OPERATING LIMITATIONS

NOTICE

CERTIFICATION AND OPERATIONAL LIMITATIONS ARE CONDITIONS OF THE TYPE AND AIRWORTHINESS CERTIFICATES AND MUST BE COMPLIED WITH AT ALL TIMES AS REQUIRED BY LAW.

CERTIFICATION STATUS

This airplane is certificated in the Transport Category of the U.S. Federal Aviation Regulations Part 25.

OPERATIONS AUTHORIZED

This airplane is approved for day and night, VFR and IFR flight and flight into known icing conditions.

This airplane is eligible for over-water operations with applicable equipment specified in the appropriate operating rules.

This airplane is not approved for ditching under FAR 25.801.

This airplane is approved for Category II operations. This does not constitute operational approval.

No acrobatic maneuvers, including spins, are approved. No intentional stalls permitted above 18,000 feet.

MINIMUM CREW

Minimum Flight Crew for All Operations . . . . . Pilot and Copilot

SEATING

The maximum number of seats is 14 (pilot, copilot and 12 passengers).

Passenger seats must be in the following positions during all takeoffs and landings:

a. All seats - Fully upright and outboard with occupied seat headrests fully extended.
b. Seat backs - Clear of emergency exits.

BELTED TOILET SEAT

During Taxi, Takeoff and Landing when the belted toilet seat is occupied the aft divider sliding doors must be LATCHED OPEN.

WEIGHT LIMITATIONS

Maximum Design Ramp Weight	36,400 Pounds
Maximum Design Takeoff Weight	36,100 Pounds
Maximum Design Landing Weight	31,800 Pounds
Maximum Design Zero Fuel Weight	24,400 Pounds

Takeoff weight is limited by the most restrictive of the following requirements:

Maximum Certified Takeoff Weight	36,100 Pounds
Maximum Takeoff Weight Permitted by	
Climb Requirements	Refer to Section IV - Performance, Takeoff data
Takeoff Field Length	Refer to Section IV - Performance, Takeoff data

Landing weight is limited by the most restrictive of the following requirements:

Maximum Certified Landing Weight	31,800 Pounds
Maximum Landing Weight Permitted by Climb Requirements or Brake Energy Limit .	Refer to Section IV - Performance, Approach and Landing data
Landing Distance .	Refer to Section IV - Performance, Approach and Landing data

CENTER-OF-GRAVITY LIMITS

Center-of-Gravity Moment Envelope	Refer to Figure 2-1

WEIGHT AND BALANCE DATA

The airplane must be operated in accordance with the approved loading schedule. Refer to Weight and Balance Data Sheets and Model 750 Citation X Airplanes 750-0173 and On FAA Approved Weight and Balance Manual.

BALLAST FUEL

Ballast fuel is fuel that remains within the wing fuel tanks which cannot be used without causing the aft center-of-gravity limit to be exceeded. ***Ballast fuel is nonusable fuel.*** Ballast fuel requirements must be determined prior to flight. Refer to the Weight and Balance Data Sheets (Airplane Weighing Form and Ballast Fuel Graph) and Model 750 Citation X Airplanes 750-0173 and On FAA Approved Weight and Balance Manual for determining ballast fuel requirements.

CENTER-OF-GRAVITY LIMITS

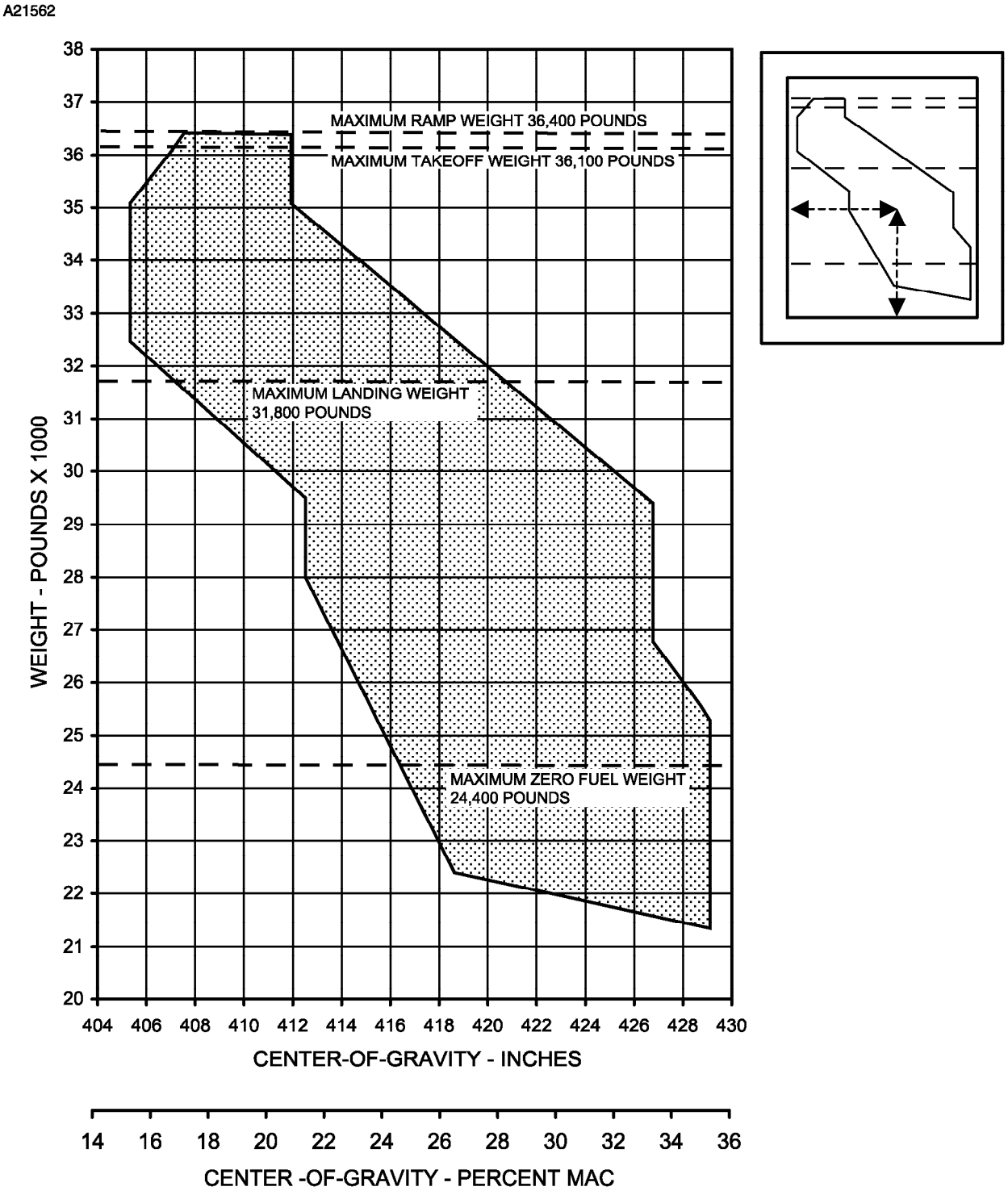


Figure 2-1

TAKEOFF AND LANDING OPERATIONAL LIMITS

Maximum Altitude Limit . . . . . 14,000 Feet
Maximum Tailwind Component . . . . . 10 Knots
Maximum Ambient Temperature . . . . . Refer to Figure 2-4
Maximum Crosswind Component (tower reported winds measured 10 meters above runway)

Manual Flight Controls
(Dual hydraulic failure, rudder standby system on or off;
aileron flight control PCU off; rudder flight control PCU off) . . . . . 10 Knots
Slats Asymmetry . . . . . 10 Knots

Minimum altitude for in-flight use of speed brakes . . . . . 500 Feet AGL
Maximum asymmetric fuel . . . . . 400 Pounds
Emergency asymmetric fuel . . . . . 800 Pounds
Minimum wing fuel per tank for takeoff . . . . . 500 Pounds
Takeoff in high idle is prohibited (except touch and go)

NOSE TIRE LIMITATION

Only the Goodyear 164F03-1 and 164F03-2 nose tires are approved. Approved tires must be inflated to 130 ±5 PSIG, unloaded, in accordance with the servicing placard.

NOTE

- Tire pressures identified as UNLOADED are pressures with the airplane on jacks or before installed on the airplane.
- Loaded tire pressure will be 2 to 5 PSI higher, depending on airplane weight and CG.

SPEED LIMITATIONS

Design Speed Envelope (calibrated altitude) . . . . . Refer to Figure 2-2
Maximum Operating MACH - (M_{MO}) above 30,650 feet . . . 0.92 Mach (Indicated)
- (M_{MO}) Mach trim off . . . . . 0.82 Mach (Indicated)
Maximum Operating KNOTS - (V_{MO}) 8000 feet to 30,650 feet . . . . . 350 KIAS
- (V_{MO}) below 8000 feet . . . . . 270 KIAS

NOTE

- The M_{MO} and V_{MO} limits are lower for certain equipment failures. Refer to the applicable Emergency or Abnormal Procedure.
- The maximum operating limit speeds may not be deliberately exceeded in any regime of flight (climb, cruise or descent) unless a higher speed is authorized for flight test or pilot training.

(Continued Next Page)

SPEED LIMITATIONS (Continued)

With standby airspeed indicator as primary speed reference, the following V_{MO} schedule must not be exceeded:

Sea level to 8,000 feet	270 KIAS
8,000 feet to 24,000 feet	345 KIAS
24,000 feet to 35,000 feet	275 KIAS
35,000 feet to 41,000 feet	240 KIAS
41,000 feet to 51,000 feet	190 KIAS

NOTE

- Above 24,000 feet, airspeed may be linearly interpolated between altitudes.
- Speeds above 24,000 feet are based on 0.82 Mach limit.

Maximum Maneuvering Speeds - V_A . . . . . Refer to Figure 2-3

NOTE

Full application of rudder and aileron controls, as well as maneuvers that involve angles-of-attack near the stall, should be confined to speeds below maximum maneuvering speed.

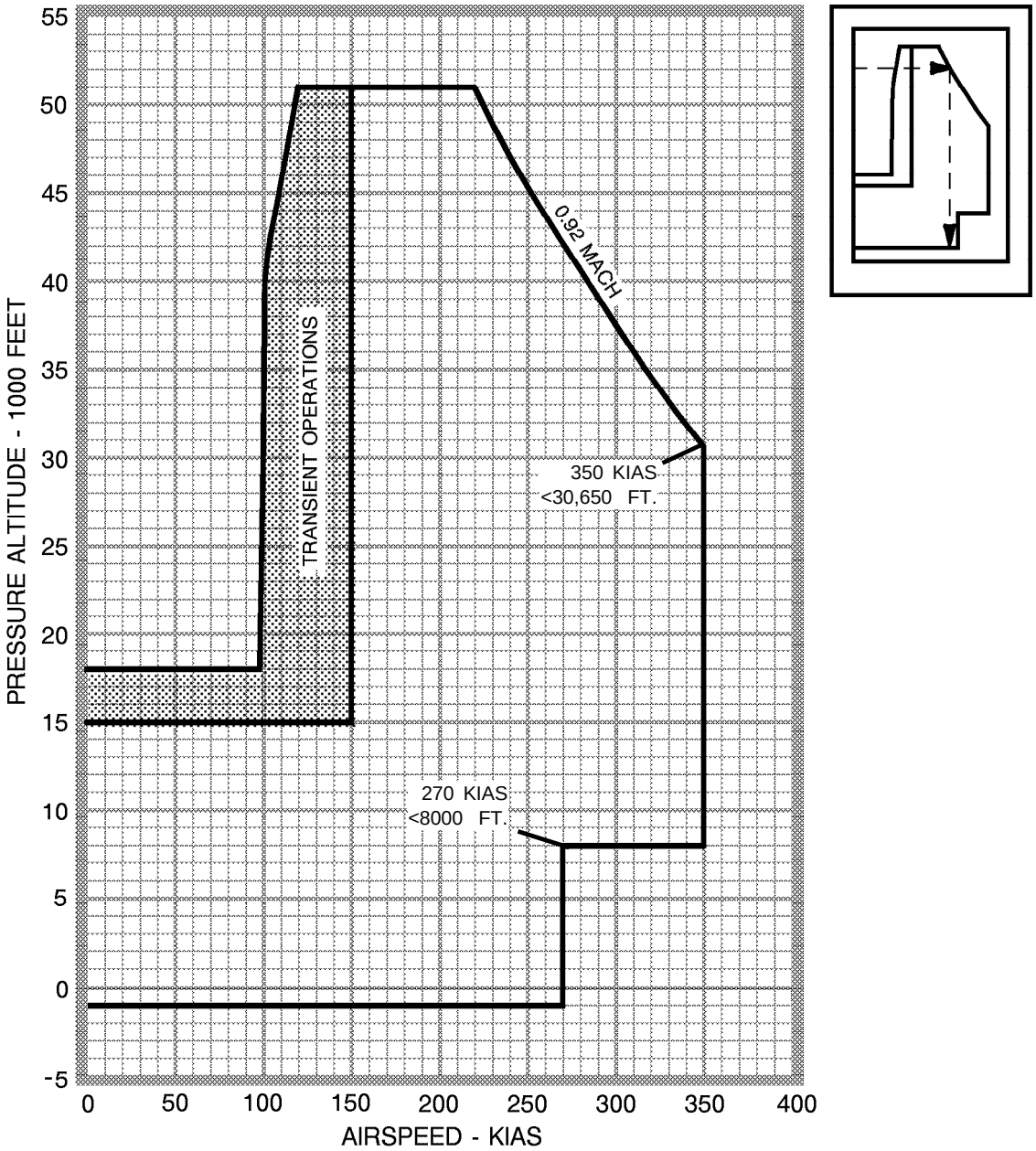
Maximum Altitude for Extension of Flaps and Landing Gear	18,000 Feet
Maximum Slat Extended Speed	250 KIAS
Maximum Flap Extended Speed - V_{FE}	
Partial Flaps - 5° position	250 KIAS
- 15° position	210 KIAS
Full Flaps - FULL position	180 KIAS
Maximum Landing Gear Operating/Extended Speed - V_{LO}/V_{LE}	210 KIAS

NOTE

This is the maximum speed at which the landing gear may be lowered or raised as well as the maximum speed with landing gear extended.

Maximum Turbulent Air Penetration Speed	300 KIAS / 0.9 Mach
Maximum Speed Brake Extension Speed	No Limit
Minimum Speed Brake Extension Speed	V_{REF} +15 KIAS
Minimum Single Engine Enroute Climb Speed	190 KIAS
Maximum Tire Ground Speed	210 Knots
Minimum Control Speeds (V_{MCA} and V_{MCG})	Refer to Section IV, Performance General

DESIGN SPEED ENVELOPE
INDICATED AIRSPEED



NOTE: CONTINUOUS OPERATION IN THE TRANSIENT OPERATIONS AREA IS NOT AUTHORIZED.

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Figure 2-2

MAXIMUM MANEUVERING SPEEDS
INDICATED AIRSPEED

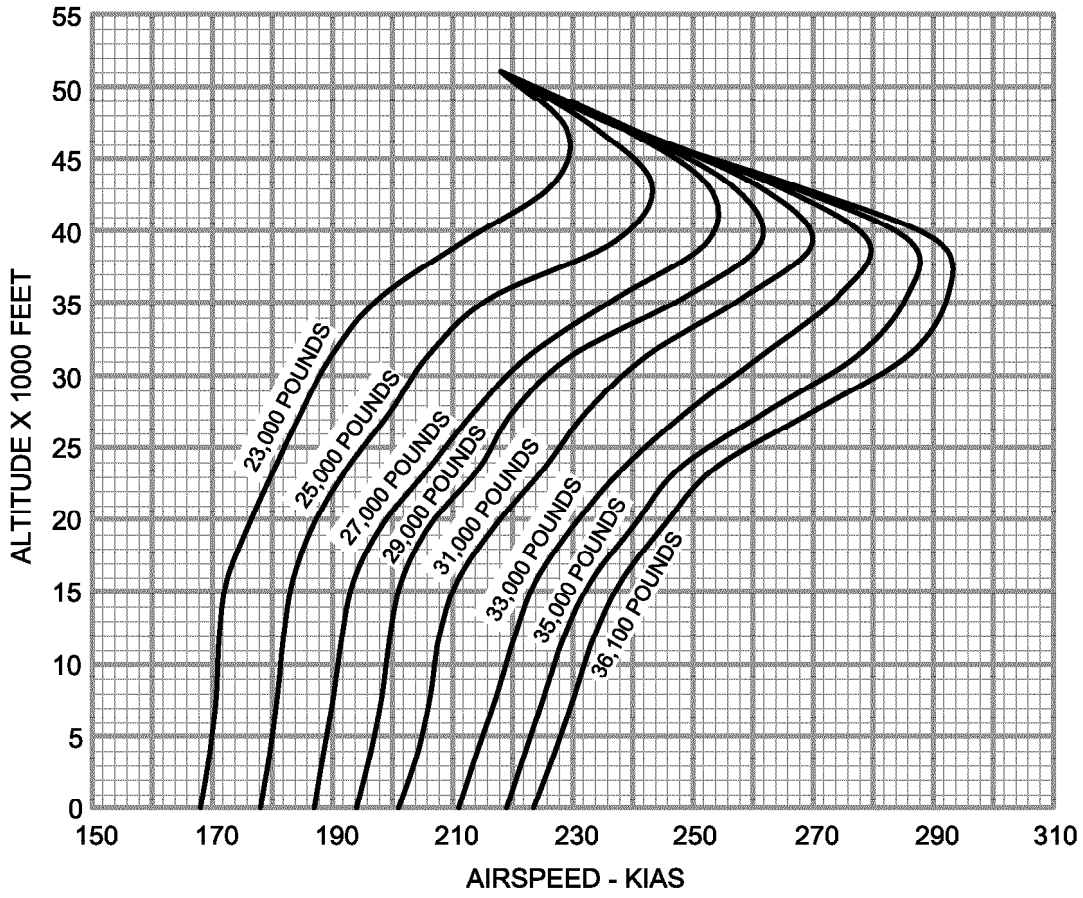

Figure 2-3

ENROUTE OPERATIONAL LIMITS

Maximum Operating Altitude . . . . . 51,000 Feet
Ambient Temperature Limits . . . . . Refer to Figure 2-4 and Section IV - Performance, Standard Charts

NOTE

Maximum operating altitude may be limited by some systems failures. Refer to appropriate Emergency and Abnormal operating procedures.

AMBIENT TEMPERATURE LIMITS

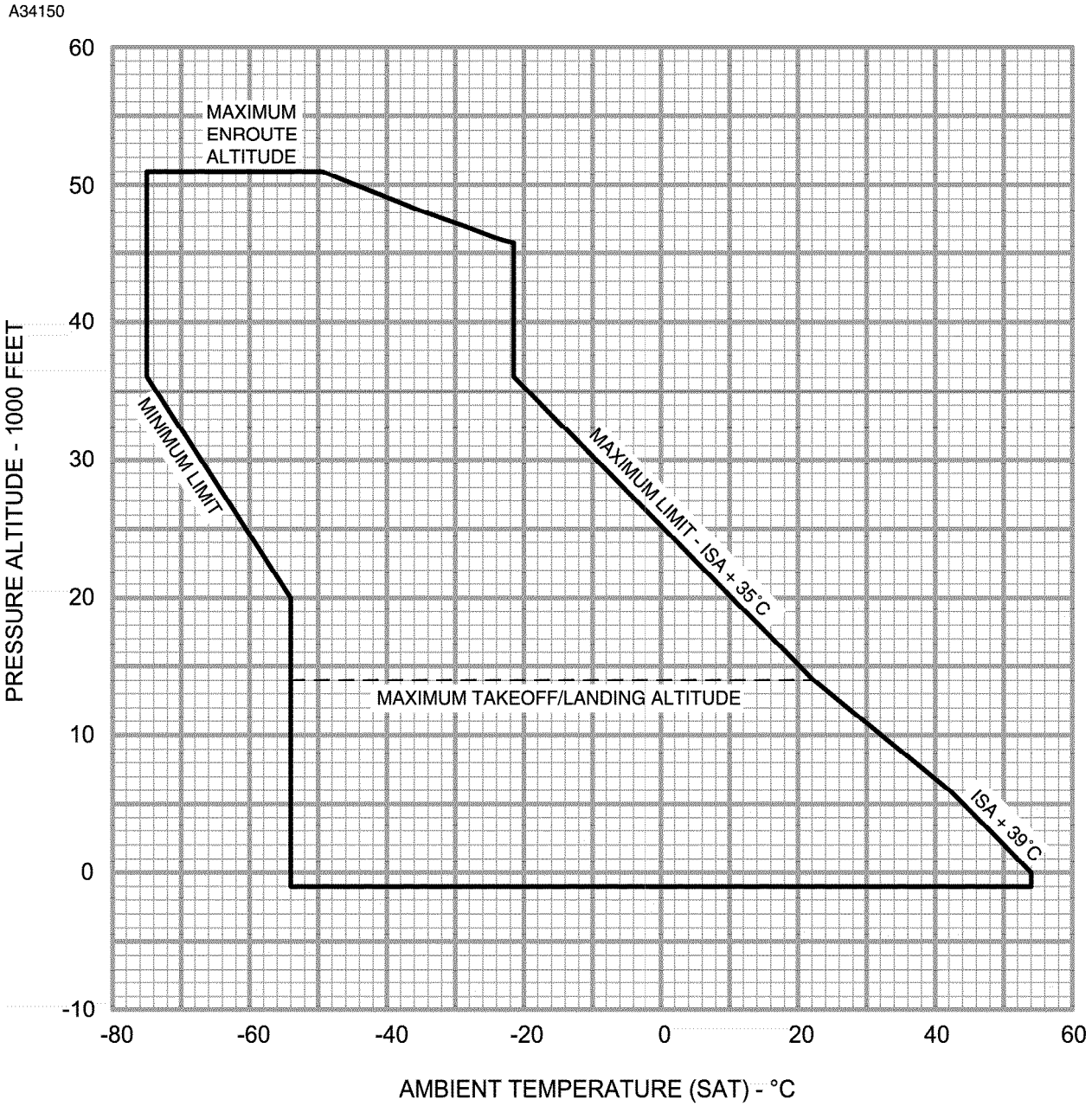

Figure 2-4

LOAD FACTORS

In Flight

Flaps - UP Position (slats retracted)	–1.00 to +2.7G at 36,100 Pounds
Flaps - UP Position (slats extended)	0.0 to +2.0G at 36,100 Pounds
Flaps - 5° to FULL Position (slats extended)	0.0 to +2.0G at 36,100 Pounds
Maximum Duration - Zero to Negative G	10 Seconds

NOTE

These accelerations limit the angle of bank in turns and limit the severity of pullup maneuvers.

Landing . . . . . +3.5G at 31,800 Pounds

NOTE

This acceleration represents landing at a sink rate, at touchdown, of 600 feet per minute.

CABIN PRESSURE LIMITATIONS

Normal Cabin Pressure Limitations . . . . . 9.7 PSI Maximum Differential

CRACKED WINDSHIELD

If either cockpit windshield cracks in flight, continued flight to destination is permitted in accordance with Section III, Abnormal Procedures, Cockpit Forward or Side Windshield Cracked or Shattered. After landing, the following guidance applies:

1. If only the outer (non-structural) ply of the windshield is cracked, flight to a maintenance base is permitted, observing Cockpit Forward or Side Windshield Cracked or Shattered Procedures.

2. If either structural ply of the windshield is cracked, restricted flight is permitted only on a ferry permit (Special Airworthiness Certificate).

NOTE

Windshield construction consists of a 0.10 inch outer (non-structural) face ply, a 0.19 inch structural ply, and a 0.235 inch structural inner ply, separated by 0.15 inch PVB/Urethane layers for a total thickness of 0.825 inches.

ENGINE AIR TURBINE STARTER LIMITATIONS

Three consecutive normal starts followed by 25 minutes cooling. One 30 second motoring cycle is equivalent to one normal start.

CAUTION

DO NOT ENGAGE THE AIR TURBINE STARTER ABOVE 25% N_2 RPM. AIR TURBINE STARTER DRIVE SHAFT DAMAGE MAY OCCUR.

GENERATOR LIMITATIONS

Main Generators (each) . . . . . 400 Amperes Up to 41,000 Feet
300 Amperes Above 41,000 Feet

ENGINE LIMITATIONS

Engine Type . . . . . AE-3007C1 Turbofan
Full Authority Digital Engine Controls (FADECs) . . All four must be operative for takeoff
Engine Operating Limits . . . . . Refer to Figure 2-5
Continuous engine ground static operation up to and including 5 minutes at takeoff thrust is limited to ambient temperatures not to exceed the limits of Figure 2-4, Ambient Temperature Limits.
Both Air Data Computers Must Be Operational For Takeoff.
Minimum start duct pressure (EICAS) prior to ground start . . . . . 25 PSI

ENGINE OPERATING LIMITS

OPERATING CONDITIONS	OPERATING LIMITS					
THROTTLE DETENT	TIME LIMIT	ITT TEMPERA-TURE °C	N_2 % TURBINE RPM (NOTES 5 AND 6)	N_1 % FAN RPM (NOTE 4)	OIL PRESSURE PSIG (NOTE 7)	OIL TEMPERATURE °C
TO/MC (TAKEOFF) (NOTE 1)	5 MINUTES	907	56.7 TO 101	100	50 TO 95 (>2 MIN) 95 TO 155 (≤2 MIN)	127 MAXIMUM
TO/MC (TAKEOFF) (NOTE 1)	CONTINUOUS (OEI)	857	56.7 TO 101	100	50 TO 95 (>2 MIN) 95 TO 155 (≤2 MIN)	127 MAXIMUM
CLB (CLIMB) (NOTE 2)	CONTINUOUS	857	56.7 TO 101	100	50 TO 95 (>2 MIN) 95 TO 155 (≤2 MIN)	127 MAXIMUM
CRU (CRUISE) (NOTE 3)	CONTINUOUS	857	56.7 TO 101	100	50 TO 95 (>2 MIN) 95 TO 155 (≤2 MIN)	127 MAXIMUM
STARTING	---	800 (NOTE 8)	---	---	50 TO 95 (>2 MIN) 95 TO 155 (≤2 MIN)	(NOTE 4)

NOTES

1. One engine inoperative (OEI) continuous operation is approved in the TO/MC (Takeoff) detent. Maximum allowable ITT for takeoff is 907°C in the TO/MC detent (not to exceed 5 minutes in the amber range) then 857°C for continuous operation in the TO/MC detent (OEI) or CLB detent (multi-engine).
2. Multi-engine continuous operation is approved in the CLB (Climb) detent.
3. CRU (Cruise) detent should be set within 10 minutes after level off from top-of-climb.
4. During cold day starts, oil pressure may exceed 95 PSIG. The pressure will decrease as oil temperature increases. Engine speed should not be advanced above idle until oil pressure no longer exceeds 95 PSIG. Once the oil pressure is below 95 PSIG, engine speed can be advanced but should not exceed 40% N_1 until the engine fuel temperature is within normal limits, ≥4°C. Refer to Figure 2-7, pproved Oils for minimum oil temperature for start.
5. FADEC automatic overspeed shutdowns are set at 105% N_1 and 105.6% N_2. Minimum fan speed for takeoff is 73.6% N_1.
6. When the engine is running, the FADEC will automatically shut the engine down at 54% N_2 or below.
7. Minimum oil pressure BELOW 88% N_2 is 34 PSIG. A cautionary oil pressure range, from ≥34 to <50 PSI, exists when in flight or anytime the TLAs are above 30° on the ground. Maximum oil pressure is 155 PSIG (not to exceed 2 minutes). Maximum oil pressure for continuous operation is 95 PSIG. A cautionary (amber) oil pressure range exists when oil pressure is >95 and ≤ 155 PSIG. This cautionary range will change from amber to red if oil pressure is >95 PSIG after 2 minutes.
8. Windmilling airstart ITT limit is 888°C.

Figure 2-5

FUEL LIMITATIONS

The following fuels are approved for use in accordance with Figure 2-6:

Jet A, Jet A-1, Jet B, NO. 3 (GB6537-94), JP-4 (NATO F40), JP-5 (NATO F43 or F44), and JP-8 (NATO F34 or F35).

FUEL LIMITATIONS

	JET A/A-1 NO. 3 (GB6537-94) JP-5 (NATO F43 or F44) JP-8 (NATO F34 or F35)	JET B JP4 (NATO F40)
MINIMUM FUEL TEMPERATURE FOR START, TAKEOFF AND ENROUTE (FUEL TANK TEMPERATURE)	-37°C	-37°C
MAXIMUM FUEL TEMPERATURE FOR START, TAKEOFF AND ENROUTE (FUEL TANK TEMPERATURE)	+52°C	+48°C
MINIMUM FUEL TEMPERATURE (ENGINE), ENGINE OPERATING	+4°C	+4°C
MAXIMUM FUEL TEMPERATURE (ENGINE), ENGINE OPERATING	+98.9°C	+98.9°C
MAXIMUM ALTITUDE	51,000 FEET	51,000 FEET

NOTE

- Minimum fuel temperature is based on a maximum fuel viscosity of 12 centistokes.
- Takeoff with Engine Fuel Temperature below +4°C or above 98.9°C is not permitted.

Figure 2-6

SINGLE POINT REFUELING

Single point refueling operations must be accomplished per the procedures contained on the placard installed on the single point refueling access door. Maximum refueling pressure is 55 PSIG, maximum defueling pressure is -10 PSIG.

UNUSABLE FUEL

Fuel remaining in the fuel tanks when the EICAS fuel quantity indication reads zero is not usable in flight, and is not to be considered ballast fuel. Unusable fuel is 4.81 gallons for each wing/hopper tank and 2.2 gallons for the center tank.

FUEL TRANSFER/CROSSFEED LIMITATIONS

Center tank to wing transfer must be initiated prior to 3100 lbs per side wing fuel.

Maximum lateral fuel imbalance (intentional) is 400 pounds. An imbalance of 800 pounds has been demonstrated for emergency return.

Simultaneous use of crossfeed and center-to-wing tank transfer is prohibited when the wing fuel quantity is 2900 lbs. or less per side. Fuel lateral imbalance will result.

ENGINE OIL LIMITATIONS

Only oils listed in Figure 2-7 may be used in the AE-3007C engine.

APPROVED OILS

OILS CONFORMING TO MIL-L-7808K	OILS CONFORMING TO MIL-L-23699D
MOBIL RM 284A	MOBIL JET II
	AEROSHELL/ROYCO TURBINE OIL 500
	EXXON TURBO OIL 2380
	MOBIL JET OIL 254

CAUTION

- USE OF NONAPPROVED OIL COULD RESULT IN DAMAGE TO THE ENGINE OR PREMATURE ENGINE FAILURE, AND WILL BE CONSIDERED MISUSE UNDER THE PROVISIONS OF THE ENGINE WARRANTY.
- IF MIXED WITH OTHER OILS, MOBIL JET OIL 254 CAN CAUSE WASHING OR SHEDDING OF CARBON DEPOSITS LEFT BY THOSE OILS. THIS CLEANING PROCESS CAN LEAD TO OIL SYSTEM PROBLEMS, SUCH AS BLOCKED PASSAGEWAYS AND SCREENS. CHANGING FROM EXXON 2380, MOBIL JET II OR AEROSHELL/ROYCO 500, TO MOBIL JET 254 SHOULD ONLY BE DONE WHEN THE ENGINE IS NEW OR OVERHAULED.
- IF BRANDS OF OIL ARE CHANGED, IT SHOULD BE ACCOMPLISHED GRADUALLY USING THE “TOP OFF” METHOD.
- ENSURE OIL TEMPERATURE IS ABOVE -40°C (-40°F) BEFORE ATTEMPTING A START WHEN USING MIL-L-23699D TYPE OIL, OR ABOVE -54°C (-65°F) WHEN USING MIL-L-7808K TYPE OIL.
- DO NOT MIX MIL-L-23669D AND MIL-L-7808K TYPE OILS.

NOTE

The AE-3007C1 engine will perform best on MIL-L-23699D type oil. Use of MIL-L-7808K type oil should be limited to only those times when operating in extreme cold without preheat capability (-40°C to -54°C or -40°F to -65°F) or when MIL-L-7808K is the only oil available.

Figure 2-7

APPROVED HYDRAULIC FLUIDS

Hyjet IVA Plus
Skydrol 5
Skydrol 500B-4
Skydrol LD-4

APU LIMITATIONS

WARNING

DO NOT APPLY EXTERNAL AIRPLANE DEICING FLUID WHEN THE APU IS OPERATING.

CAUTION

THE APU IS NOT APPROVED FOR UNATTENDED GROUND OPERATION.

APU ENGINE LIMITS

Ambient Temperature Limits	Same as airplane, Refer to Figure 2-4
Maximum Altitude for Starting	Refer to Figure 2-8
Maximum Airspeed/Mach for Starting	Refer to Figure 2-8
Maximum Operating Altitude	31,000 Feet
Maximum Generator Load (26 to 29 Volts)	Ground 300 Amps Flight 200 Amps
Turbine Speed: Normal Governed	100 ±1% RPM
Caution Range	> 101% to 108% RPM
Maximum	> 108% RPM
Exhaust Gas Temperature: Maximum During Start	973°C
Maximum (Governed operation)	718°C
Maximum Continuous (Governed operation)	665°C

APU OIL LIMITS

Approved oils and ambient temperature requirements are the same as for the engines except RM 284A is not approved for the APU. Refer to Figure 2-4 and 2-7.

APU FUEL LIMITS

Approved fuels are the same as for the airplane. Refer to Figure 2-6.

STARTER DUTY CYCLE

Maximum starter duty cycles are six consecutive successful starts at ten minute intervals. A one hour off time must be observed for additional successful starts.

Unsuccessful start attempts:

Battery: Two cycles, 30 seconds each/30 minutes off/Two cycles, 30 seconds each/One hour off (check batteries).

Generator/GPU: Two cycles, 15 seconds each/20 minutes off/Two cycles, 15 seconds each (maximum four cycles per hour).

The APU compartment must be inspected following automatic shutdown.

NOTE

Following automatic shutdown, the APU FAIL annunciator will be illuminated and the APU will not start.

(Continued Next Page)

APU LIMITATIONS (Continued)

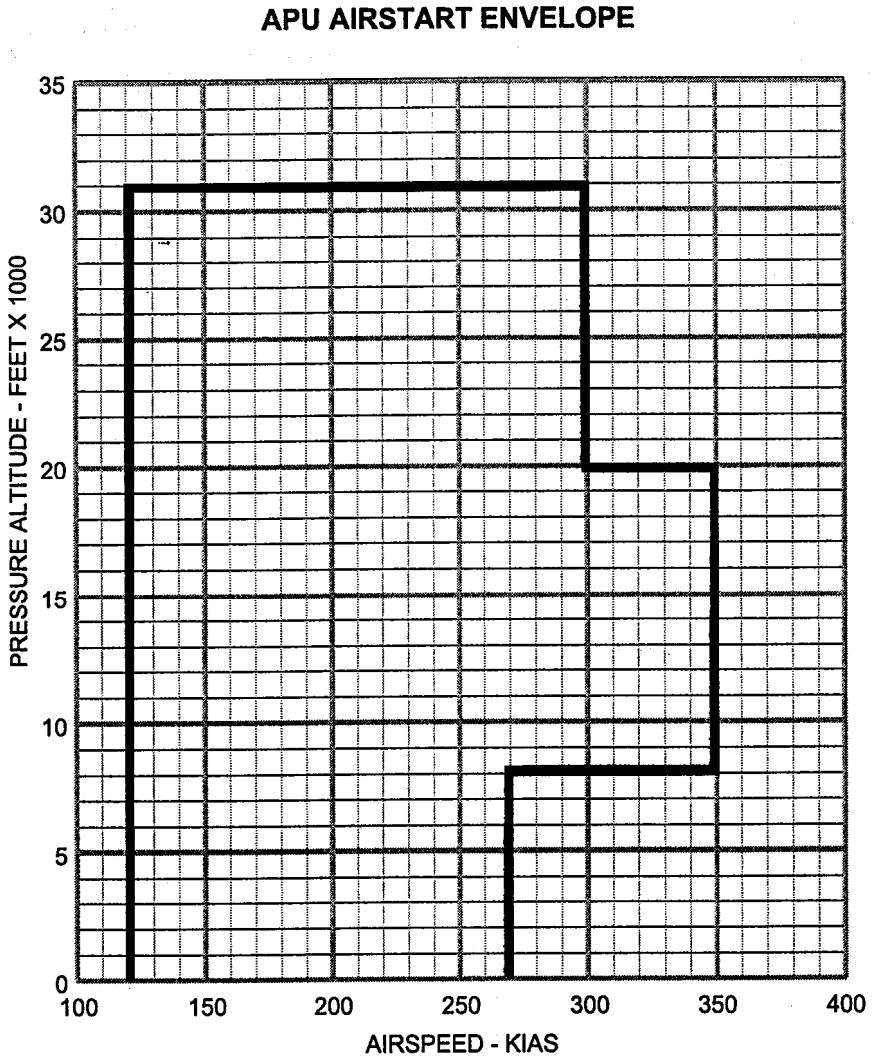

Figure 2-8

APU BLEED

NOTE

APU bleed will be automatically controlled (reduced) if the 665°C EGT limit is reached. This may occur in very hot or very cold temperature conditions if the APU maximum cool bleed is selected or if maximum cool is selected during engine start.

BATTERY LIMITATIONS

CAUTION

IF THE AIRPLANE WILL BE COLD SOAKED (PARKED) BELOW -20°C (-4°F), THE BATTERIES SHOULD BE REMOVED AND STORED IN A WARM ENVIRONMENT. BATTERIES COLDER THAN -20°C MAY BE INERT AND WILL NOT DISCHARGE OR CHARGE.

The battery temperature indicating system must be operational for all ground and flight operations.

If a BATT O'TEMP EICAS message occurs during ground operation, do not take off until the proper battery maintenance procedures have been accomplished.

Battery Cycle Limitation . . . . . Six APU starts per hour. Refer to APU Limitations.

NOTE

- If battery cycle limitation is exceeded, a deep cycle including a capacity check may be required to detect possible cell damage. Refer to Chapter 24 of the Maintenance Manual for procedure.
- If a ground external power unit is used for APU start, no battery cycle is counted.

GROUND PNEUMATIC CART LIMITATION

If a ground pneumatic cart is being used for engine start, it must be capable of maintaining a minimum air pressure of 30 PSI, as displayed in the EICAS, prior to initiating the start.

BAGGAGE COMPARTMENT

- Maximum Operating Altitude 41,000 Feet with the baggage compartment unpressurized.
- Use of the baggage compartment is not authorized with the cabin unpressurized.
- The baggage compartment smoke detection system must be operational if baggage is to be carried in the compartment.
- Live animals may not be carried in the baggage compartment.
- The number of flights with the baggage compartment not pressurized must be logged. Refer to the Model 750 Aircraft Maintenance Manual, Chapter 5 for specific number of flights (cycles).
- Maximum weight of baggage in the baggage compartment is 700 lbs.
- Maximum floor loading distribution is 170 lbs per square foot.
- Maximum weight in the ski holding compartment is 75 lbs.

CAUTION

CHECK CENTER-OF-GRAVITY BEFORE LOADING THE BAGGAGE COMPARTMENT.

COCKPIT AND CABIN PAC SELECTOR SWITCHES

Operation in HIGH mode is not approved for takeoff, landing or flight above 45,000 feet.

Operation in HIGH mode is not approved during normal operation when any of the following systems are on: engine anti-ice, slat anti-ice or stabilizer anti-ice. During emergency operations, HIGH mode is approved when the bleed air anti-ice systems are on, but anti-ice performance will be degraded.

Operation in HIGH is not approved above 25,000 feet when the isolation valve is open and either left or right engine bleed air switch is OFF.

Single PAC operation above 41,000 feet is prohibited.

PAC HIGH PRESSURE BLEED AIR

Operation of the cabin and cockpit PAC's in high pressure bleed air, HP BLEED SELECT switch to HP, (PAC HP VLV OPEN L-R message on) is not approved for normal takeoff and landing operations.

Operation of the cabin and cockpit PAC's in high pressure bleed air (PAC HP VLV OPEN message on) is prohibited when any of the following systems are on: engine anti-ice, slat anti-ice or horizontal stabilizer anti-ice.

The PAC BLEED SELECT switch must be positioned to NORM or HP above 41,000 feet.

OXYGEN MASKS

NOTE

The following aircraft certification requirements are in addition to the requirements of applicable operating rules. The most restrictive (certification or operating) must be observed.

The pressure demand crew oxygen masks must be checked, adjusted and properly stowed prior to flight.

Crew oxygen masks are not approved for sustained operation at a cabin altitude greater than 40,000 feet.

Passenger oxygen masks are not approved for sustained operation at a cabin altitude greater than 25,000 feet.

Headsets and/or hats must be removed prior to donning crew oxygen masks.

NOTE

Some headsets, eyeglasses, hairstyles, mustaches, beards or hats worn by the crew may interfere with the quick-donning and sealing capabilities of the oxygen masks. Crew members must ensure that they can properly don and seal the oxygen mask.

OXYGEN SYSTEM

Service oxygen system with Aviator's Breathing Oxygen per MIL-O-27210. The use of medical oxygen is not approved.

STANDBY ATTITUDE, AIRSPEED/ALTIMETER, AND HSI INSTRUMENTS

The standby attitude indicator, airspeed/altimeter, and HSI instruments must be operational. The standby power preflight check must be accomplished each flight.

The standby airspeed indicator speed limitations, as noted on the placard adjacent to the indicator, are applicable only if both the pilot's and copilot's primary airspeed indicators are inoperative. Airspeeds on this placard, above 24,000 feet, are approximately 0.82 Mach.

NOTE

Standby airspeed and altitude are not corrected for static and pitot source error and will normally vary from calibrated data presented in the PFD. Refer to Figure 4-3. Placard airspeeds above 24,000 feet may be linearly interpolated.

ENGINE SYNCHRONIZATION

The use of engine synchronization is prohibited during takeoff and landing, single engine operation, or FADEC ADC or N_1 reversionary operation.

ANGLE-OF-ATTACK/STALL WARNING SYSTEM

Both stall warning systems, the auto-slat system, and the minimum speed system must be verified to be operational by a satisfactory preflight test as contained in Section III.

The angle-of-attack indicating system may be used as a reference, but does not replace the airspeed indicator as a primary instrument.

FLIGHT CONTROL SYSTEMS

The following flight control hydraulic systems must be verified to be operational by a satisfactory preflight test as contained in Section III:

a. A and B hydraulic systems. (Proper hydraulic pressure, no CAS message.)
b. The A system auxiliary pump. (Proper pressure with A & B Systems off, setting brake.)
c. The B-to-A power transfer system. (Proper pressure cycling after RH engine start.)
d. B system rudder standby hydraulic system. (Absence of CAS messages after RH engine Start.)
e. PCU monitor system. (Absence of CAS messages or monitor annunciators.)

(Continued Next Page)

FLIGHT CONTROL SYSTEMS (Continued)

Both A and B Flight Guidance Computers and all flight control systems including slats, flaps, ailerons, aileron trim, spoilers, speedbrakes, rudders, rudder trim, elevator, primary and secondary stabilizer trim, and all respective indicators, must be verified to be operational by a satisfactory preflight test as contained in Section III.

Both upper and either lower yaw damper channels must be operational for dispatch.

Both rudder limiters must be operational.

The stabilizer trim must be set in accordance with Figure 3-2 (green arc) for takeoff.

The Mach trim system must be operational for speeds above Mach 0.82.

Except as required by Abnormal or Emergency Procedures, the A and B hydraulic systems may not be intentionally unloaded, (Pump A and/or Pump B switches to UNLOAD) in flight, above 15,000 feet MSL altitude.

THRUST REVERSERS

Thrust reversers are restricted to ground operations on paved surfaces only.

Use of Thrust Reversers is prohibited during touch-and-go landings.

Maximum reverse thrust is limited to the preset maximum reverse throttle lever angle (46.0°).

Reverse thrust must be reduced to idle reverse (detent) at 65 KIAS during landing rollout.

During single engine reversing, either with nosewheel steering inoperative or on a slippery runway, thrust must be reduced to idle reverse (detent) by 70 KIAS during landing rollout.

The thrust reverser(s) must be verified to be operational by a satisfactory preflight test as contained in Section III.

Thrust Reversers must not be used to back the aircraft during taxi operations.

CAUTION

THRUST REVERSERS SHOULD NOT BE DEPLOYED UNTIL THE NOSE WHEEL IS ON THE GROUND. AIRPLANE PITCH UP MAY OCCUR.

ICING LIMITATIONS

Pitot-Static/RAT heat, engine, and stabilizer bleed air anti-ice systems must be utilized when operating in icing conditions as defined in Section III. All anti-ice systems must be activated unless it can be verified that ice is not forming on surfaces. Except for the ground preflight check, maximum SAT for operation of bleed air anti-ice above idle is +20° C.

(Continued Next Page)

ICING LIMITATIONS (Continued)

Minimum speed/configuration for sustained flight in icing is 200 KIAS/slats up except for approach and landing. Approach procedures in icing conditions may be flown at normal airspeeds in the full flap landing configuration.

The airplane must be free of ice as defined in Section VII prior to takeoff. Anti-ice systems must not be used to deice surfaces prior to takeoff.

WARNING

DO NOT APPLY EXTERNAL AIRPLANE DEICING FLUID WHEN THE APU IS OPERATING.

CAUTION

TO PREVENT POSSIBLE ENGINE DAMAGE FROM THE INGESTION OF ICE, DO NOT CHIP OR SCRAPE ICE OR SNOW FROM THE ENGINE AIR INLET. DEICE THESE AREAS PRIOR TO START (REFER TO SECTION VII).

NOTE

- Section VII contains advisory information on airplane ground deicing and anti-icing.
- Selection of PAC HP bleed with anti-ice on will degrade anti-ice system performance and cause cold messages to illuminate.

OPERATIONS IN SEVERE ICING CONDITIONS

WARNING

SEVERE ICING MAY RESULT FROM ENVIRONMENTAL CONDITIONS OUTSIDE OF THOSE FOR WHICH THE AIRPLANE IS CERTIFIED. FLIGHT IN FREEZING RAIN, FREEZING DRIZZLE, OR MIXED ICING CONDITIONS (SUPERCOOLED LIQUID WATER AND ICE CRYSTALS) MAY RESULT IN ICE BUILD-UP ON PROTECTED SURFACES EXCEEDING THE CAPABILITY OF THE ICE PROTECTION SYSTEM, OR MAY RESULT IN ICE FORMING AFT OF THE PROTECTED SURFACES. THIS ICE MAY NOT BE SHED WHEN USING THE ICE PROTECTION SYSTEMS, AND MAY SERIOUSLY DEGRADE THE PERFORMANCE AND CONTROLLABILITY OF THE AIRPLANE.

During flight, severe icing conditions that exceed those for which the airplane is certified shall be determined by the following visual cues:

1. Unusually extensive ice accumulation on the airframe and windshield in areas not normally observed to collect ice.
2. Accumulation of ice on the upper surface of the wing aft of the protected area.

If one or more of these visual cues exist, immediately request priority handling from Air Traffic Control to facilitate a route or altitude change to exit the icing conditions.

HONEYWELL PRIMUS 2000 INTEGRATED AVIONICS SYSTEM AND AUTOPILOT

1. The Honeywell Primus 2000 Pilot's Manual must be immediately available to the flight crew: Primus 2000 Integrated Avionics System and Flight Control Systems, for the Citation X - Publication Number A28-1146-104-01 dated October 1997 or later appropriate revision.
2. One pilot must remain in his seat with seat belt and shoulder harness fastened during all autopilot operations.
3. PFD data must be displayed in the No. 1 and No. 5 display units for dispatch.
4. Autopilot minimum use height:
   a. Cruise . . . . . 1000 Feet AGL
   b. Precision Approach (Category I ILS) . . . . . 170 Feet AGL
   c. Nonprecision Approach . . . . . 400 Feet AGL
5. Autopilot coupled operation with single operational or displayed IRS is prohibited.
6. Approved for Category I and II operations. Refer to Category II limitations.
7. Autopilot coupled ILS approaches with flaps up are prohibited.
8. VOR navigation without DME: For proper radial tracking following station passage using a VOR navaid without DME, the VOR navaid must be the active waypoint in the FMS flight plan.

HONEYWELL PRIMUS II SRZ-850 INTEGRATED RADIO SYSTEM

The Honeywell Pilot's Operating Handbook for the PRIMUS II Integrated Radio System, Publication Number: A28-1146-50-04, dated April 1993 or later revision, must be immediately available to the flight crew. Honeywell Publication A28-1146-121-00, dated February 1999 or later revision is an acceptable replacement for A28-1146-50-04 and is the required document for those airplanes equipped with 8.33 KHz spacing radios.

CATEGORY II LIMITATIONS

1. Specific operational approval and crew qualification is required for Category II operation.
2. The CAT 2 mode annunciation must be displayed in both PFDs from the final approach fix to the decision height.
3. Maximum final approach speed is V_{REF} +20 knots at the outer marker, slowing to V_{REF} (or V_{REF} adjusted for wind gust) prior to reaching the decision height.
4. Category II approaches with flaps in any position other than FULL (35°) are prohibited.
5. Autopilot minimum use height (Category II ILS) . . . . . 80 Feet AGL
6. Wind Limitations:
   Maximum tailwind component . . . . . 10 knots
   Maximum crosswind component . . . . . 15 knots

NOTE

If the FMS indicates significantly different wind on final than reported on the surface, low altitude wind shear may result in exceeding the localizer or glideslope Category II deviation limits.

HONEYWELL LASEREF IV INERTIAL REFERENCE SYSTEM

1. The Honeywell Pilot's Manual for the Laseref IV Inertial Reference System (IRS), Publication Number M28-3343-003-0 dated August 1998 or later must be immediately available to the flight crew.
2. IRS alignment procedures are only approved for latitudes between 78.25° North and 78.25° South.
3. Because the limits of reliable magnetic heading are 73°N and 60°S, true heading should be selected for navigation beyond those latitudes.
4. IRS system operations not approved for Line Replaceable Unit (LRU) temperatures less than -40°C.
5. Movement of airplane is prohibited until the IRS ground alignment is complete (2.5 minutes to 17 minutes, depending on latitude).
6. During ATT alignment in flight, after an IRS FAIL, the Autopilot/Flight Director must be disconnected until the failed IRS aligns and the heading is initialized on the FMS Control Display Unit (CDU).
7. Once an IRS is placed in ATT mode, this IRS can no longer be used as a navigation sensor during the flight.
8. Autopilot coupled with single operational or displayed IRS is prohibited.

PULSELITE SYSTEM

The Pulselite System must be OFF and remain OFF during the following night ground and night flight operations: Taxi, takeoff and landing approach at 300 feet AGL and below.

EICAS AND INSTRUMENT MARKINGS

A and B System Hydraulic Pressure		
Digital Indication	Green Range :	2800 to 3200 PSI
	Amber Range :	< 2800, > 3200 PSI
(Either engine running and both Hydraulic Pressures Low)	Red Range :	< 2600 PSI
Both engines shut down	Green Range :	< 2600 PSI
A and B System Hydraulic Quantity		
Digital Indication	Green Range :	16 to 100%
	Amber Range :	< 16%

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EICAS AND INSTRUMENT MARKINGS (Continued)

Accumulator Pressures (A and B hydraulic systems, emergency brake, gear blowdown, rudder standby system, and nose wheel steering)		Per Placard according to temperature
APU MFD EICAS		
% RPM Indication	Green Range :	0 to 101%
	Amber Range :	> 101 to 108%
	Red Range :	> 108%
EGT	Green Range :	0 to 665°C
	Amber Range :	> 665 to 718°C
	Red Range :	> 718°C
APU DC AMPS (Gage)	Green Range (gnd or flt) :	0 to 200
	Yellow Range (gnd only) :	> 200 to 300
	Red Line :	300
Cabin Differential Pressure Indicator	Green Arc :	0.0 to 9.7 PSI
	Red Line :	9.7 PSI
Fuel Quantity Digital Indication (Wing Tanks)	Amber :	< 500 Pounds
Fuel Temperature Indication		
Engine	Green :	4 to 99°C
	Amber :	< 4, > 99°C
Tank	Green :	– 37 to 52°C
	Amber :	< –37, > 52°C
Left and Right Electrical Systems		
Digital Voltage Indication	Green Range:	23 to 29 VDC
	Amber Range:	< 23, > 29 VDC
Red when both systems < 23 and either engine running		
Green when respective engine off		
Digital Ammeter Indication (EICAS)		
SL to FL410	Green Range:	0 to 400 AMPS
	Amber Range:	> 400 to 401 AMPS
	Red Range:	> 401 AMPS
Above FL410	Green Range:	0 to 300 AMPS
	Amber Range:	> 300 to 301 AMPS
	Red Range:	> 301 AMPS
Battery Temperature Indication	Green Range:	> –20 to 62.8°C
	Amber Range:	≤ –20°C
	Red Range:	> +62.8°C
Battery Voltage Indication	Green Range:	23 to 29 VDC
	Amber Range:	< 23, > 29 VDC

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EICAS AND INSTRUMENT MARKINGS (Continued)

Left and Right Inter-Turbine Temperature Indication (EICAS)		
During Start	Red Arrows:	800°C (Max Starting)
Engine Running	Amber Range:	> 857°C to ≤ 907°C
	Red Line:	> 907°C
Left and Right N_1 RPM Indication	Red Line:	100% RPM
Left and Right N_2 RPM Indication		
Engine Running	Green Range (Digits):	< 101% RPM
	Red Range (Digits):	≥ 101% RPM
Left and Right Oil Pressure Indication	Green Range:	50 to 95 PSI
	* Amber Range:	34 to 50 PSI > 95 to 155 PSI (Less than 2 minutes)
	Red Range:	< 34, > 155 PSI > 95 to 155 PSI (More than 2 minutes)
Left and Right Oil Quantity Indication	Green Range:	< 8.0 quarts low
	Amber Range:	≥ 8.0 quarts low
Left and Right Oil Temperature Indication . . .	Green Range:	21 to 127°C
	Red Range:	> +127°C
Oxygen Pressure Indication	Green Arc :	1600 to 1800 PSI
	Yellow Arc :	0 to 400 PSI
	Red Line :	2000 PSI
Stabilizer Trim Indication		
On Ground	Flaps ≤ 5° Green Arc :	–2° to –5°
. . . . .	Flaps 15° Green Arc :	–5° to –8°
In Flight	White Arc :	+1.2° to –12°

NOTE

+1.2 and –12 degrees are nominal primary stabilizer trim limits. The EICAS stabilizer trim digits and needle will turn amber beyond these nominal values. Primary stabilizer trim tolerances or the use of secondary trim, may allow stabilizer trim travel slightly beyond these nominal values.

* Amber range displayed if TLA > 30° or anytime in flight.

AUTOMATIC DIRECTION FINDER (ADF)

The ADF bearing pointer may be unreliable during HF radio transmissions.