

**1 DECEMBER 2001**

**Transportation**



**CIVIL RESERVE AIR FLEET LOAD  
PLANNING GUIDE BOEING 757**

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This volume implements AFD 24-2, Preparation and Movement of Air Force Materiel, and provides information needed to load plan a portion of the Civil Reserve Air Fleet (CRAF). Aircraft discussed in this volume is the narrow-body Boeing 757. Provisions of this volume applies to Active Duty, National Guard, Military Reserve Units and other government agencies while utilizing commercial aircraft during contingencies.

This volume of AMCP 24-2 is intended for use as a load planning guide. Equipment listed is dimensionally compatible with all Boeing 757 aircraft and cargo areas discussed. Final approval of the procedures in this publication, however, ultimately rests with the individual contractor providing airlift services to the DoD. When new or additional information is received from the manufacturer, it will be provided as a change to this publication.

### ***SUMMARY OF REVISIONS***

**This document is substantially revised and must be completely reviewed.**

The information contained herein is identical to the information in the previous pamphlet broken down into a more manageable file size. No data has changed. Users of this volume should print volume one which deals with the Administration, Policies, Specialized Loading Support Equipment, and Passenger, and Baggage Loading.

**1. General Description.** Information in this chapter reflect the capabilities of the B757-200. The B757 is a two-engine, narrow body aircraft with short-field takeoff and landing capability and a 4000 nautical mile range. The 757 family of airplanes consists of a passenger version and a package freighter version. Table.1 and Figure.2 and Figure .3 will show some general information.

**Figure 1. Boeing 757.**



**2. Passenger Configurations.** The passenger version is available in two configurations. The basic configuration (overwing-exit) has three LH and RH passenger doors and two LH and RH overwing exit doors. An optional configuration (four-door) has the same three LH and RH passenger doors but with one LH and RH exit door aft of the wing, in lieu of the overwing exit doors. The number of seats varies with aircraft configuration. The 757 can typically carry 186 passengers in a six-abreast, mixed-class configuration over a 2,900-nautical-mile range with full load. High gross weight aircraft can increase the range to about 3,900 nautical miles. High density seating arrangements can accommodate as many as 239 passengers in an all-economy configuration. HQ AMC/DOYA normally contracts for 190 passengers when requesting commercial aircraft for exercises and contingencies. **Figure 4.** and **Figure 5.** shows various seating arrangements for B-757 aircraft.

**3. Cargo Capability.** The B757-200 Freighter main deck can accommodate 15 commercial containers. A forward and aft lower lobe provides space for bulk loads. A 134 x 86 inch main deck cargo door permits loading using existing commercial and military cargo handling systems. The lower deck bulk cargo areas can be loaded by hand or some aircraft are equipped with a telescoping cargo handling system.

**NOTE:** Although there are no provisions at this time to put 463L pallets on the B-757, the option for future modifications exist and should this happen, those changes will be incorporated in a future change.

Table 1. Aircraft General Weights and Information.

AIRCRAFT	Design Weights					Pallets/9			LCN/1	Gear Type	
	Max T/O	Max Land	Zero Fuel	Operating	Max Payload/6	Contract ACL/Pax	Seats/7	Mil 88x108			Comm 88x125
<b>B757-200 (Pax)</b>	220,000 lbs.	198,000 lbs.	184,000 lbs.	128,400 lbs.	55,600 lbs.	/190	188-231	N/A	N/A	70	TT
<b>B757-200 F</b>	250,000 lbs. (NOTE: Some Aircraft can accommodate up to 255,000 lbs.)	210,000 lbs.	200,000 lbs.	114,000 lbs.	86,000 lbs.		N/A	N/A	15	70	TT

Figure 2. General Arrangement Model 757-200F.

## 757-200F General Arrangement

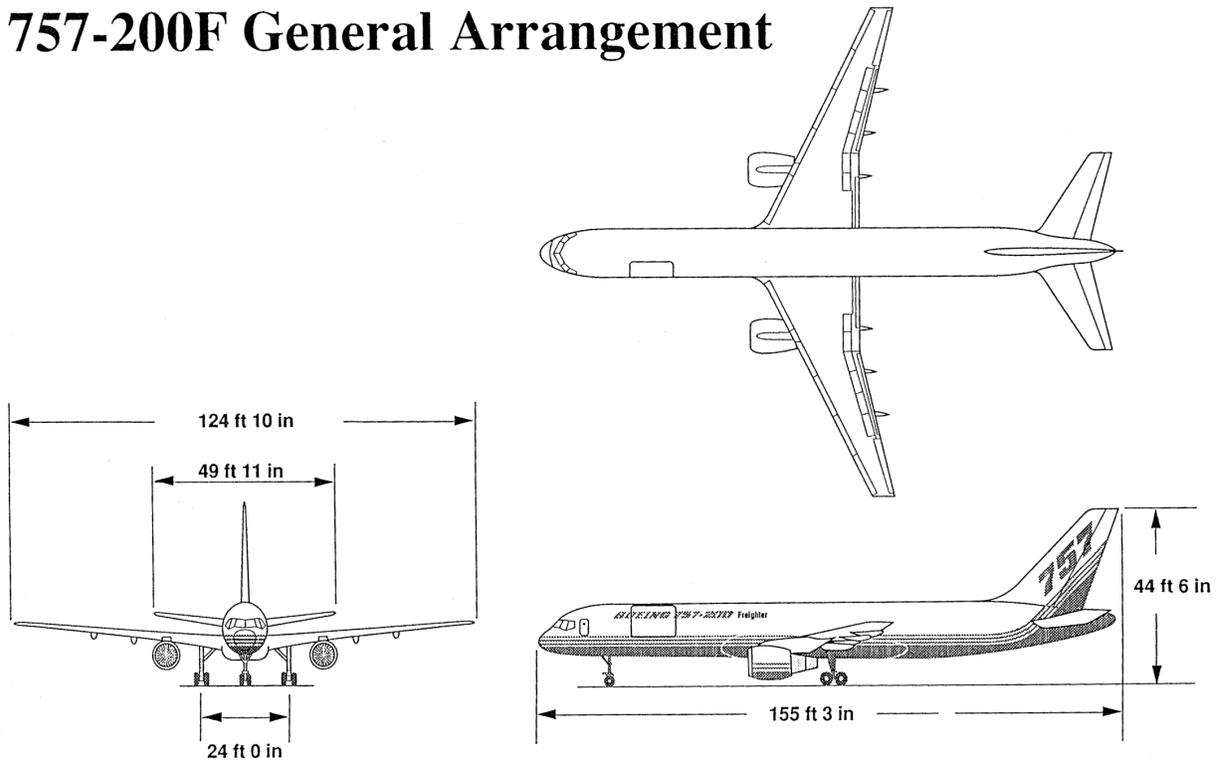
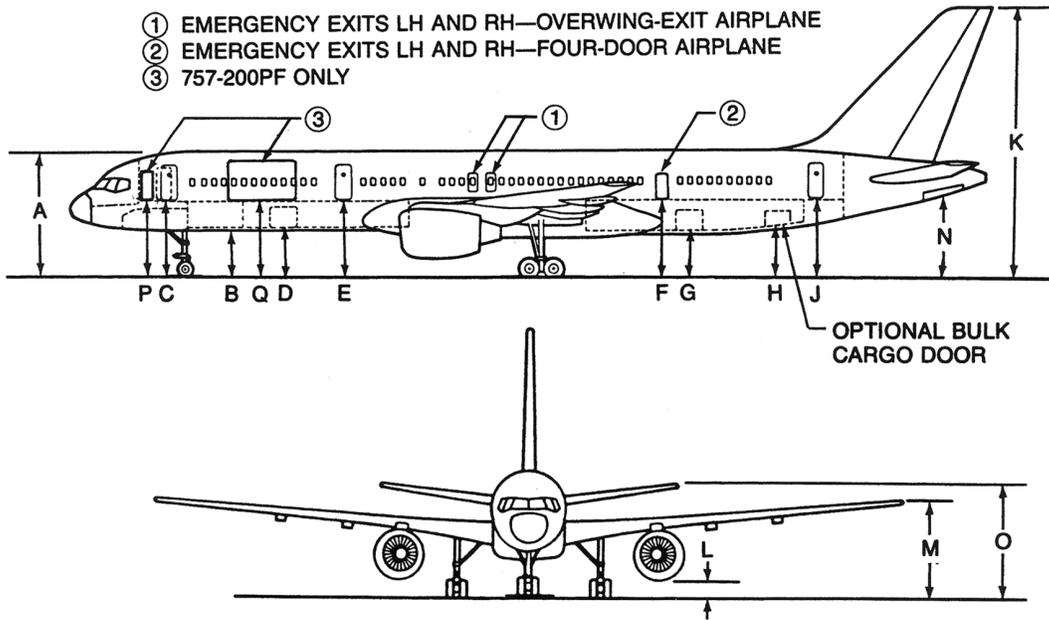


Figure 3. Ground Clearances Model 757-200, -200PF.



	VERTICAL CLEARANCES				MODEL APPLICABILITY
	MINIMUM		MAXIMUM		
	FT-IN.	M	FT-IN.	M	
A	20 - 6	6.25	21 - 2	6.45	-200, -200PF
B	7 - 4	2.24	8 - 0	2.44	-200, -200PF
C	12 - 5	3.79	13 - 2	4.01	-200
D	8 - 1	2.46	8 - 9	2.67	-200, -200PF
E	12 - 7	3.84	13 - 2	4.01	-200
F	12 - 9	3.89	13 - 3	4.04	-200
G	7 - 9	2.36	8 - 3	2.51	-200, -200PF
H	8 - 6	2.59	9 - 1	2.77	-200
J	12 - 9	3.89	13 - 7	4.14	-200
K	44 - 3	13.49	45 - 1	13.74	-200, -200PF
L	2 - 5	0.74	2 - 10	0.86	-200, -200PF
M	15 - 4	4.67	16 - 1	4.90	-200, -200PF
N	12 - 5	3.78	13 - 3	4.04	-200, -200PF
O	18 - 7	5.66	19 - 8	5.99	-200, -200PF
P	12 - 5	3.79	13 - 2	4.01	-200PF
Q	12 - 6	3.81	13 - 2	4.01	-200PF

MAXIMUM AND MINIMUM GROUND CLEARANCES REFLECT NOMINAL AIRPLANE CENTERS OF GRAVITY WITHIN THE NORMAL OPERATIONAL ENVELOP.

Figure 4. Interior Arrangements – Overwing Exit Aircraft Model 757-200.

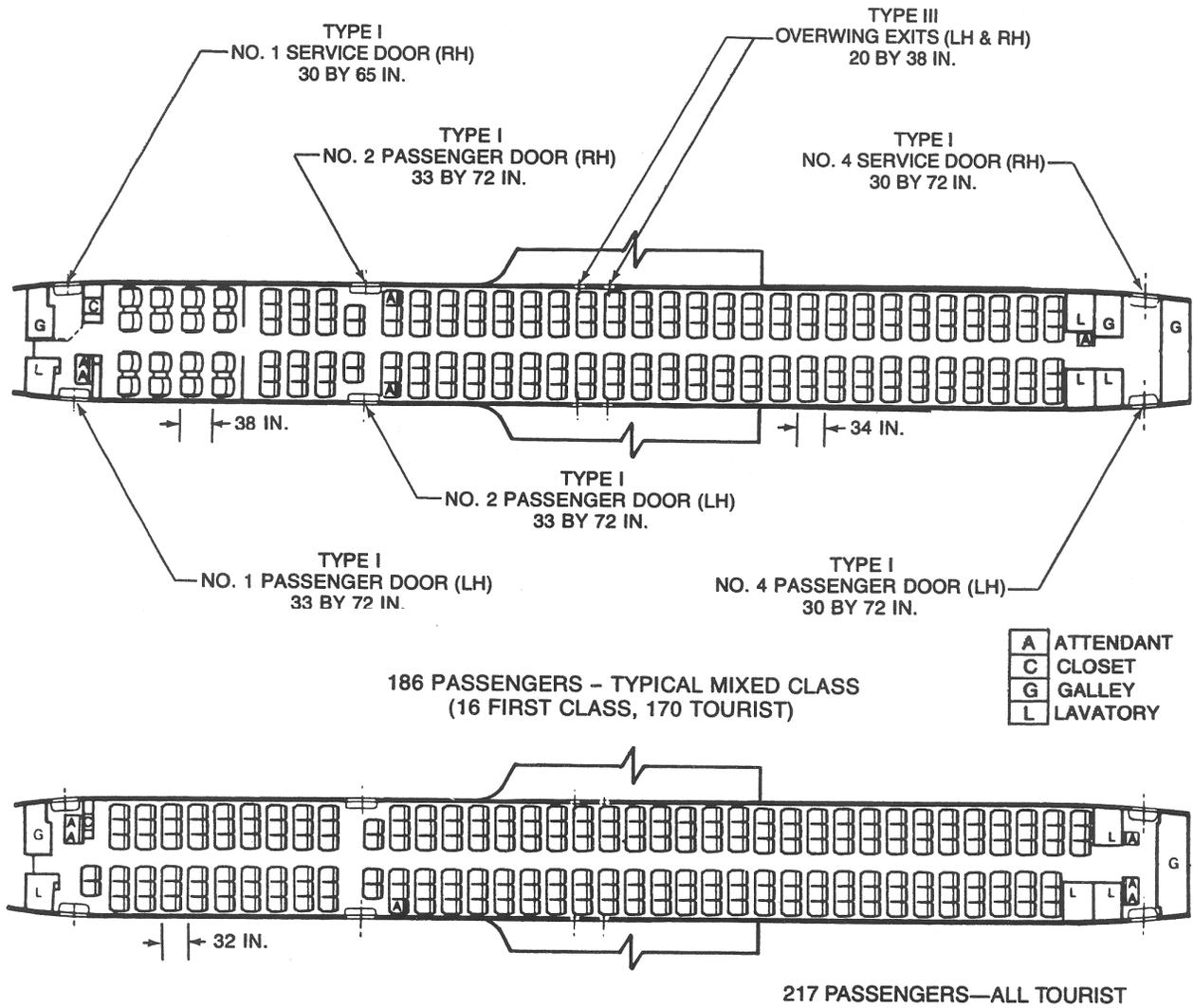
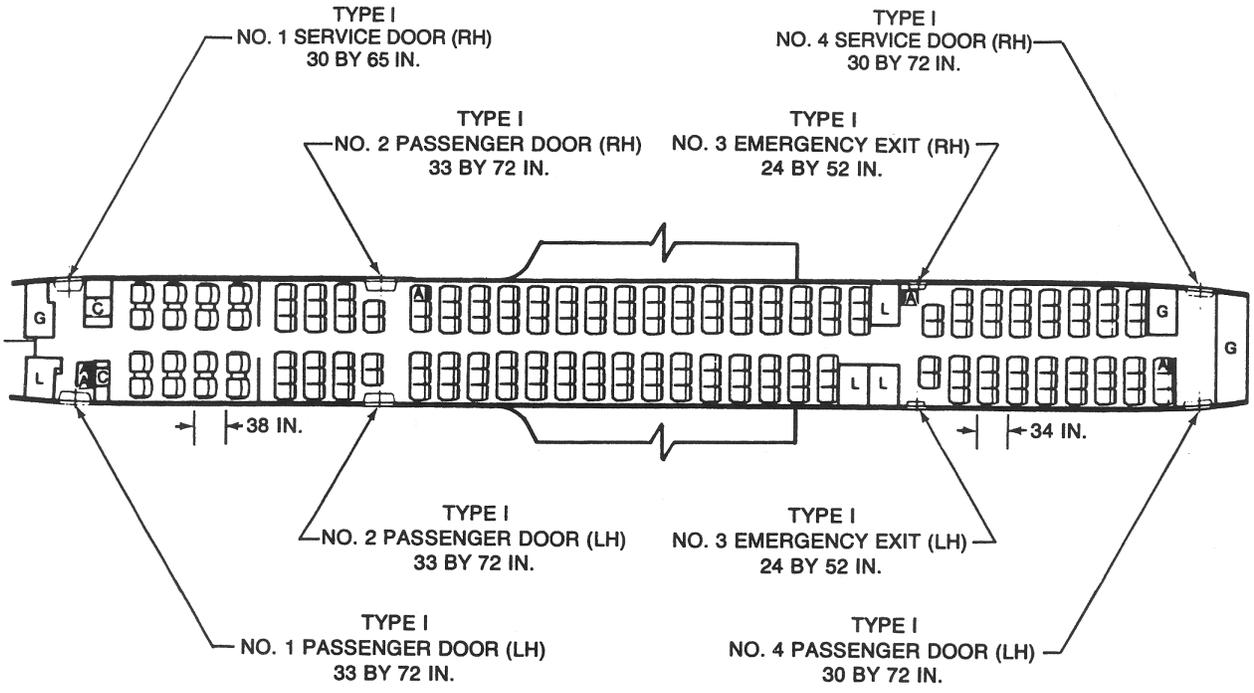
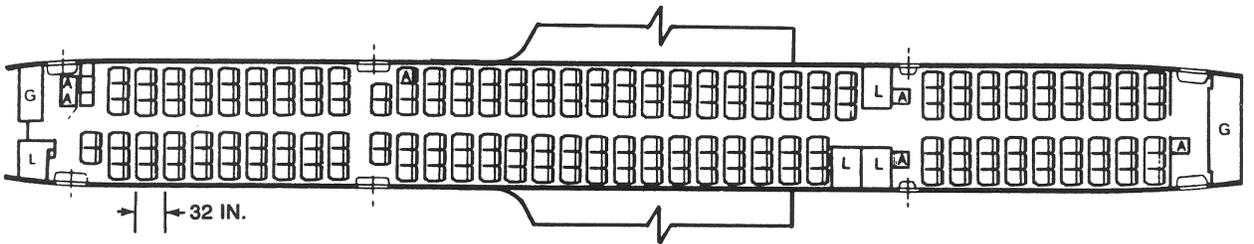


Figure 5. Interior Arrangements –Four Door Aircraft Model 757-200.



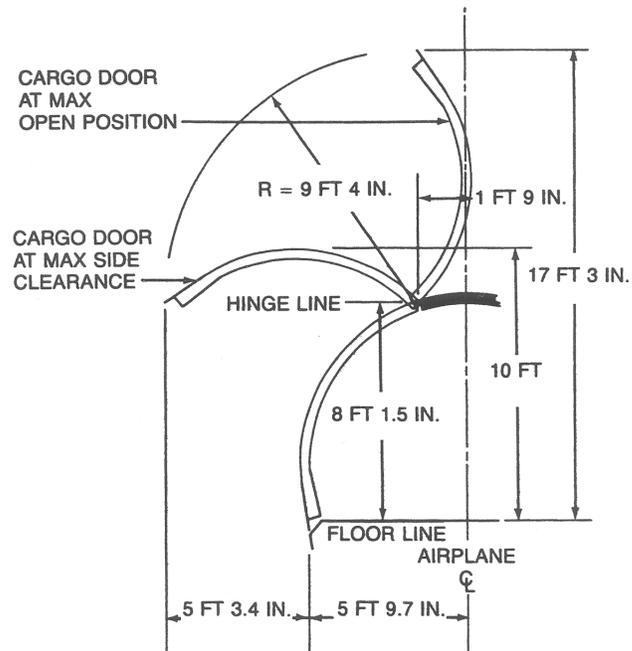
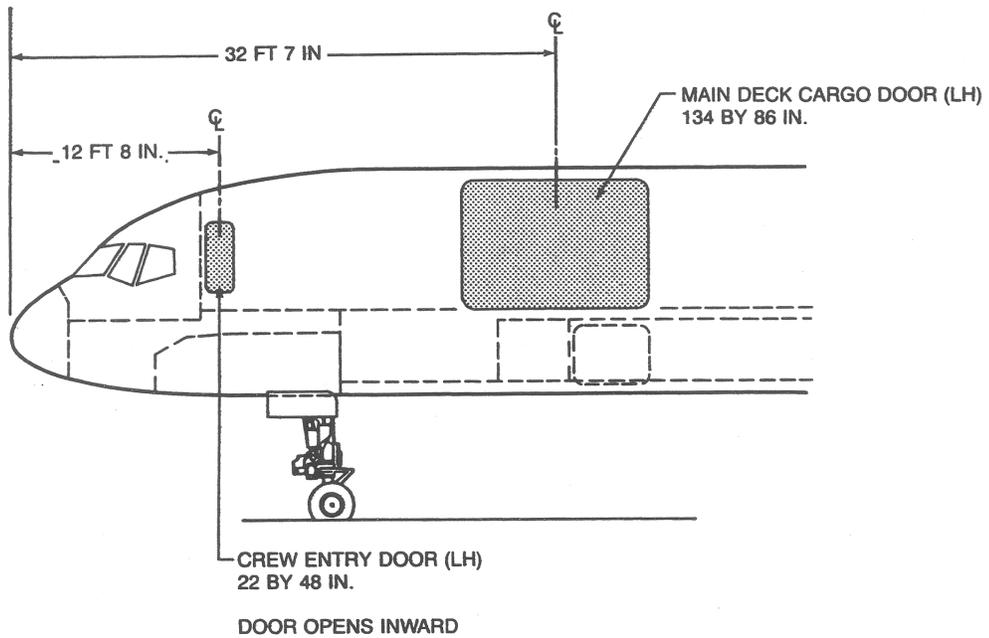
178 PASSENGERS - TYPICAL MIXED CLASS  
(16 FIRST CLASS, 162 TOURIST)

A	ATTENDANT
C	CLOSET
G	GALLEY
L	LAVATORY



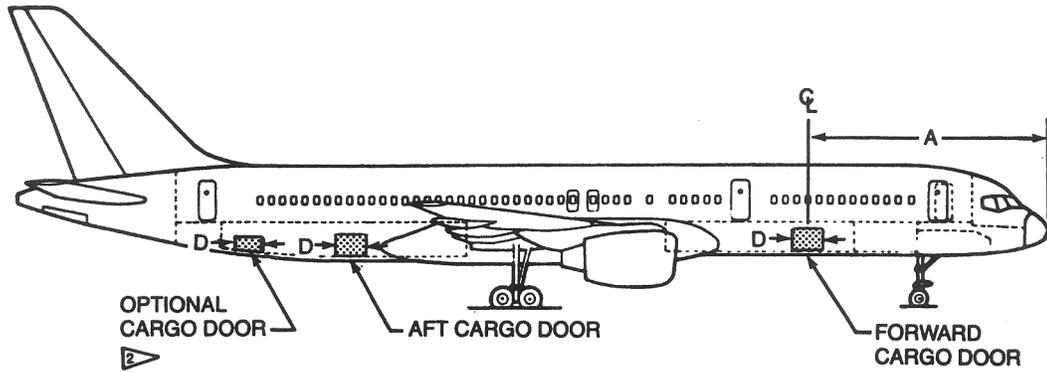
212 PASSENGERS - ALL TOURIST

Figure 6. Door Clearances for Main Deck Doors Model 757-200PF.



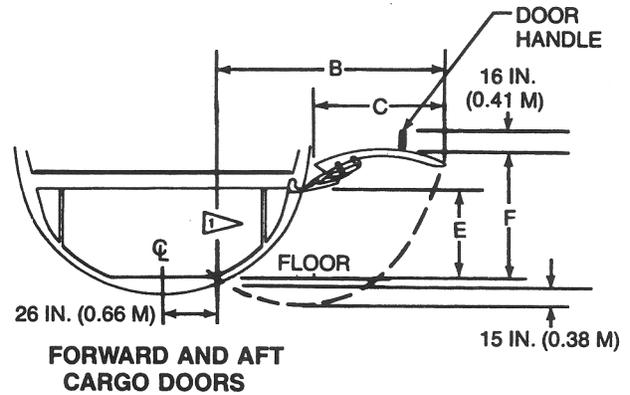
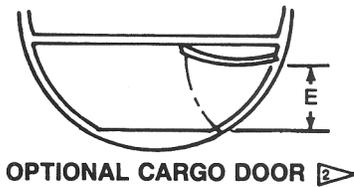
DOOR CLEARANCES—MAIN DECK DOORS  
MODEL 757-200PF

Figure 7. Cargo Door Clearances Model 757-200, -200PF.



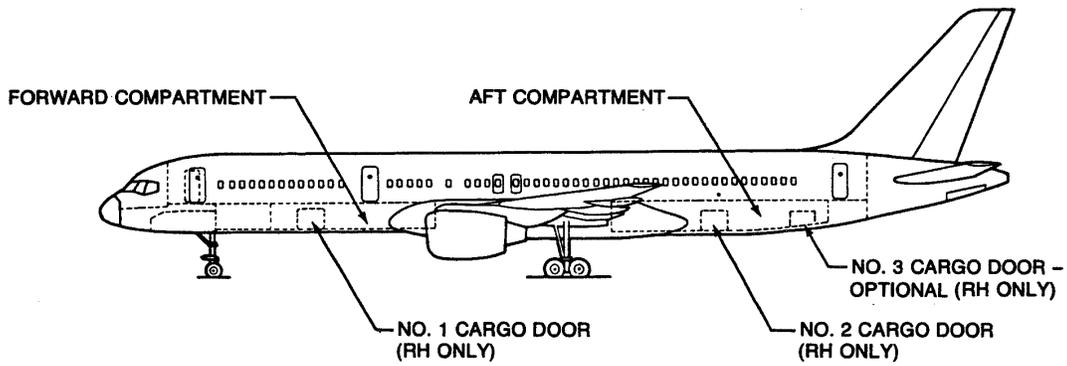
NOMENCLATURE	DIMENSION								
	UNITS	A		UNITS	B	C	D	E	F
FORWARD CARGO DOOR	FT-IN.	35-11		IN.	113	59	55	42	62
	M	10.95		M	2.87	1.50	1.40	1.07	1.57
AFT CARGO DOOR	FT-IN.	104-3		IN.	112	59	55	44	65
	M	31.78		M	2.85	1.50	1.40	1.12	1.65
BULK CARGO DOOR	FT-IN.	117-3		IN.	—	—	48	32	—
	M	35.74		M	—	—	1.22	0.81	—

- 1 ▷ EDGE OF SKIN CUT OUT BELOW DOOR SILL
- 2 ▷ EARLY PRODUCTION AIRPLANES ONLY. NOT AVAILABLE ON CURRENT PRODUCTION AIRPLANES.



**DOOR CLEARANCES—CARGO DOORS**  
*MODELS 757-200, -200PF*

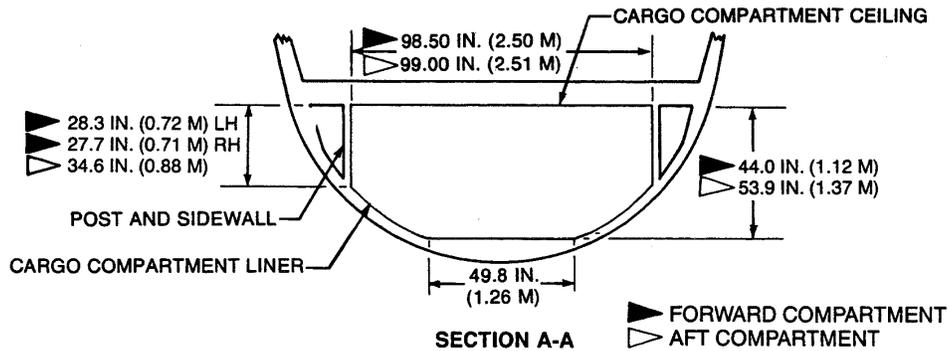
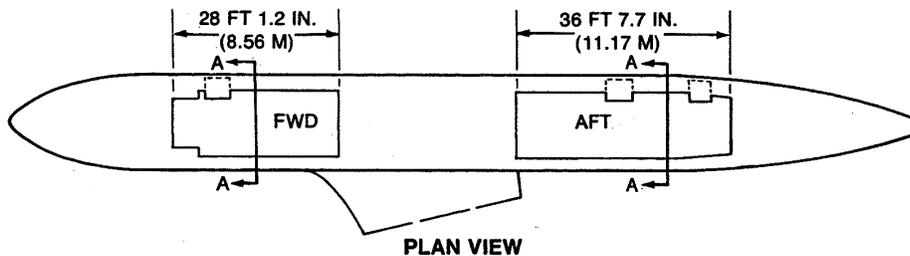
Figure 8. Lower Cargo Compartment and Bulk Cargo Area Model 757-200, -200PF.



		BULK CARGO CAPACITIES		
		FORWARD COMPARTMENT	AFT COMPARTMENT	TOTAL
VOLUME	CU FT	700	1,090*	1,790*
	CU M	19.8	30.9*	50.7*
STRUCT. WEIGHT LIMIT**	LB	10,300	16,300	26,600
	KG	4,650	7,400	12,050

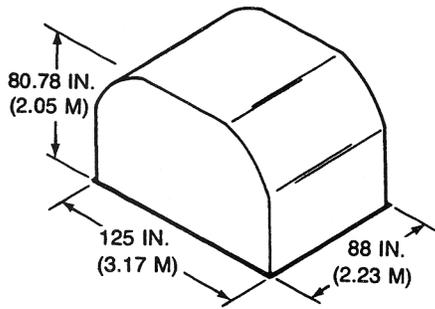
\*OPTIONAL THIRD CARGO DOOR REDUCES VOLUME BY 100 CU FT (2.8 CU M)

\*\*THESE LIMITS ARE APPLICABLE ONLY IF THE TOTAL AIRPLANE LOADING (COMBINED PASSENGER COMPARTMENT AND CARGO COMPARTMENT LOADS) DOES NOT EXCEED THE MAXIMUM ZERO FUEL WEIGHT AND IS WITHIN THE CENTER OF GRAVITY LIMITS.

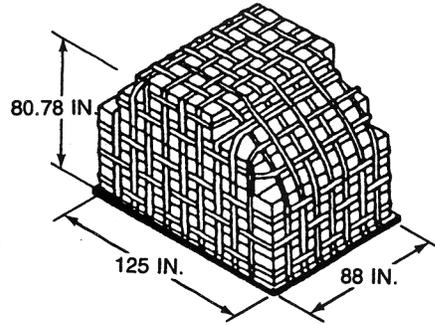


▶ FORWARD COMPARTMENT  
 ▷ AFT COMPARTMENT

Figure 9. Interior Arrangement for the Main Cargo Deck Model 757-200PF.



440 CU FT (12.47 CU M)  
CONTAINER



STRAPPED PALLET  
UP TO 440 CU FT

ULD DATA

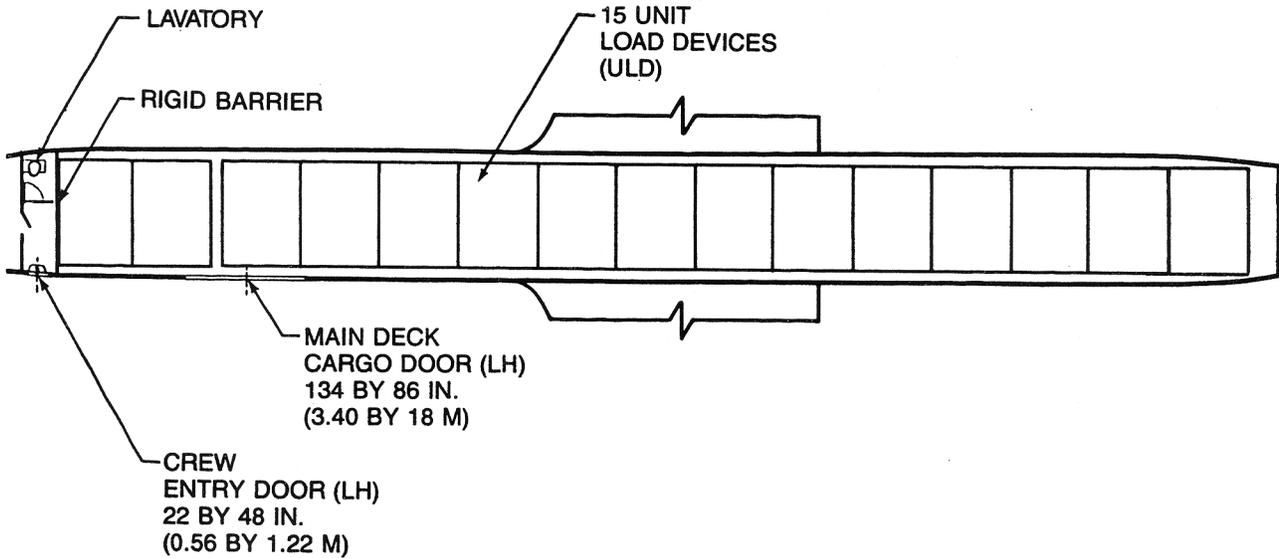


Figure 10. Pallet Contours B-757-200PF.

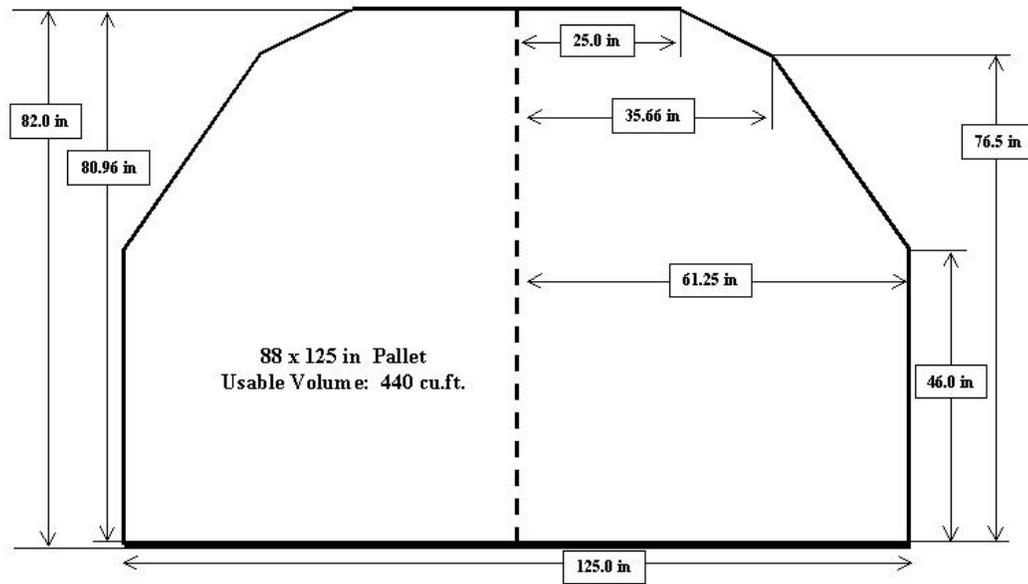
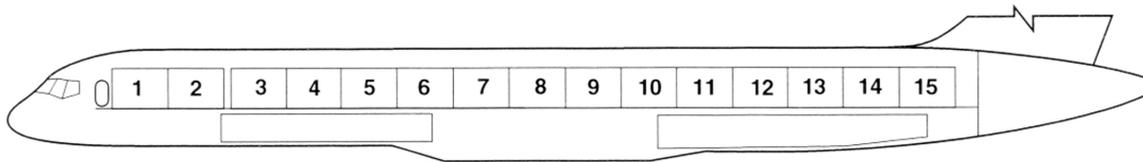


Figure 11. Model 757-200F, Freighter.

**Cargo Arrangement**

757-200 Freighter

- 88- x 125-in (223- x 317-cm) ULD main deck arrangement, 15 pallet or container positions
- Total ULD volume: 6,600 ft<sup>3</sup> (187 m<sup>3</sup>)
- Total lower-hold (bulk) volume: 1,830 ft<sup>3</sup> (700 ft<sup>3</sup> forward and 1,130 ft<sup>3</sup> aft)



**Cross sections**

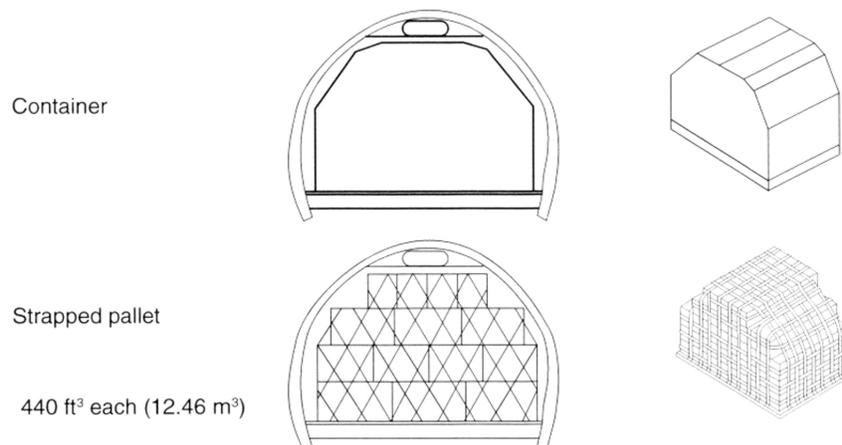
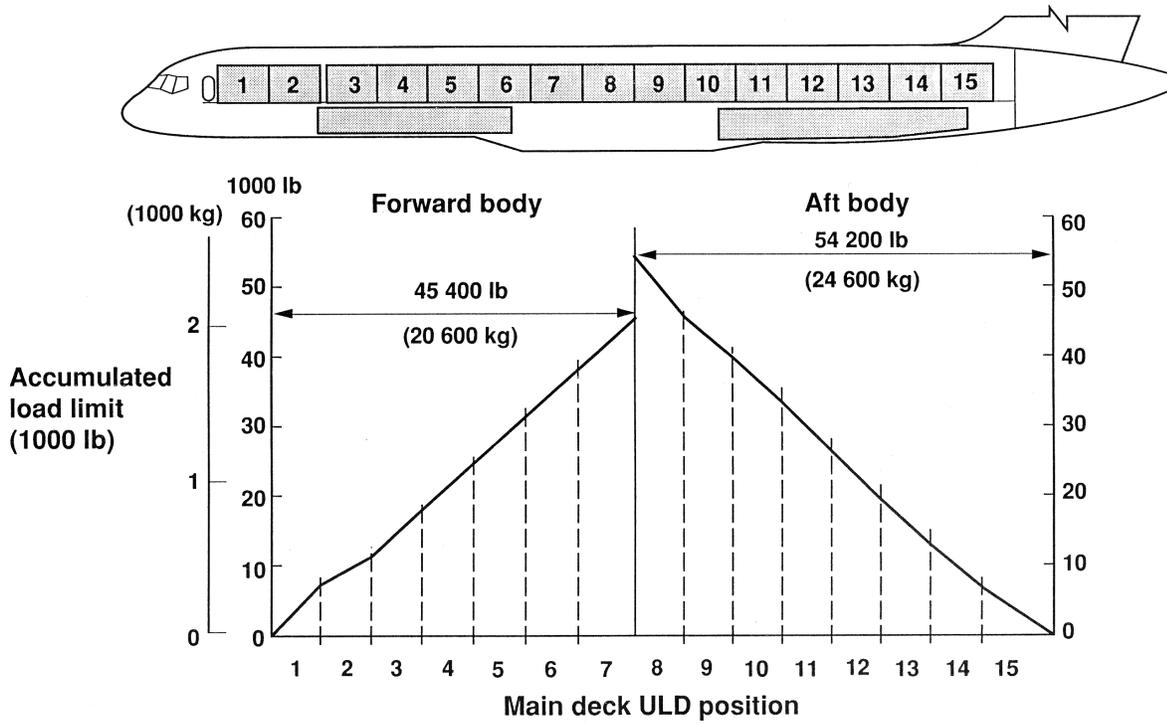


Figure 12. Model 757F Freighter Accumulated Load Diagram.



- Combined main deck and lower deck loads
- 88- x 125-in (223- x 317-cm) containers/pallets on main deck

Figure 13. Model 757F Freighter Pallet and Zone Load Limits.

## 757-200F Provides Load-Carrying Flexibility

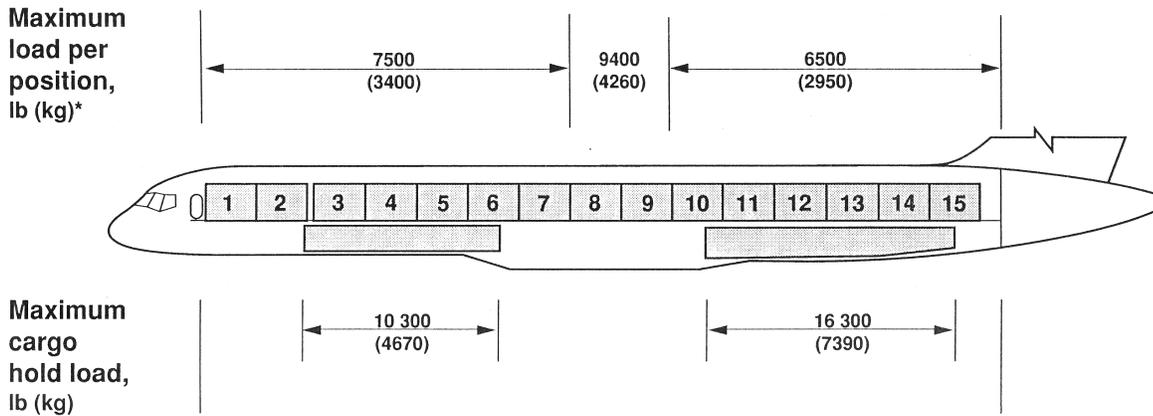


Table 2. B757-200F Principal Characteristics.

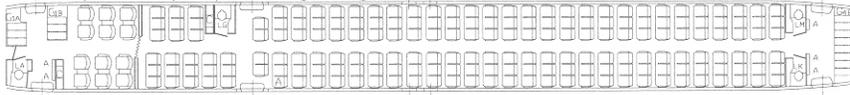
	English	Metric		English	Metric
<b>General Dimensions</b>	<b>ft - in</b>	<b>m</b>	<b>Design Weights</b>	<b>lb.</b>	<b>kg</b>
Length	155-3	47.3	<b>Basic</b>		
Span	124-10	38.0	Max taxi	251,000	113,850
Height	44-6	13.6	Max brake release	250,000	113,400
Body length	154-1	47.0	Max landing	210,000	95,250
Horizontal tail span	49-11	15.2	Max zero fuel	200,000	90,700
Cabin length	115-1	35.1	<b>Option</b>		
Wheel base	60-0	18.3	Max taxi	256,000	116,100
Tread	24-0	7.3	Max brake release	255,000	115,600
180-deg turnarounds	120-0	36.6			
<b>Engines, SLST</b>					
	<b>lb.</b>	<b>kg</b>			
PW2037	38,200	17,350	<b>Containers/ pallets</b>	15	15
PW2040	41,700	18,900	Main deck volume	6600 ft3	186.9 m3
RB211-535E4	40,100	18,190	Bulk volume	1830 ft3	51.8 m3
			Total volume	8430 ft3	238.7 m3
			Structural payload (including tare)	87,650 lb.	39,760 kg
<b>Fuel Capacity</b>	11,276 US gal	42,680 L			

**Figure 14. B757-200 and 300 Interior Arrangements.**

**Interior Arrangements**

757-200

Two class (36-/32-in pitch) overwing configuration



201 passengers

Two class (38-/32-in pitch) overwing configuration



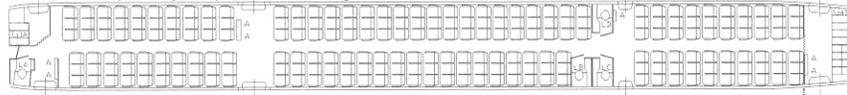
194 passengers

One class (32-in pitch) overwing configuration



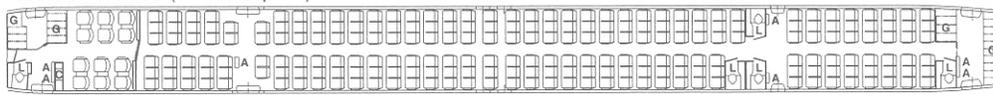
217 passengers

Inclusive tour (29-in pitch), 4-door configuration



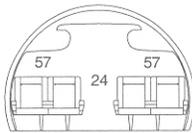
231 passengers

757-300X Two class (36-/32-in pitch)

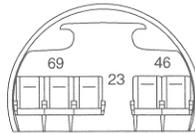


240 passengers

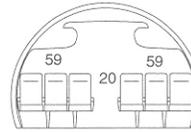
Cross sections



First 21



Business 19



Economy 17

**Design Characteristics**

	757-200		757-300X
	Basic	Maximum	Basic
Engines, thrust rating, lb			
Pratt & Whitney, PW2037/PW2040	38,200	41,700	41,700
Rolls-Royce, RB211-535E4/E4-B	40,100	43,100	43,100
Dimensions, ft-in			
Length	155-3		178-7
Span	124-10		124-10
Height	44-6		44-6
Weights, lb			
MTOW	220,000	255,000	253,000
MLW	198,000	210,000	210,000
MZFW	184,000	186,000	200,000
OEW	129,050	129,200	138,770
Design range, nmi	2,500	3,800*	3,000
Fuel capacity, U.S. gal	11,276		11,276
Cargo capacity, ft <sup>3</sup>	1,790		2,500

\* Fuel volume limited

ROGER A. BRADY, Maj Gen  
Director of Operations

## ATTACHMENT 1

## GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

*Abbreviations and Acronyms*

**ABC**—aft. bulk compartment  
**ACL**—Allowable Cargo/Cabin Load  
**AESS**—Aeromedical Evacuation Ship Set  
**AFB**—Air Force Base  
**AFR**—Air Force Regulation  
**AGL**—Above Ground Level  
**TALCE**—Tanker Airlift Control Element  
**ALCS**—Airlift Control Squadron  
**ALS**—Airlift Squadron  
**AMC**—Air Mobility Command  
**AMCOS**—Air Mobility Combat Operations Staff  
**AMCP**—Air Mobility Command pamphlet  
**AMCR**—Air Mobility Command regulation  
**APC**—Armored Personnel Carrier  
**APS**—Aerial Port Squadron  
**ASD**—Aeronautical Systems Division  
**ATA**—Air Transport Association  
**AW**—Airlift Wing  
**BL**—Butt Line  
**CB**—Center of balance (or center of gravity)  
**CCE**—Commercial Construction Equipment  
**CF/F**—Convertible Freighter Or Freighter  
**CFR**—Code of Federal Regulations  
**CG**—Center Of Gravity (Or Center Of Balance)  
**CIV**—Civilian/Civil  
**CL**—Center Line  
**CLL**—Center Lower Lobe  
**COMBI**—Combination  
**COMM**—Commercial

**CONF**—Configuration  
**CRAF**—Civil Reserve Air Fleet  
**CU FT**—Cubic Feet  
**DDT**—Double Dual Tandem Type Landing Gear (B-747 etc.)  
**DIST**—Distance  
**DOD**—Department of Defense  
**EST.**—Estimate  
**ELEV**—Elevator  
**FAA**—Federal Aviation Administration  
**FAR**—Federal Aviation regulation  
**FLL**—Forward Lower Lobe  
**FS**—Flight Station Or Fuselage Station  
**GACL**—Guaranteed Allowable Cabin (Or Cargo) Load  
**HGT**—Height  
**HQ**—Headquarters  
**IATA**—International Air Transport Association  
**IN.**—Inches  
**JSCP**—Joint Strategic Capabilities Plan  
**LAT.**—Laterally  
**LBL**—Left Butt Line  
**LCN**—Load Classification Number  
**LONG**—Longitude  
**LOX**—Liquid Oxygen  
**LOSS**—Liquid Oxygen Subsystem  
**MAC**—Mean Aerodynamic Chord  
**MAX**—Maximum  
**MHE**—Material Handling Equipment  
**MIL**—Military  
**MOS**—Medical Oxygen Subsystem  
**MSU**—Multi-Servicing Unit  
**MTMC**—Military Traffic Management Command  
**MTOW**—Maximum Take Off Weight

**MLW**—Maximum Landing Weight  
**MZFW**—Maximum Zero Fuel Weight  
**N/A**—Not Applicable  
**NM**—Nautical Mile (Statute Mile X 1.15)  
**OEW**—Operating Empty Weight  
**OL**—Operation Location  
**PAX**—Passenger  
**PDO**—Publications Distribution Office  
**PLF**—Pounds Per Linear Foot  
**PLI**—Pounds Per Linear Inch  
**PLS**—Patient Loading System  
**PP**—Pallet Position  
**PSF**—Pounds Per Square Foot  
**PSI**—Pounds Per Square Inch  
**RBL**—Right Butt Line  
**RWY**—Runway  
**SBTT**—Single-Belly Twin Tandem Landing Gear (DC-10, KC-10 etc.)  
**S/T**—Short Ton (2,000 lbs.)  
**SPR**—Single Point Refueling  
**STN**—Station  
**TACC**—Tanker Airlift Control Center  
**TAW**—Tactical Airlift Wing  
**TO**—Technical Order  
**T/O**—Takeoff  
**TT**—Twin Tandem (DC-8, B757, B767)  
**UKN**—Unknown  
**WDT**—Width  
**WBEL**—Wide Body Elevator Loader  
**WL**—Water Line  
**WRSK**—War Readiness Spares Kit  
**WT**—Weight  
**ZFW**—Zero Fuel Weight

## ATTACHMENT 2

## INTERNATIONAL CARGO AND PASSENGER PLANNING FACTORS

Table A2.1. CRAF LONG-RANGE INTERNATIONAL CARGO PLANNING FACTORS

Aircraft  Type	Maximum ACL	Pallets	Range with Maximum ACL (nautical mi)	Maximum ACL (s/t) per Leg Length (nautical mile)				Ferry Range No Cargo  (nautical mi)
	(s/t)			2,000	2,500	3,000	3,500	
A300-600F	56.6	15	1,800	54	52.5	46	40	4,450
B-757-200F	43	13	3,600	43	43	43	43	4,850
B-767-300F	65.9	26	3,500	65.9	65	65.9	65.9	7,150
DC-8-55F	43.8	13	2,400	43.8	42.5	37	31.5	4,700
DC-8-62F	44	14	3,500	44	44	44	44	5,600
DC-8-62 Combi	36	10	3,450	36	36	36	35.5	5,700
DC-8-63F	55	18	2,250	55	52.3	47.5	42.8	4,600
DC-8-71F	48.5	18	2,300	48.5	45	38.5	32.3	4,700
DC-8-73F	54.3	18	2,500	54.3	54.3	50.3	43.5	4,800
B-747-100F	106.5	33	3,200	106.5	106.3	106.5	99.8	6,800
B-747-200F	120	33	3,200	120	120	120	112	7,900
B-747-300F	116	33	3,100	116	116	116	113.5	7,900
B-747-400F	129.7	33	3,800	129.7	129.7	129.7	129.7	8,650
DC/MD-10-10F	69.3	30	2,000	69.3	61.25	54.6	46.7	4,200
DC-10-30CF	71.8	30	3,000	71.8	71.8	71.8	69.5	6,700
DC/MD-10-30F	83.1	30	3,600	83.1	83.1	83.1	83.1	6,700
MD-11CF	89	35	4,500	89	89	89	89	7,800
MD-11F	96	35	3,750	96	96	96	96	7,800
L-1011-200F	63	26	2,600	63	63	55.5	48.5	3,750

**NOTE:** Ferry Range is distance the aircraft can fly with no cargo

**Table A2.2. CRAF LONG-RANGE INTERNATIONAL PASSENGER PLANNING FACTORS**

Aircraft Type	Maximum Seats (Troops)	Range with Maximum Troops (NM)	Maximum Troops per Leg Length (NM)				Ferry Range No Troops (NM)
			2,000	2,500	3,000	3,500	
A-300-600ER	138	3,200	138	138	138	120	4,260
B-757-200	127	2,300	127	120	103	85	4,400
B-757-200ER	131	3,175	131	131	131	116	4,700
B-757-300ER	166	2,700	166	166	150	126	4,400
DC-10-10	222	2,300	222	201	150	100	4,000
DC-10-30	235	3,900	235	235	235	235	5,800
DC-10-40	222	2,750	222	222	203	160	4,875
DC-10-40J	219	3,200	219	219	219	195	4,856
MD-11	233	5,000	233	233	233	233	6,800
MD-11ER	338	4,500	338	338	338	338	6,800
B-747-100	394	2,900	394	394	365	313	6,600
B-747-200	365	3,800	365	365	365	365	7,600
B-747-400	295	6,250	295	295	295	295	8,650
B-767-200	149	2,450	149	145	120	98	7,500
B-767-200ER	161	3,650	161	161	161	161	7,700
B-767-300	186	3,375	186	186	186	167	6,800
B-767-300ER	213	3,500	213	213	213	213	7,200
B-767-400ER	232	3,500	232	232	232	232	6,500
B-777-200	250	4,200	250	250	250	250	9,200
B-777-200ER	263	5,515	263	263	263	263	9,500
L-1011-50	225	2,300	225	215	183	140	4,000
L-1011-100/150	230	2,900	230	230	220	174	4,400
L-1011-500	223	4,100	223	223	223	223	6,000

**NOTE: Troop weights are calculated at 400 pounds each, which includes personal equipment and field gear for combat operations.**