

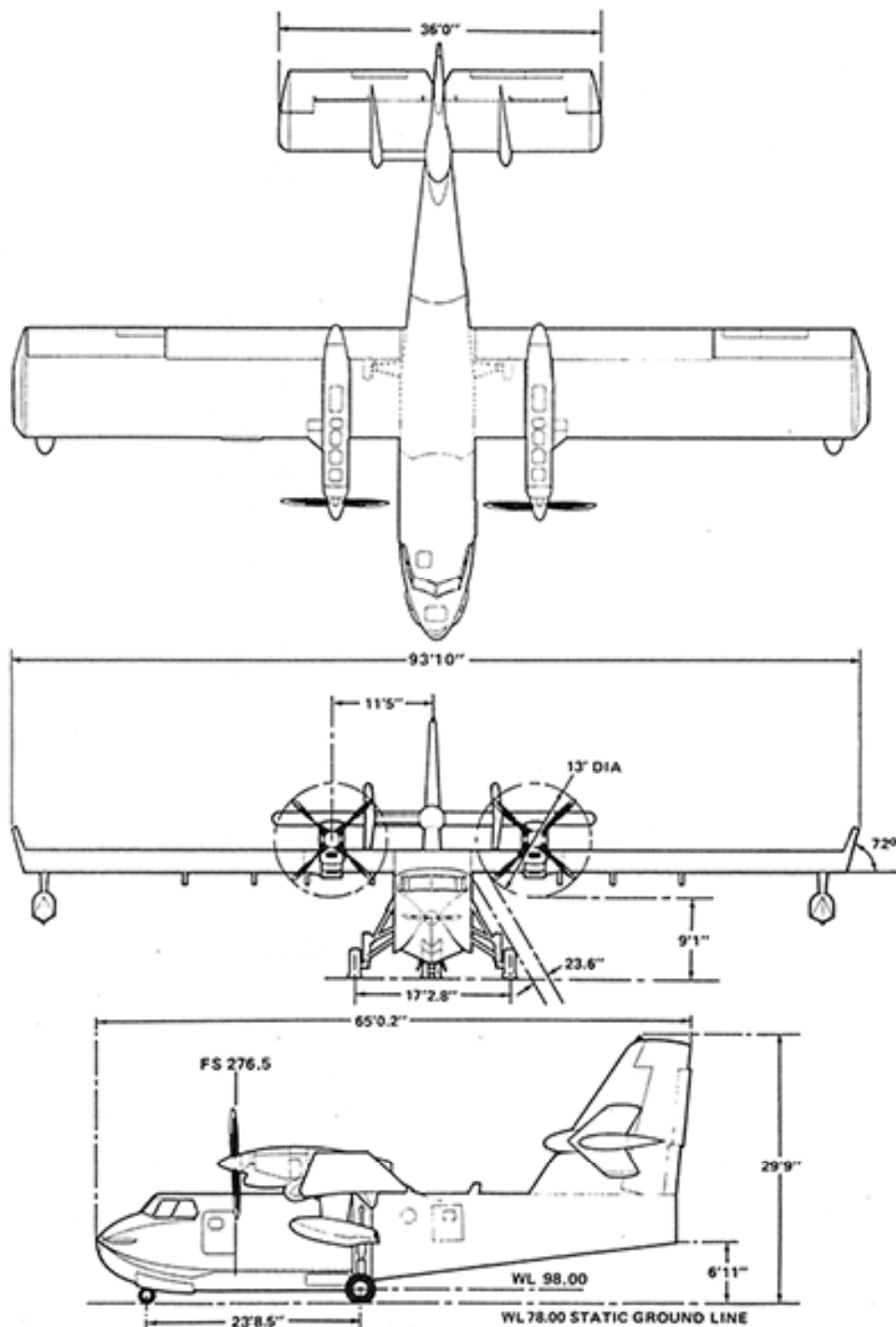


# BOMBARDIER 415

by Cristiano Maggi, Sergio Santagada, Massimo Durando.

## Pilot Operations Handbook

For use with X-Plane Flight Simulator only.



## General Information Bombardier 415

### Engines

Two Pratt & Whitney PW123AF.

Dual centrifugal compressors, free turbine turboprop, reverse flow anular combustion can.  
2380 ESHP up to 35°C, sea level.

### Dimensions

Wings Span	93 ft 11 in.	28.6 m
Overall Length	65 ft 0.5 in.	19.82 m
Overall Height (on land)	29 ft 5.5 in.	8.98 m
Cabin Length	30 ft 9.5 in.	9.38 m
Max. Cabin Height	6 ft 3.0 in.	1.9 m
Max. Cabin Width	7 ft 10 in.	2.39 m

### Weights

Operating Weight Empty	28 400 lb	12 882 kg
Max. Take-off Weight (land)	43 850 lb	19 890 kg
Max. Prescooping Weight	36 200 lb	16 420 kg
Max. Afterscooping Weight	47 000 lb	21 319 kg
Max. Disposable Payload	13 500 lb	6 123 kg
Max. Non-disposable Payload	8 328 lb	3 777 kg
Max. Fuel Load	10 250 lb	4 649 kg
Design Limit Load Factor		+3.25 g to -1.0 g

### Performance

Max. Cruise Speed @ 10 000 ft	203 kt. TAS	375 km/h
Firefighting Circuit Speed (avg.)	150 kt.	278 km/h
Typical Drop Speed	105 kt.	195 km/h
Stalling Speed	68 kt.	126 km/h
Take-off Distance		
Land	2 670 ft	814 m
Water	2 770 ft	844 m
Accelerate-Stop - Land	3 450 ft	1 052 m
Landing Distance		
Land	2 180 ft	664 m
Water	2 210 ft	674 m
Scooping distance (including safe clearance height)	4 400 ft	1 341 m
Rate of Climb @ 47 000 lb.	1 300 ft/min.	6.6 m/s
Ferry Range	1 310 n.mi.	2 427 km
Fuell Consumption (average)	185 l.Gal/hr 222 U.S.Gal/hr	840 l/hr



# OPERATING THE PLANE

(For X-Plane only, slightly differs from real plane due to limitations of the simulator)

## Cold Start Procedure

- |     |   |                            |
|-----|---|----------------------------|
| 1.  | Parking Brake   | SET                        |
| 2.  | POWER levers  | FLIGHT IDLE or GROUND IDLE |
| 3.  | LDG GEAR indicators   | CHECK                      |
| 4.  | Flaps   | UP                         |
| 5.  | Condition (PROP) levers   | FUEL OFF                   |
| 6.  | Battery ON  |                            |
| 7.  | Avionics  | ON                         |
| 8.  | Transponder   | STANDBY                    |
| 9.  | ANTI-COLLISION switch   | ON                         |
| 10. | Engine and Propeller Area   | CLEAR                      |
| 11. | POWER levers  | FLIGHT IDLE or GROUND IDLE |
| 12. | Right IGNITION  | ON                         |
| 13. | Fuel control, RH PUMP   | ON                         |
| 14. | Right Engine Start Switch   | PRESS AND KEEP             |
| 15. | Right NH  | MONITOR until >10%         |
| 16. | Right Engine Start Switch   | RELEASE                    |
| 17. | Right Condition (PROP) Lever  | START & FEATHER            |
|     | If ambient temp between 0° and -40°C:   |                            |
| 18. | Right Condition (PROP) Lever  | MIN                        |
| 19. | Engine indications  | MONITOR                    |
|     | If no light-up within 10 secs, return condition lever to FUEL OFF and put PUMP switch to OFF. |                            |
| 20. | FUEL PRESS and OIL PRESS lights   | OUT                        |
| 21. | Right GENERATOR   | ON                         |
| 22. | Repeat steps 12. thru 20. to start left engine.   |                            |
| 23. | Left GENERATOR  | ON                         |
| 24. | All ANNUNCIATORS  | OUT                        |
| 25. | IGNITION, Left and Right  | OFF                        |
| 26. | INVERTER, Left and Right  | ON                         |

## Taxi Check

- |    |                         |                             |
|----|-------------------------|-----------------------------|
| 1. | Nav Lights              | ON                          |
| 2. | Taxi Lights             | ON                          |
| 3. | Condition (PROP) Levers | MAX                         |
| 4. | Parking Brake           | OFF                         |
| 5. | Taxi To Assigned Runway | Avoid excessive taxi speeds |
| 6. | Autofeather system      | Test                        |



## Take-off Check

- |    |                         |           |
|----|-------------------------|-----------|
| 1. | Parking Brake           | SET       |
| 2. | FUEL quantity           | CHECK     |
| 3. | PROP CONTROL            | UNFEATHER |
| 4. | Flight instruments      | Check/Set |
| 5. | FLAP Lever              | 10°       |
| 6. | Condition (PROP) Levers | MAX       |

On the runway:

- |     |                            |             |
|-----|----------------------------|-------------|
| 7.  | Engine parameters          | CHECK       |
| 8.  | Landing Lights             | ON          |
| 9.  | ICE PROTECTION switches    | As required |
| 10. | Transponder                | Set/On      |
| 11. | IGNITION, L and R switches | As required |

### AFTER TAKE-OFF

- |    |              |            |
|----|--------------|------------|
| 1. | Landing Gear | UP         |
| 2. | Airspeed     | Accelerate |
- At a safe height:
- |    |                            |                    |
|----|----------------------------|--------------------|
| 3. | FLAP Lever                 | UP                 |
| 4. | POWER Levers               | Maximum continuous |
| 3. | PROP CONTROL               | OFF                |
| 5. | LIGHTS, LDG and TAXI       | OFF                |
| 6. | IGNITION, L and R switches | As required        |
| 7. | ICE PROTECTION switches    | As required        |

## In Range Check

- |    |                            |             |
|----|----------------------------|-------------|
| 1. | ICE PROTECTION switches    | As required |
| 2. | FUEL quantity              | CHECK       |
| 3. | IGNITION, L and R switches | As required |
| 4. | PROP CONTROL               | UNFEATHER   |
| 5. | Altimeter                  | Set         |
| 6. | FLAP Lever                 | 10°         |
| 4. | POWER Levers               | As required |

## Pre-Landing Check

- |    |                         |      |
|----|-------------------------|------|
| 1. | Landing Gear            | DOWN |
| 2. | LIGHTS, LDG and TAXI    | ON   |
| 3. | Condition (PROP) Levers | MAX  |
| 4. | FLAP Lever              | 25°  |
| 5. | Airspeed                | Vref |



## Post-Landing Check

- |    |                           |         |
|----|---------------------------|---------|
| 1. | FLAP Lever                | UP      |
| 2. | Transponder               | STANDBY |
| 3. | LDG LIGHTS                | OFF     |
| 4. | IGNITION L and R switches | OFF     |
| 5. | ICE PROTECTION switches   | OFF     |
| 6. | PROP CONTROL              | OFF     |
| 7. | Trim controls             | Neutral |

## Engine Shutdown

- |    |                         |                                  |
|----|-------------------------|----------------------------------|
| 1. | Parking Brake           | As required                      |
| 2. | TAXI LIGHTS switch      | OFF                              |
| 3. | POWER Levers            | GROUND IDLE                      |
| 4. | Condition (PROP) Levers | START & FEATHER<br>one at a time |

After 30 seconds:

- |     |                              |          |
|-----|------------------------------|----------|
| 5.  | Right GENERATOR              | OFF      |
| 6.  | Right Condition (PROP) Lever | FUEL OFF |
| 7.  | Left GENERATOR               | OFF      |
| 8.  | Left Condition (PROP) Lever  | FUEL OFF |
| 9.  | Fuel control, LH and RH PUMP | OFF      |
| 10. | ANTI-COLLISION switch        | OFF      |
| 11. | INVERTERS                    | OFF      |
| 12. | Battery                      | OFF      |

AIRSPEED LIMITS- IAS KTS	
VMO (MAX OPERATING).....	187
VFE (FLAPS 10° or 15° ).....	138
VFE (FLAPS 25°).....	119
VA (MANOEUVRING)	
AT 26,000 LBS.....	107
AT 47,000 LBS.....	150
VLO (L/G OPERATING ).....	129
VLE (L/G EXTENDING ).....	129
YMCA (MIN CONTROL -AIR)....	84
VWD (WATER DOOR OPEN-AIR)	129
VWP (PROBE EXTEND WATER).	90

## WATER SCOOPING / BOMBING

### Water Scooping

- |    |                           |             |
|----|---------------------------|-------------|
| 1. | TAXI LIGHT switch         | ON          |
| 2. | IGNITION L and R switches | As required |
| 3. | Elevator trim             | 0           |
| 4. | PROP CONTROL              | UNFEATHER   |
| 5. | FLAP Lever                | 15°         |
| 6. | PROBE UP/DOWN switch      | DOWN        |
| 7. | Condition (PROP) Levers   | MAX         |

After an overflight at 1,000 ft to check if the water surface is free from floating obstacles that can be of danger for the aircraft, carry out normal touchdown at 75/80 KIAS, keeping 5° positive pitch. When probes touch water slightly apply power to maintain 80 KIAS, maintain 5° positive pitch trying to dip the aircraft as little as possible.

When water level reaches bug levels.

- |    |                      |                    |
|----|----------------------|--------------------|
| 8. | PROBE UP/DOWN switch | UP                 |
| 9. | POWER Levers         | Maximum continuous |
- Carry out normal take-off.

### Water Bombing

- |    |                           |                              |
|----|---------------------------|------------------------------|
| 1. | AMBER STROBE LIGHT        | ON                           |
| 2. | IGNITION L and R switches | As required                  |
| 3. | PROP CONTROL              | UNFEATHER                    |
| 4. | FLAP Lever                | 15°                          |
| 5. | Condition (PROP) Levers   | MAX                          |
| 6. | Airspeed                  | Max 129 KIAS<br>Min 101 KIAS |
| 7. | DROP WATER switch         | Press                        |

For any further information or curiosity on the real aircraft:

[www.superscooper.com](http://www.superscooper.com)

For any further information or curiosity on the X-Plane aircraft:

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# COCKPIT IDENTIFICATION



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