

PILOT'S OPERATING HANDBOOK

Cessna[®] 1977

Skyhawk

CESSNA MODEL 172N



PERFORMANCE - SPECIFICATIONS

SPEED:

Maximum at Sea Level	125 KNOTS
Cruise, 75% Power at 8000 Ft	122 KNOTS

CRUISE: Recommended Lean Mixture with fuel allowance for engine start, taxi, takeoff, climb and 45 minutes reserve at 45% power.

75% Power at 8000 Ft	Range	485 NM
40 Gallons Usable Fuel	Time	4.1 HRS
75% Power at 8000 Ft	Range	630 NM
50 Gallons Usable Fuel	Time	5.3 HRS
Maximum Range at 10,000 Ft	Range	575 NM
40 Gallons Usable Fuel	Time	5.7 HRS
Maximum Range at 10,000 Ft	Range	750 NM
50 Gallons Usable Fuel	Time	7.4 HRS

RATE OF CLIMB AT SEA LEVEL 770 FPM

SERVICE CEILING 14,200 FT

TAKEOFF PERFORMANCE:

Ground Roll	805 FT
Total Distance Over 50-Ft Obstacle	1440 FT

LANDING PERFORMANCE:

Ground Roll	520 FT
Total Distance Over 50-Ft Obstacle	1250 FT

STALL SPEED (CAS):

Flaps Up, Power Off	50 KNOTS
Flaps Down, Power Off	44 KNOTS

MAXIMUM WEIGHT 2300 LBS

STANDARD EMPTY WEIGHT:

Skyhawk	1379 LBS
Skyhawk II	1403 LBS

MAXIMUM USEFUL LOAD:

Skyhawk	921 LBS
Skyhawk II	897 LBS

BAGGAGE ALLOWANCE 120 LBS

WING LOADING: Pounds/Sq Ft 13.2

POWER LOADING: Pounds/HP 14.4

FUEL CAPACITY: Total

Standard Tanks	43 GAL.
Long Range Tanks	54 GAL.

OIL CAPACITY 6 QTS

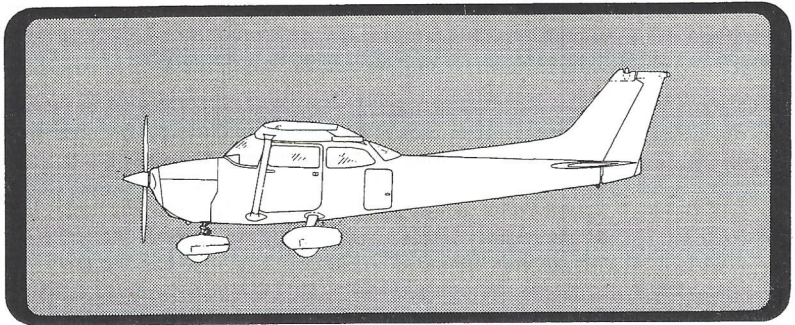
ENGINE: Avco Lycoming O-320-H2AD

160 BHP at 2700 RPM

PROPELLER: Fixed Pitch, Diameter 75 IN.

PILOT'S OPERATING HANDBOOK

Cessna



SKYHAWK

1977 MODEL 172N

Serial No. _____

Registration No. _____

THIS HANDBOOK INCLUDES THE MATERIAL
REQUIRED TO BE FURNISHED TO THE PILOT
BY CAR PART 3

CESSNA AIRCRAFT COMPANY
WICHITA, KANSAS, USA

CONGRATULATIONS

Welcome to the ranks of Cessna owners! Your Cessna has been designed and constructed to give you the most in performance, economy, and comfort. It is our desire that you will find flying it, either for business or pleasure, a pleasant and profitable experience.

This Pilot's Operating Handbook has been prepared as a guide to help you get the most pleasure and utility from your airplane. It contains information about your Cessna's equipment, operating procedures, and performance; and suggestions for its servicing and care. We urge you to read it from cover to cover, and to refer to it frequently.

Our interest in your flying pleasure has not ceased with your purchase of a Cessna. Worldwide, the Cessna Dealer Organization backed by the Cessna Customer Services Department stands ready to serve you. The following services are offered by most Cessna Dealers:

- THE CESSNA WARRANTY, which provides coverage for parts and labor, is available at Cessna Dealers worldwide. Specific benefits and provisions of warranty, plus other important benefits for you, are contained in your Customer Care Program book, supplied with your airplane. Warranty service is available to you at authorized Cessna Dealers throughout the world upon presentation of your Customer Care Card which establishes your eligibility under the warranty.
- FACTORY TRAINED PERSONNEL to provide you with courteous expert service.
- FACTORY APPROVED SERVICE EQUIPMENT to provide you efficient and accurate workmanship.
- A STOCK OF GENUINE CESSNA SERVICE PARTS on hand when you need them.
- THE LATEST AUTHORITATIVE INFORMATION FOR SERVICING CESSNA AIRPLANES, since Cessna Dealers have all of the Service Manuals and Parts Catalogs, kept current by Service Letters and Service News Letters, published by Cessna Aircraft Company.

We urge all Cessna owners to use the Cessna Dealer Organization to the fullest.

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This handbook will be kept current by Service Letters published by Cessna Aircraft Company. These are distributed to Cessna Dealers and to those who subscribe through the Owner Follow-Up System. If you are not receiving subscription service, you will want to keep in touch with your Cessna Dealer for information concerning the change status of the handbook. Subsequent changes will be made in the form of stickers. These should be examined and attached to the appropriate page in the handbook immediately after receipt; the handbook should not be used for operational purposes until it has been updated to a current status.

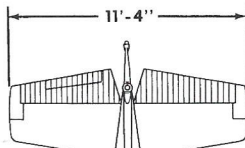
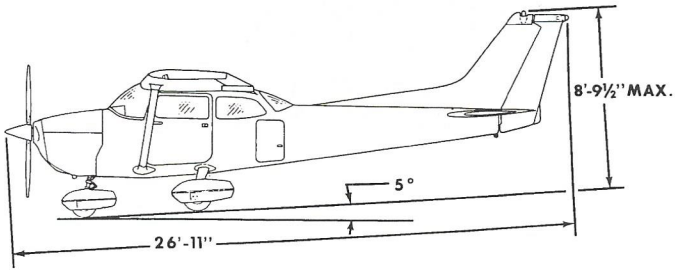
SECTION 1 GENERAL

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SECTION 1
GENERAL

CESSNA
MODEL 172N



NOTES:

1. Wing span shown with strobe lights installed.
2. Maximum height shown with nose gear depressed, all tires and nose strut properly inflated, and flashing beacon installed.
3. Wheel base length is 65"
4. Propeller ground clearance is 11 3/4"
5. Wing area is 174 square feet.
6. Minimum turning radius (*pivot point to outboard wing tip) is 27' 5/2"

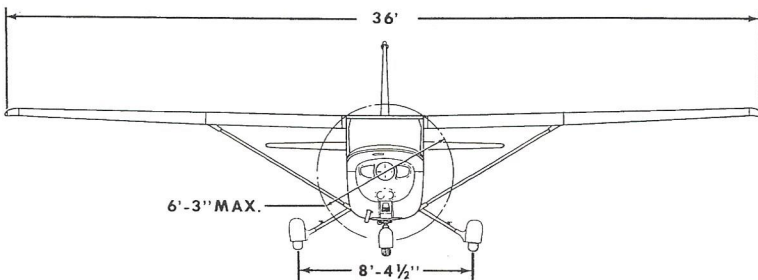
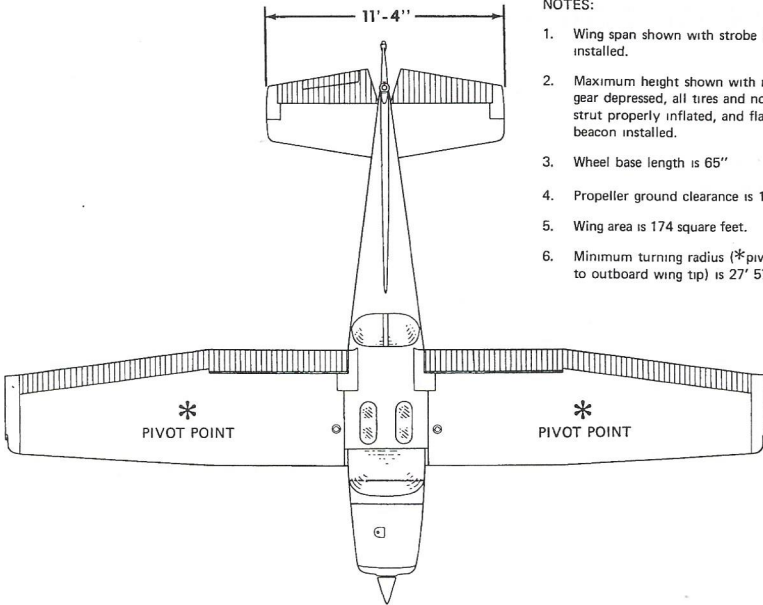


Figure 1-1. Three View

INTRODUCTION

This handbook contains 9 sections, and includes the material required to be furnished to the pilot by CAR Part 3. It also contains supplemental data supplied by Cessna Aircraft Company.

Section 1 provides basic data and information of general interest. It also contains definitions or explanations of symbols, abbreviations, and terminology commonly used.

DESCRIPTIVE DATA

ENGINE

Number of Engines: 1.

Engine Manufacturer: Avco Lycoming.

Engine Model Number: O-320-H2AD.

Engine Type: Normally-aspirated, direct-drive, air-cooled, horizontally- opposed, carburetor equipped, four-cylinder engine with 320 cu. in. displacement.

Horsepower Rating and Engine Speed: 160 rated BHP at 2700 RPM.

PROPELLER

Propeller Manufacturer: McCauley Accessory Division.

Propeller Model Number: 1C160/DTM7557.

Number of Blades: 2.

Propeller Diameter, Maximum: 75 inches.

Minimum: 74 inches.

Propeller Type: Fixed pitch.

FUEL

Approved Fuel Grades (and Colors):

100LL Grade Aviation Fuel (Blue).

100 (Formerly 100/130) Grade Aviation Fuel (Green).

Fuel Capacity:

Standard Tanks:

- Total Capacity: 43 gallons.
- Total Capacity Each Tank: 21.5 gallons.
- Total Usable: 40 gallons.

Long Range Tanks:

- Total Capacity: 54 gallons.
- Total Capacity Each Tank: 27 gallons.
- Total Usable: 50 gallons.

NOTE

To ensure maximum fuel capacity when refueling, place the fuel selector valve in either LEFT or RIGHT position to prevent cross-feeding.

OIL

Oil Grade (Specification):

MIL-L-6082 Aviation Grade Straight Mineral Oil: Use to replenish supply during first 25 hours and at the first 25-hour oil change. Continue to use until a total of 50 hours has accumulated or oil consumption has stabilized.

NOTE

The airplane was delivered from the factory with a corrosion preventive aircraft engine oil. This oil should be drained after the first 25 hours of operation.

MIL-L-22851 Ashless Dispersant Oil: This oil must be used after first 50 hours or oil consumption has stabilized.

Recommended Viscosity For Temperature Range:

MIL-L-6082 Aviation Grade Straight Mineral Oil:

- SAE 50 above 16°C (60°F)
- SAE 40 between -1°C (30°F) and 32°C (90°F).
- SAE 30 between -18°C (0°F) and 21°C (70°F).
- SAE 20 below -12°C (10°F).

MIL-L-22851 Ashless Dispersant Oil:

- SAE 40 or SAE 50 above 16°C (60°F).
- SAE 40 between -1°C (30°F) and 32°C (90°F).
- SAE 30 or SAE 40 between -18°C (0°F) and 21°C (70°F).
- SAE 30 below -12°C (10°F).

Oil Capacity:

- Sump: 6 Quarts.
- Total: 7 Quarts (if oil filter installed).

MAXIMUM CERTIFICATED WEIGHTS

Takeoff, Normal Category: 2300 lbs.

Utility Category: 2000 lbs.

Landing, Normal Category: 2300 lbs.

Utility Category: 2000 lbs.

Weight in Baggage Compartment, Normal Category:

Baggage Area 1 (or passenger on child's seat)-Station 82 to 108:
120 lbs. See note below.

Baggage Area 2 -Station 108 to 142: 50 lbs. See note below.

NOTE

The maximum combined weight capacity for baggage areas 1 and 2 is 120 lbs.

Weight in Baggage Compartment, Utility Category: In this category, the baggage compartment and rear seat must not be occupied.

STANDARD AIRPLANE WEIGHTS

Standard Empty Weight, Skyhawk: 1379 lbs.

Skyhawk II: 1403 lbs.

Maximum Useful Load:

	<u>Normal Category</u>	<u>Utility Category</u>
Skyhawk:	921 lbs.	621 lbs.
Skyhawk II:	897 lbs.	597 lbs.

CABIN AND ENTRY DIMENSIONS

Detailed dimensions of the cabin interior and entry door openings are illustrated in Section 6.

BAGGAGE SPACE AND ENTRY DIMENSIONS

Dimensions of the baggage area and baggage door opening are illustrated in detail in Section 6.

SPECIFIC LOADINGS

Wing Loading: 13.2 lbs./sq. ft.

Power Loading: 14.4 lbs./hp.

SYMBOLS, ABBREVIATIONS AND TERMINOLOGY

GENERAL AIRSPEED TERMINOLOGY AND SYMBOLS

- KCAS Knots Calibrated Airspeed is indicated airspeed corrected for position and instrument error and expressed in knots. Knots calibrated airspeed is equal to KTAS in standard atmosphere at sea level.
- KIAS Knots Indicated Airspeed is the speed shown on the airspeed indicator and expressed in knots.
- KTAS Knots True Airspeed is the airspeed expressed in knots relative to undisturbed air which is KCAS corrected for altitude and temperature.
- V_A Maneuvering Speed is the maximum speed at which you may use abrupt control travel.
- V_{FE} Maximum Flap Extended Speed is the highest speed permissible with wing flaps in a prescribed extended position.
- V_{NO} Maximum Structural Cruising Speed is the speed that should not be exceeded except in smooth air, then only with caution.
- V_{NE} Never Exceed Speed is the speed limit that may not be exceeded at any time.
- V_S Stalling Speed or the minimum steady flight speed at which the airplane is controllable.
- V_{S_0} Stalling Speed or the minimum steady flight speed at which the airplane is controllable in the landing configuration at the most forward center of gravity.
- V_X Best Angle-of-Climb Speed is the speed which results in the greatest gain of altitude in a given horizontal distance.
- V_Y Best Rate-of-Climb Speed is the speed which results in the greatest gain in altitude in a given time.

METEOROLOGICAL TERMINOLOGY

- OAT Outside Air Temperature is the free air static temperature. It is expressed in either degrees Celsius (formerly Centigrade) or degrees Fahrenheit.

Standard Temperature Standard Temperature is 15°C at sea level pressure altitude and decreases by 2°C for each 1000 feet of altitude.

Pressure Altitude Pressure Altitude is the altitude read from an altimeter when the altimeter's barometric scale has been set to 29.92 inches of mercury (1013 mb).

ENGINE POWER TERMINOLOGY

BHP Brake Horsepower is the power developed by the engine.

RPM Revolutions Per Minute is engine speed.

Static RPM Static RPM is engine speed attained during a full-throttle engine runup when the airplane is on the ground and stationary.

AIRPLANE PERFORMANCE AND FLIGHT PLANNING TERMINOLOGY

Demonstrated Crosswind Velocity Demonstrated Crosswind Velocity is the velocity of the crosswind component for which adequate control of the airplane during takeoff and landing was actually demonstrated during certification tests. The value shown is not considered to be limiting.

Usable Fuel Usable Fuel is the fuel available for flight planning.

Unusable Fuel Unusable Fuel is the quantity of fuel that can not be safely used in flight.

GPH Gallons Per Hour is the amount of fuel (in gallons) consumed per hour.

NMPG Nautical Miles Per Gallon is the distance (in nautical miles) which can be expected per gallon of fuel consumed at a specific engine power setting and/or flight configuration.

g g is acceleration due to gravity.

WEIGHT AND BALANCE TERMINOLOGY

Reference Datum Reference Datum is an imaginary vertical plane from which all horizontal distances are measured for balance purposes.

Station Station is a location along the airplane fuselage given in terms of the distance from the reference datum.

SECTION 1
GENERAL

CESSNA
MODEL 172N

Arm	<u>Arm</u> is the horizontal distance from the reference datum to the center of gravity (C.G.) of an item.
Moment	<u>Moment</u> is the product of the weight of an item multiplied by its arm. (Moment divided by the constant 1000 is used in this handbook to simplify balance calculations by reducing the number of digits.)
Center of Gravity (C.G.)	<u>Center of Gravity</u> is the point at which an airplane, or equipment, would balance if suspended. Its distance from the reference datum is found by dividing the total moment by the total weight of the airplane.
C.G. Arm	<u>Center of Gravity Arm</u> is the arm obtained by adding the airplane's individual moments and dividing the sum by the total weight.
C.G. Limits	<u>Center of Gravity Limits</u> are the extreme center of gravity locations within which the airplane must be operated at a given weight.
Standard Empty Weight	<u>Standard Empty Weight</u> is the weight of a standard airplane, including unusable fuel, full operating fluids and full engine oil.
Basic Empty Weight	<u>Basic Empty Weight</u> is the standard empty weight plus the weight of optional equipment.
Useful Load	<u>Useful Load</u> is the difference between takeoff weight and the basic empty weight.
Gross (Loaded) Weight	<u>Gross (Loaded) Weight</u> is the loaded weight of the airplane.
Maximum Takeoff Weight	<u>Maximum Takeoff Weight</u> is the maximum weight approved for the start of the takeoff run.
Maximum Landing Weight	<u>Maximum Landing Weight</u> is the maximum weight approved for the landing touchdown.
Tare	<u>Tare</u> is the weight of chocks, blocks, stands, etc. used when weighing an airplane, and is included in the scale readings. Tare is deducted from the scale reading to obtain the actual (net) airplane weight.