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DAHLGREN, VIRGINIA

REPORT NO 1144

AIR DEFENSE WEAPON PROJECTILE FUZES

89th Partial Report

- -

TEST OF POINT DETONATING FUZE MARK 30 MOD 3

FINAL Report

Task Assignment NPG-Re2b-1-1-53

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Test of Point Detonating Fuze Mark 30 Mod 3

PART A

SYNOPSIS

1. Previous tests of standard production Mark 30 Mod 3 fuzes assembled in 3"/50 projectiles have shown an excessive number of fuzes exhibiting plastic ogive breakage during the early stages of flight.

2. This test was conducted to determine the ogive breakage characteristics of experimental and of standard production Mark 30 Mod 3 point detonating fuzes fired at service or proof pressures.

3. It is concluded that experimental and standard production Mark 30 Mod 3 PD fuzes assembled in 3"/50 Mk 27 projectiles fired at service or greater pressures performed as follows:

a. The fuzes with experimental plastic ogives performed satisfactorily.

b. The standard production fuzes continued to exhibit plastic ogive breakage.

4. It is believed that Mark 30 Mod 3 PD fuzes with lettering printed on the thin portion of the ogive around the on-off switch exhibit less ogive breakage than those that have the lettering impressed into the ogive.

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PART B

INTRODUCTION

1. AUTHORITY:

This test was conducted under Task Assignment Re2b-1-1-53 in accordance with references (a), (b) and (c) as authorized by reference (d).

2. REFERENCES:

a. NOL Work Request FA-36 of 14 August 1952
b. NOL Work Request FA-46 of 22 October 1952
c. NOL Work Request FA-50 of 21 November 1952
d. BUORD ltr NP9 Re2b-DBL:bjn Ser 42662 of 29 July 1952
e. NAVPROV Report No. 992 of 27 June 1952
f. NAVPROV ltr OTF:RDC:dmf A11/2224-1 Ser 22770 of 28 August 1952 to BUORD

3. BACKGROUND:

a. The reported excessive flight dispersion of rounds assembled with Mark 30 Mod 3 PD fuzes was believed due to the plastic ogive breaking up in handling or in flight.

b. Reference (e) reported that 37% (7 out of 19) Mark 30 Mod 3 fuzes, assembled in 3"/50 Mark 27 projectiles fired at service and proof pressure, exhibited plastic ogive breakage within a 1000 foot range.

c. Reference (f) reported that thirty-six (36) out of thirty-eight (38) Mark 30 Mod 3 fuzes assembled in 3"/50 Mark 33 Mod 0 projectiles exhibited satisfactory functioning when fired at proof and service conditions; however, owing to the strong possibility that one fuzed projectile detonated low order in the barrel and owing to the fuze performance reported in reference (e), it was recommended that the Mark 30 Mod 3 PD fuze be declared unsatisfactory for service use.

4. OBJECT OF TEST:

This test was conducted in three phases to determine the ogive breakage characteristics of experimental and standard production Mark 30 Mod 3 point detonating fuzes fired at service and proof pressures.

5. PERIOD OF TEST:

a.	Date Project Letter	14 August 1952
b.	Date Commenced Test	26 September 1952
c.	Date Completed Test	12 December 1952

PART C

DETAILS OF TEST

6. DESCRIPTION OF ITEM UNDER TEST:

a. Phase I: Mark 30 Mod 3 PD fuzes with various experimental plastic ogives plus fuzes from standard production lot AOP-82 (Arkansas Ordnance Plant)

b. Phase II: Mark 30 Mod 3 PD fuzes from Production lots EW-1078B (Easy Wash Machine Co.) and AOP-35 (Arkansas Ordnance Plant)

c. Phase III: Mark 30 Mod 3 PD fuzes from production lot AOP-83 (Arkansas Ordnance Plant)

7. DESCRIPTION OF TEST EQUIPMENT:

a. Guns:
(1) 3"/50 Mark 22 Mod 3 No. 16314 (Phases I and II) ESR: 1247-1403.
(2) 3"/50 Mark 21 Mod 0 No. 7959 (Phase III) ESR: 1850-1905.

b. Projectiles:
(1) Phase I: 3"/50 Mark 27 Mod 2, Composition "A" loaded to service weight with Mark 54 Mod 0 auxiliary detonators from AOP Lot 1035.
(2) Phases II and III: 3"/50 Mark 27 Mod 4, epsom salts loaded to service weight with dummy auxiliary detonators.

c. Speed Graphic Camera: Located in a microflash box 400 feet from the gun muzzle.

d. Ballistic Synchro Camera: Located 1000 feet from the gun muzzle.

e. Targets: During 20 rounds of Phase I, 1/4" mild steel targets were placed at 45° obliquity and 1050 feet from the gun muzzle.

8. PROCEDURE:

a. In Phase I, the fuzes were assembled in 3"/50 Mark 27 Mod 2 Composition "A" loaded projectiles and fired at service and proof pressures through a microflash box, past the ballistic synchro camera, against 1/4" mild steel targets in order to correlate the functioning performance of the fuze with apparent ogive breakage as recorded by the cameras. After completing 20 rounds of 100% satisfactory fuze functioning versus targets, the targets were removed and the test was continued by firing twenty-five (25) more rounds past the cameras down river for water impact.

b. The subject fuzes, during Phases II and III, were assembled in Mark 27 Mod 4 inert projectiles and fired at service and proof pressures through the mocroflash box, past the ballistic synchro camera, down river for the purpose of obtaining photographs of the plastic ogive during the early stages of flight. Twenty (20) rounds were fired in each of these phases.

c. During Phase I, the projectiles were fired with the fuze setting screw in the "on" position; and during Phases II and III, the projectiles were fired with the screw in the "off" position.

9. RESULTS AND DISCUSSION:

a. A detailed firing record is shown in Appendix (A).

b. Photographs of the projectiles in flight are included in Appendices (B), (C) and (D). Photographs were obtained from either or both camera positions on all rounds except 9, 11, 12 and 20 of Phase III.

c. In Phase I, the experimental plastic ogive fuzes as well as the standard production fuzes exhibited a satisfactory performance since twenty (20) rounds displayed 100% satisfactory functioning vs 1/4" mild steel targets at 45° obliquity and none of the forty-five (45) rounds tested exhibited apparent plastic ogive breakage. The twenty-five (25) rounds fired down river for water impact did not function 100% satisfactorily, however, this performance was disregarded since the angle of entry was extremely low and the water was unusually choppy during the test.

d. In Phase II, none of the photographs of Appendix (C) indicate distinct breakage of the plastic ogive, however, it is believed that photographs of rounds 11 and 18 indicate some breakage of the ogive in the general area of the on-off switch.

e. Distinct ogive breakage is noted on round 8, Phase III, in Appendix (D). Ogive breakage is also believed to have occurred during this phase on round 16. The test rounds of this phase were fired from 3"/50 Mk 21 Mod 0 Gun No. 7959 which was used in the tests reported in reference (e) and was believed to have been damaged in the test of Mk 30 Mod 3 fuzes reported in reference (f).

f. In summation, the percentage of subject production fuzes exhibiting plastic ogive breakage does not agree with the results of similar tests conducted and reported in reference (e). This variation may be due, in part, to the fact that the overall quality of the photographs during this test were not as satisfactory as those of reference (e) and therefore the possibility exists that some ogive breakage, which occurred during this test, was not observed. However it is believed that photographic quality is a contributing factor only and not the major cause of the discrepancy.

g. During Phase II it was noted that Easy Wash Machine Co. fuze lot 1078B differed in that the stenciling around the on-off switch was impressed and not painted in the manner of other available production lots. Upon examining the performance of this fuze lot it was noted in reference (e) that ten (10) rounds from lot 1078B were tested and six (6) of the seven (7) defective fuzes were from lot 1078B. In Phase II, it is believed that two (2) rounds (11 and 18) are defective in the five (5) rounds tested from lot 1078B. This 60% satisfactory performance is in general agreement with the 40% satisfactory performance exhibited by lot 1078B in reference (e). Furthermore, it was noted in reference (e) and Appendices (B), (C) and (D) that the plastic ogive breakage appears to originate and tear from the general area of the on-off switch.

h. This information has led to the belief that the plastic ogive of the Mark 30 Mod 3 must be of borderline strength, and that when lettering (e.g. S.Q.) is impressed in the extremely thin portion of the ogive behind the on-off switch, the plastic is weakened sufficiently to cause an extremely high percentage of plastic ogive failures.

PART D

CONCLUSIONS

10. a. It is concluded that the experimental and standard production Mark 30 Mod 3 PD fuzes assembled to 3"/50 Mk 27 projectiles fired at service or greater pressures performed as follows:

(1) The fuzes with experimental plastic ogives performed satisfactorily.

(2) The standard production fuzes continued to exhibit plastic ogive breakage.

b. It is believed that Mark 30 Mod 3 PD fuzes with lettering painted on the thin portion of the ogive around the on-off switch exhibit less ogive breakage than those that have the lettering impressed into the ogive.

Test of Point Detonating Fuze Mark 30 Mod 3

The tests upon which this report is based were conducted by:
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Terminal Ballistics Department

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By direction

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NPG REPORT NO. 1144

U. S. NAVAL PROVING GROUND
DAHLGREN, VIRGINIA

Eighty-Ninth Partial Report

on

Air Defense Weapon Projectile Fuzes

- -

Final Report

on

Test of Point Detonating Fuze Mark 30 Mod 3

Project No.: NPG-Re2b-1-1-53
Copy No.: 7
No. of Pages: 9

Date: JUN 30 1953

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TABLE I

FIRING RECORD (PHASE I)

Rd. No.	Fuze No.	Fuze Type*	Muzz. Vel. (f/s)	Chamber Press. (T/in²)	Target (1050 ft.) Mat.	Target (1050 ft.) Oblig.	Fuze** action
1	-	Std.	-	14.4	1/4" MS	45°	HO
2	-	Std.	2701	13.3	"	45°	HO
3	-	Plaskon	2688	13.1	"	45°	HO
4	-	Std.	-	12.7	"	45°	HO
5	12809	Rag	2698	12.8	"	45°	HO
6	3325	Cord	2683	12.5	"	45°	HO
7	-	Polyester	2667	12.5	"	45°	HO
8	-	Std.	-	12.5	"	45°	HO
9	-	Plaskon	-	-	"	45°	HO
10	2303	Rag	-	-	"	45°	HO
11	3320	Cord	-	-	"	45°	HO
12	-	Polyester	-	-	"	45°	HO
13	-	Plaskon	-	-	"	45°	HO
14	-	Plaskon	-	-	"	45°	HO
15	12809	Rag	-	-	"	45°	HO
16	2302	Rag	-	-	"	45°	HO
17	11678	Cord	-	-	"	45°	HO
18	11678	Cord	-	-	"	45°	HO
19	-	Polyester	-	-	"	45°	HO
20	-	Polyester	-	-	"	45°	HO
21	-	Std.	-	-	Down River	Water Impact	DUD
22	-	Plaskon	-	-	"	"	HOWI
23	12809	Rag	-	-	"	"	HOWI
24	3350	Cord	-	-	"	"	HOWI
25	-	Polyester	-	-	"	"	HOWI
26	-	Std.	-	-	"	"	DUD
27	-	Plaskon	-	-	"	"	DUD
28	2303	Rag	-	-	"	"	HOWI
29	11678	Cord	-	-	"	"	HOWI
30	-	Std.	-	-	"	"	DUD
31	-	Plaskon	-	-	"	"	DUD
32	12809	Rag	-	-	"	"	DUD
33	11678	Cord	-	-	"	"	HOWI
34	-	Std.	-	-	"	"	HOWI
35	-	Plaskon	-	-	"	"	HOWI
36	2300	Rag	-	-	"	"	HOWI
37	3320	Cord	-	-	"	"	HOWI

TABLE I (Continued)

Rd. No.	Fuze No.	Fuze Type*	Muzz. Vel. (f/s)	Chamber Press. (T/in^2)	Target (1050 ft.) Mat.	Target (1050 ft.) Oblig.	Fuze** action
38	-	Polyester	-	-	Down River	Water Impact	DUD
39	-	Std.	-	-	"	"	DUD
40	-	Plaskon	-	-	"	"	DUD
41	12809	Rag	-	-	"	"	DUD
42	2320	Cord	-	-	"	"	DUD
43	-	Std.	-	-	"	"	DUD
44	-	Plaskon	-	-	"	"	DUD
45	12809	Rag	-	-	"	"	DUD

NOTE:

Type*:

Std. = Standard Production Lot AOP-83 Manufactured by the Arkansas Ordnance Plant

Plaskon = Plaskon Plastic

Rag = Rag Filled Phenol Plastic

Cord = Cord Filled Phenol Plastic

Polyester= Polyester Glass Filled Plastic

Fuze Action**:

HO = High Order Detonation on Target Impact

HOWI = High Order Detonation on Water Impact

DUD = No Fuze Action

TABLE II

FIRING RECORD (PHASE II)

Rd. No.	Fuze* Lot	Chamber Press. (T/in^2)	Muzzle Velocity (f/s)
1	AOP-35	15.2	2730
2	"	14.2	2737
3	"	18.3	2967
4	"	18.8	2965
5	"	17.5	2894
6	"	20.3	3016
7	"	16.9	2808
8	EW-1078B	16.0	2810
9	"	19.3	--
10	AOP-35	19.4	2981
11	EW-1078B	20.5	2999
12	AOP-35	20.6	--
13	EW-1078B	19.0	2989
14	AOP-35	19.3	2994
15	"	20.6	3006
16	"	20.5	2977
17	"	15.4	2794
18	EW-1078B	14.6	2776
19	AOP-35	15.3	2772
20	"	16.0	2780

*Fuze Lot: AOP-35 = Arkansas Ordnance Plant Lot No. 35
EW-1078B = Easy Wash Machine Co. Lot 1078B

TABLE III

FIRING RECORD (PHASE III)

Rd. No.	Fuze Lot	Chamber Pressure (T/in^2)	Muzzle Velocity (f/s)
1	AOI-83	15.8	2697
2	"	18.0	2923
3	"	18.0	2905
4	"	20.1	2953
5	"	18.6	2915
6	"	19.9	2933
7	"	20.8	2939
8	"	19.2	2941
9	"	14.5	2732
10	"	20.6	2951
11	"	18.8	2940
12	"	18.1	--
13	"	15.0	2708
14	"	15.9	2707
15	"	14.3	2691
16	"	14.7	2745
17	"	14.4	2727
18	"	15.1	2750
19	"	14.9	2729
20	"	16.2	2806

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NP9 62388 26 October 1952

Mark 30 Mod 3 PD Fuze with standard ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 1. Phase No. 1.

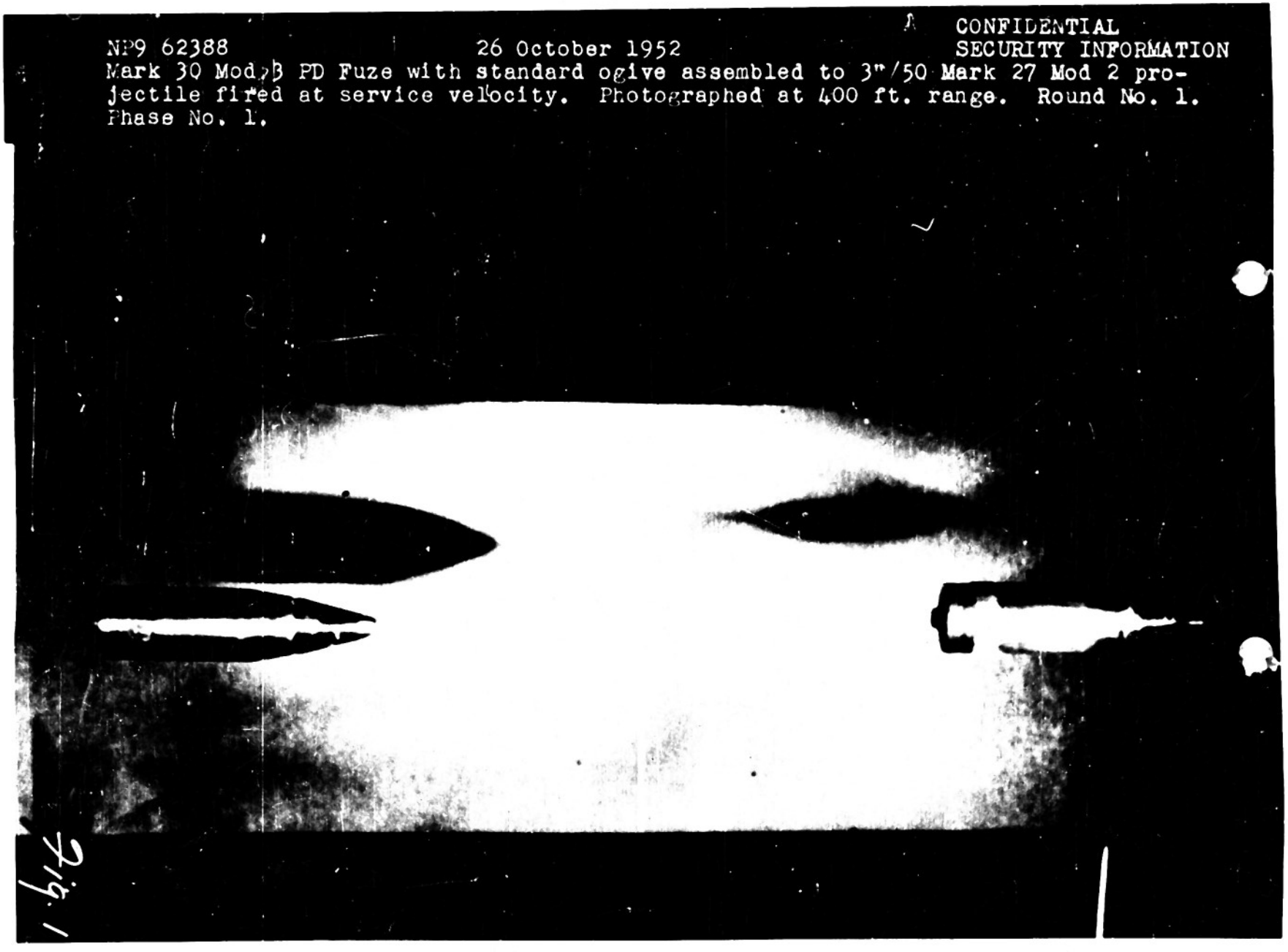


Fig. 1

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Mark 30 Mod 3 PD Fuze with standard ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 1. Phase No. 1.

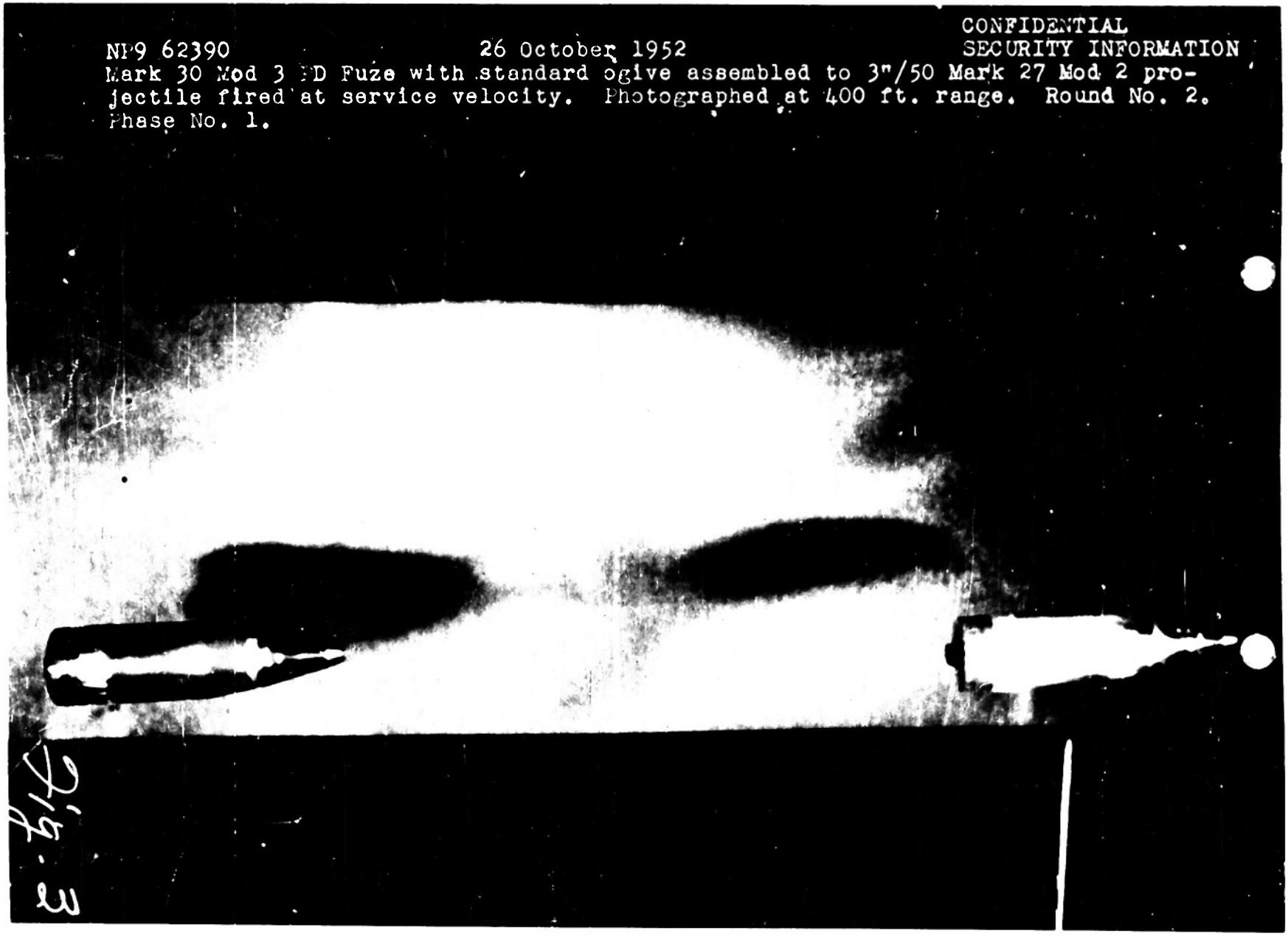


1-1

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NP9 62390 26 October 1952

Mark 30 Mod 3 ED Fuze with standard ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 2. Phase No. 1.



3-4-3

N 9 62391 26 October 1952 CONFIDENTIAL SECURITY INFORMATION

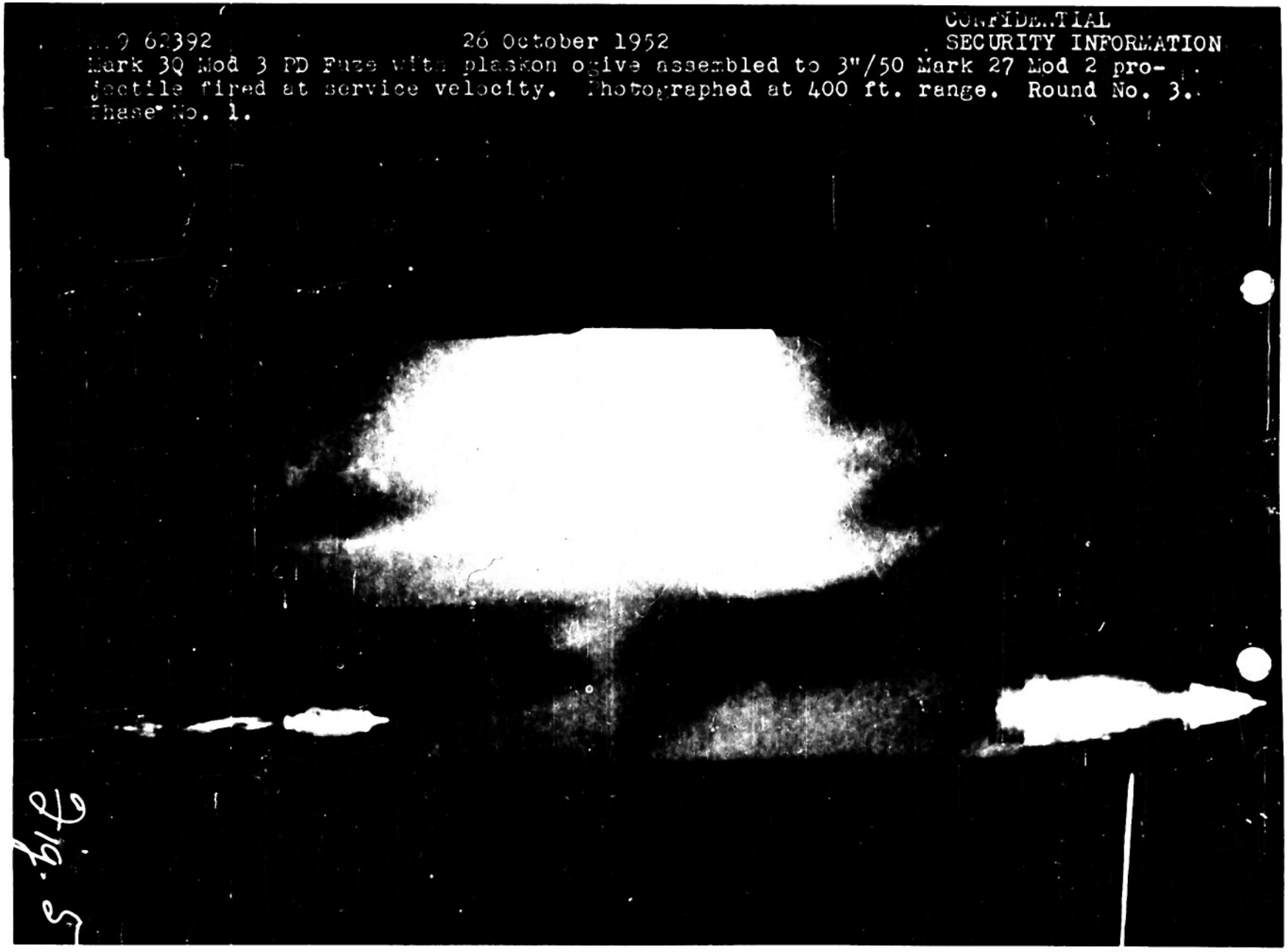
Mark 30 Mod 3 ID Fuze with standard ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 2. Gun No. 1.



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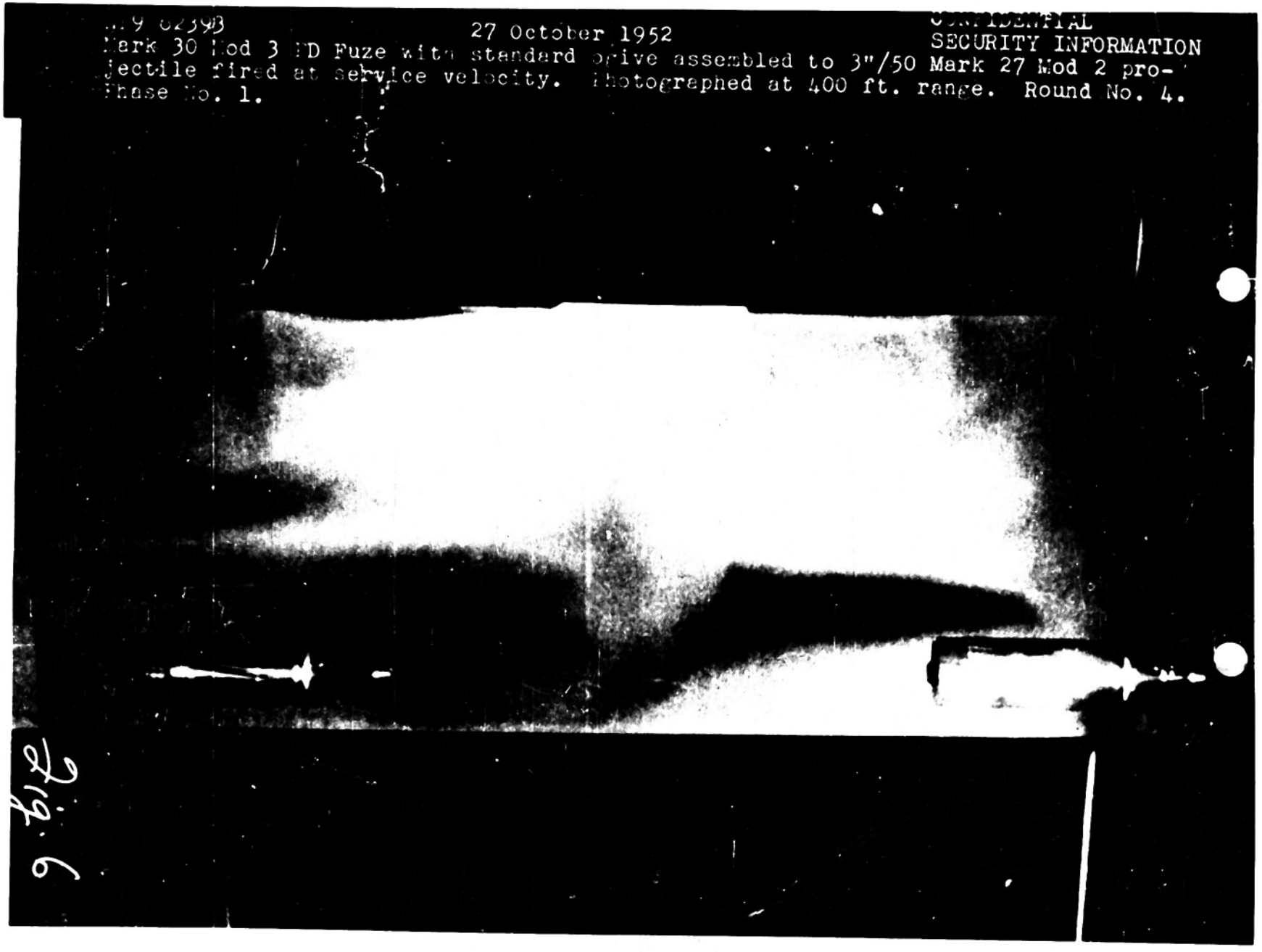
...9 62392 26 October 1952

Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 3. Phase No. 1.



...9 02393 27 October 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze with standard drive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 4. Phase No. 1.

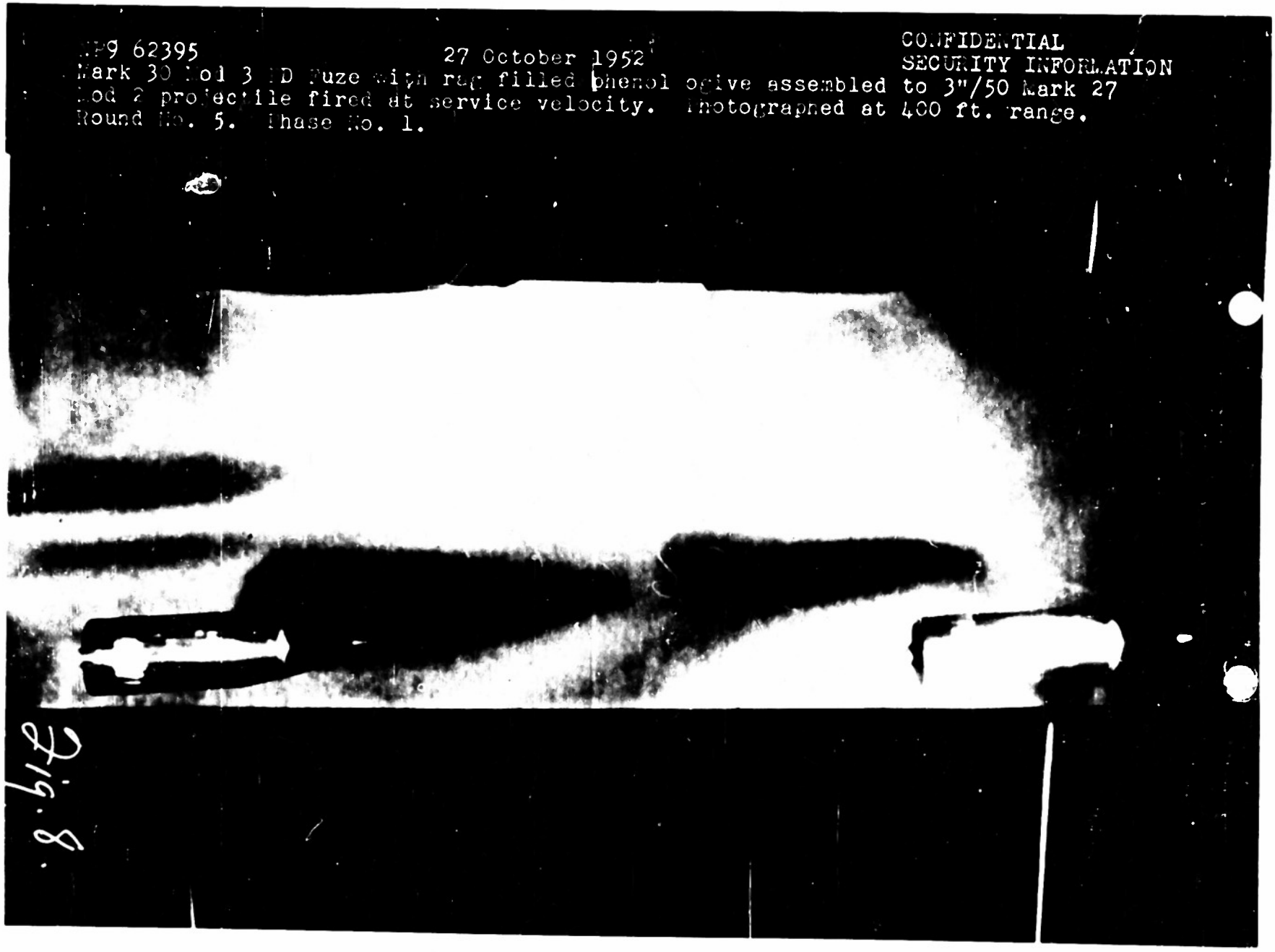


9.6.2

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Mark 30 Mod 3 TD Fuze with standard ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 4. Phase No. 1.





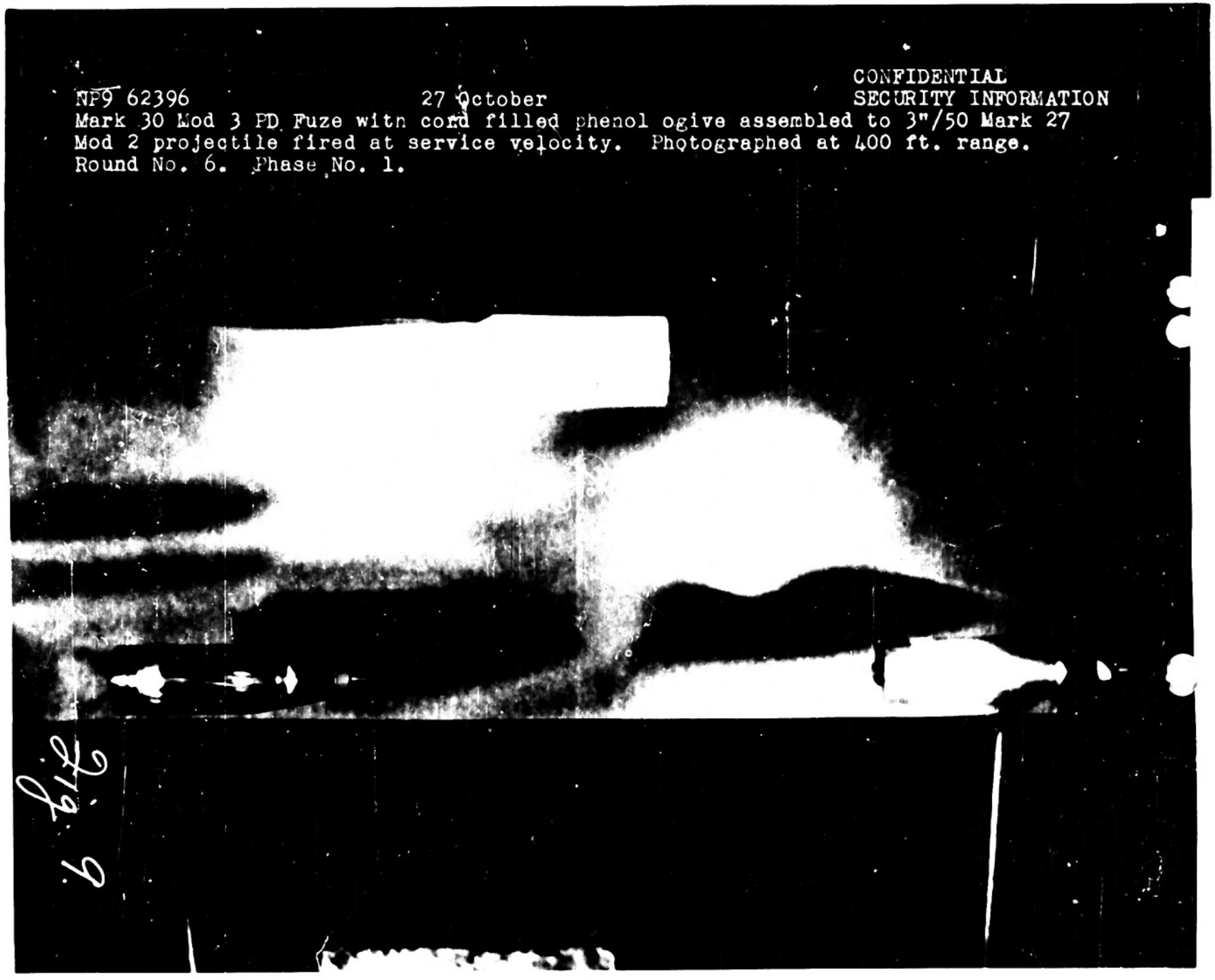
NP9 62395 27 October 1952 CONFIDENTIAL
Mark 30 Mod 3 ID Fuze with rag filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range.
Round No. 5. Phase No. 1. SECURITY INFORMATION

3.19.8

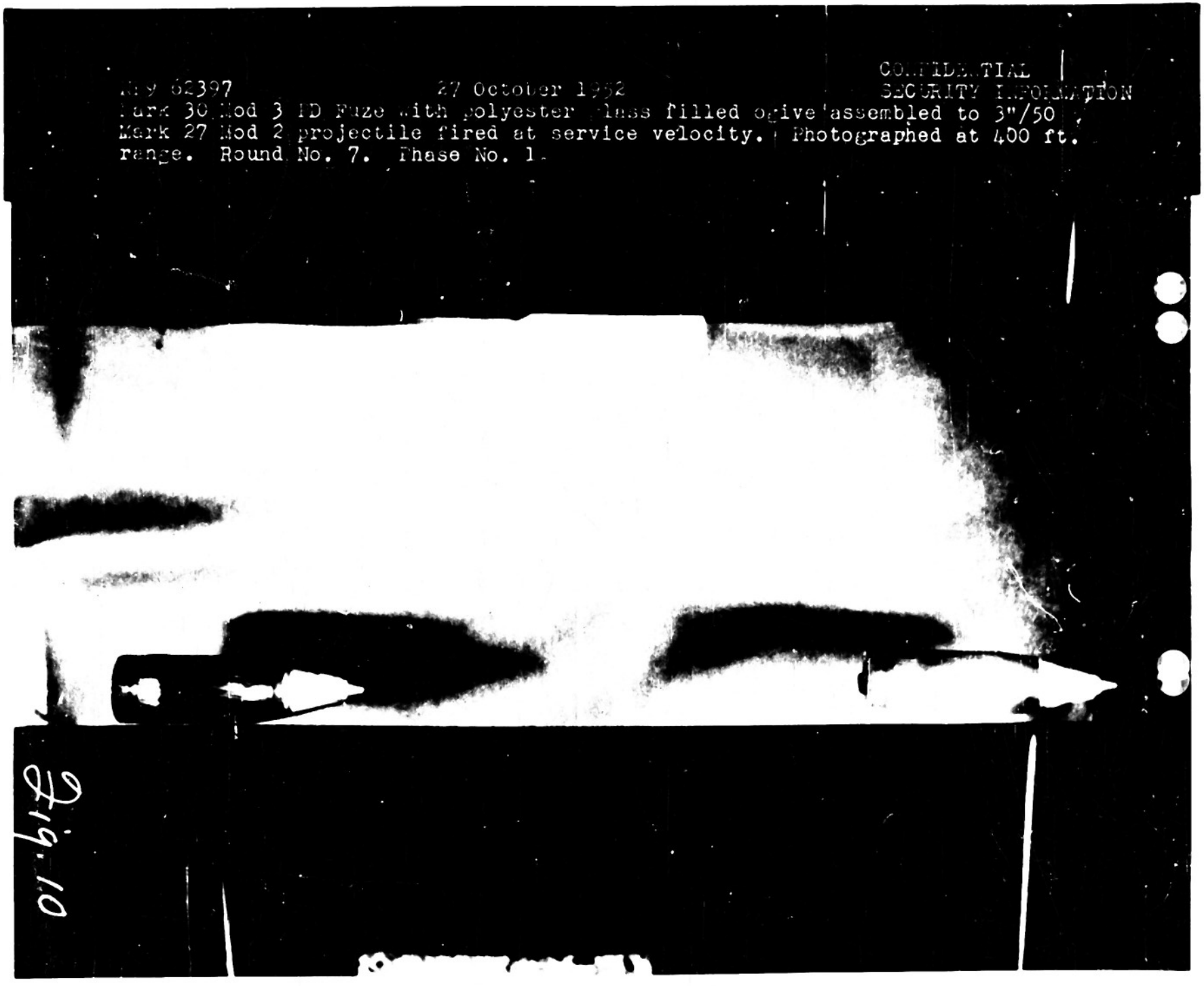
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NP9 62396 27 October

Mark 30 Mod 3 PD Fuze with cord filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 6. Phase No. 1.

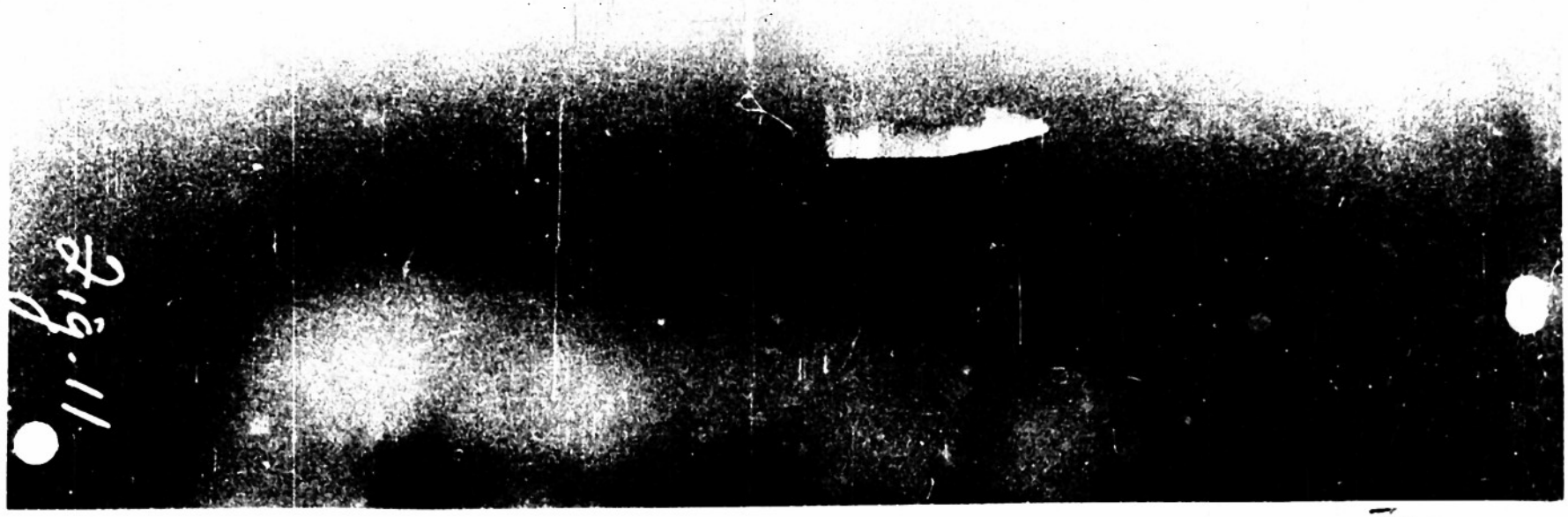


219.9.


Ary 62397 27 October 1952 CONFIDENTIAL SECURITY INFORMATION
Mark 30 Mod 3 ID Fuze with polyester glass filled ogive assembled to 3"/50
Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft.
range. Round No. 7. Phase No. 1.
219.10

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Mark 30 Mod 3 VD Fuze with polyester glass filled ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 7. Phase No. 1.



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NRL 62399 27 October 1952

Mark 30 Mod 3 ID Fuze with standard drive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 8. Phase No. 1.

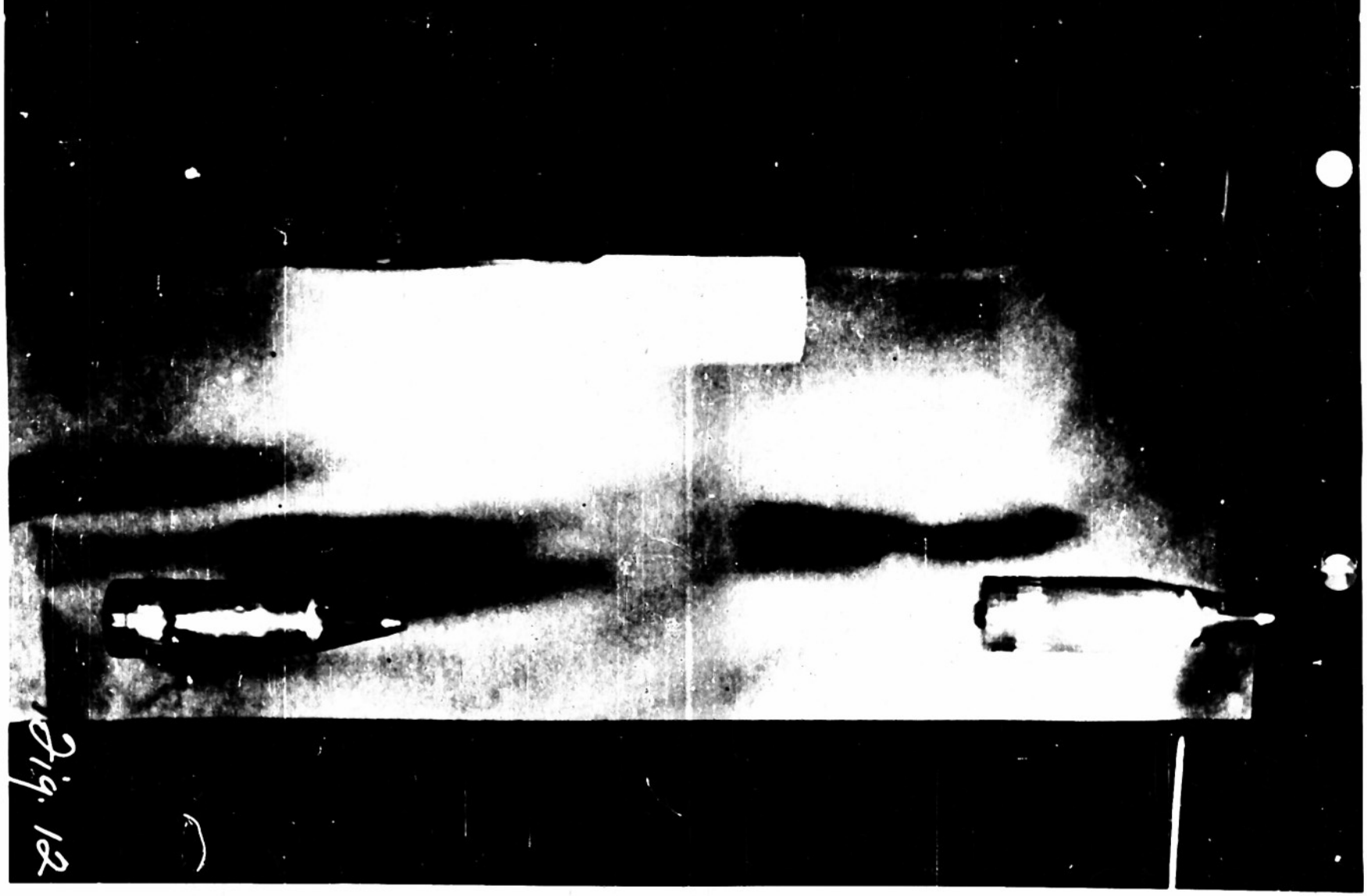


Fig. 12

NOTS-02400 27 October 1952 CONFIDENTIAL
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Mark 32 Mod 3 PD Fuze with standard ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 8. Base No. 1.

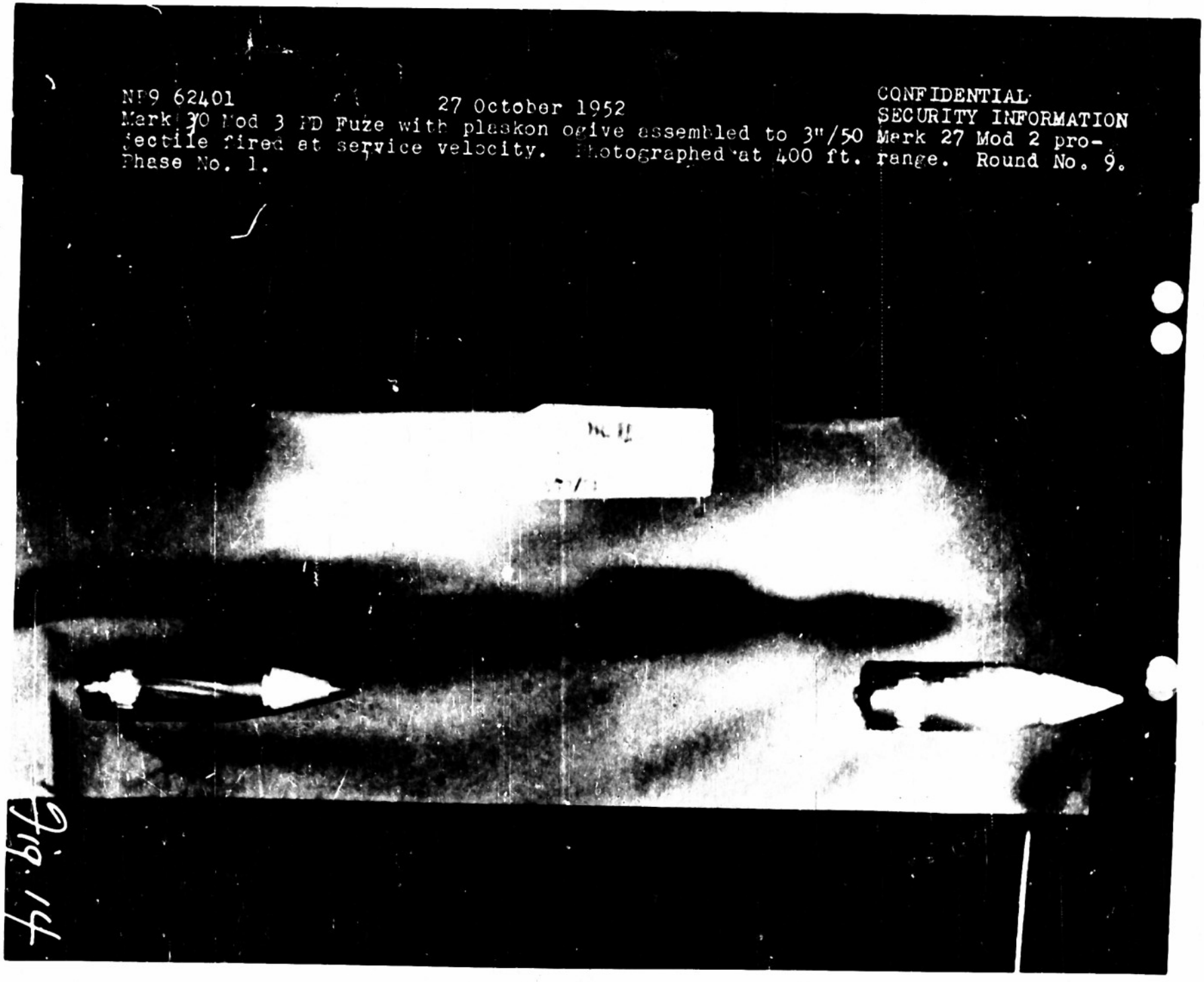


8-1

NP9 62401 27 October 1952

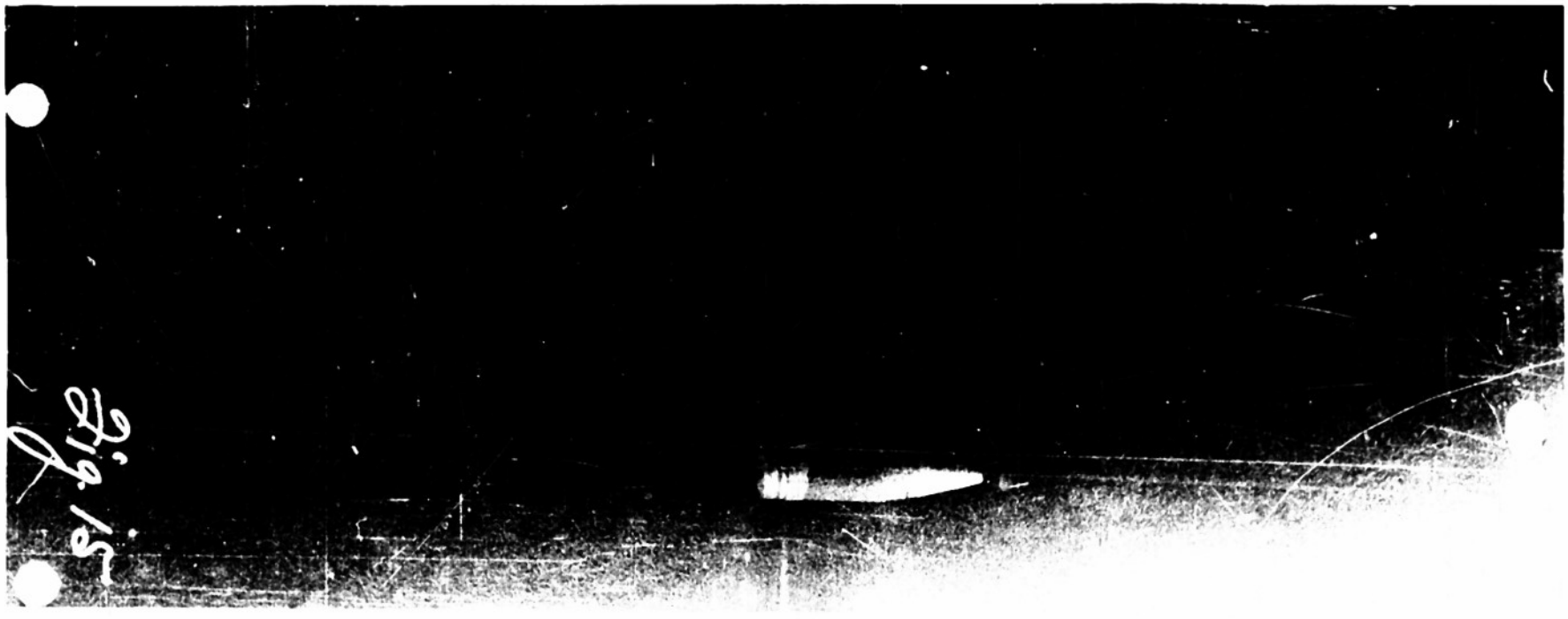
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Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 9. Phase No. 1.



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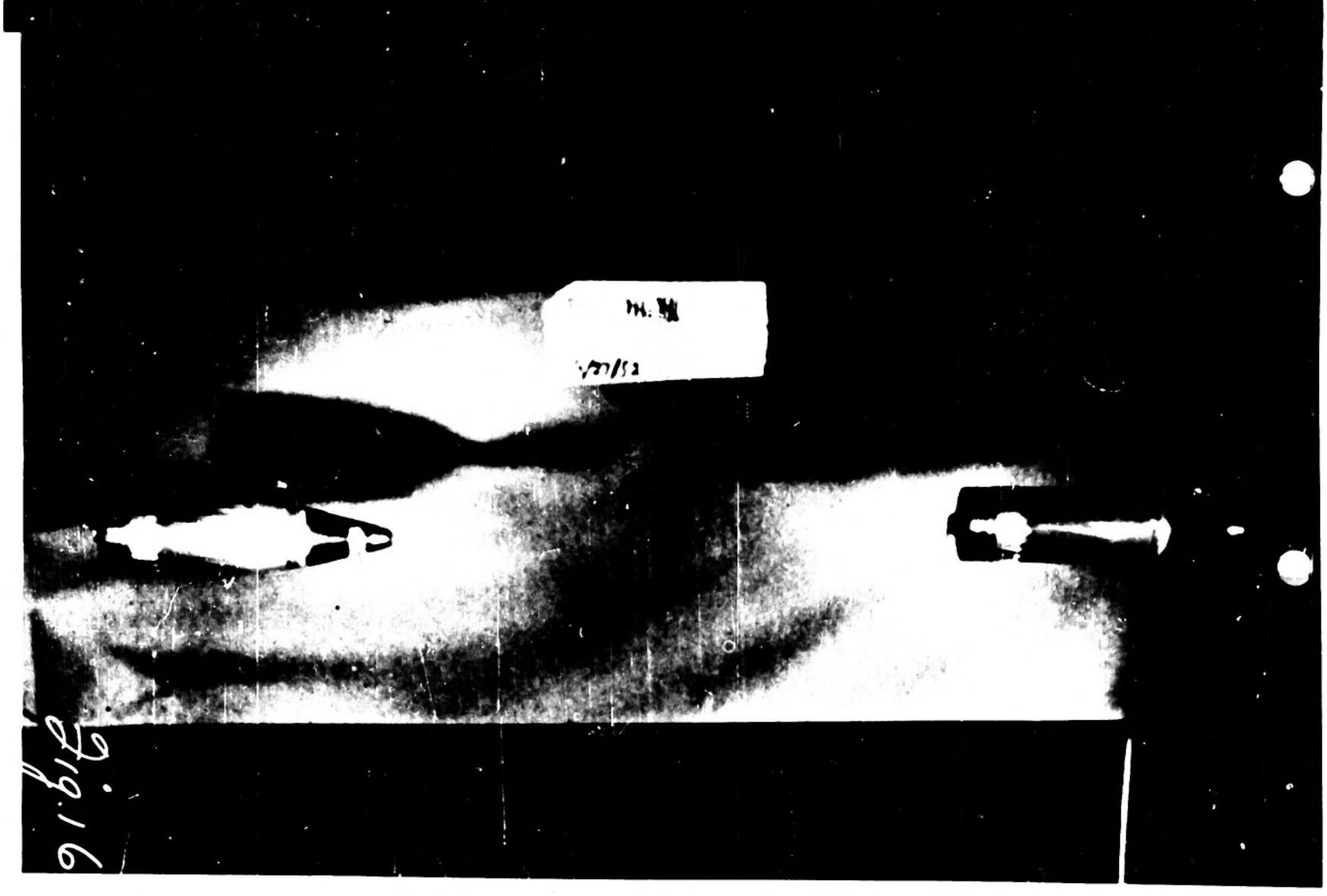
Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 9. Phase No. 1.



4-2

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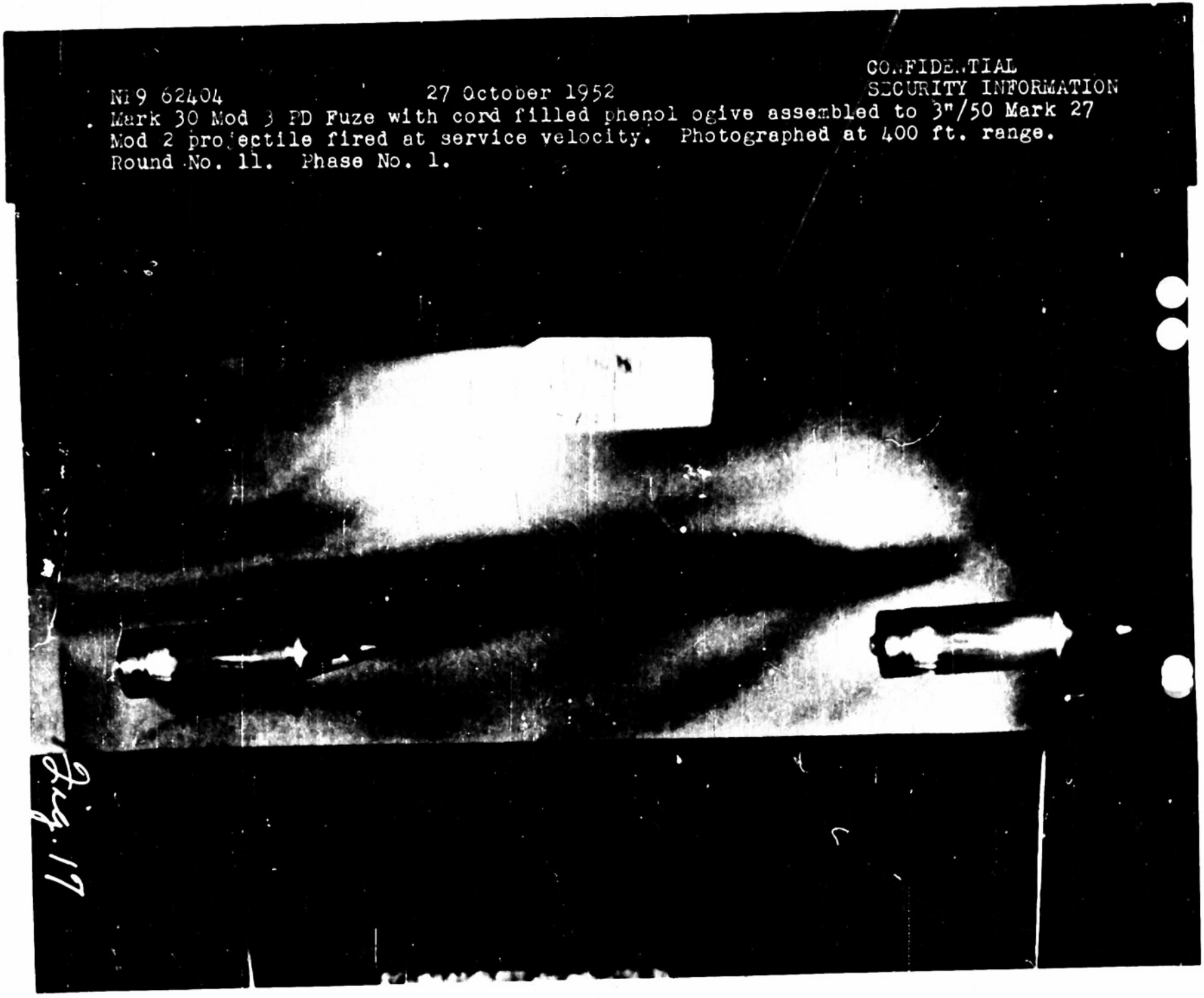
Mark 30 Mod 3 TD Fuze with rag filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 10. Phase No. 1.



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SECURITY INFORMATION

NI9 62404 27 October 1952

Mark 30 Mod 3 PD Fuze with cord filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 11. Phase No. 1.

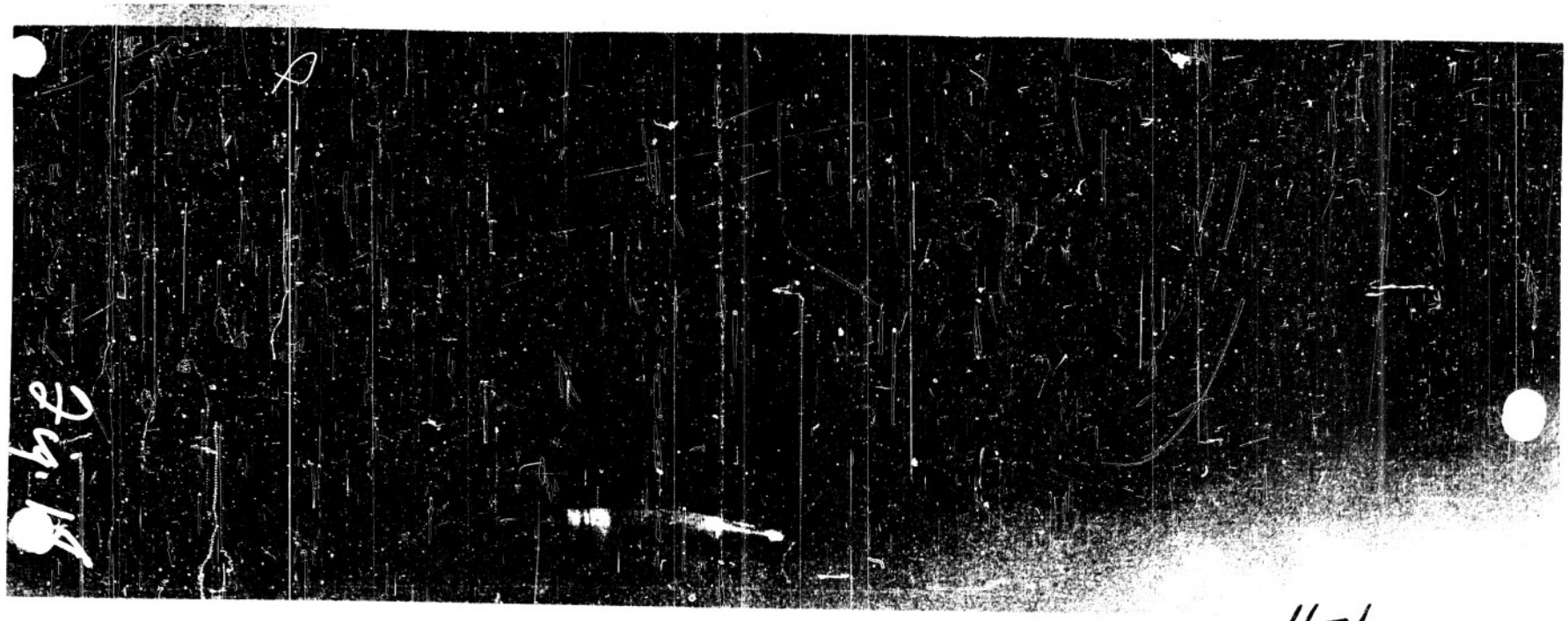


Aug. 17

N 9 62405 27 October 1952

CONFIDENTIAL
SECURITY INFORMATION

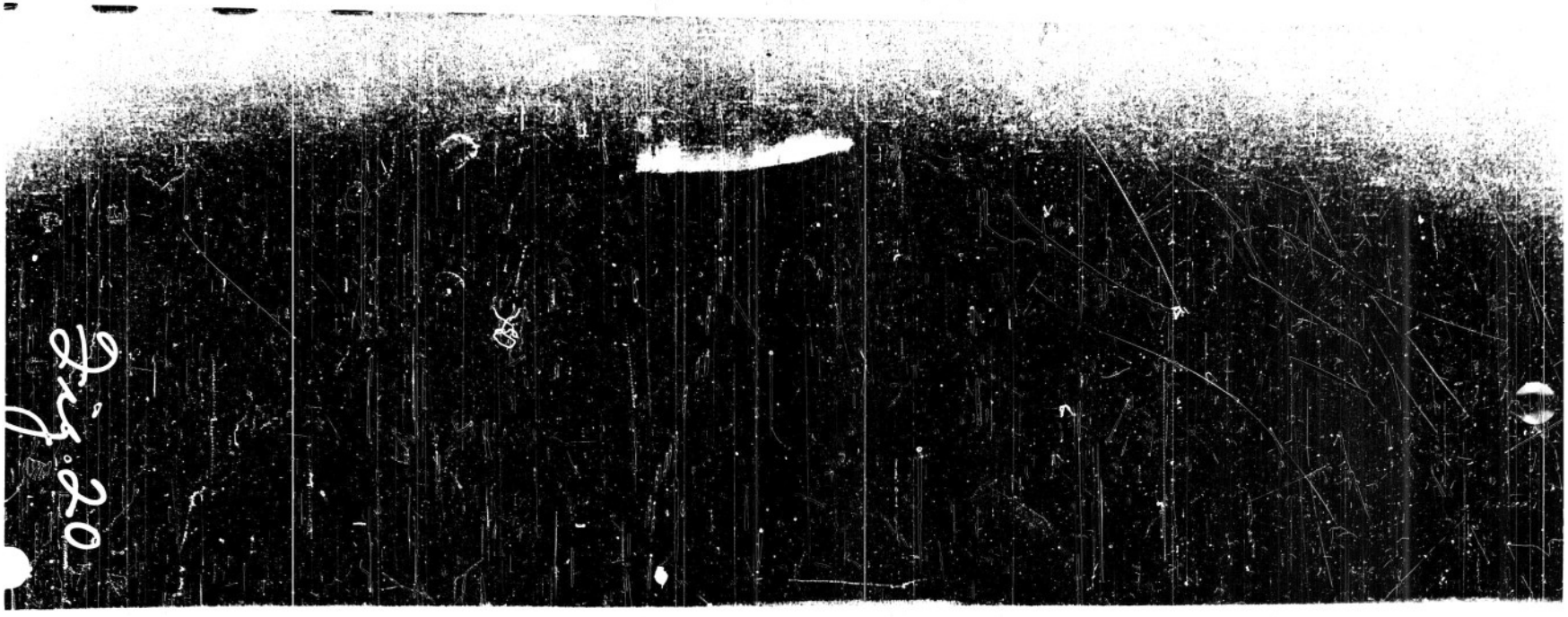
Mark 30 Mod 3 PD fuze with cord filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 11. Phase No. 1.



11-1


NP 9 62406
27 October 1952
CONFIDENTIAL
SECURITY INFORMATION
Mark 30 Mod 3 PD Fuze with polyester glass filled ogive assembled to 3"/50
Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft.
range. Round No. 12. Phase No. 1.

NL9 62407 27 October 1952 CONFIDENTIAL
SECURITY INFORMATION
Mark 30 Mod 3 PD Fuze with polyester glass filled ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft.. range. Round No. 12. Phase No. 1.



12-1

N:9 62408 27 October 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 ID Fuze with plaskon olive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 13. Base No. 1.

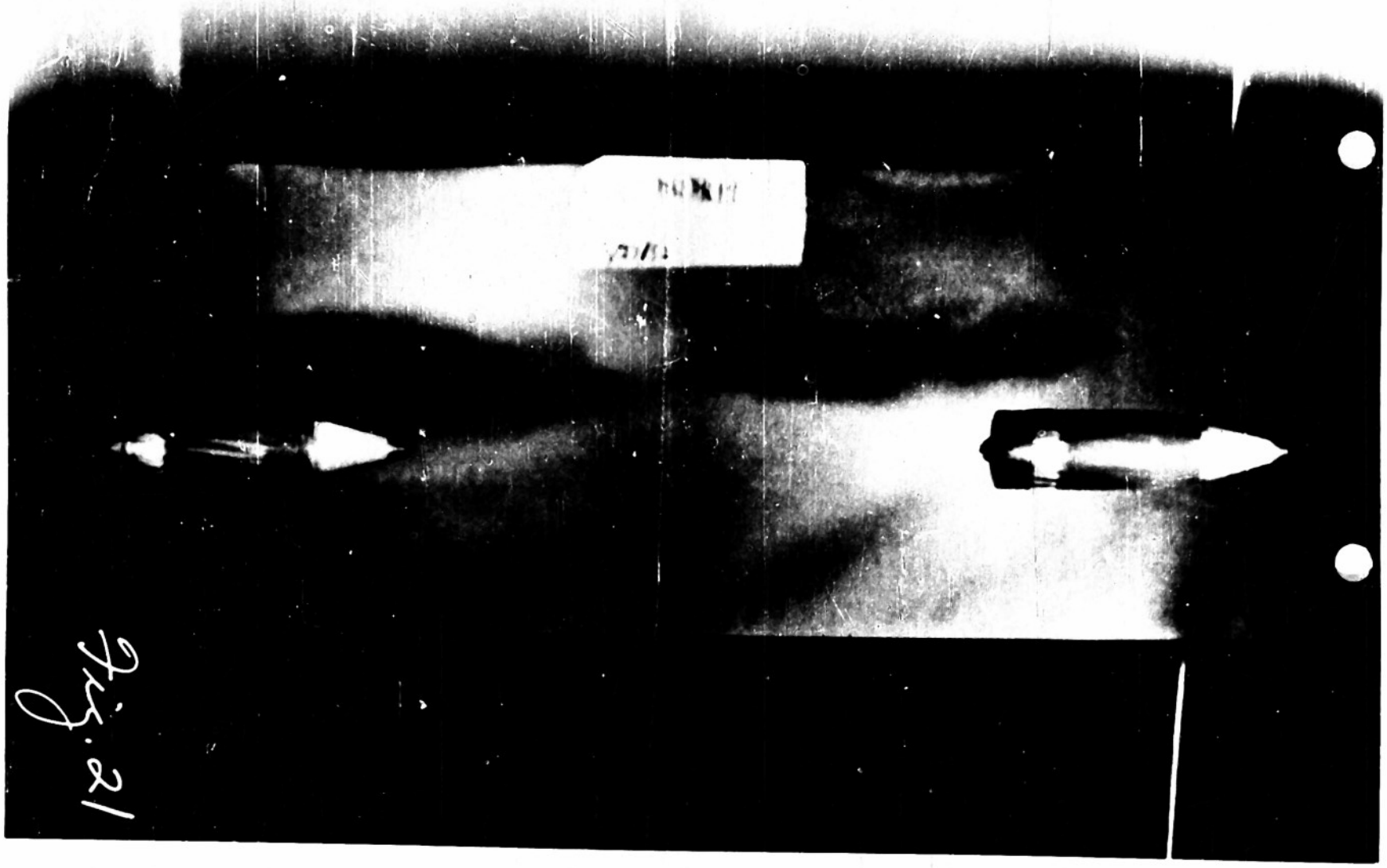


Fig. 21

NP9 62409 27 October 1952 CONFIDENTIAL SECURITY INFORMATION
Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 13. Phase No. 1.

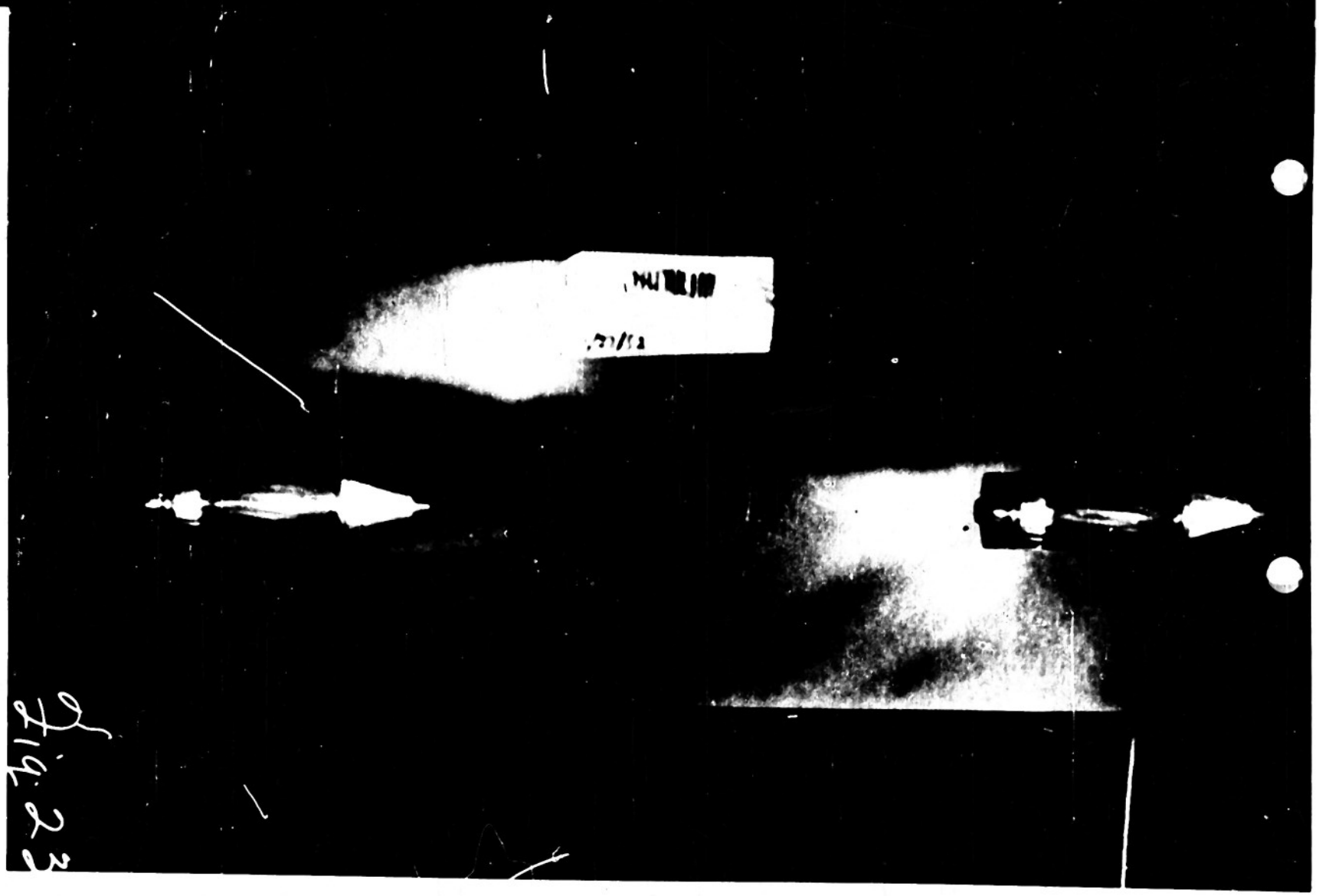


13-1

NP9 62410 27 October 1952

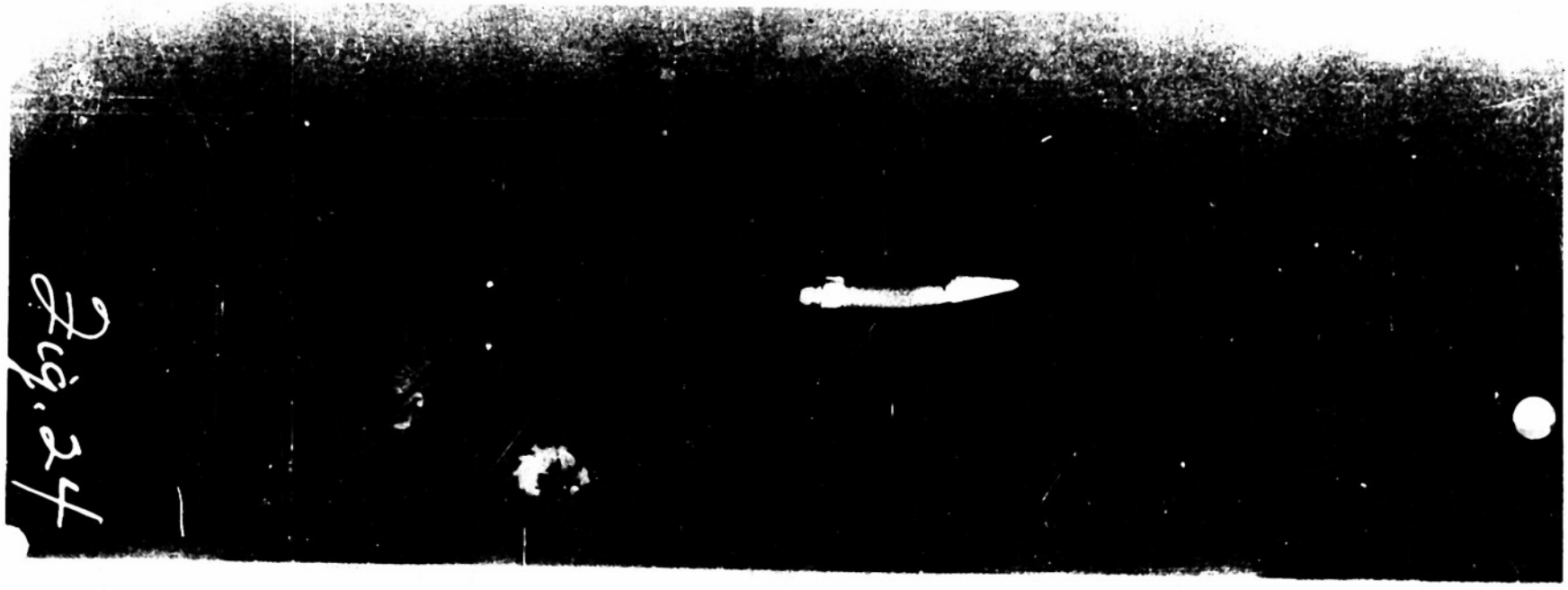
CONFIDENTIAL
SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 14. Phase No. 1.



M 9 82411 27 October 1952 CONFIDENTIAL SECURITY INFORMATION

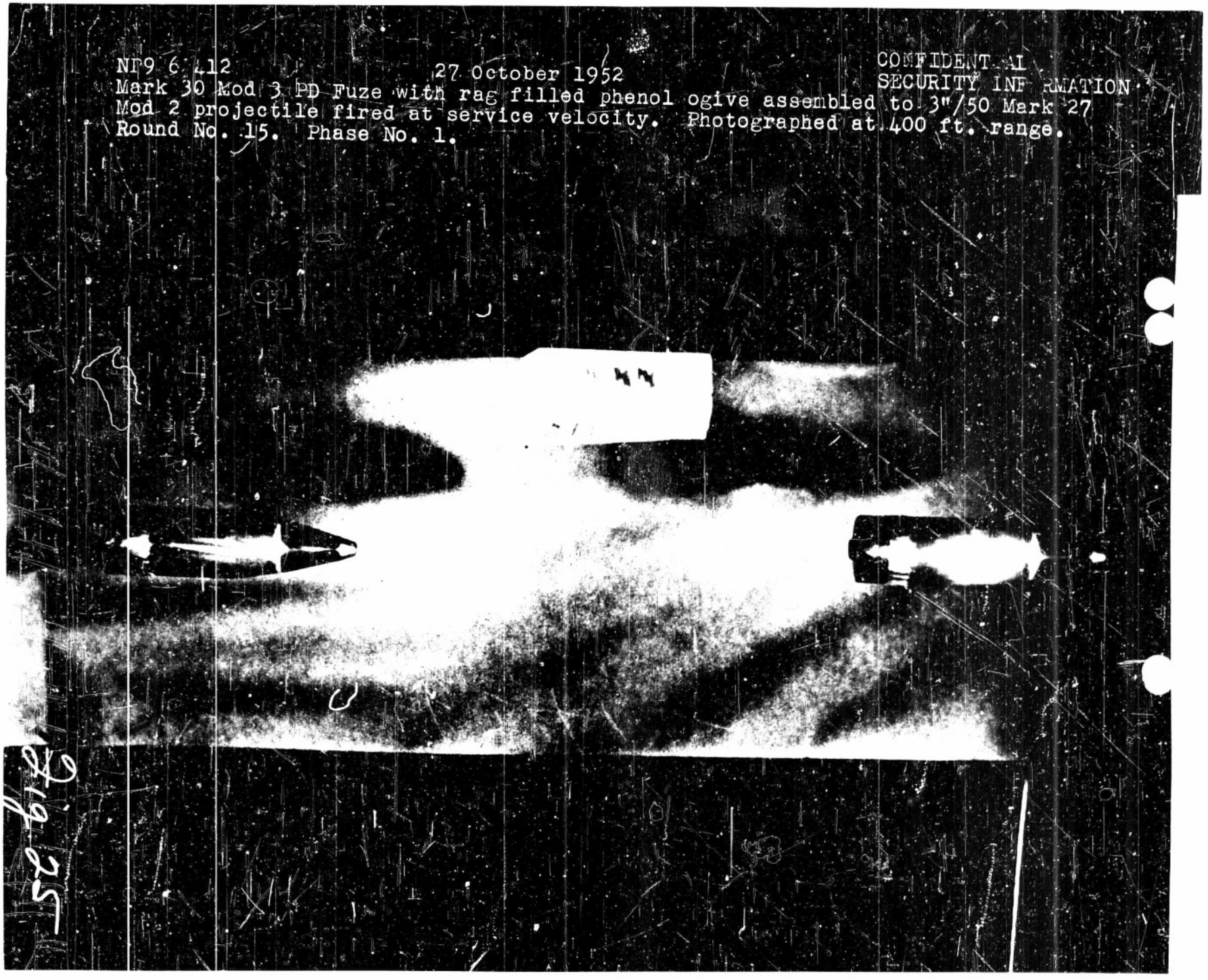
Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 14. Phase No. 1.



14-1

NP9 6 412 27 October 1952 CONFIDENTIAL
SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze with rag filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 15. Phase No. 1.



27-19-25

NP9 62413 27 October 1952 CONFIDENTIAL
SECURITY INFORMATION
Mark 30 Mod 3 PD Fuze with rag filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 15. Phase No. 1.

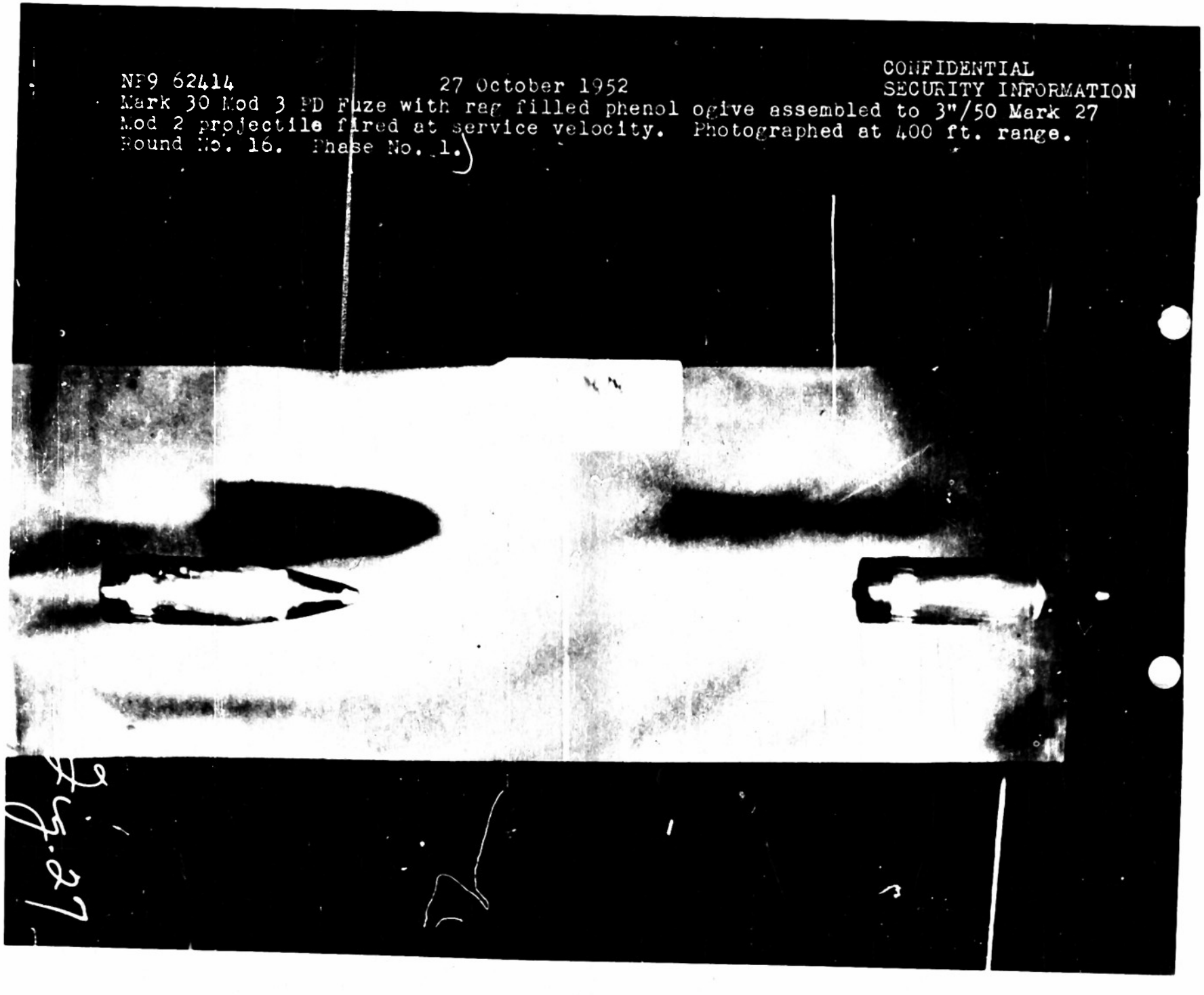


92.212

15-1

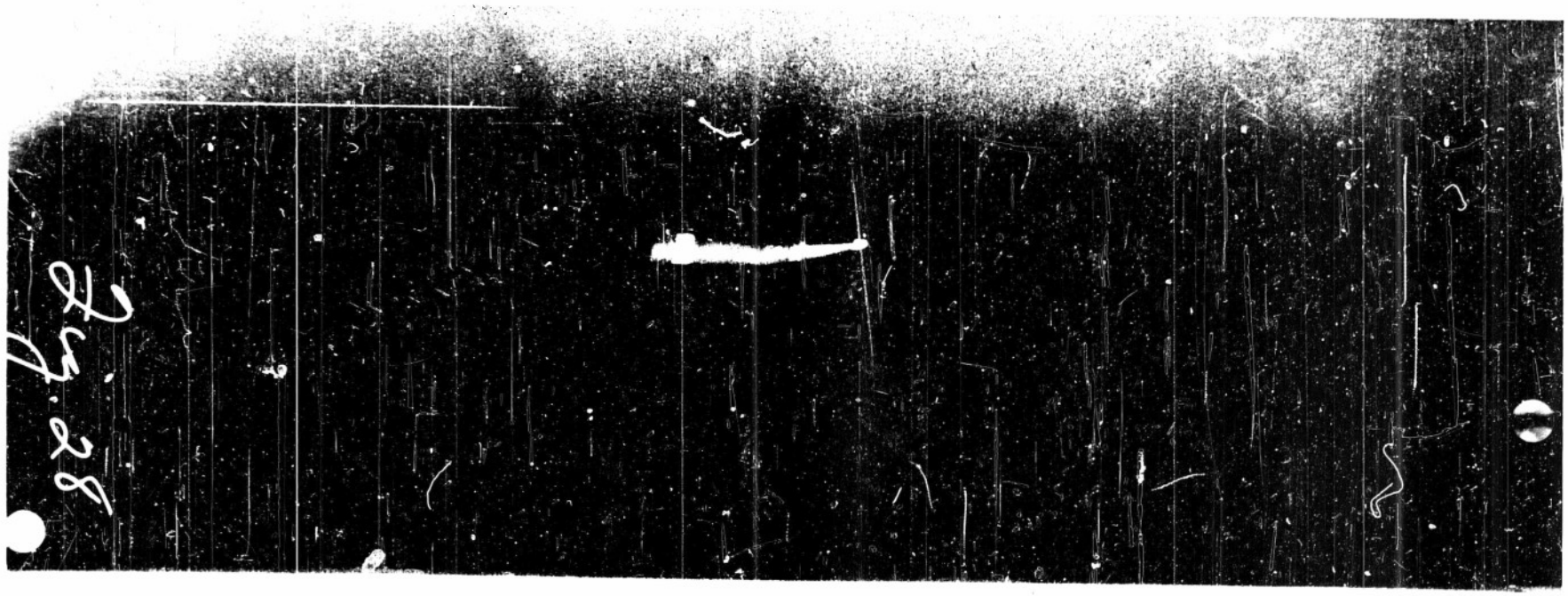
NF9 62414 27 October 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze with rag filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 16. Phase No. 1.



NOTS 02415 27 October 1952 CONFIDENTIAL SECURITY INFORMATION

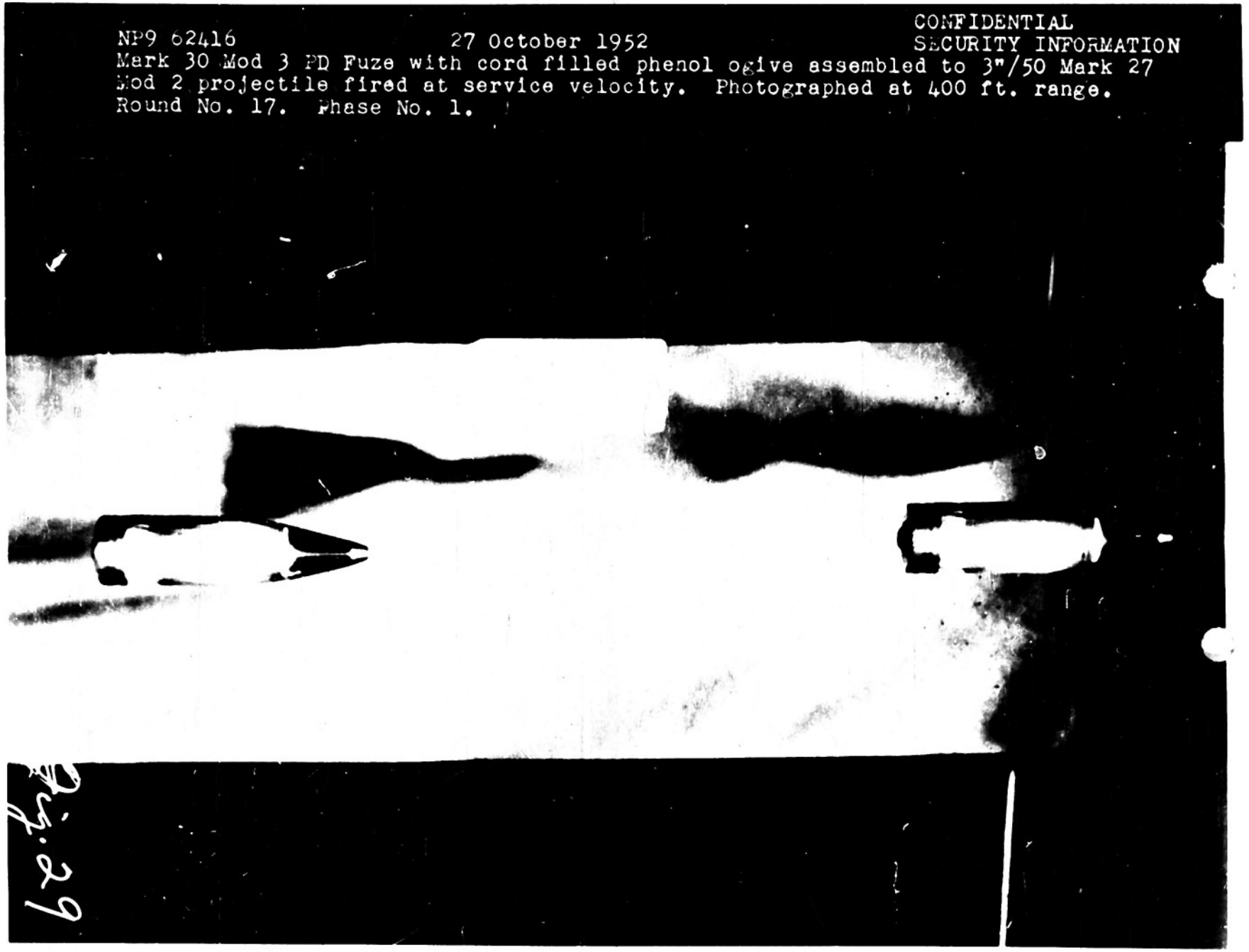
Mark 30 Mod 3 PD Fuze with rag filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 16. Phase No. 1.



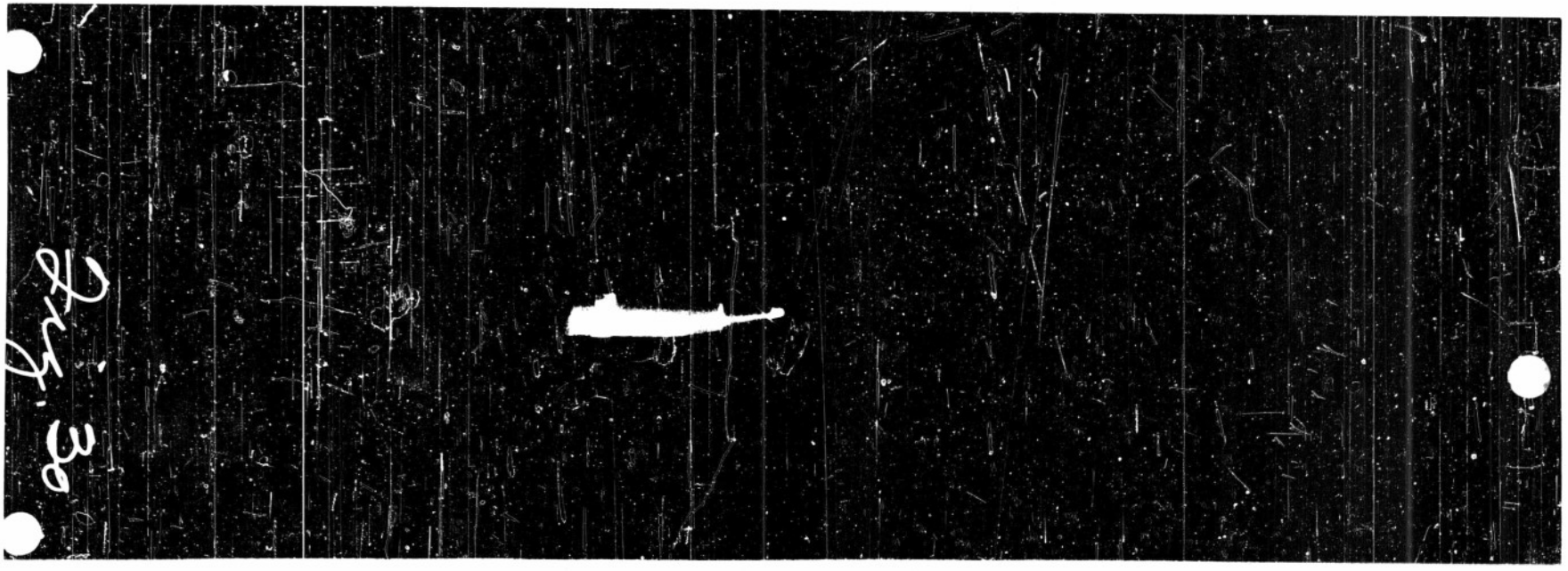
16-1

NP9 62416 27 October 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze with cord filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 17. Phase No. 1.



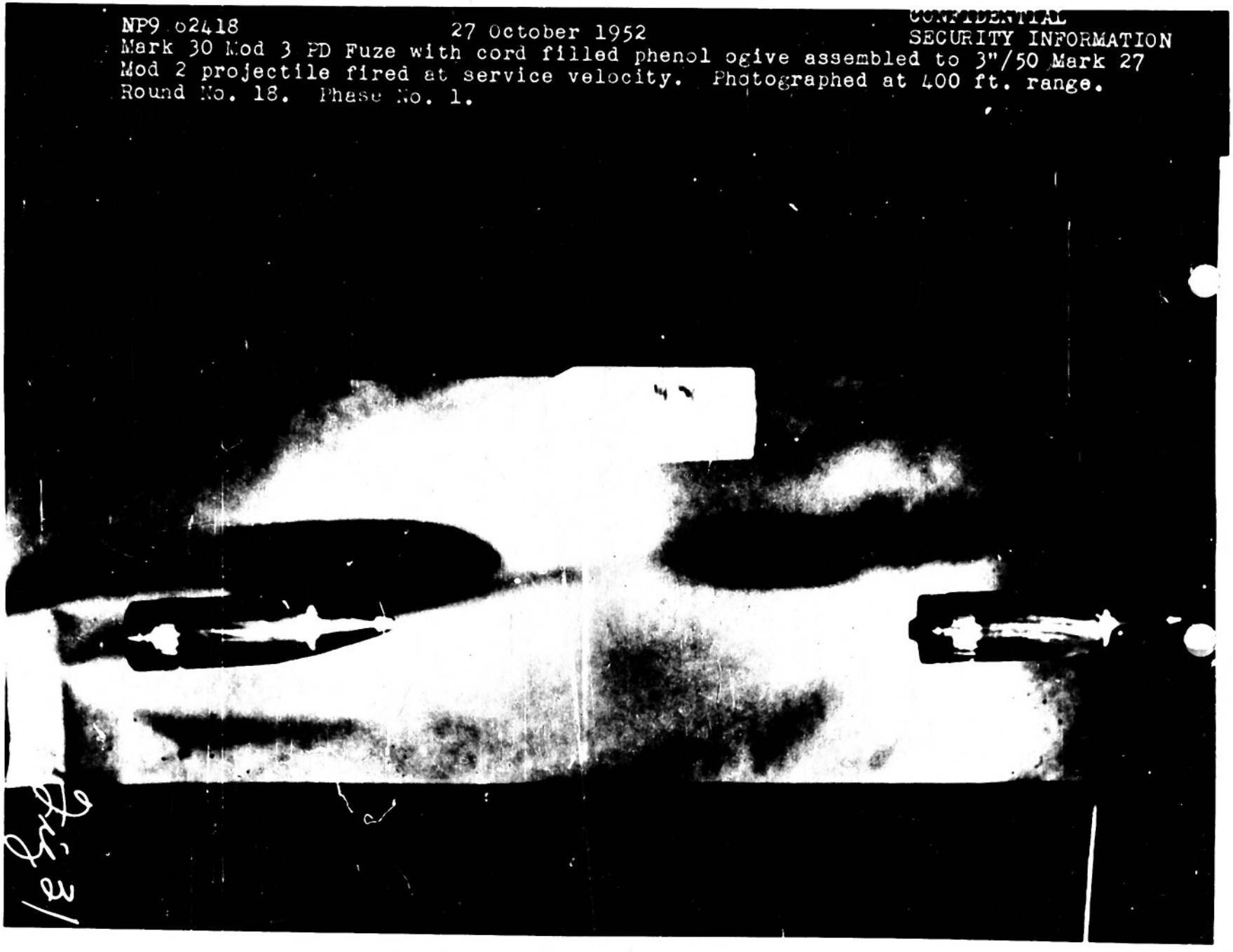
NF9 62417 27 October 1952 CONFIDENTIAL
SECURITY INFORMATION
Mark 30 Mod 3 PD Fuze with cord filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range.
Round No. 17, Phase No. 1.



17-1

NP9 62418 27 October 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze with cord filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 18. Phase No. 1.



NPG 62419 27 October 1952 CONFIDENTIAL
SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze with cord filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 18. Phase No. 1.

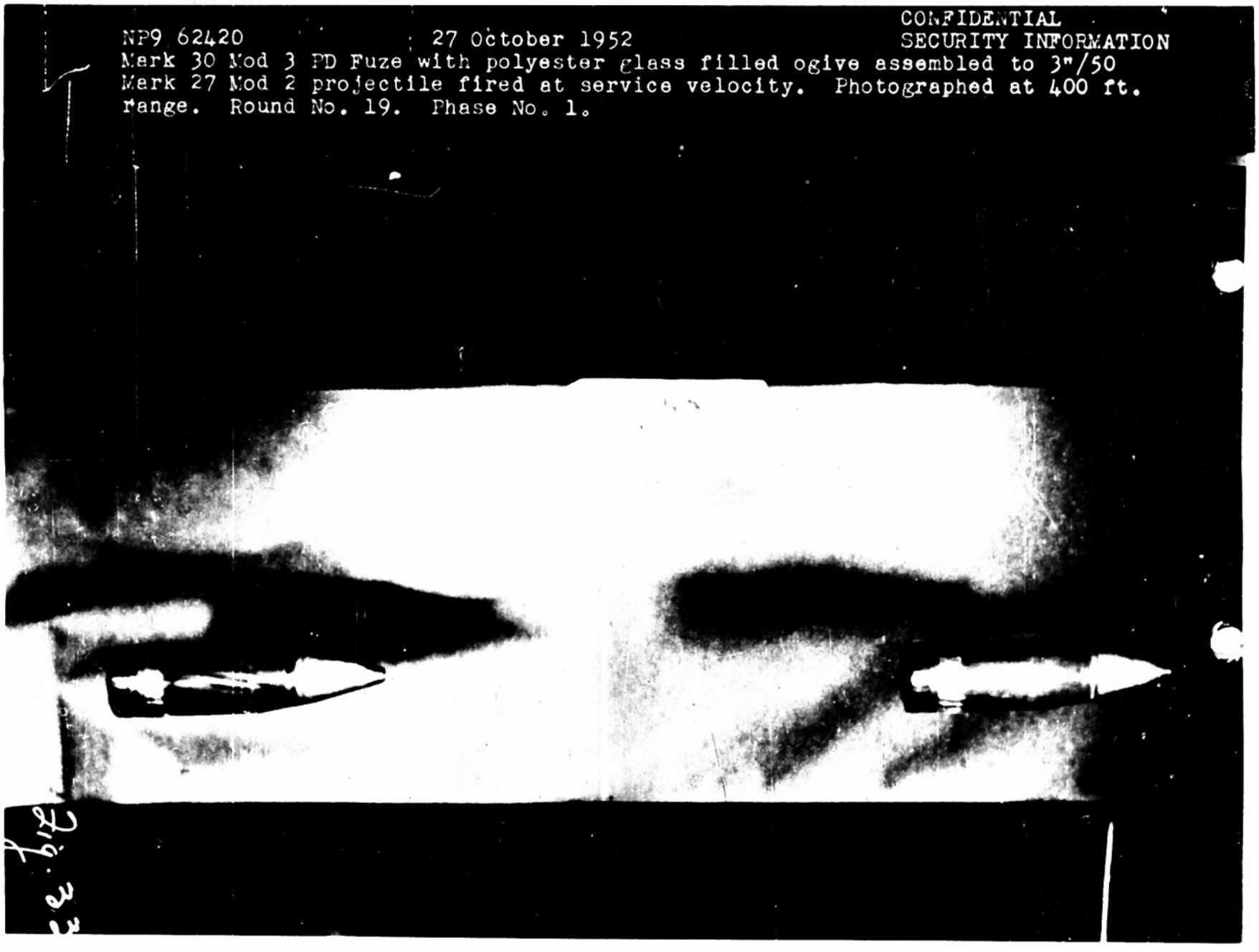


18-1

CONFIDENTIAL
SECURITY INFORMATION

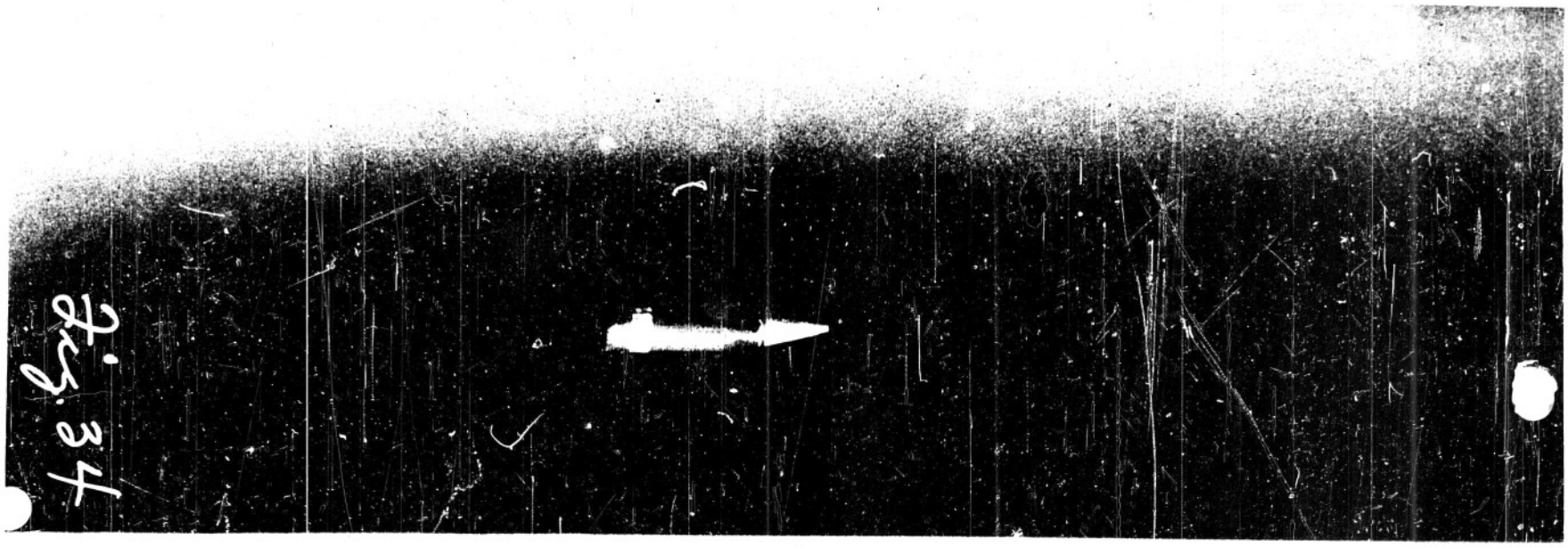
NP9 62420 27 October 1952

Mark 30 Mod 3 PD Fuze with polyester glass filled ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 19. Phase No. 1.



NP9 62421 27 October 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze with polyester glass filled ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 19. Phase No. 1.



19-2

CONFIDENTIAL
SECURITY INFORMATION

NP9 62422 27 October 1952

Mark 30 Mod 3 PD Fuze with polyester glass filled ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 20. Phase No. 1.

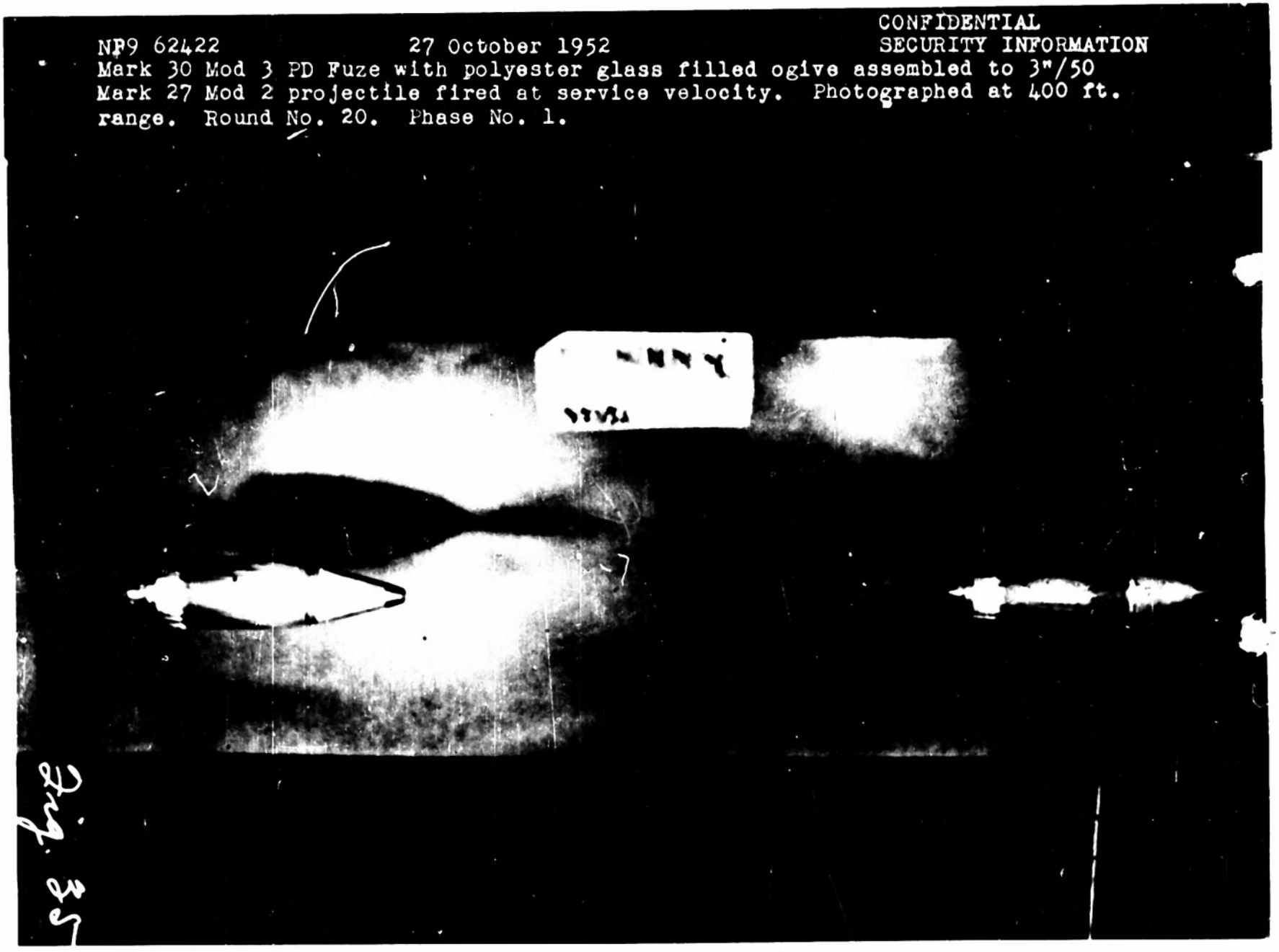
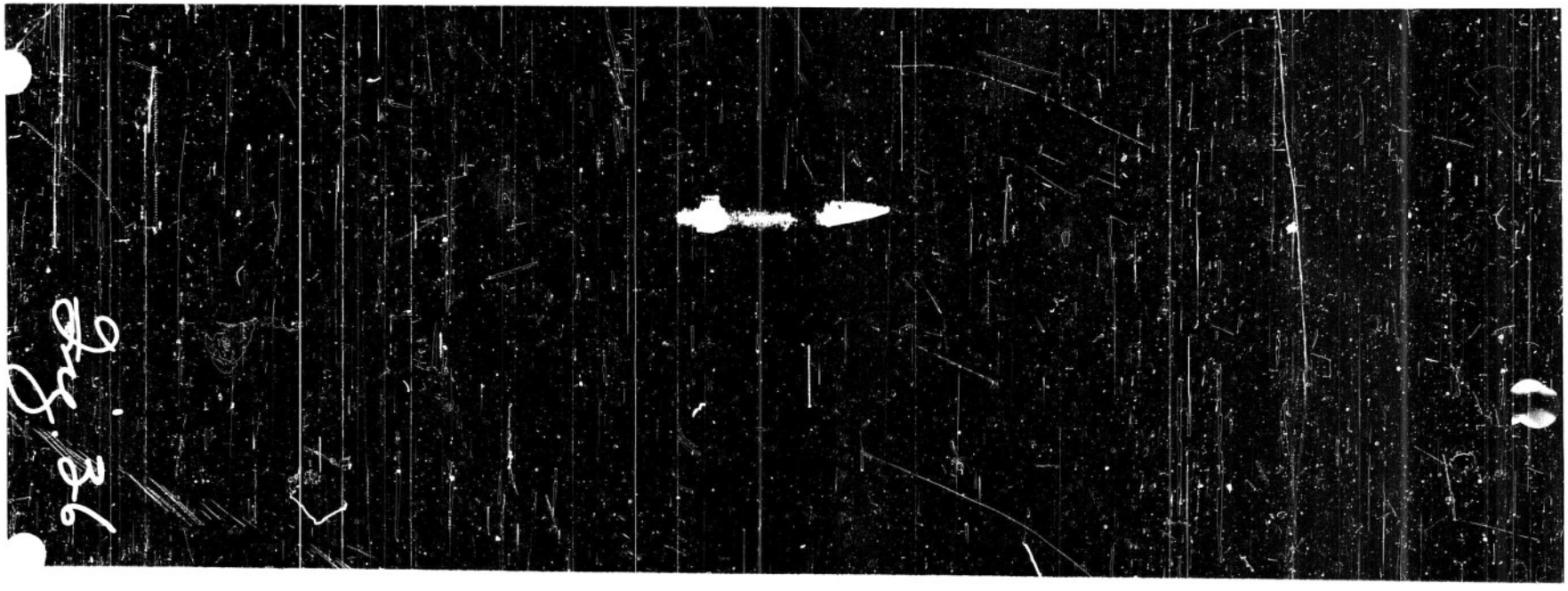


Fig. 35

NP9 62423 27 October 1952 CONFIDENTIAL
SECURITY INFORMATION

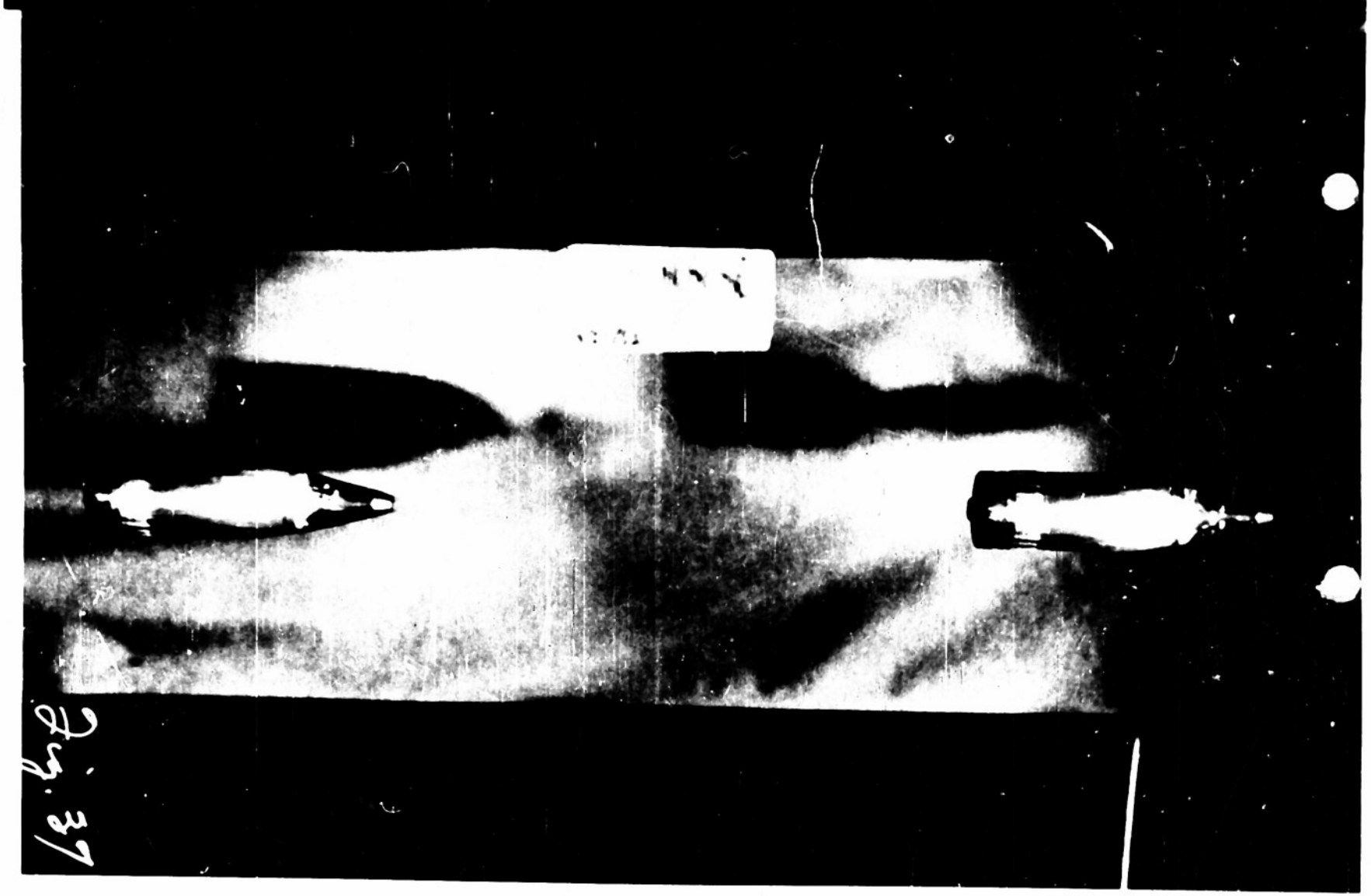
Mark 30 Mod 3 PD Fuze with polyester glass filled ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 20, Phase No. 1.



29-1

NP9 62424 27 October 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze with standard ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 21. Phase No. 1.



NP9 62425 27 October 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze with standard ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 21. Phase No. 1.



21-1

NF 9 62426 27 October 1952 CONFIDENTIAL
SECURITY INFORMATION
Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 22.
Phase No. 1.

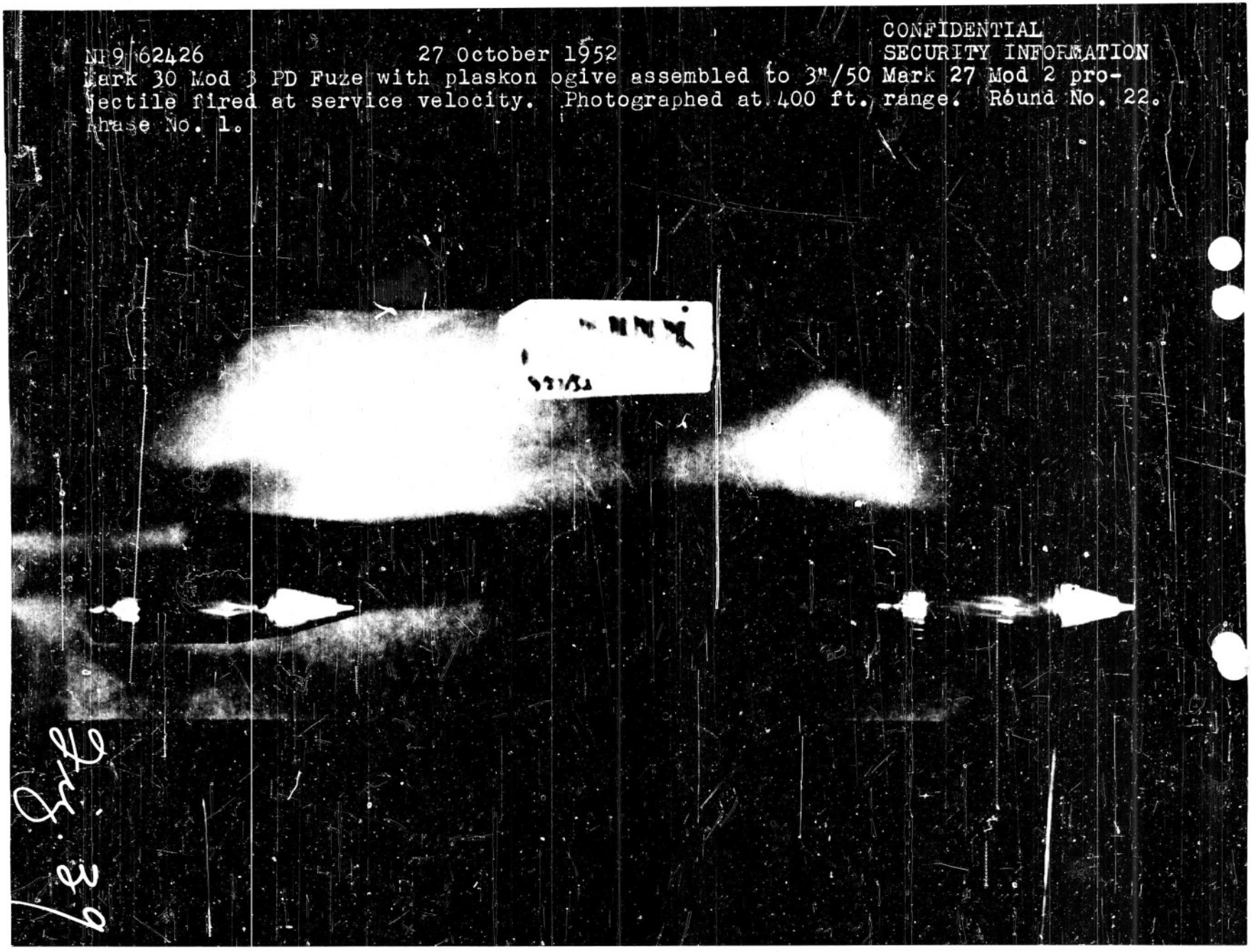
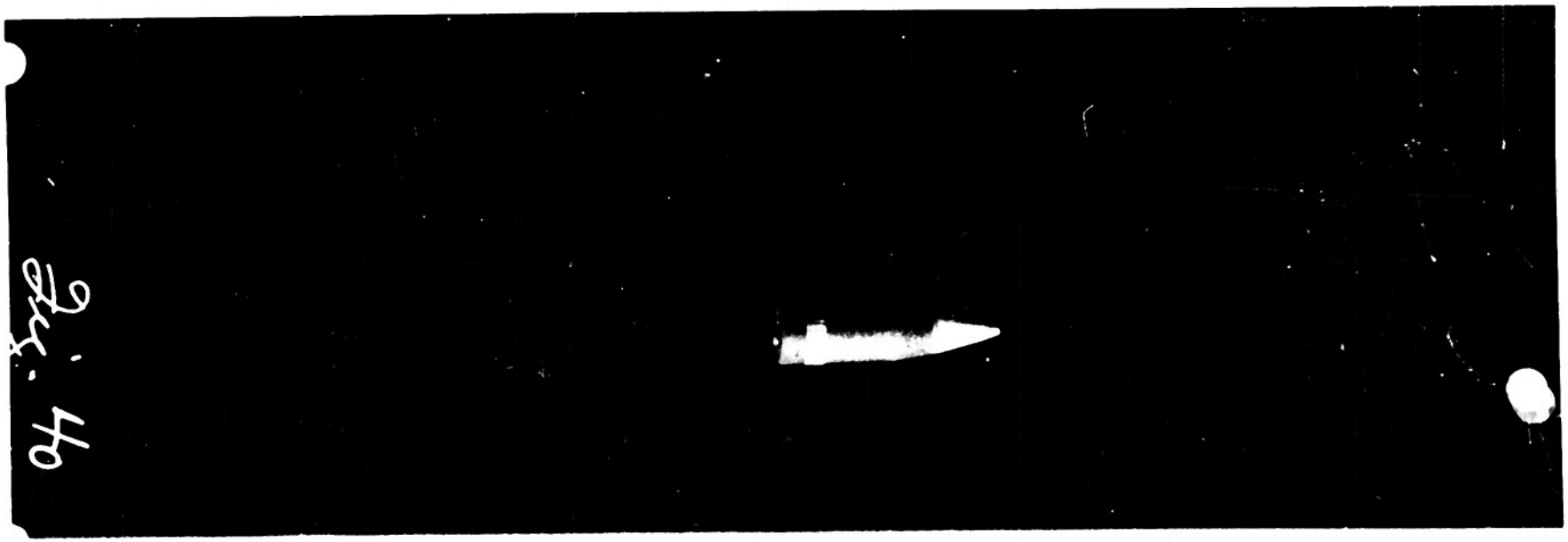


Fig. 3e

NAVORD 62427 27 October 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 FD Fuze with plaskon drive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 22. Base No. 1.



22-2

CONFIDENTIAL
SECURITY INFORMATION

NPG 62428 27 October 1952

Mark 30 Mod 3 PD Fuze with rdx filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 23. Phase No. 1.

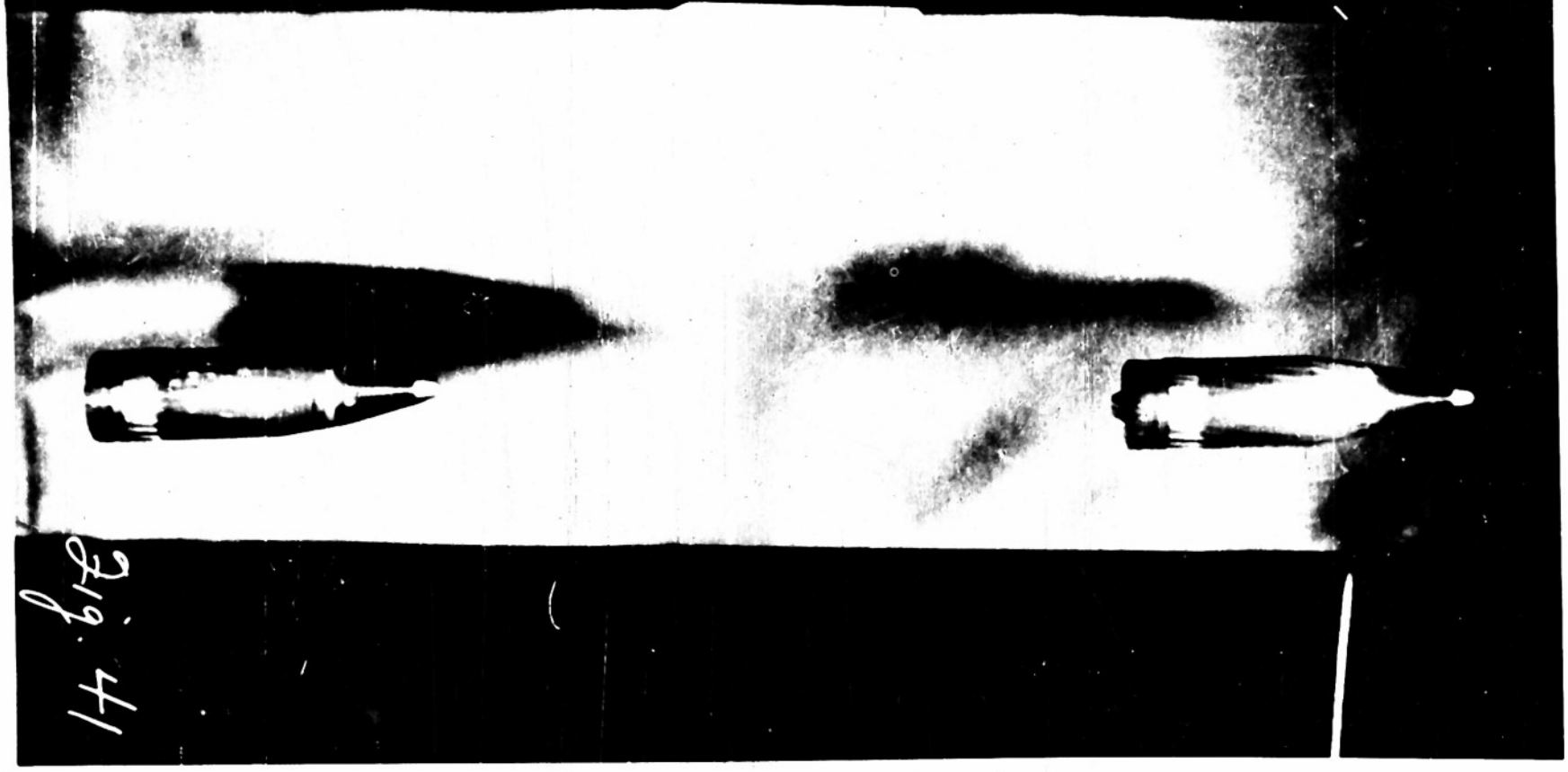
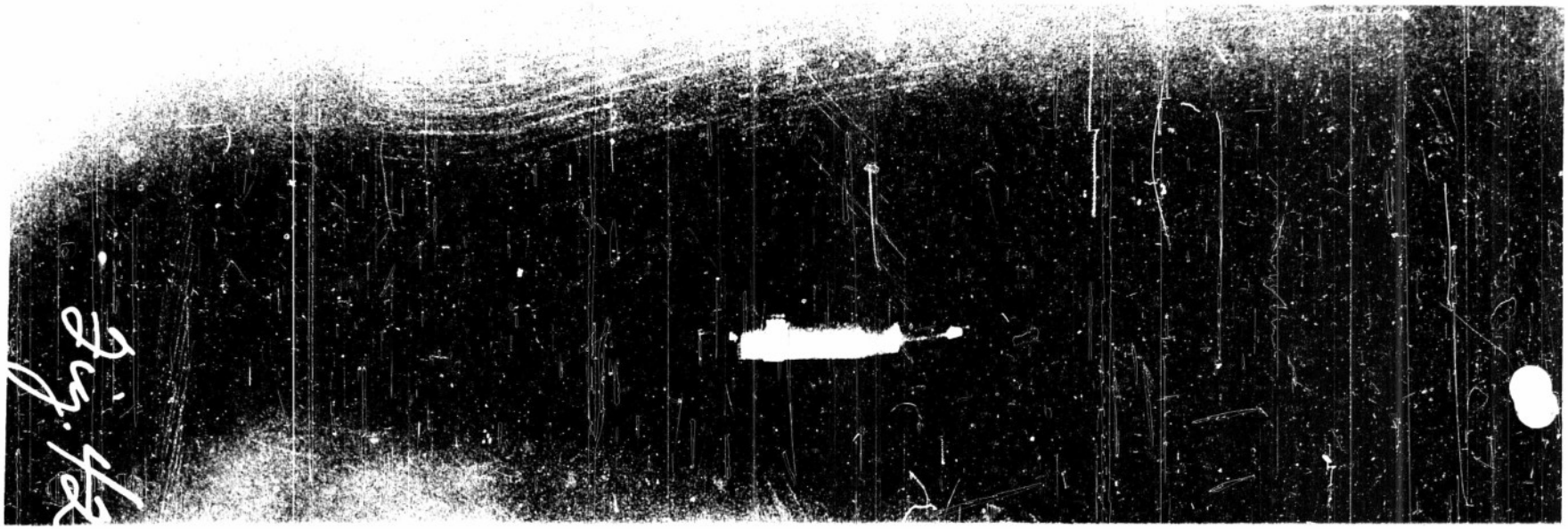


Fig. 14

CONFIDENTIAL
SECURITY INFORMATION

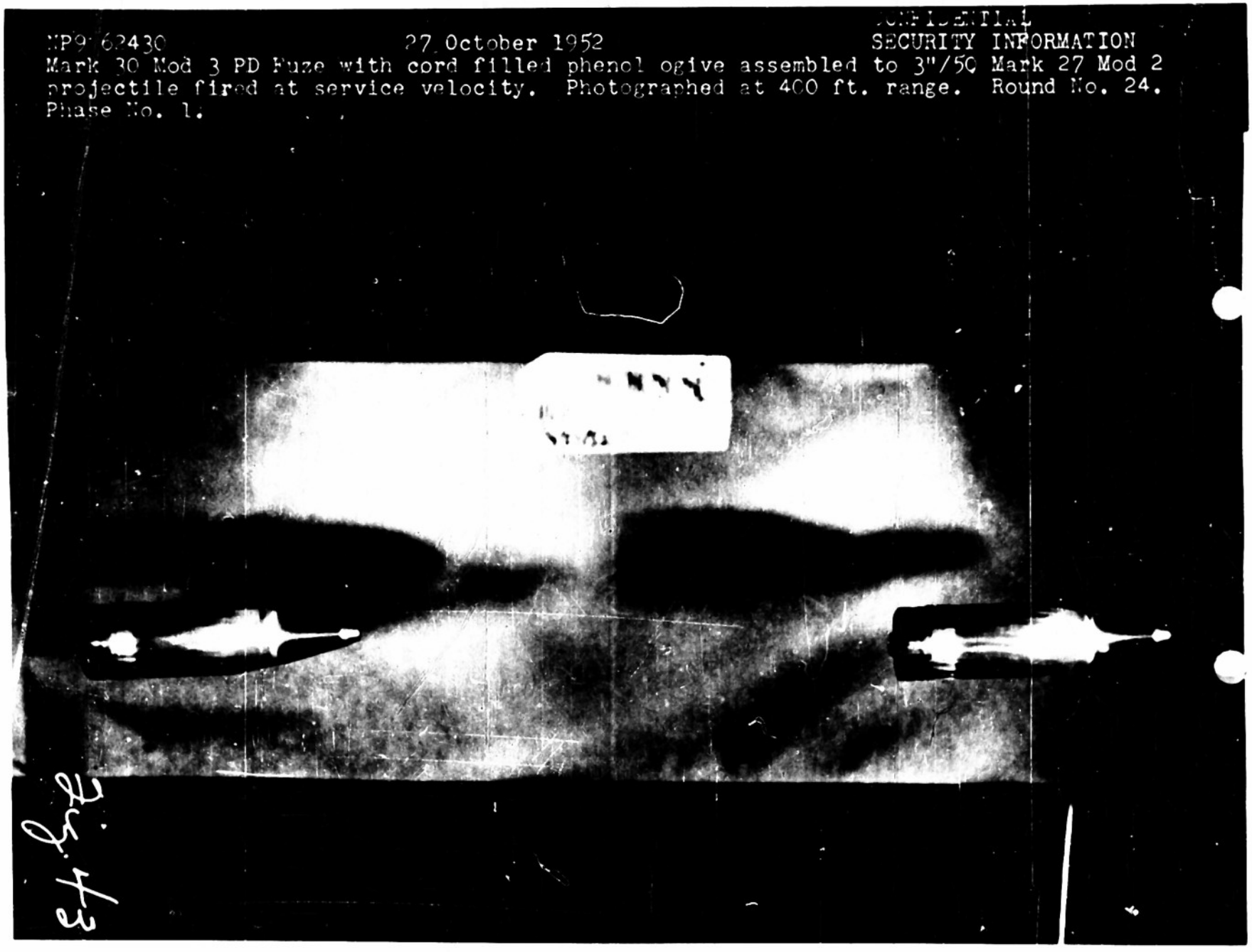
TP9 62429 27 October 1952
Mark 30 Mod 3 PD Fuze with rag filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range., Round No. 23. Phase No. 1.



23-15

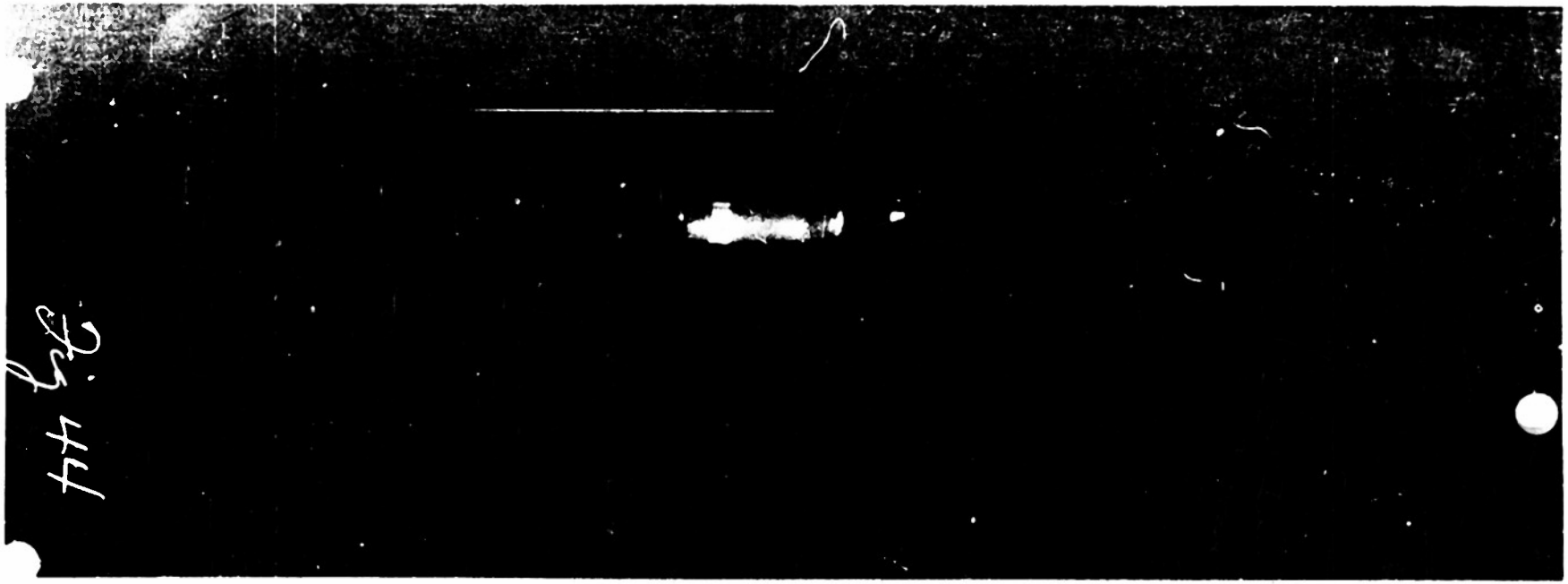
NP9 62430 27 October 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze with cord filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 24. Phase No. 1.



Et. 3rd

NP9 62431 27 October 1952 CONFIDENTIAL
SECURITY INFORMATION
Mark 30 Mod 3 PD Fuze with cord filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 24. Phase No. 1.

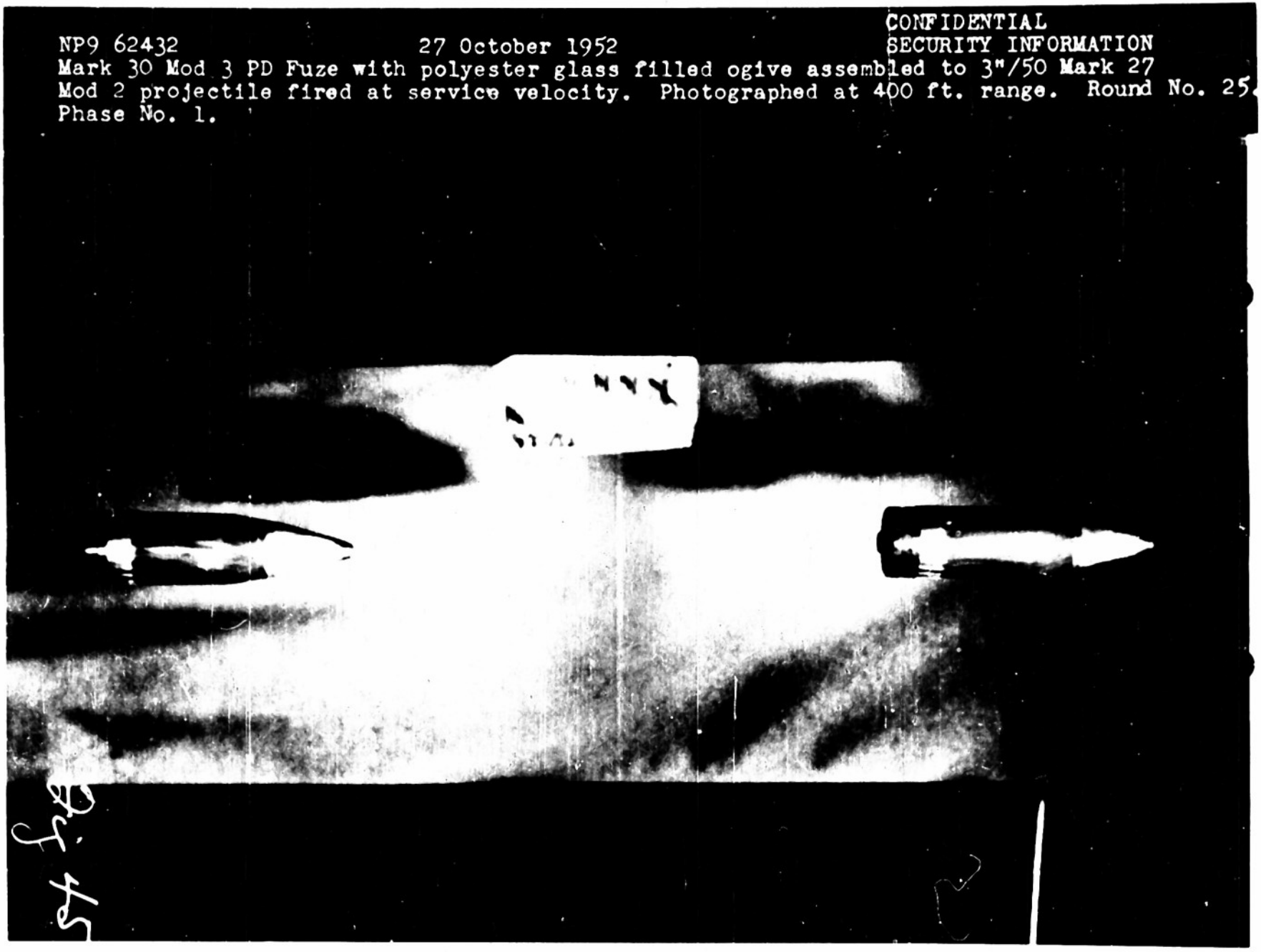


Cut-1

CONFIDENTIAL
SECURITY INFORMATION

NP9 62432 27 October 1952

Mark 30 Mod 3 PD Fuze with polyester glass filled ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 25. Phase No. 1.



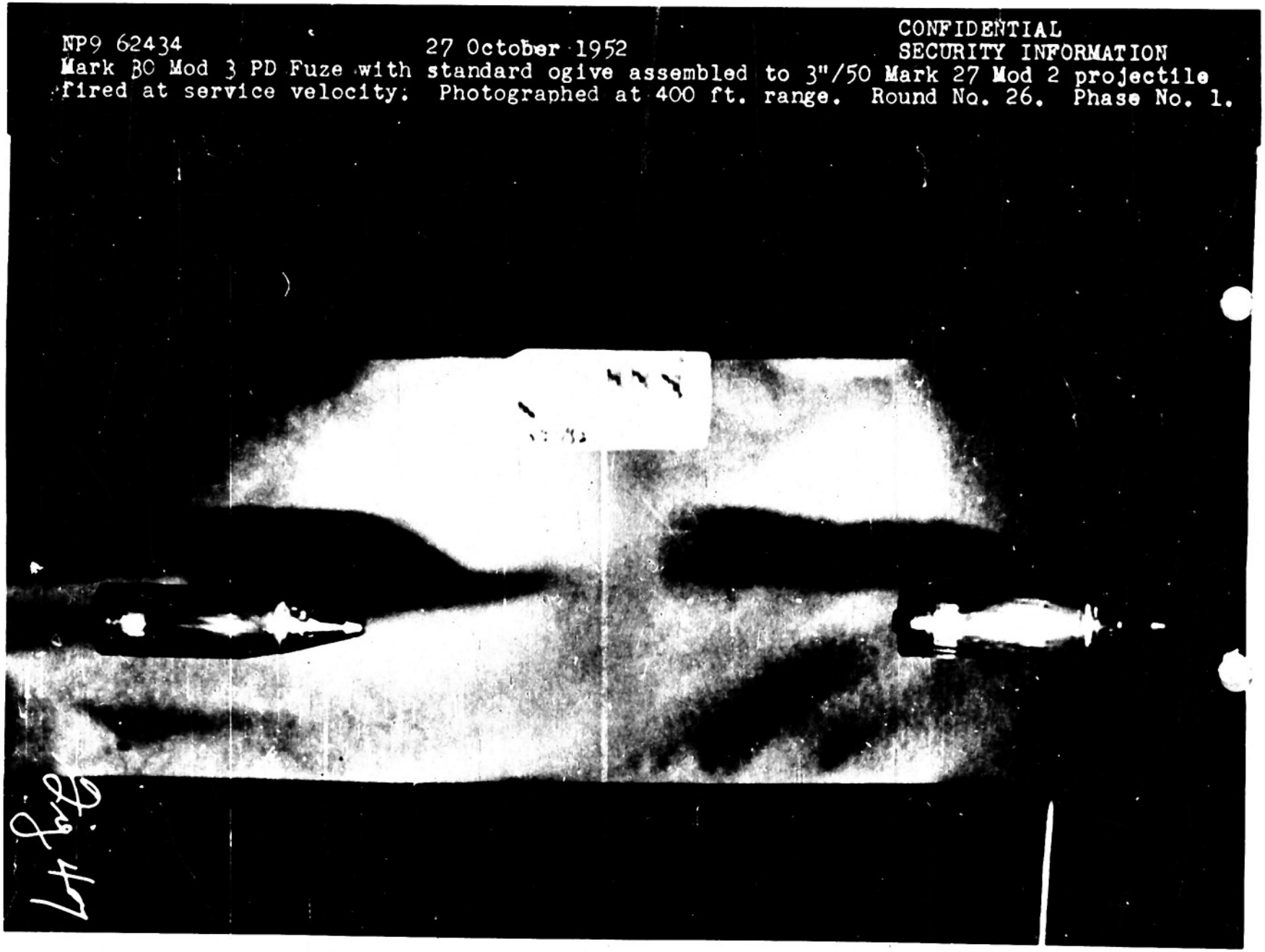
NP9 62433 27 October 1952 CONFIDENTIAL
SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze with polyester glass filled ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 25. Phase No. 1.



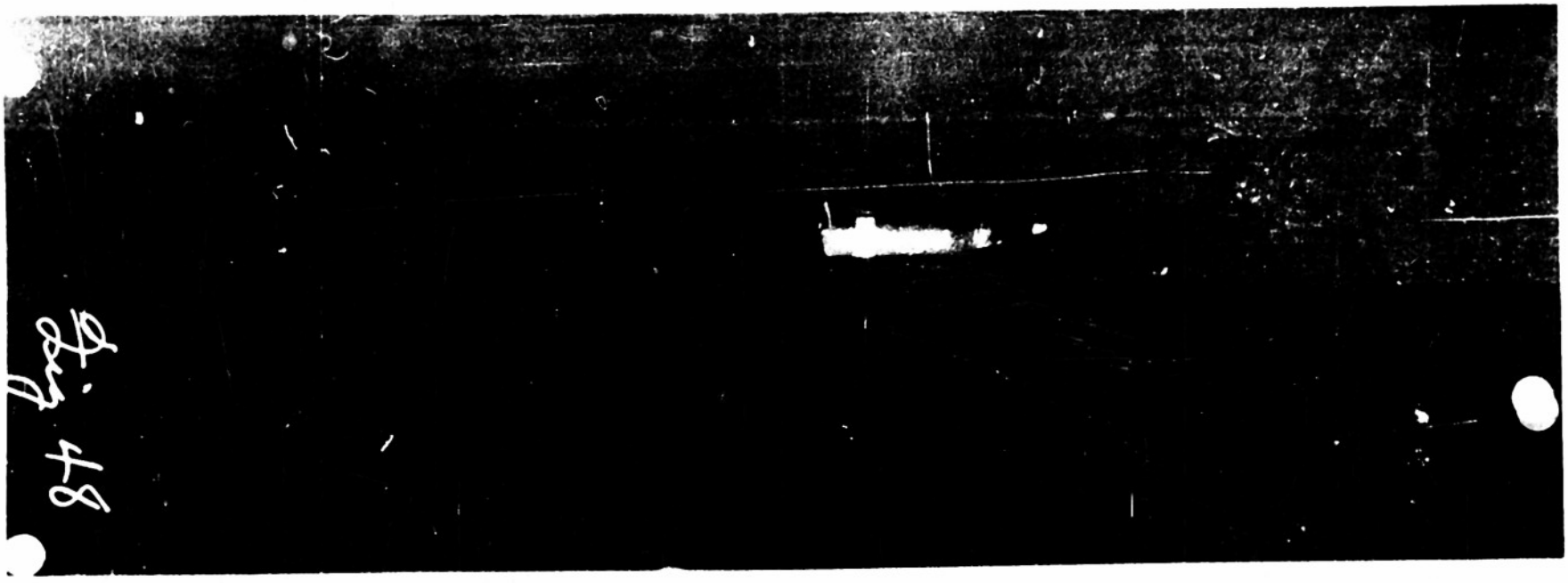
NP9 62434 27 October 1952 CONFIDENTIAL
SECURITY INFORMATION

Mark 80 Mod 3 PD Fuze with standard ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 26. Phase No. 1.



NP9 62435 27 October 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze with standard ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 26. Phase No. 1.



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CONFIDENTIAL
SECURITY INFORMATION

NPG 62436 27 October 1952

Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 27. Phase No. 1.

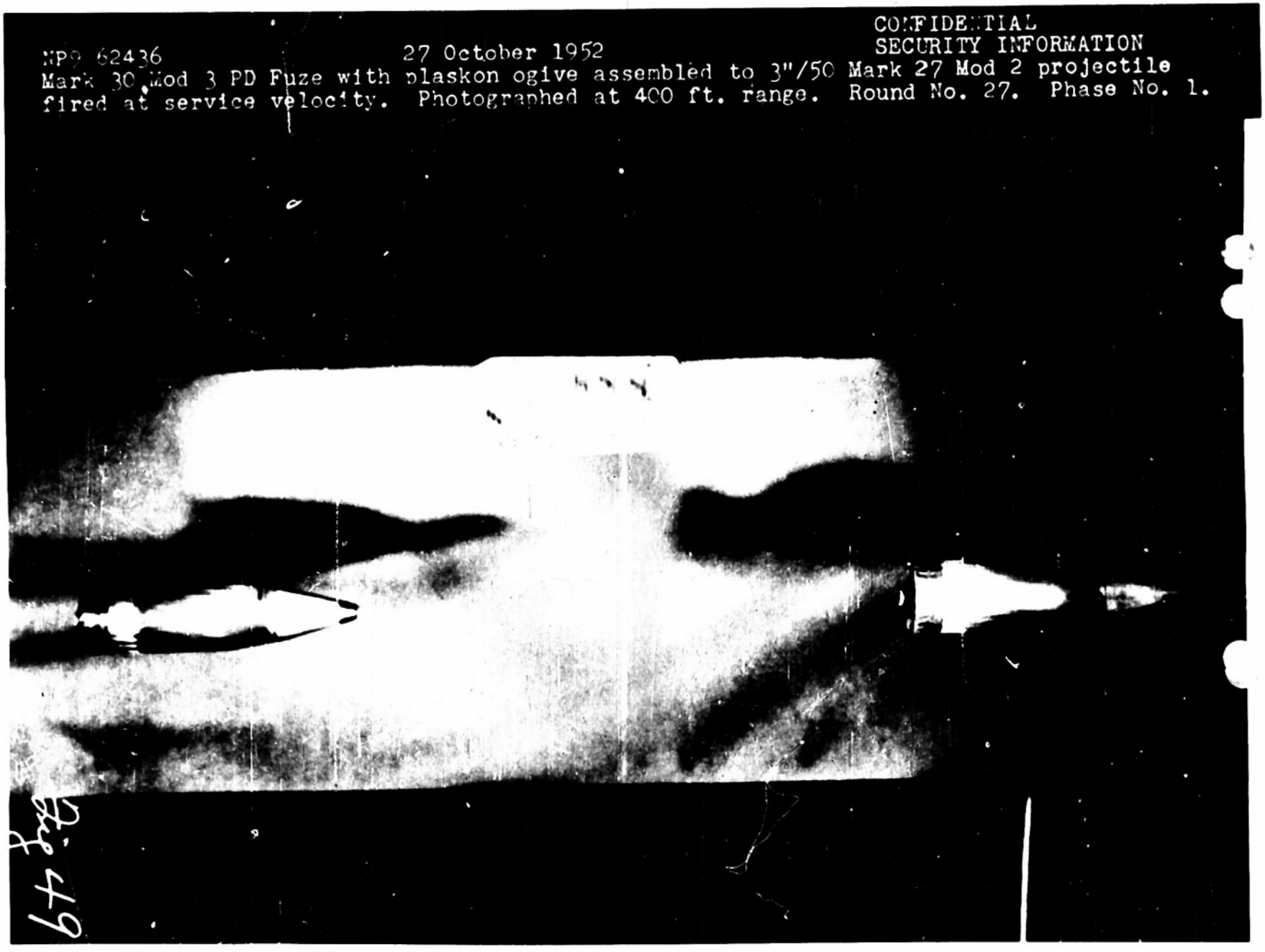
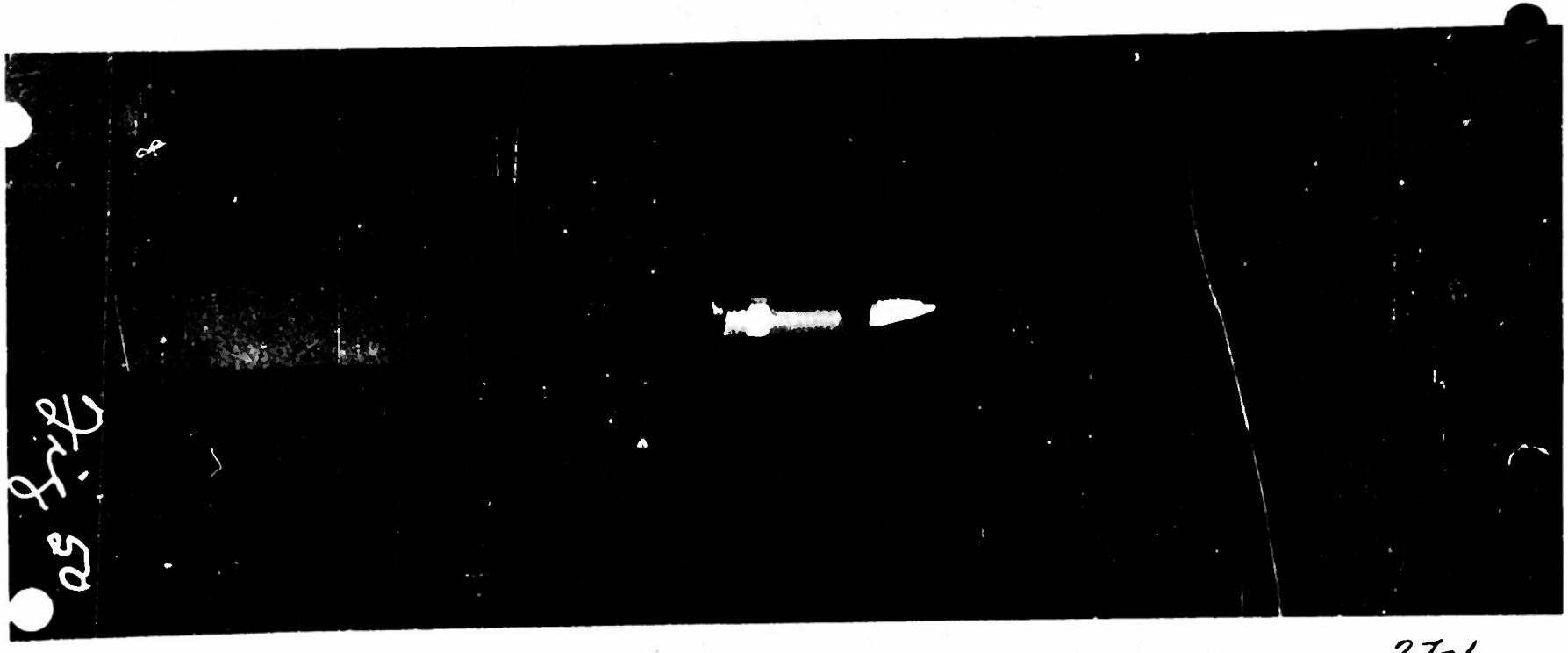


Fig 49

CONFIDENTIAL
SECURITY INFORMATION

NP9 62437 27 October 1952
Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 27. Phase No. 1.

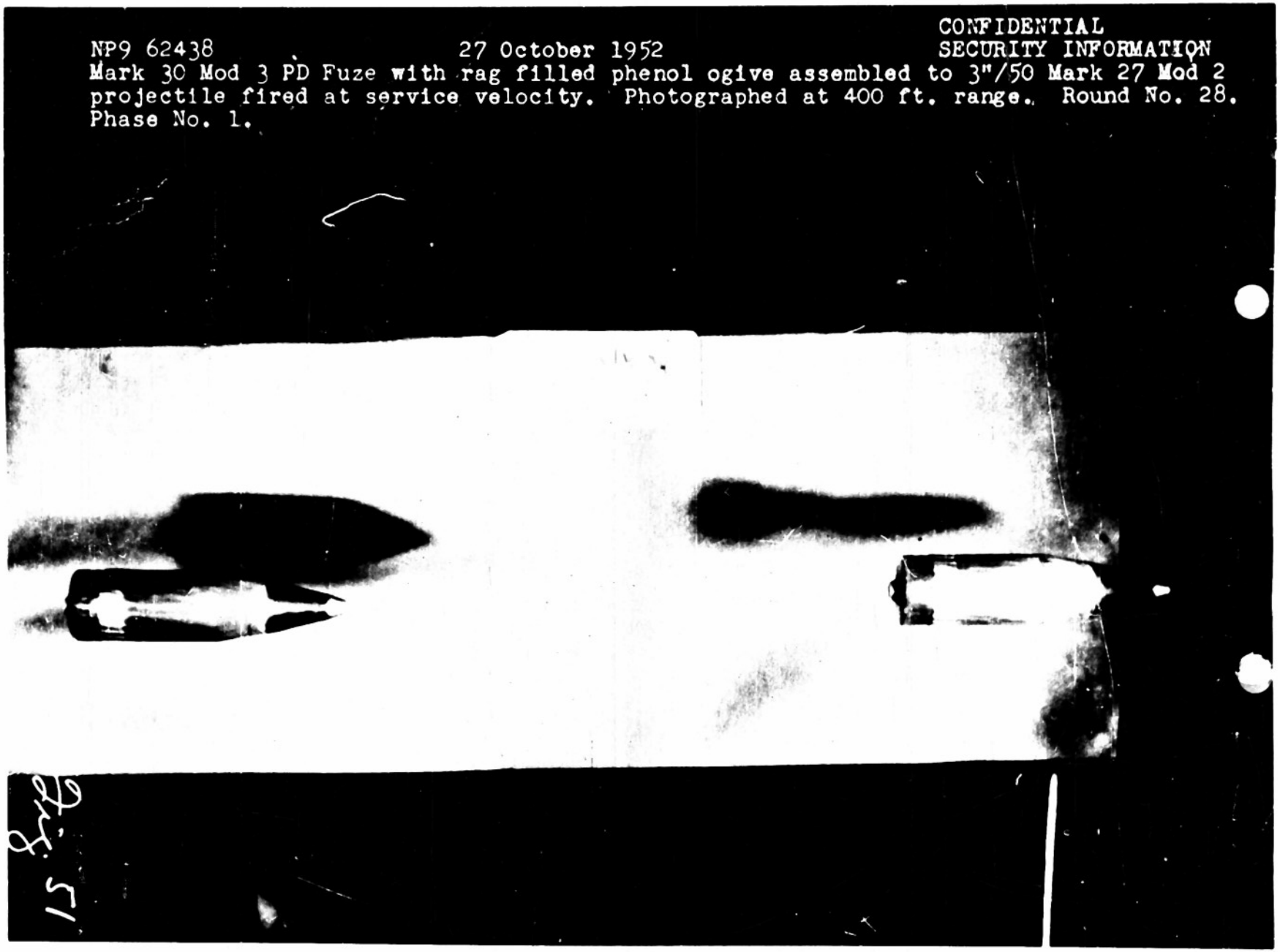


27-1

CONFIDENTIAL
SECURITY INFORMATION

NP9 62438 27 October 1952

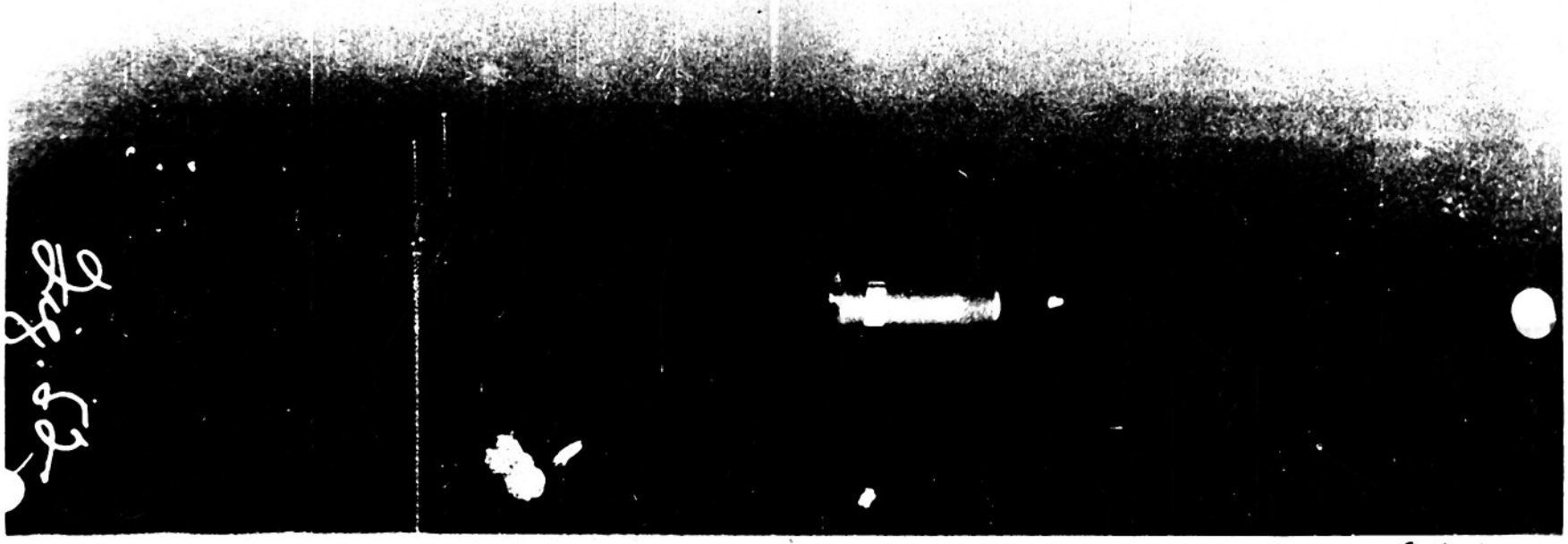
Mark 30 Mod 3 PD Fuze with rag filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 28. Phase No. 1.



CONFIDENTIAL
SECURITY INFORMATION

NP9 62439 27 October 1952

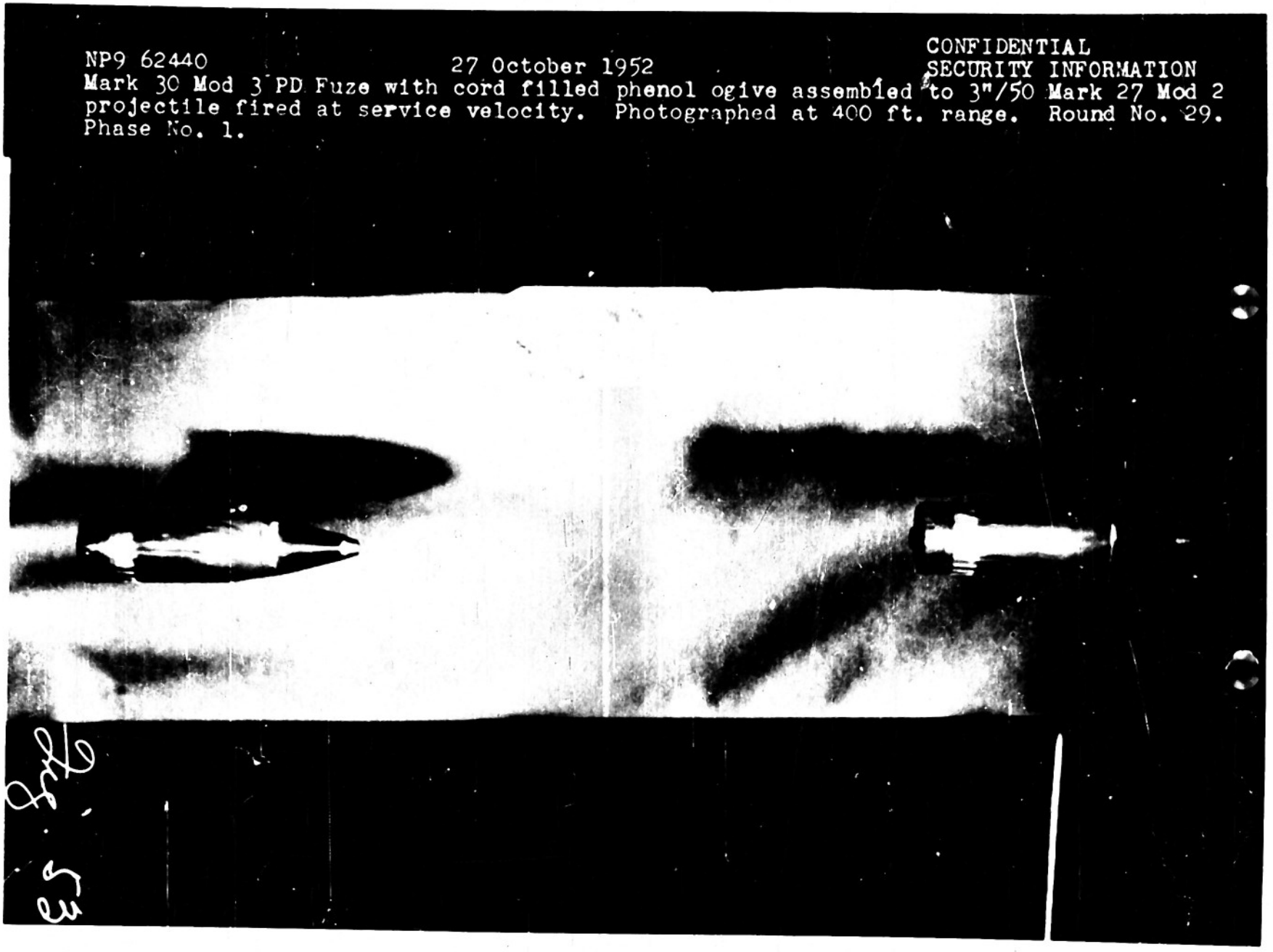
Mark 30 Mod 3 PD Fuze with rag filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 28. Phase No. 1.



NP9 62440 27 October 1952

CONFIDENTIAL
SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze with cord filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 29. Phase No. 1.



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SECURITY INFORMATION

NP9 62441 27 October 1952

Mark 30 Mod 3 PD Fuze with cord filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 29. Phase No. 1.

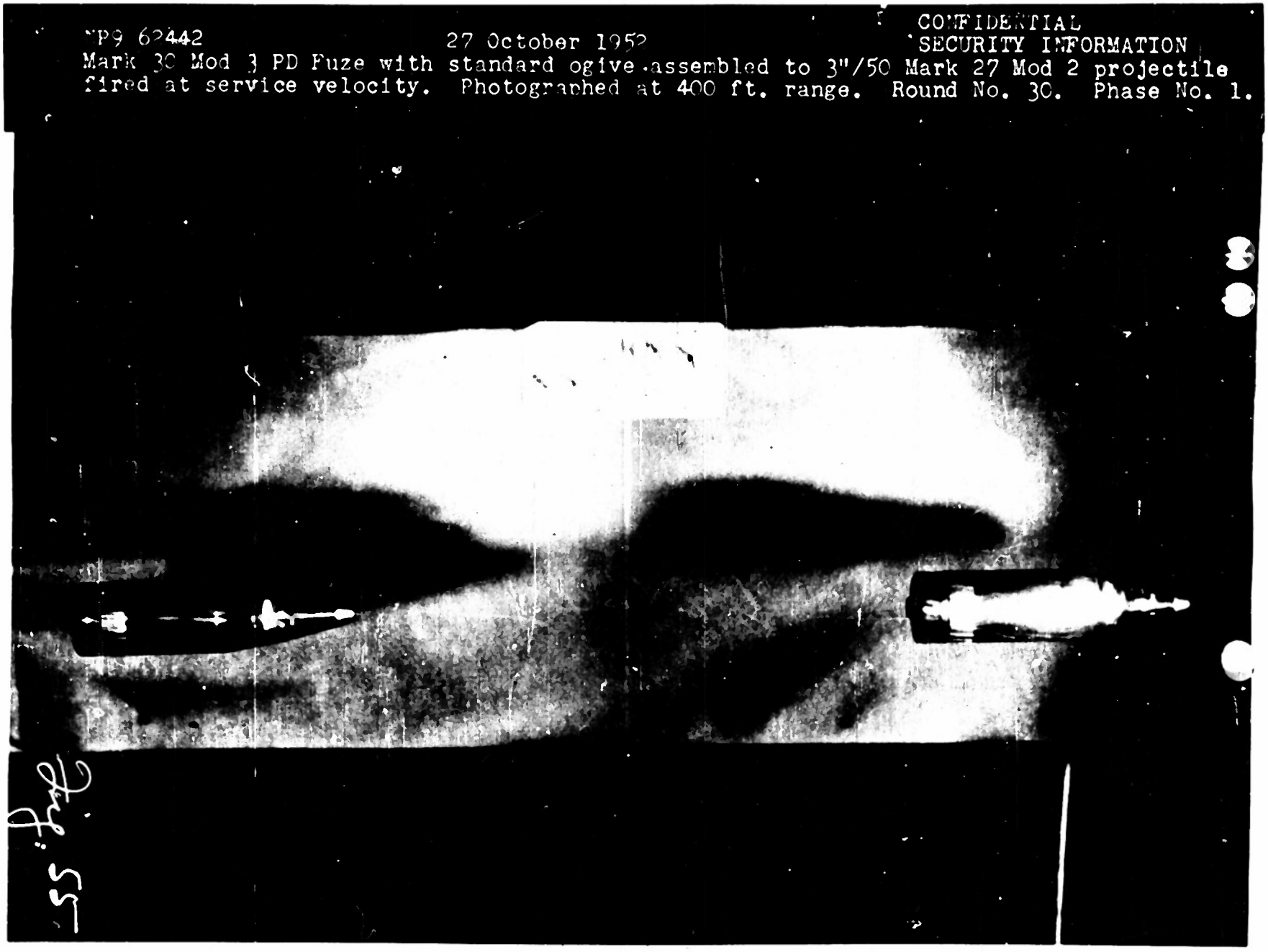


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CONFIDENTIAL
SECURITY INFORMATION

TP9 62442 27 October 1952

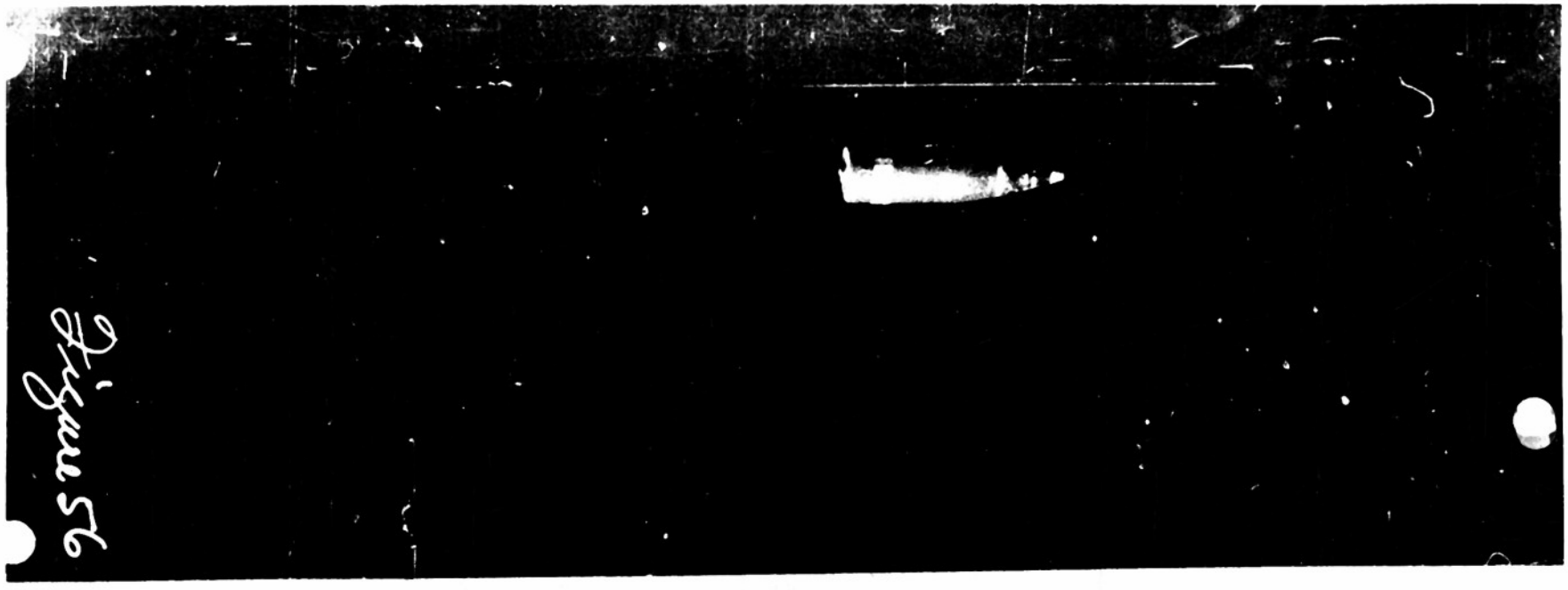
Mark 30 Mod 3 PD Fuze with standard ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 30. Phase No. 1.



55 ft.

NP9 62443 27 October 1952 CONFIDENTIAL SECURITY INFORMATION

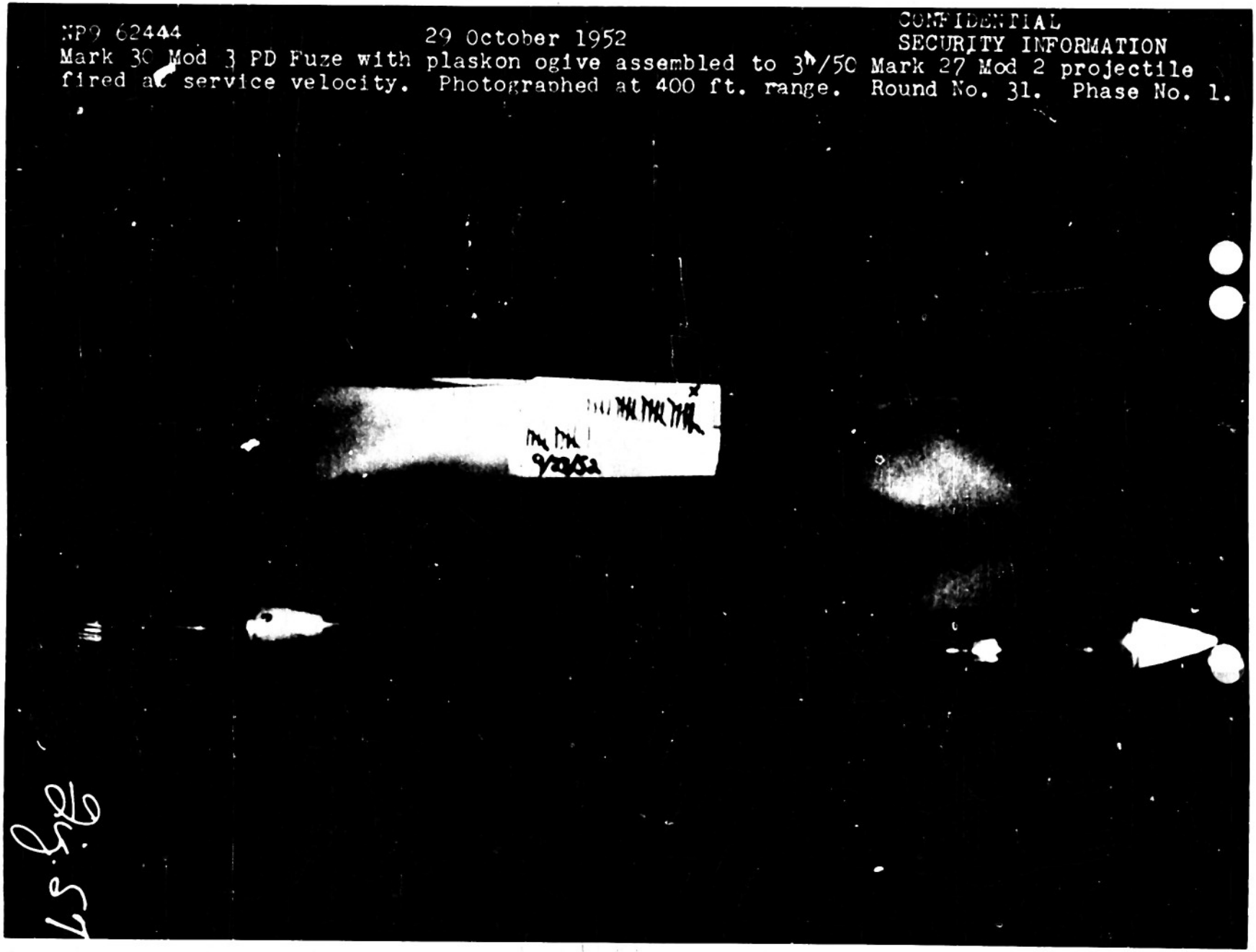
Mark 30 Mod 3 PD Fuze with standard ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 30. Phase No. 1.



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XP9 62444 29 October 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 31. Phase No. 1.



CONFIDENTIAL
SECURITY INFORMATION

NP9 62445 29 October 1952
Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 31. Phase No. 1.

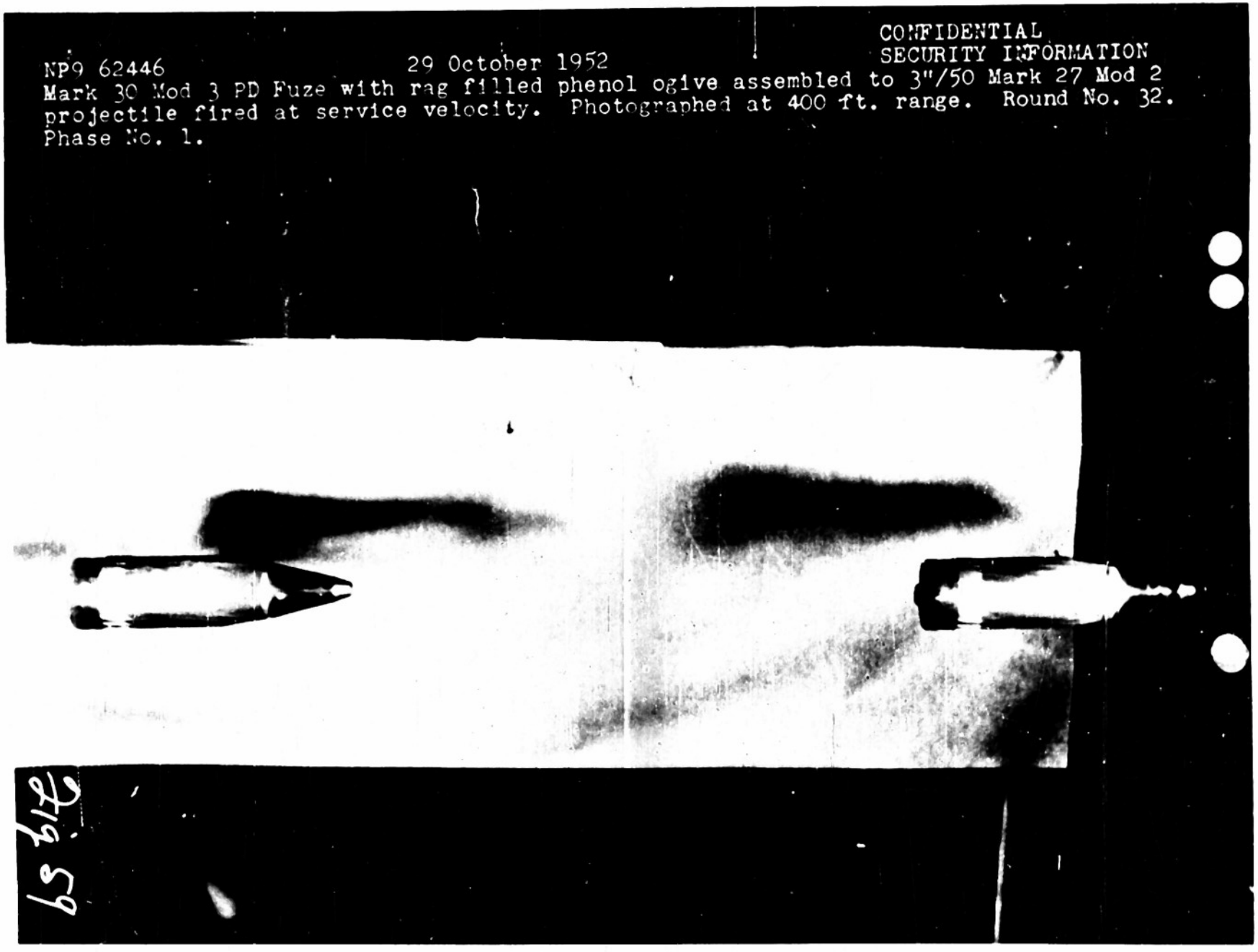


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CONFIDENTIAL
SECURITY INFORMATION

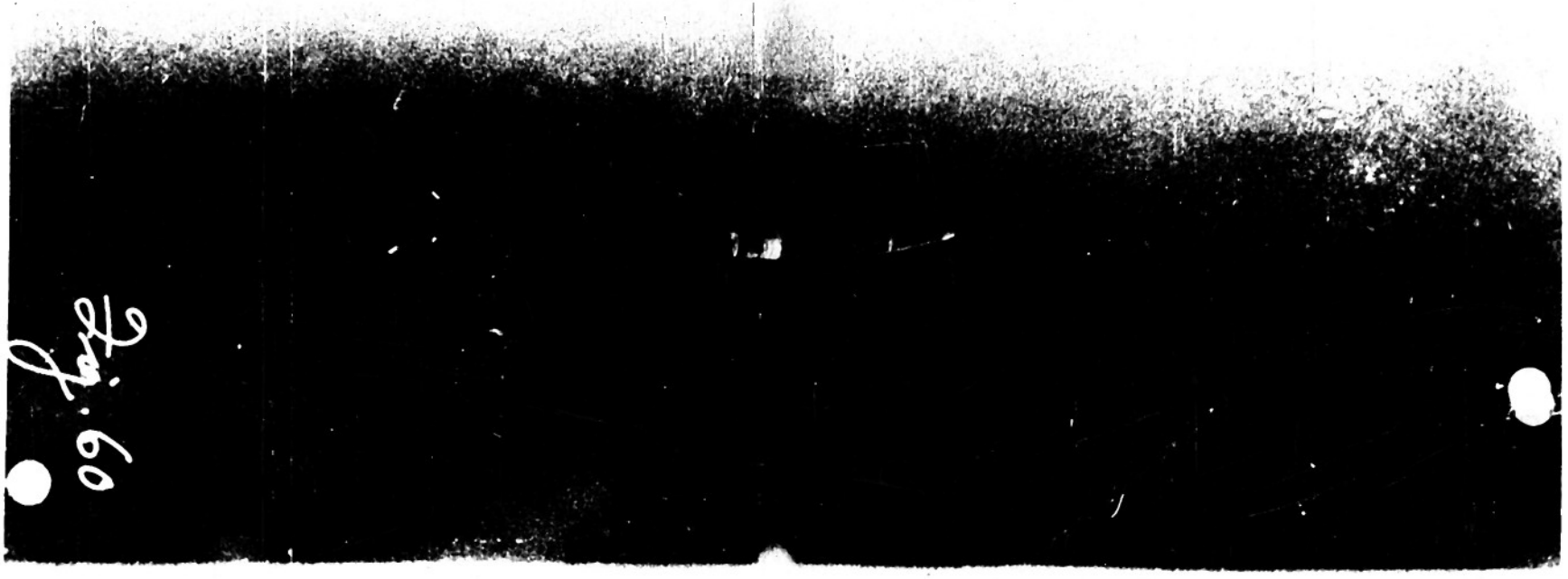
NP9 62446 29 October 1952

Mark 30 Mod 3 PD Fuze with rag filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 32. Phase No. 1.



NP9 62447 29 October 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze with rag filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 32. Phase No. 1.



NP9 62448 29 October 1952 CONFIDENTIAL
SECURITY INFORMATION

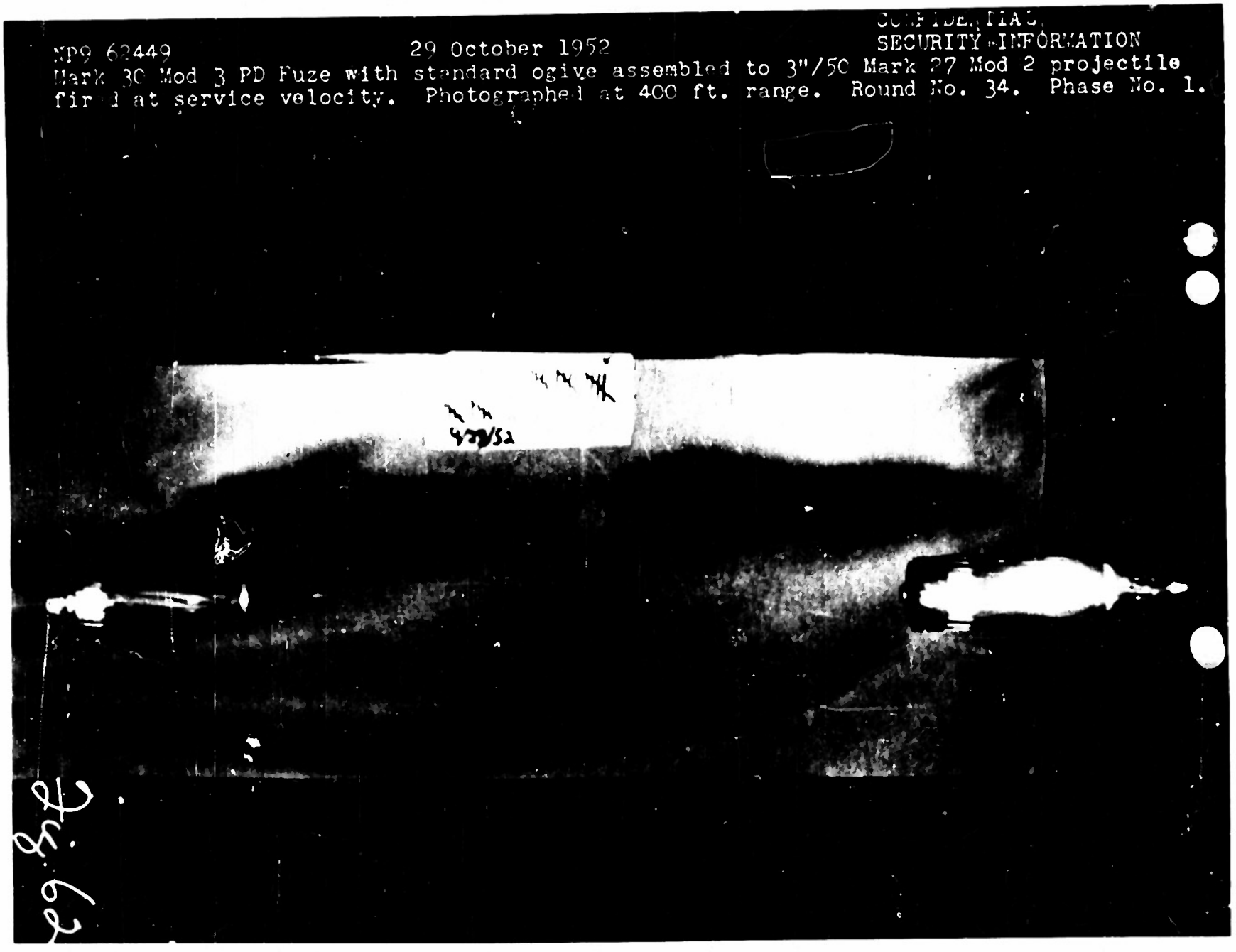
Mark 30 Mod 3 PD Fuze with cord filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 33. Phase No. 1.



CONFIDENTIAL
SECURITY INFORMATION

XP9 62449 29 October 1952

Mark 30 Mod 3 PD Fuze with standard ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 34. Phase No. 1.



CONFIDENTIAL
SECURITY INFORMATION

NP9 62450 29 October 1952
Mark 30 Mod 3 PD Fuze with standard ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 34. Phase No. 1.



37-2

CONFIDENTIAL
SECURITY INFORMATION

P- 62451 29 October 1952

Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 35. Phase No. 1.

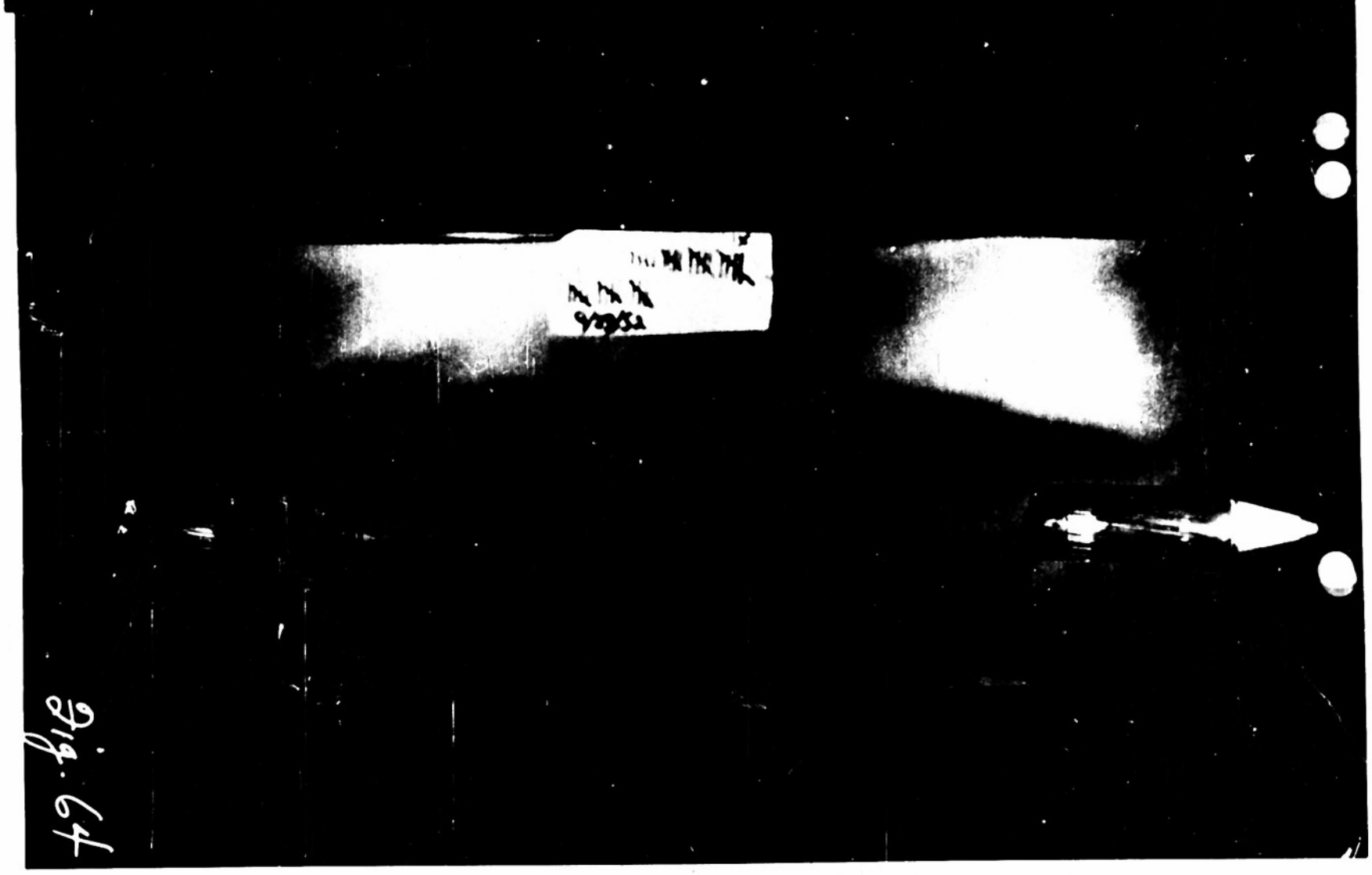
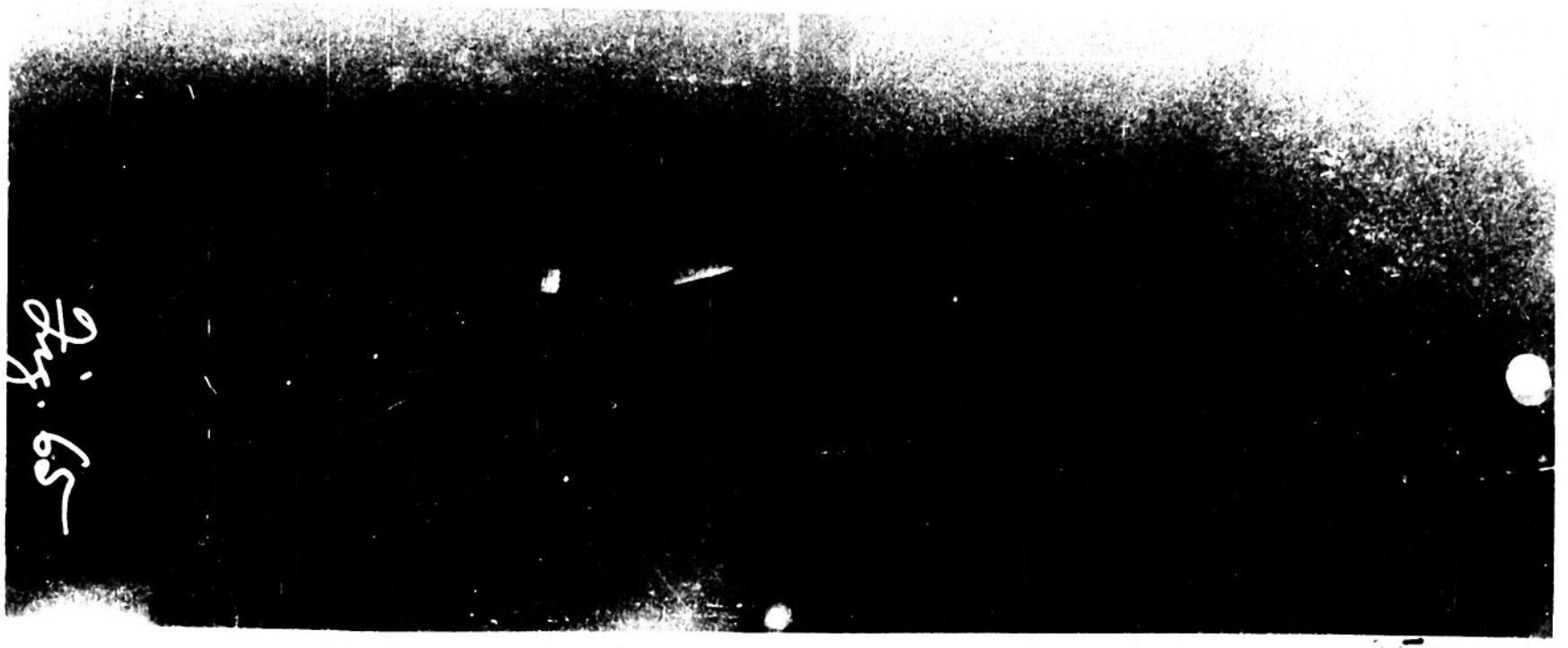


Fig. 64

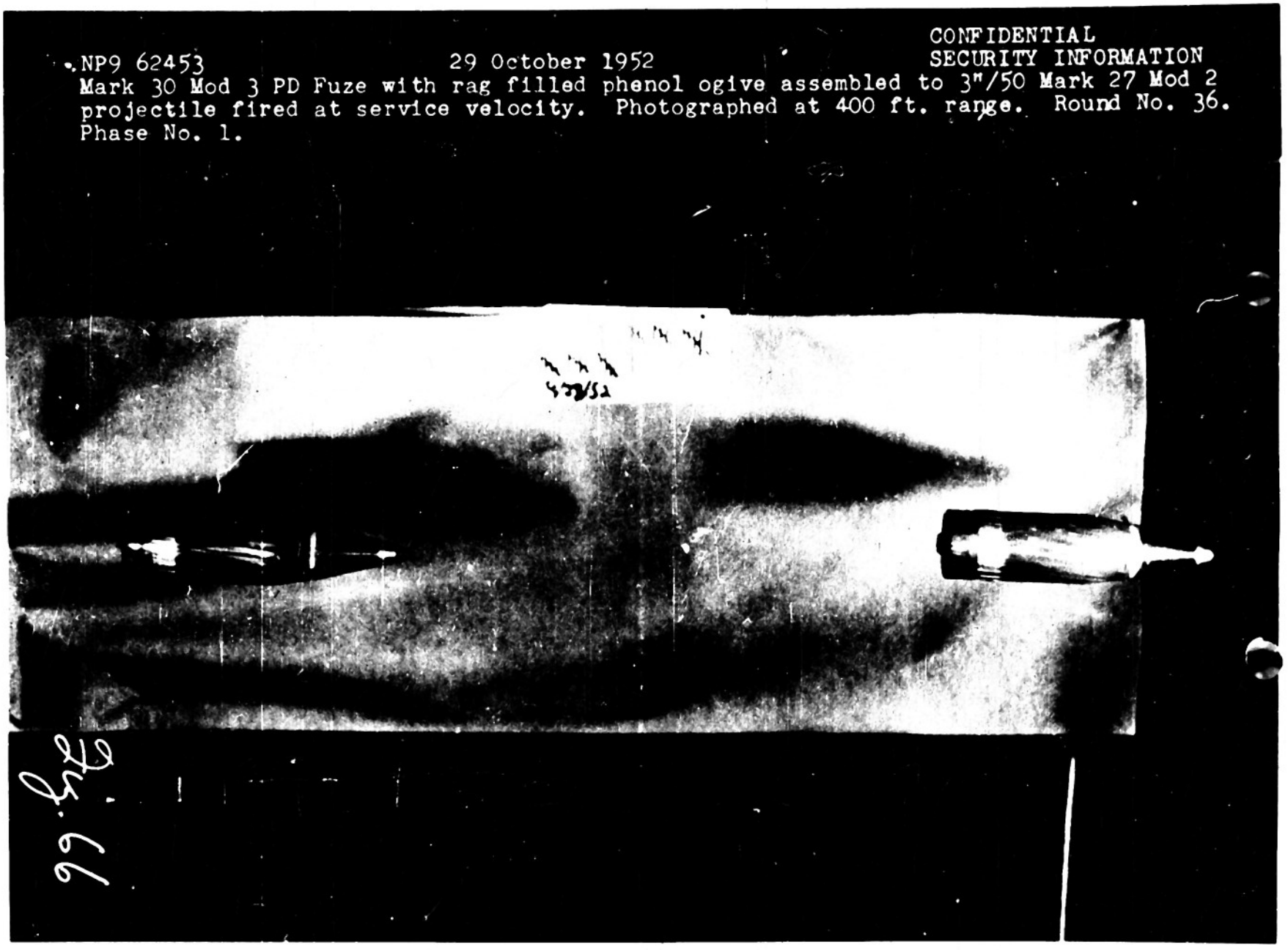
NP9 62452 29 October 1952 CONFIDENTIAL SECURITY INFORMATION
Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 35. Phase No. 1.



CONFIDENTIAL
SECURITY INFORMATION

NP9 62453 29 October 1952

Mark 30 Mod 3 PD Fuze with rag filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 36. Phase No. 1.



NP9 62454 29 October 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze with rag filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 36. Phase No. 1.



36-1

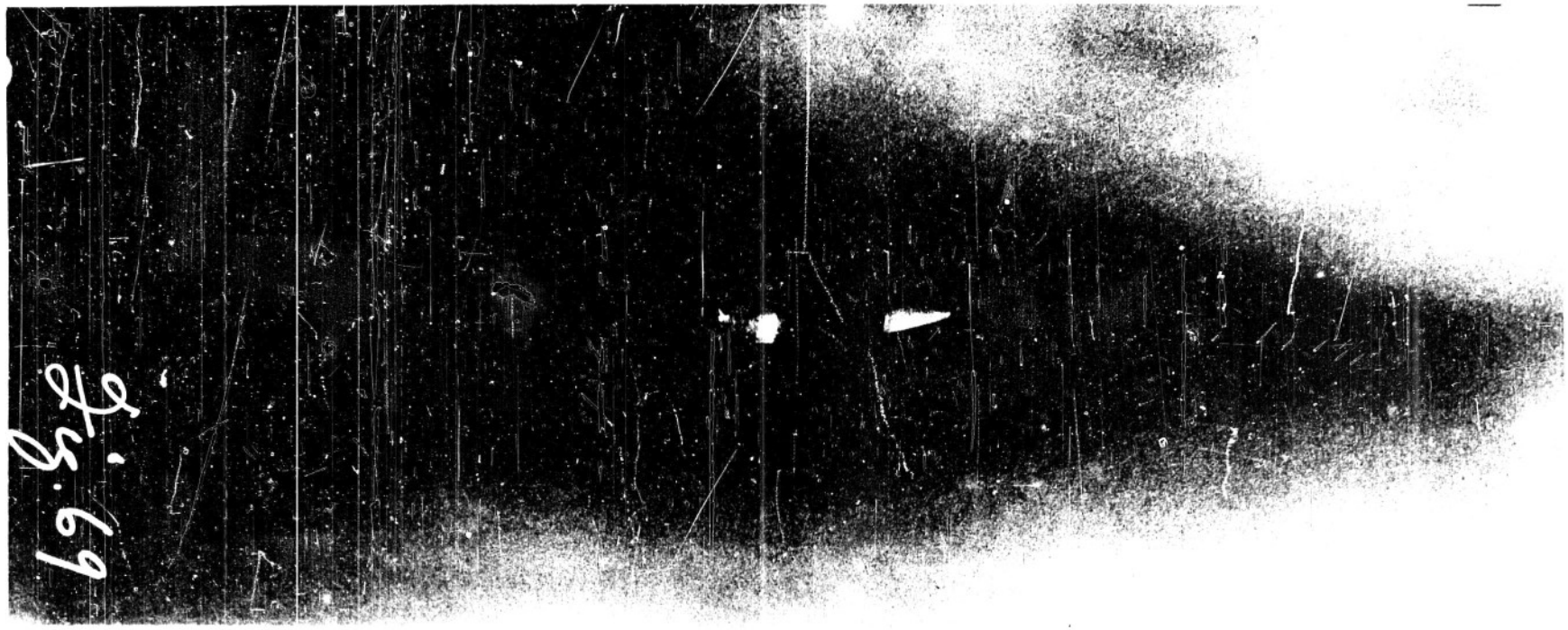
CONFIDENTIAL
SECURITY INFORMATION

NPG 62455 29 October 1952
Mark 30 Mod 3 PD Fuze with cord filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 37. Phase No. 1.



CONFIDENTIAL
SECURITY INFORMATION

P9 62456 29 October 1952
Mark 30 Mod 3 PD Fuze with polyester glass filled ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 3 Phase No. 1.



38-1

CONFIDENTIAL
SECURITY INFORMATION

:P9 62457 29 October 1952
Mark 30 Mod 3 PD Fuze with standard ogive assembled to 3"/50 Mark 27 Mod 2 projectile
fired at service velocity. Photographed at 1000 ft. range. Round No. 39. Phase No. 1.



31-1

NP9 62458
Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 40. Phase No. 1.

30 October 1952

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SECURITY INFORMATION

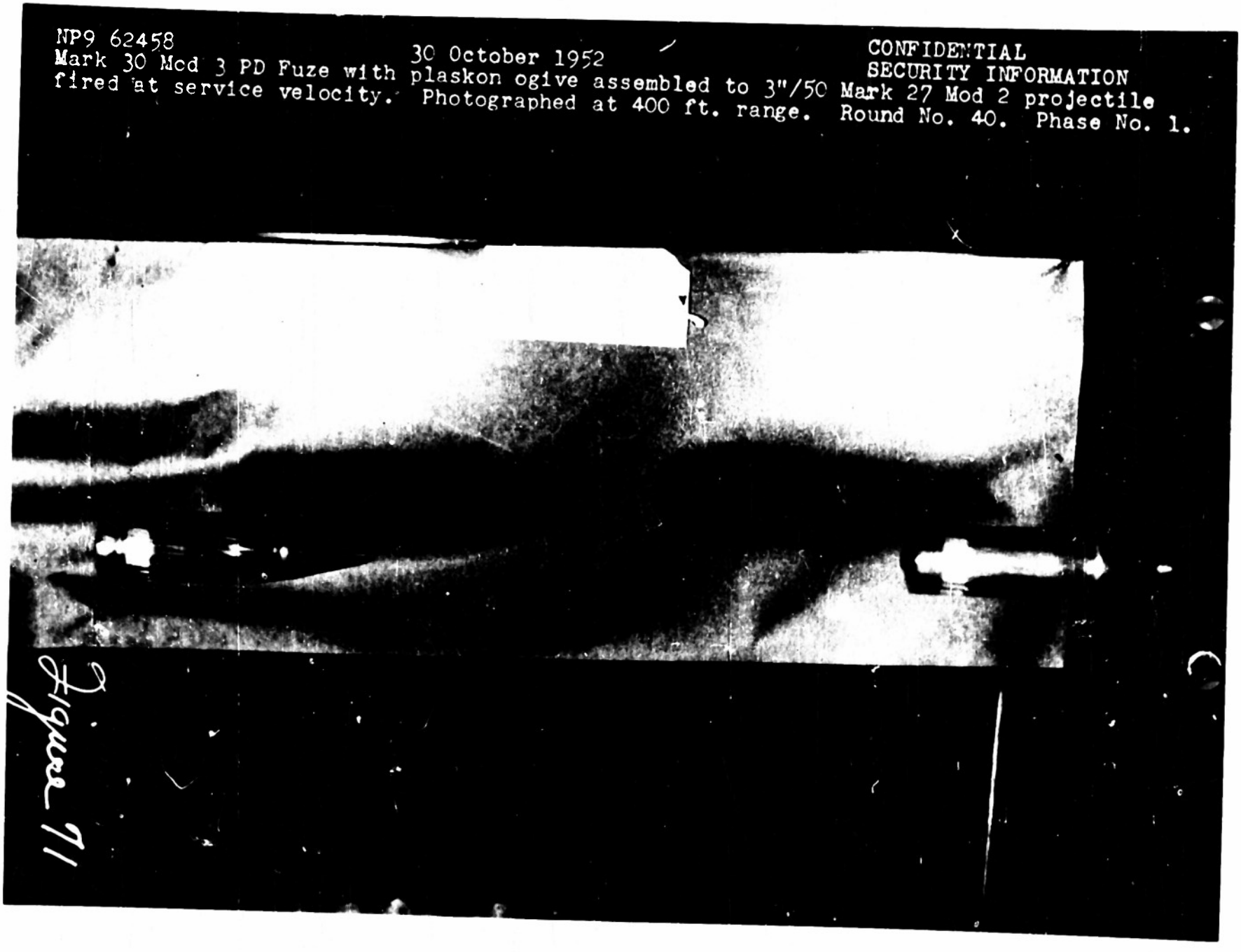


Figure 11

NP9 62459 30 October 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 40. Phase No. 1.



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CONFIDENTIAL
SECURITY INFORMATION

NP9 62460 30 October 1952

Mark 30 Mod 3 PD Fuze with rag filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 41. Phase No. 1.

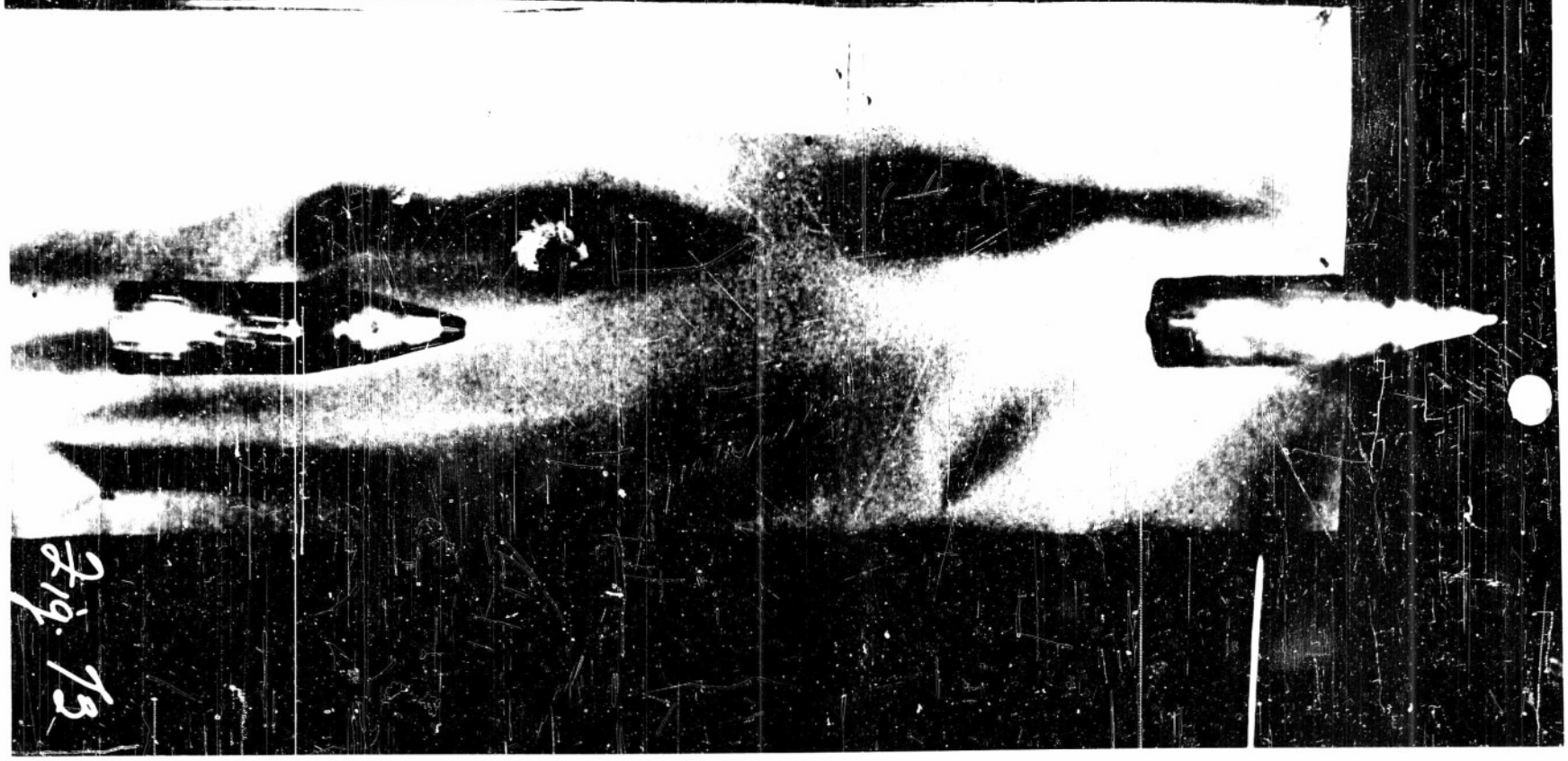


Fig. 13

NP9 62461. 30 October 1952 CONFIDENTIAL SECURITY INFORMATION
Mark 30 Mod 3 PD Fuze with rag filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 41. Phase No. 1.

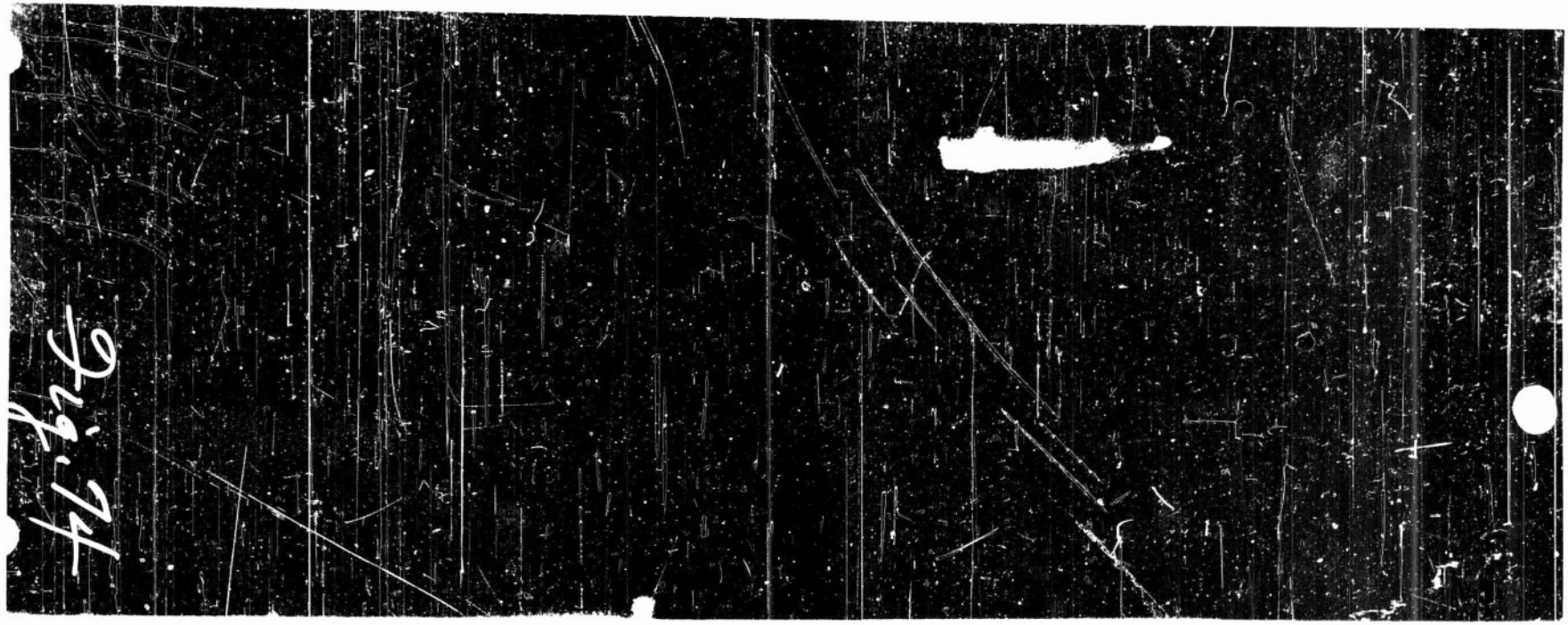
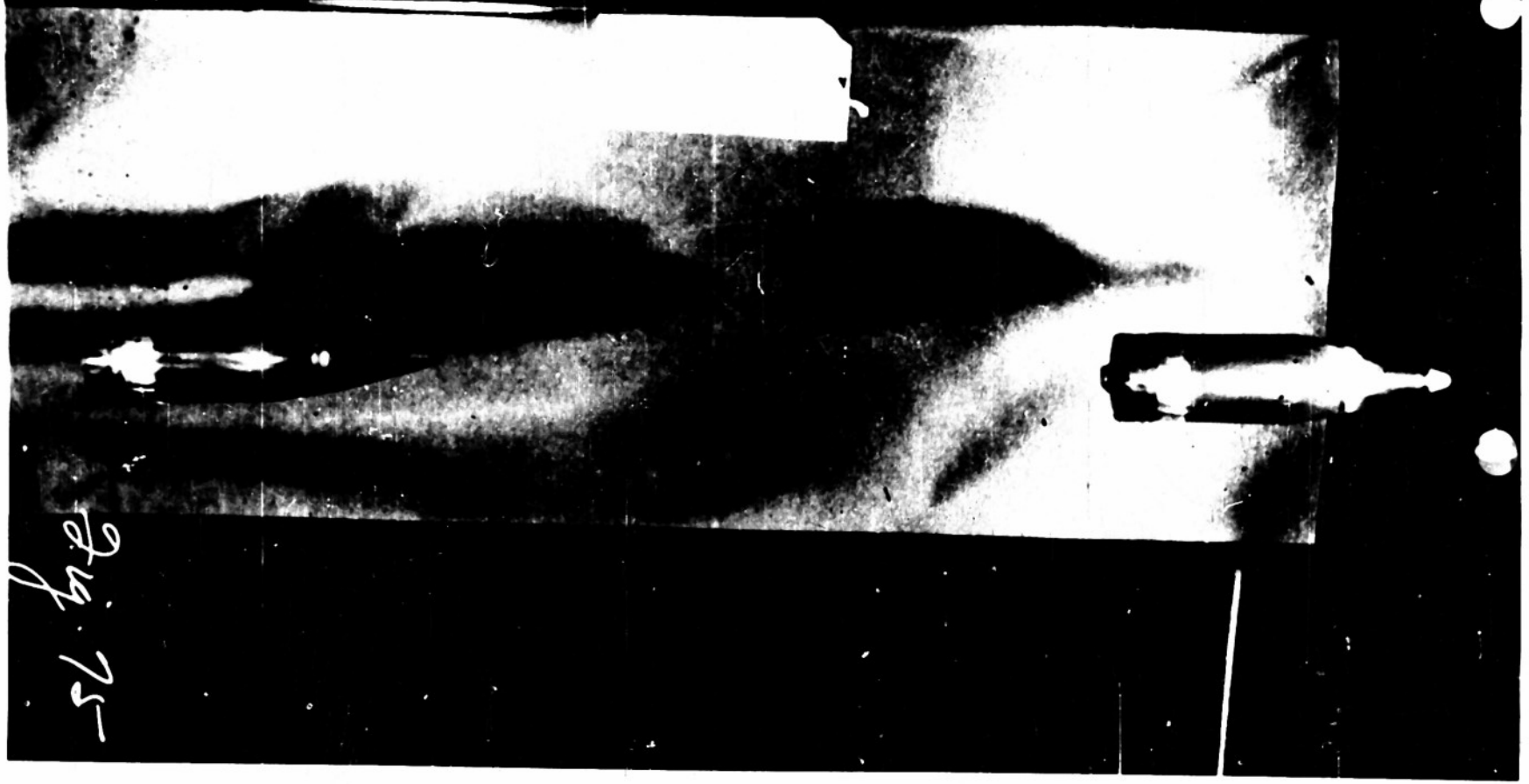


Fig. 74

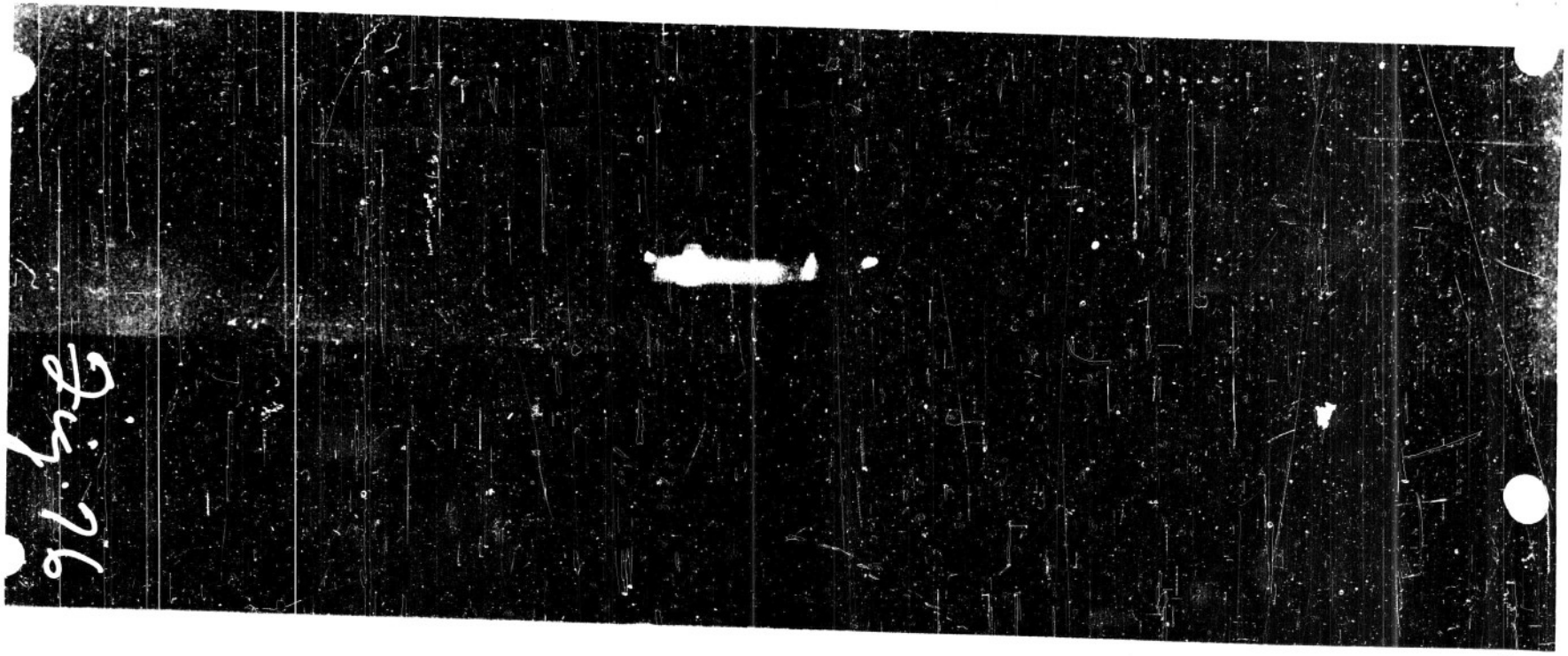
41

NP9 62462 30 October 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze with cord filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 42. Phase No. 1.



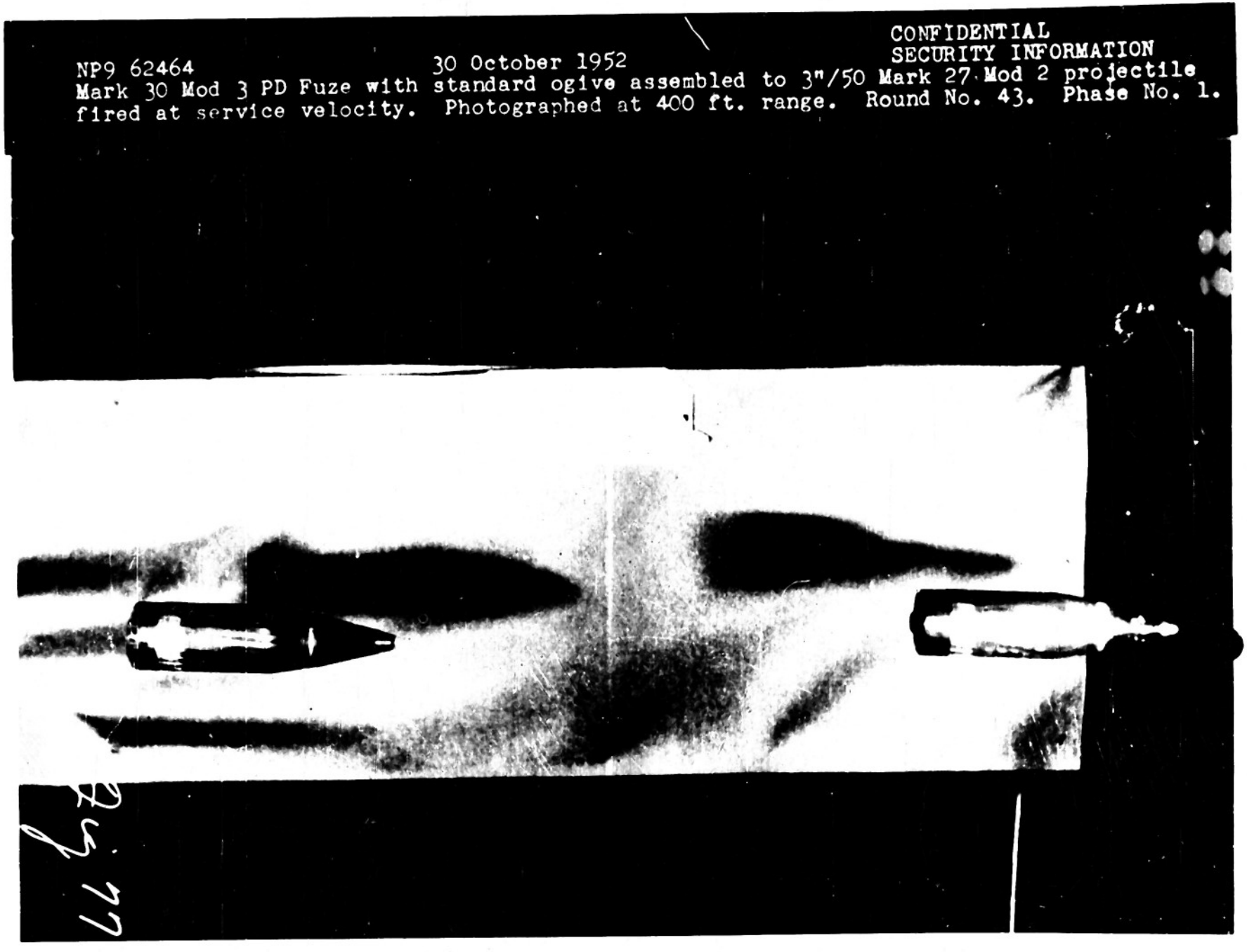
NP9 62463 30 October 1952 CONFIDENTIAL SECURITY INFORMATION
Mark 30 Mod 3 PD Fuze with cord filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 42. Phase No. 1.



42

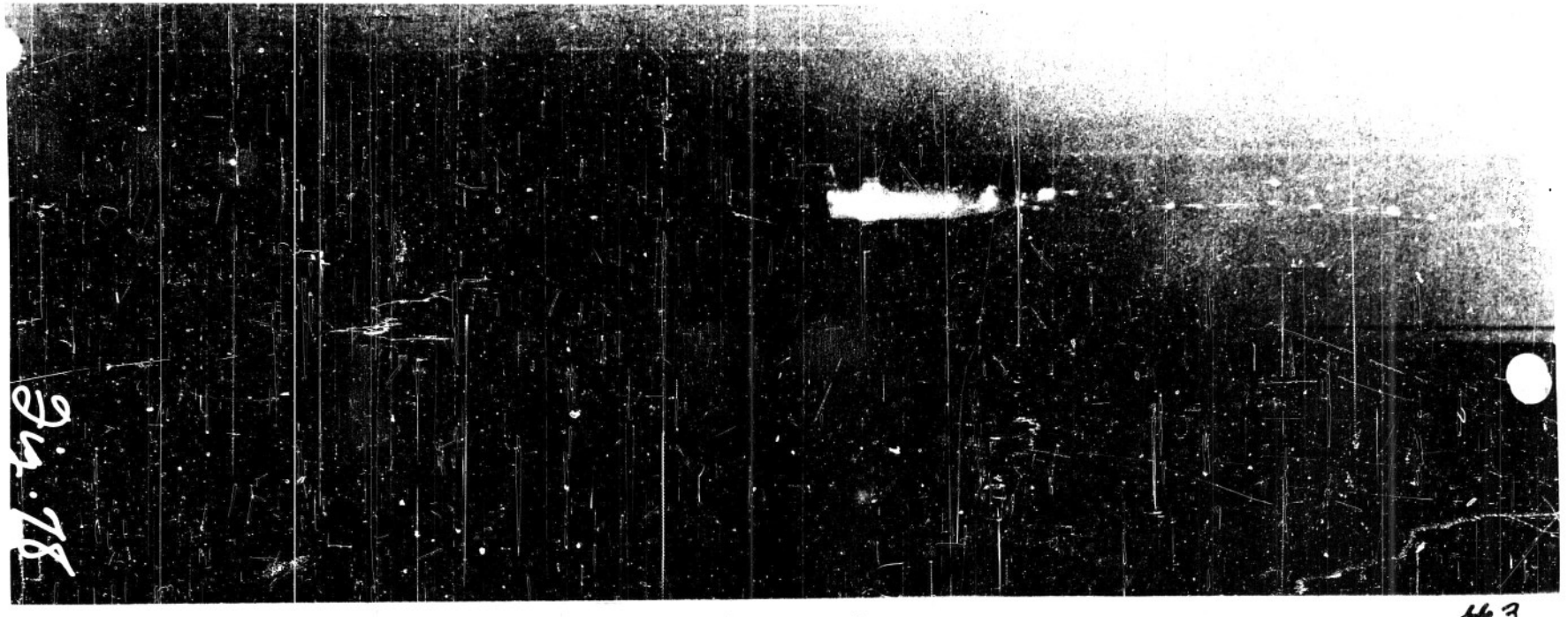
CONFIDENTIAL
SECURITY INFORMATION

NP9 62464 30 October 1952
Mark 30 Mod 3 PD Fuze with standard ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 43. Phase No. 1.



CONFIDENTIAL
SECURITY INFORMATION

EP9 6240 30 October 1952
Mark 30 Mod 3 TD [illegible] with standard ogive assembled to 3"/50 Mark 27 Mod 2 projectile
fired at service velocity. Photographed at 1000 ft. range. Round No. 43. Phase No. 1.

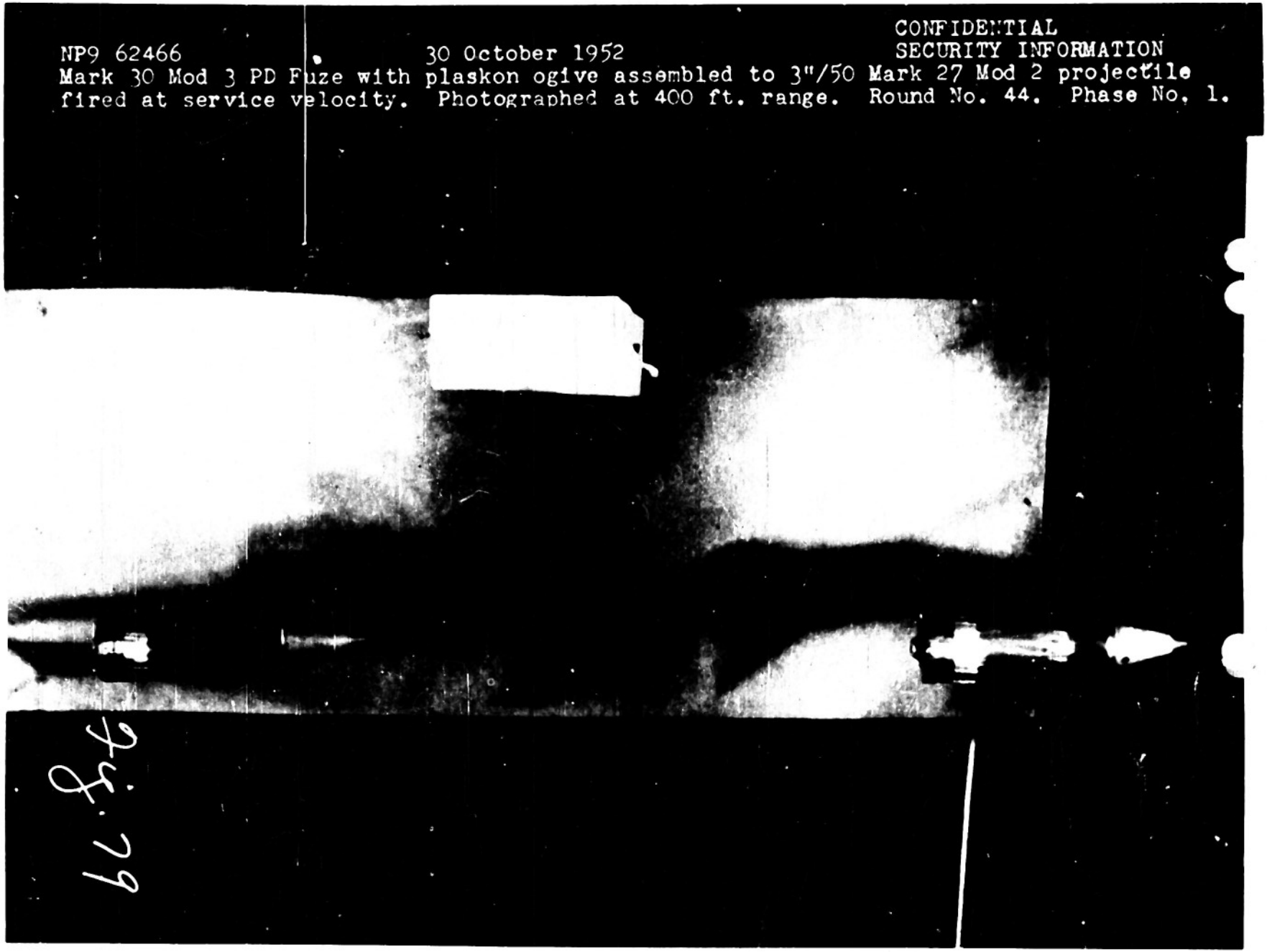


43

CONFIDENTIAL
SECURITY INFORMATION

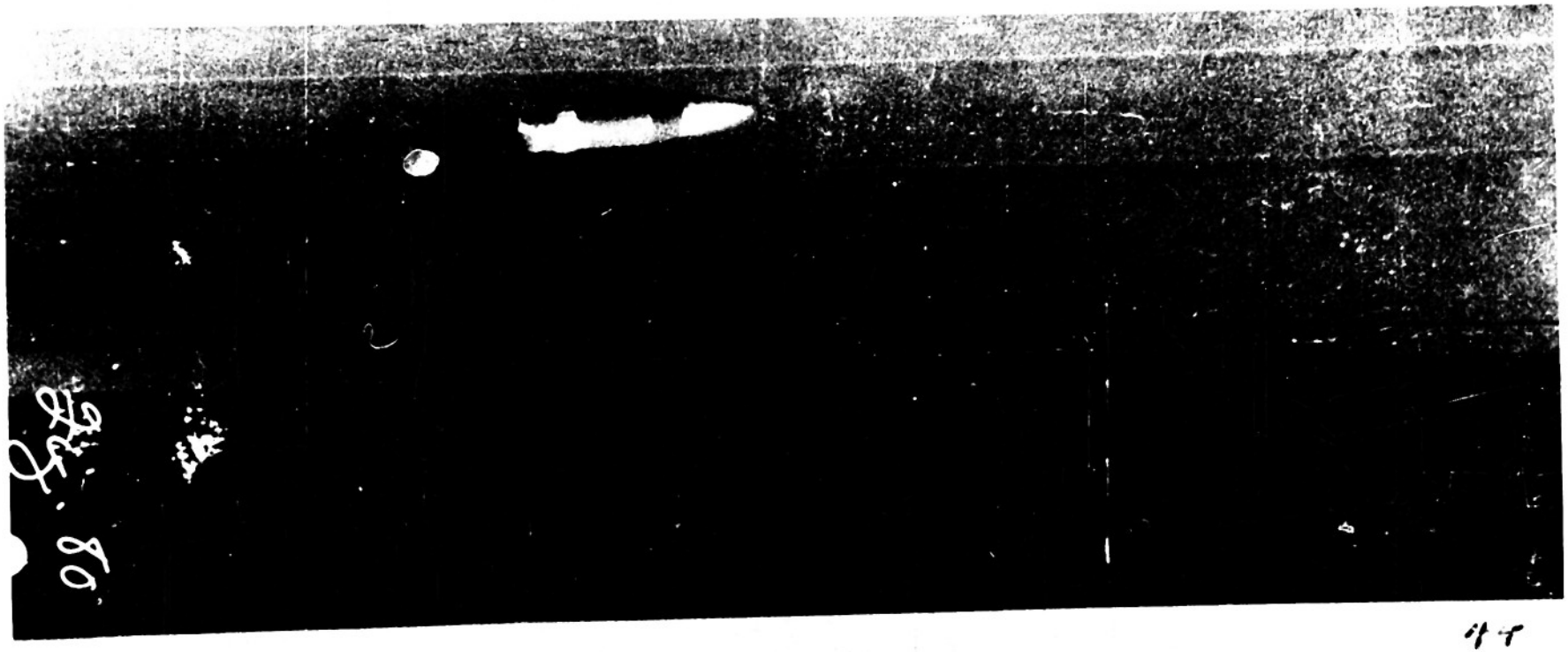
NP9 62466 30 October 1952

Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 44. Phase No. 1.



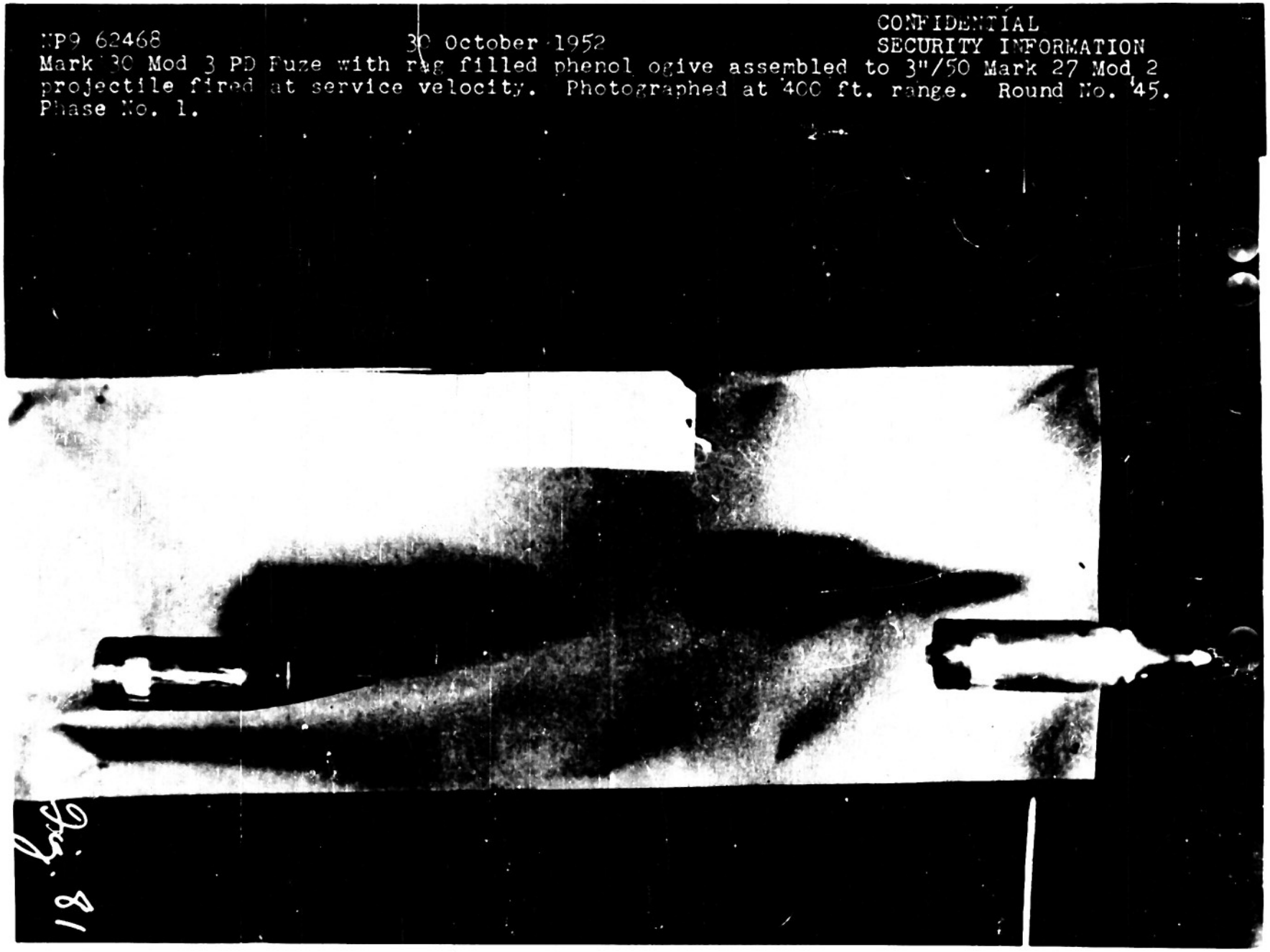
97.79

NP9 62467 30 October 1952 CONFIDENTIAL
SECURITY INFORMATION
Mark 30 Mod 3 PD Fuze with plaskon ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 44. Phase No. 1.



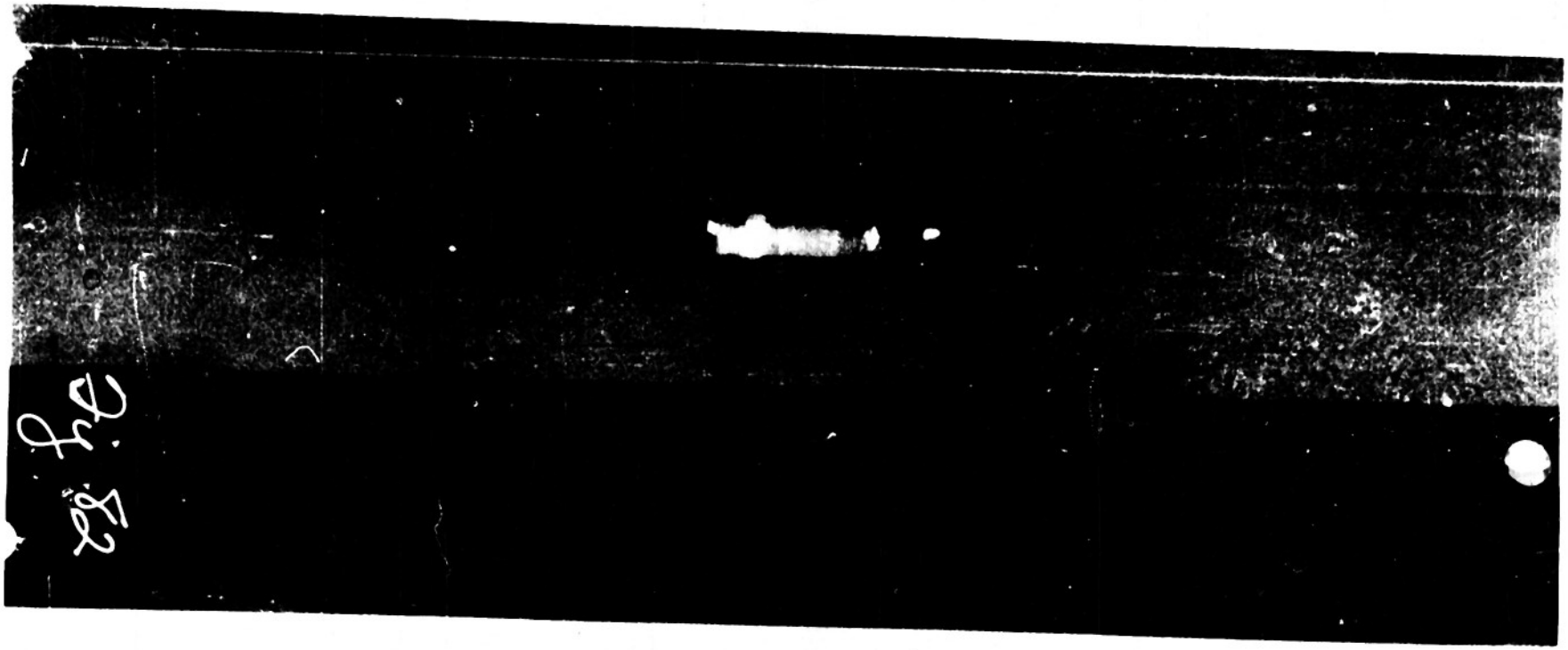
NP9 62468 30 October 1952 CONFIDENTIAL
SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze with rag filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 400 ft. range. Round No. 45. Phase No. 1.



18 Lot

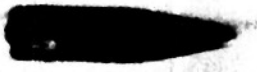
NP9 62469 30 October 1952 CONFIDENTIAL
SECURITY INFORMATION
Mark 30 Mod 3 PD Fuze with rag filled phenol ogive assembled to 3"/50 Mark 27 Mod 2 projectile fired at service velocity. Photographed at 1000 ft. range. Round No. 45.
Phase No. 1.



NP9-62470 4 November 1952 CONFIDENTIAL
SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure. Photographed at 1000 ft. range. Round No. 1. Phase No. 2.

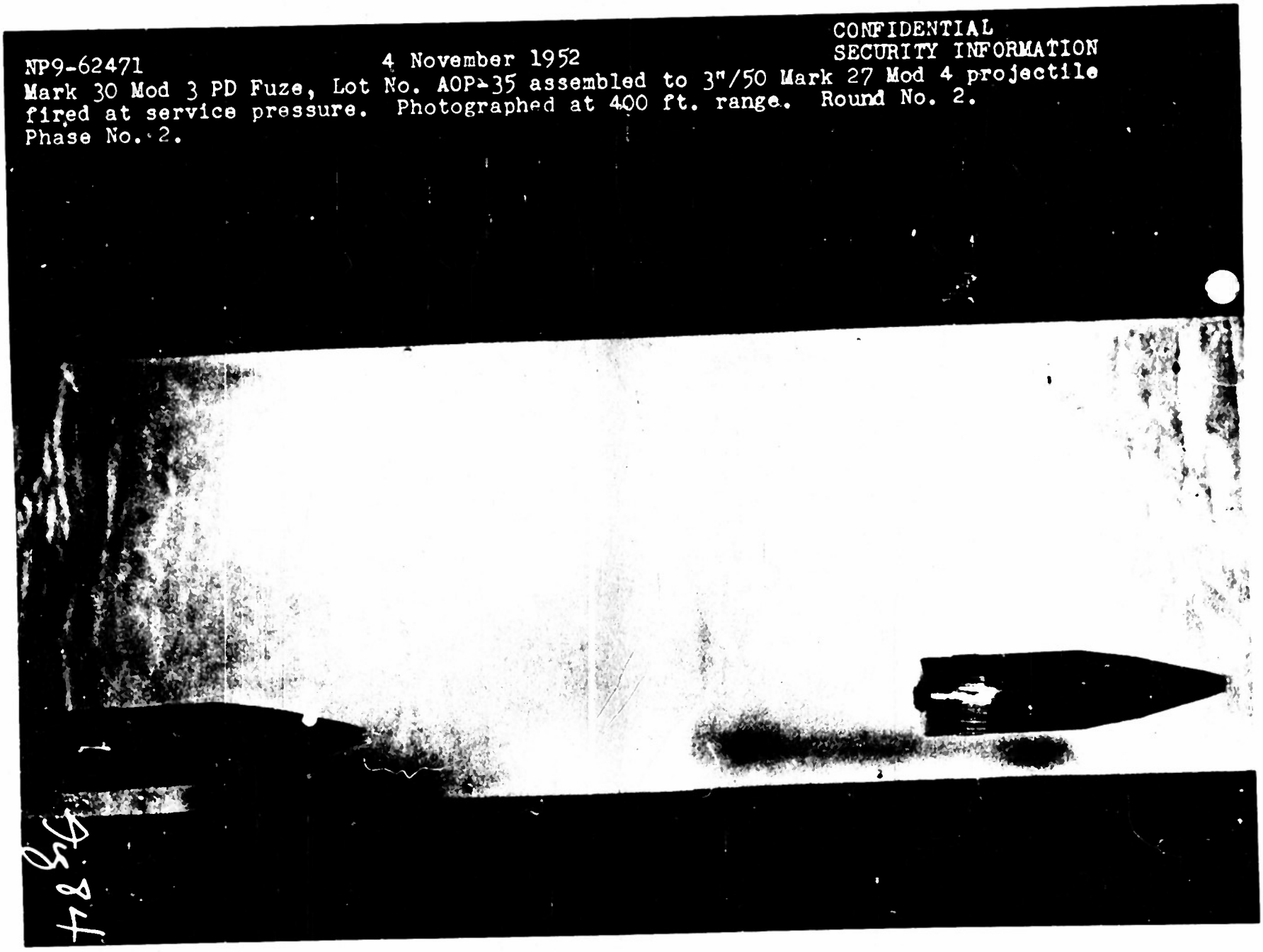
Rd 1



CONFIDENTIAL
SECURITY INFORMATION

NP9-62471 4 November 1952

Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure. Photographed at 400 ft. range. Round No. 2. Phase No. 2.



4-8-52

NP9-62472 4 November 1952 CONFIDENTIAL SECURITY INFORMATION

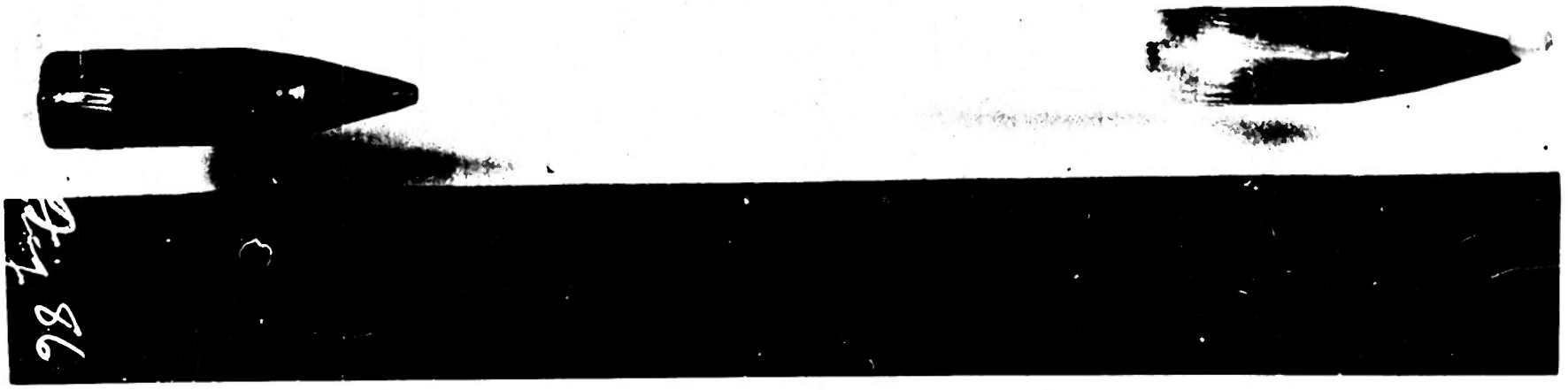
Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure. Photographed at 1000 ft. range. Round No. 2.. Phase No. 2.



CONFIDENTIAL
SECURITY INFORMATION

NP9-[illegible]473 4 November 1952

Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure. Photographed at 400 ft. range. Round No. 3. Phase No. 2.



NP9-62474 4 November 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure. Photographed at 1000 ft. range. Round No. 3. Phase No. 2.

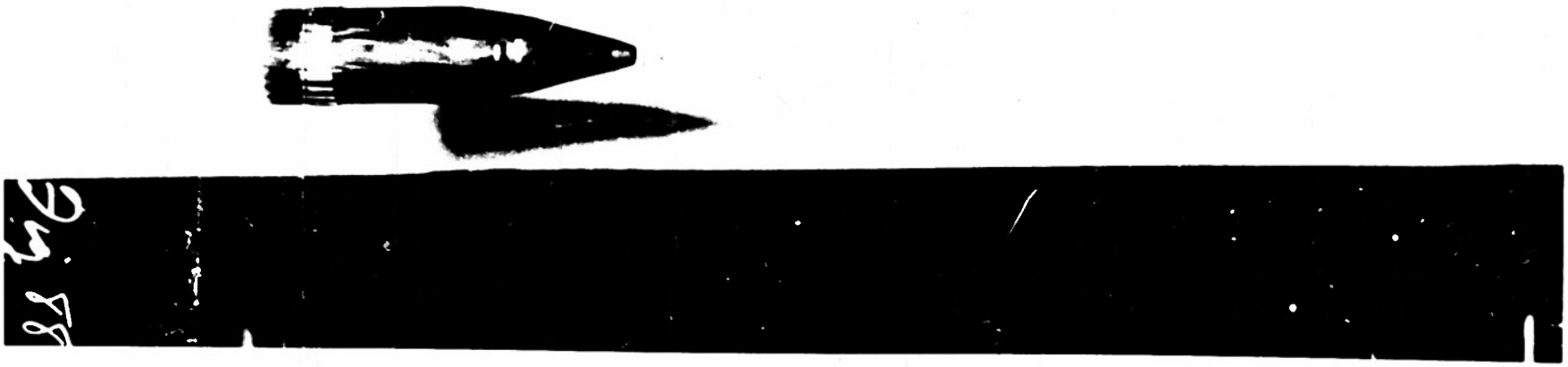
Rd #3



NP9-62475 4 November 1952 CONFIDENTIAL
SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure. Photographed at 400 ft. range. Round No. 4. Phase No. 2.

11-4-52
Rd 1111



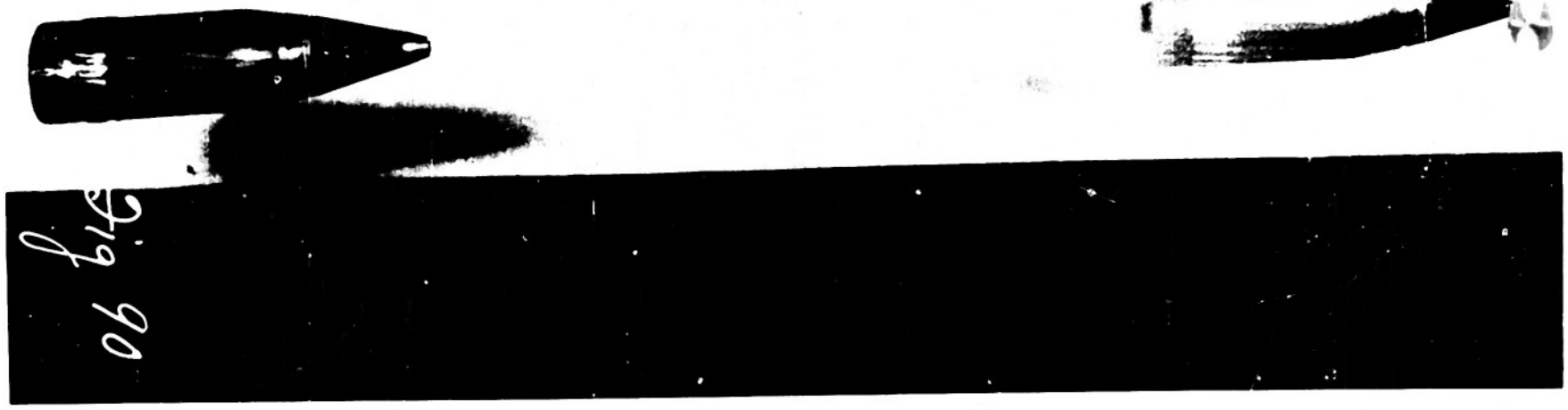
NP9-62476 4 November 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure. Photographed at 1000 ft. range. Round No. 4. Phase No. 2.



NP9-62477 4 November 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure. Photographed at 400 ft. range. Round No. 5. Phase No. 2.



NP9-62478 4 November 1952 CONFIDENTIAL SECURITY INFORMATION

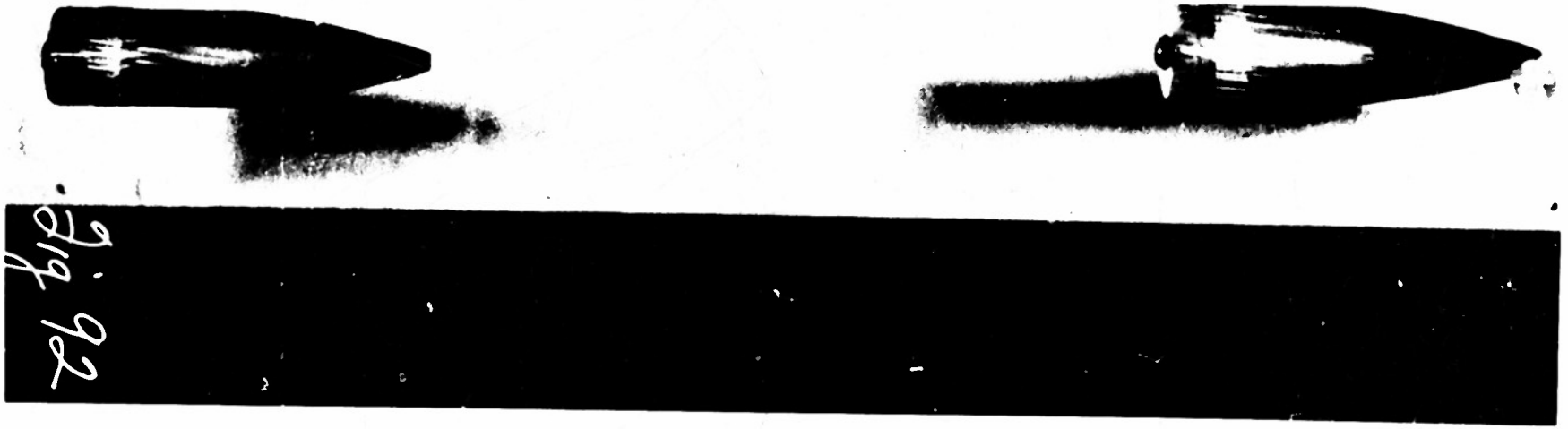
Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure. Photographed at 1000 ft. range. Round No. 5. Phase No. 2.

Rd #5



NP9-62479 4 November 1952 CONFIDENTIAL SECURITY INFORMATION

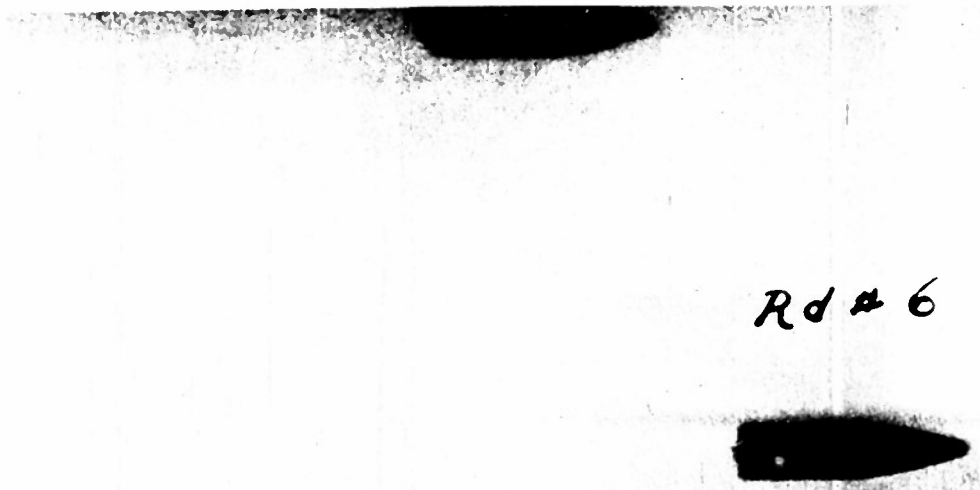
Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure. Photographed at 1000 ft. range. Round No. 6. Phase No. 2.



3/9 92

NP9-62480 4 November 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure. Photographed at 1000 ft. range. Round No. 6. Phase No. 2.



CONFIDENTIAL
SECURITY INFORMATION

NP9-62481 4 November 1952
Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure. Photographed at 400 ft. range. Round No. 7.
Phase No. 2.

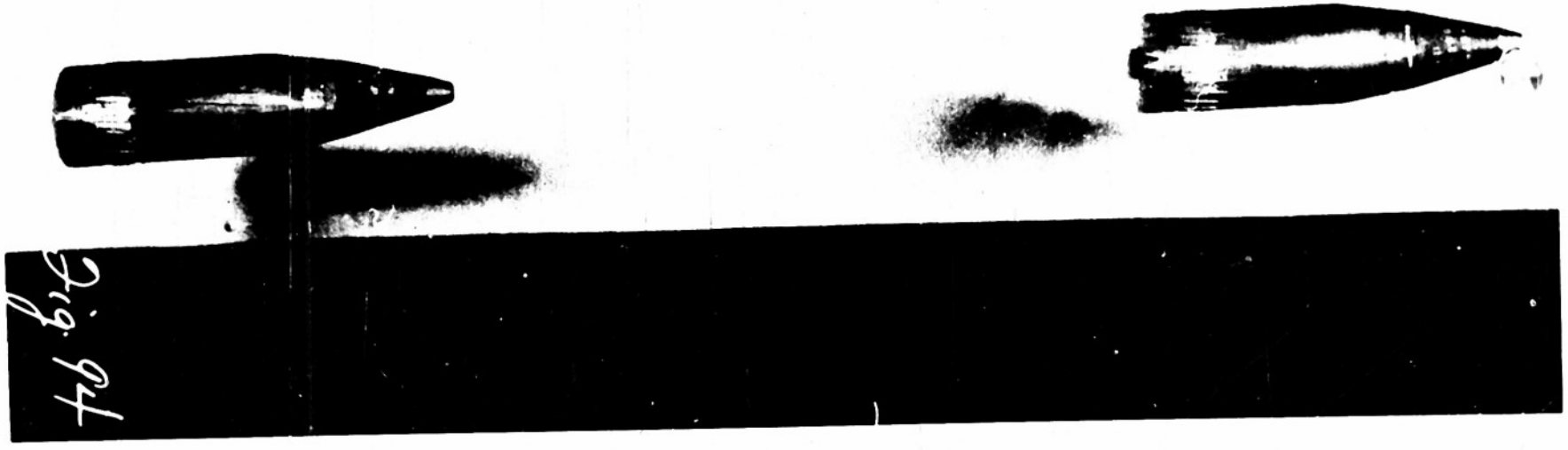
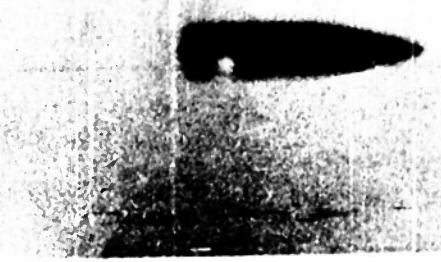


Fig. 94

NP9-62482 4 November 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure. Photographed at 1000 ft. range. Round No. 7. Phase No. 2.

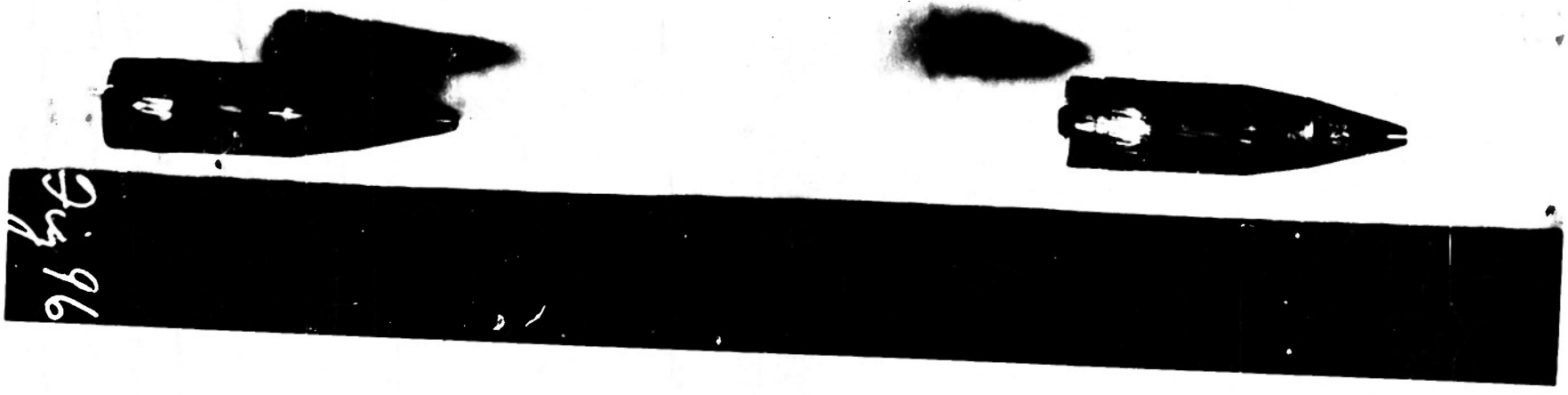
Rd = 7



NP9-62483
Mark 30 Mod 3 PD Fuze, Lot No. EW-1078B assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure. Photographed at 400 ft. range. Round No. 8.
Phase No. 2.

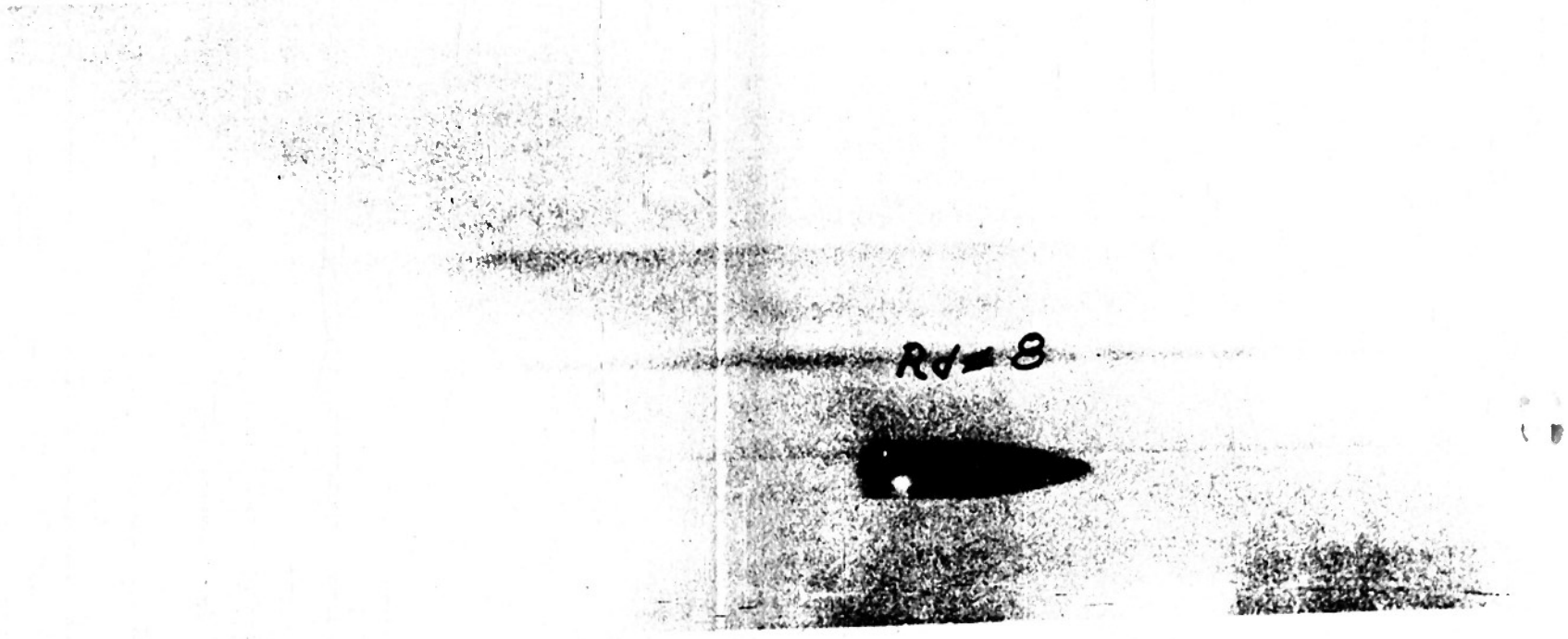
4 November 1952

CONFIDENTIAL
SECURITY INFORMATION



96 345

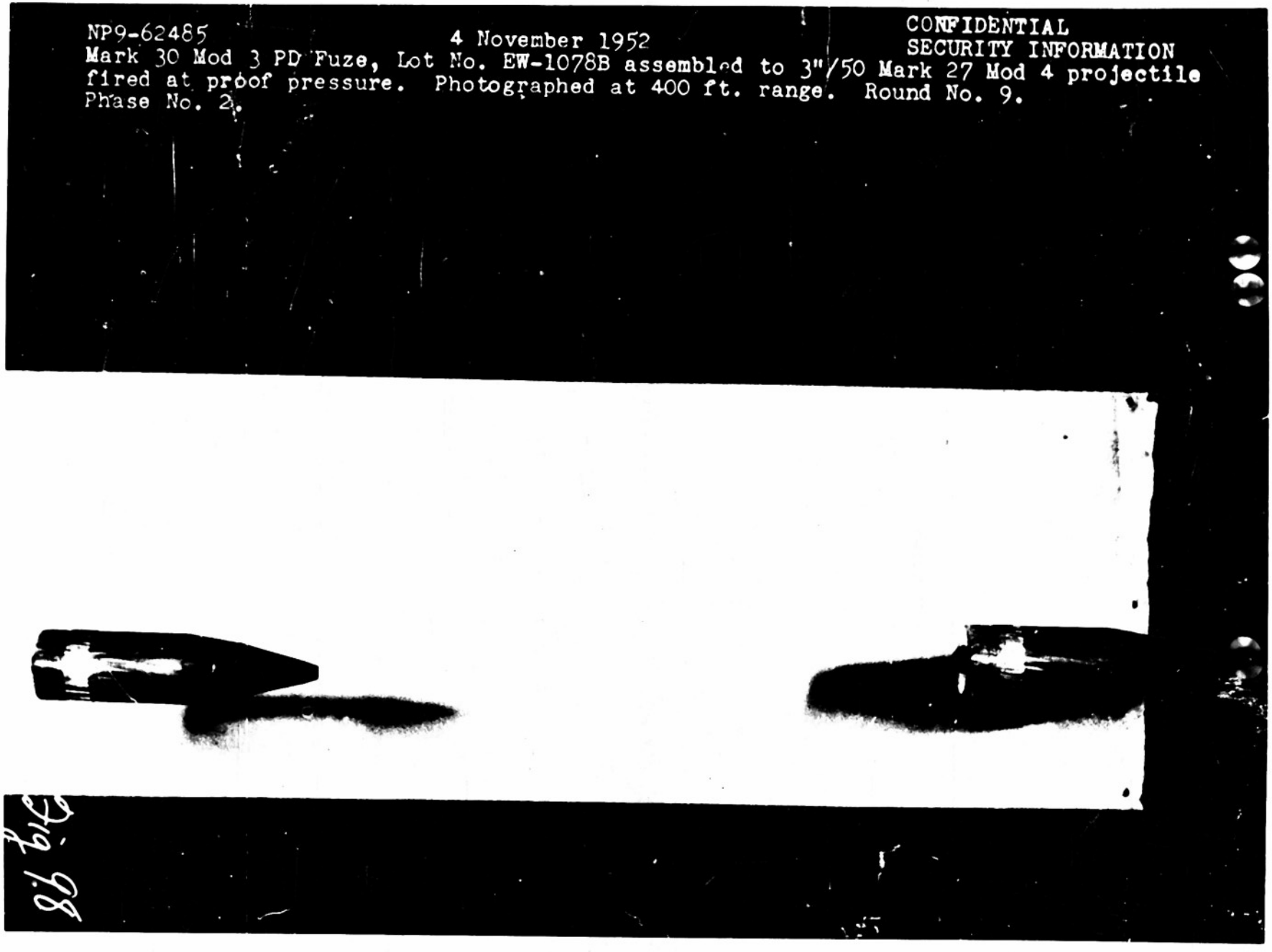
NP9-62484 4 November 1952 CONFIDENTIAL
SECURITY INFORMATION
Mark 30 Mod 3 PD Fuze, Lot No. EW-1078B assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure. Photographed at 1000 ft. range. Round No. 8.
Phase No. 2.



NP9-62485 4 November 1952

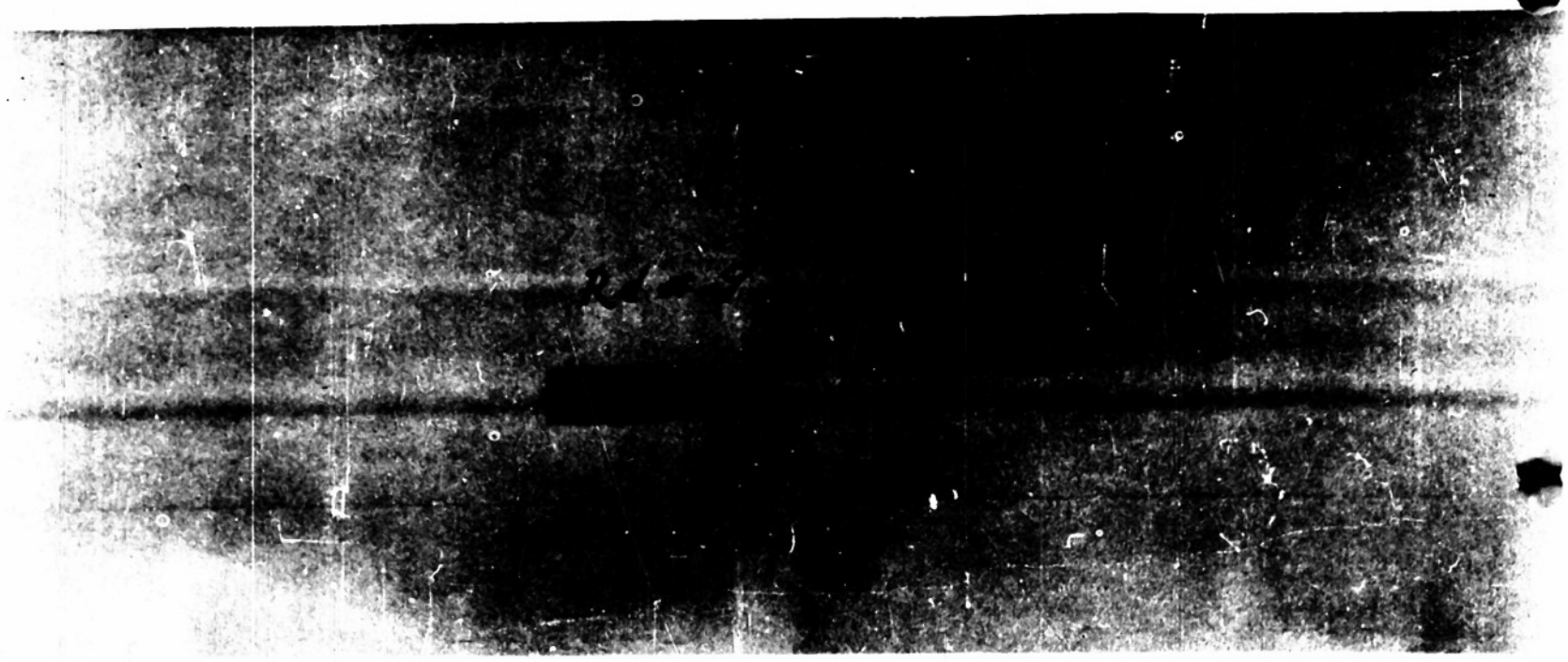
CONFIDENTIAL
SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze, Lot No. EW-1078B assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure. Photographed at 400 ft. range. Round No. 9. Phase No. 2.



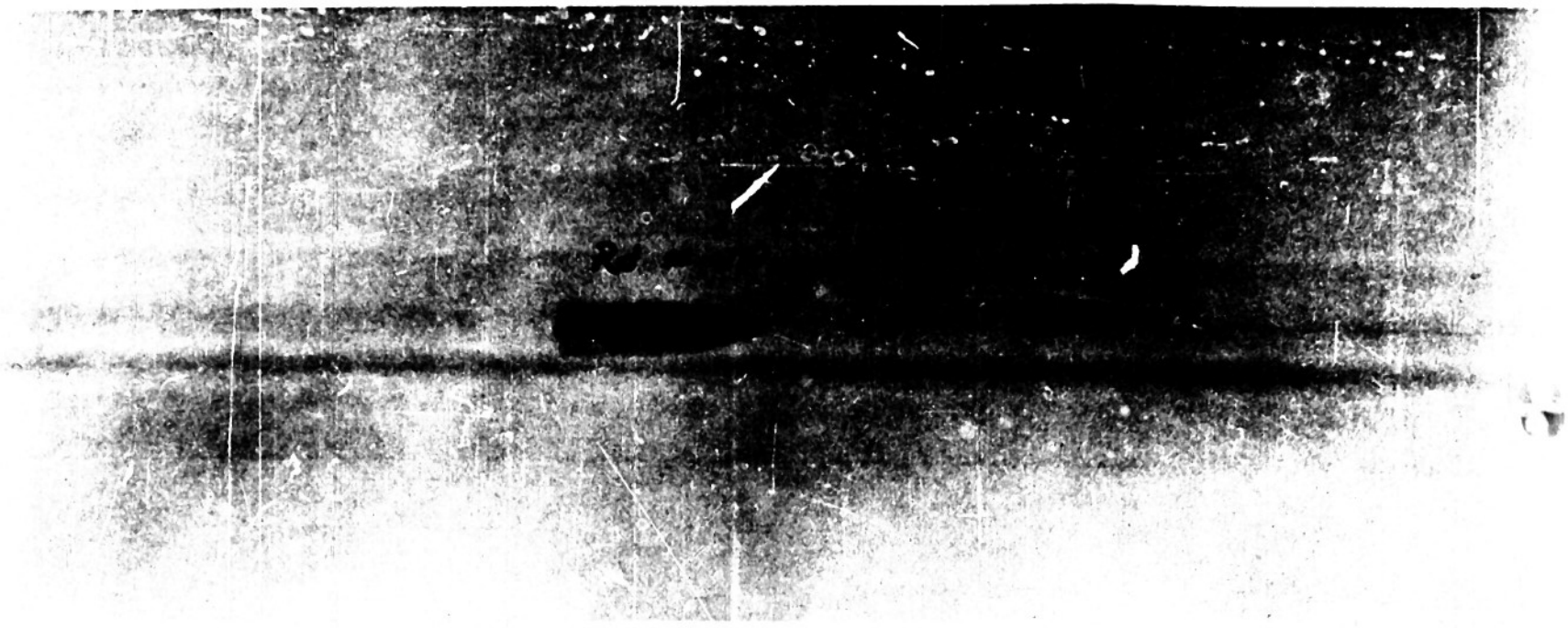
NP9-62486 4 November 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze, Lot No. EW-1078B assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure. Photographed at 1000 ft. range. Round No. 9. Phase No. 2.



NP9-62487 4 November 1952 CONFIDENTIAL SECURITY INFORMATION

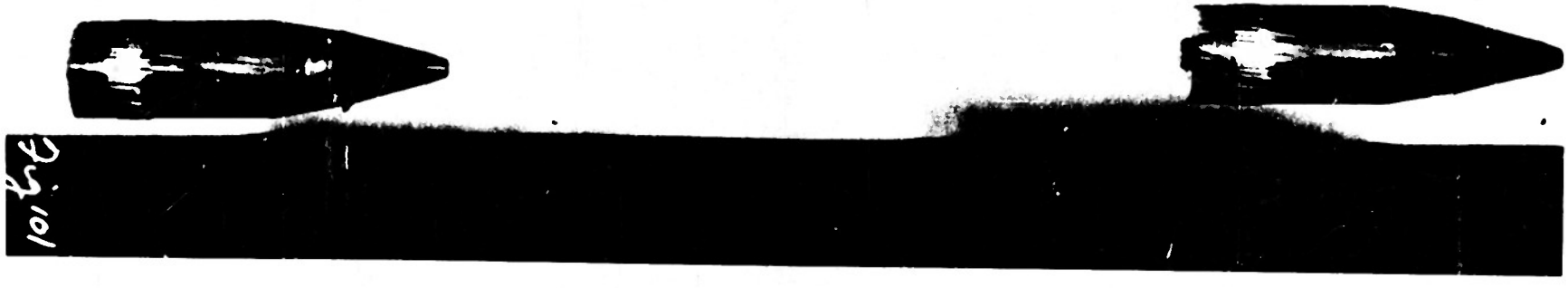
Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure. Photographed at 1000 ft. range. Round No. 10. Phase No. 2.



NP9-62488 4 November 1952

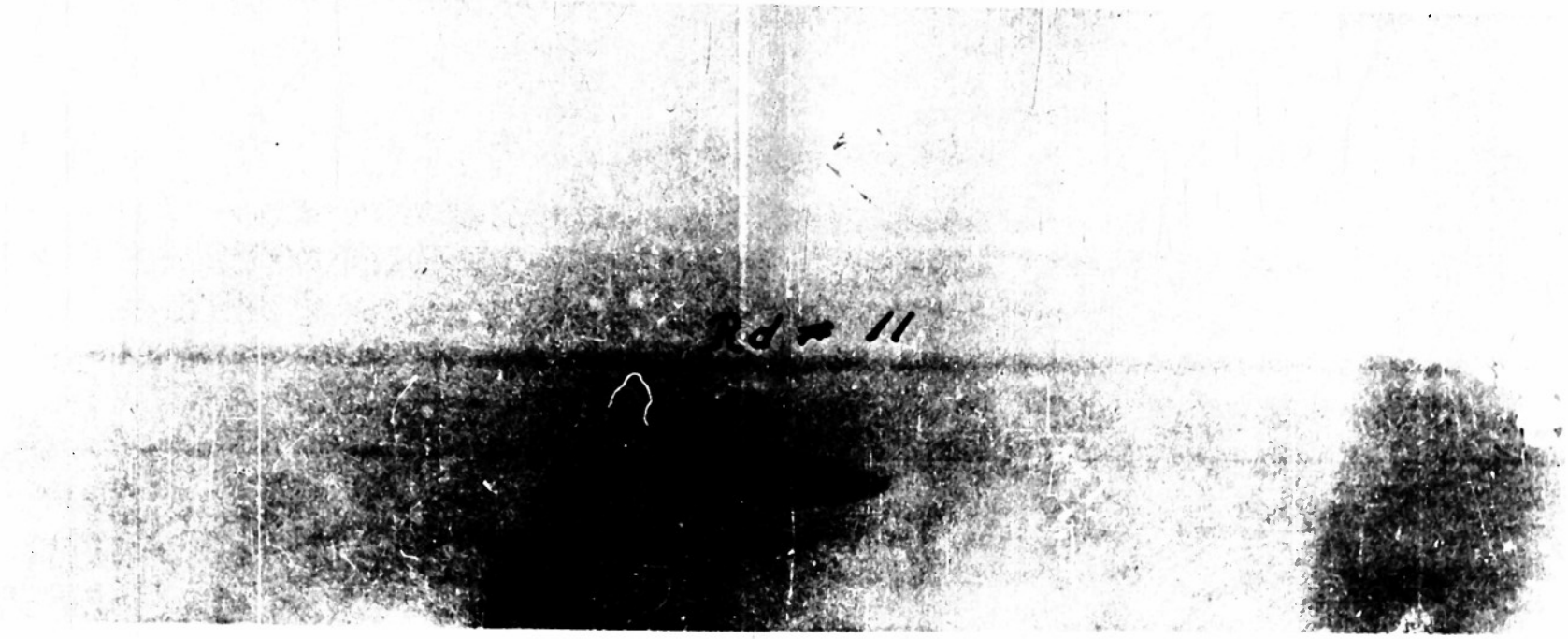
CONFIDENTIAL
SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze, Lot No. EW-1078B assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure. Photographed at 400 ft. range. Round No. 11. Phase No. 2.



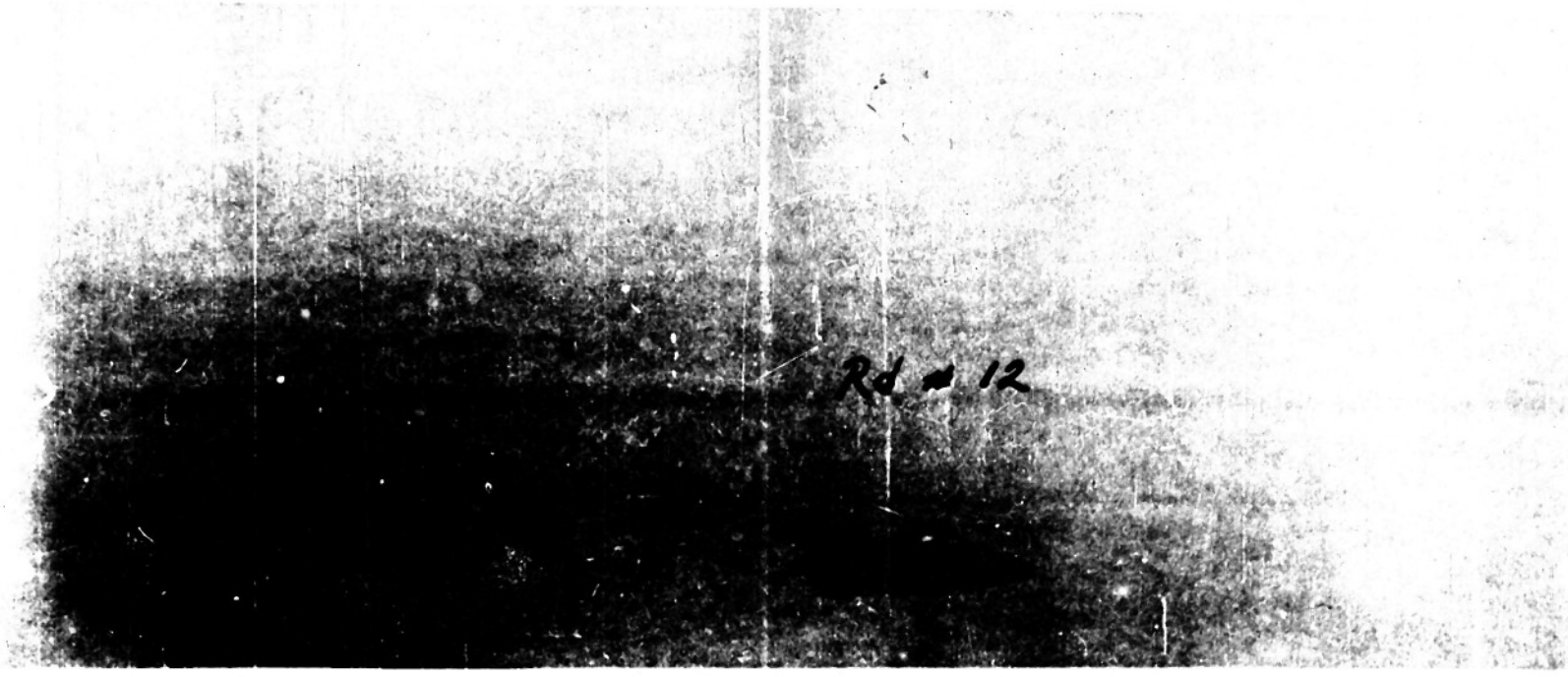
NP9-62489 4 November 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze, Lot No. EW-1078B assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure. Photographed at 1000 ft. range. Round No. 11. Phase No. 2.



NP9-62490 4 November 1952 CONFIDENTIAL
SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure. Photographed at 1000 ft. range. Round No. 12. Phase No. 2.



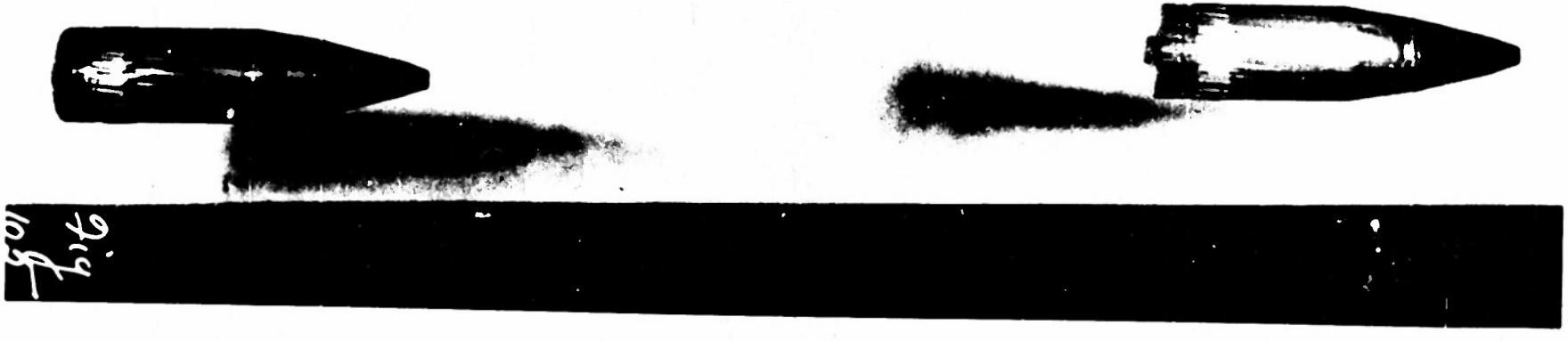
NP9-62491 4 November 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze, Lot No. EW-1078B assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure. Photographed at 1000 ft. range. Round No. 13. Phase No. 2.



NP9-62492 4 November 1952 CONFIDENTIAL SECURITY INFORMATION

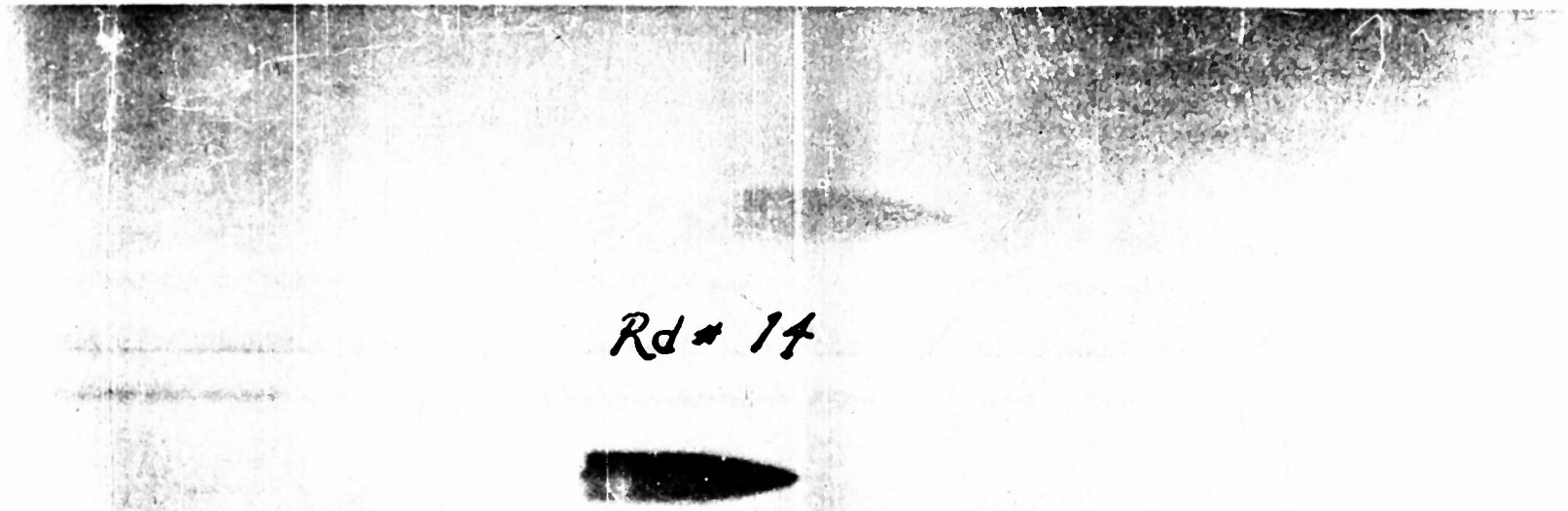
Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure. Photographed at 400 ft. range. Round No. 14. Phase No. 2.



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NP9-62493 4 November 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure. Photographed at 1000 ft. range. Round No. 14. Phase No. 2.



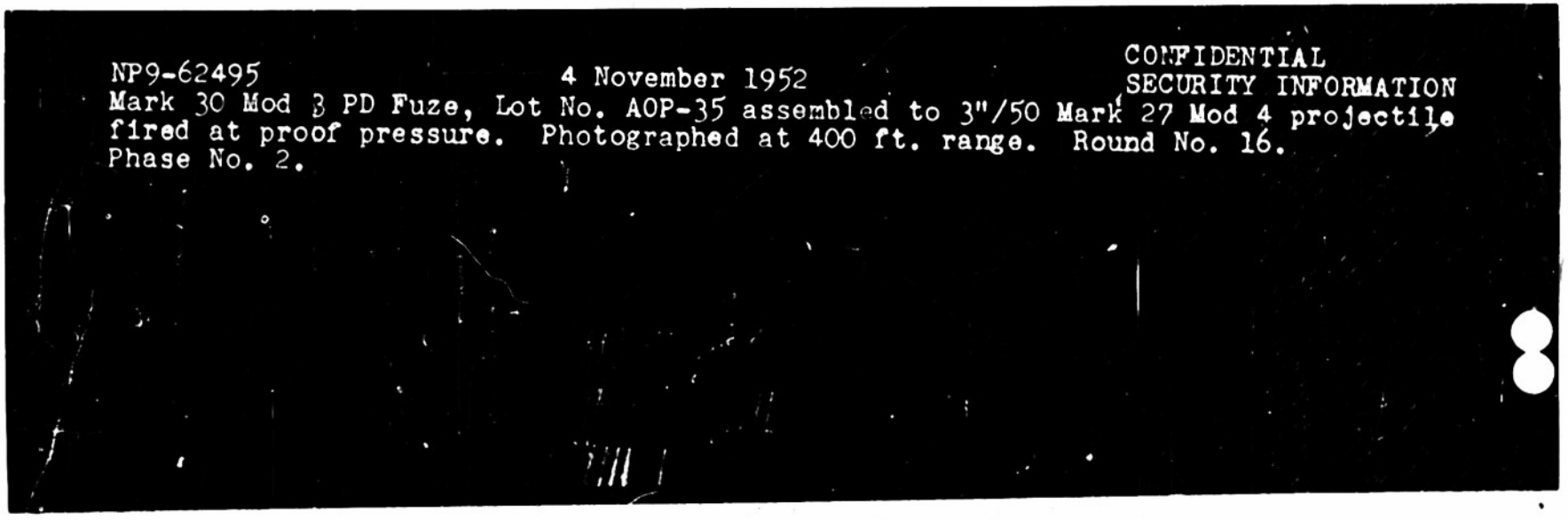
NP9-62494 4 November 1952 CONFIDENTIAL
SECURITY INFORMATION

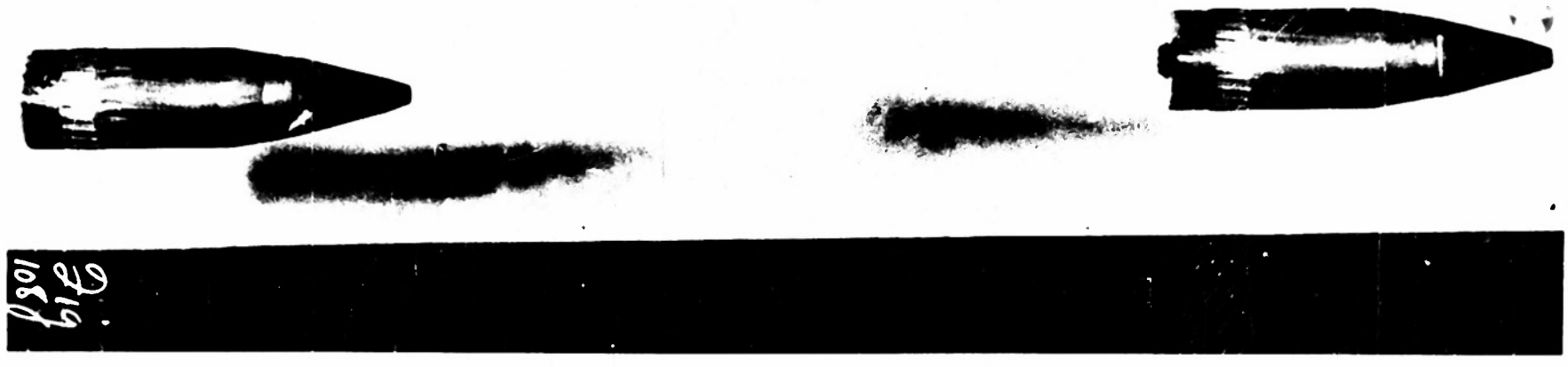
Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure. Photographed at 400 ft. range. Round No. 15. Phase No. 2.



NP9-62495 4 November 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure. Photographed at 400 ft. range. Round No. 16. Phase No. 2.





NP9-62496 4 November 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure. Photographed at 400 ft. range. Round No. 17. Phase No. 2.



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CONFIDENTIAL
SECURITY INFORMATION

NP9-62497 4 November 1952

Mark 30 Mod 3 PD Fuze, Lot No. EW-1078B assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure. Photographed at 400 ft. range. Round No. 18. Phase No. 2.



Fig. 110

NP9-62498 4 November 1952 CONFIDENTIAL
SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze, Lot No. ADP-35 assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure. Photographed at 400 ft. range. Round No. 19. Phase No. 2.



Fig. 111

NP9-62499 4 November 1952 CONFIDENTIAL SECURITY INFORMATION

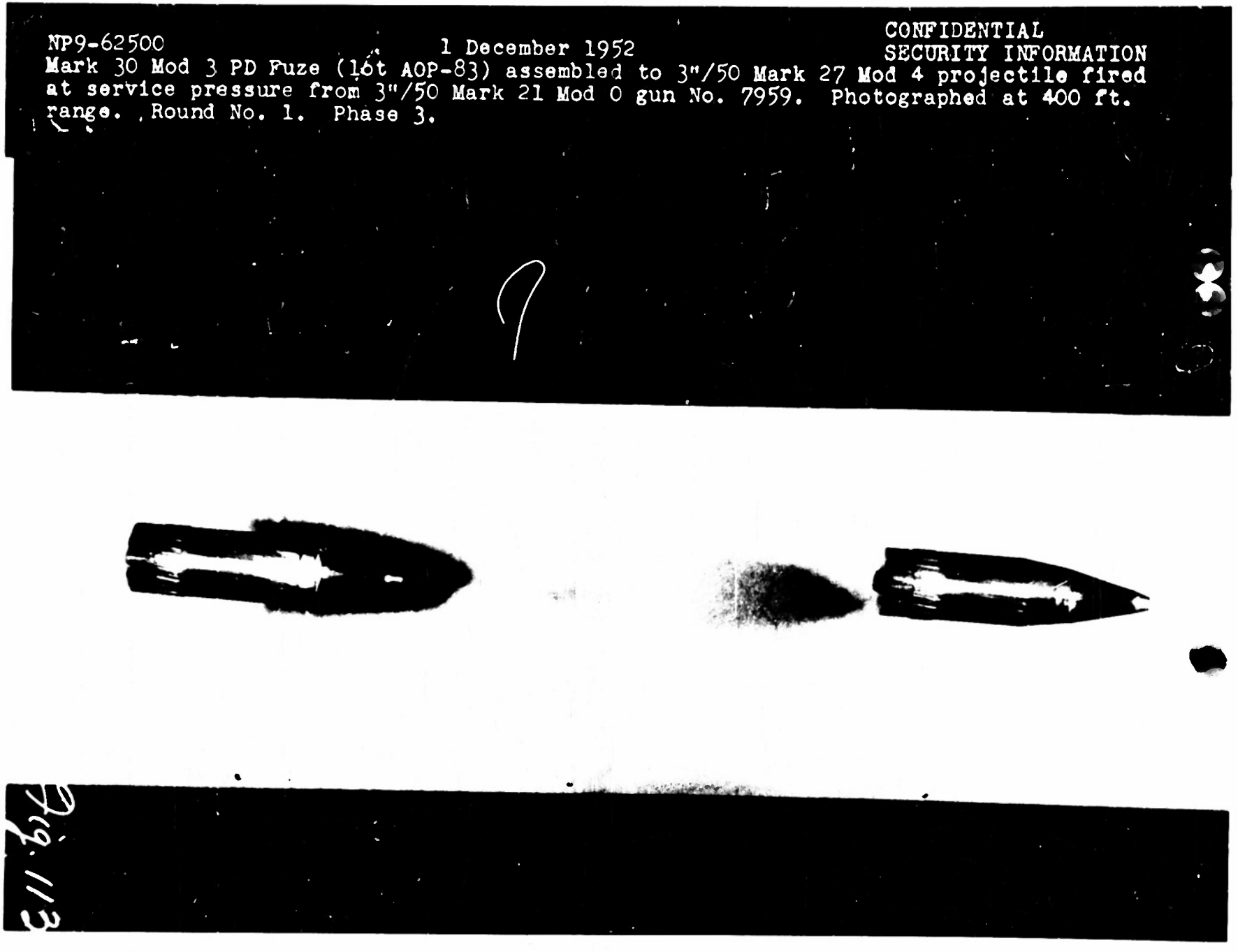
Mark 30 Mod 3 PD Fuze, Lot No. AOP-35 assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure. Photographed at 400 ft. range. Round No. 20. Phase No. 2.



Fig. 112

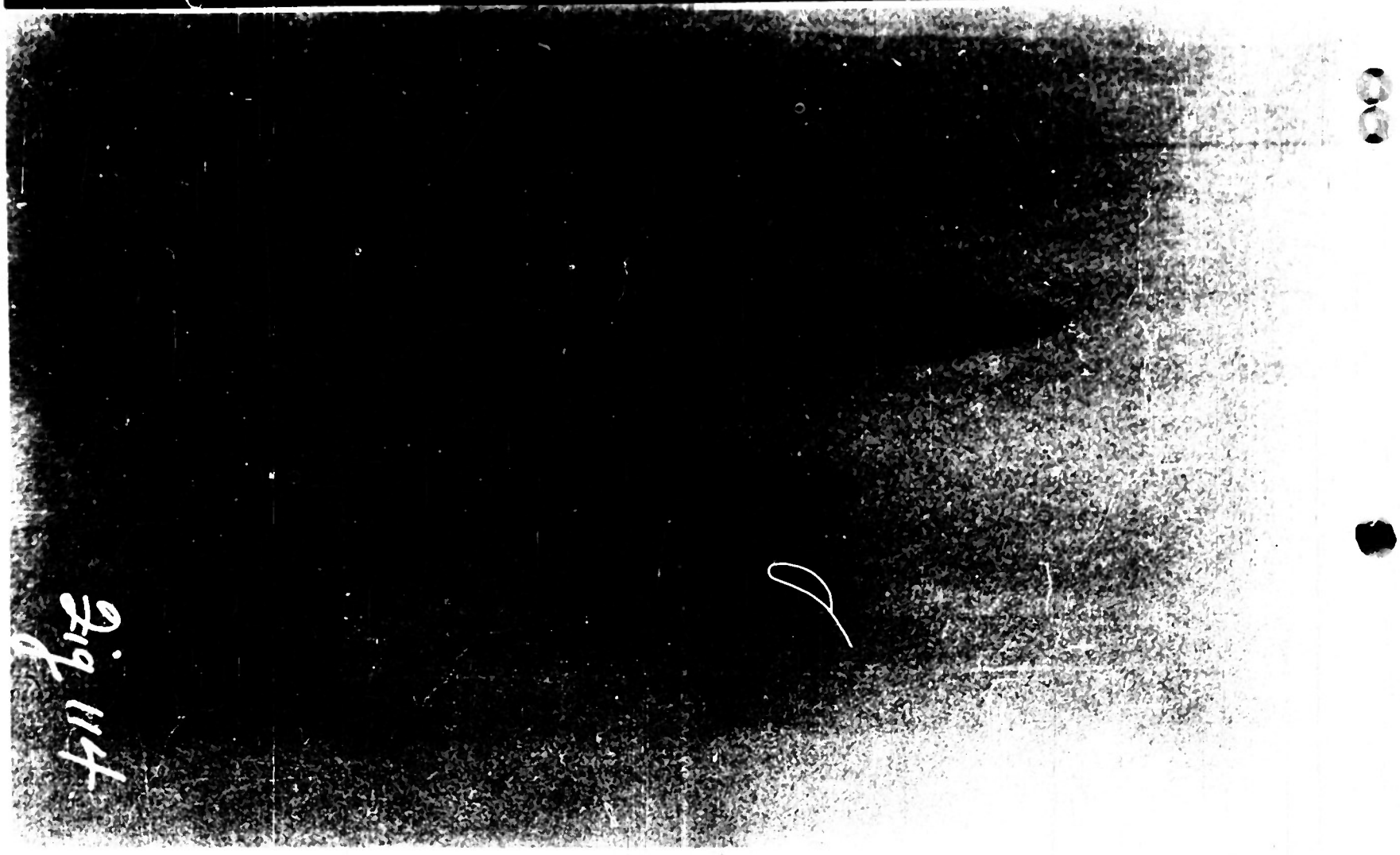
NP9-62500 1 December 1952 CONFIDENTIAL
SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze (16t AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 400 ft. range. Round No. 1. Phase 3.



NP9-62501 1 December 1952 CONFIDENTIAL SECURITY INFORMATION

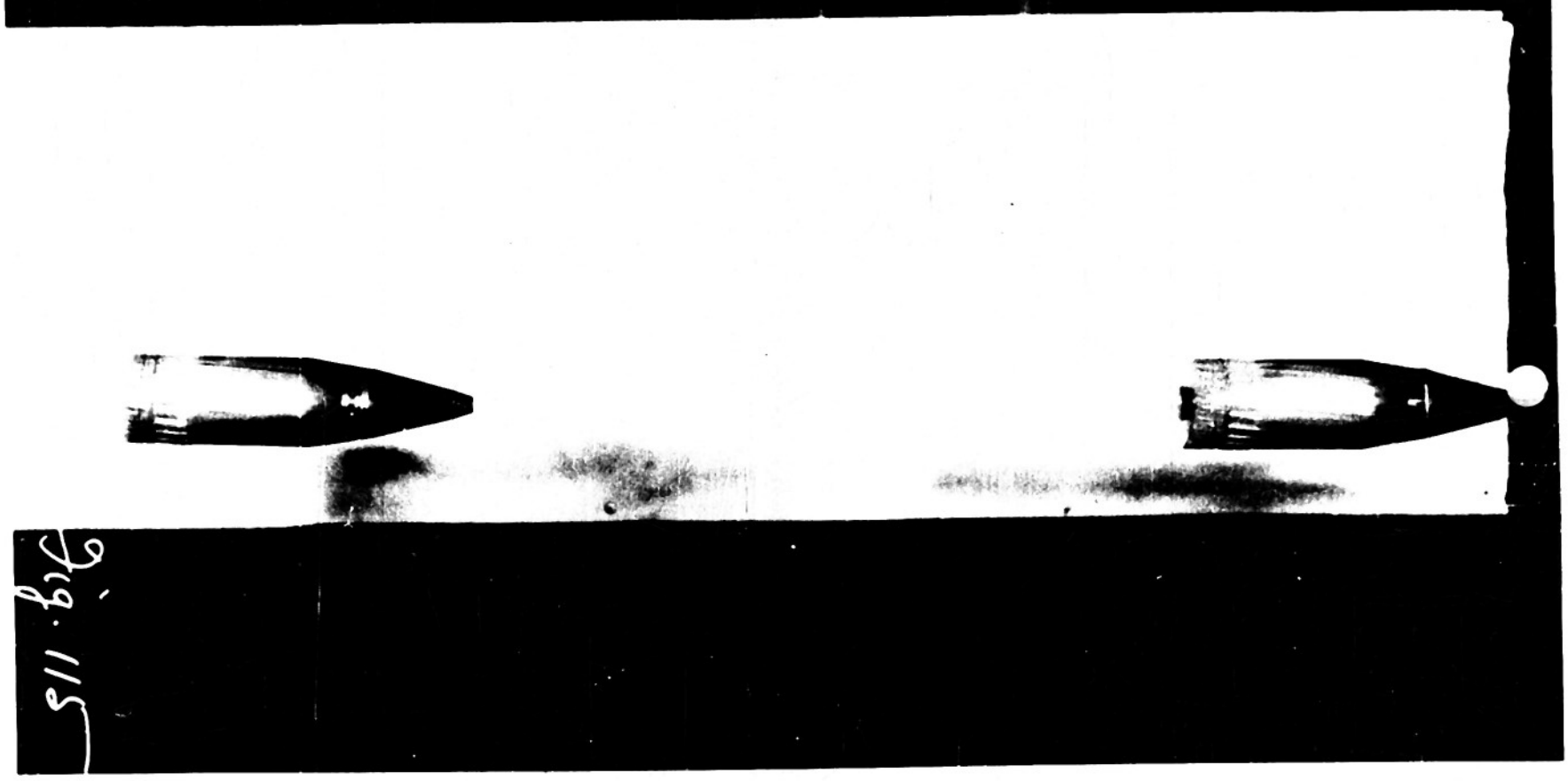
Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 1000 ft. range. Round No. 1. Phase 3.



CONFIDENTIAL
SECURITY INFORMATION

NP9-62502 1 December 1952

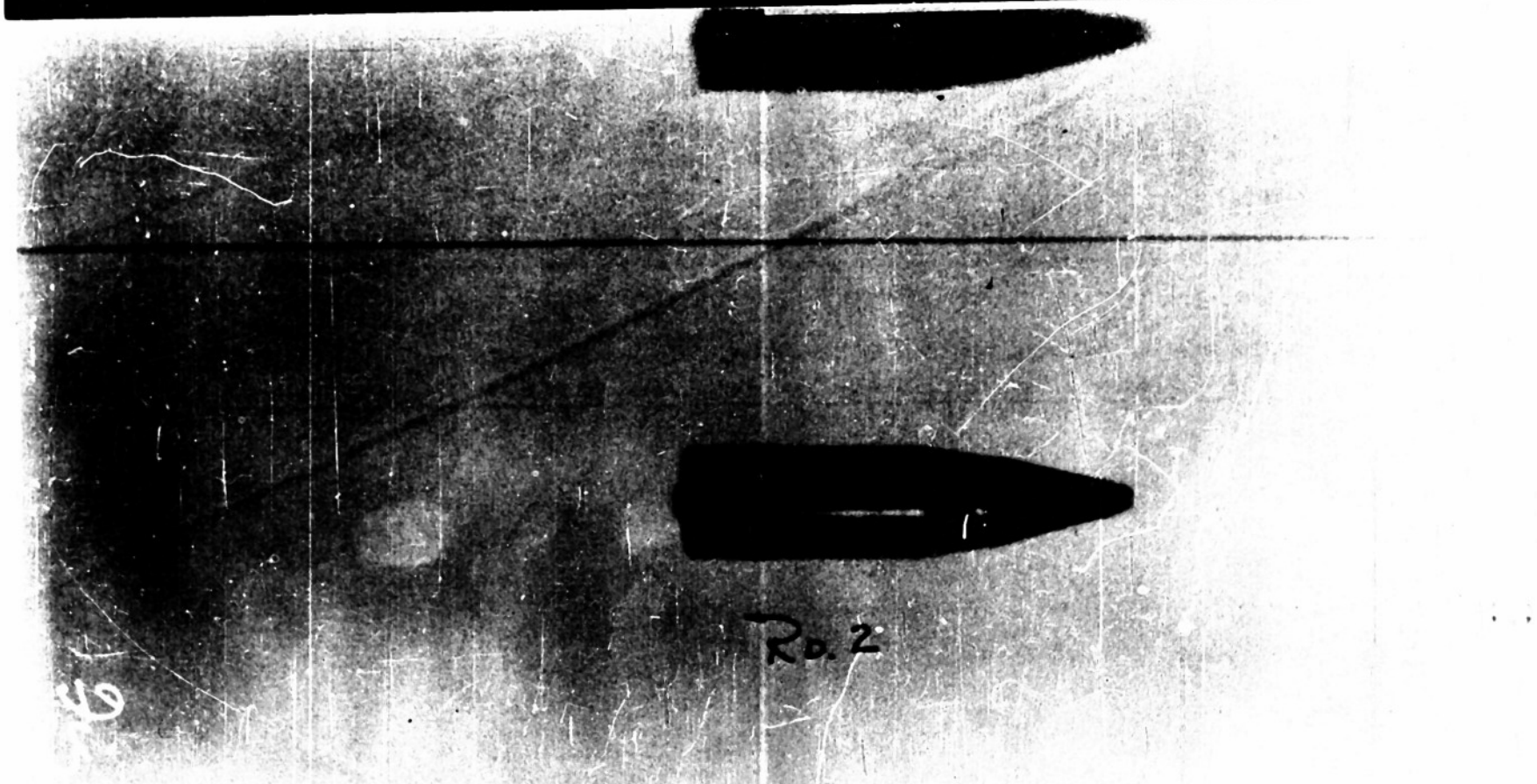
Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 400 ft. range. Round No. 2. Phase 3.



CONFIDENTIAL
SECURITY INFORMATION

NP9-62503 1 December 1952

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 1000 ft. range. Round No. 2. Phase 3.



CONFIDENTIAL
SECURITY INFORMATION

1 December 1952

NP9-62504
Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 400 ft. range. Round No. 3. Phase 3.



34-47

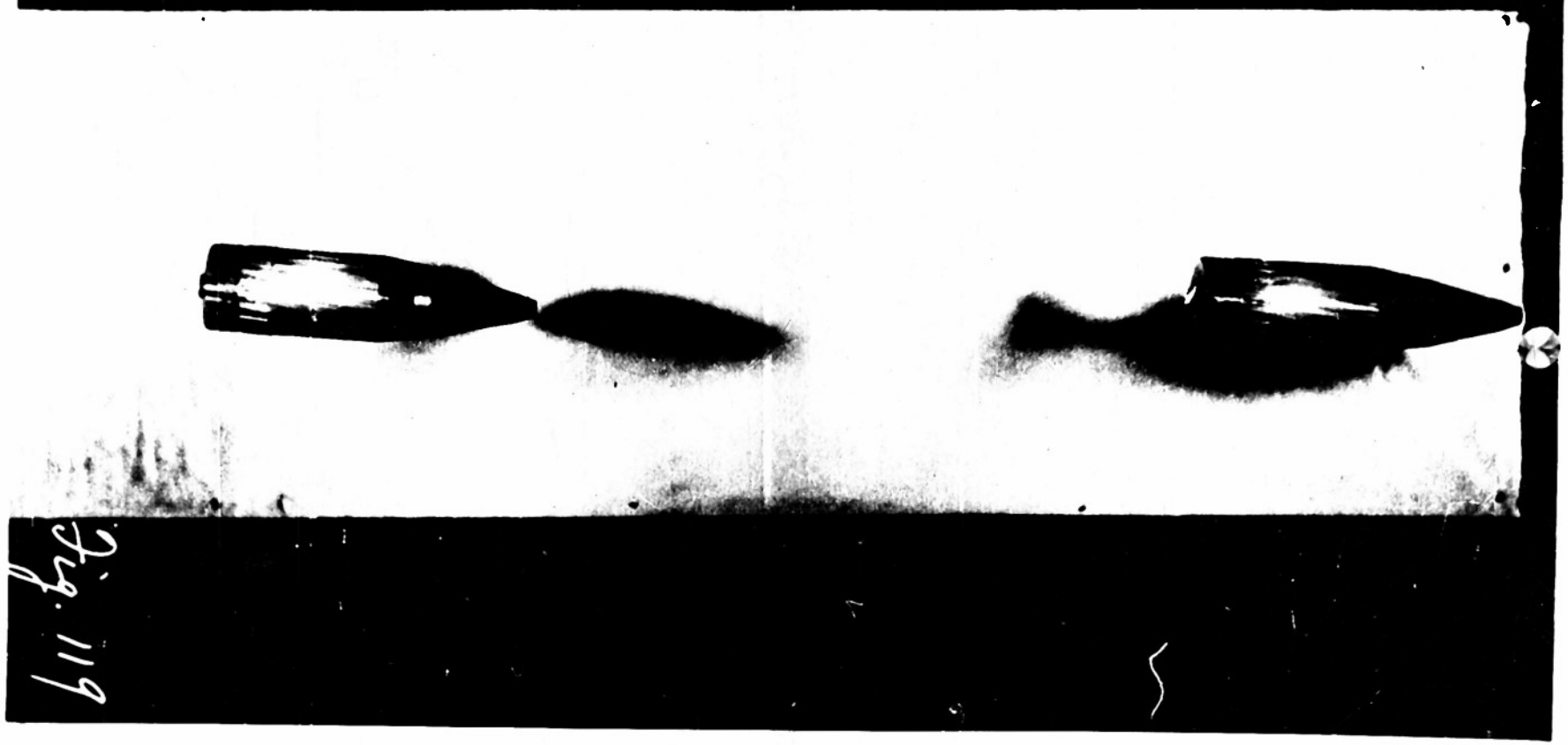
NP9-62505 1 December 1952 CONFIDENTIAL
SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 1000 ft. range. Round No. 3. Phase 3.



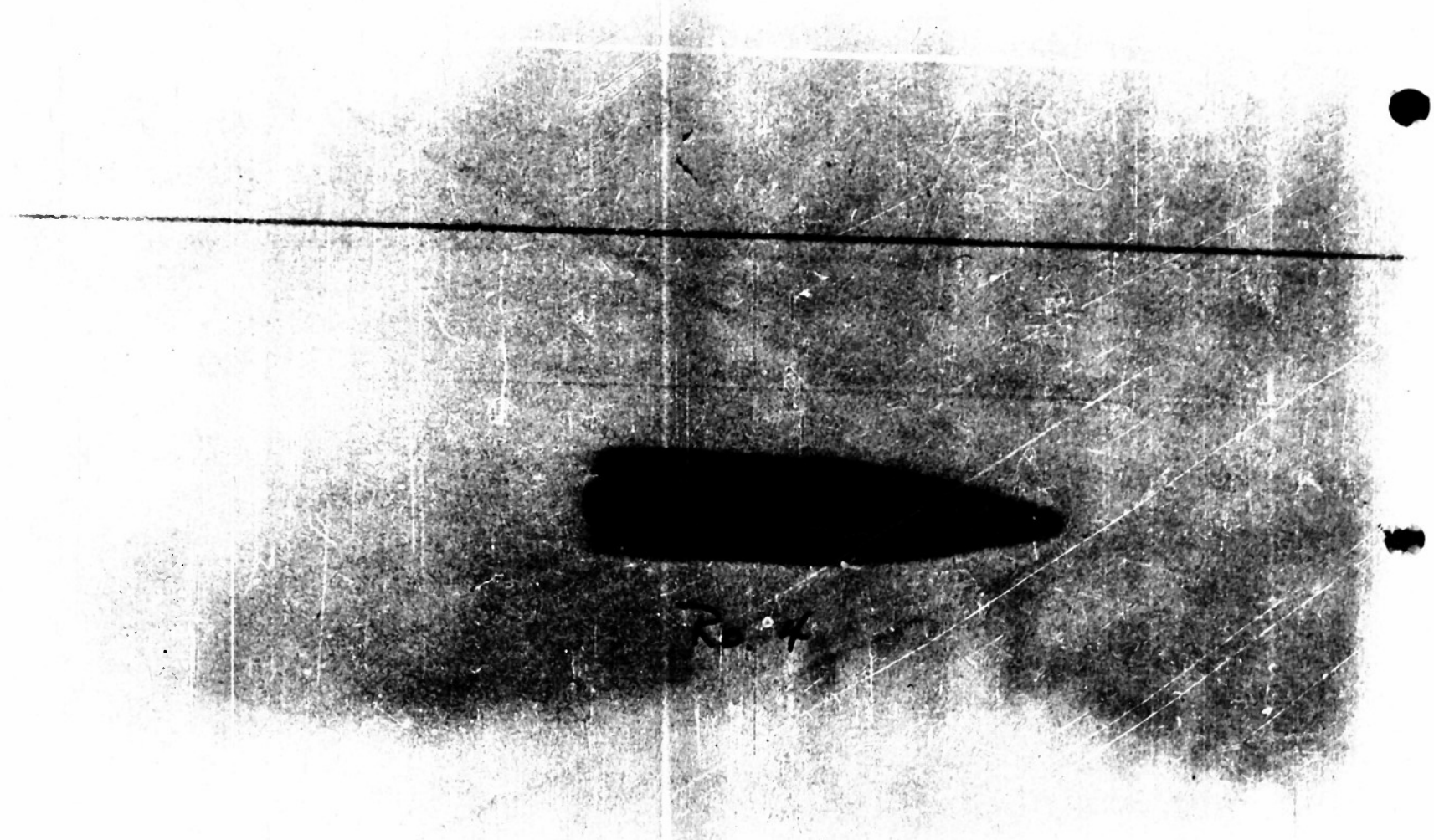
NP9-62506 1 December 1952 -CONFIDENTIAL
SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 400 ft. range. Round No. 4. Phase 3.



NP9-62507 1 December 1952 CONFIDENTIAL
SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 1000 ft. range. Round No. 4. Phase 3.



CONFIDENTIAL
SECURITY INFORMATION

NP9-62508 1 December 1952

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 400 ft. range. Round No. 5. Phase 3.

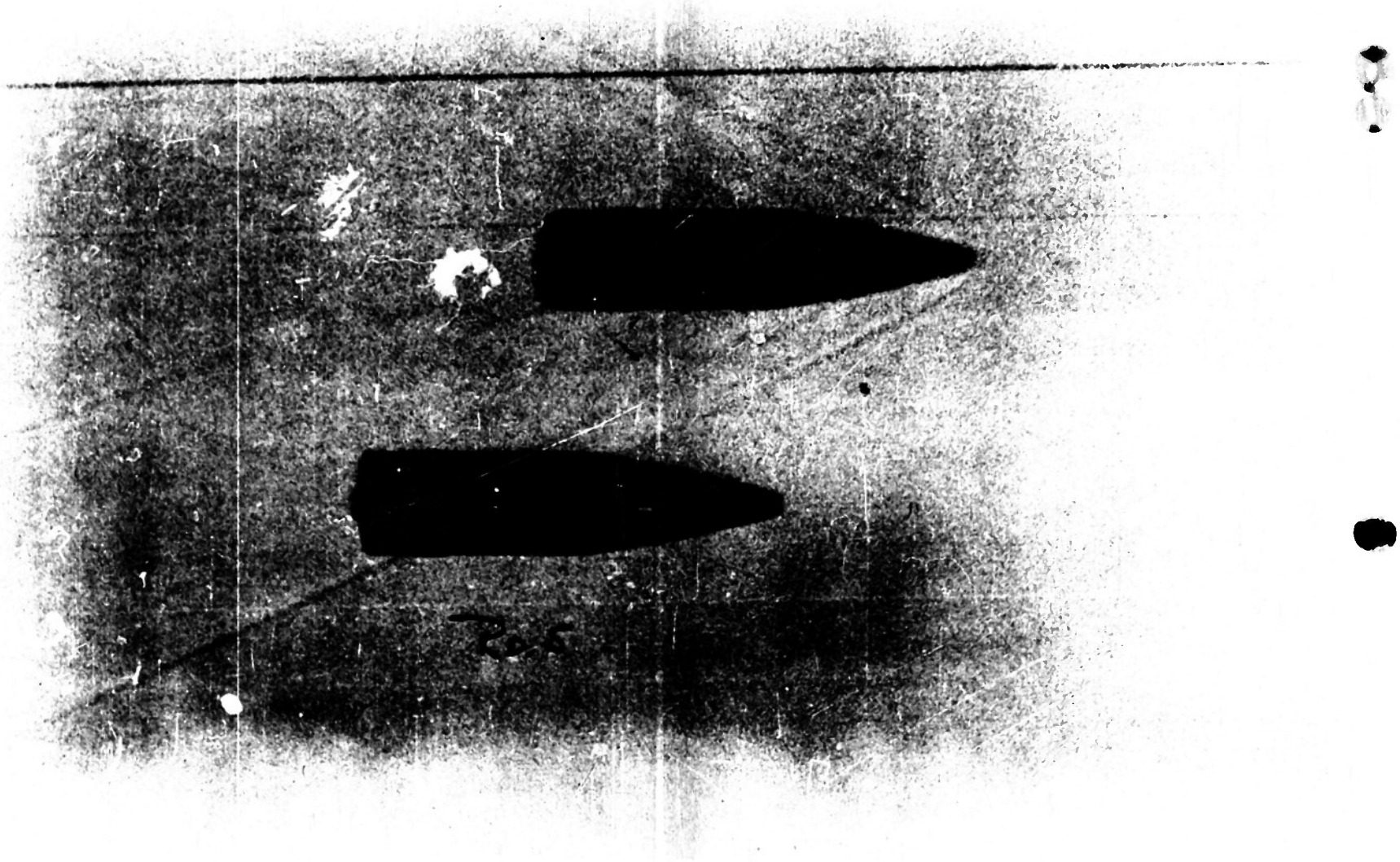
3



Fig. 121

NP9-62509 1 December 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 1000 ft. range. Round No. 5. Phase 3.



CONFIDENTIAL
SECURITY INFORMATION

NP9-62510 1 December 1952

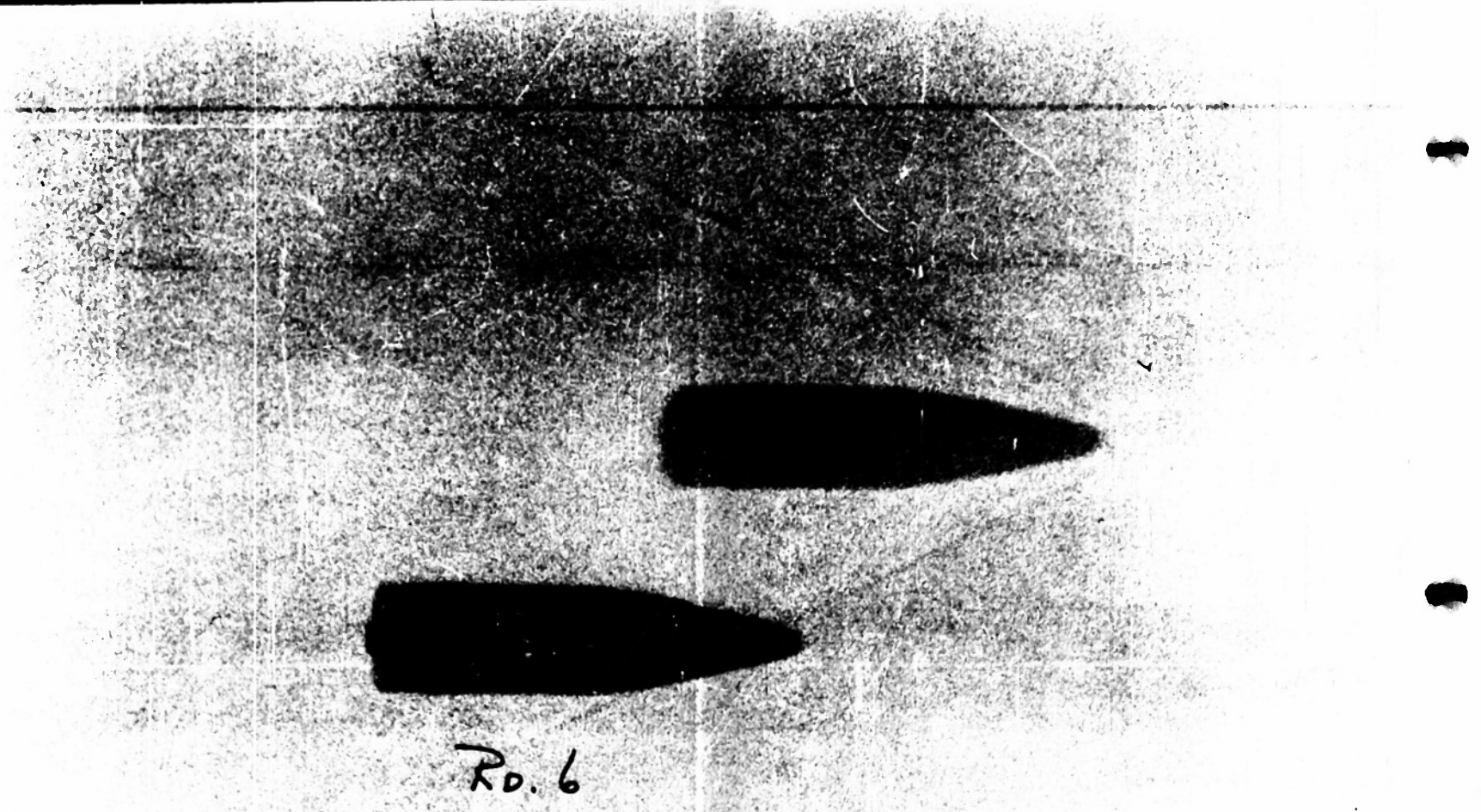
Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 400 ft. range. Round No. 6. Phase 3.



Fig. 123

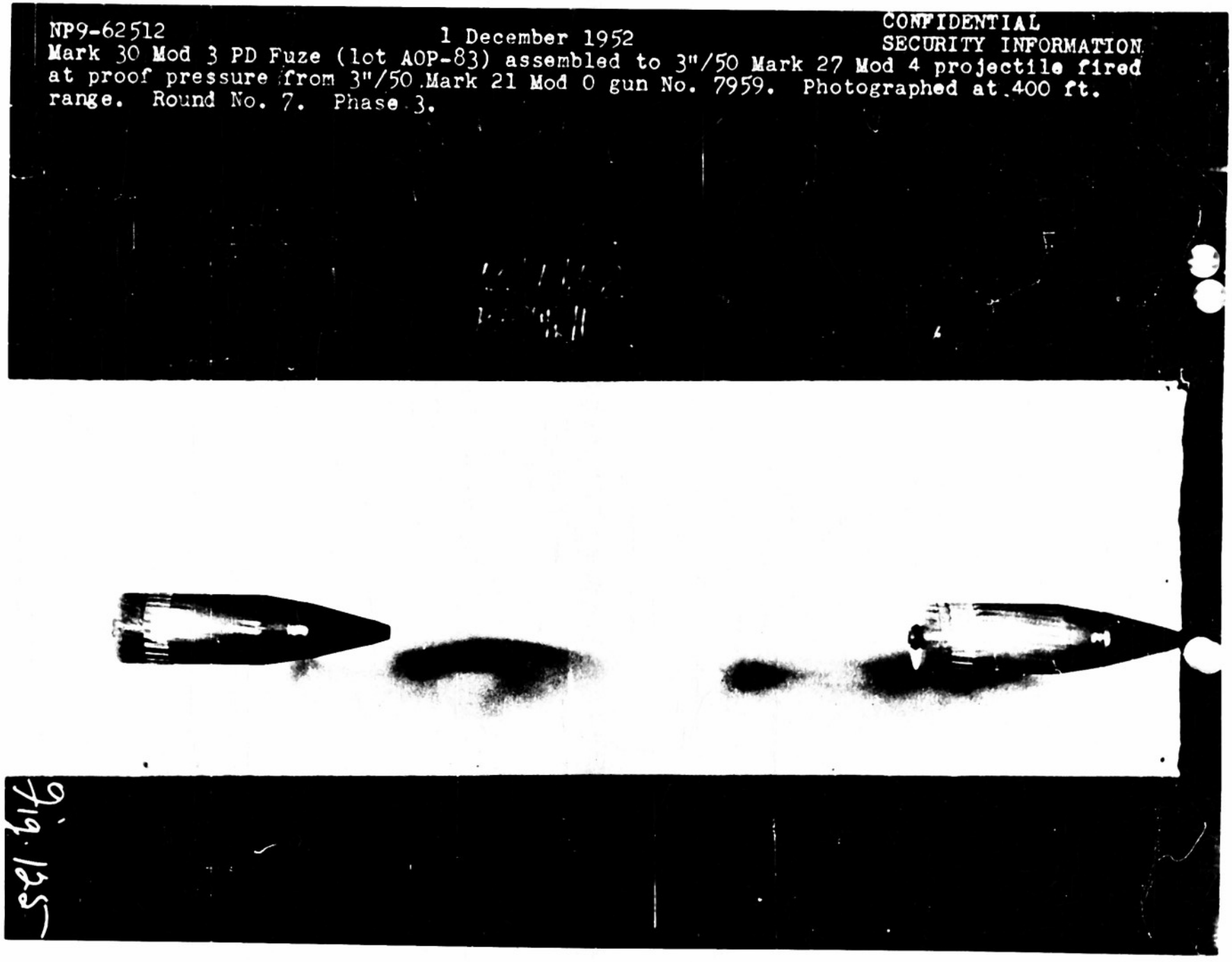
NP9-62511 1 December 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 1000 ft. range. Round No. 6. Phase 3.



NP9-62512 1 December 1952 CONFIDENTIAL SECURITY INFORMATION

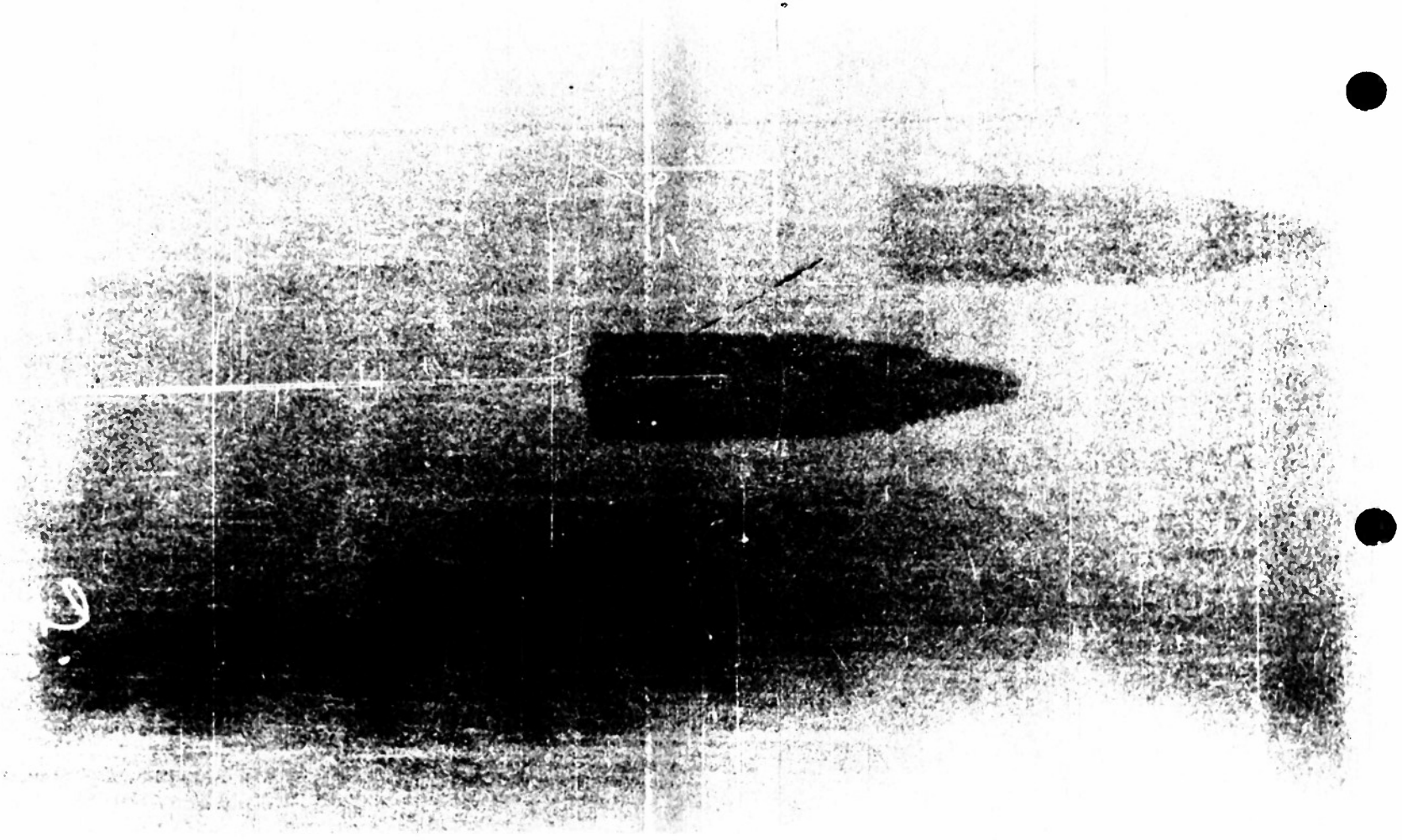
Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 400 ft. range. Round No. 7. Phase 3.



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NP9-62513 1 December 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 1000 ft. range. Round No. 7. Phase 3.



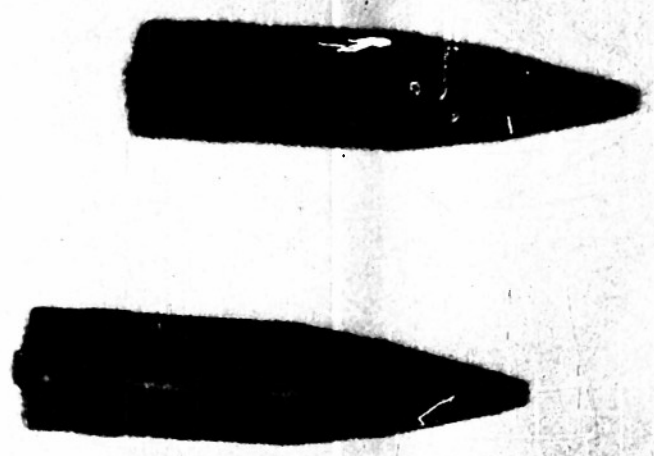
NP9-62514 1 December 1952 CONFIDENTIAL
SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 400 ft. range. Round No. 8. Phase 3.



NP9-62515 1 December 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 1000 ft. range. Round No. 8. Phase 3.

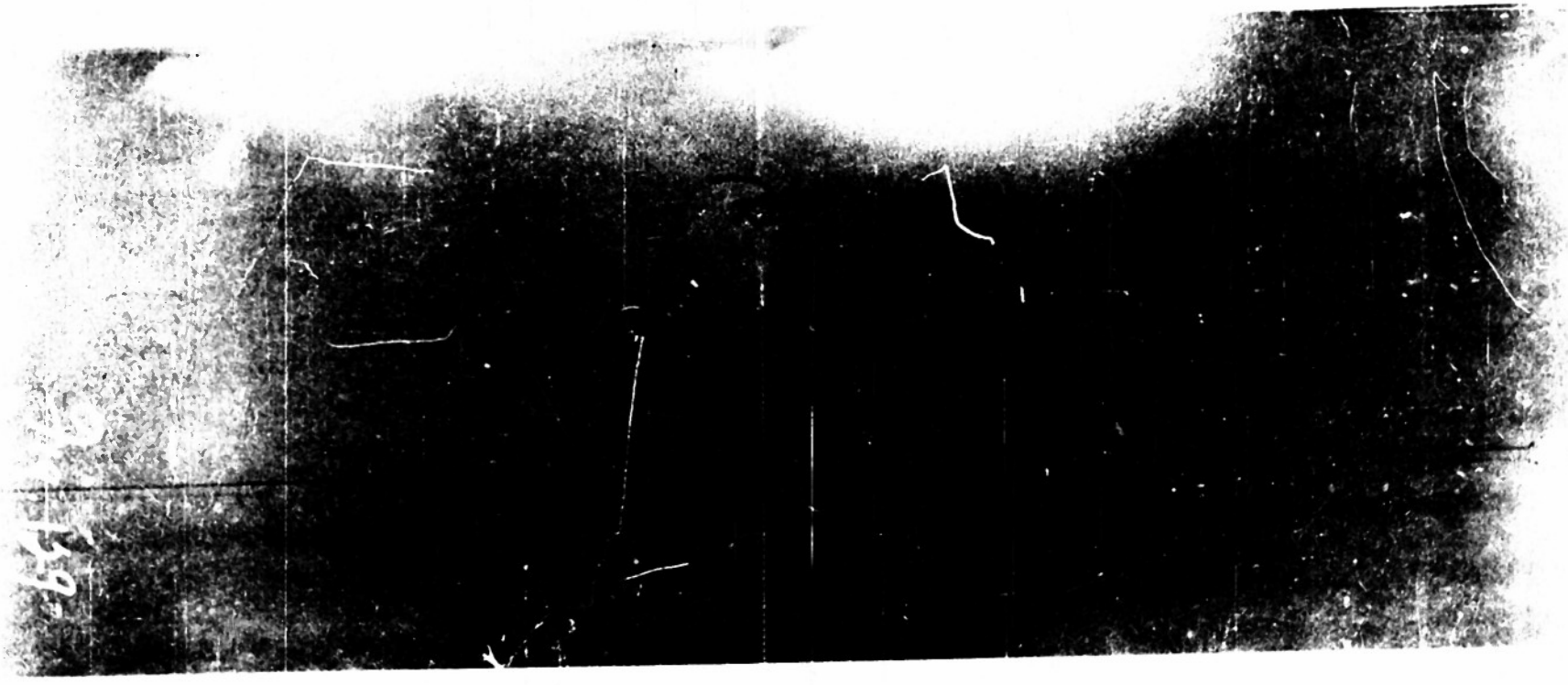


Rd. 8

CONFIDENTIAL
SECURITY INFORMATION

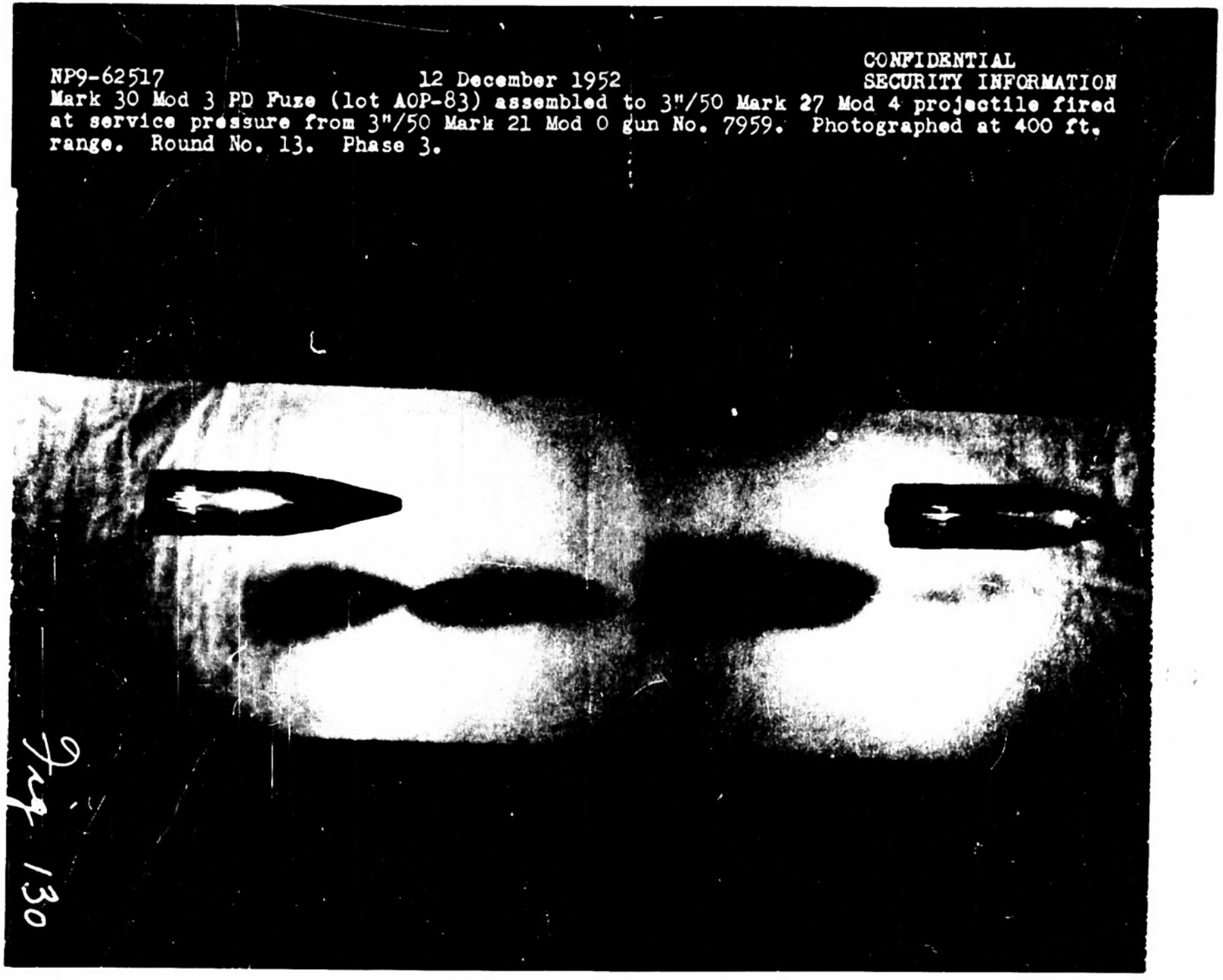
NP9-62516 8 December 1952

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at proof pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 1000 ft. range. Round No. 10. Phase 3.



NP9-62517 12 December 1952 CONFIDENTIAL SECURITY INFORMATION

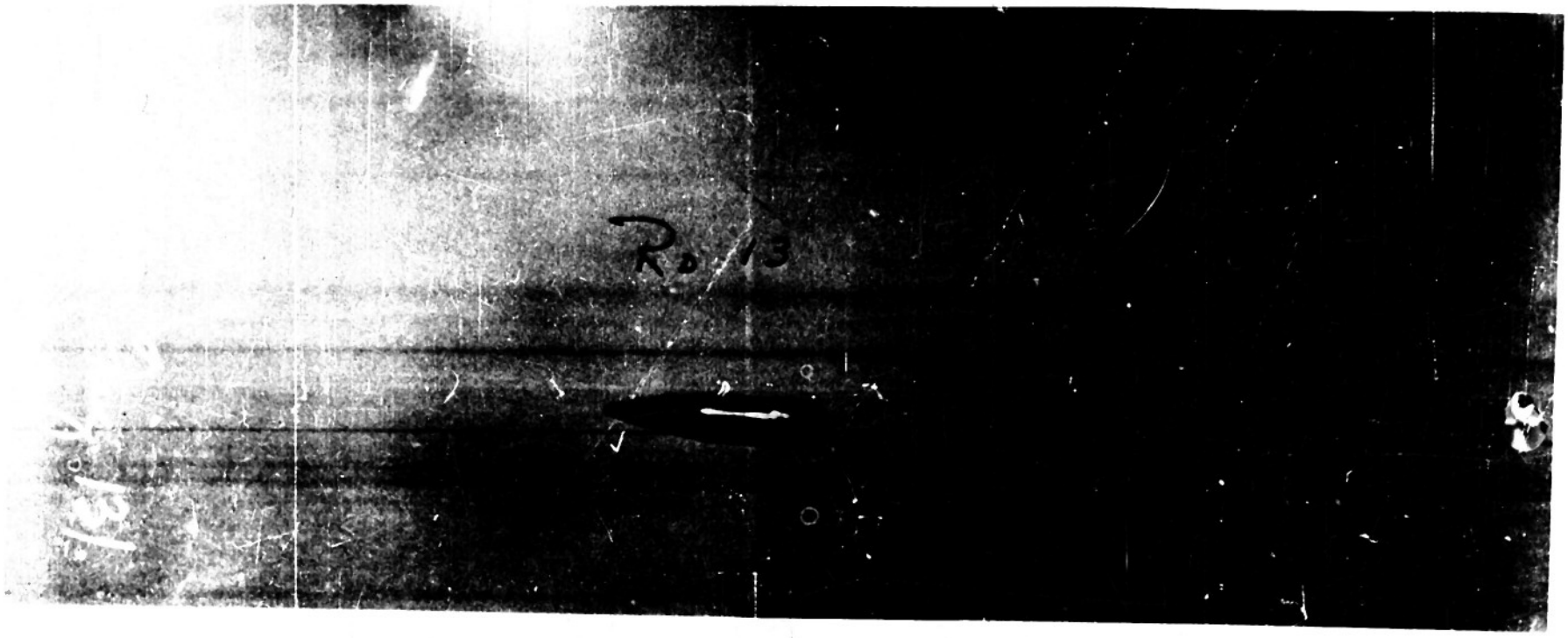
Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 400 ft. range. Round No. 13. Phase 3.



Exp. 130

NPG-62518 12 December 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 1000 ft. range. Round No. 13. Phase 3.



NF9-62519 12 December 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze (lot ACP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 400 ft. range. Round No. 14. Phase 3.

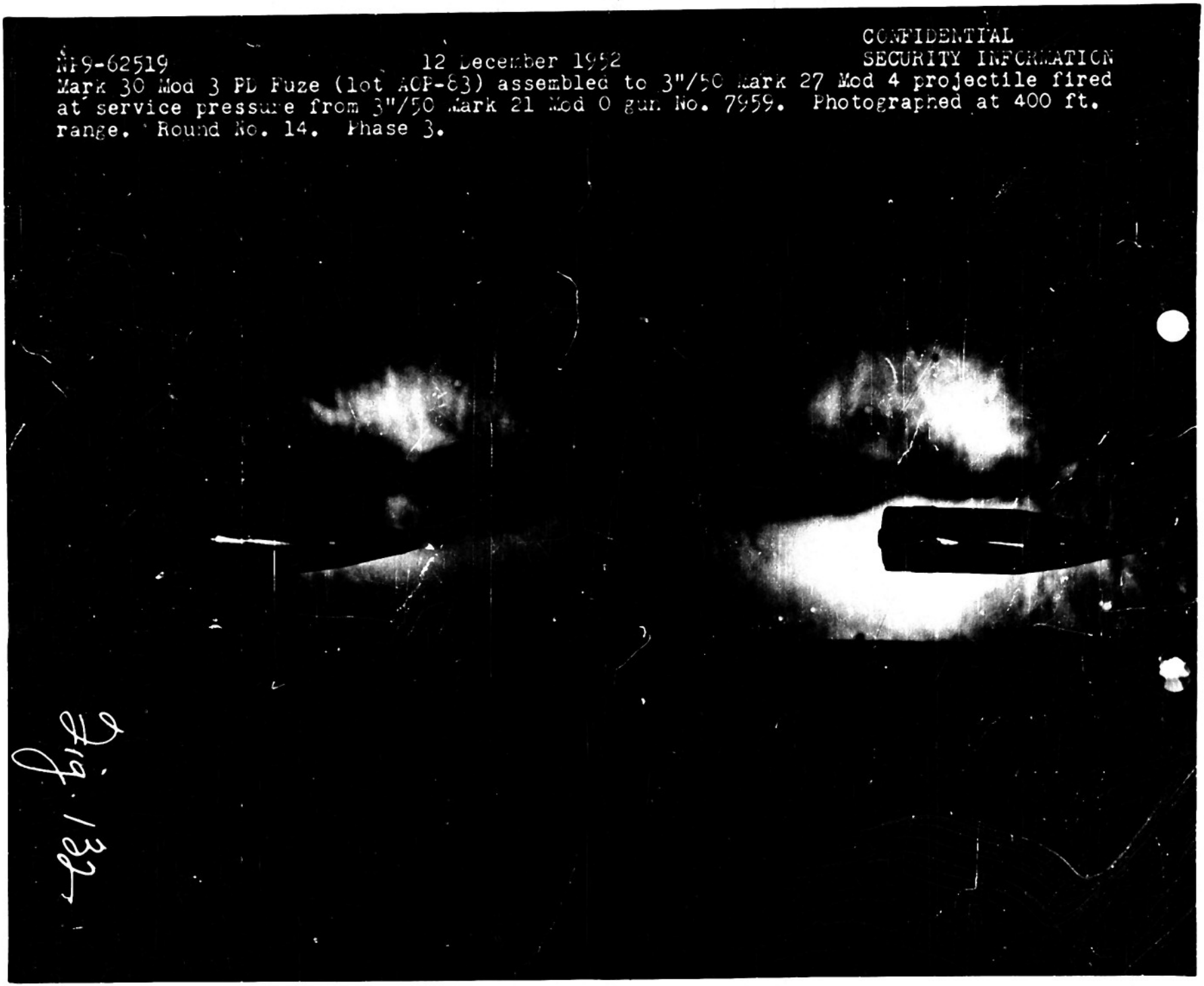


Fig. 132

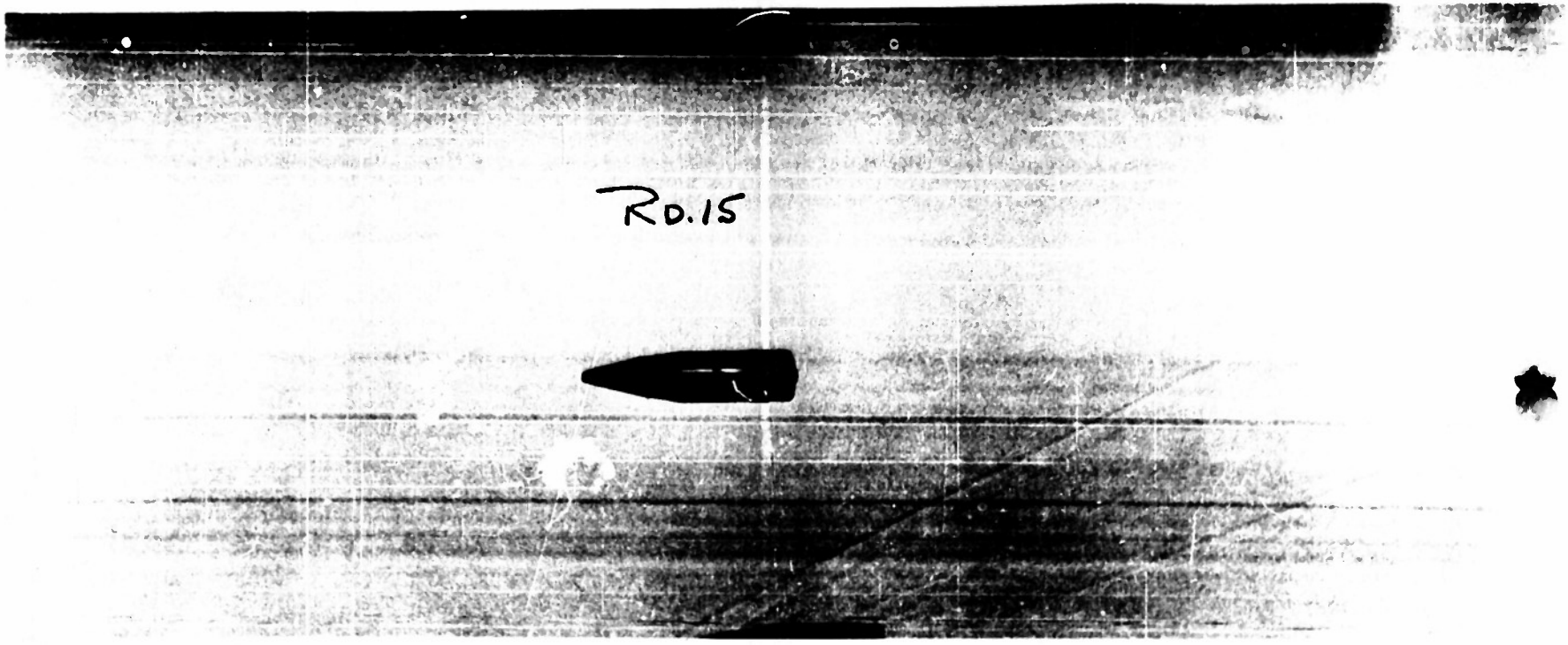
NP9-62520
12 December 1952
CONFIDENTIAL
SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 1000 ft. range. Round No. 14. Phase 3.



NP9-62521 12 December 1952 CONFIDENTIAL SECURITY INFORMATION

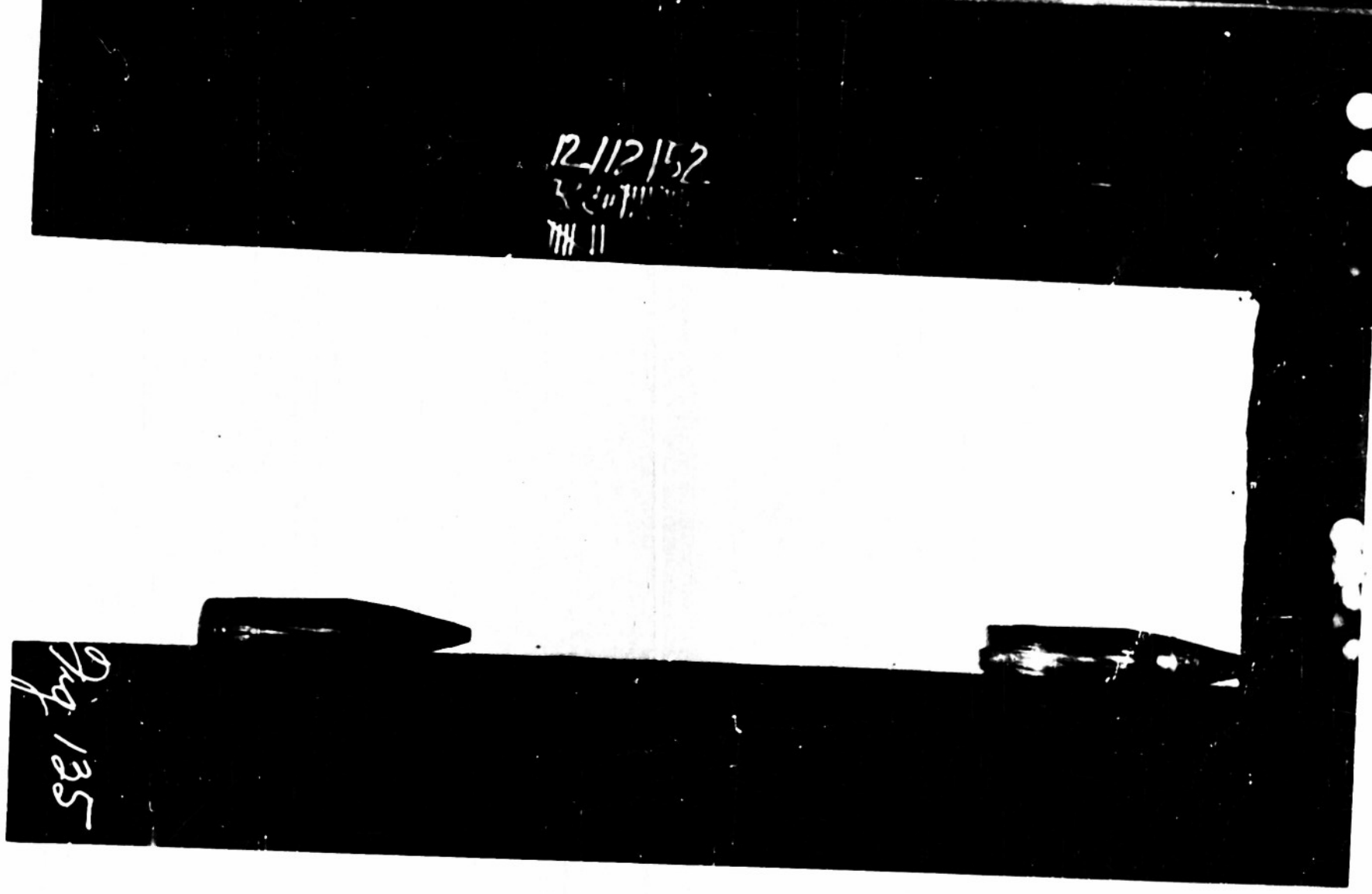
Mark 30 Mod 3 PD Fuze (lot ACF-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 1000 ft. range. Round No. 15. Phase 3.



NP9-62522 12 December 1952 CONFIDENTIAL
SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 400 ft. range. Round No. 16. Phase 3.

12/12/52



NP9-62523 12 December 1952 CONFIDENTIAL SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 1000 ft. range. Round No. 16. Phase 3.



CONFIDENTIAL
SECURITY INFORMATION

12 December 1952

KP9-62524
Mark 30 Mod 3 PD Fuze (lot ACP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 400 ft. range. Round No. 17. Phase 3.

12/12/52
Rdw

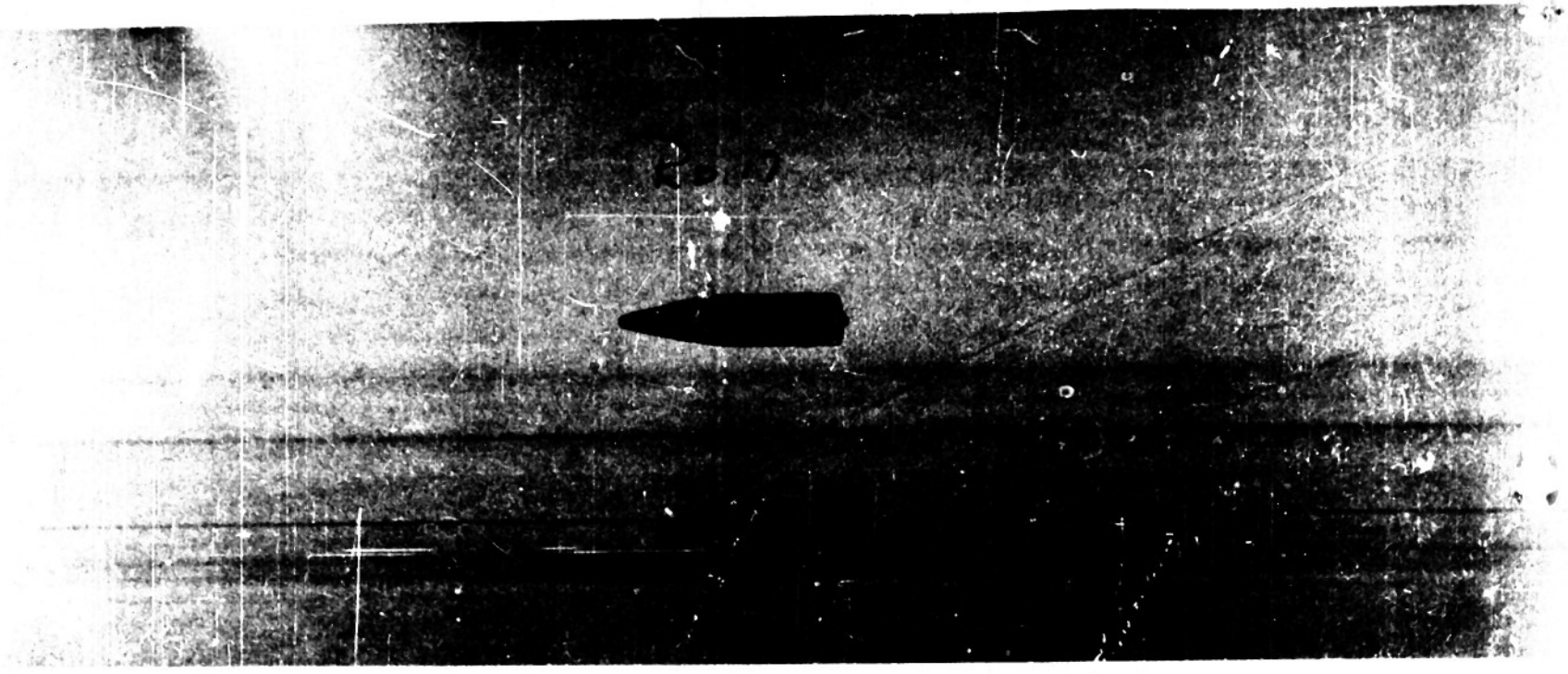


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CONFIDENTIAL
SECURITY INFORMATION

NP9-62525 12 December 1952

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 1000 ft. range. Round No. 17. Phase 3.



CONFIDENTIAL
SECURITY INFORMATION

12 December 1952

NP9-62526

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 400 ft. range. Round No. 18. Phase 3.

RJ12152



TX-139

NP9-62527 12 December 1952 CONFIDENTIAL
SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 1000 ft. range. Round No. 18. Phase 3.



NP9-62528 12 December 1952

CONFIDENTIAL
SECURITY INFORMATION

Mark 30 Mod 3 PD Fuze (lot AOP-83) assembled to 3"/50 Mark 27 Mod 4 projectile fired at service pressure from 3"/50 Mark 21 Mod 0 gun No. 7959. Photographed at 1000 ft. range. Round No. 19. Phase 3.

