



BOMBING EQUIPMENT



ADAPTER—BOX
BRITISH TYPE A

NAMES: Box adapter
Bomb box adapter

Universal bomb carrier adapter box
Box, adapter and terminal

DESCRIPTION: The British type A box adapter consists of a rectangular shaped junction box with a built-in 5 hole socket, and an extension cable with a 5 pin plug attached. This adapter is used to enable installation of incendiary or small bomb boxes in the universal bomb carrier, and to permit systematic electrical release of these boxes.

CHARACTERISTICS:

Dimensions approximately 5 1/8 by 2 1/4 by 1 7/8 inches (without socket)
Dimensions approximately 1 3/4 by 2 1/8 inches (socket only)

INSTALLATION PECULIARITIES: This adapter is equipped with a built-in socket, British Reference Number 5D/526, and a four foot extension cable with a 5 pin plug, British Reference Number 5D/517. It is inserted between the carrier and the airplane socket.

RELATIONSHIP OF PARTS: Used with:

Universal bomb carrier, A. E. Reference Numbers 64-197, 64-198 and 64-199, and 5-way bomb socket, A. E. Reference Number 64-4195.

ARMY

A. E. REFERENCE NUMBER: 64-110
MANUFACTURER: Guardian Electric Company
MANUFACTURER'S DRAWING NUMBER: 20388
MANUFACTURER'S SPECIFICATION NUMBER: G32693
A. S. C. STOCK NUMBER: 6400008420
PRODUCTION STATUS: Not under procurement for initial installation.
SHIPPING DATA: Shipped as a complete unit, including extension cable and plug.

NAVY

There is no Navy equivalent for this item.

BRITISH

REFERENCE NUMBER: 5D/610



PANEL—AUTOPILOT CONTROL

ARMY TYPE A-6A NAVY—SEE BELOW

NAMES: Autopilot control panel
Control box
Control panel

Pilot's control box
Pilot's control panel
Turn type remote control unit (British)

DESCRIPTION: The autopilot control panel is a part of the automatic pilot, and is mounted in the pilot's compartment. It contains all the controls necessary for the operation of the automatic pilot when used in conjunction with a bombsight or as a navigational aid.

The assembly incorporates a turn control, by means of which coordinated turns can be made, and a turn control transfer switch, which permits operation of a remotely located turn control.

Six toggle switches located below the turn control activate the complete automatic pilot, including the directional stabilizer. The master and the stabilizer servo switch are connected by a bar which moves both ON and OFF together, and prevents the other switches from being used before the automatic pilot is in operation. Movement of the bar to the OFF position operates all switches simultaneously, disconnecting the automatic pilot.

Six tell-tale lights, two for each axis of control, are located at the top of the panel. When a light is illuminated, it indicates a condition of unbalance in an axis of control. During proper operation of the pilot all lights are extinguished.

Adjusting knobs for the centering, sensitivity, ratio and turn compensation for the three axis of control are located on the face of the panel.

CHARACTERISTICS: Dimensions approximately 8 by 8 by 4⁹/₁₆ inches
Weight approximately 5⁹/₁₆ pounds
Illumination None
Markings Fluorescent—radioactive

RELATIONSHIP OF PARTS: Part of the Army type C-1 automatic pilot, A. E. Reference Number 64-2300

ARMY

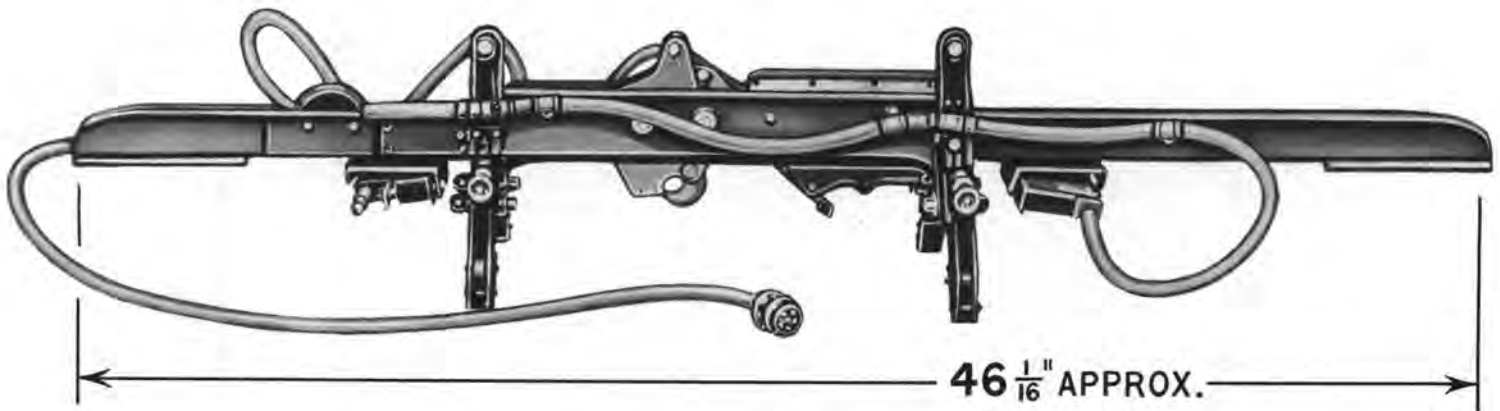
A. E. REFERENCE NUMBER: 64-195
SPECIFICATIONS:
General C-24825
Detail C-24861
MANUFACTURER: Minneapolis Honeywell
Regulator Company, part number G1047
outline drawing number DR2155.
TYPE DESIGNATION: A-6A
A. S. C. STOCK NUMBER: 6400092800
TECHNICAL ORDER NUMBER: 11-60-1
PRODUCTION STATUS: Under procurement.
SHIPPING DATA: Shipped as a complete unit.

NAVY

TYPE DESIGNATION: A part of Mark 2
Modification 1 Stabilized Bombing Ap-
proach Equipment
AVIATION ORDNANCE STOCK LIST
NUMBER: 2-S-335
NAVAL ORDNANCE PAMPHLET NUM-
BER: 639
PROCUREMENT STATUS: Under procure-
ment.

BRITISH

REFERENCE NUMBER: 106J/699



CARRIER—UNIVERSAL BOMB
ARMY TYPE NUMBER 1 MARK III BRITISH NUMBER 1 MARK III

NAMES: Universal bomb carrier
British bomb carrier

DESCRIPTION: The Number 1 Mark III universal bomb carrier is a British designed device for carrying and releasing bombs having one or three suspension lugs. The carrier is electrically controlled, and provides selective arming of the bombs.

Major parts of the bomb carrier are two fusing units, a bomb hook, release unit, crutch assemblies (sway bracing), and a junction box with a male plug.

The fusing units are provided to enable fusing of both, or either, the nose and tail of a bomb.

CHARACTERISTICS:

Weight.....	approximately 17 pounds
Dimensions.....	approximately 46 $\frac{1}{16}$ by 7 $\frac{3}{4}$ by 10 $\frac{1}{4}$ inches
Power supply.....	24 volts, direct current
Capacity.....	1000 pounds

RELATIONSHIP OF PARTS: Used with:

5-way bomb socket, type A, A. E. Reference Number 64-4195, and box adapter, A. E. Reference Number 64-110.

ARMY

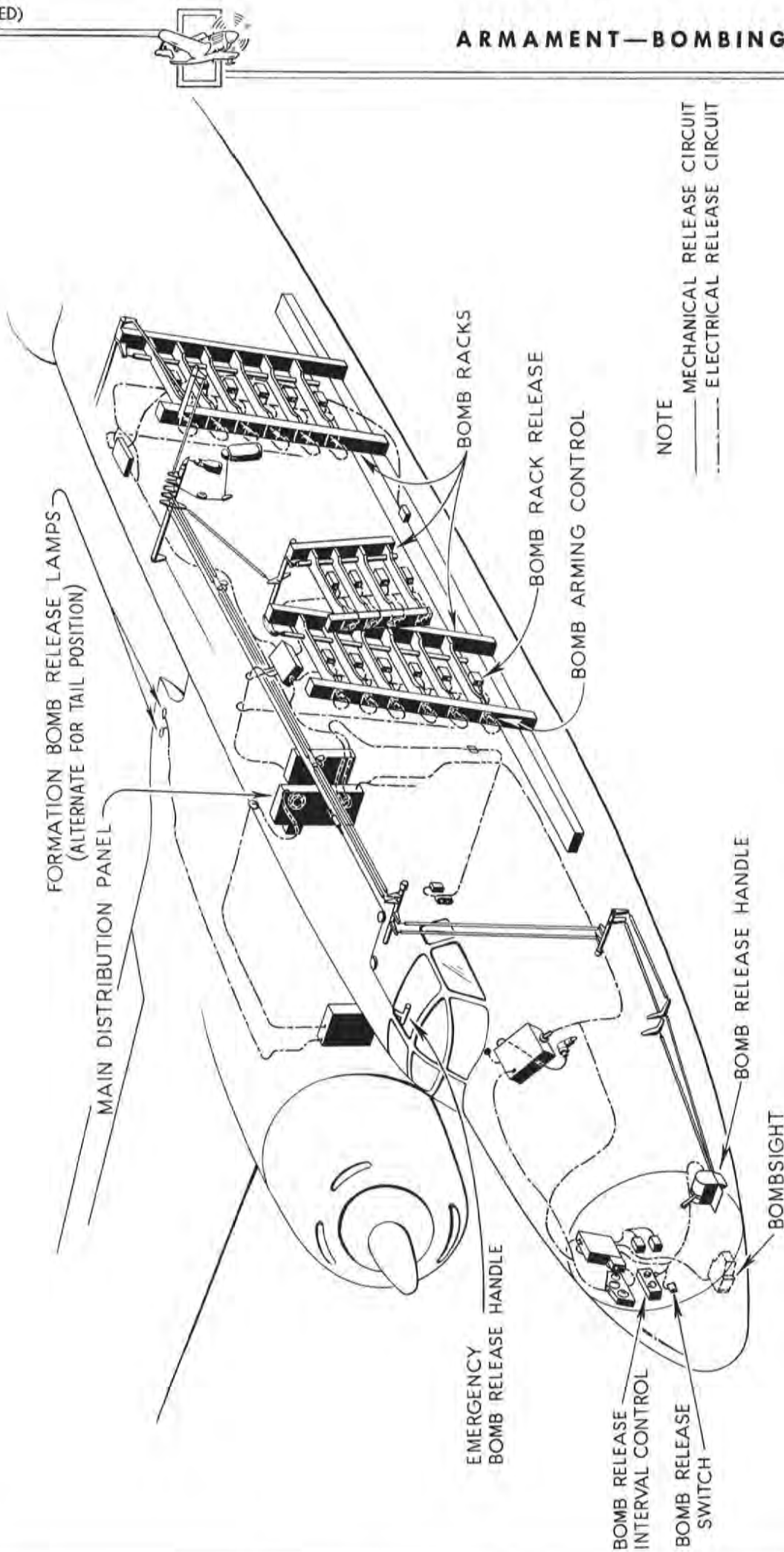
- A. E. REFERENCE NUMBER: 64-198
- MANUFACTURER'S DRAWING NUMBER: Mills Novelty Company BR-719-CSP
- TYPE DESIGNATION: Number 1 Mark III
- A. S. C. STOCK NUMBER: 6400162010
- TECHNICAL ORDER NUMBER: 11-5-43
- PRODUCTION STATUS: Under procurement.
- SHIPPING DATA: Shipped as a complete unit.

NAVY

There is no Navy equivalent for this item.

BRITISH

BRITISH REFERENCE NUMBER: 111A/41



TYPICAL BOMB RELEASE SYSTEM



BOMB ARMING CONTROLS

Bomb arming controls allow bombs to be dropped either in safe or in armed condition. Bombs are dropped safe when their release over friendly territory is necessary.

The control is operated by the bombardier's fuse switch. When the bombardier places the switch OFF, the bombs are safe and will not normally explode upon impact. When the switch is ON, the bombs are armed and explode upon impact.

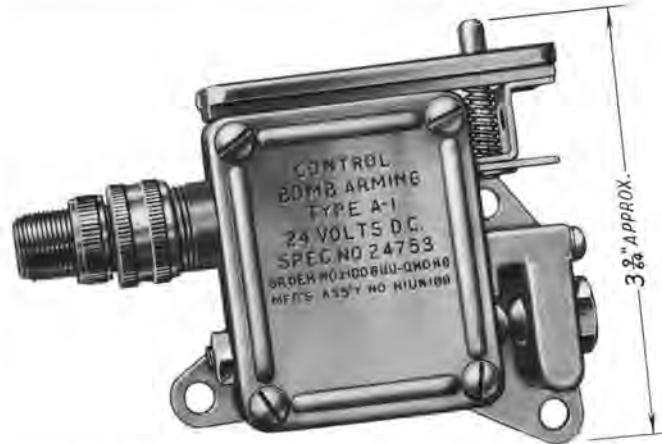
The bomb arming or fusing wire of the bomb is placed between ball ended retainers on the bomb arming control which is installed on the bomb rack. One of these retainers is stationary and the other, under spring tension, is movable.

To release a bomb in an armed condition, the electrical circuit is energized by turning the bombardier's fuse switch ON. As the circuit is energized, a pin moves into a hole in the center of the ball ended retainers, thereby locking the arming wire in place. When the bomb is dropped, the arming wire is pulled from the bomb and allows the bomb to explode upon impact.

To release a bomb in a safe condition, the bombardier places the fuse switch OFF. This de-energizes the electrical circuit, allowing the arming wire to pull out from between the retainers as the bomb falls.



BOMB ARMING CONTROLS ARMAMENT—BOMBING



CONTROL—BOMB ARMING

TYPE AN-A-1 FORMER ARMY TYPE A-1 FORMER NAVY TYPE A-1

NAMES: Bomb arming control
Auxiliary arming mechanism
Bomb arming control box

Fusing unit
Selective fusing control
Bomb fusing control

DESCRIPTION: The type AN-A-1 bomb arming control is a box-shaped control used to arm the bomb as it is released from the shackle or rack. The control operates on a 24 to 28½ volt direct current supply.

CHARACTERISTICS:

Weight..... approximately 5/8 pound
Dimensions..... approximately 1½ by 3 by 4 inches
Electrical connector plug..... AN3106-10S-2S

INSTALLATION PECULIARITIES: A slide mount is supplied as an integral part of the type AN-A-1 bomb arming control. The purpose of this mount is to provide mounting attachment when used with the British universal bomb carrier, or on an airplane equipped with slide mounting rails.

ARMY

A. E. REFERENCE NUMBER: 64-200

SPECIFICATIONS:

Detail..... 93-24753
Superseded..... 24753

A. A. F. DRAWING NUMBER: H42B6598

TYPE DESIGNATION: AN-A-1

A. S. C. STOCK NUMBER: Refer to chart.

TECHNICAL ORDER NUMBER: Refer to chart.

PRODUCTION STATUS: Under procurement.

SHIPPING DATA: Shipped with electrical connector plug AN3106-10S-2S in a single container.

NAVY

TYPE DESIGNATION: AN-A-1

BUREAU OF ORDNANCE DRAWING NUMBER: 328446

AVIATION ORDNANCE STOCK LIST NUMBER: Refer to chart

PROCUREMENT STATUS: Under procurement.

MODELS BELOW ARE INTERCHANGEABLE Models are used in services as noted in column 4 A-Army, N-Navy, B-British

Manufacturer	Manufacturer's Model Identification	Manufacturer's Drawing Number	Used By	Air Service Command Stock Number	Army Technical Order Number	British Reference Number	AAF Type and Navy Type	Aviation Ordnance Stock List Number	Remarks
J. P. Seeburg Company	*A-1	BA-106000	A-N-B	6400217000		105D/194	AN-A-1.	3-C-1805 (formerly 3-B-1969)	
P. R. Mallory & Company, Incorporated	SF-6	C-134624 B-134163	A-N-B	6400217000	11-5-33	105D/99	AN-A-1	3-C-1805 (formerly 3-B-1969)	
	SF-4	B-134163	N				Navy Type SF-4	3-B-1970	†
Magnavox Corporation	14D26G1	14D26G1	A-N-B	6400217050	11-5-47	105D/195	AN-A-2	3-C-1810	†

†A slide or bomb arming control mount must be used to provide for complete interchangeability.

Note: *AAF and Navy type.



CONTROL—BOMB ARMING
TYPE AN-A-2 FORMER ARMY TYPE A-2

NAMES: Bomb arming control
Auxiliary arming mechanism
Bomb arming control box
Fusing unit
Selective fusing control
Bomb fusing control

DESCRIPTION: The type AN-A-2 bomb arming control is a cylindrically shaped control used to arm the bomb as it is released from the shackle or rack. The control operates on a 24 to 28½ volt direct current supply.

CHARACTERISTICS:
Weight approximately 1/3 pound
Dimensions approximately 1 1/8 by 1 1/4 by 4 inches
Electrical connector plug AN3106-10S-2S

RELATIONSHIP OF PARTS: When used with British Universal Bomb Carrier or on an airplane equipped with slide mounting rails, this unit must be equipped with a bomb arming control mount, Army type A-1, A. E. Reference Number 64-2270.

ARMY

A. E. REFERENCE NUMBER: 64-220

SPECIFICATIONS:

Detail 93-24828
Superseded 24828

A. A. F. DRAWING NUMBER: 43B9887

TYPE DESIGNATION: AN-A-2

A. S. C. STOCK NUMBER: Refer to chart.

TECHNICAL ORDER NUMBER: Refer to chart.

PRODUCTION STATUS: Under procurement.

SHIPPING DATA: Shipped complete with electrical connector plug AN3106-10S-2S in a single container.

NAVY

TYPE DESIGNATION: AN-A-2

BUREAU OF ORDNANCE DRAWING NUMBER: 388363

AVIATION ORDNANCE STOCK LIST NUMBER: Refer to column 9 of the chart.

PROCUREMENT STATUS: Under procurement.

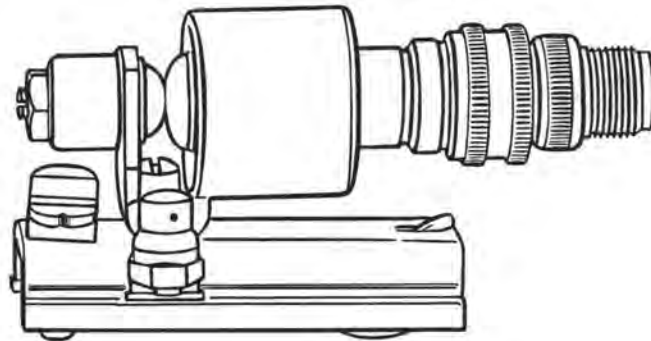
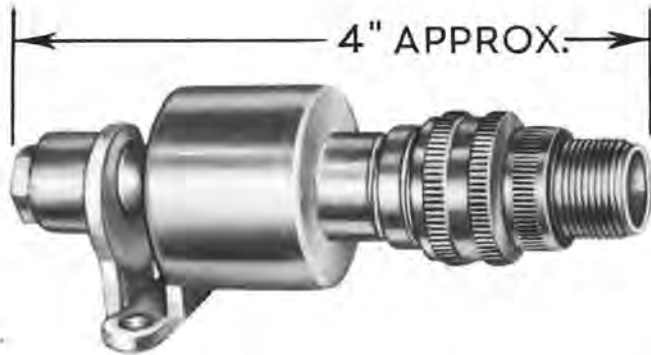
MODELS BELOW ARE INTERCHANGEABLE
Models are used in services as noted in column 4
A-Army, N-Navy, B-British

Manufacturer	Manufacturer's Model Identification	Manufacturer's Drawing Number	Used By	Air Service Command Stock Number	Army Technical Order Number	British Reference Number	AAF Type and Navy Type	Aviation Ordnance Stock List Number	Remarks
Magnavox Corporation	14D26G1	14D26G1	A-N-B	6400217050	11-5-47	105D/195	AN-A-2	3-C-1810	
J. P. Seeburg Company	A-1	BA-106000	A-N-B	6400217000		105D/194	AN-A-1	3-C-1805 (formerly 3-B-1969)	*
P. R. Mallory & Company, Incorporated	SF-6	C-134624 B-134163	A-N-B	6400217000	11-5-33	105D/99	AN-A-1	3-C-1805 (formerly 3-B-1969)	*
	SF-4	B-134163	N				Navy Type SF-4	3-B-1970	

*Contains slide for attaching to mounting rails.



BOMB ARMING CONTROLS ARMAMENT—BOMBING



CONTROL—BOMB ARMING ARMY TYPE B-2

NAMES: Bomb arming control
Auxiliary arming mechanism
Bomb arming control box

Fusing unit
Selective fusing control
Bomb fusing control

DESCRIPTION: The type B-2 bomb arming control is a cylindrically-shaped control, used to arm the bomb as it is released from the shackle or rack. The control operates on a 12 to 14 1/4 volt direct current supply.

CHARACTERISTICS:

- Weight approximately 1/8 pound
- Dimensions approximately 1 1/8 by 2 by 4 inches
- Electrical connector plug AN3106-10S-2S

RELATIONSHIP OF PARTS: When used with British universal bomb carrier or on an airplane equipped with slide mounting rails, this unit must be equipped with an Army type A-1 bomb arming control mount, A. E. Reference Number 64-2270.

ARMY

A. E. REFERENCE NUMBER: 64-275

SPECIFICATIONS:

- Detail 93-24829
- Superseded 24829

A. A. F. DRAWING NUMBER: 43B11958

TYPE DESIGNATION: B-2

A. S. C. STOCK NUMBER: Refer to chart.

PRODUCTION STATUS: Under procurement.

SHIPPING DATA: Shipped complete with electrical connector plug AN3106-10S-2S in a single container.

NAVY

The Navy does not use this item.

MODELS BELOW ARE INTERCHANGEABLE
Models are used in services as noted in column 4
A-Army, N-Navy, B-British

Manufacturer	Manufacturer's Model Identification	Manufacturer's Drawing Number	Used By	Air Service Command Stock Number	AAF Type	Navy Type	Navy Bureau of Ordnance Drawing Number	Aviation Ordnance Stock List Number
Magnavox Corporation	14D26G4	14D26G4	A	6400217100	B-2			
P. R. Mallory & Co., Inc.	SF-10	Outline B-134163	N			SF-10	328446	3-B-1977



BOMB RELEASE INTERVAL CONTROL

Bomb release interval controls permit the release of a uniformly spaced pattern or train of bombs, assuring one or more hits when crossing a target

The bomb release interval control determines the time interval between release of successive bombs to give the desired ground spacing. To accomplish this, the ground speed is determined and set on the ground speed dial to correspond to the desired spacing between bombs.

A select-train switch is provided to allow bombs to be dropped selectively or in train. One bomb is released with each operation of the switch when in the select position, and a uniformly spaced pattern of bombs is released when the switch is in the train position.

The counter, or bombs to be released control, may be set manually, either forward or backward, according to the number of bombs to be released in each train. Resetting of this control may be accomplished at any time, provided at least one minute elapses between the time of resetting and the time of release of bombs.

Bomb release interval controls are equipped with a signal light which indicates that the bomb release circuit is ready for operation. The light goes on when the select-train switch is in the select position, and in the train position only when the number of bombs to be released has been determined and the dial set. Bomb release interval controls with fluorescent markings have adjustable housing assemblies so that the signal light may be blacked out under ultra-violet light.

All controls are calibrated directly so that it is not necessary to refer to charts or to make calculations. They are marked in miles per hour or knots, and are available with either fluorescent or standard non-luminous markings.

For installation, refer to diagram on page 234.



BOMB RELEASE INTERVAL CONTROLS ARMAMENT—BOMBING



CONTROL—BOMB RELEASE INTERVAL ARMY TYPE B-2

NAMES: Bomb release interval control
Interval control

Bomb release control
Intervalometer (Navy)

DESCRIPTION: The type B-2 bomb release interval control operates on a 24 to 28½ volt direct current supply. The ground speed of the airplane is determined, and set on the ground speed dial opposite the desired spacing between bomb hits. The control has a fixed intensity amber signal light and dull white non-luminous markings.

CHARACTERISTICS:

- Weight approximately 5½ pounds
- Dimensions approximately 9⅝ by 6 by 4½ inches
- Electrical connector Cannon GK-M5-32S, Bulletin K
- Ground speed dial range 100 to 500 miles per hour
- Bomb spacing dial range 7 to 400 feet
- Bombs to be released dial range 2 to 20 bombs per second

ARMY

A. E. REFERENCE NUMBER: 64-600

SPECIFICATIONS:

- Detail 93-24630-A
- Superseded 24630

A. A. F. DRAWING NUMBER: 41D1831

TYPE DESIGNATION: B-2

A. S. C. STOCK NUMBER: Refer to chart.

TECHNICAL ORDER NUMBER: Refer to chart.

PRODUCTION STATUS: Not under procurement for initial installation, superseded by Army type B-2A,

A. E. Reference Number 64-800.

SHIPPING DATA: Shipped as a complete unit.

NAVY

The Navy does not use the Army item.

MODELS BELOW ARE INTERCHANGEABLE Models are used in services as noted in column 4 A-Army, N-Navy, B-British

Manufacturer	AAF Type and Manufacturer's Model Identification	Manufacturer's Drawing Number	Used By	Air Service Command Stock Number	Army Technical Order Number	British Reference Number	Remarks
P. R. Mallory & Co., Inc.	*B-2	Outline C-134558	A-B	6400217520	11-5-29	105D/30	Aluminum case.
	*B-2A	Outline C-134558	A-B	6400217550	11-5-29	105D/84	Aluminum case.
		Outline C-134729					
		Assembly C-134584					Aluminum case.
		Assembly C-134643					Steel case.
		Parts list B-134204					Steel case.
J. P. Seeburg Co.	*B-2A	BR-105000	A-B	6400217550	11-5-14 11-1-36	105D/84	

*AAF type.



BOMB RELEASE INTERVAL CONTROLS ARMAMENT—BOMBING



CONTROL—BOMB RELEASE INTERVAL ARMY TYPE B-2A

NAMES: Bomb release interval control
Interval control

Bomb release control
Intervalometer (Navy)

DESCRIPTION: The type B-2A bomb release interval control operates on a 24 to 28½ volt direct current supply. The ground speed of the airplane is determined, and set on the ground speed dial opposite the desired spacing between bomb hits. The control uses a filament lamp with amber lens, and the light intensity is adjusted by rotating the lamp housing. Markings are fluorescent, and are visible under external and ultra-violet light.

CHARACTERISTICS:

- Weight approximately 6½ pounds
- Dimensions approximately 9 5/8 by 6 by 4 1/2 inches
- Electrical connector Cannon GK-M5-32S, Bulletin K
- Ground speed dial range 100 to 500 miles per hour
- Bomb spacing dial range 7 to 750 feet
- Bombs to be released dial range 1 to 20 bombs per second.

ARMY

A. E. REFERENCE NUMBER: 64-800

SPECIFICATIONS:

- Detail 93-24630-A (amended)
- Superseded 93-24630

A. A. F. DRAWING NUMBER: 41D10802

TYPE DESIGNATION: B-2A

A. S. C. STOCK NUMBER: Refer to chart.

TECHNICAL ORDER NUMBER: Refer to chart.

PRODUCTION STATUS: Not under procurement for initial installation. Superseded by type AN-B-3.

SHIPPING DATA: Shipped as a complete unit.

NAVY

TYPE DESIGNATION: B-2A

AVIATION ORDNANCE STOCK LIST NUMBER: 3-C-1875

PROCUREMENT STATUS: Not under procurement for initial installation.

MODELS BELOW ARE INTERCHANGEABLE Models are used in services as noted in column 4 A-Army, N-Navy, B-British

Manufacturer	AAF Type and Manufacturer's Model Identification	Manufacturer's Drawing Number	Used By	Air Service Command Stock Number	Army Technical Order Number	British Reference Number	Remarks
P. R. Mallory & Co., Inc.	*B-2A	Outline C-134558	A-B	6400217550	11-5-29	105D/84	Aluminum case.
		Outline C-134729					Steel case.
		Assembly C-134584					Aluminum case.
		Assembly C-134643					Steel case.
		Parts list B-134204					Steel case.
J. P. Seeburg Co.	*B-2A	BR-105000	A-B	6400217550	11-5-14 11-1-36	105D/84	

Note: *AAF type



BOMB RELEASE INTERVAL CONTROLS ARMAMENT—BOMBING



CONTROL—BOMB RELEASE INTERVAL TYPE AN-B-3 FORMER ARMY TYPE B-3

NAMES: Bomb release interval control
Interval control

Bomb release control
Intervalometer (Navy and British type)

DESCRIPTION: The type AN-B-3 bomb release interval control operates on a 24 to 28½ volt direct current supply. The ground speed of the airplane is determined, and set on the ground speed dial opposite the desired spacing between bomb hits. The control uses a filament lamp with amber lens, and the light intensity is adjusted by rotating the lamp housing. Markings are fluorescent, and are visible under external and ultra-violet light.

CHARACTERISTICS:

- Weight approximately 6 pounds
- Dimensions approximately 9 5/8 by 6 by 4 1/2 inches
- Electrical connector AN3102-14S-7P
- Ground speed dial range 100 to 500 miles per hour
- Opposite face of ground speed dial range 90 to 460 knots. (Navy use)
- Bomb spacing dial range 7 to 750 feet
- Bombs to be released dial range 1 to 20 bombs per second

ARMY

A. E. REFERENCE NUMBER: 64-825

SPECIFICATIONS:

- Detail 93-24717
- Superseded 24717

A. A. F. DRAWING NUMBER: 42D3116

TYPE DESIGNATION NUMBER: AN-B-3

A. S. C. STOCK NUMBER: Refer to chart.

TECHINICAL ORDER NUMBER: Refer to chart.

PRODUCTION STATUS: Under procurement.

SHIPPING DATA: shipped as a complete unit.

NAVY

TYPE DESIGNATION: AN-B-3

AVIATION ORDNANCE STOCK LIST NUMBER: 3-C-1880 (formerly 3-I-495)

PROCUREMENT STATUS: Not under procurement for initial installation, superseded by Navy type K-2.

MODELS BELOW ARE INTERCHANGEABLE Models are used in services as noted in column 4 A-Army, N-Navy, B-British

Manufacturer	Manufacturer's Model Identification	Manufacturer's Drawing Number	Used By	Air Service Command Stock Number	Army Technical Order Number	British Reference Number	AAF Type	Navy Type	Remarks
P. R. Mallory & Co., Inc.	*AN-B-3	Outline C-134558	A-N-B	6400217700	11-5-29	105D/94	AN-B-3	AN-B-3	Aluminum case.
		Outline C-134729							Steel case.
	‡K-2	Outline C-134558	N-B			105D/31		K-2	Aluminum case.†
		Outline C-134729							Steel case.†
J. P. Seeburg Co.	*AN-B-3	BR-105100	A-N	6400217700			AN-B-3	AN-B-3	

†NOTE: Graduated in knots only. The range of the ground speed dial is 90 to 460 knots for the unit in the steel case and 100 to 450 knots for the one in the aluminum case. The bomb spacing dial range is 7 to 400 feet, and the bombs to be released dial range is 2 to 20 bombs per second. The type K-2 and type AN-B-3 are interchangeable electrically and installationally.

Note: *AAF type; ‡Navy type.



PILOT DIRECTOR INDICATOR CONTROL ARMAMENT—BOMBING



CONTROL—PILOT DIRECTOR INDICATOR ARMY TYPE A-1

NAMES: Pilot director indicator control
P. D. I. control

DESCRIPTION: The Army type A-1 pilot director indicator control provides the bombardier with a means of indicating to the pilot, through the pilot director indicator, changes to be made in the heading or direction of the airplane to complete a bombing run. The control consists of a selector switch, mounted in a cylindrical container, with markings indicating zero, right and left. Movement of the control knob by the bombardier causes the pointer on the pilot director indicator in the pilot's cockpit to move accordingly. When the airplane is on the desired course the bombardier releases the control knob, and it is returned to the zero position by spring action.

CHARACTERISTICS:

- Dimensions.....approximately 3 7/8 by 3 1/4 by 2 1/32 inches
- Weight.....approximately 1/2 pound
- Illumination.....none
- Markings.....white enamel
- Voltage.....24 volts direct current

RELATIONSHIP OF PARTS: Used with:

Pilot director indicator, A. E. Reference Numbers 64-2255, or 64-2257 when the airplane does not have an Army type C-1 automatic pilot.

ARMY

A. E. REFERENCE NUMBER: 64-835

SPECIFICATIONS:

Detail.....24841

MANUFACTURER: P. R. Mallory Company, Incorporated.

MANUFACTURER'S DRAWING NUMBER Outline B-134405
Part C-134815

TYPE DESIGNATION: A-1

A. S. C. STOCK NUMBER: 6400219325

PRODUCTION STATUS: Under procurement.

SHIPPING DATA: Shipped as a complete unit.

NAVY

There is no Navy equivalent for the Army item.



**COVER—ELECTRICALLY
HEATED BOMBSIGHT**

ARMY TYPE A-1 NAVY MARK 1

NAMES: Electrically heated bombsight cover
Bombsight blanket (Navy)
Bombsight cover
Electrically heated bombsight blanket

DESCRIPTION: The Army type A-1 electrically heated bombsight cover is used as a protective coat to retain the heat produced by the bombsight and to supply heat to the bombsight in low temperatures.

The cover is of sufficient size to cover both the bombsight and the stabilizer, and is secured about the stabilizer base with a draw cord and clamp.

The cover is made of woolen batting quilted to cotton fabric. The electrical heating wires are sewed to the inner cotton fabric.

Automatic thermostatic control is provided in the electrical circuit to prevent overheating. The thermostat is encased in a metal tube which is attached to the inner lining of the bombsight cover.

The power supply cable is approximately sixty inches long, and connects to the aircraft electrical circuit by a male plug.



CHARACTERISTICS:

Weight.....	approximately 6 pounds
Navy type electrical connector.....	AN3106-16-11P
Army type electrical connector.....	Twist lock plug, Hubbel part number 7542 or 7545
Maximum external temperature range.....	Minus 60 to plus 170 degrees fahrenheit (Minus 51 to plus 77 degrees centigrade)
Minimum heating requirement.....	Maintains plus 15 degrees fahrenheit (Minus 9.4 degrees centigrade) at external temperature of minus 60 degrees fahrenheit (minus 51 degrees centigrade)

RELATIONSHIP OF PARTS: Used with:

- Army type M-series bombsight, and stabilizer
- Navy Mark 15, modification 5 and 7 bombsight, and stabilizer

ARMY

A. E. REFERENCE NUMBER: 64-850
MANUFACTURER: General Electric Company
MANUFACTURER'S PART NUMBER: G. E. catalog number PC 15A6
SPECIFICATIONS:

Detail.....	40453-A
Superseded.....	40453

A. A. F. DRAWING NUMBER: 42M16384
TYPE DESIGNATION: A-1
A. S. C. STOCK NUMBER: 6400225915
TECHNICAL ORDER NUMBER: 11-30-1 and 11-30-9
PRODUCTION STATUS: Under procurement.
SHIPPING DATA: Shipped as a complete unit.
SHIPPING WEIGHT: approximately 7 pounds.
SHIPPING CARTON DIMENSIONS: approximately 22³/₄ by 20 by 4⁵/₈ inches.

NAVY

TYPE DESIGNATION: Mark 1
AVIATION ORDNANCE STOCK LIST NUMBER: 2-B-1900
ORDNANCE TECHNICAL INSTRUCTIONS NUMBER: V-4-43
PROCUREMENT STATUS: Under procurement.
INTERCHANGEABILITY: To effect interchangeability between Army and Navy types, the proper electrical connector must be used.



**COVER—ELECTRICALLY
HEATED BOMBSIGHT**

ARMY TYPE A-2

NAMES: Electrically heated bombsight cover
Bombsight blanket
Bombsight cover
Electrically heated bombsight blanket

DESCRIPTION: The Army type A-2 electrically heated bombsight cover is used as a protective coat, to retain the heat produced by the bombsight and to supply heat to the bombsight in low temperatures.

The cover is made of woolen batting quilted to cotton fabric. The electrical heating wires are sewed to the inner cotton fabric.

Automatic thermostatic control is provided in the electrical circuit to prevent overheating. The thermostat is encased in a metal tube which is attached to the inner lining of the bombsight cover.

The cover is secured about the bombsight with snap fasteners.

The power supply cable is approximately sixty inches long, and connects to the aircraft electrical circuit by a male plug.



CHARACTERISTICS:

Weight.....	approximately 7 pounds
Electrical connector.....	twist lock plug, Hubbel part number 7542 or 7545
Maximum external temperature range.....	minus 60 to plus 170 degrees fahrenheit (minus 51 to plus 77 degrees centigrade)
Minimum heating requirements.....	maintains plus 15 degrees fahrenheit (minus 9.4 degrees centigrade) at external temperature of minus 60 degrees fahrenheit (minus 51 degrees centigrade)

RELATIONSHIP OF PARTS: Used with:
Army type S-1 bombsight

ARMY

A. E. REFERENCE NUMBER: 64-852

SPECIFICATIONS:

Detail.....40630

MANUFACTURER: General Electric Company

MANUFACTURER'S PART NUMBER: G. E. catalog number PC 16A1

TYPE DESIGNATION: A-2

A. S. C. STOCK NUMBER: 6400225912

TECHNICAL ORDER NUMBER: 11-30-10

PRODUCTION STATUS: Under procurement

SHIPPING DATA: Shipped as a complete unit

SHIPPING WEIGHT: approximately 9 pounds

SHIPPING CARTON DIMENSIONS: approximately 16 by 16 by 6 inches

NAVY

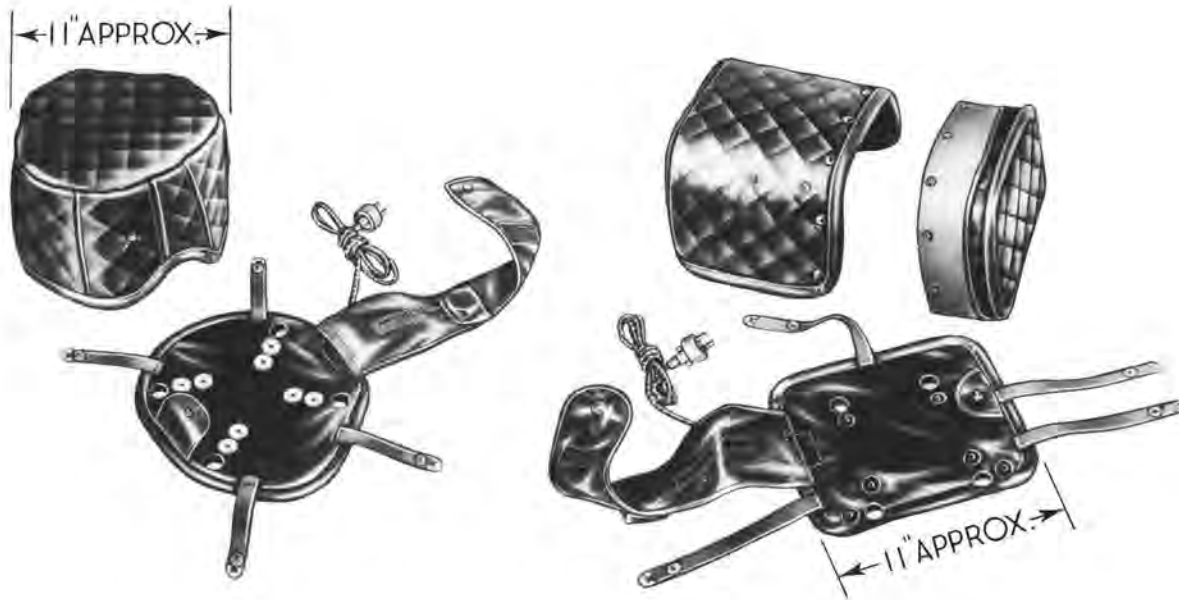
There is no Navy equivalent for the Army item.

BRITISH

REFERENCE NUMBER: 109/43



BOMBSIGHT COVERS ARMAMENT—BOMBING



COVER — ELECTRICALLY HEATED AUTOMATIC PILOT GENERAL ELECTRIC CATALOG NUMBER PK 1A1

NAMES: Electrically heated automatic pilot cover
A. F. C. E. cover
Electrically heated A. F. C. E. cover
Electrically heated cover
Electrically heated automatic pilot blanket

DESCRIPTION: The electrically heated automatic pilot cover for the Army type C-1 automatic pilot consists of three type A-3 covers for the servo units and one type A-4 cover for the vertical gyro control unit.

The covers provide a protective coat to retain heat produced by the automatic pilot and to supply heat to the automatic pilot units for low temperature operation.

The covers are made of woolen batting quilted to cotton fabric. The electrical heating wires are sewed to the inner cotton fabric.

Automatic thermostatic control is provided in the electrical circuit to prevent overheating. The thermostat is encased in a metal tube which is attached to the inner lining of the cover.

A power supply cable on each cover is connected to the aircraft electrical circuit by a male plug.

CHARACTERISTICS:

- Electrical connector Twist lock plug, Hubbel part number 7542 or 7545
- Maximum external temperature range Minus 60 to plus 170 degrees fahrenheit (minus 51 to plus 77 degrees centigrade)
- Minimum heating requirement Maintains plus 15 degrees fahrenheit (minus 9.4 degrees centigrade) at external temperature of minus 60 degrees fahrenheit (minus 51 degrees centigrade)

RELATIONSHIP OF PARTS: Used with:

Servo unit of Army type C-1 automatic pilot and vertical gyro control unit of Army type C-1 automatic pilot.

ARMY

A. E. REFERENCE NUMBER: 64-855

SPECIFICATIONS:

Detail 40631 for type A-3 servo unit cover, 40633 for type A-4 vertical gyro control cover

MANUFACTURER: General Electric Company

MANUFACTURER'S PART NUMBER: G. E. catalog number PK 1A1

TYPE DESIGNATION: A-3 for servo unit cover, A-4 for vertical gyro control cover

A. S. C. STOCK NUMBER: 6400225911

TECHNICAL ORDER NUMBER: 11-30-11

PRODUCTION STATUS: Under procurement

SHIPPING DATA: Shipped as a complete unit, consisting of 3 electrically heated covers, type A-3 for servo units and 1 electrically heated cover type A-4 for vertical gyro control unit.

SHIPPING WEIGHT: approximately 16 pounds

SHIPPING CARTON DIMENSIONS: approximately 22 by 12 by 17 inches.

NAVY

There is no Navy equivalent for the Army item.



TORPEDO DIRECTORS

The function of the torpedo director is to determine the proper course upon which to set an airplane before launching a torpedo toward the desired target to assure interception of the target. The torpedo itself must be set for a straight run to permit accurate calculation. The factors to be considered in making calculations are the torpedo speed, the target speed, and the approach angle. Of these factors, only the torpedo speed is known, and consequently the target speed and approach angle must be estimated. The factors are then set upon the torpedo director controls and the airplane turned through the approach angle until the target appears in the sight, whereupon the torpedo is launched.

The various types of torpedo directors differ in general appearance and construction since some models employ an optical illuminated sight and other models are equipped with a non-optical sighting bar. All types perform identical functions and utilize similar steps for estimations and calculations.

In order to insure that the calculations performed will be satisfactory to complete the torpedoing mission, predetermined altitude, launching speed and torpedo range must be adhered to.



TORPEDO DIRECTORS ARMAMENT—BOMBING

DIRECTOR—TORPEDO MARK 28 MODIFICATION 2

NAMES: Torpedo director
Director assembly—torpedo

DESCRIPTION: The Mark 28 Modification 2 torpedo director is shaped in the form of a drum, and is provided with six scales to permit calculation of sight alignment for six different torpedo speeds. Target speed is estimated over a calibrated range. The sight angle scale is graduated in two sections, each ranging from 0° to 180°. The target direction angle is estimated, and the estimated angle is set on a movable pointer. The resultant angle of these calculations enables the pilot to change the course of the airplane to the proper position for launching a torpedo.



CHARACTERISTICS:

- Weight..... approximately 4½ pounds
- Outline dimensions..... approximately 8⅓ by 8⅔ by 8⅙ inches

INSTALLATION PECULIARITIES: A sun guard must be used with this director, to prevent the plastic pointer from warping. This guard is removed prior to operation of the director.

ARMY

- A. E. REFERENCE NUMBER: 64-900
- TYPE DESIGNATION: Mark 28 Modification 2.
- A. S. C. STOCK NUMBER: Refer to chart.
- TECHNICAL ORDER NUMBER: Refer to chart.
- PRODUCTION STATUS: Not under procurement for initial installation. Superseded by Army type B-2, A. E. Reference Number 64-950.
- SHIPPING DATA: Shipped as a complete unit, including a mounting bracket.

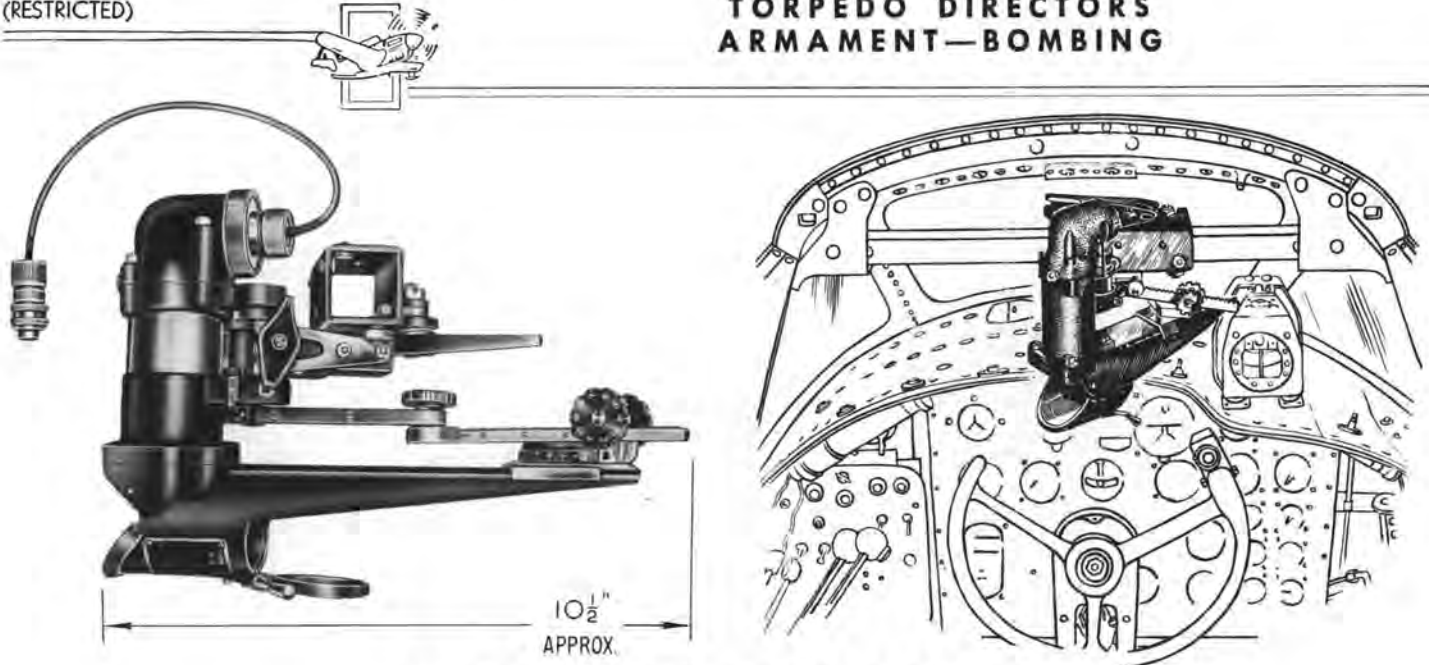
NAVY

- TYPE DESIGNATION: Mark 28 Modification 2.
- BUREAU OF ORDNANCE DRAWING NUMBER: 275122
- AVIATION ORDNANCE STOCK LIST: 2-D-155
- ORDNANCE DATA NUMBERS: 3786 and 4410
- ORDNANCE PAMPHLET NUMBER: 865
- PROCUREMENT STATUS: Under procurement

MODELS BELOW ARE INTERCHANGEABLE
Models are used in services as noted in column 4
A-Army, N-Navy, B-British

Manufacturer	Manufacturer's Model Identification	Manufacturer's Drawing Number	Used By	Air Service Command Stock Number	Army Technical Order Number	British Reference Number
A. C. Spark Plug Division of General Motors	Mark 28 Modification 2	1590752	A-N-B	6400242425	11-50-1 11-50-2	109/40
Douglas Aircraft Corporation	Mark 28 Modification 2	1590752	A-N-B	6400242425	11-50-1 11-50-2	109/40

Above items are completely interchangeable with Mark 28 Torpedo Director. The only difference in the two directors is that the Mark 28 director has three torpedo speed scales, and the Mark 28 Modification 2 director has six torpedo speed scales.



DIRECTOR—TORPEDO
ARMY TYPE B-2

NAMES: Torpedo director

Director assembly—torpedo

DESCRIPTION: The Army type B-2 torpedo director is an optical, illuminated sighting device used on torpedo carrying airplanes. It is mounted on a square bar forward of the pilot's or co-pilot's station, and is adjustable over the length of the mounting bar. Calculations are made by means of vector arms which are adjusted through graduated dials.

In emergencies, this director may be used as an auxiliary gun-sight for the airplane's fixed guns by adjusting the director to a position parallel to the center line of the airplane, and in alignment with the line of fire.

CHARACTERISTICS:

- Weight.....approximately 23³/₄ pounds
- Dimensions.....approximately 10¹/₂ by 7⁷/₈ by 7¹/₂ inches
- Electrical connector.....AN3102-8S-1P
- Electrical cable length.....approximately 9 inches
- Lamp bulb.....Lamp, trade number 1666, I.F., 28 volts 21-21 C.P. S-8 I.F. bulb D.C. bay. base

ARMY

A. E. REFERENCE NUMBER: 64-950

SPECIFICATIONS:

Detail.....R-24789

A. A. F. DRAWING NUMBER: 43G7095

SUPERSEDED DRAWING NUMBER: 42G16373

TYPE DESIGNATION: B-2

A. S. C. STOCK NUMBER: Refer to chart.

TECHNICAL ORDER NUMBER: Refer to chart.

PRODUCTION STATUS: Under procurement.

SHIPPING DATA: Shipped as a complete unit including electrical cable and connector.

NAVY

TYPE DESIGNATION: B-2

AVIATION ORDNANCE STOCK LIST NUMBER: 2-D-176

PROCUREMENT STATUS: Procured from Army.

MODELS BELOW ARE INTERCHANGEABLE
Models are used in services as noted in column 4
A-Army, N-Navy, B-British

Manufacturer	Manufacturer's Model Identification	Manufacturer's Drawing Number	Used By	Air Service Command Stock Number	Army Technical Order Number	British Reference Number
J. H. Keeney & Co.	*B-2	**43G7095	A-N-B	6400242430	11-50-3	109/44
Douglas Aircraft Co.	RCL-2	5147380	A-B	6400242430	11-50-3	109/44

The above torpedo directors are interchangeable as complete units, but the optical systems are not interchangeable.
Note: *AAF type; **AAF drawing.

RELEASE HANDLES
ARMAMENT—BOMBING



HANDLE—BOMB RELEASE
ARMY TYPE A-3 NAVY TYPE A-3

NAMES: Bomb release handle
Bomb release handle assembly

Tee-grip bomb release handle

DESCRIPTION: The type A-3 bomb release handle is used to release bombs and droppable cargo. Its application is restricted to the mechanical release of one bomb rack or multiple racks in salvo.

The handle is composed of a tee-grip, flexible spring, and a two hole mounting bracket.

Actuation of the bomb rack is accomplished by a flexible cable, one end of which is attached to the release handle and the other end to the bomb release mechanism.

CHARACTERISTICS:

Weight..... approximately 1/2 pound
Dimensions..... approximately 6 1/4 by 2 1/8 by 3 inches

INSTALLATION PECULIARITIES: A 1/16 inch cable, specification number 48-22, is attached at the time of installation in the airplane.

ARMY

A. E. REFERENCE NUMBER: 64-1400

SPECIFICATIONS:

Detail..... 93-24542
Superseded..... 24542

A. A. F. DRAWING NUMBER: 0159268

TYPE DESIGNATION: A-3

A. S. C. STOCK NUMBER: Refer to chart.

PRODUCTION STATUS: Not under procurement for initial installation, superseded by Army type A-3A, A. E. Reference Number 64-1600, and Army type A-3B, A. E. Reference Number 64-1610.

SHIPPING DATA: Shipped as a complete unit, disassembled.

NAVY

TYPE DESIGNATION: A-3

BUREAU OF ORDNANCE DRAWING NUMBER: 155892 and 155981

AVIATION ORDNANCE STOCK LIST NUMBER: 3-H-635

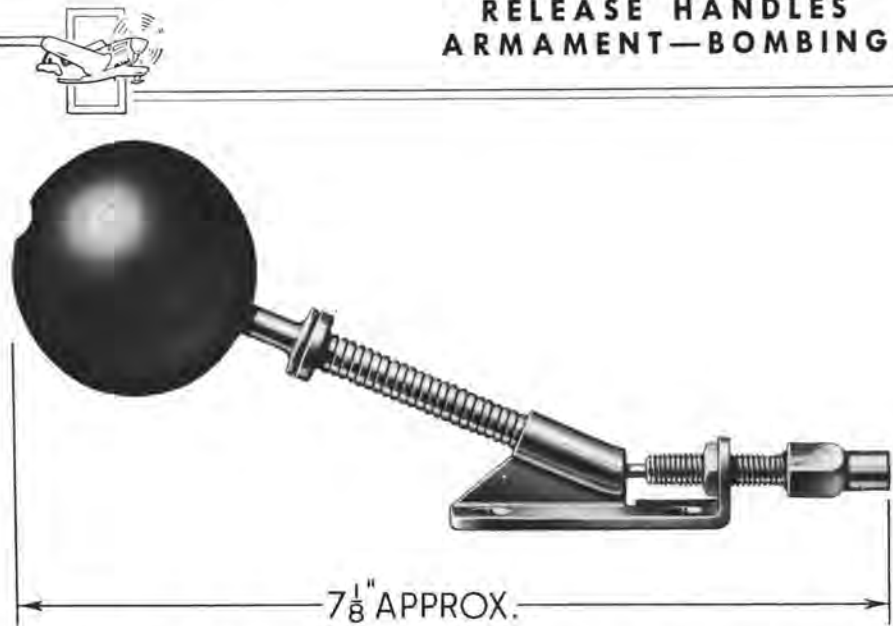
NAVY PUBLICATION: Ordnance Pamphlet Number 865

PROCUREMENT STATUS: Under procurement.

MODELS BELOW ARE INTERCHANGEABLE
Models are used in services as noted in column 4
A-Army, N-Navy, B-British

Manufacturer	Manufacturer's Model Identification	Manufacturer's Drawing Number	Used By	Air Service Command Stock Number	British Reference Number
Husband Aircraft Specialties, Incorporated	*A-3	**0159268	A-N-B	6400312100	111A/30
National Mineral Company	*A-3	**0159268	A-N-B	6400312100	111A/30
	*A-3A	**41B10395	A-B	6400309950	111A/59
	*A-3B	**43B11390	A-B	6400309975	111A/51
Union Steel Products Company	*A-3	‡155982	N	6400312100	111A/30

Note: *AAF type; **AAF drawing; ‡Bureau of Ordnance Drawing.



HANDLE—BOMB AND FLARE RELEASE
ARMY TYPE A-3A

NAMES: Bomb and flare release handle
Bomb and flare release handle assembly
Ball-grip bomb and flare release handle

DESCRIPTION: The Army type A-3A bomb and flare release handle is used to release bombs, flares or droppable cargo. Its application is restricted to the mechanical release of one bomb rack, or multiple racks in salvo.
The release handle is composed of a ball-grip, flexible spring, and a two hole mounting bracket. Actuation of the bomb rack is accomplished by a flexible cable, one end of which is attached to the release handle and the other end to the bomb release mechanism.

CHARACTERISTICS:

Weight approximately 1/2 pound
Dimensions approximately 7 1/8 by 3 1/8 by 2 inches

INSTALLATION PECULIARITIES: A 1/16 inch cable, specification number AN-RR-C-43, is attached at the time of installation in the airplane.

ARMY

A. E. REFERENCE NUMBER: 64-1600

SPECIFICATIONS:

Detail 93-24542-A
Superseded 93-24542

A. A. F. DRAWING NUMBER: 41B10395

TYPE DESIGNATION: A-3A

A. S. C. STOCK NUMBER: Refer to chart.

PRODUCTION STATUS: Not under procurement for initial installation, superseded by Army type A-3B, A. E. Reference Number 64-1610.

SHIPPING DATA: Shipped as a complete unit, disassembled.

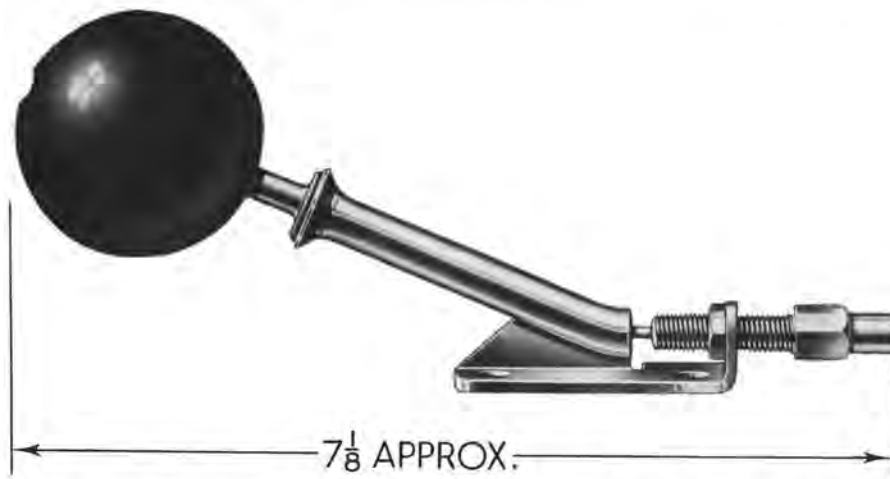
NAVY

There is no Navy equivalent for the Army item.

MODELS BELOW ARE INTERCHANGEABLE
Models are used in services as noted in column 4
A-Army, N-Navy, B-British

Manufacturer	Manufacturer's Model Identification	Manufacturer's Drawing Number	Used By	Air Service Command Stock Number	British Reference Number
National Mineral Company	*A-3A	**41B10395	A-B	6400309950	111A/59
	*A-3	**0159268	A-N-B	6400312100	111A/30
	*A-3B	**43B11390	A-B	6400309975	111A/51
Husband Aircraft Specialties, Incorporated	* A-3	**0159268	A-N-B	6400312100	111A/30

*AAF type; **AAF drawing.



HANDLE—BOMB AND FLARE RELEASE ARMY TYPE A-3B

NAMES: Bomb and flare release handle
Bomb and flare release handle assembly

Ball-grip bomb and flare release handle

DESCRIPTION: The Army type A-3B bomb and flare release handle is used to release bombs, flares or droppable cargo. Its application is restricted to the mechanical release of one bomb rack or multiple racks in salvo.

The release handle is composed of a ball-grip and a tubular section set at an angle and welded to a two hole mounting bracket.

Actuation of the bomb rack is accomplished by a flexible cable, one end of which is attached to the release handle and the other end to the bomb release mechanism.

CHARACTERISTICS:

Weight approximately 3/4 pound
Dimensions approximately 7 1/8 by 3 1/8 by 2 inches

INSTALLATION PECULIARITIES: A 1/16 inch cable, specification number AN-RR-C-43, is attached at the time of installation in the airplane.

ARMY

A. E. REFERENCE NUMBER: 64-1610

SPECIFICATIONS:

Detail 93-24542B
Superseded 93-24542

A. A. F. DRAWING NUMBER: 43B11390

TYPE DESIGNATION: A-3B

A. S. C. STOCK NUMBER: Refer to chart.

PRODUCTION STATUS: Under procurement.

SHIPPING DATA: Shipped as a complete unit, disassembled.

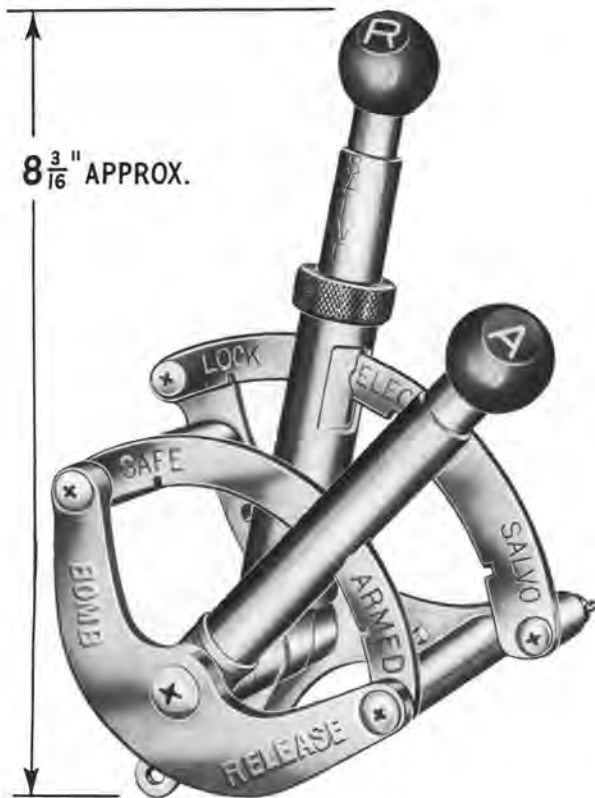
NAVY

There is no Navy equivalent for the Army item.

MODELS BELOW ARE INTERCHANGEABLE Models are used in services as noted in column 4 A-Army, N-Navy, B-British

Manufacturer	Manufacturer's Model Identification	Manufacturer's Drawing Number	Used By	Air Service Command Stock Number	British Reference Number
National Mineral Company	*A-3B	**43B11390	A-B	6400309975	111A/51
	*A-3A	**41B10395	A-B	6400309950	111A/59
	*A-3	**0159268	A-N-B	6400312100	111A/30
Husband Aircraft Specialties, Incorporated	*A-3	**0159268	A-N-B	6400312100	111A/30

Note: *AAF type; **AAF drawing.



HANDLE—BOMB RELEASE

ARMY TYPE L-21A NAVY TYPE L-21A

NAMES: Bomb release handle
Bomb release handle assembly
Bomb rack handle

DESCRIPTION: The type L-21A bomb release handle is used for the manual release of bombs and flares. Provision is made for release of bombs in either SAFE or ARMED condition.

When the release handle is used in a completely mechanical bomb release circuit, bombs can be released in salvo only. When the release handle is used to control electrical bomb release circuits, the handle must be placed in either the selective or salvo position before the release of bombs is accomplished by the bombardier's electrical release switch.

CHARACTERISTICS:

Dimensions..... approximately 8⁵/₈ by 8³/₁₆ by 3⁷/₈ inches
Weight..... approximately 1¹/₃ pounds

INSTALLATION PECULIARITIES: The type L-21A bomb release handle is normally used for left hand installation. For right hand installation, the sectors and lever must be reversed as shown on Army drawing number 38B5990.

ARMY

A. E. REFERENCE NUMBER: 64-1800

SPECIFICATIONS:

Detail..... 93-24563A
Superseded..... 93-24563

A. A. F. DRAWING NUMBER: 38D5989

TYPE DESIGNATION: L-21A

A. S. C. STOCK NUMBER: Refer to chart.

PRODUCTION STATUS: Under procurement.

SHIPPING DATA: Shipped as a complete unit.

NAVY

TYPE DESIGNATION: L-21A

BUREAU OF ORDNANCE DRAWING NUMBER: 308078

AVIATION ORDNANCE STOCK LIST NUMBER: 3-H-645

PROCUREMENT STATUS: Under procurement.

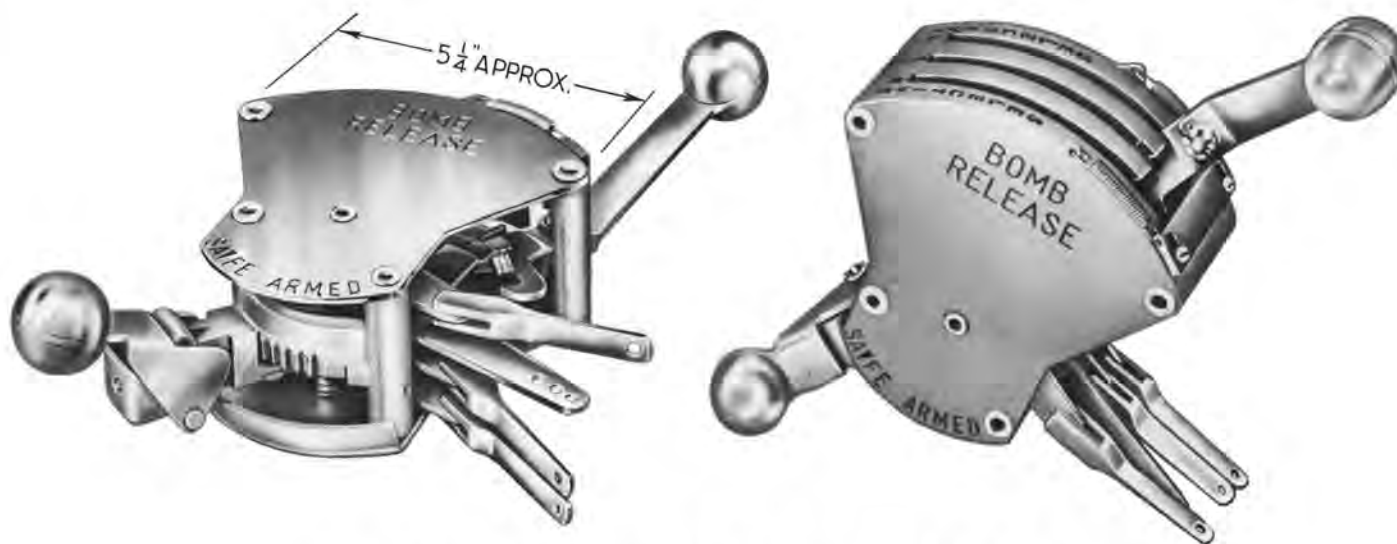
MODELS BELOW ARE INTERCHANGEABLE
Models are used in services as noted in column 4
A-Army, N-Navy, B-British

Manufacturer	Manufacturer's Model Identification	Manufacturer's Drawing Number	Used By	Air Service Command Stock Number	British Reference Number
Arro Tool and Engineering Company	*L-21A	**38D5989	A-N-B	6400313900	111A/35
Guardian Electric Manufacturing Company	*L-21A	20933	A-N-B	6400313900	111A/35
Aero Supply Manufacturing Company, Incorporated	L-21A	308078	N	6400313900	111A/35

Note: *AAF type; **AAF drawing.



RELEASE HANDLES ARMAMENT—BOMBING



HANDLE—BOMB RELEASE MARK 4 MODIFICATION 2

NAMES: Bomb release handle
Bomb rack release handle

Bomb release handle assembly

DESCRIPTION: The Mark 4 Modification 2 bomb release handle provides selective manual release of bombs in a left wing rack, a right wing rack, or salvo of the entire bomb load. A supplementary handle provides for controlling the arming of bombs which can be dropped in either SAFE or ARMED condition.

The bomb release handle consists of a metallic case which has a release handle extending from the top and a separate arming handle located on the lower sector of the case. The handles activate levers to which the bomb rack actuating cables are attached.

The handles, which are attached to the release lever and arming lever, may be reversed for either right or left hand installation.

The handle is installed on the airplane structure within reach of the operator.

CHARACTERISTICS:

Dimensions.....approximately 10½ by 6 by 3½ inches
Weight.....approximately 2¼ pounds

RELATIONSHIP OF PARTS: Used with:

Type AN-Mark 51 Modification 7 bomb racks, A. E. Reference Numbers 64-2349, 64-2350, and 64-2351.

ARMY

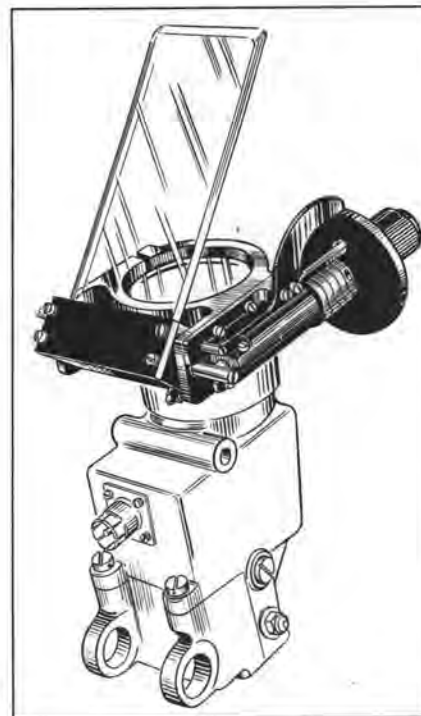
A. E. REFERENCE NUMBER: 64-1900
TYPE DESIGNATION: Mark 4 Modification 2
A. S. C. STOCK NUMBER: 6400311700
TECHNICAL ORDER NUMBER: 11-1-44
PRODUCTION STATUS: Under procurement from the Navy Department for Army use.
SHIPPING DATA: Shipped as a complete unit.

NAVY

TYPE DESIGNATION: Mark 4 Modification 2
BUREAU OF ORDNANCE DRAWING NUMBER: 108611, 375602 and 179000
AVIATION ORDNANCE STOCK LIST NUMBER: 3-H-627
PROCUREMENT STATUS: Under procurement.

BRITISH

BRITISH REFERENCE NUMBER: 111A/52



HEAD—PILOT'S BOMSIGHT ARMY TYPE A-1

NAMES: Pilot's bombsight head Variable bombing reflector
 Low altitude bombsight Variable reflector

DESCRIPTION: The Army type A-1 pilot's bombsight head is used on a fixed gun sight body for directing bombs from extremely low altitudes, and to direct the firing of fixed guns.

The head is mounted on the gun sight directly in front of the pilot, with the center of the reflector at eye level. Adjustment is provided for bombing from various altitudes and speeds by varying the reflector angle. Variation is controlled by a graduated dial which allows a sight range from zero deflection down until the line of sight touches the airplane nose. Provision is made for adjusting the head for personal factors, which are determined by experience for the individual pilot's requirements. The pilot's bombsight head is composed of the following parts, whose functions are as indicated: Adjustable gun lock cam—to stop and lock the head in gunnery position. Adjusting dial—reading in degrees. Adjustable bombing cams—enables quick selection of position of adjusting dial. Latch—to release cams. Reflector frame—carries reflector. Sliding inner dial plate—for personal factor adjustment.

CHARACTERISTICS:

Dimensions.....approximately 6⁹/₁₆ by 5 by 5⁷/₁₆ inches
Weight.....approximately 1¹/₂ pounds

INSTALLATION PECULIARITIES: When used with Army type N-6 fixed gun sight, A. E. Reference Number 52-4500 or Army type N-6A fixed gun sight, A. E. Reference Number 52-4525, a pilot's bombsight adapter ring, A. E. Reference Number 64-2001, must be supplied.

RELATIONSHIP OF PARTS: Used with:

Army type N-3A fixed gun sight, A. E. Reference Number 52-4400, Army type N-3B fixed gun sight, A. E. Reference Number 52-4425, Army type N-6 fixed gun sight, A. E. Reference Number 52-4500, or Army type N-6A fixed gun sight, A. E. Reference Number 52-4525.

ARMY

A. E. REFERENCE NUMBER: 64-2000
A. A. F. DRAWING NUMBER: 43D12264
TYPE DESIGNATION: A-1
A. S. C. STOCK NUMBER: Refer to chart.
TECHNICAL ORDER NUMBER: Refer to chart.
PRODUCTION STATUS: Under procurement.
SHIPPING DATA: Shipped as a complete unit.

NAVY

There is no Navy equivalent for the Army item.

MODELS BELOW ARE INTERCHANGEABLE
Models are used in services as noted in column 4
A-Army, N-Navy, B-British

Manufacturer	Manufacturer's Model Identification	Manufacturer's Drawing Number	Used By	Air Service Command Stock Number	Army Technical Order Number
American Gage Company	*A-1	**43D12264	A	6400322880	11-30-12
	*A-2	**43D19996	A		11-30-12
S. F. Bowser & Co., Inc.	*A-1	**43D12264	A	6400322880	11-30-12
	*A-2	**43D19996	A		11-30-12

*AAF type; **AAF drawing.



HEAD—PILOT'S BOMBSIGHT

ARMY TYPE A-2

NAMES: Pilot's bombsight head
Low altitude bombsight
Variable bombing reflector
Variable reflector

DESCRIPTION: The Army type A-2 pilot's bombsight head is used on a fixed gun sight body for directing bombs from extremely low altitudes, and to direct the firing of fixed guns. The head is mounted on the gun sight directly in front of the pilot, with the center of the reflector at eye level. Adjustment is provided for bombing from various altitudes and speeds by varying the reflector angle. Variation is controlled by a graduated dial, which allows a sight range from zero deflection down until the line of sight touches the airplane nose. Provision is made for adjusting the head for personal factors, which are determined by experience for the individual pilot's requirements. The pilot's bombsight head is composed of the following parts, whose functions are as indicated: Adjustable gun lock cam—to stop and lock the head in gunnery position. Adjusting dial—reading in degrees. Adjustable bombing cams—enables quick selection of position of adjusting dial. Latch—to release cams. Reflector frame—carries reflector. Sliding inner dial plate—for personal factor adjustment. The A-2 pilot's bombsight head employs a different dial and latch, and is more durable and flexible than the A-1 pilot's bombsight head.



CHARACTERISTICS:

Dimensions approximately 5 1/2 by 5 1/16 by 5 inches
Weight approximately 1 1/4 pounds

INSTALLATION PECULIARITIES: When used with Army type N-6 fixed gun sight, A. E. Reference Number 52-4500 or Army type N-6A fixed gun sight, A. E. Reference Number 52-4525, a pilot's bombsight adapter ring, A. E. Reference Number 64-2001, must be supplied.

RELATIONSHIP OF PARTS: Used with:

Army type N-3A fixed gun sight, A. E. Reference Number 52-4400 and Army type N-3B fixed gun sight, A. E. Reference Number 52-4425.

ARMY

A. E. REFERENCE NUMBER: 64-2005
A. A. F. DRAWING NUMBER: 43D19996
TYPE DESIGNATION: A-2
TECHNICAL ORDER NUMBER: Refer to chart.
PRODUCTION STATUS: Under procurement.
SHIPPING DATA: Shipped as a complete unit.

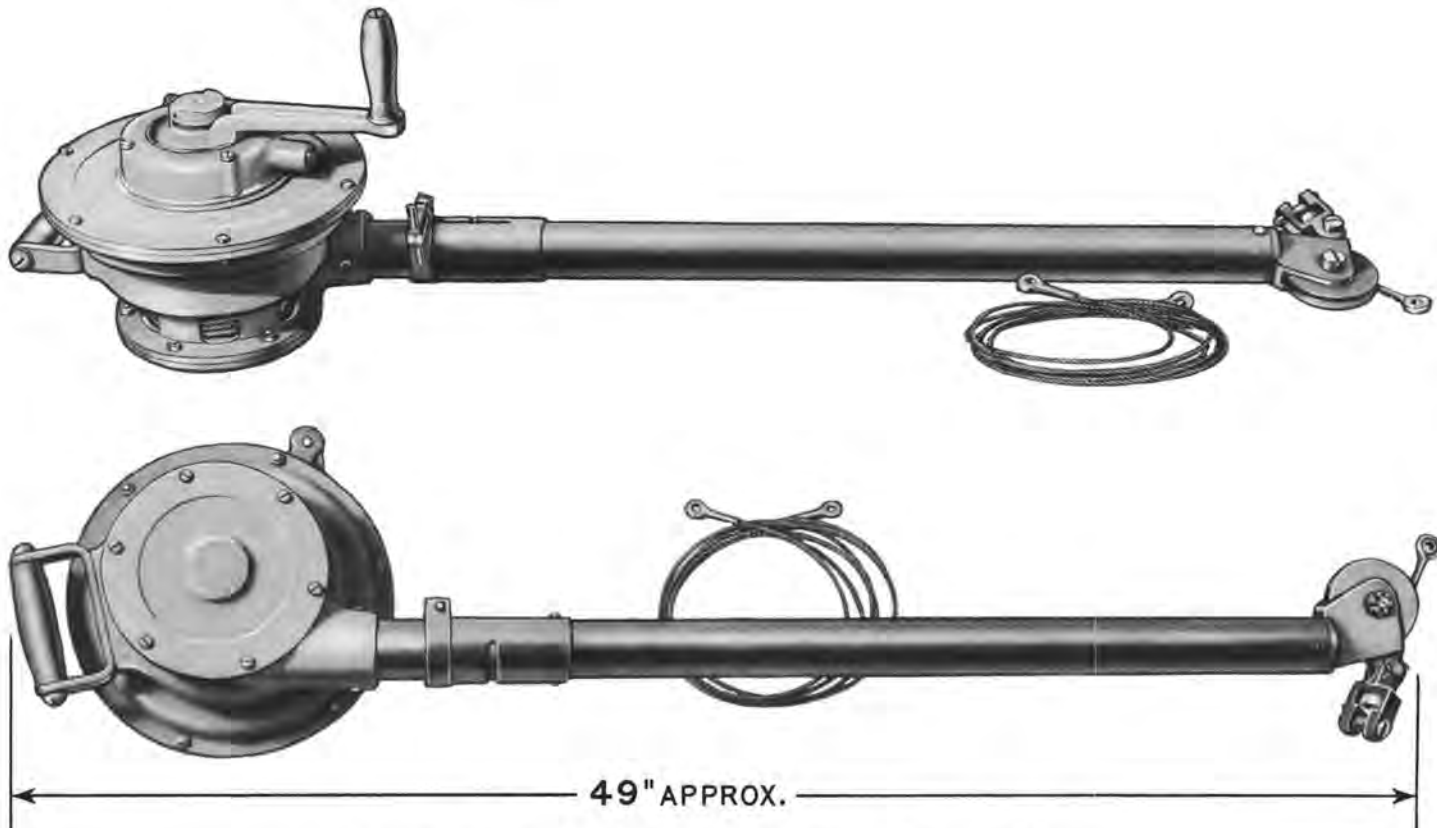
NAVY

There is no Navy equivalent for the Army item.

MODELS BELOW ARE INTERCHANGEABLE
Models are used in services as noted in column 4
A-Army, N-Navy, B-British

Manufacturer	Manufacturer's Model Identification	Manufacturer's Drawing Number	Used By	Air Service Command Stock Number	Army Technical Order Number
American Gage Company	*A-2	**43D19996	A		11-30-12
	*A-1	**43D12264	A	6400322880	11-30-12
S. F. Bowser & Co., Inc.	*A-2	**43D19996	A		11-30-12
	*A-1	**43D12264	A	6400322880	11-30-12

Note: *AAF type; **AAF drawing.



**HOIST—PORTABLE BOMB
TYPE AN-MARK 7 MODIFICATION 1**

NAMES: Portable bomb hoist
Adjustable bomb hoist

Bomb adjustable hoist
Bomb portable hoist

DESCRIPTION: The AN-Mark 7 Modification 1 portable bomb hoist provides a means for hoisting bombs to their proper bomb racks. This hand-held crank operated bomb hoist is used for loading operations on fighter, attack and light bombardment airplanes, and has a normal lifting capacity of 1000 pounds.

The complete bomb hoist is composed of a cable drum, an extension tube, cable pulley, hoist attachment fitting, hand grip and a gear-operating crank. The hoist attachment fitting is hooked to a hoist bracket on the airplane structure or on the bomb rack, and transmits the load of the bomb to the airplane structure and acts as a pivot for movement of the hoist for convenience of the operator. An internal ratchet prevents the bomb cable from slipping when the handle is released.

Some form of adapter such as trunnion bands or the Army type A-2 bomb hoist sling must be provided for hoisting bombs not equipped with a hoisting lug.

CHARACTERISTICS:

- Weight..... approximately 41 pounds
- Dimensions..... approximately 49 by 13 $\frac{1}{8}$ by 13 $\frac{1}{4}$ inches
- Normal lifting capacity..... 1000 pounds
- Maximum emergency capacity..... 1600 pounds
- Distance of total lift..... 102 inches

RELATIONSHIP OF PARTS: Used with:

Bomb trunnion bands, M1 to M6 inclusive or Army type A-2 bomb hoist sling, A. E. Reference Number 64-4150.

(Continued on page 259)



HOIST—PORTABLE BOMB

(Continued from page 258)

ARMY

A. E. REFERENCE NUMBER: 64-2250
 A. A. F. DRAWING NUMBER: H42B16115
 TYPE DESIGNATION: AN-Mark 7 Modification 1
 A. S. C. STOCK NUMBER: 6400324800
 TECHNICAL ORDER NUMBER: 11-5-49
 PRODUCTION STATUS: Under procurement from the Navy Department for Army use.
 SHIPPING DATA: Shipped as a complete unit.

NAVY

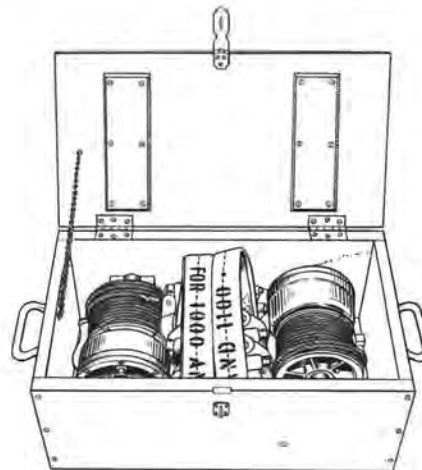
TYPE DESIGNATION: AN-Mark 7 Modification 1
 BUREAU OF ORDNANCE DRAWING NUMBER: Assembly 300173B, Outline 300172
 AVIATION ORDNANCE STOCK LIST NUMBER: 3-H-1035
 ORDNANCE PAMPHLET NUMBER: 949 and 865
 ORDNANCE CIRCULAR LETTER NUMBER: V 14-42
 PROCUREMENT STATUS: Under procurement.

MODELS BELOW ARE INTERCHANGEABLE
Models are used in services as noted in column 4
A-Army, N-Navy, B-British

Manufacturer	Manufacturer's Model Identification	Manufacturer's Drawing Number	Used By	Air Service Command Stock Number	Army Technical Order Number	British Reference Number
The Manley Manufacturing Division of American Chain & Cable Company, Inc.	‡AN-Mark 7 Modification 1	Assembly 300173B	A-N-B	6400324800	11-5-49	111A/46
		Outline 300172				
Sullivan Machine Company	‡AN-Mark 7 Modification 1	Assembly 300173B	A-N-B	6400324800	11-5-49	111A/46
		Outline 300172				
Food Machinery Corporation	‡AN-Mark 7 Modification 1	Assembly 300173B	A-N-B	6400324800	11-5-49	111A/46
		Outline 300172				

NOTE: The AN-Mark 7, Modification 1 supersedes and is interchangeable with Navy Mark 7 and Mark 2, Modification 1 portable bomb hoists.
 ‡Army-Navy Type.

BOMB HOISTS ARMAMENT—BOMBING



HOIST—BOMB ARMY TYPE C-3

NAMES: Bomb hoist Bomb hoist assembly
DESCRIPTION: The Army type C-3 bomb hoist provides a means for hoisting demolition bombs of all sizes up to and including 2000 pounds to their proper stations on the bomb rack. This hand operated bomb hoist may also be used for hoisting cargo, provided the total weight does not exceed 2000 pounds. The complete hoist is composed of a right hand and a left hand windlass assembly, two bomb hoist handle assemblies and one each of the following size slings: 300 pound; 500 to 600 pound; 1000 to 1100 pound; and 2000 pound. The Army type A-2 bomb hoist sling may be included as a part of this bomb hoist.

Each windlass assembly is equipped with a brake to prevent the bomb cable from slipping when pressure on the handle is relaxed. The handles may be attached to either side of the windlass and are provided with three box sockets to allow for increased leverage as required with increased bomb weights.

CHARACTERISTICS:

Weight approximately 68½ pounds
 Dimensions approximately 21½ by 11¼ by 9⅞ inches.

RELATIONSHIP OF PARTS: Used with:

Army type A-1 bomb hoist sling, A. E. Reference Number 64-4100 or Army type A-2 bomb hoist sling, A. E. Reference Number 64-4150

INSTALLATION PECULIARITIES: Either windlass may be converted to a right or left hand unit by rewinding the hoisting cable about the windlass drum in the opposite direction.

ARMY

A. E. REFERENCE NUMBER: 64-2200

SPECIFICATIONS:

Detail 93-24583
 Superseded 24583

A. A. F. DRAWING NUMBER: (Hoist Assembly) 36H5311; (Packing Case Assembly) 37K4961

TYPE DESIGNATION: C-3

A. S. C. STOCK NUMBER: Refer to chart

TECHNICAL ORDER NUMBER: Refer to chart

PRODUCTION STATUS: Under procurement

SHIPPING DATA: Shipped as a complete unit.

NAVY

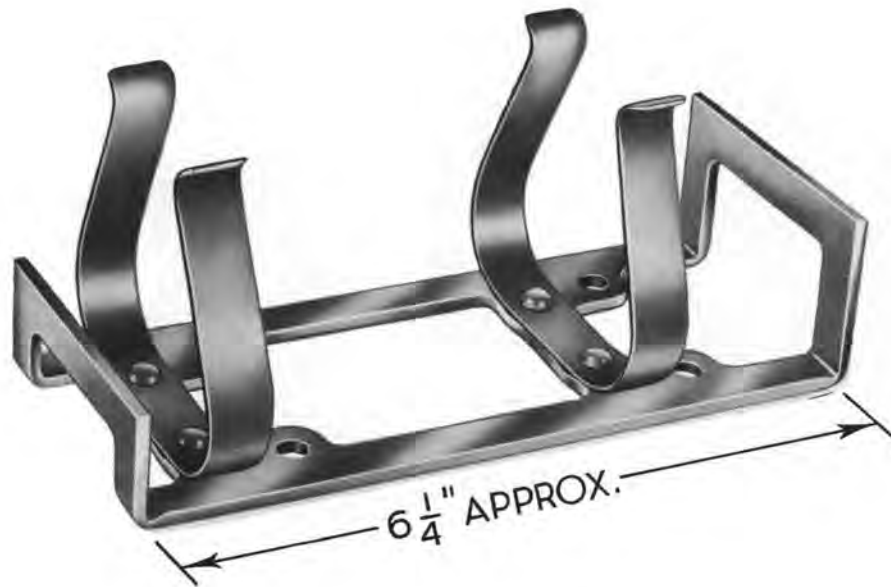
There is no Navy equivalent for the Army item.

MODELS BELOW ARE INTERCHANGEABLE
Models are used in services as noted in column 4
A-Army, N-Navy, B-British

Manufacturer	Manufacturer's Model Identification	Manufacturer's Drawing Number	Used By	Air Service Command Stock Number	Army Technical Order Number	British Reference Number	Remarks
The Taylor Machine Company	*C-3	**36H5311	A-B	6400325200	11-5-26	104G/28	See note.
Sparks-Withington Company	*C-3	A-16759	A-B	6400325200	11-5-26	104G/28	See note.

NOTE: Early models of the Army type C-3 bomb hoist did not contain a brake assembly, Army part number 40A6792.

*AAF type; **AAF drawing.



**MOUNT—GRENADE
ARMY TYPE A-1**

NAMES: Grenade mount
Grenade mount assembly

Hand grenade mount
Incendiary grenade mount

DESCRIPTION: The Army type A-1 grenade mount is composed of two spring steel clamps riveted to a steel base.
The grenade mount is attached to the airplane structure within reach of the pilot, and is used to carry one incendiary grenade.

CHARACTERISTICS:

Weight.....approximately 4/5 pound
Dimensions.....approximately 6 1/4 by 2 5/8 by 2 5/8 inches

RELATIONSHIP OF PARTS: Used with:
One AN-M14 incendiary grenade.

ARMY

A. E. REFERENCE NUMBER: 64-2265

SPECIFICATIONS:

Detail.....93-24840
Superseded.....24840

MANUFACTURER: Aiolite Co.

A. A. F. DRAWING NUMBER: 43D10279

TYPE DESIGNATION: A-1

A. S. C. STOCK NUMBER: 6400469150

PRODUCTION STATUS: Under procurement.

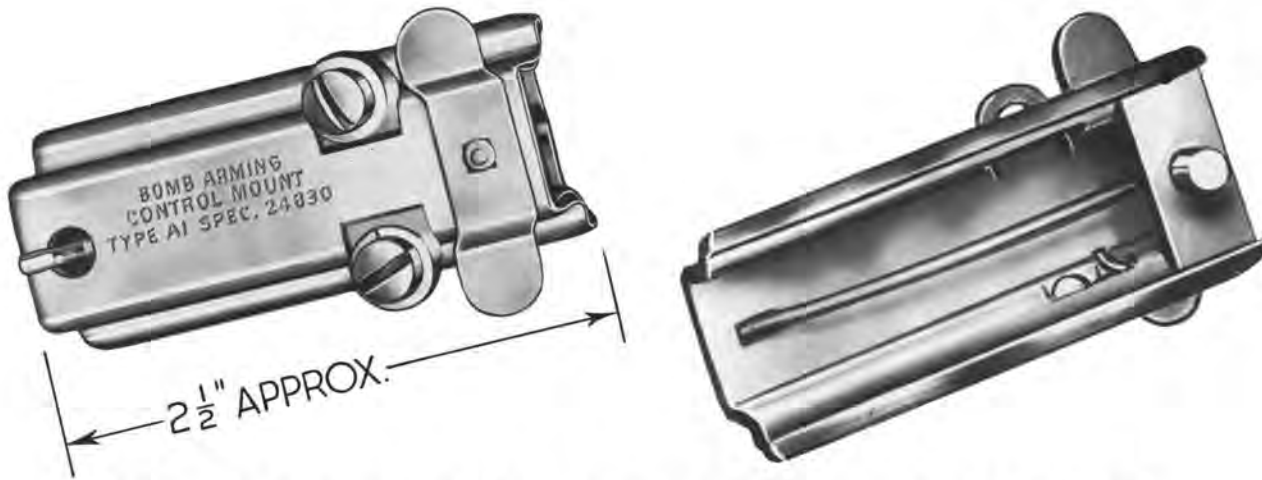
SHIPPING DATA: Shipped as a complete unit.

NAVY

There is no Navy equivalent for the Army item.



MOUNTS ARMAMENT—BOMBING



MOUNT—BOMB ARMING CONTROL ARMY TYPE A-1

NAMES: Bomb arming control mount
Bomb fusing control box slide

Bomb arming control mount assembly

DESCRIPTION: The type A-1 bomb arming control mount is used to attach bomb arming controls to bomb racks equipped with slide mounting rails. The mount is fastened to the control with two screws and a movable bracket which is under spring tension. The assembly is then installed in the mounting rails.

CHARACTERISTICS:

Weight approximately $\frac{3}{16}$ pound
Dimensions approximately $2\frac{1}{2}$ by $1\frac{3}{8}$ by $\frac{7}{8}$ inches

RELATIONSHIP OF PARTS: Used with:

Type AN-A-2 bomb arming control, A. E. Reference Number 64-220, and Army type B-2 bomb arming control, A. E. Reference Number 64-275, when mounting to slide mounting rails.

ARMY

A. E. REFERENCE NUMBER: 64-2270

SPECIFICATIONS:

Detail 24830

MANUFACTURER'S DRAWING NUMBER: Magnavox Corporation 14D27G1

A. A. F. DRAWING NUMBER: 43A9886

TYPE DESIGNATION: A-1

A. S. C. STOCK NUMBER: 6400467850

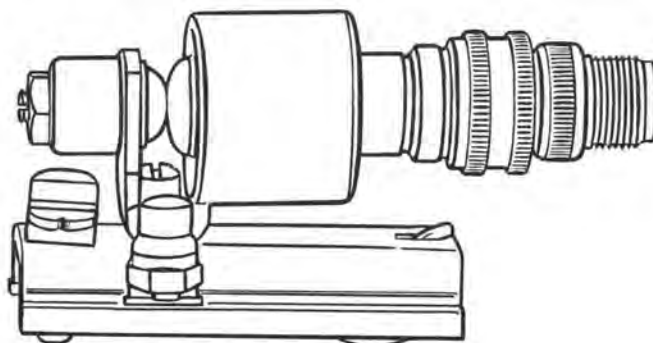
TECHNICAL ORDER NUMBER: 11-5-33

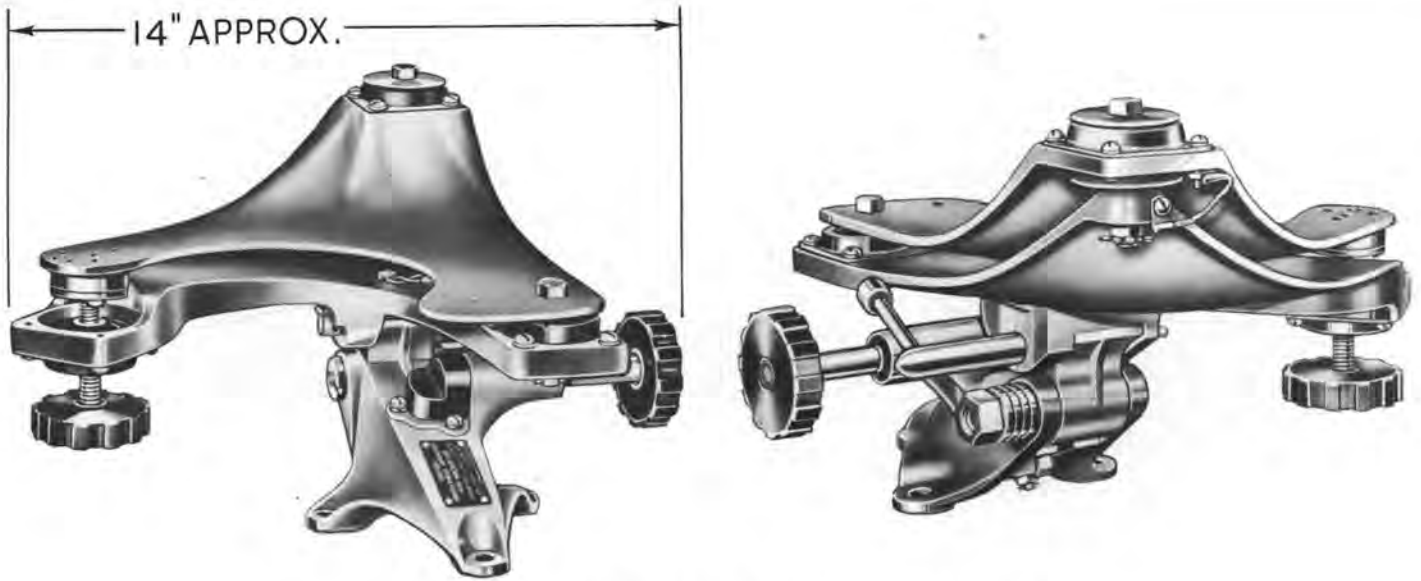
PRODUCTION STATUS: Under procurement.

SHIPPING DATA: Shipped as a complete unit.

NAVY

There is no Navy equivalent for the Army item.





**MOUNT—BOMBSIGHT
ARMY TYPE B-7**

NAMES: Bombsight mount
Anti-vibration bombsight mount

Bombsight mount assembly
Bombsight shock mount

DESCRIPTION: The M-series bombsight and stabilizer are retained in their proper location upon the airplane by the Army type B-7 bombsight mount. This device is so built that two mechanical regulators control leveling of the bombsight both fore and aft and laterally. The B-7 bombsight mount is attached to a bracket in the bombardier's compartment in the airplane by three bolts, and is equipped with rubber shock absorbers, which protect the bombsight from damage by shock or vibration.

CHARACTERISTICS:

Weight approximately 9³/₄ pounds
Dimensions approximately 9 by 12 by 14 inches

RELATIONSHIP OF PARTS: Used with:
Army type M-series bombsights.

ARMY

A. E. REFERENCE NUMBER: 64-2272

SPECIFICATIONS:

Detail 24809

MANUFACTURER'S DRAWING NUMBER: Lovell Manufacturing Company, E11779

A. A. F. DRAWING NUMBER: 42J11779

TYPE DESIGNATION: B-7

A. S. C. STOCK NUMBER: 6400468850

PRODUCTION STATUS: Under procurement

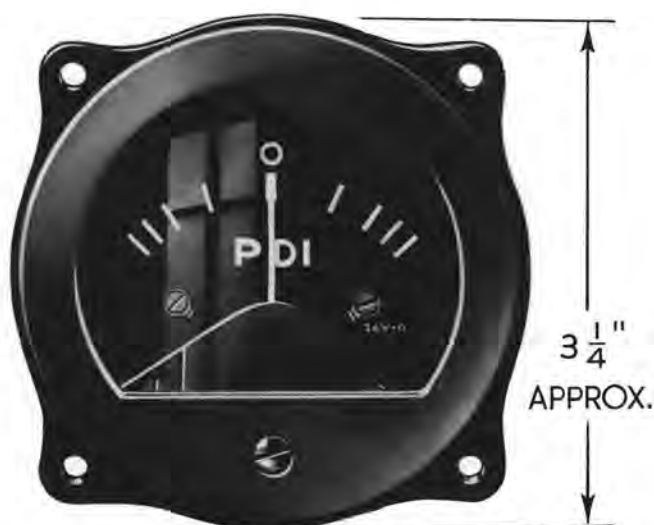
SHIPPING DATA: shipped as a complete unit.

NAVY

The Navy does not use the Army item.



PILOT DIRECTOR INDICATORS ARMAMENT—BOMBING



INDICATOR—PILOT DIRECTOR ARMY—SEE BELOW NAVY MARK 15, MOD. 5

NAMES: Pilot director indicator
Bombsight pilot director indicator
P. D. I.

DESCRIPTION: The pilot director indicator is an indicating type meter with 4 graduation marks to the right and left of a center zero, and it is mounted on the pilot's instrument panel.

The pointer fluctuates right or left in response to signals originating in the automatic pilot's directional stabilizer; this indicates to the pilot the course change desired by the bombardier. Movement of the airplane in the desired direction returns the pointer to the zero position.

This indicator operates on a 26 volt electrical circuit, and has a two pin electrical receptacle. A mating electrical plug, AN3106-12S-3S, was supplied with early models of this indicator to facilitate installation in the airplane.

CHARACTERISTICS:

- Dimensions approximately 3¹⁵/₆₄ by 3¹⁵/₆₄ by 3³/₃₂ inches
- Weight approximately 1¹/₈ pounds
- Illumination none
- Markings fluorescent
- Voltage 26 volts direct current
- Electrical Receptacle AN3102-12S-3P

RELATIONSHIP OF PARTS: Used with:

Army type C-1 automatic pilot, A. E. Reference Number 64-2300. When installed on an airplane not equipped with an Army type C-1 automatic pilot, it is used with Army type A-1 pilot director indicator control, A. E. Reference Number 64-835.

(Continued on page 265)



INDICATOR—PILOT DIRECTOR

(Continued from page 264)

ARMY

A. E. REFERENCE NUMBER: 64-2255

SPECIFICATIONS:

General.....C-24825
Detail.....C-24863

TECHNICAL ORDER NUMBER: 11-60AA-1

PRODUCTION STATUS: Under procurement

SHIPPING DATA: Shipped as a complete unit including electrical connector plug AN3106-12S-3S for early models only.

NAVY

TYPE DESIGNATION: Mark 15, Mod. 5

BUREAU OF ORDNANCE DRAWING NUMBER: 300206 (Installation Drawing)

AVIATION ORDNANCE STOCK LIST NUMBER: 2-I-115

PROCUREMENT STATUS: Under procurement.

MODELS BELOW ARE INTERCHANGEABLE

Models are used in services as noted in column 4

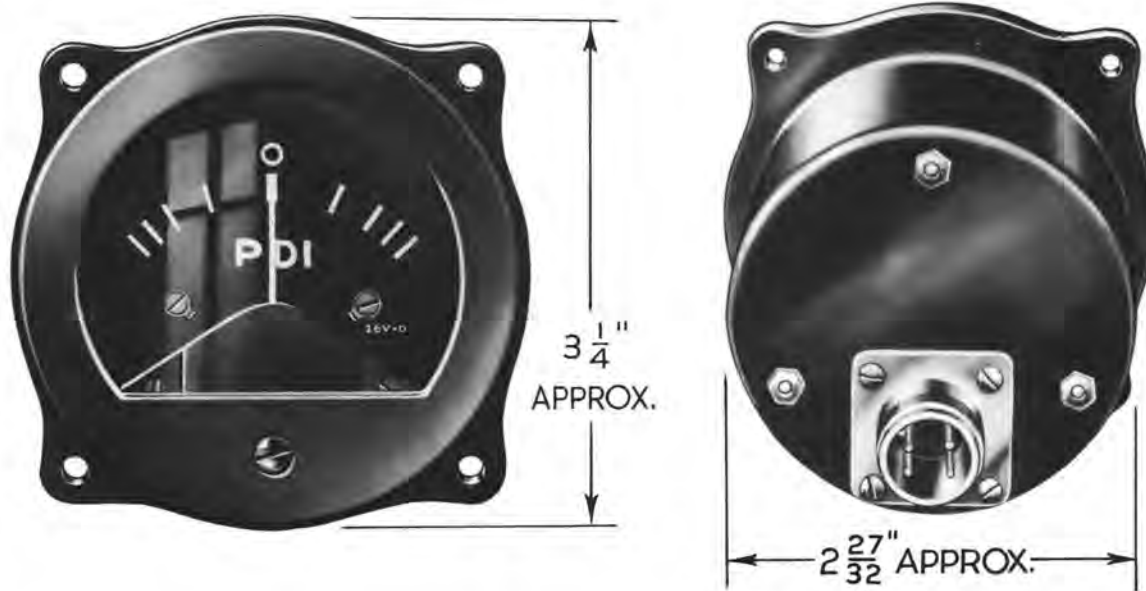
A-Army, N-Navy, B-British

Manufacturer	Manufacturer's Model Identification	Manufacturer's Drawing Number	Used By	Air Service Command Stock Number	Army Technical Order Number	British Reference Number	A. E. Reference Number	Navy Type	Bureau of Ordnance Drawing Number	Remarks
O. B. McClintock Company	MD3071 (2 pole)	PDI 100 (26 volt)	A-N-B	6400374920	11-60AAA-1	109/45	64-2255	MK 15, Mod. 5	300206	Electrical receptacle: AN3102-12S-3P (2 pin)
	MD3071 (4 pole)	PDI 100 (26 volt)	A-N	6400374900			64-2257	MK 15, Mod. 3	300206	Electrical receptacle: Cannon WK-4-32S (4 pin)
Roller-Smith Company		‡265673 (modified)	A-N-B	6400374920	11-60AAA-1	109/45	64-2255	MK 15, Mod. 5	300206	Electrical receptacle: AN3102-12S-3P (2 pin)

NOTE: These models may be made interchangeable by substituting the proper electrical connector. †Bureau of Ordnance Drawing.



PILOT DIRECTOR INDICATORS ARMAMENT—BOMBING



INDICATOR—PILOT DIRECTOR NAVY MARK 15, MOD. 3

NAMES: Pilot director indicator
Bombsight pilot director indicator
P. D. I.

DESCRIPTION: The pilot director indicator is an indicating type meter with 4 graduation marks to the right and left of a center zero, and it is mounted on the pilot's instrument panel. The pointer fluctuates right or left in response to signals originating in the automatic pilot's directional stabilizer. This indicates to the pilot the course change desired by the bombardier. Movement of the airplane in the desired direction returns the pointer to the zero position. This indicator operates on a 26 volt electrical circuit. It has a four pin electrical connector, although only two pins are utilized electrically.

CHARACTERISTICS:

Dimensions.....	approximately 3 ¹⁵ / ₆₄ by 3 ¹⁵ / ₆₄ by 3 ³ / ₂ inches
Weight.....	approximately 1 ¹ / ₈ pounds
Illumination.....	none.
Markings.....	fluorescent
Voltage.....	26 volts direct current
Receptacle.....	Cannon WK-4-32S

RELATIONSHIP OF PARTS: Used with:

Army type C-1 automatic pilot, A. E. Reference Number 64-2300. When installed on an airplane not equipped with Army type C-1 automatic pilot, it is used with Army type A-1 pilot director indicator control, A. E. Reference Number 64-835.

(Continued on page 267)



INDICATOR—PILOT DIRECTOR

(Continued from page 266)

ARMY

A. E. REFERENCE NUMBER: 64-2257

SPECIFICATIONS:

- General.....C-24825
- Detail.....C-24580-D
- Superseded.....C-24580-C

A. S. C. STOCK NUMBER: 6400374900

PRODUCTION STATUS: Not under procurement for initial installation.

Superseded by pilot director indicator, A. E.

Reference Number 64-2255

SHIPPING DATA: Shipped as a complete unit.

NAVY

TYPE DESIGNATION: Mark 15, Mod. 3

BUREAU OF ORDNANCE DRAWING NUMBER: 300206 (Installation Drawing)

AVIATION ORDNANCE STOCK LIST NUMBER: 2-1-105

PROCUREMENT STATUS: Not under procurement for initial installation. Superseded by Mark 15, Mod. 5.

MODELS BELOW ARE INTERCHANGEABLE

Models are used in services as noted in column 4

A-Army, N-Navy, B-British

Manufacturer	Manufacturer's Model Identification	Manufacturer's Drawing Number	Used By	Air Service Command Stock Number	Army Technical Order Number	British Reference Number	A. E. Reference Number	Navy Type	Bureau of Ordnance Drawing Number	Remarks
O. B. McClintock Company	MD3071 (4 pole)	PDI 100 (26 volt)	A-N	6400374900			64-2257	MK 15, Mod. 3	300206	Electrical receptacle: Cannon WK-4-32S (4 pin)
	MD3071 (2 pole)	PDI 100 (26 volt)	A-N-B	6400374920	11-60AA-1	109/45	64-2255	MK 15, Mod. 5	300206	Electrical receptacle: AN3102-12S-3P (2 pin)
Roller-Smith Company		‡265673 (modified)	A-N-B	6400374920	11-60AA-1	109/45	64-2255	MK 15, Mod. 5	300206	Electrical receptacle: AN3102-12S-3P (2 pin)

NOTE: These models may be made interchangeable by substituting the proper electrical connector.

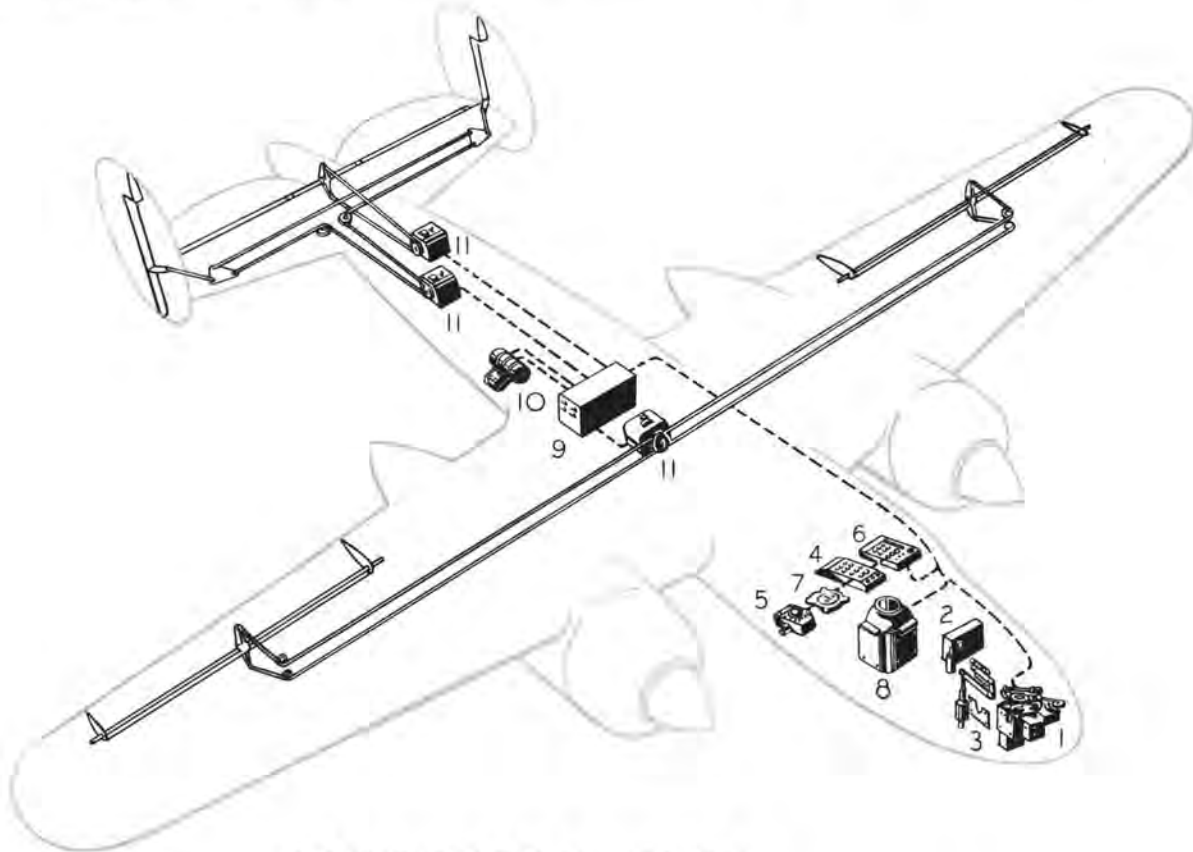
‡Bureau of Ordnance Drawing.



PILOT—AUTOMATIC
ARMY TYPE C-1 NAVY MARK 2, MODIFICATION 1

The automatic pilot is used to automatically control the airplane during normal flight or on bombing runs. The diagram below shows the approximate location of the component units in the airplane.

The pilot's control panel and the turn control are not used with the automatic pilot when an autopilot control panel is specified.



COMPONENT ITEMS

- | | |
|--|--|
| 1 Stabilizer-Directional | 7 Indicator-Pilot director AER No. 64-2255 |
| 2 Panel-Directional | 8 Control-Vertical gyro |
| 3 Lock-Directional arm | 9 Amplifier |
| 4 Panel-Pilot's control | 10 Inverter-Rotary |
| 5 Control-Turn | 11 Motor-Servo |
| 6 Panel-Autopilot control AER No. 64-195 | |

ARMY

A. E. REFERENCE NUMBER: (complete pilot) 64-2300
SPECIFICATION:
General C-24825
TECHNICAL ORDER NUMBER: 11-60-1 and 11-60AA-1
A. S. C. STOCK NUMBER: 6400507995

NAVY

NAME: Stabilized Bombing Approach Equipment (SBAE)
TYPE DESIGNATION: Mark 2 Modification 1
AVIATION ORDNANCE STOCK LIST NUMBER: (complete pilot) 2-S-335
NAVAL ORDNANCE PAMPHLET NUMBER: 639.

BRITISH

REFERENCE NUMBERS: see individual items.

MANUFACTURER

Minneapolis Honeywell Regulator Company.

(Continued on page 269)



PILOT—AUTOMATIC

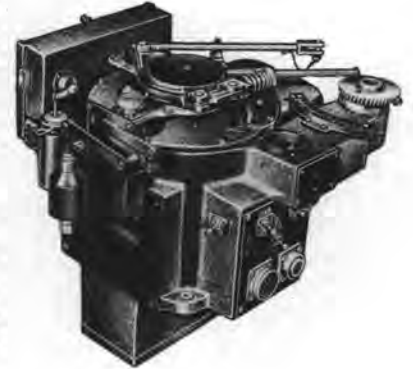
(Continued from page 268)

DIRECTIONAL STABILIZER

The directional stabilizer contains the stabilizer gyro which controls the movement of the airplane in azimuth and the pilot director indicator potentiometer and brush which operate the pilot director indicator located on the pilot's instrument panel.

The directional arm and the directional arm lock are attached to this unit.

Dimensions, approximately $11\frac{31}{32}$ by $12\frac{15}{16}$ by $12\frac{27}{32}$ inches.
Weight, approximately $39\frac{1}{8}$ pounds.
Army Air Force specification C-24827
A. S. C. stock number 6400963750
British reference number 106J/758
Manufacturer's drawing and part number G1048
Production status: Under procurement.



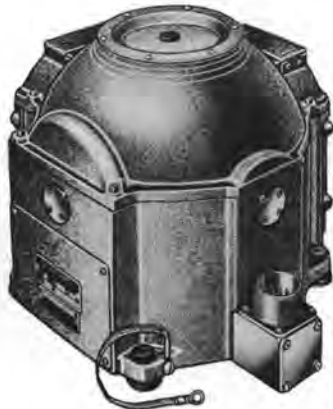
AUTOPILOT CONTROL PANEL

For detailed description of this item refer to A. E. Reference Number 64-195, page 232 of this index.

PILOT DIRECTOR INDICATOR

For detailed description of this item refer to A. E. Reference Number 64-2255, page 264 of this index.

VERTICAL GYRO CONTROL



The vertical gyro control unit is the vertical reference of the airplane with respect to the earth's surface. It provides reference for the lateral and longitudinal control of the airplane.

The unit consists of a gyroscope rotor secured to a spindle on which is mounted the armature of a shunt-wound motor. The rotor provides the motivating force for the gyro, operating it at high speed.

Dimensions, approximately $7\frac{5}{8}$ by $10\frac{15}{32}$ by $8\frac{11}{16}$ inches.
Weight, approximately $18\frac{1}{4}$ pounds.
Army Air Force specification C-24858
A. S. C. stock number 6400304650
British reference number 106J/694
Manufacturer's drawing and part number G1021A
Manufacturer's outline drawing number DR2002
Production status: Under procurement.

AMPLIFIER

The amplifier consists of electronic tubes, relays, chokes, and a transformer for the power supply of the tubes. These units are mounted on a removable rack which slides into its case on two guides.

Dimensions, approximately $7\frac{3}{8}$ by $9\frac{25}{64}$ by $8\frac{1}{4}$ inches.
Weight, approximately $12\frac{1}{4}$ pounds.
Army Air Force specification C-24859
A. S. C. Stock number 6400009400
British reference number 106J/700
Manufacturer's drawing and part number G1024A
Manufacturer's outline drawing number DR2000
Production status: Under procurement.



(Continued on page 270)



PILOT—AUTOMATIC

(Continued from page 269)

ROTARY INVERTER



The rotary inverter provides the alternating current required to operate the automatic pilot.

This rotary inverter consists of a direct current motor with its armature windings tapped at two opposite points, and connected to two collector rings insulated from the armature. Direct current is supplied to the motor commutator through carbon brushes; the alternating current is drawn from the collector rings by carbon brushes. A choke coil, three condensers, and a connector plug (AN3102-14S-5P) are included in the base. The construction of the base permits the inverter to be turned 180 degrees for connection or mounting convenience.

The inverter receives the 24 to 28 volt direct current provided by the airplane's generator and supplies 19 volt alternating current for operating the pilot. The starting current drawn is 23 amperes and running current is 2.5 amperes.

Dimensions, approximately.....	5 ⁵ / ₈ by 5 ⁷ / ₈ by 6 ³ / ₄ inches.
Weight, approximately.....	10 ¹ / ₄ pounds.
Army Air Force specification.....	C-24862
A. S. C. Stock number.....	6400219650
British reference number.....	106J/693
Manufacturer's drawing and part number.....	G1025A
Manufacturer's outline drawing number.....	DR2001

Production status: Under procurement.

SERVO MOTOR

The servo motor consists of an assembly containing a 1/20 horsepower direct current motor. This motor operates a system of gears, brakes, clutches, solenoids, and a limit switch to drive a cable drum. The drum can accommodate 24 to 26 inches of cable travel while driving over a range of four and one half inches.

Three servo motors are used on each aircraft; the motors are connected by cable to control the plane's rudder, elevator and ailerons.

Dimensions, approximately.....	6 ⁷ / ₁₆ by 9 ²¹ / ₃₂ by 10 ⁹ / ₁₆ inches.
Weight, approximately.....	23 ⁵ / ₈ pounds.
Army Air Force specification.....	C-24860
A. S. C. stock number.....	6400464500
British reference number.....	106J/696
Manufacturer's drawing and part number.....	G1020
Manufacturer's outline drawing number.....	DR2003

Production status: Under procurement.



DIRECTIONAL PANEL

The directional panel is mounted on the directional stabilizer. It consists of two potentiometers with pick-up contacts or brushes, a flight gyro roller cutout switch, and a dash pot with linkage.

Dimensions, approximately.....	5 ¹³ / ₁₆ by 8 ¹ / ₄ by 3 ⁹ / ₃₂ inches.
Weight, approximately.....	3 ¹ / ₄ pounds.
Army Air Force specification.....	C-24796
A. S. C. Stock number.....	6400496523
British reference number.....	106J/695
Manufacturer's drawing and part number.....	G1005A
Manufacturer's outline drawing number.....	DR2004

Production status: Under procurement.



(Continued on page 271)



PILOT—AUTOMATIC

(Continued from page 270)

DIRECTIONAL ARM LOCK

The directional arm lock consists of a solenoid, drawing approximately 0.4 amperes of current actuated by a series of levers. It is mounted on the directional stabilizer.

Rotation of the turn control knob from the center, or zero, position energizes the solenoid and actuates the levers to lock the gyro secondary clutch in a neutral position. When the control knob is returned to the zero position, the clutch is released and the airplane resumes straight flight on the new course.

- Dimensions, approximately 7⁵/₈ by 5⁵/₈ by 1¹⁵/₃₂ inches.
 - Weight, approximately 1¹/₄ pounds.
 - Army Air Force specification C-24827
 - A. S. C. Stock number 6400430925
 - British reference number 106J/759
 - Manufacturer's drawing and part number G1029A2
 - Manufacturer's outline drawing number DR2033
- Production status: Under procurement.

PILOT'S CONTROL PANEL



The pilot's control panel contains the controls necessary for the operation of the automatic pilot except the pilot's turn control, which is mounted separately, and the limit switches of the servos, which are attached to individual units. It is mounted in the pilot's compartment.

- It contains toggle switches at the top of the panel, to control the following units:
- Master (for complete control)
 - Pilot director indicator
 - Aileron servo, (brake clutch solenoid only)
 - Rudder servo, (brake clutch solenoid only)
 - Elevator servo, (brake clutch solenoid only)
 - Directional stabilizer
 - Stabilizer servo

The master and directional stabilizer switches are connected by a bar which moves both switches ON and OFF together, and prevents the other switches from being used before the automatic pilot is in operation. Movement of the bar to the OFF position operates all switches simultaneously, with the exception of the pilot director indicator and the stabilizer servo switches.

Adjusting knobs for the centering, sensitivity, ratio and turn compensation for the three axes of control are also located on the face of the panel.

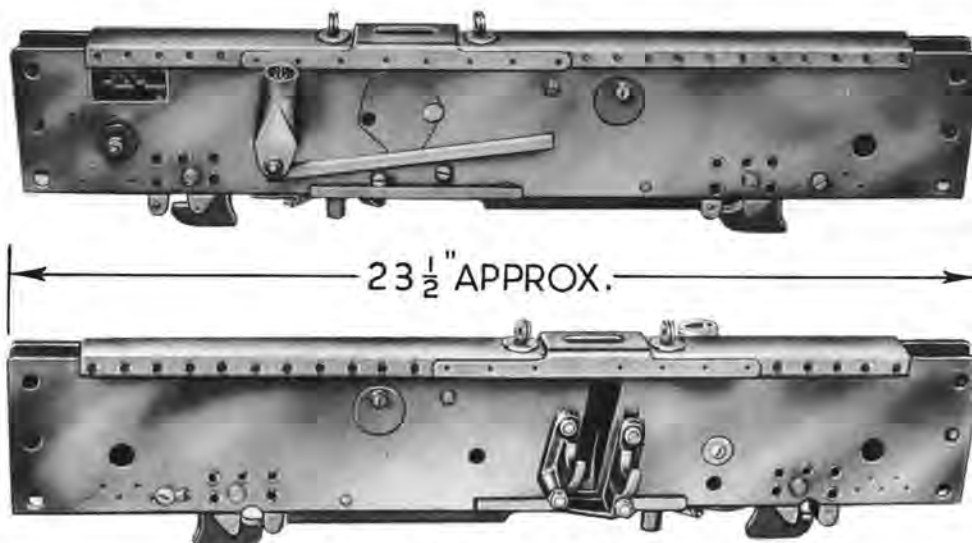
- Dimensions, approximately 10⁹/₁₆ by 6 by 4⁵/₁₆ inches.
 - Weight, approximately 5³/₈ pounds.
 - Army Air Force specification C-24861
 - A. S. C. stock number 6400091560
 - British reference number 106J/698
 - Manufacturer's drawing and part number G1023A
- Production status: Not under procurement for initial installation. Superseded by Autopilot Control Panel.

TURN CONTROL

The turn control provides the pilot with a means of turning the airplane at an angle of bank (up to 40 degrees), and returning it to straight flight by means of the automatic pilot. It is mounted in the pilot's compartment.

- Dimensions, approximately 3³/₁₆ by 2⁹/₃₂ by 4³/₄ inches.
 - Weight, approximately 1 pound
 - Army Air Force specification C-24864
 - A. S. C. stock number 6400372100
 - British reference number 106J/697
 - Manufacturer's drawing and part number G1027A
 - Manufacturer's outline drawing number DR2031
- Production status: Not under procurement for initial installation. Superseded by Autopilot Control Panel.





RACK—BOMB

TYPE AN-MARK 51 MODIFICATION 7

NAMES: Bomb rack

Bomb rack assembly

DESCRIPTION: This type bomb rack is a combination electrical and mechanical unit, designed to be adapted to all types of dive bombers having a 24 volt electrical system. Installation may be made either in the lower wing surface or in the bomb bay compartment.

Arming and releasing controls are actuated by the energizing of solenoids or, in emergency, by mechanical means. Two solenoids, located in the forward part of the bomb rack, actuate the arming of the bomb nose and tail fuses, and a solenoid located toward the rear operates the release mechanism.

CHARACTERISTICS:

- Weight..... approximately 11³/₄ pounds
- Dimensions..... approximately 23¹/₂ by 2³/₈ by 5⁷/₈ inches
- Maximum capacity..... 1600 pounds
- Electrical connector..... AND10427-14S-5P insert arrangement
- Electrical connector mates with..... AN3108-14S-5S, or AN3106-14S-5S
- Distance between suspension lugs..... 14 inches

RELATIONSHIP OF PARTS: Used with:

Navy Mark 4 Modification 2 bomb release handle... A. E. Reference Number 64-1900

INSTALLATION PECULIARITIES: To facilitate installation, the Mark 51 Modification 7 bomb rack may be ordered by designating the required installation position in the airplane. Arrangement of parts for the different positions are as follows:

CENTER—A. E. REFERENCE NUMBER 64-2349

- Electrical receptacle assembly on left sideplate
- No hoist bracket
- Smoke screen tank terminal on left sideplate forward

LEFT—A. E. REFERENCE NUMBER 64-2350

- Electrical receptacle assembly on right sideplate
- Hoist bracket on left sideplate
- Smoke screen tank terminal on left sideplate forward

RIGHT—A. E. REFERENCE NUMBER 64-2351

- Electrical receptacle assembly on left sideplate
- Hoist bracket on right sideplate
- Smoke screen tank terminal on left sideplate forward

ARMY

A. E. REFERENCE NUMBER: 64-2349 (Center), 64-2350 (Left), 64-2351 (Right)

A. A. F. DRAWING NUMBER: 43B7513

TYPE DESIGNATION: AN-Mark 51 Modification 7

A. S. C. STOCK NUMBER: Refer to chart.

TECHNICAL ORDER NUMBER: Refer to chart.

PRODUCTION STATUS: Under procurement. Supersedes and is interchangeable with Mark 51 Modification 5.

SHIPPING DATA: Shipped as a complete unit.

(Continued on page 273)



RACK—BOMB

(Continued from page 272)

NAVY

TYPE DESIGNATION: AN-Mark 51 Modification 7

BUREAU OF ORDNANCE DRAWING NUMBER: 328759

AVIATION ORDNANCE STOCK LIST NUMBER: 3-R-176-70 (Center), 3-R-176-73 (Left), 3-R-176-75 (Right)

ORDNANCE PAMPHLET NUMBER: 865A and 925

ORDNANCE CIRCULAR LETTER NUMBER: V 10-43

PROCUREMENT STATUS: Under procurement.

MODELS BELOW ARE INTERCHANGEABLE
Models are used in services as noted in column 4
A-Army, N-Navy, B-British

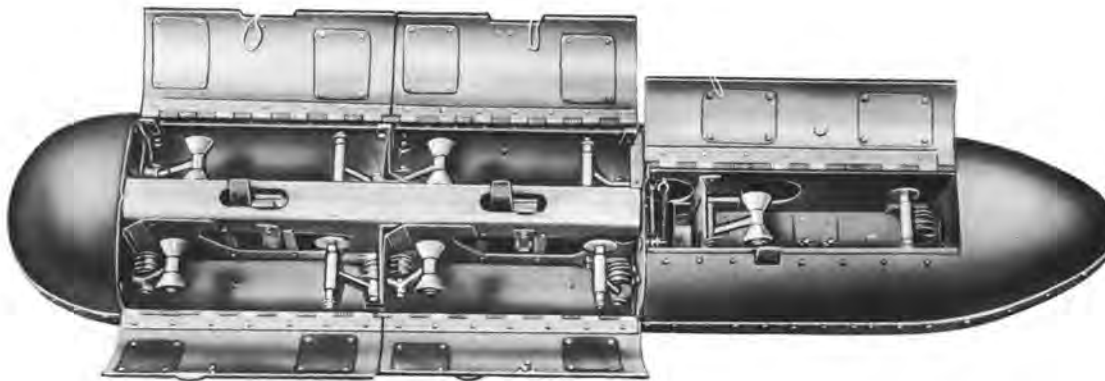
Manufacturer	Manufacturer's Model Identification	Manufacturer's Drawing Number	Used By	Air Service Command Stock Number	Army Technical Order Number	British Reference Number
International Register Company	AN-Mark 51 Modification 7	**43B7513	A-N-B	6400624115	11-5-7	111A/53
Pollak Manufacturing Company	AN-Mark 51 Modification 7	410430	A-N-B	6400624115	11-5-7	111A/53

NOTE: Above information is applicable regardless of arrangement of parts.

**AAF drawing.



BOMB RACKS ARMAMENT—BOMBING



RACK—BOMB

ARMY TYPE MARK 43 MODIFICATION 1 NAVY MARK 43 MODIFICATION 1

NAMES: Bomb rack Bomb rack assembly
Miniature bomb rack

DESCRIPTION: The Mark 43, Modification 1 bomb rack is a light, torpedo-shaped cylinder, with enclosed operating mechanism. The bomb rack has five compartments, each of which will hold one three-pound practice bomb. The doors are closed upon loading. The bombs are held in place by spring loaded ejectors, and are released from the compartments upon opening of the compartment doors by movement of the bomb release handle at the bombardier's station. Bombs used in this bomb rack are always in an armed condition and explode upon impact. This bomb rack was developed especially for practice dive bombing at speed up to 345 miles per hour.

CHARACTERISTICS:

Weight	approximately 13 ³ / ₅ pounds
Dimensions	approximately 38 ¹³ / ₆₄ by 7 ¹⁹ / ₆₄ by 4 ⁵¹ / ₆₄ inches
Distance between suspension lugs	22 ¹ / ₂ inches
Capacity	5 miniature practice bombs

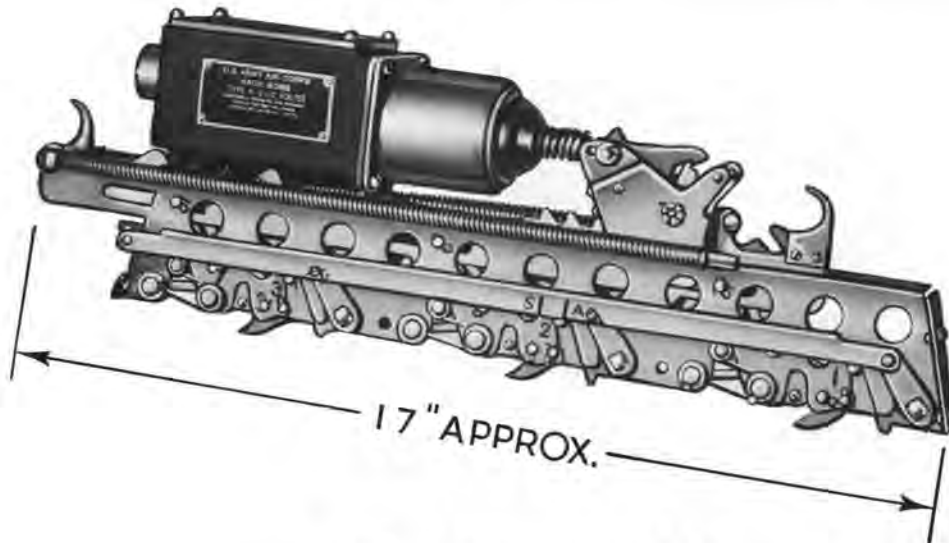
RELATIONSHIP OF PARTS: Used with:
Navy, Mark 4 Modification 2 bomb release handle, A. E. Reference Number 64-1900.

ARMY

A. E. REFERENCE NUMBER: 64-2340
TYPE DESIGNATION: Mark 43 Modification 1.
A. S. C. STOCK NUMBER: 6400621515
TECHNICAL ORDER NUMBER: 11-5-18
PRODUCTION STATUS: Under procurement from the Navy Department for Army use.
SHIPPING DATA: Shipped as a complete unit.

NAVY

TYPE DESIGNATION: Mark 43 Modification 1
BUREAU OF ORDNANCE DRAWING NUMBER: 182990
AVIATION ORDNANCE STOCK LIST NUMBER: 3-R-167
PROCUREMENT STATUS: Under procurement.



**RACK—BOMB
ARMY TYPE N-5**

NAMES: Bomb rack
Bomb rack assembly

Wing bomb rack
External bomb rack

DESCRIPTION: The type N-5 bomb rack is installed externally, usually in the wing position of light bombardment or fighter airplanes. Each bomb rack will support three thirty-pound fragmentation bombs, or three twenty-pound practice bombs. Bombs may be dropped individually, or in salvo, from this rack.

Front and rear sway bracing must be provided to prevent movement of the bombs during flight.

The bomb rack is activated by a 12 volt solenoid which forms a part of this rack.

CHARACTERISTICS:

- Weight approximately 8 pounds
- Dimensions approximately 2¹⁵/₃₂ by 6 by 17¹/₄ inches
- Maximum capacity three 30 pound bombs
- Electrical connector Army drawing number 35A2539

RELATIONSHIP OF PARTS: Used with:

Army type L-21A bomb release handle, A. E. Reference Number 64-1800, for mechanical release, or AN3022-2 toggle switch, A. E. Reference Number 52-6650 and Army type B-5 control stick switch, A. E. Reference Number 52-6600, for electrical release.

ARMY

A. E. REFERENCE NUMBER: 64-2400

SPECIFICATIONS:

- Detail 93-24626
- Superseded 24626

MANUFACTURER: Banner Die Tool and Stamping Company

MANUFACTURER'S DRAWING NUMBER: 39G4407

A. A. F. DRAWING NUMBER: 39G4407

TYPE DESIGNATION: N-5

A. S. C. STOCK NUMBER: 6400621600

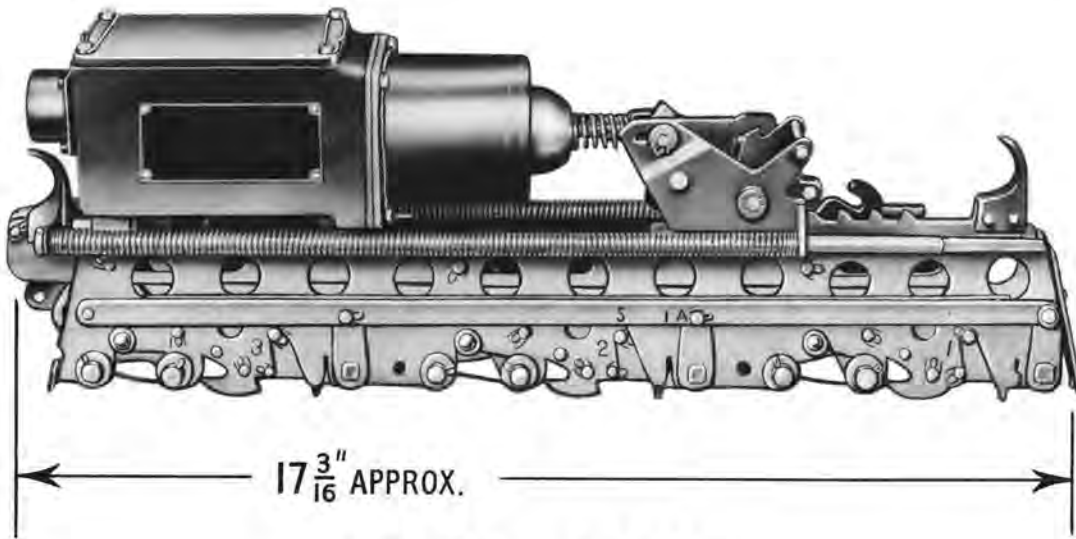
PRODUCTION STATUS: Not under procurement for initial installation. Superseded by Army type Q-2 bomb rack, A. E. Reference Number 64-2600, since 12 volt systems are no longer used in bombardment or fighter airplanes.

SHIPPING DATA: Shipped as a complete unit.

NAVY

There is no Navy equivalent for the Army item.

BOMB RACKS ARMAMENT—BOMBING



RACK—BOMB ARMY TYPE Q-2

NAMES: Bomb rack External bomb rack
Bomb rack assembly Wing bomb rack

DESCRIPTION: The type Q-2 bomb rack is installed externally, usually in the wing position, of light bombardment or fighter airplanes. Each bomb rack will support three thirty-pound fragmentation bombs, or three twenty-pound practice bombs. Bombs may be dropped individually, or in salvo, from this rack.

Front and rear sway bracing must be provided, to prevent movement of the bombs during flight. The bomb rack is activated by a 24 volt solenoid, which forms a part of this rack.

CHARACTERISTICS:

- Weight approximately 7 $\frac{3}{4}$ pounds
- Dimensions approximately 19 by 2 $\frac{1}{2}$ by 6 inches
- Maximum capacity three 30 pound bombs
- Electrical connector Army drawing number 35A2539
- Power supply 24 volt, direct current

RELATIONSHIP OF PARTS: Used with:

Army type L-21A bomb release handle, A. E. Reference Number 64-1800, for mechanical release, or AN3022-2 toggle switch, A. E. Reference Number 52-6650 and Army type B-5 control stick switch, A. E. Reference Number 52-6600, for electrical release.

ARMY

A. E. REFERENCE NUMBER: 64-2600

SPECIFICATIONS:

- Detail 93-24628
- Superseded 24628

MANUFACTURER'S DRAWING NUMBER: Banner Die Tool and Stamping Company: 39G4427

A. A. F. DRAWING NUMBER: 39G4427

TYPE DESIGNATION: Q-2

A. S. C. STOCK NUMBER: 6400621750

PRODUCTION STATUS: Under procurement

SHIPPING DATA: Shipped as a complete unit.

NAVY

There is no Navy equivalent for the Army item.

BRITISH

BRITISH REFERENCE NUMBER: 111A/36.



RECEPTACLE—BOMB RELEASE

ARMY TYPE A-1 NAVY MARK 1

NAMES: Bomb release receptacle
Bomb release receptacle assembly

Auxiliary switch box

DESCRIPTION: The Army type A-1 bomb release receptacle is a three contact socket. It is installed in the electrical circuit of the airplane, and mates with the corresponding connector on the bomb rack release.

CHARACTERISTICS:

Power supply	12 or 24 volts, direct current
Dimensions	approximately 1 7/8 by 1 3/4 by 1 1/8 inches
Weight	approximately 1/10 pound

RELATIONSHIP OF PARTS: Used with: Bomb rack release;

A. E. Reference Number	Army Type	
64-3000	A-2	left hand release
64-3200	A-2	right hand release
64-3425	A-3	right hand release
64-3430	A-4	left hand release
64-3431	A-4	right hand release

ARMY

A. E. REFERENCE NUMBER: 64-2900

SPECIFICATIONS:

Detail

MANUFACTURER'S DRAWING NUMBER: P. R. Mallory and Company, Incorporated B-134375

A. A. F. DRAWING NUMBER: 43B11200

TYPE DESIGNATION: A-1

PRODUCTION STATUS: Under procurement.

SHIPPING DATA: Shipped as a complete unit

NAVY

TYPE DESIGNATION: Mark 1

BUREAU OF ORDNANCE DRAWING NUMBER: 388366

AVIATION ORDNANCE STOCK LIST NUMBER: 3-B-1901

PROCUREMENT STATUS: Under procurement.

INTERCHANGEABILITY: The Navy Mark 1 is identical to the Army type A-1, except that it includes waterproof packing.

BRITISH

BRITISH REFERENCE NUMBER: 105D/95

BOMB RELEASES ARMAMENT—BOMBING



RELEASE—BOMB RACK LEFT HAND ARMY TYPE A-2

NAMES: Bomb rack left hand release
Bomb rack release
Bomb rack release assembly

Bomb shackle release mechanism
Bomb shackle release
Left hand bomb rack release

DESCRIPTION: The type A-2 bomb rack left hand release electrically or mechanically actuates the bomb shackle.

Electrical operation is accomplished by energizing the solenoid within the bomb rack release. When the solenoid is energized, the arming and releasing levers, which are placed in a cocked position under spring tension, are released, thereby actuating the bomb shackle.

If the electrical system is rendered inoperative, mechanical operation may be accomplished by any one of three methods. The release lever may be pried over with a screw driver or similar implement so that the bomb may be released from the shackle. Turning of a slotted screw on the face of the release also releases the bomb in an armed condition. An external coupling known as the salvo coupling may also be used to release the bomb in a safe condition.

Two dowel pins align the release, which is then fastened by two snap fasteners to the bomb rack.

CHARACTERISTICS:

Dimensions.....approximately 7 $\frac{3}{4}$ by 3 $\frac{1}{4}$ by 5 $\frac{1}{2}$ inches
Weight.....approximately 2 $\frac{1}{2}$ pounds
Electrical connector.....three-pin connector in accordance with figure 5, specification 93-24699-A
Power supply.....24 volts direct current

RELATIONSHIP OF PARTS: Used with:

Army type A-1 bomb release receptacle.....A. E. Reference Number 64-2900

ARMY

A. E. REFERENCE NUMBER: 64-3000

SPECIFICATIONS:

Detail.....93-24699-A
Superseded.....93-24699

A. A. F. DRAWING NUMBER: 41G1742

TYPE DESIGNATION: A-2

A. S. C. STOCK NUMBER: Refer to chart.

TECHNICAL ORDER NUMBER: Refer to chart.

PRODUCTION STATUS: Under procurement.

SHIPPING DATA: Shipped as a complete unit.

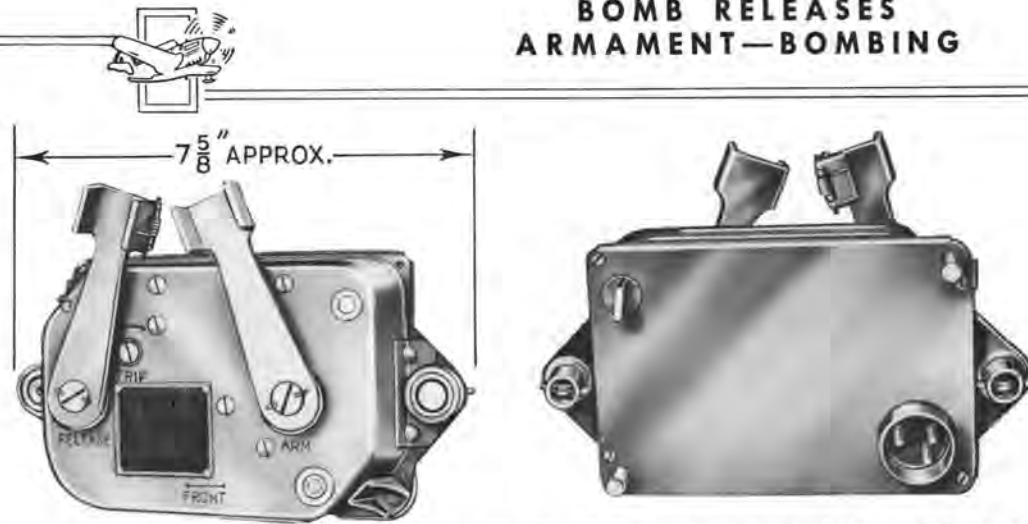
ARMY

There is no Navy equivalent for the Army item.

MODELS BELOW ARE INTERCHANGEABLE
Models are used in services as noted in column 4
A-Army, N-Navy, B-British

Manufacturer	Manufacturer's Model Identification	Manufacturer's Drawing Number	Used By	Air Service Command Stock Number	Army Technical Order Number	British Reference Number	Remarks
Crosley Corporation	WP-70L	D-210530	A-B	6400634700	11-5-28	111A/31	
P. R. Mallory & Company, Incorporated	*A-2	C-134588	A-B	6400634700	11-5-46	111A/31	Aluminum case.
	*A-2	C-134732	A-B	6400634700	11-5-46	111A/31	Steel case.
J. P. Seeburg Company	*A-2	SR105801	A-B	6400634700		111A/31	
Sparks-Withington Company	*A-2	C-57-57	A-B	6400634700	11-5-38	111A/31	

Note: *AAF type.



RELEASE—BOMB RACK RIGHT HAND ARMY TYPE A-2

NAMES: Bomb rack right hand release
Bomb rack release
Bomb rack release assembly

Bomb shackle release mechanism
Bomb shackle release
Right hand bomb rack release

DESCRIPTION: The type A-2 bomb rack right hand release electrically or mechanically actuates the bomb shackle.

Electrical operation is accomplished by energizing the solenoid within the bomb rack release. When the solenoid is energized, the arming and releasing levers, which are placed in a cocked position under spring tension, are released, thereby actuating the bomb shackle.

If the electrical system is rendered inoperative, mechanical operation may be accomplished by any one of three methods. The release lever may be pried over with a screw driver or similar implement so that the bomb may be released from the shackle. Turning of a slotted screw on the face of the release also releases the bomb in an armed condition. An external coupling known as the salvo coupling may also be used to release the bomb in a safe condition.

Two dowel pins align the release, which is then fastened by two snap fasteners to the bomb rack.

CHARACTERISTICS:

- Dimensions..... approximately 7³/₄ by 3¹/₄ by 5¹/₂ inches
- Weight..... approximately 2¹/₂ pounds
- Electrical connector..... three-pin connector in accordance with figure 5, specification 93-24699-A
- Power supply..... 24 volts direct current

RELATIONSHIP OF PARTS: Used with:

Army type A-1 bomb release receptacle..... A. E. Reference Number 64-2900

ARMY

A. E. REFERENCE NUMBER: 64-3200

SPECIFICATIONS:

- Detail..... 93-24699-A
- Superseded..... 93-24699

A. A. F. DRAWING NUMBER: 41G1742-1

TYPE DESIGNATION: A-2

A. S. C. STOCK NUMBER: Refer to chart.

TECHNICAL ORDER NUMBER: Refer to chart.

PRODUCTION STATUS: Under procurement.

SHIPPING DATA: Shipped as a complete unit.

NAVY

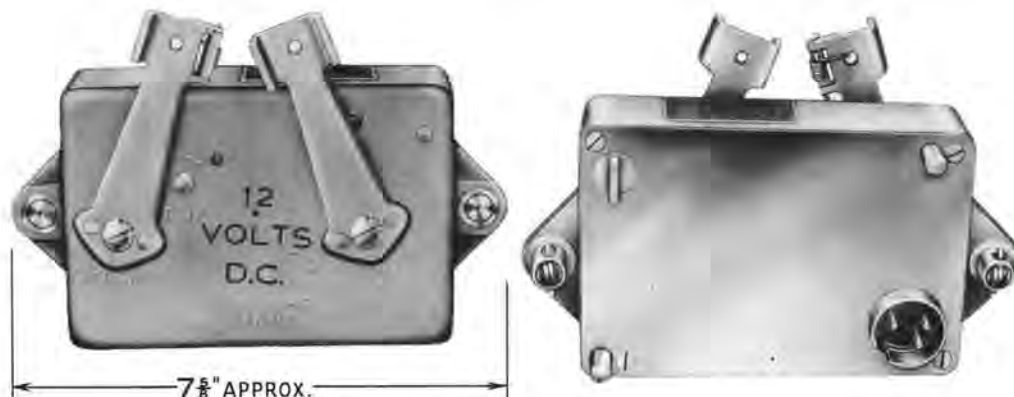
There is no Navy equivalent for the Army item.

MODELS BELOW ARE INTERCHANGEABLE
Models are used in services as noted in column 4
A-Army, N-Navy, B-British

Manufacturer	Manufacturer's Model Identification	Manufacturer's Drawing Number	Used By	Air Service Command Stock Number	Army Technical Order Number	British Reference Number	Remarks
Crosley Corporation	WP-70R	D-210607	A-B	6400634720	11-5-28	111A/32	
P. R. Mallory & Company, Incorporated	*A-2	C-134588	A-B	6400634720	11-5-46	111A/32	Aluminum case.
	*A-2	C-134732	A-B	6400634720	11-5-46	111A/32	Steel case.
J. P. Seeburg Company	*A-2	SR105800	A-B	6400634720		111A/32	
Sparks-Withington Company	*A-2	C-57-56	A-B	6400634720	11-5-38	111A/32	

Note: *AAF type.

**BOMB RELEASES
ARMAMENT—BOMBING**



RELEASE—BOMB RACK RIGHT HAND

ARMY TYPE A-3 NAVY TYPE A-3

NAMES: Bomb rack right hand release
Bomb rack release
Bomb rack release assembly

Bomb shackle release mechanism
Right hand bomb rack release
Bomb shackle release

DESCRIPTION: The type A-3 bomb rack right hand release electrically or mechanically actuates the bomb shackle.

Electrical operation is accomplished by energizing the solenoid within the bomb rack release. When the solenoid is energized, the arming and releasing levers, which are placed in a cocked position under spring tension, are released, thereby actuating the bomb shackle.

If the electrical system is rendered inoperative, mechanical operation may be accomplished by any one of three methods. The release lever may be pried over with a screw driver or similar implement so that the bomb may be released from the shackle. Turning of a slotted screw on the face of the release also releases the bomb in an armed condition. An external coupling known as the salvo coupling may also be used to release the bomb in a safe condition.

Two dowel pins align the release, which is then fastened by two snap fasteners to the bomb rack.

CHARACTERISTICS:

- Dimensions.....approximately 7³/₄ by 3¹/₄ by 5¹/₂ inches
- Weight.....approximately 2¹/₂ pounds
- Electrical connector.....three-pin connector in accordance with specification 93-24742
- Power supply.....12 volt direct current

RELATIONSHIP OF PARTS: Used with:

Army type A-1 bomb release receptacle.....A. E. Reference Number 64-2900

ARMY

A. E. REFERENCE NUMBER: 64-3425

SPECIFICATIONS:

- Detail.....93-24742
- Superseded.....24742

A. A. F. DRAWING NUMBER: H42G4872

TYPE DESIGNATION: A-3

A. S. C. STOCK NUMBER: 6400634780

TECHNICAL ORDER NUMBER: 11-5-30

PRODUCTION STATUS: Under procurement.

SHIPPING DATA: Shipped as a complete unit.

NAVY

TYPE DESIGNATION: A-3

AVIATION ORDNANCE STOCK LIST NUMBER: 3-R-519-25

PROCUREMENT STATUS: Not under procurement for initial installation.

BRITISH

REFERENCE NUMBER: 111A/40

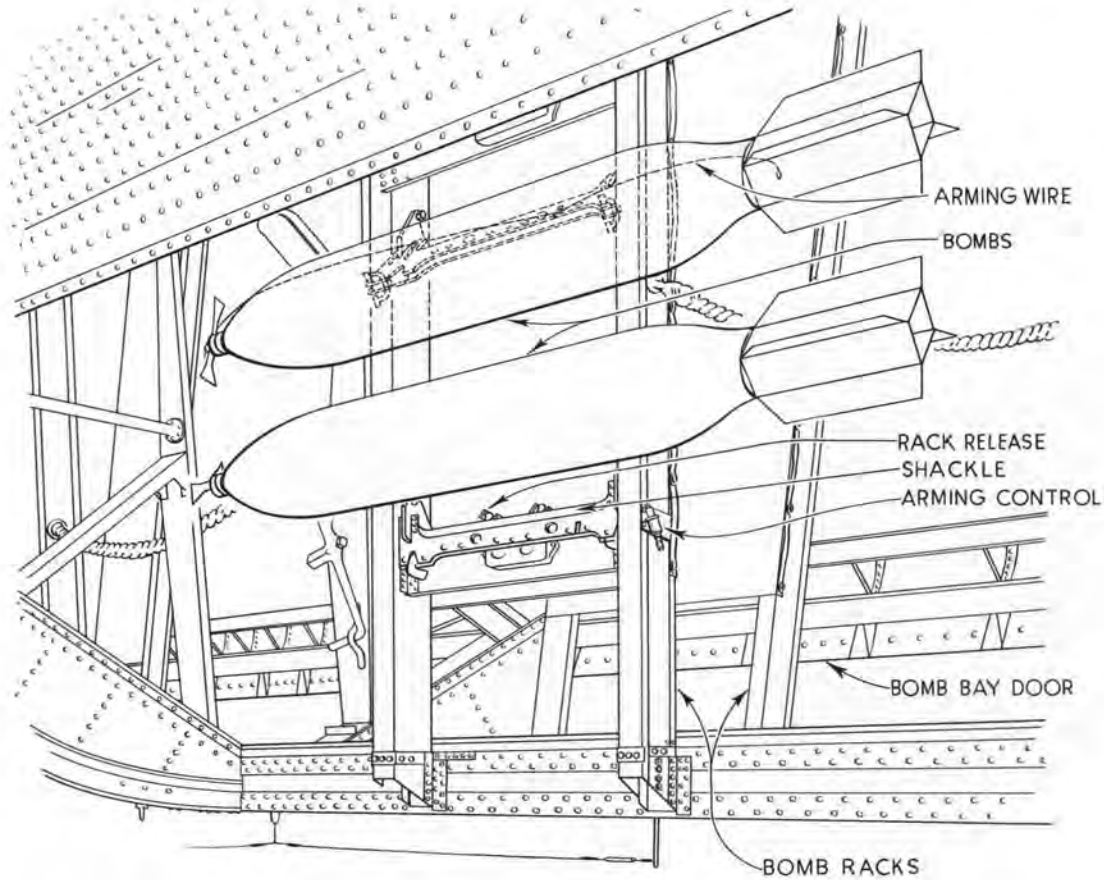
MANUFACTURER: P. R. Mallory & Company, Incorporated

MANUFACTURER'S DRAWING NUMBER: C-134600 (assembly) and C-134727 (outline)



SHACKLE—BOMB

The bomb shackle supports bombs or cargo in the bomb bay compartment of the airplane, or externally in adapters located in the wing section.



TYPICAL BOMB INSTALLATION

In operation, the shackle is actuated remotely by the bombardier's arming and releasing handle, or the electrical release controls, or by the pilot's emergency release handle.

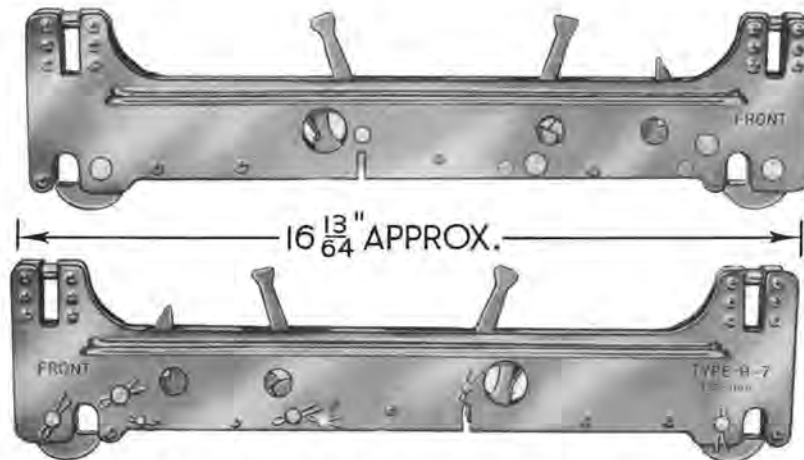
Sequence of operation in most type shackles is started by an impulse from the bombardier's arming and releasing handle, or the electrical release controls, or the pilot's emergency release handle to the bomb rack release, which in turn actuates the bomb shackle, or the impulse goes direct to the shackles' built-in arming and releasing mechanism for activation.

The shackle release lever has two positions, namely: "lock" and "release." When the release lever is in the "lock" position, a pawl in the releasing mechanism engages a stop in the connecting link, thereby preventing the opening of the carrying hooks. When the release lever is thrown to the release position, the pawl is disengaged, allowing the weight of the bomb to open the carrying hooks.

The arming lever has two positions, namely: "safe" and "armed." When the arming lever is in the safe or normal position the arming wire is retained in a slot by the arming hook which is held across the slot opening by a spring. Upon release of a bomb, the arming hook is withdrawn from the slot and the arming wire loop is free to slip out, permitting the bomb to drop safe. When the arming lever is moved to the armed position, it locks the arming hook so that the arming wire loop cannot be withdrawn from the slot. Thus, upon release of a bomb, the arming wire is pulled from the bomb fuse, arming the bomb.



BOMB SHACKLES ARMAMENT—BOMBING



SHACKLE—BOMB ARMY TYPE B-7 NAVY TYPE B-7

NAMES: Bomb shackle Bomb shackle assembly Bomb shackle 1100 pounds
DESCRIPTION: The Army type B-7 bomb shackle is a device normally used for carrying and releasing bombs. It is equipped with two bomb-carrying hooks, one releasing lever, one arming hook, and one arming lever. The shackles are usually installed in vertical tiers in the bomb bay compartment, and are free to swing out of the path of bombs from above; they may be installed in adapters in the wing section. These shackles are also used to carry and release droppable fuel tanks or parachute delivered cargo.

CHARACTERISTICS:

- Weight..... approximately 3 pounds
- Dimensions..... approximately 16 1/4 by 4 1/8 by 3/4 inches
- Distance between suspension lugs..... 14 37/64 inches
- Distance between bomb carrying hooks..... 14 inches
- Carrying capacity..... 1100 pounds

RELATIONSHIP OF PARTS: Used with bomb rack release:

A. E. Reference Number	Type
64-3000	A-2 left hand release
64-3200	A-2 right hand release
64-3425	A-3 right hand release
64-3430	A-4 left hand release
64-3431	A-4 right hand release

ARMY

A. E. REFERENCE NUMBER: 64-3600

SPECIFICATIONS:

- Detail..... 93-24557
- Superseded..... 24557

A. A. F. DRAWING NUMBER: 33D5226

TYPE DESIGNATION: B-7

A. S. C. STOCK NUMBER: Refer to chart.

TECHNICAL ORDER NUMBER: Refer to chart.

PRODUCTION STATUS: Not under procurement for initial installation, superseded by Army type B-10, A. E. Reference Number 64-3725.

SHIPPING DATA: Shipped as a complete unit.

NAVY

TYPE DESIGNATION: B-7

BUREAU OF ORDNANCE DRAWING NUMBER: Refer to chart.

AVIATION ORDNANCE STOCK LIST NUMBER: Refer to chart.

PROCUREMENT STATUS: Not under procurement. Superseded by Navy Mark 5 Mod. 1.

MODELS BELOW ARE INTERCHANGEABLE
Models are used in services as noted in column 4
A-Army, N-Navy, B-British

Manufacturer	Manufacturer's Model Identification	Manufacturer's Drawing Number	Used By	Air Service Command Stock Number	Army Technical Order Number	British Reference Number	Bureau of Ordnance Drawing Number	Aviation Ordnance Stock List Number
Banner Die Tool and Stamping Company	*B-7	**33D5226	A-N-B	6400694500	11-5-27	111A/1	169516	3-S-1904
Crosley Corporation	WP-80	D210438	A-N-B	6400694500	11-5-27	111A/1	169516	3-S-1904
Spriessch Tool and Manufacturing Company	*B-7	**33D5226	A-N-B	6400694500	11-5-27	111A/1	169516	3-S-1904
Gibson Refrigerator Company	*B-7	**33D5226	A-N-B	6400694500	11-5-27	111A/1	169516	3-S-1904

Note: *AAF type; **AAF drawing.

BOMB SHACKLES ARMAMENT—BOMBING



SHACKLE—BOMB TYPE AN-B-9 FORMER ARMY TYPE B-9

NAMES: Bomb shackle Bomb shackle assembly Bomb shackle 1000 pounds

DESCRIPTION: The type AN-B-9 bomb shackle is a device for carrying and releasing bombs. It is equipped with a single bomb-carrying hook, located approximately midway between the ends of the shackle. Located at each end is a sway bracing assembly which contains an adjustable rod, a knurled nut, and two contact clips which are adjusted to fit and steady the bomb. An arming hook is located adjacent to the bomb-carrying hook. The shackle is designed to carry bombs which have one suspension lug located at the center of gravity. It may be used to carry two-lug bombs by using bomb adapter bands.

CHARACTERISTICS:

- Weight..... approximately 6 1/4 pounds
- Dimensions..... approximately 16 13/64 by 6 1/4 by 1 5/16 inches
- Distance between suspension lugs..... 14 9/16 inches
- Carrying capacity..... 1000 pounds
- Single carrying hook located in the center of the shackle.

RELATIONSHIP OF PARTS: Used with bomb rack release:

A. E. Reference Number	Type
64-3000	A2 left hand release
64-3200	A-2 right hand release
64-3425	A-3 right hand release
64-3430	A-4 left hand release
64-3431	A-4 right hand release

ARMY

A. E. REFERENCE NUMBER: 64-3700

SPECIFICATIONS:

- Detail..... 93-24749
- Superseded..... 24749

A. A. F. DRAWING NUMBER: 42D7307

TYPE DESIGNATION: AN-B-9

A. S. C. STOCK NUMBER: Refer to chart.

TECHNICAL ORDER NUMBER: Refer to chart.

PRODUCTION STATUS: Under procurement.

SHIPPING DATA: Shipped as a complete unit.

NAVY

TYPE DESIGNATION: AN-B-9

BUREAU OF ORDNANCE DRAWING NUMBER: 309888

AVIATION ORDNANCE STOCK LIST NUMBER: 3-S-1905

PROCUREMENT STATUS: Under procurement.

MODELS BELOW ARE INTERCHANGEABLE Models are used in services as noted in column 4 A-Army, N-Navy, B-British

Manufacturer	Manufacturer's Model Identification	Manufacturer's Drawing Number	Used By	Air Service Command Stock Number	Army Technical Order Number	British Reference Number
Airtemp, Division of Chrysler Corporation	*AN-B-9	**42D7307	A-N-B	6400694550	11-5-35	111A/34
Ainsworth Manufacturing Corporation	*AN-B-9	**AG-300	A-N-B	6500694550	11-5-35	111A/34
Spriesch Tool and Manufacturing Corporation	*AN-B-9	**42D7307	A-N-B	6400694550	11-5-35	111A/34

Note: *Army-Navy type; **AAF drawing.



BOMB SHACKLES ARMAMENT—BOMBING



SHACKLE—BOMB TYPE AN-B-10 FORMER ARMY TYPE B-10

NAMES: Bomb shackle Bomb shackle 1600 pounds
Bomb shackle assembly

DESCRIPTION: The type AN-B-10 bomb shackle is a device normally used for carrying and releasing bombs. It is equipped with two bomb-carrying hooks, one arming hook, one releasing lever, and one arming lever. The shackles are usually installed in the bomb bay compartment, but may be installed in adapters in the wing section. These shackles are also used to carry and release droppable fuel tanks or parachute delivered cargo.

CHARACTERISTICS:

- Dimensions.....approximately 16¹³/₆₄ by 4¹/₄ by ⁵⁷/₆₄ inches
- Weight.....approximately 3 pounds
- Distance between suspension lugs.....14³⁷/₆₄ inches
- Distance between bomb carrying hooks.....14 inches
- Carrying capacity.....1600 pounds

RELATIONSHIP OF PARTS: Used with bomb rack release:

A. E. Reference Number	Type
64-3000	A-2 left hand release
64-3200	A-2 right hand release
64-3425	A-3 right hand release
64-3430	A-4 left hand release
64-3431	A-4 right hand release

ARMY

A. E. REFERENCE NUMBER: 64-3725

SPECIFICATIONS:

Detail.....24832

A. A. F. DRAWING NUMBER: 43D10157

TYPE DESIGNATION: AN-B-10

A. S. C. STOCK NUMBER: Refer to chart.

PRODUCTION STATUS: Under procurement.

SHIPPING DATA: Shipped as a complete unit.

NAVY

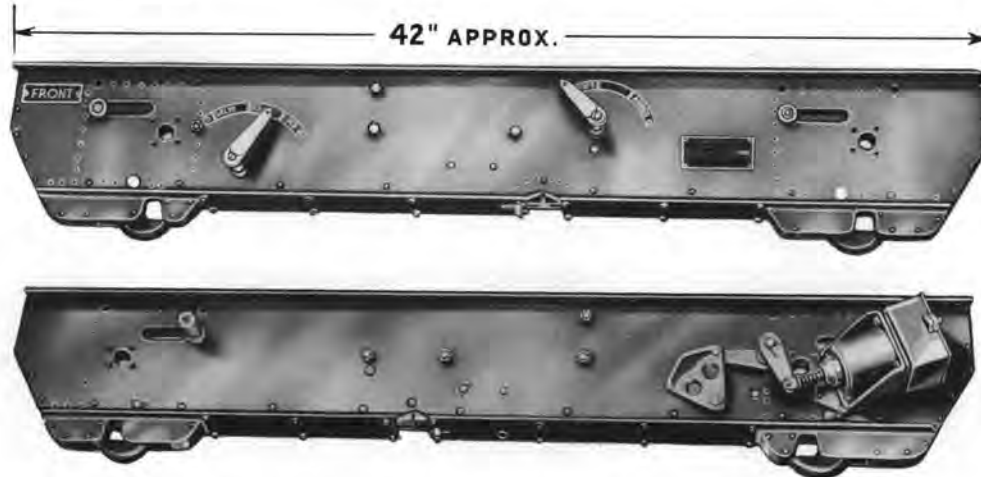
TYPE DESIGNATION: The Navy identifies this type as AN-B-10 and procures it under Army drawings and specifications.

AVIATION ORDNANCE STOCK LIST NUMBER: 3-S-1906

MODELS BELOW ARE INTERCHANGEABLE Models are used in services as noted in column 4 A-Army, N-Navy, B-British

Manufacturer	Manufacturer's Model Identification	Manufacturer's Drawing Number	Used By	Air Service Command Stock Number	British Reference Number
Airtemp Division of Chrysler Corporation	*AN-B-10	**43D10157	A-N-B	6400695100	111A/44
Ainsworth Manufacturing Corporation	*AN-B-10	AG-500	A-N-B	6400695100	111A/44
Pollak Manufacturing Company	P-6A	411011	A-N-B	6400695100	111A/44
Spriesch Tool and Manufacturing Company	*AN-B-10	**43D10157	A-N-B	6400695100	111A/44
Gibson Refrigerator Company	*AN-B-10	**43D10157	A-N-B	6400695100	111A/44

Note: *Army-Navy type; **AAF drawing.



SHACKLE—BOMB
ARMY TYPE D-3

NAMES: Bomb shackle Bomb shackle assembly
Bomb rack Bomb shackle 2000 pounds

DESCRIPTION: The Army type D-3 bomb shackle is a device for carrying and releasing bombs. It incorporates a built-in arming control to enable the release of bombs in either safe or armed condition. The chief parts of the shackle are the frame assembly, two carrying hooks, releasing mechanism, arming mechanism, and releasing solenoid.

CHARACTERISTICS:

Dimensions approximately 42 by 7¹³/₁₆ by 7¹/₂ inches
Weight approximately 25 pounds
Distance between carrying hooks 30 inches
Carrying capacity 2000 pounds
Power supply 12 volt, direct current

ARMY

A. E. REFERENCE NUMBER: 64-3750

SPECIFICATIONS:

Detail 93-24555-A
Superseded 93-24555

A. A. F. DRAWING NUMBER: 33K2512

TYPE DESIGNATION: D-3

A. S. C. STOCK NUMBER: Refer to chart.

TECHNICAL ORDER NUMBER: Refer to chart.

PRODUCTION STATUS: Not under procurement for initial installation, superseded by Army type D-5, A. E. Reference Number 64-3800.

SHIPPING DATA: Shipped as a complete unit.

NAVY

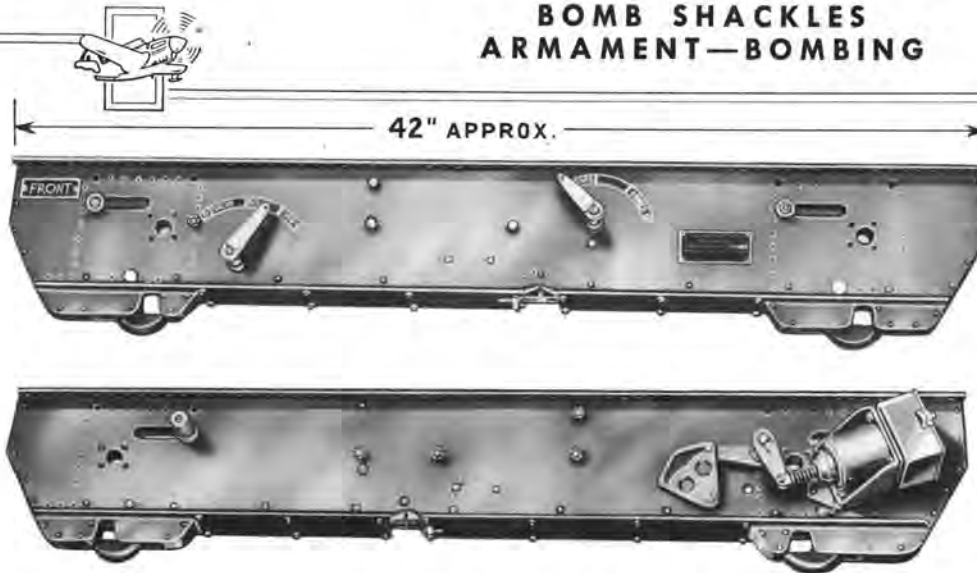
There is no Navy equivalent for the Army item.

MODELS BELOW ARE INTERCHANGEABLE
Models are used in services as noted in column 4
A-Army, N-Navy, B-British

Manufacturer	Manufacturer's Model Identification	Manufacturer's Drawing Number	Used By	Air Service Command Stock Number	Army Technical Order Number	British Reference Number	Remarks
Pollak Manufacturing Company	*D-3	**33K2512	A-B	6400695100	11-5-13	111A/2	
Oneida Limited	*D-5	300	A-B	6400695160	11-5-13	111A/27	See note.
Ainsworth Manufacturing Corporation	*D-5	AG-200	A-B	6400695160	11-5-13	111A/27	See note.
Union Chain Company	*D-5	**39K3828	A-B	6400695160	11-5-13	111A/27	See note.

NOTE: Army type D-5 bomb shackles may be made interchangeable with Army type D-3 bomb shackles by replacing the 24 volt solenoid, Army part number 39B3829, with 12 volt solenoid, Army part number 33B2523.
Note: *AAF type; **AAF drawing.

BOMB SHACKLES ARMAMENT—BOMBING



SHACKLE—BOMB ARMY TYPE D-5

NAMES: Bomb shackle Bomb shackle assembly
 Bomb rack Bomb shackle 2000 pounds

DESCRIPTION: The Army type D-5 bomb shackle is a device for carrying and releasing bombs. It incorporates a built-in arming control, to enable the release of bombs in either safe or armed condition. The chief parts of the shackle are the frame assembly, two bomb carrying hooks, releasing mechanism, arming mechanism and releasing solenoid.

CHARACTERISTICS:
 Dimensions..... approximately 42 by 7¹³/₁₆ by 7 1/2 inches
 Weight..... approximately 25 pounds
 Distance between carrying hooks..... 30 inches
 Carrying capacity..... 2000 pounds
 Power supply..... 24 volt, direct current

ARMY

A. E. REFERENCE NUMBER: 64-3800

SPECIFICATIONS:

Detail..... 93-24622
 Superseded..... 24622

A. A. F. DRAWING NUMBER: 39K3828

TYPE DESIGNATION: D-5

A. S. C. STOCK NUMBER: Refer to chart.

TECHNICAL ORDER NUMBER: Refer to chart.

PRODUCTION STATUS: Not under procurement for initial installation, superseded by Army type D-6, A. E. Reference Number 64-4000

SHIPPING DATA: Shipped as a complete unit.

NAVY

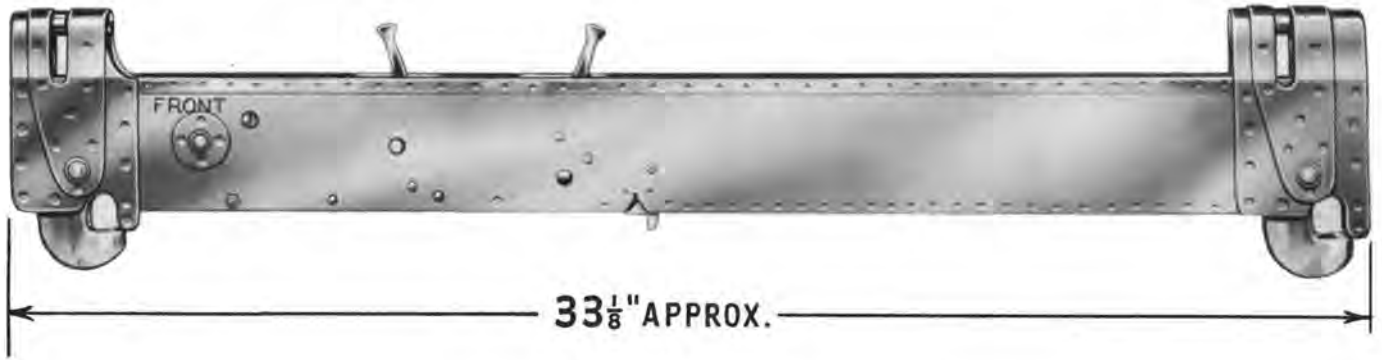
There is no Navy equivalent for the Army item.

MODELS BELOW ARE INTERCHANGEABLE
Models are used in services as noted in column 4
A-Army, N-Navy, B-British

Manufacturer	Manufacturer's Model Identification	Manufacturer's Drawing Number	Used By	Air Service Command Stock Number	Army Technical Order Number	British Reference Number
Oneida Limited	*D-5	300	A-B	6400695160	11-5-13	111A/27
Ainsworth Manufacturing Corporation	*D-5	AG-200	A-B	6400695160	11-5-13	111A/27
Union Chain Company	*D-5	**39K3828	A-B	6400695160	11-5-13	111A/27
Pollak Manufacturing Company	*D-3	**33K2512	A-B	6400695100	11-5-13	111A/2

The Army type D-3 bomb shackle, and may be made interchangeable by replacing the 12 volt solenoid, Army part number 3983829.

Note: *AAF type; **AAF drawing.



SHACKLE—BOMB
ARMY TYPE D-6 NAVY TYPE D-6

NAMES: Bomb shackle Bomb shackle assembly Bomb shackle 2000 pounds

DESCRIPTION: The type D-6 bomb shackle is a device for carrying and releasing bombs. It is equipped with two bomb-carrying hooks, one releasing lever, one arming lever, and one arming hook.

CHARACTERISTICS:

Dimensions approximately 33 1/8 by 6 1/4 by 1 3/16 inches
Weight approximately 9 2/5 pounds
Distance between suspension lugs 30 inches
Distance between carrying hooks 30 inches
Carrying capacity 2000 pounds

RELATIONSHIP OF PARTS: Used with bomb rack release:

A. E. Reference Number	Type
64-3000	A-2 left hand release
64-3200	A-2 right hand release
64-3425	A-3 right hand release
64-3430	A-4 left hand release
64-3431	A-4 right hand release

ARMY

A. E. REFERENCE NUMBER: 64-4000

SPECIFICATIONS:

Detail 93-24694
Superseded 24694

A. A. F. DRAWING NUMBER: 41E4555

TYPE DESIGNATION: D-6

A. S. C. STOCK NUMBER: Refer to chart.

TECHNICAL ORDER NUMBER: Refer to chart.

PRODUCTION STATUS: Under procurement.

SHIPPING DATA: Shipped as a complete unit.

NAVY

TYPE DESIGNATION: D-6

BUREAU OF ORDNANCE DRAWING NUMBER: 307276

AVIATION ORDNANCE STOCK LIST NUMBER: 3-S-1908

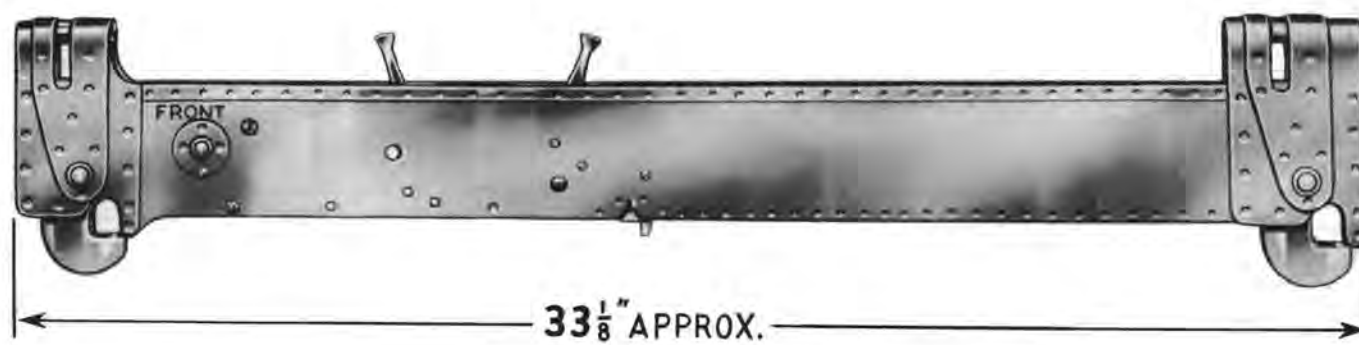
PROCUREMENT STATUS: Under procurement.

MODELS BELOW ARE INTERCHANGEABLE
Models are used in services as noted in column 4
A-Army, N-Navy, B-British

Manufacturer	Manufacturer's Model Identification	Manufacturer's Drawing Number	Used By	Air Service Command Stock Number	Army Technical Order Number	British Reference Number
Pollak Manufacturing Company	*D-6	400429	A-N-B	6400695165	11-5-10	111A/29
	*D-4	**37E5013	A-B	6400695150	11-5-10	111A/33
Ainsworth Manufacturing Corporation	*D-6	AG-100	A-N-B	6400695165	11-5-10	111A/29

Note: *AAF type; **AAF drawing.

BOMB SHACKLES ARMAMENT—BOMBING



SHACKLE—BOMB ARMY TYPE D-7

NAMES: Bomb shackle Bomb shackle 4000 pounds
Bomb shackle assembly

DESCRIPTION: The Army type D-7 bomb shackle is a device for carrying and releasing bombs. It is equipped with two bomb-carrying hooks, one arming lever, and one releasing lever.

The D-7 shackle was designed principally for installation in the bomb bay compartment, but installation can be made externally by equipping the airplane with especially constructed adapters, which vary with each type of airplane.

CHARACTERISTICS:

- Weight..... approximately 12½ pounds
- Dimensions..... approximately 33⅛ by 7⅛ by 1⅜ inches
- Distance between suspension lugs..... 30 inches
- Distance between carrying hooks..... 30 inches
- Carrying capacity..... 4000 pounds

RELATIONSHIP OF PARTS: Used with bomb rack release:

A. E. Reference Number	Type
64-3000	A-2 left hand release
64-3200	A-2 right hand release
64-3425	A-3 right hand release
64-3430	A-4 left hand release
64-3431	A-4 right hand release

ARMY

A. E. REFERENCE NUMBER: 64-4050

SPECIFICATIONS:

- Detail..... 93-24748
- Superseded..... 24748

A. A. F. DRAWING NUMBER: 42E7219

TYPE DESIGNATION: D-7

A. S. C. STOCK NUMBER: Refer to chart.

TECHNICAL ORDER NUMBER: Refer to chart.

PRODUCTION STATUS: Under procurement.

SHIPPING DATA: Shipped as a complete unit.

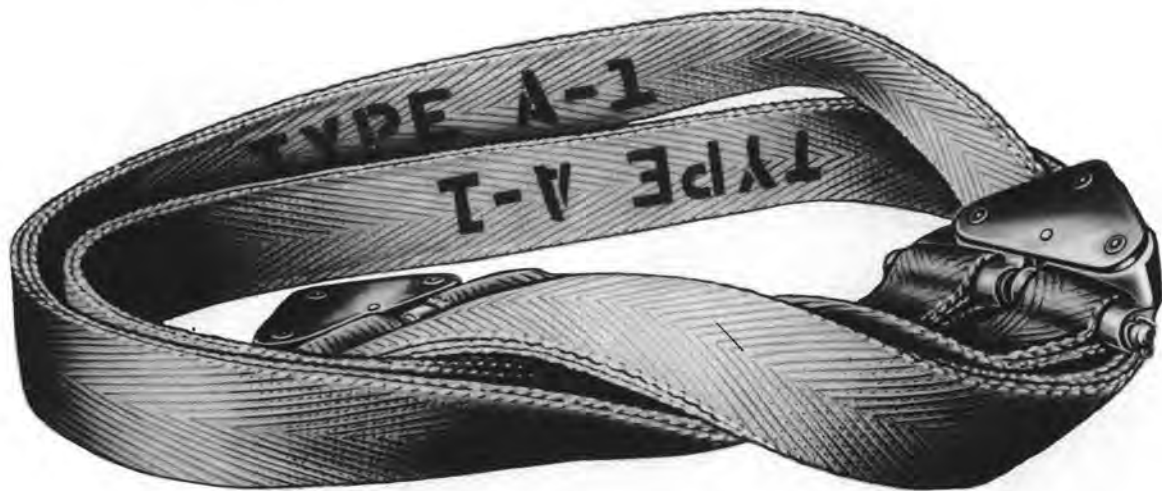
NAVY

There is no Navy equivalent for the Army item.

MODELS BELOW ARE INTERCHANGEABLE
Models are used in services as noted in column 4
A-Army, N-Navy, B-British

Manufacturer	Manufacturer's Model Identification	Manufacturer's Drawing Number	Used By	Air Service Command Stock Number	Army Technical Order Number	British Reference Number
Pollak Manufacturing Company	P-56	410429	A-B	6400695167	11-5-10	111A/45
Ainsworth Manufacturing Corporation	*D-7	AG-700	A-B	6400695167	11-5-10	111A/45

Note: *AAF type;



OVERALL LENGTH...APPROX. 65"

SLING—BOMB HOIST

ARMY TYPE A-1

NAMES: Bomb hoist sling
Bomb hoist sling assembly

Heavy bomb hoist

DESCRIPTION: The Army type A-1 bomb hoist sling is used with Army type bomb hoists to load bombs on bombardment airplanes. Two slings are required for each bomb.

The sling is made of nylon webbing stitched with nylon thread. Two yoke assemblies, one located at each end of the webbed fabric, are used to attach the sling to the hoist.

CHARACTERISTICS:

Weight.....	approximately 3 ⁵ / ₈ pounds
Dimensions.....	approximately 65 by 6 ⁷ / ₁₆ by 5 ⁵ / ₈ inches
Lifting capacity (two slings).....	4000 pounds

RELATIONSHIP OF PARTS: Used with:

Army type C-3 bomb hoist assembly..... A. E. Reference Number 64-2200

ARMY

A. E. REFERENCE NUMBER: 64-4100

SPECIFICATIONS:

Detail.....	93-24731
Superseded.....	24731

MANUFACTURER: Taylor Machine Company.

A. A. F. DRAWING NUMBER: 42G2343

ARMY PART NUMBER: 42G2343-5

TYPE DESIGNATION: A-1

A. S. C. STOCK NUMBER: 6400743850

PRODUCTION STATUS: Under procurement.

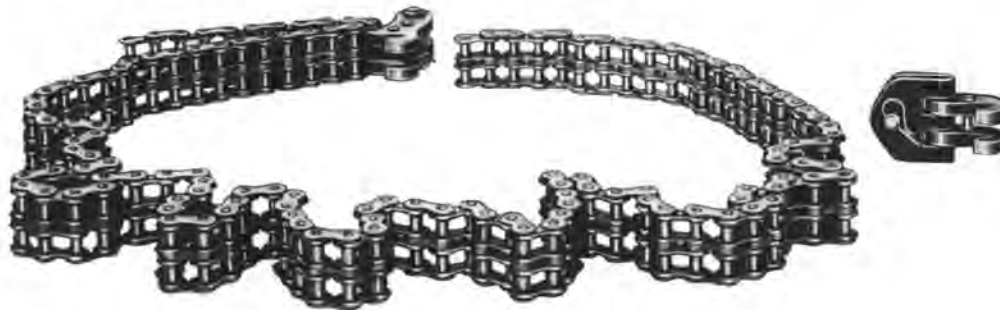
SHIPPING DATA: Shipped as a complete unit, two slings to a carton.

NAVY

There is no Navy equivalent for the Army item.



BOMB HOIST SLINGS ARMAMENT—BOMBING



OVERALL LENGTH...APPROX. 78"

SLING—BOMB HOIST

ARMY TYPE A-2

NAMES: Bomb hoist sling
Bomb hoist sling assembly

Bomb sling
Chain-type bomb hoist sling

DESCRIPTION: The Army type A-2 bomb hoist sling is used with Army type bomb hoists to load bombs on bombardment airplanes. The sling is a double strand rollerless chain, and is attached to the hoist by two hook assemblies. The sling is adjustable over a wide range to accommodate various size bombs. Two slings are required to hoist a 4000 pound bomb.

CHARACTERISTICS:

Weight	approximately 10 pounds
Dimensions	approximately 78 1/8 by 1 1/16 by 3/64 inches
Lifting capacity	2000 pounds

RELATIONSHIP OF PARTS: Used with:

Army type C-3 bomb hoist. A. E. Reference Number 64-2200

ARMY

A. E. REFERENCE NUMBER: 64-4150

SPECIFICATIONS:

Detail 24781

MANUFACTURER: Diamond Chain Company

A. A. F. DRAWING NUMBER: 42D6433

TYPE DESIGNATION: A-2

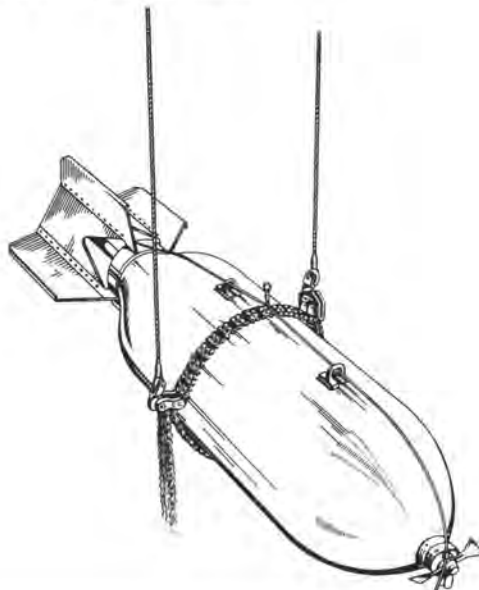
A. S. C. STOCK NUMBER: 6400743875

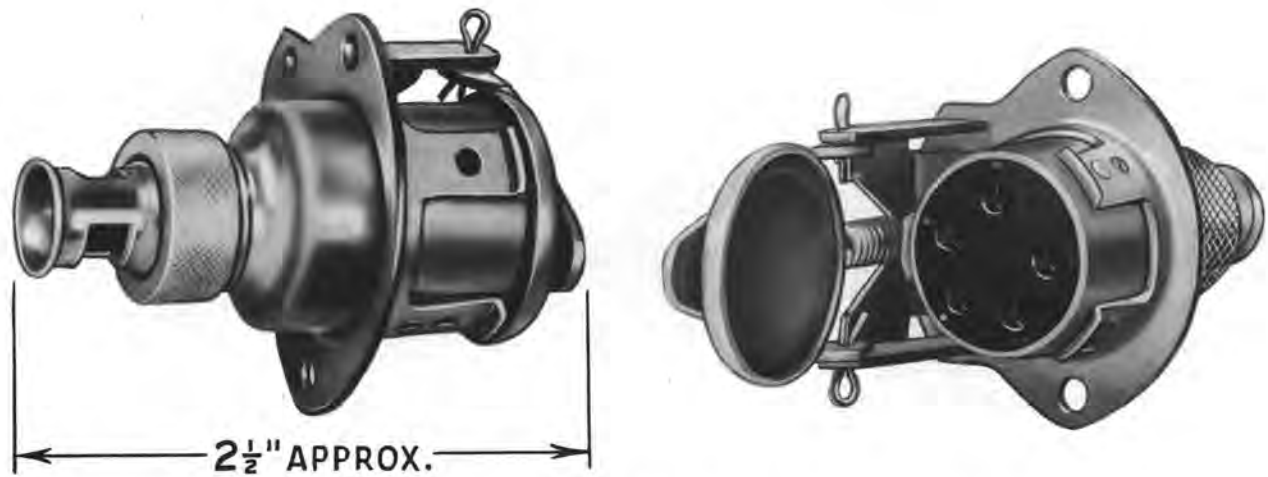
PRODUCTION STATUS: Under procurement.

SHIPPING DATA: Shipped as a complete unit, two slings to a carton; or shipped as a component part of the Army type C-3 bomb hoist.

NAVY

There is no Navy equivalent for the Army item.





SOCKET—5-WAY BOMB BRITISH TYPE A

NAMES: 5 way bomb socket
Bomb socket

Bomb carrier receptacle
Plug container assembly

DESCRIPTION: The type A, 5-way bomb socket is a receptacle used for electrical connection between the airplane electrical circuit and British electrical bombing equipment. The socket is protected from the weather by a hinged cover under spring tension, which covers the five contacts when the socket is not in use.

Mounting is accomplished by two screws, which secure the socket to the airplane structure.

CHARACTERISTICS:

Weight.....approximately $\frac{3}{16}$ pound
Dimensions.....approximately $2\frac{7}{16}$ by $1\frac{5}{8}$ by $1\frac{3}{4}$ inches

RELATIONSHIP OF PARTS: Used with:

Number 1 Mark 3 universal bomb carrier.....A. E. Reference Number 64-198

ARMY

A. E. REFERENCE NUMBER: 64-4195
A. S. C. STOCK NUMBER: Refer to chart.
PRODUCTION STATUS: Under procurement.
SHIPPING DATA: Shipped as a complete unit.

NAVY

There is no Navy equivalent for this item.

MODELS BELOW ARE INTERCHANGEABLE Models are used in services as noted in column 4 A-Army, N-Navy, B-British

Manufacturer	Manufacturer's Model Identification	Manufacturer's Drawing Number	Used By	Air Service Command Stock Number	British Reference		Remarks
					British Stores Reference Number	American Stores Reference Number	
Victor Adding Machine Company	V-34	50050	A-B	6400745150	5D/525	105D/22	
Crouse Hinds Company	A		A-B		5D/525	105D/22	Brass.
	A		A-B		5D/529	105D/16	See note.

NOTE: Light alloy, British Reference Number 5D/529 obsolete and superseded by British Reference Number 105D/22.



TACHOMETERS ARMAMENT—BOMBING

TACHOMETER— BOMBSIGHT DISC SPEED

JAEGER WATCH COMPANY, INC.
PART NUMBERS 4050A AND 4050

NAMES: Bombsight disc speed tachometer
Handheld tachometer
Disc speed indicator
Portable tachometer—1000 R.P.M.
BS. Mk. XV disc speed indicator

DESCRIPTION: The bombsight disc speed tachometer is a hand-held tachometer used by bombardiers, and in bombsight repair shops, to check the bombsight disc speed. This tachometer is furnished in a velvet-lined leather case, complete with one soft rubber convex drive tip, one instruction sheet and one calibration sheet. One tachometer is normally supplied with each bombsight, and may be stowed in a pocket of the electrically heated bombsight cover when not in use.



CHARACTERISTICS:

- Weight approximately 1 pound
- Dimensions approximately 3 by 4 1/8 by 1 1/4 inches (in case)
- Dial speed range 0 to 1000 revolutions per minute
- Markings fluorescent paint, inorganic, natural radium color.

RELATIONSHIP OF PARTS: Used with:
Army M-Series bomb sight assembly
Navy Mark 15-Series bomb sight assembly.

ARMY

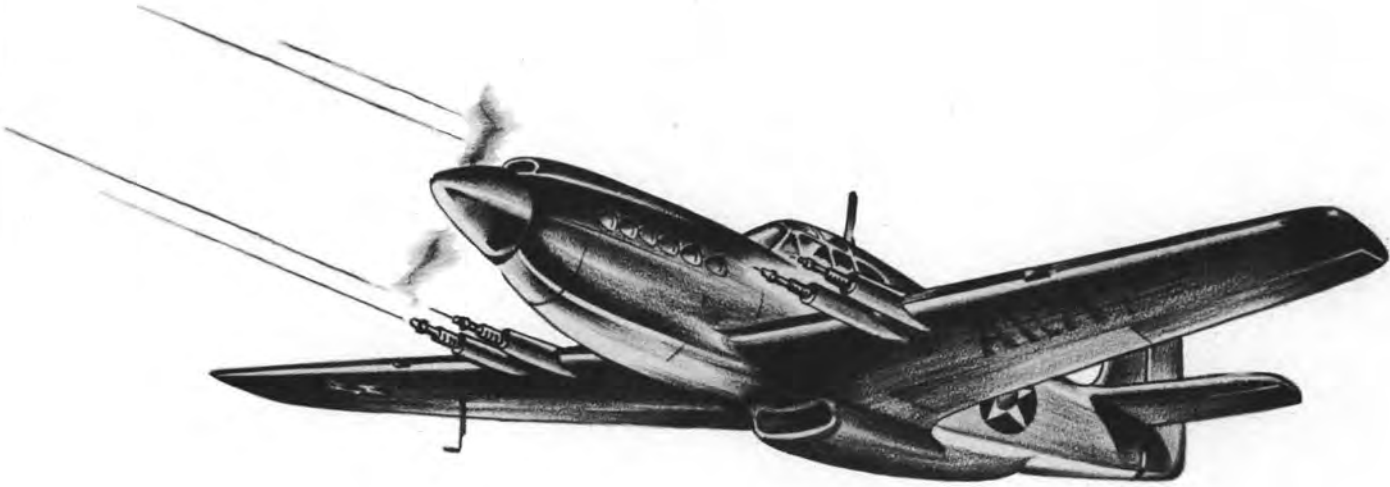
A. E. REFERENCE NUMBER: 64-4400
MANUFACTURER: Jaeger Watch Company, Inc.
MANUFACTURER'S PART NUMBER: 4050A
A. S. C. STOCK NUMBER: 6400908000
TECHNICAL ORDER NUMBER: 17-1-44
PRODUCTION STATUS: Under procurement
SHIPPING DATA: Shipped as a complete unit.

NAVY

SPECIFICATIONS:
General 18T22 (Modified)
AVIATION ORDNANCE STOCK LIST NUMBER: 2-T-20
PROCUREMENT STATUS: Under procurement.
MANUFACTURER'S PART NUMBER: 4050



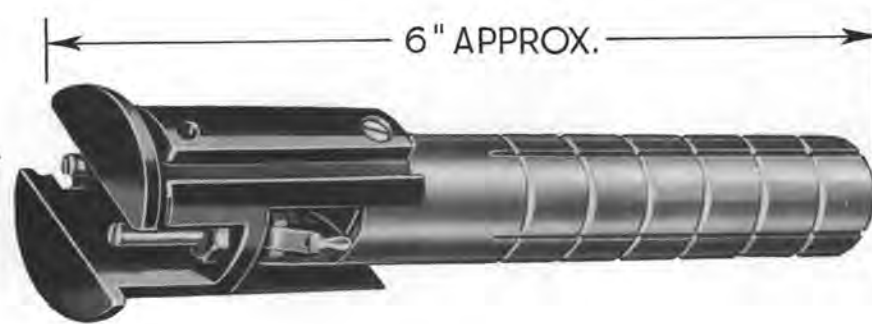
ARMAMENT



ORDNANCE EQUIPMENT



ARMAMENT—ORDNANCE



**DESTRUCTOR, AN-M3
FORMER NAVY TYPE M3**

NAMES: Detonator Electrical Destructor
Electrical Detonator

DESCRIPTION: The AN-M3 destructor is used to destroy certain radio equipment in order to prevent its falling into enemy hands. It consists of a cylindrical housing with a two pin electrical socket fastened to one end. The housing contains two electric detonators and a two-gram explosive charge. The electrical circuit is completed by a switch accessible to the pilot, or by an inertia switch which closes in the event of a crash landing. Current passing through the detonator causes the explosive charge to ignite, and the housing to explode. The force of this explosion is sufficient to destroy the internal parts of the equipment in which it is located, but other equipment in the airplane will not be damaged. The destructor is mounted in an adapter, which forms a part of the equipment with which it is to be used.

CHARACTERISTICS:

Weight.....approximately $\frac{3}{8}$ pound
Dimensions.....approximately $1\frac{3}{8}$ by $1\frac{3}{8}$ by 6 inches.

RELATIONSHIP OF PARTS: Used in conjunction with aircraft radio equipment.

ARMY

A. E. REFERENCE NUMBER: 93-725
TYPE DESIGNATION: AN-M3
PRODUCTION STATUS: Under procurement
SHIPPING DATA: Shipped as a complete unit.

NAVY

TYPE DESIGNATION: AN-M3
BUREAU OF ORDNANCE DRAWING NUMBER: 344428
PROCUREMENT STATUS: Under procurement.

ORDNANCE

MODEL: AN-M3
STANDARD NOMENCLATURE LIST NUMBER: R-7
WAR DEPARTMENT TECHNICAL MANUAL NUMBER: 9-1900
WAR DEPARTMENT TECHNICAL BULLETIN NUMBER: 1900-12

SUPPLIED BY

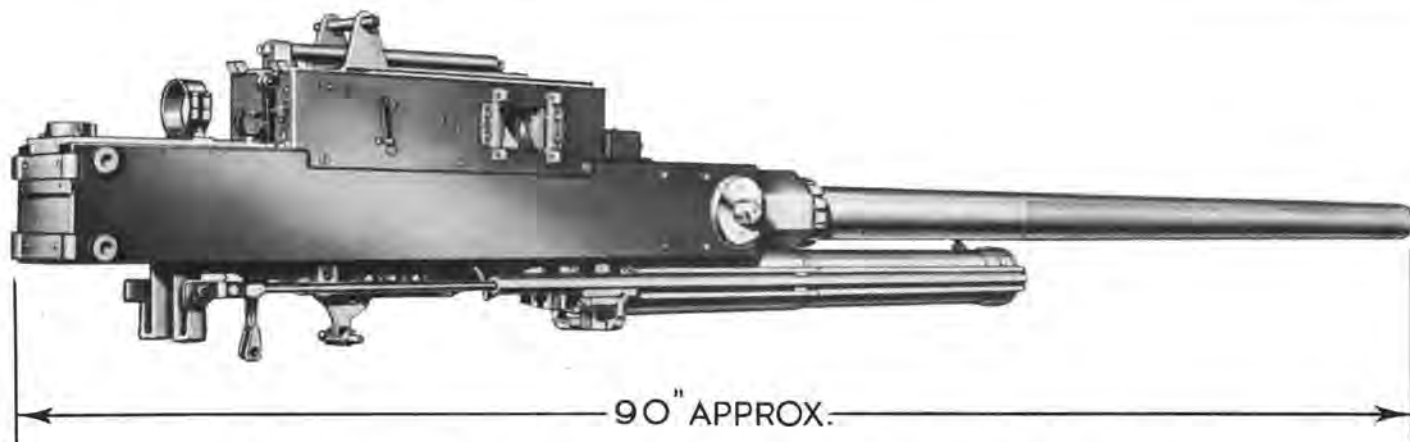
Ordnance Office, War Department.

USED BY

Army and Navy.

BRITISH

REFERENCE NUMBER: 112D/8.



GUN, AUTOMATIC, 37-MM, M4

NAMES: 37-mm automatic gun
Cannon—37-mm

Gun—aircraft 37-mm
Airplane automatic 37-mm gun

DESCRIPTION: The M4, 37-mm automatic gun is an aircraft weapon of the long recoil type. The feed and ejector mechanism are operated by the movement of the recoiling portion of the gun. Recoil and counter-recoil are hydraulically controlled by means of a piston connected to the recoiling parts and a cylinder mounted on the stationary trunnion block assembly.

The gun will fire in any position, since all parts operate independently of gravity. It may be fired manually, or by remote control through a solenoid mounted at the rear of the gun. It is used in both fixed and flexible installations, but it is not designed to be synchronized with the airplane engine. In fixed installations, the gun may be mounted to fire through the propeller shaft, or it may be mounted to fire outside the arc of propeller rotation.

Ammunition may be fed to the gun from a rigid clip holding five cartridges, a fifteen round magazine, or an endless belt magazine. The endless belt magazine contains thirty rounds of ammunition, and is used more frequently than either of the other feed mechanisms.

CHARACTERISTICS:

- Weight approximately 213 pounds
- Dimensions approximately 89⁵/₈ by 13⁷/₈ by 6¹⁵/₁₆ inches
- Rate of fire 125 to 150 rounds per minute
- Muzzle velocity 2000 feet per second, approximately

RELATIONSHIP OF PARTS: Used with:

Type M6, 37-mm endless belt magazine, A. E. Reference Number 93-3100, or Type M7, 37-mm endless belt magazine, A. E. Reference Number 93-3110, or Type M2, 37-mm 15 round magazine, A. E. Reference Number 93-2100.

ARMY

- A. E. REFERENCE NUMBER: 93-1280
- A. A. F. DRAWING NUMBER: H42G4769
- SUPERSEDED DRAWING NUMBER: H39G5561
- TYPE DESIGNATION: M4
- TECHNICAL ORDER NUMBER: 11-1-15, 11-1-17 and 11-1-18
- PRODUCTION STATUS: Under procurement
- SHIPPING DATA: Shipped as a complete unit.

NAVY

There is no Navy equivalent for the Army item.

ORDNANCE

- MODEL: M4
- ORDNANCE DRAWING NUMBER: 51-92 and D69446 (Mounting Dimensions)
- STANDARD NOMENCLATURE LIST NUMBER: A-46
- WAR DEPARTMENT TECHNICAL MANUAL NUMBER: 9-240 9-1240

BRITISH

REFERENCE NUMBER: 107M/1

SUPPLIED BY

Ordnance Office, War Department

USED BY

Army and British.

**AUTOMATIC GUNS
ARMAMENT—ORDNANCE**



**GUN, AIRCRAFT, AUTOMATIC, 20-MM, M1 AND AN-M2
ALL TYPES**

- | | |
|-------------------------------------|----------------------------|
| NAMES: 20-mm aircraft automatic gun | Hispano-Suiza cannon |
| Aircraft automatic 20-mm cannon | 20-mm cannon |
| Automatic 20-mm cannon | Gun—automatic 20-mm cannon |

DESCRIPTION: The 20-mm aircraft automatic gun is an air-cooled aircraft weapon, the mechanism of which is operated by a combination of gas pressure and recoil. When used as a fixed gun, it can be mounted to fire through the propeller hub, or it may be mounted in the fuselage or wing to fire outside the arc of propeller rotation. When used as a flexible gun, it must be supported in a flexible or turret-type mount. Ammunition is fed from either a drum-type magazine or a continuous feed belt. The gun consists of a one-piece barrel screwed into a receiver at its breech end. The rifling of the barrel begins just ahead of the cartridge chamber, and imparts rotation to the projectile, which causes it to maintain its direction and prevents it from tumbling.

Firing is accomplished, in most cases, by means of an electrical solenoid. However, provision may be made to permit manual firing with a remote control cable, which is attached to the gun by means of a bowden control attachment. The 20-mm automatic gun does not lend itself to a synchronized installation due to the design of its bolt and firing mechanism.

The term "basic gun" used as pertaining to 20-mm guns in this index, describes a 20-mm aircraft automatic gun, M1 or AN-M2, without a gun charger, solenoid, recoil adapter, or muzzle brake. The basic M1 and AN-M2 guns are identical with respect to function and installation. The only difference between the two models is in the dimensions of some of the receiver parts. The AN-M2 receiver is 0.2 inches longer, and the M1 receiver slide has a head flange which overlaps the bottom face and receiver slide bolts, which are locked by locking wire. The shoulders on the bottom faces of the receiver slides serve as further means of identifying the M1 gun.

The M1 automatic 20-mm gun, A. E. Reference Number 93-1300, is a type of aircraft cannon formerly supplied for installation on combat airplanes. It is equipped with an M7 recoil adapter, muzzle brake and accessory mounting parts. The AN-M2 aircraft automatic 20-mm gun, A. E. Reference Number 93-1350, is another type of aircraft cannon formerly supplied for installation on combat airplanes. It is equipped with an M7 recoil adapter, muzzle brake and accessory mounting parts. To facilitate installation in various types of aircraft, the 20-mm aircraft automatic gun is identified by the Army Air Forces according to distribution types, as shown on the accompanying chart.

CHARACTERISTICS:

- | | |
|-------------------------------|--|
| Dimensions..... | approximately 100 by 5 ⁵ / ₈ by 6 inches |
| Weight: | |
| M1..... | approximately 108 pounds |
| AN-M2..... | approximately 112 ¹ / ₂ pounds |
| Rate of fire..... | 600 to 700 rounds per minute |
| Maximum allowable recoil..... | 1.181 inches |
| Minimum recoil..... | 0.787 inches |

RELATIONSHIP OF PARTS: When fired electrically, this gun is equipped with an AN-M1 electric trigger (Army type G-17 solenoid), A. E. Reference Number 52-6380. Ammunition is supplied by means of M1 60 round magazine, A. E. Reference Number 93-3050, or M1 20-mm feed mechanism, A. E. Reference Numbers 93-3200 and 93-3205.

(Continued on pages 298 and 299)



DISTRIBUTION TYPES

(Continued from page 297)

A. E. REF. No.	NAME	TYPE	REMARKS	USED BY
		A	Complete with: Adapter.....AN-M1, A. E. Reference No. 93-200 Trigger Mechanism...AN-M1 Electric Trigger, A. E. Reference No. 52-6380. Charger.....M2 (Type B-6) Charger, A. E. Reference No. 52-2275.	A
93-1351	Gun, Automatic, 20-mm, M1 or Gun, Aircraft, Automatic, AN-M2	B	Complete with: Adapter.....AN-M6, A. E. Reference No. 93-250. Trigger Mechanism...AN-M1 Electric Trigger, A. E. Reference No. 52-6380. Charger.....M2 (Type B-6) Charger, A. E. Reference No. 52-2275.	A
93-1352	Gun, Automatic, 20-mm, M1 or Gun, Aircraft, Automatic, AN-M2	C	Complete with: Adapter.....M7, 20-mm Adapter (including recoil spring). Trigger Mechanism...AN-M1 Electric Trigger, A. E. Reference No. 52-6380. Charger.....M2 (Type B-6) Charger, A. E. Reference No. 52-2275.	A
93-1353	Gun, Automatic, 20-mm, M1 or Gun, Aircraft, Automatic, AN-M2	D	Complete with: Adapter.....M7, 20-mm Adapter (including recoil spring). Trigger Mechanism...AN-M1 Electric Trigger, A. E. Reference No. 52-6380. Charger.....M2 (Type B-6) Charger, A. E. Reference No. 52-2275. Muzzle Brake.....M1, Brake, Muzzle, Ord. Dwg. No. C70512.	A
93-1354	Gun, Automatic, 20-mm, M1 or Gun, Aircraft, Automatic, AN-M2	E	Complete with: Adapter.....AN-M1, 20-mm Adapter, A. E. Reference No. 93-200. Trigger Mechanism...AN-M1 Electric Trigger, A. E. Reference No. 52-6380. Charger.....Type D-3 Hydraulic charger A. E. Reference No. 52-2300.	A-N
93-1355	Gun, Aircraft, Automatic, 20-mm, AN-M2	F	Complete with: Adapter.....M7, 20-mm Adapter, (including recoil spring). Trigger Mechanism...Plate, Sear Cover, Assembly (including Bowden control), Ord. Dwg. C70590.	A-B
93-1356	Gun, Automatic, 20-mm, M1	G	Complete with: Adapter.....M7, 20-mm Adapter (including recoil spring). Trigger Mechanism...Plate, Sear Cover, Assembly, (including Bowden Control), Ord. Dwg. C70590.	A
93-1357	Gun, Aircraft, Automatic, 20-mm, AN-M2			

(Continued on page 299)



GUN, AIRCRAFT, AUTOMATIC, 20-MM, M1 AND AN-M2

(Continued from page 297)

ARMY

A. A. F. DRAWING NUMBER:

- M1.....H41J5074 (general drawing)
- AN-M2.....H41J9229 (general drawing)

TECHNICAL ORDER NUMBER: 11-1-16

PRODUCTION STATUS: Types A to G, A. E. Reference Numbers 93-1351 to 93-1357 inclusive, are under procurement. A. E. Reference Numbers 93-1300 and 93-1350, are not under procurement for initial installation.

SHIPPING DATA: Shipped as a complete unit, in accordance with distribution types shown on the opposite page.

NAVY

BU. ORD. DRAWING NUMBER:

- M1.....296508 (general drawing)
- AN-M2.....296509 (general drawing)

AVIATION ORDNANCE STOCK LIST NUMBER:

- M1.....1-G-5642
- AN-M2.....1-G-5544
- AN-M2, Type E.....1-G-5599

ORDNANCE PAMPHLET NUMBER: 215, 829 and 865

PROCUREMENT STATUS: Type E, Aviation Ordnance Stock List Number 1-G-5599, is under procurement. Aviation Ordnance Stock List Number 1-G-5642 and 1-G-5544 are not under procurement for initial installation.

ORDNANCE

ORDNANCE DRAWING NUMBER:

- M1.....51-105-4 (general drawing)
- AN-M2.....51-107-4 (general drawing)

STANDARD NOMENCLATURE LIST NUMBER: A-47

**WAR DEPARTMENT TECHNICAL MANUAL NUMBER: 9-227 (General Information)
9-1227 (Maintenance)**

BRITISH

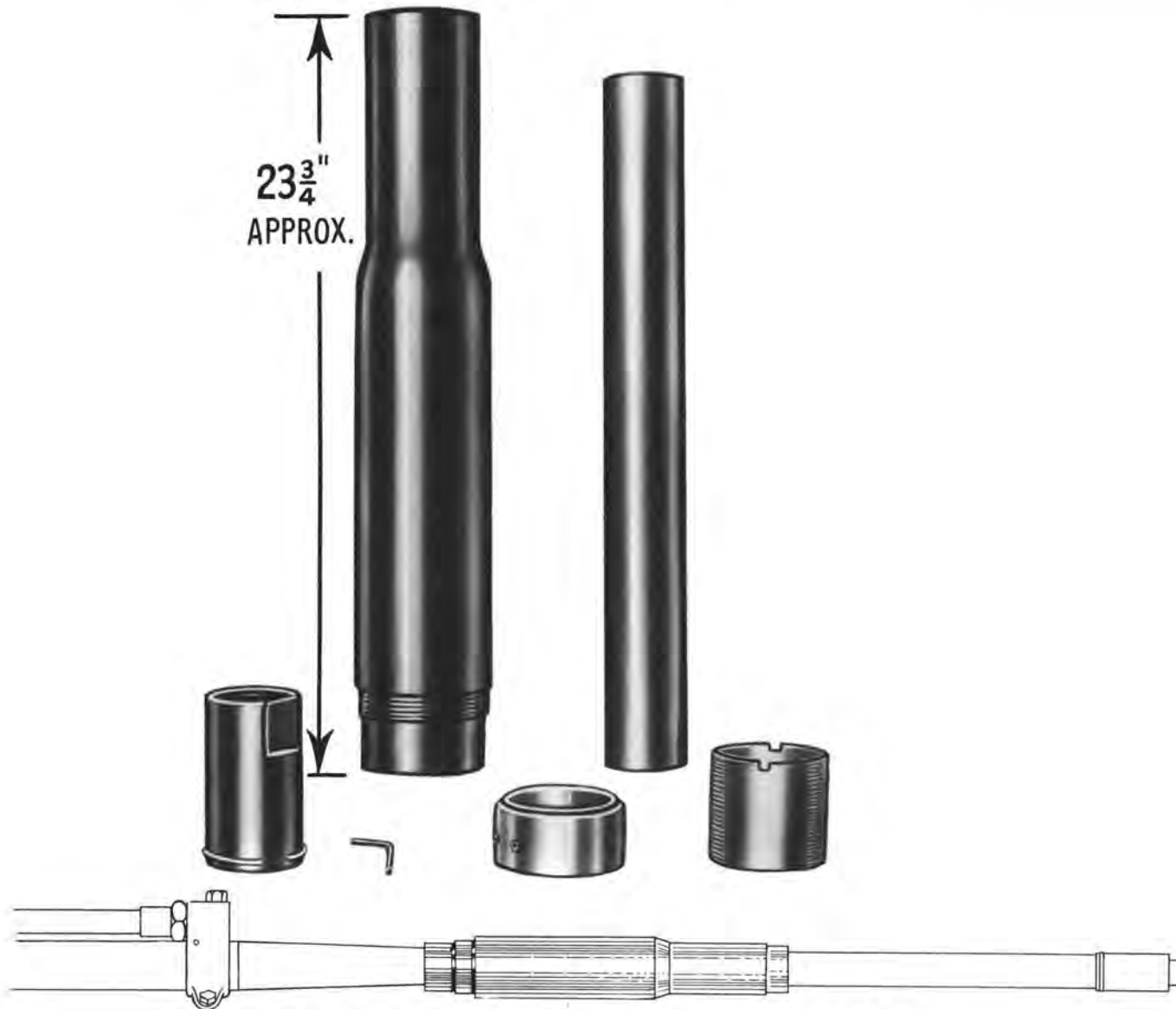
BRITISH REFERENCE NUMBER:

- AN-M2.....107G/5
- M1, Type F.....107G/279

PROCUREMENT STATUS: Type F, British Reference Number 107G/279 is under procurement. British Reference Number 107G/5 is not under procurement for initial installation.

INTERCHANGEABILITY

All types may be made interchangeable by substituting the required adapter, muzzle brake, trigger mechanism, and charger.



ADAPTER, 20-MM, AN-M1
FORMER ARMY TYPE M1 FORMER NAVY TYPE M1

NAMES: 20-mm adapter assembly Recoil absorption adapter
Adapter assembly—20-mm recoil absorption Ring spring cartridge—20-mm gun adapter
Adapter, gun mount AG 20-mm (M-1 and M-2) Edgewater 20-mm recoil adapter

DESCRIPTION: The 20-mm, AN-M1 adapter assembly is used to absorb the recoil force of the 20-mm gun, and to limit the recoil travel. If recoil travel is too long, it will damage the gun, and if too short, it will deprive the feed mechanism of its power.

For proper operation, the adapter must be mounted on the barrel of the gun near the muzzle. An extension and spacer sleeve provide means of attaching the adapter to the gun mounting. Spacer sleeves of several lengths are furnished, to facilitate installation and attachment.

CHARACTERISTICS:

Dimensions.....approximately 33½ by 3 by 3 inches assembled
Weight.....approximately 11¾ pounds
Adapter type.....ring spring cartridge

RELATIONSHIP OF PARTS: Used with:

20-mm automatic gun type M1 or type AN-M2. One end of the adapter is fastened to the barrel of the gun, and the other to the gun mount.

(Continued on page 301)



ADAPTER, 20-MM, AN-M1

(Continued from page 300)

ARMY

A. E. REFERENCE NUMBER: 93-200

A. A. F. DRAWING NUMBER: H41D10198

TYPE DESIGNATION: AN-M1

TECHNICAL ORDER NUMBER: 11-1-16

PRODUCTION STATUS: Under procurement.

SHIPPING DATA: The adapter assembly is shipped as a complete unit which contains the various components necessary for installation.

NAVY

TYPE DESIGNATION: AN-M1

BUREAU OF ORDNANCE DRAWING NUMBER: 328544

AVIATION ORDNANCE STOCK LIST NUMBER: 1-A-56

ORDNANCE DATA NUMBER: 4447

ORDNANCE PAMPHLET NUMBER: 865

PROCUREMENT STATUS: Under procurement.

ORDNANCE

MODEL: AN-M1

ORDNANCE DRAWING NUMBER: D36592

STANDARD NOMENCLATURE LIST NUMBER: A-47

WAR DEPT. TECHNICAL MANUAL NUMBER: 9-227

BRITISH

REFERENCE NUMBER: 150J/56

INTERCHANGEABILITY

The addition of the rear mounting extension makes the type AN-M1 completely interchangeable with type AN-M6.

SUPPLIED BY: Ordnance office, War Department.

USED BY

Army, Navy, and British.



ADAPTER, 20-MM, AN-M6
FORMER ARMY TYPE M6

NAMES: 20-mm adapter	Recoil absorption adapter
Adapter assembly—20-mm recoil absorption	Ring spring cartridge—20-mm gun adapter
Adapter, gun mount, AG 20-mm (M-1 and M-2)	Edgewater 20-mm recoil adapter

DESCRIPTION: The 20-mm, AN-M6 adapter assembly is used to absorb the recoil force of the 20-mm gun, and to limit the recoil travel. If recoil travel is too long, it will damage the gun, and if too short, it will deprive the feed mechanism of its power.

For proper operation, the adapter must be mounted on the barrel of the gun near the muzzle. An extension and spacer sleeve provide means of attaching the adapter to the gun mounting. Spacer sleeves of several lengths are furnished, to facilitate installation and attachment.

The AN-M6 adapter assembly contains a rear mounting extension, which distinguishes it from the AN-M1 adapter assembly. The two assemblies are identical in all other respects.

CHARACTERISTICS:

Dimensions.....	approximately 41½ by 3 by 3 inches assembled
Weight.....	approximately 14½ pounds
Adapter type.....	ring spring cartridge

(Continued on page 303)



ADAPTER, 20-MM, AN-M6

(Continued from page 302)

RELATIONSHIP OF PARTS: The type AN-M6 adapter is used with the automatic 20-mm guns, type M1 and AN-M2. One end of the adapter is fastened to the barrel of the gun, and the other to the gun mount.

ARMY

A. E. REFERENCE NUMBER: 93-250

A. A. F. DRAWING NUMBER: H41D10198

TYPE DESIGNATION: AN-M6

TECHNICAL ORDER NUMBER: 11-1-16

PRODUCTION STATUS: Under procurement.

SHIPPING DATA: The adapter assembly is shipped as a complete unit which contains the various components necessary for installation.

NAVY

TYPE DESIGNATION: AN-M1 with rear mounting extension.

BUREAU OF ORDNANCE DRAWING NUMBER: 328544

F. S. S. C. NUMBER: 1-A-56

ORDNANCE DATA NUMBER: 4447

PROCUREMENT STATUS: Under procurement.

ORDNANCE

MODEL: AN-M6

ORDNANCE DRAWING NUMBER: D36593

STANDARD NOMENCLATURE LIST NUMBER: A-47

WAR DEPT. TECHNICAL MANUAL NUMBER: 9-227

INTERCHANGEABILITY

The omission of the rear mounting extension makes the type AN-M6 completely interchangeable with AN-M1.

SUPPLIED BY

Ordnance office, War Department.

USED BY

Army and Navy.



AIRCRAFT MACHINE GUNS

Aircraft machine guns are used offensively or defensively against enemy aircraft or ground objectives, and are fired from fixed, flexible, or turret installations.

The caliber .30 and .50 Browning aircraft machine guns are recoil-operated, belt-fed, and air-cooled. Upon depressing the trigger, the gun operation becomes fully automatic, and it will continue to fire within the limit of the ammunition supply or until the trigger is released. Firing is accomplished manually by depressing the trigger, or electrically by a solenoid which is operated from a gun switch. The recoil of the gun supplies the power necessary to extract ammunition from the belt, feed it into the chamber, cock and fire the gun, eject the empty cartridge case, and move the next round into the feedway. Charging the gun for initial firing, or following stoppages, is performed manually, by retracting the handle of the slide group assembly, or remotely, by operating the control valve of a pneumatic or hydraulic gun charger.

These guns may be fed from the left or right side, and may be converted to either feed by reversing a few minor parts. A disintegrating metallic link belt is normally used to supply ammunition to the guns. The belt separates into individual links upon the removal of the loaded cartridge.

Guns may be mounted in the fuselage or in the wings, and require the use of gun mounts or adapters, depending upon the individual installation. When mounted to fire through the propeller arc, the gun must be equipped with a synchronizer, to prevent damage to the propeller.

(Continued on page 305)



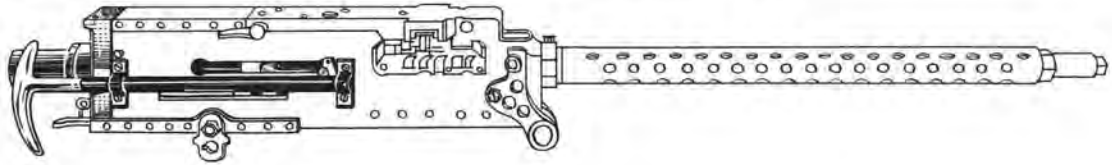
AIRCRAFT MACHINE GUNS

(Continued from page 304)

INSTALLATION TYPES

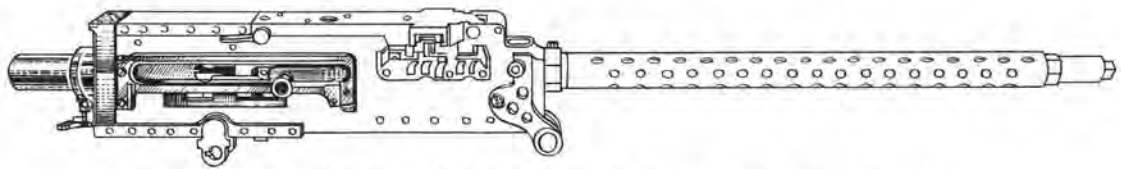
CALIBER .30

BROWNING AIRCRAFT MACHINE GUN



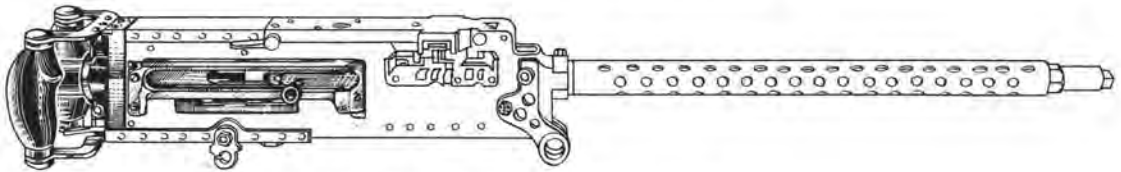
FIXED MACHINE GUN

(Including fixed back plate and operating slide group assembly)



FLEXIBLE, WITH FIXED BACK PLATE, MACHINE GUN

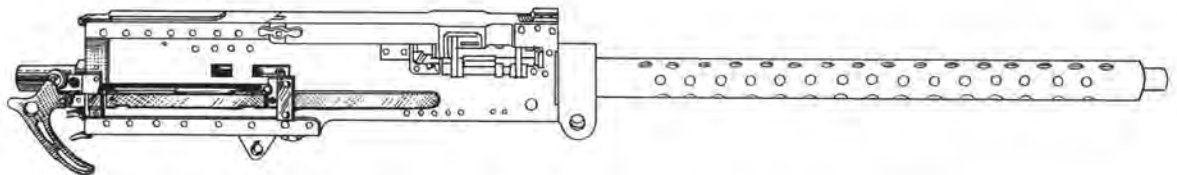
(Including fixed back plate and retracting slide group assembly.) Used in turret installations.



FLEXIBLE MACHINE GUN

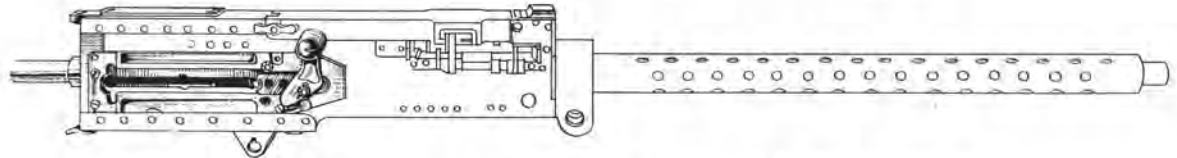
(Including flexible back plate and retracting slide group assembly)

CALIBER .50



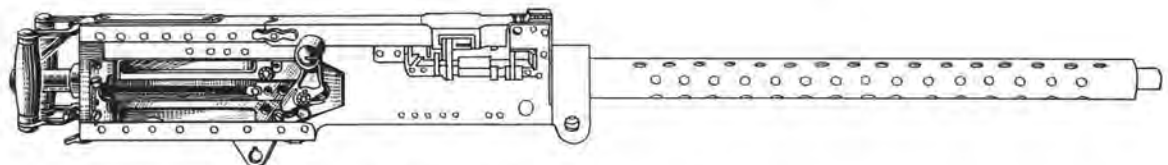
FIXED MACHINE GUN

(Including fixed back plate and operating slide group assembly)



FLEXIBLE, WITH FIXED BACK PLATE, MACHINE GUN

(Including fixed back plate and retracting slide group assembly.) Used in turret installations.



FLEXIBLE MACHINE GUN

(Including flexible back plate and retracting slide group assembly)



**GUN MACHINE, CALIBER .30, BROWNING,
M2, AIRCRAFT, FIXED**

NAMES: Browning machine gun, caliber .30, M2, aircraft, fixed
Browning aircraft fixed machine gun, caliber .30
Machine gun, .30 caliber—Browning aircraft—fixed
Gun—machine .30 caliber—Browning aircraft—fixed

DESCRIPTION: The M2 caliber .30 Browning aircraft fixed machine gun is used in installations requiring the gun to be fired in one direction only from a fixed position in the wings or fuselage.

This gun is a caliber .30 aircraft machine gun equipped with an operating slide group assembly, which may be mounted to either side of the gun for charging. A cable may be attached to the operating slide group assembly to permit its operation in remote installations. The fixed gun referred to in this description does not contain a trigger bar or trigger bar pin, since firing is accomplished remotely through the use of an electrical solenoid and firing switch.

CHARACTERISTICS:

Weight approximately 21½ pounds
Outline dimensions approximately 39¾ by 5¼ by 3¼ inches
Rate of fire 1350 rounds per minute
Muzzle velocity approximately 2700 feet per second

RELATIONSHIP OF PARTS: The gun is attached to the airplane by any fixed .30 caliber gun mount or gun mount adapter.

ARMY

A. E. REFERENCE NUMBER: 93-1420
A. A. F. DRAWING NUMBER: H39G5331
TYPE DESIGNATION: M2
TECHNICAL ORDER NUMBER: 11-1-28
PRODUCTION STATUS: Under procurement
SHIPPING DATA: Shipped complete with operating slide group assembly.

NAVY

TYPE DESIGNATION: M2
BUREAU OF ORDNANCE DRAWING NUMBER: 204675
AVIATION ORDNANCE STOCK LIST NUMBER: 1-G-5606
ORDNANCE PAMPHLET NUMBER: 714, 398, 865
PROCUREMENT STATUS: Under procurement

ORDNANCE

MODEL: M2
ORDNANCE DRAWING NUMBER: 51-57-3
51-57-3A (List of Parts)
STANDARD NOMENCLATURE LIST NUMBER: A-28
WAR DEPARTMENT TECHNICAL MANUAL NUMBER: 9-205
9-1205

BRITISH

REFERENCE NUMBER: 107L/391

INTERCHANGEABILITY

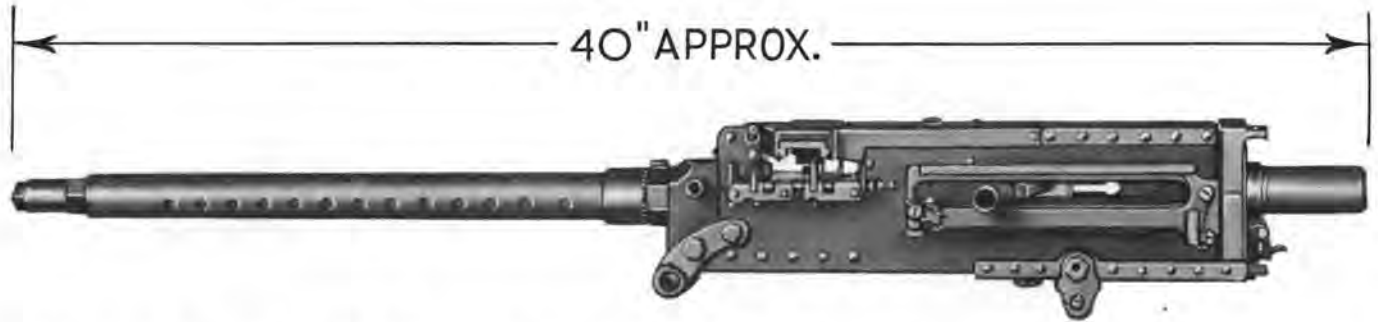
May be converted to either a flexible or flexible with fixed back plate machine gun by substituting the proper back plate and slide group assembly.

SUPPLIED BY

Ordnance Office, War Department.

USED BY

Army, Navy, and British.



**GUN, MACHINE, CALIBER .30, BROWNING, M2,
AIRCRAFT, FLEXIBLE WITH FIXED BACK PLATE**

NAMES: Browning machine gun, caliber .30, M2, aircraft, flexible with fixed back plate
Browning aircraft, flexible with fixed back plate machine gun, caliber .30
Gun—machine .30 caliber—Browning aircraft—flexible with fixed back plate

DESCRIPTION: The M2 caliber .30 Browning aircraft flexible machine gun, with fixed back plate, is used in installations which require flexibility of movement but which do not require hand grips on the guns. Such installations are found in power operated gun turrets or in gun mount adapters which are themselves equipped with hand grips.

This gun is a caliber .30 aircraft machine gun which contains a fixed back plate, and is equipped with a retracting slide group assembly which may be mounted to either side of the gun for charging.

CHARACTERISTICS:

Weight.....approximately 21 $\frac{1}{5}$ pounds
Dimensions.....approximately 39 $\frac{3}{4}$ by 5 $\frac{1}{2}$ by 5 $\frac{1}{4}$ inches
Rate of fire.....1350 rounds per minute
Muzzle velocity.....2700 feet per second

RELATIONSHIP OF PARTS: The gun is attached to the airplane by any flexible .30 caliber gun mount adapter which is provided with hand grips, or is installed in a .30 caliber gun turret.

ARMY

A. E. REFERENCE NUMBER: 93-1440
A. A. F. DRAWING NUMBER: H39G5331
TYPE DESIGNATION: M2
TECHNICAL ORDER NUMBER: 11-1-28
PRODUCTION STATUS: Under procurement
SHIPPING DATA: Shipped as a complete unit.

NAVY

TYPE DESIGNATION: M2
F. S. S. C. NUMBER: 1-G-5612
ORDNANCE PAMPHLET NUMBER: 714 and 398
PROCUREMENT STATUS: Under procurement

ORDNANCE

MODEL: M2
ORDNANCE DRAWING NUMBER: 51-122-1
51-122-1A (List of Drawings)
STANDARD NOMENCLATURE LIST NUMBER: A-28
WAR DEPARTMENT TECHNICAL MANUAL NUMBER: 9-205 and 9-1205

BRITISH

REFERENCE NUMBER: 107L/390

INTERCHANGEABILITY

May be converted to either a fixed or a flexible machine gun by substituting the proper back plate and slide group assembly.

SUPPLIED BY

Ordnance Office, War Department.

USED BY

Army, Navy, and British.



**GUN, MACHINE, CALIBER .30, BROWNING,
M2, AIRCRAFT, FLEXIBLE**

NAMES: Browning aircraft flexible machine gun caliber .30
Gun-machine .30 caliber—Browning aircraft flexible
Gun, caliber .30, BAM-30 (M-2) flexible
Machine Gun, caliber .30, Browning, M2, aircraft, flexible
Flexible machine gun, caliber .30, Browning, M2, aircraft flexible

DESCRIPTION: The M2 caliber .30 Browning aircraft flexible machine gun is used in installations requiring the gun to be fired from a flexible or swivel mounting within a certain cone of operation.

This gun is a caliber, .30 aircraft machine gun, equipped with a retracting slide group assembly which is mounted to either side of the gun for charging, and it has a flexible back plate. The flexible back plate differs from the fixed back plate by the addition of two spade grips with an external trigger.

CHARACTERISTICS:

Weight approximately 23 pounds
Dimensions approximately 39³/₄ by 5¹/₂ by 6⁵/₈ inches
Rate of fire 1350 rounds per minute
Muzzle velocity approximately 2700 feet per second

RELATIONSHIP OF PARTS: The gun is attached to the airplane by any flexible .30 caliber gun mount or gun mount adapter which is not equipped with hand grips.

ARMY

A. E. REFERENCE NUMBER: 93-1520
A. A. F. DRAWING NUMBER: H39G5331
TYPE DESIGNATION: M2
TECHNICAL ORDER NUMBER: 11-1-28
PRODUCTION STATUS: Under procurement
SHIPPING DATA: Shipped as a complete unit.

NAVY

TYPE DESIGNATION: M2
N. A. F. DRAWING NUMBER: 204674
AVIATION ORDNANCE STOCK LIST NUMBER: 1-G-5611
ORDNANCE PAMPHLET NUMBER: 714 and 398
PROCUREMENT STATUS: Under procurement.

ORDNANCE

MODEL: M2
ORDNANCE DRAWING NUMBER: 51-76-1
51-76-1A (List of Parts)
STANDARD NOMENCLATURE LIST NUMBER: A-28
WAR DEPARTMENT TECHNICAL MANUAL NUMBER: 9-205 and 9-1205.

BRITISH

REFERENCE NUMBER: 107L/392

INTERCHANGEABILITY

May be converted to either a fixed or flexible with fixed back plate machine gun by substituting the proper back plate and slide group assembly.

SUPPLIED BY

Ordnance Office, War Department.

USED BY

Army, Navy and British.



**GUN, MACHINE, CALIBER .50, BROWNING,
M2, AIRCRAFT, BASIC**

NAMES: Browning machine gun, caliber .50, M2, aircraft, basic
Gun, machine .50 caliber—Browning aircraft—basic
Gun, caliber .50, BAM—50 (M2) basic

DESCRIPTION: The M2 caliber .50 Browning aircraft basic machine gun is the model from which all installation types are derived. It is a Browning aircraft machine gun without a slide group assembly, but with a fixed back plate, and an internal trigger bar and trigger bar pin assembly.

The basic gun may be converted to a fixed gun by the addition of an operating slide group assembly, and a solenoid to permit remote firing. It may be converted to a flexible gun by substituting a flexible back plate for the fixed back plate and by adding a retracting slide group assembly. When used in turret installations, the basic gun is equipped with a retracting slide group assembly.

CHARACTERISTICS:

Weight.....approximately 60¾ pounds
Dimensions.....approximately 56½ by 5⅞ by 3⅞ inches
Rate of fire.....700 to 850 rounds per minute
Muzzle velocity.....approximately 2800 feet per second

RELATIONSHIP OF PARTS: Used with:

Operating slide group assembly, A. E. Reference Number 93-1100, or retracting slide group assembly, A. E. Reference Number 93-1125.

ARMY

A. E. REFERENCE NUMBER: 93-1560
A. A. F. DRAWING NUMBER: H39G5332
TYPE DESIGNATION: M2
TECHNICAL ORDER NUMBER: 11-1-28 and 11-1-8
PRODUCTION STATUS: Under procurement
SHIPPING DATA: Shipped as a complete unit.

NAVY

TYPE DESIGNATION: M2
BUREAU OF ORDNANCE DRAWING NUMBER: 297034
AVIATION ORDNANCE STOCK LIST NUMBER: 1-G-5636
ORDNANCE PAMPHLET NUMBER: 215, 548 and 716
ORDNANCE CIRCULAR LETTER NUMBER: V-34
PROCUREMENT STATUS: Under procurement.

ORDNANCE

MODEL: M2
ORDNANCE DRAWING NUMBER: 51-82-1
51-82-1A (List of Drawings)
STANDARD NOMENCLATURE LIST NUMBER: A-38
WAR DEPARTMENT TECHNICAL MANUAL NUMBER: 9-225 and 9-1225

BRITISH

REFERENCE NUMBER: 107K/482

INTERCHANGEABILITY

May be mounted in either a fixed, flexible, or turret installation by substituting the proper back plate, and supplying the proper slide group assembly, solenoid, and adapter.

SUPPLIED BY

Ordnance Office, War Department.

USED BY

Army, Navy, and British.



SLIDE, OPERATING GROUP ASSEMBLY
ORDNANCE DRAWING D28200

NAMES: Group assembly—operating slide
 Operating slide group assembly

Slide, operating, BAM .50 (M-2), group
 assembly

DESCRIPTION: The operating slide group assembly is used for manually charging fixed guns by retracting the breech mechanism. It is also used for unloading the gun, and for correction of stoppages in firing. If the gun is mounted in the wing, or in the fuselage, out of reach of the gunner, a remote control cable may be attached so that the slide can be operated from the cockpit.

This assembly is a lever and slide arrangement equipped with a metal handle and may be mounted on either side of the gun. The slide group assembly engages the bolt stud and retracts it to the rear, to perform initial charging. Upon firing, the bolt stud and breech mechanism operate independently of the slide group assembly.

CHARACTERISTICS:

Dimensions..... approximately 21½ by 6 by 1¾ inches
 Weight..... approximately 1½ pounds

RELATIONSHIP OF PARTS: The operating slide group assembly is used on M2 .50 caliber Browning fixed machine guns, and is secured to the side plate of the gun by two guide bearings.

ARMY

A. E. REFERENCE NUMBER: 93-1100
 TECHNICAL ORDER NUMBER: 11-1-8
 PRODUCTION STATUS: Under procurement
 SHIPPING DATA: Shipped complete with bolt stud and mounting attachments.

NAVY

BUREAU OF ORDNANCE DRAWING NUMBER: 169790
 AVIATION ORDNANCE STOCK LIST NUMBER: 1-S-9423
 ORDNANCE PAMPHLET NUMBER: 716 and 865
 PROCUREMENT STATUS: Under procurement.

ORDNANCE

ORDNANCE DRAWING NUMBER: D28200
 STANDARD NOMENCLATURE LIST NUMBER: A-38
 WAR DEPT. TECHNICAL MANUAL NUMBER: 9-225 and 1-409

BRITISH

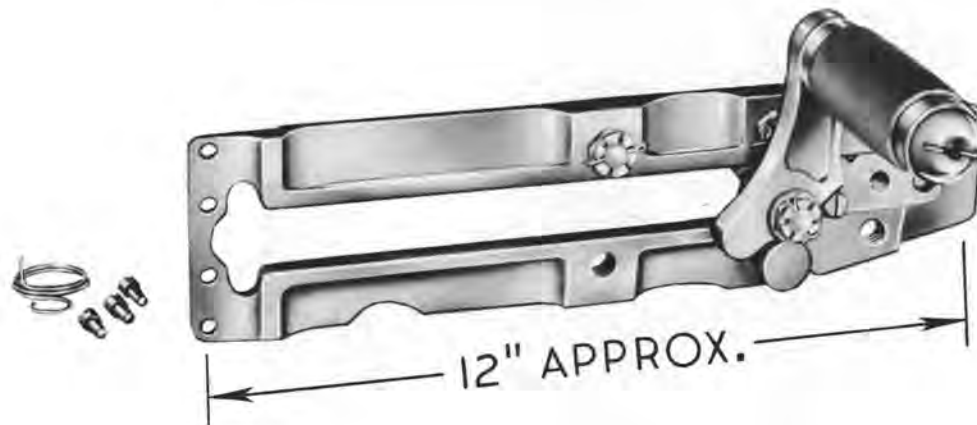
REFERENCE NUMBER: 107K/119

SUPPLIED BY

Ordnance office, War Department.

USED BY

Army, Navy, and British.



SLIDE, RETRACTING, GROUP ASSEMBLY
ORDNANCE DRAWING D28300A

NAMES: Group assembly—retracting slide
Retracting slide group assembly
Slide, retracting, BAM 50 (M-2) group
assembly

DESCRIPTION: The retracting slide group assembly provides a means of charging flexible guns by hand retraction of the breech mechanism. It is also used for loading or unloading the gun, and to clear firing stoppages.

It is a lever and slide arrangement which can be mounted on the left or right hand side of the gun. The force needed to start the charging cycle is furnished through the crank-like wooden hand grip. This grip is connected to the bolt stud in such a way that the bolt stud, and consequently the breech mechanism, operate independently of the handle and the slide group assembly upon firing.

The wooden handle may be removed, and a cable can be attached to the lever, for remote operation.

CHARACTERISTICS:

Dimensions.....approximately 12 by 4½ by 5½ inches
Weight.....approximately 2⅛ pounds

RELATIONSHIP OF PARTS: The retracting slide group assembly is used on all M2 .50 caliber Browning flexible machine guns.

ARMY

A. E. REFERENCE NUMBER: 93-1125
A. A. F. DRAWING NUMBER: H39B5344
TECHNICAL ORDER NUMBER: 11-1-8
PRODUCTION STATUS: Under procurement
SHIPPING DATA: Shipped complete with bolt stud, and mounting attachments.

NAVY

BUREAU OF ORDNANCE DRAWING NUMBER: 307245
AVIATION ORDNANCE STOCK LIST NUMBER: 1-S-9428
ORDNANCE CIRCULAR LETTER NUMBER: 12-42
ORDNANCE PAMPHLET NUMBER: 716 and 865
PROCUREMENT STATUS: Under procurement.

ORDNANCE

ORDNANCE DRAWING NUMBER: D28300A
STANDARD NOMENCLATURE LIST NUMBER: A-38
WAR DEPT. TECHNICAL MANUAL NUMBER: 9-225 and 1-409

BRITISH

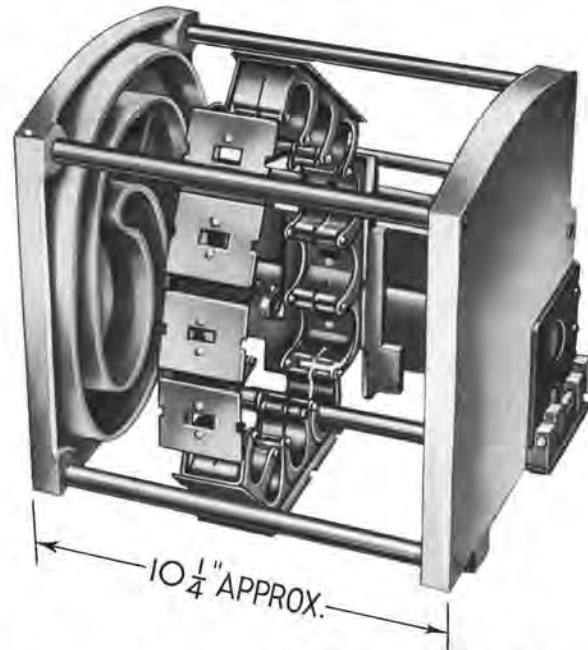
REFERENCE NUMBER: 107K/225

SUPPLIED BY

Ordnance office, War Department.

USED BY

Army, Navy, and British.



MAGAZINE, 15 ROUND, 37-MM, M2

NAMES: 37-mm, 15 round magazine M2
15 round articulated link belt magazine

15 round 37-mm ammunition box

DESCRIPTION: The type M215 round 37-mm magazine is used only where limited space for ammunition storage is available. This magazine incorporates a 15 link articulated belt, which passes through the feed box and falls into a suitable container placed near the gun.

CHARACTERISTICS:

Weight.....approximately 12½ pounds
Dimensions.....approximately 11¹⁵/₁₆ by 8⁵/₈ by 10¹/₁₆ inches

RELATIONSHIP OF PARTS: The 15 round, 37-mm magazine is held to the left hand side of the feed box of the type M-4, 37-mm aircraft gun (A. E. Reference Number 93-1280) by the action of two spring held latches which are provided with quick release buttons.

ARMY

A. E. REFERENCE NUMBER: 93-2100
A. A. F. DRAWING NUMBER: H39G5584
TYPE DESIGNATION: M2
TECHNICAL ORDER NUMBER: 11-1-15, 11-1-17, 11-1-18
PRODUCTION STATUS: Not under procurement for initial installation.
SHIPPING DATA: Shipped as a complete unit.

NAVY

There is no Navy equivalent for the Army item.

ORDNANCE

MODEL: M2
ORDNANCE DRAWING NUMBER: D36321
STANDARD NOMENCLATURE LIST NUMBER: A-46
WAR DEPARTMENT TECHNICAL MANUAL NUMBER: 9-240

BRITISH

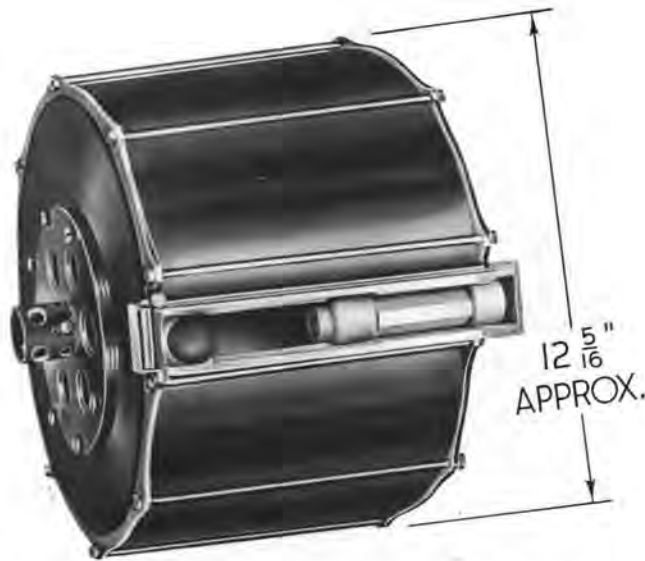
REFERENCE NUMBER: 107M/52

SUPPLIED BY

Ordnance Office, War Department.

USED BY

Army.



MAGAZINE, 60 RD, 20-MM, M1

NAMES: 20-mm 60 rd magazine
60 round magazine

Drum type magazine

DESCRIPTION: The M1, 20-mm 60 round magazine is a drum shaped ammunition box which is quickly attachable to the magazine slides of the 20-mm automatic gun. It consists of a cylindrical casing, which houses a driving spring and feeder assembly. The magazine is operated by spring tension. Initial tension is applied during assembly, and additional tension is added subsequently by the loading operations. The feeder arm acts under the spring tension to move each successive round of ammunition to the proper position for loading into the gun. A series of holes in the rear plate provide visual indication of the rounds of ammunition remaining in the magazine.

CHARACTERISTICS:

Dimensions.....approximately 9⁵/₈ by 12⁵/₁₆ by 12⁵/₁₆ inches
Weight.....approximately 20³/₄ pounds

RELATIONSHIP OF PARTS: This magazine is mounted on the magazine slide of the M1 automatic 20-mm gun, or the AN-M2 aircraft automatic 20-mm gun.

ARMY

A. E. REFERENCE NUMBER: 93-3050
A. A. F. DRAWING NUMBER: H42G2391
TYPE DESIGNATION: M1
TECHNICAL ORDER NUMBER: 11-1-16
PRODUCTION STATUS: Under procurement
SHIPPING DATA: Shipped as a complete unit.

NAVY

There is no Navy equivalent for the Army item.

ORDNANCE

MODEL: M1
ORDNANCE DRAWING NUMBER: D36339
STANDARD NOMENCLATURE LIST NUMBER: A-47
WAR DEPARTMENT TECHNICAL MANUAL NUMBER: 9-227

SUPPLIED BY

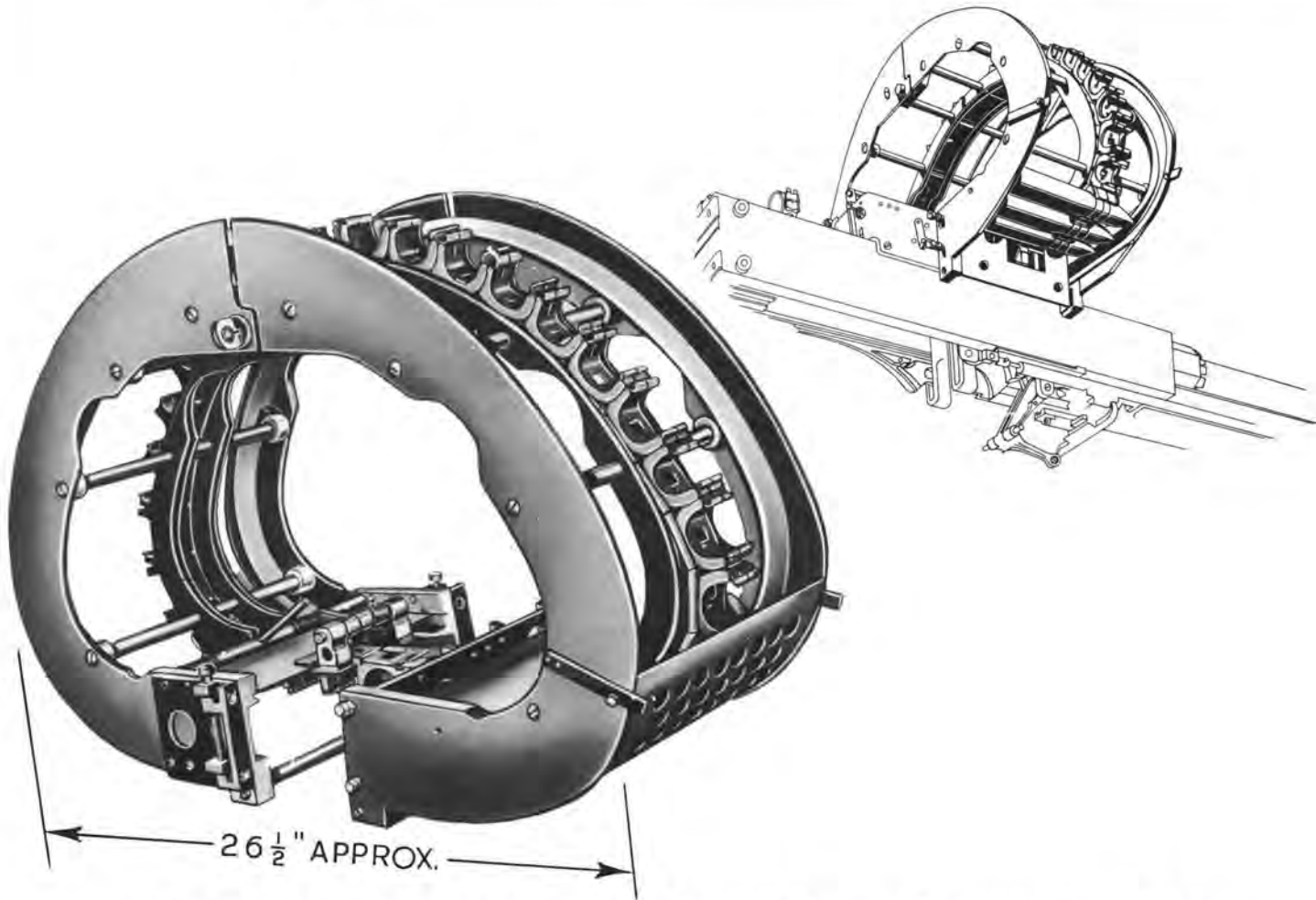
Ordnance Office, War Department.

USED BY

Army.



GUN ACCESSORIES ARMAMENT—ORDNANCE



MAGAZINE, ENDLESS BELT, 37-MM, M6

NAMES: 37-mm endless belt magazine, M6

30 round endless belt magazine

DESCRIPTION: The M-6, 37-mm endless belt magazine is made up of an endless belt of 33 links which hold 30 rounds of ammunition within a horse collar shaped frame. This magazine was designed to fit within the nose contours of the airplane.

The magazine is constructed in two sections to facilitate installation on the cannon. A removable plate provides access to the endless belt for loading operations. The lower ends of the magazine are rigidly fastened to opposite sides of the feed box to provide support for the magazine.

CHARACTERISTICS:

Dimensions	approximately 26 ⁹ / ₁₆ by 18 ³ / ₁₆ by 10 ⁵ / ₁₆ inches
Weight	approximately 35 pounds
Capacity	30 rounds of 37-mm ammunition

RELATIONSHIP OF PARTS: Used with:

Type M4 37-mm aircraft gun, A. E. Reference Number 93-1280.

ARMY

A. E. REFERENCE NUMBER: 93-3100
 A. A. F. DRAWING NUMBER: H42G2521
 TYPE DESCRIPTION: M6
 TECHNICAL ORDER
 NUMBER: 11-1-17 and 11-1-18
 PRODUCTION STATUS: Under
 procurement
 SHIPPING DATA: Shipped as a complete
 unit.

NAVY

There is no Navy equivalent for the Army item.

ORDNANCE

MODEL: M6
 ORDNANCE DRAWING
 NUMBER: D36488
 STANDARD NOMENCLATURE
 LIST NUMBER: A-46
 WAR DEPT. TECHNICAL MANUAL
 NUMBER: 9-240

SUPPLIED BY

Ordnance Office, War Department.

USED BY

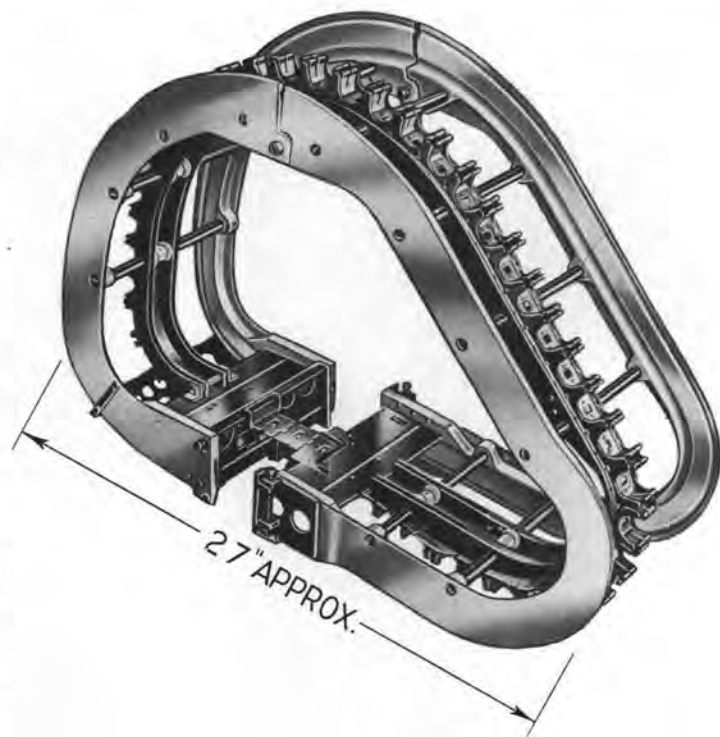
Army.



MAGAZINE, ENDLESS BELT, 37-MM, M7

NAMES: 37-mm endless belt magazine
30 round magazine

DESCRIPTION: The M7 37-mm endless belt magazine is made up of an endless belt of 34 links, which holds 31 rounds of ammunition within a horse collar shaped frame. The frame of the magazine is not symmetrical about the center line of the gun, since the hinged portion of the top is offset nine degrees to permit the gun to be tilted through this angle. This magazine was designed to fit within the nose contours of the airplane, and was formerly known as experimental model T14.



The magazine is constructed in two sections to facilitate installation on the gun. A removable plate provides access to the endless belt for loading. The lower ends of the magazine are rigidly fastened to opposite sides of the gun feed box to provide support for the magazine.

CHARACTERISTICS:

Dimensions..... approximately 26⁹/₁₆ by 18³/₁₆ by 10⁵/₁₆ inches
Weight..... approximately 35 pounds
Capacity..... 31 rounds (maximum)

RELATIONSHIP OF PARTS: Used with:

Type M4 37-mm automatic gun, A. E. Reference Number 93-1280.

ARMY

A. E. REFERENCE NUMBER: 93-3110
TYPE DESIGNATION: M7
SUPERSEDED TYPE: T14
PRODUCTION STATUS: Under procurement.
SHIPPING DATA: Shipped as a complete unit.

NAVY

There is no Navy equivalent for the Army item.

ORDNANCE

MODEL: M7
COLT'S PATENT FIREARMS MFG. CO.
DRAWING NUMBER: E. S. A-1738

SUPPLIED BY

Ordnance Office, War Department.

USED BY

Army.



MECHANISM, FEED, LEFT HAND, 20-MM, AN-M1

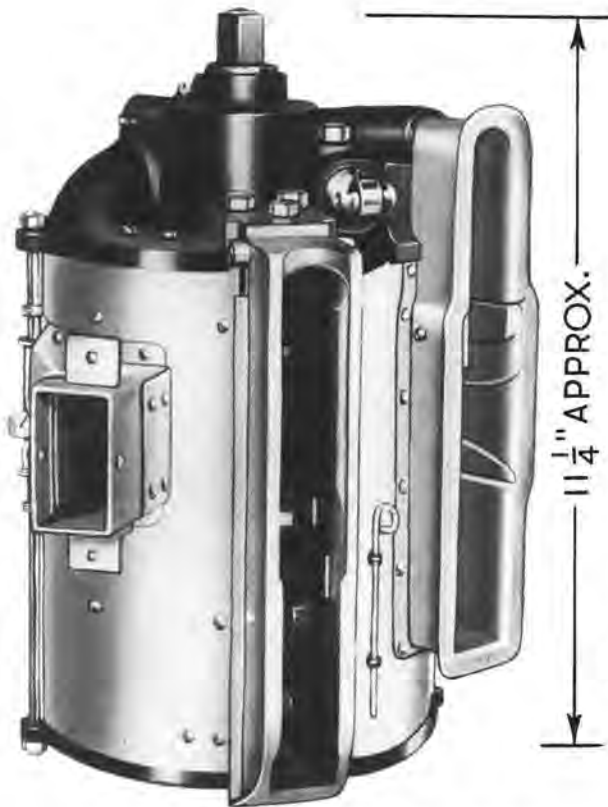
FORMER ARMY TYPE M1 FORMER NAVY TYPE M1

NAMES: 20-mm left hand feed mechanism
Mechanism—feed 20-mm—left hand
20-mm ammunition feeder
20-mm belt feed mechanism
Feed mechanism—20-mm L.H.

DESCRIPTION: The AN-M1 20-mm left hand feed mechanism is designed to pull belted ammunition into the mechanism housing, separate and eject the links, and feed the unbelted rounds of ammunition into the gun.

The feed mechanism derives power for its operation from the recoil of the gun, and from a driving spring which rotates the shaft. This spring is initially wound to a suitable tension and this tension is maintained by the recoil of the gun which actuates a rack and pinion, and ratchet assembly. There is an assembly of sprockets on the shaft, which engages the rounds in the belt and aligns the links.

The front casting is constructed to act as a cam, pushing the rounds to the rear and freeing them of the links.



11 1/4" APPROX.



Parts for the left and right hand feed are of the same shape and dimensions, but differ in that their positions are reversed in the mechanism. Many parts of the two are interchangeable, but the mechanisms as complete units, are not interchangeable.

CHARACTERISTICS:

Dimensions..... approximately 11 1/4 by 7 15/16 by 7 3/4 inches
Weight..... approximately 18 4/5 pounds
Operates on gun recoil..... 7/10 inch (minimum)
Rate of feeding..... approximately 600 rounds per minute

RELATIONSHIP OF PARTS: Used with:

Type M1 automatic 20-mm gun or type AN-M2 aircraft automatic 20-mm gun.

ARMY

A. E. REFERENCE NUMBER: 93-3200
A. A. F. DRAWING NUMBER: H41H5144
TYPE DESIGNATION: AN-M1
TECHNICAL ORDER NUMBER: 11-1-16
PRODUCTION STATUS: Under

procurement

SHIPPING DATA: Shipped as a complete unit with guide and bracket, Ordnance drawing numbers A25940 and B163511A, respectively.

NAVY

TYPE DESIGNATION: AN-M1
BUREAU OF ORDNANCE DRAWING NUMBER: 309302
AVIATION ORDNANCE STOCK LIST NUMBER: 1-F-121
ORDNANCE PAMPHLET NUMBER: 865
PROCUREMENT STATUS: Under procurement.

ORDNANCE

MODEL: AN-M1
ORDNANCE DRAWING NUMBER: D36371
STANDARD NOMENCLATURE LIST NUMBER: A-47
WAR DEPT. TECHNICAL MANUAL NUMBER: 9-227

BRITISH

REFERENCE NUMBER: 107G/80

SUPPLIED BY

Ordnance Office, War Department.

USED BY

Army, Navy, and British.



MECHANISM, FEED, RIGHT HAND 20-MM, AN-M1

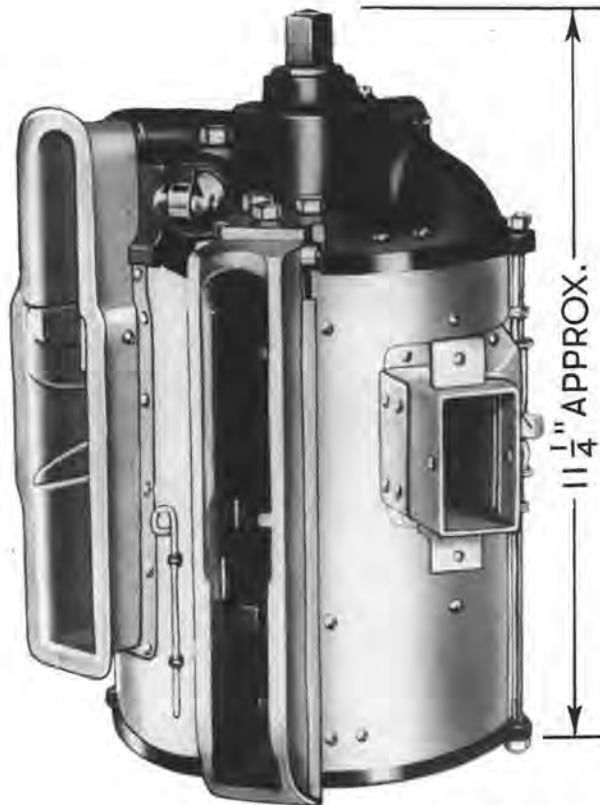
FORMER ARMY TYPE M1 FORMER NAVY TYPE M1

- NAMES: 20-mm Right hand feed mechanism
 20-mm Ammunition feeder
 20-mm belt feed mechanism
 Mechanism—feed 20-mm—right hand
 Feed mechanism—20-mm, R.H.

DESCRIPTION: The AN-M1 20-mm right hand feed mechanism is designed to pull belted ammunition into the mechanism housing, separate and eject the links and feed the unbelted rounds of ammunition into the gun.

The feed mechanism derives power for its operation from the recoil of the gun, and from a driving spring which rotates the shaft. This spring is initially wound to a suitable tension and this tension is maintained by the recoil of the gun, which actuates a rack and pinion, and ratchet assembly. There is an assembly of sprockets on the shaft which engages the rounds in the belt and aligns the links.

The front casting is constructed to act as a cam, pushing the rounds to the rear and freeing them of the links.



Parts for the left and right hand feed are of the same shape and dimensions, but differ in that their positions are reversed in the mechanism. Many parts of the two are interchangeable, but the mechanisms as complete units, are not interchangeable.

CHARACTERISTICS:

- Dimensions..... approximately 11 1/4 by 7 15/16 by 7 3/4 inches
 Weight..... approximately 18 1/2 pounds
 Operates on gun recoil..... 7 10 inch (minimum)
 Rate of feeding..... approximately 600 rounds per minute

RELATIONSHIP OF PARTS: Used with:

Type M1 automatic 20-mm gun, or type AN-M2 aircraft automatic 20-mm gun.

ARMY

- A. E. REFERENCE NUMBER: 93-3205
 A. A. F. DRAWING NUMBER: H41H5144
 TYPE DESIGNATION: AN-M1
 TECHNICAL ORDER NUMBER: 11-1-16
 PRODUCTION STATUS: Under procurement
 SHIPPING DATA: Shipped as a complete unit with guide and bracket, ordnance drawing numbers A25940 and B163511A, respectively.

NAVY

- TYPE DESIGNATION: AN-M1
 BUREAU OF ORDNANCE
 DRAWING NUMBER: 309301 and 309294
 AVIATION ORDNANCE STOCK
 LIST NUMBER: 1-F-122
 ORDNANCE PAMPHLET
 NUMBER: 865
 PROCUREMENT STATUS: Under procurement.

ORDNANCE

- MODEL: AN-M1
 ORDNANCE DRAWING
 NUMBER: D36370
 STANDARD NOMENCLATURE
 LIST NUMBER: A-47
 WAR DEPARTMENT TECHNICAL
 MANUAL NUMBER: 9-227

BRITISH

REFERENCE NUMBER: 107G/86

SUPPLIED BY

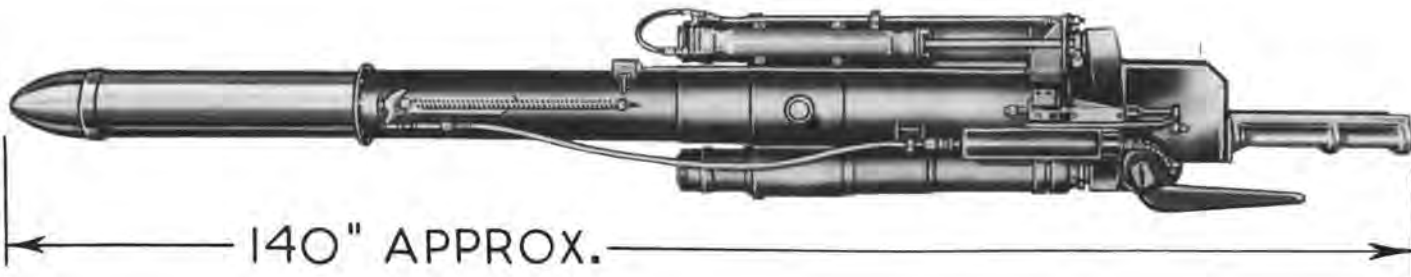
Ordnance Office, War Department.

USED BY

Army, Navy, and British.



GUN MOUNTS ARMAMENT—ORDNANCE



MOUNT, GUN, AIRPLANE, 75-MM, M6

NAMES: 75-mm airplane gun mount
Mount—75-mm gun
Mount assembly—75-mm cannon

Gun mount, 75-mm airplane
75-mm mount

DESCRIPTION: The M6 75-mm gun mount contains the M4 75-mm gun and all attachments required to adapt this gun to aircraft use. The mount is equipped with a combination hydraulic and spring recoil absorbing mechanism and a muzzle cover. This cover opens automatically upon completion of the loading operation. It prevents firing gases from being blown back into the airplane, and facilitates loading the gun during flight. The muzzle cover, however, is not required in all installations.

Firing is accomplished remotely, from the pilot's compartment, by means of a solenoid operated firing mechanism. Ammunition is loaded manually and ejected through an automatic ejector mechanism.

CHARACTERISTICS:

Weight.....approximately 1297 pounds
Dimensions.....approximately 140¹³/₁₆ by 15¹/₄ by 19 inches
Muzzle velocity.....1550 to 2050 feet per second

ARMY

A. E. REFERENCE NUMBER: 93-4000

TYPE DESIGNATION: M6

PRODUCTION STATUS: Under procurement.

SHIPPING DATA: Shipped as a complete unit consisting of the following major items: 75-mm gun, M4; cradle; recoil mechanism; firing mechanism with solenoid; ejector mechanism; and loading tray. A muzzle cover is supplied when required.

NAVY

There is no Navy equivalent for the Army item.

ORDNANCE

MODEL: M6

ORDNANCE DRAWING NUMBER: 18-9-1 (M6 Mount) and 52-243-1 (M4 Gun)

STANDARD NOMENCLATURE LIST NUMBER: C-47

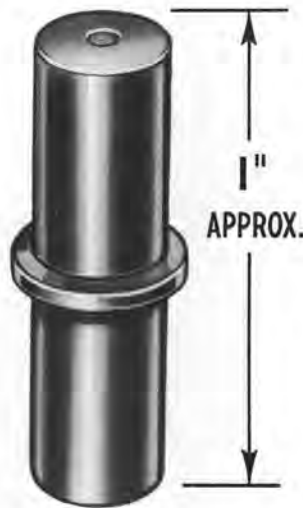
ROCK ISLAND ARSENAL NOTES NUMBER: R1A-AM-3

SUPPLIED BY

Ordnance Office, War Department

USED BY

Army



STUD-BOLT
ORDNANCE DRAWING NUMBER A13424

NAMES: Bolt stud
Operating slide lever stud
Retracting slide lever stud

DESCRIPTION: The bolt stud used on M2 caliber .50 Browning aircraft machine guns is a small cylindrical stud with an upset diameter at its mid-section. The stud is supplied as a part of the retracting or the operating slide group assemblies, or it may be supplied as a separate piece for use with special gun charger attachments. The stud engages the bolt group and projects through the side plate of the gun to allow attachment of the gun charging mechanism.

CHARACTERISTICS:
Dimensions.....approximately 1/2 by 1 1/4 inches
Weight.....approximately 1/20 pound

RELATIONSHIP OF PARTS: Supplied separately or as a part of:
Operating slide group assembly, A. E. Reference Number 93-1100 or retracting slide group assembly,
A. E. Reference Number 93-1125 or Browning machine gun, cal. .50, M2, aircraft, basic, A. E.
Reference Number 93-1560.

ARMY

A. E. REFERENCE NUMBER: 93-7000
TECHNICAL ORDER NUMBER: 11-1-8
PRODUCTION STATUS: Under procurement.
SHIPPING DATA: Shipped as a complete unit or as a part of operating slide group assembly or retracting slide group assembly.

NAVY

AVIATION ORDNANCE STOCK LIST NUMBER: 1-S-22240
ORDNANCE PAMPHLET: 215; 548; 716
PROCUREMENT STATUS: Under procurement.

ORDNANCE

MODEL: None
ORDNANCE DRAWING NUMBER: A13424
STANDARD NOMENCLATURE LIST NUMBER: A-38
WAR DEPARTMENT, TECHNICAL MANUAL NUMBER: 9-225

SUPPLIED BY

Ordnance Office, War Department

USED BY

Army, Navy, British

BRITISH

REFERENCE NUMBER: 107K/118



TOOL ROLLS ARMAMENT—ORDNANCE



ROLL, TOOL ARMORER'S W/CONTENTS, COMPLETE

ORDNANCE SNL NUMBER A-28

NAMES: Armorer's tool roll complete w/contents
Armorer's tool kit

Tool roll
.30 caliber tool roll

DESCRIPTION: The caliber .30 armorer's tool roll consists of a canvas container provided with pockets to accommodate the tools making up this complete kit. These tools are for use by the airplane armorer in cleaning, lubricating, and maintaining the caliber .30 aircraft machine guns. The tools are rolled into a compact carrying unit when not in use. The following tools are included with this roll:

QUANTITY	NAME	ORDNANCE DRAWING OR PIECE MARK NO.
2	Brush, chamber cleaning, M6.....	B108828
10	Brush, cleaning, cal. .30, M2.....	C4035
1	Case, cleaning rod, M1.....	C6573
1	Drift, brass, stght., 3/8 rd. x 4.....	TCGX2D
1	Extractor, ruptured cartridge, Mk. IV.....	C3854
1	Gage, headspace and timing, cal. .30, BMG.....	A196229
1	Hammer, brass, dble-bell-face., 3 oz.....	TAFX2A
1	Oiler, oval, 3 oz., w/cap and chain.....	C59737
1	Pliers, side-cutting, paral-jaw, 6 in.....	THBX1A
1	Punch, center, 4 in.....	TCDX1A
1	Punch, drive pin, .03 in. pt.....	TCFX2A
1	Punch, drive pin, .05 in. pt.....	TCFX2C
1	Punch, drive pin, .08 in. x 3/4 pt.....	TCFX2F
1	Reflector, barrel, cal. .30.....	B147001
1	Rod, cleaning, jointed, cal. .30, M1.....	D8237
1	Screw driver, comm., normal duty, 3 in. blade.....	TGAX1A
1	Stone, sharp., unmounted, artificial, fine, tri., 4 x 1/16.....	B147160
1	Tool, carbon removing, cal. .30, M4.....	C64302
1	Tool, combination, cal. .30, M2.....	B131314
1	*Tool, release.....	C3856

*Not carried with original issue. Must be ordered separately.

(Continued on page 321)



ROLL, TOOL ARMORER'S W/CONTENTS, COMPLETE

(Continued from page 320)

CHARACTERISTICS:

Weight.....	approximately 10 pounds
Dimensions.....	approximately 20 by 15 by 3 inches (unrolled)
	approximately 15 by 6 by 6 inches (rolled)

RELATIONSHIP OF PARTS: Used with:

Type M2 caliber .30 Browning aircraft fixed machine gun, A. E. Reference Number 93-1420.
 Type M2 caliber .30 Browning aircraft flexible with fixed back plate machine gun, A. E. Reference Number 93-1440.
 Type M2 caliber .30 Browning aircraft flexible machine gun, A. E. Reference Number 93-1520.

ARMY

A. E. REFERENCE NUMBER: 93-6575
 PRODUCTION STATUS: Under procurement.
 SHIPPING DATA: Shipped as a complete unit.

NAVY

AVIATION ORDNANCE STOCK LIST NUMBER: 1-R-5025
 ORDNANCE PAMPHLET NUMBER: 714 and 865A
 PROCUREMENT STATUS: Under procurement.

ORDNANCE

ORDNANCE DRAWING NUMBER: D1888 (empty roll only)
 STANDARD NOMENCLATURE LIST NUMBER: A-28
 WAR DEPARTMENT TECHNICAL MANUAL NUMBER: 9-205 and 9-1205

BRITISH

REFERENCE NUMBER: 108D/89

INTERCHANGEABILITY

The tools supplied in this assembly are interchangeable with tools formerly issued for maintenance of the caliber .30 machine guns in the combination .30 and .50 caliber armorer's tool roll.

SUPPLIED BY

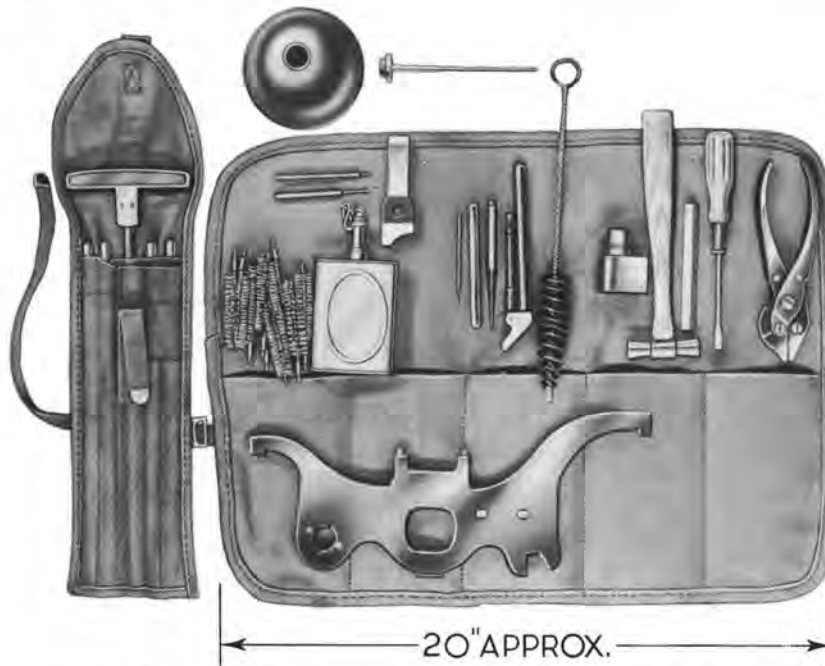
Ordnance Office, War Department

USED BY

Army, Navy, British



TOOL ROLLS ARMAMENT—ORDNANCE



ROLL, TOOL, ARMORER'S W/CONTENTS, COMPLETE

ORDNANCE SNL NUMBER A-38

NAMES: Armorer's tool roll complete w/contents	Tool roll
Armorer's tool kit	.50 caliber tool roll

DESCRIPTION: The caliber .50 armorers' tool roll consists of a canvas container provided with pockets to accommodate the tools making up this complete kit. These tools are for use by the airplane armorer in cleaning, lubricating, and maintaining the caliber .50 aircraft machine guns. The tools are rolled into a compact carrying unit when not in use. The following tools are included with this roll:

QUANTITY	NAME	ORDNANCE DRAWING OR PIECE MARK NO.
2	Brush, chamber cleaning, M6.....	B108828
10	Brush, cleaning, cal. .50, M4.....	C4037
1	Case, cleaning rod, cal. .50, M15.....	C64274
1	Drift, brass, stght., 3/8 rd. x 4.....	TCGX2D
1	Gage, headspace and timing, cal. .50, BMG.....	A196228
1	Hammer, brass, dble-bell-face., 3 oz.....	TAFX2A
1	*Oiler, filling, oil buffer.....	B8514
1	Oiler, oval, 3 oz., w/cap and chain.....	C59737
1	Pliers, side-cutting, paral-jaw., 6 in.....	THBX1A
1	Punch, center, 4 in.....	TCDX1A
1	Punch, drive pin, .03 in. pt.....	TCFX2A
1	Punch, drive pin, .05 in. pt.....	TCFX2C
1	Punch, drive pin, .08 x 3/4 pt.....	TCFX2F
1	Reflector, barrel, cal. .50.....	C64255
1	Rod, cleaning, jointed, cal. .50, M7.....	D35441
1	Screw driver, comm., normal duty, 3 in. blade.....	TGAX1A
1	Stone, sharp., unmounted, artificial, fine, tri., 4 x 1/16.....	B147160
1	*Tool, release.....	C3856
1	*Wrench, combination, cal. .50, M2.....	D28242

*Not included in original issue. Must be ordered separately.

(Continued on page 323)



ROLL, TOOL, ARMORER'S W/CONTENTS, COMPLETE

(Continued from page 322)

CHARACTERISTICS:

Weight	approximately 10 pounds
Dimensions	approximately 20 by 15 by 3 inches (unrolled)
	approximately 15 by 6 by 6 inches (rolled)

RELATIONSHIP OF PARTS: Used with:

Type M2 caliber .50 Browning aircraft basic machine gun, A. E. Reference Number 93-1560.
 Type M2 caliber .50 Browning aircraft flexible machine gun, A. E. Reference Number 93-1590.

ARMY

A. E. REFERENCE NUMBER: 93-6577
 TECHNICAL ORDER NUMBER: 11-1-8
 PRODUCTION STATUS: Under procurement.
 SHIPPING DATA: Shipped as a complete unit.

NAVY

AVIATION ORDNANCE STOCK LIST NUMBER: 1-R-5039
 ORDNANCE PAMPHLET NUMBER: 716 and 865A
 PROCUREMENT STATUS: Under procurement.

ORDNANCE

ORDNANCE DRAWING NUMBER: D1888 (empty roll only)
 STANDARD NOMENCLATURE LIST NUMBER: A-38
 WAR DEPARTMENT TECHNICAL MANUAL NUMBER: 9-225, 9-1225

BRITISH

REFERENCE NUMBER: 108D/90

INTERCHANGEABILITY

The tools supplied in this assembly are interchangeable with tools formerly issued for maintenance of the caliber .50 machine guns in the combination .30 and .50 caliber armorer's tool roll.

SUPPLIED BY

Ordnance Office, War Department

USED BY

Army, Navy, British



PYROTECHNIC PROJECTORS AND SIGNALS

The use of pyrotechnic signals permits communication between airplanes in flight, and between airplanes and ground stations. Predetermined signals are arranged prior to each flight or troop movement to maintain radio silence and minimize the possibility of interception of messages by the enemy. They are also used as distress or emergency signals. Signalling with pyrotechnics is accomplished by use of pistols or dischargers.

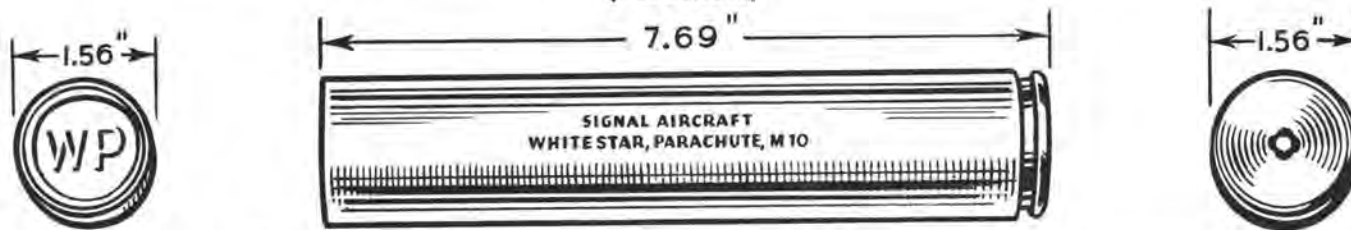
Pyrotechnic pistols may be hand-fired directly from the airplane, or from a mount fastened to the fuselage. Pistols may be breech loaded or muzzle loaded. After each firing of single-loading pistols, the empty cartridge must be removed by hand and the pistol reloaded. Double-action pistols are cocked and fired by a single movement of the trigger.

Multi-barrel dischargers contain several cartridges, which are fired without reloading until all cartridges are used. This type of discharger is operated remotely by means of a cable which, by a pull on the remote controller handle, revolves the barrel, cocks the discharger, and fires the cartridge.

Signals are of two general types, although they vary in size, shape, and construction. Igniting discharges vary in color, intensity, and pattern. One type has an aluminum case with a groove machined around its head. It is identified by markings on the case and top. The other type has a paper and brass case like a shotgun shell, and is identified by markings on the case and top. The following tables list the characteristics of the most common signals supplied by the Ordnance Department for use in airplane pyrotechnic projectors:

SIGNALS, AIRCRAFT: RIMLESS TYPE

(Parachute)



NAME	MODEL	IDENTIFICATION TOP
Signal, aircraft, white star, parachute.....	M10	WP
Signal, aircraft, red star, parachute.....	M11	RP
Signal, aircraft, red star, cluster.....	M14	RS
Signal, aircraft, white star, blinker, parachute.....	M15	WB
Signal, aircraft, green star, blinker, parachute.....	M16	GB

AAF Drawing H41D10594 Covers
Signals M11, M14, M15, and M16.

(Continued on page 325)

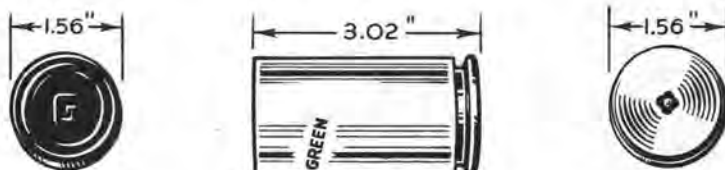


PYROTECHNIC PROJECTORS AND SIGNALS

(Continued from page 324)

SIGNALS, AIRCRAFT: RIMLESS TYPE

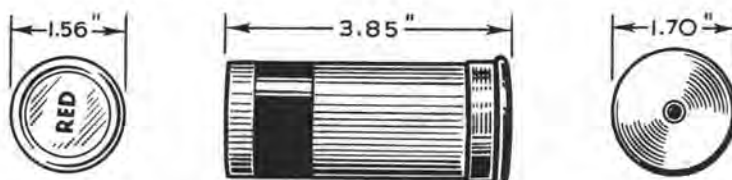
(Single and Double Star)



NAME	MODEL	IDENTIFICATION TOP
Signal, aircraft, double star, red-red	AN-M28	RR
Signal, aircraft, double star, yellow-yellow	AN-M29	YY
Signal, aircraft, double star, green-green	AN-M30	GG
Signal, aircraft, double star, red-yellow	AN-M31	RY
Signal, aircraft, double star, red-green	AN-M32	RG
Signal, aircraft, double star, green-yellow	AN-M33	GY
Signal, aircraft, single star, red	AN-M34	R
Signal, aircraft, single star, yellow	AN-M35	Y
Signal, aircraft, single star, green	AN-M36	G

AAF Drawing H42B10457 Covers
Signals AN-M28 to AN-M36.

SIGNALS, AIRCRAFT: CARTRIDGE TYPE



NAME	MODEL	IDENTIFICATION TOP
Signal, aircraft, double star, red-red	AN-M37	red-red
Signal, aircraft, double star, yellow-yellow	AN-M38	yellow-yellow
Signal, aircraft, double star, green-green	AN-M39	green-green
Signal, aircraft, double star, red-yellow	AN-M40	red-yellow
Signal, aircraft, double star, red-green	AN-M41	red-green
Signal, aircraft, double star, yellow-green	AN-M42	yellow-green
Signal, aircraft, single star, red	AN-M43	red
Signal, aircraft, single star, yellow	AN-M44	yellow
Signal, aircraft, single star, green	AN-M45	green

AAF Drawing H42B10457 Covers
Signals AN-M37 to AN-M45.

FLARE, AIRCRAFT PARACHUTE: RIMLESS TYPE

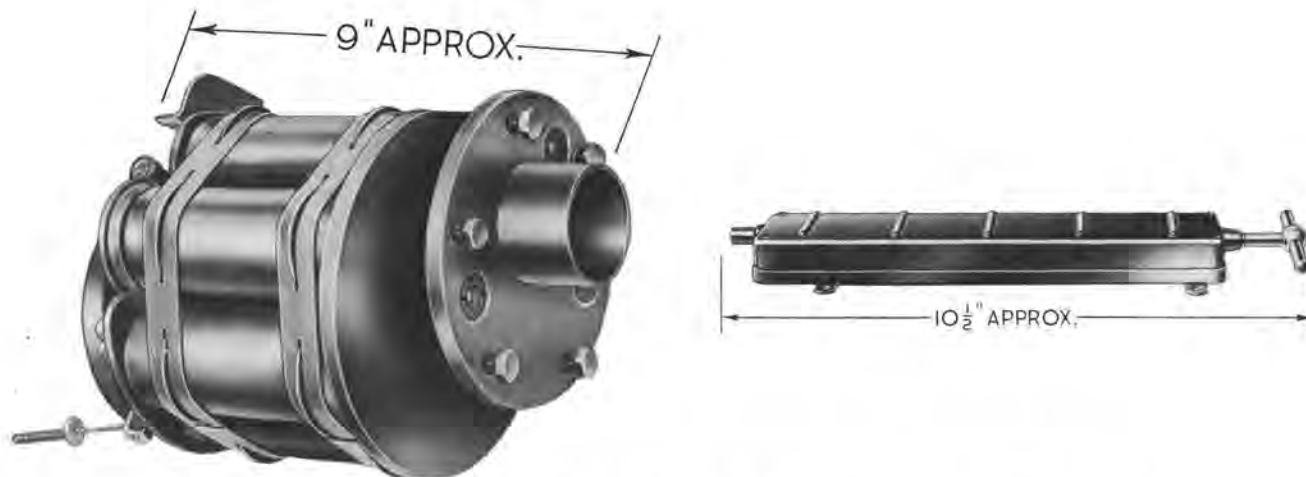


NAME	MODEL
Flare, aircraft parachute	M9
Flsre, aircraft parachute	M9A1

AAF Drawing H41D10594 Covers
Flare M9 and M9A1



PYROTECHNIC PROJECTORS ARMAMENT—ORDNANCE



DISCHARGER, PYROTECHNIC, AN-M5

FORMER ARMY TYPE M5 FORMER NAVY TYPE M5

NAMES: Molin type discharger Pyrotechnic projector
Molin type projector Pyrotechnic discharger
Pyrotechnic discharger AN-M5 and remote controller M2

DESCRIPTION: The AN-M5 pyrotechnic discharger is a double-action, multi-barrel discharger used to project pyrotechnic signals from an airplane in flight. This discharger is fastened to the fuselage, and is operated by means of a cable attached to the remote controller, Ordnance model M2. It is loaded with six signal cartridges, and movement of the remote controller performs the functions of rotating the barrel and cocking and firing the discharger. The signals used are cartridge types AN-M37 to AN-M45 inclusive, or British 1 1/2 inch cartridges.

CHARACTERISTICS:
Dimensions..... approximately 9 by 7 by 6 1/2 inches
Weight..... approximately 9 1/2 pounds
Finish..... glossy black

RELATIONSHIP OF PARTS:
The type AN-M5 pyrotechnic discharger is installed in the airplane fuselage, and is operated by means of a cable connected to the type M2 remote controller.

ARMY

A. E. REFERENCE NUMBER: 93-800
A. A. F. DRAWING NUMBER: H42B10947
TYPE DESIGNATION: AN-M5
PRODUCTION STATUS: Not under procurement for initial installation. Superseded by AN-M8 pyrotechnic pistol.
SHIPPING DATA: The type AN-M5 pyrotechnic discharger, including control cable and the type M2 remote controller, comprise the complete shipping unit.

NAVY

TYPE DESIGNATION: AN-M5
BUREAU OF ORDNANCE DRAWING NUMBER: 333089
AVIATION ORDNANCE STOCK LIST NUMBER: 2-D-180
ORDNANCE CIRCULAR LETTER NUMBER: V 12-42
ORDNANCE PAMPHLET NUMBER: 562 and 865
PROCUREMENT STATUS: Not under procurement for initial installation.

ORDNANCE

MODEL: AN-M5
ORDNANCE DRAWING NUMBER: 42-39
STANDARD NOMENCLATURE LIST NUMBER: B-34
WAR DEPARTMENT TECHNICAL MANUAL NUMBER: 9-290

SUPPLIED BY

Ordnance Office, War Department

USED BY

Army and Navy



PISTOL, PYROTECHNIC, M2

NAMES: Pyrotechnic pistol
Pyrotechnic signal pistol
Signal pistol

DESCRIPTION: The type M2 pyrotechnic pistol is a double-action single-loading pistol, used to project pyrotechnic signals from an airplane in flight. It is hand-fired from a window or other opening in the fuselage. The signals are rimless barrel types M14, M15, M16, and M28 to M36 inclusive, which permit muzzle-loading. It may also be used to fire M9 and M9A1 parachute flares and M10 and M11 parachute signals.



CHARACTERISTICS:

Dimensions..... approximately 7⁵/₁₆ by 5⁷/₁₆ by 1¹⁵/₁₆ inches
Weight..... approximately 3-1/10 pounds

RELATIONSHIP OF PARTS:

For stowage in the airplane, the type M2 pyrotechnic pistol is usually inserted in the type A-1 pyrotechnic pistol holder, A. E. Reference Number 52-2825, which is snap-fastened to the airplane structure.

ARMY

A. E. REFERENCE NUMBER: 93-6000
A. A. F. DRAWING NUMBER: H41D10594
TYPE DESIGNATION: M2
TECHNICAL ORDER NUMBER: 11-15-9
PRODUCTION STATUS: Under procurement.
SHIPPING DATA: Shipped as a complete unit.

NAVY

TYPE DESIGNATION: M2
BUREAU OF ORDNANCE DRAWING NUMBER: 281829
AVIATION ORDNANCE STOCK LIST NUMBER: 2-P-3495
ORDNANCE CIRCULAR LETTER NUMBER: V 11-42
ORDNANCE PAMPHLET NUMBER: 865
AVIATION ORDNANCE PAMPHLET NUMBER: 981-1
TECHNICAL BULLETIN NUMBER: 290-1
PROCUREMENT STATUS: Not under procurement for initial installation. Superseded by type AN-M8 pyrotechnic pistol.

ORDNANCE

MODEL: M2
ORDNANCE DRAWING NUMBER: D10305
STANDARD NOMENCLATURE LIST NUMBER: B-18
WAR DEPARTMENT TECHNICAL MANUAL NUMBER: 9-290

SUPPLIED BY

Ordnance Office, War Department

USED BY

Army and Navy



PISTOL, SIGNAL
BRITISH NUMBER 4, MARK 1

NAMES: Signal pistol
Pyrotechnic pistol

British signal pistol

DESCRIPTION: The Number 4, Mark 1 signal pistol is a British pistol used to project pyrotechnic signals from an aircraft while in flight. It is a double-action, signal-loading pistol, fired from a mounting sleeve fastened to the airplane fuselage. The signals used are British 1 1/2 inch cartridges, A. E. Reference Numbers 93-400 to 93-650 inclusive, or Army Ordnance signals, AN-M37 to AN-M45, inclusive. This pistol differs from the Army type AN-M8 in the length of the barrel and general construction; however, both pistols fire the same signals, and are functionally interchangeable when installed in their own mounting.

CHARACTERISTICS:

Weight.....approximately 4 pounds
Dimensions.....approximately 6 by 6 by 2 inches

RELATIONSHIP OF PARTS:

The Number 4, Mark 1 signal pistol is inserted in the Number 2, Mark 1 mounting sleeve for firing. When not in use, the insert hole in the mounting sleeve is covered with the Number 2, Mark 1 aperture disc.

ARMY

A. E. REFERENCE NUMBER: 93-6500
TYPE DESIGNATION: Number 4, Mark 1
PRODUCTION STATUS: Under procurement for installation on airplanes procured for British use.
SHIPPING DATA: Shipped as a complete unit.

NAVY

There is no Navy equivalent for this item.

BRITISH

REFERENCE NUMBER: 7B/810
TYPE DESIGNATION: Number 4, Mark 1

DISC, APERTURE
BRITISH NUMBER 2, MARK 1

NAMES: Aperture disc
Cover

Pistol mount cover

(Continued on page 329)



**DISC, APERTURE
BRITISH NUMBER 2, MARK 1**

(Continued from page 328)

DESCRIPTION: The Number 2, Mark 1 disc aperture is a small circular cover used to seal the opening in the Number 2, Mark 1 mounting sleeve when the signal pistol is removed. The purpose of this disc is to keep out dust and rain, and to seal the fuselage of the airplane against the escape of heat.

CHARACTERISTICS:

Weight.....approximately 1/8 pound
Dimensions.....approximately 2 1/2 by 2 1/2 by 1 inches

RELATIONSHIP OF PARTS: Used with:

The Number 2, Mark 1 mounting sleeve.....A. E. Reference Number 93-6502

ARMY

A. E. REFERENCE NUMBER: 93-6501

TYPE DESIGNATION: Number 2, Mark 1

PRODUCTION STATUS: Under procurement for installation on airplanes procured for British use.

SHIPPING DATA: Shipped as a complete unit. Usually included in the same carton with the Number 4, Mark 1 signal pistol.

NAVY

There is no Navy equivalent for this item.

BRITISH

REFERENCE NUMBER: 7B/812

TYPE DESIGNATION: Number 2, Mark 1

SLEEVE, MOUNTING

BRITISH NUMBER 2, MARK 1

NAMES: Mounting sleeve
Mount

Pistol mount

DESCRIPTION: The Number 2, Mark 1 mounting sleeve is a cylindrical mount with a slotted insert hole and a four hole mounting flange. This sleeve is installed in the airplane fuselage to provide a mount for holding the Number 4, Mark 1 signal pistol when the latter is being fired.

CHARACTERISTICS:

Weight.....approximately 1/4 pound
Dimensions.....approximately 3 3/4 by 3 3/4 by 2 inches

RELATIONSHIP OF PARTS: Used with:

The Number 2, Mark 1 disc aperture, A. E. Reference Number 93-6501 and the Number 4, Mark 1 signal pistol, A. E. Reference Number 93-6500.

ARMY

A. E. REFERENCE NUMBER: 93-6502

TYPE DESIGNATION: Number 2, Mark 1

PRODUCTION STATUS: Under procurement for installation on airplanes procured for British use.

SHIPPING DATA: Shipped as a complete unit. Usually included in the same carton with the Number 4, Mark 1 signal pistol.

NAVY

There is no Navy equivalent for this item.

BRITISH

REFERENCE NUMBER: 7B/811

TYPE DESIGNATION: Number 2, Mark 1



PISTOL, PYROTECHNIC, AN-M8, W/MOUNT

FORMER ARMY TYPE M8 FORMER NAVY TYPE M8

NAMES: Pyrotechnic pistol
Pyrotechnic signal pistol

Signal pistol
Flare pistol

DESCRIPTION: The type AN-M8 pyrotechnic pistol is a double-action, single-loading pistol, used to project pyrotechnic signals from an airplane in flight. This pistol has a seamless tube barrel hinged to the frame of the handle, which is released by a breech lock to permit breech-loading. The barrel is secured to the type M1 mount by means of a mount latch. The standard signals used are cartridge type, AN-M37 to AN-M45 inclusive, 1½ inch British cartridges, or parachute flares type M9A1. However, provisions is made to permit firing of old style signals M10, M11, M14, M15, M16, and M28 to M36 inclusive. This pistol is normally fired from the type M1 mount, which is fastened to the airplane structure, and acts as a recoil absorbing adapter; however, it may be hand-fired without a mount.

CHARACTERISTICS:

Dimensions approximately 10¼ by 8¾ by 3¾ inches
Weight approximately 3-2/5 pounds

RELATIONSHIP OF PARTS:

The type AN-M8 pyrotechnic pistol is inserted in the type M1 mount for firing.

ARMY

A. E. REFERENCE NUMBER: 93-6100
A. A. F. DRAWING NUMBER: H42B10666
TYPE DESIGNATION: AN-M8
TECHNICAL ORDER NUMBER: 11-15-1
PRODUCTION STATUS: Under procurement.
SHIPPING DATA: Complete shipping unit is composed of type AN-M8 pyrotechnic pistol and type M1 mount with cover.

NAVY

TYPE DESIGNATION: AN-M8
BUREAU OF ORDNANCE DRAWING NUMBER: 247642
AVIATION ORDNANCE STOCK LIST NUMBER: 2-P-3499
ORDNANCE CIRCULAR LETTER NUMBER: V 35-42
ORDNANCE PAMPHLET NUMBER: 865
PROCUREMENT STATUS: Under procurement.

ORDNANCE

MODEL: AN-M8
ORDNANCE DRAWING NUMBER: 42-44
STANDARD NOMENCLATURE LIST NUMBER: B-33
WAR DEPARTMENT TECHNICAL MANUAL NUMBER: 9-290

SUPPLIED BY

Ordnance Office, War Department

USED BY

Army and Navy

(RESTRICTED)



(RESTRICTED)

(RESTRICTED)



(RESTRICTED)

