

DECLASSIFIED

Authority NND 803 073

OPININIONS OF AERIAL OBSERVERS

Observations from Plane made by Comdr. Hoffman, USN., Lt. Comdr. Aldrich; Combat Pilots, Lts.(jg) Lingle and McCray; and Sp(X)Sc Clark - USN. --

Time - Between the hours of 1330 and 1830, Monday, 2 October 1944, from a PBY-5A.

1. The plane took off from East Field, N.A.S., Norfolk, Va., at approximately 1330. First contact with the target ships was made at 1428. The wake was visible first, the silhouette of the ships appearing in the following order: Ship 1(Admiralty), Ship 3(USN Pattern) and then Ship 2(USN Graded). The ships were down sun and appeared light against a dark sea. Altitude - 200 ft.
2. The weather throughout the whole time was clear with pronounced haze.
3. At the time of first contact, the relative positions of the ships were - 3, 1 and 2. They were making good time and throwing a heavy wake. The plane circled close around the ships and then made another snoop run with the ships in an up-sun position.
4. Contact with the ships on this run was made at 1454. Ships dark against a light sea background. Ships 1 and 3 were seen in conjunction from the angle of the planes approach and making a larger dark spot, became visible before Ship 2.
5. Another run was made from across-sun angle. Ship 1 showing up first at 1516 (hrs.)
6. At 1600 the plane made a turn close astern Ship 3. At this time, the relative position of the ships was 1-2-3 and they were sailing in a generally easterly direction. They were down sun from the plane and while Ship 1 was approximately twice the distance from the plane as Ship 2, it was plainly visible. Ship 2, was difficult to pick up. Altitude - approximately 200 ft.
7. A measured snoop run was made at a 200 ft. altitude from the down-sun angle. The target ships were picked up at a range of 8.1 miles. The order of appearance was: Ship 1, Ship 3 and then Ship 2. The plane's course was 066. Time of contact 1638.

Note: Ship 1(Admiralty), Ship 2(USN Graded), Ship 3(Pattern)

8. In the measured run with the ships in an up-sun position, the ships appeared simultaneously at a range of 5.8 miles. The plane's course was 240 M. The altitude 200 ft. Time of contact - 1641.
9. The measured cross sun run was confused by the presence of other ships and no clear results were obtained. This was also true of the run made at a 2000 ft. altitude.
10. At a 200 ft. altitude the course deception factor of the pattern was still strong. At 2000 ft. there was no distortion at all.
11. Ship 2(graded) was the best under most of the conditions met during these observations, but at a 2,000 ft. altitude when the distance between the plane and the ship was increased before they dropped out of sight, the pattern camouflage ship was more difficult to pick up.
12. The deck paint 20% Gray on Ship 1(Admiralty), was much more visible than 20-B. -(5%) on Ships 2(USN Graded), and 3(USN Pattern). The deck pattern on Ship 3(USN Pattern), was never visible.
13. Due to the fact that it was impossible for all of the observers to be in a position to make simultaneous observations, the keeping of individual records was not practical, so a scheme of composite record had to be adopted.
14. There was no appreciable difference in the effectiveness of one side of any of the ships over the other. The blue stripe on the starboard side of the Admiralty design was not in a strong enough contrast to be seen. The plane left the area of operations at about 1700 ~~hrs~~ and landed at about 1830 (hrs.)

SUMMARY -

1. Under the conditions encountered during these tests, Graded Measures 12 and 22 were least visible at low altitudes. At higher altitudes the difference in effectiveness between the graded measures and pattern camouflage became less marked and at 2000 ft. the pattern measure was less visible than the graded system. This was probably due to two factors - i.e. - the distance at which the ships remained visible became sufficient to allow the pattern to resolve into a single color which was darker than the haze gray on Measures 12 and 22 -- and that the angle at which the ships were picked up was high enough to bring a large part of the dark deck into view. At all times the Admiralty design was the most easily seen.

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2. There was no difference between the three ships when in an up sun position. All ships appeared as a black silhouette against a light sea background. The lighter deck color of the Admiralty design did not blend as well with the sea background as 20-B.

3. At low altitudes the pattern camouflage caused considerable confusion as to target angle.

4. At high speeds, the wake thrown by the ships was the first thing to be seen. At the reduced speeds employed during the exercises, the wake was not particularly noticeable.

5. Due to the haze condition, it was never possible to see the ships against a sky background from any altitude at which the plane flew.

AERIAL PHOTOGRAPHS

The following aerial photographs were taken on 2 October 1944, from 1445 to 1730. All were made at an altitude of approximately 150 feet at ranges varying from 100 yards to about 5 miles.

Maximum Visibility

Ships seen down sun - 8.1 miles
Ships seen up sun - 5.8 miles

Weather

Clear, haze

Camera

Fairchild K51
Lens - BL F1.45/8-1/4" Focal Length.
Shutter - 1/500th Sec.

Film

Parachromatic Super XX

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BLADE 131248

DE-355

Measure 32/30

FIG. 28

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