

# SIERRA INDUSTRIES, INC.

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SIERRA INDUSTRIES, INC.

PILOT'S OPERATING HANDBOOK SUPPLEMENT

FOR CESSNA MODEL 210L

SERIAL NUMBERS 21061040 THRU 21061573

Document No. POHS 15-1

Registration \_\_\_\_\_

Serial No. \_\_\_\_\_

This document includes material required to be furnished to the pilot by FAR Part 3. It also contains supplemental data supplied by Sierra Industries, Inc.

This document must be carried in the airplane at all times when the airplane is Sierra-equipped in accordance with Supplemental Type Certificate No. SA1525WE.

The information contained in this document supersedes the basic Pilot's Operating Handbook only where specifically covered by the items contained herein. For Limitations, Procedures, and Performance not contained in this Supplement, consult the basic Handbook.

APPROVED Ernest W. King III

DATE 8-10-90

Sierra Industries, Inc.  
Uvalde, Texas 78801

SIERRA INDUSTRIES, INC.

Garner Field Airport  
Rev. A 08-10-90

Uvalde, Texas 78801

TITLE

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1. GENERAL

No changes

2. LIMITATIONS

No changes Except:

AIRSPEED LIMITATIONS

Maximum Flaps Extended Speed	
to 10°	140 KIAS
10° to 30°	85 KIAS

AIRSPEED INDICATOR MARKINGS		
White Arc	85 to 50 KIAS	Full Flap Operating Range

PLACARDS:

Adjacent to Wing Flap Position Switch

WHITE SEGMENT - "85 KIAS                      10° TO 30°"

3. EMERGENCY PROCEDURES

AIRSPEED FOR EMERGENCY OPERATION

No changes Except:

ENGINE FAILURE AFTER TAKEOFF:	
Wing Flaps - UP	85 KIAS
Wing Flaps - DOWN	69 KIAS
PRECAUTIONARY LANDING WITH ENGINE POWER AND FLAPS	58 KIAS
LANDING WITHOUT ENGINE POWER:	
Wing Flaps - UP	90 KIAS
Wing Flaps - DOWN	69 KIAS

3. EMERGENCY PROCEDURES (Cont.)

ABBREVIATED CHECKLIST

ENGINE FAILURE DURING TAKEOFF RUN

No Changes

ENGINE FAILURE SHORTLY AFTER TAKEOFF

- |                         |       |   |         |
|-------------------------|-------|---|---------|
| (1) Airspeed            | Flaps | - UP  | 85 KIAS |
|                         | Flaps | - 20°   | 69 KIAS |
| (2) Mixture             |       | - IDLE CUT-OFF                                      |         |
| (3) Fuel Selector Valve |       | - OFF   |         |
| (4) Ignition Switch     |       | - OFF   |         |
| (5) Wing Flaps          |       | - AS REQUIRED (Flaps - 30° and 69 KIAS recommended) |         |
| (6) Master Switch       |       | - OFF   |         |

ENGINE FAILURE DURING FLIGHT

- |                         |  |  |  |
|-------------------------|--|--|--|
| (1) Airspeed            |  | - 85 KIAS (Flaps UP, Gross Weight Best Glide Speed)        |  |
| (2) Fuel Quantity       |  | - CHECK  |  |
| (3) Fuel Selector Valve |  | - FULLEST TANK   |  |
| (4) Mixture             |  | - RICH   |  |
| (5) Auxiliary Fuel Pump |  | - ON (for 3 to 5 seconds with Throttle 1/2 OPEN, then OFF) |  |
| (6) Ignition Switch     |  | - BOTH (or START if Propeller is stopped)                  |  |
| (7) Throttle            |  | - ADVANCE - Slowly   |  |

FORCED LANDINGS

EMERGENCY LANDING WITHOUT ENGINE POWER

- |                         |              |   |
|-------------------------|--------------|---|
| (1) Airspeed            | Flaps - UP   | 90 KIAS                                 |
|                         | Flaps - DOWN | 69 KIAS                                 |
| (2) Mixture             |              | - IDLE CUT-OFF                          |
| (3) Fuel Selector Valve |              | - OFF                                   |
| (4) Ignition Switch     |              | - OFF                                   |
| (5) Landing Gear        |              | - DOWN (UP if terrain is rough or soft) |
| (6) Wing Flaps          |              | - 30° - on Final Approach               |
| (7) Airspeed            |              | - 69 KIAS                               |
| (8) Master Switch       |              | - OFF                                   |
| (9) Doors               |              | - UNLATCH - Prior to Touchdown          |
| (10) Touchdown          |              | - SLIGHTLY TAIL LOW                     |
| (11) Ignition Switch    |              | - OFF                                   |
| (12) Brakes             |              | - APPLY HEAVILY                         |

3. EMERGENCY PROCEDURES (Cont.)

DITCHING

- (1) Radio - TRANSMIT MAYDAY on 121.5 MHZ - Give Location and Intentions
- (2) Heavy Objects in Baggage Area - SECURE or JETTISON
- (3) Landing Gear - UP
- (4) Wing Flaps - 30°
- (5) Power - ESTABLISH 300 FT/MIN DESCENT at 58 KIAS
- (6) Approach - High Winds, Heavy Seas - INTO THE WIND  
- Light Winds, Heavy Swells - PARALLEL TO THE SWELLS

NOTE

If no power is available, approach at 85 KIAS with Flaps UP or at 69 KIAS with Flaps 10°.

- (7) Cabin Doors - UNLATCH
- (8) Touchdown - LEVEL ATTITUDE - 300 FT/MIN DESCENT
- (9) Face - CUSHION - at Touchdown with folded Coat or Seat Cushion
- (10) Airplane - EVACUATE - through Cabin Doors. If necessary, OPEN Vent Window to equalize pressure so Doors can be opened.
- (11) Life Vests and Raft - INFLATE

4. NORMAL PROCEDURES

BEFORE ENTERING THE AIRPLANE

- (1) Make an Exterior Inspection in accordance with Figure 1-1

BEFORE STARTING THE ENGINE

- (1) Pilot's Check List - REVIEW Check List on Left Front Door Post
- (2) Seats and Seat Belts - ADJUST and LOCK
- (3) Brakes - TEST and SET
- (4) Cowl Flaps - OPEN (move Lever out of Locking Hole to reposition)
- (5) Fuel Selector - FULLEST TANK
- (6) Radios and Electrical Equipment - OFF
- (7) Landing Gear Handle - DOWN
- (8) Master Switch - ON
- (9) Landing Gear Lights and Horn - PRESS TO TEST

4. NORMAL PROCEDURES (Cont.)

STARTING THE ENGINE

- |                                |  |
|--------------------------------|--|
| (1) Mixture                    | - RICH   |
| (2) Propeller                  | - HIGH RPM   |
| (3) Throttle                   | - CLOSED   |
| (4) Auxiliary Fuel Pump Switch | - ON   |
| (5) Throttle                   | - ADVANCE to obtain 50 - 60 Lbs/Hr Fuel Flow, then return to IDLE position |
| (6) Auxiliary Fuel Pump Switch | - OFF  |
| (7) Propeller Area             | - CLEAR  |
| (8) Ignition Switch            | - START  |
| (9) Throttle                   | - ADVANCE, slowly  |
| (10) Ignition Switch           | - RELEASE when engine starts   |

NOTE

The engine should start in two to three revolutions. If it does not continue running, start again at Step 3. If the engine does not start, leave the Auxiliary Fuel Pump Switch OFF, Set Mixture to IDLE CUT-OFF, open Throttle and crank engine until it fires (or for approximately 15 seconds). If still unsuccessful, allow the starter motor to cool, then start again using the normal starting procedure.

- |                   |                               |
|-------------------|-------------------------------|
| (11) Throttle     | - RESET to desired idle speed |
| (12) Oil Pressure | - CHECK                       |

BEFORE TAKEOFF

- |  |  |
|--|--|
| (1) Parking Brake  | - SET  |
| (2) Cowl Flaps   | - FULL OPEN  |
| (3) Flight Controls  | - FREE and CORRECT   |
| (4) Elevator and Rudder Trim                                 | - TAKEOFF  |
| (5) Mixture  | - RICH (below 3000 feet)   |
| (6) Throttle   | - 1700 RPM   |
| a. Magnetos  | - CHECK (RPM drop should not exceed 150 RPM on either magneto or 50 RPM differential between magnetos) |
| b. Propeller   | - CYCLE from high to low RPM - return to high RPM (full forward)                                       |
| c. Engine Instruments and Ammeter                            | - CHECK  |
| d. Suction Gauge   | - CHECK in green arc   |
| (7) Cabin Doors and Windows                                  | - CLOSED and LOCKED  |
| (8) Flight Instruments and Radios                            | - SET  |
| (9) Autopilot (if installed)                                 | - OFF  |
| (10) Flashing Beacon, Navigation Lights and/or Strobe Lights | - ON as required   |
| (11) Throttle Friction Lock                                  | - ADJUST   |

4. NORMAL PROCEDURES (Cont.)

TAKEOFF

- |                               |  |
|-------------------------------|--|
| (1) Wing Flaps                | - 20°  |
| (2) Elevator Trim             | - TAKEOFF  |
| (3) Rudder Trim               | - 1/2 RIGHT  |
| (4) Cowl Flaps                | - OPEN   |
| (5) Brakes                    | - APPLY  |
| (6) Power                     | - FULL THROTTLE and 2850 RPM                               |
| (7) Mixture                   | - LEAN for Field Elevation per Fuel Flow Indicator Placard |
| (8) Brakes                    | - RELEASE  |
| (9) Elevator Control          | - ROTATE at 52 KIAS  |
| (10) Initial Climb            | - 60 KIAS while clearing Obstacles                         |
| (11) After Clearing Obstacles | - ACCELERATE to 78 KIAS                                    |
| (12) Landing Gear             | - RETRACT in Climb Out                                     |
| (13) Flaps                    | - RETRACT  |
| (14) Enroute Climb            | - STANDARD PROCEDURES                                      |

NORMAL CLIMB

- |                |                                 |
|----------------|---------------------------------|
| (1) Airspeed   | - 104 to 113 KIAS               |
| (2) Power      | - 25 INCHES Hg and 2550 RPM     |
| (3) Mixture    | - LEAN to 108 Lbs./Hr Fuel Flow |
| (4) Cowl Flaps | - OPEN as required              |

MAXIMUM PERFORMANCE CLIMB - Sea Level to 19,000 Ft

- |                |  |
|----------------|--|
| (1) Airspeed   | - 97 KIAS at Sea Level to<br>90 KIAS at 10,000 Ft. |
| (2) Power      | - FULL THROTTLE and 2700 RPM                       |
| (3) Mixture    | - LEAN per Fuel Flow Indicator Placard             |
| (4) Cowl Flaps | - FULL OPEN  |

CRUISING

- |                              |  |
|------------------------------|--|
| (1) Power                    | - 15 to 25 INCHES Hg and 2200 to 2550 RPM  |
| (2) Cowl Flaps               | - OPEN as required   |
| (3) Elevator and Rudder Trim | - ADJUST   |
| (4) Mixture                  | - LEAN for Cruise Fuel Flow per the Cessna Power Computer or per the CRUISE PERFORMANCE in Section 5 |

LETDOWN

- |                |   |
|----------------|---|
| (1) Power      | - AS DESIRED                                    |
| (2) Mixture    | - LEAN for smooth performance in Power Descents |
|                | - FULL RICH for Idle Power                      |
| (3) Cowl Flaps | - CLOSED  |



4. NORMAL PROCEDURES (Cont.)

BEFORE LANDING

- |                        |   |
|------------------------|---|
| (1) Fuel Selector      | - FULLEST TANK  |
| (2) Landing Gear Lever | - DOWN (below 140 KIAS)   |
| (3) Landing Gear Light | - GREEN   |
| (4) Mixture            | - RICH  |
| (5) Propeller          | - HIGH RPM  |
| (6) Wing Flaps         | - DOWN 0° to 10° (below 140 KIAS)<br>10° to 30° (below 85 KIAS) |
| (7) Initial Approach   | - FLAPS 20° at 85 KIAS  |
| (8) Final Approach     | - FLAPS 30° at 58 KIAS  |
| (9) Elevator Trim      | - ADJUST  |

BALKED LANDING

- |                             |                              |
|-----------------------------|------------------------------|
| (1) Power                   | - FULL THROTTLE and 2850 RPM |
| (2) Wing Flaps              | - RETRACT IMMEDIATELY to 20° |
| (3) Climb Past Obstacles at | - 60 KIAS                    |

- AFTER CLEARING OBSTACLES -

- |                   |                  |
|-------------------|------------------|
| (4) Accelerate to | - 78 KIAS        |
| (5) Flaps         | - RETRACT SLOWLY |
| (6) Cowl Flaps    | - OPEN           |

LANDING

- |                              |   |
|------------------------------|---|
| (1) Power                    | - AS REQUIRED for NORMAL RATE OF DESCENT        |
| (2) Elevator and Rudder Trim | - AS REQUIRED                                   |
| (3) Touchdown                | - MAIN WHEELS FIRST                             |
| (4) Touchdown Speed          | - 46 KIAS                                       |
| (5) Deceleration             | - CLOSE THROTTLE - RETRACT FLAPS - APPLY BRAKES |

AFTER LANDING

- |                |           |
|----------------|-----------|
| (1) Cowl Flaps | - OPEN    |
| (2) Wing Flaps | - RETRACT |

SECURING AIRCRAFT

- |                                     |                                  |
|-------------------------------------|----------------------------------|
| (1) Parking Brake                   | - SET                            |
| (2) Radios and Electrical Equipment | - OFF                            |
| (3) Mixture                         | - IDLE CUT-OFF (pulled full out) |
| (4) Ignition and Master Switch      | - OFF                            |
| (5) Control Lock                    | - INSTALLED                      |

5. PERFORMANCE

No change except:

The minimum performance required by the applicable certification regulations has been demonstrated to the FAA. However, the precise performance information in the basic Pilot's Operating Handbook may or may not be affected by the modification.

AIRSPED CALIBRATION	Figure 5-1
STALL SPEEDS	Figure 5-2
TAKEOFF	Figure 5-3
LANDING	Figure 5-4

AIRSPED CORRECTION TABLE GROSS WEIGHT 3800 LBS.								
Flaps 0°								
IAS - MPH		50	60	80	100	120	140	160
CAS - MPH		44	64	79	98	118	137	157
Flaps 20° & 30°								
IAS - MPH	35	40	50	60	70	80	90	100
CAS - MPH	45	48	53	61	70	80	90	100
FLAPS 0° TO 10° - 140 KIAS MAXIMUM FLAP SPEEDS FLAPS 10° TO 30° - 85 KIAS								

Figure 5-1

STALL SPEEDS - ZERO THRUST					
	CONDITION	ANGLE OF BANK			
		0°	20°	40°	60°
3800 LBS GROSS WEIGHT	FLAPS UP	59	60	68	86
	FLAPS 20°	53	54	60	74
	FLAPS 30°	46	47	54	66
SPEEDS ARE KIAS					

Figure 5-2

SIERRA TAKEOFF DATA - SIERRA R/STOL CESSNA 210L CENTURION Takeoff Distance With 20° Flaps From Hard Surfaced Runway (FT.)										
GROSS WT. LBS	KIAS @ 50 FT.	HEAD WIND KTS	SEA LEVEL 59°F		2500 FT. 50°F		5000 FT. 41°F		7500 FT. 32°F	
			GRND RUN	TOTAL TO 50 FT.	GRND RUN	TOTAL TO 50 FT.	GRND RUN	TOTAL TO 50 FT.	GRND RUN	TOTAL TO 50 FT.
3800	60	0	715	1232	860	1495	1040	1850	1270	2460
		10	535	975	650	1195	790	1495	975	2020
		20	373	745	465	925	575	1175	720	1610
3400	56	0	555	975	665	1155	795	1380	970	1725
		10	405	765	490	910	600	1100	730	1385
		20	280	570	345	690	425	845	530	1080
3000	51	0	415	775	500	895	595	1045	720	1260
		10	295	600	360	695	440	820	535	995
		20	200	440	245	520	305	615	380	760

NOTES:

1. Increase Distances 10% for each 20°F above Standard Temperature for particular altitude.
2. For takeoff on a dry, grassy runway, increase Distances (both "Ground Run" and "Total to 50 Ft.") by 5% of the "Total to 50 FT." Distance.
3. For operations in severe or gusty crosswind conditions, increase speeds 4 KIAS for each 10 knots of wind increment.

Figure 5-3

SIERRA LANDING DATA SIERRA R/STOL CESSNA 210L CENTURION									
Landing Distance With 30° Flaps On Hard Surfaced Runway (Feet)									
GROSS WT. LBS	KIAS @ 50 FT	SEA LEVEL 59°F		2500 FT. 50°F		5000 FT. 41°F		7500 FT. 32°F	
		GRND ROLL	TOTAL TO CLEAR 50 FT	GRND ROLL	TOTAL TO CLEAR 50 FT	GRND ROLL	TOTAL TO CLEAR 50 FT	GRND ROLL	TOTAL TO CLEAR 50 FT
3800	57	490	960	525	1020	555	1085	590	1155
3400	53	440	905	470	955	495	1010	530	1075
3000	49	390	845	415	890	440	940	470	995

NOTES: 1. Distances shown are based on zero wind, power off, and heavy braking.

2. Reduce Landing Distances 10% for each 5 knots headwind.

3. For operation on a dry, grassy runway, increase Distances (both "Ground Roll" and "Total to Clear 50 Ft") by 20% of the "Total to Clear 50 Ft" figure.

4. For operating in gusty or severe crosswind conditions, increase speeds 4 KIAS for each 10 knot wind increment.

Figure 5-4

**6. SUPPLEMENTS**

No changes

**7. WEIGHT AND BALANCE**

See FAA Form 337 in the airplane records for the weight and C.G. of the weight added for this modification.

**AIRPLANE SYSTEMS AND DESCRIPTIONS**

No change

**HANDLING, SERVICE AND MAINTENANCE**

No Change