

# SECTION 1 GENERAL

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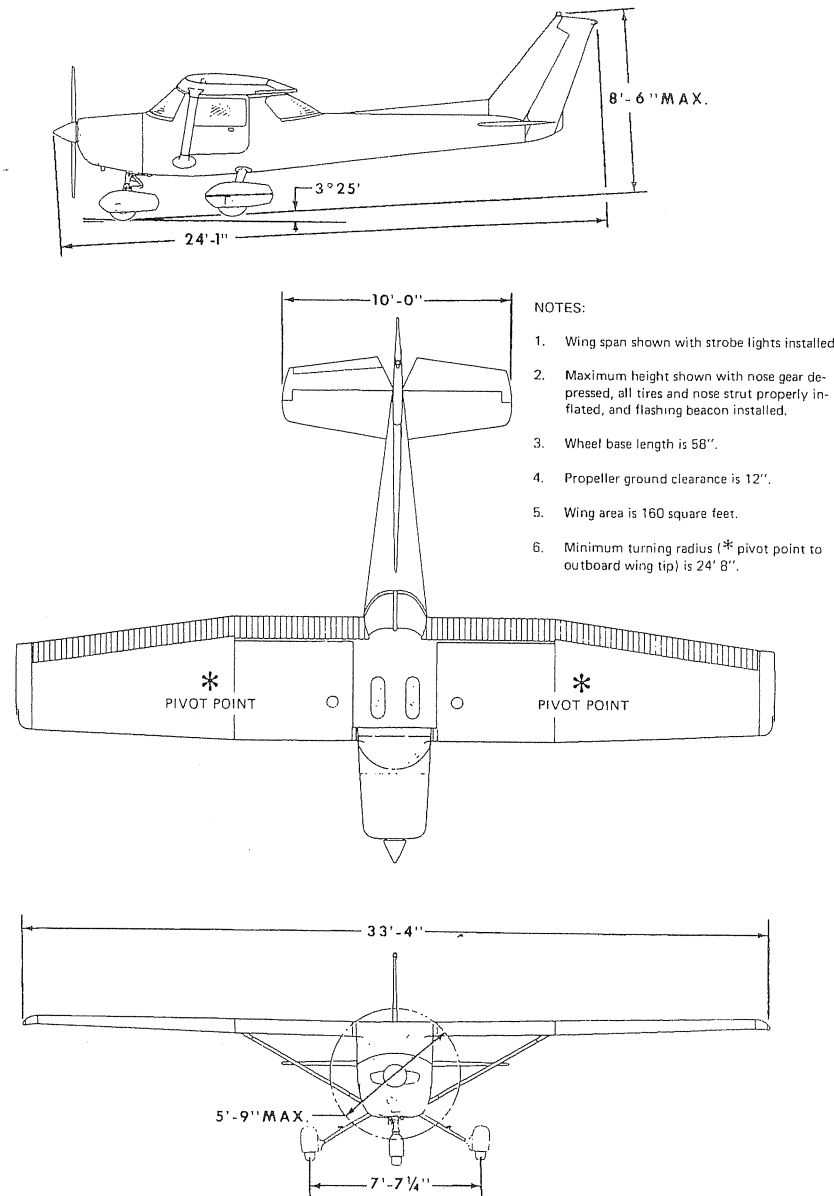


Figure 1-1. Three View

## 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-235-L2C.  
Engine Type: Normally-aspirated, direct-drive, air-cooled, horizontally-opposed, carburetor equipped, four-cylinder engine with 233.3 cu. in. displacement.  
Horsepower Rating and Engine Speed: 110 rated BHP at 2550 RPM.

### PROPELLER

Propeller Manufacturer: McCauley Accessory Division.  
Propeller Model Number: 1A103/TCM6958.  
Number of Blades: 2.  
Propeller Diameter, Maximum: 69 inches.  
Minimum: 67.5 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: 26 gallons.  
Total Capacity Each Tank: 13 gallons.  
Total Usable: 24.5 gallons.

### Long Range Tanks:

Total Capacity: 39 gallons.  
Total Capacity Each Tank: 19.5 gallons.  
Total Usable: 37.5 gallons.

### NOTE

Due to cross-feeding between fuel tanks, the tanks should be re-topped after each refueling to assure maximum capacity.

### 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: 1670 lbs

Landing: 1670 lbs.

Weight in Baggage Compartment:

Baggage Area 1 (or passenger on child's seat) - Station 50 to 76: 120 lbs.

See note below.

Baggage Area 2 - Station 76 to 94: 40 lbs. See note below.

#### NOTE

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

### STANDARD AIRPLANE WEIGHTS

Standard Empty Weight, 152: 1081 lbs.

152 II: 1118 lbs.

Maximum Useful Load, 152: 589 lbs.

152 II: 552 lbs.

### CABIN AND ENTRY DIMENSIONS

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

### BAGGAGE SPACE DIMENSIONS

Baggage area dimensions are illustrated in detail in Section 6.

### SPECIFIC LOADINGS

Wing Loading: 10.5 lbs./sq. ft.

Power Loading: 15.2 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	<b>Brake Horsepower</b> is the power developed by the engine.
RPM	<b>Revolutions Per Minute</b> is engine speed.
Static RPM	<b>Static RPM</b> 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	<b>Demonstrated Crosswind Velocity</b> 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	<b>Usable Fuel</b> is the fuel available for flight planning.
Unusable Fuel	<b>Unusable Fuel</b> is the quantity of fuel that can not be safely used in flight.
GPH	<b>Gallons Per Hour</b> is the amount of fuel (in gallons) consumed per hour.
NMPG	<b>Nautical Miles Per Gallon</b> 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	<b>Reference Datum</b> is an imaginary vertical plane from which all horizontal distances are measured for balance purposes.
Station	<b>Station</b> is a location along the airplane fuselage given in terms of the distance from the reference datum.
Arm	<b>Arm</b> is the horizontal distance from the reference datum to the center of gravity (C.G.) of an item.
Moment	<b>Moment</b> 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.)** **Center of Gravity** 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** **Center of Gravity Arm** is the arm obtained by adding the airplane's individual moments and dividing the sum by the total weight.

**C.G. Limits** **Center of Gravity Limits** are the extreme center of gravity locations within which the airplane must be operated at a given weight.

**Standard Empty Weight** **Standard Empty Weight** is the weight of a standard airplane, including unusable fuel, full operating fluids and full engine oil.

**Basic Empty Weight** **Basic Empty Weight** is the standard empty weight plus the weight of optional equipment.

**Useful Load** **Useful Load** is the difference between takeoff weight and the basic empty weight.

**Gross (Loaded) Weight** **Gross (Loaded) Weight** is the loaded weight of the airplane.

**Maximum Takeoff Weight** **Maximum Takeoff Weight** is the maximum weight approved for the start of the takeoff run.

**Maximum Landing Weight** **Maximum Landing Weight** is the maximum weight approved for the landing touchdown.

**Tare** **Tare** 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.