

**THE PRINGLE ELECTRICAL MANUFACTURING COMPANY**  
425 Commerce Drive □ Fort Washington, PA 19034 USA □ 215-643-0100

**Installation, Operating & Maintenance Instructions  
for Pringle Type QA Switches**

**INSTALLATION**

Our quality control and integral assembly eliminates any need for further adjustment of the switch. The installer should, however, give consideration to the following:

1. The switch is shipped in the CLOSED position, with the dead front operating handle and trim plate unmounted. The closed switch should be mounted in the vertical-upright position in the switchboard. The operating handle should be bolted to the operating shaft so that it is slightly left of vertical. The switch should be test operated and left in the CLOSED position before making the terminal connections. Before bolting bus bars to the terminals, a check should be made to ensure that the bus is in line (flat, parallel and properly located) with the switch terminals. If cables are being used, they should be properly supported.
2. After making the connections, the switch should be test operated again and left in the CLOSED position.
3. Remove the operating handle, and after installing the switchboard cover, mount the trim plate and reattach the handle to the shaft so that it is slightly left of the vertical.

**OPERATION**

- To open: Rotate the operating handle clockwise until the handle is parallel to the floor and OPEN appears on the switch position indicator.
- To close: Rotate the handle counter-clockwise until CLOSED appears on the switch position indicator.

# THE PRINGLE ELECTRICAL MANUFACTURING COMPANY

425 Commerce Drive □ Fort Washington, PA 19034 USA □ 215-643-0100

## Installation, Operating & Maintenance Instructions for Pringle Type CBC Switches

### INSTALLATION

Our quality control and integral assembly eliminates any need for further adjustment of the switch. The installer should, however, give consideration to the following:

1. The switch is shipped in the CLOSED position, with the dead front operating handle and trim plate unmounted. The closed switch should be mounted in the vertical-upright position in the switchboard. The operating handle should be bolted to the operating shaft so that it is horizontal, extending to the right. The switch should be test operated and left in the CLOSED (charged) position before making the terminal connections. Before bolting bus bars to the terminals, a check should be made to ensure that the bus is in line (flat, parallel and properly located) with the switch terminals. If cables are being used, they should be properly supported.
2. After making the connections, the switch should be test operated again and left in the CLOSED position.
3. Remove the operating handle, and after installing the switchboard cover, mount the trim plate and reattach the handle to the shaft so that it is horizontal, extending to the right.

### OPERATION

To open: / Push the red manual push-button.

To close: / Rotate the operating handle counter-clockwise 90° from the horizontal position to the vertical position. (This action charges the "opening" spring but does not "close" the switch.) Then rotate the handle clockwise 90° from the vertical to the horizontal. (This action "closes" the switch.)

THE PRINGLE ELECTRICAL MANUFACTURING COMPANY  
425 Commerce Drive  
Fort Washington, Pennsylvania 19034  
(215)643-0100

FIELD INSTALLATION INSTRUCTIONS  
for  
CHANGING DEAD FRONT MECHANISMS

- I. Every dead front is shipped from the factory to match its mating switch in the "OPEN" position. All power including that for controls to both line and load of switch must be shut off for safety before attempting dead front replacement to the opened switch in question.
- II. For access to switch, sizes 800-6000A.
  1. Remove operating handle (one 3/8 socket head cap screw)
  2. Remove trim plate (three No. 10 flush head machine screws)
  3. Remove enclosure cover (all exposed front facing hardware)
  4. Remove barrier, red (four or more No. 10 RND.HD. Scrs. as labeled)
- III. Although replacement is similar for different models, separate detail instructions are shown here for:
  - A. Type QA-Manual close and manual open, sized 800 thru 4000A.
  - B. Type CBC-Manual close and trip open, electrically or manually.
  - C. Type QA & CBC - all models of 5 & 6000 amp. sizes

NOTE: Handles are peculiar to each type model and are keyed to NOT be interchanged.

- IV. QA replacement dead front, sizes 800-4000 amps:
  1. Securely wire or tape together front and rear bearing supports Item No. 1 & 2 enclosed Drawing No. C-67340 in a manner similar to that seen on replacement dead front from factory.
  2. Tag any special wiring from auxiliary switches, etc. on the dead front at the most accessible terminal and disconnect.
  3. Remove four 1/4-20 socket head cap screws, Item 3 on drawing, on each (8 pcs. total) of the dead front, through the aluminum horizontal support members extending from the switch base. See drawing, CAUTION - removal of last screw will free dead front to drop!!
  4. Pull or pry dead front directly forward while stabilizing bronze universal block, Item 4 on drawing, so that stainless pin extending to rear from operating lever will slide freely from this universal as dead front is withdrawn. NOTE: If universal block falls from its swivel on the switch stainless yoke pin, it must be replaced exactly as shown with its beveled edge to the top/rear for proper pivot clearance.
  5. Insert the replacement dead front in exactly reverse motion of removal and to original position and then replace eight 1/4-20 socket head cap screws removed under section IV-3.

6. Remove binding straps (tape or wire) used to hold dead front together.
7. Reconnect any wiring to proper terminals. See section IV-2.
8. Temporarily attach operating handle for test operation and then remove and reverse access instructions, Section II-1, 2, 3, & 4 for final re-assembly of enclosure.
9. Retest switch operation for any possible assembly interference before final switch closure and return of power to unit.

V. GBC dead front replacement, sizes 800-4000 amps:

A. On models prior to 1976, 800-2500A., only; omit on 3 & 4000A.

1. Remove 2 bolts at location No. 6A on drawing C-67340
2. Retract 5/16-18 H.H. back-up bolt to free closing cam stop.
3. Remove closing cam stop and discard.
4. Remove 5/16-18 H.H. back-up bolt and discard.

B. On models after 1976, one bolt at location NO. 6 into cam stop. Item No. 9

1. Remove 1 bolt at location No. 6 on drawing C-67340
2. Remove 1 nut at location No. 7
3. Back off 1 nut (2 on 3 & 4000A.) at location No. 8
- 3a. On 3 & 4000A. only, remove 4 bolts at location No. 11 to free Item No. 11A to be removed as an assembly with Item No. 12 rod.
4. Pry Item No. 9 cam stop up (vertically) to clear top of cam resting against right end of stop as shown; then drive stop No. 9 to right as an assembly with rod until it clears horizontal support.

c. On models both before & after 1976:

5. Duplicate steps 1, 2, & 3 from Section IV noting in step 3 there are 4 pcs. of item No. 3 & 4 pcs. of Item No. 3a, of different length.
6. Remove 2 bolts, Item No. 5, from center bearing support Item No. 5a, thru the horizontal support on the right side
- 6a. On 3 & 4000A. only, remove 2 more of these same bolts on left.
7. Duplicate step No. 4 from Section IV.
8. Remove mounting hardware furnished with dead front and note its proper position for re-assembly. NOTE: The 1/2-13 threaded rod on replacement will not extend thru horizontal support as it originally did but 2 nuts jammed on rod rest against support as shown in detail A on drawing C-67340.
9. Insert the replacement dead front in exactly reverse motion of removal and to original position and then install the mounting hardware furnished with unit from factory.

9a. On 800-2500A., ONLY, check & adjust for approximately 1/32 clearance of Item No. 10 link stop to end of mating link.

10. Duplicate steps NO. 6, 7, 8 & 9 from Section IV

VI. QA & CBC dead front replacement, sizes 5 & 6000 amps:

1. Remove link disconnect pin, Item no. 13, after noting number and position of spacer washers used on pin, see drawing C-67340.
2. Duplicate step No. 2 from Section IV.
3. Remove 20 bolts on CBC or 14 bolts on QA as shown at location No. 14 on drawing C-67340 & note position for each different size & associated washers.
4. Drop dead front out & re-install new unit from factory.
5. If linkage disconnect pin, Item No. 13 does not re-align, loosen the jam nut on the 1/2-13 threaded link rod and screw clevis down or up in half turn increments until pin fits; then replace with washers & cotter pin as shown on drawing C-67340 and retighten jam nut.
6. Duplicate steps 7, 8, & 9 from section IV except for access instructions.

VII. Replacement dead front with horizontal supports attached (only when switch is removed from cubicle)

- A. For 800-4000 amps QA & CBC
  1. Duplicate Sections I, II, III & IV-2
  2. Remove 4 bolts from rear of base (see drawing C-67340 detail B) Caution - removal of last bolt on either side will cause vertical support to fall, (NOTE its position in respect to base mounting hole) and free dead front to drop!
  3. Remove dead front with horizontal supports attached while stabilizing bronze universal block, Item 4 on drawing, so that stainless pin extending to rear from operating lever will slide freely from this universal as dead front is withdrawn. NOTE: If universal block falls from its swivel on the switch stainless yoke pin, it must be replaced exactly as shown with its beveled edge to the top/rear for proper pivot clearance.
  4. Install replacement dead front in exact reverse motion of removal with the same 4 bolts as above while positioning vertical support with 5/8 hole matching nearest base mounting hole.
  5. Duplicate sections IV-7, 8 & 9.

B. For 5 & 6000 amp. QA & CBC

1. Duplicate Sections I, II, III & IV-2
2. Duplicate Section VI-1
3. Duplicate Section VII-A2
4. Remove dead front with horizontal supports attached.
5. Duplicate Section VII-A4
6. Duplicate Section VI-5
7. Duplicate Section IV-7, 8, & 9

NOTE: If any problems are encountered please notify the factory.  
Thank you

THE PRINGLE ELECTRICAL MFG. COMPAN  
425 Commerce Drive  
Fort Washington, PA 19034  
(215) 643-0100

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(215)643-0100

SWITCH POSITION INDICATOR  
for  
PRINGLE TYPE QA, CBC AND FP SWITCHES

Switch in the CLOSED position

When the switch is in the fully closed position the word "CLOSED" will be in the center of the opening in the trim plate and parallel to the floor.

Switch in the OPEN position

When the switch is in the fully open position the word OPEN will be in the center of the opening in the trim plate and parallel to the floor.

CAUTION

If the above cannot be verified, then care should be taken. A visual inspection of the switch contacts may be necessary. Turn off power ahead of switch before removing covers for inspection.

THE PRINGLE ELECTRICAL MANUFACTURING COMPANY  
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Fort Washington, Pennsylvania 19034  
(215)643-0100

INSTRUCTIONS FOR CHECKING AND ADJUSTING HINGE & JAW PRESSURE

QA SWITCH

1. CAUTION: Be certain switch is completely de-energized and in "OPEN" Position.
2. Tape aluminum bearing supports (A) at each end to maintain assembly. (Fig. 3)
3. Remove four (4) Allen screws (B) at each end of aluminum bearing supports. (Fig. 3)
4. Remove mechanism.

To Check Hinge Bolted Pressure

5. Place large (approx. 12") adjustable open end (crescent) wrench on insulating yoke (C). (Fig. 2)
6. Using wrench as a lever, move blades (D) slightly toward close position.
  - While holding wrench in this position with one hand, use other hand to trip linkage of all poles by depressing point (E).
  - Move yoke (C) until it meets blades. At this point "Bolted Pressure" has been applied at hinges.
  - The correct pressure setting is a matter of judgment.
7. Place one hand at point (F) on blades and apply force until blades move. Check all poles in this manner to determine which pole (or poles) is tightest.
8. To remove "bolted pressure" pull down on wrench handle. linkages will snap over center.

To Adjust Bolted Pressure

9. To reduce pressure on tight poles: (Fig. 1)
  - A. Mark pressure nut (G) and blade at set screw (H) location.

NOTE: The set-screw may be positioned by a vernier-type adjustment and the amount of pressure can be very finely set.
  - B. Remove set-screw and rotate pressure nut slightly (approx. 8°) counter clockwise.
  - C. Replace set-screw in pressure nut hole immediately clockwise from original location and tighten set-screw securely.

To Check Jaw Bolted Pressure

10. Starting with switch in fully "OPEN" position, using wrench as a lever move switch to fully "CLOSED" position (yoke will meet blades). Now test try pulling or prying blades into motion. If blades cannot be moved with reasonable force, the pressure should be adjusted as described in Item 9.
11. Replace mechanism. Remove tape. Test operate.



FIG. 1

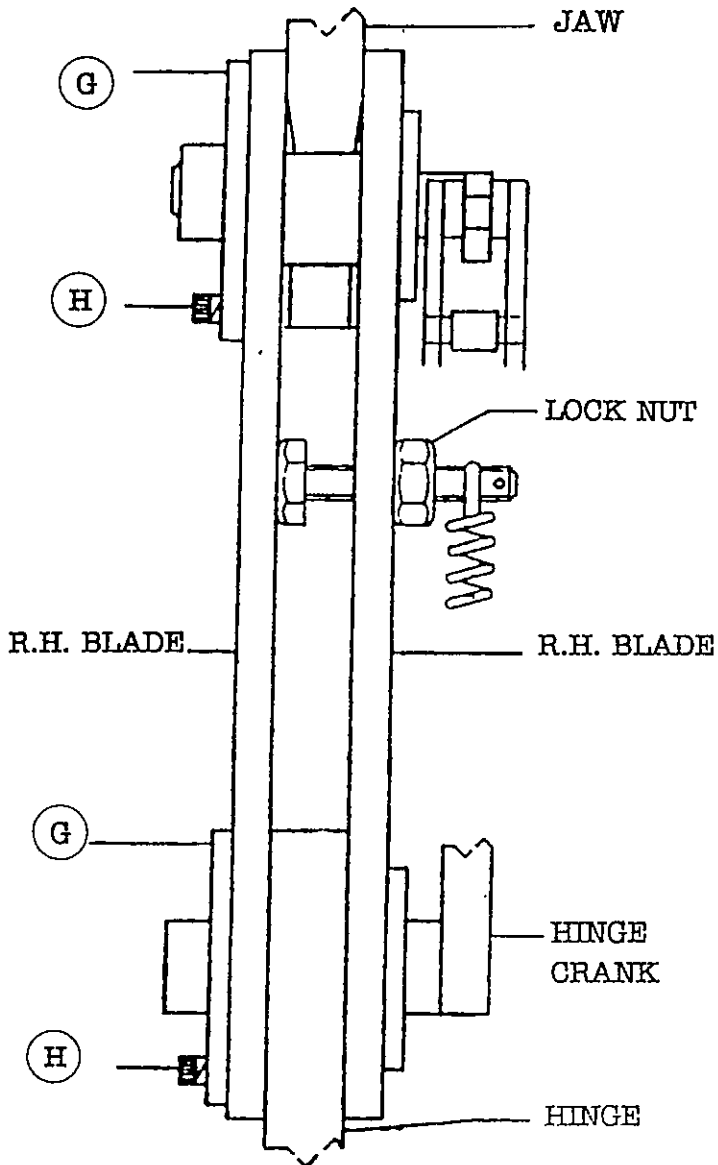


FIG. 2

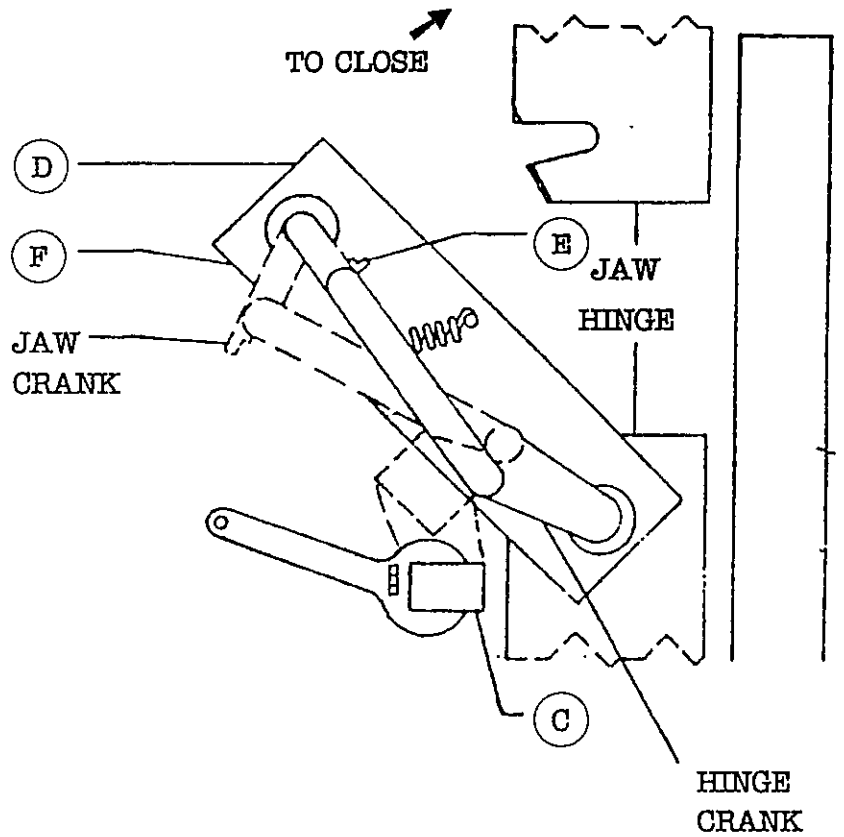
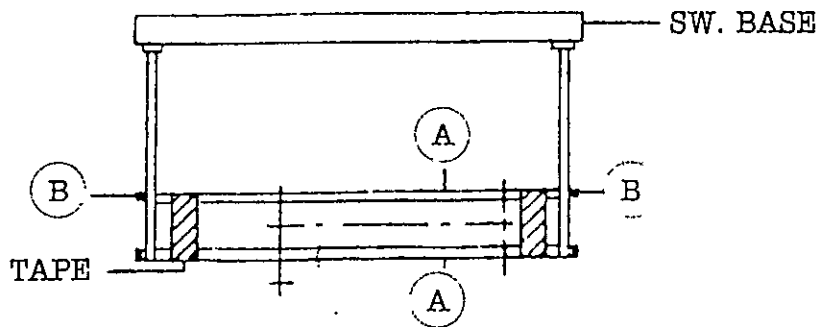


FIG. 3



PLAN VIEW OF SWITCH

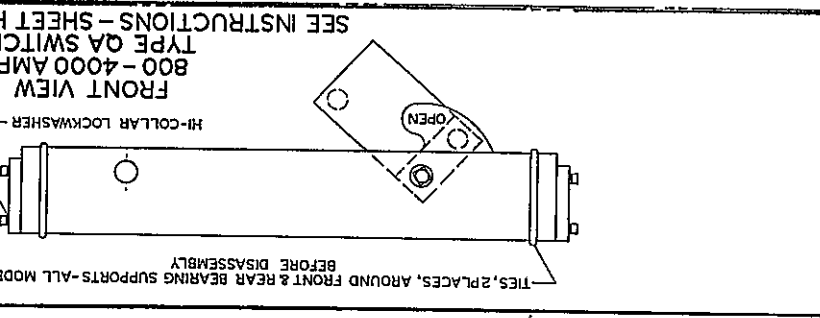
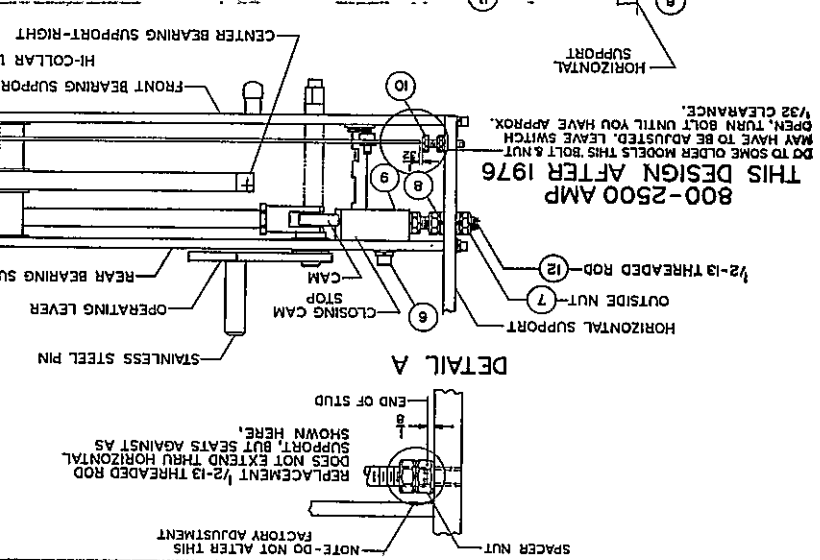
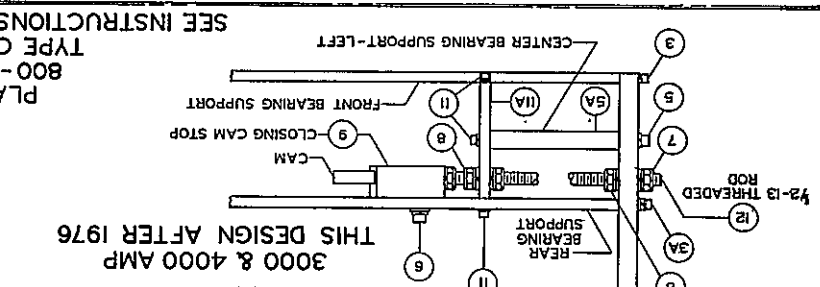
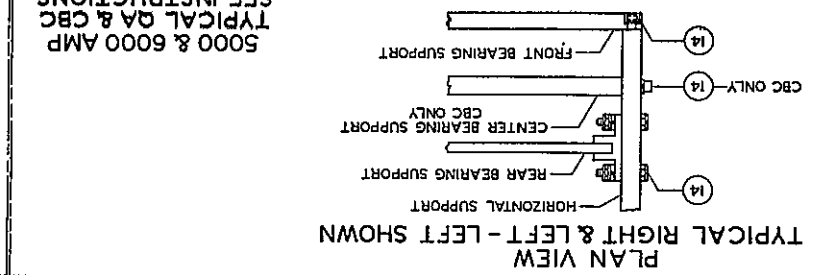
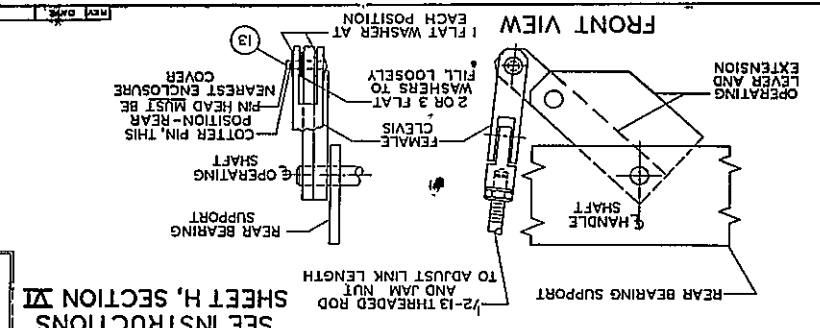
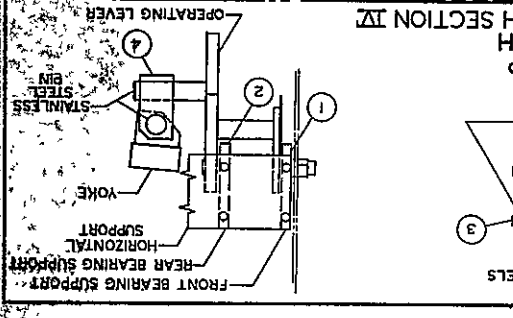
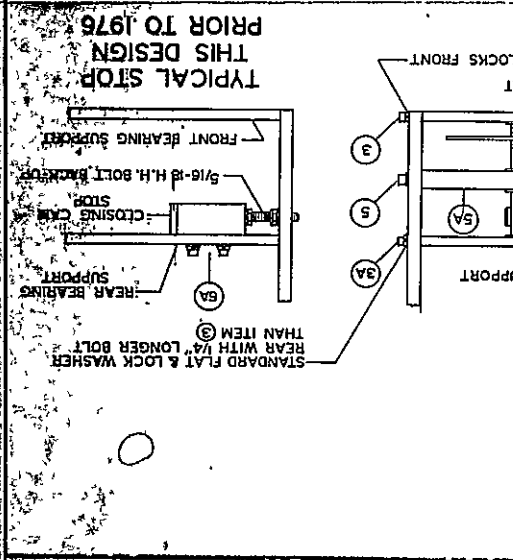
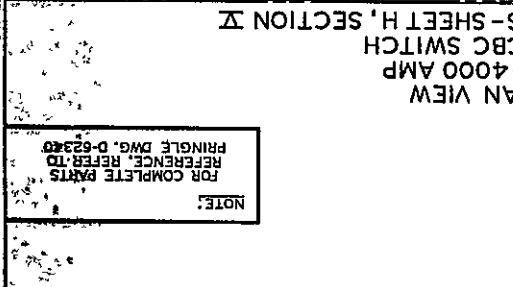
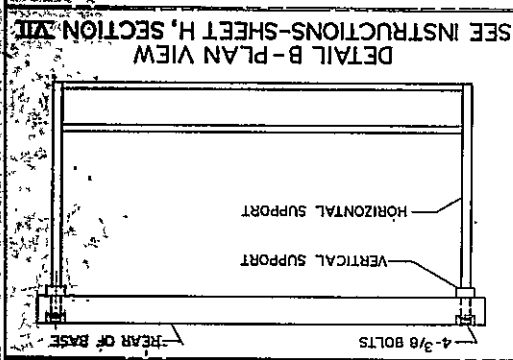
THE PRINGLE ELECTRICAL MANUFACTURING COMPANY  
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Fort Washington, Pennsylvania 19034  
(215)643-0100

FIELD LUBRICATION OF PRINGLE  
BOLTED PRESSURE SWITCHES

CAUTION: Be certain switch is completely de-energized and in the "OPEN" position.

1. With switch in the "OPEN" Position, make sure that the switch contacts (jaw and upper blades) are free of dirt. If the contacts have accumulated dirt, they should be cleaned with CRC-226 (or equal) before lubrication.
2. Apply a thin coating of Rheolube 363 to the exposed stationary switch contact (jaw). (Rheolube is available from William F. Nye, Inc., New Bedford, MA 508-996-6721.)
3. Test operate the switch several times in order to work the lubricant between the stationary and moveable contacts (jaw and blades).
4. Dead front operating mechanism:  
Apply oil to pivot points and bearings, if required.

**C-67340**  
 DRAWN BY: BA. CHECKED BY: [ ]  
 SCALE: [ ]  
 ORDER NUMBER: [ ]  
 ORDER: [ ]  
 PRINGLE ELECTRICAL MFG. CO.  
 FORT WASHINGTON, PA. U.S.A.  
 TYPE QA & CBC  
 DEAD FRONT MECHANISMS  
 800A--6000A.  
 FOR  
 FIELD INSTALLATION INSTRUCTIONS



NOTES:  
 FOR COMPLETE PARTS REFERENCE, REFER TO PRINGLE DWG. D-62340

PART	DESCRIPTION	MATERIAL
1	JAW CRANK	(BRONZE CASTING)
2	HINGE CRANK	(BRONZE CASTING)
3	WASHER WAVY (2) (JAW/HINGE)	(STAINLESS STEEL)
4	LINK (2)	(STAINLESS STEEL)
5	PIN (3) (LINK & SPRING)	(BRASS)
6	PIN (JAW CRANK STOP)	(BRASS)
7	TRIP PIN	(STAINLESS STEEL)
8	TRIP PIN SUPPORT	(ALUMINUM)
9	CLAMP NUT (2)	(RED BRASS CASTING)
10	SPRING	(PHOS. BRONZE)
11	BLADE (SILVERED CONTACT)	(2) (COPPER)
12	JAW TONGUE (SILVERED)	(COPPER)
13	HINGE TONGUE (SILVERED)	(COPPER)
14	FUSE TONGUE (SILVERED)	(COPPER)
15	JAW & FUSE TONGUE SUPPORT	(ALUMINUM)
16	HINGE TONGUE SUPP. & FUSE REJECT	(ALUMINUM)
17	BLADE SPACER	(EVERDUR)
18	BLADE STOP (OPEN)	(ALUMINUM)
19	BLADE STOP (CLOSED)	(ALUMINUM)
20	CONTACT BLOCK (COPPER OR SILVER TUNGSTEN)	(ALUMINUM)
21	ARC TIP (2)	(COPPER OR SILVER TUNGSTEN)
22	ARC CHUTE	(C.R. STEEL)
23	BARRIER SUPPORT CLIP	(C.R. STEEL)
24	CAPLUGS (LOW DENSITY POLYETHYLENE)	(POLY. LAM.)
25	YOKE (ATTACHED TO SW. MECH.)	(POLY. LAM.)
26	BASE	(POLY. LAM.)
27	BARRIER	(POLY. LAM.)
28	PHASE ISOLATOR (2)	(POLY. LAM.)
29	PRINGLE RATING PLATE	(ALUMINUM)
30	1/2" LABEL	(ALUMINUM)
31	FINS (3000A. & 4000A. SWS.)	(ALUMINUM)
32	FUSE PLATE (3000A. & 4000A. SWS.)	(COPPER)
33	LOCKING SCREW (STAINL. WITH INLOC INSERT)	(COPPER)
34	ARC CHUTE PLATES (8 PER ARC CHUTE (H.R. STJ))	(ALUMINUM)
35	PANEL SPACER (2)	(ALUMINUM)

**NOTES:**  
**SWITCH PARTS**  
 HARD DRAWN ELECTRICAL COPPER  
 SWITCH LUBRICANT  
 G.E. VERSILUBE G-300

PERIODICALLY SWITCH CONTACTS SHOULD BE WIPED CLEAN & RE-LUBRICATED  
 THIS DWG. MAY ALSO BE USED TO IDENTIFY 3000A. & 4000A. SWITCHES  
 SERIAL NOS. MUST BE SPECIFIED WITH THIS DRAWING

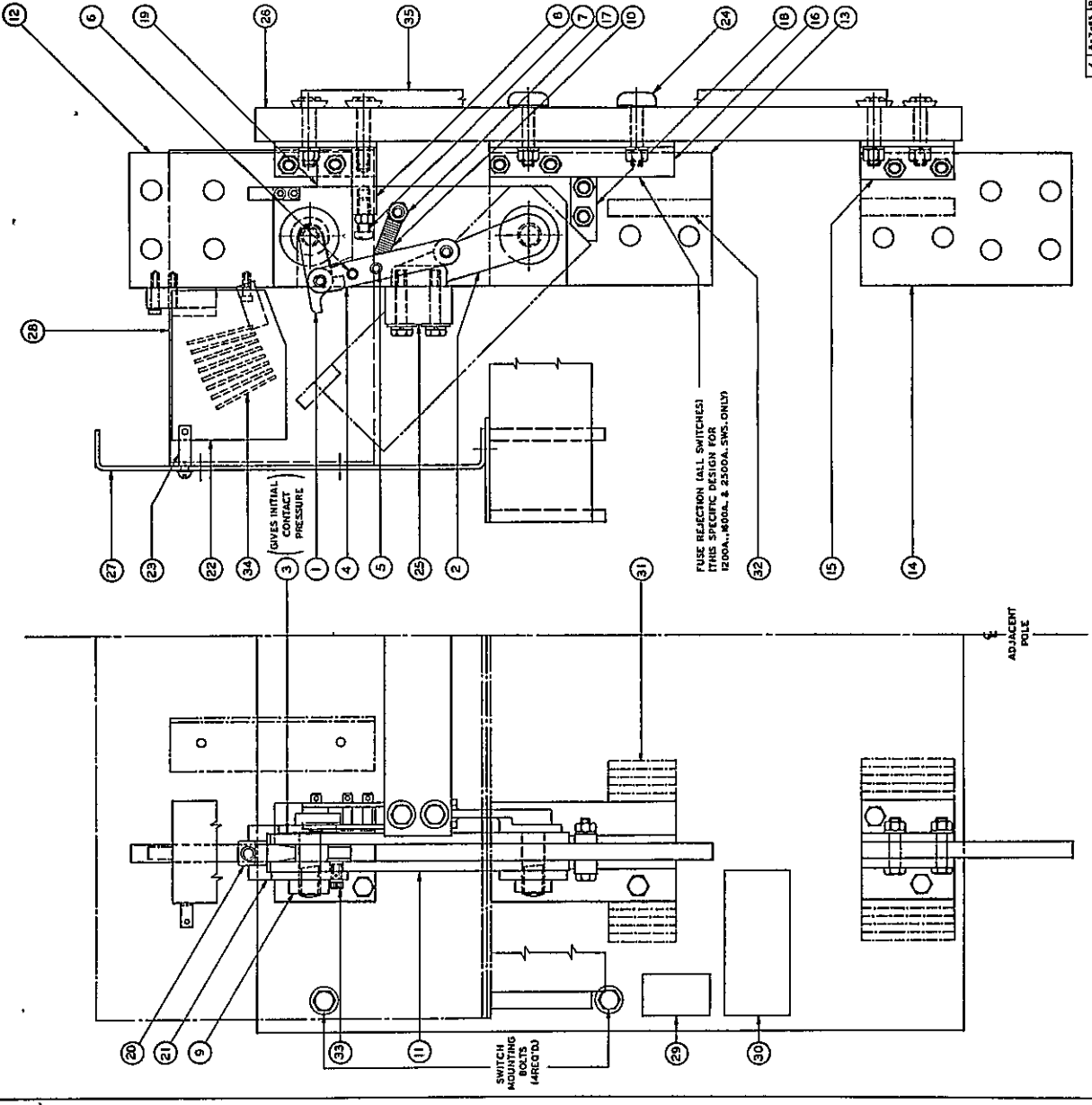
THIS SWITCH MANUFACTURED FROM DEC. 1989 TO

ACCOMMODATIONS AND HARDWARE FOR CLASS L FUSES

FOR DEAD FRONT MECHANISMS SEE:  
 DRAWING C-51801 (10A-800A. TO 4000A.)  
 DRAWING C-54500 (10A FT-800A.)  
 DRAWING C-54501 (10A FT-1200A. TO 4000A.)  
 DRAWING D-62340 (10A-CR-800A. TO 4000A.)

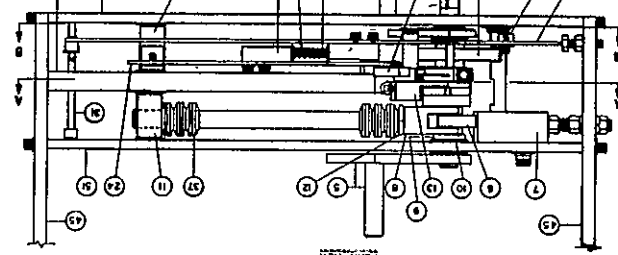
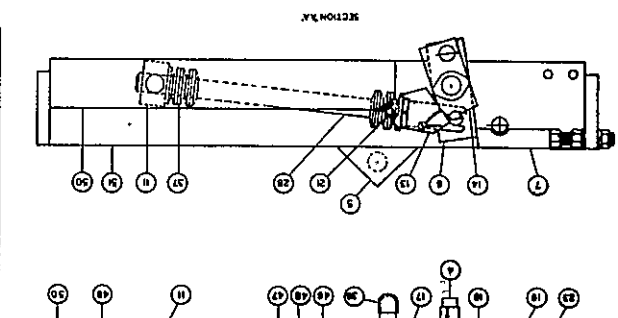
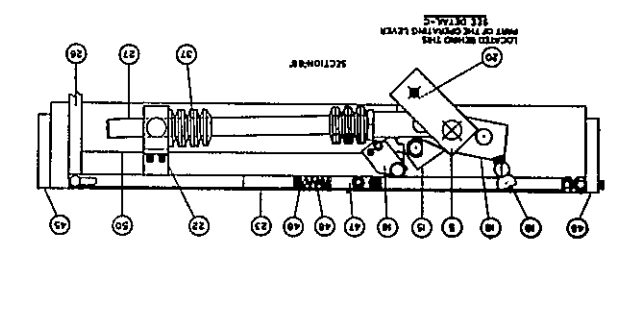
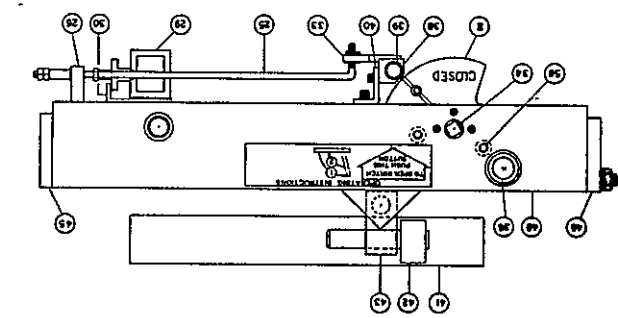
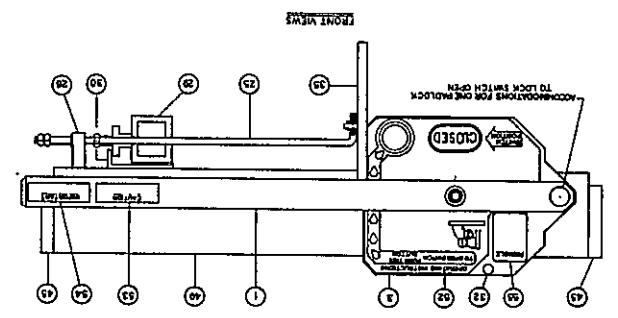
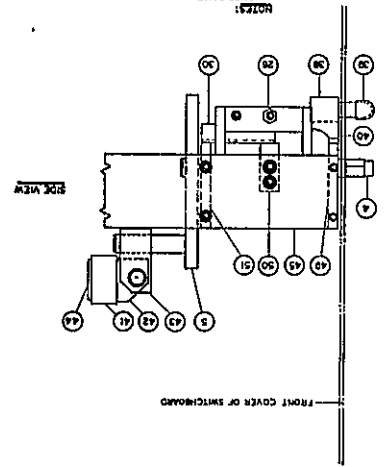
**TYPE-QA**  
**LOAD BREAK**  
**BOLTED PRESSURE CONTACT SWITCH**  
**800A. TO 4000A. 480V. A.C.**  
**PRINGLE ELECTRICAL MFG. CO.**  
 PORT WASHINGTON, PA. U.S.A.

4 0-7-75 (RE-DRAWN-ADDED PANEL SPACERS)  
 1 11-1-79 (LUBRICANT, ARC PARTS, ...)  
 TOLERANCES UNLESS OTHERWISE NOTED | SCALE | DATE, 11-12-79



TYPE GA-CRC  
 DEAD FRONT MECHANISM  
 FOR  
 800A-4000A  
 PRINGLE ELECTRICAL MFG. CO.  
 FORT WASHINGTON, PA.  
 DATE 4-11-55  
 SCALE 1/2"=1"  
 DRAWN BY L. J. CHESTNUT  
 D-62340

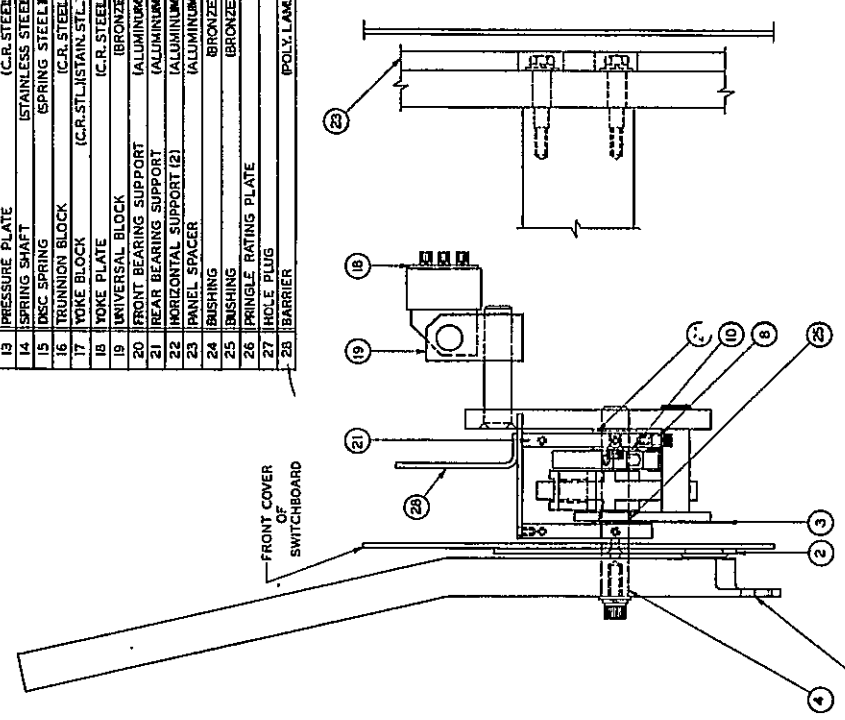
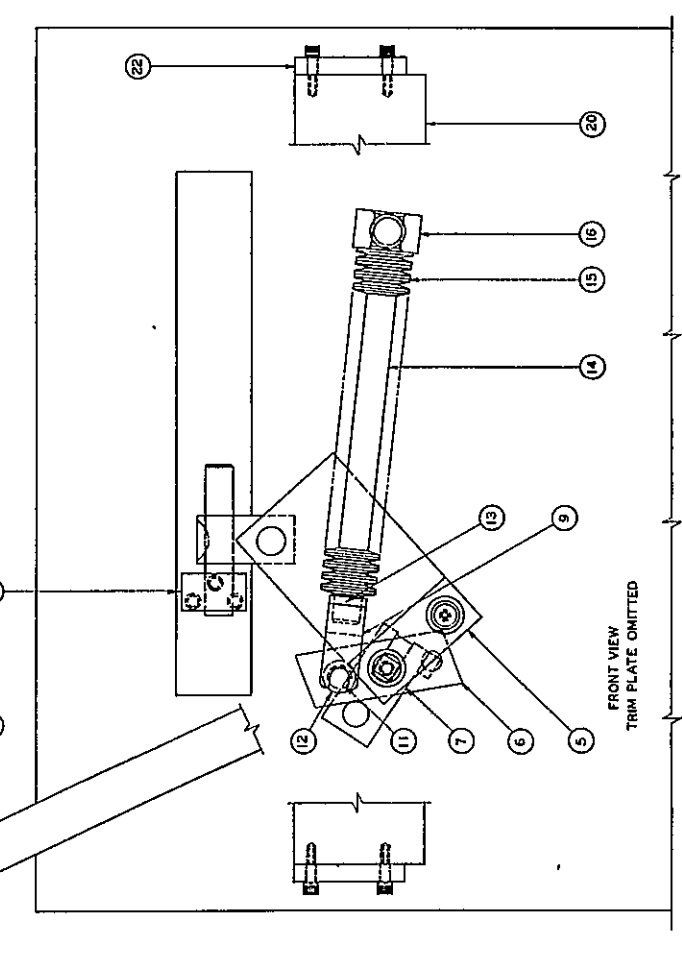
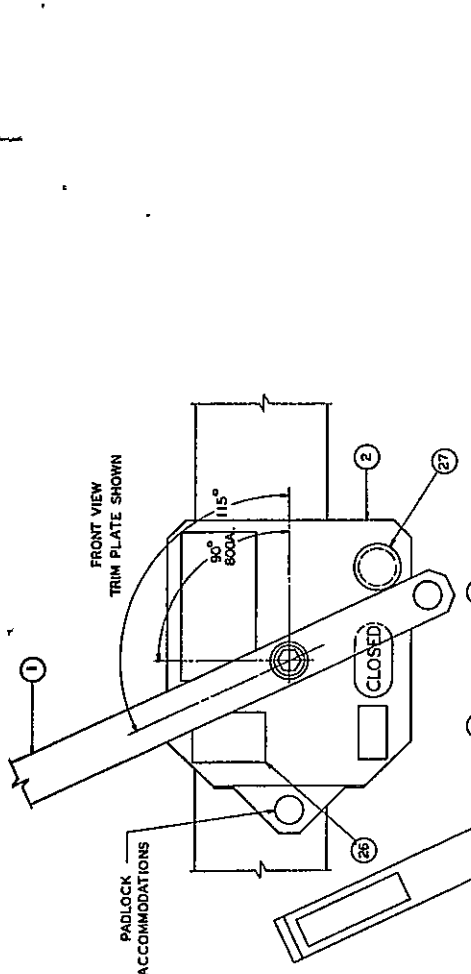
NOTE:  
 LUBRICATE ALL PIVOT POINTS  
 PERIODICALLY WITH A  
 LIGHT OIL.  
 THIS DRAWING IS LISTED TO  
 DRAWING 3500A & 4000A MECHANISMS  
 300A & 4000A HAVE DOUBLE  
 SPRING ASSEMBLY. THIS SECOND  
 SPRING IS SHOWN IN POSITION  
 ON THE LEFT SIDE OF THE OPERATING  
 SHAFT FACING THE SWITCH.  
 THIS MECHANISM MANUFACTURED  
 FROM  
 REVISED 8-27-55  
 REVISED 8-10-55  
 REVISED 3-14-57



PART	DESCRIPTION	PART	DESCRIPTION
1	OPERATING HANDLE	31	PAWLED RIB STOP
2	INDICATOR PLATE	32	OPENING SPRING CAM ASSEMBLY (DETAIL C)
3	TRIP LAMP	33	SPRING CAM (OPTIONAL)
4	OPERATING SHAFT	34	HANDLE CATCH
5	OPERATING LEVER	35	HANDLE CATCH SUPPORT
6	TRIP PLATE	36	HANDLE CATCH
7	INDICATOR PLATE	37	HANDLE CATCH SUPPORT
8	SPRING CLIP	38	REAR SPRING SUPPORT
9	SPRING CLIP	39	REAR SPRING
10	WASHER	40	HORIZONTAL SUPPORT
11	TRIP LOCK	41	TRIP LOCK
12	TRIP LOCK	42	TRIP LOCK
13	TRIP LOCK	43	TRIP LOCK
14	TRIP LOCK	44	TRIP LOCK
15	TRIP LOCK	45	TRIP LOCK
16	TRIP LOCK	46	TRIP LOCK
17	TRIP LOCK	47	TRIP LOCK
18	TRIP LOCK	48	TRIP LOCK
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37	TRIP LOCK	67	TRIP LOCK
38	TRIP LOCK	68	TRIP LOCK
39	TRIP LOCK	69	TRIP LOCK
40	TRIP LOCK	70	TRIP LOCK
41	TRIP LOCK	71	TRIP LOCK
42	TRIP LOCK	72	TRIP LOCK
43	TRIP LOCK	73	TRIP LOCK
44	TRIP LOCK	74	TRIP LOCK
45	TRIP LOCK	75	TRIP LOCK

PART	DESCRIPTION	MATERIAL
1	OPERATING HANDLE	(ALUMINUM)
2	TRIM PLATE	(STEEL)
3	INDICATOR PLATE	(STAINLESS STEEL)
4	OPERATING SHAFT	(C.R. STEEL)
5	OPERATING LEVER	(STEEL)
6	SPRING CAM	(ALLOY STEEL)
7	SPRING LOADER	(C.R. STEEL)
8	STOP PLATE	(C.R. STEEL)
9	SPRING CLEVIS	(C.R. STEEL)
10	WASHER (3)	(STAINLESS STEEL)
11	PIN (SPRING CAM)	(STAINLESS STEEL)
12	WASHER (2)	(BRASS)
13	PRESSURE PLATE	(C.R. STEEL)
14	SPRING SHAFT	(STAINLESS STEEL)
15	DISC SPRING	(SPRING STEEL)
16	TRUNNION BLOCK	(C.R. STEEL)
17	YOKE BLOCK	(C.R. STAINLESS)
18	YOKE PLATE	(C.R. STEEL)
19	UNIVERSAL BLOCK	(BRONZE)
20	FRONT BEARING SUPPORT	(ALUMINUM)
21	REAR BEARING SUPPORT	(ALUMINUM)
22	HORIZONTAL SUPPORT (2)	(ALUMINUM)
23	PANEL SPACER	(ALUMINUM)
24	BUSHING	(BRONZE)
25	BUSHING	(BRONZE)
26	PRINGLE RATING PLATE	
27	HOLE PLUG	
28	BARRIER	(POLY. LAM.)

**NOTES:**  
**LUBRICANT**  
 PERIODICALLY ALL PIVOT POINTS SHOULD BE LUBRICATED WITH A MINIMUM AMOUNT OF LIGHT OIL.  
 THIS DWG. MAY ALSO BE USED TO IDENTIFY 3000A, 4000A, MECHANISMS 3000A & 4000A. HAVE A DOUBLE SPRING ASSEMBLY. THIS SECOND SPRING ASSEMBLY IS MOUNTED ON THE LEFT SIDE OF THE OPERATING SHAFT FACING THE SWITCH.  
 SERIAL NO. MUST BE SPECIFIED WITH THIS DRAWING.  
 THIS MECHANISM MANUFACTURED FROM DEC. 1949 TO  
 FOR SWITCHES SEE C-51900



TYPE OA  
 DEAD FRONT MECHANISM  
 FOR  
 800A-4000A.  
 PRINGLE ELECTRICAL MFG. CO.  
 FORT WASHINGTON, PA. U.S.A.

2 11-10-53 REDRAWN & PT. 23 WAS VEC. 5/50  
 TOLERANCES UNLESS OTHERWISE NOTED  
 ORDER SCALE DATE 11-12-79