

WPR12GA106 Weight and Performance Information

N407HL, Bell 407, sn 53869

Parameter	Value	Data Source	Remarks
MTOGW	5,250 lbs	Owner (Hillsboro Aviation 6120)	
EW	2,950.2 lbs	W&B Sheet 1/26/12	Includes 13.3 lbs of unusable fuel plus "cargo basket and beams"
EW Xcg	131.38 in	W&B Sheet 1/26/12	
EW Ycg	0.72 in	W&B Sheet 1/26/12	

Configuration Information

High Skid installed
 External Litter (presumed to be "cargo basket") installed
 Particle Separator ("AF screens," not Bell version)
 Snow Deflector - yes per Pilot

Flight Conditions

Elevation 9,550 ft msl
 Temperature 33 degs F
 Baro pressure 10.38 psia
 Winds estimated to be less than 10mph from the east
 Wind speed and direction can vary dramatically in such locations/topography
 Unknown which way the helicopter was facing at the time of the loss of control

Flight Weight and CG

Records not provided/obtained
 All values estimated/based on pilot's recollections
 Three personnel: 530 lbs
 Gear: 80 lbs
 See next page for details

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ESTIMATED WEIGHTS

According to the pilot, the helicopter had about 610 lbs of persons and gear on board
He recalled that for the flight, they were at about half their payload capability
The pilot estimated a fuel burn of 40gph, and a flight time of 45-50 minutes, for a leg out burn of ~200 lbs

The performance charts show that the helicopter would have had performance limited weights of 4,970 lbs HIGE and 4,700 lbs HOGE for the ambient conditions, and corresponding payloads of 1,340 lbs HIGE and 1,070 lbs HOGE

Thus the TOGW would have been as follows:
4,300 lbs HIGE (max perf weight – payload/2 = 4,970- 670), or
4,165 lbs HOGE (4,700-535)

Subtracting 200 lbs fuel burn, the estimated weights at the time of the event would have been
4,100 lbs HIGE, or
3,965 lbs HOGE

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COMPARISON of TCSAR and BELL PERFORMANCE CHARTS

HIGE Weights

PA=>	Maximum Weight						Maximum Payload						
	9,000'		10,000'		11,000'		9,000'		10,000'		11,000'		
	TCSAR	Bell	TCSAR	Bell	TCSAR	Bell	TCSAR	Bell	TCSAR	Bell	TCSAR	Bell	
Temp °C													
-5	4,975	5,200	4,975	5,050	4,960	4,900	1,345	1570	1,345	1420	1,330	1270	
0	4,975	5,200	4,975	4,970	4,805	4,850	1,345	1570	1,345	1340	1,175	1220	
5	4,975	5,050	4,850	4,850	4,625	4,650	1,345	1420	1,220	1220	995	1020	

NOTES (apply to HIGE & HOGE tables)

- 1 – TCSAR maximum weights derived by adding 3,630 to maximum payload
- 2 - TCSAR maximum payload chart specifies Snow Deflector, Basic Inlet (no particle separator), High Skid, Zero Wind or Wind < 30° off nose, and includes 180 lb pilot and 500 lbs fuel
- 3 – Bell Chart: Snow Deflector, Basic Inlet (no particle separator), High Skid, Wind up to 35 kts any relative direction
- 4 – Bell maximum payload weights derived by subtracting 3,630 from Maximum weight or MTOGW, whichever is less
- 5 – Heater and anti-ice OFF for all charts

HOGE Weights

PA=>	Maximum Weight						Maximum Payload					
	9,000'		10,000'		11,000'		9,000'		10,000'		11,000'	
	TCSAR	Bell	TCSAR	Bell	TCSAR	Bell	TCSAR	Bell	TCSAR	Bell	TCSAR	Bell
Temp °C												
-5	5,040	5,000	4,885	4,900	4,660	4,550	1,410	1370	1,255	1270	1,030	920
0	4,905	4,900	4,705	4,700	4,520	4,500	1,275	1270	1,075	1070	890	870
5	4,775	4,800	4480	4,600	4,390	4,420	1,145	1170	850	970	760	710

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Weight and Performance Information

Hillsboro Aviation

3565 NE Cornell Rd
Hillsboro, OR 97124
(503) 648-2831
FAA RS# LJER093G

Weight & Balance (Cargo Basket Installed)

Aircraft Information					
Make	Model	Reg. Number	Serial Number		
Bell	407	N407HL	53869		
Aircraft Condition when Weighed					
Fuel	Oil Quantity	Hydraulic Fluid	Weighed on		
Undrainable Fuel only	Full	Full	Jack Points		
Previous Weight and Balance Information					
Previous Date	Previous empty weight	Previous CG	Previous Moment		
10/15/2009	2952.30	129.47	382,245.30		
Scale Readings					
	Weight	Long. Arm	Lateral Arm	Long. Moment	Lat Moment
Left Front Jack Point	697.00	55.16	(16.82)	38,446.52	(11,723.54)
Right Front Jack Point	705.00	55.16	16.82	38,887.80	11,858.10
Aft Jack Point	1,471.00	204.92	0.00	301,437.32	0.00
Total as Weighed	2,873.00	131.84	0.05	378,771.64	134.56
Corrections					
Add Items not in aircraft when weighed					
Unusable Fuel	13.30	116.01	0.00	1543.00	0.00
Cargo Basket and Beams	64.90	113.90	30.30	7390.00	1966.00
Total Added	78.20			8,933.00	1,966.00
Subtract Items in Aircraft when weighed					
Plumb Bob	(1.00)	117.70	(11.00)	(117.70)	11.00
Total Subtracted	(1.00)			(117.70)	11.00
Total Weight, Empty	2,950.20	131.38	0.72	387,586.94	2,111.56
Most Forward CG					
Empty Weight	2950.20	131.38	0.72	387586.94	2,111.56
Pilot	170.00	65.00	14.00	11050.00	2380
Passenger, Fwd.	170.00	65.00	-11.00	11050.00	-1870
Passenger, Mid (2)	340.00	91.00	0.00	30940.00	0
Passenger, Aft (2)	340.00	129.00	0.00	43860.00	0
Fuel	74.8 Gallons	508.60	116.00	58997.60	0
Total most Fwd. Weight	4478.80	121.35	0.59	543484.54	2621.56
Most Aft CG					
Empty Weight	2950.20	131.38	0.72	387586.94	2,111.56
Pilot	170.00	65.00	14.00	11050.00	2380
Aft Passengers (1)	170.00	129.00	0.00	21930.00	0
Fuel	28.4 Gallons	193.10	137.00	26454.70	0
Total most Aft. Weight	3483.30	128.33	1.29	447021.64	4491.56
Basic Empty Weight	2,950.20				
Maximum Gross Weight	5,250.00				
Useful Load	2,299.80				

This aircraft has been weighed with current regulatory standards using calibrated electronic weight and balance equipment and is approved for return to service for the above mentioned work.

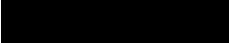
Signature:  LJER093G
 Date: 20 Jan 12
 Scale Info: Evergreen Weigh Road Ruler SN: K1151D
 Date Calibrated: 6/15/2011
 Due Calibration: 6/30/2012

Figure 1 - Weight and Balance Sheet

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Weight and Performance Information

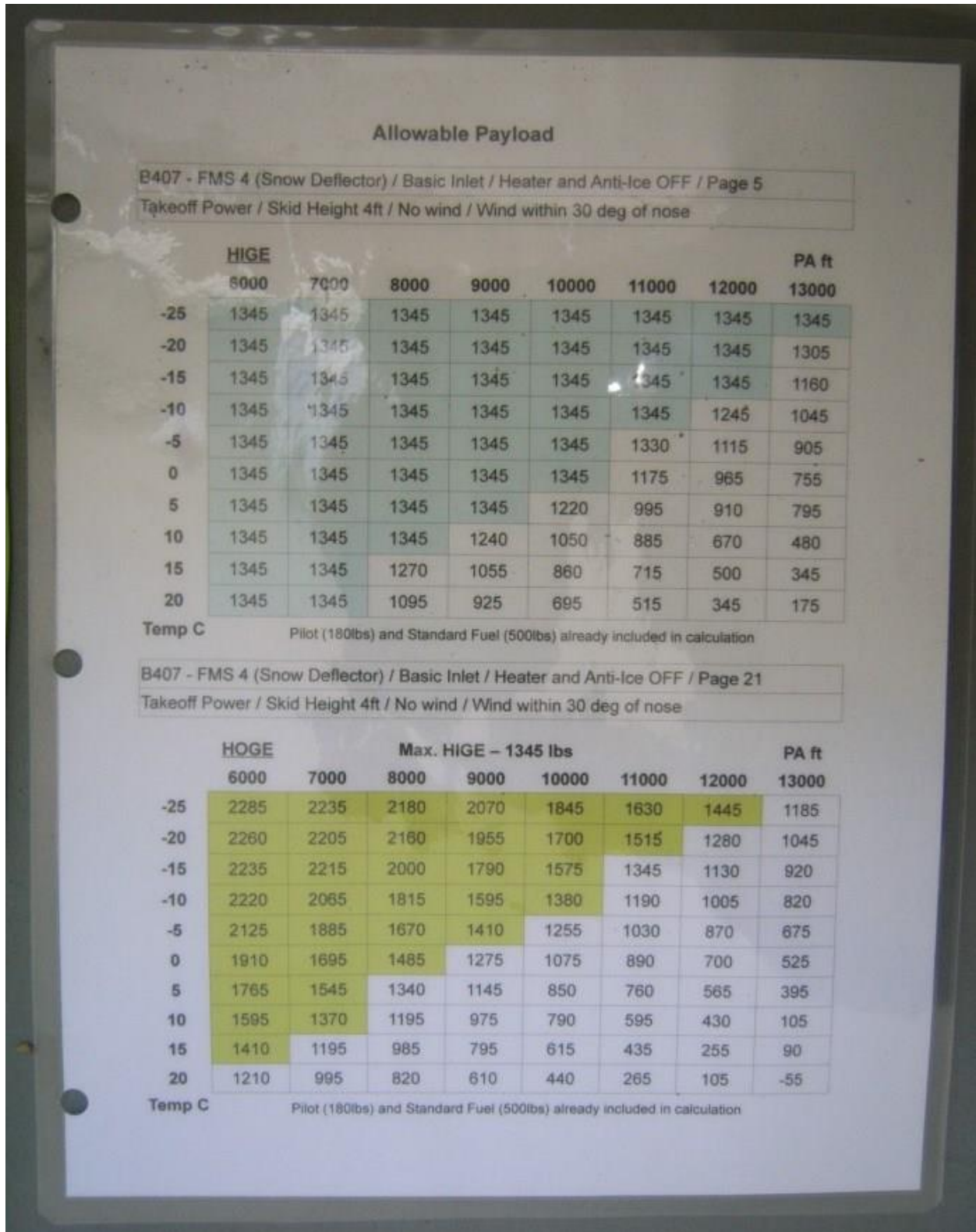


Figure 2 - Hover Chart from TCSAR Binder