

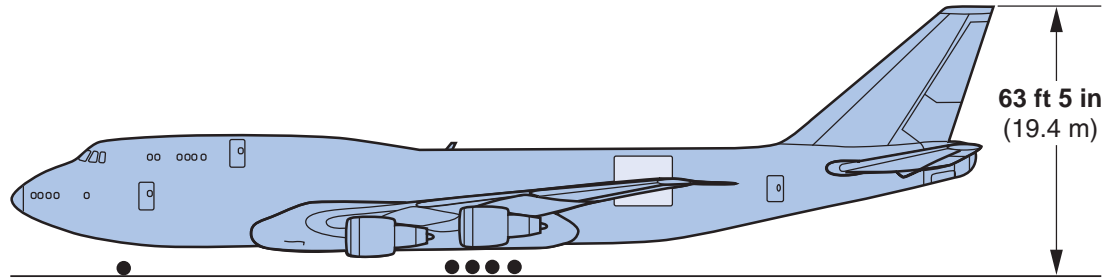
# Boeing 747-100/-200 Freighters

## General Arrangement

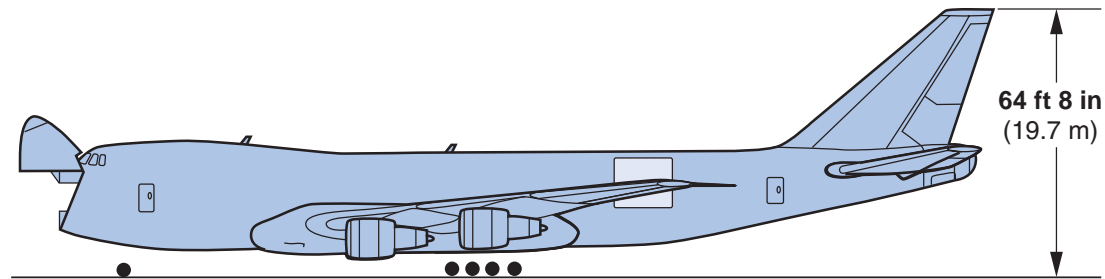
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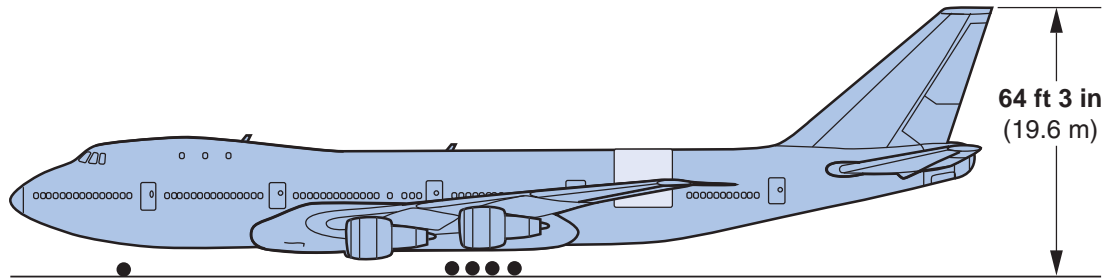
747-200BSUDSF



747-200F



747-100SF/-200SF



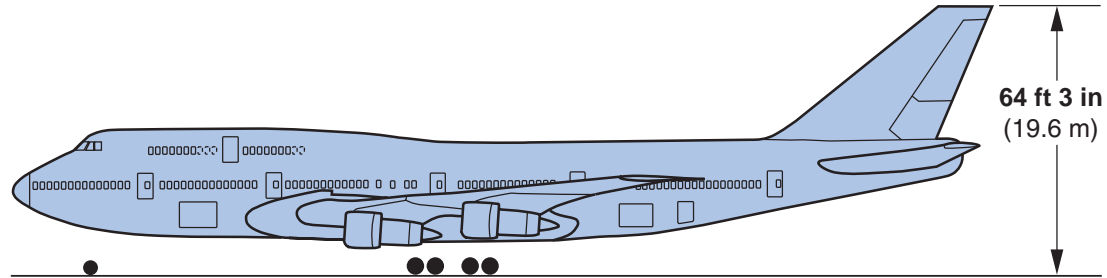
# Boeing 747-300SF/-400F/ERF Freighters

## General Arrangement

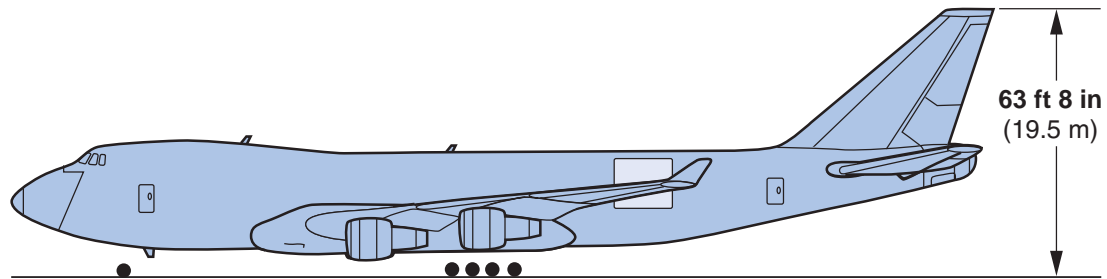
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747-300SF



747-400F/ERF



# Boeing 747-100SF/-300SF Freighters

## Performance Summary

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### Pratt & Whitney JT9D-7A engines

### Pratt & Whitney JT9D-7R4G2\* engines

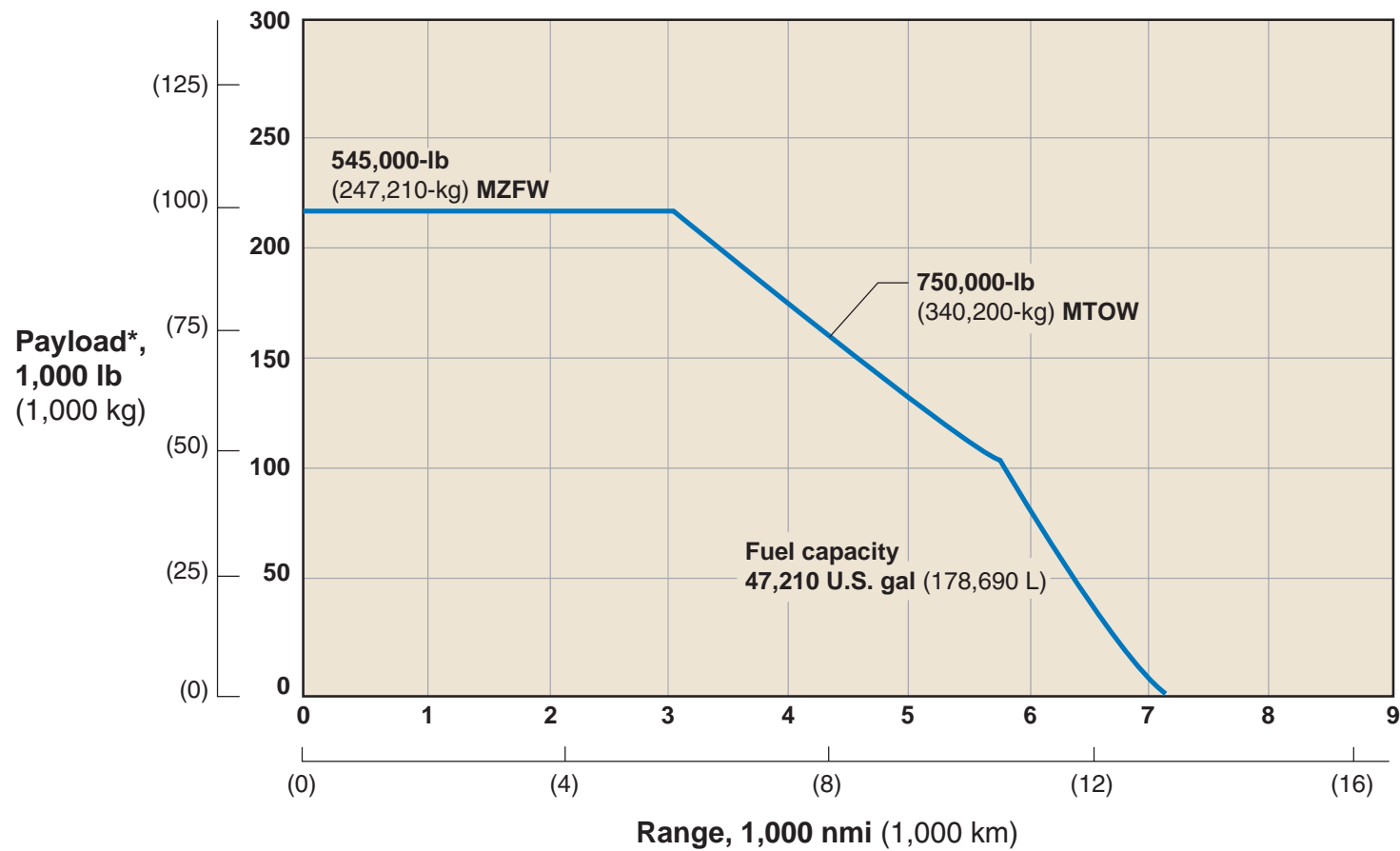
	747-100SF		747-300SF	
<b>Cargo capacity, ft<sup>3</sup> (m<sup>3</sup>)</b>				
<b>Main deck, (29) 96- x 125-in (2.4- x 3.2-m) pallets or containers</b>	<b>20,650</b>	(584.7)	<b>20,650</b>	(584.7)
<b>Lower hold, (9) 96- x 125-in (2.4- x 3.2-m) pallets plus bulk**</b>	<b>4,235</b>	(119.9)	<b>4,235</b>	(119.9)
<b>Total cargo volume</b>	<b>24,885</b>	(704.6)	<b>24,885</b>	(704.6)
<b>Maximum gross weight, lb (kg)</b>				
<b>Takeoff</b>	<b>750,000</b>	(340,200)	<b>833,000</b>	(377,842)
<b>Landing</b>	<b>585,000</b>	(265,350)	<b>630,000</b>	(285,763)
<b>Zero fuel</b>	<b>545,000</b>	(247,210)	<b>590,000</b>	(267,620)
<b>Structural limit payload (MZFW – OEW)</b>	<b>208,500</b>	(94,574)	<b>227,900</b>	(103,374)
<b>Operating empty weight including tare</b>	<b>336,500</b>	(152,634)	<b>362,100</b>	(164,246)
<b>Fuel capacity, U.S. gal (L)</b>	<b>48,445</b>	(183,384)	<b>52,035</b>	(196,974)
<b>Design range (MZFW payload), nmi (km)</b>	<b>2,735</b>	(5,065)	<b>4,635</b>	(8,584)

\* 747-300SF model

\*\* Bulk hold volume, 800 ft<sup>3</sup> (22.7 m<sup>3</sup>)



### Pratt & Whitney J79D-7A engines



\* No tare in OEW

# Boeing 747-200SF/-200F Freighters

## Performance Summary

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### Pratt & Whitney JT9D-7Q engines Pratt & Whitney JT9D-7R4G2\* engines

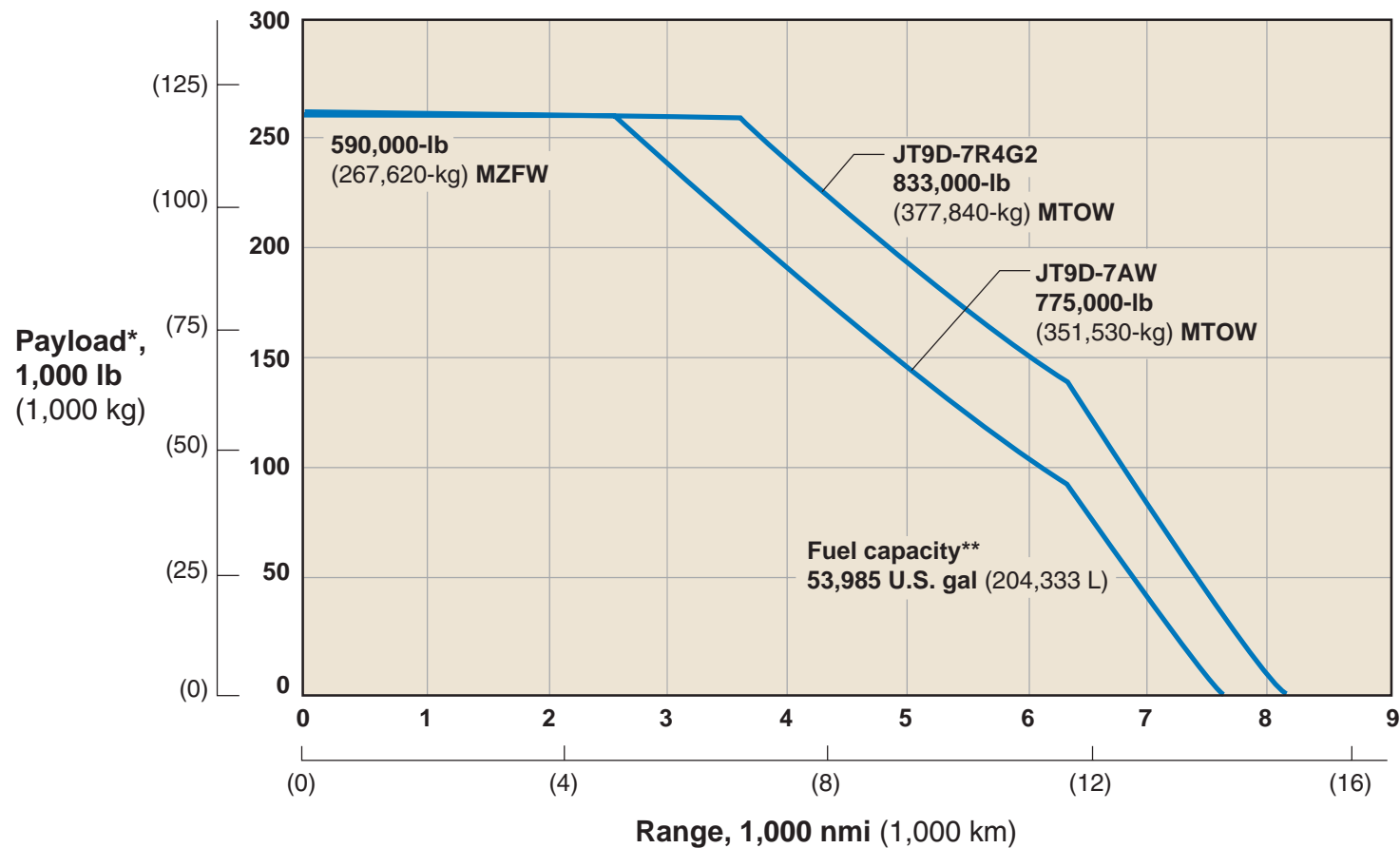
	747-200SF		747-200F	
<b>Cargo capacity, ft<sup>3</sup> (m<sup>3</sup>)</b>				
<b>Main deck, (29) 96- x 125-in (2.4- x 3.2-m) pallets or containers</b>	<b>20,650</b>	(584.7)	<b>20,650</b>	(584.7)
<b>Lower hold, (9) 96- x 125-in (2.4- x 3.2-m) pallets plus bulk**</b>	<b>4,235</b>	(119.9)	<b>4,235</b>	(119.9)
<b>Total cargo volume</b>	<b>24,885</b>	(704.6)	<b>24,885</b>	(704.6)
<b>Maximum gross weight, lb (kg)</b>				
<b>Takeoff</b>	<b>820,000</b>	(371,946)	<b>833,000</b>	(377,842)
<b>Landing</b>	<b>630,000</b>	(285,763)	<b>630,000</b>	(285,763)
<b>Zero fuel</b>	<b>590,000</b>	(267,620)	<b>570,000</b>	(267,620)
<b>Structural limit payload (MZFW – OEW)</b>	<b>233,500</b>	(105,914)	<b>245,264</b>	(111,250)
<b>Operating empty weight including tare</b>	<b>356,500</b>	(161,706)	<b>344,736</b>	(156,370)
<b>Fuel capacity, U.S. gal (L)</b>	<b>53,985</b>	(204,355)	<b>53,985</b>	(204,355)
<b>Design range (MZFW payload), nmi (km)</b>	<b>3,050</b>	(5,649)	<b>3,615</b>	(6,695)

\* 747-200F model

\*\* Bulk hold volume, 800 ft<sup>3</sup> (22.7 m<sup>3</sup>)



### Pratt & Whitney J79D-7AW and -7R4G2 engines

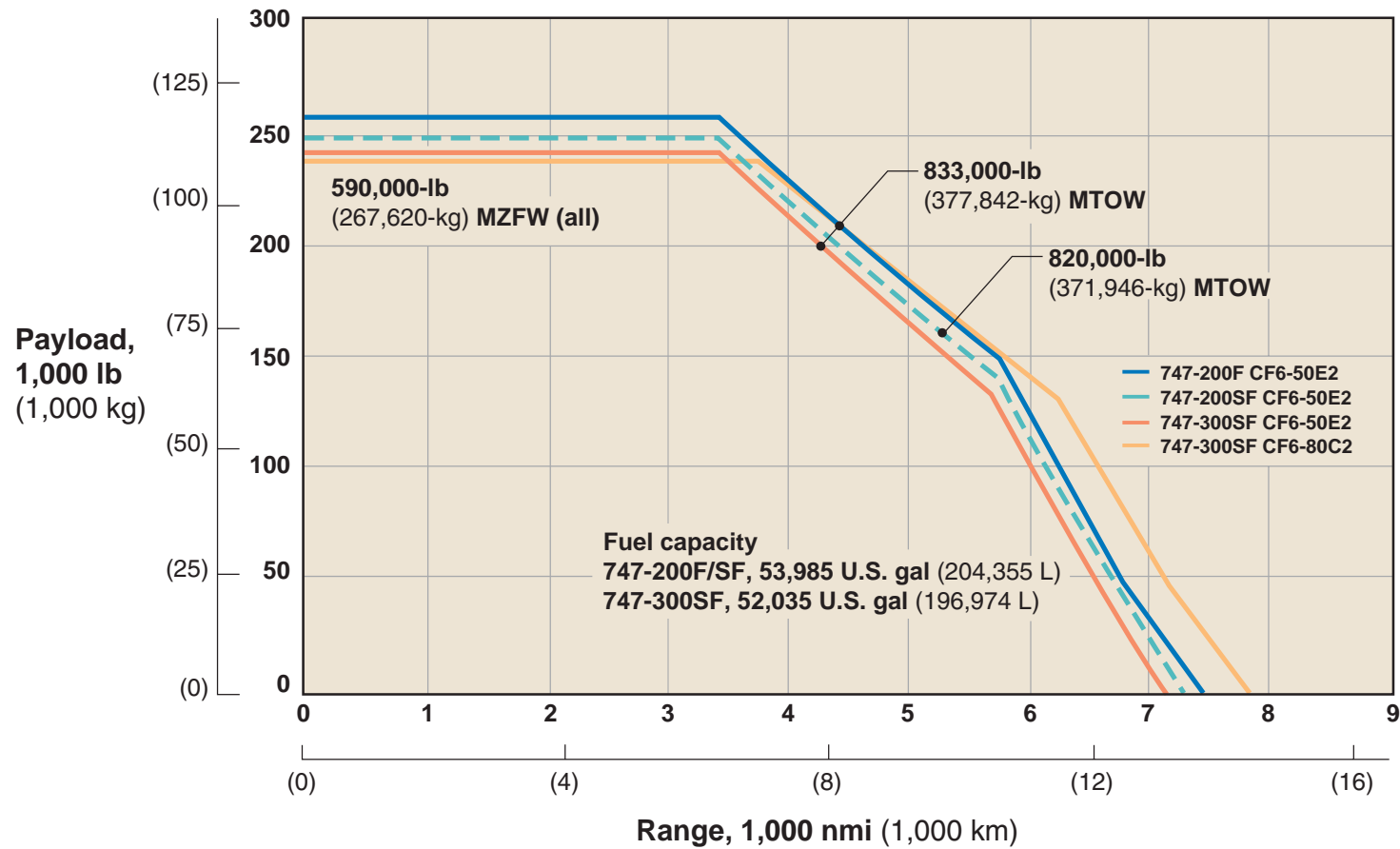


\* No tare in OEW

\*\* Fuel capacity with JT9D-7AW engines, 52,409 U.S. gal (198,368 L)



### General Electric CF6-50E2/-80C2 engines





### General Electric CF6-80C2-B5F engines

	747-400F		747-400ERF	
<b>Cargo capacity, ft<sup>3</sup> (m<sup>3</sup>)</b>				
<b>Main deck, (30) 96- x 125-in (2.4- x 3.2-m) pallets or containers</b>	<b>21,347</b>	(604.5)	<b>21,347</b>	(604.5)
<b>Lower hold, (32) LD-1/-3 containers, plus bulk*</b>	<b>6,120</b>	(173.3)	<b>6,120</b>	(173.3)
<b>Total cargo volume</b>	<b>27,467</b>	(777.8)	<b>27,467</b>	(777.8)
<b>Maximum gross weight, lb (kg)**</b>				
<b>Takeoff</b>	<b>875,000</b>	(396,900)	<b>910,000</b>	(412,770)
<b>Landing</b>	<b>652,000</b>	(295,750)	<b>653,000</b>	(296,200)
<b>Zero fuel</b>	<b>610,000</b>	(276,700)	<b>611,000</b>	(277,140)
<b>Structural limit payload (MZFW – OEW)</b>	<b>248,300</b>	(112,630)	<b>248,600</b>	(112,760)
<b>Operating empty weight including tare</b>	<b>361,700</b>	(165,060)	<b>362,400</b>	(164,390)
<b>Fuel capacity, U.S. gal (L)</b>	<b>53,765</b>	(203,520)	<b>53,765</b>	(203,520)
<b>Design range (MZFW payload), nmi (km)</b>	<b>4,445</b>	(8,230)	<b>4,970</b>	(9,200)
<b>Chapter 3 cumulative margin, EPNdB</b>	<b>-15.0</b>		<b>-15.6</b>	

\* Bulk hold volume, 520 ft<sup>3</sup> (14.7 m<sup>3</sup>)

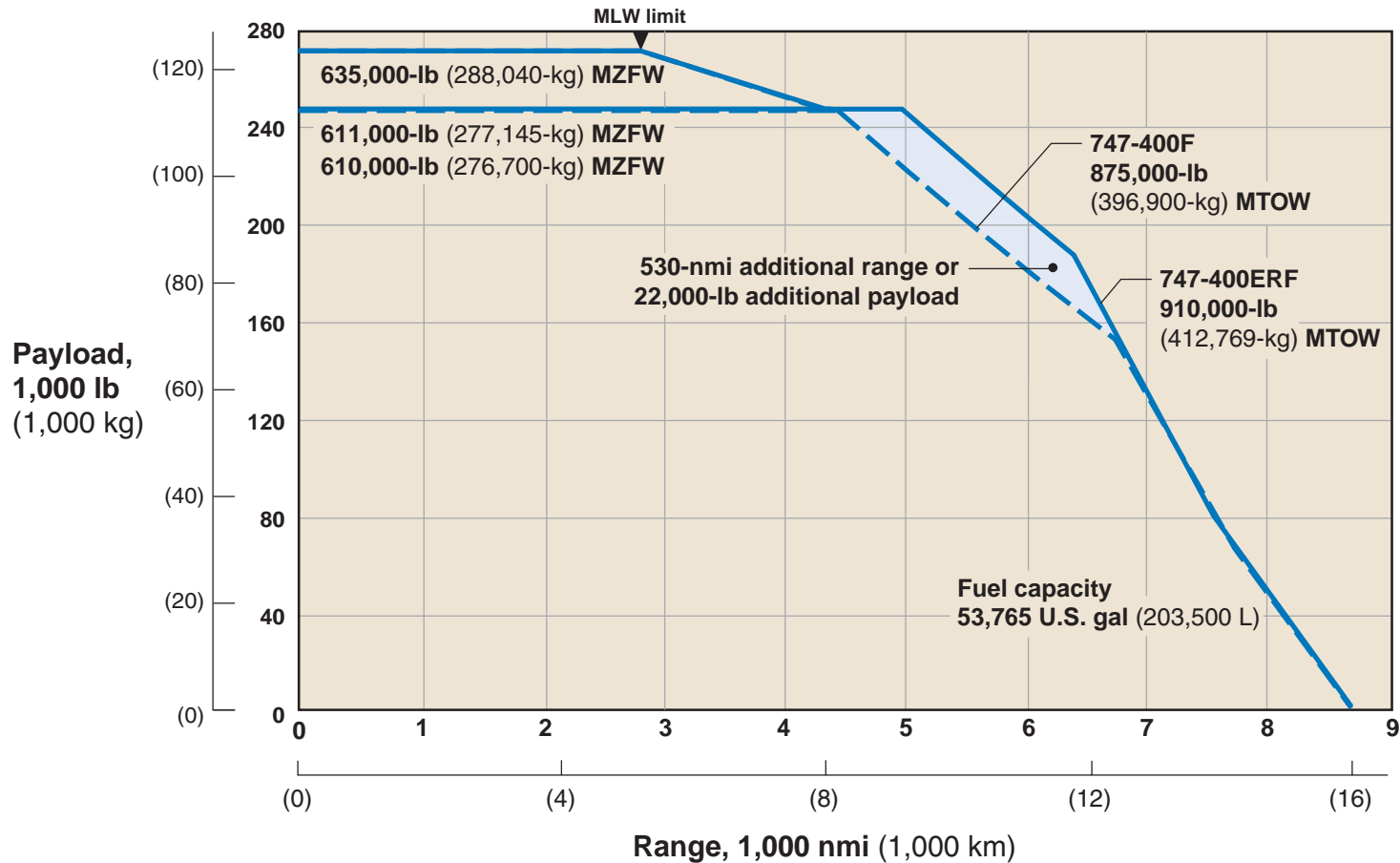
\*\* 747-400F: optional MTOW of 811,000 lb (367,870 kg) with structural limit payload of 273,300 lb (123,970 kg)

747-400ERF: MTOW of 811,000 lb (367,870 kg) with structural limit payload of 272,600 lb (123,650 kg)





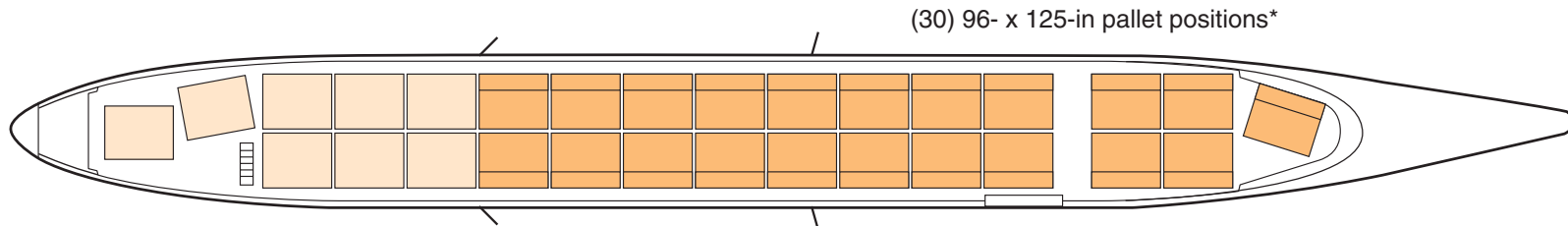
### General Electric CF-6-80C2-B5F engines



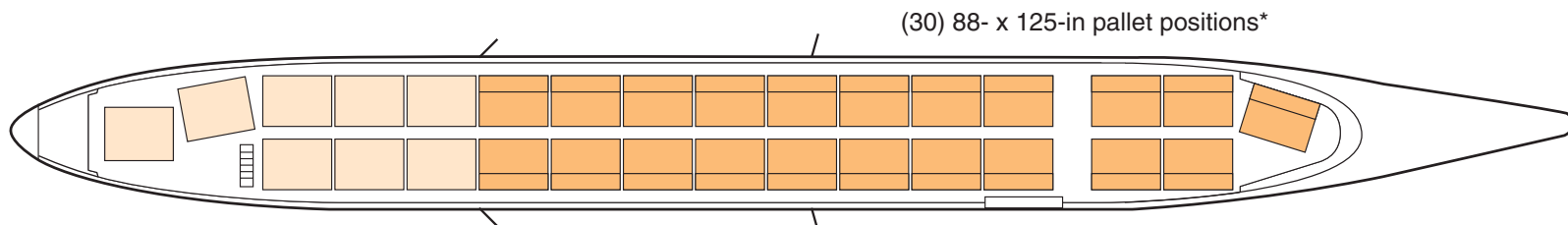
- Typical mission rules
- Tare weight included in OEW



### Main deck cargo arrangements



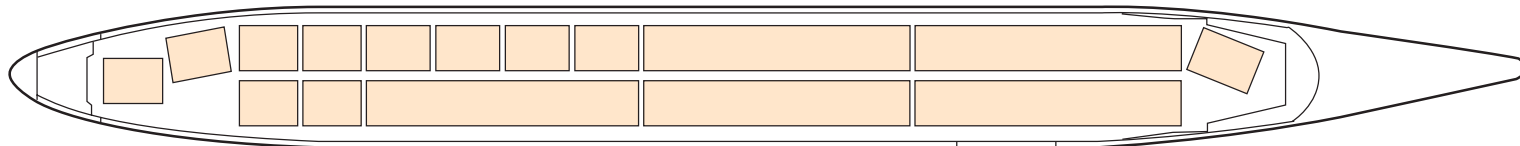
(8) 96- x 125-in x 8-ft pallets (at 630 ft <sup>3</sup> )	5,040 ft <sup>3</sup>
(21) 96- x 125-in x 10-ft contoured pallets (at 745 ft <sup>3</sup> )	15,645 ft <sup>3</sup>
<b>Total</b>	<b>20,685 ft<sup>3</sup></b>



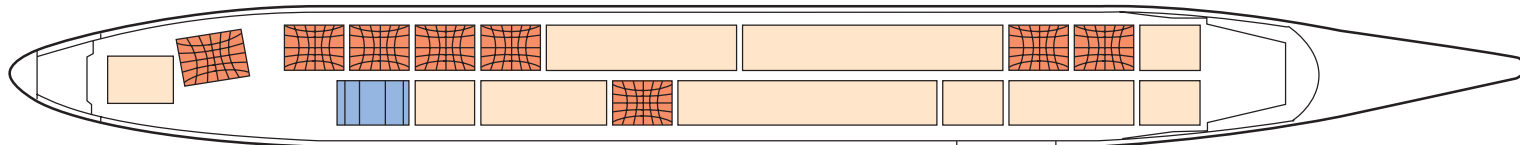
(8) 96- x 125-in x 8-ft pallets (at 560 ft <sup>3</sup> )	4,480 ft <sup>3</sup>
(21) 96- x 125-in x 10-ft contoured pallets (at 680 ft <sup>3</sup> )	14,280 ft <sup>3</sup>
<b>Total</b>	<b>18,760 ft<sup>3</sup></b>

- 747-100SF, -200SF and -300SF models do not have nose doors.
- \* Option with Boeing and IAI Bedek conversions or Ancra floor system

### Main deck cargo arrangements Nose door landing



11 containers, 96 x 120 in (2.4 x 3.1 m)  
5 containers, 96 x 480 in (2.4 x 12.2 m)



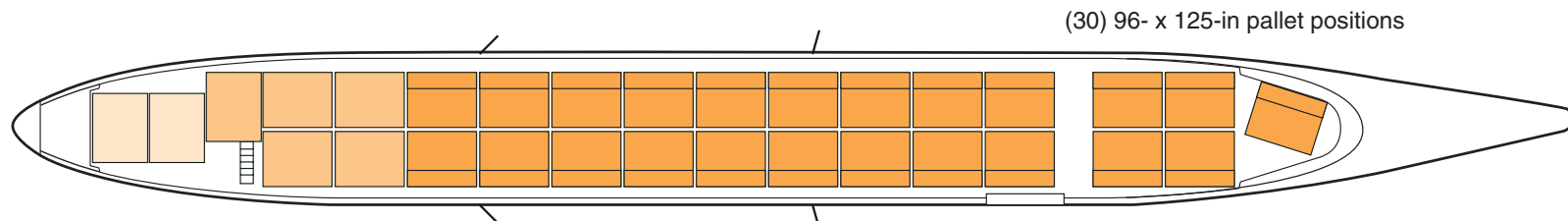
**Containers:**  
5 96 x 120 in (2.4 x 3.1 m)  
2 96 x 240 in (2.4 x 6.1 m)  
1 96 x 360 in (2.4 x 9.1 m)  
2 96 x 480 in (2.4 x 12.2 m)

**Pallets:**  
5 88 x 108 in (2.2 x 2.7 m)  
2 88 x 125 in (2.2 x 3.2 m)  
1 96 x 125 in (2.4 x 3.2 m)

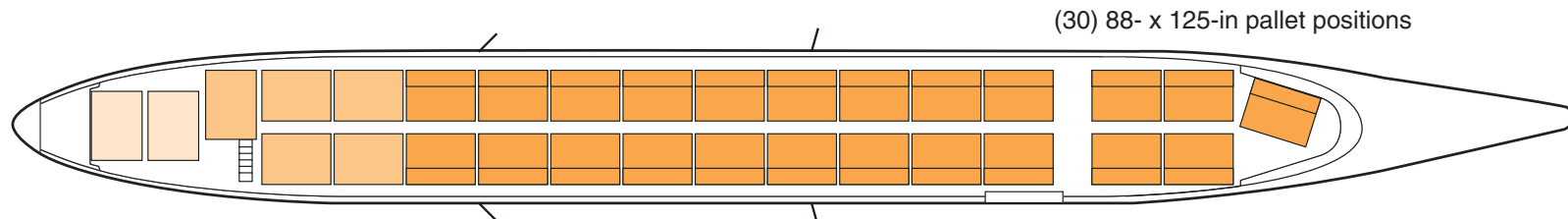
**Igloo: 1 707/DC-8**



### Main deck cargo arrangements



(2) 96- x 125-in x 8-ft contoured pallets (540 + 607 ft <sup>3</sup> )	1,147 ft <sup>3</sup>
(5) 96- x 125-in x 8-ft pallets (at 613 ft <sup>3</sup> )	3,065 ft <sup>3</sup>
(23) 96- x 125-in x 10-ft contoured pallets (at 745 ft <sup>3</sup> )	17,135 ft <sup>3</sup>
<b>Total</b>	<b>21,347 ft<sup>3</sup></b>



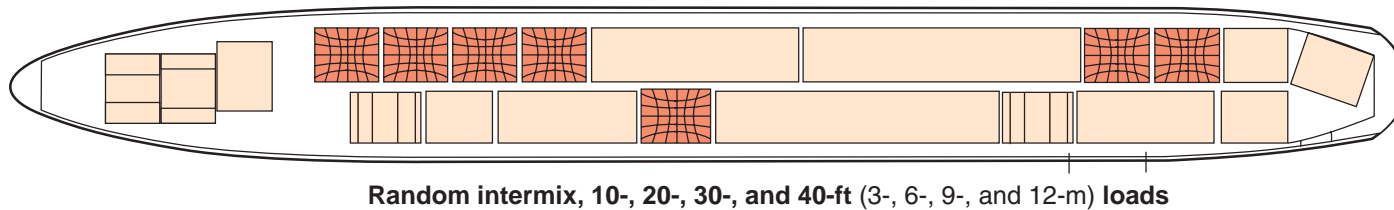
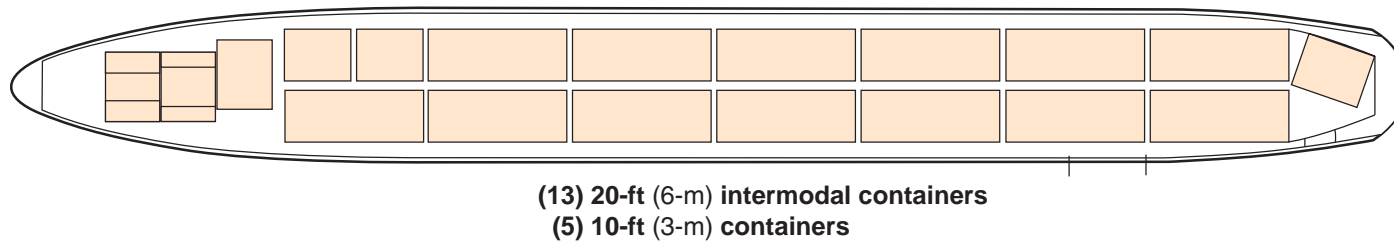
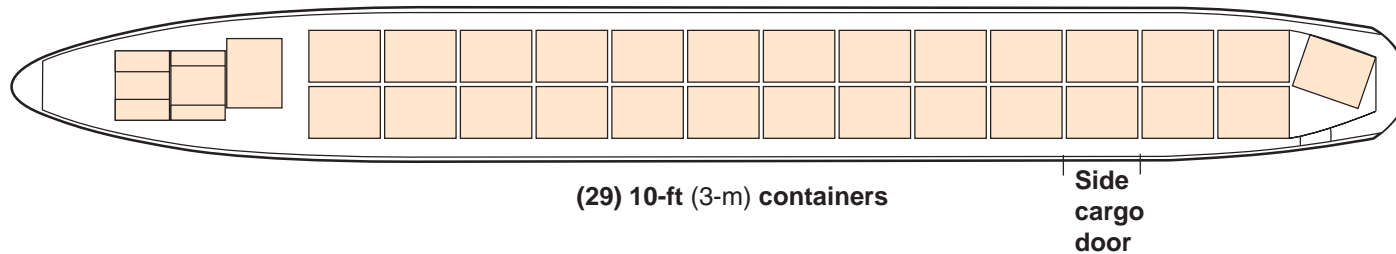
(2) 88- x 125-in x 8-ft contoured pallets (493 + 554 ft <sup>3</sup> )	1,047 ft <sup>3</sup>
(5) 88- x 125-in x 8-ft pallets (at 560 ft <sup>3</sup> )	2,800 ft <sup>3</sup>
(23) 88- x 125-in x 10-ft contoured pallets (at 680 ft <sup>3</sup> )	15,640 ft <sup>3</sup>
<b>Total</b>	<b>19,487 ft<sup>3</sup></b>

Cargo volume increase relative to 747-200/-300:

- Three pallets in nose section versus two—534-ft<sup>3</sup> (15.2-m<sup>3</sup>) increase
- Additional 10-ft (3.1-m) high positions—240-ft<sup>3</sup> (2.8-m<sup>3</sup>) increase



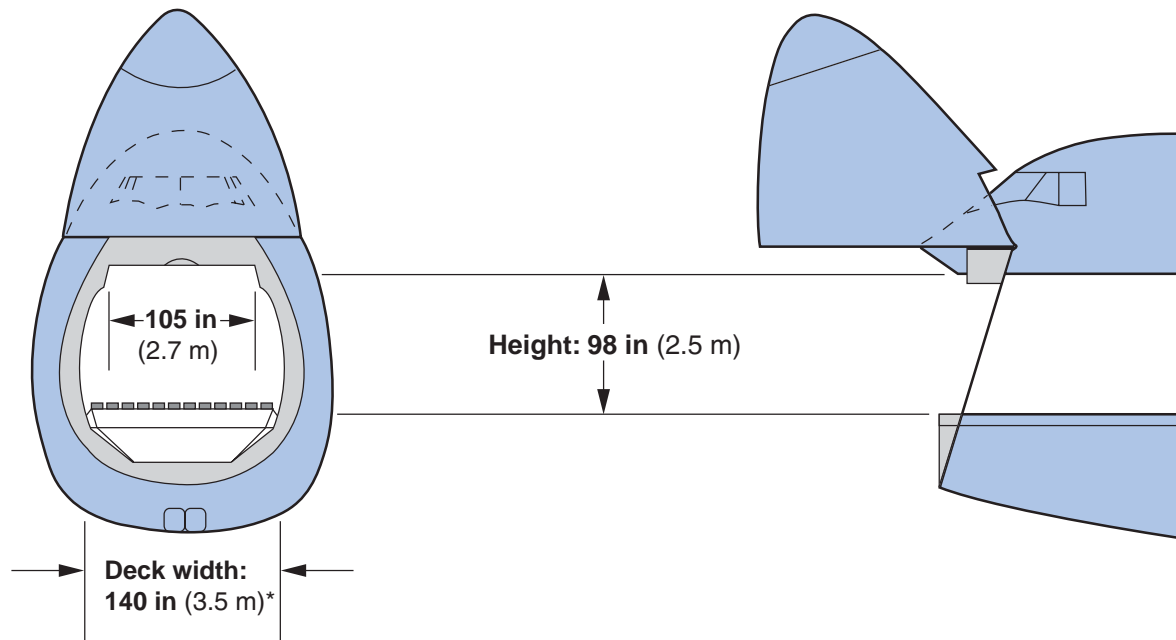
### Main deck cargo arrangement nose door landing





### Nose door section

747-200F/-400F/ERF

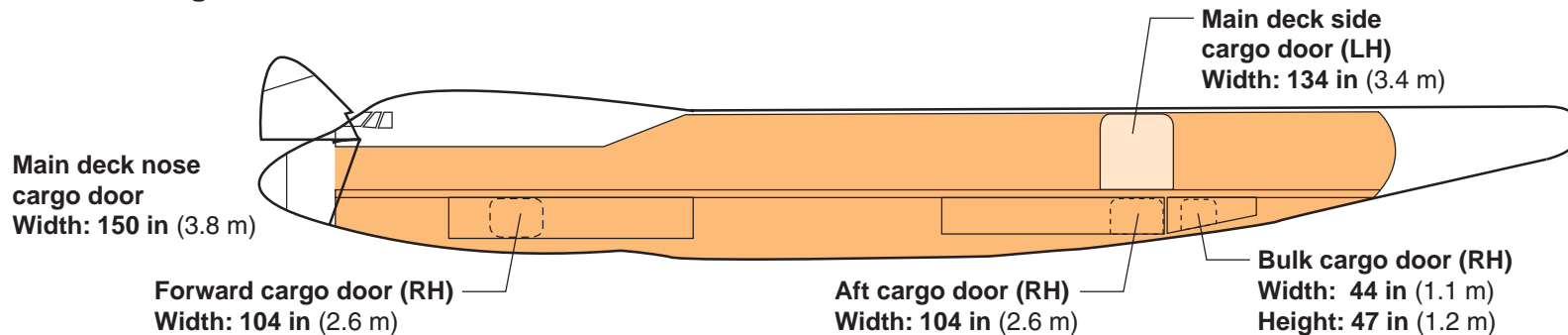


- Maximum internal width at opening, 150 in (3.8 m)

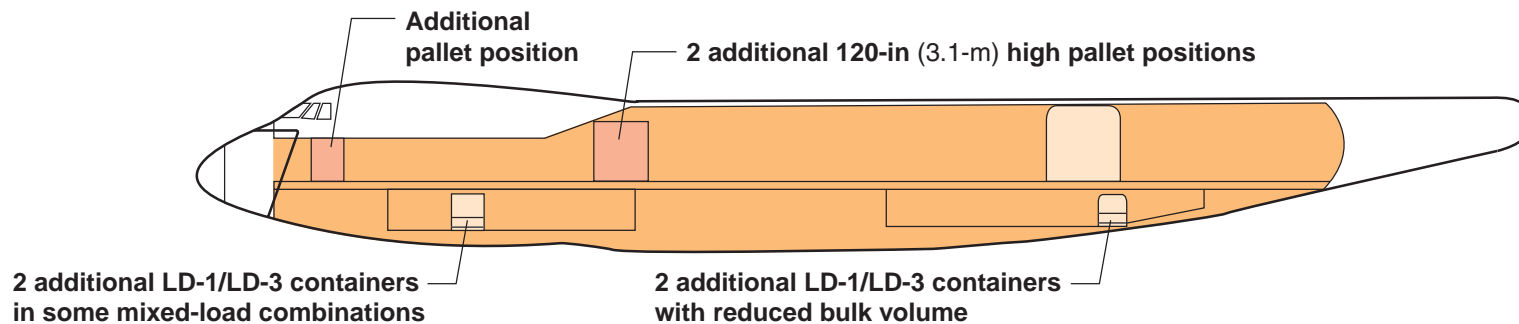


### Cargo door openings

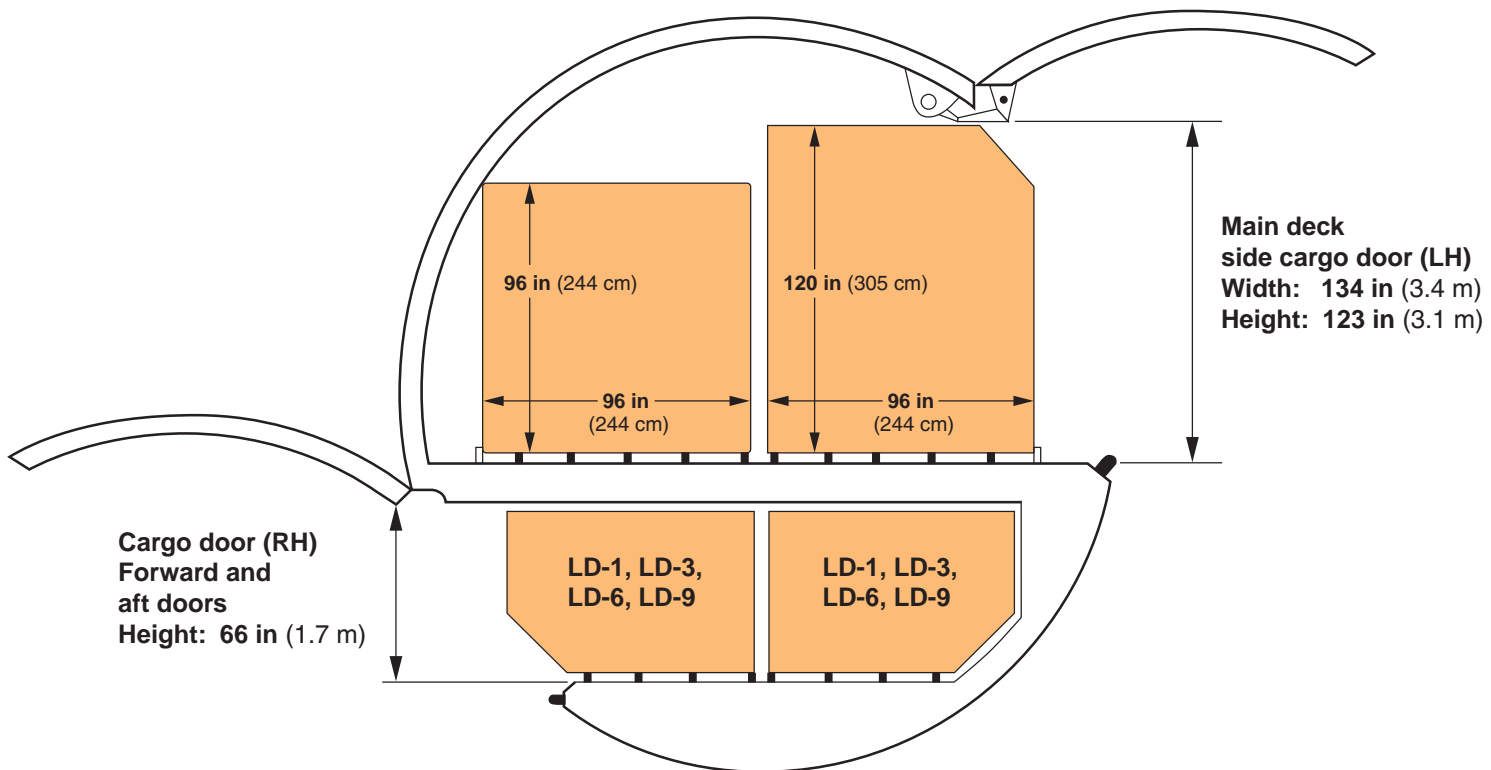
#### 747-200 Freighter



#### 747-400 Freighter

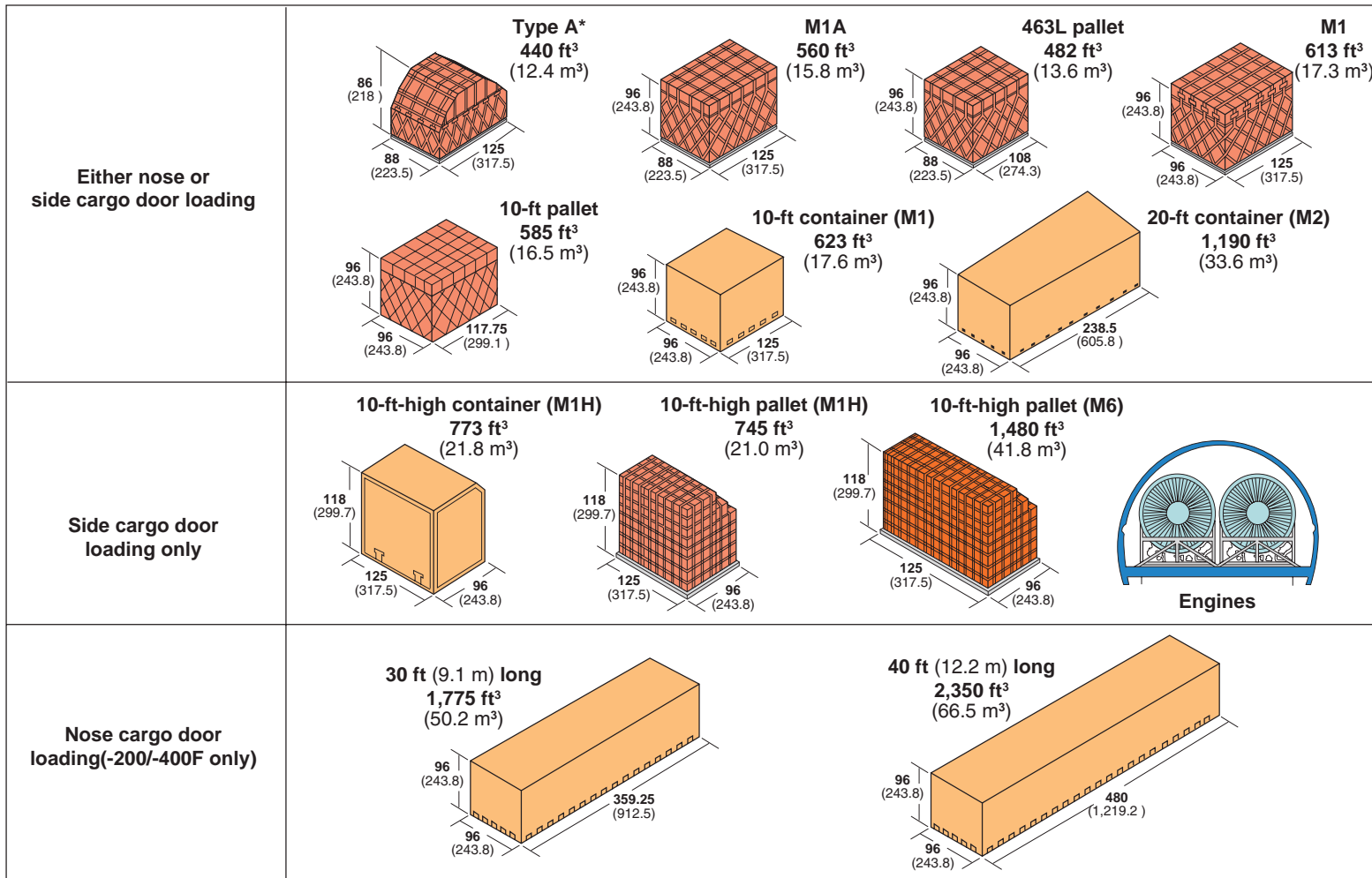


### Cross section





### 747 cargo door loading capability main deck pallets and containers

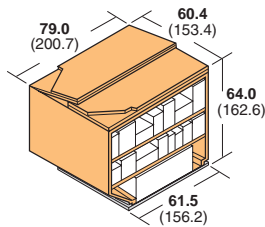


• Volumes are based on SAE Aerospace Standard, AS 1825.

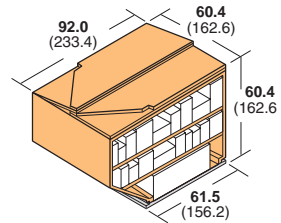
\* Maximum height varies from 78 to 86 in (198 to 218 m), depending on airplane type (e.g., 707, 727, 757, DC-8).



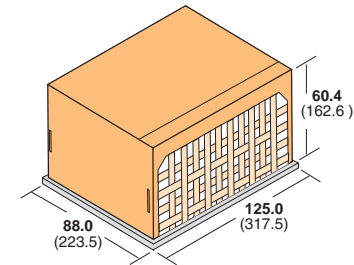
### Lower hold capacity containers and pallets



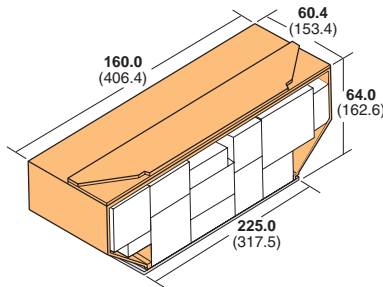
**3,500-lb (1,588-kg) MGW**  
**159 ft<sup>3</sup> (4.5 m<sup>3</sup>)**  
**(LD-3)**



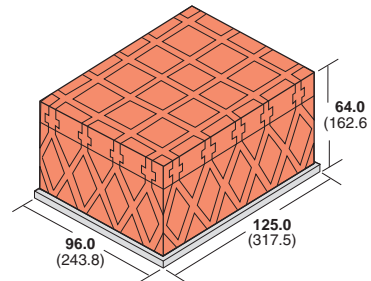
**3,500-lb (1,588-kg) MGW**  
**175 ft<sup>3</sup> (4.9 m<sup>3</sup>)**  
**(LD-1)**



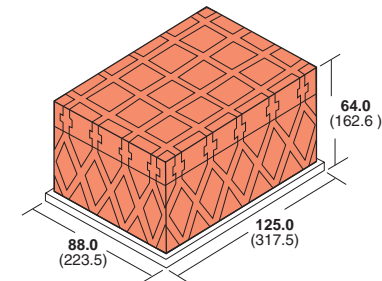
**10,200-lb (4,627-kg) MGW\***  
**381 ft<sup>3</sup> (10.8 m<sup>3</sup>)**  
**(LD-9)**



**7,000-lb (3,175-kg) MGW\***  
**322 ft<sup>3</sup> (9.1 m<sup>3</sup>)**  
**(LD-6)**



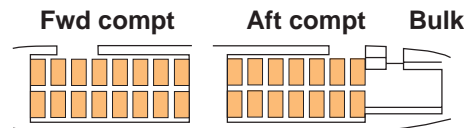
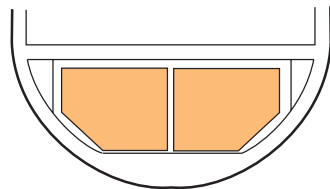
**11,100-lb (5,035-kg) MGW\***  
**415 ft<sup>3</sup> (11.8 m<sup>3</sup>)**



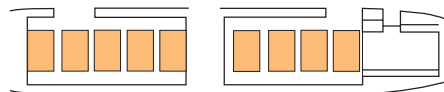
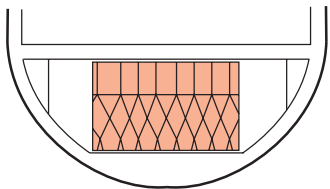
**10,200-lb (4,627-kg) MGW\***  
**372 ft<sup>3</sup> (10.5 m<sup>3</sup>)**

\* Maximum gross weights shown are based on lower hold running load capability (116 lb/in), subject to overall airframe structural limits.

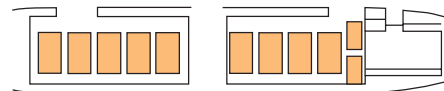
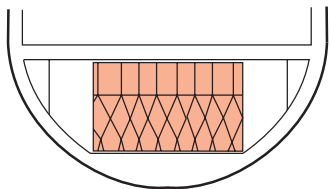
### Lower hold cargo arrangements



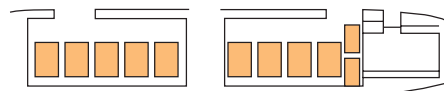
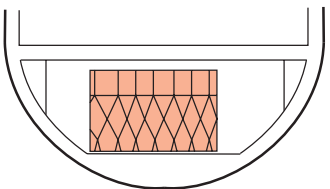
Thirty half-width containers



Nine 96- x 125-in pallets, 64 in high\*



Nine 88- x 125-in pallets, 64 in high\*  
Two 747 half-width containers



Nine 88- x 108-in pallets, 64 in high\*  
Two 747 half-width containers  
(military pallets shown)

\* Optional pallet hardware required

	Units	Volume, ft <sup>3</sup>	
		LD-1	LD-3
Lower hold Bulk cargo		5,250	4,740
		800	800
<b>Total capacity</b>		<b>6,050</b>	<b>5,540</b>

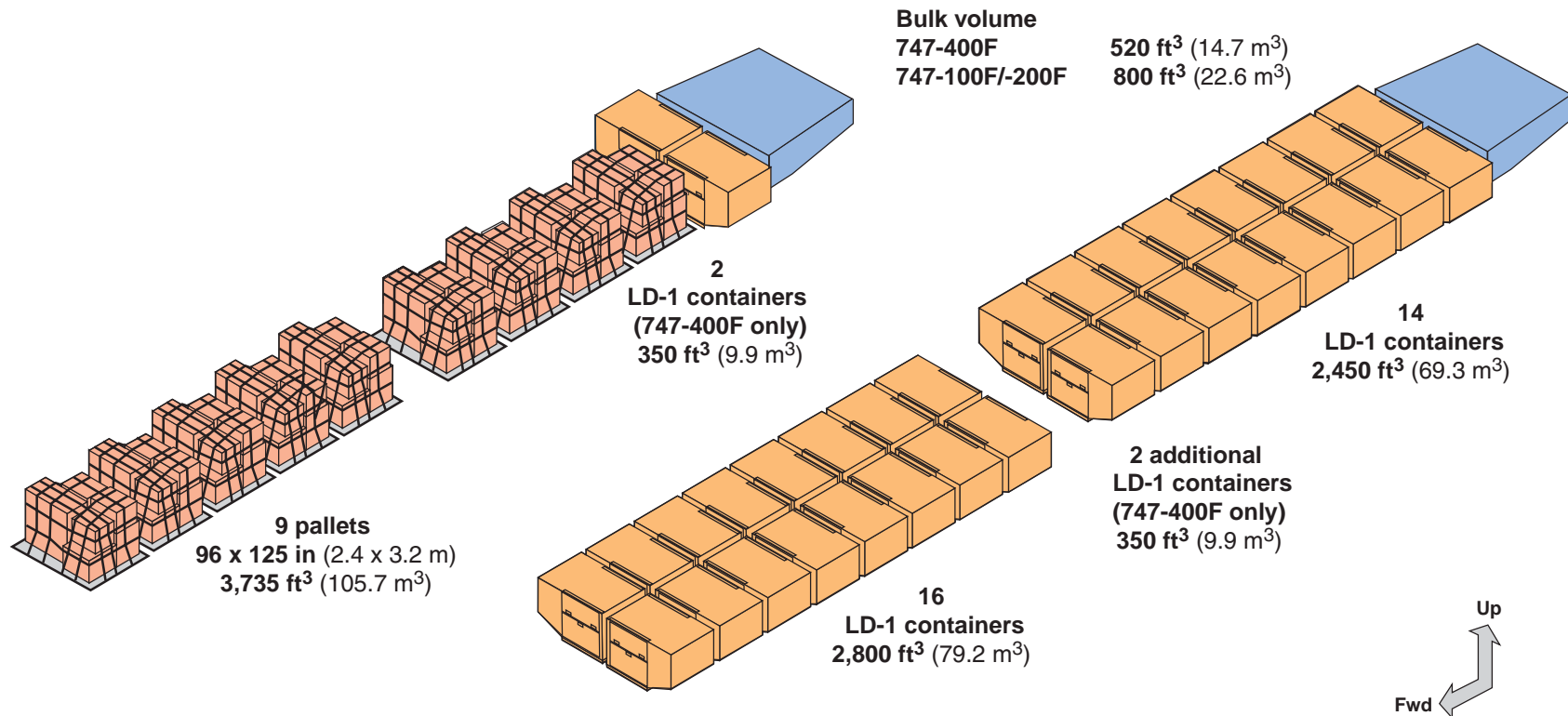
	Units	Volume, ft <sup>3</sup>
Lower hold Bulk cargo		3,735
		800
<b>Total capacity</b>		<b>4,535</b>

	Units	Volume, ft <sup>3</sup>
Lower hold Bulk cargo	9	3,429
	2	350
<b>Total capacity</b>		<b>4,579</b>

	Units	Volume, ft <sup>3</sup>	
		Commercial	Military
Lower hold Bulk cargo	9	2,943	2,880
	2	350	350
		800	800
<b>Total capacity</b>		<b>4,093</b>	<b>4,030</b>

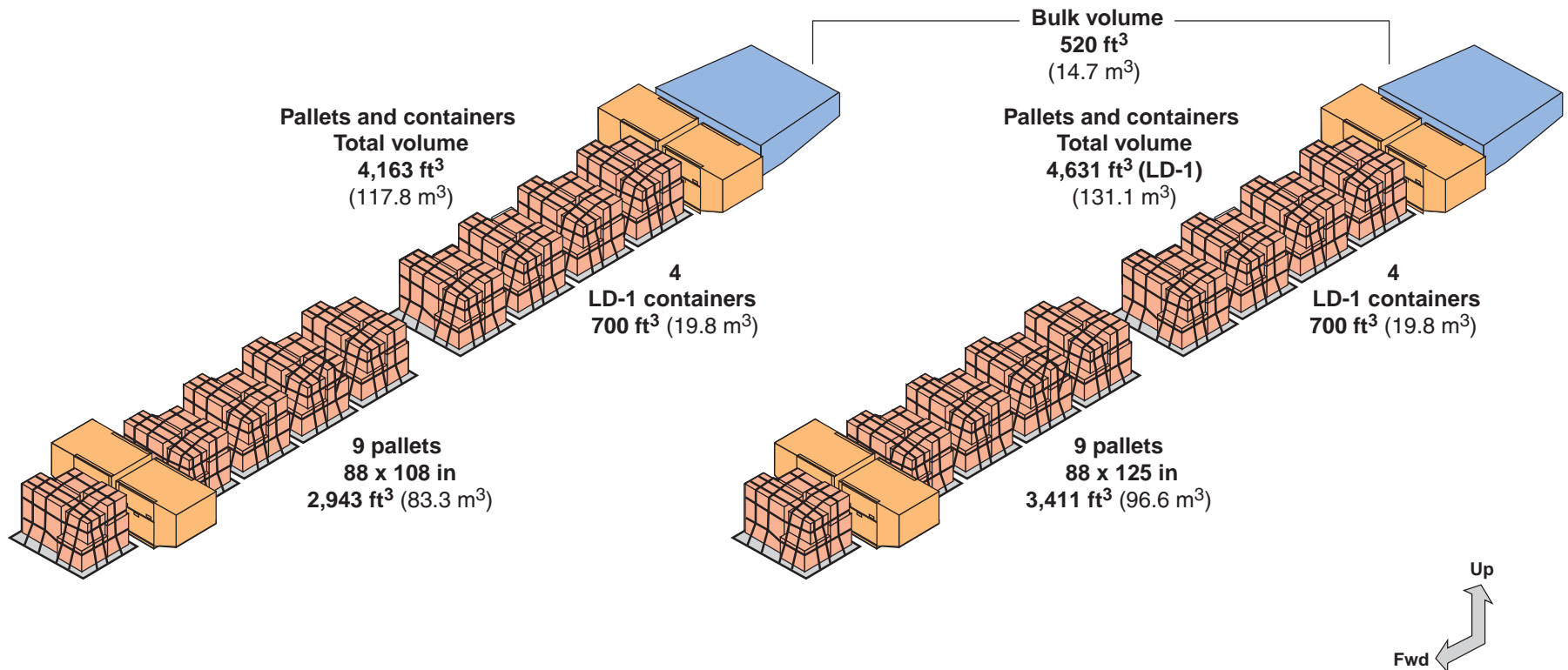
### Lower hold cargo arrangement

#### 747-100SF/-200F/SF/-300SF



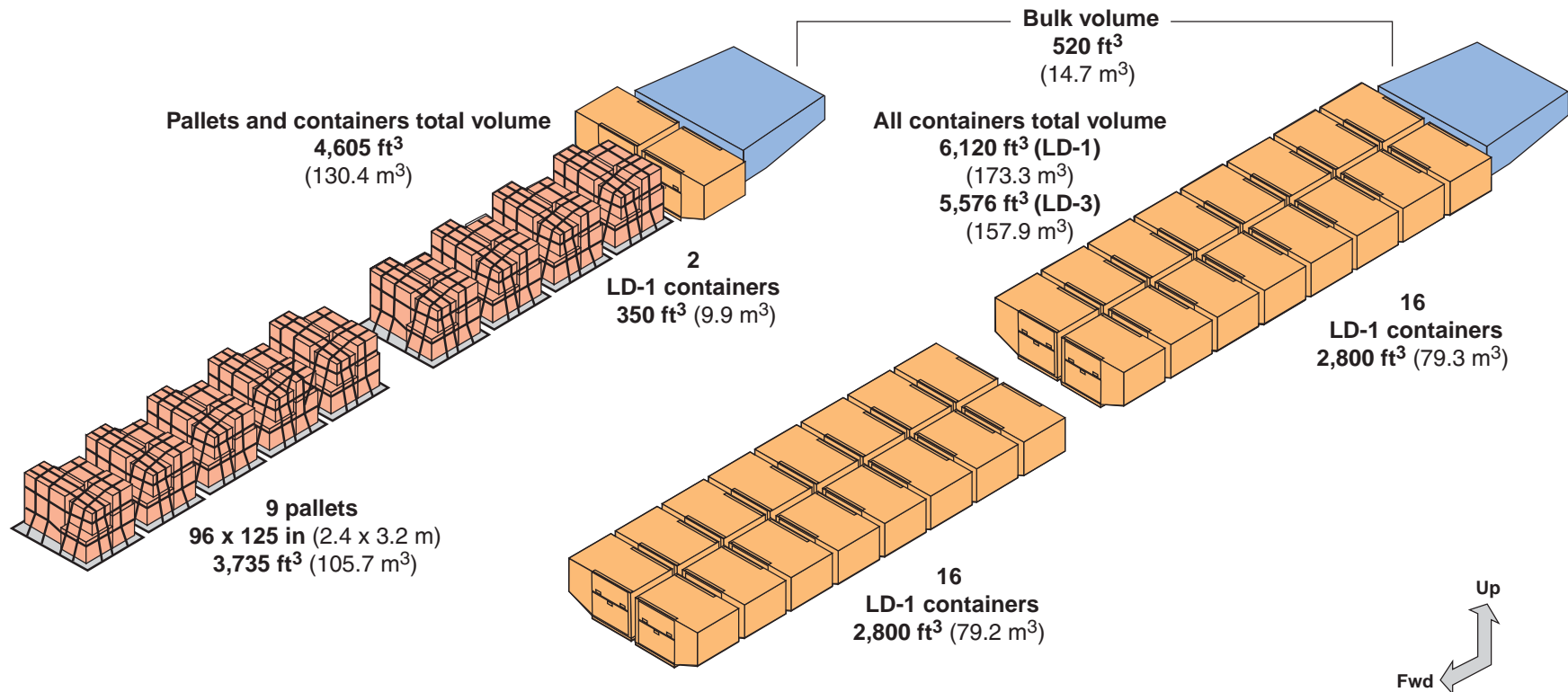


### Lower hold cargo arrangement





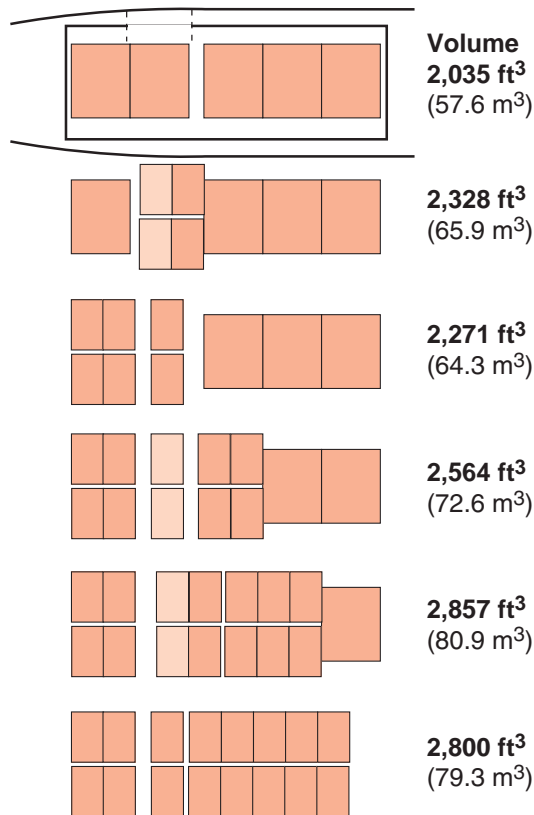
### Lower hold cargo arrangement



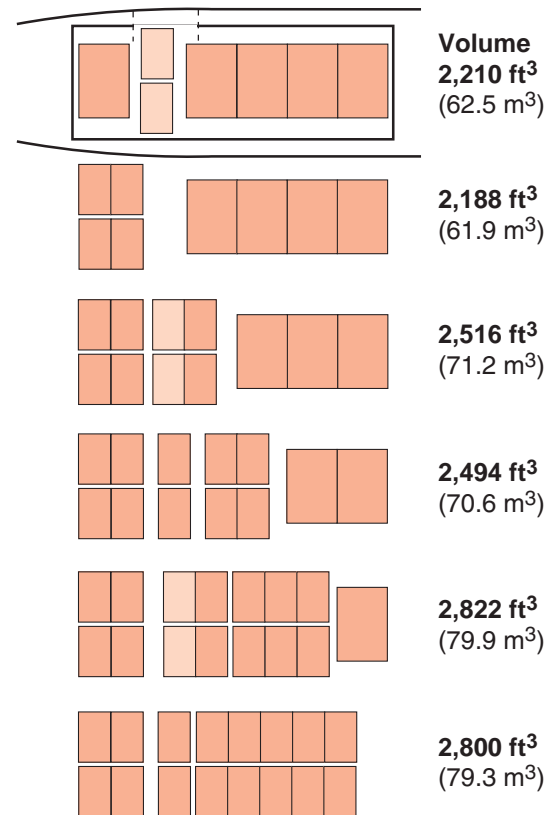


### Forward lower hold—additional container positions

**96-in pallets, 407-ft<sup>3</sup> (11.5-m<sup>3</sup>) volume**  
**LD-1, 175-ft<sup>3</sup> (4.9-m<sup>3</sup>) volume**



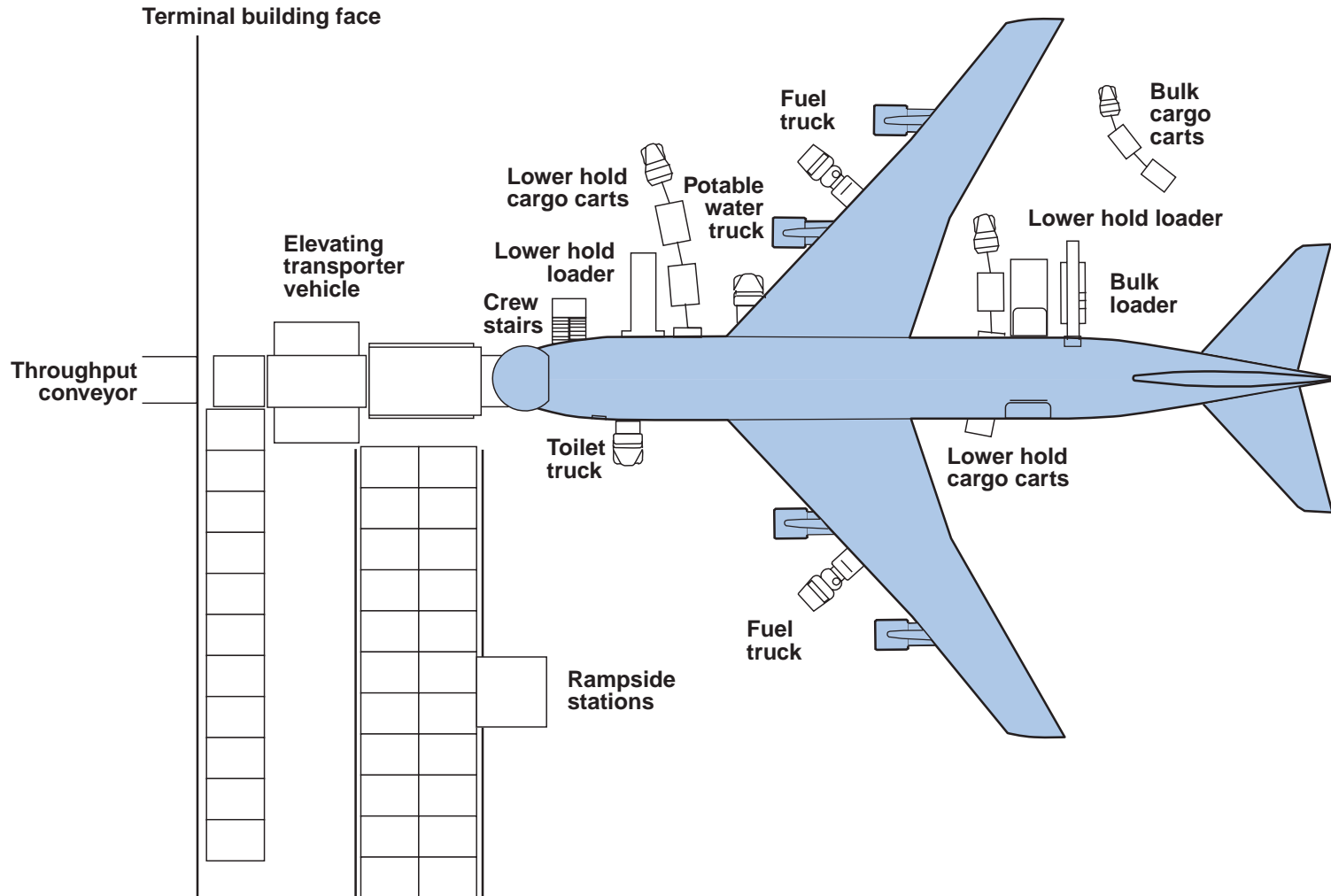
**88-in pallets 372-ft<sup>3</sup> (10.5-m<sup>3</sup>) volume**  
**LD-1, 175-ft<sup>3</sup> (4.9-m<sup>3</sup>) volume**



 Increased capacity



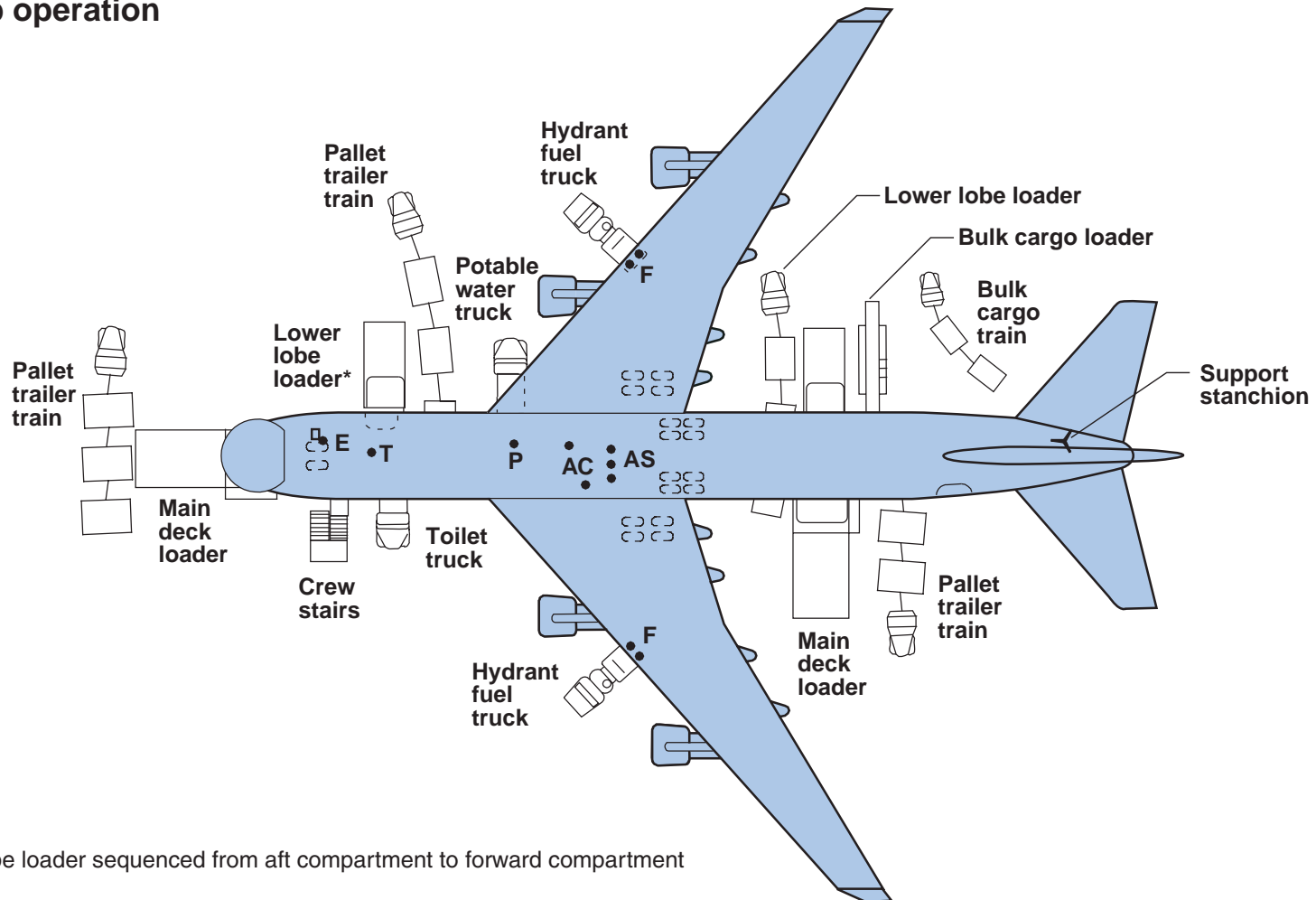
### Nose-dock terminal arrangement







### Open-ramp operation



\*Lower lobe loader sequenced from aft compartment to forward compartment

- |   |                  |    |                     |
|---|------------------|----|---------------------|
| F | Fuel             | D  | Demineralized water |
| T | Toilet           | AC | Air-conditioning    |
| E | Electrical power | AS | Air start           |



## Nose-loading facility arrangement

