

## G-BPIU Mass Balance Calculations (Figures taken from POH)

### Limits:

Maximum Authorised Weight = 2325lbs.  
Basic Weight = 1535lbs, which includes 2 US gallons unusable fuel and 8 US quarts oil.

### Usable Fuel:

FULL both sides = 48 US gal = 182 litres = 288 lbs, giving 4h47m endurance at 75% power.  
FULL one side, TABS other side = 41 US gal = 156 litres = 246 lbs, giving 4h06m endurance at 75% power.  
TABS both sides = 34 US gal = 129 litres = 204 lbs, giving 3h40m endurance at 75% power.

### Fuel Burn:

75%	2450rpm	38 litres / hour	10.0 US gal / hour
70%	2400rpm	35 litres / hour	9.23 US gal / hour
65%	2350rpm	33 litres / hour	8.71 US gal / hour
55%	2150rpm	29 litres / hour	7.65 US gal / hour

### Endurance:

70%	FULL	4.5 hours + 45 minutes reserve	1 US gal = 3.79 litres.
70%	TABS	3.0 hours + 45 minutes reserve	1 US gal fuel weighs 6 lbs.

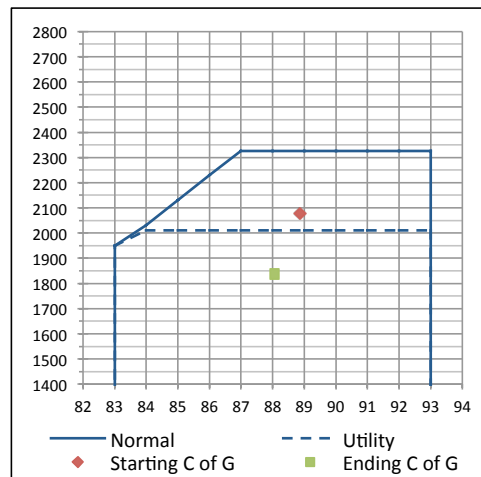
### Scenario 1

Solo 15st pilot; 15lb flight bag in back seat; 30lb cover and docs in luggage; full fuel.

	Arm Aft of Datum (inches)	Starting Weight (lbs)	Starting Moment (inch-lbs)	Ending Weight (lbs)	Ending Moment (inches-lbs)
Basic Empty Weight	87.51	1,535	134,328	1,535	134,328
Pilot	80.50	210	16,905	210	16,905
Front Passenger	80.50	0	0	0	0
Rear Passengers	118.10	15	1,772	15	1,772
Baggage (200lbs max)	142.80	30	4,284	30	4,284
Fuel	95.00	288	27,360	48	4,560
Totals		2,078	184,648	1,838	161,848

Starting Fuel (us gal) : 48  
Starting Weight (lbs) : 2,078  
Starting CofG (inches) : 88.86

Ending Fuel (us gal) : 8  
Ending Weight (lbs) : 1,838  
Ending CofG (inches) : 88.06



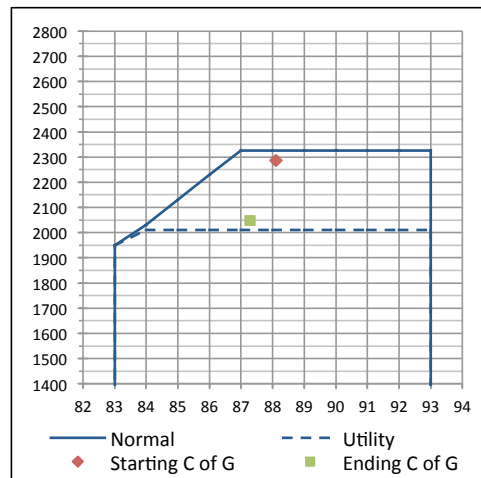
### Scenario 2

15st pilot; 15st instructor; 15lb in back seat; 30lb cover and docs in luggage; full fuel.

	Arm Aft of Datum (inches)	Starting Weight (lbs)	Starting Moment (inch-lbs)	Ending Weight (lbs)	Ending Moment (inches-lbs)
Basic Empty Weight	87.51	1,535	134,328	1,535	134,328
Pilot	80.50	210	16,905	210	16,905
Front Passenger	80.50	210	16,905	210	16,905
Rear Passengers	118.10	15	1,772	15	1,772
Baggage (200lbs max)	142.80	30	4,284	30	4,284
Fuel	95.00	288	27,360	48	4,560
Totals		2,288	201,553	2,048	178,753

Starting Fuel (us gal) : 48  
Starting Weight (lbs) : 2,288  
Starting CofG (inches) : 88.09

Ending Fuel (us gal) : 8  
Ending Weight (lbs) : 2,048  
Ending CofG (inches) : 87.28



### Scenario 3

15st pilot; 13st instructor; 13st in back seat; empty luggage; fuel at tabs.

	Arm Aft of Datum (inches)	Starting Weight (lbs)	Starting Moment (inch-lbs)	Ending Weight (lbs)	Ending Moment (inches-lbs)
Basic Empty Weight	87.51	1,535	134,328	1,535	134,328
Pilot	80.50	210	16,905	210	16,905
Front Passenger	80.50	182	14,651	182	14,651
Rear Passengers	118.10	182	21,494	182	21,494
Baggage (200lbs max)	142.80	0	0	0	0
Fuel	95.00	204	19,380	48	4,560
Totals		2,313	206,758	2,157	191,938

Starting Fuel (us gal) : 34  
Starting Weight (lbs) : 2,313  
Starting CofG (inches) : 89.39

Ending Fuel (us gal) : 8  
Ending Weight (lbs) : 2,157  
Ending CofG (inches) : 88.98

