

Indian Head Division
Naval Surface Warfare Center
Indian Head, MD 20640-5035

IHSP 02-485
4 December 2002

Albert T. Camp Technical Library



3 4476 2006241 \$

GUIDE FOR ANTI-SUBMARINE ROCKET (ASROC) MISSILE GAUGE AND HANDLING EQUIPMENT CERTIFICATION PROCEDURE

Approved for public release; distribution is unlimited.



WEAPONS DEPARTMENT

Indian Head Special Publication 02-485

4 December 2002

GUIDE FOR ANTI-SUBMARINE ROCKET (ASROC) MISSILE GAUGE AND HANDLING EQUIPMENT CERTIFICATION PROCEDURE

Approved for public release; distribution is unlimited.

INDIAN HEAD DIVISION
NAVAL SURFACE WARFARE CENTER
Indian Head, Maryland, 20640-5035

MARC A. SIEBAND
Captain, US Navy
Commander

STEPHEN E. MITCHELL
Director

This page intentionally left blank.

CONTENTS

<i>Heading</i>	<i>Page</i>
Foreword	iii
1.0 Introduction	1
2.0 Applicable Documents	1
3.0 Definitions and Acronyms.....	2
4.0 Requirements.....	2
5.0 Supplemental Information	22

Figure

1	Inspection Sheet	3
---	------------------------	---

This page intentionally left blank.

1.0 INTRODUCTION

This guide provides the requirements for inspection and certification of Anti-Submarine Rocket (Asroc) gauge and handling equipment.

All comments concerning this guide should be directed to the Indian Head Division, Naval Surface Warfare Center (IHDIV, NSWC), Attn: Code 4320, 101 Strauss Ave., Indian Head, MD 20640.

The inspection instruments utilized in this procedure were selected from those known to be available at IHDIV, NSWC, and the listing by make or model number carries no implication of preference, recommendation, or approval for use by other activities. It is recognized that equivalent equipment produced by other manufacturers may be capable of equally satisfactory performance in this procedure. All applicable measuring equipment must bear evidence of current calibration.

All Asroc gauges included in this procedure do not pose a health hazard. Due to the construction and weight of the gauges, handle carefully to avoid any injuries or equipment damage.

2.0 APPLICABLE DOCUMENTS

Technical Manuals

SW180-AA-MMI-010/2923 Revision 1 01 February 1996	Maintenance Manual for Anti-Submarine Rocket (Asroc) Missile Description and Instructions for Assembly, Inspection, and Storage (Intermediate Maintenance Activity)
SG420-AP-MMA-010 Third Revision 01 April 2000	Periodic Testing Arrangement for (Ordnance Handling Equipment)

Drawings

Dwg. 1659987	Mounting Base
Dwg. 1660365	Scale
Dwg. 1806042	Beam, Indicator Deflection Assembly
Dwg. 3018165	Gage Alignment Launching Lug
Dwg. 3236987	Gage, Lug Ear

Standards

ASME Y.14, 1994	Dimensioning and Tolerancing
-----------------	------------------------------

Other

ISO 10012-1:1992(E)	Quality Assurance Requirements for Measuring Equipment
---------------------	--

(Application for copies of the above documents should be addressed to: Commander, Naval Sea Systems Command, PMS-380, 1333 Isaac Hull Ave SE Stop (3301) Washington Navy Yard, DC 20376-3301.)

3.0 DEFINITIONS AND ACRONYMS

Definitions

Classification of Characteristic (CC)—The process of assigning classification codes (Critical, Major, or Minor) to design characteristics of an item.

Classification, Critical—A critical characteristic is one that analysis indicates is likely, if defective, to create or increase a hazard to human safety, or to result in failure of a weapon system or major system to perform a required mission.

Classification, Major—A major characteristic is one that analysis indicates is significant to product quality but is not likely, if defective, to impair the mission performance of the item.

Acronyms

Asroc—Anti-Submarine Rocket

CC—Classification of Characteristic

CMM—Coordinate Measuring Machine

EHG—Electronic Height Gage

IHDIV, NSWC—Indian Head Division, Naval Surface Warfare Center

4.0 REQUIREMENTS

4.1 Procedure requirements. Procedures for using and testing the gauge and handling equipment are defined in SW180-AA-MMI-010/2963 and SG420-AP-MMA-010. Please refer to these documents for operational instructions.

4.2 Inspection requirements. The gauge and handling equipment shall meet the inspection requirements identified on the individual inspection procedure (G1 through G7 and H1 through H3). Inspection data shall be recorded on an inspection sheet (see Figure 1). If a piece of equipment does not meet the acceptable dimensions, the equipment shall be rejected. Rejected equipment cannot be used to assemble Asroc missiles. Return inspection records to Commanding Officer, Indian Head Division, NSWC, Code 4320, 101 Strauss Avenue, Indian Head, MD 20640 for technical evaluation and advice.

4.3 Drawing requirements. The minimum requirement for drawing interpretation is a basic understanding of geometric dimensioning and tolerancing. Reference ASME Y.14, 1994, "Dimensioning and Tolerancing." International Standard ISO 10012-1:1992 contains quality assurance requirements for a supplier to ensure that measurements are made with the intended accuracy.

4.4 Temperature requirements. Room temperature requirement for inspection = 68 ± 5 °F.

4.5 Instrument requirements. The inspection instruments utilized in this procedure were selected from those known to be available at IHDIV, NSWC, and the listing by make or model number carries no implication of preference, recommendation, or approval for use by other activities. It is recognized that equivalent equipment produced by other manufactures may be capable of equally satisfactory performance in this procedure. All applicable measuring equipment must bear evidence of current calibration.

4.6 Safety requirements. All Asroc gauges included in this procedure do not pose a health hazard. Due to the construction and weight of the gauges, handle carefully to avoid any injuries or equipment damage.

Inspection Sheet

DRAWING NUMBER	NOMENCLATURE		REVISION	SERIAL NUMBER(S)
QUANTITY RECEIVED	QUANTITY INSPECTED	DATE RECEIVED	DATE INSPECTED	
DISPOSITION				
REQUIREMENT		INSPECTION		
DIMENSIONS AND NOTES	EQUIPMENT USED	OK/REJECT	INSPECTOR'S NOTES	INSTRUCTIONS
INSPECTED BY				DATE

Figure 1. Inspection Sheet

Special Asroc Gauge Inspection Requirements G-1

Nomenclature: Beam, Indicator Deflection Assembly
Drawing No.: 1806042 **Sheet No.:** 1 of 4
Inspection Frequency: Yearly

General:

1. Visually inspect for dents, bends, cracks, or missing components that may preclude the correct use of the gauge.
2. Record Deflection Beam Indicator serial number on inspection sheet. The serial number for this item is located on the nameplate. Refer to sheet 2, zone B-7 of the drawing.

Weight Test Inspection:

Note 5, Classification of Characteristic – CRITICAL (C1)

5. Assembly shall withstand a 2,000-lb minimum static load without permanent deformation when suspended on lock pin, prior to release for use. Load shall be applied equally at each end.

5

Special Asroc Gauge Inspection Requirements G-2**Nomenclature:** Beam, Indicator Deflection Assembly**Drawing No.:** 1806042 **Sheet No.:** 2 of 4**Inspection Frequency:** Yearly**General:**

1. Visually inspect for dents, bends, cracks, or missing components that may preclude the correct use of the gauge.
2. Record Deflection Beam Indicator serial number on inspection sheet. The serial number for this item is located on the nameplate. Refer to sheet 2; zone B-7 of the drawing nameplate.

Inspections:

Classification of characteristic	Zone	Drawing dimension	Acceptable dimension	Measuring equipment
Major (M101)	A-2	$\boxed{- .001}$ $\boxed{- B -}$	$\boxed{- .002}$ $\boxed{- B -}$	CMM
Major (M102)	A-6	$4.625 \pm .020$	$4.625 \pm .020$	CMM
Major (M103)	B-3	$\boxed{/// .001 B}$	$\boxed{/// .002 B}$	CMM
Major (M106)	B-2	$3.093 \pm .001$	$3.093 \pm .005$	CMM
Major (M107)	A-2	$\boxed{\perp .001 B}$	$\boxed{\perp .002 B}$	CMM

Special Asroc Gauge Inspection Requirements G-3**Nomenclature:** Beam, Indicator Deflection (Scope Check Gauge)**Drawing No.:** 1806042 **Sheet No.:** 3 of 4**Inspection Frequency:** Yearly**General:**

1. Visually inspect for dents, bends, cracks, or missing components that may preclude the correct use of the gauge.
2. Record gauge serial number. The serial number for this item is located on the nameplate. Refer to sheet 2, zone B-7 of the drawing.
3. Verify security seals are not broken. If adjustment is performed, replace security seals.

Inspections: Mount telescope on mounting base for inspection.

Classification of characteristic	Zone	Drawing dimension	Acceptable dimension	Measuring equipment
Major (M108)	A-3	.7501 + .0004 - .0000	.7501 + .0008 - .0000	CMM
Major (M109)	A-3	$\perp$.0002 C	$\perp$.0006 C	CMM
Major (M110)	B-2	8.187 ± .001	8.187 ± .005	CMM

Note:**Telescope Alignment.**

The telescope used with the deflection indicator beam in checking vertical and horizontal deflections of the missile must be aligned daily before deflection checks can be made on the all-up-round missile. Refer to SW180-AA-MMI-010/2963.





Special Asroc Gauge Inspection Requirements G-4

Nomenclature: Lug Ear Gauge
Drawing No.: 3236987 **Sheet No.:** 1 of 1
Inspection Frequency: Yearly

General:

1. Visually inspect for dents, bends, cracks, or missing components that may preclude the correct use of the gauge.
2. Record Lug Ear Gage serial number on inspection sheet. The serial number for this item is located on the nameplate. Refer to zone D-8 of the drawing.

Inspections:

CC	Zone	Drawing dimension	Acceptable dimension	Measuring equipment
	B-7	.2800 + .0015 - .0000	.2800 + .0015 - .0000	EHG



Special Asroc Gauge Inspection Requirements G-5**Nomenclature:** Gage Alignment Launching Lug**Drawing No.:** 3018165 **Sheet No.:** 1 of 1**Inspection Frequency:** Two years**General:**

1. Visually inspect for dents, bends, cracks, or missing components that may preclude the correct use of the gauge.
2. Record gauge serial number on inspection sheet. The serial number for this item is located on the nameplate. Refer to zone D-5 of the drawing.

Inspections:

CC	Zone	Drawing dimension	Acceptable dimension	Measuring equipment
	B-2, B-7			CMM
	B-2, B-7	0.328 + .000 - .001	0.328 ± .001	CMM
	B-2, B-7			EHG
	B-2, B-7	3.995 + .000 - .005	3.995 + .002 - .005	EHG
	B-2, B-7	5.433 + .000 - .005	5.433 + .001 - .005	EHG
	C-5	34.25 ± .12	34.25 ± .12	CMM



Special Asroc Gauge Inspection Requirements G-6

Nomenclature: **Scale**
Drawing No.: 1660365 **Sheet No. :** 1 of 1
Inspection Frequency: Yearly

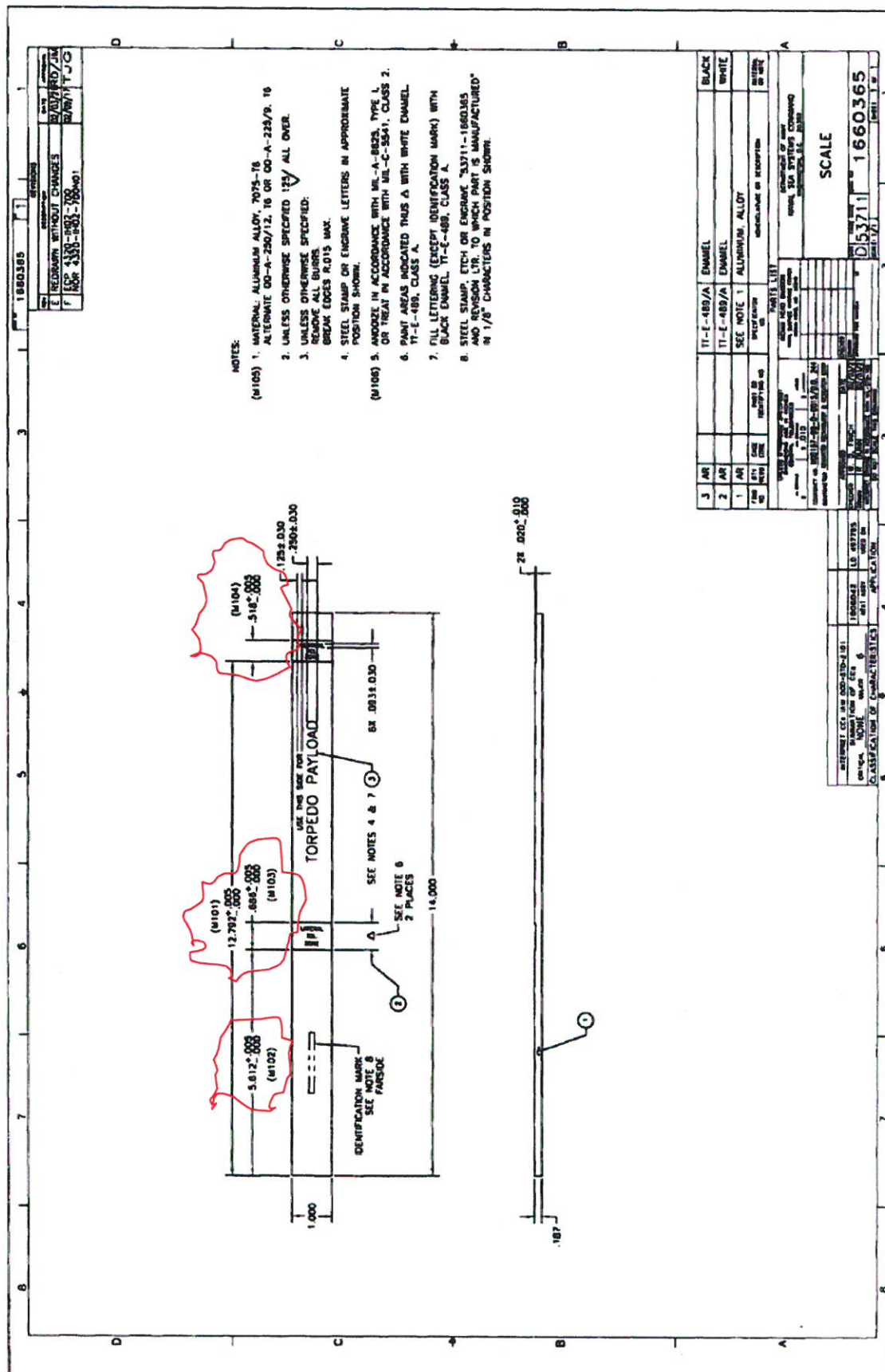
General:

1. Visually inspect for dents, bends, cracks, or missing components that may preclude the correct use of the gauge.
2. Record scale serial number on inspection sheet. The serial number for this item is etched or engraved on the item. Refer to zone C-7 of the drawing.

Inspections:

CC	Zone	Drawing dimension	Acceptable dimension	Measuring equipment
M101	C-6	12.792 + .005 - .000	12.792 + .005 - .000	EHG
M102	C-6/7	5.612 + .005 - .000	5.612 + .005 - .000	EHG
M103	C-6	.686 + .005 - .000	.686 + .005 - .000	EHG
M104	C-4	.518 + .005 - .000	.518 + .005 - .000	EHG

Dwg. 1660635 – (Splines indicate dimensions to be inspected.)



Special Asroc Gauge Inspection Requirements G-7

Nomenclature: Mounting Base
Drawing No.: 1659987 **Sheet No.:** 1 of 1
Inspection Frequency: Yearly

General:

1. Visually inspect for dents, bends, cracks, or missing components that may preclude the correct use of the gauge.
2. Record mounting base serial number on inspection sheet. The serial number for this item is etched or engraved on the item. Refer to zone C-7 of the drawing.

Inspections:

CC	Zone	Drawing dimension	Acceptable dimension	Measuring equipment
	B-7 & B-4	1.000 ± .030	1.000 ± .030	CMM
	C-5	18.000 ± .030	18.000 ± .030	CMM
	C-6	31.000 ± .030	31.000 ± .030	CMM
	C-8 (2 places)	.687 ± .030	.687 ± .030	CMM

Note: Piece must be leveled (flat) on the surface. Recommend using a graphite table.



Special Asroc Handling Equipment Inspection Requirements H-1

Nomenclature: Adapter, Missile Hoisting Mk 151 Mod 0 (LD 4979908)

National Stock Number (NSN): 9C 4921-00-777-5604

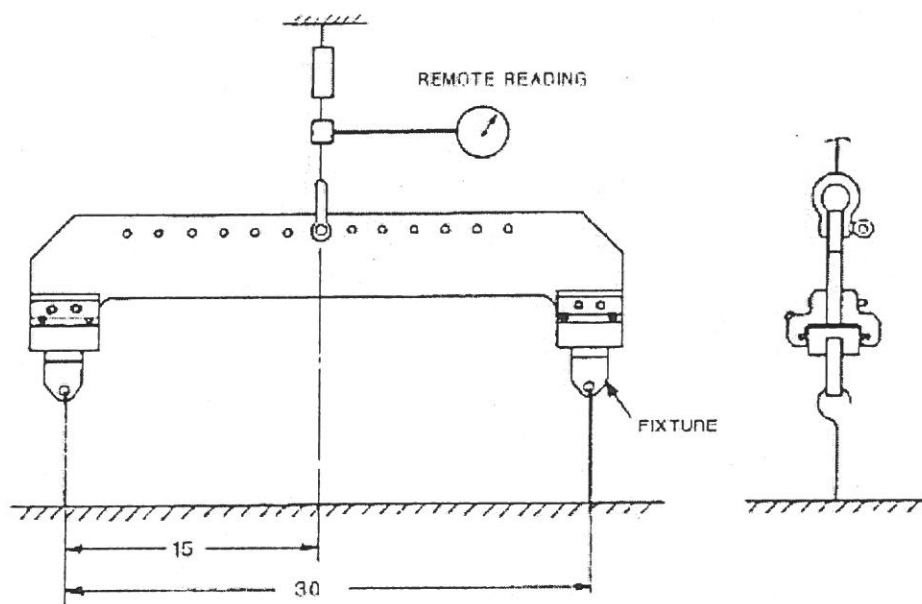
Inspection Frequency: Every 2 years

General:

1. Reference NAVSEA SG420-AP-MMA-010
2. Visually inspect for dents, bends, cracks, or missing components that may preclude the correct use of the hoisting adapter.

Test load	Test duration
2,400 pounds	2 minutes

Test configuration:



Special Asroc Handling Equipment Inspection Requirements H-2

Nomenclature: Sling, Torpedo, Mk 102 Mod 0

National Stock Number (NSN): 4921001185846

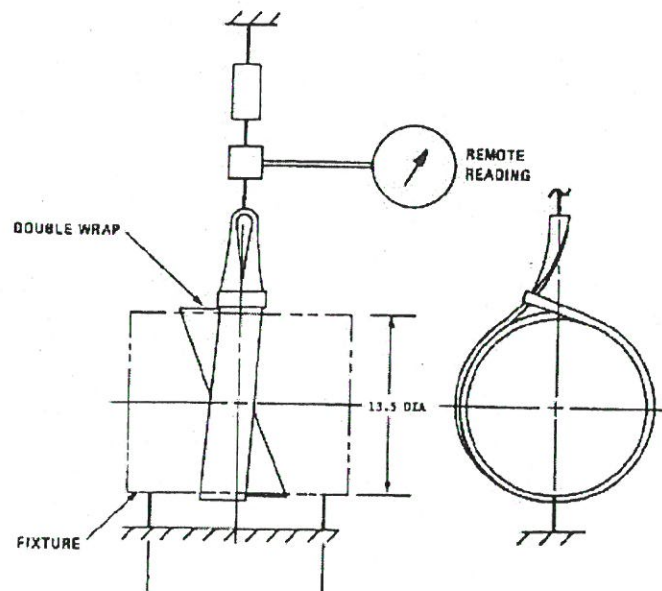
Inspection Frequency: Yearly or if integrity of sling is suspect, whichever occurs first

General:

1. Reference NAVSEA SG420-AP-MMA-010
2. Visually inspect for splicing damages or signs of deterioration that may preclude the correct use of the sling.

Test load	Test duration
2,400 pounds	2 minutes

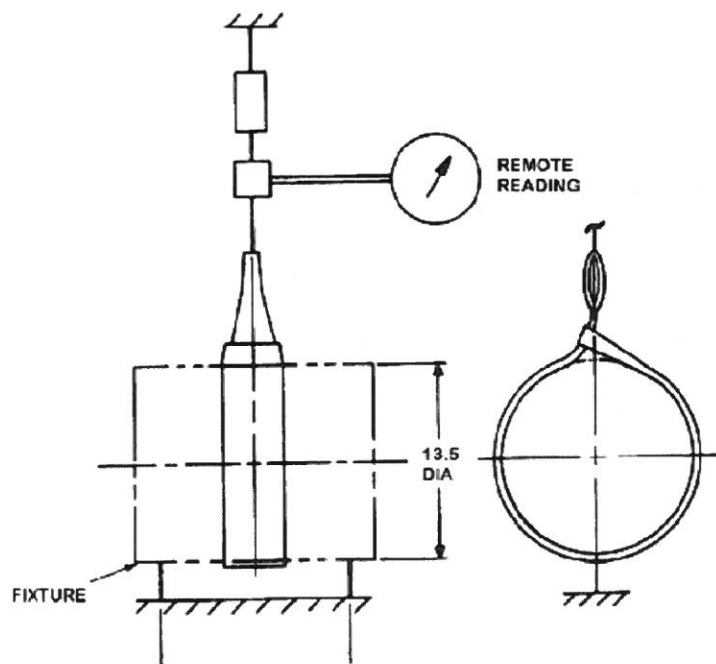
Test configuration:



Special Asroc Handling Equipment Inspection Requirements H-3**Nomenclature:** Sling, Torpedo, Mk 106 Mod 0**National Stock Number (NSN):** 4921009239089**Inspection Frequency:** Yearly or if integrity of sling is suspect, whichever occurs first**General:**

1. Reference NAVSEA SG420-AP-MMA-010
2. Visually inspect for splicing damages or signs of deterioration that may preclude the correct use of the sling.

Test load	Test duration
2,000 pounds	2 minutes

Test configuration:

5.0 SUPPLEMENTAL INFORMATION

The following pictures are provided to assist in the understanding of the gauge and handling certification requirements.

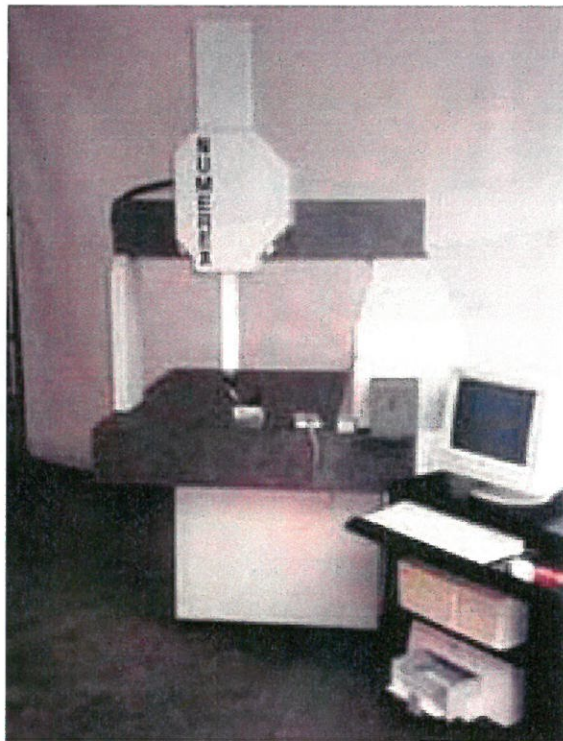
Picture No.	Description
1	Electronic Height Gauge
2	Coordinate Measuring Machine
3	Beam, Indicator Deflection Assembly
4	Scope Alignment Mounting Base
5	Lug, Ear Gauge
6	Gage Alignment Launching Lug
7	Adapter, Missile Hoisting Mk 151 Mod 0



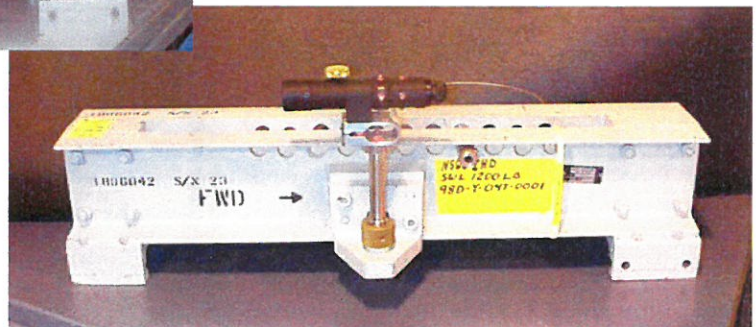
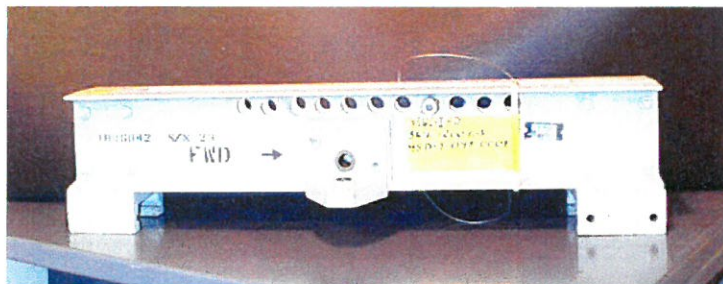
Accuracy requirement = 0.0005 inch
Model – Micro-Hite
Manufacturer – Brown & Sharp

Picture 1 – Electronic Height Gauge (EHG)

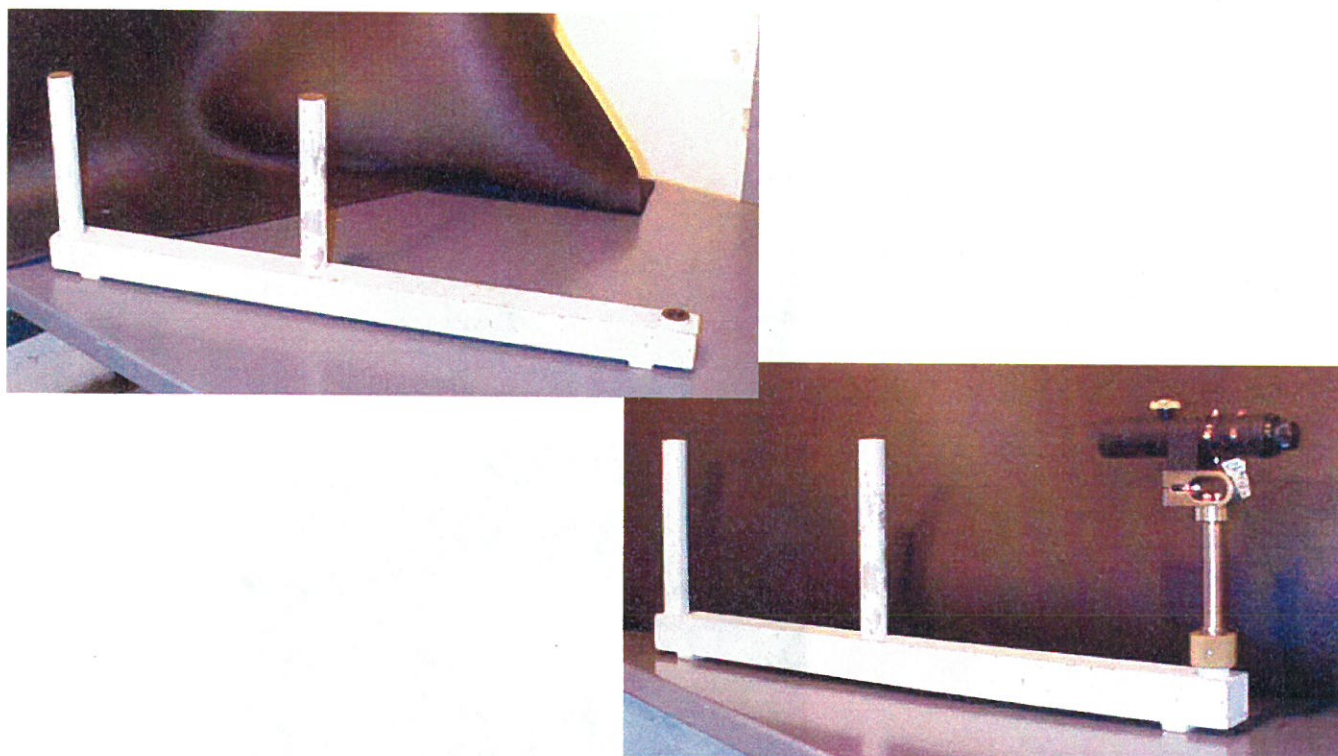
Accuracy requirement = 0.0005 inch
Model 2428-24
Manufacturer – Numerex Corp.



Picture 2 – Coordinate Measuring Machine (CMM)



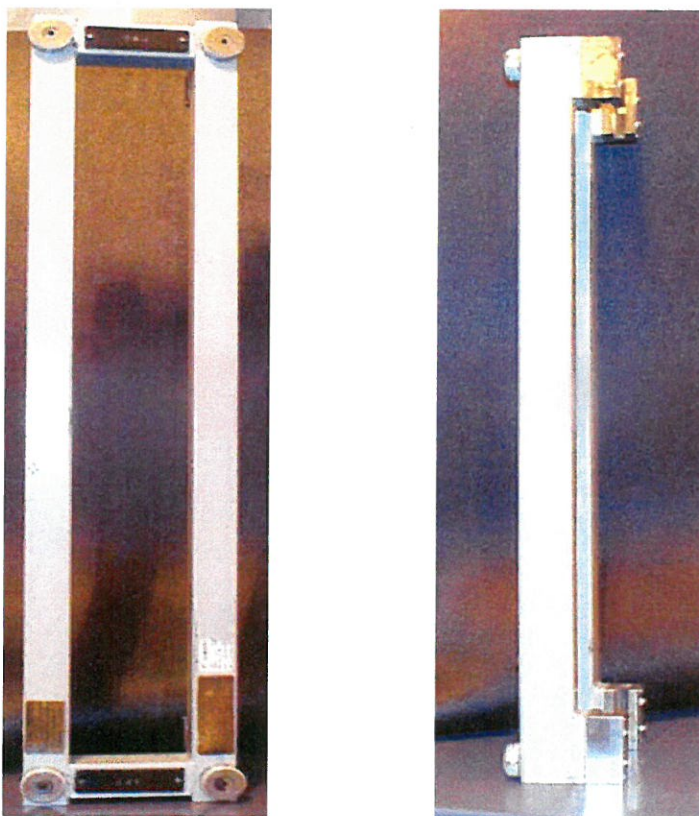
Picture 3 – Beam, Indicator Deflection Assembly (Dwg. 1806042)



Picture 4 – Scope Alignment Mounting Base (Dwg. 1806042, sheet 3)



Picture 5 – Lug Ear Gauge (Dwg. 3236987)



Picture 6 – Gage Alignment Launching Lug (Dwg. 3018165)



Picture 7 – Adapter, Missile Hoisting Mk 151 Mod 0

This page intentionally left blank.

DISTRIBUTION

		Internal:	
NAVAL SEA SYSTEMS COMMAND			
SECURITY ASSISTANCE PRGM MGR			
ATTN PMS3804X1		2210L	1
1333 ISAAC HULL AVE SE STOP (3301)		4230	3
WASHINGTON NAVY YARD DC 20376-3301	2	430	1
		4320	1
		071	3
NORTHROP GRUMMAN			
ATTN JOHN CUMMINGS			
300 M STREET SE SUITE 100			
WASHINGTON DC 20003	3		
BOOZ-ALLEN-VSE			
ATTN DONALD MCKINNEY			
60 HIGHLAND DRIVE			
HOWARD CO 81233	1		

This page intentionally left blank.

