

**WESTINGHOUSE SPECIAL FEATURES**

- **FULLY PROTECTED**—All parts, including means of manual operation, are protected by weatherproof housing.
- **OILITE BEARINGS**, plus permanently sealed lubricated ball bearings on the output shaft, eliminate need for lubrication.
- **FAST ACTING BRAKE** prevents overtravel of the mechanism after power is removed.
- **MICARTA® GEAR** in the high speed gear stage contributes to quiet operation.
- **EASILY REMOVED COVER** exposes front and two sides of mechanism for ease of inspection and adjustment.
- **ADJUSTABLE OUTPUT TRAVEL** enables the same mechanism to be used with switches requiring 90° to 180° rotation.
- **CIRCUIT BREAKER PROTECTION** of both motor and heater circuits is provided in every mechanism.
- **AUXILIARY SWITCHES**—Eight single-pole switches are supplied in standard mechanism. These can be easily made either circuit opening or circuit closing contacts, and can be coupled either to the output shaft or to the motor during manual operation.

**MOTOR OPERATING MECHANISM—TYPE T-3** is adaptable for electric opening and closing of any disconnecting switch operated by TP (torsional type) operating mechanisms.

The mechanism and control is designed with a minimum of parts and is readily operated manually. Care has been taken to locate the manual device in such a manner that it is protected from the weather. By lowering the cover until it rests on the gear housing, access is obtained to operate the switch by merely removing a pin and inserting the manual operating lever.

The Westinghouse Type T-3 mechanism is the torsional output type with a three-stage gear train between the motor and the output shaft. It will operate through a minimum of 180° and

may be used for either direct or offset switch control. It is capable of delivering a stalled torque of 10,000 inch pounds to break loose icebound switches.

**Ordering Information**

When ordering, specify:

1. Operating voltage and frequency for motor and control.
2. Heater voltage.
3. Identification of disconnecting switch to be operated by the mechanism.

**LIST PRICES—MOTOR OPERATING MECHANISMS**

SINGLE THROW							
KV	AMPERES	NUMBER OF POLES	LIST PRICE*	KV	AMPERES	NUMBER OF POLES	LIST PRICE*
7.5 to 46	400-600-1200	1-2-3	\$580.00	69 to 161	600-1200	4-5-6	\$ 950.00
7.5 to 46	400-600-1200	4-5-6	685.00	196 to 230	1200	1-2-3	950.00
69 to 161	600-1200	1-2-3	685.00	196 to 230	1200	4-5-6	1260.00

\* (1) Motor mechanism prices include motor limit switches and either eight (8) additional S.P.S.T. switches or four (4) single pole, double throw switches for signal lights, interlocking, etc. Additional S.P.S.T. units, or additional switches where necessary, may be added at \$2.00 list per S.P.S.T. unit or \$4.00 list per S.P.D.T. unit.

(2) When specified on the order, heating units will be placed in the standard mechanism at no additional cost to customer.

(2a) If *Thermostat Controlled* heating device is required, add \$35 List.

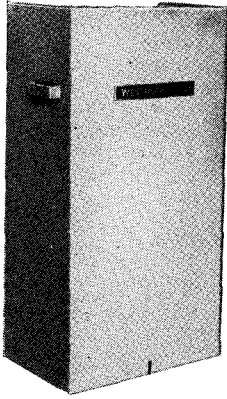
(3) Operation counter add \$35.00 List.

(4) If pushbutton control is required in housing, add \$25 List.

(5) If pushbutton control station is required in separate housing, add \$45 List.

(6) If Indicating Lights (one red and one green) are required on motor mechanism panel, add \$25 List.

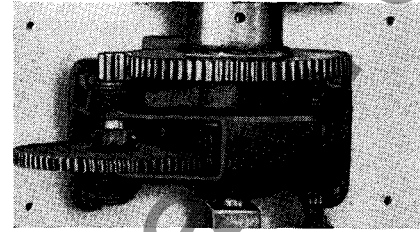
### HOUSING



Protective Cover for Type T-3 Mechanism.

The mounting frame and housing for the mechanism are hot-dipped galvanized welded steel. A light-weight cover, finished with a cadmium plating plus the best grade of outdoor aluminum paint, fits into a deep groove around the top and sides to provide a thoroughly weatherproof construction. When the cover is removed, the two sides and front of the mechanism are uncovered for easy inspection and adjustment.

### GEARS

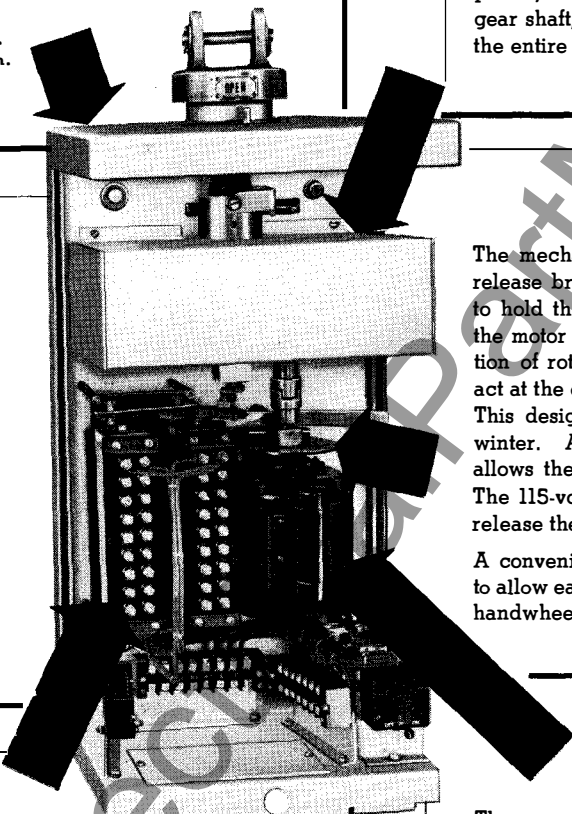


Gear Assembly with Gear Box Cover Removed.

All gears are machine-cut spur type. The high speed stage has a hardened steel pinion driving a Micarta® gear to keep mechanism noise to a minimum. The two slow speed stages use hardened steel gears. All steel gears and shafts are chromium plated, and all shafts run in "oilite" bearings except the output gear shaft, which is equipped with sealed ball bearings. Thus, the entire mechanism requires no lubrication.

### HEATER

All mechanisms are equipped with a 100-watt strip-type heater which is wired to separate terminals on the terminal block. Heaters are available for 110-volt or 220-volt a-c and 125-volt and 250-volt d-c operation.



### BRAKE

The mechanism is equipped with a spring-operated, solenoid-release brake to prevent any coasting of the output shaft and to hold the switch in position. The braking disc is driven by the motor so as to be partially self-energizing with either direction of rotation. The operating spring and releasing solenoid act at the end of a lever having a 10 to 1 mechanical advantage. This design gives a dependable operation both summer and winter. Also, the high mechanical advantage of the system allows the use of a solenoid with a very low release current. The 115-volt a-c mechanism requires less than two amperes to release the brake.

A convenient handle is provided on the brake operating lever to allow easy manual release. The brake disc forms a convenient handwheel to rotate the mechanism while making adjustments.

### AUXILIARY SWITCHES

The standard Type T-3 mechanism is provided with four "A" and four "B" single-pole, single-throw auxiliary switches in addition to the motor limit switch. Other arrangements are supplied when specified, and space is available for eight additional contacts when required. Adjustable levers on the switches make possible the adjustment of the point of closing or opening in the operating cycle. The motor limit switch is provided with separate adjustment. Mechanisms can be arranged so that the auxiliary switches are coupled either to the main switch or to the mechanism during manual operation.

### MOTORS

The a-c models of the Type T-3 mechanism incorporate a capacitor-type, single-phase induction motor to give a high starting torque. These motors are protected against moisture and dust and have no commutators to require maintenance and repair. The d-c models use a compound-wound motor to give constant speed with high torque. Both motor and heater circuits in all mechanisms are protected by Westinghouse Sentinel circuit breakers. In addition all a-c motors are equipped with Thermoguard® protection.

**STANDARD CONTROL VOLTAGES**—Motor mechanism are available for the following standard control voltages:

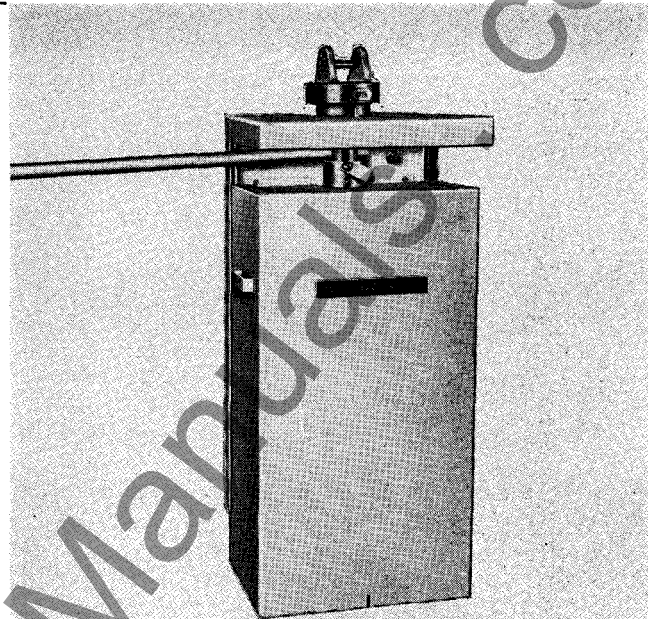
RATING	OPERATING RANGE IN VOLTS	AMPERES FULL LOAD	AMPERES LOCKED ROTOR
24 volts d-c	14 to 30	14	100
48 volts d-c	28 to 60	6	100
125 volts d-c	70 to 140	3	17
250 volts d-c	140 to 280	2	9
110 volts a-c	90 to 120	20	24
220 volts a-c	180 to 240	10	12

### MANUAL OPERATION

One of the outstanding features of the Type T-3 Mechanism is the fact that the coupling and handle socket for manual operation are completely enclosed within the housing and are protected from fouling with ice, dirt, or corrosion.

To operate the air switch by hand, the cover is unlocked and lowered until it rests on the gear housing as shown in the illustration. This gives access to the coupling and handle socket without exposing the remainder of the mechanism to the weather. The output shaft is uncoupled from the gear train by a removable pin which is normally latched in position. The operating handle can then be inserted into the socket and the switch operated by hand.

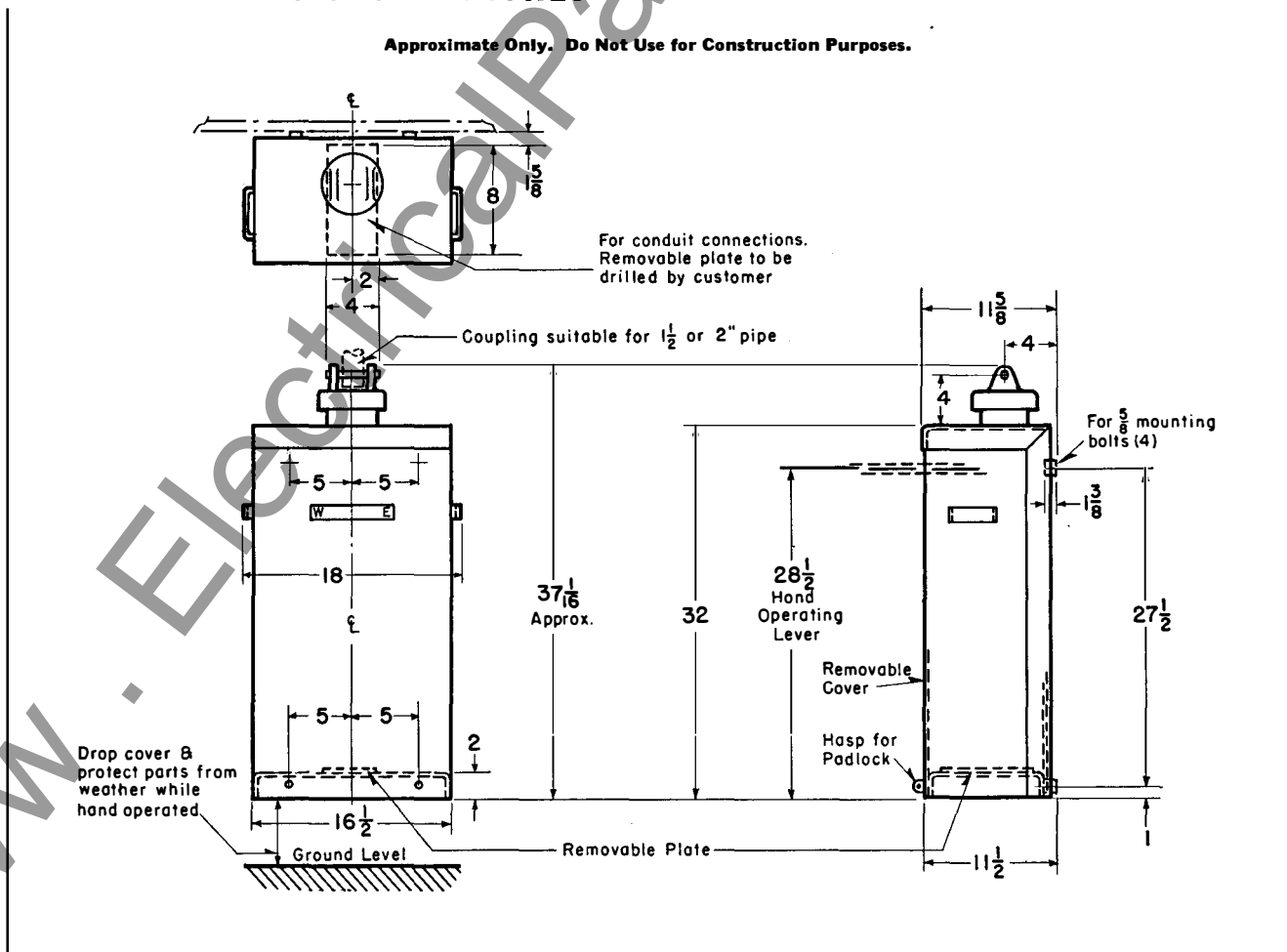
After manual operation, the handle can be removed and the cover closed and locked. The removable pin is designed with a shoulder such that it cannot be inserted to recouple the switch to the mechanism until the switch has been returned to the correct position with respect to the motor.



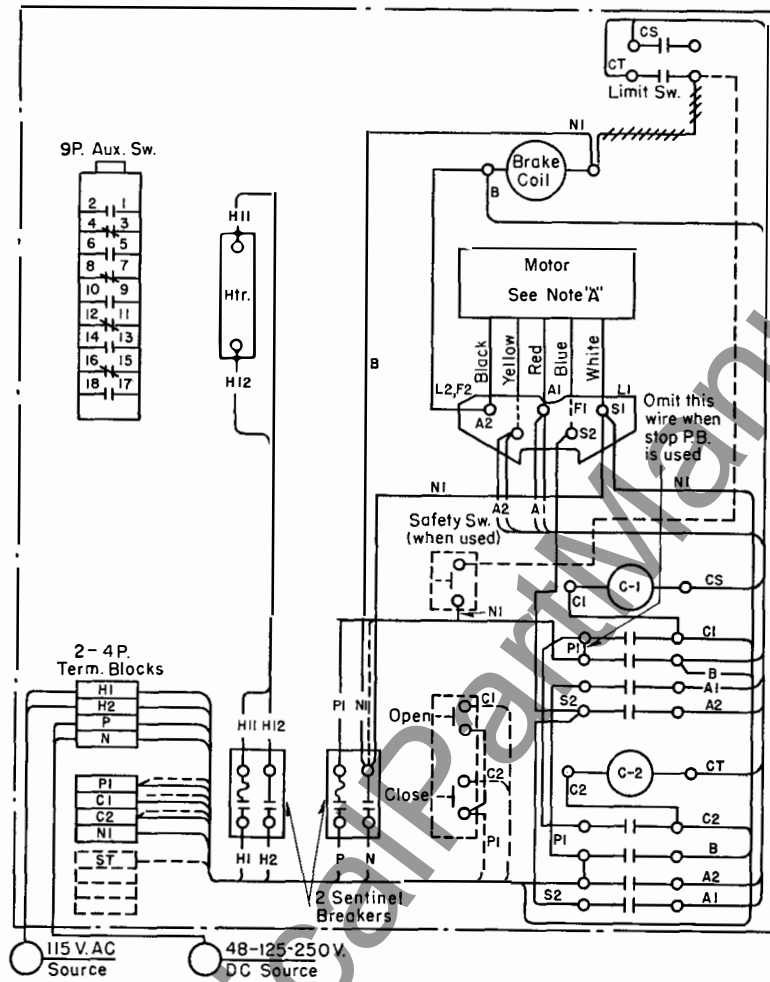
The protective cover of the Type T-3 motor operating mechanism lowered on the gear assembly housing and the handle inserted for manual operation.

### OUTLINE DIMENSIONS IN INCHES

Approximate Only. Do Not Use for Construction Purposes.



DIAGRAMS—TYPE T-3 MOTOR OPERATING MECHANISMS  
WIRING DIAGRAM



SCHEMATIC DIAGRAM

To Switchboard or Relay Panel

