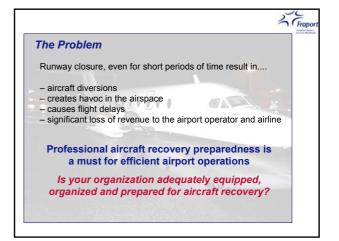


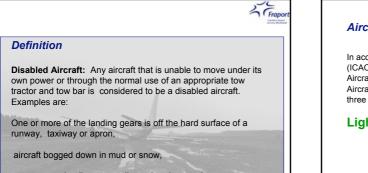


### Overview

- The Problem
- Legal Aspects
- Planning
- Fraport Aircraft Recovery Services







one or more landing gear collapsed or damaged,

and the aircraft is considered to be economically repairable.





### Described as medium Aircraft Recovery case !

Is when one or more landing gears are not or only partially extended . After lifting the aircraft, gears can be extended / locked or repaired and the aircraft can be towed on its own.





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### Category I Aircraft Recovery

### Described as light Aircraft Recovery case !

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Is when an aircraft departs the runway with one or more of its landing gears, the landing gears are fully extended and locked, and the aircraft can be towed on its own.





Is when one or more landing gears are separated from the aircraft structure, or are so heavily damaged that the aircraft cannot be towed on its own landing gears.





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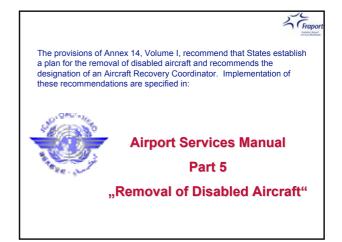
| Aircraft Reco             | overy  | Fraport |
|---------------------------|--|---------|
| Aircraft recovery levels: | y operations are generally regulated at three  |         |
| International:            | International Civil Aviation Organization (ICAO<br>- International Standards and Recommended<br>Practices, ICAO Annex 14, chapter 9.3<br>- Airport Service Manual Part 5, Removal of<br>Disabled Aircraft (Third Edition 1996) | )       |
| National:                 | National Laws & Aviation Regulations   |         |
| Local:                    | State Laws & Aviation Regulations<br>Airport User Regulations/Agreements<br>Airport Emergency Plans  |         |

### International Standards ICAO Annex 14, Chapter 9.3

9.3.1 Recommendation. – A plan for the removal of an aircraft disabled on, or adjacent to, the movement area should be established for an aerodrome, and a coordinator designated to implement the plan, when necessary.

9.3.2 Recommendation. – The disabled aircraft removal plan should be based on the characteristics of the aircraft that may normally be expected to operate at the aerodrome, and include among other things:

- a) a list of equipment and personnel on, or in the vicinity of the aerodrome which would be available for such purpose, and
- b) arrangements for the rapid receipt of aircraft recovery kits available from other aerodromes



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### Airport Services Manual, Part 5

The Airport Service Manual discusses the responsibility for removing a disabled aircraft, emphasizes the need for prearranged recovery agreements and illustrates some of the various methods employed during recovery operations. It is divided into 6 chapters:

- Chapter 1: Introduction and Responsibilities
- Chapter 2: Disabled Aircraft Removal Plan
- Chapter 3: Procedures and Techniques
- Chapter 4: Equipment
- Chapter 5: Recovery Methods
- Chapter 6: Aircraft Recovery Information

# DAR Responsibilities Dar Responsibilities Disabled aircraft removal is generally the responsibility of the registered owner or operator concerned..... The airport authority may or may not possess the knowledge or experience required to safely recover the aircraft.... In any event, if the registered owner or operator cannot recover the aircraft or can not proceed in timely manner, the airport management should have the authority to act on behalf of the aircraft owner or operator (*Refer to local Airport User Regulations and Agreements*) Bottom Line --- The Responsibility falls on both the airport authority and the aircraft owner!

### Disabled Aircraft Recovery Plan

The plan should be based on the characteristics of the aircraft that may normally be expected to operate at the airport and should include:

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- The appointment of a Local Aircraft Recovery Coordinator (LARC)
- The establishment of an DAR Team
- Define team member roles and responsibilities
- Listing of available DAR equipment
- Listing of personnel and specialist available to assist in the recovery
- Notification procedures for DAR team members and other agencies
- Listing of on-airport/off-airport resources available (contractors)
- Procedures to activate special equipment kits and teams
- Establishment of an incident command structure
- Identify airport access routes on all parts of the airport
- Include airport grid maps
- Identify means to obtain aircraft specific technical information
- Procedures to ensure incident site security

### Disabled Aircraft Recovery Plan

As recommended by ICAO Annex 14, airports should develop a disabled aircraft recovery plan......

### Purpose:

To make suitable arrangements (in advance) to ensure the prompt arrival of the appropriate recovery equipment and any experts who may be required for the removal operation.

### Goal:

Pre-coordinate all aircraft recovery activities with all involved agencies and to:

- ensure safety of all personnel working on the recovery operation,
- prevent secondary damage to the aircraft,
- keep runway closure time to a minimum.





- Coordination with local authorities

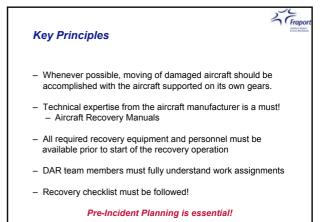
## Local Aircraft Recovery Coordinator Primary Responsibilities: Aircraft Recovery Plan Development & Coordination Organizes and equips the disabled aircraft recovery team (DART) Coordinates DAR training for DART members

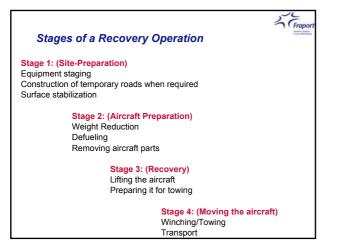
- Develops with assistance from technical experts the recovery plan
- Provides over-all incident site management and operational control over all agencies involved in the recovery effort
- Reviews and validates current operational procedures

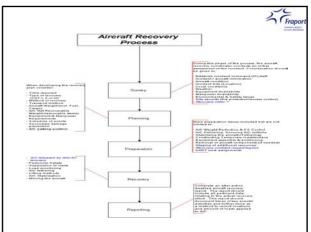
### Recovery Foreman/Supervisors

Primary Responsibilities:

- Assist with the development of recovery strategy & tactics
- Directs the on-site recovery operation
- Assigns work assignments to DART members
- Monitors recovery progress
- Implements tactical revisions to the recovery procedure when needed
- Monitors DART safety







### Fraport Aircraft Recovery Services Fast and safe recovery worldwide

- Disabled Aircraft Recovery Services Worldwide
- Emergency Line Available 24 hours a day, 365 days
- Three Levels of Support
- · Capability Assessments
- Customized Aircraft Recovery Concepts



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 Service Contracts Civilian/Military Airports





|                      | Snapsh        | ot of our Experience  | 3 Fra   |
|----------------------|---------------|---|---|
| Location             | Aircraft      | Description   | Task  |
| Khartoum - Sudan     | DC 8          | Nose landing gear broke after landing   | Recovery  |
| Frankfurt –Germany   | DC 8          | Left main gear damaged following<br>overrun   | Recovery  |
| Luxemburg            | DC 8          | All brakes blocked and tires deflated<br>upon landing. Aircraft bogged down in<br>muddy terrain | Recovery  |
| Frankfurt – Germany  | B 727         | Right main gear broke after landing.  | Recovery  |
| Leipzig – Germany    | MD 83         | Got soaked in swampy grassland during<br>taxiing  | Recovery  |
| Frankfurt – Germany  | B 747 - Cargo | All brakes blocked & wheels damaged<br>after overrun. Got stuck in muddy terrain                | Recovery  |
| Hamburg – Germany    | B 767         | Right main gear collapsed during taxiing  | Recovery  |
| Manila – Philippines | B 747         | Nose gear was totally destroyed   | Recovery  |
| Frankfurt – Germany  | MD 80         | Nose gear bent while towing   | Recovery  |
| Egelsbach – Germany  | MU 2          | Landing gears totally wrecked   | Recovery  |
| Frankfurt – Germany  | Beech 1900    | Landed without gear   | Recovery  |
| Vienna – Austria     | A 310 - 304   | Left main gear totally destroyed  | Consultation in<br>Recovery &<br>Transportation |
| Frankfurt – Germany  | B 757         | All tires punctured   | Recovery  |
| Frankfurt – Germany  | A 321         | Got stranded in muddy terrain during<br>snow storm  | Recovery  |
| Frankfurt – Germany  | A 300 - 600   | Became disabled in muddy terrain during<br>snow storm   | Recovery  |
| Speyer – Germany     | B 747 - 400   | none  | Lifted aircraft onto<br>podium for aviation     |









Airbus 340-300 Frankfurt Germany – December 2003





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B 747-200 Düsseldorf Airport – January 2005





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