SUBJECT: Duties and Responsibilities of the Drop Zone Support Team Leader (DZSTL)

REFERENCES:

- 82D ABN DIV ASOP, Edition VI, Chapter 4, and 17
- AFI 13-217 (Appendix G)
- Fort Bragg MOA (Appendix F)
- Joint Service MOA (Appendix F)

The Drop Zone Support Team Leader is exclusively responsible for the delivery of personnel, heavy equipment and Container Delivery System (CDS) to the drop zone, under Visual Meteorological Conditions (VMC), for operations involving one to four aircraft, without the use of the Special Tactics Squadron (STS). In the 82D Airborne Division, the duties of the DZSTL and the DZSO can be combined.

A. General Information:

1. Peace Time:

   a. The primary mission of the DZSTL is to provide VMC airdrop coverage for one to four aircraft.
   b. The secondary mission is to provide VMC coverage for more than 4 aircraft.
   c. The secondary mission is also to provide Adverse Weather Aerial Delivery System (AWADS) airdrop coverage for one to three C – 130 Hercules aircraft.

2. War Time:

   a. The primary mission of the DZSTL is to provide CDS air drop coverage for Battalion size or smaller.
   b. The secondary mission of the DZSTL is to provide CDS air drop coverage for Brigade size or larger.

B. Qualifications:

1. SGT or above.
2. Current and qualified Jumpmaster.
3. Current and qualified DZSTL.
4. Graduate of a recognized DZSTL course.

C. Currency:

1. Must assist a current and qualified DZSTL on a successful airborne operation at least twice.
2. A successful airborne operation is defined, as one parachute suspended object at a minimum must land on the drop zone.
3. Must perform the duties of the DZSTL once every 6 months to remain current.

D. Certifying Agencies:

1. 82D ABN DIV Jumpmaster Course
2. USAIS Pathfinder Course
3. USAIS DZSTL Course
4. 1st SOCOM Jumpmaster Course
5. STS school

E. Mission Responsibilities:

1. The DZSTL must turn in a completed DZST/Aircrew Mission Briefing Checklist to the GLO, Bldg. 900, and NLT 3 hours prior to load time.
2. The DZSTL must ensure that the following references are present on the drop zone:
   - 82D ABN DIV ASOP, Edition VI, Chapter 17 (At a minimum)
   - Fort Bragg MOA (Appendix F)
   - AF Form 3823 (Chapter 4)
   - AMC Form 168 (Chapter 4)
   - AFI 13-217 (Appendix G)
   - DZST/Aircrew Mission Briefing Checklist
   - Checklist format for incident reporting (Chapter 4)

3. Required Equipment:

   - 9 VS – 17 Panels (Day)
   - 1 Raised Angle Marker (RAM) (Day)
   - 1 red smoke grenade per pass (DAY)
   - 11 Omni-directional white lights (Night)
   - 1 red star cluster per pass (Night)
   - 1 Amber rotating beacon (Night)
   - Night vision goggles (2 sets at a minimum for night time)
   - 2 FM radios. 1 MUST be vehicular mounted
   - Military vehicle
   - Wind speed indicator
   - Required pyrotechnics
   - Transition frequency from your unit's SOI
   - Lensatic compass
   - Military map of the area and protractor
   - Acquisition aids: Strobe light, signal mirror, etc. (Must be pre-briefed)
   - GPS

4. Contact Range Control NLT 1 hour prior to drop time to tell them that you are on station.
5. Continuously monitor Range Control and the transition frequency.
6. Conduct a reconnaissance of the drop zone for any unsafe conditions.
7. Find the PI and set up the code letter and RAM IAW the DZST/Aircrew Mission Briefing Checklist.
8. Ensure the DZSO co-locates with the DZSTL NLT 15 minutes prior to the first time on target.
9. 10 minutes prior to drop time contact Range Control and tell them "You are set up correctly," and "Ready to accept the mission."

F. All rotary wing aircraft within 1,000 meters of the drop zone must be transitioned away from the drop zone, using the appropriate flight corridor. 5 minutes prior to drop time DZSTL will display any pre-briefed acquisition aids.

G. Contact Range Control in the event of an emergency situation.

H. The DZSTL must complete AMC Form 168, Strike Report and the Checklist Format for Incident Reporting, if needed, and turn them into the GLO at the end of their duty.

1. The first parachute suspended object per aircraft, per pass, MUST land within 25 yards of the PPI or HEPI, for it to be considered a "PI" strike.
2. 90% of the personnel on a mass tactical operation must land on the surveyed drop zone for it to be considered a satisfactory airborne operation.

CHECKLIST FORMAT FOR INCIDENT REPORTING

A. GENERAL

(1) JA/ATT Sequence Number: _____
(2) Date of operation: _____
(3) TOT (Local): _____
(4) Type Mission: _____
    (a) Number of A/C: _____
    (b) Type of A/C: _____
    (c) Type assault zone: _____

B. PERSONNEL INVOLVED

(1) Flying Unit: _____
(2) Unit Supported: _____
(3) DZSTL (Name/Rank/Unit): _____
(4) Medics (In place): _____
(5) POC for further information: _____

C. ASSAULT ZONE

(1) Name/Type: _____
(2) Location: _____
(3) Any deviation from survey: _____
(4) Marked IAW the survey: _____

D. COMMUNICATIONS WITH AIRCRAFT

(1) Type Radios: _____
(2) Frequency used: _____
(3) Problems: _____

E. WEATHER PASSED TO AIRCRAFT

(1) Time of observation: _____
(2) Time weather was passed to A/C or Range Control: _____
(3) MEW (For Army Aircraft Only) Mean Effective Wind: _____
(4) Surface wind: _____
(5) Remarks: _____

F. POST INCIDENT WEATHER OBSERVATION

G. NARRATIVE

_____
_____
_____
_____

DZST/AIRCREW MISSION BRIEFING CHECKLIST

1. DZ NAME/LOCATION AND JA/JATT MISSION SEQUENCE NUMBER: _____

2. TOT/BLOCK TIME AND NUMBER OF PASSES REQUESTED: _____

3. DATE DROP ZONE APPROVED FOR USE: _____

4. TYPE DROP (HE, PE, CDS): _____

5. TYPE OF RELEASE: VIRS CARP GMRS VISUAL AWADS ZONE MARKER

   a. TYPE PARACHUTE/ALTITUDE: _____

   b. GROUND QUICK DISCONNECTS: _____

   c. NUMBER OF JUMPERS/BUNDLES/PLATFORMS: _____

6. NUMBER AND TYPE OF AIRCRAFT: _____

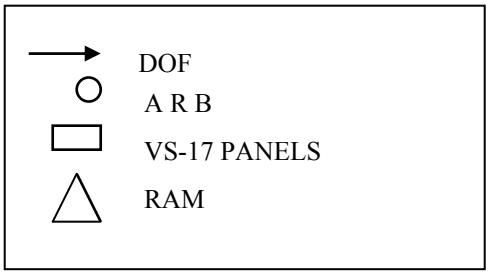
7. DZ INFORMATION: _____

   a. MARKINGS/SIGNALS: (SKETCH MARKINGS IN BOX)

      1. PANEL/LIGHTS: _____

      2. SHAPE DESIGNATOR/CODE LETTER: _____

      3. SMOKE/FLARES: _____



      4. EMERGENCY ROCEDURES: _____

   b. DZ SUPPORT CAPABILITIES: _____

      1. RADIO AVAILABLE/FREQUENCIES: _____

      2. VISUAL ACQUISITION AIDS: _____

      3. NAVAIDS AVAILABLE: _____

      4. MEW EQUIPMENT: _____

      5. VERIFY AIRSPACE COORDINATION: _____

8. AIRBORNE COMMANDER (ARMY) NAME, RANK, UNIT, CONTACT PHONE UMBER: _____
_____

9. AIRMISSION COMMANDER (USAF) NAME, RANK, UNIT, CONTACT PHONE UMBER: _____
_____

10. DZSTL NAME, RANK, UNIT, CONTACT PHONE NUMBER: _____
_____

11. DROP SCORE/INCIDENT/ACCIDENT REPORTING PROCEDURES: _____

DZST/AIRCREW MISSION BRIEFING CHECKLIST

LINE 1. List the name of the Drop Zone (Sicily, George Tree, Taylor Creek, etc.), its location (Ft. Bragg, NC, Camp Mackall, NC, Ft. Stewart, GA.), and the JA/ATT sequence number from the AMT.

LINE 2. DTG of drop (18 Apr 2200 – 2230)

LINE 3. Must be current survey. Current surveys can be obtained by call in the AZAR Fax on demand system at DSN 576-2899 and request document No. 1001.

LINE 4. Write in the type of drop.

LINE 5. Circle the type of release.
LINE 5a. List the type of parachutes being used. If more than one type of parachute is being use, the drop altitude (AGL) for each type of parachute must be listed.
LINE 5b. Applies to heavy equipment and CDS drops.
LINE 5c. List the total number of personnel, door bundles, or platforms scheduled to exit.

LINE 6. Use the format (# of Aircraft) X (Aircraft type).

LINE 7. (Length) X (Width) in yards.
LINE 7a (1) Number, type and color of panels and/or lights
LINE 7a (2) Describe shape designator and draw a sketch in the box w/direction of flight from left to right
LINE 7a (3) List type and color that you have available for use.
LINE 7a (4) Clearly specify a single primary no-drop signal. This signal should be immediately recognizable by the aircrew. Suggested signals DAY: Deploy RED smoke. NIGHT: Turn off lights.
LINE 7b (1) List type of radio (FM, UHF, VHF) and the operating frequencies.
LINE 7b (2) List type of aid (RAM, Amber Rotating Beacon, Signal Mirror, Visible Strobe) and location of aid (Amber Rotating Beacon PI + 1,000 yards).
LINE 7b (3) List any devices that will assist the aircraft in locating the IP (Zone Marker).
LINE 7b (4) List the equipment used to determine the Mean Effective Wind (Anemometer, PI BAL).
LINE 7b (5) When dropping Rhine Luzon, George Tree, or Mackall Airfield, Monday through Friday, airspace coordination will be made with Mackall Tower. When dropping Sicily, Normandy, Holland, Salerno, Nijmegen or St. Mere Eglise, airspace coordination will be made through Range Control. Weekend airspace coordination for the Camp Mackall drop zones will be made with Range Control.

LINE 8. Name, rank, unit and contact phone number for the Airborne Commander.

LINE 9. Name, rank, unit and contact phone number for the Air Mission Commander (If known).

LINE 10. Name, rank, unit and contact phone number for the DZSTL.

LINE 11. Drop scores are reported on AMC Form 168, Strike Report. Incidents and accidents are reported on the Flash Report.

DROP ZONE/LANDING ZONE CONTROL LOG

LOCATION	CCT AND UNIT	DZ/LZ CONTROL OFFICER AND UNIT	DATE
			DROP ZONE SAFETY OFFICER AND UNIT

LEGEND

AH-Airland *(Heavy)*
AL-Airland
CD-CDS/CRL/CRS
GM-GMRS

HE - Heavy Equipment
HO - HALO/HAHO
IL - Inverted "L"

LS-Instrument Landing System
PE-Personnel
RB-Radar Beacon Drop

SCORE METHOD
M - Measured
P - Paced
E - Estimated

LINE NO	TYPE ACFT	UNIT	CALL SIGN	TYPE MSN	ETA	ATA / ATD	STRIKE REPORT YDS	STRIKE REPORT CLOCK	LZ S	LZ U	SURF WIND	SCORE METHOD	MEAN EFFECTIVE WIND TIME	MEAN EFFECTIVE WIND ALT	MEAN EFFECTIVE WIND DIR & VEL	REMARKS *(Continue on Reverse)*
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																
13																
14																
15																

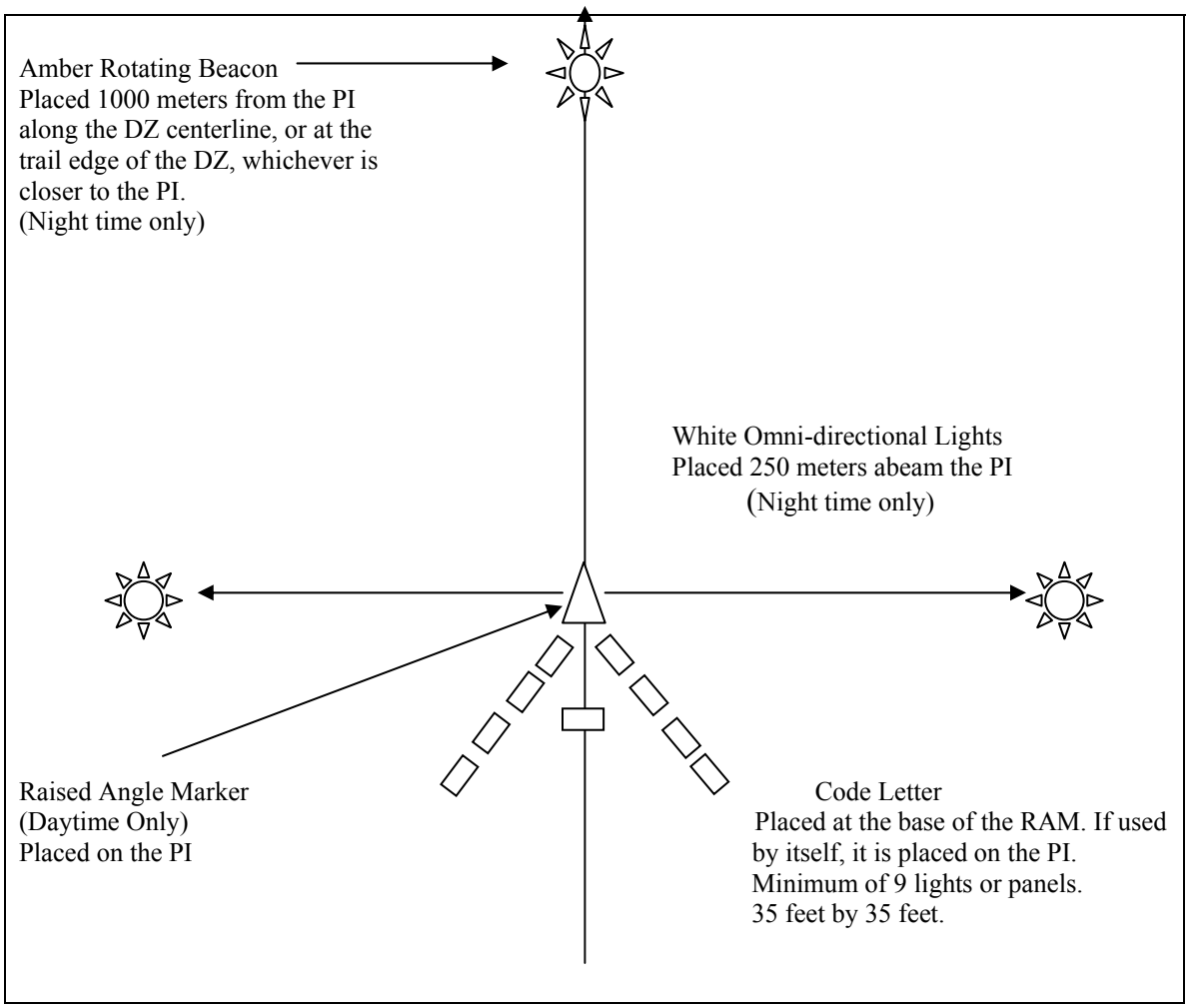
AF FORM 4304,20020903*(EF-V1)* REPLACES AMC FORM 168,DEC 92

SUBJECT: Standard Drop Zones for CARP Operations

REFERENCES: 82D ABN DIV ASOP, Edition VI Chapters 4 & 17 and Appendix G.

A. For daylight personnel drops, the Personnel Point of Impact (PPI) will be marked with a Code Letter, constructed of 9 VS – 17 panels and 1Raised Angle Marker (RAM). See Figure 1.

Figure 1



B. For night personnel drops, the PPI will be marked with a code letter constructed of 9 white omni-directional lights. There will be 1 white flanker light placed 250 meters to the left and right of the PPI. Additionally, there will be an amber rotating beacon placed at the trail edge of the drop zone or 1,000 meters from the PPI, whichever is closer to the PI.

C. For drop zone authentication, 1 of the omni-directional lights may be covered with a green or blue filter. The particular color and position of the light will be the drop zone authentication. This authentication must be agreed upon by the planning staff, briefed to the aircrew and annotated on the DZSTL/Aircrew Mission Briefing Checklist.

D. For daylight CDS/Heavy Equipment drops, the Heavy Equipment Point of Impact (HEPI) will be marked with a code letter constructed of 9 VS – 17 panels and a Raised Angle Marker (RAM).

E. For night CDS/Heavy Equipment drops, the drop zone will be marked with a code letter constructed of 9 white omni-directional lights. There will be one white flanker light placed 250 meters to the left and right of the HEPI, and an amber rotating beacon placed on the trail edge of the drop zone or 1,000 meters from the HEPI, whichever is closer. For drop zone authentication, 1 of the omni-directional lights may be covered with a green or blue filter. The particular color and position of the light will be the drop zone authentication. This authentication must be agreed upon by the planning staff, briefed to the aircrew and annotated on the DZST/Aircrew Mission Briefing Checklist.

F. The lack of a RAM, code letter, red smoke, and red flares or any other pre-coordinated signal on the drop zone, indicates a "NO DROP" condition.

G. To avoid miscommunication between the aircraft and the drop zone, the following must occur:

1. The DZST/Aircrew mission-briefing checklist is filled out accurately.
2. The Aircrew is briefed completely during the Pilot/JM briefing.
3. The drop zone is marked IAW the DZST/Aircrew mission-briefing checklist.

H. Random and Circular Drop Zones:

1. Aircraft can approach from any heading, the drop zone radius (From the PI to the outer edge), must be at least the distance from the PI to the trail edge corner of a minimum sized rectangular drop zone for the same type of drop. The entire rectangular drop zone must fit within the circular drop zone.
2. These drop zones will be marked with the Code Letter H or O at a minimum size of 35 feet by 35 feet. See Figure 2.

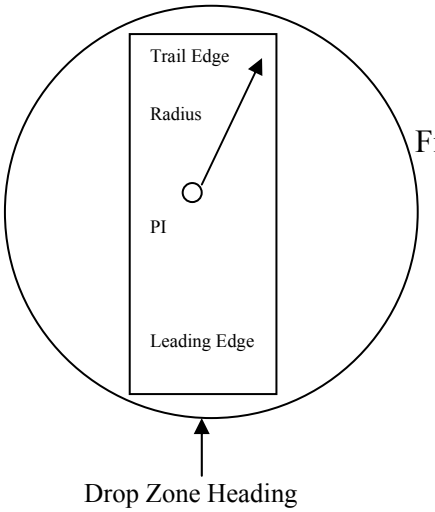


Figure 2.

I. Drop Zone Markings for Fort Bragg and Camp Mackall

1. For daylight operations, the RAM will be placed on the PI with the Code Letter. The code letter assigned to that drop zone will measure 35 feet by 35 feet and be placed at the base of the RAM. Authorized Code Letters are: J, A, C, R, and S for rectangular drop zones. Code Letters H and O will be utilized for circular drop zones. For night operations, the apex of the Code Letter will be placed at the PI. The flanker lights will be used and placed 250 meters to the left and right of the PI, in the 3 and 9 o'clock positions. The amber rotating beacon will be placed 1,000 meters from the PI or at the trail edge of the drop zone, whichever is closer. The following Code Letters are assigned to the Fort Bragg and Camp Mackall drop zones:

DROP ZONE	PPI	HE/CDS	CIRCULAR
Holland	J	C	H
Netherlands	J	C	H
Luzon	A	R	O
Rhine	A	R	O
Nijmegen	A	J	
Normandy	R	R	H
Cotentin	R	C	
Salerno	J	S	O
Volturno	J	S	
Sicily	A	C	H
Gela	A	C	
St. Mere Eglise	S	S	

Personnel

Altitude AGL	Width (See Note 1)	Length 1 Parachutist (See Note 2)	Additional Parachutists
To 1000 feet	600 yds/549 m	600 yds/549 m	Add 75 yds/69m for each additional parachutist to the trailing edge of the Drop Zone
Above 1000 feet	Add 30 yds/27 m to width and length for each 100 feet above 1000 feet. (Add 15 yds/14 m to each side of DZ).		

Heavy Equipment

Altitude AGL	Width (See Note 1)	Length 1 Platform (See Note 2)	Additional Platforms
To 1100 feet	600 yds/549 m	1000 yds/915 m	Add 400 yds/366 m (C-130) or 500-yds/457 m (C-141, C-5A or C-17) to trailing edge for each additional platform.
Above 1100 ft	Add 30 yds/27 m to the width and length for each 100 feet above 1100 feet. (Add 15 yds/14 m) feet to each side of the DZ		

CDS (C –130) (Single Aircraft Operation Only)

Altitude AGL	Width	# Of Containers Single/Double	Length (See Note 2)
To 600 ft	400 yds/366m	1 1 – 2 2 3 - 4 3 5 – 6 4 7 – 8 5 8 - 9	400 yds/366 m 450 yds/412 m 500 yds/457 m 550 yds/503 m 700 yds/640 m
Above 600 ft	Add 40 yds/37 m to DZ width and length for each 100 feet above 600 feet. (20 yds/18 m added to each side of DZ)		

CDS (C-141) (Single Aircraft Operation Only)

Altitude AGL	Width	# Of Containers Single/Double	Length (See Note 2)
Too 600 feet	450 yds/412 m	1 1 – 2 2 3 – 4 3 5 – 6 4 – 8 7 – 16 9 – 14 17 – 28 15 – 20 30 - 40	590 yds/540 m 615 yds/562 m 665 yds/608 m 765 yds/700 m 915 yds/837 m 1106 yds/974 m
Above 600 feet	Add 40 yds/37 m to DZ width and length for each 100 feet. (20 yds/18 m added to each side of DZ).		

NOTE 1:

a. For day visual formations, increase width by 100-yds/91 m (50 yds/46 m to each side).
b. For Station Keeping Equipment (SKE) formation, increase width by 400-yds/366 m (200 yds/183 m to each side).
c. Official sunset to sunrise increase width by 100 yds/91 m for single aircraft visual drops (50 yds/46 m to each side) or 200 yds/183 m for visual formations (100 yds/91 m each side).

NOTE 2: Official sunset to sunrise increase length by 100 yds/91 m for visual drops (50 yds/46 m each end)

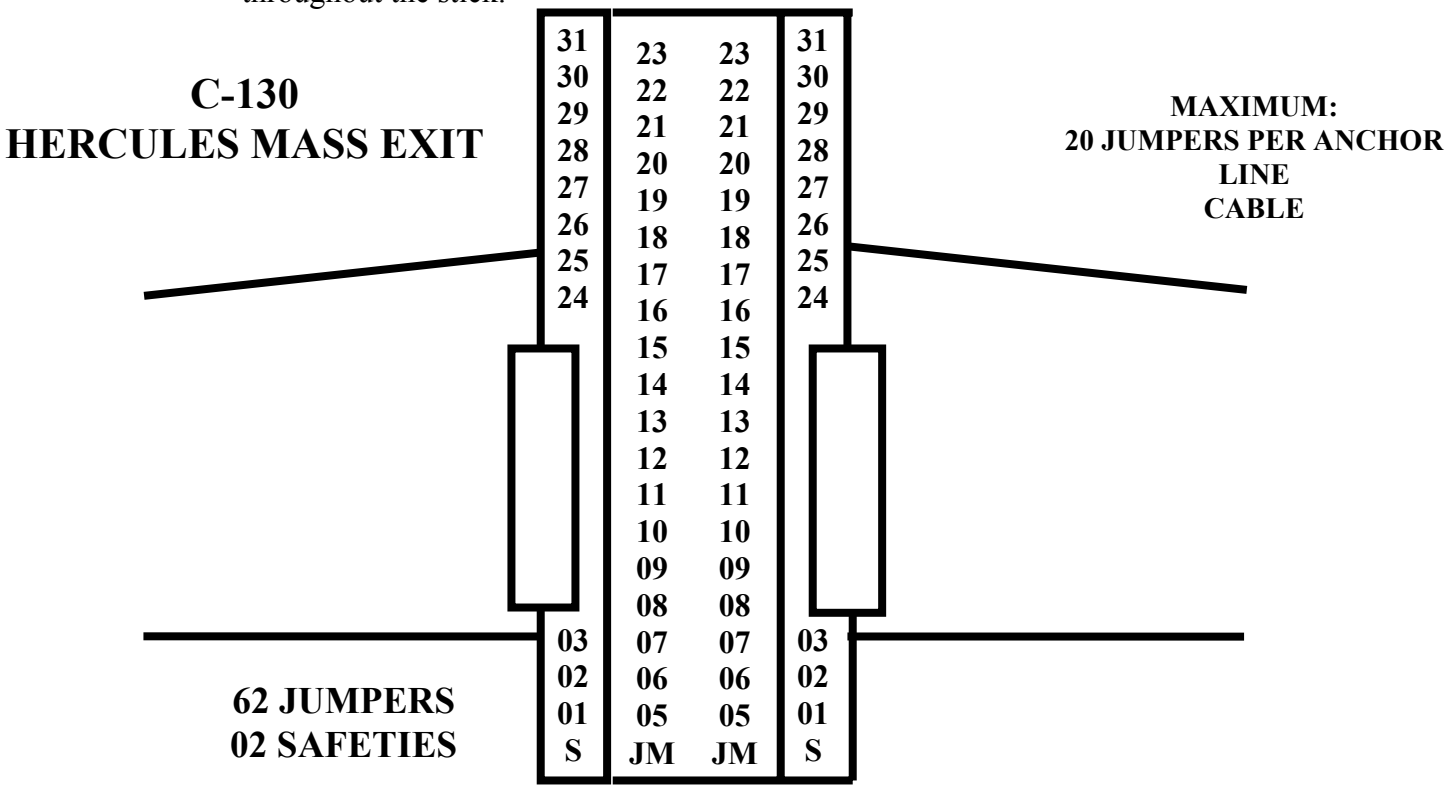
NOTE 3: For STS/Para-rescue unilateral operations, see Para 12.5. Controlled Exit (CAPES) and Alternating Door (ADEPT) procedures do no apply to STS/Para-rescue operations. Figure 1. Tactical Airlift DZ. Size Criteria.

SUBJECT: Air Force Aircraft and Jump Commands

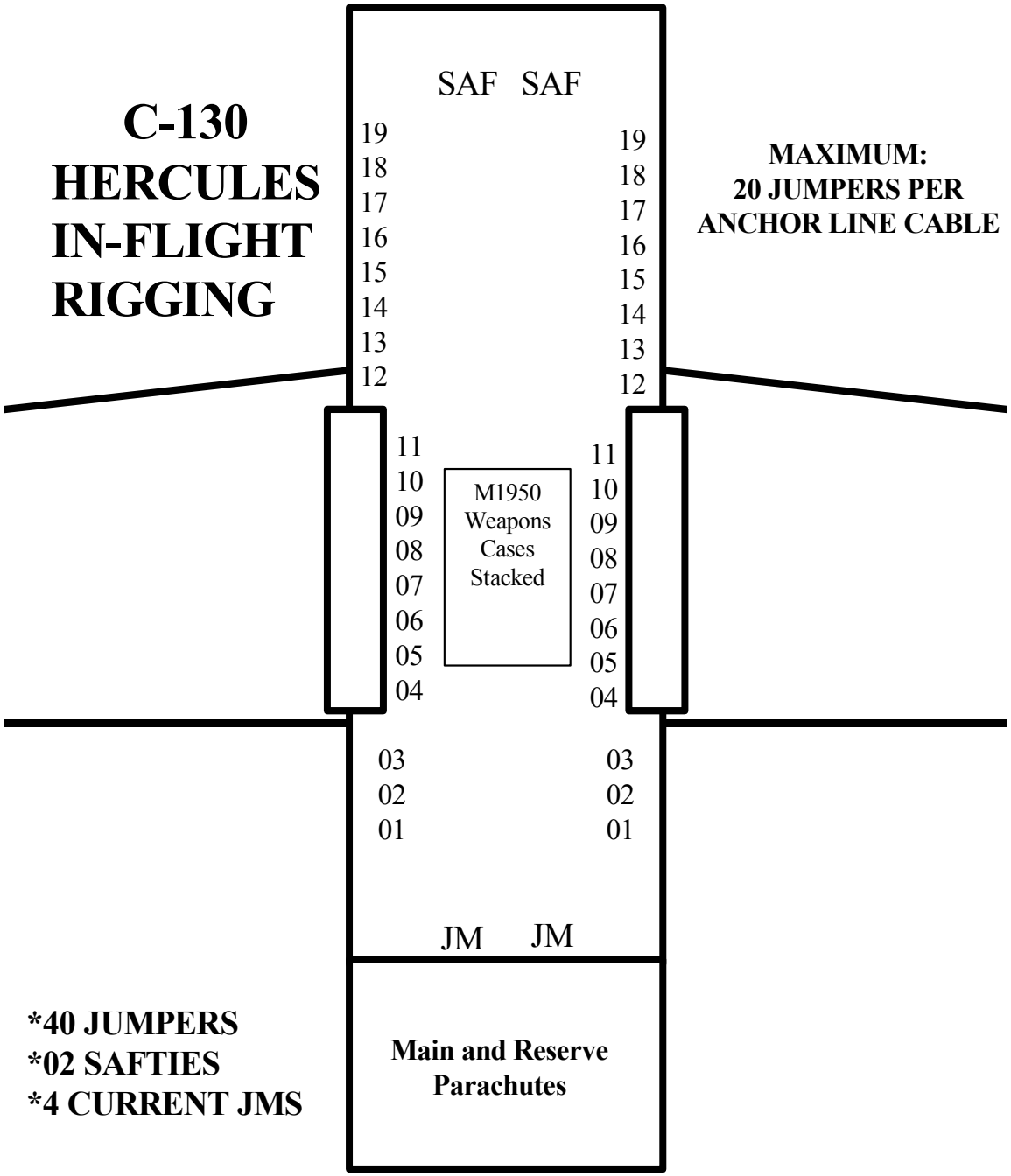
REFERENCE: 82D ABN DIV ASOP, Edition VI, Chapters 4, 12, 13.

C – 130 Hercules

1. Capabilities:
    a. Maximum number of jumpers for training: 62
    c. In-flight rigging: 40 jumpers to include PJM and AJM.
    d. A – Series containers: 1 per door, 1st pass only, 1st three aircraft in an offset trail formation.
2. Description:
    a. 2 paratroop doors
    b. 4 anchor line cables. Maximum number of jumpers per anchor line cable is 20.
    c. 7 sets of jump caution lights.
    d. 2 static line retrieval systems.
    e. 2 towed parachutist retrieval systems.
    f. Drop speed: 125 – 130 knots.
3. Jump Procedures:
    a. Time Warnings: 20 minutes, 10 minutes and 1 minute
    b. Jump Commands: 9
4. In-flight Rigging:
    In-flight rigging commences 2 hours and 20 minutes prior to green light; and must be completed by the 20-minute time warning. 4 additional Jumpmasters required throughout the stick.



C-130 HERCULES IN-FLIGHT RIGGING



MAXIMUM:
20 JUMPERS PER ANCHOR LINE CABLE

***40 JUMPERS**
***02 SAFTIES**
***4 CURRENT JMS**

***JUMPERS # 12 and 13**
CURRENT JUMPMASTERS

C – 141B Starlifter

1. Capabilities:

    a. Maximum number of jumpers for combat: 155
    b. Maximum number of jumpers for training: 133
    c. In-flight rigging: 100 jumpers to include the PJM and AJM.
    d. A – Series containers: 1 per door, 1st pass only, 1st three aircraft in an offset trail formation.
    e. No aft end capabilities for paratroopers.

2. Description:

    a. 2 paratroop doors
    b. 4 anchor line cables. Maximum number of jumpers per anchor line cable is 45.
    c. 7 sets of jump caution lights. Only five are visible when the pressure door is down.
    d. 2 static line retrieval cables.
    e. Drop speed: 130 – 135 knots.

3. Jump procedures:

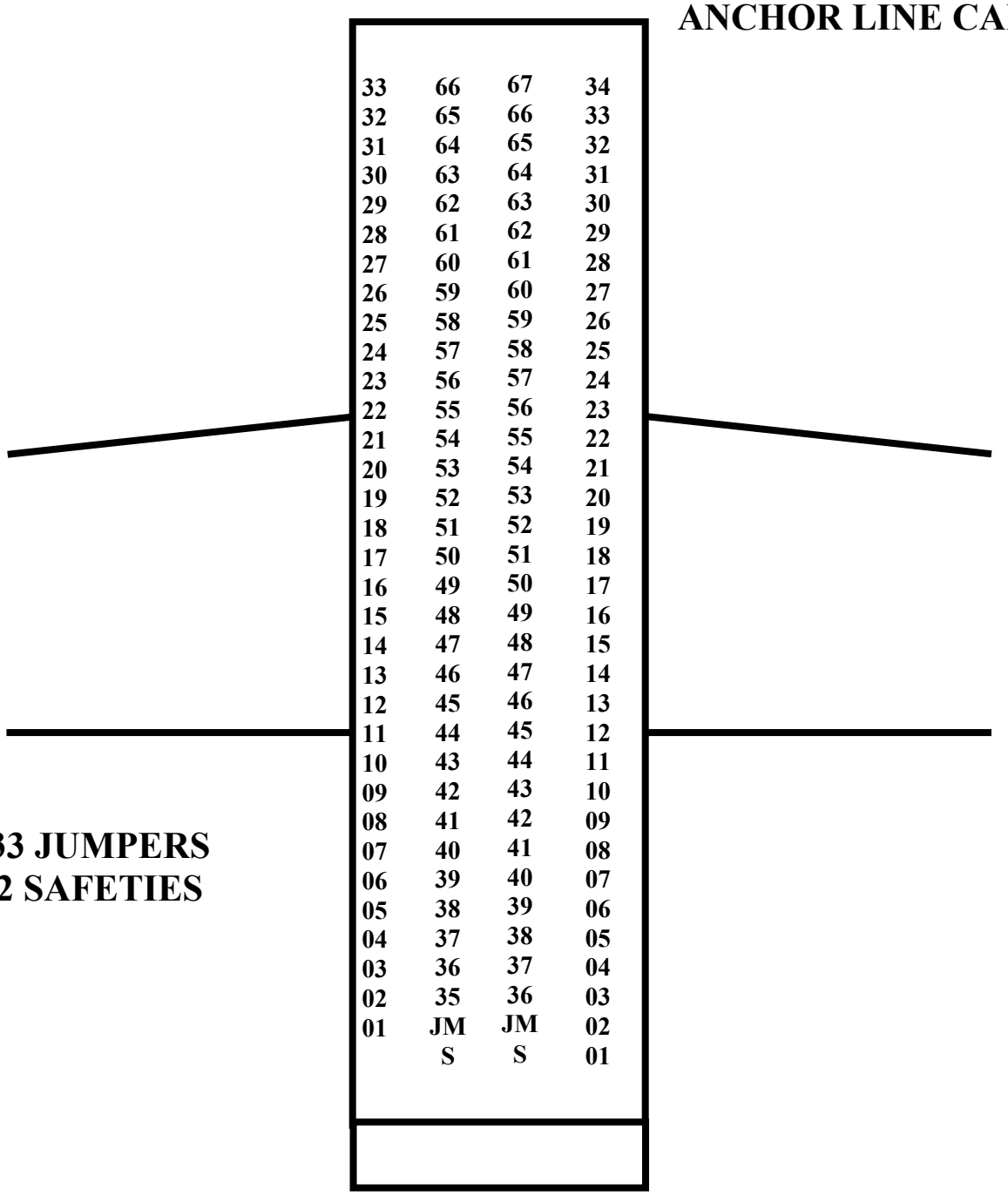
    1. Time warnings: 20 minutes, 10 minutes and 1 minute.
    2. Jump commands: 9
    3. 2 towed jumper bars

4. In- flight rigging:

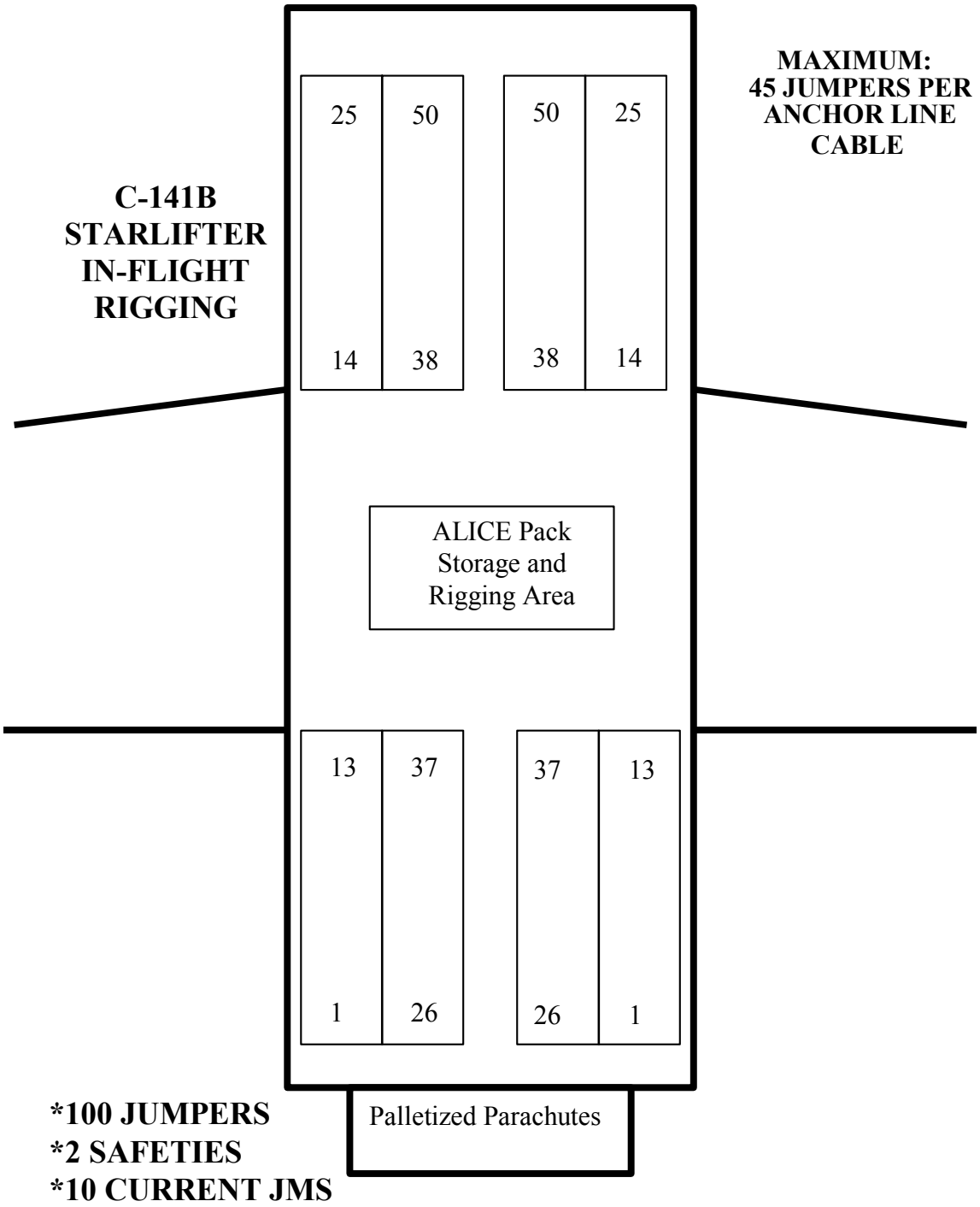
    In-flight rigging will commence 2 hours and 20 minutes prior to green light, and **MUST** be completed by the 20-minute time warning. 10 additional Jumpmasters are required throughout the stick.

C-141B
STARLIFTER MASS EXIT

MAXIMUM:
45 JUMPERS PER
ANCHOR LINE CABLE



133 JUMPERS
02 SAFETIES



***100 JUMPERS**
***2 SAFETIES**
***10 CURRENT JMS**

***JUMPERS # 7,12,23,32,44**
CURRENT JUMPMASTERS

***NOTE:**
AIRCRAFT CONFIGURATIONS WILL VARY DEPENDING ON THE FLYING UNIT'S MISSION AND AIR FORCE REQUIREMENTS

C – 17 Globemaster III

1. Capabilities:

    a. Maximum number of jumpers for training: 100
    b. In-flight rigging: 100 jumpers to include the PJM and the AJM.
    c. A – Series containers: 1 per door, 1st pass only, 1st three aircraft in an offset trail formation.
    d. No aft end jump capabilities.

2. Description:

    a. 2 paratroop doors.
    b. 4 anchor line cables. Maximum number of jumpers on the outboard anchor line cable is 27. Maximum number of jumpers on the inboard anchor line cable is 24.
    c. 10 sets of jump caution lights. Each set of jump caution lights will have 1 red, amber and green jump caution light. The amber jump caution light will illuminate 30 seconds prior to green light.
    d. 2 static line retrieval systems.
    e. 2 towed parachutist retrieval systems.
    f. Drop speed: 130 knot +/- 5 knots.

3. Jump procedures:

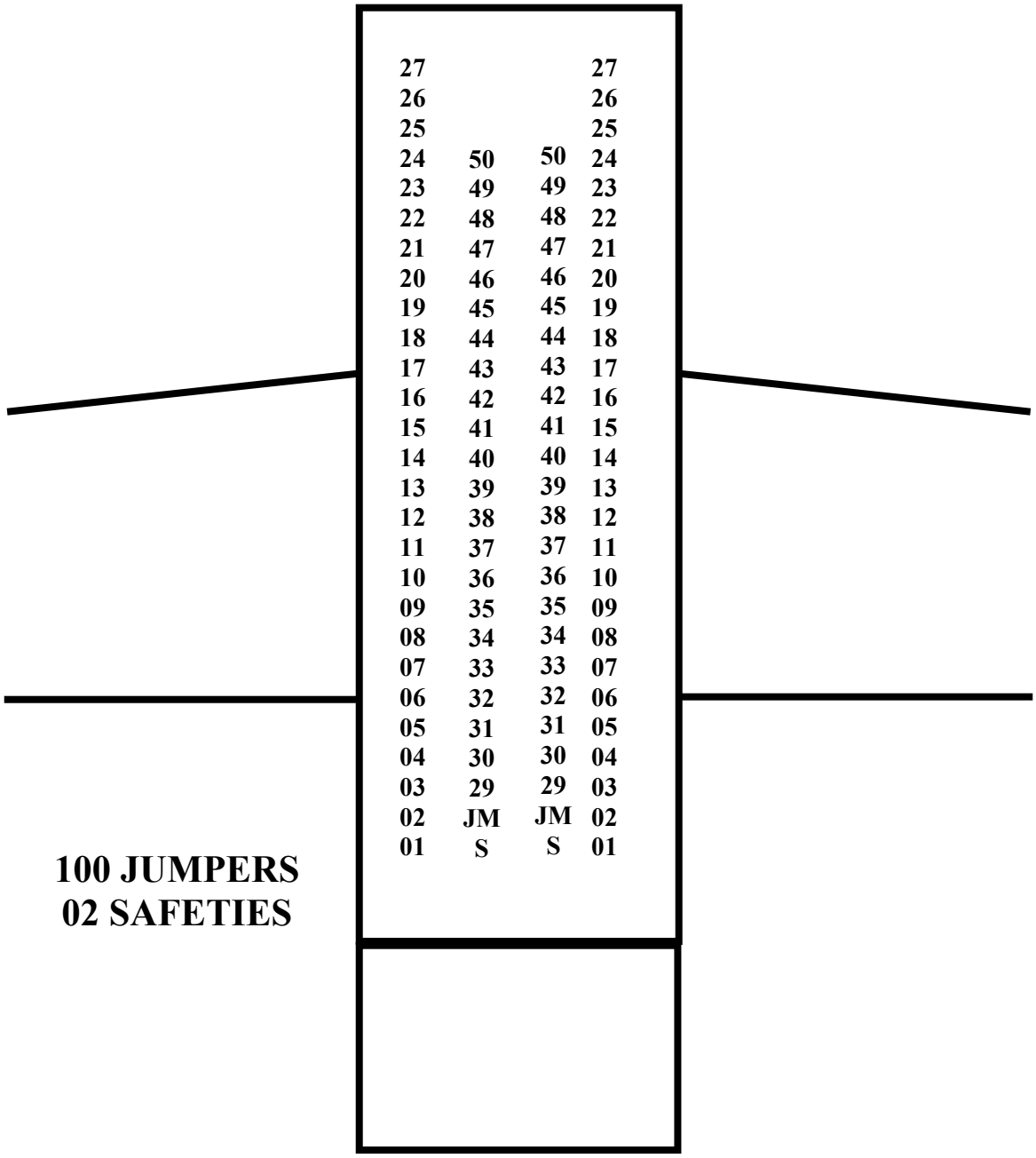
    a. Time warnings: 20 minutes, 10 minutes and 1 minute.
    b. 6 minute slow down and paratroop doors open.
    c. Jump commands: 9.

4. In-flight Rigging:

    In-flight rigging commences 2 hours and 20 minutes prior to green light; and must be completed by the 20-minute time warning. 8 additional Jumpmasters are required throughout the stick.

C-17 III
GLOBEMASTER

MAXIMUM:
27 JUMPERS PER
ANCHOR LINE CABLE



100 JUMPERS
02 SAFETIES

C - 17 GLOBEMASTER III IN-FLIGHT RIGGING

MAXIMUM:
27 JUMPERS PER OUTBOARD ANCHOR LINE CABLE

24 JUMPERS PER INBOARD ANCHOR LINE CABLE

27			27
26			26
25			25
24			24
23	50	50	23
22	49	49	22
21	48	48	21
20	47	47	20
19	46	46	19
18	45	45	18
17	44	44	17
16	43	43	16
15	42	42	15
14	41	41	14
13	40	40	13
12	39	39	12
11	38	38	11
10	37	37	10
09	36	36	09
08	35	35	08
07	34	34	07
06	32	32	06
05	31	31	05
04	30	30	04
03	29	29	03
02	JMS	JMS	02
01			01

Palletized Parachutes & Alice Packs & Weapons Cases

*** 100 JUMPERS**
*** 02 SAFETIES**
*** 08 ADDITIONAL CURRENT JMS # 7,14,32,41**

*** NOTE: AIRCRAFT CONFIGURATIONS WILL VARY DEPENDING ON THE FLYING UNIT'S MISION AND AIR FORCE REQUIREMENTS**

SUBJECT: Practical Work in the Aircraft (PWAC)

REFERENCE: 82D ABN DIV ASOP, Edition VI, Chapters 4 and 13.

1. Actions at the 10 Minute Time Warning:

   a. The JM Evaluator will issue the JM student a 10 Minute Time Warning. At this time you will release your seatbelt, placing it behind you, ensuring that it does not become routed around any item of equipment. You will then stand up and face the AFT end portion of the aircraft and tighten down on the appropriate adjustable leg strap. You will then remove the universal static line snap hook from the top carrying handle of the reserve parachute and hook up on the inboard anchor line cable ensuring the opening gate. You will then form a bite in the universal static line, extend your arm, release the universal static line, slap your thigh and turn towards the skin of the aircraft.

   b. Issue "10 Minutes".

10- Minutes

c. “Get Ready”.

Get Ready

d. “Outboard Personnel Stand Up”.

Outboard Personnel Position

“Outboard Personnel Stand Up”.

Stand Position

Up Position