



NTSB National Transportation Safety Board

Office of Marine Safety

Preventive Maintenance

#5 Cylinder Broken Fuel Line





contact wear

Fuel Line Clamping

Caterpillar Service Manual

- Cautions to properly install clamps
- Does not provide specific instructions for clamp locations or individual line replacement

 **WARNING**

Be sure the fuel injection line clamps are installed in the correct location. Incorrectly installed clamps may allow the fuel injection lines to vibrate and become damaged. The damaged lines may leak and cause a fire.

Paradise of Port Richey Company Maintenance

- No preventive maintenance program
- Most maintenance performed by company personnel
- Maintenance personnel did not log work performed

Fuel Line Failures

- Fuel lines failed frequently
- Port captain was responsible for ordering spares
- 13 replacement lines purchased in 10 months in 2004

Repair of Failed Fuel Lines

- Manufacturer's manual was not referenced
- Maintenance personnel were unaware of the need for line clamps
- Maintenance personnel did not use manufacturer-recommended tools
- No company-written repair procedures were provided

Preventive Maintenance Records

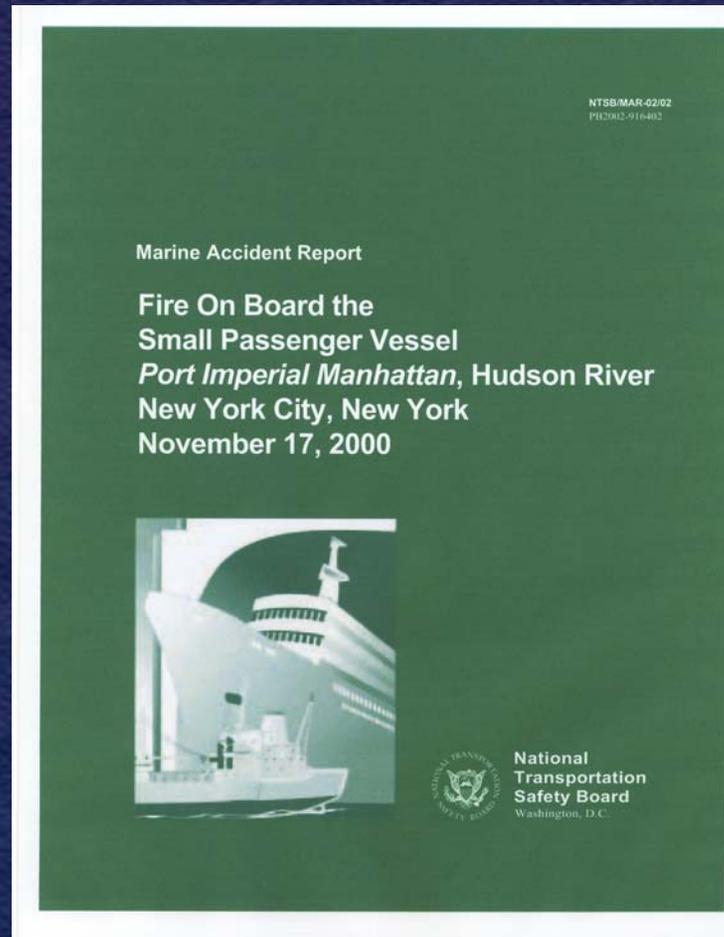
- Handwritten notes kept by port captain
- No mention of replacing failed fuel lines
- Expended parts not tracked

USCG Maintenance Requirements

46 CFR Subchapter T Part 182.100

All machinery and equipment must be installed and maintained ... to afford adequate protection from causing fire, explosion, machinery failure, and personal injury.

Preventive Maintenance Systems Essential to Safe Vessel Operation







NTSB