

Supreme Commander of the Luftwaffe

March 1943

Command Staff Ic (Sea)/Main Photographic Office (of the) German Air Ministry (RLM = Reichsluftfahrtministerium)

The Identification of Merchant Ships within a Convoy

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Translated by Ulrich Rudofsky, September 1, 2009.

I 126
Oberbefehlshaber der Luftwaffe
Führungsstab Ic(See)/Hauptbildstelle RLM

März 1943

TM/71

Das Erkennen der Handelsschiffe im Geleitzug

Nur für den Dienstgebrauch!

The Identification of Merchant Ships within a Convoy.

The certain identification of a ship's type from high altitude on small scale aerial photographs poses difficulties, particularly when the composition of the convoy is unknown.

Aerial photographs of convoys from the Mediterranean provide important insights that make a more confident interpretation of the ship types possible.

The sailing orders of a convoy depend on nautical as well as tactical considerations. The methods of course alteration and changes in formation are more or less standardized; for example, based on the positions of individual ships in the convoy, merchant ships and security vessels can be readily distinguished.

Clues for identifying the composition of a convoy.

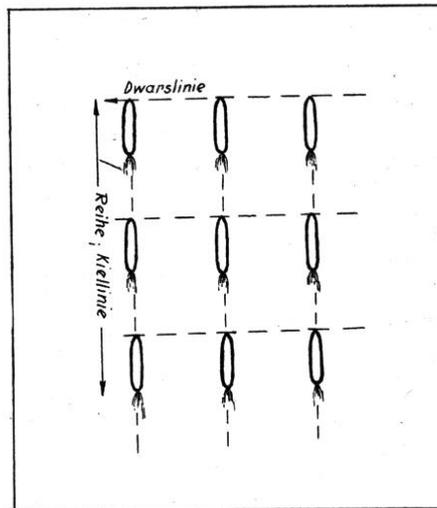
I. Cruising in formation.

Identification characteristics:

1. Based on formation

The merchant ships in a convoy sail in several columns; ships in each column normally follow in the wake of the lead ship of the column, (when they are not zigzagging and no aerial attacks are imminent). The individual rows sail athwart, i.e. the convoy leader leads from the center row (in even-numbered columns it is the right one of the two center columns), and the lead ships of the other columns follow athwart of the leader,

one half of the rows on the starboard side, the other on the portside.

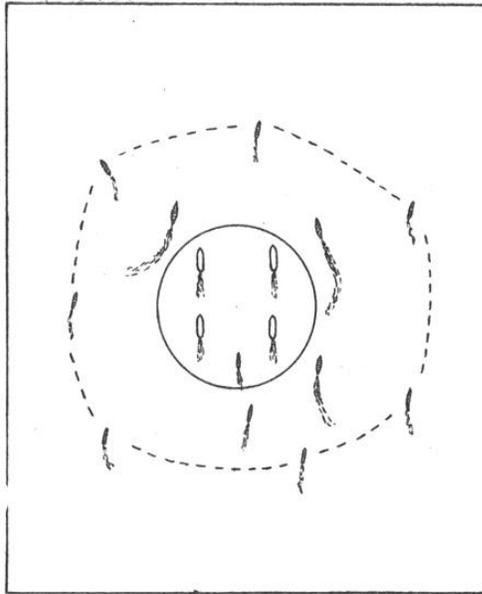


Legend: *Reihe* = column, *Dwarslinie* = athwart line

2. Based on the position in the convoy.

In association with the security vessels, the merchant ships always form the nucleus of the convoy. Heavily guarded convoys may even have an inner and outer security belt. While the outer security ring sails in formation (as a partial or complete belt); it is generally made up of destroyers and destroyer escorts. The inner security ring may consist, in addition to light units, also of battleships, aircraft carriers and cruisers.

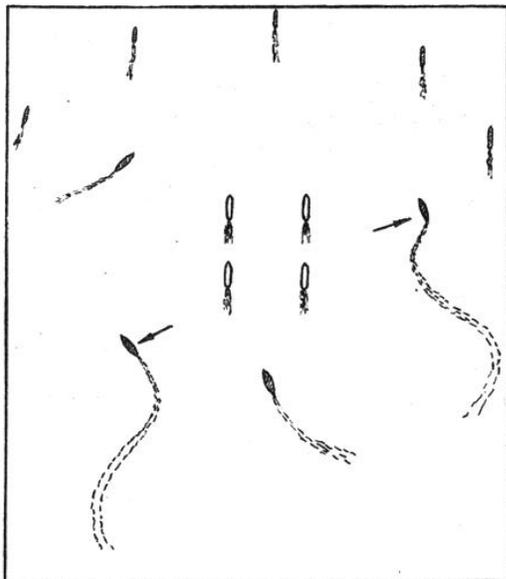
Some of the smaller units may move about the inner ring on various courses to provide U-Boat security for the merchant ships.



3. Based on screw wash/wake.

At cruising speed the wakes do not provide useful indications as to the type of ship, since the merchant ships as well as most of the security vessels sail at similar speeds. An exception is presented by the screw wash of some individual security vessels that

may sail about the convoy at high speed with constantly changing courses.



Page 3

Interpretation of the aerial photograph: (see attachment 1)

In the following aerial photo, 7-8 of the 32 ships can be identified as merchant ships based on the characteristics mentioned above.

A more precise differentiation, i.e. a fine tuning by using their position in the cruising formation is not possible, because in this case the larger units, e.g. in this aerial photo the “King George” decoy, is replacing a merchant ship at the head of the column. An additional difficulty is that on occasion merchant ships may veer away from the convoy formation due to engine problems or other failures.

Interpretation based on position. (see below)

-  7-8 merchant ships
-  23-25 security vessels

Interpretation based on other characteristics. (see below)

- | | |
|------------------------------|---------------------------|
| 1=1 tanker | 5=8 cruisers |
| 2=7 freighters | 6=9 destroyers or escorts |
| 3=2 auxiliary warships | 7=4 <u>patrol boats</u> |
| 4=1 battleship mock-up/decoy | 32 units |

I. Cruising Formation

See Attachment 1. Identification and Request No. (Kenn- und Anforderung Nr.) I/CIV/1 8005

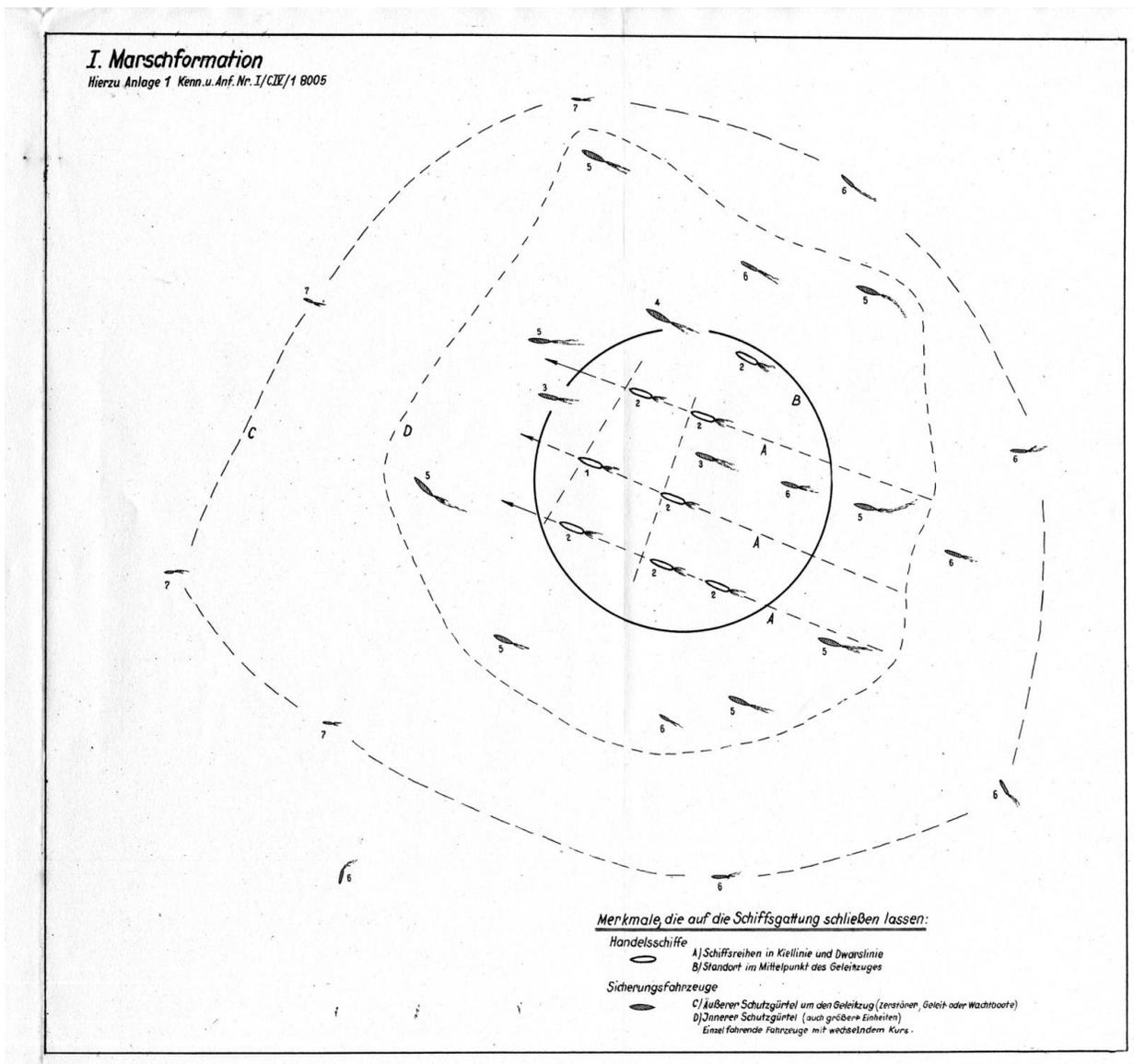
Characteristics that allow identification of ship type: (lower right)

Merchant ships

A. Ship travel in wake line and athwart line. B) Position in the center of the convoy.

Security Vessels

C) Outer security belt around the convoy (destroyers, escorts and patrol boats. D) Inner security belt (larger units). Individual vessels on various courses.



B. Behavior during air raids

In case of an air raid, a command such as this may be given: "Go to full speed. Disperse in star-burst pattern ." At the appropriate signal, the ships will operate in the following manner: The merchant ships will spread out from the center of the convoy at full speed according to the sketch below.

1. Ships at the head portion of each column will steer ahead and away from the main course.
2. Ships at the aft portion of each column will reverse course and deviate from the main course
3. Ships at the middle portion of each column will spread out to both sides of the main course.

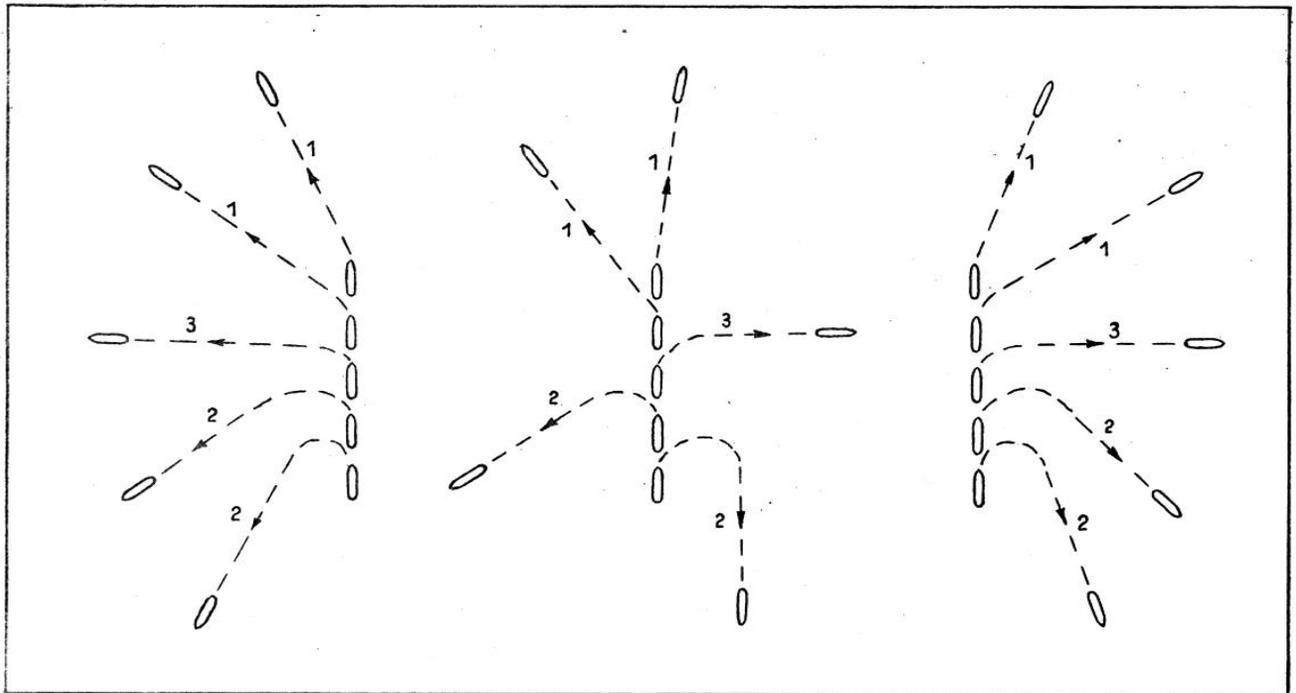
During the execution of this plan, ships will maneuver according to their own judgment in order to spread out as fast and far as possible.

Subsequent behavior.

As soon as the air raid is over, the ships resume the main course and join the previous formation as fast as possible.

Air raid: Convoy disperses in a star-burst pattern.

Luftangriff: Geleitzug läuft sternförmig auseinander.



Interpretation of the aerial photograph: (see attachment 2)

The presented aerial photos of the air raids show that a “star-burst dispersion pattern ” (see sketch on page 4) is not always executed. The sketch of scenario 2 shows that the ships of the aft portion of each column would have to steer an almost reciprocal main course, but this has not been observed in the aerial photo.

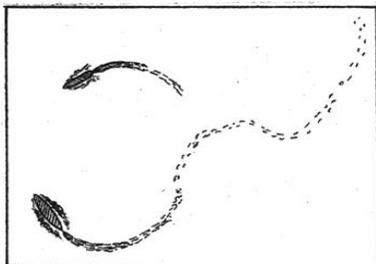
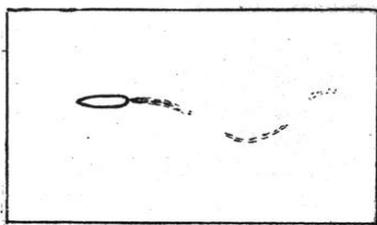
Actually, it seems that during air raids the attempt is made to maintain the main course, while merchant ships assume a zigzag course in a somewhat spread out cruising formation.

Based on the presented aerial photos, definitive rules for this pattern of sailing cannot yet be established.

Ship Type characteristics during air raids.

The identification of ship types during air raids is often based only on screw wash (wake). It should be noted that in Mediterranean waters screw washes (wakes) generally appear broader than in other regions of the seas.

1. When merchant ships disperse at full speed during air raids, their wakes are relatively elongated, but they are narrower when compared to cruisers and destroyers (they are not wider than the ship itself). During course changes (zigzagging) the wakes appear to be interrupted.
2. Cruisers and destroyers that sail at full speed and often on diverging course changes leave a long, very visible and continuous wake. The ship itself is often surrounded by spume.



Interpretation based on wakes

7-8 merchant ships



Rest are security vessels



Interpretation based on other characteristics

1=1 tanker

2=6 freighters

3=1 patrol boat

4=1 battleship decoy

5=8 cruisers

6=8 destroyers or destroyer escorts

25 units

- a. Strike on destroyer escort
- b. Strike on decoy

II. Luftangriff

Hierzu Anlage 2 Kenn.u.Anf.Nr.I/CIV/1 8006



Merkmale, die auf die Schiffsgattung schließen lassen:

Skizze und Erläuterung siehe Seite 5

II. Air Raid

See Attachment 2, Identification and Request No. I/CIV/1 8006

Characteristics that allow ship type identification: See sketch and explanations on page 5

III. (II. [sic]) Operations during the assembly of a convoy:

The lead ship of each column must assume their assigned convoy cruising positions near the convoy command ship as soon as the order of ships has been established. The other ships of each column take up their position behind the lead ship according to their assigned order. As a rule, convoys depart from their marshalling area under cover of darkness.

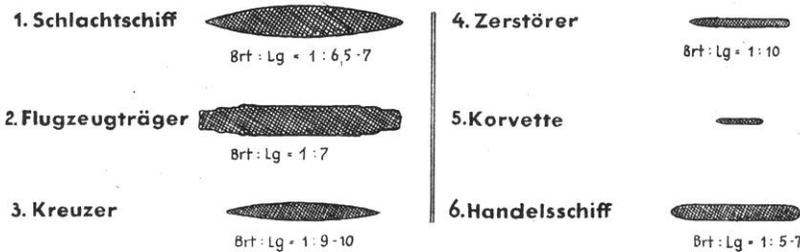
Evaluation of aerial photo: (see attachment 3)

The ships presented in the aerial photo can be considered as being in the process of convoy assembly based on the following:

1. The merchant ships are close to the harbors of the Algerian coast.
2. Since there are only a minimal wakes seen, they are at low speed.
3. The formation of the convoy has not yet taken place. The ships have simply associated as a group in order to offer a minimal target for U-Boats.

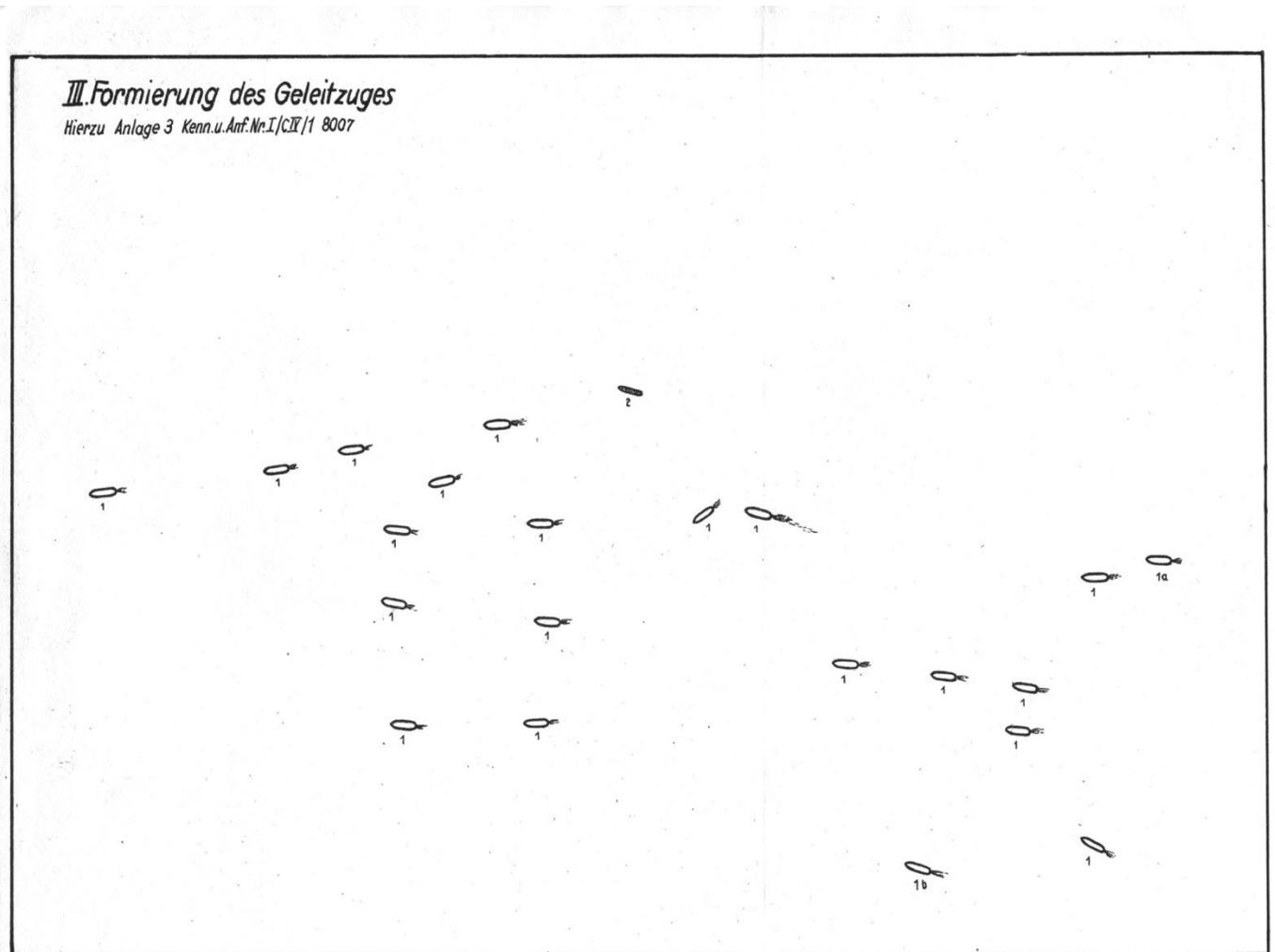
Characteristics that indicate ship type: The ships can be identified and evaluated by the following internationally recognized type characteristics:

1. Battleship
 2. Aircraft carrier
 3. Cruiser
 4. Destroyer
 5. Corvette
 6. Merchant ship
- Br : Lg (Breite : Länge) = Beam : Length ratio



III. Formation of the convoy

See attachment 3. Identification and Request No. I/CIV/1 8007



Interpretation based on international type characteristics.

1=21 merchant ships

2=1 destroyer

For the detailed interpretation of this aerial photo.

The only indication of the scale of photo and, therefore, the size of the ships is the destroyer (2) that was recognized in this picture. It was not identified by class criteria, but, in order to get a rough idea, it was assumed to be about 100 m long.

The ships 1a and probably 1b (tankers) are equipped with torpedo nets.

Concluding remarks.

In addition, further important conclusions of the intentions of the enemy can be drawn from the details of the composition of a convoy based on the aerial photos.

Example:

A minimally protected convoy running west from Alexandria is presumably headed with supplies for the nearby harbors of Cyrenaika.

If the convoy were very heavily guarded, one can assume that it carries supplies for Malta or is headed for a breakout through the Strait of Sicily.

Luftbilder:

Anlagen 1-3

Kenn. u. Anf. Nr. I/CIV/1 8005

Kenn. u. Anf. Nr. I/CIV/1 8006

Kenn. u. Anf. Nr. I/CIV/1 8007

Aerial Photos

Attachments 1-3

Identification and Request Number / Kenn-u. Anforderung Nr. (as shown above)

8 Kreuzer
9 Zerstörer oder Geleitboote
4 Wachtboote
1 Schwachtschiff-Anrappe
1 Tanker
1 Frachter
2 Hilfskriegsschiffe

32 Einheiten

ANLAGE 1
Kenn. u. Anr. Nr. I/CIV/1 8005



NT 2040
0 3 4
= 201,23

Aufgen.: 15. 6. 42
Uhrzeit: 14. 40
☒ 3425/23 ost
Kurs: 90°

Luftangriff auf den Geleitzug

- m* = Rauch auf Atrappe vom Treffer
- a* = 1 Treffer auf Geleitboot
(Boot brennt, weißer Qualm:
Explosionswolke
(schwarzer Qualm: brennendes Öl.

Auf dem Bilde:

- 8 Kreuzer
- 8 Zerstörer oder Geleitboote
- 1 Wachboot
- 1 Schlachtschiff - Atrappe
- 1 Tanker
- 6 Frachter

ANLAGE 2
Kenn. u. Anf. Nr. I/CIV/1 8006

Auf diesem Bilde:
20 Frachter
1 Tanker
1 Zerstörer
22 Einheiten

Aufgen. am 21.1.43, 11 10 Uhr
3724/03 Ost, Kurs 60°

9
201,13
ANLAGE 3
Kenn. u. Anf. Nr. I/CTZ/1 8007



Text on the Aerial Photos of the 3 Attachments

Attachment 1.

8 cruisers
9 destroyers or escorts
4 patrol boats
1 battleship decoy
1 tanker
1 freighter
2 auxiliary warships

Attachment 2.

Taken: 15.6.42
Time: 1440 hours
Quadrant: 3425/23 East
Course: 40 degrees

Air raid on convoy

m = smoke on decoy from hit

a = 1 hit on escort (boat on fire, white smoke is explosion cloud, black smoke from burning oil)

On the photo:

8 cruisers
8 destroyers or escorts
1 patrol boat
1 battleship decoy
1 tanker
6 freighters

Attachment 3.

On this photo:

20 freighters
1 tanker
1 destroyer
22 units

Taken on 21.1.43
1110 hours
Quadrant 3724/03 East
Course 60 degrees

