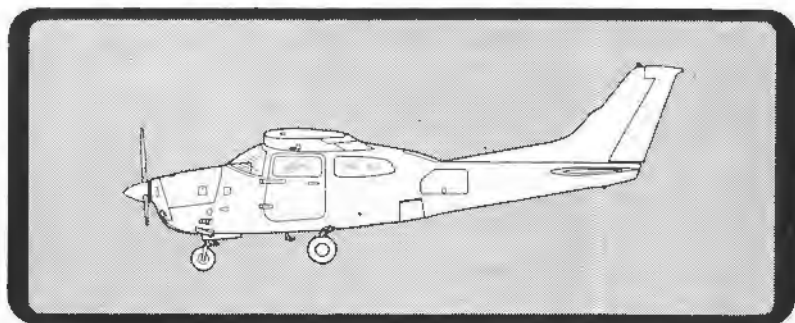


PILOT'S OPERATING HANDBOOK

Cessna®



CENTURION

1978 MODEL 210M

Serial No. _____

Registration No. _____

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

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CESSNA AIRCRAFT COMPANY
WICHITA, KANSAS, USA

11. Land on the main wheels first, avoiding the slow and high type of flare-out.
12. Missed approaches should be avoided whenever possible because of severely reduced climb capability. However, if a go-around is mandatory, make the decision much earlier in the approach than normal. Apply maximum power and maintain 95 KIAS while retracting the flaps slowly in 10° increments. Retract the landing gear after immediate obstacles are cleared.

STATIC SOURCE BLOCKAGE (Erroneous Instrument Reading Suspected)

1. Alternate Static Source Valve -- PULL ON.
2. Airspeed -- Climb 2 knots faster and approach 7 knots faster than normal or consult appropriate table in Section 5.
3. Altitude -- Cruise 150 feet higher and approach 70 feet higher than normal.

LANDING GEAR MALFUNCTION PROCEDURES

LANDING GEAR FAILS TO RETRACT

1. Master Switch -- ON.
2. Landing Gear Lever -- CHECK (lever full up).
3. Landing Gear and Gear Pump Circuit Breakers -- IN.
4. Gear Up Light -- CHECK.
5. Landing Gear Lever -- RECYCLE.
6. Gear Motor -- CHECK operation (ammeter and noise).

LANDING GEAR FAILS TO EXTEND

1. Landing Gear Lever -- DOWN.
2. Emergency Hand Pump -- EXTEND HANDLE, and PUMP (perpendicular to handle until resistance becomes heavy -- about 65 cycles).

NOTE

It takes about 55 cycles (110 strokes) to extend the gear (light on) and about 10 more (until resistance becomes heavy) to close the gear doors.

3. Gear Down Light -- ON.

NOTE

If the landing gear still does not extend, attempt another manual extension with the avionics power and master

switches turned off to eliminate any possible electrical malfunctions. After extension, turn the avionics power and master switches back on to check that the gear-down indicator light is illuminated.

4. Pump Handle -- STOW

GEAR UP LANDING

1. Landing Gear Lever -- UP.
2. Landing Gear and Gear Pump Circuit Breakers -- IN.
3. Runway -- SELECT longest hard surface or smooth sod runway available.
4. Wing Flaps -- 30° (on final approach).
5. Airspeed -- 75 KIAS.
6. Doors -- UNLATCH PRIOR TO TOUCHDOWN.
7. Avionics Power and Master Switches -- OFF when landing is assured.
8. Touchdown -- SLIGHTLY TAIL LOW.
9. Mixture -- IDLE CUT-OFF.
10. Ignition Switch -- OFF.
11. Fuel Selector Valve -- OFF.
12. Airplane -- EVACUATE.

LANDING WITHOUT POSITIVE INDICATION OF GEAR LOCKING

1. Before Landing Check -- COMPLETE.
2. Approach -- NORMAL (full flap).
3. Landing Gear and Gear Pump Circuit Breakers -- IN.
4. Landing -- TAIL LOW as smoothly as possible.
5. Braking -- MINIMUM necessary.
6. Taxi -- SLOWLY.
7. Engine -- SHUTDOWN before inspecting gear.

LANDING WITH A DEFECTIVE NOSE GEAR (Or Flat Nose Tire)

1. Movable Load -- TRANSFER to baggage area.
2. Passenger -- MOVE to rear seat.
3. Before Landing Checklist -- COMPLETE.
4. Runway -- HARD SURFACE or SMOOTH SOD.

NOTE

If sod runway is rough or soft, plan a wheels-up landing.

5. Wing Flaps -- 30°.

braking and nose wheel steering during taxi, is approximately 26 feet.

WING FLAP SYSTEM

The wing flaps are of the large span, single-slot type (see figure 7-3), and are extended or retracted by positioning the wing flap switch lever on the instrument panel to the desired flap deflection position. The switch lever is moved up or down in a slotted panel that provides mechanical stops at the 10° and 20° positions. For flap settings greater than 10°, move the switch lever to the right to clear the stop and position it as desired. A scale and pointer on the left side of the switch lever indicates flap travel in degrees. The wing flap system circuit is protected by a 15-ampere circuit breaker, labeled FLAP, on the left sidewall circuit breaker panel.

LANDING GEAR SYSTEM

The landing gear is a retractable, tricycle type with a steerable nose wheel and two main wheels. Shock absorption is provided by the tubular spring-steel main landing gear struts and the air/oil nose gear shock strut.



Figure 7-3. Wing Flap System

Each main wheel is equipped with a hydraulically actuated disc-type brake on the inboard side of the wheel.

Landing gear extension and retraction, wheel well door operation, and up and down lock operation is accomplished by hydraulic actuators powered by an electrically-driven hydraulic power pack (see figure 7-7). The power pack assembly is housed within the control pedestal. Hydraulic system fluid level may be checked by utilizing the dipstick/filler cap, on the power pack, behind a snap-out cover panel on the right side of the control pedestal. The system should be checked at 25-hour intervals. If the fluid level is at or below the ADD line on the dipstick, hydraulic fluid (MIL-H-5606) should be added.

Power pack operation is initiated by a landing gear lever, and is turned off by a pressure switch. Two position-indicator lights are provided to show landing gear position. The landing gear system is also equipped with a nose gear safety switch, an emergency extension hand pump, and a gear-up warning system.

LANDING GEAR LEVER

The landing gear lever mounted to the left of the engine controls, has two positions (up labeled GEAR UP and down labeled GEAR DOWN) which give a mechanical indication of the gear position selected. From either position, the lever must be pulled out to clear a detent before it can be repositioned. Moving the lever out of the GEAR DOWN detent will start the hydraulic power pack and open the gear doors. Positioning the lever in the GEAR UP position will direct hydraulic pressure to retract the landing gear. Operation of the landing gear system to extend the gear will not begin until the landing gear lever is repositioned in the GEAR DOWN detent.

LANDING GEAR POSITION INDICATOR LIGHTS

Two position indicator lights, mounted adjacent to the landing gear lever, indicate that the gear is either up or down and locked. The lights are the press-to-test type. The gear-down indicator light (green) has two positions; with the light pushed in half way (throttle retarded and master switch on) the gear warning system should be heard intermittently on the airplane speaker, and with the light pushed full in, it should illuminate. The gear-up indicator light (amber) has only one test position; with the light pushed full in, it should illuminate. The indicator lights contain dimming shutters for night operation.

LANDING GEAR OPERATION

To retract or extend the landing gear, pull out on the gear lever and move it to the desired position. After the lever is positioned, the

electrically-driven hydraulic power pack will create pressure in the system and the landing gear will be actuated to the selected position.

CAUTION

If for any reason the hydraulic pump continues to run after gear cycle completion (up or down), the 30-amp circuit breaker switch labeled GEAR PUMP should be pulled out. This will shut off the hydraulic pump motor and prevent damage to the pump and motor. Refer to Section 3 for complete emergency procedures.

During a normal cycle, the gear locks up or down and the position-indicator light (amber for up and green for down) comes on. When the light illuminates, hydraulic pressure is switched from the gear actuators to the door actuators to close the gear doors. When the doors are closed, pressure will continue to build until a pressure switch in the door closing system turns off the hydraulic pump. The gear doors are held in the closed position by hydraulic pressure. If the system pressure drops below minimum, the power pack pressure switch will turn the power pack on and return the pressure to maximum except when the nose gear safety (squat) switch is open.

A landing gear safety (squat) switch, actuated by the nose gear strut, electrically prevents inadvertent retraction by the electrically-driven hydraulic power pack, whenever the nose gear strut is compressed by the weight of the airplane. When the nose gear is lifted off the runway during takeoff, the squat switch will close, causing the power pack to operate for 2 to 3 seconds which will return system pressure to maximum in the event pressure has dropped.

A switch type circuit breaker, mounted on the left sidewall circuit breaker panel, should be used for safety during maintenance. With the switch pulled out, landing gear operation by the gear motor cannot occur. After maintenance is completed, and prior to flight, the switch should be pushed back in.

For inspection purposes, the landing gear doors may be opened and closed while the airplane is on the ground with the engine stopped. Operate the doors with the landing gear lever in the down position. To open the doors, turn off the master switch, pull out the GEAR PUMP circuit breaker switch, and operate the hand pump until the doors open. To close the doors, check that the landing gear lever is down, turn on the master switch, and operate the hand pump until the doors are closed and a high resistance is felt.

WARNING

Safety placards are installed on each wheel well door to

warn against any maintenance in the wheel well areas with the circuit breaker switch pushed in.

NOTE

The position of the master switch for gear door operation is easily remembered by the following rule:

OPEN circuit - OPEN doors
CLOSED circuit - CLOSED doors

CAUTION

Do not operate the hand pump with the GEAR UP position selected by the landing gear lever while the airplane is on the ground, since the squat switch will not prevent gear retraction.

EMERGENCY HAND PUMP

A hand-operated hydraulic pump, located between the two front seats, is provided for extension of the landing gear in the event of a hydraulic or electrical system failure. To utilize the pump, extend the handle forward and pump vertically. For complete emergency procedures, refer to Section 3.

For practice manual gear extensions, pull out the GEAR PUMP circuit breaker before placing the landing gear lever in the GEAR DOWN position. After the practice manual extension is completed, push the circuit breaker in to restore normal gear operation.

LANDING GEAR WARNING SYSTEM

The airplane is equipped with a landing gear warning system designed to help prevent the pilot from inadvertently making a wheels-up landing. The system consists of a throttle actuated switch which is electrically connected to a dual warning unit. The warning unit is connected to the airplane speaker.

When the throttle is retarded below approximately 12 inches of manifold pressure (master switch on), the throttle linkage will actuate a switch which is electrically connected to the gear warning portion of a dual warning unit. If the landing gear is retracted (or not down and locked), an intermittent tone will be heard on the airplane speaker. The system may be checked for correct operation before flight by retarding the throttle to idle and depressing the green gear-down position indicator light half way in. With the indicator light depressed as described, an intermittent tone

should be heard on the airplane speaker.

RETRACTABLE CABIN ENTRY STEP

The airplane is equipped with a retractable cabin entry step located on the right side of the fuselage below the cabin door. The step cycles directly with the landing gear, and is spring loaded to the extended position. A cable attached to the nose gear hydraulic actuator thru-bolt retracts the step as the nose gear is retracted.

BAGGAGE COMPARTMENT

The baggage compartment consists of the area from the back of the rear passenger seats to the aft cabin bulkhead. Access to the baggage compartment is gained through a lockable baggage door on the left side of the airplane, or from within the airplane cabin. A baggage net with six tie-down straps is provided for securing baggage and is attached by tying the straps to tie-down rings provided in the airplane. When loading the airplane, children should not be placed or permitted in the baggage compartment, and any material that might be hazardous to the airplane or occupants should not be placed anywhere in the airplane. For baggage area and door dimensions, refer to Section 6.

SEATS

The seating arrangement consists of four separate adjustable seats and a one-piece fixed seat. The pilot's seat is a six-way adjustable seat, and the front and center passengers seats are four-way adjustable. The front passenger's seat is also available in the six-way adjustable configuration. The two aft passengers utilize a one-piece fixed seat.

The six-way adjustable pilot's seat may be moved forward or aft, adjusted for height, and the seat back angle is infinitely adjustable. Position the seat by lifting the tubular handle, under the center of the seat bottom, and slide the seat into position; then release the handle and check that the seat is locked in place. Raise or lower the seat by rotating a large crank under the right corner of the seat. Seat back angle is adjustable by rotating a small crank under the left corner of the seat. The seat bottom angle will change as the seat back angle changes, providing proper support. The seat back will also fold full forward. If the front passenger's seat is six-way adjustable, it will function the same as the pilot's seat except the height adjusting and back reclining cranks will be opposite the respective adjustment cranks of the pilot's seat.