

WEAPONS FILE



2003



2004

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PREFACE

The 2003-2004 updated Weapons File is published in response to requests from our “Warfighter” customers, and is an item that you indicated had high utility. This is the sixth edition published by the office of the Armament Product Directorate (APD), established 1 September 1995 at Eglin AFB, FL. for the Air Armament Center, Eglin AFB, FL. Although it retains much of the information and format of the previous versions (2001-2002), this edition has been revised and updated to reflect the latest armament information available. The information for each weapon system is a snapshot of current information, and will be updated periodically when a new edition is published. The Weapons File is now available online and can be found at <https://wmnet.eglin.af.mil/weapons>.

The file is designed to be used by munitions managers and key personnel as a quick reference for information purposes only. It is not intended to be used as a procedural or technical manual in accomplishing mission planning or munitions maintenance operations. It focuses on currently fielded Air Force stocklisted, as well as developmental airborne delivered munitions, tactical missiles, weapons, gun systems and stores support equipment, and is not intended to be a complete Department of Defense guide to weapon systems.

This is YOUR weapons file to be used as a quick reference guide and familiarization tool. Your help is needed to insure only the most current and correct information is published. Therefore, we solicit any suggestions for improvements from the reader in the form of additions, deletions, updates and corrections. Send them to: APD, AAC/WM, 207 West Avenue D, Suite 308, Eglin AFB, FL 32542-6844. To order additional Weapons Files visit;

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CHAPTER ONE

AIR INTERCEPT

MISSILES

(AIM)

Nomenclature: AIM-7 (AUR)

Name: SPARROW

Description

The AIM-7 Sparrow is a radar-guided air-to-air missile with a high-explosive warhead. The versatile Sparrow has all-weather, all altitude operational capability and can attack high-performance aircraft and missiles from any direction. It is a widely deployed missile used by U.S and North Atlantic Treaty Organization forces.

Features

The missile has four major sections; guidance section, warhead, control and rocket motor. It has a cylindrical body with four wings at mid-body and four tail fins. Although external dimensions of the Sparrow remained relatively unchanged from model to model, the internal components of newer missiles represent major improvements with vastly increased capabilities.

Weapon Characteristics

AIM-7M

CRD Weapons Code

Z07FC	MISSILE AIM 7 F TRAINER
Z07FB	MISSILE AIM 7 F CAPTIVE
Z07FD	MISSILE AIM 7 F/M LOAD TRAINER
Z07MA	MISSILE AIM 7 M TRAIN/CAP
M07FA	MISSILE AIM-7M-F1 WAU-10 AUR
M07FB	MISSILE AIM-7M-F1 WAU-17 AUR
M07HA	MISSILE AIM-7M-H WAU-10 AUR
M07HB	MISSILE AIM-7M-H WAU-17 AUR

Guidance - Semi-Active RADAR & Home-On-Jam (HOJ) (H Build)

Control - Wing, Hydraulic

Autopilot - Roll Rate

Class - Air Intercept Missile

Weight (lbs.)

AIM-7M - 510

Length (in.)

AIM-7M - 147

Diameter (in.) 8

Warhead

AIM-7M 86lbs; Continuous Rod (WAU-10); Blast/Frag (WAU-17)

Explosive (NEW)

AIM-7M - PBXN-3, 26lbs (WAU-10); 36lbs (WAU-17)

Fuze - Proximity RF and Contact

Propulsion

AIM-7/M – Rocket Motor, MK 58

Carriage Options

AIM-7M
Aircraft:
F-15A-E
F-16

Launcher:
LAU-106/A
16S1501

Status / Schedule / Improvements

Contractor - General Dynamics & Raytheon

Status - Inventory

OPR - NAVAIRSYSCOM PMA-259

Mgmt/Eng (AF) - WR-ALC/LKG

Notes - Joint Navy/Air Force (Navy lead)

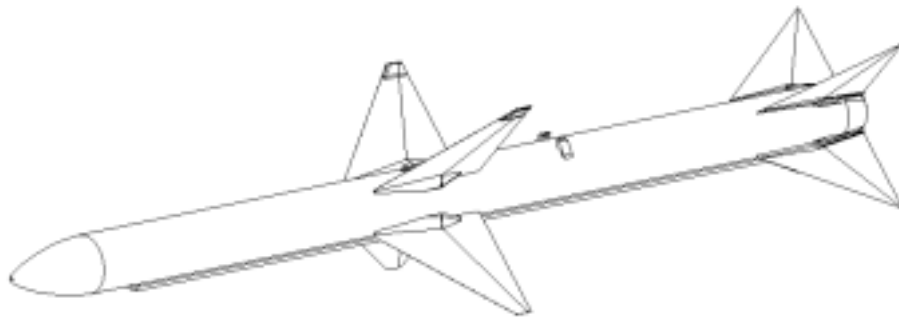
Tech Data - 21M-AIM7M-2

Special Equipment – DSM-162 Field Test Set

TO 33D9-30-36-1

Support Equipment

TO 33D9-1-392



Nomenclature: AIM-9 (AUR)

Name: SIDEWINDER

Description

The sidewinder is a supersonic , air-launched, guided missile employing passive infrared (IR) target detection, proportional navigational guidance, a torque balance control system, and an active optical target detector. The missile is comprised of five major components: the Guidance Control Section (GCS), Target Detector (TD), Safety Arming Device (S-A), Warhead and Rocket Motor. Four fin assemblies attach to the GCS and four wings assemblies attach to the Rocket Motor. A TMU-72 Coolant Tank provides on-board source of coolant (argon) used to cool the Refrigerated Detector Unit (RDU) in the GCS during captive carriage phase of flight.

Weapon Characteristics

AIM-9M

CRD Weapon Code

M09MA	MISSILE AIM-9M-1 AUR
M09MB	MISSILE AIM-9M-7 AUR
Z09WA	AIM-9M AUR WSEP
M09MC	AIM-9M-9 AUR
Z09LD	CATM-9L-10 (AUR)
Z09LE	CATM-9L-10 (MBA)
Z09LC	CATM-9L-3 (AUR)
Z09LF	CATM-9L-7 (AUR)
Z09LA	CATM-9L-9 (AUR)
Z09LB	CATM-9L-9 (MBA)
Z09MD	CATM-9M-10
Z09ME	CATM-9M-10 (MBA)
Z09MC	CATM-9M-3 (AUR)
Z09MB	CATM-9M-3 (MBA)
Z09MF	CATM-9M-7 (AUR)
Z09MA	CATM-9M-9(AUR)
SZRAA	STAMP AIM-9-9
Z09LD	CATM-9L-10 (AUR)
Z09LE	CATM-9L-10 (MBA)
Z09LC	CATM-9L-3 (AUR)
Z09LF	CATM-9L-7 (AUR)
Z09LA	CATM-9L-9 (AUR)
Z09LB	CATM-9L-9 (MBA)
Z09MD	CATM-9M-10
Z09ME	CATM-9M-10 (MBA)
Z09MC	CATM-9M-3 (AUR)
Z09MB	CATM-9M-3 (MBA)
Z09MF	CATM-9M-7 (AUR)
Z09MA	CATM-9M-9(AUR)

Guidance

AIM-9M – Passive Infrared Homing

Control - 4 Stabilizing Wing & Rolleron Assemblies and 4 Movable Canards with Servo Assembly

Class – Air Intercept Missile

Weight (lbs.)

AIM-9M – 191.7

Length (in.)

AIM-9M – 113

Diameter (in.) 5

Warhead

AIM-9M - 20.8 lbs. Annular Blast / Fragmentation

Explosive (NEW) - 7.9lbs PBXN-3

Fuze

AIM-9M - Contact and Active Optical (DSU-15A/B, B, B/B

Propulsion

AIM-9M - MK 36 Solid Rocket Motor

Special Equipment – AN/ASM-447 Field Test Set

Carriage Options

AIM-9M

Aircraft:

F-15A-E

F-16A-D

A-10A

ADF (F-16)

Launcher:

LAU-114, LAU-128

LAU-129, 16S-200 Series

LAU-105

16S-200 Series

Status / Schedule / Improvements

Contractor

AIM-9M – Loral Martin & Raytheon

Status – FMS/Inventory (30+ Countries)

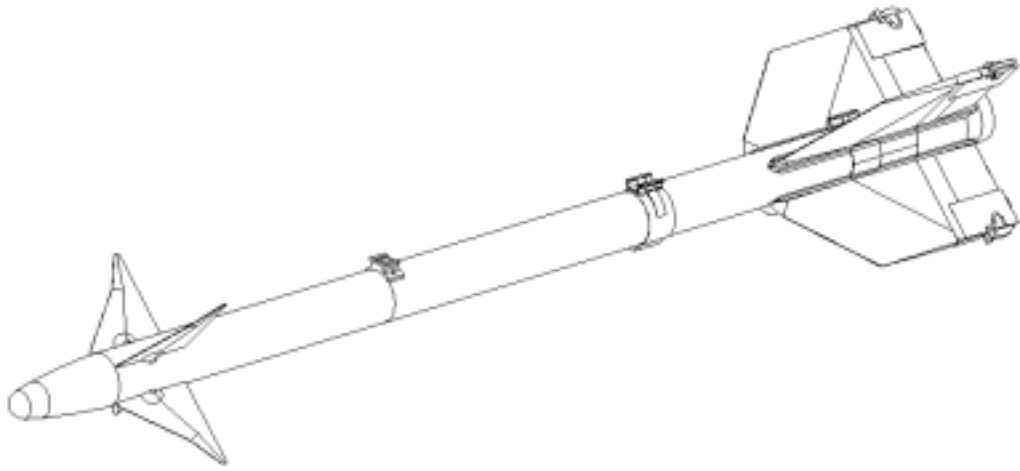
OPR

AIM-9M – NAVAIRSYSCOM PMA 259

Mgmt/Eng (AF) - WR-ALC/LKG

Tech Data - 21M-AIM9M-2

Special Equipment – GCU-30 Recharging Unit and TS 4044 Test Set



Nomenclature: AIM-9X

Name: Follow-on Sidewinder

Description

The AIM-9X Sidewinder is a supersonic, air-to-air, guided missile which employs a passive infrared (IR) target acquisition system, proportional navigational guidance, a closed-loop position servo Fin Actuator Unit (FAU), and a Target Detector (TD). A solid-propellant Rocket Motor (RM) propels the missile and incorporates a manual SAFE-ARM selector assembly. The AIM-9X is configured with an Annular Blast Fragmentation (ABF) warhead controlled by an Electronic Safe-Arm Device (ESAD). Four forward mounted fixed wings provide aerodynamic lift and stability. Airframe maneuvering is accomplished by four control fins, mounted in line with the fixed wings, and activated by the FAU. The Jet Vane Control (JVC) provides enhanced maneuverability by deflecting rocket motor thrust to aid in turning.

Characteristics

AIM-9X

CRD Weapons Code – Not Yet Assigned

Guidance – Imaging Focal Plane Array (FPA) Infrared (IR) sensor with improved counter measure capability

Control – Fixed forward wings and Jet Vane Control (JVC) incorporated within new Control Actuation Section (CAS)

Class - Air Intercept Missile

Weight (lbs.) - ~188

Length (in.) - 119

Diameter (in.) - 5.0

Wing Span (in) – 13.9

Fin Span (in) – 17.5

Warhead - 20.8lbs Blast/Fragmentation

Explosive - 7.4lbs PBXN-3

Fuze - Contact and Active Optical

Propulsion - MK36 Solid Rocket or Composite Case

Special Equipment –

Carriage Options

Aircraft:

F-16C, F-15C, F-22 (Internal)

Launcher:

Modified Eject Launcher

LAU-128/129/141 Rail Launcher

Status / Schedule / Improvements

Contractor – Raytheon Missile Systems Company

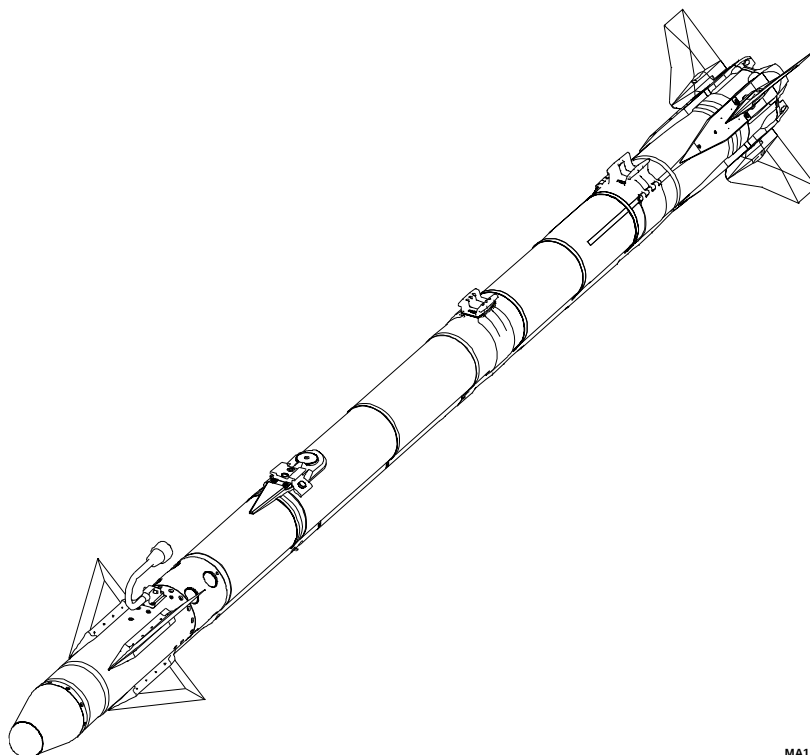
Status – Engineering and Manufacturing Development

IOC Date - 2004

OPR - NAVAIRSYSCOM PMA-259C and WR-ALC/LKG

Technical Order – 21M-AIM9X-2

Special Equipment – TTU-574 Test Program Set and GYQ-79 Common Munitions Bit Reprogramming Equipment (CMBRE)



MA1007

Nomenclature: AIM-120 (AUR)

Name: AMRAAM (Advanced Medium Range Air-to-Air Missile) **Series**

Description

The AIM-120 missile is a radar guided air-to-air missile which is divided into four sections: guidance, armament, propulsion, and control. The missile has four fixed wings and four moveable rear fins. A buffer connector electrically connects the missile to the aircraft while the missile is loaded on the aircraft launcher.

The guidance section includes the hardware and software necessary to perform the functions of acquisition and track, navigation, data link processing, and section secondary power. The guidance section contains: seeker/servo electronics, transmitter/electrical conversion unit (ECU), electronics unit, inertial reference unit (IRU), and Quad/target detection device (Q/TDD). The TDD antennas are mounted in the aft portion of the guidance section and are covered with a glass wrap. Alpha codes located after section part numbers define software of section for AIM-120A missiles. AIM-120B, C guidance sections are reprogrammable and do not have alpha codes.

The armament section includes a warhead assembly and a MK44 MOD 1 booster threaded onto a safety, arming, and fuze (SAF) device

The high performance rocket motor uses a single, reduced-smoke HTPB propellant in a boost-sustain configuration. It has an asbestos-free insulated steel case (an integral part of the airframe). It also is equipped with an integral aft closure/blast tube/nozzle assembly with a removable exit cone. Rocket motor PN G672798-1 is an enhanced version with additional 5 inches of propellant. It is commonly referred to as the +5 rocket motor.

The control section consists of control electronics, actuator batteries, and four independently controlled servoactuators. Control section PN G725818 is a shortened (by 5 inches) version to be used with the +5 rocket motor.

Weapon Characteristics

AIM-120

CRD Weapons Code

M12AA	MISSILE AIM-120A AUR
M12BA	MISSILE AIM-120B AUR
M12CA	MISSILE AIM-120C AUR
M12CB	MISSILE AIM-120C AUR
M12CC	MISSILE AIM-120C-5/6 AUR
SZRBB	STAMP AIM-120
SZRBB	STAMP AIM-120

Guidance – Inertial/Command Inertial and Active RADAR

Control – Fixed mid-body mounted wings with electric motor driven tail fins affixed to Control

Actuation Section (CAS)

Class – Air Intercept Missile

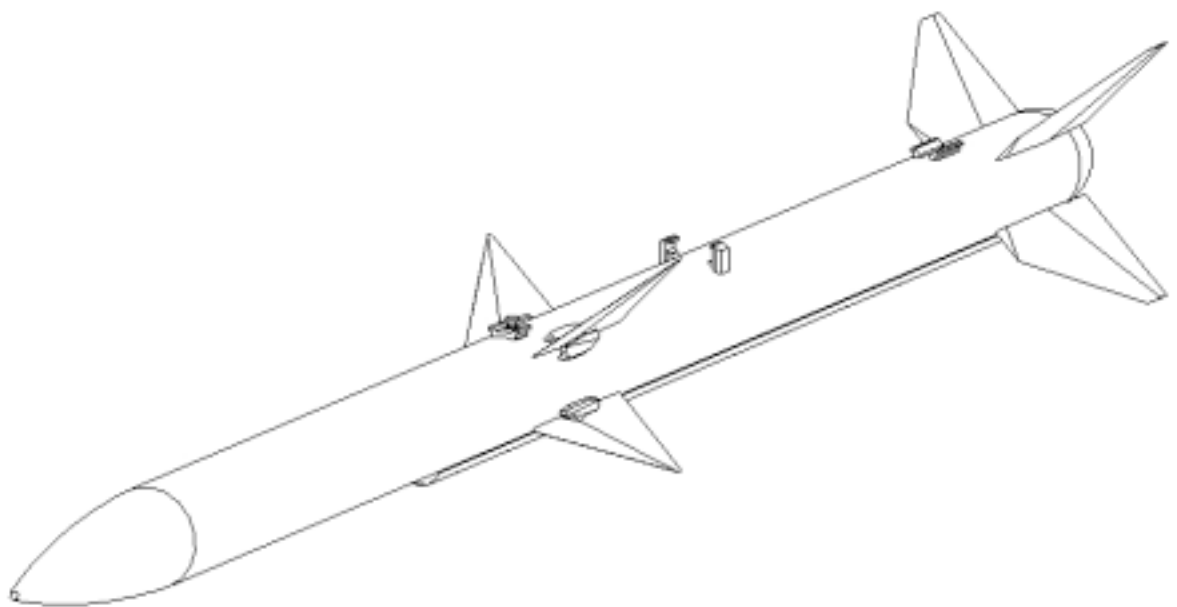
AIM-120A – Lots 1-5. Baseline missile, Non-reprogrammable
 AIM-120B – Lots 6-7. Implements Electrically Erasable Programmable Read Only Memory (EEPROM) for software updates via Field Level Reprogramming
 AIM-120C – Lots 8-10. Implements clipped wing and fin design for compatibility with F-22 Internal Carriage
 AIM-120C-4 – Lot 11. Implements improved warhead
 AIM-120C-5 – Lot 12. Implements 5 inch longer enhanced Rocket Motor and shortened control section
 AIM-120C-6 – Lots 13 and up. Implements improved fuzing via new Quadrant Target Detection Device (QTDD)
 Weight $\cong$ 345 lbs
 Length $\cong$ 144 inches
 Diameter $\cong$ 7 inches
 Wing Span AIM-120A/B - 21 inches AIM-120C - 17.5 inches (C)
 Control Fin Span AIM-120A/B - 25 inches AIM-120C - 17.5 inches (C)
 CG (Nom) $\cong$ 79.6 inches
 Warhead $\cong$ 45 lbs. Blast/Fragmentation
 Propulsion – Boost/Sustain, Reduced Smoke
 Fuze – Active RADAR Target Detection Device (TDD)

Carrier Options

Aircraft:	Launcher:
F-15 A/B/C/D/E	LAU-106 (F-15 eject)
F-16 C/D	LAU-116 (F-18 eject)
F-18 C/D/E/F	LAU-127 (F-18 rail)
F-4F	LAU-128 (F-15 rail)
Harrier	LAU-129 (F-16 rail)
JAS 37 Viggen	
JAS 39 Gripen	

Status/Schedule/Improvement

Contractor – Raytheon Missile Systems Company, Tucson AZ
 Status – Inventory/Rate Production for USAF/USN/FMS. Ongoing improvements via a PrePlanned Product Improvement (P3I) Program.
 OPR – AAC/YA (AF)/PMA-268 (USN) (Joint USAF/USN Program, USAF Lead Service)
 Support Activities – WR-ALC/LKG (USAF) – NAWCWPNS – Pt Mugu (USN)
 Technical Order – 21-AI120A-2 (USAF), NAVAIR 01-120-2 (USN)
 Special Equipment – Test Set, Guided Missile Circuitry, TS-4108/G (MBTS) (USAF), Common Field-Level Memory Reprogramming Equipment AN/GYQ-75A (V) (CFMRE) (USAF) and (USN)



CHAPTER TWO

AIR - TO - GROUND

MISSILES

(AGM)

Nomenclature: AGM-65 Series

Name: Maverick

Description

The missile's autonomous guidance systems give aircrews launch-and-leave capability at a wide range of distances and speeds. Because of its accuracy and lethal warhead, Maverick provides a high single-pass kill probability. Mavericks can be fired from a number of aircraft against a variety of targets such as field fortifications, bunkers, hangarages, tanks, armored personnel carriers, parked aircraft, radar or missile sites, port facilities, and ships, including high-speed patrol craft.

Weapon Characteristics

AGM-65

CRD Weapons Code

M65AA	MISSILE AGM-65A
M65BA	MISSILE AGM-65B
M65DA	MISSILE AGM-65D
M65GB	AGM-65 G-2
M65GA	AGM-65/G
M65KA	AGM-65/K
SZKCA	AGM-65G-2
SZKDA	AGM-65H
M65HA	AGM-65H AUR
SZKEA	AGM-65K
Z65AA	MISSILE TGM-65A CAPTIVE
Z65DA	MISSILE TGM-65D CAPTIVE
Z65TD	MISSILE TGM-65D LOAD TRAINER
Z65TE	MISSILE TGM-65D MAINT TRAINER
Z65GA	MISSILE TGM-65G CAPTIVE
P65DA	PREPO ISO AGM-65/D
P65DB	PREPO ISO AGM-65/D
P65GA	PREPO ISO AGM-65/G
P65GB	PREPO ISO AGM-65/G2
SZKAA	STAMP AGM-65D
SZKBA	STAMP AGM-65G

Guidance - TV (A, B,H,K); IR (D, F, G2); Laser (E); Charged Coupled Device (CCD) Imaging TV (H,K)

Control - Tail, Hydraulic Pneumatic Actuators

Autopilot - Proportional Navigation

Class – Anti-armor / Penetration Missile

AGM-65 A/B (TV)

Weight (full)	464.0 lbs	+/- 15
cg (x)	52.40 in.	+/- 0.50 in.
cg (y)	unk	+/- 0.50 in.
cg (z)	unk	+/- 0.50 in.

Length	97.70 in.	
Diameter	12.00 in.	
Inertia (roll)	2.20	+/- 10%
Inertia (pitch)	64.00	+/- 10%
Inertia (yaw)	64.00	+/- 10%

AGM-65 D (IR)

Weight (full)	484.47 lbs	+/- 15 lbs
cg (x)	51.38 in.	+/- 0.50 in.
cg (y)	0.01 in.	+/- 0.50 in.
cg (z)	0.20 in.	+/- 0.50 in.
Length	97.70 in.	
Diameter	12.00 in.	
Inertia (roll)	2.39	+/- 10%
Inertia (pitch)	72.20	+/- 10%
Inertia (yaw)	72.07	+/- 10%

AGM-65 G2/G2 (IR)

Weight (full)	664.80 lbs	+/- 5%
cg (x)	47.64 in.	+/- 0.50 in.
cg (y)	-0.04 in.	+/- 0.50 in.
cg (z)	0.16 in.	+/- 0.50 in.
Length	97.70 in.	
Diameter	12.00 in.	
Inertia (roll)	2.95	+/- 10%
Inertia (pitch)	79.91	+/- 10%
Inertia (yaw)	79.65	+/- 10%

AGM-65 H

Weight (full)	461 lbs	+/- 15
cg (x)	52.17 in.	+/- 0.50 in.
cg (y)	0.00 in.	+/- 0.50 in.
cg (z)	0.20 in.	+/- 0.50 in.
Length	97.70 in.	
Diameter	12.00 in.	
Inertia (roll)	2.35	+/- 10%
Inertia (pitch)	64.40	+/- 10%
Inertia (yaw)	64.30	+/- 10%

AGM-65 K

Weight (full)	672 lbs	+/- 15
cg (x)	48.55 in.	+/- 0.50 in.
cg (y)	0.00 in.	+/- 0.50 in.
cg (z)	0.15 in.	+/- 0.50 in.
Length	97.70 in.	
Diameter	12.00 in.	

Inertia (roll)	3.0	+/- 10%
Inertia (pitch)	75.90	+/- 10%
Inertia (yaw)	75.90	+/- 10%

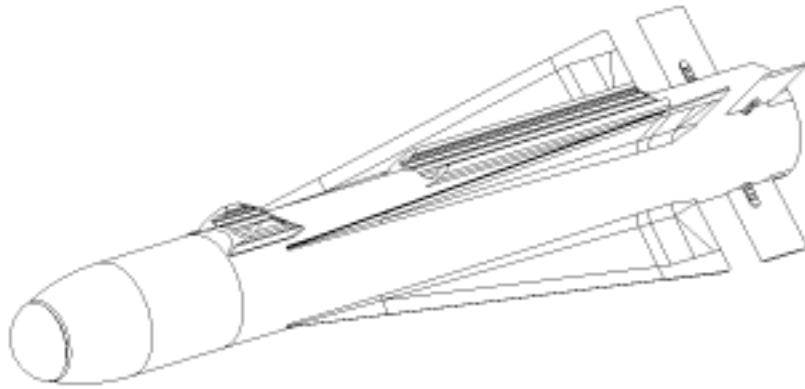
Warhead - 125 lbs. Shaped Charge Jet and Blast (A, B, D,H)
 300 lbs. Penetrator/Blast-Frag (E, F,G,K)
 Explosive - 86 lbs Comp B / 80 lbs PBX(AF)-108
 Fuze - SAF (A, B, D,H); FMU-135/B (E, F, G,K)
 Stabilizer - Wings / Control Surfaces
 Propulsion - Boost Sustain

Carriage Options

Aircraft:	Launcher:
A-10A	LAU-88A (3ea)
F-15E	LAU-117 (1ea)
F-16A-D	

Status / Schedule / Improvements

Contractor – Raytheon Missile Company
 Status – AGM-65A,B,D,F,G,E,H,K Inventory
 OPR – AAC/WMG
 Special Equipment - AN/DSM-157 Guided Missile Test Set (A,B,D,G,H,K); AN/DSM-129
 Guided Weapon Test Set (A,B,H,K); SM-787/DSM Test Set (D,G); For a complete list of AGM-
 65 Guided Missile Ground Equipment, refer to T.O. 35D-1-281.
 Tech Data - 21M-AGM65A-2 (A & B)
 21M-AGM65D-2 (D & G)
 21M-AGM65K-2 (H&K)



TOP-TOE WORK

Nomenclature: AGM-84**Name: Harpoon****Description**

The Harpoon missile is designed as an anti-ship cruise missile. It cruises just above the water surface toward its target and, just before impact, does a terminal pop-up maneuver to counter close-in defenses and enhance warhead penetration. There are 4 variants in use today. AGM-84A & C variants have pop-up maneuver, B & D variants do not pop-up. Harpoons are also carried by B-52Gs in the sea-control role.

Weapon Characteristics

AGM-84C(I)

CRD Weapons Code

ZC61C

Guidance - INS Mid-course, Active RADAR Terminal

Control - Tail

Autopilot - INS

Class – Air to Ground Missile

Weight (lbs.) - 1,160

Length (in.) - 151

Diameter (in.) - 13.5

Warhead - 500 lbs.

Explosive - Destex

Fuze - Contact

Propulsion - Turbojet Sustainer Engine

Carriage Options

Aircraft:

Launcher: None (30 in Lugs)

F-16C-D

B-52H

Status / Schedule / Improvements

Contractor – Boeing, IBM and Raytheon

Status - Inventory

OPR - OC-ALC/LAM

Tech Data - NAVAIR 01-AGM84A-2-1



Nomenclature: AGM-86/B

Name: Air Launched Cruise Missile (ALCM)

Weapons Characteristics

AGM-86

CRD Weapons Code - None

Guidance - Inertial Navigation

Control - Operational Flight Program Software

Autopilot - N/A

Class - Air to Ground Missile

Weight (lbs.) - 2850

Length (in.) - 249

Diameter (in.) - 25

Warhead - W80

Fuze - Impact Sensors or Commanded Air Burst

Propulsion - F112-WR-100

Carriage Options

Aircraft - B-52H

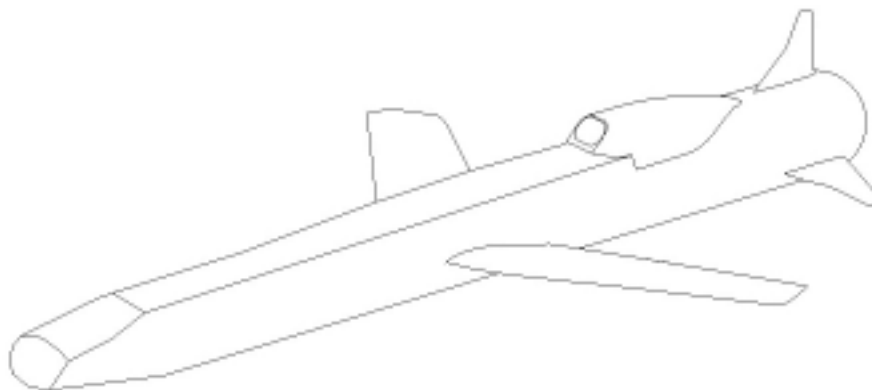
Status / Schedule / Improvements

Contractor - Boeing Defense and Space Group

Status - Inventory

OPR - OC-ALC/PSM

Tech Order - 21M-AGM86-1



Nomenclature: AGM-86/C&D **Name: Conventional Air Launched
Cruise Missile (CALCM)**

Weapons Characteristics

CRD Weapons Code - None

Guidance - Inertial Navigation integrated with GPS

Control - Operational Flight Program Software

Autopilot - N/A

Class - Air to Ground Missile

Weight (lbs.) – 3250(C) 3280(D)

Length (in.) - 249

Diameter (in.) - 24.5

Warhead - 2000lb class blast fragmentation(C) 1000lb Class Advanced Unitary Penetrator (AUP-3M)

Explosive – PBXN-109(D)

Block 0 - AFX-760(C)

Block I - PBXN-111(C)

Fuze - FMU-139 A/B (2)(C) FMU-159/B(D)

Detonation - Impact or Proximity(C) Programmable Burst Point Control(D)

Propulsion - F107-WR-100

Carriage Options

Aircraft - B-52H (20)

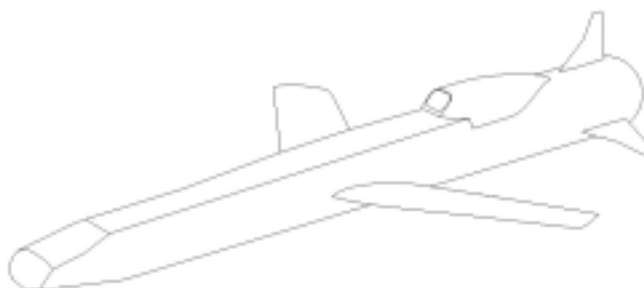
Status / Schedule / Improvements

Contractor - Boeing Defense and Space Group

Status - Inventory / Production(C) Engineering Manufacturing and Development

OPR - OC-ALC/PSM

Tech Order - 21M-AGM86-2-3(C), 21-AGM-86-2-4 (D)



Nomenclature: AGM-88 B & C

Name: HARM (High Speed Anti-Radiation Missile)

Description

The AGM-88 HARM is a supersonic air-to-surface missile designed to seek and destroy enemy radar equipped air defense systems. HARM has a proportional guidance system that homes in on enemy radar emissions through a fixed antenna and seeker head in the missile nose. The missile consists of four sections; guidance section, warhead, control section and rocket motor.

Characteristics

AGM-88

CRD Weapons Code

Z88AB MISSILE AGM-88(HARM)CAPTIVE

Z88AD MISSILE AGM-88(HARM)CAPTIVE

M88AB MISSILE AGM-88B AUR (HARM)

M88AA MISSILE AGM-88C AUR

P88AA PREPO ISO AGM-88/B

P88CA PREPO ISO AGM-88/C

SZMAA STAMP AGM-88C

Guidance – Passive Broadband Radio Frequency

Control - Wing, Electro-Mechanical

Autopilot - 3 Axis Rate Gyros

Class - Air to Ground Missile

Weight (lbs.) – 780 -810

Length (in.) - 164

Diameter (in.) - 10

Warhead

WAU-27/B (AGM-88C)

WAU-7/B (AGM-88/B)

Weight 143.5 lbs

Type: Direct fragmentation, variable charge-to-metal concept

Explosive: PBXN-107

NEW: 45.2 lds.

Fuze – FMU-111/B Proximity/Contact

Control Section: WCU-2/B

Target Detector: DSU-19A/B Electro-optical

Rocket Motor: YSR-113-TC-1, smokeless, solid-propellant, dual thrust

Carriage Options

Aircraft:

F-16C-D

Launcher -

LAU-118A (V) 4/A

Status / Schedule / Improvements

Contractor – Raytheon Company
Status - Inventory
OPR - WR-ALC/LKG
Special Equipment – MSU-170A/E
Technical Orders - 21M-AGM88C-2 (Missile)
33D9-45-1 (Test Set)



Nomenclature: AGM-129A

Name: Advanced Cruise Missile

Weapons Characteristics

AGM-129

CRD Weapons Code - None

Guidance - Inertial Navigation

Control - Operational Flight Software

Autopilot - N/A

Weight (lbs.) - 3600

Length (in.) - 250

Warhead - W80

Fuze - N/A

Propulsion - F112-WR-100 Turbofan

Range – 2000 Nautical Miles

Carriage Options

Aircraft - B-52H

Launcher – 30 inch lugs

Status / Schedule / Improvements

Contractor – (Prime) Ratheon Co

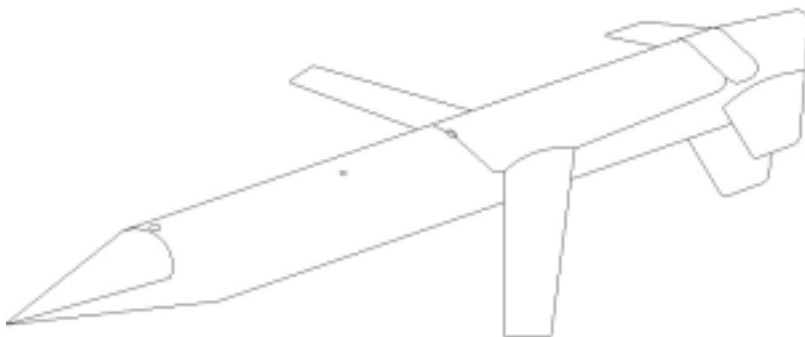
(Second) McDonnell Douglas missile Systems (Boeing) MO

Status -Inventory

RAA: - 1 Oct 1992

OPR - OC-ALC/PSM

Tech Data – 21-AG129-2-1



Nomenclature: AGM-130

Name: Powered Standoff Weapon

Description

Derived from the GBU-15, it has since been extensively modified to an advanced, precision guided weapon used against high value fixed targets. It features Inertial Navigations System/Global Positioning System (INS/GPS), man-in-the-loop capabilities and has a propulsion section enabling enhanced standoff capability. There are two versions of the weapon; the AGM-130A model utilizes the MK-84 warhead and the AGM-130C model utilizes the BLU-109 penetration warhead. Both versions have advanced control sections and new Switchable Data Links (SDL) for horizontal target attack profiles. There are two improved guidance sections for day and night extended capability; Television Guided Section (TVGS) and Improved Modular Infrared Sensor (IMIRS). A new test system, AN/GJM-64 tests all GBU-15 and AGM 130 configurations completely menu driven featuring minimal manual operator intervention. The software can be readily modified to facilitate testing/updating of new weapon versions, enhancements, improvements and modifications.

Weapons Characteristics

AGM-130

CRD Weapons Code

ZMG

5C	AGM-130 LC&FTD INRT IMIRS SDL
M309G	AGM-130 TAC, BLU-109, IMIRS, SDL
M309H	AGM-130 TAC, BLU-109, TVGS, SDL
M306A	AGM-130 TAC, INERT, IMIRS, SDL
M306B	AGM-130 TAC, INERT, TVGS, SDL
M304G	AGM-130 TAC, MK-84, IMIRS, SDL
M304H	AGM-130 TAC, MK-84, TVGS, SDL
M30GA	AGM-130 TAC/INRT IMIRS SDL
M30GB	AGM-130 TAC/INRT TVGS SDL
ZMGMB	AGM-130(I) A-1 DATM DUMMY TRN TV
M304E	AGM-130A-11 TAC MK-84 SDL
M304F	AGM-130A-12 TAC MK-84 IR SDL
M309E	AGM-130C-11 TAC BLU-109 TV SDL
M309F	AGM-130C-12 TAC BLU-109 IR SDL
SZTMS	STAMP AC-130H/U 25MM
SZNBA	STAMP AGM-130A-12
SZNDA	STAMP AGM-130C-12
ZM45A	CATM-130-109 TVGS L/W F-15E
ZMG5A	CATM-130A-109 TVGS F-15E
ZMG5B	CATM-130A-110 IMIRS F-15E
ZM45B	CATM-130A-110 IMIRS L/W F-15E

Guidance – Autonomous GPS/INS
TVGS or IMIR Seeker
Precise Adverse Weather, day or night
Acurate All Weather
Vertical Horixontal Targets
Control – Automatic or manual (WSO with AXQ-14 or ZSW-1 Data Link System
Autopilot - Digital
Class - 3000 lb Standoff Weapon

AGM-130A-11 AUR

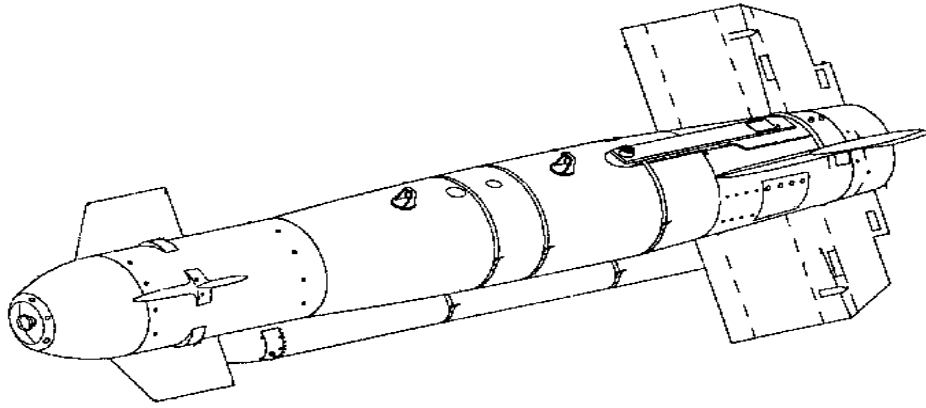
Weight - AGM-130A-11 (MK-84, TV) 2978 lbs
- AGM-130A-12 (MK-84, IR) 3001 lbs
- AGM-130C-11 (BLU-109, TV) 3064 lbs
- AGM-130C-12 (BLU-109, IR) 3087 lbs
Length - 158.8 in
Diameter - MK-84 Warhead 18.0 in
- BLU-109 Warhead 16.0 in
- Rocket Motor 9.0 in
- Guidance Section 15.0 in
- Control Section 16.0 in
- Tail Section (Wings) 59.0 in
Warhead - BLU-109 or MK-84
Explosive - Tritonal - 945 lbs (MK-84); 535 lbs (BLU-109)
Fuze - FMU-124A/B (MK-84); FMU-143 (BLU-109) Integrating FMU-152
Stabilizer – Strakes (canards), Wings, and Control Surfaces
Propulsion - Solid Propellant Rocket Motor
Range - 15 – 30+ NM

Carriage Options

Aircraft:	Rack/Pylon:
F-15E	30 in. Lug Spacing Compatible

Status / Schedule / Improvements

Contractor – Boeing Company
Status –Inventory (AGM-130-9/-10 replaced by -11/-12 Apr.99)
OPR - AAC/WMG; Eglin AFB, FL DSN 872-9514
Improvements – Potential Integration of FMU-152 (JPF) Fuze
Special Equipment - GJM-65 Field Test Set
T.O – 21M-AGM130-2



Nomenclature: AGM-142

Name: HAVE NAP

Description

The missile is in the production phase. It is an Israeli designed standoff cruise missile designed to provide long-range bombers and other aircraft with a conventional precision strike capability. The missile is jointly produced in the U.S. and Israel. It has a range in excess of 50 miles and is inertially guided, with EO or IIR homing.

Weapons Characteristics

AGM-142

CRD Weapons Code

Z42AA	AGM-142 CATM
Z42BA	AGM-142 DATM
M42FS	AGM-142B-1
M42PS	AGM-142D-1
M42FR	AGM 142 BLAST FRAG IR SEEKER
M42PR	AGM 142 IR PENETRATOR
M42PT	AGM 142 PENETRATOR TV SEEKER
M42FT	AGM 142 TV FRAG

Guidance - Electro-Optical TV or IIR Seeker

Control - Automatic and Manual w/ RF Data Link

Autopilot - Inertial Navigation Capability

Class - 3000 lb Standoff Missile

Weight (lbs.) - 3,000

Length (in.) - 191

Diameter (in.) - 21

Warhead - 750 lb, Blast / Fragmentation or 770 lbs Penetrator (I-800)

Explosive - 330 lbs (BF) or 170 lbs (I-800)

Fuze - FMU-124C/B (BF) or FMU-143 (I-800)

Stabilizer - Canards, Wings, Fins

Propulsion - Solid Propellant Rocket Motor

Carriage Options

Aircraft:

B-52H

FMS Aircraft Carriage

Rack/Pylon:

30 in. Lug Spacing Compatible

Status / Schedule / Improvements

Contractor - Rafael, Haifa, Israel and Lockheed Martin

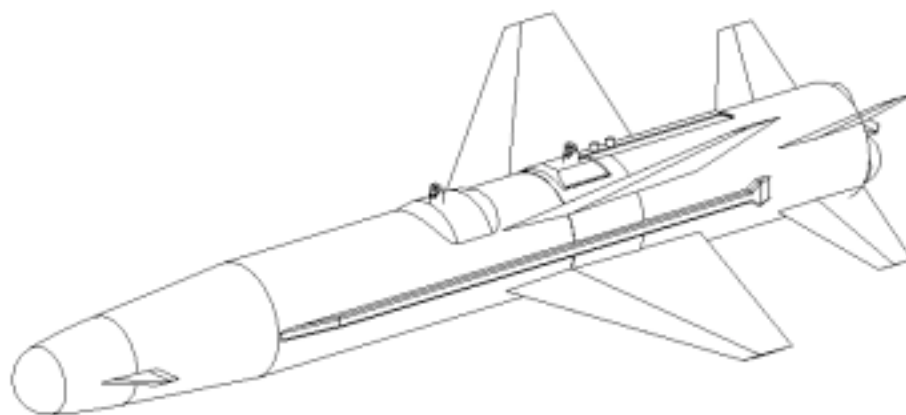
Status - Production

IOC Date - March 95 at Barksdale AFB, LA

OPR - AAC/WMGA

Tech Data – 33D9-61-115-1, 33D9-3-285-1

Special Equipment – AN/GJM-62A Missile Test Station, AN/ASW-55 Weapons Control Data Link Pod Test Set and ADU-813/E Test Set Adapter



AGM-154

JSOW (Joint Stand-Off Weapon)

Description

The JSOW is a low observable 1000lb class INS/GPS guided, family of air-to-ground glide weapons. JSOW consists of a common airframe and avionics that provides for a modular payload assembly to attack stationary and moving massed light-armored and armored vehicle columns, surface-to-air targets and personnel. JSOW provides combat forces with an all weather, day/night, multiple kills per pass, launch and leave, and standoff capability.

Weapons Characteristics

AGM-154

CRD Weapons Code

M541A AGM-154A JSOW

SZPAA AGM-154A JSOW

SZPBA AGM-154B JSOW

Z54BA DATM-154

Guidance – AGM-154A&B INS/GPS; AGM-154C (Navy Only)-INS/GPS w/1²R Seeker

Class - Standoff Outside Point Defense (SOPD) Missile

Weight (lbs.) - 1,065 max

Length (in.) - 160

Diameter (in.) - 16 x 22; Wings Extended-106

Warhead – AGM-154A –145 BLU-97 Bomblets;

AGM-154B –6 BLU-108s (24 Skeets) Note: Production halted

AGM-154C (Navy Only) – BROACH Penetrator Warhead

Propulsion – None, Glide Weapon (~12:1 glide ratio)

Range – 15nm at low altitude; >40nm at High Altitude

Carriage Options

AF Aircraft: F-16(2) with BRU-57(4); B-1B(12); B-2A(16); F-15E(5); B-52H(12); JSF(TBD)

Navy Aircraft: F/A-18C/D and E/F(4) with BRU-57(6)

Pylon/Rack – 14 in and 30 in Lug Spacing

Status / Schedule / Improvements

Contractor - Raytheon

Status – AGM-154A – Prod; AGM-154B – LRIP (No future production by USAF)

AGM-154C – E&MD

AF IOC Date - TBD

OPR - NAVAIRSYSCOM PMA-201

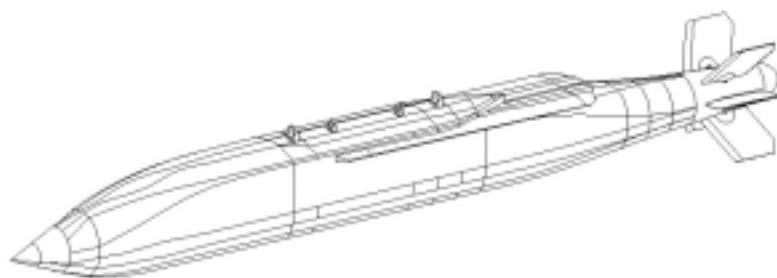
Mgmt/Eng (AF) - AAC/YH

Notes - Joint USAF/USN program (USN Lead Service)

Reference - JMEM

Special Equipment – AN/GYQ-79 Common Munition Bit Reprogrammable Equipment (CMBRE)

Technical Order – 21-AGM154-2-2



Nomenclature: AGM-158A

Name: JASSM - (Joint Air-to-Surface Stand-Off Missile)

Description

JASSM is a precision cruise missile designed for launch from outside area defenses to kill hard, medium-hardended, soft and area type targets. The weapon is required to attack both fixed and relocatable targets at ranges beyond enemy air defenses.

Weapons Characteristics

AGM-158

CRD Weapons Code

M58HA	AGM-158A (JASSM)
Z58HA	DATM-158A (JASSM)

Guidance – Imaging, Infared Radar

Class - 2000 lb Standoff Missile

Weight (lbs.) - < 2250

Length (in.) - < 168

Height (in) - <21 (wings Closed)

Width (in) - <25 (Wings closed)

Warhead - Unitary

Explosive – AFX-757 (Insensitive Munition)

Propulsion – Teledyne Model 370-9-2 Engine

Special Equipment

Carriage Options

Aircraft:

Launcher – None 30 inch lugs (no lanyard)

F-16 F-117

F-15 B-1

B-2 B-52

F-18 S-3

P-3

Status / Schedule / Improvements

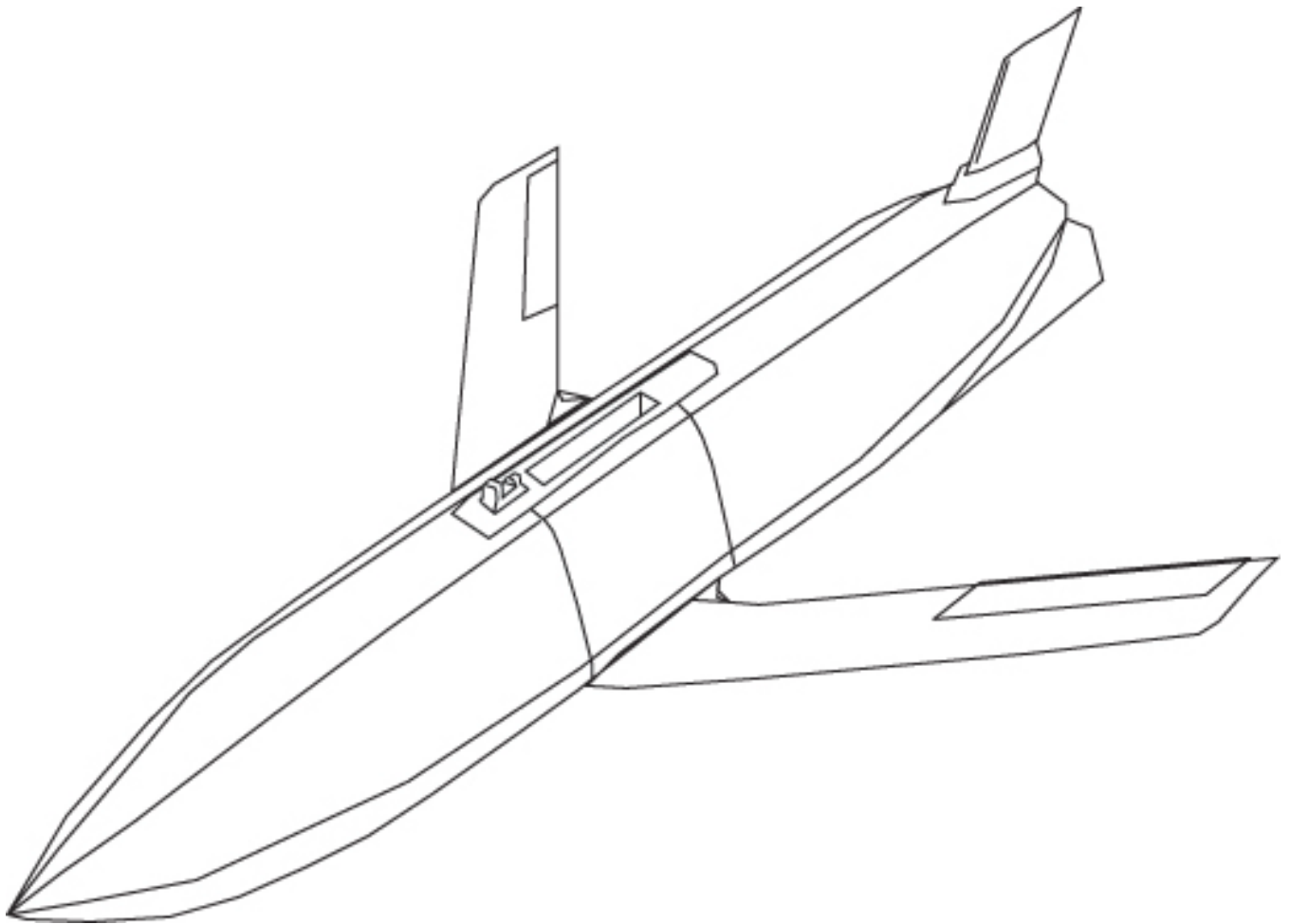
Contractor – Lockheed Martin

Status – Low Rate Initial Production (LRIP)

RAA Date - 2003(B-52)

OPR - AAC/YV

Reference – JASSM Program Office



CHAPTER THREE

SURFACE - TO - AIR

MISSILES

(SAM)

Nomenclature: FIM-92A

Name: STINGER

Description:

The Stinger is a man-portable, shoulder-fired guided missile system which enables personnel to effectively engage low-altitude jet, propeller-driven and helicopter aircraft.

Weapon Characteristics

CRD Weapon Code - M092A

Weight (lbs.) - 34.5

Length (in.) - 60

Diameter (in.) - 2.75

Control - Canard

Autopilot - Proportional

Propulsion - Dual Thrust 2,370 lbs.-sec.; Launch Motor 841 lbs.-sec.

Warhead - Blast Fragmentation

Fuze - Impact

Employment Options

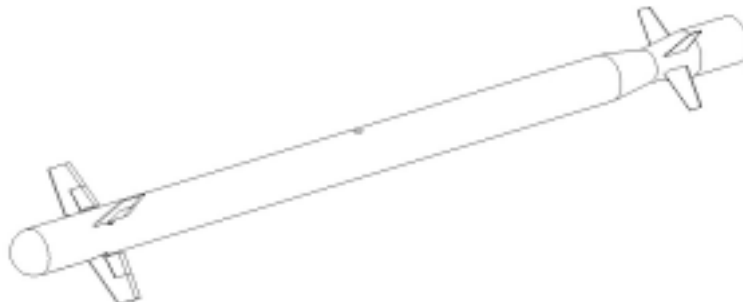
Targets - Aircraft

Status/Schedule/Improvements

Contractor - Raytheon

Status - Inventory

OPR - Army (Redstone Arsenal)



Nomenclature: The Rapier FSC System

Name: RAPIER

Description:

The Rapier FSC system provides a Low Level Air Defence (LLAD) capability over the battlefield. It consists of a launcher with 8 ready to fire missiles and an electro-optical tracker (shown). Each fire unit can cover an Air Defence Area (ADA) of approximately 100 square kms.

Weapon Characteristics

CRD Code - None

Weight (lbs.) - 95

Length (in.) - 88

Diameter (in.) - 5

Guidance - Semi-Automatic Command to Line-of-Sight

Control - Tail

Autopilot - Lateral Accelerometer/3 Axis Gyro

Propulsion - Boost 1.5 sec./Sustain 6.0 sec.

Warhead - 6 lbs. HE Blast Fragmentation

Fuze - Impact

Employment Options

Targets - Aircraft

Status/Schedule/Improvements

Contractor - British Aerospace

Status - Inventory

OPR - United Kingdom

Reference: JMEM



CHAPTER FOUR

UNGUIDED

MUNITIONS

Nomenclature: M129 / MJU-1 Name: Leaflet / Chaff Bomb

Description

The M129 Leaflet Bomb is a fiberglass reinforced container split longitudinally into two sections and held together by four latch assemblies on each side. When joined the halves form a cylindrical body with an ogival shaped nose. When the bomb is released from the aircraft the fuze is armed permitting the timing mechanism to start. The fuze functions at a preset time detonating an adapter booster which initiates detonating cord. The detonating cord separates the two bomb halves dispersing the load (leaflets).

Characteristics

M129

CRD Weapons Code

L29AH	M129 LEAFLET 107/B
L29AE	M129 LEAFLET M147
L29AF	M129 LEAFLET M909
L29AG	M129 LEAFLET MK339
SZVMA	M129 LEAFLET BOMB
ZLBAA	M129 LEAFLET M147
ZLBAB	M129 LEAFLET M339

Guidance - Ballistic

Class - 200 lb. Canister

Weight (lbs.) - 92 empty, 203 full (depends on paper weight)

Length (in.) - 90.0

Diameter (in.) - 16 (22 W/Fin Installed)

Payload (lbs.) - 110 paper rolls or chaff bundles

Explosive - fuze booster ignited detonating cord which cuts canister

Fuze - Timer: FMU-107, M909, Mk 339

Stabilizer - Fins, M148

Carriage Options

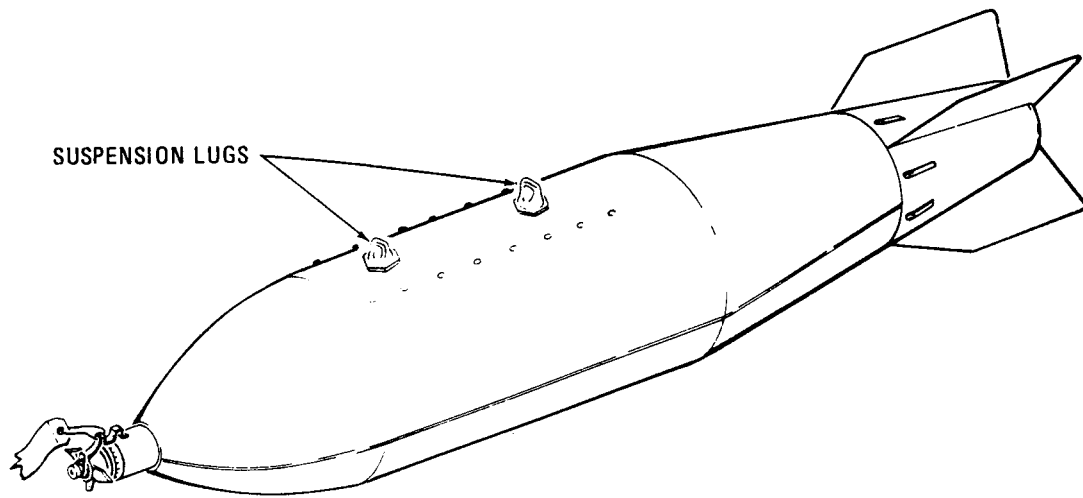
Aircraft:	Launcher/Rack - Multiple
A-10A	(14 in. Lug Spacing)
B-52H	F-111D-F
F-16A-D	F-15E

Status / Schedule / Cost / Improvements

Contractor - TBD

Status - Inventory

OPR - OO-ALC/WM



Nomenclature: BDU-33D/B

Name: Practice Bomb

Description

The BDU-33 is a teardropped shaped practice bomb that utilizes a spotting charge to display target marking. When the bomb is released from the aircraft it free falls until impact. Upon impact the bomb drives a firing pin assembly against a primer activating the signal charge. The resulting flash and puff of smoke permits visual evaluation of accuracy.

Characteristics

BDU-33

CRD Weapons Code

ZP61A	BDU 33 D/B W/MK4
ZP61B	BDU 33D/B CXU3/B
ZP61C	BDU 33D/B W/LUGS/MK 4 SPOT
ZP61D	BDU33/W LUG/CXU3/B

Class - 25 lb Practice Bomb

Weight - 25 lbs

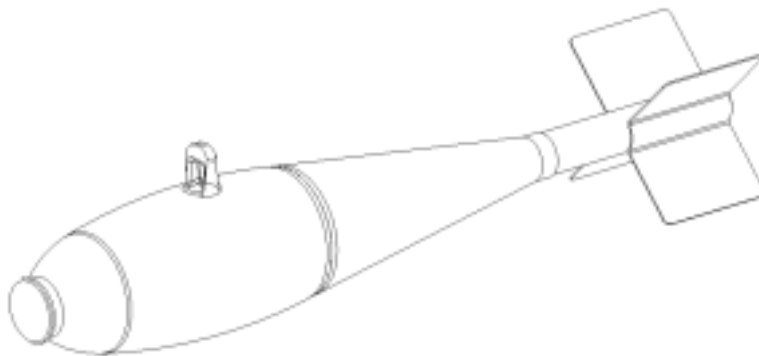
Length - 22.9 in

Diameter - 4 in

Aircraft: A-10, B-1 F-4, F-15, F-16, F-111

Management/Engineering: OO-ALC/WM

Technical Order: 11A3-3-7 (Bomb); 11A4-4-7 (CXU-3A/B)



Nomenclature: BDU-38

Name: Practice Bomb

Description

The BDU-38 consists of a nose section, center section and aft section. The nose section is a cylinder of sand-cast iron tapered to a point at the forward end. The center section is a cylinder rolled and welded aluminum with a cast iron ballast. Suspension lugs are attached to this section. The aft section consists of the aft section, rear extension and parachute assembly. The BDU-38 is used to provide a practice shape like the parent weapon system to train air crews on delivery. The BDU-38 is designed to be reusable.

Characteristics

BDU-33

CRD Weapons Code

Z38AA PRACTICE BOMB BDU-38 (RETARDED)

Z38AB PRACTICE BOMB BDU-38 (SLICK)

Class - Practice Bomb

Weight – 715.00 lbs (+-15)

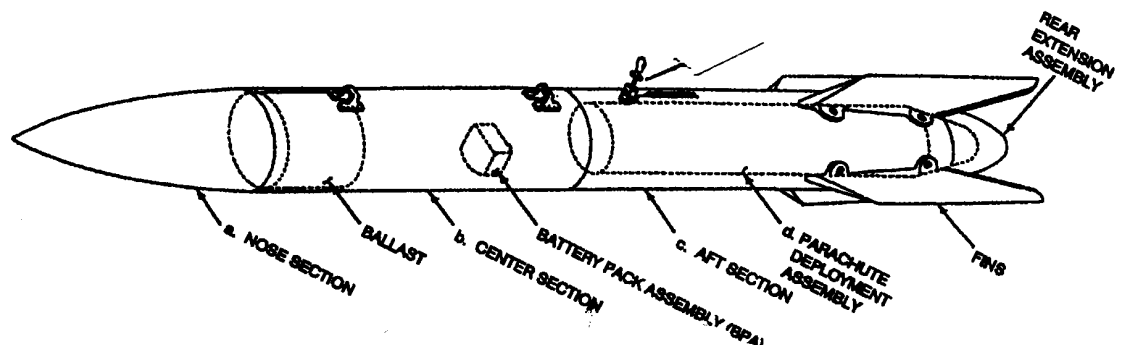
Length – 141.642 in

Diameter – 13.3 in

Aircraft: F-15, F-16

Management/Engineering: OO-ALC/WM

Technical Order: 11A3-8-7



Nomenclature: BDU-48A

Name: Practice Bomb (Retard)

Description

The BDU-48 is a cylindrical shaped practice bomb that utilizes a spotting charge to display target marking. When the bomb is released from the aircraft it free falls until impact. Upon impact the bomb drives a firing pin assembly against a primer activating the signal charge. The resulting flash and puff of smoke permits visual evaluation of accuracy.

Characteristics:

BDU-48

CRD Weapons Code

PRACTICE BOMB RETARD, BDU

ZP91B 48/CXU3

ZP91A PRACTICE BOMB RETARD, BDU 48/MK 4

Class - 10lb Practice Bomb

Weight - 10 lbs

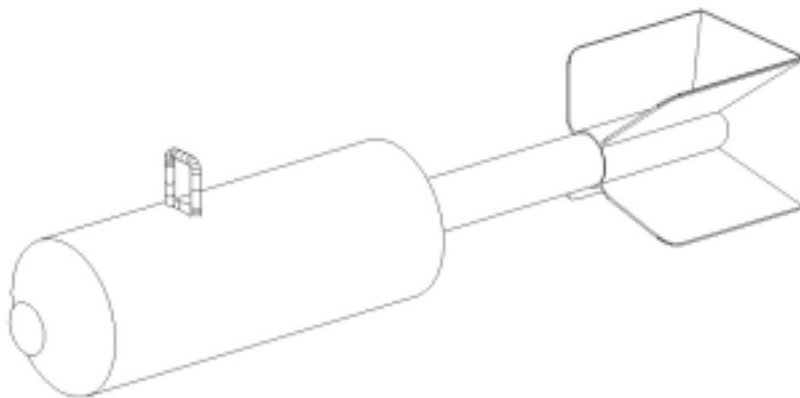
Length - 21 in

Diameter - 3.875 in

Aircraft: B-52H

Management/Engineering: OO-ALC/WMG

Technical Order: 11A3-3-7 (Bomb); 11A4-4-7 (CXU-3A/B)



Nomenclature: BLU-82

Name: 15,000 lb. GP Bomb

Description

The BLU-82/B bomb is a 15,000 pound, slurry-filled weapon mounted on a wooden cradle intended primarily for internal carriage and delivery by cargo-type aircraft. The bomb has a conical nose and a cylindrical body closed by a standard tank pressure head at the aft end. The forward end of the bomb body includes a fuze and booster well for installation of M904E2 fuze, BBU-23/B auxiliary booster.

Characteristics:

BLU-82

CRD Weapons Code -None

Guidance - Ballistic

Class - 15,000 lb Blast/Fragmentation

Weight (lb) - 15,000

Length (in) - 141.6

Diameter (in) - 54

Warhead (lbs) - 15,000

Explosive (NEW) - Aluminum Powder (12,600 lbs)

Fuze - M904 (Nose); M905 (Tail) (See Appendix A)

Carriage Options:

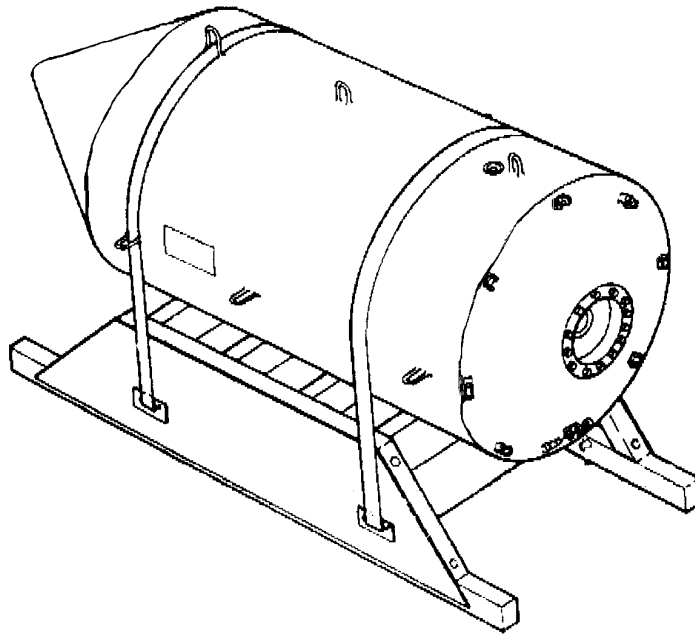
MC-130

Status/Schedule/Cost/Improvements

Status - Inventory

OPR - OO-ALC/WM DSN 777-7679

Tech Data - 11A1-9-7



BLU-82 (A/C Pallet Configuration)

Nomenclature: BLU-109/B

Name: Hard Target Warhead

Description

I-2000 is the warhead for the GBU-24A/B. It is a penetration weapon used for bunkers, A/C shelters and reinforced concrete structures.

Characteristics

BLU-109

CRD Weapons Code

BC91A BLU-109 FMU-143
SZBCA STAMP BLU-109 BOMB

Guidance - Ballistic

Control - Low Drag Fins/Air Foil Groups

Class - 2,000 lb. Penetrator, Blast / Fragmentation

BLU-109 (LDGP)

Weight (full)	2,011.93 lbs	+/- 5%			
cg (x)	13.61 in.	+/- 0.05 in.	Inertia (roll)	unk	+/- 10%
cg (y)	0.0 in.	+/- 0.05 in.	Inertia (pitch)	401.77	+/- 10%
cg (z)	0.03 in.	+/- 0.05 in.	Inertia (yaw)	401.67	+/- 10%

Length 147.00 in.

Diameter 14.50 in.

Drawings 8394794, DL8394794, DL8394794, DL 8463243, DL8463213

Interface Control Drawings 8463195, 8463196, 837849, 837901, 8463324

Employment Limits PIDS SP8394794A, para 3.2.1

Environmental Limits PIDS SP8394794A, para 3.2.6

Warhead (lbs.) – 1950

Explosive (NEW) - 535 lbs. Tritonal

Fuze - FMU-143 Series (See Appendix A)

Stabilizer - Fins and Airfoil Groups (Laser Guided Bombs)

Employment Options

Aircraft:	Launcher/Rack - (30in. Lug Spacing)
F-117	MAU-12
F-15E	BRU-47
F-16A-D	

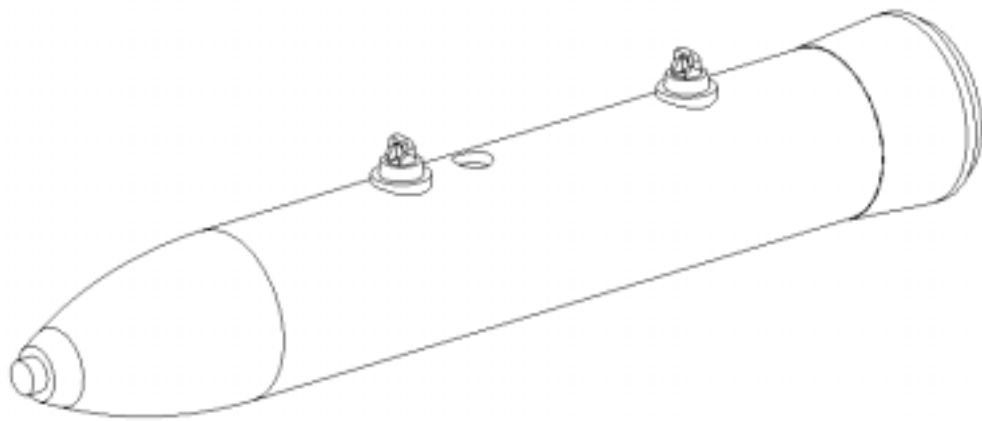
Status / Schedule / Cost / Improvements

Contractor - National Forge Co.

Status - Inventory

OPR - OO-ALC/WM

Tech Data - 11A1-11-7



Nomenclature: BLU-113/B, A/B Penetrator Warhead

Name: Desert Storm Special

Description

The BLU-113 is a 4000 pound class penetrator. The case is made from HP9420 alloy steel to provide target penetration capabilities. The bomb body is loaded with 80/20 tritonal explosives and utilizes a single fuze.

Characteristics

BLU-113

CRD Weapons Code – See Chapter 5

Guidance - Warhead only-Part of GBU-28 A/B Laser Guided Bomb

Control - See GBU 28 A/B

Class - 4,000 lb. Penetrator, Blast / Fragmentation

Weight: 4,444 lbs;

Explosive: 670 lbs Tritonal

Tolerances: PIFS SP9331411A, para 3.2.1.2

cg (x): 19.28 in.

For additional information, see PIFS SP9331411A, para 3.2.1.3

Tolerances: +/- 0.50 in.

cg (y): 15.28 in.

For additional information, see PIFS SP9331411A, para 3.2.1.3

Tolerances: +/- 0.50 in.

cg (z): 6.04 in.

For additional information, see PIFS SP9331411A, para 3.2.1.3

Tolerances: +/- 0.50 in.

Length: 153.0 in.

Diameter: 14.5 in.

Drawings: 9331411, DL9331411

Interface Control Drawings: 9331420

Warhead (lbs.) - 4,414

Explosive - 647lbs. Tritonal

Fuze - FMU-143 Series (See Appendix A)

Stabilizer - Air Foil Group (Fins)

Carriage Options

Aircraft: Launcher/Rack - (30 in. Lug Spacing)

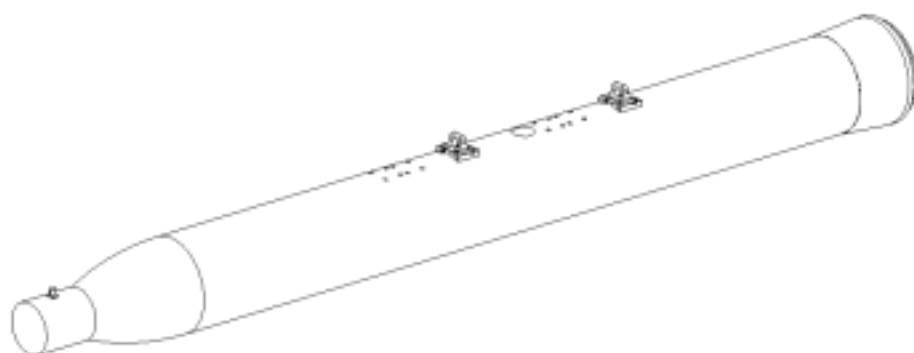
F-15E Pylon, BRU-47 (F15E)

F-111F MAU-12 (F111F)

Status / Schedule / Cost / Improvements

Contractor - Lockheed (BLU-113/B), National Forge (BLU-113A/B),

Status - Inventory
OPR - OO-ALC/WM
Tech Data - N/A



Nomenclature: M-117**Name: 750 lb GP Bomb****Description**

M-117: The M117, a 750lb class bomb, is used primarily in the same way as a MK-82. This weapon was designed primarily for the B-52 to allow more weapons to be carried inside the aircraft.

M-117 W/RETARD: The M-117R is the high drag variant of the original M-117. It uses the MAU-91 retarding tail fin.

Characteristics**M-117****CRD Weapons Code**

ZR74H	M117 AIR B-52
ZC74B	M117 CONICAL B-52
BC77B	M117 W/FMU-139A/B (T) B-2
BC77A	M117 W/M904/905 B-2
BR74J	M117/MAU-91 FMU-139 (T) B-52
BR71J	M117/MAU-91 FMU139A/B(T)
BR77A	M117/MAU-91 W/FMU-139A/B (T) B-2
BC71A	M117C 113 NS
BC74D	M117C 904 NS B-52 INT
BC71F	M117C 904/905
BC74F	M117C 904/905 B-52 INT
BC71D	M117C FMU 139A/B (T)
ZC71B	M117C 113 NS
ZC74A	M117C 904/905 N/T B52
BC71R	M117C DSU-33A/B FMU139
BC71S	M117C DSU33B/B FMU139
BC71P	M117C FMU-113/M905
BC74C	M117C FMU-113/M905 B-52
BC74B	M117C MAU-103 904/905 B-52-INTER
BC74G	M117C/FMU-113/M905 B-52
BR74I	M117R/BSU-93 FMU-139 T B-52
BR74Q	M117R/BSU-93 FMU139 TL B52
BR74S	M117R/BSU-93 M904 B52
ZR71H	M117R/BSU93B/FMU139
BR71E	M117R/MAU-91 M904 NS
BR74G	M117R/MAU-91 M904 NS B52
ZR74E	M117R/MAU91 904 54/B N/T B52
BC71B	BMB GP M117A2 FMU 139A/B (N)

Guidance - Ballistic

Class - 750 lb. Blast / Fragmentation

Weight (lbs.) - 737

Length (in.) - 51.5

Diameter (in.) - 16 (22 W/Fin Installed)

Warhead (lbs.) - 737

Explosive - 386 lbs. Tritonal, 383 lbs. Minol II

Fuze - Mechanical or Electrical (See Appendix A)

Stabilizer - Fins, M131 or MAU-103 (Conical); MAU-91 or BSU-93/B (Retard)

Carriage Options

Aircraft:

A-10A

B-52H

Launcher/Rack - Multiple

(14 in. Lug Spacing)

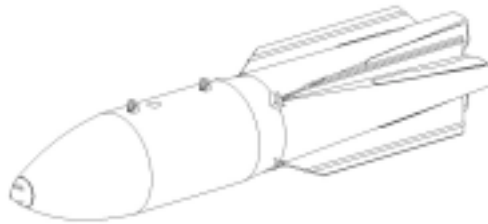
Status / Schedule / Cost / Improvements

Contractor - Pacific Missile Test Center, Point Mugu, CA

Status - Inventory

OPR - OO-ALC/WM

Tech Data - 11A1-2-7



Nomenclature: MK-81**Name: 250 lb. GP Bomb****Description**

MK-81 GP BOMB: The MK-81 is designed for soft, fragment sensitive targets such as troops, POL, and radars. This bomb is relatively thin cased with a slender body design for improved ballistics. Approximately 40 percent of assembled weight of bomb is an explosive charge. This weapon is not intended for hard targets or penetrations.

Characteristics

MK-81

CRD Weapons Code

ZC11H	MK81/CONICAL FIN	
BC11E	MK81C	905 T
BC11D	MK81C	113 NS
BC11C	MK81C	904 NS
BC11B	MK81C	904/905 N/T
BC14A	MK81C	904/905 N/T B52
ZC14A	MK81C	904/905 N/T B52
BC11H	MK81C	DSU33A/B FMU139
BC11K	MK81C	DSU-33B/B FMU-139

Guidance - Ballistic

Class - 250 lb. General Purpose Bomb, Blast / Fragmentation

Mk-81 Low Drag

Weight (full) 250 lbs +/- 5%0

Length 49.30 in.

Warhead (lbs.) - 250

Explosive(NEW) - 100lbs Tritonal, or H-6

Fuze - Variety for nose and tail. (See Appendix A)

Stabilizer – Conical Fin

Carriage Options

Aircraft:	Launcher/Rack - Multiple
A-10A	(14 in. Lug Spacing)
B-1B; B-52H	
F-16A-D	
F-117A	

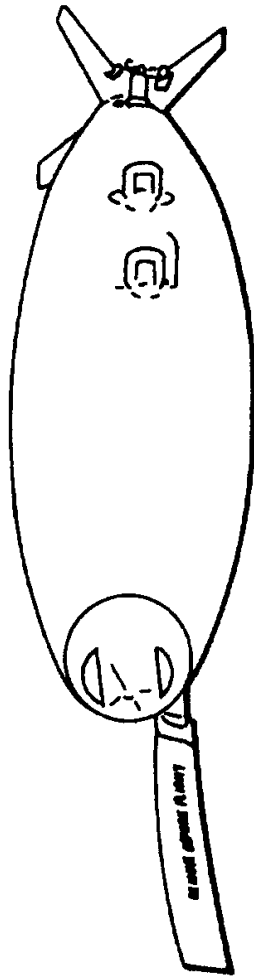
Status / Schedule / Cost / Improvements

Contractor - Nad Crane

Status - Inventory

OPR - OO-ALC/WM

Tech Data - 11A1-4-7



Nomenclature: MK-82

Name: 500 lb. GP Bomb

Description

MK-82 GP BOMB: The MK-82 is designed for soft, fragment sensitive targets such as troops, POL, and radars. The Air Force is the primary user. This weapon is not intended for hard targets or penetrations.

MK-82 (BSU-49): The MK-82(A) is the high drag version of the original MK-82. It is used against soft targets and is used primarily for low level attacks. The targets will include troops, aircraft in the open, etc.

Characteristics

MK-82

CRD Weapons Code

BC27D	MK82 DSU33B/B FMU139 B-2
BC27A	MK-82 FMU-139 B-2
BC27C	MK-82 W/DSU-33A/B FMU139 B-2
BC27B	MK-82 W/M904/905 B-2
BR27A	MK-82/BSU-49 FMU-139 B-2
BR21W	MK82/BSU-49 FMU139A/B (T)
BR24G	MK82/BSU-49 FMU139A/B TL B52 INT
BR27B	MK-82/BSU-49 W/FMU-113 (N) B-2
BR26B	MK-82/BSU-49 W/FMU-139 (N) B-1
BC24B	MK82C 904/905 B-52
BC24A	MK82C 904/905 B-52
BC21L	MK82C 113 NS
BC21H	MK82C 904/905 N/T
BC21B	MK82C 113/905
BC21I	MK82C 26/26
ZCE1F	MK82C (I) 904 NS
ZCE1J	MK82C (I) FMU139 TL
ZCE1C	MK82C DSU33/FMU139 N/T
BC21T	MK82C DSU33A/B FMU139
BC21V	MK82C DSU33B/B FMU139
BC21P	MK82C FMU 139A/B (T)
ZCE1B	MK82C FMU-113/M905 N/T
BC21S	MK82C FMU139A/B (N)
ZCE1E	MK82C(I) 904/905 N/T
ZCE4A	MK82C(I) 904/905 N/T B-52
ZRE1L	MK82R FMU-139
ZBE4E	MK82R (I) / MK15 FMU139 B-52 INT
ZRE4H	MK82R (I) BSU-49 FMU-139 B52
ZRE1G	MK82R (I) BSU49 904/905 N/T
ZBE1A	MK82R (I)/MK15 54A/B TL
ZBE1D	MK82R (I)/MK15 904/54AB N/T

BR21X	MK82R DSU33A/B FMU139
BR26C	MK82R DSU33A/B FMU139 B-1
BR21Y	MK82R DSU33B/B FMU139
BR26D	MK82R DSU33B/B FMU139 B-1
ZRE1E	MK82R(I) BSU-49 M904 NS
ZBE4A	MK82R(I)/MK15 54/B TL B-52 INTER
BR26A	MK82R/BSU-49 139 TL B-1
BR21A	MK82R/BSU-49 904 NS
BR21B	MK82R/BSU-49 905 T
BR24E	MK82R/BSU-49 904 NS B52-INTERNAL
BR24K	MK82R/BSU-49 904/905 B52-INTERNA
BR21L	MK82R/BSU-49 904/905 N/T
BR24J	MK82R/BSU-49 905 TL B52-INTERNAL
BR21E	MK82R/BSU-49 M904 NS FMU-139 T
BB23D	MK82R/MK-15 M904 A10
BB25G	MK82R/MK-15 139A/B T F-15E
BB24G	MK82R/MK-15 904 NS B52-INTERNAL
BB23L	MK82R/MK-15 FMU-139 A/B A10
BB21R	MK82R/MK-15 FMU139A/B (T)
BB24H	MK82R/MK-15 FMU139A/B B-52-INTER
BB21K	MK82R/MK-15 M904
BB25F	MK82R/MK-15 M904 NS F-15E
PR21A	PREPO ISO MK-82 HD W/FMU-139 T
PR21B	PREPO ISO MK82 HD W/M904/M905 NT
SZBDA	STAMP MK-82 AIR KIT
SZBAA	STAMP MK-82 BOMB
SZBFA	STAMP MK-82 LOW DRAG KIT
SZVGB	STAMP B-1/B MK-82 HIGH DRAG KIT

Guidance - Ballistic

Class - 500 lb. General Purpose Bomb, Blast / Fragmentation

Mk-82 AIR

Weight (full)	533.10 lbs	+/- 5%0
cg (x)	8.95 in.	+/- 0.50%
cg (y)	-0.06 in.	+/- 0.50%
cg (z)	-0.06 in.	+/- 0.50%
Length	85.86 in.	
Length with nose fuze	89.66 in.	
Length with nose plug	91.16 in.	
Diameter	10.80 in.	
Inertia (pitch)	1.50	+/- 10%
Inertia (roll)	49.93	+/- 10%
Inertia (yaw)	49.89	+/- 10%

Mk-82 LDGP Mdl 0, 1

Weight (full)	502.0 lbs	+/- 5%0
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cg (x)	6.48 in.	+/- 0.50%
cg (y)	-0.04 in.	+/- 0.50%
cg (z)	-0.06 in.	+/- 0.50%
Length	89.44 in.	
Length with M904 fuze	93.24 in.	
Diameter	10.80 in.	
Inertia (pitch)	unk	+/- 10%
Inertia (roll)	38.17	+/- 10%
Inertia (yaw)	38.22	+/- 10%

Mk-82 Snakeye I Mdl 0, 1

Weight (full)	550.0 lbs	+/- 5%0
cg (x)	9.30 in.	+/- 0.50%
cg (y)	unk	+/- 0.50%
cg (z)	unk	+/- 0.50%
Length	85.50 in.	
Diameter	10.80 in.	
Inertia (pitch)	2.10	+/- 10%
Inertia (roll)	48.00	+/- 10%
Inertia (yaw)	48.00	+/- 10%
Inertia (pitch) wings deployed	53.0	+/- 10%
Inertia (roll) wings deployed	unk	+/- 10%
Inertia (roll) wings deployed	53.0	+/- 10%
Drawings	1380543	

Mk-82 (BSU-49B)

Weight (full)	NGT 70 lbs	
cg (x)	7.0 in.	+/- 2.0 in. aft of forward lug prior to deployment
cg (y)	unk	+/- 0.50%
cg (z)	unk	+/- 0.50%
Length	0.66 m	
Diameter	222 mm	
Drawings	809194, DL809194-10	
Interface Control Drawings	4902393, 1380901, 3823738-503	
Employment Limits	PIDS SP809194 para 3.2.1	
Environmental Limits	PIDS SP809194 para 3.2.5	
Warhead (lbs.)	- 500	
Explosive(NEW)	- 192lbs Tritonal, Minol II, or H-6	
Fuze	- Variety for nose and tail. (See Appendix A)	
Stabilizer	-MAU-93/B, BSU-49/B AIR, MK-15 Snakeye.	

Carriage Options

Aircraft:	Launcher/Rack - Multiple
A-10A	(14 in. Lug Spacing)
B-1B; B-52H	
F-15A-E	

F-16A-D; F-111D-F
F-117A

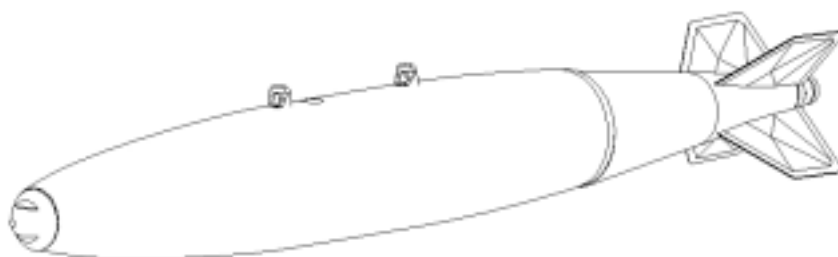
Status / Schedule / Cost / Improvements

Contractor - Nad Crane

Status - Inventory

OPR - OO-ALC/WM

Tech Data - 11A1-5-7



Nomenclature: MK-83

Name: 1000 lb. GP Bomb

Description

MK-83 GP BOMB: The MK-83 is designed for soft, fragment sensitive targets such as troops, POL, and radars. The US Navy is the primary user. This weapon is not intended for hard targets or penetrations.

Characteristics

MK-83

CRD Weapons Code

BC31A MK83C 904/905 N/T

ZC31B MK83C 904/905 N/T

Guidance - Ballistic

Control - Low and High Drag Fins; Airfoil Groups (Laser Guided Bombs)

Class - 1,000 lb. General Purpose Bomb

Weight (lbs.) - 1000

Length (in.) - 115

Diameter (in.) - 14

Warhead (lb.) - 1000, Blast / Fragmentation

Explosive(NEW) - 445 lbs H-6, Tritonal, or PBXN-109

Fuze - Variety of mechanical and electrical (See Appendix A)

Stabilizer - Mk 83 Mod 0, BSU-85/B AIR

Carriage Options

Aircraft:

A-10A

F-15E

F-16A-D

Launcher/Rack - Multiple
(14 in. Lug Spacing)

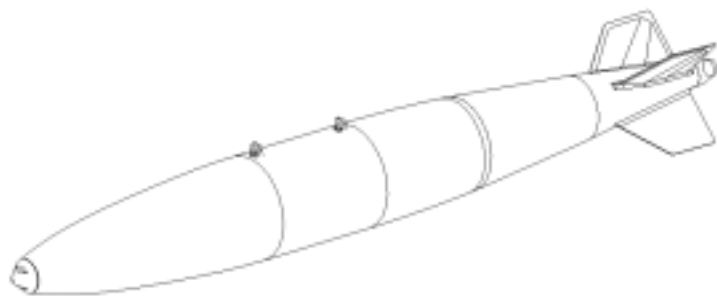
Status / Schedule / Cost / Improvements

Manufacturer/Contractor -

Status - Inventory

OPR - OO-ALC/WM

Tech Data - 11A1-6-7



Nomenclature: MK-84

Name: 2000 lb. GP Bomb

Description

MK-84 BOMB

The MK-84 is designed to attack soft and intermediately protected targets. The destruction mechanism of the MK-84 is blast. Ideal targets for this weapon are buildings, rail yards, and lines of communication. The Navy and the Air Force both use it intensively.

MK-82 (BSU-50)

The MK-82(A) is a high drag variant used in low level attacks to achieve a higher impact angle. Blast sensitive targets, such as POL, motor pools, and troop concentrations, are the primary targets for this weapon.

Characteristics

MK-84

CRD Weapons Code

ZCG1B	MK84 (I) W/O FUZE	
ZRG1L	MK84 AIR (I) W/ F268	
BC47A	MK-84 DSU33A/B FMU139	B-2
BC47C	MK84 DSU33B/B FMU139	
SZBGA	MK84 LOW DRAG KIT	
BR41A	MK84 R/BSU-50 904 N	
BR41B	MK84 R/BSU-50 905 T	
BC46B	MK-84 W/FMU-139 (T)	B-1
BC46A	MK-84 W/FMU-139A/B (N)	B-1
BC47B	MK-84 W/M904/905	B-2
BR41M	MK84/BSU-50 FMU 139A/B (T)	
BC41C	MK84C 904 NS	
BC41A	MK84C 904/905 N/T	
BC41B	MK84C 905 TL	
BC41P	MK84C 113/905	
ZCG1C	MK84C (I) FMU139 TL	
ZCG1L	MK84C DSU33/FMU139	
BC41R	MK84C DSU-33A/B FMU139	
BC41S	MK84C DSU33B/B FMU139	
BC41L	MK84C FMU 113/B (N)	
ZCG1K	MK84C FMU113/M905 N/T	
BC41G	MK84C FMU139A/B (N)	
BC41H	MK84C FMU139A/B (T)	
BC47H	MK84C FMU-139A/B (T)	B-2
BC46C	MK-84C W/DSU-33A/B FMU-139	
BC46D	MK-84C W/DSU33B/B FMU-139	
ZC61C	MK84C(I)	
ZCG1G	MK84C(I) 904/905 N/T	
ZRG1B	MK84R (I) BSU-50 54/B TL	

ZRG1G	MK84R (I) 904/905 N/T
BR41N	MK84R DSU33A/B FMU139
BR41P	MK84R DSU33B/B FMU139
ZRG1E	MK84R(I) BSU-50 M904 NS
BR41H	MK84R/BSU-50 904/905 N/T
BR41I	MK84R/BSU-50 M904 NS FMU-139 T
PR41A	PREPO ISO MK84/BSU-50/FMU-139 T
PR41B	PREPO ISO MK84/BSU50/FMU139 T
PR41C	PREPO ISO MK84/BSU-50/M904/M905

Guidance - Ballistic

Class - 2,000 lb. General Purpose Bomb, Blast/ Fragmentation

Mk-84 LDGP

Weight (full)	1,997.22 lbs	+/- 5%
cg (x)	14.59 in.	+/- 0.50 in.
cg (y)	0.01 in.	+/- 0.50 in.
cg (z)	-0.10 in.	+/- 0.50 in.
Length (with nose fuze)	149.27 in.	
Length (without nose fuze)	145.37 in.	
Diameter	18.00	
Inertia (roll)	18.30	+/- 10%
Inertia (pitch)	380.23	+/- 10%
Inertia (yaw)	379.91	+/- 10%
Drawings	2519694, 1380522, 1380523, DL1380911,	
Navy	DL2519693, general requirements 1211685	

Mk-84 (BSU-50/C)

Weight	NGT 110 lbs
cg (x)	15.0 in. +/- 3.0 in. aft of forward lug prior to deployment
cg (y)	unk
cg (z)	unk
Length	0.78 m
Diameter	403 mm
Drawings	809245, DL809245-10
Interface Control Drawings	1380911, 1380540
Employment Limits	PIDS SP809245, para 3.2.1
Environmental Limits	PIDS SP809245, para 3.2.5
Warhead (lbs.)	- 2000 Blast/Fragmentation
Explosive (NEW)	- 945 lbs H-6 or Tritonal
Fuze	- Variety of mechanical or electrical (See Appendix A)
Stabilizer	- BSU-50 AIR; MK-84 Conical Fin

Carriage Options

Aircraft:	Launcher/Rack - Multiple
A-10A	(30 In. Lug Spacing)
B-52H	

F-16A-D
F-15A-E
F-117A

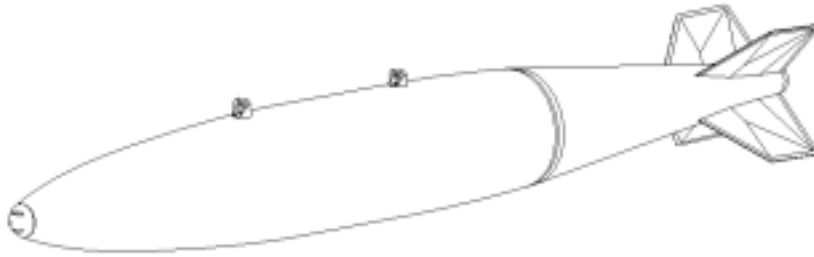
Status / Schedule / Cost / Improvements

Contractor/Manufacturer -

Status - Inventory

OPR -OO-ALC/WM

Tech Data - 11A1-7-7



Nomenclature: MK-106

Name: Practice Bomb

Description

The Mk106 is a cylindrical shaped practice bomb that utilizes a spotting charge to display target marking. When the bomb is released from the aircraft it falls until impact. Upon impact the bomb drives a firing pin assembly against a primer activating the signal charge. The resulting flash and puff of smoke permits visual evaluation of accuracy.

Characteristics:

MK-106

CRD Weapons Code

ZP81B MK 106 PRACTICE BOMB/CXU3/B

ZP81A MK 106 PRACTICE BOMB/MK 4

Class - 5 lb Practice Bomb

Weight - 5 lbs

Length - 21 in

Diameter - 3.88 in

Aircraft:

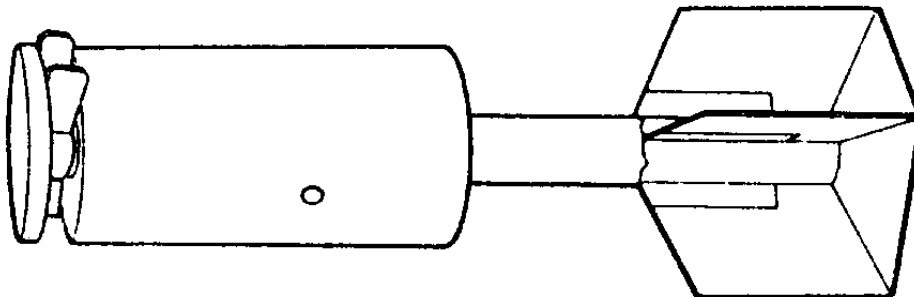
F-4, F-15, F-16, F-111

Management/Engineering:

OO-ALC/WM

Technical Order:

11A3-3-7 (Bomb); 11A4-4-7 (CXU-3A/B)



Nomenclature: MK4 and MK40**Name: 2.75-Inch Rocket****Description**

The Mk4 and Mk40 2.75-inch rocket motors are comprised of an aluminum alloy motor tube. The motor utilized a folding fin low spin stabilizing configuration. The motor is designed to accept a variety of different warheads to include; high explosive, white phosphorus , and target practice.

Weapon Characteristics

CRD Weapons Code - None

Guidance – None

Class – Air Launched Folding Fin Rocket

WDU-4A/A Red Dye Flechette

Weight (lbs) – 9.3

Length (in) – 17.76

Diameter (in) – 2.79

M257 Illuminator

Weight (lbs) – 10.8

Length (in) – 31.12

Diameter (in) – 2.75

M274 Smoke

Weight (lbs) – 9.3

Length (in) – 16.04

Diameter (in) – 2.75

M278 Flare

Weight (lbs) – 10.8

Length (in) – 31.64

Diameter (in) – 2.75

Propulsion – Rocket Motor

Carriage Options

Aircraft:

A-10

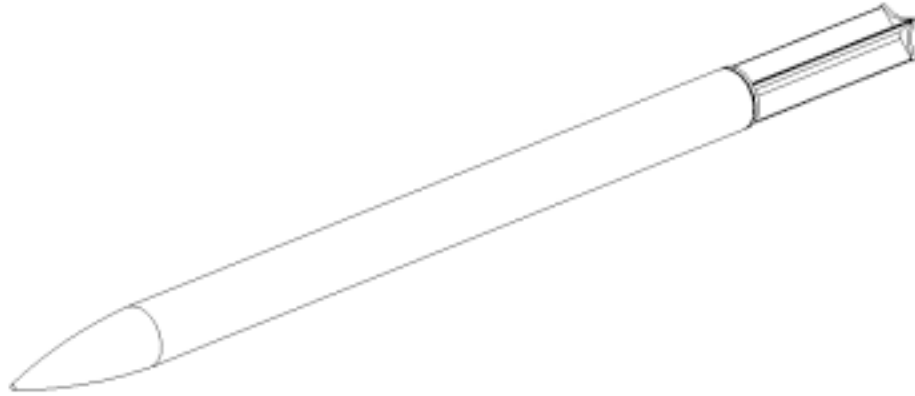
Status/Schedule/Improvements

Status – Inventory

OPR – Navy

Mgmt/Eng – OO-ALC/WM

Tech Data – 11A11-24-7



MK 4 and MK 44 2.75 Inch Rocket

Nomenclature: MK66

Name: 2.75-Inch Rocket

Description

The Mk66 2.75 inch rocket motor was designed to provide a common 2.75-inch motor for helicopters and high performance aircraft. The motor tube is impact extruded from aluminum stock and has an integral forward bulkhead. Fins are spring-activated to open and lock on launch. The rocket motor will accept a variety of warheads to include; high explosive, white phosphorus and target practice.

Weapon Characteristics

MK66

CRD Weapons Code

R21AA	ROCKET 2.75 HE HEAVY W/MK66
R41AA	ROCKET 2.75 ILLUM W/MK66
R41BA	ROCKET 2.75 IR ILLUM W/MK66
Z75TB	ROCKET 2.75 SIGNATURE PRACTICE
Z75TA	ROCKET 2.75 TRAINING
R31AA	ROCKET 2.75 WP W/MK66
Z75PA	ROCKET, DUMMY 2.75
SZTCA	STAMP FAC ROCKETS

Guidance – None

Class – Air Launched Rocket

WDU-4A/A Red Dye Flechette

Weight (lbs) – 9.3

Length (in) – 17.76

Diameter (in) – 2.79

M257 Illuminator

Weight (lbs) – 10.8

Length (in) – 31.12

Diameter (in) – 2.75

M274 Smoke

Weight (lbs) – 9.3

Length (in) – 16.04

Diameter (in) – 2.75

M278 Flare

Weight (lbs) – 10.8

Length (in) – 31.64

Diameter (in) – 2.75

Propulsion – Rocket Motor

Carriage Options

Aircraft:

A-10

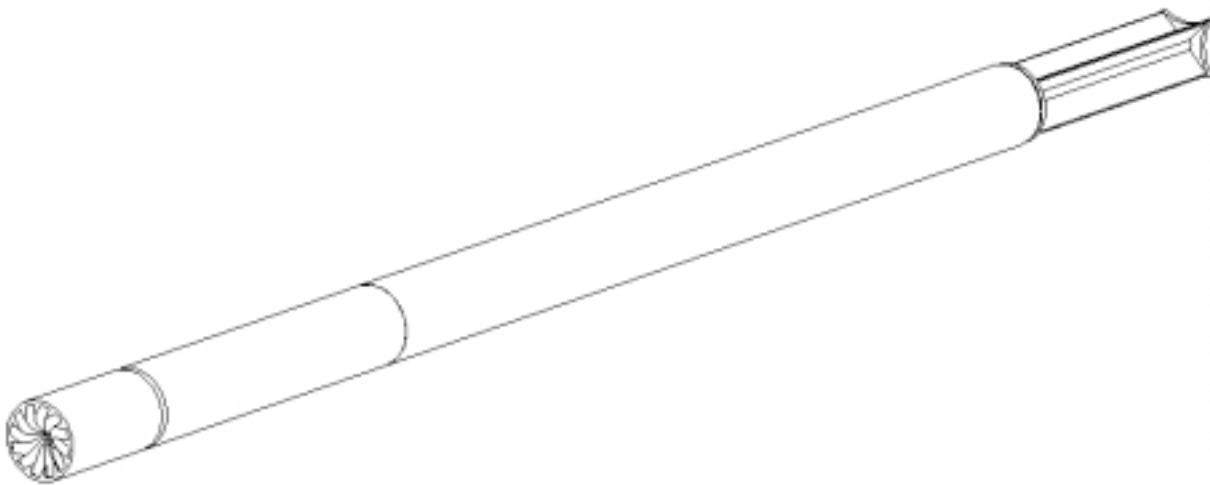
Status/Schedule/Improvements

Status – Inventory

OPR – Navy

Mgmt/Eng – OO-ALC/WM

Tech Data – 11A11-24-7



MK 66 2.75 Inch Rocket

CHAPTER FIVE

**GUIDED
MUNITIONS
(GBU)**

GBU-10 Series

Name: Laser Guided Bomb (LGB)

Description

The GBU-10 C/D is a 2000lb class laser guided bomb which uses the MK-84 warhead. The PAVEWAY II system has folding wings which open upon release for increased aircraft payload and maneuverability. This weapon is primarily used for precision bombing against non-hardened targets.

Characteristics

GBU-10

CRD Weapons Code

BL4SA	GBU 10 PW-II FOR F-117
ZLGCD	GBU-10 (I) PW-II 81/905
ZLGCQ	GBU-10 (I) PWII W/ F268
ZLGCI	GBU-10 (I) PW-II 81/81 N/T
ZLGCP	GBU-10 (I) PW-II FMU139 T
ZLGCN	GBU-10 (I) PW-II NO FUZE
ZL9CA	GBU-10 BLU-109
BL9CC	GBU-10 PW-II FMU-143
BL4EB	LGB GBU-10 PW-II 139 TL F-15E
BL4EK	LGB GBU-10 PW-II 139 NS F-15E
BL4CB	LGB GBU-10 PW-II 81 NS
BL4EA	LGB GBU-10 PW-II 81 NS F-15E
BL4CI	LGB GBU-10 PW-II 81 TL
BL4EG	LGB GBU-10 PW-II 81 TL F-15E
BL4CN	LGB GBU-10 PW-II 81/81 N/T
BL4EC	LGB GBU-10 PW-II 81/81 N/T F-15E
BL4EH	LGB GBU-10 PW-II 81/905 F-15E
BL4CD	LGB GBU-10 PW-II 81/905 N/T
BL4CA	LGB GBU-10 PW-II 905 TL
ZL6CB	LGB GBU-10 PW-II BDU-56
ZL6CA	LGB GBU-10 PW-II BDU-56 F117
BL4CO	LGB GBU-10 PW-II FMU139A/B (T)
BL9EC	LGB GBU-10 PW-II FMU-143 F-15E
ZL6BF	LGB GBU-10 PW-1 /B BDU-56
ZL6BE	LGB GBU-10 PW-1 A/B BDU-56
BL4CF	LGB GBU-10 PW-II 139 NS
PL4CA	PREPO ISO GBU-10 PW-II/FMU-139 T
SZDBA	STAMP GBU-10E/B KIT

Guidance - Semi-active Laser

Control - MAU-157 Series (Paveway I); MAU-169 Series (Paveway II)

Autopilot - Bang-Bang Mode

Class - 2000 lb Paveway I & II Laser Guided Weapons

GBU-10 Model A/B

Weight (full)	2,077.47 lbs	+/- 5%
cg (x)	12.34 in.	+/- 0.50 in.
cg (y)	0.00 in.	+/- 0.50 in.
cg (z)	0.01 in.	+/- 0.50 in.
Length	168.30 in.	
Diameter	18.00 in.	
Inertia (roll)	24.00	+/- 10%
Inertia (pitch)	428.88	+/- 10%
Inertia (yaw)	428.78	+/- 10%

GBU-10 Model /B, A/B

Weight (full)	2,088.80 lbs	+/- 5%
cg (x)	12.52 in.	+/- 0.50 in.
cg (y)	0.04 in.	+/- 0.50 in.
cg (z)	-0.09 in.	+/- 0.50 in.
Length	168.30 in.	
Diameter	18.00 in.	
Inertia (roll)	24.00	+/- 10%
Inertia (pitch)	436.40	+/- 10%
Inertia (yaw)	436.20	+/- 10%

GBU-10 Model C/B, D/B, E/B

Weight (full)	2,110.25 lbs	+/- 5%
cg (x)	13.12 in.	+/- 0.50 in.
cg (y)	0.01 in.	+/- 0.50 in.
cg (z)	-0.08 in.	+/- 0.50 in.
Length	169.90 in.	
Diameter	18.00 in.	
Inertia (roll)	24.00	+/- 10%
Inertia (pitch)	436.75	+/- 10%
Inertia (yaw)	435.56	+/- 10%

GBU-10 Model G/B, H/B, J/B

Weight (full)	2,129.58 lbs	+/- 5%
cg (x)	12.79 in.	+/- 0.50 in.
cg (y)	0.03 in.	+/- 0.50 in.
cg (z)	0.01 in.	+/- 0.50 in.
Length	166.77 in.	
Diameter	14.50 in.	
Inertia (roll)	18.55	+/- 10%
Inertia (pitch)	455.20	+/- 10%
Inertia (yaw)	455.14	+/- 10%

Warhead - BLU-109/MK-84; Blast/Fragmentation

Explosive (NEW) - 535/945 lbs Tritonal

Fuze - FMU-81 N/T (See Appendix A)

Stabilizer - MXU-600 (Paveway I); MXU-651 (Paveway II)

Carriage Options

Aircraft:

A-10A

F-15E

F-16A-D

B-52H

Launcher/Rack - Multiple
(30 in. Lug Spacing)

Status / Schedule / Improvements

Contractor - Raytheon

Status - Inventory

OPR - OO-ALC/WM

Tech Data - 11K10-2-7



GBU-10 Component Matrix

MK-84

GBU-10/24 Guided Bomb Component Matrix (MK-84)	Major Component Required	Major Component Model No.	Subcomponents Required	Subcomponent Model Number (Notes)
Bomb, Guided Laser GBU-10 Series and GBU-24/B	Bomb, General Purpose 2,000- Pound	MK-84	Suspension Lugs	MK3 Mod 0 (1)
	Computer Control Group			(2,10)
	Airfoil Group		Laynard Pack (f- 117, GBU-10 only)	PN 1173-149-2
	Fuze, Bomb Nose	FMU-26B/B	Booster and Tape Swivel and Link	FZU-2/B (3) MAU-166/A
		FMU-81/B	Booster and Tape Swivel and Link	FZU-2/B (11)
		FMU-139A/B		(5)
	Fuze, Bomb Tail	M905	Delay Element	(4,7)
			Adapter Booster	T46
			Drive Assembly	ATU-35
			Arming Wire	Single FZU-20A/B
			Shaft Flexible	MAU-86/B4
			Coupler Drive	MAU-87 Series
			Ferrule	
			Swivel and Link	MAU-166/A
			Clip Arming Wire	FZU-18/B
		FMU-26B/B (GBU-10 Only)	Booster and Tape Swivel and Link	FZU-2/B (3,7) MAU-166/A
		FMU-81/B	Booster and Tape	FZU-2B (6,7)
		FMU-139A/B		(5,7,8)
		FMU-143B, B/B	Initiator	FZU-32B/B
Note 1: Suspension lugs are provided with bomb.				
Note 2:	Model No	CCG	Airfoil Group	
	GBU-10C/B	MAU-169/B	MXU-651/B	

	GBU-10D/B	MAU-169A/B	MXU-651/B	
	GBU-10E/B	MAU-169B/B, D/B,	MXU-651/B	
	GBU-24/B	WGU-12/B, B/B	BSU-84/B, A/B	
	GBU-24/B	WGU-39/B	BSU-84/B, BSU- 84A/B	
Note 3: Required fuze components are provided with the fuze				
Note 4: M9 delay elements are available with functioning delays of instantaneous, 0.01, 0.025, 0.05, 0.10 or 0.25 second				
Note 5: (F-15E, GBU-24) On LC-1,2,3 use three each swivel and clip assemblies (two each for FZU-48, one for fin release)				
Note 6: Bomb must be prefuzed before installing wing assembly				
Note 7: When nose fuze is not installed, requisition nose support cup, DODIC FW26				
Note 8: (F-15E, GBU-10, LC-1,2,3/GBU-24, LC-2) When the FMU-139 fuze is installed with the FZU-48 initiator, two each swivel and clip assembly for wing release lanyard are required.				
Note 9: (F-16) Regardless of fuzing requirements, one each MAU-166/A, swivel and link, for CCG/GCU is required.				
Note10: (F-16) Regardless of fuzing requirements, one each MAU-166/A swivel and link for CCG/GCU is required				
Note 11: When used as a nose fuze, bomb requires four FZU-2/B				

BLU-109

GBU-10 Guided Bomb Component Matrix	Major Component Required	Major Component Model No.	Subcomponents Required	Subcomponent Model Number (Notes)
Bomb, Guided Laser GBU-10, GBU-24A/B, GBU-27 Series	Bomb, General Purpose 2,000-Pound	BLU-109		

	Computer Control Group		Swivel and Links	MAU-166/A (1,10)
	Airfoil Group		Laynard Pack (F-117, GBU-27 only)	(1)
	Adapter Group	ADU-548/B		(6)
		ADG-769/B		(6,7)
	Fuze, Bomb Tail	FMU-81/B (GBU-10/24 only)		(2,4)
		FMU-124A/B	Initiator	FZU-32/B (2,4,5)
		FMU-139A/B (GBU-10/24 only)		(2,3,4)
		FMU-143/B, B/B (GBU-24/27 only)	Initiator	FZU-32B/B (2,3,8,9)
Note 1:	Model No	CCG	Airfoil Group	
	GBU-10G/B	MAU-169/B	MXU-651/B	
	GBU-10H/B	MAU-169A/B	MXU-651/B	
	GBU-10J/B	MAU-169B/B, D/B, EE	MXU-651/B	
	GBU-24A/B	WGU-12/B, B/B	BSU-84/B, A/B	
	GBU-24A/B	WGU-39/B	BSU-84/B, BSU-84A/B	
	GBU-27/B	WGU-25/B, A/B	BSU-88/B	
	GBU-27/B	WGU-39/B	BSU-88/B	
Note 2: Bomb must be prefuzed before installing wing assembly.				
Note 3: Required fuze components are provided with the fuze				
Note 4: (GBU-27) F-117 Aircraft Only				

Note 5: FZU-32/B, must be ordered separately for use with the FMU-124A/B				
Note 6: GBU-24 Only				
Note 7: Adapter Group ADU-548 is modified to include suspension lugs and becomes ADG-769/B				
Note 8: When the FMU-143 fuze is installed with the FZU-32 initiator on station LC-2 (F-15E), two swivel and clip assemblies are required.				
Note 9: (F-15E, GBU-10) When the FMU-143 Fuze is installed with the FZU-32 initiator on station LCFT, one each swivel and clip assembly is required				
Note 10: One each as required				

GBU-12 Series

Name: Laser Guided Bomb (LGB)

Description

The GBU-12 B/B is a 500lb class laser guided bomb which uses the MK-82 warhead. The PAVEWAY II system has folding wings which open upon release for increased aircraft payload and maneuverability. This weapon is primarily used for precision bombing against non-hardened targets.

Characteristics

GBU-12

CRD Weapons Code

ZLECC	GBU-12 (I) 905 T
ZLECB	GBU-12 (I) PW-II 81 N/T
ZLECF	GBU-12 (I) PW-II 81/905 N/T
ZLECA	GBU-12 (I) PW-II FMU-139 T
ZL5BE	GBU-12 PW-I /B BDU 50
ZL5BG	GBU-12 PW-I A/B BDU-50
BL2CI	LGB GBU-12 PW-II 81 TL
BL2CD	LGB GBU-12 PW-II 81/905 N/T
BL2EG	LGB GBU-12 PW-II 139 (N) F-15E
BL2CK	LGB GBU-12 PW-II 81 NS
BL2EE	LGB GBU-12 PW-II 81 NS F-15E
BL2CR	LGB GBU-12 PW-II 81 NS F117
BL2ED	LGB GBU-12 PW-II 81 TL F-15E
BL2CP	LGB GBU-12 PW-II 81 TL F117
BL2CL	LGB GBU-12 PW-II 81/81 N/T
BL2CS	LGB GBU-12 PW-II 81/81 N/T F117
BL2EK	LGB GBU-12 PW-II 81/81 N/T F-15E
BL2EL	LGB GBU-12 PW-II 81/905 F-15E
BL2CC	LGB GBU-12 PW-II 81/905 NT F117
BL2CA	LGB GBU-12 PW-II 905 TL
BL2EA	LGB GBU-12 PW-II 905 TL F-15E
ZL5CB	LGB GBU-12 PW-II BDU-50
ZL5CA	LGB GBU-12 PW-II BDU-50 F117
BL2CM	LGB GBU-12 PW-II FMU139A/B (T)
BL2CT	LGB GBU-12 PW-II FMU-139A/B F117
BL2EI	LGB GBU-12 PW-II FMU-139T F-15E
BL2CB	LGB GBU-12 PW-II TL F117
SZEBA	STAMP GBU-12E/B KIT
PL2CA	PREPO ISO LGB GBU-12/FMU-139 T

Guidance - Semi-Active Laser

Control - MAU-157 Series (Paveway I); MAU-169 Series (Paveway II)

Autopilot - Bang-Bang Mode

Class - 500 lb Paveway I & II Guided Weapon

Weight (full)	606.67 lbs	+/- 5%
cg (x)	5.33 in.	+/- 0.50 in.
cg (y)	-0.02 in.	+/- 0.50 in.
cg (z)	-0.05 in.	+/- 0.50 in.
Length	131.15 in.	
Diameter	10.75 in. (Warhead); 18 in. (Airfoil Group)	
Inertia (roll)	2.07	+/- 10%
Inertia (pitch)	77.00	+/- 10%
Inertia (yaw)	77.00	+/- 10%

Warhead - MK-82 Blast/Fragmentation

Explosive (NEW) - Tritonal, PBXN-109 (192 lbs)

Fuze - FMU-81 Tail (See Appendix A)

Stabilizer - MXU-602 Series (Paveway I); MXU-650 Series (Paveway II)

Carriage Options

Aircraft:	Launcher/Rack - Multiple
A-10A	(14 in. Lug Spacing)
F-117A	
F-15E B-52	
F-16A-D	

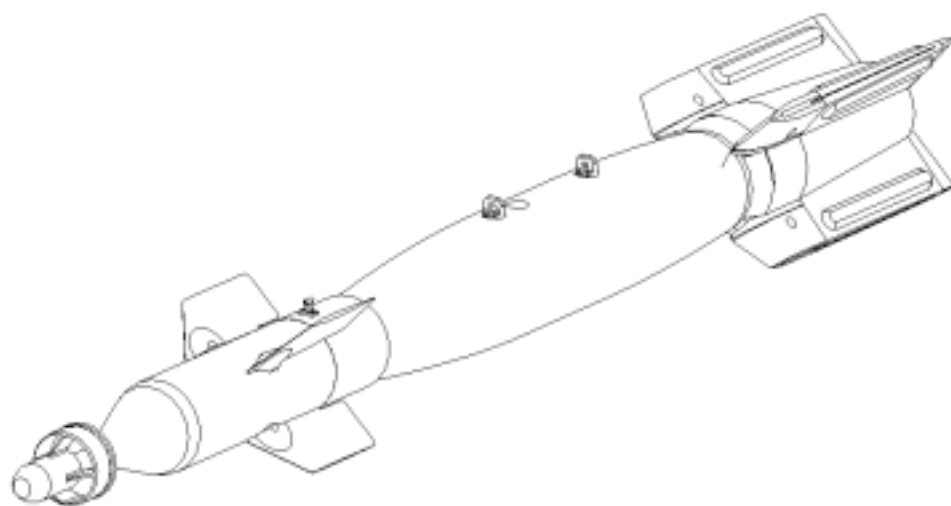
Status / Schedule / Improvements

Contractor - Raytheon

Status - Inventory

OPR - OO-ALC/WM

Tech Data - 11K10-2-7



GBU-12 Component Matrix

GBU-12 Guided Bomb Component Matrix	Major Component Required	Major Component Model No.	Subcomponents Required	Subcomponent Model Number (Notes)
Bomb, Guided Laser GBU-12 Series	Bomb, General Purpose 500-Pound	MK-82	Suspension Lugs	MS3314(1) MAU-76 MK-6 Mod O
	Computer Control Group	MAU-169 Series		(2,9)
	Airfoil Group	MXU-650/B	Laynard Pack	PN 1173-149-2 (F-117)
	Fuze, Bomb Nose	FMU-26B/B	Booster and Tape Swivel and Link	FZU-2/B (3) MAU-166/A
		FMU-81/B	Booster and Tape Swivel and Link	FZU-2/B (5)
		FMU-139A/B		(7)
	Fuze, Bomb Tail	M905	Delay Element	(4,8)
			Adapter Booster	T46
			Drive Assembly	ATU-35
			Arming Wire	Single FZU-20A/B
			Shaft Flexible	MAU-86/B4
			Coupler Drive	MAU-87 Series
			Ferrule	
			Swivel and Link	MAU-166/A
		FMU-26B/B	Booster and Tape Swivel and Link	FZU-2/B (3,8) MAU-166/A
		FMU-81/B	Booster and Tape	FZU-2B (6,8)
		FMU-139A/B		(7,8)
Note 1: Suspension lugs are provided with bomb.				
Note 2:	Model No	CCG	Airfoil Group	
	GBU-12B/B	MAU-169/B	MXU-650/B	
	GBU-12C/B	MAU-169A/B	MXU-650/B	
	GBU-12D/B	MAU-169B/B, C/B, E/B	MXU-650/B	
Note 3: Required fuze components are provided with the fuze				
Note 4: M9 delay elements are available with functioning delays of instantaneous, 0.01, 0.025, 0.05, 0.10 or 0.25 second				

Note 5: Can only be installed in GBU-12B/B, C/B and D/B bombs. When used as a nose fuze, bomb requires four FZU-2/B boosters.				
Note 6: Bomb must be prefuzed before installing wing assembly				
Note 7: (F-15E stations LC-1,2,3) When the FMU-139 fuze is installed with the FZU-48 initiator, use the improved initiator lanyard.				
Note 8: When nose fuze is not installed, requisition nose support cup, DODIC FW26				
Note 9: (F-16) Regardless of fuzing requirements, one each MAU-166/A, swivel and link, for CCG/GCU is required.				

Nomenclature: GBU-15

Name: Guided Standoff Weapon

Description

The GBU-15 is a MK-84 blast fragment or a BLU-109 penetrating bomb fitted with a set of aerodynamic lifting and control surfaces and either a TV seeker or an IR seeker. The enhanced versions also include an Global Positioning System/Internal Navigation System (GPS/INS) guidance and navigation capability. The primary purpose of the GPS/INS is to provide enhanced capability in weather. The GBU-15 is normally deployed in the indirect mode where a weapon is launched towards the target without lock on. The GBU-15 can be used in the buddy mode where one A/C launches the weapon and the other A/C performs the control functions.

Characteristics

GBU-15

CRD Weapons Code

ZG9GB	GBU-15 (T-1)/B IR CAPTIVE CARRY
ZE65B	GBU-15 BDU-56 GPS IR CAP F-15E
BE65B	GBU-15 BDU56 GPS IR TAC INRT F15
ZE65A	GBU-15 BDU-56 GPS TV CAPT F-15E
BE65A	GBU-15 BDU56 GPS TV TAC INRT F15
ZE95B	GBU-15 BLU109 GPS IR LD/TRN F-15
BE95B	GBU-15 BLU-109 GPS IR TACT F-15E
ZE95A	GBU-15 BLU109 GPS TV LD/TRN F-15
BE95A	GBU-15 BLU-109 GPS TV TACT F-15E
BG6GA	GBU-15 IR BDU-56/TAC/INERT
BGHGA	GBU-15 IR BLU109(I)/TAC/INERT
BG6GB	GBU-15 IR/BDU-56/TAC/INERT
BG4GA	GBU-15 IR/LONG CHORD/MK84
BGGGA	GBU-15 IR/MK-84(I)/TAC/INERT
BGGGB	GBU-15 IR/MK-84(I)/TAC/INERT
BG9GB	GBU-15 IR/SHORT CHORD/BLU109
BG4GB	GBU-15 IR/SHORT CHORD/MK84
ZEG5B	GBU-15 MK84 GPS IR LD/TRNR F-15E
BEG5B	GBU-15 MK84 GPS IR TAC/INRT F-15
BE45B	GBU-15 MK84 GPS IR TACT F-15E
ZEG5A	GBU-15 MK84 GPS TV LD/TRNR F-15E
BEG5A	GBU-15 MK84 GPS TV TAC/INRT F-15
BE45A	GBU-15 MK84 GPS TV TACT F-15E
ZE45B	GBU-15 MK84(EMPTY) GPS IR F-15E
ZE45A	GBU-15 MK84(EMPTY) GPS TV F-15E
BG6TA	GBU-15 TV/BDU-56/TAC/INERT
BG6TB	GBU-15 TV/BDU-56/TAC/INERT
BG6TC	GBU-15 TV/BDU-56/TAC/INERT
BG6TD	GBU-15 TV/BDU-56/TAC/INERT
BGHTA	GBU-15 TV/BLU-109(I)/TAC/INERT
BGHTB	GBU-15 TV/BLU-109(I)/TAC/INERT

BG4TD	GBU-15 TV/LC/SFOV/MK84
BG4TA	GBU-15 TV/LONG CHORD/MK84
BGGTA	GBU-15 TV/MK84(I)/TAC/INERT
BG4TB	GBU-15 TV/SC/SFOV MK84
BG9TB	GBU-15 TV/SC/SFOV/BLU109
BG9TA	GBU-15 TV/SC/SFOV/BLU-109
BG4TC	GBU-15 TV/SC/SFOV/MK84

Guidance - Electro Optical TV; Imaging IR
GPS/INS
Precise Adverse Weather, day or night
Accurate all Weather
Vertical Targets

Control – Automatic or Manual (Weapon System Operator via w/ ACQ-14 or ZSW-1 Data Link Pod)

Autopilot -Analog

Class – 2,500 lb. Standoff

Warhead – MK-84 or BLU-109 (adapter kit required)

Explosive – Tritonal – 945 lbs (Mk-84); 535 lbs (BLU-109)

Fuze – FMU-124A/B (MK-84, nose and tail); FMU-143 (BLU-109, tail only); Integrating FMU 152 (JPF) tail only with BLU-109

Stabilizer – Strakes/Canards, Wings; the Original Long Chord (LCW) or the Newer Short Chord (SCW) and Control; Surfaces

Data Link – OA-8921D/AXQ-14 (weapon terminal)

Range - -5-15+ NM

Diameter - (guidance section) 15.0 in.

Diameter – (control section) 16.0 in.

Diameter – (wing) 59.0 in.

GBU-15(V) 1/B (MK-84, TV, LCW)

Weight (full)	2,476.00 lbs
Length	156.0 in.
Diameter (warhead)	18.00 in.

GBU-15(V) 1/B (MK-84, TV, SCW)

Weight (full)	2,410.00 lbs
Length	156.0 in.
Diameter (warhead)	18.00 in.

GBU-15(V) 2/B (MK-84, IR, LCW)

Weight (full)	2,515.00 lbs
Length	159.0 in.
Diameter (warhead)	18.00 in.

GBU-15 (V) 2/B (MK-84, IR, SCW)

Weight (full)	2,449.00 lbs
Length	159.00 in.

Diameter (warhead) 18.00 in.

GBU-15(V) 31B (BLU-109, TV, SCW)

Weight (full) 2,486.00 lbs
Length 156.00 in.
Diameter (warhead) 16.00 in.

GBU-15 (V) 1C/B (MK-84, TV, GPS/INS, SCW)

Weight (full) 2,430.00 lbs
Length 156.00 in.
Diameter 18.00 in.

GBU-15(V) 2c/B (MK-84, IR, GPS/INS, SCW)

Weight (full) 2,469.00 lbs
Length 159.00 in.
Diameter (warhead) 18.0 in.

GBU-15(V) 31A/B (BLU-109, TV, GPS/INS, SCW)

Weight (full) 2,506.00 lbs
Length 156.00 in.
Diameter (warhead) 16.0 in.

GBU-15(V) 32A/B (BLU-109, IR, GPS/INS, SCW)

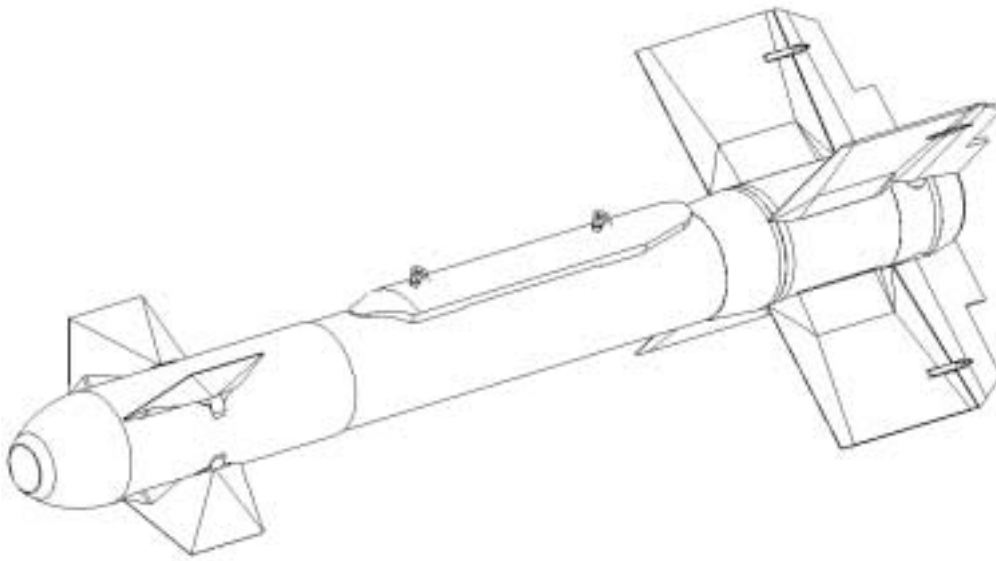
Weight (full) 2,545.00 lbs
Length 159.00 in.
Diameter (warhead) 16.0 in.

Carriage Options

Aircraft: Launcher/Rack
F-15E (30 in. Lug Spacing)

Status / Schedule / Improvements

Contractor – Boeing
Status - Inventory
OPR - AAC/WMG; Eglin AFB, FL DSN 872-9514
Improvements – Potential Integration of FMU-152 (JPF) Fuze
Real Time Information in Cockpit (RTIC) via Goldstrike POD
Special Equipment - GJM-65 Field Test Set
Tech Data – 11K15-2-7



5-16

Nomenclature: GBU-24/B
LGB

Name: Low Level

Description

Designed as a precision guided penetration bomb, the GBU-24 A/B is basically a BLU-109 warhead fitted with a nose mounted laser guidance and control unit and the new Paveway III tail assembly. This weapon can be released at low, medium or high altitudes. Low altitude can mean "tree top" height if deemed necessary.

Characteristics

GBU-24/B

CRD Weapons Code

ZL9BD	GBU-24 A/B
BL4HP	GBU-24 PW-III 139 N WGU-39 F-15E
BL4HB	GBU-24 PW-III 139 T WGU-39 F-15E
BL4HR	GBU-24 PW-III 81 NS WGU-39 F-15E
BL4HI	GBU-24 PW-III 81 NT WGU-12 F-15E
BL4HA	GBU-24 PW-III 81 NT WGU-39 F-15E
BL4HS	GBU-24 PW-III 81 TL WGU-39 F-15E
BL4DI	GBU-24 PW-III FMU-139 NS
BL4HL	GBU-24 PW-III FMU-139 NS F-15E
BL4DN	GBU-24 PW-III FMU-139 NS WGU39/B
BL4DL	GBU-24 PW-III FMU-139 TL
BL4HM	GBU-24 PW-III FMU-139 TL F-15E
BL4DO	GBU-24 PW-III FMU-139 TL WGU-39
BL4DQ	GBU-24 PW-III FMU-139 TL WGU-39
BL9HD	GBU-24 PW-III FMU-143 F-15E
BL9HE	GBU-24 PW-III FMU-143 F-15E
BL4DP	GBU-24 PW-III FMU-81 N/T WGU-39
BL4DB	GBU-24 PW-III FMU-81 NS
BL4HN	GBU-24 PW-III FMU-81 NS F-15E
BL4DD	GBU-24 PW-III FMU-81 NS WGU-39
BL4DC	GBU-24 PW-III FMU-81 TL
BL4HO	GBU-24 PW-III FMU-81 TL F-15E
BL4DG	GBU-24 PW-III FMU-81 TL WGU-39
BL4DA	GBU-24 PW-III FMU-81(N/T) WGU-12
BL9DC	GBU-24 PW-III WGU-12/FMU-143
BL9DE	GBU-24 PW-III WGU-39/FMU-143
ZLG1N	GBU-24 WGU-12 NO FUZE
ZLG1I	GBU-24/B (I)
ZLG1G	GBU-24/B WGU12 FMU139
ZLG1F	GBU-24/B WGU12 FMU81 TL
ZLG1K	GBU-24/B WGU-12 NO FUZE
ZL6DB	GBU-24/B WGU-12(D-2)/B NO FUZE

ZL6DD	GBU-24/B WGU-12B/B NO FUZE
ZLGDA	GBU-24/B WGU-39 NO FUZE
ZL6DE	GBU-24/B WGU-39/B NO FUZE
ZL6HA	GBU-24/B WGU-39/B NO FUZE F-15
ZL9BB	GBU-24A/B (I) FMU-143 T
ZL9BF	GBU-24A/B WGU-39(D-2)/B FMU-143
ZL9DC	GBU-24A/B WGU-39/B
ZL9HA	GBU-24A/B WGU-39/B FMU-143 F-15
PL4HA	PREPO ISO GBU-24/FMU-139/WGU-39
PL9DA	PREPO ISO GBU-24/WGU-39/FMU-143
SZFDA	STAMP GBU-24/B SUPER BOLT KIT
SZFBA	STAMP GBU-24A/B SUPER BOLT KIT

Guidance - Semi-Active Laser (WGU-12 or WGU-39 Guidance Unit)

Control - Nose Canards

Autopilot - Proportional Guidance

Class -

Weight (full)	2,256.75 lbs +/- 5%
cg (x) wings stowed	13.18 in. +/- 0.50 in.
cg (x) wings deployed	13.04 in. +/- 0.50 in.
cg (y)	unk +/- 0.50 in.
cg (z)	unk +/- 0.50 in.
Length	172.76 in.
Diameter	18.00 in.
Fin. Span (Canard)	39.25 in.
Fin. Span (wings sto)	36.0 in.
Fin. Span (wings deployed)	81.6 in.
Inertia (roll) wings stowed	26.32 +/- 10%
Inertia (pitch) wings stowed	570.31 +/- 10%
Inertia (yaw) wings stowed	570.03 +/- 10%
Inertia (roll) wings deployed	32.69 +/- 10%
Inertia (pitch) wings deployed	585 +/- 10%
Inertia (yaw) wings deployed	585.2 +/- 10%
Drawings	2711693

Warhead - Mk-84 Blast/Fragmentation

Explosive (NEW) - 945 lbs Tritonal

Fuze - FMU-81 Nose & Tail (See Appendix A)

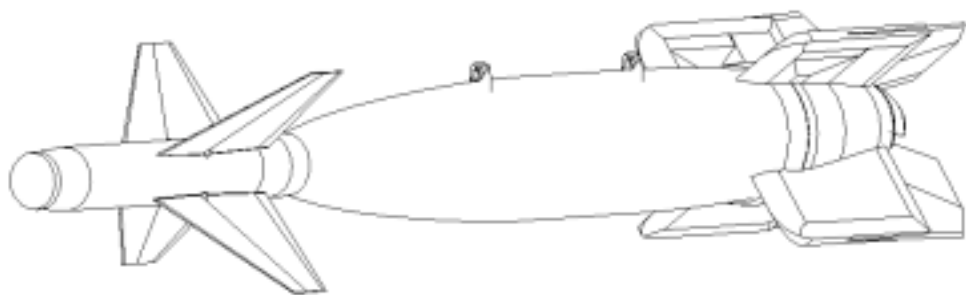
Stabilizer - BSU-84 Fin Assembly

Carriage Options

Aircraft:	Rack/Pylon - Multiple
F-16A-D	(30 in. Lug Spacing)
F-15E	

Status / Schedule / Improvements

Contractor - Raytheon
Status - Inventory
OPR - OO-ALC/WM
Tech Data - 11K20-2-7



GBU-24 Component Matrix

MK-84

GBU-10/24 Guided Bomb Component Matrix	Major Component Required	Major Component Model No.	Subcomponents Required	Subcomponent Model Number (Notes)
Bomb, Guided Laser GBU-10 Series and GBU-24/B	Bomb, General Purpose 2,000-Pound	MK-84	Suspension Lugs	MK3 Mod 0 (1)
	Computer Control Group			(2,10)
	Airfoil Group		Laynard Pack (f-117, GBU-10 only)	PN 1173-149-2
	Fuze, Bomb Nose	FMU-26B/B	Booster and Tape Swivel and Link	FZU-2/B (3) MAU-166/A
		FMU-81/B	Booster and Tape Swivel and Link	FZU-2/B (11)
		FMU-139A/B		(5)
	Fuze, Bomb Tail	M905	Delay Element	(4,7)
			Adapter Booster	T46
			Drive Assembly	ATU-35
			Arming Wire	Single FZU-20A/B
			Shaft Flexible	MAU-86/B4
			Coupler Drive	MAU-87 Series
			Ferrule	
			Swivel and Link	MAU-166/A
			Clip Arming Wire	FZU-18/B
		FMU-26B/B (GBU-10 Only)	Booster and Tape Swivel and Link	FZU-2/B (3,7) MAU-166/A
		FMU-81/B	Booster and Tape	FZU-2B (6,7)
		FMU-139A/B		(5,7,8)
		FMU-143B, B/B	Initiator	FZU-32B/B
Note 1: Suspension lugs are provided with bomb.				
Note 2:	Model No	CCG	Airfoil Group	
	GBU-10C/B	MAU-169/B	MXU-651/B	
	GBU-10D/B	MAU-169A/B	MXU-651/B	

	GBU-10E/B	MAU-169B/B, D/B,	MXU-651/B	
	GBU-24/B	WGU-12/B, B/B	BSU-84/B, A/B	
	GBU-24/B	WGU-39/B	BSU-84/B, BSU- 84A/B	
Note 3: Required fuze components are provided with the fuze				
Note 4: M9 delay elements are available with functioning delays of instantaneous, 0.01, 0.025, 0.05, 0.10 or 0.25 second				
Note 5: (F-15E, GBU-24) On LC-1,2,3 use three each swivel and clip assemblies (two each for FZU-48, one for fin release)				
Note 6: Bomb must be prefuzed before installing wing assembly				
Note 7: When nose fuze is not installed, requisition nose support cup, DODIC FW26				
Note 8: (F-15E, GBU-10, LC-1,2,3/GBU-24, LC-2) When the FMU-139 fuze is installed with the FZU-48 initiator, two each swivel and clip assembly for wing release lanyard are required.				
Note 9: (F-16) Regardless of fuzing requirements, one each MAU-166/A, swivel and link, for CCG/GCU is required.				
Note 10: (F-16) Regardless of fuzing requirements, one each MAU-166/A swivel and link for CCG/GCU is required				
Note 11: When used as a nose fuze, bomb requires four FZU-2/B				

BLU-109

GBU-10/24/27 Guided Bomb Component Matrix	Major Component Required	Major Component Model No.	Subcomponents Required	Subcomponent Model Number (Notes)
Bomb, Guided Laser GBU-10, GBU-24A/B, GBU-27 Series	Bomb, General Purpose 2,000-Pound	BLU-109		
	Computer Control Group		Swivel and Links	MAU-166/A (1,10)

	Airfoil Group		Laynard Pack (F-117, GBU-27 only)	(1)
	Adapter Group	ADU-548/B		(6)
		ADG-769/B		(6,7)
	Fuze, Bomb Tail	FMU-81/B (GBU-10/24 only)		(2,4)
		FMU-124A/B	Initiator	FZU-32/B (2,4,5)
		FMU-139A/B (GBU-10/24 only)		(2,3,4)
		FMU-143/B, B/B (GBU-24/27 only)	Initiator	FZU-32B/B (2,3,8,9)
Note 1:	Model No	CCG	Airfoil Group	
	GBU-10G/B	MAU-169/B	MXU-651/B	
	GBU-10H/B	MAU-169A/B	MXU-651/B	
	GBU-10J/B	MAU-169B/B, D/B, EE	MXU-651/B	
	GBU-24A/B	WGU-12/B, B/B	BSU-84/B, A/B	
	GBU-24A/B	WGU-39/B	BSU-84/B, BSU-84A/B	
	GBU-27/B	WGU-25/B, A/B	BSU-88/B	
	GBU-27/B	WGU-39/B	BSU-88/B	
Note 2: Bomb must be prefuzed before installing wing assembly.				
Note 3: Required fuze components are provided with the fuze				
Note 4: (GBU-27) F-117 Aircraft Only				
Note 5: FZU-32/B, must be ordered separately for use with the FMU-124A/B				

Note 6: GBU-24 Only				
Note 7: Adapter Group ADU-548 is modified to include suspension lugs and becomes ADG-769/B				
Note 8: When the FMU-143 fuze is installed with the FZU-32 initiator on station LC-2 (F-15E), two swivel and clip assemblies are required.				
Note 9: (F-15E, GBU-10) When the FMU-143 Fuze is installed with the FZU-32 initiator on station LCFT, one each swivel and clip assembly is required				
Note 10: One each as required				

Nomenclature: GBU-24A/B

Name: Low Level LGB

Description

Designed as a precision guided penetration bomb, the GBU-24 A/B is basically a BLU-109 warhead fitted with a nose mounted laser guidance and control unit and the new Paveway III tail assembly. This weapon can be released at low, medium or high altitudes. Low altitude can mean "tree top" height if deemed necessary.

Characteristics

GBU-24A/B

CRD Weapons Code

See GBU-24/B

Control - Nose Canards

Autopilot - Proportional Guidance

Class -

Weight (full)	2,372.75 lbs	+/- 5%
cg (x) wings stowed	12.92 in.	+/- 0.50 in.
cg (x) wings deployed	12.95 in.	+/- 0.50 in.
cg (y)	0.10 in.	+/- 0.50 in.
cg (z)	0.12 in.	+/- 0.50 in.
Length	169.69 in.	
Diameter	14.50 in.	
Fin. Span (Canards)	39.25 in.	
Fin. Span (wings stowed)	36.0 in.	
Fin. Span (wings deployed)	81.6 in.	
Inertia (roll) wings stowed	22.14	+/- 10%
Inertia (pitch) wings stowed	597.05	+/- 10%
Inertia (yaw) wings stowed	596.12	+/- 10%
Inertia (roll) wings deployed	31.237	+/- 10%
Inertia (pitch) wings deployed	601.606	+/- 10%
Inertia (yaw) wings deployed	601.606	+/- 10%

Drawings 2898429, DL2898429

Warhead - BLU-109/B Hard Target Penetrator

Explosive (NEW) - 535 lbs Tritonal

Fuze - FMU-143 Series (Tail); (See Appendix A)

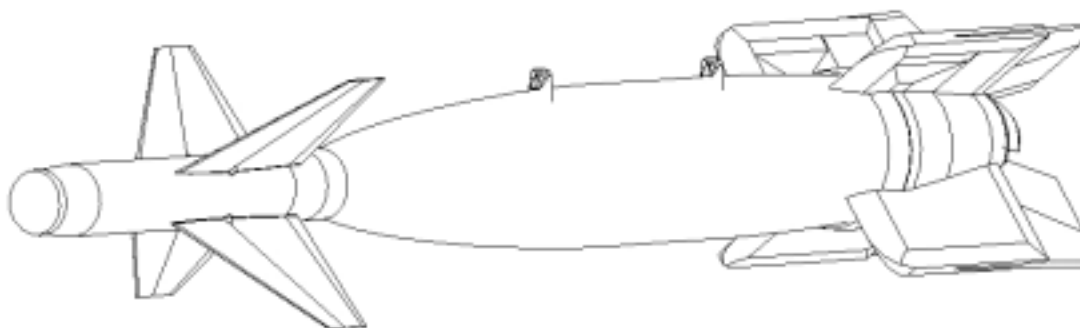
Stabilizer - BSU-84 Fin Assembly

Carriage Options

Aircraft:	Rack/Pylon - Multiple
F-4G	(30 in. Lug Spacing)
F-15E	
F-16A-D	
F-111D-F	

Status / Schedule / Improvements

Contractor - Raytheon
Status - Inventory
OPR - OO-ALC/WM
Tech Data - 11K20-2-7



Nomenclature: GBU-27

Name: Laser Guided Bomb (LGB)

Characteristics

GBU-27

CRD Weapons Code

ZL9SD	GBU-27 PW-III INERT W/O FUZ F117
ZL9DB	GBU-27 PW-III INERT W/O FUZE
ZL9DA	GBU-27 PW-III W/FUZE
ZL9SA	GBU-27 PW-III W/FUZE F117
BL9SH	GBU-27 PW-III WGU25/FMU143 F117
BL9SF	GBU-27 PW-III WGU-39/FMU-143
BL9SA	GBU-27 PW-III WGU-39/FMU143 F117
ZL9SC	GBU-27 W/O FUZE F117
BL9DA	GBU-27/B FMU-157/B
BL9DB	GBU-27/B, FMU-157/B
BL9SC	GBU-27A/B FMU-143 WGU-39A/B F117
BL9SB	GBU27A/B FMU143B/B WGU39A/B F117
BL9DD	GBU-27A/B FMU-157
BL9SD	GBU-27A/B FMU-157/B F-117
SZGBA	STAMP GBU-27 KIT (F-117)
PL9SA	PREPO ISO GBU-27/WGU-39/FMU-143
SZGDA	STAMP ENHANCED GBU-27 KIT

Guidance - Laser (WGU-25/B Guidance Section)

Control - Nose Canards

Autopilot - None

Class - 2000 lb GBU

Weight (full)	2,185.00 lbs	+/- 5%
cg (x)	10.65 in.	+/- 0.50 in.
cg (y)	-0.02 in.	+/- 0.50 in.
cg (z)	-0.05 in.	+/- 0.50 in.
Length	166.77 in.	
Diameter	14.50 in.	
Inertia (roll)	unk	+/- 10%
Inertia (pitch)	510.34	+/- 10%
Inertia (yaw)	510.32	+/- 10%
Drawings-	2898297, 3162743, 3162744	

Warhead - BLU-109/B Hard Target Penetrator

Explosive (NEW) - 535 lbs Tritonal

Fuze - FMU-143 Series (See Appendix A)

Stabilizer - BSU-88/B Fin Assembly

Carriage Options

Aircraft:	Rack/Pylon - N/A
F-117	(30 in Lug Spacing)

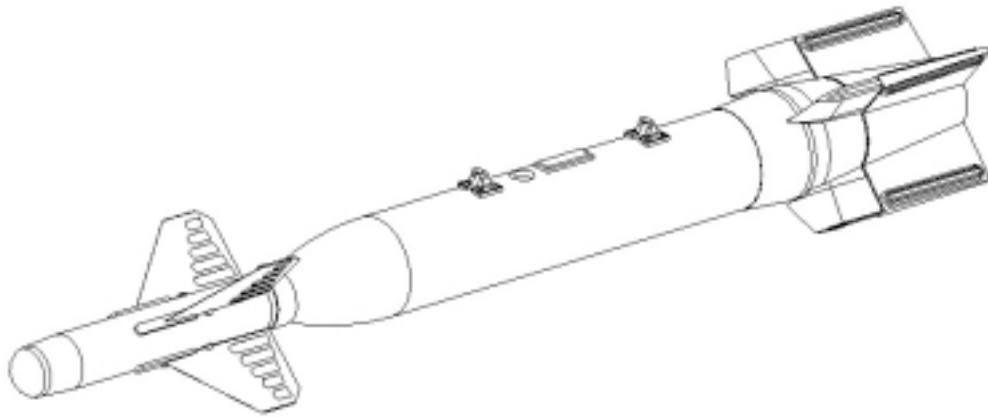
Status / Schedule / Improvements

Contractor - N/A

Status - Inventory

OPR - OO-ALC/WM (Hill AFB, UT)

Tech Data - 11K25-2-7



GBU-27 Matrix

GBU-10/24/27 Guided Bomb Component Matrix	Major Component Required	Major Component Model No.	Subcomponents Required	Subcomponent Model Number (Notes)
Bomb, Guided Laser GBU-10, GBU-24A/B, GBU-27 Series	Bomb, General Purpose 2,000-Pound	BLU-109		
	Computer Control Group		Swivel and Links	MAU-166/A (1,10)
	Airfoil Group		Laynard Pack (F-117, GBU-27 only)	(1)
	Adapter Group	ADU-548/B		(6)
		ADG-769/B		(6,7)
	Fuze, Bomb Tail	FMU-81/B (GBU-10/24 only)		(2,4)
		FMU-124A/B	Initiator	FZU-32/B (2,4,5)
		FMU-139A/B (GBU-10/24 only)		(2,3,4)
		FMU-143/B, B/B (GBU-24/27 only)	Initiator	FZU-32B/B (2,3,8,9)
Note 1:	Model No	CCG	Airfoil Group	
	GBU-10G/B	MAU-169/B	MXU-651/B	
	GBU-10H/B	MAU-169A/B	MXU-651/B	
	GBU-10J/B	MAU-169B/B, D/B, EE	MXU-651/B	

	GBU-24A/B	WGU-12/B, B/B	BSU-84/B, A/B	
	GBU-24A/B	WGU-39/B	BSU-84/B, BSU-84A/B	
	GBU-27/B	WGU-25/B, A/B	BSU-88/B	
	GBU-27/B	WGU-39/B	BSU-88/B	
Note 2: Bomb must be prefuzed before installing wing assembly.				
Note 3: Required fuze components are provided with the fuze				
Note 4: (GBU-27) F-117 Aircraft Only				
Note 5: FZU-32/B, must be ordered separately for use with the FMU-124A/B				
Note 6: GBU-24 Only				
Note 7: Adapter Group ADU-548 is modified to include suspension lugs and becomes ADG-769/B				
Note 8: When the FMU-143 fuze is installed with the FZU-32 initiator on station LC-2 (F-15E), two swivel and clip assemblies are required.				
Note 9: (F-15E, GBU-10) When the FMU-143 Fuze is installed with the FZU-32 initiator on station LCFT, one each swivel and clip assembly is required				
Note 10: One each as required				

Nomenclature: GBU-28A/B

Name: Laser Guided Bomb

Characteristics

GBU-28A/B

CRD Weapons Code

ZLH5A	GBU-28 INERT	F-15E
BL5DD	GBU-28 W/ FMU-143/F	
BL5DE	GBU-28 W/ FMU-143/G	
BL5DF	GBU-28 W/ FMU-143/H	
SZHAA	STAMP GBU-28F/B	
SZHBA	STAMP GBU-28G/B	
SZHCA	STAMP GBU-28H/B	

Guidance - WGU-36 A/B Laser guidance unit

Control - Nose Canards

Autopilot - None

Class - 5000lb Penetrator

Weight (full)	4,576.00 lbs	+/- 5%
cg (x)	15.20 in.	+/- 0.50 in.
cg (y)	0.01 in.	+/- 0.5. in.
cg (z)	0.01 in.	+/- 0.5. in.
Length	229.31 in.	
Diameter	14.50 in.	
Inertia (roll)	24.70 in.	+/- 10%
Inertia (pitch)	2,179.91	+/- 10%
Inertia (yaw)	2,179.52	+/- 10%

Warhead - BLU-113/B or BLU-113A/B, Blast/Fragmentation

Explosive (NEW) - Tritonal 600 lbs

Fuze - FMU-143 Series (Tail) (See Appendix A)

Stabilizer - BSU-92/B Fin Assembly

Carriage Options

Aircraft:	Launcher/Rack - Multiple
F-15E	(30 in Lug Spacing)
F-111F	

Status / Schedule / Improvements

Contractor - Raytheon (guidance), National Forge (Warhead),

Dayron (Fuze), UNICOR (shipping pallets), McAlester Army

Ammunition Plant (Explosive load)

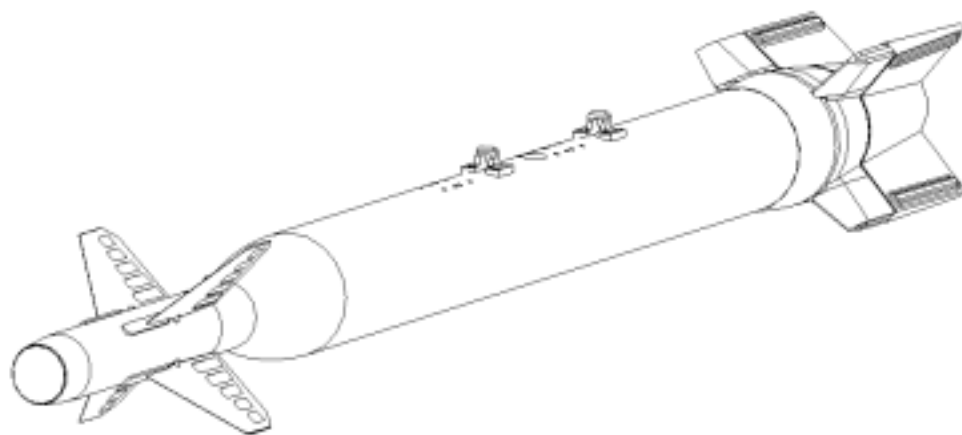
Status - Inventory

IOC Date - February 1991(Desert Storm)

OPR - AAC/LIW-A

OO-ALC/WM

Tech Data - 11K28-2-7



Nomenclature: GBU- 31 Name: JDAM (Joint Direct Attack Munition)

Description

The Joint Attack Munition (JDAM) GBU-31 is a tailkit under development to produce a weapon with high accuracy, all weather, autonomous, conventional bombing capability. JDAM will upgrade the existing inventory of general purpose and penetrator unitary bombs, and a product improvement may add a terminal seeker to improve accuracy.

Characteristics

GBU-31

CRD Weapons Code

ZJ91E	GBU-31 V3 W/FMU-152/B
ZJ61A	GBU-31(V)1/B BDU-56
BJ41H	GBU-31(V)1/B DSU33A/B FMU139
BJ47K	GBU-31(V)1/B DSU33A/B FMU139 B-2
BJ41E	GBU-31(V)1/B DSU-33A/B FMU152
BJ46D	GBU-31(V)1/B DSU33A/B FMU152 B1
BJ41A	GBU-31(V)1/B W/ FMU-152/B
BJ46E	GBU-31(V)1/B W/ FMU-152/B B-1
BJ47H	GBU-31(V)1/B W/DSU-33B/B/FMU139
BJ41G	GBU-31(V)1/B W/DSU-33B/B/FMU-139
BJ41F	GBU-31(V)1/B W/DSU-33B/B/FMU-152
ZJ61C	GBU-31(V)1/B W/FMU-139 INERT N
ZJG1A	GBU-31(V)1/B W/FMU-139 INERT T
ZJ61D	GBU-31(V)1/B W/FMU-139 INERT N/T
BJ41D	GBU-31(V)1/B W/FMU-139A/B (N/T)
BJ41C	GBU-31(V)1/B W/FMU-139A/B (T)
BJ47B	GBU-31(V)1/B W/FMU-139A/B (T) B2
BJ46A	GBU-31(V)1/B W/FMU-139A/B N/T B1
BJ47C	GBU-31(V)1/B W/FMU-139A/B(N/T)B2
ZJ61E	GBU-31(V)1/B W/FMU-152 INERT T
BJ47E	GBU-31(V)1/BW/FMU-152/B B2
BJ97E	GBU-31(V)3/B FMU-143F/B B-2
BJ97D	GBU-31(V)3/B FMU-143G/B B-2
BJ97C	GBU-31(V)3/B FMU-143H/B B-2
ZJ91D	GBU-31(V)3/B NO FUZE
ZJ91A	GBU-31(V)3/B W/FMU-139 A/B
ZJ96A	GBU-31(V)3/B W/FMU-139A/B B-1
ZJ97A	GBU-31(V)3/B W/FMU-139A/B B-2
ZJ97B	GBU-31(V)3/B W/FMU-143/B B-2
BJ91A	GBU-31(V)3/B W/FMU-143B/B
BJ91Z	GBU-31(V)3/B W/FMU-143B/B
ZJ91C	GBU-31(V)3/B W/FMU-143B/B
BJ97A	GBU-31(V)3/B W/FMU-143B/B B2
BJ96A	GBU-31(V)3/B W/FMU-143B/B B-1

ZJ96B	GBU-31(V)3/B W/FMU-143B/B	B-1
BJ91B	GBU-31(V)3/B W/FMU-152/B	
ZJ91B	GBU-31(V)3/B W/FMU-152/B	
BJ97B	GBU-31(V)3/B W/FMU-152/B	B2
BJ96B	GBU-31(V)3/B W/FMU-152/B	B-1
ZJ96C	GBU-31(V)3/B W/FMU-152/B	B-1
ZJ97C	GBU-31(V)3/B W/FMU-152/B	B-2
ZJ97E	GBU-31(V3) KMU-556/INERT FMU-152	
ZJ61F	GBU-31,KMU-556(D-2), FMU-139	
BJ46B	GBU-319V)1/B W/FMU-139A/B (T)	B1
BJ46J	GBU-31V1/B DSU-33A/B FMU139	B-1
BJ46F	GBU-31V1/B W/DSU-33B/B/FMU139	B1
BJ46G	GBU-31V1/B W/DSU-33B/B/FMU152	B1
PJ41B	PREPO ISO GBU-31(V)1/B/FMU-139	
PJ41A	PREPO ISO GBU-31(V)1/B/FMU-139	T
PJ91A	PREPO ISO GBU-31(V)3/B/FMU-143	

Guidance - INS/GPS

Control - Tail Aerodynamic

Autopilot - Proportional Guidance

Class - 2000 lb Guided Munition

Weight (lbs.) – MK-84 (AF 2039; Navy 2059), BLU-109 (AF 2118; Navy 2138)

Length (m) – MK-84 – 3.87; BLU-109 – 3.76

Diameter (mm) - 460

Warhead - MK-84 or BLU-109

Explosive - 945lbs or 535lbs

Fuze - FMU-139A/B or FMU-143B/B or FMU-152/B (JPF)

JDAM 2,000 LB NOMENCLATURE/ GBU 31

	<u>MK-84</u>	<u>BLU-109</u>
USAF	(v) 1/B	(v) 3/B
Navy	(v) 2/B	(v) 4/B

Carriage Options

Aircraft / Loadout / Launcher -

B-1B / 24/ MPRL

B-2 /16 / RLA

B-52H / 12/ HSAB

F-15E / 5 / BRU-47

F-16C/D/ 2 / MAU-12

F-14D/4/BRU-32

F/A-18C/D/4/BRU-32

S-3/ 2 /BRU-11

P-3 /9 / AERO-65, BRU-14, BRU-15 (W/AERO-1A)

Status / Schedule / Improvements

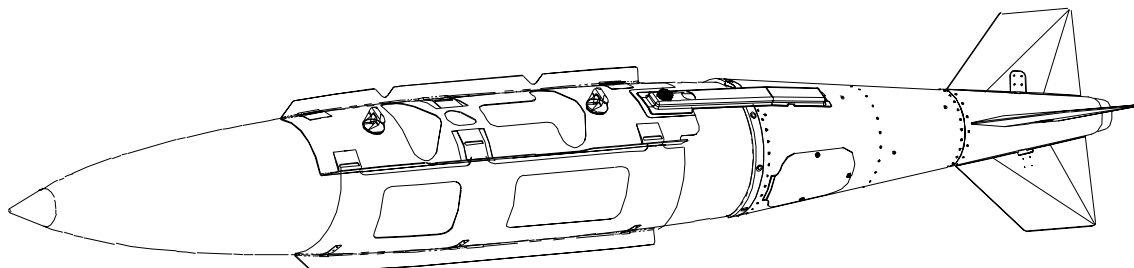
Contractor - Boeing

Status – Low Rate Production

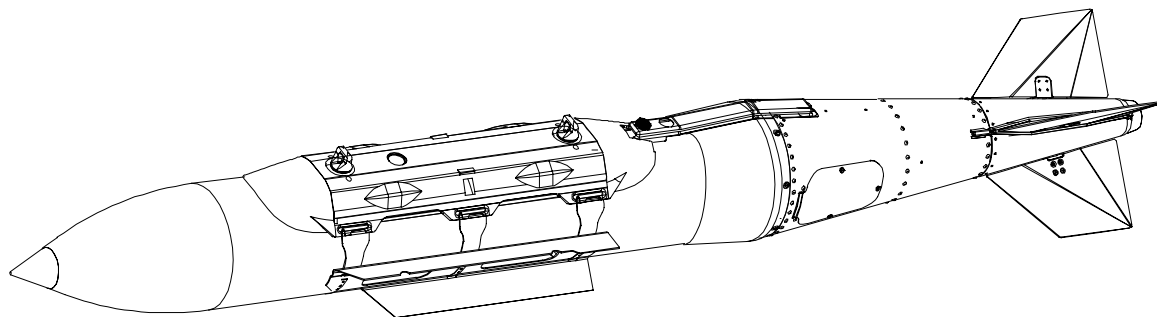
IOC Date – B-2 EOC 4QFY97, F/A-18 4QFY99, B-52/FY 99

OPR - AAC/YU

Reference - JMEM



JDAM MK 84
GBU-31(V)1/B (USAF)
GBU-31(V)2/B (USN)



JDAM BLU-109
GBU-31(V)3/B (USAF)
GBU-31(V)4/B (USN)

Nomenclature: GBU- 32 Name: JDAM (Joint Direct Attack Munition)

Description

The Joint Attack Munition (JDAM) GBU-32 is a tailkit under development to produce a weapon with high accuracy, all weather, autonomous, conventional bombing capability. JDAM will upgrade the existing inventory of general purpose and penetrator unitary bombs, and a product improvement may add a terminal seeker to improve accuracy.

Characteristics

GBU-32
CRD Weapons Code
None
Guidance - INS/GPS
Control - Tail Aerodynamic
Autopilot - Proportional Guidance
Class - 1000 lb Guided Munition
Weight (lbs.) – AF-1,014; Navy-1,029
Length (m) - 3.0
Diameter (mm) - 350
Warhead - MK-83 and BLU-110
Explosive - 416 lbs
Fuze - FMU-152/B (JPF) or FMU-139A/B

JDAM 1,000 LB NOMENCLATURE/ GBU 32/35

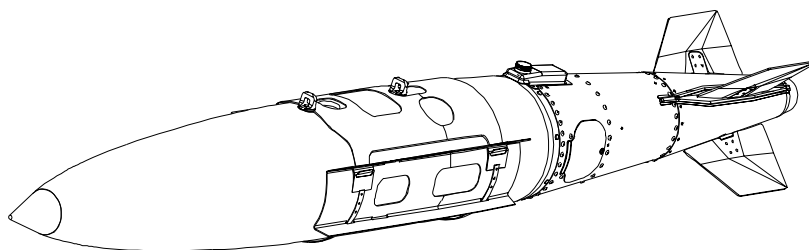
<u>MK83</u>	<u>BLU-110</u>
<u>USAF</u> (v) 1/B	N/A
<u>NAVY</u> (v) 2/B	(v)2/B

Carriage Options

Aircraft / Loadout / Launcher
F-22 / 2/ BRU-46
AV-8B / 4 / BRU-36

Status / Schedule / Improvements

Contractor - Boeing
Status - EMD
IOC Date – FA-18C/D – 3QFY01, F-22 – FY05
OPR - AAC/YU
Reference - JMEM



JDAM MK 83 GBU-32(V)1/B (USAF)
GBU-32(V)2/B (USN)
JDAM BLU-110 GBU-35(V)1/B (USN)

**Nomenclature: GBU- 38/B
Munition)**

Name: JDAM (Joint Direct Attack

Description

The Joint Attack Munition (JDAM) GBU-38 is a tailkit under development to produce a weapon with high accuracy, all weather, and autonomous, conventional bombing capability. JDAM will upgrade the existing inventory of general purpose and penetrator unitary bombs, and a product improvement may add a terminal seeker to improve accuracy.

Characteristics

GBU-38

CRD Weapons Code

None

Guidance - INS/GPS

Control - Tail Aerodynamic

Autopilot - Proportional Guidance

Class - 500 lb Guided Munitions

Weight (lbs.) – AF-552; Navy-558

Length (m) – 2.29m

Diameter (mm) – 273 mm

Warhead - MK-82 and BLU-111

Explosive - 192 lbs

Fuze - FMU-152/B (JPF) or FMU-139A/B

Carriage Options

Aircraft / Loadout / Launcher

F-18 /8/ BRU-55

B-2/80/SBRA

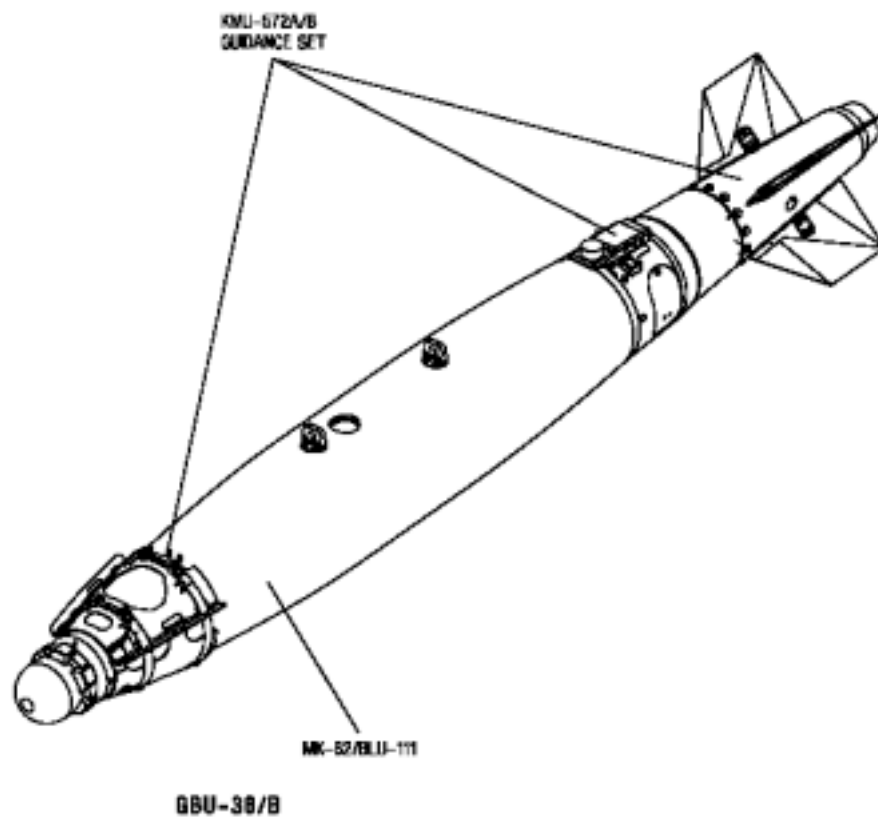
Status / Schedule / Improvements

Contractor - Boeing

Status - SDD

IOC Date – FA-18C/D – 3QFY04, B-2 – 4Q FY 04

OPR - AAC/YU



CHAPTER SIX

CLUSTER MUNITIONS (CBU)

Nomenclature: CBU-87/B

Combined Effects Munition

Description

The CBU-87 is an excellent weapon against armor, personnel, artillery, etc. The weapon dispenses 202 BLU-97 munitions in a rectangular pattern with density and sizes of the are covered depending on release parameters and spin rates.

Characteristics

CRD Weapons Code

C875A	CBU-87B/B DISP. AND BOMB	F-15E
C871A	CBU-87B/B DISPENSER AND BOMB	
C878A	CBU-87B/B DISPENSER AND BOMB	B-2
C876B	CBU-87B/B DISPENSOR AND BOMB	B-1
C875B	CBU-87M/B DISPENSER	F-15E
C876A	CBU-87M/B DISPENSER & BOMB	B-1
C871B	CBU-87M/B DISPENSER AND BOMB	
C878B	CBU-87M/B DISPENSOR	B-2
P871A	PREPO ISO CBU-87	
SZCAB	STAMP CBU-87B/B	
Z871A	CBU-87(T-1)/B	
SZCCA	CBU-97 SFW	
C971A	CBU-97/B (SFW)	
C976A	CBU-97/B (SFW)	B-1
C978A	CBU-97/B (SFW)	B-2
C975A	CBU-97/B (SFW)	F-15E

Control - Spin (6 Selections)

Autopilot - None

Class - Anti-Personnel/Anti-Material

Weight (full)	949.36 lbs	+/- 5%
cg (x)	6.92 in.	+/- 0.50 in.
cg (y)	0.01 in.	+/- 0.50 in.
cg (z)	0.01 in.	+/- 0.50 in.
Length	92.00 in.	
Diameter	15.60 in.	
Inertia (roll)	5.74	+/- 10%
Inertia (pitch)	97.97	+/- 10%
Inertia (yaw)	98.12	+/- 10%

Drawings 809410, DL809410, 8661753, DL 8661753

Interface Control Drawings 777044, 777111, 777108, 777109

Tech Data 11A9-29-7

Employment Limits PIDS SP809410, para 3.2.2

Warhead - 202ea CEB - BLU-97/B AP/AM Shaped Charge/Frag/Incendiary Bomblets

Fuze - Integral Part of Dispenser (12 Time Selections)

FZU-39/B Proximity Sensor (10 Height of Burst Selections)

Employment Options

Aircraft:

A-10A F-111D-F

B-52H F-15E

F-4G F-117A

F-16A-D B-2

Limitations - A/C Launch Environment

Rack/Pylon: 14 in. Lug Spacing

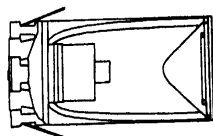
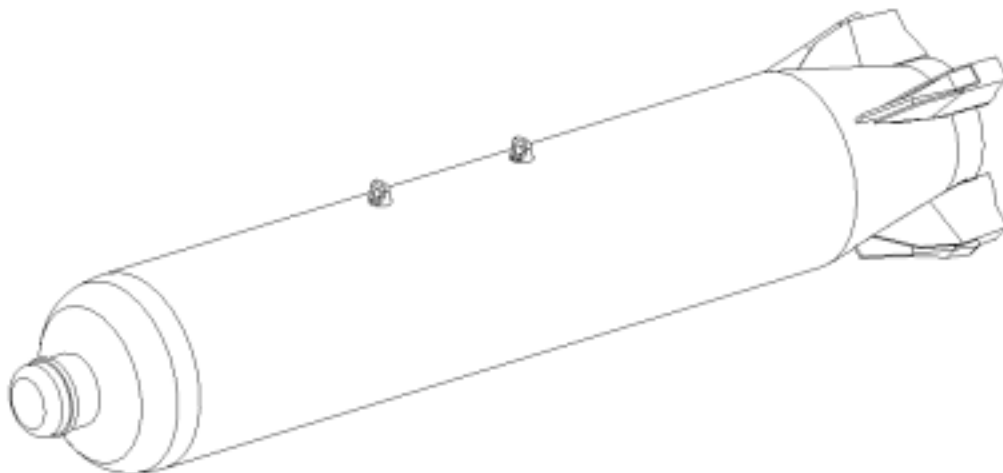
Status / Schedule / Improvements

Contractor - Aero General/Honeywell, Inc./Alliant Tech.

Status - Inventory

OPR - OO-ALC/WM

Tech Data - 11A9-29-7



BLU-97/B Bomblet

Nomenclature: CBU-89/B

Name: Gator

Description

The CBU-89/B has 94 total mines. Seventy-two (72) mines are anti-tank and the remaining 22 are anti-personnel mines. The weapons are dispensed in a rectangular pattern, and the the anti-tank mines can be fuzed for delayed self destruct for up to 72 hours.

Characteristics

CRD Weapons Code

C898A CBU89 B2

Z891A	CBU-89(T-1)/B
C896A	CBU-89A/B GATOR HIGH ALT B-1
C897A	CBU-89A/B GATOR HIGH ALT. F-117
C895B	CBU-89A/B HIGH ALT. F-15E
SZCBA	STAMP CBU-89/B
C891B	CBU 89A/B GATOR HIGH ALTITUDE
C891B	CBU 89A/B GATOR HIGH ALTITUDE
C898A	CBU89 B2
Z891A	CBU-89(T-1)/B
C896A	CBU-89A/B GATOR HIGH ALT B-1
C897A	CBU-89A/B GATOR HIGH ALT. F-117
C895B	CBU-89A/B HIGH ALT. F-15E
SZCBA	STAMP CBU-89/B

Class - Antitank / Antipersonnel

Weight (full)	705.29 lbs	+/- 5%
cg (x)	7.84 in.	+/- 0.50 in.
cg (y)	0.04 in.	+/- 0.50 in.
cg (z)	0.26 in.	+/- 0.50 in.
Length	91.75 in.	
Diameter	15.60 in.	
Inertia (roll)	unk	+/- 10%
Inertia (pitch)	83.29	+/- 10%
Inertia (yaw)	83.29	+/- 10%

Drawings 777340

Interface Control Drawings 777109

Tech Data 11A9-30-7

Employment Limits PIDS SP777340, para 3.2.1

Environmental Limits PIDS SP777340, para 3.2.4

Warhead - 72ea BLU-91/B Anti-Tank Bomblets (4.31 lbs. ea)

- 22ea BLU-92/B Anti-Personnel Bomblets (3.75 lbs. ea)

Dispenser - SUU-64/B

Fuze - Integral Part of Dispenser

- FZU-39/B Proximity Sensor

Employment Options

Aircraft:
B-52H A-10A
F-4G F-117A
F-16A-D B-2
F-111D-F F-15E

Limitations: Delivery Envelope
200-40,000 ft. Alt.
200-700 KIAS

Rack/Pylon: 14in Lug Spacing

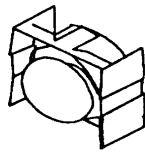
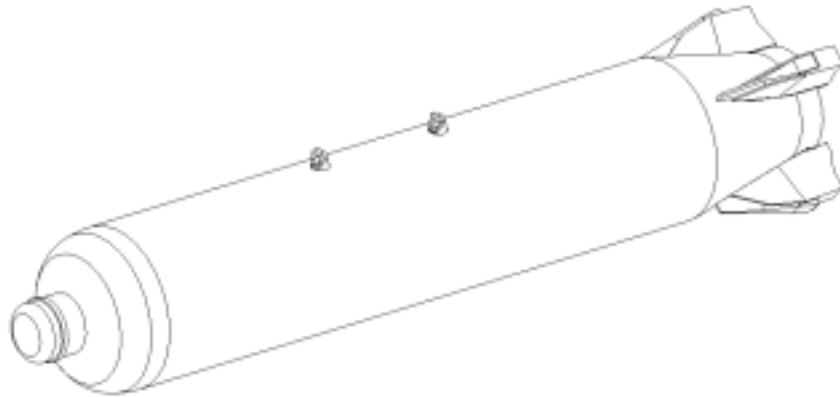
Status/Schedule/Improvements

Contractor - Honeywell/Aerojet/Olin/Alliant

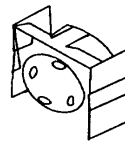
Status - Inventory

OPR - OO-ALC/WM

Tech Data - 11A9-30-7



BLU-91/B



BLU-92/B

Nomenclature: CBU-97/B**Name: Sensor Fuzed Weapon (SFW)****Description**

The CBU-97 is an anti-armor weapon. This cluster weapon is propped over an area with armor. The fuze sensors detect heat and will fire down at the engine of the armored vehicle.

Weapon Characteristics**CRD Weapons Code**

SZCCA	CBU-97 SFW	
C971A	CBU-97/B (SFW)	
C976A	CBU-97/B (SFW)	B-1
C978A	CBU-97/B (SFW)	B-2
C975A	CBU-97/B (SFW)	F-15E

Weight (full)	919.84 lbs	+/- 5%
cg (x)	7.8	+/- 0.5. in.
cg (y)	unk	+/- 0.5. in.
cg (z)	0.20	+/- 0.5. in.
Length	92.00 in.	
Diameter	15.60 in.	
Inertia (roll)	6.00	+/- 10%
Inertia (pitch)	97.60	+/- 10%
Inertia (yaw)	97.69	+/- 10%
Drawings	8562831	
Interface Control Drawings	777944, 777111, 8563586, 8562844	
Employment Limits	PIDS SP8562831, para 3.2.1	
Environmental Limits	PIDS SP8562831, para 3.2.6	
Supportability	PIDS SP8562831, para 3.5 (Logistics)	
Dispenser - SUU-66/B		
Submunition - 10ea BLU-108/B w/ 4 Warheads Each		
Weight - BLU - 63 lbs	Projectile - 8 lbs	
Length - BLU - 31 in	Projectile - 3.75 in	
Diameter - BLU - 5.25 in	Projectile - 5.25 in	
Fuze - Integral Part of Dispenser - FZU-39/B Proximity Sensor		

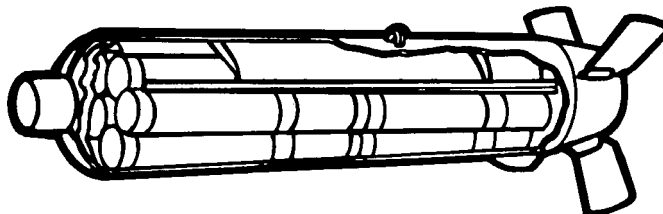
Employment Options

Aircraft:	Limitations: Delivery Envelope
F-16A-D; F-15E;	3,000 - 30,000 ft. Alt. w/WCMD
A-10; B-1;	250-650 Knots
B-2; B-52	Targets - Tanks, Armored and Support Vehicles
	Engagement Systems - Bombing Computer
	Rack/Pylon: 14 in. Lug Spacing

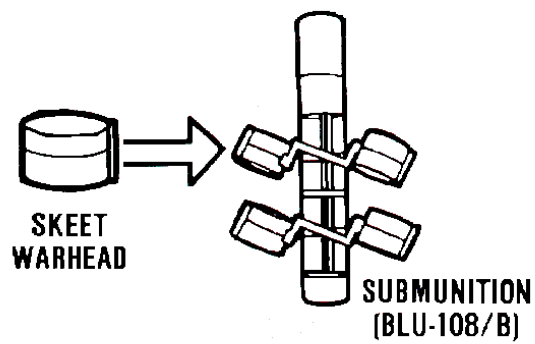
Status/Schedule/Improvements

Contractor - Textron Defense Systems, Wilmington, MA
Status - Production

OPR -ASC/YH, Eglin AFB, FL
Tech Data - 11A9-31-7



SUU-66/B Dispenser



Nomeclature: CBU-103 to 105**Name: WCMD (Wind Corrected Munitions Dispenser)****Description**

The Wind Corrected Munitions Dispenser's (WCMD) high speed laydown deliveries are consistent with tactics used against heavily defended target sets. The tail kit inertially steers the munition from a known release point to precise target coordinates while compensating for launch transients, winds aloft, surface winds and adverse weather.

Nomenclature: CBU-103 to 105

Dispenser	Lockheed Martin
CBU-87A/B	CBU-103A/B
CBU-87B/B	CBU-103B/B
CBU-89A/B	CBU-104A/B
CBU-97/B	CBU-105/B
CBU-97A/B	CBU-105B/B
	CBU-105B/B
	CBU-105C/B

Characteristics**CRD Weapons Code**

C031A	CBU-103 WCMD	
C036A	CBU-103 WCMD	B-1
C038A	CBU-103 WCMD	B-2
C035A	CBU-103 WCMD	F-15E
C041A	CBU-104 WCMD	
C046A	CBU-104 WCMD	B-1
C048A	CBU-104 WCMD	B-2
C047A	CBU-104 WCMD	F-117
C045A	CBU-104 WCMD	F-15E
C051A	CBU-105 WCMD	
C056A	CBU-105 WCMD	B-1
C058A	CBU-105 WCMD	B-2
C055A	CBU-105 WCMD	F-15E
P103A	PREPO ISO CBU-103	
SZCDA	STAMP CBU-103 CEM WCMD	
SZCFA	STAMP CBU-105 SFW WCMD	
C031A	CBU-103 WCMD	
C036A	CBU-103 WCMD	B-1
C038A	CBU-103 WCMD	B-2
C035A	CBU-103 WCMD	F-15E
C041A	CBU-104 WCMD	
C046A	CBU-104 WCMD	B-1
C048A	CBU-104 WCMD	B-2

C047A	CBU-104 WCMD	F-117
C045A	CBU-104 WCMD	F-15E
C051A	CBU-105 WCMD	
C056A	CBU-105 WCMD	B-1
C058A	CBU-105 WCMD	B-2
C055A	CBU-105 WCMD	F-15E
P103A	PREPO ISO CBU-103	
SZCDA	STAMP CBU-103 CEM WCMD	
SZCFA	STAMP CBU-105 SFW WCMD	

Guidance - INS

Class - Tactical Munitions Dispenser (TMD) Guidance Kit modification for CBU-87/89/97

Weight (full)	934.00 lbs	+/- 5%
cg (x)	6.35 in.	+/- 0.5 in.
cg (y)	0.01 in.	+/- 0.5 in.
cg (z)	0.00 in.	+/- 0.5 in.
Length	92.00 in.	
Diameter	15.60 in.	
Inertia (roll)	unk	+/- 10%
Inertia (pitch)	88.59	+/- 10%
Inertia (yaw)	88.92	+/- 10%

Dispenser - SUU-64/B, SUU-65/B, SUU-66/B TMDs

Explosive - BLU-91/B, BLU-92/B, BLU-97/B, BLU-108/B,

Fuze - Integral Part of Dispenser / FZU-39/B Proximity Sensor

Propulsion – None

Employment Options

Aircraft: Rack/Pylon: 14in. Lug Spacing

B-1B, B-52, F-15, F-16

Status / Schedule / Improvements

Contractor - Lockheed Martin

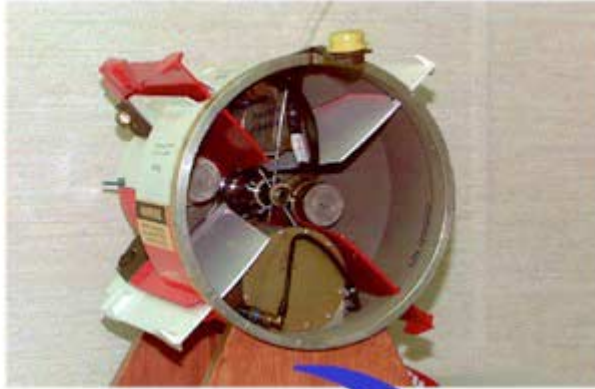
Status - EMD

IOC Date - 1999

OPR - AAC/YH

Reference - JMEM

WCMD - Tail Kit



CHAPTER SEVEN

**NUCLEAR
WEAPONS**

Nomenclature: Nuclear Bomb B61

Characteristics:

B-61 Mod -3, -4, -10

CG(x)	60.5 +/- 0.75 in (14.96 in. aft of front lug)
Weight(full)	751.00 lbs +/- 15.0 lbs
MI Pitch	795K +/- 25K lb-in ²
MI YAW	795 +/- 25K lb-in ²
MI Roll	17.2K +/- 500 lb-in ²
Length	141.64 in.
Diameter	13.30 in.

B-61 Mod 7

CG(x)	60.5 +/- 0.75 in (14.96 in. aft of front lug)
Weight(full)	763.00 lbs +/- 15.0 lbs
MI Pitch	819K +/- 25K lb-in ²
MI YAW	8129 +/- 25K lb-in ²
MI Roll	15K +/- 200 lb-in ²
Length	141.64 in.
Diameter	13.30 in.

B-61 Mod 11

CG(x)	57.81 +/- 0.75 in (14.96 in. aft of front lug)
Weight(full)	1,24500 lbs +/- 15.0 lbs
MI Pitch	1,690K +/- 25K lb-in ²
MI YAW	1,690 +/- 25K lb-in ²
MI Roll	27,270 +/- 200 lb-in ²
Length	145.01in.
Diameter	13.30 in.

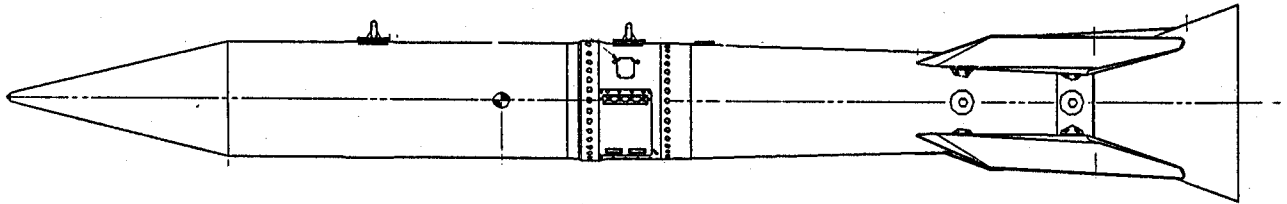
Aircraft:

B-2A, B-52H, F-15E, F-15E, F-16A/B/C/D, PA-200
(MOD 11: B-2A)

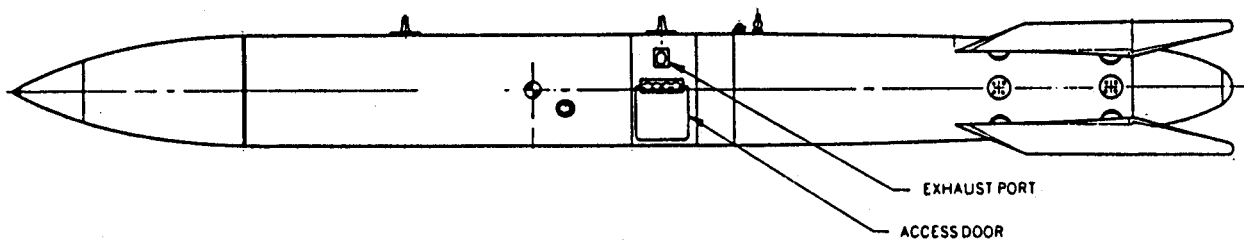
Management/Engineering: AAC/NWL

Technical Order: 11N-B61-1

Status: Inventory



B61-11



B61-3,4,7,10

Nomenclature: Nuclear Bomb B83 Mod -0 and -1

Characteristics:

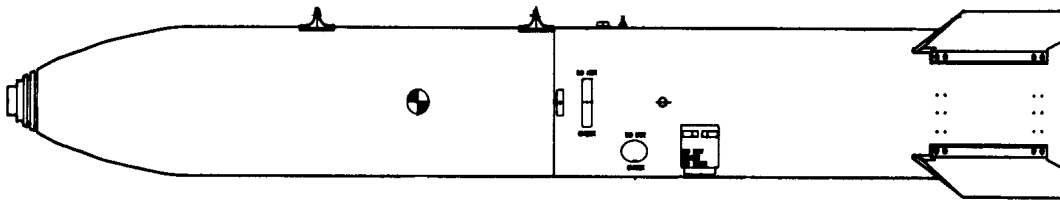
Weight: 2,461 lbs
Length: 144.21 in (3.66 m)
Diameter: 18 in (460 mm)

Aircraft: B-2A, B-52H

Management/Engineering: AAC/NWL

Technical Order: 11N-B83-1

Status: Inventory



Nomenclature: Nuclear Warhead W62

Characteristics: Classified

Reentry System: MK12, Minuteman III

Management/Engineering: AAC/NWL

Technical Order: 11N-W62-1

Status: Inventory



Nomenclature: Nuclear Warhead W78

Characteristics: Classified

Reentry System: MK12A, Peacekeeper

Management/Engineering: AAC/NWL

Technical Order: 11N-W78-1



Nomenclature: Nuclear Warhead W80-1

Characteristics:

Weight: 300lbs

Length: 31.4 in.

Diameter: 14.5in.

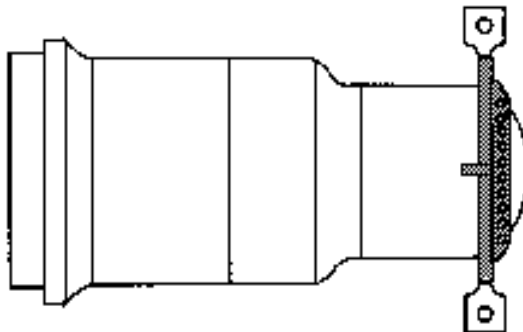
Carriage Options:

AGM-86B (ALCM)

AGM-129A (ACM)

Management/Engineering: AAC/NWL

Technical Order: 11N-W80-1



Nomenclature: Nuclear Warhead W87

Characteristics: Classified

Reentry System: MK21, Peacekeeper

Management/Engineering: AAC/NWL

Technical Order: 11N-W87-1



CHAPTER EIGHT

AIRCRAFT GUN

SYSTEMS

(GBU)

Nomenclature: M61A1

Name: 20mm Automatic Gun

Description

The M61A1 Vulcan gun is an air cooled, externally powered, six-barrel weapon. The power used to drive the weapon can be either hydraulic or electric. It is designed to provide peak saturation firepower for various airframe weapon systems used for attack on aircraft, APCs, and surface craft.

Weapon Characteristics

Gun Type - Six-barrel Gatling

Weight (lbs.) - 255

Length (in.) – 72

System Weight(lbs) - 935

Rate of Fire (shots/min) - 2,500 - 6,000

Ammo Type - Cartridge, API, M53

Cartridge, HEI, M56

Cartridge, SAPHEI, PGU-28

Cartridge, HEIT, M242

Cartridge, TP, M55 & PGU-27

Cartridge, TPT, M220 & PGU-30

Dispersion (80% dia) - 5 mils

Aircraft - F-15A-E, F-16A-D

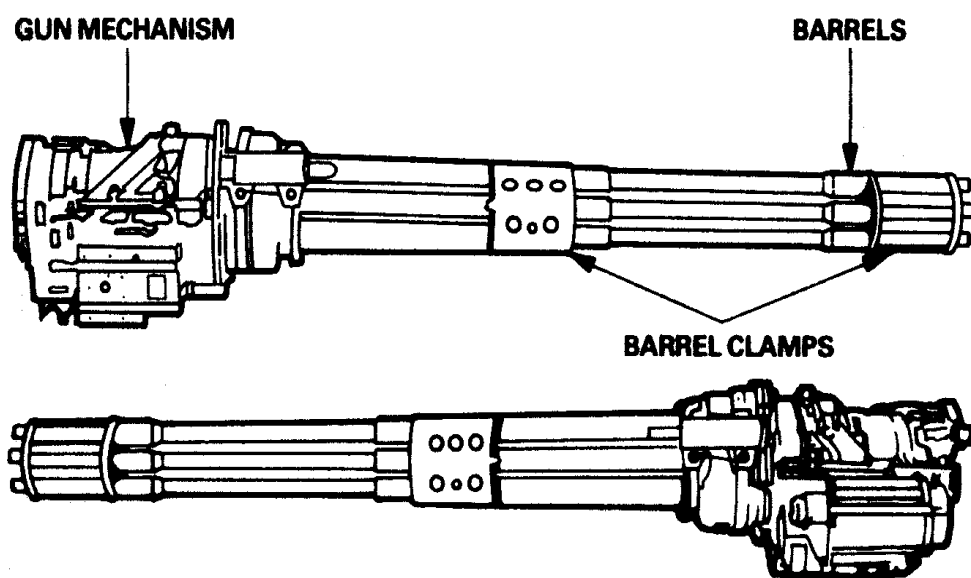
Status/Schedule/Cost/Improvements

Contractor - General Dynamics Armament & Technical Products

Status - Inventory

OPR - WR-ALC/LKJ (Gun); OO-ALC/WM (Ammo)

Tech Data - 11A13-4-7 (Ammo); 11W1-12-4-32 (Gun)



Nomenclature: M61A2

**Name: 20mm Automatic Gun
(Lightweight)**

Weapon Characteristics

Gun Type - Six-barrel Gatling

Weight (lbs.) - 200

Length (in.) - 71.93

System Weight (lbs.) - 860

Rate of Fire - 4,000 or 6,000 rds/min selectable; also 7,200 rds/min. depending on aircraft

Muzzle Velocity - 1030 m/s

Ammo Type - Cartridge, SAPHEI, PGU-28/B

Cartridge, TP, M50 Series & PGU-27

Cartridge, TPT, M220 & PGU-30

Dispersion (80% dia) - 5 mils

Aircraft - F-18 (Navy), F-22

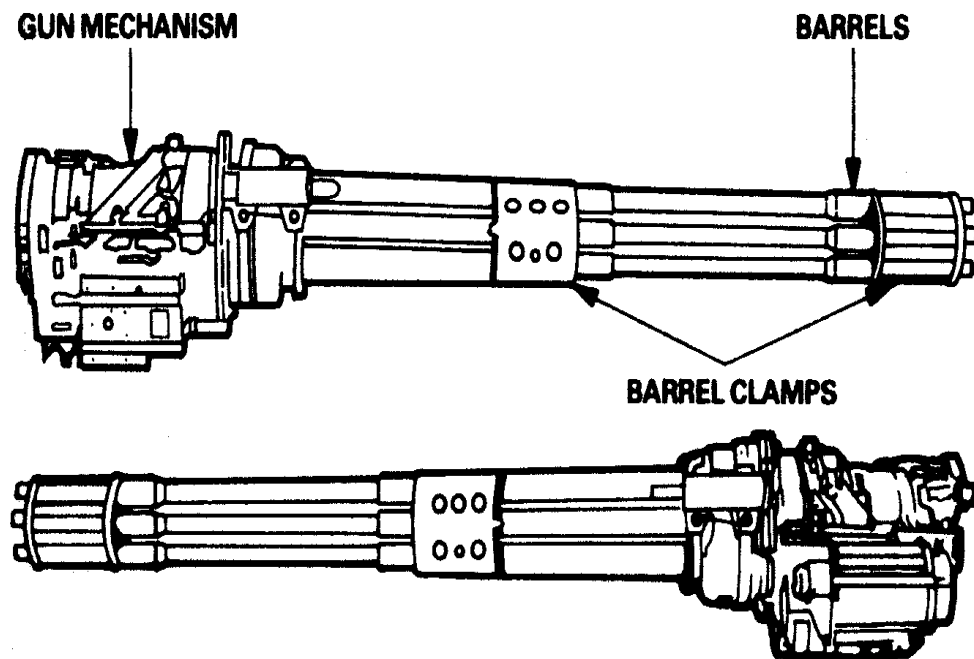
Status/Schedule/Cost/Improvements

Contractor - General Dynamics Armament & Technical Products

Status - Inventory

OPR - WR-ALC/LKJ (Gun); OO-ALC/WM (Ammo)

Tech Data - 11A13-4-7 (Ammo); 11W1-12-4-32 (Gun)



Nomenclature: GAU-8A

Name: 30mm Automatic Gun

Description

The GAU-8/A gun system consists of a 7 barrel hydraulically powered gun and ammunition storage system, mounted in an A/OA-10 aircraft. Total storage capacity is 1,350 rounds. The entire system is approximately 20 feet long and weighs about 3,900 pounds.

Weapon Characteristics

Gun Type - Seven-barrel Gatling

Weight (lbs.) - 661

Length (in.) - 112.83

Diameter (in.) - 12

Barrel Length (in.) - 93.1

System Weight (lbs.) With TP Ammunition - 3,867; Empty - 1,861

Drum Weight (lbs.) - 780

Drum Size (in.)

Diameter - 37.75

Length - 71.10

Ammunition Capacity, Rounds

Drum (Appox.) - 1,200

Total System (Appox.) - 1,350

Rate of Fire (shots/min)

Nominal – 3,850 (+100, -300)

Drive System - Hydraulic

Maximum Recoil Travel (in.) - 0.633

Feed System Type - Linkless, Double-Ended

Ammo Type -Cartridge, HEI, PGU-13/B

Cartridge, API,PGU-14/B

Cartridge, TP, PGU-15/B

Aircraft - A-10A

Status/Schedule/Cost/Improvements

Contractor - General Dynamics

Status - Inventory

OPR - WR-ALC/LKJ (Gun); OO-ALC/WM (Ammo)

Tech Data - 11A13-14-7 (Ammo); 11W1-12-10-2 (Gun)



Nomenclature: GAU-12/U

Name: 25mm Automatic Gun

Description

The GAU-12/U is part of the AV-8B aircraft gun system. It is an externally powered five barrel, automatic gun which fires at a rate of 3,600 rounds per minute, with 45 shots fired in the first second. A modification of this gun has been developed for the AC-130U gunship. The gun was recently chosen for the Joint Strike Fighter (F-35).

Weapon Characteristics

Gun Type - Five-barrel Gatling

Weight (lbs.) - 330

Length (in.) - 86

Diameter (in) - 11

Rate of Fire (shots/min) - 3,600 (4200 Max)

Ammo Type - Cartridge, HEI, PGU-25/U

Cartridge, HEI, PGU-38/U

Cartridge, TP, PGU-23/U

Dispersion (80% dia) - 3.6 mils

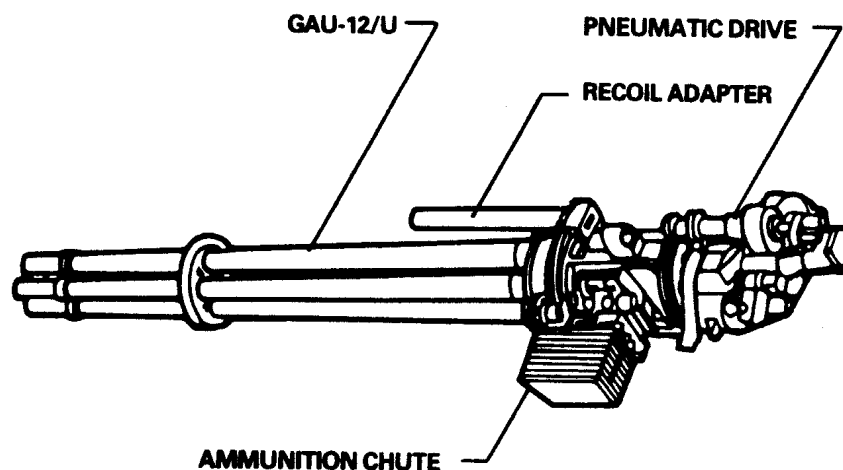
Aircraft – AC-130U
F-35

Status/Schedule/Cost/Improvements

Contractor - General Dynamics Armament & Technical Programs
OO-ALC/WM (Ammo)

Notes - Feed System Unique to AC-130U & F-35

Tech Data - 11A13-16-7 (Ammo); 11W1-12-12-2 (Gun)



Nomenclature: M2A1

Name: 40mm Automatic Gun

Description

The 40mm M2A1 is a clip fed, recoil operated, air cooled, single barrel cannon designed as an anti-aircraft gun, but modified by the USAF for air to surface use on AC-130 aircraft. It can fire in either rapid or single fire mode. Each clip holds 4 rounds that are hand fed to the gun.

Weapon Characteristics

Gun Type - Single Barrel

Weight (lbs.) - 1,000

Length (ft.) - 12

Rate of Fire (shots/min) - 120, crew served

Ammo Type - Cartridge, HEI (Zirconium), PGU-9A/B, PGU-9B/B, PGU-9C/B, PGU-37/B

Cartridge, HEIP (Misch Metal), MK-2 & PGU-9B

Cartridge, HEIP/HEP, MK-2

Cartridge, HEIT-NSD, MK-2 & MK-11

Cartridge, AP/APT, M81A1

Cartridge, TPT, M-91

Dispersion (80% dia) - 0.6 mils

Aircraft - AC-130H (1 ea.); AC-130U (1 ea.)

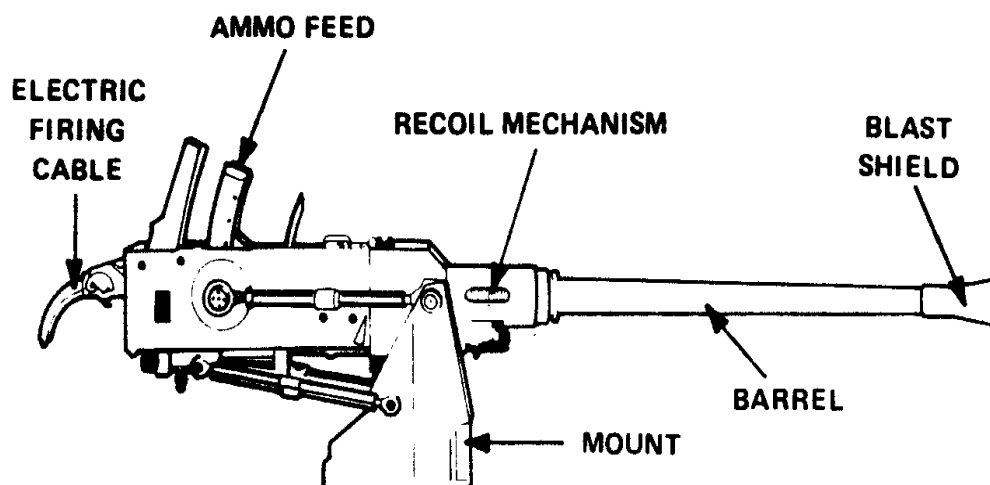
Status/Schedule/Cost/Improvements

Contractor - None

Status - Inventory

OPR - WR-ALC/LKJ (Gun); OO-ALC/WM (Ammo)

Tech Data - 11A13-11-7 (Ammo); 11W2-5-2-62 (Gun)



Nomenclature: M-137

Name: 105mm Howitzer

Description

The M-137 is a 105mm aerial cannon which is a modified 105mm howitzer used with the 105mm trainable gun mount system in the left side of the AC-130 gunship.

Weapon Characteristics

Gun Type - Single Barrel

System Weight (lbs.) - 1,000

Length(ft) - 14

Rate of Fire (shots/min) - 3-5, crew served

Maximum Recoil Stroke (in.) - 49

Ammo Type – HE, and Clearing Round

Ammo Dispersion (80% dia) - 0.3 mils

Aircraft - AC-130H (1 ea.); AC-130U (1 ea.)

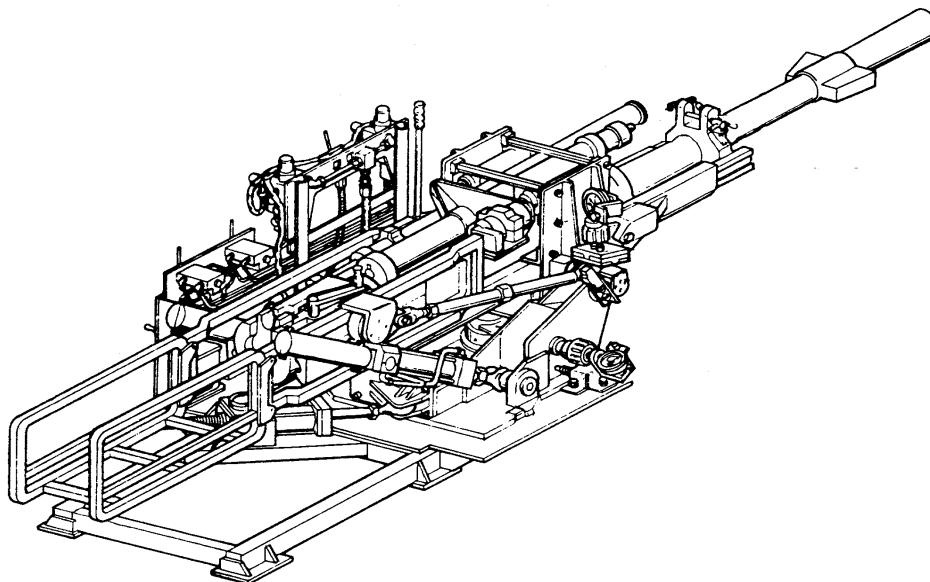
Status/Schedule/Cost/Improvements

Contractor - N/A

Status - Inventory

OPR - WR-ALC/LKJ (Gun); OO-ALC/WM (Ammo)

Tech Data - 11A13-13-7 (Ammo); 11W1-33-7-2 (Gun)



Nomenclature: GAU-2B/A

Name: 7.62MM Automatic Gun

Weapons Characteristics

Gun Type – Six -barrel Gatling

Weight (lbs) – 35

Length (in) – 31.5

Rate of Fire – 2,000 – 6,000 rds/min

Ammo Type – Cartridge, 7.62MM (Ball/Tracer)

Aircraft – MH-53, MH-60, HH-60

Status/Schedule/Improvements

Contractor – General Dynamics Armament & Technical Products

Status – Inventory

OPR – WR-ALC/LKJ (Gun); OO-ALC/WM (Ammo)

Tech Data – 11W-1-13-5-2 (Gun)/ 11A13-10-7 (Ammo)

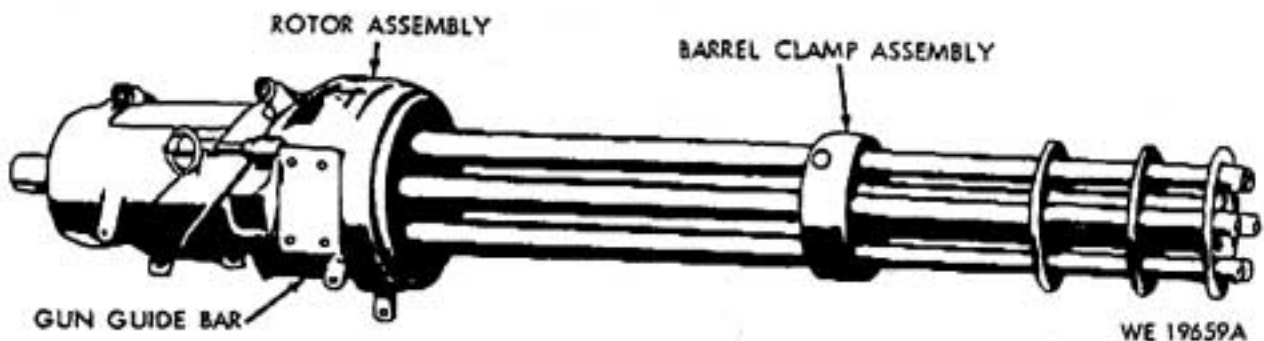


Figure 1-1. 7.62MM Automatic Gun GAU-2B/A

Nomenclature: GAU-18/A

Name: .50 Caliber Machine Gun

Weapons Characteristics

Gun Type – Single Barrel air –cooled belt fed

Weight (lbs) – 65

Length (in) – 56.25

Rate of Fire – 750 – 850 Shots Per Minute (SPM)

Ammo Type – Cartridge, .50 caliber (Ball/AP/API/APIT)

Aircraft – MH-60G, MH-53

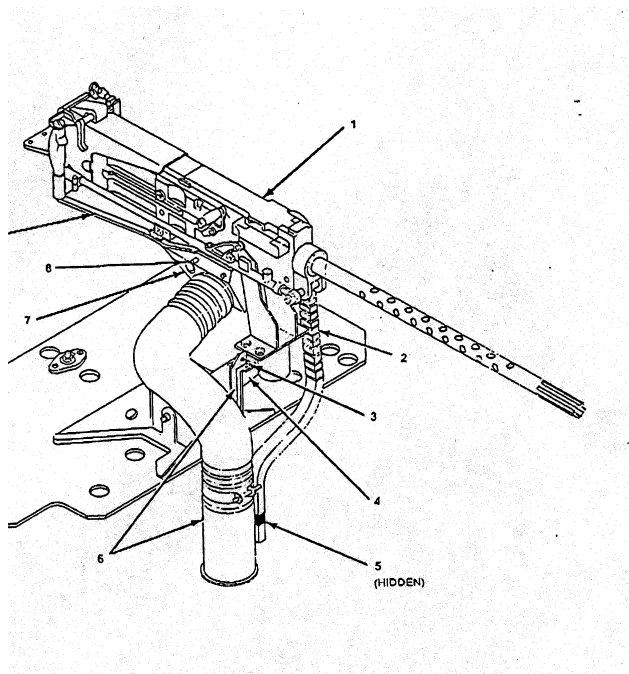
Status/Schedule/Improvements

Contractor – CAAA

Status – Inventory

OPR – WR-ALC/LKJ (Gun); OO-ALC/WM (Ammo)

Tech Data – 11W-1-33-6-2 (Gun)



CHAPTER NINE

**IMPULSE CARTS
BOMB RACKS**

&

LAUNCHERS

Nomenclature: ARD 446-1A1W IMPULSE CARTRIDGE

Description:

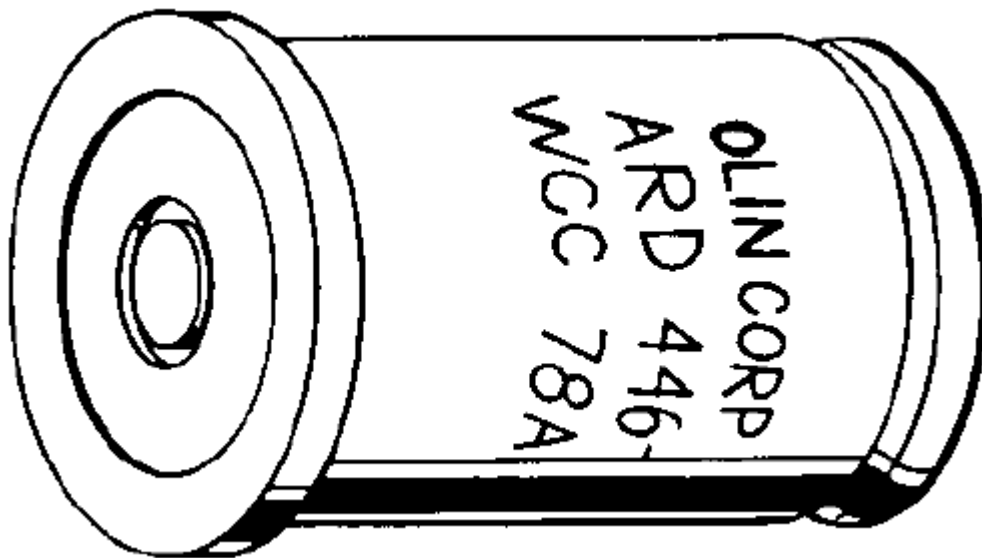
The general function of this cartridge is to use gas pressure to eject stores from aircraft weapons pylons, racks, launchers, etc. It is electrically fired from aircraft power and has a defined shelf and service life.

Dimensions: Length (in): 1.812
 Diameter (in): 1.075
 Weight (lb): 0.075

Aircraft: Various

Management/Engineering: OO-ALC/WMBA

Technical Order: 11A18-7-7



Nomenclature: ARD 863-1A1W IMPULSE CARTRIDGE

Description:

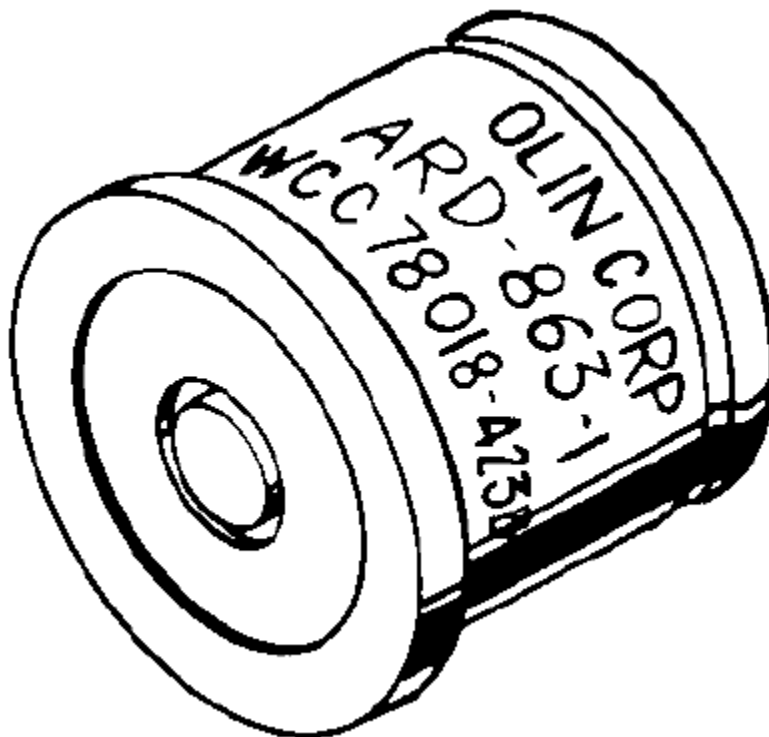
The general function of this cartridge is to use gas pressure to eject stores from aircraft weapons pylons, racks, launchers, etc. It is electrically fired from aircraft power and has a defined shelf and service life.

Dimensions: Length (in): 1.030
 Diameter (in): 1.075
 Weight (lb): 0.053

Aircraft: Various

Management/Engineering: OO-ALC/WMBA

Technical Order: 11A18-7-7



Nomenclature: BBU-35/B IMPULSE CARTRIDGE

Description:

The general function of this cartridge is to use gas pressure to push the chaff cartridge piston and payload out of chaff cartridge. This will disperse several thousand various frequency reflective dipole elements into the aircraft slipstream. It is electrically fired from aircraft power and has a defined shelf and service life.

Dimensions: Length (in): 0.50
 Diameter (in): 0.625 (flange) 0.49 (body)
 Weight (lb): 0.0103

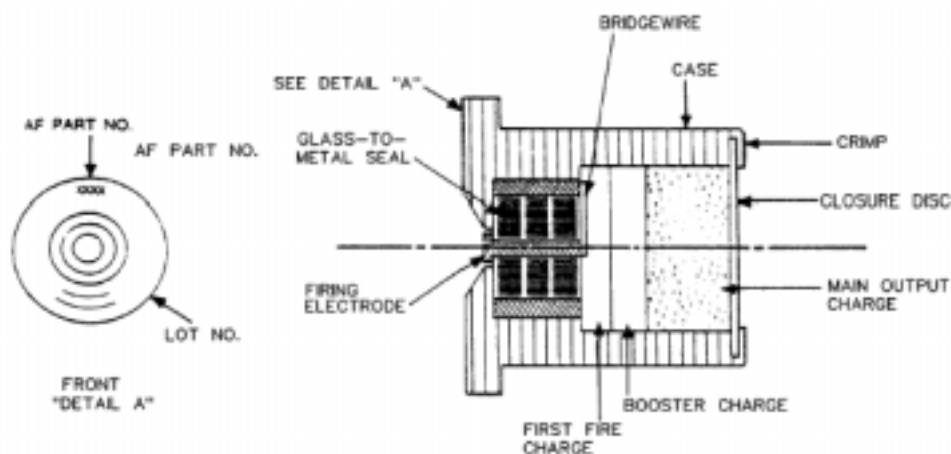
Aircraft: Various

Dispenser: All ALE-40 Series

Countermeasure: RR-170 and RR-180 Chaff, MJU-48/B
IR Flares

Management/Engineering: OO-ALC/W MBA

Technical Order: 11A16-39-7 and 11A16-40-7



Nomenclature: BBU-36/B IMPULSE CARTRIDGE

Description:

The general function of this cartridge is to use gas pressure to push the flare ejection piston and payload out of flare case. This will disperse incendiary pellets into the aircraft slipstream. It is electrically fired from aircraft power and has a defined shelf and service life.

Dimensions: Length (in): 0.55
 Diameter (in): 0.805 (flange) 0.740 (body)
 Weight (lb): 0.0209

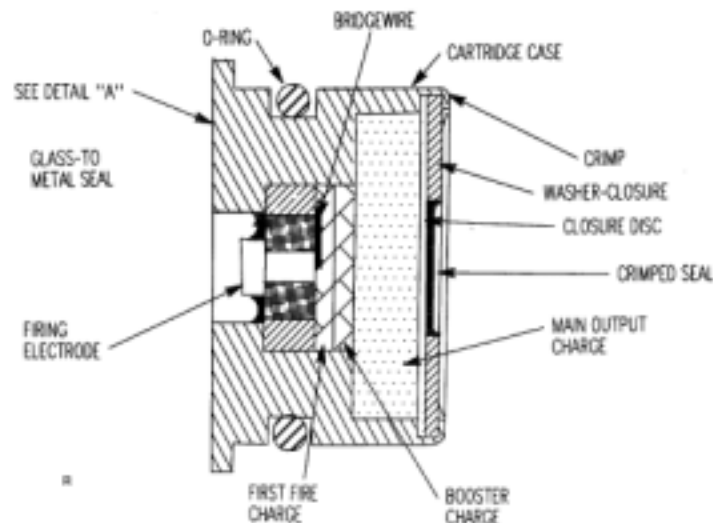
Aircraft: Various

Dispenser: ALE-40 Series

Countermeasure: MJU-7, MJU-10/B, MJU-40/B, and MJU-47/B IR Flares

Management/Engineering: OO-ALC/WMBA

Technical Order: 11A16-40-7 and 11A16-43-7



Nomenclature: BBU-46/B & A/B IMPULSE CARTRIDGE

Description:

The general function of cartridge BBU-46/B is to use gas pressure to push the flare's piston and the flare pellet out of the ejector tube into the aircraft's slipstream for ignition of the flare pellet. The BBU-46A/B impulse cartridge functions in a similar manner. The main difference is it provides hot gas for ignition of the flare pellet after ejection from the ejector tube. It is electrically fired from aircraft power and has a defined shelf and service life.

Dimensions: Height (in): 0.47 (BBU-46/B) 0.52 in (BBU-46A/B)
 Diameter (in): 1.80
 Weight (lb): 0.075

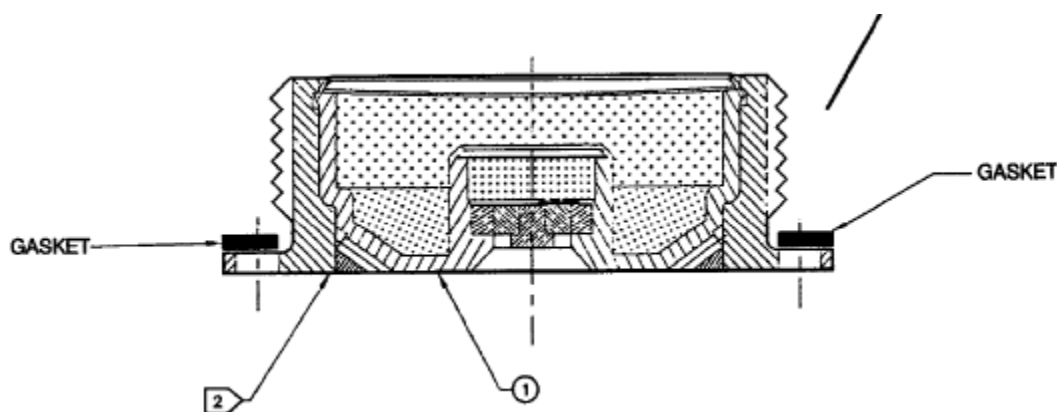
Aircraft: B-1B Only

Dispenser: All ALE-49 Series

Countermeasure: MJU-23/B and MJU-23A/B IR Flares (B-1B Only)

Management/Engineering: OO-ALC/WMBA

Technical Order: 11A16-46-7



Nomenclature: BBU-48/B IMPULSE CARTRIDGE

Description:

The general function of this cartridge is to use gas pressure to push the chaff cartridge piston and payload out of the chaff cartridge. This will disperse chaff dipole elements into the aircraft slipstream. It is electrically fired from aircraft power and has a defined shelf and service life.

Dimensions: Length (in): 0.65
 Diameter (in): 0.975
 Weight (lb): 0.0159

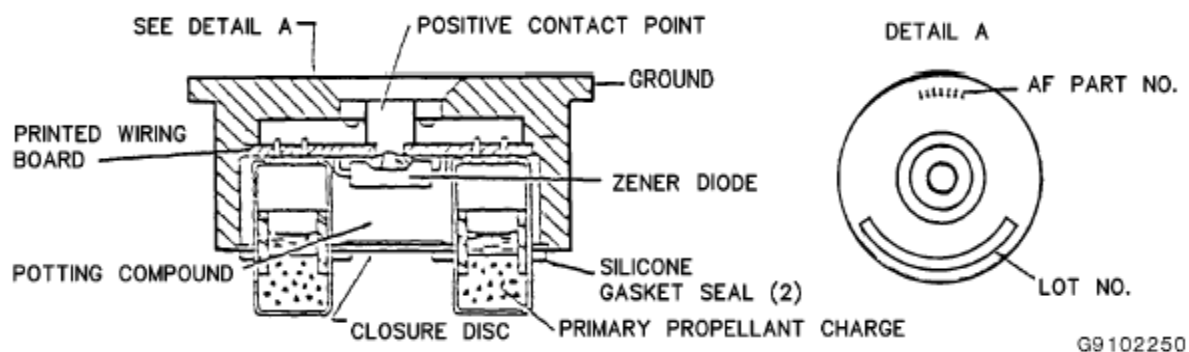
Aircraft: Various

Dispenser: All ALE-40 Series

Countermeasure: RR-180/AL Chaff

Management/Engineering: OO-ALC/W MBA

Technical Order: 11A16-45-7



Nomenclature: M796 IMPULSE CARTRIDGE

Description:

The general function of this cartridge is to use gas pressure to push the flare ejection and payload out of flare case. This will disperse flare into the aircraft slipstream. It is electrically fired from aircraft power and has a defined shelf and service life.

Dimensions: Length (in): 0.50
 Diameter (in): 0.625 (flange) 0.49 (body)
 Weight (lb): 0.0110

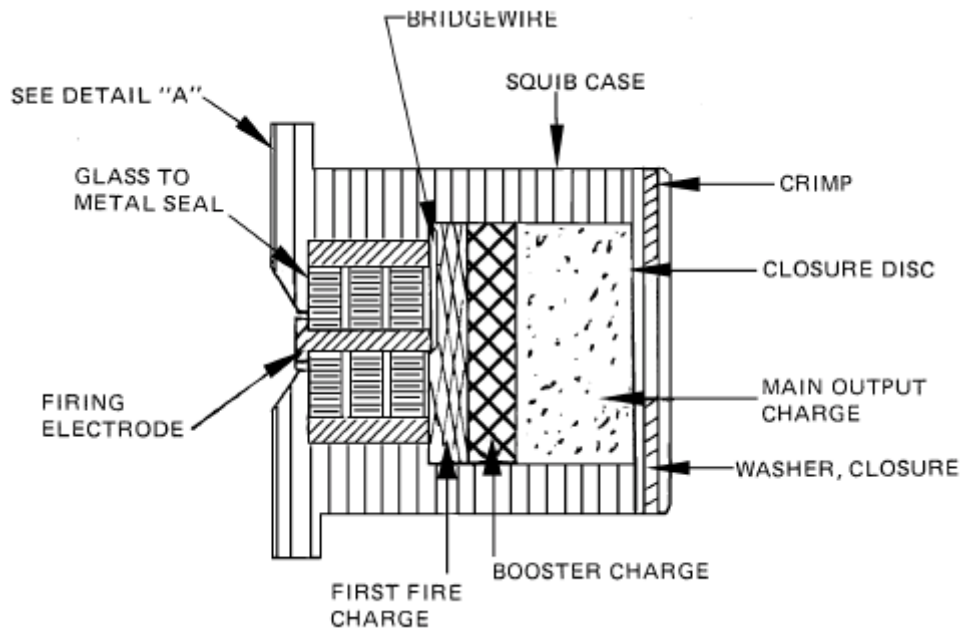
Aircraft: Various

Dispenser: All ALE-40 Series

Countermeasure: M206 IR Flare

Management/Engineering: OO-ALC/WMB

Technical Order: 11A16-41-7



Nomenclature: Advanced Application Rotary Launcher
(A.K.A. Rotary Launcher Assembly (RLA))

Description:

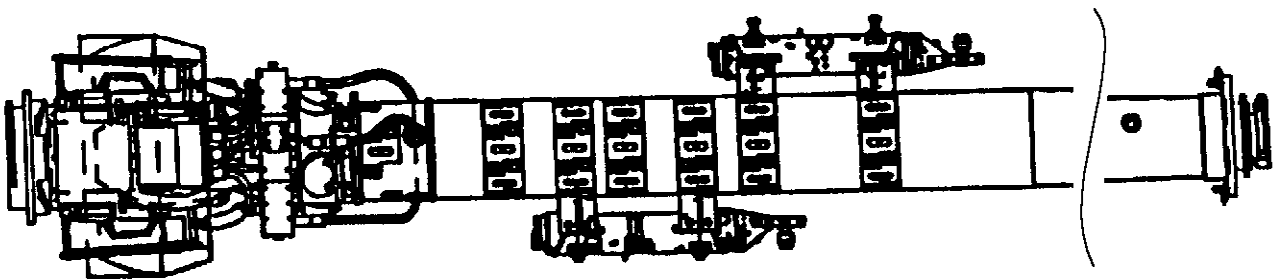
The B-2 can carry two Advanced Application Rotary Launchers. The launcher will suspend and forcibly eject, or free fall, eight conventional or nuclear stores up to and including 5000 pound weight class. The launchers eight stand-alone BRU-44B/A bomb racks incorporate 4 hooks in tandem providing 14 and 30 inch suspension capability. This configuration provides a total payload in excess of 20,000 lbs.

Dimensions: Length (in): 264.73
 Width (in): 35.83
 Height (in): 32.14
 Weight (lbs): 2,160.00

Aircraft: B-2

Management/Engineering: OC-ALC/PSM
 (BRU-44B/A managed by
 WR-ALC/LKGW)

Technical Order: 11N-L5006-2



Nomenclature: Aircraft Guided Missile and Bomb Rotary Launcher (AGMBRL)

Description:

The B-52H can carry one Aircraft Guided Missile and Bomb Rotary Launcher. The launcher will suspend and forcibly release eight conventional or nuclear stores. The launchers eight stand-alone MAU-12 bomb racks incorporate 4 hooks in tandem providing 14 and 30 inch suspension capability. This configuration provides a total payload in excess of 20,000 lbs.

Dimensions:

Length (in): 267.00

Diameter (in): 15.00 (Launcher shaft)

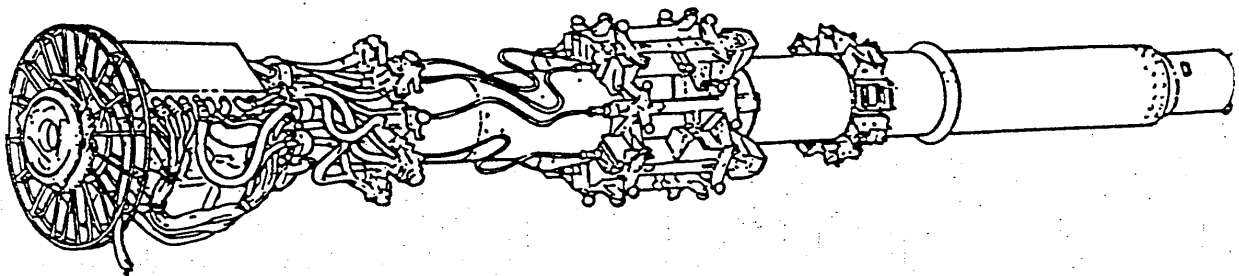
40.00 (Cable reel)

Weight (lbs): 2,616.00 (Basic launcher)

Aircraft: B-52H

Management/Engineering: OC-ALC/PSM

Technical Order: 11N-L5001-2



Nomenclature: Bomb Rack Assembly

Description:

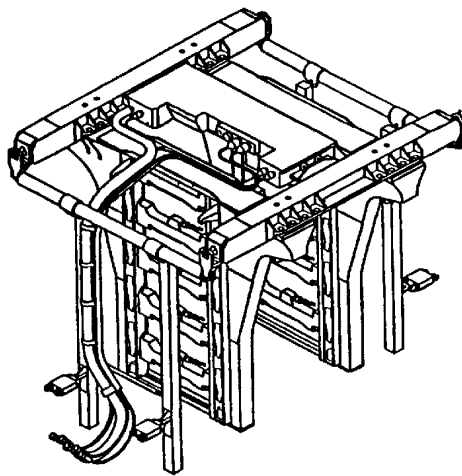
The bomb rack assembly will suspend and release stores in two configurations. One configuration is up to nine Cluster Comb Units CBU-87/B, CBU-89/B, CBU-97/B, M117 GP, M117 retarded, or M117 destructor weapons. Second configuration is up to 20ea MK-82 Air Inflatable Retarder (AIR) bombs, MK82 Low Drag General Purpose (LDGP), MK36D or MK62 MOD 0 weapons. The bomb rack assembly provides the mechanical interface between the aircraft and conventional weapons. The BRA's BRU-52 racks incorporate 2 hooks in tandem with a 14 inch suspension capability.

Dimensions: Length (in): 72.80
 Width (in): 65.30
 Height (in): 71.40
 Weight (lbs): 1,347.00 to 1,462.00 (Depending on configuration)

Aircraft: B-2

Management/Engineering: WR-ALC/LKGW

Technical Order: 11B29-3-66-1



Nomenclature: B-11 Bomb Shackle

Description:

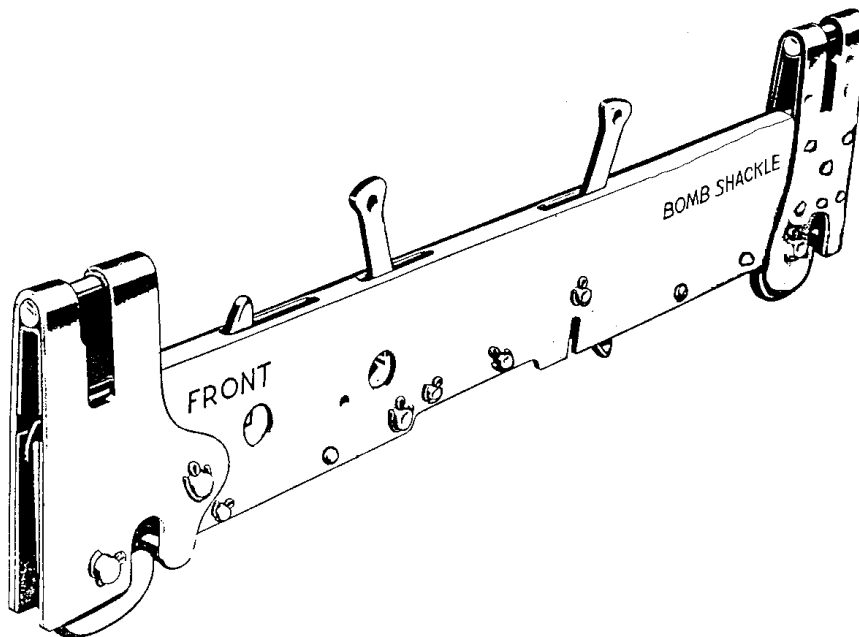
The B-11 shackle uses a mechanical interface system with the cluster bomb rack assembly to operate the release mechanism of the shackle. Upon actuation, the shackle releases stores between 100 and 1,600 lbs. The B-11 shackle incorporates 2 hooks in tandem with a 14 inch suspension capability.

Dimensions: Length (in): 16.00
 Width (in): 0.625
 Height (in): 4.125
 Weight (lbs): 5.00

Aircraft: B-52H

Management/Engineering: WR-ALC/LKGW

Technical Order: 11B40-2-4-3



Nomenclature: BRU-46/A Bomb Rack

Description:

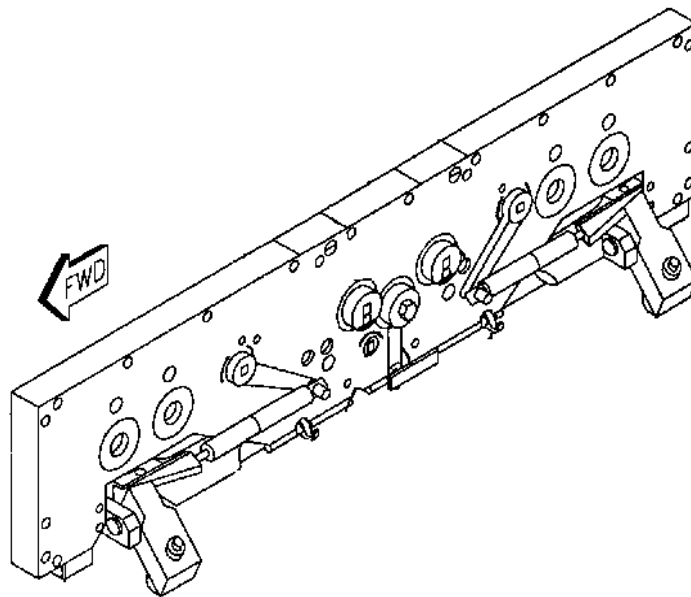
The BRU-46/A rack uses electrically fired dual impulse cartridges to generate gas pressure to operate the rack release and eject mechanism. Upon actuation, the rack release/eject mechanism forcibly ejects, or free fall releases, conventional stores (not nuclear capable) up to and including 500 lb weight class. The BRU-46/A rack incorporates 2 hooks in tandem providing 14 inch suspension capability (not 30 inch suspension capable). Each sway brace arm pivots and locks independently of the others to engage the store.

Dimensions: Length (in): 26.90
 Width (in): 2.00
 Height (in): 6.00
 Weight (lbs): 41.90

Aircraft: F-15E and BR-57/A Smart Rack

Management/Engineering: WR-ALC/LKGW

Technical Order: 11B29-3-60-2



Nomenclature: BRU-47/A Bomb Rack

Description:

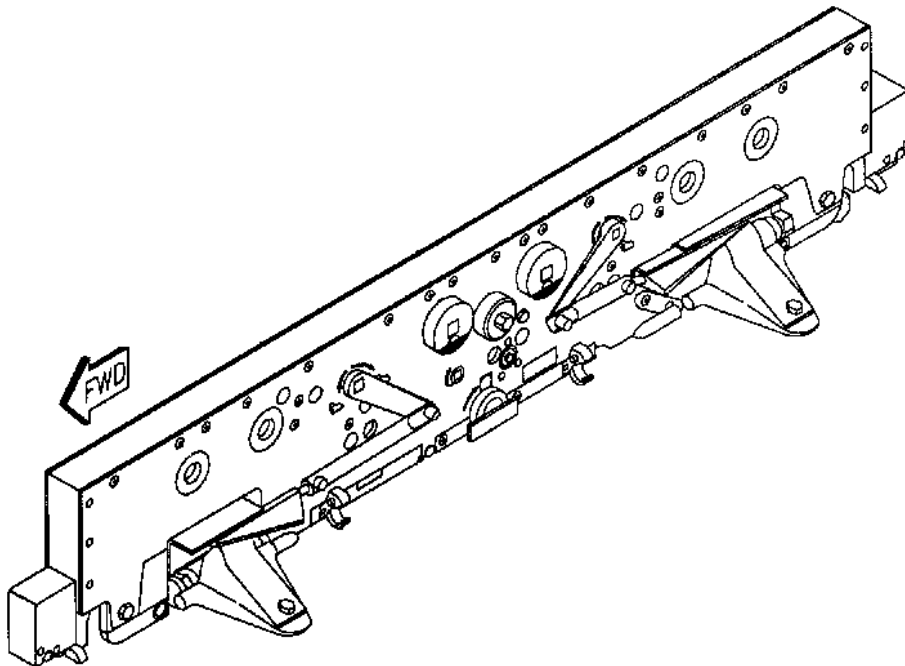
The BRU-47/A rack uses electrically fired dual impulse cartridges to generate gas pressure to operate the rack's release and eject mechanism. Upon actuation, the rack release/eject mechanism forcibly ejects, or free fall releases, conventional and special stores up to and including 5000 lb weight class. The BRU-47/A rack incorporates 4 hooks in tandem providing 14 and 30 inch suspension capability. Each sway brace arm pivots and locks independently of the others to engage the store.

Dimensions: Length (in): 35.70
 Width (in): 3.00
 Height (in): 6.70
 Weight (lbs): 87.50

Aircraft: F-15E

Management/Engineering: WR-ALC/LKGW

Technical Order: 11B29-3-61-2



Nomenclature: BRU-57/A Smart Rack

Description:

The BRU-57/A allows carriage of 2 smart weapons (up to 1,000 lb class) on a single aircraft station. The rack uses MIL-STD-1760 for aircraft-to-rack and rack-to-weapon interface. The rack is currently used with the Joint Stand-Off Weapon (JSOW), Wind Corrected Munitions Dispenser (WCMD) configured munitions, and JDAM (1,000 lb weight class) weapon systems. Future expansion is planned for other MIL-STD-1760 compatible aircraft and weapon systems. The BRU-57/A strongback attaches to aircraft with 30 inch suspension and both BRU-46/A racks have 2 hooks in tandem providing 14 inch suspension capability. Each sway brace arm pivots and locks independently of the others to engage the store.

Configuration Specifics:

BRU-57/A (Air Force)

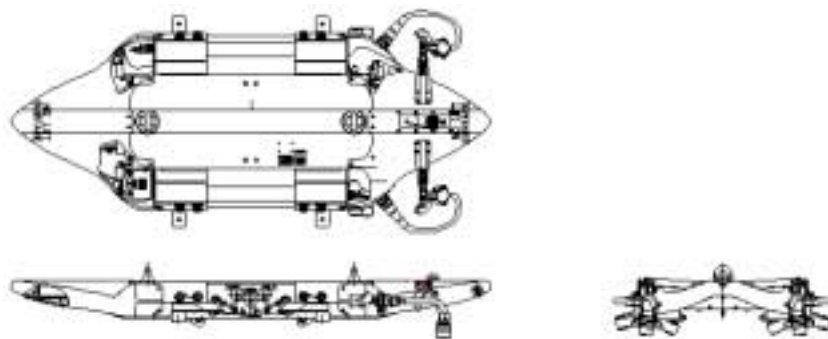
BRU-33 vertical ejector rack strongback, 2 BRU-46 ejector units

Dimensions: Length (in): 69.80
 Width (in): 29.00
 Height (in): 7.10
 Weight (lbs): Approximately 250.00

Aircraft: F-16 (2 Precision Guided Munition (PGM) carriage)

Management/Engineering: Current Manager: AAC/YHJ
 Future Manager: WR-ALC/LKGW

Technical Order: Preliminary T.O. 11B29-3-60-2



Nomenclature: BRU-56/A, Aircraft Ejector Bomb Rack
(A.K.A. 30 Inch Ejector Rack)

Description:

The BRU-56/A rack uses electrically fired dual impulse cartridges to generate gas pressure to operate the racks release and eject mechanism. Upon actuation, the rack release/eject mechanism forcibly ejects conventional and nuclear stores up to 4000 lbs. The BRU-56/A rack incorporates 2 hooks in tandem providing 30 inch suspension capability. Each sway brace arm must be manually adjusted to engage the store.

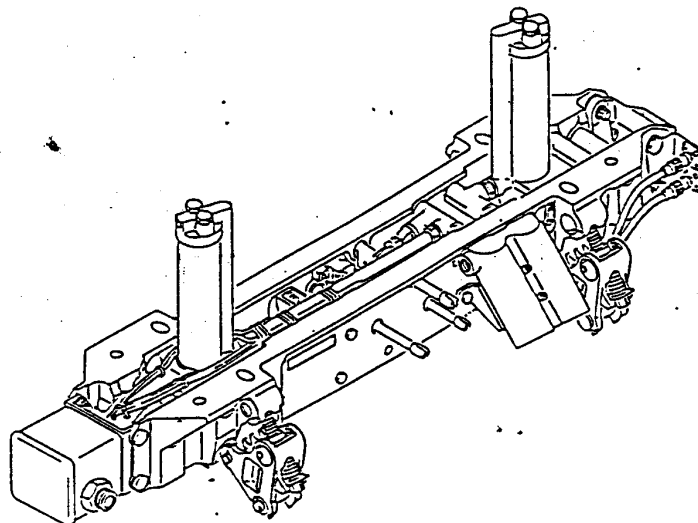
Dimensions:

Length (in): 38.00
Width (in): 7.952 (w/o sway braces)
Height (in): 5.75 (rack only)
13.25 (rack with pistons)
Weight (lbs): 90.00

Aircraft: B-52H

Management/Engineering: OC-ALC/PSM

Technical Order: 11N-H5086-2



Nomenclature: General Purpose Bomb Module

Description:

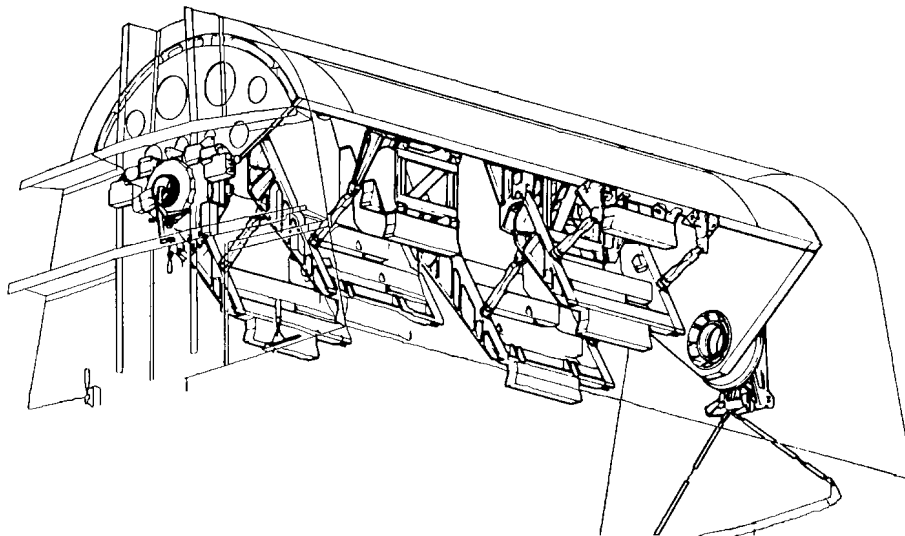
The general purpose bomb module will suspend and forcibly eject up to 28ea MK-82 Air Inflatable Retarder (AIR) bombs, 28ea MK36 Destructors, or 10ea Cluster Comb Units (CBU). When the module is installed in any of the three aircraft weapons bays, the rotary launcher drive subsystem is mechanically locked and electronically disabled by the aircraft avionics control unit (ACU) software. The general purpose bomb module incorporates 2 hooks in tandem with a 14 inch suspension capability.

Dimensions: Length (in): 178.00
 Width (in): 69.96
 Height (in): 57.66
 Weight (lbs): 2,816.00 to 3,513.00 (Depending on configuration)

Aircraft: B-1B

Management/Engineering: WR-ALC/LKGW

Technical Order: 11B29-3-55-1



Nomenclature: LAU-68/LAU-131 Airborne Rocket Launcher

Description:

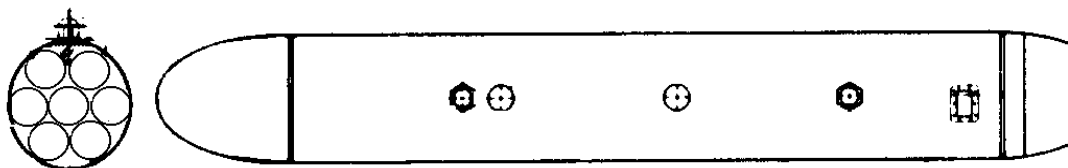
The LAU-68/LAU-131 launcher can be used on high and low speed aircraft to include helicopters. It attaches to aircraft with 14 inch lug suspension and is capable of launching seven 2.75 inch diameter MK40 Folding Fin Aircraft Rocket (FFAR). The LAU-131 has additional capability to fire MK66 Wrap-Around Folding Fin Aircraft Rockets (WAFFAR). Stores fired from this launcher are ignited and rocket thrust propels store to slide forward, disengaging from launcher and flying to target. The forward frangible fairing disintegrates on rocket impact and the rear fairing acts as a funnel to direct debris away from the launch aircraft. Rockets can be fired in single or ripple mode. The LAU-68/LAU-131 launcher provides mechanical and electrical interface between rocket and aircraft.

Dimensions: Length (in): 61.29
 Diameter (in): 9.80
 Weight (lbs): 86.00 (LAU-68)
 97.00 (LAU-131)

Aircraft: Various

Management/Engineering: OO-ALC/WMBA

Technical Order: 11L1-3-27-1



Nomenclature: LAU-88 Launcher

Description:

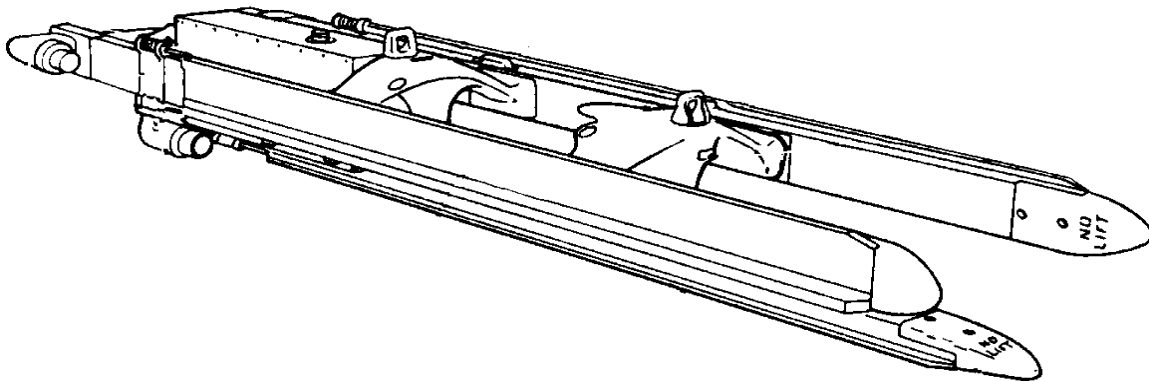
The LAU-88A/A launcher attaches to aircraft with 30 inch lug suspension and is capable of launching up to three AGM-65A, B, or D model Maverick missiles. The LAU-88A/A launcher provides mechanical and electrical interface between missile and aircraft. Stores are fired independently with a firing order of outboard, bottom and inboard. Stores fired from this launcher are ignited and missile thrust propels store to slide forward, disengaging from launcher, and flying to target.

Dimensions: Length (in): 93.43
 Width (in): 27.80
 Height (in): 17.54
 Weight (lbs): 469.00

Aircraft: A-10, F-15E (requires ADU-578 Missile Launcher Adapter), and F-16

Management/Engineering: OO-ALC/WMMM

Technical Order: 11L1-2-22-1



Nomenclature: LAU-105/A Guided Missile Launcher

Description:

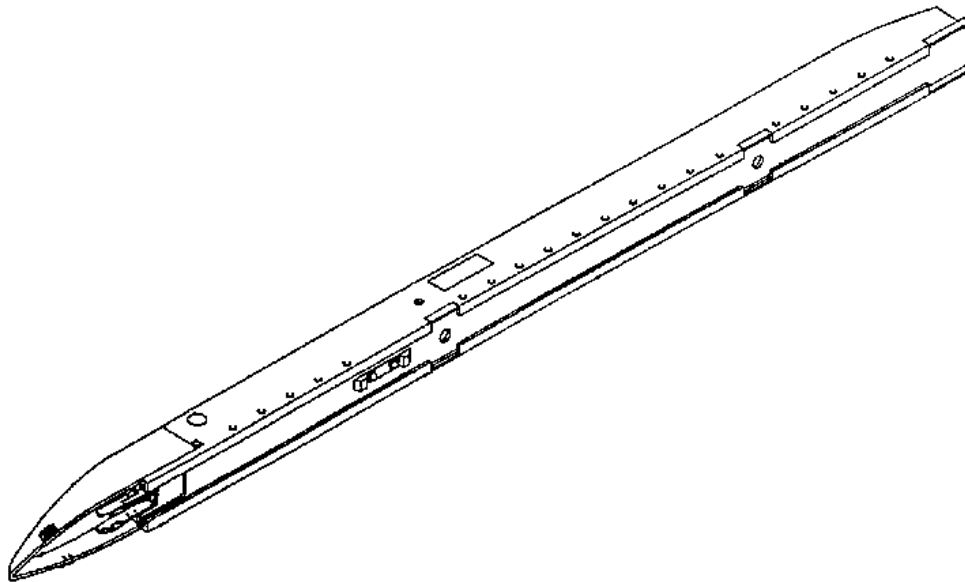
The LAU-105/A launcher attaches directly to aircraft pylon/adaptor and is capable of launching a single AIM-9 Sidewinder missile. The LAU-105/A launcher provides mechanical and electrical interface between missile and aircraft. Stores fired from this launcher are ignited and missile thrust propels store to slide forward, disengaging from launcher, and flying to target.

Dimensions: Length (in): 90.90
 Width (in): 2.80
 Height (in): 5.20
 Weight (lbs): 53.00

Aircraft: A-10

Management/Engineering: WR-ALC/LKGT

Technical Order: 11L1-2-29-2



Nomenclature: LAU-106 A/A Guided Missile Launcher

Description:

The LAU-106A/A launcher attaches directly to the aircraft fuselage and is capable of suspending and launching/ejecting a single AIM-7 or AIM 120 missile. The

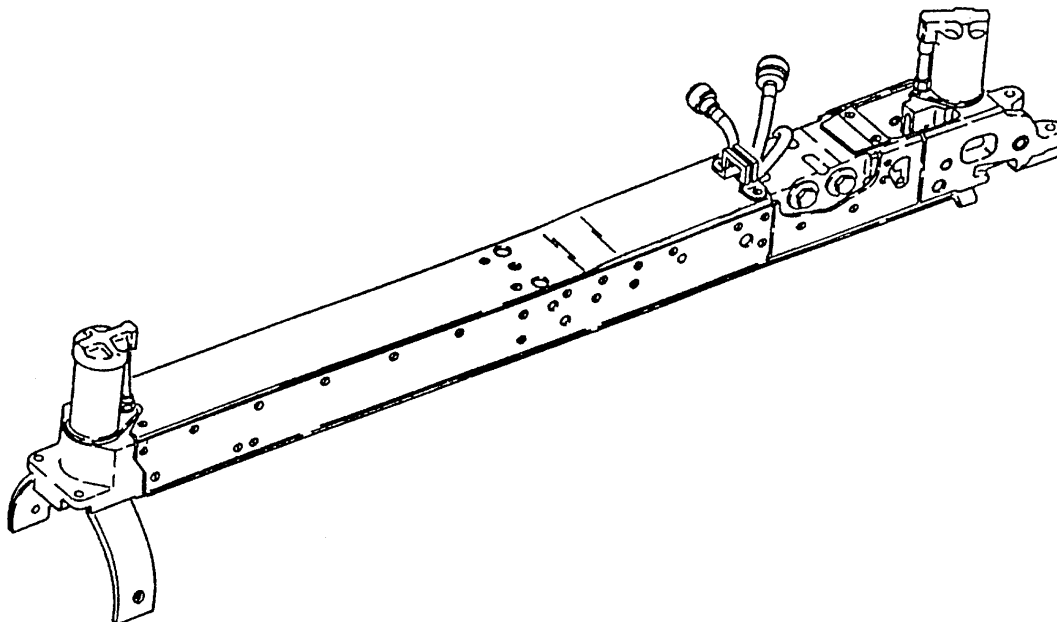
LAU-106A/A launcher uses electrically fired dual impulse cartridges to generate gas pressure to operate the release and eject mechanisms. The LAU-106A/A launcher also provides mechanical and electrical interface between missile and aircraft. Stores fired from this launcher are first jettisoned away from the aircraft, then ignite and fly to their target.

Dimensions: Length (in): 54.30
 Width (in): 4.00
 Height (in): 8.00
 Weight (lbs): 52.00

Aircraft: F-15A-E

Management/Engineering: WR-ALC/LKGT

Technical Order: 11L1-3-29-2



Nomenclature: LAU-117A(V)3/A Guided Missile Launcher

Description:

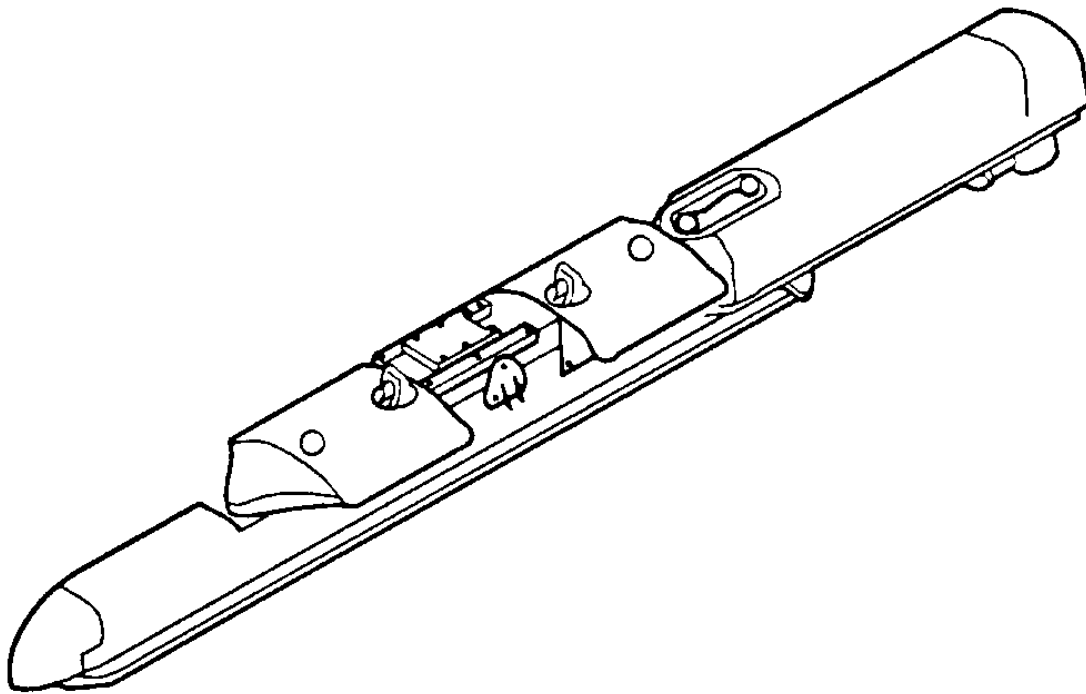
The LAU-117A(V)3/A launcher attaches to aircraft with 14 inch or 30 inch lug suspension and is capable of launching a single AGM-65 Maverick missile (all models). The LAU-117A(V)3/A launcher provides mechanical and electrical interface between missile and aircraft. Stores fired from this launcher are ignited and missile thrust propels store to slide forward, disengaging from launcher, and flying to target.

Dimensions: Length (in): 94.00
 Width (in): 11.00
 Height (in): 11.00
 Weight (lbs): 125.00 to 145.00 (depending on
 configuration)

Aircraft: A-10, F-15E, and F-16

Management/Engineering: OO-ALC/WMMM

Technical Order: 11L1-2-15-1



Nomenclature: LAU-118(V)4/A Guided Missile Launcher

Description:

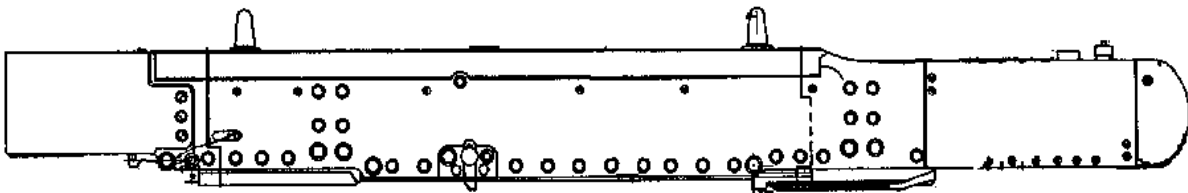
The LAU-118(V)4/A launcher attaches to aircraft with 30 inch lug suspension and is capable of launching a single AGM-88 High-Speed Anti-Radiation Missile (HARM). The LAU-118(V)4/A launcher provides mechanical and electrical interface between missile and aircraft. Electrical interface is provided thru the Aircraft Launcher Interface Computer (ALIC) (enables launcher to be used on F-16's). Stores fired from this launcher are ignited and missile thrust propels store to slide forward, disengaging from launcher, and flying to target.

Dimensions: Length (in): 79.00
 Width (in): 11.65 (across top of housing assembly)
 Height (in): 8.00 (excluding attach lugs)
 Weight (lbs): 120.00

Aircraft: F-16

Management/Engineering: WR-ALC/LKGL

Technical Order: 11L1-2-20-1



Nomenclature: LAU-128A/A Guided Missile Launcher

Description:

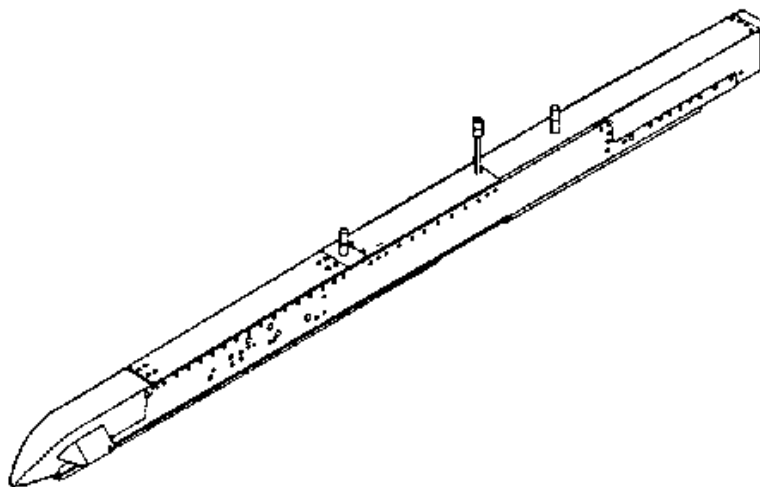
The LAU-128A/A launcher requires the use of an ADU-552, Missile Launcher Adapter, to provide ample missile stabilizer wing clearance for launch. This adapter is hard-mounted to the pylon and the launcher is hard-mounted to the adapter with two external attachment bolts. The LAU-128A/A is capable of launching a single AIM-9 (Sidewinder) or AIM-120 Advanced Medium Range Air-to-Air Missile (AMRAAM). The LAU-128A/A launcher provides mechanical and electrical interface between missile and aircraft. Stores fired from this launcher are ignited and missile thrust propels store to slide forward, disengaging from launcher, and flying to target.

Dimensions: Length (in): 103.14
 Width (in): 3.71
 Height (in): 6.09
 Weight (lbs): 87.00

Aircraft: F-15A, B, C, D (MSIP) and F-15E

Management/Engineering: WR-ALC/LKGA

Technical Order: 11L1-2-24-2



Nomenclature: LAU-129A/A Guided Missile Launcher

Description:

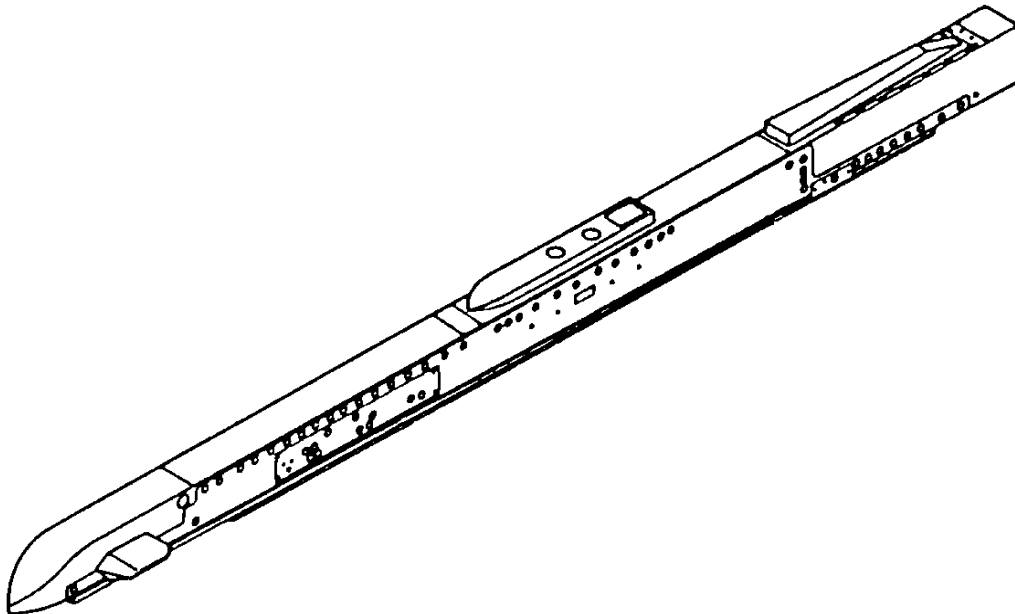
The LAU-129A/A launcher attaches to aircraft with three external attachment bolts. The LAU-129A/A is capable of launching a single AIM-9 (Sidewinder) family of missile or AIM-120 Advanced Medium Range Air-to-Air Missile (AMRAAM). The LAU-129A/A launcher provides mechanical and electrical interface between missile and aircraft. Stores fired from this launcher are ignited and missile thrust propels store to slide forward, disengaging from launcher, and flying to target.

Dimensions: Length (in): 102.98
 Width (in): 3.62
 Height (in): 6.00
 Weight (lbs): 90.00

Aircraft: F-16

Management/Engineering: WR-ALC/LKGA

Technical Order: 11L1-2-30-1



Nomenclature: LAU-144/A Munitions Launcher Assembly (A.K.A. Multi-purpose Rotary Launcher (MPRL) or 180 Inch Rotary Launcher)

Description:

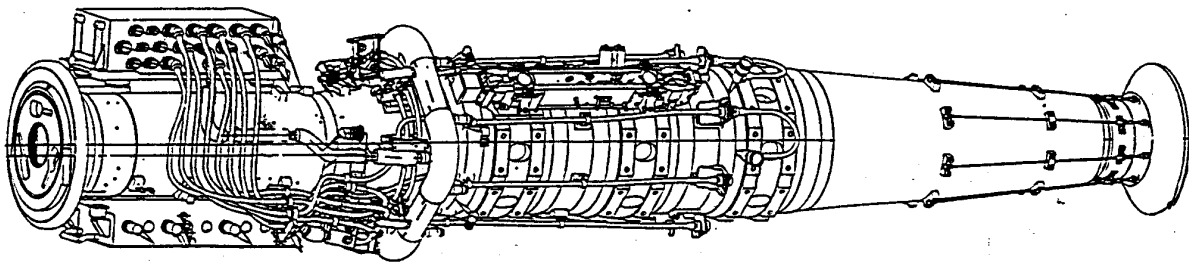
The B-1B can carry up to three Munitions Launcher Assemblies in three weapons bays. Each launcher will suspend and release eight GBU-31 or MK-84 conventional stores or eight B61 or B83 nuclear stores. The Munitions Launcher Assembly provides the electrical, mechanical, and pneumatic interface between aircraft and stores. It incorporates 2 hooks in tandem with a 30 inch suspension capability.

Dimensions: Length (in): 178.00
 Diameter (in) (w/o stores): Approximately 41.00
 Weight (lbs) w/ejectors (w/o stores): 1,300.00 to 2,023.00 (Depending on configuration)

Aircraft: B-1B

Management/Engineering: OC-ALC/PSM

Technical Order: 11N-L5002-2



Nomenclature: MAU-12 Bomb Rack

Description:

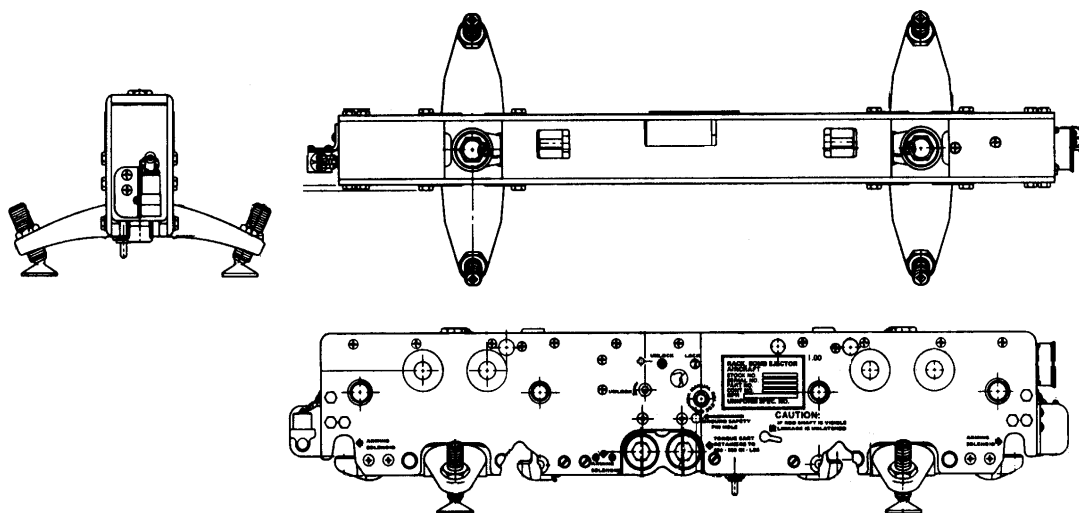
The MAU-12 rack uses electrically fired dual impulse cartridges to generate gas pressure to operate the rack's release and eject mechanism. Upon actuation, the rack release/eject mechanism forcibly ejects, or free fall releases, conventional or nuclear stores up to and including 5000 lb weight class or external fuel tanks. The MAU-12 rack incorporates 4 hooks in tandem providing 14 and 30 inch suspension capability. Each sway brace arm must be manually adjusted to engage the store.

Dimensions: Length (in): 32.00
 Width (in): 3.00
 Height (in): 6.26
 Weight (lbs): Approximately 70.00

Aircraft: AC-130H, AC-130U, B-52H, F-15, F-16, F-117, and
 MC-30H Talon II

Management/Engineering: WR-ALC/LKGW

Technical Order: 11B29-3-25-2



Nomenclature: MAU-40/A Bomb Rack

Description:

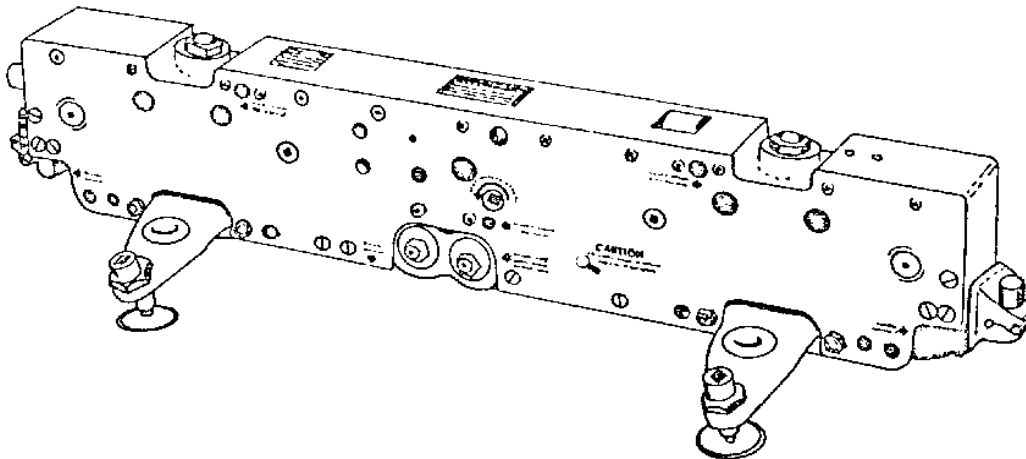
The MAU-40/A rack uses electrically fired dual impulse cartridges to generate gas pressure to operate the racks release and eject mechanism. Upon actuation, the rack release/eject mechanism forcibly ejects, or free fall releases, conventional stores (not nuclear capable) up to and including 5000 lb weight class or external fuel tanks. The MAU-40/A rack incorporates 4 hooks in tandem providing 14 and 30 inch suspension capability. The MAU-40A is essentially a MAU-12 except it does not contain the safety wiring and in-flight safety lock for nuclear munitions. Each sway brace arm must be manually adjusted to engage the store.

Dimensions: Length (in): 32.00
 Width (in): 3.00
 Height (in): 6.26
 Weight (lbs): Approximately 65.00

Aircraft: AC-130H, AC-130U, MC-130H Talon II, A-10 and OA-10

Management/Engineering: WR-ALC/LKGW

Technical Order: 11B29-3-39-2



Nomenclature: MAU-50/A Bomb Rack

Description:

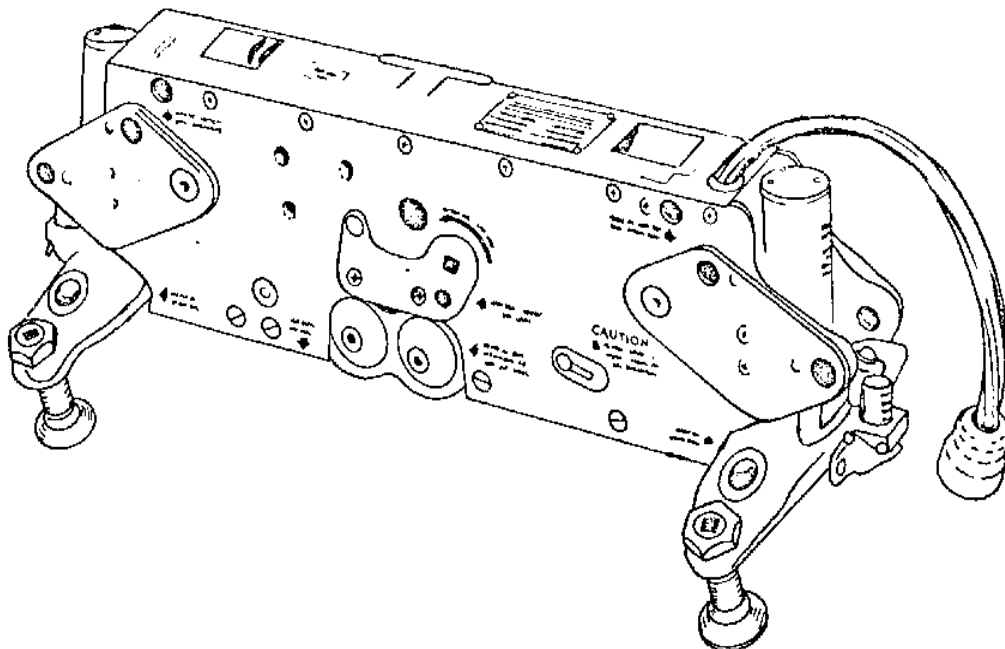
The MAU-50/A rack uses electrically fired dual impulse cartridges to generate gas pressure to operate the rack's release and eject mechanism. Upon actuation, the rack release/eject mechanism forcibly ejects, or free fall releases, conventional stores (not nuclear capable) and/or external fuel tanks up to 2000 lbs with a diameter between 9 and 30 inches. The MAU-50/A rack incorporates 2 hooks in tandem providing 14 inch suspension capability (not 30 inch suspension capable). Each sway brace arm must be manually adjusted to engage the store.

Dimensions: Length (in): 27.75
 Width (in): 3.00
 Height (in): 6.125
 Weight (lbs): 45.00

Aircraft: A-10

Management/Engineering: WR-ALC/LKGW

Technical Order: 11B29-3-40-2



Nomenclature: MHU-20A/C Clip-in Assembly

Description:

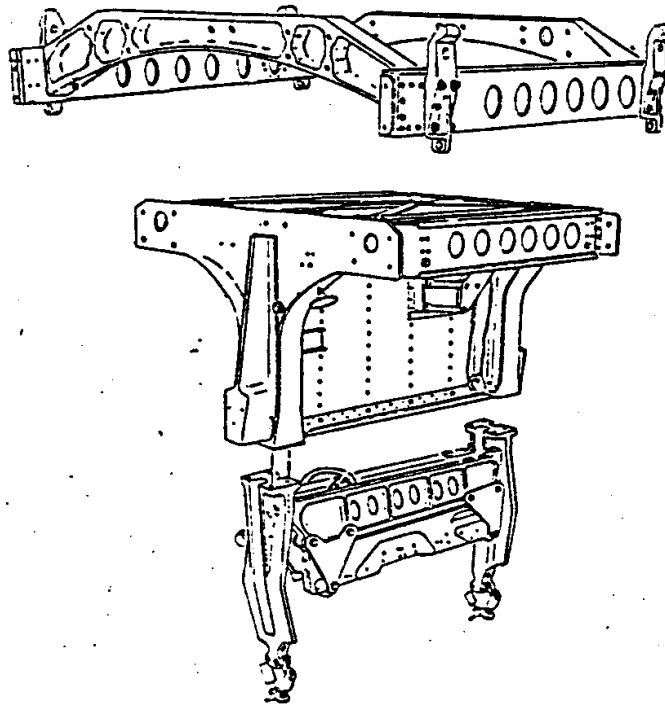
The B-52 aircraft can carry two clip-in assemblies. The clip-in is a quick loading, four weapon carrier capable of carrying conventional munitions suspended from four MB-3A/A electrically operated bomb racks, providing a total payload of approximately 12,000 lbs.

Dimensions: Length (in): 52.00
 Width (in): 54.00
 Height (in): 44.00
 Weight (lbs): 550.00

Aircraft: B-52H

Management/Engineering: OC-ALC/PSM
(MB-3A/A managed by WR-ALC/LKGW)

Technical Order: 11N-H5034-2



Nomenclature: SUU-20 Bomb Dispenser

Description:

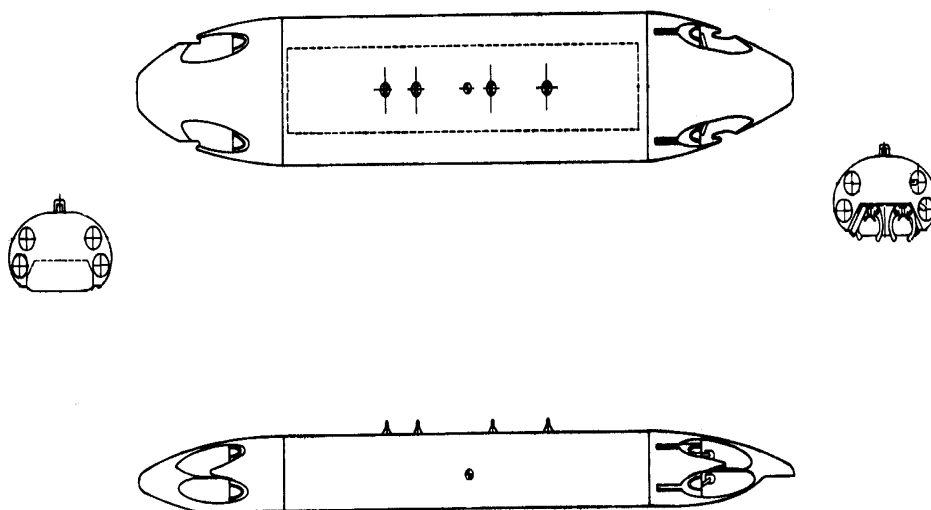
The SUU-20/A dispenser attaches to aircraft with 14 and 30 inch lug suspension and is capable of launching four 2.75 inch diameter Folding Fin Aircraft Rocket (FFAR) and six practice bombs. Stores fired from this launcher are ignited and rocket thrust propels store to slide forward, disengaging from launcher, and flying to target. Practice bombs are ejected by a gas-driven piston ram and free-fall to target. Both rockets and bombs can be fired in a single mode or a ripple mode. The SUU-20/A dispenser provides mechanical and electrical interface between rocket/bomb and aircraft.

Dimensions: Length (in): 122.00
 Height/Width (in): 19.30 X 12.25 (Elliptical Shape)
 Weight (lbs): 241.00 to 330.00 (Depending on configuration)

Aircraft: F-15 and F-16

Management/Engineering: WR-ALC/LKGW

Technical Order: 11B29-3-28-1



Nomenclature: SUU-59B/A Inboard Aircraft Pylon

Description:

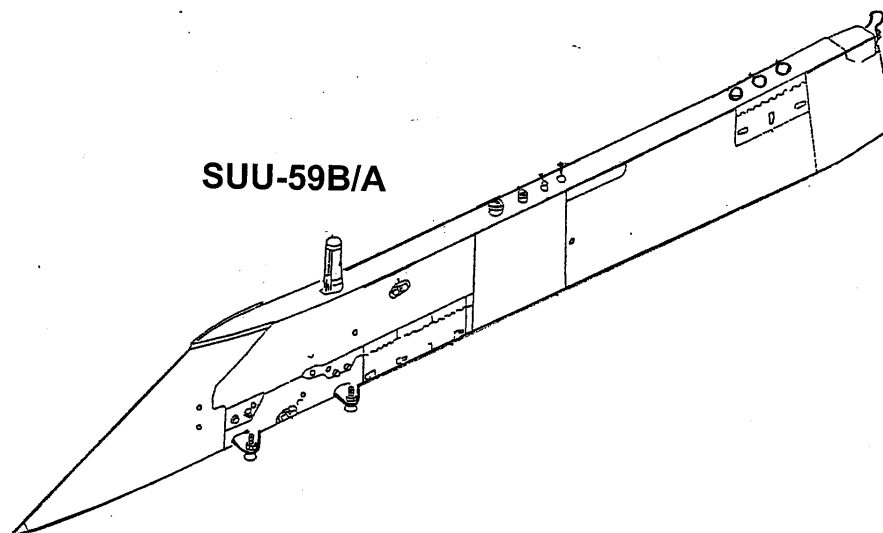
The inboard aircraft pylon provides the F-15A-D aircraft with carriage and jettison capabilities of external fuel tank and conventional air-to-air armament. The SUU-59B/A contains one MAU-12 bomb rack. The SUU-59B/A and MAU-12 combination provides electrical, mechanical and fuel delivery interface between the attached store/external fuel tank and various aircraft systems. This entire pylon can be jettisoned from the aircraft just as stores are jettisoned from the MAU-12.

Dimensions: Length (in): 159.00
 Width (in): 5.00
 Height (in): 18.00
 Weight (lbs): 335.00

Aircraft: F-15 A-D

Management/Engineering: WR-ALC/LFMS

Technical Order: 16W6-25-12



Nomenclature: SUU-59C/A Inboard Aircraft Pylon

Description:

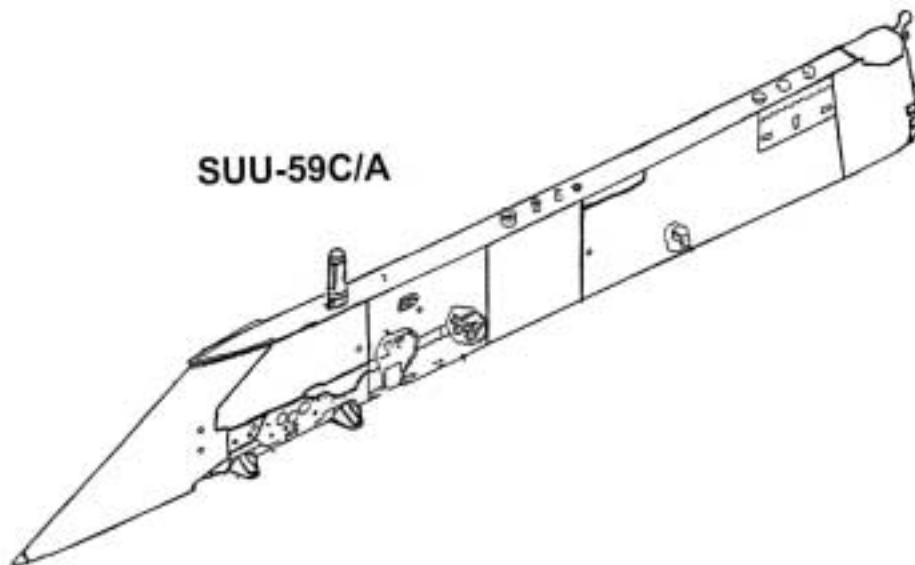
The inboard aircraft pylon provides the F-15E aircraft with carriage and jettison capabilities of external fuel tank, conventional air-to-air missiles and conventional/nuclear air-to-ground armament. The SUU-59C/A contains one BRU-47/A bomb rack. The SUU-59C/A and BRU-47/A combination provides electrical, mechanical and fuel delivery interface between the attached store/external fuel tank and various aircraft systems. This entire pylon can be jettisoned from the aircraft just as stores are jettisoned from the BRU-47/A.

Dimensions: Length (in): 159.00
 Width (in): 5.00
 Height (in): 18.00
 Weight (lbs): 371.00

Aircraft: F-15E

Management/Engineering: WR-ALC/LFMS

Technical Order: 16W6-25-12



Nomenclature: SUU-60B/A Centerline Aircraft Pylon

Description:

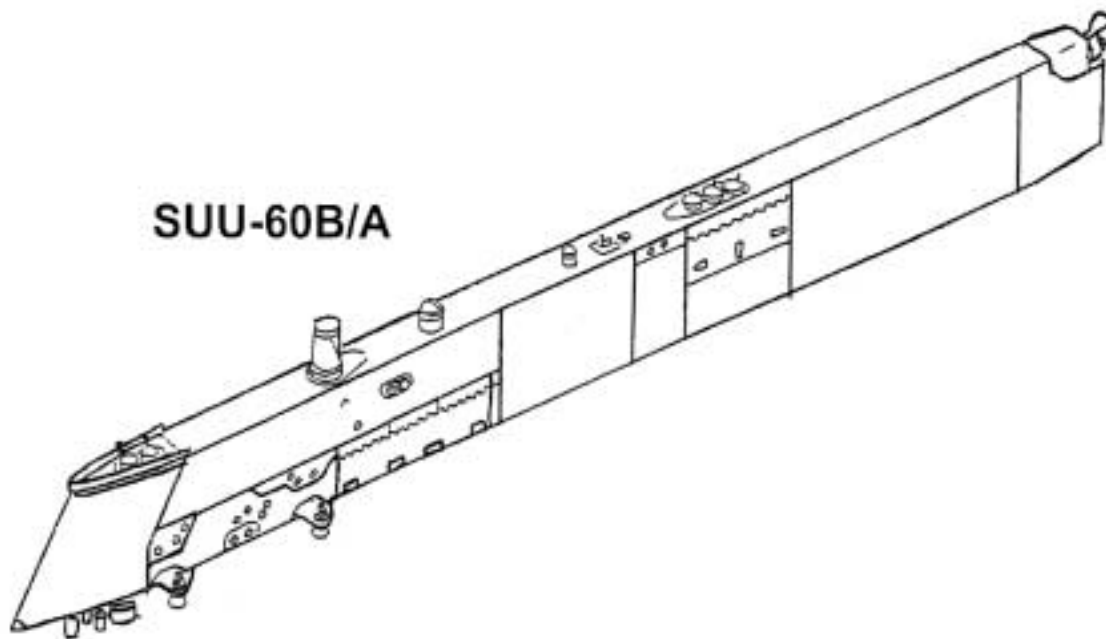
The centerline aircraft pylon provides the F-15A-D aircraft with carriage and jettison capabilities of external fuel tank and special equipment. The SUU-60B/A contains one MAU-12 bomb rack. The SUU-60B/A and MAU-12 combination provides electrical, mechanical and fuel delivery interface between the attached store/external fuel tank and various aircraft systems. This entire pylon can be jettisoned from the aircraft just as stores are jettisoned from the MAU-12.

Dimensions: Length (in): 148.00
 Width (in): 5.00
 Height (in): 15.00
 Weight (lbs): 285.00

Aircraft: F-15A-D

Management/Engineering: WR-ALC/LFMS

Technical Order: 16W6-25-2



Nomenclature: SUU-73/A Centerline Aircraft Pylon

Description:

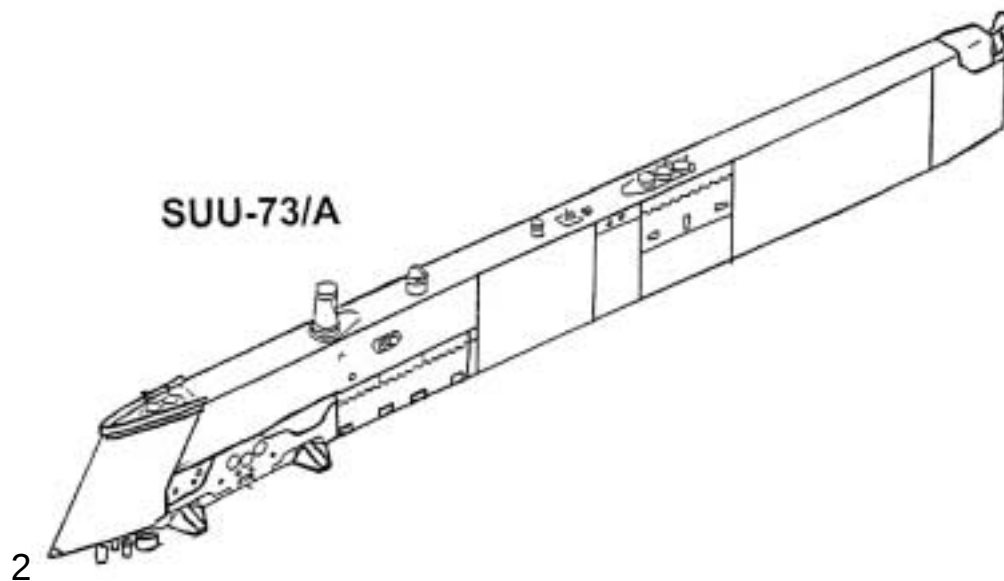
The centerline aircraft pylon provides the F-15E aircraft with carriage and jettison capabilities of external fuel tank, special equipment and conventional/nuclear air-to-ground armament. The SUU-73/A contains one BRU-47/A bomb rack. The SUU-73/A and BRU-47/A combination provides electrical, mechanical and fuel delivery interface between the attached store/external fuel tank and various aircraft systems. The SUU-73/A pylon has additional electrical interface provision for special weapon carriages. This entire pylon can be jettisoned from the aircraft just as stores are jettisoned from the BRU-47/A.

Dimensions: Length (in): 148.00
 Width (in): 5.00
 Height (in): 15.00
 Weight (lbs): 316.00

Aircraft: F-15E

Management/Engineering: WR-ALC/LFMS

Technical Order: 16W6-25-



Nomenclature: TER-9A Bomb Rack

Description:

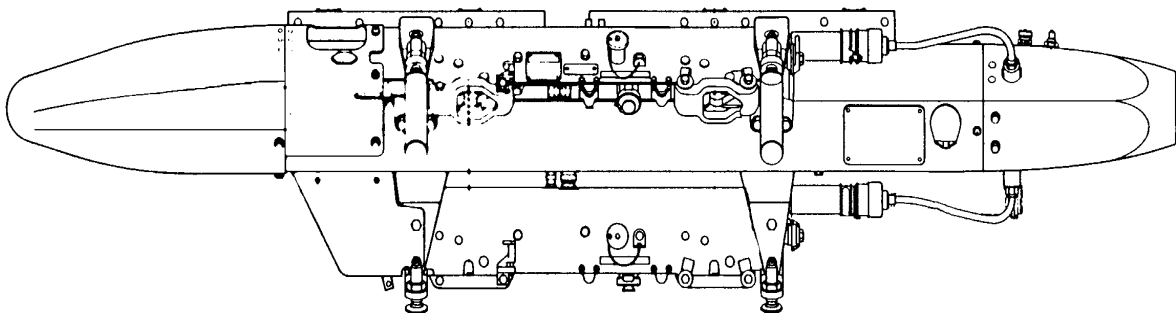
The TER-9A uses electrically fired impulse cartridges (three total, one per rack) to generate gas pressure to operate the racks release and eject mechanism. Upon actuation, the rack release/eject mechanism forcibly ejects, or free fall releases, conventional stores (not nuclear capable) up to 1000 lbs each. Each rack can carry stores with a diameter between 9 and 16 inches (max diameter of 18.6 when loaded single). Stores can be fired independently, or simultaneously with ripple delay, and a firing order of center, left, and right. The TER-9A bomb rack strongback attaches to aircraft with 30 inch suspension and each of the three stores racks have 2 hooks in tandem providing 14 inch suspension capability only. Each sway brace arm must be manually adjusted to engage the store.

Dimensions: Length (in): 67.00
 Width (in): 15.00
 Height (in): 16.00
 Weight (lbs): 93.00

Aircraft: A-10 and F-16

Management/Engineering: WR-ALC/LKGW

Technical Order: 11B29-3-35-2



Nomenclature: TER-9/A MOD Bomb Rack (HIGH SPEED)

Description:

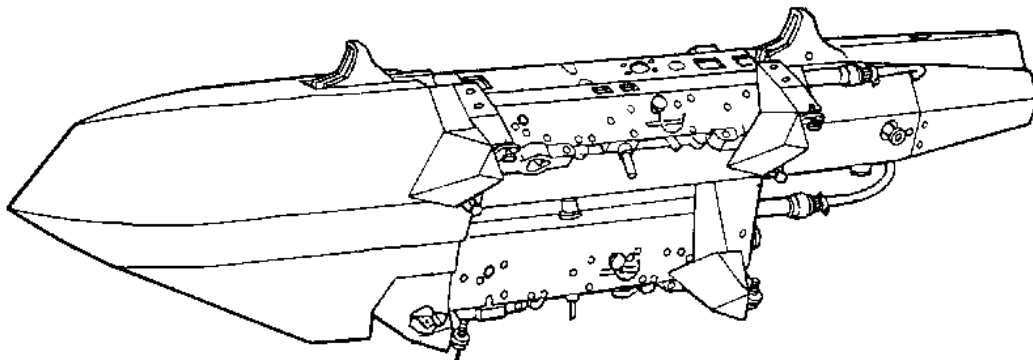
The MODIFIED TER-9A uses electrically fired impulse cartridges (three total, one per rack) to generate gas pressure to operate the racks release and eject mechanism. Upon actuation, the rack release/eject mechanism forcibly ejects, or free fall releases, conventional stores (not nuclear capable) up to 1000 lbs each. Each rack can carry stores with a diameter between 9 and 16 inches (max diameter of 18.6 when loaded single). Stores can be fired independently, or simultaneously with ripple delay, and a firing order of center, left, and right. The MODIFIED TER-9A bomb rack strongback attaches to aircraft with 30 inch suspension and each of the three stores racks have 2 hooks in tandem providing 14 inch suspension capability only. Each sway brace arm must be manually adjusted to engage the store. The skin of the MODIFIED TER-9A is aerodynamically shaped to enhance drag coefficient and covered with spray-on radar absorbent material.

Dimensions: Length (in): 67.00
 Width (in): 15.00
 Height (in): 16.00
 Weight (lbs): 105.00

Aircraft: F-16

Management/Engineering: WR-ALC/LKGW

Technical Order: 11B29-3-35-2



Nomenclature:16S-200 Launcher

Description:

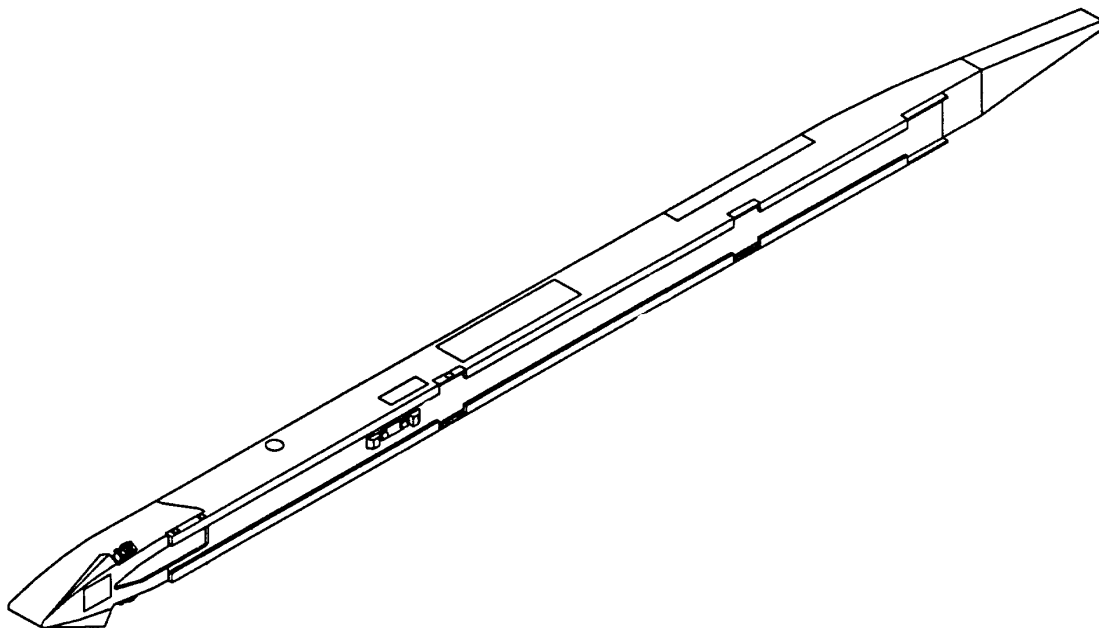
The 16S-210 launcher is hard bolted to the aircraft and is capable of launching a single AIM-9 (Sidewinder) missile. The 16S-210 launcher provides mechanical and electrical interface between missile and aircraft. Stores fired from this launcher are ignited and missile thrust propels store to slide forward, disengaging from launcher, and flying to target.

Dimensions: Length (in): 105.00
 Width (in): 3.00
 Height (in): 5.00
 Weight (lbs): Approximately 70.00

Aircraft: F-16

Management/Engineering: WR-ALC/LKGW

Technical Order: 11L1-2-16-2



Nomenclature: Wing Weapon Pylon Assembly

Description:

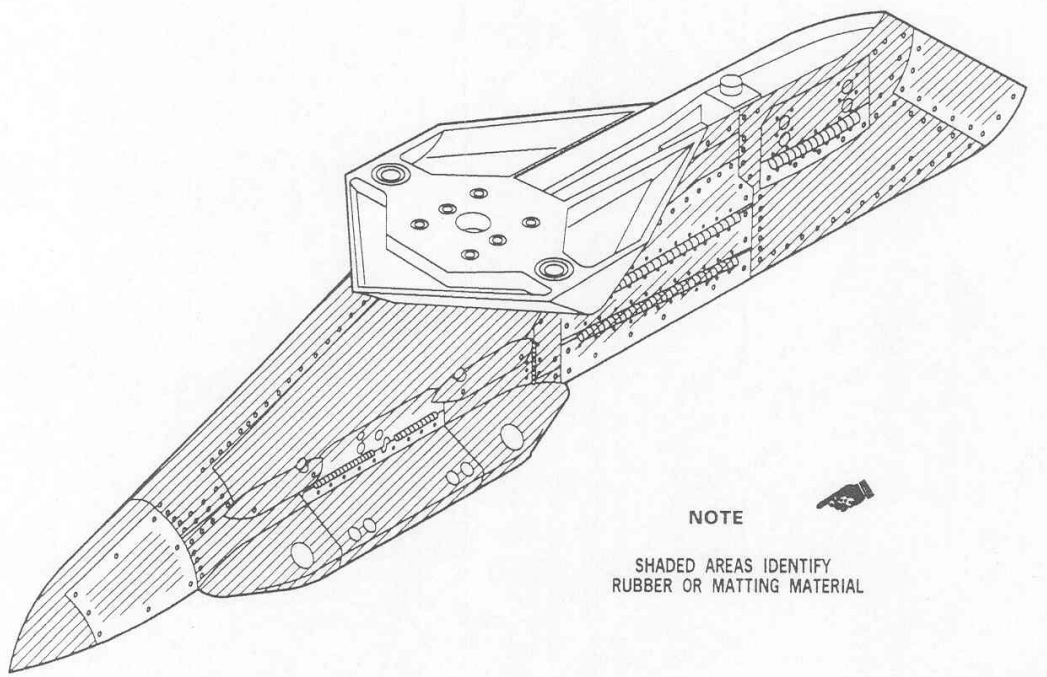
The wing weapon pylon assembly is hard-mounted to the F-16 aircraft. The pylon uses a MAU-12 bomb rack to carry conventional and nuclear stores. The pylon provides electrical and mechanical interface between the attached store and various aircraft systems. The exterior surface of the pylon is covered with spray-on radar absorbent material.

Dimensions: Length (in): 80.00
 Width (in): 20.00
 Height (in): 17.00
 Weight (lbs): 220.00 to 322.00 (Depending on configuration)

Aircraft: F-16

Management/Engineering: OO-ALC/LGFAD

Technical Order: 16W6-51-2



CHAPTER TEN

Countermeasures

Nomenclature: ALA-17/B Flare Cartridge
(CRD Weapon Code - F171A)

Characteristics

CRD Weapons Code

F171A ALA-17 FLARE

D171A FLARE RACK ALA-17

Weight: 4.25 lbs

Length: 12 in

Diameter: 3 in

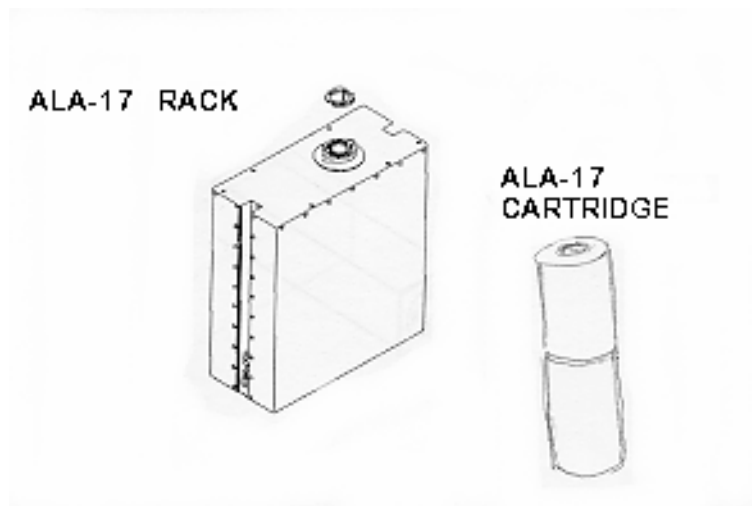
Aircraft: B-52, AC-130

Dispenser: ALE-20

Squib/Cart: Electric-Preinstalled

Management/Engineering: OO-ALC/WM

Technical Order: 11A16-7-7



Nomenclature: AN/ALE-48 CHAFF DISPENSER

Characteristics:

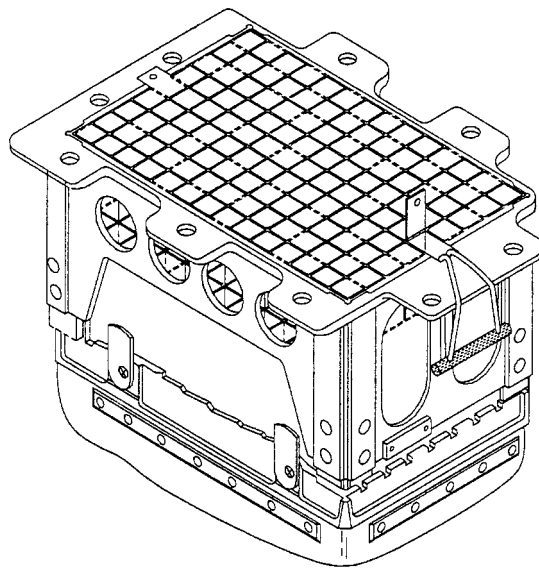
Weight: 45 lbs
Length: 20 in
Width: 13.2 in
Height: 13.6 in

Aircraft: B-1B

Capacity: 120ea RR-170/188 Chaff Cartridges

Management/Engineering: WR-ALC/LNRA

Technical Order: 12P3-4-88-2



Nomenclature: AN/ALE-49 FLARE DISPENSER

Characteristics:

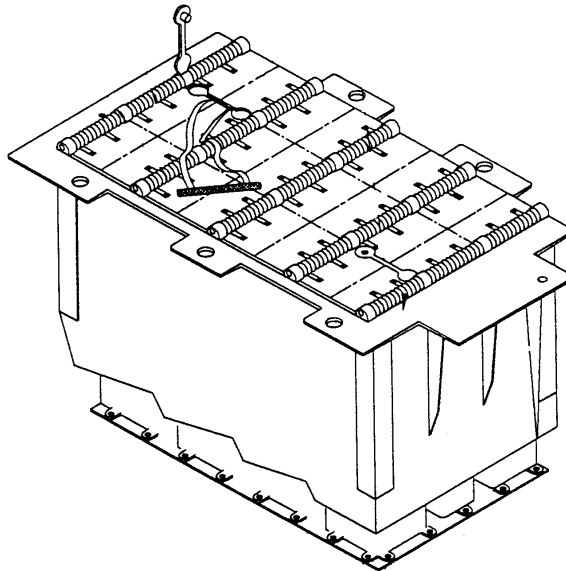
Weight: 65.2 lbs
Length: 20 in
Width: 13.2 in
Height: 13.6 in

Aircraft: B-1B

Capacity: 12ea MJU-23A/B Flare Cartridges

Management/Engineering: WR-ALC/LNRA

Technical Order: 12P3-4-89-2



**Nomenclature: ALE-50(V) 1 COUNTERMEASURES DECOY
DISPENSING SET (CMDDS)**

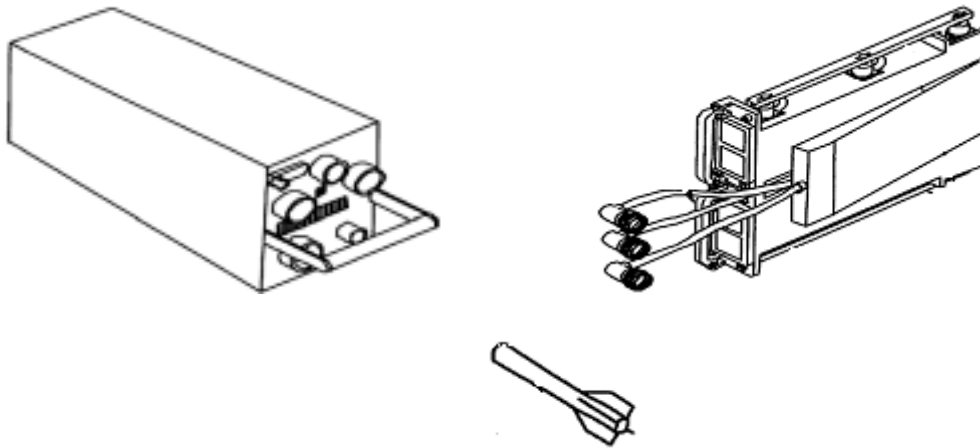
Aircraft: B-1B

Capacity:
4ea Decoys

Squib/Cart: BBU-52/B, CCU-41/B Impluse Carts

Management/Engineering: WR-ALC/LNXA

Technical Order: 12P3-2ALE50-2



**Nomenclature: ALE-50(V) 2 COUNTERMEASURES DECOY
DISPENSING SET (CMDDS)**

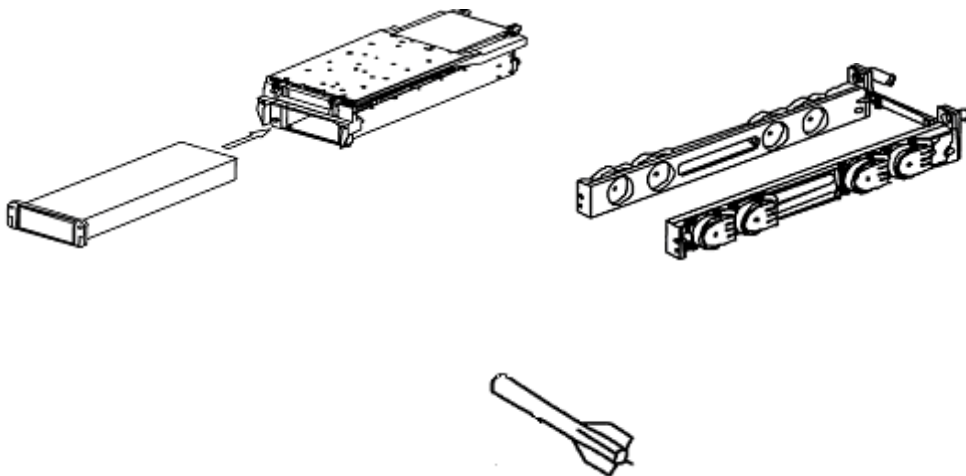
Aircraft: F-16

Capacity:
2ea Decoys

Squib/Cart: BBU-52/B, CCU-41/B Impluse Carts

Management/Engineering: WR-ALC/LNXA

Technical Order: 12P3-2ALE50-2



Nomenclature: LAU-74 FLARE LAUNCHER SYSTEM

Characteristics:

Weight: 395 lbs
Length: 57 in
Width: 31 in
Height: 43 in

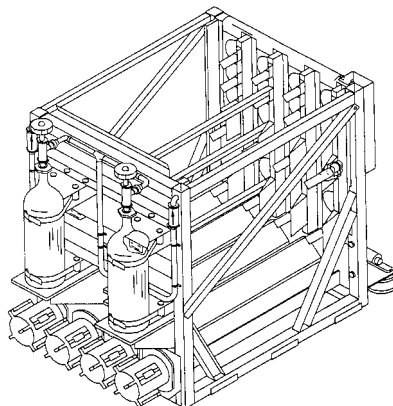
Aircraft: C-130

Capacity:

24ea MK 24 Mod 4 Flares **or**
24ea LUU-2/B Flares **or**
24ea LUU-1/B Target Markers **or**
24ea LUU-5/B Target Markers **or**
24ea MJU-6/B Chaff Cartridges

Management/Engineering: WR-ALC/LNXB

Technical Order: 11L1-5-4-2



Nomenclature: LUU-1, -5 TARGET MARKERS

Characteristics

CRD Weapons Code

F011A LUU-1 MARKER
F011B LUU-1 MARKER
F011D LUU-1 MARKER TARGET
F011C LUU-1 TARGET MARKER
SZTDS STAMP LUU FLARES

Weight: 26 lbs

Length: 36 in

Diameter: 5 in

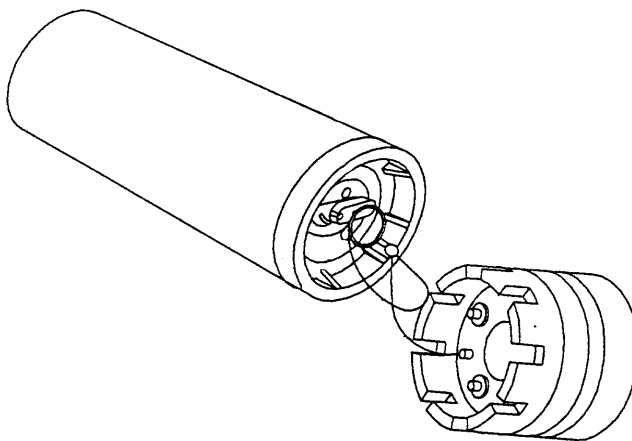
Aircraft: A-10, F-15, F-16, C-17, C-130, C-141

Dispenser: SUU-25 Dispenser or LAU-74 Launcher or Hand
Dispensed or Single Carriage Bomb Rack

Squib/Cart: None

Management/Engineering: OO-ALC/WM

Technical Order: 11A10-33-7



Nomenclature: LUU-2B/B FLARE
(CRD Weapon Code - F021B)

Characteristics

CRD Weapons Code

LUU-2 FLARE LAU-74

LUU-2 FLARE, SERIES

LUU-2 FLARE, SERIES

SZTDS STAMP LUU FLARES

Weight: 29 lbs

Length: 36 in

Diameter: 5 in

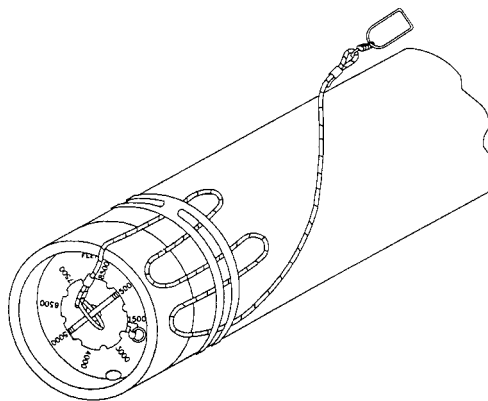
Aircraft: A-10, F-15, F-16, C-17, C-130, C-141

Dispenser: SUU-25 Dispenser or LAU-74 Launcher or Hand
Dispensed or Single Carriage Bomb Rack

Squib/Cart: None

Management/Engineering: OO-ALC/WM

Technical Order: 11A10-24-7



Nomenclature: M206 Flare
(CRD Weapon Code - F061A)

Characteristics

CRD Weapons Code

F061A M206 FLARE

F061B M206 FLARE W/BBU-35/B

SZUEA STAMP M206 FLARES

PREPO ISO M206

PF06A FLARE/BBU36 SQUIB

Weight: .43 lbs

Length: 8 in

Width: 1 in

Height: 1 in

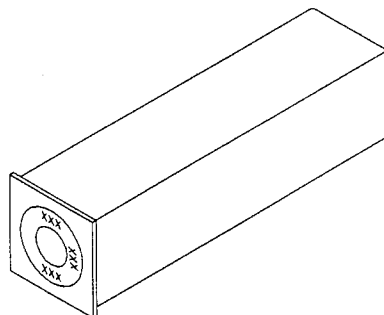
Aircraft: A-10, AC-130, F-16, C-17

Dispenser: ALE-40/45/47

Squib/Cart: M796 Impulse Cartridge , BBU-35/B

Management/Engineering: OO-ALC/WM

Technical Order: 11A16-41-7



Nomenclature: M206 (T-2)/B Flare Simulator

Characteristics:

Weight: .3 lbs

Length: 8 in

Width: 1 in

Height: 1 in

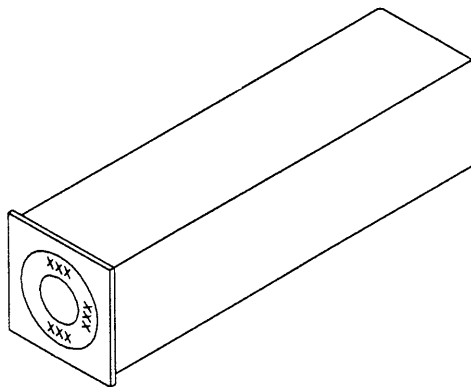
Aircraft: A-10, AC-130, F-16

Dispenser: ALE-40/45/47

Squib/Cart: M796 Impulse Cartridge , BBU-35/B

Management/Engineering: OO-ALC/WM

Technical Order: 11A16-41-7



Nomenclature: MJU-7 A/B IR Flare
(CRD Weapon Code - F071A)

Characteristics

CRD Weapons Code

SZUCA STAMP MJU-7 FLARE

PREPO ISO MJU7

PF07A FLARE/BBU36 SQUIB

F071A MJU-7A/B IR FLARE

Weight: .7 lbs

Length: 8 in

Width: 2 in

Height: 1 in

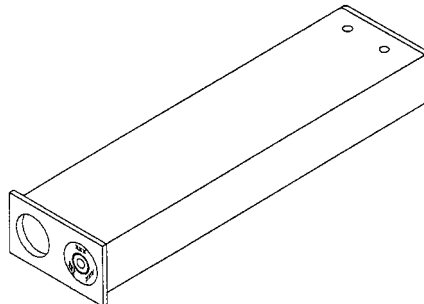
Aircraft: F-15, F-16

Dispenser: ALE-40, ALE-45, ALE-47

Squib/Cart: BBU-36/B Impulse Cartridge

Management/Engineering: OO-ALC/WM

Technical Order: 11A16-40-7



Nomenclature: MJU-7(T-2)/B Flare Simulator

Characteristics:

Weight: .9 lbs
Length: 8 in
Width: 2 in
Height: 1 in

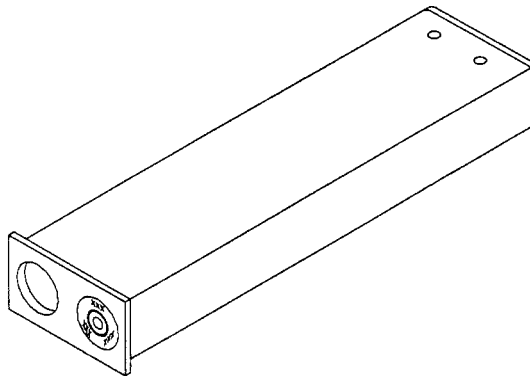
Aircraft: F-15, F-16

Dispenser: ALE-40, ALE-45, ALE-47

Squib/Cart: M796 Impulse Cartridge , BBU-35/B

Management/Engineering: OO-ALC/WM

Technical Order: 11A16-40-7



Nomenclature: MJU-10/B Flare

Characteristics

CRD Weapons Code

F10AA FLARE, A/C MJU10/B

PREPO ISO MJU10

PF10A FLARE/BBU36SQUIB

SZUDA STAMP MJU-10 FLARE

Weight: 2.5 lbs

Length: 8 in

Width: 2 in

Height: 2 in

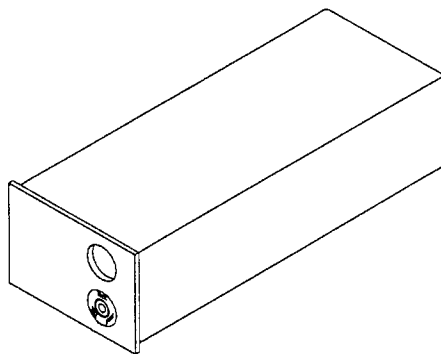
Aircraft: F-15

Dispenser: ALE-45, ALE-47

Squib/Cart: BBU-36/B Impulse Cartridge

Management/Engineering: O-ALC/LIW

Technical Order: 11A16-43-7



Nomenclature: MJU-10(T-1)/B Flare Simulator

Characteristics:

Weight: .45 lbs
Length: 8 in
Width: 2 in
Height: 2 in

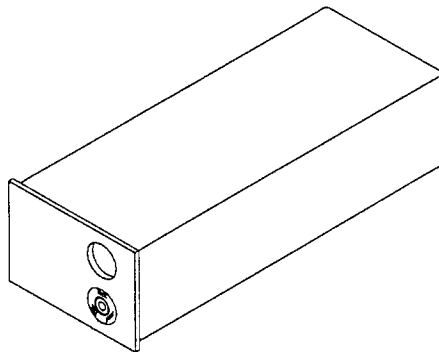
Aircraft: F-15

Dispenser: ALE-45, ALE-47

Squib/Cart: M796 Cartridge , BBU-35/B

Management/Engineering: OO-ALC/WM

Technical Order: 11A16-43-7



Nomenclature: MJU-11 CHAFF/FLARE MAGAZINE

Characteristics:

Weight: 6.6 lbs
Length: 7.5 in
Width: 5.7 in
Height: 8.1 in

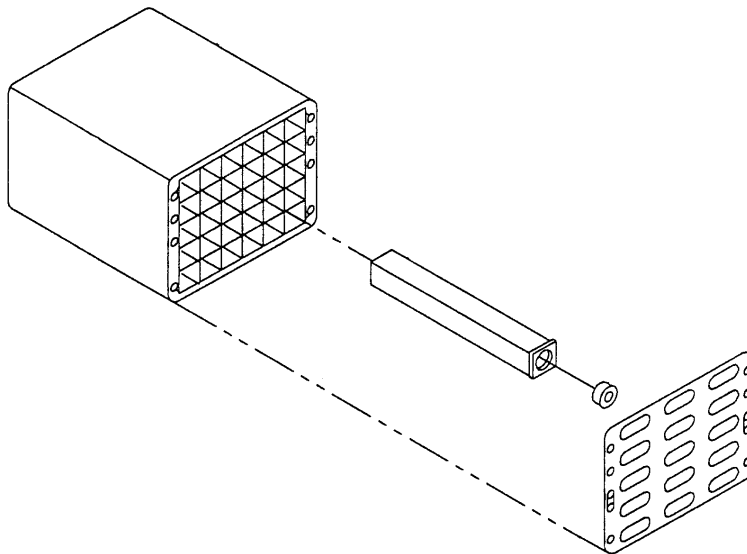
Aircraft: A-10, C-141, C-17, C-130, F-15, F-16, MH-53J

Capacity:

30ea RR-170 **or** RR-188 Chaff Cartridges **or**
30ea M-206 Flares **or**
30ea M206(T-2) Flare Simulators

Management/Engineering: WR-ALC/LNXB

Technical Order: 12P3-ALE40-3



Nomenclature: MJU-12 FLARE MAGAZINE

Characteristics:

Weight: 7.5 lbs
Length: 7.5 in
Width: 5.7 in
Height: 8.1 in

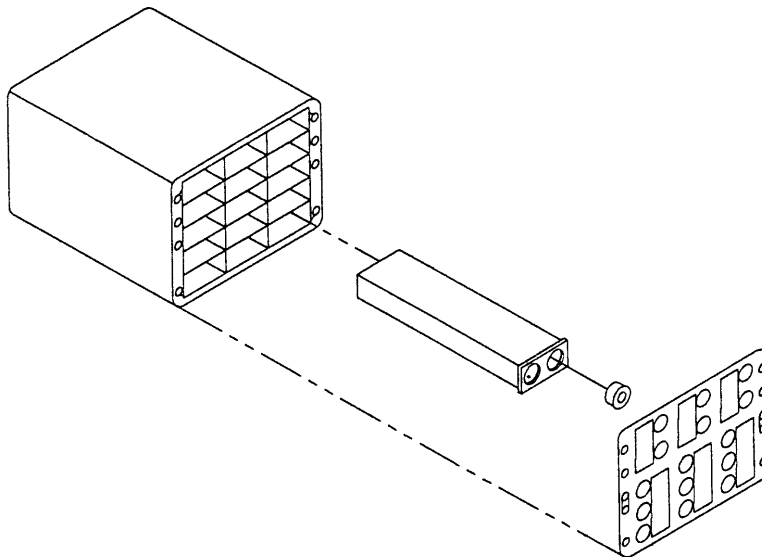
Aircraft: A-10, C-130, C-141, C-17, F-15, F-16, MH-53J

Capacity:

15ea MJU-7/B Flares **or**
15ea MJU-7A/B Flares **or**
15ea MJU-7(T-2)B Flare Simulators

Management/Engineering: WR-ALC/LNXB

Technical Order: 12P3-2ALE40-3



Nomenclature: MJU-17 FLARE MAGAZINE

Characteristics:

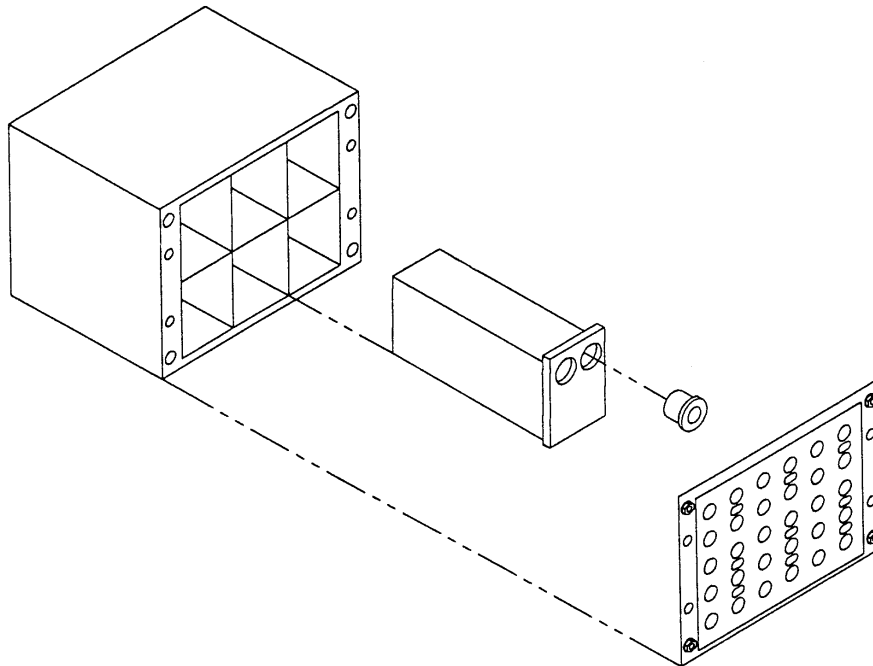
Weight: 7.5 lbs
Length: 7.5 in
Width: 7.5 in
Height: 8.11 in

Aircraft: F-15

Capacity: 6ea MJU-10 Flare Cartridges

Management/Engineering: S9E (Defense Logistics Agency)

Technical Order: 12P3-2ALE45-2



Nomenclature: MJU-23/B & A/B Name: IR Countermeasure Flare

Characteristics

CRD Weapons Code

SZUFA STAMP MJU-23 FLARE

F231B MJU-23 AIRCRAFT FLARE

Length (in.) : 10.6

Diameter (in): 2.85

Weight (lbs) 3.9

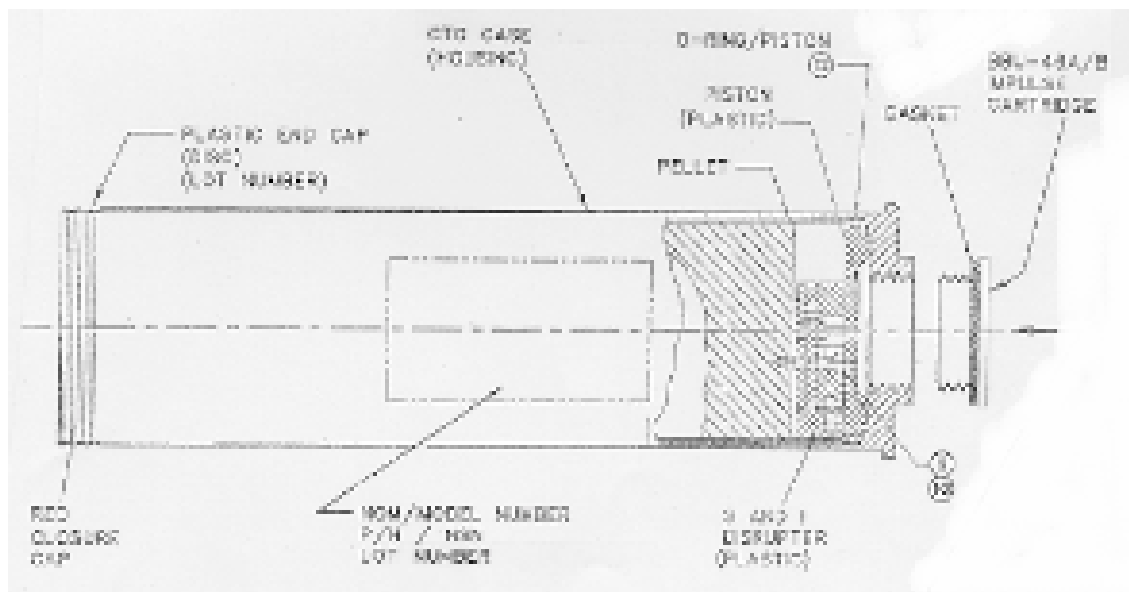
Management/Engineering: OO-ALC/WM

Aircraft: B1B

Dispenser: ALE-49

Impulse Cartridge: BBU-46

Technical Order: 11A16-45-7



Nomenclature: RR-136 Chaff Cartridge
(CRD Weapon Code - E361A)

Characteristics:

Weight: .9 lbs

Length: 8 in

Diameter: 2 in

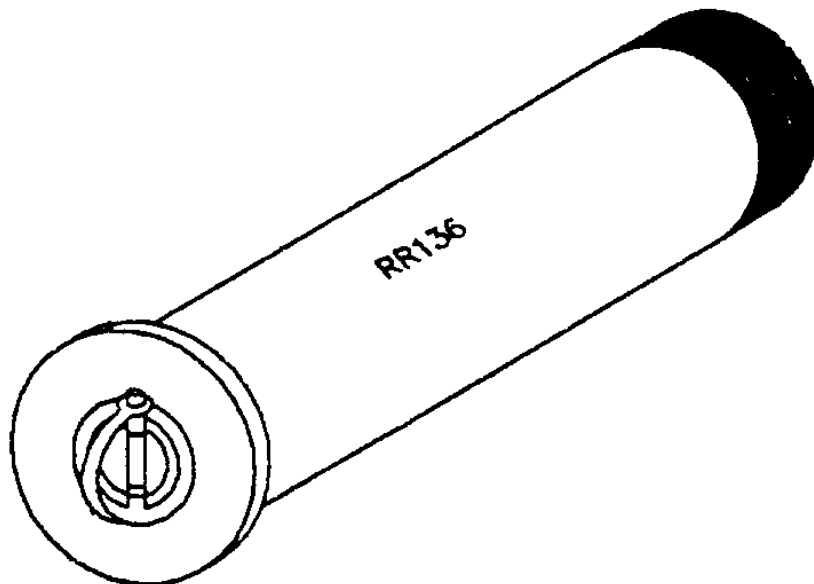
Aircraft: RF-4

Dispenser: LAU-308

Squib/Cart: BBU-52 Cart

Management/Engineering: OO-ALC/WM

Technical Order: 11A16-38-7



Nomenclature: RR-170 Chaff Cartridge
(CRD Weapon Code - E701A)

Characteristics

CRD Weapons Code

E701A CHAFF PKG RR170

PREPO ISO

PC70A RR170CHAFF/BBU35 SQUIB

SZUAA STAMP RR-170 CHAFF

Weight: .4 lbs

Length: 8 in

Width: 1 in

Height: 1 in

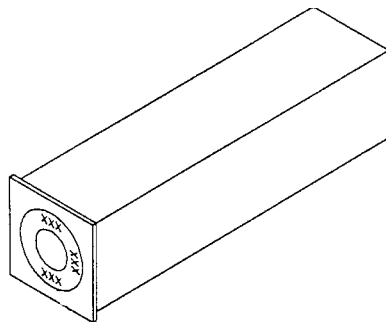
Aircraft: A-10, F-4, F-15, F-16, AC-130, C-17, B-1, C-141, C-5

Dispenser: ALE-40, ALE-45, ALE-47

Squib/Cart: BBU-35/B Impulse Cartridge

Management/Engineering: OO-ALC/WM

Technical Order: 11A16-39-7



Nomenclature: RR-180 Chaff Cartridge
(CRD Weapon Code - E181A)

Characteristics

CRD Weapons Code

E181A RR-180 CHAFF

PREPO ISO

PC80A RR180CHAFF/BBU48SQUIB

SZUBA STAMP RR-180 CHAFF

Weight: .4 lbs

Length: 8 in

Width: 1 in

Height: 1 in

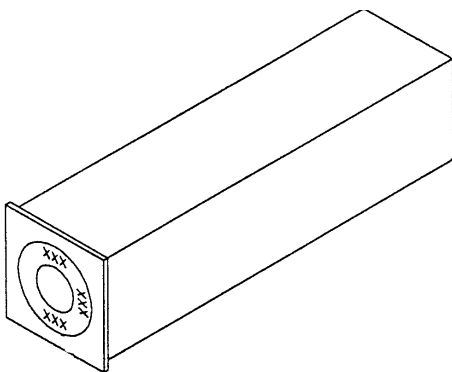
Aircraft: A-10, F-15, F-16, C-130

Dispenser: ALE-45, ALE-47

Squib/Cart: BBU-48/B Cartridge

Management/Engineering: OO-ALC/WM

Technical Order: 11A16-45-7



Nomenclature: SUU-25 FLARE DISPENSER

Characteristics:

Weight: 260 lbs

Length: 96 in

Diameter: 14 in

Aircraft: A-10, F-15, F-16

Capacity:

8ea Illumination Flares **or**

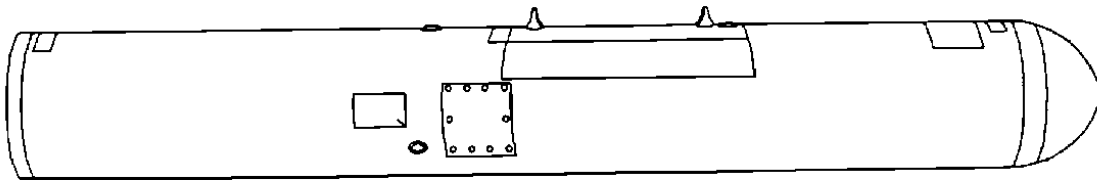
8ea Target Markers

Squib/Cart: ARD-863, CCU-107 Impluse Carts

Management/Engineering: OO-ALC/WMCA

Technical Order: 11A21-7-7

Required Parts: ADU-381 Adapter Kit, Shear Pins



CHAPTER ELEVEN

FUZES

&

SENSORS

Nomenclature: DSU-33A/B
DSU-33A/B General Purpose
DSU-33B/B JDAM Upgrade

Name: Proximity Sensor

Weapon Characteristics

Fuzing - FMU-139, FMU-152

Interface – JDAM, GP Bombs

Power/Safety - FZU-48 Air Turbine (AF), Fuze Function Control Set (N), and Thermal Battery / Fuzing

Employment Options

Weapons Used On -

M-117, Mk-80 Series General Purpose Bombs and JDAM (DSU-33A/B Limited Usage)

Status/Schedule/Improvements

DSU-33A/B

Manufacturer – Motorola Inc, Scottsdale AZ

Contractor – Motorola Inc

Status-Inventory

DSU 33-B/B

Manufacturer - Alliant PF Co. LLC, Janesville WI

Contractor – Alliant Precision Fuze Company LLC

Status – Production USAF/Navy /FMS

OPR – AAC/WMG

Notes - Joint Program with the Navy, USAF Lead Service



DSU-33B/B

Nomenclature: DTU-31/B, Timer-Actuator **Name: Bomb Adapter**

Weapon Characteristics

Weight - 2.5 lbs.

Length - 14.125 in.

Delay Time – 0.65 +or- 0.05 sec

Interface - B1-B Bomber

Employment Options

Weapons Used On -

Mk-82 A1R

Mk-36

Delivery Speed - 350 to 600 kt. or 0.9 M

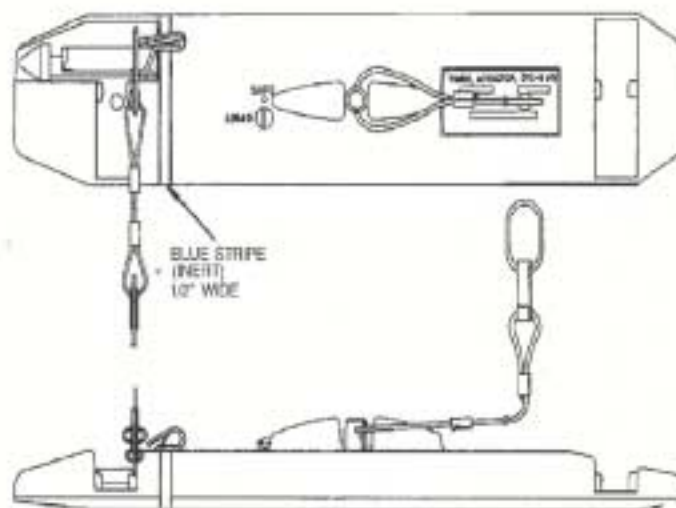
Status/Schedule/Improvements

Manufacturer – Chamberlain Amptec Corporation

Status - Inventory

OPR - OO-ALC/WM

Notes -



Nomenclature: FMU-26
Impact/Airburst Fuze

Name: Bomb

Weapons Characteristics

Fuze type – Impact short delay or airburst for general purpose

Interface – Standard Bomb

Power/Safety – Out-of-line explosive train

Employment Options

Weapons Used On –

Mk-82 M-117

Mk-83 Mk-84

Explosive Components

Primer – None

Detonator – M36A1

Lead – None

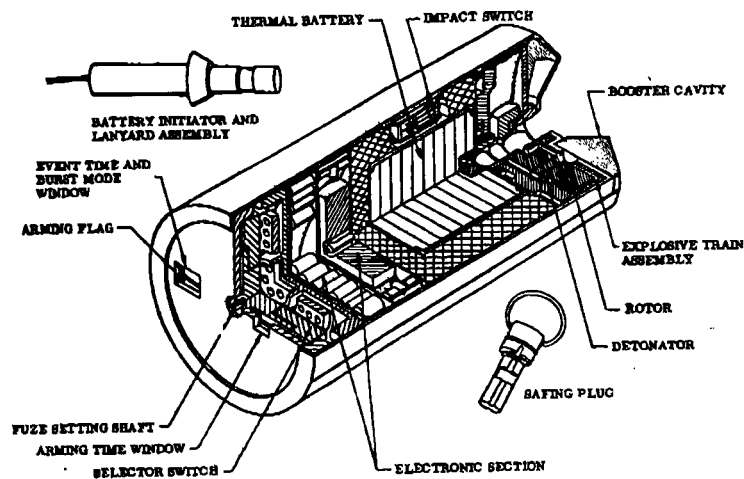
Booster – FZU-1/B or FZU-2/B

Other – Two bellows actuators used to turn rotor

Status/Schedule/Improvements

Status – Inventory

OPR – OO-ALC/WM



Nomenclature: FMU-54A/B

Name: Impact Bomb Fuze

Weapons Characteristics

Fuze type – Impact for general purpose bombs

Interface – Standard Bomb

Power/Safety – Out-of-line explosive train

Employment Options

Weapons Used On –

Mk-82 M-117

Mk-83 Mk-84

Explosive Components

Primer – None

Detonator – M9 Stab T75 Elec for Prox mode

Lead – Long – Tetryl 350 mg (two)

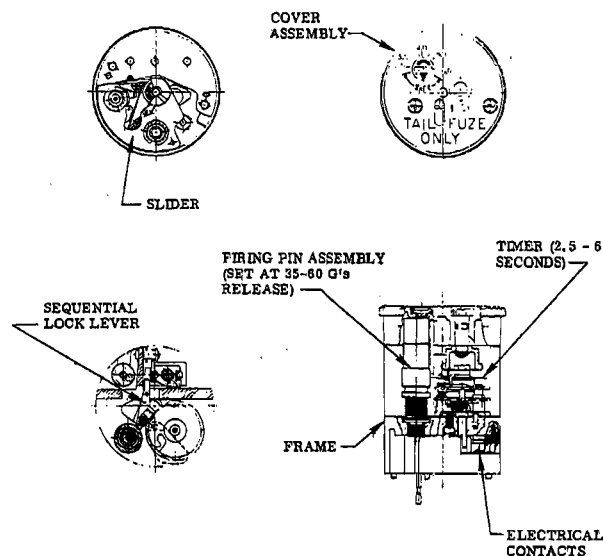
 Short – Tetryl 60 mg (two)

Booster – 162 g Tetryl

Status/Schedule/Improvements

Status – Inventory

OPR – OO-ALC/WM



Nomenclature: FMU-56
Fuze

Name: Bomb Proximity

Weapons Characteristics

Fuze type – Proximity Fuze for Cluster Bombs

Interface – Cluster Bomb

Power/Safety – thermal Battery/Out-of-line explosive train

Employment Options

Weapons Used On –

CBU-24/B

CBU-29/B

Explosive Components

Primer – In Thermal Battery

Detonator – D74B1

Lead – None

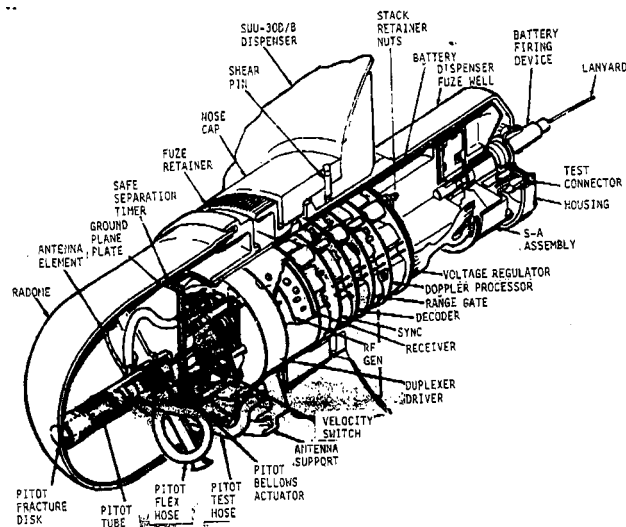
Booster – FZU-1/B

Other – two explosive bellows drivers operate rotor

Status/Schedule/Improvements

Status – Inventory

OPR – OO-ALC/WM



FMU-56 Fuze

Nomenclature: FMU-72

Name: Impact Bomb

Fuze

Weapons Characteristics

Fuze type – Impact for general purpose bombs

Interface – Standard Bomb

Power/Safety – Battery firing device and Liquid Ammonia (unlocks Battery), Out-of-line explosive train

Employment Options

Weapons Used On –

Mk-82 M-117

Mk-83 Mk-84

Explosive Components

Primer – percussion Cap (Battery)

Detonator – M36A1

Lead – None

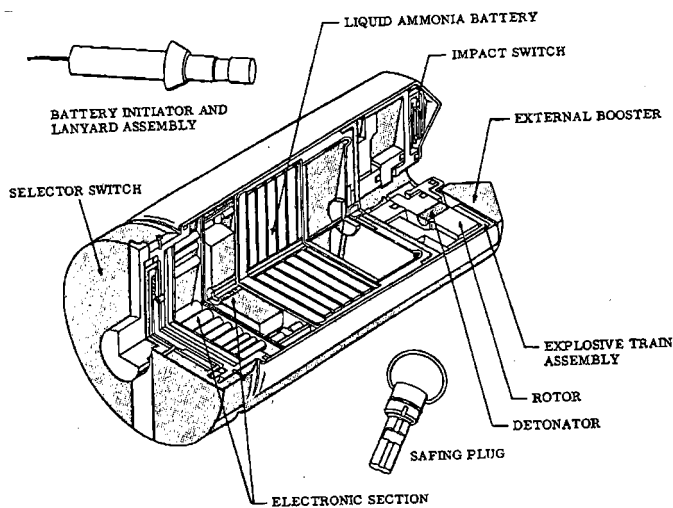
Booster – FZU-2/B 9 Separate Item)

Other – two bellows Drivers operate rotor

Status/Schedule/Improvements

Status – Inventory

OPR – OO-ALC/WM



Nomenclature: FMU-81
Fuze

Name: Bomb Impact

Weapons Characteristics

Fuze type – Impact for laser guided bombs

Interface – Laser Guided Bomb

Power/Safety – Thermal Battery/Out-of-line explosive train

Employment Options

Weapons Used On –

GBU-10

GBU-12

Explosive Components

Primer – None

Detonator – M36A1

Lead – none

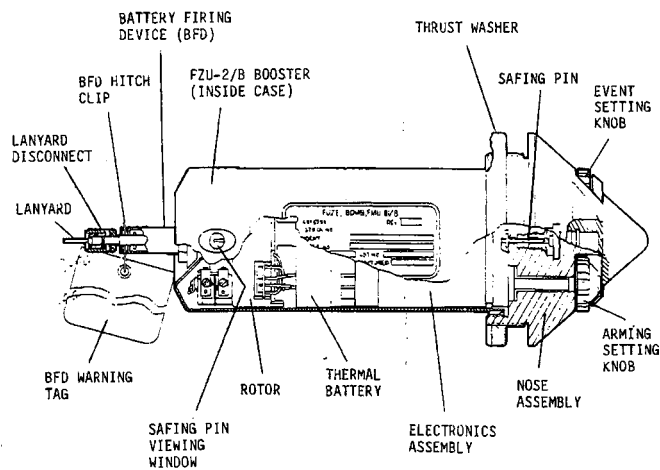
Booster – FZU-2/B

Other – Two bellows drivers for arm enable and mechanical arming

Status/Schedule/Improvements

Status – Inventory

OPR – OO-ALC/WM



FMU-81

Nomenclature: FMU-110

Name: Proximity Fuze

Weapons Characteristics

Fuze type – Proximity for Cluster Munitions

Interface – Cluster Munitions

Power/Safety – In Thermal Battery/Out-of-line explosive train

Employment Options

Weapons Used On –

SUU-30 Dispenser

Explosive Components

Primer – In Thermal Battery

Detonator – D74B1

Lead – None

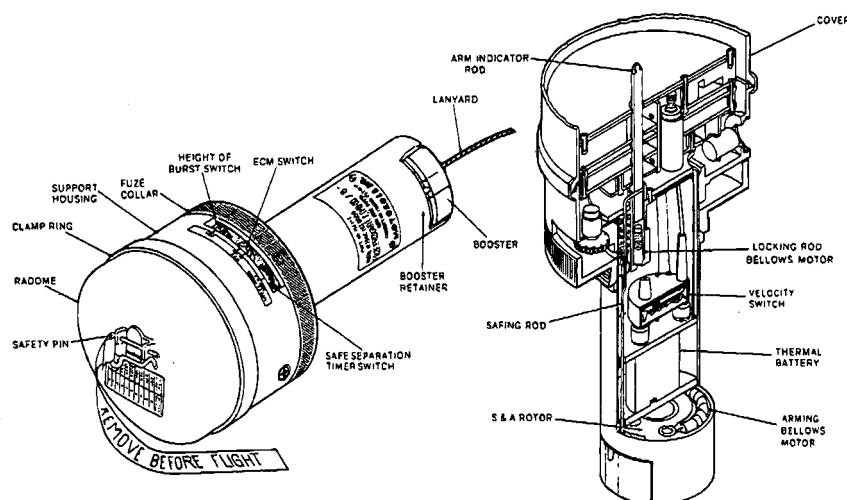
Booster – FZU-1/B

Other – Arming bellows, locked rod bellows; less 1 g explosives each

Status/Schedule/Improvements

Status – Inventory

OPR – OO-ALC/WM



Nomenclature: FMU-113

Name: Proximity Fuze

Weapons Characteristics

Fuze type – Proximity Fuze

Interface – Standard Bomb (low drag)

Power/Safety – Alternator/Out-of-line explosive train

Employment Options

Weapons Used On –

Mk-82 M-117

Mk-83 Mk-84

Explosive Components

Primer – None

Detonator – Mk 44

Lead – 466 mg CH-6

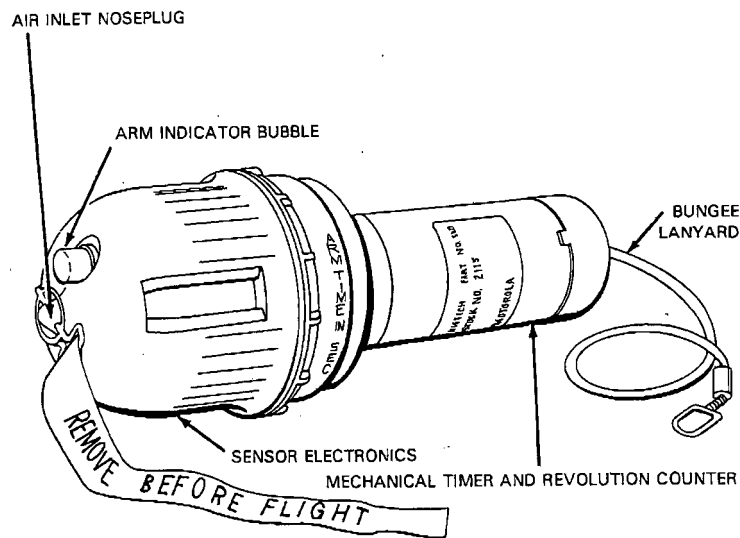
Booster – FZU-2/B

Other – Electric and Stab Actuators

Status/Schedule/Improvements

Status – Inventory

OPR – OO-ALC/WM



Nomenclature: FMU-124

Name: Guided Bomb Impact Fuze

Weapons Characteristics

Fuze type – Impact delay for Guided Bomb

Interface – Guided Bomb

Power/Safety – FZU-32 Bomb Fuze Initiator (Navy) GBU-15 Guided Bomb Power Supply (Air Force)/ out-of-line explosive train

Employment Options

Weapons Used On –

GBU-15

Explosive Components

Primer – None

Detonator – Mk 100-0

Lead – 160 mg Tetryl

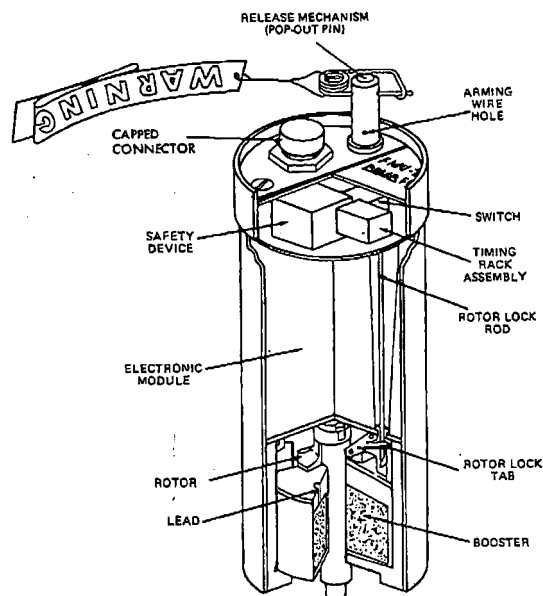
Booster – 123 g Tetryl

Other – Mk 20-0 bellows Drivers (Two)

Status/Schedule/Improvements

Status – Inventory

OPR – OO-ALC/WM



FMU 124 Fuze

Nomenclature: FMU-139A/B
Fuze

Name: Electronic Bomb

Weapon Characteristics

Fuze Type - Impact, Impact Delay, and Proximity (w/ external prox. sensors)

Interface - Standard Bomb

Power/Safety - FZU-48/B Air Turbine

Employment Options

Weapons Used On -

Mk-82 Mk-84

M-117 GBU-10

GBU-12 GBU-22

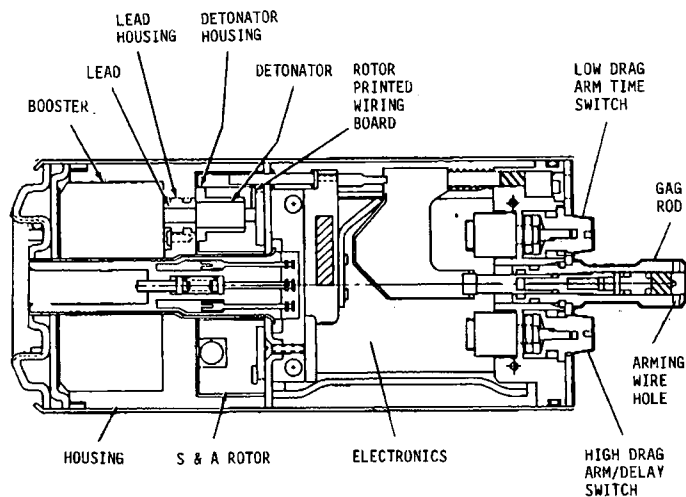
GBU-24 GBU-31/32

Status/Schedule/Improvements

Manufacturer – Alliant Precision Fuze Company LLC

Status - Inventory

OPR - OO-ALC / LIW



Nomenclature: FMU-143A-H/B
Fuze

Name: Electronic Bomb

Weapon Characteristics

Fuze Type - Impact delay for penetrating warheads (single 0.060 sec. delay)

Interface - BLU-109, BLU-113, AGM-142 I-800

Power/Safety - FZU-32B/B Bomb Fuze Initiator, GBU-15/AGM-130 Battery

Employment Options

Weapons Used On -

GBU-10 GBU-24 GBU-27 GBU-28 GBU-31 AGM-142 AGM-130
(With BLU-109 or BLU-113 w/hs)

Status/Schedule/Improvements

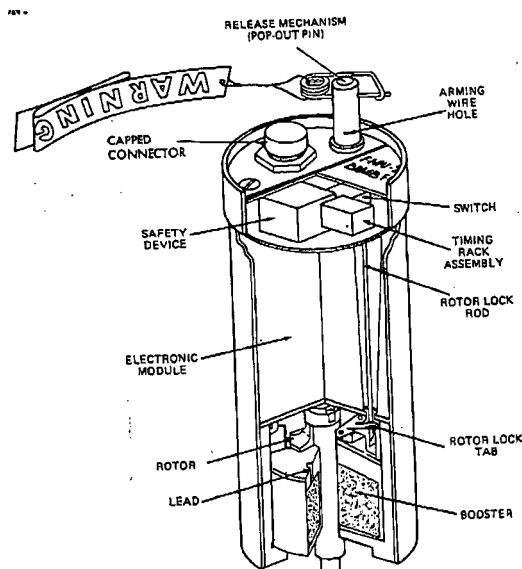
Manufacturer - Dayron Inc., Orlando Fl.

Contractor - Dayron

Status - Production

OPR - OO-ALC/WM

Notes - Joint Program with Navy, FMU-143E/B version for Navy GBU-24A/B,-
FMU-143D/B version for AGM-142, FMU-143F/B G/B H/B versions are for the
GBU-28 A/B with impact delays of 0.030, 0.060, 0.120 seconds respectively.



FMU-143B/B

Nomenclature: FMU-152/B

Name: Electronic Bomb Fuze

Weapon Characteristics

Fuze Type - Multi- Impact Delay, Multi-Arm and Proximity Sensor Compatible, and Cockpit Selectable in General Purpose Blast-Frag and Hardened-Target Penetrator Warheads.

Interface - MK-82, MK-83, MK-84, BLU-109, BLU-110, BLU-113

Power/Safety - FZU-55/B Bomb Fuze Initiator, GBU-15/AGM-130 Battery, Navy FFCS.

Employment Options

Weapons Used On - GBU-10, GBU-12, GBU-24, GBU-27, GBU-28, GBU-31, GBU-32, and AGM-130

Status/Schedule/Improvements

Manufacturer – Dayron, division of Dae Shin, Inc, Orlando, FL

Contractor - Dayron

Status - EMD

OPR - ASC/LIW

Notes - Joint Program with Navy, Air Force Lead Service



FMU-152/B

Nomenclature: FMU-159/B

Name: Hard Target Smart Fuze

Weapons Characteristics

Fuze type – Penetrator fuze with “smart” modes to include programmable Void Sensing, Layer Counting and Depth of Burial, as well as traditional Time Delay after impact. The fuze is cockpit programmable via a joint direct Attact munitions (JDAM) type weapon communications interface

Interface – BLU-109, BLU-116, BLU-113

Power/Safety – FZU-60 Bomb Fuze initiator, GBU-15/AGM-130 Battery, Missile Fuze Interface Unit (FIU).

Employment Options

Weapons Used On – BLU-109/116/113 for GBU-24/27/28, AGM-130, GBU-15, CALCM, AGM-86D, Tactical tomahawk Penetration Variant and Future Hard Target/Counter Proliferation Weapons.

Status/Schedule/Improvements

Manufacturer – Alliant P Fuze Co. LTD, Minneapolis, MN

Contractor- Alliant Precision Fuze Company LTD

Ststus-EMD

OPR- AAC/WMGH

Notes-Joint Program with Navy, USAF Lead



Nomenclature: FZU-39/B
Sensor

Name: Proximity Fuze

Weapons Characteristics

Type – Proximity Sensor used with dispenser fuze for cluster bombs

Interface – Cluster Bombs

Power/Safety – Powered by Thermal Battery

Employment Options

Weapons Used On –

SUU-64/B

SUU-65/B

Explosive Components

Primer – N/A

Detonator – N/A

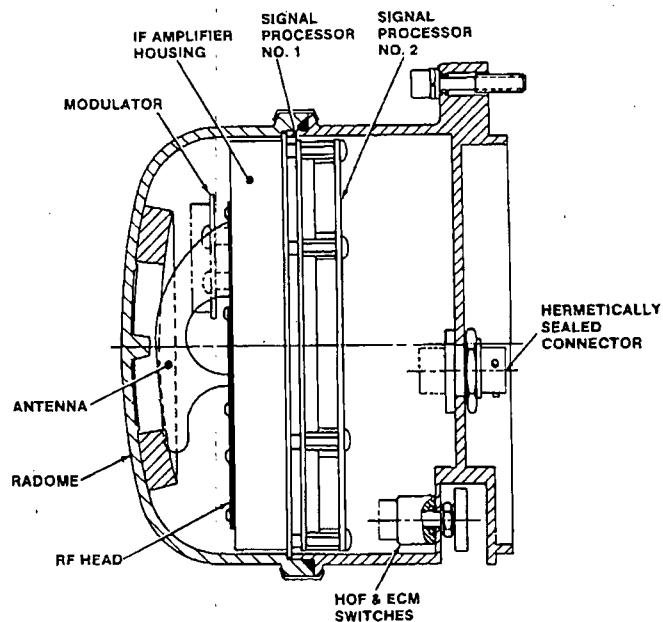
Lead – N/A

Booster – N/A

Status/Schedule/Improvements

Status – Inventory

OPR – OO-ALC/WM



FZU-39/B Proximity Sensor

Nomenclature: M904E4

Name: Mechanical Bomb Fuze, Nose

Weapons Characteristics

Fuze type – Impact delay for general purpose bombs (0.00, 0.01, 0.25, 0.05, 0.1 or 0.25 delay)

Interface – Standard Bomb

Power/Safety – Mechanical Arming upon release (arming vane). Spring-driven out-of-line explosive train

Employment Options

Weapons Used On –

Mk-82 M-117

Mk-83 Mk-84

Explosive Components

Primer – None

Detonator – M35

Lead – 100 mg Tetryl

Booster – 72.3 g Tetryl

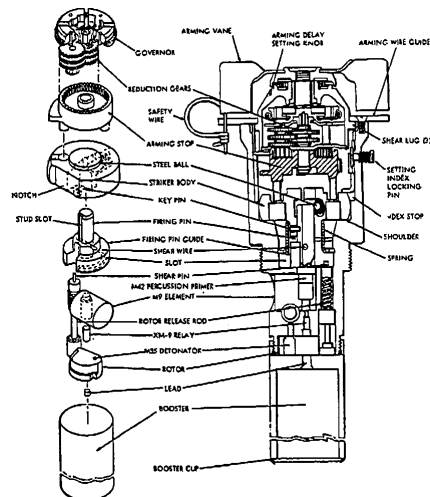
Requires use of M-9 delay and M148 Nose Adapter Booster (Separate Components)

Status/Schedule/Improvements

Status – Inventory

OPR – OO-ALC/WM

M904 Nose Fuze



Nomenclature: M905

Name: Mechanical Bomb Fuze, Tail

Weapons Characteristics

Fuze type – Impact delay for general purpose bombs (0.00, 0.01, 0.25, 0.05, 0.1 or 0.25 delay)

Interface – Standard Bomb

Power/Safety – Mechanical Arming upon release (arming vane). Spring-driven out-of-line explosive train

Employment Options

Weapons Used On –

Mk-82 M-117

Mk-83 Mk-84

GBU-10 GBU-12

Explosive Components

Primer – M42

Detonator – M35

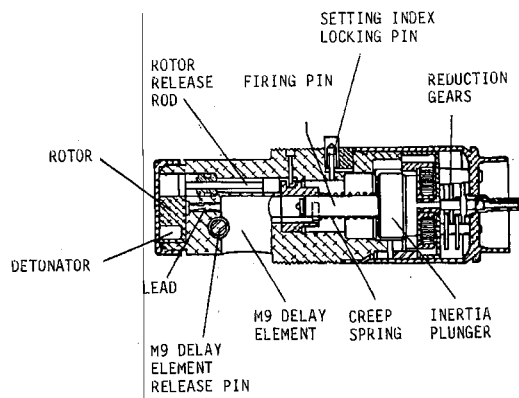
Lead – None

Requires use of M-9 delay and M147 Tail Adapter Booster and ATU-35/B Vane Drive Assembly (Separate Components)

Status/Schedule/Improvements

Status – Inventory

OPR – OO-ALC/WM



M905 Tail Fuze

Nomenclature: M907

Name: Mechanical Fuze, Airburst

Weapons Characteristics

Fuze type – Mechanical Airburst for Cluster Bombs

Interface – Cluster Bombs

Power/Safety – Mechanical Arming upon release (arming vane).

Employment Options

Weapons Used On –

CBU-24 CBU-49

CBU-62 M120 Photoflash Bomb

Explosive Components

Primer – M72

Detonator – None

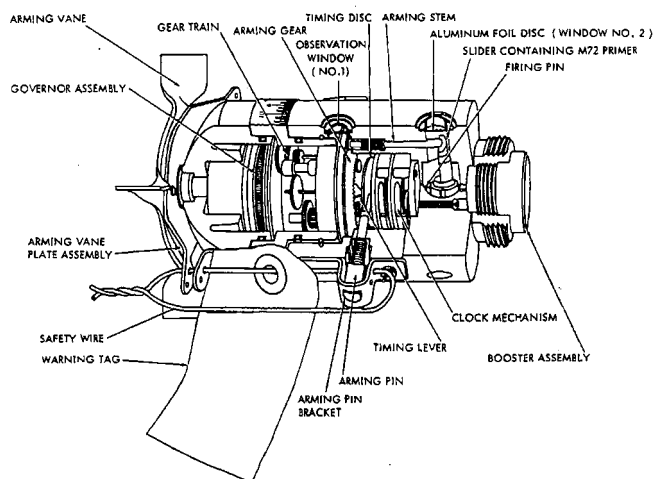
Lead – Nonel

Booster – 6.18 g Black Powder

Status/Schedule/Improvements

Status – Inventory

OPR – OO-ALC/WM



M907 Fuze

Nomenclature: MK 339 Mod 1

Name: Proximity Fuze

Weapons Characteristics

Fuze type – Proximity Fuze for Cluster Munition

Interface – Cluster Munition

Power/Safety – Out-of-line explosive train

Employment Options

Weapons Used On –

Mk-20

CBU-59/B

CBU-72

Explosive Components

Primer – None

Detonator – Mk 43 Mod 2

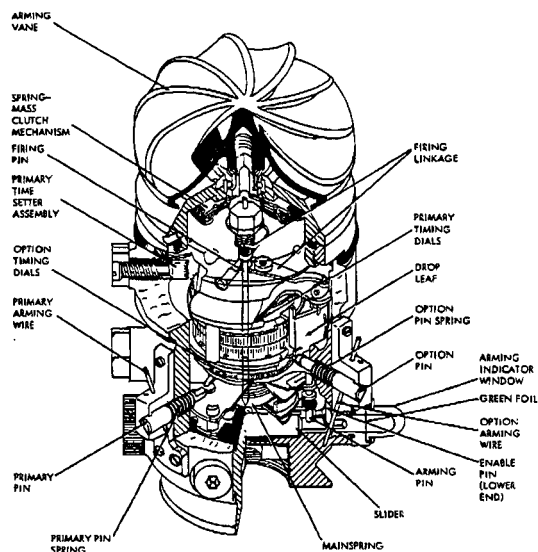
Lead – none

Booster – None

Status/Schedule/Improvements

Status – Inventory

OPR – OO-ALC/WM



CHAPTER TWELVE

MUNITIONS

MATERIAL HANDLING EQUIPMENT

(MMHE)

**Note: For more information visit the MMHE Web Page
(<https://wmnet.eglin.af.mil/mmhe>) for approved local manufactured
equipment and drawing packages**

Nomenclature: LOADER, AMMUNITION, GFU-7/E

Description:

The purpose of the loader is to load 30-mm ammunition from shipping and storage containers into an aircraft within a specific time and to simultaneously unload and deposit spent and/or live rounds of ammunition from the aircraft gun system into Ammunition and Storage containers

Characteristics

Weight (lbs.) – 2,800 (Loaded with Tubes)

Height (in.) – 92

Width (in.) – 69

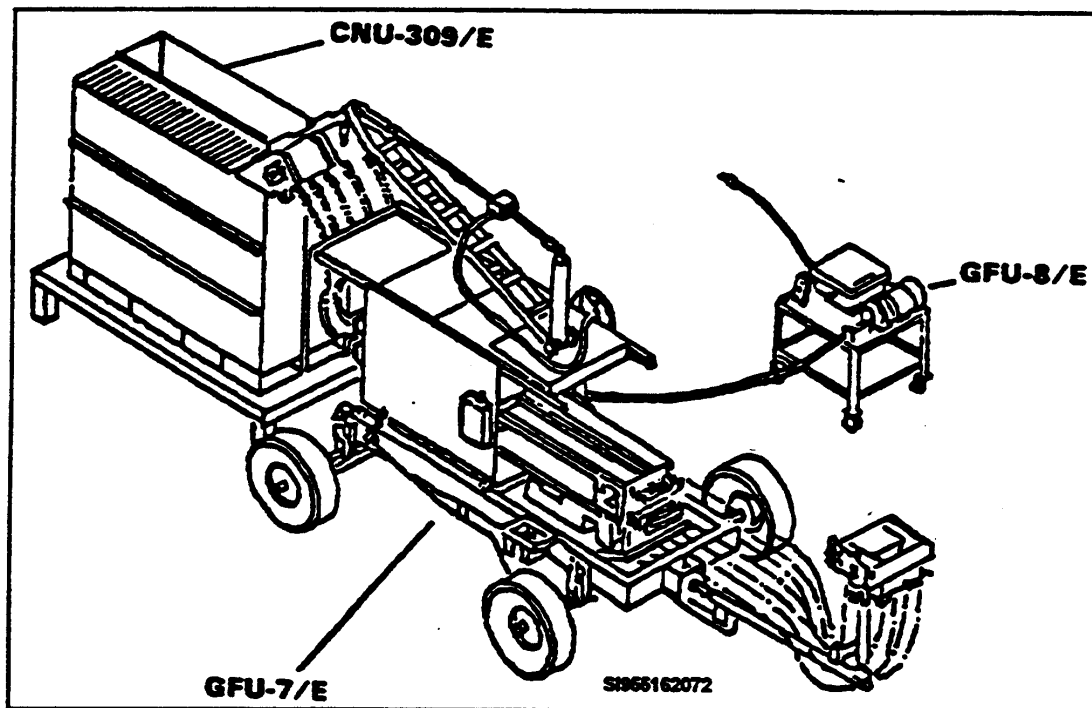
Length (in) – 194

Status/Schedule/Improvements

Status - Inventory

OPR – WR/ALC

T.O. – 35D30-4-12-2



Nomenclature: MHU-110/M
Trailer

Name: Munitions Handling

Description:

The trailer is a ten-wheel flatbed carrier capable of transporting any munitions within the load, dimensional and stability limitations. The accessories furnished with the trailer are general-purpose items. The MHU-110 is equipped to be attached to a tow vehicle having a pintle hook and safety pin, and electrical connections for running lights. Special adapters/accessories required during loading/transportation of a munition will be listed in the applicable munition or aircraft manual. The trailer is typically used to transport GP bombs, GBU's, CBU's and missiles in containers only.

Note: For more information contact the MMHE World Wide web page

Characteristics

Weight (lbs.) – 4,200

Height (in.) - 30

Width (in.) - 87

Deck Length (in) - 180

Wheel Base (in) - 110

Ground Clearance (in) - 10

Tongue Length (in) - 74

Brakes:

Service – 6 Wheel Hydraulic

Parking – 4 Wheel Mechanical Hand Lever

Turning Angle – 45 Degrees

CAPACITY

Capacity (net pounds) – 15,000

Restraint Capacity

Main Deck Rings (pounds) – 10,000

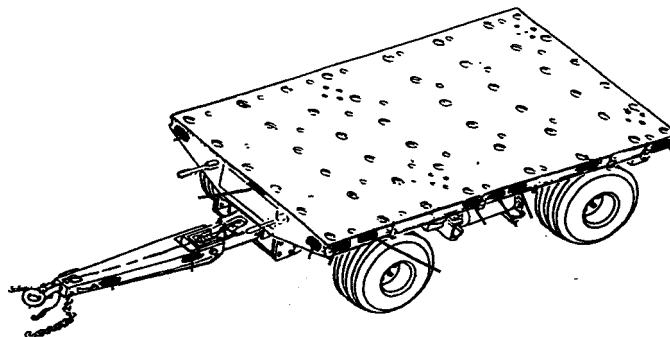
Side Deck Rings (pounds) – 25,000

Status/Schedule/Improvements

Status - Inventory

OPR – WR/ALC

T.O. 35D3-2-26-1



**Nomenclature: MHU-141/M
Trailer**

Name: Munitions Handling

Description:

The Munitions Trailer is a four-wheeled automotive steering vehicle capable of transporting loads of up to 5700 pounds. The trailer is designed for temporary storage and transportation of a variety of munitions and other stores. The MHU-141 is equipped to be attached to a tow vehicle having a pintle hook and safety pin, and electrical connections for running lights. The center section of the deck is hinged and can be lifted open to provide a hatchway across the full width of the trailer. One large toolbox at the rear of the trailer is provided for storage of accessories. Side toolboxes are no longer required. The trailer is generally used to transport GP bombs, GBU's, CBU's and missiles in and out of containers.

Characteristics

Weight (lbs.) – 2900

Height (in.) - 32

Width (in.) - 84

Deck Length (in) - 126

Wheel Base (in) - 89

Ground Clearance (in) - 8

Tongue Length (in) - 88

Brakes:

Service – 4 Wheel Hydraulic

Parking – 2 Wheel Mechanical Hand Lever

Turning Angle – 40 Degrees

CAPACITY

Capacity (net pounds) – 5,700

Restraint Capacity

Main Deck Rings (pounds) – 10,000

Side Deck Rings (pounds) – 25,000

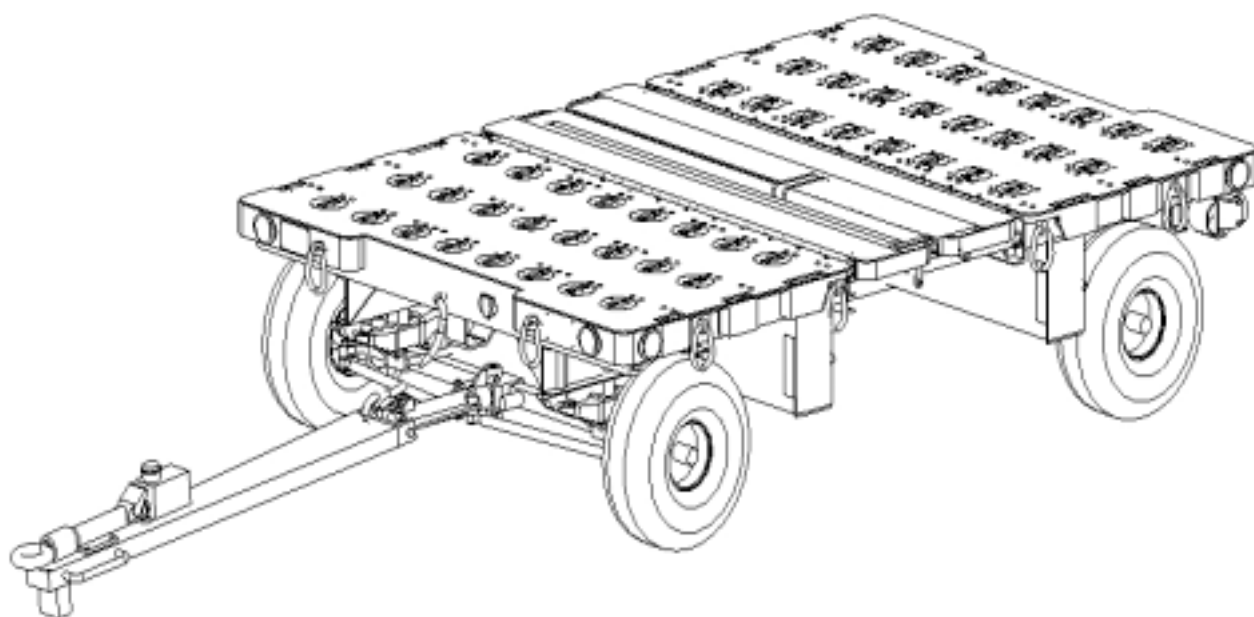
Main Deck Link/Pin Assembly (pounds) – 1,350

Status/Schedule/Improvements

Status - Inventory

OPR – WR/ALC

T.O. 35D3-2-27-1



Nomenclature: MHU-194/E Name: Manually Operated Lift Truck (MOLT)

Description:

The MOLT is a towable, manual approach to munitions handling capable of loading/unloading external stores on aircraft and munitions handling equipment.

Characteristics

Weight (lbs.) – 1,900

Height (in.) – 62 (Tow Bar in up Position)

Width (in.) - 59

Length (in) - 136

CAPACITY

Lifting Capacity (net pounds)

Using Top Hole in Outer Arm Assembly – 2,450

Using Lower Hole in Outer Arm Assembly – 1,200

With Extension Lift Arms Adapter – 1,000

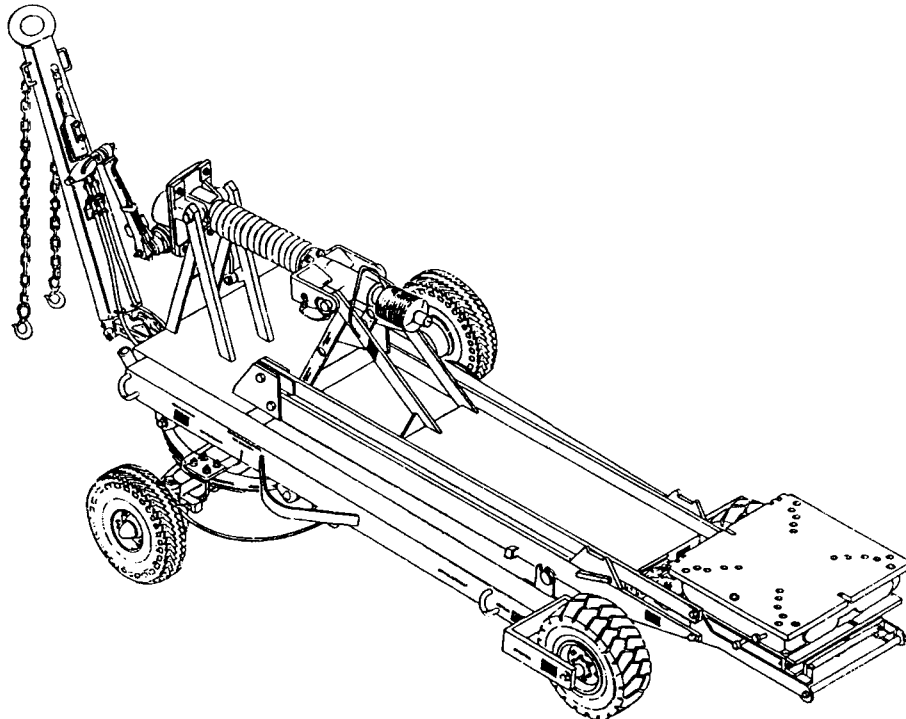
With Fork Adapter – 1,000

Status/Schedule/Improvements

Status - Inventory

OPR – WR/ALC

T.O. 35D3-9-23-1



Nomenclature: MHU- 173

Name: Munitions Lift Truck (MLT)

Description:

The MLT is a heavy-duty, U-type frame vehicle used for transporting munitions. The MLT is equipped to be attached to a tow vehicle having a pintle hook and safety pin, air connections for brakes, and electrical connections for running lights. The MLT frame width is adjustable to accept various widths of weapon adapters.

Characteristics

Weight (lbs.) – 29,500

Height - 4 feet 2 inches

Width – 9 feet 3 inches to 12 feet 8 inches, adjustable

Tongue Length – 10 feet 4 ½ inches

CAPACITY

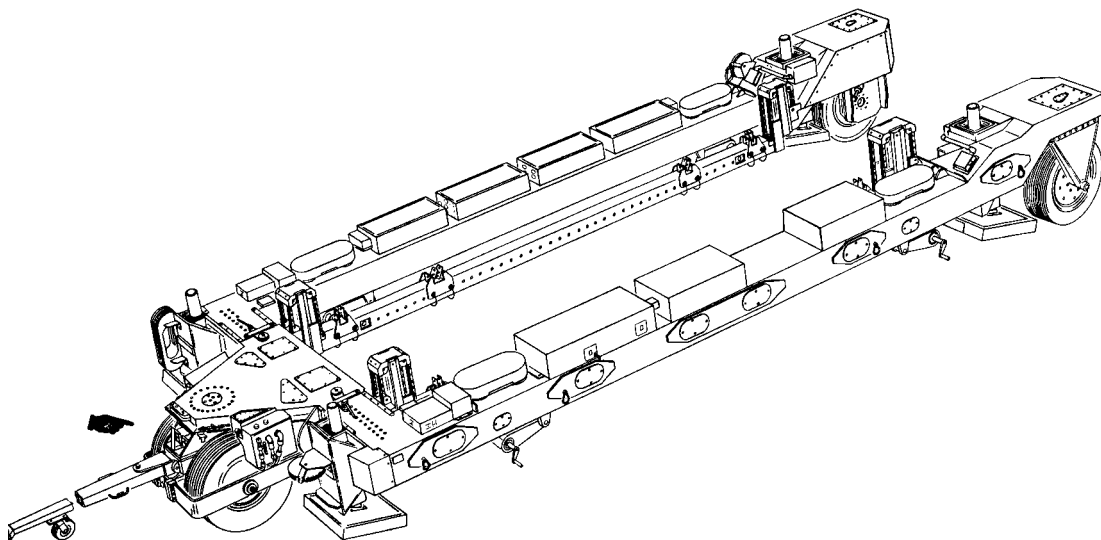
Capacity (net pounds) – 40,000

Status/Schedule/Improvements

Status - Inventory

OPR – WR/ALC

T.O. – 11N-H5052-2



Nomenclature: 20-MM AMMUNITION LOADING SYSTEM LOADER ASSEMBLY **Name: ALS**

Description:

The 20-mm ammunition loading system loader assembly is used to transfer 20-mm series ammunition into an aircraft gun system on the flight line. While performing this loading function, the loader assembly simultaneously downloads cleared rounds and/or spent cases from the gun system.

Characteristics

Weight (lbs.) – 2558 (full)

Height (in.) – 37.50

Width (in.) - 68

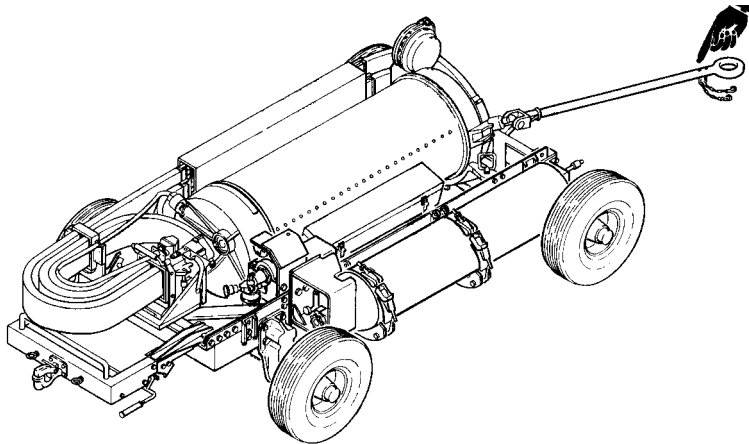
Length (in) – 181.38

Status/Schedule/Improvements

Status - Inventory

OPR – WR/ALC

T.O. – 35D30-4-10-1



Nomenclature: 20-MM Universal Ammunition Loading System
LOADER ASSEMBLY Name: UALS

Description:

The 20-mm ammunition loading system loader assembly is used to transfer 20-mm series ammunition into an aircraft gun system on the flight line. While performing this loading function, the loader assembly simultaneously downloads cleared rounds and/or spent cases from the gun system.

Characteristics

Weight (lbs.) – 3,100 (full)

Height (in.) – 37.50

Width (in.) - 68

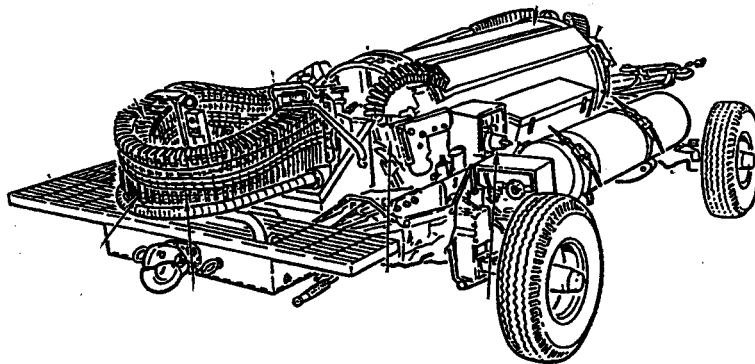
Length (in) – 189.38

Status/Schedule/Improvements

Status - Inventory

OPR – WR/ALC

T.O. – 35D30-4-15-1



Nomenclature: 20-MM AMMUNITION LOADING SYSTEM REPLENISHER ASSEMBLY

Description:

The 20-mm ammunition loading system replenisher assembly is used to transfer 20-mm ammunition from storage into the mobile loader loader assembly for transportation to the flight line. While performing this function, it simultaneously and independently receives spent cases and/or unfired ammunition from the loader assembly. The replenisher will function when supplied with either built (loose) or linked ammunition.

Characteristics

Weight (lbs.) – 330

Height (in.) – 39.3

Width (in.) – 30.7

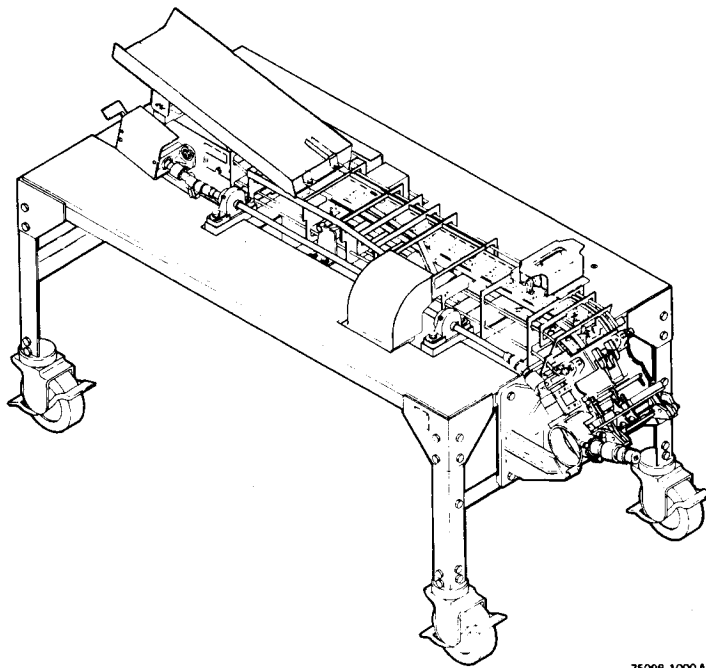
Length (in) – 79.4

Status/Schedule/Improvements

Status - Inventory

OPR – WR/ALC

T.O. – 35D30-4-11-1



Nomenclature: 30-MM AMMUNITION LOADING SYSTEM **Name:**
GFU-10/E

Description:

The purpose of the Ammunition loading System is to transfer 30-mm ammunition from storage containers into Transporter Assemblies and move ammunition to the aircraft and load the GPU-5/A Gun Pod. The ALS will simultaneously unload and deposit spent cases/live rounds from the Gun Pod into the Transporter Assembly and transfer spent cases/live rounds into the ammunition storage container.

Characteristics

Weight (lbs.) – 29,500

Height (in) - 47

Width (in) – 32

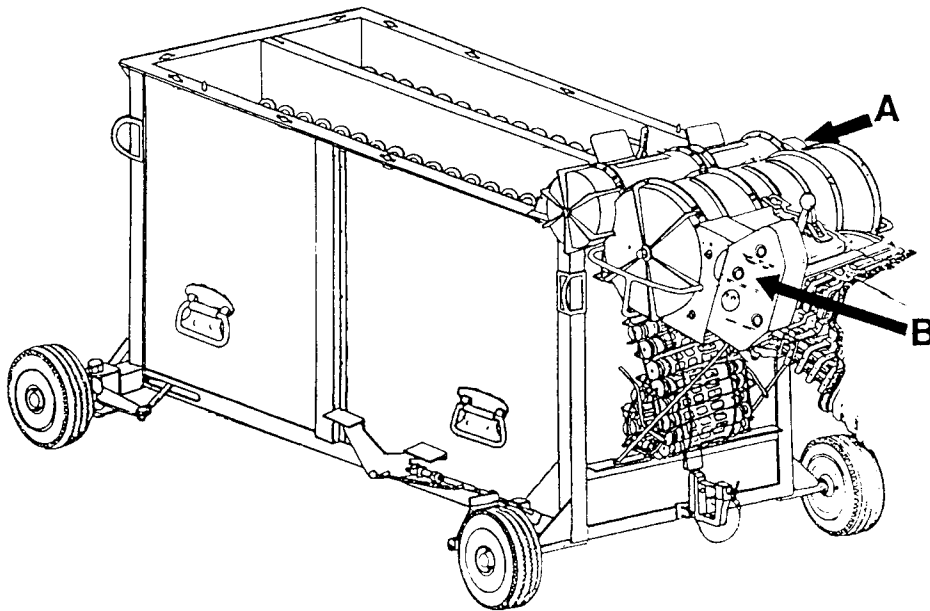
Length (in) – 154

Status/Schedule/Improvements

Status - Inventory

OPR – WR/ALC

T.O. – 35D30-4-13-1



Nomenclature: Truck, Lift, Aerial Stores

Name: MHU-40

Description:

The MJ-40 is a 10,000 pound capacity, self-propelled hydraulically operated lifting and positioning device used to lift and attach aerial stores. It consists of a main structural frame on which is mounted a cantilevered lift boom, extendable outriggers and auxiliary frames for sheet metal.

Characteristics

Weight (lbs.) – 7,230

Width (in) – 73 ½ front 52 rear

Length (in) – 185

CAPACITY

Capacity (net pounds) –

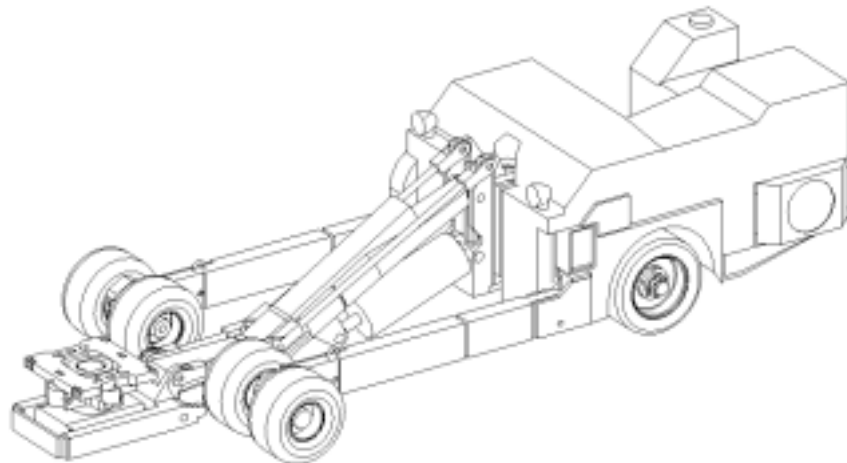
Load on Forks – 6,000

Load on Head – 7,230

Status/Schedule/Improvements

Status - Inventory OPR – WR/ALC

T.O. – 35D3-9-21-1



Nomenclature: Truck, Lift, Aerial Stores

Name: MJ-1

Description:

The MJ-1 Lift Truck is a self-propelled, hydraulic operated Lift Truck. The rear wheels are driven by a 27.5 HP gasoline/diesel engine connected to a conventional differential by a hydraulically operated and controlled steering.

Characteristics

Weight (lbs.) – 3,800

Width (in) – 52.25

Length (in) – 144.75

CAPACITY

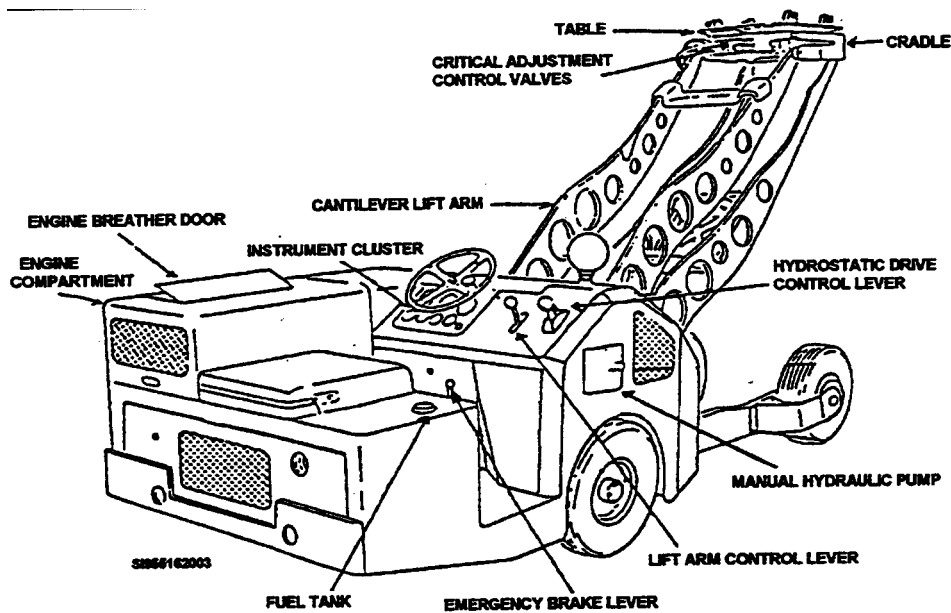
Lift Capacity (net pounds) – 3,000

Status/Schedule/Improvements

Status - Inventory

OPR – SA/ALC

T.O. – 35D3-2-25-1



Nomenclature: Truck, Lift, Aerial Stores

Name: MHU-83

Description:

The MHU-83 Lift Truck is a self-propelled, hydraulic operated lift truck. The rear wheels are driven by a 27.5 HP gasoline/diesel engine connected to a conventional limited-slip differential by a hydrostatic drive system.

Characteristics

Weight (lbs.) – 6,380

Width (in) – 53- 5/8 (rear) 69- 1/2 (front)

CAPACITY

Capacity (net pounds) –

Load on Forks – 6,000

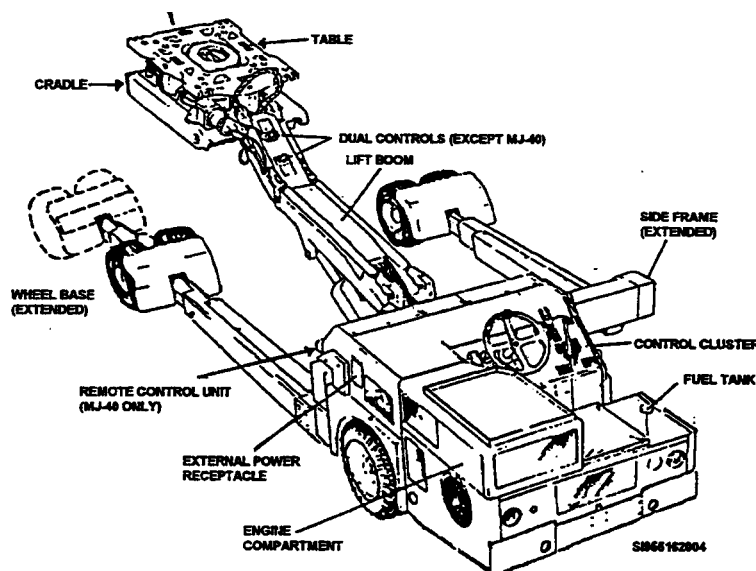
Load on cradle – 7,000

Status/Schedule/Improvements

Status - Inventory

OPR – SA/ALC

T.O. – 35D5-3-8-31



Nomenclature: MHU- 196/M Name: Munitions Handling Truck (MHT)

Description:

The MHT is a heavy-duty, U-type frame vehicle used for transporting munitions. The MHT is equipped to be attached to a tow vehicle having a pintle hook and safety pin, air connections for brakes, and electrical connections for running lights and hydraulic fluid circulation.

Characteristics

Weight (lbs.) – 39,100

Height - 4 feet 2 inches

Width – 9 feet 8 inches to 13 feet 1 inches, adjustable

Length – 30 feet

CAPACITY

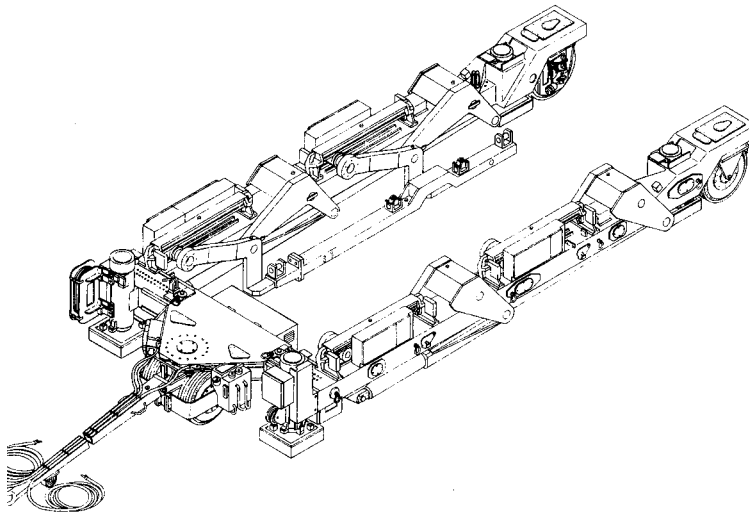
Capacity (net pounds) – 40,000

Status/Schedule/Improvements

Status - Inventory

OPR – SA/ALC

T.O. – 11N-H5083-2



Nomenclature: USAF Linkless Ammunition Loading System
Name: LALS

Description:

The LALS loader assembly is used to transfer 20-mm series ammunition into an aircraft gun system on the flightily. While performing this loading function, the loader assembly simultaneously downloads cleared rounds and/or spent cases from the gun system.

Characteristics

Weight (lbs.) – 3,275 (loaded with 1800 rounds)

Height (in) – 37.50

Width (in) – 68

Length (in) – 189

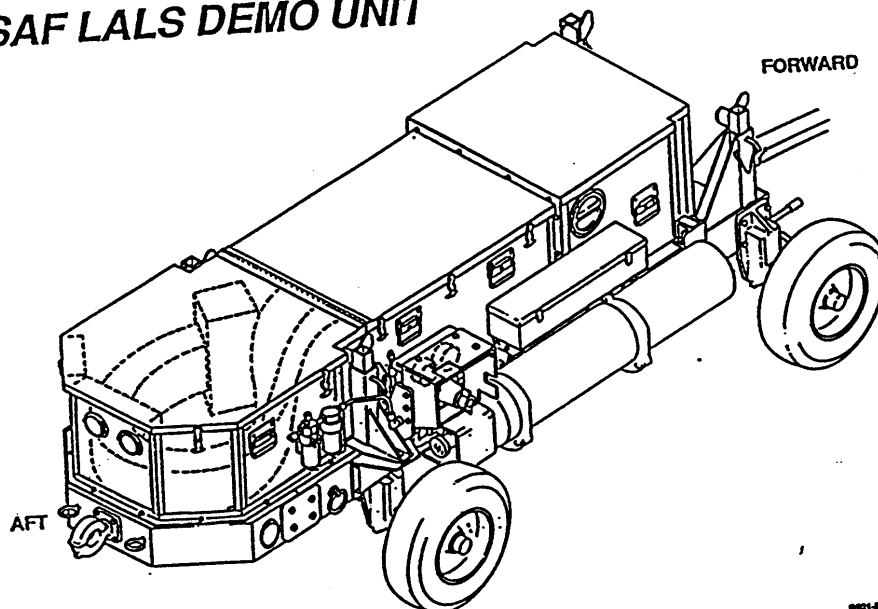
Status/Schedule/Improvements

Status – Development/Procurement

OPR – WR/ALC

T.O. – TBD

USAF LALS DEMO UNIT



Nomenclature: Aluminum Rail Set Name: ARS

Description:

The ARS is a trolley type rail set for 40-foot and MHU-110 trailers. It will replace the wooden rails that are currently used on these trailers. It will increase utility and R, M & D in combat generation of current and future conventional munitions.

Characteristics

Quantities of munitions ARS will accommodate
40' Trailer Longitudinal with trolley's 30 CBUs or Mk-82s
40' trailer Lateral Configuration 12 MK-84s
MHU-110 Longitudinal with trolley's 10 MK-82s
MHU-110 Lateral 4 MK-84s

Status/Schedule/Improvements

Status – Development/Procurement
OPR – WR/ALC
T.O. TBD



Nomenclature: BDU-33/MK-106 Practice Bomb Transport Module
Name: 40 Round Version

Description:

The BDU-33/MK-106 Practice Bomb Transport Module protects training munitions from the elements during delivery to and from the flight line or loading area. Each module has the capacity to carry 40 practice bombs. Replaces all existing local manufactured transport modules.

Characteristics

Height (in) – 35

Width (in) – 25

Length (in) – 57

Status/Schedule/Improvements

Status – Procurement/Inventory

OPR – WR/ALC



Nomenclature: BDU-33/MK-106 Practice Bomb Transport Module
Name: 80 Round Version

Description:

The BDU-33/MK-106 Practice Bomb Transport Module protects training munitions from the elements during delivery to and from the flight line or loading area. Each module has the capacity to carry 80 practice bombs. Replaces all existing local manufactured transport modules.

Characteristics

Height (in) – 34
Width (in) – 28
Length (in) – 108

Status/Schedule/Improvements

Status – Procurement/Inventory
OPR – WR/ALC



Nomenclature: ALE- 40 Series Chaff/Flare Transport Module
Name: Chaff/Flare Module

Description:

Transports ALE-40 chaff and flare magazines from the munitions storage area to the flightline. The maximum capacity per module is 40 magazines. Secures to either the MHU-141 or MHU-110 trailer. Replaces all existing local manufactured transport modules.

Characteristics

Height (in) – 42

Width (in) – 18

Length (in) – 73

Status/Schedule/Improvements

Status – Procurement/Inventory

OPR – WR/ALC



Nomenclature: ALE- 50 Transport Module

Name: ALE - 50 Module

Description:

Transports ALE-50 decoy magazines from the munitions storage area to the flightline. The maximum capacity per module is 30 magazines. Secures to either the MHU-141 or MHU-110 trailer. Replaces all existing local manufactured transport modules.

Characteristics

Height (in) – 35

Width (in) – 34

Length (in) – 56

Status/Schedule/Improvements

Status – Procurement/Inventory

OPR – WR/ALC



Nomenclature: Mechanical Ram Assembly Name: MRA

Description:

The Mechanical Ram Assembly is a multiple sleeve, hydro-mechanical lifting device. Its primary purpose is to increase the lift height capability of the MJ-40 and MHU-83D/E bomb lift trucks in support of the B-1B/B-2 aircraft.

Characteristics

Weight (lbs.) – 500

Retracted Height (in) – 37

Extended Height (in) – 83

Lift Capacity – 5000

Status/Schedule/Improvements

Status – Inventory

OPR – WR/ALC

T.O. 35D3-9-29-1

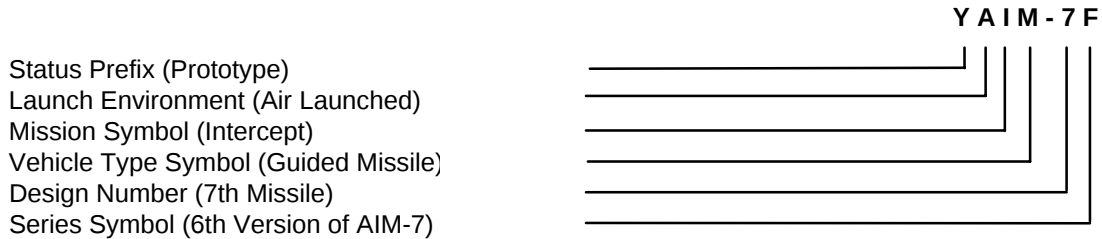


AIRCRAFT AND WEAPONS MATRIX	A-10A	F-15	F-16	F-22	F-117	B-1B	B-2A	B-52H	AC-130H	AC-130U	MC-130	HH-53	H-60	UH-1N
MK-82 CONICAL (500 LB)	X	X	X	X	X			X						
MK-82 AIR INFLATABLE RETARDER (AIR)	X	X	X			X		X						
MK-84 CONICAL (2000 LB)	X	X	X		X		X	X						
MK-84 AIR			X			X								
BLU-109 HARD TARGET PENETRATOR (2000 LB)		X	X		X									
M117 CONICAL (750 LB)	X		X					X						
M117 RETARDED								X						
M-129 LEAFLET BOMB								X						
BLU-82 (15000 LB)											X			
BDU-33 PRACTICE BOMB (25 LB)	X	X	X		X	X	X	X						
BDU-38 PRACTICE BOMB (SHAPE)		X	X				X							
BDU-48 PRACTICE BOMB (10 LB)								X						
MK-106 PRACTICE BOMB (5 LB)	X	X	X											
GBU-12 LASER GUIDED BOMB (500 LB)	X	X	X	X	X			X						
GBU-10 (2000 LB)	X	X	X		X			X						
GBU-15 TV/IIR/GPS GUIDED BOMB (2000 LB)		X												
GBU-24 LL LASER GUIDED BOMB (2000 LB)		X	X											
GBU-27 LASER GUIDED BOMB					X									
GBU-28 LASER GUIDED BOMB (4000 LB)		X												
CBU-87 COMBINED EFFECTS MUNITION (CEM)	X	X	X					X						
CBU-89 (GATOR)	X	X	X					X						
CBU-97 SENSOR FUZED WEAPON (SFW)			X											
AGM-65 (MAVERICK)	X	X	X											
AGM-84 (HARPOON)			X					X						
AGM-86 (CALCM)								X						
AGM-88 (HARM)			X											
AGM-129 (ADV CRUISE MISSILE)								X						
AGM-130 (POWERED GBU-15)		X												
AGM-142 (HAVE NAP)								X						
AIM -7 (SPARROW)		X	X											
AIM-9 (SIDEWINDER)	X	X	X											
AIM-9X (FOLLOW-ON SIDEWINDER)		X	X		X									
AIM-120 (AMRAAM)		X	X		X									
7.62												X	X	X
20MM		X	X		X				X					
25MM										X				
30MM	X													
40MM									X	X				
105MM									X	X				
.50 CAL												X	X	
B-53							X	X						
B-61		X	X				X	X						
B-83							X	X						

GUNS/RACKS/LAUNCHERS MATRIX	A-OA-10	F-15	F-16	F-22	F-35	F-117	B-1	B-2	B-52	AC-130H	AC-130U	HH-53	H-60	UH-1N
GAU-2/A (7.62mm MINI GUN)												X	X	X
GPU-5/A (30mm GUN POD)			X											
GAU-8/A (30mm AUTOMATIC GUN)	X													
GAU-12/U (25mm AUTOMATIC GUN)											X			
M218 (.50 Cal MACHINE GUN)													X	X
M2A1 (40mm AUTOMATIC GUN)										X	X			
M61A1 (20mm AUTOMATIC GUN)		X	X											
M61A2 (20mm LIGHTWEIGHT GUN)		X	X	X						X				
M37A1 (105mm HOWITZER)										X	X			
MAU-12 BOMB RACK		X	X			X			X					X
MAU-40 BOMB RACK	X													
MAU-50 BOMB RACK	X													
BRU-46 BOMB RACK		X												
BRU-47 BOMB RACK		X												
BRU-57 SMART RACK			X											
TER 9/A TRIPLE EJECTOR RACK	X		X											
MER 1-6A MULTIPLE EJECTOR RACK									X					
GENERAL PURPOSE BOMB MODULE							X							
B-11 BOMB SHACKLE									X					
SUU-20 BOMB DISPENSER	X	X	X											
BOMB RACK ASSEMBLY								X						
LAU-68/131 (2.75 FFAR)	X		X										X	X
LAU-88 (AGM-65)	X	X	X											
LAU-105 (AIM-9)	X													
LAU-106 (AIM-7 & AIM-120)		X												
LAU-114 (AIM-9)		X												
LAU-117 (AGM-65)	X	X	X											
LAU-118 (AGM-88)			X											
LAU-128 (AIM-9 & AMRAAM)		X												
LAU-129 (AIM-9 & AMRAAM)			X											
16S-210 (AIM-9)			X											
COMMON ROTARY LAUNCHER									X					

MISSILE DESIGNATIONS

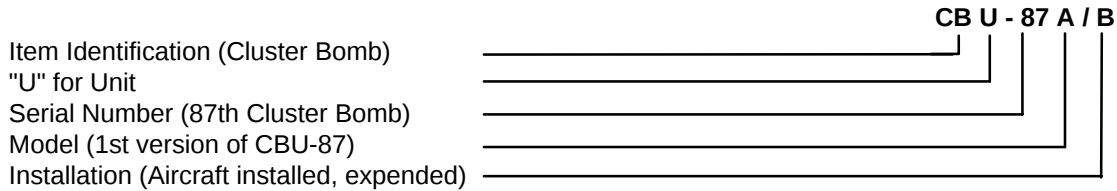
Rockets and guided missiles make use of the following designation symbols:



<u>Status</u>	<u>Launch Environment</u>	<u>Mission</u>	
<u>Vehicle Type</u>			
J Special Test, Guided Missile/Temporary Drone	A Air	D Decoy	M
N Special Test, Probe	B Multiple	E Special Electronics Installation	N
P Permanent Rocket	C Coffin	G Surface Attack	R
X Experimental	F Individual	I Intercept, Aerial	
Y Prototype	G Runway	Q Drone	
Z Planning	H Silo Stored	T Training	
	L Silo Launched	U Underwater Attack	
	M Mobile	W Weather	
	P Soft Pad		
	R Ship		
	S Underwater		

MUNITIONS DESIGNATIONS

Munitions make use of the following designation symbols:



Identification Designator

AD Certain adapting items AG Air to ground BB Explosive items BD Simulated bombs BL Bombs and mines BR Bomb racks and shackles BS Stabilizing & retarding device CB Cluster bomb CC Actuator cartridges CD Clustered munitions, not end item CN Miscellaneous containers DS Target directing device FM Fuzes FS Fuze safety-arming device FZ Fuze-related item GA Aircraft gun GB Guided bombs GF Gun related items GP Podded guns GU Miscellaneous guns KA Munitions clustering hardware KM Kits LA Aircraft installed launchers MK Navy designation for bombs	LK Ammunition links LM Ground-based launchers LU Illuminating units MA Miscellaneous armament MD Miscellaneous simulated MH Munitions handling MJ Munitions countermeasures ML Miscellaneous munitions MT Mounts PA External munitions PD Leaflet dispenser PG Ammunition PW Internal dispenser RD Dummy rockets RL Rockets SA Gun/bomb/rocket sights SU Stores suspension and release (dispenser containers) TM Miscellaneous tanks TT Test items WD Warheads WT Training warheads M Army designation for
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Installation Designator

A	Aircraft Installed, Fixed
B	Aircraft installed, Expendable
E	Ground Item, Moveable, not a Vehicle (Box for Munitions)

