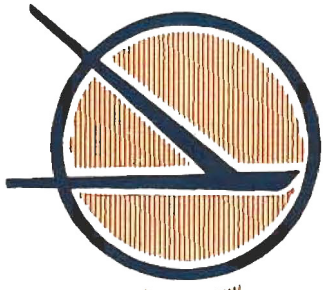


70

52, 53, 54 and 55 Models

OWNER'S MANUAL

Congratulations . . .

■ You are now the owner of a truly outstanding airplane. The Cessna 170 has been engineered to give you the ultimate in performance, styling, durability, flying comfort, and economy either for business or pleasure.

■ We share your pride as a Cessna owner and have prepared this Owner's Manual as a guide to acquaint you with its fine construction, equipment, operating procedures, and maintenance requirements.

■ Every fine possession is worth caring for, and this is especially true of your Cessna 170. This book is dedicated to help you operate your airplane to get the utmost flying enjoyment and service with a minimum of upkeep.

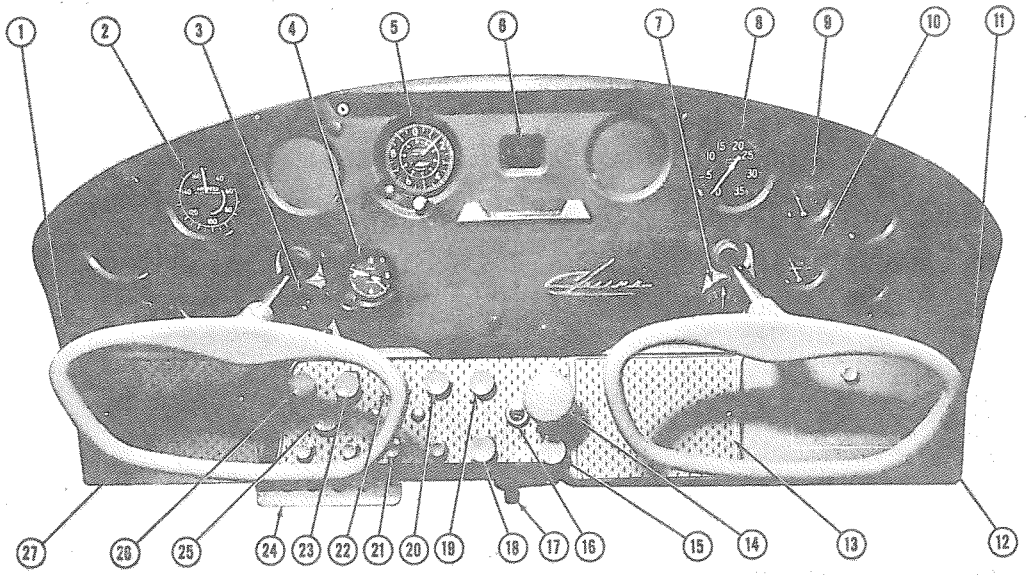
P213-13–RPC–200–3/79

This manual is a composite of information and data contained in the Cessna Model 170 Owner's Manuals for the years 1952, 1953, 1954 and 1955. The basic airplanes for these years are very similar. All major differences in configuration are outlined in the "MAIN DIFFERENCE TABLE". Some information and illustrations contained in this manual may not depict the exact configuration of your airplane; however, all airplane limitations, flight procedures and operational data, are satisfactory for use with each yearly model. All illustrations and descriptions in the text reflect the 1955 configuration unless stated otherwise.

MAIN DIFFERENCE TABLE

ITEM	1952	1953	1954	1955
ENGINE	Continental Model C-145-2	Continental Model C-145-2	Continental Model C-145-2	Continental Model O-300-A
WING FLAP POSITIONS	0°, 20°, 30°, 40°	0°, 20°, 30°, 40°	0°, 20°, 30°, 40°	0°, 10°, 20°, 30°, 40°
TEMPERATURE THERMOSTAT LOCATION (OPT. STEWART-WARNER HEATER)	Beneath rear passenger seat	Beneath rear passenger seat	Aft of flap handle on cabin floor	Aft of flap handle on cabin floor
BATTERY LOCATION	Left side of engine compartment	Left side of engine compartment	Right side of engine compartment	Right side of engine compartment

TABLE OF CONTENTS



1. Headphone Jack
2. Airspeed Indicator
3. Stall Warning Indicator
4. Clock (Optional Equipment)
5. Altimeter
6. Magnetic Compass
7. Ammeter
8. Tachometer
9. Oil Pressure Gage
10. Oil Temperature Gage
11. Headphone Jack
12. Glove Compartment
13. Optional Radio Space
14. Throttle
15. Engine Primer
16. Ignition Switch
17. Instrument Lights Rheostat Switch
18. Cigarette Lighter
19. Carburetor Air Heat Control
20. Cabin Heat Control
21. Electrical Switch Panel (See figure 2)
22. Cabin Air Control
23. Mixture Control
24. Electrical Fuse Panel (See figure 3)
25. Parking Brake Control
26. Starter Knob
27. Optional Radio Space

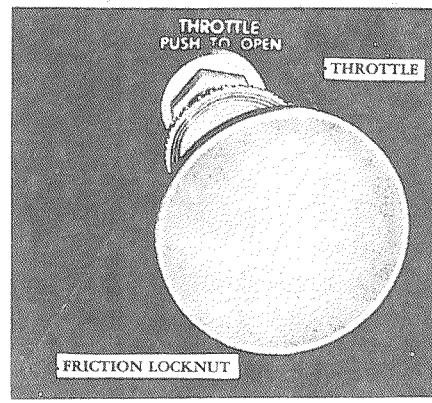
Figure 1. Instrument Panel

SECTION I

ONE OF THE FIRST STEPS in obtaining the utmost performance, service, and flying enjoyment from your Cessna is to familiarize yourself with your airplane's equipment, systems, and controls. This section will tell you where each item is located, how it operates and its function.

ENGINE.

The power plant used in your Cessna 170 is a six cylinder, 145 horsepower, Continental Model O-300-A engine. Continental's accumulated years of experience in the manufacture of light aircraft engines assure you of a precision made, skillfuly engineered product. The built in Red Seal quality, which is now yours, is your guarantee of maximum safety, trouble-free operation, and low maintenance cost.



ENGINE CONTROLS.

Throttle.. The throttle (14, figure 1) is located slightly right of center on the stationary instrument panel and is easily identified by its large, round knob. Engine rpm can be increased by pushing the throttle in toward the instrument panel or decreased by pulling the control out.

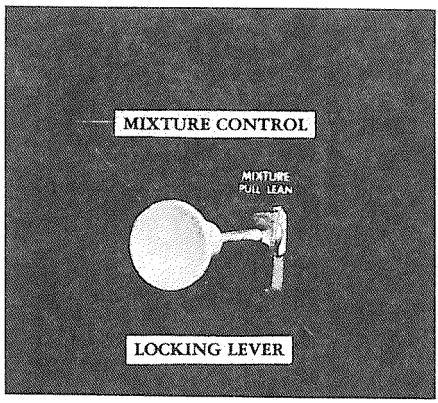
NOTE

To prevent "creepage" of the throttle, a knurled friction-type lock nut is incorporated on the control to secure it at any desired setting. Clockwise rotation of the nut increases the friction on the throttle and counter-clockwise rotation decreases the friction.

Mixture Control. The mixture control (23, figure 1) is the fourth knob to the left of the throttle. A locking lever is incorporated on the control to prevent unintentional use of the mixture control. *To lean the mixture,* it is necessary to depress the locking lever while pulling the mixture control knob out. This operation can be accomplished with one hand by using the thumb to press the locking lever in and the index and middle fingers to pull the mixture control knob out. The locking lever is effective only in the leaning operation. Forward movement of the mixture control is not affected by the locking lever.

The mixture control is normally set at "full rich" (all the way in) for start-

ing, take-off, and climb. Maximum performance take-offs from high elevation fields may be made with the mixture leaned out for maximum engine r.p.m. However, a full rich mixture is preferred for better engine cooling.



At any cruising altitude, adjust the mixture control for best rich power by pulling the mixture control out until maximum engine r.p.m. is obtained with fixed throttle; then, push the mixture control in toward "full rich" until r.p.m. begins to drop. Readjust mixture for each change in power, altitude, or carburetor heat.

Carburetor Air Heat Control. The carburetor air heat control (19, figure 1) is the first knob to the left of the throttle. The push-pull control operates the carburetor air intake butterfly valve, which proportions the hot and cold air entering the carburetor. Pulling the control out provides heated air for the carburetor while pushing the control all the way in provides only cold air for the carburetor.

Air pulled into the heater muffs and subsequently into the engine does not pass through the air filter. For this reason, when taxiing on dirty, dusty, or sandy fields, carburetor heat should not be used until the engine is cleared prior to take-off. After a full stop landing under these conditions, carburetor heat should be returned to full cold in order that the air filter becomes fully effective again.

Carburetor ice can form on the ground with the engine idling. Therefore, just before take-off, when you run the engine and test the magnetos, be sure to have the carburetor heat in the "on" position after the magneto check. Leave it in this position until just before you open the throttle for the take-off run. Then move carburetor heat to the "cold air" position. This gives maximum power for the take-off. Watch engine for any indications of ice (roughness or loss of r.p.m.) during climb and apply full carburetor heat if engine begins to ice.

The correct way to use carburetor heat is to first use full heat to remove any ice that is forming. By trial and error, determine the minimum amount of heat required to prevent the ice from forming; each time removing any ice that is formed by applying full heat. On each subsequent trial, increase the amount of heat applied until no ice forms. On approach glide just before reducing power, apply full carburetor heat and leave in this position.

When full carburetor heat is applied, the engine will lose approx. 250-300 r.p.m. in cruising flight or 340 to 380 r.p.m. at full throttle. In addition to the r.p.m. loss, the engine will run rough due to too rich a mixture. Therefore, *it is necessary to lean the engine whenever full carburetor heat is used.*

Excessively lean fuel-air mixture will cause overheating and possibly detonation. *Do not lean the mixture unless an increase in engine r.p.m. results.*

Ignition Switch. The ignition switch (16, figure 1) is located a little below and to the left of the throttle. This switch is key operated and controls the dual magneto ignition systems. There are four switch positions designated clockwise as follows: "OFF", "R", "L", and "BOTH". The engine should be operated on both magnetos ("BOTH" position). The "R" and "L" positions are for checking purposes only.

Engine Primer. The engine primer (15, figure 1) is a manual plunger type and is located immediately below the throttle. *Ordinarily, the use of the primer is not required except at winter temperatures.* It is used to aid in starting the engine by supplying an initial charge of raw fuel to the cylinders.

To operate the primer, proceed as follows:

(a) First, unlock the plunger by turning the knob counter clockwise until the knob pops part way out.
(b) Slowly pull the plunger all the way out and then push the plunger all the way in. This action is termed "one stroke of the primer".
(c) Normal winter weather will require two to four strokes of the primer, and very cold (—20° F.) weather may require ten strokes.
(d) Normally, the engine is started immediately after the priming operation. In very cold weather, it is recommended that the engine be turned over while priming. It may be necessary to continue priming until the engine runs smoothly.

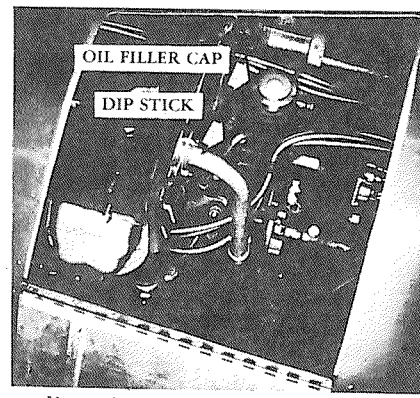
Starter Knob. A starter knob (26, figure 1) is located to the left of the throttle adjacent to the left radio space. Pulling out on the control engages the engine starter. *Do not pull out on the starter knob when the propeller is turning.*

ENGINE INDICATORS.

Tachometer. An engine tachometer (8, figure 1) is mounted immediately above the right control wheel shaft. If desired, a recording tachometer may be installed as optional equipment in lieu of the standard tachometer.

OIL SYSTEM.

Oil Level. The oil capacity on the Continental O-300-A engine is eight quarts. The quantity can be checked easily by opening the access door on the left side of the engine cowl and



reading the oil level on the dip stick located adjacent to the oil tank cap. In replacing the dip stick, make sure

that it is firmly back in place. In replacing the oil filler cap, make sure that it is on firmly and turned clockwise as far as it will go to prevent loss of oil thru the filler neck. While the minimum oil supply is four quarts, oil should be added if below six quarts and should be full if an extended flight is planned. *Sea planes should never show over seven quarts since the dip stick reads one quart short as calibrated for a landplane.*

Oil Specification and Grade. Aviation grade oil is recommended for your Cessna 170 and should be changed every 25 hours of operation.

Average Outside Temperature	*Recommended Oil Grade*
Below 50 F.	SAE 20
Above 50 F.	SAE 40

Oil System Indicators

Oil Temperature Indicator. A capillary type oil temperature gage (10, figure 1) is mounted to the right of the right control wheel shaft. The green arc defines the normal operating range of oil temperatures.

Oil Pressure Gage. An oil pressure gage (9, figure 1) is installed immediately above the oil temperature indicator. The gage is calibrated in pounds per square inch.

FUEL SYSTEM

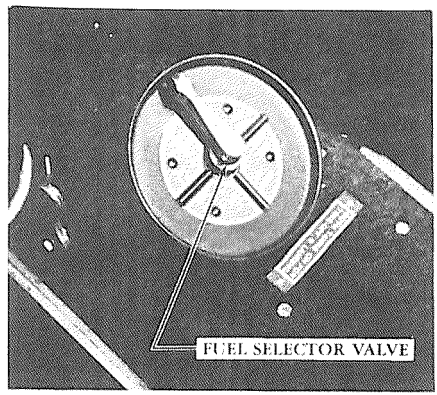
Fuel is supplied to the engine from two 21 gallon aluminum tanks, one located in each wing. From these tanks fuel flows by means of gravity through a fuel selector valve and fuel strainer to the engine carburetor.

Fuel Specification and Grade.

Aviation grade fuel should always be used except under emergency conditions. The recommended fuel is 80 octane rating minimum with a lead content of not more than ½ cc per gallon. Highly leaded fuels are not recommended. Filling the fuel tanks immediately after flight will reduce the air space and minimize the moisture condensation in the fuel tanks.

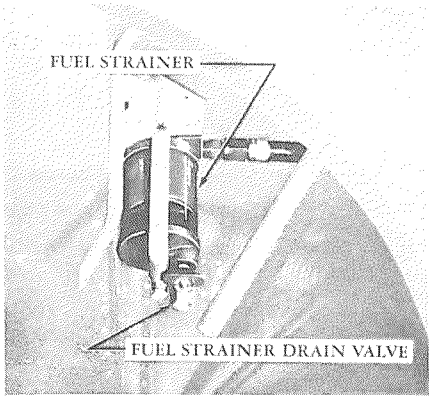
Fuel System Controls

Fuel Selector Valve. A rotary type fuel selector valve is located at the aft end of the cabin floor tunnel between the



front seats. The valve has four positions labeled "BOTH OFF", "LEFT TANK", "RIGHT TANK", and "BOTH ON". The "BOTH OFF" position seals both wing tanks off from the rest of the fuel system and allows no fuel to pass beyond the selector valve. The "LEFT TANK" position allows fuel to flow from the left wing tank to the engine. The

"RIGHT TANK" position permits fuel to flow from the right wing tank to the engine. The "BOTH ON" position provides fuel flow from both tanks simultaneously to provide maximum safety. *Important* — The fuel valve *handle* indicates the setting of the valve by its positions above the valve dial.



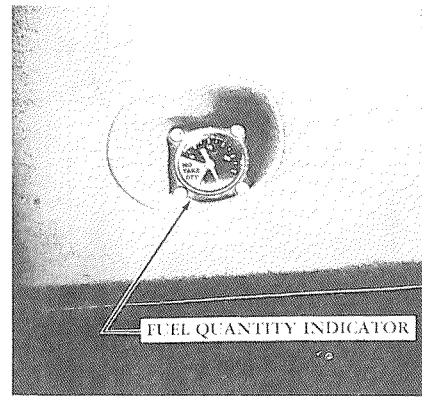
Fuel Strainer Drain Valve. A fuel strainer drain valve is located on the bottom of the fuel strainer and is accessible by reaching through the bottom rear opening of the engine cowl just forward of the firewall. This valve provides a quick simple method of draining any water or sediment that might have collected in the fuel strainer. A one ounce quantity of fuel should be drained from the fuel strainer before the initial flight of the day or after each refueling operation.

Fuel Tank Sump Drain Plugs. A fuel tank drain plug is located on the underside of each wing in line with the rear edge of the cabin door and out a few inches from the fuselage. These plugs are used to drain any sediment or water that may collect in the fuel tanks. Draining the tank sumps is normally required only at each 100 hour inspection period.

Fuel Line Drain Plug. A fuel line drain plug is located on the under side of the airplane directly below the fuel tank selector valve. At each 100 hour inspection period, this plug should be removed to drain any sediment or water that might have accumulated in the fuel line.

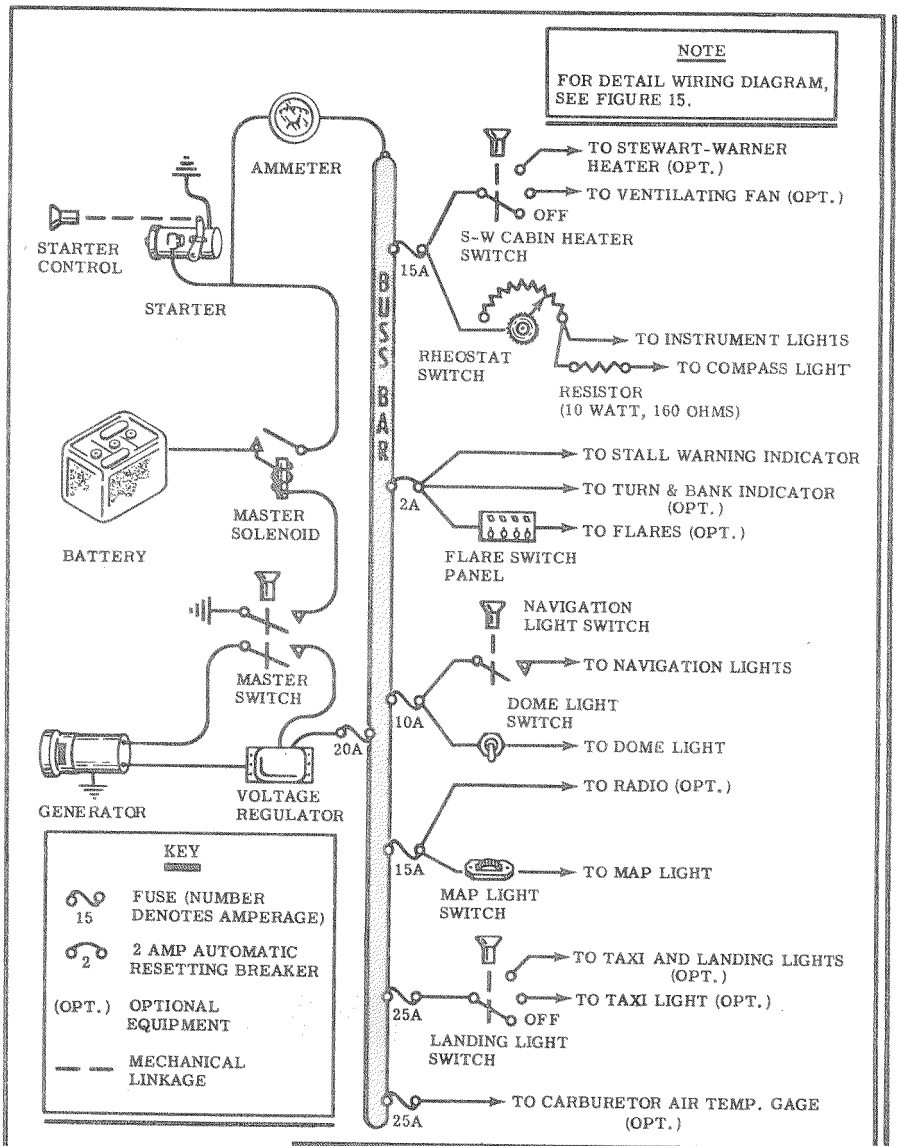
FUEL SYSTEM INDICATOR.

Fuel Quantity Indicators. A direct-reading, dampened, float-type fuel quantity indicator is mounted in each tank at the wing root inside the cabin. Each gage indicates the amount of fuel remaining in its respective tank. A red arc is painted on the face of each indicator to warn the pilot that the respective fuel tank is almost empty. *Do not take off if the pointer is in the red arc.*



ELECTRICAL SYSTEM.

Electrical energy is supplied by a 12-volt, direct-current system powered by an engine-driven generator. A 12-volt storage battery serves as a stand-by power source, supplying current



WIRING DIAGRAM—Schematic

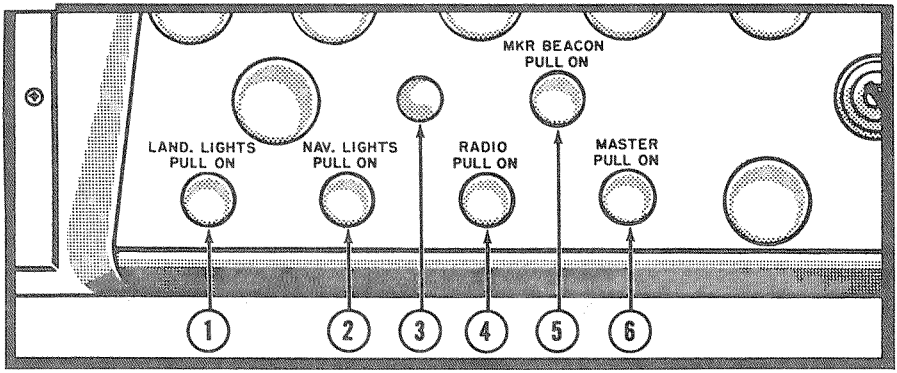


Figure 2. Electrical Switch Panel

1. Landing Light Switch
2. Navigation Light Switch
3. Cabin Heater Switch Space
4. Radio Switch Space
5. Marker Beacon Switch Space
6. Master Switch

to the system when the generator is inoperative, or when the generator voltage is insufficient to close the reverse-current relay.

ELECTRICAL SYSTEM CONTROLS.

Master Switch. The master switch (6, figure 2) is the first knob to the left of the cigarette lighter. Switch positions are "ON" (out position) and "OFF" (in position). When the master switch is turned "ON", a solenoid switch is energized and the electrical power of the battery is admitted into the electrical system. In event of a short or malfunctioning of the airplane electrical system, the master switch may be turned off and the engine will continue to run on the magneto ignition system.

Fuses. Fuses for the various electrical devices are located beneath the electrical switches along the bottom edge of the instrument panel. The fuse circuit and fuse capacity are indicated above the respective fuse retainers. Fuses may be removed by unscrewing the fuse retainers and lifting out the fuse. Spare fuses are located in a clip on the inside of the glove compartment door. The turn and bank indicator and stall warning indicator are protected with an automatically resetting circuit breaker which provides intermittent emergency operation of these devices in case of a faulty circuit.

ELECTRICAL SYSTEM INDICATOR.

Ammeter. An ammeter (7, figure 1) is located just below the right control wheel shaft and indicates the generator charging rate. When the pointer is deflected to the "+" side of the instrument, electrical energy is flowing into the battery from the generator; to the "−" side, more electrical energy is being used than is being replaced by the generator. The normal position of the pointer, when flying, is in the neighborhood of from 0 to +4 amps depending on how fully the battery is charged. Fluctuation of the pointer may be quite large in normal operation.

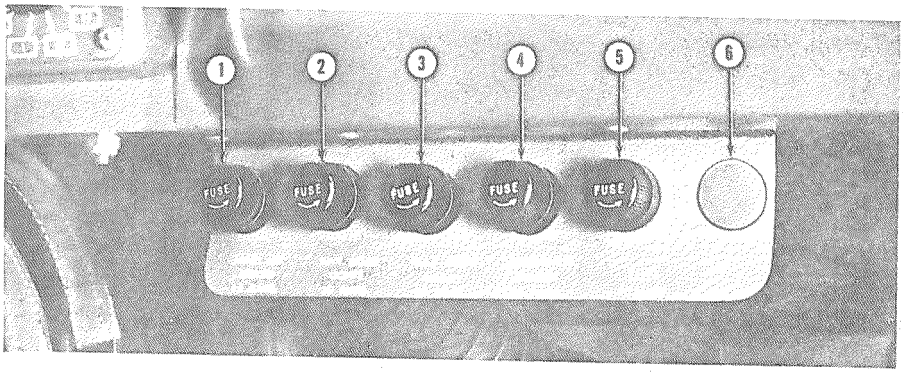


Figure 3. Electrical Fuse Panel

1. Panel Lights and Heater Fuse (15 amps)
2. Navigation and Dome Light Fuse (10 amps)
3. Map Light and Radio Fuse (15 amps)
4. Landing Light and Cig. Lighter Fuse (25 amps)
5. Generator Fuse (20 amps)
6. Spare Fuse Position

FLIGHT CONTROL SYSTEM.

Conventional wheel and rudder pedal controls are provided for the occupants of both front seats to operate the primary flight control surfaces (ailerons, rudder, and elevators). The elevator trim tab, located on the right elevator, is mechanically operated from the front seats. The rudder trim tab is adjustable on the ground only.

FLIGHT CONTROL SYSTEM CONTROLS.

Control Wheels. The elevator and aileron surfaces are operated by conventional movement of dual control wheels. One control wheel is located directly in front of each front seat and operates through the instrument panel.

Rudder Pedals. Two sets of rudder pedals (1 and 2, figure 4) are provided to operate the rudder. These rudder pedals are located just aft of the firewall directly in front of each front seat.

Elevator Tab Control Wheel. The elevator trim tab is an auxiliary movable control surface located on the trailing edge of the right elevator. It is used to relieve control wheel pressures during flight. The tab is controlled by rotating the tab control wheel (4, figure 4) which is located just ahead and between the two front seats. A tab position indicator is incorporated in the tab wheel mechanism and indicates the nose attitude of the airplane. Forward movement of the wheel trims nose down and vice versa. This allows the airplane to be trimmed to fly level for a wide selection of load and speed conditions. Take-off is made with the tab position indicator set in "TAKE-OFF" position.

Wing Flap Handle. The wing flaps are controlled by a wing flap handle (3, figure 4) mounted between the two front seats. The handle is operated by depressing the thumb button and moving the handle to the desired flap setting. By releasing the thumb button, the handle can be locked to

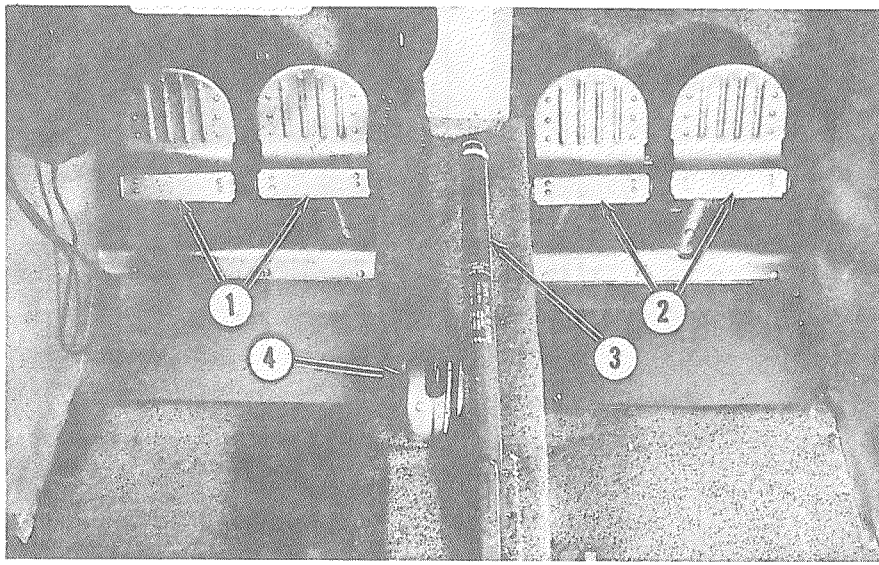


Figure 4. Lower Forward Section Of Cabin

1. Pilot's Rudder Pedals
2. Copilot's Rudder Pedals
3. Wing Flap Handle
4. Elevator Tab Control Wheel

provide 0, 10, 20, 30, and 40-degree flap positions.

The flaps may be lowered or raised during normal flying whenever the airspeed is less than 100 m.p.h. The flaps supply added lift and considerable drag; the resulting action steepens the glide angle of the airplane enabling the pilot to bring the airplane in over an obstruction and land shorter than could be done without flaps. The use of flaps is not recommended for cross-wind take-offs.

For unusually short field take-offs, apply 20° flaps (second notch) prior to take-off. An alternate procedure of applying 20° flaps just before the airplane is ready to leave the ground may be used in lieu of the above method of leaving the flaps in the 20° position throughout the entire ground run. For further discussion of the use of wing flaps for take-off, see page 27.

Wing Flap Settings

For Normal take-off....Up (0°)
For Shortest take-off
.....2nd notch (20°)
For landing....3rd notch (30°)
4th notch (40°)

LANDING GEAR.

MAIN LANDING GEAR.

Your airplane is equipped with Cessna's patented, Safety Landing Gear. It consists of a tapered, spring steel leaf supporting each main wheel. This spring leaf replaces the complicated shock struts normally used in landing gears and is made from the

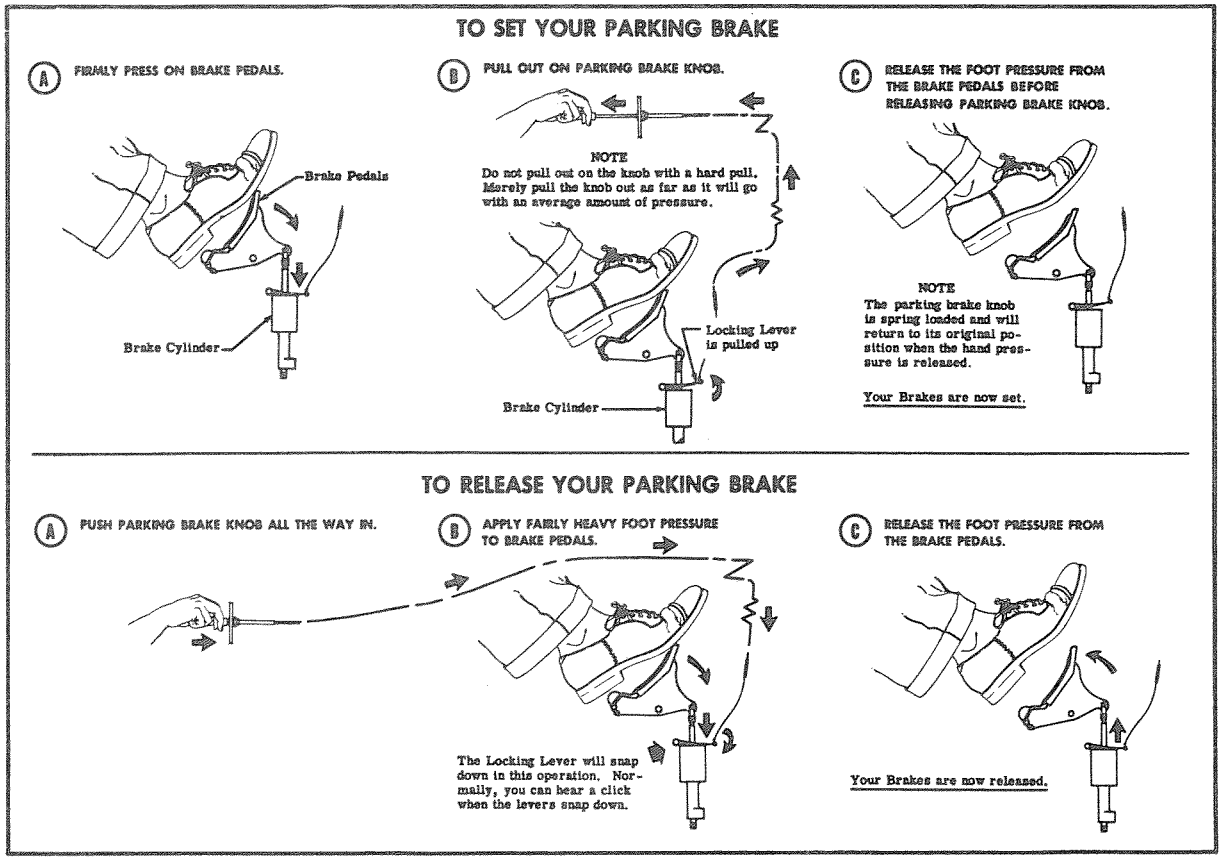


Figure 5. Parking Brake Operation

highest quality chrome-vanadium steel; heat-treated and shot-peened for added fatigue resistance. All this results in a trouble free gear that never requires costly maintenance. It gives you wonderful comfort and handling ease—and practically paves the roughest fields.

TAIL GEAR.

A full swiveling, steerable type tailwheel is mounted on leaf springs at the aft end of the fuselage tail cone. Tailwheel steering is accomplished through normal operation of the rudder pedals. The tailwheel is steerable through an arc of approximately 16° each side of neutral. Beyond this travel, the tailwheel automatically becomes full swiveling.

BRAKE SYSTEM.

The hydraulic brakes on the main wheel are conventionally operated by applying toe pressure to either the pilot's or co-pilot's rudder pedals. The rotation of the pedals actuates the brake cylinders; resulting in a braking action on the main landing gear wheels. The brakes may also be set by operating the parking brake control.

BRAKE SYSTEM CONTROLS.

Brake Pedals. Conventional toe-type brake pedals are incorporated as the upper part of the pilot's and co-pilot's rudder pedals. Two brake cylinders are mounted directly to the pilot's brake pedals. Pressure applied to the co-pilot's brake pedals is transmitted by a mechanical linkage to the pilot's pedals which in turn actuate the brake cylinders.

Parking Brake Control. The parking brake control (25, figure 1) is operated in conjunction with the toe brake and is a part of the master brake cylinders. In setting the parking brake, *first* press the toe brakes to the desired brake pressure *then* gently pull the parking brake control out to engage the locking lever and release the toe brake pressure. *To release the brake,* push parking brake control in, apply pressure to the brake pedals, and then release them.

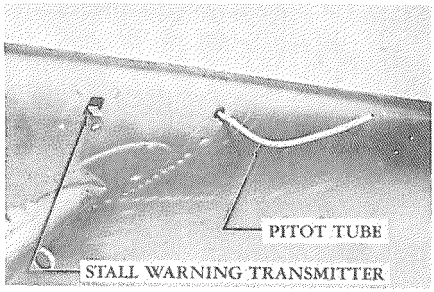
INSTRUMENTS.

All instruments are mounted on the instrument panel with the exception of a free air temperature gage. The free air temperature gage (optional equipment) is located in the right cabin ventilator. For correct readings, the ventilator must be slightly open.

Turn and Bank Indicator (Optional Equipment). The turn and bank indicator, if installed as optional equipment, is an electrically operated instrument. Turned on by the operation of the master switch, the indicator remains in operation until the master switch is turned off. The indicator has no separate control switch.

Pitot-Static System Indicators. The airspeed indicator (2, figure 1) and altimeter (5, figure 1) are operated by the pitot-static system. This system measures the difference between the impact air pressure entering the pitot tube, mounted on the leading edge of the left wing, and static air pressure obtained from a static port mounted on the left forward side of the fuselage. To keep the pitot tube opening

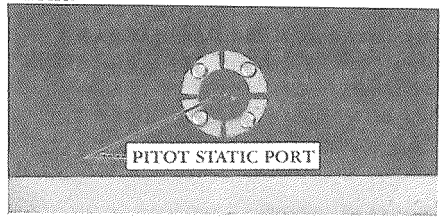
clean, a cover may be placed over the pitot tube whenever the plane is idle on the ground. *The static port should be kept free of polish, wax, or dirt for proper airspeed indicator operation.*



Stall Warning Indicator. A stall warning indicator (3, Figure 1) is located directly below the left control wheel shaft. This instrument gives your 170 full and complete protection from inadvertent stalls. It gives warning whenever a stall is approached regardless of speed, attitude, altitude, acceleration or other factors which change the stalling speed. The stall warning indicator is set to give a warning approximately 5 mph above the normal straight ahead stalling speed. Other attitudes and speeds provide a wider margin.

The only time you may hear the Indicator under safe flight condition will be merely a short beep as you land. Usually no warning will be evident on a properly executed landing because the Indicator takes the ground effect into consideration. (If the airplane is leveled off high, however, the Indicator will signal.) The Indicator automatically cuts out on the ground, although high surface winds may give signals when taxiing. It therefore requires no silencing switch which might be inadvertently left off.

A manual is provided in the airplane kit which describes in detail the many useful purposes of this instrument.



Clock (Optional Equipment). An eight-day, stem wind, aircraft clock (4, figure 1) may be installed as optional equipment in the instrument mounting hole just to the right of the left control wheel shaft.

Magnetic Compass. A magnetic compass (6, figure 1) is located in the center and near the top of the instrument panel. The compass correction card is mounted directly below the compass for quick and easy reference when reading the magnetic headings.

SEATS.

FRONT SEATS.

The front seats are individually mounted on tracks and are adjustable fore and aft. The seat adjustment handle is located within easy reach on the left front side of each front seat. *To adjust the seat,* simply pull up on the handle and slide the seat to the most comfortable position.

REAR SEAT.

The rear seat has provisions to accommodate two people. The back of the seat is hinged at the bottom to permit seat adjustment and easy access to the baggage compartment. A seat adjustment handle is located behind and at the top of the rear seat back.

CABIN HEATER.

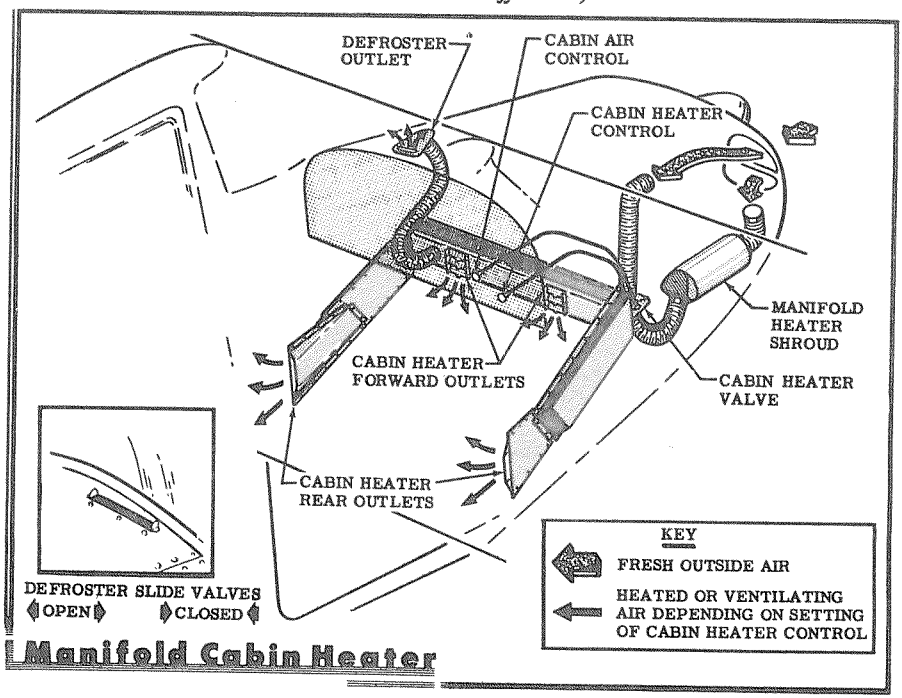
MANIFOLD TYPE CABIN HEATER.

A manifold-type cabin heater, incorporating windshield defrosting ducts, is standard equipment in your 170. The heater is operated by a cabin heater control (20, figure 1) which is the second knob to the left of the throttle. Pulling the control out permits heated, fresh air to enter the cabin through louvered ducts on the firewall. The louvers may be manually adjusted to direct air flow. The rear cabin areas are heated and ventilated by ducts extending along each wall and terminating at the door posts.

A defroster opening just behind the windshield provides a flow of air to keep the windshield free of condensation and frost. No controls are provided for the defroster duct; windshield-clearing air will flow from the duct unless the cabin air valve is closed. The defrosting air will be hot or cool depending on the setting of the cabin heat knob.

To provide a flow of warm air, pull the cabin heater control out. *To provide a flow of cool air,* push the cabin heater control in.

To prevent any air (hot or cold) from entering the cabin through the heater ducts, push the cabin heater control in and pull the cabin air control out. *(Never pull the cabin air control out when the cabin heat control is out. This may result in overheating of the heater muff hoses.)*



Manifold Cabin Heater

STEWART-WARNER GASOLINE HEATER (OPTIONAL EQUIPMENT).

The model 979-B1 South Wind heater, which can be installed in your Cessna 170 as optional equipment, is an extremely compact heating unit designed to produce cabin heat quickly and with the utmost safety and reliability on the ground as well as in the air. This heating unit is thermostatically controlled for your complete comfort and has been fully approved for installation in the Cessna 170 by the Civil Aeronautics Administration. It provides a heating system for civilian aircraft that incorporates the "safety sealed" principle of operation by which all products of combustion are contained within a fully welded stainless steel combustion chamber.

The heater switch (3, figure 2) is usually mounted in the center of the electrical switch panel. The main heater unit is located in the floor under the rear seat. The fuel filter and safety valve are mounted under the cabin floor just aft of the pilot's seat.

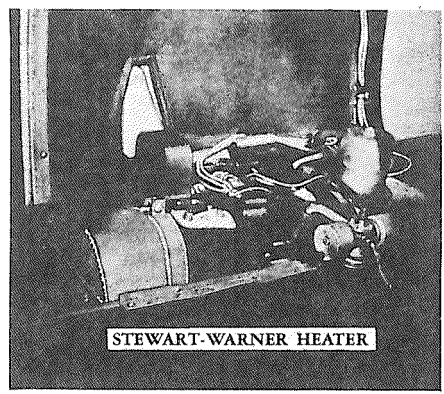
To start heater:

(a) Turn master switch "ON".
(b) Pull cabin heater switch out to "FAN" position (first notch) and hold in this position for 30 seconds. This operation primes the heater.
(c) Pull cabin heater switch out to the "ON" position (second notch).

If heater does not start:

(a) Return the cabin heater switch to "OFF" (full in).
(b) Check fuse mounted beneath the heater switch.
(c) Pull cabin heater switch up to "FAN" position (first notch) and hold in this position for 30 seconds.
(d) Restart heater by pulling heater switch to "ON" (second notch).
(e) If heater does not ignite after third attempted start, service is required and no further attempt to start should be made.

To select temperature — A thermostat is located just aft of the flap handle on the floor. In the top of the thermostat is a dial which is used to control the temperature of the cabin. Selection is made by rotating the dial to the desired temperature reading.


STEWART-WARNER HEATER

To stop heater:

(a) Return the cabin heater switch to "OFF" (full in).
Do not turn master switch off at this time.
(b) The heater combustion fan will keep on operating and will act as a cooling fan for the heater. When the heater

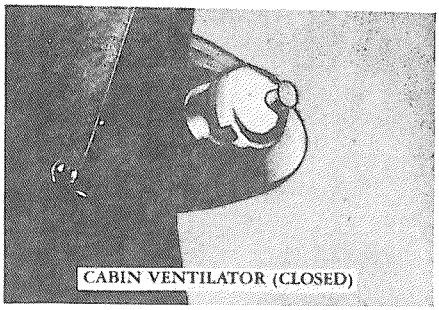
has cooled off sufficiently, a thermostatic switch will automatically turn the combustion fan off.

(c) After the heater has shut itself off, turn master switch "OFF".

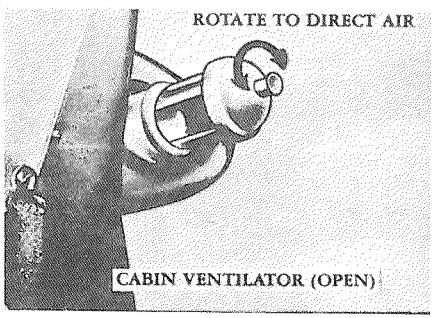
Ventilator Fan. On warm days, the heater ventilator fan can be used to circulate the air in the cabin. This can be done by pulling the cabin heater switch to "FAN" position (first notch).

CABIN VENTILATORS.

All ventilation for the cabin area.


CABIN VENTILATOR (CLOSED)

excluding the ventilation obtained through heater ducts, is provided by manually-adjusted cabin ventilators. Two ventilators are installed; one on the left side of the cabin in the upper corner of the windshield, and the other in the same position on the right side of the fuselage.



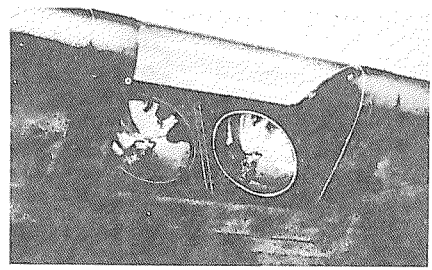
To provide a flow of air, pull ventilator tube out. The amount of air entering the cabin can be regulated by varying the distance that the ventilator tube is extended.

To change the direction of air flow, rotate the ventilator tube to the position desired.

To stop the flow of air, push the ventilator tube all the way in.

LIGHTING EQUIPMENT.

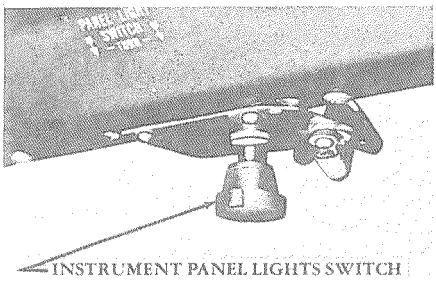
Navigation Lights. The navigation lights consist of a red light on the left wing tip, a green light on the right wing tip, and a white light on the trailing edge of the rudder. The navigation light switch (1, figure 2) is mounted on the instrument panel. *To turn the navigation lights on,* pull the navigation light switch out. *To turn the lights off,* push the switch in.



Landing Light. (Optional Equipment). The landing light consists of two lamps mounted side-by-side in the leading edge of the left wing. One of the lamps is adjusted to give proper illumination of the runway during landing and take-off while the other lamp is set to provide illumination of the ground for taxiing purposes. The landing light switch (1, figure 2) is mounted on the instrument panel. *To turn the taxi light on,* pull the switch out to the first stop. *To turn both the landing light and the taxi light on,*

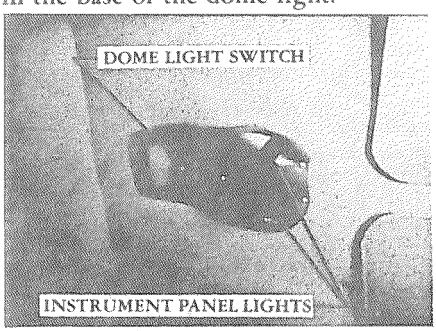
pull the switch out to the second stop. *To turn lights off,* push the switch all the way in.

Instrument Lights. Two ultra-violet, fluorescent, instrument lights are mounted in the cabin ceiling. The lights, in conjunction with a compass

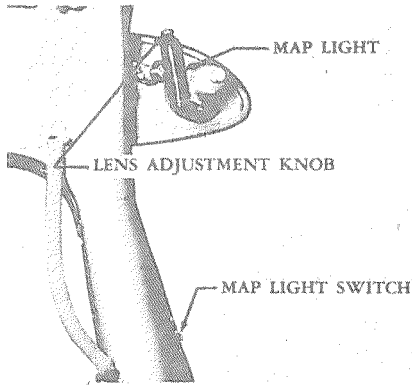


light, are controlled by a rheostat switch (17, figure 1) located on the bottom edge of the instrument panel. *To turn the compass and instrument lights on,* rotate the instrument light rheostat switch clockwise until the desired illumination is obtained. *To turn the lights off,* turn the switch counter-clockwise as far as it will go.

Dome Light. A dome light is mounted in the cabin ceiling and is controlled by a toggle switch mounted in the base of the dome light.



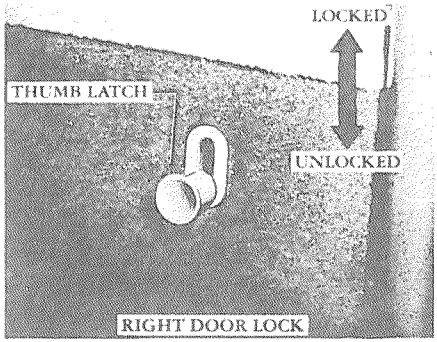
Map Light. A map light is mounted adjacent to the left cabin ventilator and is controlled by a slide switch mounted on the left door post. The light is fully adjustable to shine in any direction, and a lens adjustment knob integrally-mounted on the light makes it possible to change the beam from a spot to a flood illumination.



MISCELLANEOUS EQUIPMENT.

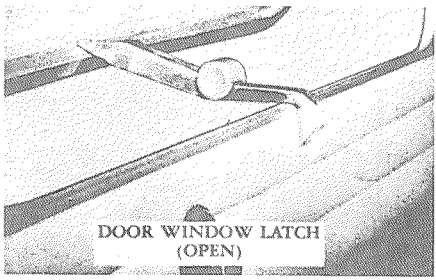
CABIN DOORS.

Two cabin doors are provided on your Cessna 170. Each door incorporates a flush type door handle on the outside and a conventional type handle on the inside. *To open the door from the outside,* pull out on the forward edge of the flush type handle. *To open the door from the inside,* rotate the inside door handle down.



The right cabin door can be locked from the inside only. *To lock the door,* push up on the thumb latch located on the aft part of the door just below the window. *To unlock,* push down on the thumb latch.

The left door can be locked from the outside only with a key operated lock. The same key that is used for the ignition is also used to lock the door.



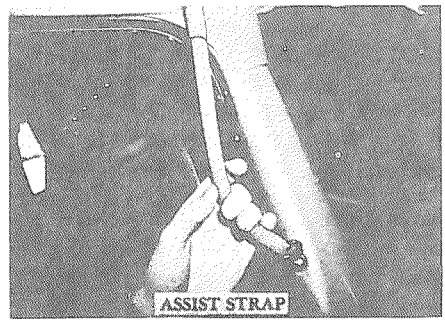
CABIN WINDOWS.

All windows in the cabin, with the exception of the door windows, are of the fixed type and cannot be opened. The windows mounted in the cabin doors are hinged along the top of the windows and open out and up. *To open either door window,* pull up and push out on the window latch. With the window latch completely extended, the window will remain open.

To close the window, pull the window latch in and down.

ASSIST HANDLES.

One assist handle is installed in the deck above the instrument panel. This handle is very handy and is used to aid in adjusting the front seats and in entering and leaving the airplane.

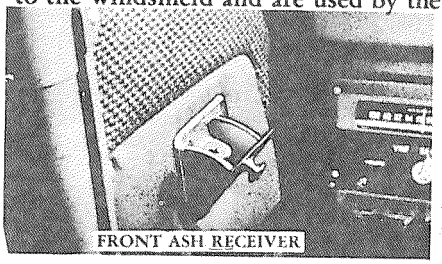


ASSIST STRAPS.

Two assist straps are mounted on the front door posts and are used as an aid in entering and leaving the airplane.

ASH RECEIVERS.

Four ash receivers are provided in your Cessna 170. Two ash receivers are located in the cabin walls adjacent to the windshield and are used by the


FRONT ASH RECEIVER

occupants of the front seats. The remaining ash receivers are mounted on the cabin walls just aft of the rear door post bulkheads and are accessible to the rear seat passengers.


REAR ASH RECEIVER

CIGARETTE LIGHTER.

A cigarette lighter (15, figure 1) is mounted on the instrument panel as standard equipment. Push the lighter all the way in to heat the element, and release . The lighter will automatically spring part way out when sufficiently heated. When replacing lighter in holder, press only part way in.

GLOVE COMPARTMENT.

A glove compartment (12, figure 1) is located on the right side of the instrument panel. *To open,* pull out on glove compartment door knob.

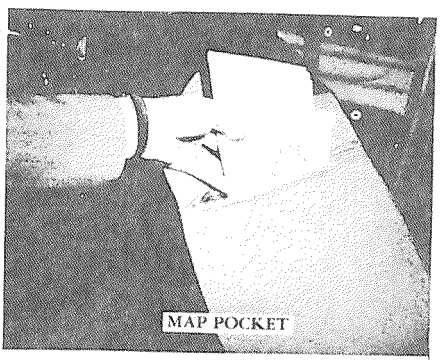
BAGGAGE COMPARTMENT.

A baggage compartment is located just aft of the rear seat. *To gain access to the baggage compartment,* rotate the rear seat back, forward and down.


BAGGAGE COMPARTMENT

UTILITY SHELF.

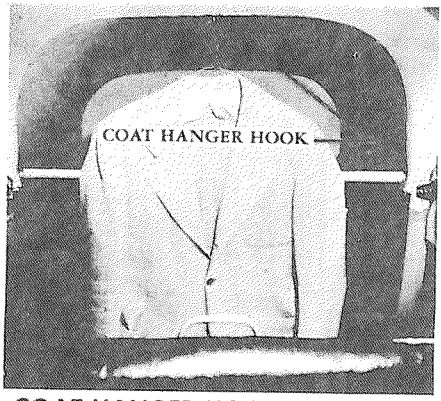
A utility shelf is located just above the baggage compartment. This shelf will prove very handy for storing hats, brief cases, and small articles.


MAP POCKET

MAP POCKETS.

A map pocket is incorporated in the back of each front seat. You will

find these pockets very handy for storing maps and flying aids.



COAT HANGER HOOK.

For your convenience, a coat hanger hook has been installed in the cabin ceiling above the back of the rear seat. Your coats can be hung, full-length and wrinkle-free, between the back of the rear seat and the baggage shelf, without interfering with the comfort of rear-seat passengers.

LOADING YOUR CESSNA 170

There are several different ways to "load" your Cessna, all of which are satisfactory. However, from experience, we have found the following sequence of steps to be most satisfactory under average loading conditions:

First, load your baggage behind the rear seat.

Next, load the front seats.

Finally, load the rear seat.

SECTION II

operating check list

AFTER FAMILIARIZING YOURSELF with the equipment of your Cessna 170 , your primary concern will normally be the operation of your airplane. This section lists, in Pilot's Check List form, the steps necessary to operate your Cessna efficiently and safely. It is not a check list in its true form as it is considerably longer, but it does cover briefly all of the points that you would want to or should know concerning the operation of your Cessna 170.

The flight and operational characteristics of the Model 170 Cessna are normal in all respects. There are no "unconventional" characteristics or operations that need to be mastered. All controls respond in the normal way within the entire range of operation of the airplane.

A. BEFORE ENTERING THE AIRPLANE.

(1) Check oil level. Do not operate on less than four quarts. Fill for extended flights. For seaplane, refer to Section III Operating Details.
(2) On first flight of the day, drain a small (one-ounce) quantity of fuel from fuel strainer drain to insure that no free water is in the fuel line.
(3) Check quantity of fuel (two gages).
(4) Make a visual check of the airplane.
(5) Remove control locks, if installed.

B. BEFORE STARTING THE ENGINE.

(1) Operate controls and make a rapid visual check for proper operation.
(2) Make sure windshield is clean for maximum visibility.
(3) Adjust seat for comfort and distance to rudder pedals.
(4) Check brakes and set parking brake.
(5) Fasten and check safety belt.

C. STARTING THE ENGINE.

(1) Set carburetor heat to "cold" (full in).
(2) Set mixture control to "full rich" (full in).
(3) Set fuel tank selector to "both tanks". (Take-off on less than ¼ tank is not recommended.)

(4) In normal weather temperatures use two to four strokes of the engine primer just before the engine start. In extremely cold (−20°F) weather prime the engine as follows:
Clear propeller.
Turn master switch "on".
With magneto switch "off" and throttle closed, prime the engine four to ten strokes as the engine is being turned over.
(5) Turn magneto switches "on".
(6) Open throttle ⅛ (to idle position) and start engine by pulling starter control. Note: In extremely cold weather a few strokes of the primer as the engine fires will enable the engine to keep running. (Avoid over-priming.) After priming, push primer all the way in and turn to locked position to avoid possibility of engine drawing fuel through the primer. *Do not pull out on starter* for a second starting attempt until engine has come to a complete stop from the first attempt. Failure to do this may result in damage to the starting gear.

D. WARM-UP AND GROUND TEST.

(1) Do not allow engine to operate at more than 800 r.p.m. for first 60 seconds after starting. (Especially important in cold weather as lubricating oil will be slow in circulating.) After starting if 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 may cause serious engine damage.
(2) Avoid the use of carburetor heat unless icing conditions prevail.
(3) After two to three minutes running at 800 r.p.m., open the throttle gradually to 1000 r.p.m. and allow to run for three to five minutes or until engine is sufficiently warm for take-off. Warm-up may be accomplished during taxiing. Do not overheat the engine by running engine at high speed while on the ground. It is not necessary to run the engine until oil is "hot"; if engine accelerates smoothly and oil pressure remains steady, you are ready for take-off.

E. BEFORE TAKE-OFF.

(1) Apply toe brakes.
(2) Set altimeter.
(3) Set trim tab to "take-off" position.
(4) Check oil pressure—should show 30 to 40 lbs./sq. in. (Minimum idling oil pressure—5 lb./sq. in.).
(5) Check engine magnetos at 1600 r.p.m. by opening the throttle and switching off separately each magneto momentarily.

The maximum allowable r.p.m. drop on either magneto is 100 r.p.m. Switch to both magnetos before continuing.

(6) Check carburetor heat and leave on full heat until take-off.

(7) Full throttle r.p.m. check is optional but not recommended. The engine should run smoothly and turn, with carburetor heat off, 2230 to 2330 r.p.m. The engine should idle between 300 and 400 r.p.m. Except for short check do not idle below 600 r.p.m.

F. TAKE-OFF.

(1) Set flaps (20° — second notch) if desired.
(2) Release brakes.
(3) Turn carburetor heat "off" (full in).
(4) For take-offs use full throttle, or power required.
(5) Heels on the floor to avoid dragging brakes.
(6) Climb at full throttle, or power required for safety. Best rate of climb—88 m.p.h. indicated airspeed.
(7) If flaps were used, retract them slowly as soon as a reasonable altitude has been attained. (See "Use of Flaps For Take-Off" paragraph on page 27.)

G. CRUISING.

(1) Recommended cruising r.p.m.—2450.
(2) Trim airplane by adjusting elevator tab.
(3) Oil pressure—30-40 lbs./sq. in.
(4) Oil temperature—within green arc range.
(5) Lean mixture to maximum r.p.m.; then enrichen mixture until r.p.m. begins to decrease.
(6) Lean mixture as required to obtain smooth engine operation when using carburetor heat in cruise.

H. BEFORE LANDING.

(1) Set fuel valve to both tanks.
(2) Set mixture control full rich (full in).
(3) Apply full carburetor heat before closing throttle. If a long letdown is available, avoid "chopping" the throttle.
(4) Suggested glide speed—70-75 m.p.h.
(5) Lower flaps as desired (do not lower flaps when indicated airspeed is above 100 m.p.h.)
(6) Retain cruising elevator trim tab setting.

I. AFTER LANDING.

(1) Raise flaps.
(2) Normal glide and taxiing should cool engine sufficiently;

however, if excessive amount of taxiing is necessary, allow engine to cool before cutting ignition by allowing to idle at 800 r.p.m. two to three minutes.

(3) Stop engine by pulling mixture control knob to full lean position. *Do not open throttle as engine stops.*
(4) After engine stops, turn ignition switch "off".
(5) Turn all switches "off". Be sure—otherwise your battery may run down over night.
(6) Set parking brake, if required.

SECTION III

operating details

THE FOLLOWING PARAGRAPHS cover in somewhat greater detail the items entered as a Check List in Section II. Every item in the list is not discussed here. Only those items of the Check List that required further explanation will be found in this section.

CLEARING THE PROPELLER.

"Clearing" the propeller should become a habit with every pilot. Making sure no one is near the propeller before the engine is started should be a positive action. Yelling "clear" in loud tones is best. An answering "clear" from ground crew personnel is the response that is required.

ENGINE OPERATING PROCEDURE.

You have a new Continental engine made to the highest standards available. This engine has been carefully operated in its run-in and flight tests, so that the engine, as you receive it, is in the best possible condition. Proper engine operation will pay you rich dividends in increased engine life. The following points are mentioned so that you may receive the maximum of trouble-free operation and low maintenance cost.

1. *Starting:* Ordinarily the engine starts best and smoothly with proper priming and the throttle opened ⅛ inch. Check the oil pressure as soon as engine is running.
2. *Warm Up:* The engine should be warmed up for approximately 3 minutes at 800 to 1000 r.p.m. headed into the wind where possible. The remainder of the warm-up should be accomplished while taxiing and should not exceed 1600 r.p.m.
3. *Take-Off:* Most engine harm results from improper operation before the engine is properly warmed and temperatures stabilized. For this reason, on your initial take-off, use maximum power only when and as necessary for safe operation of the airplane, reducing power as quickly as possible.
4. *Cruising:* Any cruising r.p.m. between 2200-2450 (green arc on tachometer) may be selected. The recommended cruising r.p.m. is 2450, which will supply the most practical cruise performance when such factors as cruising speed, miles per gallon, fuel consumption, engine efficiency, and engine life are considered. At any cruising altitude, adjust mixture control for best rich power by pulling knob out until maximum r.p.m. is obtained with fixed throttle; then push control forward toward "full rich" until r.p.m. starts to decrease. Readjust for each change in power, altitude, or carburetor heat.
5. *Let-Down:* The cruising glide should begin far enough away

from destination so that a gradual descent can be made with power on, with mixture full rich. On approaching the landing field, the engine should be throttled down gradually and the glide, with closed throttle, should not be longer than necessary.

6. *Idling Engine:* Your engine is set to idle well below 600 r.p.m., but at engine speeds below 600 r.p.m., satisfactory piston lubrication cannot be maintained. Therefore, it is recommended that the engine not be allowed to operate below 600 r.p.m. for prolonged intervals.
7. *Stopping Engine.* The engine should always be allowed to idle (600 to 800 r.p.m.) for not more than two minutes before stopping. This not only permits the temperature of the various engine parts to equalize, but works oil up around the pistons and rings, thus leaving the engine in good condition for the next start. Providing the engine has been idled for approximately two minutes, it is recommended that the engine be stopped by using the mixture control. The procedure should be to place the mixture control in full lean position (pull control out as far as possible). *Do not open throttle as engine stops.* After the engine stops, turn the ignition switch to the "off" position.

TAXIING.

TAXIING (LANDPLANE).

Taxiing is facilitated by the use of a steerable tailwheel which operates with the rudder. The tailwheel steering mechanism remains engaged when the tailwheel is operated through an arc of 16° each side of neutral and it automatically becomes full swiveling when turned to a greater angle. The airplane may thus be turned about in its own length, if desired, yet is fully steerable while taxiing. By using the steerable tailwheel and by keeping the heels on the floor, excessive heat and unnecessary wear on the brakes can be avoided. The heels on the floor precaution applies also to take-off.

SEAPLANE TAXIING AND ENGINE OPERATION.

In hot weather operation, when extensive water taxiing is involved and/or numerous take-offs are made, it is recommended that a maximum of six (6) quarts of oil be in the engine.

TAKE-OFF.

LANDPLANE AND SKIPLANE TAKE-OFF.

Normal Take-Off.

(1) Carburetor heat—"off" (full in).
(2) Advance throttle slowly to full throttle.
(3) On landplane, avoid dragging brakes by keeping heels on floor.
(4) Maintain a tail-low attitude throughout the take-off run.
(5) Climb at 85 to 95 m.p.h.

Minimum Run Take-Off.

(1) Wing flaps — Second Notch (20°).
(2) Carburetor heat—"off" (full in).
(3) Line up airplane on runway and advance throttle to full throttle.

(4) Release brakes.
(5) Avoid dragging brakes by keeping heels on floor.
(6) Maintain a tail-low attitude and let the airplane fly itself off.
(7) Climb at 62 m.p.h. indicated airspeed until obstacle is cleared.
(8) Retract flaps after a safe altitude and airspeed are obtained.

USE OF FLAPS FOR TAKE-OFF.

For normal flying conditions the use of 20 degree (second notch) flaps will shorten the take-off distance to clear a 50 foot obstacle. This is a result of slower forward speeds even though the use of flaps lessen the rate of climb. However, as altitudes and outside air temperatures increase, drag off-sets lift until eventually the use of flaps increase the take-off distance. It is recommended that the take-off chart on page 37 be consulted to determine whether the use of flaps is desirable for take-off. For the same reasons 30 and 40 degree flaps are not recommended at any time for take-off.

REMEMBER

Don't, under marginal conditions, leave flaps on long enough that you are losing both climb and airspeed.

Don't release flaps with airspeed *below* "off-flaps" stalling speed. (See stalling speed table on page 28.)

Do slowly release the flaps as soon as you reasonably can after take-off, preferably 50 feet or more over terrain or obstacles.

SEAPLANE TAKE-OFF.

The following techniques were developed during flight tests and are recommended for comfortable safe operation.

1. With usual seaplane technique, the seaplane will "fly-off" the water, flaps up. "Horsing the seaplane off" or breaking one float is unnecessary.
2. For shorter take-offs, set the flaps in the second notch (20°) before start of take-off and "fly-off" as with flaps up. Use of this method is particularly desirable in rough water conditions to keep the tail surfaces higher over the float wash and to aid in getting on the step.
3. For extreme overload conditions, breaking one float or lowering flaps as required when maximum step speed has been reached will generally break the seaplane clear of the water.
4. Under certain loading conditions, porpoising may be encountered while on the step during the take-off run. This is caused by the seaplane being in an excessively nose-low attitude. The porpoising is very readily stopped by increasing the back pressure on the wheel and allowing the seaplane to accelerate to take-off speed.

CLIMB.

For data, see climb performance chart in Section V. The best climb speed range from sea level to 7000 feet is 85 to 78 m.p.h. indicated airspeed.

CRUISE.

For cruise data, see cruise performance chart in Section V.

STALLING SPEEDS
POWER OFF, MPH I.A.S.

CONDITION	ANGLE OF BANK 0°	20°	40°	60°
Flaps Up	58	60	66	82
Flaps Down 10°	56	58	64	79
Flaps Down 20°	54	55	61	75
Flaps Down 40°	52	54	59	73

STALLS.

The stalling speeds shown above are for forward c.g., normal category, full gross weight conditions. Other loadings result in slower stalling speeds. The horn and light stall warning indicator produces a steady signal 3 to 5 m.p.h. before the actual stall is reached and remains on until the airplane flight attitude is changed. Fast landings will not produce a signal.

The stall characteristics are conventional for the flaps up and flaps down condition. Slight elevator buffeting may occur just before the stall with flaps down.

LANDING.

LANDPLANE AND SKIPLANE LANDING.

Normal Landing.

(1) Wing flaps — fourth notch (40°) below 100 m.p.h.

(2) Normal glide — 70 m.p.h. (wing flaps down).

(3) The flaps on the 170 allow steep, well controlled approaches making slips unnecessary. *Slips with full flaps are to be avoided* because if the slip is extreme enough at a relatively high airspeed, the airflow is disrupted over the tail surface resulting in a

sudden and steep, downward pitch of the nose.

(4) Landing technique is conventional.

(5) Landplane may use heavy braking initially in the landing roll.

Minimum Run Landing (Landplane only).

(1) Use full wing flaps (40°).

(2) Maintain a steady power off glide at 60 m.p.h. indicated air speed.

(3) Make a normal three-point landing.

(4) Upon contact with ground, apply full brakes, releasing gradually as speed decreases. *Control wheel should be held full back when brakes are applied.*

SEAPLANE LANDING.

Use flaps as desired. *Avoid slips with full flaps (40°).*

COLD WEATHER OPERATION.

Prior to starting on cold mornings, it is advisable to pull the propeller through several times by hand to "break loose" or "limber" the oil, thus conserving battery energy. During cold weather operations no indication will be apparent on the gage prior to take-off if outside air temperatures are very cold. After a suitable warm-up period (2-5 minutes at 1000 r.p.m.) accelerate the engine several times to higher engine r.p.m. If the engine accelerates smoothly and the oil pressure remains normal and steady, the airplane is ready for take-off.

Where the oil pressure gage is extremely slow in indicating pressure in cold weather it may be advisable to fill the pressure line to the gage with kerosene.

For operation at temperatures consistently below freezing, a winterization kit consisting of plates for closing cowl openings is available at your distributor or dealer for a nominal charge.

The airplane is eligible for use with skis. Your distributor or dealer will be glad to give you details on their installation on your airplane.

SECTION IV

operating limitations †

OPERATIONS AUTHORIZED.

Your Cessna 170 with standard equipment as certificated under CAA Type Certificate No. 799 is approved for day and night operation under VFR.

Additional optional equipment is available to increase its utility and to make it authorized for use under IFR day and night. When operated for hire at night, certificated flares are required. An owner of a properly equipped 170 is eligible to obtain approval for its operation on single engine scheduled airline service on VFR.

MANEUVERS—NORMAL CATEGORY.

The Model 170 exceeds the requirements of the Civil Air Regulations, Part 3, set forth by the United States Government for airworthiness. Spins and aerobatic maneuvers are not permitted in normal category airplanes in compliance with these regulations. In connection with the foregoing, the following gross weights and flight load factors apply:

	LANDPLANE AND SKIPLANE	SEAPLANE
Gross Weight	2200 lbs.	2106 lbs.
Flight Load Factor* Flaps Up	+3.8 −1.52	+3.8 −1.52
Flight Load Factor* Flaps Down	+3.5	+3.5

MANEUVERS—UTILITY CATEGORY.

This airplane is not designed for purely aerobatic flight. However, in the acquisition of various certificates such as commercial pilot, instrument pilot and flight instructor, certain maneuvers are required by the CAA. All of these maneuvers are permitted in the Cessna 170 when operated in the utility category.

†Your airplane must be operated in accordance with the CAA-approved Airplane Flight Manual. If there is any information in this section which contradicts the CAA-approved manual, it is to be disregarded.

*The design load factors are 150% of the above and in all cases the structure meets or exceeds design loads.

In connection with the Utility category, the following gross weights and flight load factors apply, with recommended entry speeds for maneuvers as shown.

	LANDPLANE AND SKIPLANE	SEAPLANE
Gross Weight	1900 lbs.	1975 lbs.
Flight Load Factor* Flaps Up	+4.4 −1.76	+4.4 −1.76
Flight Load Factor* Flaps Down	+3.5	+3.5
Steep Turns	115 m.p.h.	100 m.p.h.
Spins	Slow Deceleration	Prohibited
Stalls (Except Whip Stalls)	Slow Deceleration	Slow Deceleration
Lazy Eights	115 m.p.h.	110 m.p.h.
Chandelles	115 m.p.h.	110 m.p.h.

Aerobatics that may impose high inverted loads should not be attempted. The important thing to bear in mind in flight maneuvers is that the Cessna 170 is clean in aerodynamic design and will build up speed quickly with the nose down. Proper speed control is an essential requirement for execution of any maneuver and care should always be exercised to avoid excessive speed which in turn can impose excessive loads. In the execution of all maneuvers avoid abrupt use of controls.

AIRSPEED LIMITATIONS.

The following are the certificated true indicated airspeed limits:

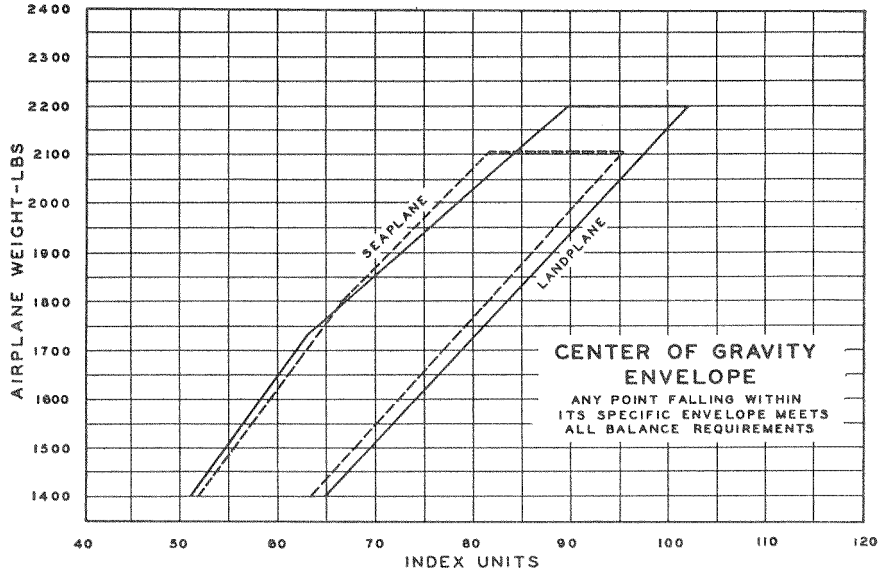
	LANDPLANE AND SKIPLANE	SEAPLANE
Glide or Dive (smooth air) *(red line)*	160 m.p.h.	140 m.p.h.
Level Flight or Climb (normal range marked with green arc; caution range marked with yellow arc, 140 to 160 m.p.h., seaplane 110 to 140 m.p.h.)	140 m.p.h.	110 m.p.h.
Flap Extension and Operation (flap operating range marked by white arc)	100 m.p.h.	100 m.p.h.

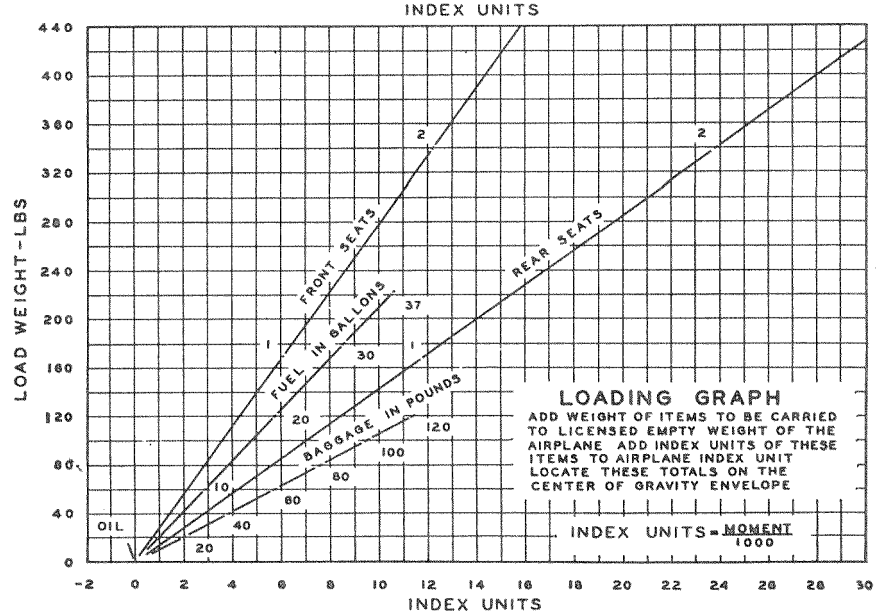
*The design load factors are 150% of the above and in all cases the structure meets or exceeds design loads.

ENGINE OPERATING LIMITATIONS.

Power and Speed ..... 145 b.h.p. at 2700 r.p.m.
Instrument Markings:
- Oil Temperature Maximum ..... Red Line
- Oil Pressure:
  - Minimum Idling ..... 5 p.s.i.
  - Normal Operating ..... 30 to 40 p.s.i.
- Tachometer:
  - Normal Operation ..... 2200-2450 (green arc)
  - Cautionary Range 2450-2700
  - Maximum Allowable ..... 2700 (red line)

WEIGHT AND BALANCE.





EXAMPLE: Empty weight of 1220 lb. moment of 47,900 in. lb. or index of 47.9.

	WT.	INDEX
EMPTY WEIGHT (LICENSED)	1220	+47.9
OIL	15	−0.3
PILOT & PASSENGER (1)	340	+12.2
PASSENGERS (2)	340	+23.8
FUEL (MAXIMUM) 37 GAL.	222	+10.7
BAGGAGE (TO MAKE GR. WT.)	63	+6.0
Total	2200	100.3

Locate this point (2200-100.3) on the center of gravity envelope graph, and, since the point falls within the envelope, the above loading meets all balance requirements.

All aircraft are designed for certain limit loads and balance conditions. These specifications for your 170 are charted on page 34.

A weight and balance report and equipment list is furnished with each airplane. All the information on empty weight c.g. and allowable limits for your particular airplane as equipped when it left the factory is shown. Changes in the original equipment affecting weight empty c.g. are required by the C.A.A. to be recorded in the repair and alteration form 337.

Using the weight empty, c.g. location, and moment from the weight and balance report and following the example on Page 35 the exact moment may be readily calculated which when plotted on the upper chart will quickly show whether or not the c.g. is within limits.

The utility category is solely for the purpose of instructing and training in certain flight maneuvers. The weight and balance considerations limit the airplane to a pilot with or without co-pilot, full gas, no baggage and no rear seat baggage *or passenger.* The utility category has not been included in the weight and balance charts.

SECTION V

operational data

PERFORMANCE INFORMATION—LANDPLANE.

The following operational data are compiled from actual tests with airplane and engine in good condition and using average piloting technique. Data are based upon a gross weight of 2200 lbs. with McCauley propeller installed, and full throttle for take-off and climb. Performance figures are for zero wind velocity and hard surface level runway. Speeds are true indicated airspeeds.

	Item			Altitude	Outside Air Temperature					
					0°F	20°F	40°F	60°F	80°F	100°F
Flaps 40°	*Landing Distance* (Ft.)* To land over 50 ft. obstacle at 67 MPH TIAS approach (Roll 40% distance shown)			Sea Level	1035	1070	1110	1145	1180	1215
				2000 Ft.	1100	1140	1175	1210	1245	1280
				4000 Ft.	1165	1205	1240	1280	1315	1350
				6000 Ft.	1235	1270	1310	1345	1380	1415
				7000 Ft.	1270	1305	1345	1380	1415	1450
Flaps Up	*Take-off Distance* (Ft.)* To clear 50 ft. obstacle at 76 MPH TIAS (Ground run approx. 40% distance shown)			Sea Level	1460	1580	1700	1820	1930	2050
				2000 Ft.	1780	1910	2050	2190	2340	2500
				4000 Ft.	2140	2290	2450	2610	2790	3000
				6000 Ft.	2550	2740	2930	3140	3360	3620
				7000 Ft.	2820	3040	3260	3500	3750	4040
Flaps 20°	*Take-off Distance* (Ft.)* To clear 50 ft. obstacle at approx. 67 MPH TIAS (Ground run approx. 38% distance shown)			Sea Level	1230	1350	1480	1625	1795	1995
				2000 Ft.	1540	1700	1860	2050	2250	2450
				4000 Ft.	1920	2110	2340	2580	2855	3140
				6000 Ft.	2450	2720	3000	3300	3620	3990
				7000 Ft.	2780	3100	3420	3735	4080	4455
Flaps Up	*Normal Rate of Climb* Feet per min.	Best Climb Speed TIAS	89	Sea Level	760	740	715	690	670	645
			86	2000 Ft.	670	645	625	600	580	555
			84	4000 Ft.	580	555	535	510	485	465
			81	6000 Ft.	490	465	440	420	395	370
			79	7000 Ft.	445	420	395	370	345	325

* Both take-off and landing distances are reduced approximately 10% for each 6 m.p.h. wind velocity.

NOTE

Take-off performance figures for 10° flaps are approximately the same as for 20° flaps.

☆ In this area, the use of wing flaps will *increase* take-off distance. Under these atmospheric conditions, it is recommended that take-off be made with flaps up.

PERFORMANCE INFORMATION—SKIPLANE.

Take-Off: Under the most favorable conditions of smooth packed snow at

temperatures of approximately 30° F., the skiplane take-off distance is approximately 10% greater than that shown for the landplane.

NOTE

In estimating take-off distances for other conditions, caution should be exercised because lower temperatures or other snow conditions will usually increase these distances.

Landing: Under the most favorable conditions of smooth packed snow at temperatures of approximately 30° F., the skiplane landing distance is approximately 20% greater than that shown for the landplane.

NOTE

In estimating landing distances for other conditions, caution should be exercised because other temperatures or other snow conditions may either decrease or increase these differences.

Climb: Skiplane rate of climb is approximately 5% less than that shown for the landplane.

PERFORMANCE INFORMATION—SEAPLANE.

All performance is given for 2106 pounds gross weight and with zero wind velocity and zero current. Take-off and climb performance figures given below were obtained using a propeller with a static r.p.m. of 2350. Performance will be improved using a propeller with a higher static r.p.m.

Item				Altitude	Outside Air Temperature — °F				
					20°F	40°F	60°F	80°F	100°F
Flaps Down 40°	*Landing Distance* (Ft.)* To land over 50 ft. obstacle at 68 MPH TIAS approach. (Water run approx. 35% distance shown)			Sea Level	1140	1180	1225	1270	1310
				2000 Ft.	1220	1270	1310	1355	1400
				4000 Ft.	1305	1350	1400	1435	1490
				6000 Ft.	1395	1440	1485	1530	1575
				7000 Ft.	1435	1480	1530	1575	1620
Flaps Down 20°	*Take-off Distance* (Ft.)* To clear 50 ft. obstacle at 75 MPH TIAS (Water run approx. 60% of distance shown)			Sea Level	1830	1990	2120	2240	2390
				2000 Ft.	2260	2440	2620	2790	2980
				4000 Ft.	2780	3020	3250	3480	3700
				6000 Ft.	3450	3760	4050	4340	4640
				7000 Ft.	3930	4270	4640	5000	5380
Flaps Up	*Normal Rate of Climb* Feet per min.	Best Climb Speed TIAS	73	Sea Level	610	595	585	570	555
			72	2000 Ft.	535	520	510	495	480
			72	4000 Ft.	450	440	425	410	400
			71	6000 Ft.	375	360	345	330	315
			70	7000 Ft.	335	320	305	290	275

* Both take-off and landing distances are given in feet and are reduced approximately 10% for each 6 MPH wind velocity.

SEAPLANE CRUISE PERFORMANCE.

Cruising performance and fuel consumption obtained by flight tests are presented in the following table for a gross weight of 2106 pounds. These data were obtained when the sea level temperature was 90° F. and standard temperature lapse rate prevailed. Range is computed for zero wind and total usable fuel (37 gallons).

Pressure Altitude 3000 Ft.				Full Rich				Lean			
RPM	BHP	% BHP	TAS MPH	Gal./ Hour	End Hours	Mi./ Gal.	Range Miles	Gal./ Hour	End Hours	Mi./ Gal.	Range Miles
2700	125	86	114	13.3	2.8	8.6	317	10.5	3.5	10.9	402
2600	108	75	110	11.1	3.3	9.9	366	9.0	4.1	12.2	448
2500	96	66	105	9.9	3.7	10.6	392	8.0	4.6	13.1	485
2400	85	59	99	8.9	4.2	11.1	411	7.3	5.1	13.6	501
2300	77	53	94	8.4	4.4	11.2	415	6.7	5.5	14.0	518
2200	68	47	88	7.7	4.8	11.4	421	6.0	6.2	14.7	543
2100	61	42	82	7.3	5.1	11.2	415	5.5	6.7	14.9	551
2000	54	37	74	6.9	5.4	10.7	396	5.1	7.3	14.5	536

Pressure Altitude 6000 Ft.				Full Rich				Lean			
RPM	BHP	% BHP	TAS MPH	Gal./ Hour	End Hours	Mi./ Gal.	Range Miles	Gal./ Hour	End Hours	Mi./ Gal.	Range Miles
2700	106	73	108	11.3	3.3	9.6	354	8.9	4.2	12.1	448
2600	95	66	104	9.8	3.8	10.5	390	7.9	4.7	13.1	485
2500	85	59	99	8.8	4.2	11.3	416	7.1	5.2	14.0	516
2400	76	53	93	8.0	4.6	11.6	429	6.5	5.7	14.3	529
2300	68	47	85	7.4	5.0	11.5	425	5.9	6.3	14.4	533
2200	61	42	73	6.9	5.4	10.6	392	5.4	6.9	13.5	500

LANDPLANE AND SKIPLANE CRUISE PERFORMANCE.

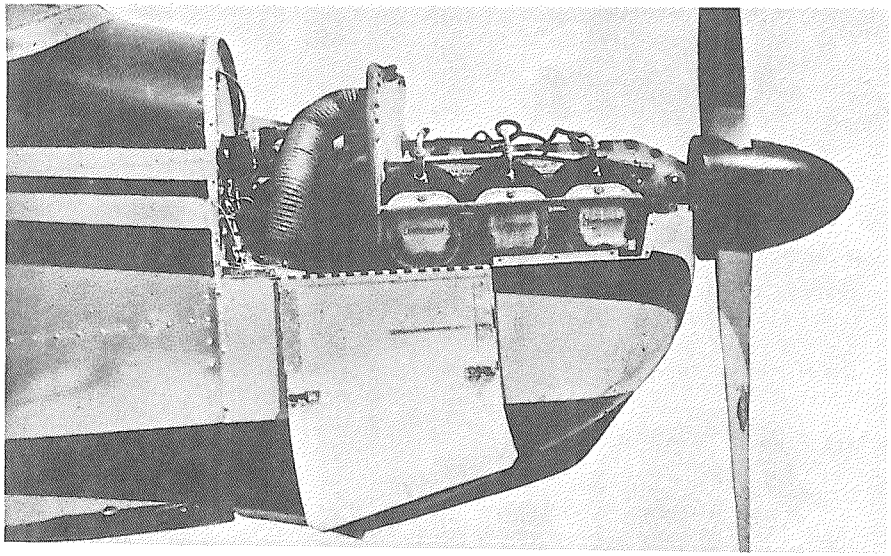
Landplane and Skiplane Cruise: The following table is for full gross weight and standard conditions. Fuel consumption (gallons per hour) will decrease as flight altitude is increased when maintaining a constant r.p.m. Ranges and duration are computed for zero wind and total usable fuel (37 gal.).

CRUISE PERFORMANCE WITH LEAN MIXTURE

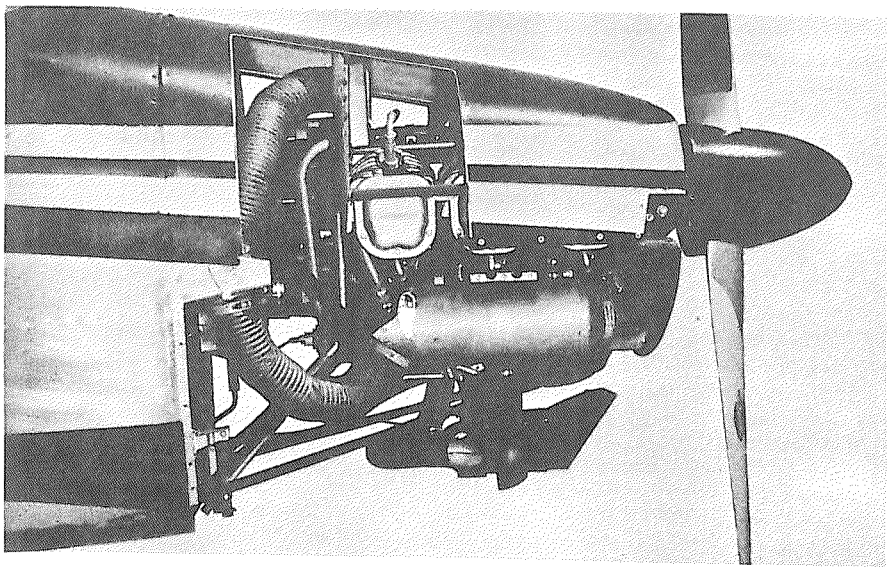
ALT	RPM	BHP	% BHP	TAS MPH	Gal./ Hour	End Hours	Mi./ Gal.	Range Miles
S.L.	2100	69	48	101	6.0	6.2	16.8	621
	2200	79	55	109	6.9	5.4	15.8	585
	2300	88	61	115	7.7	4.8	14.9	551
	2400	100	69	121	8.8	4.2	13.8	511
	2500	112	77	126	9.8	3.8	12.8	474
	2600	124	86	130	10.9	3.4	11.9	440
	2700	143	99	136	12.5	3.0	10.9	404
2500	2100	63	44	98	5.5	6.7	17.8	659
	2200	71	49	104	6.2	6.0	16.8	621
	2300	79	54	111	6.9	5.4	16.1	595
	2400	89	61	117	7.8	4.7	15.0	555
	2500	100	69	123	8.7	4.3	14.2	525
	2600	111	77	128	9.7	3.8	13.2	488
	2700	123	85	133	10.8	3.4	12.3	455
5000	2100	59	41	95	5.2	7.1	18.3	676
	2200	65	45	101	5.7	6.5	17.7	655
	2300	73	50	108	6.4	5.8	16.9	625
	2400	81	56	114	7.1	5.2	16.1	596
	2500	91	63	121	7.9	4.7	15.3	566
	2600	102	70	127	8.9	4.2	14.3	529
	2700	109	75	131	9.6	3.9	13.7	507
7500	2100	57	39	93	5.0	7.4	18.6	689
	2200	62	43	99	5.4	6.8	18.3	676
	2300	68	47	106	6.0	6.2	17.7	655
	2400	76	52	112	6.6	5.6	17.0	629
	2500	85	58	119	7.4	5.0	16.1	595
	2600	95	66	126	8.3	4.5	15.2	562
10000	2100	55	38	89	4.8	7.7	18.5	684
	2200	59	41	97	5.2	7.1	18.7	692
	2300	65	45	104	5.7	6.5	18.2	674
	2400	72	50	111	6.3	5.9	17.6	651
	2500	80	55	118	7.0	5.3	16.8	621
12500	2100	54	38	83	4.8	7.7	17.3	640
	2200	58	40	95	5.1	7.3	18.6	688
	2300	63	43	103	5.5	6.7	18.7	692
	2400	69	48	110	6.1	6.1	18.0	666
	2500	76	53	117	6.7	5.5	17.5	647

Ranges and endurances are computed for zero wind, 37 gallons of fuel for cruise, McCauley 7653 propeller, 2200 pounds gross weight, and standard atmosphere conditions. The mixture was leaned for maximum RPM.

NOTE: Cruising performance is dependent upon carburetor metering characteristics, engine and propeller condition, and turbulence of the atmosphere in addition to the controllable variables RPM, altitude, gross weight, etc. These indeterminate variables may account for variations of 10 percent or more in the maximum range.



Either upper or lower halves of engine cowling can be removed without removing the propeller.



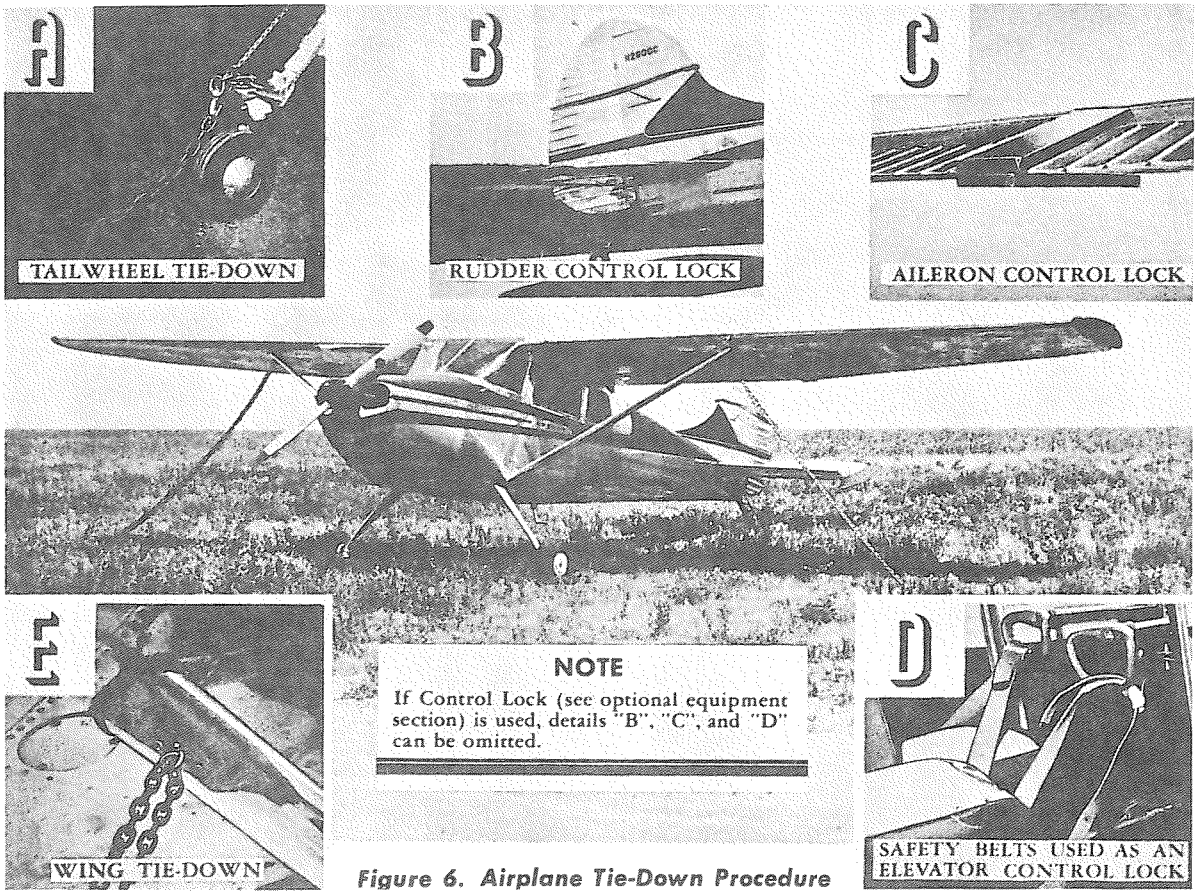


Figure 6. Airplane Tie-Down Procedure

SECTION VI

care of the airplane— owner's responsibilities

IF YOUR AIRPLANE is to retain that new plane performance, stamina, and dependability, certain requirements in its care, inspection, and maintenance must be followed. It is always wise to follow a *planned* schedule of lubrication and maintenance based on the climatic and flying conditions encountered in your locality.

Keep in touch with your Cessna dealer and take advantage of his knowledge and experience. He knows your airplane and how to maintain it. He will remind you when lubrications and oil changes are necessary and about other seasonal and periodic services.

GROUND HANDLING.

Proper ground handling will prevent costly repairs due to careless methods of moving the airplane about on the ground. When maneuvering the airplane by hand, push at the front edge of the stabilizer adjacent to the fuselage, at the root of the dorsal fin, and at the landing gear or the strut root fitting. *Do not lift the empennage by the tip of the elevator;* likewise, *do not shove sidewise on the upper portion of the fin.*

MOORING YOUR AIRPLANE. (See figure 6.)

Proper tie-down procedure is your best precaution against damage to your parked airplane by gusty or strong winds. To tie-down your airplane securely, proceed as follows:

(1) Tie sufficiently strong (700 pounds tensile strength) ropes or chains to the wing tie-down fittings located at the upper end of each wing strut.
(2) Secure the opposite ends of these ropes or chains to tie-down rings suitably anchored to the ground.
(3) Tie a rope or chain around the tail gear spring assembly and secure the opposite end to a tie-down ring in the ground.
(4) Install surface control locks between the flap and aileron of each wing.
(5) Tie control wheels back with front seat belts if control lock (optional equipment) is not available.
(6) Install surface control lock over fin and rudder.

STORAGE.

The all-metal construction in your Cessna makes outside storage of it practical. Inside storage of the plane will increase its life just as inside storage does for your car. If an airplane must remain inactive for a time, cleanliness is probably the most important consideration—whether your airplane is inside or outside. A small investment in cleanliness will repay you many times in not only keeping your

airplane looking like new but in keeping it new. A later paragraph in this section covers the subject in greater detail.

Dirt and mud have the same effect as salt, only to a lesser degree—and do not neglect the engine when storing the airplane. Turn it over by hand or have it turned over every few days to keep the bearings, cylinder walls, and internal parts lubricated. Full fuel tanks will help prevent condensation and will increase fuel tank life.

Airplanes are built to be used and regular use tends to keep them in good condition. An airplane left standing idle for any great length of time is likely to deteriorate more rapidly than if it is flown regularly, and should be carefully checked over before being put back into service.

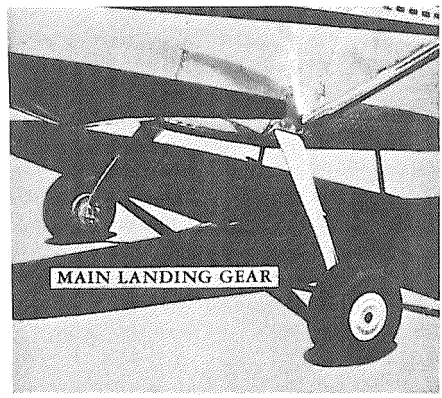
LIFTING AND JACKING.

The airplane may be lifted by an appropriate sling at the engine mount fuselage attachment fitting or by lifting lugs on the engine and a sling around the aft section of the fuselage. The cowl upper halves need not be removed as they can be opened upward for application of the sling at the engine mount fuselage attachment fitting.

Jacking point brackets and hoisting rings are available as optional equipment and insure easy, safe handling of the airplane. A block of hardwood sawed at an angle to fit between the fuselage and the landing gear spring may be used as a jacking point to hold the airplane when working on a wheel or tire. Do not use the brake casting as a jacking point.

LANDING GEAR, WHEELS, AND TIRES.

The landing gear consists of a single tapered spring leaf for each leg which replaces the shock strut, torque arms, coil springs, bearings, and plungers, used in conventional shock strut types. This spring is made from the highest quality chrome vanadium steel, heat treated and shot peened for added fatigue resistance. No maintenance of this spring is necessary other than paint to prevent rusting. Operation of the gear actually makes ground handling, taxiing and landing easier.



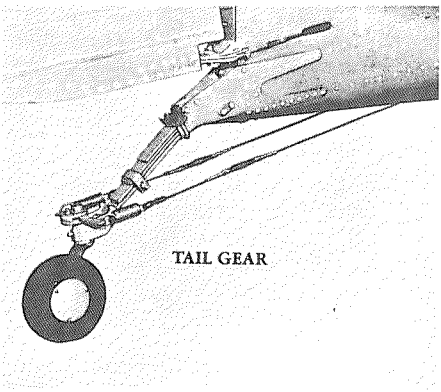
Correct tire pressure is essential to realize the full benefit of the spring landing gear properties and obtain maximum tire wear. Correct tire pressure is 24 lbs./sq. inch gage pressure. An accumulation of oil and grease on tires will have an adverse effect on tire life and should be removed with soap and water. The 6:00 x 6 wheel is a two piece type, cast of magnesium alloy and equipped with a single disc type brake.

Tires are easily removed by jacking up the airplane, removing the wheel,

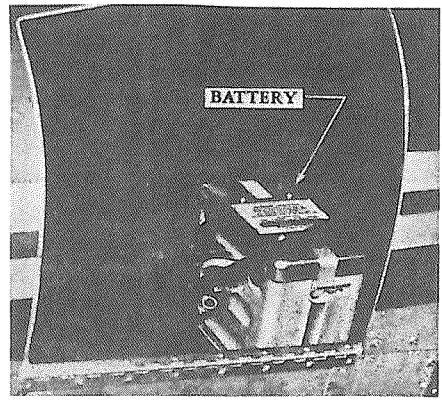
and disassembling the two piece wheel. Be sure that all of the air is out of the tire and tube before taking the wheel apart. The tire is reinstalled by reversing the procedure. In removing the wheel, it is necessary to remove the brake disc anti-rattle clips before the wheel can be taken off the axle. The wheel axle nut should be tightened finger tight plus one-half turn.

The wheel alignment has been properly set at the factory. Wheels should have zero toe in and zero camber at approximately 2000 lbs. weight in the three point taxi attitude. Excessive tire wear indicates an improper wheel setting for the "on the ground" weight at which you are operating. See your dealer or distributor for re-alignment.

The brake master cylinders, located in the cabin at the rudder and brake



pedals, incorporate a reserve reservoir for brake fluid to replace leakage losses. The reservoir should be kept full and this should be checked periodically. Brake fluid should be Univis No. 34 or equivalent (specification 3580 or AN-VV-O-366) petroleum base hydraulic fluid. (Do not use castor oil base hydraulic fluid.) Adjustment of the brake is not necessary. Whenever the brakes feel spongy, bleed out the entrapped air from the top of the actuating cylinder at the brake and refill the hydraulic reservoir at the pedals.



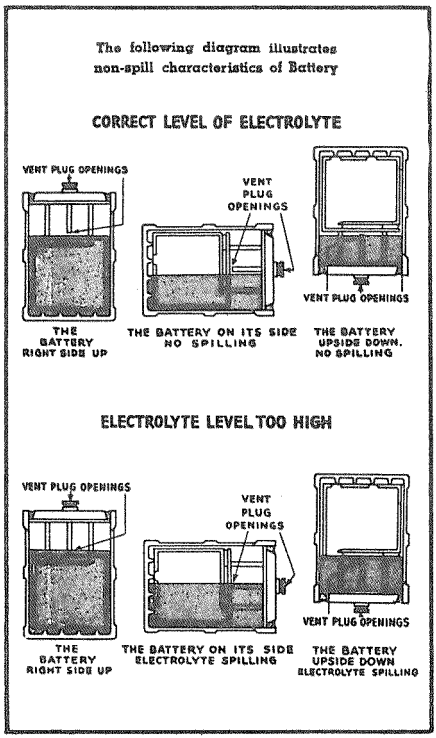
The tailwheel, mounting a solid rubber tire, is the full swiveling steerable type mounted on leaf springs. The tailwheel tire is removed and replaced by taking the tailwheel apart the same as the main wheel.

BATTERY.

The battery is located under the cowling on the left side and is reached by raising the left cowl access door.

Maintain the level of the battery electrolyte at the level of the horizontal baffle plate (the plate with the holes in it) which is approximately two inches below the filler plug by adding distilled water as required. Obtain the water level but *do not* fill above the plate mentioned above. This water level should be maintained when the battery is in the level position and, therefore, approximately the forward

one-quarter of the plate should not be covered when the battery is in the airplane with the airplane in three point position on the ground.



The space above the horizontal plate is a fluid reservoir when the battery is tipped to the side or inverted. When the electrolyte level is too high, spillage of fluid will result when acrobatic maneuvers are performed and as a result, the proper concentration of acid will be destroyed. Sponge off any spilled acid and corrosion products with soda water solution to neutralize acid, then rinse with clear water. Do not use excessive amounts of soda water.

Keep battery connections tight and clean, otherwise excessive voltage may be generated and damage other electrical equipment. Control of the charging current and voltage is accomplished by the generator regulator mounted on the firewall. *Only those persons familiar with the operation, adjustment, and repair of the control should be permitted to remove the cover of the device.*

The ammeter indicates the generator charging rate which will normally be in the neighborhood of 4 amps. Discharge generally indicates electrical energy drain in excess of generator output—resulting from:

(1) Use of a large number of electrical units.
(2) Malfunctioning generator.
(3) A short in the electrical system.

(2) and (3) require corrective measures. Failure of the ammeter to indicate will generally be a wiring problem or a malfunctioning indicator.

The airplane should not normally be operated with the master switch in the "off" position nor should it be operated without a battery or with battery disconnected. Damage to the generator and the voltage regulator may be the result.

The master switch on the instrument panel operates a solenoid located at the battery. Occasionally when the battery is allowed to get sufficiently low, it will not have enough energy to actuate the solenoid when the master switch is turned on resulting in the generator being unable to charge the battery. In this case, the battery should be removed and recharged.

THE PLEXIGLAS WINDSHIELD AND WINDOWS.

The windshield is a single piece, full floating, molded unit of "Longlife" plastic. To clean plexiglas, wash with plenty of soap and water, using the palm of the hand to feel and dislodge any caked dirt or mud. A soft cloth, sponge, or chamois may be used, but only as a means of carrying water to the plastic. Dry with a clean, damp chamois. Rubbing with a dry cloth builds up an electrostatic charge on the glass so that it attracts dust particles from the air. Wiping with a damp chamois will remove this charge as well as the dust and is therefore recommended.

Remove oil and grease by rubbing lightly with a cloth wet with kerosene. *Do not use* gasoline, alcohol, benzene, acetone, carbon tetrachloride, fire extinguisher, or de-icing fluid, lacquer thinner or glass window cleaning spray as they will soften the plastic and will cause crazing.

If after removing dirt and grease no great amount of scratching is visible, the plexiglas should be waxed with a good grade of commercial wax. These waxes will fill in minor scratches and help prevent further scratching. The wax should be applied in a thin even coat and brought to a high polish by rubbing lightly with a clean, dry, soft flannel cloth.

ALUMINUM SURFACES.

The Alclad 24ST used in the construction of Cessna airplanes requires a minimum in care to keep the surface bright and polished, neat, and trim looking. The airplane may be washed with clear water to remove dirt and with gasoline, carbon tetrachloride or other non-alkaline grease solvents to remove oil, grease and paint. Household type detergent soap powders are effective cleaners, but should be used cautiously since some of them are strongly alkaline.

Due to the fact that aluminum will not corrode without the presence of moisture, it is recommended that the surfaces be kept waxed to exclude all moisture and thus retain the bright appearance of the metal. Use only waxes and polishes containing no harsh abrasives or grit and only those which are neutral in reaction. Dulled aluminum surfaces may be cleaned effectively with Bon Ami. A cleaning solution consisting of about two quarts of alcohol, two quarts of water and a package of powdered Bon Ami will be found to be particularly effective, followed by waxing to retain the bright appearance.

ENGINE COMPARTMENT.

The engine section should be kept free of an accumulation of oil, grease, and dirt to prevent a fire hazard. The bulkhead between the cabin and the engine section is aluminized iron and may be cleaned with recommended solvent cleaners for grease and oil.

UPHOLSTERY.

Keeping the inside of your airplane clean is no more difficult than taking care of the rugs and furniture in your home. It is a good idea to occasionally take the dust out of the upholstery with a whisk broom and a vacuum cleaner.

If spots or stains get on the upholstery they should be removed as soon

as convenient before they have a chance to soak and dry. Cleaning fluids having a carbon tetrachloride or a naphtha base are recommended. Soap or detergents and water are not recommended for use on the seats since this will remove some of the fire retardant with which the seats have been treated. When using recommended cleaners, the following method is suggested:

(1) Carefully brush off and vacuum all loose particles of dirt.

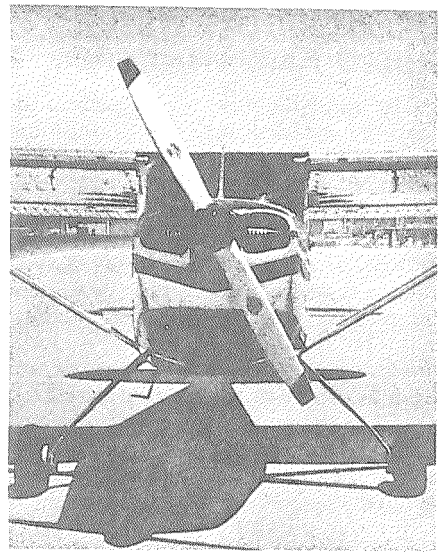
(2) Don't use too much fluid. The seat cushions are padded with "foam rubber," and since volatile cleaners attack rubber, these paddings may be destroyed if the material gets soaked with the cleaner.

(3) Wet a small, clean cloth with the cleaning solution, wring out thoroughly. Then open cloth and allow the fluid to evaporate a trifle.

(4) Tap the spot lightly with the cloth, but don't rub it. This will pick up particles which are too embedded to be removed by brushing. Repeat several times, using a clean part of the cloth each time.

(5) Moisten another piece of clean cloth with cleaner and allow to evaporate until barely damp. Now rub the spot lightly, working from the outside in toward the center. (This, as you probably know, keeps the spot from spreading and is less likely to leave a ring.) If necessary, repeat several times.

(6) Brush again, to remove any further particles which may have become loosened.



METAL PROPELLER.

No maintenance is required to keep your McCauley Met-L-Prop in airworthy condition other than keeping it clean. An occasional wiping of the metal propeller with an oily cloth will result in cleaning off grass and bug stains and will assist materially in corrosion proofing in salt water areas.

CONTROL SYSTEM.

Figures 7 to 13 incl. outline the control system including control travel limits, location of control stops, and the location of turnbuckles. The use of the single .040 brass wire for safetying of turnbuckles is satisfactory and CAA approved. Rigging method for the various systems is outlined below:

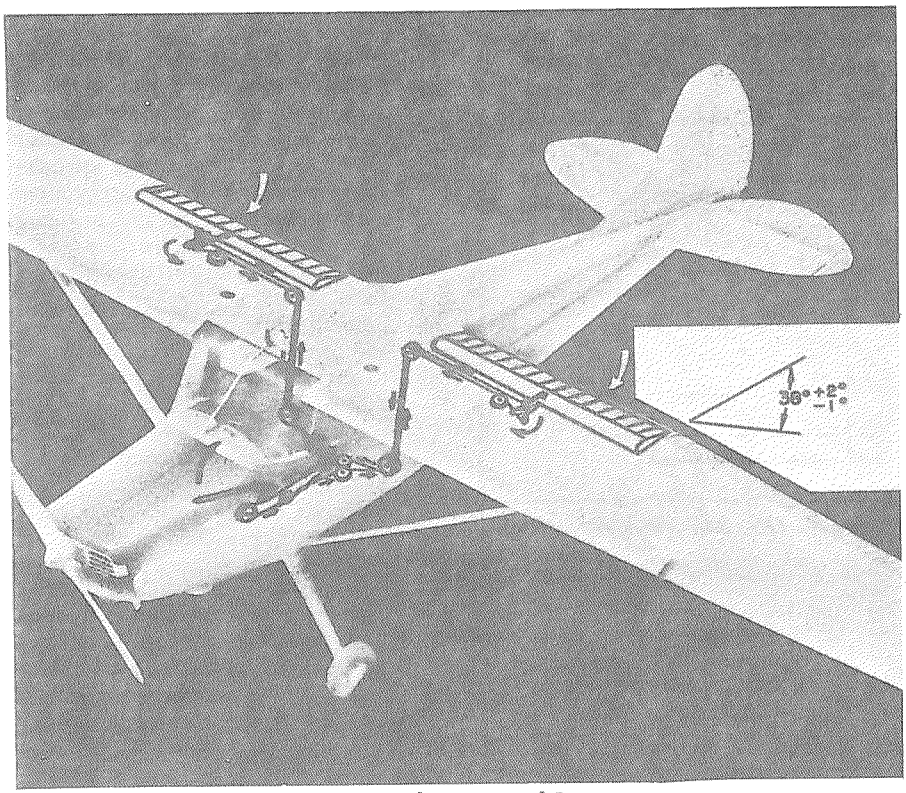


Figure 7. Flap Control System

FLAPS:

1. Place the flap handle in the 0° flap position.
2. Hold the flap in the full-up position by applying firm hand pressure upward and forward against the trailing edge of the flap.
3. Adjust the flap push-pull rod until the flap bellcrank is in the position shown in figure 8.
4. Release the hand pressure that was applied to the flap trailing edge in step 2 and tighten the flap-up cable turnbuckle located under the cabin floor until cable has a tension of 20-40 pounds.
5. Repeat steps 2 thru 4 for the opposite flap.
6. Move flap handle to the flap full-down position.
7. Tighten the turnbuckles of the flap-down cables until the cables have a tension of 20 to 40 pounds.

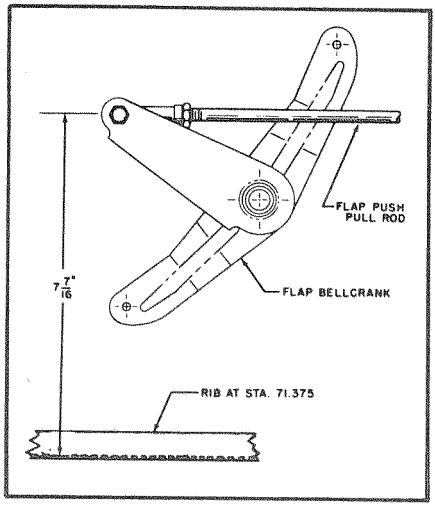


Figure 8. Flap Bellcrank Adjustment

AILERONS.

1. Place control wheels in neutral position and place a neutral bar across the top of both wheels, using tape or a clamp to secure them. Install chain over sprockets, leaving approximately nine links inboard of the chain guard on each side of the turnbuckle.
2. String cables back through system.
3. The ailerons on the Model 170 are restricted in travel by a feature built into the bellcranks. Stops in the bellcrank allow a total travel of 34°. In rigging the ailerons, it is important that the bellcranks are neutralized. Connect the cables and adjust bellcrank to a position as shown in

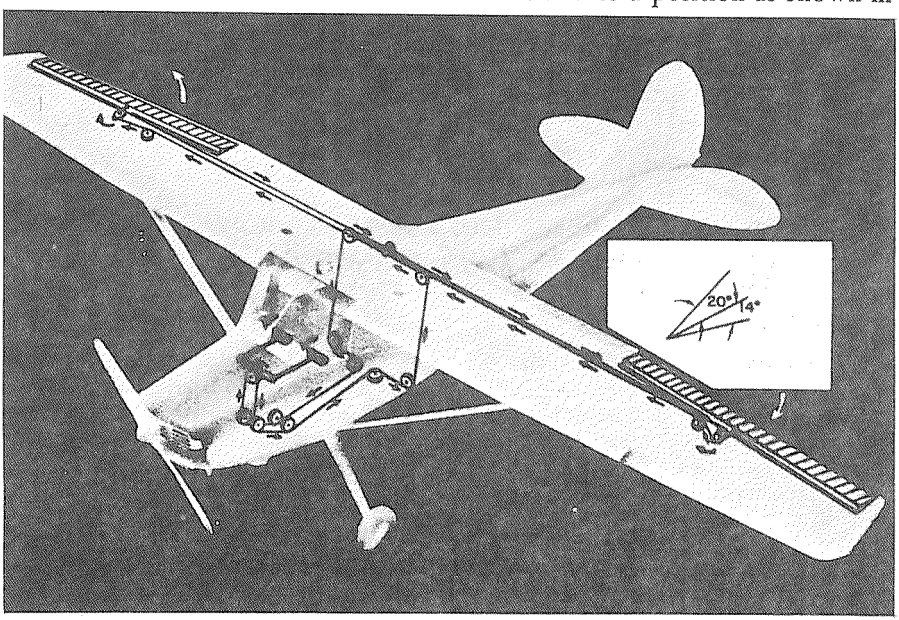


Figure 9. Aileron Control System

figure 10. Cable tension should be approximately 30 pounds with the control wheels in the full-forward position. This position should be maintained in checking the travel.

4. Adjust ailerons to neutral position, by reference to the wing flaps.This adjustment is made by disconnecting the aileron push-pull tube from the bellcrank, and making adjustment on the rod end at the aileron.
5. Check travel which should be 20° up and 14° down, with a tolerance of plus or minus 1°.
6. Any correction necessary on the travel can be made by tightening the direct cable and loosening the carry-through cable, or vice versa, whichever the case may be. Note: After corrections have been made, check aileron in neutral position and make adjustment per instructions in Step 4.

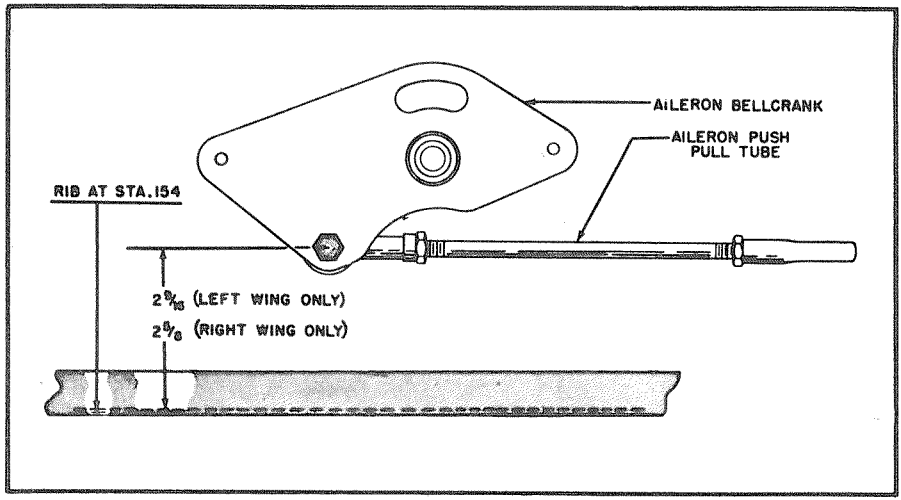


Figure 10. Aileron Bellcrank Adjustment

RUDDER.

Rudder travel is 16° from centerline of the airplane, with a tolerance of plus or minus 1°. Travel is controlled by stops located on the extreme rear bulkhead. Adjustment is made by increasing or decreasing washer thickness under the head of the bolts which serve as stops.

1. Rig stops to allow correct travel of rudder.
2. Install cables, and with the rudder in neutral position, tighten turnbuckles until rudder pedals are neutral, 6″ aft of the firewall, measuring to the hingeline of the brake pedal.
3. Check to make sure cables do not rub side holes in bulkheads.

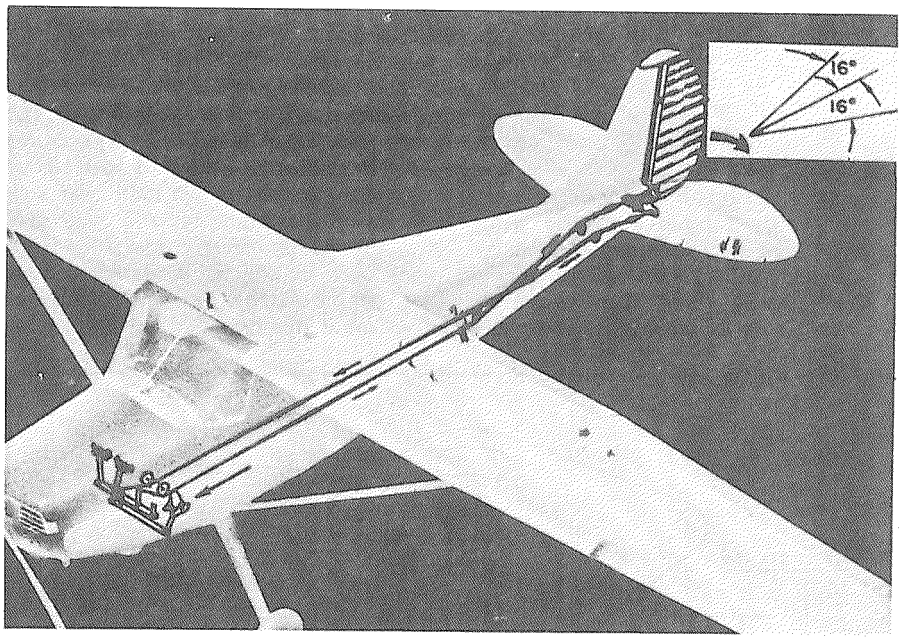
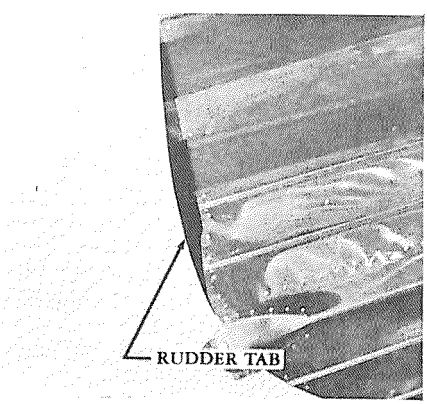


Figure 11. Rudder Control System

RUDDER TAB.

The rudder tab is a fixed tab located on the trailing edge of the rudder and can be set by bending in either direction, the amount desired.



ELEVATORS.

Elevator travel is 26° + 1° — 0° up and 20° + 1° — 0° down. This travel is controlled by two stops located in the rear of the fuselage.

1. Set stops (eccentric blocks) so that elevator has correct travel when the aft elevator bellcrank is in contact with them.
2. With elevator in full down position, the measurement from firewall to the edge of the chain sprocket hub on the control column should be ½".
3. Tighten cables to approximately 30 lbs.

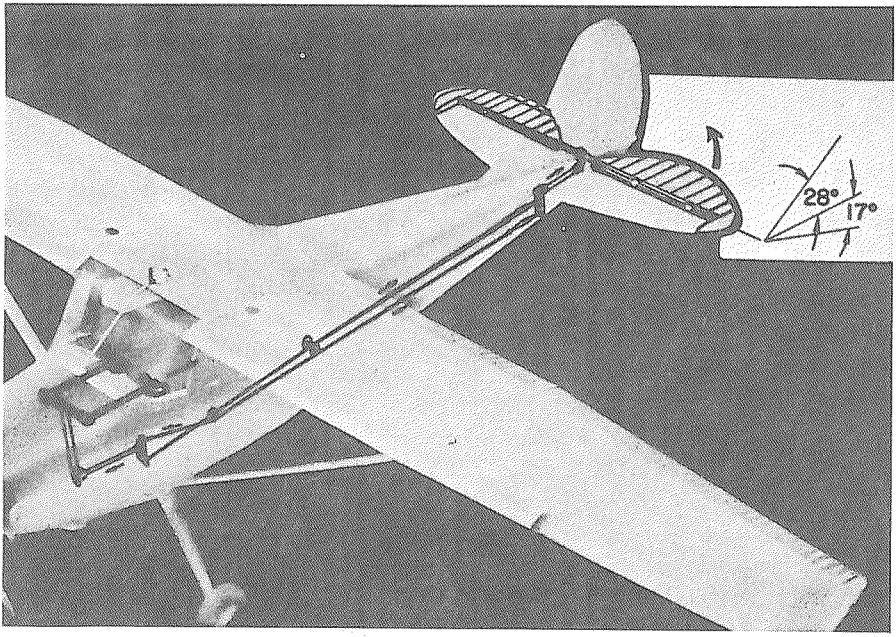


Figure 12. Elevator Control System

ELEVATOR TAB.

The elevator tab is actuated by a cable which has a chain incorporated in each end. The chain in front is actuated by the fingertip tab control, and the one at the rear operates a screwjack, which is mounted in the right half of the stabilizer. The travel is 12° up and 25° down, plus 1° or minus 0°

1. Install cables. Turn tab control wheel to full-forward position, and screwjack to full up position. Then turn screwjack back ½ turn. Set the chain on sprockets at each end, allowing ½″ to 1″ overlap in direction of travel. Tighten cable tension to approximately 30 lbs.
2. To set tab travel, elevator *MUST BE* in neutral position.
3. Turn tab control to full-forward position, disconnect push-pull tube from tab and adjust it to hold the tab approximately 13°. (This can be done by screwing it in or out, whichever the case may be.) Connect the push-pull tube to the tab and turn the tab control to the full rearward position. The tab should be approximately 26°.
4. Set stops between first and second bulkheads rear of the baggage compartment on the cables for correct travel, which is 12° up and 25° down.

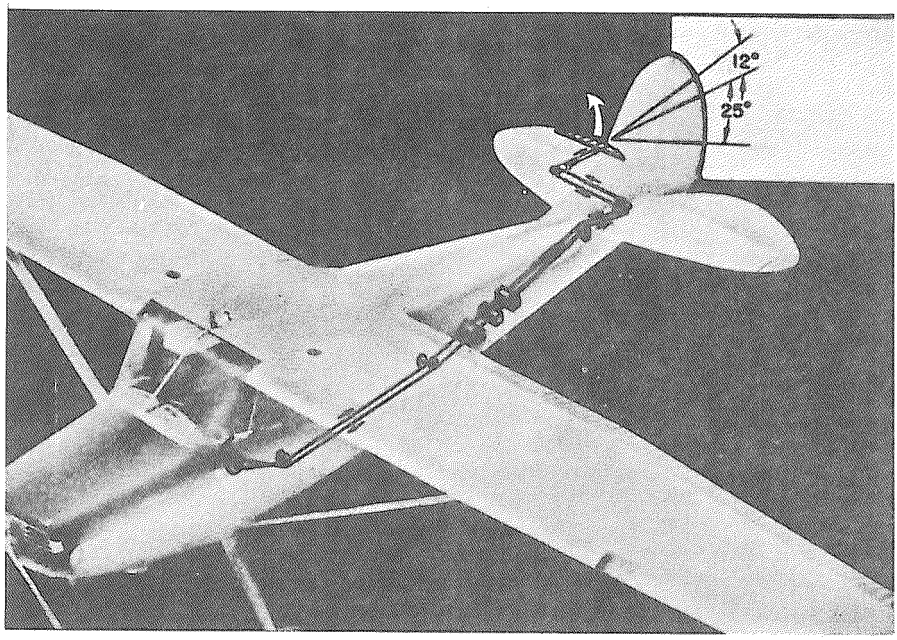
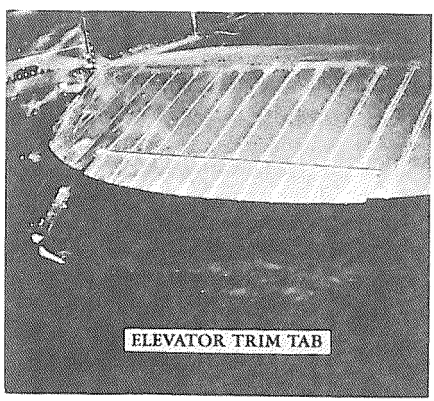
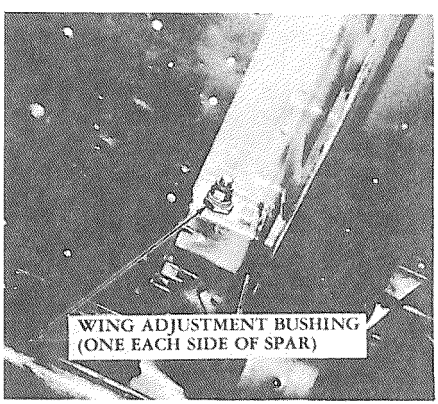


Figure 13. Elevator Tab Control System



WING ADJUSTMENT.

Initial rigging is accomplished by setting the two eccentric bushings on each rear spar attachment at neutral position. If flight test shows excessive wing heaviness, re-rig by rotating the proper bushings, which will increase or decrease the angle of attack of the wing.



LUBRICATION.

Figure 14 outlines the lubrication requirements for the Cessna Model 170.

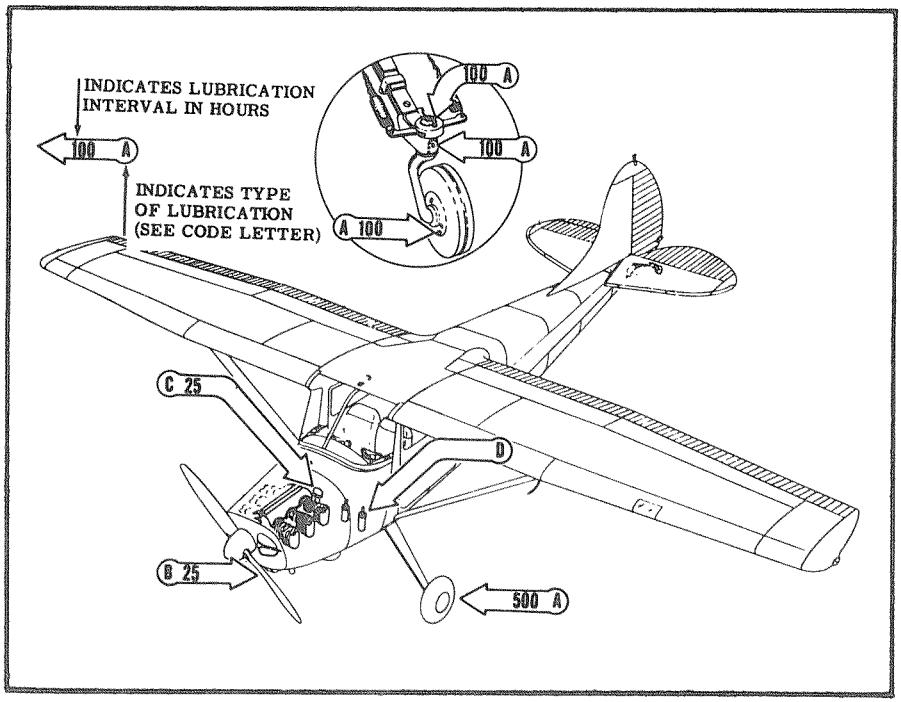


Figure 14. Lubrication Diagram

Code Letter LUBRICATION CODE

A——MIL-L-7711—Grease

B——Carburetor Air Filter—Wash in gasoline, coat both sides with (SAE 10) motor oil and allow to drain before re-installing. Service every 25 hours or oftener when operating in dusty conditions.

C——Engine Oil Tank—Check dip-stick before each flight. Drain and refill every 25 hours.

D——Brake master cylinders—should be checked and refilled periodically with MIL-O-5606 Oil - Hydraulic (Petroleum base).

NOTE 1. All pulleys, trim tab actuator rod, control surface hinge bearings, bellcrank clevis bolts, flap actuating handle, brake pedal

pivots, rudder pedal crossbars, door hinge and mechanism, Bowden controls, throttle, control rod universal (if unsealed) and control column ball, should be lubricated with SAE 20 General Purpose light machine oil as required or every 1,000 hours.
NOTE 2. In general, roller chain (Aileron, Tab wheel, tab actuator) and control cable tend to collect dust, sand, and grit when greased or oiled. More satisfactory operation except under seacoast conditions results when the chains are wiped clean occasionally with a clean dry cloth.

AIRPLANE FILE.

There are miscellaneous data, information and licenses that are a part of the airplane file. The following is a check list for that file:

A. To be carried in the airplane at all times:
   (1) Aircraft Registration Certificate (Form ACA 500A).
   (2) Aircraft Airworthiness Certificate (CAA Form ACA 1362).
   (3) CAA approved flight manual.
   (4) Airplane Radio Station License (if transmitter installed).
   (5) Airplane Log Book.
   (6) Engine Log Book.

B. To be maintained but not necessarily carried in the airplane at all times:
   (1) Weight and Balance report or latest copy of the Repair and Alteration Form 337.
   (2) Equipment List.
   (3) A form containing the following information:
   Model, Registration Number, Factory Serial Number, Date of Manufacture, Engine Number and Key Numbers (duplicate keys are available through your Cessna dealer or distributor).

INSPECTION SERVICE AND INSPECTION PERIODS.

With your airplane you will receive an Owner's Service Policy. This policy has coupons attached to it which entitle you to a no-charge initial inspection and a no-charge 100 hour inspection. If you take delivery from your Distributor or Dealer, he will perform the initial inspection before delivery of the airplane to you. If you pick up the airplane at the factory, plan to take your Cessna 170 to your Dealer or Distributor reasonably soon after you take delivery on it. This will permit him to check it over and to make any other minor adjustments that may appear necessary. Also plan an inspection by your Dealer or Distributor at 100 hours or 90 days whichever comes first. This inspection also is performed by your Dealer or Distributor for you at no charge. While these important inspections will be performed for you by any Cessna Distributor or Dealer, in most cases you will prefer to have the Dealer or Distributor from whom you purchase the airplane accomplish this work for you.

The Civil Air Regulations require all airplanes to have an "annual inspection" as prescribed by the administrator, by a person designated by the administrator, and in addition, 100

hour periodic inspections made by an "appropriately rated mechanic" if the airplane is flown for hire. The Cessna Aircraft Company recommends the 100 hour periodic inspection for the Model 170 airplanes. The procedure for this 100 hour inspection has been carefully worked out by the factory and is followed by the Cessna dealer and distributor organization. The complete familiarity of the Cessna distributor and dealer organization with Cessna equipment and with Cessna procedures provides the highest type of service possible at lower cost.

Time studies of the 100 hour inspection at the factory and in the field have developed a standard flat rate charge for this inspection at any Cessna Dealer or Distributor. Points which the inspection reveals require modification or repairs will be brought to the owner's attention by the dealer or distributor and quotations or charges will be made accordingly. The inspection charge does not include the oil required for the oil change.

Every effort is made to attract the best mechanics in each community to Cessna service facilities. Many distributors' and dealers' mechanics have attended Cessna Aircraft Company schools and have received specialized instruction in maintenance and care of Cessna airplanes. Cessna service instruction activity in the form of service bulletins and letters is constantly being carried on so that your enjoyment and safety in your Cessna will be complete and up-to-date when you have your inspection and service work performed by Cessna distributors' and dealers' mechanics.

Distributors carry a full complement of genuine Cessna service parts, complete repair and service facilities, including such specialized jigs and toolings as may be necessary. Cessna dealers maintain stocks of genuine Cessna parts and Service facilities consistent with the demand.

Your Cessna distributor or dealer will be glad to give you current price quotations on all parts that you might need and will be glad to advise you on the practicability of parts replacement versus repairs that might from time to time be necessary.

100 HOUR INSPECTION.

Before beginning the inspection, shop foreman or mechanic runs the engine to check for magneto drop, generator charge and general smoothness of operation of the engine and records these facts as an aid to the mechanic. The inspection consists basically of the following procedure:

I. Remove all inspection plates and necessary fairing consisting of the following:
   1. Remove front strut inspection plates (both sides).
   2. Remove lower half of wing root fairing (both sides).
   3. Remove two round inspection plates at aileron bellcrank.
   4. Remove two flap pulley inspection covers on top of the wing-root-to-cabin-junction-section forward of the flap.
   5. Remove round inspection plate from the tail cone just to the right of the dorsal fin.
   6. Remove tail group fairing and round plate on left side under the fin.

7. Remove round plate on underneath right side of the stabilizer.
8. Remove engine cowl.
9. Remove the two round inspection plates on the under side of the cabin section outside skins.
10. Open the upholstery zipper above the rear seat.
11. Remove the two round plates on the top side of the landing gear bulkhead.
12. Remove rear center tunnel covers between the front seats.
13. Open curtains at the aft end of the baggage compartment for access to the cables, bellcranks and pulleys. It is necessary to crawl back into the fuselage for proper inspection.
14. Open landing gear fairing.

II. Engine Check.
1. Remove heater muffs. Inspect mufflers and exhaust stacks for possible cracks.
2. Check carburetor air and heater hoses for holes, collapsed tubes, burning, and security of mounting.
3. Drain oil and clean oil strainer located on rear side of accessory case and replace oil.
4. Check magneto, touching up points if necessary, and check timing. Right Magneto 26° B.T.C., Left Magneto 28° B.T.C.
5. Check cylinder base nuts for tightness.
6. Check for oil leaks.
7. Remove spark plugs, clean if necessary, check gap spacing and replace.
8. Wash down engine.
9. Check engine mount bolts for security.
10. Check all wires forward of the firewall.
11. Check all engine controls for travel and free movement.
12. Remove and clean gasculator bowl and screen.
13. Check propeller track and inspect for bad nicks or cracks.
14. Check starter travel.
15. Clean carburetor air screen, re-oil and reinstall.
16. Check battery water level.
17. Replace engine cowling.

III. Wing Inspection.
1. Check front and rear wing bolts attaching wing to fuselage (both wings).
2. Check out strut bolts for security (both wings).
3. Check all wing control surfaces for freedom of movement and bolts for security.
4. Check aileron bellcranks (both sides).
5. Check flap bellcranks, tracks, and pulleys (both sides).
6. Drain wing fuel tank sumps.

IV. Empennage and Surfaces.
1. Check both stabilizer, and vertical fin, for possible damage.
2. Check attaching bolts on both fin and stabilizer for security.
3. Check rudder and elevator attaching bolts for security and surfaces for freedom of movement.
4. Check elevator and rudder hinge connections for cracks.
5. Check surface travels. Elevator 26 + 1° – 0° up and 20 ± 1° down Elevator tab 12 ± 1° up and 25 ± 1° down, Rudder travel 16° right 16° left, Aileron 20° up 14° down, and Flaps 50° down.
6. Check elevator bellcrank and rudder bellcrank.
7. Clean tail wheel assembly. Check for security, freedom of operation. Grease lube fittings. Pack wheel at 500 hours. Check rubber mounting of springs for wear.

V. Cabin Section.
1. Clean cabin section, vacuum it if possible.
2. Inspect rudder bar and brake assembly and the control tee for the security of mounting. Inspect cable connection points. Check pulley installations.
3. Suspend landing gear wheels from floor and remove outer wheel fairings. Shake landing gear and wheels for any sign of looseness and visually inspect fuselage attachment. If necessary tighten landing gear bolts and wedges. With airplane in 3-point position on the floor visually inspect landing gear spring leaf underside for cracks. (Remove landing gear wheels and pack with grease every 500 hours unless otherwise designated by owner.)
4. Drain sediment and water from fuel line at plug located on the belly of the airplane.

VI. Electrical System.
1. Check electrical system by operating the lights, starter, and all accessories which are incorporated in the electrical system.

VII. Recowl the engine. Replace all inspection plates and fairings.

VIII. Run engine.
1. Check magnetos for drop.
2. Check generator for proper charge.

CESSNA

CROSS COUNTRY SERVICE

On your cross country travels make it a point to stop at a Cessna service station for your service requirements. Your Dealer will be glad to supply you with a copy of a current service station list, or if you wish, you may write to the Service Department, Cessna Aircraft Company, Wichita, Kansas, asking for it and it will be promptly mailed to you.

ELECTRICAL SYSTEM.

Figure 15 outlines the 12-volt electrical system including electrical accessories. The numbers indicate wire numbers which can be found on each wire in the airplane.

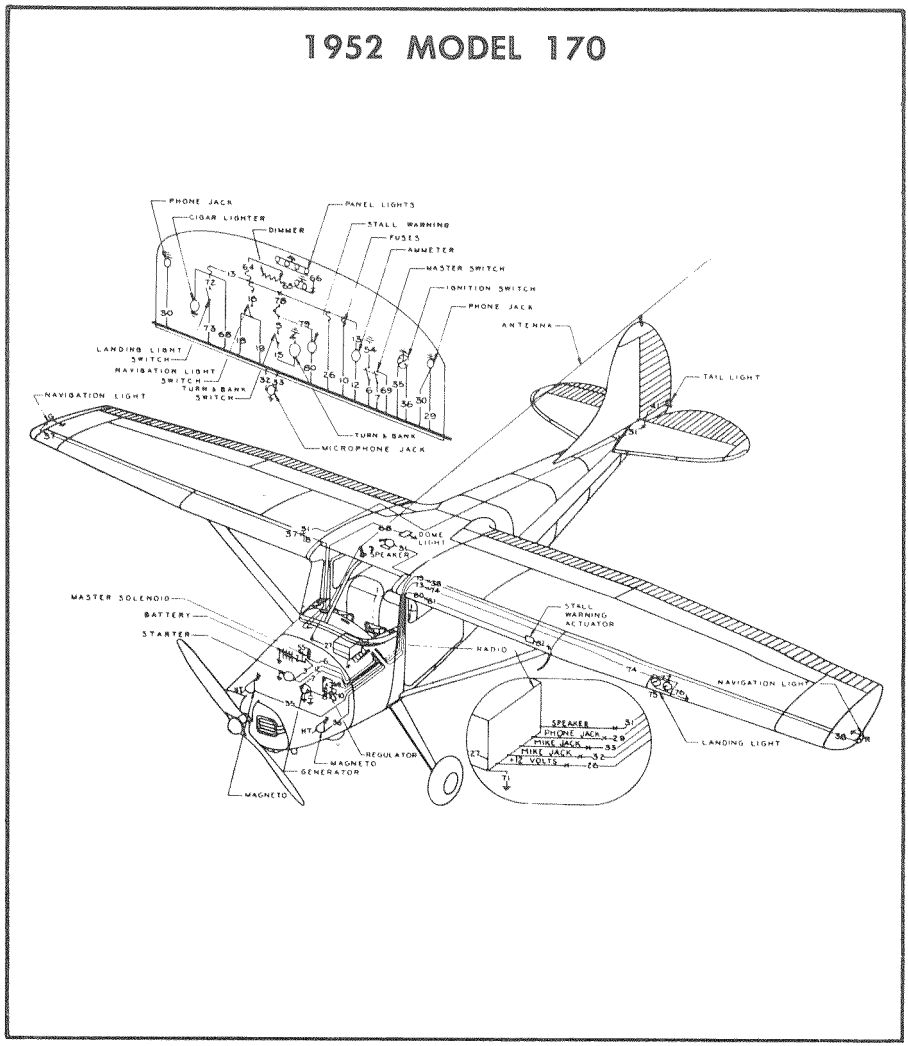


Figure 15. Electrical Wiring Diagram (Diagram 1 of 3)

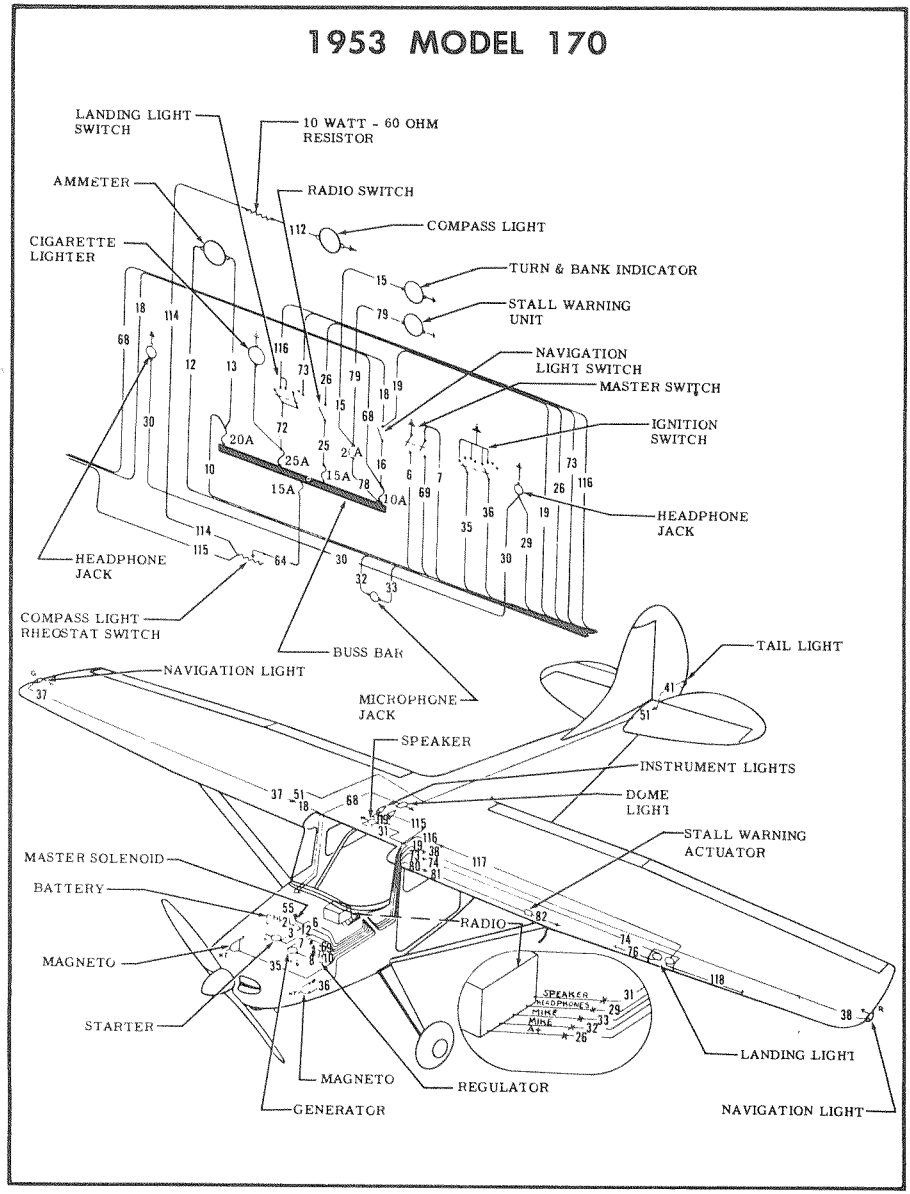


Figure 15. Electrical Wiring Diagram (Diagram 2 of 3)

1954 and 1955 MODEL 170

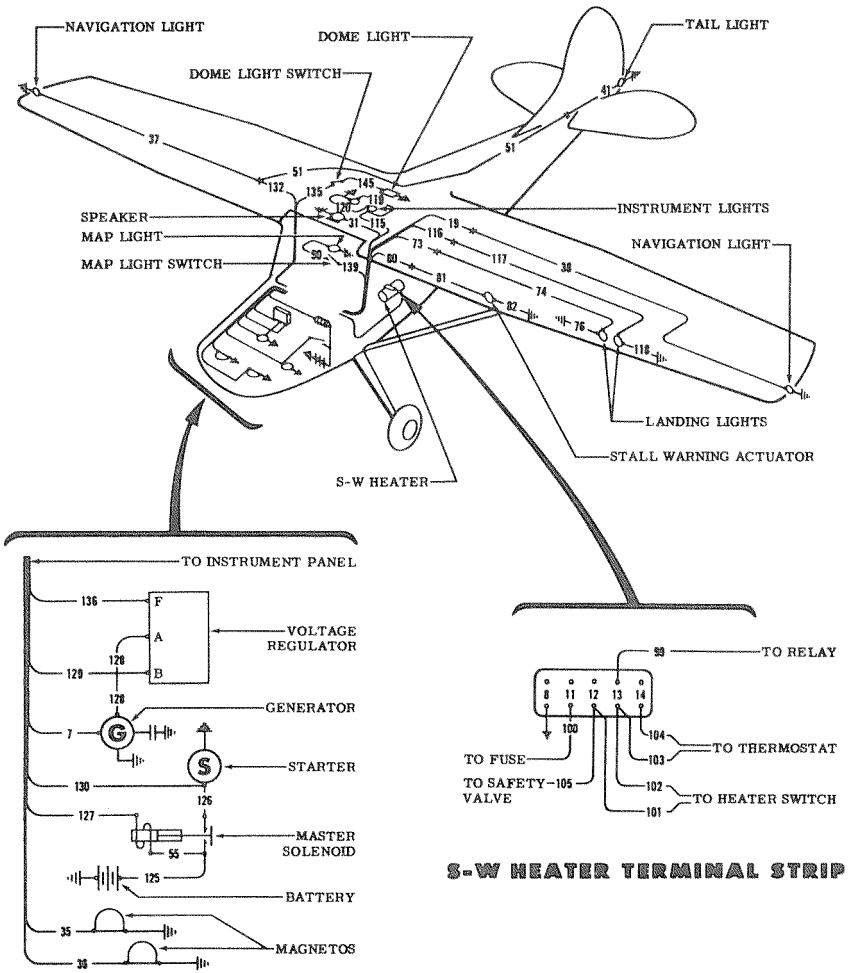


Figure 15. Electrical Wiring

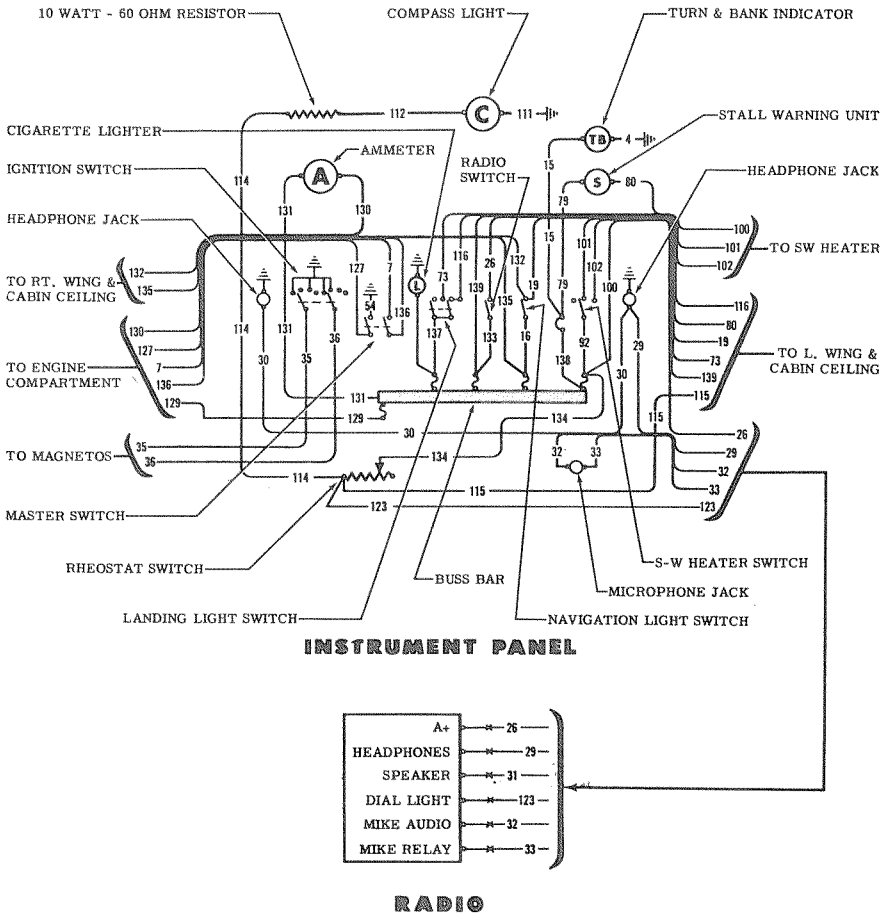


Diagram (Diagram 3 of 3)

Notes

ALPHABETICAL INDEX

E

F

G

H

I

J

K

L

M

N

O

P

R

S

T

U

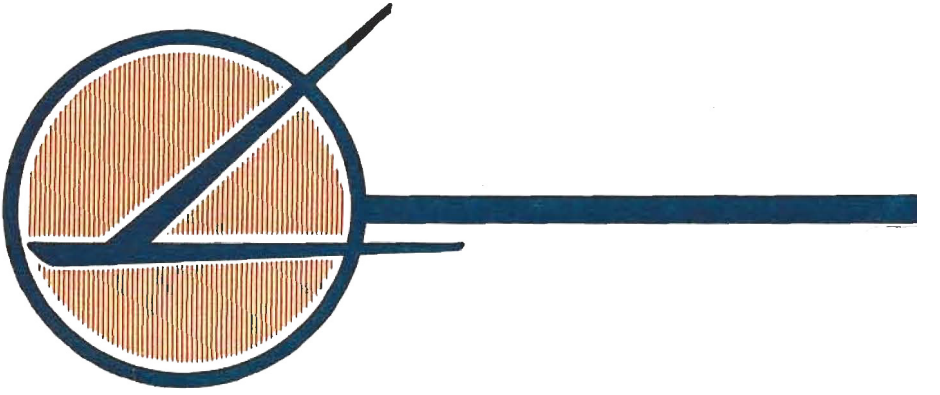
V

W

WARRANTY

■ The Cessna Aircraft Company warrants each new airplane manufactured to be free from defects in material and workmanship under normal use and service, provided, however, that this warranty is limited to making good at the Cessna Aircraft Company's factory any part or parts thereof which shall, within ninety (90) days after delivery of such airplane to the purchaser, be returned to the Company with transportation charges prepaid, and which upon Company examination shall disclose to the Company satisfaction to have been thus defective; this warranty being expressly in lieu of all other warranties expressed or implied and all other obligations or liabilities on the part of the Company, and the Company neither assumes nor authorizes any other person to assume for it any other liability in connection with the sale of its airplanes.

■ This warranty shall not apply to any airplane which shall have been repaired or altered outside the Company's factory in any way so as, in its judgment, to affect its stability or reliability, nor which has been subject to misuse, negligence or accident.



LOOK FOR THE RED AND BLUE CESSNA

PENNANTS FOR THAT EXTRA SERVICE

WHERE IT COUNTS WHEN YOU NEED IT.

CESSNA AIRCRAFT COMPANY

Wichita, Kansas