

THIS DOCUMENT MUST BE KEPT IN THE AIRPLANE AT ALL TIMES

CESSNA AIRCRAFT COMPANY

WICHITA, KANSAS.

CAA IDENTIFICATION

NC _____

C.A.A. APPROVED
APPROVAL BASIS
LANDPLANE CAR 3
SKIPLANE CAR 4A
17 JUNE 1949
UTILITY CATEGORY

MODEL 140A (C-90)

AIRPLANE FLIGHT MANUAL

LIMITATIONS LANDPLANE OR SKIPLANE

THE FOLLOWING LIMITATIONS ARE TO BE OBSERVED
IN THE OPERATION OF THIS AIRPLANE EQUIPPED
WITH A CONTINENTAL C90-14F ENGINE.

ENGINE LIMITS

FOR ALL OPERATIONS 2475 R.P.M. (90 H.P.)

FUEL SYSTEM

80 MINIMUM OCTANE AVIATION GASOLINE. (USABLE CAPACITY TWO TANKS - 10 1/2 GALLONS
EACH -- 21 TOTAL).

PROPELLER

- WOOD FIXED PITCH - STATIC R.P.M. AT MAXIMUM PERMISSIBLE THROTTLE SETTING --
NOT MORE THAN 2160 R.P.M., NOT LESS THAN 1900 R.P.M. *
(DIAMETER - MAXIMUM 74 INCHES; MINIMUM 70.5 INCHES.)
- MCCAULEY 1A90 - STATIC R.P.M. AT MAXIMUM PERMISSIBLE THROTTLE SETTING --
NOT MORE THAN 2350 R.P.M., NOT LESS THAN 2000 R.P.M. *
(DIAMETER - MAXIMUM 71 INCHES; MINIMUM 69.5 INCHES.)
*NO ADDITIONAL STATIC R.P.M. TOLERANCE PERMITTED.

ENGINE INSTRUMENTS

- OIL TEMPERATURE - NORMAL OPERATING RANGE 100°-225° (GREEN ARC)
~~UNSAFE ABOVE 225° (RED LINE)~~
- OIL PRESSURE - NORMAL RANGE 30-40 PSI (GREEN ARC). IDLING PRESSURE 5 PSI MIN.
MAXIMUM PRESSURE 50 PSI (RED LINE).
- TACHOMETER - DO NOT EXCEED RATED ENGINE SPEED 2475 R.P.M. (RED LINE).
NORMAL OPERATING RANGE 2000-2350 R.P.M. (GREEN ARC).
- FUEL QUANTITY GAUGE - DO NOT TAKE-OFF ON A FUEL TANK LESS THAN 1/4 FULL.
APPROXIMATELY 2 GALLONS OF FUEL UNUSABLE IN NORMAL FLIGHT MANEUVERS REMAINS
IN EACH TANK WHEN THE GAUGE REGISTERS EMPTY.

AIRSPEED LIMITS

(TRUE INDICATED AIRSPEED)

NEVER EXCEED
CAUTION RANGE
NORMAL OPERATION
FLAP OPERATING RANGE
MANEUVERING
MAX. STRUCTURAL CRUISING SPEED
MAX. SPEED FLAPS EXTENDED

UTILITY CATEGORY

140 MPH (RED LINE)
115 TO 140 MPH (YELLOW ARC)
50 TO 115 MPH (GREEN ARC)
45 TO 82 MPH (WHITE ARC)
106 MPH
115 MPH
82 MPH

NO INVERTED MANEUVERS PERMITTED.

FLIGHT LOAD FACTORS

HIGH OR LOW ANGLE OF ATTACK - +4.4; INVERTED FLIGHT - 1.76
FLAPS DOWN 43° - +3.5

MAXIMUM WEIGHT - 1500 POUNDS.

CENTER OF GRAVITY RANGE

NOTE: DATUM IS FORWARD FACE OF
FIREWALL; M.A.C. 58.7"; L.E. MAC
+18.8". LEVELING MEANS - TOP EDGE OF
SHEET ALONG FUSELAGE SIDE AFT OF DOOR.

25% M.A.C. (+33.5") TO 31% MAC
(+37.0") AT 1500 POUNDS AND 23.9%
MAC (+32.8") TO 31% MAC (+37.0")
AT 1279 POUNDS OR LESS. STRAIGHT
LINE VARIATION OF FORWARD LIMITS
BETWEEN ABOVE.

NOTES

- THE FOLLOWING MANEUVERS ARE APPROVED FOR OPERATION IN THE
UTILITY CATEGORY WITH RECOMMENDED ENTRY SPEEDS SHOWN:
CHANDELLE - 105; STEEP TURN - 95; STALLS, (EXCEPT WHIP
STALLS); LAZY EIGHT - 105; SPINS - USE POWER TO ENGER.
- MANEUVERS INVOLVING FULL APPLICATION OF FLIGHT CONTROLS SHOULD
BE CONFINED TO SPEEDS BELOW MANEUVERING SPEED. ABRUPT MANEUVERS
SHOULD BE AVOIDED IN SPEEDS EXCEEDING THE MANEUVERING SPEED.
- IT IS THE RESPONSIBILITY OF THE PILOT AND OPERATOR TO SEE THAT
THE WEIGHT AND BALANCE ARE WITHIN LIMITATIONS.

PLACARDS

THIS AIRPLANE MUST BE OPERATED AS A
UTILITY CATEGORY AIRPLANE IN COMPLIANCE
WITH THE FLIGHT MANUAL.

UTILITY

NO AEROBATIC MANEUVERS APPROVED
EXCEPT THOSE LISTED IN THE FLIGHT
MANUAL.

BAGGAGE
80 LBS.
MAXIMUM

C.A.A. APPROVED
140A LANDPLANE & SKIPLANE
(C-90)

PERFORMANCE INFORMATION - LANDPLANE.

THE FOLLOWING OPERATIONAL DATA ARE COMPILED FROM ACTUAL TESTS WITH AIRPLANE AND ENGINE IN GOOD CONDITION AND USING AVERAGE PILOTING TECHNIQUE. ALL PERFORMANCE IS GIVEN FOR 1500 POUNDS GROSS WEIGHT WITH ZERO WIND VELOCITY AND HARD SURFACE LEVEL RUNWAY. TAKE-OFF AND CLIMB PERFORMANCE FIGURES GIVEN BELOW ARE MINIMUM VALUES OBTAINED FOR A WOOD PROPELLER WITH A LOW STATIC RPM (1900). THESE PERFORMANCE FIGURES WILL BE IMPROVED USING A WOOD PROPELLER WITH A HIGHER STATIC RPM OR A MCCAULEY PROPELLER.

STALLING SPEED	CONDITION	ANGLE OF BANK DEGREES			
		0°	20°	40°	60°
MPH T.I.A.S. NO STALL WARNING IS EVIDENT	POWER OFF; FLAPS UP	53	55	60.5	75
	POWER OFF; FLAPS DOWN	51	52.5	58	72

THE ABOVE STALLING SPEEDS ARE GIVEN FOR MOST REARWARD CENTER OF GRAVITY. WITH NORMAL LOADINGS, THE AIRPLANE IS UNSTALLABLE.

ITEM	ALTITUDE	OUTSIDE AIR TEMPERATURE							
		0°F	20°F	40°F	60°F.	80°F	100°F		
FLAPS DOWN LANDING DISTANCE*(FEET) TO LAND OVER 50 FOOT OBSTACLE AT 67 MPH TIAS APPROACH SPEED. (GROUND ROLL APPROX. 30% DIS- TANCE SHOWN.)	SEA LEVEL	1380	1430	1480	1530	1580	1625		
	2000 FT.	1470	1520	1570	1620	1670	1720		
	4000 FT.	1560	1610	1660	1710	1760	1810		
	6000 FT.	1650	1700	1750	1800	1850	1900		
FLAPS UP TAKE-OFF DISTANCE* (FEET) TO CLEAR 50 FT. OBSTACLE AT 69 MPH TIAS (GROUND RUN APPROX. 30% DISTANCE SHOWN.)	SEA LEVEL	1440	1570	1700	1830	1960	2100		
	2000 FT.	1750	1900	2050	2210	2390	2580		
	4000 FT.	2120	2320	2540	2760	3020	3330		
	6000 FT.	2650	2920	3220	3570	4100	4750		
	NORMAL RATE OF CLIMB	BEST CLIMB	77	SEA LEVEL	700	660	620	585	550
FEET PER MINUTE	SPEED TIAS	75	2000 FT.	590	550	515	475	440	400
		72	4000 FT.	480	440	400	360	320	280
		70	6000 FT.	365	325	290	250	210	175

* BOTH TAKE-OFF AND LANDING DISTANCES ARE REDUCED APPROXIMATELY 10% FOR EACH 6 MPH WIND VELOCITY.

PERFORMANCE INFORMATION - SKIPLANE

UNDER CAR 4a APPROVAL, PERFORMANCE INFORMATION IS NOT REQUIRED.

APPROVED BY: W. H. Weeks
CHIEF, AIRCRAFT BRANCH

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