

FLIGHT TRAINING



CIRRUS
AIRCRAFT



APPROACH™
TRAINING FOR YOUR LIFESTYLE

Workbook
SR-Series
SR20, SR22, SR22T, & SR22 TN

Edition 3
October 10, 2018

Revision #	Date	Description
REV-2	January 15, 2013	SR-22T, FIKI
REV-3	October 10, 2018	Generation 5, 6

Table of Contents

INTRODUCTION	4
GENERAL	5
EMERGENCY AND ABNORMAL PROCEDURES	10
NORMAL PROCEDURES	14
PERFORMANCE	20
WEIGHT AND BALANCE	23
AIRPLANE AND SYSTEMS DESCRIPTION.....	24
SUPPLEMENTS	29
HANDLING SERVICE & MAINTENANCE.....	34
SAFETY INFORMATION.....	36

INTRODUCTION

This workbook is provided to introduce pilots to the characteristics of the Cirrus aircraft.

Each of the following sections corresponds to a section in the POH. Any questions pertaining to the Flight Operations Manual will state **(FOM)** after the question.

Unless otherwise noted, all questions apply to the model of aircraft that you will be flying. If a question only applies to a certain model, it will be noted with:

- **(20)** for SR20
- **(22)** for SR22
- **(T)** for SR22 Turbo: Includes both turbo-normalized (SR22 TN) and turbo-charged versions (SR 22T).

GENERAL

This section will cover Section 1 (General) of your Pilots Operating Handbook. Answers to all questions will be found in the appropriate section of the POH unless otherwise noted.

1. What is the certified max gross weight of the aircraft?

2. How much clearance is between the tip of the propeller and the ground?

3. What is your engine model?

4. What is the total usable fuel capacity?

5. What is the aircraft's maximum useful load? Full fuel payload?

6. What does VPD stand for?

LIMITATIONS

This section will cover Section 2 (Limitations) of your Pilots Operating Handbook. Answers to all questions will be found in the appropriate section of the POH unless otherwise noted.

1. Fill in the speeds and definitions of the following:

V_{NE} _____ KIAS

V_{FE} _____ KIAS

V_{NO} _____ KIAS

V_{PD} _____ KIAS

V_O _____ KIAS

V_{SO} _____ KIAS

V_{FE} _____ KIAS

V_S _____ KIAS

2. What two speeds define the top and bottom of the green arc?

3. What two speeds define the top and bottom of the white arc?

4. What is the maximum takeoff altitude for the aircraft?

5. What is the max operating altitude of the aircraft?

6. Can you operate this aircraft out of unpaved runway surfaces?

7. Can you fly with ALT 2 INOP?

8. Can you fly VFR with one of the strobe lights out?

9. Can you fly with any of the engine instruments inoperative?

10. Is the aircraft approved for aerobatics/spins?

11. Can you operate your aircraft without removing the CAPS safety pin?

12. Indicate the following Fuel Limits:

Total Fuel Capacity _____ gallons

Total Fuel Each Tank _____ gallons

Total Usable Fuel _____ gallons

Unusable Fuel _____ gallons

Maximum Fuel Imbalance _____ gallons

13. Can you fly with the autopilot inoperative?

EMERGENCY AND ABNORMAL PROCEDURES

This section will cover Section 3 & 4 from your Pilots Operating Handbook. Answers to all questions will be found in the appropriate section of the POH unless otherwise noted.

1. What is the airspeed(s) for Best Glide?

2. Emergency Landing Speeds:

Flaps Up _____ KIAS

50% Flaps _____ KIAS

100% Flaps _____ KIAS

3. What is the procedure for a fire during engine start?

4. What indicates the failure of an alternator?

5. Would you lose any equipment if you lost ALT 1? If yes, what?

6. Would you lose any equipment if you lost ALT 2? If yes, what?

7. What is your best glide distance if you were at 6,000' AGL?

8. **(T)** What are 2 causes of an unexplained loss of manifold pressure?

9. **(T)** Is an unexplained loss of manifold pressure an emergency?

10. What is the procedure if you have an engine failure in flight?

11. Is flight into known icing conditions approved?

12. What is the procedure for an inadvertent icing encounter?

13. What is the only approved and demonstrated method for spin recovery?

14. What is the corrective action for erroneous airspeed indications?

15. Will the auxiliary fuel pump provide enough fuel to power the engine in the event of an engine driven fuel pump failure?

16. What 2 conditions will turn the oil annunciator light on?

17. What is the procedure for a cabin fire in flight?

18. What procedure would you use to try to get ALT 1 back online in the case of an ALT 1 failure? What would your next step be if you could not get the alternator back online?

19. If activation of the CAPS system is necessary, what kind of motion do you want to use when pulling the handle?

20. Your ALT 1 annunciator light illuminates 30 minutes from your destination at night. What equipment would you turn off to reduce the load on Battery 1?

NORMAL PROCEDURES

This section will cover Section 4 (Normal Procedures) from your Pilots Operating Handbook. Answers to all questions will be found in the appropriate section of the POH unless otherwise noted.

1. Fill in the speeds and definitions of the following:

V_R _____ KIAS

V_X _____ KIAS

V_Y _____ KIAS

V_O _____ KIA

Normal Approach, Flaps Up _____ KIAS

Normal Approach, Flaps 50% _____ KIAS

Normal Approach, Flaps 100% _____ KIAS

Short Field Approach, Flaps 100% (V_{REF}) _____ KIAS

Max Demonstrated X-Wind _____ Knots

2. During the cabin preflight, what should be the normal voltage indication?

3. How many points are you able to drain fuel from?

4. What items would you brief your passengers on during a passenger briefing?

5. (True / False) You will start the engine with both batteries and both alternators on.

6. What are the max cranking intervals for the starter?

7. (True / False) Directional control during taxi operations is best achieved by differential braking where full rudder authority is used before brakes are applied.

8. Before doing your run-up, you want the oil temperature to reach what temperature?

9. If no drop in RPM is noted on the magneto check, what is the probable cause?

10. What is the procedure for setting the mixture for maximum power when taking off from high altitude airports?

11. What is the recommended cruise climb airspeed?

12. **(T)** What is the corrective action if the manifold pressure exceeds 32" (TN) or 37" (T) inches during takeoff?

13. **(T)** List the procedures for a Rich of Peak (ROP) climb.

14. **(T)** List the procedures for a Lean of Peak (LOP) climb.

15. **(T)** (True / False) Leaning the mixture control when operating lean of peak EGT will cause the CHT's to increase.

16. **(T)** What is the corrective action if CHT's exceed 380° F (TN) or 420° F (T) during a LOP climb?

17. **(T)** What is the maximum altitude a Lean of Peak (LOP) climb can be used (TN only)?

18. **(T)** List the procedure for setting cruise power.

Throttle _____

Mixture _____

Boost pump _____

19. **(T)** When should the boost pump be turned off during cruise?

20. (True / False) The fuel BOOST must be used when switching tanks?

21. (T) CHT's should be kept above what temperature during descent?

22. (T) List 3 factors that affect CHT cooling during descent?

23. (T) What power setting can be used during descent?

24. What distance from the destination airport should you start a descent from 17,500' MSL to a traffic pattern of 2,500' MSL with a groundspeed of 180 knots when using:

500 fpm descent _____ NM

1000 fpm descent _____ NM

25. (True / False) The mixture should be full rich and boost pump on before landing.

PERFORMANCE

This section will cover Section 5 (Performance) from your Pilots Operating Handbook.

Use the following information to answer the questions:

Route: Rapid City, SD (KRAP) → Duluth, MN (KDLH)
Distance: 487 NM
Magnetic Course: 070 degrees
Weight at Takeoff: Max Gross Weight
Fuel: Full
Cruise Power Setting: (20, 22) 75% Best Power
(T) 85% Lean of Peak

Weather Conditions:

KRAP 101250Z 22026KTG35 10SM FEW010 SCT020 30/17 A2975

KDLH 101250Z 33020KT 10SM SCT010 20/10 A2982

Winds aloft:

	3000	6000	9000	12000	18000
DLH	2925	253415	253704	264201	2754-03
GFK	302610	263309	253708	254205	265001
FSD	2923	263214	272907	283502	2841-01
RAP		283417	303309	304003	314900

Airport Information:

KRAP Elevation 3202 ft
Rwy 23/05 3600 ft
Rwy 32/14 8701 ft

KDLH Elevation 1420 ft
Rwy 27/09 10,152 ft
Rwy 03/21 5699 ft

1. What will be your takeoff distance (ground roll) departing KRAP?

2. What is your x-wind component for runway 32 at KRAP?

3. What altitude will you use and why?

4. What will be your average climb rate out of KRAP to your selected cruise altitude?

5. What will be your endurance for today's flight?

6. **(T)** What is the O2 duration for 15,000ft with 3 persons onboard?

7. What will be your calculated KTAS and fuel flow for cruise flight?

8. How much fuel will you have once you reach your destination?

9. Will you be able to make your destination non-stop?

10. What will be your landing distance (ground roll) at KDLH?

WEIGHT AND BALANCE

This section will cover Section 6 (Weight and Balance) from your Pilots Operating Handbook.

Basic Empty Weight: **(22)** 2400 lbs **(20)** 2135 lbs

Moment: **(22)** 326.563 **(20)** 301.758

Payload:

Pilot	160 lbs	Front Pax	160 lbs
Rear Pax	200 lbs	Baggage	130 lbs
Fuel	Full Fuel		

NOTE: *You cannot leave anyone or any baggage behind.*

1. What will be your aircraft's gross takeoff weight?

2. Is this below the certified maximum gross weight?

3. Will your aircraft be within CG limitations?

4. How much fuel will you have on board before takeoff to remain within the weight and GG envelope?

_____ Gallons _____ Lbs

AIRPLANE AND SYSTEMS DESCRIPTION

This section will cover Section 7 (Systems) from your Pilots Operating Handbook. Answers to all questions will be found in the appropriate section of the POH, unless otherwise noted.

1. What are the three flap settings?

_____ % _____ °

_____ % _____ °

_____ % _____ °

2. (True / False) The autopilot also uses the electric roll trim.

3. The landing gear struts are made of what?

4. What is the recommended extended flight oil level for the engine?

5. Where is the alternate air control knob? Does a SR22 TN or SR22T have an alternate air control knob? Why?

6. What will cause an OIL warning light to illuminate?

7. What pulls the fuel from the collector tanks?

8. What situation will cause the FUEL QTY caution light to illuminate?

9. Alternator #1 is rated for:

_____ Amps

_____ Volts

10. Alternator #2 is rated for:

_____ Amps

_____ Volts

11. Battery #1 is rated for:

_____ Amp-hours

_____ Volts

12. Battery #2 is rated for:

_____ Amp-hours

_____ Volts

13. Output from alternator #1 is connected to which bus(es)?

14. Output from alternator #2 is connected to which bus(es)?

15. How are the main distribution bus(es) and essential distribution bus connected?

16. What is the purpose of the diode between the distribution buses?

17. You are on the ground with only BAT 2 on. What indication do you get if the isolation diode has failed?

18. When only battery #1 is turned on, which buses are energized?

19. When only battery #2 is turned on, which buses are energized?

20. What does an ALT annunciator mean?

21. What is the expected amount of force required when pulling the CAPS handle?

22. What kind of pull on the handle works best when activating the CAPS system?

23. What kind of descent rate can you expect with a parachute deployment?

SUPPLEMENTS

This section will cover Section 9 (Supplements) from your Pilots Operating Handbook, unless otherwise noted.

Note: Only answer the questions for the systems that are in your aircraft.

Turbo System SR22TN and SR22T

Note: For SR22T aircraft refer to section 7 of your POH.

1. What is the purpose of the intercooler/aftercooler?

2. What could cause an over-boost situation?

3. What is the maximum Turbo Inlet Temperature (TIT)?

4. What is the maximum certification altitude?

5. While the engine is idling on the ground, is the wastegate open or closed? Why?

6. After completing the cruise checklist, the boost pump should remain on for _____ min. Why?

7. (True / False) Leaning the mixture will cause the CHT's to rise when operating lean of peak.

8. While climbing at 120 KIAS during a lean of peak climb, the CHT's exceed 380° F (SR22TN) or 420° F (SR22T). What is the appropriate response?

9. What if the CHT's cool below 380° F (SR22TN) or 420° F (SR22T) but the climb performance is not acceptable? What is the appropriate action?

10. After setting cruise power at 85% (2500 RPM / Max MP (SR22TN) 30.5" (SR22T) / Fuel Flow cyan target) and the CHT's remain at 395° F (SR22TN) 425° F (SR22T). What is the correct action?

Precise Flight Fixed Oxygen System

1. The O2 required light will come on if the system is not selected on by what altitude?

2. What does a steady fault light indicate?

3. What does a flashing fault light indicate?

4. (True / False) The system will continue to operate normally when a steady fault light is observed.

5. The oxygen quantity display indicator will flash red when bottle pressure falls below what psi?

6. (True / False) If you have an ALT 1 Failure, you will need to conserve battery power for continued operation of the oxygen system.

7. Cannulas are certified for flight up to what altitude?

8. How many hours of oxygen use can you expect cruising at 17,000 ft with 3 people on board and a full oxygen tank?

Ice Protection System

1. Is flight into known icing approved for your aircraft?

2. What is the total deicing fluid capacity for your airplane?

3. The Pitot Heat should be limited to _____seconds on the ground?
(FIKI)

4. What is the minimum dispatch fluid quantity?

5. **(FIKI)** How much endurance (time) do you have at the three different modes when at the minimum dispatch level?

6. During an approach to landing with ice conditions present, what changes would you make to your landing procedures?

7. How often should the system be run to prevent the porous panel membranes from drying out?

8. If icing conditions are encountered in cruise, what actions should the pilots take?

HANDLING SERVICE & MAINTENANCE

This section will cover Section 8 (Service and Handling) from your Pilots Operating Handbook. Answers to all questions will be found in the appropriate section of the POH unless otherwise noted.

1. What are the two recommended procedures for you to verify if your airplane conforms to all Airworthiness Directives?

2. Should you use external power to start the airplane if it has a “dead” battery?

3. What is the proper tire pressure?

Nose Gear _____ psi

Main Gear _____ psi

4. After the engine break-in period, what is the recommended time between oil changes?

5. (True / False) A fuel sample is required to be taken prior to each flight.

6. What should you use when washing the exterior of the aircraft?

7. When cleaning any of the windows, what do you not want to use?

SAFETY INFORMATION

This section will cover Section 10 (Safety Information) from your Pilots Operating Handbook. Answers to all questions will be found in the appropriate section of the POH unless otherwise noted.

Regarding the Cirrus Airframe Parachute System (CAPS):

1. What factors do you need to take into account if the parachute is to be deployed?

2. List scenarios when activation of the CAPS might be appropriate?

