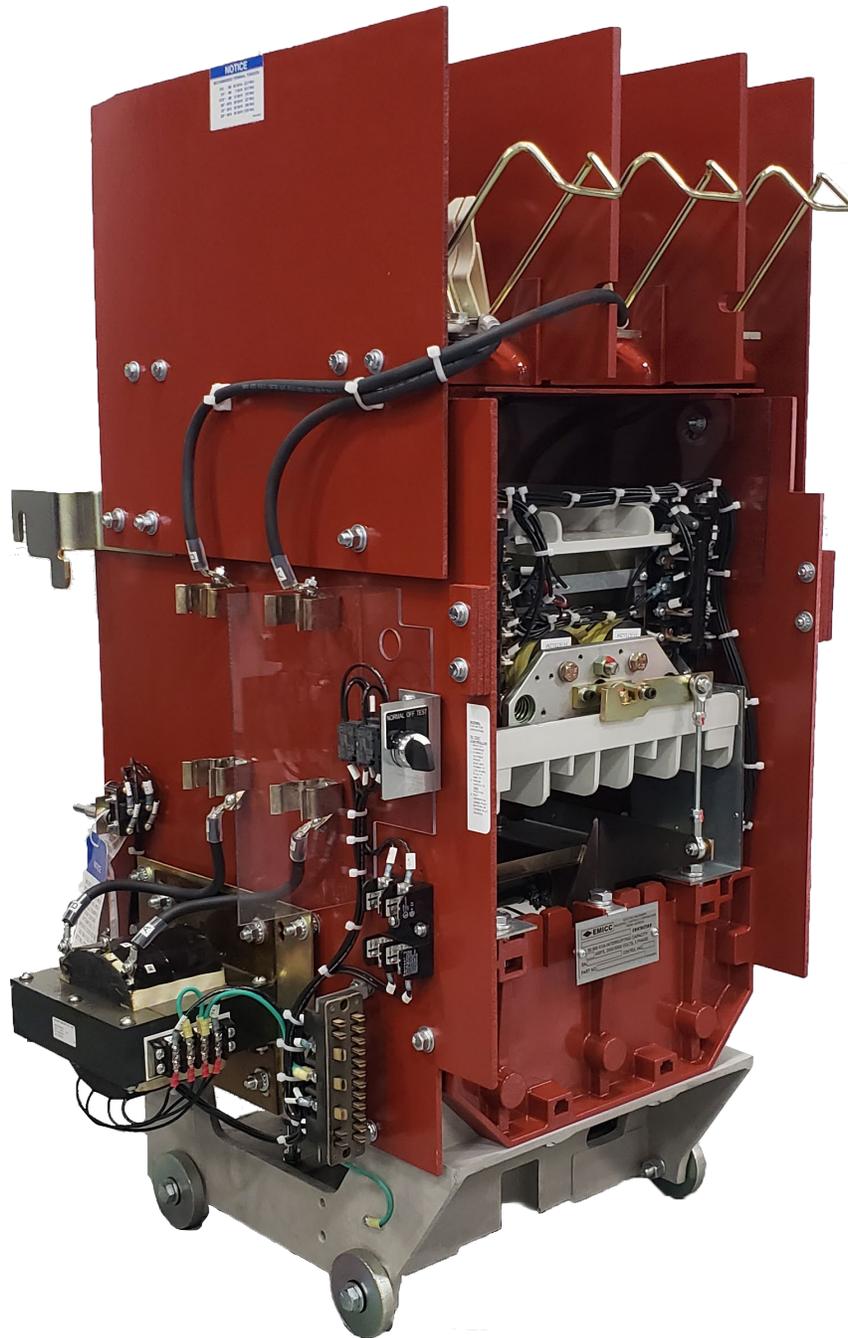
 **EMICC** VACUUM CONTACTOR RETROFIT



EMICC
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EMICC, Inc.

has manufactured medium voltage motor starters since the turn of the century and leads the industry in developing vacuum contactors for use in starters rated 1 000 volts through 12000 volts. Since producing the first commercially available vacuum contactor in 1965, a wealth of experience has been accumulated in design, manufacture and application of these devices.

As a result, one very valuable service available to users is the retrofit / conversion business operated at the Company's Perry, GA facility.

Throughout industry, there are thousands of starters incorporating dated designs of air break cont-actor or circuit breakers. Many are at the end of their useful lives, have long been obsolete, with spare parts no longer available. Yet the fixed portions of such gear are in prime condition or can easily be restored to "as new" condition.

EMICC, Inc works closely with owners to convert such gear to use vacuum contactors with the minimum of disturbance to operations. The end result is an energy saving, rebuilt, upgraded starter using the existing cubicles with the life of the installation extended for twenty or more years. The costs involved are a fraction of what would be involved in replacing the installation in total and costly down time is avoided.

What is Included?

In the case of withdrawable truck starters

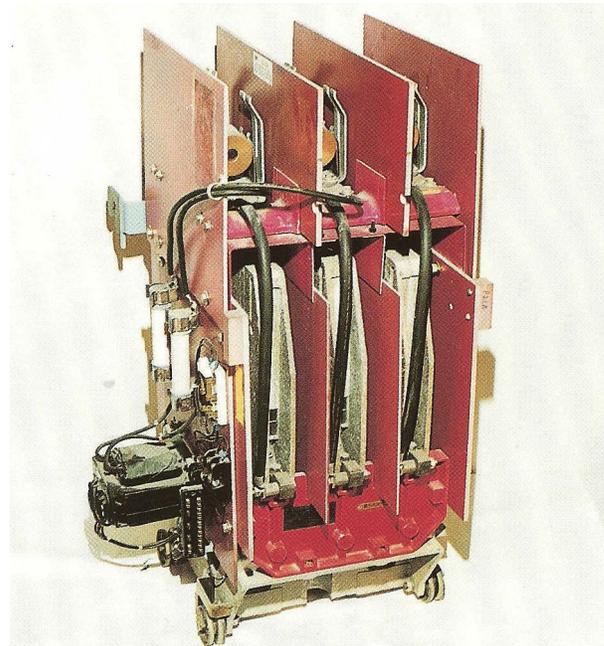
Preferably the retrofit program starts with customer's spare trucks. Once modernized, these trucks replace in-service units from the line up which are in turn retrofitted and so on until the program is complete. In this fashion, down time is minimized or eliminated altogether.

- Removal of air break related devices such as blowout coils, arc chutes, and power contacts.
- Inspection of all truck mounted components still required for proper operation.
- Refurbishment and replacement of components as required.
- Installation of an appropriately rated vacuum contactor together with power cables, bus bars, mechanical interlocks, and control wiring.
- Inspection and testing of the completely upgraded unit.

In the case of panel mounted starters

Retrofit packages are available that are directly interchangeable with existing air break starters, oil switches and oil bath contactors. These include a panel mounted vacuum contactor, current transformers and an overload relay. Packages can be provided to replace both low and medium voltage contactors.

- Options include cable, lugs, bus bars, or copper braid.



Before Retrofitting

In the case of circuit breakers

Breaker conversions are available that convert the air circuit breaker to a fused vacuum contactor. Many circuit breakers are inappropriately applied as motor starters requiring frequent operations. This quickly wears out the operating mechanism that was designed for very low duty cycles. In these units the bulk of the breaker mechanism is replaced by a vacuum contactor rated for millions of operations.

Other options

If required, EMICC, Inc will engineer a complete upgrade of the control and protective devices on the starters to provide state-of-the-art control, monitoring and protection. For preference, EMICC, Inc devices would be used including protective relays and intelligent controllers.

Experience

EMICC, Inc can engineer a solution for most makes of starters, either contactor or circuit breaker types.

Conversions or retrofits engineered and installed to date include:



After Retrofitting



Retrofitted type VQ Contactor

MV STARTERS

Electric Machinery	All types
Allis-Chalmers/	Type 256/256A Type
Siemens-Allis	456/4560 IC2814E 1
GE	20C47 AA IC2812E 1
	00BA471C2812E
	130AC47 AA
Westinghouse	630ALF50H730
	630ALF50H400
Cutler-Hammer	9950H1A1 9950H3A1
	9950H4A1
	9950H29A1
	Class 8110/8189
Square 0	

MV CIRCUIT BREAKERS

ITE/BBC	5HK250
	5HK350
	5HV250
Westinghouse	500H 150A
	500H150D
	500H250D
	500H250E
GE	AM-2.4/4.16-150/250-2
	AM-2.4/4.16-150/250-3
	AM-5-1 00-4Z(1200A)
	AM-5-100-4Z(600A)
	AM-5-150-4



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