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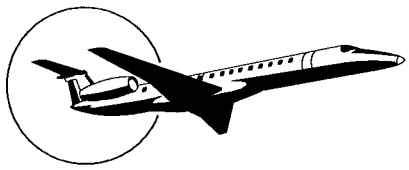

UNITED STATES
WEIGHT AND BALANCE MANUAL

EMPRESA BRASILEIRA DE AERONÁUTICA S.A.

THIS MANUAL IS APPROVED IN ACCORDANCE WITH FAR 21.29 FOR U.S. REGISTERED AIRCRAFT, AND IS APPROVED BY THE CTA ON BEHALF OF THE FEDERAL AVIATION ADMINISTRATION.
THIS DOCUMENT IS APPLICABLE TO EMB-145 STANDARD, EMB-145ER, EMB-145EP, EMB-145MP, EMB-145LR, EMB-145XR, EMB-135ER, EMB-135LR, EMB-135KE AND EMB-135KL AIRPLANES.

NOTE: THE EMB-135KE AND EMB-135KL MODELS HAVE THE COMMERCIAL DESIGNATIONS OF ERJ-140ER AND ERJ-140LR, RESPECTIVELY.

CTA APPROVAL: _____

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CHEFE DA DIVISÃO DE
HOMOLOGAÇÃO AERONÁUTICA

DATE: December 10, 1996.

REGISTRATION NUMBER: _____

SERIAL NUMBER: _____

WB–145/1161

DECEMBER 10, 1996
REVISION 17 – JANUARY 25, 2008

CTA APPROVED WEIGHT AND BALANCE MANUAL (WB–145/1161)

LOG OF REVISIONS

REVISION NUMBER AND DATE	REVISED PAGES	DESCRIPTION OF REVISION	CTA APPROVAL	
			DATE	SIGNATURE
1 DEC 20, 96	1, 2, 3, 5, 6, 7, 8, 10 and 13	General improvement and updating.	DEC 20, 96	
2 APR 22, 97	1, 10A, 10B, 11 and 12	Presents new CG envelope, extended to 17%.	APR 22, 97	
3 MAY 27, 97	13, 15 to 17	Updates fuel and hydraulic data.	MAY 27, 97	
4 MAY 07, 98	1, 10, 10A, 10B, 11, 12, 13, 14, 15, 16, 16A and 16B	Include CG envelope for flaps 22°. Include data for EMB-145MR and EMB-145LR models.	MAY 07, 98	
5 JAN 12, 99	22	Updates baggage compartment capacity figure.	JAN 12, 1999	

LOG OF REVISIONS

REVISION NUMBER AND DATE	REVISED PAGES	DESCRIPTION OF REVISION	CTA APPROVAL	
			DATE	SIGNATURE
6 JUL 16, 99	iii, iv, 1 to 42	Inclusion of EMB-135ER/LR models.	July 16, 1999	
7 JUL 30, 01	iii, iv, 9, 12, 13, 15, 16, 17, 19, 22, 28, 29, 30, 31, 32, 32A, 32B, 33, 34, 35, 38, 39, 40, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57 and 58	Remove EMB-145MR model. Include EMB-145 and EMB-135 flaps 18° information and aft attendant balance arm. Include information related to the EMB-135 models KE and KL (ERJ-140 models ER and LR respectively).	July 30, 2001	

CTA APPROVED WEIGHT AND BALANCE MANUAL (WB–145/1161)

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REVISION NUMBER AND DATE	REVISED PAGES	DESCRIPTION OF REVISION	CTA APPROVAL	
			DATE	SIGNATURE
8 OCT 22, 02	v, vi, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71 and 72 8	Include EMB-145 XR model. Updates the baggage compartment loading criterion.	Oct 22, 2002	
9 OCT 31, 02	8	General updating of the baggage compartment information.	Oct. 31, 2002	
10 MAR 03, 03	30, 32C and 32D	Updates maximum weights table and insert new center of gravity envelope for airplanes S/N 145551, 145599, 145600, 145608, and 145620.	March 03, 2003	

CTA APPROVED WEIGHT AND BALANCE MANUAL (WB–145/1161)

LOG OF REVISIONS

REVISION NUMBER AND DATE	REVISED PAGES	DESCRIPTION OF REVISION	CTA APPROVAL
11 AUG 19, 03	iii, 9, 12, 14A, 14B, 19 and 20	Inclusion of data, applicable to EMB-145MP model, or label indicating the applicability of the issued data to the referred model.	**WB-145/1161 Revision 11 approved by CTA on August 19, 2003.**
12 OCT 21, 03	8 iii, 9, 12, 14C, 14D, 19 and 20 14B 19, 35 and 51	Updates cargo nets limitation. Include limitations and information related to the EMB-145EP model. Includes the EMB-145MP model CG envelope for takeoff with flaps 22°. Remove the range of density specified for the fuel.	**WB-145/1161 Revision 12 approved by CTA on October 21, 2003.**
13 NOV 23, 04	19, 35, 51 and 66 30, 32B, 32C and 32D	Update definition. Update Maximum Gross Weight and Center of Gravity Limits.	**WB-145/1161 Revision 13 approved by CTA on November 23, 2004.**

WB-145/1161 - FAA

CTA APPROVED WEIGHT AND BALANCE MANUAL (WB–145/1161)

LOG OF REVISIONS

REVISION NUMBER AND DATE	REVISED PAGES	DESCRIPTION OF REVISION	CTA APPROVAL
14 OCT 20, 05	30, 31 and 32A	Update the MZFW of the EMB-135ER model.	**WB-145/1161 Revision 14 approved by FAA on October 20, 2005.**
15 DEC 28, 05	7, 12 to 14, 14C, 14D, 18, 22, 34, 38, 50, 54, 65 and 69	Update the MZFW of the EMB-145ER/EP models and update weights in accordance with AC120-27E.	**WB-145/1161 Revision 15 approved by CTA on December 28, 2005.**
16 MAY 16, 06	12 to 14, 14A, 14B, 14C, 14D, 15, 16, 30 to 32, 32A, 32B, 46 to 48, 62 and 63	Update limitations.	**WB-145/1161 Revision 16 approved by CTA on May 16, 2006.**

ANAC APPROVED WEIGHT AND BALANCE MANUAL (WB–145/1161)

LOG OF REVISIONS

REVISION NUMBER AND DATE	REVISED PAGES	DESCRIPTION OF REVISION	ANAC APPROVAL
17 JAN 25, 08	iii, iv, v, 24 to 26, 40, 41, 56 to 58 and 71 to 74 54	Update Interior Arrangement information. Updates Flight Crew Items data.	**WB-145/1161 Revision 17 approved by ANAC on January 25, 2008.**

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REVISION .....5 ..... JAN 12, 1999
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GENERAL

The Weight and Balance Manual provides instructions referring to the weighing and loading of the EMB-145 airplane models.

The Instructions and Data herein presented are approved by the Airworthiness Authority to comply with the applicable regulations.

The Basic Empty Weight value obtained during the airplane weighing procedures should be used as point of departure for each loading operation.

Based on the contained information, the operator can determine the airplane weight and CG at any time of flight.

STANDARD TERMS AND DEFINITIONS

EQUIPPED EMPTY WEIGHT (EEW) OR MANUFACTURER EMPTY WEIGHT (MEW)

It is the weight of structure, power plant, instruments, interior furnishings, systems, optional, portable, and emergency equipment and other items of equipment that are an integral part of the airplane configuration. It is essentially a dry weight, including only those fluids contained in closed systems such as oxygen, fire extinguisher agent, landing gear shock absorber fluid, etc...

BASIC EMPTY WEIGHT (BEW)

It is the MEW plus the weight of the following items:

- APU oil
- Engine oil
- Hydraulic fluid
- Unusable fuel

OPERATIONAL EMPTY WEIGHT (OEW)

It is the BEW plus the weight of the operational items.
Operational items are those necessary for airplane operation and not included in the BEW.
The operational items are:

- Crew and crew baggage
- Navigation kit (manuals, charts, etc.)
- Catering (beverages and foods) and removable service equipment for galley (such as standard units, etc.)
- Lavatory rinse water
- Lavatory chemical fluid

ACTUAL ZERO FUEL WEIGHT (AZFW)

This is the OEW plus actual payload.

PAYLOAD

This is the weight of passengers, baggage and cargo.

MAXIMUM ALLOWABLE PAYLOAD

It is the maximum approved weight that can be loaded into the airplane. Maximum payload is the Maximum Zero Fuel Weight (MZFW) less Operational Empty Weight (OEW).

MAXIMUM DESIGN ZERO FUEL WEIGHT (MZFW)

This is the maximum authorized weight before usable fuel be loaded. The MZFW is related to airplane structural limitations.

MAXIMUM DESIGN RAMP WEIGHT (MRW)

This is the maximum authorized ramp weight.

MAXIMUM DESIGN TAKEOFF WEIGHT (MTOW)

This is the maximum authorized weight for takeoff.

MAXIMUM DESIGN LANDING WEIGHT (MLW)

This is the maximum authorized weight for landing.

MINIMUM OPERATING WEIGHT (MOW)

This is the minimum authorized weight to operate the airplane.

WEIGHING FACILITIES

The airplane should be weighed inside a closed facility that will:

- Exclude all wind and drafts.
- Permit shutdown of air conditioning during the weighing operation.
- Maintain a relatively constant temperature for at least four hours.
- Provide a level weighing floor and sufficient head room.

WEIGHING EQUIPMENT

The airplane may be weighed by either of the following methods:

- On wheels.
- Jack points.

In both conditions, the weighing equipment manufacturer instructions should be followed.

NOTE: When performing a weighing procedure, assure that the weighing equipment is properly calibrated.

The primary equipment required for weighing the airplane consists of:

- Weighing scale (electronic or mechanical).
- Jacking equipment.
- Leveling equipment.

WEIGHING INSTRUCTIONS

Periodic weighing of the airplane may be required to keep the MEW and BEW current.

Frequency of weighing is to be determined by the operator, in accordance with current standards.

All changes to the airplane affecting weight and balance are the responsibility of the airplane operator.

In order to assure a suitable airplane weighing, the following precautions must be followed:

- Check for completeness of the airplane and equipment, including emergency and furnishing equipment.
- All fluid (fuel, engine and APU oil, hydraulic fluid, water, etc...) must be known.
- Assure that all shop equipment, tools and trash are removed.
- Loose equipment must be stowed in its proper location in the airplane.
- Close all doors and access panels.
- Weighing should always be performed in an enclosed area, free from wind.
- Set all control surfaces and flaps in their neutral position.
- Note the position of nose and main landing gears.
- During the weighing operation, the airplane must be in a level attitude, both longitudinally and laterally.
  For further information on airplane leveling procedure, refer to Chapter 8 of Aircraft Maintenance Manual.
- Inventory the airplane utilizing the component weights and the associated balance arms as shown in the Chart A, to determine airplane configuration at time of weighing.
- It is recommended that the airplane be weighed with engine oil, APU oil, and hydraulic fluid at full level. The fuel should be fully drained with the airplane in normal ground attitude (level).

  NOTE: Never weigh the airplane with partially filled tanks. If fuel draining is impracticable due to fire hazards, improper storage conditions, or local regulations, fill tanks to full capacity. Total fuel weight is obtained by multiplying the actual fuel density by the total tank volume.

– The airplane should be weighed and corrected to the Basic Empty Weight if any oil or hydraulic tank is not full. All operational items which were installed on the airplane during the weighing should be subtracted. All MEW and standard items should be added as appropriate.

NOTE: The “as weighed” condition will usually include the undrainable fuel unless the fuel system is totally dry. To arrive at the BEW, undrainable fuel should be deducted and the unusable fuel should be added to as weighed condition.

PASSENGERS

PASSENGER LOCATION

The passenger location and respective balance arm are shown in the applicable Interior Arrangement. Seats are numbered sequentially from the left to the right, and from the front to the rear. The seat numbers are for the identification on the Interior Arrangement list and may not necessarily coincide with the actual seating identification on the airplane standard configuration.
Enclosed, it is presented the Standard Configuration, including the plan view and the Balance Arms.
For other interior configuration options the passenger locations and the respective Balance Arms are supplied together with the “Airplane Weighing Form”, inserted in the “FINAL INSPECTION REPORT”, by the time of the airplane delivering.

PASSENGER WEIGHT

Actual or average passenger weights may be used to compute passenger loads.

Actual passenger weights should be used in case of flights carrying large groups of passengers whose average weight obviously does not conform with the normal standard weight such as athletic squads or other groups which are smaller or larger than the local average. The actual passenger weight may be either determined by scale weighing of each passenger, or by asking each passenger their weight and adding there to a predetermined constant to compensate the handcarried articles and clothing.

The following standard average weight may be adopted:

- Adult passenger..... 190 lb ➔ Summer
  195 lb ➔ Winter
- Children (age 2-12)..... 82 lb ➔ Summer
  87 lb ➔ Winter

NOTE: - Adult passenger weight includes 16 lb of carry-on baggage.
- Children under age 2 are considered "babies-in-arms" and children over age 12 should be treated as adult passengers for purposes of standard average weights.

BAGGAGE LOADING

BAGGAGE WEIGHT AND LOCATION

The baggage weight limits, location and the respective balance arm may be obtained from the applicable interior arrangement.
The data shown enclosed are applicable to Standard Configuration. For other interior configuration options the weight limits, location and the respective balance arm are supplied together with the “Airplane Weighing Form”, inserted in the “FINAL INSPECTION REPORT”.

BAGGAGE LOADING PROCEDURES

Refer to weight and balance data associated to each model.

CARRY-ON BAGGAGE

Carry-on volumes may be stowed in the overhead bins and in the wardrobe.
There is no specific requirement for underseat carry-on volumes; however a maximum of 20.0 lb is allowable, provided the volume is properly restrained to avoid sliding.

BAGGAGE COMPARTMENT

The baggage compartment is designed for a maximum floor distributed load of 80 lb/ft2 and a total maximum capacity of 2646 lb (EMB-145/140) or 2205 lb (EMB-135).

Cargo and baggage loading up to 2182 lb are not required to be tied down. Loads exceeding this value must be placed under the cargo restraint net.

Maximum load that can be placed under the cargo restraint net P/Ns 7162041-501 or -503 is 992 lb.

Maximum load that can be placed under the cargo restraint net P/N 7162041-505 is limited to the maximum capacity of the baggage compartment.

For airplanes Post-Mod. SB 145-25-0261 (reinforced liners) or equipped with an equivalent modification factory incorporated, the use of the horizontal net is not required.

Baggage and cargo should be evenly distributed over the baggage compartment to avoid load concentration.

Cargo must not become a hazard to the airplane structure or systems as a result of shifting under operational loads. Sharp edges (like wooden or metal containers) or dense cargo (objects significantly more dense than typical passenger baggage) must be placed under the cargo restraint net to prevent shifting.

EMB-145 STANDARD, ER, EP, MP AND LR MODELS

The following pages present the weight and balance data for EMB-145 STD, ER, EP, MP and LR models.

BALANCE REFERENCE SYSTEM (EMB-145 MODELS)

BALANCE ARMS/BODY STATION

Longitudinal location of the Centers of Gravity (CG) identified throughout this Manual regarding airplane and components will be referred to as Balance Arms. Balance Arms are the distance in inches from the Airplane Datum which is located at the zero station of the fuselage.
Balance Arms (BA) are equivalent to Body Station (BS) on the EMB-145 models.

AIRPLANE DATUM

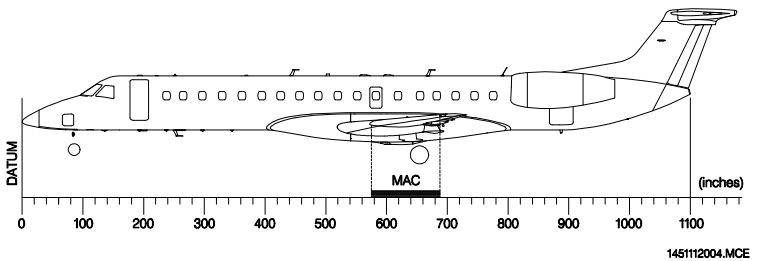
The Airplane Datum is a plane, perpendicular to the fuselage centerline, located at 535.47 in ahead of the wing stub front spar.
For external reference, the Datum is located at 649.61 in ahead of the wing jack points.

WING MEAN AERODYNAMIC CHORD (MAC)

The length of the MAC is 112.80 in.
The leading edge of the MAC (LEMAC) is Balance Arm 574.80 in.
Percentage of MAC is obtained using the following formula:

$$\%MAC = \frac{(X - 574.80) \times 100}{112.80}$$

where X = Balance Arm of airplane CG measured in inches.



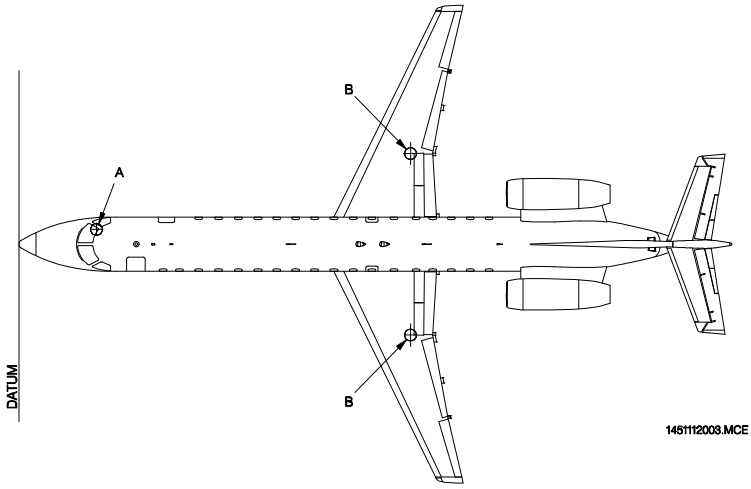
AIRPLANE JACKING (EMB-145 MODELS)

Refer to Chapter 7 of Aircraft Maintenance Manual for airplane jacking procedures.

JACK POINTS LOCATION

POINT	BALANCE ARM (in)	CENTERLINE DISTANCE (in)
A	128.35	12.99
B	649.61	150.20

NOTE: The jack points balance arms refer to the Airplane Datum.



JACK POINTS

MAXIMUM GROSS WEIGHT AND CENTER OF GRAVITY LIMITS (EMB-145 MODELS)

When performing an approved loading schedule, ensure that the airplane weight and center of gravity remains within the Weight x CG Envelope by accounting for airplane weight and balance with all load conditions.

For maximum structural weights, refer to Airplane Flight Manual (AFM-145/1153).

CG CONSTRAINTS

When performing the airplane weighing and balancing, appropriate constraints must be established and applied in order to assure that the center of gravity limits are not exceeded in any airplane operating condition, due to:

- Fuel density variation.
- Passenger seat variation.
- Cargo location variation.
- Landing gear inflight movement.
- Passenger and crew member inflight movement.

CG ENVELOPE FOR OPERATION (EMB-145 MODELS)

For center of gravity envelopes, refer to Airplane Flight Manual (AFM-145/1153).

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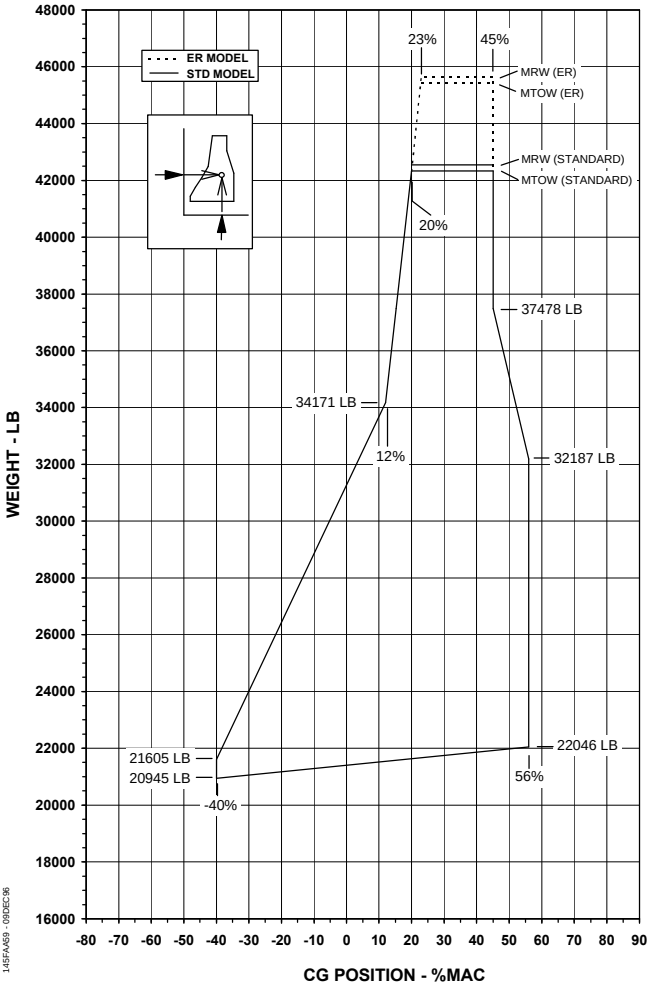
CG ENVELOPE FOR JACKING (EMB-145 MODELS)



CAUTION:
- MAXIMUM ALLOWABLE FUEL ASYMMETRY: 800 LB.
- BEFORE JACKING THE AIRPLANE, CHECK CG WITHIN THE JACKING ENVELOPE.
- ABOVE 37478 LB, ONLY LANDING GEAR JACKING IS ALLOWED.

MOMENT/CG CHANGES (EMB-145 MODELS)

DUE TO ANY PASSENGER OR CREW MEMBER INFLIGHT MOVEMENT

A person moving from the front to the rear of the cabin or vice-versa causes the following CG travel:

- For 28660 lb: CG moves aft or forward in a maximum range of 3.7% of MAC.
- For 45415 lb: CG moves aft or forward in a maximum range of 2.4% of MAC.
- For 48501 lb: CG moves aft or forward in a maximum range of 2.2% of MAC.

DUE TO LANDING GEAR CONFIGURATION

When the landing gear is retracted, there is a reduction of 10155 lb.in (STD and ER models) or 10762 lb.in (MR and LR models) of the moment in respect to the airplane datum.

- For 28660 lb: CG moves forward 0.3% of MAC.
- For 45415 lb: CG moves forward 0.2% of MAC.
- For 48501 lb: CG moves forward 0.2% of MAC.

DUE TO FUEL CONSUMPTION AND DENSITY VARIATION TEMPERATURE

The fuel CG variation with the consumption is shown in the Fuel Distribution Table (the fuel CG changes for different fuel volumes).
The variation of fuel density with temperature has negligible effects in the airplane CG.

FUEL DATA (EMB-145 MODELS)

FUEL DEFINITIONS

- USABLE FUEL - Is the fuel to be effectively consumed by the engines.
- UNUSABLE FUEL - Is the fuel remaining after total usable fuel has been consumed.
- DRAINABLE FUEL - Is that portion of fuel which can be drawn off through fuel drains with the airplane leveled.
- UNDRAINABLE FUEL - Is that portion of fuel which can not be drawn off by standard draining procedures.

FUEL QUANTITIES

EMB-145 STANDARD, ER, EP and MP Models:

FUEL CATEGORY	VOLUME (US Gal)	WEIGHT (lb)	CG BALANCE ARM (in)
UNUSABLE UNDRAINABLE	1.6	11	580.31
UNUSABLE DRAINABLE	12.6	85	580.31
TOTAL UNUSABLE	14.2	96	580.31
USABLE	1359.6	9200	603.62

EMB-145 LR Model:

FUEL CATEGORY	VOLUME (US Gal)	WEIGHT (lb)	CG BALANCE ARM (in)
UNUSABLE UNDRAINABLE	2.6	17.6	580.31
UNUSABLE DRAINABLE	9.0	60.8	580.31
TOTAL UNUSABLE	11.6	78.4	580.31
USABLE	1689.8	11434.8	596.57

NOTE: The values above have been determined for an adopted fuel density of 6.767 lb/US Gal.

FUEL DISTRIBUTION TABLE
(EMB-145 STANDARD, ER, EP AND MP MODELS)

FUEL DISTRIBUTION ON THE LEFT AND RIGHT WING TANKS	
VOLUME (US Gal)	**CG BALANCE ARM (in)**
50	575.28
100	577.01
150	578.43
200	579.61
250	580.67
300	581.65
350	582.52
400	583.35
450	584.17
500	585.04
550	585.91
600	586.81
650	587.68
700	588.54
750	589.37
800	590.20
850	591.02
900	591.77
950	592.56
1000	593.39
1050	594.37
1100	595.43
1150	596.69
1200	598.07
1250	599.65
1300	601.34
1350	603.23
1359.6	603.62

FUEL DISTRIBUTION TABLE (EMB-145 LR MODEL)

FUEL DISTRIBUTION ON THE LEFT AND RIGHT WING TANKS	
VOLUME (US Gal)	**CG BALANCE ARM (in)**
50	570.000
100	570.887
150	571.773
200	572.552
250	573.335
300	574.009
350	574.776
400	575.443
450	576.006
500	576.773
550	577.332
600	577.887
650	578.443
700	579.002
750	579.665
800	580.224
850	580.887
900	581.550
950	582.117
1000	582.776
1050	583.339
1100	584.002
1150	584.665
1200	585.224
1250	585.883
1300	586.550
1350	587.332
1400	588.331
1450	589.441
1500	590.663
1550	591.993
1600	593.443
1650	595.044
1690	596.577

MISCELLANEOUS FLUIDS (EMB-145 MODELS)

FLUID	WEIGHT (lb)	BALANCE ARM (in)
ENGINE OIL (1)	53.0	879.13
APU OIL (1)	4.4	1070.47
HYDRAULIC (2)		
• *WITH THRUST REVERSER*	79.4	735.43
• *WITHOUT THRUST REVERSER*	72.8	716.54
LAVATORY CHEMICAL FLUID	15.4	810.24
LAVATORY RINSE WATER	44.1	813.39

NOTE: (1) Adopted engine oil density (ref. MIL-L-7808): 8.17 lb/US Gal.
(2) Adopted hydraulic fluid density (ref. SAE AS 1241A TYPE IV): 8.26 lb/US Gal.

FLIGHT CREW ITEMS (EMB-145 MODELS)

ITEM	WEIGHT (lb)	BALANCE ARM (in)
PILOT	190	142.91
COPILOT	190	142.91
OBSERVER	190	165.35
FORWARD ATTENDANT	180	188.98
CREWMEMBER ROLLER BAG	30	196.85
PILOT FLIGHT BAG	20	155.51
FLIGHT ATTENDANT KIT	10	196.85
AFT ATTENDANT	180	782.68

NOTE: - The adopted flight crew items are in accordance with the approved average weight, not including the respective carry-on baggage.
- The crewmembers and attendants weights presented herein refer to male (FAA–AC120-27E).

BAGGAGE LOADING (EMB-145 MODELS)

BAGGAGE LOADING PROCEDURES

To load the baggage compartment above 2205 lb (for airplane without Thrust Reverser) or above 1764 lb (for airplane with Thrust Reverser), the following simultaneous conditions shall be observed:

- Airplane shall be with a minimum required fuel of 2000 lb.
- No more than one person can be at the airplane cone either inside the baggage compartment or inside the rear electronic compartment.

CAUTION: IF THE CONDITIONS ABOVE ARE NOT OBSERVED, AN AIRPLANE TILTING (TAIL DOWN) MAY OCCUR.

INTERIOR ARRANGEMENT (EMB-145 MODELS)

The passenger location and respective balance arm are shown in the applicable Interior arrangement. Herein, the Standard Configuration is presented, including the plan view and the Balance Arms.
For other interior configuration options, the passenger locations and the respective Balance Arms are supplied together with the “Airplane Weighing Form”, inserted in the “FINAL INSPECTION REPORT”, by the time of the airplane’s delivery.

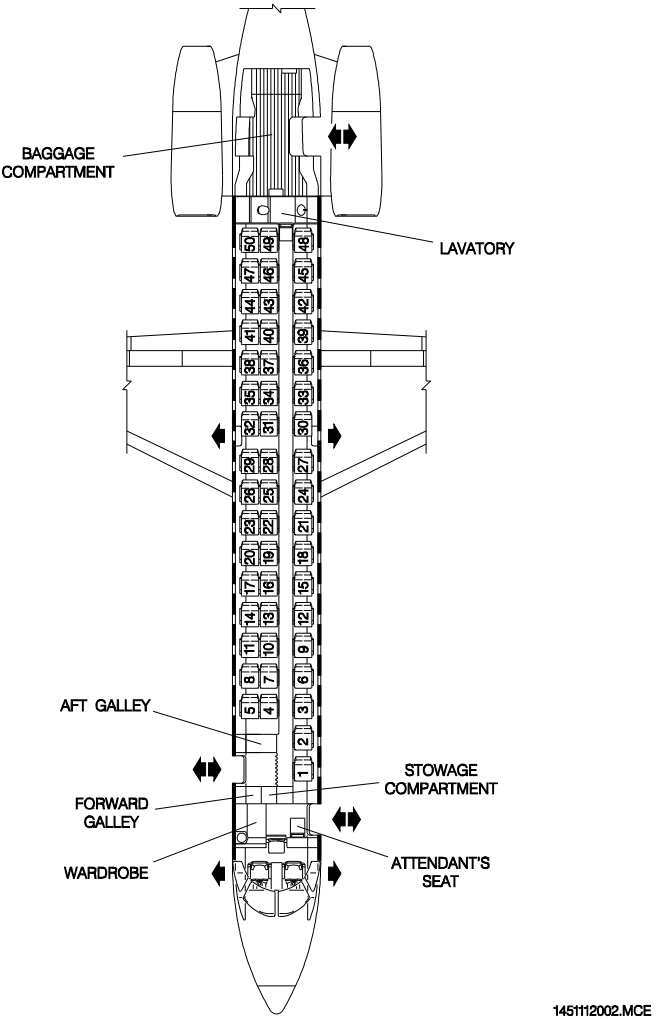
STANDARD CONFIGURATION (EXAMPLE)

SEATS ROW	PASSENGER SEATS	BALANCE ARM (in)
1	1	243.82
2	2	274.80
3	3,4,5	305.83
4	6,7,8	336.81
5	9,10,11	367.83
6	12,13,14	398.82
7	15,16,17	429.80
8	18,19,20	460.83
9	21,22,23	491.81
10	24,25,26	522.83
11	27,28,29	553.82
12	30,31,32	593.82
13	33,34,35	624.80
14	36,37,38	655.83
15	39,40,41	686.81
16	42,43,44	717.84
17	45,46,47	748.82
18	48,49,50	779.80

PASSENGER AVERAGE CG: 530.94 in.

	BALANCE ARM (in)
WARDROBE	196.85
STOWAGE COMPARTMENT	218.50
FORWARD GALLEY	218.50
AFT GALLEY	267.72
BAGGAGE COMPARTMENT	889.76

BAGGAGE COMPARTMENT CAPACITY: 2646 lb or 80 lb/ft^2.



STANDARD CONFIGURATION (EXAMPLE)

EMB-135 ER AND LR MODELS

The following pages present the weight and balance data for EMB-135 ER and LR models.

BALANCE REFERENCE SYSTEM (EMB-135 ER AND LR MODELS)

BALANCE ARMS/BODY STATION

Longitudinal location of the Centers of Gravity (CG) identified throughout this Manual regarding airplane and components will be referred to as Balance Arms. Balance Arms are the distance in inches from the Airplane Datum which is located at the zero station of the fuselage.
Balance Arms (BA) are equivalent to Body Station (BS) on the EMB-135 models.

AIRPLANE DATUM

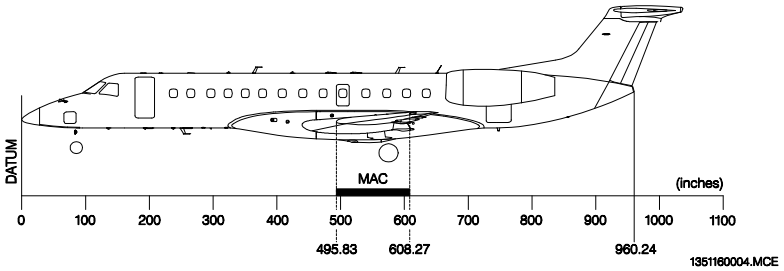
The Airplane Datum is a plane, perpendicular to the fuselage centerline, located at 456.50 in ahead of the wing stub front spar.
For external reference, the Datum is located at 570.63 in ahead of the wing jack points.

WING MEAN AERODYNAMIC CHORD (MAC)

The length of the MAC is 112.80 in.
The leading edge of the MAC (LEMAC) is Balance Arm 495.83 in.
Percentage of MAC is obtained using the following formula:

$$\%MAC = \frac{(X - 495.83) \times 100}{112.80}$$

where X = Balance Arm of airplane CG measured in inches.



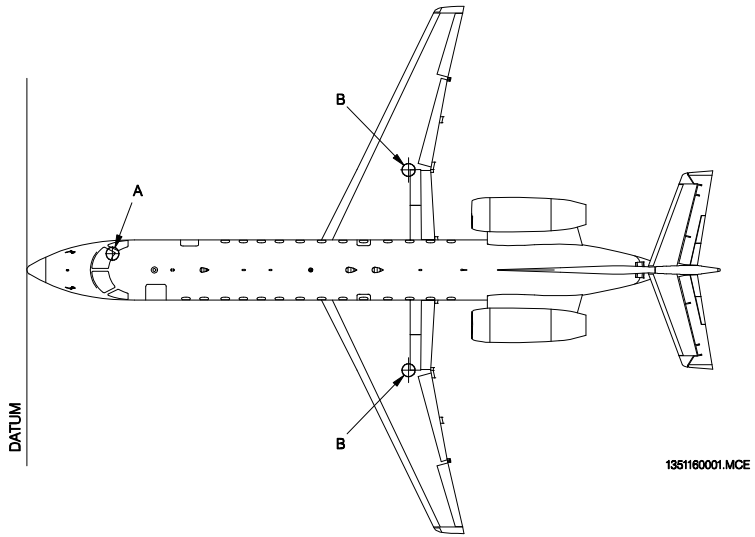
AIRPLANE JACKING (EMB-135 ER AND LR MODELS)

Refer to Chapter 7 of Aircraft Maintenance Manual for airplane jacking procedures.

JACK POINTS LOCATION

POINT	BALANCE ARM (in)	CENTERLINE DISTANCE (in)
A	128.35	12.99
B	570.63	150.20

NOTE: The jack points balance arms refer to the Airplane Datum.



JACK POINTS

MAXIMUM GROSS WEIGHT AND CENTER OF GRAVITY LIMITS (EMB-135 ER AND LR MODELS)

When performing an approved loading schedule, ensure that the airplane weight and center of gravity remains within the Weight x CG Envelope by accounting for airplane weight and balance with all load conditions.

For maximum structural weights, refer to Airplane Flight Manual (AFM-145/1153).

CG CONSTRAINTS

When performing the airplane weighing and balancing, appropriate constraints must be established and applied in order to assure that the center of gravity limits are not exceeded in any airplane operating condition, due to:

- Fuel density variation.
- Passenger seat variation.
- Cargo location variation.
- Landing gear inflight movement.
- Passenger and crew member inflight movement.

CG ENVELOPE FOR OPERATION (EMB-135 ER AND LR MODELS)

For center of gravity envelopes, refer to Airplane Flight Manual (AFM-145/1153).

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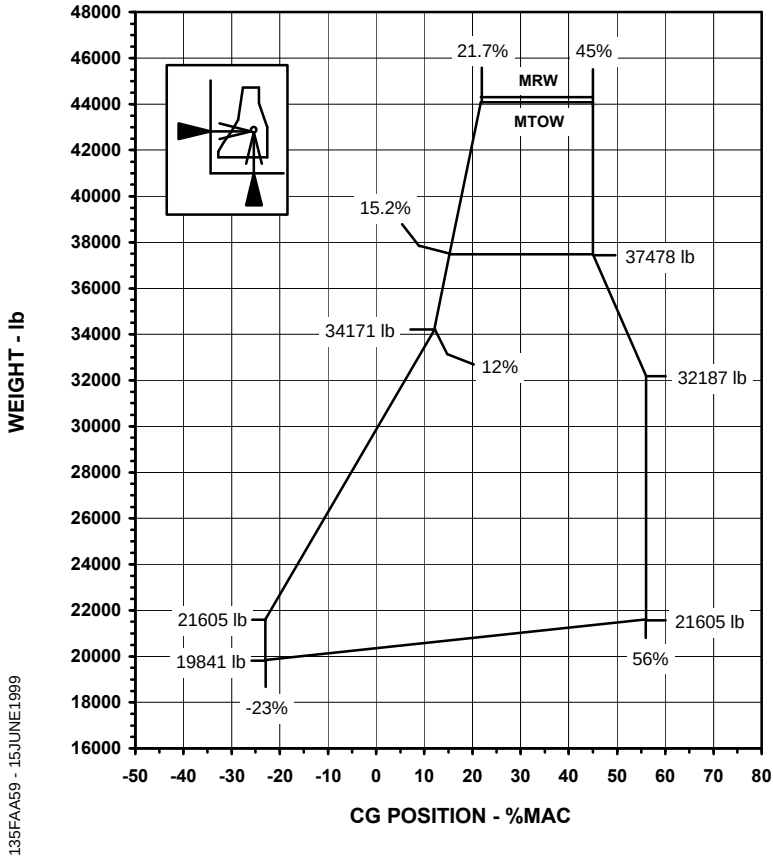
CG ENVELOPE FOR JACKING (EMB-135 ER AND LR MODELS)



CAUTION:

- MAXIMUM ALLOWABLE FUEL ASYMMETRY: 800 LB.
- BEFORE JACKING THE AIRPLANE, CHECK CG WITHIN THE JACKING ENVELOPE.
- ABOVE 37478 LB, ONLY LANDING GEAR JACKING IS ALLOWED.

MOMENT/CG CHANGES (EMB-135 ER AND LR MODELS)

DUE TO ANY PASSENGER OR CREW MEMBER INFLIGHT MOVEMENT

A person moving from the front to the rear of the cabin or vice-versa causes the following CG travel:

- For 26455 lb: CG moves aft or forward in a maximum range of 3.5% of MAC.
- For 41888 lb: CG moves aft or forward in a maximum range of 2.2% of MAC.

DUE TO LANDING GEAR CONFIGURATION

When the landing gear is retracted, there is a reduction of 10155 lb.in of the moment in respect to the airplane datum.

- For 26455 lb: CG moves forward 0.3% of MAC.
- For 41888 lb: CG moves forward 0.2% of MAC.

DUE TO FUEL CONSUMPTION AND DENSITY VARIATION TEMPERATURE

The fuel CG variation with the consumption is shown in the Fuel Distribution Table (the fuel CG changes for different fuel volumes).
The variation of fuel density with temperature has negligible effects in the airplane CG.

FUEL DATA (EMB-135 ER AND LR MODELS)

FUEL DEFINITIONS

- USABLE FUEL - Is the fuel to be effectively consumed by the engines.
- UNUSABLE FUEL - Is the fuel remaining after total usable fuel has been consumed.
- DRAINABLE FUEL - Is that portion of fuel which can be drawn off through fuel drains with the airplane leveled.
- UNDRAINABLE FUEL - Is that portion of fuel which can not be drawn off by standard draining procedures.

FUEL QUANTITIES

EMB-135 ER Model:

FUEL CATEGORY	VOLUME (US Gal)	WEIGHT (lb)	CG BALANCE ARM (in)
UNUSABLE UNDRAINABLE	1.6	11	501.34
UNUSABLE DRAINABLE	12.6	85	501.34
TOTAL UNUSABLE	14.2	96	501.34
USABLE	1359.6	9200	524.65

EMB-135 LR Model:

FUEL CATEGORY	VOLUME (US Gal)	WEIGHT (lb)	CG BALANCE ARM (in)
UNUSABLE UNDRAINABLE	2.6	17.6	501.34
UNUSABLE DRAINABLE	9.0	60.8	501.34
TOTAL UNUSABLE	11.6	78.4	501.34
USABLE	1689.8	11434.8	518.00

NOTE: The values above have been determined for an adopted fuel density of 6.767 lb/US Gal.

FUEL DISTRIBUTION TABLE (EMB-135 ER MODEL)

FUEL DISTRIBUTION ON THE LEFT AND RIGHT WING TANKS	
VOLUME (US Gal)	**CG BALANCE ARM (in)**
50	496.37
100	498.00
150	499.41
200	500.60
250	501.67
300	502.64
350	503.54
400	504.39
450	505.21
500	506.05
550	506.92
600	507.82
650	508.70
700	509.56
750	510.41
800	511.22
850	512.01
900	512.82
950	513.61
1000	514.41
1050	515.36
1100	516.44
1150	517.72
1200	519.08
1250	520.63
1300	522.28
1350	524.27
1359.4	524.65

FUEL DISTRIBUTION TABLE (EMB-135 LR MODEL)

FUEL DISTRIBUTION ON THE LEFT AND RIGHT WING TANKS	
VOLUME (US Gal)	**CG BALANCE ARM (in)**
50	491.05
100	491.88
150	492.73
200	493.55
250	494.35
300	495.07
350	495.78
400	496.45
450	497.10
500	497.73
550	498.33
600	498.91
650	499.48
700	500.08
750	500.67
800	501.28
850	501.95
900	502.58
950	503.18
1000	503.81
1050	504.45
1100	505.04
1150	505.68
1200	506.28
1250	506.82
1300	507.49
1350	508.38
1400	509.31
1450	510.40
1500	511.57
1550	512.85
1600	514.26
1650	516.12
1690	517.61

MISCELLANEOUS FLUIDS (EMB-135 ER AND LR MODELS)

FLUID	WEIGHT (lb)	BALANCE ARM (in)
ENGINE OIL (1)	53.0	739.65
APU OIL (1)	4.4	930.71
HYDRAULIC (2)		
• *WITH THRUST REVERSER*	75.0	608.27
• *WITHOUT THRUST REVERSER*	68.3	594.49
LAVATORY CHEMICAL FLUID	15.4	670.47
LAVATORY RINSE WATER	44.1	673.62

NOTE: (1) Adopted engine oil density (ref. MIL-L-7808): 8.17 lb/US Gal.
(2) Adopted hydraulic fluid density (ref. SAE AS 1241A TYPE IV): 8.26 lb/US Gal.

FLIGHT CREW ITEMS (EMB-135 ER AND LR MODELS)

ITEM	WEIGHT (lb)	BALANCE ARM (in)
PILOT	190	142.91
COPILOT	190	142.91
OBSERVER	190	165.35
FORWARD ATTENDANT	180	188.98
CREWMEMBER ROLLER BAG	30	196.85
PILOT FLIGHT BAG	20	155.51
FLIGHT ATTENDANT KIT	10	196.85
AFT ATTENDANT	180	643.30

NOTE: - The adopted flight crew items are in accordance with the approved average weight, not including the respective carry-on baggage.
- The crewmembers and attendants weights presented herein refer to male (FAA–AC120-27E).

BAGGAGE LOADING (EMB-135 ER AND LR MODELS)

BAGGAGE LOADING PROCEDURES

To load the baggage compartment above 1764 lb (for airplane with Thrust Reverser), the following simultaneous conditions shall be observed:

- Airplane shall be with a minimum required fuel of 2000 lb.
- No more than one person can be at the airplane cone either inside the baggage compartment or inside the rear electronic compartment.

CAUTION: IF THE CONDITIONS ABOVE ARE NOT OBSERVED, AN AIRPLANE TILTING (TAIL DOWN) MAY OCCUR.

INTERIOR ARRANGEMENT (EMB-135 ER AND LR MODELS)

The passenger location and respective balance arm are shown in the applicable Interior arrangement. Herein, the Standard Configuration is presented, including the plan view and the Balance Arms.
For other interior configuration options, the passenger locations and the respective Balance Arms are supplied together with the “Airplane Weighing Form”, inserted in the “FINAL INSPECTION REPORT”, by the time of the airplane’s delivery.

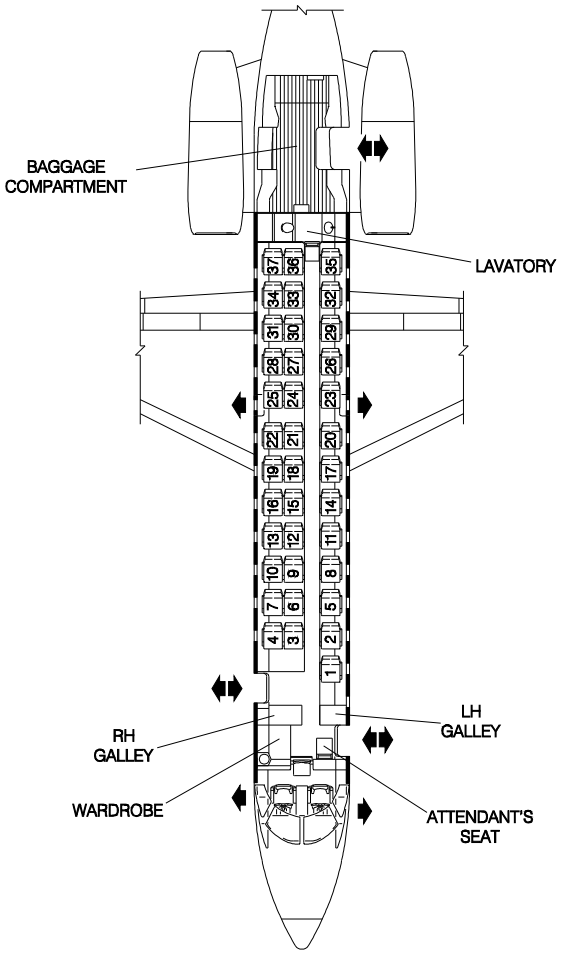
STANDARD CONFIGURATION (EXAMPLE)

SEATS ROW	PASSENGER SEATS	BALANCE ARM (in)
1	1	259.06
2	2,3,4	290.04
3	5,6,7	321.02
4	8,9,10	352.05
5	11,12,13	383.03
6	14,15,16	414.06
7	17,18,19	445.04
8	20,21,22	476.02
9	23,24,25	516.02
10	26,27,28	547.05
11	29,30,31	578.03
12	32,33,34	609.06
13	35,36,37	640.04

PASSENGER AVERAGE CG: 458.74 in.

	BALANCE ARM (in)
WARDROBE	190.55
GALLEY, RIGHT SIDE	216.54
GALLEY, LEFT SIDE	216.54
BAGGAGE COMPARTMENT	750.00

BAGGAGE COMPARTMENT CAPACITY: 2205 lb or 80 lb/ft^2.



STANDARD CONFIGURATION (EXAMPLE)

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ERJ-140 ER AND LR MODELS

The following pages present the weight and balance data for ERJ-140 ER and LR models.

NOTE: THE ERJ-140 ER AND ERJ-140 LR MODELS HAVE THE TYPE CERTIFICATION DESIGNATIONS OF EMB-135 KE AND EMB-135 KL, RESPECTIVELY.

BALANCE REFERENCE SYSTEM (ERJ-140 ER AND LR MODELS)

BALANCE ARMS/BODY STATION

Longitudinal location of the Centers of Gravity (CG) identified throughout this Manual regarding airplane and components will be referred to as Balance Arms. Balance Arms are the distance in inches from the Airplane Datum which is located at the zero station of the fuselage.
Balance Arms (BA) are equivalent to Body Station (BS) on the ERJ-140 ER and LR models.

AIRPLANE DATUM

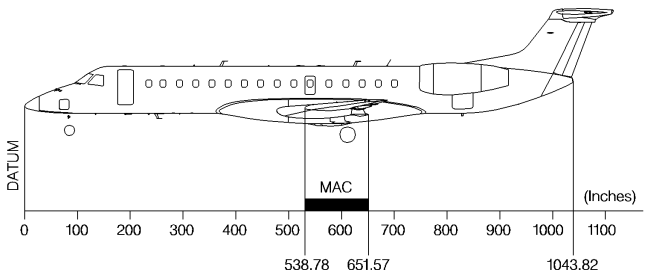
The Airplane Datum is a plane, perpendicular to the fuselage centerline, located at 499.45 in ahead of the wing stub front spar.
For external reference, the Datum is located at 613.58 in ahead of the wing jack points.

WING MEAN AERODYNAMIC CHORD (MAC)

The length of the MAC is 112.80 in.
The leading edge of the MAC (LEMAC) is Balance Arm 538.78 in.
Percentage of MAC is obtained using the following formula:

$$\%MAC = \frac{(X - 538.78) \times 100}{112.80}$$

where X = Balance Arm of airplane CG measured in inches.



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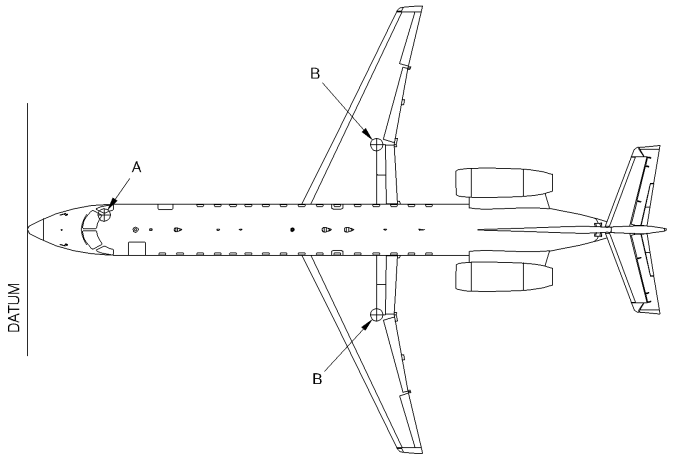
AIRPLANE JACKING (ERJ-140 ER AND LR MODELS)

Refer to Chapter 7 of Aircraft Maintenance Manual for airplane jacking procedures.

JACK POINTS LOCATION

POINT	BALANCE ARM (in)	CENTERLINE DISTANCE (in)
A	128.35	12.99
B	613.58	150.20

NOTE: The jack points balance arms refer to the Airplane Datum.



WING JACK POINTS

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CG ENVELOPE FOR OPERATION (ERJ-140 ER AND LR MODELS)

For center of gravity envelopes, refer to Airplane Flight Manual (AFM-140/1330).

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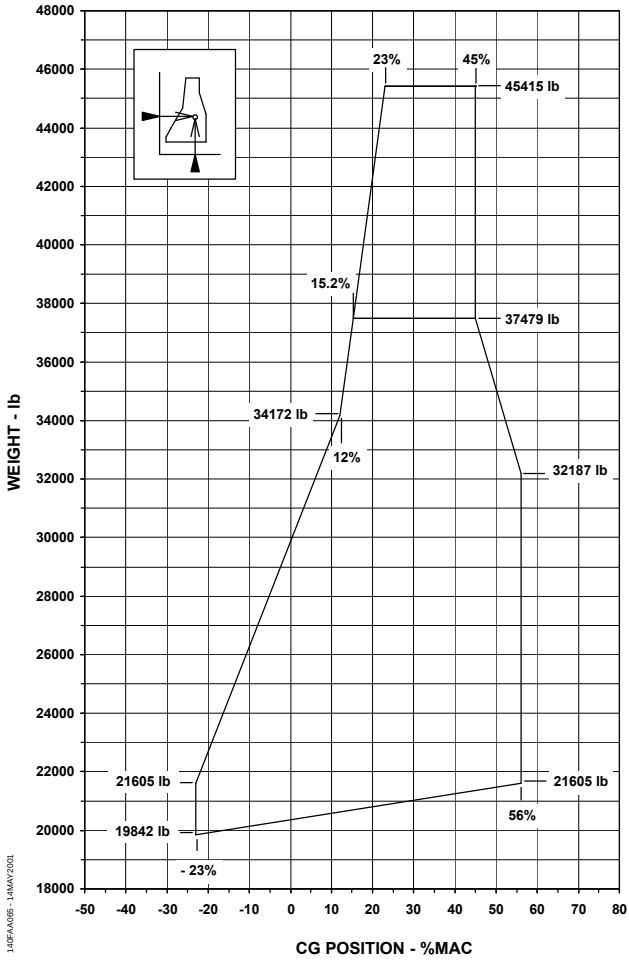
CG ENVELOPE FOR JACKING (ERJ-140 ER AND LR MODELS)



CAUTION:

- MAXIMUM ALLOWABLE FUEL ASYMMETRY: 800 LB.
- BEFORE JACKING THE AIRPLANE, CHECK CG WITHIN THE JACKING ENVELOPE.
- ABOVE 37478 LB, ONLY LANDING GEAR JACKING IS ALLOWED.

MOMENT/CG CHANGES (ERJ-140 ER AND LR MODELS)

DUE TO ANY PASSENGER OR CREW MEMBER INFLIGHT MOVEMENT

A person moving from the front to the rear of the cabin or vice-versa causes the following CG travel:

- For 28219 lb: CG moves aft or forward in a maximum range of 3.9% of MAC.
- For 44313 lb: CG moves aft or forward in a maximum range of 2.4% of MAC.

DUE TO LANDING GEAR CONFIGURATION

When the landing gear is retracted, there is a reduction of 10155 lb.in of the moment in respect to the airplane datum.

- For 26455 lb: CG moves forward 0.3% of MAC.
- For 46517 lb: CG moves forward 0.2% of MAC.

DUE TO FUEL CONSUMPTION AND DENSITY VARIATION TEMPERATURE

The fuel CG variation with the consumption is shown in the Fuel Distribution Table (the fuel CG changes for different fuel volumes).
The variation of fuel density with temperature has negligible effects in the airplane CG.

FUEL DATA (ERJ-140 ER AND LR MODELS)

FUEL DEFINITIONS

- USABLE FUEL - Is the fuel to be effectively consumed by the engines.
- UNUSABLE FUEL - Is the fuel remaining after total usable fuel has been consumed.
- DRAINABLE FUEL - Is that portion of fuel which can be drawn off through fuel drains with the airplane leveled.
- UNDRAINABLE FUEL - Is that portion of fuel which can not be drawn off by standard draining procedures.

FUEL QUANTITIES

ERJ-140 ER Model:

FUEL CATEGORY	VOLUME (US Gal)	WEIGHT (lb)	CG BALANCE ARM (in)
UNUSABLE UNDRAINABLE	1.6	11	544.29
UNUSABLE DRAINABLE	12.6	85	544.29
TOTAL UNUSABLE	14.2	96	544.29
USABLE	1359.6	9200	567.60

ERJ-140 LR Model:

FUEL CATEGORY	VOLUME (US Gal)	WEIGHT (lb)	CG BALANCE ARM (in)
UNUSABLE UNDRAINABLE	2.6	17.6	544.29
UNUSABLE DRAINABLE	9.0	60.8	544.29
TOTAL UNUSABLE	11.6	78.4	544.29
USABLE	1689.8	11434.8	560.55

NOTE: The values above have been determined for an adopted fuel density of 6.767 lb/US Gal.

FUEL DISTRIBUTION TABLE (ERJ-140 ER MODEL)

FUEL DISTRIBUTION ON THE LEFT AND RIGHT WING TANKS	
VOLUME (US Gal)	**CG BALANCE ARM (in)**
50	539.32
100	540.95
150	542.36
200	543.55
250	544.62
300	545.59
350	546.49
400	547.34
450	548.16
500	549.00
550	549.87
600	550.77
650	551.65
700	552.51
750	553.36
800	554.17
850	554.96
900	555.77
950	556.56
1000	557.36
1050	558.31
1100	559.39
1150	560.67
1200	562.03
1250	563.58
1300	565.23
1350	567.22
1359.4	567.60

FUEL DISTRIBUTION TABLE (ERJ-140 LR MODEL)

FUEL DISTRIBUTION ON THE LEFT AND RIGHT WING TANKS	
VOLUME (US Gal)	**CG BALANCE ARM (in)**
50	534.00
100	534.83
150	535.68
200	536.50
250	537.30
300	538.02
350	538.73
400	539.40
450	540.05
500	540.68
550	541.28
600	541.86
650	542.43
700	543.03
750	543.62
800	544.23
850	544.90
900	545.53
950	546.13
1000	546.76
1050	547.40
1100	547.99
1150	548.63
1200	549.23
1250	549.77
1300	550.44
1350	551.33
1400	552.26
1450	553.35
1500	554.52
1550	555.80
1600	557.21
1650	559.07
1690	560.56

MISCELLANEOUS FLUIDS (ERJ-140 ER AND LR MODELS)

FLUID	WEIGHT (lb)	BALANCE ARM (in)
ENGINE OIL (1)	53.0	823.43
APU OIL (1)	4.4	1014.76
HYDRAULIC (2)		
• *WITH THRUST REVERSER*	75.0	699.2
• *WITHOUT THRUST REVERSER*	68.3	684.2
LAVATORY CHEMICAL FLUID	15.4	754.13
LAVATORY RINSE WATER	44.1	716.57

NOTE: (1) Adopted engine oil density (ref. MIL-L-7808): 8.17 lb/US Gal.
(2) Adopted hydraulic fluid density (ref. SAE AS 1241A TYPE IV): 8.26 lb/US Gal.

FLIGHT CREW ITEMS (ERJ-140 ER AND LR MODELS)

ITEM	WEIGHT (lb)	BALANCE ARM (in)
PILOT	190	142.91
COPILOT	190	142.91
OBSERVER	190	165.35
ATTENDANT	180	188.98
CREWMEMBER ROLLER BAG	30	196.85
PILOT FLIGHT BAG	20	155.51
FLIGHT ATTENDANT KIT	10	196.85
AFT ATTENDANT	180	787.01

NOTE: - The adopted flight crew items are in accordance with the approved average weight, not including the respective carry-on baggage.
- The crewmembers and attendants weights presented herein refer to male (FAA–AC120-27E).

BAGGAGE LOADING (ERJ-140 ER AND LR MODELS)

BAGGAGE LOADING PROCEDURES

To load the baggage compartment above 2204 lb (for airplane with Thrust Reverser), the following simultaneous conditions shall be observed:

- Airplane shall be with a minimum required fuel of 2000 lb.
- No more than one person can be at the airplane cone either inside the baggage compartment or inside the rear electronic compartment.

CAUTION: IF THE CONDITIONS ABOVE ARE NOT OBSERVED, AN AIRPLANE TILTING (TAIL DOWN) MAY OCCUR.

INTERIOR ARRANGEMENT (ERJ-140 ER AND LR MODELS)

The passenger location and respective balance arm are shown in the applicable Interior arrangement. Herein, the Standard Configuration is presented, including the plan view and the Balance Arms.
For other interior configuration options, the passenger locations and the respective Balance Arms are supplied together with the “Airplane Weighing Form”, inserted in the “FINAL INSPECTION REPORT”, by the time of the airplane’s delivery.

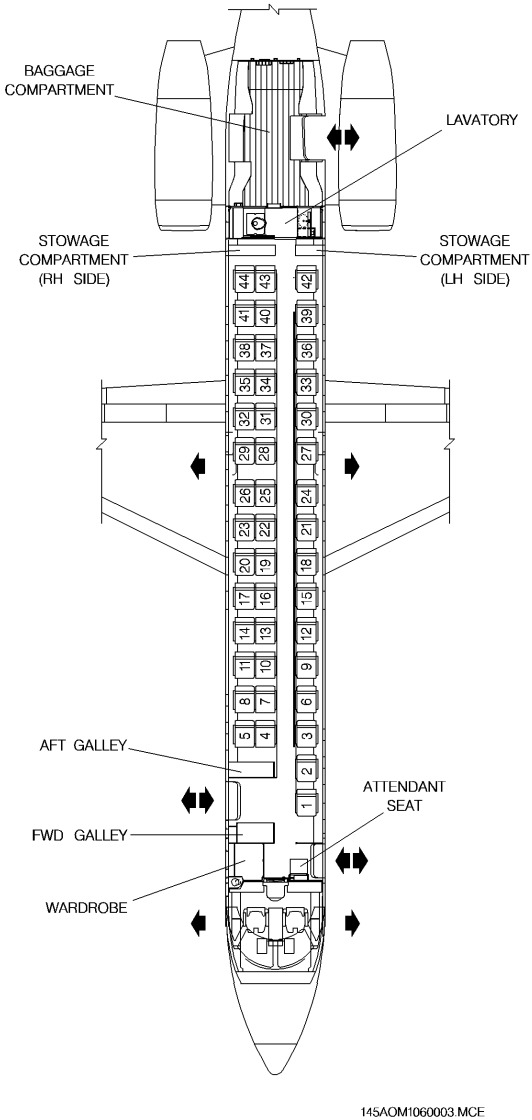
STANDARD CONFIGURATION (EXAMPLE)

SEATS ROW	PASSENGER SEATS	BALANCE ARM (in)
1	1	242.20
2	2	273.19
3	3,4,5	304.17
4	6,7,8	335.16
5	9,10,11	366.14
6	12,13,14	397.12
7	15,16,17	428.11
8	18,19,20	459.09
9	21,22,23	490.08
10	24,25,26	521.06
11	27,28,29	561.06
12	30,31,32	592.05
13	33,34,35	623.03
14	36,37,38	654.02
15	39,40,41	685.00
16	42,43,44	715.98

PASSENGER AVERAGE CG: 497.99 in.

	BALANCE ARM (in)
WARDROBE	190.55
FWD GALLEY	208.58
AFT GALLEY	258.26
STOWAGE COMPARTMENT (RH)	728.43
STOWAGE COMPARTMENT (LH)	728.43
BAGGAGE COMPARTMENT	833.66

BAGGAGE COMPARTMENT CAPACITY: 2646 lb or 80 lb/ft^2.



STANDARD CONFIGURATION (EXAMPLE)

EMB-145 XR MODEL

The following pages present the weight and balance data for EMB-145 XR model.

BALANCE REFERENCE SYSTEM (EMB-145 XR MODEL)

BALANCE ARMS/BODY STATION

Longitudinal location of the Centers of Gravity (CG) identified throughout this Manual regarding airplane and components will be referred to as Balance Arms. Balance Arms are the distance in inches from the Airplane Datum which is located at the zero station of the fuselage.
Balance Arms (BA) are equivalent to Body Station (BS) on the EMB-145 XR model.

AIRPLANE DATUM

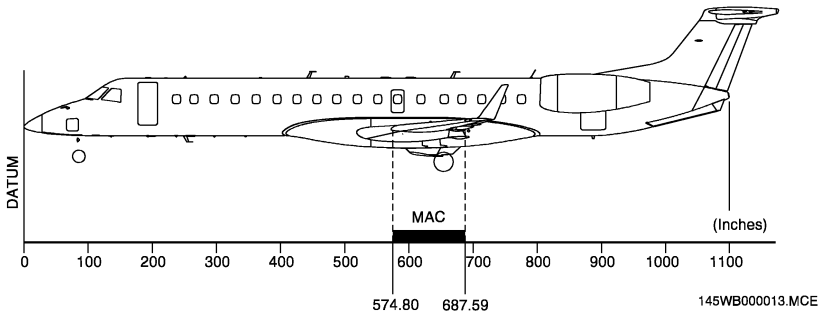
The Airplane Datum is a plane, perpendicular to the fuselage centerline, located at 535.47 in ahead of the wing stub front spar.
For external reference, the Datum is located at 649.61 in ahead of the wing jack points.

WING MEAN AERODYNAMIC CHORD (MAC)

The length of the MAC is 112.80 in.
The leading edge of the MAC (LEMAC) is Balance Arm 574.80 in.
Percentage of MAC is obtained using the following formula:

$$\%MAC = \frac{(X - 574.80) \times 100}{112.80}$$

where X = Balance Arm of airplane CG measured in inches.



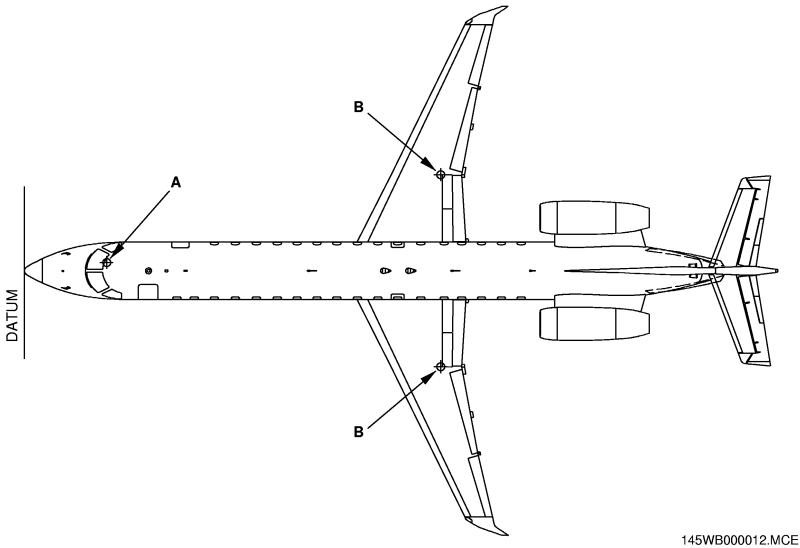
AIRPLANE JACKING (EMB-145 XR MODEL)

Refer to Chapter 7 of Aircraft Maintenance Manual for airplane jacking procedures.

JACK POINTS LOCATION

POINT	BALANCE ARM (in)	CENTERLINE DISTANCE (in)
A	128.35	12.99
B	649.61	150.20

NOTE: The jack points balance arms refer to the Airplane Datum.



WING JACK POINTS

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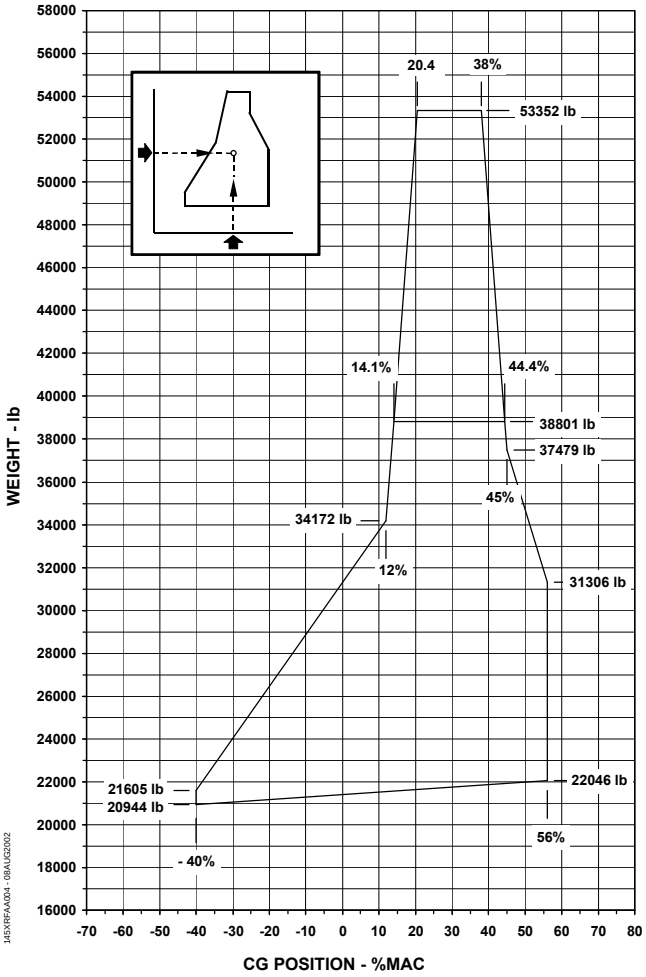
CG ENVELOPE FOR OPERATION (EMB-145 XR MODEL)

For center of gravity envelopes, refer to Airplane Flight Manual (AFM-145/1153).

CG ENVELOPE FOR JACKING (EMB-145 XR MODEL)



CAUTION:

- MAXIMUM ALLOWABLE FUEL ASYMMETRY: 800 LB.
- BEFORE JACKING THE AIRPLANE, CHECK CG WITHIN THE JACKING ENVELOPE.
- ABOVE 38800 LB, ONLY LANDING GEAR JACKING IS ALLOWED.

MOMENT/CG CHANGES (EMB-145 XR MODEL)

DUE TO ANY PASSENGER OR CREW MEMBER INFLIGHT MOVEMENT

A person moving from the front to the rear of the cabin or vice-versa causes the following CG travel:

- For 28660 lb: CG moves aft or forward in a maximum range of 3.7% of MAC.
- For 45414 lb: CG moves aft or forward in a maximum range of 2.4% of MAC.
- For 53351 lb: CG moves aft or forward in a maximum range of 2.1% of MAC.

DUE TO LANDING GEAR CONFIGURATION

When the landing gear is retracted, there is a reduction of 10155 lb.in of the moment in respect to the airplane datum.

- For 28660 lb: CG moves forward 0.3% of MAC.
- For 45414 lb: CG moves forward 0.2% of MAC.
- For 53351 lb: CG moves forward 0.2% of MAC.

DUE TO FUEL CONSUMPTION AND DENSITY VARIATION TEMPERATURE

The fuel CG variation with the consumption is shown in the Fuel Distribution Table (the fuel CG changes for different fuel volumes).
The variation of fuel density with temperature has negligible effects in the airplane CG.

FUEL DATA (EMB-145 XR MODEL)

FUEL DEFINITIONS

- USABLE FUEL - Is the fuel to be effectively consumed by the engines.
- UNUSABLE FUEL - Is the fuel remaining after total usable fuel has been consumed.
- DRAINABLE FUEL - Is that portion of fuel which can be drawn off through fuel drains with the airplane leveled.
- UNDRAINABLE FUEL - Is that portion of fuel which can not be drawn off by standard draining procedures.

FUEL QUANTITIES

WING TANK

FUEL CATEGORY	VOLUME (US Gal)	WEIGHT (lb)	CG BALANCE ARM (in)
UNUSABLE UNDRAINABLE	2.6	17.6	580.31
UNUSABLE DRAINABLE	9.0	60.8	580.31
TOTAL UNUSABLE	11.6	78.4	580.31
USABLE	1689.8	11434.8	596.57

VENTRAL TANK

FUEL CATEGORY	VOLUME (US Gal)	WEIGHT (lb)	CG BALANCE ARM (in)
UNUSABLE UNDRAINABLE	0.7	5.0	678.43
UNUSABLE DRAINABLE	2.4	16.1	680.63
TOTAL UNUSABLE	3.1	21.1	680.91
USABLE	275.3	1862.7	696.38

NOTE: The values above have been determined for an adopted fuel density of 6.767 lb/US Gal.

FUEL DISTRIBUTION TABLE (EMB-145 XR MODEL)

FUEL DISTRIBUTION ON THE LEFT AND RIGHT WING TANKS	
VOLUME (US Gal)	**CG BALANCE ARM (in)**
50	570.000
100	570.887
150	571.773
200	572.552
250	573.335
300	574.009
350	574.776
400	575.443
450	576.006
500	576.773
550	577.332
600	577.887
650	578.443
700	579.002
750	579.665
800	580.224
850	580.887
900	581.550
950	582.117
1000	582.776
1050	583.339
1100	584.002
1150	584.665
1200	585.224
1250	585.883
1300	586.550
1350	587.332
1400	588.331
1450	589.441
1500	590.663
1550	591.993
1600	593.443
1650	595.044
1690	596.577

FUEL DISTRIBUTION ON THE VENTRAL TANK	
VOLUME (US Gal)	**CG BALANCE ARM (in)**
26	689.173
53	691.732
79	693.780
106	696.378
132	696.850
159	697.717
185	698.307
211	698.701
238	697.992
264	696.811
275	696.378

MISCELLANEOUS FLUIDS (EMB-145 XR MODEL)

FLUID	WEIGHT (lb)	BALANCE ARM (in)
ENGINE OIL (1)	53.0	879.13
APU OIL (1)	4.4	1070.47
HYDRAULIC (2)		
• *WITH THRUST REVERSER*	79.4	735.43
• *WITHOUT THRUST REVERSER*	72.8	716.54
LAVATORY CHEMICAL FLUID	15.4	810.24
LAVATORY RINSE WATER	44.1	813.39

NOTE: (1) Adopted engine oil density (ref. MIL-L-7808): 8.17 lb/US Gal.
(2) Adopted hydraulic fluid density (ref. SAE AS 1241A TYPE IV): 8.26 lb/US Gal.

FLIGHT CREW ITEMS (EMB-145 XR MODEL)

ITEM	WEIGHT (lb)	BALANCE ARM (in)
PILOT	190	142.91
COPILOT	190	142.91
OBSERVER	190	165.35
FORWARD ATTENDANT	180	188.98
CREWMEMBER ROLLER BAG	30	196.85
PILOT FLIGHT BAG	20	155.51
FLIGHT ATTENDANT KIT	10	196.85
AFT ATTENDANT	180	782.68

NOTE: - The adopted flight crew items are in accordance with the approved average weight, not including the respective carry-on baggage.
- The crewmembers and attendants weights presented herein refer to male (FAA–AC120-27E).

BAGGAGE LOADING (EMB-145 XR MODEL)

BAGGAGE LOADING PROCEDURES

To load the baggage compartment above 2205 lb (for airplane without Thrust Reverser) or above 1764 lb (for airplane with Thrust Reverser), the following simultaneous conditions shall be observed:

- Airplane shall be with a minimum required fuel of 2000 lb.
- No more than one person can be at the airplane cone either inside the baggage compartment or inside the rear electronic compartment.

CAUTION: IF THE CONDITIONS ABOVE ARE NOT OBSERVED, AN AIRPLANE TILTING (TAIL DOWN) MAY OCCUR.

INTERIOR ARRANGEMENT (EMB-145 XR MODEL)

The passenger location and respective balance arm are shown in the applicable Interior arrangement. Herein, the Standard Configuration is presented, including the plan view and the Balance Arms.
For other interior configuration options, the passenger locations and the respective Balance Arms are supplied together with the “Airplane Weighing Form”, inserted in the “FINAL INSPECTION REPORT”, by the time of the airplane’s delivery.

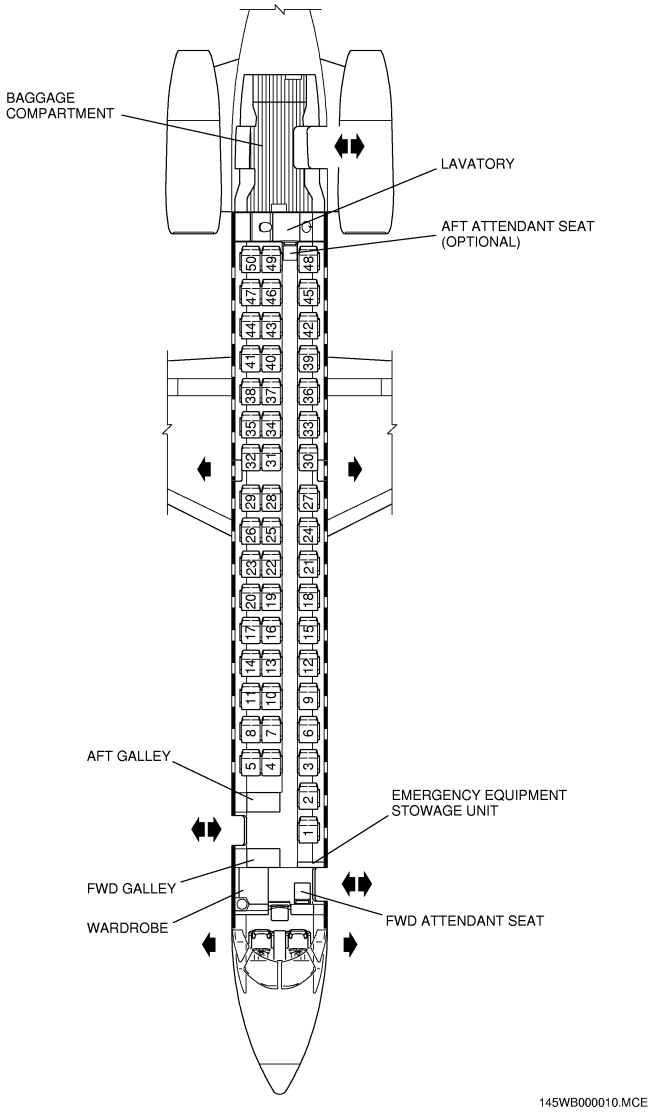
STANDARD CONFIGURATION (EXAMPLE)

SEATS ROW	PASSENGER SEATS	BALANCE ARM (in)
1	1	243.82
2	2	274.80
3	3,4,5	305.83
4	6,7,8	336.81
5	9,10,11	367.83
6	12,13,14	398.82
7	15,16,17	429.80
8	18,19,20	460.83
9	21,22,23	491.81
10	24,25,26	522.83
11	27,28,29	553.82
12	30,31,32	593.82
13	33,34,35	624.80
14	36,37,38	655.83
15	39,40,41	686.81
16	42,43,44	717.84
17	45,46,47	748.82
18	48,49,50	779.80

PASSENGER AVERAGE CG: 530.94 in.

	BALANCE ARM (in)
WARDROBE	196.85
EMERG. EQUIP. STOWAGE UNIT	210.63
FWD GALLEY	218.50
AFT GALLEY	267.72
BAGGAGE COMPARTMENT	889.76

BAGGAGE COMPARTMENT CAPACITY: 2646 lb or 80 lb/ft^2.



STANDARD CONFIGURATION (EXAMPLE)

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