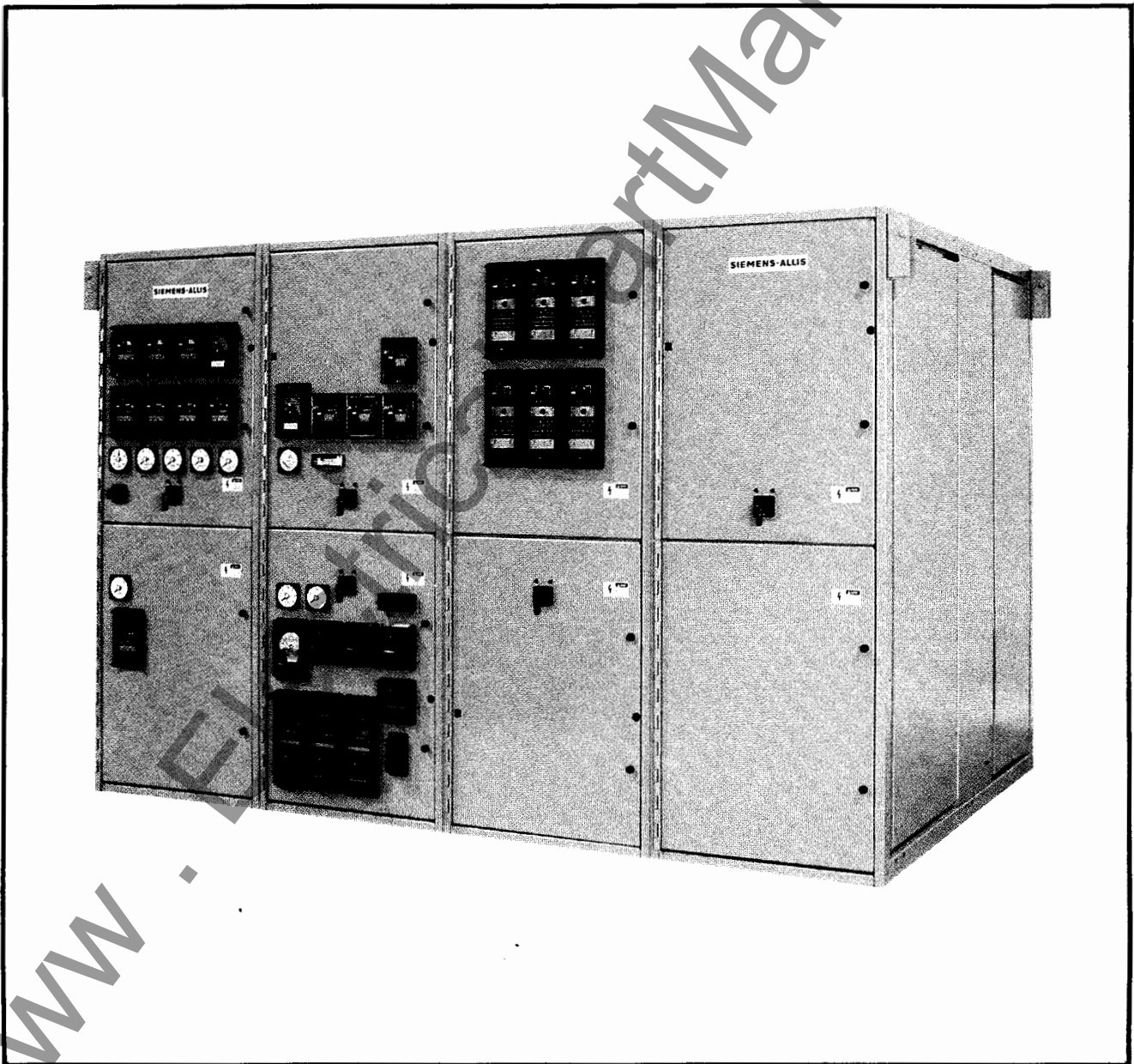


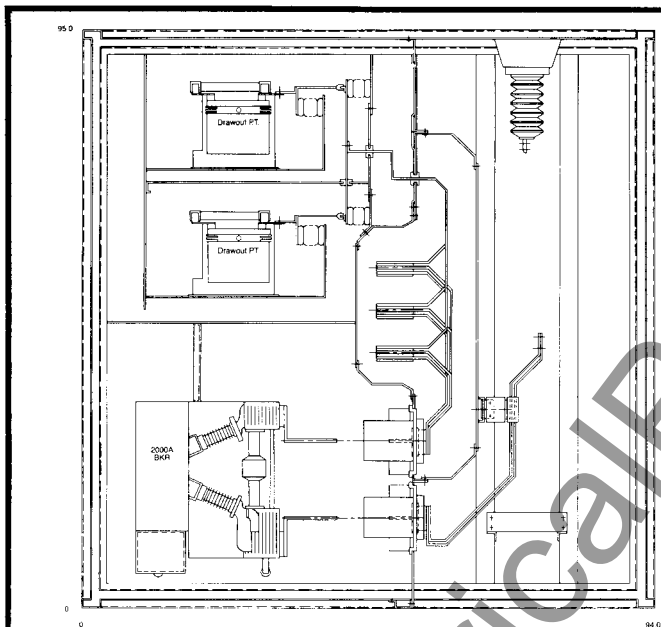
SIEMENS-ALLIS

Medium Voltage

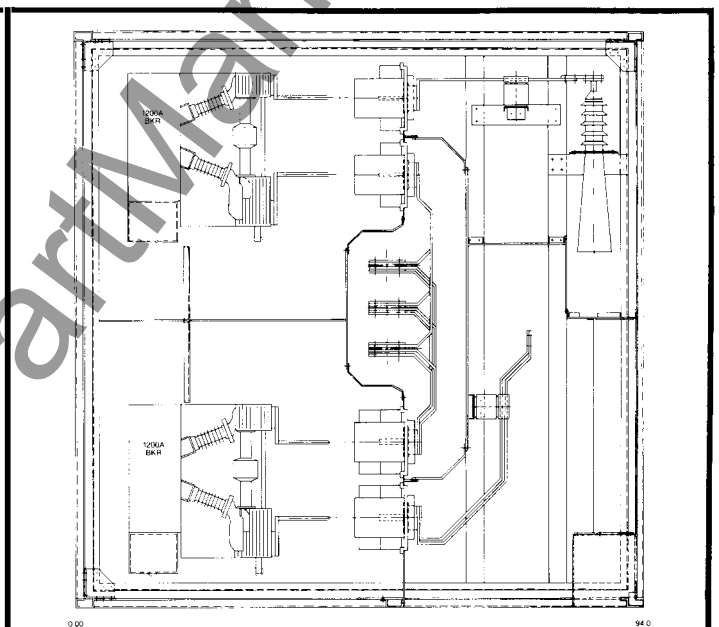
Metalclad Switchgear



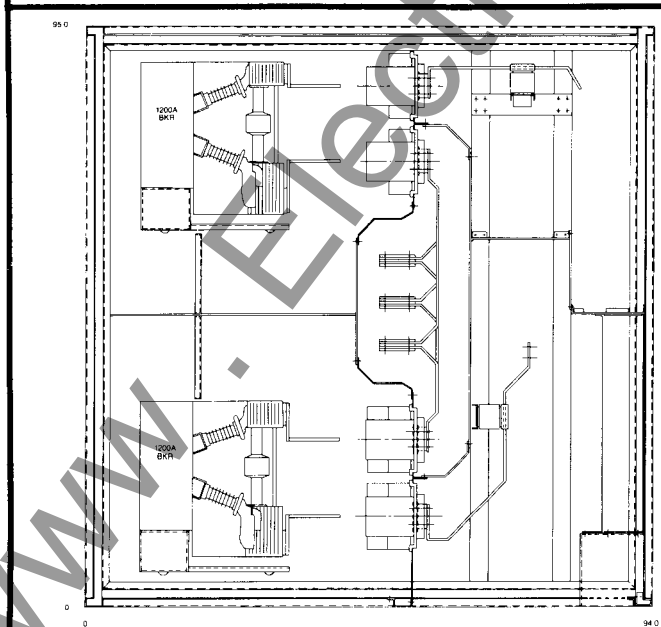
Typical Arrangements



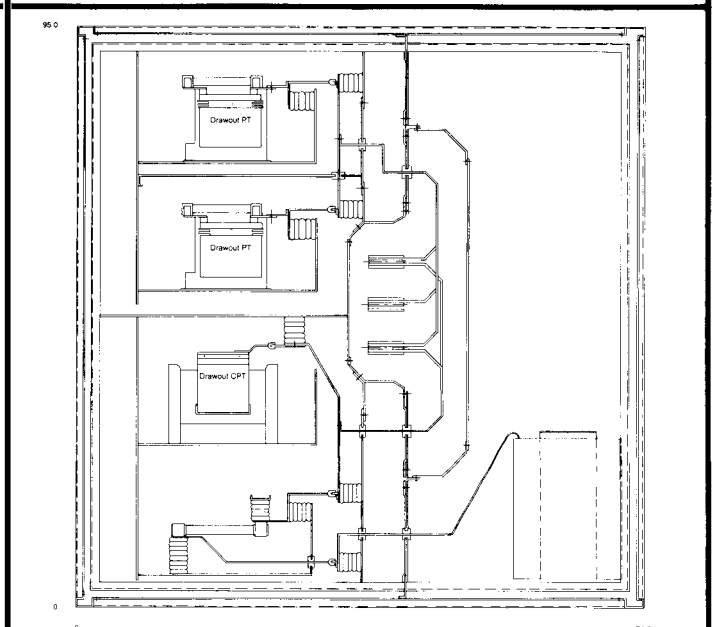
Auxiliary Cell Over 2000A Breaker Cell



1200A Breaker Cell Over 2000A Breaker Cell



1200A Breaker Cell Over 1200A Breaker Cell



Auxiliary Cell Over Auxiliary Cell

Circuit Breaker Ratings (ANSI Symmetrical Basis)

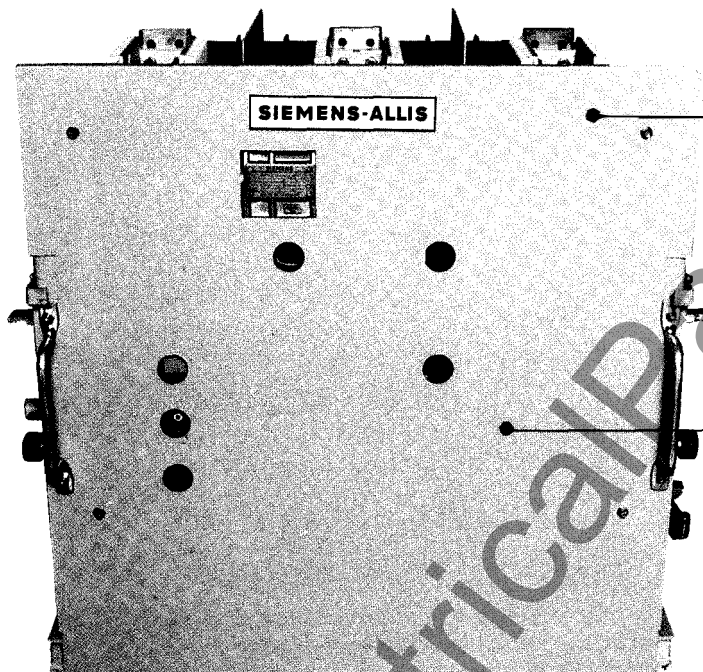
Note: The ratings shown generally correspond to the preferred ratings listed in ANSI Standard C37.06-1971. This standard is on the symmetrical basis rating and is supplementary to ANSI-C37.6 (total current- or asymmetrical-rating basis) and does not replace it. ANSI-C7.6 will be withdrawn at such time that the changeover from total current rating to symmetrical has been accomplished. As recommended in the Foreword of C37.06-1971, users should confer with the manufacturer on the status of various circuit breaker ratings.

Medium Voltage Vacuum Circuit Breaker, With 3AF Operator, Rating Table

| Identification | | Rated Values | | | | | | | | | Related Required Capabilities ③ | | | | |
|----------------------|---------------------------------------|--|--|--|------------------------------|---------|------------------------------------|--|---------------------------------------|--|--|---|---|--|------|
| Circuit Breaker Type | Nominal Voltage Class kV Class | Nominal 3-Phase mVA Class mVA Class | Voltage | | Insulation Level | | Current | | Rated Interrupting time Cycles | Rated Permissible Tripping Delay Sec. | Rated Max. Voltage Divided by k E/k kV rms | Current Values | | | |
| | | | Rated Max. Voltage ② E kV rms | Rated Voltage Range Factor ③ k | Rated Withstand Test Voltage | | Rated Cont. Current Amperes | Rated Short Circuit Current (at rated Max. kV) ④ ⑤ I kA rms | | | | Max. Sym. Interrupting Capability ⑥ k Times Rated Short Circuit Current kI kA rms | 3-Sec. Short-Time Current Carrying Capability ⑦ 1.6 k times Rated Short Circuit Current kA rms | Closing and Latching Capability (Momentary) ⑧ ⑨ kA rms | |
| | | | | | Low Frequency | Impulse | | | | | | | | | |
| | | | | | kV rms | kV rms | | | | | | | | | |
| 5-3AF-250 | 4.16 | 250 | 4.76 | 1.24 | 19 | 60 | 1200 | 29 | 3 | 2 | 3.84 | 36 | 36 | 58 | |
| 5-3AF-350 | | 2000 | | | | | 3000 | | | | | | | | 41 |
| 7-3AF-500 | 7.2 | 500 | 8.25 | 1.25 | 36 | 95 | 1200 | 33 | 3 | 2 | 6.6 | 41 | 41 | 66 | |
| 15-3AF-500 | 13.8 | 500 | 15.0 | 1.30 | 36 | 95 | 1200 | 18 | 3 | 2 | 11.5 | 23 | 23 | 37 | |
| 15-3AF-750 | | 2000 | | | | | 3000 | | | | | | | | 28 |
| 15-3AF-1000 | | 1000 | | | | | 1200 | | | | | | | | 2000 |

- ① Special high close and latch (momentary) rating available for some special applications
- ② Maximum voltage for which the breaker is designed and the upper limit for operation
- ③ k is the ratio of rated maximum voltage to the lower limit of the range of operating voltage in which the required symmetrical and asymmetrical interrupting capabilities vary in inverse proportion to the operating voltage.
- ④ To obtain the required symmetrical interrupting capability of a circuit breaker at an operating voltage between 1/k times rated maximum voltage and rated maximum voltage, the following formula shall be used
 Required Symmetrical Interrupting Capability = Rated Short-Circuit Current Times the Ratio of $\frac{\text{Rated Max. Voltage}}{\text{Operating Voltage}}$
 For operating voltages below 1/k times rated maximum voltage, the required symmetrical interrupting capability of the circuit breaker shall be equal to k times rated short-circuit current
- ⑤ With the limitations stated in 04-4.5 of ANSI Standard C37.04-1964, all values apply for polyphase and line-to-line faults. For single phase-to-ground faults, the specific conditions stated in 04-4.5.2.3 of ANSI Standard C37.04-1964 apply
- ⑥ Current values in this column are not to be exceeded even for operating voltages below 1/k times rated maximum voltage. For voltages between rated maximum voltage and 1/k times rated maximum voltage, follow (4) above.
- ⑦ Current values in this column are independent of operating voltage up to and including rated maximum voltage

Stored Energy Operator

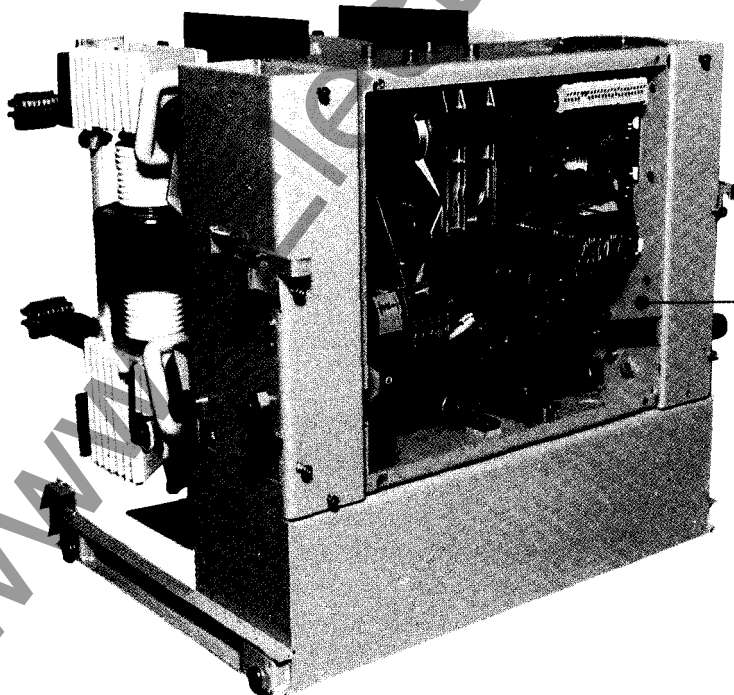


3AF Vacuum Circuit Breaker

Type 3AF circuit breakers are compact and lightweight and have a long expected life due to optimally designed mechanism and linkage to operate the minimum maintenance interrupters. Most 3AF circuit breakers have a theoretical mechanical life of 30,000 operations.

Removable Operator Cover

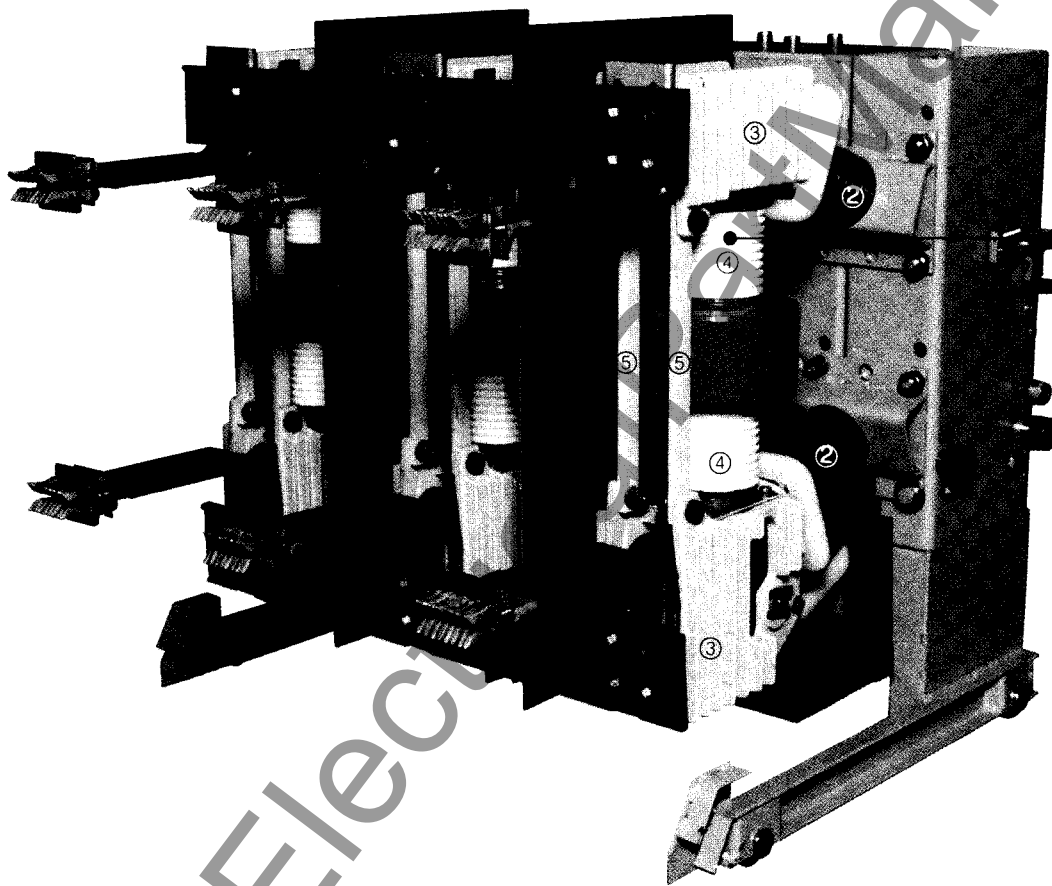
Operator cover can be easily removed to expose the operator (see photo below) for inspection and maintenance. This feature eliminates the need to tilt or turn over the circuit breaker for normal service.



3AF Operator

These circuit breakers use our type 3AF electric motor charged spring stored energy operator, which is mechanically trip free. The operator is designed to require minimum maintenance for 10 years or 10,000 operations under normal operation conditions.

Vacuum Breaker Construction



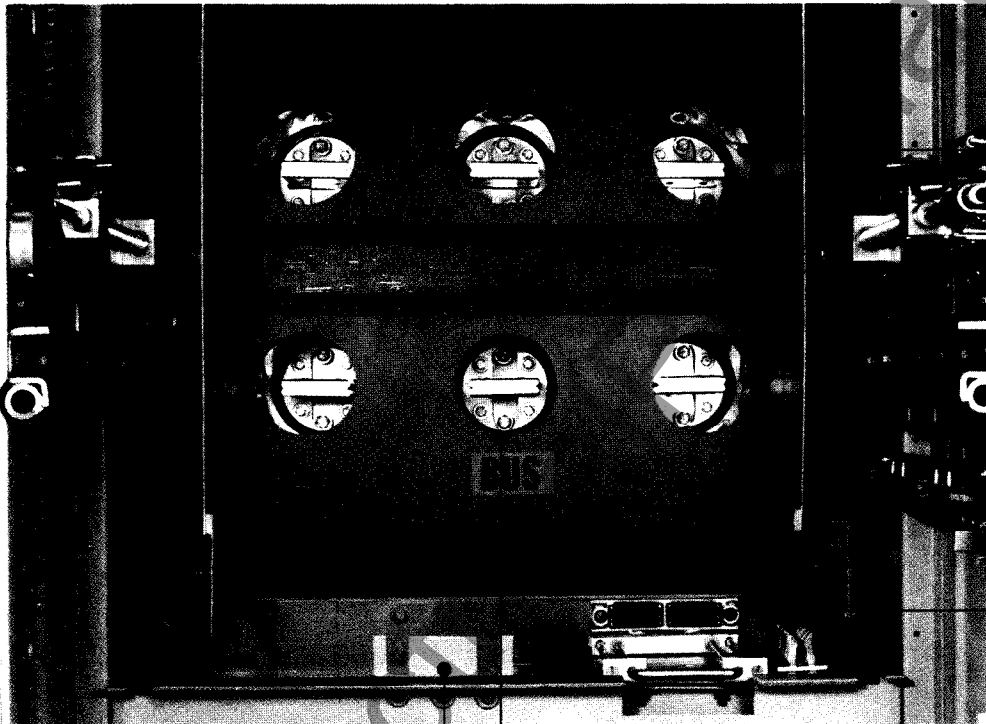
Vacuum Interrupters

These high speed interrupters provide quiet operation and are essentially maintenance free. Due to extensive factory tests interrupters have a theoretical shelf life of 100 years. Due to the design of this interrupter, and the special chrome copper contact material composition a low 5 amp maximum chopping current is obtained. A keyed movable stem guide prevents accidental damage to the bellows during assembly or maintenance, assuring long vacuum life. Over 45,000 interrupters furnished worldwide attest to its reliable operation.

The breaker is comprised of an ① operating mechanism, ② the post insulators ③ complete with the upper and lower interrupter supports ④ and the interrupters themselves.

⑤ Insulating struts ensure that the interrupters are relieved of mechanical stresses regardless of the operating state. This means that neither switching forces nor short-circuit forces or forces applied to the terminals are transferred to the interrupters.

Breaker Cell Construction:



Metal Shutters

Grounded metal shutters are breaker actuated.* This mechanism is positively driven in both directions which eliminates the possibility of shutter assembly malfunction due to defective springs.

*Shutters are shown in the Open Position for illustrative purposes only.

Screw Type Racking Mechanism

This mechanism provides reliable racking to and from all positions. Racking can be accomplished with door closed.

Secondary Disconnect

The secondary disconnect is automatically engaged by the circuit breaker in the connect position.

Mechanical Interlock

Interlock prevents the insertion of a non-matching breaker into a unit.

Current Transformers

CT's are accessible from the front when the unit is deenergized. Up to 4 CT's can be provided, two on the bus side and two on the load side.

Bus Compartment Construction



Main Bus

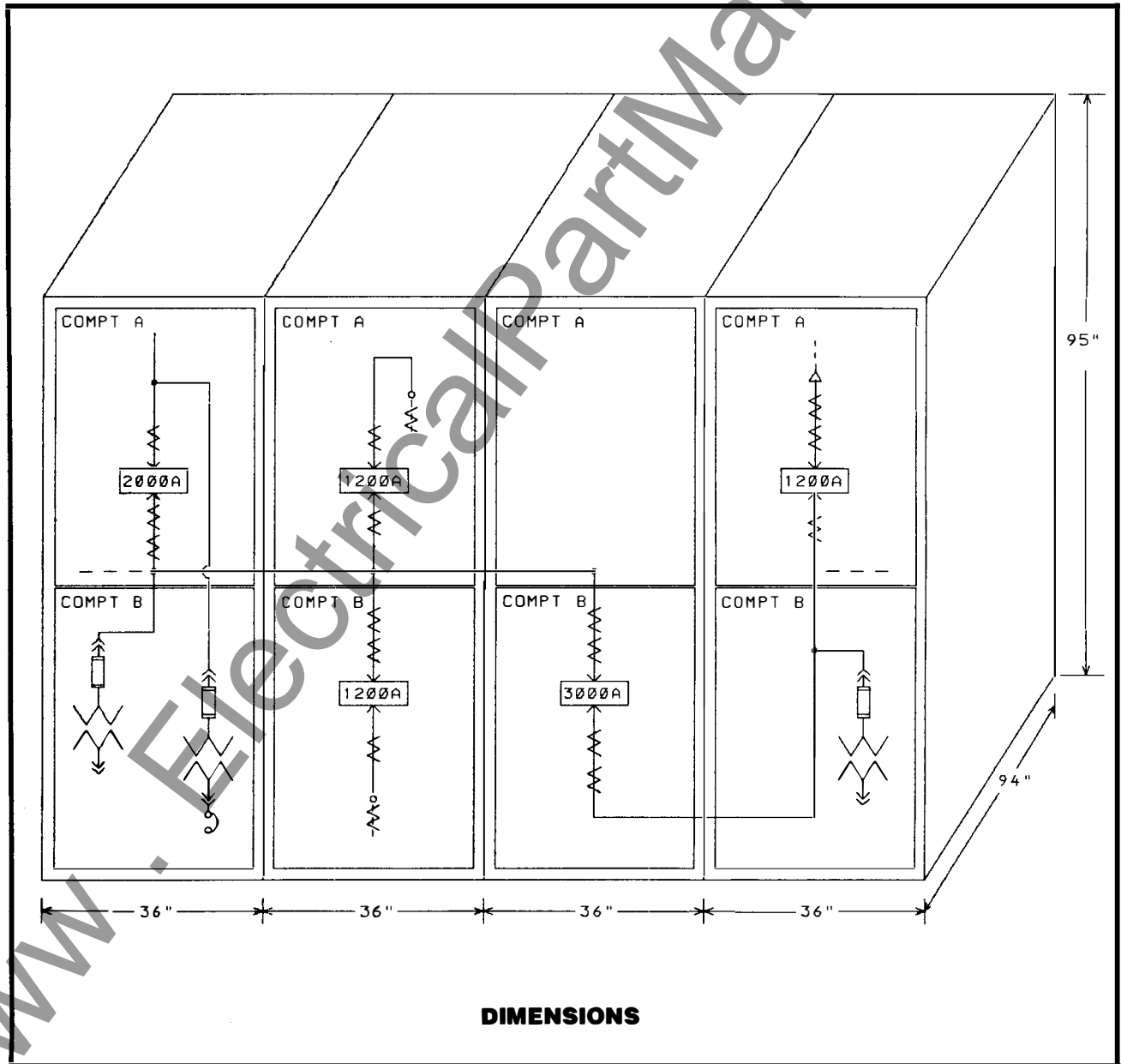
Aluminum main bus is standard with all ratings, with copper bus optionally available. All bolted bus joints are tin-plated aluminum, or silver plated copper.

Insulated Bus Bars

Bus bars are encased with high dielectric, thermo-setting epoxy insulation using the fluidized-bed process. This method of insulation eliminates voids between molded insulation and bus bars for longer life.

Glass Polyester Insulation

Flame retardant, track resistant glass polyester insulation is standard. Porcelain inserts and standoff insulators are optionally available.



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