

Cessna 172 System Information

For complete information refer to the POH for a Cessna 172M (1976 POH is most complete)

Airframe Information

- Max Gross weight 2300lb
- Normal Category load factors with flaps up: +3.8g to -1.52g
- Utility Category load factors with flaps up: +4.4g to -1.76g
- V_{NE} Never Exceed speed: 160 KIAS
- V_{NO} Maximum Structural Cruising: 128 KIAS
- V_A Maneuvering Speed: 97 KIAS (2300 lb), 89 KIAS (1950 lb), 80 KIAS (1600 lb)
- V_{FE} Maximum Flap Extension Speed: 85 KIAS
- White arc: 41 – 85 KIAS
- Green arc: 47 – 128 KIAS
- Yellow arc: 128 – 160 KIAS
- Red line: 160 KIAS

Powerplant Information

- Lycoming O-320-E2D
- 150 BHP at 2700 RPM (max RPM)
- Normally aspirated
- Direct drive
- Air-cooled
- Horizontally-opposed
- Carburetor equipped
- Four Cylinder engine with 320 cubic inch displacement
- Dual magnetos
- Oil cooler heat exchanger
- Primer going to 3 of the 4 cylinders
- 6qt oil minimum operation 8qt oil maximum operation
- 20W-50 Phillips oil

Propeller Information

- Diameter: Maximum 75 inches; Minimum 74 inches
- Fixed pitch
- 2 blades

Fuel System Information

- Fuel grade 100LL is preferred since it will result in less lead contamination
- Fuel grade minimum 80/87 grade aviation fuel

- Total capacity of both tanks 42 gallons
- Total usable fuel 38 gallons
- Gravity fed fuel system
- After tanks goes to fuel selector valve
- After selector valve goes to strainer
- Attached on the strainer is the line for the primers
- After the strainer the fuel can go to the carburetor

Electrical Information

- 12 Volt electrical system
- 14 Volts to keep charge on the system
- 60 Amp alternator
- 25 Amp-hour battery
- Breakers to protect all electrical equipment
- Alternator voltage regulator to insure alternator is delivering the proper voltage to the battery
- Alternator inoperative light on instrument panel indicates that the voltage regulator is not working or the regulator has tripped off because of high voltage or a low voltage condition

Instrument Information

- Pitot tube for the airspeed is located on the left wing
- Static port for airspeed, altimeter, VSI is located on the front left portion of the fuselage
- Vacuum pump is no longer equipped on this airplane
- Attitude Heading Reference System (AHRS) is a digital equivalent of what use to be known as the vacuum instruments
- AHRS uses an array of accelerometers, gyros, lasers, and other pieces of equipment to signify what level horizon is
- Heading information for the AHRS comes from a magnetometer which is mounted on the left wing
- Air Data Computer (ADC) is a digital equivalent of the pitot static system gauges
- The ADC gets its information from the same source and lines as the analog instruments
- The GPS is capable of WAAS (Wide Area Augmentation System)
- The autopilot on the airplane is a 2 axis control autopilot, which controls bank and pitch
- The bank portion of the autopilot either uses a wing leveler device or if selected it slaves off the heading bug from the heading indicator
- The pitch portion is controlled by a altitude encoder located in the empennage where 2 small static ports on either side of the empennage get sent to the altitude encoder for the autopilot

- The pitch autopilot portion uses the altitude encoder to engage the servo motor to pitch the airplane up or down, the trim wheel helps to overcome the electrical load/torque put on by autopilot pitch servos
- There is an ADS-B in/out transponder located on the bottom of the radio stack, the transponder gets the information from an altitude encoder which basically takes the outside air and puts a digital number to the analog air outside

PERFORMANCE-
SPECIFICATIONS

CESSNA
MODEL 172M

PERFORMANCE - SPECIFICATIONS

SPEED:

Maximum at Sea Level 125 KNOTS
Cruise, 75% Power at 8000 Ft 120 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	450 NM
38 Gallons Usable Fuel	Time	3.9 HRS
75% Power at 8000 Ft	Range	595 NM
48 Gallons Usable Fuel	Time	5.1 HRS
Maximum Range at 10,000 Ft	Range	480 NM
38 Gallons Usable Fuel	Time	4.8 HRS
Maximum Range at 10,000 Ft	Range	640 NM
48 Gallons Usable Fuel	Time	6.3 HRS

RATE OF CLIMB AT SEA LEVEL 645 FPM

SERVICE CEILING 13,100 FT

TAKEOFF PERFORMANCE:

Ground Roll 865 FT
Total Distance Over 50-Ft Obstacle 1525 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 1387 LBS
Skyhawk II 1412 LBS

MAXIMUM USEFUL LOAD:

Skyhawk 913 LBS
Skyhawk II 888 LBS

BAGGAGE ALLOWANCE 120 LBS

WING LOADING: Pounds/Sq Ft 13.2

POWER LOADING: Pounds/HP 15.3

FUEL CAPACITY: Total

Standard Tanks 42 GAL.
Long Range Tanks 52 GAL.

OIL CAPACITY 8 QTS

ENGINE: Avco Lycoming O-320-E2D
150 BHP at 2700 RPM

PROPELLER: Fixed Pitch, Diameter 75 IN.

AIRSPEEDS FOR SAFE OPERATION

Engine Failure After Takeoff:	
Wing Flaps Up	65 KIAS
Wing Flaps Down	60 KIAS
Maneuvering Speed:	
2300 Lbs	97 KIAS
1950 Lbs	89 KIAS
1600 Lbs	80 KIAS
Maximum Glide:	
2300 Lbs	65 KIAS
Precautionary Landing With Engine Power	60 KIAS
Landing Without Engine Power:	
Wing Flaps Up	65 KIAS
Wing Flaps Down	60 KIAS
Takeoff, Flaps Up:	
Normal Climb Out	70-80 KIAS
Maximum Performance Takeoff, Speed at 50 feet	59 KIAS
Enroute Climb, Flaps Up:	
Normal, Sea Level	80-90 KIAS
Normal, 10,000 Feet	70-80 KIAS
Best Rate of Climb, Sea Level	78 KIAS
Best Rate of Climb, 10,000 Feet	68 KIAS
Best Angle of Climb, Sea Level	64 KIAS
Best Angle of Climb, 10,000 Feet	62 KIAS
Landing Approach:	
Normal Approach, Flaps Up	60-70 KIAS
Normal Approach, Flaps 40°	55-65 KIAS
Short Field Approach, Flaps 40°	60 KIAS
Balked Landing:	
During Transition to Maximum Power, Flaps 20°	55 KIAS
Maximum Recommended Turbulent Air Penetration Speed:	
2300 Lbs	97 KIAS
1950 Lbs	89 KIAS
1600 Lbs	80 KIAS
Maximum Demonstrated Crosswind Velocity:	
Takeoff or Landing	15 KNOTS