Holes are provided in backplate for convenient location of accessory leads.

To relocate stubs horizontally, unsnap springs and withdraw stubs from rear of insulator, reinsert them horizontally and snap springs back into notches provided. Depressions molded in Insulator Face provide convenient pry points for using a screwdriver to pry spring clip off and on (Fig. 6).

NOTE: Device must be properly fitted and free of distortion.

FIG. 6

Installing Drawout Unit In Stationary Frame

From storage position, lift side rails all the way up. Swing them downward and away from frame. When rails are approximately 90° from storage position, slide rails inward towards rear of frame and with a slight motion, lift rails to engage slots on rails to locking rivets (Fig. 7).

NOTE: Rails should be horizontal and lower runners should form one continuous track.

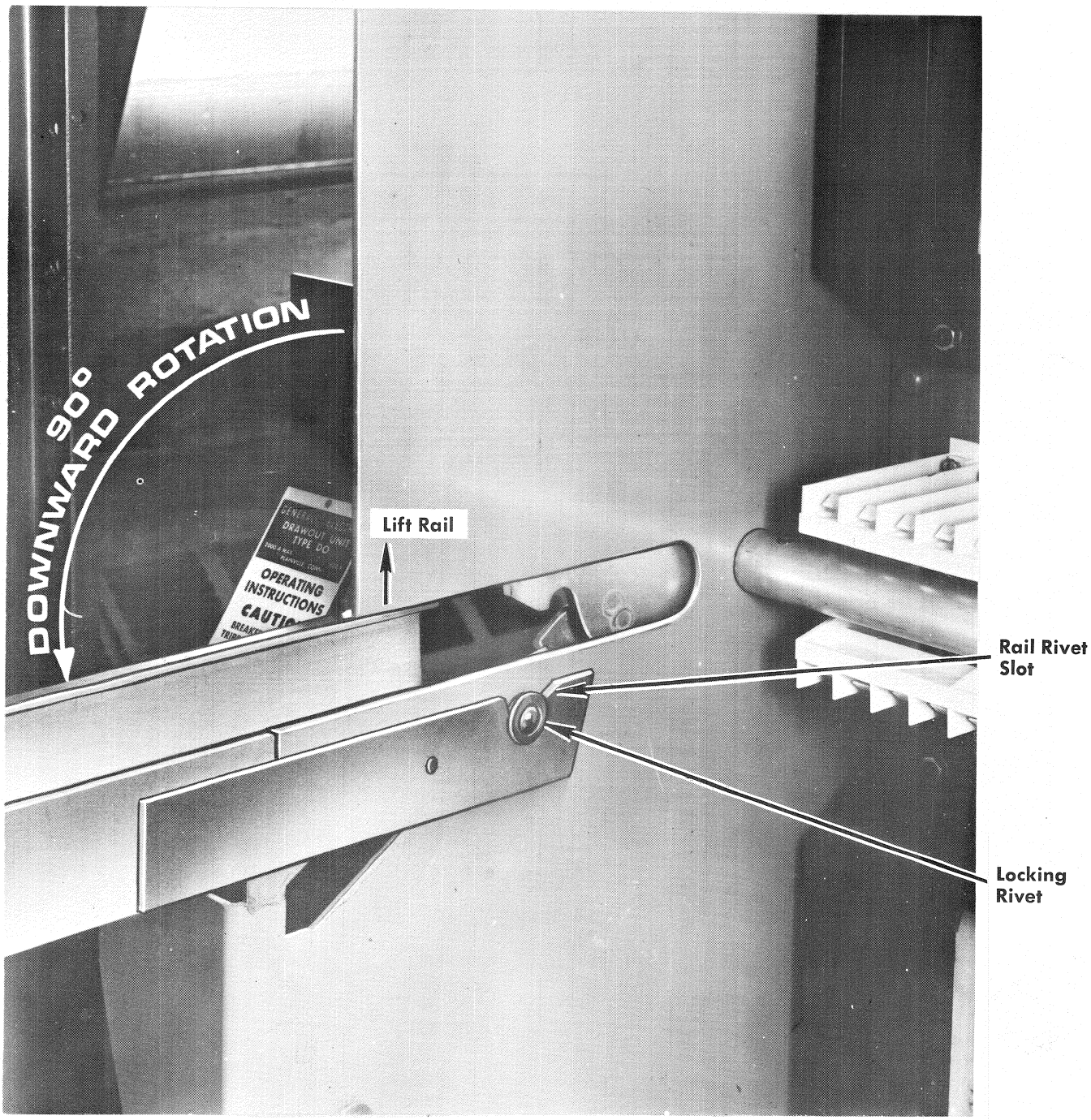


FIG. 7

Lifting holes are provided in the inner frame for any suitable lifting device and spreader bar is not required. With unit suitably supported, lower wheels through notches provided in rails (Fig. 8). Make sure slotted wheels straddle rails before removing lifting means. Unit may now be rolled into any desired position.

NOTE: Breaker must be open before it can be racked in.

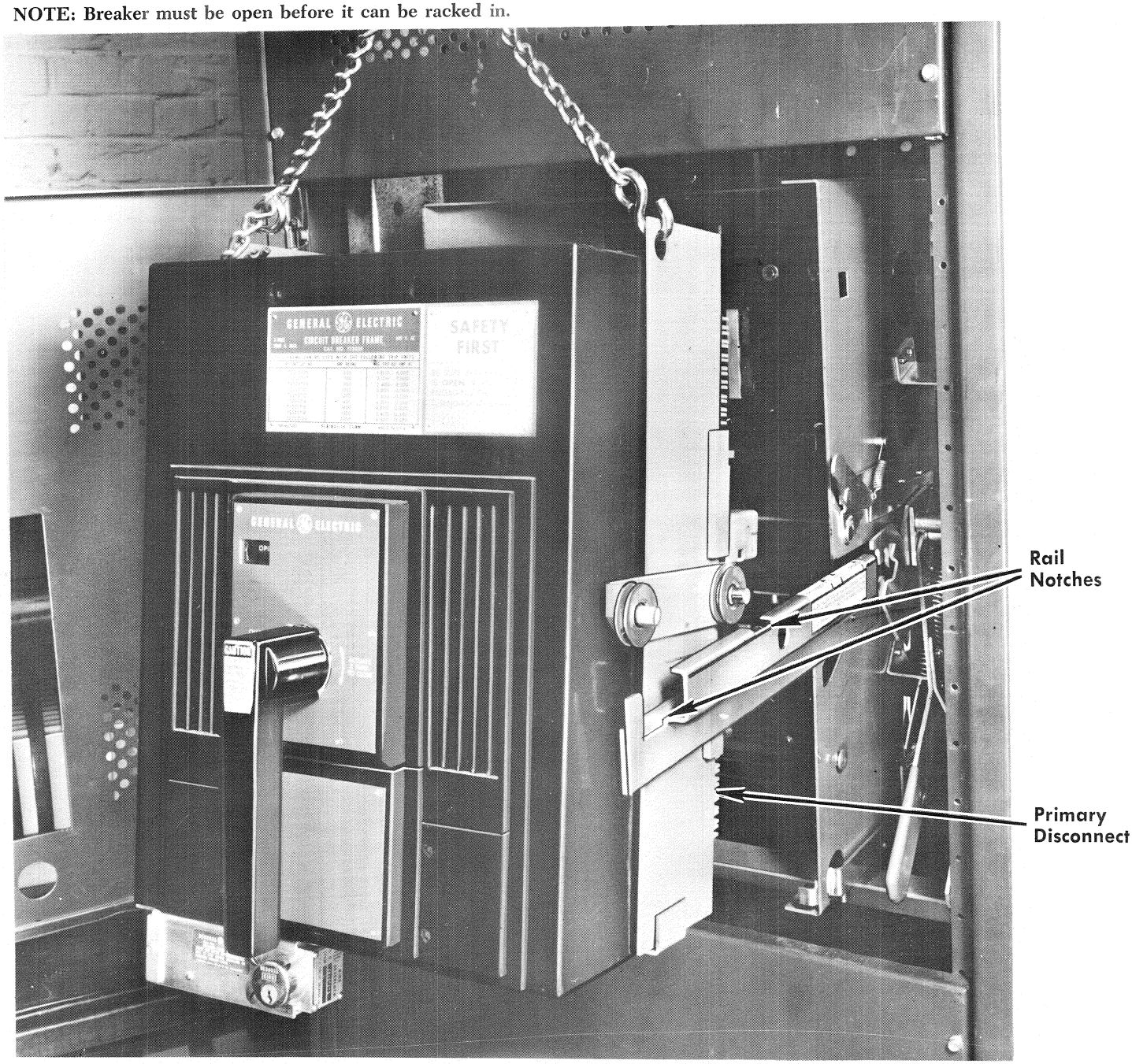


FIG. 8

MAINTENANCE

NOTE: De-energize equipment completely by removing all sources of power, both primary and secondary.

A regular maintenance schedule should be established to obtain the best service and reliability. Plant, operating and local conditions will dictate the frequency of inspection required.

A permanent record of all maintenance work should be kept, with degree of detail dependent on operating conditions. In any event, it will be a valuable reference for subsequent maintenance work and station operation. It is recommended that records include reports of tests performed, condition of equipment, and repairs and adjustments made.

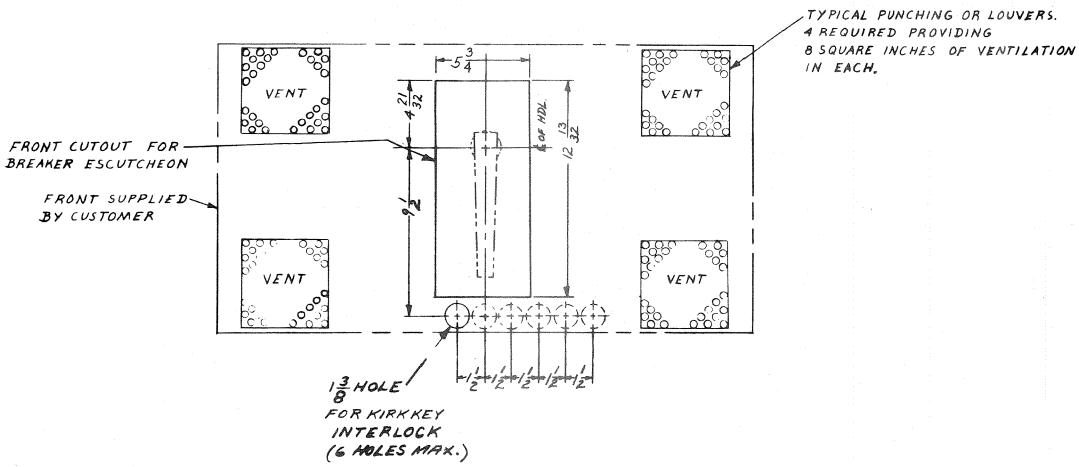
Maintenance employees must follow all recognized safety practices, such as those contained in the National Electrical Safety Code and in company or other safety regulations during maintenance. Solid insulation surrounding an energized conductor in power apparatus must ever be relied upon to provide protection to personnel.

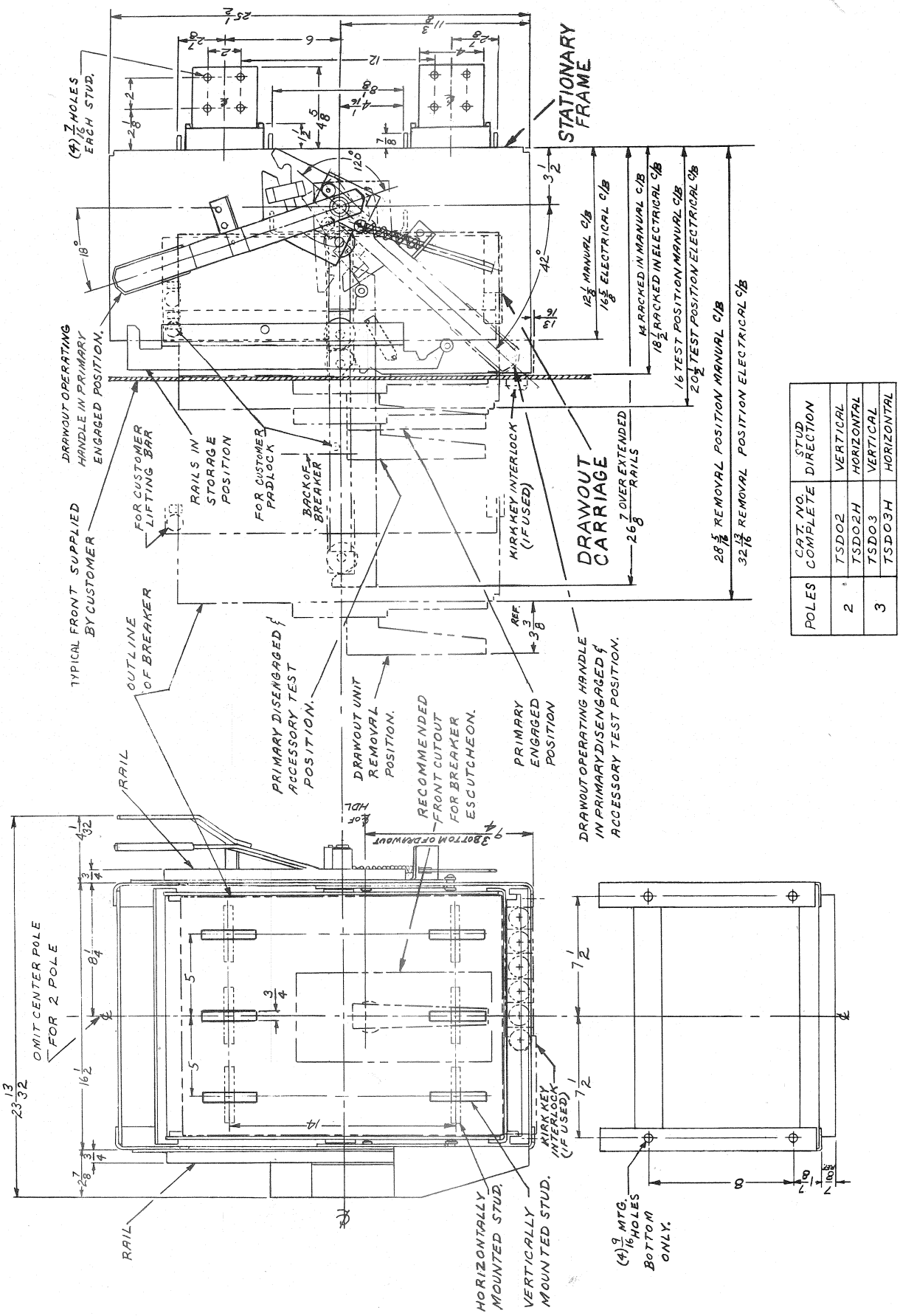
ANNUAL MAINTENANCE PROCEDURE

Drawout structure and connections should be given the following overall maintenance at least annually. The frequency of maintenance period will depend upon severity of service and atmospheric conditions around units. Equipment subject to highly repetitive operation may require more frequent maintenance.

None of the following operations should be undertaken until it is certain that equipment is completely de-energized by withdrawing breaker to disconnect or fully withdrawn position.

1. Thoroughly clean by removing all dust and other accumulations from the equipment. Wipe or vacuum clean, buses and supports. Avoid use of compressed air for blowing out equipment. Inspect buses and/or Terminal lug connections carefully for evidence of overheating or weakening of insulating supports. Check indicating devices, mechanical and key interlocks for proper functioning. Lubricate all moving and rubbing parts (other than contact surfaces) with suitable lubricant such as aero grade lubricate.
2. After cleaning with breaker removed, megger, and record resistance to ground and between phases of insulation of buses and connections. Since definite limits cannot be given for satisfactory insulation resistance values, a record must be kept of readings. Weakening of insulation from one maintenance period to the next can be recognized from recorded readings. Readings should be taken under similar conditions each time if possible, and record should include temperature and humidity.
   High potential tests are not required, but if it seems advisable, based on insulation resistance tests or after repairs, test voltage should not exceed 75% of factory test voltage which is "2 times rating plus 1000" volts.
3. Check primary and secondary disconnecting device surfaces for signs of abnormal wear or overheating. Clean contacts with suitable solvent. Discoloration of silvered surface is not originally harmful unless atmospheric conditions cause deposits such as sulphides on the contacts.
   Before replacing breaker movable carriage, wipe off primary and secondary disconnects, and apply a thin coat of contact lubricant D50H47 to primary disconnect fingers.
4. Check to see that all anchor bolts and bolts in the structure are tight. Inspect all cable connections for signs of overheating and tighten all loose connections. Check to ascertain that all secondary connections are secure and all control wiring is intact.
5. Operate each breaker while in the "Test" position to be sure it functions properly. This is particularly important for breakers that normally remain in either the opened or closed positions for long periods of time.
6. Stress corrosion cracking of stainless steel finger springs may result where highly stressed parts are subjected to various corrosive atmospheres. If the equipment is located near pickling tanks or other corrosive installations where the atmosphere contains chlorine or chlorides, the springs must be protected with a grease such as D50H47, and replaced periodically as part of the regular maintenance program.
   When the equipment is subject to unusual conditions, such as contaminating fumes, excessive moisture, etc., maintenance should be scheduled at more frequent intervals. In this case, the procedure listed above may not be sufficient for proper maintenance, and additional precautions may be necessary to protect the equipment from the unusual conditions encountered.





POLES	CAT. NO. COMPLETE	STUD DIRECTION
2	TSDO2	VERTICAL
	TSDO2H	HORIZONTAL
3	TSDO3	VERTICAL
	TSDO3H	HORIZONTAL

These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to the General Electric Company.

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