THIS REPORT HAS BEEN DELIMITED AND CLEARED FOR PUBLIC RELEASE UNDER DOD DIRECTIVE 5200.20 AND NO RESTRICTIONS ARE IMPOSED UPON ITS USE AND DISCLOSURE.

DISTRIBUTION STATEMENT A

APPROVED FOR PUBLIC RELEASE;
DISTRIBUTION UNLIMITED.
CONFIDENTIAL

(U. S. Military Organizations request copies from ASTIA-DSC. Others route request to ASTIA-DSC thru BuOrd, Wash., D.C.)

Naval Proving Ground, Dahlgren, Va. (NPG Report No. 934)

Ninth Partial Report on Anti-Submarine Rocket Fuze Systems - Research, Development Tests and Reports on Final Report on Rocket Fuze Mk 166, Division of Firing Pin Springs - and Appendices A thru D

orf, F. W. 6 March 52 68 pp. tables, drwg

Ordnance and Armament (22)
Rockets and Launchers (10)

CONFIDENTIAL
PART A

SYNOPSIS

1. The Bureau of Ordnance plans to resume the production of the mechanical type Mk 166 anti-submarine rocket base fuze. Recent experience in the development of experimental fuzes has indicated that a new type of spring, produced by the Hunter Spring Co., may be more uniform in its characteristics, have better resistance to heavy plate impacts and in general be more satisfactory as a firing pin spring than those previously specified for mechanical type rocket fuzes. It was therefore deemed advisable to conduct a performance test of fuzes incorporating this new type of spring to determine whether the firing pin spring specifications should be changed for the new production.

2. This test was conducted to determine whether Mk 166 rocket fuzes will provide more consistent functioning on heavy plate impacts when assembled with the new type of firing pin spring than when assembled with the present standard type of spring.

3. It is concluded that:

   a. Little difference in effectiveness of performance could be noted upon changing the firing pin spring in the Mk 166 rocket fuze. Both the special and standard springs appeared to provide satisfactory functioning under the conditions of the test.

   b. The Mk 166 fuze will probably fire after heavy target impact even though only partially armed.

   c. Mk 166 fuze bodies will remain in effective condition when subjected to impacts on armor plate targets up to and including 2" in thickness.
# Rocket Fuze Mk 166, Comparison of Firing Pin Springs

## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYNOPSIS</td>
<td>1</td>
</tr>
<tr>
<td>TABLE OF CONTENTS</td>
<td>2</td>
</tr>
<tr>
<td>AUTHORITY</td>
<td>3</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>3</td>
</tr>
<tr>
<td>BACKGROUND</td>
<td>3</td>
</tr>
<tr>
<td>OBJECT OF TEST</td>
<td>3</td>
</tr>
<tr>
<td>PERIOD OF TEST</td>
<td>4</td>
</tr>
<tr>
<td>REPRESENTATIVES PRESENT</td>
<td>4</td>
</tr>
<tr>
<td>DESCRIPTION OF ITEM UNDER TEST</td>
<td>4</td>
</tr>
<tr>
<td>DESCRIPTION OF TEST EQUIPMENT</td>
<td>5</td>
</tr>
<tr>
<td>PROCEDURE</td>
<td>5</td>
</tr>
<tr>
<td>RESULTS AND DISCUSSION</td>
<td>5</td>
</tr>
<tr>
<td>CONCLUSIONS</td>
<td>6</td>
</tr>
<tr>
<td>APPENDIX A - SUMMARY OF RESULTS</td>
<td></td>
</tr>
<tr>
<td>TABLE I</td>
<td>1-4</td>
</tr>
<tr>
<td>TABLE II</td>
<td>1-3</td>
</tr>
<tr>
<td>APPENDIX B - IMPACT RECORDS</td>
<td>1-54</td>
</tr>
<tr>
<td>APPENDIX C - DIAGRAM OF FUZE</td>
<td></td>
</tr>
<tr>
<td>FIGURE 1</td>
<td></td>
</tr>
<tr>
<td>APPENDIX D - DISTRIBUTION</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1-2</td>
</tr>
</tbody>
</table>
1. **AUTHORITY:**

   This test was conducted in accordance with reference (a) under Task Assignment NPG-Re2b-12-1-52 assigned by reference (b).

2. **REFERENCES:**

   a. NOL Conf ltr TF:HLD, NP/NOL/XL-1(756) Ser 01209 of 9 July 1951
   b. BUORD ltr NP9(Re2b-D.B.LaP:bjn) Ser 23938 of 4 August 1951

3. **BACKGROUND:**

   The Bureau of Ordnance plans to resume the production of the mechanical type Mk 166 anti-submarine rocket base fuze. Recent experience in the development of experimental fuzes has indicated that a new type of spring, produced by the Hunter Spring Co., may be more uniform in its characteristics, have better resistance to heavy plate impacts and in general be more satisfactory as a firing pin spring than those previously specified for mechanical type rocket fuzes. It was therefore deemed advisable to conduct a performance test of fuzes incorporating this new type of spring to determine whether the firing pin spring specifications should be changed for the new production.

4. **OBJECT OF TEST:**

   To determine whether Mk 166 rocket fuzes will function better on heavy plate impacts when assembled with a special, new type of firing pin spring than they will when assembled with their standard type of spring.
5. PERIOD OF TEST:

a. Dato Project Letter 9 July 1951
b. Dato Necessary Material Received 10 September 1951
c. Dato Commenced Test 12 September 1951
d. Test Completed 3 November 1951
e. Preliminary Report Submitted 27 November 1951

6. REPRESENTATIVES PRESENT:

R. J. Happick Naval Ordnance Laboratory
L. J. DeSabela Naval Ordnance Laboratory
R. S. March Naval Ordnance Laboratory

PART C

DETAILS OF TEST

7. DESCRIPTION OF ITEM UNDER TEST:

a. The Mk 166 Mod 0 fuze is shown in detail in Figure 1. This fuze is primarily to be used in rockets fired from aircraft against submarines, is designed so that it will not detonate immediately after impact with water, and is labeled as "Deceleration Discriminating (DDR)". If the round misses its target, the fuze fires after approximately 100 feet of underwater travel. If it strikes the hull it does not detonate until after it has completed its penetration.

b. While deceleration of the round is high (in passage through the water or during penetration of the target) the inertia of the trigger block keeps the trigger spring compressed. When deceleration is reduced, below a value determined by trigger spring strength and friction, the spring forces the trigger block to the rear and releases the firing pin lock balls. The firing pin spring then drives the firing pin into the primer and initiates the detonation.

c. The firing-pin spring is thus under compression during the impact, resulting in a loss of spring strength which may affect the initiation of the primer.
8. DESCRIPTION OF TEST EQUIPMENT:

Test Vehicle 5"0 rocket head Mk 2 Mod 2, inert loaded
Propulsion Two 5"0 HVAR motors in tandem
Launcher Naval Proving Ground 1050 ft.
Targets 1-1/2", 2", and 2-1/2" STS armor plate

9. PROCEDURE:

a. The fuzes were assembled at the Naval Ordnance Plant, Macon, Georgia and installed in 5"0 rocket heads Mk 2 Mod 2 inert loaded at the Naval Proving Ground. The heads were assembled to 5"0 HVAR motors. A 5"0 HVAR motor was used as a booster for the first 200 ft. of travel on the 1050 ft. launcher. Heavy target plates were placed in a butt 285 ft. from the muzzle of the launcher. Rounds were recovered in a sandpile whose face was 5 ft. behind the target. Velocities were measured immediately before the target through the use of a Potter counter chronograph.

b. After recovery the rocket heads were returned to the Naval Ordnance Laboratory, where the fuzes were cut out of the heads, broken down and examined.

10. RESULTS AND DISCUSSION:

a. Tables I and II, Appendix (A), summarize the information obtained from the examination of the recovered fuzes at the Naval Ordnance Laboratory. Details of the impact conditions are contained in the Impact Records, Appendix (B).

b. All 29 fuzes recovered with special firing-pin springs had fired. However, 7 were only partially armed, one having as little as 20° rotation of the detonator plunger, thus indicating that all fuzes had not had sufficient time to arm in the limited range available to the target.

c. Twenty-two fuzes with standard firing pin springs were recovered. Twenty had fired although 8 were only partially armed; 4 having as little as 10 to 15 degrees rotation of the plunger. Of the two not firing one was only 30° armed and the other plunger had not rotated at all; although the shear wire through the arming sleeve had broken. Both failures occurred on the lightest target; 1-1/2" plate at 30° obliquity.
Rocket Fuze Mk 166, Comparison of Firing Pin Springs

PART D

CONCLUSIONS

11. It is concluded that:

a. Little difference in effectiveness of performance could be noted upon changing the firing-pin spring in the Mk 166 rocket fuze. Both the special and standard springs appeared to provide satisfactory functioning under the conditions of the test.

b. The Mk 166 fuze will probably fire after heavy target impact even though only partially armed.

c. Mk 166 fuze bodies will remain in effective condition when subjected to impacts on armor plate targets up to and including 2" in thickness.
Rocket Fuze Mk 166, Comparison of Firing Pin Springs

The tests upon which this report is based were conducted by:
F. W. KASDORF, Firing Director, Rocket Battery,
Terminal Ballistics Department

This report was prepared by:
F. W. KASDORF, Firing Director, Rocket Battery,
Terminal Ballistics Department

This report was reviewed by:
R. H. LYDDANE, Director of Research,
Terminal Ballistics Department
W. B. ROBERTSON, Lieutenant Commander, USN,
Terminal Ballistics Batteries Officer,
Terminal Ballistics Department
R. T. RUBLE, Lieutenant Commander, USN,
Terminal Ballistics Officer,
Terminal Ballistics Department
C. C. BRAMBLE, Director of Research, Ordnance Group

APPROVED: IRVING T. DUKE
Rear Admiral, USN
Commander, Naval Proving Ground

C. T. MAURO
Captain, USN
Ordnance Officer
By direction
CONFIDENTIAL

NPG REPORT NO. 934

U.S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

Nineteenth Partial Report
on
Anti-Submarine Rocket Fuze Systems;
research, development, tests and reports of

Final Report
on
Rocket Fuze Mk 166, Comparison of Firing Pin Springs

Task Assignment: NPG-Re2b-12-1-52
Copy No.: 19
No. of Pages: 7

MAR 6 1952

CONFIDENTIAL
SECURITY INFORMATION
### Table I

**SUMMARY OF RESULTS**

**SPECIAL FIRING PIN SPRINGS**

<table>
<thead>
<tr>
<th>Impact No.</th>
<th>Fuze No.</th>
<th>Target Condition</th>
<th>Obl.-Deg. Thickness-ins.</th>
<th>Fired</th>
<th>Armed</th>
<th>Closing Cup</th>
<th>Fuze Body</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>39226</td>
<td>1</td>
<td></td>
<td>0° 2-1/2</td>
<td>Yes</td>
<td>Partially 80°</td>
<td>Hand tight</td>
<td>Base broken at threads</td>
<td>F.P. rusted; slightly marked</td>
</tr>
<tr>
<td>39228</td>
<td>2</td>
<td></td>
<td>0° 2-1/2</td>
<td>Yes</td>
<td>Partially 75°</td>
<td>Tight, cracked</td>
<td>OK</td>
<td>F.P. badly marked</td>
</tr>
<tr>
<td>39230</td>
<td>3</td>
<td></td>
<td>0° 2-1/2</td>
<td>Yes</td>
<td>Yes</td>
<td>Tight</td>
<td>Base broken at threads</td>
<td>F.P. badly marked</td>
</tr>
<tr>
<td>39232</td>
<td>4</td>
<td></td>
<td>0° 2-1/2</td>
<td>Yes</td>
<td>Yes</td>
<td>Hand tight</td>
<td>Base out of round</td>
<td>Keyhole, F.P. badly marked</td>
</tr>
<tr>
<td>39242</td>
<td>5</td>
<td></td>
<td>0° 2-1/2</td>
<td>Yes</td>
<td>Yes</td>
<td>Tight, center mashed</td>
<td>Base broken at threads</td>
<td>F.P. badly marked</td>
</tr>
<tr>
<td>39244</td>
<td>6</td>
<td></td>
<td>0° 2-1/2</td>
<td>Yes</td>
<td>Yes</td>
<td>Hand tight</td>
<td>OK</td>
<td>F.P. marked</td>
</tr>
<tr>
<td>39246</td>
<td>7</td>
<td></td>
<td>0° 2-1/2</td>
<td>Yes</td>
<td>No</td>
<td>Loose in booster cup</td>
<td>OK</td>
<td>F.P. slightly marked</td>
</tr>
<tr>
<td>39248</td>
<td>8</td>
<td></td>
<td>0° 2-1/2</td>
<td>Yes</td>
<td>Yes</td>
<td>Hand tight</td>
<td>Broken in thread</td>
<td>F.P. badly marked</td>
</tr>
</tbody>
</table>

* F.P. = Firing Pin
TABLE I (Cont'd)

<table>
<thead>
<tr>
<th>Impact No.</th>
<th>Fuze No.</th>
<th>Target Condition</th>
<th>Fired</th>
<th>Armed</th>
<th>Closing Cup</th>
<th>Fuze Body</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>39250</td>
<td>9</td>
<td>0°</td>
<td>Yes</td>
<td>Yes</td>
<td>Hand tight</td>
<td>OK</td>
<td>F.P. badly marked</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2-1/2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>39268</td>
<td>10</td>
<td>30° 2</td>
<td>Yes</td>
<td>Partially 75°</td>
<td>Hand tight</td>
<td>OK</td>
<td>F.P. unmarked</td>
</tr>
<tr>
<td>39270</td>
<td>11</td>
<td>30° 30' 2</td>
<td>Yes</td>
<td>Yes</td>
<td>Hand tight</td>
<td>OK</td>
<td>F.P. badly marked</td>
</tr>
<tr>
<td>39272</td>
<td>12</td>
<td>30° 2</td>
<td>Yes</td>
<td>Partially 75°</td>
<td>Hand tight</td>
<td>OK</td>
<td>Slightly marked</td>
</tr>
<tr>
<td>39274</td>
<td>13</td>
<td>30° 2</td>
<td>Yes</td>
<td>Partially 65°</td>
<td>Tight, but threads sheared</td>
<td>OK</td>
<td>F.P. badly marked</td>
</tr>
<tr>
<td>39276</td>
<td>14</td>
<td>30° 2</td>
<td>Yes</td>
<td>Yes</td>
<td>Hand tight</td>
<td>OK</td>
<td>F.P. badly marked</td>
</tr>
<tr>
<td>39278</td>
<td>15</td>
<td>30° 2</td>
<td>Yes</td>
<td>Yes</td>
<td>Hand tight</td>
<td>OK</td>
<td>F.P. badly marked</td>
</tr>
<tr>
<td>39280</td>
<td>16</td>
<td>30° 2</td>
<td>Yes</td>
<td>Yes</td>
<td>Hand tight</td>
<td>OK</td>
<td>F.P. badly marked</td>
</tr>
<tr>
<td>39282</td>
<td>17</td>
<td>30° 2</td>
<td>Yes</td>
<td>Yes</td>
<td>Hand tight</td>
<td>OK</td>
<td>F.P. badly marked</td>
</tr>
<tr>
<td>39283</td>
<td>18</td>
<td>30° 2</td>
<td>Yes</td>
<td>Yes</td>
<td>Hand tight</td>
<td>OK</td>
<td>F.P. badly marked</td>
</tr>
</tbody>
</table>

* F.P. = Firing Pin
### TABLE I (Cont'd)

<table>
<thead>
<tr>
<th>Impact No.</th>
<th>Fuze No.</th>
<th>Target Condition</th>
<th>Closing Cup</th>
<th>Fuze Body</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>39284</td>
<td>19</td>
<td>30°</td>
<td>Hand tight</td>
<td>OK</td>
<td>F.P. badly marked</td>
</tr>
<tr>
<td>39299</td>
<td>20</td>
<td>30°, 1-1/2</td>
<td>Hand tight</td>
<td>OK</td>
<td>Keyhole, F.P. badly marked</td>
</tr>
<tr>
<td>39301</td>
<td>21</td>
<td>30°, 1-1/2</td>
<td>Hand tight</td>
<td>OK</td>
<td>F.P. badly marked</td>
</tr>
<tr>
<td>39304</td>
<td>22</td>
<td>30°, 1-1/2</td>
<td>Hand tight</td>
<td>OK</td>
<td>F.P. badly marked</td>
</tr>
<tr>
<td>39306</td>
<td>23</td>
<td>30°, 1-1/2</td>
<td>Hand tight</td>
<td>OK</td>
<td>F.P. not marked</td>
</tr>
<tr>
<td>39309</td>
<td>24</td>
<td>30°, 1-1/2</td>
<td>Hand tight</td>
<td>OK</td>
<td>F.P. slightly marked</td>
</tr>
<tr>
<td>39311</td>
<td>25</td>
<td>30°, 1-1/2</td>
<td>60° Hand tight</td>
<td>OK</td>
<td>F.P. unmarked</td>
</tr>
<tr>
<td>39313</td>
<td>26</td>
<td>30°, 1-1/2</td>
<td>Hand tight</td>
<td>OK</td>
<td>F.P. marked</td>
</tr>
<tr>
<td>39315</td>
<td>28</td>
<td>30°, 1-1/2</td>
<td>Partially 20° Hand tight</td>
<td>OK</td>
<td>F.P. slightly marked</td>
</tr>
</tbody>
</table>

- 27 Not shipped from Macon

* F.P. = Firing Pin
### TABLE I (Cont'd)

<table>
<thead>
<tr>
<th>Impact No.</th>
<th>Fuze No.</th>
<th>Target Condition</th>
<th>Closing Cup</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>39317</td>
<td>29</td>
<td>30°, 1-1/2</td>
<td>Hand tight</td>
<td>OK</td>
</tr>
<tr>
<td>39318</td>
<td>30</td>
<td>30°, 1-1/2</td>
<td>Hand tight</td>
<td>OK</td>
</tr>
</tbody>
</table>

* F.P. = Firing Pin
<table>
<thead>
<tr>
<th>Impact No.</th>
<th>Fuze No.</th>
<th>Target Condition</th>
<th>Closing Cup</th>
<th>Fuze Body</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>39269</td>
<td>40</td>
<td>29° 2</td>
<td>Yes Yes</td>
<td>Hand tight</td>
<td>OK</td>
</tr>
<tr>
<td>39271</td>
<td>41</td>
<td>30° 2</td>
<td>Yes Yes</td>
<td>Hand tight</td>
<td>OK</td>
</tr>
<tr>
<td>39273</td>
<td>42</td>
<td>30° 2</td>
<td>Yes Yes</td>
<td>Hand tight</td>
<td>OK</td>
</tr>
<tr>
<td>39275</td>
<td>43</td>
<td>30° 2</td>
<td>Yes Yes</td>
<td>Hand tight</td>
<td>OK</td>
</tr>
<tr>
<td>39277</td>
<td>44</td>
<td>30° 2</td>
<td>Yes Partial 24° Armed</td>
<td>Hand tight</td>
<td>OK</td>
</tr>
<tr>
<td>39279</td>
<td>45</td>
<td>30° 2</td>
<td>Yes Yes</td>
<td>Hand tight</td>
<td>OK</td>
</tr>
<tr>
<td>39281</td>
<td>46</td>
<td>30° 2</td>
<td>Not recovered</td>
<td>-</td>
<td>Keyhole</td>
</tr>
<tr>
<td>39298</td>
<td>47</td>
<td>30° 1-1/2</td>
<td>Yes Yes</td>
<td>Tight</td>
<td>F.P. slightly marked</td>
</tr>
<tr>
<td>39300</td>
<td>48</td>
<td>30° 1-1/2</td>
<td>Yes Yes</td>
<td>Hand tight</td>
<td>OK</td>
</tr>
<tr>
<td>39302</td>
<td>49</td>
<td>30° 1-1/2</td>
<td>Not recovered</td>
<td>-</td>
<td>F.P. slightly marked</td>
</tr>
<tr>
<td>39305</td>
<td>50</td>
<td>30° 1-1/2</td>
<td>Yes 15°</td>
<td>Hand tight</td>
<td>OK</td>
</tr>
</tbody>
</table>

* F.P. = Firing Pin

CONFIDENTIAL
SECURITY INFORMATION
**TABLE II (Cont'd)**

<table>
<thead>
<tr>
<th>Impact No.</th>
<th>Fuze No.</th>
<th>Target Condition</th>
<th>Closing Cup</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Obl.-Deg.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Thickness-ins.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>39308</td>
<td>51</td>
<td>30°</td>
<td>No</td>
<td>30°</td>
</tr>
<tr>
<td>39310</td>
<td>52</td>
<td>30°</td>
<td>Yes</td>
<td>15°</td>
</tr>
<tr>
<td>39312</td>
<td>53</td>
<td>30°</td>
<td>Yes</td>
<td>15°</td>
</tr>
<tr>
<td>39314</td>
<td>54</td>
<td>30°</td>
<td>Yes</td>
<td>75°</td>
</tr>
<tr>
<td>39316</td>
<td>55</td>
<td>30°</td>
<td>No</td>
<td>No Shear</td>
</tr>
</tbody>
</table>

* F.P. = Firing Pin
**NAVYTR FORM 1885 (New IMPACT RECORD**

**U. S. NAVAL PROVING GROUND**

**DAHLGREN, VIRGINIA**

**IMPACT NO.** 39,326

**IMPACT DATE** 9/12/51

**NPG TEST RO.** COF 1090

**OBJECT** IMPACT TEST FOR IMPLANTATION OF FIN missing in MK. 166 rocket;

**EXISTING IN**: MK. 166 rocket, 12/1-52.

**Date**

Reference: NPG dated

Reference: Task Assignment No. dated 9/12/51

**PLATE TARGET**

<table>
<thead>
<tr>
<th>Gage</th>
<th>2.5&quot;</th>
<th>Class</th>
<th>STS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maker</td>
<td>&quot;A&quot;</td>
<td>Mod</td>
<td>&quot;E&quot;</td>
</tr>
<tr>
<td>No.</td>
<td>2-34-45 Group</td>
<td>&quot;E&quot;</td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td>170&quot; X 240&quot;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Thickness at Impact** 3/32"  
**No. of impact on plate** 5  
**Dist. from nearest impact** 41"  
**Dist. from near end** 70" and R-108  
**Impact area** 1" X 6"  
**Spall:** Front 0 Back 0  
**Disk** 1/2"  
**Spur** 2"  
**Cracks:**  
**Punching (thrown) (started)**  
**Back Button (thrown) (started)**  
**Bulge**  
**Through opening** 5" X 5"  

**ROCKET PERFORMANCE**

**HEAD:** Cal. 5" Type "E" M 8X4  
**Mark** 8 Mod 2 No. 9954 Wt. 44.6 |

**Maker**  
**Lot No.** 38  
**Piller:** Type "E" Wt.  
**Fuses**  
**Motor temp.** 120° Wt. 82.95"  
**COMPLETE ROUND:**  
**Wt. (as fired)** 12.5  
**Wt. (burned)**  

**MOTOR:** Cal. 5" Mk. 16 Mod 4  
**Dist. of burst behind plate**  
**Condition of recovered round**  
**Head was in (EFFECTIVE) (INEFFECTIVE) condition.**

**REMARKS:**  

**Photo No.**  

**Signed** F.W. Kussell  

**CONFIDENTIAL**
IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 89,327
IMPACT DATE: 9-12-51
NPG TEST NO.: CODE 167-5

OBJECT

IMPACT TEST FOR CONVERSION OF PLATING INTO FUSE.

Springs in No. 166 Plating Bar in 5" rocket head.

Reference: NPG dated
Reference: Board dated
Task Assignment No.: NPG-10-04-12-1-52 dated

PLATE TARGET

Size: 4.50
Class: STS

Maker: CHUNG SHI

No.: 2-294
Group: -

Dimensions: 120" x 240"

OBliquity: 0°

PENETRATION

(707/8)

Thickness at impact: 2.75"

No. of impact on plate: 6

Dist. from nearest impact: 3.25"

Dist. from near edge: 0.8" and 1.65"

Impact area: 1.250 ft²

Spall: Front: Unaffected

Back: Unaffected

Dish: 1/4"

Spur: 0"

Cracks: 0

Punching (thrown) (started): -

Back Button (thrown) (started): 0

Bulge: -

Bulge: Through opening: -" x .5"

ROCKET

HEAD: Cal. 5" Type 512/AJ

Mark: 9, Mod.: No. 8351/WT. .4/0.625

Maker: ID

Lot No.: 58

Filler: Type 14/AJ

Wt. of head (as fired): 12.30#

STANDARD FIRING: 4.51

Boosters included: 0

Wt. of head (as fired): 12.30#

MOTOR: Cal. 5" Mk. 10 Mod. 4

Motor temp.: 120° Wt. 9.065#

COMPLETE ROUND: Mark 9, Mod.: No. 8351/WT. .4/0.625

Wt. (as fired): 138.63#

Wt. (burned): -

OTHER INFORMATION

MOTOR: 6

ALN: K10115

LAUNCHER: 1050' ROCKET LAUNCHER

POCKET PERFORMANCE

Flight: Vel., f/s: 3126 Striking Residual

Fuze functioning: -

Explosive action: High Order (Low Order) (None)

Distance of burst behind plate: 0" to 4.5'

Condition of recovered round: Head was in (EFFECTIVE) (INEFFECTIVE) condition

REMARKS: -

Photo No.: -

Signed: -

Date: -

INITIALS: -
# IMPACT RECORD

**U. S. NAVAL PROVING GROUND**

**DAHLGREN, VIRGINIA**

**IMPACT DATE:** 9-12-51

**IMPACT NO.:** 39228

**NPG TEST NO.:** JGOD 10103

## OBJECT

**IMPACT TEST FOR COMPARISON OF FIRING FUSE**

**Claimed in the 166 rocket fuses by 5" rocket heads**

**Reference:** NPG IMPACT 712 p. 4

**Task Assignment No.:** NPG-Re 28-12-1-52

---

## PLATE TARGET

<table>
<thead>
<tr>
<th>Gage</th>
<th>2.50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class</td>
<td>S15</td>
</tr>
<tr>
<td>Maker</td>
<td>CARNEGIE</td>
</tr>
<tr>
<td>No.</td>
<td>33244</td>
</tr>
<tr>
<td>Dimensions</td>
<td>120&quot; x 240&quot;</td>
</tr>
</tbody>
</table>

**OBLIQUITY:** 0°

## PENETRATION

**OBLIQUE:** 60' 17' 17"

**Thickness at impact:** 2.55

**No. of impact on plate:** 7

**Dist. from nearest impact:** 12" (and 2")

**Dist. from near edge:** 4" and 3/4"

**Impact area:** 6" x 16"

**Spall:** Front 0 Back 0

**Dish:** 1/4" Spur 1"

**Cracks:** 0

**Punching (thrown) (started):**

**Back Button (thrown) (started):**

**Bulge:** 0

**Through opening:** 5" x 5" (as fired)

---

## RACKET

**HEAD:**

<table>
<thead>
<tr>
<th>Cal.</th>
<th>Type</th>
<th>Mark</th>
<th>Mod</th>
<th>No.</th>
<th>Wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5&quot;</td>
<td>-</td>
<td>2</td>
<td>4</td>
<td>862</td>
<td>4.6</td>
</tr>
</tbody>
</table>

**Maker:** 154A

**Lot No.:** 228

**Filler:** Type L177

**Weight:**

**Wt. of head (as fired):** 48.60 lb

**MOTOR:**

<table>
<thead>
<tr>
<th>Cal.</th>
<th>Mk.</th>
<th>Mod</th>
</tr>
</thead>
<tbody>
<tr>
<td>5&quot;</td>
<td>10</td>
<td>4</td>
</tr>
</tbody>
</table>

**Motor temp.:** 128° W T. 41.00°

**COMPLETE ROUND:**

<table>
<thead>
<tr>
<th>Mark</th>
<th>Mod</th>
<th>Wt. (as fired)</th>
<th>Wt. (burned)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5&quot;</td>
<td>12</td>
<td>19.00 lb</td>
<td>10.00 lb</td>
</tr>
</tbody>
</table>

**OTHER INFORMATION**

**METO156**

**MK 156**

**A/L:** 16-38A-315-11.50

**RND No.:** 317.65

**LAUNCHER:** 542-12-39 H-101 H-11

---

## ROCKET PERFORMANCE

**Flight velocity, f/s:** STRIKING 1780

**Pure functioning:**

**Explosive action:** High Order

**Distance of burst behind plate:** 0

**Condition of recovered round:**

**Head was in (EFFECTIVE) (INEFFECTIVE):** intact

---

## REMARKS:

**Head & fuse returned to NPG.

---

**Photo No.:**

**Signed:** F. W. Kashey

**ORD. E/#:** 12/5/51

---

**CONFIDENTIAL**
IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 3924
IMPACT DATE 9-16-51

NPG TEST NO. CODE 1098

OBJECT

IMPACT TEST FOR COMPARISON OF ERGINS IN MK. 106 ROCKET FIRES IN 5" ROCKET HEADS

SALINAS IN MK. 106 ROCKET FIRES IN 5" ROCKET HEADS

Reference: NPG test No. 7.1.5 dated
Reference: Buord test No. 178321 dated 9 July 1951
Task Assignment No. NPG-En 21-12-1-52 dated 4 July 1951

PLATE TARGET

Cage 2.50 Class 5.5
Maker CAL. 411
No. S-2-1-1 Group -
Dimensions 120" x 20.4"

OBLIQUITY 16°

PENDENTATION

Thickness at Impact 2.55
No. of impact on plate 8
Dist. from nearest impact 16"
Dist. from near edge closest and nearest
Impact area 2.56
Spall: Front 0 Back 0
Dish 1/2" Spur 2"
Cracks 0
Punching (thrown) started
Back Button (thrown) started
Bulge
Through opening 5" x 5"

HEAD: Cal. 5" Type SEMU-AR
Mark 2 Mod 2 No. 3091 Wt. 4.93 #
Maker CAL. 411
Lot No. 38
Filler: Type V-121, Wt. -
Fuses MK 164. Lot 2.51 # 25
Standard first, 1.51, 1.52
Boosters inserted - live primer
Wt. of head (as fired) 41.95#

MOTOR: Cal. 5" Mk. 14 Mod 4
Motor temp. 125° wt. 87.8 #

COMPLETE ROUND: Mark Mod
Wt. (as fired) 135.85 #
Wt. (burned) -

OTHER INFORMATION

Motion:eriai 1.61.6
All: 170 in. - 315 H. 100
140 in. - 315 H. 2.5
LAUNCHER 1050 DEG. 374 PULVERIZER

ROCKET PERFORMANCE

Flight Velocity, f/s: Striking 1940 Residual
Fuse functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round

Head was in (EFFECTIVE) (INEFFECTIVE) condition.

REMARKS: Head + fuse returned to lab.

PHOTO NO. Signed

CONFIDENTIAL
IMPACT RECORD

U.S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 27230
IMPACT DATE 9.12.51
NPG TEST NO. Code 10:20:

OBJECT
IMPACT TEST FOR COMPARISON OF FIRING PIN SPRINGS IN 5" ROCKET HEADS

Reference: NPG 4-76 dated 2 June 1951
Reference: BuOrd No. AP/NOV/X-1 dated 2 July 1951
Task Assignment No. NPG-R-43, 12-1-52, dated 4 August 1951

PLATE TARGET

Gage 7/32" Class STS
Maker CARNESIE
No. 32294 Group 3
Dimensions 120" x 240"

OBLIQUITY 0°

Penetration Complete
Thickness at impact 2.55
No. of impact on plate 9
Dist. from nearest impact 10"
Dist. from near edge 1/2" and 1/4"
Impact area 6" x 9"
Spall: Front 0 Back 0
Dish 1/4" Spur 0"
Cracks 0
Punching (thrown) (started) 0
Back Button (thrown) (started) 0
Bulge 0
Through opening 5" x 6.75"

ROCKET

HEAD: Cal. 5" Type C7M1-A4
Mark 2 Mod 2 No. 3965 Wt. 48.00 lbs
Maker USA Lot No. 38
Filler: Type VFD Wt. 2.95 lbs
Puzes MK 164-0 Lot 8-51 #9
Special Firing Pin Springs
Boosters short, five prongs
Wt. of head (as fired) 42.00 lbs

MOTOR: Cal. 5" Mk. 10 Mod 4
Motor temp. 120° Wt. 35.4 lbs

COMPLETE ROUND: Mark Mod
Wt. (as fired) 136.40 lbs
Wt. (burned) 94.30 lbs

OTHER INFORMATION

LAUNCHER: 1050 KPS7 95001

ROCKET PERFORMANCE

Flight Velocity, f/s: Striking 1891 Residual
Puze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) (INEFFECTIVE) condition

REMARKS: Head + fuse returned to NOL.

Photo No. Signed

CONFIDENTIAL

Sentry Record N 5
IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMpact No. 39271
IMpact DATE 9-15-51

NPG TEST No. Cone 16905

OBJECT
SPALL: IMPACT TEST FOR COMPARISON OF FUSE F14
Reference: NPG 16905 dated
Reference: NPG Test No. 39271 dated 9-15-51
Task Assignment No. U. N. G. Rev 24-12-1-52 dated 11-15-51

PLATE TARGET
Oage 2-5, Class 75
Maker U.S. Navy
No. 32294 Group =
Dimensions 12.0" X 24.0"

OBliquity CP

PEnETRATION 3.074.61-77
Thickness at Impact 2.55
No. of impact on plate 10
Dist. from nearest impact 1.0"
Dist. from near edge Test 3 and A-11"
Impact area 6" X 6"-
Spall: Front O Back C
Dish 1/4" Spur 1"
Cracks O
Punching (thrown) (started) O
Back Button (thrown) (started) O
Bulge 0
Through opening 5" X 5"

ROCKET
HEAD: Cal. 5" Type SE 2-41
Mark 7 Mod 9 No. 3966 Wt. 45-06-
Maker USSA No. 23
Lot No. 25
Filler: Type ZSSE Wt. -

STANDARD FUSE USE 1.0"
Boosters in front 2 - life primers
Wt. of head (as fired) 48.06-

MOTOR: Cal. 5" Mk. 16 Mod 4
Motor temp. 170° wt. 37.87-

COMPLETE ROUND: Mark 7
Mod 9 No. 3966 Wt. (as fired) 123.69-
Wt. (burned) 102.52-

 OTHER INFORMATION

LAUNCHER 1-50, 1-121 Sheeted 11-15-51

ROCKET PERFORMANCE
Flight Velocity, ft./s. 1750 Ballistic
Pure functioning
Explosive action [High Order] [Low Order] [None]
Distance of burst behind plate
Condition of recovered round

Head was in (EFFECTIVE) (INACTIVE) condition

REMARKS: Just before returned to NAC

Photo No.

CONFIDENTIAL

Security Class Issue Date #1
IMPACT RECORD
U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 3922

IMPACT DATE 9/12/51

NPG TEST NO. 762-1953

OBJECT
IMPACT TEST FOR 12/11/61 OF Firing 762
Reference: NPG 11X-7/11/61 dated
Task Assignment No. 3154-401 dated 4 July 1951

PLATE TARGET

Gage 8.5G Class 575
Maker M81-A-2-1E
No. 38294 Group -
Dimensions 120" x 216"

ROCKET
HEAD: Cal. 5" Type 53MHP
Mark - Mod 1 No. 8513 Wt. 48.64#
Maker 152A
Lot No. 98
Filler: Type 1612: Wt. -
Fuzes Mk 31-A-6-1T 5.51 #4
Boosters in, + two primers
Wt. of head (as fired) 45.26#

MOTOR: Cal. 5" Mk. 10 Mod 4
Motor temp. 130° Wt. 60.65#

COMPLETE ROUND: Mark Mod
Wt. (as fired) 131.65#
Wt. (burned) 50.8#

OTHER INFORMATION
Launcher 1050 Cal. 5" L/50

REMARKS:
Head + fuze returned to OBC

Photo No. Signed F. W. Fasolo

ROCKET PERFORMANCE

Flight Velocity, f/s: Striking 1766 Residual
Puze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) (INEFFECTIVE) condition.

REMARKS:
This round degraded to fuze on impact

Photo No. Signed F. W. Fasolo

Colorado
IMPACT RECORD
U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 34233
IMPACT DATE 9-12-51
NPG TEST NO. CODE 10403

OBJECT
Impact test for comparison of firing pin
Strings in Mk. 166 rocket fuzes in 5" rocket heads.

Reference: NPG Rpt. 10403 dated
Reference: Board 171936 dated
Task Assignment No. NPG - Rpt 24 - 12 - 1 - 52 dated

PLATE TARGET

Gage .3150 Class 573
Maker SHERMAN
No. 32294 Group -
Dimensions 120" x 240"

OBliquity 0°

PENDENTRATON

Thickness at impact 2.55"
No. of impact on plate 1
Dist. from nearest impact 18"
Dist. from near edges 152" and 166"
Impact area 6" x 6" and 166"
Spall: Front Back 0
Disk 14" Spur 2"
Cracks 0
Punching (thrown) (started)
Back button (thrown) (started)
Bulge 0
Through opening 5" x 3"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No. 914 Wt. 48.60 lbs
Maker SCLA ± .50
Lot No. 78
Filler: Type CERM. Wt.
Fuzes MK. 166-8 LOT 8-51 #34
Standard firing pin spring
Boosters insert - live primers
Wt. of head (as fired) 48.60 lbs

MOTOR: Cal. 5" Mk. 10 Mod 4
Motor temp. 130° Wt. 89.55 lbs

COMPLETE ROUND: Mark Mod
Wt. (as fired) 137.75 lbs
Wt. (burned)

OTHER INFORMATION
MOTOR'S (3) MK 15-0
ALN: 82106-315-4-50
82106-317-4-50

LAUNCHER
165" Rocket Launcher

ROCKET PERFORMANCE

Flight Velocity, f/s: Starting 1722 Residual
Puze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (IMPACTED) (SHATTERED) condition

REMARKS: Not recovered

Signed W. L. Kassel
CRD. ENG. 12-51

Photo No. 1

Impact Res. 1485
**NAVD FORM 1838 (Nov 1)**

**IMPACT RECORD**

**U. S. NAVAL PROVING GROUND**

**DAHLGREN, VIRGINIA**

**IMPACT NO.** 392, 47

**IMPACT DATE** 9-13-51

**NPG TEST NO.** Code 16425

---

**OBJECT**

**IMPACT TEST FOR CIVIL PHYSION OF FIRING PIN**

- **Fuzes in Air Ice Rocket Fuzes**
  - Reference: NPG dated
  - Reference: BuOy4 dated
  - Task Assignment No. NPG-KE24-12-1-52 dated 4-1951

---

**PLATE TARGET**

- **Gage:** 61
- **Class:** 725
- **Maker:** "" Class 725
- **No.:** 3
- **Group:** -
- **Dimensions:** 120" x 240"

---

**OBliquity**

- **A**

---

**Penetration**

- **Complete**
- **Thickness at Impact:** 7.5".
- **No. of impact on plate:** 3.
- **Dist. from nearest impact:** 25".
- **Dist. from near edges:** 45" and 70.54".
- **Impact area:** 4" 16".
- **Spall:** Front 6" Back 0"
- **Dish:** 1/4. **Spur:** 0"
- **Cracks:**
- **Punching (thrown) (started):**
- **Back Button (thrown) (started):**
- **Bulge:**
- **Through opening:** 5" x 5"

---

**ROCKET**

- **Head:** Cal. 5" Type SEU.M.E.
  - **Mark:** Mk. 16 Mod 4
  - **Wt.:** 12.5 lbs
  - **Lot No.:** 328
  - **Filler:** Type VE A4: Wt. -
  - **Fuzes:** MK 16-C Lot 8-51 FT-5.
  - **Special Firing Pin:** SS-11.
  - **Boosters:** Live priming.
  - **Wt. of head (as fired):** 48.06 lbs.

---

**Motor**

- **Cal. 5" Mk. 16 Mod 4**
- **Motor temp:** 120°F Wt.: 29.05 lbs.

---

**Complete Round**

- **Mark:** Mod
- **Wt. (as fired):** 12.5 lbs
- **Wt. (burned):**

---

**Other Information**

- **Motor's C** again.
- **AFL:** 87-114-315-5-5 D

---

**Launcher**

- **1050 Sec:** "" LAUNCHER.

---

**Rocket Performance**

- **Flight Velocity, f/s:** Striking 1951 Residual
- **Fuse Functioning:**
- **Explosive Action (High Order):** (Low Order) (None)
- **Distance of burst behind plate:**
- **Condition of recovered round:**
- **Head was in (EFFECTIVE) (INeffective) condition.

---

**Remarks**

- Head fuse returned to NPG.

---

**Photo No.**

**Signed**

- **F. W. Kreutz**
  - "" 1-1-52

---
IMPACT RECORD
U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39243
IMPACT DATE 9-13-51
NPG TEST NO. 1694

NAVORD FORM 1883 (New 3)

OBJECT: IMPACT TEST FOR COMPARISON OF FIRED FUSES

Reference: NPG" dated |
Reference: BuOrd LTP ICXI-756 dated |
Task Assignment No. NPG-EM-12-1-52 dated |

PLATE TARGET

Gage 2.50 Class S75
Maker CANAVEE
No. 2290 Group -
Dimensions 11.2 x 4.6

OBLIQUITY 0

PLATE PERFORMANCE

Thickness at impact .155
No. of impact on plate 14
Dist. from nearest impact 8
Dist. from nearest edges 5.0 and 6.15
Impact area 5.62X5.62
Spall: Front 1 Back 0
Dish 1/4 Spur 3
Cracks 2
Punching (thrown) (started) 1
Back Button (thrown) (started) 1
Bulge 0
Through opening 5.5X5.5

ROCKET

HEAD: Cal. 5" Type F1A
Mark 2 Mod 2 No 8994 Wt. 46.60
Maker 1438 Lot 58
Piller: Type VBN Wt. -
Fuzes 114 10 1 1 8.1 4.7
Boosters inserted five primes
Wt. of head (as fired) 46.60

MOTOR: Cal. 5" Mk. 16 Mod 1
Motor temp. 120° F. 40.05

COMPLETE ROUND: Mark Mod
Wt. (as fired) 138.65
Wt. (burned)

OTHER INFORMATION

LAUNCHER

LAUNCHER X-152, FIREY LAUNCH

ROCKET PERFORMANCE

Flight Velocity, f/s: Starting 1723 Residual

Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round

Head was in (EFFECTIVE) (INEFFECTIVE) condition.

REMARKS:

Photo No. 1

Signed F.W. Raski

CONFIDENTIAL
**IMPACT RECORD**

**U. S. NAVAL PROVING GROUND**  
**DAHLGREN, VIRGINIA**

**IMPACT NO.** 39244

**IMPACT DATE** 9-14-51

**NPG TEST NO.** 305E 1096C

**OBJECT**  
Impact Test for Comparison of Firing Pin

**SCHEDULED IN** MJ 166-0 Rocket Fuses 10-5 ACCPT these.

**Reference:** NPG dated

**Task Assignment No.** NPG-Rec. 12-1-52

**PLATE TARGET**

<table>
<thead>
<tr>
<th>Gage</th>
<th>7.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class</td>
<td>275</td>
</tr>
<tr>
<td>Maker</td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>244</td>
</tr>
<tr>
<td>Group</td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td>180&quot; X 240&quot;</td>
</tr>
</tbody>
</table>

**OBLIQUITY** 0°

**PENETRATION** COMPLETE

<table>
<thead>
<tr>
<th>Thickness at Impact</th>
<th>2.55</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of impact on plate</td>
<td>15</td>
</tr>
<tr>
<td>Dist. from nearest impact</td>
<td>18&quot;</td>
</tr>
<tr>
<td>Dist. from near edges</td>
<td>1/16&quot; and L-11</td>
</tr>
<tr>
<td>Impact area</td>
<td>6X7&quot;</td>
</tr>
<tr>
<td>Spall: Front</td>
<td>0</td>
</tr>
<tr>
<td>Back</td>
<td>0</td>
</tr>
<tr>
<td>Dish</td>
<td>1/4&quot;</td>
</tr>
<tr>
<td>Spur</td>
<td>1&quot;</td>
</tr>
<tr>
<td>Cracks</td>
<td>0</td>
</tr>
<tr>
<td>Punching (thrown) (started)</td>
<td></td>
</tr>
<tr>
<td>Back Button (thrown) (started)</td>
<td></td>
</tr>
<tr>
<td>Bulge</td>
<td>0</td>
</tr>
<tr>
<td>Through opening</td>
<td>3&quot; X 5&quot;</td>
</tr>
</tbody>
</table>

**ROCKET**

**HEAD:**
Mark 2  
Mod 2  
No. 2995
Wt. 48.00

**Maker:**
12548
Lot No. 58

**Filler:** Type VEP2
Wt.

**Puzes:**
1. H. 166-0 Cal 9-51 1.6

**BOOSTERS:**
SPECIAL FUSING PIN 1.8-1.9

**Wt. of head (as fired):** 137.75

**MOTOR:**
Cal. 5"  
Mark 10  
Mod 4
Motor temp. 120°  
47.95

**COMPLETE ROUND:**
Wt. (as fired) 137.75
Wt. (burned)

**OTHER INFORMATION MOTORS (2):**

**LAUNCHER:** 10501 ROCKET LAUNCHER 7.15

**ROCKET PERFORMANCE**

- **Fligh**t Velocity, f/s: Striking 1923 Residual
- **Puze functioning:**
- **Explosive action** (High Order) (Low Order) (None)
- **Distance of burst behind plate**
- **Condition of recovered round** intact

**REMARKS:**

**Photo No.**

**Signed** F. W. Knodorf
**IMPACT RECORD**

**U. S. NAVAL PROVING GROUND**

**DAHLGREN, VIRGINIA**

**IMPACT DATE: 2-14-51**

**NPG TEST NO.: Cell 12**

---

**OBJECT:** Impact Test for Comparison of Fuzes in 5" Rocket Heads

**Reference:** NPG Test 748, dated 9-1-51

**Task Assignment No.:** N.P.G. T.E. 5-12-1-52, dated 4-14-51

---

**PLATE TARGET**

<table>
<thead>
<tr>
<th>Plate Target</th>
<th>Rocket</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gage:</strong> 2.50</td>
<td><strong>HEAD:</strong> Cal. 5&quot; Type SEU-I + K</td>
</tr>
<tr>
<td><strong>Class:</strong> STS</td>
<td><strong>Mark:</strong> Mod 2, No. 6795, Wt. 43.050</td>
</tr>
<tr>
<td><strong>Maker:</strong> LANE &amp; F</td>
<td><strong>Lot No.:</strong> 58</td>
</tr>
<tr>
<td><strong>No.:</strong> 3</td>
<td><strong>Filler:</strong> Type 10/41, Wt. 3.295</td>
</tr>
<tr>
<td><strong>Group:</strong> 14</td>
<td><strong>Fuze:</strong> Mk. 16, Lot 8-57, # 156</td>
</tr>
<tr>
<td><strong>Dimensions:</strong> 3.16&quot; x 240&quot;</td>
<td><strong>Boosters:</strong> Insert - Live Primer</td>
</tr>
<tr>
<td><strong>OBLIQUITY:</strong> 0°</td>
<td><strong>Wt. of head (as fired):</strong> 47.100</td>
</tr>
</tbody>
</table>

---

**PENETRATION**

- **Thickness at Impact:** 2.555
- **No. of impact on plate:** 16
- **Dist. from nearest impact:** 1" 1/2
- **Dist. from near edge:** 10" and L-1/2
- **Impact area:** 0.64" x 0.64"
- **Spall:** Front 0", Back C
- **Dish:** 0.4" Spur 1"
- **Cracks:** 0"
- **Punching (thrown) (started):** 0.0"
- **Back Button (thrown) (started):** 0"
- **Bulge:** 0"
- **Through opening:** 3.5" x 1.5"

---

**ROCKET PERFORMANCE**

- **Flight:** 1/24x
- **Velocity, f/s:** Striking 1658, Residual
- **Fuze functioning:**
- ** Explosive action:** (High Order) (Low Order) (None)
- **Distance of burst behind plate:**
- **Condition of recovered round:**
- **Head was in:** (EFFECTIVE) (INEFFECTIVE) (None)

---

**REMARKS:** Head & Fuze returned to D. J. W. K.

---

**Photo No.:**

---

**Signed:**

---

*Signature:*
# IMPACT RECORD

**U. S. NAVAL PROVING GROUND**

**DAHLGREN, VIRGINIA**

**IMPACT NO.** 39846

**IMPACT DATE** 9/14/51

**NPG TEST NO.** GOF 10920.3

---

## OBJECT

**IMPACT TEST FOR COMPARISON OF FIRING PIN**

Sprogs in MK 166-0 rocket fuzes in 5" R. Heads

Reference: NPG 720.9 dated

Task Assignment No. NPG-R-24-J-12-1252 dated 4 August 1951

---

## PLATE TARGET

<table>
<thead>
<tr>
<th>Gage</th>
<th>2.5D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class</td>
<td>55S</td>
</tr>
<tr>
<td>Maker</td>
<td>CARNEGIE</td>
</tr>
<tr>
<td>No.</td>
<td>25-244</td>
</tr>
<tr>
<td>Dimensions</td>
<td>120&quot; x 240&quot;</td>
</tr>
</tbody>
</table>

## ROCKET

**HEAD:** Cal. 5" Type SEMI-AP

- Mark 2
- Mod 2
- No. 804
- Wt. 48.40 lb

- Maker CSPA
- Lot No. 38
- Filler: TYPE 1583

- Motor temp. 190° F
- Motor temp. 88.50

**COMPLETE ROUND:**

- Mark Mod
- Wt. (as fired) 136.50 lb
- Wt. (burned) 136.50 lb

**OTHER INFORMATION**

- GRAINS: 18-0
- ALN: KM15B-312-4-50

**LAUNCHER:** JSD ROCKET LAUNCHER

---

## ROCKET PERFORMANCE

- **Flight Velocity, f/s:** STRIKING 1914 Residual
- **Fuse Functioning**
- **Explosive action** (High Order) (Low Order) (None)
- **Distance of burst behind plate**
- **Condition of recovered round**
- **Head was in (EFFECTIVE) (INSPECTIVE) condition.**

**REMARKS:** Head & fuse returned to NGL

---

**CONFIDENTIAL**

Photo No. Signed F. W. Kaasgard

F. W. KAASGARD, F. A.C. (1) 11/16, 65-12

Impact Record #13
IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39247
IMPACT DATE 9-14-51
NPG TEST NO. CODE 16403

OBJECT
IMPACT TEST FOR COMPARISON OF FIRING PIN
SERIES IN LINK 166-2 RCKET FUZES IN 5 ROCKET HEADS

Reference: NPG TPP-71, dated
Reference: Report No. NPL-NO/112756), dated
Task Assignment No. NPG-RE31-1-2-1-5-2 dated

PLATE TARGET

Gage 1.50 Class S7S
Maker JANIS
No. 2794 Group -
Dimensions 130" x 240"

OBLIQUITY 0°

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 3 Mod 3 No. 386 Wt. 47.00#
Lot No. 122
Filler: Type VERNI. Wt. -
Pizzes MK 166-A LOT 8-51 #30
Standard Firin Pin Spring
Boosters Mark - use primers
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 10 Mod 4
Motor temp. 180° Wt. 74.50#

COMPLETE ROUND: Mark Mod
Wt. (as fired) 128.30#
Wt. (burned) -

OTHER INFORMATION

MOTOR (3)
Grain: No. 18-6

LAUNCHER 1651 ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight

Velocity, f/s: Striking 1792 Residual

Fuze Functioning

Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate

Condition of recovered round

Head was in (EFFECTIVE) (INEFFECTIVE) condition

REMARKS:

Head & fuze returned to MOD.

Photo No. Signed

Photo: Record # 14
IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39248
IMPACT DATE 9-14-51
NPG TEST NO. 95078

OBJECT

SPALING IN LINK 46-C ROCKET FUSES IN 5" ROCKET HEADS

SPLINES IN LINK 46-C ROCKET FUSES IN 5" ROCKET HEADS

Reference: NPG dated
Reference: BuOrd dated
Task Assignment No. dated

PLATE TARGET

Gage 2.75 G Class STS
Maker WHAE EIE
No. 32394 Group -
Dimensions 12.0" X -

OBLIQUITY 0

PENETRATION

Thickness at impact
No. of impact on plate 19
Dist. from nearest impact 11"
Dist. from near edge 4.99"
Impact area 6.0 X 6.0
Spall: Front 0 Back 0
Dish 1/4" Spur 1"
Cracks 0
Punching (thrown) (started)"
Back Button (thrown) (started)"
Bulge 0
Through opening 5" X 5"

ROCKET

HEAD: Cal. 5" Type SEMI-FI
Mark 8 Mod 2 No. 3953 Wt. 48.0 C#
Maker CS KA
Lot No. 38
Filler: Type VERM Wt. -
Fuzes No. 166-1 LOT 3-51 F9
SPECIAL Fuzes # 1 -
Boosters Head - five primers
Wt. of head (as fired) 48.0 C#

MOTOR: Cal. 5" Mk. 10 Mod 4
Motor temp. 72.0 C 11.5 C

COMPLETE ROUND: Mark Mod
Wt. (as fired) 135.5 C#
Wt. (burned) -

OTHER INFORMATION

GRAIN O.21 18.0
OLIVE O.75 14.5

LAUNCHER

1652 ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: Striking 1844 Residual

Puze functioning
Explosive action (High Order) (Low Order) (None)

Distance of burst behind plate
Condition of recovered round

Head was in (EFFECTIVE) (INEFFECTIVE) condition

REMARKS: Head + Fuz returned to Rick

Photo No. ___________________ Signed ___________________

F.L. Kaeder
CL 8-1-51
IMPACT RECORD

U.S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 29249
IMPACT DATE 9-14-51
NPG TEST NO. CODE 1979:

OBJECT: IMPACT TEST FOR COMPARISON OF FUSIBLE PIN ROCKET FUSES IN 5" ROCKET HEADS

SPEICES IN UR-16-0 ROCKET FUSES IN 5" ROCKET HEADS

Reference: NPG 1950, Report dated
Task Assignment No. NPG-1950-3-1 dated

PLATE TARGET

Gage 2.5" Class CT5
Maker 1464.51.1E
No. 32-94 Group -
Dimensions 120" X 246"

OBLIQUITY 0°

PENETRATION 1-1/4" HOLE
Thickness at impact 2.55" No. of impact on plate 20
Dist. from nearest impact 12" Dist. from near edges 9" and 1-1/2" Impact area 6" X 6"
Spall: Front 6 Back 0
Dish 1/4" Spur 1"
Cracks
Punching (thrown) started
Back Button (thrown) started
Bulge
Through opening 0" X 5"

ROCKET

HEAD: Cal. 5" Type SEP 11-AP
Mark 2 Mod 2 No 39547 Wt. 49.06#
Maker 1947 Lot No. 38
Filler: Type VE211. Wt. -
Fuzes MK 116.6. Lot EF-51 # 38
STANDARD FUSIBLE PIN 3" LINER
Boosters Inc. Lin. head primed
Wt. of head (as fired) 46.00#

MOTOR: Cal. 5" Mk. 10 Mod 4
Motor temp. 130° Wt. 55.15#

COMPLETE ROUND: Mark Mod
Wt. (as fired) 126.15#
Wt. (burned)

OTHER INFORMATION

LAUNCHER 1050. 3111-1130. L1050

ROCKET PERFORMANCE

Flight Velocity, f/s: STRIKING 1,600 Residual

Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round

REMARKS: Head & fuse returned to WO.

Photo No. 1 Signed F W. Keazi

Confidential Support Record #16
IMPACT RECORD
U.S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA
IMPACT NO. 29250
IMPACT DATE 9-14-51
NPG TEST NO. Code 10903

SPRINGS IN MK 166-6 ROCKET FUZES IN 5" ROCKET HEADS

Reference: NPG 4th Quarter 1954 dated
Reference: BuOrd 4th Quarter 1956 dated
Task Assignment No. NPG-R-24-12-1 dated

PLATE TARGET
Gage 2.5G Class STS
Maker CARNEGIE
No. 32264 Group -
Dimensions 120" X 540"

OBLIQUITY 0°

ROCKET
HEAD: Cal. 5" Type DF 11-D
Mark 2 Mod 2 No. 804 Wt. 2.64
Maker ASCA
Lot No. 28
Filler: Type VFW, Wt. -
Fuzes Mk 166-6 Lot 9-51 #9
SPECIAL FIRING PIN: 5-FI-L4-A
Boosters 700 ft. line primers
Wt. of head (as fired) 45.00#

MOTOR: Cal. 5" Mk. 10 Mod 4
Motor temp. 120° L.T. 97.70

COMPLETE ROUND: Mark Mod
Wt. (as fired) 13.50#
Wt. (burned) -

OTHER INFORMATION (MOTORS 2)

LAUNCHER 1050 ROCKET LAUNCHER

ROCKET PERFORMANCE

Velocity, f/s: Striking 1732 Residual

Explosive functioning (High Order) (Low Order) (None)

Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) (INSPECTABLE) condition.

REMARKS:

Photo No. Signed F. W. Kasden

CONFIDENTIAL

Impact Record #11
# Impact Record

**U.S. Naval Proving Ground**

**Dahlgren, Virginia**

**Impact No.** 39256

**Impact Date** 9-18-51

**NPG Test No.** 10903

## Plate Target

- **Gage:** 2.0
- **Class:** STS
- **Maker:**
- **No.:**
- **Dimensions:** 26" x 252"
- **Obliguity:** 32°

## Penetration

- **Complete**
- **Thickness at impact:** 1.97
- **No. of impact on plate:**
- **Dist. from nearest impact:** 16"
- **Dist. from near edges:** 1.45 and 1.65
- **Impact area:** 6" x 2.7" (\(6 \times 2.7\))
- **Spall:** Front 0, Back 0
- **Dish:** 1/4", Spur 3"
- **Cracks:**
- **Punching (thrown):** (started)
- **Back Button:** (thrown) (started)
- **Bulge:**
- **Through opening:** 5" x 5"-34"

## Rocket

- **Head:** Cal. 5" Type SEMI-FI
  - **Mark:** 2, **Mod:** 2, **No:** 493, **Wt:** 4.65 lbs
  - **Maker:** KSCA
  - **Lot No.:** 33
  - **Filler:** Type KEFM, **Wt.:**
  - **Fuzes:** MK 166-0, LOT 8-51, #39
  - **Standard Firing Pin:** 
  - **Boosters (inert):** live prime
  - **Wt. of head (as fired):** 4.00 lbs
- **Motor:** Cal. 5" Mk. 10, **Mod:**
  - **Wt. (as fired):** 136.73 lbs
  - **Wt. (burned):**
- **Complete Round:** Mark, **Mod:**
- **Other Information:**
  - **Alt.:** 2174, **KPA:** 3726.26-51
  - **COPR.:** 1:15:5-C
- **Launcher:** 1050, R.O.S. LET LASHED

## Rocket Performance

- **Clean**
- **Velocity, f/s:** Striking 1805 Residual
- **Fuze functioning:**
- **Explosive action:** (High Order) (Low Order) (None)
- **Distance of burst behind plate:**
- **Condition of recovered round:**
- **Head was in (Effective) (Ineffective) condition:**

## Remarks:

*Head & fuze returned to NPG*  

**Photo No.:**

**Signed:** F. W. Kasdorf

---

**Confidential**

**For Official Information**

**Impact Record #18**
**IMPACT RECORD**

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

**IMPACT NO.** 34265

**IMPACT DATE** 1-22-51

**NPG TEST NO.** 2611-1076

**OBJECT** IMPACT TEST 52X32X1.5 SPLINES IN 3/16 SOCKET FOAM

| Reference: NPG 7tr. 7-14-51 dated |  
| Reference: Board Ittr. NOL DE NP/NDL (X1-1756) 9-12-51 dated |  
| Task Assignment No. NPG-REG-13-1-52, dated |  

**PLATE TARGET**

<table>
<thead>
<tr>
<th>Gage</th>
<th>2.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class</td>
<td>5TS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Maker</th>
<th>C &amp; H CEBEIE</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>Group</td>
</tr>
<tr>
<td>Dimensions</td>
<td></td>
</tr>
</tbody>
</table>

| OBLIQUITY | 30° |

**PENETRATION** COMPLETE

| Thickness at impact | 1795 |
| Dist. from nearest impact | 32 |
| Dist. from near edges | 44 and 1-1/2 |
| Impact area | 5"X6" |

| Spall: Front | Back |
| Dish | 0 |
| Spur | 0 |

| Crack: | 0 |
| Punching (thrown) (started) | 0 |
| Back Button (thrown) (started) | 0 |
| Bulge | 0 |

| Through opening | 5"X5" |

**ROCKET**

| HEAD: Cal. 5" Type 5E711-1P |
| Mark 8 | Mod 2 | No. 8994 | Wt. 48.06 |
| Maker | C & H |  |
| Lot No. | 38 |
| Filler: Type VER1201 | Wt. |  |
| Fuze: MK 160 - Lot 8-51 | #10 |
| Special Firing |  |

| Booster: |  |
| Wt. of head (as fired) | 48.16 |

| MOTOR: Cal. 5" Mk. 2 Mod. 3 |
| Motor temp. | 190° | Wt. 88.65 |
| COMPLETE ROUND: Mark | Mod. |
| Wt. (as fired) | 18.65 |
| Wt. (burned) |  |

**OTHER INFORMATION**

| Motors (2) | Mark |
| BNMDA-385 | -523 |
| MCB-45 |

| LAUNCHER: 105C ROCKET LAUNCHER |

**ROCKET PERFORMANCE**

<table>
<thead>
<tr>
<th>Flight</th>
<th>Velocity, f/s: Striking 1654</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuze functioning</td>
<td></td>
</tr>
<tr>
<td>Explosive action (High Order) (Low Order) (None)</td>
<td></td>
</tr>
<tr>
<td>Distance of burst behind plate</td>
<td></td>
</tr>
<tr>
<td>Condition of recovered round</td>
<td></td>
</tr>
</tbody>
</table>

| Head was in (EFFECTIVE) (IN EFFECTIVE) condition |

**REMARKS:**

Head & Fuze returned to NOL.

Fuzes have live primers, otherwise inert.

**PHOTO NO.** Signed W. R. KASPER

Photo No. 65-12

**CONFIDENTIAL**

[Record # 17]
IMPACT RECORD

U.S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39769
IMPACT DATE 9-22-51
NPG TEST NO. 11-1

OBJECT
IMPACT TEST FOR COMPARISON OF FIRING
PIN SPRINGS IN MK 166-0 ROCKET FUZES

Reference: NPG Tr. 2629 dated
Reference: Board 1st R/24 dated
Task Assignment No. N/24 NPG 2629 dated

PLATE TARGET

Gage 2.0
Class S15
Maker ARAMITE
No. Group
Dimensions

OBLIQUITY 30°

PPENETRATION COMPLETE
Thickness at Impact 1.75
No. of impact on plate
Dist. from nearest impact 19"
Dist. from near edge TIP and L-144
Impact area 6"X11"
Spall: Front 0 Back 0
Dish 1/4" Spur 0
Cracks

Punching (thrown) (started)
Back Button (thrown) (started)
Bulge

Through opening 5"X5/2"

ROCKET

HEAD: Cal. 5" Type 5911-AF
Mark 3 Mod 2 No. 0356 Wt. 49.00 #
Maker C57A
Lot No. 78
Filler: Type V62M Wt. =
Fuzes MK166-0 LOT 5-51 #40
STD FIRING FUS E FLYING
Boosters
Wt. of head (as fired) 48.00 #

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 120° W. 88.15

COMPLETE ROUND: Mark Mod
Wt. (as fired) 136.73 #
Wt. (burned) 58.5 #

OTHER INFORMATION
MOTOR(S) (2) MK166-5-51-MK-45
LAUNCHER 105D ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight
Velocity, f/s: STRIKE 1830 Residual

Fuse functioning

Explosive action (High Order) (Low Order) (None)

Distance of burst behind plate
Condition of recovered round

Head was in (EFFECTIVE) (INEFFECTIVE) condition

REMARKS: Head and fuse returned to NOL.

Photo No.

Signed F. W. Kunde

Photo Date
**IMPACT RECORD**

**U. S. NAVAL PROVING GROUND**  
Dahlgren, Virginia

**IMPACT NO.** 39271  
**IMPACT DATE** 9-22-51  
**NPG TEST NO.** Code 10703

---

**PLATE TARGET**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gage</td>
<td>2.0</td>
</tr>
<tr>
<td>Class</td>
<td>57S</td>
</tr>
<tr>
<td>Maker</td>
<td>CARNEGIE</td>
</tr>
<tr>
<td>No.</td>
<td>57S</td>
</tr>
<tr>
<td>Dimensions</td>
<td></td>
</tr>
<tr>
<td>OBLIQUITY</td>
<td>30°</td>
</tr>
<tr>
<td>PENETRATION</td>
<td>COMPLETE</td>
</tr>
<tr>
<td>Thickness at impact</td>
<td>1.95</td>
</tr>
<tr>
<td>No. of impact on plate</td>
<td></td>
</tr>
<tr>
<td>Dist. from nearest impact</td>
<td>11&quot;</td>
</tr>
<tr>
<td>Dist. from near edges 23&quot; and 1.44&quot;</td>
<td></td>
</tr>
<tr>
<td>Impact area</td>
<td>6&quot; x 7&quot;</td>
</tr>
<tr>
<td>Spall: Front</td>
<td>0&quot;</td>
</tr>
<tr>
<td>Back</td>
<td>0&quot;</td>
</tr>
<tr>
<td>Dish</td>
<td>14&quot;</td>
</tr>
<tr>
<td>Spur</td>
<td>8&quot;</td>
</tr>
<tr>
<td>Cracks</td>
<td>0&quot;</td>
</tr>
<tr>
<td>Punching (thrown) (started)</td>
<td>0&quot;</td>
</tr>
<tr>
<td>Back Button (thrown) (started)</td>
<td>0&quot;</td>
</tr>
<tr>
<td>Bulge</td>
<td>0&quot;</td>
</tr>
<tr>
<td>Through opening</td>
<td>2&quot; x 6&quot;</td>
</tr>
</tbody>
</table>

**ROCKET**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEAD</td>
<td>Cal. 5&quot; Type SEMIN-AP</td>
</tr>
<tr>
<td>Maker</td>
<td>732</td>
</tr>
<tr>
<td>Lot No.</td>
<td>732</td>
</tr>
<tr>
<td>Filler</td>
<td>Type HE-40</td>
</tr>
<tr>
<td>Wt.</td>
<td>-</td>
</tr>
<tr>
<td>Fuze, motor</td>
<td>LAUNCHER</td>
</tr>
<tr>
<td>Wt. of head (as fired)</td>
<td>48.00 #</td>
</tr>
<tr>
<td>Wt. (as fired)</td>
<td>13.6.65 #</td>
</tr>
<tr>
<td>Wt. (burned)</td>
<td></td>
</tr>
<tr>
<td>Booster</td>
<td>STD FIRING PIN SPRINGS</td>
</tr>
<tr>
<td>Motor temp.</td>
<td>120°</td>
</tr>
<tr>
<td>MOTOR</td>
<td>Cal. 5&quot; Mk. 2 Mod 3</td>
</tr>
<tr>
<td>Dist. from nearest edge 23&quot; and 1.44&quot;</td>
<td></td>
</tr>
<tr>
<td>Impact point</td>
<td>6&quot; x 7&quot;</td>
</tr>
<tr>
<td>Through opening</td>
<td>2&quot; x 6&quot;</td>
</tr>
<tr>
<td>COMPLETE ROUND</td>
<td>Mark 7 Mod 2</td>
</tr>
<tr>
<td>Condition of recovered round</td>
<td>Head was in (IMPACTED) (IMPACTED) condition</td>
</tr>
<tr>
<td>OTHER INFORMATION</td>
<td>MARKS (2) 11-12</td>
</tr>
<tr>
<td>LAUNCHER</td>
<td>1050&quot; ROCKET TUBE 18H 95</td>
</tr>
</tbody>
</table>

**ROCKET PERFORMANCE**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flight Pure functioning</td>
<td></td>
</tr>
<tr>
<td>Velocity, f/s</td>
<td>1850 Residual</td>
</tr>
<tr>
<td>Explosive action</td>
<td>(High Order) (Low Order) (None)</td>
</tr>
<tr>
<td>Distance of burst behind plate</td>
<td></td>
</tr>
<tr>
<td>Condition of recovered round</td>
<td>Head was in (IMPACTED) (IMPACTED) condition</td>
</tr>
</tbody>
</table>

**REMARKS:** Fuse had live primary otherwise inert.  
Head of fuse returned to keel.

---

Photo No.  
Signed F. W. Kasdon  
11-23-51
NAVORD FORM 1885 (New *, $ , IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 392 72
IMPACT DATE 9-22-51
NPG TEST NO. 616 1090

OBJECT - IMPACT TEST FOR COMPARISON OF FILING FUSES

Reference: NPG itr. 337 17 210 7 52 dated
Reference: Buord itr. 54146-1-1105 8 1 1 1 dated
Task Assignment No. 541 775 4 1 2 dated

PLATE TARGET

Gage 4" D Class 5TS
Maker 14120 16 16
No. Dimensions

OBLIQUITY 30°

PENETRATION COMPLETE

Thickness at impact 7/8"
No. of impact on plate
Dist. from nearest impact 16"
Dist. from near edge 7/8" and 1/4"
Impact area 5" x 6"
Spall: Front 0 Back 0
Disk 3/4" Spur 3"

Cracks
Punching "thrown" (started)
Back Button "thrown" (started)
Bulge 0
Through opening 5" x 5 1/4"

HEAD: Cal. 3" Type SE771 - 674
Mark 3 Mod 3 No. 5993 Wt. 47.04
Maker 15.43 Lot No. 38
Filler: Type VERDI Wt. =
Fuzes Mk 166-2 lot x 51
SPEEG Firing 1st Imm
Boosters
Wt. of head (as fired) 4 1/2

MOTOR: Cal. 5" Mk. 2, Mod 2
Motor temp. 120° wt. 87.65

COMPLETE ROUND: Mark Mod
Wt. (as fired) 1 35.65
Wt. (burned) 0

LAUNCHER 10.50" ROCKET LENG. HT

OTHER INFORMATION MOTOR'S (3) 11/2:
AN: FMC 585 MCA-45

REMARKS: Fuzes had live primers; otherwise intact.
Head + Fuses returned to NPG.

Photo No. 

Signed F. W. Monroe
F. W. Monroee, Ic
OHI, ENG. 55-12
**NAVORD FORM 1883 (New)***

**IMPACT RECORD**

**U.S. NAVAL PROVING GROUND**

**DAHLGREN, VIRGINIA**

**IMPACT NO.** 39273

**IMPACT DATE** 9-30-51

**NPG TEST NO.** CODE 1696

---

**OBJECT**

IMPACT TEST FOR COMPARISON OF FIRING

- **Reference:** NPG 444. T. E. MT 120. 9/36 dated
- **Reference:** Buord 40. NOL H. N. N. I. 51-1 (56. ) 101209 dated 9-3-1951
- **Task Assignment No.:** NPG-RE-24-42-1-52 dated 4-24-1951

---

**PLATE TARGET**

- **Gage:** 2.0
- **Class:** 575
- **Maker:** CANNABE
- **No.:** 
- **Group:** 
- **Dimensions:** 
- **OBLIQUITY:** 30°

**PENETRATION**

- **COMPLETE**
- **Thickness at impact:** 1.95
- **No. of impact on plate:** 
- **Dist. from nearest impact:** 23".
- **Dist. from near edges:** 7/8" and 7.62".
- **Impact area:** 6" x 1".
- **Spall:** Front 0, Back 0
- **Dish:** 1/4" Spur 5"
- **Cracks:** 5
- **Punching (thrown):** Started
- **Back Button (thrown):** Started
- **Bulge:** Through opening 3" x 6"

---

**ROCKET**

- **HEAD:** Cal. 5" Type SETH 1-A
  - Mark 5 Mod 2 No. 8935 Wt. 46.00
  - Maker C. SDA
  - Lot No. 239
  - Filler: Type YJ, Wt. -
  - Fuzes are .61" 1 ft 5.1111 #43
  - STD: Exploding: -.
  - Boosters: Wt. of head (as fired) 40.00
  - Moto: Cal. 5" Mk. 2 Mod 3
  - Motor temp. 180° 17.4/3
d
  - COMPLETE ROUND: Mark Mod
  - Wt. (as fired) 187.35
  - Wt. (burned) 187.35

- **OTHER INFORMATION**
  - BULG: STRAIGHT -
  - LAUNCHER: 7050 RCKET LPR: "H"

---

**ROCKET PERFORMANCE**

- **Flight:** Velocity, f/s: Stopping 153.2 Residual
- **Fuze functioning:**
- **Explosive action:** (High Order) (Low Order) (None)
- **Distance of burst behind plate:**
- **Condition of recovered round:**
- **Head was in (EFFECTIVE) (INEFFECTIVE) condition.**

---

**REMARKS:**

- Fuze bad live primer; otherwise intact.
- Note: Fuze returned to NOL.

---

**Photo No.**

**Signed** F. W. Kasdol.

---

**CONFIDENTIAL**

---

---
**IMPACT RECORD**

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 392.74
IMPACT DATE 9-22-51
NPG TEST NO. 10903

**OBJECT:** IMPACT TEST FOR COMPARISON OF FIRING PIN SPRINGS IN MK 166-7 ROCKET FUSES

**PLATE TARGET**
- Gage: 2.0
- Class: 575
- Maker: CORNESE
- Group: C
- Dimensions: 6" x 6"
- OBliquity: 30°
- PENETRATION: Complete
- Thickness at impact: 2.065". Overall Throat, 1.700". Overall Dish, 0.740"
- No. of impact on plate: 1
- Dist. from nearest impact: 0.75". Dist. from near edges: 0.75" and 0.94"
- Impact area: 6" x 7"
- Spall: Front 0.5", Back 0.5"
- Dish: ⅛", Spur: ⅜"
- Cracks: 0
- Punching: (thrown) (started)
- Back Button: (thrown) (started)
- Bulge: 0
- Through opening: 5" x 5"

**ROCKET**
- Head: Cal. 5", Type: SEMI-AP
- Maker: B. Mod. 2 No. 3822. Wt.: 48.00 lbs.
- Booster: Type: 2017. Wt.: 80.00 lbs.
- Fuzes: (2) MK 166-7. Lot: 9-91. #13
- SOFT FUSING PIN SPRING
- LAUNCHER 1630' ROCKET LAUNCHER

**ROCKET PERFORMANCE**
- Velocity, ft./sec.: 19.39
- Residual
- Fuze functioning: 2
- Explosive action: (High Order) (Low Order) (None)
- Distance of burst behind plate: Intact
- Condition of recovered round: Head was Intact. (EFFECTIVE) (INEFFECTIVE) condition

**REMARKS:**
- Photo No. 1
- Signed: T. W. Kasdorff
- Conf. No. 25

**CONFIDENTIAL**
**NAVORD FORM 1583 (New 3.4/)**  

**IMPACT RECORD**  

U. S. NAVAL PROVING GROUND

DAHLGREN, VIRGINIA

**IMPACT NO.** 24295  
**IMPACT DATE** 2-12-51

**NPG TEST** NO. 19263

<table>
<thead>
<tr>
<th>OBJECT</th>
<th>IMPACT TEST FOR CORRELATION OF EULCO</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLATE TARGET</td>
<td>ROCKET</td>
</tr>
</tbody>
</table>
| Head | Cal. 5" Type SE-16"
| Maker | Cal. 5"
| Mark | Cal. 5"
| Mod. | Mod. 5
| No. | No. 450 Wt. 4.16
| Dimensions | 17.5" |
| Gage | Class 575
| Class | 575
| No. | 575
| Group | 575
| Dist. from nearest impact | 12" |
| Dist. from near edges | 5.42 and 1.72"
| Impact area | 6" x 7"
| Spall: Front | 0
| Back | 0
| Spur | 0
| Dish | 0
| Punching (thrown) (started) | 0
| Back Button (thrown) (started) | 0
| Crack | 0
| Through opening | 5" x 3.34" |
| Fuze | Cal. 5"
| Motor | Cal. 5"
| Motor temp. | 126° Wt. 87.85 |
| COMPLETE ROUND: Mark | Mod
| Wt. (as fired) | 18.5.64
| Wt. (burned) | 18.5.64
| OTHER INFORMATION | Wt. | 18.5.64 |
| LAUNCHER | 1050 S6 ROCKET I-1144 |

**ROCKET PERFORMANCE**

<table>
<thead>
<tr>
<th>Flight</th>
<th>Velocity, f/s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuze functioning</td>
<td>Starting 176.9</td>
</tr>
<tr>
<td>Explosive action</td>
<td>(High Order)</td>
</tr>
<tr>
<td>Distance of burst behind plate</td>
<td>(Low Order)</td>
</tr>
<tr>
<td>Condition of recovered round</td>
<td>(None)</td>
</tr>
</tbody>
</table>

**REMARKS:** Fuselage live principle armor/insert.

**Photo No.**

**Signed**

[Signature]
NAVORD FORM 1883 (New 3/5)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 34276
IMPACT DATE 1-62-51
NPG TEST NO. C61F1675

OBJECT

IMPACT TEST FOR COMPARISON OF ENGINEERS IN M166-0 ROCKET FIRES

Reference: NPG tr. 914, dated 9-22-44.
Reference: Buord tr. 914, dated 9-22-44.

PLATE TARGET

<table>
<thead>
<tr>
<th>Gage</th>
<th>Class</th>
<th>3.0</th>
<th>575</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maker</td>
<td>Model</td>
<td>AAB 60 I</td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>Group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OBLIQUITY | 30°

PENETRATION

COMPLETE

Thicknness at impact 1.95
No. of impacts on plate 4
Dist. from nearest impact 16"
Dist. from nearest edge 2" and 1-107"
Impact area 5" x 6"
Spall: Front O Back C
Dish 1/4" Spur 2"
Cracks C
Punching (thrown) (started)
Back Button (thrown) (started)
Bulge
Through opening 5" x 3/4"

ROCKET

HEAD: Cal. 5" Type Semi-Fil
Mark A Mod 3 No. 39, Wt. 44.60
Maker | | |
Lot No. | | |
Pillar: Type PEL-5 Wt. -
Fuzes: No. 16 D-3 #14
Boosters
Wt. of head (as fired) 44.60

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 120° WT 55.16

COMPLETE ROUND: Mark Mod
Wt. (as fired) 18.64
Wt. (burned) 18.64

OTHER INFORMATION

LAUNCHER: 16.50 LOCET 14 IN BBL

ROCKET PERFORMANCE

Flight: Velocity, f/s: Striking 1871 Residual |
Fuse functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round Head Was In (EFFECTIVE) (INEFFECTIVE) condition.

REMARKS:

Fuzes are no primary, otherwise intact.

Photo No. | Signed F.W. Kafka

Photo: 1871

Date: 1-62-51
IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 31371
IMPACT DATE 9-22-51

NPG TEST NO. _______

OBJECT: PLATE TARGET

ROCKET: HEAD: Cal. 5" Type 5H44-A1

MOTOR: Cal. 5" Mk. 2 Mod 2 Wt. 48.9 C

PLATE TARGET

Gage 210 Class STS

Maker: J. P. 1880

No. Group: -

Dimensions: -

OBLIQUITY: 30°

PENETRATION: COMPLETE

Thickness at impact: 1.55

No. of impact on plate: -

Dist. from nearest impact: 14"

Dist. from nearest edge: 24" and 1-97"

Impact area: 6" x 9"

Spall: Front 0 Back 0

Dish: 94" Spur 2"

Cracks: 0

Punching (thrown) (started) 0

Back Button (thrown) (started) 0

Bulge: -

Through opening: 5" x 5-1/2"

ROCKET PERFORMANCE

Flight Velocity, f/s: Striking 115 L Residual

Fuzes functioning

Explorative action (High Order) (Low Order) (None)

Distance of burst behind plate

Condition of recovered round

Head was in (EFFECTIVE) (INEFFECTIVE) condition

REMARKS: Fuzes have live primers; otherwise normal

LAUNCHER: 10.5" L 166-C KOCKET FINES

REF. NPG 1118 L F. J. 61 dated 4-11-51

PHOTO NO. -

SIGNED: F. W. Knaul Ph. Pl. 1

Date: 10-26-51

REFERENCE: NPG 1118 L F. J. 61 dated 4-11-51

Task: PLATE TARGET

ROCKET: HEAD: Cal. 5" Type 5H44-A1

MOTOR: Cal. 5" Mk. 2 Mod 2 Wt. 48.9 C

OTHER INFORMATION: LAUNCHER: 10.5" L 166-C KOCKET FINES

REF. NPG 1118 L F. J. 61 dated 4-11-51

PHOTO NO. -

SIGNED: F. W. Knaul Ph. Pl. 1

Date: 10-26-51
NAVAL PROVING GROUND IMPACT NO. 29217
DAHLGREN, VIRGINIA IMPACT DATE 9-24-51

IMPACT TEST FOR PURCHASE OF FIRING GAGE IN MIL. 566 AERIAL TUBES

Reference: NPG letter dated 9-24-51
Reference: MIL-566 dated 9-24-51
Task Assignment No. NPG-20-17-52 dated 9-24-51

PLATE TARGET

- Gage: 2.4
- Class: STC
- MAKER: CANNON
- Dimensions: 
- OBLIQUITY: 30°
- PENETRATION: COMPLETE
- Thickness at impact: 2.0
- No. of impact on plate: 
- Dist. from nearest impact: 
- Dist. from near edges: 3.0 and 2.75
- Impact area: 6" X 3.0
- Spall: Front: 0
- Dish: 1/4" Spur: 
- Cracks: 0
- Punching: (thrown) started
- Back Button: (thrown) started
- Bulge: 
- Through opening: 5" X 6"

ROCKET

- HEAD: Cal. 5" Type CAPTAIN
- Mark: 2
- MOD: 2
- NO: B8
- WT: 4.6
- MAKER: 
- LOT NO: 48
- Filler: TYPE VERN Wt. -
- Fuzes MK-16-8 LOT 8-51 #18
- SPECIAL FIRING: EIN SPRING
- Boosters: 
- WT of head (as fired): 4.8 0.24
- MOTOR: Cal. 5" Mk. 2 Mod 8
- Motor temp: 120° UT. 56.20
- COMPLETE ROUND: Mark Mod
- WT (as fired): 139.20 #
- WT (burned): 

OTHER INFORMATION
MOTORS, ETC. In 17-
FLN: KHART. 44-9A-1157
LAUNCHER: 409 ROCKET LAUNCHER

ROCKET PERFORMANCE

- Flight: Velocity: f/s: Striking 1844 Residual
- Fuse functioning: 
- Explosive action: (HIGH ORDER) (LOW ORDER) (NONE)
- Distance of burst behind plate: 
- Condition of recovered round: 
- Head was in (EFFECTIVE) (INDETERMINATE) condition

REMARKS: 
- Fuse box lid primary, otherwise intact.
- Head + fuse returned to MIL.

Photo No. 
Signed F. W. Kellett
CLF. ENG. 65-12

CONFIDENTIAL
Security Information Impact Record #29
IMPACT RECORD
U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA
IMPACT NO. 34 - 17
IMPACT DATE 9-24-51
NPG TEST NO. C-66-16703

OBJECT
Impact Test for Comparison of Firing Pin

REFERENCE: MPG 9/2.9/6 19.3.4 dated
REFERENCE: BuOrd 119/5 NC 8/16/40-17 dated
Task Assignment No. NPG-127.12.4-1-52 dated

PLATE TARGET
Gage 2.0 Class 175
Maker CANFIELD
No. Group -
Dimensions -

OBLIQUITY 36°

PENETRATION Complete
Thickness at impact 2.0
No. of impact on plate -
Dist. from nearest impact 36"
Dist. from near edges 1.44 and 1.36
Impact area 5" X 6"
Spall: Front 0 Back 0
Dish 1/4" Spur 2"
Cracks 0
Punching (thrown) (started) 0
Back Button (thrown) (started) 0
Bulge 0
Through opening 5" X 3/4"

ROCKET
HEAD: Cal. 5" Type 3711-11.11.
Mark 2 Mod 2 No 9958 Wt. 48.00#
Maker CSM A
Lot No. 38
Filler: Type VERMT. -
Fuzes MK.166-0 Lot 8-51 #45
STD Firing Pin Spalling
Boosters -
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 3 Mod 3
Motor temp 120° 97° 69.50°

COMPLETE ROUND: Mark Mod
Wt. (as fired) 1370.50#
Wt. (burned) -

OTHER INFORMATION: Motors (2) 39150

LAUNCHER: 105C rocket launcher

ROCKET PERFORMANCE

Flight Velocity, f/s: Striking 1686 Residual
Fuze functioning -
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate -
Condition of recovered round Head was in (EFFECTIVE) (INEFFECTIVE) condition.

REMARKS: Fuze has no primer, otherwise intact.
Head & Fuze returned to NPL

Photo No. Signed F.W. Kaseck

9-24-51

CONFIDENTIAL
### IMPACT RECORD

**U.S. NAVAL PROVING GROUND**  
**DAHLGREN, VIRGINIA**

**IMPACT NO.** 24-71-76  
**IMPACT DATE** 7-31-71  
**NPG TEST NO.** 1586-76

**OBJECT** Impact Test for Comparison of Fuze: F-10  
**FLAMES IN** MK 16A ROCKET: F-10

Reference: NPG itr. 8/28/64 dated  8/28/64  
Reference: BuOrd itr. 9/23/64 dated  9/23/64

**TASK ASSIGNMENT NO.**

<table>
<thead>
<tr>
<th>Plate Target</th>
<th>Rocket</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gage</strong> 2.0</td>
<td><strong>HEAD</strong> Cal. 5&quot; Type SE:1-61</td>
</tr>
<tr>
<td><strong>Class</strong> 575</td>
<td><strong>Mark</strong> 2</td>
</tr>
</tbody>
</table>
| **Maker** CARRIE 
| **No.** Group  | **Wt.** |
| **Dimensions**  | 140Wt. |
| **OBLIQUITY**  | 30° |
| **Penetration** Complete |
| Thickness at impact 2.0 |
| No. of impact on plate 1 |
| Dist. from nearest impact 13" |
| Dist. from near edge 51" |
| Impact area 1.0 |
| Spall: Front 1"  |
| Dish 1/4"  |
| Back 1" |
| **Cracks**  |
| Punching (thrown) (started)  |
| Back Button (thrown) (started)  |
| Bulge  |
| Through opening 5" X 5°

**Motor** Cal. 5" Mk. 2  | **Mod** 3  | **Wt.** (as fired) 13.90 # |

**COMPLETE ROUND**  
**Wt. (as fired)** 13.90 #  
**Wt. (burned)**

**OTHER INFORMATION**  
**MOTORS** (2) |

**ALN:** 7741-12-44-44-44-HA-45

**LAUNCHER** 10.5" ROCKET LAUNCHER

**ROCKET PERFORMANCE**

<table>
<thead>
<tr>
<th>Flight</th>
<th>Velocity, f/s:</th>
<th>Striking 18.58 Residual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuze functioning</td>
<td>Explosive action (High Order) (Low Order) (None)</td>
<td></td>
</tr>
<tr>
<td>Distance of burst behind plate</td>
<td>Condition of recovered round</td>
<td></td>
</tr>
<tr>
<td>Head was in (EFFECTIVE) (INEFFECTIVE) condition</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS:** Fuze has live primers otherwise inert

**Photo No.**

**Signed**  
F.W. Kelton  

**Confidential**
IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39351
IMPACT DATE 1-24-51

OBJECT IMPACT TEST FOR COMMISSION OF Firing Fuzes

REFERENCE: NPC ittr. No. 32, Ref. 1 C.4 dated 1-1-51
REFERENCE: NPC 1st ittr. No. 32, Ref. 1 C.4 dated 1-1-51

PLATE TARGET

Cage 3.0 Class SJS
Maker NAVAL PROVING GROUND
No. Group -
Dimensions -

OBLIQUITY 30°

ROCKET

HEAD: Cal. 5" Type F-1301-3-AF
Mark 2 Mod 2 No. 8699 Wt. 47.60
Maker 338A
Lot No. 3B
Filler: Type PERCH Wt.

Fuze MK 146-0 Lot F-51 #46
Boosters
Wt. of head (as fired) 44.00

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 135° Wt. 89.60

COMPLETE ROUND: Mark Mod
Wt. (as fired) 137.60
Wt. (burned)

OTHER INFORMATION
MOTOR'S GRAIN
ALT. Maker - 1444. HP 45

LAUNCHER 1050' Rocket Launcher

ROCKET PERFORMANCE

Velocity, f/s: Striking 1956 Residual

Fuze functioning

Explosive action (High Order) (Low Order) (None)

Distance of burst behind plate

Condition of recovered round

Head was in (EFFECTIVE) (INEFFECTIVE) condition

REMARKS: This round key held previous impact.
This round was not recovered.

Photo No. Signed A. M. Keadle

CONFIDENTIAL
**IMPACT RECORD**

U. S. NAVAL PROVING GROUND  
DAHLGREN, VIRGINIA

IMPACT NO. 3927  
IMPACT DATE 7-9-51

NPG TEST NO. Code 15-13

---

**OBJECT**  
IMPACT TEST FOR COMPARISON OF FIRE:

FIN SPRINGS IN MK 166 ROCKET FLIES

Reference: NPG Tr. dated  
Reference: BuOrd Letter NPGTr-Ltr(C) dated  
Task Assignment No.  

---

**PLATE TARGET**  

<table>
<thead>
<tr>
<th>Cage</th>
<th>Class</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0</td>
<td>5T5</td>
<td>102.16&quot; x 276&quot;</td>
</tr>
</tbody>
</table>

---

**ROCKET**  

HEAD: Cal. 5" Type 5M1I-1F  
Mark 2 Mod 2 No 548 Wt. 18.00

Maker CSOA  
Lot No. 38

Filler: Type VEN
Wt. =

Boosters  
Wt. of head (as fired) 48.66

MOTOR: Cal. 5" Mk. 5 Mod 1  
Motor temp. 130° Wt. 96.25

COMPLETE ROUND: Mark Mod  
Wt. (as fired) 13.255

Wt. (burned)  

OTHER INFORMATION  
APL: KIN-1444-HA-45

LAUNCHER 1050' ROCKET LAUNCHER

---

**ROCKET PERFORMANCE**  

Velocity, f/s: Striking 1837 Residual

---

**REMARKS:**  

Fuzes has live primers; otherwise intact.

---

**Photo No.**  
Signed F. W. Kardel  
11-11-66  1-5-72

---

**Flight**  

Pure functioning

---

**Explosive action**  

High Order  Low Order  None

---

**Distance of burst behind plate**  

---

**Condition of recovered round**  

Head was in (EFFECTIVE) (INACTIVE) condition.

---

**REMINDERS:**  

Head & Fuzes returned to store.
# Impact Record

**Impactor:** U.S. Naval Proving Ground Dahlgren, Virginia

**Impact Date:** 9-24-51

**NPG Test No.:** C-428/1-51

## Impact Test

**Firing Conditions:**
- **Object:** Impact Test Firing Comparison of Firing Fuses
- **Reference:** NPG Test Firing Fuses dated 9-24-51
- **Task Assignment:** NPG Test Firing Fuses dated 9-24-51

## Object

**Class:** 575

- **Gage:** A
- **Maker:** CARNEGIE
- **No.:** 11626
- **Group:** 1
- **Dimensions:** 1.38" x 2.76"
- **Obluity:** 30°

## Penetration

**Thickness at Impact:** 2.00

- **Distance from nearest impact:** 16" from 1.97" and 8.48" from 3.98"
- **Impact area:** 6.0" x 7.0"

**Spall:**
- **Front:** 0
- **Back:** 0
- **Dish:** 4"
- **Spur:** 3"

**Cracks:**
- **Punching (thrown):** 0
- **Back Button (thrown):** 0
- **Bulge:** 0
- **Through opening:** 5.0 x 5.00"

## Rocket

**Head:**
- **Cal.:** 5"
- **Type:** JENA-51
- **Mark:** 2
- **Mod:** 3
- **No.:** 5779
- **Wt.:** 47.00

**Maker:** 128

**Lot No.:** 3

**Filler:** Type VEX-1

**Fuzes:** MK16D-1 LT 4-51 0/18

**Boosters:**
- **Wt. of head (as fired):** 47.00

**Motor:**
- **Cal.:** 5"
- **Mk.:** 3
- **Mod:** 3
- **Wt. (as fired):** 136.90
- **Wt. (burned):** 136.90

**Launcher:** 1050 Projector Launcher

**Other Information:**
- **Makers:** (2) HINEMANN and (2) KONDA, 1944-HA-45

## Pocket Performance

**Velocity, f/s:**
- **Maximum:** 1800
- **Residual:**

**Fuze Functioning:**
- **Explosive action:** (High) (Low) Order (None)

**Condition of recovered round:**
- **Head was in:** (Effective) (Ineffective) condition

**Remarks:**
- **Fuze has live primers, otherwise short.
- **Head & fuse returned to NPG.

**Photo No.:**

**Signed:** F. W. KENDALL

**Photo Date:** 9-24-51

**Confidentiality:**
- **Current:** Date: 9-24-51
- **Copies:** Date: 9-24-51

---

**References:**

- NPG

---

**Plate Target**

**Maker:** CARNegie

**No.:** 11626

**Group:** 1

**Dimensions:** 1.38" x 2.76"

**Obluity:** 30°

**Penetration Complete:**

- **Thickness at Impact:** 2.00
- **Distance from nearest impact:** 16" from 1.97" and 8.48" from 3.98"
- **Impact area:** 6.0" x 7.0"

**Spall:**
- **Front:** 0
- **Back:** 0
- **Dish:** 4"
- **Spur:** 3"

**Cracks:**
- **Punching (thrown):** 0
- **Back Button (thrown):** 0
- **Bulge:** 0
- **Through opening:** 5.0 x 5.00"
NAVDORD FORM 1883 (New 3/43)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 3924

IMPACT DATE 9-24-51

NPG TEST NO. 10F 1676

OBJECT

IMPACT TEST FOR COMPARISON OF FIRING
FIN SPRINGS IN MK 106 ROCKET FUSES

Reference: NPG ltr. Report No. 93, dated
Reference: BuOrd ltr. NOL BN (NEI) 2/1(15)/44 dated 9 July 1944
Task Assignment No. NDC-RE24-12-1-52, dated 4 Aug. 1945

PLATE-TARGET

Gage 3/4" Class 375
Maker DERWENT
No. 106763 Group
Dimensions 17 1/8" X 27 7/8"

OBLIQUITY 30°

PENETRATION

Thickness at impact 1/8"
No. of impact plate 1/4
Dist. from nearest impact 7/8"
Dist. from near edge 2 1/4" and 1 7/8"
Impact area 1 1/4" x 1/4"
Spall: Front 0" Back 0"
Dish 1/4" Spur 0"
Cracks 0
Punching (thrown), started
Back Button (thrown) (started)
Bulge 0
Through opening 3" X 3 1/8"

ROCKET

HEAD: Cal. 5" Type SEMI-AE
Mark 2 Mod 2 No. 844 Wt. 48.00 lb.
Maker CSG Lot No. 38
Filler: Type VERD, Wt.
Fuses MK 16E 0 LOT 8 57
Boosters 1
"SPECIAL FIRING PIN SPRING"
Wt. of head (as fired) 48.10 lb.

MOTOR: Cal. 5" Mk. 2 Mod. 3
Motor temp. 120° Wt. 88.35 lb.
COMPLETE ROUND: Mark Mod
Wt. (as fired) 138.35 lb.
Wt. (burned)

OTHER INFORMATION

MOTORS (3) MK 12
PN: 121244, 14444, HP. 45
LAUNCHER LOST, ROCKET LAUNCHER

ROCKET PERFORMANCE

Duration

Velocity, ft. / s: Striking 16.27 Residual

Fuse functioning

Explosive action (High Order) (Low-Order) (None)

DISTANCE OF BURST BEHIND PLATE

Condition of recovered round

Head was IN (EFFECTIVE) (INEFFECTIVE) condition

REMARKS:

Free test site primarily other site used

Head & Fuse returned to site

Photo No.

Signed F. W. Kidder

Security Information: Impact Record # 35
**IMPACT RECORD**

**U.S. NAVAL PROVING GROUND, DAHLGREN, VIRGINIA**

**IMPACT NO. 39298**

**IMPACT DATE 9-28-51**

**NPG TEST NO. CODE 11963**

**OBJECT**

**IMPACT TEST FOR COMPARISON OF FIRING PIN SPRINGS IN MK 166 ROCKET FUSES.**

Reference: NPG 1st Report No. 921, dated
Reference: Battery Mk. No. 127, dated 9 Aug 1951
Task Assignment No. N3E-N-29-12-1-78, dated 4 Aug 1951

<table>
<thead>
<tr>
<th>OBJECT</th>
<th>PLATE TARGET</th>
<th>ROCKET</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gage</td>
<td>1.00 Class 575</td>
<td>Head: Cal. 5&quot; Type SEMI-AP</td>
</tr>
<tr>
<td>Maker</td>
<td>U.S. STEEL</td>
<td>Maker: CSX</td>
</tr>
<tr>
<td>No.</td>
<td>Blk Group 1346-910</td>
<td>Mark 3 Mod 2 No. 3785 Vt. 45.00</td>
</tr>
<tr>
<td>Dimensions</td>
<td>88&quot; x 250&quot;</td>
<td>Wt. 42 lbs.</td>
</tr>
<tr>
<td>OBLIQUITY</td>
<td>30°</td>
<td>No. of impact area: 3</td>
</tr>
<tr>
<td>PENETRATION</td>
<td>COMPLETE</td>
<td>Dist. from nearest impact: 12&quot;</td>
</tr>
<tr>
<td>Thickness at impact</td>
<td>0.46</td>
<td>Dist. from near edge: 44&quot; and 2-134&quot;</td>
</tr>
<tr>
<td>No. of impact on plate</td>
<td>3</td>
<td>Impact area: 5&quot; x 2&quot;</td>
</tr>
<tr>
<td>Dist. from nearest impact</td>
<td>12&quot;</td>
<td>Spall: Front 0 Back 0</td>
</tr>
<tr>
<td>Dist. from near edge: 44&quot; and 2-134&quot;</td>
<td></td>
<td>Dish 0 Spur 0</td>
</tr>
<tr>
<td>Impact area: 5&quot; x 2&quot;</td>
<td></td>
<td>Punching (thrown) (started) 0</td>
</tr>
<tr>
<td>Spall: Front 0 Back 0</td>
<td></td>
<td>Back Button (thrown) (started) 0</td>
</tr>
<tr>
<td>Dish 0 Spur 0</td>
<td></td>
<td>Bulge 0</td>
</tr>
<tr>
<td>Punching (thrown) (started) 0</td>
<td></td>
<td>Through opening 5&quot; x 5.5&quot;</td>
</tr>
<tr>
<td>Back Button (thrown) (started) 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bulge 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Through opening 5&quot; x 5.5&quot;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ROCKET PERFORMANCE**

**HEAVY**

Velocity, f/s: Striking 1787 Residual

Fuzes functioning

Explosive action (High Order) (Low Order) (None)

Distance of burst behind plate

Condition of recovered round: Intact

Head was in (EFFECTIVE) (INAPPROPRIATE) condition.

**REMARKS:**

Hard fuze returned to NOL.

Photo No. Signed F.W. Kasdorf

Signed F.W. Kasdorf, C.L.

AND 4/55, 4/55 12

CONFIDENTIAL

Impact Record #36
IMPACT RECORD
U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA
IMPACT N. 39291
IMPACT DATE 7-22-51
NPG TEST N. CODE 1070

OBJECT: IMPACT TEST FOR COMPARISON OF FIRED FUSE

IMPACT TEST FOR COMPARISON OF FIRED FUSE

PLATE TARGET

HEAD:
Cal. 5"
Type SEPUL-HP
Mark 2
Mod. 2
No. 94435
MOTOR:
Cal. 5"
Mk. 2
Mod. 3
Motor temp. 150°
WT.
58.85#-
WEIGHT OF HEAD (AS FIRED) 42.66#
WEIGHT OF HEAD (BURNT) 5.25#

PLATE TARGET

CASE:
1.50
CLASS:
STS
MATER:
1/3 STEEL
GROUP:
0-326-410
DIMENSIONS:
88" X 250"-

SPECIAL FEATURES:
CLEAN.

SPALL:
Front 6" Back 0"

DISH:
1/4" Spur 3"

CREV:\
Through 0"

CRACKS:

PUNCHING:

BACK BUTTON:

BULGE:

THROUGH OPENING:

INSERT:

COMPLETE ROUND:

WEIGHT OF HEAD (AS FIRED) 156.55#
WEIGHT OF HEAD (BURNT) -

COMPLETE ROUND:

WEIGHT OF HEAD (AS FIRED) 156.55#
WEIGHT OF HEAD (BURNT) -

TAN:

LAUNCHER:

REMARKS:
HEAD + FUSE RETURNED TO MGR.

PHOTO NO. __________

SIGNED
F. W. Kaasen

CONFIDENTIAL

FILED: [Date]
### IMPACT RECORD

**U. S. NAVAL PROVING GROUND**

**DAHLGREN, VIRGINIA**

**IMPACT NO. 3930C**

**IMPACT DATE 9-28-51**

**NPG TEST NO. COLE 16763**

---

#### OBJECT IMPACT TEST FOR COMPARISON OF FIRING PIV SPRINGS IN DIS. 106 ROCKET FUZES

| Reference: NPG | 11/9/51 dated |
| Reference: Board | 11/9/51 dated |
| Task Assignment No. | 6/12/51 dated |

---

#### PLATE TARGET

| Gage | 1.50 |
| Class | STS |
| Maker | U.S. STEEL |
| No. of impact on plate | 5 |
| Dist. from nearest impact | 14" |
| Dist. from near edges | 35/199" |
| Impact area | 6 x 11" |
| Spall: Front | 0 |
| Back | 0 |
| Dish | 1/4" |
| Spur | 2" |
| Cracks | 0 |
| Punching (thrown) | 0 |
| Back Button (thrown) | 0 |
| Bulge | 0 |
| Through opening | 5" |

#### HEAD

| Marker | 5" |
| Type | 151-AF |
| Mark | 2 |
| Mod | 2 |
| No. | GHT 48.60 |
| Lot No. | 3.6 |
| Filler | Type VEA (Wt. 88.6) |
| Fuzes MK 166-0 Lot 4.51 #48 |
| CONVENT: FIRING PIN, SHARING Boosters inert live primer |
| Weight of head (as fired) | 48.66 " |
| MOTOR | Cal. 5" |
| Mk. | 2 |
| Mod | 2 |
| Motor temp. | 120° W. 82.5" |
| Dist. of burst behind plate | 0 |
| Condition of recovered round | 9 |
| Head was in (EFFECTIVE) condition |
| HSN: 4711A-1444-HA-45 |
| LAUNCHER | 10 50" ROCKET LAUNCH |

#### COMPLETE ROUND:

| Wt. (as fired) | 136.85 |
| Wt. (burned) | 136.85 |

#### OTHER INFORMATION:

- MOTOR: 3/4 (8) (51.92-17.5)
- GRAIN: HSN: 4711A-1444-HA-45
- LAUNCHER: 10 50" ROCKET LAUNCH

---

#### ROCKET PERFORMANCE

- Velocity, f/s: STRIKING-1928 Residual
- Fuse functioning
- Explosive action (High Order) (Low Order) (None)
- Distance of burst behind plate
- Condition of recovered round

#### REMARKS:

- Head fuse was returned to NPG

---

**Photo No.**

**Signed**

F. W. Kassdo

F. W. Kassdo

F. W. Kassdo
**IMPACT RECORD**

**U. S. NAVAL PROVING GROUND**

DAHLGREN, VIRGINIA

**IMPACT DATE** 2-25-51

**U.S. NAVAL PROVING GROUND IMPACT NO.**

**NPG TEST NO.** CAPE 1076

**OBJECT** IMPACT TEST FOR COMPARISON OF FIRING...

**PLATE TARGET**

<table>
<thead>
<tr>
<th>Cage</th>
<th>Class</th>
<th>STS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maker</td>
<td>U.S. STEEL</td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>0132.640</td>
<td>Group 12.556-810</td>
</tr>
<tr>
<td>Dimensions</td>
<td>38&quot; x 250&quot;</td>
<td></td>
</tr>
</tbody>
</table>

**ROCKET**

<table>
<thead>
<tr>
<th>HEAD: Cal. 5&quot; Type</th>
<th>Type</th>
<th>SEMI. A.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mark 2 Mod 2</td>
<td>No. 485</td>
<td>Wt. 42.4</td>
</tr>
<tr>
<td>Maker</td>
<td>CSA</td>
<td></td>
</tr>
<tr>
<td>Lot No.</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>Filler: Type VEKT, Wt. -</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SPECIAL FIRING**

<table>
<thead>
<tr>
<th>Booster:</th>
<th>S trainers</th>
<th>Firing Primer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wt. of head (as fired)</td>
<td>42.00</td>
<td></td>
</tr>
<tr>
<td>MOTOR: Cal. 5&quot; Mk. 2 Mod 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor temp.</td>
<td>120° Wt. 39.0</td>
<td></td>
</tr>
</tbody>
</table>

**COMPLETE ROUND:**

<table>
<thead>
<tr>
<th>Mark Mod</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wt. (as fired)</td>
</tr>
<tr>
<td>Wt. (burned)</td>
</tr>
</tbody>
</table>

**ROCKET PERFORMANCE**

<table>
<thead>
<tr>
<th>Velocity, f/s:</th>
<th>STRIKING 16.12</th>
<th>Residual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuze functioning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explosive action (HIGH ORDER)</td>
<td>(LOW ORDER)</td>
<td>(NONE)</td>
</tr>
<tr>
<td>Distance of burst behind plate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condition of recovered round</td>
<td>Head was in (EFFECTIVE) (INOPERATIVE) condition</td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS:**

Head + fuse returned to NPG.

Photo No. 

Signed: F.W. Kasdorf

C.O. Entry: 5-12
IMPACT RECORD

U.S. NAVAL PROVING GROUND
Dahlgren, Virginia

IMPACT NO. 39302
IMPACT DATE 9-25-71
NPG TEST NO. Code 10903

OBJECT

IMPACT TEST FOR COMPARISON OF FIKING
PIN SPRINGS IN MK 166 ROCKET FUSES

Reference: NPG Test R-1227 9-3-44 dated
Reference: No. 164 NP/NAV/11-1/58-019 dated
Task Assignment No. 3-4-52

PLATE TARGET

Gage 1/16
Class STS
Maker U.S. Steel
No. 6132641
Group 0-326-240
Dimensions 28" X 250"

OBliquity 30°

Penetration

COMPLETE

Thickness at impact 1.46
No. of impact on plate 1
Dist. from nearest impact 26" Dist. from near edge 340 and 115°
Impact area 6" X 11"
Spall: Front 0 Back 0
Dish 14" Spur 3"
Cracks 0
Punching (thrown) (started) 0
Back Button (thrown) (started) 0
Bulge 0
Through opening 5" X 3/4"

ROCKET

HEAD: Cal. 5" Type SENI-OF
Mark 2 Mod 2 No 8744 Watt. 48.00
Maker CSSA
Lot No. 34
Filler: Type VERN. Wt. -
Fuzes MK 166-0 Lot 8-51 # 49
CONVENT. FIRING PIN. FIRING
Boosters Int. -
Wt. of head (as fired) 48 lb

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 120° Wt. 98.15

COMPLETE ROUND: Mark Mod Wt. (as fired) 13.615#
Wt. (burned) -

OTHER INFORMATION

MOTORS (2) IN F11
FIN: AMD 226-144-45

LAUNCHER 1052 K. LAUNCHER

ROCKET PERFORMANCE

Mean Flight Velocity, f/s: Striking 166.7 Residual

Fuse Functioning

Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round

Head was in (EFFECTIVE) (INEFFECTIVE) condition.

REMARKS: Head not recovered

Photo No. Signed F. W. Kasdorf

ORD. E216. 65-12

IMPACT RECORD # 40
IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39304
IMPACT DATE 10-1-51
NPG TEST NO. CODE 10963

OBJECT

PIN SPRINGS IN MK 166 ROCKET FIRING

Reference: NPG No. 274 dated 7-9-51
Reference: Bulletin No. 151 dated 7-9-51
Task Assignment No. CLOCK No. 12-1-51 dated 8-4-51

PLATE TARGET

Gage 1.50 Class 575
Maker U.S. STEEL
No. 0122640 Group S-326-810
Dimensions 88" X 250"

OBliquity 30°

PENETRATION COMPLETe

Thickness at impact 1146
No. of impact 8
Dist. from nearest impact 14" from near edge 1/8" and 1/16"
Impact area 6" X 13"

Spall: Front 0 Back 0
Dish 1/4" Spur 0

Cracks 0
Punching (thrown) 0 (started)
Back Button (thrown) 4" (started)

Bulge 0
Through opening 0 x 0"

ROCKET

HEAD: Cal. 5" Type SEMI-AF
Mark 2 Mod 2 No. 2462 Mt. 153.00
Maker USCA Lot No. 38
Filler: Type VERM. Wt. -

Fuzes MK 166 Lot 3-51 #22 SPECIAL FIRING PIN SPRING

Boosters were live primes

Complete Round: Mark Mod 2
Wt. (as fired) 137.40#
Wt. (burned) -

MOTOR: Cal. 5" Mk. 2 Mod 2
Motor temp. 120° Wt. 59.40

OTHER INFORMATION

LAUNCHER 1050 ROCKET LAUNCHER

COMPLETE ROUND: Mark Mod 2
Wt. (as fired) 137.40#
Wt. (burned) -

ROCKET PERFORMANCE

Velocity, f/s: Striking 1774 Residual

Fuze functioning

Explosive action (High Order) Low Order (None)
Distance of burst behind plate

Condition of recovered round Intact

Head was in (EFFECTIVE) (INAPPROPRIATE) condition.

REMARKS: Head & Fuze recovered and returned to NOL

Signed F. W. Rasdorff

Photo No. 00

CONFIDENTIAL

Impact Record No. 41
**IMPACT RECORD**

**U. S. NAVAL PROVING GROUND**

**DAHLGREN, VIRGINIA**

**IMPACT NO.** 39305

**IMPACT DATE** 10-1-51

**NPG TEST** 006-18K-15

---

**OBJECT**

**IMPACT TEST FOR COMPARISON OF FUSING**

**Fin Settings in MK 16 Rocket Fuzes**

Reference: NPG 18K No. 9-34 dated 9-34
Reference: Task Order No. NPG-18K-16 dated 2-8-51

**Task Assignment No.** NPG-2016-12-J-4.

---

**PLATE TARGET**

<table>
<thead>
<tr>
<th>Gage</th>
<th>1-5/8</th>
<th>Class</th>
<th>STS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maker</td>
<td>U. S. STEEL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>0138644</td>
<td>Group</td>
<td>0-586-210</td>
</tr>
<tr>
<td>Dimensions</td>
<td>88&quot; X 250&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obliquity</td>
<td>30°</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PENETRATION**

**Thickness at Impact** 1.46

**No. of impact on plate**

**Diat. from nearest impact** 2.31

**Diat. from nearest edge** 7.97 and 1.17

**Impact area** 1.25" X 1.25"

**Spall:**
- Front: 0
- Back: 0

**Dish:**
- 1/4"
- Spur: 2"

**Cracks:**
- 0

**Punching (thrown) (started)**
- Back Button (thrown) (started)
- Bullet
- Through opening 5" X 7/16"

---

**ROCKET**

**HEAD:**
- Cal. 5"
- Type: 16L-AF
- Mark: 2
- Mod: 0
- No. 453
- Wt: 45.00

**Maker:** LSA
**Lot No.:** 38

**Filler:** Type Veri Nt

**Fuzes:** MK 166-0, LOT E-51 #50

**CONVENTIONAL FUSING**

**Boosters:**
- Size: 1.50"

**Wt. of head (as fired):** 19.00#

**MOTOR:**
- Cal. 5"
- Mk. 3
- Mark: 12
- Lot: 89.00#

**Motor temp:** 120°F

**COMPLETE ROUND:**
- Mark: 13.50#
- Wt. (as fired): 13.50#
- Wt. (burned): 13.50#

**LAUNCHER:** 1057/ROCKET LAUNCHER

---

**ROCKET PERFORMANCE**

**Flight:**
- Velocity, f/s: Striking 1843
- Residual

**Fuze Functioning:**
- Explosive action (High Order) (Low Order) (None)

**Distance of burst behind plate:** Intact

**Condition of recovered round:**
- Head was in (EFFECTIVE) (INEFFECTIVE) condition

**REMARKS:**
- Head & fuse recovered and returned to M.L.

---

**Photo No:** ________

**Signed:**
- F. W. Kasdorf
  - ORD. ENG. 65-12

**CONFIDENTIAL**

**SECRET INFORMATION**
IMPACT RECORD
U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39306
IMPACT DATE 10-1-51
NPG TEST NO. CODE 10903

OBJECT
IMPACT TEST FOR COMPARISON OF FILING.

PIV ST & W5 IN MK 166 ROCKET F02E5

Reference: NPG ITT. Rept. 742-9, 5, 4
Reference: NPG ITT. No. 186. NPGOLX1-1562-01209

Task Assignment No.: NPG-RE20-12-1-52

PLATE TARGET
Gage 13/16 Class STS
Maker U. S. STEEL
No. 6372-64 Group U-526-710
Dimensions 40" x 250"

OBLIQUITY 30°

PENDERATI0N
Completely

Thickness at impact 1.46
No. of impact on plate 10
Dist. from nearest impact 16"
Dist. from near edges 1.43 and 2.194"
Impact area 6" x 8"

Spall: Front 0 Back 0
Dish 1/4" Spur 2"

Cracks 0

Punching (thrown) (started)
Back Button (thrown) (started)
Bulge 0
Through opening 0

ROCKET
HEAD: Cal. 5" Type SFLHY-F
Mark 2 Mod 2 No. 3805. Wt. 48.00#
Maker CSRA
Lot No. 38
Filler: Type VERN. Wt. -

Boosters Insert - Firing Dist. 533'
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 120° W T. 91.90#

COMPLETED ROUND: Mark Mod
Wt. (as fired) 135.40#
Wt. (burned) -

OTHER INFORMATION
MOTOR (2) Mk 15-0
ALIN: HMG 1441, HA-44,

COMPLETENESS OF LAUNCHER 1507'
ROCKET LAUNCHER

ROCKET PERFORMANCE

Velocity, f/s: Starting 1613 Residual -

Puze functioning -

Explosive action (High Order) (Low Order) (None)

Distance of burst behind plate -

Condition of recovered round

Head was in (EFFECTIVE) (INEFFECTIVE) condition.

REMARKS: This round knocked previous impact.

Head & fuse returned to NAC.

Photo No. [signatures] F. W. Kasdorf
Signed F. W. Kasdorf

Impact Record # 43

CONFIDENTIAL
IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 343.8
IMPACT DATE 10-2-51
NPG TEST NO. CDFE 10703

OBJECT
IMPACT TEST FOR COMPARISON OF FIRING FUSES
SPARRER IN THE 128 ROCKET FUSSES
Reference: NPG att. 7 12-4-51 dated 1-7-44
Reference: BURNAH. 
NOL 119-218011/3071 dated 7-9-51
Task Assignment No. NPG-Rec 04-12-1-52 dated 8-4-51

PLATE TARGET

| Gage | 1.50 |
| Class | S7S |
| Maker | STEEL |
| No. | 615640 |
| Group | C-526-X10 |
| Dimensions | 38" x 250" |
| OBLIQUITY | 30° |

ROCKET

| HEAD: | Cal. 5" Type SE211-oF |
| Mark | 2 |
| Mod | 2 |
| No. | 0973 |
| Wt. | 46.0 |
| Maker | CSVA |
| Lot No. | 38 |
| Filler: | Type VENIL, Wt. |
| Fuzes | M1K16-0, Lot 8-51 |
| Boosters | Short, Primers live |
| Wt. of head (as fired) | 42.6 |

| MOTOR: | Cal. 5" Mk. 2, Mod 3 |
| Motor temp. | 120° H.T. 89.80 |
| COMPLETE ROUND: | Mark Mod |
| Wt. (as fired) | 137.52 |
| Wt. (burned) | 137.52 |

OTHER INFORMATION

| MOTOR(s) | 6MB/2 |
| LAUNCHER | 1050 ROCKET 1461 |

ROCKET PERFORMANCE

| Flight | Velocity, f/s: |
| | Striking 168.3 |
| Fuze functioning | |
| Explosive action (High Order) (Low Order) (None) | |
| Distance of burst behind plate | |
| Condition of recovered round | |
| Head Was in (EFFECTIVE) (INOPERATIVE) condition | |

REMARKS: Head & fuze recovered and returned to NOL

Signed T. W. KAUFER
F. W. KAUFER, ENG

PHOTO NO. [Handwritten]

CONFIDENTIAL
IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39309
IMPACT DATE 10-2-51
NPG TEST NO Code 1663

PLATE TARGET

Gage 1/16" Steel Class STS
Maker U.S. STEEL
No. 1132640 Group U-526-Z/0
Dimensions 88" x 250"

OBLIQUITY 30°

PENETRATION COMPLETE

Thickness at impact 1/4"
No. of impact on plate 12
Dist. from nearest impact 12"
Dist. from near edges 114 and 2-192" Impact area 5" x 6"
Spall Front 0 Back 0
Dish 14" Spur 2"
Cracks 0
Punching (thrown), (started)
Back Button (thrown), (started)
Bulge 0
Through opening 5" x 5/8"

ROCKET

HEAD: Cal. 5" Type M-111-HP
Mark 2 Mod 0 No. 982 Wt. 48.000
Lot No. 38
Filler Type VRKM Wt. -
Fuses MK 166-0 Lot 83 Lot 425
Boosters - P-118 Hex Wt. of head (as fired) 48.000

MOTOR: Cal. 5" Mk. 1 Mod 0
Motor temp. 125° Wt. 89.400

COMPLETE ROUND: Mark Mod
Wt. (as fired) 139.400
Wt. (burned) -

OTHER INFORMATION

LAUNCHER 1050 ROCKET LAUNCHER

ROCKET PERFORMANCE

Velocity, f/s: STRIKING 1570 Residual MEAN

Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate -
Condition of recovered round -

Head was in (EFFECTIVE) (INDETERMINATE) condition.

REMARKS: Head & fuze recovered and returned to NS

Signed F.W. KAADOR
ORD. ENG. GS-12

Impact Record #45

CONFIDENTIAL

Security Information
NAVORD FORM 1883 (New 3/48)

IMPACT RECORD

U.S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39310
IMPACT DATE 10-2-51
NPG TEST NO. CCE 13703

OBJECT

DIN SECTIONS IN MV-166 ROCKETS FUSES

IMPACT TEST FOR COMPARISON OF FIRING.

Reference: NPG-11-20 dated 7-9-51
Reference: BUQ-13 Plat. 148-150-115-01289 dated 9-3-51
Task Assignment No. NPG-RP-12-1-52 dated 9-4-51

PLATE TARGET

Gage 1.340 Class S-TS
Maker U.S. STEEL
No. 0132440 Group 1-326-810
Dimensions 2.8" x 2.80"

OBLIQUITY 30°

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Lot 2 No. 18118 Wt. 48.60 lbs
Maker CSS A Lot No. 37
Filler: Type VERPA Wt. 1.30 lbs
Fuze MK 166-0 Lot 5-51 No. 2
Convey. Firing. Dist. 5141/2
Boosters int 1716 motor
Wt. of head (as fired) 47.06 lbs

MOTOR: Cal. 5" Mk. 2 Mod 2
Motor temp. 300° H.T. 38.65 lbs

COMPLETE ROUND: Mark Mod
Wt. (as fired) 15.6 lbs
Wt. (burned)

OTHER INFORMATION

LAUNCHER 1551 ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity 1697 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round

REMARKS:

Head & fir recovered and returned to War

Photo No.

Signed F.W. Kaserer

CONFIDENTIAL
Security Information

Impact Record #46
IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT DATE: 10-2-51

IMPACT NO.: 39311

NPG TEST NO.: CODE 16163

OBJECT: IMPACT TEST FOR CONVERSION OF EXISTING FI

SPRINGS IN MK 166 ROCKETS: E-25

Reference: NPG itt. 7274 dated 9-34
Reference: Buord 11. NPG/11/11-50 dated 7-9-51
Task Assignment No. NPG/A121-12-722 dated 8-4-51

PLATE TARGET

Gage: 1.50 Class 5TS
Maker: U.S. STEEL
No. of plates: 2 Group 11-526-810
Dimensions: 8" x 25" Plate no. 1

OBLIQUITY: 30°

PENDURATION: COMPLETE

Thickness at impact: 1.44
No. of impact on plate: 15
Dist. from nearest impact: 76" Plate no. 1
Dist. from near edge: 2.6 and 2.234
Impact area: 6.75 mm
Spall: Front 0 Back 0
Dish: 1/4" Spur 0
Cracks: 0
Punching (thrown) (started): 0
Back Button (thrown) (started): 0
Bulge: Through opening: 5" x 7.5"

ROCKET

HEAD: Cal. 5" Type: 577114.47
Mark 3 Mod 4 No 8418 Wt. 27.00 lbs.
Lot No. 55
Filler: Type 9 Fm. Wt. +
Fuze: M6K66 Lot 7-51 #25
SPECIAL FUR R: EON SPRING
Boosters: Short = Long life
Wt. of head (as fired): 47.60 lbs.

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 100° Wt. 89.45 lbs.

COMPLETE ROUND: Mark Mod 4
Wt. (as fired) 131.45 lbs.
Wt. (burned) 131.45 lbs.

OTHER INFORMATION

GRAIN: Mk 19 6
BLN: N7208-1411-#-45
LAUNCHER: 1050' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: Starting 1677 Residual

Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round

Head was in (EFFECTIVE) (IN EFFECTIVE) condition.

REMARKS: Head & Fuze returned to N.P.

Signed F. W. Kasdorff

CONFIDENTIAL

Security Information Impact Record # 47
**IMPACT RECORD**

U. S. NAVAL PROVING GROUND  
Dahlgren, Virginia

<table>
<thead>
<tr>
<th>IMPACT NO.</th>
<th>39312</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMPACT DATE</td>
<td>10-3-51</td>
</tr>
<tr>
<td>NPG TEST NO.</td>
<td>C01110963</td>
</tr>
</tbody>
</table>

**OBJECT**

- **IMPACT TEST FOR COMPLIANCE OF FIRE**

**PLATE TARGET**

- **Reference:** NPG 4tr. 
  - 7/24/54 dated
- **Reference:** Sec. Ltr. 
  - NUH 4 11/15/54 dated
- **Task Assignment No.:** M - 121/52 dated 11-4-51

<table>
<thead>
<tr>
<th>OBJECT</th>
<th>IMPACT TARGET FOR COMPLIANCE OF FIRE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIN SPRINGS IN 01&quot; BORE ROCKET FLIGHT</td>
<td></td>
</tr>
<tr>
<td>Reference: NPG 4tr.</td>
<td>7/24/54 dated</td>
</tr>
<tr>
<td>Reference: Sec. Ltr.</td>
<td>NUH 4 11/15/54 dated</td>
</tr>
<tr>
<td>Task Assignment No.</td>
<td>M - 121/52 dated 11-4-51</td>
</tr>
</tbody>
</table>

**HEAD:**

- **Gage:** 1/16
- **Class:** 5TS
- **Maker:** UIW. STEEL
- **No.:** A132640 Group A 326.510
- **Dimensions:** 88" x 250"
- **OBLIQUITY:** 30°

**ROCKET**

- **HEAD:** Cal. 5" Type SEW-AP
  - **Mark:** 2  
  - **Mod:** 2  
  - **No.:** 31749
  - **Wt.:** 44.60 lbs
- **Lot No.:** 37
- **Filler:** Type VERT, Wt.: -
- **Fuzes:** MK 166.0 LOT S-51
- **隧VEAT:** Firing Pin Spale
- **Boosters**
  - **Front:** Primers
  - **Wt. of head (as fired):** 11.60 lbs
- **MOTOR:** Cal. 5" Mk. 2  
  - **Mod:** 2  
  - **Wt.:** (as fired) 13.86 lbs
  - **Wt. (burned):**
- **COMPLETE ROUND:** Mark 2  
  - **Wt. (as fired):** 13.86 lbs
  - **Wt. (burned):**

**OTHER INFORMATION**

- **LAUNCHER:** 1550 ROCKET LAUNCHER
- **Gripped:** F7 (burned)
- **Through opening:** 5/8" x 5/8"

**ROCKET PERFORMANCE**

- **Flight:** HIGH
- **Velocity, f/s:** Striking 1700 Residual
- **Fuze functioning:**
- **Explosive action:** (High Order) (Low Order) (None)
- **Distance of burst behind plate:**
- **Condition of recovered round:**
  - Head Was in (EFFECTIVE) (INEFFECTIVE) condition.

**REMARKS:** Head was returned to M-2

**Photo No.:** 

**CONFIDENTIAL**

Signed: F. L. Rasdor.A  
CRD ENG. 63-12

Impact Record #48
**NAVORD FORM 1883 (Rev 2/48)**

**IMPACT RECORD**

**U.S. NAVAL PROVING GROUND**  
**DAHLGREN, VIRGINIA**

**IMPACT NO.** 39313  
**IMPACT DATE** 10-2-51  
**NPG TEST NO.** G0610903

---

**OBJECT**  
Impact Test for Comparison of Firing  
**Reference:** NPG 444-9, 9-44, dated 7-2-51  
**Reference:** Bagg-**FTCr**:  
**Task Assignment No.:** NPG - R26-12-1-52, dated 8-4-51

---

**PLATE TARGET**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gage</td>
<td>1.5a</td>
</tr>
<tr>
<td>Class</td>
<td>S55</td>
</tr>
<tr>
<td>Maker</td>
<td>U.S. STEEL</td>
</tr>
<tr>
<td>No.</td>
<td>12-1240 Group D-528-870</td>
</tr>
<tr>
<td>Dimensions</td>
<td>86 ½x2.5x.</td>
</tr>
<tr>
<td>OBLIQUITY</td>
<td>30°</td>
</tr>
</tbody>
</table>

**ROCKET**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEAD: Cal. 5” Type Semi-MP</td>
<td></td>
</tr>
<tr>
<td>MARK</td>
<td>2 Mod 2 No. 8779 Wt. 48.00 #</td>
</tr>
<tr>
<td>LOT No.</td>
<td>38</td>
</tr>
<tr>
<td>FILLER: Type VEBN</td>
<td></td>
</tr>
<tr>
<td>LOT 8-51 Wt</td>
<td>436</td>
</tr>
<tr>
<td>Booster: Dis-Primers live</td>
<td></td>
</tr>
<tr>
<td>MOTOR: Cal. 5” Mk. 2 Mod 3</td>
<td></td>
</tr>
<tr>
<td>Motor temp.</td>
<td>120° Wt. 89.70 #</td>
</tr>
<tr>
<td>COMPLETE ROUND: Mark</td>
<td>Mod</td>
</tr>
<tr>
<td>Wt. (as fired)</td>
<td>13.74.70 #</td>
</tr>
<tr>
<td>Wt. (burned)</td>
<td></td>
</tr>
<tr>
<td>OTHER INFORMATION MOTOR(S)</td>
<td></td>
</tr>
<tr>
<td>ALUM: ROUND 1440-HA-15</td>
<td></td>
</tr>
<tr>
<td>LAUNCHER: 10-50” ROCKET LAUNCHER</td>
<td></td>
</tr>
</tbody>
</table>

---

**ROCKET PERFORMANCE**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flight</td>
<td>1394</td>
</tr>
<tr>
<td>Velocity, f/s</td>
<td>1394</td>
</tr>
<tr>
<td>Residual</td>
<td></td>
</tr>
<tr>
<td>Fuze functioning</td>
<td></td>
</tr>
<tr>
<td>Explosive action (High Order) (Low Order) (None)</td>
<td></td>
</tr>
<tr>
<td>Distance of burst behind plate</td>
<td></td>
</tr>
<tr>
<td>Condition of recovered round</td>
<td></td>
</tr>
<tr>
<td>Head was in (EFFECTIVE) (INEFFECTIVE) condition</td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS:** Head & Fuze returned to N02

---

**Photo No.**  
**Signed:** F. W. Kessler  
**CIV. P.T.C., 55-12**

---

**CONFIDENTIAL**

**Security Information**  
**Impact Record # 49**
IMPACT RECORD

U. S. NAVAL PROVING GROUND  IMPACT NO. 393/4
DAHLGREN, VIRGINIA

IMPACT DATE 10-2-51

NPG TEST NO. CODE 10903

PLATE TARGET

Gage 1/50  Class J5S
Maker 11, S. STEEL
No. 612-2640  Group U-526-81
Dimensions 26" x 250"

OBLIQUITY 30°

PENDENTRATION  COMPLETE

Thickness at impact 1.46
No. of impact on plate 17
Dist. from nearest impact 22.2"
Dist. from near edges 7.6" and 7.92" Impact area 6" x 2.4"
Spall: Front 0  Back 0
Dish 9" Spur 2"
Cracks
Punching (thrown) (started)
Back Button (thrown) (started)
Bulge 0
Through opening 3" x 5 1/2"

ROCKET

HEAD: Cal. 5" Type 5 Line-Fl+ Mark 2  Mod 2  No. 84423  Wt. 14.964
Maker C.S. 13
Lot No. 37
Filler: Type 2000  Wt. 44.254
Fuzes Bx 666-2  J15-51  J54
Content: Firing Pin Spring
Boosters inert  Burning fuse
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 2  Mod 3
Motor temp. 120°F Wt. 48.55#

COMPLETE ROUND: Mark Mod
Wt. (as fired) 136.55#
Wt. (burned) 48.00#

OTHER INFORMATION

GRUN M913A-1494-RA-45

LAUNCHER 1050 ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: 1138 Residual

Fuze functioning

Explosive action (High Order) (Low Order) (None)

Distance of burst behind plate

Condition of recovered round Inert

Head was in (EFFECTIVE) (INEFFECTIVE) condition.

REMARKS: Head & fuze recovered and returned to NPG

Photo No. 14  Signed F.S. Kasdorf

Confidential

Impact Record # 50
# Impact Record

**U.S. Naval Proving Ground**

**Dahlgren, Virginia**

**Impact No.: 39315**

**Impact Date:** 10-2-51

**NPG Test No.: CODE 16963**

---

## Plate Target

- **Gage:** 1/"50
- **Class:** STS
- **Maker:** P.S. STEEL
- **No.:** D135646
- **Group:** U-336-810
- **Dimensions:** 88" X 250"
- **Obliquity:** 30°
- **Penetration:** Complete
  - **Thickness at impact:** 1/"46
  - **No. of impact on plate:** 18
  - **Dist. from nearest impact:** 11/"11
  - **Dist. from near edges:** 765 and L-100"
  - **Impact area:** 6" X 16"
  - **Spall:** Front 0, Back 0
  - **Dish:** 3/4", Spur 2"
  - **Cracks:** 0
  - **Punching (thrown) (started):** 0
  - **Back Button (thrown) (started):** 0
  - **Bulge:** Through opening 3" X 5"

## Rocket

- **Head:** Cal. 5" Type 53714-A
  - **Mark:** 2
  - **Mod:** 2
  - **No.:** Projected Wt. 48.000# Wt.
  - **Lot No.:** 31
  - **Filler:** Type VERM Wt. __
  - **Fuzes:** MK 166-0, Lot 8-51 #38
  - **Special firing pin spring:** Boosters inserted - Priming line
  - **Wt. of head (as fired):** 48.000#

- **Motor:** Cal. 5" Mk. 2 Mod 3
  - **Wt. temp.:** 120°F
  - **Wt. (as fired):** 137.30# Wt. (burned)

## Complete Round

- **Mark Mod:** __
- **Wt. (as fired):** 137.30# Wt. (burned)

## Other Information

- **Motors:** __
- **Filler:** RMPB-1444-945
- **Launcher:** 1450, ROCKET LAUNCHER

---

## Rocket Performance

- **Flight velocity, f/s:** Striking 1867 Residual
- **Puze Functioning:** __
- **Explosive action:** (High Order) (Low Order) (None)
- **Distance of burst behind plate:** __
- **Condition of recovered round:** Intact
- **Head was in:** (EFFECTIVE) (IN EFFECTIVE) condition.

---

**Remarks:** Head & Fuze recovered and returned to NOL.

---

**Photo No.:** __

**Signed:** F.W. Karcher

**D.O. F.M. 45-12

---

**Confidential**

**Security:** Impact Record # 51
# Impact Record

**U. S. Naval Proving Ground**

**Dahlgren, Virginia**

**Impact No.**: 393/6

**Impact Date**: 10-2-51

**NPG Test No**. Code: 10963

## Object

**Reference**: NPG itr. 711-2274 dated 7-9-51

**Task Assignment No**: NPG - Rock - 12/1-18 dated 8-4-51

**Impact Test for Comparison of Firing Pin settings in mk 166 Rocket Fuzes**

<table>
<thead>
<tr>
<th>Reference</th>
<th>NPG itr. 711-2274 dated 7-9-51</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task Assignment No.</td>
<td>NPG - Rock - 12/1-18 dated 8-4-51</td>
</tr>
</tbody>
</table>

## Plate Target

**Gage**: 1.50

**Class**: 575

**Maker**: U. S. Steel

**No**: 0132640 Group U-526-570

**Dimensions**: 68" x 250"

**Obliglity**: 30°

**Penetration**

<table>
<thead>
<tr>
<th>Thickness at Impact</th>
<th>1.46</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of impact on plate</td>
<td>19</td>
</tr>
<tr>
<td>Dist. from nearest impact</td>
<td>18</td>
</tr>
<tr>
<td>Dist. from near edge</td>
<td>29</td>
</tr>
<tr>
<td>Impact area</td>
<td>5&quot; x 9&quot;</td>
</tr>
</tbody>
</table>

**Spall**

- Front: 0
- Back: 0

**Dish**: 1/4"

**Spur**: 3"

**Cracks**: 2

**Punching (thrown) started**: 0

**Back Button (thrown) (started)**

**Bulge**: 0

**Through opening**: 5" x 5/2"

## Rocket

**Head**

- Cal.: 5"
- Type: SEMI-AP
- Mark: 2
- Mod: 9
- Wt.: 64 lb

**Maker**: U. S. Steel

**Lot No.**: 38

**Filler**: Type VM, Wt.: —

**Fuzes**: UMK 166-1, Lot: 8-51, 655

**Convent, Firing Pin Setting**

**Boosters**

**MOTOR**

- Cal.: 5" Mk. 2 Mod. 3
- Wt. (as fired): 126.30#  
- Motor temp. 120° W.T.

**Wt. (burned)**

**COMPLETE ROUND**

- Mark: Mod
- Wt. (as fired): 126.30#
- Wt. (burned)

**Other Information**

**Motors**

**All**: 17" Dia - 14-44-44 - H-45

**LAUNCHER**

1050" Rocket Launcher

## Rocket Performance

**Velocity, f/s**: 1637 Residual

**Fuze Functioning**

**Explosive action** (High Order) (Low Order) (None)

**Distance of burst behind plate**

**Condition of recovered round**

**Head was in EFFECTIVE INDE EFFECTIVE condition.**

## Remarks

**Head & fuze recovered & returned to NOL.**

---

**Photo No.**

**Signed**

**Impact Record # 52**

---

**Confidential**

---
**IMPACT RECORD**

**U. S. NAVAL PROVING GROUND**

**DAHLGREN, VIRGINIA**

**IMPACT NO. 39317**

**IMPACT DATE 10-3-51**

**NPG TEST NO. CPE 10963**

---

**OBJECT**

**IMPACT TEST FOR IMPACT OF PLATING IN DISK 168,2 ROCKET FIRES**

Reference: NPG 4-6, dated 6-3-51
Reference: BuOrd ltr. 4465-46, dated 7-9-51
Task Assignment No. 452-26-12-1-52, dated 8-4-51

---

**PLATE TARGET**

<table>
<thead>
<tr>
<th>Gage</th>
<th>Class</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.50</td>
<td>STS</td>
<td>88&quot; x 250&quot;</td>
</tr>
</tbody>
</table>

**OBLIQUITY** 30°

**PENETRATION**

| Thickness at impact | 1.56 |
| No. of impact on plate | 20 |
| Dist. from nearest impact | 33 |
| Dist. from near edges | 16 and 23 |
| Impact area | 6" x 9" |
| Spall: Front | 0 |
| Back | 0 |
| Dish | 1/4 |
| Spur | 3 |
| Cracks | 0 |
| Punching (thrown) (started) | 0 |
| Back Button (thrown) (started) | 0 |
| Bulge | 0 |
| Through opening | 5" x 5 1/2 |

---

**ROCKET**

| HEAD: Cal. 5" | Type SEMI-AP |
| Mark | Mod |
| 2 | 2 |
| Marker | E506 |
| Lot No. | 38 |
| Filler: Type | SEMI |
| Wt. | - |
| Fuze No. | 168,2 ROCKET FIRES |
| No. | 29 |
| Special Firing |

**BOOSTERS**: Insert - Burns live
Wt. of head (as fired) 117.00 #

**MOTOR**: Cal. 5" Mk. 2 | Mod |
| Motor temp. | 72.0 °C | Wt. (as fired) 136.09 # |
| (Low Order) | (None) |

**COMPLETE ROUND**: Mark Mod |
| Wt. (as fired) | 136.09 # |
| Wt. (burned) | 117.00 # |

**LAUNCHER**: 1050 ROCKET FIRES

---

**ROCKET PERFORMANCE**

<table>
<thead>
<tr>
<th>Flight</th>
<th>Velocity, f/s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Striking</td>
<td>1611</td>
</tr>
<tr>
<td>Residual</td>
<td>-</td>
</tr>
</tbody>
</table>

Fuze functioning

Explosive action (High Order) (Low Order) (None)

Condition of recovered round

Condition

Head was in (EFFECTIVE) (IN EFFECTIVE) condition.

**REMARKS**: Head & fuze recovered and returned to WAC

---

Signed 1-45

Photo No. 55

CONFIDENTIAL Impact Record # 55
IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39318
IMPACT DATE 10-3-51

NPG TEST NO. 40965

OBJECT

FLYING FIRESIDE IN MK 16S-3 ROCKET FUSES

Reference: NPG No. dated
Reference: Budget No. dated 2-9-51
Task Assignment No. dated 8-4-51

PLATE TARGET

Gage 1.50 Class 575
Maker U. S. STEEL
No. 013-2640 Group C-26-810
Dimensions 38" x 250"

OBLIQUITY

30°

PENETRATION

COMPLETE

Thickness at impact 1.46
No. of impact on plate 71
Dist. from nearest impact 1.77
Dist. from near edges 1.3 and 1.35
Impact area 6" x 14"
Spall: Front 6 Back 0
Dish 1/2 Spur 0
Cracks
Punching (thrown) (started)
Back Button (thrown) (started)
Bulge
Through opening 5" x 5.5"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No 9000 Wt. 48.00
Maker 3.50 Mod 2
Lot No. 38
Filler: Type VENT Wt. -
Fuzes N. K 16S-3 Lot 2-51 # 36
Special Fuzes -
Boosters fired -
Wt. of head (as fired) 48.46

MOTOR: Cal. 5" Mk. Mod 2
Motor temp. 120° U.T. 88.45°

COMPLETE ROUND: Mark Mod 2
Wt. (as fired) 131.45
Wt. (burned)

OTHER INFORMATION

GUN: 5" 1500-1400 HE-4.5
ALN: 1706-1300 HE-4.5
LAUNCHER 1.50-6.5 - 4"

ROCKET PERFORMANCE

Flight

Velocity, f/s: Striking 1756 Residual

Fuze functioning

Explosive action (High Order) (Low Order) (None)

Distance of burst behind plate

Condition of recovered round

Head was in (EFFECTIVE) (ININAFFIC) condition.

REMARKS:

Head & fuze recovered and returned to No.

Photo No. Signed

CONFIDENTIAL Impact Record No. 54
FIG. 1 MK.166 MOD.0 ROCKET BASE FUZE

CONFIDENTIAL
Rocket Fuze Mk 166, Comparison of Firing Pin Spring

DISTRIBUTION

Bureau of Ordnance

Ad3 1
Re2 1
Re2b 2
Re3d 1
Re3e 1

Chief of Ordnance, Department of the Army
Attn: ORDIX-AR 2

Commanding General, Aberdeen Proving Ground, Aberdeen, Maryland
Attn: Technical Information Section, Development and Proof Services 1

Commander, Operational Development Force, U. S. Atlantic Fleet, U. S. Naval Base, Norfolk 11, Virginia 1

Navy Research Section, Library of Congress, Washington 25, D. C. (Via BUORD Re2) 2

Bureau of Aeronautics
Attn: Armament Section 2

NATC, Patuxent River, Maryland 3

Air Material Command Liaison Officer
Wing 3 Headquarters, Aberdeen Proving Ground Aberdeen, Maryland 2

Naval Liaison Officer
USAFPGC, Eglin Field, Fla. 1

Naval Air Development Center, Johnsville, Pa. 1

U. S. Air Force
AMC Engineering Field Office
Room 1833, Main Navy Building Navy Department, Washington, D. C. 2

CONFIDENTIAL
SECURITY INFORMATION 1

APPENDIX D
Rocket Fuze Mk 166, Comparison of Firing Pin Springs

DISTRIBUTION (Continued)

Commander, Naval Ordnance Laboratory (DF) 2
Commander, Naval Ordnance Laboratory (TF) 2
NOP, Macon, Georgia 1
Picatinny Arsenal, Dover, N. J. 1
Naval Ammunition Depot, Bangor, Wash.
Attn: QCS Laboratory 1
Naval Ammunition & Net Depot, Seal Beach, Calif.
Attn: QCS Laboratory 1
Naval Ammunition Depot, Crane, Indiana
Attn: QCS Laboratory 1
Naval Magazine, Port Chicago, Calif.
Attn: QCS Laboratory 1
Naval Mine Depot, Yorktown, Va.
Attn: QCS Laboratory 1
Commanding General
Air Materiel Armament Test Center
Eglin Air Force Base, Florida 1
NOTS, Inyokern, China Lake, Calif. 1
NOTS, Inyokern, China Lake, Calif.
Attn: Explosives Department 1
Attn: Aviation Ordnance and Test Department 1

Local:
OT 1
OV 1
File 1