



TEXAS DEPARTMENT OF LICENSING & REGULATION

Regulatory Program Management Division • PO Box 12157 • Austin, Texas 78711 • (512) 463-6599

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Accident Report by Texas Dept. of Licensing & Regulation RPM/Elevators

Accident Investigation by Jim Murnan, TDLR Chief Elevator Inspector

John Peter Smith Hospital, ELBI 6680, DECAL 27129, CAB #29

Montgomery Mi-Prom, 210 Machine

April 26, 2019

Equipment Location and Status

John Peter Smith Hospital (JPS Hospital), 1500 S. Main St. Ft. Worth Tx. 76104, ELBI 6680 is a county hospital with numerous buildings and elevators and related equipment. Under the listed ELBI #, there are thirty (30) elevators. All equipment, including Elevator #29 (decal 27129) was registered with the department. On January 20, 2019, the date of the incident, Elevator #29 was current on the Annual Inspection requirement (Doc. #8-11).

Since JPS Hospital is a county hospital, there is a large volume of equipment ridership. The equipment basically operates day and night, seven days per week, unlike most office buildings, which see rush hours during normal business hours on weekdays, and rarely operate on weekends or at night.

January 20, 2019

The Texas Department of Licensing and Regulation (TDLR) was first notified of this elevator accident on the day it occurred at 1:48pm by Mr. Ryan Donnell, International Union of Elevators Constructors, Local 21. Mr. Donnell informed TDLR of an elevator incident involving serious bodily injury. Mr. Donnell informed TDLR that Thyssenkrupp Elevator was the elevator contractor (registration #20009) responsible for the maintenance at JPS Hospital. The information provided by Mr. Donnell was reported on Sunday, TDLR expected JPS Hospital to submit an incident report on Monday (within 24-hours), as required by rule.

January 21, 2019

Contacted Mr. Mark Dye of Thyssenkrupp Elevator at 5:43am. Mr. Dye confirmed that a person had sustained serious bodily injury. Mr. Dye had no other information to share, so the Department proceeded under the premise that this was an accident.

Consulted with Deputy Chief Inspector, Mr. Jerod Bledsoe at 3:42pm and who stated that he had spoken to Mr. Rick Karnes, supervisor for Thyssenkrupp Elevator. Mr. Karnes verified that the elevator was shut down and locked off. The entrance to the elevator hoistway was secured



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by sheetrock walls and a locked access door (Video #3). Having confirmed that the equipment was secured, and the scene was preserved, TDLR informed Mr. Karnes to expect a phone call the next day to set up a jobsite visit.

We continued to wait for the incident report, which the rules require the building owner to file with TDLR within 24 hours.

January 22, 2019

TDLR received an Incident Report by fax from JPS Hospital. (Doc. #12 & #13).

After reviewing the report, TDLR contacted Scott Cummings, attorney for JPS Hospital, who clarified that the injury was serious, but that no other medical information was available for release. Informed Mr. Cummings that TDLR would be conducting an investigation and starting that investigation on Wednesday, the 23rd. Any interested party was welcome to attend and witness. Mr. Cummings stated that he would coordinate the invitations with interested parties to witness the investigation.

January 23, 2019

A meeting was held at JPS Hospital with all interested parties and information provided on how TDLR would proceed with the investigation. A list of those who were present to witness the investigation is attached (Doc. #14). All of the investigation activities were recorded on video. (see video, Doc. #17).

Based on the incident report, the investigation started on the 11th floor (Video #1), to observe the location and condition of the elevator cab, which had been shut down and left in place immediately following the accident. The cab of Elevator #29 was located above the 10th floor hoistway door header. About (2) inches of the toe guard was visible below the hoistway door header. The greenfield feeding the interlock was broken and the hoistway doors were in a mechanical bind, stuck in the open position.

Proceeded to the 10th floor to view the position of the cab. Witnessed that the hoistway fascia was bent inwards about two (2) feet up from the 10th floor hoistway door header on the left side (looking in) (Video #3).

Next, proceeded to the machine room up on the roof, where Thyssenkrupp mechanic, Mr. John Edington, was instructed to try and move the car by hand. Mr. Edington grabbed the brake pulley and was able to run the car up into the overhead of the hoistway (Video #4). Movement of the car indicated that the brakes were not set with the elevator at rest. Mr. Edington was



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asked to provide the fault log for Elevator #29 (Video #7-8). There were two (2) faults listed in the fault log. The two fault codes were "comparator" faults for the 4th & 5th floors. There were no other faults listed.

February 1, 2019

Returned to the hospital to conduct a second scheduled site visit for a "tear down" of the brake assembly. All parties present on January 23, 2019 were invited to attend. A list of those present to witness the "tear down" is attached (Doc. #15). The attached series of photographs depict the elevator after it was run by hand into the hoistway overhead (Doc. #18 - #21 & Doc. #44).

In the machine room, observed the condition of the "brake pulley" (Doc. #27). Noticed definite signs of wear on the brake pulley. Also noticed that the brake shoes were not fully contacting the brake pulley. Further observed that the machine room was dirty and disorganized with debris stacked in one corner of the room.

Instructed Thyssenkrupp mechanics Mr. John Edington and Mr. Mike Bowley to disassemble the brake assembly. After removal of the coil leads, the mechanics were instructed to "ohm" out the coil to determine its electrical integrity. The meter reading was 444.6 ohms (Doc. #24). I was therefore able to conclude that the brake coil was electrically sound.

While disconnecting the right-hand brake shoe (standing in front of machine motor) Mr. Edington asked TDLR to view the brake coil actuating pin. The actuating pin was "bottomed out" (Doc. #25). This was evidence of excessive wear of the brake shoes, which would prevent the brake shoes from setting firmly on the brake pulley (Doc. #26 & #28). Montgomery Elevator, the manufacturer, stipulates in their technical write up for the 210 geared machine that the actuating pin's total stroke should never exceed 1/8 of an inch (Doc. #46). The actuating pin's (Doc. #35 - #39) movement far exceeded 1/8 of an inch.

Continuing on with the tear down, I noticed that the left-hand brake shoe would not move freely. This was due to the brake pins being in a "frozen" state (Doc. #28).

Also observed that the condition of the left-hand brake shoe was worn down and into the rivets (Doc. #28). The wearing of the rivets resulted in the discoloration of the brake pulley (brown spot around entire pulley, Doc. #27). The right-hand brake shoe was also worn down and past the point of needing replacement (Doc. #26).

It was clear that the wearing of the brake shoes had allowed the actuating pin to move further than the 1/8-inch requirement, creating a serious deficiency in the braking system.

Instructed the Thyssenkrupp mechanics to put all brake coil parts in a five (5) gallon bucket, as I was taking possession of these parts for testing.



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I then met with all parties in a 3rd floor conference room and described how we were going to proceed from this point forward. After returning to Austin, the brake coil actuating pin was not present in the 5-gallon bucket. TDLR immediately called Mr. Scott Cummings to retrieve and secure this part. He agreed and TDLR would retrieve the part on February 15, 2019.

February 15, 2019

TDLR decided with Mr. Cummings to perform an overall jobsite maintenance assessment for JPS Hospital elevator maintenance based on a separate complaint. After review of the jobsite, TDLR went to JPS Hospital Dept. of Public Safety and signed for the actuating pin. Upon return to Austin, a separate complaint was filed for maintenance deficiencies against Thyssenkrupp Elevator. See sign-in sheet for a list of those in attendance (Doc. #16).

March 1, 2019

Traveled to Dallas, Texas with the brake coil assembly (Doc. #29 - #39) and took it to Ac-Dc Electric to have it tested.

The shop technician first tested the coil by "ohms". The coil read 437.6 ohms. The technician then ran the coil through a megger and checked for grounds. No grounds were present in the assembly.

Lastly, the technician inserted the core (Doc. #29 - #30) and applied DC voltage to the coil. I witnessed the core engage (pull-in) several times.

This finished the necessary testing on the brake coil assembly, indicating that the coil was good (electrically and mechanically) and the operation of the core (pull-in) was satisfactory (Doc. #45).

March 18, 2019

Having completed the brake coil testing, I returned the bucket with all brake parts to JPS Hospital so that the repair and testing of Elevator #29 could continue.

CONCLUSION

Cause of accident: brake failure.



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Analysis: From observations on site and during the brake assembly testing, all factors indicate the brake shoes did not set when the elevator came to rest at the tenth floor. The brakes' failure to set was due primarily to the brake shoes not setting firmly on the brake pulley and the actuating pin bottoming out against the brake core. The elevator being able to be run, by hand, into the overhead was further evidence of brake failure. If the brakes were set, the elevator would not move.

The worn brake shoes and frozen pins illustrated a lack of routine maintenance and equipment checks. There were no visible signs of lubrication on the brake sleeve and core. Equipment of this type requires more frequent maintenance intervals and diligence in scrutinizing electro-mechanical integrity.

As the code has evolved through technological advancements and safer code requirements in later editions, the applicable code at the time of installation had no requirement for a secondary braking system (emergency brake). It is imperative that proper maintenance be performed on an elevator system of this vintage.

The primary braking system must have maintenance performed that checks the condition and operation, any necessary adjustment or replacement of parts, and weekly lubrication. Per manufacturer recommendations or per industry standards, a complete tear down needs to take place at least annually (based on usage). Absence of this preventative maintenance can lead to failure of some or numerous parts of the braking assembly and system.

Other Factors:

While there could be other contributing factors (electrical and mechanical), these other contributing factors can only be evaluated and determined when the braking assembly is rebuilt, reassembled, adjusted, and tested. Once the repairs are complete, the elevator will be inspected before it is put it back into service.

Report Addendum

Accident Investigation by Jim Murnan

TDLR Chief Elevator Inspector

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Montgomery Mi-Prom, 210 Machine

This Addendum is issued to insert the following sentence to the end of the section on page 3 of 46, titled January 20, 2019.

“On Sunday, January 20, 2019 at 2:50 PM JPS Hospital sent an email to cs.elevators.escalators@tdlr.texas.gov attaching the accident report required by 16 TAC §74.69.”

The inclusion of this additional sentence clarifies the record in this report.