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907

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

enth Partial Report on Anti-Submarine Rocket Fuze Systems - Research, opment Tests and Reports of - Final Report on Rocket Fuze Mk 166, arison of Firing Pin Springs - and Appendixes A thru D

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

s, Rocket
ets, Underwater

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

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Rocket Fuze Mk 166, Comparison of Firing Pin Springs

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.

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PART B

INTRODUCTION

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/X1-1(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.	Date Project Letter	9 July 1951
b.	Date Necessary Material Received	10 September 1951
c.	Date 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. DeSabla	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.

d. Seven fuze bodies out of 16 tested against 2-1/2" STS plate broke through the body threads.

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

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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

Date:
MAR 6 1952

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SECURITY INFORMATION

TABLE I

SUMMARY OF RESULTS

SPECIAL FIRING PIN SPRINGS

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

* F.P. = Firing Pin

TABLE I (Cont'd)

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

* F.P. = Firing Pin

TABLE I (Cont'd)

Impact No.	Fuze No.	Target Condition Obl.-Deg. Thickness-ins.	Fired	Armed	Closing Cup	Fuze Body	Remarks *
39284	19	30° 2	Yes	Yes	Hand tight	OK	F.P. badly marked
39299	20	30° 1-1/2	Yes	Yes	Hand tight	OK	Keyhole, F.P. badly marked
39301	21	30° 1-1/2	Yes	Yes	Hand tight	OK	F.P. badly marked
39304	22	30° 1-1/2	Yes	Yes	Hand tight	OK	F.P. badly marked
39306	23	30° 1-1/2	Yes	Yes	Hand tight	OK	F.P. not marked
39309	24	30° 1-1/2	Yes	Yes	Hand tight	OK	F.P. slightly marked
39311	25	30° 1-1/2	Yes	60°	Hand tight	OK	F.P. unmarked
39313	26	30° 1-1/2	Yes	Yes	Hand tight	OK	F.P. marked
-	27	Not shipped from Macon		-	-	-	-
39315	28	30° 1-1/2	Yes	Partially 20°	Hand tight	OK	F.P. slightly marked

* F.P. = Firing Pin

TABLE I (Cont'd)

Impact No.	Fuze No.	Target Condition Obl.-Deg. Thickness-ins.	Fired	Armed	Closing Cup	Fuze Body	Remarks *
39317	29	30° 1-1/2	Yes	Yes	Hand tight	OK	F.P. marked
39318	30	30° 1-1/2	Yes	Yes	Hand tight	OK	F.P. badly marked

* F.P. = Firing Pin

TABLE II (Cont'd)

Impact No.	Fuze No.	Target Condition Obl.-Deg. Thickness-ins.	Fired	Armed	Closing Cup	Fuze Body	Remarks *
39269	40	29° 2	Yes	Yes	Hand tight	OK	F.P. badly marked
39271	41	30° 2	Yes	Yes	Hand tight	OK	F.P. marked
39273	42	30° 2	Yes	Yes	Hand tight	OK	F.P. appears marked by retaining ball
39275	43	30° 2	Yes	Yes	Hand tight	OK	F.P. slightly marked
39277	44	30° 2	Yes	Partial 24° Armed	Hand tight	OK	F.P. not marked
39279	45	30° 2	Yes	Yes	Hand tight	OK	F.P. badly marked
39281	46	30° 2	Not recovered		-	-	Keyhole
39298	47	30° 1-1/2	Yes	Yes	Tight		F.P. slightly marked
39300	48	30° 1-1/2	Yes	Yes	Hand tight	OK	F.P. slightly marked
39302	49	30° 1-1/2	Not recovered		-	-	-
39305	50	30° 1-1/2	Yes	75°	Hand tight	OK	F.P. marked

* F.P. = Firing Pin

TABLE II (Cont'd)

Impact No.	Fuze No.	Target Condition Obl.-Deg. Thickness-ins.	Fired	Armed	Closing Cup	Fuze Body	Remarks *
39308	51	30° 1-1/2	No	30°	Hand tight	OK	Fired in vise F.P. unmarked
39310	52	30° 1-1/2	Yes	15°	Hand tight	OK	Slightly marked
39312	53	30° 1-1/2	Yes	15°	Hand tight	OK	Slightly marked
39314	54	30° 1-1/2	Yes	75°	Hand tight	OK	F.P. slightly marked
39316	55	30° 1-1/2	No	No. Shear Wire Sheared	Hand tight	OK	F.P. slightly marked

* F.P. = Firing Pin

NAVORD FORM 1883 (New 3/)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39326

IMPACT DATE 9-12-51

NPG TEST NO. CODE 10903

OBJECT IMPACT TEST FOR CONFIRMATION OF FIRING PIN [illegible] IN MK 166 ROCKET FUZES IN 5" ROCKET HEADS

Reference: NPG ~~ltr.~~ [illegible] dated

Reference: ~~BuOrd ltr~~ NOL ltr NP/NOL/X1-1(756) [illegible] dated 9 July 1951

Task Assignment No. NPG-Re26-12-1-52 dated 4 Aug [illegible]

PLATE TARGET

Gage 2"SC Class STS
Maker JACKFACE
No. [illegible] Group –
Dimensions 120" X 240"

OBLIQUITY 0°

PENETRATION COMPLETE
Thickness at impact 2"55
No. of impact on plate 5
Dist. from nearest impact 41"
Dist. from near edges T-20" and R-108"
Impact area 6"X6"
Spall: Front 0 Back 0
Dish 1/4" Spur 2"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5"X5"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No. 954 Wt. 48.0#
Maker CSCO
Lot No. 38
Filler: Type VEXM Wt. –
Fuzes MK 166-1 LOT 8-51 #1
SPECIAL FIRING PIN [illegible]
Boosters ~~——~~ Brass Disc
Wt. of head (as fired) 44.0#

MOTOR: Cal. 5" Mk. 10 Mod 4
Motor temp. 120° WT. 87.95#

COMPLETE ROUND: Mark Mod
Wt. (as fired) 125.95#
Wt. (burned)

OTHER INFORMATION MOTORS (5) MK 32 GRAIN
AIN: RMEA-315-H-50
" RMEA-312-H-50

LAUNCHER 1250' ROCKET [illegible]

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1819 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) (~~INEFFECTIVE~~) intact condition.

REMARKS: Head & fuze return to NOL.

Photo No.

Signed F. W. Rasco Jr.
F. W. RASCO Jr., [illegible]
G.P.O. [illegible]

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[illegible] #1

NAVORD FORM 1883 (New 3/

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 89327

IMPACT DATE 9-12-51

NPG TEST NO. CODE 1643

OBJECT IMPACT TEST FOR COMPARISON OF FIRING PIN SPRINGS IN MK 166 ROCKET FUZES IN 5" ROCKET HEADS

Reference: NPG ~~ltr.~~ [illegible] dated

Reference: ~~BuOrd ltr.~~ NOL ltr. NP/L/X1-1(756) [illegible] dated 9 Jul 1951

Task Assignment No. NPG-Re 06-F12-1-52 dated 4 Jun 1951

PLATE TARGET

Gage 2.50 Class STS
Maker CHARLEIE
No. 32294 Group -
Dimensions 120" X 240"

OBLIQUITY 0°

PENETRATION COMPLETE
Thickness at impact 2.55"
No. of impact on plate 6
Dist. from nearest impact 38"
Dist. from near edges E-76" and E-70"
Impact area 6" X 6"
Spall: Front 0 Back 0
Dish 1/4" Spur 9"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5" X 5"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No. 8957 Wt. 48.00#
Maker ASCH ± .30
Lot No. 38
Filler: Type VERM. Wt. —
Fuzes MK 166-0 LOT 8-51 #31
STANDARD FIRING PIN SPRING
Boosters incl. - live primers
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 10 Mod 4
Motor temp. 120° WT. 90.65#

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

OTHER INFORMATION MOTORS (2) GRAIN DIF 12-0
PLN: KMPA-SPC-H-50
KMPA-317-H-50

LAUNCHER 1050' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1726 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round INTACT
Head was in (EFFECTIVE) (~~INEFFECTIVE~~) condition

REMARKS: Not to have been turned to NOL.

Photo No.

Signed [illegible]
[illegible]
[illegible]

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NAV RD FORM 1883 (Nov 3 4

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39328

IMPACT DATE 9-12-51

NPG TEST NO. CODE 10903

OBJECT IMPACT TEST FOR COMPARISON OF FIRING PIN SPRINGS IN MK 166 ROCKET FUZES IN 5" ROCKET HEADS

Reference: NPG ~~ltr.~~ Report No. 9-4 dated

Reference: ~~BuOrd ltr.~~ NOL ltr NP/NOL/XI-1(756) 2-01209 dated 9 July 1951

Task Assignment No. NPG-Re 2b-12-1-52 dated 4 Aug 1951

PLATE TARGET

Gage 2".50 Class STS
Maker CARNEGIE
No. 32294 Group -
Dimensions 120" X 240"

OBLIQUITY 0°

PENETRATION COMPLETE
Thickness at impact 2".55
No. of impact on plate 7
Dist. from nearest impact 12"
Dist. from near edges T-69" and R-79"
Impact area 6" X 6"
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-AP.
Mark 2 Mod 2 No 8963 Wt. 48.00#
Maker CSCA ± .30
Lot No. 78
Filler: Type VERM. Wt. --
Fuzes MK 166-0 LOT 8-51 #2
SPECIAL FIRING PIN SPRING
Boosters inert — live primers
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 10 Mod 4
Motor temp. 120° WT. 90.00#

COMPLETE ROUND: Mark Mod
Wt. (as fired) 138.00#
Wt. (burned)

OTHER INFORMATION MOTORS (2) GRAIN MK 18-0
ALN: RMDA-315-H-50
" RMDA-317-H-50
LAUNCHER 1050' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1730 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) (~~INEFFECTIVE~~) intact condition

REMARKS: Head + fuze returned to NOL.

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF Jr
ORD. ENG. [illegible]-12

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Impact Record #3

NAVORD FORM 1583 (Nov 3/4?)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39227

IMPACT DATE 9-12-51

NPG TEST NO. CODE 10903

OBJECT Impact Test for Comparison of Firing Pin Strikers in Mk. 166 Rocket Fuzes in 5" Rocket Heads

Reference: NPG ~~Ltr.~~ Report No. 934 dated

Reference: ~~BuOrd ltr.~~ NOL ltr NP/NOL/X1-1(756)8or-012-09 dated 9 July 1951

Task Assignment No. NPG-Re2W-12-1-52 dated 4 August 1951

PLATE TARGET

Gage 2"50 Class STS
Maker Lukens
No. 3-2244 Group –
Dimensions 120" X 240"

OBLIQUITY 0°

PENETRATION Complete
Thickness at impact 2"55
No. of impact on plate 8
Dist. from nearest impact 18"
Dist. from near edges 7-73" and 7-84"
Impact area 6"X6"
Spall: Front 0 Back 0
Dish 1/4" Spur 2"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 3
Through opening 5"X 5"

ROCKET

HEAD: Cal. 5" Type Semi-AP
Mark 2 Mod 2 No 3931 Wt. 48.00# ± 1%
Maker OSCA
Lot No. 38
Filler: Type Verel Wt. –
Fuzes Mk 166-0 Lot 8-51 #22
Standard Firing Pin Striker
Boosters inert – live primers
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 10 Mod 4
Motor temp. 120° WT 87.81#

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

OTHER INFORMATION Motor: Grain NC-10
Alt: KMUA-315-H-50
" : KMUA-317-H-50
LAUNCHER 1050' Rocket Launcher

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ Mean 1840 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 NOL.

Photo No.

Signed F. W. Kaiser
F. W. KAISER, Jr.
ORD. ENG. GS-12

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Sample Round #4

NAVORD FORM 1883 (New 3/)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39230

IMPACT DATE 9-12-51

NPG TEST NO. CODE 10705

OBJECT IMPACT TEST FOR COMPARISON OF FIRING PIN SPRINGS IN MK. 166 ROCKET FUZES IN 5" ROCKET HEADS

Reference: NPG ~~ltr.~~ Report No. 934 dated

Reference: ~~BuOrd ltr.~~ NOL ltr. NP/NOL/X1-1(756) Serv 0120 dated 9 July 1951

Task Assignment No. NPG-Re 20-12-1-52 dated 4 August 1951

PLATE TARGET

Gage 3"50 Class STS
Maker CARNEGIE
No. 32294 Group —
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 edges L-63" and R-42."
Impact area 6"X8"
Spall: Front 0 Back 0
Dish 1/4" Spur 2"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5"X 6-3/4"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No 8965 Wt. 48.00#
Maker USEA F .30
Lot No. 38
Filler: Type VERM. Wt. —
Fuzes MK 166-0 LOT 8-51 #9
SPECIAL FIRING PIN SPRING
Boosters Inert — live primers
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 10 Mod 4
Motor temp. 120° WT. 88.40

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

OTHER INFORMATION MOTOR(2) MK 15-0 ECAIR
PLN: AMDA-317-H-50
AMDA-317-H-50
LAUNCHER 1050' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1891 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 Intact

REMARKS: Head + fuze returned to NOL.

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF, Jr.
Officer in Charge

CONFIDENTIAL

Impact Record #5

NPD FORM 1883 (New 4,)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39531

IMPACT DATE 9-12-51

NPG TEST NO. CODE 10903

OBJECT IMPACT TEST FOR COMPARISON OF FIELD FIR SPIKES IN MK 166 ROCKET FUZES IN 5" ROCKET HEADS

Reference: NPG ~~Ltr.~~ Tech Ltr. No. 93-4 dated

Reference: ~~BuOrd Ltr.~~ NOL Ltr NP/NOL/X1-1(756)Bar 01209 dated 9 July 1951

Task Assignment No. NEG-Re2R-12-1-52 dated 4 August 1951

PLATE TARGET

Gage 2.55 Class STS
Maker CARNEGIE
No. 32294 Group -
Dimensions 120"X240"

OBLIQUITY 0°

PENETRATION COMPLETE
Thickness at Impact 2.55
No. of impact on plate 10
Dist. from nearest impact 7"
Dist. from near edges 7.63" and 8.77"
Impact area 6"X6"
Spall: Front 0 Back 0
Dish 1/4" Spur 1"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) (started)
Bulge 0
Through opening 5"X5"

ROCKET

HEAD: Cal. 5" Type 5CD-HV
Mark 2 Mod 2 No. 8766 Wt. 48.00#
Maker [illegible] E.31
Lot No. 34
Filler: Type TEDP Wt. -
Fuzes MK 166-0 LOT 8.51 E.33
STANDARD FIELD FIR SPIKE
Boosters inert — live primers
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 10 Mod 4
Motor temp. [illegible] RT. 80.66°

COMPLETE ROUND: Mark Mod
Wt. (as fired) 125.65#
Wt. (burned)

OTHER INFORMATION MOTOR (2) MK 10 MOD 4 GAPIR
FIR: [illegible] 215-H-50
[illegible]

LAUNCHER 1050' ROCKET [illegible]

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ Muzzle 1750 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: Shell fuze returned to NOL.

Photo No.

Signed F. W. Kardel
[illegible]

CONFIDENTIAL
Security [illegible] #6

NAVORD FORM 1863 (Nov

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39232

IMPACT DATE 9-12-51

NPG TEST NO. CODE 1912

OBJECT INITIAL TEST FOR CONDITIONS OF FIRING DN SPR 1165 IN MK 166 ROCKET FUZES IN 5" ROCKET HEADS

Reference: NPG ~~ltr~~ [illegible] dated

Reference: ~~BuOrd ltr~~ NOL ltr NP/NOL/X1-1(156)[illegible] dated 9 July 1951

Task Assignment No. NPG-Re 28-12-1-52 dated 4 August 1951

PLATE TARGET

Gage 2.50 Class STS
Maker CARNEGIE
No. 32294 Group —
Dimensions 120" X 240"

OBLIQUITY 0°

PENETRATION COMPLETE
Thickness at impact 2.55
No. of impact on plate 11
Dist. from nearest impact 4"
Dist. from near edges L-65" and R-92"
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 Negligible

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark — Mod — No 8513 Wt. 48.00#
Maker [illegible]
Lot No. 38
Filler: Type [illegible] Wt. —
Fuzes Mk 166-0 LOT 5-51 #4
SPECIAL FIRING DIN SPR 1165
Boosters inert — live primers
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 10 Mod 4
Motor temp. 120° WT. 88.65#

COMPLETE ROUND: Mark Mod
Wt. (as fired) 136.65#
Wt. (burned)

OTHER INFORMATION MOTORS(2) [illegible]
ALK: KMUH-315-H-50
KMEP-311-H-50
LAUNCHER 1650' POCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MUZZLE 1766 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round Nose slightly [illegible]
Head was in ~~(EFFECTIVE)~~ (INEFFECTIVE) condition.

REMARKS: The round keyholed on frame at impact
Head & fuze returned to Nav.

Photo No.

Signed F. W. Kaudel
F. W. KAUDEL [illegible]
CHIEF [illegible]

[illegible] Round #7

NAVORD FORM 1883 (New ')

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39233

IMPACT DATE 9-12-51

NPG TEST NO. CODE 10903

OBJECT IMPACT TEST FOR COMPARISON OF FIRING PIN SPRINGS IN MK. 166 ROCKET FUZES IN 5" ROCKET HEADS

Reference: NPG ~~ltr.~~ Report No 934 dated

Reference: ~~BuOrd ltr.~~ NOL ltr NP/NOL/X1-1(756) Ser01209 dated 9 July 1951

Task Assignment No. NPG-Re2b-12-1-52 dated 4 August 1951

PLATE TARGET

Gage 2"50 Class STS
Maker CARNEGIE
No. 32294 Group —
Dimensions 120" X 240"

OBLIQUITY 0°

PENETRATION COMPLETE
Thickness at impact 2"55
No. of impact on plate 12
Dist. from nearest impact 16"
Dist. from near edges T-52" and R-66"
Impact area 6"X6"
Spall: Front 0 Back 0
Dish 1/4" Spur 2"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5"X5"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No 8909 Wt. 48.00#
Maker CSCA ± .30
Lot No. 38
Filler: Type VERM. Wt. —
Fuzes MK. 166-0 LOT 8-51 #34
Standard FIRING PIN SPRING
Boosters inert — live primers
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 10 Mod 4
Motor temp. 120° WT. 89.75#

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

OTHER INFORMATION MOTORS (2) SPRING MK 18-0
ALN: RMDA-315-H-50
RMDA-317-H-50

LAUNCHER 1050' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ DIEPAK 1722 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: Not recovered

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF, Jr.
ORD. ENG. GS-12

CONFIDENTIAL

Impact Record #8

NAVORD FORM 1883 (New 4)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39242

IMPACT DATE 9-13-51

NPG TEST NO. CODE 16963

OBJECT IMPACT TEST FOR COMPARISON OF FIRING PIN STRIKINGS IN MK 166 ROCKET FUZES

Reference: NPG ~~ltr.~~ Telephone Req 3-24 dated

Reference: ~~BuOrd ltr.~~ NOL Ltr NP/NOL/XI-1(756)28/209 dated 9 July 1951

Task Assignment No. NPG-Re2b-12-1-52 dated 4 August 1951

PLATE TARGET

Gage 9".50 Class .375
Maker CARNEGIE
No. 32294 Group -
Dimensions 120" x 240"

OBLIQUITY 0°

PENETRATION COMPLETE
Thickness at impact -.55
No. of impact on plate 13
Dist. from nearest impact 17"
Dist. from near edges 7-45" and 2-114"
Impact area 6"x6"
Spall: Front 0 Back 0
Dish 1/4" Spur 2"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5"x5"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No 3945 Wt. 48.00 ± .35
Maker CSOR
Lot No. 38
Filler: Type VERITE Wt. —
Fuzes MK 166-0 LOT 8-51 #5
SPECIAL FIRING PIN STRIKER
Boosters inert — live primers
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 16 Mod 4
Motor temp. 120° WT. 98.65

COMPLETE ROUND: Mark Mod
Wt. (as fired) 136.65#
Wt. (burned)

OTHER INFORMATION MOTORS (2) MK 16-0 BRAIN
ALN: 07-06-315-H-50

LAUNCHER 1050' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1951 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) (~~INEFFECTIVE~~) INTACT condition.

REMARKS: Head & fuze returned to NOL.

Photo No.

Signed F. W. Kraeder
F. W. KRAEDER
CAPT. ERE. S.C.

[illegible]

NAVORD FORM 1883 (New 3)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 34243

IMPACT DATE 9-13-51

NPG TEST NO. Code 1694

OBJECT Impact Test for Comparison of Failure Pin Springs in Mk. 16 Rocket Fuzes

Reference: NPG ~~ltr.~~ Request-to 9-2-51 dated

Reference: ~~BuOrd-ltr.~~ NOL:FL NP/NOL XI-1(756)01209 dated 7 July 1951

Task Assignment No. NPG-- Rq 7-6-12-1-52 dated 4 August 1951

PLATE TARGET

Gage 2"50 Class 575
Maker CARNEGIE
No. 72290 Group -
Dimensions 12" x 24"

OBLIQUITY 0°

PENETRATION COMPLETE
Thickness at impact 2"55
No. of impact on plate 14
Dist. from nearest impact 8"
Dist. from near edges E-5½ and L-15⅝"
Impact area 6"x6"
Spall: Front 0 Back 0
Dish 1/4" Spur 2"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) (started)
Bulge 0
Through opening 5"x5"

ROCKET

HEAD: Cal. 5" Type TEAU-AP
Mark 2 Mod 2 No 8984 Wt. 48.00#
Maker Pass ± 1.30
Lot No. 38
Filler: Type VEKOL Wt. -
Fuzes Mk 16 Lot 8.51 #35
Standard Figure-Pin Spring
Boosters inert - live primers
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 10 Mod 1
Motor temp. 120° Wt. 90.05

COMPLETE ROUND: Mark Mod
Wt. (as fired) 138.05#
Wt. (burned)

OTHER INFORMATION Dummies (2) 6-PIN 14.0
AIR: BuOrd-315-H-56
BuOrd-317-H-56

LAUNCHER 1050' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ Mean 1323 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 NOL

Photo No.

Signed F. W. Kaufman
F. W. KAUFMAN
U.W. EDS. 8-5-12

CONFIDENTIAL

Incl. Schematic Impact Record #

NAVORD FORM 1883 (Nov 4)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39244

IMPACT DATE 9-14-51

NPG TEST NO. CoOF 10963

OBJECT Impact Test for Comparison of Firing Pin Springs in Mk. 166-0 Rocket Fuzes in 5" Rocket Heads

Reference: NPG ~~ltr.~~ Report 740.934 dated
Reference: ~~BuOrd ltr.~~ NOL ltr. NP/No4/X1-1(756)Ser 0120 dated 9 Sep 1951
Task Assignment No. NPG-Re2C-12-1-52 dated 4 August 1951

PLATE TARGET

Gage 2"50 Class STS
Maker Lukens
No. 32294 Group —
Dimensions 120" X 240"

OBLIQUITY 0°

PENETRATION Complete
Thickness at impact 2"55
No. of impact on plate 15
Dist. from nearest impact 18"
Dist. from near edges 1-10" and 1-111"
Impact area 6"X6"
Spall: Front 0 Back 0
Dish 1/4" Spur 1"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5"X5"

ROCKET

HEAD: Cal. 5" Type Semi-AP
Mark 2 Mod 2 No. 5995 Wt. 48.00
Maker USCA
Lot No. 38
Filler: Type Verz. Wt. -
Fuzes Mk 166-0 Lot 9-51 #6
Special Firing Pin Springs
Boosters Inert - live primers
Wt. of head (as fired) 49.00#

MOTOR: Cal. 5" Mk. 10 Mod 4
Motor temp. 120° Wt. 59.95#

COMPLETE ROUND: Mark Mod
Wt. (as fired) 137.95#
Wt. (burned)

OTHER INFORMATION Motors (2)
Grain: Ref 18-0
Aln: RMUA-317-H-50
LAUNCHER 1050' Rocket Launching Rack

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ Mean 1923 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) (~~INEFFECTIVE~~ intact) condition.

REMARKS: Head & Fuze returned to NOL

Photo No.

Signed F. W. Kaadorf
F. W. Kaadorf
Chief, Ord. Div.

CONFIDENTIAL
Security Information
Special Report #11

NAVORD FORM 1883 (New

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 5345

IMPACT DATE 9-14-51

NPG TEST NO. [illegible]

OBJECT Impact Test for Comparison of Firing Pin Stabs in Mk. 166-C Rocket Fuzes in 5" Rocket Heads

Reference: NPG ~~ltr.~~ [illegible] No 434 dated

Reference: ~~BuOrd ltr.~~ NOL ltr NP/NOL/X1-1(756)A-0120 dated 9 [illegible] 1951

Task Assignment No. NTG-R-28-12-1-52 dated 4 Aug 1951

PLATE TARGET

Gage 2.50 Class STS
Maker Jessie
No. 22214 Group —
Dimensions 120" X 240"

OBLIQUITY 0°

PENETRATION COMPLETE
Thickness at Impact 2.55
No. of impact on plate 16
Dist. from nearest impact 11"
Dist. from near edges 7.60" and 4.10
Impact area 6" X 6"
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-AP
Mark 2 Mod 2 No 6245 Wt. 48.00#
Maker CSCA ± .3
Lot No. 88
Filler: Type Verm. Wt. —
Fuzes Mk. 166-C Lot 8-51 #36
Standard Firing - Pin Series
Boosters Inert - live primers
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 16 Mod 4
Motor temp. 120° U.T. 89.70

COMPLETE ROUND: Mark Mod
Wt. (as fired) 130.70#
Wt. (burned)

OTHER INFORMATION Hatch [illegible]
Grain - Mk. 6-C
Air Knife - 212-H.50
LAUNCHER 105C Rocket Launcher

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ Mean 1668 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round Intact
Head was in (EFFECTIVE) ~~(INEFFECTIVE)~~ condition.

REMARKS: Head & fuze returned to NOL.

Photo No.

Signed F. W. Kaufman
F. W. Kaufman
Lt. [illegible]

[illegible] Record # 12

NAVORD FORM 1883 (New 3/48)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39246

IMPACT DATE 9-14-51

NPG TEST NO. CODE 10903

OBJECT IMPACT TEST FOR COMPARISON OF FIRING PIN SPRINGS IN MK 166-0 ROCKET FUZES IN 5"R. HEADS

Reference: NPG ~~ltr.~~ Report No. 934 dated
Reference: ~~BuOrd ltr.~~ NOL ltr. NP/NOL/XI-1(756) Ser 01209 dated 9 Jul 1951
Task Assignment No. NPG-Re2b-12-1-52 dated 4 August 1951

PLATE TARGET

Gage 2" SD Class STS
Maker CARNEGIE
No. 32294 Group —
Dimensions 120" X 240"

OBLIQUITY 0°

PENETRATION COMPLETE
Thickness at impact 2".55
No. of impact on plate 17
Dist. from nearest impact 15"
Dist. from near edges L-45" and L-107"
Impact area 6"X6"
Spall: Front 0 Back 0
Dish 1/4" Spur 2"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5"X5"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No. 8904 Wt. 48.00#
Maker CSCA ±.30
Lot No. 38
Filler: Type LERM. Wt. —
Fuzes MK 166-0 LOT 8-51 #7
SPECIAL FIRING PIN SPRING
Boosters inert — live primers
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 10 Mod 4
Motor temp. 120° WT. 88.50

COMPLETE ROUND: Mark Mod
Wt. (as fired) 136.50#
Wt. (burned)

OTHER INFORMATION MOTORS (2)
GRAIN - MK 18-0
ALN = RMPA-317-H-50
LAUNCHER 1050' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1714 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) ~~(INEFFECTIVE)~~ intact condition.

REMARKS: Head & fuze returned to NOL.

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF, Jr.
ORD. ENG., GS-12

CONFIDENTIAL
Security Information Impact Record #13

NAVORD FORM 1883 (New 3/48)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39247

IMPACT DATE 9-14-51

NPG TEST NO. CODE 10903

OBJECT IMPACT TEST FOR COMPARISON OF FIRING PIN SPRINGS IN MK 166-0 ROCKET FUZES IN 5" ROCKET HEADS

Reference: NPG ~~ltr.~~ Report No. 934 dated

Reference: ~~BuOrd ltr.~~ NOL ltr NP/NOL/X1-1(756)Sr + 01209 dated 9 July 1951

Task Assignment No. NPG-Re2b1-12-1-52 dated 4 August 1951

PLATE TARGET

Gage 2.50 Class STS
Maker CARNEGIE
No. 33794 Group -
Dimensions 120" X 240"

OBLIQUITY 0°

PENETRATION COMPLETE
Thickness at impact 2.55
No. of impact on plate 18
Dist. from nearest impact 25"
Dist. from near edges 1-54 and 1-90"
Impact area 6" X 6"
Spall: Front 0 Back 0
Dish 1/4" Spur 2"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5" X 5"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No 8956 Wt. 48.00#
Maker CSCA ±.30
Lot No. 38
Filler: Type VERM. Wt. —
Fuzes MK 166-0 LOT 8-51 #37
STANDARD FIRING PIN SPRING
Boosters inert - live primers
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 10 Mod 4
Motor temp. 120° WT. 90.30#

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

OTHER INFORMATION MOTORS (2)
GRAIN - MK 18-0
ALN: RMUA-317-H-50

LAUNCHER 1050' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 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)~~ intact condition

REMARKS: Head + fuze returned to NOL.

Photo No.

Signed F.W. Kasdorf
F.W. KASDORF Jr
CRD. ENG. 3-12

CONFIDENTIAL

Impact Record #14

NAVORD FORM 1883 (New 3/48)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39248

IMPACT DATE 9-14-51

NPG TEST NO. Job 10903

OBJECT IMPACT TEST FOR COMPARISON OF FIRING PIN SPRINGS IN MK 166-0 ROCKET FUZES IN 5" ROCKET HEADS

Reference: NPG ~~ltr.~~ Rept. No. 934 dated

Reference: ~~BuOrd ltr.~~ NOL ltr NP/NOL/X1-1(756) dated 9 July 1951

Task Assignment No. NPG-RE 28-E 12-1-52 dated 4 August 1951

PLATE TARGET

Gage 2"50 Class STS
Maker CARNEGIE
No. 32294 Group -
Dimensions 120" X

OBLIQUITY 0

PENETRATION
Thickness at impact
No. of impact on plate 19
Dist. from nearest impact 11"
Dist. from near edges T-69" and L-99"
Impact area 6"X6"
Spall: Front 0 Back 0
Dish 1/4" Spur 1"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5"X5"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No 8953 Wt. 48.00# ± .3
Maker USCA
Lot No. 38
Filler: Type VERM. Wt. -
Fuzes MK 166-0 LOT 8-51 #8
SPECIAL FIRING PIN SPRING
Boosters inert - live primers
Wt. of head (as fired) 48.0# ±

MOTOR: Cal. 5" Mk. 10 Mod 4
Motor temp. 120° F. 84.60#

COMPLETE ROUND: Mark Mod
Wt. (as fired) 135.50#
Wt. (burned)

OTHER INFORMATION LOTS 5-2
GRAIN: OK 18-0
ALN: 1000 - 3/4-4-50
LAUNCHER 105 ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1844 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) (~~INEFFECTIVE~~) intact condition

REMARKS: Head & fuze returned to NOL

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF
CHIEF, E. & D.

CONFIDENTIAL
Ord. Department Report Record #15

NAVORD FORM 1883 (New 3/[illegible])

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39249

IMPACT DATE 9-14-51

NPG TEST NO Code 10903

OBJECT IMPACT TEST FOR COMPARISON OF FIRING PIN SPRINGS IN MK 166-0 ROCKET FUZES IN 5" ROCKET HEADS

Reference: NPG ~~ltr.~~ Report No 934 dated

Reference: ~~BuOrd ltr.~~ NOL ltr NP/NOL/XI-1(TOG) [illegible] dated 9 July 1951

Task Assignment No. NPG-R-2-6-12-1-52 dated 4 August 1951

PLATE TARGET

Gage 2"50 Class STS
Maker JARNEGIE
No. 32294 Group -
Dimensions 120" X 240"

OBLIQUITY 0°

PENETRATION COMPLETE
Thickness at impact 2"55
No. of impact on plate 20
Dist. from nearest impact 12"
Dist. from near edges 3.91" and 1.91"
Impact area 6"X6"
Spall: Front 0 Back 0
Dish 1/4" Spur 2"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5"X5"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No 8934 Wt. 48.00#
Maker CSCA + .30
Lot No. 38
Filler: Type VERM. Wt. -
Fuzes MK 166-0 LOT 8-51 #38
STANDARD FIRING PIN SPRING
Boosters inert — live primers
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 10 Mod 4
Motor temp. 120° WT. 88.15

COMPLETE ROUND: Mark Mod
Wt. (as fired) 136.15#
Wt. (burned)

OTHER INFORMATION MOTORS (2)
GRAIN - MK 18-0
ALN: RMDA 317-4-50
LAUNCHER 1050' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1860 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) (~~INEFFECTIVE~~) Intact condition.

REMARKS: Head + fuze returned to NOL.

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF
CHI. ENG. GS-12

CONFIDENTIAL

[illegible] Impact Record #16

NAVORD FORM 1883 (New 3/[illegible])

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39250

IMPACT DATE 9-14-51

NPG TEST NO CODE 10903

OBJECT IMPACT TEST FOR COMPARISON OF FIRING PIN SPRINGS IN MK 166-0 ROCKET FUZES IN 5" ROCKET HEADS

Reference: NPG ~~ltr.~~ Report No 934 dated
Reference: ~~BuOrd ltr.~~ NOL ltr NP/NOL/XI-1(756) Ser 01209 dated 9 July 1951
Task Assignment No. NPG-Re2b-12-1-52 dated 4 August 1951

PLATE TARGET

Gage 2"50 Class STS
Maker CARNEGIE
No. 32294 Group –
Dimensions 120" X 240"

OBLIQUITY 0°

PENETRATION COMPLETE
Thickness at impact
No. of impact on plate 21
Dist. from nearest impact 13"
Dist. from near edges 1-57" and 2-56"
Impact area 6"X6"
Spall: Front 0 Back 0
Dish 1/4" Spur 2"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5"X5"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No. 8742 Wt. 48.00#
Maker CSCA ± .30
Lot No. 58
Filler: Type VERM. Wt. –
Fuzes MK 166-0 LOT 8-51 #9
SPECIAL FIRING PIN SPRING
Boosters inert – live primers
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 10 Mod 4
Motor temp. 120° WT. 87.70

COMPLETE ROUND: Mark Mod
Wt. (as fired) 135.70#
Wt. (burned)

OTHER INFORMATION MOTORS (2)
GRAIN: MK 18-0
ALN: RMDA-317-6-50
LAUNCHER 1050' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1732 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) (~~INEFFECTIVE~~) intact condition.

REMARKS: Head & Fuze returned to lab

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF, CL
ORD. ENG. GS-12

CONFIDENTIAL
Security Classification Impact Record #11

NAVORD FORM 1883 (New)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT No. 39256

IMPACT DATE 9-18-51

NPG TEST NO. 10903

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

Reference: NPG ~~ltr.~~ Report No 934 dated

Reference: ~~BuOrd ltr.~~ NOL ltr NP/NOL/X1-1(756) Ser 01209 dated 9 Jul 1951

Task Assignment No. NPG-Re2 T-12-1-52 dated 4 August 1951

PLATE TARGET

Gage 2.0" Class STS
Maker —
No. — Group —
Dimensions 96" x 252"

OBLIQUITY 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 7"
Spall: Front 0 Back 0
Dish 1/4" Spur 2"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5" X 5-3/4"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No 4931 Wt. 48.00 # ± .30
Maker CSCA
Lot No. 38
Filler: Type VERM. Wt. —
Fuzes MK 166-0 LOT 8-51 #39 STANDARD FIRING PIN SPECIAL
Boosters inert - live primers
Wt. of head (as fired) 48.00 #

MOTOR: Cal. 5" Mk. 10 Mod 4
Motor temp. 120° U.T. 88.95 #

COMPLETE ROUND: Mark Mod
Wt. (as fired) 136.95
Wt. (burned)

OTHER INFORMATION MOTORS (2)
ALN: KPDA-317-H-50
CGAIC: [illegible]
LAUNCHER 1650' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1805 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round intact
Head was in (EFFECTIVE) ~~(INEFFECTIVE)~~ condition.

REMARKS: Head & fuze returned to NOL

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF
ORD. ENG. GS-12

CONFIDENTIAL
Security Information

Impact Record #18

NAVORD FORM 1883 (New 3, [illegible])

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39265

IMPACT DATE 1-22-51

NPG TEST NO. [illegible]

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

Reference: NPG ~~ltr.~~ [illegible] dated
Reference: ~~BuOrd ltr.~~ NOL ltr. NP/NOL/X1-1(756) Ser-01209 dated 9 July 1951
Task Assignment No. NPG-Re2b-12-1-52 dated 4 August 1951

PLATE TARGET

Gage 2.0 Class STS
Maker CARNEGIE
No. – Group –
Dimensions –

OBLIQUITY 30°

PENETRATION COMPLETE
Thickness at impact 1.95
No. of impact on plate –
Dist. from nearest impact 22"
Dist. from near edges T-44" and L-162"
Impact area 5"X6"
Spall: Front 0 Back 0
Dish 1/4" Spur 2"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5"X5"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No 8994 Wt. 48.00#
Maker CSCA ±.30
Lot No. 38
Filler: Type VERM. Wt. –
Fuzes MK 166-0 LOT 8-51 #10
SPECIAL FIRING PIN SPRING
Boosters –
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 120° WT. 88.65#

COMPLETE ROUND: Mark Mod
Wt. (as fired) 186.65#
Wt. (burned)

OTHER INFORMATION MOTORS (2) GRAIN MK 15-[illegible]
RMDA-385-MCA-45
" -523- "

LAUNCHER 1050' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1654 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) ~~(INEFFECTIVE)~~ intact condition.

REMARKS: Head + Fuze returned to NOL.
Fuzes have live primers, otherwise inert.

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF, [illegible]
ORD. ENG. GS-12

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[illegible] Record # 19

NAVORD FORM 1883 (New [illegible]

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39769

IMPACT DATE 9-22-51

NPG TEST NO. [illegible]

OBJECT Impact Test for Comparison of Firing Pin Springs in Mk 166-0 Rocket Fuzes

Reference: NPG ~~ltr.~~ [illegible] dated

Reference: ~~BuOrd ltr.~~ NOL ltr NP/N04/X1-1(75)[illegible] dated [illegible] 1951

Task Assignment No. NPG-Re2F-12-1-52 dated 4 [illegible] 1951

PLATE TARGET

Gage 2.0 Class STS
Maker CARNEGIE
No. - Group -
Dimensions

OBLIQUITY 30°

PENETRATION Complete
Thickness at Impact 1.95
No. of impact on plate -
Dist. from nearest impact 19"
Dist. from near edges 1-48 and 1-144
Impact area 6"X7"
Spall: Front 0 Back 0
Dish 1/4" Spur 3"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5"X5 1/2"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No. 8956 Wt. 48.00#
Maker CSCA t-30
Lot No. 38
Filler: Type VERM. Wt. -
Fuzes MK166-0 LOT 8-51 #40
STD FIRING PIN SPRING
Boosters -
Wt. of head (as fired) 48.00#

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

COMPLETE ROUND: Mark Mod
Wt. (as fired) 136.15#
Wt. (burned)

OTHER INFORMATION MOTORS (2) MK 166 GRAIN
MK MIA-585-MIA-45
-585-

LAUNCHER 105 ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ Mean 1838 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. Intact

REMARKS: Head + Fuze returned to NOL.
Fuzes have live primers, otherwise inert.

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF
[illegible]

[illegible] Round #20

NAVORD FORM 1883 (New 3/48)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39271

IMPACT DATE 9-22-51

NPG TEST NO. CODE 10903

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

Reference: NPG ~~ltr.~~ Report No 934 dated
Reference: ~~BuOrd ltr.~~ NOL ltr NP/NOL/XI-1(756) Ser 01209 dated 9 July 1951
Task Assignment No. NPG-Re2b-12-1-52 dated 4 August 1951

PLATE TARGET

Gage 2.0 Class STS
Maker CARNEGIE
No. - Group -
Dimensions —

OBLIQUITY 30°

PENETRATION COMPLETE
Thickness at impact 1.95
No. of impact on plate -
Dist. from nearest impact 11"
Dist. from near edges T-31" and L-144"
Impact area 6" X 7"
Spall: Front 0 Back 0
Dish 1/4" Spur 2"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5" X 6"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No 8907 Wt. 48.00#
Maker [illegible] ±.30
Lot No. [illegible]
Filler: Type PERM. Wt. -
Fuzes Mk 166-0 LOT 8-51 #41
STD FIRING PIN SPRINGS
Boosters —
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 120° WT. 88.65#

COMPLETE ROUND: Mark Mod
Wt. (as fired) 136.65#
Wt. (burned)

OTHER INFORMATION MOTORS (2) GRAIN Mk 18-0
ALN: RMDA-585-MCA-45
" -523- "

LAUNCHER 1050' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1850 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) (~~INEFFECTIVE~~ intact) condition.

REMARKS: Fuze had live primers; otherwise inert.
Head + Fuze returned to NOL

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF, [illegible]
[illegible] 6-5-12

CONFIDENTIAL

Security Information [illegible]

NAVORD FORM 1883 (New 3) ?

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 392.72

IMPACT DATE 9-22-51

NPG TEST NO. Code 10903

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

Reference: NPG ~~ltr.~~ Report No. 934 dated
Reference: ~~BuOrd ltr.~~ NOL ltr. NP/NOL/X1-1(156) Set 01207 dated 9 July 1951
Task Assignment No. NPG-Re2 + 12-1-52 dated 4 August 1951

PLATE TARGET

Gage 2.0 Class STS
Maker [illegible]
No. — Group —
Dimensions —

OBLIQUITY 30°

PENETRATION COMPLETE
Thickness at impact 7.95
No. of impact on plate —
Dist. from nearest impact 16"
Dist. from near edges T-29 and L-160"
Impact area 5" X 6"
Spall: Front 0 Back 0
Dish 1/4" Spur 3"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5" X 5 1/2"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 3 Mod 2 No. 8993 Wt. 47.00#
Maker [illegible] +.30
Lot No. 38
Filler: Type VERM. Wt. —
Fuzes MK 166-0 LOT 8-51 -12
SPECIAL FIRING PIN SPRING
Boosters —
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 120° wt. 87.65#

COMPLETE ROUND: Mark Mod
Wt. (as fired) 135.65#
Wt. (burned)

OTHER INFORMATION MOTORS (2) GRAIN [illegible]
ALN: RAIDA 585-McA-45
" -523- "

LAUNCHER 1050' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ Mean 1679 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) (~~INEFFECTIVE~~) Intact condition.

REMARKS: Fuze had live primers; otherwise inerts.
Head + Fuze returned to NOL.

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF, Ch
ORD. ENG. GS-12

CONFIDENTIAL

Security [illegible] Impact Record # 23

NAVORD FORM 1883 (New [illegible])

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39273

IMPACT DATE 9-22-51

NPG TEST NO. CODE 1090

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

Reference: NPG ~~ltr.~~ Report No. 934 dated
Reference: ~~BuOrd ltr.~~ NOL ltr NP/NOL/XI-1(756) [illegible]-01209 dated 9 July 1951
Task Assignment No. NPG-Re2b-12-1-52 dated 4 August 1951

PLATE TARGET

Gage 2"0 Class STS
Maker CARNEGIE
No. – Group –
Dimensions –

OBLIQUITY 30°

PENETRATION COMPLETE
Thickness at impact 1"95
No. of impact on plate –
Dist. from nearest impact 28".
Dist. from near edges T-65" and L-82"
Impact area 6"X7"
Spall: Front 0 Back 0
Dish 1/4" Spur 2"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5"X6"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No 8932 Wt. 40.00#
Maker CSCA ± .30
Lot No. 38
Filler: Type VERM. Wt. –
Fuzes MK166-0 LOT S-51 #42
STD FIRING PIN SPRINGS
Boosters –
Wt. of head (as fired) 40.00#

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 120° WT. 87.20

COMPLETE ROUND: Mark Mod
Wt. (as fired) 127.20#
Wt. (burned)

OTHER INFORMATION MOTORS [illegible] GRAIN
ALN: PMCA-585-MCA-45

LAUNCHER 1050' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1882 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) (~~INEFFECTIVE~~ intact) condition.

REMARKS: Fuze had live primer; otherwise inert:
Head + fuze returned to NOL.

Photo No.

Signed F.W. Kasdorf
F.W. KASDORF, Lt
ORD. ENG. [illegible]

CONFIDENTIAL
[illegible] Impact Record #24

NAVORD FORM 1883 (New 3/[illegible])

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39274

IMPACT DATE 9-22-51

NPG TEST NO CODE 10903

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

Reference: NPG ~~ltr~~ Report No. 934 dated
Reference: ~~BuOrd ltr~~ NOL ltr NP/NOL/X1-1 (756) Ser-012-09 dated 9 July 1951
Task Assignment No. NPG-Re2b-12-1-52 dated 4 August 1951

PLATE TARGET

Gage 2.0 Class STS
Maker CARNEGIE
No. — Group —
Dimensions —

OBLIQUITY 30°

PENETRATION COMPLETE
Thickness at impact 1.95
No. of impact on plate
Dist. from nearest impact 17"
Dist. from near edges T-53" and L-94"
Impact area 6"X7"
Spall: Front 0 Back 0
Dish 1/4" Spur 2"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5"X6"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No 8882 Wt. 48.00#
Maker CSCA ±.30
Lot No. 38
Filler: Type VERM Wt. —
Fuzes MK 166-0 LOT 8-51 #13
SPECIAL FIRING PIN SPRING
Boosters
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 120° WT. 89.00#

COMPLETE ROUND: Mark Mod
Wt. (as fired) 137.00#
Wt. (burned)

OTHER INFORMATION MOTORS (2) GRAIN MK 17-0
ALN: RMDA-585-MCA-45

LAUNCHER 1050' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1839 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) (~~INEFFECTIVE~~) intact condition.

REMARKS: Fuze has live primer; otherwise inert.
Head + fuze returned to NOL

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF Jr.
ORD. ENG. GS-12

CONFIDENTIAL
Security Information Impact Record #25

NAVORD FORM 1883 (New 3/48)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39275

IMPACT DATE 9-22-51

NPG TEST NO CODE 10903

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

Reference: NPG ~~ltr.~~ [illegible] dated
Reference: ~~BuOrd ltr.~~ [illegible] dated [illegible]
Task Assignment No. NPG-[illegible] dated 4 August [illegible]

PLATE TARGET

Gage 8.0 Class STS
Maker CARNEGIE
No. – Group
Dimensions –

OBLIQUITY 30°

PENETRATION Complete
Thickness at impact 1.95
No. of impact on plate –
Dist. from nearest impact 12"
Dist. from near edges T-92 and L-92"
Impact area 6" X 7"
Spall: Front 0 Back 0
Dish 1/4" Spur 3"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5" X 5-3/4"

ROCKET

HEAD: Cal. 5" Type SEN [illegible]
Mark [illegible] Mod [illegible] No 5950 Wt. 4[illegible]
Maker [illegible] ±.00
Lot No. [illegible]
Filler: Type [illegible] Wt. –
Fuzes [illegible] STD FIRING PIN [illegible]
Boosters –
Wt. of head (as fired) 48.[illegible]#

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 120° WT. 87.85

COMPLETE ROUND: Mark Mod
Wt. (as fired) 135.95#
Wt. (burned)

OTHER INFORMATION MOTORS (2)
ALN: [illegible]-585-[illegible]-45
" -523- "

LAUNCHER 1050' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ Mean 1769 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) (~~INEFFECTIVE~~ intact) condition.

REMARKS: Fuze has live primers; otherwise inert.
Head & fuze returned to NOL.

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF [illegible]
[illegible]

[illegible] #26

NAVORD FORM 1883 (New 3/-.)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39276

IMPACT DATE 9-22-51

NPG TEST NO. CODE 10[illegible]

OBJECT IMPACT TEST FOR COMPARISON OF ENGINE-FIN SPINNER IN MK 166-0 ROCKET FUZES

Reference: NPG ~~ltr.~~ [illegible] 934 dated

Reference: ~~BuOrd ltr.~~ NOL 8[illegible] NP/NOL/X-1(756) [illegible] dated 9 [illegible] 1951

Task Assignment No. NPG-Re2[illegible] dated [illegible] August 1951

PLATE TARGET

Gage 3.0 Class STS
Maker CARBLOY
No. Group -
Dimensions -

OBLIQUITY 90°

PENETRATION COMPLETE
Thickness at Impact 1.95
No. of impact on plate -
Dist. from nearest impact 18"
Dist. from near edges L-27" and L-107"
Impact area 5" X 6"
Spall: Front 0 Back 0
Dish 1/4" Spur 2"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5" X 5 1/2"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 8 Mod 2 No. 898 Wt. 45.00
Maker [illegible] #50
Lot No. 38
Filler: Type [illegible] Wt. -
Fuzes MK 166-0 [illegible] #14
SPECIAL FIRING [illegible]
Boosters -
Wt. of head (as fired) 48.00 ±

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 120° WT. 88.10

COMPLETE ROUND: Mark Mod
Wt. (as fired) 136.10
Wt. (burned)

OTHER INFORMATION MOTORS (2) [illegible]
ALN: LMMA-585-McA-45

LAUNCHER 105 [illegible] LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ P.EAN 1871 Residual

Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round Intact
Head was in (EFFECTIVE) (~~INEFFECTIVE~~) condition.

REMARKS: Fuze has live primers, otherwise inert.
Head & Fuze returned to Range.

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF
[illegible]

[illegible] Round #[illegible]

NAVORD FORM 1883 (New 3-48)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 31277

IMPACT DATE 9-22-51

NPG TEST NO. _____

OBJECT Impact test for comparison of firing pin strings in Mk 166-C rocket fuzes

Reference: NPG ~~ltr.~~ [illegible] dated _____
Reference: ~~BuOrd ltr.~~ NOL [illegible] NP/NOL/XI-1(756) [illegible] dated [illegible]
Task Assignment No. NPG-Re2b-12-1-52 dated [illegible]

PLATE TARGET

Gage 2"0 Class STS
Maker Carnegie
No. - Group -
Dimensions -

OBLIQUITY 30°

PENETRATION Complete
Thickness at impact 1"55
No. of impact on plate -
Dist. from nearest impact 14"
Dist. from near edges T-46" and L-77"
Impact area 6"X7"
Spall: Front 0 Back 0
Dish 1/4" Spur 2"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5"X5 1/2"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No. 8514 Wt. 48.00
Maker [illegible] +.20
Lot No. 28
Filler: Type [illegible] Wt. -
Fuzes Mk 166-C Lot [illegible] #44
STD [illegible] Spring
Boosters -
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 120° Wt. 88.25#

COMPLETE ROUND: Mark _____ Mod _____
Wt. (as fired) 136.25#
Wt. (burned) _____

OTHER INFORMATION Motors (2) Grain [illegible]
ALN: RTUNA-585-MNA-45
" -523- "

LAUNCHER 1050' Rocket Launcher

ROCKET PERFORMANCE

Flight _____ Velocity, f/s: ~~Striking~~ Near 1156 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 live primers; otherwise inert
Head + fuze returned to NOL.

Photo No. _____

Signed F. W. Kaedel
[illegible]
[illegible]

[illegible]

NAVORD FORM 1883 (Nov 3/42)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 29278

IMPACT DATE 9-24-51

NPG TEST NO. Code 10703

OBJECT IMPACT TEST FOR COMPARISON OF FIRING PIN SEATINGS IN MK 166 ROCKET FUZES

Reference: NPG ~~ltr.~~ Rec'd Ltr No. 934 dated

Reference: ~~BuOrd ltr.~~ NOL Ltr NP/NOL/X1-1(756) dated 9 July 1951

Task Assignment No. NPG-Re2V-12-1-52 dated 4 Aug. & 1951

PLATE TARGET

Gage 2.0 Class STS
Maker CARNEGIE
No. - Group -
Dimensions -

OBLIQUITY 30°

PENETRATION COMPLETE
Thickness at Impact 2.0
No. of impact on plate -
Dist. from nearest impact 11"
Dist. from near edges T-36" and L-84"
Impact area 6"X9"
Spall: Front 0 Back 0
Dish 1/4" Spur 2"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5"X6"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No 8986 Wt. 44.00#
Maker [illegible]
Lot No. 38
Filler: Type VERM. Wt. -
Fuzes MK 166-0 LOT 2.51 #15
SPECIAL FIRING PIN SEATING
Boosters Inert
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 120° WT. 89.20

COMPLETE ROUND: Mark Mod
Wt. (as fired) 137.20#
Wt. (burned)

OTHER INFORMATION MOTORS (2) MK 18-0 64 FIN
AIR: KMUA-1444-HA-95

LAUNCHER 105 ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: Striking 1847 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 lost primer; otherwise intact.
Head + fuze returned to NOL.

Photo No.

Signed F. W. Kaufman
F. W. KAUFMAN
CDR. ENG. GS-12

CONFIDENTIAL
Security Information

Impact Record #29

NAVORD FORM 1883 (Nov 3/45)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 34-79

IMPACT DATE 9-24-51

NPG TEST NO. CODE 10903

OBJECT Impact Test for Comparison of Firing Pin Springs in MK 166 Rocket Fuzes

Reference: NPG ~~ltr.~~ Rept No 934 dated

Reference: ~~BuOrd ltr.~~ NOL Ltr. NP/N14 XI-(TS) dated 9 Sept 1951

Task Assignment No. NPG-Rept-12-51-52 dated 4 Oct 1951

PLATE TARGET

Gage 2"0 Class STS
Maker CARNEGIE
No. – Group –
Dimensions –

OBLIQUITY 30°

PENETRATION Complete
Thickness at impact 2"0
No. of impact on plate –
Dist. from nearest impact 26"
Dist. from near edges 1.44 and 1.36"
Impact area 5"X6"
Spall: Front 0 Back 0
Dish 1/4" Spur 2"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5" x 5 1/2"

ROCKET

HEAD: Cal. 5" Type Semi-AP
Mark 2 Mod 2 No 8958 Wt. 48.00#
Maker CSCA 1.30
Lot No. 38
Filler: Type VERM Wt. –
Fuzes MK 166-0 Lot 8-51 #45
STD FIRING PIN SPRING
Boosters
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 120° Wt. 89.50

COMPLETE ROUND: Mark Mod
Wt. (as fired) 137.50#
Wt. (burned)

OTHER INFORMATION MOTORS (2) GCAN 12-0
ALN: EAUB-14H-HA-45

LAUNCHER 105G' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEPN 1656 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 live primer & otherwise inert
Head + fuze returned to NOL

Photo No.

Signed F. W. Kasch
F. W. KASCH, Jr.
C.R.D. Engr. GS-12

CONFIDENTIAL
Security Classification

Impact Record #30

NAVORD FORM 1883 (New [illegible])

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39[illegible]

IMPACT DATE 9-[illegible]-51

NPG TEST NO. Code 10K

OBJECT Impact Test for Comparison of Firing Pin Springs in MK 166 Rocket Fuzes

Reference: NPG ~~ltr.~~ Request No. 934 dated
Reference: ~~BuOrd ltr.~~ NOL ltr. NP/NOL/[illegible] dated 9[illegible]
Task Assignment No. NPG-R-2[illegible]-12-1-52 dated 4[illegible]

PLATE TARGET

Gage 2"C Class STS
Maker CARNEGIE
No. - Group
Dimensions --

OBLIQUITY 30°

PENETRATION Complete
Thickness at impact 2"C
No. of impact on plate -
Dist. from nearest impact 13"
Dist. from near edges T-51" and L-46"
Impact area 6"X4"
Spall: Front 0 Back 0
Dish 1/4" Spur 0"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5"X8 1/4"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No. 8688 Wt. 48.00#
Maker CSCA ±.20
Lot No. [illegible]
Filler: Type [illegible] Wt. -
Fuzes MK166-0 LOT 8-51 #16
SPECIAL FIRING PIN SPRING
Boosters -
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 120° WT. 88.90#

COMPLETE ROUND: Mark Mod
Wt. (as fired) 136.90#
Wt. (burned)

OTHER INFORMATION Motors (2)
ALN: RMDA-1444-HA-45
" " "

LAUNCHER 1050' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1838 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) (~~INEFFECTIVE~~ intact) condition

REMARKS: Fuze has live primers otherwise inert.
Head + fuze returned.

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF, [illegible]
[illegible]

CONFIDENTIAL

[illegible] Record #31

NAVORD FORM 1883 (New 3/4)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39251

IMPACT DATE 1-24-51

NPG TEST NO Cove 10102

OBJECT Impact Test For Comparison of Firing Pin Springs 14 Mk 166 Rocket Fuzes

Reference: NPG ~~ltr.~~ Rep. 2nd Rd. 934 dated

Reference: ~~DuOrd ltr.~~ NOL Ltr NP/Ry8-1(756) dated 9 July 1951

Task Assignment No. NPG-[illegible]-12-1-52 dated 4 Aug. 1951

PLATE TARGET

Gage 2.0 Class STS
Maker CARNEGIE
No. - Group -
Dimensions -

OBLIQUITY 30°

PENETRATION Complete
Thickness at impact 2.0
No. of impact on plate -
Dist. from nearest impact 13"
Dist. from near edges 1-51" and 2-46"
Impact area 6"x9"
Spall: Front 0 Back 0
Dish 1/4" Spur 1"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5"x8 1/4"

ROCKET

HEAD: Cal. 5" Type Semi-AP
Mark 2 Mod 2 No. 9687 Wt. 48.00#
Maker CSGA 2.30
Lot No. 34
Filler: Type VERM. Wt. -
Fuzes MK 166-0 LOT 8-51 #46
STD FIRING PIN SPRING
Boosters
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 120° WT. 89.60

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

OTHER INFORMATION Motor (2) GRAIN 0-18-0
PLN: PMDR-1444-HB-45

LAUNCHER "1050' Rocket" Launcher

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ Mean 1856 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 keyholed previous impact.
This round was not recovered.

Photo No.

Signed F. W. Radcliff
F. W. RADCLIFF,
Chief Insp. Engr.

CONFIDENTIAL

Original Record #[illegible]

NAVORD FORM 1883 (New 3/4[illegible])

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 392 [illegible]

IMPACT DATE 9-24-51

NPG TEST NO. CODE 1[illegible]3

OBJECT Impact Test For Comparison of Firing Pin Springs in Mk 166 Rocket Fuzes

Reference: NPG ~~ltr.~~ Report [illegible] dated
Reference: ~~BuOrd ltr.~~ NOL ltr. NPG [illegible] dated 9 [illegible] 1951
Task Assignment No. NPG-Re2B 12 1-52 dated 4 August 1951

PLATE TARGET

Gage 2"0 Class STS
Maker CARNEGIE
No. 1[illegible] Group —
Dimensions 102 1/2" x 276"

OBLIQUITY 30°

PENETRATION Complete
Thickness at impact 2"0
No. of impact on plate 12
Dist. from nearest impact 32"
Dist. from near edges T-76" and R-46"
Impact area 6" x 1"
Spall: Front 0 Back 0
Dish 1/4" Spur 2"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5" x 5 1/2"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No. [illegible] Wt. 48.00 ±.30
Maker CSCA
Lot No. 38
Filler: Type PERM. Wt. —
Fuzes Mk 166-A Lot 8-51 #17 Special Firing Pin Spring
Boosters
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. [illegible] Mod 3
Motor temp. 120° Wt. 90.85

COMPLETE ROUND: Mark Mod
Wt. (as fired) 13[illegible].85#
Wt. (burned)

OTHER INFORMATION Motor (2) Grain Mk 18-0
ALN: KTMPA-1444-HA-45

LAUNCHER 1050' Rocket Launcher

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ Mean 1837 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) (~~INEFFECTIVE~~ Intact) condition.

REMARKS: Fuze has live primers; otherwise inert.
Head + Fuze returned to NOL.

Photo No.

Signed F. W. Kasdorf
F. W. Kasdorf, [illegible]
[illegible] FS-12

CONFIDENTIAL

[illegible] Impact Record #[illegible]

NAVORD FORM 1883 (New 3,)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39283

IMPACT DATE 9-24-51

NPG TEST NO. CODE 10703

OBJECT Impact Test for Comparison of Firing Pin Springs in MK 166 Rocket Fuzes

Reference: NPG ~~Ltr.~~ Report No. 1324 dated

Reference: ~~BuOrd Ltr.~~ NOL (Ex NPN) XI-1(756) dated 9 Dec. 1951

Task Assignment No. NOL-Re: 6-12-1-52 dated 4 August 1951

PLATE TARGET

Gage 3.0" Class STS

Maker CARNEGIE

No. 16963 Group –

Dimensions 16 3/4" x 27 1/2"

OBLIQUITY 30°

PENETRATION Complete

Thickness at Impact 2.0"

No. of impact on plate 13

Dist. from nearest impact 16"

Dist. from near edges 1.59" and 8.48"

Impact area 6" x 7"

Spall: Front 0 Back 0

Dish 1/4" Spur 3"

Cracks 0

Punching (thrown) (started)

Back Button (thrown) ~~(started)~~

Bulge 0

Through opening 5" x 5 1/2"

ROCKET

HEAD: Cal. 5" Type Semi-AP

Mark 2 Mod 2 No 3799 Wt. 48.00 ±.30

Maker USAA

Lot No. 38

Filler: Type VEB m. Wt. –

Fuzes MK 166-0 LOT 8-51 #18 SPECIAL FIRING PIN SPRING

Boosters –

Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 3 Mod 3

Motor temp. 120° WT. 88.90#

COMPLETE ROUND: Mark Mod

Wt. (as fired) 136.90#

Wt. (burned)

OTHER INFORMATION MOTORS (2) GRAIN MK 18-0 AUX: KOIDA-1444-HA-45 " -1444- "

LAUNCHER 1050' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1845 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 live primers; otherwise inert.

Head + fuze returned to NOL

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF, Jr.
ORD. ENG. GS-12

CONFIDENTIAL

[illegible]

NAVORD FORM 1883 (New 3/48)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39234

IMPACT DATE 9-24-51

NPG TEST NO. SOPF 1612

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

Reference: NPG ltr. Report No. 934 dated

Reference: ~~BuOrd ltr.~~ NOL ltr. NE:NOL/X1-1 (756) Ser. 01209 dated 9 July 1951

Task Assignment No. NPG-RC22-12-1-52 dated 4 August 1951

PLATE TARGET

Gage 3/4" Class 375
Maker CARNEGIE
No. 106863 Group
Dimensions 102 1/2" X 276"

OBLIQUITY 30°

PENETRATION Complete
Thickness at impact 310
No. of impact on plate 14
Dist. from nearest impact 19"
Dist. from near edges 7.70" and 8.107"
Impact area 6" x 9"
Spall: Front 0 Back 0
Dish 14" Spur 1"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) (~~started~~)
Bulge 0
Through opening 5" X 5 1/2"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No. 8944 Wt. 48.00# ± .30#
Maker CSAP
Lot No. 38
Filler: Type VERD. Wt.
Fuzes MK 166-0 Lot 8-57 #
SPECIAL FIRING PIN SPRING
Boosters —
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 120° WT. 88.35

COMPLETE ROUND: Mark Mod
Wt. (as fired) 136.35#
Wt. (burned)

OTHER INFORMATION MOTORS (2) GAMMA MK 18-0
ALN: 5"/38 - 1444 - HA-45
" " - 1445 - HA-45

LAUNCHER 105C ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1677 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round intact
Head was in (EFFECTIVE) (~~INEFFECTIVE~~) condition.

REMARKS: Fuze has the primary otherwise intact.
Head & Fuze returned to lab

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF JR.
ORD. ENG. GS-12

CONFIDENTIAL
Security Information

Impact Record #35

NAVORD FORM 1883 (New 3/"?)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39298

IMPACT DATE 9-28-51

NPG TEST NO. CODE 10903

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

Reference: NPG ~~ltr.~~ Report No. 434 dated
Reference: ~~BuOrd ltr.~~ NOL Hr NP/NOL/X1-1(756) Ser 01209 dated 9 July 1951
Task Assignment No. NPG-8026-12-1-52 dated 4 Aug 1951

PLATE TARGET

Gage 1.50 Class STS
Maker U.S. STEEL
No. 0132640 Group U.526-810
Dimensions 88" x 250"

OBLIQUITY 30°

PENETRATION COMPLETE
Thickness at impact 1.46
No. of impact on plate 3
Dist. from nearest impact 77"
Dist. from near edges L-46" and L-134"
Impact area 5" x 6"
Spall: Front 0 Back 0
Dish 1/4" Spur 3"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5" x 5½

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No 8785 Wt. 48.00#
Maker CSCA ±.30
Lot No. 38
Filler: Type VERM. Wt. —
Fuzes MK 166 LOT 8-51 #47
CONV. FIRING PIN SPRING
Boosters inert — live primer
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 120° WT. 89.80#

COMPLETE ROUND: Mark Mod
Wt. (as fired) 137.80#
Wt. (burned)

OTHER INFORMATION MOTORS (2) GRAIN MK 12-0
RMDA-1411-HA-45
" -226- "

LAUNCHER 10 50' R. LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1787 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) (~~INEFFECTIVE~~ Intact) condition.

REMARKS: Head & fuze returned to NOL.

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF, Lt
ORD. ENG. GS-12

CONFIDENTIAL
Security Information

Impact Record #36

NAVEXOS FORM 1[illegible] (New [illegible])

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39297

IMPACT DATE 9-27-51

NPG TEST NO. CODE 10703

OBJECT IMPACT TEST FOR COMPARISON OF FIRING I[illegible] SERIES IN MK 166 ROCKET FUZES

Reference: NPG ~~ltr.~~ Rep. [illegible] 710,934 dated

Reference: ~~Bu Ord ltr.~~ NOL Ltr. NP/NOL/X1-1(756) Ser 01209 dated 9 July 1951

Task Assignment No. NPG-Re2b-12-1-52 dated 4 Aug 1951

PLATE TARGET

Gage 1.50 Class STS
Maker U.S. STEEL
No. 0138240 Group U-526-410
Dimensions 88" X 250"

OBLIQUITY 30°

PENETRATION COMPLETE
Thickness at Impact 1.46
No. of impact on plate 4
Dist. from nearest impact 5"
Dist. from near edges 1.42" and 1-138"
Impact area 5"X6"
Spall: Front C Back 0
Dish 1/4" Spur 3"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening Keyhole

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No. 8983 Wt. 48.00
Maker CSCA
Lot No. 38
Filler: Type VERM. Wt.
Fuzes MK 166 LOT 8-51
SPECIAL FIRING FOR STRIKE FZ
Boosters —
Wt. of head (as fired) 47.00#

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 120° WT. 58.85#

COMPLETE ROUND: Mark Mod
Wt. (as fired) 126.85#
Wt. (burned)

OTHER INFORMATION MOTORS (2) GRAIN MK 12-0
ALN: FBOA-1444-HA-45
" " -226- "

LAUNCHER 105D' R. LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1743 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) ~~(INEFFECTIVE)~~ Intact condition.

REMARKS: Head & fuze returned to NOL.

This round keyholed previous impact

Photo No.

Signed F. W. Kaadorf
F. W. KAADORF, [illegible]
OKI. E2'6 [illegible]

CONFIDENTIAL — Impact Record #39

NAVORD FORM 1883 (New [illegible])

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39300

IMPACT DATE 9-28-51

NPG TEST NO. CODE 10703

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

Reference: NPG ~~ltr.~~ [illegible] dated

Reference: ~~BuOrd ltr.~~ NOL ltr. NP/NOL/X1-1(756) Ser 01209 dated 9 July 1951

Task Assignment No. NPG-Re2b-12-1-52 dated 4 Aug 1951

PLATE TARGET

Gage 1.50 Class STS
Maker U.S. STEEL
No. 0132640 Group U-S26-810
Dimensions 88" X 250"

OBLIQUITY 30°

PENETRATION COMPLETE
Thickness at impact 1.46
No. of impact on plate 5
Dist. from nearest impact 14"
Dist. from near edges T-35" and L-199".
Impact area 6" X 11"
Spall: Front 0 Back 0
Dish 1/4" Spur 2"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5" X [illegible]"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No. 8940 Wt. 48.00
Maker CSCA ±.30
Lot No. 38
Filler: Type VERM. Wt. —
Fuzes MK 166-0 LOT 8-51 #48
CONVENT. FIRING PIN SPRING
Boosters inert — live primers
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 120° WT. 88.85#

COMPLETE ROUND: Mark Mod
Wt. (as fired) 136.85#
Wt. (burned)

OTHER INFORMATION MOTORS (2) GRAIN MK 18-0
ALN: BMPA-1444-HA-45
" " "

LAUNCHER 1050' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1828 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) ~~(INEFFECTIVE)~~ Intact condition

REMARKS: Head & fuze returned to NOL

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF
[illegible]

CONFIDENTIAL

[illegible] Record #35

NAVORD FORM 1883 (New [illegible])

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39301

IMPACT DATE 9-28-51

NPG TEST NO. CODE 10703

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

Reference: NPG ~~ltr.~~ Report No 934 dated

Reference: ~~BuOrd ltr.~~ NOL ltr: NP/NOL/XI-1/Ser 01209 dated 7-9-51

Task Assignment No. NPG-Re2b-12-1-52 dated 8-4-51

PLATE TARGET

Gage 1.50 Class STS
Maker U.S. STEEL
No. 0132640 Group U-526-810
Dimensions 88" X 250"

OBLIQUITY 30°

PENETRATION COMPLETE
Thickness at impact 1.46
No. of impact on plate 6
Dist. from nearest impact 14"
Dist. from near edges T-35" and L-199"
Impact area 6" X 11"
Spall: Front 0 Back 0
Dish 1/4" Spur 2"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5" X 5½"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No. 8925 Wt. 48.00#
Maker CSCA ±.30
Lot No. 38
Filler: Type VERM. Wt. -
Fuzes MK 166-0 LOT 8-51 #21
SPECIAL FIRING PIN SPRING
Boosters inert — live primer
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 120° WT. 89.00#

COMPLETE ROUND: Mark Mod
Wt. (as fired) 137.00#
Wt. (burned)

OTHER INFORMATION MOTORS (2) GRAIN MK 18-0
ALN: RMDA-141-HA-45
" " "

LAUNCHER 1050' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1672 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) (~~INEFFECTIVE~~) Intact condition.

REMARKS: Head + fuze returned to NOL

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF, Jr.
ORD. ENG. GS-12

[illegible] - Impact Record #37

NAVORD FORM 1883 (New 3-4)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39302

IMPACT DATE 9-25-51

NPG TEST NO. CODE 10903

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

Reference: NPG ~~ltr.~~ Report No 934 dated

Reference: ~~BuOrd ltr.~~ NOL ltr. NP/NOL/XI-1/Ser 01209 dated 7-2-51

Task Assignment No. NPG-Re26-12-1-52 dated 8-4-51

PLATE TARGET

Gage 1.50" Class STS

Maker U.S. STEEL

No. 0132640 Group U-326-810

Dimensions 88" X 250"

OBLIQUITY 30°

PENETRATION COMPLETE

Thickness at impact 1.46"

No. of impact on plate 7

Dist. from nearest impact 26"

Dist. from near edges T.40" and L-159"

Impact area 6" X 11"

Spall: Front 0 Back 0

Dish 1/4" Spur 3"

Cracks 0

Punching (thrown) (started)

Back Button (thrown) ~~(started)~~

Bulge 0

Through opening 5" X 5 1/2"

ROCKET

HEAD: Cal. 5" Type SEMI-AP

Mark 2 Mod 2 No 8744 Wt. 48.00# ±.30

Maker CSCA

Lot No. 38

Filler: Type VERM. Wt. —

Fuzes MK 166-0 LOT 8-51 #49

CONVENT. FIRING PIN SPRING

Boosters inert — live Primers

Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 2 Mod 3

Motor temp. 120° WT. 88.15

COMPLETE ROUND: Mark Mod

Wt. (as fired) 136.15#

Wt. (burned)

OTHER INFORMATION MOTORS (2) GRAIN MK 82-0

ALN: RMDA-226-HA-45

LAUNCHER 1050' R. LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1667 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 not recovered

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF
ORD. E216, GS-12

CONFIDENTIAL
Security Information

Impact Record #40

NAVORD FORM 1883 (New 3/45)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39304

IMPACT DATE 10-1-51

NPG TEST NO. CODE 10903

OBJECT Impact test for comparison of firing pin springs in MK 166 rocket fuzes.

Reference: NPG ~~ltr.~~ Report no. 934 dated

Reference: ~~BuOrd ltr.~~ NOL ltr. NP/NOL/X1-1/SCN209 dated 7-9-51

Task Assignment No. NPG-Re2.b-12-1-52 dated 8-4-51

PLATE TARGET

Gage 1.50 Class STS
Maker U.S. STEEL
No. 6132640 Group U-S26-810
Dimensions 88" X 250"

OBLIQUITY 30°

PENETRATION COMPLETE
Thickness at impact 1.46
No. of impact on plate 8
Dist. from nearest impact 14"
Dist. from near edges T-28" and L-159"
Impact area 6" X 13"
Spall: Front 0 Back 0
Dish 1/4" Spur 4"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5 X 5 1/2

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No. 8962 Wt. 48.00#
Maker CSCA ±.30
Lot No. 38
Filler: Type VERM. Wt. —
Fuzes MK 166 LOT 8-51 #22
SPECIAL FIRING PIN SPRING
Boosters inert — live primers
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 120° Wt. 89.40

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

OTHER INFORMATION MOTORS (2) GRAIN MK 18-0
ALN: RMDA-1444-HA-45
" -226- "

LAUNCHER 1050' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1774 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) (~~INEFFECTIVE~~) Intact condition.

REMARKS: Head + Fuze recovered and returned to NOL

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF, Ch
ORD. ENG. 6-1-

Impact Record #41

CONFIDENTIAL
SECURITY INFORMATION

NAVORD FORM 1883 (New

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39305

IMPACT DATE 10-1-51

NPG TEST NO CODE 1A03

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

Reference: NPG ~~ltr.~~ Report No. 934 dated

Reference: ~~BuOrd ltr.~~ NOL ltr. NP/NOL/X1-1/Ser 01209 dated 7-9-51

Task Assignment No. NPG-Re2b-12-1-52 dated 8-4-51

PLATE TARGET

Gage 1.50" Class STS

Maker U.S. STEEL

No. 0132640 Group U-326-810

Dimensions 88" X 250"

OBLIQUITY 30°

PENETRATION COMPLETE

Thickness at impact 1.46"

No. of impact on plate 9

Dist. from nearest impact 31"

Dist. from near edges T-25" and L-191"

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 5" X 7 1/2"

ROCKET

HEAD: Cal. 5" Type SEMI-AP

Mark 2 Mod 2 No 8952 Wt. 48.00 ±.30

Maker CSCA

Lot No. 38

Filler: Type VERM. Wt.

Fuzes MK 166-0 LOT 8-51 #50

CONVENT. FIRING PIN SPRING

Boosters inert - live primers

Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 2 Mod 3

Motor temp. 120° WT. 89.00#

COMPLETE ROUND: Mark Mod

Wt. (as fired) 137.00#

Wt. (burned)

OTHER INFORMATION MOTORS (2) GRAIN MK 18-0

ALN: RMDA-1411-HA-45

" " -1444- "

LAUNCHER 1050' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1843 Residual

Fuze functioning

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

Distance of burst behind plate

Condition of recovered round

Head was in (EFFECTIVE) ~~(INEFFECTIVE)~~ Intact condition

REMARKS: Head + fuze recovered and returned to NOL.

Photo No.

Signed F. W. Kasdorf

F. W. KASDORF, Lt

ORD. ENG. GS-12

Impact Record #43

CONFIDENTIAL

SECURITY INFORMATION

NAVORD FORM 1883 (New 3/5)

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 FIRING PIN SPRINGS IN MK 166 ROCKET FUZES

Reference: NPG ~~ltr.~~ Report No. 934 dated
Reference: ~~BuOrd ltr.~~ NOL ltr NP/NOL/X1-1/Ser 01209 dated 7-9-51
Task Assignment No. NPG-Re2b-12-1-52 dated 8-4-51

PLATE TARGET

Gage 1.50 Class STS
Maker U.S. STEEL
No. 0132640 Group U-526-810
Dimensions 88" X 250"

OBLIQUITY 30°

PENETRATION COMPLETE
Thickness at impact 1.46
No. of impact on plate 10
Dist. from nearest impact 16"
Dist. from near edges T-43" and L-174"
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 keyhole

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No. 5800 Wt. 48.00#
Maker CSCA ±.30
Lot No. 38
Filler: Type VERM. Wt. —
Fuzes MK 166 LOT 8-51 #23
SPECIAL FIRING PIN SPRINGS
Boosters Inert — Primers live
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 120° WT. 87.90#

COMPLETE ROUND: Mark Mod
Wt. (as fired) 135.90#
Wt. (burned)

OTHER INFORMATION MOTORS (2) GRAIN MK 18-0
ALN: RMPA-1444-HA-45
" " "

LAUNCHER 1050' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ Mean 1613 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) ~~(INEFFECTIVE)~~ Intact condition.

REMARKS: This round keyholed previous impact.
Head & fuze returned to NOL.

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF, Ch
ORD. ENG. GS-12

CONFIDENTIAL

Impact Record # 43

NAVORD FORM 1883 (New 3/5)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 383-8

IMPACT DATE 10-2-51

NPG TEST NO. Code 10703

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

Reference: NPG ~~Ltr.~~ [illegible] dated

Reference: ~~BuOrd Ltr.~~ NOL Ltr-NP/NOL/XI-1/Ser 01209 dated 7-9-51

Task Assignment No. NPG-Re2b-12-1-52 dated 8-4-51

PLATE TARGET

Gage 1.50 Class STS
Maker U.S. STEEL
No. C132640 Group C-526-810
Dimensions 88" X 250"

OBLIQUITY 30°

PENETRATION COMPLETE
Thickness at impact 1.46
No. of impact on plate 11
Dist. from nearest impact 27"
Dist. from near edges 166" and 182"
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 5" X 5½"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No. 8933 Wt. 48.00 ±1.5
Maker CSCA
Lot No. 38
Filler: Type VERR. Wt. —
Fuzes MK 166-0 LOT 8-51 #51
CONVENT. TIME FUZE
Boosters Inert — Primers live
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 120° W.T. 89.80#

COMPLETE ROUND: Mark Mod
Wt. (as fired) 137.80#
Wt. (burned)

OTHER INFORMATION MOTORS (2) GRAIN
HAY: KMDA-1444-HA-45
" " -926-11-H5
LAUNCHER 1050' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1662 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) ~~(INEFFECTIVE)~~ Intact condition.

REMARKS: Head & fuze recovered and returned to NOL

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF, CE
OLI, E&C, CS-14

CONFIDENTIAL

Impact Record #44

NAVORD FORM 1883 (New 7/48)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39309

IMPACT DATE 10-2-51

NPG TEST NO CODE 10963

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

Reference: NPG ~~ltr.~~ Report No. 934 dated
Reference: ~~BuOrd ltr.~~ NOL ltr NP/NOL/X1-1/Ser 01209 dated 7-9-51
Task Assignment No. NPG-Re26-12-1-52 dated 8-4-51

PLATE TARGET

Gage 1.50 Class STS
Maker U.S. STEEL
No. C132640 Group U-S26-810
Dimensions 88" X 250"

OBLIQUITY 30°

PENETRATION COMPLETE
Thickness at impact 1.46
No. of impact on plate 12
Dist. from nearest impact 12"
Dist. from near edges T.65 and L-192"
Impact area 5" X 6"
Spall: Front 0 Back 0
Dish 1/4" Spur 2"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5" X 5 1/2"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No. 8982 Wt. 48.00#
Maker CSCA ±.30
Lot No. 38
Filler: Type VFRM, Wt. —
Fuzes MK 166-0 LOT 8-51 #24
SPECIAL FIRING PIN SPRING
Boosters inert — Primer live
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 120° U.T. 89.40#

COMPLETE ROUND: Mark Mod
Wt. (as fired) 139.40#
Wt. (burned)

OTHER INFORMATION MOTORS (2) GRAIN MK 18-0
ALN: RMDA-226-H-45
" " 1444-HA-45

LAUNCHER 1050' ROCKET LAUNCHERS

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1578 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) ~~(INEFFECTIVE)~~ Intact condition.

REMARKS: Head & fuze recovered and returned to NOL

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF, Jr.
ORD. ENG. GS-12

CONFIDENTIAL
Security Information

Impact Record #45

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. Code 13703

OBJECT Impact Test for Comparison of Firing Pin Springs in Mk 166 Rocket Fuzes

Reference: NPG ~~ltr.~~ Test Ltr. 149.9 SH dated

Reference: ~~BuOrd ltr.~~ NOL Ltr NP/NOL/X1-1/Sn-01209 dated 7-9-51

Task Assignment No. NPG-R22b-12-1-52 dated 8-4-51

PLATE TARGET

Gage 1.50 Class STS

Maker U.S. STEEL

No. 0132640 Group U-526-810

Dimensions 88"x250"

OBLIQUITY 30°

PENETRATION Complete

Thickness at impact 1.46

No. of impact on plate 13

Dist. from nearest impact 24"

Dist. from near edges 1-91" and 1-216"

Impact area 6"x2"

Spall: Front 0 Back 0

Dish 1/4" Spur 4"

Cracks 0

Punching (thrown) (started)

Back Button (thrown) (started)

Bulge 0

Through opening 5"x3½"

ROCKET

HEAD: Cal. 5" Type Semi-AP

Mark 2 Mod 2 No. 8978 Wt. 48.60# ±.30

Maker CSCA

Lot No. 37

Filler: Type Verin Wt. —

Fuzes Mk 166-0 Lot 8-51 #52 Convert. Firing Pin Spring

Boosters Inert — Primer line

Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 2 Mod 3

Motor temp. 120° B.T. 88.65#

COMPLETE ROUND: Mark Mod

Wt. (as fired) 136.65#

Wt. (burned)

OTHER INFORMATION Motors (2) Grain Mk 18-C

AN: RMA-226-H-45

" -1444-HA-45

LAUNCHER 1050 Rocket Launcher

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Sampling~~ Mean 1697 Residual

Fuze functioning

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

Distance of burst behind plate

Condition of recovered round

Head was in (EFFECTIVE) ~~(INEFFECTIVE)~~ Intact condition.

REMARKS: Head & fuze recovered and returned to NOL

Photo No.

Signed F. W. Kaeder
F. W. KAEDER, Jr.
U.S.N.R.

CONFIDENTIAL
Security Information

Impact Record #46

NAVORD FORM 1883 (New 7/48)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39311

IMPACT DATE 10-2-51

NPG TEST NO. CODE 18903

OBJECT Impact Test for Comparison of Firing Pin Springs in MK 166 Rocket Fuzes

Reference: NPG ~~ltr.~~ Report No 934 dated

Reference: ~~BuOrd ltr.~~ NOL ltr = NP/NOL/X1-1/Ser 01209 dated 7-9-51

Task Assignment No. NPG-ReRb-12-1-52 dated 8-4-51

PLATE TARGET

Gage 1.50 Class STS
Maker U.S. STEEL
No. 0132640 Group U-526-810
Dimensions 88" x 250"

OBLIQUITY 30°

PENETRATION Complete
Thickness at impact 1.46
No. of impact on plate 14
Dist. from nearest impact 16"
Dist. from near edges T-60 and L-224"
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 5" x 7½"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No 8943 Wt. 48.00# ±.30
Maker ASCA
Lot No. 34
Filler: Type VERM. Wt. –
Fuzes MK 166-0 LOT 8-51 #25
SPECIAL FIRING PIN SPRING
Boosters Inert – Primers live
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 2 Mod 2
Motor temp. 120° WT. 89.45#

COMPLETE ROUND: Mark Mod
Wt. (as fired) 137.45#
Wt. (burned)

OTHER INFORMATION Motors (2) GRAIN MK 19-0
ALN: RMPA-1411-H-45
" " 1444-HA-"

LAUNCHER 1050' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ Mean 1677 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) ~~(INEFFECTIVE)~~ Intact condition.

REMARKS: Head & fuze returned to NOL

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF, LL
ORD. ENG. GS-12

CONFIDENTIAL
Security Information Impact Record # 47

NAVORD FORM 1883 (New 3/48)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39312

IMPACT DATE 10-[illegible]-51

NPG TEST NO. Code 1096 3

OBJECT Impact Test for Comparison of Firing Pin Springs in Mk 166 Rocket Fuzes

Reference: NPG ~~ltr.~~ Rqm 710 934 dated
Reference: ~~BuOrd ltr.~~ NOL Ltr. NP/NOL/X1-1/SEL 01209 dated 7-9-51
Task Assignment No. NPG-RE2D-12-1-52 dated 8-4-51

PLATE TARGET

Gage 1.50" Class STS
Maker U.S. STEEL
No. A132640 Group H-526-510
Dimensions 88" X 250"

OBLIQUITY 30°

PENETRATION Complete
Thickness at impact 1.46
No. of impact on plate 15
Dist. from nearest impact 18"
Dist. from near edges 7.69" and 2.241"
Impact area 6" X 9"
Spall: Front 0 Back 0
Dish 1/4" Spur 2"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5" X 5 1/2"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No 8769 Wt. 48.00#
Maker CSCA ±.30
Lot No. 37
Filler: Type VERM. Wt. -
Fuzes MK 166-0 Lot 8-51 #53
Conventional Firing Pin Spring
Boosters Inert - Primer live
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 126° WT. 90.60#

COMPLETE ROUND: Mark Mod
Wt. (as fired) 138.60#
Wt. (burned)

OTHER INFORMATION Motors(2) Grain Mk 19-6
AHN: RMUR-326-H-45
" " 1444-HA-45

LAUNCHER 1050' Rocket Launcher

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ Mean 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)~~ Intact condition.

REMARKS: Head [illegible] returned to NOL

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF, JR.
CRD. ENG. GS-12

CONFIDENTIAL
Security Information

Impact Record #48

NAVORD FORM 1883 (New 3/48)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39313

IMPACT DATE 10-2-51

NPG TEST NO. CODE 10903

OBJECT Impact Test for Comparison of Firing Pin Springs in Mk 166 Rocket Fuzes

Reference: NPG ~~ltr.~~ Request No 934 dated

Reference: ~~BuOrd ltr.~~ NOL ltr. NP/NOL/X1-1/SEL-41209 dated 7-9-51

Task Assignment No. NPG - Rec'd - 12-1-52 dated 8-4-51

PLATE TARGET

Gage 1.50 Class STS
Maker U.S. STEEL
No. 513-1640 Group 0-526-810
Dimensions 88" x 58"

OBLIQUITY 30°

PENETRATION Complete
Thickness at impact 1.46
No. of impact on plate 16
Dist. from nearest impact 41"
Dist. from near edges 7.96 and 2-108"
Impact area 6" x 10"
Spall: Front 0 Back 0
Dish 1/4" Spur 2"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5" x 5 1/2"

ROCKET

HEAD: Cal. 5" Type Semi-AP
Mark 2 Mod 2 No. 8999 Wt. 48.00#
Maker CSCA 1.30
Lot No. 38
Filler: Type VERM. Wt. —
Fuzes MK 166-0 Lot 8-51 #26
Special Firing Pin Spring
Boosters Inert — Primers live
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 120° WT. 89.70#

COMPLETE ROUND: Mark Mod
Wt. (as fired) 137.70#
Wt. (burned)

OTHER INFORMATION Motors (2) Inert
Alt: RMDA-144Y-HA-45 GRAIN

LAUNCHER 10.50" Rocket Launcher

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ Weak 1939 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) (~~INEFFECTIVE~~) Intact condition.

REMARKS: Head & Fuze returned to NOL

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF, Jr.
CAD, PTE, GS-12

CONFIDENTIAL
Security Information

Impact Record #49

NAVORD FORM 1883 (New '48)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39314

IMPACT DATE 10-2-51

NPG TEST NO. CODE 10903

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

Reference: NPG ~~ltr.~~ Report dated
Reference: ~~BuOrd ltr.~~ NOL NP/A04/XI-1/Ser-00209 dated 7-9-51
Task Assignment No. NPG-Re2b-12-1-52 dated 8-4-51

PLATE TARGET

Gage 1.50 Class STS
Maker U.S. STEEL
No. 612264A Group U.S.26-81C
Dimensions 18" x 250"

OBLIQUITY 30°

PENETRATION COMPLETE
Thickness at impact 1.46
No. of impact on plate 17
Dist. from nearest impact 22"
Dist. from near edges 7.64" and 2.92"
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 5" x 5 1/2"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 3 No. 8547 Wt. 44.00#
Maker CSCA 1.30
Lot No. 36
Filler: Type PERM. Wt. —
Fuzes MK 166-0 LOT 8-51 #54
CONVENT. FIRING PIN SPRING
Boosters Inert — Priming Mix
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 120° WT. 88.55#

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

OTHER INFORMATION MOTORS (2) MK 18-0 GRAIN
ALN: RTOOA-1444-HA-45
" " "

LAUNCHER 105D' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1838 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) ~~(INEFFECTIVE)~~ Intact condition.

REMARKS: Head & fuze recovered and returned to NOL

Photo No.

Signed F.W. Kaadorf
F.W. KAADORF, CDR.
OKR, EAG, 6-5-12

Security Information
CONFIDENTIAL

Impact Record #50

NAVORD FORM 1883 (New /48)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39315

IMPACT DATE 10-2-51

NPG TEST NO. CODE 10963

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

Reference: NPG ~~ltr.~~ Report No 934 dated
Reference: ~~BuOrd ltr.~~ NOL ltr. NP/NOL/XI-1/Ser 01209 dated 7-9-51
Task Assignment No. NPG - Rec'b - 12-1-52 dated 8-4-51

PLATE TARGET

Gage 1".50 Class STS
Maker U.S. STEEL
No. 0132640 Group U-S26-810
Dimensions 88" X 250"

OBLIQUITY 30°

PENETRATION COMPLETE
Thickness at impact 1".46
No. of impact on plate 18
Dist. from nearest impact 11"
Dist. from near edges T-65" and L-100"
Impact area 6" X 10"
Spall: Front 0 Back 0
Dish 1/4" Spur 2"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5" X 5½"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No 8979 Wt. 48.00#
Maker CSCA +.30
Lot No. 38
Filler: Type VERM. Wt. -
Fuzes MK166-0 LOT 8-51 #28
SPECIAL FIRING PIN SPRING
Boosters inert — Primers live
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 120° WT 89.30

COMPLETE ROUND: Mark Mod
Wt. (as fired) 137.30#
Wt. (burned)

OTHER INFORMATION MOTORS (2) GRAIN MK 18-C
ALN: RMPA-1444-HA-45
" 1411- "

LAUNCHER 1050' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1868 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) ~~(INEFFECTIVE)~~ Intact condition.

REMARKS: Head & fuze recovered and returned to NOL.

Photo No.

Signed F.W. Kasdorf
F.W. KASDORF, Sr.
ORD. ENG. GS-12

CONFIDENTIAL
Security Information, Impact Record # 51

NAVORD FORM 1883 (New . 48)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39316

IMPACT DATE 10-2-51

NPG TEST NO CODE 10963

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

Reference: NPG ~~ltr~~. Report No. 934 dated
Reference: ~~BuOrd ltr~~. NOL ltr. = NP/NOL/X1-1/Ser 01209 dated 7-9-51
Task Assignment No. NPG-Re2b-12-1-52 dated 8-4-51

PLATE TARGET

Gage 1".50 Class STS
Maker U.S. STEEL
No. 0132640 Group U-S26-810
Dimensions 88" X 250"

OBLIQUITY 30°

PENETRATION COMPLETE
Thickness at impact 1".46
No. of impact on plate 19
Dist. from nearest impact 27"
Dist. from near edges T-29" and L-112"
Impact area 5"X9"
Spall: Front 0 Back 0
Dish 1/4" Spur 2"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5"X 5½"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No 8548 Wt. 48.00#
Maker CSCA ±.20
Lot No. 38
Filler: Type VERM. Wt. —
Fuzes MK 166-0 LOT 8-51 #55
CONVENT. FIRING PIN SPRING
Boosters Inert — Primers live
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 120° WT. 88.30

COMPLETE ROUND: Mark Mod
Wt. (as fired) 136.30#
Wt. (burned)

OTHER INFORMATION MOTORS (2) GRAIN [illegible]
ALN: RMOA-1444-HA-45
" " " "

LAUNCHER 1050' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1637 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) (~~INEFFECTIVE~~) Intact condition.

REMARKS: Head & fuze recovered & returned to NOL.

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF, JR
ORD. ENG. GS-12

CONFIDENTIAL
SECURITY INFORMATION

Impact Record # 52

NAVORD FORM 1883 (New 48)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39317

IMPACT DATE 10-3-51

NPG TEST NO. CODE 10903

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

Reference: NPG ~~ltr~~. Report No 934 dated
Reference: ~~BuOrd ltr~~. NOL ltr - NP/NOL/XI-1/Ser 01209 dated 7-9-51
Task Assignment No. NPG - Re2b-12-1-52 dated 8-4-51

PLATE TARGET

Gage 1.50 Class STS
Maker U.S. STEEL
No. 0132640 Group DS-26-810
Dimensions 88" X 250"

OBLIQUITY 30°

PENETRATION COMPLETE
Thickness at impact 1.46
No. of impact on plate 20
Dist. from nearest impact 23"
Dist. from near edges T-66 and L-45"
Impact area 6" X 9"
Spall: Front 0 Back 0
Dish 1/4" Spur 2"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5" X 5½"

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No. 8996 Wt. 48.00#
Maker CSCA ±.30
Lot No. 38
Filler: Type VERM. Wt. —
Fuzes MK. 166-0 LOT 8-51 #29
SPECIAL FIRING PIN SPRING
Boosters Inert — Primers live
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 2 Mod 3
Motor temp. 120° WT. 88.35#

COMPLETE ROUND: Mark Mod
Wt. (as fired) 136.35#
Wt. (burned)

OTHER INFORMATION MOTORS (2) GRAIN No. 18-0
PLN: RMDA-[illegible]-6-H-45
" " "

LAUNCHER 1050' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1611 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) ~~(INEFFECTIVE)~~ Intact condition.

REMARKS: Head & fuze recovered and returned to NOL

Photo No.

Signed F. W. Rasdorf
F. W. RASDORF, ch
ORD. ENG. GS-12

CONFIDENTIAL Impact Record #53

NAVORD FORM 1883 (New 48)

IMPACT RECORD

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

IMPACT NO. 39318

IMPACT DATE 10-3-51

NPG TEST NO. CODE 10903

OBJECT IMPACT TEST FOR COMPARISON OF FIRING PIN [illegible] IN MK 166-0 ROCKET FUZES

Reference: NPG ~~ltr.~~ [illegible] dated

Reference: ~~BuOrd ltr.~~ NOL ltr - NP/NOL/XI-1/Se-01209 dated 7-9-51

Task Assignment No. NPG - 802b-12-1-52 dated 8-4-51

PLATE TARGET

Gage 1.50 Class STS
Maker U.S. STEEL
No. 0132640 Group US-26-810
Dimensions 88" X 250"

OBLIQUITY 30°

PENETRATION COMPLETE
Thickness at impact 1.46
No. of impact on plate 21
Dist. from nearest impact 17"
Dist. from near edges 2.00" and 2-38"
Impact area 6"X14"
Spall: Front 0 Back 0
Dish 1/4" Spur 2"
Cracks 0
Punching (thrown) (started)
Back Button (thrown) ~~(started)~~
Bulge 0
Through opening 5" X 5"½

ROCKET

HEAD: Cal. 5" Type SEMI-AP
Mark 2 Mod 2 No 9000 Wt. 48.00 ±.30
Maker CSCA
Lot No. 38
Filler: Type VERT. Wt. —
Fuzes MK 166-0 LOT 9-51 #30
SPECIAL FIRING [illegible]
Boosters inert — Primers live
Wt. of head (as fired) 48.00#

MOTOR: Cal. 5" Mk. 2 Mod 2
Motor temp. 120° WT. 88.45#

COMPLETE ROUND: Mark Mod
Wt. (as fired) 136.45#
Wt. (burned)

OTHER INFORMATION MOTORS (2) GRAIN MK 18-0
ALN: [illegible]-1404-HA-45
" - 2-6-H - 45

LAUNCHER 1050' ROCKET LAUNCHER

ROCKET PERFORMANCE

Flight Velocity, f/s: ~~Striking~~ MEAN 1756 Residual
Fuze functioning
Explosive action (High Order) (Low Order) (None)
Distance of burst behind plate
Condition of recovered round
Head was in (EFFECTIVE) ~~(INEFFECTIVE)~~ Intact condition.

REMARKS: Head & fuze recovered and returned to NOL

Photo No.

Signed F. W. Kasdorf
F. W. KASDORF, Ed
CRD. ENG. GS-12

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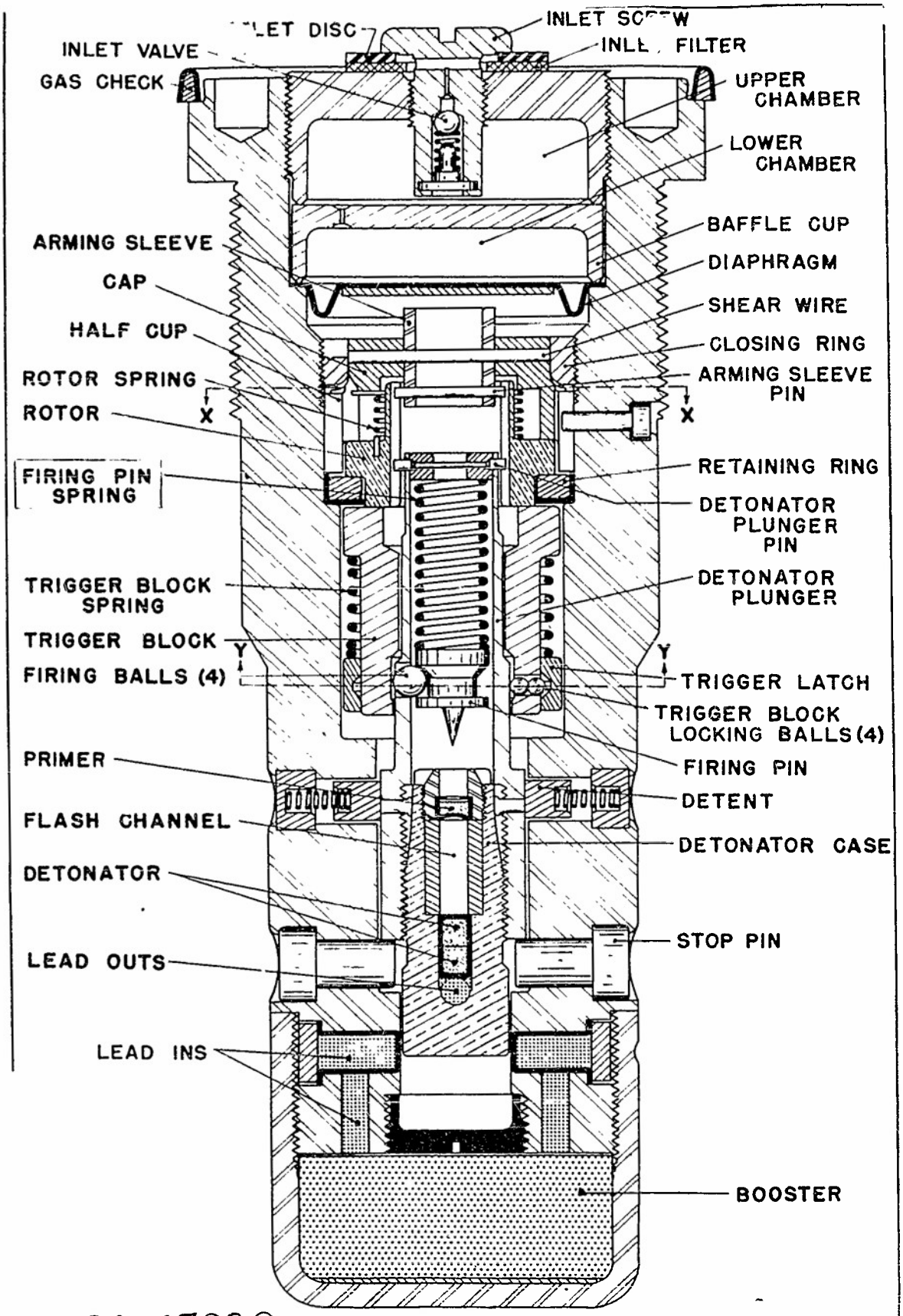
Security [illegible] Impact Record # 54



NP9 47029

FIG. 1 MK.166 MOD.0 ROCKET BASE FUZE

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