K & L Soaring, LLC
Cayuta NY 14824

Form: I-6020
Rev: June 2017

2-33 Calculated Weight and Balance

Serial No.	169	Registration No.	N7539

	Previous Weight & Balance Data		
	Weight [lb.] (W1)	Station [in.]	Moment [in·lb] (M1)
From Weight & Balance Dated (5/13/16)	676	94.57	63929.32
Optional Equipment			
Added/Removed Equipment Description	Weight [lb.]	Station [in.]	Moment [in·lb]
Gross Weight Inspection Kit	3.87	90.00	348.30
Total Weight (W2)	3.87	Total Moment (M2)	348.30

Note: Weight × Station = Moment

Station [in.] (S1)	
$\frac{(M1+M2)}{(W1+W2)} = S1$	$\frac{(63929.32 + 348.30)}{(676 + 3.87)} = 94.54$ in.

C.G. Conditions – Aft Limits

Min. Weight Forward Pilot – Solo	
$\frac{(W1+W2) \times (S1 - 86.10)}{42.30}$	$\frac{(676 + 3.87) \times (94.54 - 86.10)}{42.30} = 136$ lbs.

Min. Weight Aft Pilot With 100 lb. Forward Pilot	
$\frac{(W1+W2) \times (S1 - 86.10)}{11.40} - 372$	$\frac{(676 + 3.87) \times (94.54 - 86.10)}{11.40} - 372$ $= 131$ lbs.

C.G. Conditions – Forward Limits

Max. Weight Pilot Solo	
$= \frac{\text{Empty Wt. (C.G. Empty} - 78.20)}{34.40}$	$\frac{(676+3.87)(94.54 - 78.20)}{34.40} = 323$ lbs

Max. Weight Aft Pilot With 220 lb. Forward Pilot				
$Max.Gross\ Wt.^{*} - ((W1+W2) + 220)$	$1080 - ((676 + 3.87) + 220) = 180$ lbs.			
***1040# or 1080# Maximum Gross Weight**	**LH Wing Weight**	155	**RH Wing Weight**	155

Calculated by: [signature] Date: 6/14/17

Checked by: LES SCHWEITZER Date: 6-14-17

K & L Soaring, LLC
Cayuta NY 14824

Form: I-4606A
Rev: 12/11/15

Calculated Weight and Balance

(33011 Removable Ballast)

Model No. : SGS 2-33	Serial No. : 169	Registration No. : N7539

	Weight [lb.] (W1)	Station [in.]	Moment [in·lb] (M1)
Empty Weight (from Wt. & Bal. dated 6/14/17)	680	94.54	64,287.20

Note: Weight × Station = Moment

Optional Equipment Added:	Weight [lb.] (W2)	Station [in.]	Moment [in·lb] (M2)
a. P/N 33011, Removable Ballast Installation	19.50	13.05	254.48

Note: 33011, Removable Ballast Installation, shown in figure 1.

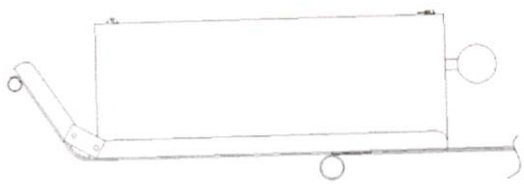


Figure 1: 33011, Removable Ballast Installation

Select Gross Weight*

- ○ 1040# Gross Weight
- ◉ 1080# Gross Weight

Station [in.] (S1)	
$\frac{(M1+M2)}{(W1+W2)} = S1$	$\frac{(64{,}287.20 + 254.48)}{(680 + 19.50)} = 92.27$ in.

Max. Weight Aft Pilot With 220 lb. Forward Pilot	
$Max.Gross\ Wt.^{*} - ((W1+W2) + 220)$	$1{,}080 - ((680 + 19.50) + 220) = 161$ lbs.
***1040# or 1080# Maximum Gross Weight (Select Above)**	

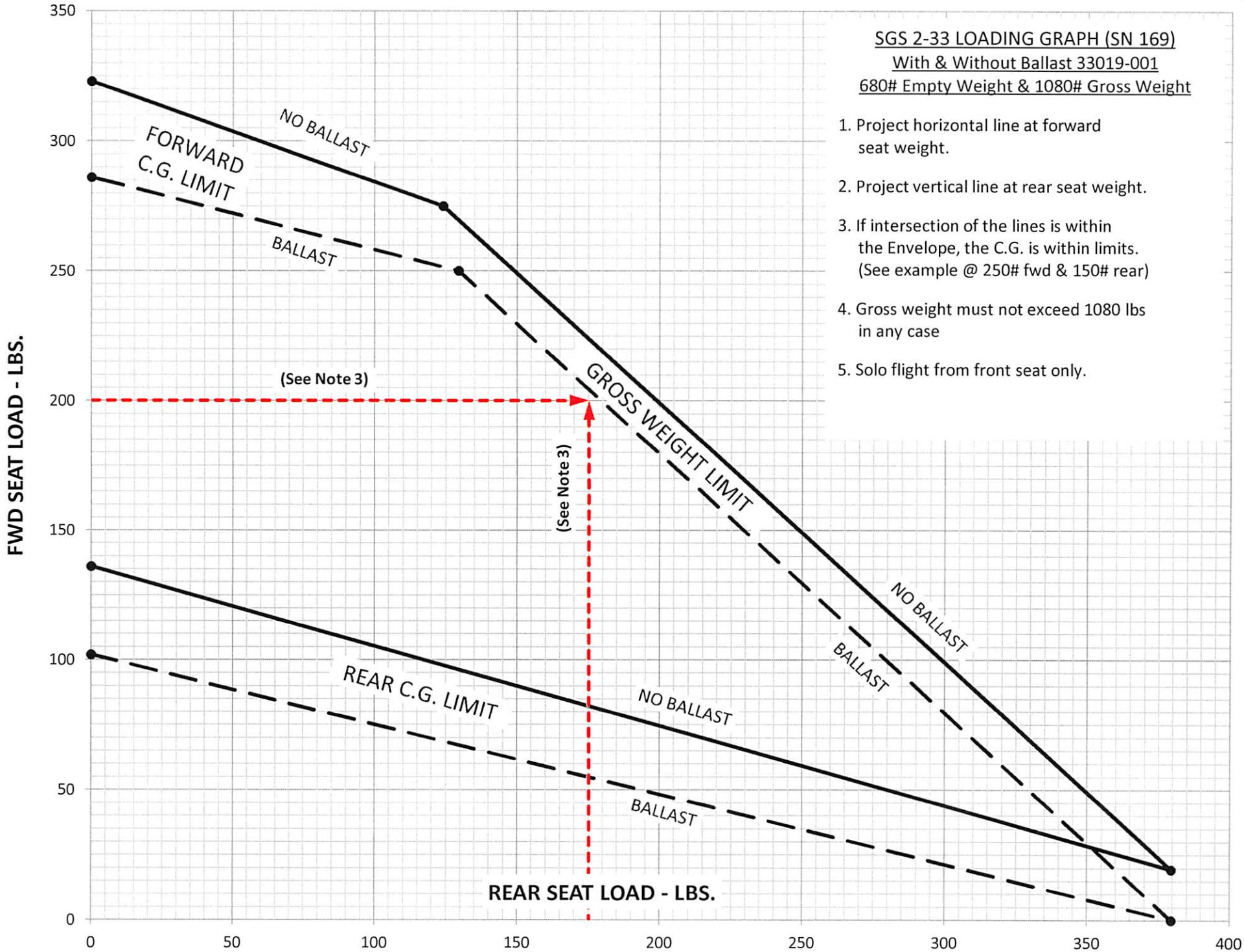
Min. Weight Aft Pilot With 100 lb. Forward Pilot	
$\frac{(W1+W2) \times (S1 - 86.10)}{11.40} - 372$	$\frac{(680 + 19.50) \times (92.27 - 86.10)}{11.40} - 372 = 6$ lbs.

Min. Weight Forward Pilot – Solo	
$\frac{(W1+W2) \times (S1 - 86.10)}{42.30}$	$\frac{(680 + 19.50) \times (92.27 - 86.10)}{42.30} = 102$ lbs.

Note: The above minimum and maximum pilot weights are valid ONLY when the removable ballast weight is in place.

Calculated by: [signature] Date: 6/14/17

Checked by: LEJ Schwerzer Date: 6-14-17


SGS 2-33 LOADING GRAPH (SN 169)
With & Without Ballast 33019-001
680# Empty Weight & 1080# Gross Weight
1. Project horizontal line at forward seat weight.
2. Project vertical line at rear seat weight.
3. If intersection of the lines is within the Envelope, the C.G. is within limits. (See example @ 250# fwd & 150# rear)
4. Gross weight must not exceed 1080 lbs in any case
5. Solo flight from front seat only.
FWD SEAT LOAD - LBS.
REAR SEAT LOAD - LBS.
FORWARD C.G. LIMIT
NO BALLAST
BALLAST
GROSS WEIGHT LIMIT
NO BALLAST
BALLAST
REAR C.G. LIMIT
NO BALLAST
BALLAST
(See Note 3)
(See Note 3)
0
50
100
150
200
250
300
350
400