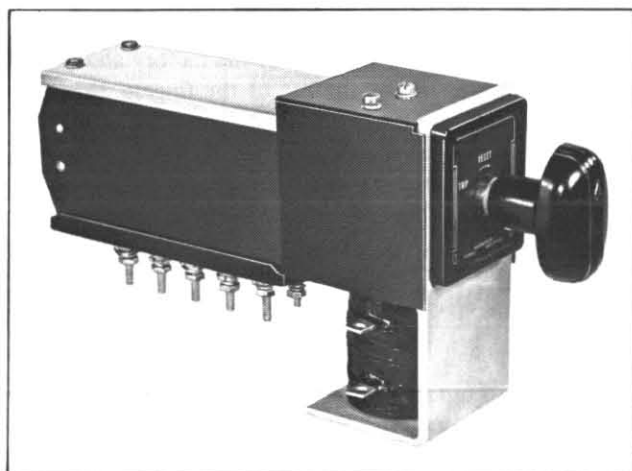


Instructions for Type WL Switch 600 Volts, 20 Amperes Continuous (Renewal Parts Data Included)



I.L. 34-252-A



APPLICATION

Type WL Switches are solenoid tripped, hand reset, and are applied where a number of operations must be per-

formed simultaneously. For example, they can be used to provide simultaneous tripping of several breakers as may be required in differential protection or trip the main circuit breaker of a system in conjunction with other associated auxiliary breakers.

OPERATION

The Type WL Switch is a two position device, "reset" position at the 12 o'clock location and "trip" position at the 10 o'clock location on the dial nameplate. The rotor is held in the "reset" or normal position by means of a latch lever. The latch lever incorporates a roller which engages a holding cam that is secured to the rotor shaft. In the "reset" position the rotor is under torsion spring stored energy and remains in this position until the solenoid is energized. Upon energizing the solenoid coil, the plunger travels upward and actuates the latch lever causing the latch to pivot away from the holding cam allowing the

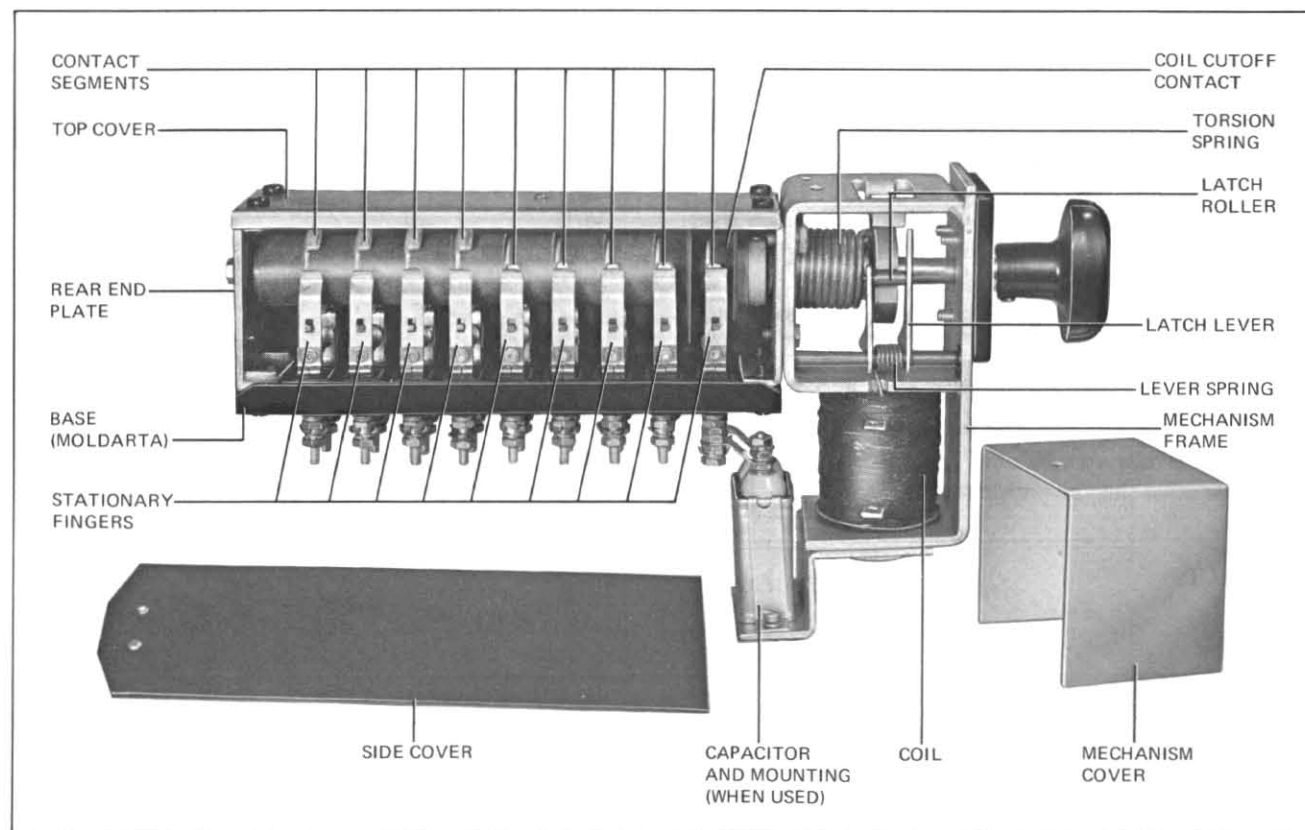


Fig. 1

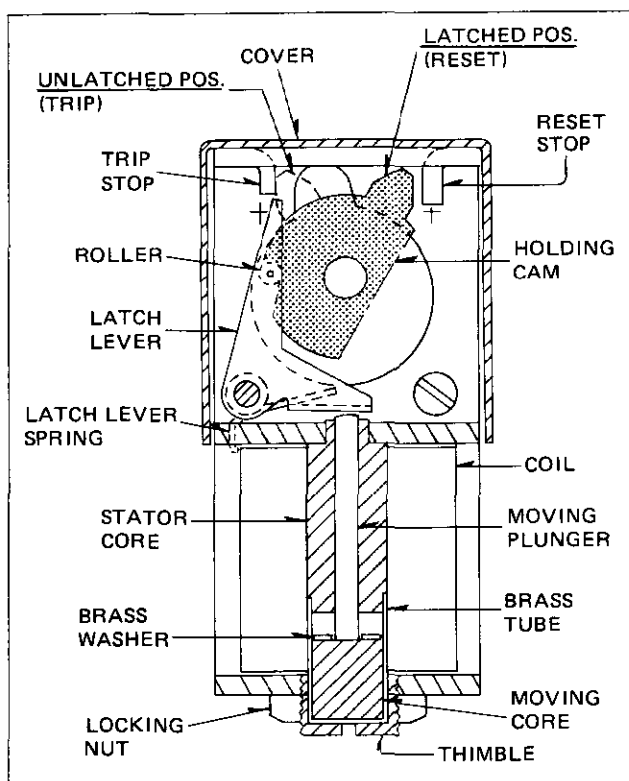


Fig. 2

torsion spring to move the rotor counterclockwise sixty (60) degrees to the "trip" position.

When the switch is tripped, the unit must be hand "reset" by turning the handle sixty (60) degrees clockwise until the holding cam strikes the position stop. When the rotor is turned to the full reset position, the latch lever, under spring pressure, will move into latching position. When the handle pressure is released, the latch roller will engage the holding cam thus retaining a positive "reset" position.

If the handle is not turned to the full reset position, the latch roller will not engage the holding cam and the rotor will return to the full "trip" position. The reset operation must then be physically repeated.

CONTACTS

Stationary

In the Type WL Switch one stage constitutes one circuit (one double series break contact) made up of two stationary contact fingers and one moving contact segment. The stationary contact fingers of a given stage are secured to a molded base of insulating material of high di-electric strength by studs which pass through the molded base and serve as terminals for circuit connections. The stationary

contact fingers are mounted 180 degrees apart in an opposing manner.

The adjustment of the stationary fingers is as shown in the diagram below or such that there is approximately 3/64 inch deflection in the contact finger when the moving contact segment is engaged or "closed". The stationary contact fingers are adjusted at the factory and should need no adjustment for the life of the fingers. However, should any adjustment be desired or for adjusting any replacement finger, such adjustment is accomplished by bending the metal bracket ("L" shaped) which secures the finger to the base. Bend as necessary to attain the dimensions as shown in paragraph two above or per sketch below.

Moving

The moving contact segment has no adjustment. These segments are keyed to the rotor by means of a notch formed in the inner surface of the segment. This notch engages a strong fibre key placed in the rotor insulating tube. (See Figure 4)

The segment of the Type WL Switch can be field changed from normally closed to normally open or vice versa by dismantling the rotor and re-installing the segments on different notches. (See instructions for dismantling rotor)

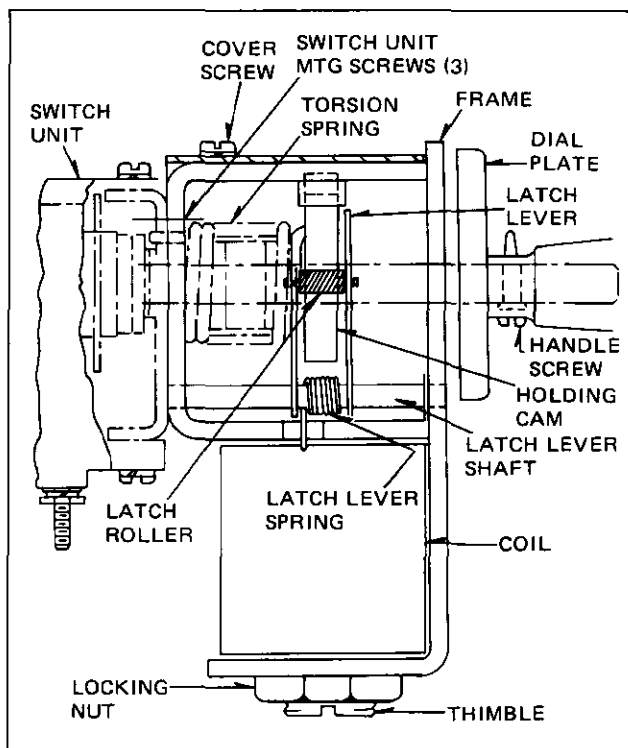


Fig. 3

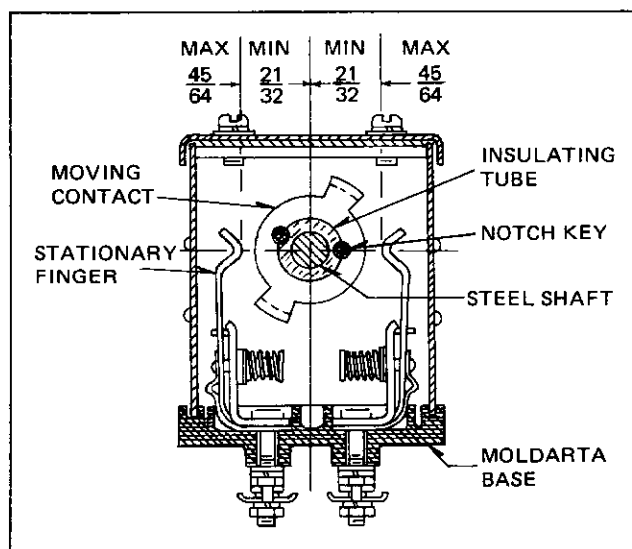


Fig. 4 Switch Section - Rear View

By standard procedure, break before make contacts are assembled as follows:

Normally closed (Section B-B, Fig. 5) contacts on notches 1 and 5.

Normally open (Section A-A, Fig. 5) contacts on notches 2 and 7.

In such assembly the notch number referred to must be placed over the notch key. The notch key is intended as an assembly guide. (Refer to Figures 5 and 6)

INSTRUCTIONS

To Mount Switch On Panel

Remove the machine screw and pull handle from shaft. Remove nameplate. Take out mounting screws and remove dial plate. Place switch on rear of panel with shaft extending through panel. Replace dial plate on shaft on front of panel and fasten securely with mounting screws. Replace nameplate. Fasten handle on shaft with machine screw.

To Remove Rectangular Nameplate

Remove the machine screw and pull handle from shaft. Remove nameplate by pressing in and upward at the top, then lift out.

To Replace Rectangular Nameplate

Set nameplate in top slot of dial plate, then snap into position by pressing in and downward at the bottom.

Important: Indicator screw or indicator rib on modern handle must point in the same direction as the arrow stamped on end of shaft.

To Dismantle Switch Unit From Trip-Latch Mechanism Frame*

Remove screw securing handle to shaft. Remove handle from shaft. Remove cover from latching mechanism. Remove three (3) screws, 1/4-20, which secure latch mechanism to the switch unit. The switch unit can now be separated from the trip-latch mechanism by drawing the frame forward over the torsion spring assembly while holding the latch lever in a retracted position.

*If only a change in contact configuration is required, it is not necessary to separate the switch unit from the mechanism.

To Remove Rotor From Switch Unit

Remove two screws from front of base. Remove two screws from back end of top cover. Base and rear end plate can now be removed as a unit by moving the base backward far enough that the rear end plate will be free of the shaft, then pull the base away from the rotor. This will expose the rotor sufficient to gain access to the moving contact segments.

To Dismantle Rotor

Remove bolt from rear end of shaft. When renewing parts on the rotor, the various parts must be replaced in their original position and sequence. The key-way number on each segment indicates the exact position of the segment on the rotor.

It is suggested that on dismantling the rotor, each part be removed and set aside in sequence to assure correct and efficient re-assembly. When tightening the bolt on the end of rotor shaft during re-assembly, the factory uses sixty (60) inch-pounds torque.

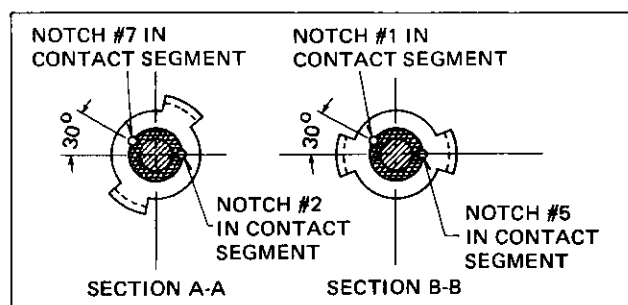


Fig. 5 Segment Section - Rear View

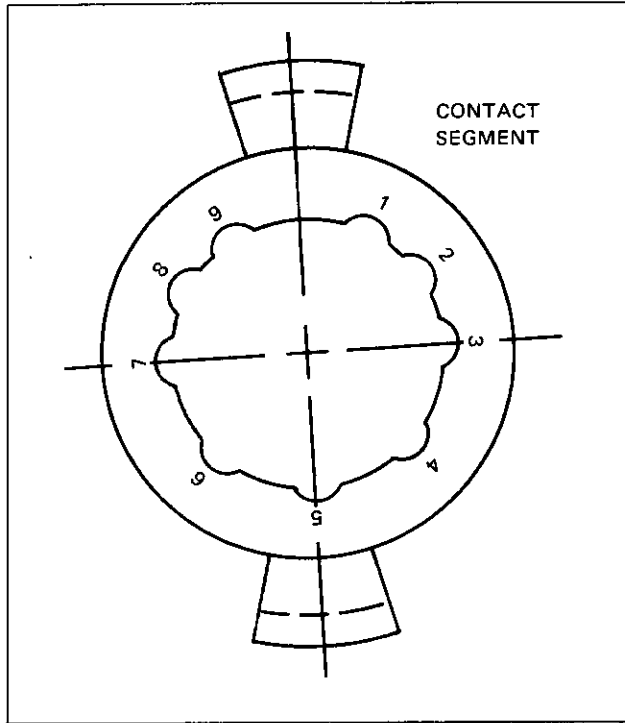


Fig. 6

To Remove Coil

Remove line connections to coil. Remove locking pal nut. Remove thimble. At this point, with the switch in an upright position, the moving plunger, stator core with associated details will readily drop out and the coil can then be removed from the side opposite the latch spring. It should be noted that in most switches a hard wood wedge is placed between the coil and the mechanism frame to hold the coil from turning. When replacing the coil this wedge should be re-installed.

Re-installation of Coil Details

Place coil in frame with core of coil aligned with hole in bottom of frame. Place brass washer over rod of moving plunger. Place moving plunger into brass tube. Place stator core over rod of moving plunger. Place this assembly inside the thimble.

With the switch in the horizontal upright (normal mounting) position, insert the plunger details as a unit and thread the thimble into place. Tighten the thimble with a screw-driver. At the time of final assembly it may be necessary to move the coil to obtain proper alignment of the stator core with the coil.

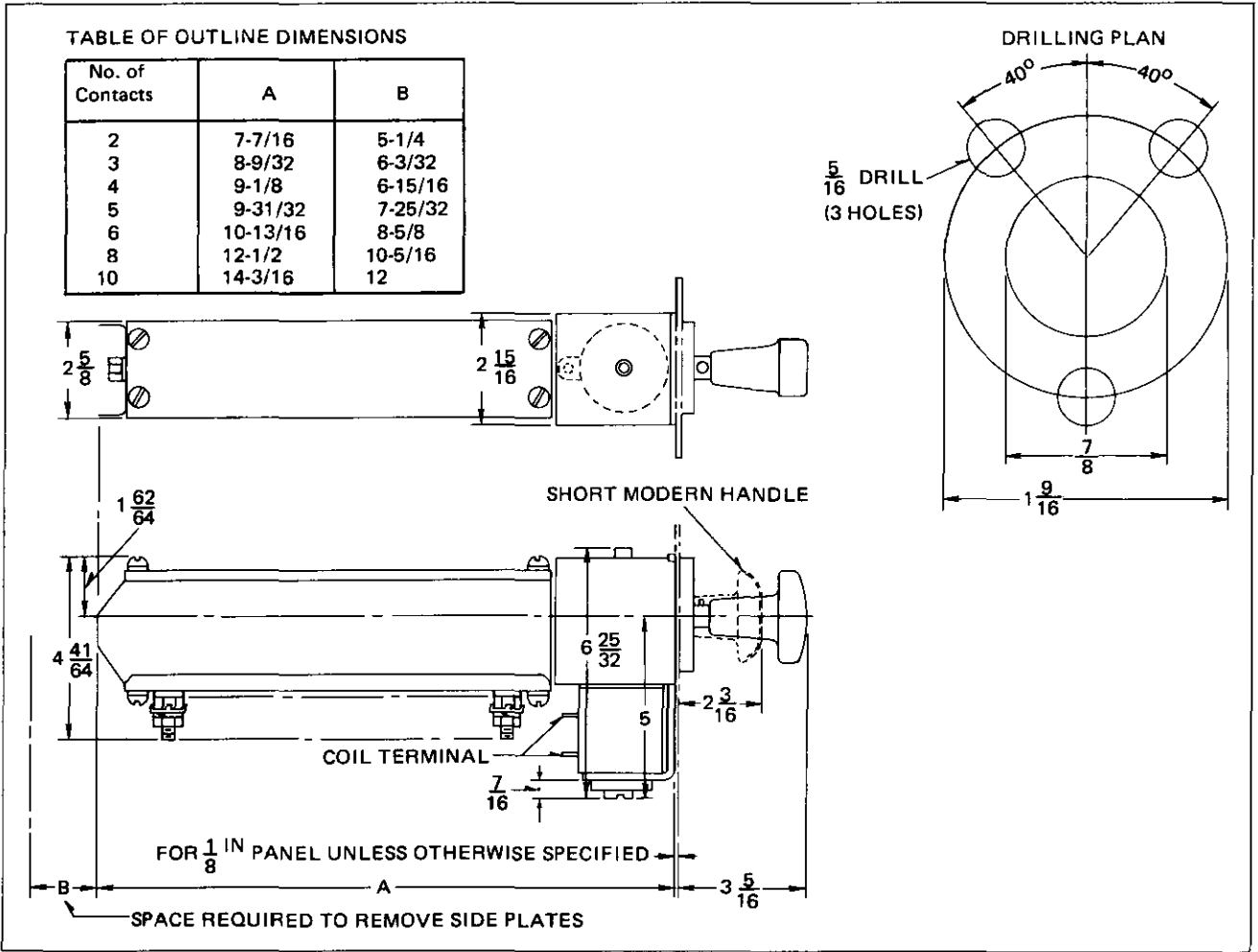
Place locking pal nut over the thimble and tighten securely. Rotate coil for desired coil terminal location and insert hardwood wedge.

Geared Units

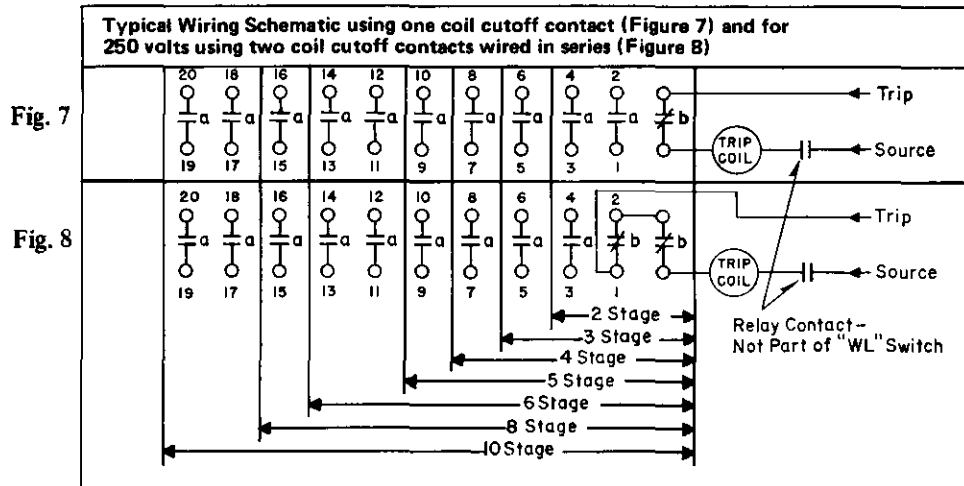
Type WL Switches requiring more than 10 contacts necessitate geared assemblies. This switch can be assembled with 2, 3 or 4 units to a common handle, 40 contacts are considered the maximum. On geared switches only one coil and latch mechanism is used.

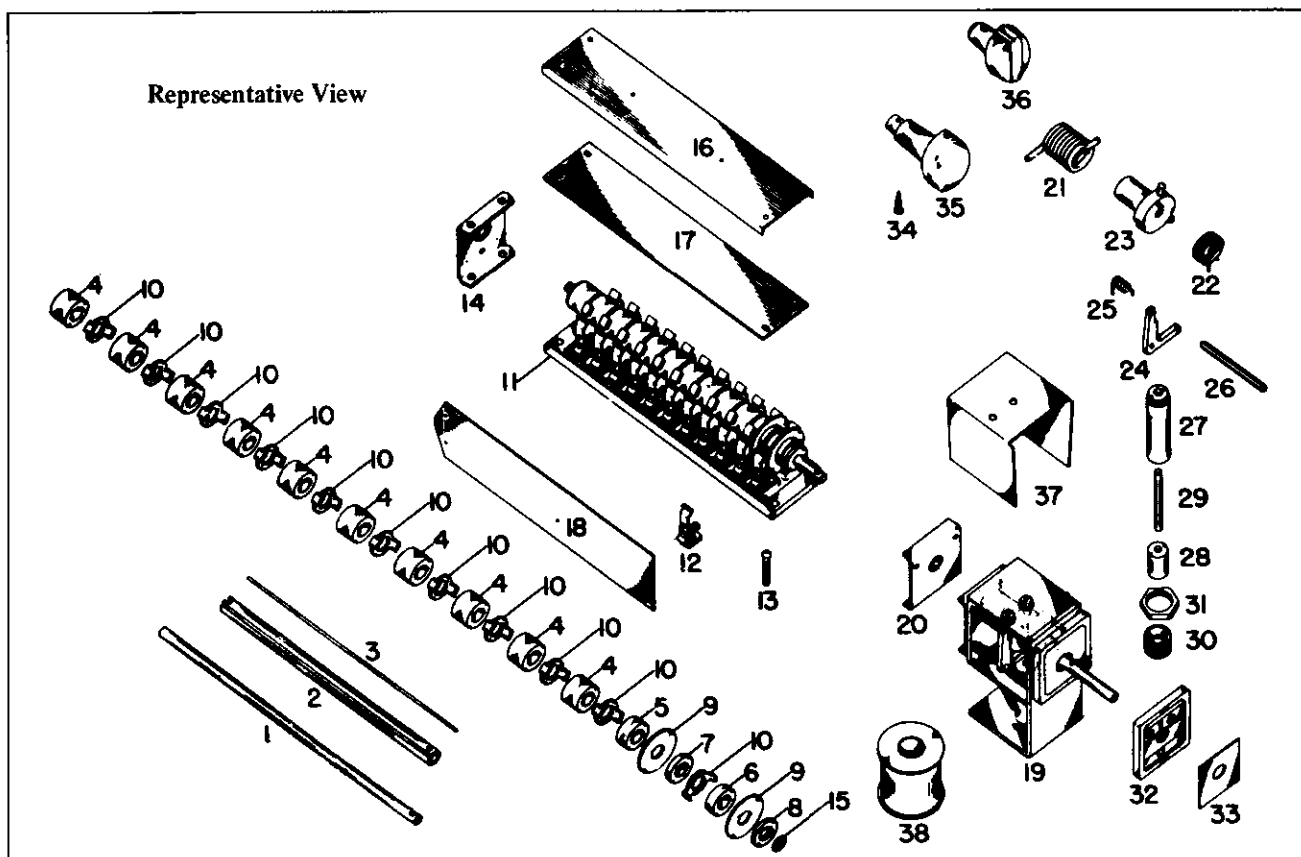
Beveled Gears

Single and geared units can be beveled geared so that the switch unit can be mounted vertical (Parallel) to the panel surface. The handle, dial plate and mechanism of bevel geared switches are mounted in the conventional manner. Bevel geared units are used to reduce the projection of the assembly behind the panel where space is limited.



Standard Single Unit





Ref. No.	Name of Part	Ref. No.	Name of Part
..	Switch Without Coil	19	Trip Mechanism Without Coil
..	Drum Complete	20	Front End Plate With Bearing
1	Shaft	21	*Centering Spring
2	Insulating Tube	22	Operating Spring
3	Notch Key	23	Latch Cam
4	Insulating Spacer - 3/4" Long	24	Latch Lever
5	Insulating Spacer - 15/32" Long	25	*Latch Spring
6	Insulating Spacer - 11/32" Long	26	Latch Pin
7	Insulating Spacer - 7/32" Long	27	Stationary Core
8	Insulating Spacer - 5/32" Long	28	Moving Core
9	Insulating Barrier	29	Plunger Rod
10	*Contact Segment	30	Thimble
11	Base	31	Nut
12	*Stationary Contact Finger	32	Dial Plate
13	*Contact Finger Terminal Screw	33	Dial Name Plate - No. 28095
14	Rear End Plate With Bearing	34	Indicator Screw
15	Drum Shaft Spacing Collar	35	Heavy Duty Oval Handle
16	Top Cover	36	Modern Oval Handle
17	Top Cover Lining	37	Cover
18	Side Plate	38	*Coil

Parts indented are included in the part under which they are indented.
 *Recommended spare parts.

Ordering Information

- Name the part and give its identification number.
- Give the complete nameplate reading.
- State method of shipment desired.
- Send all orders or correspondence to nearest sales office of the company.
- Combine orders to total at least five dollars as this is minimum charge.

Westinghouse Electric Corporation

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