

## GENERAL DESCRIPTION

The Citation Sovereign is certified in accordance with FAR Part 25 airworthiness standards and utilizes the fail-safe construction concept. It combines systems simplicity with ease of access to reduce maintenance requirements. Low takeoff and landing speeds permit operation at small and unimproved airports. Front fan type turbofan engines contribute to overall operating efficiency and performance.

## FLIGHT CONTROLS

Primary flight control is accomplished through conventional cable-operated surfaces with the exception of roll spoilers, which are driven by hydraulics. The aileron system has automatic, electrically controlled, variable gearing to optimize handling qualities in various flight conditions. Pilot controlled trimming is provided by electrically driven aileron and rudder tabs, and by a moveable horizontal stabilizer. The elevator tabs are geared to the horizontal stabilizer and are equipped with an automatic pitch trim system to optimize high-speed stability. Hydraulically operated speed brakes are installed on the upper surface of both wings. The horizontal stabilizer trim is electrically actuated and the trailing edge flaps are hydraulically actuated. The rudder pedals and nosewheel steering tiller provide mechanical control of the hydraulically powered nosewheel steering. The rudder system is equipped with a pneumatic Rudder Bias system that will assist during single-engine operations.

## ENGINES

Two Pratt & Whitney Canada Inc. PW306C turbofans installed on the rear fuselage produce 5770 pounds of thrust each for takeoff, up to an ambient temperature of 87°F (31°C). The engines have dual channel, Full Authority Digital Engine Controls (FADEC). Ice protection, fire detection and extinguishing systems are incorporated. Fuel is carried in two integral wing tanks with each engine normally supplied from its respective side. Fuel cross feed can be selected. Target-type thrust reversers are individually operated by "piggy back" controls mounted on the throttles. Fueling is done through a singling point pressure refueling system on the right side of the fuselage forward of the wing or through an overwing filler port in each tank.

## FUSELAGE

Sequentially from front to rear are the avionics bay with the radar antenna, nose avionics area, forward pressure bulkhead, flight deck, passenger and aft cabin compartments, rear pressure bulkhead and aft compartment (including tailcone/equipment and aft baggage compartments).

The flight deck is equipped with dual controls and both crew seats can be moved vertically, horizontally, and tilted.

The passenger compartment provides seating, an air outlet, a light and an oxygen mask for each occupant. The rear seats may be moved laterally away from the sidewall, tracked fore and aft, or reclined. The tailcone compartment contains equipment and systems components.

## ELECTRICAL SYSTEM

The main Direct Current (DC) buses are supplied from two 28-volt DC, 300 ampere, engine driven starter/generators. Engine starting and secondary DC power is available from two 44-ampere-hour batteries, the 28-volt DC, 300 ampere, APU driven starter/generator, or an external source. Two engine-driven 30-kVA AC Alternators, one on each engine, are dedicated to the windshield anti-ice system.

## HYDRAULIC SYSTEM

Variable displacement engine-driven pumps supply pressure for operation of the landing gear, thrust reversers, roll spoilers and speed brakes, nosewheel steering, and wheel brakes through a closed center system. Pneumatic backup is available for landing gear extension, nosewheel steering, and braking.

## ENVIRONMENTAL CONTROL

Cabin pressurization utilizes bleed air from the engines or APU, which is conditioned by an air cycle machine (ACM). Temperature is controllable over a wide range and the system provides sufficient pressure to maintain a 6770-foot cabin at a cruise altitude of 45,000 feet. The oxygen system automatically supplies oxygen to the cockpit quick-donning masks and to the cabin dropout type masks in the event of excessive cabin altitude.

## AVIONICS

The avionics package installed in the Citation Sovereign is the Honeywell Primus EPIC integrated avionics system. All NAV/COM radios, Transponders, and DME receivers are integrated into the MRC-855 modular radio cabinets installed in the aft avionics bay. Primary functions of the AFCS and associated systems are integrated into the four Modular Avionics Units (MAUs), two of which are installed in the nose avionics bay and two installed in the aft avionics bay.

A standby attitude/altitude/airspeed indicator (standby flight display) and an electronic horizontal situation indicator (EHSI) are provided. The HSI provides redundant course deviation indicator/localizer and glideslope capability as well as standby heading capability. The standby flight display also has long- and short-range navigation and approach capability in the event of standby HSI failure.

A high frequency communications radio, an airborne flight information system (AFIS), a B & D cabin display, a Magnastar phone, and a Digital Flitefone are also available as options.

## **CABIN DOOR**

The passenger/crew entry door is located on the left side of the fuselage at the forward end of the passenger compartment. A rubber seal around the door opening provides pressure sealing. The door can be opened from either the inside or the outside of the airplane. The air stair door, when opened, serves as steps into the interior of the airplane. An amber CABIN DOOR OPEN CAS message will illuminate at any time the cabin door switches indicate the cabin door is in the open position, the inner handle is not secured, the locks are not engaged, or the monitor system operation has not been verified correct.

## **EMERGENCY EXIT DOOR**

A removable Emergency exit door is located on the right side of the fuselage at the aft end of the passenger compartment. The door is of the plug type and is installed or removed, from inside the airplane. This exit is an alternate to the cabin door in the event of a crash landing and is the primary exit in a ditching situation.

During emergency evacuation, the emergency exit door should be completely removed and thrown outside the airplane through its own open exit, to keep the escape route clear inside the cabin.

# SPECIFICATIONS

## DIMENSIONS

Length .....	63.54 Feet
Height .....	17.20 Feet
Wingspan .....	63.13 Feet
Horizontal Stabilizer Span .....	27.55 Feet
Wheelbase (Main to Nose Gear) .....	27.84 Feet
Stance (Distance Between Main Gear) .....	10.01 Feet
Cabin:	
Length (Pressure Vessel) .....	30.80 Feet
Height .....	5.75 Feet
Width .....	5.71 Feet

## CAPACITIES

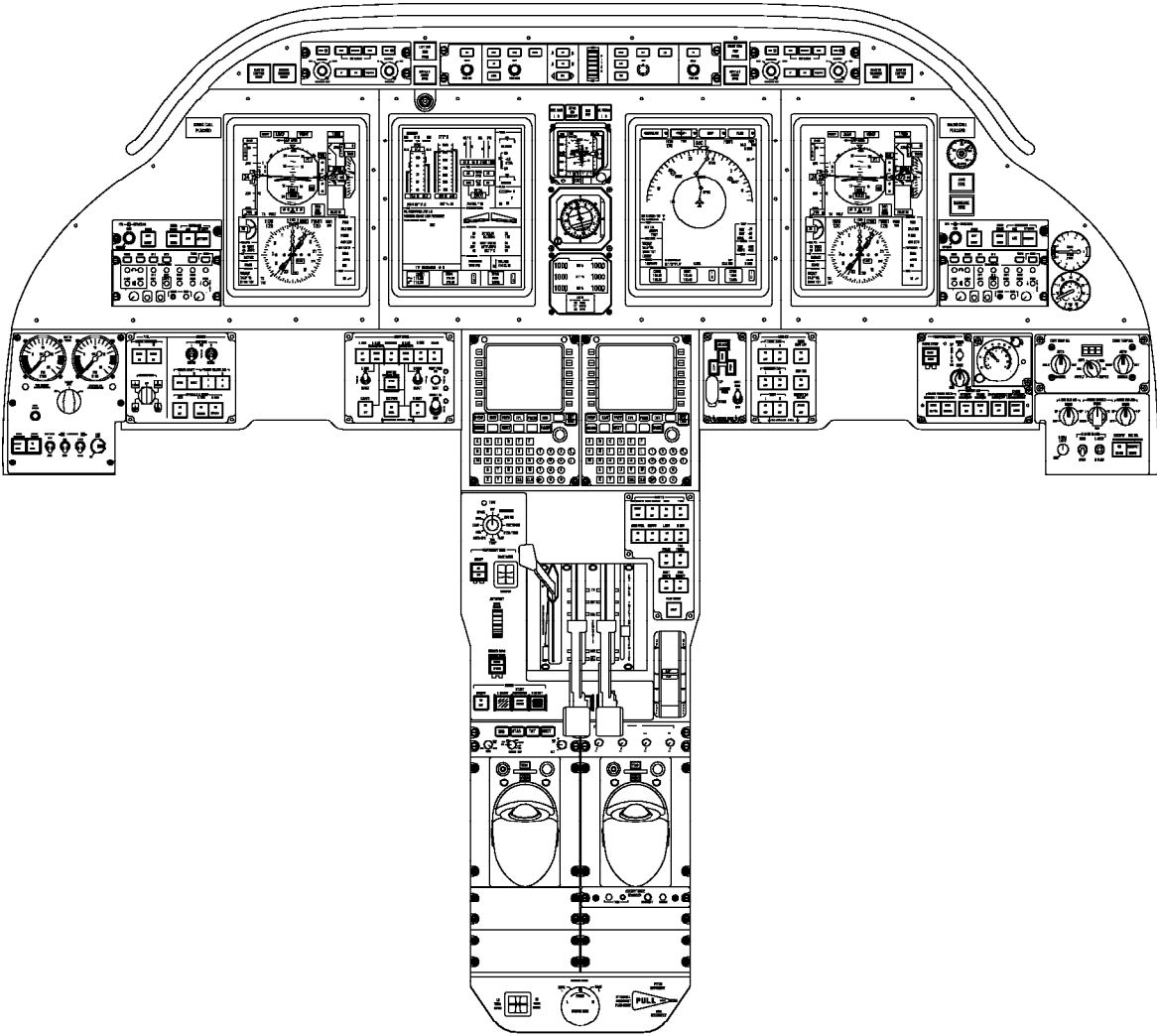
Oil Tank .....	1.85 Gallons Per Engine (7.40 Quarts Usable)
Fuel (Maximum Usable) .....	Approximately 5400 Pounds Per Tank (770 Gallons)
Oxygen (Full 77-cubic foot bottle) .....	1923 Liters Usable
Supplemental (77-cubic foot bottle) .....	1923 Liters Usable
Oxygen quantities based on usable regulated pressure of 70 PSI	
Hydraulic Fluid Reservoir .....	1.41 Gallons

## ENGINES

Type .....	PW 306C Turbofan
Manufacturer .....	Pratt & Whitney Canada Inc.
Maximum Dry Weight .....	1150 Pounds
Static Thrust (Takeoff, Standard Day at Sea Level) .....	5770 Pounds
Bypass Ratio .....	4.4 to 1

# INSTRUMENT PANEL

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Figure 1-1

**AVIONICS (STANDARD PACKAGE)**

Equipment	Quantity	Type Equipment
Communication (VHF) . . . . .	2 . . . . .	Honeywell Primus EPIC MRC-855
Clearance Delivery Unit (VHF) . . . . .	1 . . . . .	Honeywell Primus EPIC MRC-855
VOR Navigation/ILS/Marker Beacon . . . . .	2 . . . . .	Honeywell Primus EPIC MRC-855
Standby Horizontal Situation Indicator (HSI)	1 . . . . .	Goodrich EHSI-4000
Standby Flight Display . . . . .	1 . . . . .	Goodrich GH-3000
Distance Measuring Equipment (DME) . . . . .	2 . . . . .	Honeywell Primus EPIC MRC-855
Transponder (Mode S Diversity) . . . . .	2 . . . . .	Honeywell Primus EPIC MRC-855
Weather Radar . . . . .	1 . . . . .	Honeywell Primus 880
Automatic Direction Finder (ADF) . . . . .	1 . . . . .	Honeywell Primus EPIC MRC-855
Electronic Flight Instrument System (EFIS)	1 . . . . .	Honeywell Primus EPIC
Radio Altimeter . . . . .	1 . . . . .	Honeywell AA-300
Flight Management System with GPS . . . . .	1 . . . . .	Honeywell Primus EPIC MRC-855
Cockpit Voice Recorder (CVR) . . . . .	1 . . . . .	Fairchild FA2100
Dual Audio System . . . . .	1 . . . . .	Honeywell Primus EPIC MRC-855
Audio Control Panel . . . . .	2 . . . . .	Honeywell AV-950A
Attitude Heading Reference System (AHRS) . . . . .	2 . . . . .	Collins AHS-3000
Marker Beacon/ILS/Glide Slope Rcvrs . . . . .	1 . . . . .	Honeywell Primus EPIC MRC-855
Emergency Locator Transmitter (ELT) . . . . .	1 . . . . .	Sextant 406
Air Data Modules . . . . .	2 . . . . .	Honeywell AZ-200
Guidance Control Panel . . . . .	1 . . . . .	Honeywell GP-400
Engine Indicating Crew Alerting System (EICAS) . . . . .	1 . . . . .	Honeywell Primus EPIC

# AIRPLANE THREE VIEW

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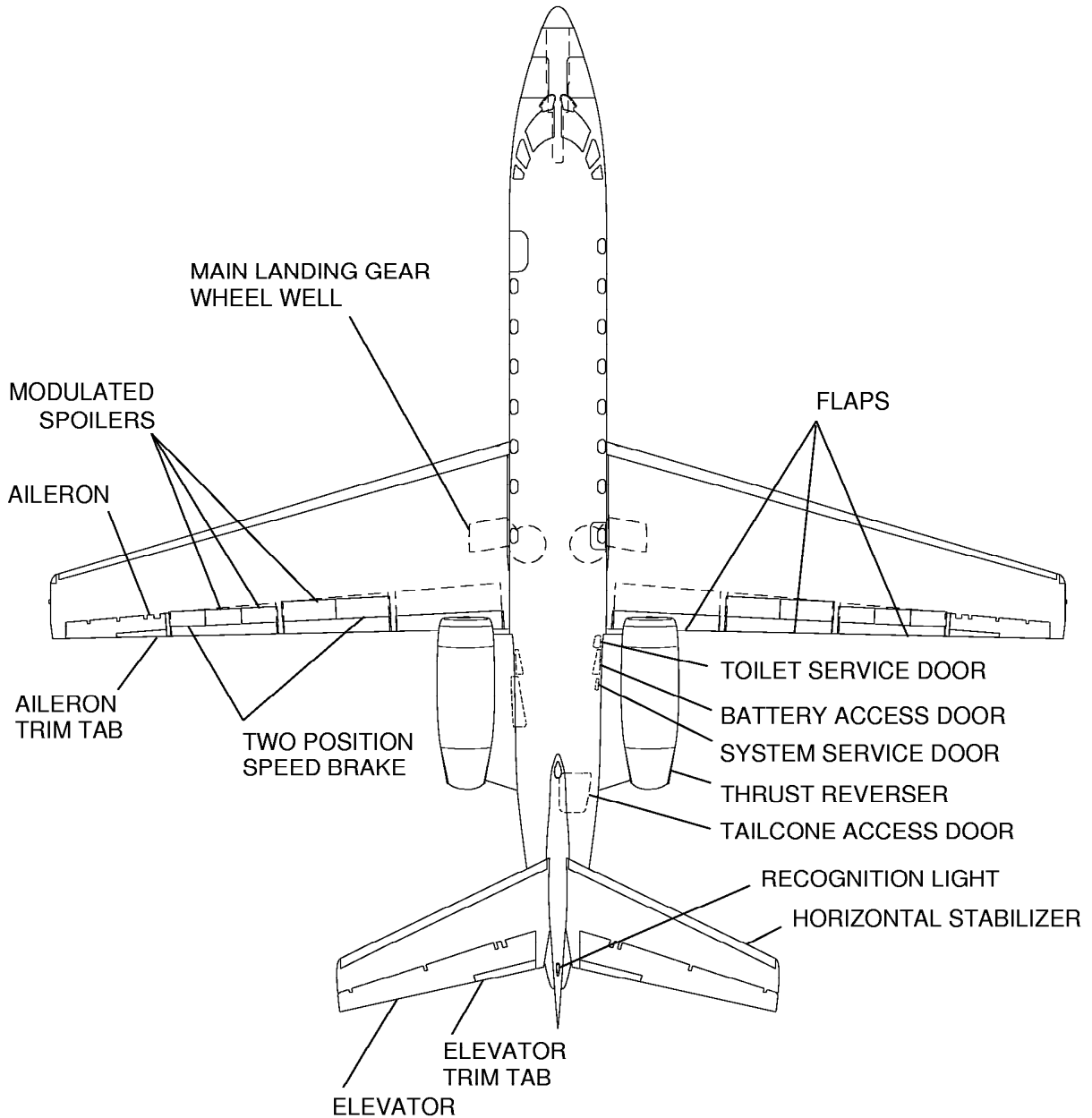
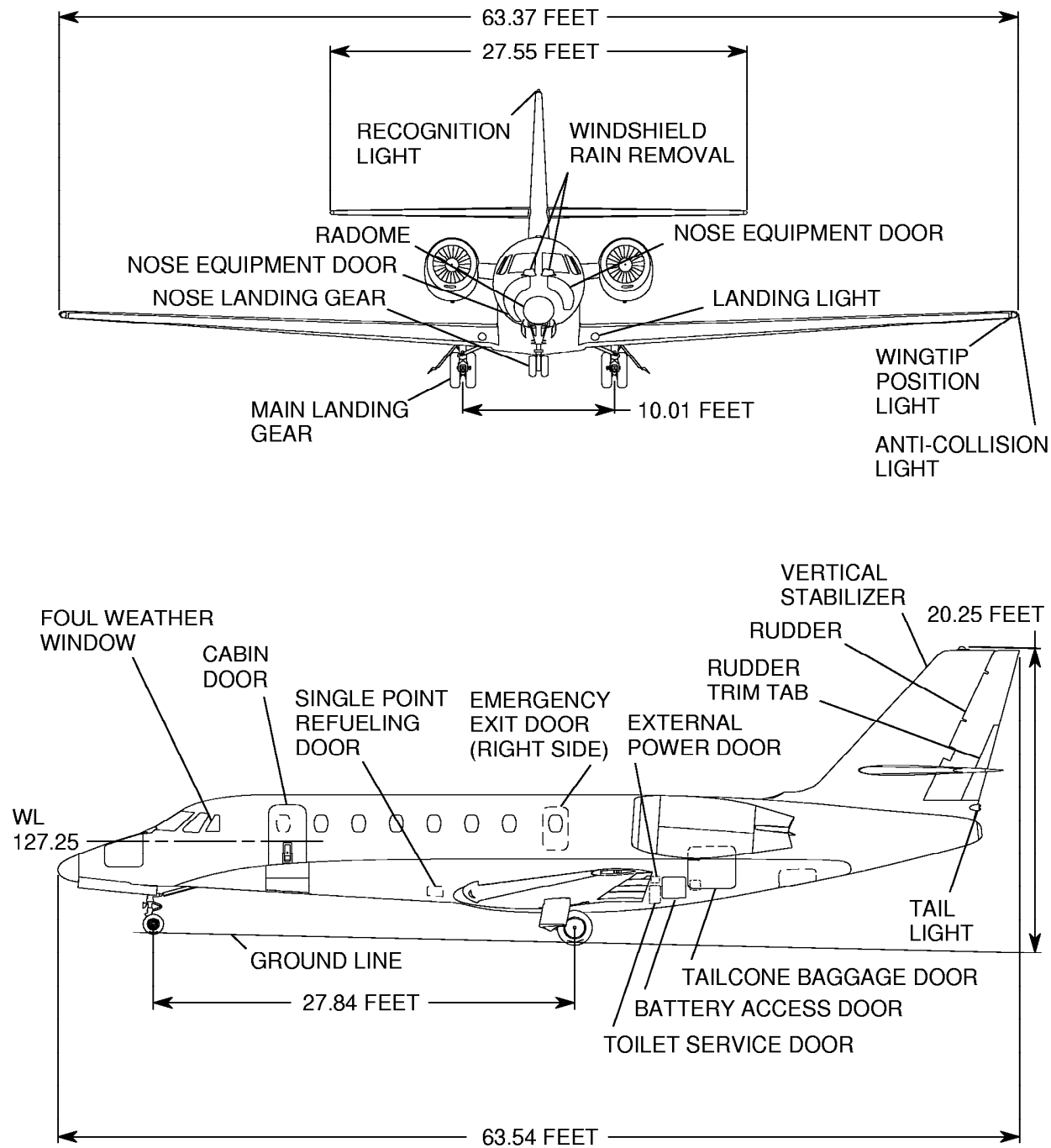


Figure 1-2 (Sheet 1 of 2)

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# AIRPLANE THREE VIEW

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6910T1003\_3

Figure 1-2 (Sheet 2)