

## TABLE OF CONTENTS

PART	B-17G Series Aircraft	PAGE
I.	B-17G Series -- Rod Controls	12
	A. Normal Bomb Release	12
	B. Door Retraction After Emergency Release	13
	B. Emergency Opening of Bomb Doors & Release of Bombs	12
II.	B-17G Series -- Cable Controls	13
	A. Normal Bomb Release	13
	B. Bombardier's Control Panel	13
	C. Indicator Lights	14
	D. Bomb Racks and Controls	14
	E. Safety Feature	14
	F. Emergency Bomb Release	15
	G. Door Retraction After Emergency Release	15
	H. Preflight of the Bomb Bay	15
	I. Questions on Parts I & II	16
III.	B-17G Series -- All Electric Controls	17
	A. Normal Bomb release	17
	B. Bombardier's Control Panel	17
	C. Bomb Racks and Controls	18
	D. Safety Feature	18
	E. Emergency Release	18
	F. Switches	19
IV.	Miscellaneous Information	
	A. Bomb Shackles	21
	B. Slings & Hoists for Bomb Loading	22
	C. Maximum Bomb Load	22
	D. Bombs	22
	E. Fuses	22
	F. Questions on parts III & IV	23

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## I. B-17G Series-- Rod controls

Bombing equipment consists essentially of four internal bomb racks, and necessary electrical and manual controls. The internal racks are located between the front and rear wing spar bulkheads immediately aft of the pilots' compartment, and the external racks are located in the under surface of each wing, between the fuselage and the inboard nacelle. The bomb controls and signal equipment are located in the bombardier's compartment in the nose of the airplane. In addition, two emergency bomb release pull handles are provided, one on the sidewall by the pilot's left foot, and the other at the forward end of the catwalk in the bomb bay. The bomb bay doors are hinged at the lower chords of the body compression struts, and extend the length of the bomb bay. The doors are controlled from the bombardier's station through an electric motor driven retracting screw mechanism. They may be opened manually either by a pull on the emergency release handles or with the hand crank, which is attached to the linkage, at the forward end of the catwalk. The doors may be closed either electrically or with the hand crank.

Beginning with the series (Boeing) AAF No. 42-97173 and (Douglas) AAF No. 42-98036, and (Vega) AAF No. 44-6001, the all-electrical bomb control system is installed and the rod and cable controls eliminated. Detailed information on both rod or cable and on the all-electric system is contained in the following paragraphs.

### A. NORMAL BOMB RELEASE

Forward of the bombardier's control panel, two release handles provide control of the bomb doors, and the bomb racks. The bomb door control lever operates a switch for control of the bomb door retracting motor and has three positions: OPEN, OFF and CLOSE. The bomb release control lever operates through a rod and bell crank system to control the type A-2 release unit. A bomb door lock switch is installed beneath the control rod cover, and is operated by the bomb release control rod. This switch holds the bomb door retracting motor control circuit open, except when the bomb release handle is in the LOCK position. The three positions are:

1. LOCK -- In the lock position the release unit is locked in the cocked position and bombs cannot be released electrically.
2. SELECTIVE -- In the selective position the release units are unlocked and electrical release may be accomplished either automatically or by means of the bombardier's release switch.
3. SALVO -- Placing the lever in the salvo position mechanically releases all bombs. The bomb bay doors must be open before the bomb release lever can be moved from the selective to the salvo position.

### B. EMERGENCY OPENING OF BOMB DOORS AND RELEASE OF BOMBS

Two A-3 release handles, one on the sidewall near the pilots left foot, and one under a cover at the forward end of the bomb bay catwalk, provide for emergency release of doors and bombs.

A hinged link in the bomb rack control rod between stations 2 & 3 provides for emergency bomb release. The operation of the emergency release control may upset this link in the manner of a "dog let" so operated while forward portions remain fixed. The load at the "dog



"leg" is applied through a slide mechanism which operates the door release before operating the rack release. A spring return on the hinged section of the bomb rack operating rod automatically returns the entire mechanism to the NORMAL position after emergency use. The "dog leg" and the slide are accessible through a hinged door, in the bottom of the fuselage, below the pilot's floor.

#### C. DOOR RETRACTION AFTER EMERGENCY USE

To retract the bomb bay doors after emergency release of bombs, insert the hand crank into the torque connection at the forward end of the catwalk and rotate counter clockwise until the bomb door retracting screws are fully extended. The latches should then engage and the doors may be closed in the normal manner.

## II. B17 G -- Cable Controls

Forward of the bombardier's control panel, three handles and a rewind wheel provide control of the bomb doors and the bomb racks. Separate lever and cable systems operate the internal and the external racks, making it possible to release bombs from wing racks without opening the bomb doors. Each lever has three positions; SAFE, SELECT and SALVO. In the SAFE position, the rack release units are locked in the cocked position, and the bombs cannot be released electrically. In the SELECT position, the release units are unlocked and they may be tripped electrically with the bombardier's release switch. Placing either lever in the SALVO POSITION mechanically releases all bombs in the racks. Two switches, one mounted under each lever, are connected in parallel so that when either lever is in the SELECT position, power is applied to the external rack selector switches, formation lights, bomb arming switch, bomb release switch, and bombsight release circuit.

The third lever operates the bomb door by actuating a double throw switch under the lever which controls the bomb door motor up and down solenoids. The switch has no off position, so the doors may not be stopped in an intermediate position except by turning off the battery generator switch, pulling a fuse, turning off the master ignition switch. An extension on the bomb door lever prevents closing the doors until the internal rack lever is turned to the SAFE position, and prevents movement of the internal rack lever in the selective position until the bomb doors are open.

A cable system forward of the bomb bay replaces the rod linkage, and a coordinating unit beneath the pilots floor replaces the former dog leg mechanism. While the external and internal rack controls are separated from normal operation, they are functionally coordinated for proper sequence of action in emergency release.

#### A. NORMAL BOMB RELEASE

Bombs are normally released in the same manner as in the rod controlled A/C (see Sec. I, Par. A). The only difference is that in case external bombs are carried, there is an extra lever on the cable controlled A/C to release them without opening the bomb bay doors.

#### B. BOMBARDIER'S CONTROL PANEL

The bombardier's control panel, mounted on the left sidewall of the bombardier's compartment consists of a switch panel, the bomb load indicator panel, a shock mounted instrument panel, and the bomb interval releases control unit. The switch panel contains switches



and rheostats for necessary lights and bomb control. The bomb load indicator panel contains 42 amber lights for the 42 internal bomb stations and 2 for the external stations, making a total of 44 indicator lights. The instrument panel contains an altimeter, air speed and temperature indicators, a clock and lights for the bomb release.

#### C. INDICATOR LIGHTS

There are two bomb door indicator lights (red): one on the bombardier's control panel and one above the pilots' instrument panel. ~~Both lights are installed adjacent to the respective switches.~~ There is an indicator light located directly above the nose fuse switch on the bombardier's control panel.

1. The 44 bomb indicator lights are located on a small panel installed in the lower right hand section of the bombardier's control panel. The lights are labeled and arranged to correspond to the 42 stations on the four internal bomb racks and the two external racks. All the lights should go on when the lamp test switch is held in the MOM position, and a light should go on for each loaded bomb station (or cocked A-2 release unit) when the bomb indicator light switch is turned to "ON."
2. The amber bomb release indicator light on the pilots' instrument panel receives impulses from the intervalometer causing it to flash on each time a bomb is dropped.

#### D. BOMB RACKS AND CONTROLS

The bomb racks provide for the use of type A-2 release units at each of the 42 bomb stations. The release unit plugs into a receptacle of the type AX-2 auxiliary box and fastens to the bomb rack with the insert fastener at either end. As the unit is plugged in, its tripping solenoid is inserted in the circuit. In case one or more stations are unloaded, power is shunted through skip switches in the auxiliary boxes to the release unit of the next loaded station in the series. When a bomb is dropped, the release unit automatically opens the circuit through its own tripping solenoid and closes the circuit to the solenoid of the next loaded station in the sequence, and so on until the train is complete. Each release unit also contains a switch controlling its corresponding light on the bomb indicator panel. The light is on when the station is cocked, and is switched off when the unit is tripped. A light on the pilots' instrument panel flashes for each bomb that is released.

#### E. SAFETY FEATURES

The bomb release lever must be in the SELECTIVE position in order to release any bombs electrically, and the lever can not be moved to the salvo position until the bomb doors are fully open because of the mechanical interlock in the bomb bay. It is impossible to drop the bombs on the bomb doors unless they are retracted manually while the bomb release lever is in the SELECTIVE position. The bombs might then be released electrically or by pushing the bomb release lever through to SALVO. The "up" control circuit of the bomb door retracting motor is connected through the bomb door lock switch so that the doors cannot be retracted electrically unless the bomb release lever is in the LOCK position.



#### F. EMERGENCY BOMB RELEASE

Two handles, one on the sidewall near the pilots left foot and one under a cover at the forward end of the bomb bay catwalk permit release of all bombs in an emergency. The emergency release handles are connected by cables to the coordinating unit under the pilots' floor, which through a series of intermediate gears release in sequence the external bombs, the bomb doors, and the internal bombs. Before the doors can be retracted, the coordinating unit must be re-set with the rewind wheel on the bombardier's control stand.

#### G. DOOR RETRACTION AFTER EMERGENCY RELEASE

To retract the bomb doors after emergency release in A/C with cable controls, rewind the wheel on the bombardier's control stand, and extend the retracting screws as in normal door opening--manually. Never run the screws down electrically after emergency release. When the screws are fully extended, after emergency release, engage the latches and close the doors in the normal manner.

#### H. PREFLIGHT OF THE BOMB BAY

1. Plug in energizer and start it
2. Turn on switches in pilots' compartment and the master switch in the bombardier's compartment
3. Open bomb bay doors
4. Check worm gear for surplus oil, grease, or water.
5. Check worm gear housing.
6. Check all releases and shackles for oil, grease or water.
7. Check micro switches.
8. Check A-2 or A-4 release units and connections for cleanliness.
9. Turn rack selector switches in bomb bay to ON position.
10. Cock all stations to be used.
11. Check bomb indicator lights.
12. Set counter dial up to the number of stations to be used.
13. Run racks off in train
14. Recock all stations to be used.
15. Run racks off in select.
16. Recock all stations to be used
17. Run racks off insalvo
18. Recock all stations to be used.
19. Run racks off with pilot's salvo switch.
20. Recock all stations to be used.
21. Run racks off with bomb bay salvo switch.
22. Turn off all switches, including the rack selector switches in the bomb bay.



## QUESTIONS ON PARTS I&amp; II

1. Explain the difference in the L-21A release handles of the rod and cable controlled aircraft.
2. In the rod and cable controlled aircraft, how is emergency release accomplished? (b) Where are the emergency release handles located? (c) How many are there? (d) What is the name of the emergency release handles?
3. Explain how to retract the bomb doors electrically after emergency release in the rod controlled aircraft. (b) In the cable controlled.
4. How many bomb indicator lights are there on the rod and cable controlled aircraft?
5. In the rod and the cable controlled aircraft, which release unit is used?
6. What prevents the L-21A release handle from moving from SAFE to OPERATE? (b) From OPERATE to SALVO?
7. In case of emergency release, if bomb doors stick, what action should be taken?
8. Name the bomb release safety feature on the rod and cable controlled aircraft.
9. After the bomb bay doors are opened, in what position is the bomb door switch placed on the rod controlled aircraft? (b) On the cable controlled aircraft?
10. Why is the bomb door lever lug interlocked with the L-21A release handle?
11. Name 5 ways of tripping the A-2 release unit.
12. Name 5 ways of tripping the shackles or releasing the bombs.
13. What is the purpose of the hinged ear on the release lever of the A-2 release unit?
14. When bombs are released in salvo, are they released armed or safe with the A-2 release?
15. Why must the arming lever of the A-2 release be cocked before the release lever?
16. What will happen to the bomb door motor if the bomb door lever is left in the open position?
17. In case of emergency release, if the bombardier's L-21A release handle is in the SAFE position, will you get positive emergency release? Why?
18. Why must the bomb bay doors be open before the bomb release lever can be moved from SELECTIVE to SALVO?
19. Name two ways to stop the bomb doors while they are coming open before they reach the fully open position.
20. How many bomb door indicator lights are there, and where are they?
21. What would happen if the lamp test switch is held in the MOM position while bombs are being released?
22. Give the preflight of the bomb bay.



All electric bomb control systems differ from the systems with Rod and Cable control system in that the emergency (Salvo) release of bombs is accomplished electrically. All mechanical controls have been eliminated in the all electric system. Normal bomb release procedure is essentially the same except for controls of the bomb doors which in the all electric system are controlled by the toggle switches at the bombardier's and pilot's stations. Salvo switches are provided in three different places in the airplane, accessible to the bombardier, pilot, co-pilot, and crew. Closing any of these switches opens the doors electrically and salvos the bombs. In the all electric system, the A-2 release unit is replaced by the A-4 release unit, which contains a rotary solenoid and plunger making it possible to drop armed bombs in the normal manner.

#### A. NORMAL BOMB RELEASE

All power for the normal bomb controls goes through the bombardier's master switch except the power for the pilot's bomb door controls switch, for the bomb door open lights, and for the indicator lights on the bombardier's instrument panel. In the normal release procedure from the internal and external racks, the bombardier first sets the intervalometer for the number and spacing of bombs to be released, next the bomb formation signal lights switch is either set to Bright or Dim as desired and the amber indicator light goes on, but the white tail light does not go on until the bombardier's master switch is closed.

The bomb door switch is then held at open, energizing the bomb door solenoid switches to run the motor. When the doors are open, the bomb door open light switch at the left hand door will turn on the red lights on the bombardier's and pilot's panels, and the normal safety switch on the right hand door will close to complete the circuit up to the two internal rack switches. If the light on the intervalometer has been on for one minute when the "Select-Train" switch is on Train, the bombs release switch may be pressed, or the bomb sight actuated to start the release sequence.

Current from the bomb release switch or bombsight starts the intervalometer which sends out measured impulses of current. Each impulse blinks the amber light on the pilots panel, actuates the formation signal light time delay relay to turn on the red tail light and operates the rack selector relays to direct impulses to the proper racks as determined by the bomb release sequence. The release impulses energize a rotary solenoid in the A-4 release unit on the bomb racks which trip the triggers and allows both cocked arms to snap to the uncocked position actuating the levers on the bomb shackle to arm and drop the bomb. The external bomb may be dropped without opening the doors.

#### B. BOMBARDIER'S CONTROL PANEL

The bombardier's control panel in the all electric controlled aircraft is the same as in the rod and cable controlled aircraft with the exception of an addition of a salvo switch, and the number of bomb indicator lights. There are only 24 internal, and 2 external bomb indicator lights in the all electric instead of 44 internal and 2 external as in the rod and cable controlled.



## C. BOMB RACKS AND CONTROLS

Page 18

1. **INTERNAL RACKS.** Each of the four internal bomb racks consists of two rails and backing plate which are bolted to the fuselage structure in the bomb bay. The two inboard racks have 13 stations each and the two outboard eight each, making a total of 42. Twenty four of these may be loaded at any one time. Each station has a pair of hooks from which the bomb shackle is suspended. A type A-1 auxiliary release box is installed behind the backing plate at each station so that its electrical receptacle is flush with the front face of the bomb rack. The plug on the A-4 release unit fits into this receptacle when the unit is bolted to the racks.
2. **EXTERNAL RACKS.** A detachable bomb rack is suspended below each wing between the inboard nacelle to carry a 100, 2000, 16000, or 4000 pound bomb. The rack has two stations. The forward station is used with 4000 and 2000 pound bombs and the rear for 1600 and 1000 pound bombs. Each station has shackle hooks and a type A-27 receptacle into which the bomb rack releases are plugged. In the all-electric system, the rod and bell crank mechanism is not used and must be clamped solidly so that it cannot move when the type A-4 release units are installed. Adjustable sway braces on each rack are used to steady the external bomb.
3. **A-4 BOMB RACK RELEASE UNITS.** The type A-4 bomb release units must be used with the all electric bomb control system. The units are installed at each bomb station by bolting them to the rack with AN-3 bolts. This automatically inserts the electric connecting plug into the receptacle of the auxiliary box on the rack, and includes the unit in the circuit. The unit need then only be cocked and it is ready for operation. The type A-4 release unit can be installed on external racks which were designed to use the A-2 unit by a slight rework of the mounting holes. The wiring fits both type releases.
4. **A-1 AUXILLIARY RELEASE BOXES.** An A-1 auxiliary release box is installed at each station on the internal racks. The bombs are mounted on the back of the panel on each rack and in intergral part of the rack.
5. **AX-7 AUXILLIARY RELEASE BOXES.** A type AX-7 auxiliary release box is installed at each station on the external racks, and provides the electrical connection receptacle into which the A-4 release units are plugged.

## D. SAFETY FEATURE

The primary safety feature of the all electric controls is the rack selector switches in the bomb bay. A detailed description of these switches may be found in Par. F, Sec. 9.

## E. EMERGENCY RELEASE

All internal and external bombs can be released unarmed by throwing any one of the three salvo switches, except when the arming wire is fastened in such a way that it will be pulled out when the bomb is dropped. A light beside each switch indicates that one or more of the three switches are closed. Power for the circuit is taken directly from the batteries through a 30 amp. fuse in the nacelle 3 junction shield. Closing any one of the three salvo switches instantly energizes the bomb door motor solenoid switches, closing



the circuit which provides power to the bomb door motors, and the doors open electrically. Twelve seconds are required for the doors to open. This time may vary with the length of service and type of airplane. Closing the salvo switch also instantly energizes the indicator light relay, which closes the circuit to the four rack salvo relays, and to the salvo solenoids in all type A-4 bomb rack release units through the bomb indicator light switch. The salvo solenoid extends a locking pin which prevents the rotary solenoid from making the complete travel, thus allowing only the release arm to trip.

The two external rack salvo relays close instantly when a salvo switch is closed and energize the rotary solenoid to drop the bomb immediately. The two internal rack salvo relays, however, receive power through the indicator light relay and through the bomb door salvo safety switches so that they are not energized until the doors are fully open. The power to the internal rack releases must also pass through the bomb bay safety switches. The entire salvo release will require about 15 seconds from the time the salvo switch is closed. The doors may be retracted electrically with the bomb door switch.

#### F. SWITCHES

1. **MASTER SWITCH.** The master switch is an ON-OFF single pole, double throw toggle switch located on the bombardier's panel. All units of the normal bomb control system except the pilot's bomb door control are wired through this switch.
2. **BOMB DOOR SWITCHES.** There are two bomb door switches, one mounted on the bombardier's control panel, and one mounted near the pilot's instrument panel. The switches are type B-11 toggle switches of the momentary contact type and are labelled OPEN and CLOSED. The switches are normally off in the center position and to operate the doors, the switch must be manually held in the OPEN or CLOSED position until the doors reach the limit of travel. A red indicator light above the switch goes on when the doors are fully open. About 20 seconds is required to close the doors. In closing them, the switch must be held in the CLOSED position until the bomb door motor stops or until the doors are observed to be fully closed.
3. **RACK SELECTOR SWITCHES.** The four rack selector switches are ON-OFF type B-5A single pole, double throw toggle switches, mounted on the bombardier's control panel. These switches make it possible to select the rack from which bombs are to be dropped and control the left hand external, left hand internal, right hand internal, and right hand external racks. Power for the rack selector relays goes through these switches; therefore, when bombs are released, they will drop in proper sequence from all racks whose selector switches are ON (with the bomb bay safety switches ON.). Two additional switches on the bomb rack junction shields in the bomb bay are connected in series with the rack selector switches on the bombardier's panel. A few airplanes have a three position switch in the bomb bay. The switch permits selection of either or both of the internal bomb bays.
4. **NOSE FUSE SWITCH.** The nose fuse switch, located in the bombardier's control panel, controls the type A-1 nose fusing solenoid on the external bomb racks and makes it possible to drop the external bombs with the nose either armed or unarmed. The switch



- is a single pole, double throw, type B-5A toggle switch, and has two positions labeled ARM and SAFE. In the ARM position, the red indicator light above the switch goes on regardless of whether the external racks or bombs are actually installed or not.
5. SALVO SWITCHES. Three salvo switches are provided in the airplanes: one installed on the bombardier's control panel, one over the pilot's instrument panel accessible to the pilot and copilot, and one mounted in the bomb bay on the forward upper left sidewall, accessible to the crew. The switches are type C-1 toggle switches with a red plastic hinged guard which must be lifted to throw the switch, thus minimizing the possibility of accidental operation. The red light adjacent to each switch goes on to indicate when any of the three switches has been closed.
  6. BOMB FORMATION SWITCH. The bomb formation switch controls the bomb formation signal light located in the tail of the plane. The switch is a double-pole, double throw, toggle switch mounted on the bombardier's control panel. In the center position, the switch is off; moved to the BRIGHT position, the light in the tail will be bright; in the DIM position, a resistor is included in the circuit to lessen the intensity of the light. The amber indicator light above the switch goes on immediately when the switch is moved to either position, but the signal light in the tail of the airplane does not go on until the master switch is closed.
  7. BOMB INDICATOR SWITCHES. The two switches which control the bomb indicator lights are mounted on the bombardier's control panel directly above the lights.
    - a. The lamp test switch is a momentary contact toggle switch with a MOM and an ON position. When held in the MOM position it closes a separate circuit to the indicator lights and provides a ground independent of the ground to the indicator light circuit of the A-4 release units on the bomb racks. Thus it illuminates all bomb indicator lights and makes it possible to check and see that all the lights are operating.
    - b. The other bomb indicator switch has a handle for turning the switch from OFF to ON position for checking loaded bomb stations. All 26 indicator lights are wired through this switch, but the ground for each light circuit is provided by a cocked A-4 release unit, showing at a glance the bomb loading in the bomb bay. The salvo solenoids in the A-4 release units are energized through the indicator lights circuit; closing either switch while bombs are being released will actuate the solenoids, causing bombs to drop unarmed.
  8. BOMB RELEASE SWITCH. Bombs may be dropped when the bomb release point has been reached, either automatically by the bomb-sight, or by manually closing the bomb release switch. The switch, installed on a small shield mounted on the sidewall of the nose above and forward of the bombardier's instrument panel, is a modified type B-11 single pole, double throw toggle switch



with a hinged guard to prevent accidental release. After swinging the guard clear, the switch may be thrown in either direction to release the bombs.

9. BOMB BAY SAFETY SWITCHES. The bomb bay safety switches are located in the bomb bay, on the sidewall. They are type B-3A single pole, single throw toggle switches installed on small mounting panels bearing a label which indicates the ON and OFF position. One switch controls the left hand internal racks, the other controls the right hand internal racks. Throwing a switch to the OFF position breaks the circuit to that rack, excluding it from the release sequence if the bomb release switch or salvo switch is closed. These switches should always be turned OFF when bombs are being loaded to protect the personnel against accidental release of bombs. The switches must be ON in order to drop bombs, either normally or in Salvo. The switch must be turned OFF on racks on which bomb bay fuel tanks are installed to prevent the possibility of dripping the fuel tanks during bomb release. The switches must be turned on before the tanks can be jettisoned. No safety switches are provided for the external bomb racks. Instead, the electrical connector should be left disconnected during bomb loading.
10. BOMB DOOR SAFETY SWITCHES AND BOMB DOOR LIGHT SWITCH. Four type YZ-R31 switches, two on each side, are mounted on the center hinges of the bomb doors. The two aft switches on each side are the bomb salvo safety switches. When a salvo switch is thrown, they close the circuit to the salvo relays when the bomb doors are fully open. The forward switch on the right hand side is the normal bomb door safety switch. It closes the circuit through the rack selector switches to the rack selector relays when the doors are fully open during normal bomb release. The function of both the normal and salvo bomb door safety switches is to prevent the bombs from being dropped until the doors are open. The forward switch on the left hand side is the bomb door indicator light switch. It closes the circuit to turn on the bombardier's and pilot's bomb door indicator lights when the door reaches the open position. All four of the switches should be set to close when the bomb doors are 3 plus or minus 1 inch from fully open position.

#### IV. MISCELLANEOUS INFORMATION

##### A. BOMB SHACKLES

There are three primary types of shackles used with the B-17 aircraft. The B-7 and B-10 carry bombs weighing from 100# to 1100#. The D-6 carries bombs weighing from 1100# to 4000#. With the B-7 and B-10 shackles, hooks are provided at each station on the bomb racks for holding the bomb shackle. The two levers on the shackle fit into the A-2 or A-4 release unit when the shackle is suspended from the rack. The three characteristics that make a good shackle are: it provides proper linkage for carrying the bomb, arming the bomb and dropping the bomb.

When carrying 2000 # bombs with the D-6 shackle on stations 10 and 31, the bombs must be dropped selectively in order to remove the D-6 shackle and adapter before the 1000 # bomb can be dropped.



Each shackle has the word "FRONT" on the front end, and must be placed toward the nose of the aircraft before it will work.

#### B. SLINGS & HOISTS FOR BOMB LOADING

There are 4 sizes of the A-1 sling (canvas) with regard to the sizes of bombs they will accommodate: 300#, 500#, 600# and 1000# to 2000#. The type A-2 sling is chain. It may be used in loading the 2000# to 4000# bomb, but when loading the 4000# bomb, 2 chains should be used. The bomb hoist used is the type C-3.

#### C. MAXIMUM BOMB LOAD

The B-17G aircraft will carry the following loads: two 2000# bombs, six 1000# bombs, twelve 500# bombs, sixteen 300# bombs, twenty 250# bombs, or thirty-eight 100# bombs.

#### D. BOMBS

NAME	WEIGHT	TYPE
ANM-30	108	GP
ANM-38-A2	100	Practice
ANM-47	100	Frag. Cluster
ANM-1	140	Incendiary
ANM-57	250	GP
ANM-31	300	Demolition
ANM-17	470	Incendiary
AnM-2	500	Inc. Cluster
ANM-43	500	GP
ANM-64	500	GP
ANM*58	500	SAP
ANM-65	1000	GP
ANM-34	200	GP
ANM-66	2000	GP

#### E. FUSES

The numerous types of fuses may be divided in general into two classes, nose fuses and tail fuses. Of the nose fuses, the M103 and the AN-M103 are the most common, being the standard nose fuses used with all B.P. bombs. The primary function of the nose fuse is as insurance--that is, as a fuse that will detonate the bomb in case the tail fuse does not work. The fuses are identical except the M103 requires about two times the distance of air travel to arm it that the AN-M103 requires.

Other nose fuses are the AN-M126 A1 used in the AN-M47A2 incendiary bomb, and the AN-M10A1 used in fragmentation bombs.

The tail fuses include the AN-M100 A2 series, of which the AN-M100 is used in 100# to 250# bombs, the AN-M101 in 300# to 500# bombs and the AN-M102 in the 1000# to 2000# bombs. They are identical except that the arming stems vary in length.

There are also two aerial burst fuses, the M-127 and M138, used in the tail of the M-17 incendiary cluster.



## QUESTIONS ON PART III

1. In dropping bombs, what is the first step in the logical procedure?
2. In the release of bombs in train, what difference exists in the procedure as compared with selective release?
3. How does the master switch fit into the control system?
4. Where are the bomb salvo switches located?
5. What is the safety feature of the all electric racks?
6. How many rack selector switches are there, and where are they?
7. How many switches control the bomb indicator lights?  
b. What is the purpose of each.
8. How many indicator lights are there?
9. How many bomb door switches are there and where are they?
10. What type release unit is used on the all electric aircraft?
11. How many bomb door indicator lights are there and where are they?
12. Are the A-2 and A-4 release units interchangeable? Why?
13. What is the purpose of a visual check of the bomb racks and controls?
14. Name the switches used in case of emergency bomb release.
15. By what 2 means can the bombardier tell that his doors are open?
16. Where are the bomb formation lights located?
17. What does the white light indicate?
18. What does the red light indicate?
19. If the bomb bay door failed to open electrically, where would you look first for trouble?
20. Give the (a) number, (b) position, (c) type, (d) purpose of the bomb door safety switches in the bomb bay.

## QUESTIONS ON PART IV

1. Name the 3 types of shackles used.
2. Give 3 characteristics of a good shackle.
3. What fastens the shackles to the racks?
4. How can you tell whether the shackle is on correctly or not?
5. What is the difference between the methods of mounting the B-7 and B-10 as compared to the D-6?
6. What size bombs may be used with each shackle?
7. What type hoist and what type slings are used?
8. Give the different sizes of slings.
9. Give the maximum bomb load of each weight bomb.
10. Give the type of tail fuses used in the following bombs? a. 250#  
b. 500# c. 1600# d. 2000#.
11. Why does a bomb have a nose and tail fuse?
12. Is there any type bomb that never has a nose fuse? If so, what?
13. Name the three types of bombs most used.