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House of Representatives
COMMONWEALTH OF PENNSYLVANIA
HARRISBURG

HOUSE DEMOCRATIC POLICY COMMITTEE HEARING
Topic: Defective SEPTA Train Cars
CORA Services – Philadelphia, PA
July 19, 2016

AGENDA

10:00 a.m. Welcome and Opening Remarks

10:10 a.m. Jeffrey Knueppel
General Manager
Southeastern Pennsylvania Transportation Authority

10:50 a.m. William Shanahan
Director of Government Relations and Grants Administration
Delaware River Port Authority

11:20 a.m. Matt Mitchell
Vice President
Delaware Valley Association of Rail Passengers

11:50 a.m. Closing Remarks

SEPTA

SILVERLINER V STATUS UPDATE

JEFFREY D. KNUEPPEL, P.E.
GENERAL MANAGER

JULY 19, 2016

SILVERLINER V STATUS UPDATE

AGENDA

SEPTA

- Issue Background
- Service Changes
- Returning the Fleet to Service

Issue Background and Chronology

SILVERLINER V FLEET

BACKGROUND

February, 2010: First Silverliner V cars arrived in Philadelphia from Hyundai Rotem

October, 2010: First three cars entered revenue Service

March, 2013: Last remaining cars arrived, completing the fleet

SILVERLINER V FLEET

BACKGROUND

SEPTA

120 Silverliner V Cars
105 Seats on Average
Average Mileage Per Car: 150,000

- **Thursday, June 30**:
  - SEPTA mechanic discovered Silverliner V #812, part of a married pair, leaning at Powelton Yard
  - The married pair was moved to Overbrook Shop for a detailed inspection Friday morning

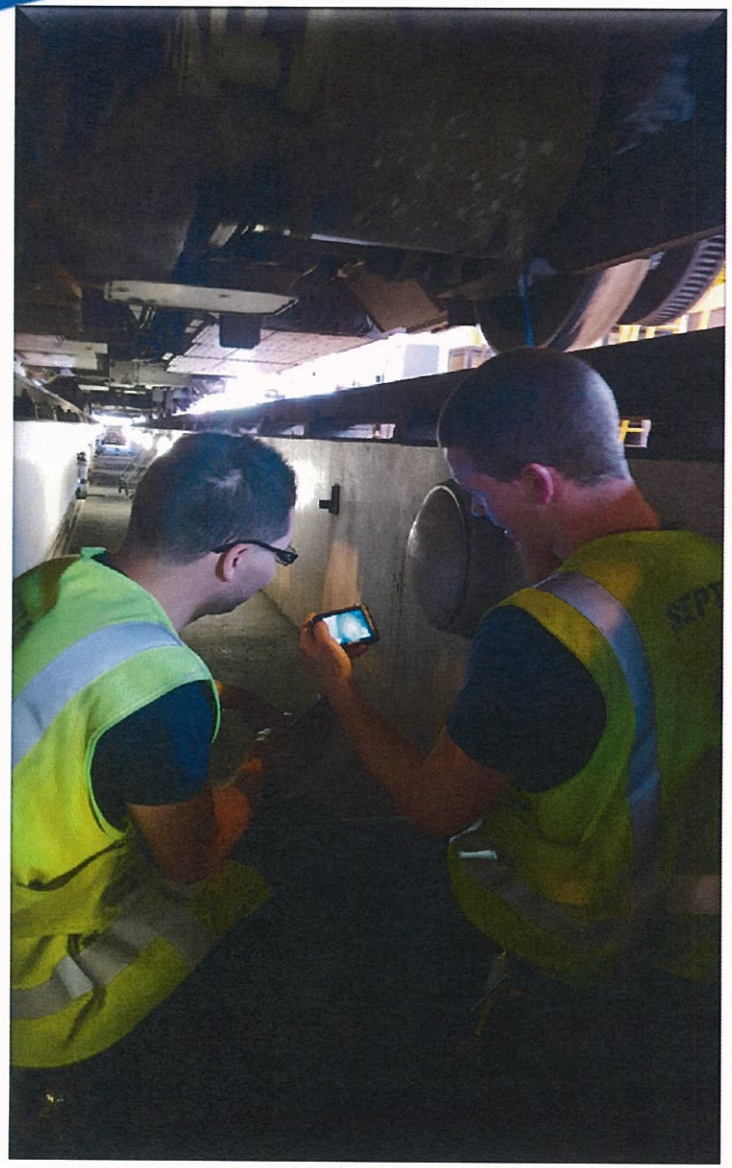
CHRONOLOGY

JULY 1

- **Friday, July 1:**
  - Vehicle Maintenance personnel discovered the cracked equalizer beam
  - Additional cars at Overbrook were determined to have weld cracks in the same general area
  - Mid-day speed restrictions were placed on all Silverliner V cars
  - Friday night the entire fleet was pulled from service for inspection

CHRONOLOGY

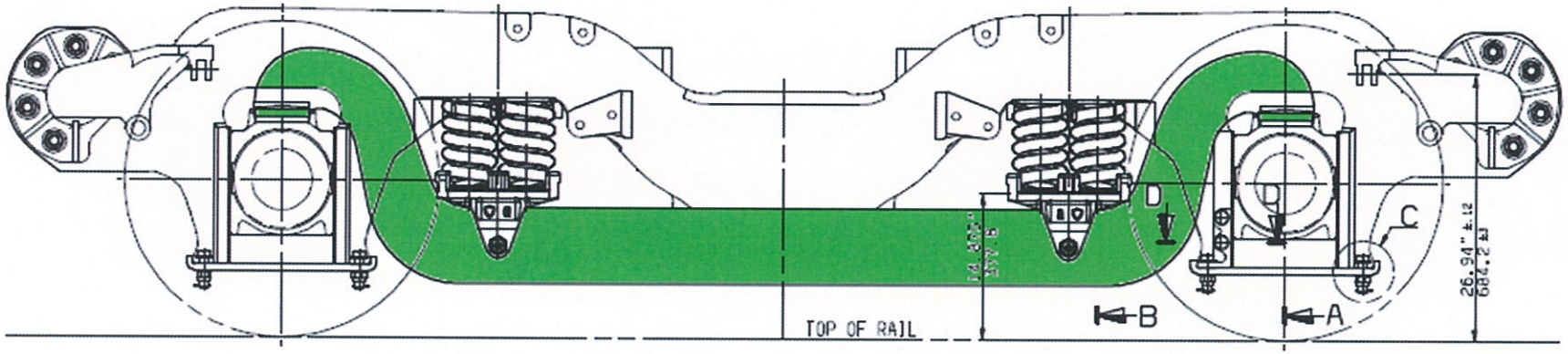
JULY 2



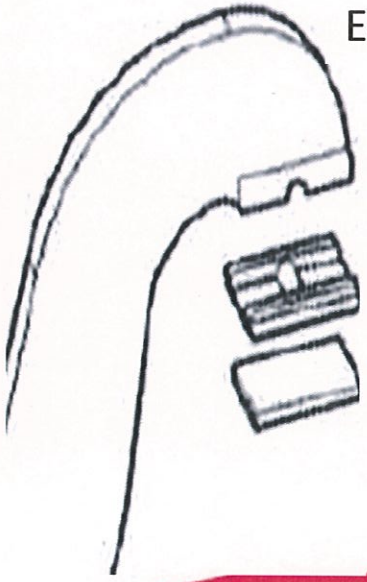
- **Saturday, July 2:**
  - Inspections continued on entire Silverliner V fleet
    - Over 300 cracks were found across 115 cars
  - SEPTA experienced no issues delivering regular weekend and holiday service
  - Round the clock development of first 'Interim Weekday Schedule' began

TRUCK BASICS

EQUALIZER BEAMS



Cracked Section of Equalizer Beam



Equalizer Beam

Equalizer 'Foot' – welded onto beam

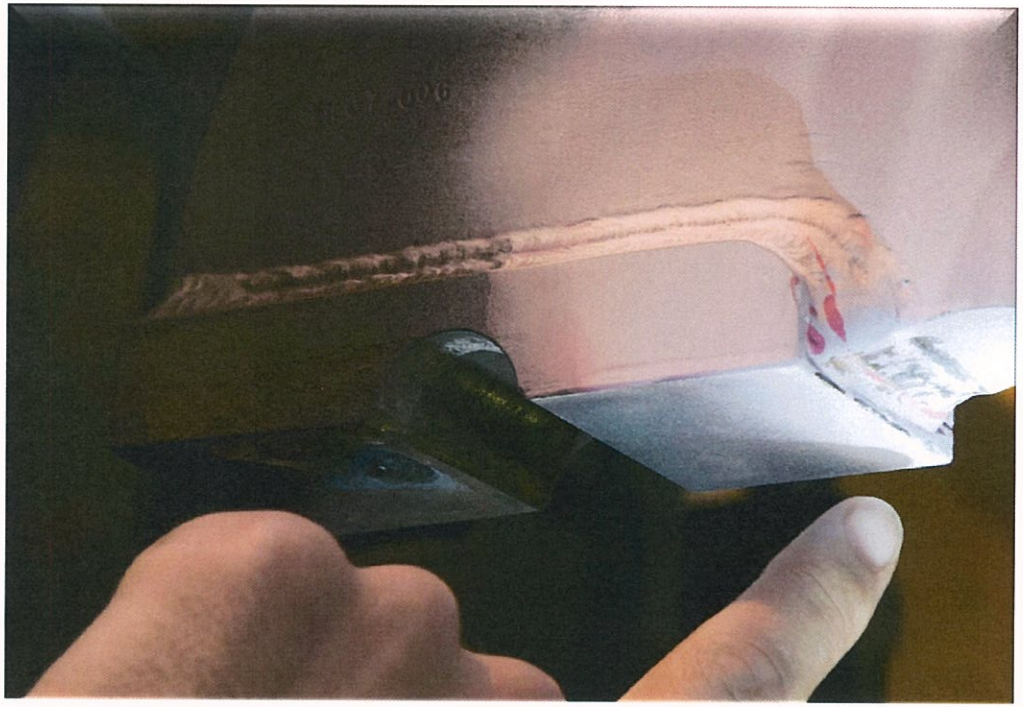
Equalizer Seat

Equalizer Pad (1/2 inch resilient pad)

49 CFR Part 229 – Railroad Locomotive Safety Standards

§ 229.67 Trucks.

(c) A truck may not have a loose tie bar or a cracked or broken center casting, motor suspension lug, equalizer, hanger, gib or pin. A truck frame may not be broken or have a crack in a stress area that may affect its structural integrity



Cracks in equalizer beam highlighted by red dye

INSPECTION RESULTS

SEPTA

CARS

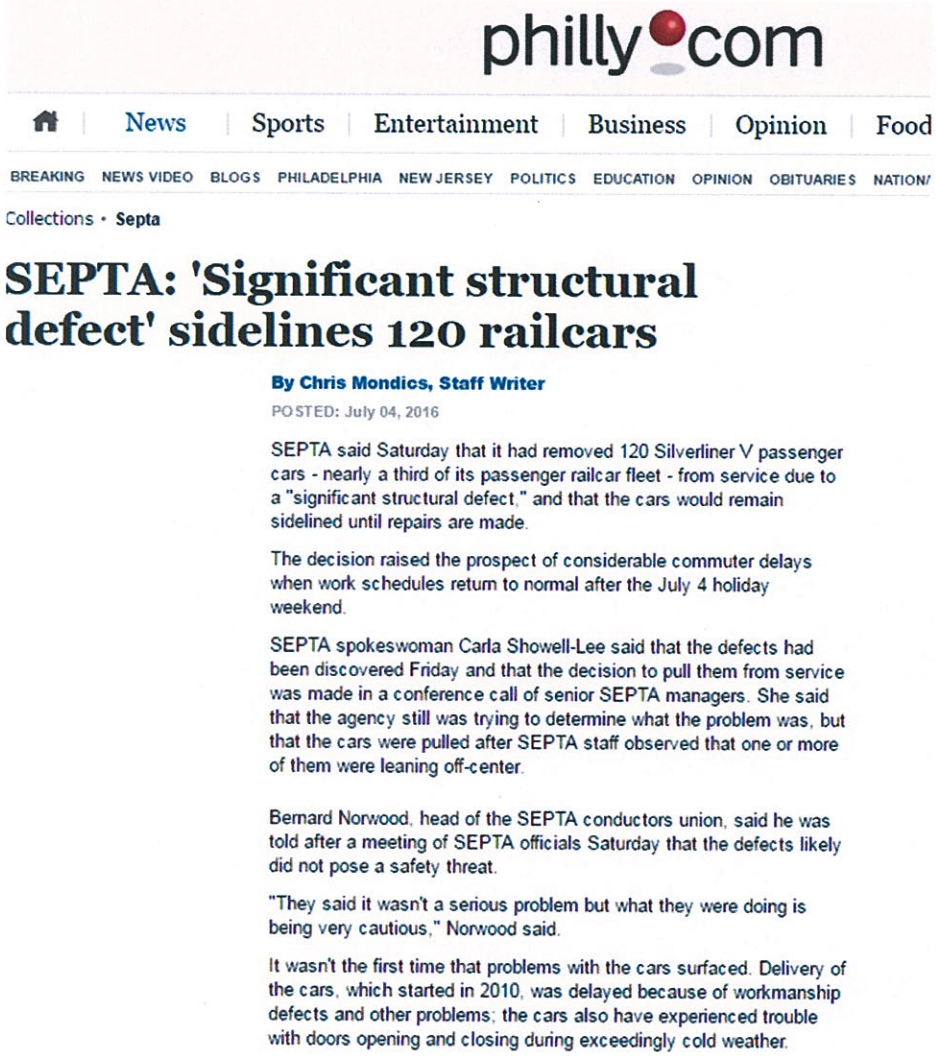
- 120 Silverliner V cars
- 5 Cars with no cracks
- 115 Cars with at least one crack

TRUCKS

- 240 Silverliner V trucks
- 37 trucks with no cracks

EQUALIZER BEAMS

- 480 Silverliner V Beams
- 275 with cracks



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SEPTA: 'Significant structural defect' sidelines 120 railcars

By Chris Mondics, Staff Writer

POSTED: July 04, 2016

SEPTA said Saturday that it had removed 120 Silverliner V passenger cars - nearly a third of its passenger railcar fleet - from service due to a "significant structural defect," and that the cars would remain sidelined until repairs are made.

The decision raised the prospect of considerable commuter delays when work schedules return to normal after the July 4 holiday weekend.

SEPTA spokeswoman Carla Showell-Lee said that the defects had been discovered Friday and that the decision to pull them from service was made in a conference call of senior SEPTA managers. She said that the agency still was trying to determine what the problem was, but that the cars were pulled after SEPTA staff observed that one or more of them were leaning off-center.

Bernard Norwood, head of the SEPTA conductors union, said he was told after a meeting of SEPTA officials Saturday that the defects likely did not pose a safety threat.

"They said it wasn't a serious problem but what they were doing is being very cautious," Norwood said.

It wasn't the first time that problems with the cars surfaced. Delivery of the cars, which started in 2010, was delayed because of workmanship defects and other problems; the cars also have experienced trouble with doors opening and closing during exceedingly cold weather.

- **Sunday, July 3:**
  - Press Conference held
  - Federal Railroad Administration, Federal Transit Administration, and PennDOT were notified
  - SEPTA Board members were notified individually
  - City/County Governments were notified

WEEKDAY SERVICE CHANGES BEGIN

JULY 4

SEPTA

Regional Rail Contingency Plan

Enhanced Saturday Schedule Beginning Tuesday, July 5, 2016

On Sunday, July 3rd, SEPTA provided details on the defects that were discovered on our fleet of Silverliner V Railroad cars, which prompted the immediate removal of the 120 Silverliner V cars from service. As a follow-up to the information already provided, SEPTA has completed the inspection of the entire Railroad fleet and is now in the process of analyzing engineering solutions to repair the defects and return the fleet to service.

These 120 cars represent approximately 1/3 of the Regional Rail fleet and account for approximately 13,000 available seats for our customers. Since these cars make multiple trips during the morning and evening peak periods the impact to our customers is substantial.

The following are the plans currently in place for Regional Rail service beginning Tuesday, July 5, 2016:

Regional Rail Service

Until further notice, beginning July 5th, SEPTA will operate a modified Saturday schedule on Regional Rail in place of Weekday service (Monday-Friday).

Each line will have an extra train that will run earlier than the normal Saturday schedule and additional trains will be added to the AM/PM travel periods. But please remember that all available equipment has to be spread out over the entire Railroad network so the extra service will not reflect normal weekday frequency levels

Monday, July 4:

The first 'Interim Weekday Schedule' was placed online for Tuesday, July 5

Service Changes

CITY TRANSIT

EXPANDED SERVICE

SEPTA

- Extended rush hour service
- Additional seating capacity for the Media/Sharon Hill and Norristown High Speed Lines
- Increased Parking Options

INCREASED PARKING

- **Broad Street Line:**
  - Naval Hospital, 1600 parking spaces, FREE
- **Market Frankford Line:**
  - Frankford Transportation Center, 989 spaces, FREE
  - 601 N. Columbus Boulevard, 300 spaces, FREE
- Additional leases

LEASED EQUIPMENT

4 LOCOMOTIVES AND 28 COACHES LEASED

SEPTA

LEASED EQUIPMENT

4 TRAIN SETS LEASED

SEPTA

Amtrak ACS Loco

8 MARC Cars

Amtrak ACS Loco

7 MARC Cars and SEPTA Cab Car

Amtrak ACS Loco

5 Amtrak Cars

NJT ALP Loco

8 New Jersey Transit Cars

4 Train Sets and 2,420 seats

PLATFORM EXTENSIONS

SOMERTON & CORNWELL HEIGHTS STATIONS

SEPTA

Cornwell Heights

Somerton

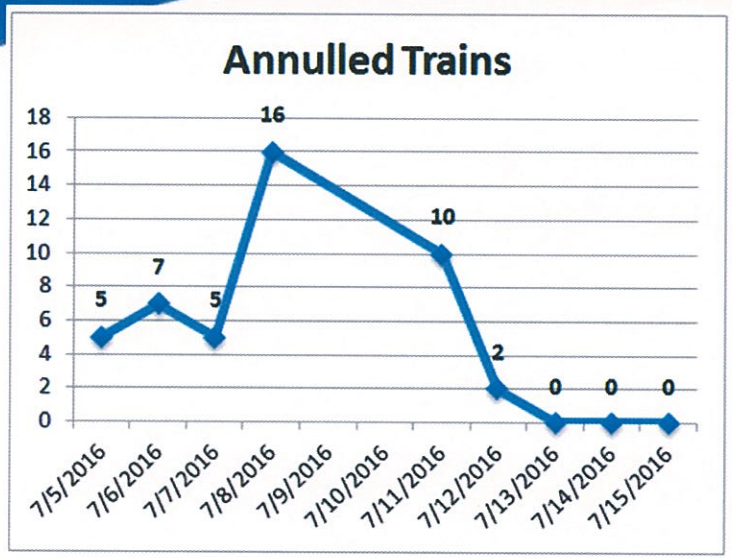
EVOLUTION OF THE INTERIM WEEKDAY SCHEDULE

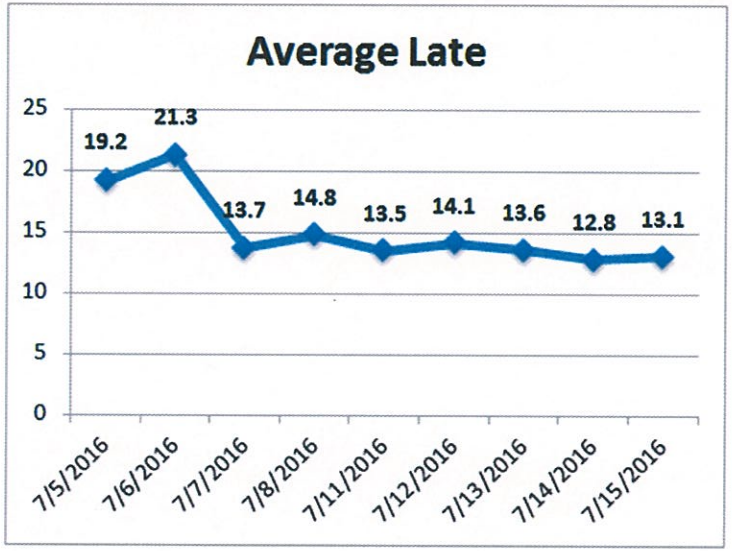
	Weekday Schedule	Interim Schedule 7/5/2016	Interim Schedule 7/11/2016	Interim Schedule 7/18/2016
Number of Trains	788	549	574	577
*** Daily Car Requirement**	297 (IVs and Vs)	205 (IVs)	223 (IVs and 18 Leased)	233 (IVs and 28 Leased)
Average Consist Size	3.6	5.4	5.4	5.4
Silverliner V Fleet: 120 Cars **Silverliner IV Fleet: 231 Cars**				

*** Does not include SEPTA Push Pull Coaches**

Operating more car miles now than during regular weekday schedule

EVOLUTION OF THE INTERIM WEEKDAY SCHEDULE





EVOLUTION OF THE INTERIM WEEKDAY SCHEDULE

JULY 18 SCHEDULE CHANGES

- **Lansdale/Doylestown:**
  - NEW AM and PM service added
- **Manayunk/Norristown:**
  - Schedule adjustments have been made
- **Paoli/Thorndale:**
  - Express service changes
- **Warminster:**
  - Train changes to originate from Warminster Station

EVOLUTION OF THE INTERIM WEEKDAY SCHEDULE

SEPTA

Still working on more leased equipment deals

Continued Railroad Schedule Optimization

Developing Express Bus Service concept to supplement rail service

Returning the Fleet to Service

RETURNING THE FLEET TO SERVICE

- SEPTA immediately retained LTK Engineers at the start of the Silverliner V issue
- LTK was also tasked with a comprehensive inspection of a random Silverliner V Car #850
- Car #850 showed no additional issues during the inspection process

RETURNING THE FLEET TO SERVICE

- The large number of fatigue cracks in this high stress area advises against a 'quick fix' where the life of the repair cannot be known but is variable
- Hyundai Rotem, SEPTA, and LTK are working cooperatively on computer modeling, metallurgical evaluation, vehicle instrumentation (this week) and new equalizer beam replacement options

RETURNING THE FLEET TO SERVICE

- Two replacement options are being progressed simultaneously:
  - Similar beam with a greatly revised beam seat detail
  - Forged beam (one piece)
- Both replacement options will be computer modelled and then physically tested to confirm both adequate strength as well as fatigue resistance

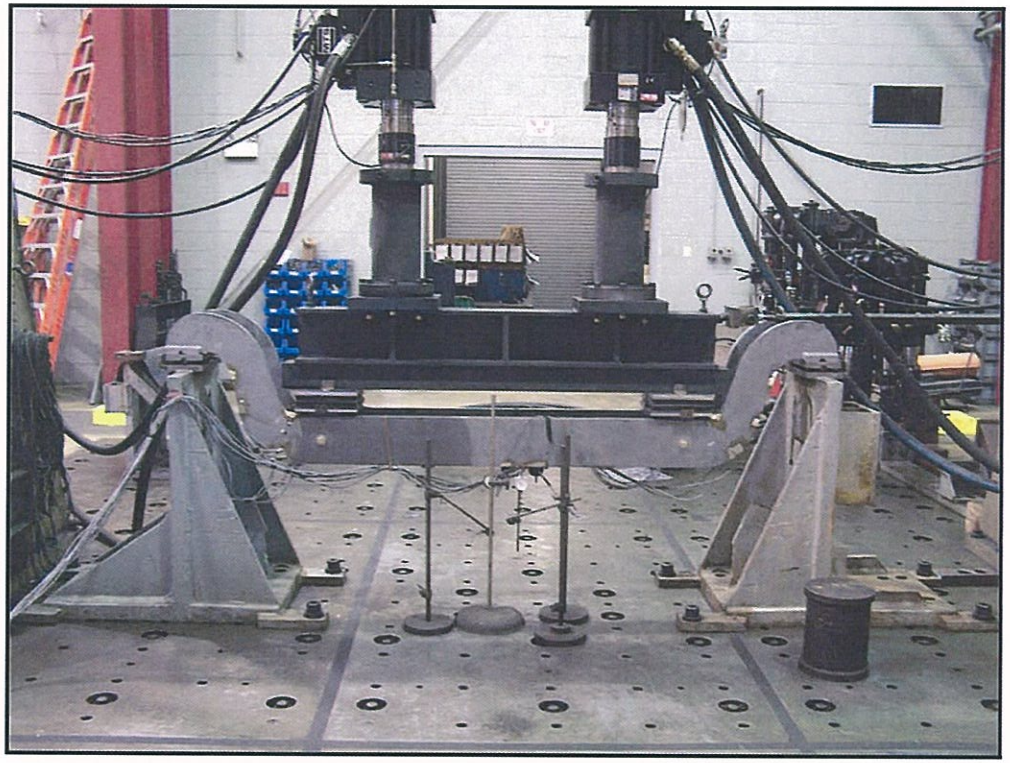


Photo of: Static Load Test Originally Performed

RETURNING THE FLEET TO SERVICE

SEPTA

Safety will continue to be SEPTA's highest priority

Significant service impacts to continue through July and August.

DVARP

Delaware Valley Association of Rail Passengers, Inc.

1601 Walnut St., Ste. 1129 Philadelphia, PA 19102 215-RAILWAY www.dvarp.org

DVARP remarks on SEPTA Silverliner V mechanical defects and their effect on SEPTA passengers

Prepared testimony for House Democratic Policy Committee hearing

Philadelphia: July 19, 2016

Good morning. My name is Matthew Mitchell; I'm vice president of DVARP: the Delaware Valley Association of Rail Passengers. DVARP is an independent, non-profit, member-supported organization representing the rail and transit riders of the greater Philadelphia area.

DVARP was established in 1974. We scrutinize the budgets of SEPTA and other area rail and transit operators. We meet regularly with officials from SEPTA, Amtrak, PATCO, and NJ Transit to discuss quality of service. We review and comment on plans for service expansions. We speak out in the community about the benefits of passenger rail for the economic health and quality of life in our region. And we publish a highly-acclaimed newsletter to keep our members and elected officials informed about passenger rail issues. Among our recent accomplishments are getting quiet cars on SEPTA, PATCO, and NJ Transit, stopping a coffee ban on the SEPTA commuter rail system, and securing a partial fare rollback that saved SEPTA riders two million dollars.

On Saturday afternoon, July second, we got a call from Kim Heinle, chief of customer service and constituent relations at SEPTA. He informed us that earlier in the day, SEPTA had removed all of its Silverliner V cars from service because cracks had been discovered in the truck equalizer beams of some of those cars.

On Sunday, July third, SEPTA announced that the cars would remain out of service for an indefinite time, and that this would leave the authority far short of the number of cars it needs to operate its normal weekday service. A temporary schedule based on the pre-arranged severe weather schedule would be operated beginning Tuesday morning. Fortunately, the July Fourth holiday gave SEPTA an extra day to plan for the interim service and a week where ridership would be slightly lower than the usual weekday norm.

We sent an e-mail alert to our members explaining the situation and giving them tips on how best to cope with the situation: try and adjust your work schedule so you can travel before or after the peak of the rush hour; use alternate transit options like the Norristown High-Speed Line, the Market-Frankford El, and the Broad Street Subway; board at stations further up the line so you would be assured of getting a seat; and show extra courtesy to your fellow riders and to SEPTA employees as we all try and get through this together. We also advised riders who use the inner-zone stations of SEPTA's longest and busiest routes that trains would be overcrowded, and that they should be ready to find alternate transportation if trains were not able to pick up passengers at their station.

The first few days under the reduced schedule were pretty tough on the passengers and on SEPTA. As predicted, many trains were overcrowded and had to pass by stations without making their scheduled stops. Passengers who were passed-up often waited an hour or more for a train that could pick them up. We experienced these conditions even though thousands of passengers did find alternate transportation or changed their travel times.

Both riders and SEPTA adapted to the conditions, and each changed their plans in response to the other. Riders left earlier to make sure they would get to work on time. Dispatchers directed

trains and crews that were through with their assigned trips to make extra trips to pick up stranded passengers. And managers monitored the situation and adjusted train consists (number and type of cars) to get more seats to lines where they were needed.

Where we stand now is that the biggest challenge, the morning rush hour, is pretty much worked out. Week 2 schedule revisions solved most of the week 1 problems on the inner parts of the Paoli, Trenton, and Norristown Lines, thanks to the leased equipment and additional "clean-up" trains added to the schedules. The service isn't as frequent as people would like and there are fewer express trains, but the number of passengers who are being passed up because trains are overcrowded is a lot fewer, and those passengers usually are not having to wait as long for the following train.

With just about every available car scheduled to run during the rush hour, there is almost no margin for unexpected events like a train breakdown or a fallen tree blocking the tracks. As a result, we can expect that there will be times when parts of the service end up being a lot worse than they are now. We ask our fellow riders to have patience, and be prepared for the occasional long wait or overcrowded train.

We also know that the defective parts cannot be safely repaired, and that new parts will have to be designed, fabricated, and installed before the Silverliner Vs can be safely restored to passenger service. We are going to have to suffer through this disruption to service for at least the rest of the summer and possibly into September.

There still are some minor problems during the morning rush, particularly on the Lansdale/ Doylestown line. We have made suggestions to SEPTA for improving that service, and SEPTA Rail Operations is continuing to look for solutions. Schedules were again adjusted this week to try and mitigate some of the problems observed last week. SEPTA also added more early morning service, which will be especially valuable for shift workers and reverse commuters (riders who live in Philadelphia and work in the suburbs).

The next task for SEPTA and its schedule planners is to improve the afternoon and evening schedules. The biggest problem there is that the weekday passenger load is a lot greater than the load on weekends, which the schedule was designed for. It takes longer to board and detrain passengers, so trains typically get to their destinations 10 to 20 minutes late. Late arrival means late turnaround and departure on the return trip, and the delays keep adding up until evening, when some trains are as much as 30 to 40 minutes late.

We have asked SEPTA to address this issue as soon as possible, but we've been told it will take several weeks. SEPTA wants to set up fixed assignments for the train crews that would go into effect with the next full round of schedule changes, and getting those schedules planned and to the crews for their "pick" will take time. The scheduling of a commuter rail operation, especially one like SEPTA's with many lines intersecting with each other, is a system with many moving parts.

We do not presume to speak for the train crews and other workers on the railroad, but we know this is a stressful situation for them. Right now many trains are operating with fewer crew members than the number of passengers and number of train cars would dictate, and most crews are off their normal work schedules. They deserve our thanks for the sacrifices they've made to help keep the system running

We have several minor disagreements with SEPTA over their response to this situation, particularly in regard to keeping riders aware of which trains are cancelled or overcrowded, but the General Manager, the Deputy General Manager, the Chief of Operations, and all the other SEPTA personnel who have responded to this unprecedented challenge deserve recognition for their efforts. Top SEPTA personnel have been in regular communication with us: informing us

of the details of the problem and what actions were being taken, using us as a conduit for communicating with the riders, and asking for our comments and suggestions.

SEPTA has had the right priorities in the first weeks of this crisis. The first priority is safety. As soon as it was discovered that the cracks were more than an isolated problem, SEPTA withdrew the Silverliner Vs from service. The next priority has been to provide enough service to accommodate the thousands of people who rely on the system to get to work and to make other essential trips. SEPTA scoured the nation for available equipment to lease, and the added capacity has made the difference between just crowded trains and trains that are so overcrowded that they have to pass up scheduled stops and suffer lengthy delays boarding and detraining passengers. SEPTA also cancelled or rescheduled planned infrastructure and vehicle maintenance projects such as the trolley tunnel "blitz" so that all the necessary resources could be put into making sure alternate transportation was available to affected riders.

Once temporary schedules were in place and the task of communicating the changes in service to riders was complete, SEPTA turned to customer service issues. Without prompting from us, they established a very reasonable refund/fare credit policy. Riders who found the reduced service unsatisfactory were given the opportunity to turn in their passes for a full refund with no questions asked, even though the month had already started. Riders who are continuing to take the train but are suffering through standing-room-only conditions and reduced service levels will be given a credit towards purchase of their next monthly pass. We are pleased that SEPTA has prioritized customer service over squeezing every last nickel out of the riders.

Now is not the time to try and assign blame for the defect. It's a distraction from the more important task of improving the temporary service and we need to have all the facts before coming to any conclusions about why the trucks are defective.

Budget and ridership impacts

At this time, SEPTA has not given a public estimate of the cost of the Silverliner V withdrawal, other than the cost of leasing equipment from other railroads. We expect the cost will be substantial. There will be added overtime costs for train crews and maintenance personnel, administrative costs for developing and implementing the new schedules, above and beyond the direct cost of diagnosing the problem and repairing the cars. Rescheduling previously-planned infrastructure projects will result in increased costs too. The revenue side of the budget will be affected too: SEPTA will lose millions of dollars because riders are using alternate transportation or telecommuting while the Silverliner Vs are out of service.

The good news is that the loss shouldn't be permanent. While some riders will not return to the system when normal service resumes, the normal turnover of ridership as people move to new homes and take new jobs will make up for that. The experience from transit strikes, the 1993-94 SEPTA partial shutdowns, and other such disruptions teaches us that it will be about three years before ridership fully recovers.

The Silverliner Vs remain under warranty. Rotem has acknowledged so, and we expect that they will bear the full cost of restoring the fleet to safe running condition. There is also a fleet defect clause in the contract providing compensation to SEPTA in the event of a defect such as this causing cars to have to be removed from service. That will help with the budgetary impact of this situation, but we expect that the fixed compensation will not make SEPTA whole. The bottom-line impact will probably be millions of dollars.

Fortunately, as we reported in our budget testimony, SEPTA's basic financial position is strong, thanks to the passage of Act 89 and a history of conservative budget and policy decisions by SEPTA's Board and top managers. We believe SEPTA will be able to weather the storm. They may need to tap the Service Stabilization Fund to balance the current fiscal year's budget, and a

one-time appropriation from the Commonwealth would be very helpful, but riders should not have to pay more to close any budget gap caused by this situation. That said, SEPTA has already informed the public that a routine fare increase will be proposed in next year's budget. As always, we will scrutinize the budget and oppose an excessive or inequitable fare increase.

DVARP's advice to riders

Here is a summary of our current recommendations.

1—Know your alternative routes. Many SEPTA stations have nearby bus or trolley stops with service that will connect to the subway and elevated lines to Center City. For those of you on the Paoli Line, the Norristown High-Speed Line will be an excellent alternative: use it!

2—Get the SEPTA app for your iPhone or other mobile device. The Next to Arrive feature of the SEPTA app will give you up to the minute information, direct from the Control Center, on where the trains are and when they will be at your station. And TransitView will show you where all the buses and trolleys are, so you can find your best alternate route. Check the status of your train before you leave for the station: SEPTA is using TrainView and social media to inform riders of trains that have to skip scheduled stops, trains that are cancelled, and trains that are significantly delayed.

3—Allow extra time for your trip 10 to 20 minutes inbound, depending on which line you ride, and 10 to 30 minutes outbound.

4—Try and adjust your travel plans so you can ride before or after the peak of the rush hour. Trains will be less crowded then and less likely to be delayed. Ask your employer about flex-time or telecommuting so you can stay out of the worst of the crowds.

5—Use an alternative station for your trip home in the afternoon to maximize your chances of getting on board and getting a seat. If you ride a Pennsy-side line, board at Jefferson Station (Market East). If you ride a Reading-side line, board at 30th Street or Suburban Station.

6—Be courteous. Put backpacks and other items in the luggage racks instead of the seat next to yours: every seat will be needed during the rush hour. Offer your seat to older or disabled persons. And look out for opportunities to help your fellow riders by letting them know when the next train will arrive or where to find alternate transportation.

7—Be our eyes and ears in the field. If there are problems at your station, if you have suggestions for where to place signs pointing towards alternate service, or if you have ideas for improving passenger service during this crisis, call or e-mail us, and we'll forward your ideas to the right people at SEPTA. They really appreciate the on-the-spot information that DVARP members are in a position to provide.

Correcting misunderstandings and addressing complaints

As we've spoken to the media, our members, and the riders at large, one of our priorities has been to try and correct mistaken assumptions people have about SEPTA and about how a major commuter railroad works. In this part of our statement, we'll respond to some of the more common misunderstandings we've heard.

The defective parts were not made in Korea

While the Silverliner Vs were manufactured by a South Korean company: Hyundai Rotem, and the stainless steel bodyshells were made in Korea, many of the other components were made in America. The trucks, and in particular the truck equalizer beams that failed, were made in America. They were not made in Korea or China.

At this time, nobody knows for sure what caused the cracks. It could have been a faulty design; it could have been substandard material; it could have been improper manufacturing; it could have been the result of the finished cars weighing several tons more than the specified weight; it could have been improper maintenance by SEPTA; ot could have been an unexpected track-train dynamic; or it could have been a combination of several of these causes. Metallurgical and other engineering tests are being done on sample parts to try and ascertain the cause, and until those tests are completed, it would be inappropriate to speculate on a cause or lay blame for the problem.

Passenger railroads do not keep large quantities of spare cars

Members of the public have asked why SEPTA doesn't have a reserve fleet of railcars ready to put into service when something like this happens. A more informed variation of this question asks why SEPTA didn't keep the Silverliner II and Silverliner III cars in reserve after they were retired from service. First: SEPTA doesn't have enough storage space for a hundred spare cars. Second, those cars would require ongoing inspection and maintenance, even if they were not in regular operation. It would be hard to justify spending millions of dollars on that maintenance just as an insurance policy against an unexpected and rare issue that would sideline the entire fleet. Passenger rail operators do normally maintain about a 10 percent spare ratio to allow for cars to be shopped for heavy repairs or overhaul and to fill in when a train has a mechanical failure. No railroad in the country would be able to withstand the sudden loss of 30 percent of its fleet without serious adverse effects on service.

There have also been questions why SEPTA could only acquire three trains' worth of equipment (now five) from other commuter and intercity railroads that have spare cars. First, the number of spare cars at those systems is small too. Because every car costs money to inspect and maintain, those systems only keep enough cars for their own needs. Second, many of those cars are not compatible with SEPTA's system. Most of the commuter rail systems in the United States were created in the early 20th century by different private railroads, and there was little standardization beyond the gauge of the rails. Most of the cars from New York work only at high platforms and would not work on SEPTA's system. Commuter lines in the Midwest and West use double-deck cars that are too tall to fit through the tunnels and bridges of the SEPTA system. And only a small number of systems have electric locomotives; diesel trains cannot operate through SEPTA's Center City tunnel except for maintenance-related movements.

Other operational plans would worsen the overcrowding problems

We have heard criticism of SEPTA's interim schedule, where service runs just hourly on most routes, with half-hour service during the rush hour. People have asked why SEPTA doesn't run shorter trains more frequently. Under normal circumstances, this indeed would be more convenient for passengers. But the present circumstances are anything but normal. Customers are being left behind at stations because the trains are too full, and the first priority must be to maximize the carrying capacity of the system.

Other aspects of passenger rail scheduling have had to be turned on their heads because of the Silverliner V defects. Normally, systems would run their trains to the far end of the line before trains to intermediate destinations: the Doylestown train would run ahead of the Lansdale train. But if we were to do that, all the passengers would get on the first train: leaving that one overcrowded while the second train is underutilized. One could run the first train as an express to divide up the passenger load among the two trains, but that would cause the same problem as the shorter, more frequent trains: too much chance that one would be overcrowded.

It would have been unwise for SEPTA to try and micromanage the Silverliner V contract

We have also heard criticism of SEPTA for not stepping in when it became apparent that Rotem was having difficulty executing the contract. SEPTA project managers were on site first in

Changwon and then in South Philadelphia to monitor progress; they reported a variety of problems from tense labor-management relations to shoddy workmanship and unrealistic promises as to when problems would be resolved. While some demanded that SEPTA stop payment to Rotem and re-award the contract to another builder, we cautioned that that would expose SEPTA to millions of dollars in damages for breach of contract. Similarly, when people demanded that SEPTA managers play an active part in straightening out the problems at the plant, we explained that while that would give some short-term relief, it would lead to a countersuit by Rotem when SEPTA sought to collect on the penalty clauses in the contract.

There was much controversy when the Silverliner V contract was awarded to Rotem. Four companies submitted bids when the initial request for proposals was issued. Those bids were evaluated on both cost and a technical score. Rotem bid the lowest price but also had the lowest technical score. Kawasaki Heavy Industries was the second-low bidder and had the highest technical score. When it was announced that SEPTA would award the contract to Rotem, Kawasaki threatened to sue. Kawasaki had a very solid case that Rotem was not qualified to bid, because the contract terms required that companies have prior experience building stainless steel railcars meeting FRA requirements. Rotem lacked that specific qualification. But because the Rendell Administration and other state and city officials were keenly interested in Rotem's promise to locate their assembly plant in Philadelphia, they prevailed on SEPTA to cancel the original bid process and re-start it without the prior experience requirement, thus making Rotem eligible. Only Kawasaki and Rotem elected to submit bids the second time around. Again Rotem was the low bidder, and SEPTA subsequently awarded the contract to Rotem.

DVARP was critical of SEPTA's decisions: both the delay in acquisition of the new cars resulting from the decision to re-bid the contract and the selection of Rotem as the winning bidder. We noted that while Rotem was the low bidder on the base contract, Kawasaki's lower price for additional cars meant that the Kawasaki bid would actually be less if SEPTA exercised its option (which SEPTA eventually did). While we disagreed with SEPTA's decision, we did not find evidence of any improprieties on SEPTA's part.

The defect is not related to FRA requirements

There have been some comments blaming Federal Railroad Administration (FRA) regulations for the Silverliner V defects. However, the regulations in question do not relate to the trucks. They require that the body of the car be able to withstand 800,000 pounds of pressure end-to-end. The reason for this is crash protection. There are two engineering approaches to keeping train passengers safe. The approach followed in Europe and Asia is to focus efforts on crash avoidance. The other approach is to make crashes more survivable by making train cars stronger. US regulators chose the latter approach because there is much more sharing of track between passenger trains and freight trains in America and American freight trains are much heavier than their foreign counterparts. Neither approach is wrong: it's a difference of opinion between the professional engineers. Our view is that excessive regulation of passenger rail is harmful to transportation safety; when the cost of building rail lines becomes prohibitive due to safety overkill, people will travel by car, which is much less safe than traveling by train.

SEPTA should have found the defect sooner

The cracks are located in a part of the truck that is hidden behind the sideframe. They are not visible without a light pipe or other special viewing device. Since the parts are hard to inspect and are designed to last the life of the car, they are not included in routine daily inspections. In the car where the equalizer beam completely sheared through, the two parts became tightly wedged together. The lean of the affected car was only noticeable in comparison to the car it was coupled to. It is highly unlikely that the crack would have caused a derailment or other calamity.

SEPTA tried to cover up the problem

There is no evidence that SEPTA concealed this problem. When the cracks were first discovered, SEPTA immediately ordered Silverliner V trains to travel at reduced speed. And when it became apparent that the problem was widespread, SEPTA voluntarily withdrew the whole fleet from service. The entire process took 36 hours or less. SEPTA's response was neither hasty nor dangerously slow; they addressed the issue with all deliberate speed.

SEPTA is favoring the Paoli Line riders/SEPTA is favoring suburban riders/SEPTA is favoring city riders

Just about everyone who's been inconvenienced by this situation feels that riders on their line and their station is being treated unfairly. Riders in the outer zones are suffering most from the delays and have less service, but they can count on getting a seat. Riders in the inner zones have had to stand all the way to Center City sometimes, but SEPTA is adding service to try and help them. City riders did not have much extra service added, but their trains have suffered the least overcrowding. SEPTA does run a lot more service on the Paoli Line, but that's because it has considerably more riders than all the other lines of the system.

SEPTA should run express buses to Center City from affected train stations

During the first few days of the crisis, SEPTA was considering alternate bus service to supplement the trains on lines where there would not be enough capacity. This was always something of a last resort. Bus service is a lot less efficient than rail, SEPTA has few spare buses and would have had to pull buses off of their regular routes, and buses would get stuck in rush hour traffic. We think that even express buses would be a poor substitute for the train, and we're glad that they were made unnecessary by SEPTA's acquisition of leased trainsets.

SEPTA should have stuck with the tried and true Silverliner IV design

The Silverliner IVs are more than 40 years old. A lot has changed since the 1970s when they were built: both the technology of the propulsion, braking, power, signal, and communications systems and also the amenities that passengers expect. Buying new cars of a 40-year-old design would miss out on improvements like solid state control and AC motor technology that reduces power consumption.

Dawes, James

Subject: FW: Policy Hearing: SEPTA railcar defects

From: Vukan Vuchic [mailto:vuchic@seas.upenn.edu]
Sent: Sunday, July 17, 2016 12:59 PM
To: Zellner, Amanda <AZellner@pahouse.net>
Subject: Re: Policy Hearing: SEPTA railcar defects

Dear Ms. Zellner,

Here is a summary of my comments about the Regional Rail problem in Philadelphia.

The central issue about the Regional Rail system at this moment is the problem of Silverliner Vs for which SEPTA is not to blame However, SEPTA's decision to replace weekday schedules by Saturday schedules and thus drastically reduce the number of trains, while making trains longer is a big mistake.

Passengers want fast, reliable, frequent and comfortable service. With fewer cars, the public must expect - and will understand - heavier passenger loads because of shorter trains and some cancelled trains. However, service frequency, i.e., trains running every 15, 20, 40 or 60 minutes
makes a huge difference. Saturday schedules during weekdays degrades most of the lines to hourly services even during peaks, which many commuters cannot use without losing up to two more hours. Passenger losses will be great due to Saturday schedules on weekdays!

Whatever number of cars are available, operating maximum lengths of trains results in the longest intervals so that adopting Saturday schedules actually greatly aggravates not only in heavier loads, but also due to very long intervals, long standing times and thus lower reliability of service.

To put simply, if SEPTA has sufficient number of cars to operate one 6-car train per hour, it would obviously be much better if it operates with that fleet two 3-car trains per hour (30 min intervals) or three 2-car trains every 20 minutes.

Some explanations for this disastrous Saturday schedule by 6-car trains that there is a problem with reliability, safety or maybe train engineers or conductors are invalid because even with two or three times more frequent services the number of trains, their intervals, number of employees (engineers and conductors) would still be smaller than that on regular weekday services under normal conditions.

I have more suggestions about other improvements SEPTA could do to increase speed and reliability of Regional Rail services, and I will be glad to submit that when I return to Philadelphia on July 27th.

In summary, I strongly suggest that SEPTA keeps service frequency as much as possible, but reduce train consists (lengths) because of availability of fewer cars. The service supervision should also be improved!

Sincerely yours,
Prof. Vukan R. Vuchic