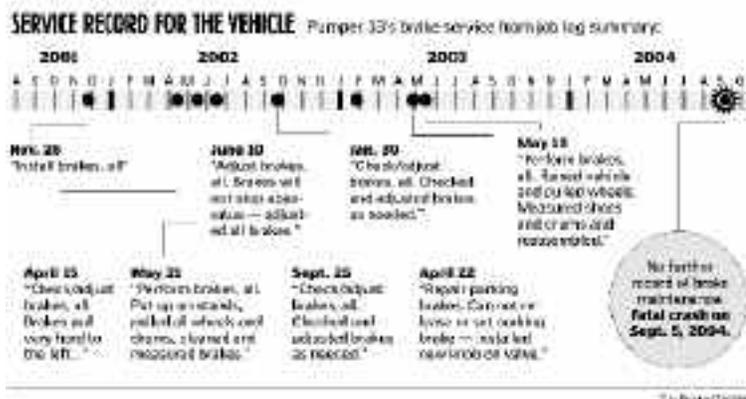
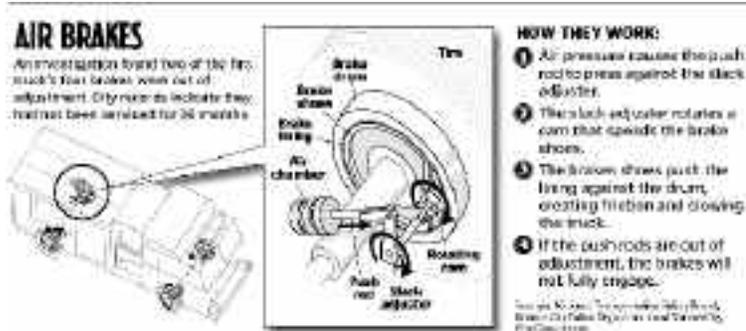


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Fire pumper brake work was put off

Chief cites lack of backup vehicles

By MATT CAMPBELL and MARK MORRIS
The Kansas City Star



A Kansas City fire pumper involved in a fatal accident in September had not had its brakes serviced in nearly 16 months, far longer than recommended, city records reveal.

A police report on the accident concluded that the pumper would not have slammed into a tree, killing firefighter Gerald K. McGowan, if its brakes had been properly maintained.

Pumper 33 was due for an annual service overhaul, including brakes, in May 2004, but did not receive it, said Gerry Calk, Kansas City's new fleet manager.

In fact, according to city records reviewed by *The Kansas City Star*, the pumper had not had any brake work done since May 2003.

The city's fire chief acknowledged that a maintenance backlog had affected the whole fleet.

According to national standards — from the National Fire Prevention Association to the National Transportation Safety Board to the Federal Motor Carrier Safety Administration — checking the air brakes on heavy vehicles is among the most basic maintenance and inspection steps.

The Missouri Commercial Driver License Manual recommends a seven-step inspection procedure every day a driver takes any heavy vehicle on the road. Step 5, for trucks with air brakes, is an inspection of the system that failed on Pumper 33.

City protocols require comprehensive, or "C level," preventive maintenance service for each vehicle once a year, with less extensive service every three months. The pumper's manufacturer recommends checking brake performance every three months and servicing brake parts every six months. At least one expert recommends monthly inspections.

The city also requires a daily check of each vehicle, including the brakes. But those checks are not conducted in depth, and records of them are no longer kept.

City officials declined to answer specific questions about Pumper 33, citing an anticipated lawsuit over the accident. But Fire Chief Smokey Dyer defended, in general terms, the tardiness in performing the annual service check.

Dyer said reserve vehicles must be available while service on a vehicle is being performed. But in 2004 there was a shortage of reserve vehicles because of a February shooting incident in south Kansas City that damaged six vehicles, four of them significantly.

Because of the shooting incident and maintenance headaches left over from a 2002 ice storm, Dyer said, he decided to defer maintenance on the fleet of more than 50 vehicles. Without enough vehicles in reserve, Dyer said, he would have had to close some fire stations to meet the maintenance schedule.

For a period, maintenance was limited to oil changes and lubrication.

"I made that decision, and I have to live with that decision," Dyer said in an interview Friday. "Would I make the same decision today? I don't know. Probably not. ... In this job we make life-and-death decisions and then we have to live with those decisions."

Dyer said all vehicles in service now have had their brakes inspected. Although four new vehicles have recently been acquired, five older vehicles remain past due on their annual maintenance visits.

"It's still there," Dyer said. "We are not caught up."

The accident

The four-man company on Pumper 33 was responding to a fire just before 5 p.m. Sept. 5 when a car turned in front of it on Blue Ridge Boulevard at 81st Terrace.

That, not brake failure, was the cause of the accident, city officials have said.

The pumper struck the car and then went on to hit another vehicle and a utility pole before skidding across 95 feet of grass and striking a large tree.

Police analyst J. David Wilson of the Vehicular Crimes Section later calculated that the nearly 18-ton pumper was traveling 51 mph when the driver hit the brakes. It was going about 34 mph when it reached the grass and 24 mph when it struck the tree.

The analyst said the impact had the momentum of 1.2 million foot-pounds per foot per second. It was enough to

total the pumper and kill McGowan, a 32-year veteran firefighter who was in the front passenger seat.

Wilson initially calculated that the pumper should have been able to stop 70 feet before the tree had its air brakes been properly maintained. Later, deciding he had held the city to too strict a standard, he recalculated his findings according to rules applied to commercial vehicles. But even using that standard, he still concluded that the pumper's brakes would have slowed the vehicle to a stop at or near the tree.

Municipal vehicles, and specifically fire vehicles, are exempted from the rules of the Federal Motor Carrier Safety Administration, although Calk, the fleet manager, said the city abides by those rules anyway.

One piece of equipment Wilson focused on was a push rod. In a set of air brakes, the push rod moves through an air chamber when the driver depresses the brake pedal. That transfers pressure to the brake shoes, slowing the vehicle.

But if the push rods have too much play, the brakes are less effective.

Federal regulations require commercial vehicles to be removed from service for brake adjustment if the play in the rods exceeds 2 inches.

The investigation into the crash of Pumper 33 found that two of its four push rods exceeded that standard. The rear brakes measured 2¼ inches and 2 1/8 inches. The front brakes measured 1¾ inches and 1¼ inches.

Federal regulations do not prescribe an ideal push-rod length, but Calk said he believes they should typically be adjusted to between 5/8ths and 7/8ths of an inch.

Calk discounts the condition of Pumper 33's brakes as a factor in the crash, although the police analysis concluded it was a critical element.

"Investigation ... revealed that had the rear brakes on vehicle #1 (the pumper) been in compliance with a push rod stroke of 2 inches, vehicle #1 would have stopped at or near the tree," Wilson wrote.

He further reported: "Although the brakes on vehicle #1 were not in proper adjustment, the collision between vehicle #1 and #2 would have still occurred even with the brakes in compliance. However, because the brakes on vehicle #1 were out of adjustment, vehicle #1 did not have the braking ability to stop the vehicle before striking the tree."

Industry standards

According to the U.S. Fire Administration, a federal agency charged with studying fire safety issues, vehicle crashes are the second leading cause of death for U.S. firefighters. Since 1994, more than 225 firefighters have been killed in such crashes.

To minimize these tragedies, the Federal Emergency Management Agency in August issued its "Emergency Vehicle Safety Initiative," calling on fire departments to adhere to long-standing maintenance and training standards.

"Each year a percentage of firefighter ... injuries and deaths are the result of mechanical problems and apparatus failure," the report noted. "In these cases, the public and legal systems are increasingly inclined to look to the organization's adherence to maintenance standards."

One such standard, adopted in 2000 by the National Fire Protection Association, requires an examination of brake systems, including the elements that failed on Pumper 33, at even "minor inspections," those more

frequent than once a year.

David A. Stopper, an air brake specialist whose Virginia company does highway collision research, said he would recommend a thorough brake inspection at least once a month for heavy vehicles such as fire pumpers because of the demands placed on the vehicles.

"When you're dealing with fire trucks, it's always at maximum performance levels at maximum performance loads," Stopper said.

A written city policy requires drivers to complete a daily checklist of basic systems, including brakes, and enter the results into a computer. However, the city has Pumper 33's checklists for only five days in 2001 and 2002.

Dyer said the policy produced too much paperwork and not enough useful information. Dyer said that on his order, the department switched to an "exception reporting" system, in which a record was made only when repairs were needed.

Although the city contends its vehicles are inspected daily, it has no records that the checks are made.

"We could create a mound of paper a day, but we don't have the management staff to do that," Dyer said. "There has to be some measure of responsibility taken at the company level."

The type of daily brake check performed by firefighters would not have detected the misadjusted push rods on Pumper 33 on Sept. 5. Dyer said the daily brake inspection consists only of looking for leaking fluid.

In a statement released by the city last month, officials defended their practices.

"The city had no knowledge, or reason to believe, that any of the brakes on this fire truck were out of adjustment," the statement said.

Calk, who starting with the city in October, said that he had not yet closely examined the city's current maintenance protocols but that he had found no problems since he had been here.

Calk had all the Fire Department's heavy equipment tested after the police report. The city hired Gooch Brake & Equipment Co. of Kansas City to use a dynamic testing machine. With the device, a truck's wheels are parked atop a pair of rolling cylinders that gauge the effectiveness of the braking system.

The results for five fire vehicles were "marginal," Calk said, prompting a closer examination of those trucks' brakes. Those results are not yet in.

Calk said the Fire Department has used such a dynamic testing machine only selectively in the past, although they have been the standard in Europe for years.

"Now that I'm here, we're probably going to buy a couple of those machines," he said.

The Star's Christine Vendel

contributed to this report.

The story up till now

- Firefighter **Gerald K. McGowan** was killed on Sept. 5 when Pumper 33, with him and three other firefighters on board, wrecked while responding to a fire.
- A car turned in front of the pumper on Blue Ridge Boulevard at 81st Terrace. That, not brake failure, was the cause of the accident, city officials have said.
- The pumper struck the car, then another vehicle and a utility pole before skidding across 95 feet of grass and striking a large tree.
- A police report on the accident concluded that the pumper would not have slammed into the tree, killing McGowan, if its brakes had been properly maintained.

First glance

- Fleet maintenance has been deferred because of a shortage of reserve trucks, says Kansas City Fire Chief Smokey Dyer.