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THIS PAGE IS UNCLASSIFIED
BUREAU OF SHIPS GENERAL
TECHNICAL INSPECTION REPORT

OPERATION CROSSROADS
U.S.S. TRIPPE (DD403)

TEST BAKER [U.J.

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Director
Defense Atomic Support Agency
Washington, D.C. 20301

OPERATION CROSSROADS
DIRECTOR OF SHIP MATERIAL
JOINT TASK FORCE ONE

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Not automatically declassified.

GROUP-3
1 JAN 1985

REG. NO.

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U.S.S. TRIPPE (DD 403)

SHIP CHARACTERISTICS

Building Yard:  Boston Naval Shipyard.
Commissioned:  1 November 1939.

HULL

Length Overall:  340 feet 9 inches.
Length on Waterline:  334 feet 0 inches.
Beam (extreme):  35 feet 6 inches.
Depth (molded at side, to main deck, amidships):  19-feet 7 7/8 inches.
Drafts at time of test:  Fwd. 13 feet 2 inches.
                          Aft. 12 feet 3 inches.
Standard Displacement:  1500 tons.
Displacement at time of test:  2215 tons.

MAIN PROPULSION PLANT

Main Engines:  Two sets of Westinghouse main turbines are installed, one set per shaft.
Reduction Gears:  Two sets of De-Laval double reduction are installed. One per Turb. set.
Main Condenser:  Two are installed in ship.
Boilers:  Three Babcock and Wilcox boilers are installed in ship.  585 psi guage, 705 °F.
Propellers:  Two are installed in ship.
Main shafts:  Two are installed.
Ships Service Generators:  Four are installed in ship.  Two 132 KW. - AC. sets and two 40 KW. - D-C sets.
TECHNICAL INSPECTION REPORT

OVERALL SUMMARY

I. Target Condition After Test.

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

No flooding, or change of list or trim resulted from test B. Parallel sinkage occurred to a slight degree due to normal leakage. This leakage amounted to 12 inches in the forward fireroom, 24 inches in the after fireroom, 8 inches in the forward engine room, and 16 inches in the after engine room. A small amount of water was found in the ice machine room, two inches of water in the wardroom washroom, A-105-2L, and in the crew's washroom. Water in washrooms probably resulted from washing down operations. Leakage into the ice machine room probably was through loose valves, flanges, and other fittings.

(b) Structural damage.

HULL

No structural damage, attributable to the test, occurred. No topside damage resulted except the parting of a foremast stay.

MACHINERY

No comment.

ELECTRICAL

There was no apparent structural damage due to test B.

(c) Other damage.

HULL

Not observed.

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MACHINERY

A large patch of plastic fell out of the front wall of #1 boiler. This wall was in poor condition before test B. It is not believed that the boiler would have been damaged at all if it had been in good condition. There is no other damage to machinery of this vessel, as far as can be determined by visual inspection.

ELECTRICAL

No damage occurred to electrical equipment due to test B.

II. Forces Evidenced and Effects Noted.

(a) Heat.

HULL

There was no evidence of heat.

MACHINERY

No evidence.

ELECTRICAL

No evidence of heat.

(b) Fires and explosions.

HULL

None.

MACHINERY

No evidence.

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ELECTRICAL

No evidence of fires or explosions.

(c) Shock.

HULL

There is evidence of a slight shock. A large patch of plaster fell from the forward wall of No. 1 boiler. This wall was in poor condition prior to test B. The only other evidence of shock is in the breakage of several light bulbs.

MACHINERY

The vessel received a moderate shock which knocked a large patch of plastic out of #1 boiler. There is no other evidence of shock on machinery.

ELECTRICAL

No evidence of shock.

(d) Pressure.

HULL

The explosion bore approximately 345 degrees relative. Slight damage occurred to the stack breeching and to the door to the general workshop, (B-104-E).

MACHINERY

No evidence

ELECTRICAL

No evidence of pressure.
(e) Effects peculiar to the atomic bomb.

HULL
None, except radioactivity.

MACHINERY
None.

ELECTRICAL
Other than radioactivity, no effects peculiar to the atom bomb were noted.

III. Results of Test on Target.

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

HULL
None, except loosened plaster on No. 1 boiler which rendered this boiler temporarily inoperable.

MACHINERY
Boiler #1 was made temporarily inoperable. Repairs could be made by the ship's force within a few hours.

Note: Because of radioactivity, which was high when the ship was inspected 18 days after test B, no machinery except the emergency diesel generator was operated after test B.

ELECTRICAL
No damage apparent.

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ELECTRICAL

No electrical damage affected personnel or habitability.

(e) Effect on fighting efficiency.

HULL

It is estimated that inoperability of No. 1 boiler, resulting from dislodged plaster, would have temporarily reduced the ship's speed by three knots.

Fighting efficiency is otherwise unaffected, except as far as personnel would be affected by radioactivity.

MACHINERY

Damage to #1 boiler reduced the ship's maximum speed by about 3 knots temporarily. Repairs could be made by the ship's force within a few hours. It is not believed that this boiler would have been damaged if it had been in good condition. In this case the test would have had no effect on fighting efficiency from a machinery viewpoint, except for possible effects of radioactivity.

ELECTRICAL

No electrical damage affected the fighting efficiency of the vessel.

IV. General Summary of Observers Impressions and Conclusions.

HULL

No comment.

MACHINERY

The TRIPPE was outside the effective range of physical damage to machinery during test B.

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ELECTRICAL

No damage was evident on any electrical equipment on this vessel. It appears that the presently available electrical equipment has sufficient shock resistance qualities to withstand any stresses imposed on it under conditions existing during test B.

V. Miscellaneous.

HULL

No comment.

MACHINERY

None.

ELECTRICAL

None.
I. Target Condition After Test.

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

No flooding, or change of list or trim resulted from Test B. Parallel sinkage occurred to a slight degree due to normal leakage. This leakage amounted to 12-inches in the forward fireroom, 24-inches in the after fireroom, 8-inches in the forward engine room, and 16-inches in the after engine room. A small amount of water was found in the ice machine room, two inches of water in the wardroom washroom, A-105-2L, and in the crew's washroom. Water in washrooms probably resulted from washing down operations. Leakage into the ice machine room probably was through loose valves, flanges, and other fittings.

(b) Structural damage.

No structural damage, attributable to the test, occurred. There is no topside damage resulted except the parting of a foremast stay.

(c) Other damage.

Not observed.

II. Forces Evidenced and Effects Noted.

(a) Heat.

There was no evidence of heat.

(b) Fires and explosions.

None.
(c) Shock.

There is evidence of a slight shock. A large patch of plaster fell from the forward wall of No. 1 boiler. This wall was in poor condition prior to Test B. The only other evidence of shock is the breakage of several light bulbs.

(d) Pressure.

The explosion bore approximately 345° relative. Slight damage occurred to the stack breeching and the door to the general workshop, (B-104-E).

(e) Effects apparently peculiar to the atom bomb.

None, except radioactivity.

III. Effects of Damage.

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

None, except loosened plaster on No. 1 boiler which rendered this boiler temporarily inoperable.

(b) Effect on gunnery and fire control.

None.

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

None.

(d) Effect on personnel and habitability.

No effect except that of radioactivity.
(e) Effect on fighting efficiency.

It is estimated that inoperability of No. 1 boiler, resulting from dislodged plaster, would have temporarily reduced the ship's speed by three knots.

Fighting efficiency is otherwise unaffected, except insofar as personnel would be affected by radioactivity.

IV. General Summary of Observers' Impressions and Conclusions.

No comment.

V. Preleminary General or Specific Recommendations of Inspection Group.

No comment.

VI. Instructions for loading the vessel specified the following:

<table>
<thead>
<tr>
<th>ITEM</th>
<th>LOADING</th>
</tr>
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<tbody>
<tr>
<td>Fuel Oil</td>
<td>Full Load</td>
</tr>
<tr>
<td>Diesel Oil</td>
<td>Min.</td>
</tr>
<tr>
<td>Ammunition</td>
<td>10%</td>
</tr>
<tr>
<td>Potable and reserve feed water</td>
<td>Full Load</td>
</tr>
<tr>
<td>Salt water ballast</td>
<td>360 tons</td>
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</tbody>
</table>

Details of the actual quantities of the various items aboard are included in Report 7, Stability Inspection Report submitted by 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 attributable to the test occurred.

B. Superstructure.

Stack breeching to the forward boiler was slightly crushed, port and starboard. The foremast after stay parted near its connection to the mast. The door to the general workshop (B-104-E) is distorted. However, other lighter structure in the vicinity of this door is unaffected.

C. Turrets, Guns and Directors.

No damage.

D. Torpedo Mounts, Depth Charge Gear.

No damage.

E. Weather Deck.

No damage.

F. Exterior Hull.

No damage.

G. Interior Compartments (above w.l.).

No damage.

H. Armor Decks and Miscellaneous Armor.

Not Applicable.

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I. Interior Compartments (below w.l.).

No damage.

J. Underwater Hull.

No damage.

K. Tanks.

No damage.

L. Flooding.

No flooding occurred. Parallel sinkage occurred to a slight degree, however, from normal leakage through loose valves, pipe flanges, and other fittings. This leakage amounted to 12-inches in the forward fireroom, 24-inches in the after fireroom, 8-inches in the forward engine room, and 16-inches in the after engine room. A small amount of water from washing down operations was found in the wardroom washroom, A-105-2L and in the crew's washroom. Leakage from fittings in the ice machine room resulted in two inches of water on the deck.

M. Ventilation.

No damage.

N. Ship Control.

No damage.

O. Fire Control.

No damage.

P. Ammunition Behavior.

No damage.

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Q. Ammunition Handling.
   No damage.

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.

Machinery spaces had water in them after test "B" as follows:

- Forward fire room - 1 foot
- Forward engine room - 8 inches
- After fire room - 2 feet
- After engine room - 16 inches

This is believed to be normal leakage during the absence of the crew, not attributable to test "B".

(b) Structural damage.

No comment.

(c) Other damage.

A large patch of plastic fell out of the front wall of #1 boiler. This wall was in poor condition before test "B". It is not believed that the boiler would have been damaged at all if it had been in good condition. There is no other damage to machinery of this bessel, as far as can be determined by visual inspection.

II. Forces evidenced and effects noted.

(a) Heat.

No evidence.
(b) Fires and explosions.
   No evidence.

(c) Shock.
   The vessel received a moderate shock which knocked a large patch of plastic out of #1 boiler. There is no other evidence of shock on machinery.

(d) Pressure.
   No evidence.

(e) Any effects apparently peculiar to the Atom Bomb.
   None.

III. Effects of damage.

(a) Effect on machinery and ship control.
   Boiler #1 was made temporarily inoperable. Repairs could be made by the ship's force within a few hours.
   Note: Because of radioactivity, which was high when the ship was inspected 16 days after Test "B", no machinery except the emergency diesel generator was operated after Test "B".

(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 below decks, except radioactivity.
(e) Total effect on fighting efficiency.

Damage to #1 boiler reduced the ship's maximum speed by about 3 knots temporarily. Repairs could be made by the ship's force within a few hours. It is not believed that this boiler would have been damaged if it had been in good condition. In this case the test would have had no effect on fighting efficiency from a machinery viewpoint, except for possible effects of radioactivity.

IV. General Summary.

The TRIPPE was outside the effective range of physical damage to machinery during Test "B".

V. Preliminary Recommendations.

None.
DETAILED DESCRIPTION OF MACHINERY DAMAGE

A. General Description of Machinery Damage.

(a) Overall condition.

The enginerooms and firerooms have from 8 inches to 2 feet of water in them. This is considered to be normal leakage during the absence of the crew, and not attributable to Test "B".

A large patch of plastic fell out of the front wall of the saturated side of boiler #1. This wall was in poor condition before Test "B". There is no other change in the overall condition of the machinery.

(b) Areas of major damage.

None.

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

Not applicable.

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

The test had no apparent effect on the machinery of this vessel except for the falling of plastic in #1 boiler. (See (a) above). This could have been repaired by the ship's force within a few hours, and would not have occurred if the boiler had been in good condition before the test.

Note: No machinery on this vessel except the emergency diesel generator has been operated or tested since Test "B". Visual inspections only were made because of radioactivity, which was high 18 days after Test "B".
B. Boilers.

(a) Air casings.
No apparent damage.

(b) External Fittings.
No apparent damage.

(c) Fuel oil burner assemblies.
No apparent damage.

(d) Brickwork and furnaces.
A large patch of plastic in the front wall of boiler #1 broke out and fell down. (See photo 2976-6, page __). This made the boiler inoperable. Repairs could be made by the ship’s force within a few hours. This plastic was in poor condition before the test. It is not believed that this boiler would have been damaged if it had been in good condition before the test. Otherwise, there was no apparent damage to brickwork of boilers #1 and 2. The interior of boiler #3 was not inspected because of the presence of water in the fire room bilges.

Note: Boiler #3 was inoperable before Test “B”. It was not inspected closely because of the presence of water in the after fireroom but did not appear to have been damaged by Test “B”. Boiler #1 was in poor condition before Test “B” but sustained no apparent damage therefrom except the falling out of a patch of plastic (See (d) above). None of the boilers on this vessel were tested hydrostatically after Test “B”.

C. Blowers.
No apparent damage.

D. Fuel Oil Equipment.
No apparent damage.
E. Boiler Feedwater Equipment.

No apparent damage.

F. Main Engines.

No apparent damage. The engines were trammed before and after Test "B". No displacement or misalignment occurred during the test.

G. Reduction Gears.

No apparent damage.

H. Shafting and Bearings.

No apparent damage.

I. Condensers and Air Ejectors.

No apparent damage.

J. Pumps.

No apparent damage.

K. Auxiliary Generators (Turbine and Gears).

No apparent damage.

L. Propellers.

Not inspected. The propellers were not visible from the surface of the water. In view of the general condition of the ship as a whole, they are not believed to have been damaged.
N. Distilling Plant.
   No apparent damage.

O. Refrigerating Plant.
   No apparent damage.

P. Winches, Windlasses, and Capstans.
   No apparent damage.

Q. Steering Engine.
   No apparent damage.

R. Elevators, Ammunition Hoists, Etc.
   No apparent damage.

S. Ventilation (Machinery).
   No apparent damage.

T. Air Compressors.
   No apparent damage.

U. Diesels (Generators and Boats).
   1. The emergency diesel generator was undamaged. It was operated for 2 1/2 hours after Test "B", and functioned normally.
   2. No boats were on board during test "B".

V. Piping.
   No apparent damage.
W. Miscellaneous.

No apparent damage.
GENERAL SUMMARY OF ELECTRICAL DAMAGE

I. Target Condition After Test.

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

Drafts were the same as before Test B except for a small amount of leakage through faulty valves and other fittings.

Light flooding occurred in the bilges of the fire and engine rooms.

Sources of flooding were leaks in valves and fittings.

(b) Structural damage.

There was no apparent structural damage due to Test B.

(c) Other damage.

No damage occurred to electrical equipment due to Test B.

II. Forces Evidenced and Effects Noted.

(a) Heat.

No evidence of heat.

(b) Fires and explosions.

No evidence of fires or explosions.
(c) Shock.

No evidence of shock.

(d) Pressure.

No evidence of pressure.

(e) Any effects apparently peculiar to the atom bomb.

Other than radioactivity, no effects peculiar to the atom bomb were noted.

III. Effects of Damage.

(a) Effect on propulsion and ship control.

No damage apparent.

(b) Effect on gunnery and fire control.

No damage apparent.

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

No electrical damage affected water-tight integrity or stability.

(d) Effect on personnel and habitability.

No electrical damage affected personnel or habitability.

(e) Total effect on fighting efficiency.

No electrical damage affected the fighting efficiency of the vessel.
IV. General Summary of Observers' Impressions and Conclusions.

No damage was evident on any electrical equipment on this vessel. It appears that the presently available electrical equipment has sufficient shock resistance qualities to withstand any stresses imposed on it under conditions existing during Test B.

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

None.
DETAILED DESCRIPTION OF ELECTRICAL DAMAGE

A. General Description of Electrical Damage.

(a) Overall condition.

The overall condition of the electric plant is the same as before the test.

(b) Areas of major damage.

None.

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

None.

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

1. Ship's service generator plant - no effect.
2. Engine and boiler auxiliaries - no effect.
3. Electric propulsion - no effect.
4. Communications - no effect.
5. Fire control circuits - no effect.
7. Lighting - no effect.

(e) Types of equipment most affected.

None.

B. Electric Propulsion Rotating Equipment.

Not Applicable.
IV. General Summary of Observers' Impressions and Conclusions.

No damage was evident on any electrical equipment on this vessel. It appears that the presently available electrical equipment has sufficient shock resistance qualities to withstand any stresses imposed on it under conditions existing during Test B.

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

None.
A. General Description of Electrical Damage.

(a) Overall condition.

The overall condition of the electric plant is the same as before the test.

(b) Areas of major damage.

None.

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

None.

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

1. Ship's service generator plant - no effect.
2. Engine and boiler auxiliaries - no effect.
3. Electric propulsion - no effect.
4. Communications - no effect.
5. Fire control circuits - no effect.
7. Lighting - no effect.

(e) Types of equipment most affected.

None.

B. Electric Propulsion Rotating Equipment.

Not Applicable.
C. Electric Propulsion Control Equipment.
   Not Applicable.

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.
   Not Applicable.

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.
   Not Applicable.
R. Announcing Systems.
   No damage.
S. Telegraphs.
   No damage.
T. Indicating Systems.
   No damage.
   No damage.
V. F.C. Switchboards.
   No damage.
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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.
   Not Applicable.

R. Announcing Systems.
   No damage.

S. Telegraphs.
   No damage.

T. Indicating Systems.
   No damage.

   No damage.

V. F.C. Switchboards.
   No damage.
A brief inspection was made of the USS TRIPPE (DD 403) on 10 August 1946. All engineering spaces and selected compartments were inspected.

Damage found was as follows:

(a) Plastic boiler front on No. 1 boiler was cracked and large sections had fallen out.

(b) The forward port side of the uptakes at the main deck level was dished-in about six inches.

(c) Several light bulbs had been broken.

(b) and (c) of the above are not considered major but are included to give the complete extent of visible damage.

An inspection of the outer hull plating was made by passing close aboard in a boat and no damage was apparent.
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-366759  XRD-80
✓ AD-376830L XRD-79
✓ AD-376828L XRD-76
✓ AD-367464  XRD-106
✓ AD-801404L XRD-105-Volume 1
✓ AD-367459  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
AD-367458V XRD-93
AD-367457V XRD-92-Volume 2
AD-367456V XRD-91-Volume 1
AD-367455V XRD-90
AD-367454V XRD-89
AD-367453V XRD-88
AD-367452V XRD-87
AD-366764V XRD-86
AD-376837LV XRD-99
AD-366758V XRD-78
AD-366734V XRD-44
AD-366763V XRD-85
AD-376829LV XRD-77

AD-367462V XRD-103
AD-367463V XRD-104
AD-367461V XRD-102
AD-367460V 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.

ARDITH JARRETT
Chief, Technical Resource Center