

JACKING - MAINTENANCE PRACTICES

EFFECTIVITY: ACFT MODEL(S) EMB-135

1. General

- A. This section gives the tasks for the aircraft complete or partial jacking.
- B. The lifting of damaged aircraft is given in the I.G.F.E.R. (Instructions for Ground Fire Extinguishing and Rescue) manual.
- C. If all tires are flat (on the main and nose landing gears), the complete jacking of the aircraft will be necessary to do the wheel servicing.
- D. There are three jacking points on the aircraft. The forward jacking point is below the fuselage, in the nose area, while the others are below the wings. Refer to Figure 201 for aircraft jacking points.
- E. The partial jacking of the aircraft is done at the jacking point of each landing gear. This permits each wheel to be changed independently.

NOTE: Before you continue the aircraft jacking, refer to Figure 202 for weight limitations.

- F. The procedures in this section are given in the sequence below. The tasks identified with (♦) are part of the Scheduled Maintenance Requirements Document (SMRD).

TASK NUMBER	DESCRIPTION	EFFECTIVITY
07-10-00-500-801-A	COMPLETE AIRCRAFT JACKING	ACFT MODEL(S) EMB-135
07-10-00-500-802-A	COMPLETE AIRCRAFT LOWERING	ACFT MODEL(S) EMB-135
07-10-00-500-803-A	PARTIAL AIRCRAFT JACKING - WHEEL AXLE	ACFT MODEL(S) EMB-135
07-10-00-500-804-A	PARTIAL AIRCRAFT LOWERING - WHEEL AXLE	ACFT MODEL(S) EMB-135
07-10-00-500-807-A	PARTIAL AIRCRAFT JACKING - FUSE-LAGE (NLG)	ACFT MODEL(S) EMB-135
07-10-00-500-808-A	PARTIAL AIRCRAFT LOWERING - FUSE-LAGE (NLG)	ACFT MODEL(S) EMB-135



AIRCRAFT MAINTENANCE MANUAL

TASK 07-10-00-500-801-A

EFFECTIVITY: ACFT MODEL(S) EMB-135

2. COMPLETE AIRCRAFT JACKING

A. General

(1) This task gives the procedures to do the complete aircraft jacking.

B. References

REFERENCE	DESIGNATION
AMM TASK 07-20-00-500-801-A/200	AIRCRAFT SHORING
AMM TASK 10-10-01-500-801-A/200	AIRCRAFT NORMAL PARKING
AMM TASK 32-00-01-910-801-A/200	LG SAFETY PIN - INSTALLATION AND REMOVAL

C. Zones and Accesses

Not Applicable

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
GSE 191	Nose-Gear Hydraulic Jack	Complete Jacking	
GSE 004	Main-Gear Hydraulic Jack	Complete Jacking	

E. Auxiliary Items

Not Applicable

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	FUNCTION	PLACE
3	Do the task	Jacks
1	Sees that the aircraft lifts symmetrically	Outside the aircraft

I. Preparation

SUBTASK 841-035-B

WARNING: IF IT IS NECESSARY TO ENERGIZE THE AIRCRAFT WHILE IT IS IN-FLIGHT CONDITION, MAKE SURE THAT THE WEATHER RADAR BUTTON IS IN OFF POSITION ON WEATHER RADAR CONTROLLER ON THE COCKPIT. FAILURE TO DO THIS LETS THE RADAR BE OPERATIONAL AND INJURY TO PERSONS IN THE ADJACENT AREA CAN OCCUR.

CAUTION: IF NECESSARY TO JACK THE AIRCRAFT OUTSIDE THE HANGAR, THE MAXIMUM PERMISSIBLE WIND SPEED IS 10 KNOTS WITH THE FLAPS IN ZERO DEGREE POSITION AND THE GUST LOCK AT THE LOCKED POSITION.

CAUTION: DO NOT DO THE COMPLETE LIFT PROCEDURE UNDER RAINY WEATHER. WATER CAN CAUSE DAMAGE TO THE INTERNAL PARTS OF THE HYDRAULIC JACKS.

- (1) The aircraft must be jacked on a level ground, away from the wind or, which is better, in a hangar. Obey the usual parking conditions ([AMM TASK 10-10-01-500-801-A/200](#)).
- (2) Make sure that the landing gear safety pins are installed ([AMM TASK 32-00-01-910-801-A/200](#)).
- (3) Remove from the area below and around the aircraft all equipment that is not necessary.
- (4) Make sure that the BATT 1 and BATT 2 switches, on the electrical panel, on the overhead panel, are set at OFF.

CAUTION: • RELEASE THE PARKING BRAKE BEFORE THE JACKING OPERATIONS.
• DO NOT JACK UP THE AIRCRAFT WITH THE MAIN DOOR OPEN AND THE HANDRAIL DISENGAGED.

- (5) Monitor the landing gear wheels to prevent longitudinal movement while jacks GSE 191 and GSE 004 are installed.

J. Complete Jacking ([Figure 201](#)) ([Figure 202](#)) ([Figure 203](#))

SUBTASK 580-035-B

CAUTION: • DURING THE COMPLETE AIRCRAFT JACKING OPERATION, NO PERSON IS PERMITTED ON THE AIRCRAFT.
• IN BAD WEATHER CONDITIONS, THE HANGAR DOORS MUST ALSO BE CLOSED.
• THE MAXIMUM PERMITTED FUEL ASYMMETRY BETWEEN WINGS IS 363 KG (800 LB).
• ABOVE 17000 KG, ONLY THE LANDING GEAR JACKING IS PERMITTED.
• THE MINIMUM CLEARANCE BETWEEN THE LANDING GEAR WHEEL AND THE GROUND IS 100 MILLIMETERS (APPROXIMATELY 4 INCHES).

- (1) Before you continue the aircraft jacking, refer to [Figure 202](#) for weight limitations.
- (2) Correctly put jacks GSE 191 and GSE 004 below the jacking points ([Figure 203](#)).

NOTE: If the aircraft is powered, open the DFDR CB before complete aircraft jacking, shoring and lowering procedures. After these procedures, close the CB back.



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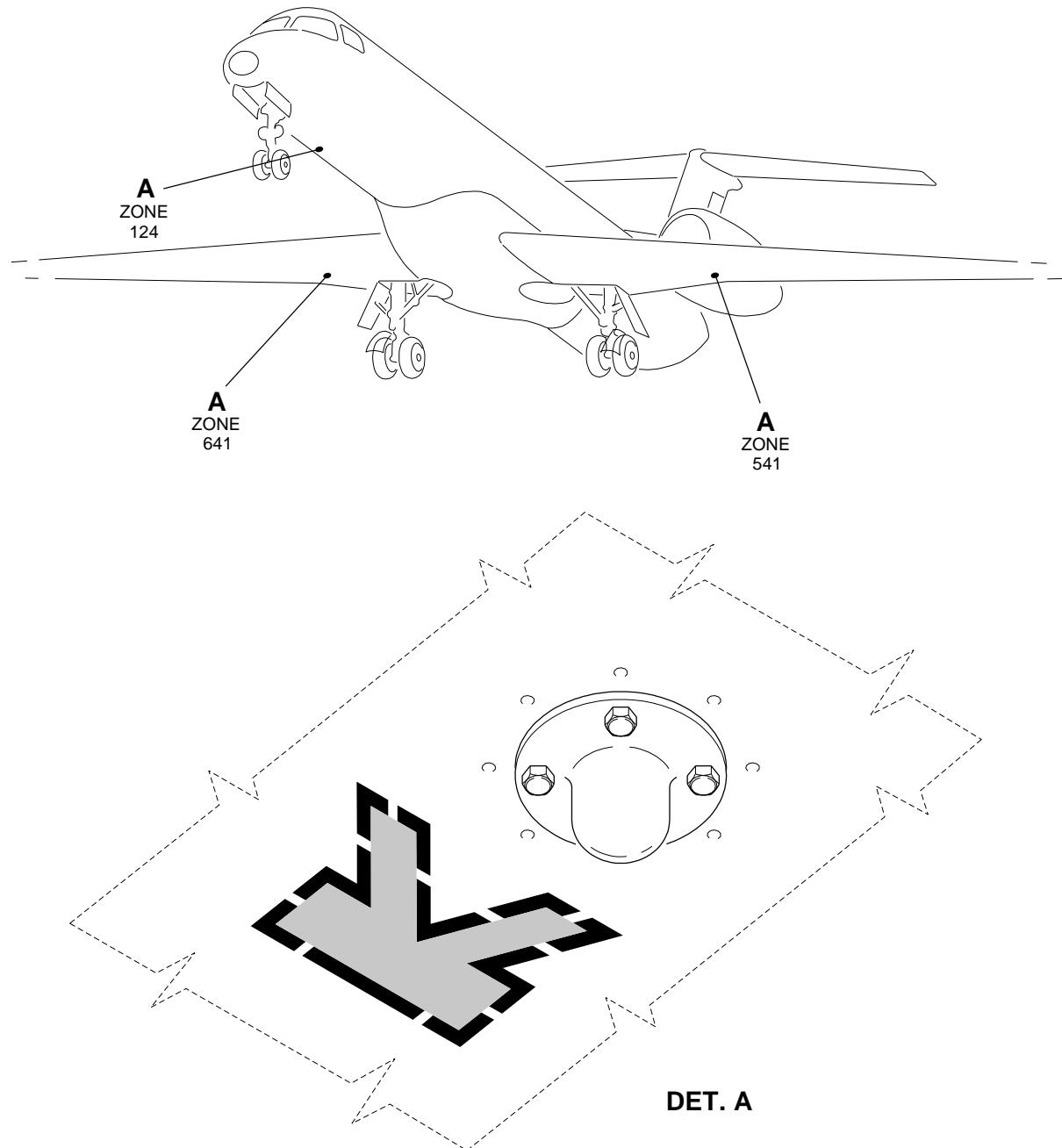
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WARNING: DURING THE JACKING PROCEDURE, MAKE SURE THAT THE AIRCRAFT IS IN THE CONSTANT ATTITUDE. IF YOU DO NOT OBEY THIS PRECAUTION DAMAGE TO THE AIRCRAFT AND INJURY TO PERSONS CAN OCCUR.

- (3) Operate the three jacks GSE 191 and GSE 004 simultaneously and at the same time go turning the locking nuts to lock the jacks. Thus, jacking is symmetrical and the aircraft is always kept level while it is lifted up to the necessary height.
- (4) Make sure that the jacks GSE 191 and GSE 004 are locked.

NOTE: Do not permit the aircraft to stay jacked for a longer period than that necessary. If it is necessary for the aircraft to stay jacked for a long period, install the shoring supports. Refer to ([AMM TASK 07-20-00-500-801-A/200](#)).

EFFECTIVITY: ACFT MODEL(S) EMB-135
 Aircraft Jacking Points
 Figure 201



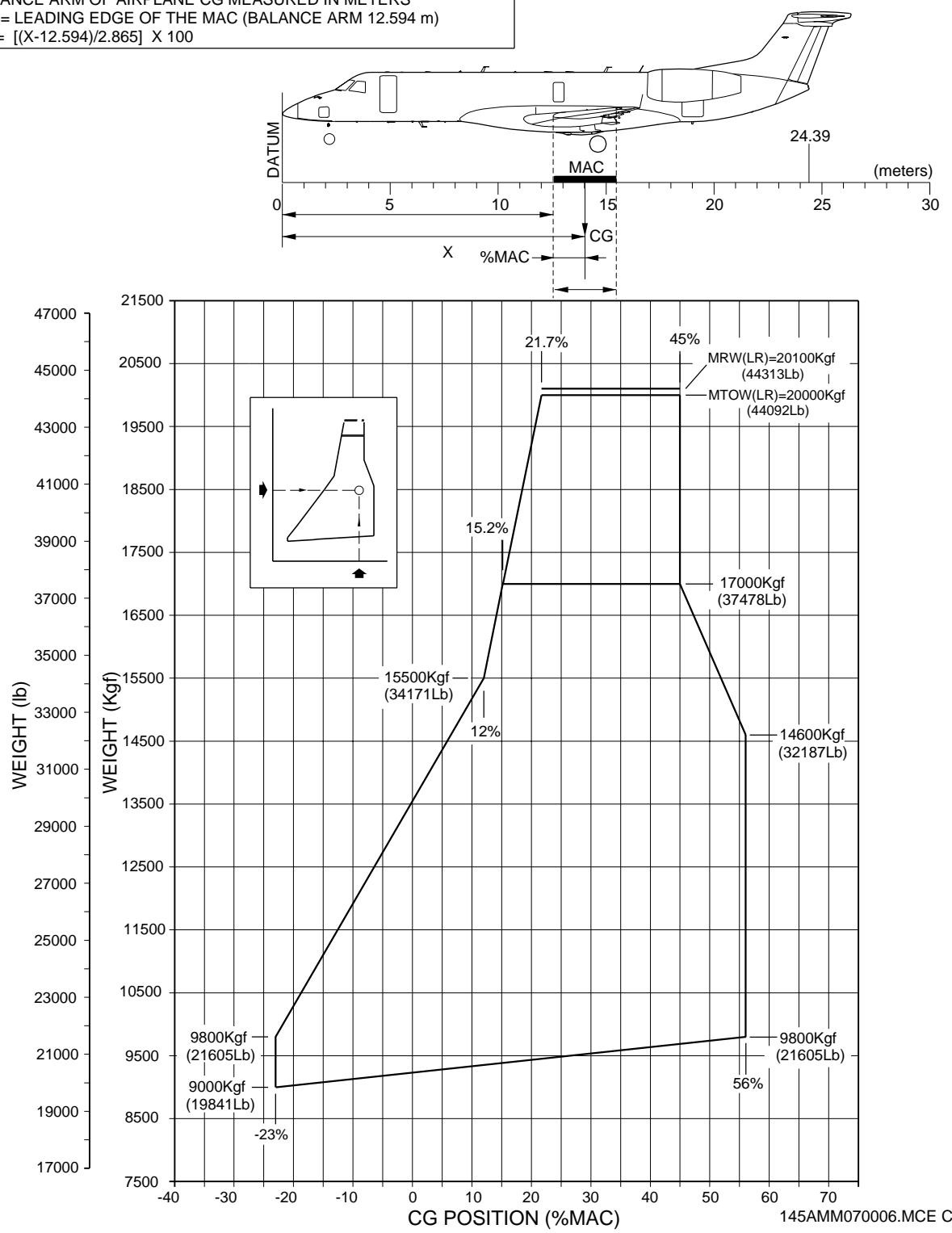
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EFFECTIVITY: ACFT MODEL(S) EMB-135

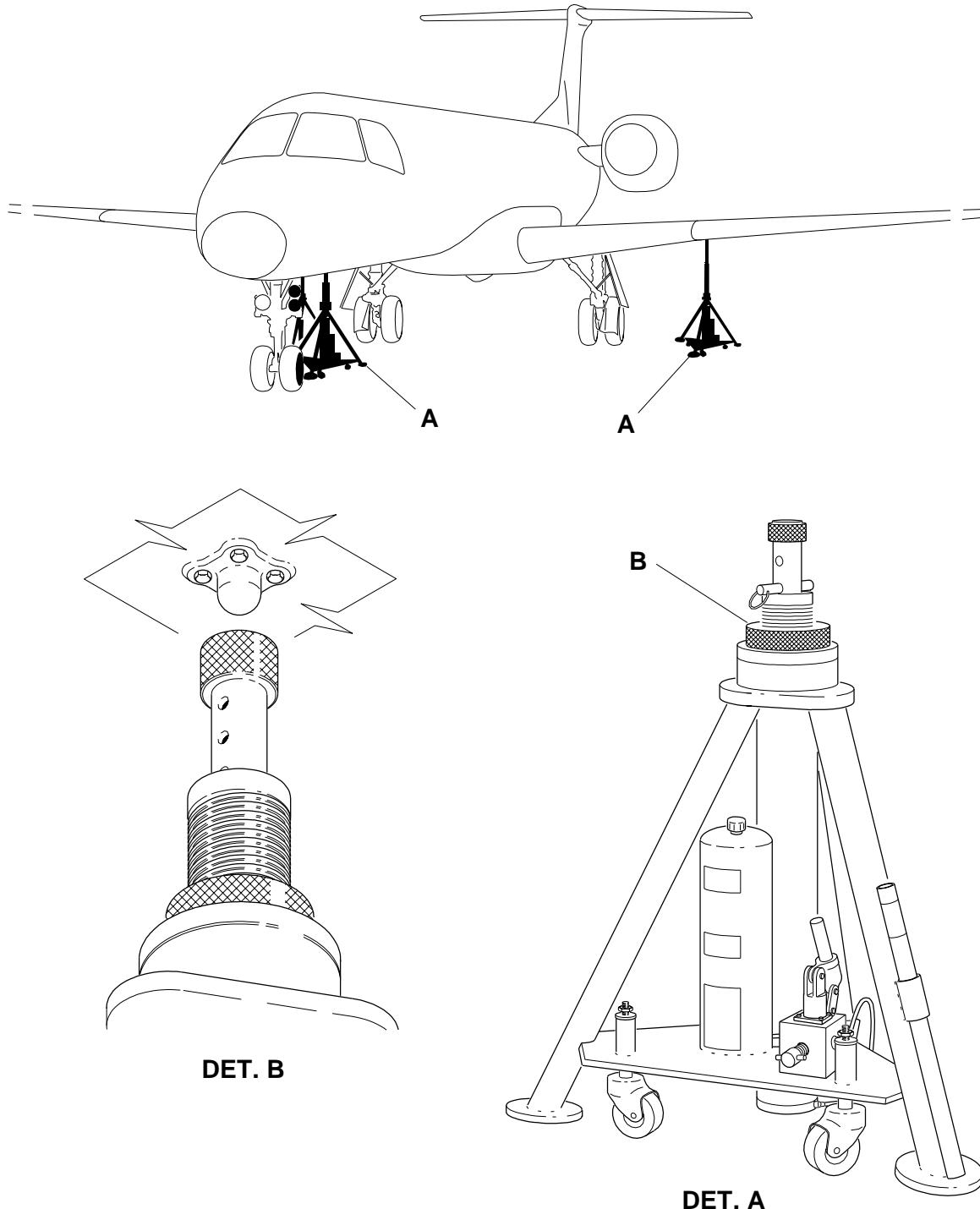
Weight x C.G. Envelope for Jacking

Figure 202

MAC= WING MEAN AERODYNAMIC CHORD (2.865 m).
 X= BALANCE ARM OF AIRPLANE CG MEASURED IN METERS
 LEMAC= LEADING EDGE OF THE MAC (BALANCE ARM 12.594 m)
 %MAC= $[(X-12.594)/2.865] \times 100$



EFFECTIVITY: ACFT MODEL(S) EMB-135
 Aircraft Jacking
 Figure 203



EM145AMM070031A.DGN



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TASK 07-10-00-500-802-A

EFFECTIVITY: ACFT MODEL(S) EMB-135

3. COMPLETE AIRCRAFT LOWERING

A. General

- (1) This task gives the procedures to do the complete aircraft lowering.

B. References

REFERENCE	DESIGNATION
AMM TASK 32-00-01-910-801-A/200	LG SAFETY PIN - INSTALLATION AND REMOVAL

C. Zones and Accesses

Not Applicable

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
GSE 191	Nose-Gear Hydraulic Jack	Complete Jacking	
GSE 004	Main-Gear Hydraulic Jack	Complete Jacking	

E. Auxiliary Items

Not Applicable

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	FUNCTION	PLACE
3	Do the task	Jacks
1	Sees that the aircraft lifts symmetrically	Outside the aircraft

I. Preparation

SUBTASK 841-030-C

WARNING: IF IT IS NECESSARY TO ENERGIZE THE AIRCRAFT WHILE IT IS IN-FLIGHT CONDITION, MAKE SURE THAT THE WEATHER RADAR BUTTON IS IN OFF POSITION ON WEATHER RADAR CONTROLLER ON THE COCKPIT. FAILURE TO DO THIS LETS THE RADAR BE OPERATIONAL AND INJURY TO PERSONS IN THE ADJACENT AREA CAN OCCUR.

- (1) Remove from the area below the aircraft all equipment that is not necessary.
- (2) Make sure that the landing-gear safety pins are installed ([AMM TASK 32-00-01-910-801-A/200](#)).



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- (3) Make sure that the parking brake is released (brakes off).

J. Complete Lowering (Figure 203)

SUBTASK 580-030-C

- (1) Unlock jacks GSE 191 and GSE 004 (Figure 203).

WARNING: DURING THE LOWERING PROCEDURE, MAKE SURE THAT THE AIRCRAFT IS IN THE CONSTANT ATTITUDE. IF YOU DO NOT OBEY THIS PRECAUTION DAMAGE TO THE AIRCRAFT AND INJURY TO PERSONS CAN OCCUR.

- (2) Open the three valves of jacks GSE 191 and GSE 004 slowly and symmetrically to make sure that the aircraft stays level while it is lowered.
- (3) Install the wheel chocks and remove jacks GSE 191 and GSE 004 from below the fuselage.
- (4) Set the parking brake handle to the parking position.

NOTE: To prevent hydraulic fluid transference from system 1 to system 2 or vice versa, first apply brakes with the pedals and then pull or release the emergency/parking brake handle.



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TASK 07-10-00-500-803-A

EFFECTIVITY: ACFT MODEL(S) EMB-135

4. PARTIAL AIRCRAFT JACKING - WHEEL AXLE

A. General

(1) This task gives the procedures to do the partial aircraft jacking through the wheel axle.

B. References

REFERENCE	DESIGNATION
AMM TASK 10-10-01-500-801-A/200	AIRCRAFT NORMAL PARKING
AMM TASK 32-00-01-910-801-A/200	LG SAFETY PIN - INSTALLATION AND REMOVAL

C. Zones and Accesses

Not Applicable

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
GSE 003	Jack	Partial jacking	

E. Auxiliary Items

Not Applicable

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

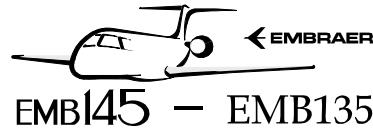
QTY	FUNCTION	PLACE
1	Does the task	Jack

I. Preparation ([Figure 204](#))

SUBTASK 841-031-C

WARNING: IF IT IS NECESSARY TO ENERGIZE THE AIRCRAFT WHILE IT IS IN-FLIGHT CONDITION, MAKE SURE THAT THE WEATHER RADAR BUTTON IS IN OFF POSITION ON WEATHER RADAR CONTROLLER ON THE COCKPIT. FAILURE TO DO THIS LETS THE RADAR BE OPERATIONAL AND INJURY TO PERSONS IN THE ADJACENT AREA CAN OCCUR.

CAUTION: IF NECESSARY TO JACK THE AIRCRAFT OUTSIDE THE HANGAR, THE MAXIMUM PERMISSIBLE WIND SPEED IS 10 KNOTS WITH THE FLAPS IN ZERO DEGREE POSITION AND THE GUST LOCK AT THE LOCKED POSITION.



- (1) The aircraft must be jacked on a level ground, away from the wind or, which is better, in a hangar. Obey the normal parking conditions ([AMM TASK 10-10-01-500-801-A/200](#)).
- (2) Make sure that the landing-gear safety pins are installed ([AMM TASK 32-00-01-910-801-A/200](#)).
- (3) Remove from the area below and around the aircraft all equipment that is not necessary.

CAUTION: • RELEASE THE PARKING BRAKE BEFORE THE JACKING OPERATIONS.

- DO NOT JACK UP THE AIRCRAFT WITH THE MAIN DOOR OPEN AND THE HANDRAIL DISENGAGED.

- (4) Correctly chock the wheels which must not be jacked ([Figure 204](#)).

J. Partial Jacking through the Wheel Axle ([Figure 205](#))

SUBTASK 580-031-C

CAUTION: THERE IS ONLY ONE CORRECT POINT WHERE TO INSTALL THE JACKS GSE 003. THIS POINT IS CLEARLY SHOWN IN FIGURE 205, DETAIL "C". IF YOU DO NOT OBEY THIS, DAMAGE TO THE MLG WILL OCCUR.

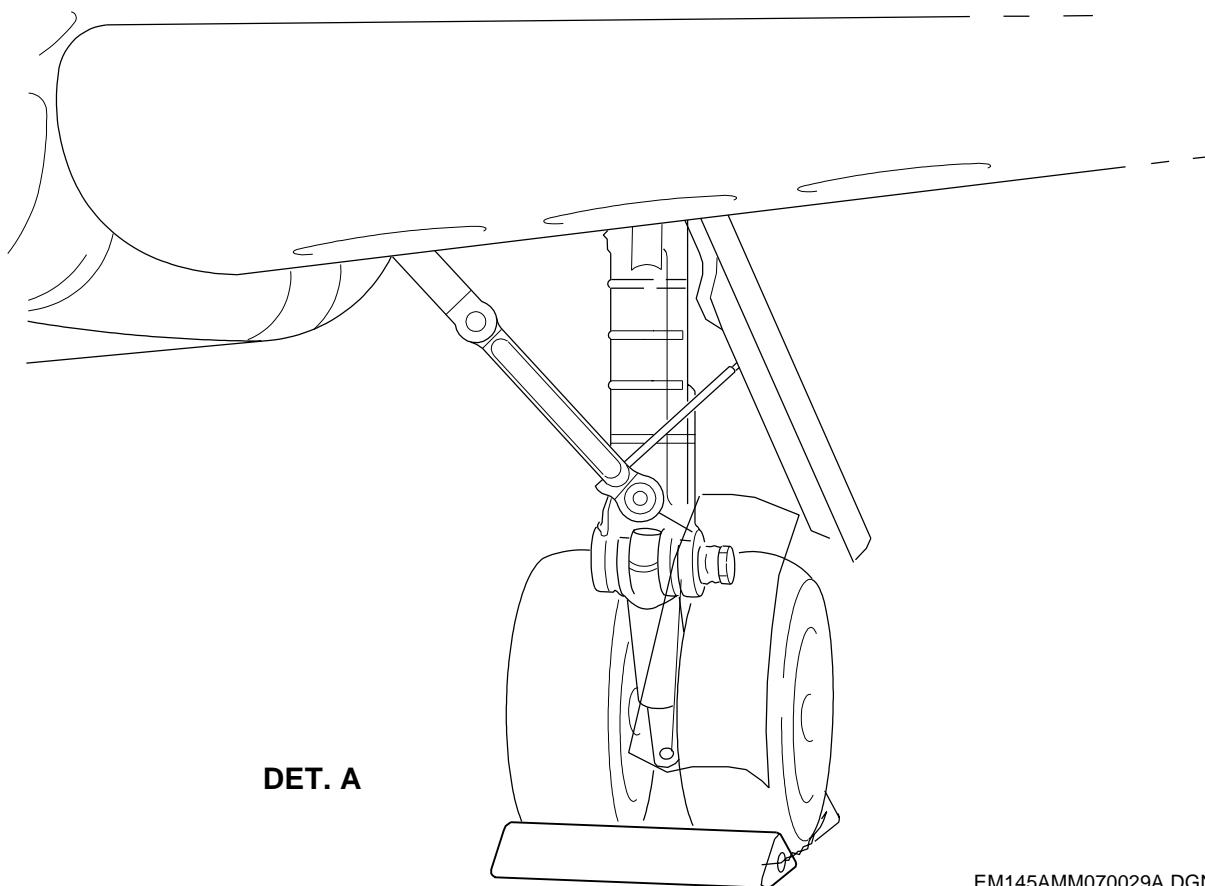
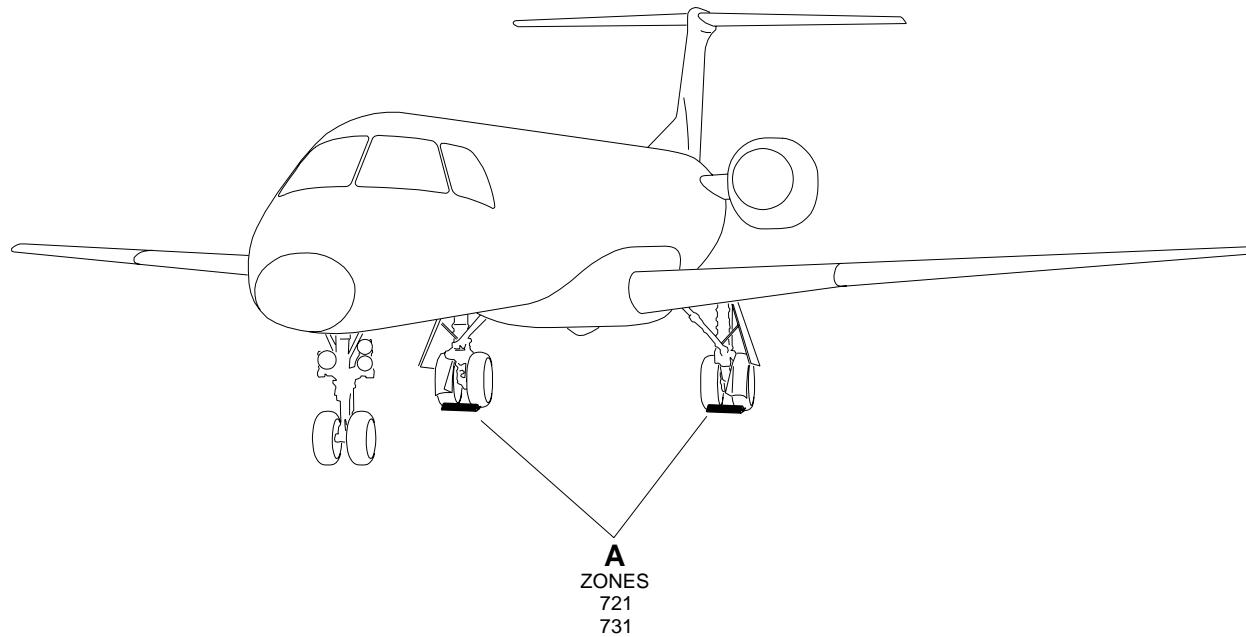
- (1) Install jacks GSE 003 below the related landing gear ([Figure 205](#)).
- (2) Lift jack GSE 003 until the landing gear tire is clear of the ground.
- (3) Lock jack GSE 003.

NOTE: Do not let the landing gear stay jacked for a longer time than that necessary for its servicing.

EFFECTIVITY: ACFT MODEL(S) EMB-135

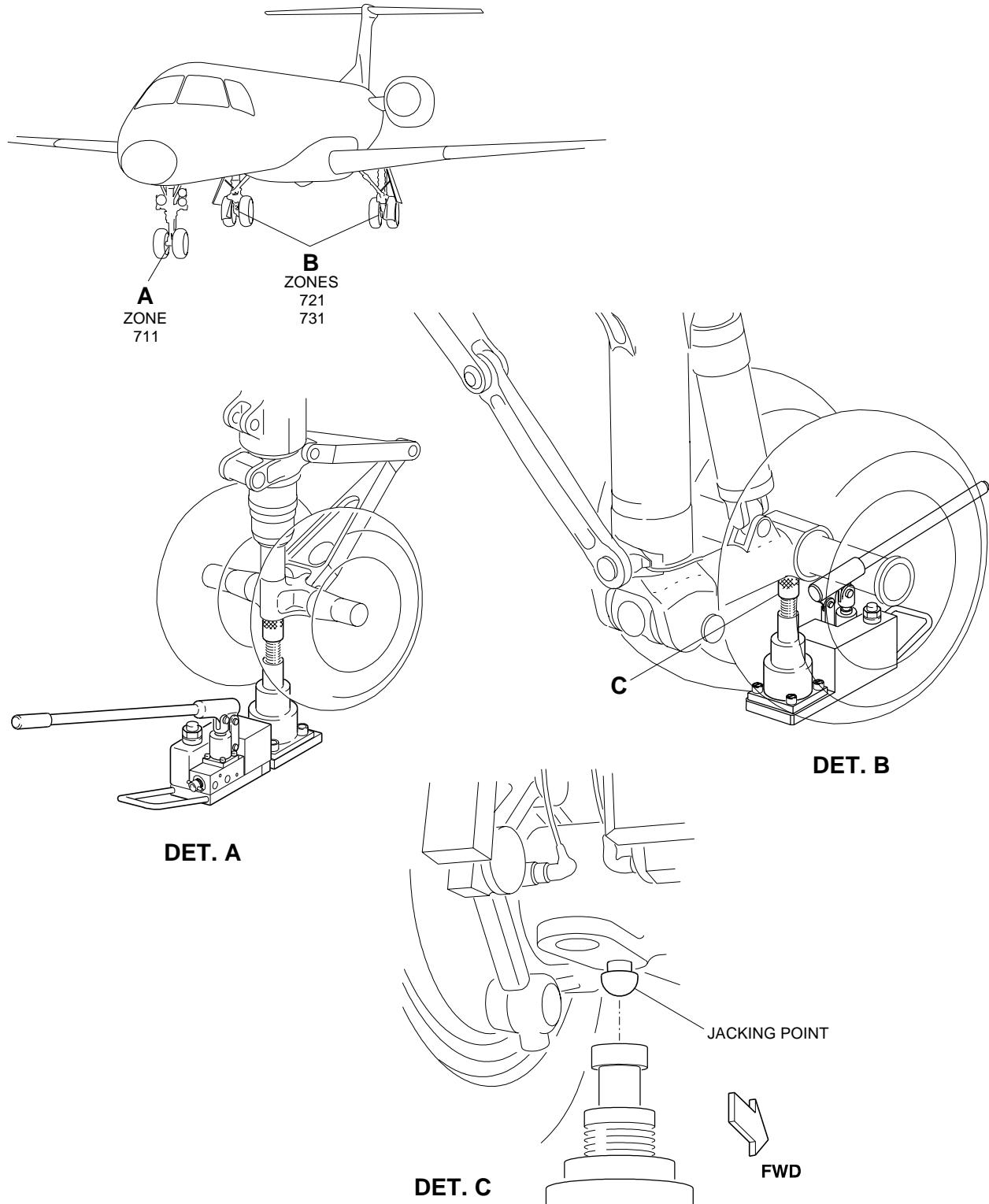
Wheel Chocking

Figure 204



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EFFECTIVITY: ACFT MODEL(S) EMB-135
Landing Gear Jacking
Figure 205



EM145AMM070005C.DGN



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TASK 07-10-00-500-804-A

EFFECTIVITY: ACFT MODEL(S) EMB-135

5. PARTIAL AIRCRAFT LOWERING - WHEEL AXLE

A. General

- (1) This task gives the procedures to do the partial aircraft lowering through the wheel axle.

B. References

REFERENCE	DESIGNATION
AMM TASK 32-00-01-910-801-A/200	LG SAFETY PIN - INSTALLATION AND REMOVAL

C. Zones and Accesses

Not Applicable

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
GSE 003	Jack	Partial jacking	

E. Auxiliary Items

Not Applicable

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

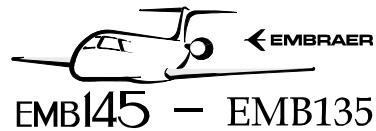
QTY	FUNCTION	PLACE
1	Does the task	Jack

I. Preparation

SUBTASK 841-032-C

WARNING: IF IT IS NECESSARY TO ENERGIZE THE AIRCRAFT WHILE IT IS IN-FLIGHT CONDITION, MAKE SURE THAT THE WEATHER RADAR BUTTON IS IN OFF POSITION ON WEATHER RADAR CONTROLLER ON THE COCKPIT. FAILURE TO DO THIS LETS THE RADAR BE OPERATIONAL AND INJURY TO PERSONS IN THE ADJACENT AREA CAN OCCUR.

- (1) Remove from the area below the aircraft all equipment that is not necessary.
- (2) Make sure that the landing-gear safety pins are installed ([AMM TASK 32-00-01-910-801-A/200](#)).
- (3) Make sure that the parking brake is released (brakes off).



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J. Partial Lowering through the Wheel Axle (Figure 205)

SUBTASK 580-032-C

- (1) Unlock jack GSE 003 (Figure 205).
- (2) Slowly open the valve of jack GSE 003, and lower the aircraft smoothly until the aircraft weight is on the tire.
- (3) Remove jack GSE 003.
- (4) Install the wheel chocks only for the main landing gear.



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TASK 07-10-00-500-807-A

EFFECTIVITY: ACFT MODEL(S) EMB-135

6. PARTIAL AIRCRAFT JACKING - FUSELAGE (NLG)

A. General

(1) This task gives the procedures to do the partial aircraft jacking through the fuselage (NLG).

B. References

REFERENCE	DESIGNATION
AMM TASK 10-10-01-500-801-A/200	AIRCRAFT NORMAL PARKING
AMM TASK 32-00-01-910-801-A/200	LG SAFETY PIN - INSTALLATION AND REMOVAL

C. Zones and Accesses

Not Applicable

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
GSE 191	Nose-Gear Hydraulic Jack	Partial Aircraft Jacking	

E. Auxiliary Items

Not Applicable

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

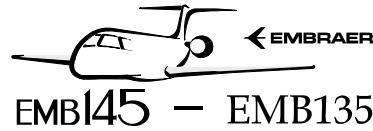
QTY	FUNCTION	PLACE
3	Do the task	Jacks

I. Preparation ([Figure 206](#))

SUBTASK 841-033-C

WARNING: IF IT IS NECESSARY TO ENERGIZE THE AIRCRAFT WHILE IT IS IN-FLIGHT CONDITION, MAKE SURE THAT THE WEATHER RADAR BUTTON IS IN OFF POSITION ON WEATHER RADAR CONTROLLER ON THE COCKPIT. FAILURE TO DO THIS LETS THE RADAR BE OPERATIONAL AND INJURY TO PERSONS IN THE ADJACENT AREA CAN OCCUR.

CAUTION: IF NECESSARY TO JACK THE AIRCRAFT OUTSIDE THE HANGAR, THE MAXIMUM PERMISSIBLE WIND SPEED IS 10 KNOTS WITH THE FLAPS IN ZERO DEGREE POSITION AND THE GUST LOCK AT THE LOCKED POSITION.



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CAUTION: DO NOT DO THE COMPLETE LIFT PROCEDURE UNDER RAINY WEATHER.
WATER CAN CAUSE DAMAGE TO THE INTERNAL PARTS OF THE HYDRAULIC JACKS.

- (1) The aircraft must be jacked on a level ground, away from the wind or, which is better, in a hangar. Obey the normal parking conditions ([AMM TASK 10-10-01-500-801-A/200](#)).
- (2) Make sure that the landing-gear safety pins are installed ([AMM TASK 32-00-01-910-801-A/200](#)).
- (3) Remove from the area below and around the aircraft all equipment that is not necessary.

CAUTION: • RELEASE THE PARKING BRAKE BEFORE THE JACKING OPERATIONS.
• DO NOT JACK UP THE AIRCRAFT WITH THE MAIN DOOR OPEN AND THE HANDRAIL DISENGAGED.

- (4) Correctly chock the main landing gear wheels ([Figure 206](#)).

J. Partial Jacking - Fuselage (NLG) ([Figure 207](#)) ([Figure 208](#))

SUBTASK 580-033-C

CAUTION: THERE IS ONLY ONE CORRECT POINT WHERE TO INSTALL THE JACK GSE 191. THIS POINT IS CLEARLY SHOWN IN FIGURE 207, DETAIL "A". IF YOU DO NOT OBEY THIS, DAMAGE TO THE MLG WILL OCCUR.

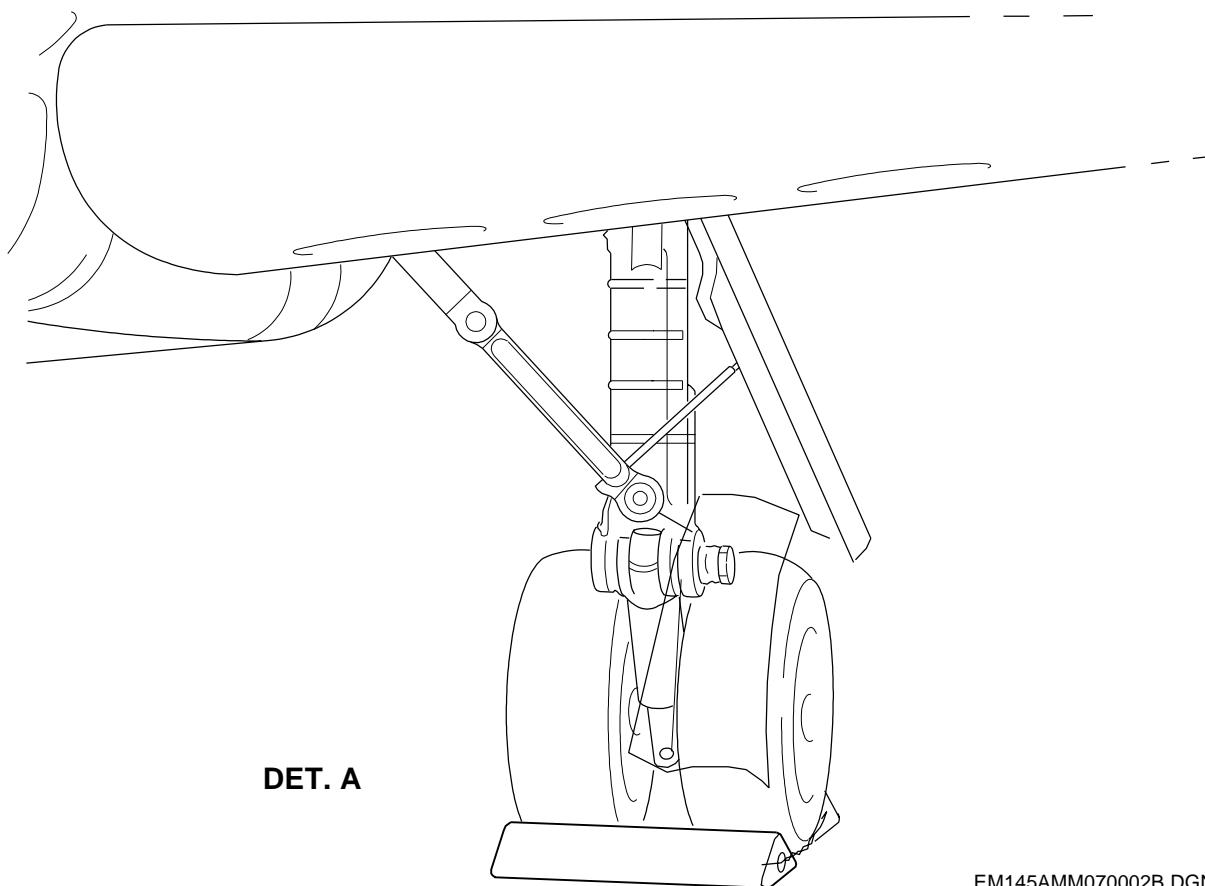
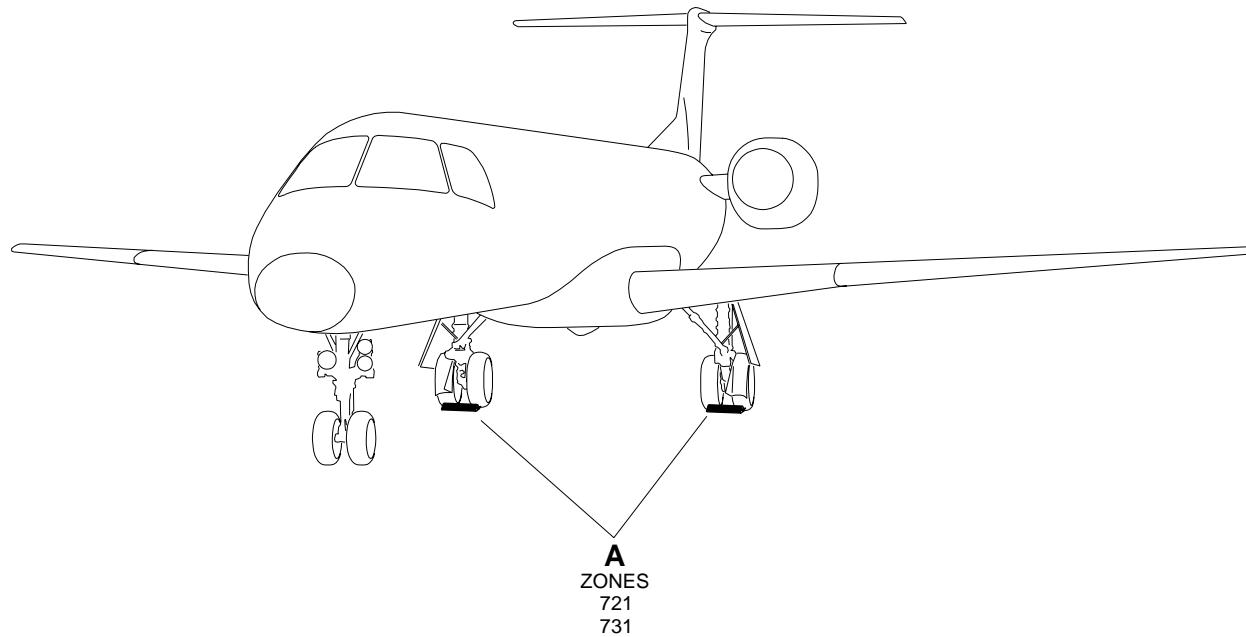
- (1) Install jack GSE 191 on the jack point of fuselage NLG (Nose Landing Gear) ([Figure 208](#)).
- (2) Monitor the nose landing gear wheel to prevent longitudinal movement while jack GSE 191 is installed.
- (3) Lift jack GSE 191 until the nose landing gear tire is clear of the ground.
- (4) Lock jack GSE 191.

NOTE: Do not let the landing gear stay jacked for a longer time than that necessary for its servicing.

EFFECTIVITY: ACFT MODEL(S) EMB-135

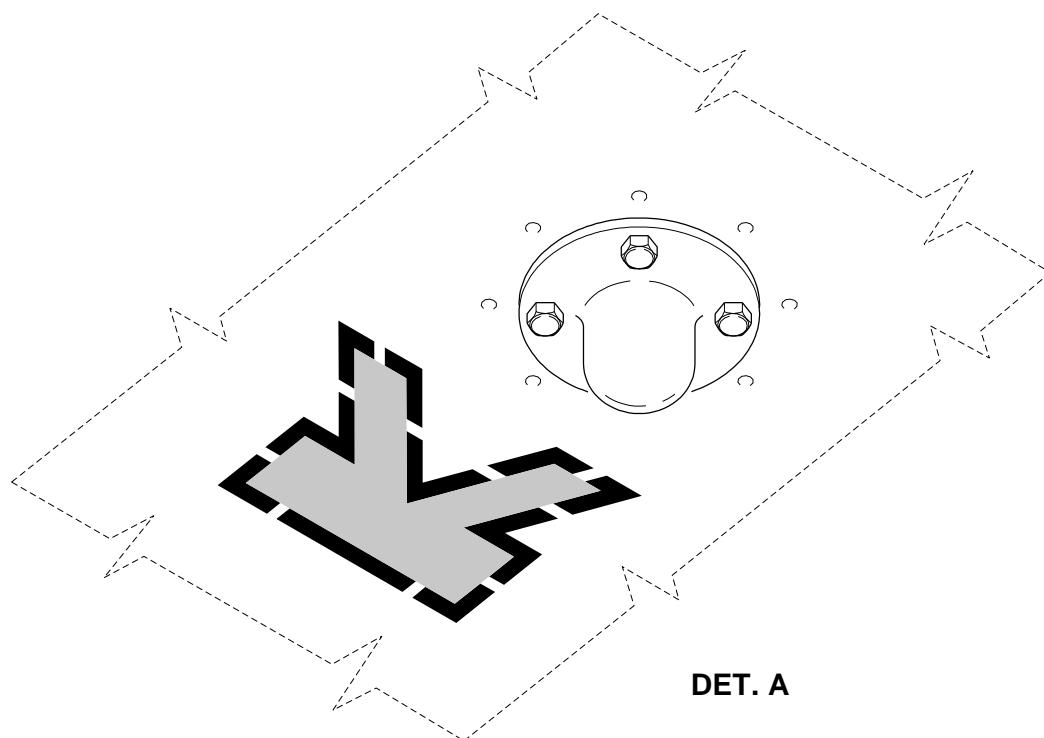
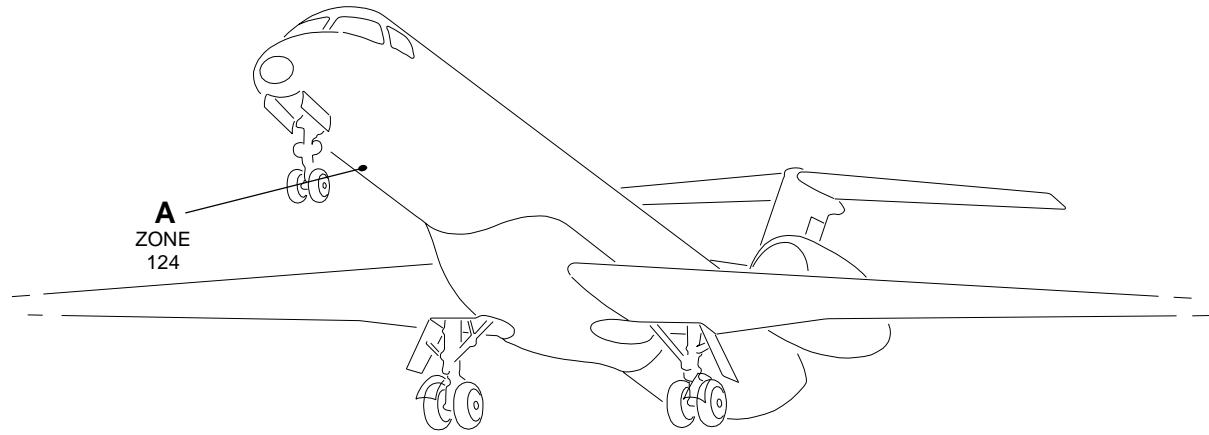
Wheel Chocking

Figure 206



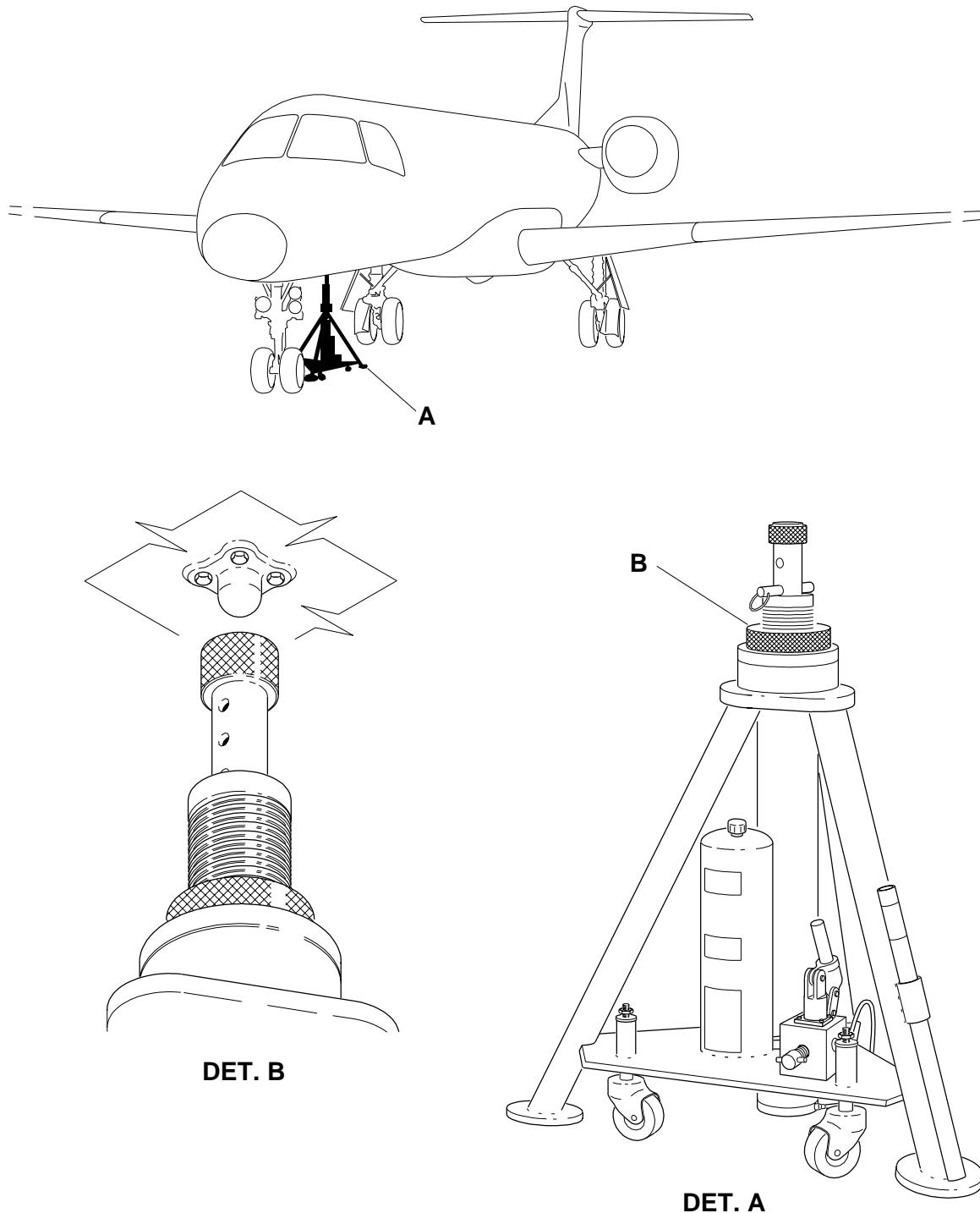
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EFFECTIVITY: ACFT MODEL(S) EMB-135
Aircraft Jacking Point
Figure 207

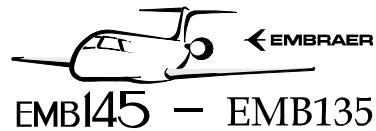


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EFFECTIVITY: ACFT MODEL(S) EMB-135
Landing Gear Jacking - Fuselage (NLG)
Figure 208



EM145AMM070028A.DGN



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TASK 07-10-00-500-808-A

EFFECTIVITY: ACFT MODEL(S) EMB-135

7. PARTIAL AIRCRAFT LOWERING - FUSELAGE (NLG)

A. General

(1) This task gives the procedures to do the partial aircraft lowering through the fuselage (NLG).

B. References

REFERENCE	DESIGNATION
AMM TASK 32-00-01-910-801-A/200	LG SAFETY PIN - INSTALLATION AND REMOVAL

C. Zones and Accesses

Not Applicable

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
GSE 191	Nose-Gear Hydraulic Jack	Partial Aircraft Lowering	

E. Auxiliary Items

Not Applicable

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	FUNCTION	PLACE
3	Do the task	Jacks

I. Preparation

SUBTASK 841-034-C

WARNING: IF IT IS NECESSARY TO ENERGIZE THE AIRCRAFT WHILE IT IS IN-FLIGHT CONDITION, MAKE SURE THAT THE WEATHER RADAR BUTTON IS IN OFF POSITION ON WEATHER RADAR CONTROLLER ON THE COCKPIT. FAILURE TO DO THIS LETS THE RADAR BE OPERATIONAL AND INJURY TO PERSONS IN THE ADJACENT AREA CAN OCCUR

CAUTION: IF NECESSARY TO JACK THE AIRCRAFT OUTSIDE THE HANGAR, THE MAXIMUM PERMISSIBLE WIND SPEED IS 10 KNOTS WITH THE FLAPS IN ZERO DEGREE POSITION AND THE GUST LOCK AT THE LOCKED POSITION.

- (1) Remove from the area below the aircraft all equipment that is not necessary.



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(2) Make sure that the landing-gear safety pins are installed ([AMM TASK 32-00-01-910-801-A/200](#)).

(3) Make sure that the parking brake is released (brakes off).

J. Partial Lowering - Fuselage (NLG) (Figure 208)

SUBTASK 580-034-C

(1) Unlock jack GSE 191 (Figure 208).

(2) Slowly open the valve of jack GSE 191, and lower the aircraft smoothly until the aircraft weight is on the tire.

(3) Remove jack GSE 191.

(4) Make sure that the wheel chocks are installed on the main landing gear.