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**AUTHORITY**

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U.S.S. CONTINGHAM (DD-871)

SHIP CHARACTERISTICS

Building Yard: Boston Naval Shipyard.
Commissioned: 4 November 1928.

HULL

Length Overall: 341 feet 4 inches.
Length on Waterline: 334 feet 6 inches.
Beam (extreme): 56 feet 6 inches.
Depth (molded at side, to main deck, amidships): 18 feet 7 7/8 inches.
Drafts at time of test: Fwd. 12 feet 0 inches.
Aft. 12 feet 6 inches.
Standard displacement: 1,600 tons.
Displacement at time of test: 2,110 tons.

MAIN PROPULSION PLANT

Main Engines: Two sets of G.E. turbines, one per shaft.
Reduction Gears: Two sets De Laval double reduction, one per turbine set.
Condenser: Two are installed in ship.
Boilers: Four boilers, Babcock and Wilcox and Foster Wheeler design. 400 psig gauge - 700°F.
Propellers: Two are installed.
Main Shafts: Two are installed.
Ship's Service Generators: Two 332 KW. - A.C.
and Two 40 KW. - D.C. All four are turbo generators.

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U.S.S. CONTINGHAM (DD-871)

Page 3 of 35 Pages
CONFIDENTIAL

TECHNICAL INSPECTION REPORT

OVERALL SUMMARY

1. Target Condition After Test.
   (a) Drafts after test; list; general areas of flooding, sources.
   There was no flooding, hence no change in drafts or list.
   (b) Structural damage.

HULL

No structural damage occurred in this ship as a result of Test B. Some damage was sustained from contact with tugs.

MACHINERY

No comment.

ELECTRICAL

None observed.

(c) Other damage.

HULL

No damage to propulsion or auxiliary machinery was discovered.

MACHINERY

No machinery on this vessel was damaged by Test B.

ELECTRICAL

None.

Page 5 of 35 Pages
II. Forces Evidenced and Effects Noted.

(a) Heat.

HULL
No evidence of any heat effects was found.

MACHINERY
No evidence.

ELECTRICAL
None.

(b) Fires and explosions.

HULL
None.

MACHINERY
No evidence.

ELECTRICAL
None.

(c) Shock.

HULL

There is a small crack in the brick work of No. 3 boiler, but this did not prevent steaming of the boiler. No other shock effects were noted.

MACHINERY
No evidence.

ELECTRICAL
None.

(d) Pressure.

HULL
No effects noted.

MACHINERY
No evidence.

ELECTRICAL
None.

(e) Effects apparently peculiar to the atom bomb.

HULL
None, except radioactivity.

MACHINERY
None.

ELECTRICAL

The high, persistent radioactivity remaining on the vessel after the explosion was the only effect noted.

USS CONYNGHAM (DD371)

Page 7 of 35 Pages
II. Effects of Damage.

(a) Effect on machinery, electrical, and ship control.

HULL
None.

MACHINERY
None.

ELECTRICAL
None.

(b) Effect on gunnery and fire control.

HULL
None.

MACHINERY
No comment.

ELECTRICAL
None.

(c) Effect on water-tight integrity and stability.

HULL
None.

MACHINERY
No comment.

ELECTRICAL
None.

ELECTRICAL
No effect due to electrical failure.

(d) Effect on personnel and habitability.

HULL
Habitability is unaffected. There probably would be no effect on personnel other than that of radioactivity.

MACHINERY
None.

ELECTRICAL
Electrical failures or derangements had no effect on the habitability of the vessel.

(e) Effect on fighting efficiency.

HULL
Fighting efficiency is not affected, if effects of radioactivity are neglected.

MACHINERY
None.

ELECTRICAL
None.

IV. General Summary of Observers' Impressions and Conclusions.

HULL
This vessel was outside of the danger range except for probable radiological hazards.
MACHINERY

The CONYNGHAM was outside the effective range of the explosion in Test B.

ELECTRICAL

The vessel position in the target array was too far from the point of the explosion to receive sufficient shock for a good test of the ruggedness of the ship and its equipment.

V. Preliminary General or Specific Recommendations of Inspection Group.

HULL

None.

MACHINERY

None.

ELECTRICAL

No recommendations are made in view of the fact that no damage was sustained.

TECHNICAL INSPECTION REPORT

SECTION I - HULL

GENERAL SUMMARY OF HULL DAMAGE

I. Target Condition After Test.

(a) Drafts after test; list; general areas of flooding, sources.

There was no flooding, hence no change in drafts or list.

(b) Structural damage.

No structural damage occurred in this ship as a result of test "B". Some damage was sustained from contact with tugs.

(c) Other damage.

No damage to propulsion or auxiliary machinery was discovered.

II. Forces Evidenced and Effects Noted.

(a) Heat.

No evidence of any heat effects was found.

(b) Fires and explosions.

None.

(c) Shock.

There is a small crack in the brick work of No. 3 boiler, but this did not prevent steaming of the boiler. No other shock effects were noted.

SECRET

USS CONYNGHAM (DD 371)

Page 10 of 35 Pages
(d) Pressure.
No effects noted.

(e) Effects peculiar to the Atomic Bomb.
None, except radioactivity.

III. Results of Test on Target.

(a) Effect on machinery, electrical, and ship control.
None.

(b) Effect on gunnery and fire control.
None.

(c) Effect on watertight integrity and stability.
None.

(d) Effect on personnel and habitability.
Habitability is unaffected. There probably would be no effect on personnel other than that of radioactivity.

(e) Effect on fighting efficiency.
Fighting efficiency is not affected, if effects of radioactivity are neglected.

IV. General Summary of Observers Impressions and Conclusions.
This vessel was outside of the danger range except for probable radiological hazards.

V. Preliminary Recommendations.
No comment.

SECRET

U. S. S. CONYNHAM (DD 371)

Page 12 of 35 Pages

VI. Instructions for loading the vessel specified the following:

<table>
<thead>
<tr>
<th>ITEM</th>
<th>LOADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel oil</td>
<td>50%</td>
</tr>
<tr>
<td>Diesel oil</td>
<td>50%</td>
</tr>
<tr>
<td>Ammunition</td>
<td>50%</td>
</tr>
<tr>
<td>Potable and reserve feed water</td>
<td>Full load</td>
</tr>
<tr>
<td>Salt water ballast</td>
<td>150 tons</td>
</tr>
</tbody>
</table>

Details of the actual quantities of the various items aboard are included in Report 7, Stability Inspection Report, submitted by the ship's force in accordance with "Instructions to Target Vessels for Tests and Observations by Ship's Force" issued by the Director of Ships Material. This report is available for inspection in the Bureau of Ships Crossroads Files.
DETAILED DESCRIPTION OF HULL DAMAGE

A. General Description of Hull Damage.

No structural damage occurred in this ship as a result of test "B". Tugs dished in the side plating in several locations. General views of the exterior are shown on pages 30 to 33, inclusive.

B. Superstructure.

No damage was sustained by superstructure as a result of test. The 20mm gun bulwark at frame 100, starboard, was damaged from contact with a tug.

C. Guns and Directors.

No damage.

D. Torpedo Mounts, Depth Charge Gear.

No damage.

E. Weather Deck.

No damage. Deck deflection gages recorded no movement.

F. Exterior Hull.

No damage occurred except from contact with tugs.

G. Interior Compartments (Above Waterline).

No damage.

H. Armor Decks and Miscellaneous Armor.

Not applicable.

SECRET

U. S. S. CONYNGHAM (DD 371)

Page 14 of 35 Pages

L. Interior Compartments (Below Waterline).

Essentially, no damage occurred. There is a small crack in the brick work of No. 3 boiler, but this did not prevent steam-ing of the boiler. Whether or not this crack existed before the test could not be determined.

J. Underwater Hull.

No damage.

K. Tanks.

No damage.

L. Flooding.

None.

M. Ventilation.

No damage.

N. Ship Control.

No damage.

O. Fire Control.

No damage.

P. Ammunition Behavior.

No damage.

Q. Ammunition Handling.

No damage.

SECRET

U. S. S. CONYNGHAM (DD 371)

Page 15 of 35 Pages
R. Strength.
No damage.

S. Miscellaneous.
No comment.

TECHNICAL INSPECTION REPORT
SECTION II - MACHINERY
GENERAL SUMMARY OF MACHINERY DAMAGE

I. Target Condition After Test.
(a) Drafts after test; list; general areas of flooding, sources.
   No comment.
(b) Structural damage.
   No comment.
(c) Other damage.
   No machinery on this vessel was damaged by Test B.

II. Forces Evidenced and Effects Noted.
(a) Heat.
   No evidence.
(b) Fires and explosions.
   No evidence.
(c) Shock.
   No evidence.
(d) Pressure.
   No evidence.

SECRET
U. S. S. CONYNGHAM (DD 371)
Page 16 of 36 Pages
(a) Effects apparently peculiar to the atom bomb.
None.

III. Effects of Damage.
(a) Effect on machinery and ship control.
None.
(b) Effect on gunnery and fire control.
No comment.
(c) Effect on water-tight integrity and stability.
No comment.
(d) Effect on personnel and habitability.
None.
(e) Total effect on fighting efficiency.
None.

IV. General Summary.
The CONYNHAM was outside the effective range of the explosion in Test B.

V. Preliminary Recommendations.
None.

DETAILED DESCRIPTION OF MACHINERY DAMAGE

A. General Description of Machinery Damage.

(a) Overall Condition.
The overall condition of the machinery plant was not changed by Test B.

(b) Areas of major damage.
None.

(c) Primary cause of damage in each area of major damage.
Not Applicable.

(d) Effect of target test on overall operation of machinery plant.
The operation of the machinery plant was not affected by Test B.

B. Boilers.
Undamaged. All boilers were steamed after Test B, and functioned normally. Hydrostatic tests on boilers 1 and 2 before and after Test B indicate no change in the tightness of the boilers.

HYDROSTATIC TEST DATA

<table>
<thead>
<tr>
<th>Before Test B</th>
<th>After Test B</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 lb/sq. in.</td>
<td>530 lb/sq. in.</td>
</tr>
<tr>
<td>50 lb/sq. in.</td>
<td>430 lb/sq. in.</td>
</tr>
</tbody>
</table>

SECRET
USS CONYNHAM (DD371)
Page 18 of 35 Pages
I. Boilers.

Undamaged. All of the forced draft blowers have been operated at their normal speeds and pressures since Test B.

Blower R. P. M. Test
Before Test B    After Test B
Pressure #1 fire room  11.3"  11.9"
Blower R. P. M. #2 F.D. Blower  4500   4550

D. Fuel Oil Equipment.

Undamaged. All of the fuel oil equipment has been operated under normal working conditions since Test B.

E. Boiler Feedwater Equipment.

Undamaged. All of the boiler feedwater equipment has been operated under normal working conditions since Test B.

F. Main Propulsion Machinery.

Undamaged. Both of the main engines were operated ahead up to 145 R.P.M. and astern to 90 R.P.M. while changing anchorage after Test B.

G. Reduction Gears.

Undamaged. Both reduction gears were inspected while jacking the units. Lubrication is normal. Both gears operated satisfactorily while the ship was underway.

H. Shafting and Bearings.

Undamaged. Both shafts and all bearings were checked while the ship was underway, and functioned normally.

I. Lubrication System.

Undamaged. The lubrication system has been operated under normal working conditions since Test B.

J. Condensers and Air Ejectors.

Undamaged. All main and auxiliary condensers and air ejectors have been operated under normal working conditions since Test B.

K. Pumps.

Undamaged. Three pumps (1 emergency feed, cruising feed, #2 main condensate and booster) were inoperative before Test B. Their condition was not changed by the test. All other pumps were operated under service conditions after Test B, and functioned normally.

L. Auxiliary Generators (Turbines and Gears).

Undamaged. Both turbo-generators have been operated under load since Test B, and functioned normally.

M. Propellers.

Undamaged. The propellers have not been closely inspected. Examination from the surface of the water disclosed no damage. Both propellers operated satisfactorily while the ship was underway.
N. Distilling Plant.

Undamaged. The distilling plant has been operated since Test B, and functioned normally.

O. Refrigeration Plant.

Undamaged. The refrigeration plant has been operated since Test B, and functioned normally.

P. Winches, Windlasses, and Capstans.

Undamaged. The anchor windlass and the deck winch have been operated since Test B, and functioned normally.

Q. Steering Engine.

Undamaged. The steering gear was operated at normal working conditions while the ship was underway after Test B. Performance was normal.

R. Elevators, Ammunition Hoists, etc.

Undamaged. The ammunition hoists have been operated since Test B, and functioned normally.

S. Ventilation (Machinery).

Undamaged. Two exhaust fans were inoperable before Test A. Their condition was not changed by the test. All other ventilation machinery was operated after Test B, and functioned normally.

T. Compressed Air Plant.

1. The low pressure air compressor was inoperable before Test B. Its condition was not changed by the test.

2. The high pressure air compressor has been operated at normal speed and pressure since Test B.
TECHNICAL INSPECTION REPORT

SECTION III - ELECTRICAL

GENERAL SUMMARY OF ELECTRICAL DAMAGE

I. Target Condition After Test.
   (a) Drafts after test; list; general areas of flooding, sources.
      Not observed.
   (b) Structural damage.
      None observed.
   (c) Other damage.
      None.

II. Forces Evidenced and Effects Noted.
   (a) Heat.
      None.
   (b) Fires and explosions.
      None.
   (c) Shock.
      None.
   (d) Pressure.
      None.
(a) Any effects apparently peculiar to the atom bomb.

The high, persistent radioactivity remaining on the vessel after the explosion was the only effect noted.

III. Effects of Damage.

(a) Effect on propulsion and ship control.

None.

(b) Effect on weaponry and fire control.

None.

(c) Effect on watertight integrity and stability.

No effect due to electrical failure.

(d) Effect on personnel and habitability.

Electrical failures or derangements had no effect on the habitability of the vessel.

(e) Total effect on fighting efficiency.

None.

IV. General Summary of Observers' Impressions and Conclusions.

The vessel's position in the target array was too far from the point of explosion to receive sufficient shock for a good test of the ruggedness of the ship and its equipment.

V. Any Preliminary General or Specific Recommendations of the inspecting Group.

No recommendations are made in view of the fact that no damage was sustained.

DETAILED DESCRIPTION OF ELECTRICAL DAMAGE

A. General Description of Electrical Damage.

(a) Overall condition.

The condition of the electrical equipment was unchanged.

(b) Areas of major damage.

There was no damage.

(c) Primary causes of damage in each area of major damage.

There was no damage.

(d) Effect of target test on overall operation of electric plant.

1. Ship's service generator plant - no change.
2. Engine and boiler auxiliaries - no change.
3. Electrical propulsion - none aboard.
4. Communications - no change.
5. Fire control circuits - no change.
6. Ventilation - no change.
7. Light - no change.

(e) Types of equipment most affected.

There was no effect on any equipment.

B. Electric Propulsion Rotating Equipment.

This item does not apply.
C. Electric Propulsion Control Equipment.
   This item does not apply.
D. Generators - Ships Service.
   No damage.
E. Generators - Emergency.
   No damage.
F. Switchboards, Distribution and Transfer Panels.
   No damage.
G. Wiring, Wiring Equipment and Wireways.
   No damage.
H. Transformers.
   No damage.
I. Submarine Propelling Batteries.
   This item does not apply.
J. Portable Batteries.
   No damage.
K. Motors, Motor Generator Sets and Motor Controllers.
   No damage.
L. Lighting Equipment.
   No damage.

M. Searchlights.
   No damage.
N. Degaussing Equipment.
   No damage.
O. Gyro Compass Equipment.
   No damage.
P. Sound Powered Telephones.
   No damage.
Q. Ship's Service Telephones.
   This item does not apply.
R. Announcing Systems.
   No damage.
S. Telegraphs.
   No damage.
T. Indicating Systems.
   No damage.
   No damage.
V. F.C. Switchboards.
   No damage.
SECTION IV

PHOTOGRAPHS

TEST BAKER

AB-CR-227-285-86. View from off starboard beam after Test B.
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SECTION III

PART A - GENERAL SUMMARY

I. Target Condition After Test.

No change except ship radio active. No other effect of bomb. Effect on personnel cannot be estimated by this command, but it is believed that the psychological effect would not have been as terrific as in the Able Test since there would have been little or no flash.

II. Forces Evidenced and Effects Noted.

None except radio activity.

III. Results of Test on Target.

None other than radio activity and resulting effect on personnel. It is believed that the effect on personnel would not immediately have reduced their fighting efficiency of the ship.

IV. General Summary.

It is believed that the target would have suffered severe internal effects if it had been inhabited and ventilated by the present ventilation system.

V. Preliminary Recommendations.

It is recommended that no foam solution be used for decontamination unless immediately washed off before allowing to dry on painted surfaces.
MEMORANDUM FOR DEFENSE TECHNICAL INFORMATION CENTER
ATTENTION: OMI/Mr. William Bush (Security)

SUBJECT: Declassification of Reports

The Defense Special Weapons Agency has declassified the following reports:

✓ AD-366588  XRD-203-Section 12
AD-366589  XRD-200-Section 9
AD-366590  XRD-204-Section 13
AD-366591  XRD-183
✓ AD-366586  XRD-201-Section 10
✓ AD-367487  XRD-131-Volume 2
✓ AD-367516  XRD-143
✓ AD-367493  XRD-142
AD-801410L  XRD-138
AD-376831L  XRD-83
AD-366759L  XRD-80
✓ AD-376830L  XRD-79
✓ AD-376828L  XRD-76
✓ AD-367464L  XRD-106
AD-801404L  XRD-105-Volume 1
✓ AD-367459L  XRD-100
Subject: Declassification of Report

AD-376836LV ✓ XRD-98✓
AD-376835LV ✓ XRD-97✓
AD-376834LV ✓ XRD-96✓
AD-376833LV ✓ XRD-95✓
AD-376832LV ✓ XRD-94✓ re-ject
✓ AD-367458LV ✓ XRD-93✓
AD-367457✓ XRD-92 Volume 2
AD-367456✓ XRD-91 Volume 1
AD-367455✓ XRD-90
AD-367454✓ XRD-89
AD-367453✓ XRD-88
AD-367452✓ XRD-87
AD-366764✓ XRD-86
AD-376837LV ✓ XRD-99
AD-366758✓ XRD-78
AD-366734✓ XRD-44
AD-366763✓ XRD-85
AD-376829LV ✓ XRD-77✓
✓ ✓ AD-367462 ✗ XRD-103✓
✓ ✓ AD-367463 ✗ XRD-104✓
✓ ✓ AD-367461 ✗ XRD-102✓
AD-367460 ✓ XRD-101
Subject: Declassification of Reports

AD-801406L ✓ XRD-114.

In addition, all of the cited reports are now approved for public release; distribution statement "A" now applies.

ARIDITH JARRETT
Chief, Technical Resource Center