

Air Safety Investigations Aircraft Incident/Accident Technical Report

Aircraft Incident/ Accident Information	Year: 1977	Make: Beechcraft	Model: C23
	Serial number: M-1902		Registration: N3342L
Location: Lansing, WV		Date: 09-26-21	Time: ~1100 EDT
Aircraft Owner		Aircraft Operator	
Parade Of Properties, LLC [REDACTED]		Nicholas McDaniel Fletcher [REDACTED]	
Report Information			
Senior Air Safety Investigator: Peter J. Basile		Report #: ASI-21-CQ-T	Report date: 01-03-22

Airframe

Impact Sequence and Airframe Structure

The aircraft descended through trees in a left-wing-low, nose-down flight attitude. The right wing struck a large tree and separated approximately 6' of the outboard right wing including the right aileron. The inboard portion of the right wing remained attached to the fuselage. The right flap remained attached to the wing. The right main landing gear was impact fractured and found under the left wing; it remained loosely attached to the airframe via the brake line. The left wing remained attached to the aircraft. The left aileron and left flap remained attached to the wing. The left main landing gear was impact fractured and found under the left wing.

The aircraft impacted soil and came to rest upright. The cabin sustained significant impact compression damage. The cabin floor was bent upward and aft; the cabin roof was compressed downward. The instrument panel was crushed and folded underneath the front of the aircraft. The engine came to rest inverted and pointed to the right. Several pieces of propeller cut tree limbs were observed at the site.

The left and right side of the tail cone exhibited impact related compression damage. The left and right stabilator remained attached to the tail. The leading edge of the left stabilator exhibited tree impact damage near the tip. The stabilator trim tab remained attached to the stabilator. The vertical stabilizer exhibited minimal impact damage at the dorsal. The rudder remained attached to the vertical stabilizer.



On-site, ASI-21-CQ-008

Airframe Systems

Flight Control System Information		
Control lock: Undetermined		
Flight Control Cable Continuity		
Ailerons: Established	Elevators: Established	Rudder: Established
Aileron tab: Not applicable	Elevator tab: Established	Rudder tab: Not applicable
Flap and Trim Positions		
Flap indicator: Up	Flap handle: Down	Flap actuator: ~1" = ~35°
Elevator trim: Indicator: Undetermined	Actuator: 1.05" = ~5° tab up	

Remarks:

Flight control cable continuity was established for all flight controls. The left and right aileron cables were continuous from the bellcrank to the control column. The rudder and stabilator cables were continuous from the tail to the rudder torque tubes and the control column. The stabilator trim cables were continuous from the tail to the forward cabin floor assembly.



On-site, ASI-21-CQ-142

Airframe Fuel System Condition, Controls, and Read Outs		
Fuel strainer screen: Undetermined	Fuel strainer bowl: Undetermined	
Main fuel tank gauge:	Left: Empty	Right: Empty
Fuel selector handle: Right	Fuel selector valve: Right	Fuel boost pump: Undetermined

Remarks:

The left and right fuel cap remained attached to their respective wings. Both fuel tanks were breached.



On-site, ASI-21-CQ-105



On-site, ASI-21-CQ-111



On-site, ASI-21-CQ-189

Landing Gear System Condition and Controls			
Gear position:	Nose: Fixed	Left: Fixed	Right: Fixed
Environmental System Controls and Read Outs			
Cabin heater: Off	Cabin vent: Undt	Defrost: Off	
Air conditioner: Not applicable	Oxygen system: Not applicable	Oxygen quantity: Not applicable	
Icing System Information and Switches			
Certified into known icing? No	De-icing boots installed? No		
Pitot heat: Undetermined	Stall heat: Not applicable		
Anti-ice:	Surface: Not applicable	Propeller: Not applicable	Windshield: Not applicable
ELT Information			
Installed? Yes	Manufacturer: ACK	Model: E-01	Type: AF
Serial number: 025589	Battery due date: 12-23	Armed: Yes	Activated: Undetermined

Remarks:

None.



On-site, ASI-21-CQ-100

Cabin and Equipment/Furnishings

Restraint System Information						
Seat	Occupied	Restraint type	Restraint used	Condition	Manufacturer	
1	Yes	3-Point	Yes	See below	See below	
2	Yes	3-Point	Yes	See below	See below	
3	No	3-Point	N/A	See below	See below	
4	Yes	3-Point	Yes	See below	See below	

Seat Condition Information					
Seat	Orientation	Feet intact	Back intact	Base intact	Rail intact
1	Forward facing	Partially	See below	See below	No
2	Forward facing	Partially	See below	See below	No
3	Forward facing	Partially	See below	See below	Not applicable
4	Forward facing	Partially	See below	See below	Not applicable

Remarks:

The cabin sustained impact compression damage. The cabin floor was bent upward and aft; the cabin roof was compressed downward. The right side of the cabin was cut open by first responders for recovery of the occupants.

The aircraft was equipped with four forward facing seats. All four seats were equipped with three point safety restraints.

The seat 1 lap belt remained buckled and the shoulder harness remained attached. The seat 1 inboard lap belt anchor point was impact separated from the aircraft floor.

The seat 2 lap belt remained buckled and the shoulder harness remained attached. The seat 2 lap belt had been cut by first responders.

The seat 3 restraint was unremarkable.

The seat 4 lap belt was found unbuckled. The lap belt and shoulder harness had been cut by first responders.

Seat 2 and 4 were removed from the aircraft during the examination. The seat rails and floor exhibited significant impact compression damage.

The left cabin door was found separated from the aircraft. The right cabin door remained partially attached at the lower forward fuselage skin. The cargo door was separated.

Instrument Panel

Navigation Instruments							
Analog primary instruments				Autopilot type: S-Tec			
Instrument air gage: 0		Magnetic compass: ~351			Clock: Digital		
	Left side				Left side		
Airspeed:	85			Turn coordinator (airplane):	Left		
Attitude (pitch):	Undt			Turn coordinator (ball):	Left		
Attitude (roll):	Undt			Heading indicator:	112		
Altimeter:	31,760			Heading "bug":	123		
Altimeter setting:	30.15			Vertical speed indicator:	+280'		
Communication and Navigation Radios							
Radio	Control	Active frequency	Stand-by frequency	Radio	Control	Active frequency	Stand-by frequency
Com 1:	On	Digital	Digital	Com 2:	On	122.80	N/A
Nav 1:	On	Digital	Digital	Nav 2:	On	116.90	N/A
Obs 1:	195			Obs 2:	210		
Transponder:	Mode: Undt		Active code: Digital		Stand-by code: Undt		
Electrical Switch Positions							
Master battery: Off		Master alternator: On			Avionics 1: Undetermined		
Lighting Switch Positions							
Navigation: Undetermined		Rotating Beacon: Undetermined			Landing: Undetermined		
Taxi: Not applicable		Strobe: On			Instrument: On		
Ignition Switch Position							
Key: Both							

Remarks:

The instrument panel was crushed and folded underneath the front of the aircraft.

Powerplant Description

Engine Instruments					
Hour meter:	1,665.8	Tach RPM:	0	Tach hours:	3,668.86
Oil press:	60	Oil temp:	0	EGT:	Digital
Fuel press:	Undt	Fuel flow:	Undt	Ammeter:	Negative
Manifold press: N/A					
CHT: Digital					
Engine Control Positions					
	Cockpit	Engine		Cockpit	Engine
Throttle:	Full	Undt	Cowl flaps:	Not applicable	Not applicable
Mixture:	Rich	Undt	Carburetor heat:	Off	Undetermined
Propeller:	Not applicable	Not applicable	Primer:	In / Locked	
Engine Condition					
Engine attached to airframe:			Yes		
Propeller attached to engine:			Yes		
Engine compression:			Yes		
Valve train continuity:			Yes		
Vacuum pump drive shaft:			Intact		
Engine Fuel System Condition					
Fuel pump drive shaft:			Undetermined		
Carburetor inlet screen:			Clean		
Magneto Condition					
Left magneto attached:			Yes		
Right magneto attached:			Yes		
Left magneto spark:			All leads		
Right magneto spark:			All leads		
Spark Plug Condition (per Champion Check-A-Plug Card)					
	1	2	3	4	
Top	Normal	Normal	Normal	Normal	
Bottom	Undetermined	Undetermined	Undetermined	Undetermined	

Remarks:

The engine came to rest inverted and pointed to the right. Engine compression and continuity were established. The magnetos produced spark at all leads. The spark plugs appeared new with minimal normal wear. The engine was inspected using an endoscope; no anomalies were noted. Fuel was observed at the fuel pump and the carburetor. The carburetor fuel inlet screen was clean. The engine oil screen contained one small piece of organic material; the remainder was clear.

Propeller

The two-bladed Sensenich fixed pitch propeller remained attached to the engine. One propeller blade was bent aft in a gradual arc and exhibited chordwise scratches with a large semicircular tree impact near the tip. The other propeller blade was bent slightly forward in a gradual arc. It exhibited chordwise scratches and multiple leading edge gouges.

Research & Testing

An iPad was found inside the wreckage. The screen was crushed and separated from the body of the unit. It was not suitable for data extraction.

A Garmin GNX 375 had been installed in the instrument panel; an SD card was found inside the unit. The SD card was removed and retained by the NTSB-IIC for data extraction. The Garmin GNX 375 was also removed and provided to the NTSB-IIC.

The camping gear found in the aircraft was weighed using a household bathroom scale. The total cargo weighed 252.8 lbs.



On-site, ASI-21-CQ-032

There were two marijuana pipes found in the personal effects. One was found by first responders, the other was found by the investigative team and turned over to the police.



On-site, ASI-21-CQ-061

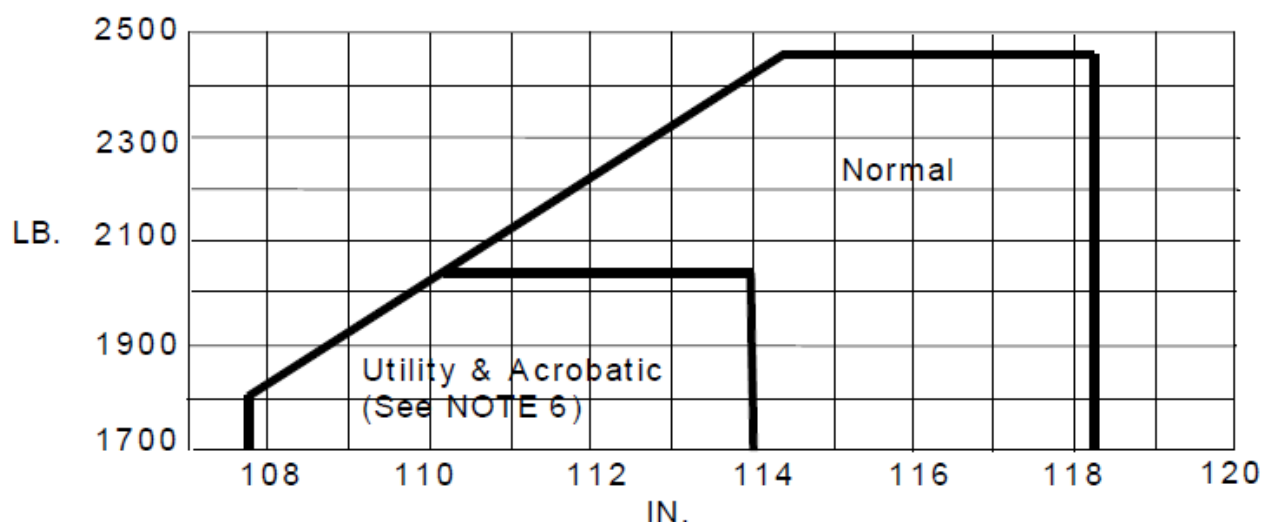
A copy of the Pilot's Operating Handbook was found in the aircraft and it contained Weight and Balance data. On 06-25-20, the Weight and Balance was revised; the following numbers were recorded:

- Empty Weight: 1,587.6 lbs.
- Useful Load: 862.4 lbs.
- CG: 111.05
- Moment: 176313.985

Per the Type Certificate Data Sheet (TCDS), the C.G. Range for a Normal Category Model C23 is:

- (+114.5) to (+118.3) at 2450 lb.
- (+107.8) to (+118.3) at 1800 lb. or less

The following illustration is included on the TCDS for the Model C23:



Per the POH, the aircraft was equipped with two 29.2 gallon fuel tanks. The total usable fuel was 57.2 gallons. Note: The unusable fuel (1.2 gallons) is included in the standard empty weight of the aircraft.

Estimated weight and balance calculations were performed with a fuel load of 32.2 gallons (193.2 lbs.) and 13.8 gallons (82.8 lbs.). The 32.2 gallons fuel load assumed that the pilot departed Chesapeake, VA with full fuel tanks (57.2 gallons usable) and flew for 2.5 hours to reach New River Gorge Airport. The engine would have consumed an estimated 10 gallons per hour, or 25 gallons total. Thus, the remaining fuel would have been approximately 32.2 gallons. The 13.8 gallons fuel load assumed that the pilot departed Chesapeake, VA with 40 gallons (38.8 usable) and flew the same route to New River Gorge Airport. The remaining fuel would have been 13.8 gallons.

The estimated weight and balance with 32.2 gallons showed the aircraft to be 124 lbs. over gross weight with an out of limits aft CG.

1977 Beechcraft C23**S/N: M-1902, Registration: N3342L****D/A: 09-26-21, Location: Lansing, WV**

Max Gross Wt 2450

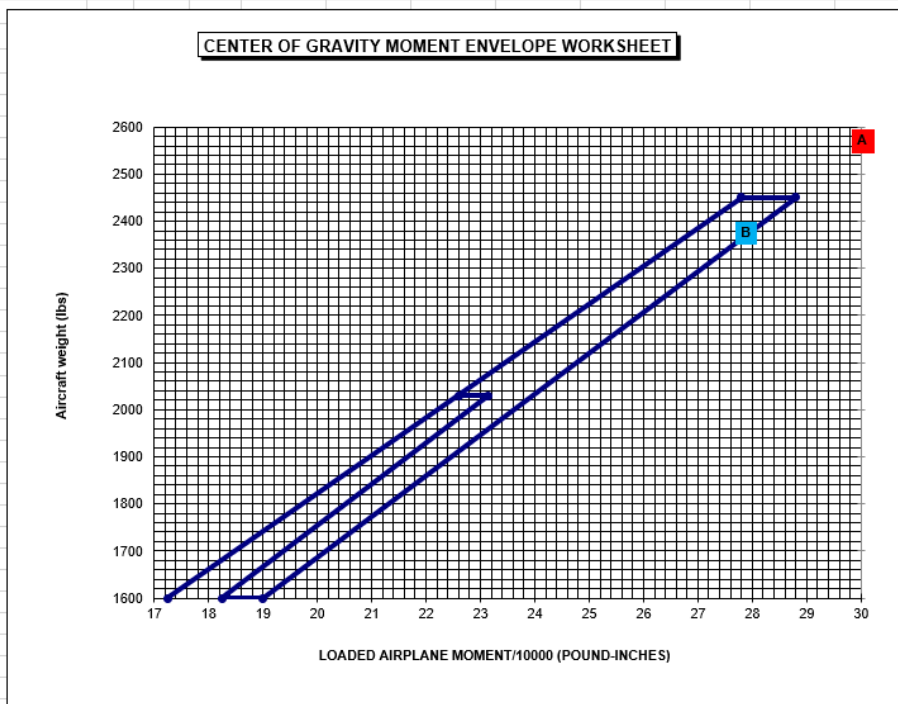
Useful Load = 862.4

Loaded Aircraft				
	wt	arm	mom/100	C.G.
Empty Wt	1588	111.0	1763.0	
Fuel	193.2	117.0	226.0	32 gallons
Seat #1	180	109	196.2	
Seat #2	180	109	196.2	
Seat #3	200	144	288.0	
Seat #4	180	144	259.2	
Bag Area	53	167	88.5	
Total Wt.	2574	117.2	3017.2	

PLOT DATA				
Envelope	wt	mom.	weight	
mom/10000				
17.25	1600	3017.2	2573.8	A Loaded a/c
27.8	2450	2791.1	2380.6	B Empty fuel
28.8	2450			
19	1600			
18.25	1600			
23.15	2030			
22.6	2030			

Note 1: Shaded areas required manual input

Note 2: A & B tags must be positioned manually



With 13.8 gallons of fuel, the aircraft was 13 lbs. over gross weight with an out of limits CG.

1977 Beechcraft C23**S/N: M-1902, Registration: N3342L****D/A: 09-26-21, Location: Lansing, WV**

Max Gross Wt 2450

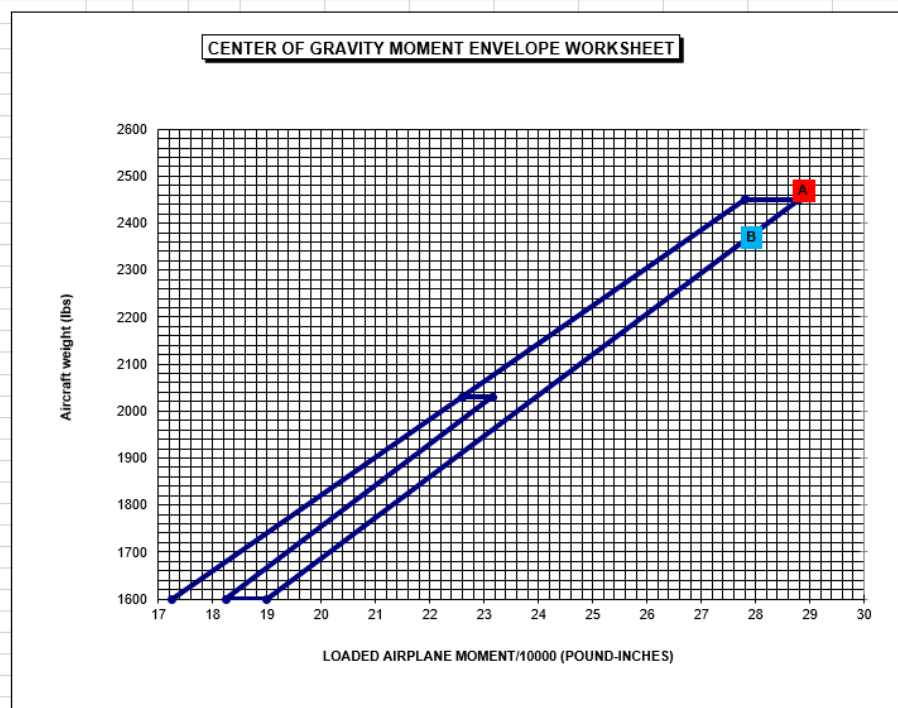
Useful Load = 862.4

Loaded Aircraft				
	wt	arm	mom/100	C.G.
Empty Wt	1588	111.0	1763.0	
Fuel	82.8	117.0	96.9	14 gallons
Seat #1	180	109	196.2	
Seat #2	180	109	196.2	
Seat #3	200	144	288.0	
Seat #4	180	144	259.2	
Bag Area	53	167	88.5	
Total Wt.	2463	117.2	2888.0	

PLOT DATA				
Envelope	wt	mom.	weight	
mom/10000				
17.25	1600	2888.0	2463.4	A Loaded a/c
27.8	2450	2791.1	2380.6	B Empty fuel
28.8	2450			
19	1600			
18.25	1600			
23.15	2030			
22.6	2030			

Note 1: Shaded areas required manual input

Note 2: A & B tags must be positioned manually



Based on the C23 Take-Off Distance – Hard Surface performance chart, and the following conditions: max gross weight of 2,450 lbs., density altitude of 1,845', headwind of 4 knots, and 15°C, the interpolated ground roll was 1,280' and the distance to clear a 50' obstacle was 2,239'. Per the POH, liftoff speed is 65 knots and 74 knots at 50'. Stall speed with flaps UP and 45° bank is 74 knots.

A conservative takeoff distance would assume 2,000', 0 knots wind component, and 21°C which would result in a ground roll of 1,429' and 2,455' to clear a 50' obstacle.

TAKE-OFF DISTANCE – HARD SURFACE

ASSOCIATED CONDITIONS:

POWER FULL THROTTLE
MIXTURE LEAN TO MAXIMUM RPM, THEN ENRICH SLIGHTLY
FLAPS UP
RUNWAY LEVEL, DRY, HARD SURFACE
WEIGHT 2450 LBS

TAKE-OFF SPEEDS:

LIFT OFF 65 KTS/75 MPH
AT 50 FT 74 KTS/85 MPH

WIND COMPONENT DOWN RUNWAY KNOTS	SEA LEVEL			2000 FT			4000 FT			6000 FT			8000 FT		
	OAT °F °C	GROUND ROLL FEET	TOTAL OVER 50 FT OBSTACLE FEET	OAT °F °C	GROUND ROLL FEET	TOTAL OVER 50 FT OBSTACLE FEET	OAT °F °C	GROUND ROLL FEET	TOTAL OVER 50 FT OBSTACLE FEET	OAT °F °C	GROUND ROLL FEET	TOTAL OVER 50 FT OBSTACLE FEET	OAT °F °C	GROUND ROLL FEET	TOTAL OVER 50 FT OBSTACLE FEET
0	23 -5	917	1592	16 -9	1046	1805	9 -13	1195	2051	2 -17	1368	2334	-6 -21	1569	2662
	41 5	1020	1767	34 1	1165	2007	27 -3	1333	2284	20 -7	1528	2604	13 -11	1756	2975
	59 15	1130	1955	52 11	1293	2224	45 7	1481	2535	38 3	1701	2894	31 -1	1957	3311
	77 25	1248	2155	70 21	1429	2455	63 17	1640	2802	56 13	1856	3204	49 9	2173	3671
	95 35	1373	2369	88 31	1575	2701	81 27	1809	3087	74 23	2083	3535	67 19	2404	4055
15	23 -5	728	1454	16 -9	836	1653	9 -13	961	1883	2 -17	1108	2149	-6 -21	1279	2456
	41 5	813	1618	34 1	935	1842	27 -3	1077	2102	20 -7	1243	2402	13 -11	1438	2750
	59 15	904	1793	52 11	1042	2045	45 7	1202	2336	38 3	1389	2674	31 -1	1609	3067
	77 25	1003	1980	70 21	1156	2261	63 17	1336	2587	56 13	1546	2965	49 9	1793	3406
	95 35	1107	2180	88 31	1279	2492	81 27	1479	2855	74 23	1714	3277	67 19	1990	3768
30	23 -5	559	1337	16 -9	647	1523	9 -13	751	1739	2 -17	873	1988	-6 -21	1017	2278
	41 5	628	1490	34 1	728	1700	27 -3	847	1944	20 -7	985	2227	13 -11	1149	2555
	59 15	702	1654	52 11	816	1890	45 7	949	2164	38 3	1107	2483	31 -1	1292	2854
	77 25	782	1829	70 21	910	2094	63 17	1060	2401	56 13	1237	2758	49 9	1446	3174
	95 35	868	2017	88 31	1011	2311	81 27	1180	2653	74 23	1378	3052	67 19	1613	3518

Section V Performance

BEECHCRAFT Sundowner 180 C23 (M-1285 and After)

POWER OFF STALL SPEEDS

(WEIGHT 2450 LBS)

Maximum altitude loss during a normal stall recovery is approximately 300 ft.

ANGLE OF BANK			
LEVEL	30°	45°	60°
FLAPS-UP			
72 mph 63 kts	77 mph 67 kts	85 mph 74 kts	101 mph 88 kts
FLAPS - DOWN (35°)			
59 mph 51 kts	63 mph 55 kts	70 mph 61 kts	83 mph 72 kts

A piece of notebook paper was found inside the back cover of the pilot's logbook. The title of this paper was, "1/25/2021 New Personal Minimums." The paper included a section titled, "Aircraft Performance." Within this section the pilot listed the following: "Max Weight: 2450 lbs., Max Fuel: 350 lbs. (58 gal), Empty Wt: 1587 lbs." This basic weight and balance calculation figured the available passenger weight which was listed as: "Passenger wt: 513 lbs." Below this number, the pilot included his name, "Nick" and his weight, "185," and subtracted it from the available passenger weight of 513 lbs. to arrive at a total of 328 lbs. of available "non-pilot" weight. Note: each passenger weighed approximately 180 lbs. and the camping gear was 252.8 lbs.

1/25/2021 New Personal Minimums

Recency

T/O & LDGRS: 10 in last 90 days

HRS in Make: 25 new Model before passengers.
100 per year - current.

Instrument: 4 Appr per month

Instrument Hrs: 50 in last year

Familiarity: Fly in VMC 1st.

Physical

I.M.S.A.F.E.

Aircraft

Fuel Reserves

VFR day: 1hr

VFR night: 1.5hr

IFR day: Alt + 1.5hr

IFR Night: Alt + 2 hr

Aircraft Performance

(BE-C23)

Max Weight: 2450 lbs

Max Fuel: - 350 lbs (58gal)

Empty wt: - 1587 lbs

= passengers wt = 513 lbs

Nick = - 185

328 (non-pilot)

Min RWY: 2400ft (std)
3000 ft (Hot)

Weather

Max Xwind: 15 KTS

Cieleng: 800ft

Visibility: 2 sm

Missed: 2 Appr. Attempts (dependant)