

OUTDOOR DISCONNECTING SWITCHES—TYPE LCO are single pole, single or double throw, hookstick operated switches. They are used as plain disconnects to isolate apparatus.

KV—7.5, 15, 23, 34.5, 46, 69, 115 and 161

AMPERES—400 to 2000

All units are of sturdy construction and operate

satisfactorily under the most severe weather conditions. Switches can be mounted vertically or underhung. Underhung mounted switches have insulators reversed so that cap is adjacent to base. The complete line of LCO switches includes single and double throw types in every size, and also tandem transfer types.

WESTINGHOUSE SPECIAL FEATURES

1

"MULTIPLE-LINE" CONTACTS—Solid silver contacts stay self-cleaning even after thousands of operations. A $\frac{3}{8}$ -inch movement separates contacts. Easy to open because of sled-runner action.

2

POSITIVE LATCH—Locks blade in fully closed position until released by hookstick—Cams blade open for easy operation.

3

PARALLEL BLADE DESIGN—Increase contact pressure under short-circuit conditions because magnetic action draws blades together.

4

NO CORROSION OF PARTS—All parts except the silver contacts are made of corrosion resisting materials coated with a corrosion resisting lacquer. Inner silver ring on blade seats on silvered hinge block.

5

B.I.L. INSULATOR—Insulators are NEMA standard meeting the requirements of Basic Impulse Insulation Levels (BIL).

6

NO DISTORTION OF MOUNTING BASE—Rigid hot dipped galvanized flanged steel base helps eliminate effects of uneven mounting surface and supports disconnect parts in accurate alignment.

BLADE STOP AND LOCKOUT FEATURE

On all single throw switches the blade can be stopped at 90 or 135 degrees with a standard combination stop. The design includes a lockout feature which permits locking the switch open with blades in either 135 or 180 degree positions, protecting operator from accidental closing.

POSITIVE LATCH

The LCO disconnecting switch cannot open under short circuit stresses—it is positively latched in place. Blade cannot open until the latch is actuated by the hook eye lever.

PORCELAIN INSULATORS

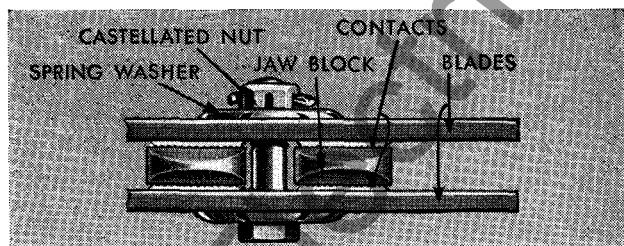
Insulators conform to A.I.E.E. and NEMA standards and meet Basic Impulse Levels (BIL). B.I.L. permits coordination of the insulation of all electrical apparatus, such as oil circuit breakers, transformers and disconnecting switches. Pin and cap type insulators are regularly supplied but station post type insulators are available on special order.

"MULTIPLE-LINE" SILVER CONTACTS

LCO multiple-line contacts are the sled-runner type made of solid silver, which minimizes corrosion and keeps contact resistance low. Fine parallel ridges or "teeth" of silver produce a series of high-pressure line contacts on the jaw block. Because of self-adjusting spring washers, contacts maintain their original pressure for the life of the switch.

(Above) Inner view of Silver Contact Ring.

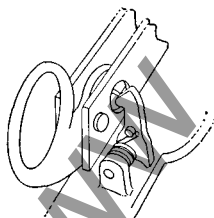
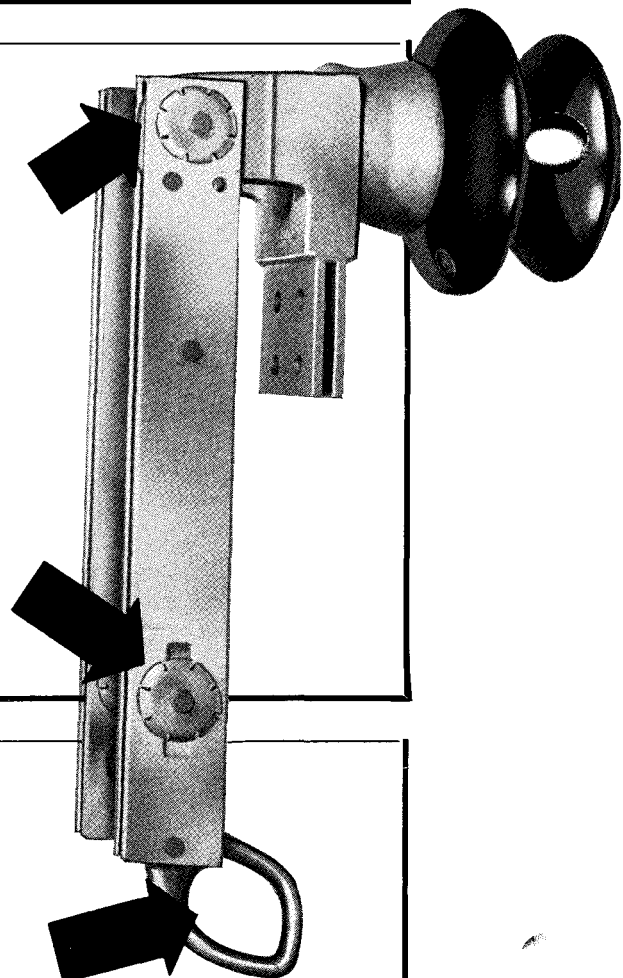
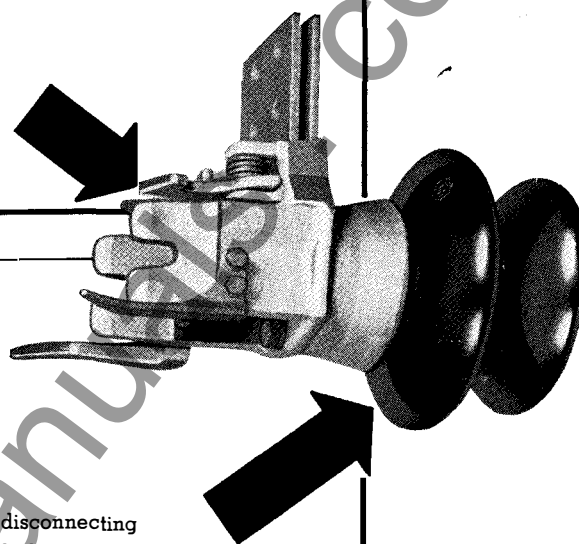
(Below) Silver Multiple-Line Contacts. View from Inside of Parallel Blades.



"Multiple-Line" Contacts

LARGE DIAMETER HOOK EYE

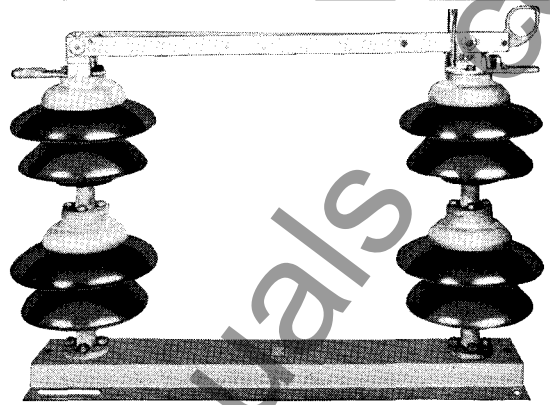
The large hook eye aids hookstick operation by making it easy to engage. The "multiple-line" contacts are easy to open because the hook eye operates with a lever action similar to a claw hammer pulling a nail. A slight pull on hook eye overcomes contact friction and pries switch blades open. The hook eye lever governs the action of the blade.



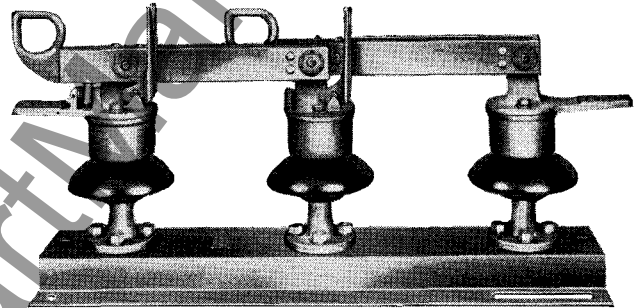
A COMPLETE LINE

The LCO Disconnecting Switch is available in every standard voltage rating — 7.5, 15, 23, 34.5, 46, 69, 115 and 161 kv.

This complete line also includes a tandem transfer type—in voltage ratings the same as listed above. This switch has three insulators and two blades per pole. One blade is hinged at one end post, the other is hinged at the center post—virtually two single-throw switches in series. Its general construction and mounting is similar to standard double-throw switches and is hookstick operated. All parts have full rating.



Single-Throw LCO Switch, 69000 Volts



Tandem Transfer LCO Switch, 7500 Volts

RATINGS*

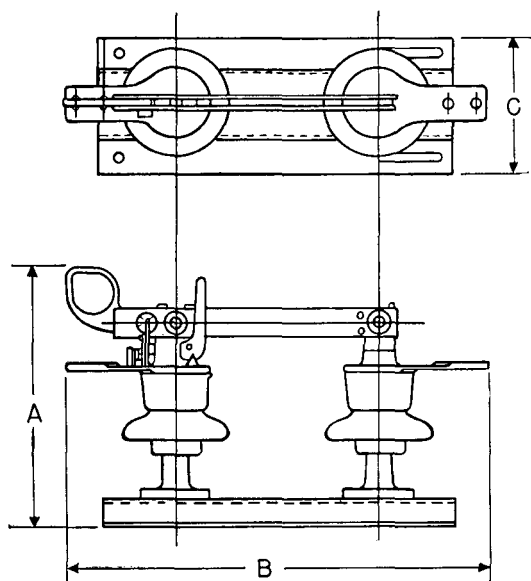
Standard Type LCO Outdoor Disconnecting Switches have these NEMA short-time current ratings.

| RATED VOLTAGE KV | TIME RATING | AMPERE RATINGS | | | |
|------------------------|-------------|-------------------------------|-------|-------|-------|
| | | SHORT TIME RATINGS IN AMPERES | | | |
| | | 400 | 600 | 1200 | 2000 |
| 7.5 & Below | Momentary | 20000 | 40000 | 70000 | 90000 |
| | 4-Second | 12500 | 25000 | 44000 | 56000 |
| 15 | Momentary | 20000 | 40000 | 60000 | 80000 |
| | 4-Second | 12500 | 25000 | 37500 | 50000 |
| 23 | Momentary | 20000 | 30000 | 50000 | 70000 |
| | 4-Second | 12500 | 18800 | 31000 | 44000 |
| 34.5 | Momentary | 20000 | 25000 | 50000 | 70000 |
| | 4-Second | 12500 | 15600 | 31000 | 44000 |
| 46 | Momentary | ..... | 20000 | 40000 | ..... |
| | 4-Second | ..... | 12500 | 25000 | ..... |
| 69 | Momentary | ..... | 20000 | 40000 | ..... |
| | 4-Second | ..... | 12500 | 25000 | ..... |
| 115 | Momentary | ..... | 20000 | 40000 | ..... |
| | 4-Second | ..... | 12500 | 25000 | ..... |
| 161 | Momentary | ..... | 20000 | 40000 | ..... |
| | 4-Second | ..... | 12500 | 25000 | ..... |

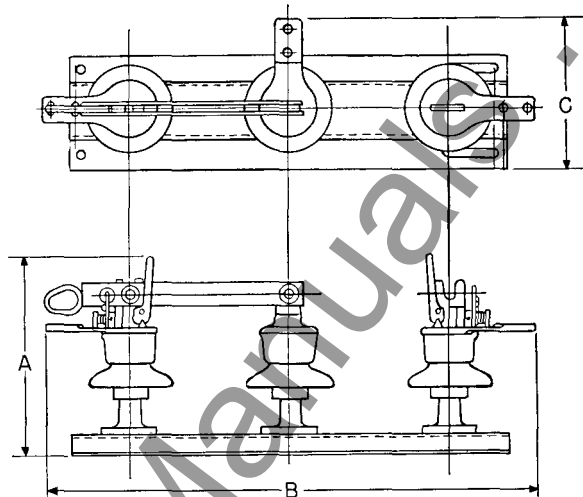
TEMPERATURE RISE—All Type LCO Switches are designed to carry their plate ratings continuously, based on an allowable temperature rise of 30 degrees C. above an ambient temperature of 40 degrees C. in accordance with A.I.E.E. rule 22-250.

* These tables are taken from NEMA Power Switching Equipment Standards, Publication No. 49-144 dated April, 1949 and revised September 28, 1950. Order copies from National Electrical Manufacturers Association, 155 E. 44th St., New York, N. Y.

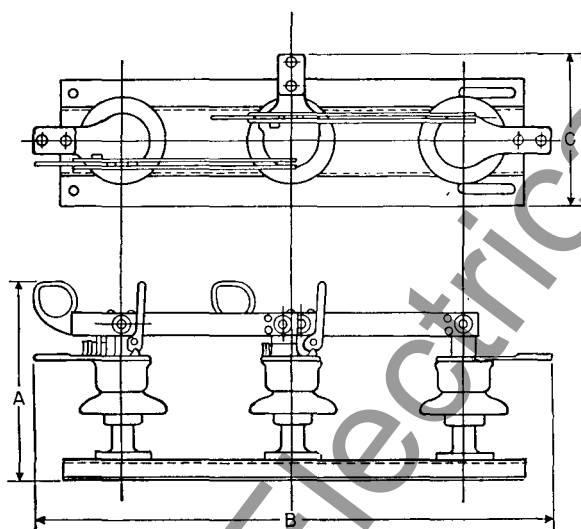
OUTLINE DIMENSIONS IN INCHES



Single-Throw Switch



Double-Throw Switch



Tandem Transfer Switch

| KV AND TR NO.* | AMP. | SINGLE- THROW | | | DOUBLE- THROW | | | TANDEM TRANSFER | | |
|-------------------|------|------------------|--------|----|------------------|--------|--------|--------------------|--------|--------|
| | | A | B | C | A | B | C | A | B | C |
| 7.5 (TR-1) | 400 | 15 1/2 | 24 7/8 | 9 | 15 1/2 | 37 1/2 | 10 3/4 | 15 1/2 | 37 7/8 | 10 3/4 |
| | 600 | 15 1/2 | 24 7/8 | 9 | 15 1/2 | 37 1/2 | 10 3/4 | 15 1/2 | 37 7/8 | 10 3/4 |
| | 1200 | 15 1/2 | 25 1/4 | 9 | 15 1/2 | 37 1/2 | 11 | 15 1/2 | 37 7/8 | 10 3/4 |
| | 2000 | 15 1/2 | 25 1/4 | 9 | 15 1/2 | 38 1/4 | 10 3/4 | .... | .... | .... |
| 15 (TR-4) | 400 | 18 | 27 7/8 | 9 | 18 | 43 1/2 | 10 3/4 | 18 | 43 7/8 | 10 3/4 |
| | 600 | 18 | 27 7/8 | 9 | 18 | 43 1/2 | 10 3/4 | 18 | 43 7/8 | 10 3/4 |
| | 1200 | 18 | 28 1/4 | 9 | 18 | 43 1/2 | 11 | 18 | 43 7/8 | 10 3/4 |
| | 2000 | 18 3/4 | 28 1/4 | 9 | 18 3/4 | 44 1/4 | 10 3/4 | .... | .... | .... |
| 23 (TR-7) | 400 | 20 | 30 3/8 | 9 | 20 | 49 1/2 | 10 3/4 | 20 | 49 7/8 | 10 3/4 |
| | 600 | 20 | 30 3/8 | 9 | 20 | 49 1/2 | 10 3/4 | 20 | 49 7/8 | 10 3/4 |
| | 1200 | 20 | 31 1/4 | 9 | 20 | 49 1/2 | 11 | 20 | 49 7/8 | 10 3/4 |
| | 2000 | 20 3/4 | 31 1/4 | 9 | 20 3/4 | 50 1/4 | 10 3/4 | .... | .... | .... |
| 34.5 (TR-10) | 400 | 23 | 36 7/8 | 9 | 23 | 61 1/2 | 10 3/4 | 23 | 61 7/8 | 11 3/4 |
| | 600 | 23 | 36 7/8 | 9 | 23 | 61 1/2 | 10 3/4 | 23 | 61 7/8 | 11 3/4 |
| | 1200 | 23 | 36 7/8 | 9 | 23 | 61 1/2 | 10 3/4 | 23 | 61 7/8 | 11 3/4 |
| | 2000 | 23 3/4 | 37 1/4 | 9 | 23 3/4 | 62 1/4 | 10 3/4 | .... | .... | .... |
| 46 (TR-13) | 600 | 26 | 42 7/8 | 9 | 26 | 72 1/2 | 10 3/4 | 26 | 73 7/8 | 11 3/4 |
| | 1200 | 26 | 42 7/8 | 9 | 26 | 73 1/2 | 10 3/4 | 26 | 73 7/8 | 11 3/4 |
| | 2000 | 26 3/4 | 43 1/4 | 9 | 26 3/4 | 74 1/4 | 10 3/4 | .... | .... | .... |
| 69 (TR-16) | 600 | 37 | 54 7/8 | 9 | 37 | 97 1/2 | 10 3/4 | 37 | 97 7/8 | 11 3/4 |
| | 1200 | 37 | 54 7/8 | 9 | 37 | 97 1/2 | 10 3/4 | 37 | 97 7/8 | 11 3/4 |
| 115 (TR-19) | 600 | 67 1/2 | 74 | 17 | .... | .... | .... | .... | .... | .... |
| | 1200 | 67 1/2 | 74 | 17 | .... | .... | .... | .... | .... | .... |
| 161 (TR-25) | 600 | 82 | 98 | 18 | .... | .... | .... | .... | .... | .... |
| | 1200 | 82 | 98 | 18 | .... | .... | .... | .... | .... | .... |

*Technical Reference Number

LITERATURE REFERENCE

PRICES AND DIMENSIONS—See Price List 36-140



WESTINGHOUSE ELECTRIC CORPORATION
EAST PITTSBURGH PLANT • SWITCHGEAR DIVISION • EAST PITTSBURGH, PA.

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