

VAN'S AIRCRAFT, INC.

14401 NE Keil Road, Aurora, Oregon, USA 97002

PHONE 503-678-6545 • FAX 503-678-6560 • www.vansaircraft.com • info@vansaircraft.com

Service Letter: November 9, 2007

Subject: Nose gear

Models Affected: RV-6A, 7A, 8A, 9A

References:

1. Van's Aircraft Service Letter dated March 10, 2005

[http:// www.vansaircraft.com /pdf/letters/nosegear.pdf](http://www.vansaircraft.com/pdf/letters/nosegear.pdf)

2. Van's Aircraft Service Bulletin 07-11-09 dated November 9, 2007

<http://www.vansaircraft.com/pdf/sb07-11-9.pdf>

3. NTSB Structures Study, Case No.: ANC05LA123

http://www.nts.gov/publictn/2006/RV_Study.pdf

Note: To better understand the topics covered in this service letter, it is recommended that the readers familiarize themselves with the reference material above.

In March, 2005, Van's Aircraft issued a service letter describing the development and revisions made to the nose gear legs used on all two place, tricycle RVs (see reference 1). This service letter went on to describe the most recent revisions in the nose gear leg design, a shortened gear leg axle and shorter fork. This version of the nose gear leg and fork have been shipped as standard components in Van's kits since February, 2005. As of October, 2007, there have been no reported nose gear incidents involving this combination of leg and fork.

On June 21, 2007, The NTSB released a Structures Study of the pre-shortened nose gear leg/fork combination (See reference 3). This report concluded that, though the nose gear strut has sufficient strength to perform its intended function, mechanical factors and piloting technique that reduced the nose gear leg strut to ground clearance increased the likelihood of an incident.

In light of the absence of incidents involving the current, shortened nose leg/fork combination and the results of the NTSB Structures Study, Van's Aircraft, Inc. issued Mandatory Service Bulletin 07-11-09 (see reference #2). SB 07-11-09 requires replacement (or modification) of any U-603-2 (or older) nose gear leg and the replacement of the corresponding fork (WD-630) prior to or during the next annual condition inspection. The upgraded leg/fork combination is notably lighter than the previous version and allows an additional inch of clearance between the fork/axle assembly and runway surface. Instructions for completing this conversion can be found in SB 07-11-09.

As pointed out in the previous service letter regarding this subject, pilots should always practice good judgement and technique to limit the loads on landing gear structures. Other operational suggestions to help pilots reduce risks are listed below.

Note: *If an RV has been modified in any way from the plans supplied by Van's Aircraft, the builder/operator is responsible for determining if the operational changes associated with these modifications will result in safe operation of the aircraft.*

1. *RV's are designed to utilize Lycoming engines of specified horsepower and weight. Changes to the aircraft that result in higher static nose gear weights than previously demonstrated by Van's Aircraft's testing will result in a higher probability of nose gear incidents.*
2. *Always operate your aircraft with the nose wheel fairing installed.*
3. *Nose wheel tire pressure should be maintained between 25psi and 35psi.*
4. *Keep the stick fully back when taxiing, especially after touchdown.*
5. *The nose gear on tricycle gear aircraft are not intended nor designed to sustain 'landing' loads. The nose gear is NOT a landing gear and is intended for ground maneuvering after touchdown and deceleration.*
6. *Do not rely on hearsay or second hand information about runway and taxiway conditions. Do NOT operate your aircraft on an 'unknown' surface!*
7. *Be proficient at 'go-arounds' in the event a landing becomes unmanageable.*

Appendix A of this Service Letter contains charts that allow a pilot/operator to estimate the weight on the nose gear given the CG and aircraft gross weight. Operation within these limits is highly recommended and will provide a greater margin of safety should "mechanical factors and/or pilot technique" add to the normal, gravity induced load on the nose gear.

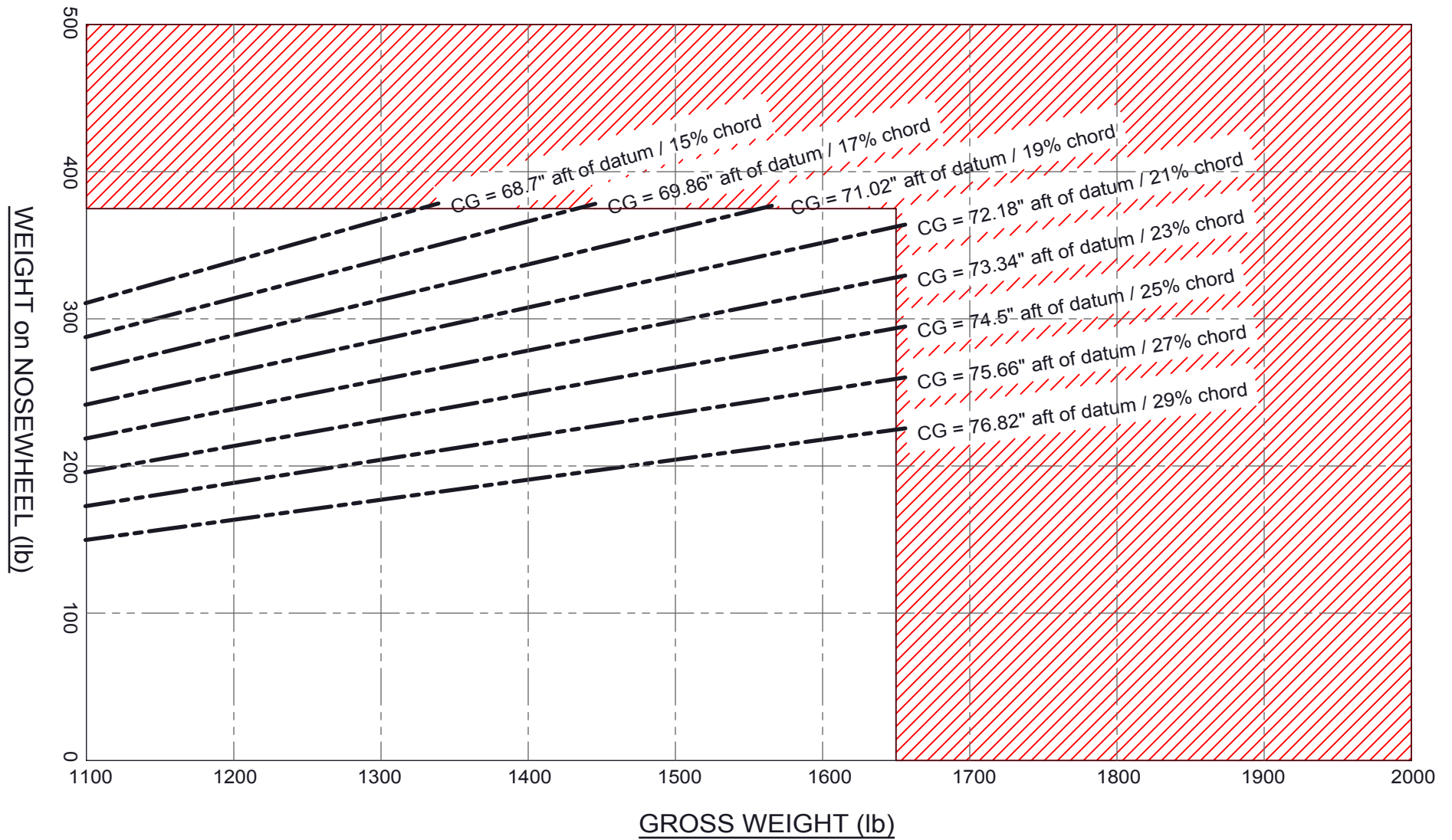
Using the Nose Gear Weight Charts: (example depicted on RV-7A chart)

1. Calculate your gross weight and CG for a given flight.
2. Identify the chart specific for your aircraft. (RV-6A,7A,8A or 9A)
3. On the chart, follow the appropriate Gross Weight line vertically until it intersects the appropriate CG line. Move horizontally left from this point to arrive at the estimated nose gear weight.
4. Gross weight and nose gear weight should both fall within the non-shaded area of the chart.
5. These charts are estimated using 'typical' RV engine and constant speed propeller configurations for each model.

Appendix A: Nose Weight Charts

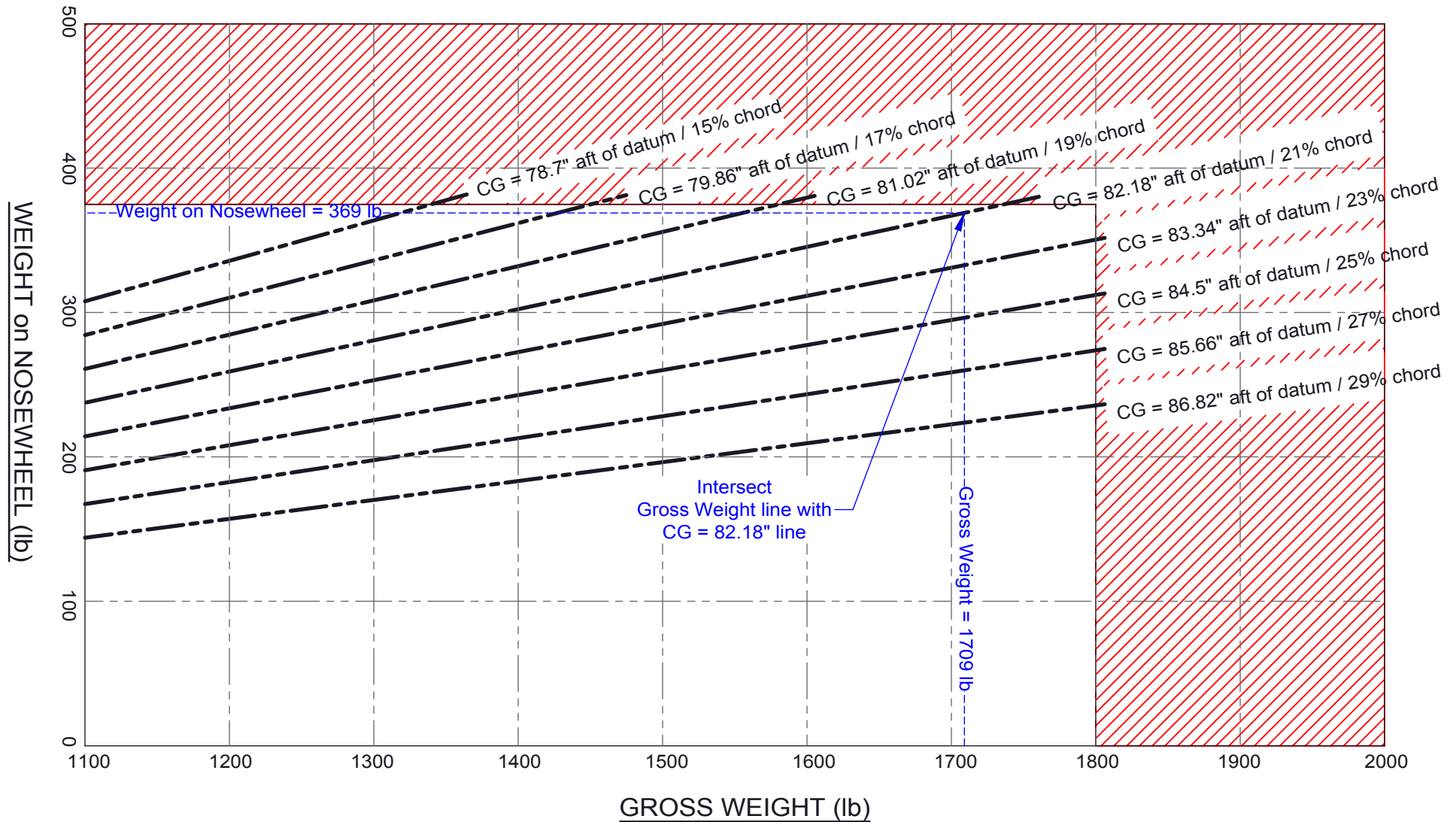
RV-6A

Weight on Nose Wheel vs Gross Weight & CG Location



RV-7A

Weight on Nose Wheel vs Gross Weight & CG Location



N137RV LOADING EXAMPLE:

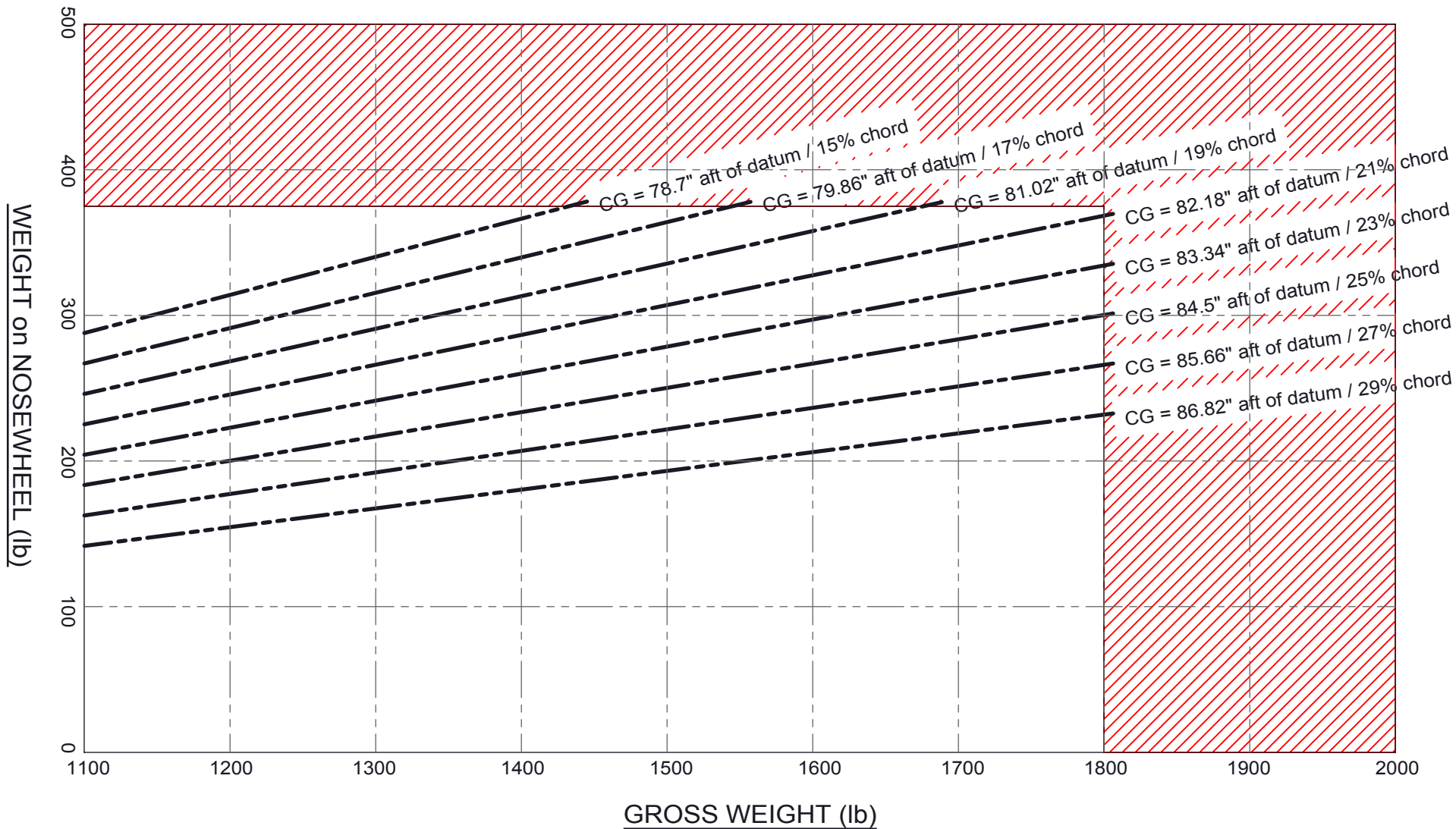
Fuel = 42 gallons / 252 lb
 Pilot = 170 lb
 Passenger = 138 lb
 Baggage = 0 lb

Gross Weight = 1709 lb
 CG Location = 82.18" / 21%

- Step 1:** Draw vertical line at Gross Weight. If Gross Weight > 1800 lb then FLIGHT PROHIBITED
Step 2: Locate point where vertical line intersects CG line.
Step 3: Read Weight on Nosewheel opposite Gross Weight / CG intersection point.
 If Weight on Nosewheel > 375 lb then FLIGHT PROHIBITED

RV-8A

Weight on Nose Wheel vs Gross Weight & CG Location



RV-9A
Weight on Nose Wheel vs Gross Weight & CG Location

