

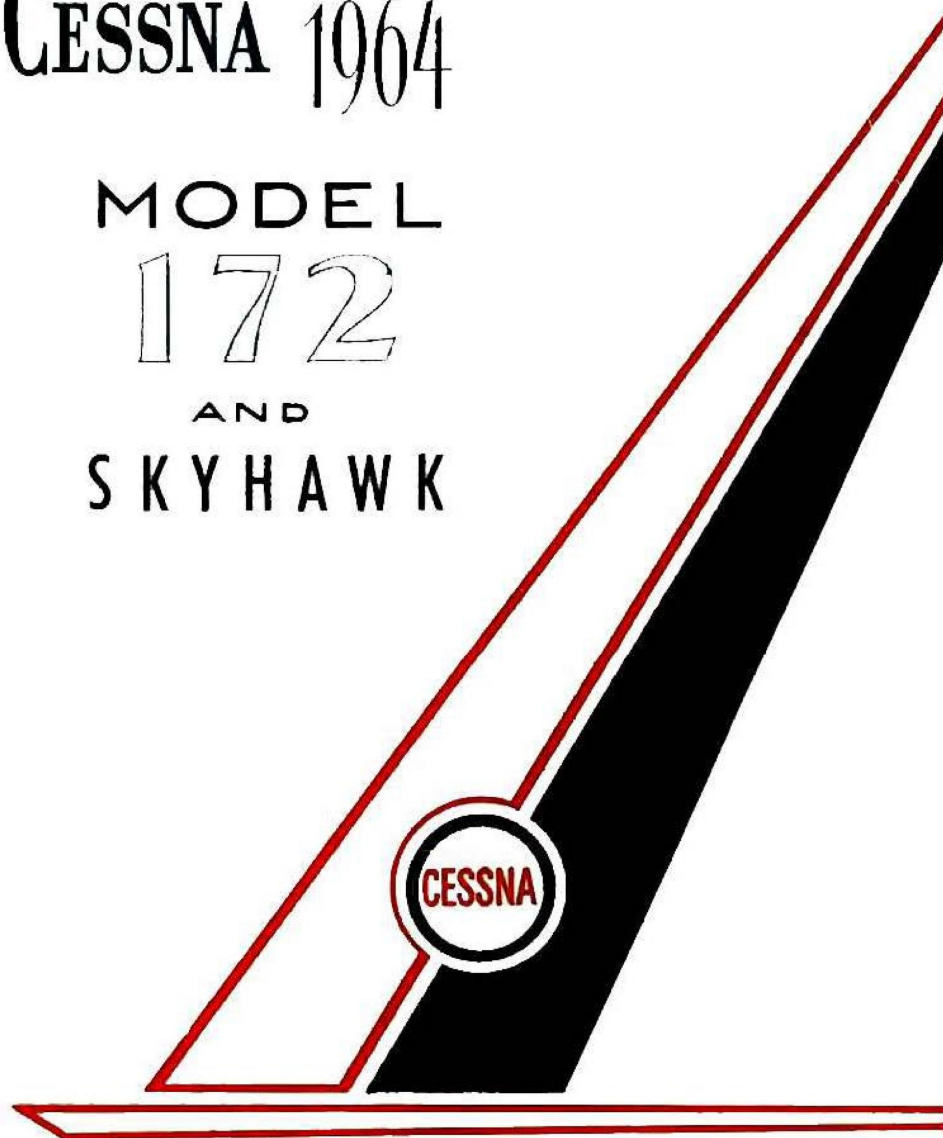
CESSNA 1964

MODEL

172

AND

SKYHAWK



OWNER'S  
MANUAL

## PERFORMANCE and SPECIFICATIONS

|                                                | 172       | SKYHAWK   |
|------------------------------------------------|-----------|-----------|
| GROSS WEIGHT . . . . .                         | 2300 lbs  | 2300 lbs  |
| SPEED:                                         |           |           |
| Top Speed at Sea Level . . . . .               | 138 mph   | 139 mph   |
| Cruise, 75% Power at 7000 ft . . . . .         | 130 mph   | 131 mph   |
| RANGE:                                         |           |           |
| Cruise, 75% Power at 7000 ft . . . . .         | 595 miles | 600 miles |
| 39 Gal. No Reserve                             | 4.6 hours | 4.6 hours |
|                                                | 130 mph   | 131 mph   |
| Optimum Range at 10,000 ft. . . . .            | 720 miles | 720 miles |
| 39 Gal. No Reserve                             | 7.1 hours | 7.1 hours |
|                                                | 102 mph   | 102 mph   |
| RATE-OF-CLIMB AT SEA LEVEL . . . . .           | 645 fpm   | 645 fpm   |
| SERVICE CEILING . . . . .                      | 13,100 ft | 13,100 ft |
| TAKE-OFF:                                      |           |           |
| Ground Run . . . . .                           | 865 ft    | 865 ft    |
| Total Distance Over 50 Foot Obstacle . . . . . | 1525 ft   | 1525 ft   |
| LANDING:                                       |           |           |
| Landing Roll . . . . .                         | 520 ft    | 520 ft    |
| Total Distance Over 50 Foot Obstacle . . . . . | 1250 ft   | 1250 ft   |
| EMPTY WEIGHT (Approximate) . . . . .           | 1260 lbs  | 1330 lbs  |
| BAGGAGE . . . . .                              | 120 lbs   | 120 lbs   |
| WING LOADING: Pounds/Sq Foot . . . . .         | 13.2      | 13.2      |
| POWER LOADING: Pounds/HP . . . . .             | 15.9      | 15.9      |
| FUEL CAPACITY: Total . . . . .                 | 42 gal.   | 42 gal.   |
| OIL CAPACITY: Total . . . . .                  | 8 qts     | 8 qts     |
| PROPELLER DIAMETER . . . . .                   | 76 in.    | 76 in.    |
| PROPELLER TYPE . . . . .                       | Fixed     | Fixed     |
|                                                | Pitch     | Pitch     |
| POWER:                                         |           |           |
| Continental Engine No. . . . .                 | O-300-C * | O-300-D   |
| Horse Power . . . . .                          | 145       | 145       |

\*The Model F172, which is manufactured by Reims Aviation S. A., Reims (Marne) France, is identical to the 172 except that it is powered by an O-300-D engine, manufactured under license by Rolls Royce, Crewe, England. All 172 information in this manual pertains to the F172 as well.

## **STARTING THE ENGINE.**

- (1) Carburetor Heat -- Cold.
- (2) Mixture -- Rich.
- (3) Primer -- As required.
- (4) Ignition Switch -- "BOTH."
- (5) Throttle -- Open 1/8".
- (6) Propeller Area -- Clear.
- (7) Starter -- Engage.

## **BEFORE TAKE-OFF.**

- (1) Throttle Setting -- 1600 RPM.
- (2) Engine Instruments -- Within green arc and generator light out.
- (3) Magnetos -- Check (75 RPM maximum differential between magnetos).
- (4) Carburetor Heat -- Check.
- (5) Flight Controls -- Check.
- (6) Trim Tab -- "TAKE-OFF."
- (7) Cabin Doors -- Closed and locked.
- (8) Flight Instruments and Radios -- Set.

## **TAKE-OFF.**

### **NORMAL TAKE-OFF.**

- (1) Wing Flaps -- 0°
- (2) Carburetor Heat -- Cold.
- (3) Power -- Full throttle (applied smoothly).
- (4) Elevator Control -- Lift nosewheel at 60 MPH.
- (5) Climb Speed -- 85 MPH.

### **MAXIMUM PERFORMANCE TAKE-OFF.**

- (1) Wing Flaps -- 0°
- (2) Carburetor Heat -- Cold.
- (3) Brakes -- Apply.
- (4) Power -- Full throttle.
- (5) Brakes -- Release.
- (6) Elevator Control -- Slightly tail low.

- (7) Climb Speed -- 65 MPH (with obstacles ahead).

## **CLIMB.**

### **NORMAL CLIMB.**

- (1) Airspeed -- 80 to 90 MPH.
- (2) Power -- Full throttle.
- (3) Mixture -- Full rich (unless engine is rough).

### **MAXIMUM PERFORMANCE CLIMB.**

- (1) Airspeed -- 80 MPH at sea level to 77 MPH at 10,000 feet.
- (2) Power -- Full throttle.
- (3) Mixture -- Full rich (unless engine is rough).

## **CRUISING.**

- (1) Power -- 2200 to 2700 RPM.
- (2) Trim Tab -- Adjust.
- (3) Mixture -- Lean.

## **LET-DOWN.**

- (1) Mixture -- Rich.
- (2) Power -- As desired.
- (3) Carburetor Heat -- As required to prevent carburetor icing.

## **BEFORE LANDING.**

- (1) Fuel Selector -- "BOTH ON."
- (2) Mixture -- Rich.
- (3) Airspeed -- 70 - 80 MPH (flaps up).
- (4) Carburetor Heat -- Apply before closing throttle.
- (5) Flaps -- As desired (below 100 MPH).
- (6) Airspeed -- 65 to 75 MPH (flaps down).

## **CABIN HEATING AND VENTILATION SYSTEM.**

For cabin ventilation, pull the "CABIN AIR" knob out. To raise the air temperature, pull the "CABIN HT" knob out approximately 1/4" to 1/2" for a small amount of cabin heat. Additional heat is available by pulling the knob out farther; maximum heat is available with the "CABIN HT" knob pulled full out and the "CABIN AIR" knob pushed full in. When no heat is desired in the cabin, the "CABIN HT" knob is pushed full in.

## **STARTING ENGINE.**

Ordinarily the engine starts easily with one or two strokes of the primer in warm temperatures to six strokes in cold weather, with the throttle open approximately 1/8 inch. In extremely cold temperatures, it may be necessary to continue priming while cranking.

Weak intermittent explosions followed by puffs of black smoke from the exhaust stack indicates overpriming or flooding. Excess fuel can be cleaned from the combustion chambers by the following procedure: Set the mixture control full lean and the throttle full open; then crank the engine through several revolutions with the starter. Repeat the starting procedure without any additional priming.

If the engine is underprimed (most likely in cold weather with a cold engine) it will not fire at all, and additional priming will be necessary. As soon as the cylinders begin to fire, open the throttle slightly to keep it running.

After starting, if the oil gage does not begin to show pressure within 30 seconds in the summertime and about twice that long in very cold weather, stop engine and investigate. Lack of oil pressure can cause serious engine damage. After starting, avoid the use of carburetor heat unless icing conditions prevail.

## **TAXIING.**

When taxiing, it is important that speed and use of brakes be held to a minimum and that all controls be utilized (see taxiing diagram, figure 2-3 to maintain directional control and balance.

Taxiing over loose gravel or cinders should be done at low engine speed to avoid abrasion and stone damage to the propeller tips. Full

throttle run-ups over loose gravel are especially harmful to propeller tips. When take-offs must be made over a gravel surface, it is very important that the throttle be advanced slowly. This allows the airplane to start rolling before high RPM is developed, and the gravel will be blown back of the propeller rather than pulled into it. When unavoidable small dents appear in the propeller blades, they should be immediately corrected as described in Section 4 under propeller care.

## **BEFORE TAKE-OFF.**

### **WARM UP.**

Since the engine is closely cowled for efficient in-flight engine cooling, precautions should be taken to avoid overheating during prolonged engine operation on the ground.

### **MAGNETO CHECK.**

The magneto check should be made at 1600 RPM as follows: Move the ignition switch first to "R" position, and note RPM. Next move the switch back to "BOTH" position to clear the other set of plugs. Then move the switch to the "L" position and note RPM. The difference between the two magnetos operated individually should not be more than 75 RPM.

### **HIGH RPM MAGNETO CHECKS.**

If there is a doubt concerning the operation of the ignition system, RPM checks at higher engine speeds will usually confirm whether a deficiency exists. If a full throttle run-up is necessary the engine should run smoothly and turn approximately 2230 to 2330 RPM with the carburetor heat off.

An absence of RPM drop may be an indication of faulty grounding of one side of the ignition system or should be cause for suspicion that the magneto timing has been "bumped-up" and is set in advance of the setting specified.

## **TAKE-OFF.**

### **POWER CHECK.**

Since the use of full throttle is not recommended in the static run-up, it is important to check full-throttle engine operation early in the take-off run. Any signs of rough engine operation or sluggish engine acceleration is good cause for discontinuing the take-off. If this occurs, you are justified in making a thorough full-throttle, static run-up before another take-off is attempted.

Prior to take-off from fields above 5000 ft. elevation, the mixture should be leaned to give maximum RPM in a full-throttle, static run-up.

### **WING FLAP SETTINGS.**

Normal and obstacle clearance take-offs are performed with wing flaps up. The use of 10° flaps will shorten the ground run approximately 10%, but this advantage is lost in the climb to a 50-foot obstacle. Therefore the use of 10° flap is reserved for minimum ground runs or for take-off from soft or rough fields with no obstacles ahead.

If 10° of flaps are used in ground runs, it is preferable to leave them extended rather than retract them in the climb to the obstacle. The exception to this rule would be in a high altitude take-off in hot weather where climb would be marginal with flaps 10° (1st notch).

Flap deflections of 30° to 40° are not recommended at any time for take-off.

### **PERFORMANCE CHARTS.**

Consult the take-off chart in Section 5, for take-off distances under various gross weight, altitude, and headwind conditions.

### **CROSSWIND TAKE-OFFS.**

Take-offs into strong crosswinds normally are performed with the minimum flap setting necessary for the field length, to minimize the drift angle immediately after take-off. The airplane is accelerated to

| TAKE-OFF DATA                                                                                 |                         |                       |                |                      |                    |                      |                    |                      |                    |                      |
|-----------------------------------------------------------------------------------------------|-------------------------|-----------------------|----------------|----------------------|--------------------|----------------------|--------------------|----------------------|--------------------|----------------------|
| TAKE-OFF DISTANCE FROM HARD SURFACE RUNWAY, FLAPS UP                                          |                         |                       |                |                      |                    |                      |                    |                      |                    |                      |
| GROSS WEIGHT<br>LBS.                                                                          | IAS<br>AT 50 FT.<br>MPH | HEAD<br>WIND<br>KNOTS | @ S.L. & 59° F |                      | @ 2500 ft. & 50° F |                      | @ 5000 ft. & 41° F |                      | @ 7500 ft. & 32° F |                      |
|                                                                                               |                         |                       | GROUND<br>RUN  | TO CLEAR<br>50' OBS. | GROUND<br>RUN      | TO CLEAR<br>50' OBS. | GROUND<br>RUN      | TO CLEAR<br>50' OBS. | GROUND<br>RUN      | TO CLEAR<br>50' OBS. |
| 1700                                                                                          | 60                      | 0                     | 435            | 780                  | 520                | 920                  | 625                | 1095                 | 785                | 1370                 |
|                                                                                               |                         | 10                    | 290            | 570                  | 355                | 680                  | 430                | 820                  | 535                | 1040                 |
|                                                                                               |                         | 20                    | 175            | 385                  | 215                | 470                  | 270                | 575                  | 345                | 745                  |
| 2000                                                                                          | 65                      | 0                     | 630            | 1095                 | 755                | 1325                 | 905                | 1625                 | 1120               | 2155                 |
|                                                                                               |                         | 10                    | 435            | 820                  | 530                | 1005                 | 645                | 1250                 | 810                | 1685                 |
|                                                                                               |                         | 20                    | 275            | 580                  | 340                | 720                  | 425                | 910                  | 595                | 1255                 |
| 2300                                                                                          | 70                      | 0                     | 865            | 1525                 | 1040               | 1910                 | 1255               | 2480                 | 1565               | 3855                 |
|                                                                                               |                         | 10                    | 615            | 1170                 | 750                | 1485                 | 920                | 1955                 | 1160               | 3110                 |
|                                                                                               |                         | 20                    | 405            | 850                  | 505                | 1100                 | 630                | 1480                 | 810                | 2425                 |
| NOTE: Increase distance 10% for each 25°F above standard temperature for particular altitude. |                         |                       |                |                      |                    |                      |                    |                      |                    |                      |

Figure 5-3.

| MAXIMUM RATE-OF-CLIMB DATA                                                                                                                 |                |                             |                         |                   |                             |                              |                     |                             |                              |                    |                             |                              |
|--------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------------|-------------------------|-------------------|-----------------------------|------------------------------|---------------------|-----------------------------|------------------------------|--------------------|-----------------------------|------------------------------|
| GROSS WEIGHT<br>LBS.                                                                                                                       | @ S.L. & 59° F |                             |                         | @ 5000 FT & 41° F |                             |                              | @ 10,000 FT & 23° F |                             |                              | @ 15,000 FT & 5° F |                             |                              |
|                                                                                                                                            | IAS<br>MPH     | RATE OF<br>CLIMB<br>FT/MIN. | GALS<br>OF FUEL<br>USED | IAS<br>MPH        | RATE OF<br>CLIMB<br>FT/MIN. | FROM<br>S.L.<br>FUEL<br>USED | IAS<br>MPH          | RATE OF<br>CLIMB<br>FT/MIN. | FROM<br>S.L.<br>FUEL<br>USED | IAS<br>MPH         | RATE OF<br>CLIMB<br>FT/MIN. | FROM<br>S.L.<br>FUEL<br>USED |
| 1700                                                                                                                                       | 75             | 1085                        | 1.0                     | 73                | 825                         | 1.9                          | 71                  | 570                         | 2.9                          | 70                 | 315                         | 4.4                          |
| 2000                                                                                                                                       | 77             | 840                         | 1.0                     | 76                | 610                         | 2.2                          | 74                  | 380                         | 3.6                          | 73                 | 155                         | 6.3                          |
| 2300                                                                                                                                       | 80             | 645                         | 1.0                     | 78                | 435                         | 2.6                          | 77                  | 230                         | 4.8                          | 76                 | 22                          | 11.5                         |
| NOTE: Flaps up, full throttle and mixture leaned for smooth operation above 5000 ft.<br>fuel used includes warm-up and take-off allowance. |                |                             |                         |                   |                             |                              |                     |                             |                              |                    |                             |                              |

Figure 5-4.