

APPENDIX B

**HOSPITAL PLANNING FACTORS**

This appendix provides information for the FH/GH commanders, their staffs, and assigned personnel. It contains planning factors for personnel, transportation and movement, supply, personnel service support, CHS planning for hospitalization, and engineer requirements effective as of the date of this publication. **The data is an estimate and is not intended to be all-inclusive.** Fluctuations and changes in the data presented are contingent upon modifications to the TOE, its mission, and the scenario. Sections I and II contain planning factors for the respective FH and GH.

**Section I. FIELD HOSPITAL PLANNING FACTORS**

**B-1. Personnel and Equipment Deployable Planning Factors**

*a. Personnel.*

Officer	102
Warrant Officer	2
Enlisted	324
TOTAL	428

*b. Weight and Cube—Personnel and Equipment.*

Personnel-weight (combat equipped, includes 15 lb hand-carry bag)	190 lb/man (215)	40,850 lbs
Personnel-weight (with M-16)	200 lb/man (193)	38,600 lbs
Personnel-weight (with 9 MM)	195 lb/man (20)	3,900 lbs
Personnel-cube	11 cu ft/man	4,708 cu ft
Mobilization bag-weight	25 lb/man	10,700 lbs
Mobilization bag-cube	1 cu ft/man	428 cu ft
Check-in baggage-weight	70 lb/man	29,960 lbs
Check-in baggage-cube	3 cu ft/man	1,284 cu ft
<b>TOTAL</b>		
Personnel-weight and cube with all gear	124,010 lbs	6,420 cu ft
Weight and cube TOE equipment	1,110,854 lbs	142,279 cu ft
Weight and cube, CTA deployable equipment	225,992 lbs	24,791 cu ft
Weight and cube of personnel, equipment, and CTA deployable equipment	1,460,856 lbs	173,490 cu ft

c. *Transportation Reference Data.*

(1) *Railcar transportation requirements.*

Railcar = 80 ft 28 each

(2) *Tactical aircraft airlift requirements.*

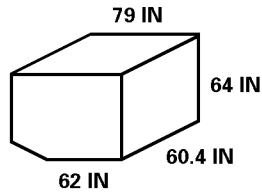
Cargo compartment data:	C-141	vs	C-5A
Length (inches)	840		1,454
Width (inches)	123		228
Height (inches)	109		162
Allowable cargo load (pounds)	50,000		150,000
Troop seats	102		20/73
Aircraft requirement strategic deployment	14		5

(3) *Commercial cargo capacities and configurations.*

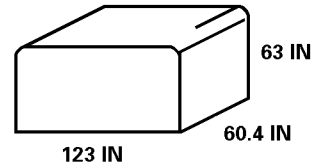
Cargo Capacity (cu ft)	Bulk Bin (cu ft)	Number of Containers	Maximum Capacity Cargo Bins (lbs)	Cargo Door Sizes (inches)		
<b>TRISTAR L-1011-250</b>						
2,385	700	16 (LD-3)	53,650	FWD	70W	68H
				AFT	70W	68H
				Bulk compartment	44W	48H
<b>TRISTAR L-1011-500</b>						
2,831	435	19 (LD-3)	61,500	FWD	104W	68H
				AFT	70W	68H
				Bulk compartment	44W	48H
<b>BOEING 767-200</b>						
2,508	430	22 (LD-2)	46,050	FWD	70W	69H
				AFT	70W	69H
				Bulk compartment	38W	48H

Cargo Capacity (cu ft)	Bulk Bin (cu ft)	Number of Containers	Maximum Capacity Cargo Bins (lbs)	Cargo Door Sizes (inches)		
<b>BOEING 767-300</b>						
4,770	430	30 (LD-2)	69,850	FWD	70W	69H
				AFT	70W	69H
				Bulk compartment	38W	48H
<b>BOEING 757-200</b>						
1,728			25,700	FWD	55W	42H
				AFT	55W	44H
<b>BOEING 727-200</b>						
1,454			19,000	FWD	55W	42H
				AFT	55W	44H
				Rear compartment	48W	30H
<b>MD-88</b>						
1,253			21,855	Three cargo bin doors		
					53W	44H 29H
<b>BOEING 737-200</b>						
850			12,985	FWD	48W	34H
				AFT	48W	35H
<b>BOEING 737-300</b>						
1,068			12,634	FWD	48W	34H
				AFT	48W	35H
<b>DOUGLAS DC-9-32</b>						
750			11,150	FWD	53W	31H
				AFT	36W	30H

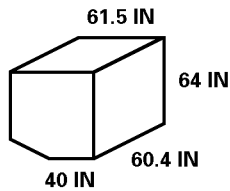
**COMMERCIAL CONTAINER DESCRIPTION**



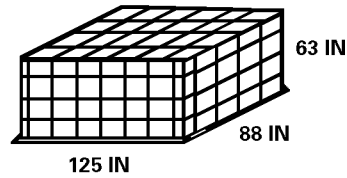
**LD-3**  
**CARRIER OWNED**  
**155 CUBIC FEET**  
**3,500 LBS MAXIMUM GROSS WEIGHT**  
**CARRIED ON L-1011 AIRCRAFT**  
**(TYPE 8 - WHEN USING INTERNATIONALLY)**



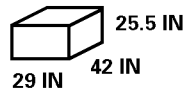
**LD-11**  
**CARRIER OWNED**  
**260 CUBIC FEET**  
**7,000 LBS MAXIMUM GROSS WEIGHT**  
**CARRIED ON L-1011 AIRCRAFT**



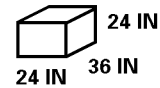
**LD-2**  
**CARRIER OWNED**  
**124 CUBIC FEET**  
**2,700 LBS MAXIMUM GROSS WEIGHT**  
**CARRIED ON 767 AIRCRAFT**



**L-7**  
**PALLET**  
**9,500 LBS MAXIMUM GROSS WEIGHT**  
**(TYPE 5 FOR INTERNATIONAL USE ONLY)**  
**CARRIED ON L-1011 500 AIRCRAFT**



**E**  
**SHIPPER OWNED**  
**18 CUBIC FEET**  
**500 LBS MAXIMUM GROSS WEIGHT**



**EH**  
**SHIPPER OWNED**  
**12 CUBIC FEET**  
**250 LBS MAXIMUM GROSS WEIGHT**  
**CARRIED ON ALL DELTA AIRCRAFT**

(4) *Sealift planning factors.*

Ship Type

Square Foot Capacity

- Fast-sealift ship
- Roll-on/roll-off
- Break-bulk
- Container ship

- 150,000 sq ft
- 100,000 sq ft
- 40,000 sq ft
- 600 containers

**B-2. Hospital Operational Space Requirements**

It is estimated that the hospital will require approximately 375 meters X 375 meters for its full complement of personnel and equipment.

**B-4**

**B-3. Logistics Planning Factors (Classes I, II, III, IV, VI, VIII)**

*a. Classes of Supply Planning Factor Rates.*

Class of Supply	Planning Factor
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Class I—Information on available operational rations and menu planning in a TO is available in FM 10-23. The DLA C-8900-SL Federal Supply Classification (FSC) Stock List Group 89, Subsistence, lists the NSNs, item information, and weight and cube information for all operational rations. Menu planning should be coordinated with the theater Class I manager to ensure the availability of the ration mix needed to support medical requirements.

Class II	SWA	2.091	PMD
	NEA	3.367	PMD
	ARC	1.539	PMD
Class III	(Packaged)	0.510	PMD
Class IV		8.500	PMD (includes 4.0 barrier materiel and 4.5 base construction)

Class VI—(personal demand items) All soldiers should deploy with at least 30 days supply of personal demand items. If exchange support is not readily available or cannot be established, health and comfort items are packaged and issued as a Health and Comfort Pack (HCP). The DLA C-8900-SL FSC Stock List Group 89, Subsistence, lists the NSNs, and weight and cube information for the HCP Types I (all soldiers) and II (female only). Army Regulation 710-2 provides guidance on planning and requisition of these items. Adjustments in quantity or selection of items in the HCP should be submitted to the theater Class I manager. The issue of HCPs will cease when exchange facilities are available.

Class VIII—(PMD planning factors are based on total Army analysis [TAA] 03 NATO scenario)

Echelons 1 & 2 (Division)	1.47	PMD	MRC-E
	1.10	PMD	MRC-W
Echelons 1, 2, & 3 (Combat Zone)	0.88	PMD	MRC-E
	0.79	PMD	MRC-W
Theater (Army)	0.72	PMD	MRC-E
	0.80	PMD	MRC-W
Theater (Joint)	0.59	PMD	MRC-E
	0.84	PMD	MRC-W

**Legend:** MRC-E—Major Regional Conflict-East  
MRC-W—Major Regional Conflict-West  
PMD—Pounds Per Man Per Day

*b. Army Medical Field Feeding Policy.* The Army medical field feeding policy for hospitalized patients is three hot meals daily. The meals will consist of B Rations and Medical B Rations. A Ration meals or components will be used when the tactical and logistical situation permits. A and B Rations will be supported through the use of the Unitized Group Ration unless not available. Meals, ready to eat and Heat and Serve (H&S) Rations are **NOT AUTHORIZED** for feeding hospitalized patients **EXCEPT IN EMERGENCIES** when other rations are not available. The current Surgeon General's policy allows MREs to be consumed as the sole source of subsistence for up to 21 days. When available, bread, fruit, and milk as enhancements to the MRE are recommended.

*c. Army Medical Field Feeding Inpatient Census and Accounting.*

(1) Inpatient census is obtained from the Recapitulation Table of the Admissions and Disposition Report, which is prepared daily by the hospital PAD. Inpatient figures reflect the number of hospital beds occupied as of 2400 the previous day.

(2) Inpatient (accounting) strength will be recorded in the Remarks Section of DA Form 5913-R (Strength and Feeder Report) for information purposes. Patient strength will not be included in the Present-for-Duty Section of DA Form 5913-R.

*d. Standard Medical B Ration Purpose/Policy.*

(1) Standard Medical B Ration is planned for subsisting patients in Armed Forces MTFs when semiperishable food is required.

(2) Patients are exempt from theater ration policy and will receive three hot prepared meals per day.

(3) The staff assigned to medical units will be fed according to the service theater ration policy. To simplify procurement, menu preparation, and service when hot meals are served to medical personnel, they will be served the regular diet from the Medical B Ration.

(4) In unusual circumstances (for example, facility relocation/movement), MREs may be required for the staff (not to exceed 21 days).

*e. Standard Medical B Ration Meals.* To support 24-hour patient care, the hospital must prepare four meals per day: breakfast, lunch, dinner, and a night meal. The night meal may utilize a breakfast or lunch/dinner menu according to local procedures.

*f. Management and Planning Blood Requirements.*

(1) The management and distribution of blood in the TO is a function of combat health logistics. In the long term, theater blood management is based on resupply from the CONUS blood donor base, using a combination of liquid and frozen blood products. In the mature theater, blood management is based on resupply of needs from the CONUS donor base, using a combination of liquid and frozen products. Each FH stores liquid blood and a combination of liquid and frozen blood products of various groups and types.

(2) Liquid blood products enter the theater through the USAF Blood Transshipment Centers (BTCs) for further distribution to the Army blood bank platoon, located in the MEDLOG battalion (rear) and issued to the hospital when it is located in the COMMZ. When the FH is located in the corps area, it will receive blood from the MEDLOG battalion (forward). The blood bank platoon assigned to the MEDLOG battalion (rear/forward) is resupplied from a supporting USAF BTC. The platoon leader of the deployed MEDLOG battalion may also serve as the TA blood manager until the Theater Medical Materiel Management Center (TMMMC) is operational.

(3) Blood collection in the theater is governed by theater policy, but normally is done to provide platelets for emergency situations. Limited testing of blood drawn in the theater is done to minimize danger to recipients.

(4) Blood shipped into the AO will be packed RBCs only. Fresh frozen plasma and frozen platelets are also available. Subject to availability, RBCs shipped from CONUS are packed with the following unit group and type distribution:

Blood Group/Type	Distribution
O Rh Positive	40%
O Rh Negative	10%
A Rh Positive	35%
A Rh Negative	5%
B Rh Positive	8%
B Rh Negative	2%

(5) Blood planning factors.

Blood Component	Planning Factor
Red Blood Cells	*4 units for each WIA and nonbattle injury (NBI) casualty initially admitted to a hospital
Fresh Frozen Plasma	0.08 units for each hospitalized WIA or NBI
Frozen Platelet Concentrate	0.04 units for each hospitalized WIA or NBI

\* For blood planning purposes, only count the WIA or NBI once in the system, not each time the patient is seen or admitted.

(6) The expected admission rates per day are critical in computing initial blood requirements. These rates, along with the above blood planning factors, provide the planner with an initial estimate of daily blood requirements.

Sample Calculations for Initial Blood Requirements

Expected Initial Admission Rate for WIA and NBI = 8 Per 1,000 Per Day

Total Personnel = 10,000

RBC Planning Factor = 4 Units

Formula:

$$\text{(Total Personnel/1,000) X Admission Rate Per Day X Factor = Blood or Blood Component Per Day}$$

$$\text{Example: (10,000/1,000) X 8 X 4 = 320 Units of RBCs Per Day}$$

(For additional information on blood requirements and calculations, see FM 8-55.)

g. *Estimated Oxygen Planning Factors and Requirements.*

(1) *Estimated planning factors.*

OR Table: 2.8 liter/min during operational time.

ICU Beds: 4.5 liter/min for 17 percent of the total ICU beds (patients on resuscitator/ventilator).

ICU Beds: 3.1 liter/min for 17 percent of the total ICU beds (patients on nasal cannula/mask).

Miscellaneous

Requirements: An additional factor of 10 percent is applied to the total of OR and ICU requirements to account for oxygen requirements in other areas of the hospital.

(2) *Oxygen conversion factors.*

1 gallon (gaseous oxygen)	=	0.1333	cu ft
95 gallon "D" cylinder	=	12.7	cu ft
1650 gallon "H" cylinder	=	220.0	cu ft
1 cu ft (gaseous oxygen)	=	28.317	liters
95 gallon "D" cylinder	=	359.63	liters
1650 gallon "H" cylinder	=	6229.74	liters

(3) *Estimated FH oxygen requirements.*

OR Table Hours (HUB)	96,768	liters/day
HUH (No Gas Required)		
ICU Beds on Vent (HUB)	191,601	liters/day
EMT and other Oxygen Requirements	77,760	liters/day
Pneumatic Instruments	699	liters/day
TOTAL daily required	366,828	liters/day



*h. Class VIII Planning Factor.*

(1) *Class VIII composition.*

FSC	Item	Percentage of PMD
6505	Drugs/biologicals and other official reagents	77.1
6510	Surgical dressings	6.8
6515	Medical/surgical supplies	8.0
Other FSCs	X-ray film/development laboratory reagents, test kits, patient care accessories	8.1

(2) *Supply requisitions:*

FH—17,181 per month.

(3) *Class VIII weight and cube (Codes P, G, W, and Q and R).*

	Weight	Cube
Code P (potency period/expiration date)	22,368.07 lbs	767.302 cu ft
Code G (between 35 to 46 degrees Fahrenheit)	1,065.96 lbs	48.765 cu ft
Code W (must be frozen for preservation)	0.04 lbs	0.003 cu ft
Code Q/Code R (controlled/vault storage)	455.12 lbs	25.478 cu ft

*i. Estimated Field Hospital Fuel Consumption.*

(1) *Fuel consumption:*

	Gal/Day	Weight	Cube
Gasoline	713.78	4,425.49 lbs	95.647 cu ft
Diesel	997.28	7,010.87 lbs	133.635 cu ft
TOTAL	1,711.06	11,436.36 lbs	229.282 cu ft

(2) *Petroleum storage capability (based on hospital TOE):*

LIN/Nomenclature	Quantity	Gallons
V12141 Tank and pump unit 1,200 gal	1	1,200
V15086 Tank, fabric, collapsible 3,000 gal	1	3,000
TOTAL storage capability (gal):		4,200

j. *Water Planning Factors (Gallons of Water Per Day).*

- (1) Total patients (beds) X 17.25 gallons = \_\_\_\_\_
- Surgical cases X 19.0 gallons = \_\_\_\_\_
- Staff X 10.25 gallons = \_\_\_\_\_
- Bed patients X 22.0 gallons = \_\_\_\_\_
- Minimal care patients X 10.0 gallons = \_\_\_\_\_
- Staff X 9.4 gallons = \_\_\_\_\_
- Decontamination
  - 7 gallons per individual
  - 380 gallons per major end item
- Vehicle maintenance
  - ~ gallon per vehicle (temperate)
  - 1 gallon per vehicle (hot climate)
- Loss/waste factor = 10 percent of total requirement

(2) Hospital water requirement (consumptive factors).

Staff	Water Requirement
Drinking	1.5 gal/man/day
Hygiene	1.7 gal/man/day
Food prep	1.75 gal/man/day
Extra showers	5.3 gal/man/day
Unit wastewater generation	7.0 gal/man/day

Patient Care	Water Requirement
Cleanup	1.0 gal/bed/day
Heat treatment	0.2 gal/bed/day
Bed bath	5.0 gal/bed/day
Hygiene	1.7 gal/bed/day
Bed pan wash	1.5 gal/bed/day
Laboratory	0.2 gal/bed/day
Sterilizer	0.2 gal/bed/day
X-ray            0.2	gal/bed/day
Handwashing	2.0 gal/bed/day
Cleanup	1.0 gal/bed/day
Unit wastewater generation	12.0 gal/bed/day

Surgical	Water Requirement
Scrub	10.0 gal/case/day
Instrument wash	4.0 gal/case/day
OR cleanup	5.0 gal/case/day
Unit wastewater generation	19.0 gal/case/day

Hospital Laundry		Water Requirement	
Bed patients		22.0	gal/bed/day
Ambulatory patients		10.0	gal/bed/day
Staff smocks		9.4	gal/bed/day
Unit wastewater generation		41.4	gal/bed/day
Decontamination		Water Requirement	
Individual		7	gal/decon
Major end item		380	gal/decon
Vehicle		450	gal/decon
Wastewater generation		To be determined	

(3) Water usage table for food and beverage preparation patient menu (gallons per meal per 100 portions).

	Menu				Alternate Menu			
	B	L	D	Total	B	L	D	Total
Day 1	52	29	32	113	45	28	35	108
Day 2	50	40	39	129	44	35	33	112
Day 3	48	34	32	114	23	29	18	70
Day 4	56	40	37	133	45	34	34	113
Day 5	49	42	35	126	48	37	34	119
Day 6	53	34	35	122	35	34	31	100
Day 7	51	35	36	122	45	38	33	116
Day 8	44	38	36	118	41	35	31	107
Day 9	51	35	36	122	44	33	37	114
Day 10	52	36	39	127	46	31	31	108
TOTAL				1226				1067

Note: For every 100 patients, an additional 30 gallons of water per meal is required to preheat insulated food and beverage containers for decentralized ward service.

(4) Water usage table for food and beverage preparation staff menu (gallons per meal per 100 portions).

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	Menu				Alternate Menu			
	B	L	D	Total	B	L	D	Total
Day 1	36	27	28	91	30	25	32	87
Day 2	35	39	38	112	29	33	30	92
Day 3	31	32	30	93	25	37	33	95
Day 4	42	39	35	116	30	32	31	93
Day 5	32	44	32	108	31	37	31	99
Day 6	42	31	34	107	36	31	31	98
Day 7	35	34	34	103	29	38	30	97
Day 8	25	38	35	98	24	33	29	86
Day 9	35	32	33	100	29	30	34	93
Day 10	36	33	38	107	30	28	30	88
<b>TOTAL</b>				<b>1035</b>				<b>928</b>

Daily water consumption (patient and staff): 13,730 gal/day.  
 Laundry daily water consumption (patient and staff): 13,660 gal/day.  
 TOTAL water consumption: 27,390 gal/day.

(5) Estimated water consumptive factors (under chemical environment, 72-hour scenario).

Staff	
Drinking (1.5 gal/man/day)	642
Hygiene (1.0 gal/man/day)	428
Feeding (0.25 gal/man/day)	107
Patient Care (4 gal/patient/bed/day)	2,016
Surgical (3 gal/case/day)	12
<b>TOTAL daily water requirement (gal):</b>	<b>3,205</b>

(6) Water storage capability (based on hospital TOE):

LIN/Nomenclature	Quantity	Gallons
G68998		
Drum, fabric, collapsible, 250 gal	4	1,000
V15018		
Tank, fabric, collapsible, 3,000 gal	4	12,000
W98825		
Trailer tank, 1 ~ ton, 2 wheel, 400 gal	2	800
X58367		
Truck tank, water, 1,000 gal	2	2,000
<b>TOTAL storage capability (gal):</b>		<b>15,800</b>

*k. Laundry.*

(1) The Surgeon General's policy statement (theater hospital laundry support) states that hospitals operating in the COMMZ will use area support facilities for laundry. Planning for establishing hospitals in the COMMZ normally will include the provision of shower facilities for patients. Clothing exchange functions will be a responsibility of the medical holding element.

(2) Basic formulas for determining laundry requirements for permanent party hospital personnel are—

- Formula 1: 42 lbs (6 lbs clothing per person per day X 7 days) X 75 percent of assigned personnel = weekly laundry requirement for patient care personnel.

- Formula 2: 6 lbs clothing per person per week X 25 percent of assigned personnel = weekly laundry requirement for hospital support personnel.

- Weekly laundry requirement (Formula 1 + Formula 2) divided by number of assigned personnel = average laundry requirement per person per week.

*l. Showers.* Minimum frequency for showering and laundering from a health maintenance perspective is deemed to be once weekly regardless of location, season, or level of combat activity. (Source: Office of The Surgeon General, Department of the Army, 31 January 1983.)

*m. Solid Waste Factors.*

(1) Solid waste calculation (estimated):

Total patients (beds) X 15 lbs = total patient solid waste  
 Staff X 12.5 lbs = total staff solid waste

(2) Hospital infectious waste planning factors (estimated):

3 lbs per cu ft of infectious waste  
 3 lbs of infectious waste generated per bed per day

(3) Hospital infectious waste:

1,512 lbs per day                      504 cu ft per day

n. *Wastewater Planning Factors.*

Wastewater calculations (estimated):

Total wastewater—22,356 gal per day (estimated).

Assume that 80 percent of patient care and staff water requirements become wastewater and all of laundry water requirements become wastewater.

o. *Power Requirements.* It is estimated that 1,384.295 kilowatts of power will be required on a daily basis.

## Section II. GENERAL HOSPITAL PLANNING FACTORS

### B-4. Personnel and Equipment Deployable Planning Factors

a. *General Hospital Personnel.*

Officer	220
Warrant Officer <sup>2</sup>	
Enlisted	534
TOTAL	756

b. *Weight and Cube—Personnel and Equipment.*

Personnel-weight (combat equipped, includes 15 lb hand-carry bag)	190 lb/man (376)	71,440 lbs
Personnel-weight (with M-16)	200 lb/man (347)	69,400 lbs
Personnel-weight (with 9 MM)	195 lb/man (33)	6,435 lbs
Personnel-cube	11 cu ft/man	8,316 cu ft
Mobilization bag-weight	25 lb/man	18,900 lbs
Mobilization bag-cube	1 cu ft/man	756 cu ft
Check-in baggage-weight	70 lb/man	52,920 lbs
Check-in baggage-cube	3 cu ft/man	2,268 cu ft
TOTAL		
Personnel-weight and cube with all gear	219,095 lbs	11,340 cu ft
Weight and cube TOE equipment	1,743,072 lbs	258,536 cu ft
Weight and cube, CTA deployable equipment	288,670 lbs	30,743 cu ft
Weight and cube of personnel, equipment, and CTA deployable equipment	2,250,837 lbs	300,619 cu ft

c. *Transportation Reference Data.*

(1) *Semitrailer requirements.*

M872 semitrailer, platform, break-bulk, 30 each  
 container transporter, 22" ton  
 length = 29.8 ft; width = 8 ft, height = 4.6 ft

(2) *Railcar transportation requirements.*

Railcar = 80 ft 46 each

(3) *Tactical aircraft airlift requirements.*

Cargo compartment data:	C-141	vs	C-5A
Length (inches)	840		1,454
Width (inches)	123		228
Height (inches)	109		162
Allowable cargo load (pounds)	50,000		150,000
Troop seats	102		20/73
Aircraft requirement strategic deployment	29		7

(4) *Commercial cargo capacities and configurations.*

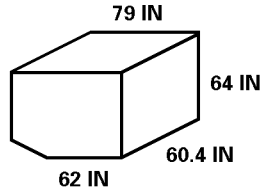
Cargo Capacity (cu ft)	Bulk Bin (cu ft)	Number of Containers	Maximum Capacity Cargo Bins (lbs)	Cargo Door Sizes (inches)		
<b>TRISTAR L-1011-250</b>						
2,385	700	16 (LD-3)	53,650	FWD	70W	68H
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				Bulk compartment	44W	48H
<b>TRISTAR L-1011-500</b>						
2,831	435	19 (LD-3)	61,500	FWD	104W	68H
				AFT	70W	68H
				Bulk compartment	44W	48H

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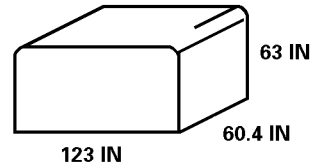
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2,508	430	22 (LD-2)	46,050	FWD	70W	69H
				AFT	70W	69H
				Bulk compartment	38W	48H
<b>BOEING 767-300</b>						
4,770	430	30 (LD-2)	69,850	FWD	70W	69H
				AFT	70W	69H
				Bulk compartment	38W	48H
<b>BOEING 757-200</b>						
1,728			25,700	FWD	55W	42H
				AFT	55W	44H
<b>BOEING 727-200</b>						
1,454			19,000	FWD	55W	42H
				AFT	55W	44H
				Rear compartment	48W	30H
<b>MD-88</b>						
1,253			21,855	Three cargo bin doors		44H
					53W	29H
<b>BOEING 737-200</b>						
850			12,985	FWD	48W	34H
				AFT	48W	35H
<b>BOEING 737-300</b>						
1,068			12,634	FWD	48W	34H
				AFT	48W	35H
<b>DOUGLAS DC-9-32</b>						
750			11,150	FWD	53W	31H
				AFT	36W	30H



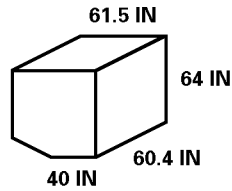
**COMMERCIAL CONTAINER DESCRIPTION**



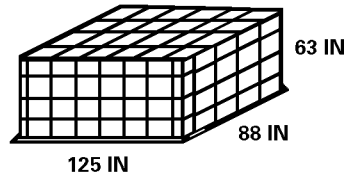
**LD-3**  
**CARRIER OWNED**  
 155 CUBIC FEET  
 3,500 LBS MAXIMUM GROSS WEIGHT  
 CARRIED ON L-1011 AIRCRAFT  
 (TYPE 8 - WHEN USING INTERNATIONALLY)



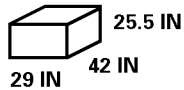
**LD-11**  
**CARRIER OWNED**  
 260 CUBIC FEET  
 7,000 LBS MAXIMUM GROSS WEIGHT  
 CARRIED ON L-1011 AIRCRAFT



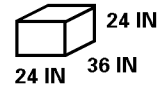
**LD-2**  
**CARRIER OWNED**  
 124 CUBIC FEET  
 2,700 LBS MAXIMUM GROSS WEIGHT  
 CARRIED ON 767 AIRCRAFT



**L-7**  
**PALLET**  
 9,500 LBS MAXIMUM GROSS WEIGHT  
 (TYPE 5 FOR INTERNATIONAL USE ONLY)  
 CARRIED ON L-1011 500 AIRCRAFT



**E**  
**SHIPPER OWNED**  
 18 CUBIC FEET  
 500 LBS MAXIMUM GROSS WEIGHT



**EH**  
**SHIPPER OWNED**  
 12 CUBIC FEET  
 250 LBS MAXIMUM GROSS WEIGHT  
 CARRIED ON ALL DELTA AIRCRAFT

(5) *Sealift planning factors.*

Ship Type	Square Foot Capacity
Fast-sealift ship	150,000 sq ft
Roll-on/roll-off	100,000 sq ft
Break-bulk	40,000 sq ft
Container ship	600 containers

**B-5. Hospital Operational Space Requirements**

It is estimated that the hospital will require an area approximately 400 meters X 400 meters for its full complement of personnel and equipment.

**B-6. Logistics Planning Factors (Classes I, II, III, IV, VI, VIII)**

*a. Classes of Supply Planning Factor Rates.*

Class of Supply	Planning Factor
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Class I—Information on available operational rations and menu planning in a TO is available in FM 10-23. The DLA C-8900-SL FSC Stock List Group 89, Subsistence, lists the NSNs, item information, and weight and cube information for all operational rations. Menu planning should be coordinated with the theater Class I manager to ensure the availability of the ration mix needed to support medical requirements.

Class II	SWA	2.091	PMD
	NEA	3.367	PMD
	ARC	1.539	PMD
Class III	(Packaged)	0.510	PMD
Class IV		8.500	PMD (includes 4.0 barrier materiel and 4.5 base construction)

Class VI—(personal demand items) All soldiers should deploy with at least 30 days supply of personal demand items. If exchange support is not readily available or cannot be established, health and comfort items are packaged and issued as a HCP. The DLA C-8900-SL FSC Stock List Group 89, Subsistence, lists the NSNs, and weight and cube information for the HCP Types I (all soldiers) and II (female only). Army Regulation 710-2 provides guidance on planning and requisition of these items. Adjustments in quantity or selection of items in the HCP should be submitted to the theater Class I manager. The issue of HCPs will cease when exchange facilities are available.

Class VIII—(PMD planning factors are based on TAA 03 NATO scenario)

Echelon 1 & 2 (Division)	1.47	PMD	MRC-E
	1.10	PMD	MRC-W
Echelon 1, 2, & 3 (Combat Zone)	0.88	PMD	MRC-E
	0.79	PMD	MRC-W
Theater (Army)	0.72	PMD	MRC-E
	0.80	PMD	MRC-W
Theater (Joint)	0.59	PMD	MRC-E
	0.84	PMD	MRC-W

**Legend:** MRC-E—Major Regional Conflict-East  
MRC-W—Major Regional Conflict-West  
PMD—Pounds Per Man Per Day

*b. Army Medical Field Feeding Policy.* The Army medical field feeding policy for hospitalized patients is three hot meals daily. The meals will consist of B Rations and Medical B Rations. A Ration meals or components will be used when the tactical and logistical situation permits. A and B Rations will be supported through the use of the Unitized Group Ration unless not available. Meals, ready to eat and H&S Rations are **NOT AUTHORIZED** for feeding hospitalized patients **EXCEPT IN EMERGENCIES** when other rations are not available. The current Surgeon General's policy allows MREs to be consumed as the sole source of subsistence for up to 21 days. When available, bread, fruit, and milk as enhancements to the MRE are recommended.

*c. Army Medical Field Feeding Inpatient Census and Accounting.*

(1) Inpatient census is obtained from the Recapitulation Table of the Admissions and Disposition Report, which is prepared daily by the hospital PAD. Inpatient figures reflect the number of hospital beds occupied as of 2400 the previous day.

(2) Inpatient (accounting) strength will be recorded in the Remarks Section of DA Form 5913-R (Strength and Feeder Report) for information purposes. Patient strength will not be included in the Present-for-Duty Section of DA Form 5913-R.

*d. Standard Medical B Ration Purpose/Policy.*

(1) Standard Medical B Ration is planned for subsisting patients in Armed Forces MTFs when semiperishable food is required.

(2) Patients are exempt from theater ration policy and will receive three hot prepared meals per day.

(3) The staff assigned to medical units will be fed according to the service theater ration policy. To simplify procurement, menu preparation, and service when hot meals are served to medical personnel, they will be served the regular diet from the Medical B Ration.

(4) In unusual circumstances (for example, facility relocation/movement), MREs may be required for the staff (not to exceed 21 days).

*e. Standard Medical B Ration Meals.*

(1) To support 24-hour patient care, the hospital must prepare four meals per day: breakfast, lunch, dinner, and a night meal. The night meal may utilize a breakfast or lunch/dinner menu according to local procedures.

(2) Late meals will be served in accordance with dietary constraints, local procedures, and PVNTMED sanitation guidelines.

*f. Management and Planning Blood Requirements.*

(1) The management and distribution of resuscitative fluids in the TO, including blood and blood products, are functions of combat health logistics. In the mature theater, blood management is based

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on resupply of needs from the CONUS donor base. In a developing theater during the buildup period, immediate blood requirements may be provided by pre-positioned frozen blood. These pre-positioned stocks are designed to meet initial blood requirements until the logistical system can deliver liquid blood to the TO.

(2) Blood and blood products enter the theater through the USAF BTCs for further distribution to the Army blood bank platoon, located in the MEDLOG battalion (forward or rear). The GH is supplied with blood and blood products by a blood bank platoon assigned to the MEDLOG battalion (rear).

(3) Blood shipped into the AO will be packed RBCs only. Frozen plasma and platelets are also available. Subject to availability, RBCs shipped from CONUS are packed with the following unit group and type distribution:

Blood Group/Type	Distribution
O Rh Positive	40%
O Rh Negative	10%
A Rh Positive	35%
A Rh Negative	5%
B Rh Positive	8%
B Rh Negative	2%

(4) Blood planning factors.

Blood Component	Planning Factor
Red Blood Cells	*4 units for each WIA and NBI casualty initially admitted to a hospital
Frozen Plasma	0.08 units for each hospitalized WIA or NBI
Frozen Platelet Concentrate	0.04 units for each hospitalized WIA or NBI

\* For blood planning purposes, only count the WIA or NBI once in the system, not each time the patient is seen or admitted.

(5) The expected admission rates per day are critical in computing initial blood requirements. These rates, along with the above blood planning factors, provide the planner with an initial estimate of daily blood requirements.

Sample Calculations for Initial Blood Requirements

Expected Initial Admission Rate for WIA and NBI = 8 Per 1,000 Per Day

Total Personnel = 10,000

RBC Planning Factor = 4 Units

Formula:

$$\frac{(\text{Total Personnel}/1,000) \times \text{Admission Rate Per Day} \times \text{Factor}}{\text{Component Per Day}} = \text{Blood or Blood Component Per Day}$$

Example:  $(10,000/1,000) \times 8 \times 4 = 320$  Units of RBCs Per Day

(6) It is estimated that the GH will require 130 units of blood per day. It has the capability to store 160 units. It stores RBCs of various groups and types. The GH has emergency blood collection capability but does not have the capability to perform serological testing of the donor units (for example, hepatitis, human immunodeficiency virus, and syphilis testing). Blood collection in the theater is governed by theater policy, but normally is done to provide platelets for emergency situations. Limited testing of blood drawn in the theater is done to minimize danger to recipients.

*g. Estimated Oxygen Planning Factors and Requirements.*

(1) *Estimated planning factors.*

OR Table: 2.8 liter/min during operational time.

ICU Beds: 4.5 liter/min for 17 percent of the total ICU beds (patients on resuscitator/ventilator).

ICU Beds: 3.1 liter/min for 17 percent of the total ICU beds (patients on nasal cannula/mask).

Miscellaneous

Requirements: An additional factor of 10 percent is applied to the total of OR and ICU requirements to account for oxygen requirements in other areas of the hospital.

(2) *Oxygen conversion factors.*

1 gallon (gaseous oxygen)	=	0.1333	cu ft
95 gallon "D" cylinder	=	12.7	cu ft
1650 gallon "H" cylinder	=	220.0	cu ft
1 cu ft (gaseous oxygen)	=	28.317	liters
95 gallon "D" cylinder	=	359.63	liters
1650 gallon "H" cylinder	=	6229.74	liters

(3) *Estimated oxygen requirements.*

OR Table Hours (HUB)	96,768	liters/day
OR Table Hours (HUS)	193,536	liters/day
ICU Beds On Vent (HUB)	191,601	liters/day
ICU Beds on Vent (HUS)	266,112	liters/day
EMT and other Oxygen Requirements	77,760	liters/day
Pneumatic Instruments	3,143	liters/day
TOTAL daily required	828,920	liters/day

*h. Class VIII Planning Factor.*

(1) *Class VIII composition.*

FSC	Item	Percentage of PMD
6505	Drugs/biologicals and other official reagents	77.1
6510	Surgical dressings	6.8
6515	Medical/surgical supplies	8.0
Other FSCs	X-ray film/development laboratory reagents, test kits, patient care accessories	8.1

(2) *Supply requisitions:*

565 per day	28,098 per month
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(3) *Class VIII weight and cube (Codes P, G, W, and Q and R).*

	Weight	Cube
Code P (potency period/expiration date)	31,218.00 lbs	1,083.889 cu ft
Code G (between 35 to 46 degrees Fahrenheit)	1,796.28 lbs	82.518 cu ft
Code W (must be frozen for preservation)	0.04 lbs	0.003 cu ft
Code Q/Code R (controlled/vault storage)	575.54 lbs	32.183 cu ft

*i. Estimated General Hospital Petroleum, Oils, and Lubricants/Fuel Consumption.*

(1) *Fuel consumption:*

	Gal/Day	Weight	Cube
Gasoline	1,124.02	6,968.92 lbs	150.618 cu ft
Diesel	1,624.20	11,418.12 lbs	217.642 cu ft
TOTAL	2,748.22	18,387.04 lbs	368.260 cu ft

(2) *Petroleum storage capability (based on hospital TOE):*

LIN/Nomenclature	Quantity	Gallons
V15086 Tank, fabric, collapsible, 3,000 gallons	1	3,000

j. *Water Planning Factors (Gallons of Water Per Day).*

- (1) Total patients (beds) X 17.25 gallons = \_\_\_\_\_
- Surgical cases X 19.0 gallons = \_\_\_\_\_
- Staff X 10.25 gallons = \_\_\_\_\_
- Bed patients X 22.0 gallons = \_\_\_\_\_
- Minimal care patients X 10.0 gallons = \_\_\_\_\_
- Staff X 9.4 gallons = \_\_\_\_\_
- Decontamination
  - 7 gallons per individual
  - 380 gallons per major end item
- Vehicle maintenance
  - ~ gallon per vehicle (temperate)
  - 1 gallon per vehicle (hot climate)
- Loss/waste factor = 10 percent of total requirement

(2) Hospital water requirement (consumptive factors).

Staff	Water Requirement
Drinking	1.5 gal/man/day
Hygiene	1.7 gal/man/day
Food prep	1.75 gal/man/day
Extra showers	5.3 gal/man/day
Unit wastewater generation	7.0 gal/man/day
<b>Patient Care</b>	
Cleanup	1.0 gal/bed/day
Heat treatment	0.2 gal/bed/day
Bed bath	5.0 gal/bed/day
Hygiene	1.7 gal/bed/day
Bed pan wash	1.5 gal/bed/day
Laboratory	0.2 gal/bed/day
Sterilizer	0.2 gal/bed/day
X-ray            0.2	gal/bed/day
Handwashing	2.0 gal/bed/day
Cleanup	1.0 gal/bed/day
Unit wastewater generation	12.0 gal/bed/day
<b>Surgical</b>	
Scrub	10.0 gal/case/day
Instrument wash	4.0 gal/case/day
OR cleanup	5.0 gal/case/day
Unit wastewater generation	19.0 gal/case/day

Hospital Laundry	Water Requirement
Bed patients	22.0 gal/bed/day
Ambulatory patients	10.0 gal/bed/day
Staff smocks	9.4 gal/bed/day
Unit wastewater generation	41.4 gal/bed/day
Decontamination	Water Requirement
Individual	7.0 gal/decon
Major end item	380.0 gal/decon
Vehicle	450.0 gal/decon
Wastewater generation	To be determined

(3) Water usage table for food and beverage preparation patient menu (gallons per meal per 100 portions).

	Menu				Alternate Menu			
	B	L	D	Total	B	L	D	Total
Day 1	52	29	32	113	45	28	35	108
Day 2	50	40	39	129	44	35	33	112
Day 3	48	34	32	114	23	29	18	70
Day 4	56	40	37	133	45	34	34	113
Day 5	49	42	35	126	48	37	34	119
Day 6	53	34	35	122	35	34	31	100
Day 7	51	35	36	122	45	38	33	116
Day 8	44	38	36	118	41	35	31	107
Day 9	51	35	36	122	44	33	37	114
Day 10	52	36	39	127	46	31	31	108
TOTAL				1226				1067

Note: For every 100 patients, an additional 30 gallons of water per meal is required to preheat insulated food and beverage containers for decentralized ward service.

(4) Water usage table for food and beverage preparation staff menu (gallons per meal per 100 portions).



	Menu				Alternate Menu			
	B	L	D	Total	B	L	D	Total
Day 1	36	27	28	91	30	25	32	87
Day 2	35	39	38	112	29	33	30	92
Day 3	31	32	30	93	25	37	33	95
Day 4	42	39	35	116	30	32	31	93
Day 5	32	44	32	108	31	37	31	99
Day 6	42	31	34	107	36	31	31	98
Day 7	35	34	34	103	29	38	30	97
Day 8	25	38	35	98	24	33	29	86
Day 9	35	32	33	100	29	30	34	93
Day 10	36	33	38	107	30	28	30	88
TOTAL				1035				928

Daily water consumption (patient and staff): 16,750 gal/day.

Laundry daily water consumption (patient and staff): 16,720 gal/day.

TOTAL water consumption: 33,470 gal/day.

- (5) Estimated water consumptive factors (under chemical environment, 72-hour scenario).

Staff	
Drinking (1.5 gal/man/day)	1,134
Hygiene (1.0 gal/man/day)	756
Feeding (0.25 gal/man/day)	189
Patient Care (4 gal/patient/bed/day)	1,904
Surgical (3 gal/case/day)	36
TOTAL daily water requirement (gal):	4,019

- (6) Water storage capability (based on hospital TOE):

LIN/Nomenclature	Quantity	Gallons
G68998		
Drum, fabric, collapsible, 250 gal	4	1,000
V15018		
Tank, fabric, collapsible, 3,000 gal	4	12,000
W98825		
Trailer tank, 1" ton, 2 wheel, 400 gal	3	1,200
X58367		
Truck tank, water, 1,000 gal	2	2,000
TOTAL storage capability (gal):		16,200

*k. Laundry.*

(1) The Surgeon General's policy statement (theater hospital laundry support) states that hospitals operating in the COMMZ will use area support facilities for laundry. Planning for establishing hospitals in the COMMZ normally will include the provision of shower facilities for patients. Clothing exchange functions will be a responsibility of the medical holding element.

(2) Basic formulas for determining laundry requirements for permanent party hospital personnel are—

- Formula 1: 42 lbs (6 lbs clothing per person per day X 7 days) X 75 percent of assigned personnel = weekly laundry requirement for patient care personnel.

- Formula 2: 6 lbs clothing per person per week X 25 percent of assigned personnel = weekly laundry requirement for hospital support personnel.

- Weekly laundry requirement (Formula 1 + Formula 2) divided by number of assigned personnel = average laundry requirement per person per week.

*l. Showers.* Minimum frequency for showering and laundering from a health maintenance perspective is deemed to be once weekly regardless of location, season, or level of combat activity. (Source: Office of The Surgeon General, Department of the Army, 31 January 1983.)

*m. Solid Waste Factors.*

(1) Solid waste calculation (estimated):

Total patients (beds) X 15 lbs = total patient solid waste  
Staff X 12.5 lbs = total staff solid waste

(2) Hospital infectious waste planning factors (estimated):

3 lbs per cu ft of infectious waste  
3 lbs of infectious waste generated per bed per day

(3) Hospital infectious waste:

1,428 lbs per day                      476 cu ft per day

*n. Wastewater Planning Factors.*

Wastewater calculations (estimated):

Total wastewater—30,120 gal per day (estimated).

Assume that 80 percent of patient care and staff water requirements become wastewater and all of laundry water requirements become wastewater.

*o. Power Requirements.* It is estimated that 1,951.2299 kilowatts of power will be required on a daily basis.