11 Lights (ATA 33)

11.1 Definition

Those units and components (electrically powered) which provide for external and internal illumination such as landing lights, taxi lights, position lights, rotating lights, ice lights, master warning lights, passenger reading and cabin dome lights, etc. Includes light fixtures, switches and wiring. Does not include warning lights for individual systems or self-illuminating signs. (**ATA 100**)

11.2 Example: Airbus A321

Detailed requirements for instruments lights, landing lights, position lights, anti-collision lights, ice-detection lights, and the emergency lighting are laid down in the certification requirements section 1381 to 1403 and section 812. Much room for varying system designs is thus not permitted. Innovation was been brought in, however, through new lighting technologies and new circuit designs to control light intensities. The Airbus A321 lighting system provides illumination inside and outside of the aircraft. The system comprises different parts.

The **cockpit lighting** consists of the following subsystems:

- general illumination of cockpit panels, instruments, and work surfaces
- integral lighting of panels and instruments
- test system for annunciator lights
- dimming system for annunciator lights.

The **cabin lighting** consists of the following subsystems:

- general illumination of cabin, galley areas, and entrances
- illumination of the lavatories
- passenger reading lights (customer option)
- cabin lighted signs
- work lights for the cabin attendants.

The **cargo and service compartment lighting** provides illumination and power outlets for maintenance purposes. The system comprises:

- service area lighting for equipment and APU compartments
- air conditioning duct and accessory compartment lights
- cargo compartment lights
- equipment compartment lights
- wheel well lighting.

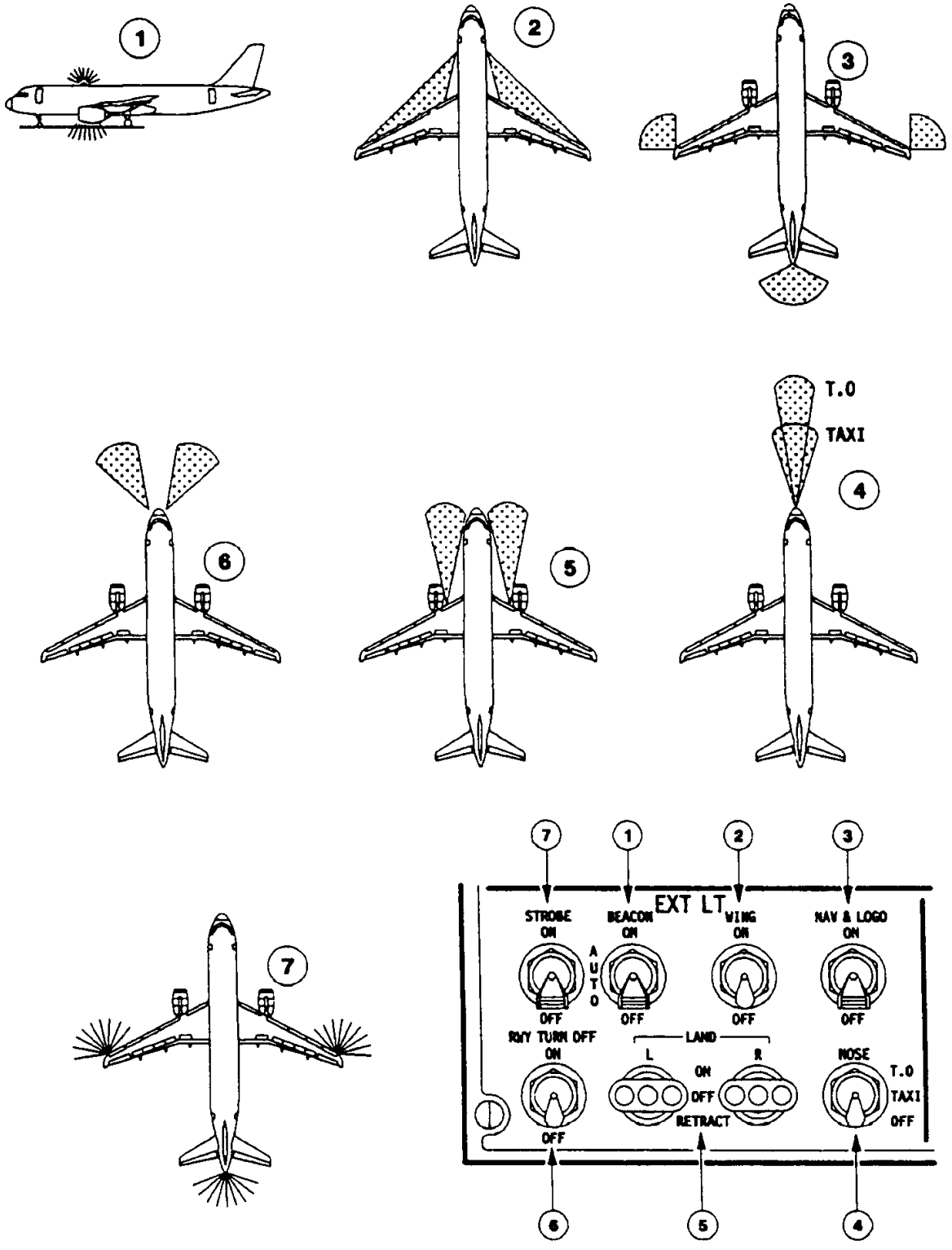

Figure 11.1 A321 external lights

The **external lighting system** illuminates the runways and/or taxiway, some aircraft surfaces, and gives an indication of the aircraft's position. The system (see Figure 11.1) consists of different lights:

- two *anticollision beacon lights* (1) which flash red installed one at the top and one at the bottom of the fuselage,
- two *wing and engine scan lights* (2) installed one at each side of the fuselage to illuminate the wing leading edge and engine air intakes to detect ice accretion,
- three *navigation lights* (3) colored red (port), green (starboard) and white (tail) installed one at the tip of each wing and one at the aft of the fuselage,
- two *logo lights* (not shown) installed in the upper surface of each horizontal stabilizer to illuminate the company logo on the vertical stabilizer, provided the main gear struts are compressed or the flaps are extended,
- one fixed-position *takeoff light* (4) (600 W) and one fixed-position *taxi light* (4) (400 W) installed on the nose landing gear,
- two retractable *landing lights* (5) (600 W) installed one under each wing,
- two fixed *runway turnoff lights* (6) installed on the nose landing gear,
- three synchronized *strobe lights* (7) one on each wing tip and one below the tail cone.

The **emergency lighting system** provides illumination with batteries independently of the aircraft power supplies in the event of a failure of the main lighting system. Illumination is provided for

- the cabin and the exit areas
- the exit location signs and the exit marking signs at all doors
- the door escape slides
- the marking system of the emergency escape path
- the lavatories.