

Part Catalogue No. 6191-11

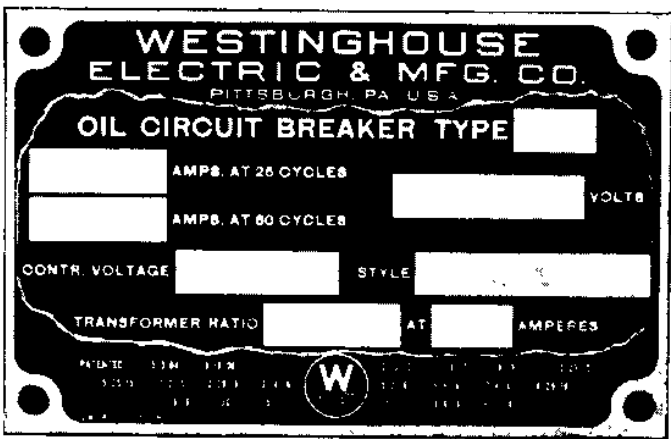
September, 1925

For prices refer to Catalogue 10-A or apply to nearest District Office

PARTS OF
Westinghouse
Type O-11 Oil Circuit-Breakers

600 to 2000 Amperes, 15,000 to 25,000 Volts, 3 Poles

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When ordering parts give the style number and description of the part with the complete nameplate reading of the breaker.



WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY
East Pittsburgh, Pa.

Printed in U. S. A.

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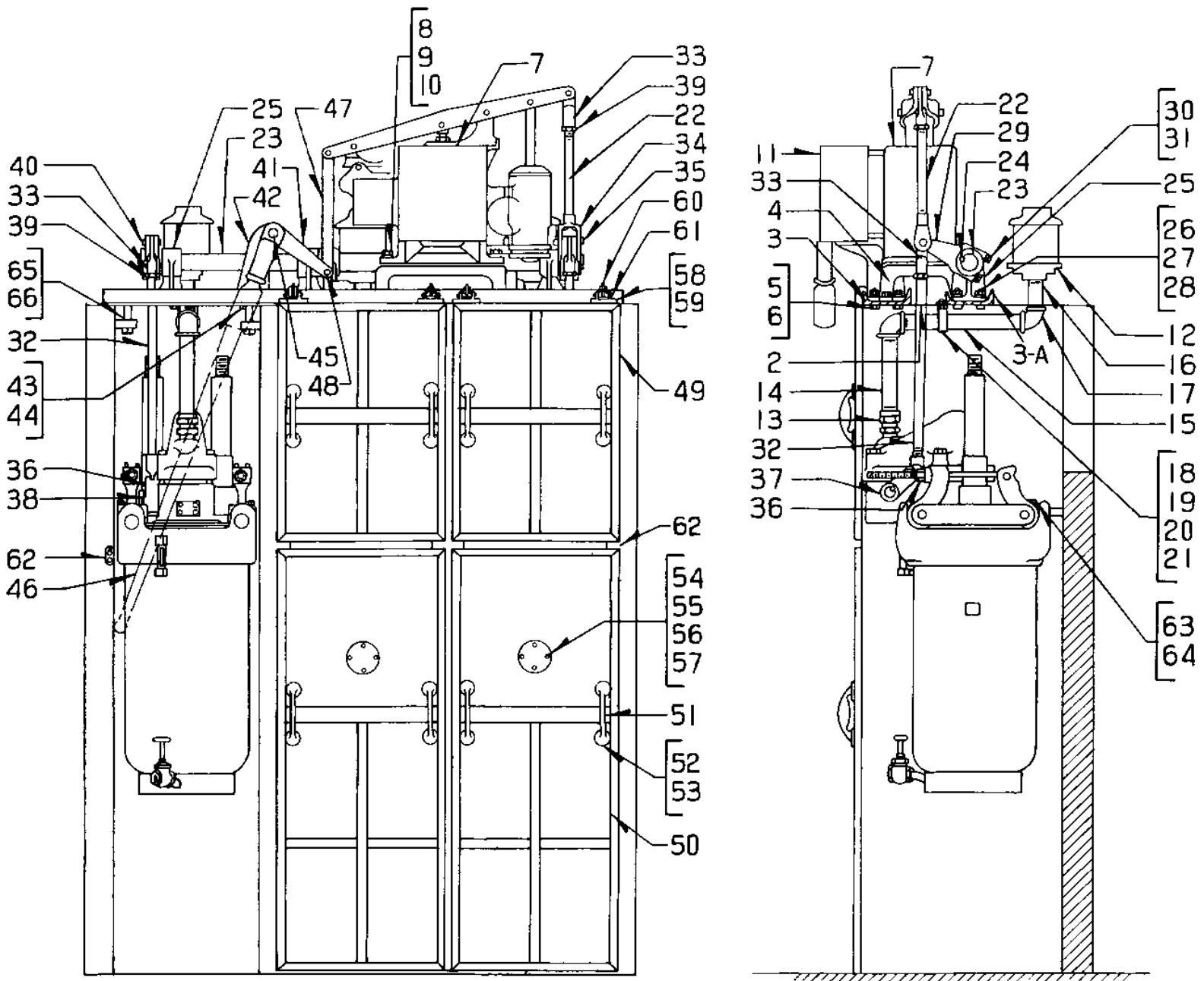
RECOMMENDED STOCK OF RENEWAL PARTS
For
TYPE O-11 CIRCUIT-BREAKERS

This list covers the minimum amount of Renewal Parts
that should be carried in stock.

Number of Three Pole Breakers
in use up to and including. 2 5 15

Name of Part	No. Per Pole	No. Per Breaker	Recommended For Stock		
Breaker pole unit complete.	—	3	0	0	1
Condenser terminal.	2	—	2	4	6
Arcing tip for stationary contact foot.	2	—	6	12	18
Brush unit without arcing contact fingers.	1	—	1	2	3
Arcing contact finger for brush.	4	—	12	24	36
Contact springs, long.	—	12	12	24	36
Contact springs, short.	—	12	12	24	36
Wood lifting rod with rod ends.	1	—	1	2	3
Oil tank without lining.	1	—	0	1	2
Outer lining for tank.	1	—	0	1	2
Inner lining for tank (upper).	1	—	0	1	2
Inner lining for tank (lower).	1	—	0	1	2
Closing coil (when ordering give data as per name plate marking)	—	1	1	1	2
Tripping coil (when ordering give data as per name plate marking)	—	1	1	1	2
Leather washer for moving closing core.	—	1	1	2	4
Metal expander for leather washer for moving closing core.	—	1	1	2	4
Leather washer for dash pot plunger rod.	—	1	1	2	4
Metal expander for leather washer for dash pot plunger rod.	—	1	1	2	4
Valve for dash pot.	—	1	1	2	4
Valve stem for dash pot.	—	1	1	2	4
Valve spring for dash pot valve.	—	1	1	2	4
Trigger with latch.	—	1	0	1	2
Spring for trigger.	—	1	0	1	2
Roller for latch.	—	1	0	1	2
Control panel complete.	—	1	0	1	1
Relay operating coil.	—	1	1	1	2
Relay release coil.	—	1	1	1	2
Control relay contacts.	—	2	2	4	6
Auxiliary switch complete (for electrical mechanism).	—	1	0	1	2

BREAKER UNIT, OPERATING MECHANISM, BASE, COVER AND DOORS
Parts Common to Three Pole Breakers



ORDER PARTS BY STYLE NUMBER AND DESCRIPTION

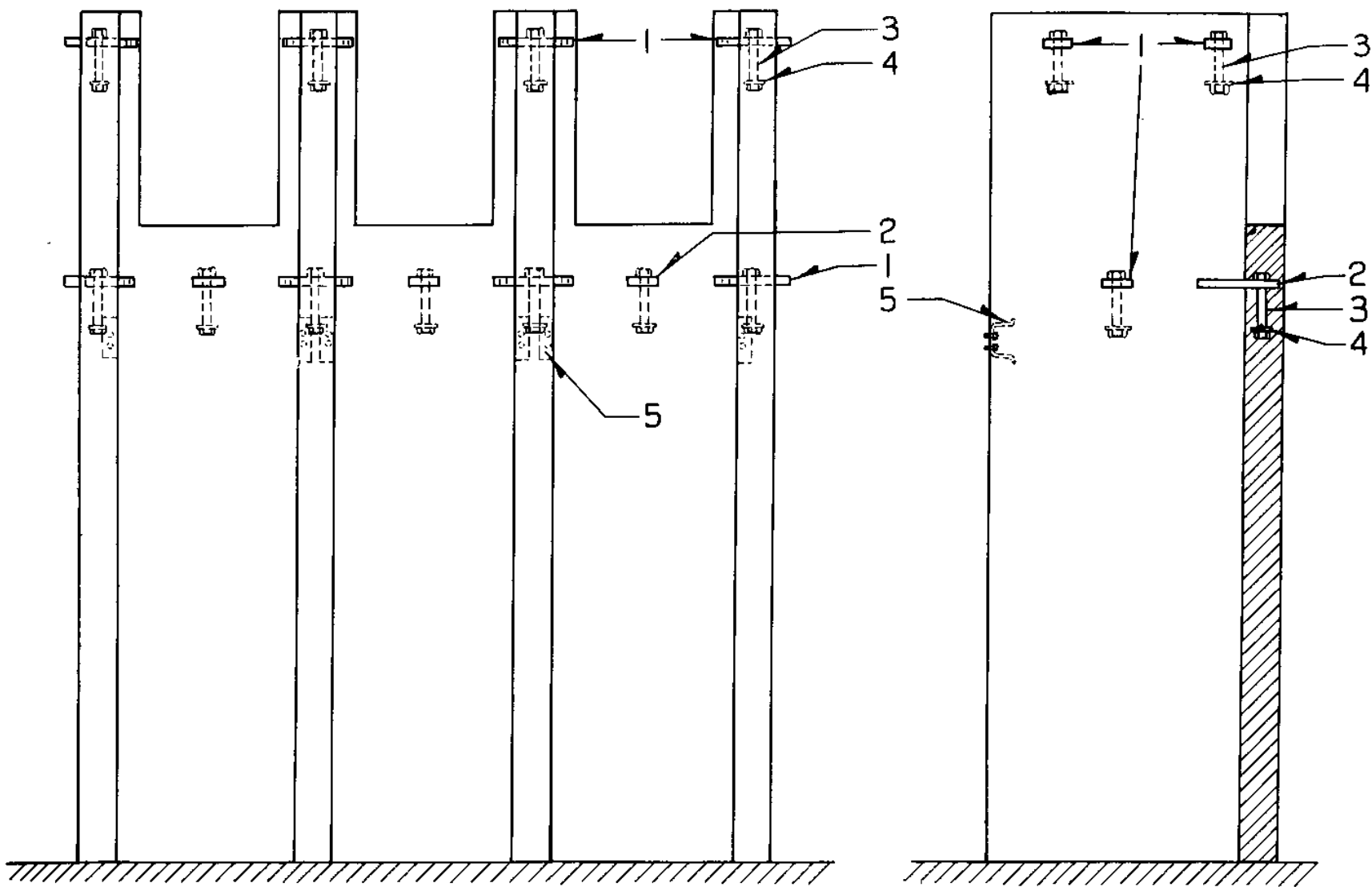
Ref. No.	Style No.	No. Per Breaker	Description
1	445866	3	Breaker unit complete, for 600 amperes, 15000 volts
1	445867	3	Breaker unit complete, for 1200 amperes, 15000 volts
1	445868	3	Breaker unit complete, for 1600 amperes, 15000 volts
1	445869	3	Breaker unit complete, for 2000 amperes, 15000 volts
1	445870	3	Breaker unit complete, for 600 amperes, 25000 volts
1	445871	3	Breaker unit complete, for 1200 amperes, 25000 volts
2	453720	1	Steel cover for cell
3	453721	1	Channel iron base (Front)
3A	432383	1	Channel iron base (Rear)
4	405415	1	Bracket for mounting electrical mechanism
5	377441	4	Machine bolt, $\frac{5}{8}$ "-11x2 $\frac{1}{2}$ " (standard hardware), to fasten electrical mechanism bracket on cover
6	383239	4	Lock washer, $\frac{5}{8}$ " (standard hardware), for machine bolt
7	405132	1	Electrical operating mechanism without coils (for details see page 11)
8	377441	3	Machine bolt, $\frac{5}{8}$ "-11x2 $\frac{1}{2}$ " (standard hardware), to fasten electric mechanism on bracket
9	377348	3	Wrought iron washer, $\frac{5}{8}$ " (standard hardware), for machine bolt
10	383239	3	Lock washer, $\frac{5}{8}$ " (standard hardware), for machine bolt
11	424502	1	Control panel complete (for details see page 15)
12	393556	3	Muffler complete (for details see page 18)
13	.....	3	Male and female union to connect muffler pipe to breaker cover
14	.....	3	Wrought iron pipe, 13 $\frac{1}{4}$ "x1 $\frac{1}{2}$ " (standard hardware), for muffler connection vertical
15	.....	3	Wrought iron pipe, 16 $\frac{1}{2}$ "x1 $\frac{1}{2}$ " (standard hardware), for muffler connection, horizontal
16	.....	3	Wrought iron pipe, 3 $\frac{1}{2}$ "x1 $\frac{1}{2}$ " (standard hardware), to connect to muffler

BREAKER UNIT, OPERATING MECHANISM, BASE, COVER AND DOORS**Parts Common to Three Pole Breakers****ORDER PARTS BY STYLE NUMBER AND DESCRIPTION**

Ref. No.	Style No.	No. Per Breaker	Description
17	.....	6	Cast iron pipe elbow, 1½" (standard hardware), for pipe connection
18	405424	3	Pipe hanger for muffler pipe
19	397967	6	Machine bolt, ⅜"-16x1¼" (standard hardware), to fasten pipe hanger to cell cover
20	364785	12	Wrought iron washer, ½" (standard hardware), for machine bolt
21	383169	6	Lock washer, ½" (standard hardware), for machine bolt
22	405420	1	Operating rod from electrical mechanism to pull rod lever
23	453722	1	Shaft for breaker pull rod levers
24	41002	3	Key for shaft and levers
25	277454	3	Bearing for shaft
26	364784	12	Machine bolt, ½"-13x2" (standard hardware), to mount bearing on channel iron base
27	364785	12	Wrought iron washer, ½" (standard hardware), for machine bolt
28	383172	12	Lock washer, ½" (standard hardware), for machine bolt
29	405411	3	Lever for breaker pull rods
30	453671	12	Tap bolt, ½"-13x2¾" (standard hardware), to clamp lever to shaft
31	383172	12	Lock washer, ½" (standard hardware), for tap bolt
32	453723	3	Pull rod for breaker closing lever
33	239919	7	Rod end for pull rod and operating rod
34	233251	1	Rod end for operating rod and pull rod lever
35	63634	1	Connection pin for operating rod and pull rod lever
36	443616	3	Connection pin for pull rod and breaker closing lever
37	453719	1	Closing lever, right hand
38	442772	2	Closing lever, left hand
39	.....	4	Malleable iron pipe nut, ¾" (standard hardware), for pull rod and operating rod
40	63632	2	Connection pin for pull rod lever and pull rod
41	405425	1	Bell crank socket for hand closing lever
42	405426	1	Bearing for bell crank socket
43	377441	4	Machine bolt, ⅝"-11x2½" (standard hardware), to mount bearing on channel iron base
44	383239	1	Lock washer, ⅝" (standard hardware), for machine bolt
45	405417	1	Bearing pin for bell crank socket and bearing
46*	200874	..	Hand closing lever
47	405416	1	Link from bell crank socket to electric mechanism
48	405427	1	Connection pin for bell crank socket and link
49	424115	3	Upper door
50	424113	3	Lower door
51	243201	12	Handle for door
52	.....	48	Countersunk head copper rivet, ⅜"x⅜" (standard hardware), to fasten handle to door
53	3424	48	Washer for rivet
54	.....	3	Name plate No. 6020 for door
55	.....	12	Fillister head brass machine screw, No. 2-56x⅝" (standard hardware), to mount name plate on door
56	65908	12	Washer for screw
57	46865	12	Nut for screw
58	398131	6	Bracket for hanger hook for upper door
59	.....	12	Countersunk head iron rivet, ⅜"x1" (standard hardware), to fasten bracket to door
60	380266	6	Hanger hook for upper door
61	.....	6	Round head iron stove bolt, ⅝"-18x2½" (standard hardware), for hanger hook and bracket
62	405437	6	Hanger for lower door
63	453701	9	Tap bolt, ¾"-10x2¼" (standard hardware), to mount breaker in cell
64	398704	9	Lock washer, ¾" (standard hardware), for tap bolt
65	453724	12	Machine bolt, ¾"-10x4½" (standard hardware), to mount cover on cell
66	398704	12	Lock washer, ¾" (standard hardware), for machine bolt

*One required per station.

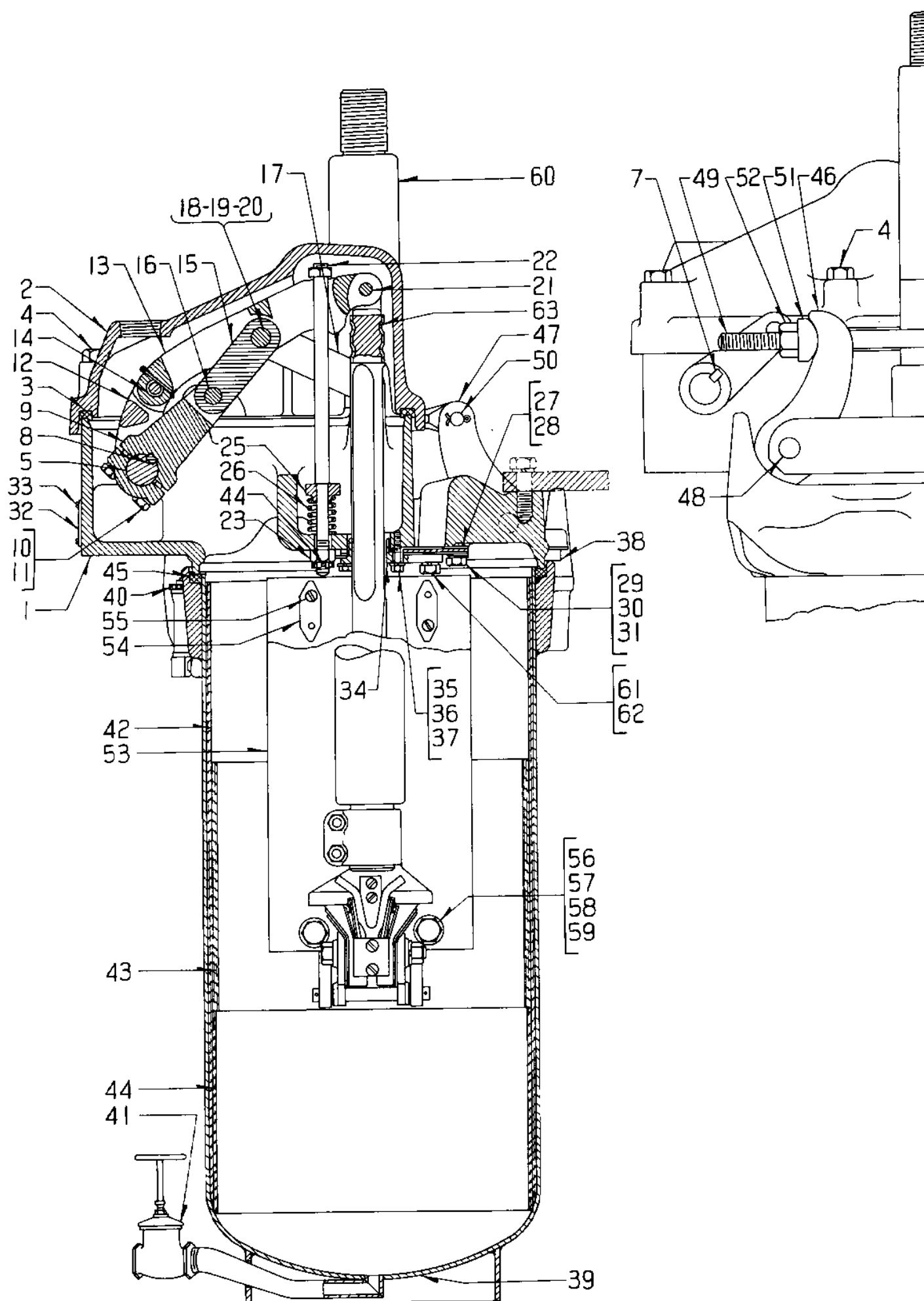
STRUCTURE DETAILS
Parts Common to Three Pole Breakers



ORDER PARTS BY STYLE NUMBER AND DESCRIPTION

Ref. No.	Style No.	No. Per Breaker	Description
1	405436	12	Wall inserts for middle and end walls
2	453728	3	Wall inserts for back wall
3	.....	15	Machine bolt, 3/4"-10x6" (standard hardware), for wall inserts and structure
4	.....	15	Wrought iron washer, 3/4" (standard hardware), for machine bolt
5	405434	6	Wall insert for hanger for lower door

MECHANISM, TANK, CONDENSER TERMINAL AND DETAILS For Single Pole Unit



MECHANISM, TANK, CONDENSER TERMINALS AND DETAILS - Cont.
For Single Pole Unit

ORDER PARTS BY STYLE NUMBER AND DESCRIPTION

Ref. No.	Style No.	No. Per Pole	Description
1	443611	1	Base for mechanism
2	442738	1	Cover for mechanism
3	443612	1	Anchor flax packing, 40" of $\frac{5}{8}$ " square, for cover and base
4	.....	4	Tap bolt, $\frac{3}{4}$ "-10x5" (standard hardware), to fasten cover to base
5	443614	1	Operating shaft
6*	405450	1	Collar for operating shaft
7	421643	1	Key for operating shaft and closing lever
8	45607	1	Key for operating shaft and toggle lever
9	442742	1	Toggle lever
10	.....	4	Tap bolt, $\frac{1}{2}$ "-13x1 $\frac{3}{4}$ " (standard hardware), to clamp toggle lever to shaft
11	.....	4	Lock washer, $\frac{1}{4}$ " (standard hardware), for tap bolt
12	442743	1	Rocker for main lever
13	442739	1	Main lever
14	442756	1	Connection pin for rocker and main lever
15	442745	1	Toggle link for main lever and toggle lever
16	442752	1	Connection pin for toggle lever and toggle link
17	442744	2	Guide link for main lever
18	442746	1	Connection pin for toggle link, guide link and main lever
19	442747	1	Retaining screw for connection pin
20	60959	1	Set screw for retaining screw
21	443615	1	Connection pin for main lever and lifting rod
22	442797	1	Stop rod with nut
23	320916	1	Crown nut for bottom of stop rod
24	442750	1	Locking pin for crown nut
25	442748	1	Bumper for main lever
26	405521	1	Spring for bumper
27	442740	1	Filling plate
28	442741	2	Gasket for filling plate
29	.....	4	Tap bolt, $\frac{1}{2}$ "-13x1 $\frac{3}{4}$ " (standard hardware), to fasten filling plate to base
30	2892	4	Washer for tap bolt
31	.....	4	Lock washer, $\frac{1}{2}$ " (standard hardware), for tap bolt
32	.....	1	Name plate No. 2416
33	.....	4	Fillister head brass machine screw, No. 4-40 x $\frac{7}{16}$ " (standard hardware), to fasten name plate to base
34	443621	1	Guide for lifting rod
35	.....	3	Tap bolt, $\frac{5}{16}$ "-18x1 $\frac{1}{4}$ " (standard hardware), to fasten guide for lifting rod to base
36	.....	3	Lock washer, $\frac{5}{16}$ " (standard hardware), for tap bolt
37	3272	3	Washer for tap bolt
38	442754	2	Guide pin for tank
39	443627	1	Oil tank complete with oil gauge and gate valve
40	424549	1	Oil gauge (for details see page 8)
41	384961	1	Nelson gate valve, 1" (standard hardware)
42	443629	1	Outer lining for tank
43	453746	1	Inner lining for tank (upper)
44	453747	1	Inner lining for tank (lower)
45	443628	1	Anchor packing, 55" of $\frac{5}{8}$ " square, for tank and base
46	443622	2	Tank locking lever (front)
47	443623	2	Tank locking lever (rear)
48	443625	4	Bearing pin for locking lever
49	443626	2	Tie bolt for locking lever
50	87679	2	Connection pin for locking lever and tie bolt
51	443624	2	Washer for tie bolt
52	.....	2	Hexagon iron nut, $\frac{5}{8}$ "-11 (standard hardware), for tie bolt
53	453716	2	Barrier for moving contact, 600-1200 amperes, 25000 volts
53	443617	2	Barrier for moving contact, 1600-2000 amperes
54	453609	2	Spacing block for barrier
55	398454	4	Flat head iron machine screw, No. $\frac{5}{16}$ "-18x $\frac{7}{8}$ " (standard hardware), for barrier and block
56	385230	2	Tap bolt, $\frac{3}{8}$ "-16x2 $\frac{3}{4}$ " (standard hardware), to fasten barrier to lifting rod foot
57	382174	4	Washer, $\frac{3}{8}$ " (standard hardware), for tap bolt
58	383169	2	Lock washer, $\frac{3}{8}$ " (standard hardware), for tap bolt
59	389521	2	Hexagon nut, $\frac{3}{8}$ "-16 (standard hardware), for tap bolt
60	438611	2	Condenser terminal, 600 amperes
60	445877	2	Condenser terminal, 1200 amperes
60	445875	2	Condenser terminal, 1600 amperes
60	445876	2	Condenser terminal, 2000 amperes

*Not illustrated.

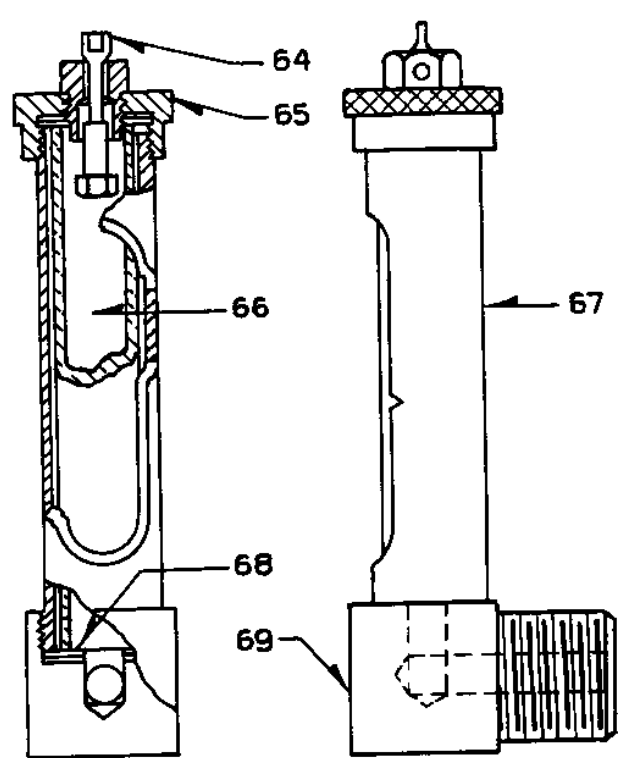
MECHANISM, TANK AND CONDENSER TERMINALS AND DETAILS - Cont.

For Single Pole Unit - Continued

ORDER PARTS BY STYLE NUMBER AND DESCRIPTION

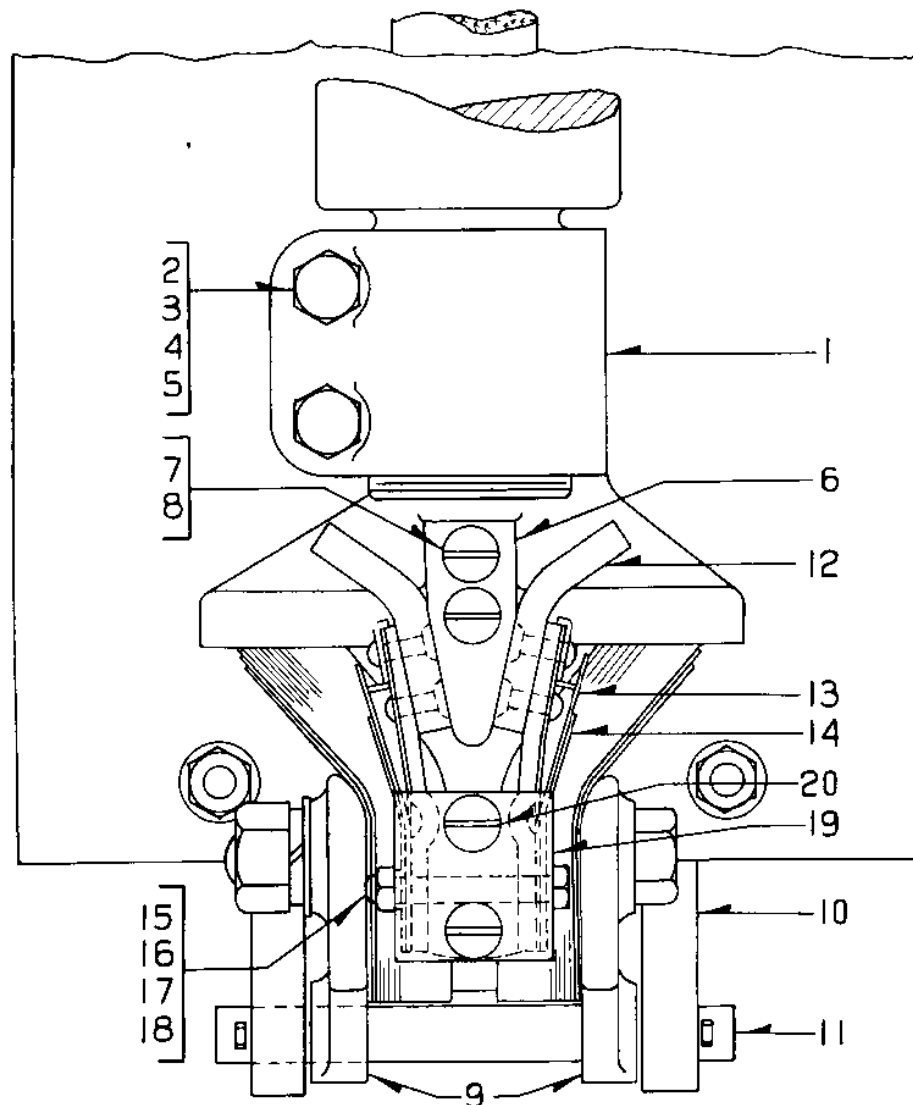
Ref. No.	Style No.	No. Per Pole	Description
61	.....	6	Tap bolt, 1/2"-13x1 3/4" (standard hardware), to fasten condenser terminal to base
62	.....	6	Lock washer, 1/2" (standard hardware), for tap bolt
63	453717	1	Lifting rod with foot and rod end, 600-1200 amperes
63	445778	1	Lifting rod with foot and rod end, 1600-2000 amperes

Oil Tank Details



64	442783	1	Valve and Stem
65	250073	1	Cap
66	111973	1	Glass Tube
67	152341	1	Outside Uube
68	111930	2	Cork Washer
69	113855	1	Elbow

CONTACT DETAILS FOR SINGLE POLE UNITS



ORDER PARTS BY STYLE NUMBER AND DESCRIPTION

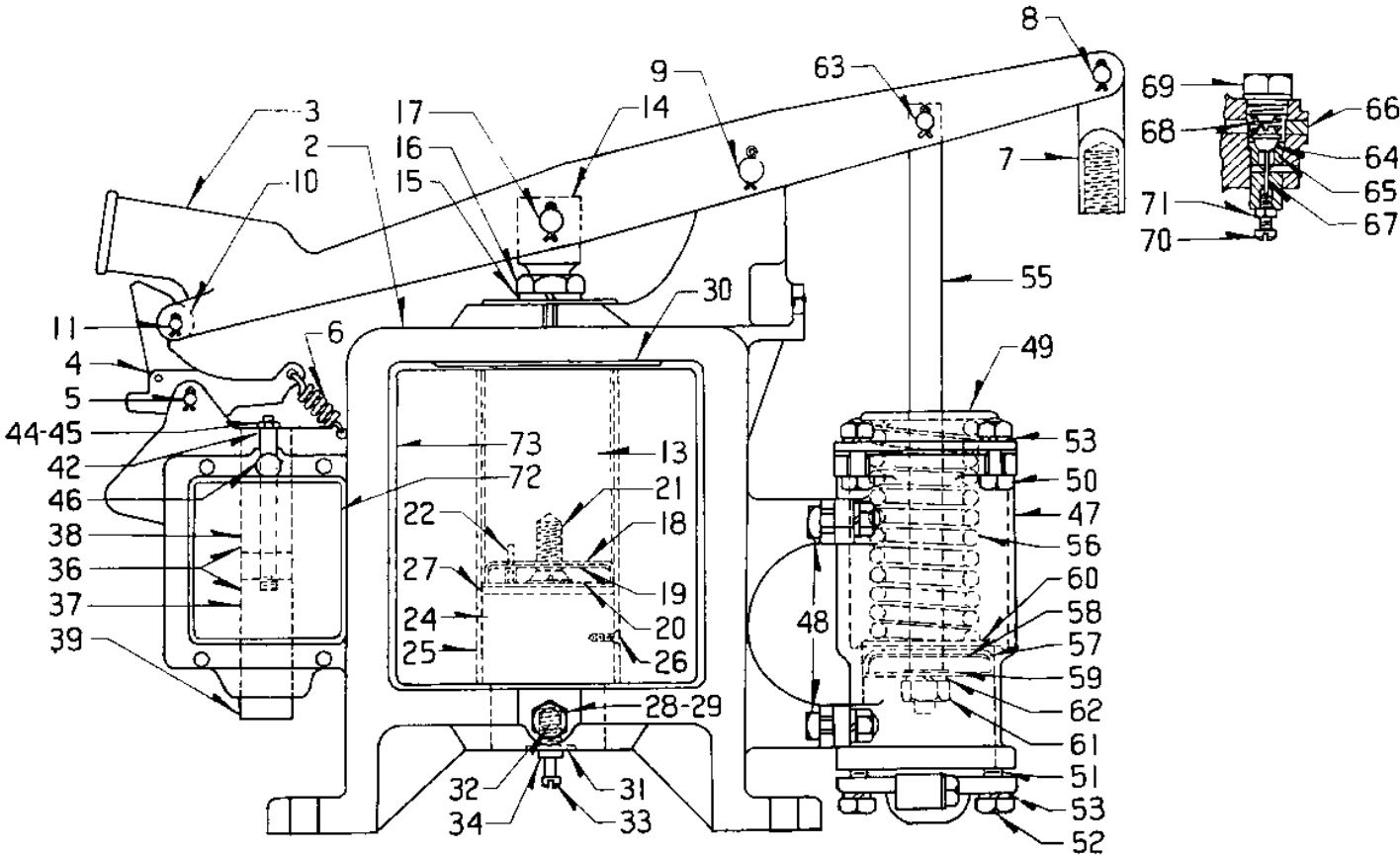
Ref. No.	Style No.	No. Per Pole	Description
1	443631	2	Contact foot for 600 amperes
1	453714	2	Contact foot for 1200 amperes
1	453715	1	Contact foot, right hand, for 1600 and 2000 amperes
1	453718	1	Contact foot, left hand, for 1600 and 2000 amperes
2	.....	2	Tap bolt, $\frac{5}{8}$ "-11x2 $\frac{1}{4}$ " (standard hardware), to clamp foot to condenser terminal for 600 and 1200 amperes
2	.....	4	Tap bolt, $\frac{1}{2}$ "-13x3" (standard hardware), to clamp contact foot to condenser terminal for 1600 and 2000 amperes
3	.....	2	Hexagon iron nut, $\frac{5}{8}$ "-11 (standard hardware), for tap bolt
3	.....	4	Hexagon iron nut, $\frac{1}{2}$ "-13 (standard hardware), for tap bolt
4	2892	4	Washer for tap bolt
5	.....	4	Lock washer, $\frac{1}{2}$ " (standard hardware), for tap bolt
6	422999	2	Arcing tip
7	.....	4	Fillister head iron machine screw, No. $\frac{5}{16}$ "-18x1 $\frac{1}{4}$ " (standard hardware), to mount arcing tip
8	.....	4	Lock washer, $\frac{5}{16}$ " (standard hardware), for screw
9	424509	1	Brush unit without arcing contact for 600 amperes
9	445872	1	Brush unit without arcing contact for 1200 amperes
9	445873	1	Brush unit without arcing contact for 1600 amperes
9	445874	1	Brush unit without arcing contact for 2000 amperes
10	442758	2	Eye bolt for brush suspension for 600 and 1200 amperes
10	443619	2	Eye bolt for brush suspension for 1600 and 2000 amperes
11	442759	1	Bearing pin for brush casting for 600 and 1200 amperes
11	443620	1	Bearing pin for brush casting for 1600 and 2000 amperes
12	420528	4	Arcing contact tip and shunt
13	375536	4	Pressure spring, long
14	375537	4	Pressure spring, short
15	.....	2	Tap bolt, $\frac{5}{16}$ "-18x2 $\frac{1}{4}$ " (standard hardware), to mount arcing contact and pressure spring for 600 and 1200 amperes
15	430095	2	Bolt to mount arcing contact and pressure spring for 1600 and 2000 amperes
16	3412	2	Wrought iron washer for tap bolt, 1600-2000 amperes
16	.....	2	Wrought iron washer, $\frac{5}{16}$ " (standard hardware) for bolt, 600-1200 amperes

CONTACT DETAILS FOR SINGLE POLE UNITS - Continued

ORDER PARTS BY STYLE NUMBER AND DESCRIPTION

Ref. No.	Style No.	No. Per Pole	Description
17	...	2	Lock washer, $\frac{5}{16}$ " (standard hardware), for tap bolt, 600-2000 amperes
18	...	2	Hexagon iron nut, $\frac{5}{16}$ "-18 (standard hardware), for tap bolt, 600-1200 amperes
18	369094	2	Nut for bolt, 1600-2000 amperes
19	453712	2	Retaining plate for arcing contact and pressure spring for 600 and 2000 amperes
20	.....	4	Countersunk head iron machine screw, $\frac{5}{16}$ "-18x $\frac{3}{4}$ " (standard hardware), to mount retaining plate

ELECTRICAL OPERATING MECHANISM AND DETAILS



Reference No. 1

ORDER PARTS BY STYLE NUMBER AND DESCRIPTION

Ref. No.	Style No.	No. Per Mechanism	Description
1	405132	1	Electrical operating mechanism complete
2	405590	1	Mechanism frame
3	405589	1	Main lever
4	273087	1	Trigger complete
5	109229	1	Pin, to fasten trigger to overload trip
6	140362	1	Spring, for trigger
7	248949	1	Rod end, for main lever
8	87679	1	Pin, to fasten rod end to main lever
9	276860	1	Pin, to fasten main lever to mechanism frame
10	271427	1	Steel roller, for main lever
11	63603	1	Pin, to fasten steel roller in main lever
12*	405588	1	Operating core complete
13	225439	1	Moving core only
14	253488	1	Eye bolt, for moving core
15	85635	1	Lock washer, for eye bolt
16	255993	1	Nut for eye bolt
17	63634	1	Pin, to fasten eye bolt to main lever
18	333085	1	Leather washer for closing moving core
19	189929	1	Expander for leather washer
20	271438	1	Follower for expander and leather washer
21	117211	1	Special flat head screw, to fasten leather, expander and follower to moving core
22	151006	1	Pin, to prevent leather, expander and follower from turning
23*	273334	1	Stationary core and brass sleeve complete
24	264230	1	Stationary core only
25	333083	1	Brass sleeve, for stationary core
26	.....	1	Flat head iron machine screw, No.14-24x $\frac{1}{2}$ " (standard hardware), to fasten brass sleeve to stationary core
27	.....	1	Flax packing $\frac{3}{16}$ " square x 13" long, for stationary core
28	.....	2	Tap bolt, $\frac{3}{4}$ "x3 $\frac{1}{2}$ " (standard hardware), to fasten stationary core to mechanism frame
29	.....	2	Lock washer, $\frac{3}{4}$ " (standard hardware), for tap bolt
30	333086	3	Gasket, used between coil and frame
31	185454	1	Brass bushing, for valve
32	184519	1	Brass ball, for valve
33	277816	1	Brass adjusting screw, for valve
34	.....	1	Hexagon iron machine screw nut, No.20-18 (standard hardware), for adjusting screw

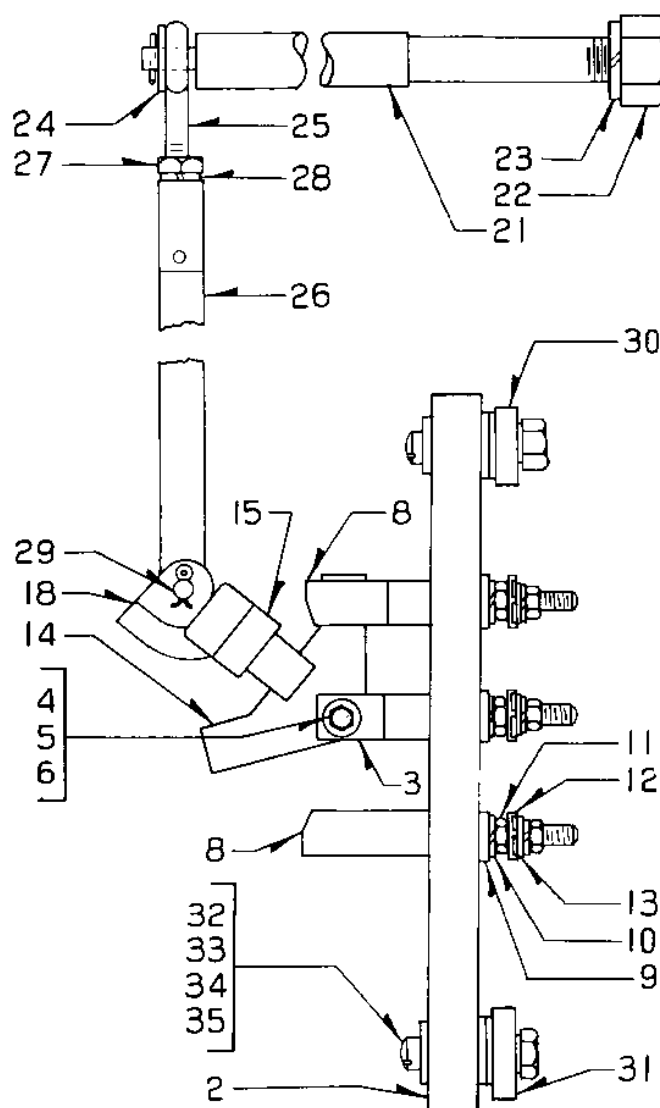
*Not illustrated

ELECTRICAL OPERATING MECHANISM AND DETAILS - Continued
Parts Illustrated on Page 11

ORDER PARTS BY STYLE NUMBER AND DESCRIPTION

Ref. No.	Style No.	No. Per Mechanism	Description
35*	198929	1	Spring, for valve
36	184889	1	Shunt trip core complete
37	333125	1	Moving core
38	333124	1	Stationary core
39	333123	1	Brass sleeve, for stationary core
40*	.....	2	Flat head iron machine screw, No.10-32x $\frac{3}{8}$ " (standard hardware), to fasten brass sleeve to stationary core
41*	385286	1	Moving core and stud
42	193688	1	Stud, for moving core or trip rod
43*	141901	1	Rivet, for trip rod
44	40646	1	Washer, for trip rod
45	46870	1	Nut, for trip rod
46	.....	1	Tap bolt, $\frac{1}{2}$ "x $1\frac{3}{4}$ " (standard hardware), for overload trip
47	250114	1	Dash pot cylinder
48	.....	3	Tap bolt, $\frac{1}{2}$ "x $1\frac{3}{4}$ " (standard hardware), to fasten dash pot cylinder to mechanism frame
49	277560	1	Cover, for dash pot
50	.....	4	Tap bolt, $\frac{1}{2}$ "x $1\frac{3}{4}$ " (standard hardware), to fasten cover on dash pot
51	230342	1	Cylinder head, for dash pot
52	.....	4	Tap bolt, $\frac{1}{2}$ "x $1\frac{3}{4}$ " (standard hardware), to fasten cylinder head to cylinder
53	.....	12	Lock washer, $\frac{1}{2}$ " (standard hardware), for tap bolts
54*	122532	2	Gasket, used between cylinder head and cylinder
55	273372	1	Plunger rod, for dash pot
56	185303	1	Compression spring, for dash pot
57	112506	1	Leather, for dash pot plunger rod
58	187120	1	Expander, for leather
59	277547	1	Follower for expander and leather
60	272649	1	Washer, for plunger rod
61	.....	1	Hexagon nut, $\frac{3}{4}$ " (standard hardware), for plunger rod
62	.....	1	Lock washer, $\frac{3}{4}$ " (standard hardware), for plunger rod
63	117200	1	Pin, to fasten dash pot plunger rod to main lever
64	185236	1	Valve, for dash pot
65	214139	1	Bushing, for valve
66	275056	1	Brass plug, for valve
67	187761	1	Pin, for valve
68	198929	1	Spring, for valve
69	68776	1	Cap nut, for valve
70	.....	1	Fillister head iron machine screw, No.10-32x $\frac{1}{2}$ " (standard hardware), used as adjusting screw
71	40662	1	Nut, for adjusting screw
72	184037	1	Trip coil, 125 volts
72	187337	1	Trip coil, 250 volts
73	315872	1	Closing coil, 125 volts, 600 to 1200 amperes
73	276413	1	Closing coil, 250 volts, 600 to 1200 amperes
73	422330	1	Closing coil, 125 volts, 1600 and 2000 amperes
73	415261	1	Closing coil, 250 volts, 1600 and 2000 amperes

*Not illustrated

AUXILIARY SWITCH AND DETAILS**4 Pole, Double Throw****ORDER PARTS BY STYLE NUMBER AND DESCRIPTION**

Ref. No.	Style No.	No. Per Switch	Description
1	445516	..	Switch complete (consisting of Ref. Nos. 2 to 20 inclusive)
2	453748	1	Slate base
3	68893	4	Hinge jaw
4	.....	4	Fillister head iron machine screw, No.6-32x $\frac{1}{2}$ " (standard hardware), for hinge jaw and blade
5	58858	8	Cup washer for screw
6	46867	4	Nut No.6-32 (standard hardware), for screw
7*	424454	1	Short break jaw (upper left hand pole)
8	405488	7	Break jaw full length
9	7444	12	Wrought iron washer, $\frac{1}{4}$ " (standard hardware), for jaw studs
10	.....	24	Lock washer, $\frac{1}{4}$ " (standard hardware), for jaw studs
11	46868	24	Nut for jaw studs
12	163424	12	Crimp washer for jaw stud
13	3217	12	Brass washer for jaw stud
14	382302	4	Blade with block
15	405969	1	Cross bar
16*	.....	4	Tap bolt, $\frac{1}{4}$ "-20x $\frac{3}{4}$ " (standard hardware), to fasten cross bar to blade block
17*	7444	4	Wrought iron washer, $\frac{1}{4}$ " (standard hardware), for tap bolt
18	402871	1	Cross bar lever
19*	.....	2	Tap bolt, $\frac{1}{4}$ "-20x $\frac{7}{8}$ " (standard hardware), to fasten lever to cross bar
20*	7444	2	Wrought iron washer, $\frac{1}{4}$ " (standard hardware), for tap bolt
21	445520	1	Extension bar for electrical operating mechanism main lever
22	.....	1	Hexagon nut, $\frac{1}{2}$ "-13 (standard hardware), for extension bar
23	.....	1	Lock washer, $\frac{1}{2}$ " (standard hardware), for extension bar
24	.....	1	Wrought iron washer, $\frac{1}{4}$ " (standard hardware), for extension bar
25	453750	1	Eye bolt for extension bar and link
26	453749	1	Link with block to connect eye bolt to cross bar lever
27	.....	1	Hexagon nut, $\frac{1}{4}$ "-20 (standard hardware), for eye blot
28	.....	1	Lock washer, $\frac{1}{4}$ " (standard hardware), for eye bolt

*Not illustrated

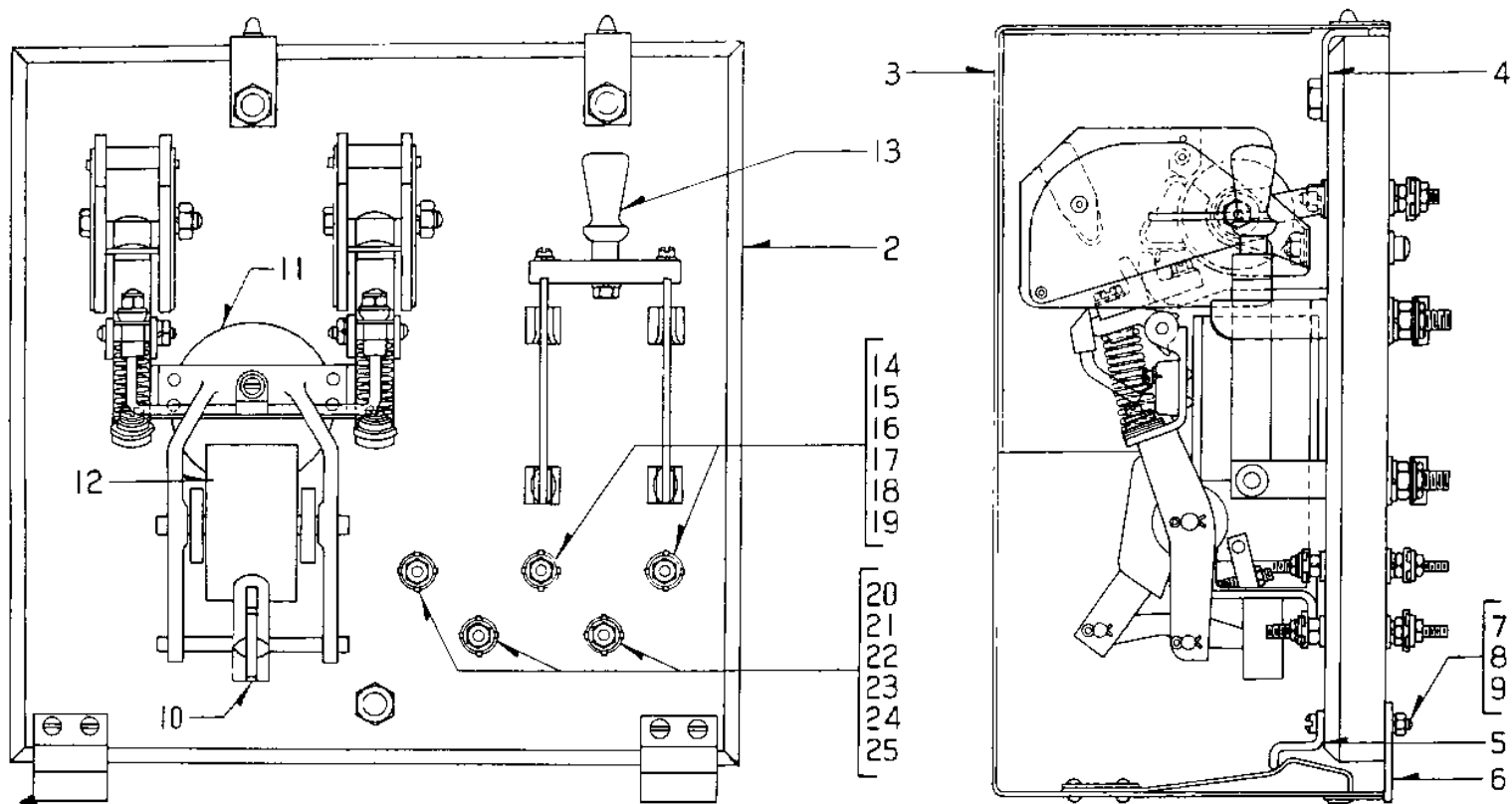
AUXILIARY SWITCH AND DETAILS - Continued
4 Pole, Double Throw

ORDER PARTS BY STYLE NUMBER AND DESCRIPTION

Ref. No.	Style No.	No. Per Switch	Description
30	445517	1	Upper mounting strap for base
31	445518	1	Lower mounting strap for base
32	.....	4	Fillister head iron machine screw, No.14-24x1 $\frac{3}{8}$ " (standard hardware), to mount base on mounting straps
33	3424	4	Lock washer, $\frac{1}{4}$ " (standard hardware), for screw
34	.....	4	Lock washer, $\frac{1}{4}$ " (standard hardware), for screw
35	.....	4	Hexagon iron machine screw nut, No.14-24 (standard hardware), for screw
36*	.....	3	Fillister head iron machine screw, No.14-24x $\frac{3}{4}$ " (standard hardware), to fasten mounting strap to magnet frame
37*	.....	3	Lock washer, $\frac{1}{4}$ " (standard hardware), for screws
38*	.....	1	Fillister head iron machine screw, $\frac{3}{8}$ "-16x $\frac{1}{2}$ " (standard hardware), to fasten upper mounting strap and spacer to magnet frame
39*	.....	1	Lock washer, $\frac{3}{8}$ " (standard hardware), for screw

*Not illustrated

CONTROL PANEL AND DETAILS

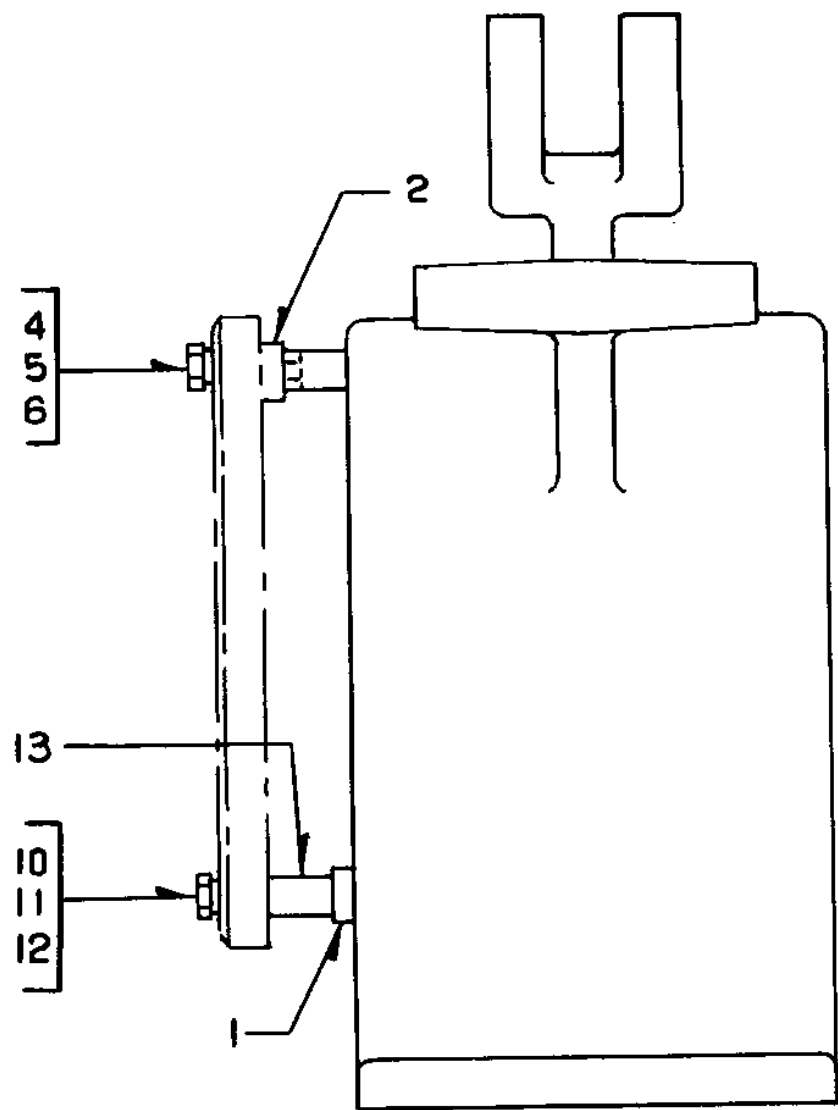


REFERENCE NO. 1

ORDER PARTS BY STYLE NUMBER AND DESCRIPTION

Ref. No.	Style No.	No. Per Panel	Description
1	424502	1	Control panel complete
2	442791	1	Slate panel
3	442790	1	Cover for panel
4	415816	2	Support for cover
5	415817	2	Latch for cover
6	415818	2	Stop for cover
7	.....	4	Fillister head iron machine screw, No.10-21x1 $\frac{3}{4}$ " (standard hardware), to fasten latch and stop to panel
8	.....	4	Lock washer, $\frac{3}{4}$ " (standard hardware), for screw
9	.....	4	Hexagon nut, No.10-32 (standard hardware), for screw
10	415601	1	Control relay, for details see Part Catalogue No. 6221-1
11	285640	1	Operating coil for 125 volts
12	375628	1	Release coil for 125 volts
13	398301	1	Type A knife switch (see page 17 for details)
14	361711	2	Terminal stud, large
15	163424	4	Crimped washer for stud
16	3424	4	Steel washer for stud
17	3217	4	Brass washer for stud
18	.....	2	Lock washer, $\frac{1}{4}$ " (standard hardware), for stud
19	46868	8	Nut for stud
20	361706	3	Terminal stud, small
21	148425	6	Crimped washer for stud
22	3422	6	Steel washer for stud
23	7453	6	Brass washer for stud
24	.....	6	Lock washer, $\frac{1}{4}$ " (standard hardware), for stud
25	40662	12	Nut for stud

CONTROL PANEL AND DETAILS - Continued
MOUNTING DETAILS

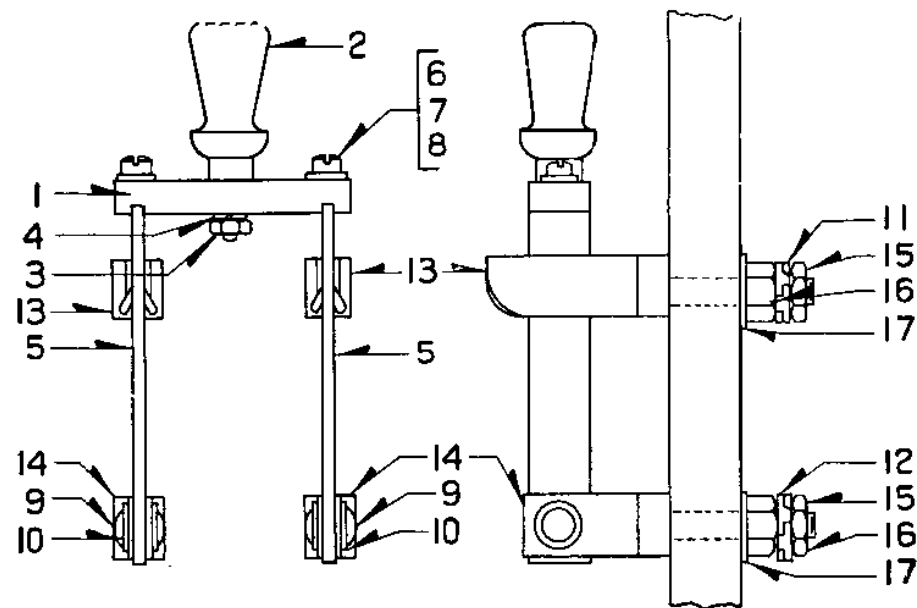


ORDER PARTS BY STYLE NUMBER AND DESCRIPTION

Ref. No.	Style No.	No. Per Panel	Description
1	432381	1	Lower mounting strap
2	432382	1	Upper mounting strap
3*	.....	2	Flat head iron machine screw, $\frac{3}{8}$ "x2 $\frac{1}{4}$ " (standard hardware), to fasten upper mounting strap to magnet frame
4	.....	2	Tap bolt, $\frac{3}{8}$ "x2" (standard hardware), to fasten control panel to upper mounting strap
5	.....	2	Hexagon iron nut, $\frac{3}{8}$ " (standard hardware) for tap bolt
6	.....	2	Lock washer, $\frac{3}{8}$ " (standard hardware), for tap bolt
7	3428	4	Iron washer for tap bolt
8*	.....	1	Tap bolt, $\frac{3}{8}$ "x1 $\frac{1}{8}$ " (standard hardware), to fasten lower mounting strap to magnet frame
9*	.....	1	Lock washer, $\frac{3}{8}$ " (standard hardware), for tap bolt
10	.....	1	Tap bolt, $\frac{3}{8}$ "x2 $\frac{3}{4}$ " (standard hardware), to fasten control panel to lower mounting strap
11	.....	1	Lock washer, $\frac{3}{8}$ " (standard hardware), for tap bolt
12	3428	1	Iron washer for tap bolt
13	394498	3	Spacer between control panel and magnet frame

*Not illustrated

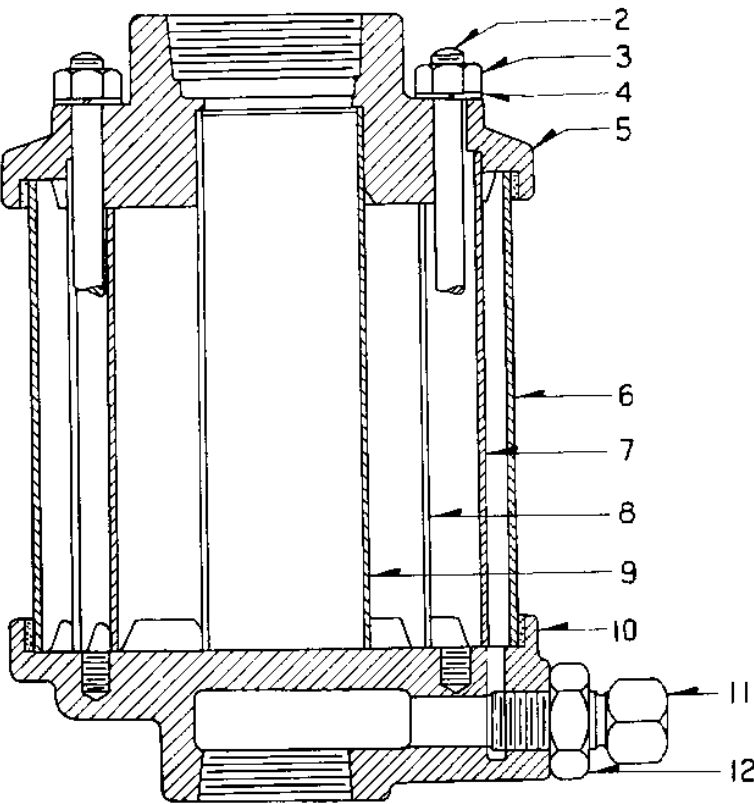
TYPE A KNIFE SWITCH AND DETAILS
Type No. 398301



ORDER PARTS BY STYLE NUMBER AND DESCRIPTION

Ref. No.	Style No.	No. Per Switch	Description
..	398301	..	Type A knife switch, 2-pole, single-throw, 100 amperes, 250 volts, direct current
1	385050	1	Cross bar
2	293081	1	Handle complete
3	40662	1	Hexagon iron nut, to fasten handle to cross bar
4	4000	1	Lock washer, used under hexagon iron nut
5	189777	2	Switch blade
6	.....	2	Fillister head iron machine screw, No. 10-32x $\frac{3}{4}$ " (standard hardware), to fasten switch blade to cross bar
7	40662	2	Hexagon iron nut, for machine screw
8	3410	2	Washer, to fit between hexagon iron nut and cross bar
9	.....	2	Copper rivet, $\frac{1}{8}$ "x $\frac{1}{2}$ " (standard hardware), used as a hinge pin for switch blade
10	230883	4	Washer, for rivet
11	23216	4	Terminal clip, for break jaw
12	194512	8	Terminal clip, for hinge jaw
13	189769	2	Break jaw complete
14	189768	2	Hinge jaw complete
15	369094	4	Contact nut, for hinge and break jaws
16	15309	4	Hexagon brass nut, to fasten hinge and break jaws to base
17	3272	4	Iron washer, used under hexagon brass nut

MUFFLER AND DETAILS



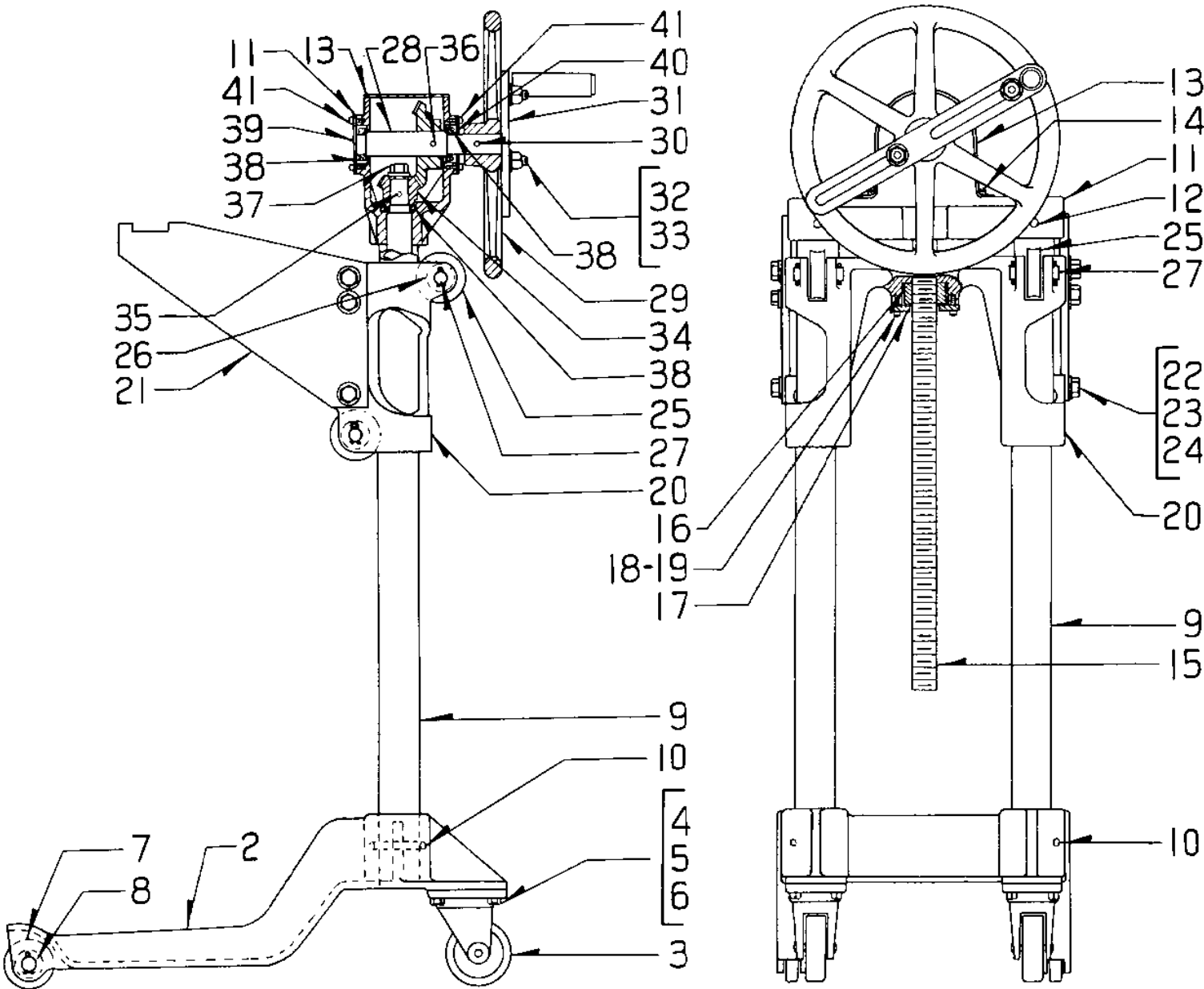
Reference No. 1

ORDER PARTS BY STYLE NUMBER AND DESCRIPTION

Ref. No.	Style No.	No. Per Muffler	Description
1	393556	..	Muffler complete
1A*	.....	2	Wrought iron elbow, 2" (standard hardware), to fit on top of muffler
1B*	.....	2	Close wrought iron nipple, 2" (standard hardware), for elbow
1C*	.....	1	Wrought iron nipple threaded on one end, 2"x3" (standard hardware), for elbow
2	398306	2	Stud bolt, to clamp muffler together
3	.....	2	Hexagon iron nut, 3/8"-16 (standard hardware), for stud bolt
4	.....	2	Lock washer, 3/8" (standard hardware), for stud bolt
5	398307	1	Cover, for muffler
6	398305	1	Outside ring
7	398304	1	Short intermediate ring
8	398303	1	Long intermediate ring
9	398302	1	Inside ring
10	398308	1	Base, for muffler
11	.....	1	Set screw, 3/4"-10x1 1/2" (standard hardware), to fit in base
12	.....	1	Lock nut, 3/4"-10 (standard hardware), for set screw

*Not illustrated

TANK LIFTER AND DETAILS



ORDER PARTS BY STYLE NUMBER AND DESCRIPTION

Ref. No	Style No.	No. Per Lifter	Description
1	445480	..	Tank lifter complete
2	453736	1	Truck frame
3	385001	2	Castors for frame
4	.....	8	Tap bolt, $\frac{3}{8}$ "-16x1" (standard hardware), to fasten castors to frame
5	3428	8	Washer for tap bolt
6	107314	8	Lock washer for tap bolt
7	453744	2	Rollers for truck frame
8	453743	2	Shoulder pin for roller
9	453735	2	Supports for gear housing
10	453737	2	Pin for support and truck frame
11	453729	1	Gear housing
12	453745	2	Rivets for support and gear housing
13	385009	1	Cover for gear
14	.....	4	Fillister head iron machine screw, No. 14-24x $\frac{5}{8}$ " (standard hardware), to fasten cover to gear housing
15	453734	1	Lifting screw
16	453741	1	Nut for screw and lifting bracket
17	453742	1	Retaining plate for nut
18	.....	2	Fillister head iron machine screw, No. 14-24x $\frac{3}{4}$ " (standard hardware), to fasten retaining plate to lifting bracket
19	.....	2	Lock washer, $\frac{1}{2}$ " (standard hardware), for screw
20	453730	1	Lifting arm bracket
21	385006	2	Lifting arm
22	377439	6	Tap bolt, $\frac{5}{8}$ "-11x2 $\frac{1}{4}$ " (standard hardware), to fasten lifting arm to bracket

TANK LIFTER AND DETAILS - Continued

ORDER PARTS BY STYLE NUMBER AND DESCRIPTION

Ref. No	Style No.	No. Per Lifter	Description
23	379917	6	Hexagon iron nut, $\frac{5}{8}$ " (standard hardware), for tap bolt
24	383239	6	Lock washer, $\frac{5}{8}$ " (standard hardware), for tap bolt
25	453739	4	Roller for lifting arm bracket
26	453740	4	Ball bearing for rollers (double annular type Catalogue No.1212 Nice Ball Bearing Company)
27	87676	4	Bearing pin for ball bearing and lifting arm bracket
28	453731	1	Hand wheel shaft
29	453697	1	Hand wheel
30	.....	1	Taper pin, No. 7x2 $\frac{1}{2}$ " (standard hardware), for hand wheel and shaft
31	453698	1	Crank and handle for hand wheel
32	.....	2	Machine bolt, $\frac{5}{8}$ "-11x2" (standard hardware), to fasten crank to hand wheel
33	3429	2	Washer for machine bolt
34	453738	1	Bevel gear (Catalogue No. L-156 Boston Gear Works)
35	.....	1	Taper pin, No. 7x2 $\frac{1}{4}$ " (standard hardware), for pinion gear and screw
36	.....	1	Taper pin, No. 7x3 $\frac{1}{4}$ " (standard hardware), for driving gear and shaft
37	379917	1	Hexagon nut, $\frac{5}{8}$ "-11 (standard hardware), to clamp pinion gear to lifting screw
38	453686	3	Ball bearing (style K, Catalogue No. K-111 Boston Gear Company), for hand wheel shaft and pinion gear
39	453732	1	Retaining plate for rear ball bearing for hand wheel shaft
40	453733	1	Retaining plate for front ball bearing for hand wheel shaft
41		8	Fillister head iron machine screw, No. 14-24x $\frac{3}{4}$ " (standard hardware), to fasten retaining plate to gear housing

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