

## INTRODUCTION

**T**HE basic principle of Surface Vessel recognition as with aircraft is familiarity with the *total form* of the object observed. The true character of a ship is not determined by a single feature or features but by the familiarity we may have with the total mass of the hull and superstructure, when viewed from great distances.

As in aircraft recognition, the salient recognition characteristics are shown in their simplest form by silhouettes. If this silhouette is further simplified into its basic masses, we obtain a silhouette where the minor details have disappeared, leaving only the real recognition features. It should be noted, however, that in one important respect ship silhouettes differ from those of aircraft. With planes, all three views are of nearly equal importance for correct identification, but in ship recognition, the use of the beam, or side view silhouette, is by far the most important. If the beam silhouette is thoroughly known, the ship can be recognized from either the surface or the air. This can be proven by examining any group of aerial views of ships.

Preceding each group of vessels of each nation represented in this manual is a chart of these simplified silhouettes representing a vessel of each class. These are arranged at the same scale for ease of comparison with each other and with other ships in the same class in other navies. Large instructional charts of these simplified silhouettes are being prepared and will be distributed in the near future.

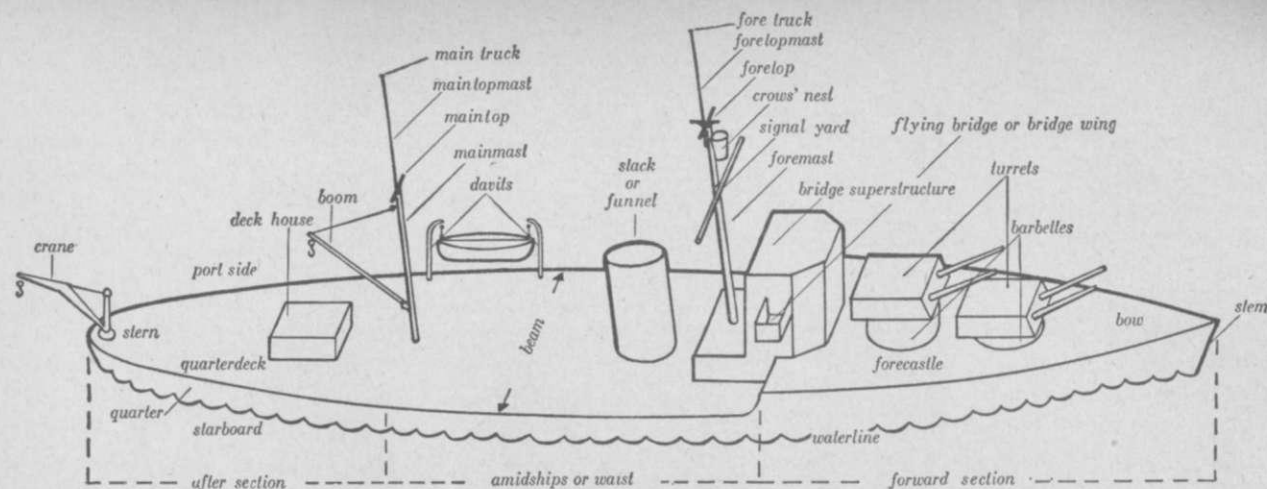
The present manual will serve as a text book in recognition courses inasmuch as it will have material, readily available, within a single cover, on all ships on the present operational list.

Sets of scale models of surface craft are available on request for supplementary instruction from the Bureau of Aeronautics for the Navy, and from the A. A. F. Training Aids Division, New York City, for the Army Air Forces. These are useful for detail examination and for various forms of realistic display on surfaces simulating water under varying light conditions, such as study of fleet maneuvers. The models are particularly valuable since they may be displayed at any angle and may be viewed from above to illustrate views of ships or groups of ships.

Motion pictures are available for a limited number of subjects and serve further to assist in recognition training.

Training in recognition of surface craft follows the same general pattern as in aircraft recognition. The principal value of the flash meter as a teaching device is that it forces the student to grasp total form as opposed to detail. It has already been indicated that this recognition of total mass is as essential for surface craft as for aircraft. Therefore, exposures of slides should be as brief as is consistent with the progress of the group being taught. While, in general, exposures will probably be at the one or one-half second rate, successful work on surface craft images has been reported at speeds up to  $\frac{1}{8}$  of a second.

## TERMINOLOGY



NOTE: Terms later defined in the text of this section have been omitted in the following list.

**ABAFT**... behind; toward stern from.

**ABEAM**... at right angles to the keel.

**AMIDSHIPS**... the middle portion of a vessel.

**ARMOR**... steel plating designed to defeat shells, bombs, or underwater explosion.

**ARMOR BELT**... band of armor extending along a ship's sides above and below water-line.

**ATHWART**... across; from side to side; transversely.

**BEAM**... extreme width of ship.

**BILGE**... curved part of ship's hull where sides and flat bottom meet.

**BLISTER**... a bulge built into a ship's side as a protection against torpedoes.

**BOOM**... a free-swinging spar used to secure boats or to handle cargo, boats or aircraft.

**BREAK**... the point at which upper decks are discontinued.

**BRIDGE**... raised forward platform from which ship is conned and navigated.

**BULKHEAD**... transverse or longitudinal partitions subdividing the interior of a ship.

**BULWARKS**... light plating or wooden extension of ship's sides above upper deck.

**CASEMATE**... armored gun mount built into the sides or superstructure of a ship.

**CLASS**... vessels of the same type built to a common basic design.

**COMBINED OPERATIONS**... joint operations conducted by nonhomogeneous forces or forces of different services and/or nationalities.

**COMPANIONWAY**... hatchway providing access from one deck to another.

**COMPARTMENTATION**... subdivision of a ship's hull by means of transverse and/or longitudinal bulkheads.

**CONNING TOWER**... armored ship control station. In submarines, the main deck structure.

## TERMINOLOGY

**COUNTER**-- side of a vessel's quarter.

**COWL**-- a smoke baffle located on top of a funnel; opening of a ventilator.

**DAMAGE CONTROL**-- comprehensive term for all means of mitigating or offsetting effects of damage aboard ship.

**DEPTH CHARGE**-- explosive device projected or dropped from air or surface craft; detonated at predetermined depths by a hydrostatic mechanism.

**DISPLACEMENT**-- the weight of water displaced by a ship.

**FANTAIL**-- after section of the main deck.

**FORE**-- That part of a ship lying between bow and midship section.

**FORE AND AFT**-- lengthwise of a ship.

**FORECASTLE**-- deck; a forward upper deck extending to bow.

**FREEBOARD**-- height of a ship's sides from waterline to a weather deck.

**FLYING BRIDGE**-- a light self-supporting structure extending from side of ship's bridge.

**GUN HOUSE**-- a lightly protected, rotating mount for guns of lesser calibre.

**GUN SHIELD**-- any protection for gun crews which does not completely enclose mount.

**GUNWALE**-- upper edge of a vessel's or boat's side.

**HALYARDS**-- light lines used in hoisting signals, flags, etc.

**HATCH**-- opening in a deck.

**HAWSE PIPES**-- tubes leading anchor chains from deck down and forward through bow plating.

**HELM**-- the mechanism for operating the ship's rudder.

**HULL**-- main body of a vessel exclusive of elements of superstructure.

**ISLAND**-- a free-standing section of a ship's superstructure. On aircraft carriers, the ship's superstructure.

**KEEL**-- center line strength member running fore and aft along the bottom of a ship.

**KNOT**-- a unit of speed, equalling one nautical mile (6,080.20 feet) per hour.

**LIST**-- transverse inclination of a vessel.

**MAIN BATTERY**-- the heaviest calibre gun armament carried by a naval vessel.

**MAIN DECK**-- a ship's highest continuous deck.

**MINE**-- a device containing high explosive charge, free-floating or anchored at fixed depth, or resting on bottom; detonated by contact, or by electrical or magnetic impulse.

**MULTIPLE MAST**-- an exposed mast having one or more supporting elements.

**PEAK (fore and aft)**-- compartment at the extreme bow or stern of vessel below decks—usually a tank.

**PORT**-- left hand side of a vessel when looking towards bow; an opening.

**QUARTER**-- that portion of a vessel's side near the stern.

**QUARTER DECK**-- part of upper deck reserved for officers; also the deck near the stern.

**RADIO DIRECTION FINDER**-- device for determining direction of source of radio impulses.

**RAKE**-- fore and aft inclination from vertical.

**RANGEFINDER**-- optical instrument for determining distance to a target or other object.

**RECIPROCATING ENGINE**-- a steam actuated piston engine as distinguished from a turbine.

**RIGGING**-- collective term for ropes and chains employed to support masts, yards, and booms of vessel.

**SECONDARY BATTERY**-- the gun armament next in calibre to main battery.

**SHEER**-- longitudinal upward or downward curvature of deck or gunwale.

**SHEER LINE**-- line formed by intersection of deck and sides of a ship.

**SPLINTER SCREEN**-- light armor shields for protection of crew.

**STACK**-- exposed uptake from ship's boilers; funnel.

**STARBOARD**-- the right hand side of a vessel when looking towards bow.

**STEM**-- extreme forward line of bow.

**STERN POST**-- the main vertical post in the stern frame upon which the rudder is hung.

**SUPERSTRUCTURE**-- any structure built above a ship's hull.

**TASK FORCE**-- a naval force organized to carry out a specific mission.

**TURRET**-- a rotating mount enclosed by armor for guns of large calibre.

**TWIN TURRET**-- a turret housing two guns.

**TYPE**-- all vessels built or converted for the same purpose.

**WEATHER DECK**-- any deck exposed to weather.

**WELL**-- a lateral opening in a ship's hull or superstructure.

## ATTRIBUTES OF FIGHTING SHIPS

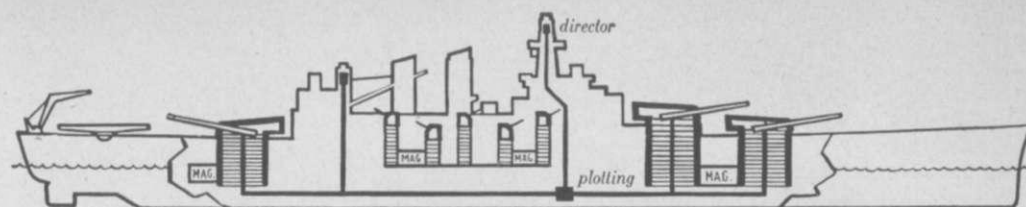
A ship, to be classed as a *fighting ship*, must be capable of inflicting damage and of sustaining or avoiding damage. She must possess sufficient speed and maneuverability to execute her mission and the capacity to proceed independently to a scene of action. The *type* of a warship is determined by the degree to which each of these qualities has been stressed in her design.

### ARMAMENT

Capacity to "dish it out" is a primary attribute of fighting ships. Ships may be designed to inflict damage by *shells* from their guns, *torpedoes* from their tubes, *bombs* from aircraft they may carry, or by *depth charges* or *mines*. Battleships and cruisers are essentially *gun ships*,

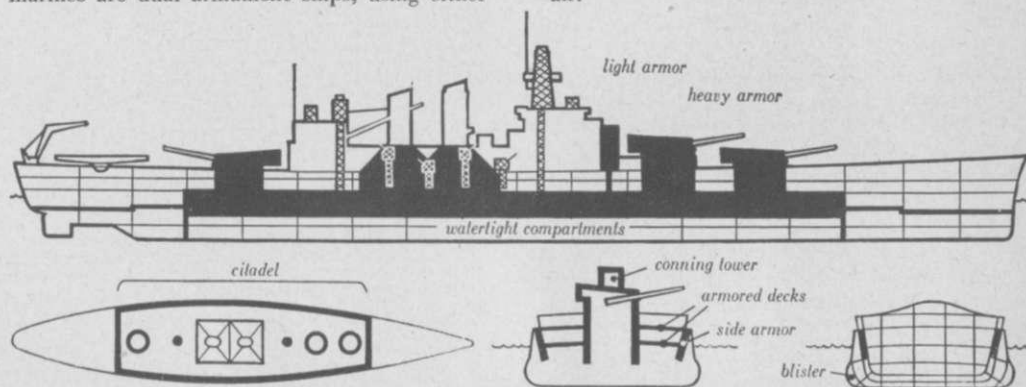
### PROTECTION

A fighting ship must also be able to "take it." A ship may be designed to absorb punishment, to mitigate its effect, or to avoid it. She may be provided with *armor*: heavy steel plate around vital parts to defeat shells, bombs, and torpedoes. Her hull will be subdivided into separate spaces, or provided with bulges or blisters, to confine the effects of flooding and explosion. This is called *compartmentation*. *Damage control* systems consisting of provisions for counterflooding, fire fighting, etc., are developed in varying degree in all types. Speed and



although they carry other weapons. Carriers, minelayers, and torpedo boats are designed for special attack functions, with guns provided largely for defense, while destroyers and submarines are dual armament ships, using either

guns or torpedoes. Larger types carry secondary batteries, primarily intended for defense against destroyers or submarines, or, if "dual purpose," for protection from attack from the air.



maneuverability in themselves constitute factors of protection in smaller types in which armament and protection have been sacrificed for these

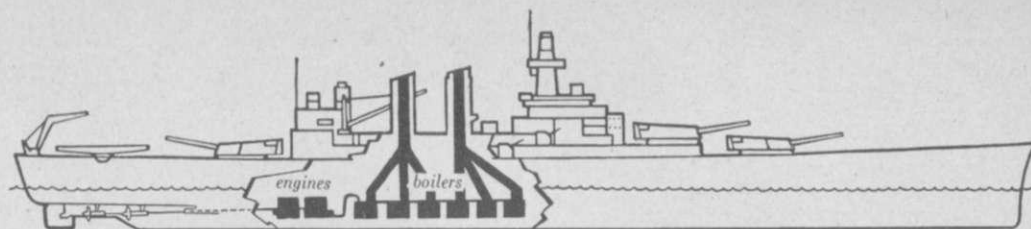
qualities, while submarines depend for protection largely on their ability to make themselves invisible by submerging.

## ATTRIBUTES OF FIGHTING SHIPS

### MOBILITY

Most fighting ships are propelled by high-pressure steam boilers and geared turbine engines, although Diesel or reciprocating engines are sometimes used in smaller types. Diesels are used in submarines when operating on the surface, electric storage battery motors when submerged.

Since a large proportion of total displacement and space is allotted to armament and protection in the design of battleships, these ships do not attain the high speeds of many smaller combat



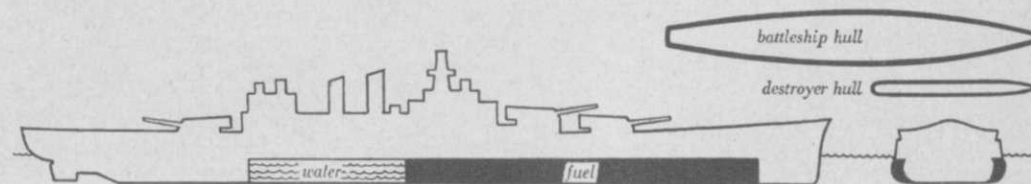
units. Carriers are designed for speed, with corresponding sacrifice of armor. Cruisers' speed will range from 30 knots, which will permit a heavy cruiser to operate with the fleet and outrun

most battleships, to speeds of over 40 knots in lighter types. Speed is essential to a destroyer's functions and new types are capable of attaining or bettering that of any cruiser.

### SEA KEEPING

Without the capacity to reach a scene of operations, execute a mission, and return to a base, even the fastest and most powerful fighting ship would be of little value.

To bring an enemy to action is the battleship's primary function, and these ships must carry crews and provisions necessary to take them into battle with enough shells and fuel and food aboard to permit them to fight and return. Since cruisers are often required to perform independent missions at great distances, *sea keeping* capacity is a vital consideration in their design. Carriers must also be designed to accommodate provision for extended operations and fuel for their aircraft. Destroyers, as they



often operate with battle fleets or in convoy, must also carry provisions for such work, subject to limitations of size, while submarines are required to remain in enemy waters for extended periods. It will, therefore, be seen that *sea keeping* is a very important factor in the design of all more important types of fighting ships.

The bulky hull of the battleship (above) reflects capacity to accommodate provision for sea repair and for storage of immense quantities of fuel, water, food, ships stores, and lubricating oil, while the proportions of destroyer hulls indicate limitations in sea-keeping capacity inherent in their type.



**GERMAN  
NAVAL VESSELS**



# SIMPLIFIED SILHOUETTES



## BATTLESHIPS-BB



TIRPITZ



SCHARNHORST  
GNEISENAU

## HEAVY CRUISERS-CA



ADMIRAL HIPPER  
PRINZ EUGEN



ADMIRAL SCHEER



LUTZOW

## AIRCRAFT CARRIERS-CV



GRAF ZEPPELIN

## LIGHT CRUISERS-CL



KÖLN



NÜRNBERG



LEIPZIG



EMDEN

## DESTROYERS-DD



MAATZ CLASS



"NARVIK"-ROEDER CLASS



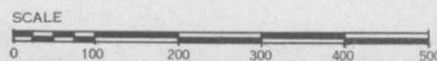
WOLF-MÖWE CLASS



T-1 CLASS



M-1 CLASS





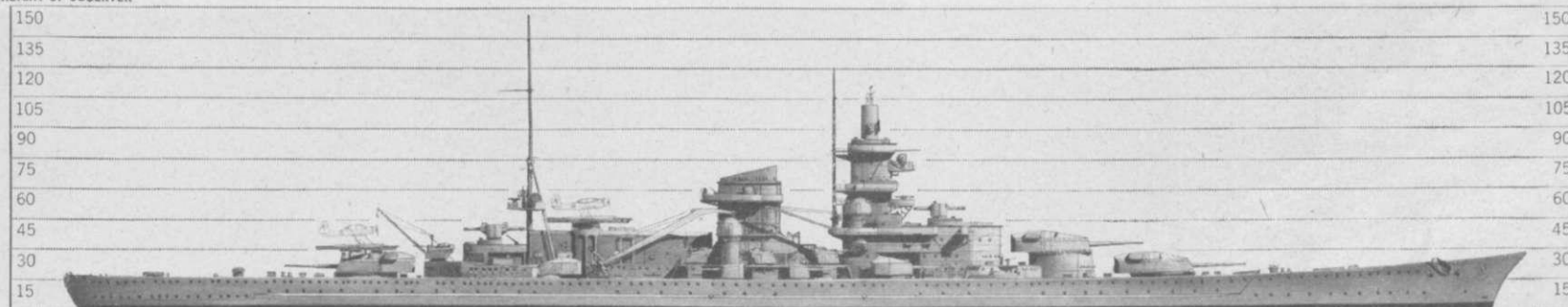
ONI 204 RESTRICTED  
CONDENSED AND PRINTED FOR FM 30-50, NAVAER 00-80V-57

# SCHARNHORST—BB 2



DIVISION OF NAVAL INTELLIGENCE—IDENTIFICATION AND CHARACTERISTICS SECTION—JULY, 1942

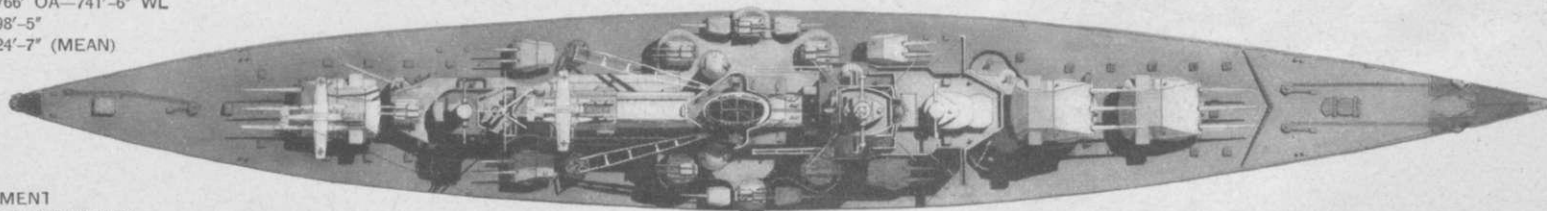
HEIGHT OF OBSERVER



HORIZON BEYOND THE SHIP

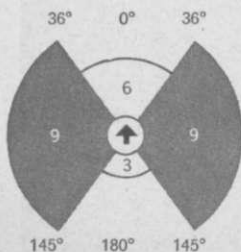
SHIP BEYOND THE HORIZON

LENGTH 766' OA—741'-6" WL  
BEAM 98'-5"  
DRAFT 24'-7" (MEAN)



DISPLACEMENT  
26,000 TONS (STANDARD)

DENSITY OF FIRE  
MAIN BATTERY



## ARMAMENT

9-11" TRIPLE TURRETS  
12-5"9 (8 IN TWIN TURRETS)  
(4 IN SINGLE SHIELDS)  
14-4"1 TWIN A.A. SHIELD  
16 PLUS SMALLER A.A.  
2 CATAPULTS, 4 SEAPLANE SCOUTS

MAX. ELEV.

42.5°

60°

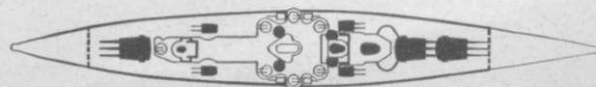
70°  
(SLANT)

RANGE

37,000 YD.

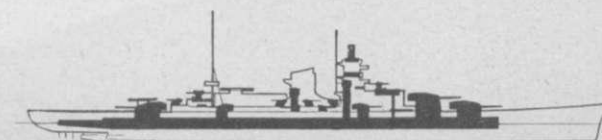
27,000 YD.

17,000 YD.



## PROTECTION

BELT—12"6 MAIN—7"8 LOWER—(UNDER WATER)  
TURRETS—14"3 FACE PLATES—10"6 SIDES—6"2 CROWN  
BARBETTES 10"  
CONNING TOWER  
SECONDARY BATTERY 2" (MAX.) ON TURRETS AND BARBETTES  
DECKS—2" SECOND DECK 5"9 TO 4" THIRD DECK  
THICKEST OVER VITALS.



KNOTS RPM

.....	350
.....	300
30 1/4 .....	275
.....	250
.....	245
27 .....	240
.....	220
23 .....	200
18 .....	160
12 1/2 .....	150
.....	120
.....	80

DES. SPD DES. HP  
28 KTS 80,000



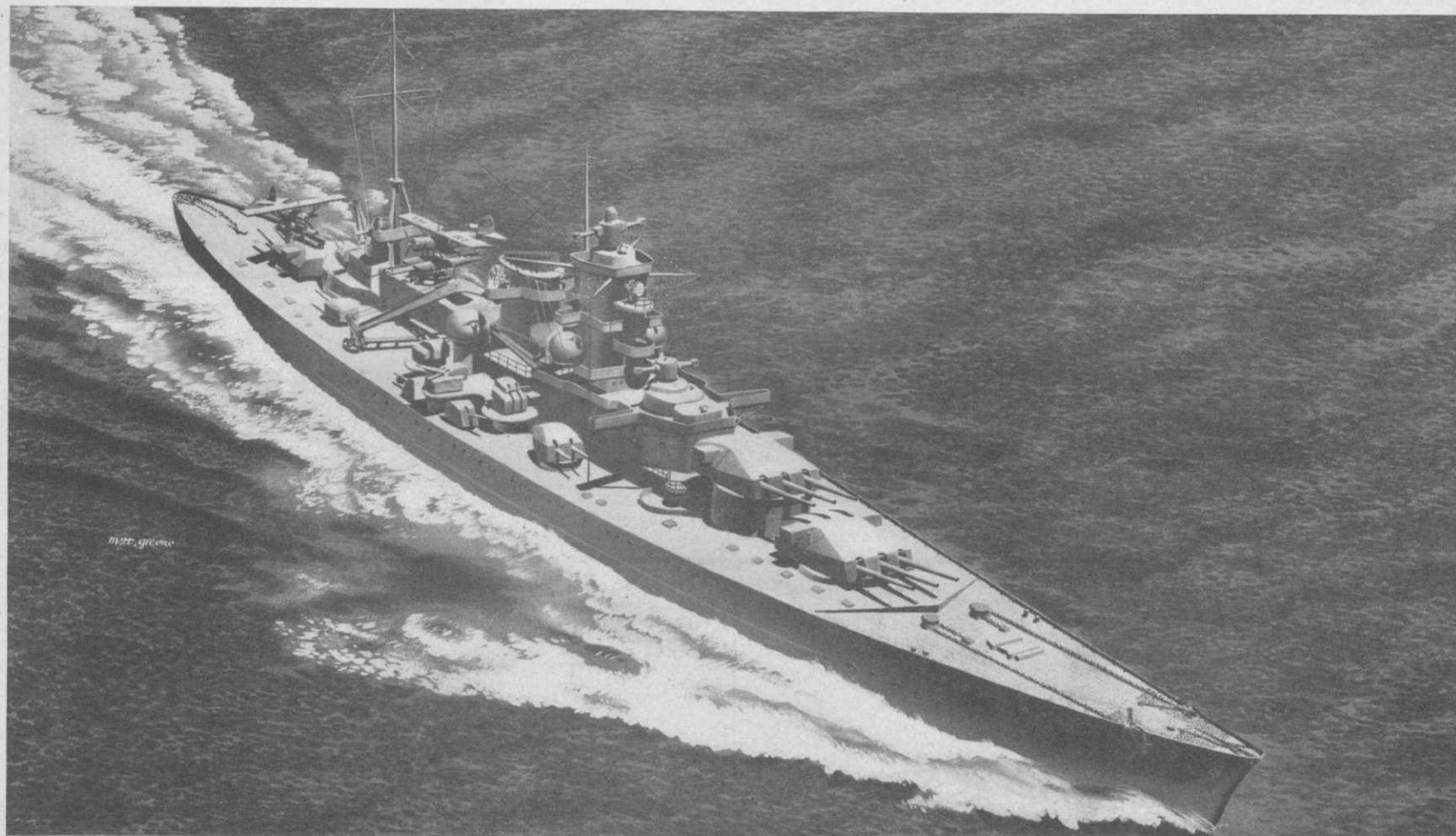
# SCHARNHORST—BB 2

DIVISION OF NAVAL INTELLIGENCE—IDENTIFICATION AND CHARACTERISTICS SECTION—JULY, 1942

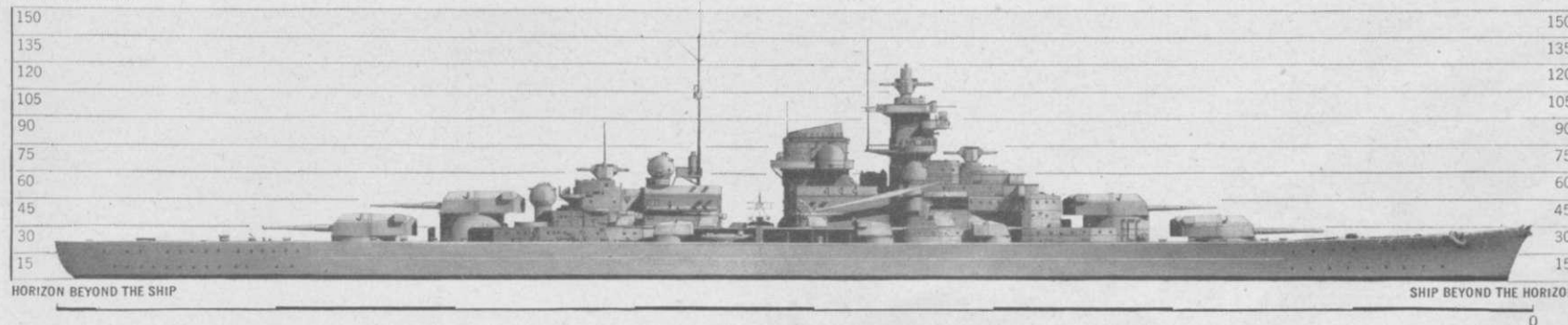
BEGUN FEBRUARY 14, 1934. COMPLETED JANUARY 7, 1939  
SISTER SHIP—GNEISENAU BB 1

ONI 204

RESTRICTED

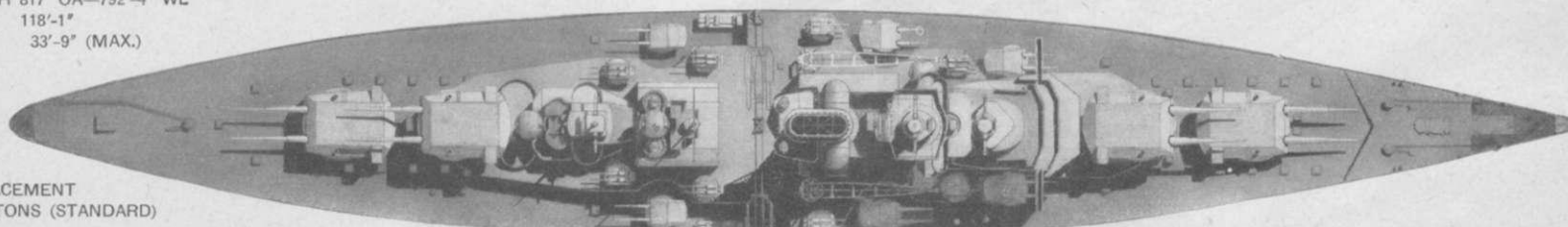


HEIGHT OF OBSERVER

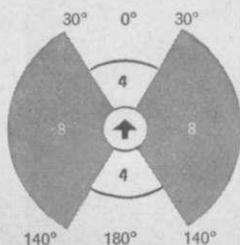


LENGTH 817' OA—792'-4" WL  
BEAM 118'-1"  
DRAFT 33'-9" (MAX.)

DISPLACEMENT  
41,500 TONS (STANDARD)



DENSITY OF FIRE  
MAIN BATTERY



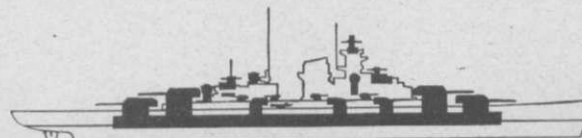
## ARMAMENT

8-15"	TWIN TURRET	40-45°	41,500 YD.
12-5.9"	TWIN TURRET	45°	27,000 YD.
16-4.1"	TWIN A.A. SHIELD	70°	17,000 YD.
		(SLANT)	YD.
40	SMALLER A.A.		
6-21" TORPEDO TUBES (TRIPLES)			
4 SEAPLANE SCOUTS 2 CATAPULTS (ATHWARTSHIPS)			



## PROTECTION

BELT—13" MAIN 5.7" UPPER  
TURRETS—13.8" FACE PLATES 7.9" SIDES 6" CROWNS  
CONNING TOWER 12.6"  
BARBETTES 13.8"  
SECONDARIES 2" (MAX.) ON TURRETS AND BARBETTES  
DECKS—2" MAIN DECK 4.75"—3.2" THIRD DECK  
THICKEST OVER VITALS



KNOTS R.P.M.

.....	300
.....	275
.....	250
.....	245
31	240
30	220
.....	200
.....	160
.....	150
.....	120
.....	80

DES. SPD. DES. H.P.  
30 1/4 KTS 150,000



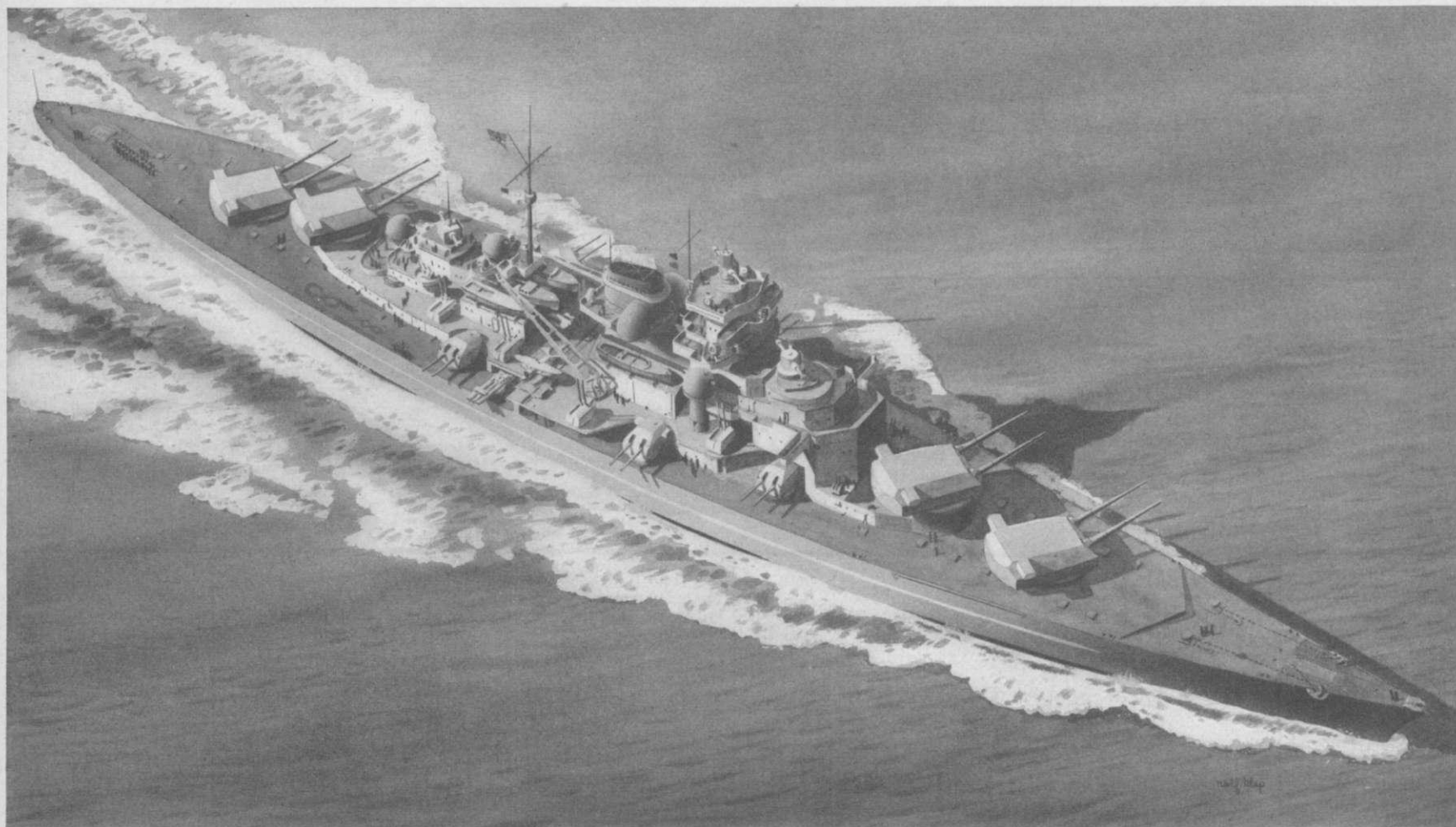
# TIRPITZ-BB4

DIVISION OF NAVAL INTELLIGENCE—IDENTIFICATION AND CHARACTERISTICS SECTION—AUGUST, 1942

BEGUN—OCTOBER 24, 1936. COMPLETED—NOVEMBER 10, 1940  
SISTER SHIP—BISMARCK—SUNK MAY 27, 1941

ONI 204

RESTRICTED





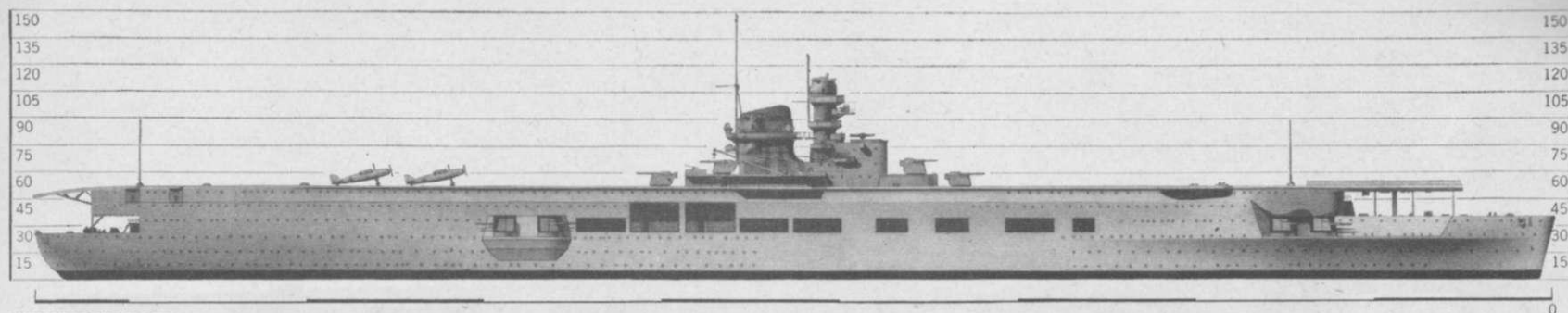
ONI 204 RESTRICTED  
CONDENSED AND PRINTED FOR FM 30-50, NAVAER 00-80V-57

## GRAF ZEPPELIN—CV1



DIVISION OF NAVAL INTELLIGENCE—IDENTIFICATION AND CHARACTERISTICS SECTION—SEPTEMBER, 1942

HEIGHT OF OBSERVER



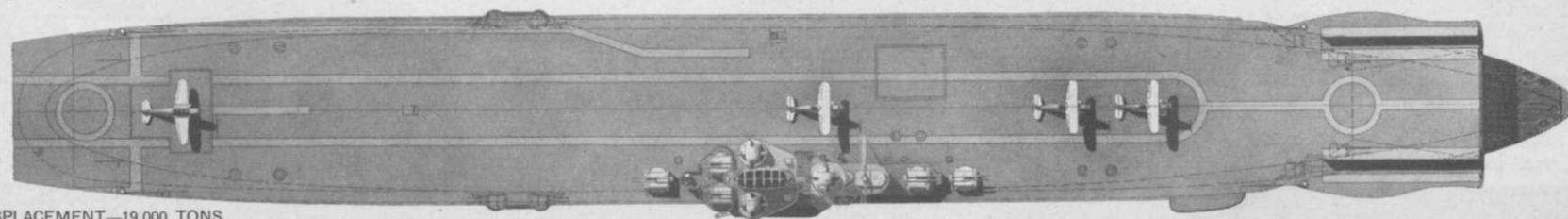
HORIZON BEYOND THE SHIP

LENGTH—820' WL 850' OA (EST)

BEAM —88'-7"

DRAFT —18'-4"

SHIP BEYOND THE HORIZON



DISPLACEMENT—19,000 TONS

### ARMAMENT

16-5"9  
10-4"1

18-1"46 AA  
4-0"79 AA

AIRCRAFT—40 (OFFICIAL)

### PROTECTION

BELT—2-1/2"  
CASEMATES FOR 5"9 GUNS

### PROPULSION

HP —110,000  
SPEED—32 KNOTS



IT IS KNOWN THAT CERTAIN SUPERSTRUCTURAL FEATURES, INCLUDING AA BATTERY DISPOSITION, VARY FROM THESE DRAWINGS, WHICH ARE BELIEVED SUBSTANTIALLY CORRECT FOR HULL PROPORTION AND GENERAL OUTLINE. DETAILS OF PROFILES, AIR VIEWS AND TARGET ANGLES AWAIT BETTER RECONNAISSANCE PHOTOGRAPHS.





# GRAF ZEPPELIN—CV1

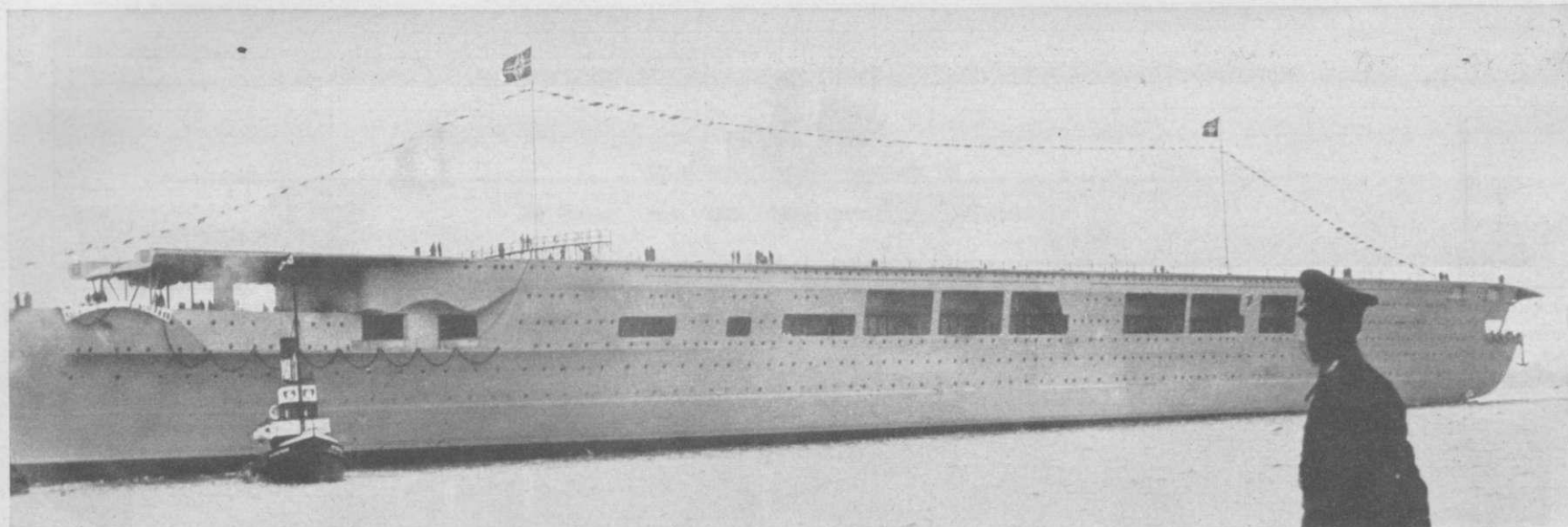
DIVISION OF NAVAL INTELLIGENCE—IDENTIFICATION AND CHARACTERISTICS SECTION—SEPTEMBER, 1942

BEGUN—DECEMBER 1, 1936

DATA ON GERMAN CARRIERS IS LACKING IN SEVERAL IMPORTANT  
DETAILS, INCLUDING COMPLETION DATE OF GRAF ZEPPELIN.

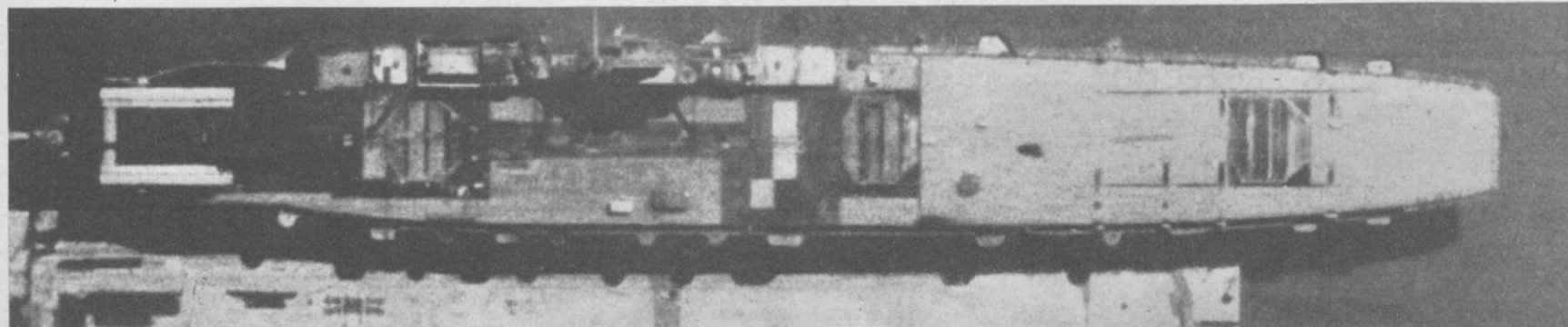
ONI 204

RESTRICTED



R.A.F., 1941 ↓

DECEMBER 8, 1938 ↑



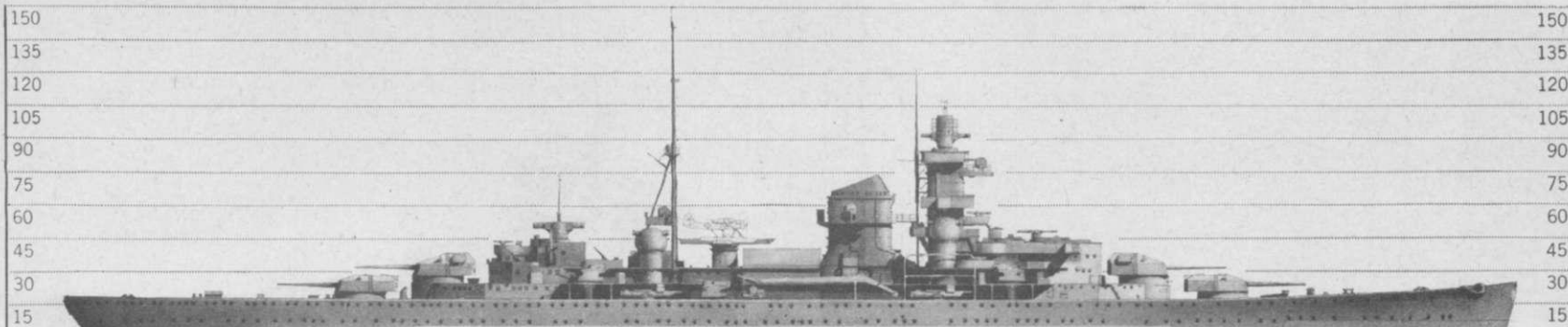
ONI 204 RESTRICTED  
CONDENSED AND PRINTED FOR FM 30-50, NAVAER 00-80V-57

# ADMIRAL HIPPER—CA1

DIVISION OF NAVAL INTELLIGENCE—IDENTIFICATION AND CHARACTERISTICS SECTION—JULY, 1942



HEIGHT OF OBSERVER

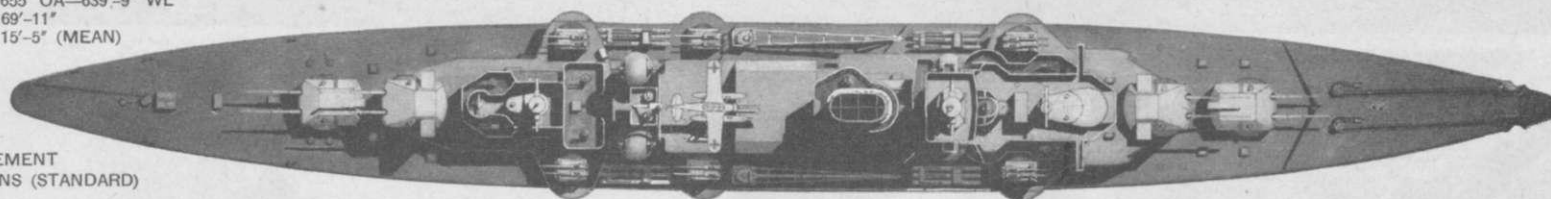


HORIZON BEYOND THE SHIP

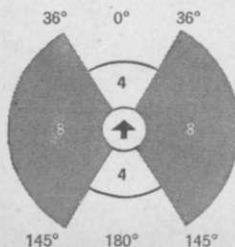
SHIP BEYOND THE HORIZON

LENGTH 655' OA—639'-9" WL  
BEAM 69'-11"  
DRAFT 15'-5" (MEAN)

DISPLACEMENT  
10,000 TONS (STANDARD)



DENSITY OF FIRE  
MAIN BATTERY



## ARMAMENT

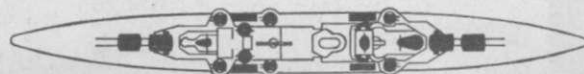
8-8" TWIN TURRETS  
12-4.1 (D.P.)  
12 (PLUS) A.A.  
12-21" TORPEDO TUBES (TRIPLES)  
1 CATAPULT, 3 SEAPLANE SCOUTS

MAX. ELEV.

70°  
(SLANT)

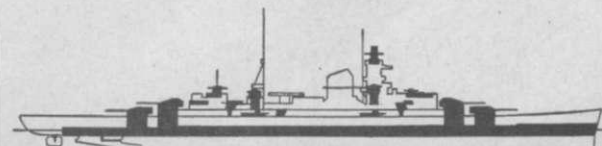
RANGE

17,000 YD.



## PROTECTION

BELT—4" (ESTIMATED)  
TURRETS  
CONNING TOWER—2"  
RANGEFINDERS—2"  
DECKS—THIRD DECK—3 1/4"



KNOTS RPM

.....	420
.....	400
.....	350
.....	300
.....	275
.....	250
.....	245
.....	240
.....	220
.....	200
.....	160
.....	150
.....	120
.....	80

DES. SPD DES. HP  
32 KTS 95,000



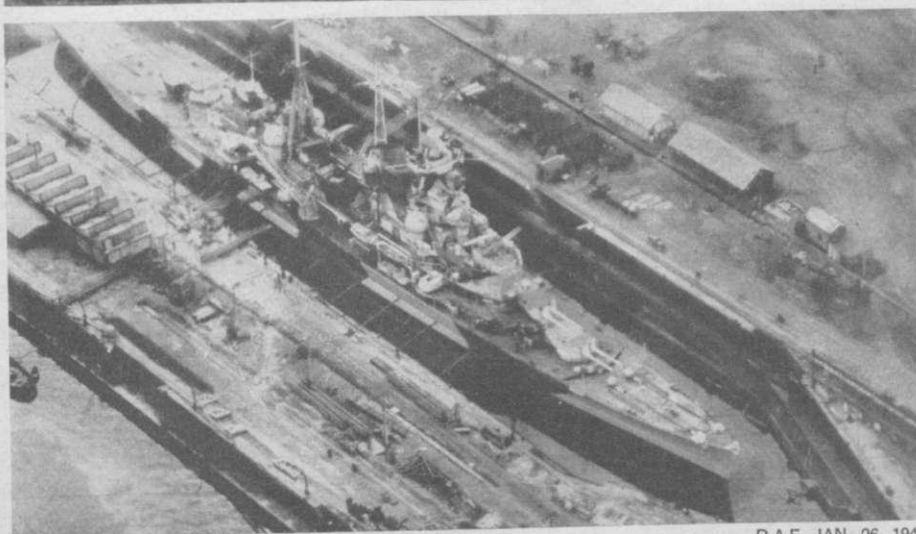
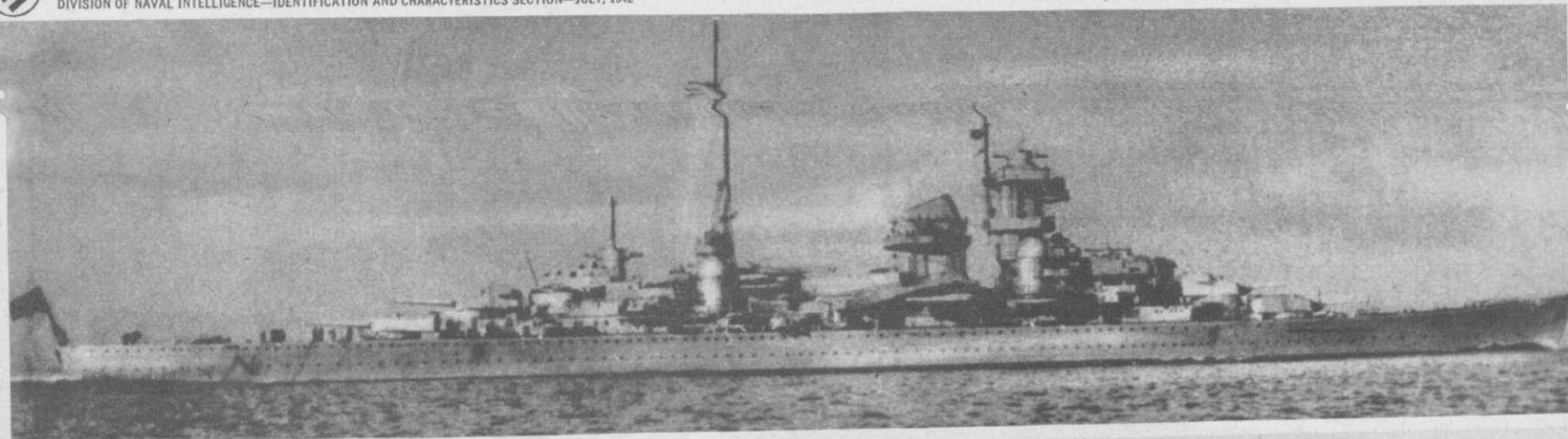
# ADMIRAL HIPPER—CA1

DIVISION OF NAVAL INTELLIGENCE—IDENTIFICATION AND CHARACTERISTICS SECTION—JULY, 1942

BEGUN—JAN. 18, 1935 COMPLETED—APR. 29, 1939  
SISTER SHIPS—EUGEN, SEYDLITZ, EX-LÜTZOW (SOLD TO RUSSIA)  
BLÜCHER (SUNK APRIL 9, 1940)

ONI 204

RESTRICTED



R.A.F. JAN. 26, 1941



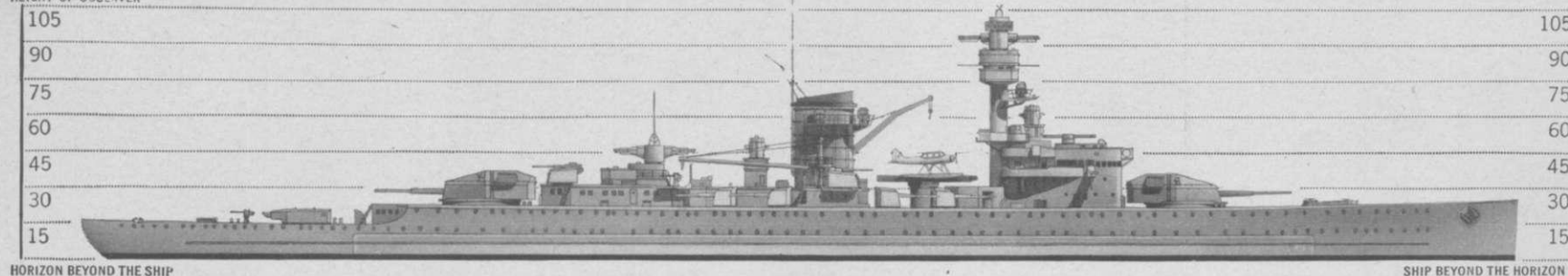
ONI 204 RESTRICTED  
CONDENSED AND PRINTED FOR FM 30-50, NAVAER 00-80V-57

LÜTZOW—CA6



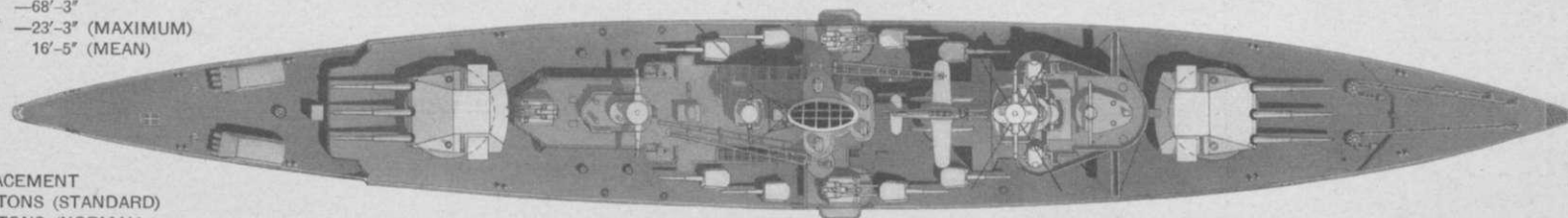
DIVISION OF NAVAL INTELLIGENCE—IDENTIFICATION AND CHARACTERISTICS SECTION—SEPTEMBER, 1942

HEIGHT OF OBSERVER

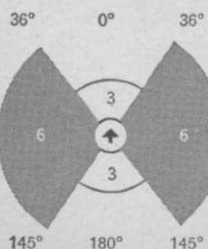


LENGTH—609'-3" OA—596'-2" WL  
BEAM —68'-3"  
DRAFT —23'-3" (MAXIMUM)  
16'-5" (MEAN)

DISPLACEMENT  
10,000 TONS (STANDARD)  
13,483 TONS (NORMAL)



DENSITY OF FIRE  
MAIN BATTERY



## ARMAMENT

6-11" 50 CAL. 40°  
8-5"9 50 CAL. 30-40°  
6-4"1 AA TWIN MOUNTS 85°  
8-1"46 AA TWIN MOUNTS  
8-21" TORPEDO TUBES (QUADRUPE)  
AIRCRAFT—2 FLOAT PLANES;  
1 CATAPULT

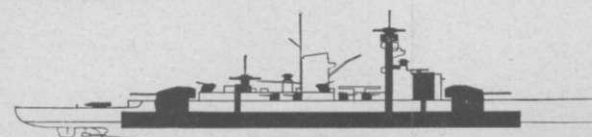
MAX. ELEV.

RANGE  
36,000 YD.  
27,000 YD.



## PROTECTION

BELT—4" WITH 1½" INTERNALLY  
TURRETS—4" BASES  
5½" FACES  
2-3" SIDES  
CONNING TOWER—5" ROOF  
2" ROOF  
UNDERWATER PROTECTION VERY COMPLETE  
EXTERNAL BULGES  
DECKS—1½"-2½"  
3" OVER VITALS



KNOTS R.P.M.

.....	420
.....	400
.....	350
.....	300
.....	275
.....	250
.....	245
.....	240
.....	220
25	200
20	160
15	150
10	120
.....	80

DES. SPD. DES. H.P.  
28 KTS. 54,000





# LÜTZOW—CA6

DIVISION OF NAVAL INTELLIGENCE—IDENTIFICATION AND CHARACTERISTICS SECTION—SEPTEMBER, 1942

BEGUN—MAY 2, 1929. COMPLETED—JAN. 4, 1933

SISTER SHIPS: ADMIRAL SCHEER—CA7

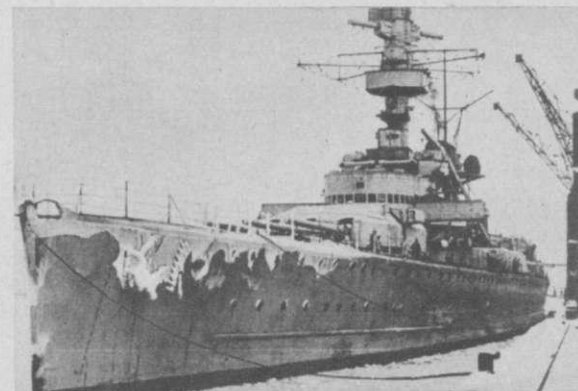
ADMIRAL GRAF SPEE—SUNK DECEMBER 17, 1939

ONI 204

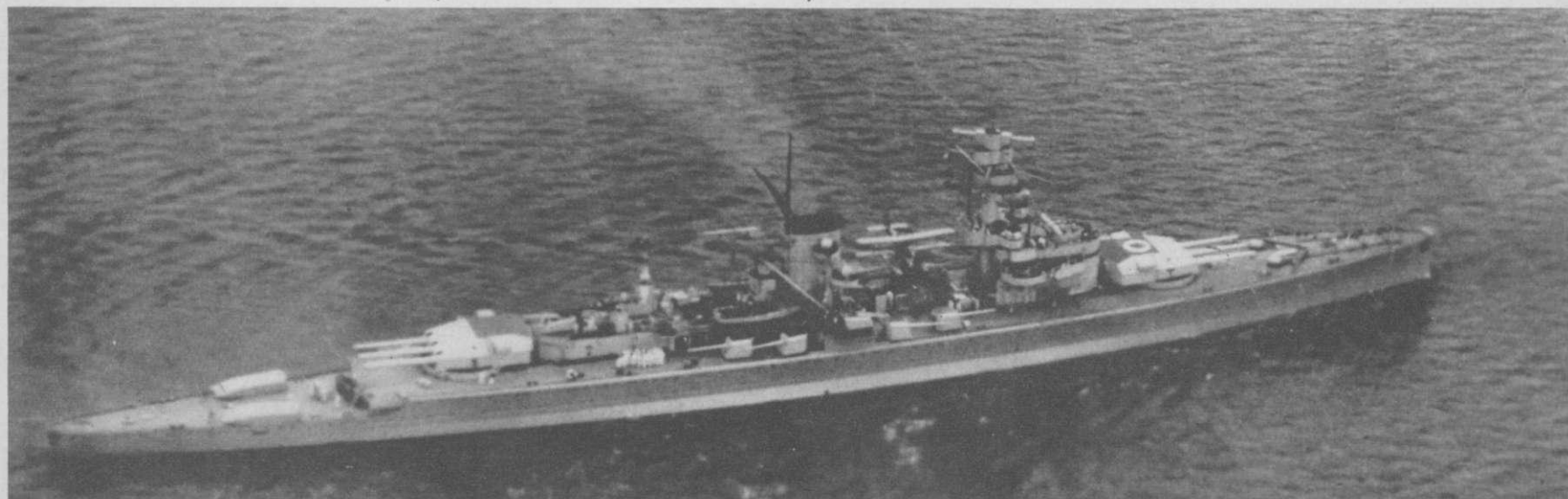
RESTRICTED



1937 ↑



1939-40 ↑



1937 ↓



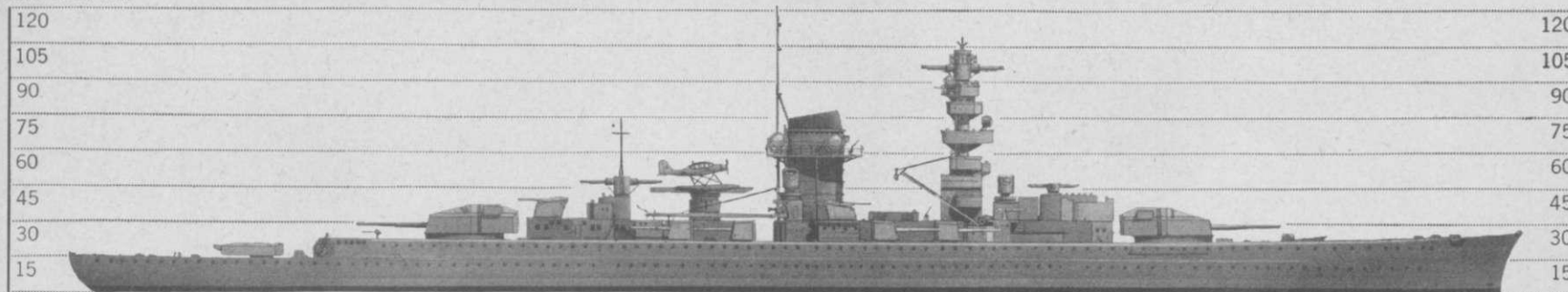
**ONI 204** RESTRICTED  
CONDENSED AND PRINTED FOR FM 30-50, NAVAER 00-80V-57

# ADMIRAL SCHEER—CA 7

DIVISION OF NAVAL INTELLIGENCE—IDENTIFICATION AND CHARACTERISTICS SECTION—SEPTEMBER, 1942



HEIGHT OF OBSERVER

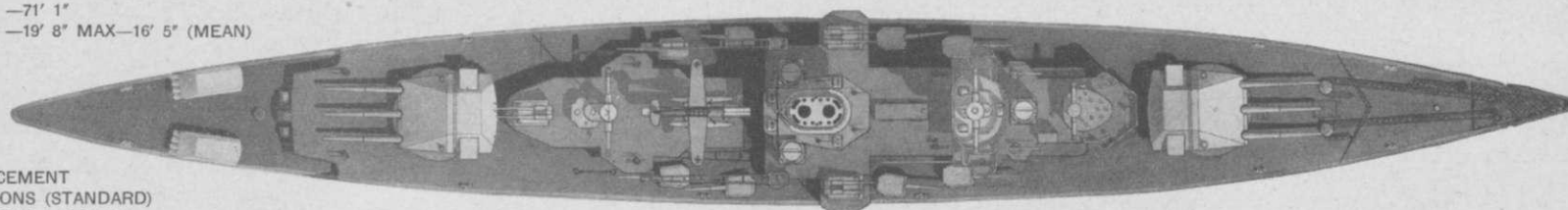


HORIZON BEYOND THE SHIP

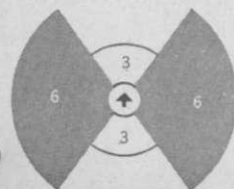
SHIP BEYOND THE HORIZON

LENGTH—617' 8" OA—596' 2" WL  
BEAM —71' 1"  
DRAFT —19' 8" MAX—16' 5" (MEAN)

DISPLACEMENT  
10,000 TONS (STANDARD)  
13,483 TONS (NORMAL)



DENSITY OF FIRE  
MAIN BATTERY



## ARMAMENT

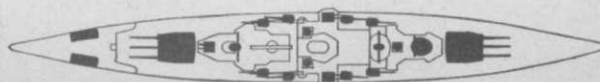
6-11" (50) TRIPLE TURRETS  
8-5.9 (50) TWIN  
6-4.1 AA TWIN  
8-1.46 AA TWIN  
TORPEDOES 8-21"  
AIRCRAFT—2 FLOAT PLANES, 1 CATAPULT

MAX. ELEV.

40°  
30-40°  
85°

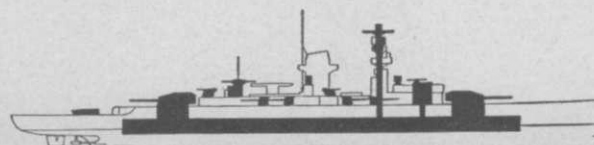
RANGE

36,100 YD.  
27,000 YD.



## PROTECTION

BELT—4" AMIDSHIPS TAPERING TO 2" FORWARD AND AFT  
TURRETS—7" FACE PLATE—2" SIDES—5" TO 3" TOP  
BARBETTES—4"  
CONNING TOWER—5" WITH 3" TOP  
DECKS—1" MAIN DECK; 1 1/4" SECOND DECK, 3" OVER VITALS  
UNDERWATER PROTECTION VERY COMPLETE;  
EXTERNAL BULGES



KNOTS R.P.M.

420
400
350
300
275
250
245
240
220
200
160
150
120
80

DES SPD  
28 KTS

DES HP  
54,000



# ADMIRAL SCHEER—CA 7

DIVISION OF NAVAL INTELLIGENCE—IDENTIFICATION AND CHARACTERISTICS SECTION—SEPTEMBER, 1942

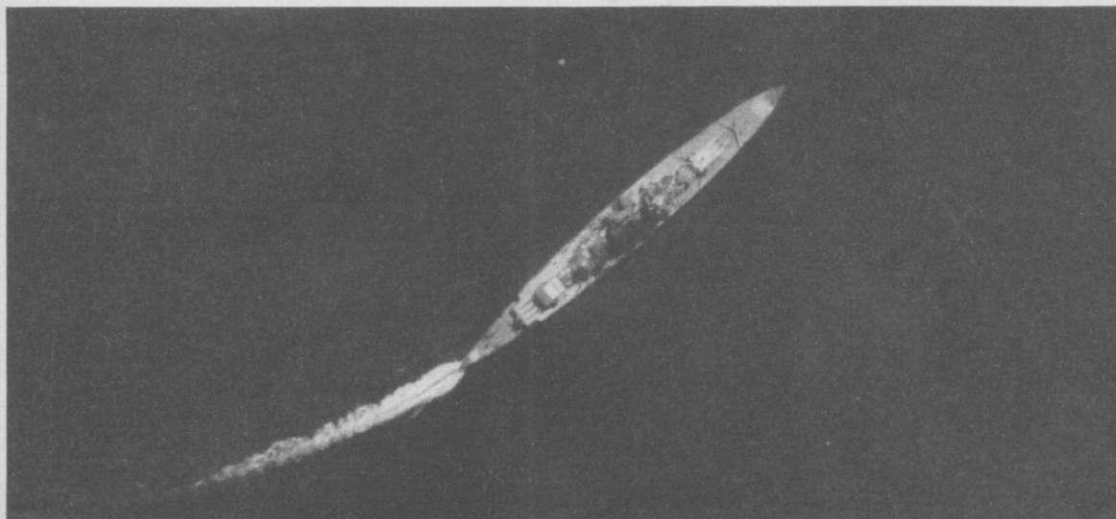
BEGUN—SEPTEMBER 6, 1931  
COMPLETED—NOVEMBER 12, 1934  
SISTER SHIPS—LÜTZOW—CA6  
(EX-DEUTSCHLAND)  
ADMIRAL GRAF SPEE—CA8  
(SUNK, DECEMBER 17, 1939)

ONI 204

RESTRICTED



1941



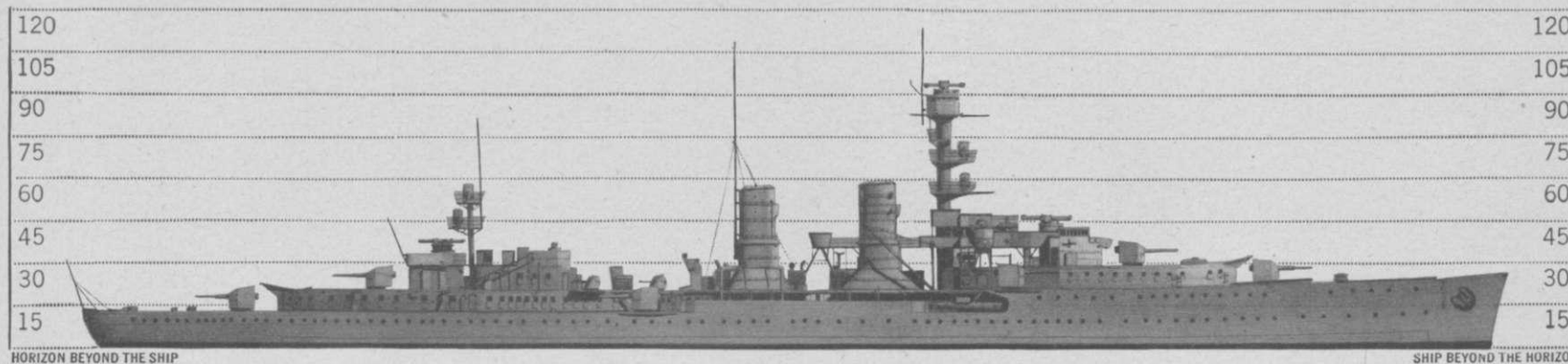
R.A.F.—APRIL 30, 1942



1941



HEIGHT OF OBSERVER

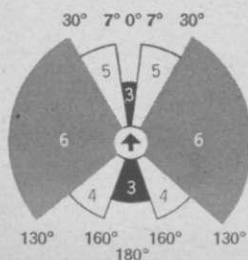


LENGTH 508½' OA—493¾' WL  
BEAM 47'  
DRAFT 17½'

DISPLACEMENT  
5,400 TONS



DENSITY OF FIRE  
MAIN BATTERY



## ARMAMENT

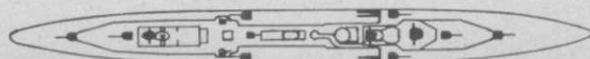
8-5"9 SINGLE SHIELDS  
3-3"5 A.A.  
4-M.G.  
4-19"7 TORPEDO TUBES

MAX. ELEV.

27°

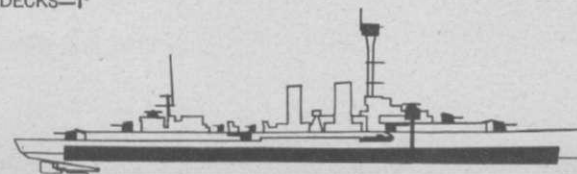
RANGE

18,750 YD.



## PROTECTION

BELT—2" AMIDSHIPS, TAPERING TO 1½" AT ENDS  
TURRETS—NONE, WEATHER SHIELDS ONLY  
CONNING TOWER—4"  
SECONDARY BATTERY—3" TO 4" VERT. SIDES  
2" GUN HOUSES  
DECKS—1"



KNOTS R.P.M.

420
400
350
300
275
250
245
240
220
200
160
150
120
80

DES. SPD 29 KTS  
DES. HP 46,500



# EMDEN—CL1

DIVISION OF NAVAL INTELLIGENCE—IDENTIFICATION AND CHARACTERISTICS SECTION—AUGUST, 1942

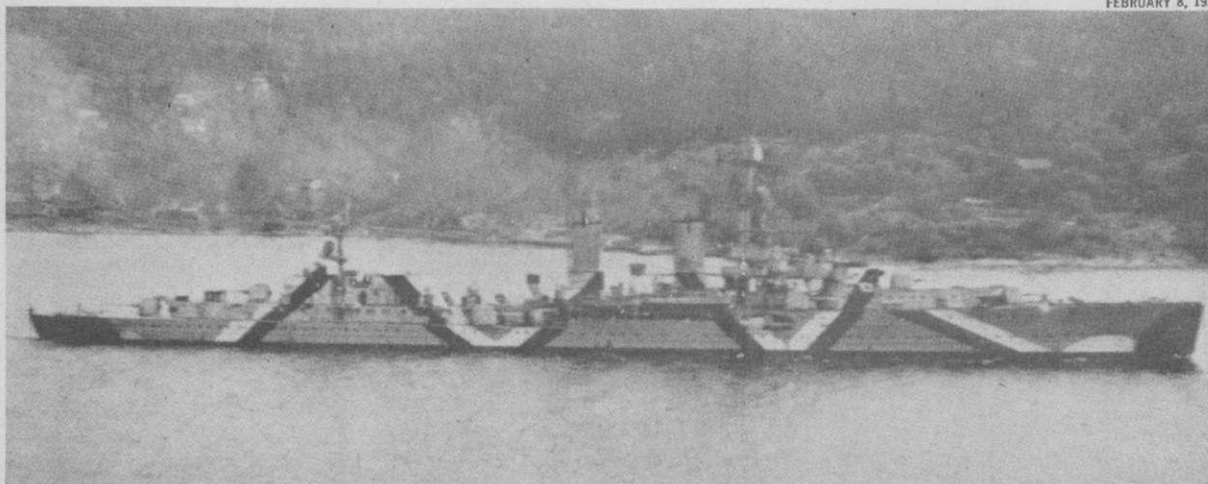
BEGUN—DECEMBER, 1921. COMPLETED—OCTOBER, 1925  
USED AS SEA-GOING TRAINING SHIP FOR CADETS

ONI 204

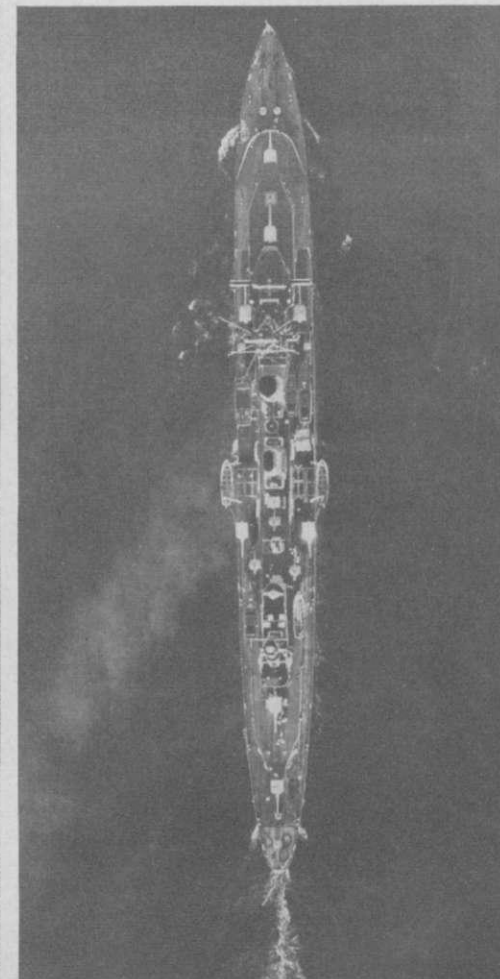
RESTRICTED



FEBRUARY 8, 1936



R.A.F. 1941



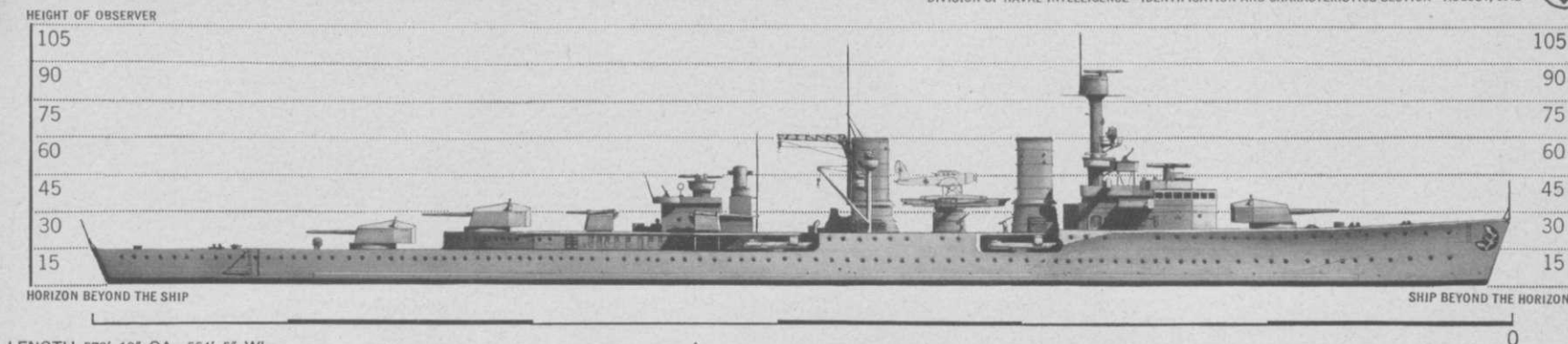
FEBRUARY 8, 1936



**ONI 204** RESTRICTED  
CONDENSED AND PRINTED FOR FM 30-50, NAVAER 00-80V-57

**KÖLN-CL4** 

DIVISION OF NAVAL INTELLIGENCE—IDENTIFICATION AND CHARACTERISTICS SECTION—AUGUST, 1942



LENGTH 570'-10" OA—554'-5" WL  
BEAM 49'-10"  
DRAFT 17'-8" (FULL LOAD)



DISPLACEMENT  
6,000 TONS (STANDARD)

DENSITY OF FIRE  
MAIN BATTERY

46° 10° 9° 19°  
0°



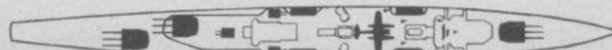
## ARMAMENT

9-5.9 TRIPLE TURRETS  
6-3.5 TWIN A.A. SHIELDS  
18 (PLUS) SMALLER A.A.  
12-21" TORPEDO TUBES (TRIPLES)  
1 CATAPULT, 2 SEAPLANE SCOUTS

MAX. ELEV.

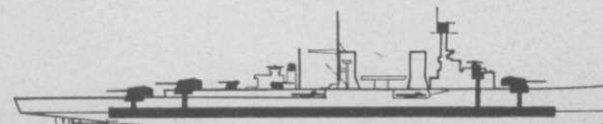
40°  
80°

RANGE  
27,000 YD.



## PROTECTION

BELT—2" TAPERING TO 1½" AT ENDS  
TURRETS—1½" FACE PLATES, 1¼" SIDES, ¾" BACK WALL  
BARBETTES—  
CONNING TOWER—3"-4"  
DECKS—2" (MAX.)  
POOR UNDERWATER PROTECTION



KNOTS R.P.M.

420  
400  
350  
300  
275  
250  
245  
240  
220  
200  
160  
150  
120  
80

DES. SPD 32 KTS  
DES. HP 65,000





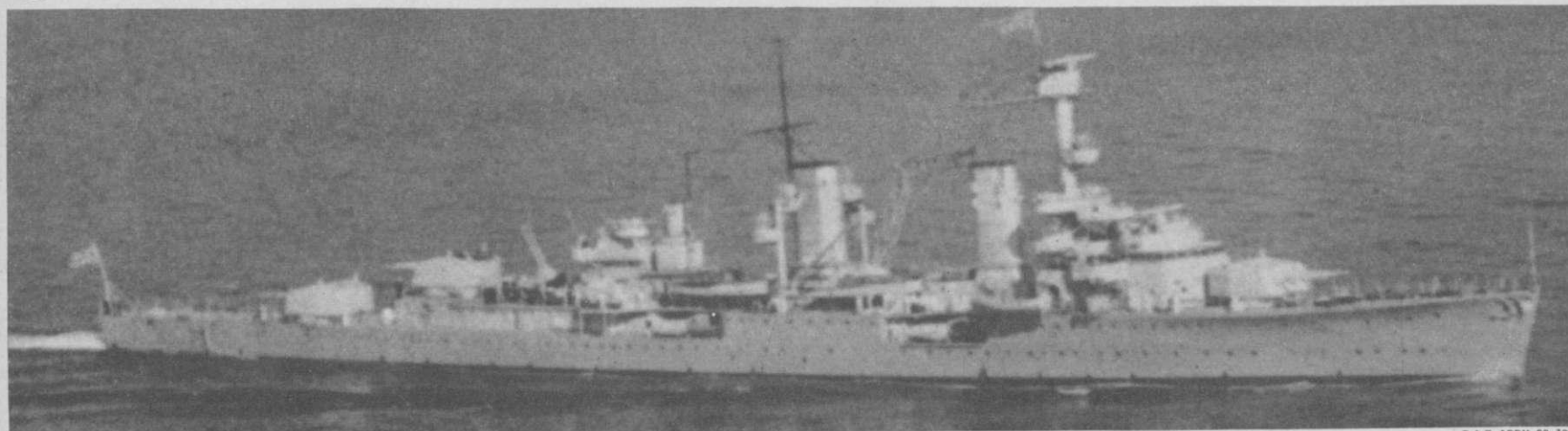
# KÖLN—CL4

DIVISION OF NAVAL INTELLIGENCE—IDENTIFICATION AND CHARACTERISTICS SECTION—AUGUST, 1942

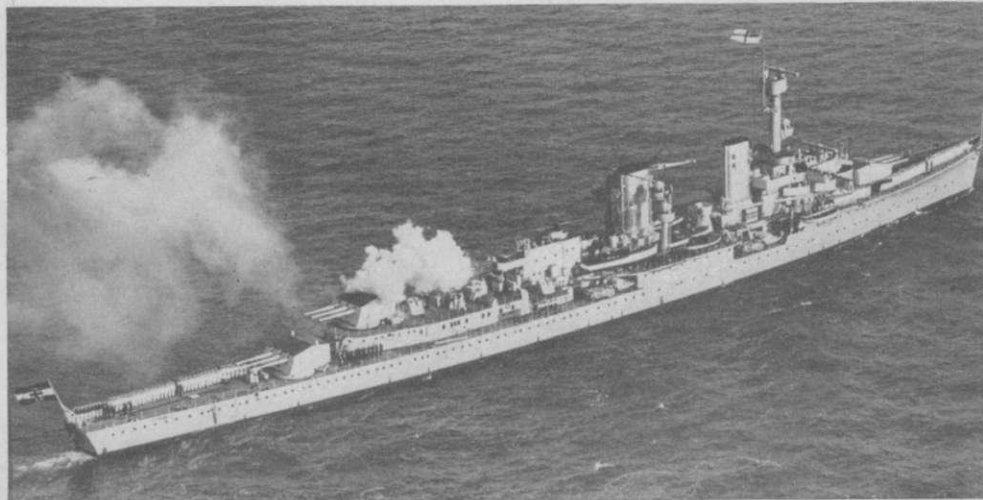
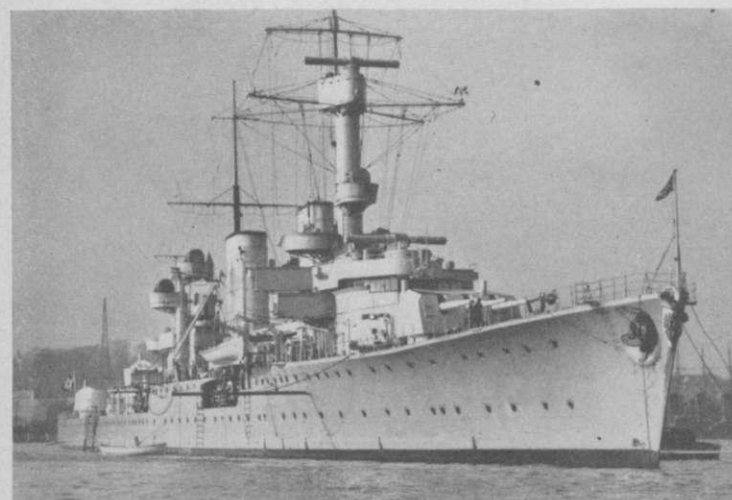
BEGUN—AUGUST 7, 1926. COMPLETED—JANUARY 15, 1930  
SISTER SHIPS—KARLSRUHE (SUNK), KOENIGSBERG (SUNK)

ONI 204

RESTRICTED



R.A.F. APRIL 20, 1939



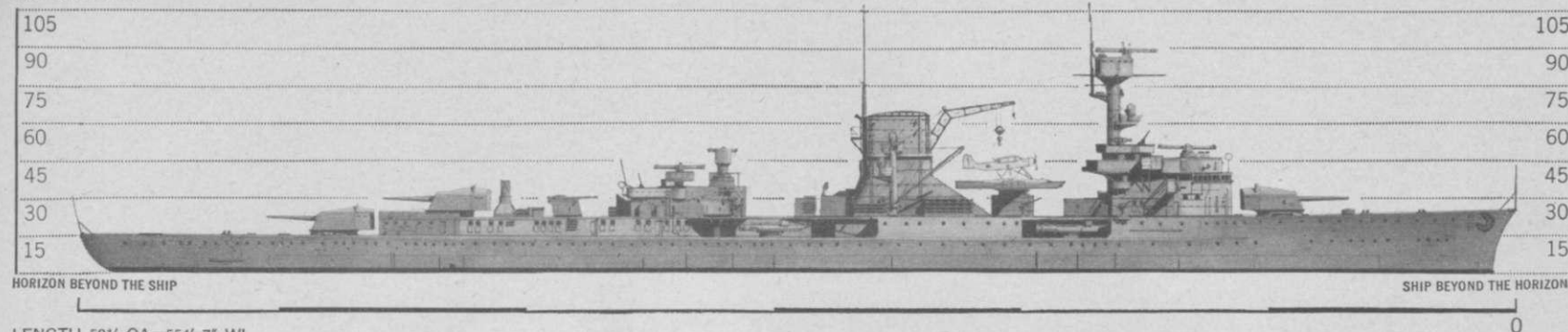
1934

**ONI 204** RESTRICTED  
CONDENSED AND PRINTED FOR FM 30-50, NAVAER 00-80V-57

**LEIPZIG—CL5** 

DIVISION OF NAVAL INTELLIGENCE—IDENTIFICATION AND CHARACTERISTICS SECTION—AUGUST, 1942

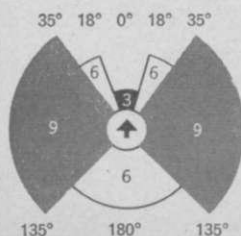
HEIGHT OF OBSERVER



LENGTH 581' OA—554'-7" WL  
BEAM 53'-5"  
DRAFT 15'-7" (STANDARD)

DISPLACEMENT  
6,000 TONS

DENSITY OF FIRE  
MAIN BATTERY



## ARMAMENT

9-5"9 TRIPLE TURRETS  
6-3"5 H.A. TWIN TURRETS  
8-14"6 A.A. TWIN TURRETS  
12-21" TORPEDO TUBES (TRIPLE)  
1 CATAPULT, 2 SEAPLANE SCOUTS

MAX. ELEV.

50°  
80°

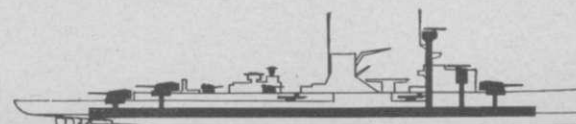
RANGE

20,000 YD.



## PROTECTION

BELT—4" BEHIND BULGE  
TURRETS—1½" FACE PLATES—¼" SIDES—¼" BACK WALL  
BARBETTES—  
F.C. TOWER—4"  
SECONDARY BATTERY—  
DECKS—¼" TO 1½"



KNOTS	RPM
32	400
29	350
26	300
22	250
20	245
18	200
13½	150

DES. SPD	DES. HP
32 KTS	TURBINES
	60,000
	DIESEL
	12,000



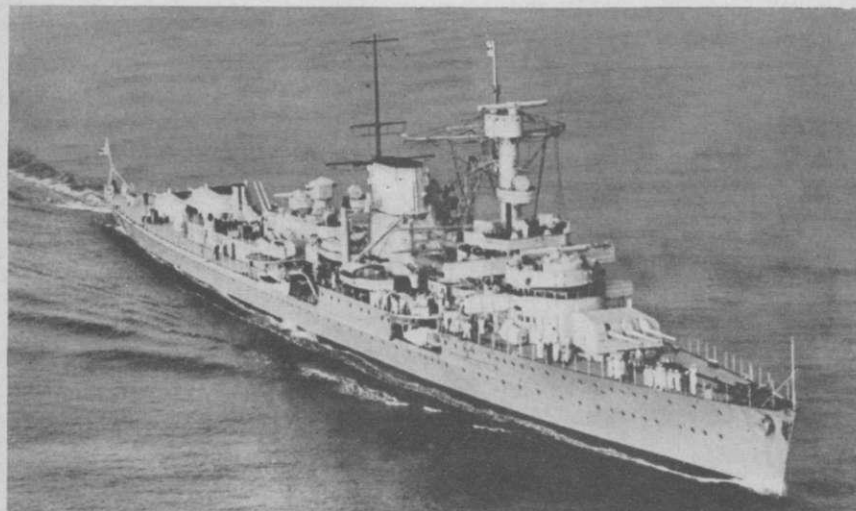
# LEIPZIG—CL5

DIVISION OF NAVAL INTELLIGENCE—IDENTIFICATION AND CHARACTERISTICS SECTION—AUGUST, 1942

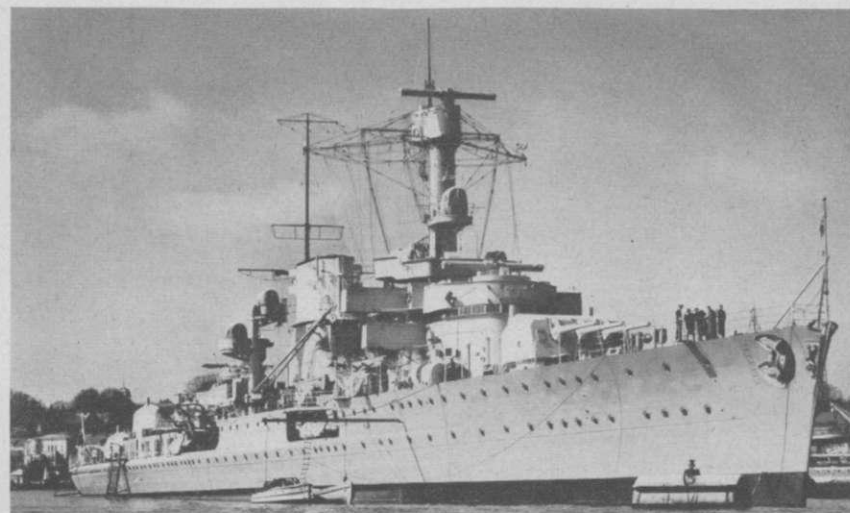
BEGUN—APRIL 18, 1928. COMPLETED—OCTOBER 8, 1931

ONI 204

RESTRICTED



OCTOBER, 1939



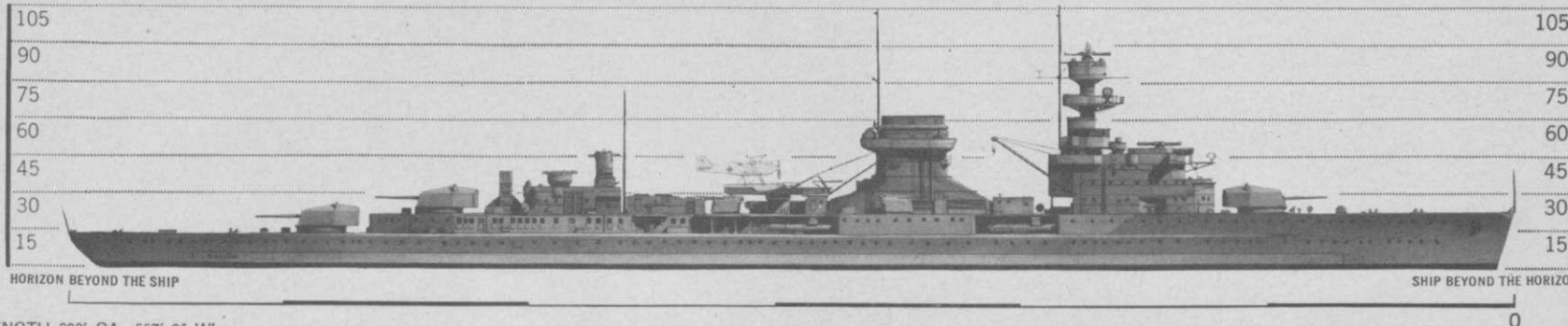
ONI 204 RESTRICTED  
CONDENSED AND PRINTED FOR FM 30-50, NAVAER 00-80V-57

# NÜRNBERG—CL6

DIVISION OF NAVAL INTELLIGENCE—IDENTIFICATION AND CHARACTERISTICS SECTION—AUGUST, 1942



HEIGHT OF OBSERVER

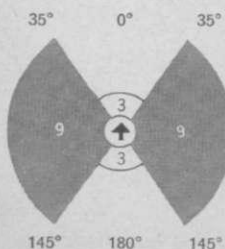


LENGTH 603' OA—557' 9" WL  
BEAM 54'  
DRAFT 14'-3" (MEAN)

DISPLACEMENT  
6,000 TONS (STANDARD)



DENSITY OF FIRE  
MAIN BATTERY



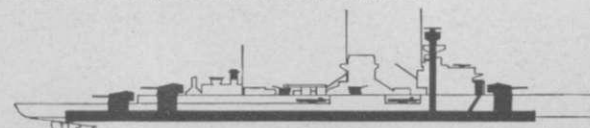
## ARMAMENT

	MAX. ELEV.	RANGE
9-5.9 TRIPLE TURRETS	50°	20,000 YD.
8-3.5 H.A. TWIN TURRETS	80°	
8-1.46 A.A. TWIN TURRETS		
12-21" TORPEDO TUBES (TRIPLE)		
1 CATAPULT, 2 SCOUT OBSERVATION		



## PROTECTION

BELT—1¼" AMIDSHIP  
TURRETS— 1½" FACE PLATES  
          1¼" SIDE PLATES  
          ¾" REAR WALL  
BARBETTES—  
F.C. TOWER—4"  
DECKS— ¾" TO 1½"  
UNDER WATER PROTECTION VERY COMPLETE



KNOTS R.P.M.

	420
	400
	350
	300
	275
	250
	225
	200
	175
	150
	125
	100
DES. SPD	DES. HP
32 KTS.	72,000





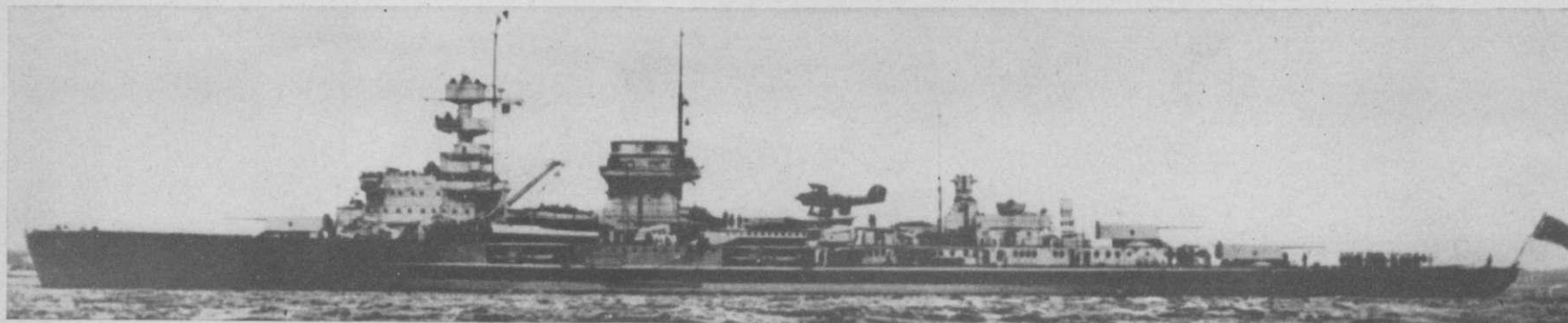
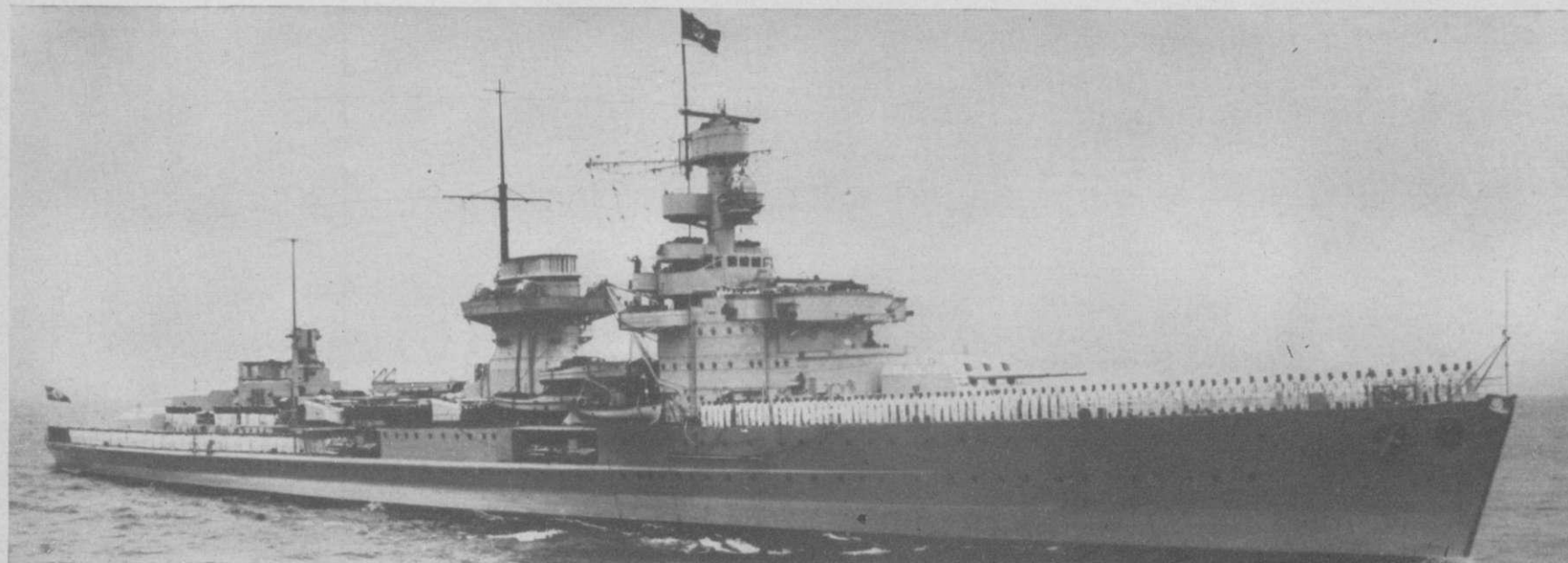
# NÜRNBERG—CL6

DIVISION OF NAVAL INTELLIGENCE—IDENTIFICATION AND CHARACTERISTICS SECTION—AUGUST, 1942

BEGUN—APRIL 11, 1933. COMPLETED—FEBRUARY 11, 1935

ONI 204

RESTRICTED





ONI 204 RESTRICTED  
CONDENSED AND PRINTED FOR FM 30-50, NAVAER 00-80V-57

# MAASZ CLASS—DD4-16

DIVISION OF NAVAL INTELLIGENCE—IDENTIFICATION AND CHARACTERISTICS SECTION—SEPTEMBER, 1942



HEIGHT OF OBSERVER

105  
90  
75  
60  
45  
30  
15

HORIZON BEYOND THE SHIP

SHIP BEYOND THE HORIZON

0

LENGTH—381' OA—374' WL  
BEAM —37'-1"  
DRAFT —9'-2" (MEAN)



DISPLACEMENT 1,625 TONS (STANDARD)

## ARMAMENT

5-5" GUN SHIELDS  
4-1.46 AA  
2-0.78 AA  
8-21" TORPEDO TUBES (QUADRUPLE)  
MAY CARRY MINES



## PROPULSION

BOILERS— H.P. WATER TUBE  
DESIGNED H.P.— 50,000  
DESIGNED SPEED—36 KTS.

KNOTS	R.P.M.
35	420
30 1/2	400
30 1/4	350
26 3/4	300
23	275
	250
	245
	240
	220
19	200
	160
14	150
	120
	80



# MAASZ CLASS—DD4-16

DIVISION OF NAVAL INTELLIGENCE—IDENTIFICATION AND CHARACTERISTICS SECTION—SEPTEMBER, 1942

## SISTER SHIPS

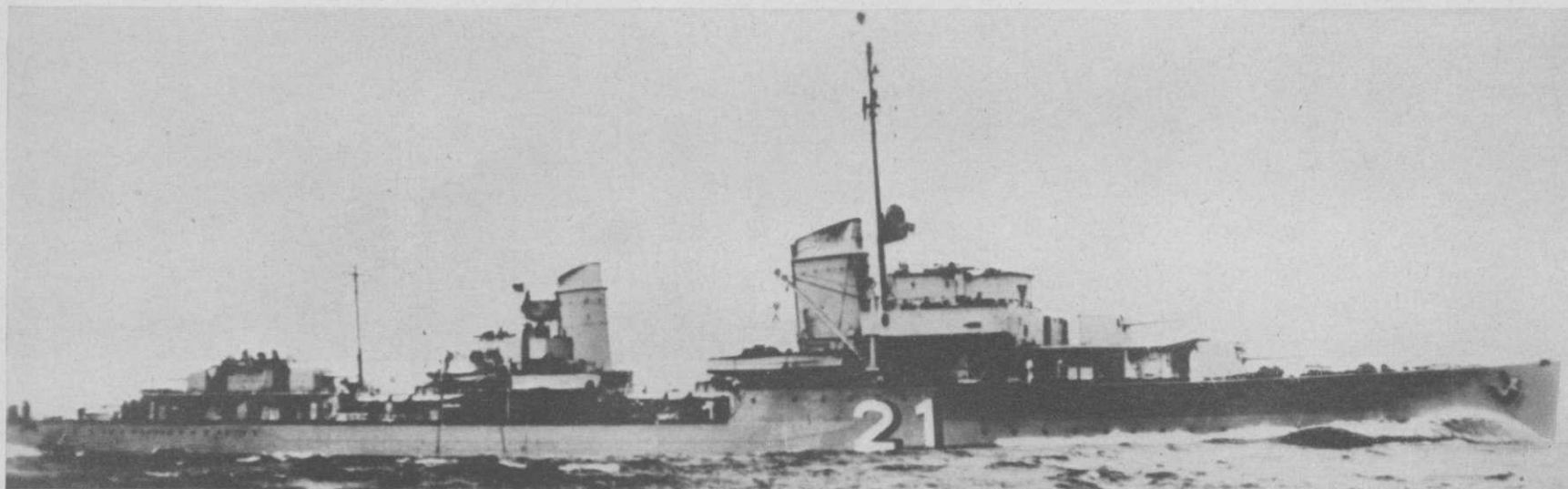
RICHARD BEITZEN  
PAUL JACOBI  
THEODOR RIEDEL  
HERMANN SCHOEMANN

## BEGUN COMPLETED

—DD4 1935	5/13/37	HANS LODY	—DD10 1935	9/17/38
—DD5 7/15/35	6/29/37	FRIEDRICH IHN	—DD14 4/35	4/9/38
—DD6 7/18/35	7/6/37	ERICH STEINBRINCK	—DD15 4/35	6/8/38
—DD7 1935	9/15/37	FRIEDRICH ECKOLDT	—DD16 1935	8/2/38

ONI 204

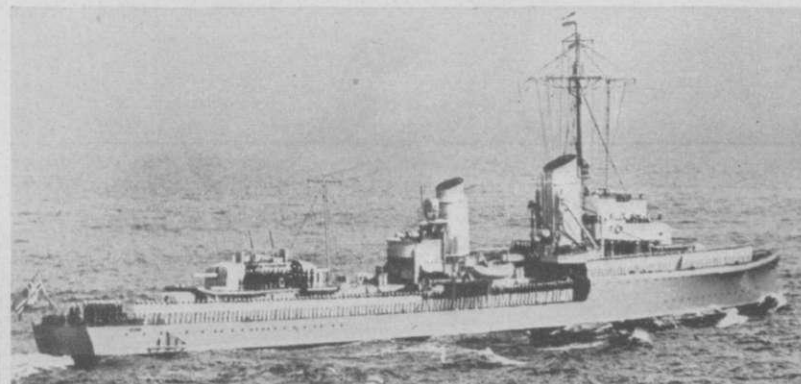
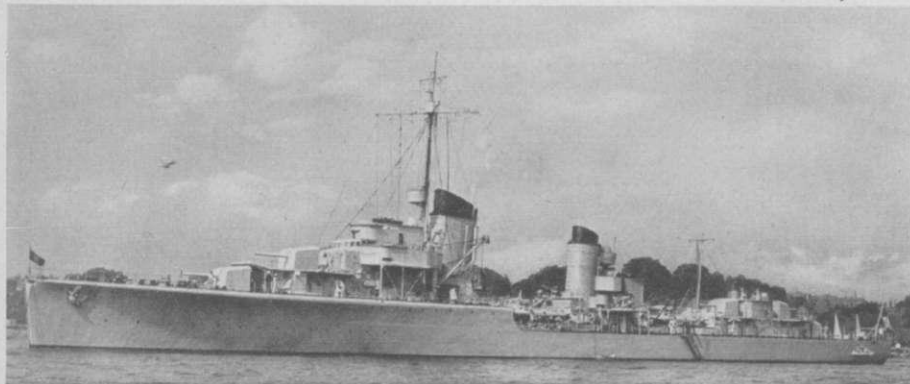
RESTRICTED



LEBERECHT MAASZ ↓

PAUL JACOBI—1939 ↑

8/22/38 ↓



ONI 204

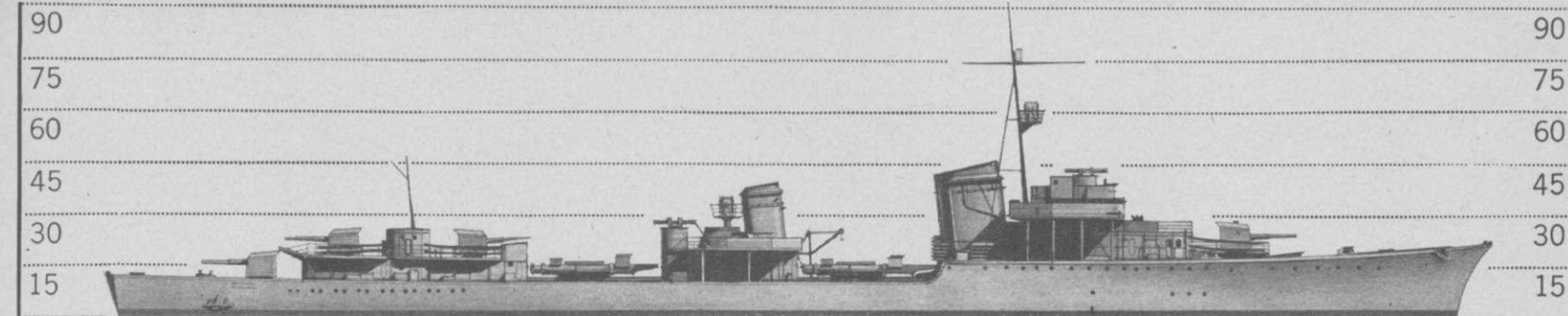
RESTRICTED  
CONDENSED AND PRINTED FOR FM 30-50, NAVAER 00-80V-57

# 'NARVIK' CLASS—DD 23-43

DIVISION OF NAVAL INTELLIGENCE—IDENTIFICATION AND CHARACTERISTICS SECTION—AUGUST, 1942



HEIGHT OF OBSERVER



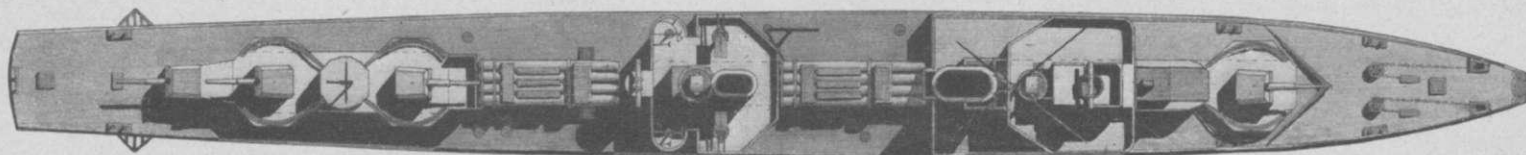
HORIZON BEYOND THE SHIP

SHIP BEYOND THE HORIZON

LENGTH 410' OA—385'-6" WL

BEAM 39'-4"

DRAFT 9'-6" (MEAN)



DISPLACEMENT—1,870 TONS (STANDARD)

## ARMAMENT

4-5" GUN SHIELDS

4-1.46 AA

4-0.78 MG

8-21" TORPEDO TUBES (QUADRUPLE)

SOME BOATS HAVE 6 TUBES, TRIPLED

## PROPULSION

DESIGNED H.P.—55,000

DESIGNED SPEED—36 KTS.

## NOTES

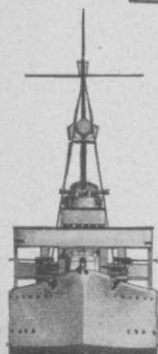
SLIGHTLY ENLARGED ROEDERS; DISTINGUISHABLE BY A SINGLE SHIELD GUN FORWARD.

5" GUN BATTERY ADOPTED TO ENGAGE OPPOSING CRUISERS IN NORWEGIAN WATERS; GERMANS REPORTED REFERRING TO THEM AS "CONVOY DESTROYERS."

ADDITIONAL GERMAN DESTROYERS OF IDENTICAL DIMENSIONS HAVE BEEN OBSERVED; DESIGN CLASSES, NAMES AND NUMBERS UNREPORTED. SOME MOUNT A TWIN GUN HOUSE FORWARD WITH LIGHT AA IN LIEU OF A SHIELD GUN ON THE FANTAIL; OTHERS HAVE SUPERFIRING GUNS FORE AND AFT WITH LIGHT AA ABAFT 2ND NEST OF TUBES.

KNOTS R.P.M.

.....	420
.....	400
.....	350
.....	300
.....	275
.....	245
.....	240
.....	220
.....	200
.....	160
.....	150
.....	120
.....	80





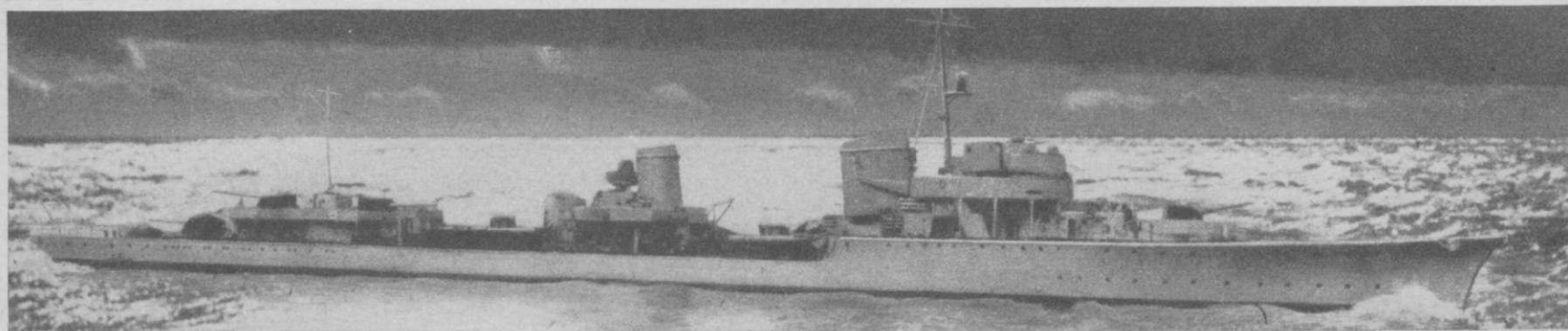
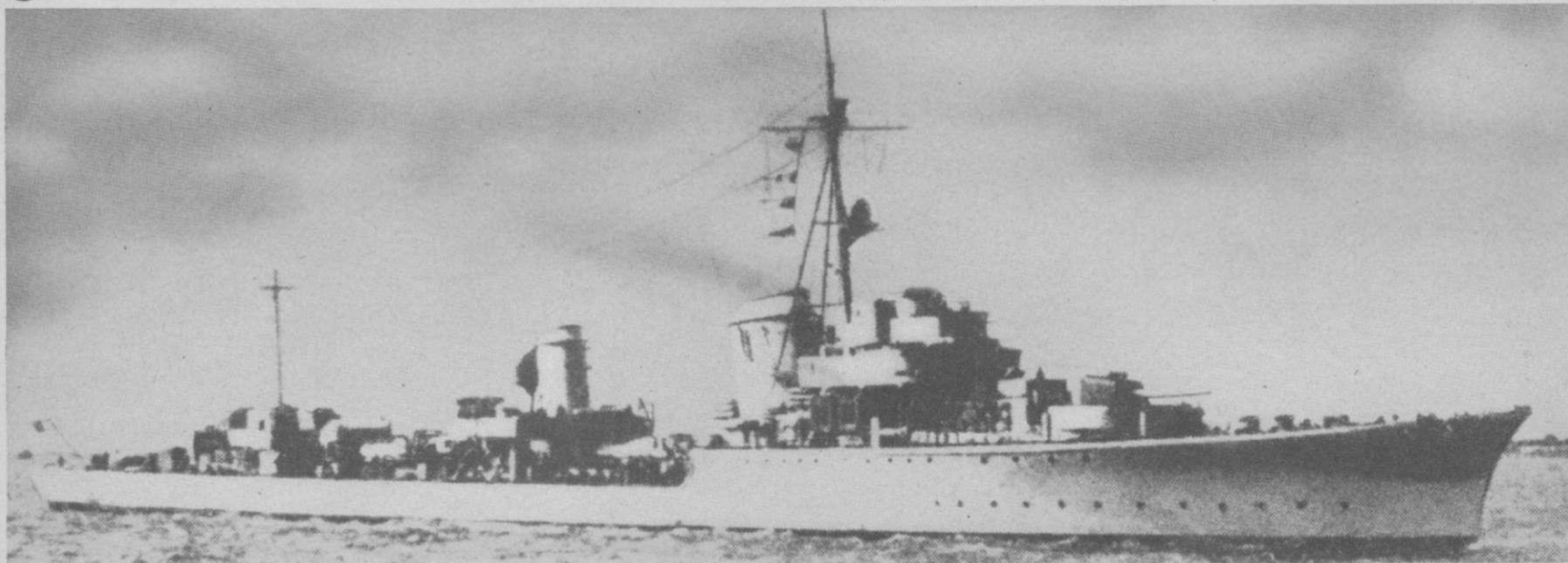
# "NARVIK" CLASS—DD 23-43

DIVISION OF NAVAL INTELLIGENCE—IDENTIFICATION AND CHARACTERISTICS SECTION—AUGUST, 1942

BEGUN—1939. COMPLETED—1940  
NAMES AND NUMBERS UNREPORTED: "NARVIK" IS TEMPORARY CLASS DESIGNATION DERIVED FROM A "NARVIK FLOTILLA" COMPRISED OF THESE BOATS.  
SISTER SHIPS—Z-23 (BRUNO HEINEMAN) Z-24-43

ONI 204

RESTRICTED



PHOTOS-1941



ONI 204 RESTRICTED  
CONDENSED AND PRINTED FOR FM 30-50, NAVAER 00-80V-57

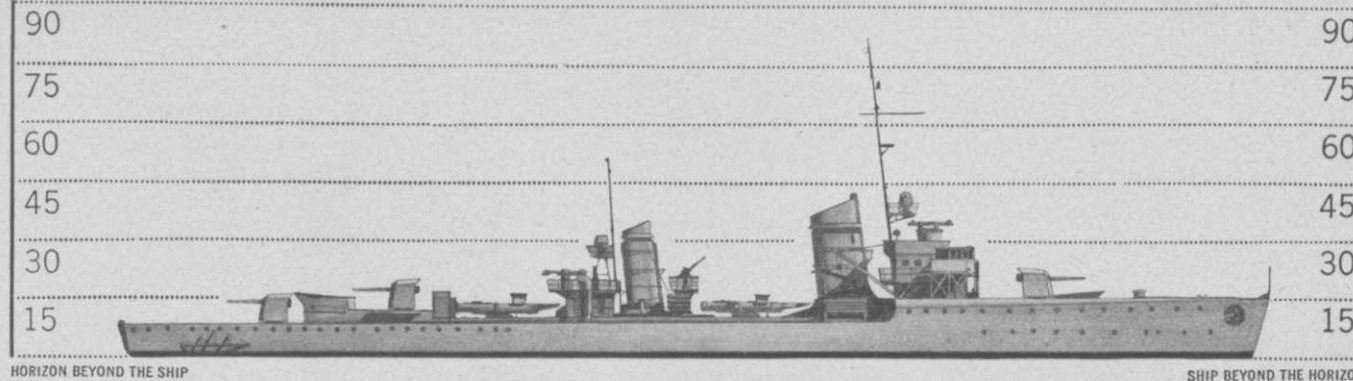
MÖEWE CLASS SIMILAR

WOLF CLASS—TB 7-12



DIVISION OF NAVAL INTELLIGENCE—IDENTIFICATION AND CHARACTERISTICS SECTION—SEPTEMBER, 1942

HEIGHT OF OBSERVER



LENGTH 304' OA—292' WL  
BEAM 28'-3"  
DRAFT 8'-8" (MAXIMUM)

DISPLACEMENT  
800 TONS (STANDARD)



**ARMAMENT**

	MAX. ELEV.	RANGE
3-4.1 DP SHIELDS	70°	
2-1.18 AA		
6-21" TORPEDO TUBES (TRIPLE)		



**PROPULSION**

BOILERS— 3 SCHULTZ-THORNYCROFT  
"MARINE" TYPE  
FUEL— OIL 338 TONS  
DESIGNED H.P.— 25,000  
DESIGNED SPEED— 34 KNOTS  
ENDURANCE— 2,200 AT 20 KTS

**NOTES**

BUILT AS A "DESTROYER" UNDER  
TERMS OF VERSAILLES TREATY.  
UNSATISFACTORY FOR DESTROYER  
WORK.  
REPORTED TO HAVE BOW RUDDER.

KNOTS	R.P.M.
.....	420
.....	400
.....	350
.....	300
.....	275
.....	250
.....	245
.....	240
.....	220
.....	200
.....	160
.....	150
.....	120
.....	80



# WOLF CLASS—TB 7-12

DIVISION OF NAVAL INTELLIGENCE—IDENTIFICATION AND CHARACTERISTICS SECTION—SEPTEMBER, 1942

SISTER SHIPS  
ILTIS TB 8  
JAGUAR TB 9

BEGUN  
3/19/27  
5/ -/27

COMPLETED  
10/1/28  
6/1/29

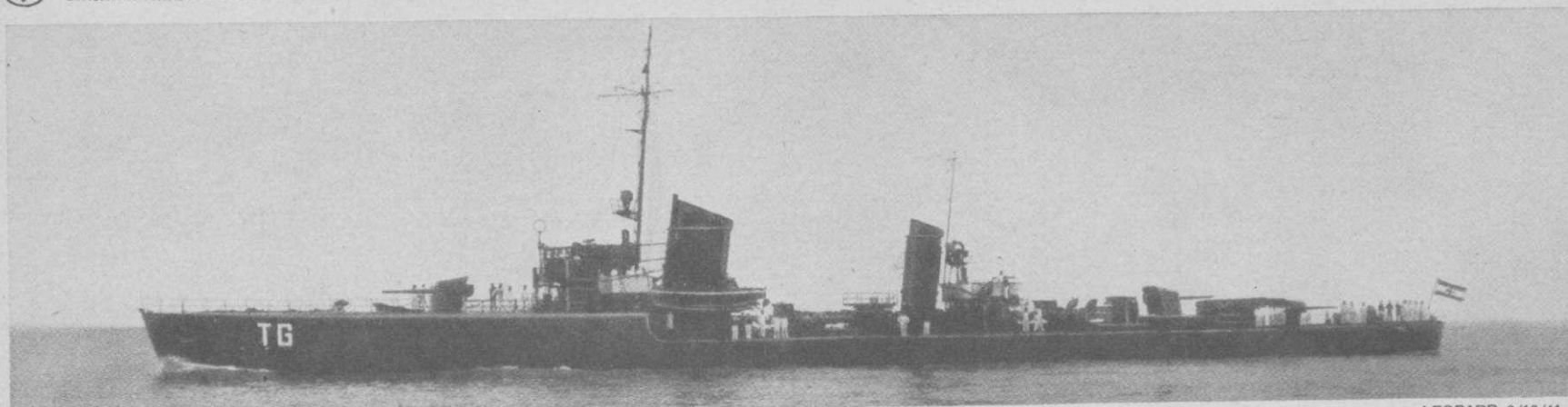
LEOPARD TB 10  
TIGER TB 12

5/ -/27  
3/26/27

8/15/29  
1/15/29

ONI 204

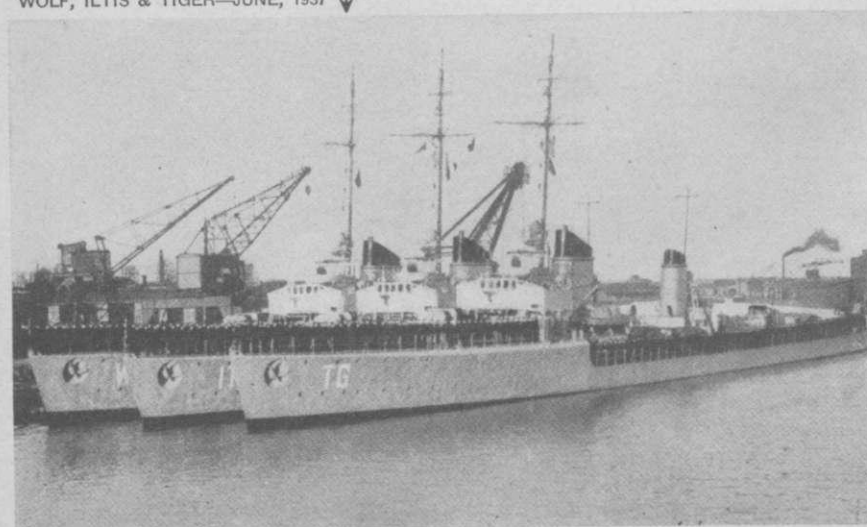
RESTRICTED



WOLF, ILTIS & TIGER—JUNE, 1937 ↓

TIGER—1931 ↑

LEOPARD 6/16/41 ↓



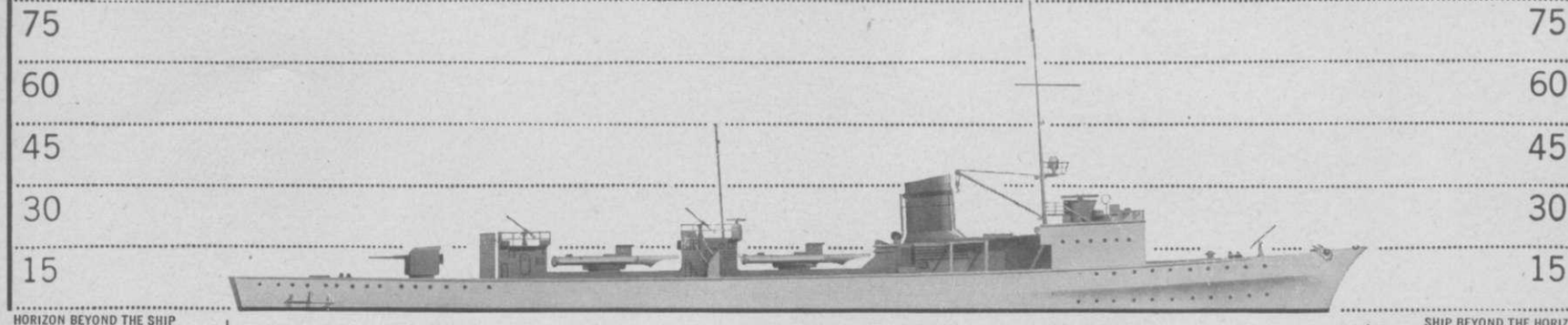
ONI 204 RESTRICTED  
CONDENSED AND PRINTED FOR FM 30-50, NAVAER 00-80V-57

# T1 CLASS—TB 13-42



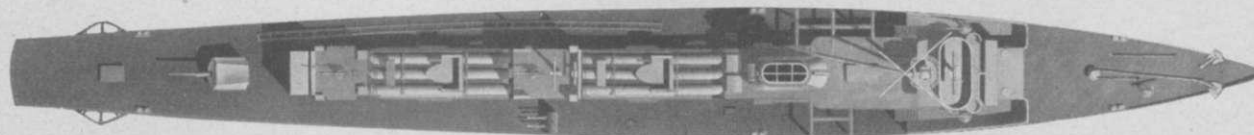
DIVISION OF NAVAL INTELLIGENCE—IDENTIFICATION AND CHARACTERISTICS SECTION—AUGUST, 1943

HEIGHT OF OBSERVER



LENGTH—279'8" OA—267'1" WL  
BEAM —28'3"  
DRAFT —6'3" (MEAN)

DISPLACEMENT  
600 TONS (STANDARD)



## ARMAMENT

1-4"1 (SHIELDED)  
1-1"46  
5-AAMG  
6-21" TORPEDO TUBES

MAX. RANGE

## PROPULSION

GEARED TURBINES  
HIGH PRESSURE WATER TUBE  
BOILERS  
H.P.—22,000  
DESIGNED SPEED—36 KNOTS

## NOTES

EMPLOYMENT  
—SCREENING MAJOR SURFACE UNITS  
—"STIFFENING" COASTAL CONVOY  
ESCORTS AND PATROL FLOTILLAS  
—COVER **AM** AND AIRCRAFT RESCUE  
VESSELS  
  
DANGEROUS OPPONENTS AT LOW VISI-  
BILITY BECAUSE OF LOW SILHOUETTE  
AND HEAVY TORPEDO BATTERY

KNOTS	RPM
.....	480
.....	460
.....	440
.....	420
.....	400
.....	380
.....	360
.....	340
.....	320
.....	300
.....	280
.....	260
.....	240
.....	220
.....	200
.....	180
.....	160
.....	140



# T1 CLASS TB-13-42

DIVISION OF NAVAL INTELLIGENCE—IDENTIFICATION AND CHARACTERISTICS SECTION—AUGUST, 1942

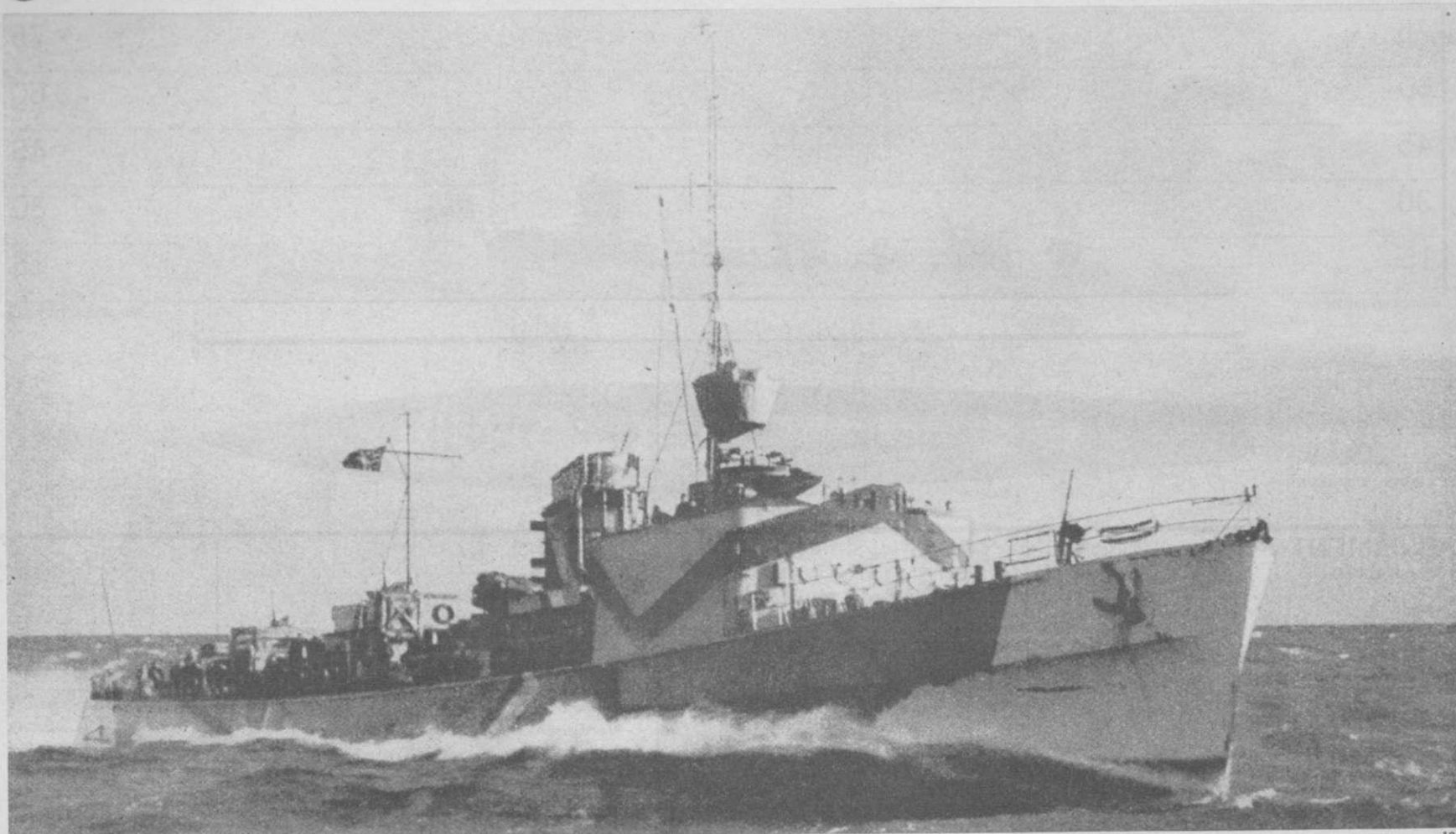
BEGUN—1936. COMPLETED—1938-1940

SISTER SHIPS TB-T1-T19

TB 32-42 BELIEVED SIMILAR

## ONI 204

RESTRICTED



1941



**ITALIAN  
NAVAL VESSELS**

