NOVAIRE



AIRCRAFT OPERATING PROCEDURES

Challenger 350

Limitations, performance, checklists and Novaire standards

YL-NVE | YL-NVF | YL-NVG

PRIVATE AVIATION · VIRTUAL

EDITION 1.1 · NOVEMBER 2026

THE AIRCRAFT

The Challenger 350.

A super-midsize business jet with transcontinental range. Three Novaire aircraft fly this type, each with its own registration and callsign.



REGISTRATIONS	CALLSIGNS	TYPICAL RANGE
YL-NVE · NVF · NVG	EIA5 · EIA6 · EIA7	~3,200 nm
RECOMMENDED RUNWAY	**TAXI LIMIT**	**CREW**
5,500 ft	30 kt	Two pilots
MAX TAKE-OFF WEIGHT	**MAX LANDING WEIGHT**	**MAX ALTITUDE**
18,416 kg	15,490 kg	45,000 ft

READING THE CHECKLIST

Each line shows the item, who acts, and the required response. Where no role is shown, the response is made by whoever is reading the checklist. Flying solo? You fill every role: read the item, then perform it.

PF	Pilot flying	**PM**	Pilot monitoring
LP	Left pilot	**RP**	Right pilot
EICAS	Engine indicating and crew alerting system	**PTU**	Power transfer unit
APU	Auxiliary power unit	**NWS**	Nosewheel steering
AUX PUMP	Auxiliary hydraulic pump	**STBY INST**	Standby instruments
ITT	Interstage turbine temperature	**ISA**	International standard atmosphere

LIMITATIONS

Know the limits.

Source codes: **EASA** type certificate data sheet. **BBD** Bombardier factsheet. **FSB** FAA Flight Standardization Board report. **DECK** user-written Challenger 350 AOM/AFM study decks on Brainscape. Full list on the last page.

ITEM	LIMIT OR REQUIREMENT	SOURCE
Weights	Max ramp 18,484 kg. MTOW 18,416 kg. MLW 15,490 kg. MZFW 12,791 kg. Minimum take-off weight 11,340 kg (Vmcg). The Challenger 300 weights are lower.	EASA, FSB, DECK
Engines	Two Honeywell HTF7350 (AS907-2-1A), 7,323 lbf (33 kN) each, flat rated to ISA+15 °C. Take-off power is limited to 5 minutes. APR is limited to 10 minutes, for one-engine-out emergencies.	BBD, EASA, DECK
Engine limits	ITT 650 °C ground start, 800 °C air start, 955 °C take-off, 950 °C maximum continuous. N2 at idle 46% minimum, 98% maximum. Oil pressure at idle 28 psi minimum. Engine motoring up to 5 minutes, then 15 minutes cooling.	DECK
Altitude	Maximum operating altitude 45,000 ft. Take-off and landing up to 10,000 ft pressure altitude. Flaps and gear may be extended up to 18,000 ft.	EASA, DECK
Speeds	VMO 300 KIAS to 8,000 ft, 320 KIAS from 8,001 to 29,475 ft, then M 0.83. Flaps 10° and 20° at 210 KIAS, flaps 30° at 175 KIAS. Gear 250 KIAS extending, 200 KIAS retracting. Tire speed 182 kt. Turbulence 265 KIAS or M 0.75.	EASA, DECK
Wind	Tailwind 10 kt. Crosswind with nosewheel steering: 28 kt take-off, 24 kt landing. Contaminated runway: 15 kt if 150 ft wide or more, 10 kt if 149 ft or less. Nosewheel steering inoperative: no take-off, landing 15 kt on dry or wet runways, no contaminated operations.	DECK
Runway	Slope -2% to +2%. Minimum width 70 ft. Minimum length 4,000 ft for release planning. Novaire guideline is 5,500 ft.	DECK
Fuel	About 6,418 kg usable (2,096 US gal). Maximum imbalance 113 kg at high fuel loads. Power and gravity transfer valves OFF for take-off. Minimum go-around fuel 454 kg.	EASA, DECK
Autopilot	Engage after take-off no lower than 700 ft AGL. Minimum use height 80 ft AGL on a precision approach of 3.5° or less, and disengage by 160 ft AGL if steeper. Visual or non-precision approach 200 ft AGL.	DECK
Reversers	Paved runways only. Not in flight, not for backing, not for touch-and-go landings. No more than idle reverse below 40 KIAS.	DECK
Approach	Category C. Use category D minima if operational requirements call for approach speeds above 140 kt. Normal final flap is 30°.	FSB, DECK
Pressurisation	Maximum differential 9.4 psi (S/N 20886 and earlier) or 10.1 psi (S/N 20887 and later). At landing 1.0 psi, on the ground 0.1 psi.	DECK

PERFORMANCE

Runway reality check.

The headline numbers are for a sea-level, standard-day airport. Altitude, heat, wetness and weight all lengthen them, and no public source gives the charts for that.

TAKE-OFF, MTOW, SL, ISA	LANDING, SL, ISA	PLANNING MINIMUM RUNWAY
4,835 ft	2,364 ft	4,000 ft

RANGE, 8 PAX, NBAA IFR	TOP SPEED	INITIAL CRUISE, MTOW
3,200 nm	M 0.83	43,000 ft

Landing distance arithmetic

CASE	DISTANCE	NOTE
Typical, from Bombardier	2,364 ft	Sea level, ISA. 721 m
With a 60% factor	3,940 ft	Only if your operating rules apply a 60% landing factor
Planning minimum	4,000 ft	Minimum runway length for release planning (study deck)
Novaire guideline	5,500 ft	Recommended runway from the Novaire fleet standard

The 60% row is simple arithmetic on the Bombardier figure. It is a planning aid, not AFM data.

Performance notes

- **Take-off distance:** 4,835 ft (1,474 m) at MTOW, sea level, ISA, before any wind, slope or surface correction.
- **Engine rating:** 7,323 lbf each, flat rated to ISA+15 °C. The FAA report notes the Honeywell Level C engine gives 7.3% more take-off thrust than the Challenger 300.
- **Steep approach:** the FAA report describes glidepaths above 4.5° up to 6.0° (5.5° for modified aircraft) as an all-engines operation with no autopilot. A study deck says above 4.5° is prohibited. Treat 4.5° as the limit unless the AFM approves otherwise.
- **Brake and weight limits:** take-off and landing weights are the lowest of certified weight, runway, brake energy, climb and obstacle limits. Brake energy limits may be exceeded on a rejected take-off or quick turn.
- **Spoilers:** minimum spoiler extension speed is Vapp +8 kt, and not below 500 ft AGL.

Source note. Take-off and landing figures come from Bombardier's own factsheet. The Challenger 350 AFM performance charts are needed for any real dispatch decision on weight, altitude, temperature or runway condition.

TEMPERATURE AND ALTITUDE

Hot and high.

No public source gives Challenger 350 take-off or landing corrections for temperature or altitude. This page shows standard-atmosphere arithmetic only: how far a day departs from ISA, and what that does to density altitude. It does not give a weight or field-length correction. Those come from the AFM charts.

Temperature to altitude correction

TEMPERATURE VS ISA	ALTITUDE CORRECTION	OAT AT SEA LEVEL	OAT AT 4,000 FT	OAT AT 8,000 FT	MEANING
ISA-30 °C	-3,560 ft	-15 °C	-23 °C	-31 °C	Cold, denser air
ISA-20 °C	-2,380 ft	-5 °C	-13 °C	-21 °C	Cold, denser air
ISA-10 °C	-1,190 ft	5 °C	-3 °C	-11 °C	Cold, denser air
ISA	0 ft	15 °C	7 °C	-1 °C	Standard day
ISA+10 °C	+1,190 ft	25 °C	17 °C	9 °C	Hot, thinner air
ISA+15 °C	+1,780 ft	30 °C	22 °C	14 °C	Engine flat-rating limit
ISA+20 °C	+2,380 ft	35 °C	27 °C	19 °C	Hot, thinner air
ISA+30 °C	+3,560 ft	45 °C	37 °C	29 °C	Hot, thinner air

Add the correction to pressure altitude to get density altitude. A hot day performs as if the airport were higher, a cold day as if it were lower. The correction is 118.8 ft per °C of deviation, and ISA is 15 °C at sea level, falling 1.98 °C per 1,000 ft. In cold air the altimeter reads high, so apply the published cold-temperature correction on approach. The take-off and landing altitude limit in the sources is 10,000 ft.

Worked example

STEP	RESULT
Airport	Pressure altitude 5,000 ft, outside air temperature 30 °C
ISA at that altitude	5.1 °C, so the day is ISA+25 °C
Density altitude	7,960 ft, about 2,960 ft above the field
Engine thrust	The engines are flat rated to ISA+15, which is 20.1 °C here. At 30 °C thrust is no longer held, so take-off performance must come from the AFM

Temperature limits found in the sources

LIMIT	VALUE	SOURCE
Engine flat rating	ISA+15 °C	BBD
Maximum outside air temperature	+50 °C at sea level, falling to +34 °C at 8,000 ft. About ISA+35 °C	DECK
FMS V-speed data	Prohibited above ISA+33 °C	DECK
Maximum bulk fuel temperature, take-off	+50 °C. Wing bulk +45 °C or more needs at least 1,270 kg fuel	DECK
Minimum operating temperature	-40 °C below 14,000 ft pressure altitude	DECK

PROCEDURES

Phase by phase.

1 Preflight

POWER ON · COCKPIT PREPARATION · BEFORE START

- Work through the checklist in order and confirm fuel required against fuel onboard
- Set and verify altimeters, then complete the departure briefing before start
- Check weights: MTOW 18,416 kg, MLW 15,490 kg, MZFW 12,791 kg. Tailwind 10 kt, crosswind 28 kt take-off and 24 kt landing

2 Start & taxi out

SWAP THE BLEEDS DURING TAXI

ENGINE START · AFTER START · BEFORE TAKEOFF

- Start engine 2 first, then engine 1. Watch ITT, 650 °C maximum on a ground start
- Check flaps and flight controls, then set the transponder with your flight ID
- Taxi below 30 kt: 20 kt on straights and 10 kt or less in turns
- Complete the takeoff briefing and confirm takeoff speeds are displayed

3 Departure & climb

AFTER TAKEOFF

- Gear up, flaps 0, then set the air conditioning and bleeds
- Stay at or below 250 kt under 10,000 ft and keep bank to 25° or less
- Take-off power is limited to 5 minutes. Engage the autopilot no lower than 700 ft AGL

4 Cruise

CRUISE

- Check fuel and altimeters, and fly a steady autopilot cruise
- Switch the seatbelt sign on early for turbulence and plan the descent early
- Stay within VMO 300 KIAS to 8,000 ft, 320 KIAS above, and M 0.83. In turbulence fly 265 KIAS or M 0.75

5 Arrival

APPROACH · BEFORE LANDING

- Set altimeters, enter approach speeds and complete the arrival briefing
- Gear down with three greens and flaps 30, stabilised by 1,000 ft AGL or go around
- Aim for a touchdown of 100 to 250 fpm
- Category C approach. Autopilot down to 80 ft AGL on a precision approach, 200 ft AGL on a visual or non-precision approach
- Reversers on paved runways only, no more than idle reverse below 40 KIAS

6 Taxi in & parking

SWAP THE BLEEDS NEAR PARKING

AFTER LANDING · SHUTDOWN · SECURING

- Probes off and flaps 0, then park at the FBO ramp or next best stand
- Never use the passenger terminal or a jetway
- Park brake on, nosewheel steering off, engines off, then complete Securing

CHALLENGER 350

Normal Procedures Checklist

POWER ON

Aircraft Logbook Review	**Complete**
Circuit Breakers	**Check**
L & R Engine	**OFF**
FLAPS Handle	**Check**
HYDRAULIC	**OFF**
LANDING GEAR Handle	**DN**
STBY INST	**On**
Batteries	**On**
ANTI-ICE	**OFF**
AIR COND / BLEED	**OFF**
NWS	**OFF**
NAV/LOGO	**NAV**
EICAS	**Review**
Electrical Power	**Establish**
CABIN DC & AC	**ON**
AUX PUMP	**Test & OFF**
L & R HYDRAULIC PUMP	**ON**
PTU	**AUTO / OFF**
PARK/EMER BRAKE	**ON**
L & R HYDRAULIC PUMP	**AUTO**
L & R WSHLD/WINDOW	**Test & OFF**

COCKPIT PREPARATION

Circuit Breakers	**Checked**
Passenger Safety	**SMKG/BELTS**
PARK/EMER BRAKE	**ON**

BEFORE START

Final Walk-Around	**Verify**	**Completed**
Plugs & Covers	**Verify**	**Stowed**
Gear Pins	**Verify**	**Stowed**
Access Panels & Doors	**Verify**	**Closed & secured**
Keys	**Verify**	**Stowed**
Fuel Quantity	**Verify**	**__Req'd, __Onboard**
Altimeters	**Verify**	**_._, [altitude]**
Trims	**Verify**	**__, 2 Centered**
PARK/EMER BRAKE	**LP**	**ON**
EICAS	**LP**	**Reviewed**
Departure Briefing	**PF**	**Completed**

ENGINE START

START ORDER		**ENGINE 2, THEN ENGINE 1**
Fuel Temperature †	**Verify**	**50 °C or lower**
Engine 2		**START**
ITT †	**Monitor**	**650 °C max**
Engine 2 at idle †	**Verify**	**N2 46% / OIL 28 PSI MIN**
Engine 1		**START**
ITT †	**Monitor**	**650 °C max**
Engine 1 at idle †	**Verify**	**N2 46% / OIL 28 PSI MIN**

AFTER START

Flaps	**Verify**	**__Indicated**
Flt Guidance Prog	**Verify**	**Completed**
Flight Controls	**LP**	**Checked**
Nosewheel Steering	**LP**	**On**
Transponder / Flight ID	**RP**	**ALT ON & [Flight ID]**
APU	**LP**	**RUN / OFF**
Takeoff Briefing	**PF**	**Completed**
BLEEDS (taxi)		**SWAP**

BEFORE TAKEOFF

WING	**Off / ON**
L & R ENG	**Off / ON**
Takeoff Speeds	**Displayed**
Flaps	**__ Indicated**
Configuration	**Checked**
EICAS	**Reviewed**

AFTER TAKEOFF

Landing Gear	**Up**
Flaps	**0**
AIR COND / BLEED	**Set**
APU	**OFF / RUN**

CRUISE

Fuel	**Checked**
Altimeters	**Checked**

APPROACH

Altimeters	**Verify**	**__._, Set 3 times**
Approach Speeds	**PM**	**Entered**
Arrival and Approach Briefing	**PF**	**Completed**

CHALLENGER 350

Normal Procedures Checklist

BEFORE LANDING

Landing Gear	**Verify**	**3 green**
Flaps	**Verify**	**30 indicated**

AFTER LANDING

L & R PROBES	**OFF**
Flaps	**0**
BLEEDS (near parking)	**SWAP**

SHUTDOWN WITH APU

PARK/EMER BRAKE	**LP**	**ON**
Nosewheel Steering	**LP**	**OFF**
L & R ENGINE	**LP**	**OFF**

SECURING

Wheel Chocks	**Installed**
PARK/EMER BRAKE	**Disengaged**
AIR SOURCE	**OFF**
L & R HYDRAULIC PUMP	**OFF**
PTU	**OFF**
AUX PUMP	**OFF**
CABIN DC PWR	**OFF**
CABIN AC PWR	**OFF**
APU	**OFF**
LIGHTING	**OFF**
EMER LTS	**OFF**
STBY INST	**OFF**
Batteries	**OFF**

NOVAIRE ADDITION

Shaded rows are Novaire additions to the normal procedure.
Items marked LP, RP, PF or PM are made by that crew member.
† marks a limit from a public study deck. Confirm it in the AOM.

NOVAIRE STANDARD

Swap the bleeds.

1 On taxi-out

Swap the bleeds during taxi, after After Start and before you reach the runway.

2 Near parking

Swap the bleeds again during taxi-in, before shutdown at the FBO or stand.

NOVAIRE STANDARD

Start 2, then 1.

1 Engine 2 first

Start engine 2 and let it stabilise at idle.
N2 46% and oil 28 psi minimum †.

2 Then engine 1

Start engine 1 once engine 2 is stable.
ITT 650 °C maximum on a ground start †.

At a glance.

ENGINE START

Start engine 2 first, then engine 1.

BLEEDS

Swap the bleeds on taxi-out and again near parking.

TAXI

30 kt limit. 20 kt on straights, 10 kt in turns.

LANDING

Gear down with three greens. Flaps 30 indicated.

APPROACH

Category C. Stabilised by 1,000 ft AGL. Touchdown 100 to 250 fpm.

BRIEFINGS

Departure, takeoff, then arrival and approach.

WEIGHTS

MTOW 18,416 kg. MLW 15,490 kg. MZFW 12,791 kg. Ceiling 45,000 ft.

WINDS

Tailwind 10 kt. Crosswind 28 kt take-off, 24 kt landing.

SPEEDS

VMO 300 / 320 KIAS, M 0.83. Flaps 210 / 175 KIAS. Gear 250 KIAS.

SHUTDOWN

Park brake on, NWS off, engines off, then Securing.

SOURCES AND NOTES

EASA: Type Certificate Data Sheet EASA.IM.A.080, Issue 11 (BD-100-1A10, Challenger 350 from S/N 20501). Weights, speeds, fuel. Crosswind, tailwind, slope and temperature are left to the AFM.

BBD: Bombardier Challenger 350 factsheet. Thrust, take-off and landing distance, range, ceiling.

FSB: FAA Flight Standardization Board Report, BD-100-1A10 Rev 6 draft. Approach category, final flap, steep approach.

DECK: Brainscape "CL350 AOM Limitations (Need to Know) Rev0124" and "CL350 AFM Limitations (Nice to Know) Rev0124". User-written, and some entries look like typos. Used for wind, runway, autopilot, reverser, engine and temperature limits.

Weights and fuel were converted from pounds to kilograms where a source used pounds. The engine start order of 2 then 1 is the Novaire standard supplied by the operator, not taken from the FCOM. Virtual operation only.

NOVAIRE

Fly smoothly. Arrive impeccably.