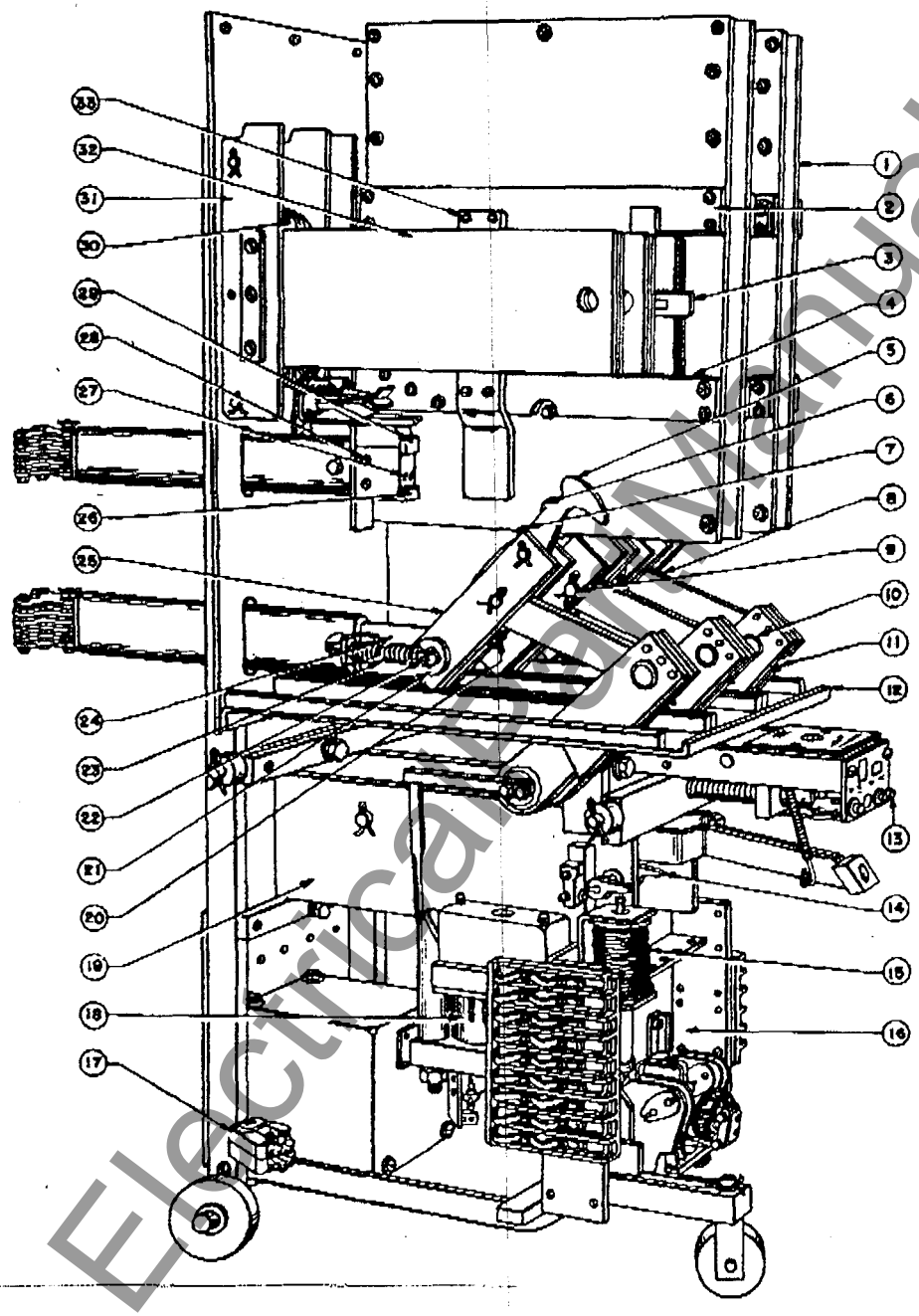
HV MULTIMITE SWITCHGEAR

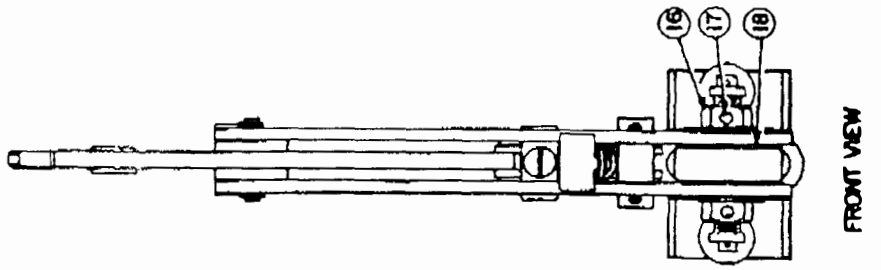
IB-47620-HV

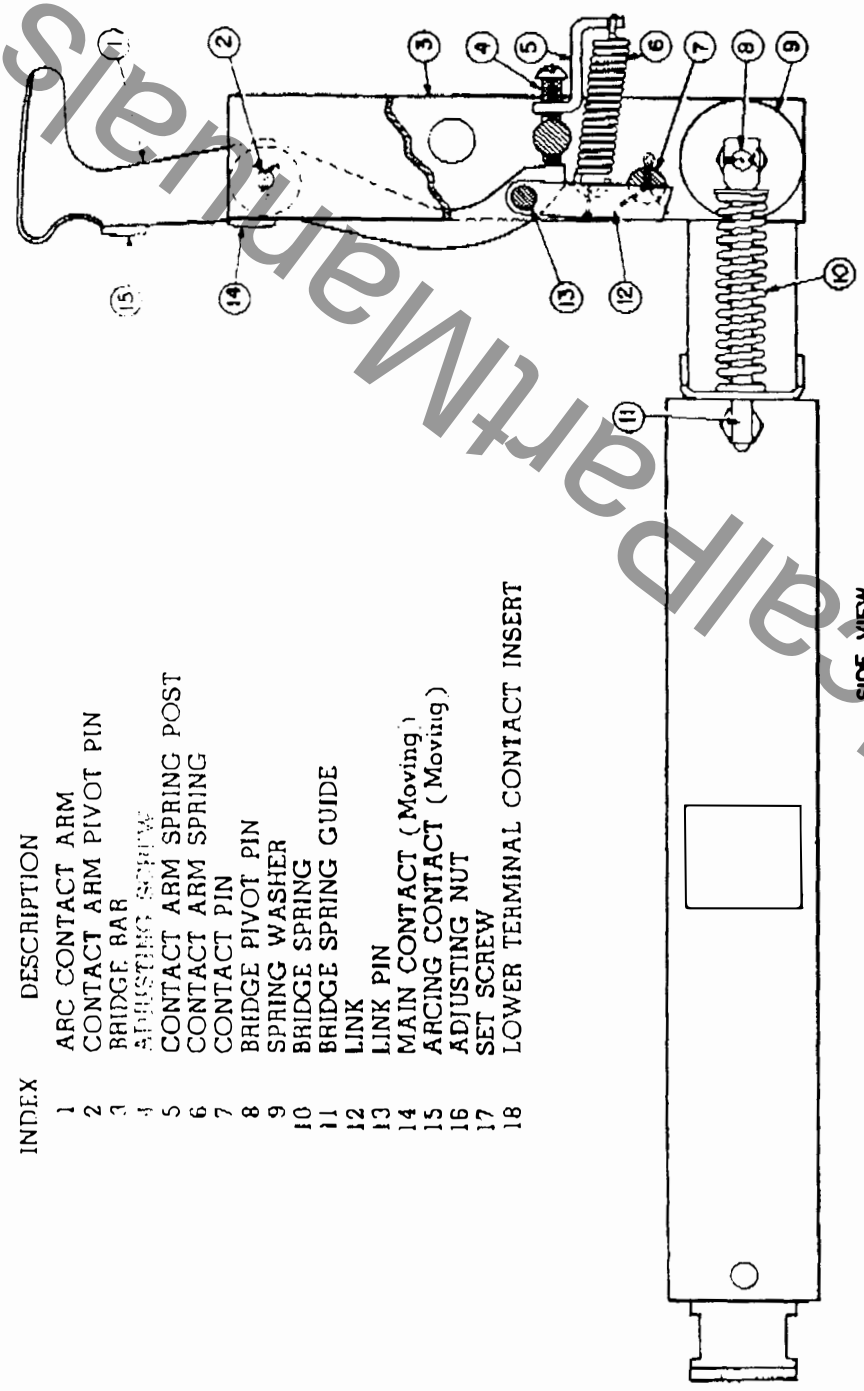
HV-100



INDEX	DESCRIPTION
1	ARC CHUTE
2	SUPPORT STRIP (Upper)
3	SPRING CLIP
4	SUPPORT STRIP (Lower)
5	CONTACT ARM
6	ARCING CONTACT (Moving)
7	MAIN CONTACT
8	INSULATING LINK
9	INNER LINK PIN
10	OUTSIDE LINK PIN
11	ADJUSTING SCREW
12	RETAINING ANGLE
13	MANUAL TRIP BUTTON
14	TRIP SHAFT
15	SHUNT TRIP
16	CONTROL PANEL
17	GROUND CONNECTION
18	SOLENOID MECHANISM
19	OPERATING MECHANISM
20	CONTACT ARM SPRING
21	SPRING WASHER
22	BRIDGE PIVOT PIN
23	BRIDGE SPRING
24	LOWER STUD
25	BRIDGE
26	MAIN CONTACT (Stationary)
27	RETAINING SCREW (Arcing Contac
28	RETAINING SCREW (Main Contact)
29	ARCING CONTACT (Stationary)
30	BLOWOUT COIL
31	PANEL SUPPORT
32	BLOWOUT IRON PLATE
33	AUXILIARY BLOWOUT IRON PLATE

IG. 14—Type HV Circuit Breaker Side Front View





INDEX	DESCRIPTION
1	ARC CONTACT ARM
2	CONTACT ARM PIVOT PIN
3	BRIDGE BAR
4	ADJUSTING SCREW
5	CONTACT ARM SPRING POST
6	CONTACT ARM SPRING
7	CONTACT PIN
8	BRIDGE PIVOT PIN
9	SPRING WASHER
10	BRIDGE SPRING
11	BRIDGE SPRING GUIDE
12	LINK
13	LINK PIN
14	MAIN CONTACT (Moving)
15	ARCING CONTACT (Moving)
16	ADJUSTING NUT
17	SET SCREW
18	LOWER TERMINAL CONTACT INSERT

FIG. 16—Lower Terminal and Bridge Assembly

ported in the upper end of the bridges bars (3). The lower end is connected to two copper links (12), the lower ends of which ride on a flat sided pin (7) capable of following their angular motion and supported by the bridge bars (3). A strong spring (6) also located between the bars (3), provides high pressure contact between all the parts making up the current path, plus contact pressure for the arcing contact (15). The effective length of current path below the pivot pin (2) is about twice that above it making a corresponding difference in magnetic forces, providing a "blow-on" action for the arc contact (15).

Bridge and Contact Arm Adjustments. The sequence of contacts should be that all poles make simultaneously. The arcing contact (15), Fig. 16, should lead the main contact (14) by 3/16 inch. When necessary this adjustment is made by screw (4). The main contact is provided with the proper pressure spring (6). No adjustment is required at this fulcrum point.

The screw (11), Fig. 14, at the outer end of the insulation connecting link (8) has a right and left hand thread. Adjustment of bridge skid is made with this screw. Essentially, the lower end of the bridge bars (25) should skid approximately ¼ inch after the upper end of the bridge touch, which should make the bridge bars nearly parallel with the circuit breaker base. Tighten its set screw (not shown) after making this adjustment.

On the bridge pivot pin (8), Fig. 16, are two spring washers (9) held in place by adjusting nuts (16). Tension of these nuts on spring washer (9) should be such as to cause a slight pressure of the bridge bars (3) against the lower terminal contact inserts. Lock nuts in position by its set screw (17) after making this adjustment.

The Blowout Structure is supported directly on the back panel supports (31), Fig. 14, and mounted directly above the main contacts. It consists of a blowout coil (30) and its iron core.

The side blowout iron plates (32) form rails supporting the arc chute (1) which is latched when fully in place.

Auxiliary blowout iron plates (33), Fig. 14, are attached to the support strips (2) and (4) on each side of the arc chute (1) and divert part of the blowout field to the vicinity of the contacts. The blowout coil (30) is insulated for full ground potential even though the blowout iron is well insulated from ground. The segregation of the blowout structure from the arc chute adds to simplicity and ease of handling.

The Arc Chute (1), Fig. 14, mounted above the contacts provides a positive and efficient arc interruption. It consists of insulation side walls, front and back arc runner and a series of ceramic plates, mounted in spaced relation, transverse to the arc path, all in a strong magnetic blow-out field which forces the arc into the arc chute.

As the arc is driven into the chute by the magnetic field, it passes rapidly through the arc extinguishing ceramic plates. They are rectangular in shape at the top and have a long tapered lower edge extending from the center of one side of the plate to the lower corner on the opposite side of the plate. A ceramic spacer is provided to support each plate and position it with respect to adjacent plates and, with the long tapered surface of the plate, forms a triangular opening with the apex at the top for passage of the arc. Each plate with its spacer presents a decreasing area for the arc to occupy as it rises, and gradually squeezes it into a narrow slot.

The plates are assembled alternately in an interleaved relation and spaced from each other so that the long tapered surfaces cross at the center of the chute, directly above the path of the arc as it travels up the chute. As the arc passes this point it is forced into a zig zag or sinuous path which increases in length. This also brings it into contact with larger and larger cool surfaces of the plates. The positive and efficient arc interruption is effected by the cooling lengthening and squeezing of the arc in numerous points along its path.

Provision for the interruption of low current arcs is built into the arc chute. No moving parts or auxiliary equipment is necessary. Short circuit or

ported in the upper end of the bridges bars (3). The lower end is connected to two copper links (12), the lower ends of which ride on a flat sided pin (7) capable of following their angular motion and supported by the bridge bars (3). A strong spring (6) also located between the bars (3), provides high pressure contact between all the parts making up the current path, plus contact pressure for the arcing contact (15). The effective length of current path below the pivot pin (2) is about twice that above it making a corresponding difference in magnetic forces, providing a "blow-on" action for the arc contact (15).

Bridge and Contact Arm Adjustments. The sequence of contacts should be that all poles make simultaneously. The arcing contact (15), Fig. 16, should lead the main contact (14) by 3/16 inch. When necessary this adjustment is made by screw (4). The main contact is provided with the proper pressure spring (6). No adjustment is required at this fulcrum point.

The screw (11), Fig. 14, at the outer end of the insulation connecting link (8) has a right and left hand thread. Adjustment of bridge skid is made with this screw. Essentially, the lower end of the bridge bars (25) should skid approximately ¼ inch after the upper end of the bridge touch, which should make the bridge bars nearly parallel with the circuit breaker base. Tighten its set screw (not [illegible] making this adjustment.

On the bridge pivot pin (8), Fig. 16, are two spring washers (9) held in place by adjusting nuts (16). Tension of these nuts on spring washer (9) should be such as to cause a slight pressure of the bridge bars (3) against the lower terminal contact inserts. Lock nuts in position by its set screw (17) after making this adjustment.

The Blowout Structure is supported directly on the back panel supports (31), Fig. 14, and mounted directly above the main contacts. It consists of [illegible] blowout coil (30) and its iron core.

The side blowout iron plates (32) form rails sup[illegible]

Auxiliary blowout iron plates (33), Fig. 14, are attached to the support strips (2) and (4) on each side of the arc chute (1) and divert part of the blowout field to the vicinity of the contacts. The blowout coil (30) is insulated for full ground potential even though the blowout iron is well insulated from ground. The segregation of the blowout structure from the arc chute adds to simplicity and ease of handling.

The Arc Chute (1), Fig. 14, mounted above the contacts provides a positive and efficient arc interruption. It consists of insulation side walls, front and back arc runner and a series of ceramic plates, mounted in spaced relation, transverse to the arc path, all in a strong magnetic blow-out field which forces the arc into the arc chute.

As the arc is driven into the chute by the magnetic field, it passes rapidly through the arc extinguishing ceramic plates. They are rectangular in shape at the top and have a long tapered lower edge extending from the center of one side of the plate to the lower corner on the opposite side of the plate. A ceramic spacer is provided to support each plate and position it with respect to adjacent plates and, with the long tapered surface of the plate, forms a triangular opening with the apex at the top for passage of the arc. Each plate with its spacer presents a decreasing area for the arc to occupy as it rises, and gradually squeezes it into a narrow slot.

The plates are assembled alternately in an interleaved relation and spaced from each other so that the long tapered surfaces cross at the center of the chute, directly above the path of the arc as it travels up the chute. As the arc passes this point it is forced into a zig zag or sinuous path which increases in length. This also brings it into contact with larger and larger cool surfaces of the plates. The positive and efficient arc interruption is effected by the cooling [illegible] lengthening and squeezing of the arc in numerous points along its path.

[illegible] for the interruption of low current arcs