

FEDERAL PACIFIC PANELS

If you are reading this, you have probably have had your home inspector inform you that your house or a house you are intending to purchase has a Federal Pacific circuit breaker panel. There is a lot of information out there regarding the safety of Federal Pacific "Stab-Lok" circuit breaker panels and the potential inherent defects linked to them. As decisions regarding what action to take regarding these panels should be made on a case-by-case basis, it is important that you have as much information as is available:

There is no supporting evidence from any government agency or regulatory authority stating that these FPE panels are defiantly unsafe and should be replaced. There has not been a recall by the consumer product safety commission

The following has been said about Federal Pacific Electric panels:

That these panels pose a latent threat and could be a hazard. The circuit breakers may fail to trip in the case of an overload or short-circuit. A circuit breaker that fails to trip could cause a fire or personal injury.

The problem with these panels is that some double pole 220volt circuit breakers and some single pole 120volt circuit breakers may not work or trip causing a fire.

Published reports of tests conducted on FPE two pole 220volt circuit breakers indicate that under certain conditions one leg/pole may attempt to trip the breaker. The result is a circuit that stays live, and a circuit breaker that has been compromised and when reset will not trip again under any excessive load.

In some instances the breakers have been known to fall out when the cover is removed.

These panels appear to work perfectly during normal operation allowing electricity to flow without any problems or symptoms. The concern surrounds those instances when a circuit is overloaded.

The Consumer Product Safety Commission (CPSC) did conduct product testing of these FPE breakers and found that their failure rates were significant.

The CPSC's advice concerning these panels is for consumers to avoid overloading circuits as well as to turn off and have examined any devices that are causing the circuit breakers to trip.

Federal Pacific electric's statement in response to this problem is cautious in tone:

"FPE breakers will trip reliably at most overload levels."

It should be noted that Federal Pacific is no longer in business. Aftermarket breakers are available for these panels. Most of these panels had a lot of circuits and the cost of replacing all the breakers is usually more than the cost of installing a new panel.

If you have one of these FPE panels or intend to purchase a home that has one of these FPE panels, we suggest that you talk with your electrician and decide what is right for you and your family

CALIBRATION AND CONDITION TESTS OF MOLDED CASE CIRCUIT BREAKERS - Federal Pacific Stab Lok Breakers - CPSC Data

CPSC-C-81-1429 December 30, 1982

Final Report: Contract CPSC-C-81-1429

Date: December 30, 1982

Submitted by: Jesse Aronstein (*original contains signature*)

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1.0 SUMMARY

Calibration tests have been performed on 122 two-pole Federal Pacific Electric circuit breakers. The calibration tests were performed -in accordance with UL Standard 489 except for or a difference in the sequence of calibrations. UL 489 is the applicable standard that the breakers are presumed to meet. In most cases, the calibration tests were repeated after 500 off-on mechanical operations of the toggle handle..

The circuit breakers tested were supplied by CPSC and came from several sources. Most were provided to CPSC by Federal Pacific Electric, some were purchased new by CPSC staff members at retail outlets, and a few were removed from existing installations. The breaker ratings tested were 30 A (30 two-pole breakers tested), 40A (35), 50A(20), 60A(7) and 80A (30). The tests include performance at 100%, 135%, and 200% of ratings, and dielectric tests.

A substantial number of breakers failed the calibrations testing, both before and after the mechanical toggle operations. Failures were evident with both poles carrying current as well as with one-pole operation. Specifically, the failures are summarized as follows:

FAILURE CONDITION	FAILURES	
	% (#failed/#tested)	
	Before Mechanical Operations	After Mechanical Operations
No-trip: 200% of rating, both poles	0% (0/122)	1% (1/107)
No-trip: 200% of rating, individual poles	1% (3/244)	10% (21/214)
No-trip: 135% of rating, both poles*	25% (31/122)	36% (39/107)
No-trip: 135% of rating, individual poles	51% (125/244)	65% (144/220)
Trip: 100% of rating, both poles*	3% (4/122)	6% (7/111)
Dielectric Breakdown (short)*	0	1% (1/111)

TABLE 1 - SUMMARY OF FAILURES

*UL 489 Test Conditions

The failures appeared. among breakers of all ratings, none were failure-free. Most of the 'no-trip' conditions were sustained for four hours well beyond the UL specification. These were not marginal failures with respect to the failure criteria. The data suggests that, on the average, the mechanical operations result in increased failures. This was 'not strictly the case on a sample-to-sample basis.

The failures relate to hazardous conditions in at least two ways. First, a fault in the wiring or utilization equipment which causes excessive- current-can result in fire if the circuit is not opened by the breaker -- this is its principal functional requirement. Secondly, it was determined in these tests that some of the breakers overheat to hazardous levels when subjected to overcurrent conditions (due to their own failure to trip) for sustained periods of time. The overheating can result in incapacitation of the breaker (i.e.: it will no longer open under any condition), and the temperature can be high enough to ignite fire in the vicinity of the breaker, as evidenced by charring of the case on some samples.

NOTE: this text is quoted verbatim from pages 3-5 of "Calibration and Condition Tests of Molded Case Circuit Breakers, Final Report: Contract CPSC-C-81-1429 December 30, 1982," obtained from the US Consumer Product Safety Commission as a FOIA request.

More Information about FPE Federal Pacific Stab Lok Panels and Circuit Breakers - Reference List

- [The Federal Pacific Stab-Lok Electric Panel Hazard Website](#) Safety Information for Consumers. 1983
- [Home Inspection Reporting Language and discussion for FPE panels](#)
- [Schneider Canada Federal Pioneer circuit breaker recall](#)
- [Federal Pacific Electric Panels: Fires Waiting to Happen, Debate Waiting to Be Ended](#)
- [How to Identify Federal Pacific Electric Panels Stab Lok Breakers & History of the Federal Pacific Electric Stab Lok Hazard](#)
- [1983 CPSC Investigation of FPE Circuit Breakers](#) Safety Information for Consumers
- [1982 Reliance Electric Co. SEC Quarterly Report: Note C.](#) reports litigation between Reliance and UV Liquidating Trust and contends that "... improper and deceptive practices were employed for many years to secure UL listings for Federal Pacific's circuit protective products..."
- [1980 Reliance Electric Co. Press Release: improper practices](#) improper practices used to obtain UL Listing for most of FPE's circuit breakers and notes testing which indicates "possible defects." 1980, Reliance Electric Co.
- [1980 FPE - Exxon Buys A Scandal Along With A Company](#) improper practices improper practices used to obtain UL Listing for most of FPE's circuit breakers and notes testing which indicates "possible defects." 1980, Reliance Electric Co.
- [FAQ: Website Credibility](#)

The Home Inspection & Construction Information Website [Building & Home Inspection, Construction Diagnosis & Repair -](#)
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