



CHALLENGER 350

BD-100-1A10

LIGHTING

STUDY GUIDE · CARD SYSTEM

A flashcard-style reference for the CL350 ATA 33 lighting system. Cards cover flight compartment, external, emergency, cabin, and cargo lighting — learn the controls, powersources, and automatic features before your type-rating oral.

ATA 33 · LIGHTS

Section LTG · Revision: Original

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01

FIVE THINGS YOU MUST KNOW

The five highest-value facts for the oral. Memorize numbers cold.

10 min

Emergency lighting min dispatch (FCOM Intro;
14 CFR 91.511/25.812)

15 min

Emergency lighting power duration (FCOM
Components section)

2 HID

High Intensity Discharge landing light units

20 min

Cargo/service light auto-shutoff timer

4 strobes

Anti-collision strobe units (2 standard + 2
optional)

TIP Five baseline numbers: emergency-light duration, landing-light type, and the automatic shutoff timer. The cards drill each lighting subsystem in detail.



FLIGHT COMPARTMENT LIGHTING · STUDY CARDS

COCKPIT DOME LIGHT

What powers it and where is the control?

- 28 VDC Right Essential Bus
- DOME rotary switch on Co-Pilot's COCKPIT LIGHTS panel
- CB2 E14 circuit breaker protection

DOME LIGHT RANGE

What adjustment range is available?

- Continuous DIM to BRT adjustment
- LED array for soft, low-power illumination
- Overhead panel mounting

INTEGRAL LIGHTING ZONES

How many zones and what do they cover?

- Zone 1: Pilot panel + left glareshield
- Zone 2: Center pedestal
- Zones 3–4: Copilot area + CB panels

PILOT LIGHT CONTROLS

What individual controls does the pilot have?

- GSHLD/L SIDE dimming knob
- PEDESTAL illumination knob
- ANNUN DIM/BRT switch + MFD-PFD knob

COPILOT LIGHT CONTROLS

What individual controls does the copilot have?

- DOME light switch
- GSHLD/R SIDE dimming + MFD-PFD knob
- CB PANELS illumination knob

CREW READING LIGHTS

Describe the reading light features.

- Recessed in headliner, $\pm 30^\circ$ rotation
- Built-in shutter ON/OFF + continuous intensity
- Individual pilot and copilot units

SPECIALIZED COCKPIT LIGHTING · STUDY CARDS

CHART HOLDER LIGHTS

Where are they and how do they work?

- Integral to the control yokes
- Direct chart illumination
- Independent left/right operation

COCKPIT STOWAGE LIGHT

How does the stowage light activate?

- Located at center pedestal aft end
- Door-activated switch — automatic ON when door opens
- Manual control not required

FLASHLIGHTS

How many flashlights and where stored?

- 2 flashlights installed
- Holders behind pilot's and copilot's seats
- Located below CB panels

STANDBY INSTRUMENT LIGHTING

What instruments are covered?

- Standby compass, standby flight instrument, clock
- Auto-switches to Right Essential Bus
- Triggers on Left Main Bus power loss

COCKPIT LIGHTING — KEY POWER SOURCES

- Dome light → 28 VDC Right Essential Bus (CB2 E14)
- Standby instruments → auto-transfer to Right Essential Bus on L MAIN loss
- Chart lights → integral to yoke, no separate bus reference
- Stowage light → door-activated, center pedestal aft
- 2 flashlights → behind crew seats below CB panels

EMERGENCY LIGHTING SYSTEM · STUDY CARDS

EMERGENCY BATTERY DURATION

What are the battery time requirements?

- 10 minutes minimum dispatch requirement (per FCOM Introduction; basis: 14 CFR 91.511 / 25.812)
- 15 minutes of power (per FCOM Components section)
- Two independent rechargeable battery packs

EMER LTS SWITCH POSITIONS

What are the three switch positions?

- OFF — system disabled, **EMER LIGHTS OFF** (C) displayed
- ARM — auto-activates if R MAIN BUS power lost
- ON — manual activation, **EMER LIGHTS ON** (C) displayed

AUTOMATIC ACTIVATION

When does the system auto-activate?

- ARM selected AND R MAIN BUS power lost
- All interior and exterior emergency lights illuminate
- No crew action required

INTERIOR EMERGENCY LIGHTS

What interior units are installed?

- 2 ceiling emergency floodlights (per FCOM diagram)
- 2 floor-level emergency exit signs (per FCOM diagram)
- 3 emergency exit signs — 2 main cabin door + 1 exit door (per FCOM diagram; exact counts from diagram, text ambiguous)

FLOOR TRACK LIGHTING

Describe the floor emergency path lighting.

- Multiple segments of floor track lighting
- Guides passengers toward exits
- Activates with full emergency system

EXTERIOR EMERGENCY LIGHTS

What exterior emergency lighting exists?

- 3 exterior emergency lights
- Wing and fuselage area illumination
- Provides ground evacuation support

EMERGENCY LIGHTING — QUICK REFERENCE

- Two independent battery packs — rechargeable
- 10 min minimum dispatch (per FCOM Introduction; 14 CFR 91.511 / 25.812); 15 min power (per FCOM Components)
- ARM position: auto-triggers on R MAIN BUS loss — no crew action
- ON position: manual activation → **EMER LIGHTS ON** (C)
- OFF position: disabled → **EMER LIGHTS OFF** (C) with battery on
- Interior: 2 ceiling floods + 2 floor-level exit signs + 3 exit signs + floor track lighting (per FCOM diagram)
- Exterior: 3 lights for wing/fuselage and ground evacuation

NAVIGATION AND STROBE LIGHTS - STUDY CARDS

NAVIGATION LIGHTS

What are the three standard nav light colors/positions?

- Left wing tip — Red
- Right wing tip — Green
- Tail position — White

NAV LIGHT SYSTEM

How is the dual nav light system designed?

- Dual primary + secondary under same lens
- Tail: lower unit = primary, upper = secondary
- If primary fails → select NAV SEC for secondary

NAV/LOGO OPTION

What is the post-SB combined switch?

- Optional NAV/LOGO combined switch (post-SB)
- Controls navigation lights and optional logo lights (mounted on engine pylons, illuminate tail livery)
- Standard NAV switch on aircraft without option

ANTI-COLLISION STROBES

How many strobe units are installed?

- 4 strobe light units (2 standard + 2 optional)
- Wing tips and tail locations
- High-intensity white flashing — single STROBE BCN switch controls both strobes and beacons



LANDING, TAXI, AND EXTERNAL LIGHTS · STUDY CARDS

LANDING LIGHTS

Describe the landing light installation.

- 2 High Intensity Discharge (HID) units
- Wing-to-body fairing installation
- L and R LANDING switches — individual control

TAXI LIGHTS

How is taxi lighting provided?

- Combined landing/taxi light configuration
- N (Nose) position for taxi operations
- LDG/TAXI switch — nose gear only powered with gear DOWN

WING INSPECTION LIGHTS

Purpose and quantity?

- Wing inspection lights — 2 units mounted on either side of the FUSELAGE (NOT on the wing leading edge)
- Used to visually inspect the wing for ice formation. Activated via WING INSP switch.
- Primary use: ice accumulation detection

BEACON LIGHTS

Describe the beacon system.

- 2 rotating beacon units — red flashing
- Single STROBE BCN switch controls both strobes and beacons
- Ground operations warning — engine running indication

LOGO LIGHTS

Are logo lights standard?

- Optional — pylon-mounted logo lights (top rear of engine pylons), illuminate tail livery; powered from RH Aux bus
- Controlled via NAV/LOGO combined switch
- Enhances aircraft identification at night

EXTERNAL LIGHTS — SWITCH SUMMARY

- NAV → navigation lights (red/green/white)
- NAV SEC → selects secondary nav light if primary fails
- STROBE BCN → single combined switch: 4 anti-collision strobes + 2 rotating red beacons
- L/R LANDING → 2 HID landing lights (wing-to-body fairings)
- LDG/TAXI N position → taxi (nose gear lights: gear DOWN only)
- WING INSP → 2 fuselage-mounted ice inspection lights (illuminate wing surface from fuselage)

STAIR AND CABIN LIGHTING · STUDY CARDS

STAIR LIGHTS

Describe the stair lighting system.

- 7 stair light units, 4 LEDs per light
- Powered by 28 VDC Left Battery Bus
- CB3-E9 circuit protection

STAIR LIGHT CONTROL

How do stair lights turn off automatically?

- STAIR LIGHTS switch on wardrobe bulkhead
- Microswitch door interlock — auto-OFF when door closed/locked
- Switch off when not in use to prevent battery drain

CABIN LIGHTING

What types of cabin lighting are installed?

- Indirect LED overhead lighting
- Overhead PSUs with adjustable reading lights
- Individual passenger control per seat

GALLEY AND LAV LIGHTS

What type of lighting in galley/lavatory?

- Galley: fluorescent lighting
- Lavatory: indirect LED in cabin PSU
- Lavatory controlled by CABIN LIGHT switch in lav

SEAT BELTS / NO SMOKING

Describe the sign control.

- Three-position switch: OFF, BELTS, SMKG/BELTS
- Controlled via Lighting Panel switch
- Includes electronic chime



CARGO AND SERVICE COMPARTMENT LIGHTING · STUDY CARDS

CARGO LOADING LIGHT

Describe the cargo loading light.

- Forward of cargo door area
- Powered by left hot battery bus (CB5-A5 EXT BAG/AFT BAY)
- Available regardless of aircraft electrical config

EXTERNAL BAGGAGE LIGHT

Where is the PYLON LIGHT?

- Light located below left engine pylon
- Switch on forward edge of cargo compartment
- Switch marked PYLON LIGHT

CARGO BAY AUTO-SHUTOFF

How does the auto-shutoff timer work?

- 15 min normal operation, then 10-sec flash warning
- 5 min additional operation → total 20 min before shutoff
- Two quick clicks switches to immediate standby mode

SERVICE COMPARTMENT LIGHTS

Describe the aft equipment lights.

- Two service lights in aft equipment compartment
- Powered by left battery hot bus (CB5-A5)
- Push button with auto shut-off device

CARGO POWER SOURCE

What makes cargo lighting special?

- Left battery hot bus — direct battery connection
- Independent of main electrical system
- No external power required; aircraft need not be powered

CARGO/SERVICE LIGHTS — AUTO-SHUTOFF SEQUENCE

- 0–15 min: Normal continuous illumination
- 15 min: 10-second flashing warning
- 15–20 min: Normal operation resumes
- 20 min: Automatic switch to standby mode
- Two quick clicks anytime → immediate standby
- Power source: Left Battery Hot Bus (CB5-A5 EXT BAG/AFT BAY) — direct battery

SYSTEM POWER AND CIRCUIT BREAKERS - STUDY CARDS

DOME LIGHT CB

Which CB protects the dome light?

- CB2 E14 on the Right Essential Bus
- 28 VDC Right Essential Bus power source
- DOME circuit breaker label

STAIR LIGHTS CB

Which CB protects stair lights?

- CB3-E9 circuit breaker
- Powered by 28 VDC Left Battery Bus
- 7 stair light units / 4 LEDs each

CARGO/SERVICE CB

Which CB covers cargo and service lights?

- CB5-A5 (EXT BAG/AFT BAY)
- Left hot battery bus — direct battery connection
- Covers loading light and aft service lights

NAV SEC SWITCH LOCATION

Where is the NAV SEC switch?

- Located on the right secondary power center
- Selects secondary navigation light if primary fails
- Pilot selects when primary nav light unserviceable

EICAS - CAUTION

CAUTION MESSAGES

Timely crew awareness/action needed

Message	Meaning	Inhibits
EMER LIGHTS OFF	Emergency lights switch is in the OFF position (battery switch ON)	TO/LAND
EMER LIGHTS ON	Emergency lights switch is manually selected to ON	TO



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QUICK RECALL · NUMBERS GRID

Cover the labels and recite the number; reverse and recite the label.
Repeat until automatic.

10 min Emerg lighting dispatch min (FCOM Intro)	15 min Emerg lighting power duration (FCOM Components)	2 packs Indep emerg battery packs	ARM Auto-activates on R MAIN loss
2 HID Landing lights (wing fairing)	4 strobes Anti-collision (2+2 opt)	2 beacons Rotating red beacons	2 Wing inspection lights
7 units Stair lights (4 LEDs each)	L BATT BUS Stair light power source	28 VDC R ESS Dome light power source	CB2 E14 Dome light CB
CB3-E9 Stair lights CB	CB5-A5 Cargo/service lights CB	20 min Cargo auto-shutoff timer	±30° Crew reading light rotation

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