Airspeed Limitations

550-0626 and Earlier (not incorporating SB550-32-14)

Max Operating Speed Mmo Above 28,000 Feet 0.705 Mach

Max Operating Speed Vmo 14,000 - 28,000 Feet 277 KIAS

14,000 - 30,500 Feet (11,000 LB ZFW) 262 KIAS

Below 14,000 Feet 262 KIAS

Maneuvering Speed VA Per Section II of FAA Approved Airplane Flight Manual

Max Flap Extended Speed Vfe (Knots)

15° Flaps 202 KIAS 40° Flaps 176 KIAS

Max Landing Gear Operating Speed Vlo (Knots)
Extend 176 KIAS Retract 176 KIAS
Max Landing Gear Extended Speed 176 KIAS

Speed Brake Operating Speed No Limit

Minimum Controllable Airspeed VMCA 77 KIAS

Minimum Controllable Ground Speed VMCG 62 KIAS

Max Tire Ground Speed 165 KIAS

Autopilot Operation Abv 14,000 Feet 277 KIAS /0.705 Mach

Below 14,000 Feet 262 KIAS

Weight Limitations

550-0550 - 550-0626:

Maximum Ramp Weight ..... 13,500 LBS

Maximum Takeoff Weight ..... 13,300 LBS

Maximum Landing Weight ..... 12,700 LBS

Maximum Zero Fuel Weight ..... 11,000 LBS

(550-0505 and earlier: 9500 LBS -standard,
11,000 LBS optional)

550-0627 and after:

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

Center of Gravity Limits

550-0626 and earlier: Forward Limit:
8540 LBS or less 276.10 inches aft of reference
13,300 LBS or less 279.80 inches aft of reference
12,500 LBS or less 279.20 inches aft of reference
Aft Limit: ……. 285.8 inches aft of reference

550-0627 and after: Forward Limit:
8540 LBS or less 276.10 inches aft of reference
14,100 LBS or less 280.40 inches aft of reference
Aft Limit: 14,100 LBS or less.
285.80 inches aft of reference

Takeoff and Landing Limitations

Maximum T.O. Altitude ……..14,000 Feet
Max Tailwind Component……..10 Knots
Crosswind Component…….. .23 Knots
Maximum Runway
Water/Slush Accumulation .....……0.4 In.
Maximum Ambient
Temperature ..... . ISA + 39°C (130°F)
Minimum Ambient
Temperature ..... -54°C (-65°F)

Autopilot and Yaw Damper Limitations

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 & 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 61.0% to 65% N1.

Enroute Limitations, Generator Loads

550-0626 and earlier not incorporating SB55-54-4:

Maximum 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:

Maximum 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:

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

Engine Operating Limitations

Model JT15D-4
Type ... .….Medium-bypass, axial-flow turbofan
Bypass Ratio ....2.7 to 1
Thrust Rating . ……..2500 LBS each

Thrust Setting	Time Limit Minutes	ITT C	N2 RPM 100% = 32,760	N1 RPM 100% = 15,904	Oil Press PSIG	Oil Temp. °C
Takeoff →→→	5min	700°C (*4)	96%	104% (*6)	70 - 85 (*5)	10 - 121
Max Continuous		680°C	96%	104% (*6)	70 - 85	0 - 121
Max Cruise		670°C	96%	104% (*6)	70 - 85	0 - 121
Idle		580°C	49% (*3)		35 Minimum	-40 - 121

Thrust Setting	Time Limit Minutes	ITT C	N2 RPM 100% = 32,760	N1 RPM 100% = 15,904	Oil Press PSIG	Oil Temp. °C
Starting (*6) ***→→→***		(*1)	-	-	-	-40 Minimum
Transient <0626		700°C (*4)	96%	104% (*6)	(*5)	0 - 121
Acceleration >0626		700°C	96%	104% (*6)	-	0 - 121

*1. Maximum 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 maximum transient oil pressure can be 95 PSIG for 90-seconds.

*6. Refer to the appropriate thrust setting charts for percent fan RPM (N1) setting.

The Engine Fan must be inspected for damage prior to each flight.

Starter Cycle Limitations

Battery, EPU, or Gen Assist:

3 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.
Note: Starting ITT exceeding 500°C should be investigated in accordance with Maintenance Manual.

Battery Limitations (24V 39Ah)

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.
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.

Prolonged Ground Operations

Continuous engine ground static operation up to and including 5 minutes at takeoff thrust is limited to ambient not to exceed ISA + 39°C. Continuous ground operation of starter-generator above 325 amps is prohibited. Ground operation of pitot/static heat: two minutes.
Operation in the GND bleed mode at power settings greater than 70% N2 for the right engine prohibited.

Oil Limitations

Mobile Jet Oil II or 254, Exxon Turbo Oil 2380, Aeroshell Turbine 560 or 500, Castrol 5000, and Royco Turbine Oil 560 or 500. Service with approved synthetic oils listed in current SIB 7001.
When the same brand is unavailable:
Do not exceed 2 quarts in any 400-hour period.
If required to add more than 2 quarts of dissimilar oil, non-approved brands or if different viscosities become intermixed drain and flush complete oil system and refill with an approved oil in accordance with Engine Maintenance Manual.

Fuel Limitations

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.

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

	Jet A, A-1, A-2, JP-5, -8	Jet B, JP4	AvGas
Min Fuel Temps			
(Takeoff)	-40°C	-54°C	-54°C
(Starting)	-40°C	-54°C	-54°C
MAX Fuel Temps	+50°C	+50°C	+32°C
Maximum Altitude	43,000'	43,000'	18,000'
Fuel Control Density (Adjustment for Optimum Engine Acceleration)	0.81	0.79	0.73

Maximum Fuel Imbalance

Maintaining fuel load symmetry during servicing is unnecessary; however, the maximum 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

A-I must be activated in visible moisture at IOAT between +4°C (39°F) and -30°C (-22°F). Surface deice system should be activated when ice of at 1/4" to 1/2" are observed on the leading edge, either wing. Activation 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. 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, 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.
Windshield Anti-Ice Controls:
OAT (> -18 LOW) (< -18 HIGH)

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

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 Limitations

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 Limitations

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

Max nose baggage compartment load 350 LBS
Maxi cabin baggage compartment load 400 LBS
Max tailcone baggage compartment load 200 LBS

Max nose baggage compartment volume 17 cu feet

Max cabin baggage compartment volume 34 cu feet
Max tailcone baggage compartment volume 13 cu feet