

WPR21FA143

OPERATIONAL FACTORS/HUMAN PERFORMANCE

Group Chair's Factual Report - Attachment 4

Weight and Balance Information

October 25, 2022

SOLOY HELICOPTERS

WEIGHT AND BALANCE REPORT

MAKE: AIRBUS S/N: 4598 Scale Make/Model: GEC1010-400 (GEC20)
 Scale S/N: 51167 (C792) (7926, C7927, C792)
 MODEL: AS350B3 REG: N351SH Calibration Date: 09 Jan 2020
 Calibration Date Next Due: 09 Jan 2021

	WEIGHT	TARE	ACT. WT.	LONGITUDINAL		LATERAL	
				ARM	MOMENT	ARM	MOMENT
LEFT	<u>765/760</u>		<u>0.0</u>	<u>90.94</u>	<u>0.00</u>	<u>-15.69</u>	<u>0.00</u>
RIGHT	<u>826/818</u>		<u>0.0</u>	<u>90.94</u>	<u>0.00</u>	<u>15.69</u>	<u>0.00</u>
TAIL	<u>1282/1275</u>		<u>0.0</u>	<u>199.68</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
SUB TOTAL	<u>2873/2873</u>		<u>0.0</u>	<u>#DIV/0!</u>	<u>0.00</u>	<u>#DIV/0!</u>	<u>0.00</u>
MISC: (+or-)					<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
Unuseable Fuel				<u>137.40</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
					<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
					<u>0.00</u>		<u>0.00</u>
					<u>0.00</u>		<u>0.00</u>
ACT TOTAL WT & CG			<u>0.0</u>	<u>#DIV/0!</u>	<u>0.00</u>	<u>#DIV/0!</u>	<u>0.00</u>
MAX GROSS INTERNEL			<u>4961.0</u>				
USEFUL LOAD			<u>4961.0</u>				
MAX GROSS EXTERNAL			<u>6173.0</u>				
USEFUL LOAD EXTERNAL			<u>6173.0</u>				

NAME: Joey Bernier DATE: 10-22-2020
 CERTIFICATE #: CRS 2SYR140N

NOTES: All fluids topped off, no fuel on board, two head sets, Cargo basket w/mantle installed, no basket, fire extinguisher, first aid kit, no tail ballast, single seat, Cargo mirror. Cargo sling and hook installed, no float provisions, Dvt four pins installed no survival kit

SOLOY

HELICOPTERS

WEIGHT AND BALANCE REPORT

MAKE: AIRBUS S/N: 4598 Scale Make/Model: Longacre
 Scale S/N: 59723
 MODEL: AS350B3 REG: N351SH Calibration Date: 30-Nov-17
 Calibration Date Next Due: 30-Nov-18

	WEIGHT	TARE	ACT. WT.	LONGITUDINAL		LATERAL	
				ARM	MOMENT	ARM	MOMENT
LEFT	<u>775.0</u>		<u>775.0</u>	<u>90.94</u>	<u>70478.50</u>	<u>-15.69</u>	<u>-12159.75</u>
RIGHT	<u>826.0</u>		<u>826.0</u>	<u>90.94</u>	<u>75116.44</u>	<u>15.69</u>	<u>12959.94</u>
TAIL	<u>1272.0</u>		<u>1272.0</u>	<u>199.68</u>	<u>253992.96</u>	<u>0.00</u>	<u>0.00</u>
SUB TOTAL			<u>2873.0</u>	<u>139.08</u>	<u>399587.90</u>	<u>0.28</u>	<u>800.19</u>
MISC: (+or-)					<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
Unuseable Fuel			<u>2.20</u>	<u>137.40</u>	<u>302.28</u>	<u>0.00</u>	<u>0.00</u>
					<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
					<u>0.00</u>		<u>0.00</u>
					<u>0.00</u>		<u>0.00</u>
ACT TOTAL WT & CG			<u>2875.2</u>	<u>139.08</u>	<u>399890.18</u>	<u>0.28</u>	<u>800.19</u>
MAX GROSS INTERNAL USEFUL LOAD			<u>4961.0</u>				
			<u>2085.8</u>				
MAX GROSS EXTERNAL USEFUL LOAD EXTERNAL			<u>6173.0</u>				
			<u>3297.8</u>				

NAME: Joey Bernier DATE: 28-Sep-18
 CERTIFICATE #: CRS 2SYR140N

NOTES: Aircraft weighed with no fuel on board, no float provisions installed and fluids full.
Equipment installed: Cargo Mirror, Basket Provisions, Single Seat, Cargo Hook
and Sling, DART Bear Paws, 2 Headsets and Flight Manual
No Tail Ballast installed

SOLOX HELICOPTERS

Aircraft Equipment List

Registration: N351SH Model: AS 350 B3 Serial No: 4598 Date: _____
 Aircraft Empty Weight: 2905.0 Long CG: 141.47 Lat CG: -0.12

in/out	Description	Ref Data	Part Number	WEIGHT	LONG	
					ARM	MOMENT
	Standard Equipment					
✓	AFT Seats 4 Passenger			24.30	99.99	2429.76
✓	Co-Pilot Seat LH		350A77-1258-05	23.32	63.39	1478.25
○	Dual Controls		350A82-7000-10	5.10	44.10	224.91
✓	Fire Extinguisher		B417	4.90	70.11	343.54
○	First Aid Kit			1.00	14.00	14.00
✓	Flight Manual			2.00	61.00	122.00
○	Flight Manual			4.00	61.10	244.40
✓	High Skid		350A82-4010-03	137.17	133.46	18306.99
✓	LH/RH Steps		350-5001849204	16.90	81.18	1371.94
✓	Pilot Seat RH (single)		350A77-1258-02	23.32	63.39	1478.25
?	Standard instrument panel		350-800104			Negligible Weight Change
✓	Cabin Heating System					Negligible Weight Change

Serviced Survival Kit

AVIONICS

✓	Audio Panel GMA 3404		011-00401-01	1.60	34.25	54.80	0.00
✓	Aux DWR Provisions		1 AMP, C/Bx2	0.25	38.00	9.50	0.00
✓	Audio Interface		AA34-200	0.60	30.00	18.00	0.00
✓	Blind Encoder, Shadin		8800T	0.99	91.20	90.47	18.12
✓	David Clarke Headsets FWD		Quantity 2	3.00	61.00	183.00	0.00
○	David Clarke Headsets REAR		Quantity 4	6.00	103.10	618.60	0.00
✓	KANNAD ELT		ELT 406 AKH	1.90	119.85	227.72	-19.00
✓	Antenna ELT		ELT 10-773-3	0.24	83.50	20.04	0.00
✓	FM Antenna		CI 177-1	1.10	94.00	103.40	0.00
○	FM Transceiver		NPX138D	3.20	31.25	100.00	-4.97
○	Flux Valve		071-1052-00	0.30	240.32	72.10	0.00

0	GPS Antenna	013-15750110	0.60	75.00	45.00	4.01
0	GPS Antenna Kodiak	013-15750110	0.25	140.00	35.00	-7.00
✓	GPS GSN 430 COMM 2	80415-10-0611	6.60	31.25	206.25	7.51
0	HSI GYRO Sandel	SN3806-BC	2.90	31.25	90.63	15.11
✓	HSI GYRO	608-0015-00	4.80	54.95	263.76	18.12
0	Pulse Light System	WHELEN	0.70	8.50	5.95	0.00
0	Radio Blower	KA-33	0.50	25.79	12.90	-1.60
0	Sky Connect Antenna	L BAND	0.60	75.00	45.00	-7.00
0	Sky Connect Antenna	GPS	0.60	75.00	45.00	7.00
0	Sky Connect MMU		0.75	34.00	25.50	0.00
0	Sky Connect Transceiver		3.50	15.00	52.50	0.00
✓	Strobe Box	A413A	1.20	230.64	276.77	0.00
✓	Transponder Antenna	KA-60	0.60	106.29	63.24	-7.50
✓	Transponder	066-1062-00	3.09	34.25	105.70	0.00
✓	VHF Antenna	DMC70-1/A	0.80	267.00	213.60	0.00
✓	VHF Antenna 2	DMC70-1/A	0.80	290.30	232.24	0.00
✓	VHF COMM	064-01054-0030	2.80	31.25	87.50	0.00
✓	VOR Loop Antenna	DMN 48-1	2.24	230.64	516.63	0.00
✓	Voltage Converter	KA-39	3.50	87.00	304.50	-15.25
✓	Attitude GYRO	AIM510-B14	2.80	31.25	87.47	0.00
✓	Altimeter	5934PM3	1.00	31.25	31.25	16.25
✓	Directional GYRO	103-0005-01	1.90	31.25	59.38	0.00
✓	VSI	7030C27	1.00	31.25	31.25	16.25
✓	Radar Altimeter	BENDIX/KING	3.80	52.65	200.07	0.00
✓	Garmin 660	Garmin				

MAJOR MODS

✓	Cargo Hook	STC SR01164SE	35.50	129.40	4593.70	0.00
✓	FDC Air Inlet Filter	STC SR00811NE	16.40	162.47	2664.51	0.00
✓	Fuel Drain Guard Kit	SR11588SE	0.40	135.00	54.00	0.00
✓	DART Vertical Reference Window	STA SH92-18	3.80	63.00	239.40	0.00
✓	Bear Paws	350-500214	10.67	159.44	1701.22	0.00
✓	Cargo Mirror	350-200254	3.79	11.02	41.77	36.25
✓	Long Line Release System	350-900014				Negligible Weight Change
0	Remote Caution Annunciator	350-9000404				Negligible Weight Change
0	Co-Pilot Dual Seat L/H		27.60	61.10	1686.36	-18.20
✓	DART Cargo Basket Mounts L/H	D350-607-511	7.20	135.00	972.00	-36.90

MINOR MODS

								Negligible Weight Change
✓ O	Floor Window Blank							
✓	Floor Covering	350-290014	7.80	97.50	760.50	0.00		
✓	Hour Meter	350-900304	0.53	30.25	16.03	2.31		
✓	Hour Meter Switch		0.13	61.00	7.93	1.56		

28-Sep-18

LAT
MOMENT

0.00
-583.00
102.00
40.72
-16.00
28.00
-100.00
0.00
0.00
583.00

0.00
0.00
0.00
17.98
0.00
0.00
-36.10
0.00
0.00
-15.90
0.00

-2.41
-1.75
49.57
43.82
86.98
0.00
-0.80
-4.20
4.20
0.00
0.00
0.00
-4.46
0.00
0.00
0.00
0.00
0.00
0.00
-53.38
0.00
16.25
0.00
16.25
0.00
0.00
0.00
0.00
0.00
0.00
137.39
-502.32
-265.68

0.00

1.22

0.20

	03/26/21		Heli:	351		Pilot:	Zack
				Hours left in pkg:			
	<i>Name</i>		<i>Gear #</i>			<i>Weight w/ Equip.</i>	
Guide:	Harms, Greg					240	
Guide:	mcmanamy, Sean					210	
Guest:	Kellner, Peter					210	
Guest:	Horvath, David					190	
Guest:	Larochaix, Ben					163	
Guest:							
			Lunch Weight:				
			Basket/ Gear				135
			Rescue				90
				Total:			1238

Williams Shaun

From: Greg King [REDACTED] >
Sent: Friday, July 9, 2021 10:04 PM
To: Williams Shaun
Subject: Re: Info Request

[CAUTION] This email originated from outside of the organization. Do not click any links or open attachments unless you recognize the sender and know the content is safe.

Full fuel is 143gals.

35% = 50gal

40% = 57gals.

Burn rate in the cruise would be approx 45-48 g/hr, in the climb expect about 50-54 g/hr.

Sent from my iPhone

On Jul 9, 2021, at 17:58, Williams Shaun [REDACTED] wrote:

That does really help. About what would that be in quantity? Ballpark is good enough. I'm just trying to WAG a weight and balance, knowing that it isn't perfect.

Thanks

Shaun Williams
Senior Aviation Accident Investigator
National Transportation Safety Board
[REDACTED]
Denver, CO 80239
[REDACTED]

From: Greg King [REDACTED]
Sent: Friday, July 9, 2021 8:02:31 PM
To: Williams Shaun [REDACTED]
Subject: Re: Info Request

[CAUTION] This email originated from outside of the organization. Do not click any links or open attachments unless you recognize the sender and know the content is safe.

Hi Shaun.

I don't know of any recorded fuel quantity on board the helicopter at that time. Saying that, the aircraft would have departed with maximum fuel for the load on board to achieve the afternoons skiing. In my experience and knowing Zac, and not knowing actual quantity, I would estimate that he would have most likely been around the 35-40% fuel load giving the time of day and being on there last run and the distance to fly back to wasilla.

Hope this is of some help.

Greg.

Sent from my iPhone

On Jul 8, 2021, at 09:40, Williams Shaun [REDACTED] wrote:

Hey Greg,

Hope all is well. While working through the operations/human performance factual, I found that I could use some help with some information. Do we know or have any way to find out about how much fuel was on board the accident helicopter? Is this something Soloy may have a record of?

Thanks,

Shaun Williams
Senior Aviation Accident Investigator
National Transportation Safety Board
[REDACTED]

Denver, CO 80239
[REDACTED]

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