Hits 13, 14 and 15 – Radar Plot and Transverse Passages

From the BuShips damage report:

> 27. Three hits estimated to have been 8-inch AP were made in the starboard bulkhead between frames 83 and 85 from 5 to 8 feet above the third level above the house top. These projectiles ripped through the transverse passage and the radar plot then out the port side, demolishing the top of the port spray shield between frames 83 and 86. Bulkhead 84 had a 30 by 60-inch hole. The port longitudinal structural bulkhead was perforated by at least five holes about two feet in diameter. All equipment and instruments in radar plot were demolished and a fire was started. In spite of the extensive damage there was little evidence that these projectiles detonated.[62]

South Dakota's time line in her action report describes this hit as follows:

> [From "Chronological Log of the Battle" section of Action Report]
>
> 0057 . . . Enemy hits in vicinity of radar plot. Shell through radar plot immediately after this killed Ensign Canfield. Steam line ruptured just outside of radar plot by 6-inch shell which penetrated into radar plot on port side and demolished it. Another shell very near same place immediately followed.[63]

South Dakota's action report describes the damage as follows;

> <u>08 Level</u>
>
> Watertight door and door frame 08-82-1 blown out.
> 1-10" and 1-12" shell hole through starboard longitudinal bulkhead at frame 83. (25 pound STS plate)
> 3 bulkhead stiffeners and supporting beams severed, twisted. Frames 83-84 starboard.
> 1- 36", 1-8", and 1-6" shell and shrapnel holes through longitudinal centerline bulkhead.
> 1-4" x 6" shrapnel hole in deck plating, frame 84 centerline.
> 1-30" x 60" hole in transverse structural bulkhead 84.
> 4 bulkhead stiffeners and supporting beams on transverse bulkhead severed.
> All sheathing and insulation blown out.
> Forward starboard yardarm and supporting brace cut.
> 1-18" hole through port bulkhead [Author's Note – Actually starboard bulkhead] at frame 84.
> 4" hole through watertight door at frame 84 starboard.
> 1-8" hole in structural bulkhead starboard 5' above deck level radar plot.
> 1 section of structural bulkhead 8' by 10' blown out between frames 85-87 port, radar plot.
> All sheathing overhead and bulkheads torn by shrapnel, radar plot.
> Exhaust vent duct demolished radar plot.
> Access door to passage B-103L and radar plot missing.
> Starboard access ladder from 8th to 9th level demolished.
> Entire longitudinal section of wind and spray shield and stiffeners between frames 84-87 demolished.
> Catwalk around secondary Conn., 2-4" shrapnel holes through deck plating, centerline.

[62] BuShips War Damage Report # 57, pages 7and 8
[63] USS *South Dakota* Action Report, page 7

19’ protective casing around radio direction finder installation under overhang of catwalk completely demolished.
3-3” shrapnel holes through after section wind and spray shield starboard.
2-3” shrapnel holes through stem.[64]

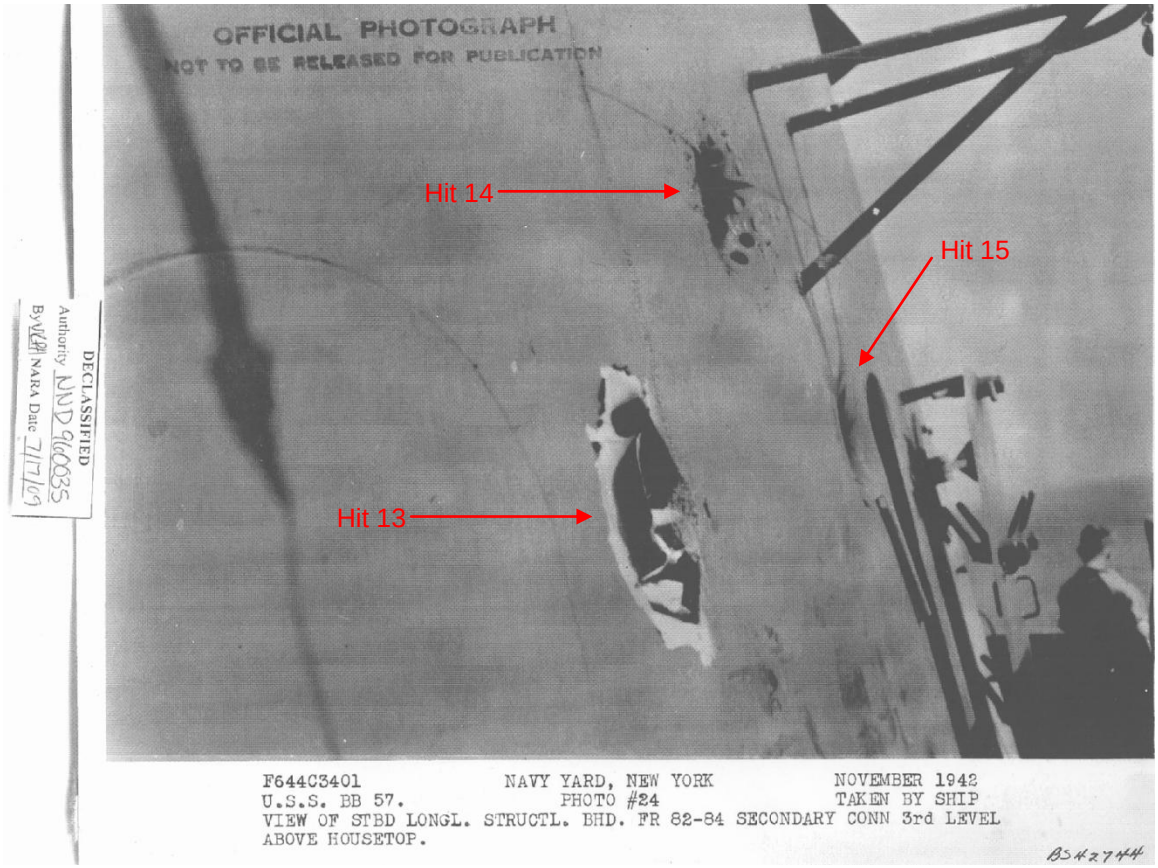

Figure 42 – Hits 13, 14 and 15 – Entry Holes – View A

[64] USS *South Dakota* Action Report, Enclosure D, pages 7 and 8

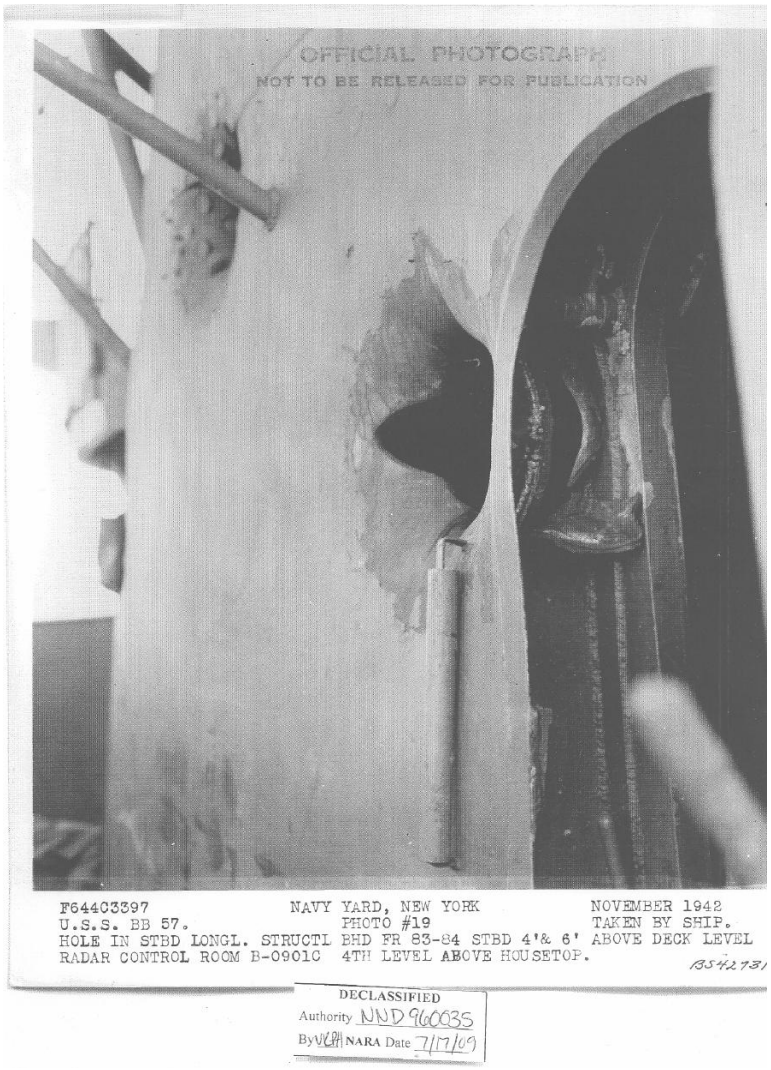

Figure 43 – Hits 14 and 15 – Entry Holes – View B

Figure 44 – Hits 14 and 15 – Reverse view of Entry Holes

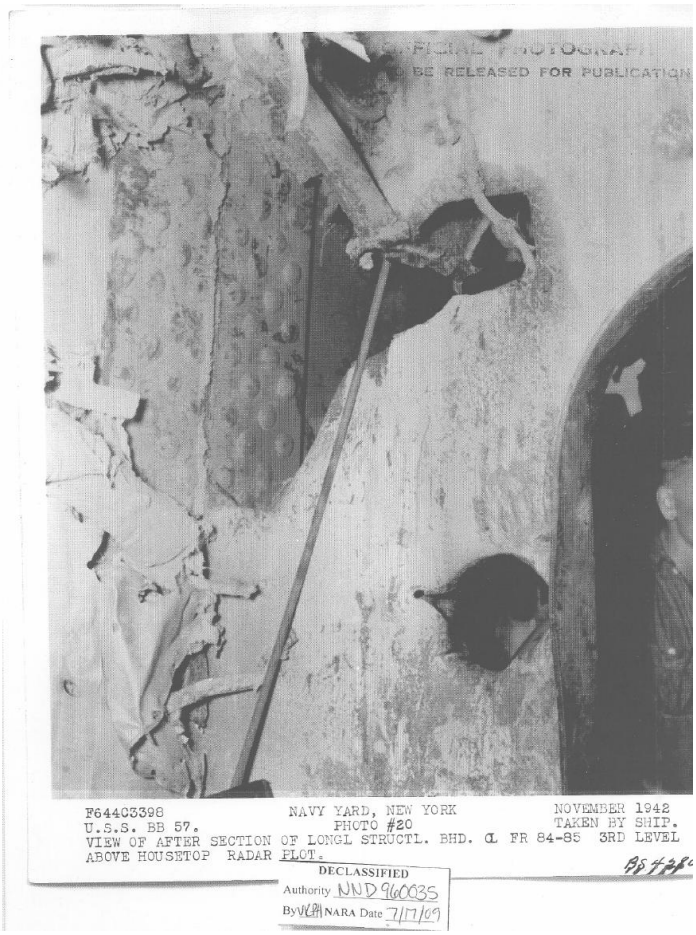

Figure 45 – Hits 13, 14 and 15 – Internal Damage – View A

Figure 46 – Hits 13, 14 and 15 – Internal Damage – View B

Figure 47 – Hits 13, 14 and 15 – Internal Damage – View C

Figure 48 – Hits 13, 14 and 15 – Internal Damage – View D

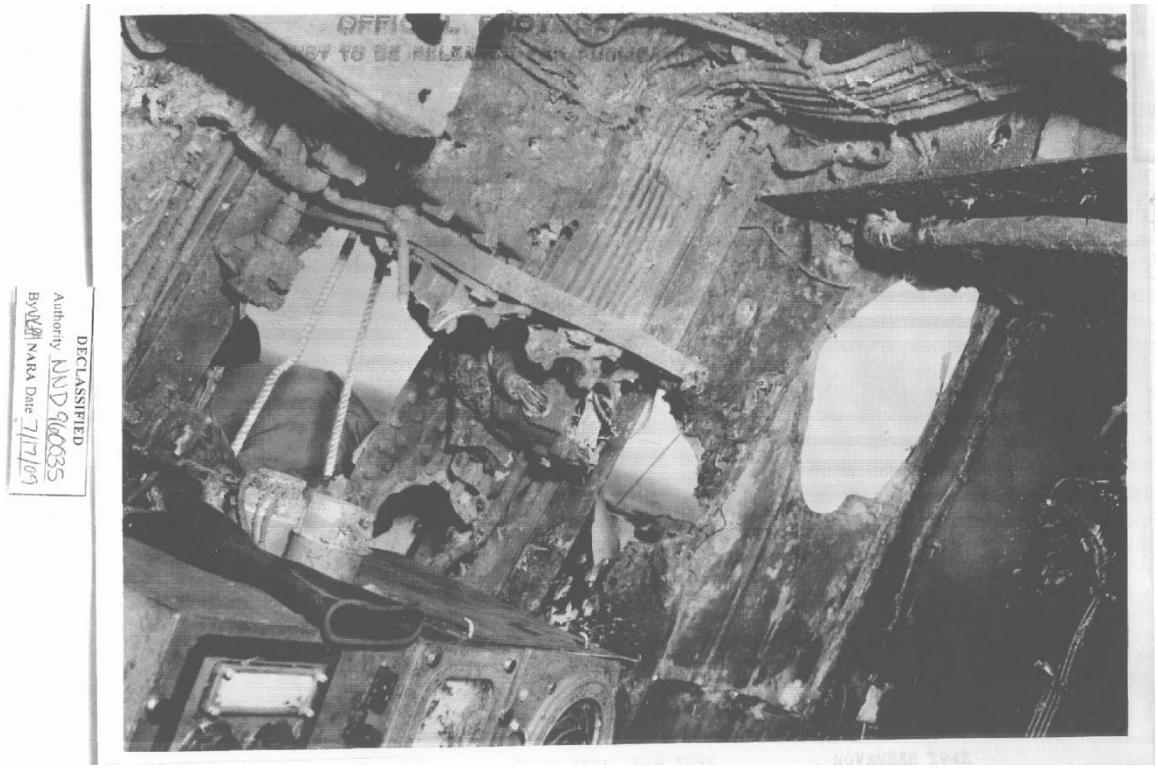

Figure 49 – Hits 13, 14 and 15 – Internal Damage – View E

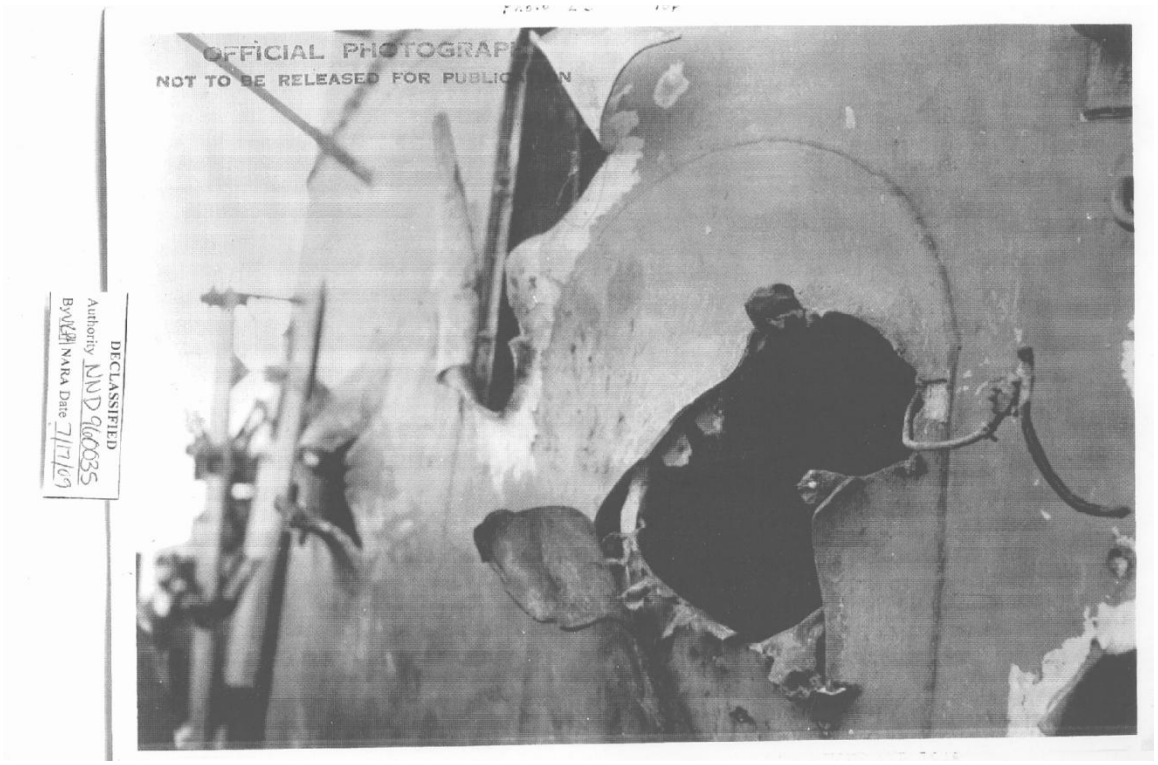

Figure 50 – Hits 13, 14 and 15 – Exit Holes – View A

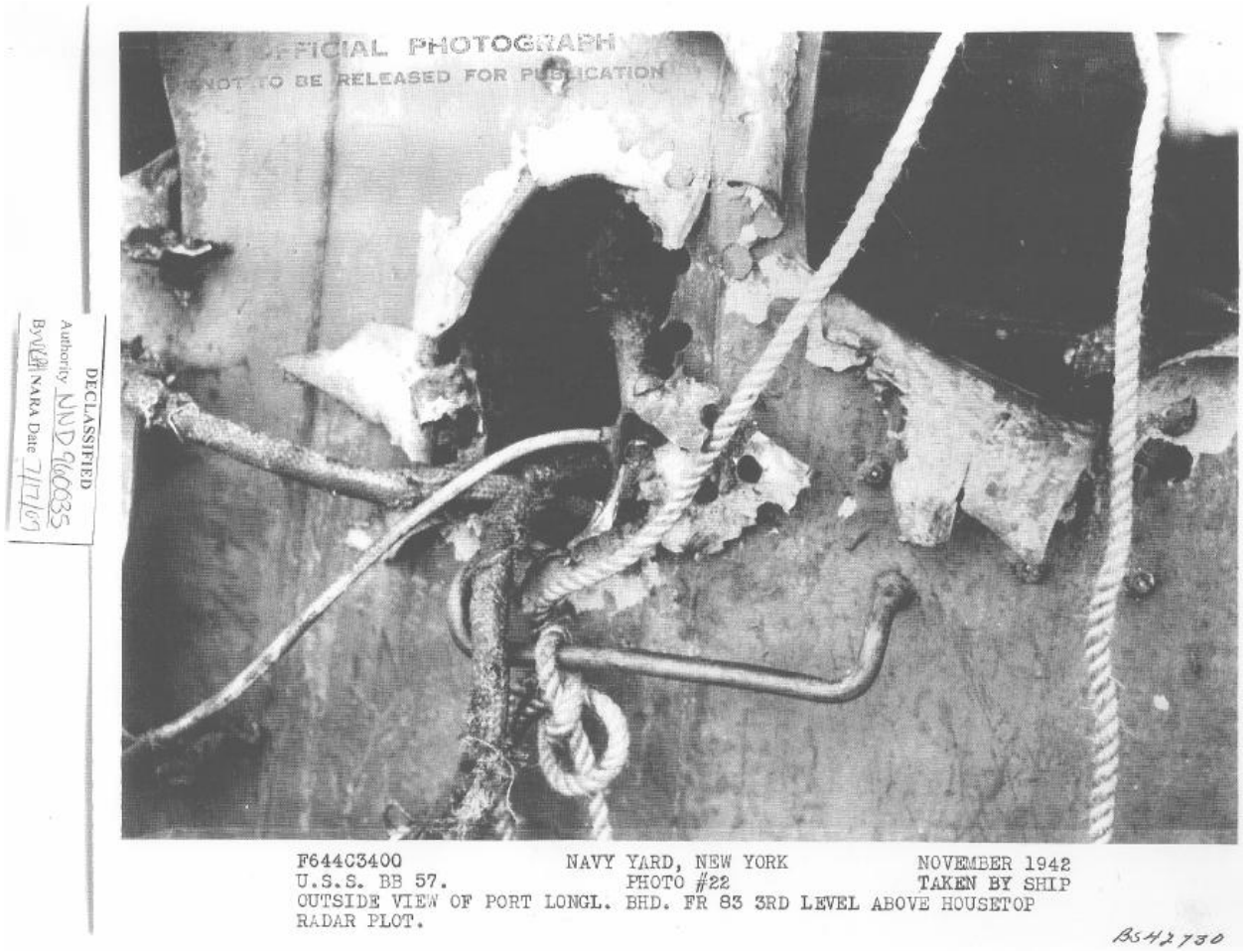

Figure 51 – Hits 13, 14 and 15 – Exit Holes – View B

Figure 52 – Hits 13, 14 and 15 – Exit Holes – View C

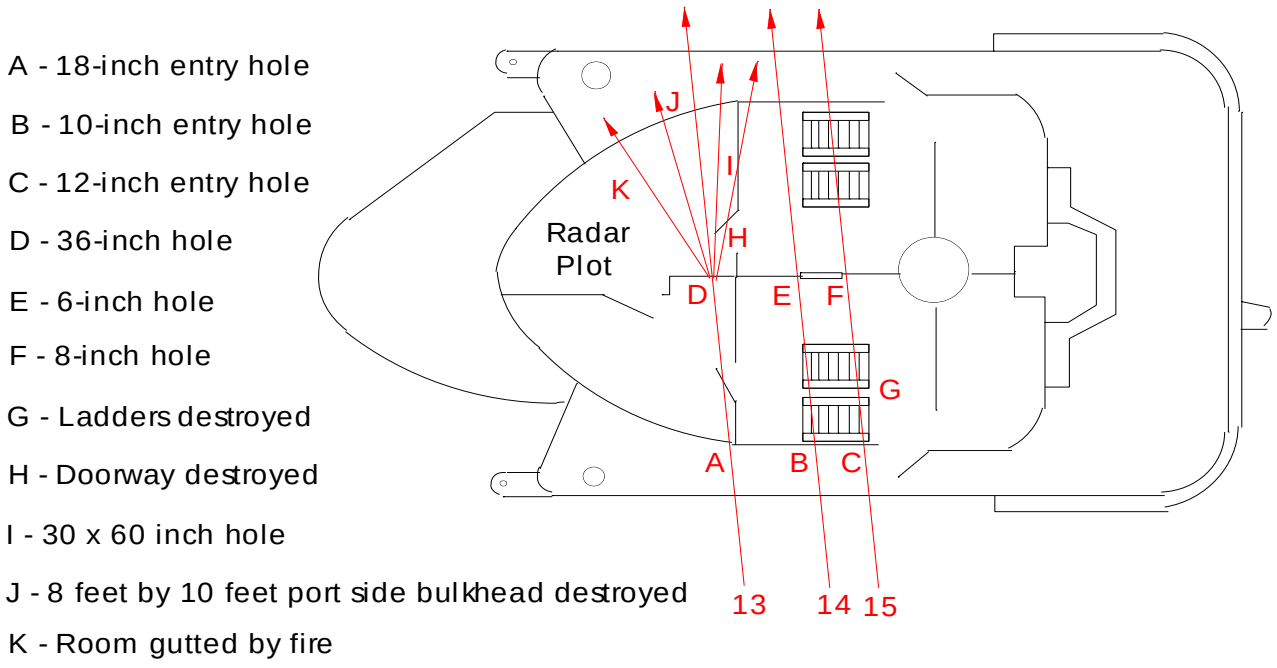

Figure 53 – Hits 13, 14 and 15 – Paths of the Shells and Fragments

Analysis of impact

The first inconsistency about BuShip's estimate of three 8-inch shells is that these hits are recorded long before the heavy cruisers opened fire. *South Dakota* entered this damage into her logs at 0057, however the damage actually occurred a few minutes earlier at 0052-53, which is the time that *Kirishima* first opened fire. At this same time, *South Dakota* recorded her first sighting of three ships at 11,000 yards and logged that she was taking hits to her foremast.[65] Between 0052 and 0054, *South Dakota* veered south and this change in course was documented by USS *Washington* as having occurred at 0054.[66] This places *South Dakota* as being broadside to *Kirishima* with her stern towards the light cruisers. The *Takao* will not open fire until 0102 and *Atago* not until 0103, so the estimate of 8-inch shells becomes impossible. In addition, the damage seen is not consistent with AP ammunition. These hits were eye-witnessed by Admiral Kondo and LCDR Ikeda as having occurred when *Kirishima* opened fire at 0052. Finally, what is entered into *South Dakota*'s logs also matches Ikeda's description of how *Kirishima* opened fire: Ikeda said that his secondary battery fired first, quickly followed by the main battery. He saw two hits strike the target ship in the foremast from this salvo, which closely matches the time recorded in *South Dakota*'s log.[67]

In looking at the entry holes shown in Figure 42, the hole created by Hit 13 is visibly larger than the other two and is 18 inches in diameter. Referencing the sketch in Figure 53, this impact occurred at point (A) and this shell then blew a 36-inch hole in the centerline bulkhead (D) and began to break up. The door

[65] USS *South Dakota* Action Report, page 7
[66] USS *Washington* Action Report, page 10
[67] Admiral Kondo as quoted in *The Pacific War Papers: Japanese Documents of World War II* and LCDR Ikeda as quoted in *Shikikan-tachi no Taiheiyō Sensō* [The Pacific War as Described by the Senior Officers]

leading to radar plot (H) and the passageway were blown out. Shell sections and fragments then hit the transverse bulkhead (I) at Frame 84, blowing a 30 by 60 inch hole. This projectile continued to disintegrate, breaking up completely and exiting through the port side in an area of 8 by 10 feet (J) and creating at least five holes in this area that are over 24 inches in diameter. The photographs for this damage show circular but also irregular shaped exit holes, a characteristic that indicates that the shell broke apart. Although this shell did not explode, it did start a large fire which gutted this compartment. In addition, the surrounding catwalk, wind and spray shields and the radio direction finder were all showered with shrapnel, causing many small holes.

Shrapnel also blew out the deck plating of the 09 level above the radar plot, creating one 12 x 18 inch hole in the deck plating at Frame 84 on the 09 level and an 18 x 36 inch hole through the deck plating at Frame 84 of the port radar transmitter room. The access ladders going between the 09 and 010 levels were also demolished.

This damage is consistent with two 6-inch shells and one 14-inch Type 3 incendiary shell. The nose fuze on the 14-inch Type 3 and the long fuze rod that ran down the middle of the shell to its base would have snapped under impact, preventing the detonation of the small explosive charge. As the shell ripped through bulkheads, the wood nose and thin sides of the shell would be torn away and the shell would disintegrate, throwing its shrapnel in every direction like a shot gun blast, taking out the doorways and bulkheads in its path. Some of the 3-inch long incendiary tubes ignited, probably low-order because the shell did not detonate properly, which started the fire within the compartment. From Admiral Kondo's point of view, it looked as if the shell had blown off the top of *South Dakota*'s main mast. The display of the incendiary tubes igniting from this hit must have appeared to the eyewitnesses on the other ships like a giant firework. Two nights previously, two 14-inch Type 3 shells had struck the heavy cruiser USS *San Francisco* and these shells also broke apart and started low-order fires in the areas they went through. In her case, the shells passed through the lower superstructure and upper hull and hit the forward barbette such that most of the incendiary tubes were trapped inside the ship, causing much larger fires. In *South Dakota*'s case, it appears that much of the contents of the Type 3 shell passed clean through the ship and went overboard, leaving relatively few tubes to ignite or be recognizable during the clean-up afterwards.

This damage confirms what is documented in the Japanese action reports; that *Kirishima* was not only the first ship of the Bombardment Group to open fire, but that she also hit *South Dakota* with her first salvo.