


**REGISTRATION NOT TRANSFERABLE**

UNITED STATES OF AMERICA  
DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION  
CERTIFICATE OF AIRCRAFT REGISTRATION

This certificate must be in the aircraft when operated.

<b>NATIONALITY AND REGISTRATION MARKS</b> N 212SR	<b>AIRCRAFT SERIAL NO.</b> 1871
<b>MANUFACTURER AND MANUFACTURER'S DESIGNATION OF AIRCRAFT</b> CIRRUS DESIGN CORP SR22 ICAO Aircraft Address Code: 50341220	
<b>ISSUED TO</b>  CLEAR SKY ENTERPRISES LLC 1426 RAMBLING HILLS DR CINCINNATI OH 45230-2361	<small>This certificate is issued for registration purposes only and is not a certificate of title. The Federal Aviation Administration does not determine rights of ownership as between private persons.</small>
<b>CORPORATION</b>	
<small>It is certified that the above described aircraft has been entered on the register of the Federal Aviation Administration, United States of America, in accordance with the Convention on International Civil Aviation dated December 7, 1944, and with Title 49, United States Code, and regulations issued thereunder.</small>	
<b>DATE OF ISSUE</b> July 20, 2006	<i>Michael C. Bishop</i> ADMINISTRATOR



AC Form 8050-3(10/2003) Supersedes previous editions

UNITED STATES OF AMERICA  
DEPARTMENT OF TRANSPORTATION—FEDERAL AVIATION ADMINISTRATION  
**STANDARD AIRWORTHINESS CERTIFICATE**

<b>1 NATIONALITY AND REGISTRATION MARKS</b> N212SR	<b>2 MANUFACTURER AND MODEL</b> CIRRUS SR22	<b>3 AIRCRAFT SERIAL NUMBER</b> 1871	<b>4 CATEGORY</b> NORMAL
<b>5 AUTHORITY AND BASIS FOR ISSUANCE</b> <small>This airworthiness certificate is issued pursuant to the Federal Aviation Act of 1958 and certifies that, as of the date of issuance, the aircraft to which issued has been inspected and found to conform to the type certificate therefor, to be in condition for safe operation, and has been shown to meet the requirements of the applicable comprehensive and detailed airworthiness code as provided by Annex 8 to the Convention on International Civil Aviation, except as noted herein. Exceptions:  NONE</small>			
<b>6 TERMS AND CONDITIONS</b> <small>Unless sooner surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator, this airworthiness certificate is effective as long as the maintenance, preventative maintenance, and alterations are performed in accordance with Parts 21, 43, and 91 of the Federal Aviation Regulations, as appropriate, and the aircraft is registered in the United States.</small>			
<b>DATE OF ISSUANCE</b> March 26, 2006	<b>FAA REPRESENTATIVE</b> <i>Loren L. Thibert</i>	<b>DESIGNATION NUMBER</b> DMIR410173CE	

Any alteration, reproduction, or misuse of this certificate may be punishable by a fine not exceeding \$1,000, or imprisonment not exceeding 3 years, or both. THIS CERTIFICATE MUST BE DISPLAYED IN THE AIRCRAFT IN ACCORDANCE WITH APPLICABLE FEDERAL AVIATION REGULATIONS.

**FAA Form 8100-2** (8-82) \* U.S. G.P.O. 2003-668-291

## Section 6 Weight and Balance

### Table of Contents

Introduction .....	6-3
Airplane Weighing Form .....	6-5
Airplane Weighing Procedures .....	6-7
Weight & Balance Record .....	6-10
Loading Instructions .....	6-12
Center of Gravity Limits .....	6-14
Weight & Balance Loading Form .....	6-15
Loading Data .....	6-16
Moment Limits .....	6-17
Equipment List .....	6-18

WEIGHT & BALANCE

ABNORMAL PROCEDURES

EMERGENCY

ABNORMAL PROCEDURES

ABNORMAL PROCEDURES

SYSTEMS  
DESCRIPTION

HANDLING, SERV  
& MAINT

SUPPLEMENTS

BATTERY  
p: 3/2020

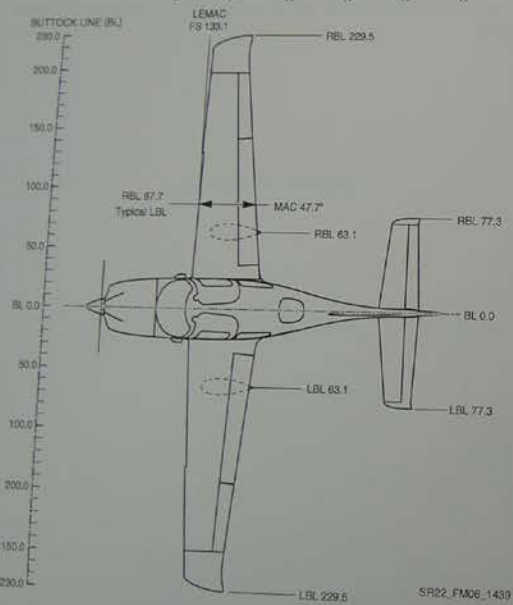
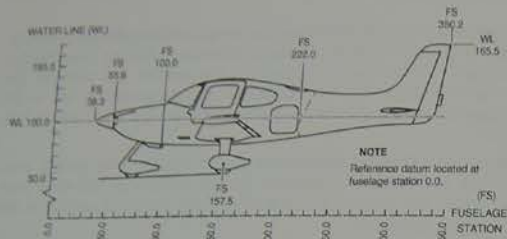
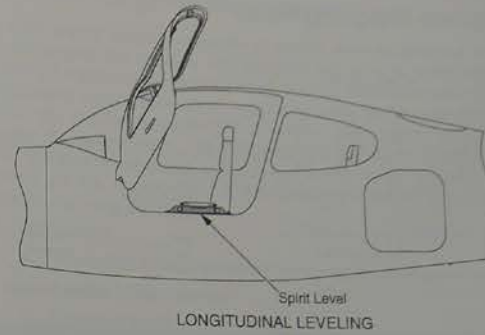


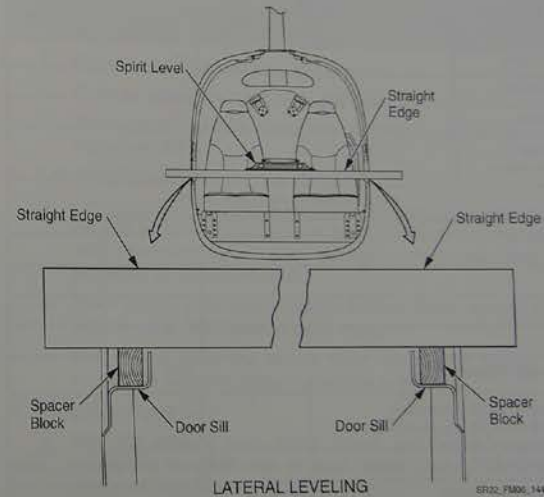
Figure 6-1  
Airplane Dimensional Data

SR22, FM06, 1439

P/N 13772-001  
Reissue A



LONGITUDINAL LEVELING



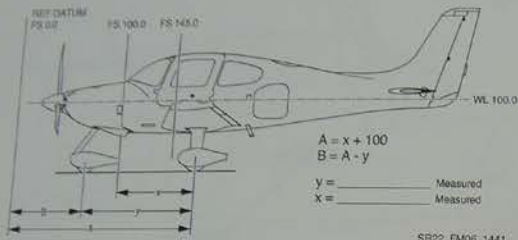
LATERAL LEVELING

Figure 6-2  
Airplane Leveling

P/N 13772-001  
Revision A2

SR22, FM06, 1445A

### Airplane Weighing Form



SR22\_FM06\_1441

Weighing Point	Scale Reading	- Tare	= Net Weight	X Arm	= Moment
L Main				A=	
R Main				A=	
Nose				B=	
Total As Weighed				CG=	
<b>CG = Total Moment ÷ Total Weight</b>					
<small>Space below provided for additions or subtractions to as weighed condition</small>					
Empty Weight				CG=	
Engine Oil (If oil drained) 15 lb at FS 78.4, moment = 1175					
Unusable Fuel			18.0	154.9	2788
Basic Empty Weight				CG=	

Figure 6-3  
Airplane Weighing Form

### Airplane Weighing Procedures

A basic empty weight and center of gravity were established for this airplane when the airplane was weighed just prior to initial delivery. However, major modifications, loss of records, addition or relocation of equipment, accomplishment of service bulletins, and weight gain over time may require re-weighing to keep the basic empty weight and center of gravity current. The frequency of weighing is determined by the operator. All changes to the basic empty weight and center of gravity are the responsibility of the operator. Refer to Section 8 for specific servicing procedures.

1. Preparation:
  - a. Inflate tires to recommended operating pressures.
  - b. Service brake reservoir.
  - c. Drain fuel system.
  - d. Service engine oil.
  - e. Move crew seats to the most forward position.
  - f. Raise flaps to the fully retracted position.
  - g. Place all control surfaces in neutral position.
  - h. Verify equipment installation and location by comparison to equipment list.
2. Leveling (Figure 6-2):
  - a. Level longitudinally with a spirit level placed on the pilot door sill and laterally with of a spirit level placed across the door sills. Alternately, level airplane by sighting the forward and aft tool holes along waterline 95.9.
  - b. Place scales under each wheel (minimum scale capacity, 500 pounds nose, 1000 pounds each main).
  - c. Deflate the nose tire and/or shim underneath scales as required to properly center the bubble in the level.
3. Weighing (Figure 6-3):
  - a. With the airplane level, doors closed, and brakes released, record the weight shown on each scale. Deduct the tare, if any, from each reading.

WEIGHT & BALANCE

ABNORMAL

NORMAL

SYSTEMS  
DESCRIPTION

HANDLING, SERV  
& MAINT

SUPPLEMENTS

BATTERY  
XP: 3/2020

4. Measuring (Figure 6-3):

- a. Obtain measurement 'x' by measuring horizontally along the airplane center line (BL 0) from a line stretched between the main wheel centers to a plumb bob dropped from the forward side of the firewall (FS 100). Add 100 to this measurement to obtain left and right weighing point arm (dimension 'A'). Typically, dimension 'A' will be in the neighborhood of 157.5.
  - b. Obtain measurement 'y' by measuring horizontally and parallel to the airplane centerline (BL 0), from center of nosewheel axle, left side, to a plumb bob dropped from the line stretched between the main wheel centers. Repeat on right side and average the measurements. Subtract this measurement from dimension 'A' to obtain the nosewheel weighing point arm (dimension 'B').
5. Determine and record the moment for each of the main and nose gear weighing points using the following formula:
- $$\text{Moment} = \text{Net Weight} \times \text{Arm}$$
6. Calculate and record the as-weighed weight and moment by totaling the appropriate columns.
7. Determine and record the as-weighed C.G. in inches aft of datum using the following formula:
- $$\text{C.G.} = \text{Total Moment} \div \text{Total Weight}$$
8. Add or subtract any items not included in the as-weighed condition to determine the empty condition. Application of the above C.G. formula will determine the C.G. for this condition.
9. Add the correction for engine oil (15 lb at FS 78.4), if the airplane was weighed with oil drained. Add the correction for unusable fuel (18.0 lb at FS 154.9) to determine the Basic Empty Weight and Moment. Calculate and record the Basic Empty Weight C.G. by applying the above C.G. formula.
10. Record the new weight and C.G. values on the Weight and Balance Record (Figure 6-4).

The above procedure determines the airplane Basic Empty Weight, moment, and center of gravity in inches aft of datum. C.G. can also be expressed in terms of its location as a percentage of the airplane Mean Aerodynamic Cord (MAC) using the following formula:

$$\text{C.G. \% MAC} = 100 \times (\text{C.G. inches} - \text{LEMAC}) \div \text{MAC}$$

Where:

$$\text{LEMAC} = 132.9$$

$$\text{MAC} = 48.4$$

WEIGHT & BALANCE

ABNORMAL

NORMAL

SYSTEMS  
DESCRIPTION

HANDLING, SERV  
& MAINT

SUPPLEMENTS

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EXP: 3/2020



### Center of Gravity Limits

The charts below depict the airplane center-of-gravity envelope in terms of inches aft of the reference datum and as a percentage of the Mean Aerodynamic Cord (MAC). The relationship between the two is detailed in the weighing instructions.

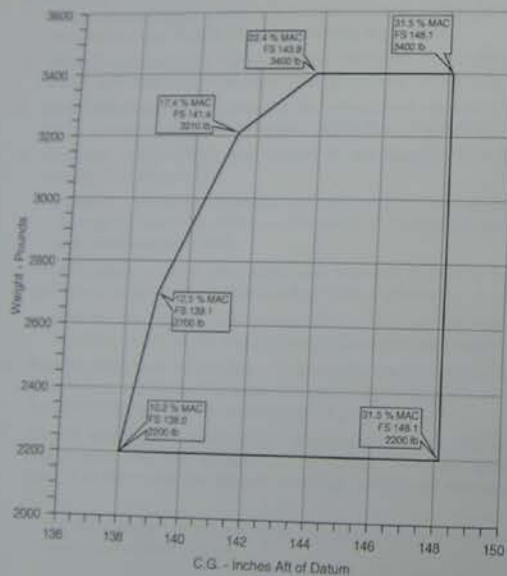


Figure 6-6  
Center of Gravity Limits

### Weight & Balance Loading Form

Serial Num: \_\_\_\_\_ Date: \_\_\_\_\_  
Reg. Num: \_\_\_\_\_ Initials: \_\_\_\_\_

Item	Description	Weight LB	Moment/ 1000
1.	<b>Basic Empty Weight</b> <i>Includes unusable fuel &amp; full oil</i>		
2.	Front Seat Occupants <i>Pilot &amp; Passenger (total)</i>		
3.	Rear Seat Occupants		
4.	Baggage Area <i>130 lb maximum</i>		
5.	<b>Zero Fuel Condition Weight</b> <i>Sub total item 1 thru 4</i>		
6.	Fuel Loading <i>81 Gallon @ 6.0 lb/gal. Maximum</i>		
7.	<b>Ramp Condition Weight</b> <i>Sub total item 5 and 6</i>		
8.	Fuel for start, taxi, and runup <i>Normally 9 lb at average moment of 1394.</i>	-	-
9.	<b>Takeoff Condition Weight</b> <i>Subtract item 8 from item 7</i>		

• Note •

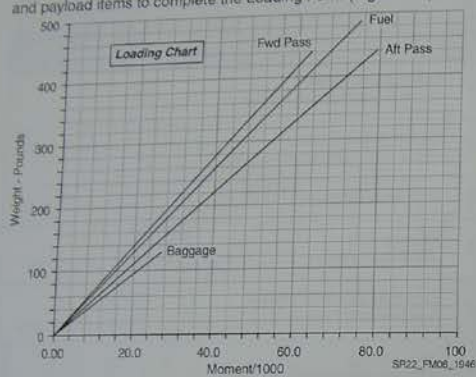
The Takeoff Condition Weight must not exceed 3400 lb.

The Takeoff Condition Moment must be within the Minimum Moment to Maximum Moment range at the Takeoff Condition Weight. (Refer to Figure 6-9, Moment Limits).

Figure 6-7  
Weight and Balance Loading Form

### Loading Data

Use the following chart or table to determine the moment/1000 for fuel and payload items to complete the Loading Form (Figure 6-7).



Weight LB	Fwd Pass FS 143.5	Aft Pass FS 180.0	Baggage FS 208.0	Fuel FS 154.9	Weight LB	Fwd Pass FS 143.5	Aft Pass FS 180.0	Fuel FS 154.9
20	2.87	3.80	4.16	3.10	260	37.31	46.80	40.27
40	5.74	7.20	8.32	6.20	280	40.18	50.40	43.37
60	8.61	10.80	12.48	9.29	300	43.05	54.00	46.47
80	11.48	14.40	16.64	12.39	320	45.92	57.60	49.57
100	14.35	18.00	20.80	15.49	340	48.79	61.20	52.67
120	17.22	21.60	24.96	18.59	360	51.66	64.80	55.76
140	20.09	25.20	(27.04)*	21.69	380	54.53	68.40	58.86
160	22.96	28.80		24.78	400	57.40	72.00	61.96
180	25.83	32.40		27.88	420	60.27	75.60	65.06
200	28.70	36.00		30.96	440	63.14	79.20	68.16
220	31.57	39.60		34.08	460			71.25
240	34.44	43.20		37.18	480**			75.28

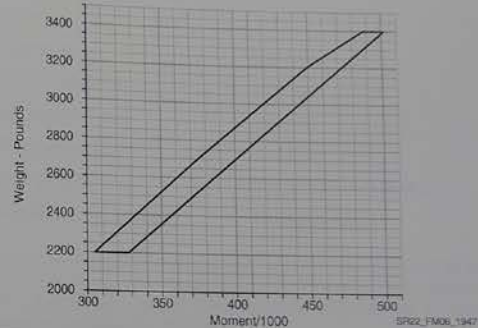
\*30.0 Maximum

\*\*81 U.S. Gallons Usable

Figure 6-8  
Loading Data

### Moment Limits

Use the following chart or table to determine if the weight and moment from the completed Weight and Balance Loading Form (Figure 6-7) are within limits.



Weight LB	Moment/1000		Weight LB	Moment/1000	
	Minimum	Maximum		Minimum	Maximum
2200	304	326	2850	398	422
2250	311	333	2900	406	430
2300	318	341	2950	414	437
2350	326	348	3000	421	444
2400	333	355	3050	429	452
2450	340	363	3100	437	459
2500	347	370	3150	444	467
2550	354	378	3200	452	474
2600	362	385	3250	461	481
2650	369	392	3300	471	489
2700	375	400	3350	480	496
2750	383	407	3400	489	504
2800	390	415			

Figure 6-9  
Moment Limits