Twin Otter

VERSATILITY THAT WORKS
Versatility and reliability on water, snow, tundra or tarmac.
The best selling 19 seat regional aircraft of all time, the Viking de Havilland Twin Otter has proven itself to be a robust and reliable multi-purpose aircraft, capable of operating in extreme conditions due to its rugged construction and STOL performance.
With the simplicity of an equalized maintenance program, the dependability of Pratt & Whitney PT6a-34 engines, and a proven design, the Series 400 Twin Otter ensures reliability in remote unimproved airfields and varied operating environments.

Available as standard landplane or optional straight or amphibious floats, wheel skis, or intermediate flotation gear ("Tundra Tires"), with multiple quick change interior configurations available, the Twin Otter Series 400 is a versatile aircraft that can be utilized for operations from sub-arctic research to tropical military and government operations, regional commuters and private RV use.
Product Information

**GENERAL INFORMATION:**
- Max. Takeoff Weight: 12,500 lbs. (5,670 kg.)
- Max. Landing Weight: 12,300 lbs. (5,579 kg.)
- Number of Crew: 1 or 2
- Number of Passengers: 19
- Fuel Capacities:
  - Total - 378 US Gallons (1,432 litres)
  - Optional Long Range - 89 US Gallons (336 litres)

**CABIN DIMENSIONS:**
- Cabin Length: 18 ft. 5 in. (5.61 m)
- Cabin Height: 4 ft. 11 in. (1.50 m)
- Cabin Width: 5 ft. 9 in. (1.75 m)
- Cabin Volume (usable): 384 cu. ft. (10.87 cu. m)
- Cabin Doors (leftside):
  - 50 in. X 56 in. (1.27 m x 1.42 m)
- Cabin Door (right side):
  - 30 in. X 45.5 in. (.76 m x 1.16 m)

**ENGINES:**
- Two, Pratt & Whitney Aircraft of Canada Limited, PT6A-34, single stage, free-turbine engines.

**AIRFRAME:**
- Configuration and Construction:
  - All metal, nonpressurized, high-wing monoplane with fixed tricycle (steerable nose) landing gear.

**PROPELLERS:**
- Two Hartzell HC-B3TN three bladed reversible pitch, constant speed, fully feathering propellers.

**STANDARD AIRCRAFT BASIC WEIGHT:**
- 7,100 lbs. (3,221 kg.)
PERFORMANCE SUMMARY:

STOL Takeoff and Landing Distance
Takeoff distance to 50 ft.: 1,200 ft. (366 m)
Landing distance from 50 ft.: 1,050 ft (320 m)

Maximum Cruise Speeds, TAS
Sea Level: 170 kt
5,000 ft.: 181 kt
10,000 ft.: 182 kt

Enroute Rate of Climb at Sea Level
(both engines at max. climb power): 1,600 ft./min

Service Ceiling (Rate of climb 100 ft/min)
(both engines at max. climb power): 25,000 ft. (7,620 m)

Fuel Burn at Economy Cruise
146 KTAS at 10,000 ft.: 468.2 lbs/hour (0.311 nm/lb of fuel)

Payload Range—at max cruise speed
Payload for 100 nautical mile (185 km) range: 4,061 lbs. (1,842 kg.)
Payload for 400 nautical mile (741 km) range: 3,031 lbs. (1,375 kg.)

Maximum Range (Zero Payload)
With standard tankage (2,576 lbs. (1,169 kg.) fuel): 799 nm (1,480 km)
With long range tankage (3,190 lbs. (1,447 kg.) fuel): 989 nm (1,832 km)

Maximum Endurance
With standard tankage (2,590 lbs. (1,175 kg.) fuel): 6.94 hrs.
With long range tankage (3,190 lbs. (1,447 kg.) fuel): 8.76 hrs.

NOTE: All data is approximate and subject to change without notice.
Standard Equipment

AIRFRAME
- Airstair Door
- Cargo Door
- 19 Seat Commuter Interior
- Rear Baggage Compartment
- Forward Baggage Compartment
- Corrosion Prevention Primer

POWER PLANT
- PT6A-34 Engines
- Hartzell Three Blade Propeller

ENGINE FIRE DETECTION
- Fire Detecting
- Fire Extinguishing

VENTILATION
- Heating System
- Temperature Control System
- Cabin Gasper Vents
- Passenger Gasper Vents

ELECTRICAL
- 28 Volt DC Main
- Battery External
- Power No AC
- Electrical

GROUND HANDLING
- Towing Provisions
- Jacking Provisions
- Hoisting Provisions
- Tie-Down Provisions
- Leveling Provisions

PNEUMATIC SYSTEM
- Bleed Air System
- Low Pressure Pneumatic System

FUEL SYSTEM
- Two Fuel Filling Positions,
- Nine Tanks
- Fuel Pumps
- Digital Fuel Quantity
- Indicating System
- Fuel Low Level Warning
- Boost Pump Low Pressure Warning
- Fuel Flow Indication
- Fuel Heater
- Fuel Control Unit Purge Valve
- Additional Water Drain Valves
- Fuel Cross Feed Indicating System

INSTRUMENTS
- L3 ESiS with independent battery backup

LANDING GEAR
- Fixed Wheel Gear
- Cleveland Wheel Brakes

LIGHTING
- Flight Compartment LED Lights
- Passenger Compartment LED Lights
- Cargo and Service Compartment Lights
- Taxi Lights
- LED Position Lights
- Anti Collision Lights
- LED Landing Lights
- Wing Inspection Lights
- Pulsing Landing Light System

HYDRAULIC SYSTEM
- Wing Flaps
- Wheel Brakes
- Nose Steering Mechanism

STANDARD AVIONICS
- Honeywell Primus Apex®
- Integrated Avionics System
- Left and Right Primary Flight Displays with Controllers
- Situational Awareness Display Systems Status Display with ECAS
- Multifunction Controller
- Flight Guidance Controller
- Integrated Aural Warning System with Spoken Alerts
- Reversion and Display Dimming Control Panel
- Dual Channel ADAHRS
- Dual Audio Panels
- Dual Multimode Digital Radios, with VHF Comm, VHF Nav, ADF, and Glidescope
- Dual GPS with SBAS Capability
- Dual DME
- Dual Mode S EHS Transponders with ADS-B Out Capability
- Radar Altimeter
- Class A Terrain Warning
  (Honeywell MK VI EGPWS)
- TCAS I Traffic Advisory System
- Honeywell RDR 2000 Weather Radar
- Crew Intercom
- Dual David Clark Noise Cancelling Headsets
- Jacks for Third (Observer) Headset at Flight Compartment
- Cabin Public Address System
- 406 Mhz ELT with Latitude and Longitude Transmission
- L3 Electronic Integrated Standby Instrument System
- Thommen Chronometer
- Eye Height Reference Device
- Integrated Central Maintenance Computer Function
- 4 Channel CVR
- Dual 12 Volt Convenience Outlets in Flight Compartment
- Flight Director (delayed introduction, available 2015)

STANDARD 19 SEAT CONFIGURATION

Photos from top to bottom: Rear access combination airstair and cargo door. Retractable roof access steps for ease of maintenance. Nose baggage compartment with avionics bay covers in place.
Optional Equipment

AIRFRAME
- External Paint
- Bubble Windows
- Cockpit Sunvisor System
- Air Operable Door
- Forward Cargo Door and Boarding Ladder
- External Break-in Markings
- 2nd Language Internal Markings
- 2nd Language External Markings
- Third Rail Seat Tracks

ALTERNATE LANDING GEAR
- Wipline 13000 Straight and/or Amphibious Floats
- Intermediate Floatation
- Landing Gear
- Wheel-Ski Installation

FLOAT OPERATIONS
- Float/Amphib Installation
- &Airframe Mod Kit
- Prop Pitch Latches
- Stainless Steel Flight Control Cables
- Marine Radio

FUEL SYSTEM
- Long Range Wing Tip Tanks
- Extended Range Internal Fuel Tank

EQUIPMENT / FURNISHINGS
- VIP Interiors
- Thirteen Seat Utility Interior
- Camera Provisions
- Lavatory Installation
- Galley Installation
- Stretcher / Litter Racking
- Leather Seat Covers
- Coin Mat Flooring

ICE AND RAIN PROTECTION
- Full Airframe De-ice Package
- Propeller De-icing
- Heated Windshields

AIR CONDITIONING
- Air Conditioner

ELECTRICAL
- Cabin Emergency Lighting System
- 28V DC Plug-Ins, Rear Cabin

OXYGEN SYSTEM
- Crew Oxygen System
- Passenger Oxygen System

MISSIONIZATION
- See Guardian 400 section for details

OPTIONAL AVIONICS
- 256 word per second FDR
- Second ADF receiver
- Second Radar Altimeter
- Third VHF
- Third VOR/ILS
- TCAS II (upgrade from TCAS I)
- Electronic Checklists
- Display of Jeppesen Terminal Charts
- HF Radio
- Convenience Outlets in Passenger Cabin
- Third Crewmember (Loadmaster or Cabin Attendant) Intercom Station
- Passenger Intercom Stations

FUTURE OPTIONS
- 3 Axis Autopilot
- AOA Indicator
- Honeywell RAAS (Runway Awareness and Advisory System)
- Coupled LNAV and VNAV
- LPV Approach Capability
- Honeywell Smart View (Synthetic Vision)
- Remote Video Input to Multifunction Display

Photo above on left: Series 400 flight compartment featuring Honeywell Primus Apex® fully integrated avionics suite.
Photos on right from top to bottom: Air conditioning unit located in rear baggage compartment. 19 passenger interior with leather upholstery upgrade. Aft baggage compartment with automatic load light. Quick access cowl design for ease of maintenance on Pratt & Whitney PT6A-34 turbine engine and Hartzell 3-blade propeller.
Optional Interiors

The Twin Otter Series 400 features multiple interior configurations that are easily interchangeable with optional 3rd seat rail installation.

**VIP CONFIGURATION**
- Double VIP Club
- 2 Standard Seats
- Slim Line Cabinets
- Aft Lavatory

**EXECUTIVE CONFIGURATION**
- 7 Forward Facing VIP Seats
- 3 Standard Seats
- Galley
- Forward Lavatory

**CORPORATE SHUTTLE CONFIGURATION**
- Single VIP Club
- 10 Standard Seats
- Slim Line Cabinets

**MEDICAL EVACUATION CONFIGURATION**
- 1 or 2 Single Stretchers
- 8 Standard Seats
...the Canadian made Series 400 can operate from dock to doorstep on straight or amphibious floats, moving passengers and cargo from land-based airports and remote waterfront locations.
Float Operations

The Twin Otter is renowned for its ability to perform in a multitude of environments, providing operators with versatility in a single platform. When equipped with seaplane or amphibious floats, the Twin Otter can reach remote waterfront destinations while still exhibiting STOL (Short Take Off & Landing) capabilities. The unique design of the retractable landing gear in the amphibious floats allows the Twin Otter flexibility from both land and water based operations in a single flight plan.

Wipline 13000 floats feature fluted hull design with deadrise bottoms and extra buoyancy to provide superior handling in high seas and wind, while the flat wide top decks and built-in steps make boarding safe for crew and passengers. To further improve safety, the floats are designed and installed so an emergency no-flap landing is not only possible but uneventful.

The Twin Otter configured with Wipline floats has been proven worldwide, from the lakes and coastline of the Canadian north to the open water conditions of the Maldives archipelago, and is the aircraft of choice for operations requiring water access.

**WEIGHT**

- Amphibian System Total Weight: 971 kg. / 2,141 lbs.
- Amphibian Exchange Weight: 676 kg. / 1,490 lbs.
- Seaplane System Total Weight: 659 kg. / 1,452 lbs.
- Seaplane Exchange Weight: 385 kg. / 849 lbs.
- Gross Weight: 5,670 kg. / 12,500 lbs.

**FLOAT DIMENSIONS**

- Length: 9.88 m / 32'5"
- Height - hull: 1.14 m / 3'9"
- Width - hull: 1.3 m / 4'3"
- Float Locker capacity (each): 22.7 kg. / 50 lbs.

**DISPLACEMENT ON FRESH WATER**

- Amphibious (100%): 5,644 kg. / 12,442 lbs.
- Amphibious (80%): 6,270 kg. / 13,824 lbs.
- Seaplane (100%): 5,826 kg. / 12,844 lbs.
- Seaplane (80%): 6,473 kg. / 14,271 lbs.

**PERFORMANCE**

- Engine PT6A-34
- Takeoff run (land): 406 m / 1,333 ft.
- Takeoff over 50 ft obstacle (land): 562 m / 1,843 ft.
- Takeoff run (water): 374 m / 1,227 ft.
- Takeoff over 50 ft obstacle (water): 599 m / 1,965 ft.
- Rate of climb (per min): 427 m / 1,400 ft.
ON TARGET FOR ANY MISSION...

... the Canadian made Guardian 400 can operate in the world’s harshest environments with minimal maintenance on skis, wheels, or floats, making it the obvious choice for coastal surveillance, search and rescue, and critical infrastructure support.
The Guardian 400 is the cost effective solution for twenty first century surveillance, sovereignty and SAR (Search & Rescue) due to its low acquisition/operating costs and flexible architecture, allowing the user to mix and match sensors and interior layouts to meet their specific mission profiles.

A medium range maritime patrol and critical infrastructure platform based on the Twin Otter Series 400 aircraft, the Guardian 400 has a modern sensor package allowing for flexibility and versatility. The aircraft can be outfitted with an electro-optical and infrared imaging turret, 360 degree digital colour radar system, extended range internal patrol tank, four crew observation stations, air operable cargo door, searchlight, galley, and lavatory.

Designed for extreme operating environments, the Guardian 400 can be equipped with wheels, skis, or floats with a gross weight increase to 14,000lbs*, allowing for additional fuel and extended range for operational sorties over ten hours in duration.

**GENERAL INFORMATION:**
- Max. Takeoff Weight: 14,000 lb (6350kg)*
- Number Of Crew: 1 or 2, cockpit
- 4 observer stations
- Fuel Capacities:
  - Belly Tanks – 378 US Gallons (1,432 litres)
  - Tip Tanks – 89 US Gallons (336 litres)
  - Internal Patrol Tank – 185 US Gallons (700 litres)

**STANDARD AIRCRAFT:**
- Basic Weight: 7,100 lbs. (3,221 kg.)

**AIRFRAME:**
- Configuration and Construction: All metal, non pressurized, high-wing monoplane with a fixed tricycle (steerable nose) landing gear

**CABIN DIMENSIONS:**
- Cabin Length: 18 ft 5 in (5.61m)
- Cabin Height: 4 ft 11 in (1.50m)
- Cabin Width (at floor): 4 ft 4 in (1.32m)
- Cabin Volume (usable): 384 cu ft (10.87 cu. m.)
- Cabin Doors (left side): 50 in X 56 in (1.27m x 1.42m)
- Cabin Door (right side): 30 in X 45.5 in (.76m x 1.16m)

**ENGINES:**
- Two, Pratt & Whitney Aircraft of Canada Limited PT6A-34 single stage, free-turbine engines.

**PROPELLERS:**
- Two, Hartzell, HC-B3TN, three bladed reversible pitch, constant speed, fully feathering propellers.

**PERFORMANCE SUMMARY:**
- STOL Takeoff and Landing Distance
  - Takeoff distance to 50 ft: 1200 ft (366m)
  - Landing distance from 50ft: 1050 ft (320m)
- Maximum Cruise Speeds, TAS
  - Sea Level: 170 kt | 5000 ft: 181 kt | 10,000 ft: 182 kt
- Enroute Rate of Climb at Sea Level
  - (both engines at max. climb power): 1600 ft/min
- Service Ceiling (Rate of climb 100 ft/min)
  - (both engines at max. climb power): 25,000 ft. (7,620 m)
- Fuel Burn at Economy Cruise
  - 146 KTAS at 10000 ft: 468.2 lbs/hour (0.311 nm/lb of fuel)
- Payload Range – at max. cruise speed operating under 14000 lbs restricted category
  - Payload for 100 nautical mile (185 km) range: 5,561 lb (2,522 kg.)
  - Payload for 400 nautical mile (741 km) range: 4,531 lb (2,055 kg.)
- Maximum Range (Zero Payload)
  - With standard tankage (2,576 lbs. (1,169 kg.) fuel): 799 nm (1,480 km)
  - With long range tip tanks (3,190 lbs. (1,447 kg.) fuel): 980 nm (1,832 km)
  - With internal patrol tank (4,451 lbs (2,019 kg.) fuel): 1,380 nm (2,556 km)
- Maximum Endurance
  - With standard tankage (2,590 lbs. (1,175 kg.) fuel): 6.94 hrs.
  - With long range tip tanks (3,190 lbs. (1,447 kg.) fuel): 8.76 hrs.
  - With internal patrol tank (4,451 lbs (2,019 kg.) fuel): 12.58 hrs.

**MISSIONIZATION OPTIONS:**
- Internal Fuel Patrol Tanks
- Air Operable Bi-Fold Door
- Parachute Interior
- 250 Amp Generator
- Tactical Radios
- Search Light
- SLAR
- NVG Compatible Flight Deck
- Search Radar
- Air Operable See-Through Roll Up Cargo Door

**NOTE:** All data is preliminary and subject to change without notice. Dimensions are approximate only and may vary depending on aircraft configuration selected and loading conditions.

*12,500lbs is the Transport Canada maximum take off weight (MTOW). 14,000lbs MTOW restricted category for military/government operations with local airworthiness approval. This configuration is used by the Canadian & US Military, and several other countries.