

Federal Pacific Electric Circuit Breaker Replacement *Alert*

Federal Pacific Electric Company manufactured Stab-Lok circuit breakers from the 1950's to the 1980's. The breakers were produced for both commercial and residential applications. Issues with the breakers surfaced in 1980 with the FPE two-pole stab-lok circuit breaker that was found to jam while attempting to trip in an overcurrent scenario.

The primary issue with these type of breakers includes failing to trip at 135% and 200% of rated current (1). Additionally, the double pole breakers are found to mechanically jam. This means that a commercial or residential structure with these breaker panels has a probability of not functioning as needed when a circuit is "overloaded". A comparison may be made to replacing a blown Edison type fuse with a slug or penny, effectively overriding the protection necessary for an electric circuit.

Testing of FPE stab-lok circuit breakers was conducted by multiple companies in the late 1970's and early 1980's. They included FPE (and its parent company, Reliance Electric), Southwest Research Incorporated, Underwriters Laboratories, Consumer Product Safety Commission and Wright-Malta Corp. (for the CPSC). Only the CPSC/Wright-Malta test results were made public.

Despite the CPSC findings that 85% of the double-pole breakers and 39% of the single-pole breakers failed one or more of the UL test criteria at 200% of rated current (2), a press release was issued in 1983 stating that the CPSC was "unable at this time to link these failures to the development of a hazardous situation".

A New Jersey class action lawsuit found Federal Pacific Electric Company guilty of violating the New Jersey Consumer Fraud Act by cheating during its testing of circuit breakers in order to obtain Underwriters Laboratories approval. UL subsequently pulled its endorsement. The company manipulated the testing by installing a mechanical device that would trip the breakers during the testing process.

It has been suggested that there are as many as 28 million FPE stab-lok breakers (3) in use in the U.S. which means that in some conditions as many as one million of them may fail to provide proper fire protection.



As many as one million FPE Stab-Lok breakers currently in use may fail to provide proper fire protection.



How To Identify an FPE Breaker

A Federal Pacific Electric panel will usually have its name or logo on the front cover. Inside, you will find the name Stab-Lok printed near the center of a residential panel. Both residential and commercial breakers will have the signature red strip across the breaker switch. However, stab lok type breakers were also manufactured under the following names:

- American
- Challenger
- Federal Pioneer
- Federal Noark
- Federal Pacific Reliance Electric
- Federal Pioneer Limited

The breakers manufactured by these entities may not have the signature red strip across the breakers switch but typically do have the name Stab-Lok printed on the panel box.

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The foremost expert on these breakers is a Mechanical and Materials Engineer named Jesse Aronstein, Ph.D. PE. Mr. Aronstein has served as an expert legal witness in a class action lawsuit against the now defunct company.

Mr. Aronstein completed and published the following test results performed on FPE stab lok breakers that he acquired over a period of years:

Type of Breaker	Qty Tested	No Trip Failures at 135% of Rated Current	Jammed
FPE Single-Pole, 1/2 Width	268	55 (21%)	3 (1%)
FPE Single-Pole, Full Width	77	6 (8%)	1 (1%)
FPE Single-Pole, GFI/Breaker**	5	3 (60%)	2 (40%)
FPE Double Pole, 1/2 Width***	39	13 (33%)	7 (18%)
FPE Double Pole, Full Width***	81	29 (36%)	7 (9%)

** Circuit breaker function. Three of the combined GFI/Breaker units tested also failed when tested for GFI function

*** 2-pole breakers tested on individual pole overload

REFERENCES

1. "Failure Analysis of Residential Circuit Breaker Panel", Wright-Malta Corp., (by J. Aronstein, for U.S. Consumer product Safety Commission, Project #CPSC-C-81-1455), May 20, 1982
2. "Hazardous FPE Circuit Breakers and Panels", American Society of Home Inspectors (by J. Aronstein, consulting engineer) February 21, 2004
3. "Federal Pacific Panels and Associated Danger" US Inspect Marketing , September 14, 2009

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Corrective Action

The recommended method of repair is the **complete replacement** of the entire circuit breaker panel, not just the individual breakers.