



# Spirit Of Boston

ON 954835

Explanation of shorted and melted wire in the Machinery Alarm Junction Box or as labeled by the builder as "Alarm Panel" Located in the Engine Room.



Prepared By:

Chris Bierker

National Director of Marine Engineering

Hornblower Cruises and Events

e-mail



10/20/2023

### Introduction

This document was produced to explain why there was a shorted and melted wire in the “Alarm Panel” and explain if it was a result of the onboard fire or the cause. As a note this issue was investigated well after the incident occurred and after all the original and damaged wire had been removed.

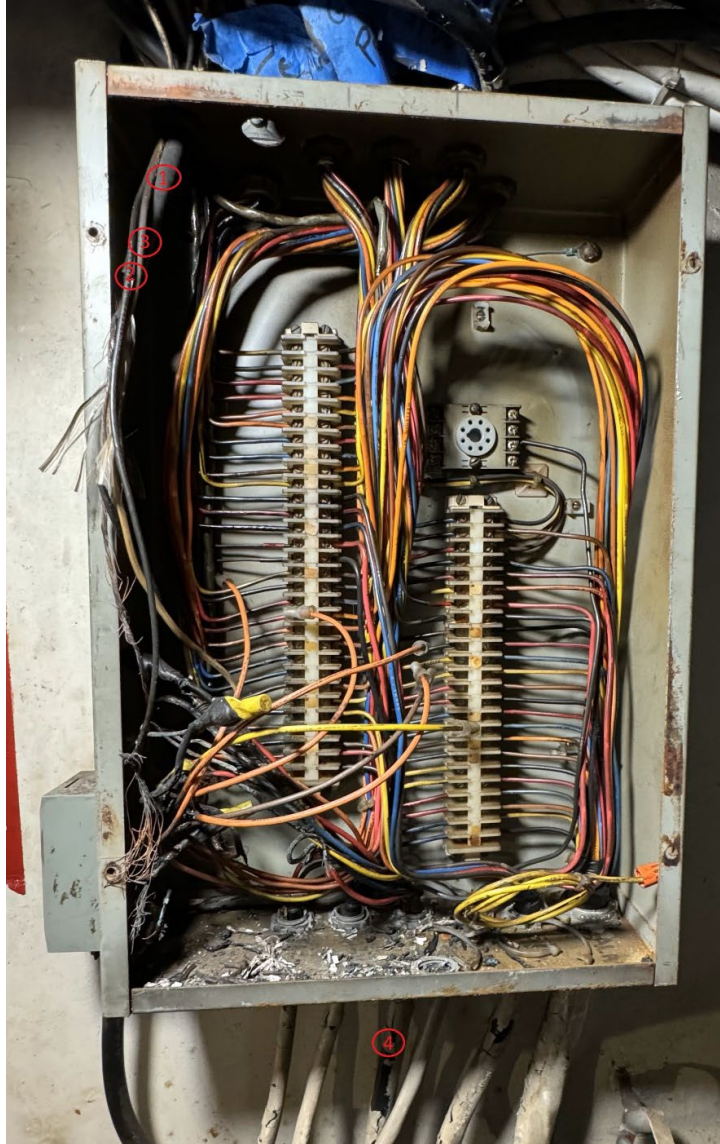


Photo 1- “Alarm Panel” located in the engine room Port side, mounted on the forward-facing side of Tonnage frame 60.



Photo 2- Port Main Engine starting batteries and the remains of Wire 1 Located just off centerline port between BH66 and FR64

Reference Photo 1 and 2

- Photo 1, Wire 1- This is the suspect wire that was found to be melted by means of a short circuit. It was found to have melted inside and outside of the “Alarm Panel”. This wire was reported by the shipyard crew to have been routed from the “Alarm Panel” to the Port Main Engine starting batteries where it was connected to the batteries and was not fitted with circuit protection and showed signs of melting throughout its length. Photo 2 shows the remains of Wire 1 that was found in the battery box. This wire was then connected to the multiconductor Wire 4 inside the “Alarm Panel”.
- Photo 1, Wire 2- This wire was also found to be melted inside and outside the “Alarm Panel” This wire was reported by the shipyard crew to have been routed from the “Alarm



Panel” to the Port Main Engine starting batteries where it was connected to the batteries and was not fitted with circuit protection and showed signs of melting throughout its length. This wire was then connected to the multiconductor Wire 4 inside the “Alarm Panel”.

- Photo 1, Wire 3- This wire was for an intercom system and was still intact and was routed to the Engine room entrance trunk where it dead ended and not connected to anything. We have reason to believe that there was an intercom device mounted in this area at some point. This wire is connected to multiconductor Wire 4 in the “Alarm Panel”. This wire’s significance is that it proves the identity of the multiconductor Wire 4 in the pilot House.

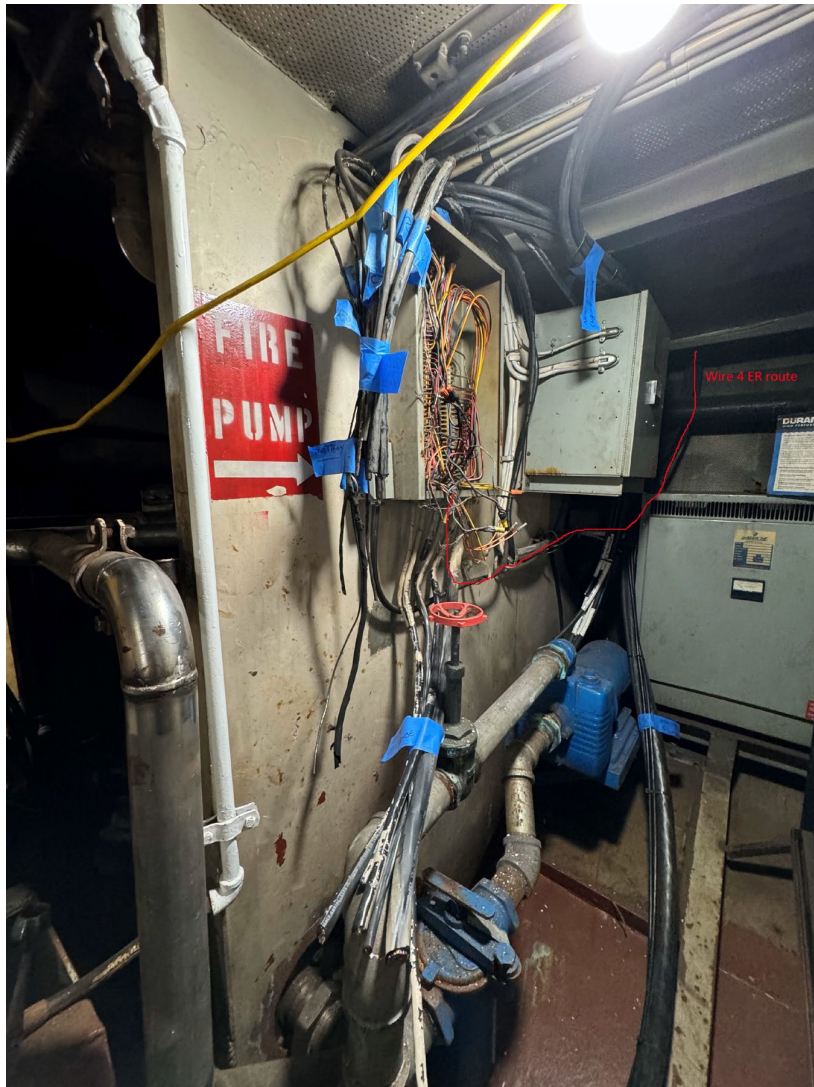


Photo 3- Showing the “Alarm Panel” and route of Wire 4

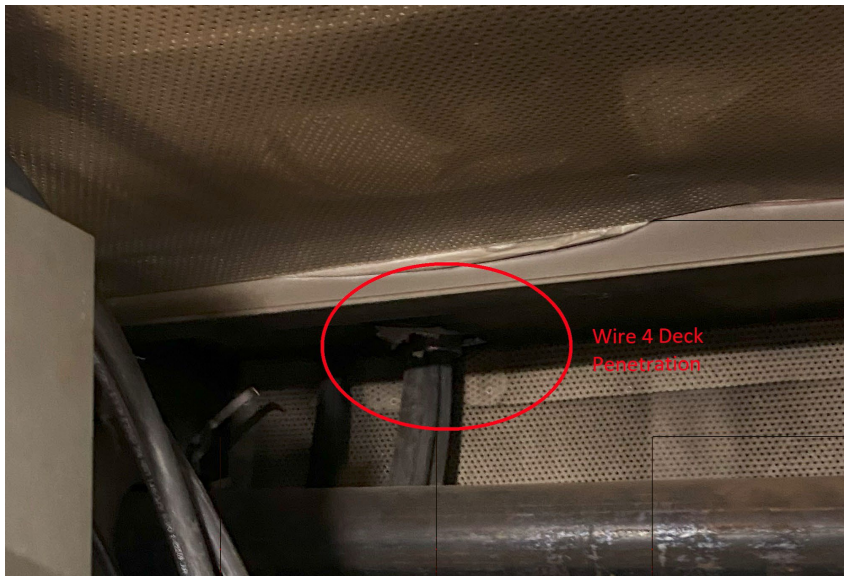


Photo 4- Zoomed version of photo 3 showing the deck penetration of Wire 4



Photo 5- Showing the route of Wire 4 and the origin of the fire. Port side Outboard between FR57-60





Photo 6- Showing the route of Wire 4 in the overhead of the main deck  
Connecting to Photo 5.



Photo 7- Showing Wire 4 where it terminates under the console in  
The pilothouse.

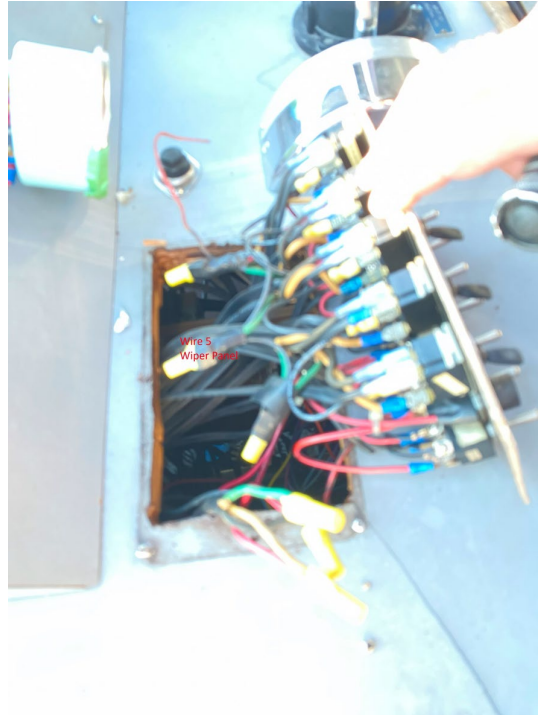


Photo 8- Showing Wire 5 terminating at the windshield wiper Control panel.

Reference Photo's 3-7

- Photo 3 shows where Wire 4 leaves the “Alarm Panel” in the engine room on it way up to the pilothouse.
- Photo 4 shows where Wire 4 penetrates the engine room deck head and enters the main deck space.
- Photo 5 shows where Wire 4 comes into the main deck space entering through the deck inside of the port side outer superstructure bulkhead between FR's 57-60, then leads forward and up through the column dividing the windows to reach the overhead.
- Photo 6 is an extension of photo 5 showing where Wire 4 continues through the exterior portside superstructure bulkhead into the overhead and through a deck penetration to the second deck leaving the space on its way to the pilothouse.
- Photo 7 shows where wire 4 terminates in the pilot house and feeds wire 5 which continues over to the windshield wiper panel photo 8 where it is providing power to the windshield wiper system from the port main engine starting batteries. You can also see wire 6, which is an intercom wire.



Photo 9 Wiper Panel



Photo 10 Wiper Panel with Fuses

#### Reference Photo's 9 and 10

- Photos 9 and 10 show the wiper panel and fuses. The fuses were not blown show that the short must have been downstream prior to the panel and not after the panel. The crew of the vessel would have to be questioned about whether or not the system was functioning prior to the casualty.

#### Conclusion

Wires 1,2,4 and 5 supplied power to the windshield wiper system located in the pilot house from the port main engine starting batteries in the engine room. The connection to the battery did not have circuit protection to protect the wires from short circuits and since the wire run was not protected by circuit protection and the route in which the wire made its way to the pilot house was not in the vicinity of the origin of the fire, it is safe to say that Wire 4 located in the main deck exterior superstructure bulkhead was damaged when the fire spread causing the short which burnt the wires in the engine room. There for the burnt wires in the engine room were a result of the fire not the cause.