

SECTION 1 GENERAL

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SECTION 1
GENERAL

CESSNA
MODEL 152

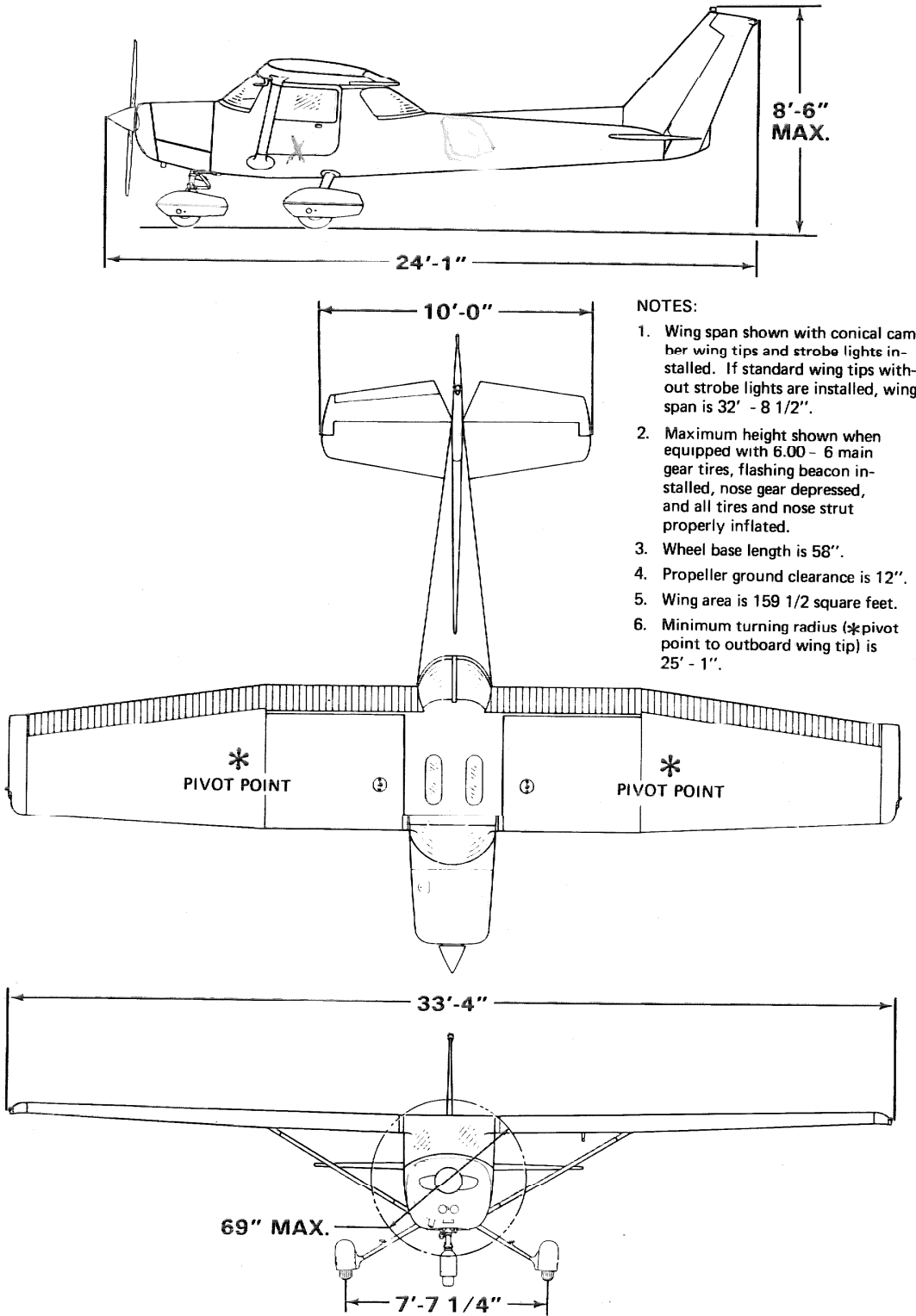


Figure 1-1. Three View

CESSNA
MODEL 152

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GENERAL

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-N2C.

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: 108 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).

NOTE

Isopropyl alcohol or ethylene glycol monomethyl ether may be added to the fuel supply. Additive concentrations shall not exceed 1% for isopropyl alcohol or .15% for ethylene glycol monomethyl ether. Refer to Section 8 for additional information.

THIS DATA APPLICABLE ONLY TO AIRPLANES
WITH LYCOMING O-235-N2C ENGINE. FOR
AIRPLANES WITH ENGINE MODIFIED TO O-235-L2C
REFER TO DATA IN SECTION 9 SUPPLEMENT.

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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 Specification:

MIL-L-6082 Aviation Grade Straight Mineral Oil: Used when the airplane was delivered from the factory and should be used to replenish the supply during the first 25 hours. This oil should be drained after the first 25 hours of operation. Refill the engine and continue to use until a total of 50 hours has accumulated or oil consumption has stabilized.

MIL-L-22851 Aviation Grade Ashless Dispersant Oil: Oil conforming to Avco Lycoming Service Instruction No. 1014, and all revisions and supplements thereto, must be used after first 50 hours or oil consumption has stabilized.

Recommended Viscosity for Temperature Range:

All temperatures, use multi-viscosity oil or
Above 16° C (60° F), use SAE 50
-1° C (30° F) to 32° C (90° F), use SAE 40
-18° C (0° F) to 21° C (70° F), use SAE 30

NOTE

When operating temperatures overlap, use the lighter grade of oil.

Oil Capacity:

Sump: 6 Quarts.
Total: 7 Quarts.

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WITH LYCOMING O-235-N2C ENGINE. FOR
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MAXIMUM CERTIFICATED WEIGHTS

Ramp: 1675 lbs.

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: 1104 lbs.
152 II: 1136 lbs.
152 Trainer: 1147 lbs.**

**Maximum Useful Load, 152: 571 lbs.
152 II: 539 lbs.
152 Trainer: 528 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: 15.5 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.

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- 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 full or abrupt control movements may be used.
- 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_{S0}** **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 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 consumed per hour.
NMPG	Nautical Miles Per Gallon is the distance 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.
Arm	Arm is the horizontal distance from the reference datum to the center of gravity (C.G.) of an item.
Moment	Moment is the product of the weight of an item multiplied

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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 ramp weight and the basic empty weight.
Maximum Ramp Weight	Maximum Ramp Weight is the maximum weight approved for ground maneuver. (It includes the weight of start, taxi and runup fuel.)
Maximum Takeoff Weight	Maximum Takeoff Weight is the maximum weight approved for the start of the takeoff roll.
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.