C550/551 Airspeed Limitations

Airspeed	550-0626 and Earlier (not incorporating SB550-32-14)	550-0626 and Earlier (incorporating SB550-32-14)	550-0627 and After
Max Operating Speed Mmo (Mach) Above 28,000 Feet	**0.705 Mach**	**0.705 Mach**	**N/A**
Above 30,500 Feet	**N/A**	**N/A**	**0.705 Mach**
Max Operating Speed Vmo (Knots) 14,000 - 28,000 Feet	**277 KIAS**	**277 KIAS**	**N/A**
Below 30,500 Feet	**N/A**	**N/A**	**262 KIAS**
14,000 - 30,500 Feet (11,000 LB ZFW)	**262 KIAS**	**262 KIAS**	**N/A**
Below 14,000 Feet	**262 KIAS**	**262 KIAS**	**N/A**
Maneuvering Speed VA	Per Section II of FAA Approved Airplane Flight Manual	Per Section II of FAA Approved Airplane Flight Manual	Per Section II of FAA Approved Airplane Flight Manual
Max Flap Extended Speed Vfe (Knots) 15° Flaps	**202 KIAS**	**202 KIAS**	**202 KIAS**
40° Flaps	**176 KIAS**	**176 KIAS**	**176 KIAS**
Max Landing Gear Operating Speed Vlo (Knots)			
Extend	**176 KIAS**	**250 KIAS**	**250 KIAS**
Retract	**176 KIAS**	**200 KIAS**	**200 KIAS**
Max Landing Gear Extended Speed VIE (Knots)	**176 KIAS**	**277 KIAS**	**262 KIAS**
Max Speed Brake Operating Speed Vsb (Knots)	No Limit	No Limit	No Limit
Minimum Controllable Airspeed VMCA (Knots)	**77 KIAS**	**77 KIAS**	**77 KIAS**
Minimum Controllable Ground Speed VMCG (Knots)	**62 KIAS**	**62 KIAS**	**62 KIAS**
Max Tire Ground Speed	**165 KIAS**	**260 KIAS**	**165 KIAS**
Autopilot Operation Above 14,000 Feet	**277 KIAS / 0.705 Mach**	**277 KIAS / 0.705 Mach**	**N/A**
Below 14,000 Feet	**262 KIAS**	**262 KIAS**	**N/A**
Above 30,500 Feet	**N/A**	**N/A**	**262 KIAS / 0.705 Mach**
Below 30,500 Feet	**N/A**	**N/A**	**262 KIAS / 0.705 Mach**

Operating Limitations

Weight Limitations

550-0550 - 550-0626:

Max Ramp Weight ..... 13,500 LBS
Max Takeoff Weight ..... 13,300 LBS
Max Landing Weight ..... 12,700 LBS
Max Zero Fuel Weight ..... 11,000 LBS
(550-0505 and earlier: 9500 LBS -standard,
11,000 LBS optional)

550-0627 and after:

Max Ramp Weight ..... 14,300 LBS
Max Takeoff Weight ..... 14,100 LBS
Max Landing Weight ..... 13,500 LBS
Max Zero Fuel Weight ..... 11,000 LBS

Note: Max takeoff and landing weights may be additionally restricted due to altitude, temperature and field length.

Center of Gravity Limits

550-0626 and earlier:

Forward Limit:

8540 LBS or less ..... 276.10 inches aft of reference datum
13,300 LBS or less ..... 279.80 inches aft of reference datum
12,500 LBS or less ..... 279.20 inches aft of reference datum
Aft Limit: ..... 285.8 inches aft of reference datum.

550-0627 and after:

Forward Limit:

8540 LBS or less ..... 276.10 inches aft of reference datum
14,100 LBS or less ..... 280.40 inches aft of reference datum.
Aft Limit:
14,100 LBS or less ..... 285.80 inches aft of reference datum.

Note: It is the responsibility of the pilot to ensure that the airplane is loaded properly. Refer to Weight and Balance Data Sheet for proper loading instructions.

Takeoff and Landing Limitations

Max Altitude ..... ,..... ....., .14,000 Feet
Max Tailwind Component (<0626) ..... . 10 Knots
Crosswind Component (>0627) ..... .23 Knots
Max Runway
Water/Slush Accumulation ..... . 0.4 Inches
Max Ambient
Temperature ..... . ISA + 39°C (130°F)
Minimum Ambient
Temperature ..... -54°C (-65°F)

Note: Autopilot and yaw damper must be OFF for takeoff and landing. Vertical navigation system must be OFF below 500 feet AGL.

Flight Load Factor Limitations

550-0626 and earlier at 13,300 LBS Max takeoff weight

Flaps Up ....., ..., ...+ 3.8G, -1.52G
Flaps Down ....., ...+ 2.OG, 0.0G
Landing .....+ 3.5G

550-0627 and after at 14,100 LBS Max takeoff weight
Flaps Up ..... + 3.8G, -1.52G
Flaps Down.. + 2.OG, O.OG
Landing ..... + 3.386 at 13,500 LB landing weight
Note: These accelerations limit the angle-of-bank in turns and severity of pullup maneuvers:

Note: This airplane is certificated in the normal category.
The normal category is applicable to aircraft intended for non-aerobatic operations.
Aerobatic maneuvers and spins are prohibited.
No intentional stalls are permitted above 25,000 feet or at any altitude with engine speeds between 61.0% and 65% N1.

Enroute Limitations

550-0626 and earlier

not incorporating SB55-54-4:

Max Operating Altitude ..... 43,000 Feet

Temperature Limits ..... ISA +39°C*

Generator Load

Up to 35,000 Feet ... .400 Amps

Above 35,000 Feet ..... 250 Amps

incorporating SB55-54-4:

Max Operating Altitude ..... 43,000 Feet

Temperature Limits ..... ISA +39°C*

Generator Load

Up to 35,000 Feet ... .400 Amps

Above 35,000 Feet ..... 325 Amps

550-0627 and after:

Max Operating Altitude ..... 43,000 Feet

Temperature Limits.. ……..ISA +39°C*

Generator Load

Up to 35,000 Feet.. ……400 Amps

Above 35,000 Feet…….325 Amps

*Note: Max enroute operating temperature limit is ISA +39°C ambient temperature adjusted for ram rise or indicated outside air temperature (IOAT), whichever is less.

Approved Operations

The Citation II is approved for the following types of operation when the required equipment is installed and operational as defined within the Federal Aviation Regulations:

1. VFR day
2. VFR night
3. IFR day including Category I and Category II approaches
4. IFR night including Category I and Category II approaches
5. Flight into known icing conditions

Engine Operating Limitations

Number of Engines 2

Engine Manufacturer .. ..Pratt & Whitney Canada, Inc .

Engine Model ....….….....JT15D-4

Engine Type ....….Medium-bypass, axial-flow turbofan

Engine Bypass Ratio ……. ... ……2.7 to 1

Engine Thrust Rating . …….2500 LBS each

			100% = 32,760		100% = 15,904			
			N2		N1			
Thrust Setting	Time Limit Minutes	Maximum ITT C	RPM	%	RPM	%	Oil Pressure PSIG (2)	Oil Temp. C
Takeoff	5	700 (4)	31,450	96	16,540	104 (6)	70 - 85 (5)	10 - 121
Maximum Continuous	Continuous	680	31,450	96	16,540	104 (6)	70 - 85	0 - 121
Maximum Cruise	Continuous	670	31,450 .	96	16,5413	104 (6)	70 - 85	0 - 121
Idle	Continuous	580	16,000 (min)	49.0 (3)			35 (min)	-40 - 121
Starting (6)		(1)						-40 (min)
Transient (<0626)		700 (4)	31,450	96	16,540	104	(5)	0 - 121
Acceleration (>0627)		700	31,450	96	16,540	104		0 - 121

1. Max ITT limited to 2-seconds during engine start.
2. Normal oil pressure is 70 to 85 PSIG at engine speeds above 60% N2. Oil pressures under 70 PSIG are undesirable, and are allowed only under emergency conditions in order to complete a flight. Oil pressures below 35 PSIG are unsafe and require engine shut down, or landing as soon as possible using minimum power required to sustain flight.
3. Idle turbine RPM is 49, ±0.5% with ignition on. A minimum decrease of 0.5% will be noted with ignition off.
4. ITT indications in excess of 700°C during takeoff or in excess of 680°C for more than 5 minutes require reference to the Engine Maintenance Manual.
5. The Max transient oil pressure can be 95 PSIG for 90-seconds.
6. Refer to the appropriate thrust setting charts for percent fan RPM (N1) setting.

Engine Fan

To ensure accurate fan speed thrust indication, the fan must be inspected for damage prior to each flight.

Battery and Starter Cycle Limitations

Whether powered by battery, external power unit, or cross start with generator assist, starter operation is limited to three engine start attempts per 30-minute period, with a minimum 30-second rest period between cycles.

Battery cycling is limited to three engine start attempts per hour.

Battery Limitation

1. If battery limitation is exceeded, a deep cycle, including a capacity check, must be accomplished to detect possible cell damage. Refer to Chapter 24 of the Maintenance Manual for procedure.
2. Three generator assisted cross starts are equal to one battery start.
3. If an external power unit is used for start, no battery cycle is counted.
4. Use of an external power source with voltage in excess of 28 VDC or current in excess of 1000 amps, may damage the starter.

Note: Starting ITT exceeding 500°C should be investigated in accordance with Maintenance Manual.

Note: If the BATT O'HEAT (BATT O'TEMP, 550-0627 and after) annunciator illuminates during ground operation, do not take off until after the proper maintenance procedures have been accomplished.

Prolonged Ground Operations

Continuous engine ground static operation up to and including five minutes at takeoff thrust is limited to ambient temperatures not to exceed ISA + 39°C. Continuous ground operation of the starter-generator above 325 amps is prohibited. Limit ground operation of pitot/static heat to two minutes to preclude damage to the pitot/static heater. Operation in the GND bleed mode at power settings greater than 70% N2 for the right engine is prohibited.

Oil Limitations

Approved Oils

Mobile Jet Oil II or 254, Exxon Turbo Oil 2380, Aeroshell Turbine 560 or 500, Castrol 5000, and Royco Turbine Oil 560 or 500. In addition, The engine should be serviced with approved synthetic oils listed in the most current revision of P&WC SIB 7001.

Caution: When changing from an existing lubricant formulation to a "third generation" lubricant formulation (Aero Shell/Royco Turbine Oil 560 or Mobile Jet 254) the engine manufacturer strongly recommends that such a change should only be made when an engine is new or freshly overhauled. For additional information on use of third generation oils, refer to the engine manufacturers pertinent oil service bulletins.

Note: Do not mix types or brands of oil.
Should it be necessary to replenish oil consumption toss when oil of the same brand (as contents in tank) is unavailable, then the following requirements apply:

1. The total quantity of added oil does not exceed two US quarts in any 400-hour period.

2. If it is required to add more than two US quarts of dissimilar oil brands, drain and flush complete oil system and refill with an approved oil in accordance with Engine Maintenance Manual instructions.

Should oils of non-approved brands or of different viscosities become intermixed, drain and flush complete oil system and refill with an approved oil in accordance with Engine Maintenance Manual instructions.

Note: Minimum starting oil temperature is -40°C.

Fuel Limitations

Approved Fuels

The following approved fuels comply with the latest revision of Pratt & Whitney Canada Specification 204 and Pratt & Whitney Canada Service Bulletin 7144814.

Approved fuels are JET A, JET A-1, JET B, JP-4, JP-5, or JP-8, all with 0.15% PFA55MB anti-icing additive in solution. When preblended fuel is not available, anti-icing additives conforming to MIL-I-27686E (Ethylene Glycol Monomethyl Ether (EGME)) or MIL-1-85470 (Diethylene Glycol Monomethyl Ether (DIEGME)) specifications such as "Prist" may be introduced directly into the nozzle fuel stream during servicing. Concentrations of less than 0.06% (20 fluid ounces of additive per 260 gallons of fuel or more) may be insufficient to prevent fuel system icing or microbiological contamination. Conversely, concentrations of more than 0.15% (20 fluid ounces of additive per 104 gallons of fuel or less) could cause damage to internal components of the fuel system or erroneous fuel quantity indications.

Caution: EGME and DIEGME are aggressive chemicals and should not exceed 0.15% of fuel volume. Improperly handled, these materials will damage the epoxy primer and sealants used in the fuel tanks, O-ring seals, and any part of the airplane's exterior finish with which it comes in contact.

Warning: Anti-icing additives containing EGME or DIEGME are harmful if inhaled, swallowed, or absorbed through the skin, and will cause eye irritation. Refer to all instructions and warnings regarding toxicity and flammability before using these materials.

All grades of aviation gasoline (AVGAS) conforming to MIL-G5572 specifications are approved for use under emergency circumstances only. If used during flight, boost pumps should be activated and airplane altitude should not exceed 18,000 feet. Use of AVGAS is limited to no more than 3500 US gallons or 50 hours of engine operation during any period between engine overhaul. For record keeping purposes, 1 hour of engine operation may be considered equivalent to 70 US gallons.

Fuel Temperature and Density Limitations

	Approved Fuel Types Jet A, A-1, A-2, JP-5, -8	Jet B, JP4	Aviation
Gasoline			
Minimum Fuel Temperature			
(Takeoff)	-40°C	-54°C	-54°C
(Starting)	-40°C	-54°C	-54°C
Maximum Fuel Temperature	+50°C	+50°C	+32°C
Max Altitude	43,000'	43,000'	18,000'
Fuel Control Density (Adjustment for Optimum Engine Acceleration)	0.81 .	0.79	0.73

Max Fuel Imbalance

Maintaining fuel load symmetry during servicing is unnecessary; however, the Max permissible asymmetry is 200 LBS during normal flight operations and 600 LBS in an emergency.

Hydraulic Fluid Limitations

The only approved hydraulic fluids are Skydrol 500A, B, B-4, C, or LD-4 or Hyjet W, Hyjet III, IV, or IVA.

Flight Crew Limitations

Minimum flight crew required for Category I operations is one pilot who holds a C-500 type rating and who satisfies requirements of FAR 61.58 for two-pilot operation, and one copilot who holds a multi-engine rating and satisfies requirements of FAR 61.55. Category II operation requires a pilot and copilot who both satisfy requirements of FAR 61.3.

Cabin Limitations

For takeoff and landing, all seats must be upright and outboard. The seat adjacent to the emergency exit must be fully tracked toward the rear of the airplane to ensure unobstructed access to the emergency exit.

To meet smoke detection criteria, the cabin (OVHD) fan must be operating any time the aft cabin privacy curtain is closed. If the fan is inoperable, the curtain must remain open unless the toilet is in use.

Pressurization Differential

Normal (both valves) …….. 0.0 to 8.8 PSI ±0.1 PSI

Pressurization Source Selector

On airplanes 550-0481 and earlier, 0483 and 0484, operation in BOTH HI mode is not approved for takeoff, landing or at high power settings.

Icing Limitations

All anti-ice systems must be activated when operating in visible moisture at indicated outside air temperatures (IOAT) between +4°C (39°F) and -30°C (-22°F). The surface deice system should be activated when ice accumulations of at 1/4" to 1/2" are observed on the leading edge of either outboard wing. Activation of the system with accumulations of less than 1/4" may result in ice bridging on the wing. Accumulations greater than 1/4" may exceed the system's ice removal capabilities. Operation and/or testing of the system at IOAT below -40°C (-40°F) may result in boot cracking or failure of the boots to fully deflate.

The aircraft must be clear of all deposits of snow, ice, and frost adhering to the lifting and control surfaces immediately prior to takeoff.

Prolonged flight in severe icing conditions should be avoided as this may exceed the capabilities of the aircraft ice protection systems.

Note: Isopropyl alcohol conforming to TT-1-735 should be used for windshield ice protection.

Thrust Reversing limitations

During landing roll, reverse thrust power must be reduced to idle (thrust reverser levers at the idle reverse detent position) when airplane speed reaches 60 KIAS.

Max reverse thrust is limited to 94% N1 at ambient temperatures above -18°C or 92% N1 at ambient temperatures below -18°C.

Max allowable thrust reverser deployed time is 15 minutes in any 1-hour period.

Deployment of thrust reversers is prohibited when the aircraft is operating on sod, dirt, or gravel runways.

The drag chute may not be released while thrust reversers are deployed.

Oxygen System

The standard diluter demand oxygen mask qualifies as a quick-donning mask only if it is positioned around the neck.

The optional crew oxygen mask is a sweep-on diluter demand mask with selectable pressure breathing. The sweep-on mask qualifies as a quick-donning mask only if it is properly stowed.

Note: Headsets, eyeglasses or hats worn by the crew may interfere with the quick-donning capabilities of the optional oxygen masks.

Autopilot

During autopilot operation, either the pilot or copilot must be seated in the flight compartment with seat belt fastened.

The autopilot torque monitor must be functionally tested; if torque monitor functional test is not successful and/or if the [AP TORQUE] annunciator does not illuminate, autopilot operation is prohibited above 14,500 feet.

Continued autopilot operation is prohibited following abnormal operation or malfunctioning prior to corrective maintenance.

HF/ADF System

The ADF bearing information may be erratic when keying the HF transmitter. Should this occur, disregard the ADF bearing during periods of transmission.

Baggage Limitations

Baggage Compartment Weight Limitations

Max nose baggage compartment load .....…350 LBS

Max cabin baggage compartment load.....…….400 LBS

Max tailcone baggage compartment load ....…….200 LBS

Baggage Compartment Volume Limitations

Max nose baggage compartment volume……..17 cubic feet

Max cabin baggage compartment volume ..... 34 cubic feet

Max tailcone baggage compartment volume .....13 cubic feet

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