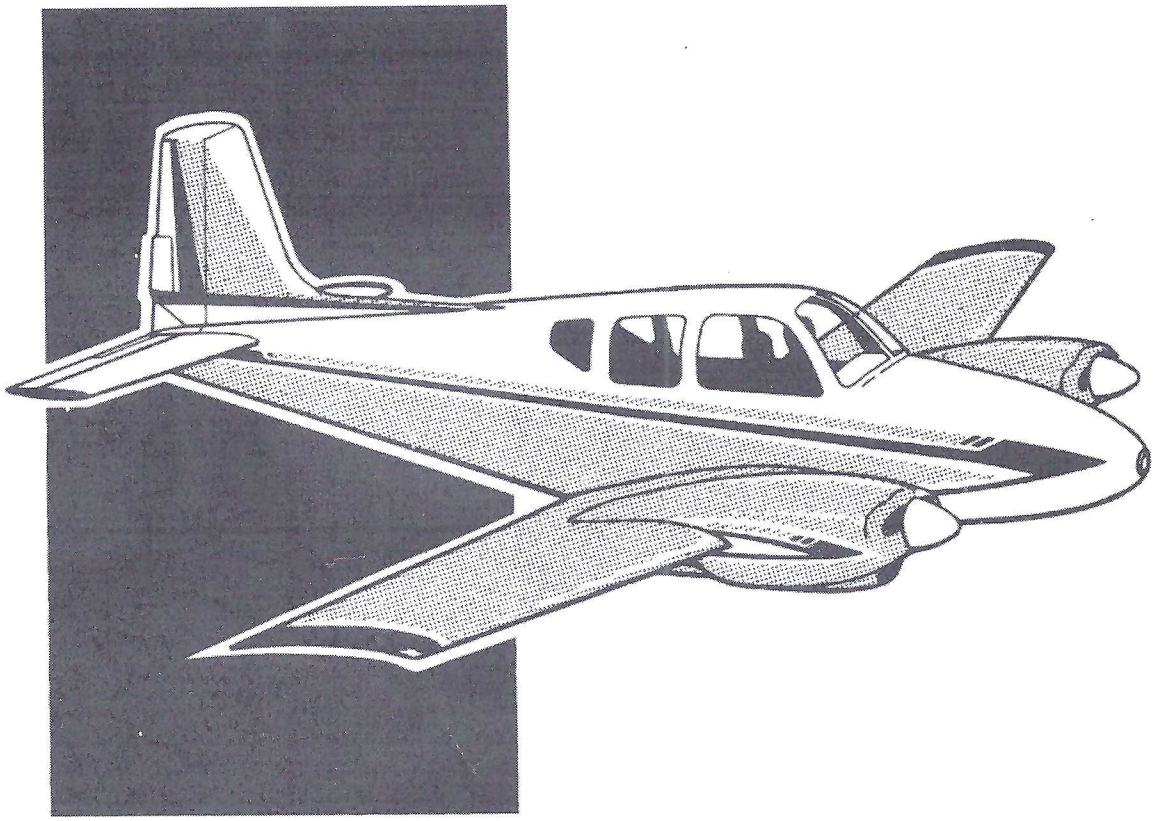
Beechcraft



B-95 TRAVEL AIR

OWNER'S MANUAL

Published by
Parts and Service Operations
Beech Aircraft Corporation
Wichita, Kansas 67201

95-590014-37
November 5, 1959

95-590014-37A2
Revised March 15, 1968

MODEL B95 TRAVEL AIR

PILOT'S CHECK LIST

Never taxi with a flat strut!

BEFORE STARTING

1. Exterior check, fuel and oil quantity and loading---Checked.
2. Parking brake---ON.
3. Battery and generator switches---ON. Battery---ONLY, if external power is used.
4. All switches, circuit breakers and controls---Checked.
5. Cowl flaps---OPEN.
6. Fuel selector valves---On MAIN.
7. Carburetor heat---OFF.

STARTING

1. Throttles---Approximately 1/4 inch OPEN.
2. Propellers---High-rpm.

NOTE

Cold engine starting: Mixtures full rich; prime as required.

Hot engine starting: Mixture in idle-cut-off until cranking; do not prime.

3. Left Magneto switch---ON for engine to be started.
4. Fuel boost pump---ON.
5. Starter---Engage.
6. Warm-up---800 to 1300 rpm.
7. Fuel boost pump---OFF.
8. Normal readings all gages---Checked.
9. Repeat procedure for remaining engine.

95-590014-41
November 5, 1959

BEFORE TAKE-OFF

1. Propellers---Exercised at 2200 rpm and left in high-rpm.
2. Magnetos---Checked at 2200 rpm (maximum drop, 100 rpm).
3. Trim---Set for take-off.
4. Freedom and full travel of flight controls---Checked.
5. Fuel boost pumps---ON (optional).
6. Carburetor heat control---IN
7. Normal readings all instruments---Checked.
8. Parking Brake---OFF.

BEFORE LANDING

1. Fuel selector valves---On MAIN.
2. Mixtures---Full rich.
3. Carburetor heat---As required.
4. Fuel boost pumps---ON (optional).
5. Landing gear---DOWN and Position Indicators checked.
6. Wing flaps---As desired.
7. Propellers---High-rpm.

SHUT-DOWN

1. Parking brake---ON.
2. Electrical equipment---OFF.
3. Propellers---High-rpm.
4. Throttles---Advance to approximately 1100 rpm.
5. Mixtures---Idle-cut-off.
6. Throttles---Full aft as engines quit firing.
7. Magneto switches---OFF.
8. Battery and generator switches---OFF.
9. Fuel selector valves---OFF.
10. Controls---Locked.

IMPORTANT

(Please attach this Owner's Manual Supplement to the inside cover of the Owner's Manual or other suitable location which is readily available to the pilot.)

OWNER'S MANUAL

SUPPLEMENT

for

55, A55, B55, B55A, B55B, C55, C55A, D55, D55A, E55, E55A, 95, B95, B95A, D95A, E95.

The following information supersedes the information contained in the Owner's Manuals for the above listed airplanes.

1. Maximum usable fuel of each 25 gallon main tank is 22 gallons.

2. Maximum usable fuel of each 39 or 40 gallon main tank is 37 gallons.

3. Approximate reduction in range with full fuel due to change in usable fuel is:

   a. 6% with the 142 gal. fuel system (all 55).

   b. 7% with the 112 gal. fuel system (all 55's, and 95's).

   c. 10% with the 78, 80 or 84 gal. fuel systems (all 95's).

4. On Models 95 and B95 Owners Manuals, reduce range by an additional 135 statute miles to account for climb and 45 minutes reserve at 45% maximum continuous power.

P/N 96-590011-9 Issued: February 11, 1972

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**The asterisk indicates pages revised, added or deleted by the current revision.*

Table of Contents

THANK YOU . . .

for displaying your confidence in us by selecting a BEECHCRAFT airplane. Our design engineers, assemblers and inspectors have utilized their skills and years of experience to ensure that your new BEECHCRAFT Travel Air B95 meets the high standards of quality and performance for which BEECHCRAFT airplanes have become famous throughout the world.

IMPORTANT NOTICE

This manual should be read carefully in order that you may become familiar with the operation of your Travel Air B95. Suggestions and recommendations have been made within it to help you obtain maximum performance without sacrificing economy. Furthermore, you should also be familiar with and operate your new BEECHCRAFT in accordance with the Federal Aviation Administration Approved Flight Manual and/or the FAA Approved Placards which are located in your BEECHCRAFT.

As a further reminder, you should also be familiar with the applicable Federal Aviation Regulations concerning operation and maintenance of the airplane and FAR Part 91 General Operating and Flight Rules. Likewise your aircraft must be operated and maintained in accordance with FAA Airworthiness Directives which may be issued against your BEECHCRAFT.

The operation, care, and maintenance of your airplane after it is delivered to you is your responsibility. However, your authorized BEECHCRAFT Sales and Service Outlets will have all recommended modification, service, and operating procedures issued by both FAA and Beech, designed to get maximum utility and safety from your airplane.

In an effort to provide you with as complete coverage as possible, applicable to any configuration of the Travel Air B95 optional equipment has been included in the scope of this manual. Because of the versatility of the appointments and arrangements of the aircraft, the equipment described or depicted herein may not be designated as optional equipment in every case.

General Specifications

ENGINES

Two Lycoming, 4 cylinder, O-360-A1A, rated at 180 hp @ 2700 rpm for all operations.

PERFORMANCE — TRUE AIRSPEED, STANDARD ALTITUDE

MAXIMUM CRUISING SPEED:
(a) at 75% power (2450 rpm) ..... 200 mph at 7500 ft.
(b) at 65% power (2300 rpm) ..... 195 mph at 10,500 ft.

HIGH SPEED AT SEA LEVEL
(2700 rpm, full throttle) ..... 210 mph

RATE OF CLIMB AT SEA LEVEL (rated power)
Two engines ..... 1300 fpm
One engine ..... 191 fpm

SERVICE CEILING (rated power) @ 4100 pounds
Two engines (100 fpm) ..... 18,700 ft.
One engine (50 fpm) ..... 5,050 ft.

ABSOLUTE CEILING @ 4100 POUNDS
Two engines ..... 20,300 ft.
Single engine (descending to level out at) ..... 6,900 ft.

STALLING SPEED (Zero Thrust), Flaps 28°, Gear Down ..... 70 mph

MAXIMUM RANGE @ 165 mph ..... 1410 miles on 112 gal.

ENDURANCE ..... 8.75 hours

TAKE-OFF DISTANCE — (20° flap) Ground Run ..... 1,000 ft.*
Total Distance over 50 ft. ..... 1,280 ft.*

LANDING DISTANCE — (28° flap) Ground Run ..... 980 ft.*
Total Distance over 50 ft. ..... 1,590 ft.*

The above performance figures are the results of flight tests of the Travel Air conducted by Beech Aircraft Corporation under factory-controlled conditions and will vary with individual aircraft and numerous factors affecting flight performance.

*Take-off and landing performance based on Sea Level Standard Conditions.

TYPE

Four-place, high performance, all-metal, low-wing, twin-engine cantilever monoplane, with fully retractable tricycle landing gear, solid cabin top, and full complement of engine and flight instruments standard.

BAGGAGE

Maximum 270 pounds — rear
270 pounds less equipment — front

WEIGHTS

Gross Weight ..... 4100 pounds
Empty Weight ..... 2635 pounds
(Empty weight includes complete set of flight instruments; cabin heating and venti-

lating system, with windshield deicers; sound proofing; navigation, cabin, instrument and landing lights; unusable fuel and oil.)

Useful Load ..... 1465 pounds

Available weight for people and baggage with full tanks, (standard fuel) ..... 948 pounds

WING AREA AND LOADINGS

Wing Area ..... 199.2 sq. ft.

Wing Loading, at gross weight ..... 20.6 lbs./sq. ft.

Power Loading, at gross weight ..... 11.4 lbs./hp

DIMENSIONS

Wing Span ..... 37 ft. 10 in.

Length ..... 25 ft. 4 in.

Height ..... 9 ft. 6 in.

CABIN DIMENSIONS

Cabin Length ..... 8 ft. 6 in.

Cabin Width ..... 3 ft. 6 in.

Cabin Height ..... 4 ft. 2 in.

Passenger Door, size ..... 36 in. x 37 in.

Baggage Door, size ..... 24 in. x 22 in.

Baggage Compartments, size rear ..... 33.5 cubic ft.

Baggage Compartment, size front ..... 13 cubic ft.

PROPELLER AND EQUIPMENT

Propeller — Hartzell, hydraulically controlled continuously variable pitch, diameter 72", with Woodard hydraulic governor, full feathering.

ENGINE EQUIPMENT (Per Engine)

Starter
Generator
Voltage Regulator
Engine Primer
Fuel Booster Pump
Carburetor Air Filter
Mufflers and Carburetor Heaters (stainless steel)
Exhaust Manifolds (stainless steel)
Vacuum Pump

FUEL AND OIL CAPACITY

Fuel Capacity in standard wing tanks ..... 86 gal. (84 usable)

Fuel Capacity with optional auxiliary wing tanks ..... 113 gal. (112 usable)

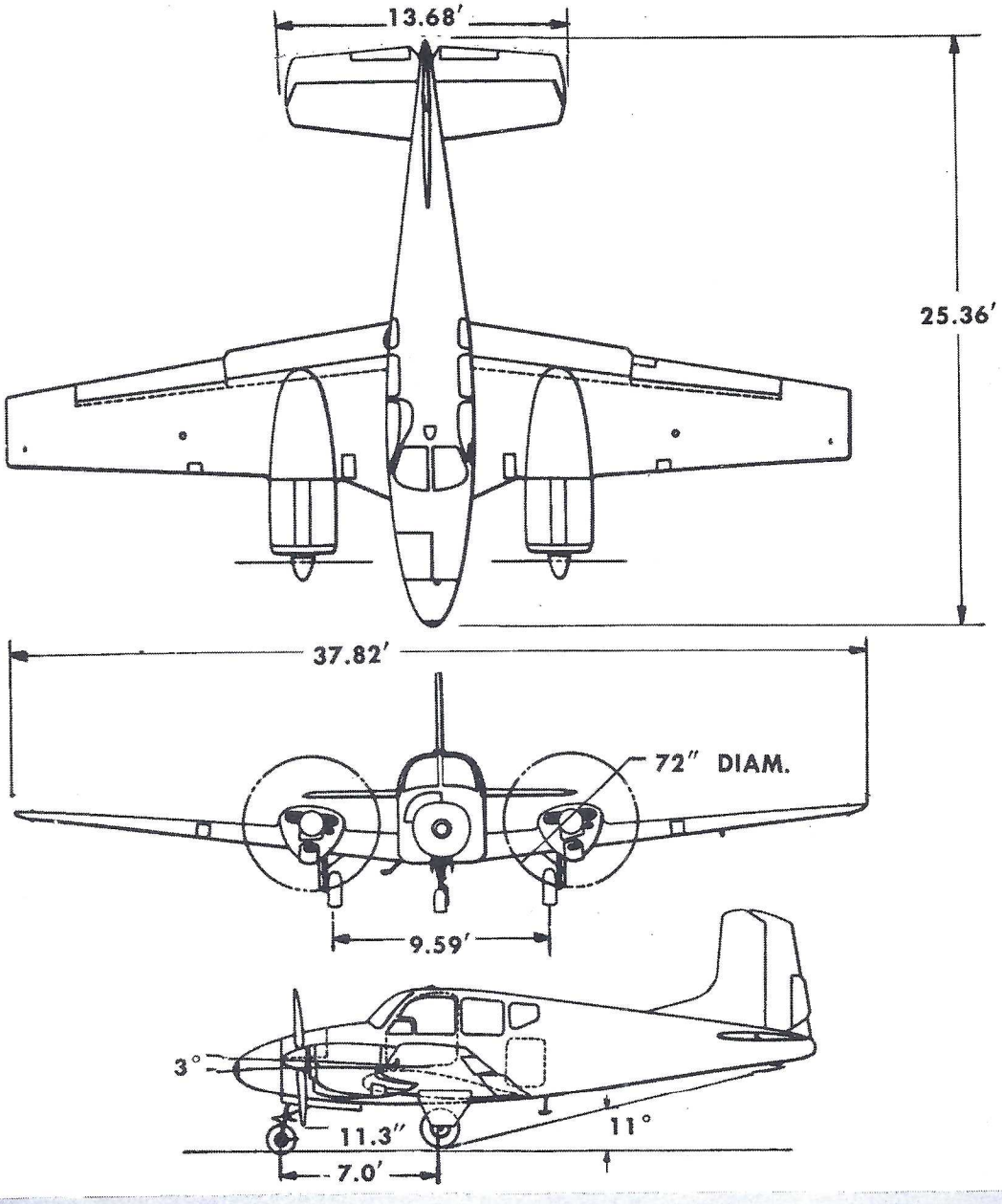
Oil Capacity ..... 16 quarts

LANDING GEAR

Tricycle type with swiveling steerable nose wheel equipped with shimmy dampener. Beech air-oil struts on all wheels designed for smooth taxiing and to withstand the shock created by landing with a vertical descent component of over 600 feet per minute. Main tires 6.50" x 8" size; nose wheel tire 5.00" x 5" size. Wheels — Goodyear with single disc hydraulic brakes.

ELECTRICAL EQUIPMENT (24 Volt System)

Battery — 17 ampere-hour or 24 ampere-hour
Electric motors for operating flaps and landing gear
Electrically Operated Cowl Flaps
Two 15-Amp. Generators or two 25-Amp. Generators

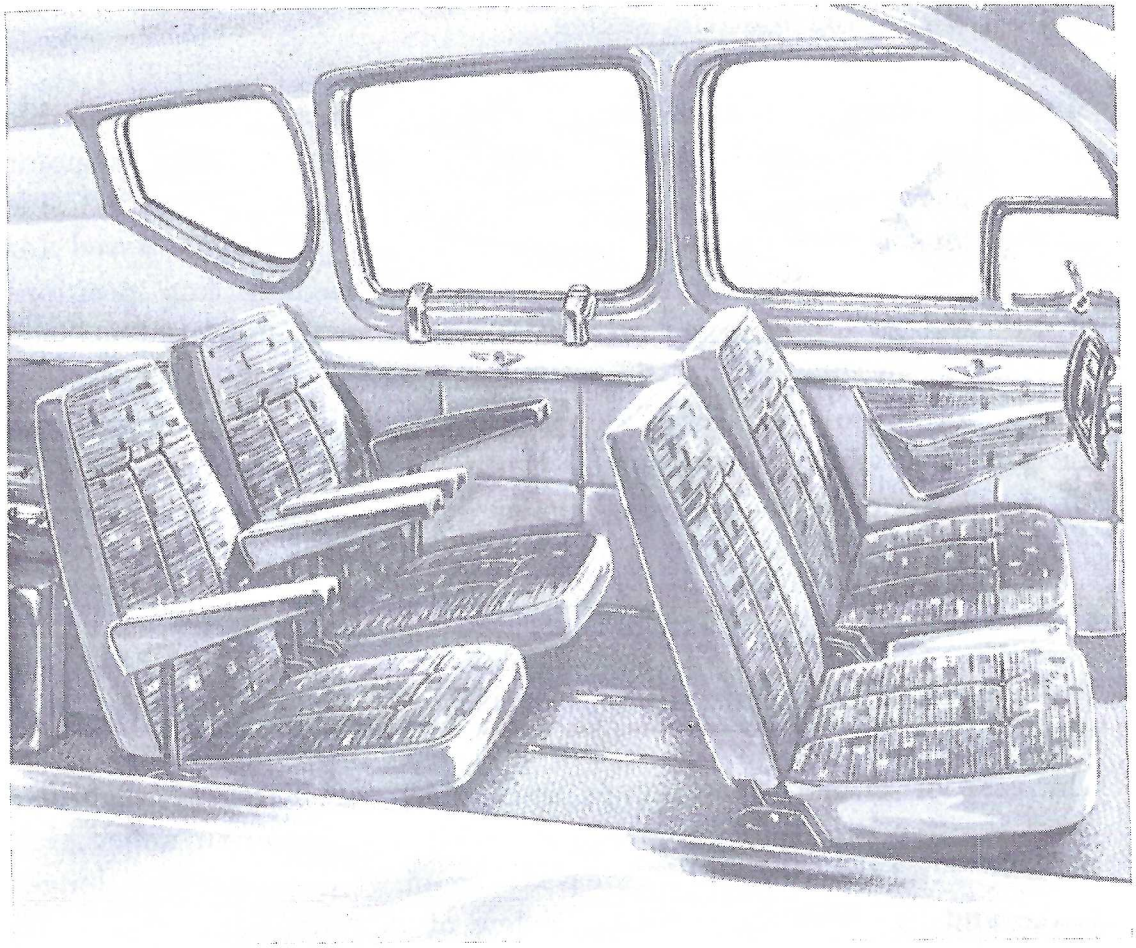

13.68′
25.36′
37.82′
72″ DIAM.
9.59′
3°
11.3″
11°
7.0′

SECTION I

Descriptive Information

Your new BEECHCRAFT is a four-place, low wing monoplane. The all-metal, semi-monocoque airframe structure is of aluminum, magnesium and alloy steel, riveted and spotwelded for maximum strength. Careful workmanship and inspection make certain that structural components will withstand flight loads in excess of the FAA requirements for a "Normal" category, under which the Model 95 is licensed.

To develop a good flying technique, you must first have a general working knowledge of the several systems and accessories of your aircraft. Although they are closely interdependent in fact, these systems have been broken down arbitrarily in this section for ease of presentation.



FLIGHT CONTROLS

Primary movable control surfaces of the Travel Air are operated through push-pull rods and conventional closed-circuit cable systems terminating in bell cranks. The pre-formed, extra-flexible steel cables run over phenolic pulleys with sealed ball bearings which ordinarily require no lubrication and insure smooth, free action and long cable life. Standard equipment provides a throw-over type control-wheel arm for elevator and aileron control which may be locked in two positions on either the pilot or co-pilot side and dual rudder pedals adjustable fore and aft to fit individual pilot requirements. The right hand rudder pedals may be laid flat against the floorboards when not in use. Trim tabs on all flight control surfaces are adjustable from the control console through closed-circuit cable systems which drive jackscrew type actuators. Position indicators for each of the trim tabs are located near their respective controls. The left aileron tab incorporates servo action, in addition to its trimming function. As the aileron deflects from neutral, its tab moves in the opposite direction. This action is independent of the tab's trim function and occurs without disturbing the trim setting.

Single, slot-type wing flaps are operated through a system of flexible shafts and jackscrew actuators driven by a reversible electric motor located under the front seat. The flap position lights on the left side of the control console show green for the up position and red for the full down (33°) landing position. Intermediate flap positions of 10° and 20°, as marked on the leading edge of the left flap, may be selected by moving the three position control switch, on the left side of the console, to "OFF" when the desired flap setting mark lines up with the wing trailing edge. Limit switches automatically shut off the flap motor when the full up or down position is reached.

LANDING GEAR

The Travel Air's extra-strong, electrically-operated landing gear incorporates the advantages obtainable only with tricycle type gear. The ease of ground operation is assisted by the increased visibility, more positive directional control for parking or operation under high surface wind conditions; decreased stopping distance and longer brake and tire life; these are but a few of the advantages.

The gear is operated through push-pull tubes by a reversible electric motor and actuator gear box under the front seat. The motor is controlled by a two-position landing gear switch located on the instrument panel. Limit switches and a dynamic braking system automatically stop the retract mechanism when the gear reaches its full up or full down position.

With the landing gear in the up position, the wheels are completely enclosed by fairing doors which are operated mechanically by the retraction and extension of the gear. After the gear is lowered, the main gear inboard fairing doors automatically close, producing extra lift and reduced drag for take-off and landing. Individual up-locks actuated by the retraction system lock the main gear positively in the up position. No down locks are necessary since the over-center pivot of the linkage forms a geometric positive lock when the gear is fully extended. The linkage is also spring loaded to the over-center position.

Landing gear position lights, located beside the landing gear switch, indicate the position of the gear, either up or down; coming on only when the gear reaches its fully extended or retracted position. In addition a mechanical indicator beneath the control console shows the position of the nose gear at all times.

To prevent accidental gear retraction on the ground a safety switch, on the left main strut, breaks the control circuit whenever the strut is compressed by the weight of the airplane and completes it, so the gear may be retracted, when the strut extends. ***Never rely on the safety switch to keep the gear down while taxiing or on take-off or landing roll. Always check the position of the switch handle.***

When either, or both throttles are retarded below an engine setting sufficient to sustain flight, with the gear retracted, a warning horn will sound an intermittent note. During single engine operation the horn may be silenced by advancing the throttle of the inoperative engine enough to actuate the warning horn's throttle switch.

The nose wheel assembly is made steerable through spring loaded linkage, connected to the rudder pedals for greater maneuverability during taxi operation. The retraction of the gear relieves the rudder pedals of their nose steering load and centers the wheel, by a roller

and slot arrangement, to insure proper retraction into the wheel-well. A hydraulic dampener on the nose wheel strut compensates for the inherent shimmy tendency of a pivoted nose wheel.

Wheels are carried by heat-treated tubular steel trusses and use Beech air-oil type shock struts. Since the shock struts are filled with both compressed air and hydraulic fluid their correct inflation should be checked prior to each flight. Even brief taxiing with a deflated strut can cause severe damage.

For manual EMERGENCY operation of the landing gear (lowering only) a hand-crank is located behind the front seat. The crank, when engaged, drives the normal gear actuation system.

Main landing gear wheels are equipped with Goodyear single-disc, self-adjusting hydraulic brakes actuated by individual master cylinders connected to the rudder pedals and operated as toe brakes. The hydraulic brake fluid reservoir is accessible from the forward baggage compartment and should be checked occasionally for specified fluid level. The parking brake is set by a push-pull control with a center-button lock and is located just to the right and slightly below the control console. Setting the control does not pressurize the brake system, but simply closes a valve in the lines so that pressure built up by pumping the toe pedals is retained and the brakes remain set. Pushing the control in opens the valve and releases the brakes.

POWER PLANTS

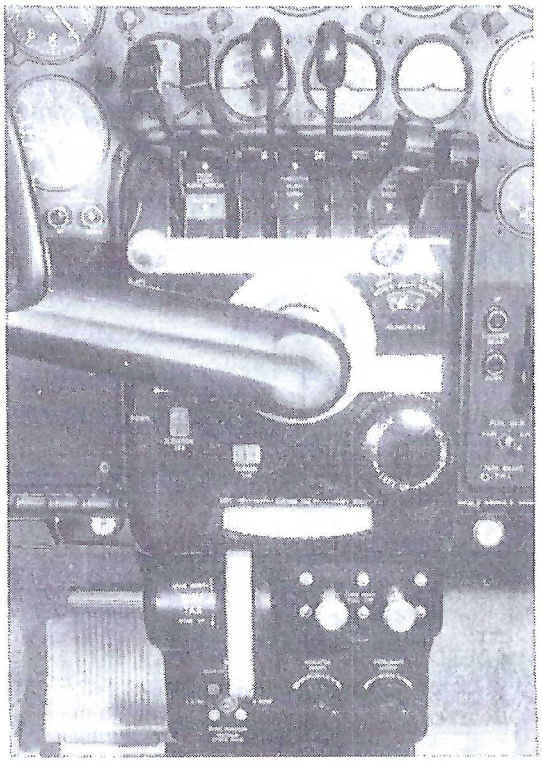
Your BEECHCRAFT is powered by two Lycoming O-360-A1A engines rated at 180 horsepower each, at 2700 rpm, for both take-off and maximum continuous operation. They are four-cylinder opposed, air cooled engines with direct propeller drives and have a compression ratio of 8.5:1. They are fitted with a pressure-type cowling; cooling is controlled by opening and closing electrically-operated gill-type flaps on the trailing edge of the cowling. Float-type carburetors are used, with the carburetor air intake through a filtered airscoop at the lower front of each engine. Alternate air is heated to prevent carburetor ice, by heater muffs around the exhaust stacks; spring-loaded doors in the carburetor intake open automatically if the airscoops or filters are blocked by impact ice or dirt. Full dual ignition systems are used, with an impulse-coupling on the left magneto

of each engine for easier starting. The electrical system uses Delco-Remy starters, generators and voltage regulators. Diaphragm fuel pump, vacuum pump and constant-speed propeller governor are standard equipment. Other engine features include sodium-cooled rotator-type valves, chrome piston rings and a nitrided crankshaft.

Hartzell constant-speed, two bladed, hydraulic, full feathering propellers use pressure from a feathering spring and centrifugal force from the blade shank counter-weights to increase pitch. Engine oil under governor-boosted pressure decreases pitch.

Propeller feathering is accomplished by pulling the propeller control back past the detent to the limit of travel. To unfeather, return the propeller control to the governing range (full forward) and start the engine with the starter. On airplanes with the optional unfeathering accumulator, start the engine by moving the propeller control full forward, move mixture control to full rich, and as engine starts, reduce rpm immediately to prevent propeller overspeeding. With the engine operating, governor oil pressure returns the propeller blades to low pitch (high rpm).

Power Plant Controls



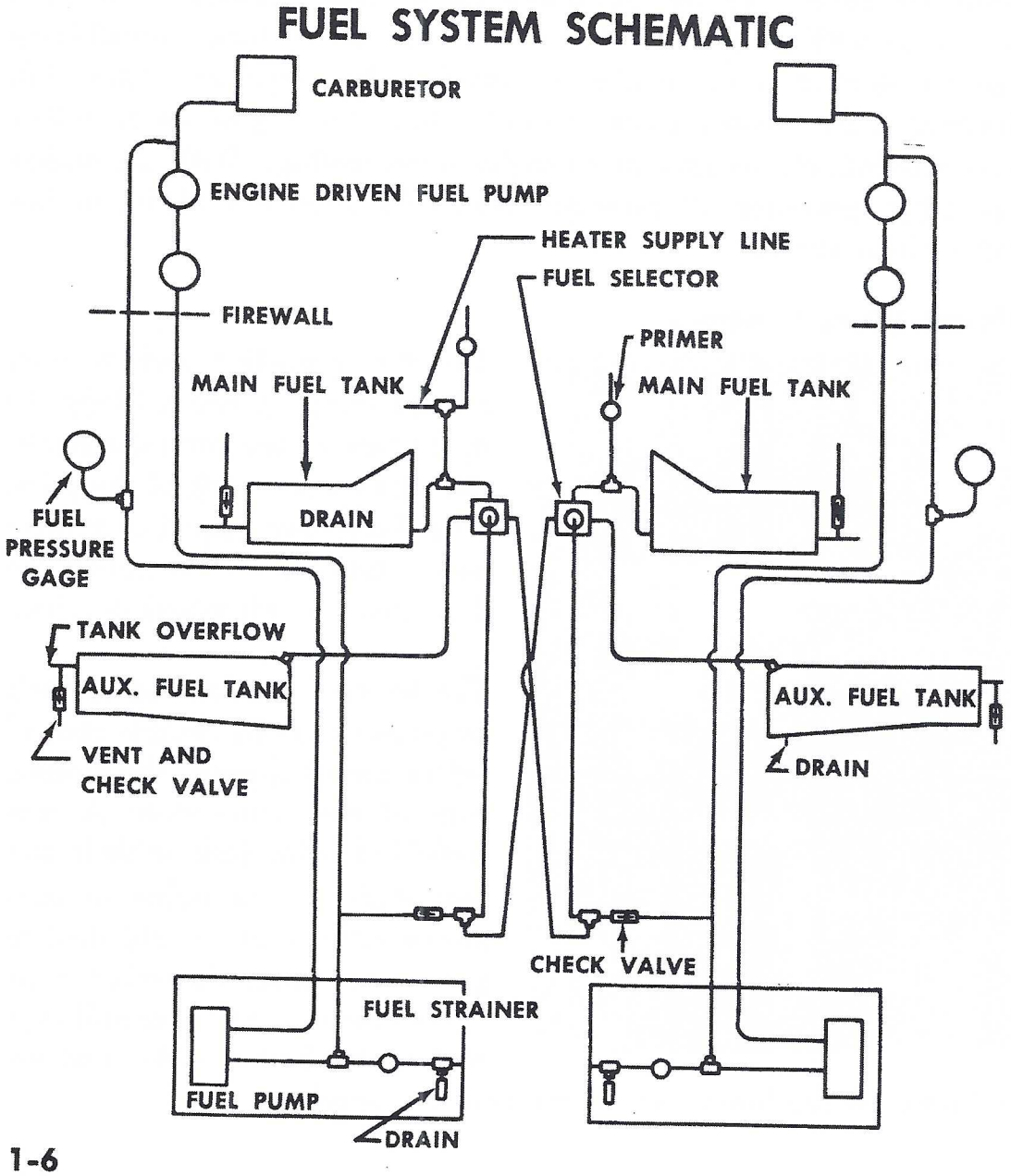
Throttle, propeller and mixture control levers, grouped along the upper face of the control console, are within easy reach of the pilot. Their knobs are shaped to government standard configuration so they may be identified by feel.

The levers are connected to their respective units by flexible control cables routed through the leading edge of each wing stub. A controllable friction lock on their support shaft may be tightened once power settings are established to prevent creeping. Controls for the carburetor heat are push-pull type with center button locks, and are mounted on the lower face of the control console.

Direct-cranking electric starters are relay-controlled and have push button-type starter switches located on the ignition panel with the individual magneto switches. The two-position toggle-type switches for the electrically operated cowl flaps are mounted to the right of the control console on the instrument sub-panel. An indicator light, adjacent to the switches comes on when the cowl flaps are in the full open position.

Fuel System

The Travel Air's fuel system consists of a separate, identical supply for each engine, interconnected by crossfeed lines for emergency use. During normal operation each engine uses its own fuel pumps to



draw fuel from its respective fuel cell arrangement. However, on crossfeed operations the entire fuel supply of any or all cells may be consumed by either engine. A fuel selector valve for each engine controls the cells from which fuel is used.

Standard fuel cell installation includes two 25-gallon main cells in each wing stub and two 17-gallon auxiliary cells in the wing panels outboard of each nacelle. Total capacity for the system, with auxiliary cells, is 84 gallons of usable fuel. With the optional 31-gallon auxiliary cells, which replace the standard 17 gallon cells, the total capacity is raised to 112 gallons of usable fuel. Fuel cannot transfer from one cell to another during flight.

Fuel quantity is measured by a float-type transmitter unit in each cell, which transmits a signal to the fuel gages on the instrument panel. A two-position selector switch, controlled by the pilot, determines the cell, main or auxiliary, to which each gage is connected. Each cell is filled through its own filler neck with openings in the upper wing surface which are covered by flush-type filler caps.

Individual electric boost pumps for each engine furnish fuel pressure for starting and provide adequate fuel for full-throttle operation should the engine-driven pump fail. Due to the in-line location of the boost pumps, between the cells and the carburetor, fuel may be drawn from any cell within the system by the boost pump for the operating engine. A manually-operated primer for each engine, mounted on the fuel selector panel, supplies fuel taken from the main cell supply line directly to cylinders 1, 2 and 4. The fuel system is drained at eight different locations as shown in the fuel system schematic and servicing diagram.

Check valves prevent the suction of the operating engine's fuel pumps from pulling air into the system through the inoperative engine, during single engine operation on crossfeed.

Fuel pressure for normal operation is indicated by the engine gage in the instrument panel. The instrument always reads the electric boost pump pressure when it is in use. Engine-driven fuel pump pressure is indicated only with the boost pump off and the engine operating.

Oil System

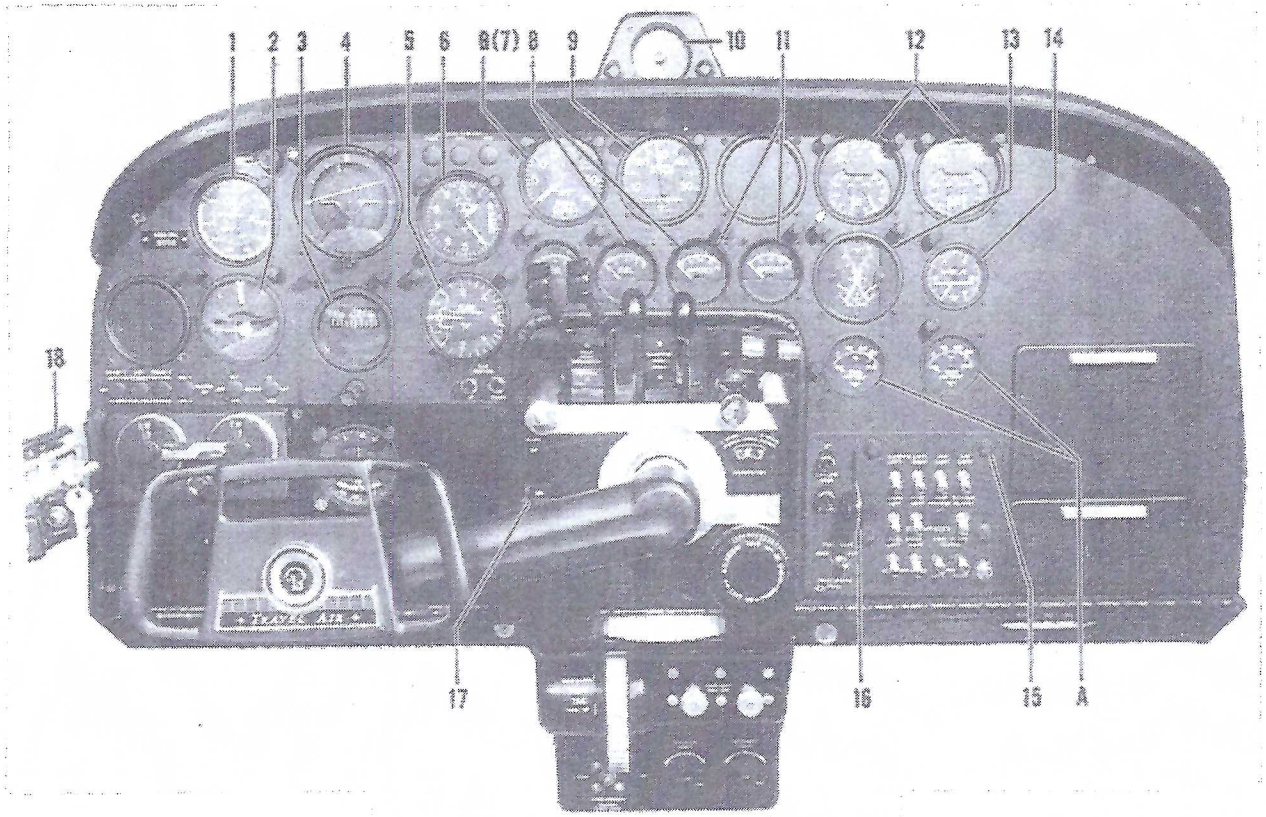
The engine oil system is of the full-pressure, wet-sump type and has an 8 quart capacity. For safe engine operation, the absolute minimum amount of oil required in the sump is 2 quarts. Oil operating temperatures are controlled by an automatic thermostat by-pass control incorporated in the engine oil passage of each system. The automatic by-pass control will prevent oil flow through the cooler when operating temperatures are below normal. It also will bypass if the radiator is blocked. System servicing and draining points are shown on the servicing diagram. The determining factor for choosing the correct grade of oil is the oil inlet temperature which is observed during flight; inlet temperatures consistently near the maximum allowable would indicate a heavier oil is needed. Only straight petroleum base, aviation grade, nondetergent oil of the lightest weight that will give adequate cooling should be used. Avoid any additive to the basic lubricant. Consult the Consumable Materials Chart, Section VII. Condensed moisture in the oil sump may be drained by occasionally opening the oil drain valve and allowing a small amount of oil to escape; ideally, this draining should be done when the engines have been stopped overnight or approximately 12 hours. This procedure should be followed more closely during cold weather or when a series of short flights of less than 30 minutes duration have been made and the engines allowed to cool completely between such flights.

INSTRUMENTS

All flight and engine instruments are mounted on the floating instrument panel in such a manner that the more important instruments are seen first. Instrument markings have a fluorescent coating for night operation and where practicable the normal operating limits are indicated.

Standard flight instrumentation includes attitude and directional gyros, airspeed, altimeter, rate-of-climb, electric turn and bank, magnetic compass and a clock. The airspeed indicator is marked with a special blue line range for single-engine operation. An outside air temperature thermometer and magnetic compass are mounted in the windshield divider.

Engine instruments, which include cylinder head temperature gage, suction gage, engine gage units, tachometers and manifold pressure



STANDARD EQUIPMENT

1. Airspeed Indicator
2. Turn-and-Bank
3. Directional Gyro
4. Attitude Gyro
5. Vertical Speed Indicator
6. Altimeter
7. Tachometer
8. Fuel Gages
9. Dual Manifold Pressure Gages
10. Clock
11. Ammeters
12. Engine Gage Units
13. Dual Cylinder Head Temperature Gage
14. Suction Gage
15. Lighting Switch Panel
16. Landing Gear Position Switch
17. Flap Position Switch
18. Ignition Panel

OPTIONAL EQUIPMENT

A. Carburetor Air Temperature Gage
B. Dual Tachometer

gage, are grouped at the top center of the instrument panel. The engine gage units indicate fuel and oil pressure and oil temperature for their respective engines. The fuel quantity indication is shown by two separate gages, each gage serving both fuel tanks in each wing. The gages are mounted with the ammeters just above the control console.

Impact air pressure and atmospheric air pressure for the airspeed indicator, altimeter and vertical speed indicator are supplied by the pitot and static air systems. Since the accuracy of these instruments depends on accurate pickup of the two pressures, the systems have been developed carefully and tested in flight with highly-accurate special equipment. To insure the proper operation of these instruments, drain the systems regularly and keep the static ports clear of obstructions.

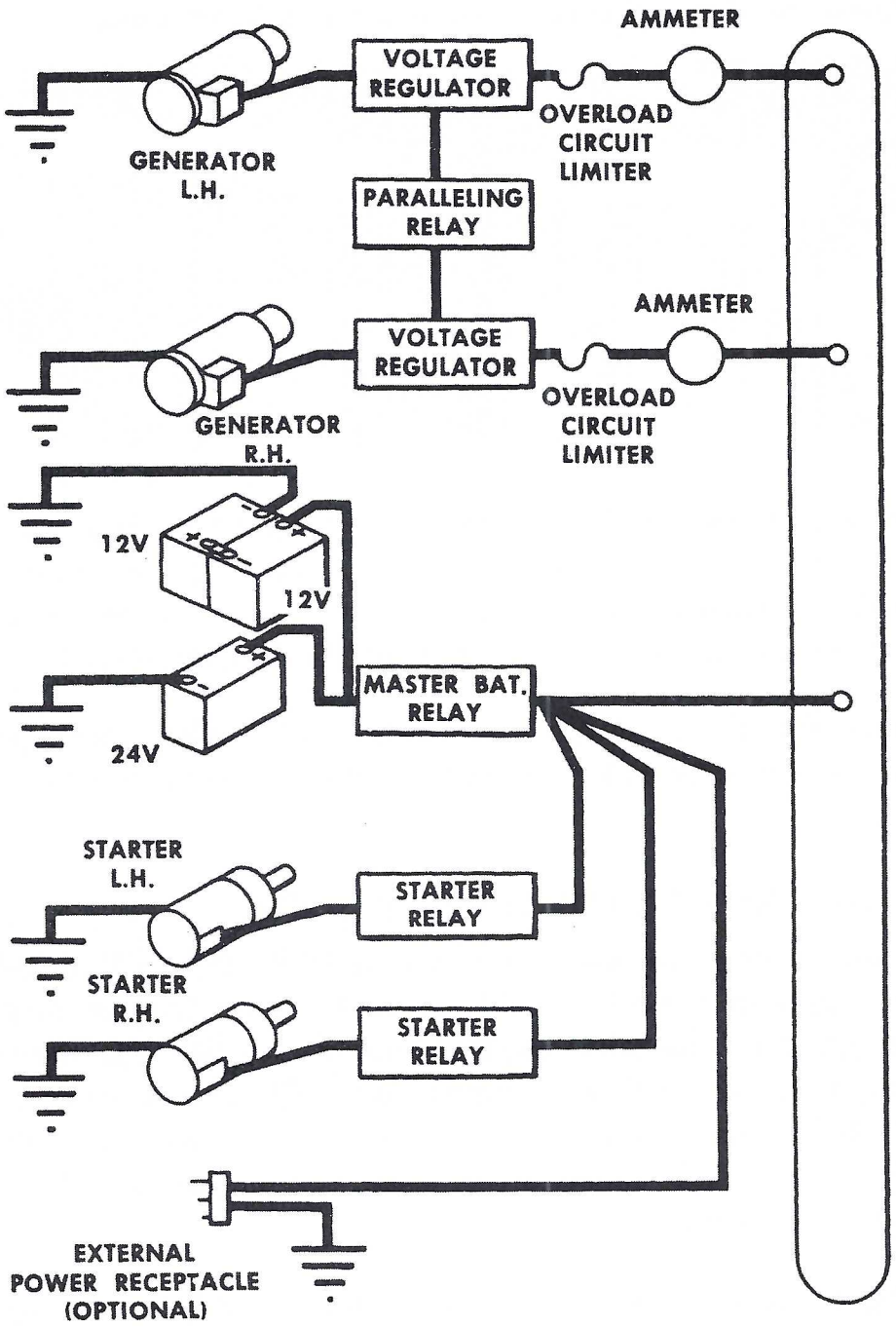
ELECTRICAL SYSTEM

The Travel Air's direct-current 24-volt electrical system consists of one 17-ampere-hour, 24-volt battery mounted in the upper portion of the nose section, and two 15-ampere, 24-volt, belt-driven generators connected in parallel. The generator-to-bus connections are through the voltage regulators and ammeters. Each generator's output is automatically controlled by its voltage regulator and the system paralleling relay which adjusts the generator output so both are equal.

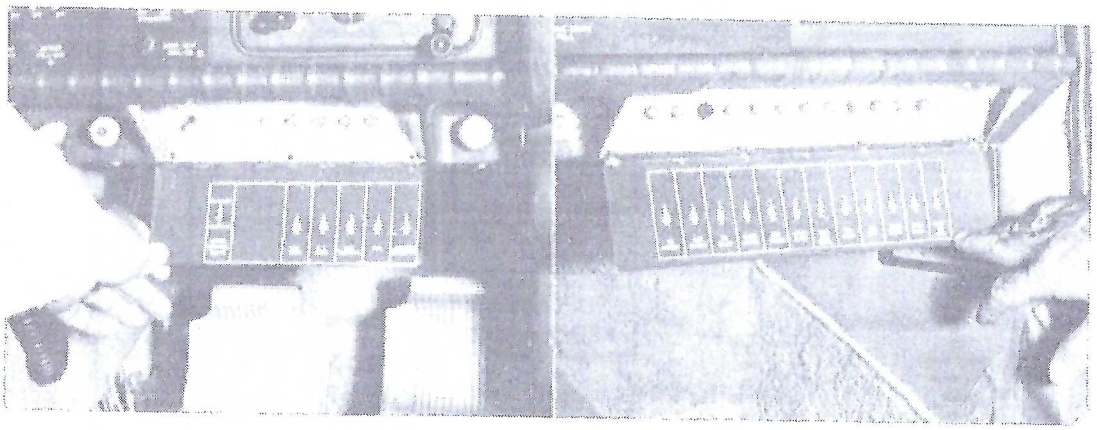
The ammeters in the Travel Air, although of the conventional charge-discharge type, are connected only to the generator output leads and function as loadmeters. With the system working properly, the ammeters will give a positive indication, increasing or decreasing directly with the load applied. Since the generator load also includes battery charging, battery condition may be estimated from the ammeter reading when the battery is momentarily switched off. Normally, the ammeters should show a negative reading only for a moment before the reverse-current relay opens, when an engine slows below generator cut-in speed.

The battery key switch, generator switches, ignition switches and starter switches are located on the ignition panel on the left side of the cabin. Individual circuit breakers, located along the bottom of the right instrument subpanel, are placarded with their circuit functions.

ELECTRIC POWER DISTRIBUTION



The automotive-type starters are relay-controlled which minimizes the length of heavy cable required to carry the high amperage of the starter circuit. A drive unit actuated by centrifugal force from the operating starter motor engages and rotates the external ring-gear at the front of the engine crankcase. When the starter motor is de-energized the drive disengages from the ring gear pinion.



Cabin and instrument illumination are provided by a lighting system in the cabin overhead panel. The cabin light is controlled by an "ON-OFF" switch beside the light, and a rheostat switch beneath the control console adjusts the intensity of the instrument lights.

Lighting for the trim tab and mechanical landing gear position indicators is controlled by a rheostat switch slightly below the control console.

HEATING AND VENTILATING SYSTEM

Fresh air heating and ventilation in your BEECHCRAFT provides an ample supply of heated or cold air to the cabin both in flight and on the ground. Manually operated controls regulate the heater and air supply to suit individual preferences. The system consists of a 35,000 BTU combustion heater, a heater igniter unit, a ventilation air blower, two fuel pumps, a fuel-filter, shut-off valves and temperature limiting thermostats.

For flight operation, ram air pressure forces fresh air through the system. The ventilation air blower maintains air flow through the system during ground operation. The blower is controlled by a switch connected to the landing gear actuation linkage, so that the blower operates when the landing gear is down, the "Cabin Vent"

switch "ON" and the "Cabin Air" control in. The blower is shut off automatically when the gear is retracted, and may be shut off manually with the "Cabin Vent" switch or by pulling the "Cabin Air" control out approximately half way which partially closes the iris valve and opens a blower switch connected to the control linkage. This switch also turns off the heater since with the iris valve only slightly open, the intake air is insufficient for proper heater operation.

Heater operation is controlled by a ductstat in the distribution plenum, which acts as a cycling thermostat to maintain the temperature selected with the "Cabin Temperature" control on the left sub-panel. The ductstat upper limit is set at 180°F, to prevent uncomfortably-hot air from entering the cabin. To obtain more cabin heat during flight in low outside air temperatures, pull the "Cabin Air" control out as far as possible without shutting off the heater. This reduces the volume of incoming cold air and allows the heater to raise the temperature of the air to a comfortable level.

A normally-open thermostat in the heater discharge plenum acts as a safety device, to render the heater system, except the blower, inoperative if a malfunction should occur which results in dangerously-high temperatures. This thermostat is set to close at 300°F, grounding a fuse in the heater power circuit. The fuse is located on the upper right-hand segment of the bulkhead behind the instrument panel. This location was chosen deliberately for inaccessibility in flight, to make certain any malfunction causing the overheat fuse to blow is corrected before the heater is operated again.

Fuel for the heater is drawn from the left main wing tank, by two electric fuel pumps, while in flight. During ground operation of the heater only one of the fuel pumps operates. This is accomplished by a switch operated by the landing gear linkage. The heater fuel line is equipped with a strainer. A spring-loaded, electrically operated, solenoid valve, which closes whenever the heater is off, prevents seepage of fuel into the inoperative heater.

The heater ignition unit, mounted in the nose cap, uses a vibrator to provide interrupted current for its high-voltage coil. The unit is equipped with two sets of points; a toggle-type switch, located beneath the left sub-panel, will place the alternate set in service. When the

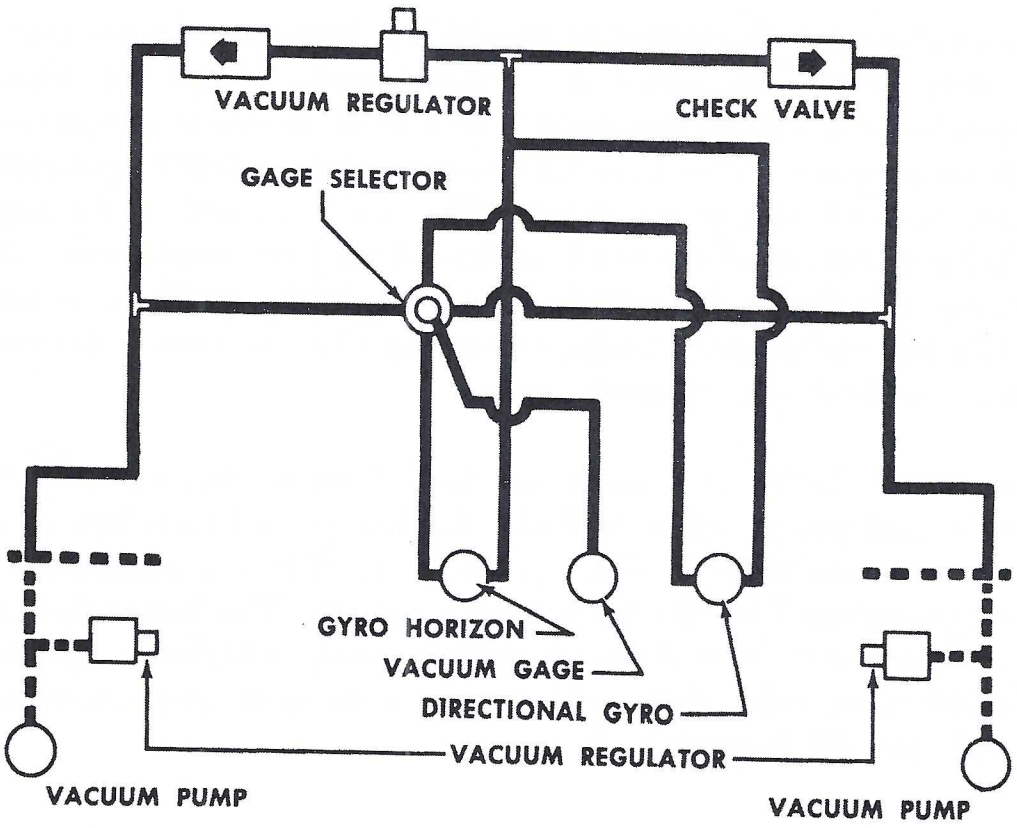
alternate points are used, the points should be replaced as soon as practicable.

VACUUM SYSTEM

Suction for the vacuum-operated gyroscopic flight instruments is supplied by two engine-driven vacuum pumps, interconnected to form a single system. Either vacuum pump has sufficient capacity to maintain the complete aircraft gyro instrumentation.

A vacuum gage selector valve, on the lower control pedestal, permits a check of the vacuum at four points in the system. The valve has four positions: directional gyro, gyro horizon, left pump and right pump. The suction in inches of mercury at any of the points selected is indicated on the instrument panel suction gage. During normal operation the valve should be positioned in either "Directional Gyro"

VACUUM SYSTEM SCHEMATIC



or "Gyro Horizon." Air entering the system is taken in through the using instruments themselves. To eliminate dust and grit, which might injure the instruments, each of the instrument air intakes is fitted

with a filter. Sluggish or erratic operation of one or more of the vacuum driven instruments, with a normal suction gage reading, indicates that clogged filter is reducing the volume of intake air to less than the instruments require. Suction in the system is controlled by adjustable, spring-loaded valves. One in the instrument line just ahead of the instrument panel acts as a system regulation valve and one in each engine's nacelle acts as a relief valve. All three valves are set to bleed air into the system as required to maintain the correct suction supply.

FOR YOUR COMFORT, CONVENIENCE AND SAFETY

Your BEECHCRAFT, built to standards in excess of actual requirements, offers you safety, as well as comfort and convenience items, unexcelled by any airplane in its class. Other items of this nature which are offered as optional equipment and may be installed either at the factory or by your distributor, dealer or Certified Service Station, are listed in the latter portion of this section.

Good Visibility

With increasing congestion around airports, the ability to see about you is vital to safe take-offs and landings. All occupants of the aircraft have excellent visibility through the large tinted, ultraviolet-proof windshield and side windows. There is no need to S-turn for adequate forward vision as the nearly-level ground attitude afforded by the tricycle landing gear gives excellent forward visibility to the pilot. Both rear windows open for ground ventilation and have positive locks to prevent opening in flight. Release pins permit the windows to be used as emergency exits.

Landing Gear and Flap Indicators

Both direct visual indication and signal lights on the instrument panel tell the pilot the position of his landing gear and flaps. The flaps are visible through the windows and an illuminated mechanical pointer indicates the position of the nose gear. Landing gear and wing flap switches are designed to be pulled back out of a detent before they can be repositioned, to avoid accidental tripping.

Landing Lights

Sealed-beam landing lights in the leading edge of each outboard wing

panel are shielded by clear plastic lenses with a specially-designed shaded area to produce maximum effectiveness. Either light is operated independently by separate switches; prolonged operation during ground maneuvering or operation in the air should be avoided. Conventional position lights on the wing tips and tail cone are operated through a flasher unit, designed to give steady lights if a malfunction occurs, and are controlled by a two position switch on the right sub-panel.

Stall Warning Indicator

As an impending stall is approached a stall warning indicator sounds a warning horn and flashes a red light on the instrument panel while there is still ample time for the pilot to correct his attitude. The stall warning indicator, triggered by a sensing vane on the leading edge of the left wing, is equally effective in all flight attitudes and at all weights and airspeeds. Irregular and intermittent at first, the warning signal will become steady as the aircraft approaches a complete stall.

Safety Belts

The Beech designed high-strength safety belts on your Travel Air, if properly worn, will keep its occupants snugly in their seats in rough air or under rapid deceleration. The safety belts are mechanically simple and comfortable and wearing them, you have sufficient freedom of movement to easily operate all the controls. The nylon strap material, in colors complementing the upholstery, is soil resistant and easily cleaned. The airline-type harness buckles may be fastened or released quickly and are easily adjusted.

Instrument Cowl Pad

The attractive instrument cowl pad, made of foam rubber encased in dull-finish leather, is shaped to cover the contour above and between the instrument panel and the windshield. This pad, extending aft over the instrument panel in an eyebrow effect, gives the front seat occupants more protection during sudden stop or rapid deceleration.

Cabin Interior

Your BEECHCRAFT offers truly "hushed" air travel through its acoustically engineered and soundproofed cabin. Pilot and passenger fatigue factors have been taken into consideration wherever they are

pertinent in designing the airplane. These primary design considerations assure relaxed, comfortable, speedy travel. The travel-designed interiors include cabin loudspeakers, attractive upholstery and wall to wall carpet.

Ample baggage space is provided in the nose compartment and behind the rear seats. The aft baggage compartment is readily accessible in flight from the rear seats. A large door on the right side of the fuselage facilitates loading and unloading while on the ground. The compartment door has a key type lock for security of items stored in the baggage compartment when the aircraft is parked.

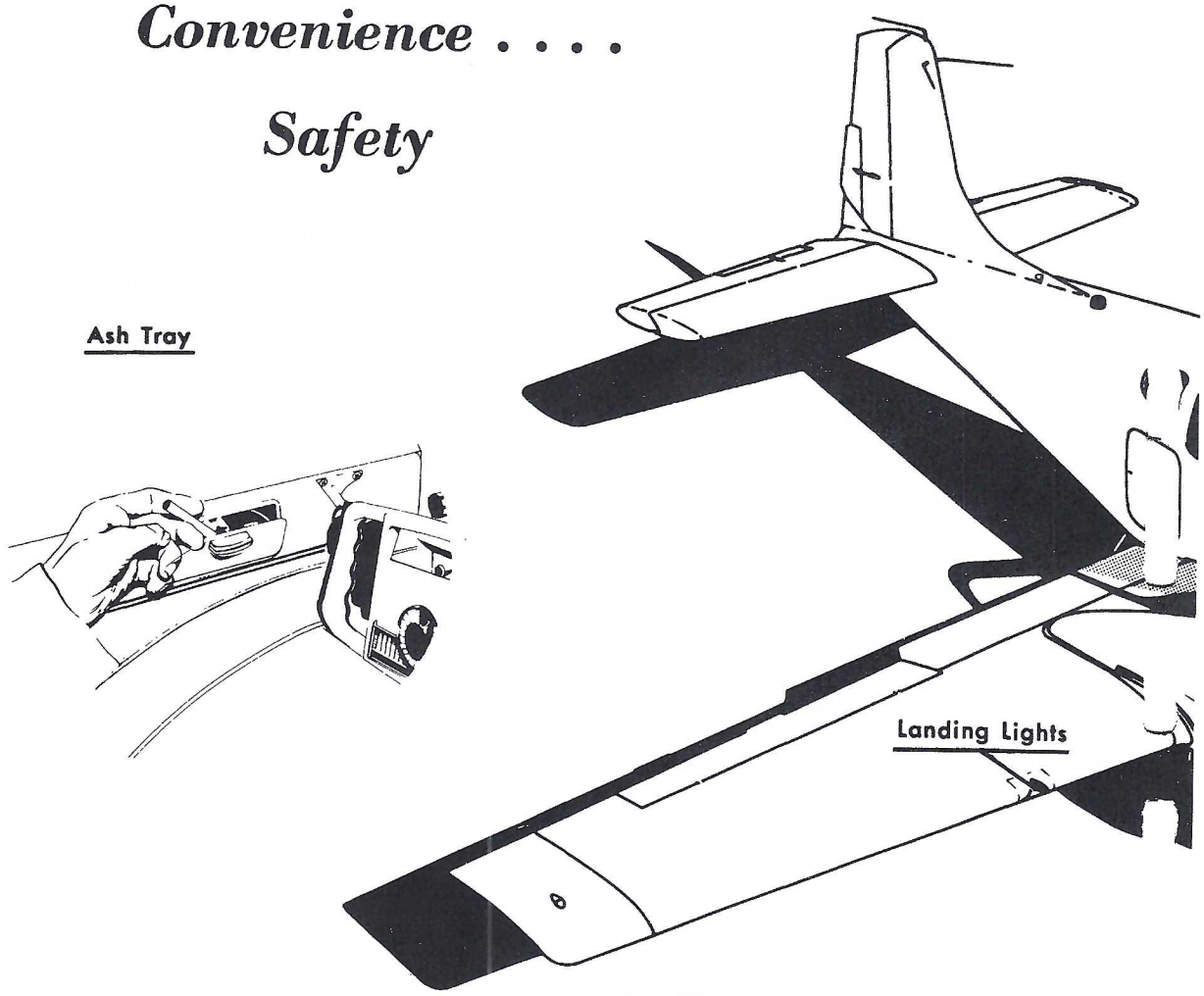
Since people come in different shapes and sizes, the Travel Air's seats may be adjusted to fit the individual comfort requirements of their occupants. All seats are adjustable fore-and-aft, the front seats by pulling up on the small lever just to the right of each seat cushion and the rear seats by pulling up on the cross bar handle just below the front of each seat cushion. Seat backs, except the pilot's seat, are also adjustable from the vertical to the fully reclined position. Armrests for the front seat are built into the cabin sidewalls with a generously-proportioned armrest between the seats which may be raised into position on a pedestal or lowered flush with the seat cushions. The rear seats have individual armrests incorporated in their design.

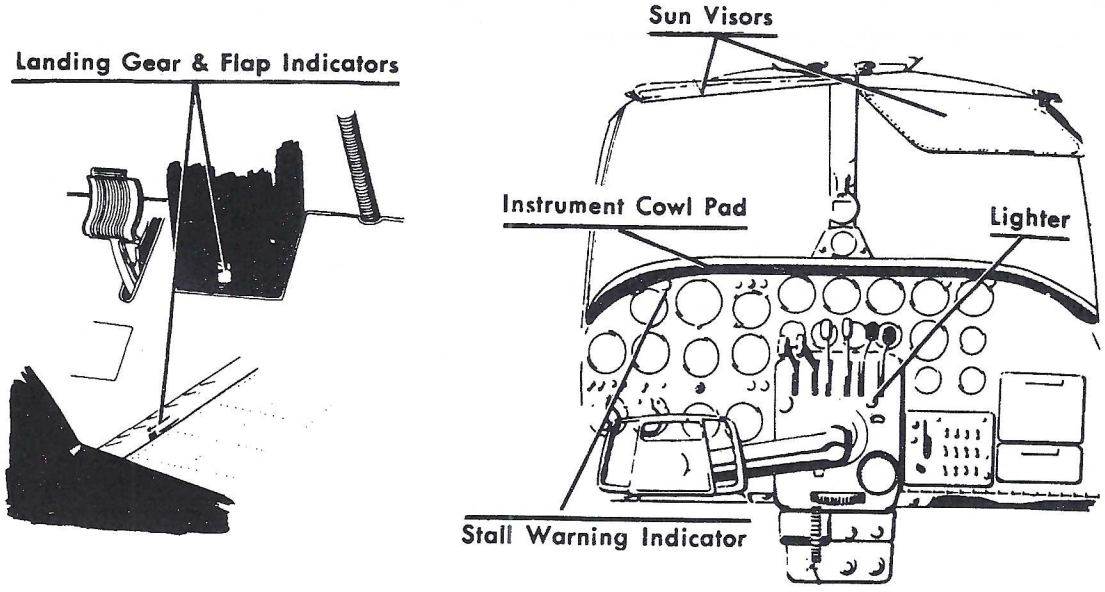
Except when the aircraft is to be operated from the right side, the right hand set of rudder pedals may be laid forward against the floorboards, for maximum leg room.

Comfort . . . .

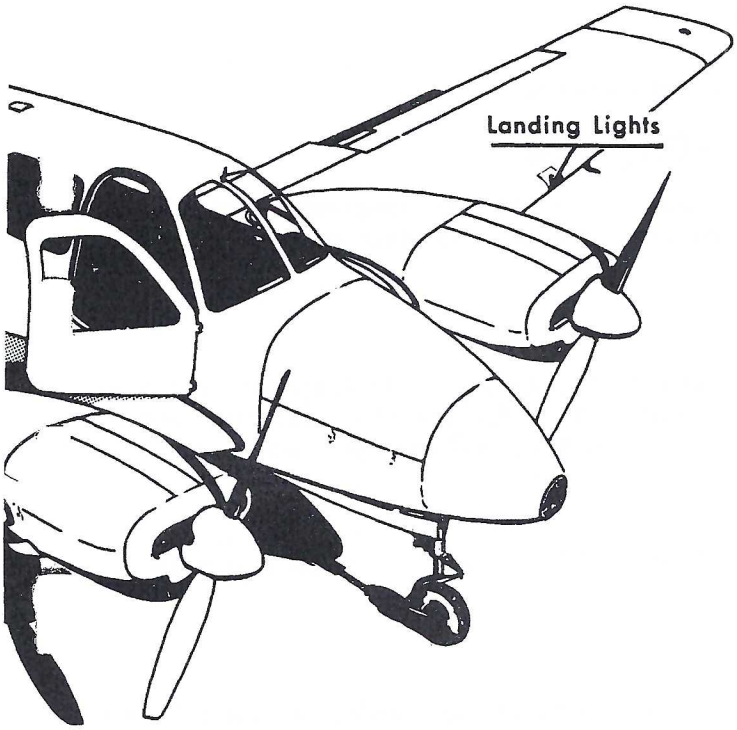
Convenience . . . .

Safety

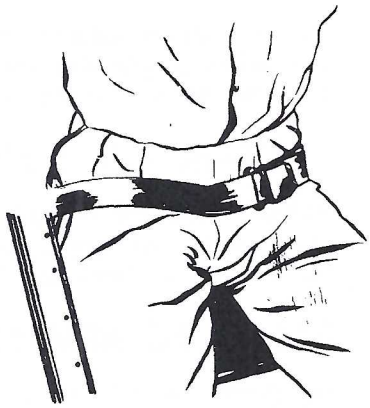


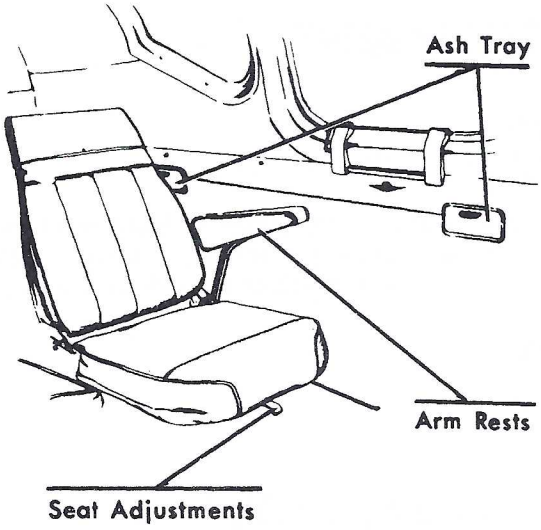


Good Visibility

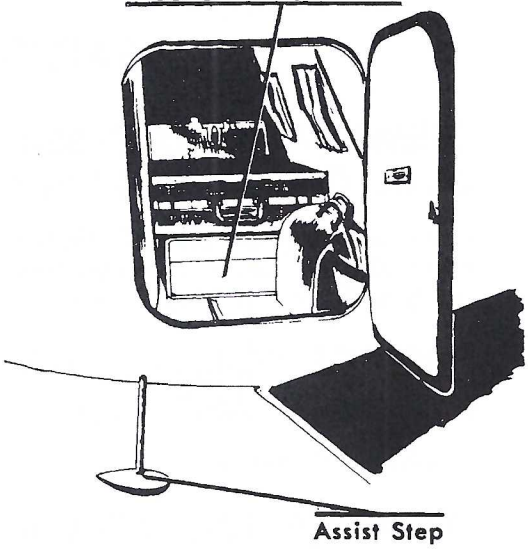


Safety Belt





Baggage Compartment



Optional Equipment . . .

To Meet Your Flying Requirements for . . .

NAVIGATIONAL EQUIPMENT

DUAL CONTROL WHEEL

Indispensable for instruction and transition purposes.

KOLLSMAN DIRECTION INDICATOR

This is a direct reading magnetic compass. A vertical dial incorporates dual needles, one indicator provides the actual flight course bearing, the other indicator is used as an index pointer to preset your course.

TACTAIR T-3 AUTOPILOT

Makes "hands-off flying" a reality. This fully automatic, three-directional system is pneumatically operated, easy to maintain and almost "fool-proof" in operation. Just set the controls, sit back and relax — the Tactair Autopilot will keep you "on course."

RADIO EQUIPMENT

Equipment consists of either Lear — Narco — ARC — Collins . . . or a combination of such equipment.

INSTRUMENT POST LIGHTS

Makes night flying easier and safer with evenly-distributed illumination, without glare or reflections, of all the panel instruments.

SAFETY EQUIPMENT

GRIMES ROTATING BEACON
DUAL GRIMES ROTATING BEACONS

A continuous rotating, high intensity warning light flashes your in-flight position to other aircraft. These accessory items are good insurance since they provide added safety both for night flights and for operations during conditions of restricted visibility.

SURFACE DE-ICING SYSTEM
PROPELLER ANTI-ICER

A must for all-weather flying.

PROPELLER UNFEATHERING ACCUMULATOR

Gives quicker, more positive propeller unfeathering without the use of the engine starter.

. . . . FOR YOUR Beechcraft

. . . . . Safety . . . Comfort . . . Pleasure
Convenience . . . Efficiency

EQUIPMENT FOR COMFORT — PLEASURE AND CONVENIENCE

SUPER SOUNDPROOFING

Thick blankets of modern fiberglass insulation and quarter-inch windshield, seal noise and vibration outside.

FIFTH SEAT ARRANGEMENT

The 5-seat arrangement incorporates a standard seat in the rear of the cabin.

INDIVIDUAL FRESH AIR OUTLETS

Allows individual selection of cool fresh air for each passenger's comfort.

EXTERNAL POWER RECEPTACLE

Permits starting the engines with external power, eliminating the delay for a battery charge.

CARBURETOR AIR TEMPERATURE INDICATORS

Allows accurate control of carburetor heat to prevent carburetor icing.

MISCELLANEOUS OPTIONAL EQUIPMENT

CAGLE BRAKE UNITS

Automatic, self-adjusting brake release unit which completely eliminates brake drag, provides shorter take-off run, easier ground handling and reduced maintenance cost.

DUAL HYDRAULIC BRAKES

A must for instruction and transition purposes.

LOOSE TOOLS AND ACCESSORIES

Includes the same type special tools used at the factory to assemble your airplane.

AUXILIARY WING FUEL TANKS

Two 31-gallon cells replace the 17-gallon cells for an additional 28 gallons of usable fuel for long-range flights.

TAXI LIGHT

The sealed-beam taxi light, which may be used continuously if desired, is of particular value for night operation.

SECTION II

Operating Check Lists

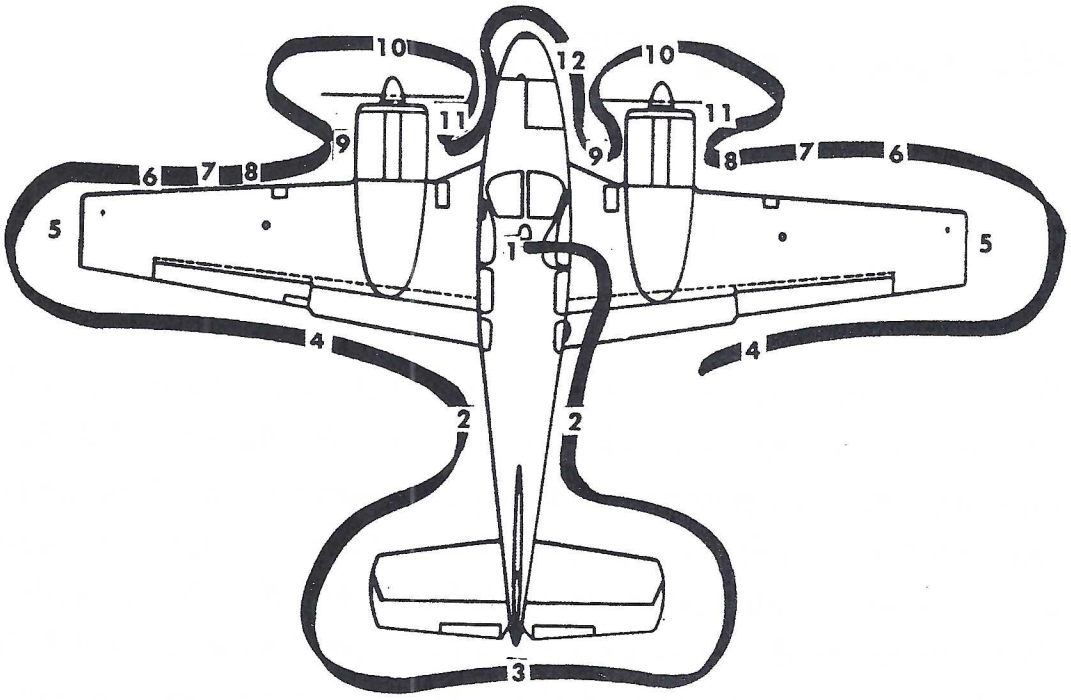
This section has been prepared to give you a quick and easily accessible reference to all operational check lists needed for the normal flight of your airplane. The general techniques presented are based on the recommendations and data compiled by Beech Aircraft Corporation pilots who have test flown and demonstrated the aircraft. The procedures given are intended merely to assist you in developing a good flying technique for your BEECHCRAFT. They constitute the manner in which a good pilot would perform each item under average conditions.

As you become familiar with your airplane, and the individual circumstance under which you fly it, you may find that variations in these techniques will better suit your requirements or personal preference. These checks, if well organized and studied, should become so much a matter of habit that you will find it unnecessary to make reference to this portion of the manual except as a refresher. Made carefully, these checks not only will help prevent mishap or malfunction during operation, but will help lower maintenance cost.

Whether the check is a visual exterior check or a specific operational check, it is a definite responsibility the pilot owes to himself and to his passengers. However, as stated previously, the procedures are intended primarily as guides and are no substitute for good judgment.

Know your airplane's capabilities as well as your own.

WALK AROUND INSPECTION



PREFLIGHT INSPECTION

1. Cockpit — checked; battery and magneto switches "OFF." Tab controls "O"; remove and stow control lock.
2. Static pressure buttons free of foreign material.
3. Check empennage and control surfaces. Aft baggage compartment — cargo secure.
4. Inspect wings, aileron and flaps.
5. Wing tips — checked; remove pitot cover and tie-down lines.
6. Outboard fuel tanks — FULL, fuel tank caps — secured.
7. Drain fuel sediment bowls, strainers, fuel selector valves and fuel cell sumps.
8. Tires and shock struts inflated and clean. Landing gear safety switch — checked.
9. Check each nacelle for oil, fuel or exhaust leakage.
10. Propeller blades — checked; induction filter clean.
11. Check engine oil level, inboard fuel tanks — FULL — secure filler caps, fasten cowling.
12. Forward baggage compartment — cargo secured; weight and balance — checked; all inspection doors — secured.

BEFORE STARTING CHECK

1. Fasten safety belts, set parking brake.
2. Battery and generator master switches — ON. Battery — only, if external power is used.
3. Check circuit breakers, all switches and controls.
4. Landing gear switch DOWN. Mechanical indicator full DOWN.
5. Cowl flaps OPEN, cowl flap position light, amber.
6. Fuel selector valves on main fuel tanks.
7. Carburetor heat controls — OFF.
8. Check the fuel level indication for all cells.
9. Check the landing gear and flap position lights; test the stall warning light.

STARTING CHECK

1. Position throttles ¼ inch open.
2. Propeller controls — High rpm. Cold engine starting: mixture full rich, prime as required. Hot engine starting: mixture in idle-cut-off until cranking, do not prime.
3. Left magneto switch — ON, for engine to be started.
4. Fuel boost pump — ON, for engine to be started. Check fuel pressure.
5. Actuate starter switch.
6. Warm-up 800 to 1300 rpm.
7. Switch fuel boost pump — OFF, check engine driven fuel pump pressure.
8. Normal readings all gages — checked.
9. Disconnect external power, if used.
10. Start remaining engine using the same procedure.

BEFORE TAKE-OFF CHECK

1. Propellers — exercise at 2200 rpm.
2. Magnetos — checked (2200 rpm).
3. Trim — set for take-off, depending on load.
4. Check all controls for full travel and freedom of movement.
5. Fuel boost pumps — ON; check indicated pressure.
6. Check pitot heat, when switch is — ON and OFF.
7. Mixture — FULL RICH.
8. Carburetor control — IN.
9. All instruments and controls — checked.
10. Doors and windows — latched.
11. Parking brake — OFF.

BEFORE LANDING CHECK

1. Safety belts — secure.
2. Check main cell fuel quantity, then switch both fuel selector valves to main cells.
3. Mixture — FULL RICH.
4. Carburetor heat controls should be in the COLD position unless icing conditions exist.
5. Fuel boost pumps — ON.
6. Landing gear DOWN, check indicators.
7. Flaps — as required.
8. Cowl flaps — closed until on ground.
9. Propellers — High rpm.
10. Set altimeter to local setting.

SHUT-DOWN CHECK

1. Parking brake — set.
2. Electrical and radio equipment — OFF.
3. Propellers — High rpm.
4. Throttles — advance to approximately 1100 rpm.
5. Mixture — IDLE-CUT-OFF.
6. Throttles — full aft as engines quit firing.
7. Magneto switches — OFF — after engine stops turning.
8. Battery and generator switches — OFF.
9. All switches — OFF — after engine stops turning.
10. Fuel selector valves — OFF, if airplane is to remain parked for any length of time.
11. Controls locked, if conditions warrant.
12. Cabin door — closed.