NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

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Attachment 11 – Loadmaster Procedures

OPERATIONAL FACTORS

DCA13MA081

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[ ] Denotes items to be completed during transit stops where freight is not on/offloaded.

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LOADMASTER CHECKLIST

LOADMASTER CHECKLIST (Continued)

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BEFORE LEAVING AIRCRAFT

1. SECURE LOOSE EQUIPMENT
   A. Pallets, cargo equipment, COMAT, aircraft parts and tool boxes
2. CARGO DOORS CLOSED (as required)
3. COMPLETE LM TRIP REPORT
4. SECURE AIRCRAFT (as required)
5. PALLET AUDIT
6. COMPLETE LOADPLAN
7. COMPUTE W&B

VEHICLE INSPECTION

1. BATTERY - Secured
2. TIRE LOAD – Max. 850 lb per tire w/o the use of shoring
3. FUEL – ¼ tank maximum
4. Check for fluid leaks
5. Ensure secondary loads are secure

LIVESTOCK LOADING CHECKLIST

1. Inspect all stalls for airworthiness
2. Ensure stalls are properly secured to pallet (if applicable)
3. Spreader shoring used if required
4. Stall floorboards in good condition
5. Stall floor and sides lined with plastic to prevent leakage from stall
6. Absorbent materials placed in stall
7. Adequate restraint collars and tethering placed in horses and bulls
8. Ensure plastic sheeting is spread out on the aircraft floor in front of all stalls
9. Prepare 2 copies of the "Notification of Perishable/Live Animal and Request for Temperature" form

MATHEMATICAL CONVERSIONS

Kg to lb Kg x 2.2046
Lb to kg Lb x 0.454
Meter to ft Meter x 3.281
Ft to meter Ft x 0.305
Centimeters to in Cm x 0.3994
Inches to cm Inches x 2.54
Cu. meter to Cu. Ft Cu. m x 35.31
Cu. ft to Cu. meter Cu. ft x 0.028
Liter to US Gallon Liter x 0.264
US Gallon to L US Gal x 3.785
Nautical to Statue Mile NM x 1.151
Statute to Nautical Mile SM x 0.869
Volume (cube) L x W x H
Area = L x W
PSI = Weight / Area

RESTRAINT CRITERIA FORMULAS

Required Restraint = Weight x Criteria
75% of the rated tie-down

Minimum Restraint Requirements

Fwd, Aft, Lateral (All aircraft)	1.5g x Cargo Wt
Vertical (All aircraft)	2.6g x Cargo Wt
Vertical Position 18 (DC-8 only)	3.4g x Cargo Wt

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12. LOADMASTER CHECKLIST (CO-9)

Checklist Design

The Loadmaster Checklist (CO-9) is a paper product that is laminated and available on the aircraft for the Loadmaster. The Checklist is designed to be quickly and easily accomplished in a logical time sequence during various phases of the ground operations. Checklist groupings are selected so the items are consistent with established flow patterns and can be quickly accomplished. Following the checklist is a very critical procedure in completing all areas of your duties.

12.1 PRE DEPARTURE

1. AIRCRAFT SECURITY CHECK;

Inspect all accessible compartments for possible stowaway and tampering with aircraft. Any area that can be accessed with a common tool must be inspected. Once the aircraft is inspected the "Aircraft Search Checklist" for that particular aircraft should be completed and signed. There are several situations in which the form does not have to be completed. These situations do not relieve you from being aware of any possible stowaways and tampering of the aircraft. The areas that must be inspected are;

- Exterior of the aircraft
- The Cargo Compartment and any storage areas in the Cargo Compartment
- The Lower Cargo Compartment and any storage areas in the Lower Cargo Compartments
- Upper Deck or the Courier Compartment

2. INSPECT THE EXTERIOR OF THE AIRCRAFT;

The exterior of the aircraft shall be inspected for any damage to the fuselage or the cargo door areas. Each cargo door will be opened and door sill inspected for damage from loading and offloading operations. Any damage identified must be written up on the CO-10 Form. Also the aircraft fuselage, engines, wings and under belly shall be inspected for possible damage from ground support equipment.

3. LM FORMS AND MANUALS;

The Loadmaster shall ensure that he/she has all the required forms and manuals (hard copy or electronic copy) on their computer or on the aircraft computer. The following forms and manual shall be available;

- COM
- Emergency Response Guide
- Up-to-date IATA DG Manual
- Trip Report Forms
- ULD Receipt Forms
- AWB's/Cargo Manifest (If required)

4. AIRCRAFT FORMS;

The Loadmaster shall ensure that he/she has all the required aircraft forms (hard copy or electronic copy). The following forms shall be available;

- Load Plan Forms
- Crew and Gen Dec's
- Permit to Proceed (If required)

5. CHECK AIRCRAFT COMPUTER & PRINTER;

The Loadmaster will check the aircraft computer to ensure that any manuals needed are current. The computerized Weight and Balance (If applicable) shall be checked to ensure the revision installed is correct. The printer should be checked and you should ensure there is enough paper onboard to complete the trip.

6. EMERGENCY EQUIPMENT;

The emergency equipment in the cargo compartment and in the Courier/Upper Deck Compartment must be inspected for serviceability and proper storage. All emergency equipment must be secure to the aircraft or in an approved compartment. Emergency Equipment includes;

- Portable O2 bottles and masks
- PBE
- Fire Extinguishers and extensions (HALON or High Pressure Water)
- Life Rafts
- Life Vest
- First Aid Kits
- Emergency Flashlights
- Crash Axe

7. OPEN MAIN CARGO DOOR;

Main Cargo Doors shall be opened to ensure there are no maintenance issues. During the operation of the door, the door sill area will be inspected to ensure there is no damage. Any damage discovered will be written up on the CO-10 and given to the Flight Mechanic or Maintenance Rep at the aircraft and Captain right away. If the Main Cargo Door is not needed for the operation it can be closed after the inspection.

WARNING

IF THE MAIN CARGO DOOR IS OPENED WITHOUT A LOADER IN PLACE AT THE MAIN DECK LEVEL, THE SAFETY NETS MUST BE INSTALLED ACROSS THE MAIN CARGO DOOR.

8. MAIN DECK CARGO COMPARTMENT;

The Main Deck Cargo Compartment is to be inspected for any damage or discrepancies prior to starting any loading operation. The Loadmaster will ask the Flight Mechanic or Maintenance Rep at the aircraft if there are any existing maintenance issues that may affect the cargo operations. The following areas will be checked;

- Check all lights, locks, rollers, rails and PDU's (Check for DMIs)
- Check Gil Liners for any damage
- Cleanliness. Dispose of all trash and obstructions
- All straps must be roll and stored
- Inspect 96" safety barrier properly installed
- Ensure 9G net is properly installed
- Inspect for any possible hazards in the cargo compartment

9. OPEN LOWER CARGO COMPARTMENT DOORS;

Lower Cargo Doors shall be opened to ensure there are no maintenance issues. During the operation of the door, the door sill area will be inspected to ensure there is no damage. Any damage discovered will be written up on the CO-10 and given to the Flight Mechanic or Maintenance Rep at the aircraft and Captain right away. If the Lower Cargo Door is not needed for the operation it can be closed after the inspection.

10. CHECK LOWER CARGO COMPARTMENTS;

The Lower Deck Cargo Compartment is to be inspected for any damage or discrepancies prior to starting any loading operation. The Loadmaster will ask the Flight Mechanic or Maintenance Rep at the aircraft if there are any existing maintenance issues that may affect the cargo operations. The following areas will be checked;

- Check all lights, locks, rollers, rails and PDU's (Check for DMIs)
- Check Gil Liners for any damage
- Cleanliness. Dispose of all trash and obstructions
- All straps must be roll and stored
- Fly away kit is secured and its location. When the flight plan arrives, the LM will ensure the location is correct.
- Bulk Compartment barrier net is installed
- Bulk Door barrier net is installed
- Inspect for any possible hazards in the cargo compartment

11. INSTALL TAIL STAND/NOSE TETHER (IF AVAILABLE):

The Tail Stand or Nose Tether should be installed. The B747 normally does not require a Tail Stand or a Nose Tether. When a heavy piece of freight is being loaded without ballast fuel in the center tank, freight loading in the forward belly or nose positions as ballast then the Tail Stand or Nose Tether is required.

Caution

The Nose Tether must not be routed around or over any hydraulic or electrical lines or wires to prevent any damage.

Caution

The Tail Stand should be installed by a qualified person. The Tail Stand shall be connected properly to prevent any damage. The LM will visually ensure that the Tail Stand is connected to the aircraft.

12. GSE AND LOADING EQUIPMENT;

All Ground Support Equipment and Loading Equipment shall be inspected prior to use. All the equipment to ensure they are in serviceable condition and are placed properly around the aircraft. No equipment shall come in contact with the aircraft at any time. A minimum of 2 inches shall be kept between the equipment and the aircraft. Crew stairs must be placed in a manner which allows the aircraft to raise and lower during loading and offload operations without having the aircraft door damaged by coming in contact with the stairs.

Caution

Any service items like ladders and stands shall be placed at a safe distance to prevent the aircraft from resting on the item as the aircraft becomes lower during loading and fueling.

13. NOTIFY YIP GROUND OPERATIONS (IF REQUIRED);

Ground Operations should be notified of any changes or issues that may delay the operations or departure.

14. BRIEF LOADING SUPERVISOR AND CREW;

The Loading Supervisor and Crew shall be briefed on the loading operations. All danger areas and possible dangers shall be identified. Duties shall be designated during the briefing. The LM shall advise the loading crew of all warning signals which advise the crew that pallets will be moving and that all personnel must stay clear of the path of the pallets. If a communication (e.g. language) barrier exists, at least one loading crew member must be able to communicate between the LM and the Loading Crew. The Loading Crew will also be briefed not to operate the Master Load Control Panel while the LM is not present.

15. START LOADMASTER TRIP REPORT;

Times for your LM Trip Report should be noted.

12.2 PREPARATION FOR LOADING

1. REVIEW LOAD DATA SHEET;

Review the Load Data Sheet given to you from the ground handler or the customer. This sheet should be used to complete the load plan. Any special interest items such as;

- Hazmat
- Height Codes
- Overhangs
- Oversize
- High Value
- Live Stock
- Heavy Loads

All the above items should be taken into considerations during your load planning.

2. CONFIGURE CARGO FLOOR;

The cargo floor shall be configured for the type of ULDs being used. If standard IATA side "A" or "M" ULDs are being used, then the floor lock must be set at 125 inch intervals. If 463L pallets are being used, the floor locks must be set at 108 inch intervals. If 16Ft or 20Ft ULDs are going to be used, the transit area in front of the cargo door must have the center guides down. The retractable vertical locks on the side rails should be retracted to prevent all ULDs from jamming during loading.

3. INSPECT FREIGHT;

The LM shall inspect all the freight prior to loading it onto the aircraft. The following are conditions in which freight can be rejected if not corrected;

- Incompatible Contour
- ULD and Net not meeting the airworthiness limitation
- Leaking freight
- Soil or dirt on the ULDs
- Tilting or unstable freight
- Insufficient restraint

4. CHECK HAZMAT;

All Hazmat will be checked prior to being loaded onto the aircraft. The Shipper's Declaration information will be checked in the IATA Dangerous Goods Manual to ensure it is correct. If more than one piece of Hazmat is loaded on a ULD, the compatibility will be checked. Since items on the ULD can be loaded next to each other, a safe distance must be kept between two incompatible item (2 meters or 6 feet).The Hazmat package shall be checked for the following;

- Condition of the package (No leaks)
- Proper packaging
- Secured to the ULD (The item should not be able to move but it should not be over tightened where the package could be damaged).
- Proper orientation
- Hazard and Orientation Labels
- Proper markings

5. PALLET AUDIT;

The LM can audit several pallets if he/she feels the weights are not correct. If there is any confusion in the weight units shown on the pallet tag, the LM will weigh one pallet to verify the weight unit used.

6. COMPLETE LOADPLAN;

The loadplan will be completed on approved OP-2/2B, OP-30/30M or on approved computerized weight and balance programs.

Caution

All limitation shall be carefully watched so that no limit or restrictions are exceeded. From time to time there may be a maintenance issue that may further restrict the loading capability of a position on the aircraft. The LM will ensure all additional restrictions are not exceeded.

All information shall be included in the loadplan;

- ULD ID number
- ULD Weight
- ULD Destination
- Any remarks needed. I.e. Hazmat, overhand, etc.

7. COMPUTE W&B;

The Weight and Balance will be completed on approved OP-1/1B, CO-5, OP-31/31M or on approved computerized weight and balance programs. No limitation shall be exceeded

12.3 LOADING

1. SUPERVISE THE ONLOADING SEQUENCE;

The LM will supervise the loading of the aircraft. The normal sequence for loading is;

- Forward Hold
- Main Deck
- Aft Hold
- Bulk

Note:

The Main Deck may be loaded out of sequence. The LM will ensure that the aircraft is balanced to ensure it does not tip during loading.

2. CHECK PALLET LOADING SEQUENCE;

The LM will check the ULDs as they enter the aircraft against the loadplan and ensuring they are loaded in the planned position. The following information will be verified;

- ULD number
- Pallet Weight
- Pallet Destination

12.4 AFTER LOADING AND BEFORE TAKEOFF

1. CLOSE CARGO DOORS;

Once the loading operation is complete, the Cargo Door(s) shall be closed. Prior to closing the Cargo Doors (Lower Deck and Main Cargo Door), the door sill area will be inspected for damages. If damage is discovered the Flight Mechanic will be notified right away. Any damage discovered will be written up on the CO-10 and given to the Flight Mechanic or Maintenance Rep at the aircraft and Captain right away. Also prior to closing the Cargo Doors the sill guards must be removed or raised and all debris removed to prevent damage to the door(s). All Belly Door Barrier Nets shall be installed before closing the door. All ground support equipment must be clear of the path of the closing Cargo Door. All Cargo Door open lights must be extinguished.

2. REMOVE TAIL STAND/NOSE TETHER;

Once the loading operation is complete, the Tail Stand and Nose Tether will be removed. The area must be inspected for any possible damage

3. COMPLETE W&B;

The Weight and Balance will be completed and given to the Captain and First Officer.

4. BRIEF PIC;

The Pilot in Command will be briefed on the following freight onboard the aircraft;

- *Hazardous Materials
- Live Animals and Perishables
- Special Cargo Load

*If Hazardous Goods are onboard, the LM will complete a NOTAC as part of his/her PIC briefing. If the Dangerous Goods will be transiting other locations additional pages of the NOTAC should be made

5. CHECK CARGO RESTRAINT;

The LM will check the cargo before departure to ensure all the nets, straps and chains are tightened. Any items that are found to need additional restraint will be secured before departure. Special attention should be paid to items loaded on top of nets, pipes and small items.

6. SECURE LOOSE EQUIPMENT;

All loose items must be secured before the aircraft blocks out. The following items must be secured in the Cargo Compartment and in the Courier and Upper Deck;

- Crew Baggage
- Catering and coolers
- Tool boxes and aircraft equipment

7. ENSURE CARGO DOCUMENTATION ARE ON BOARD

All Cargo Documents must be onboard before the L1 door is closed. The following are the documents that should be onboard the aircraft;

- Cargo Manifest
- AirWay bills
- Permits to Proceed (if applicable)
- Shipper's Declarations for Dangerous Goods (Hazmat)

8. DEPARTURE DOCUMENTS ARE DISTRIBUTED;

The station copies of the flight paperwork will be left with the ground handler or station rep. If Dangerous Goods are on the aircraft, a scanned copy or photo of the NOTAC will be sent to NAL OCC. The following documents should be left behind;

- A copy of the Flight Release
- A copy of the Weight and Balance
- A copy of the Loadplan if not included on the Weight and Balance

- A copy of the NOTAC

9. OXYGEN;

Depending on where you are seated in the aircraft, your oxygen shall be checked, turned on and on 100% setting prior to departure.

10. ENTRY DOOR IS CLOSED;

Prior to closing the L1 door it should be inspected for possible damage from the crew stairs.

11. SMOKE BARRIERS, BELLY DOOR NETS AND 9G NETS CONNECTED;

Prior to closing the L1 door the LM should have checked to ensure all Smoke Barriers, Belly Door Nets and 9G Nets are connected.

12. PERFORM SECURITY WALK AROUND;

After the L1 door is closed, the LM will check for possible stowaway on the main deck including above the cargo, around the 9G net and in the E&E bay if accessible. On the Upper Deck the crew rest facility, Lavatory and open maintenance area behind of the Aft wall will be checked.

Denotes items to be completed during transit stops where freight is not on/offloaded.

12.5 AFTER TAKEOFF

1. CHECK RESTRAINT;

After takeoff (above 10,000 Ft and before 16,000 Ft) any oversize or heavy cargo that has been restrained to the aircraft floor or rails must be checked to ensure all restraints are still attached and securing the cargo. The LM will notify the crew that he/she is going down stairs and notify them once he/she has returned.

2. CHECK CARGO;

If you have Dangerous Good are onboard, it should be check to ensure there is no leaks or movement on takeoff.

12.6 INFLIGHT

1. CHECK RESTRAINT;

During flight, oversize or heavy cargo that has been restrained to the aircraft floor or rails must be checked to ensure all restraints are still attached and securing the cargo. The LM will notify the crew that he/she is going down stairs and notify them once he/she has returned. The LM will take supplemental oxygen is performing a walk around above 16,000 Ft.

2. CHECK CARGO;

If Live Stock are onboard the LM and any Handlers must take supplemental oxygen is performing a walk around above 16,000 Ft. The LM will notify the crew that he/she is going down stairs and notify them once he/she has returned

3. UPDATE LOADPLAN FOR NEXT STOP;

If the cargo onboard are transiting the next airport, the LM will update the next loadplan to reduce time at the next airport. If the LM has received the next cargo weights in advance, they should prepare the next loadplan in advance to reduce ground time at the next airport.

4. COMPLETE CREW DECLARATION (IF REQUIRED);

When re-entering the United States, each crewmember must fill out an Individual Crew Declaration. Any couriers must fill out the appropriate US Customs and Border Protection forms.

12.7 DESCENT

1. CHECK RESTRAINT;

On Descent (below 16,000 Ft) any oversize or heavy cargo that has been restrained to the aircraft floor or rails must be checked to ensure all restraints are still attached and securing the cargo. The LM will notify the crew that he/she is going down stairs and notify them once he/she has returned.

2. CHECK CARGO;

If you have Dangerous Good are onboard, it should be checked to ensure there is no leaks or movement during flight.

3. SECURE LOOSE EQUIPMENT;

Any loose equipment, baggage, catering or coolers must be secured.

4. COLLECT AND BAG ALL PERISHABLES;

Most countries will not allow dairy products, fruits, vegetables or meat from outside the country in. If the country requires these items to be disposed of then they will have to be collected and bagged for disposal. Normally transiting aircraft do not have to collect and bag these items. If the aircraft is transiting the US, everything must be disposed of.

5. COLLECT AND BAG ALL REFUSE;

All trash must be bagged. The trash from the flight deck, lavatory and galley must be bagged in a heavy duty trash bag or doubled bagged.

12.8 AFTER BLOCK-IN

1. OPEN ENTRY DOOR;

Depending on the country's requirement, the door may or may not be able to be opened until the local Customs or Immigration Officer arrives. Some countries require the aircraft to be sprayed prior to arrive or opening the doors.

Caution

The door should be kept closed until the crew stairs are in place. There is a possibility of the door being damaged while the crew stairs are being positioned to the aircraft.

WARNING

IF THE DOOR IS OPEN PRIOR TO HAVING THE STAIRS IN PLACE, THE SAFETY LANYARD OR STREAMER MUST BE PLACED ACROSS THE DOOR TO WARN CREWS OF A FALLING HAZARD.

2. OPEN CARGO DOORS;

After the aircraft is cleared by Customs & Agriculture the Cargo Doors can be opened.

WARNING

IF THE MAIN CARGO DOOR IS OPENED WITHOUT A LOADER IN PLACE AT THE MAIN DECK LEVEL, THE SAFETY NETS MUST BE INSTALLED ACROSS THE MAIN CARGO DOOR.

3. INSTALL TAIL POST/STAND/NOSE TETHER; – (IF AVAILABLE)

The Tail Stand or Nose Tether should be installed. The B747 normally does not require a Tail Stand or a Nose Tether. When a heavy piece of freight is being offloaded without ballast fuel in the center tank, freight loading in the forward belly or nose positions as ballast then the Tail Stand or Nose Tether is required.

Caution

The Nose Tether must not be routed around or over any hydraulic or electrical lines or wires to prevent any damage.

Caution

The Tail Stand should be installed by a qualified person. The Tail Stand shall be connected properly to prevent any damage. The LM will visually ensure that the Tail Stand is connected to the aircraft.

4. SUPERVISE OFFLOAD SEQUENCE;

The LM will supervise the offloading of the aircraft. The normal sequence for offloading is;

- Bulk
- Aft Hold
- Main Deck
- Forward Hold

Note:

The Main Deck may be offloaded out of sequence. The LM will ensure that the aircraft is balanced to ensure it does not tip during offloading.

Note:

The offloading supervisor and crew shall be briefed on the offloading operations. All danger areas and possible dangers shall be identified. Duties shall be designated during the briefing. The LM shall advise the offloading crew of all warning signals to advise the crew that pallets will be moving and that all personnel must stay clear of the path of the pallets. If a communication (e.g. language) barrier exists, at least one loading crew member must be able to communicate between the LM and the offloading Crew. The offloading crew will also be briefed not to operate the Master Load Control Panel while the LM is not present.

12.9 BEFORE LEAVING AIRCRAFT

The before leaving aircraft portion serves two purposes;

1. The LM has arrived with the aircraft and is closing up the aircraft after it is offloaded.
2. The LM is working as a Station Rep and is kicking out the aircraft.

1. SECURE LOOSE EQUIPMENT;

If the LM is picking out the aircraft without a LM onboard, all pallets, cargo equipment, COMAT, aircraft parts and tool boxes must be secured.

2. CARGO DOORS CLOSED;

Once the offloading operation is complete, the Cargo Doors shall be closed. Prior to closing the Cargo Doors (Lower Deck and Main Cargo Door), the door sill areas will be inspected for damages. If damage is discovered the Flight Mechanic will be notified right away. Any damage discovered will be written up on the CO-10 and given to the Flight Mechanic or Maintenance Rep at the aircraft and Captain right away. Also prior to closing the Cargo Doors the sill guards must be removed or raised and all debris removed to prevent damage to the door. All Belly Door Barrier Nets shall be installed before closing the door. All ground support equipment must be clear of the path of the closing Cargo Door. All Cargo Door open lights must be extinguished.

3. COMPLETE LM TRIP REPORT;

The LM will complete their Loadmaster Trip Report and send it to Ground Ops and NAL OCC.

4. SECURE AIRCRAFT (AS REQUIRED);

If the aircraft is being closed up due to crew rest or an extend ground time the L1 door must be secured. The Security Department will determine if seals will be required.

5. PALLET AUDIT;

Should there be a reason to suspect an overweigh on the aircraft, several pallets should be audited.

6. COMPLETE LOADPLAN;

If the aircraft is being kicked out without a LM then the loadplan should be completed. The loadplan will be completed on approved OP-2/2B, OP-30/30M or on approved computerized weight and balance programs.

Caution

All limitation shall be carefully watched so that no limit or restrictions are exceeded. From time to time there may be a maintenance issue that may further restrict the loading capability of a position on the aircraft. The LM will ensure all additional restrictions are not exceeded.

All information shall be included in the loadplan;

- ULD ID number
- ULD Weight
- ULD Destination
- Any remarks needed. I.e. Hazmat, overhand, etc.

7. COMPUTE W&B;

The Weight and Balance will be completed on approved OP-1/1B, CO-5, OP-31/31M or on approved computerized weight and balance programs. No limitation shall be exceeded

Note:

If the aircraft is being kicked out without a LM, all the other portions of the Loadmaster Checklist must be completed.

- Pre Departure
- Preparation for Loading
- Loading

- After Loading and Before Takeoff

12.10 VEHICLE INSPECTION;

The following items must be checked on all vehicles being loaded.

1. BATTERY - Secured
2. TIRE LOAD – Max. 850 lb per tire w/o the use of shoring
3. FUEL – ¼ tank maximum
4. Check for fluid leaks
5. Ensure secondary loads are secure

12.11 LIVESTOCK LOADING CHECKLIST;

The following items have to be accomplished when Livestock are being loaded

1. Inspect all stalls for airworthiness
2. Ensure stalls are properly secured to pallet (if applicable)
3. Spreader shoring used if required
4. Stall floorboards in good condition
5. Stall floor and sides lined with plastic to prevent leakage from stall
6. Absorbent materials placed in stall
7. Adequate restraint collars and tethering placed in horses and bulls
8. Ensure plastic sheeting is spread out on the aircraft floor in front of all stalls
9. Prepare 2 copies of the "Notification of Perishable/Live Animal and Request for Temperature" form
10. Inspect cargo compartment walls and floor for leakage, waste and debris

12.12 MATHEMATICAL CONVERSIONS;

The following are quick reference for math conversions.

Kg to lb Kg x 2.2046

Lb to kg Lb x 0.454

Meter to ft Meter x 3.281

Ft to meter Ft x 0.305

Centimeters to In Cm x 0.3994

Inches to cm Inches x 2.54

Cu. meter to Cu. Ft Cu. m x 35.31

Cu. ft to Cu. meter Cu. ft x 0.028

Liter to US Gallon Liter x 0.264

US Gallon to L US Gal x 3.785

Nautical to Statue Mile NM x 1.151

Statute to Nautical Mile SM x 0.869

Volume (cube) L x W x H

Area = L x W

PSI = Weight / Area

12.13 RESTRAINT CRITERIA FORMULAS;

The following is a quick reference for restraining cargo on the aircraft.

Required Restraint = $\frac{\text{Weight x Criteria}}{\text{75\% of the rated tie-down}}$

Minimum Restraint Requirements

Fwd, Aft, Lateral (All aircraft)	1.5g x Cargo Wt
Vertical (All aircraft)	2.6g x Cargo Wt
Vertical Position 18 (DC-8 only)	3.4g x Cargo Wt

2.0 Loadmaster Duties

2.1 PIC Brief (at time of accident)

4. BRIEF PIC;

The Pilot in Command will be briefed on the following freight onboard the aircraft;

- *Hazardous Materials
- Live Animals and Perishables
- Special Cargo Load

*If Hazardous Goods are onboard, the LM will complete a NOTAC as part of his/her PIC briefing. If the Dangerous Goods will be transiting other locations additional pages of the NOTAC should be made

5. CHECK CARGO RESTRAINT;

The LM will check the cargo before departure to ensure all the nets, straps and chains are tightened. Any items that are found to need additional restraint will be secured before departure. Special attention should be paid to items loaded on top of nets, pipes and small items.

6. SECURE LOOSE EQUIPMENT;

All loose items must be secured before the aircraft blocks out. The following items must be secured in the Cargo Compartment and in the Courier and Upper Deck;

- Crew Baggage
- Catering and coolers
- Tool boxes and aircraft equipment

7. ENSURE CARGO DOCUMENTATION ARE ON BOARD

All Cargo Documents must be onboard before the L1 door is closed. The following are the documents that should be onboard the aircraft;

- Cargo Manifest
- AirWay bills
- Permits to Proceed (if applicable)
- Shipper's Declarations for Dangerous Goods (Hazmat)

8. DEPARTURE DOCUMENTS ARE DISTRIBUTED;

The station copies of the flight paperwork will be left with the ground handler or station rep. If Dangerous Goods are on the aircraft, a scanned copy or photo of the NOTAC will be sent to NAL OCC. The following documents should be left behind;

- A copy of the Flight Release
- A copy of the Weight and Balance
- A copy of the Loadplan if not included on the Weight and Balance

3.0 Air Mobility Command (AMC) Cargo Flights

Chapter 8: AMC

1. MILITARY FLIGHTS (AMC)

1.1 GENERAL

As a CRAF carrier, National Airlines accepts the policies and procedures of Air Mobility Command (AMC). These policies and procedures are found in Air Force Instruction (AFI) 24-203, AMCI24-201, AMCPAM24-2V1 and AMCPAM24-2V5.

AMC procedures require all cargo and personnel doors to be operated by National Airlines personnel. AMC will provide equipment to access lower hold doors that are too high to reach from the ground.

AMC safety procedures require that an National Airlines crew member stand at the main deck cargo door and marshal the main deck loading equipment into position and away from the aircraft when done

The Loading Supervisor will actively participate in the loading process and verify that the aircraft is loaded per the load plan instructions.

1.1.1 Weights

Actual weights will be used for all military cargo.

1.2 ULDS AND RESTRAINT EQUIPMENT

Palletized cargo will be loaded onto AMC-provided pallets (type 463L, 88" X 108") and secured with AMC nets. If additional tiedown equipment is required to secure the load to the pallet, AMC shall furnish it. Supplemental tiedown will be provided for separate tiedown of heavy items such as engines or vehicles. The Loading Supervisor will supervise and inspect any supplemental tiedown added inside the aircraft.

Cargo will be palletized and restrained to military specifications, which meet National Airlines standards. The Loading Supervisor may, at his or her discretion, request additional tiedown equipment.

The Loading Supervisor may be required to sign ULD and tiedown equipment receipts. No receipt should be signed without first locating and counting the equipment being signed for.

1.3 GROUND SERVICING AND FUELING OPERATIONS

The military Concurrent Servicing Supervisor has full and final authority over all phases of ground servicing operations. The supervisor also controls access to/from the aircraft.

The military will typically not allow cargo operations and aircraft fueling at the same time. They may make exceptions for their operational reasons, but this is very rare. If concurrent fueling-loading operations are approved, the person supervising the fueling from the Cockpit (Flight Engineer's station on DC8) must be in continuous 2 way communication with the fueling personnel on the ground. This is normally accomplished with the use of headsets.

National Airlines is required to provide two communications headsets with cords for cargo aircraft. One cord should be 100 feet long and the second should be 50 feet long. These will be used by military

personnel to communicate with the flight deck during fueling operations. National Airlines maintenance is responsible for supplying the headsets/cords.

Powered cargo doors cannot be operated during fueling operations unless expressly authorized by the AMC Servicing Supervisor.

During fueling operations all crew, couriers and ground service personnel must either remain on the aircraft or must remain outside the 50-foot fuel servicing safety zone. Persons wishing to enter or leave the safety zone must report to and receive permission from the Servicing Supervisor.

1.4 SIGNATURE SERVICE, SECRET & CONFIDENTIAL CARGO, MILITARY MAIL

The purpose of Signature Service is to provide continuous responsibility for custody of the material during transit. A National Airlines representative or crew member that will accompany the Signature Service Cargo from origin to destination shall be responsible for signing for such shipments at the station of origin and obtaining the signature of an authorized military representative at the destination. This person will usually be the PIC. The signer must be a US Citizen or US National.

Cargo under any kind of Signature Service must be individually located and identified before signing the form. US Mail bags must be observed and counted as they are loaded on board the aircraft before signing the receipt. US Mail typically comes as loose bags and is bulk loaded. Multiple destinations should be carefully segregated to facilitate quick turns at downline stations.

If the flight will have a crew rest at any stop while there is Signature Service on board then aircraft security must be provided. The military will provide guards for the aircraft for crew rest stops at military bases with prior arrangement. National Airlines must provide security at crew rest stops at civilian airports. If there is any kind of Signature Service on the flight, notify Operational Control at YIP so they can make the proper requests and/or arrangements. If the Signature Service items are small and few enough to be hand carried, then request the Base Signature Service to come to the aircraft and sign for/ take custody of the items during the ground time.

If the flight is delayed, interrupted or terminated at an unscheduled point, TACC will advise the PIC on arrangements to secure and transport the Signature Service cargo to its final destination. The PIC or a designee may be required to accompany this cargo to its destination.

1.5 RESPONSIBILITY FOR CARGO

If other than at the direction of the AMC it should be necessary to offload cargo at any enroute commercial station, Operational Control will advise and coordinate with the crew as to the disposition of the cargo.

National Airlines is responsible for the movement of the cargo to its final destination. The PIC or a designee will assist TACC and Operational Control in the arrangement for handling, storage and transportation of the cargo, and shall take appropriate measures to protect such cargo from loss, theft, or damage by the elements or other causes until such time as National Airlines is relieved of responsibility by AMC.

1.6 CONTRACT OPERATIONS (FROM AMCI124-201)

AMC contract carriers will assure that air taxi service used to support their AMC contract operation at a military station is approved by the support group commander. Failure to obtain prior approval could result in payment of landing fee and delay in departure.

Standards of Operation and Safety of Flight. Civil carrier pilots will immediately submit an AF Form 457, USAF Hazard Report, to the Air Force base operations where a hazardous incident occurs, or at any other Air Force base operations facility according to AFI 91-204, Safety Investigations and Reports. This regulation further provides that any person, military or civilian, even though not involved may also submit these hazard reports (HRs). HRs may be relayed via military radio facilities when such action is determined to be necessary by the pilot.

1.6.1 Scheduling of Airlift - International.

Schedules can be formulated once HQ AMC/A34Y has awarded the mission. Schedule timing is based on user requirements and subject to terminal and/or airfield operations restrictions. Schedules agreed to between the TACC scheduling personnel and carrier will be adhered to as closely as possible. Unauthorized configuration changes at the local level constitute unauthorized contracting actions and the individuals responsible may be held pecuniary liable for any additional cost to the government.

1.6.2 Schedule changes:

Category "B" passenger and cargo missions are procured and scheduled for operation over specific routes and on specific dates. Process the following schedule changes through the TACC to HQ AMC/A34YM for action:

- Any change to the route specified by the contract or delivery order.
- All changes to scheduled departure times not mutually agreed upon by the contract carrier and TACC scheduling personnel.
- Any change in the performance date of more than 24 hours. Changes of less than 24 hours prior to performance can be mutually agreed to between the carrier and TACC scheduling personnel.

1.6.3 Route Briefing:

The contract air carrier will provide all maps, charts, let down plates, and any guidance in the FAA-approved company operations manual (or route manuals) for the route to be flown, except as provided for in the AMC contract.

At all stations having an AMC briefing capability, an unclassified route briefing will be given to AMC contract carrier crews when they request it. This briefing will include information on the existence of buffer zones and procedures to follow so as to prevent inadvertent overfly of sensitive areas.

The AMC TACC will provide, and keep current, briefing material on buffer zones/sensitive area boundaries and procedures to all carriers. Material will be limited to unclassified data and sent to the attention of the vice president for operations. The ACO will assist as necessary. Each carrier is responsible for assuring that crewmembers are properly briefed, thus assuring the minimum essential information for crews transiting civil airports not having an AMC clearance/briefing capability.

Civil augmentation aircrews will report any buffer zone incidents or alleged violations involving their aircraft to the nearest CP/AMCC at first point of landing after the incident occurs. Copies of navigation logs and in-flight HF position reports and a summary of known details will be provided to the CP/AMCC.

Classified briefings will be provided as directed by appropriate CONOPS.

1.7 LOAD PLANNING (FROM AMCPAM24-2V1)

Contractor Responsibilities. The contractor is responsible for the safe loading of the aircraft according to Federal Aviation regulations (FARS) and individual aircraft loading specifications. By contract, the government (AMC) accepts certain responsibilities relative to the safe loading.

For cargo missions onloading at a military base, the contractor's representative or a crewmember will provide the AMC traffic representative with an appropriate form showing the planned load breakdown (aircraft capability) for each trip at least 4 hours prior to departure (6 hours for wide-body aircraft). The contractor will use the local station load planning form or contractor's form. Data furnished to the AMC representative will include:

1. Trip number and date
2. Type aircraft
3. Palletized-nonpalletized
4. ACL in pounds this leg
5. ACL in pounds critical leg
6. Cube allowable main and belly
7. Compartment breakdown weight in pounds per cubic feet to assure a weight & balance center of gravity (CG) within aircraft limitations.

The government is responsible for the accuracy of the actual onload weights provided to the contractor and entered on the local station load summary or contractors form by the loading supervisor. The contractor (Captain or Loading Supervisor) is responsible for visually checking the cargo load, its security, and tie-down so Federal Aviation Administration (FAA) requirements are met.