CIRRUS SR-20

PERFORMANCE & SAFETY

A presentation to EAA Chapter 21 - April 11, 2018

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CIRRUS HISTORY

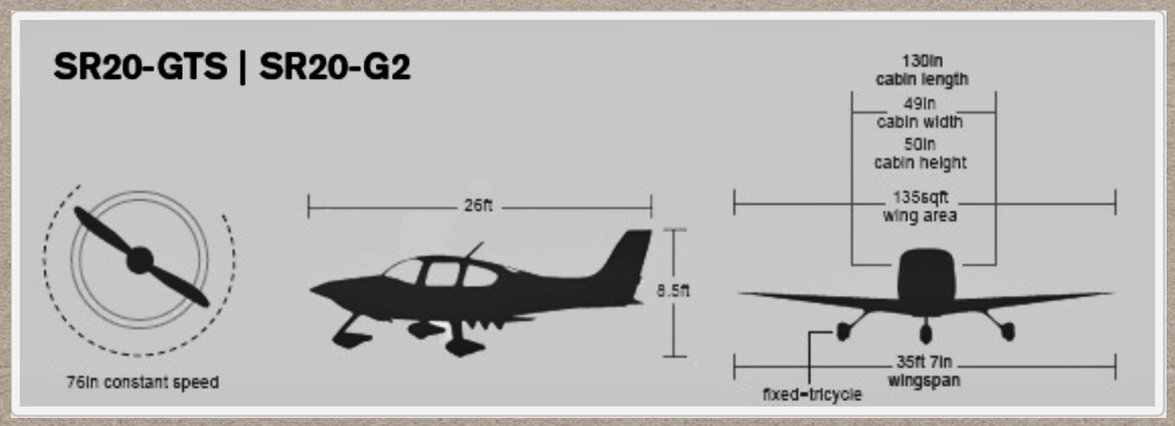
The **Cirrus Aircraft Corporation** (formally **Cirrus Design Corporation**[4]) is an aircraft manufacturer that was founded in 1984 by Alan and Dale Klapmeier to produce the VK-30 kit aircraft. The company headquarters is located in Duluth, Minnesota, United States. As of June 2015, Cirrus had delivered over 6,000 aircraft in 16 years of production, and has been the world's largest producer of piston-powered aircraft since 2013. More details.

VK-30, SR20 G1-6, SR22, SR22T, SF50

CIRRUS
AIRCRAFT

2003 SR20 G1 - SPECS

Composite body, wings
Continental IO-360-ES
Hartzell PHC-J3YF-1RF, 3-blade, variable pitch
without a blue knob?
Gross 3,000 lbs.
Empty 2,134 lbs.,
Useful load 866 lbs.,
Payload (full load) 533 lbs.
Fuel 56 gal.
4.6 hrs. (1 hr reserve), 644 nm
Ceiling 17,500
Backup alternator, battery



RECOMMENDED AIRSPEEDS

Instrument Approach……...105 KIAS/FLAPS 50%
Downwind……100 KIAS/FLAPS 50%
Base……90 KIAS/FLAPS 100%
Final……*80 KIAS/FLAPS 100%

*Reduce airspeed to 75 KIAS on short final.
Use 85-90 KIAS for No Flap Landing.

Approach Settings:	**MP**	**KIAS**	**FLAPS**
Prior to FAF:	17	100	50%
Glideslope:	12	100	50%
NP Decent:	10	100	50%

V SPEEDS

Vne / Never Exceed……200 KIAS
Vno / Maximum Structural Cruise……165 KIAS
Vo / Operating Maneuvering. (3000 lbs.).....131 KIAS
Vfe / Max. Speed w/flaps 50%……120 KIAS
Vfe / Max. Speed w/Flaps 100%……100 KIAS
Vpd / Max. Demo'd Chute Deployment……135 KIAS
Vy / Best Rate of Climb……96 KIAS
Vx / Best Angle of Climb……81 KIAS
Vr / Rotate……67 KIAS
Vs1 / Stall in Cruise Configuration……65 KIAS
Vso / Stall in Landing Configuration……56 KIAS

Normal Climbout……96 KIAS
Enroute Climb……105 KIAS
Best Glide (at 3000 lbs.)……96 KIAS

AVIONICS

Avidyne EX5000 MFD, GNS430, 420, GTX 327, GMA 340, Sandel 3308 HSI, FreeFlight RANGR FDL-978-XVR, S-Tec 30 w/altitude hold. Garmin 696, 550 replaced w/iPad FlyQ EFB

PERFORMANCE - POH

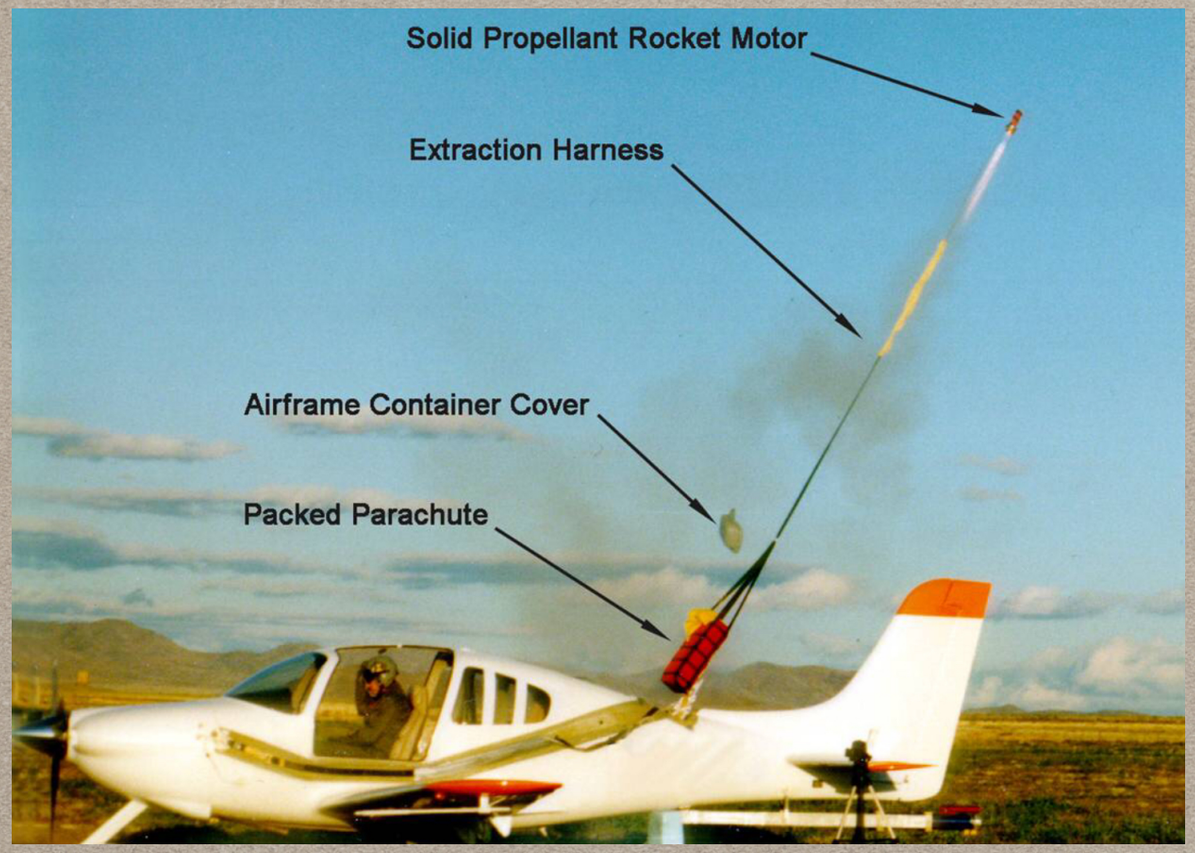
Press Alt	RPM	MAP	ISA - 30°C			ISA			ISA + 30°C		
			PWR	KTAS	GPH	PWR	KTAS	GPH	PWR	KTAS	GPH
2000	2700	27.8	101%	160	16.0	95%	160	15.0	91%	157	14.2
	2500	27.8	90%	154	14.1	85%	154	13.4	81%	151	12.9
	2500	26.6	85%	151	13.4	80%	151	12.8	76%	148	11.7
	2500	25.4	80%	147	12.7	75%	147	11.6	72%	144	11.3
	2500	24.1	74%	143	11.5	70%	143	11.1	67%	140	10.7
	2500	22.9	69%	139	11.0	65%	139	10.6	62%	136	10.2
	2500	22.0	65%	136	10.5	62%	136	10.2	59%	133	9.9
	2500	19.7	55%	127	9.5	52%	127	9.20	50%	124	8.9
4000	2700	25.8	94%	159	14.8	89%	159	14.4	84%	157	13.4
	2500	25.8	84%	153	13.3	79%	153	12.7	75%	150	11.7
	2500	24.8	80%	150	12.7	75%	150	11.6	72%	147	11.2
	2500	23.6	75%	146	11.5	70%	146	11.1	67%	143	10.8
	2500	22.3	69%	141	10.9	65%	141	10.5	62%	138	10.2
	2500	21.0	63%	136	10.3	60%	136	10.0	57%	133	9.7
	2500	19.8	58%	131	9.8	55%	131	9.4	52%	129	9.2
6000	2700	24.0	88%	159	13.8	83%	159	13.1	79%	156	12.6
	2500	24.0	79%	152	12.0	74%	152	11.5	71%	149	11.1
	2500	23.0	74%	148	11.5	70%	148	11.1	67%	145	10.7
	2500	21.8	69%	144	11.0	65%	144	10.6	62%	141	10.2
	2500	20.8	65%	140	10.4	61%	140	10.0	58%	137	9.7
	2500	19.4	59%	134	9.8	55%	134	9.5	53%	131	9.2

Press Alt	RPM	MAP	ISA - 30°C			ISA			ISA + 30°C		
			PWR	KTAS	GPH	PWR	KTAS	GPH	PWR	KTAS	GPH
8000	2700	22.2	82%	157	12.9	77%	157	11.6	73%	154	11.4
	2500	22.2	73%	150	11.4	69%	150	11.0	65%	147	10.6
	2500	21.2	69%	146	10.9	65%	146	10.5	62%	143	10.2
	2500	20.1	64%	142	10.4	60%	142	10.0	57%	139	9.7
	2500	18.9	59%	136	9.8	55%	136	9.5	52%	134	9.2
	2500	17.7	53%	131	9.2	50%	131	8.9	48%	128	8.7
10000	2700	20.6	76%	155	11.7	72%	155	11.2	68%	152	10.9
	2500	20.6	68%	148	10.8	64%	148	10.5	61%	145	10.1
	2500	19.6	64%	144	10.4	60%	144	10.0	57%	141	9.7
	2500	18.5	59%	139	9.8	55%	139	9.5	53%	136	9.2
	2500	17.3	54%	134	9.3	50%	134	9.0	48%	131	8.7
12000	2700	19.0	70%	153	11.1	66%	153	10.7	63%	150	10.3
	2500	19.0	63%	146	10.3	59%	146	9.9	56%	143	9.6
	2500	18.0	59%	141	9.8	55%	141	9.5	52%	138	9.2
	2500	16.8	53%	136	9.2	50%	136	8.9	47%	133	8.6
14000	2700	17.6	66%	151	10.5	62%	151	10.2	58%	148	9.8
	2500	17.6	59%	144	9.8	55%	144	9.5	52%	141	9.2
	2500	16.5	54%	142	9.3	50%	142	9.0	48%	139	8.7

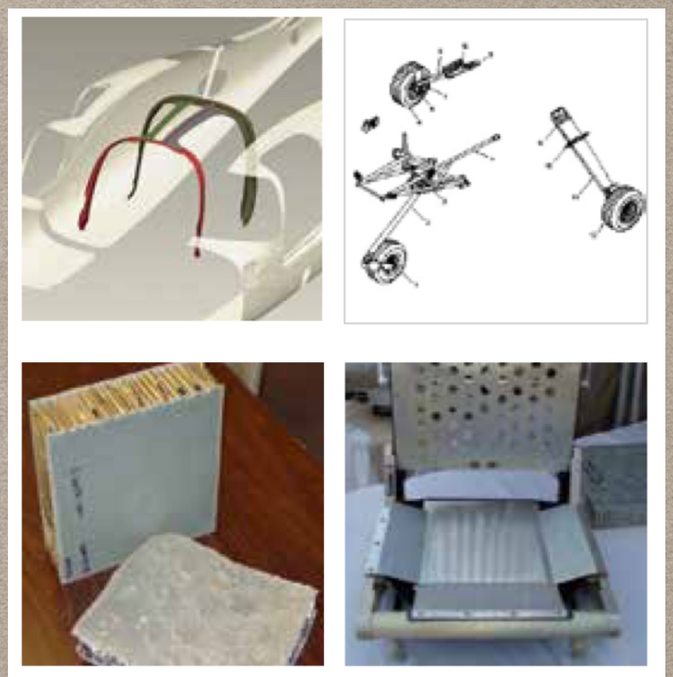
PERFORMANCE - ACTUAL

Landings: **Pattern** 20" MP 100 kts, **Abeam** 12.5" 50% , 90 kts,
Base 90 kts 100%, **Final** 80 kts *Fly it to the runway!*

CIRRUS AIRFRAME PARACHUTE SYSTEM® - CAPS



- *135 kts*
- *500 AGL*
- *45 lb pull*
- *2 sec deploy*
- *10’ drop*



When CAPS was activated within these demonstrated parameters, • Speeds less than VPD • Altitudes above 400’ in straight and level flight • Altitudes above 920’ in a spin there have been zero fatalities.

https://cirrusaircraft.com/wp-content/uploads/2014/12/CAPS_Guide.pdf

ACCIDENT RATES

As of 2 April 2018

73 CAPS Save Events

With 150 survivors (13 serious injuries, 23 minor injuries, 114 uninjured) and 1 fatality

129 fatal Cirrus accidents*

With 251 fatalities and 33 survivors (29 serious injuries, 3 minor injuries, no one survived uninjured)

Current accident rates in a Cirrus

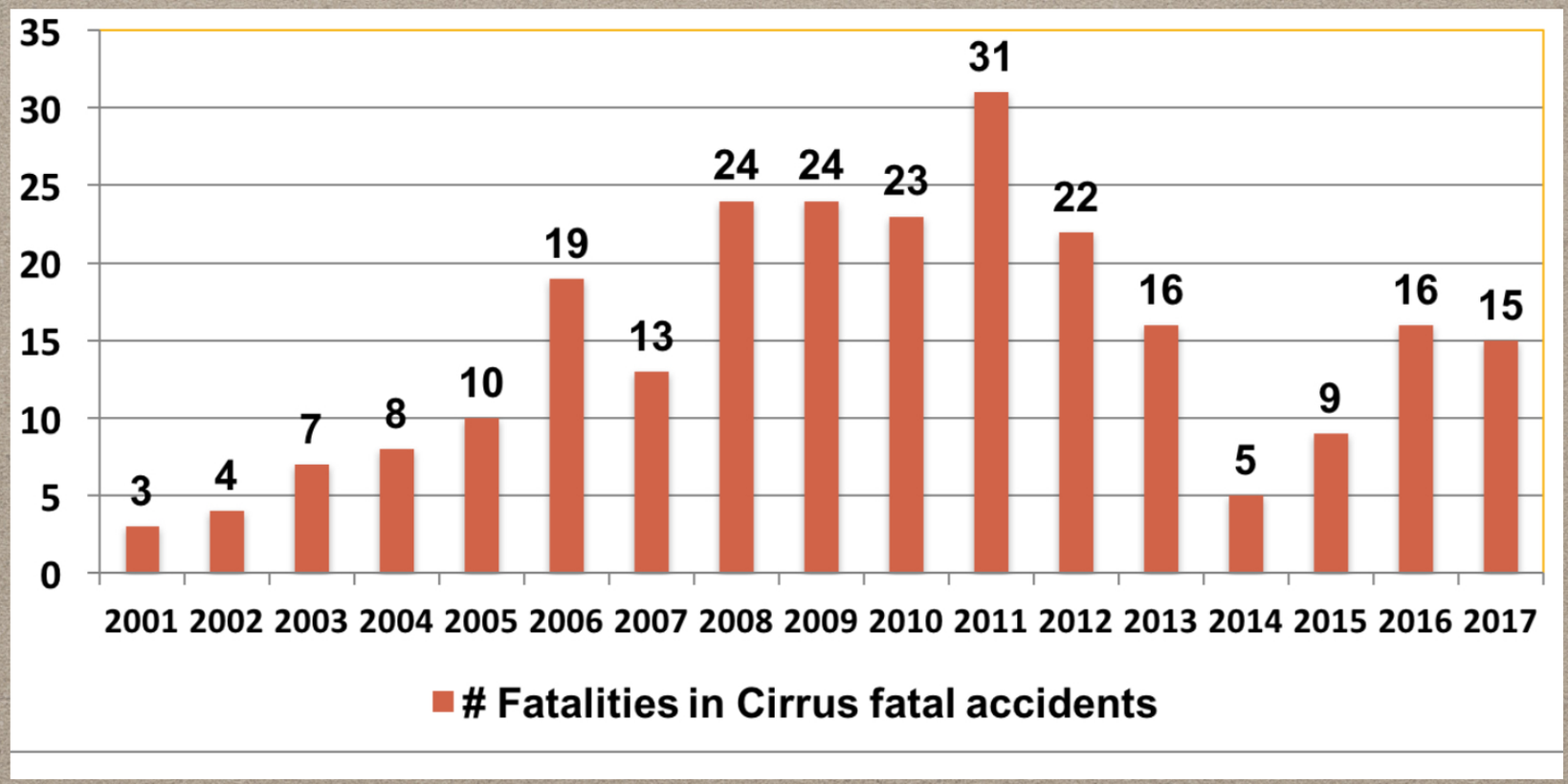
0.91 fatal accidents in 12 months

Per 100,000 hours of flying time in past 12 months (9 accidents* in 950,000 hours)

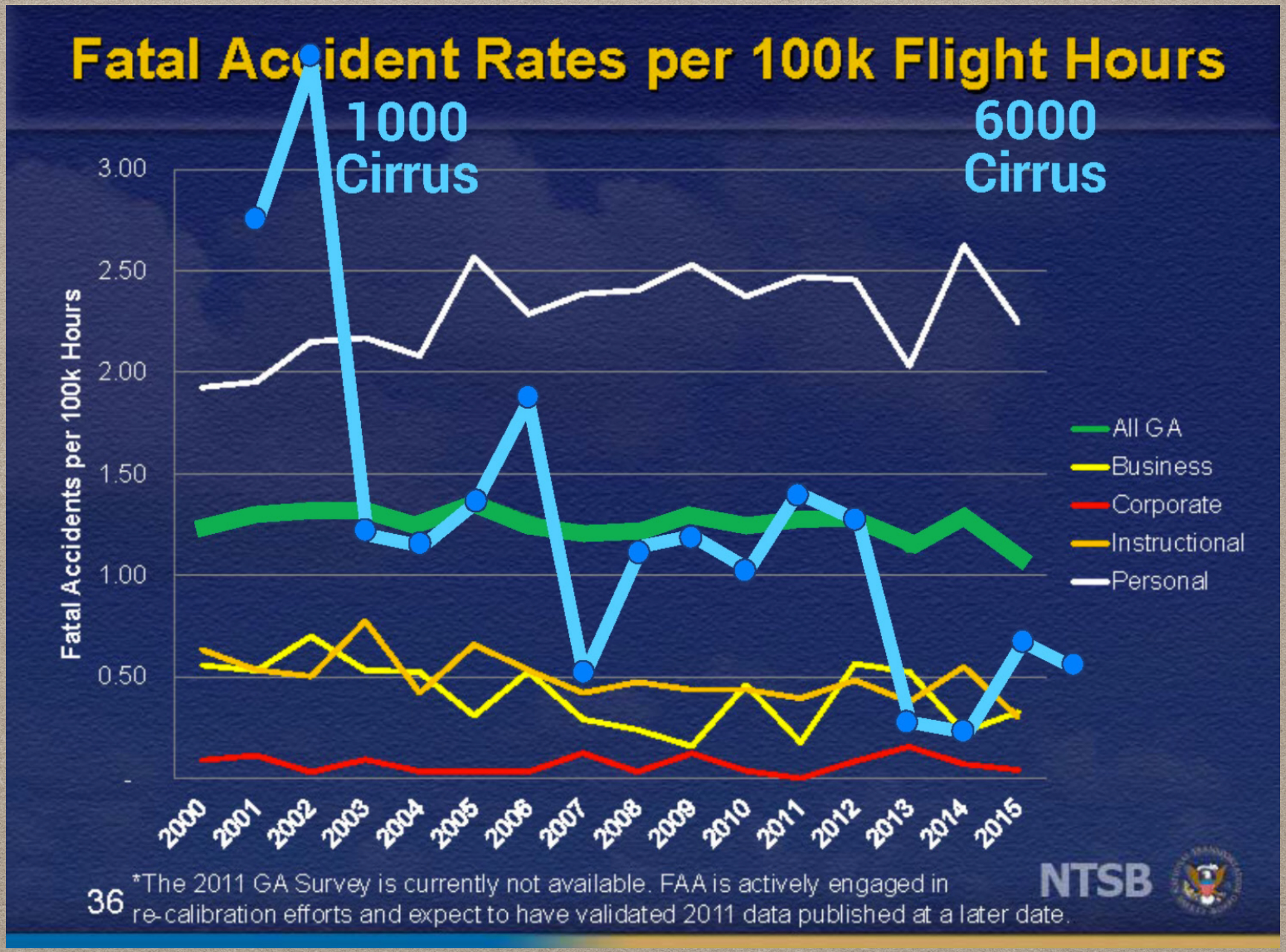
0.81 fatal accidents in 36 months

Per 100,000 hours of flying time in past 36 months (22 accidents* in 2.7 million hours)

* COPA includes all known Cirrus events world-wide, which differs from the NTSB rates that filter for N-reg aircraft operated for non-commercial flights..



ACCIDENT RATES



ADDITIONAL INFO

- Cirrus Aircraft
  www.cirrus.com
- COPA
  www.cirruspilots.org
- Phillip Greenspun
  http://philip.greenspun.com/flying/cirrus-sr20
- Steel Aviation
  https://www.steelaviation.com