

GPA Group plc

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CHAPTER 07

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CHAPTER 07 - LIFTING & SHORING

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JACKING AIRPLANE – MAINTENANCE PRACTICES

1. General

- A. This section gives instructions to lift the airplane on jacks when conditions are satisfactory. Three primary jack points are used to lift and lower the airplane. One jack point is used to make the airplane stable (when it is necessary) after it is lifted to the necessary height. Jack adapters must be installed at the four jack points before the airplane is lifted on jacks.
- B. The airplane can be lifted on jacks in winds up to 35 knots. You can do this if the jacks are designed and specified for the 757 airplane. If you use jacks that have the general specifications but are not designed for the 757, be careful. It is possible that the maximum wind speed (35 knots) limit will have to be decreased.

TASK 07-11-01-842-001

2. Prepare to Lift the Airplane On Jacks

- A. Equipment
 - (1) Airplane Jacks (Fig. 201)
 - (2) Adapter, Forward Body Jacking – B07001-7
 - (3) Adapter, Tail Jack – B07002-1
 - (4) Adapter, Aircraft Jacking – F80060-6
 - (5) Shock Strut Lock Equipment, MLG – B32028-1
 - (6) Wheel Chocks (8)
- B. Consumable Materials
 - (1) C00308 Corrosion Preventive Compound – MIL-C-11796, Class III
- C. Parts

AMM		NOMENCLATURE	AIPC		
FIG	ITEM		SUBJECT	FIG	ITEM
202	1	Bolt	53-13-53	03	229
	1	Plug Assembly (optional to bolt 1)			230
	2	Bolt, Hi-Torque (BACB30LL4K11)			244

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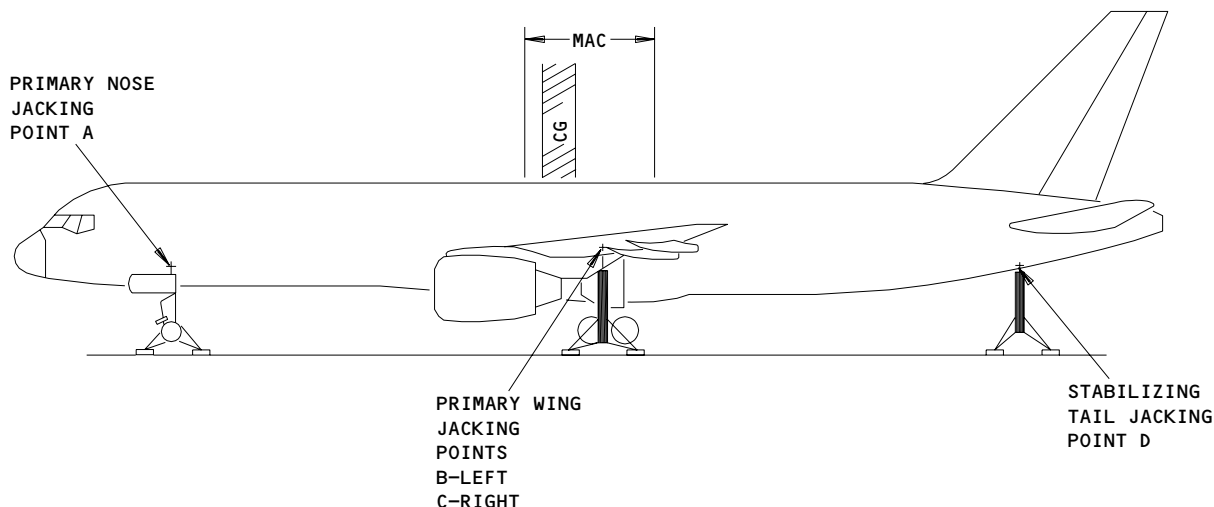
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BOEING

757 MAINTENANCE MANUAL



JACKING POINT		757-200 JACK SPECIFICATIONS			
		MAXIMUM LOAD POUNDS (KG) ²	JACK HEIGHT INCHES (METERS)		ADAPTER FITTING
			ROLL-UNDER ³	EXTENDED ⁴	
PRIMARY ¹	A	26,900 (12,202)	106 (2.69)	142 (3.61)	B07001-7
	B	93,000 (42,184)	131 (3.33)	162 (4.11)	F80060-6
	C	93,000 (42,184)	131 (3.33)	162 (4.11)	F80060-6
STABILIZING ¹	D	4,000 (1,814) ⁵ ⁶	123 (3.12)	154 (3.91)	B07002-1

¹ MAXIMUM JACKING WEIGHT: 190,000 POUNDS (86,152 KG) WITH CG UNRESTRICTED WITHIN NORMAL LIMITS. FOR LARGER WEIGHTS, CG IS LIMITED (REFER TO FIG. 203)

² INCLUDES 35 KNOT WIND LOAD

³ JACK ROLL-UNDER HEIGHT BASED ON:

- AIRPLANE WEIGHT: 241,000 POUNDS (109,316 KG)
- CG RANGE: 9% TO 39% MAC
- SHOCK STRUTS CORRECTLY SERVICED
- 6-INCH (152 mm) ROLL-UNDER CLEARANCE
- H40x14.5-19 MAIN GEAR TIRE; H31x13-12 NOSE GEAR TIRE

⁴ JACK EXTENDED HEIGHT BASED ON:

- LEVEL AIRPLANE
- SHOCK STRUTS FULLY EXTENDED
- MINIMUM OF 4 INCHES (102 mm) TIRE CLEARANCE FOR GEAR RETRACTION

⁵ THIS VALUE IS LIMITED BY THE PRIMARY NOSE JACKING POINT ALLOWABLE JACK LOAD. LOCAL STRUCTURAL ALLOWABLE LOAD IS 12,000 POUNDS (5,443 KG).

⁶ JACKS USED IN THIS POSITION HAVE A RELIEF VALVE THAT OPENS AT 4,000 POUNDS (1,814 KG)

NOTE: FOR JACK HEIGHT REQUIREMENTS TO DO MAIN GEAR SHOCK STRUT SEAL MAINTENANCE, REFER TO AMM 32-11-25/201, MAIN GEAR SHOCK STRUT SEAL.

757-200
Airplane Jacking System Specifications
Figure 201

EFFECTIVITY
757-200

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D. References

- (1) AMM 09-11-00/201, Towing
- (2) AMM 12-15-01/301, Main Gear Shock Strut
- (3) AMM 12-15-02/301, Nose Gear Shock Strut
- (4) AMM 32-00-20/201, Landing Gear Downlocks
- (5) AMM 32-09-02/201, Air/Ground Relays
- (6) 1-00-041, Weight and Balance Manual, Mean Aerodynamic Cord (4 exit doors with 1 aft cargo door).
- (7) 1-00-042, Weight and Balance Manual, Mean Aerodynamic Cord (3 exit doors, overwing exits, and 1 aft cargo door).
- (8) 1-00-043, Weight and Balance Manual, Mean Aerodynamic Cord (4 exit doors with 2 aft cargo doors).
- (9) 1-00-05, Weight and Balance Manual, Mean Aerodynamic Cord (1 exit door with 1 cargo doors).

E. Procedure

S 492-002

- (1) Make sure that the landing gear downlocks are installed (AMM 32-00-20/201).

S 862-033

- (2) Make sure steering is locked out and pinned (AMM 09-11-00/201).

S 042-004

- (3) If electrical power is supplied to the airplane while it is on jacks, do the step that follows:

WARNING: DO THE DEACTIVATION PROCEDURE FOR THE FLIGHT MODE SIMULATION BEFORE YOU LIFT THE AIRPLANE. IN THE FLIGHT MODE, MANY OF THE AIRPLANE SYSTEMS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (a) Do the deactivation procedure for flight mode simulation (AMM 32-09-02/201).

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 **BOEING**
757
MAINTENANCE MANUAL

S 972-005

(4) 757-200 AIRPLANES;

Make sure that the airplane gross weight and center of gravity (CG) are at the approved limits. The approved limits to lift the airplane are shown in Figure 203.

NOTE: The airplanes mean aerodynamic cord and center of gravity (CG) can be calculated using the Weight and Balance Manual:

Use 1-00-041 for 757 airplanes with 4 exit doors and 1 aft cargo door.

Use 1-00-042 for 757 airplanes with 3 exit doors, overwing exits, and 1 aft cargo door.

Use 1-00-043 for 757 airplanes with 4 exit doors and 2 aft cargo doors.

Use 1-00-05 for 757 airplanes with 1 exit door and 1 cargo door.

NOTE: It is the airplane operator's decision and responsibility to keep the Center of Gravity (C.G.) within limits during maintenance and to make sure a minimum number of people are on the wings when the airplane is on jacks.

S 582-006

CAUTION: DO NOT LIFT THE AIRPLANE ON JACKS IN WINDS MORE THAN 35 KNOTS. IF YOU DO NOT OBEY THESE INSTRUCTIONS, DAMAGE TO THE AIRPLANE CAN OCCUR.

CAUTION: DO NOT CHANGE THE CENTER OR GRAVITY WHEN THE AIRPLANE IS ON THE JACKS. DO NOT TRANSFER FUEL IN THE FUEL TANKS OR PERMIT THE MOVEMENT OF PERSONS AND EQUIPMENT IN OR NEAR THE AFT END OF THE FUSELAGE. ALL NECESSARY PRECAUTIONS MUST BE FOLLOWED OR DAMAGE TO THE AIRPLANE CAN OCCUR.

(5) Make sure the airplane is turned into the wind if it is possible, when jacking is necessary out of the hangar.

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S 612-007

CAUTION: DO NOT DEFLATE THE SHOCK STRUTS IF YOU DO A GEAR RETRACTION TEST. THE SHOCK STRUTS MUST BE FILLED CORRECTLY AND NOT INFLATED ABOVE THE CORRECT PRESSURE. DAMAGE TO THE WHEEL WELL AND SHOCK STRUT WILL OCCUR.

- (6) If you lift the airplane on jacks for a gear retraction test, do the steps that follow:
- (a) Make sure that the nose landing gear shock strut is fully extended and filled to the correct pressure before a gear retraction test (AMM 12-15-02/301).
 - (b) Make sure that the shock struts of main landing gear is fully extended and filled to the correct pressure before a gear retraction test (AMM 12-15-01/301).
 - (c) Make sure you have a minimum of 4 inches (102 mm) of tire clearance between the tire and ground surface.
 - (d) Ground airplane in two locations to the jack pads during landing gear retraction tests (AMM 20-41-00/201).
 - (e) Turn the TCAS mode selector switch to STBY (stanby) to prevent the possibility of transmitting data to nearby aircraft while on jacks.

S 612-008

CAUTION: MAKE SURE THE AREA BELOW THE AIRPLANE IS CLEAR OF ALL EQUIPMENT BEFORE YOU DEFLATE THE SHOCK STRUTS. IF YOU DO NOT OBEY THESE INSTRUCTIONS, DAMAGE TO THE AIRPLANE CAN OCCUR.

- (7) When you lift the airplane on jacks to level or weigh the airplane, or for general maintenance (without the gear retraction test), do the steps that follow.

NOTE: When you deflate the shock struts, the height that the airplane has to be lifted, is decreased.

- (a) Deflate the shock strut of the nose landing gear (AMM 12-15-02/301).
- (b) Deflate the shock struts of the main landing gear (AMM 12-15-02/301).
- (c) Remove the air valve cap from the shock strut.

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WARNING: LOOSEN THE AIR VALVE NUT TWO TURNS MAXIMUM, AND LET THE STRUT DEFLATE FULLY. DO NOT REMOVE THE AIR VALVE BODY ON A SHOCK STRUT WHEN IT PRESSURIZED. IF YOU LOOSEN THE AIR VALVE BODY, THE PRESSURE CAN CAUSE THE VALVE TO BLOW OUT OF THE SHOCK STRUT. INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (d) Loosen the air valve nut, two full turns. Let the shock strut deflate fully.

NOTE: Put a flexible hose on the air valve and put the other end in a container. This will catch the hydraulic fluid that comes out.

- (e) After the shock strut is fully deflated, open the air valve fully.
- (f) If the hydraulic line installation for the landing gear has disconnects at the brackets, disconnect them. These brackets are attached to the upper and lower torsion link attach points. Disconnect the upper and lower brackets as shown in Figure 204. Move the hoses as necessary to permit the installation of the lock equipment for the strut lock.

NOTE: If the routing of the hydraulic lines installation is around the apex joints of the torsion links, these procedures are not necessary.

- (g) Remove the torsion link upper and lower attach pins.
- (h) Install the lock equipment for the shock strut. Follow the instructions supplied with the tool to lock the strut in a compressed position.

S 492-014

- (8) Put wheel chocks on all landing gear wheels to prevent the forward and aft movement before the jacks are set.
- (a) Put the wheel chocks approximately 3 inches away from the tires.

S 492-013

- (9) Install the jack adapters as shown in Figure 202.
- (a) Remove the two plug bolts and the four Hi-Torque bolts from the forward body jack point. These bolts are removed to permit the installation of the forward body jack adapter.

S 092-015

- (10) Make sure the area is clear of persons, work platforms, entry stands, and other support equipment that are not necessary.

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TASK 07-11-01-582-016

3. Lift the Airplane with the Jacks

A. Lift the Airplane

S 582-017

- (1) Do the steps that follow to lift the airplane on jacks:
- (a) 757-200 AIRPLANES;
When jacking an airplane, make sure you stay within the airplane jacking system specifications, Figure 201.
 - (b) Put one person at each jack and one person at the plumb bob in the wheel well. Make sure there is interphone communication between them and the coordinator for the jack procedures.
 - (c) Put the primary jacks directly below the jack pads at points A, B, and C as shown in Figure 202.
 - (d) Rotate the jack to align the castors to follow each other and center the jack.
 - (e) Put the stabilizing jack near (not below) the airplane at jack points D, as shown in Figure 202. Install the stabilizing jack after you get the necessary airplane height with the primary jacks.

NOTE: It is the airline's decision if the stabilizing jack is necessary when the airplane is in the hangar (no wind). Also, it is their decision to use the stabilizing jack with the CG in limits and there are a minimum number of persons in the aft end of the airplane.

- (f) Make sure the jacks are level.
- (g) Operate the primary jacks using hand pump or air pressure to push jack post up to jack pad and seat jack on floor. Refer to the jack manufacturers' instructions.
- (h) Remove the wheel chocks.

WARNING: MONITOR THE NOSE JACK POINT LOAD WHEN TAIL JACKING. HIGH TAIL JACK LOADS CAN OVERLOAD THE NOSE JACK POINT AT HIGH JACKING WEIGHTS AND FORWARD CENTER OF GRAVITY LOCATIONS. LOCAL JACK LOADS MUST NEVER EXCEED DESIGN LIMITS. IF YOU DO NOT FOLLOW THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

CAUTION: DO NOT READ PRESSURE FOR JACK READING; USE TON READING.

- (i) Lift the airplane with the jacks. Continuously monitor the jacks and make sure that the maximum jack point loads are within the design limits. Also, monitor the plumb bob to make sure the airplane stays level while it is lifted on jacks.

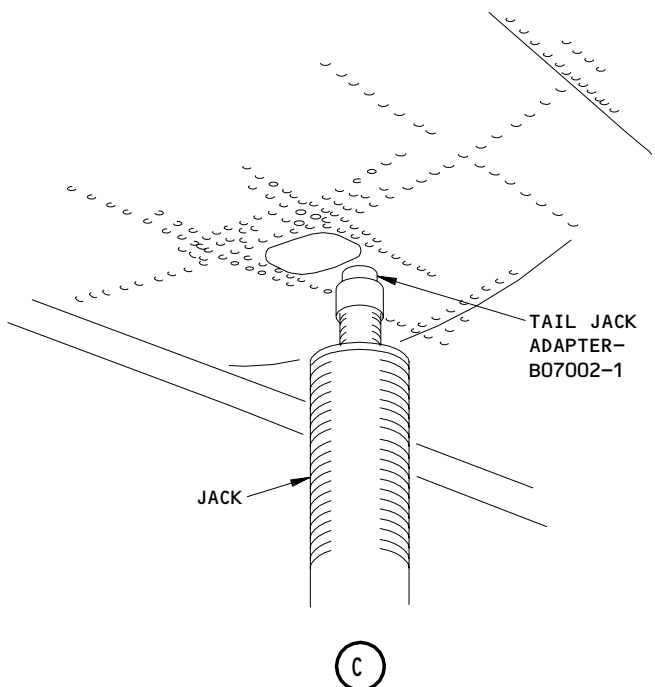
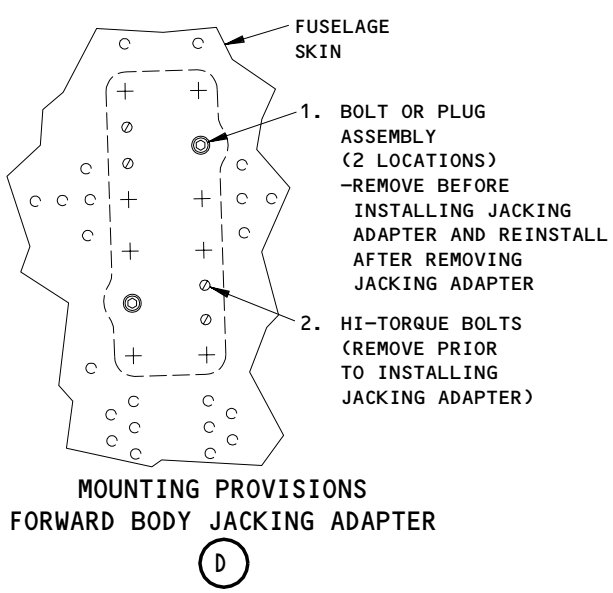
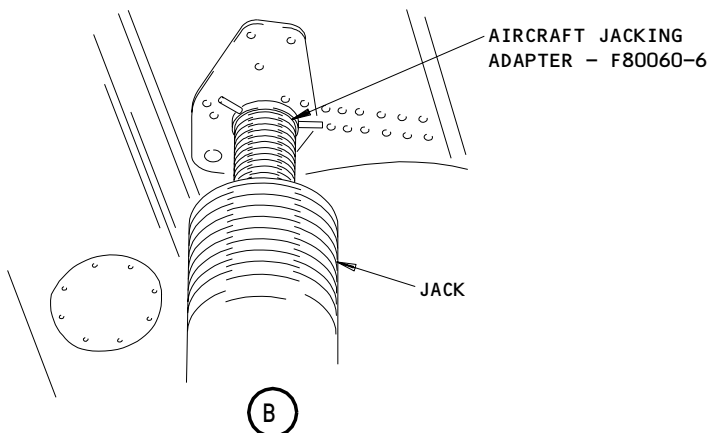
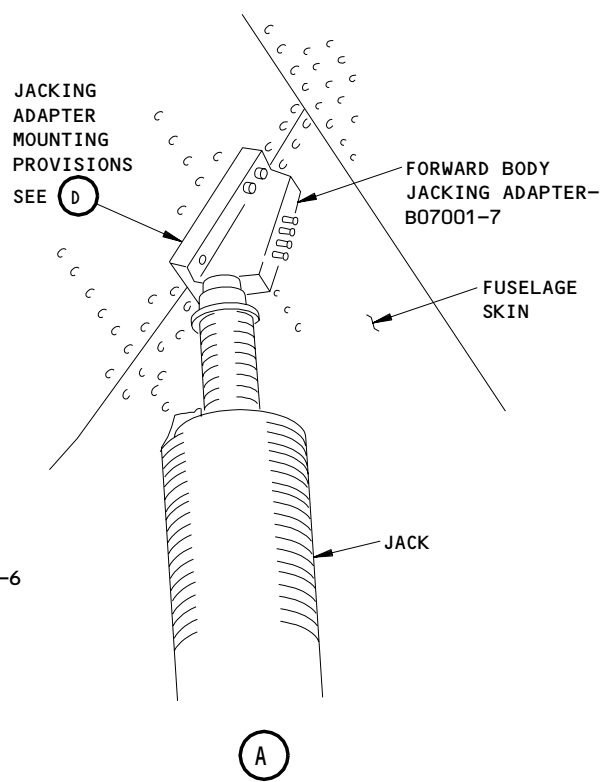
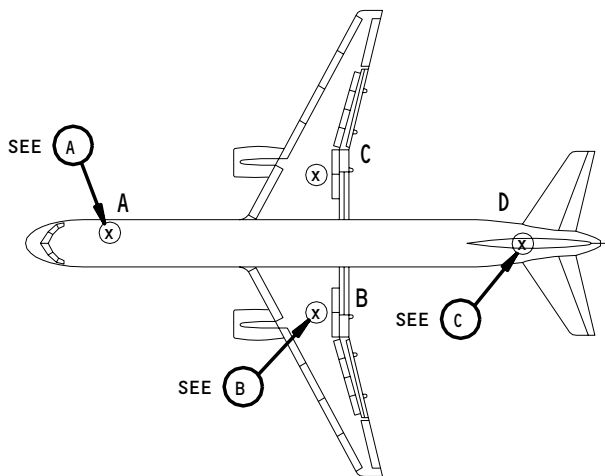
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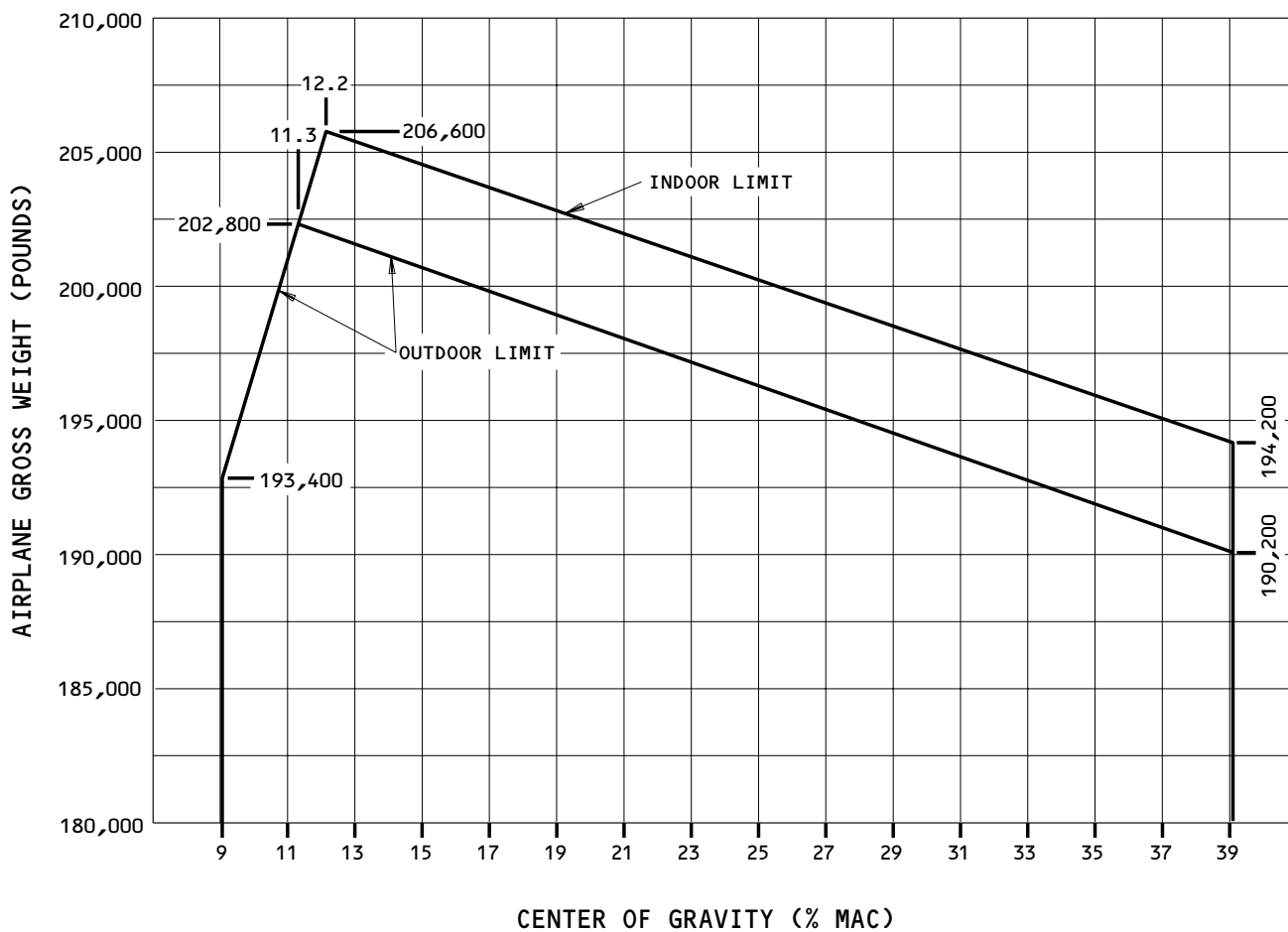


Airplane Jacking Points and Jack Adapters
Figure 202

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757-200

Airplane Jacking Weight and Center of Gravity Limits
Figure 203

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757-200

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- (j) Keep a clearance of one inch (2.5 centimeters) or less from the nut to the collar until you complete the jacking.
- (k) If it is necessary, put the stabilizing jack directly below the jack adapter at jack point D. Use the manufacturer's instructions and lift the jacks until you get the specified loads.

TASK 07-11-01-582-018

4. Lower the Airplane Off of the Jacks

A. References

- (1) AMM 12-15-01/301, Main Gear Shock Strut
- (2) AMM 12-15-02/301, Nose Gear Shock Strut
- (3) AMM 32-00-20/201, Landing Gear Down Locks
- (4) AMM 32-09-02/201, Air/Ground Relays

B. Procedure

S 582-019

- (1) Lower the airplane off of the jacks. Do the steps that follow:

CAUTION: MAKE SURE THE AREA BELOW THE AIRPLANE IS CLEAR OF ALL EQUIPMENT BEFORE THE AIRPLANE IS LOWERED. IF YOU DO NOT OBEY THESE INSTRUCTIONS, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

- (a) Make sure the area below the airplane is clear.
- (b) Make sure the landing gear control lever is in the DN position.
- (c) Make sure the landing gear downlocks are install on the nose and main landing gear (Ref 32-00-20).
- (d) Make sure that the airplane gross weight and center of gravity (CG) are at the approved limits. The approved limits are shown in Figure 203.
- (e) If the stabilizing jack was used at jack points D, lower the jack. Refer to the manufacturers' instructions.
 - 1) Remove the jack from below the airplane immediately after it has clearance between the jack adapter and adjacent airplane structure.
- (f) Put the wheel chocks in to position for installation when the airplane is on the ground. Make sure the wheel chocks do not touch the wheels while the airplane is lowered.
- (g) Put one person at each primary jack and one person at the plumb bob. Make sure there is interphone communication between them and the coordinator for the jack procedures.
- (h) Lower the airplane. Continuously monitor the jacks and make sure that the maximum loads are not more than the design load limits. Also monitor the plumb bob to make sure the airplane stays level while it is lowered off of the jacks.

NOTE: Make sure the jacks are at the bottom or the airplane full weight is on the landing gear.

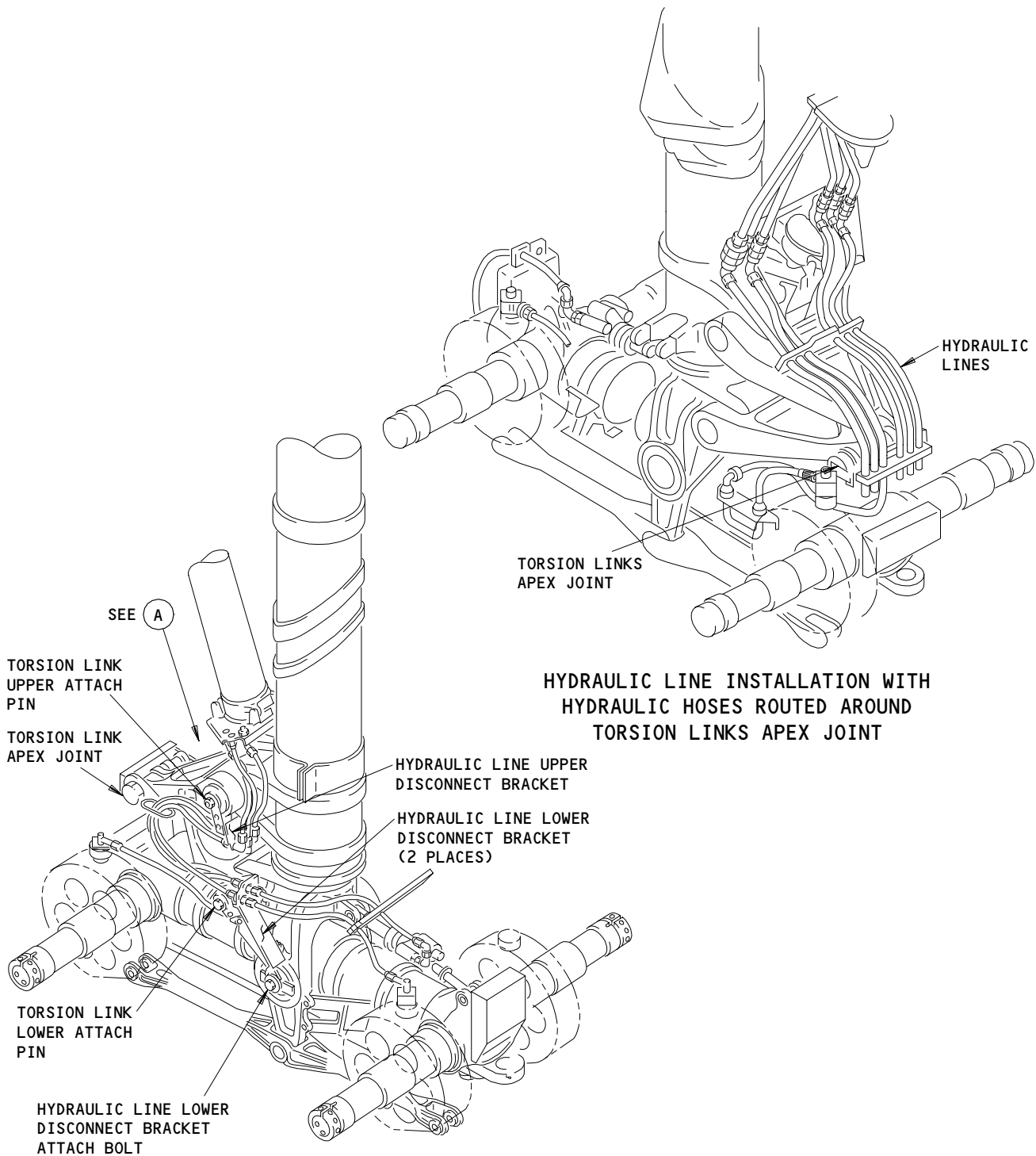
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HYDRAULIC LINE INSTALLATION WITH
HYDRAULIC HOSES ROUTED AROUND
TORSION LINKS APEX JOINT

HYDRAULIC LINE INSTALLATION WITH
LINES ROUTED THROUGH DISCONNECT
BRACKETS AT TORSION LINKS

Hydraulic Bracket and Hose Disconnects for Jacking Maintenance
Figure 204 (Sheet 1)

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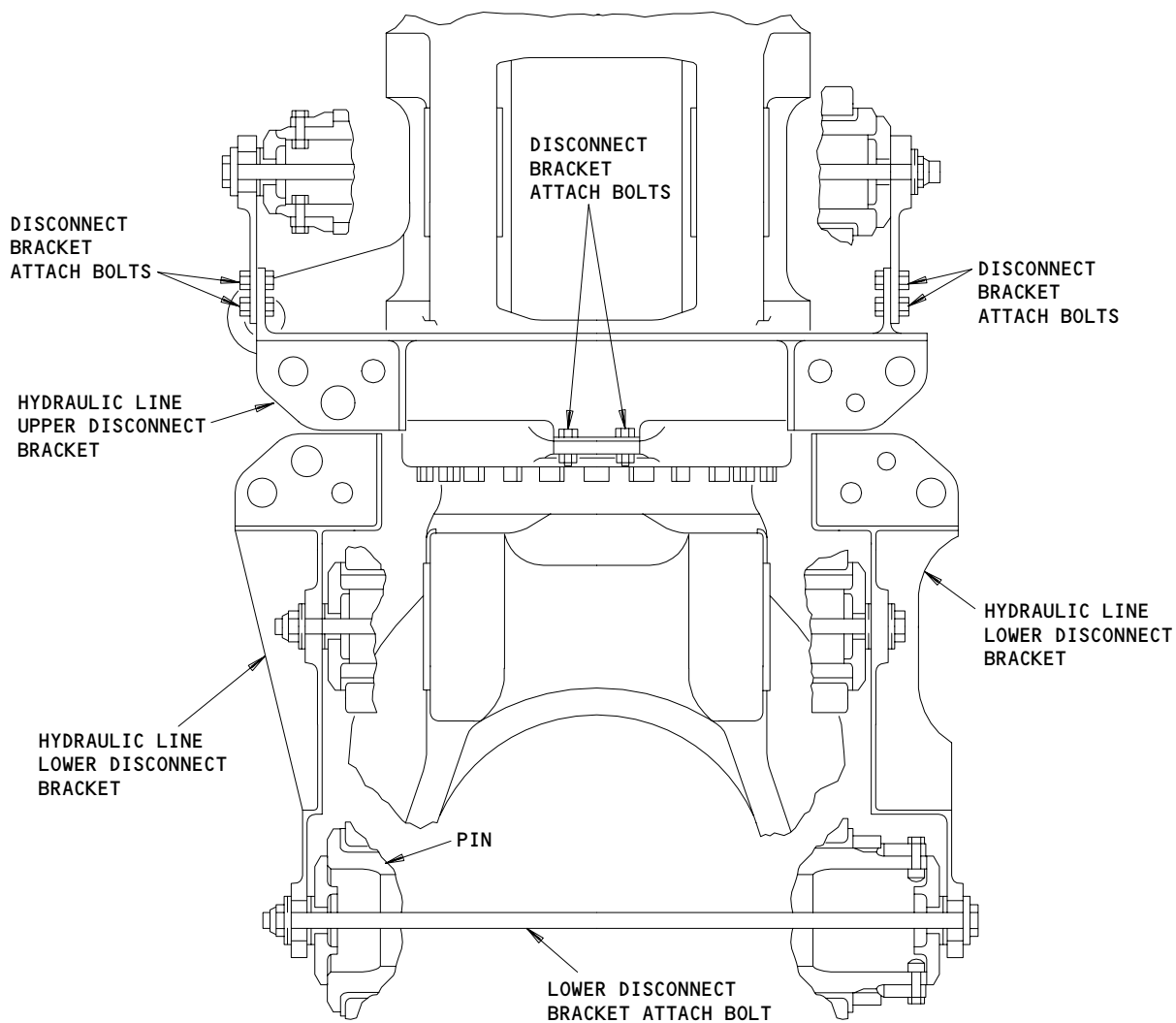
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A

Hydraulic Bracket and Hose Disconnects for Jacking Maintenance
Figure 204 (Sheet 2)

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- (i) Remove the primary jacks from jack points A, B, and C. Remove them from below the airplane immediately after they have clearance between the jack pad and the adjacent airplane structure.

C. Put the Airplane Back to Its Initial Condition

S 092-020

- (1) Remove the jack adapters as shown in Figure 202.

S 212-030

- (2) Do a general visual inspection examination of the area around the nose jack adapter, after removal, for obvious signs of distress.
 - (a) Install the two plug bolts and the four Hi-Torque bolts at the forward body jack point. These bolts were removed to permit the installation of the forward body jack adapter.

S 092-021

- (3) Remove the shock strut locks, if they were installed.

S 412-022

- (4) If the hydraulic line disconnect brackets were removed as shown in Figure 204, put them back on. These brackets are attached to the upper and lower torsion link attach points. Put the hydraulic hoses in the correct position after the lock equipment for the shock strut is removed.

S 612-024

- (5) Do the servicing of the shock struts on the main landing gear, if they were deflated (AMM 12-15-01/301).

S 612-025

- (6) Do the servicing of the shock strut on the nose landing gear, if it was deflated (AMM 12-15-02/301).

S 042-028

- (7) If electrical power was supplied during jacking do the steps that follow:
 - (a) On the PSEU (in the main equipment center, E-1 rack), push the RESET switch to erase the PSEU memory.

NOTE: Code "EEE" will be shown on the PSEU display during the erase procedure.

- (b) Do the activation procedure for the flight mode simulation if you did the deactivation procedure (AMM 32-09-02/201).

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JACKING AIRPLANE NOSE – MAINTENANCE PRACTICES

TASK 07-11-02-582-001

1. Jack the Airplane Nose

A. General

- (1) This section gives instructions to lift the airplane nose on jacks. A single jack point can be used to lift or lower the nose when the correct precautions are used. Also, the nose is lifted when the complete airplane is lifted on jacks. A jack adapter must be installed at jack point A before the airplane nose is lifted.
- (2) You can lift the airplane with jacks in winds up to 35 knots.
- (3) To change a wheel or a tire, you can lift the nose landing gear with a nose axle jack (AMM 07-11-03/201).
- (4) The airplane nose also can be lifted at jack point A if the nose strut has been deflated, and the restraint is installed.

B. Equipment

- (1) Airplane Jack (Ref 07-11-01)
- (2) Adapter, Forward Body Jack-B07001-7
- (3) Shock Strut Restraint, NLG - B32019-1
- (4) Wheel chocks

C. Consumable Materials

- (1) G00508 Compound, Corrosion Preventive - MIL-C-11796 Class 3

D. References

- (1) 07-11-01/201, Jacking Airplanes
- (2) 07-11-03/201, Jacking Airplane Axles
- (3) 12-15-02/301, Nose Gear Shock Strut
- (4) 32-00-20/201, Landing Gear Downlocks

E. Access

- (1) Location Zones
 - 116 Area Between Nose Gear Wheel Well and Fuselage, Right (Nose Jack Point)
 - 700 Nose Landing Gear Area

F. Prepare to Lift the Airplane Nose on Jacks

S 492-002

- (1) Make sure that the landing gear downlocks are installed (Ref 32-00-20).

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S 042-004

- (2) If electrical power is supplied to the airplane while it is on jacks, do the steps that follow:

WARNING: DO THE DEACTIVATION PROCEDURE FOR THE FLIGHT MODE SIMULATION BEFORE YOU LIFT THE AIRPLANE NOSE WITH THE JACK. WHEN YOU OPEN THE AIR/GROUND RELAY SYSTEM, THE AIRPLANE IS IN THE FLIGHT MODE. WHEN IN THE FLIGHT MODE AND ELECTRICAL POWER IS APPLIED, MANY OF THE AIRPLANE SYSTEMS WILL OPERATE. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (a) Do the deactivation procedure for the flight mode simulation (Ref 32-09-02).

S 972-003

- (3) Make sure that the airplane gross weight and center of gravity (CG) are at approved limits. The approved limits to lift at the forward body jack point are shown in Fig. 202.

S 582-019

CAUTION: DO NOT LIFT THE AIRPLANE ON JACKS IN WINDS MORE THAN 35 KNOTS.

- (4) Make sure the airplane is turned into the wind if it is possible, when jacking is necessary out of the hangar.

S 612-005

CAUTION: DO NOT DEFLATE THE SHOCK STRUT WHEN A GEAR RETRACTION TEST IS DONE. THE SHOCK STRUT MUST BE SERVICED CORRECTLY AND NOT INFLATED ABOVE THE CORRECT PRESSURE OR DAMAGE TO THE WHEEL WELL AND SHOCK STRUT WILL OCCUR.

- (5) Make sure that the nose landing gear shock strut is filled to the correct pressure before a gear retraction test (Ref 12-15-02).

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S 492-006

- (6) Install the jack adapter (Fig. 201).
(a) Remove the filler bolts (4) from the jack pad at jack point A. Keep the bolts so they can be installed after the jack is removed.

S 092-007

- (7) Clear the area of persons, work platforms, entry stands, and other support equipment that are not necessary.

S 492-008

- (8) Put wheel chocks for the main landing gear wheels in the correct position.
(a) Put the wheel chocks approximately 3 inches away from the tires.

NOTE: This will prevent forward and aft movement of the airplane before the jack is seated.

G. Lift the Airplane Nose with an Extended Shock Strut and a Nose Jack

S 082-021

- (1) Put the nose landing gear in its center position (AMM 32-51-00).

S 892-025

CAUTION: MAKE SURE THE AREA BELOW THE AIRPLANE IS CLEAR OF ALL EQUIPMENT BEFORE THE SHOCK STRUT IS DEFLATED. IF YOU DO NOT OBEY THESE INSTRUCTIONS, DAMAGE TO THE AIRPLANE CAN OCCUR.

- (2) Deflate the shock strut of the nose landing gear (AMM 12-15-02/301).

S 612-023

- (3) Inflate the shock strut of nose landing gear with the correct servicing fluid. Do the steps that follow:
(a) Close the air-charge valve of the shock strut.
(b) Attach the oil charge line to the oil charge valve of the shock strut and open the valve.

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WARNING: DO NOT INFLATE THE SHOCK-STRUT TO MORE THAN 2000 PSI. IF THE SHOCK STRUT IS INFLATED TO MORE THAN 2000 PSI, INJURY TO PERSONS CAN OCCUR. DAMAGE TO THE NOSE LANDING GEAR CAN ALSO OCCUR.

CAUTION: DO NOT INFLATE THE NOSE GEAR SHOCK-STRUT TO AN "X" DIMENSION MORE THAN 18 INCHES. IF THE "X" DIMENSION IS MORE THAN 18 INCHES, DAMAGE TO THE SEALS CAN OCCUR.

- (c) Put the correct servicing fluid into the shock strut with a pump. Do this until it is extended to the 18 inch "X" dimension.

NOTE: Shock strut "X" dimension charts are found in chapter AMM 12-15-02/301.

- (d) Close the oil charge valve of the shock strut.

S 082-022

- (4) To lift the airplane nose, do the steps that follow:
- (a) Put wheel chocks on all main landing gear wheels approximately 3 inches away from the tires.
 - (b) Set the load relief cell on the jack to 28,000 pounds.
 - (c) Put the jack directly below the jack pad at jack point A (Fig. 201).
 - (d) Make sure that the jack is level and in the center of the jack adapter.
 - (e) Operate the jack to seat the jack in the jack adapter. Refer to the jack manufacturers' instructions.

CAUTION: DO NOT LIFT THE NOSE OF THE AIRPLANE TO MORE THAN SIX INCHES OF TIRE CLEARANCE. IF YOU LIFT THE NOSE HIGHER, SIDE LOADS THAT ARE MORE THAN DESIGN LOAD LIMITS CAN OCCUR. THIS CAN CAUSE DAMAGE TO THE JACK RAM AND JACK ADAPTER BECAUSE THEY WILL MOVE IN AN ARC.

- (f) Lift the airplane nose to the necessary height.

H. Lift the Airplane Nose with the Shock Strut Restraint and the Nose Jack

S 822-013

- (1) Center the nose landing gear.

S 862-014

CAUTION: CLEAR THE AREA BELOW THE AIRPLANE OF ALL EQUIPMENT BEFORE THE SHOCK STRUT IS DEFLATED. WHEN YOU DO NOT CLEAR THE AREA, DAMAGE TO THE AIRPLANE OR TO THE EQUIPMENT CAN OCCUR.

- (2) Deflate the nose landing gear shock strut (AMM 12-15-02).

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S 492-015

CAUTION: DO NOT USE THE SHOCK STRUT RESTRAINT ON INFLATED SHOCK STRUTS. THE RESTRAINT HAS A LOAD LIMIT.

- (3) Install the shock strut restraint.

S 582-016

- (4) To lift the airplane nose, do the steps that follow:
- (a) Put wheel chocks on all main landing gear wheels approximately 3 inches away from the tires.

CAUTION: LET THE AIRPLANE ROLL FORWARD/AFT WHILE THE AIRPLANE NOSE IS LIFTED WITH THE JACK. WHEN YOU DO NOT LET THE AIRPLANE ROLL, DAMAGE CAN OCCUR TO THE MAIN LANDING GEAR OR TO THE AIRPLANE STRUCTURE.

- (b) Make sure that the wheel chocks do not touch the wheels of the main landing gear. This is to permit forward/aft movement of the wheels while the airplane is lifted with the jack.
- (c) Make sure that the parking brake is released and the manual brake is not applied during the procedure.
- (d) Put the jack directly below the jack pad at jack point A (Fig. 201).
- (e) Make sure that the jack is level and in the center of the jack adapter.
- (f) Operate the jack to seat the jack in the jack adapter. Refer to the jack manufacturers' instructions.
- (g) Lift the airplane nose to the necessary height.

NOTE: Raise the nose with the jack until the wheels are a minimum of 3 inches above the ground. Do this when you do a retraction test of the nose landing gear.

- (h) Put the wheel chocks for the main landing gear wheels approximately 3 inches away from the tires.

I. Put the Airplane Back to Its Initial Condition

S 582-017

- (1) Lower the airplane nose off of the jack. Do the steps that follow:

CAUTION: CLEAR THE AREA BELOW THE AIRPLANE OF ALL EQUIPMENT BEFORE THE AIRPLANE IS LOWERED. WHEN YOU DO NOT CLEAR THE AREA, DAMAGE CAN OCCUR TO THE AIRPLANE OR TO THE EQUIPMENT.

- (a) Make sure the area below the airplane is clear.
- (b) Make sure the landing gear control lever is in the DN position.

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CAUTION: LET THE AIRPLANE ROLL FORWARD/AFT WHILE THE AIRPLANE NOSE IS LOWERED OFF THE JACK. WHEN YOU DO NOT LET THE AIRPLANE ROLL, DAMAGE CAN OCCUR TO THE MAIN LANDING GEAR OR TO THE AIRPLANE STRUCTURE.

- (c) Make sure that the wheel chocks do not touch the wheels of the main landing gear. This is to permit forward/aft movement of the wheels while the airplane is lowered off of the jack.
- (d) Make sure that the parking brake is released and the manual brake is not applied during the procedure.
- (e) Lower the jack until the jack is at the bottom or until the airplane weight is on the nose gear.
- (f) Move the jack away from the airplane.
- (g) Remove the jack adapter.
 - 1) Install the filler bolts (4 places) at jack point A on the fuselage.

NOTE: Put Compound, Corrosion Preventive, MIL-C-11796 Class 3 on the filler bolts before you install them.

S 612-018

- (2) Do the servicing of the shock strut on the nose landing gear when it is necessary (AMM 12-15-02).

S 042-003

- (3) If electrical power was supplied during jacking do the steps that follow:
 - (a) On the PSEU (in the main equipment center, E-1 rack), push the RESET switch to erase the PSEU memory.

NOTE: Code "EEE" will be shown on the PSEU display during the erase procedure.

- (b) Do the activation procedure for the flight mode simulation if you did the deactivation procedure (AMM 32-09-02).

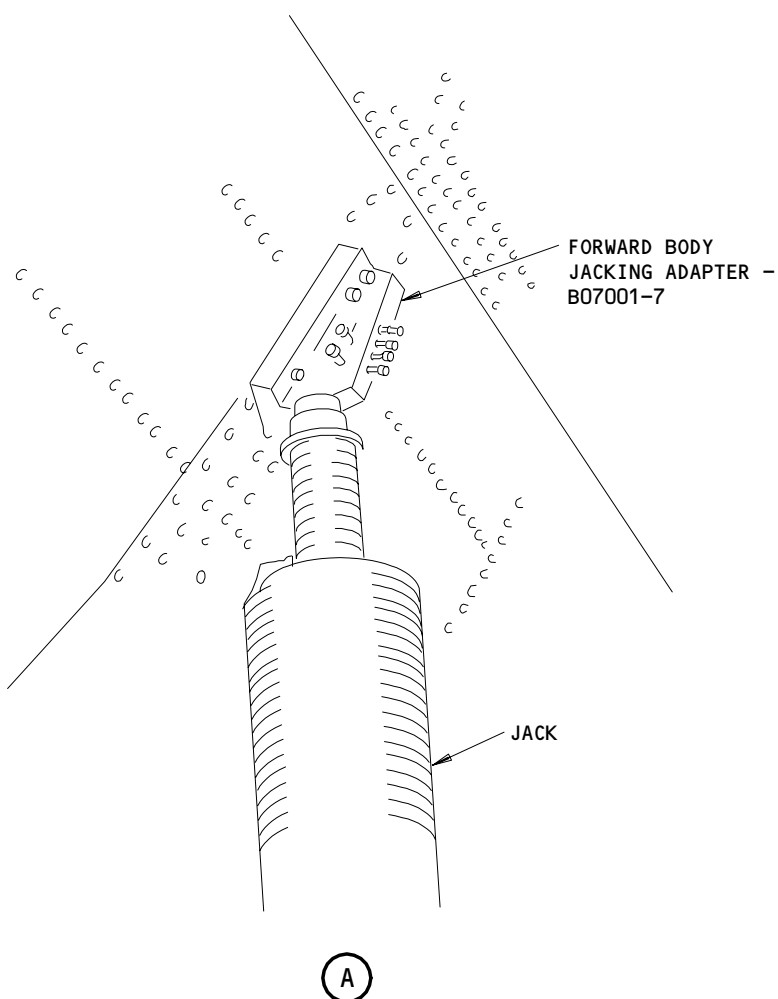
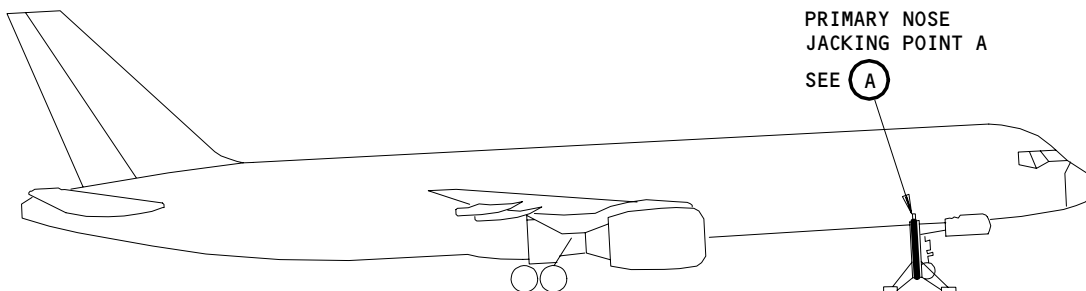
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Airplane Nose Jacking Point and Jacking Adapter
Figure 201

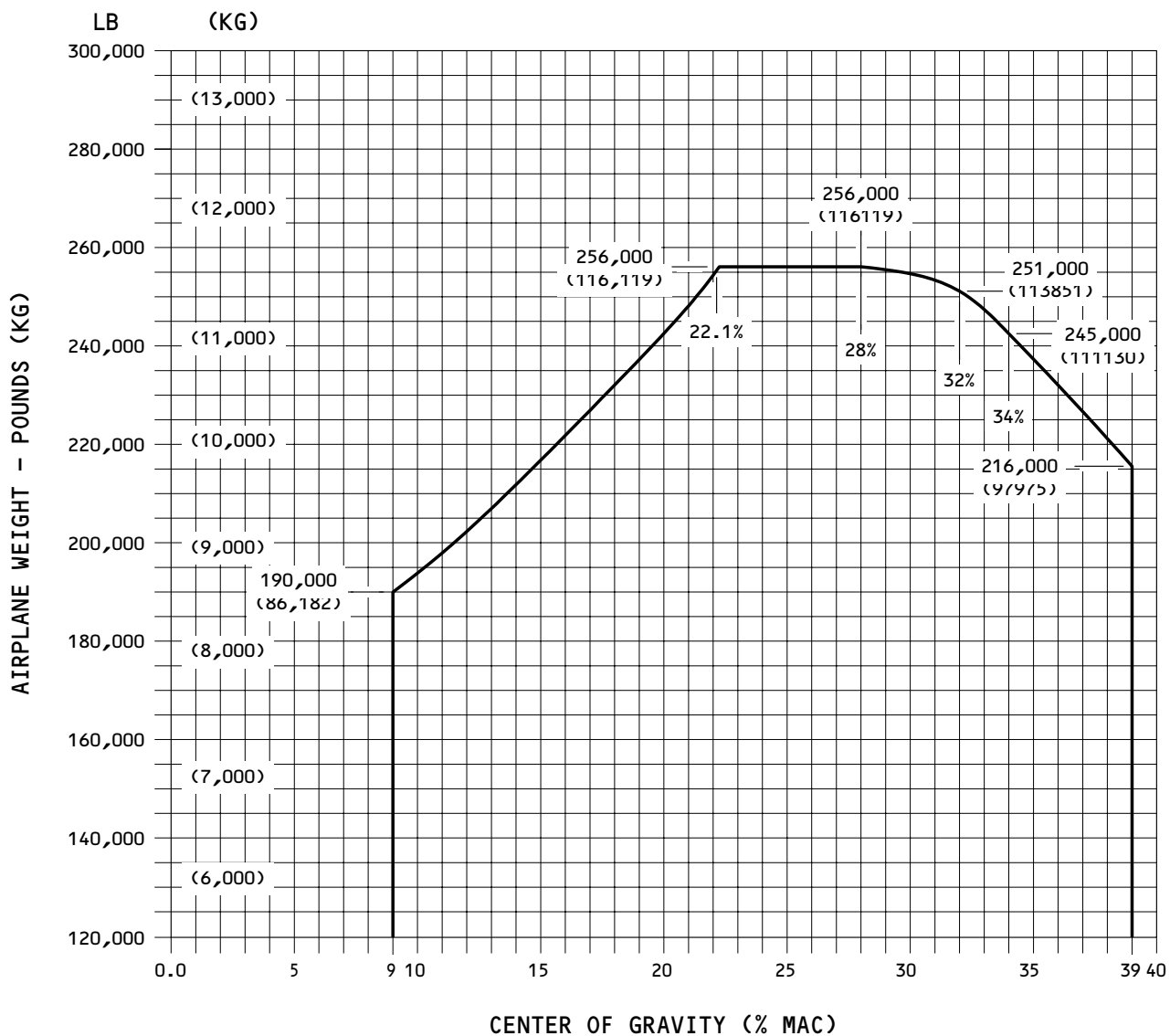
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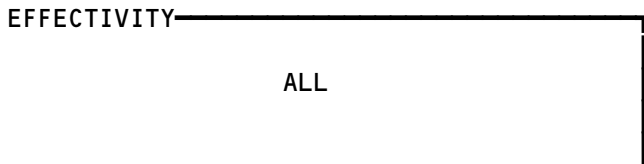
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Airplane Weight and Center of Gravity Limits for Jacking at the Airplane Nose
Figure 202



07-11-02

JACKING AIRPLANE AXLES – MAINTENANCE PRACTICES

1. General

- A. This section gives instructions to lift the airplane at the axles. The airplane has five axle jack points. Two axle jack points are on each main landing gear. One axle jack point is on the nose landing gear. The pads of the axle jack point are part of the landing gear.
- B. Figure 201 shows the 757-200 Axle Jacking System Specifications.
- C. You can lift the airplane at the axle jack points at any aircraft weight up to the maximum taxi weight.
- D. Two flat tires on the same axle can prevent the use of approved axle jacks. If this occurs, you can use axle jacking bars to lift the axle sufficiently to install the axle jack.

TASK 07-11-03-582-001

2. Lift the Airplane on Axle Jacks

A. Equipment

- (1) Axle Jacking Bar Set, MLG
B07008-1 (Preferred for all airplanes,
required for airplanes with gross
weights greater than, or equal to,
251,000 pounds).
B07003-15 (Preferred for all airplanes,
required for airplanes with gross
weights greater than, or equal to,
251,000 pounds)
B07003-1,-13 (Optional for all airplanes except
airplanes with gross weights
greater than, or equal to, 251,000
pounds)
- (2) Axle Jacking Bar Set, NLG
B07004-12 (Preferred)
B07004-1 (Optional)

NOTE: B07004-12 required for airplanes with
gross weights greater than, or equal to,
251,000 pounds.

(3) Wheel Chocks

B. References

- (1) AMM 12-15-01/301, Main Gear Shock Strut
- (2) AMM 12-15-02/301, Nose Gear Shock Strut
- (3) AMM 32-00-20/201, Landing Gear Downlocks
- (4) AMM 32-42-06/401, Antiskid Transducer

C. Prepare to Lift the Airplane on Axle Jacks

S 492-002

- (1) Make sure that the landing gear downlocks are installed (AMM 32-00-20/201).

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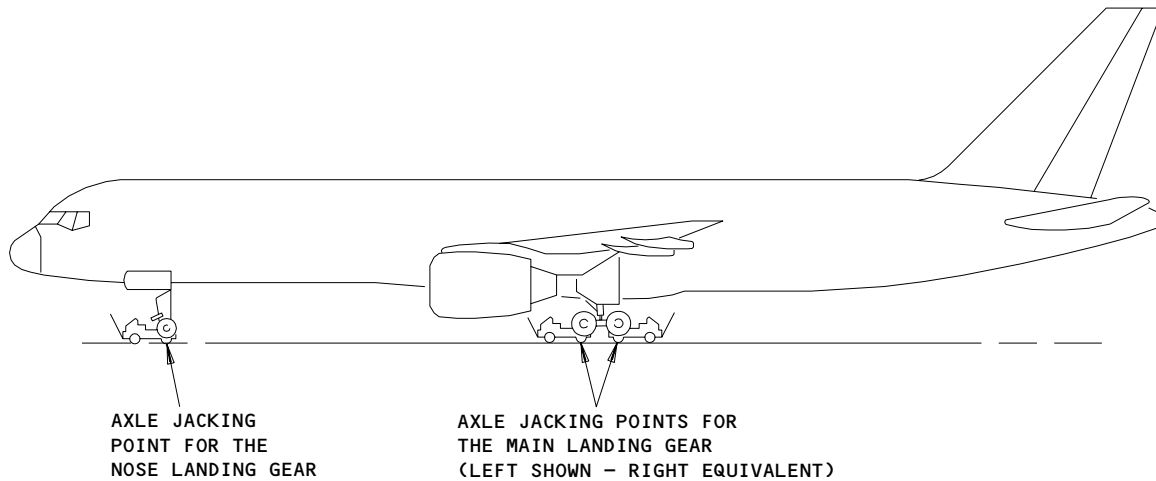
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BOEING
757
MAINTENANCE MANUAL



JACKING POINT	JACK SPECIFICATIONS			
	MAXIMUM LOAD (POUNDS) 4	JACK HEIGHT (INCHES)		ADAPTER FITTING
		ROLL-UNDER	EXTENDED 8	
MAIN GEAR AXLE	51,500 1	6.9 5	16.0 9	NONE
	58,000 3	11.0 6		
	54,400 2	4.9 7		
NOSE GEAR AXLE	33,200	6.5 5	15.35	NONE
		10.3 6		
		4.5 7		

- 1 MAXIMUM AIRPLANE JACKING WEIGHT: 221,000 POUNDS
- 2 MAXIMUM AIRPLANE JACKING WEIGHT: 241,000 POUNDS
- 3 MAXIMUM AIRPLANE JACKING WEIGHT: 251,000 POUNDS
- 4 INCLUDES A 35 KNOT WIND LOAD
- 5 WITH FLAT TIRES
- 6 TIRES CORRECTLY INFLATED
- 7 WHEELS ON THE RIMS
- 8 EXTENDED HEIGHT PERMITS A 2-INCH GROUND CLEARANCE
- 9 **CAUTION:** WHEN JACKING ONE AXLE ONLY, DO NOT JACK THE AXLE MORE THAN 11 INCHES HIGHER THAN OTHER AXLE. THIS WILL PREVENT DAMAGE TO THE TRUCK POSITIONER ACTUATOR.

757-200
Airplane Axle Jacking
Figure 201

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S 862-004

- (2) Make sure the airplane center of gravity is within the aircraft tipping limit (AMM 07-11-01/201).

S 582-005

CAUTION: DO NOT LIFT THE AIRPLANE IN WINDS MORE THAN 35 KNOTS.

- (3) Make sure the airplane is turned into the wind if it is possible, when jacking is necessary out of the hangar.

S 582-006

CAUTION: MOVE THE AIRPLANE STRAIGHT FORWARD FOR A MINIMUM OF 10 FEET BEFORE YOU LIFT IT ON THE JACKS. DO THIS WHEN THE AIRPLANE WAS STOPPED DURING A TURN. SIDE LOAD PRESSURES ON THE LANDING GEAR TRUCKS CAUSED BY SCRUBBED TIRES CAN CAUSE THE AXLE JACK TO FALL.

- (4) Make sure that the torsion loads (side load pressures) are released before the airplane axles are lifted on jacks. Move the airplane a minimum of 10 feet before you lift the airplane on jacks.

S 612-007

- (5) Make sure that the shock struts of the main landing gear have a minimum extension of two inches (5.08 cm).

S 612-008

- (6) Make sure that the shock strut of the nose landing gear has a minimum extension of 2 inches (5.08 cm).

D. Use the Axle Jack with Inflated Tires

S 582-010

CAUTION: BE CAREFUL NOT TO CAUSE DAMAGE TO THE RETENTION BOLT OF THE BRAKE ROD PIN. WHEN THE PIN IS INSTALLED WITH THE HEAD ON THE SIDE AWAY FROM THE TRUCK BEAM, SOME JACKS CAN TOUCH THE THREADS OF THE RETENTION BOLT. THE JACK CAN CAUSE DAMAGE TO THE THREADS OF THE RETENTION BOLT.

- (1) If the tires are not deflated, put the jack directly below the jack pad on the landing gear axles. Do the steps that follow:
 - (a) Examine all of the wheels, on the axles that are not lifted with the jack.

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CAUTION: WHEN YOU LIFT ONE AXLE WITH THE JACK, DO NOT LIFT THE AXLE MORE THAN 11 INCHES HIGHER THAN THE OTHER AXLE. IF YOU LIFT THE AXLE TOO HIGH YOU CAN PUT TOO MUCH LOAD ON THE TRUCK POSITION ACTUATOR OF THE MAIN LANDING GEAR. THIS CAN CAUSE DAMAGE TO THE TRUCK POSITION ACTUATOR.

- (b) Operate the axle jack(s) to lift the airplane wheel(s) to the necessary height. Refer to the jack manufacturers' instructions.

S 862-014

- (2) 757-200 AIRPLANES;

Do not exceed the jack point load limits (Fig. 201).

E. Use the Axle Jack with Deflated Tires

S 582-011

- (1) If the tires are deflated on the landing gear axle (not sufficient clearance to install the axle jack), do the steps that follow:

CAUTION: MAKE SURE YOU USE AUXILIARY JACKING BARS IN PAIRS. IF YOU LIFT THE AIRPLANE WITH ONE JACKING BAR, YOU CAN CAUSE DAMAGE TO THE AXLE.

- (a) You must remove the MLG antiskid transducer to install the axle jacking bar set on the MLG axles (AMM 32-42-06/401).
- (b) Install the auxiliary jacking bars.
- (c) Lift the axle until the axle jack can be installed below the jack pad.
- (d) Put the axle jack directly below the jack pad.
- (e) Remove the auxiliary jacking bars.
- (f) Put chocks on all of the wheels on the axles that are not being lifted with the jack.
 - 1) Put the wheel chocks approximately 3 inches away from the tires.

CAUTION: WHEN YOU LIFT ONE AXLE WITH THE JACK, DO NOT LIFT THE AXLE MORE THAN 11 INCHES HIGHER THAN THE OTHER AXLE. IF YOU LIFT THE AXLE TOO HIGH YOU CAN PUT TOO MUCH LOAD ON THE TRUCK POSITION ACTUATOR OF THE MAIN LANDING GEAR. THIS CAN CAUSE DAMAGE TO THE TRUCK POSITION ACTUATOR.

- (g) Operate the axle jack(s) to lift the airplane wheel(s) to the necessary height. Refer to the jack manufacturers' instructions.

S 862-013

- (2) 757-200 AIRPLANES;

Do not exceed the jack point load limits (Fig. 201).

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F. Put the Airplane Back to its Initial Condition

S 582-012

- (1) Lower the airplane off of the axle jack. Refer to the jack manufacturers' instructions.
 - (a) Remove the axle jack(s) from under the axle(s).

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JACKING FOR AIRPLANE SUPPORT WITH ENGINE(S) REMOVED –
MAINTENANCE PRACTICES

1. General

- A. Jacks are not necessary to keep the airplane stable during engine removal. This is possible if the airplane gross weight and center of gravity (CG) are in the SAFE ZONE limits. The SAFE ZONE limits are specified in Figure 201 and Figure 202.
- B. 757-200 Airplanes
The SAFE ZONE limits are specified in Figure 201 and Figure 202.

TASK 07-11-05-582-002

2. Make the Airplane Stable to Prevent Tipping

A. General

- (1) Find the airplane gross weight. Use approved weight reports and procedures.
- (2) Find the airplane center of gravity (CG) for the applicable airplane configuration. Use component weight and CG data and calculation procedures in the approved weight and balance manuals. Make sure you know the location of all airplane components and equipment. This includes support and test equipment that has been removed, installed, or relocated in the airplane.
- (3) 757-200 Airplanes
Use the gross weight and CG data to find the weight and CG point of operation in Figure 201 and Figure 202.
- (4) The airplane will remain stable after engine removal if the point of operation is in the SAFE ZONE. But, the point of operation must be in the SAFE ZONE below the GROUND STABILITY LIMIT line.

NOTE: In the hanger, the airplane will be sufficiently stable to permit some movement of persons in the airplane. It will also permit controlled removal of components. This is also correct if the airplane is in a no-wind condition. The lower the operation point is below the GROUND STABILITY LIMIT line, the more stable the airplane becomes after engine removal.

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B. References

(1) 07-11-01/201, Jacking Airplane

C. Procedures

S 492-004

CAUTION: THE GROUND STABILITY LIMITS DO NOT ALLOW FOR OTHER PRIMARY COMPONENT REMOVAL. THEY ALSO DO NOT ALLOW FOR MOVEMENT OF PERSONS AND EQUIPMENT IN OR NEAR THE AFT END OF THE FUSELAGE. ALL NECESSARY PRECAUTIONS MUST BE FOLLOWED.

- (1) If the operation point is in the CAUTION ZONE and above the GROUND STABILITY LIMIT line, make the airplane stable. Use one of the procedures that follow (Ref 07-11-01):
- (a) Use accepted weight and CG procedures to move the point of operation into the SAFE ZONE.

NOTE: On a two engine removal, the best possible solution might be, to remove and install one engine at a time. Do this to get a point of operation satisfactory for maintenance.

- (b) Install the airplane jack at the tail jack point to prevent airplane tipping.

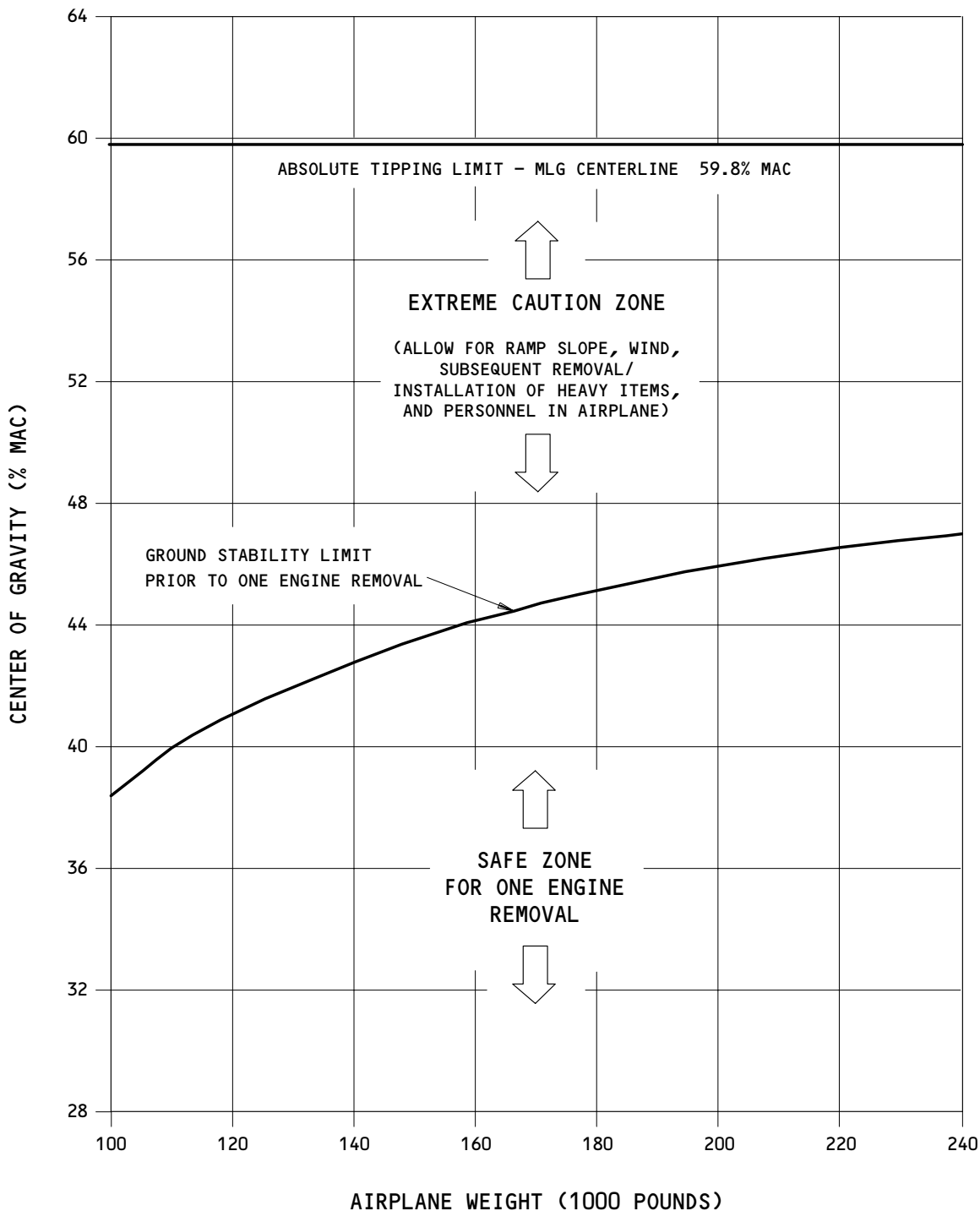
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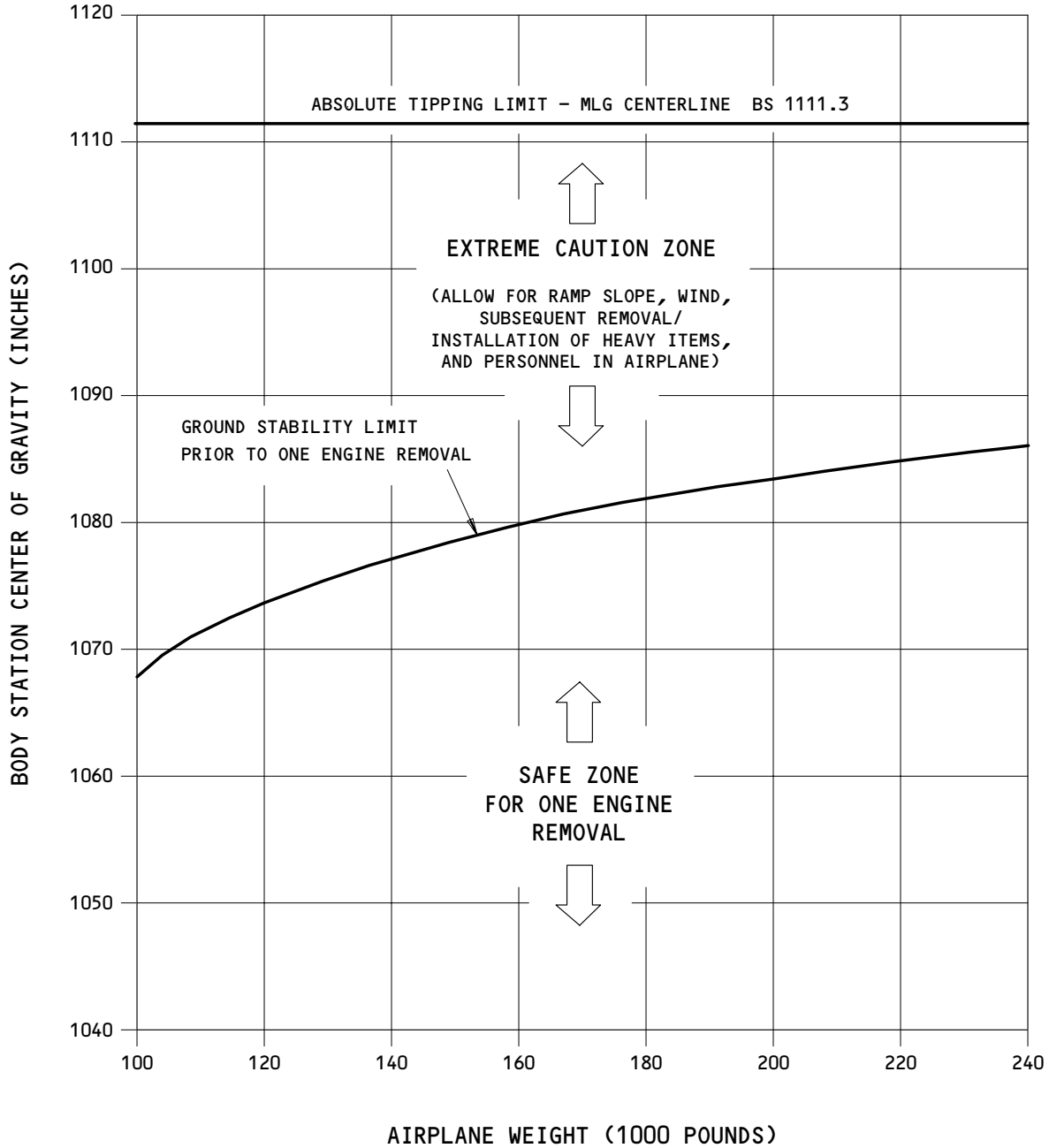
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Center of Gravity and Gross Weight Limits for Removal of One Engine
Figure 201 (Sheet 1)

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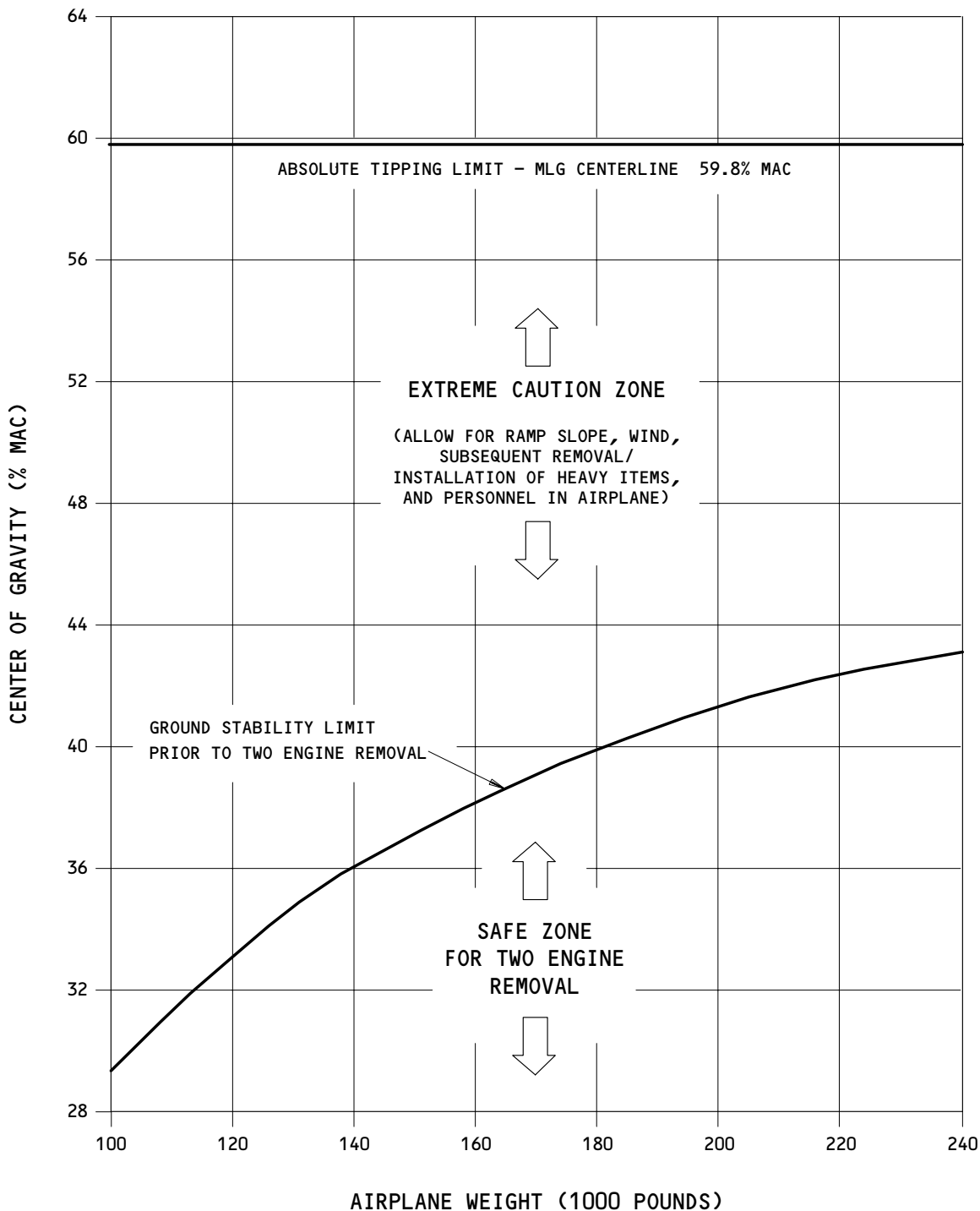
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Center of Gravity and Gross Weight Limits for Removal of One Engine
Figure 201 (Sheet 2)

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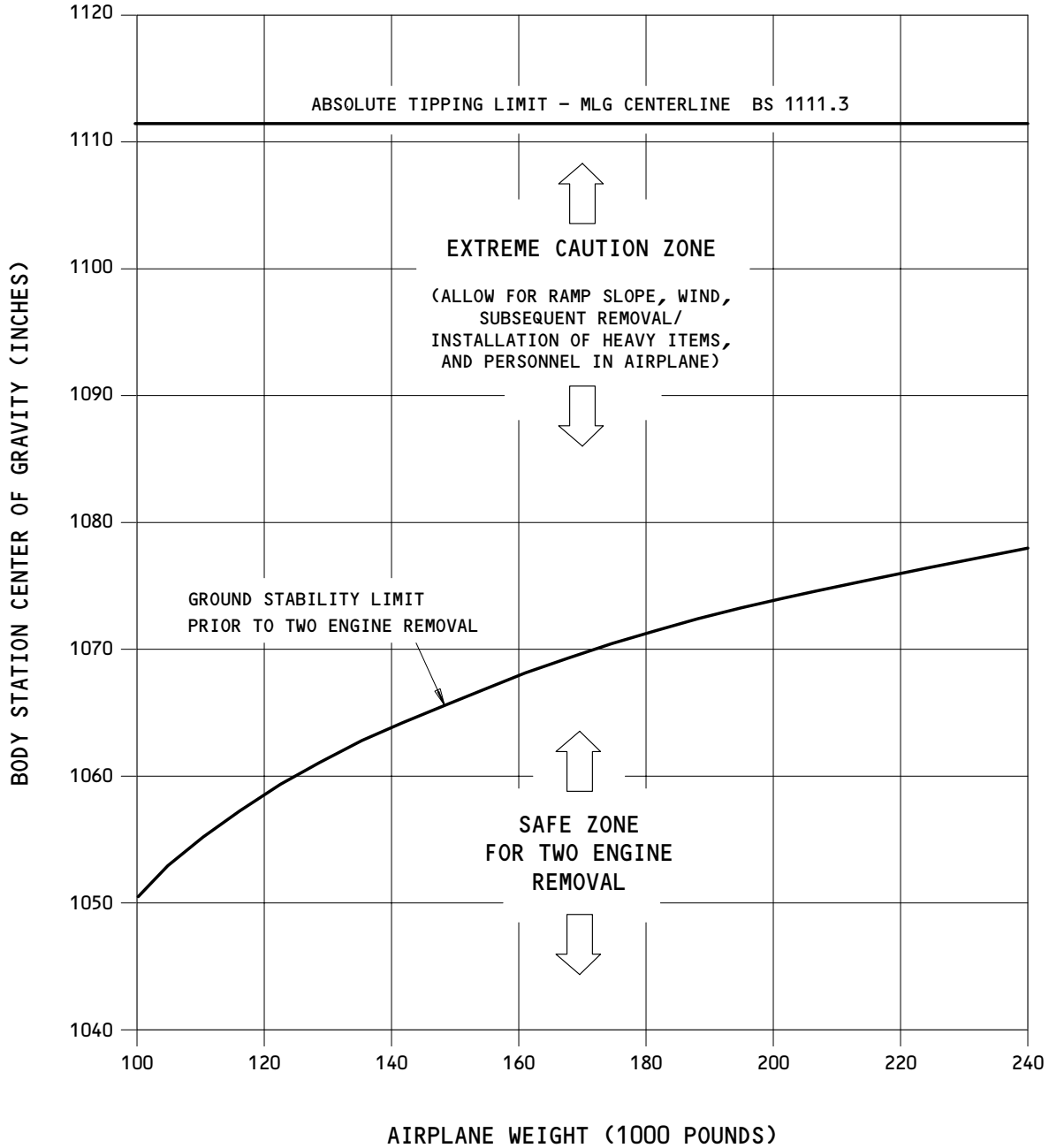
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Center of Gravity and Gross Weight Limits for Removal of Two Engines
Figure 202 (Sheet 1)

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Center of Gravity and Gross Weight Limits for Removal of Two Engines
Figure 202 (Sheet 2)

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