

**BY THE ORDER OF
THE COMMANDER**

**MCCONNELL AIR FORCE BASE
INSTRUCTION 91-201**

30 SEPTEMBER 2000

Safety

B-1B LIVE ORDNANCE OPERATIONS



COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction outlines the procedures and assigns the responsibilities ensuring positive actions are taken to reduce the hazards to personnel and resources during live munitions loading on the B-1B aircraft assigned to the 184th Bomb Wing. It implements AFD 91-2, *Safety Programs* and AFMAN 91-201, *Explosives Safety Standards*. This instruction applies to 22d Air Refueling Wing (SE, CPM, PA), 22d Aircraft Generation Squadron (AGS), 184th Aircraft Generation Squadron (AGS), and the 184th Bomb Wing (SE).

1. References:

- 1.1. AFMAN 91-201, Explosives Safety Standards
- 1.2. 184 BW Instruction 21-104

2. Definitions:

- 2.1. Combat Aircraft Parking Area. Any area specifically designated for parking aircraft loaded with combat-configured explosives, or those being loaded, unloaded, or awaiting loading or unloading. McConnell AFB combat aircraft parking area is designated as Bravo-7 through Bravo-17.
- 2.2. Emergency Event Waiver. A relatively short-term violation to quantity-distance criteria. Certain unexpected situations when time is not available to comply with a formal waiver request. Emergency event waivers must have wing commanders approval and copies of the waiver forwarded to AMC and the USAF Safety Center. It must not be used as a replacement for proper planning or where there is a reoccurring requirement.
- 2.3. Inter-magazine Distance (K11). The minimum distance required to have between explosives loaded aircraft to prevent simultaneous detonation. This distance is expected to prevent propagation by blast (shock wave) and to provide a reasonable degree of protection against propagation due to fragments. This separation does not provide any protection to aircraft or personnel. Assets or person-

nel at this distance can expect to be lost. To calculate this distance, simply multiply the cube root of the combined explosive weight by 11.

2.4. Quantity-Distance. The quantity of explosive material and distance separation relationships, which provide defined types of protection.

2.5. **K30-** This is the distance, mandated by AFMAN 91-201, you are required to have between an explosives loaded combat aircraft to a non-explosives loaded combat aircraft or cargo/refueling aircraft. This separation will provide some protection to aircraft or personnel, some damage or death may still occur. To calculate this distance, simply multiply the cube root of the combined explosive weight by 30.

3. Live Load Operations On B1-B.

3.1. Loading Operations. [Attachment 1](#) through [Attachment 5](#) contain live load matrices for the MK-82, CBU-87, -89, 97 and JDAM munitions. They indicate the parking spots that need to be vacated for the different munitions loads to minimize the collateral damage in the event of an explosive mishap.

3.1.1. For day to day operations the authorized B-1B munitions loads are only restricted by the parking of tankers in restricted locations dictated by the matrices in [Attachment 1](#) through [Attachment 5](#).

3.1.2. For exercises the authorized munitions loads may increase to the quantity agreed upon between the 22 ARW and the 184 BW. 10-day notice would be required, at which time a decision by the 22 ARW would be made to inform the 184 BW if their request is supportable. Bombers must be loaded on every other spot to maintain inter-magazine distances between them. This separation distance would require the relocation of tanker aircraft to minimize damage in the event of an explosive mishap.

3.1.3. For war, contingencies, or higher headquarters directed missions the loads may increase to 84 MK-82s per aircraft and the distance increases to 760 feet for bomber to tanker separation, and again would require relocation of aircraft.

4. Responsibilities.

4.1. IAW 184 BW Instruction 21-104 the 184 BW will notify the 22 ARW agencies listed in [Attachment 6](#) at least 10 days prior (when possible) notice before munitions loads will require the repositioning of KC-135 aircraft. Additionally, the 184 BW will select loading locations which least affect 22 ARW aircraft.

4.2. The 22 ARW Maintenance Aircraft Control Center, upon notification of live munitions loading, will notify the affected sortie generation flight production super which parking spots are required to be vacated. The attached matrices will be used to determine which spots need to be vacated.

4.3. The 22 ARW Public Affairs office will notify 22 ARW Weapons Safety (SEW) of upcoming base tours, which include the flightline area. If a conflict exists between live load operations and flightline tours, 22 ARW/SEW will ensure the static aircraft are located a safe distance from the loading operation. Safe distances are 1250 feet from all live munitions loads. B-1B aircraft loaded with only chaff and/or flares are exempt from quantity distance requirements, but will not be used for static displays.

4.4. When parking locations are scarce due to a large quantity of aircraft on station, the affected production supervisor will contact the airfield manager (X3701) for additional locations. If alternate parking spots are not available, the airfield manager will contact 22 ARW Weapons Safety (X3269) for assistance.

4.5. 22 ARW Weapons Safety will conduct a risk analysis determining which aircraft and personnel are at greatest risk in case of mishap and brief the 22 ARW Commander of the situation. If the commander accepts the risks, weapons safety will process an event waiver. Convenience or ease of operation is not a basis to apply for an event waiver.

4.6. 22 ARW/SEW will conduct daily observations of the areas being used for live load operations ensuring compliance is maintained.

ERIC G. NELSON, Lt Col, USAF
Chief of Safety

Attachment 1

B-1B LIVE LOAD MATRIX FOR MK-82S

(K30 for KC-135s and Non-explosive loaded B-1Bs and B-1s)

Location	# Bombs	Spots Required Vacant
Bravo-14	1-4	B-13, B-15
	5-12	A-12, A-13, B-12, B-13, B-15, B-16
	13-28	A-11, A-12, A-13, A-14, B-11, B-12, B-13, B-15, B-16, B-17
	29-56	A-10, A-11, A-12, A-13, A-14, A-15, B-11, B-12, B-13, B-15, B-16, B-17
	57-84	A-10, A-11, A-12, A-13, A-14, A-15, A-16, B-10, B-11, B-12, B-13, B-15, B-16, B-17, B-18
Bravo-15	1-4	B-14, B-16
	5-12	A-13, A-14, B-13, B-14, B-16, B-17
	13-28	A-12, A-13, A-14, A-15, B-12, B-13, B-14, B-16, B-17, B-18
	29-56	A-11, A-12, A-13, A-14, A-15, A-16, B-12, B-13, B-14, B-16, B-17, B-18
	57-84	A-11, A-12, A-13, A-14, A-15, A-16, A-17, B-11, B-12, B-13, B-14, B-16, B-17, B-18, B-19
Bravo-16	1-4	B-15, B-17
	5-12	A-13, A-14, A-15, B-14, B-15, B-17, B-18
	13-28	A-13, A-14, A-15, A-16, B-13, B-14, B-15, B-17, B-18, B-19
	29-56	A-12, A-13, A-14, A-15, A-16, A-17, B-13, B-14, B-15, B-17, B-18, B-19
	57-84	A-12, A-13, A-14, A-15, A-16, A-17, A-18, B-12, B-13, B-14, B-15, B-17, B-18, B-19, B-20
Bravo-17	1-4	B-16, B-18
	5-12	A-14, A-15, A-16, B-15, B-16, B-18, B-19
	13-28	A-13, A-14, A-15, A-16, A-17, B-14, B-15, B-16, B-18, B-19, B-20
	29-56	A-13, A-14, A-15, A-16, A-17, A-18, B-14, B-15, B-16, B-18, B-19, B-20

Location	# Bombs	Spots Required Vacant
	57-84	A-13, A-14, A-15, A-16, A-17, A-18, A-19, B-13, B-14, B-15, B-16, B-18, B-19, B-20, B-21

B-1 Aircraft loaded with only Chaff, Flare or BDU-33's are not considered explosive loaded aircraft for separation considerations to B-1Bs loaded with MK-82/84 and CBU's.

Attachment 2

B-1B LIVE LOAD MATRIX

(K11 for B-1B Loaded W/MK-82s to B-1B Loaded W/MK-82s)

Location	# Bombs	Spots Required Vacant
Bravo-7	1-20	N/A
	21-84	B-8
Bravo-8	1-20	N/A
	21-84	B-7, B-9
Bravo-9	1-20	N/A
	21-84	B-8, B-10
Bravo-10	1-20	N/A
	21-84	B-9, B-11
Bravo-11	1-20	N/A
	21-84	B-10, B-12
Bravo-12	1-20	N/A
	21-84	B-11, B-13
Bravo-13	1-20	N/A
	21-84	B-12, B-14
Bravo-14	1-20	N/A
	21-84	B-13, B-15
Bravo-15	1-20	N/A
	21-84	B-14, B-16
Bravo-16	1-20	N/A
	21-84	B-15, B-17

Location	# Bombs	Spots Required Vacant
Bravo-17	1-20	N/A
	21-84	B-16

B-1 Aircraft loaded with only Chaff, Flare or BDU-33's are not considered explosive loaded aircraft for separation considerations to B-1Bs loaded with MK-82/84 and CBU's.

Attachment 3

B-1B LIVE LOAD MATRIX FOR CBUS

(K30 for KC-135s and Non-explosives loaded B-1Bs)

Location	# Bombs	Spots Required Vacant
Bravo-7	1-5	B-8
	6-10	A-7, A-8, B-6, B-8, B-9
	11-20	A-7, A-8, B-6, B-8, B-9
	21-30	A-6, A-7, A-8, A-9, B-6, B-8, B-9, C-6
Bravo-8	1-5	B-7, B-9
	6-10	A-7, A-8, B-7, B-9, B-10
	11-20	A-7, A-8, A-9, B-7, B-9, B-10
	21-30	A-7, A-8, A-9, B-7, B-9, B-10
Bravo-9	1-5	B-8, B-10
	6-10	A-8, A-9, B-7, B-8, B-10, B-11
	11-20	A-8, A-9, B-7, B-8, B-10, B-11
	21-30	A-7, A-8, A-9, A-10, B-7, B-8, B-10, B-11
Bravo-10	1-5	B-9, B-11
	6-10	A-9, A-10, B-8, B-9, B-11, B-12
	11-20	A-9, A-10, B-8, B-9, B-11, B-12
	21-30	A-8, A-9, A-10, A-11, B-8, B-9, B-11, B-12
Bravo-11	1-5	B-10, B-12
	6-10	A-10, A-11, B-9, B-10, B-12, B-13
	11-20	A-10, A-11, B-9, B-10, B-12, B-13
	21-30	A-10, A-11, A-12, B-9, B-10, B-12, B-13

Location	# Bombs	Spots Required Vacant
Bravo-12	1-5	B-11, B-13
	6-10	A-10, A-11, A-12, B-10, B-11, B-13, B-14
	11-20	A-10, A-11, A-12, B-10, B-11, B-13, B-14
	21-30	A-10, A-11, A-12, B-10, B-11, B-13, B-14
Bravo-13	1-5	B-12, B-14
	6-10	A-11, A-12, B-11, B-12, B-14, B-15
	11-20	A-11, A-12, B-11, B-12, B-14, B-15
	21-30	A-10, A-11, A-12, A-13, B-11, B-12, B-14, B-15
Bravo-14	1-5	B-13, B-15
	6-10	A-12, A-13, A-14, B-12, B-13, B-15, B-16
	11-20	A-12, A-13, A-14, B-12, B-13, B-15, B-16
	21-30	A-12, A-13, A-14, B-12, B-13, B-15, B-16
Bravo-15	1-5	B-14, B-16
	6-10	A-13, A-14, B-13, B-14, B-16, B-17
	11-20	A-13, A-14, A-15, B-13, B-14, B-16, B-17
	21-30	A-12, A-13, A-14, A-15, B-13, B-14, B-16, B-17
Bravo-16	1-5	B-15, B-17
	6-10	A-14, A-15, B-14, B-15, B-17, B-18
	11-20	A-13, A-14, A-15, B-14, B-15, B-17, B-18

Location	# Bombs	Spots Required Vacant
	21-30	A-13, A-14, A-15, A-16, B-14, B-15, B-17, B-18

The NEW for the CBU-87 was used to establish K30 separation distance for CBU-87, 89, and 97s. The CBU-87 maintains the greatest NEW thus driving the separation distance.

K-11 separation for B-1 aircraft loaded with 30 CBUs is 177 feet, this distance is provided with the current aircraft parking locations.

B-1 Aircraft loaded with only Chaff, Flare or BDU-33's are not considered explosive loaded aircraft for separation considerations to B-1Bs loaded with MK-82/84 and CBU's.

Attachment 4

B-1B LIVE LOAD MATRIX FOR JDAMS (MK-84)**(K30 for KC-135s and Non-explosive loaded B-1Bs)**

Location	# Bombs	Spots Required Vacant
Bravo-7	1-8	A-6, A-7, A-8, A-9, B-5, B-6, B-8, B-9, B-10, C-6
	9-16	A-5, A-6, A-7, A-8, A-9, B-4, B-5, B-6, B-8, B-9, B-10, B-11, C-5, C-6
Bravo-8	1-8	B-6, B-7, B-9, B-10, B-11, A-7, A-8, A-9
	9-16	A-6, A-7, A-8, A-9, A-10, B-5, B-6, B-7, B-9, B-10, B-11, B-12, C-6
Bravo-9	1-8	A-7, A-8, A-9, A-10, A-11, B-7, B-8, B-10, B-11, B-12
	9-16	A-7, A-8, A-9, A-10, A-11, B-6, B-7, B-8, B-10, B-11, B-12, B-13
Bravo-10	1-8	A-8, A-9, A-10, A-11, A-12, B-7, B-8, B-9, B-11, B-12, B-13
	9-16	A-7, A-8, A-9, A-10, A-11, A-12, B-7, B-8, B-9, B-11, B-12, B-13, B-14
Bravo-11	1-8	A-9, A-10, A-11, A-12, B-8, B-9, B-10, B-12, B-13, B-14
	9-16	A-8, A-9, A-10, A-11, A-12, A-13, B-7, B-8, B-9, B-10, B-12, B-13, B-14, B-15
Bravo-12	1-8	A-10, A-11, A-12, A-13, B-9, B-10, B-11, B-13, B-14, B-15

Location	# Bombs	Spots Required Vacant
	9-16	A-9, A-10, A-11, A-12, A-13, A-14, B-8, B-9, B-10, B-11, B-13, B-14, B-15, B-16
Bravo-13	1-8	A-10, A-11, A-12, A-13, A-14, B-10, B-11, B-12, B-14, B-15, B-16
	9-16	A-10, A-11, A-12, A-13, A-14, A-15, B-9, B-10, B-11, B-12, B-14, B-15, B-16, B-17
Bravo-14	1-8	A-11, A-12, A-13, A-14, A-15, B-11, B-12, B-13, B-15, B-16, B-17
	9-16	A-10, A-11, A-12, A-13, A-14, A-15, B-10, B-11, B-12, B-13, B-15, B-16, B-17, B-18
Bravo-15	1-8	A-12, A-13, A-14, A-15, A-16, B-12, B-13, B-14, B-16, B-17, B-18
	9-16	A-11, A-12, A-13, A-14, A-15, A-16, B-11, B-12, B-13, B-14, B-16, B-17, B-18, B-19
Bravo-16	1-8	A-13, A-14, A-15, A-16, A-17, B-13, B-14, B-15, B-17, B-18, B-19
	9-16	A-12, A-13, A-14, A-15, A-16, A-17, A-18, B-12, B-13, B-14, B-15, B-17, B-18, B-19, B-20
Bravo-17	1-8	A-13, A-14, A-15, A-16, A-17, A-18, B-14, B-15, B-16, B-18, B-19, B-20
	9-16	A-13, A-14, A-15, A-16, A-17, A-18, A-19, B-13, B-14, B-15, B-16, B-18, B-19, B-20, B-21

Location	# Bombs	Spots Required Vacant
B-1 Aircraft loaded with only Chaff, Flare or BDU-33's are not considered explosive loaded aircraft for separation considerations to B-1Bs loaded with MK-82/84 and CBU's.		

Attachment 5

B-1B LIVE LOAD MATRIX

(K11 for B-1B Loaded W/JDAMS (MK-84s) to B-1B Loaded W/JDAMS)

Location	# Bombs	Spots Required Vacant
Bravo-7	1-3	None
	4-16	B-8
Bravo-8	1-3	None
	4-16	B-7, B-9
Bravo-9	1-3	None
	4-16	B-8, B-10
Bravo-10	1-3	None
	4-16	B-9, B-11
Bravo-11	1-3	None
	4-16	B-10, B-12
Bravo-12	1-3	None
	4-16	B-11, B-13
Bravo-13	1-3	None
	4-16	B-12, B-14
Bravo-14	1-3	None
	4-16	B-13, B-15
Bravo-15	1-3	None
	4-16	B-14, B-16
Bravo-16	1-3	None

Location	# Bombs	Spots Required Vacant
	4-16	B-15, B-17
Bravo-17	1-3	None
	4-16	B-16

B-1 Aircraft loaded with only Chaff, Flare or BDU-33's are not considered explosive loaded aircraft for separation considerations to B-1Bs loaded with MK-82/84 and CBU's

Attachment 6**LIVE LOAD NOTIFICATION LISTING****Organization**

22 ARW/CCE
22 ARW/PA
22 ARW/SEW
22 ARW/CPM
22 OSS/OSAA
22 OSS OSAB
22 OSS/OSFA
22 CES/CED
22 CES/CEF
22 SFS/SFO
22 AGS/LGG
22 AGS/LGG/LGGA
22 AGS/LGG/LGGB
22 AGS/LGG/LGGC
22 AGS/LGG/LGGD
22 LG/LGQA
22 LGSF
18 ARS/CC
18 ARS/DO