

# SANDIA REPORT

SAND97-8017 • UC-700

Unlimited Release

Printed February 1998

## Weapon Container Catalog

### Volumes 1 & 2

RECEIVED  
APR 01 1998  
OSTI

L. A. Brown, M. C. Higuera

Prepared by

Sandia National Laboratories

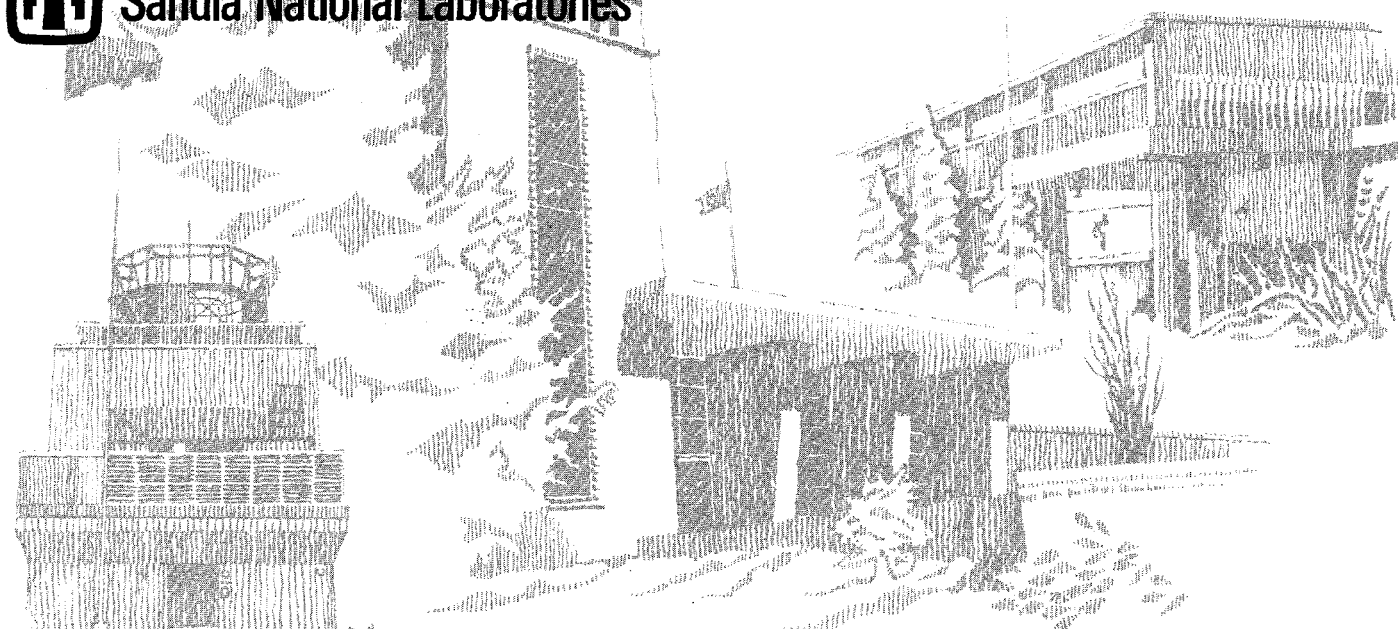
Albuquerque, New Mexico 87185 and Livermore, California 94550

Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company, for the United States Department of Energy under Contract DE-AC04-94AL85000.

Approved for public release; distribution is unlimited.



**Sandia National Laboratories**



Issued by Sandia National Laboratories, operated for the United States Department of Energy by Sandia Corporation.

**NOTICE:** This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, nor any of their contractors, subcontractors, or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government, any agency thereof, or any of their contractors or subcontractors. The views and opinions expressed herein do not necessarily state or reflect those of the United States Government, any agency thereof, or any of their contractors.

Printed in the United States of America. This report has been reproduced directly from the best available copy.

Available to DOE and DOE contractors from  
Office of Scientific and Technical Information  
P.O. Box 62  
Oak Ridge, TN 37831

Prices available from (615) 576-8401, FTS 626-8401

Available to the public from  
National Technical Information Service  
U.S. Department of Commerce  
5285 Port Royal Rd  
Springfield, VA 22161

NTIS price codes  
Printed copy: A05  
Microfiche copy: A01

## **DISCLAIMER**

**Portions of this document may be illegible  
electronic image products. Images are  
produced from the best available original  
document.**

SAND97-8017  
Unlimited Release  
Printed February 1998

Distribution  
UC Category-700

# Weapon Container Catalog

## Volumes 1 & 2

Larry A. Brown and Mark C. Higuera  
Handling Equipment Engineering Department  
Sandia National Laboratories  
Livermore, California 94551-0969

### ABSTRACT

The Weapon Container Catalog describes H-gear (shipping and storage containers, bomb hand trucks and the ancillary equipment required for loading) used for weapon programs and for special use containers. When completed, the catalog will contain five volumes. Volume 1 for enduring stockpile programs (B53, B61, B83, W62, W76, W78, W80, W84, W87, and W88) and Volume 2, Special Use Containers, are being released.

The catalog is intended as a source of information for weapon program engineers and also provides historical information. The catalog also will be published on the SNL Internal Web and will undergo periodic updates.

  
DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

MASTER <sup>iii</sup>



## Acknowledgments

The authors wish to thank the group of people who have contributed to the production of this report. Al Hachigian, (retired) formerly of Military Liaison Department 5514; Chris Christensen, ML, Pubs and Logistics Department 14712; Don Rohr, (formerly of Weapon Procedures and Logistics Department 5512) Quality and Administrative Department 01301, for their weapon program knowledge; Don Bohrer, Stockpile Obligations Department 2203, for management and project sponsorship.

The cooperation and work of the following are also appreciated: Marv Loll, Handling and Equipment Engineering Department 2265, and John Liebenberg, Enduring RV Systems Department 2266, for draft document review; Patty Guyer-Stevens, Creative Arts Department 12620; Sandra Simmons and Robert Condouris, Technical Communications Department 8815, for editing and publication; Sheila Akins and Bill Dissly, Technical Communications Department 8815, for Web publication; and Robert Monson, Handling Equipment and Engineering Department 2265, for project management.

# Contents

## Page

### Volume 1 –Stockpile Programs

A. Bomb Hand Trucks .....	1-1
B53: H794.....	1-1
B61: H1125A.....	1-9
B83: H1347/H1347A/(H695B) .....	1-13
B. Shipping and Storage Containers.....	1-21
W62/W78: H1224A.....	1-21
W76: H1333A/H1333B/(H1514-1) .....	1-27
W80: H1388 .....	1-33
W84: H1408 .....	1-37
W87: H1473 .....	1-41
W88: H1514 .....	1-49

### Volume 2 – Special Use Containers

A. Accident Resistant Container (ARC).....	2-1
B. Transportation Accident Resistant Container (TARC).....	2-5
H1501 .....	2-5
H1501A .....	2-9
H1501A-1.....	2-15
H1501B.....	2-19
C. Accident Response Group (ARG).....	2-23
S-TARC .....	2-23
H1636A .....	2-27

Appendix A—List of Ancillary H-Gear.....	A-1
--	-----

Appendix B—Historical Listing of Weapon-Related S&S Containers .....	B-1
--	-----

### Volume 3 – Hazardous Materials Containers (To Be Released)

Limited Life Components

Fuses

Parachutes

Explosive Components

### Volume 4 – Retired Programs (To Be Released)

Bomb Hand Trucks

Shipping and Storage Containers

### Volume 5 – Qualification Testing (To Be Released) (note: Facilities & Capabilities)

Drop

Fire

This page intentionally left blank

# **Weapon Container Catalog**

## **Volumes 1 & 2**

### **Introduction**

This Weapon Container Catalog provides a compilation of information describing weapon-handling gear past and present. This information includes container and hand truck use, their internal and external specifications, attachment points, related documents, and ancillary equipment.

The catalog will be used as a source of information by weapon engineers and as a historical repository of handling gear related to the shipping and handling equipment necessary to transport and store weapons.

The Weapon Container Catalog, when complete, will be a compilation of five volumes.

Volume 1 describes bomb-handling gear and containers currently used for Enduring-Stockpile programs.

Volume 2 describes special use containers.

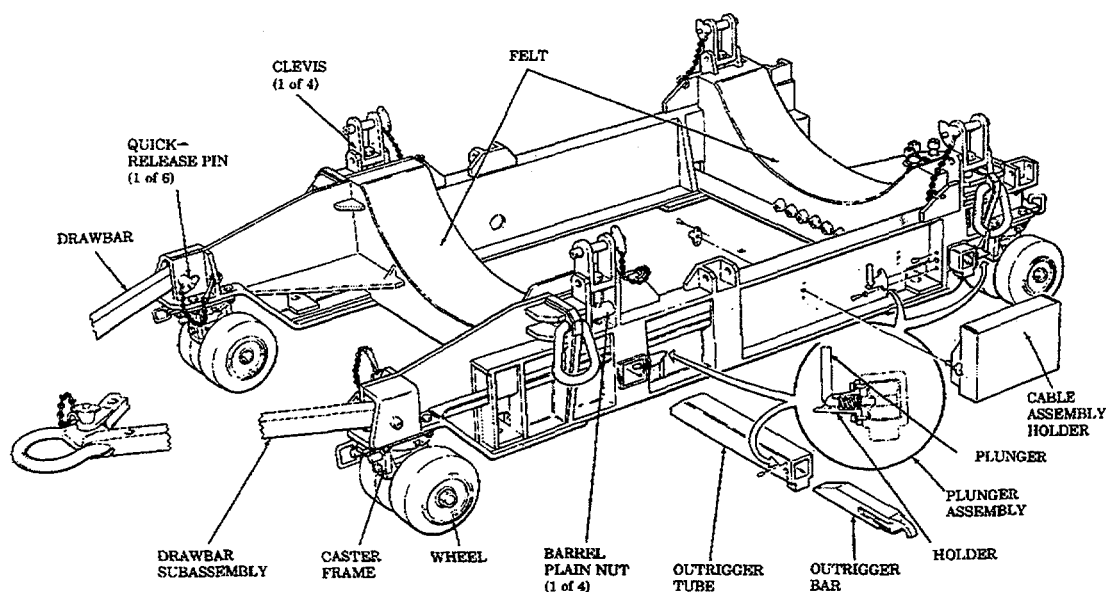
Volumes 3, 4, and 5 (to be released) will describe hazardous material containers, containers, and bomb hand trucks used on retired programs, and will also describe facilities and capabilities for qualification testing.

This page intentionally left blank

# A. Bomb Hand Trucks

B53

## H794 Bomb Hand Truck



### General Information

Program	B53
Service Branch	Air Force
Drawing Number	320190
Status	Enduring Stockpile
Quantity Available	54

### External Information

Material	Aluminum
Footprint (L x W)	n/a
Height	n/a
Empty Weight	1250 lb
Forklift Opening	n/a

### Documents

Technical Manual	TP B53-1
H-Gear Adequacy Review Report	SAND94-0768

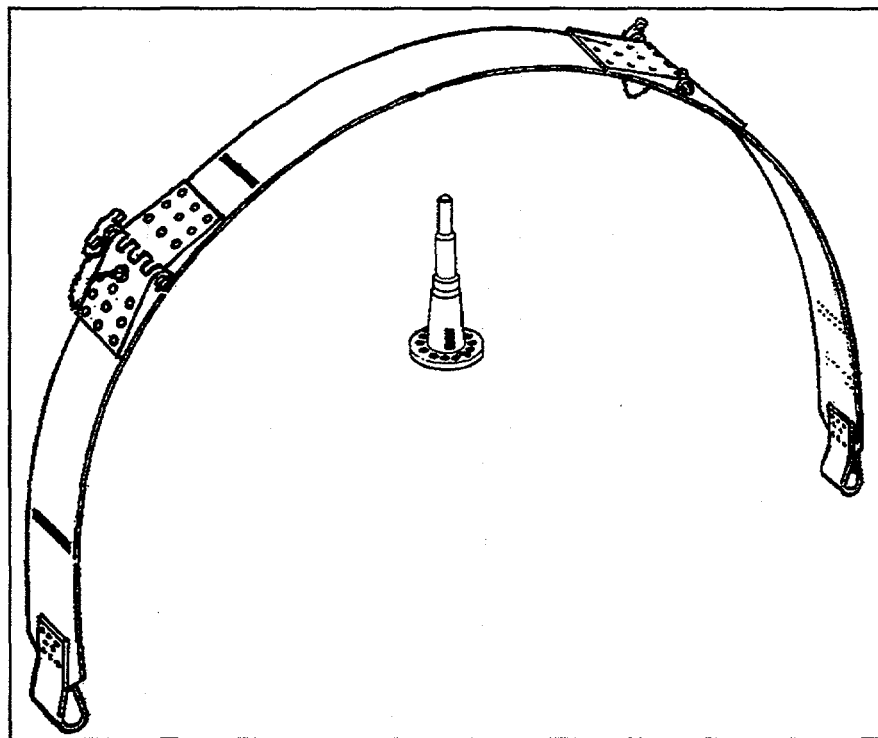
## B53 (continued)

### Ancillary H-Gear

H563 Beam-Type Sling	321216
H639 Bomb Hand Truck Sling	321293
H772 Hoisting Beam	320167
H795 Bomb Hand Truck Adapter Kit	320191
H796 Bomb Hand Truck Adapter	320192
H799 Bomb Sling	320195
H802 Bomb Sub-assembly Sling	320198
H836 Beam-Type Sling	320234

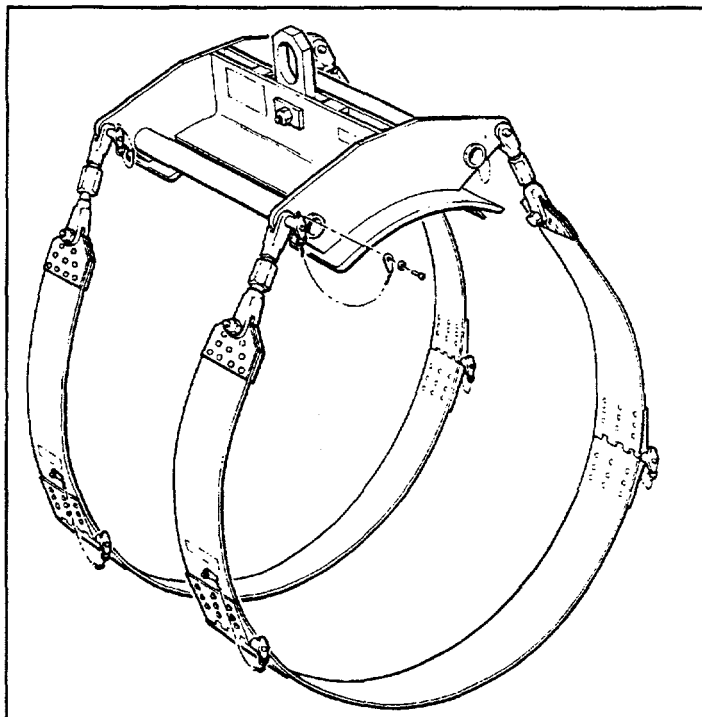
### Description

The H794 Bomb Hand Truck is a caster-mounted aluminum frame with a built-in towbar. The H794 has an attaching point for aircraft loading equipment and tiedown chains. The H794 is always used with the H795 Hand Truck Adapter Kit.

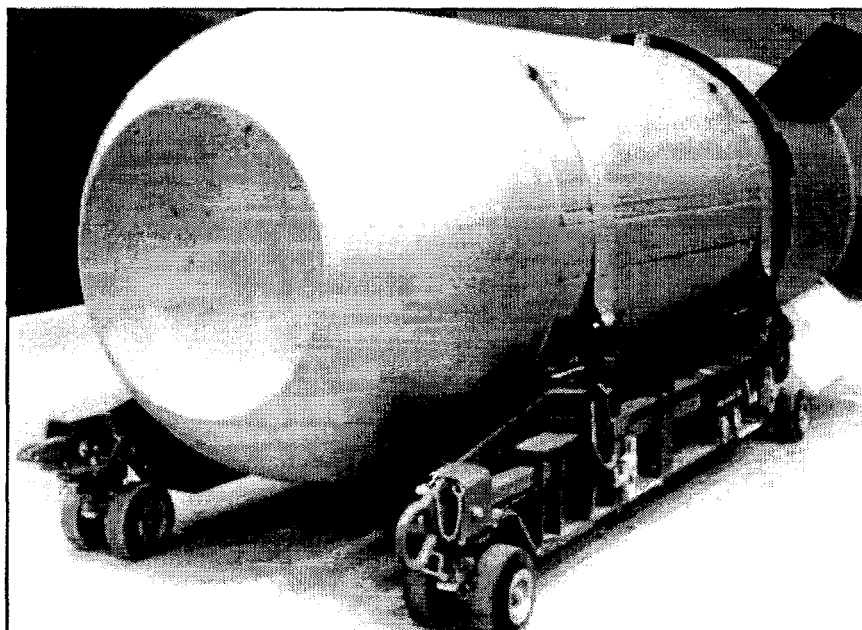


H795 Bomb Hand Truck Adapter Kit

## B53 (continued)



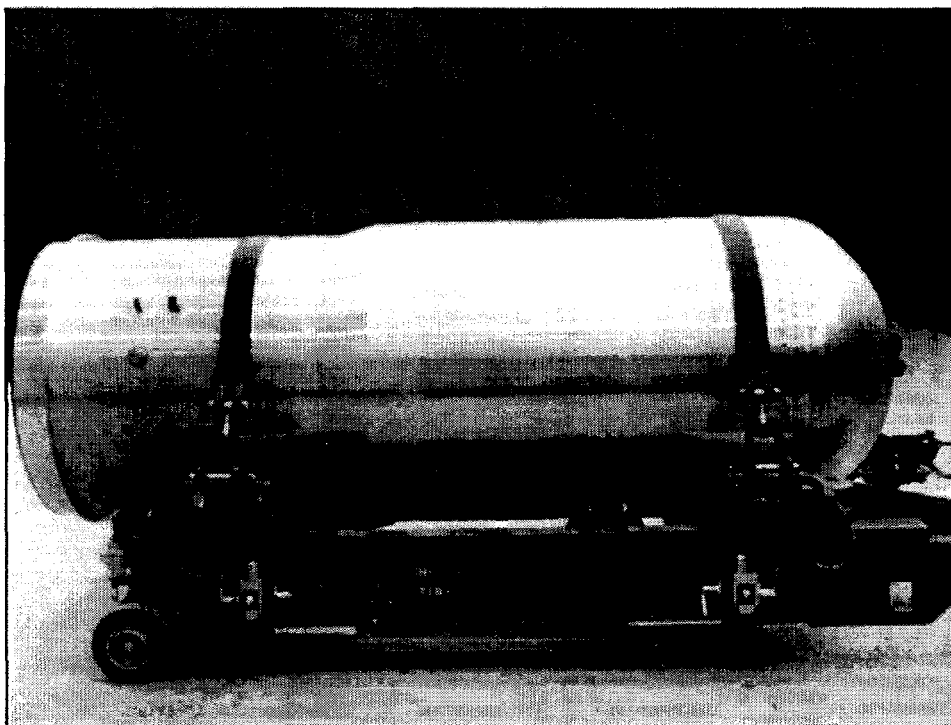
H799 Bomb Sling



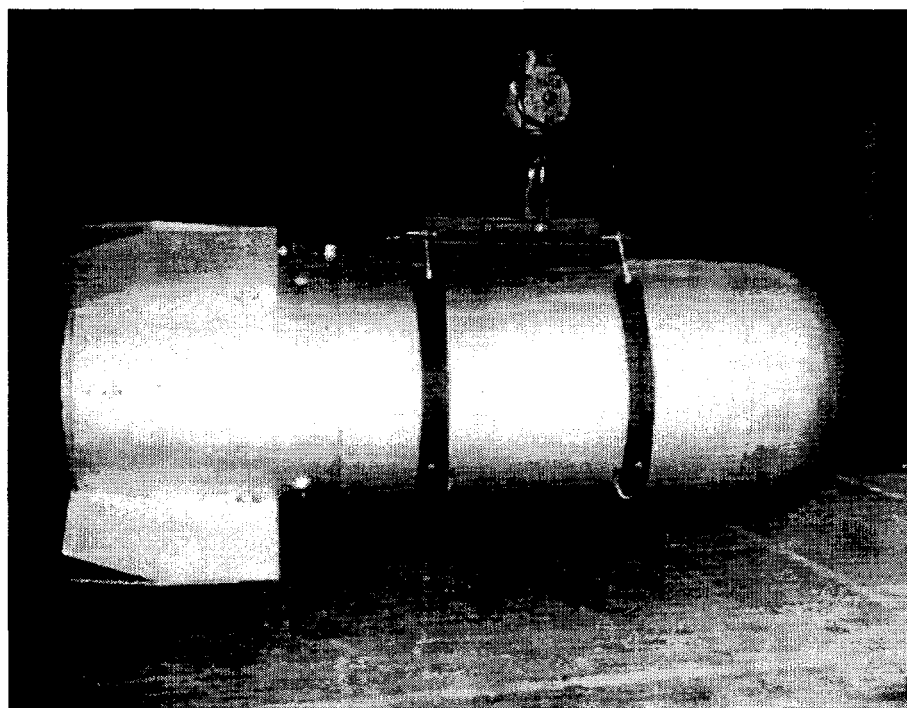
B53 with H794 and H795



## B53 (continued)

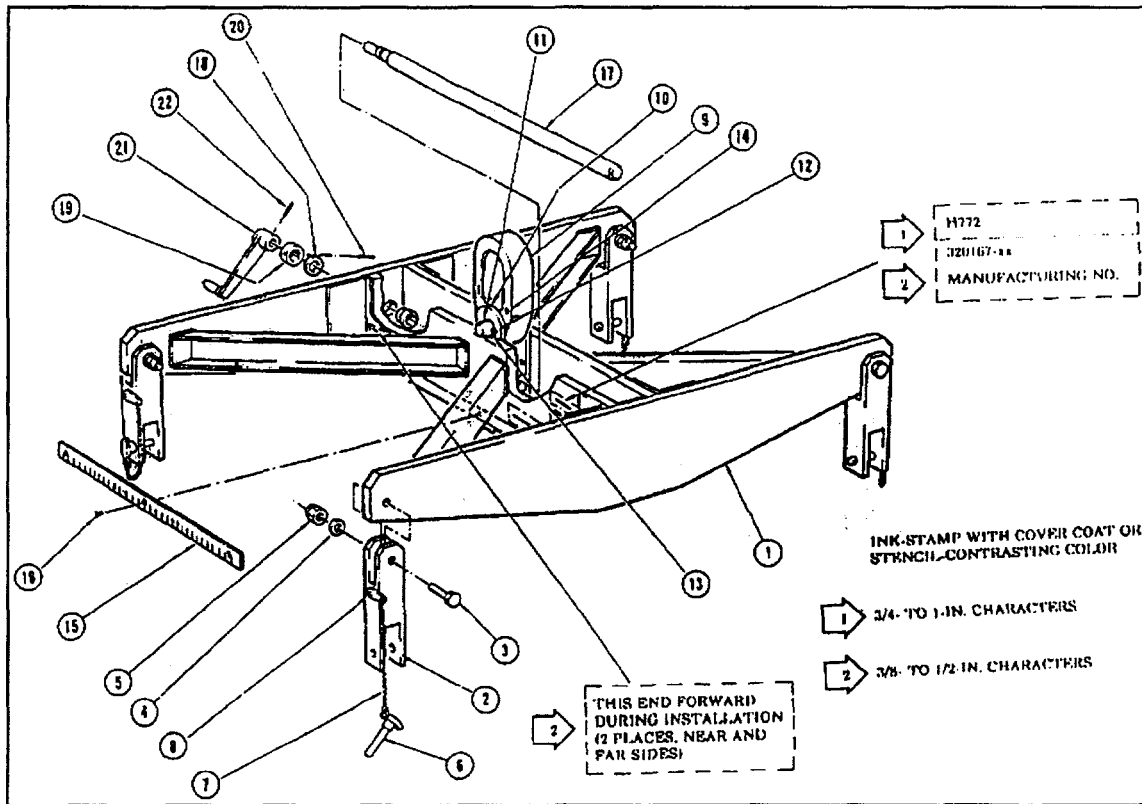


BA53 (Bomb Assembly) with H794 and H796

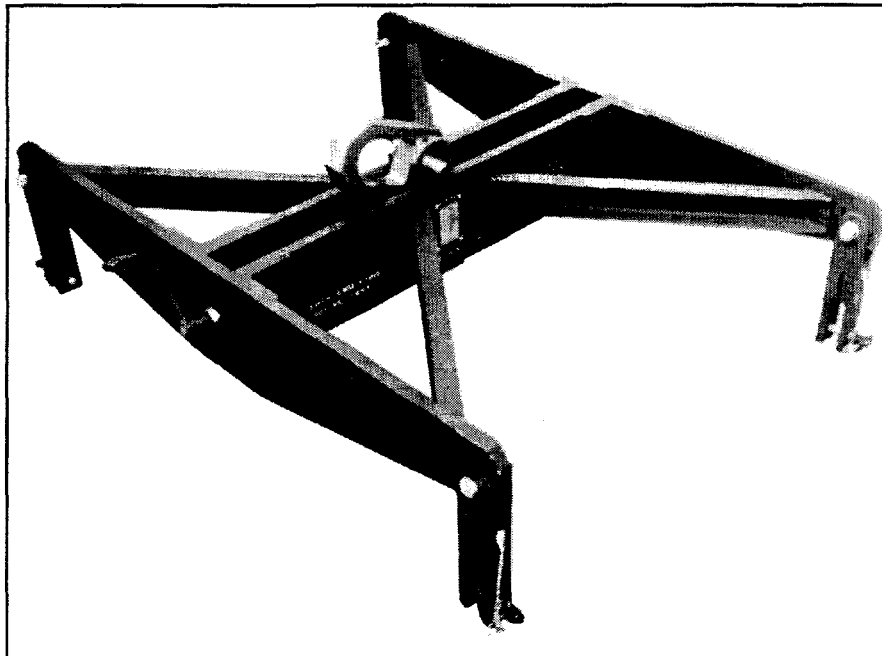


H799 Lifting a B53

## B53 (continued)

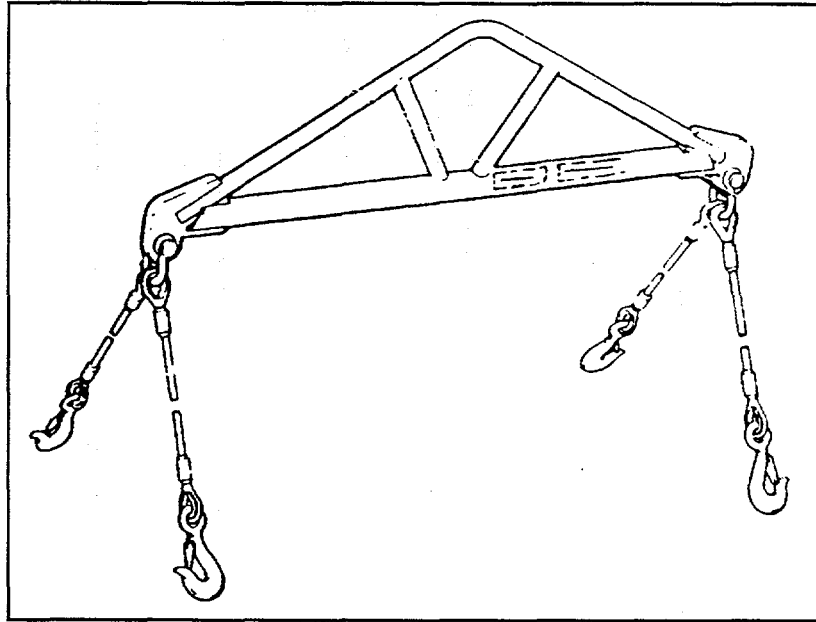


H772 Hoisting Beam

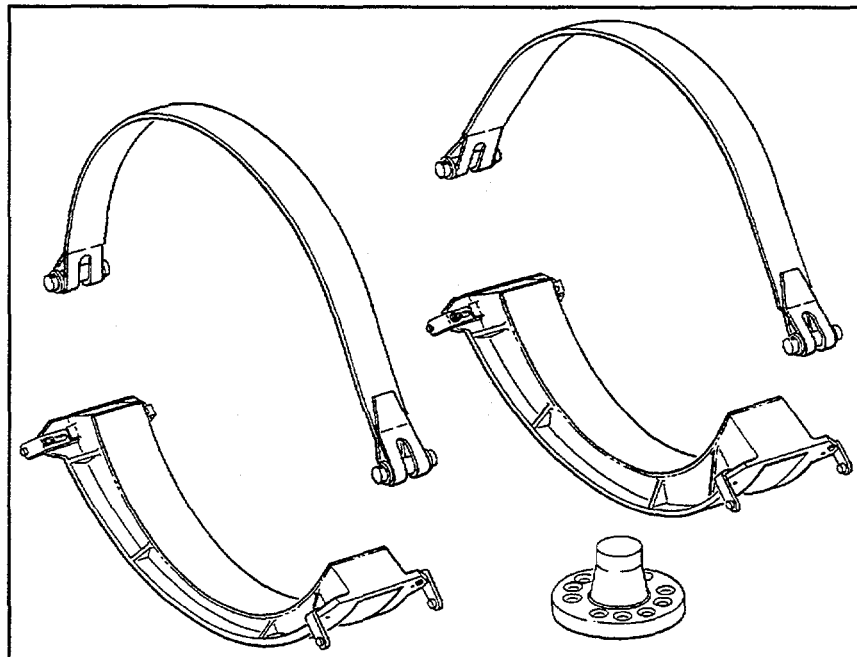


H772 Hoisting Beam

**B53 (continued)**

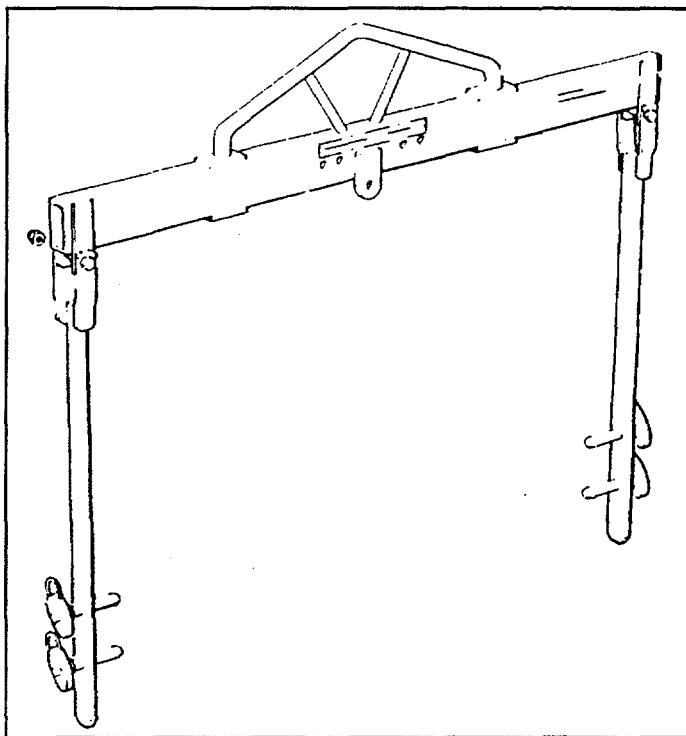


**H639 Bomb Hand Truck Sling**

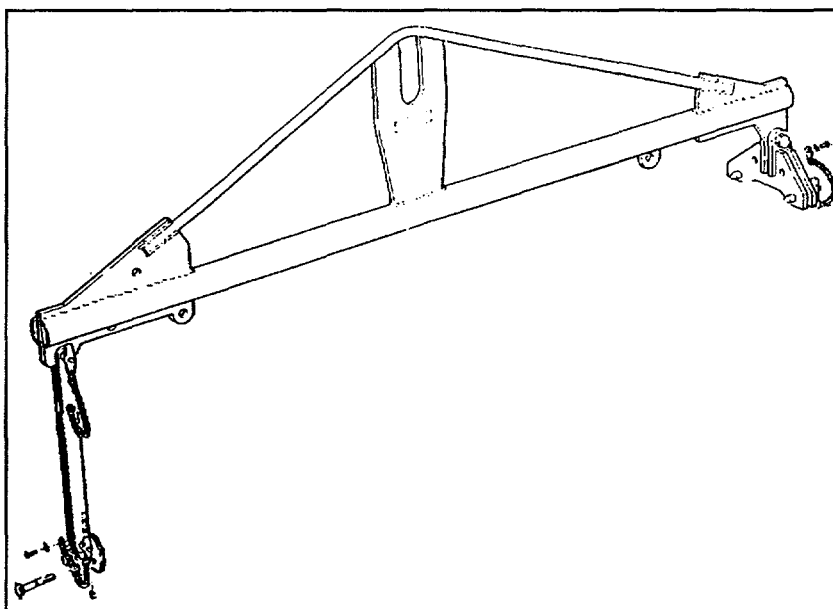


**H796 Bomb Hand Truck Adapter Kit**

## B53 (continued)



H802 Bomb Subassembly Sling

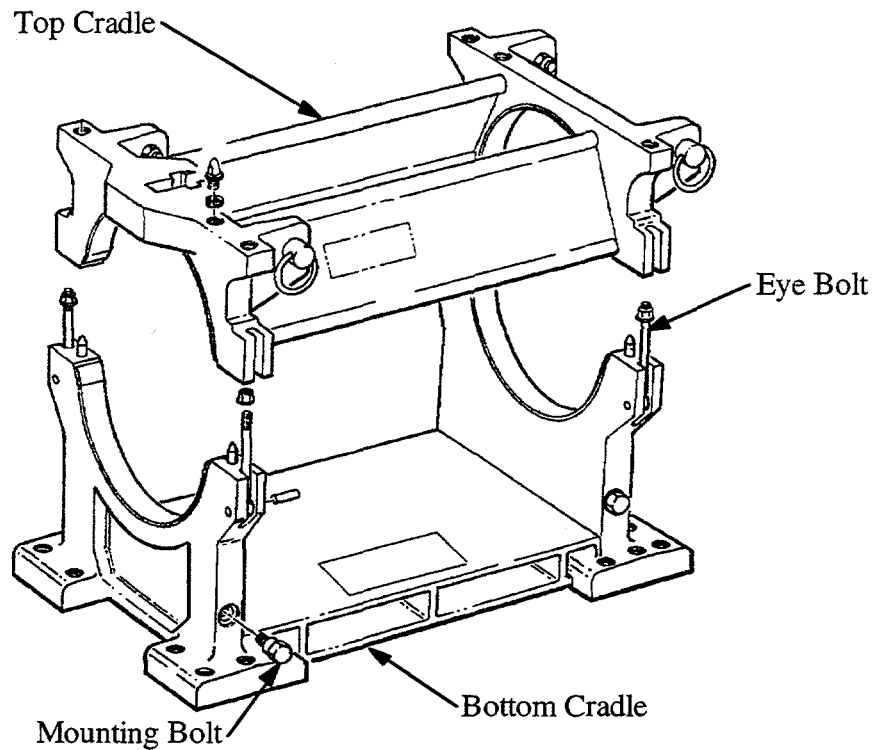


H836 Beam Type Sling

This page intentionally left blank

## B61

### H1125A Bomb Cradle



#### General Information

Program	B61
Service Branch	Navy/Air Force
Drawing Number	413173
Status	Enduring Stockpile
Quantity Available	166

#### External Information

Material	Aluminum
Footprint (L x W)	35" x 20"
Height	21"
Empty Weight	130 lb
Forklift Opening and Spacing	9.2" W x 2.0" H on 9.6" center

#### Documents

Development Report	n/a
Technical Manual	TP B61-1

## B61 (continued)

### Ancillary H-Gear

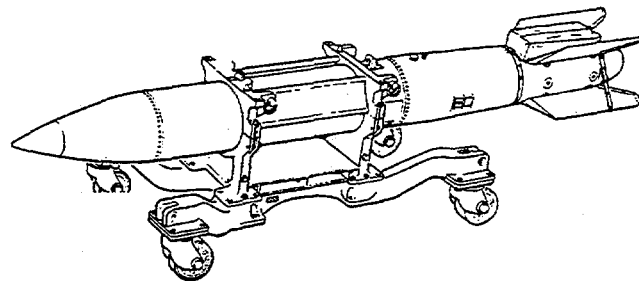
H563 Beam-Type Sling	321216
H1004 Bomb Hoisting Adapter	320369
H1012 Hand Truck	320377
H1242 Swivel Caster Set	320602

### Description

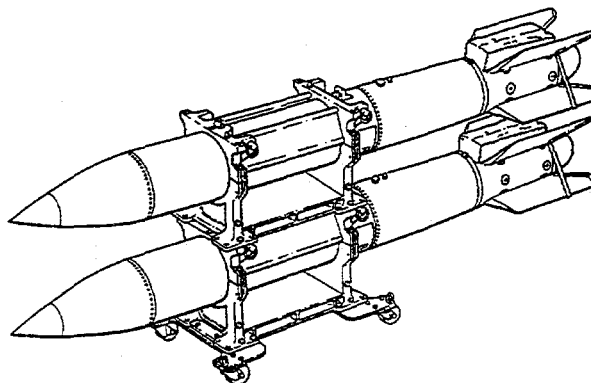
The H1125A Bomb Cradle is a two-piece aluminum frame designed to support a weapon during shipping, handling, and storage. The upper cradle has fittings for hoisting and tiedown.

The lower cradle has provisions for forklift handling. The cradles may be separated with four eye bolts. The cradles may also be stacked two high.

The H1125A may be mounted to either the H1012 Hand Truck or the H1242 Swivel Caster Set to aid in moving the B61.

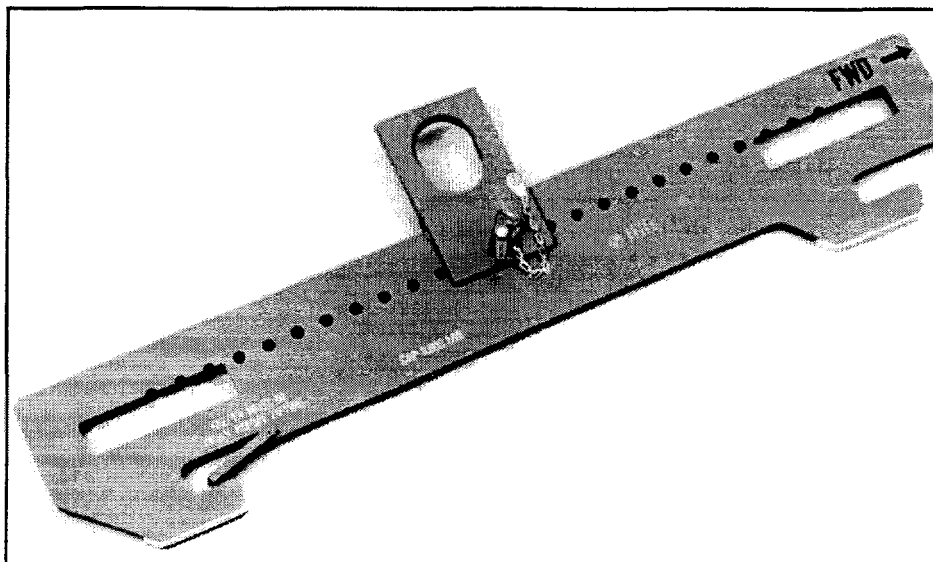
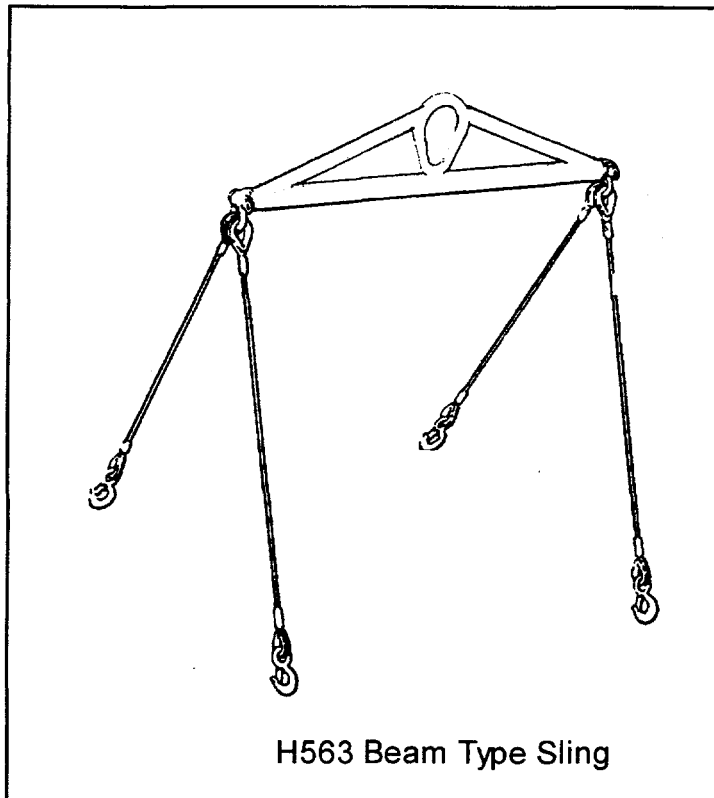


B61 on H1125A/H1012 Hand Truck



B61s on H1125A/H1242 Swivel Caster Set

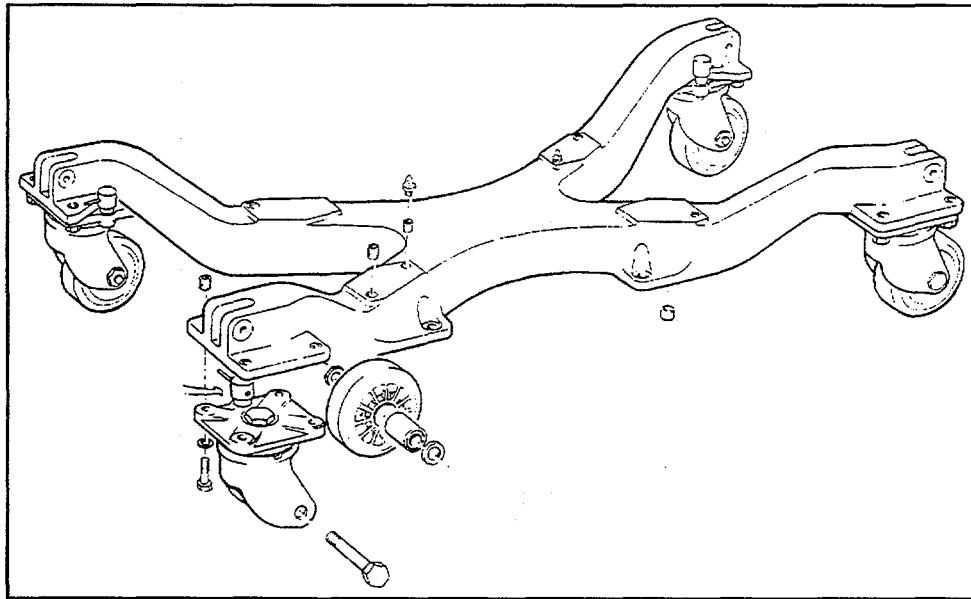
## B61 (continued)



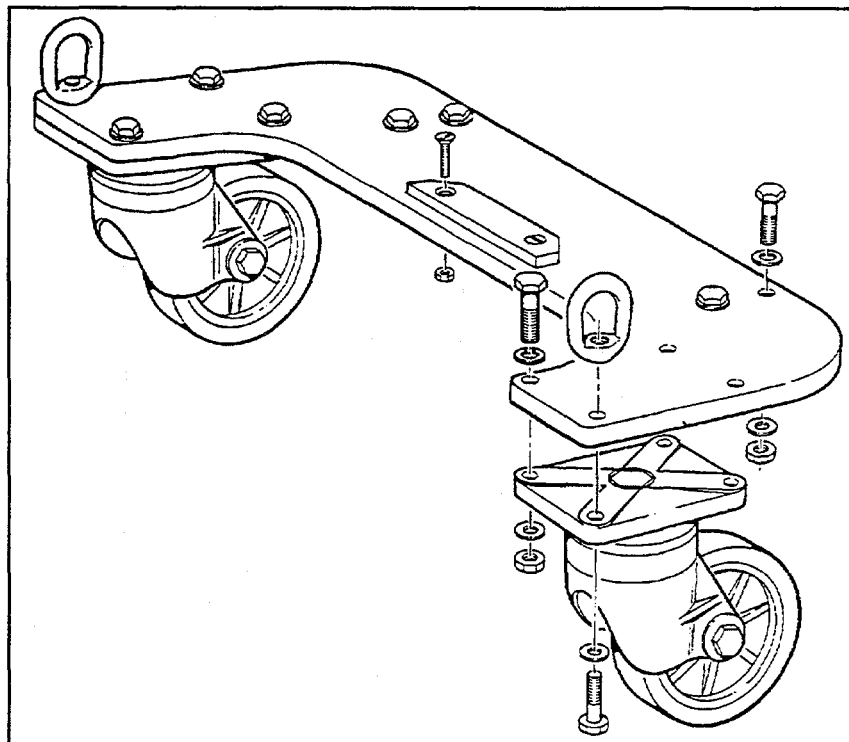
H1004 Bomb Hoisting Adapter



**B61 (continued)**



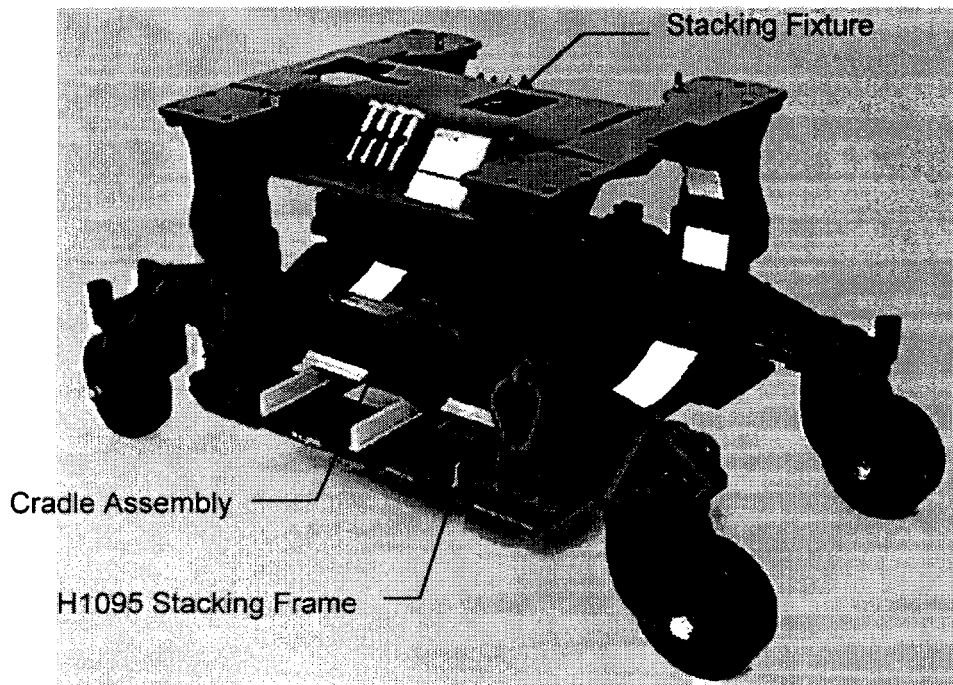
**H1012 Hand Truck**



**H1242 Swivel Caster Set**

## B83

### H1347/H1347A Bomb Hand Truck



#### General Information

Program	B83
Service Branch	Air Force
Drawing Number	214073 (H1347), 214255 (H1347A)
Status	Enduring Stockpile
Quantity Available	313 (H1347), 425 (H1347A)

#### External Information

Material	Aluminum
Footprint (L x W)	62" x 31"
Height	28.5"
Empty Weight	330 lb
Forklift Opening and Spacing	8.5" W x 2.0" H, on 9.0" center

#### Documents

Development Report	SAND97-8012 (to be released)
H-Gear Adequacy Review Report	SAND92-8002
B83 H-Gear Adequacy Review	RS5365/920004
Technical Manual	TP B83-1

## B83 (continued)

### Ancillary H-Gear

H12 Adjustable Hand Truck	202283
H563 Beam-Type Sling	321216
H721 Towbar	320124
H1004 Bomb Hoisting Adapter	320369
H695B Bomb Hand Truck (Storage Only)	214253

### Description

The H1347 Bomb Hand Truck consists of a cradle assembly and a stacking fixture. The cradle assembly uses a reprocessed cradle assembly from the H695A Bomb Hand Truck for the B43. This reprocessed cradle assembly uses the cradle and casters from the H695A and also incorporates the H1095 stacking frame as part of the cradle assembly. The stacking fixture for the H1347 is a new part. The B83 bomb is positioned on the cradle assembly such that, with the addition of the stacking fixture assembly, the bomb is encircled. Eight swing bolts on the cradle assembly engage the stacking fixture to secure the bomb. The bomb lugs engage cutouts on the stacking fixture to prevent both longitudinal and rotational movement of the bomb.

There are three configurations of stacking fixtures for the hand trucks;

- 1) H1347-associated,
- 2) H695B-associated, and
- 3) H1347 A-associated.

The stacking fixture configuration defines the bomb hand truck as H1347, H695B, or H1347A.

The same cradle assembly is used on all three bomb hand trucks. The cradle assembly includes the cradle, the H1095 stacking frame and four caster assemblies.

There are two types of cradles, fully interchangeable, one cast and the other welded.

There are two types of caster assemblies used on the cradle assemblies, also interchangeable, one defined as a barrel caster (mounting bracket is aluminum casting) and the other defined as a flat-sided caster (mounting bracket is structural aluminum tubing). All combinations of cradles and caster assemblies are allowed on the cradle assemblies.

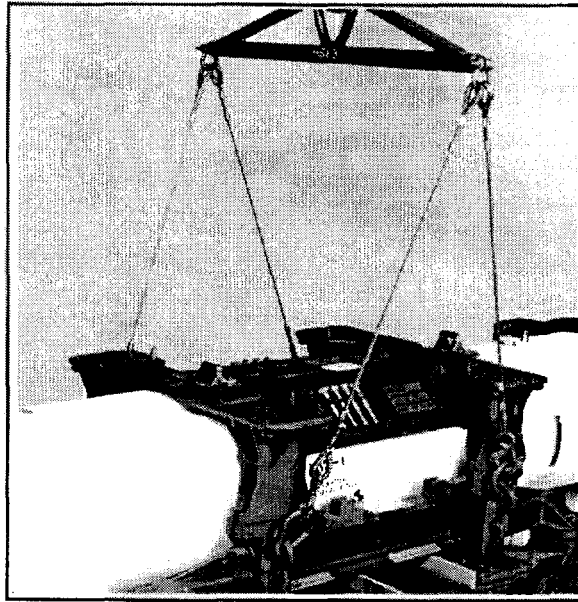
B83 bombs may be stored in a one or two-high stack with any combination of bomb hand truck. A one-high bomb stack on the H1347/1347A or H695B may be towed or moved by hand, forklift or certified towing vehicle moved on smooth hard surfaces for distances up to 1 mile at speeds not to exceed 5 mph.

## **B83 (continued)**

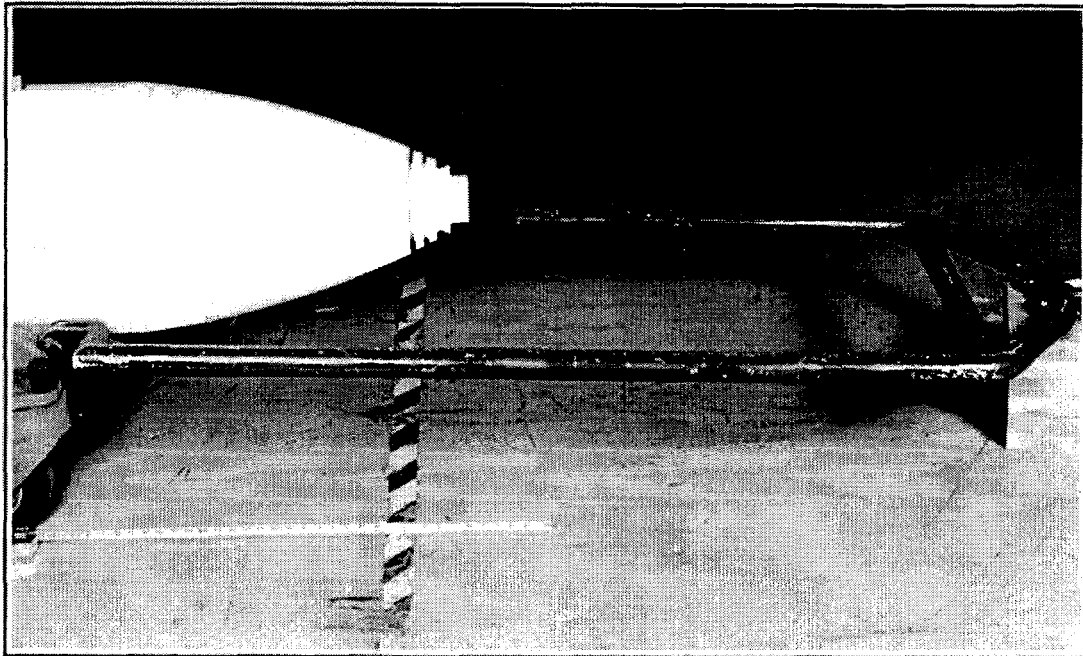
A two-high bomb stack on the H1347/1347A or H695B may be pushed or towed by hand or, if warranted, towed using a certified vehicle over smooth hard surfaces for distances up to 1000 ft at a slow walking speed (about 1 mph).

The H695B is a storage-only hand truck and cannot be used for over-the-road transportation as the stacking fixture modifications are not designed for transportation environments.

**B83 (continued)**

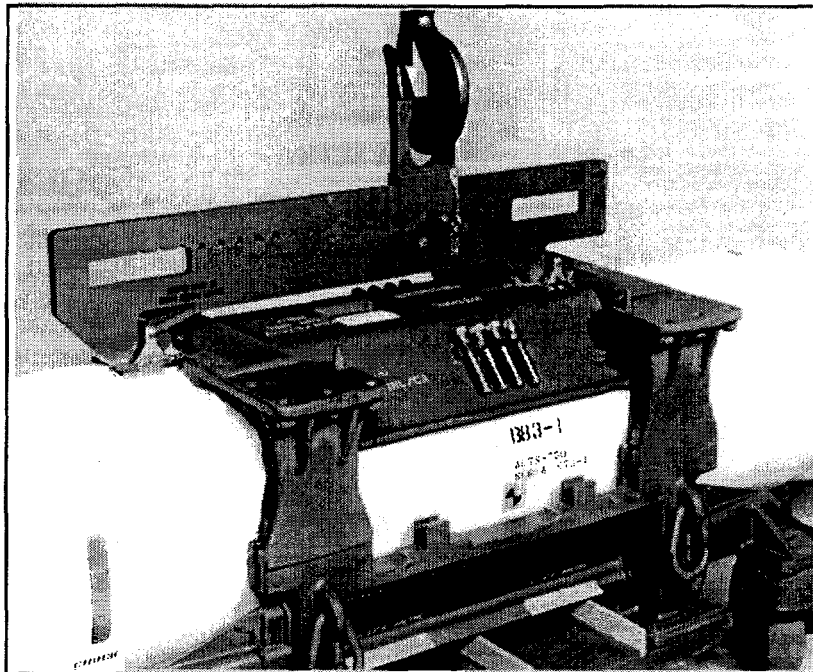


H563/H1347 Beam-Type Sling

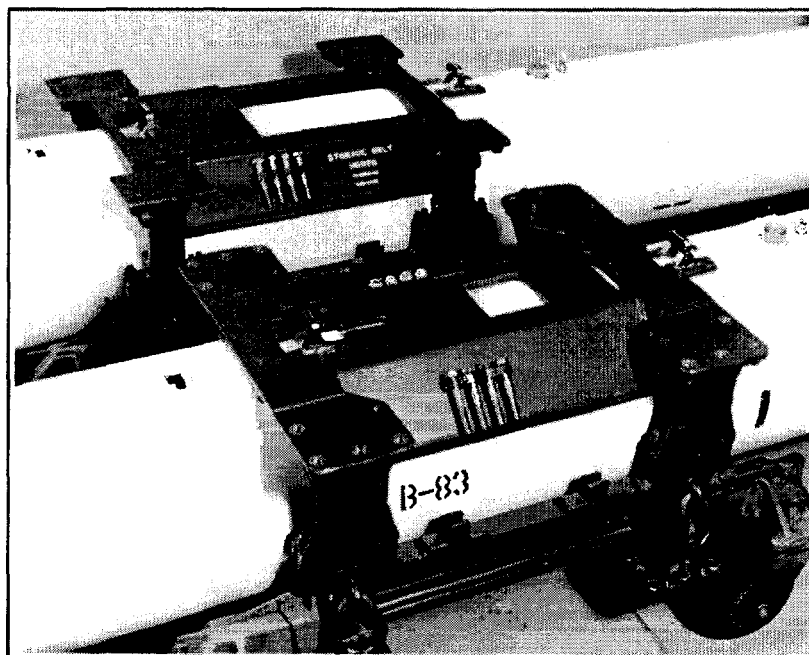


H721/H1347 Towbar

## B83 (continued)

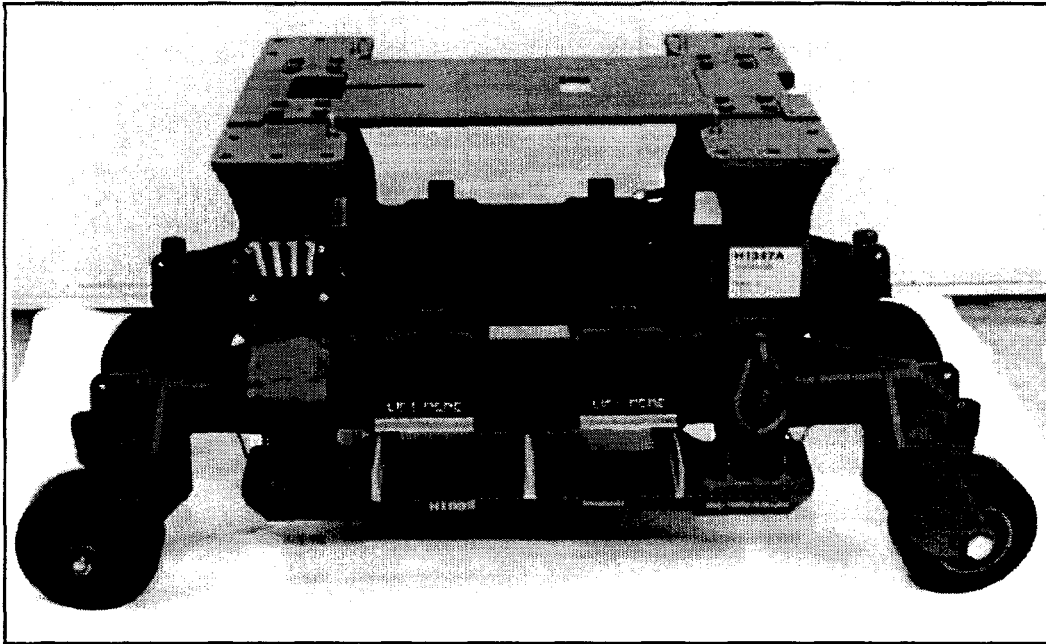


H1004/H1347 Bomb Hoisting

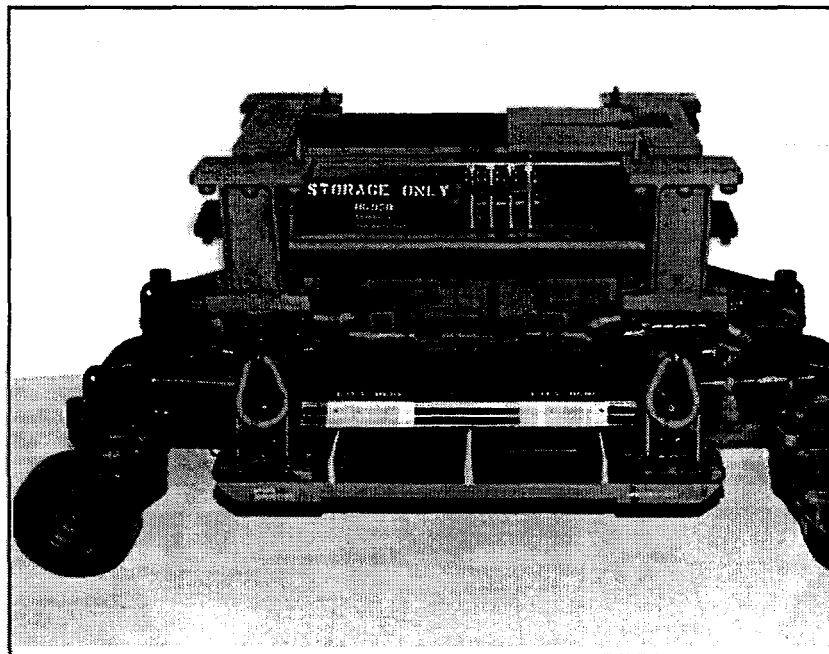


H1347 in Foreground  
H695B Bomb Hand Truck in Background

## B83 (continued)

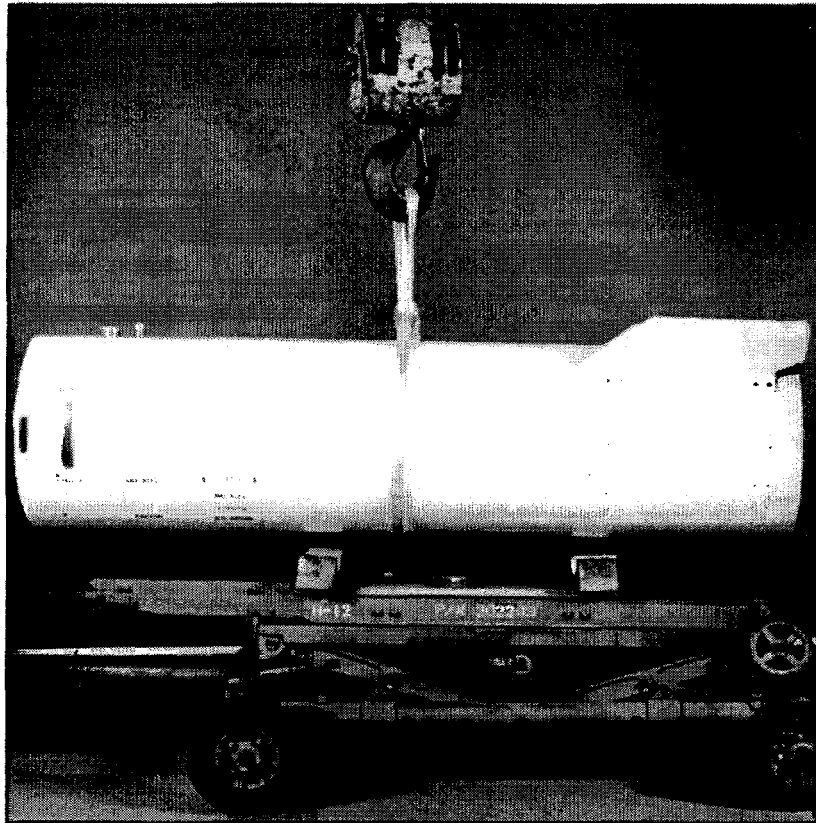


H1347A Bomb Hand Truck, P/N 214255-00



H695B Bomb Hand Truck (Storage Only)

## B83 (continued)



B83 Aft Assembly being lowered onto  
H12 Adjustable Hand Truck

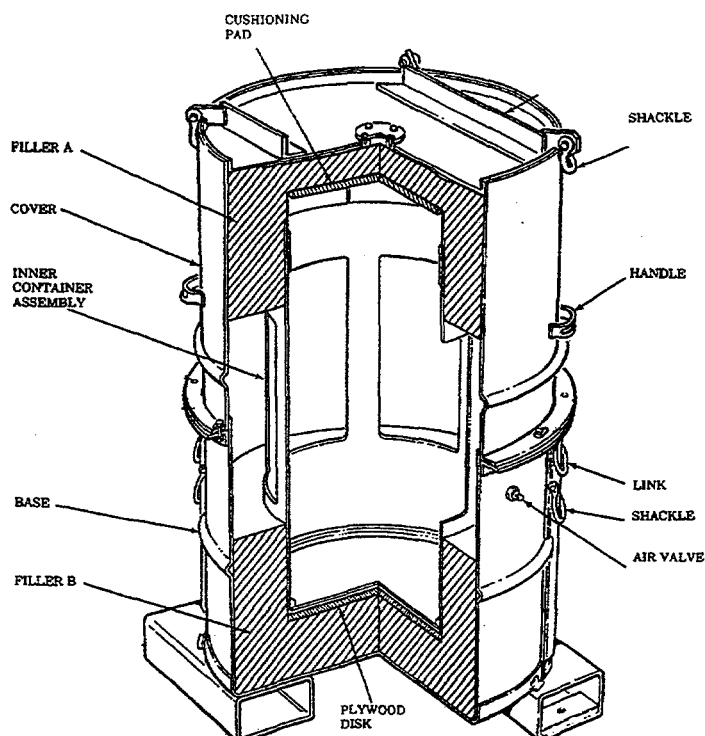


This page intentionally left blank

## B. Shipping and Storage Containers

W62/W78

### H1224A Shipping and Storage Container



#### General Information

Program	W62/W78
Service Branch	Air Force
Drawing Number	316847
Status	Enduring Stockpile
Quantity Available	570

#### External Information

Material	Aluminum, Two-Piece Drum Type
Outside Diameter	32.4"
Footprint (L x W)	32" x 32"
Height	57.4"
Empty Weight	210 lb
Cover Weight	60 lb
Forklift Opening and Spacing	7.2" W x 4" H on 24" center

## W62/W78 (continued)

### Internal Information

Internal Cavity (Dia x Lg)	Fiber Drum, 20" x 38.5"
Cushioning Pad Material	Rubberized "Horsehair"
Foam Material	Polyurethane Foam, 2.0 lb/ft <sup>3</sup>

### Documents

Development Reports	n/a
W62 H-Gear Adequacy Review	RS8476/920015
H-Gear Adequacy Review Report	SAND92-8002
Technical Manuals	TP W62-1 & TP W78-1

### Ancillary H-Gear

H563 Beam-Type Sling	321216
H1223B Protective Cover and Stand	316848
HLU-121/E Beam-Type Sling	606467-1 or -3 (AF Provided)

## Description

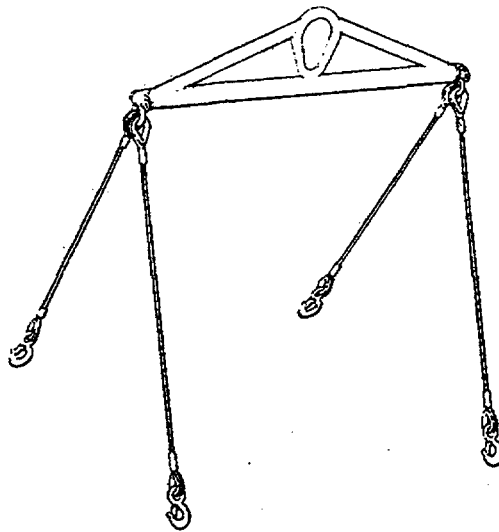
The H1224A Shipping and Storage Container is a two-piece, unsealed, drum-type, aluminum container. All H1224A containers were made by modifying existing H1224 containers.

In the H1224A the H1224 fiberboard inner cylinder was replaced with an aluminum, slotted cylinder (see side-by-side comparison figure) designed to dissipate warhead heat. The warhead is placed in an aluminum drum which is in the center of the container and has polyurethane flexible foam on the bottom and top and a rubberized "horsehair" cushioning pad on the top.

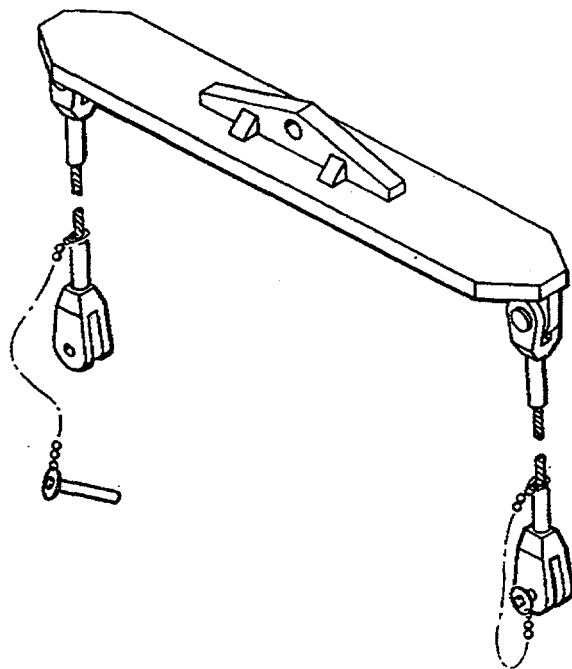
The H1224A has four shackles and four handles on the cover used for lifting the cover. The base has eight shackles used for tiedown during transportation and as attachment points for lifting the assembly with the appropriate sling. The container base is also equipped with forklift channels. This container is equipped with a pressure-relief valve.

The H1223B protective cover and stand are attached to the warhead, with the protective cover over the aft end and the stand thread onto the forward end. The warhead is lifted with a sling that is attached to the ears on the protective cover and is lowered into the container. The warhead serial number is marked on both the base and the cover, identifying the assembly as a matched set.

**W62/W78 (continued)**

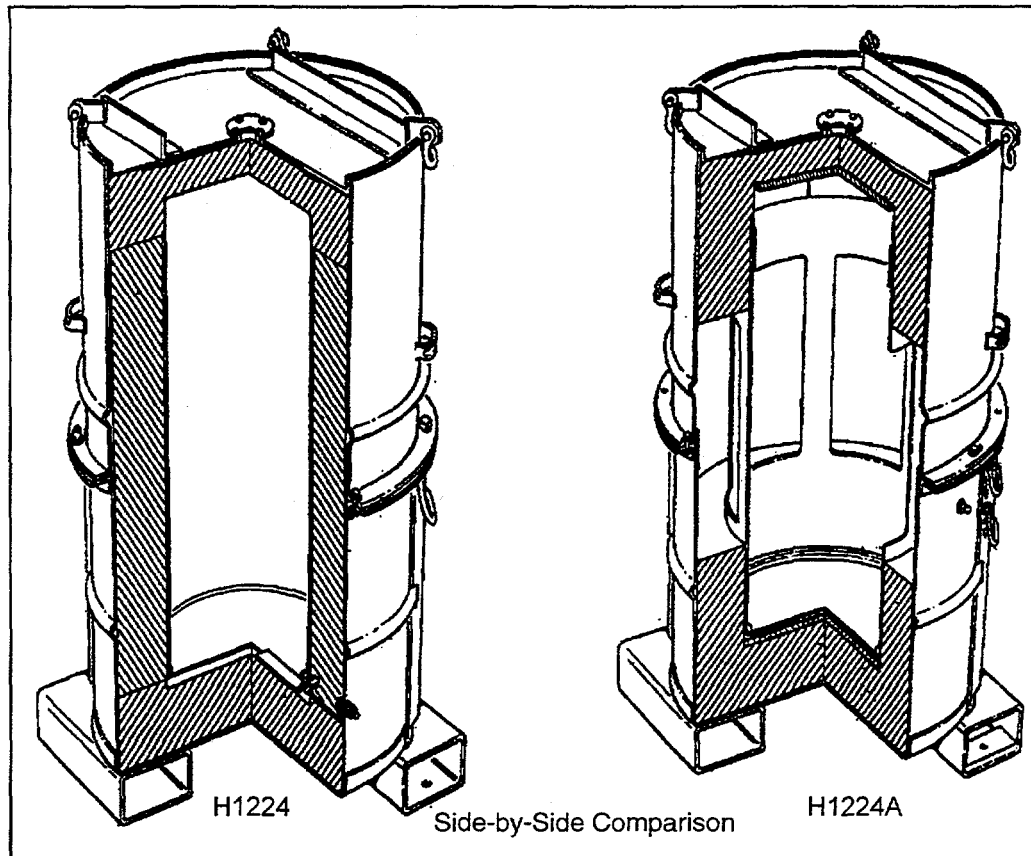


**H563 Beam-Type Sling**

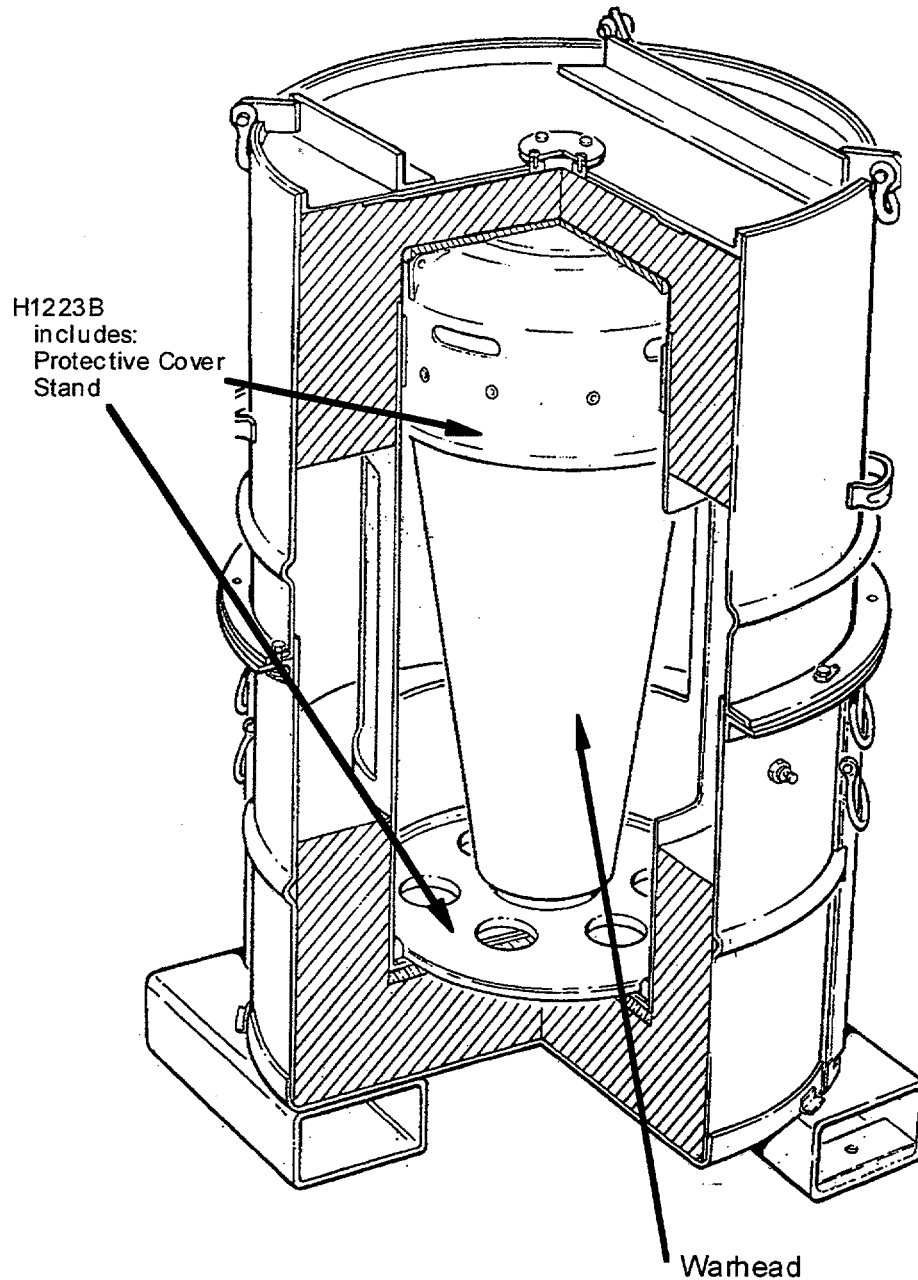


**HLU-121/E Beam-Type Sling**

W62/W78 (continued)



## W62/W78 (continued)

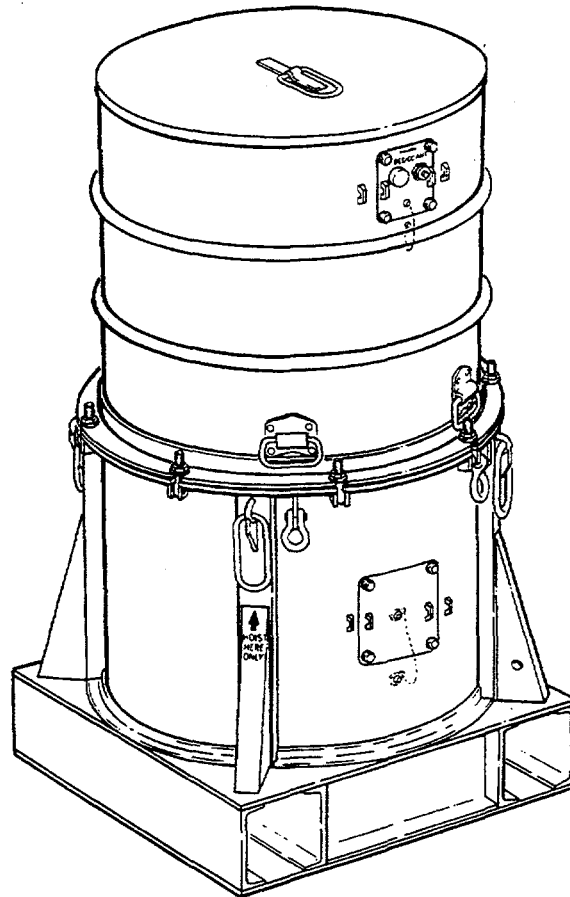


W62 in H1224A/H1223B

This page intentionally left blank

## W76

### H1333A/H1333B Shipping and Storage Container



#### General Information

Program	W76
Service Branch	Navy
Drawing Number	315396 (H1333), 317273 (H1333A), 410606 (H1333B)
Status	Enduring Stockpile
Quantity Available	1600 (total of both versions)

#### External Information

Material	Aluminum
Outside Diameter	36"
Footprint (L x W)	36" x 36"
Height	67"



## W76 (continued)

Empty Weight	400 lb
Cover Weight	70 lb
Forklift Opening and Spacing	8" W" x 8" H on 28" center

### Internal Information

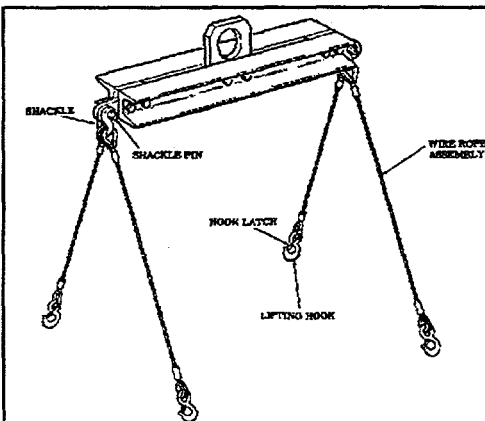
Internal Cavity (Dia x High)	32" x 54"
Cushioning Material	Polyurethane Foam 10 lb/ft <sup>3</sup>

### Documents

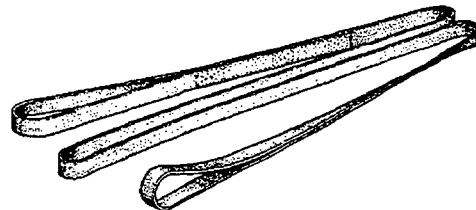
Development Report	n/a
H-Gear Adequacy Review Report	SAND92-8002
Technical Manuals	TP H-76 & W76.96-1

### Ancillary H-Gear

H1276 Beam-Type Sling	320641
H1341 Hoisting Sling	315650
H1514-1 Shipping and Storage Container	413436



H1276 Beam-Type Sling



H1341 Hoisting Sling

## **W76 (continued)**

### **H1333A/H1333B Description**

Two versions of the H1333 container used for the W76 are the H1333A and the H1333B.

The H1333A accommodates a Mk4 (W76) Reentry Body with a C4 Release Assembly or a Mk4 (C4) Reentry Body Assembly.

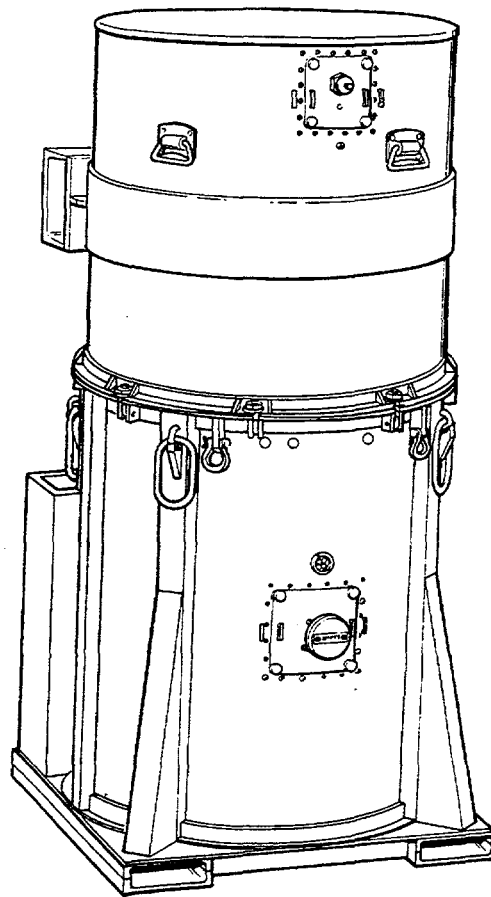
The H1333B accommodates a Mk4 Reentry Body with a C4 (or D5) Release Assembly or a Mk4 (C4/D5) Reentry Body Assembly.

The H1333A/B are aluminum drum-type containers that consist of two cylindrical sections (a container cover assembly and container base assembly). The cover has four handles used for removal of the cover only. The base has four lifting links to lift the entire container with or without RBA. The base also has four shackles for tiedown during shipment. Also, the plug humidity indicator is located on the container cover separate from the desiccant container access door, and new end pads are used in the H1333B.

This page intentionally left blank

## W76

### H1514-1 Shipping and Storage Container



#### H1514-1 Description

The H1514-1 Shipping and Storage Container, derived from the H1514, provides a shock-mitigated, humidity-controlled environment for a single Mk4 (C4/D5) Reentry Body Assembly (RBA).

The H1514-1 has two cylindrical sections (a cover and a base), a new container insert, and shipping adapter. Otherwise, it is identical to the H1514.

The square base contains forklift slots.

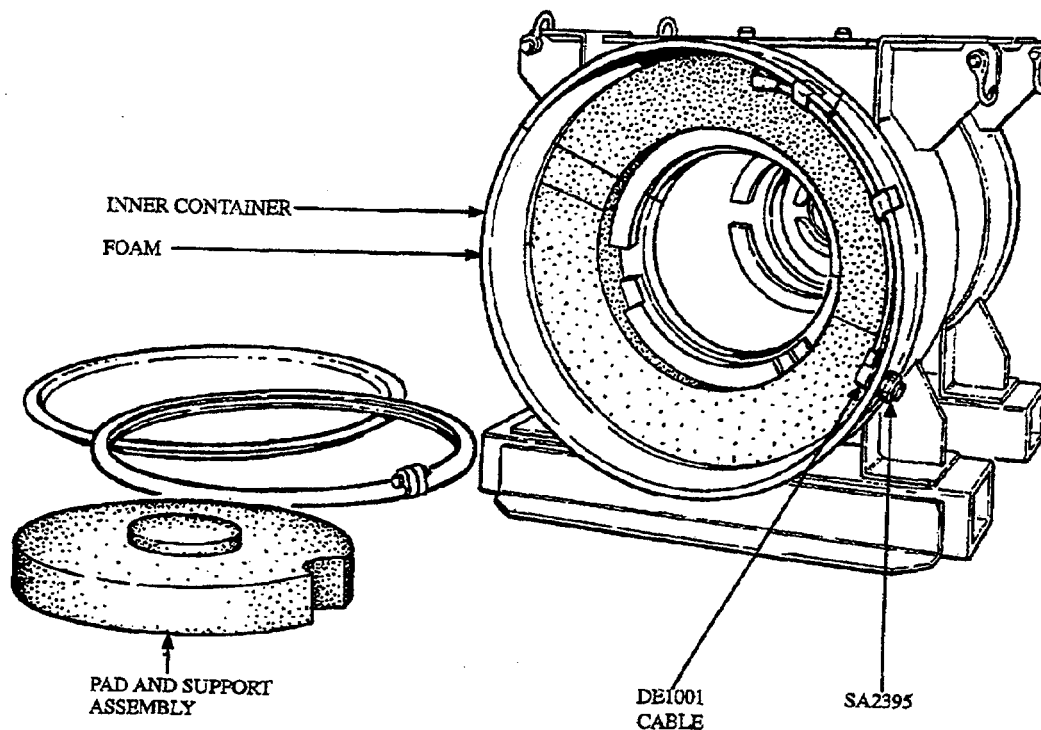
The container has four lifting links for lifting the entire container and four handles for lifting the cover alone.

### **W76 (continued)**

The H1514-1 may be used for storage, for limited movement within the weapons facility, or for on-base transportation only. The H1514-1 is to be transported in the vertical position. Four shackles are provided on the base assembly for tiedown. The H1514-1 is aluminum, 78" height, 36" outside diameter, has a footprint 36" x 36" and weighs 600 pounds.

## W80

### H1388 Shipping and Storage Container



#### General Information

Program	W80-0/-1
Service Branch	Navy/ Air Force
Drawing Number	317031
Status	Enduring Stockpile
Quantity Available	700

#### External Information

Material	Aluminum
Outside Diameter	24"
Footprint (L x W)	35" x 32"
Height	29" (on its side)
Empty Weight	360 lb
Cover Weight	<5 lb
Forklift Opening and Spacing	7.6" H x 7" W on 21.7" center

#### Internal Information

Internal Cavity (Dia x Lg)	12.86" x 25.1"
Cushioning Material	Polyurethane Foam 8.5 lb/ft <sup>3</sup>

## W80 (continued)

### Documents

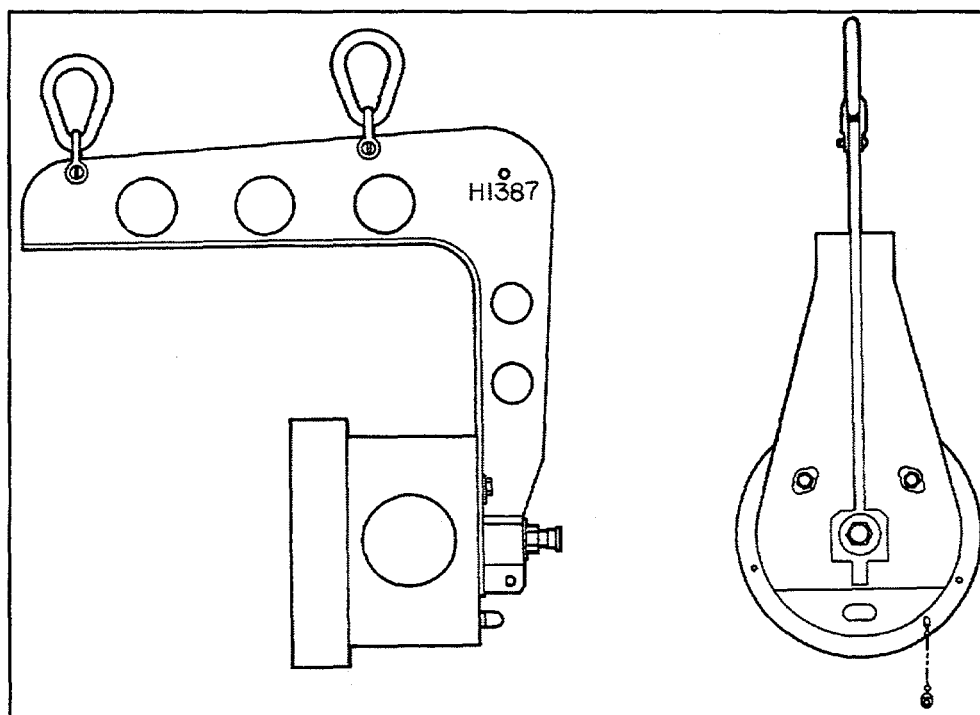
Development Report	SAND93-1794
Technical Manuals	W80.82-1/SD (Navy), W80-1 Air Force

### Ancillary H-Gear

H1387A Strongback (warhead)	413461
H1454B Strongback (warhead)	413462
H563 Beam-Type Sling	321216
H1337 Hoist Swivel Adapter	315575

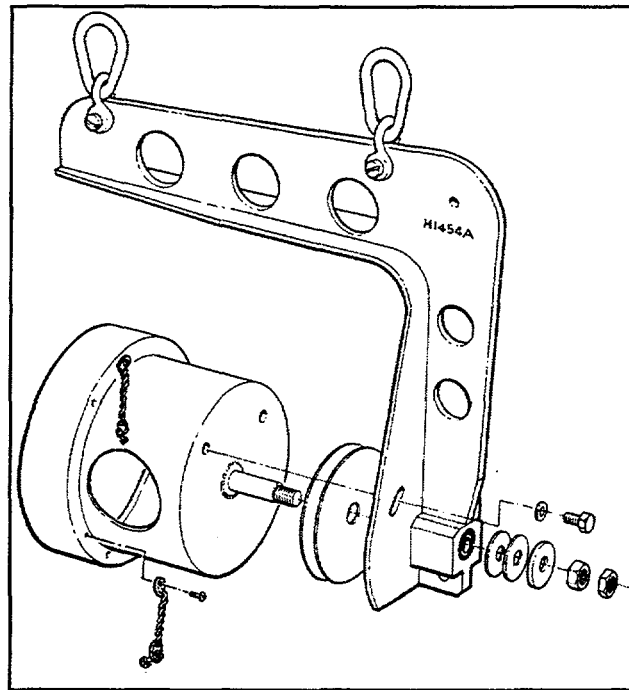
### Description

The H1388 Shipping and Storage Container is a white drum with stacking lugs and lifting tiedown shackles.

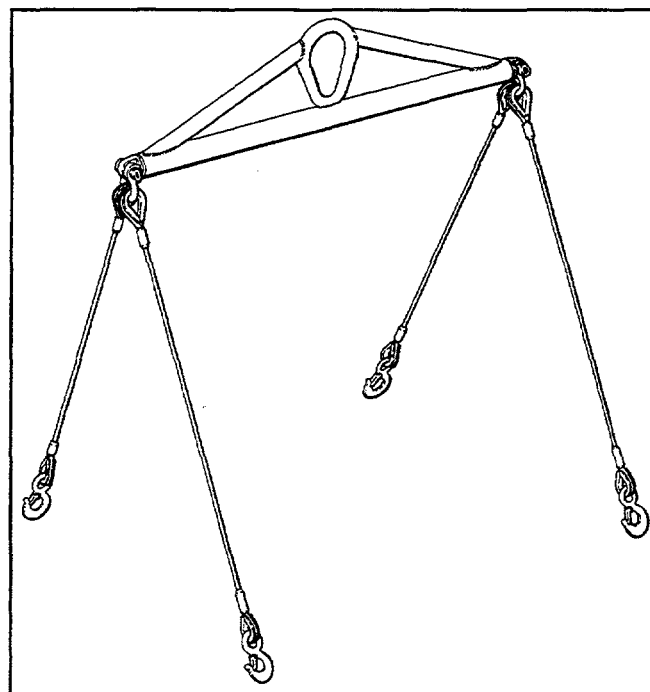


H1387A Strongback (warhead)

## W80 (continued)



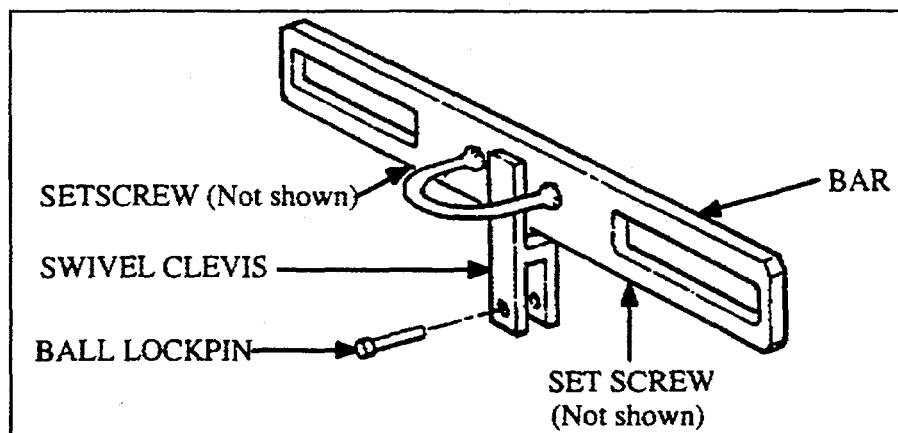
H1454B Strongback (warhead)



H563 Beam-Type Sling



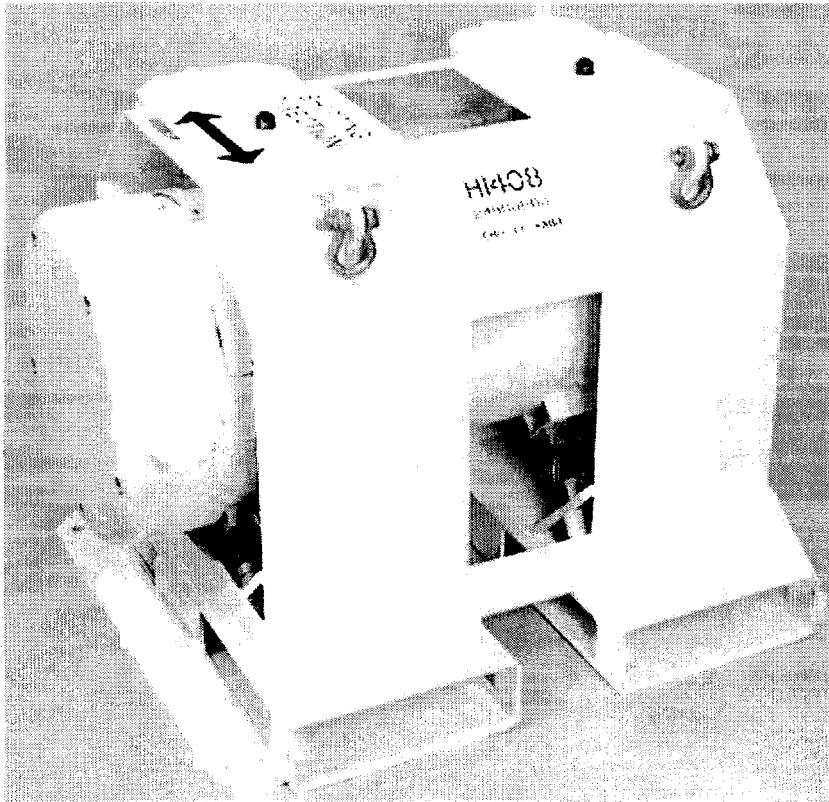
## W80 (continued)



H1337 Hoist Swivel Adapter

## W84

### H1408 Shipping and Storage Container



#### General Information

Program	W84
Service Branch	Air force
Drawing Number	249001
Status	Inactive
Quantity Available	425

#### External Information

Material	Aluminum
Footprint (L x W)	30" x 30"
Height	27.5"
Empty Weight	600 lb
Cover Weight	60 lb
Forklift Opening and Spacing	12" W x 4" H on 17.5" center

#### Internal Information

Internal Cavity (Dia x Lg)	12.6" x 32.6"
----------------------------	---------------

## W84 (continued)

### Documents

Development Report	SAND88-8233
H1408 Weld Risk Assessment Final Report	SAND93-8241
Technical Manual	TP W84-1

### Ancillary H-Gear

H1409 Strongback Assembly	249002
H563 Beam-Type Sling	321216
H1276 Beam-Type Sling	320641

### Description

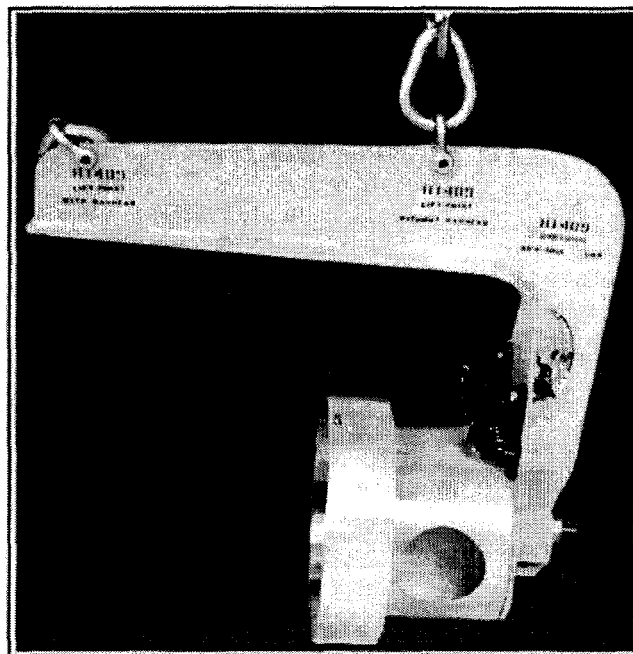
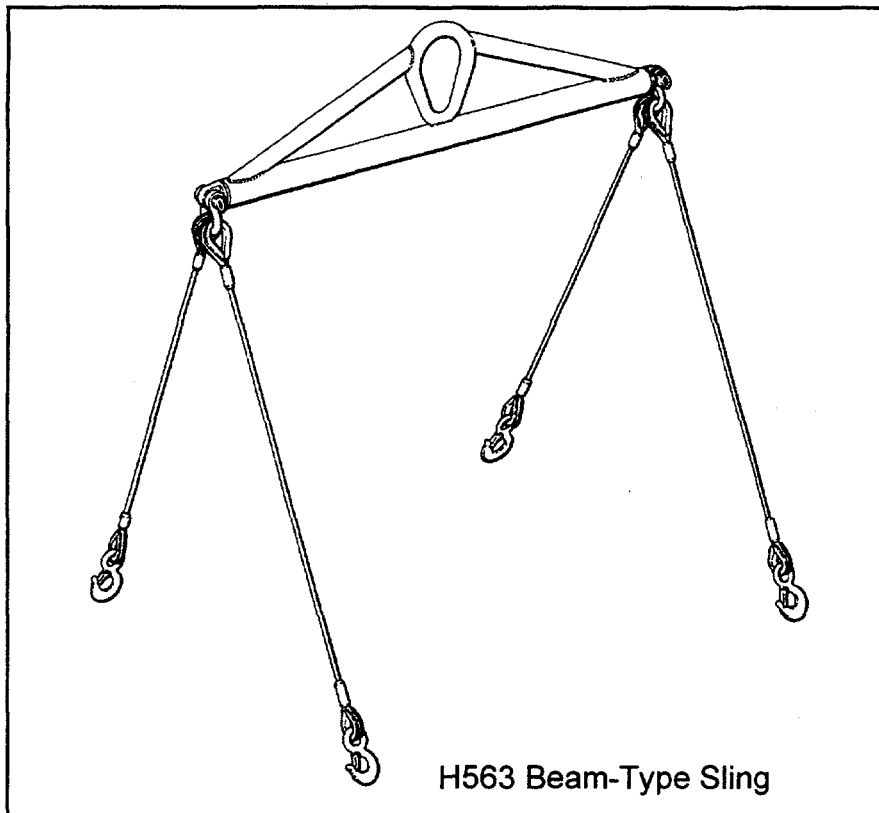
The H1408 Shipping and Storage Container is a unique design for the W84 application that provides both high-frequency vibration isolation and enhanced heat dissipation.

The design utilizes an open framework which provides a base for the protective inner container. The inner container is protected from shock by four isolators, each consisting of a horizontal coil of stainless steel wire rope.

Because of the open design, the coils provide a low-resistance heat transfer path with the framework to function as cooling fins for heat dissipation purposes.

Shrapnel penetration protection is provided by a thick aluminum cap and container front area.

**W84 (continued)**

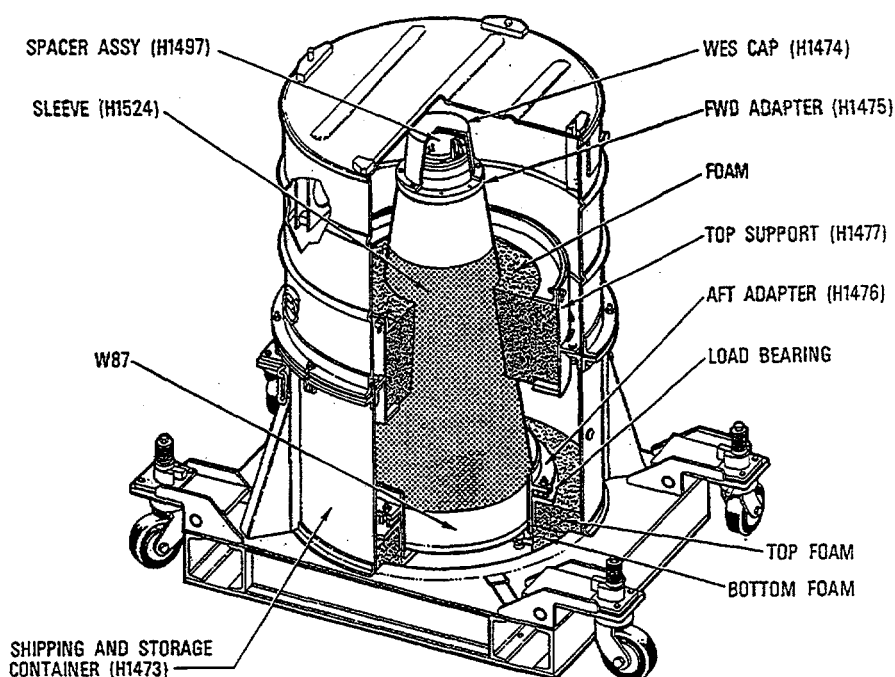


**H1409 Strongback Assembly**

This page intentionally left blank

## W87

### H1473 Shipping and Storage Container



#### General Information

Program	W87
Service Branch	Air Force
Drawing Number	214126
Status	Enduring Stockpile
Quantity Available	240

#### External Information

Material	Aluminum, Two Piece Drum Type
Outside Diameter and Length	36.2"
Foot Print (L x W)	40" x 48" (w/o casters)
Height	62.1"
Empty Weight	535 lb
Cover Weight	74 lb
Forklift Opening and Spacing	7.6" W x 5.6" H on 39.8" center

#### Internal Information

Internal Cavity (Dia x Lg)	22.6" x 58"
Foam Material	Last-A-Foam, TF6070-10 (10 lb/ft <sup>3</sup> )

## W87 (continued)

### Documents

Development Report	SAND86-8022
W87 H-Gear Adequacy Review	SAND95-8004
Technical Manual	TP W87-1

### Ancillary H-Gear

H416 Bomb and Container Sling	320048
H1276 Beam-Type Sling	320641
H1474 WES Cap	214120
H1475 Forward Adapter	214121
H1476 Aft Adapter	214122
H1476A Aft Adapter	214266
H1477 Top Support	214123
H1497 Spacer Assembly	214138
H1524 Sleeve	214164
H1545 Horizontal Transport Fixture	214176

### Description

The H1473 Shipping and Storage Container is a two-piece, sealed, drum-type, welded aluminum container.

The warhead is bolted to the aft adapter, which is held in place with swing bolts. Vertical movement of the warhead is controlled by the top support.

The H1473 has four handles mounted on the cover and are used when lifting the cover. The base has a shackle mounted on each of the four corner gussets. These are used for both tiedown during transportation and lifting of the container with the H1276 beam-type sling. The base is also equipped with forklift channels and retractable casters to facilitate movement.

The H1473 provides protection against pressure changes due to altitude or temperature changes with a two-way pressure relief valve, moisture protection with desiccant and electromagnetic radiation protection.

An empty H1473 is also designed to be stacked two high while in storage.

The H1473 was originally fielded to ship the W87 warhead in a vertical orientation. A later requirement for transporting W87 warheads by airplane in a horizontal orientation also required the need for a shipping adapter to be assembled to the H1473/W87. This shipping adapter, the H1545 Horizontal Transport Fixture, allows the H1473/W87 to be rotated into a horizontal position, and this entire assembly weighing approximately 1400 lb. can be transported by Air Force C17A.

## **W87 (continued)**

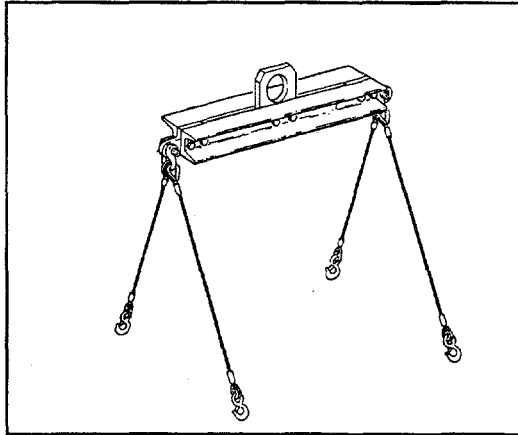
The H416 Bomb and Container Sling is used for hoisting the entire H1545/H1473/W87 assembly. Production of the H1545 is scheduled for May 1998.

The H1476 Aft Adapter is designed for the W87 warhead/H1473 Shipping Container interface. The H1476A Aft Adapter (solid extrusion) is a design improvement to the H1476 Aft Adapter (weldment) and is scheduled for production in May 1998.

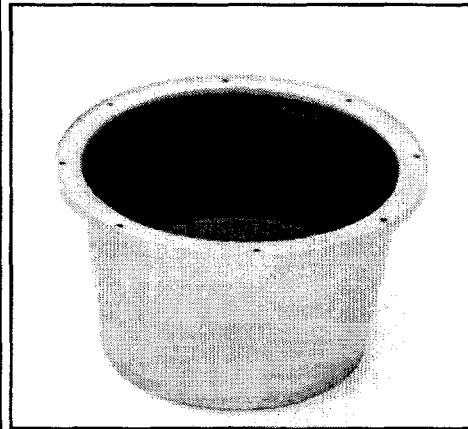


## W87 (continued)

### Ancillary H-Gear



H1276 Beam-Type Sling

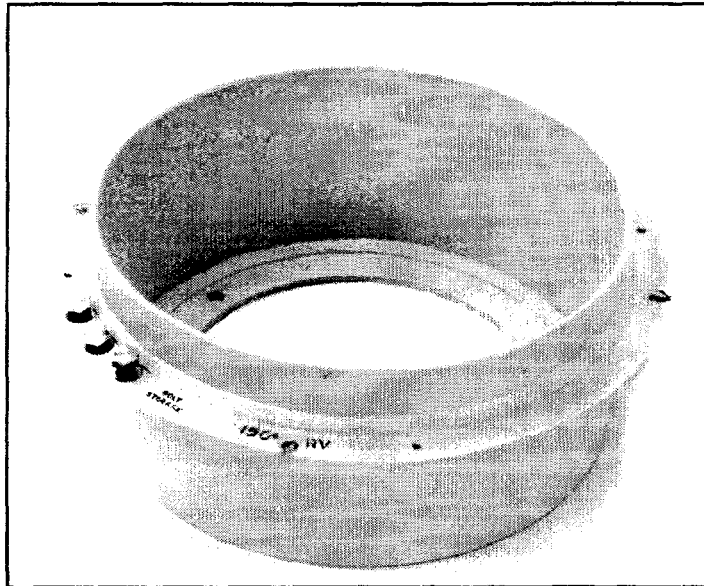


H1474 WES Cap

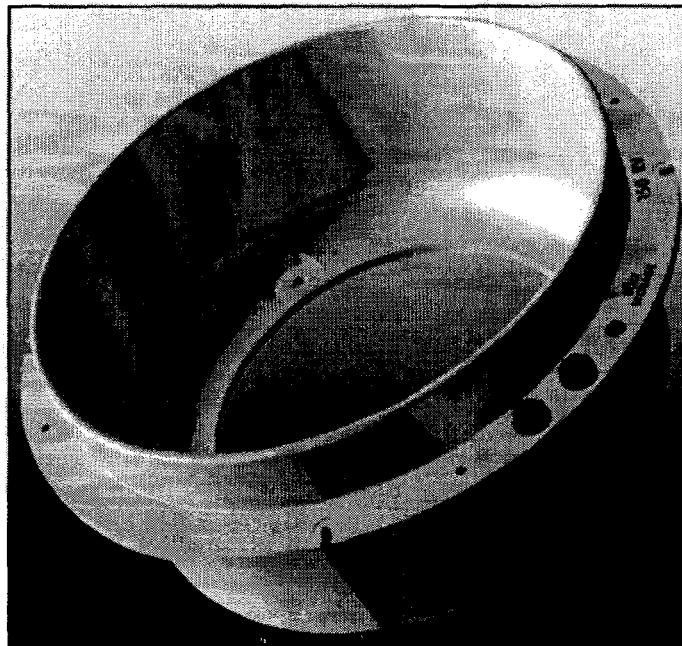


H1475 Forward Adapter

W87 (continued)

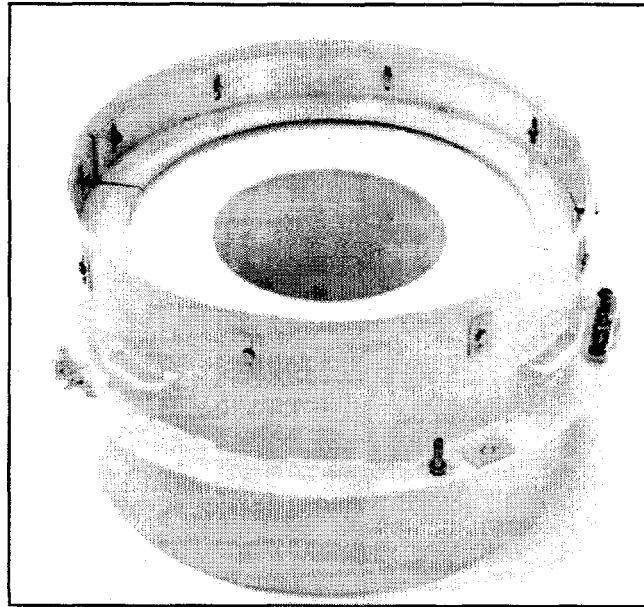


H1476 Aft Adapter

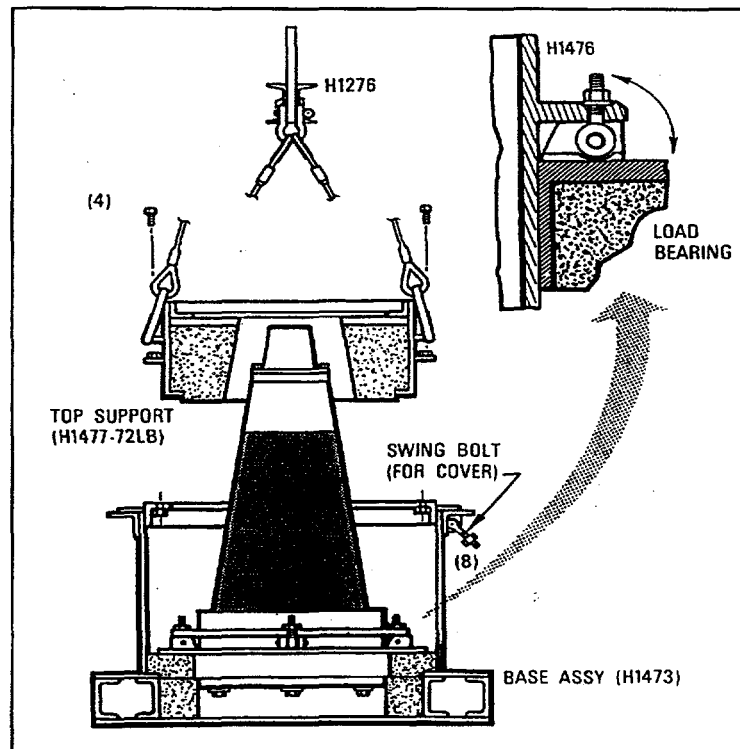


H1476A Aft Adapter

## W87 (continued)

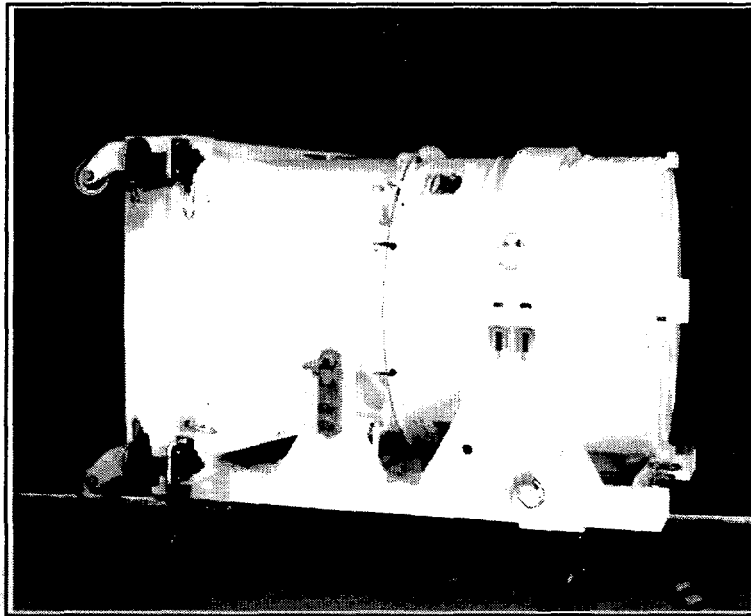


H1477 Top Support

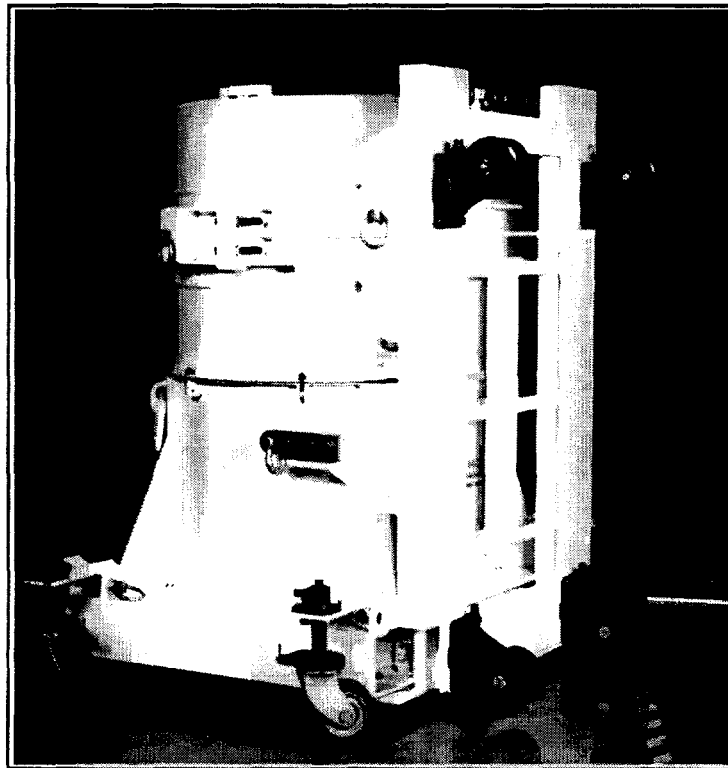


H1473 Assembly: Tiedown

## W87 (continued)

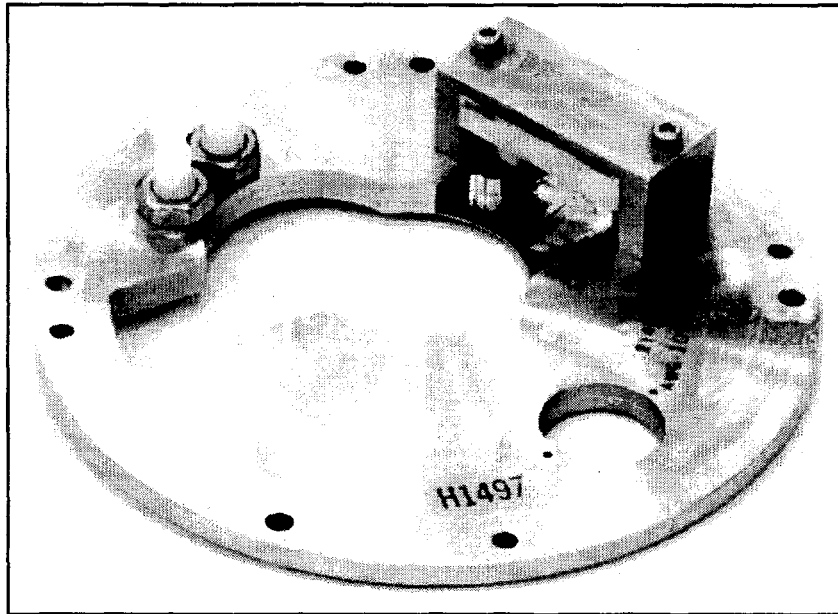


H1545/H1473/W87 Assembly (horizontal position)

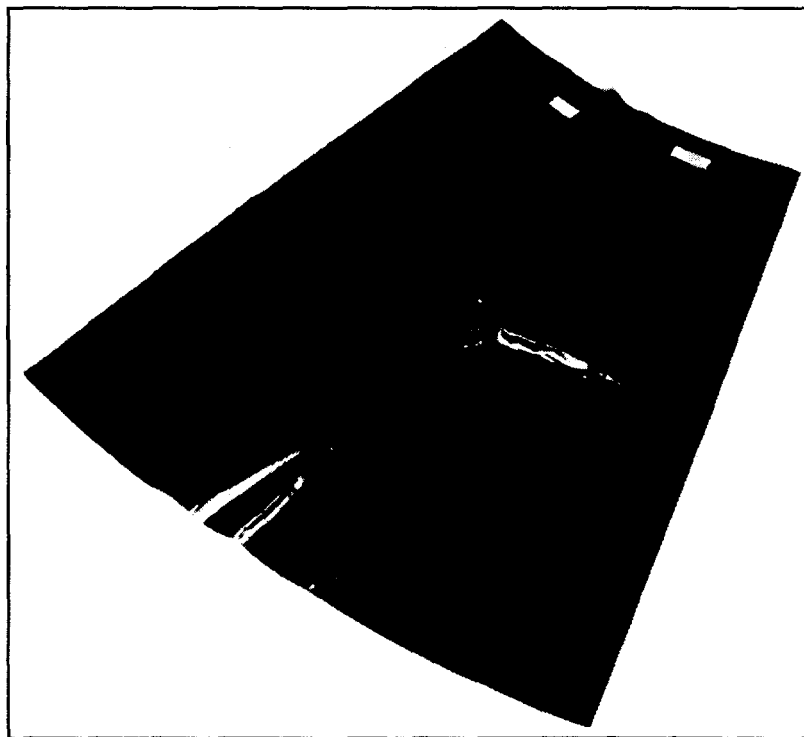


H1545/H1473/W87 Assembly (vertical position)

W87 (continued)



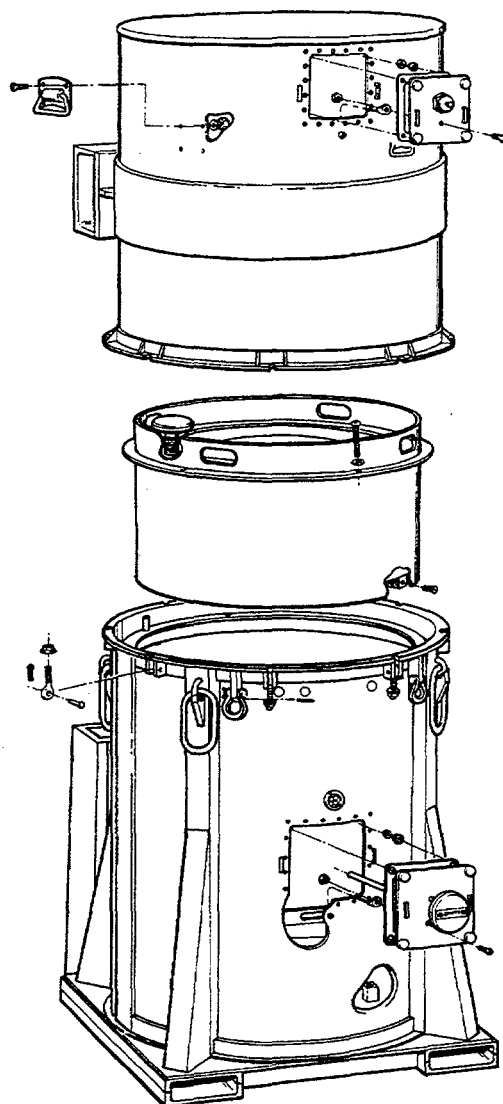
H1497 Spacer Assembly



H1524 Sleeve

## W88

### H1514 Shipping and Storage Container



#### General Information

Program	W88
Service Branch	Navy
Drawing Number	319930
Status	Enduring Stockpile
Quantity Available	675

## W88 (continued)

### External Information

Material	Aluminum
Outside Diameter	36"
Foot Print (L x W)	36" x 36"
Height	78"
Empty Weight	620 lb
Cover Weight	105 lb
Forklift Opening and Spacing	7" W x 2.4" H on 27" center

### Internal Information

Internal Cavity (D x L)	32" x 73"
Cushioning Material	Polyurethane Foam 15 lb/ft <sup>3</sup>

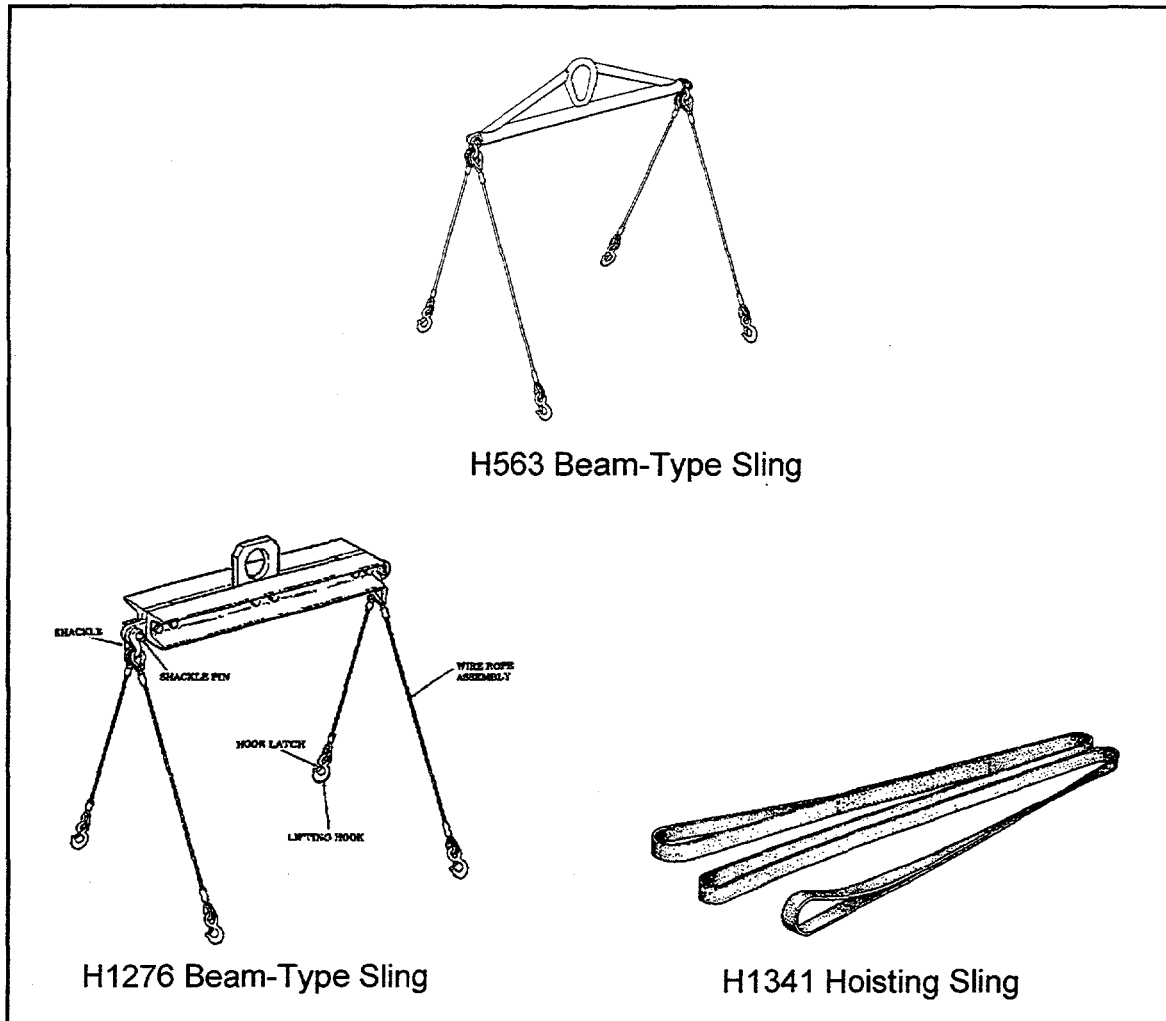
### Documents

Development Report	SAND87-2074
Technical Manuals	W88.96-1, H-88

### Ancillary H-Gear

H563 Beam-Type Sling	321216
H1276 Beam-Type Sling	320641
H1341 Hoisting Sling	315650

## W88 (continued)



### Description

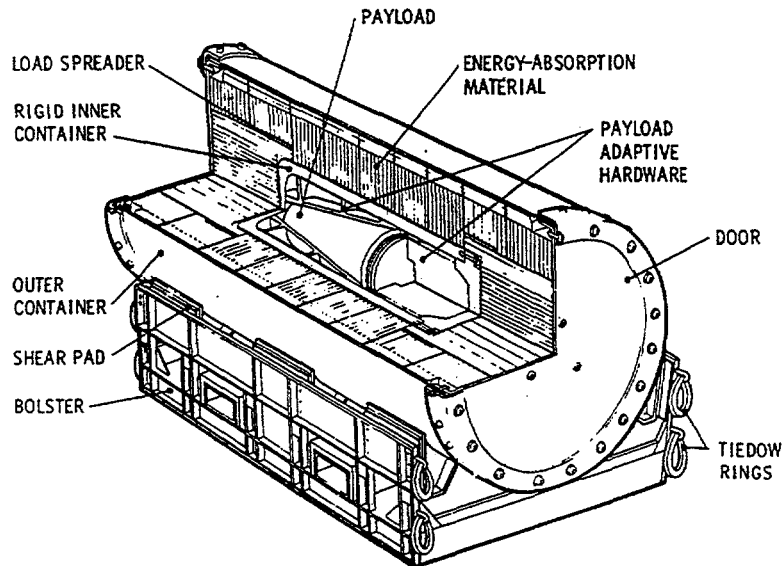
The H1514 Shipping and Storage Container is an environmentally sealed and desiccated aluminum drum-type container designed to transport the W88/Mk5 Reentry Body Assembly. The H1514 is cylindrical except for a portion of its base, which is 36" square and 3" high and contains the forklift openings.



This page intentionally left blank

## A. Accident Resistant Container (ARC)

Accident Resistant Container (ARC)



### General Information

Program	W70
Service Branch	Army
Drawing Number	S15233
Status	Retired
Quantity Available	2 (stored at SNL/NM)

### External Information

Material	HY-80 Steel outer skin
Outside Diameter and Length	54" x 112"
Foot Print (L x W)	74" x 52.75"
Height	61.5"
Empty Weight	~8800 lb
Forklift Opening and Spacing	10" W x 4" H on 45" center

### Internal Information

Internal Cavity (Dia x Lg)	7075-t73 Al, 20.5" x 67.5" x 3.0" wall
Impact Mitigation Material	13.5" of redwood radially and 20" on the fwd and aft end

## ARC (continued)

### Documents

Development Reports	SAND74-0023, SAND75-0062
Technical Manual	W70-1B

### Ancillary H-Gear

Inner Door Handling Fixture	n/a
Outer Door Handling Fixture	n/a
H12 Adjustable Hand Truck	202283

## Description

In the early 1970s, Sandia National Laboratories designed and built the Accident Resistant Container (ARC).

The ARC differs from the standard shipping and storage container that is currently used for weapon shipment in that it provides protection for the weapon from both normal environments of shipping and handling and the abnormal environments that might occur in an aircraft or ground transportation accident.

In severe accidents involving an H-container with a weapon, there is a high probability that the weapon's high explosive (HE) would be initiated. The ARC provides resistance to abnormal environments and would reduce the probability of HE initiation and subsequent dispersal of fissile material.

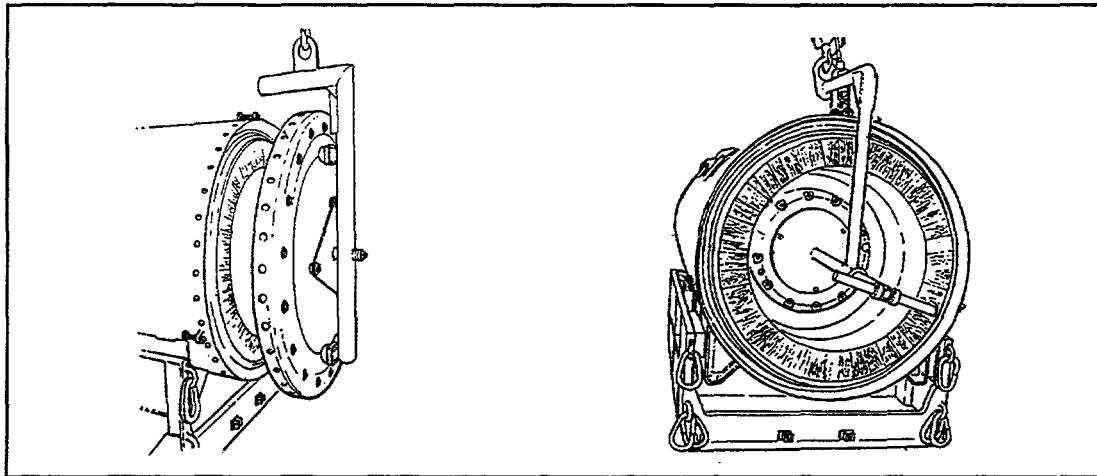
The ARC is constructed of concentric shells of aluminum, redwood and steel. The inner container is made from a 3-inch wall, closed-end forging of 7075-T73 aluminum alloy and is closed by bolting on a contour-machined aluminum disc forging. The inner cylinder is surrounded by 13.5 inches of redwood with the grain oriented to provide maximum compressive stress and 20 inches of redwood on either end.

The redwood compressed parallel to the grain exhibits a strength of about 5500 psi: when compressed perpendicular to the grain, it exhibits a strength of only 1000 psi.

The red wood is surrounded by 0.25-inch-thick HY-80 alloy steel shell. This material is tough and, although it has a 80,000 psi yield strength, it also exhibits 22% elongation. The HY-80 steel shell is closed with a stainless steel (304 alloy) door and is held in place with twenty high-strength steel bolts 1.0 inch in diameter.

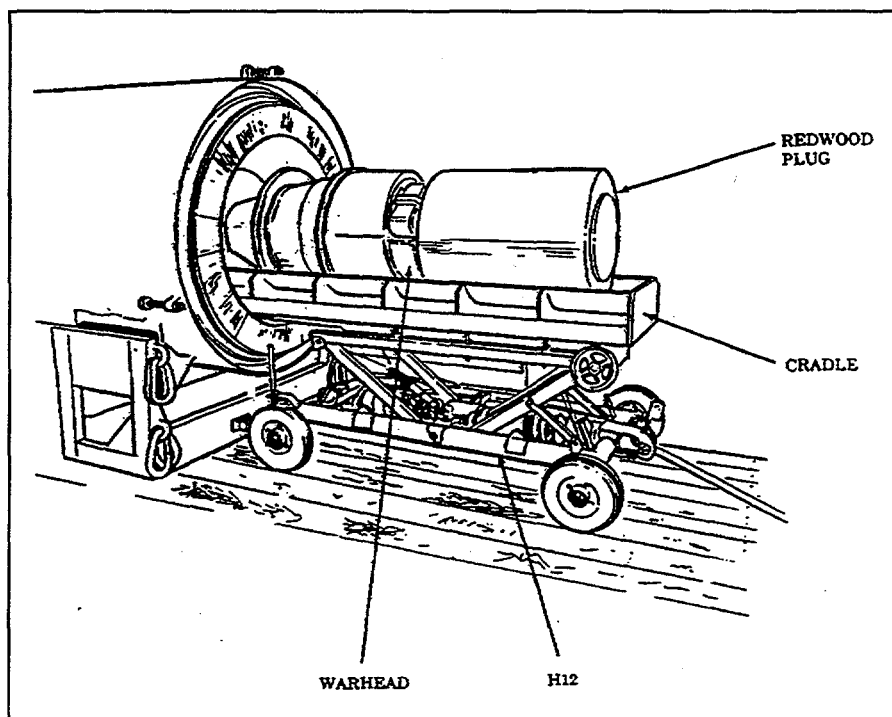
The ARC is mounted on a bolster which provides the means for handling, transport, and tiedown. The bolster, although not intended to help in the energy absorption of high-velocity impact, is designed to be as light in weight as possible and provide additional positive buoyancy for the ARC.

## ARC (continued)



Outer Door Handling Fixture

Inner Door Handling Fixture



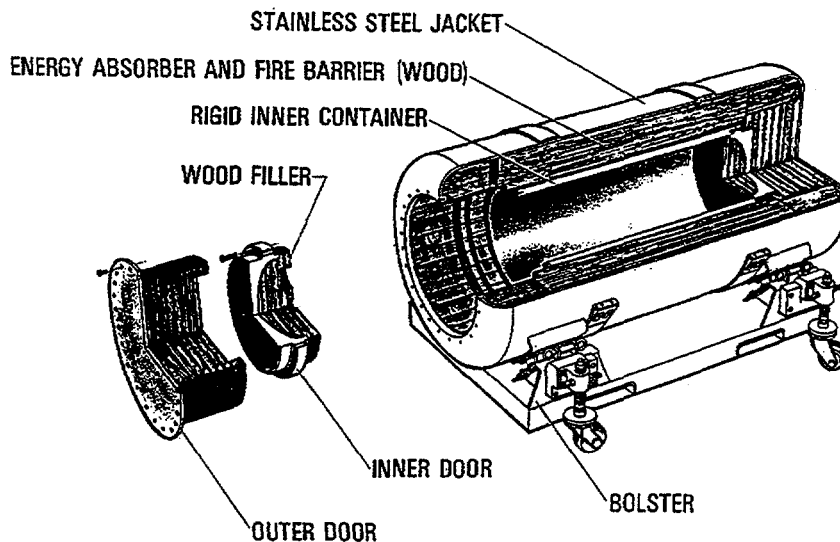
H12 Adjustable Hand Truck Aligned with ARC

This page intentionally left blank

## B. Transportation Accident Resistant Container (TARC)

H1501

### Transportation Accident Resistant Container (TARC)



#### General Information

Program	W48 / W79
Service Branch	Army
Drawing Number	214140
Status	Retired
Quantity Available	24 (stored at AS/FM&T)

#### External Information

Material	304 SS outer skin
Outside Diameter and Length	32" x 70"
Foot Print (L x W)	60" x 36"
Height	38.4"
Empty Weight	1855 lb
Outer/Inner Door Weight	70 lb / 60 lb
Forklift Opening and Spacing	9.6" W x 2.7" H on 30" center

#### Internal Information

Internal Cavity (Dia x Lg)	6061 Al, 16.0" x 47.5" x 1.4" wall
Impact Mitigation Material	6.5" of redwood radially and 10" on either end

## H1501 (continued)

### Documents

Development Reports	SAND76-0586, SAND87-8023
Technical Manual	TP H1501-2

### Ancillary H-Gear

H416 Bomb and Container Sling	320048
M454 Auxiliary Container (W48)	214175
M753 Auxiliary Container (W79)	249210

### Description

In the mid 1970s, Sandia National Laboratories (SNL) designed and built a container that could be carried on helicopters and is referred to as the Helicopter Accident Resistant Container (HARC).

The HARC reduces the probability of the high explosive (HE) initiating and subsequent dispersal of fissile material in accidents up to 100 ft/sec followed by a 90-minute jet fuel fire.

The redwood in the accident-resistant container absorbs the impact energy by crushing, similar to the way foam crushes in other containers. Unlike foam, its strength is dependent on whether it is crushed parallel or perpendicular to the grain.

The redwood also insulates the weapon from heat in a fire. When starved for oxygen, the redwood chars and becomes a good insulator. The process of charring releases gases that help to carry heat out of the container.

The stainless steel outer skin provides a tough shell that holds the container together after impact and keeps air off the redwood in a fire.

The thick-walled inner container is relatively rigid compared to the outer skin and redwood. The inner container supports the weapon and shields it from the large deformations experienced by the redwood and skin. An insert or shipping adapter holds the weapon in the inner container.

Tiedown straps are bolted to the container, and the container is mounted on an aluminum base/bolster. The bolster has tiedown rings, forklift openings and casters for mobility. With the addition of the tiedown straps and casters in the late 1980s, the nomenclature of the HARC was changed to the H1501.

The definition of Transportation Accident Resistant Container (TARC) was introduced in the early 1990s.

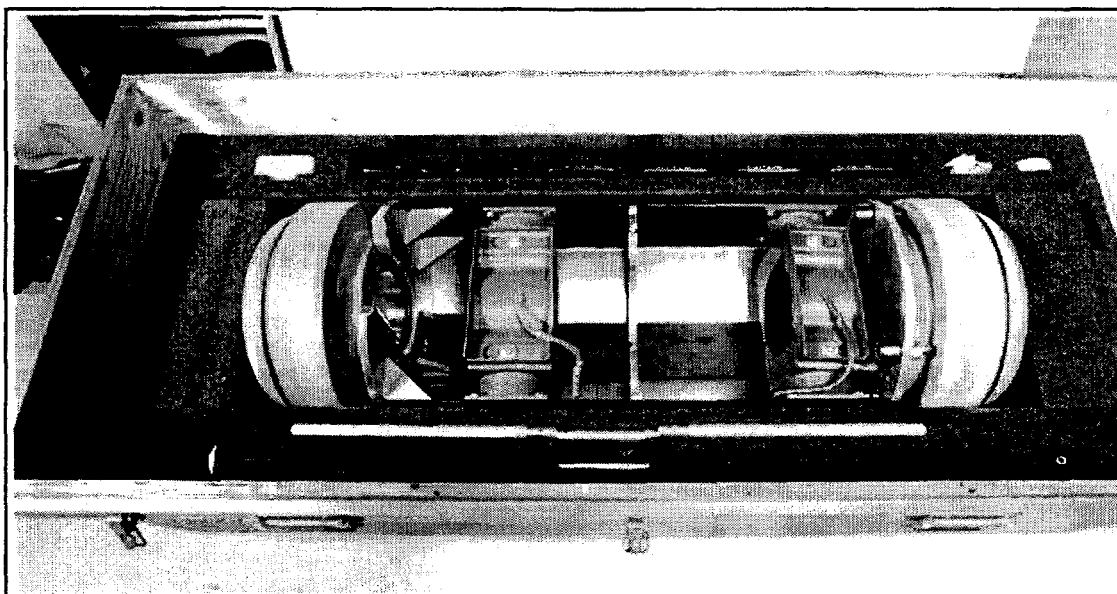
## **H1501 (continued)**

In the 1990s, SNL recognized that the capabilities of the H1501 were greater than the original design goals of 100 ft/sec and a 90-minute fire. To better understand the limits of the container and the response of the weapon in it, SNL subjected two H1501's to additional testing. The first test unit was dropped twice, first at 147 ft/sec oriented with the caster wheels down and then dropped at 105 ft/sec on the door end followed by a 2-1/2-hour jet fuel fire. The second test unit was dropped at a velocity of 163 ft/sec and was also followed by a 2-hour fire.

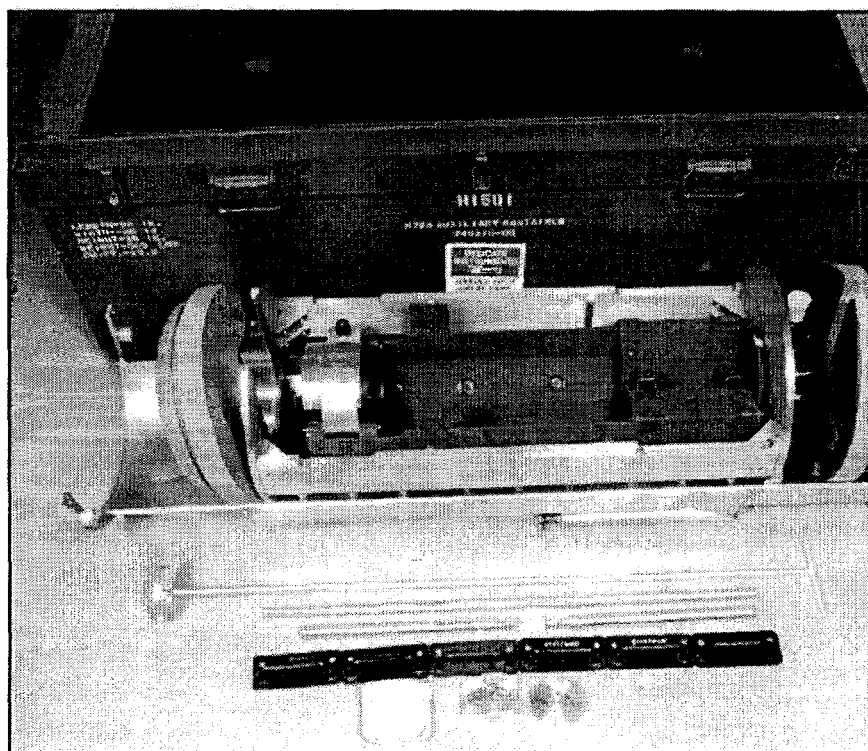
None of the above impacts would have caused a weapon's HE to initiate.



## H1501 (continued)



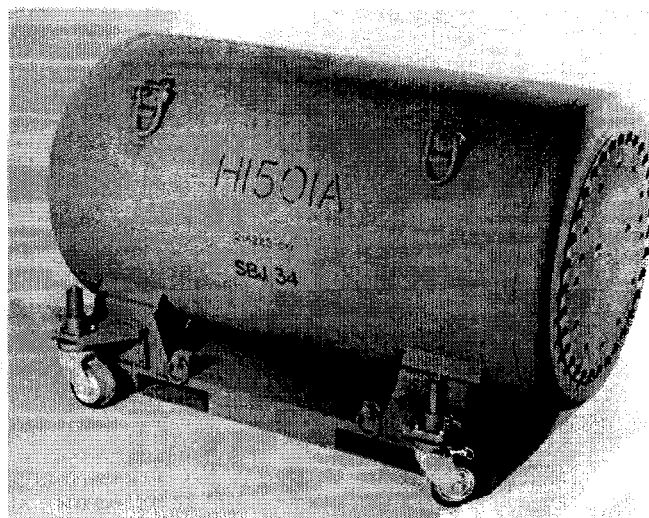
M454 Auxiliary Container (W48)



M753 Auxiliary Container (W79)

## H1501A

### Transportation Accident Resistant Container (TARC)



#### General Information

Program	W48, W79 and W70
Service Branch	Army
Drawing Number	214222
Status	Retired
Quantity Available	78 (stored at AS/FM&T)

#### External Information

Material	304 SS outer skin
Outside Diameter and Length	38" x 70"
Foot Print (L x W)	60" x 36"
Height	45"
Empty Weight	2300 lb
Outer/Inner Door Weight	105 lb / 95 lb
Forklift Opening and Spacing	11.6" W x 2.7" H, on 30.4" center

#### Internal Information

Internal Cavity (Dia x Lg)	6061 Al, 20.0" x 47.5" x 1.4" wall
Impact Mitigation Material	7.5" of redwood radially and 10.0" on either end

#### Documents

Development Report	To be Released
TARC Impact and Burn Test Report	SAND96-8201
Technical Manual	TP H1501A-2

## H1501A (continued)

### Ancillary H-Gear

H416 Bomb and Container Sling	320048
H1231A Beam-Type Sling	214090
H1606 Insert Kit (W48, W79)	214223
H1607 Insert Kit (W70)	214227
H1608 Auxiliary Kit	214225

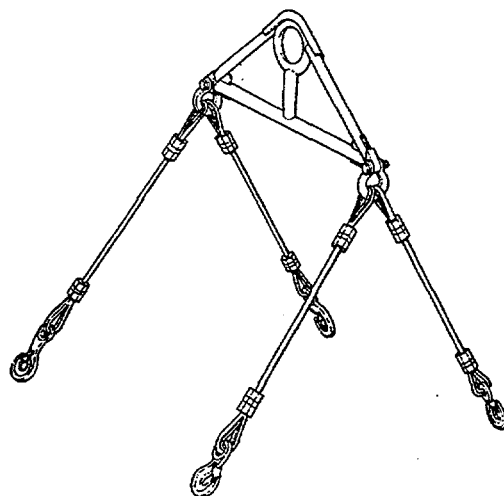
### Description

In 1991, Sandia National Laboratories and the US Army began a jointly funded program to develop a new container, the H1501A.

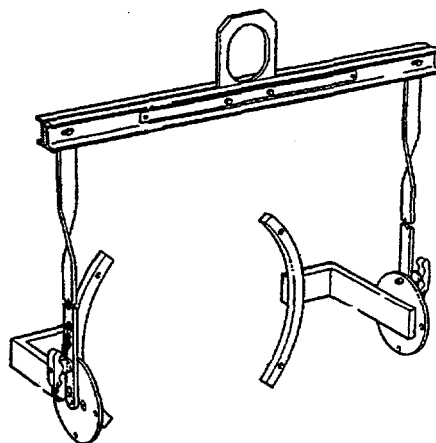
The H1501A is similar to the H1501 except that the diameter of the internal cavity or payload cavity was increased from 16 to 20 inches, which would be large enough for the W70.

In the ensuing test program, the H1501A was successfully tested up to 225-ft/sec impact velocity followed by a 2-hour jet fuel fire. The testing demonstrated that the major benefit of the TARC was its ability to resist long duration fires even after a severe impact, thus reducing the risk that nuclear materials will be scattered for "conventional" high explosive weapons that are involved in aircraft accidents.

## H1501A (continued)

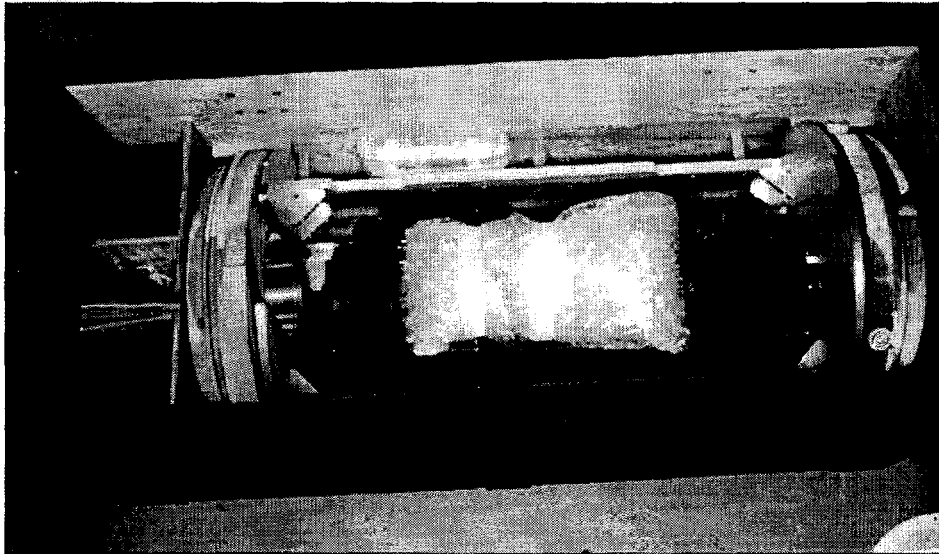


H416 Bomb and Container Sling

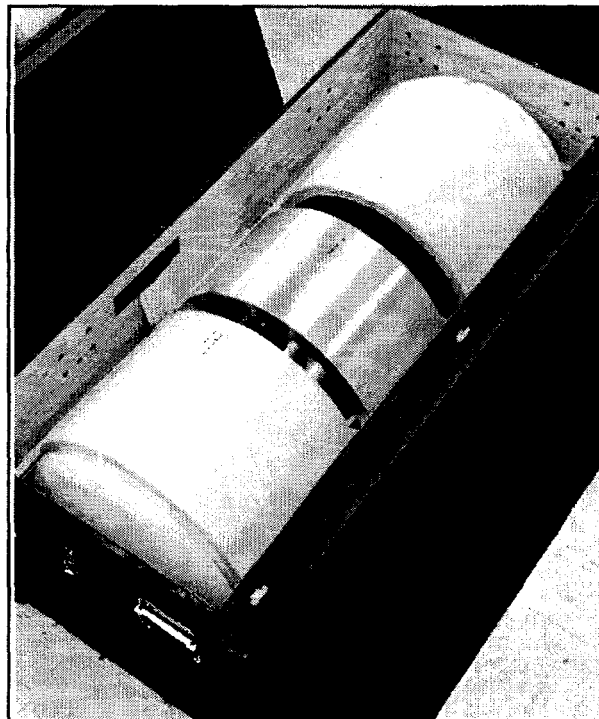


H1231A Beam-Type Sling

### H1501A (continued)

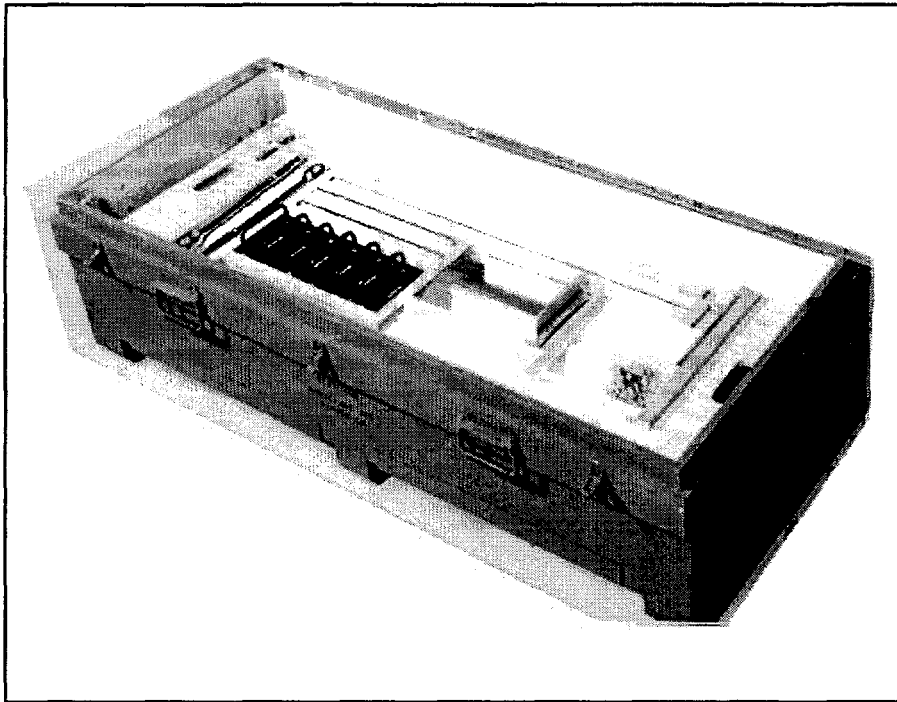


H1606 Insert Kit (W48 & W79)

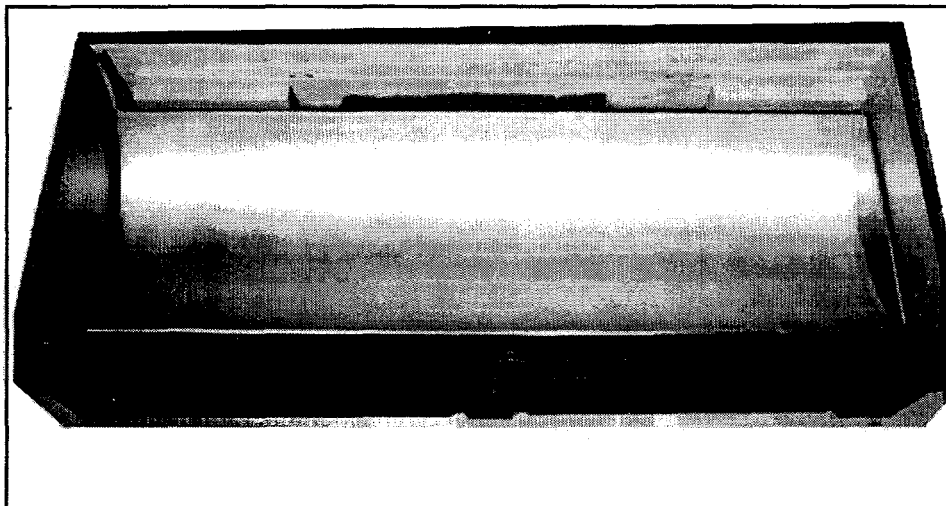


H1607 Insert Kit (W70)

## H1501A (continued)



H1608 Auxiliary Kit

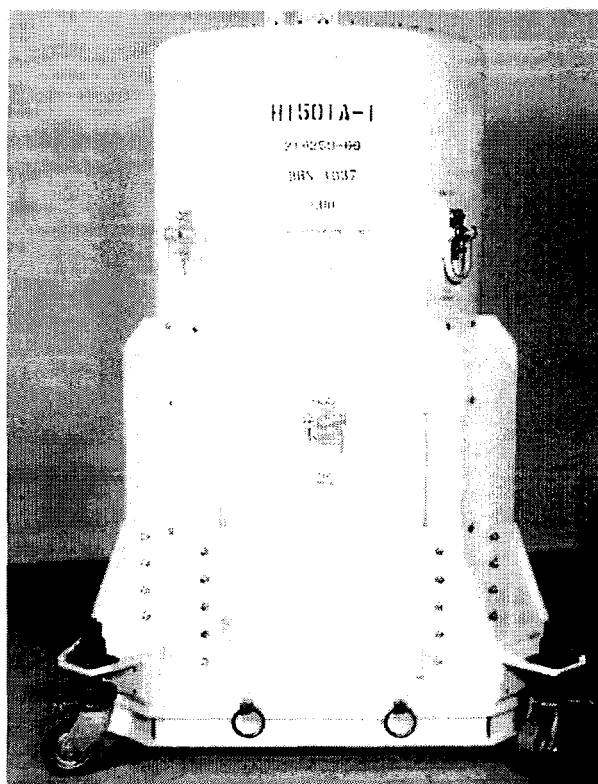


H1608 with Top Tray Removed

This page intentionally left blank

## H1501A-1

### Transportation Accident Resistant Container (TARC)



#### General Information

Program	W62/W78
Service Branch	Air Force
Drawing Number	214259
Status	Built/Not Fielded
Quantity Available	26 (stored at AS/FM&T)

#### External Information

Material	304 SS outer skin
Outside Diameter and Height	38" x 74"
Foot Print (L x W)	50" x 50"
Empty Weight	2570 lb
Outer/Inner Door Weight	105 lb / 95 lb
Forklift Opening and Spacing	11.5" W x 2.7" H, on 23.5" center

#### Internal Information

Internal Cavity (Dia x High)	6061 Al, 20.0" x 47.5" x 1.4 wall
Impact Mitigation Material	7.5" of redwood radially and 10" on either end



## H1501A-1 (continued)

### Documents

Development Report	SAND96-8010
Technical Manuals	n/a

### Ancillary H-Gear

H1642 Insert Kit for W62/W78	214260
------------------------------	--------

### Description

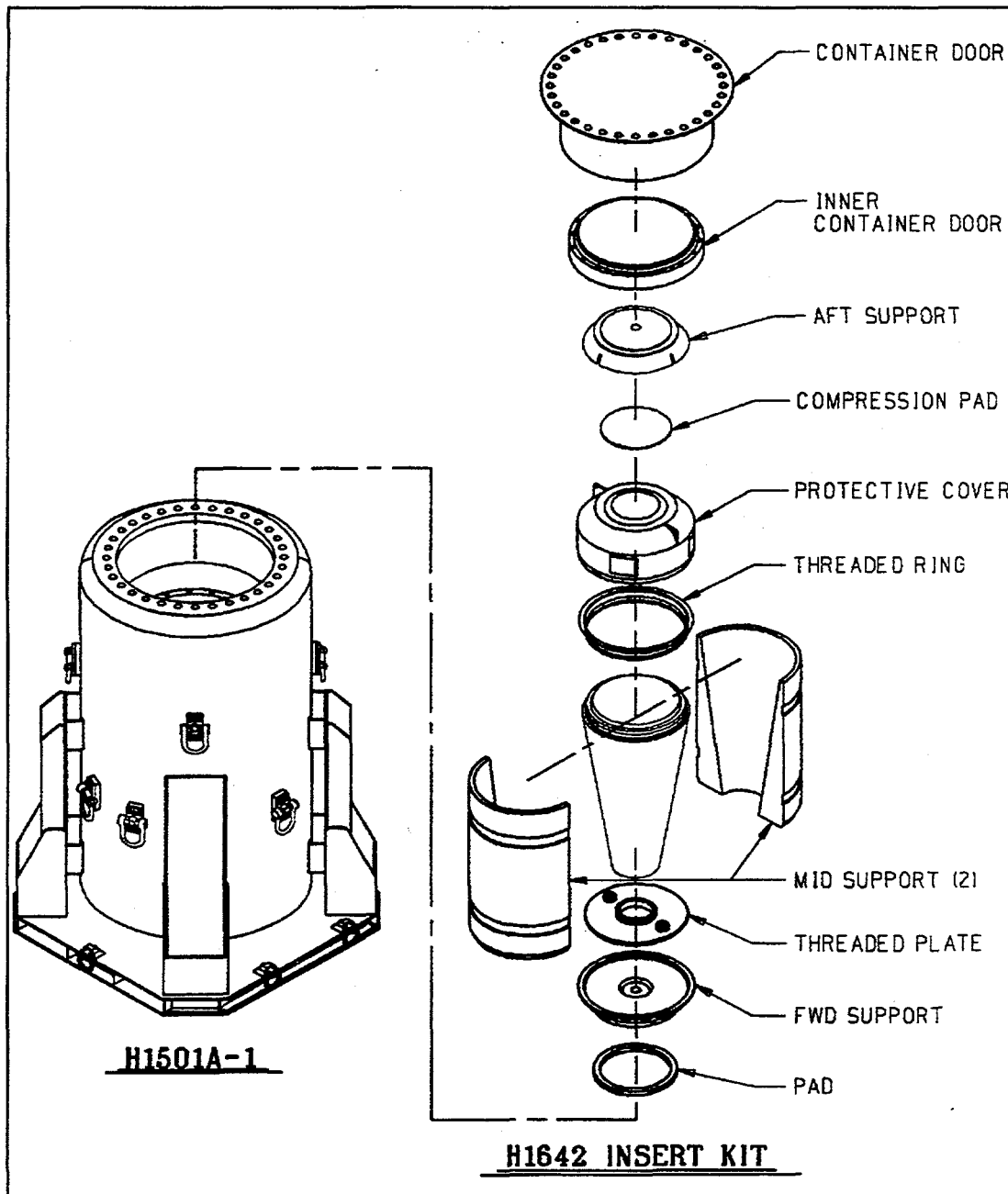
In 1993, a new version of the H1501 was designed and produced; the H1501A-1, also known as the vertical TARC. This container is an H1501A with a new bolster added so that the container body is vertical.

The H1501A-1 in conjunction with the H1642 insert kit was designed specifically for air transport of the W62 and W78 reentry vehicles to provide additional protection during an accident, and to provide a capability to transport the W62 and W78 vertically.

An impact test of an H1501A-1 with a mock W78 warhead, inside a C-141B aircraft fuselage section was conducted to evaluate the structural integrity of the H1501A-1.

The impact velocity was approximately 140 ft/sec and no fire test was conducted. The amount of container crush was consistent with all previous full-scale test and analyses within the H1501 family of containers. The H1501A-1 performed exactly as designed and expected.

## H1501A-1 (continued)

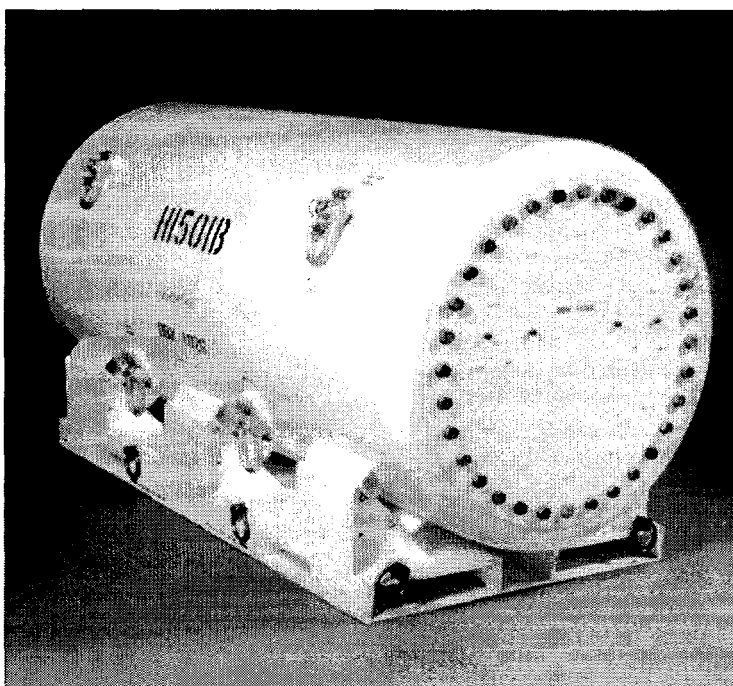


Exploded view of H1642 Insert Kit with H1501A-1

This page intentionally left blank

## H1501B

### Transportation Accident Resistant Container (TARC)



#### General Information

Program	B61
Service Branch	Air Force
Drawing Number	214241
Status	Built/Not Fielded
Quantity Available	55 (stored at AS/FM&T)

#### External Information

Material	304 SS outer skin
Outside Diameter and Length	38" x 82"
Foot Print (L x W)	72" x 36"
Height	45.0"
Empty Weight	2400 lb
Outer/Inner Door Weight	130 lb / 105 lb
Forklift Opening and Spacing	11.6" W x 2.7" H, on 42.5" center

#### Internal Information

Internal Cavity (Dia x Lg)	6061 Al, 20.0" x 59.5" x 1.4" wall
Impact Mitigation Material	7.5" of redwood radially and 10.0" on either end

## H1501B (continued)

### Documents

Development Reports	SAND93-8218, SAND94-8250
Technical Manual	n/a

### Ancillary H-Gear

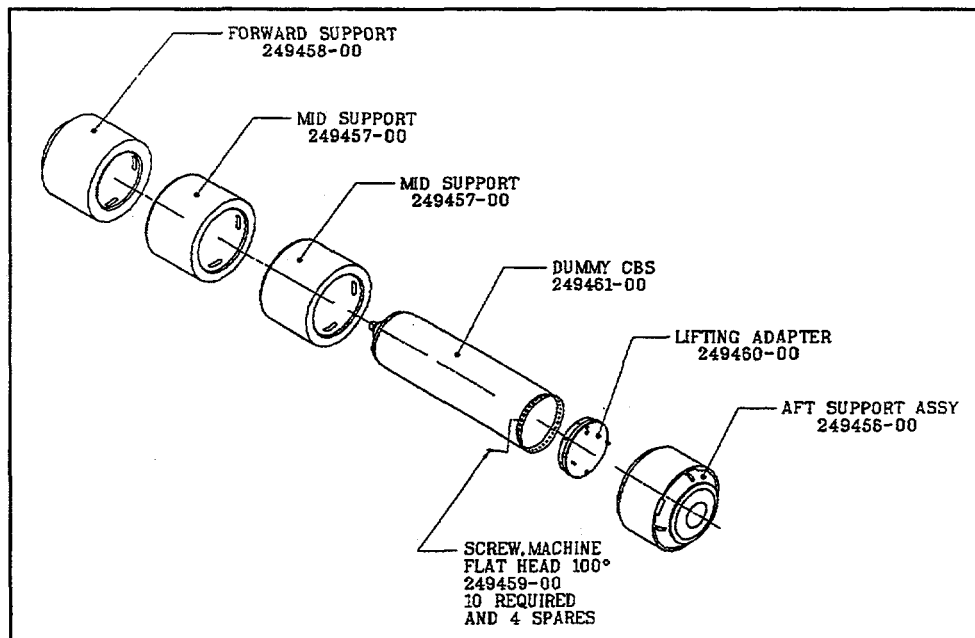
H1626 Insert Kit	214243
H1627 Strongback	214245

### Description

In 1992, the third version of the H1501 was designed and produced, the H1501B. The H1501B is essentially a longer version of the H1501A and can accommodate the center section of a B61.

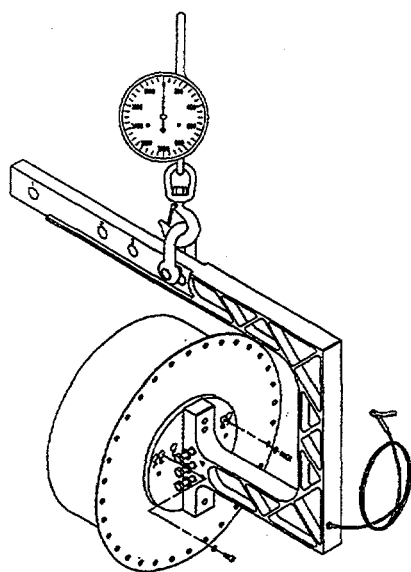
Other design changes include a 50% thicker stainless steel skin, more tiedown lugs, and stronger doors.

Like the H1501A, the H1501B was successfully tested up to 225-ft/sec impact velocity followed by a 2-hour jet fuel fire.

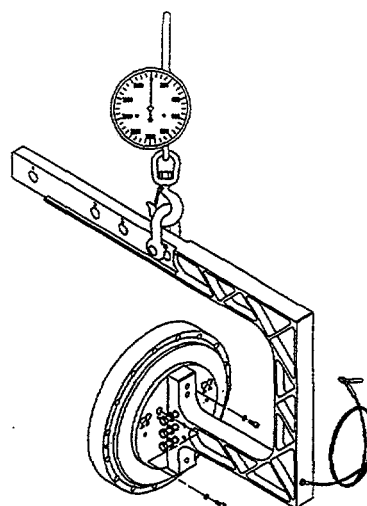


H1626 Insert Kit

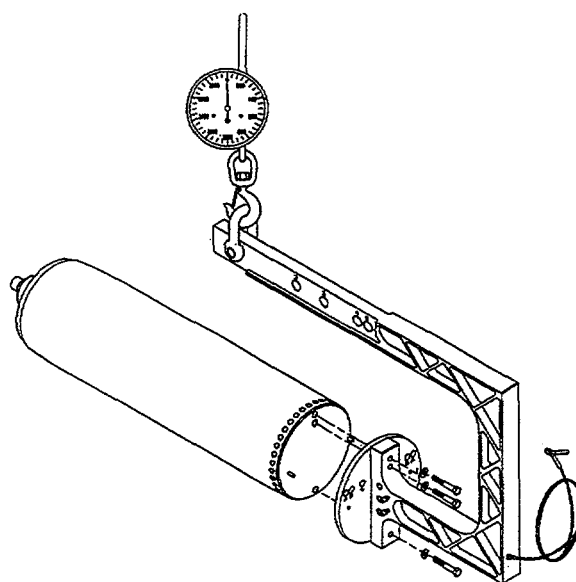
## H1501B (continued)



H1627/Outer Door



H1627/Inner Door



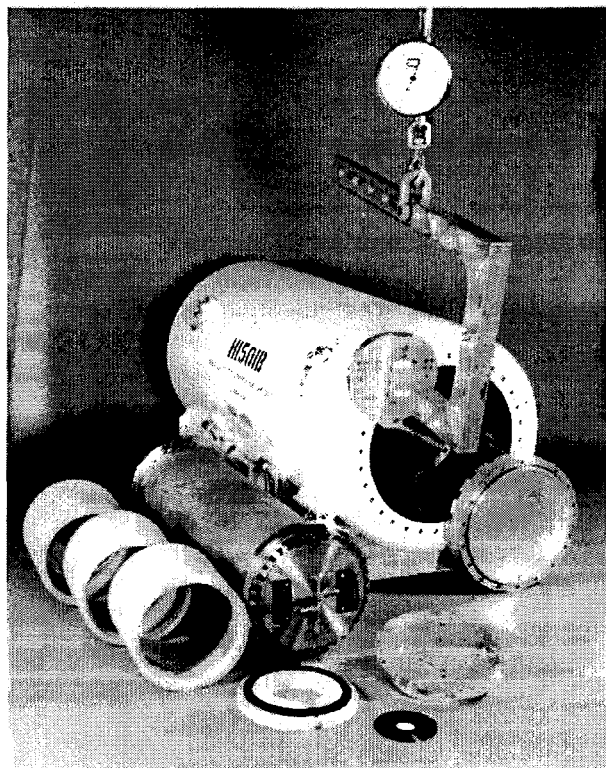
H1627/Center Bomb/Section

This page intentionally left blank

## C. Accident Response Group (ARG)

### S-TARC

#### Special Transportation Accident Resistant Container



#### General Information

Program	B61
Service Branch	Air Force/Navy
Drawing Number	214241
SXR Number	N3076KC92SL
Status	Active
Quantity Available	1 (stored at Pantex)

#### External Information

Material	304 SS outer skin
Outside Diameter and Length	38" x 82"
Foot Print (L x W)	72" x 36"
Height	45"
Empty Weight	2800 lbs (includes casters and brackets)
Outer/Inner Door Weight	130 lb / 105 lb
Forklift Opening and Spacing	11.6" W x 2.7" H, on 42.5" center



## S-TARC (continued)

### Internal Information

Internal Cavity (Dia x Lg)	6061 Al, 20.0" x 59.5" x 1.4 wall
Impact Mitigation Material	7.5" of redwood radially and 10" on either end

### Documents

Development Report	SAND95-8231
Technical Manuals	n/a

### Ancillary H-Gear

Auxiliary Container	A55880
T553 leak detector	368532
H1627 Strongback	214245

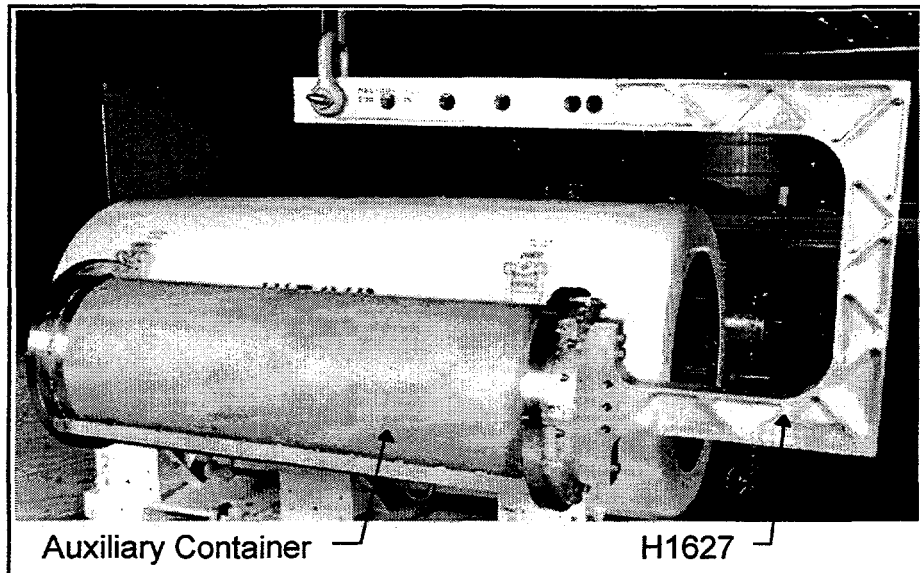
## Description

In 1995, the S-TARC, a specially built, sealed H1501B container, was produced to provide the Accident Response Group (ARG) the capability to handle and transport a non-damaged B61 Center Bomb Subassembly (CBS) that is detected to be leaking during a Limited Life Component Exchange.

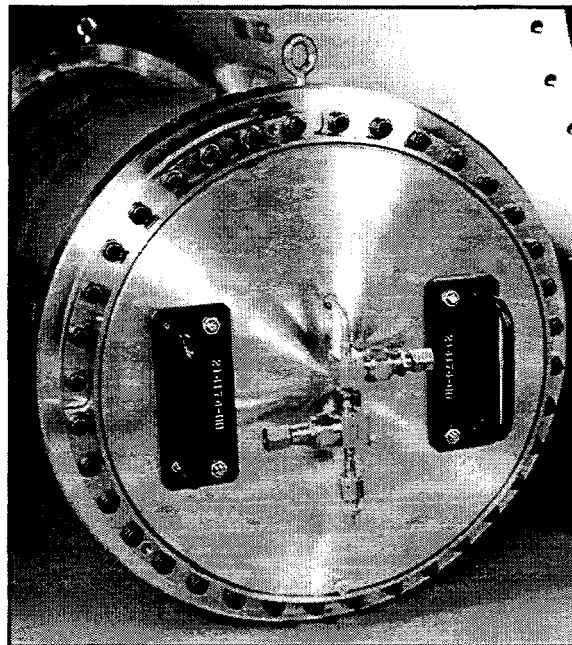
This H1501B container was modified by adding O-ring seals to each of the two inner container doors per SXRN3076KC92SL.

The primary leak containment vessel is the Auxiliary Container. It is a sealed stainless steel container with a leak rate of less than  $1 \times 10^{-6}$  atm cc/sec of helium at 50 psi. The B61 CBS is supported inside the Auxiliary Container by polyurethane foam inserts. The purpose of these inserts are to hold the CBS in a uniform and predictable method during transportation.

## S-TARC (continued)

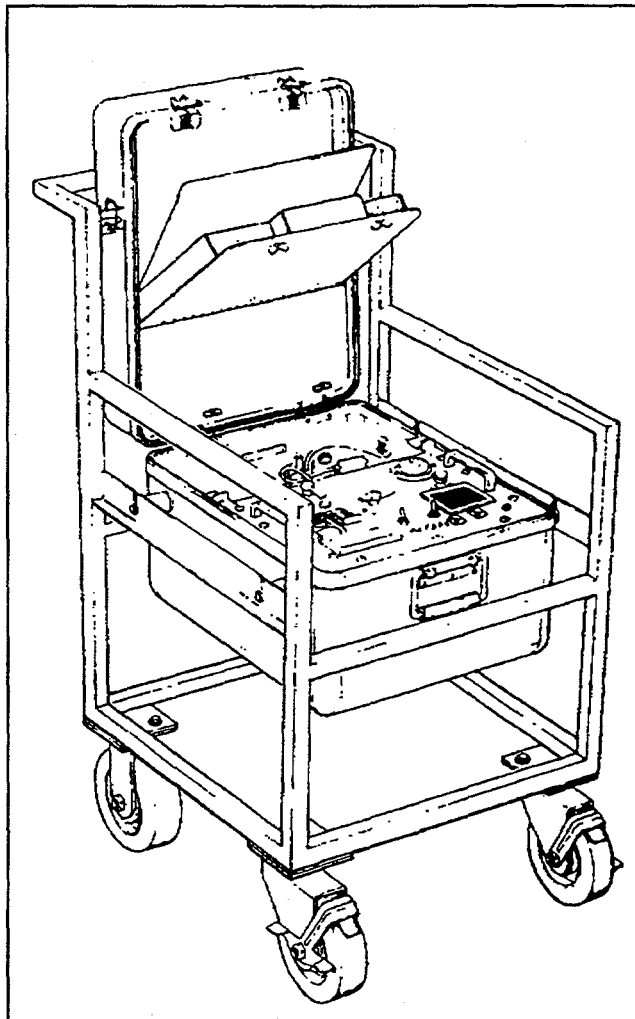


Auxiliary Container bolted to the H1627 Strongback



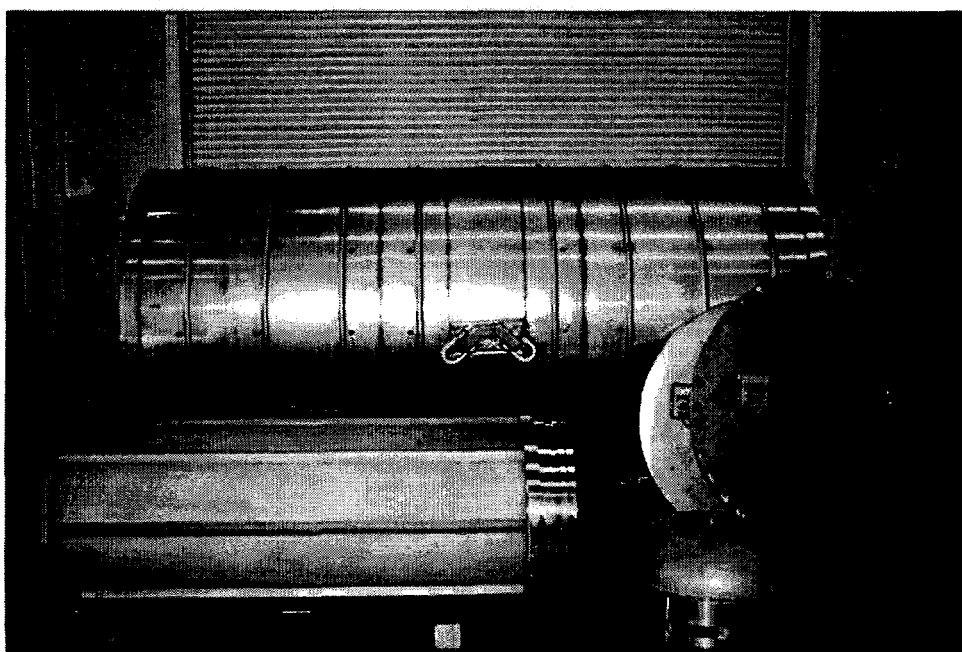
Auxiliary Container Cover

## S-TARC (continued)



T553 Leak Tester

**H1636A/H1636B**  
**Special Use Container (ARG)**



**General Information**

Drawing Number	413478
Quantity Available	6

**External Information**

Material	304L SS outer skin
Outside Diameter and Length	50" x 113"
Empty Weight	4660 lb

**Internal Information**

Containment Vessel Material	304L SS
Containment Vessel I.D. and Length	23.25" x 77"
Containment Vessel Weight	890 lb
Impact Mitigation Material	Intumescent rigid polyurethane foam 20 lb/ft <sup>3</sup>

**Documents**

Development Report	SAND94-1387
--------------------	-------------

## H1636A/H1636B (continued)

### Description

The H1636A/H1636B is an accident-resistant packaging that is designed to contain radioactive and/or other hazardous materials following severe mechanical and thermal environments resulting from a transportation accident.

Although the primary purpose for using this packaging is to transport damaged weapons or weapons that have been compromised in some manner, there is no reason that a pristine weapon could not be transported in the H1636A/H1636B.

The main components of the packaging are the outer drum and the containment vessel (CV).

The outer drum structure is double walled.

The CV consists of a body and lid joined with an interlocking tape joint. The CV nominal thickness is 0.375-in. The cylindrical portion of the CV is reinforced with eight stiffeners (1 x 1 x 1/4-in. angle) that run along its length.

The outer drum has a cavity that accepts the containment vessel and the cavity is closed by the use of an inner and outer lid.

A 12-in.-wide band that is 0.125 in. thick is welded around the circumference of the geometric center of the outer drum.

The packaging tie-downs are welded to the band in two places on opposite sides of the packaging.

In the H1636A, two elastomeric O-rings located within the tape joint seal the CV. A leak test port on the exterior of the lid provides a means to evacuate between the two O-rings for leak testing.

A gas sample valve located in the center of the lid is sealed with an elastomeric O-ring. A cover that is installed over the valve is also sealed with an O-ring. The gas sample valve is the only penetration into the CV.

There is no specific material included in the packaging for shielding. Heat removal, if any is used, is determined by the specific payload.

In the H1636B, the sealing configuration changed from dual face seals to one face seal and one radial seal. This change was introduced to provide an alternate seal if one seal failed.

The tape joint seal configuration was thickened to combat ovaling in side drops.

The H1636A/H1636B length and body ID/OD have remained the same.

## **H1636A/H1636B (continued)**

The packaging is not complicated to use. Both inner and outer drum lids are fastened with screws, and handles provide a means for removing and installing the lids. The foam insert that is between the inner drum lid and CV can be removed and installed using a forklift and the two forklift pockets provided.

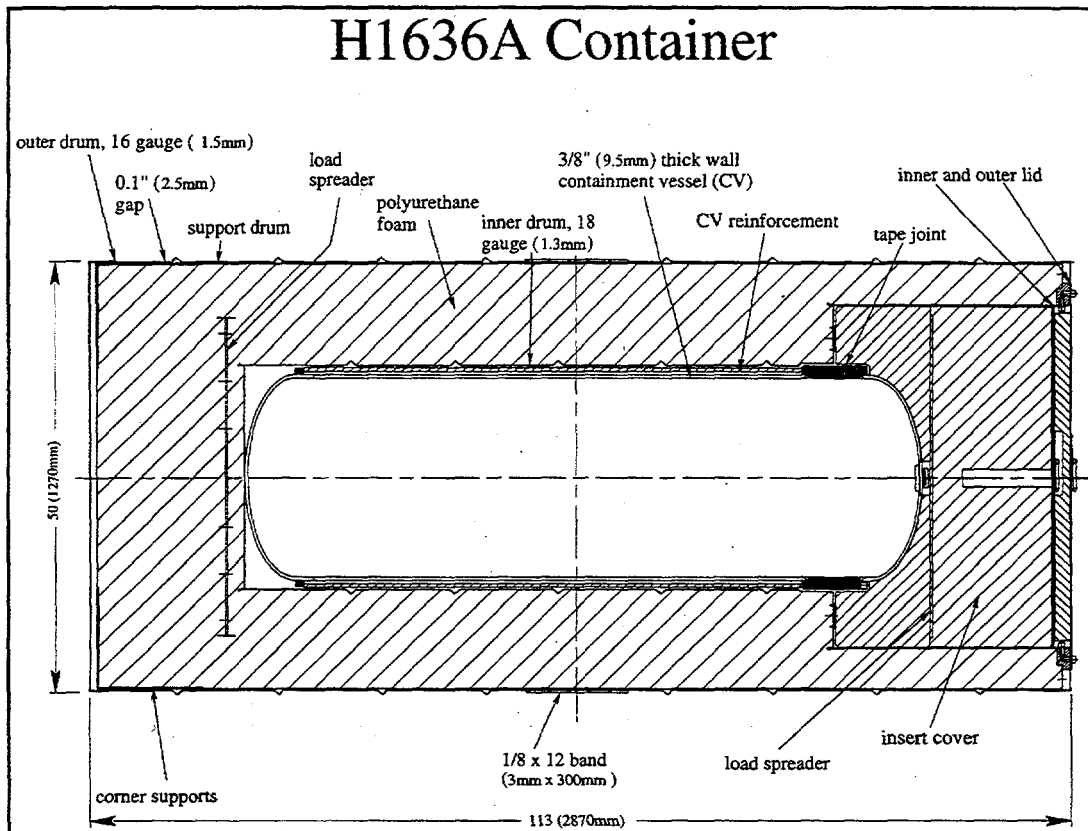
The contents or payload of the packaging may be radioactive or other hazardous material. To be consistent with Type B packaging standards, the payload should not cause excessive external radiation.

The user must ensure that any protrusions on the payload are prevented from applying a concentrated force on the interior of the CV during a high-speed impact. Aluminum load spreaders are recommended to prevent the payload from directly contacting the CV wall.

The user should consider performing detailed thermal analyses if there is the potential for payload overheating. This is especially a concern if there is damage to the payload due to overheating that may adversely affect the packaging.

Various tests have been conducted to evaluate the design of the H1636A, including puncture, thermal and impact tests (ranging 44 ft/sec to 289 ft/sec). These results are documented in SAND94-1387.

## H1636A/H1636B (continued)



## Appendix A

### List of Ancillary H-Gear

Ancillary H-Gear	Part No.	Associated system
H12 Adjustable Hand Truck	202283	B83, ARC
H416 Bomb and Container Sling	320048	W87 TARC (H1501, H1501A)
H563 Beam-Type Sling	321216	B53, B61, B83, W62 W78, W80, W84, W88
H639 Bomb Hand Truck Sling	321293	B53
H695B Bomb Hand Truck (storage only)	214253	B83
H721 Towbar	320124	B83
H772 Hoisting Beam	320167	B53
H795 Bomb Hand Truck Adapter Kit	320191	B53
H796 Bomb Hand Truck	320192	B53
H799 Bomb Sling	320195	B53
H802 Bomb Sub-assembly Sling	320198	B53
H836 Beam-Type Sling	320234	B53
H1004 Bomb Hoisting Adapter	320369	B61, B83
H1012 Hand Truck	320377	B61
H1223B Protective Cover and Stand	316848	W62, W78
H1224A Shipping and Storage Container	316847	W62, W78
H1231A Beam-Type Sling	214090	TARC (H1501A)
H1242 Swivel Caster Set	320602	B61
H1276 Beam-Type Sling	320641	W76 (H1333A/B), W76, (H1514-1), W84, W87, W88



### List of Ancillary H-Gear (continued)

Ancillary H-Gear	Part No.	Associated system
H1337 Hoist Swivel Adapter	315575	W80
H1341 Hoisting Sling	315650	W76 (H1333A/B), W76 (H1514-1), W88
H1387A Strongback (warhead)	413461	W80
H1409 Strongback Assembly	249002	W84
H1454B Strongback (warhead)	413462	W80
H1474 WES Cap	214120	W87
H1475 Forward Adapter	214121	W87
H1476 Aft Adapter	214122	W87
H1476A Aft Adapter	214266	W87
H1477 Top Support	214123	W87
H1497 Spacer Assembly	214138	W87
H1514-1 Shipping and Storage Container	413436	W76
H1524 Sleeve	214164	W87
H1545 Horizontal Transport Fixture	214176	W87
H1606 Insert Kit (W48, W79)	214223	TARC (H1501A)
H1607 Insert Kit (W70)	214227	TARC (H1501A)
H1608 Auxiliary Kit	214225	TARC (H1501A)
H1626 Insert Kit	214243	TARC (H1501B)
H1627 Strongback	214245	TARC (H1501B), S-TARC
H1642 Insert Kit	214260	TARC (H1501A-1)
HLU-121/E Beam-Type Sling (Air Force Provided)	606467-1 or 606467-3	W62, W78
M454 Auxiliary Container	214175	TARC (H1501)

### List of Ancillary H-Gear (continued)

Ancillary H-Gear	Part No.	Associated system
M753 Auxiliary Container	249210	TARC (H1501)
T553 Leak Tester	368532	S-TARC
Auxiliary Container	A55880	S-TARC
Inner Door Handling Fixture	n/a	ARC
Outer Door Handling Fixture	n/a	ARC

This page intentionally left blank

## Appendix B

### Historical Listing of Weapon-Related S&S Containers

System	Name	Service	H Number	Dwg Number	Remarks
LB	LITTLEBOY (Hiroshima)	USA			
FM	FATMAN (Nagasaki)	USA	H13	106675	Bomb Dolly
B3	Mk3 Bomb	USAF	H13	106675	Bomb Dolly
T4	Atomic Demolition Munition(ADM)	USA			Picatinny Arsenal
B4	Mk4 Bomb	USN/USAF			
B5	Mk5 Bomb	USN	H46	106400	Trailer Mounted Bomb Container
W5	Regulus I, Matador	USN/USAF			
B6	Mk6 Bomb	USAF			
B7	Mk7 Bomb	USN/USAF	H65	120242	
W7	Honest John, Corporal/Boar, Betty	USA/USN	H319	120072	
B8	Penetration Bomb	USN			
W9	280mm Mobile Rifle Projectile Mk9	USA			
B11	Penetration Bomb	USN			
B12	Mk12 Bomb	USN/USAF			
B14	Mk14 Bomb	USAF			
B15	Mk15 Bomb	USN/USAF	H508 H508A	321153 321153-01	Bomb Trailer Bomb Trailer
B17	Mk17 Bomb	USAF			
B18	Mk18 Bomb	USN/USAF			
B19	280mm Mobile Rifle Projectile Mk 19	USA			M366 Atomic Projectile
B21	Mk21 Bomb	USAF			
W23	16" Projectile Mk 23	USN			
B24	Mk24 Bomb	USAF			
W25	Air-2 Genie	USAF			
B27	Mk27 Bomb	USN			
W27	Regulus I	USN			
B28	Mk28 Bomb	USN/USAF	H532	321184	Bomb Hand Truck
W28	Mace/Hound Dog	USAF	H532A	321184-01	Bomb Hand Truck
			H532B	321184-02	Bomb Hand Truck
			H553	321206	S&S Container (Components)
			H553A	321313	S&S Container (Components)
			H633	321285	Parachute S&S Case (MC966, MC967)
			H736	320130	Bomb Hand Truck
			H736A	320130-01	Bomb Hand Truck
			H777	320172	Metal Shipping Box (MC1234)
			H933A	320358	Fuze S&S Container
			H943	320315	S&S Container

## Historical Listing of Weapon-Related S&S Containers (continued)

System	Name	Service	H Number	Dwg Number	Remarks
			H1098	320467	S&S Container, X-Unit (MC695)
			H1139	320503	Fire Set S&S Container
W30	Talos/TADM	USN/USA	H534	321186	Warhead Container
			H943	320315	S&S Container
W31	Nike Hercules, Honest John, ADM	USA	H541	321194	Warhead Hand Truck
			H541A	321194-01	Warhead Hand Truck
			H541B	321194-02	Warhead Hand Truck
			M409		W/H Section S&S Container
W33	8" AFAP (M422)	USA/USN	H1343	315685	Component Container
			M500		Projectile Container
			N/A		Accessories Container (AN Can)
W34	Astor/Hotpoint/LuLu	USN	H552	321205	W/H S&S Can (used with H613, H626)
B36	Bomb	USAF			
W38	Atlas/Titan I	USAF			
B39	Mk39 Bomb	USN/USAF			
W39	Redstone/Snark	USA/USAF			
W40	Lacrosse/Bomarc	USA/USAF	H552	321205	W/H S&S Can (used with H613, H626)
			H943	320315	S&S Container
B41	Bomb	USAF	H641	321295	Bomb Hand Truck
			H641A	320213	Bomb Trailer
			H641B	320353	Bomb Hand Truck
			H693	321347	Parachute S&S Case
			H934	320315	S&S Container
B43	Mk43 Bomb	USN/USAF	H695	321348	Bomb Hand Truck
			H695A	321348-01	Bomb Hand Truck
			H708	320111	Radar S&S Case
			H709	320112	Bomb Nose S&S Case
			H715	320118	Parachute S&S Case
			H763	320157	Metal Drum S&S Frame (for H715)
			H1295	320659	S&S Container, TSC 43-0
W44	ASROC	USN	H651	321305	W/H S&S Case
	Mk 17 Depth charge	USN	Mk 182		S&S Container (DoD Provided)
			Mk 496		S&S Container (DoD Provided)
			H3703		DoD Provided
			H3703A		DoD Provided
W45	Little John, MADM/Terrier, Bullpup	USA/USN	H815	320211	W/H S&S Container
					Mk 199 Container (DoD Provided)
			H3383		Mk 266 Container (DoD Provided)

## Historical Listing of Weapon-Related S&S Containers (continued)

System	Name	Service	H Number	Dwg Number	Remarks
			H3384		Mk 267 Container (DoD Provided)
W47	Polaris A1 & A2	USN	H694	214000	W/H Hand Truck
W48	155mm AFAP (M454)	USA/USN	M467	8850104	S&S Container
W49	Jupiter/Atlas, Thor, Titan I	USA/USAF			
W50	Pershing, Nike Zeus	USA	H838 M483	320236	W/H Hand Truck W/H Section S&S Container
W52	Sergeant	USA	H901	320279	W/H Hand Truck
B53 W53	Strategic Bomb Titan II, MK6 RV	USAF USAF	H794 H978 H800 H805 H809 H810	320190 320340 320196 320201 320205 320206	Bomb Hand Truck W/H S&S trailer Parachute Can S&S Container Rear Case S&S Container Nose S&S Container Segment & Wedge S&S Container
B54 W54	SADM Davey Crockett/Falcon	USA/USN USA/USAF	H651 H913 H1054 H1154 H1191 H1402	321305 320290 320422 320513	W/H S&S Case S&S Container S&S Container Explosive Generator Case (MC1292) S&S Container
W55	SUBROC	USN	H863 H864	320249 320250	W/H S & S Container S & S Container
W56	Minuteman I & II, Mk 11A,B & C RV	USAF	H1138A H1009 H1637/M409	320586 320374	W/H Hand Truck S&S Container Proposed Shipping Container
B57	Bomb/Depth Bomb	USAF/USN	H841 H871 H1003 H1012 H1026 H1026A	320329 320257 320368 320377 320392 320392-01	Bomb S&S Frame (Uses H1012) Parachute S&S Case S&S Container Hand Truck (Castered Dolly) S&S Spacer Frame (Used on H841) S&S Spacer Frame (Used on H841)
W58	Polaris A3	USN	H1057 H1057A	320425 320603	W/H S&S Container (AN Can) W/H S&S Container (AN Can)
W59	Minuteman	USAF	H976	320338	W/H S&S Container

## Historical Listing of Weapon Related S&S Containers (continued)

System	Name	Service	H Number	Dwg Number	Remarks
B61	Bomb	USN/USAF	H1012	320377	Hand Truck (Castered Dolly)
			H1125	320489	Bomb Cradle (Uses H1012 or H1242)
			H1137A	320608	Parachute S&S Container
			H1137B	314433	Parachute S&S Container
			H1171	320531	Nose S&S Container
			H1242	320602	Swivel Caster Set
W62	Minuteman III ICBM, Mk 12 RV	USAF	H933	320310	Fuse S&S Container
			H933A	320358	Fuze S&S Container (B28 also)
			H1223A	320627	S&S Container, inserts
			H1223B	316848	S&S Container, inserts
			H1224	320583	S&S Container (Made from the H933)
			H1224A	316847	S&S Container
			H1278	320643	Interproject Shipping Container
W66	Sprint	USA	H1291	320655	S&S Container
W68	Poseidon C3 SLBM, Mk 3 RB	USN	H1259	320624	W/H S&S Container
W69	SRAM	USAF	H1274	320639	W/H S&S Container
W70	Lance	USA	H1227	320587	W/H S&S Container (mods 1&2)
			H1352	249000	S&S Container (mod 3)
			M511		W/H Section S&S Container
W71	Spartan	USA	H1307	320669	S&S Container
			H1332	320196	S&S Container
			M553		
W72	Walleye	USAF			
W76	Trident I C4 & II D5 SLBM, Mk 4 RB	USN	H1333	315396	S&S Container
			H1333A	317273	S&S Container
			H1333B	410606	S&S Container
			H1514-1	413436	S&S Container
W78	Minuteman III ICBM, Mk 12A RV	USAF	H1223B	320627	S&S Container, inserts
			H1224A	316847	S&S Container
W79	8" AFAP (M753)	USA/USN	M613		S&S Container
W80	Tomahawk (SLCM)/ALCM	USN/USAF	H1388	317031	S&S Container
W81	SM-2	USN			Cancelled
W82	155mm AFAP	USA/USN	M617		S&S Container Cancelled
B83	Modern Strategic Bomb	USAF	H1347	214073	Bomb Hand Truck
			H1347A	214255	Bomb Hand Truck
			H695B	214253	Storage Only Bomb Hand Truck
W84	GLCM	USAF	H1408	249001	Container

## Historical Listing of Weapon Related S&S Containers (continued)

System	Name	Service	H Number	Dwg Number	Remarks
<del>W85</del>	<del>Pershing II</del>	<del>USA</del>	<del>H1445</del>		Cancelled
			<del>M620</del>		<del>W/H Section S&amp;S Container</del>
<del>W86</del>	<del>Pershing II Earth Penetrator</del>	<del>USA</del>			Cancelled
W87	Peacekeeper ICBM, Mk21 RV	USAF	H1473	214126	Shipping Container
W88	Trident II D5 SLBM, Mk 5 RB	USN	H1514	319930	S&S Container
<del>W89</del>	<del>SRAM II</del>	<del>USAF</del>	<del>H1556</del>	<del>214220</del>	<del>S&amp;S Container (Cancelled)</del>
<del>B90</del>	<del>Depth Bomb</del>	<del>USN</del>			Cancelled
<del>W91</del>	<del>SRAM Tactical</del>	<del>USAF</del>			Cancelled
HARC/TAR C	W48 & W79	USA	H1501	214140	Stored @ AS/FMT
TARC	W48, W70 & W79	USA	H1501A	214222	Stored @ AS/FMT
TARC	W62, W78	DOE	H1501A-1	214259	Stored @ AS/FMT
TARC	B61	DOE	H1501B	214241	Stored @ AS/FMT
S-TARC	B61	DOE/ARG			Stored @ Pantex
ARC	Multi	DOE/ARG			Stored @ SNL/NM
ARG	Multi	DOE/ARG	H1636A	413478	One Stored @ UK Two Stored @ Pantex
ARG	Multi	DOE/ARG	H1636B		

Note: Shaded areas are the enduring stockpile systems.

Strike through symbol indicates that the program was cancelled prior to production.



Note:

Source of information from the following documents

- 1 FY 1994 Annual Weapons Program Report, Oct. 1994
- 2 TP 4-24 Production Nomenclature List, 16 FEB. 1994 (Source of MC & H Numbers)
- 3 TP 4-27, 1969
- 4 SM-4 Nomenclature and Support Information for WR and WR Type Components, 15 DEC 1969
- 5 Emergency Response Handbook RS-8232-2/61098
- 6 Nuclear Weapon Characteristics Report, Oct. 1985, RS-8232-2/63401

Acronyms Used

ASROC	Antisubmarine Rocket
AFAP	Artillery-Fired Atomic Projectile
SADM	Special Atomic Demolition Munition
SUBROC	Submarine Rocket
SRAM	Short-Range Attack Missile
SLBM	Sea-Launched Ballistic Missile
SLCM	Sea-Launched Cruise Missile
ALCM	Air-Launched Cruise Missile
SM-2	Standard Missile-2
GLCM	Ground-Launched Cruise Missile
ICBM	Inter-Continental Ballistic Missile
ADM	Atomic Demolition Munition
TADM	Tactical Atomic Demolition Munition
MADM	Medium Atomic Demolition Munition
RV	Reentry Vehicle
FB	Reentry Body
RA	Release Assembly
RBA	Reentry Body Assembly (reentry body with release assembly)

## DISTRIBUTION:

- 1 U.S. Department of Energy  
New Mexico Operations Office  
Attn: M. Baca, WPD  
P.O. Box 5400  
Albuquerque, NM 87115
- 1 U.S. Department of Energy  
New Mexico Operations Office  
Attn: A. E. Whiteman, WQD  
P.O. Box 5400  
Albuquerque, NM 87115
- 1 U.S. Department of Energy  
New Mexico Operations Office  
Attn: David Fidley, NESD  
P.O. Box 5400  
Albuquerque, NM 87115
- 1 MS 0427 W. R. Reynolds, 2103
- 1 MS 0427 P. A. Longmire, 2106
- 1 MS 0429 R. D. Andreas, 2100
- 1 MS 0436 G. L. Maxam, 2147
- 1 MS 0447 J. O. Harrison, 2111
- 1 MS 0453 D. L. McCoy, 2104
- 1 MS 0457 H. W. Schmitt, 2000
- 1 MS 0461 C. A. Yarnall, 14700
- 1 MS 0463 R. L. Hagengruber, 5000
- 1 MS 0475 R. C. Hartwig, 2105
- 1 MS 0479 P. A. Sena, 2151
- 1 MS 0481 M. A. Rosenthal, 2167
- 1 MS 0482 A. B. Cox, 2161
- 1 MS 0483 T. D. Hernandez, 2165  
Attn: D. J. Giersch, 2165  
D. D. Tipton, 2165  
A. R. York, 2165
- 1 MS 0486 M. E. Bleck, 2123
- 1 MS 0632 J. R. Caruthers, 14704
- 1 MS 0644 C. L. Christensen, 147121
- 1 MS 0645 M. D. Dickinson, 14713
- 1 MS 9001 T. O. Hunter, 8000
- 1 MS 9005 J. B. Wright, 2200
- 1 MS 9006 D. J. Bohrer, 2203
- 1 MS 9013 R. G. Miller, 2266

**DISTRIBUTION: (continued)**

1	MS 9014	T. R. Harrison, 2271
1	MS 9015	C. A. Pura, 2221
1	MS 9033	C. L. Knapp, 2262
1	MS 9034	D. J. Beyer, 2263
1	MS 9035	R. D. Monson, 2265
5	MS 9035	L. A. Brown, 2265
20	MS 9035	M. C. Higuera, 2265
1	MS 9035	M. B. Loll, 2265
1	MS 9036	D. R. Hensen, 2254
2	MS 9131	R. A. Condouris, 8815
3	MS 9018	Central Technical Files, 8940-2
4	MS 0899	Technical Library, 4916
1	MS 9021	Technical Communications Department, 8815/Technical Library, MS0899, 4916
2	MS 9021	Technical Communications Department, 8815, for DOE/OSTI