

UNCLASSIFIED

|                                                                                                                                                                                                                                                 |              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| AD NUMBER                                                                                                                                                                                                                                       |              |
| ADA800064                                                                                                                                                                                                                                       |              |
| CLASSIFICATION CHANGES                                                                                                                                                                                                                          |              |
| TO:                                                                                                                                                                                                                                             | unclassified |
| FROM:                                                                                                                                                                                                                                           | confidential |
| LIMITATION CHANGES                                                                                                                                                                                                                              |              |
| TO:<br>Approved for public release; distribution is unlimited.                                                                                                                                                                                  |              |
| FROM:<br>Distribution authorized to DoD only;<br>Administrative/Operational Use; 07 JAN 1952.<br>Other requests shall be referred to Naval<br>Proving Ground, Dahlgren, VA. Pre-dates formal<br>DoD distribution statements. Treat as DoD only. |              |
| AUTHORITY                                                                                                                                                                                                                                       |              |
| NSWC notice dtd 5 Jun 1975; NSWC notice dtd 5 Jun 1975                                                                                                                                                                                          |              |

THIS PAGE IS UNCLASSIFIED

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

DISTRIBUTION STATEMENT A

APPROVED FOR PUBLIC RELEASE;  
DISTRIBUTION UNLIMITED.

UNCLASSIFIED

*ATI-205063*

DEFENSE DOCUMENTATION CENT

FOR

SCIENTIFIC AND TECHNICAL INFORMATIO

CAMERON STATION, ALEXANDRIA, VIRGINIA  
CLASSIFICATION CHANGED  
TO UNCLASSIFIED  
FROM CONFIDENTIAL  
PER AUTHORITY

*sub Surface Weapons Com  
Notice 5 June 75*

UNCLASSIFIED

Reproduced by

ENT SERVICE CENTER

IS TECHNICAL INFORMATION AGENCY

ILDING, DAYTON, 2, OHIO

7311

050634

Government or other drawings, specifications or  
any purpose other than in connection with  
Government procurement operation, the U.S.  
assumes no responsibility, nor any obligation  
that the Government may have formulated,  
or supplied the said drawings, specifications  
be regarded by implication or otherwise as  
the holder or any other person or corpora-  
tions or permission to manufacture, use or  
on that may in any way be related thereto."

ASSIGNED



FILE COPY

U. S. NAVAL PROVING GROUND  
DAHLGREN, VIRGINIA

REPORT NO. 910.

WARHEADS FOR GUIDED MISSILES

34th Partial Report

SUPERSONIC FLIGHT TESTS OF  
NAVAL ORDNANCE LABORATORY MODEL 114

Final Report

Task

Assignment NPG-Resf-607-1-52

Copy No. 5

Classification CONFIDENTIAL  
SECURITY INFORMATION

**NOTICE: THIS DOCUMENT CONTAINS INFORMATION AFFECTING THE  
NATIONAL DEFENSE OF THE UNITED STATES WITHIN THE MEANING  
OF THE ESPIONAGE LAWS, TITLE 18, U.S.C., SECTIONS 793 and 794.  
THE TRANSMISSION OR THE REVELATION OF ITS CONTENTS IN  
ANY MANNER TO AN UNAUTHORIZED PERSON IS PROHIBITED BY LAW.**

CONFIDENTIAL

NPG REPORT NO. 910

Supersonic Flight Tests of Naval Ordnance Laboratory Model 114  
-----

PART A

SYNOPSIS

1. The Naval Ordnance Laboratory is engaged in developing a guided missile warhead which will expel a number of individually fuze explosive pellets as the warhead approaches its target. In addition to static tests, certain data, such as flight stability and pellet dispersion, must be obtained during the development stages from test vehicles traveling at supersonic speeds. It was decided that the most satisfactory method of obtaining this data would be from a 5 inch diameter model fired from the Naval Proving Ground's 1050 ft. rocket launcher.

a. The object of this test was to determine the flight stability and dispersion of sub-missiles ejected from a 5 inch model warhead traveling at a velocity approaching 2000 f.s..

b. It is concluded that:

(1) Sub-missiles can be satisfactorily ejected from a 5 inch diameter model warhead traveling at 1800 f.s., with an ejection velocity of approximately 130 f.s. provided by an internal charge of 30 grams of FFF-G black powder.

(2) The sub-missiles provided for this test, BUORD SK-315181, assumed a stable flight-trajectory approximately 8 ft. from the line of fire, after their ejection from the Trial Warhead #114.

CONFIDENTIAL  
SECURITY INFORMATION

CONFIDENTIAL

NPG REPORT NO. 910

Supersonic Flight Tests of Naval Ordnance Laboratory Model 114

TABLE OF CONTENTS

|                                             | <u>Page</u>        |
|---------------------------------------------|--------------------|
| SYNOPSIS . . . . .                          | 1                  |
| TABLE OF CONTENTS . . . . .                 | 2                  |
| AUTHORITY . . . . .                         | 3                  |
| REFERENCES . . . . .                        | 3                  |
| BACKGROUND . . . . .                        | 3                  |
| OBJECT OF TEST . . . . .                    | 3                  |
| PERIOD OF TEST . . . . .                    | 3                  |
| REPRESENTATIVE PRESENT . . . . .            | 3                  |
| DESCRIPTION OF ITEM UNDER TEST . . . . .    | 4                  |
| DESCRIPTION OF TEST EQUIPMENT . . . . .     | 4                  |
| PROCEDURE . . . . .                         | 4                  |
| RESULTS AND DISCUSSION . . . . .            | 5                  |
| CONCLUSIONS . . . . .                       | 6                  |
| APPENDIX A -- DRAWINGS OF WARHEAD . . . . . | FIGURES 1-2 (Incl) |
| APPENDIX B -- PHOTOGRAPHS . . . . .         | FIGURES 3-7 (Incl) |
| APPENDIX C -- DISTRIBUTION . . . . .        | 1 (Only)           |

CONFIDENTIAL  
SECURITY INFORMATION



CONFIDENTIAL

NPG REPORT NO. 910

Supersonic Flight Tests of Naval Ordnance Laboratory Model 114  
-----

PART B

INTRODUCTION

1. AUTHORITY:

This test was conducted in accordance with reference (a).

2. REFERENCES:

- a. NOL ltr NP/NOL/X11(94) WG:LEH Ser 0649 of 17 April 1951
- b. NOL ltr NP/NOL/X11(68) WG:LEH Ser 0422 of 16 March 1951

3. BACKGROUND:

The Naval Ordnance Laboratory is engaged in developing a guided missile warhead which will expel a number of individually fuzed explosive pellets as the warhead approaches its target. In addition to static tests, certain data, such as flight stability and pellet dispersion, must be obtained during the development stages from test vehicles traveling at supersonic speeds. It was decided that the most satisfactory method of obtaining this data would be from a 5 inch diameter model fired from the Naval Proving Ground's 1050 ft. Rocket launcher.

4. OBJECT OF TEST:

The object of this test was to determine the flight stability and dispersion of sub-missiles ejected from a 5 inch model warhead traveling at a velocity approaching 2000 f.s..

5. PERIOD OF TEST:

- |                                     |               |
|-------------------------------------|---------------|
| a. Date Project Letter              | 17 April 1951 |
| b. Date Necessary Material Received | 23 April 1951 |
| c. Date Commenced Test              | 30 April 1951 |
| d. Test Completed                   | 3 May 1951    |

6. REPRESENTATIVE PRESENT:

Mr. L. E. Hightower

Naval Ordnance Laboratory

CONFIDENTIAL  
SECURITY INFORMATION

Supersonic Flight Tests of Naval Ordnance Laboratory Model 114  
-----PART CDETAILS OF TEST

## 7. DESCRIPTION OF ITEM UNDER TEST:

a. Figures 1 through 4 illustrate the method of construction of the model warhead #114, the design of the sub-missiles, attachment and method of ejection. An empty 5 inch rocket head Mk 6 was machined to permit partial insertion of the sub-missiles in its sides, 180° apart. A special primer tube fitted in the base plug was equipped with a Mk 113 detonator (ND-24) and then filled with 30 grams of FFF-G black powder as an expulsion charge. Leads from the detonator were run through holes drilled in the side of the rocket head to electrical contact "ears" secured to the rocket nose plug. The sub-missiles, weighing 1.4 pounds each, were kept in place by notched metal bands attached to the rocket head by a single screw at each end.

## 8. DESCRIPTION OF TEST EQUIPMENT:

|                                           |                                                                                                                                                                      |
|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Launcher:                                 | NPG 1050 ft.                                                                                                                                                         |
| Propulsion:                               | Two 5"0 rocket motors<br>Mk 2 Mod 3.                                                                                                                                 |
| Cameras:                                  | Bowen Acceleration (on side)<br>35mm Fastax (rear - line of fire).                                                                                                   |
| Velocity Measurement:                     | Potter Chronograph and<br>Oscillograph.                                                                                                                              |
| Ignition of Primer in<br>Ejection System: | Knife blades connected to primer<br>cutting through copper screens,<br>charged with 300 Volts D. C. by<br>means of Power Pack - 65 M.P.<br>condenser across screens. |

## 9. PROCEDURE:

a. The 5 inch rocket head with its sub-missiles, Figure 3, was threaded into a 5"0 motor Mk 2 and placed in the 1050 ft. rocket launcher. A second 5"0 motor Mk 2 was placed behind it to boost the velocity. The forward motor was ignited 200 ft. down the launcher while being propelled by the booster motor at a velocity of approximately 600 f.s..

CONFIDENTIAL

NPG REPORT NO. 910

Supersonic Flight Tests of Naval Ordnance Laboratory Model 114  
-----

b. A second set of copper screens was placed at the muzzle end of the launcher and a 300 volt D. C. power source connected to them. When the brass ears on the nose of the rocket cut through the screens the voltage was applied to the Mk 113 detonator which ignited the black powder ejection charge.

c. Both rounds were photographed from the side, as they left the launcher, with a Bowen acceleration camera operated at 90 frames per second, Figures 5 and 6. A 35mm Fastax camera placed directly below the muzzle of the launcher covered the rocket as it left the launcher and continued down range, thereby recording the spread of the sub-missiles, Figure 7.

10. RESULTS AND DISCUSSION:

a. Following is a brief summarization of the results obtained with the two Model 114 warheads tested:

| <u>Date</u> | <u>Velocity of Round<br/>at Ejection<br/>f.s.</u> | <u>Results</u>                                                                                                                                                                    |
|-------------|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4-30-51     | 1800                                              | Sub-missiles ejected approximately 5 ft. beyond ignition point - traveled in same plane as warhead - each sub-missile approximately 8 ft. from warhead when 150 ft. off launcher. |
| 5-3-51      | 1734                                              | Sub-missiles ejected approximately 5 ft. beyond ignition point - traveled in same plane as warhead - each sub-missile approximately 8 ft. from warhead when 150 ft. off launcher. |

b. The Bowen film indicated that the sub-missiles assumed a stable trajectory when ejected and traveled in the same plane as the warhead. Yaw cards 12 ft. wide, erected 150 ft. from the muzzle, indicated that the warhead had a stable trajectory at that point and that the sub-missiles had spread out so that each was more than 6 ft. from the line of fire, since they did not penetrate the yaw cards, Figure 7.

c. The Fastax film confirmed the stable flight of the rounds and the spread indicated above. Static tests had previously indicated that the sub-missiles would be ejected with a lateral velocity of about 130 f.s.

CONFIDENTIAL  
SECURITY INFORMATION

CONFIDENTIAL

NPG REPORT NO. 910

Supersonic Flight Tests of Naval Ordnance Laboratory Model 114

PA

CONCLUSIONS

11. It is concluded that:

a. Submissiles can be satisfactorily ejected from a 5 inch diameter model warhead traveling at 1800 f.s., with an ejection velocity of approximately 130 f.s. provided by an internal charge of 30 grams of FFF-G black powder.

b. The submissiles provided for this test, BUORD SK-315181, assumed a stable flight trajectory approximately 8 ft. from the line of fire after their ejection from the Trial Warhead #114.

CONFIDENTIAL  
SECURITY INFORMATION

CONFIDENTIAL

NPG REPORT NO. 910

Supersonic Flight Tests of Naval Ordnance Laboratory Model 114  
-----

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:

H. LYDDANE, Director of Research  
Terminal Ballistics Department  
W. B. ROBERTSON, Lieutenant Commander, USN,  
Terminal Ballistics Batteries Officer  
Terminal Ballistics Department  
R. T. RUELE, Lieutenant Commander, USN,  
Terminal Ballistics Officer  
Terminal Ballistics Department  
C. C. BRAMBLE, Director of Research, Ordnance Group

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

*C. T. Dutt*  
C. T. Dutt  
Captain,  
Ordnance Officer  
By direction

CONFIDENTIAL  
SECURITY INFORMATION



CONFIDENTIAL

NPG REPORT NO. 910

U. S. NAVAL PROVING GROUND  
DAHLGREN, VIRGINIA

Thirty-fourth Partial Report

on

Warheads for Guided Missiles

-----  
Final Report

on

Supersonic Flight Tests of

Naval Ordnance Laboratory Model 114

Project No.: NPG-Re3f-607-1-52  
Copy No.: 5  
No. of Pages: 7

Date:

JAN 7 1952

CONFIDENTIAL  
SECURITY INFORMATION

54AA-2279

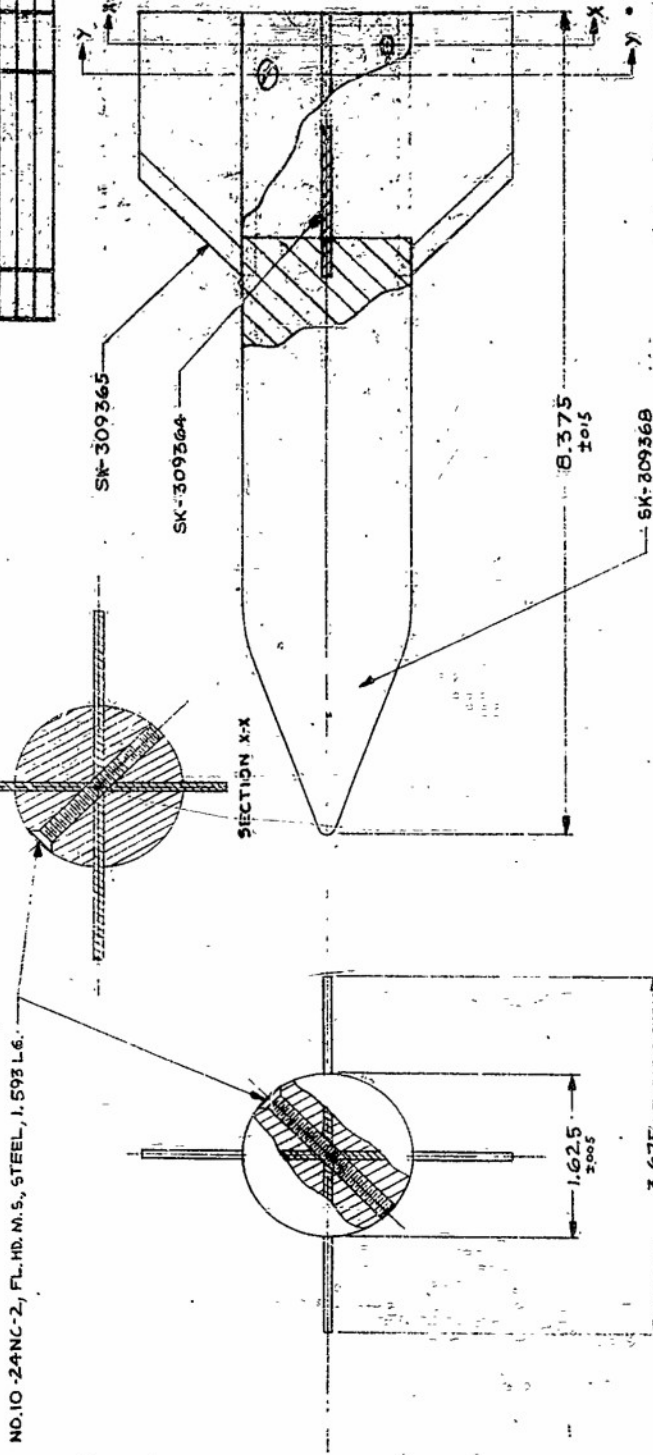


7799-46450

SK-313540

NO. 10-24NC-2, FL. HD. M. S., STEEL, 1.593 L.6.

| REVISION | DATE | APPROVAL |
|----------|------|----------|
|          |      |          |
|          |      |          |
|          |      |          |
|          |      |          |
|          |      |          |
|          |      |          |
|          |      |          |
|          |      |          |
|          |      |          |



SECTION Y-Y

THIS DRAWING IS THE PROPERTY OF THE U.S. GOVERNMENT AND IS TO BE USED FOR OFFICIAL PURPOSES ONLY. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT PERMISSION IN WRITING FROM THE U.S. GOVERNMENT.

|                                                                                                                                                                                                                                                                                                           |  |                   |  |                  |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------|--|------------------|--|
| <p>UNLESS SPECIFIED IN OTHERWISE, DIMENSIONS SHOWN ARE IN INCHES. DIMENSIONS ARE TO BE MAINTAINED WITHIN TOLERANCES SPECIFIED IN THE DRAWING. DIMENSIONS ARE TO BE MAINTAINED WITHIN TOLERANCES SPECIFIED IN THE DRAWING. DIMENSIONS ARE TO BE MAINTAINED WITHIN TOLERANCES SPECIFIED IN THE DRAWING.</p> |  | <p>APPROVED</p>   |  | <p>19</p>        |  |
| <p>DO NOT SCALE DRAWINGS</p>                                                                                                                                                                                                                                                                              |  | <p>CHECKED BY</p> |  | <p>DATE</p>      |  |
| <p>MATERIAL</p>                                                                                                                                                                                                                                                                                           |  | <p>DRAWN</p>      |  | <p>REVISION</p>  |  |
| <p>SCALE</p>                                                                                                                                                                                                                                                                                              |  | <p>UNIT</p>       |  | <p>JOB ORDER</p> |  |
| <p>SK-313540</p>                                                                                                                                                                                                                                                                                          |  | <p>SK-313540</p>  |  | <p>SK-313540</p> |  |

Figure 2

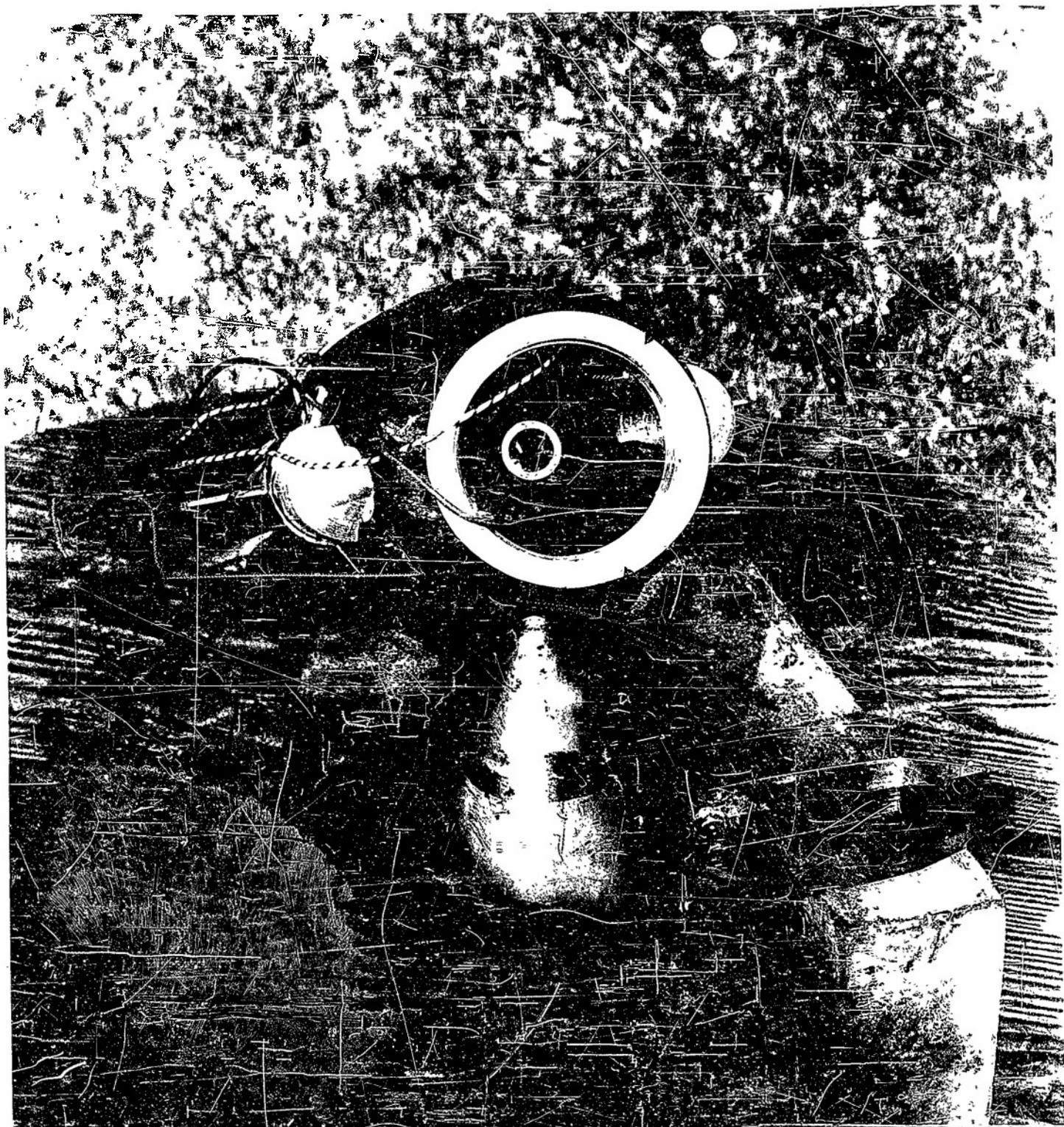
DN INSPRT

NP-46451

Warhead Model 114 - ejection charge for two sub-missiles  
consists of 30 gms. black powder - contacts for ejection  
are attached to top of warhead - note sub-missiles  
secured to sides.

ref: 5-2-51





NP9-46452

CONFIDENTIAL

Warhead Model 114 - showing internal tube containing 30 gm black powder ejection charge and 2 sub-missiles housed in sides of warhead - contacts for ejection charge shown on nose cap in foreground. Date Fired: 5-3-51

Figure 4





PC-454

Mod 3.01

# Future

49. 4. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839.



CONFIDENTIAL

NPG REPORT NO. 910

Supersonic Flight Tests of Naval Ordnance Laboratory Model 114

DISTRIBUTION

Bureau of Ordnance:

Ad3  
Re3  
Re3f

1  
1  
1

Chief of Ordnance,  
Department of the Army  
Attn: ORDTX-AR

2

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

1

Navy Research Section,  
Library of Congress  
Washington 25, D. C.  
(Via BUORE, Re3)

2

NOTS, Inyokern, California

1

NOTS, Inyokern, California  
Attn: Explosives Department  
Research Department  
Controlled Missiles Department

1  
1  
1

Solid Propellant Information Agency  
APL, Johns Hopkins University  
Silver Spring, Maryland

1

Commander, Naval Ordnance Laboratory  
White Oak, Maryland  
Attn: Missiles Division

1  
1

Local:  
OT  
File

1  
1

CONFIDENTIAL  
SECURITY INFORMATION

APPENDIX C



Reproduced by

DOCUMENT SERVICE CENTER

ARMED SERVICES TECHNICAL INFORMATION

D. R. BUILDING, DAYTON, 2, OHIO

RAIL-C

7311

A. T. I.

205063

**NOTICE:** When Government or other drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, Government thereby incurs no responsibility, nor any obligation whatsoever; and the fact that the Government may have furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise in any manner licensing the holder or any other person or entity, or conveying any rights or permission to manufacture, use, or reproduce in any way the information that may in any way be related to any Government procurement operation.

UNCLASSIFIED