HYDRAULICS, FLIGHT CONTROLS, LANDING GEAR, BRAKES

Hydraulic system
Overview
The airplane has three hydraulic systems: A, B and standby. The standby system is used if system A and/or B pressure is lost. The hydraulic systems power the following systems:

- Flight controls
- Leading edge flaps and slats
- Trailing edge flaps
- Landing gear
- Wheel brakes
- Nose wheel steering
- Thrust reversers
- Autopilots

Either A or B hydraulic system can power all flight controls with no decrease in airplane controllability.

Each hydraulic system has a fluid reservoir located in the main wheel well area. System A and B reservoirs are pressurized by bleed air. The standby system reservoir is connected to the system B reservoir for pressurization and servicing. Pressurization of all reservoirs ensures positive fluid flow to all hydraulic pumps.

Hydraulic system
Controls & indicators: Hydraulic panel

Hydraulic system
Controls & indicators: Indications (DU)
Hydraulic system

Main wheel well

**SYSTEM A & B reservoirs**

Pressure gauge

Hydraulic system

Control & indicators: Flight control panel

**HYDRAULICS, FLIGHT CONTROLS, LANDING GEAR, BRAKES**

**BOEING 737 NEXT GENERATION**

**Hydraulic system**

**Hydraulic Power Distribution**

**A & B systems**

Components powered by hydraulic systems A and B:

**System A**

- ailerons
- rudder
- elevator and elevator feel
- flight spoilers (two on each wing)
- ground spoilers
- alternate brakes
- No. 1 thrust reverser
- autopilot A
- normal nose wheel steering
- landing gear
- power transfer unit (PTU)

**System B**

- ailerons
- rudder
- elevator and elevator feel
- flight spoilers (two on each wing)
- leading edge flaps and slats
- normal brakes
- No. 2 thrust reverser
- autopilot B
- alternate nose wheel steering
- landing gear transfer unit
- ailerons
- yaw damper
- trailing edge flaps

**Flight controls**

Overview

Flight control surfaces location
Flight controls
Speed Brakes

Flight controls
LE devices & TE flaps

Landing Gear & Brakes
Nose landing gear

Landing Gear & Brakes
Main landing gear

Landing Gear & Brakes
Controls & indicators: Landing gear panel
Autobrake & antiskid controls

Landing Gear & Brakes
Indications

<table>
<thead>
<tr>
<th>LIGHT</th>
<th>INDICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTO BRAKE</td>
<td>AUTO BRAKE DISARMED</td>
</tr>
<tr>
<td>ANTI SKID</td>
<td>ANTI SKID DISARMED</td>
</tr>
</tbody>
</table>

- LANDING GEAR LIMIT (L/G):
  - OPERATING: 0-200, 300-800, 900-1200, 1300-1500, 1600-1800, 1900-2100
  - EXTENDED: 2300-2500, 2600-2800, 2900-3100

- LANDING GEAR LIGHT (L/G):
  - L/G MILITARY:
    - Green (MILITARY):
      - Gear is down and locked.
      - A sensor selects a ratio of 1.5:1, and a component must be used to ensure that the gear is disengaged with the correct warning.
  - L/G ANTI SKID:
    - Green (ANTI SKID):
      - Gear is down and locked.
      - A sensor selects a ratio of 1.5:1, and a component must be used to ensure that the gear is disengaged with the correct warning.

- ANTI SKID DISARM (L/G):
  - Gear is down and locked.
  - A sensor selects a ratio of 1.5:1, and a component must be used to ensure that the gear is disengaged with the correct warning.

- LANDING GEAR LIGHT (L/G):
  - L/G MILITARY:
    - Green (MILITARY):
      - Gear is down and locked.
      - A sensor selects a ratio of 1.5:1, and a component must be used to ensure that the gear is disengaged with the correct warning.
  - L/G ANTI SKID:
    - Green (ANTI SKID):
      - Gear is down and locked.
      - A sensor selects a ratio of 1.5:1, and a component must be used to ensure that the gear is disengaged with the correct warning.
**Landing Gear & Brakes**

**Indications**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>X</th>
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<th>X</th>
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</thead>
<tbody>
<tr>
<td>AUTOBRAKE DIAMM LIGHT (amber)</td>
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<tr>
<td>AUTOBRAKE DECELER</td>
<td>X</td>
<td>X</td>
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</tr>
<tr>
<td>AUTOBRAKE DECELER EXTENDED</td>
<td>X</td>
<td>X</td>
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</tbody>
</table>

- Brake(s) engaged (to be observed during stop-braking after take-off, landing, etc.):
  - Throttle thrust (if not selected during RTO or landing prepped during final 3 seconds after touchdown the brake(s) are engaged).
  - Landing mode with RTO selected (light illuminated after RTO selected). 2 seconds, 1 second, 0.5 second.
  - RTO mode selected on ground.
  - Brakes locked for 1 to 2 seconds then unlock gradually.

- A malfunction might affect automatic braking control.

**Landing Gear & Brakes**

**Main landing gear (photo)**

**Pushback procedures**

**WARNING:** Prior to installing the nose gear steering lockout pin, do not make any electrical or hydraulic power changes with tow bar connected. Any change to electrical power may cause momentary pressurization of the nose wheel steering actuators causing unwanted tow bar movement.

**CAUTION:** If the nose gear steering lockout pin is not installed, system A HYDRAULIC PUMPS must be placed off.