Beechcraft Debonair Model C33
OWNER'S MANUAL

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

K35, M35, N35, P35, S35, V35, V35TC, V35A, V35A TC, V35B, V35B TC 33, A83, B33, C33, E33, F33, G33, C33A, E33A, F33A, 36, A36.

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

1. Maximum usable fuel of each 25 or 24½ 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. 13% on 22 gallon main tank system.

   b. 9% on 37 gallon main tank system.

4. On Models K-35, M-35, 33, and A33 Owners Manuals, reduce range by an additional 190 statute miles to account for climb and 45 minutes reserve at 45% maximum continuous power.

P/N 35-590118-17 Issued: February 11, 1972

Beechcraft Debonair *you should:*

Get acquainted with your airplane

Read all of this manual carefully to become familiar with the operation of your new Debonair.

Keep your airplane looking and running like new

Know when to have your Debonair serviced inside and out.

Beechcraft Debonair *needs service*

Your airplane's best friend is your Beechcraft Certified Service Station

He'll be glad to answer your questions or discuss any problems you may have concerning your airplane. The operation, care and maintenance of your airplane after its delivery to you is your responsibility. Your authorized Beechcraft Sales and Service Outlets have all the current recommended modification, service and operational procedures designed to get maximum utility and safety from your airplane.

General Specifications

ENGINE

ntinental 6-cylinder, IO-470-K, fuel injection engine, rated at 225 hp at 2600 rpm.

PERFORMANCE

Maximum Cruising Speeds:	
75% power (2450 rpm) at 7000 feet	185 mph
70% power (2450 rpm) at 9000 feet	183 mph
65% power (2450 rpm) at 11,000 feet	180 mph
Economical Cruising Speed:	
50% power (2100 rpm) at 10,000 feet	154 mph
High Speed at Sea Level:	
Full throttle (2600 rpm)	195 mph
Rate of Climb at Sea Level:	
(Rated power, 225 hp)	930 ft./min.
Service Ceiling:	
(100 ft./min.)	17,800 ft.
Stalling Speed:	
(Landing) with flaps	60 mph
Cruising Range:	
(Includes allowance for warm-up, taxi, take-off, climb, and 45-minute reserve.)	
50% power, 154 mph at 10,000 feet	650 mi. (49 gal.) 845 mi. (60 gal.) 1270 mi. (80 gal.)
Take-off Distance (Sea Level, 20° Flaps):	
Ground run	982 ft.
Total over 50 feet	1288 ft.
Landing Distance (Sea Level, 30° Flaps):	
Ground Roll	643 ft.
Total over 50 feet	1298 ft.

The above performance figures are the results of flight tests of the Model C33 Debonair conducted by Beech Aircraft Corporation under factory-controlled conditions, and will vary with individual airplanes and the numerous factors affecting flight performance.

BAGGAGE

Maximum 270 lbs.

WEIGHTS

Gross Weight	3050 lbs.
Empty Weight	1780 lbs.
(Empty weight includes standard instruments; cabin headings and ventilating system with windshield defroster; individual rear seats; constant speed propeller; navigation, cabin, instrument, and landing lights.)	
Useful load	1270 lbs.
Available weight for people, baggage, and optional equipment with standard fuel cells full	948 lbs.

WING AREA AND LOADINGS

Wing area	177.6 sq. ft.
Wing loading, at gross weight	17.2 lbs./sq. ft.
Power loading, at gross weight	13.5 lbs./hp

DIMENSIONS

Wing span	32 ft. 9.9 in.
Length	25 ft. 6 in.
Height (Cabin)	6 ft. 6.5 in.
(Tail Section)	8 ft. 3 in.

CABIN DIMENSIONS

Cabin Length	6 ft. 11 in.
Cabin width	3 ft. 6 in.
Cabin height	4 ft. 2 in.
Passenger door size	36 in. x 37 in.
Baggage door size	22.5 in. x 18.5 in.
Baggage compartment volume	16.5 cu. ft.
With utility shelf	22.4 cu. ft.
Baggage compartment maximum loading	270 lbs.

PROPELLER AND EQUIPMENT

Propeller—Aluminum alloy blades, hydraulically controlled continuously variable pitch, diameter 84", with spinner and Woodward hydraulic governor.

ENGINE EQUIPMENT

Starter
Generator (35-ampere)
Voltage regulator
Fuel pump
Fuel injection
Induction air filter
Cabin heater muffler (stainless steel)
Exhaust manifolds (stainless steel)

FUEL AND OIL CAPACITY

Fuel capacity in standard wing cells	49 gal. usable
Fuel capacity with optional wing cells	80 gal. usable
Oil capacity	10 qt.

LANDING GEAR

Tricycle type with swiveling steerable nose wheel equipped with shimmy dampener. BEECHCRAFT 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 500 feet per minute. Main tires 6.00 x 6 size; nose wheel tire 5.00 x 5 size. Wheels – BEECHCRAFT with ring-disc hydraulic brakes.

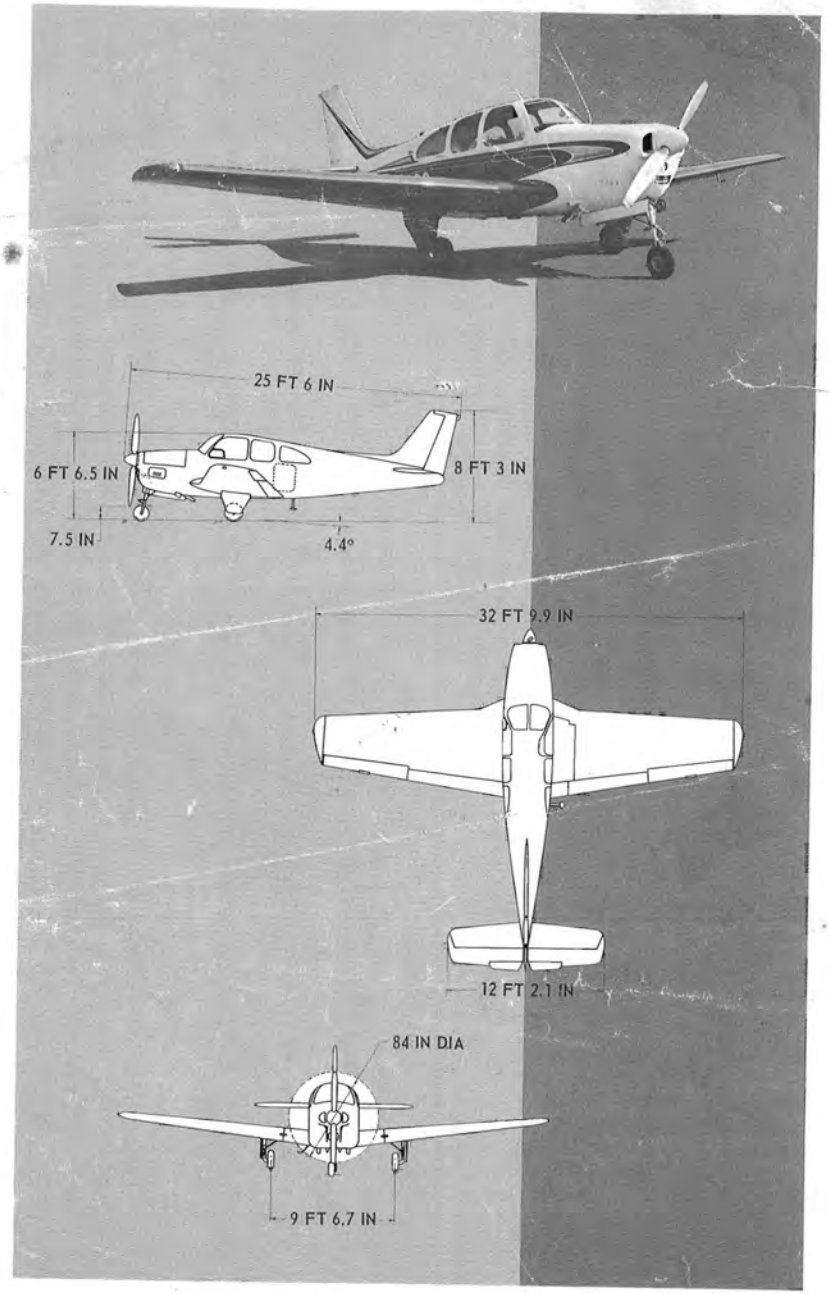


Table of Contents

SECTION I Descriptive Information..... 1-1

SECTION II Operating Check Lists..... 2-1

SECTION III Performance Specifications and Limitations..... 3-1

SECTION IV Flying Your BEECHCRAFT Debonair..... 4-1

SECTION V Unusual Operating Conditions..... 5-1

SECTION VI Operational Data..... 6-1

SECTION VII Servicing and Maintenance..... 7-1

As the owner of a new

Know your Debonair's performance and economy

Suggestions and recommendations throughout this manual can help you get the best performance from your airplane without sacrificing good economy.

And when your

Read your Beechcraft NEW AIRPLANE WARRANTY

Beechcraft Debonair Model C33
OWNER'S MANUAL

PUBLISHED BY PARTS AND SERVICE OPERATIONS
BEECH AIRCRAFT CORPORATION - WICHITA, KANSAS
33-590002-3 DECEMBER 4, 1964

List of Effective Pages

TOTAL NUMBER OF PAGES IN THIS PUBLICATION IS 102

Title . . . . . Original

List of Effective Pages . . . . . Original

i through vi . . . . . Original

1-1 through 1-19 . . . . . Original

2-1 through 2-4 . . . . . Original

3-1 through 3-5 . . . . . Original

4-1 through 4-13 . . . . . Original

5-1 through 5-7 . . . . . Original

6-1 through 6-20 . . . . . Original

7-1 through 7-21 . . . . . Original

SECTION I

Descriptive Information

Your new BEECHCRAFT Model C33 Debonair is a four-place, low-wing, cantilever monoplane equipped with a 225-horsepower Continental IO-470 fuel injection engine and a fully retractable tricycle landing gear. The all metal, semi-monocoque airframe structure is of aluminum, magnesium, and alloy steel, fabricated and assembled utilizing proven techniques for maximum strength. Careful workmanship and inspection employed in airframe construction assure that structural components will withstand flight loads in excess of FAA requirements for a ***Utility Category*** airplane at the ***certified maximum gross weight*** of 3050 pounds.

The great majority of airplanes in the Debonair's weight class are licensed in the ***Normal Category***, which requires that they be capable of structurally withstanding a limit load factor of 5.7 times the

design gross weight under specific flying conditions without permanent structural deformation. The fact that your Debonair, in addition to being licensed in the Normal Category, is licensed also in the ***Utility Category at full gross weight***, means that its ultimate design load factor must be at least ***6.6 times the design gross weight.*** Only two single-engine commercial aircraft in the aviation field are licensed at full gross weight in the Utility Category. One of these is your BEECHCRAFT Debonair. (The other is also manufactured by Beech Aircraft Corporation.)

In the Normal Category your Debonair may be used for nonacrobatic, nonscheduled passenger and cargo operations and pilot training. In the Utility Category it may be used for all Normal Category operations plus limited acrobatic maneuvers (Section III).

To enhance its flight potential with comparable capabilities under landing conditions, the structural soundness of your Debonair is backed up by a landing gear design which is capable of absorbing far above the normal landing loads. The gear used on the Debonair is a refinement of the same basic gear which has accumulated literally hundreds of thousands of landings in military usage on such training aircraft as the Air Force T-34A, the Navy T-34B, and the export Model 45 Mentor aircraft. In order to meet military requirements, this gear was drop-tested and subjected to other exhaustive qualifications far in excess of the minimums required to meet Federal Aviation Agency standards. In addition, it has been subjected to all the rigors of student training operation which have helped to prove out the design and served as the basis for numerous refinements disclosed by service experience.

Fully efficient and effective operation of your BEECHCRAFT Debonair can be achieved only through flight experience based on a thorough understanding of the airplane's several systems. The following discussion under headings such as "Flight Controls", "Landing Gear", "Power Plant", etc., is presented to aid in this understanding.

FLIGHT CONTROLS

The flight control surfaces are of the conventional three-control type operated by the rudder pedal-control column combination, through push-pull rods and conventional closed-circuit cable system.

The throw-over type control column provides for elevator and aileron control and may be positioned in either the pilot's or copilot's position. To transfer the control column from one side to the other, pull the T-handle latch at the base of the control arm and position the column as desired. Rudder pedals provide for rudder control and are adjustable fore and aft to fit individual pilot requirements.

A bobweight mounted forward of the control column improves the dynamic longitudinal stability of the airplane. The bobweight also provides higher elevator control forces during accelerated or maneuvering flight. This provides an additional safety factor by making it less possible to impose high load factors on the airplane.

The trim tabs on the elevators are controlled by a handwheel at the left of the control console; their position is indicated by a drum-type dial in the left subpanel to the right of the engine gage cluster. The ailerons are equipped with fixed trim tabs on each surface. Trim changes in the air are accomplished by actuating the aileron trimmer on the control column hub. The trimmer displaces the aileron surfaces to compensate for any uneven loading. The displacement is maintained by cable loads imposed by the aileron trimmer. When transferring the control column from one side to the other, the aileron trimmer should be held until the wheel is repositioned.

The flaps are raised and lowered electrically by jackscrew actuators driven through flexible shafts from a single motor and gearbox under the front seat. The flap position lights to the left of the control column show green for the up position and red for the full-down landing position; intermediate 20-degree and 10-degree positions for short field take-off are indicated by lines painted on the leading edge of the left flap. The intermediate positions are reached when the marks are aligned with the trailing edge of the wing, as viewed from the pilot's position. Limit switches for the up and down positions stop the flaps automatically at the proper point.

LANDING GEAR

The fully retractable tricycle landing gear is operated by a single electric motor through push-pull tubes and a gearbox under the front seats. When retracted, all three wheels are completely enclosed by doors which operate automatically.

The nose wheel is steerable through linkage connected to the rudder

pedals; its maximum deflection with the rudder pedals alone is 17 degrees to either side of center, while with both rudder pedals and brakes the deflection may be increased to 29 degrees on either side. The steering linkage is spring-loaded to absorb shocks and will compensate automatically for rudder applied on crosswind landings. When the rudder pedals are released, the nose wheel will caster and align itself automatically. In addition, to insure proper retraction, a roller-and-slot arrangement will correct any misalignment of the wheel as it enters the wheel well. A hydraulic dampener on the nose wheel strut compensates for any tendency to shimmy.

The landing gear position indicator lights to the right of the control column show red when the gear is up or green when it is down, coming on only when the gear reaches the locked position at either extreme. In addition, a mechanical indicator at the base of the nose wheel well bulkhead shows the position of the nose gear at all times; its pointer is linked by a cable to the actuating mechanism and moves simultaneously with it. Limit switches and a dynamic brake automatically stop the retract mechanism when the gear reaches the full up or full down position. In addition to the position indicators, the landing gear control circuit has three devices to assist you in operating it safely: a warning horn which sounds whenever the throttle is retarded below approximately 12 inches Hg manifold pressure with the gear retracted; a safety switch on the right shock strut which opens the control cirucit whenever the strut is compressed by the weight of the airplane; and a switch which sounds the warning horn whenever the landing gear control switch is placed in the "UP" position with the landing gear safety switch open. You should bear in mind that these devices are emergency equipment, in the sense that they are intended to avoid an accident if you should make a mistake. Always operate the landing gear control switch as though these devices were not installed.

The main landing gear wheels of your Debonair are equipped with BEECHCRAFT ring-disc hydraulic brakes. The brakes are actuated by master cylinders individually linked to the rudder pedals to aid in steering the airplane on the ground. Tow pressure on the rudder pedals actuates the system and is employed also to "pump up" residual pressure in the parking brake system.

To set the parking brakes, pull the "PARK BRAKE PULL ON" control, located near the center of the right subpanel, and pump the brake pedals. Actuation of the control closes a one-way check

valve so that pressure built up by pumping the brake pedals is retained and the brakes remain set. Push the control in to release the brakes. The parking brake system is designed for use when the airplane is to be parked for only a few hours. For longer periods, leave the parking brake off and install wheel chocks.

The brakes are self-compensating, receiving fluid from a reservoir mounted on the forward side of the fire wall. The reservoir, accessible by raising the engine cowling, should be checked periodically and fluid added as necessary.

POWER PLANT

The fuel injection system of the IO-470 engine is a continuous-flow type using a special aerated nozzle at the intake port of each cylinder. Fuel flow is controlled by a pressure regulating valve basically controlled by linkage to the air throttle in the induction manifold. A manual mixture control arrangement overrides the throttle's control of the pressure regulator to establish a basic mixture setting; once this setting is made by the pilot, the throttle linkage varies fuel pressure to maintain the desired mixture. A fuel flow gage on the instrument panel provides a direct means of determining fuel flow and mixture strength.

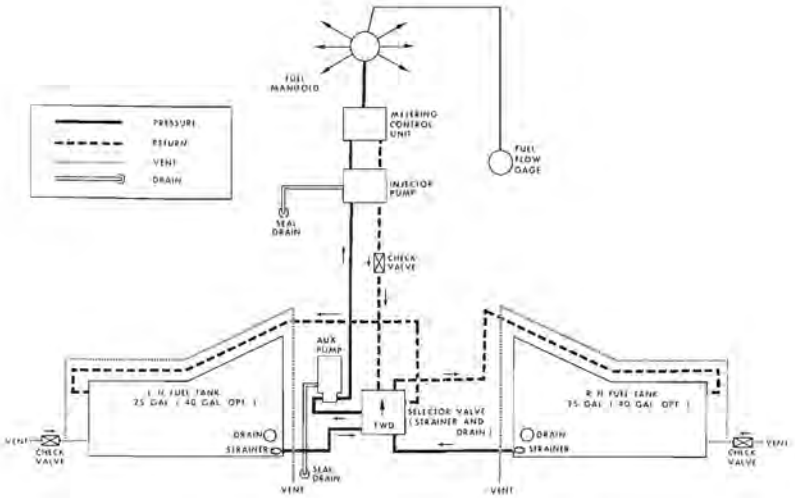
Recommended engine oil grades for different temperature ranges and correct engine fuel grades may be found in the Consumable Materials Chart in Section VII.

Your BEECHCRAFT Debonair is equipped with an aluminum alloy constant speed, high efficiency propeller. High pitch is produced by engine oil under governor-boosted pressure; low pitch is produced by the centrifugal twisting moment of the blades. The propeller governor senses speed of rotation and maintains selected rpm by automatically controlling oil flow to the propeller. The propeller control is designed to provide low pitch when pushed forward and high pitch when pulled back.

Fuel System

Your BEECHCRAFT Debonair's 49-gallon standard or 80-gallon optional fuel capacity is supplied by two leading edge fuel cells.

FUEL SYSTEM SCHEMATIC

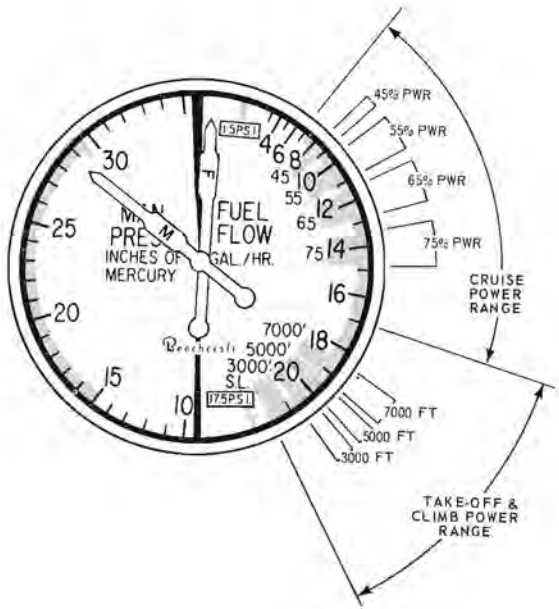


Fuel is fed from the desired cell to a selector valve just forward and to the left of the pilot's seat. The fuel passes through a strainer in the selector valve, through the auxiliary fuel pump and an engine-driven injector pump to a metering control unit, then to a fuel manifold valve where it is directed to the injector nozzle and the intake valve of each cylinder.

The positive displacement injector pump responds to changes in engine speed and governs total fuel flow proportionally. The pump provides greater capacity than the engine requires, even at low engine speeds, to assure proper pump pressure and delivery for all engine operating speeds. Relief valves in the injector pump allow the excess fuel to be returned to the cell from which it is being drawn, assuring the maximum in fuel economy. This relief system returns approximately ten gallons of excess fuel per hour through the selector valve.

A check valve is provided so that boost pump pressure to the system can bypass the injector pump during engine starting. In addition, the check valve aids in suppressing vapor formation under high ambient temperatures and permits the use of the auxiliary pump as a source of fuel pressure in the unlikely event of injector pump failure.

The system incorporates a fuel strainer and a finger actuated drain cock for each cell plus an additional strainer and drain below the fuel selector valve, the low point of the system. The selector valve drain and strainer are accessible through an access door inboard of the left wing root. The cell drain cocks are located forward of the landing gear doors. All of the drain cocks should be actuated daily to purge any condensed water vapor from the fuel cells and the system low point.



Fuel Flow And Manifold Pressure Indicator

The fuel flow portion of the fuel flow and manifold pressure indicator on the instrument panel is calibrated in gallons per hour, indicating at a glance your exact rate of fuel consumption. The indicator dial is marked with red radials at the minimum and maximum allowable operating fuel pressures. A green arc indicates normal operating limits. In the cruise power range the upper green arc bands cover the normal fuel flow required from 45% to 75% power. The low pressure edge of each green segment is the normal-lean setting and the high pressure edge is the best-power setting for that percentage of power. The take-off and climb range is covered by the lower green arc bands for full power at various altitudes. The full power markings represent the maximum performance mixtures for the altitudes shown, making it practical to lean the mixture for maximum power and performance during high altitude take-offs and full power climbs.

Oil System

The con tinental IO-470 engine uses a wet sump oil system, which is an integral part of the engine. The only external component of the oil system is the cooler, which is bolted to the front of the engine case.

There are no external tanks or oil lines with this arrangement; oil enters and leaves the cooler through ports which match ports on the oil cooler mounting pad of the engine.

Control of oil temperatures and circulation through the system are completely automatic. The cooler has built-in thermostatic and pressure bypass valves which divert the flow around the cooler section. The pressure valve, set to relieve pressure at a point somewhat higher than the engine pressure relief valve, automatically opens if sludge or congealed oil block the flow through the cooler section. The thermostatic valve bypasses the oil when its temperature is below a preset minimum.

The engine oil sump has a capacity of 10 quarts. It is serviced through a filler neck on the left side of the engine case, near the nose. An oil level dipstick is located in the same position. The dipstick ring handle is fitted with a lock ring and must be rotated one-fourth turn in either direction to remove it.

Engine Controls

The throttle, mixture, and propeller controls are centrally located on the console below the control column. The throttle is pushed in to open, pulled out to close, and locks when the button on the end of the knob is released. With the throttle locked, fine adjustments may be made by rotating the knobs.

The mixture control is pushed all the way in for full rich, pulled out to the end of its travel for idle cut-off, and locks when the knob is turned clockwise.

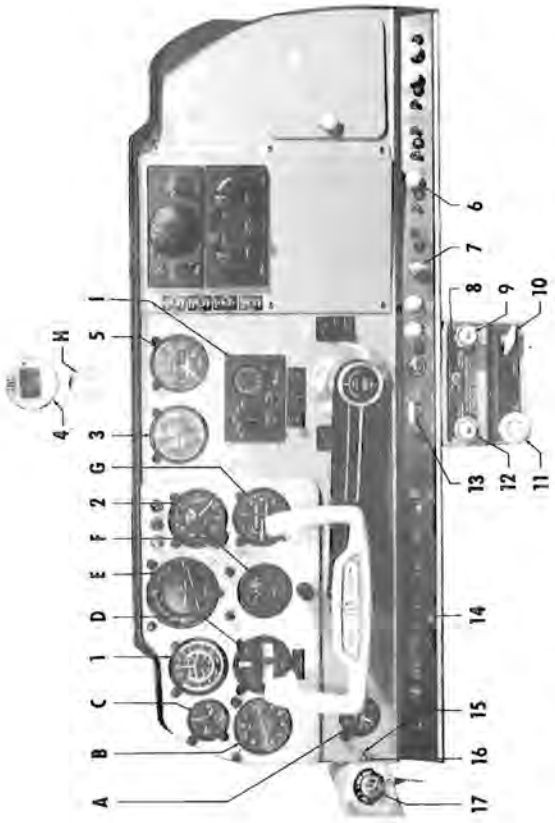
The propeller control is similar to the throttle, incorporating both a locking knob and a vernier arrangement for fine adjustments. The control is pushed in to increase rpm (low pitch) and pulled out to decrease rpm (high pitch).

Induction system air is obtained through a filtered opening in the nose cowl and directed through an air intake duct to the throttle valve. A spring-loaded door in each side of the intake duct opens automatically if the filter becomes blocked by impact ice or dirt. A pull-and-release control on the console can be used to actuate a "break-open" lever that forces open one of the doors, should they become frozen shut due to heavy icing conditions. Any ice retaining the other door is then melted by the warmer air being admitted to the intake duct.

The keyed ignition switch and the battery master and generator switches are located on a panel below the pilot's storm window. The ignition key switch actuates the starter after being rotated clockwise through the "R", "L", and "BOTH" magneto positions. The switch is spring-loaded to return to the "BOTH" position when released.

Engine Cooling

The engine is cooled by air which enters the openings in the nose cowling, flows over the cooling fins on the cylinders, and passes out through openings in the lower cowling. During ground running, the mixture control should be in the full rich position and the propeller governor set for maximum rpm except for a brief testing of governor operation. Ground running should be held to the minimum necessary for warm-up and testing.



STANDARD EQUIPMENT

1. Airspeed Indicator
2. Altimeter
3. Fuel Flow and Manifold Pressure Indicator
4. Magnetic Compass
5. Tachometer
6. Parking Brake Control
7. Landing Gear Position Switch
8. Auxiliary Fuel Pump Switch
9. Propeller Control
10. Alternate Air Control
11. Mixture Control
12. Throttle
13. Flap Position Switch
14. Engine Gage Cluster
15. Generator Switch
16. Battery Master Switch
17. Magneto-Starter Switch

OPTIONAL EQUIPMENT

A. Suction Gage
B. Automatic Direction Finder Indicator
C. Clock
D. Turn and Bank Indicator
E. Horizon Gyro
F. Directional Gyro
G. Vertical Speed Indicator
H. Free Air Temperature Indicator
I. Autopilot

INSTRUMENTS

Except for the tachometer, and the combination manifold pressure and fuel flow indicator, the power plant instruments are grouped in a cluster on the left subpanel. The engine gage cluster contains left and right fuel quantity gages, the oil pressure gage, the oil temperature and cylinder head temperature indicators and the ammeter. The left and right fuel quantity gages provide a constant reading for the desired wing tank when the battery master switch is turned on.

The combination manifold pressure and fuel flow indicator and the tachometer are mounted in the instrument panel proper. Incorporated in the tachometer is an engine hour meter which automatically records the total engine operating time.

Standard flight instrumentation includes an airspeed indicator, sensitive altimeter and magnetic compass.

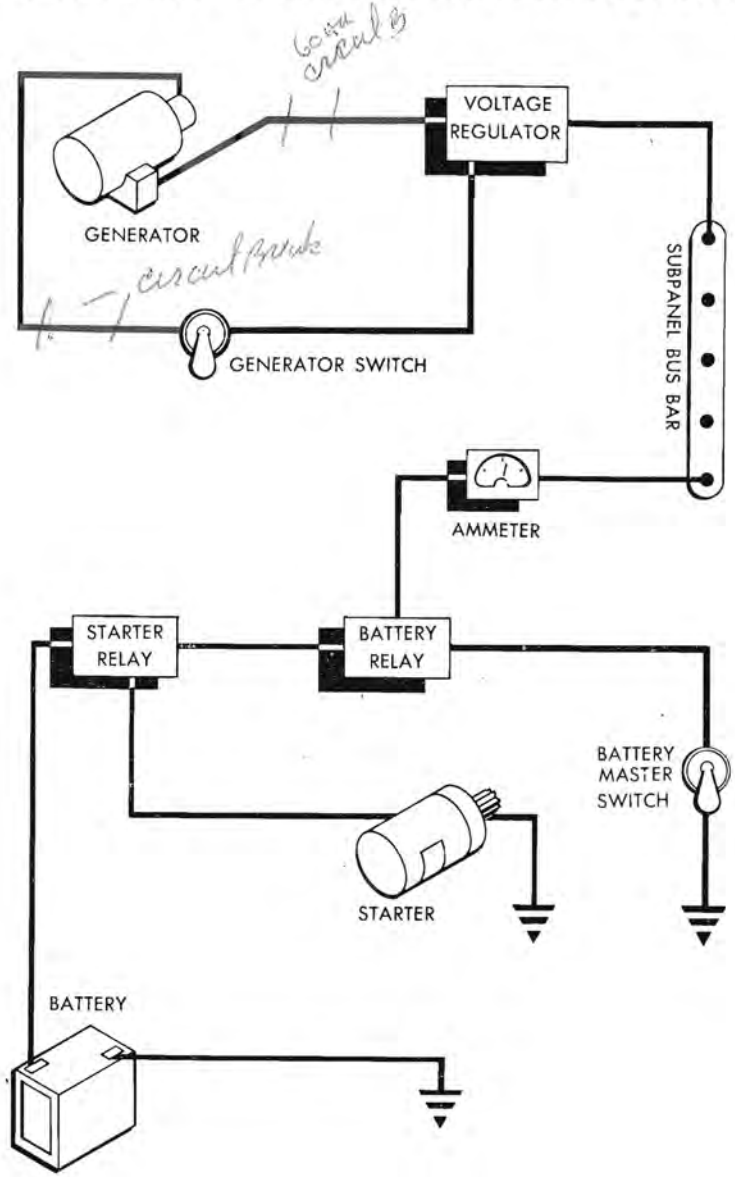
Ram air pressure for the airspeed indicator is picked up by a pitot tube on a mast under the left wing. Static air pressure for the altimeter and airspeed indicator is supplied by a static port on each side of the fuselage just aft of the baggage compartment. These ports must be kept clean and the lines open at all times for correct instrument readings. A check of the ports should be part of your preflight inspection routine, and the static line drain, accessible from the baggage compartment, should be opened occasionally to drain accumulated moisture from the lines.

ELECTRICAL SYSTEM

Direct-current electric power is supplied by a 12-volt engine-driven 35-ampere generator controlled by a voltage-current regulator which automatically adjusts output to the load, including recharging the battery, In general, the airplane's circuitry is the single-wire, ground return type with the airplane structure used as the ground return.

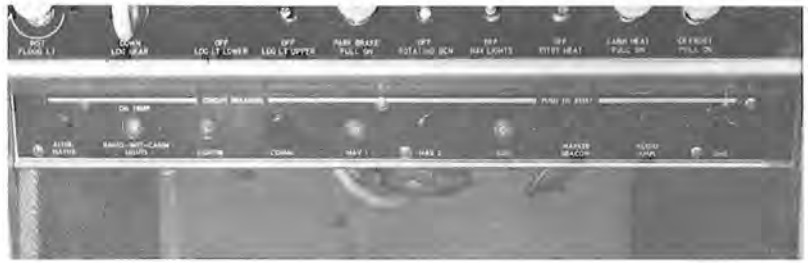
All circuits in the airplane are protected by circuit breakers, most of them grouped on the left and right subpanels. The figure in the center of the button for each push-to-reset breaker gives the capacity in amperes for 12-volt operation. The generator circuit breaker is installed on the left side of the nose wheel well bulkhead.

ELECTRIC POWER DISTRIBUTION



LEFT CIRCUIT BREAKER PANEL

RIGHT CIRCUIT BREAKER PANEL



The starter circuit is relay-controlled to minimize the length of heavy cable required to carry the high amperage in the circuit. The switch in the ignition panel, therefore, controls the relay rather than than the actual component.

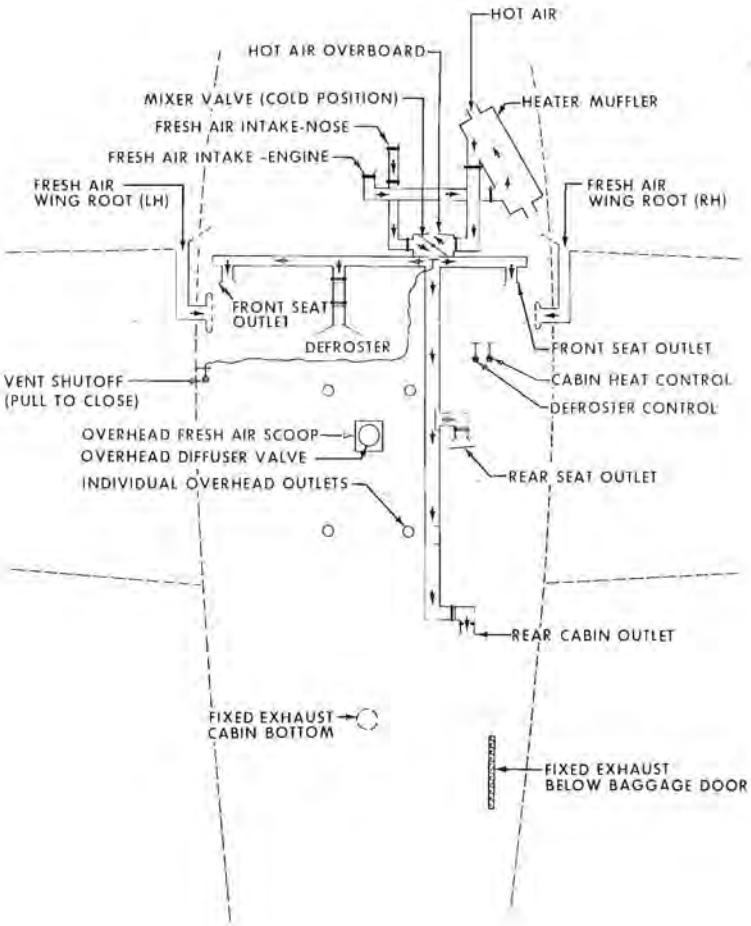
The 12-volt, 33-ampere-hour battery is mounted in a box on the right hand side of the engine compartment, forward of the fire wall. The battery box is of acid-resistant construction and incorporates a battery vent line and a battery drain line which runs overboard through an opening in the lower cowling.

The ammeter is of the conventional charge-discharge type, showing the actual rate of charge or discharge of the battery.

HEATING AND VENTILATING SYSTEM

Hot air for warming the cabin and defrosting the windshield is supplied by a heater muffler on the right engine exhaust stack.Fresh

HEATING AND VENTILATING SYSTEM



ram air picked up through an intake on the rear engine baffle passes through the heater muffler and into a mixer valve where it is blended with unheated fresh ram air picked up through an intake on the right side of the nose. The ratio of hot to cold air entering the cabin from the mixer valve is varied by a butterfly type valve. The valve is operated by the "CABIN HEAT" push-pull control on the right hand subpanel. As the control is pulled out, the proportion of hot air is increased, thus providing precise air temperature control. To prevent a pressure buildup of either hot or cold air in the mixer valve, excess air is vented overboard.

The quantity of air entering the cabin from the mixer valve is regulated by a gate type valve operated by the red "VENT SHUTOFF" control on the outboard side of the left subpanel. When the "VENT SHUTOFF" control is pulled all the way out, the heater system is deactivated, since no air from the mixer valve can enter the cabin.

From the mixer valve, air is routed to five outlets in the cabin: an outlet above each pair of rudder pedals, an outlet under the right front seat, one in the rear cabin area, and one in the individual windshield defroster duct. The defroster control, located near the outboard side of the right subpanel, adjusts or completely shuts off the flow of air through the defroster.

In addition to the fresh air supplied to the mixer valve, ducts in each wing root are connected directly to outlets in the cabin side panels, just below the instrument panel. The small outlet on the right side has a valve which is opened or closed by turning the large knob in the center of the outlet. The large outlet on the left side may be opened or closed and the direction of the airflow changed by rotating the cover with the small plastic knob on the rim.

A manually retractable air scoop on top of the cabin conducts outside air to four fresh air outlets in the overhead panel. The outlets, located above each seat, can be manually adjusted to control both the quantity and direction of airflow, allowing individual selection of fresh air for each occupant's comfort. The air scoop may be closed by operating a push-pull control located on the overhead panel, where it is easily accessible from the pilot's seat. Adjacent to the fresh air outlets in the overhead panel is a manually controlled diffuser valve which admits fresh air to the cabin and distributes it equally in all directions. A fixed cabin air exhaust is installed in the side panel below the baggage door and vented through an opening in the fuselage below the baggage compartment.

FOR YOUR COMFORT, CONVENIENCE AND SAFETY

Your BEECHCRAFT Debonair, 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 are offered as optional equipment and may be installed either at the factory or by your distributor or dealer.

Good Visibility

With increasing congestion around airports, the ability to see about you is vital in take-offs and landings. The Debonair's wide, deep windshields and side windows, combined with the nearly-level ground attitude afforded by its tricycle landing gear, give the pilot an excellent view of his surroundings.

Landing Gear and Flap Indicators

The position of the landing gear and the wing flaps is indicated by signal lights on the instrument panel. In addition, the flaps are visible through the windows and an illuminated mechanical indicator at the base of the nose wheel well bulkhead indicates the position of the nose gear. The mechanical indicator is operated through the nose gear linkage. To avoid accidental tripping of the landing gear and flap switches, each is designed to be pulled out of a detent before it can be repositioned. The landing gear and flap indicator lights may be manually dimmed as desired by the pilot.

Landing Gear Safety Switch

To avoid inadvertent retraction of the landing gear while the airplane is at rest on the ground, a safety switch is installed on the right main landing gear. Operated by the compression and extension of the shock strut, the switch breaks the landing gear control circuit when the strut is compressed and completes the circuit so that the gear may be retracted when the strut is extended. The safety switch is not intended to protect the airplane while in motion; before starting to taxi, always make certain that the landing gear control switch is down. As a safeguard, the landing gear warning horn is designed to sound anytime the landing gear switch is placed in the "UP" position with the landing gear safety switch open.

Stall Warning Horn

To alert the pilot in advance, a stall warning horn sounds a warning signal as a stall develops, while there is ample time for the pilot to correct his attitude. The stall warning horn is triggered by a sensing vane on the leading edge of the wing and is equally effective at all flight attitudes, weights, and airspeeds. Since the vane is aerodynamically balanced, it triggers an intermittent warning signal as a stall condition is approached, but will cause a steady signal as the condition becomes more pronounced.

Landing Gear Warning Horn

A landing gear warning horn will sound whenever the throttle is retarded below a setting sufficient to maintain flying speed, unless the landing gear has been lowered. The throttle warning signal is an intermittent note, to distinguish it from the stall warning horn. Either opening the throttle or lowering the landing gear will silence the landing gear warning horn. There is no silencing switch.

Instrument Lighting

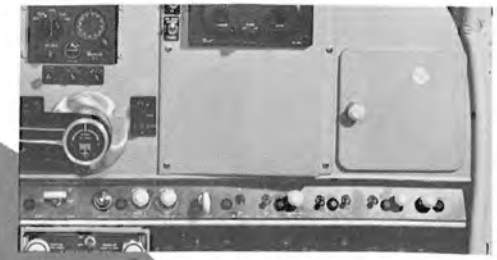
As an aid to night flying, several means of direct instrument lighting are provided on your Debonair. Two small red lights, located in the overhead panel, flood the instrument panel with a soft red light. The lights may be intensified or dimmed as desired by controlling the "INST FLOOD LT" rheostat on the subpanel. Individual instrument post lights, located adjacent to each instrument, are available as optional equipment. The instrument post lights may be used in conjunction with the flood lights or as an individual lighting system. The post lights are controlled by a rheostat on the subpanel placarded "RADIO & POST LTS".

COMFORT ··
CONVENIENCE ··
SAFETY

SUNVISORS AND
EXCELLENT VISIBILITY

SEAT BELTS, ASHTRAYS, AND
ARMRESTS

LANDING LIGHT



GLOVE BOX AND
AILERON TRIM
MECHANISM

FRESH AIR

LANDING GEAR INDICATOR

HAT RACK AND COAT HANGER

LANDING GEAR
SAFETY SWITCH

ASSIST STEP

SECTION II

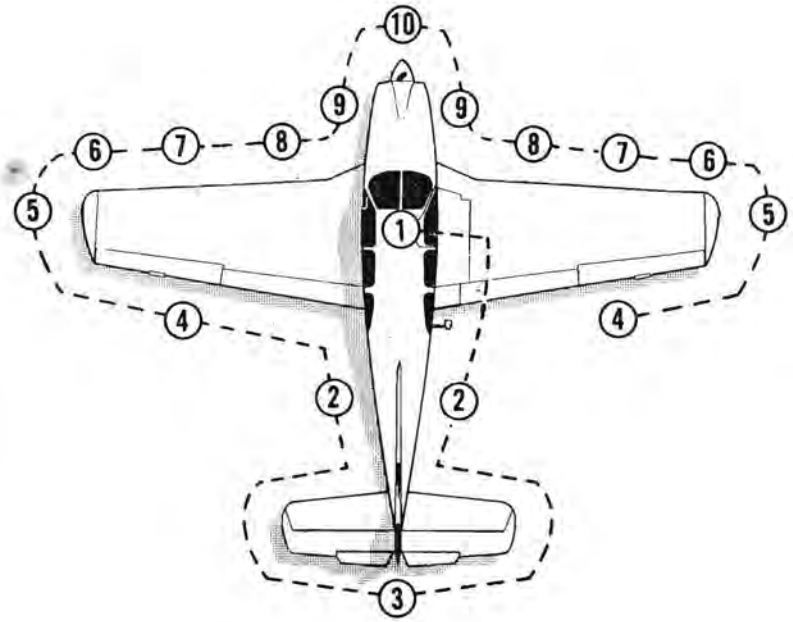
Operating Check Lists

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 Debonair. 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, and made carefully, they 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.



PREFLIGHT INSPECTION

1. Ignition switch, battery master and generator switches – "OFF". Control lock – removed.
2. Static air pressure ports – openings unobstructed.
3. Inspect empennage and control surfaces.
4. Inspect wings, ailerons, and flaps
5. Inspect wing tips and position lights.
6. Remove tie-down lines and pitot tube cover. Pitot tube opening(s) – unobstructed.
7. Fuel cells – checked; fuel cell caps – secured. Fuel sumps – drained.
8. Shock struts and tires – properly inflated; struts – clean.
9. Engine oil sump – FULL; dipstick – secured; check for oil leaks. Cowling fasteners – tight.
10. Propeller blades – checked for nicks and cracks. Induction air filter – clean.

BEFORE STARTING CHECK

1. Parking brake – set.
2. All switches and circuit breakers – checked.
3. Landing gear position switch – "DOWN"; mechanical indicator – full DOWN.
4. Battery master and generator switches – "ON."
5. Propeller – high rpm (low pitch).
6. Mixture – FULL RICH at elevations under 5000 feet; above 5000 feet pull mixture control out 1/2 to 3/4 of its travel.
7. Fuel quantity gages – checked. Fuel selector valve – select cell more nearly full.
8. Load distribution – checked.

STARTING CHECK

1. Throttle – ONE-HALF OPEN.
2. Auxiliary fuel pump switch – "ON" until fuel flow gage indicates 8 gph, then "OFF."
3. Throttle – reduce to idle, then open 3 or 4 turns of the vernier.
4. Starter – engage; release key when engine fires.
5. In event of flooding, place mixture in IDLE CUT-OFF, and with throttle well open, operate starter to remove excess fuel, then follow hot engine starting procedure.
6. Warm-up – 1000 to 1200 rpm.
7. All gages – checked for normal readings.

HOT ENGINE STARTING: Auxiliary fuel pump switch momentarily on immediately before engaging starter.

BEFORE TAKE-OFF CHECK

1. Trim – aileron, neutral; elevator, zero (3^0 nose up if only front seats are occupied).
2. Flight controls – free, smooth operation through full travel. Elevator is spring-loaded to full down.
3. Instruments – all readings normal. Altimeter set; directional gyro (if installed) set to compass. Oil temperature sufficiently low to avoid "red line" on take-off run. Minimum oil pressure should occur only when oil temperature is above 190° F.
4. Magnetos – checked at 1700 rpm (maximum difference 50 rpm).
5. Propeller – exercise at 1900 rpm to obtain 300 to 400-rpm drop; return to high rpm (low pitch).

BEFORE TAKE-OFF CHECK – Continued

6. Flaps – as required (20o for short field take-off).
7. Doors and window – locked.
8. All seat belts – checked for security.
9. Mixture – open throttle and set mixture for field elevation take-off power. To allow for pressure increase with take-off rpm, set the pressure to the low side of the dial range. Note static rpm. Do not run up engine on loose sand or dirt.
10. Parking brake – released.

BEFORE LANDING CHECK

1. All seat belts – secured.
2. Mixture – FULL RICH.
3. Fuel selector valve – select cell more nearly full.
4. Landing gear – DOWN, as indicated by green light and mechanical indicator. Warning horn should not sound when throttle is closed.
5. Propeller – high rpm (low pitch).
6. Flaps – as required (maximum extension speed 120 mph CAS); retract flaps after landing roll has been completed.

SHUTDOWN CHECK

1. Radio and exterior lights – "OFF."
2. Propeller – high rpm (low pitch).
3. Throttle – closed.
4. Mixture – IDLE CUT-OFF position.
5. Ignition switch – "OFF".
6. All switches – "OFF", after propeller stops rotating.
7. Control lock – installed if conditions warrant.
8. Cabin door – closed.

SECTION III

Performance Specifications and Limitations

In this section, for your convenient reference, charts and tabular listings of speeds, performance and engine limitations have been grouped. The limitations and performance data in this section have been established by flight tests and engineering calculations to assist you in operating your BEECHCRAFT Debonair. The limitations have been approved by FAA and are mandatory. These charts and listings have been established under normal operating conditions, the flight tests being made under standard atmospheric conditions with a maximum gross weight; therefore, allowances for actual conditions must be made. Advance planning, allowing for any changes which may occur in operating conditions due to weather, temperature, altitude or loading, will assure you of safe, fast, comfortable, and economical transportation.

During all phases of engine and flight operation, observe the rpm and manifold pressure limits as computed on your Horsepower Settings Chart, to avoid excessive cylinder pressures. Use your Horsepower Settings Chart to arrive at rpm and manifold pressure settings for climb and cruising flight. Note that the manifold pressure required to obtain a given horsepower will vary with outside air temperature. When increasing power, set rpm first, then manifold pressure. Make power reductions with manifold pressure first, then rpm.

This section also contains information pertaining to glide distance, approved maneuvers, weight and balance, and oxygen supply endurance. Become familiar with your airplane and its operation. Know the contents of this handbook.

Airspeed Charts

TAKE-OFF SPEEDS (IAS)

Normal

Take-off	70 mph
Climb-out at 50 feet	85 mph

Minimum Run

Take-off	62 mph
Climb-out at 50 feet	67 mph

Obstacle

Take-off	62 mph
Climb-out	67 mph

CLIMB SPEEDS (IAS)

Cruising Climb Speed

(25 in. hg at 2500 rpm to 4000 feet; 2500 rpm at full throttle above 4000 feet; gear and flaps up)	130 mph

Best Rate-Of-Climb Speed, 5000 Feet

(Gear and flaps up)	105 mph
(Gear down)	88 mph
(Gear and flaps down)	69 mph

Best Angle-Of-Climb Speed, 5000 Feet

(Gear and flaps up)	86 mph
(Gear down)	77 mph
(Gear and flaps down)	66 mph

STALL SPEEDS (CAS)

CONFIGURATION	ANGLE OF BANK			
	0°	20°	40°	60°
Gear and Flaps Up – Power Off	71.0 mph	73.2 mph	81.1 mph	100.4 mph
Gear and Flaps up – Power On	63.0 mph	65.0 mph	72.0 mph	89.2 mph
Gear and Flaps Down – Power Off	60.0 mph	61.9 mph	68.6 mph	84.9 mph
Gear and Flaps Down – Power On	54.0 mph	55.7 mph	61.7 mph	76.5 mph

LANDING SPEEDS (IAS)

Normal

Approach at 50 feet	85 mph
Contact	67 mph

Obstacle

Approach at 50 feet	78 mph
Contact	67 mph

AIRSPEED LIMITATIONS (CAS)

Never Exceed (glide or dive, smooth air)(Red Radial)	225 mph
Caution Range (Yellow Arc)	185-225 mph
Maximum Structural Cruising Speed (level flight or climb)	185 mph
Normal Operating Range (Green Arc)	71-185 mph
Flap Operating Range (White Arc)	60-120 mph
Maximum Design Maneuvering Speed	147 mph
Maximum Gear Extended Speed	165 mph

Engine Operation Limitations

Maximum Power and Speed (all operations)	225 hp at 2600 rpm

ENGINE INSTRUMENT MARKINGS

Oil Temperature

Caution (Yellow Radial)	100° F
Normal (Green Line)	100°-225° F
Maximum (Red Radial)	225° F

Oil Pressure

Minimum Pressure (Red Radial)	30 psi
Normal Operating Range (Green Line)	30 to 60 psi
Maximum Pressure (Red Radial)	80 psi

Manifold Pressure

Normal Operating Range (Green Arc)	15 to 29.6 in. Hg
Maximum (Sea Level) (Red Radial)	29.6 in. Hg

Cylinder Head Temperature

Normal Operating Range (Green Line) ..... 200° to 460° F
Maximum Temperature (Red Radial)..... 460° F

Tachometer

Engine Warm-Up ..... 1000-1200 rpm
Normal Operation (Green Arc)..... 2000-2600 rpm
Maximum (Red Radial) ..... 2600 rpm

Fuel Flow

Minimum (Red Radial).....1.5 psi
Cruise Power (Operating Range)
(Green Arc) ..... 6.9 to 21.6 gph
Maximum (Red Radial)..... 17.5 psi

GLIDING DISTANCE TABLE

The Gliding Distance Table shown below gives the horizontal distance you can glide, assuming the glide ratios shown, for several different altitudes and wind conditions. Maximum glide is obtained with propeller in low rpm and an IAS of 90 mph. Refer to Section V for correct glide ratio procedure.

GLIDE DISTANCE

Altitude Above Ground	Zero Wind	10 mph Head Wind	20 mph Head Wind	30 mph Head Wind	30 mph Tail Wind	20 mph Tail Wind	10 mph Tail Wind
1000	1-3/4	1-1/2	1-1/4	1-1/4	1-3/4	1-1/2	1-1/4
2000	3-1/2	3-1/4	3	2-1/2	4-1/4	4	3-1/2
3000	5-1/2	5	4-1/2	4	6-3/4	6-1/4	5-1/2
4000	7-1/2	6-3/4	6	5-1/2	9-1/4	8-1/2	7-1/2
5000	9-1/4	8-1/2	7-3/4	6-3/4	11-3/4	11	9-3/4
6000	11-1/4	10-1/4	9-1/4	8-1/4	14-1/4	13-1/4	11-3/4
7000	13-1/4	12	10-3/4	9-3/4	16-3/4	15-1/2	13-3/4
8000	15	13-3/4	12-1/2	11	19-1/4	18	16
Glide Ratio	10.12	9.24	8.36	7.48	13.20	12.32	11.00

MANEUVERS

Only the following maneuvers are approved for your BEECHCRAFT Debonair when operating in the utility category at full gross weight.

SECTION IV

Flying Your Beechcraft Debonair

Specific information, necessary precautions and procedures presented in this section have been determined through engineering computations and flight testing of the aircraft. The general handling technique presented is based on recommendations and data compiled by Beech Aircraft Corporation pilots who have test flown and demonstrated the aircraft, and may be followed with confidence in forming your own procedures. The tables and diagrams in Section VI give a working basis for figuring the aircraft's performance under many combinations of the variable factors connected with flying. However, except for the limitations and precautions mentioned, both the procedures and the graphs are intended primarily as guides and are no substitute for good judgment.

For your convenient reference purposes, various types of data are grouped in other sections of the handbook. Section II is a complete listing of abbreviated check lists. Section III consists of tabular listings or charts of performance data, such as airspeeds, engine operation data, maneuvers, and weight and balance information. Section V covers unusual operating conditions. Section VI contains all the graphs and performance data needed for computing flight plans and other variables needed in everyday flying.

BEFORE YOU TAKE OFF

A good flying technique begins with a careful ground inspection before you enter the airplane. A planned routine of starting, warm-up, and taxiing checks will assure you that your airplane is operating properly while there still is an opportunity to correct any trouble which may appear. If well organized, these checks may be made quickly, and shortly will become matters of habit; the appearance, sound and even the smell of things about your airplane will become familiar to you, and the unfamiliar will alert you that something is at least not as it has been.

PREFLIGHT INSPECTION

Your external inspection should start as you approach the airplane. In addition to the check list in Section II, check the general appearance: wings level, control surfaces normally positioned, no external signs of damage such as dents or scratches, no access doors open or their fasteners loose. Glance under the airplane to check for dripping oil and dye stains from fuel leaks.

As you enter the airplane, check the cabin for loose articles which might become troublesome if you encountered turbulence. Adjust the seat, rudder pedals and control column to your own preference, then slip the seat belt on and adjust it for correct fit.

STARTING THE ENGINE

Whenever possible, you should have your airplane headed into the wind when the engine is started, although it is mandatory to do so only when the wind velocity is high or gusty.

Watch the oil pressure gage as the engine starts. It should register at least 10 pounds pressure in the first 30 seconds; if it does not, stop the engine and investigate.

In very hot weather, if there is an indication of vapor in the fuel system (fluctuating fuel flow) purge the fuel system by turning the auxiliary fuel pump switch momentarily on and off several times, or as necessary, to purge the system.

NOTE

Continuous operation of the auxiliary pump, at low rpm or warm-up rpm, will tend to flood the engine.

WARM-UP

Set the throttle for proper warm-up rpm and warm the engine until the oil temperature gage moves off the peg. The engine should then accelerate without hesitation. Avoid excessive warm-up, particularly in cold weather, because the heads may overheat as you attempt to bring the oil temperature up.

TAXIING

NEVER TAXI WITH A FLAT SHOCK STRUT!

Make sure the parking brake is released before applying power to taxi. Normally, you can turn as much as necessary by applying pressure to the rudder pedal in the direction you wish to turn, steering entirely with the nose wheel. For shorter turns, use some brake on the inside wheel; the airplane will turn in an inside wheel radius as short as 2 feet without sliding the nose wheel tire. Short turns, however, should be made slowly since they apply heavy side loads on the nose wheel strut. When taxiing over a rough surface, use minimum power, permitting the airplane to coast over obstructions, and use a minimum of brake pressure. Holding the control column back will minimize the loads on the nose wheel.

TAKE-OFF

Before starting your take-off roll, make the checks listed in Section II. This will be your last opportunity to check the airplane before you are airborne, and these checks should be performed carefully and thoroughly.

WARNING

If you are taking off or landing behind a large multi-engine or jet aircraft, allow sufficient spacing so that the air turbulence in the wake of the other airplane will have sufficient time to dissipate and settle before you enter the area. Be particularly careful to guard against this turbulence when the wind is below 15 mph.

As specifically pointed out in the "Before Take-Off" check list, it is the pilot's responsibility to determine that the doors and window are locked before he commences his take-off run. If the cabin door is not locked, it is possible for it to come unlatched in flight. Should the door come open, the rushing air will cause a high noise level and since it occurs suddenly, the sound of the wind may be startling to those in the cabin; however, the flight characteristics of the airplane are not affected by an open door.

Usually, an unlocked door will open during or just after take-off. If this happens, the cabin air pressure tends to force the door open, while opposite air pressure outside the fuselage tends to close it. As a result of these two forces, the door will trail in a position 3 to 4 inches open, but it will not buffet. The pilot or passengers should not become alarmed; just return to the field in a normal manner and have a passenger hold the door to prevent it from swinging open during the landing flare-out.

If desired, you can close the door in flight as follows: Slow to approximately 90 mph and open the storm window to reduce the air pressure in the cabin. Then bank steeply to the right and apply left rudder, which will result in a slipping maneuver. At the same time that you apply left rudder, reach over and close the door.

Prior to take-off, set in the field elevation on your altimeter and note the pressure reading in inches of mercury, displayed in the small window on the altimeter face. Compare this reading with the field altimeter setting as given to you by the controlling activity. If your barometric pressure setting does not coincide with the setting given to you, make a note of the difference and apply it as a standard deviation to all new altimeter settings given to you in flight.

Thus, if the field altimeter setting is 29.92 in. Hg and the reading of your pressure setting is 29.90, when you set the field elevation on your altimeter, you have a -.02 correction factor. In terms of altitude, this -.02 correction means approximately 25 feet. Should you neglect to apply this correction to new altimeter settings received in flight, you will have an altimeter indication that is 25 feet higher than you actually are. Consider the importance of these 25 feet when approaching an obstacle, where weather restricts visibility, or at night on landing when depth final perception is inhibited.

When you are ready to start the take-off run, release the brakes and as the airplane accelerates, open the throttle smoothly. For the smoothest take-offs, use just enough back pressure to bring the wings to a slightly positive angle of attack as you approach lift-off speed. When lift-off speed has been reached and you are definitely airborne, establish a stabilized climb and retract the landing gear.

CLIMB

As soon as the landing gear is retracted and you are in the clear. reduce power to establish your cruising climb speed. Set the elevtrim tab to relieve pressure on the column. Although a climb at best rate-of-climb speed will get you to your cruising altitude quickly, a cruising climb will result in a higher ground speed, provide better visibility, and be more comfortable for your passengers. Unless the terrain obliges you to do otherwise, a good tail wind is available at your cruising altitude, it is to your advantage to put some distance behind you while climbing.

During both climb and cruise, observe the rpm and manifold pressure limits shown in the "Manifold Pressure Vs RPM" graph in Section VI to avoid excessive cylinder pressures. When increasing power, set rpm first, then manifold pressure. Make power reductions with manifold pressure first, then rpm.

CLIMB POWER MANAGEMENT

Climb power management is a function of horsepower, throttle setting, and mixture control. You have a choice of maintaining either a constant horsepower throughout your climb or you may elect to use the more easily accomplished constant manifold pressure setting approach to climb power management. The former will require preflight attention to your Horsepower Settings Chart to establish a manifold pressure – rpm climb schedule. The latter requires only advancement of your throttle setting as you ascend. For this climb, a suggested power configuration of 25 in. Hg and 2500 rpm at approximately 130 mph IAS will provide an economical, comfortable climb.

In Section V "Unusual Operating Conditions," you will find a discussion of short field take-offs and obstacle take-offs. Refer to Section VI for graphs showing the best rate of climb and angle of climb, and the speeds at which each type of performance is achieved.

CRUISE

Flight planning, the secret of obtaining maximum use from your Debonair, depends on a careful, detailed and objective analysis

of each trip, in advance. The load, route, weather, starting time, arrival time, and the capabilities of the airplane are but a few of the factors you must consider; the production and execution of a good flight plan which will successfully accomplish your mission are achievements of which any pilot may be proud.

When you have reached your desired altitude, set your power and trim for the airspeed you have selected. There are many factors to be considered in determining your cruising speed: weight, altitude the length of the flight, weather conditions, and, of course, the time you have available to reach your destination. Generally speaking, lower cruising airspeeds will be more comfortable, and due to the lower power settings required, will consume less fuel. On the other hand, you invested in a BEECHCRAFT Debonair to give yourself a means of rapid transportation, and under normally good conditions there is no reason why you should not cruise at or near the maximum allowable cruising speed, when the time saved will justify the additional fuel.

In cruising flight, you will find a constant-horsepower procedure has the same advantages that it does in a climb; you can predict your speed and fuel consumption and make accurate estimates of your range. The horsepower you select will, of course, depend on a number of variable factors. Graphs, which are found in Section VI, present figures in a form which can be resolved readily itno performance under normal conditions. However, no allowances have been made for variable weather conditions.

The fuel system is arranged so that there is very little unusable fuel in the tanks in level flight attitude and there is no reason for not running on a given fuel cell until it first gives indication of running dry before switching. However, if the engine is allowed to stop firing, the auxiliary fuel pump should be turned on and the throttle retarded to prevent overspeeding the engine as it restarts. When the engine is again running smoothly, the auxiliary fuel pump should be turned off.

INSTRUMENT FLIGHT

Properly equipped, your Debonair is an instrument airplane, but are you an instrument pilot? If you have an instrument flight rating, with recent practice in this airplane, you are. Otherwise, you are a VFR pilot. There can be no compromise on this rule, nor on its

corollary: If you are a VFR pilot, don't fly in instrument weather. If you are a VFR pilot and an emergency exists in which you must descent through a layer of clouds, use the following procedure:

1. Contact the nearest FAA facility and get the ceiling in the area to be penetrated.
2. Notify the facility of your intention to penetrate the undercast.
3. When you are still at least 1000 feet above the clouds, slow the airplane to 100 mph IAS, gear down, straight and level.
4. *While still in clear air*, adjust throttle and trim to produce a 100-mph, 500-fpm rate of descent on the desired heading, hands off.
5. Use gentle rudder pressure to maintain your heading. Do not touch the wheel or control column until you break out below the clouds.

Even the most careful VFR pilots occasionally will encounter conditions beyond their piloting skill, and for this reason, a technique perfected by the University of Illinois Institute of Aviation should be made a part of your own skill. Known as the "180-Degree Turn," it is a technique designed to return the VFR pilot to VFR conditions safely.

The pilot, prior to encountering conditions requiring use of the "180-Degree Turn," *must* have previously performed the technique satisfactorily, as perfected by the University of Illinois Institute of Aviation. This technique is simple, but rapid, msooth, and precise execution is essential to its success, and you should learn it from a qualified instructor in your *own* airplane, so that it can become completely familiar and automatic. You should contact the University of Illinois for more precise details on this procedure.

If you lower the landing gear as an aid to reducing your speed, you should be alert for the changes in elevator trim and rate of sink which will result, and make the necessary corrections and allowances. Lower the gear while you still are in level flight, as a preventive measure against excessive speed buildup, rather than attempting it as a corrective measure once the airplane is in a dive or spiral.

NOTE

After any emergency extension of the landing gear at

high speed, the landing gear doors and supporting structure should be inspected for possible damage.

MANEUVERS

You will find that your airplane handles just as nicely in maneuvers as it does in cruising flight. With this in mind, remember that maneuver loads will increase as airspeed increases, and that the same aerodynamic cleanness which gives you efficiency also results in rapid increases in airspeed while you are in a nose-down attitude. You should become familiar with the loads you can impose on the airframe during maneuvers. Refer to Section III for approved acrobatic maneuvers and speeds.

Spins are prohibited. If an inadvertent spin occurs, ease the control forward and apply opposite rudder. Avoid abrupt pullout upon recovery.

Your Debonair is gentle and well behaved throughout a stall. This holds true for all power and flight configurations. At approximately 5 mph above the stall, the stall warning horn sounds an intermittent signal. The signal becomes steady as the stall is more closely approached.

Throughout the approach and the stall itself, effective rudder control can be maintained and aileron control is good. However, you will notice some tail buffeting if you hold the elevator full back during the stall.

After the stall occurs, there will be a definite break and an unmistakable dropping of the nose. The most rapid recovery from a stall will be made if the speed is allowed to pick up 15 to 20 mph and the elevator is used gently.

INDUCTION SYSTEM ICE

Should impact ice form on the induction air intake and filter, the two spring-loaded doors in the sides of the air intake duct will be sucked open. You will notice only a slight drop in manifold pressure due to the loss of ram effect.

In the event the spring-loaded doors become frozen shut, pull the

"ALTERNATE AIR PULL AND RELEASE" handle, located to the right of the mixture control knob, to force open one of the doors. The inrushing warm air will soon melt any ice restricting the other door, and automatic operation of the alternate air source will be resumed.

FLIGHT IN TURBULENT AIR

If flight through a storm area or extremely rough air cannot be avoided, it is important that you choose the correct airspeed for your present weight configuration. Although you should slow down, you must maintain sufficient airspeed for full control. The desired operating range between these two zones varies with the severity of the gusts. Refer to the penetration speed graphs in Section VI.

Since the gross weight has influence on the behavior or your airplane in turbulent air, two graphs are presented: one for heavily loaded airplanes and one for lightly loaded airplanes. The 45-foot-per-second gusts are of the magnitude found near thunderstorms, while the 30-foot-per-second gusts can be encountered in frontal areas or in the vicinity of thunderstorms. Although you may operate near the design cruising speed in ordinary rough air with a reasonable margin of safety, in any turbulence severe enough to cause discomfort to your passengers, you should slow down.

LETTING DOWN

Pilot preference and weather conditions will determine the rate of descent. During the letdown, watch your engine temperatures. Since you will have a combination of relatively high airspeed and reduced power settings, the engine will run cooler than in level flight, and particularly in cold weather, temperatures may go below a safe minimum for full power. Operating conditions will determine the proper mixture control position for best power; however, use full rich prior to entering the traffic pattern. Refer to Section V for balked landing procedure.

During the final portion of the letdown and prior to traffic pattern entry, perform the "Before Landing Check" in Section II.

LANDING

Your BEECHCRAFT Debonair's excellent visibility, positive control, and superb ground handling, combined with the stability of a tricycle landing gear, make landing extremely simple. There are several ways to land your Debonair. The shortest landing will be made if full flap is used and the airplane held off with the elevator control held full back. If the wind is strong and gusty, flap-up landings are preferable; the airplane may be landed level three-point if the runway is smooth. Make sure you have sufficient speed to give good elevator control during flare-out, particularly on a hot day or if the wind is gusty.

SHUTDOWN

When you have parked, set the propeller in low pitch (high rpm) and pull out the mixture control to the idle cut-off position. When the propeller has stopped rotating, turn off all switches. If the brakes are cool and the weather moderate, set the parking brake. When the airplane is to be left unhangared and unattended for more than a few hours, you should install the control lock, release the parking brake, and chock the wheels. Never leave the cabin door standing open. Before you leave the airplane, make certain that you have performed the shutdown checks listed in Section II.

COLD WEATHER HINTS

In addition to your normal exterior inspection, remove ice, snow, and frost from the wings, tail, control surfaces and hinges, propeller, windwhield, pitot tube, fuel vents, and engine breather line. Drain any water condensation from fuel sump drains to prevent them from being clogged by ice. Check the flight controls for complete freedom of movement, and complete your normal preflight procedures. *Always remove all snow, ice, or hoarfrost from the wings before taking off.* If you have no way of removing the deposit – leave the airplane on the ground! These deposits will not blow off. Foreign deposits such as these, since they change the contour of a wing. destroy its lift and increase drag.

Under very cold conditions, it may be necessary to preheat the engine prior to a start. Particular attention should be applied to the oil cooler and sump housing to insure proper preheat, since congealed oil in these areas will prevent proper lubrication of the engine. A start with congealed oil in the system may give an indication of normal pressure immediately after the start, but then the oil pressure may decrease when residual oil in the engine is pumped back with the congealed oil in the sump. If an engine heater capable of heating both the sump and oil cooler is not available, the oil should be drained while the engine is hot and stored in a warm area until the next flight.

Cold engine starts normally require a more retarded throttle setting than usual. Also, moisture forms quickly on the spark plug electrodes during cold weather starts, so if you have made three or four unsuccessful starting attempts, have at least one plug removed from each cylinder. Heat the plugs to dry the electrodes, replace them, and attempt to restart the engine immediately.

Do not taxi through water or slush if it can be avoided. Water or slush splashed on the wing and tail surfaces will freeze, increasing weight and drag and perhaps limiting control surface movement.

Use the brakes sparingly; taxi slowly for best control and for aircraft protection from flying water, slush, or ice.

Run up the engine prior to take-off, then complete your normal take-off check with special emphasis on the following:

1. Pitot heat – on (if installed).
2. Exercise the propeller several times to flush cold oil from the actuating cylinder.

Make a normal take-off, but if the gear is wet from running through water or ice, delay retraction until it has had time to dry. If the gear is wet when retracted, the gear or doors may freeze in the up position. Should propeller icing be encountered during the flight, and an accumulation results in rough engine operation, the ice can sometimes be eliminated by rapidly increasing and decreasing rpm.

During longer flights in cold weather, propeller operations will be smoother and it will respond more readily and accurately to changes in power or load if it is exercised occasionally. Once power settings are established and the airplane trimmed, the movement of the pitch change mechanism to maintain constant rpm is so slight that the oil

in the propeller cylinder may become cold and congealed.

During descent, guard against engine over-cooling and keep airspeed within gear and flap operating range, slowing the airplane by retarding the throttle and maintaining a nose-high attitude. If over-cooling occurs, lower the gear and flaps and increase engine power.

OXYGEN SYSTEM (OPTIONAL)

WARNING

Oxygen under pressure is a friend when properly used but becomes an enemy when normal precautions are disregarded. Since oxygen supports combustion, proper safety mearsues must be employed when using it or a serious fire hazard is created. ***MAKE CERTAIN THAT ALL CIGARETTES ARE COMPLETELY EXTINGUISHED BEFORE USING THE SYSTEM*** and warn your passengers of the dangers of smoking while oxygen is being used.

Operation of Oxygen System (BEECHCRAFT)

1. To place the oxygen system in operation, ***SLOWLY*** open the shutoff valve on the oxygen console panel. (The shutoff valve on the oxygen cylinder must also be open.)

CAUTION

If either shutoff valve is opened too rapidly, the regulator diaphragm may be ruptured or other damage common to high pressure oxygen systems may occur.

2. Insert an oxygen mask plug-in coupling into an oxygen outlet.
3. Check for a flow of oxygen into the mask by closing off the opening from the breather bag to the mask, noting that the bag expands. Changes in flow rate will be made automatically with changes in pressure altitude.
4. Adjust the oxygen mask to the face to prevent the escape of oxygen into the cabin.

5. To close down the oxygen system, close the shutoff valve on the oxygen console panel, and with one or more masks still plugged in, allow the oxygen to drain from the low pressure side of the system, then unplug all masks.

SECTION V

Unusual Operating Conditions

The information in this section of your handbook is presented to enable you to form in advance a definite plan of action for coping with any unusual situation which could reasonable occur in the operation of your airplane. A careful reading of this section will prove invaluable not only in knowing what to do in a particular situation, but also in formulating your own plan of action for any other situation you feel may be encountered.

The performance graphs covering the information in this section can be found in Section VI; performance specifications and limitations in Section III.

SHORT FIELD TAKEOFF

For a minimum-run take-off, use 20-degree flaps. This extension can be judged quite accurately from the pilot's position by lowering the

flaps until the 20-degree line on the leading edge of the left flap lines up with the wing trailing edge. *Never use over 20-degree flaps for take-off.* Hold the airplane with the brakes and run the engine up to full power, then release the brakes. During the ground run some right rudder will be required, but do not use brakes. At lift-off speed, smoothly and rapidly apply back pressure on the control wheel to assume a nose-high attitude so that you break ground as soon as minimum flying airspeed is reached. As soon as you break ground, retract the gear and drop the nose slightly to gain a safe airspeed. Retract flaps only after reaching a safe altitude, and continue with the normal take-off and climb procedure.

OBSTACLE CLEARANCE TAKE-OFF

When you must obtain maximum altitude in minimum horizontal distance, use the best angle-of-climb speed shown on the graph for your altitude. *As with any airplane, the best angle of climb is achieved only slightly above stalling speed; therefore, you should consider this an emergency technique.*

Use the same procedures as for a minimum-run or short field take-off, to the point of assuming a nose-high attitude. Do not assume the nose-high attitude until reaching minimum flying airspeed. Clear the ground, retract the gear, and as soon as your selected airspeed has been reached, hold it to obtain the maximum angle of climb until the obstacle is cleared. Then accelerate to normal climb speed, retract flaps only after reaching a safe altitude, and continue with the normal take-off and climb procedure.

MAXIMUM ENDURANCE

As an *emergency* measure, if circumstances demand that you stay aloft as long as possible, you can decrease fuel consumption by leaning the mixture beyond the best power setting. As you lean past best power, your airspeed will drop and the engine will operate slightly rough. Advance the mixture just enough to stabilize your airspeed. *Bear in mind that operating your engine in this manner could result in reduced engine life or engine damage.*

BALKED LANDING

Make the decision to go around as early as possible in the landing approach to provide a safe margin of airspeed and altitude. The go-around procedure is a normal maneuver and does not become an emergency procedure unless it is started too late. Accuracy of judgment and early recognition of the need to go around are important; these are developed by practice. The go-around procedure is as follows:

1. Propeller – high rpm.
2. Throttle – take-off power.
3. Landing gear – "UP" when fully airborne.
4. Mixture – FULL RICH.
5. Airspeed – best angle-of-climb speed.
6. Trim – hold forward pressure on the column until you have time to retrim.
7. Flaps – "UP" after gaining safe altitude.
8. Elevator trim tab – reset as needed.
9. Continue normal climb procedure.

With the application of full power, particularly with considerable trim and a loading near the forward center of gravity limit, the elevator forces may become quite heavy. However, do not attempt to retrim the airplane, until you are in the clear.

If circumstances permit you to watch their positioning, bringing the flaps up to 20° as soon as you have applied power will be of some benefit in gaining speed without sacrifice of lift. Do not attempt to raise the flaps, however, if you are in traffic or have obstacles ahead which must be cleared.

CROSSWIND LANDING

Landing in a crosswind presents no special problem except the elimination of drift correction at the proper moment to avoid touching down in a skid. Generally, less flap should be used, since stall and ground handling characteristics in a strong crosswind are less desirable with full flaps. Approach the runway with crab, but eliminate most of the crab on nearing the runway, replacing the crab with an upwind, wing-low attitude. Touch down easily on the low main wheel while flying airspeed remains, and allow the airplane to settle smoothly to the runway to preserve directional control. If excessive

crab should remain just prior to touchdown, eliminate it as much as possible at the point of touchdown by the use of rudder. If excessive skidding appears imminent, make a coordinated turn to realign with the runway and drop your upwind wing to correct the tendence to drift.

GLIDING RATIO

The gliding distance table in Section III gives the horizontal distance for glide. Maximum glide distance is obtained with the propeller in the low rpm position and maintaining an optimum airspeed as indicated on the gliding distance table. In all cases, 1/8 mile has been subtracted from no-wind and head-wind glides to get you to your field with 50 feet altitude, and 5/8 mile has been subtracted from tail-wind glides to allow for a turn into the wind, ending the turn at 50 feet altitude. Whether you choose to land with your wheels up or down depends upon the field you are going into and how much time you have to look it over. A wheels-up landing will use up less distance on the ground, and the damage done frequently will be less than that resulting from a collision by running into a ditch or hole at high speed.

GEAR-UP LANDING

If you are to make a gear-up landing, make a normal approach, and if possible, choose a hard surface to land on. Avoid a gear-up landing on soft ground, due to the tendency of sod to roll up into chunks and damage the underside of the fuselage. Use the following procedure:

1. Seat belts – secured.
2. Flaps – as required.
3. During flare-out – close throttle, move mixture control to IDLE CUT-OFF, and turn fuel selector valve to the "OFF" position.
4. Just before touchdown – all switches OFF.
5. Get clear of the airplane as soon as it stops.

LANDING GEAR EMERGENCY EXTENSION

A landing gear handcrank is provided for lowering the gear manually if the electrical system fails or if you wish to do so for some other reason. The handcrank is designed only to lower the gear; you should not attempt to retract it manually. The following procedure should be used:

1. Landing gear circuit breaker – OFF.
2. Landing gear switch – "DOWN" position.
3. Move the handle into the cranking position, and turn it counterclockwise as far as possible.
4. Check mechanical indicator or with tower to ascertain that gear is down.

ENGINE FAILURE

Engine failure due to improper operating techniques may be guarded against by always employing correct engine operating procedures and observing engine operation limitations. Although engine failure due to mechanical causes is seldom encountered, loss of fuel flow or an ignition system discrepancy would be the most probable cause. If engine failure is indicated, land as soon as practicable.

Immediately on noting any condition which would point to imminent engine failure, such as loss of power, loss of fuel flow, rough running engine, etc., slow the airplane down, and if altitude permits, proceed as follows:

1. Switch fuel tanks – check selector visually.
2. Check fuel pressure; boost pump – "ON" ***only if pressure is low.***
3. Mixture – FULL RICH, then leaned to altitude, if necessary.
4. Propeller – FULL HIGH RPM.
5. Ignition switch – "BOTH."
6. Battery and generator switches – "ON."

In the event that accomplishment of the preceding steps does not correct the discrepancy and a forced landing appears advisable, or should the engine fail completely, prepare for a forced landing as follows:

1. Mixture control – IDLE CUT-OFF.
2. Throttle – CLOSED.
3. Ignition switch – "OFF."
4. Fuel selector valve – "OFF."
5. As speed drops, lower nose and maintain airspeed for best glide distance. For maximum glide, if possible, propeller should be in high pitch (low rpm).

ENGINE FIRE DURING FLIGHT

In case of fire in the engine compartment during flight, pull the red "VENT SHUTOFF" control on the outboard side of the left subpanel to seal off all heating system openings and prevent smoke and fumes from entering the cabin. Shut down the engine as follows and make a forced landing:

1. Mixture – IDLE CUT-OFF.
2. Fuel selector valve handle – "OFF."
3. Ignition switch – "OFF."
4. Battery master and generator switches – "OFF." If the electrical system is not functional, gear may be lowered manually.
5. Throttle – CLOSED.
6. Do not attempt to restart engine.

TERRAIN FLYING

Besides being aware of lower take-off, climb, and landing performance at higher field elevations, you should prepare yourself for unexpected weather conditions and other phenomena which prevail over mountainous, high altitude country.

Standing waves, which occur under the right combination of meteorological and terrain conditions, present severe updrafts, downdrafts, and turbulence. The intensity of the turbulence is variable and may be in the order of that experienced in thunderstorm.

Air flowing over ridges and down slopes produces areas of reduced atmospheric pressure. Since your altimeter and rate of climb indicator are barometric instruments, your altimeter will show a reading higher than you actually are, and your rate of climb indicator may be showing a climb when actually you may be losing altitude. Also the closer you are to a ridge, the greater is the error.

Another factor to consider is heavy rain, which causes a film of water on the windshield and changes its refractive characteristics. Under these conditions, a distinct ridge may appear to be lower than it actually is.

In general, you should allow considerably more clearance than you anticipate you will need, when flying over rugged terrain. For further information on this subject, it is suggested that you read ***Terrain Flying***, obtainable from the Superintendent of Documents, Washington, D. C.

SECTION VI
Operational Data

All operational data, in the form of graphs or diagrams, are grouped in this section of your owner's manual for quick easy reference. The data are grouped as nearly as possible in flight sequence. For your convenience, a table of contents is included below.

A carefully detailed and analyzed flight plan will enable you to realize the maximum benefit from your BEECHCRAFT Debonair. In using the graphs, bear in mind that allowances have been made for warm-up, taxi, take-off, climb, and a 45-minute reserve based on holding at 45% maximum continuous power.

Having made a flight plan based on estimates taken from the graphs, you should check your actual performance and review the differences between your forecast conditions and actual conditions during the flight, so that your future estimates may be more accurate.

TABLE OF CONTENTS

Graphs	Page
Normal Take-Off	6-2
Short Field Take-Off	6-3
Normal Climb	6-4
Time to Climb	6-4
Manifold Pressure vs RPM	6-5
Climb Airspeeds	6-6
Fuel Consumption vs HP	6-7
Altitude Conversion	6-8
Cruise Operation	6-9
Range Graphs, Varying Power	6-10
Maximum Safe Crosswinds	6-14
Turbulent Air Penetration	6-15
Flight Load Factors	6-16
Normal Landing	6-17
Short Field Landing	6-18
Horsepower Settings Chart	6-19

NORMAL TAKE-OFF

DISTANCE OVER 50 FEET

ASSOCIATED CONDITIONS

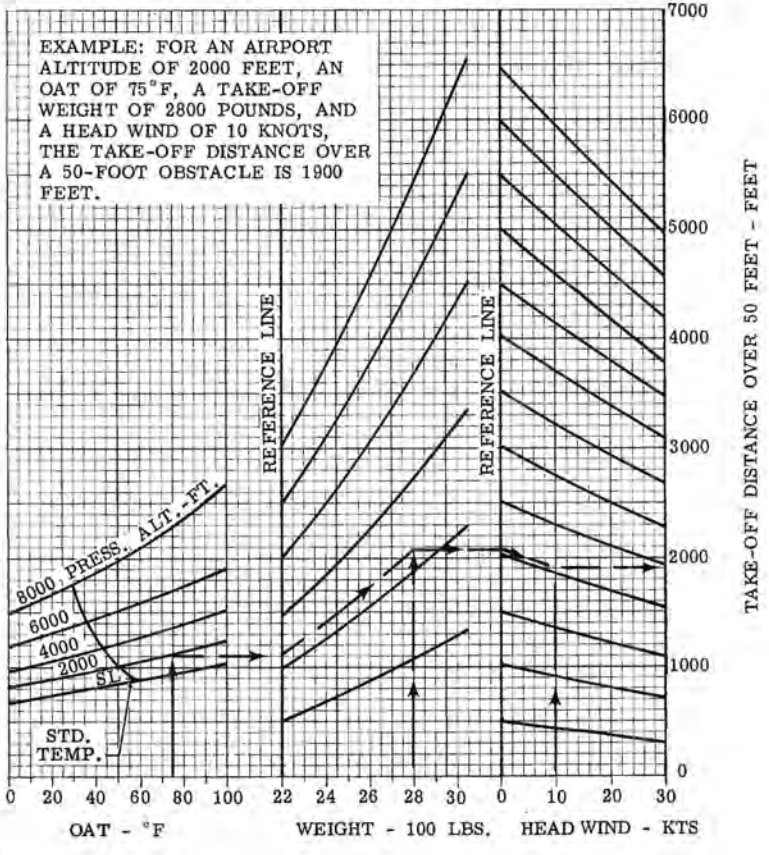
POWER _____ TAKE-OFF POWER

FLAPS _____ UP

RUNWAY _____ PAVED, LEVEL, DRY SURFACE

PROCEDURE ____ TAKE-OFF SPEED: 70 MPH (IAS)
SPEED AT 50 FEET: 85 MPH (IAS)

GROUND RUN ___ GROUND RUN IS APPROXIMATELY 78% OF DISTANCE OVER 50 FEET



SHORT FIELD TAKE-OFF

DISTANCE OVER 50 FEET

ASSOCIATED CONDITIONS

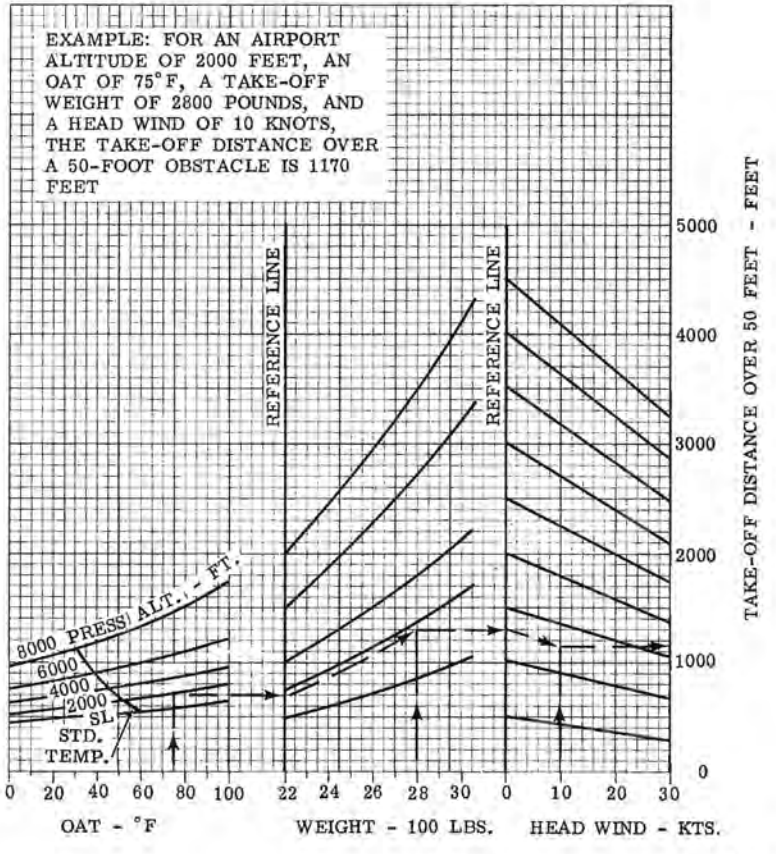
POWER _____ TAKE-OFF POWER

FLAPS _____ 20°

RUNWAY _____ PAVED, LEVEL, DRY SURFACE

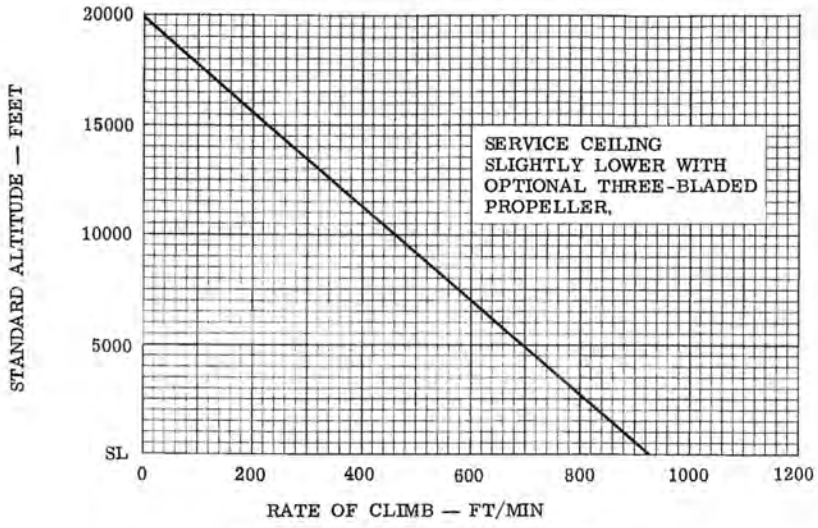
PROCEDURE _____ TAKE-OFF SPEED: 62 MPH (IAS)
SPEED AT 50 FEET: 67 MPH (IAS)

GROUND RUN _____ GROUND RUN IS APPROXIMATELY 76% OF DISTANCE OVER 50 FEET



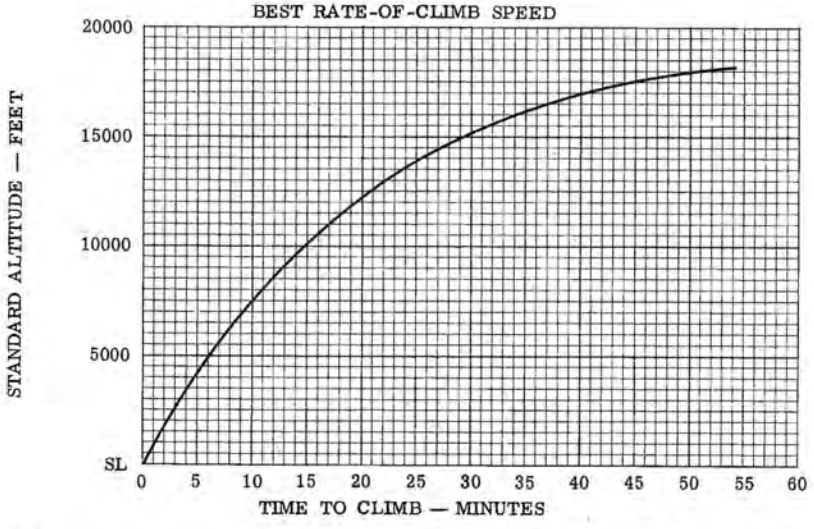
NORMAL CLIMB

GROSS WEIGHT 3050 LBS.
GEAR AND FLAPS UP
BEST RATE-OF-CLIMB SPEED

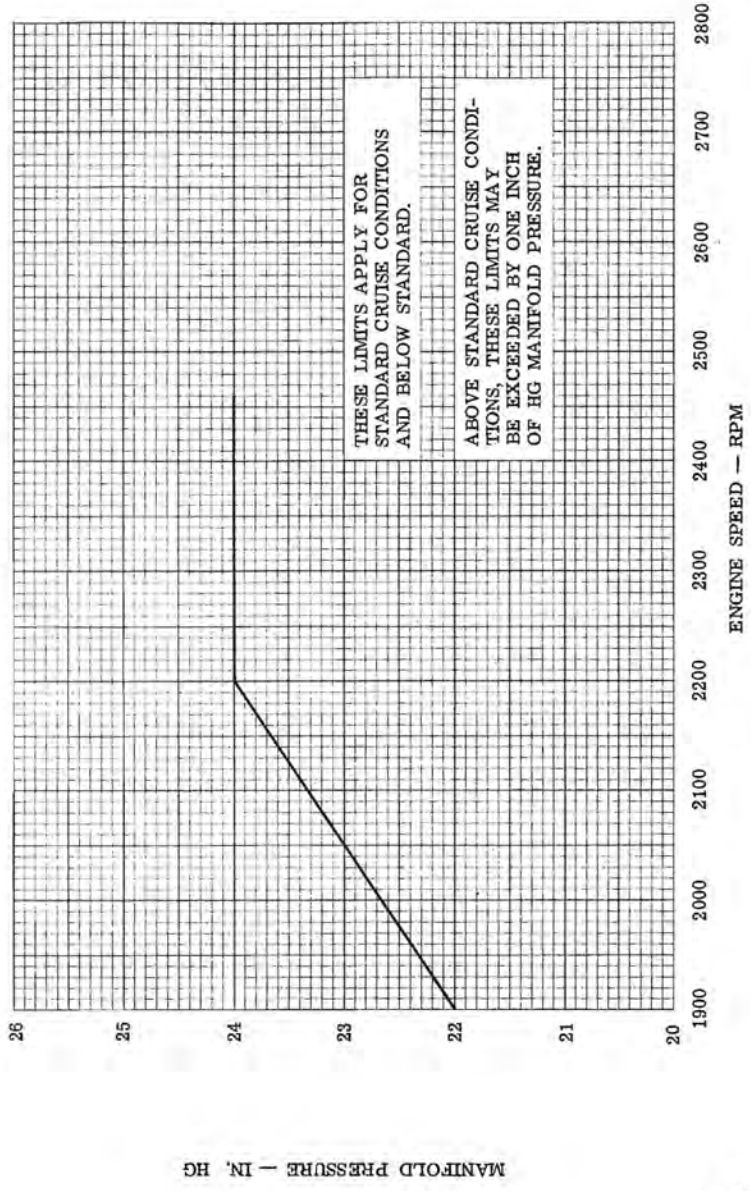


TIME TO CLIMB

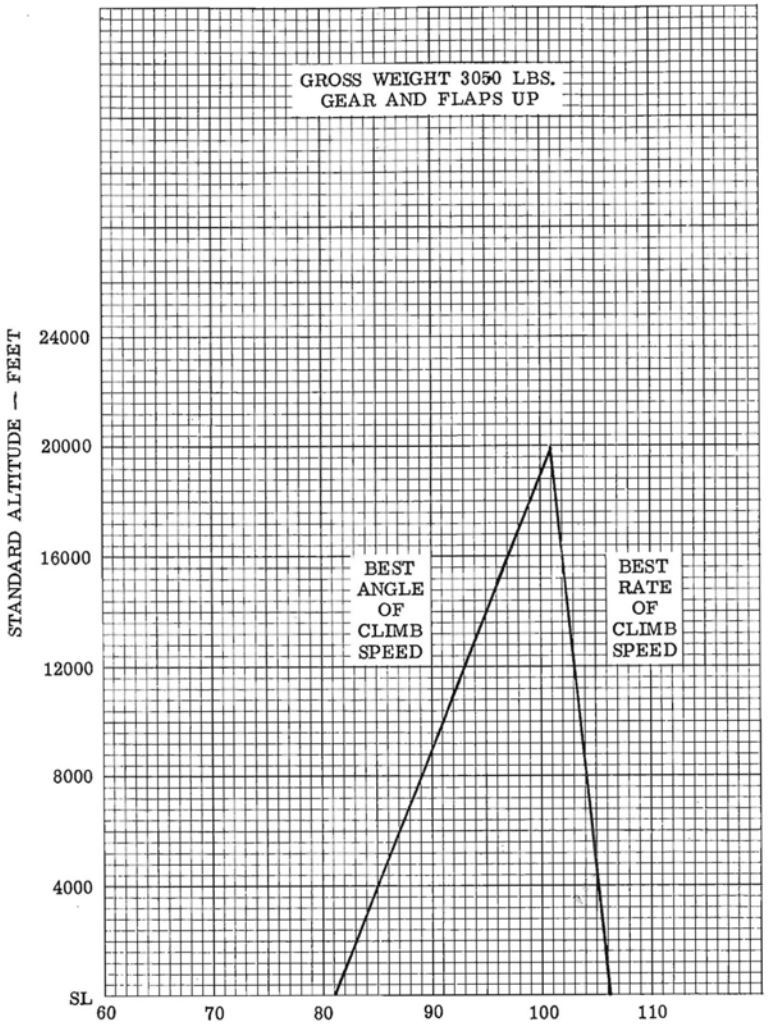
GROSS WEIGHT 3050 LBS.
GEAR AND FLAPS UP
BEST RATE-OF-CLIMB SPEED



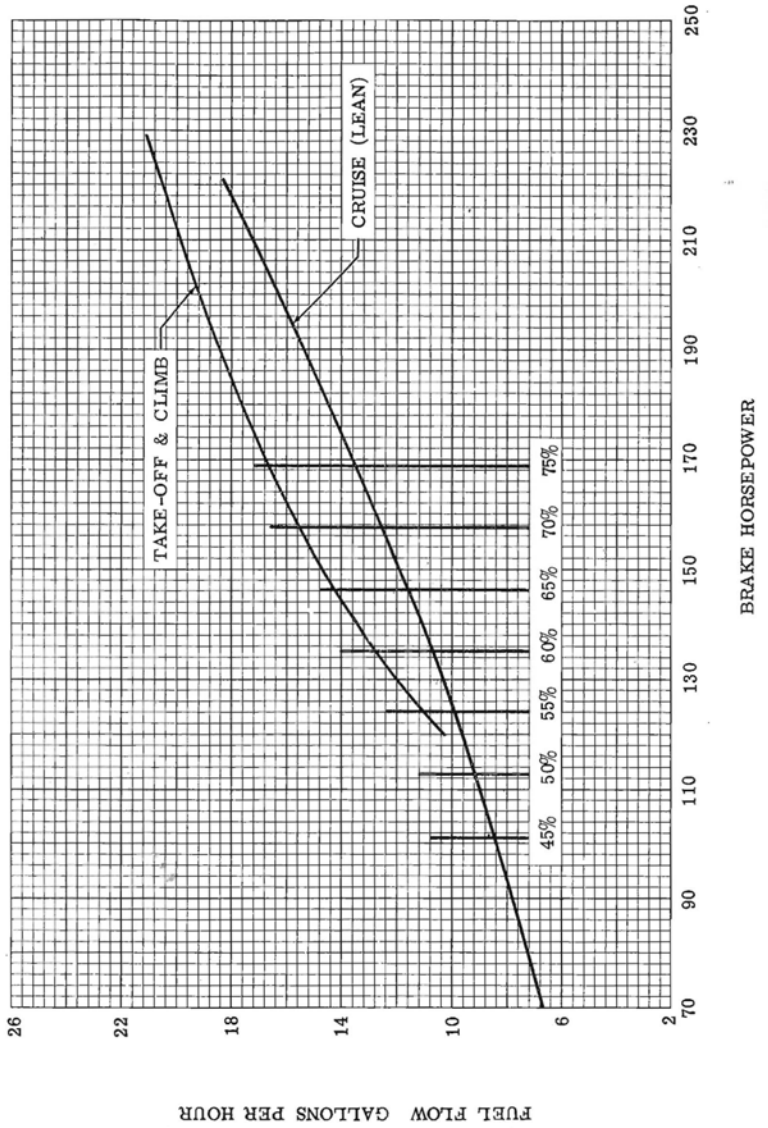
MANIFOLD PRESSURE vs RPM



CLIMB AIRSPEEDS



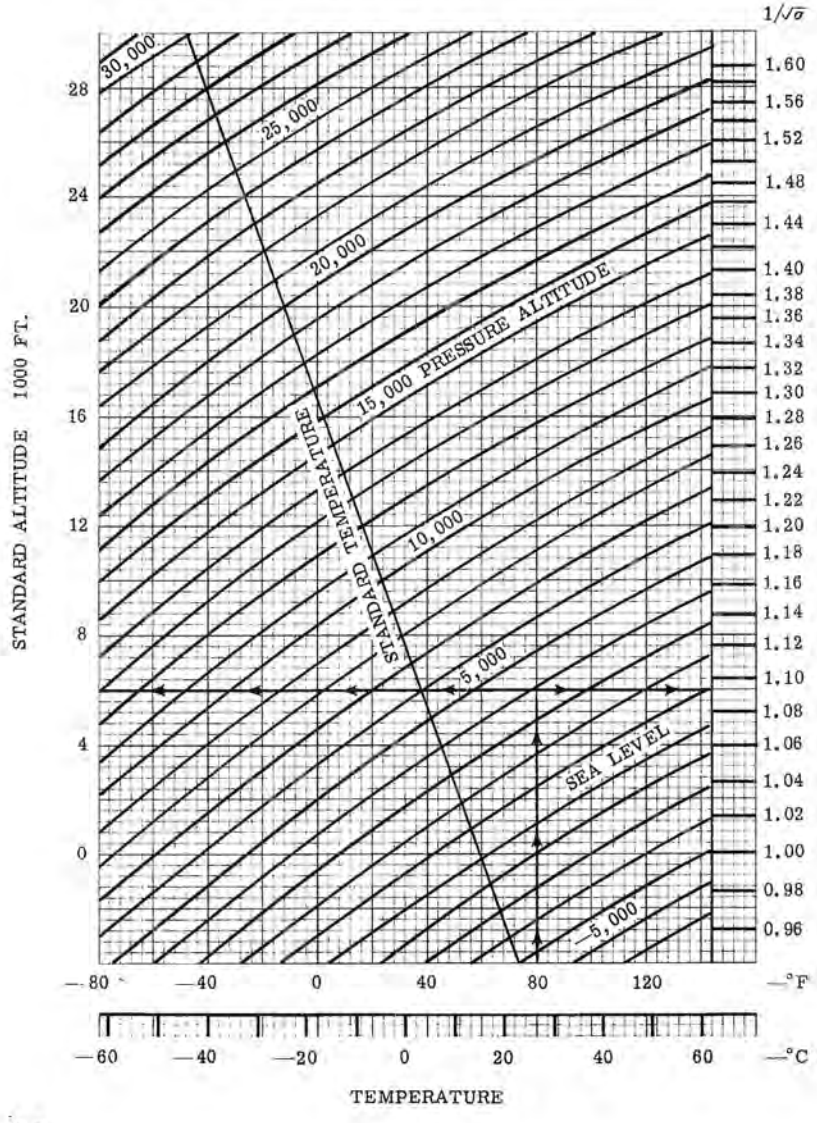
FUEL CONSUMPTION vs HP



ALTITUDE CONVERSION

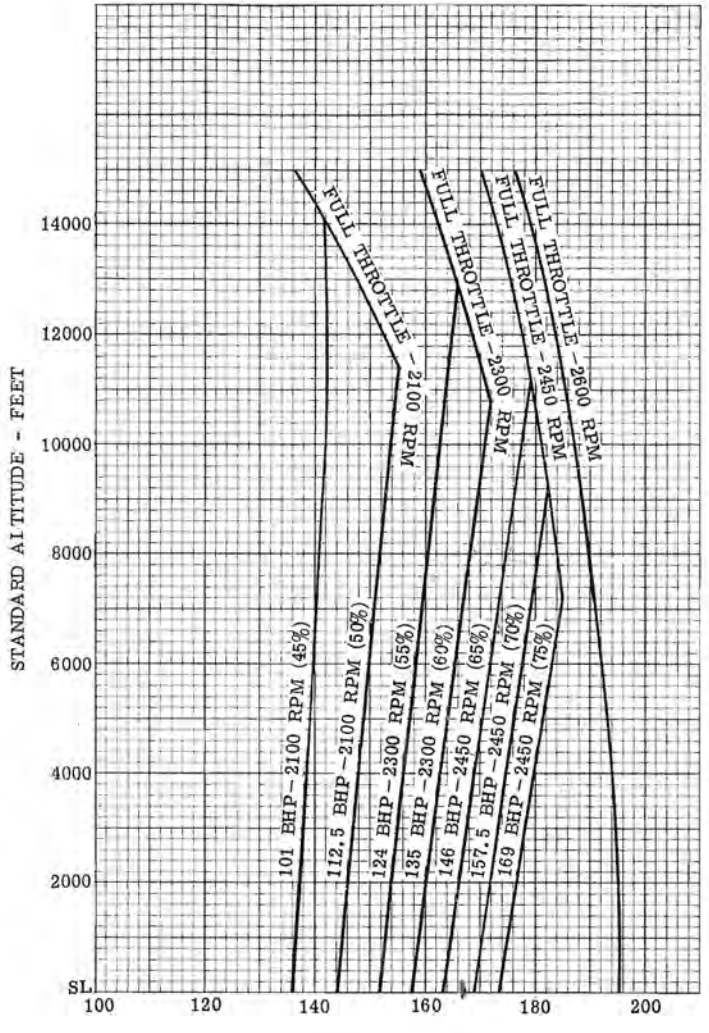
EXAMPLE: IF AMBIENT TEMP. IS 80°F AND PRESSURE ALT. IS 4000 FEET, THE STANDARD ALT. IS 6000 FEET AND $1/\sqrt{\sigma}$ IS 1.093

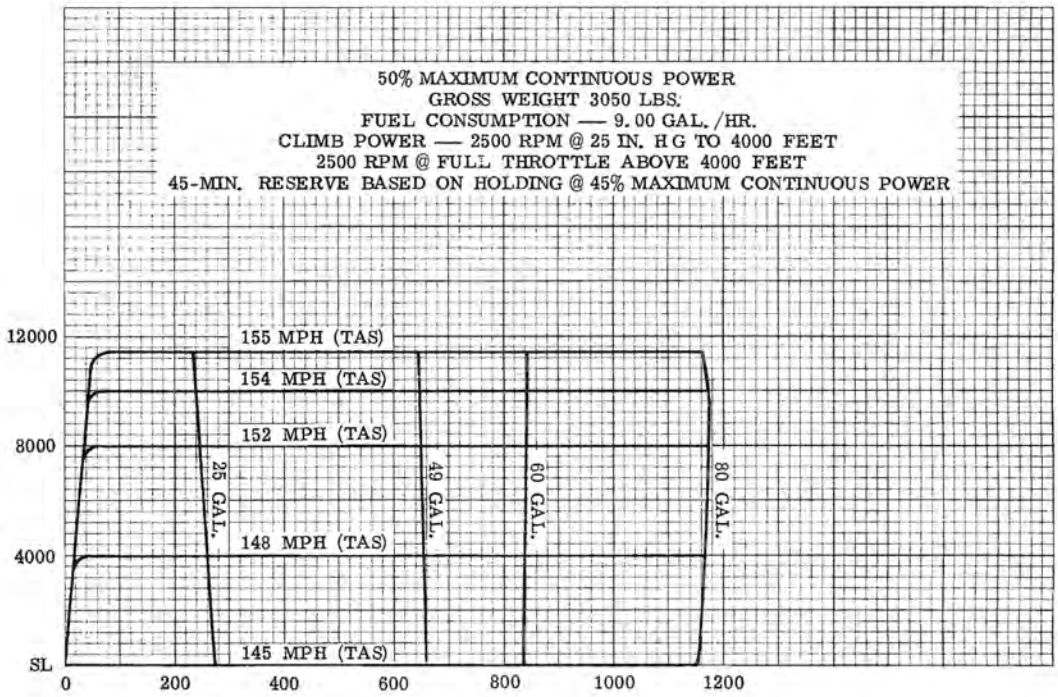
TAS = CAS X $1/\sqrt{\sigma}$

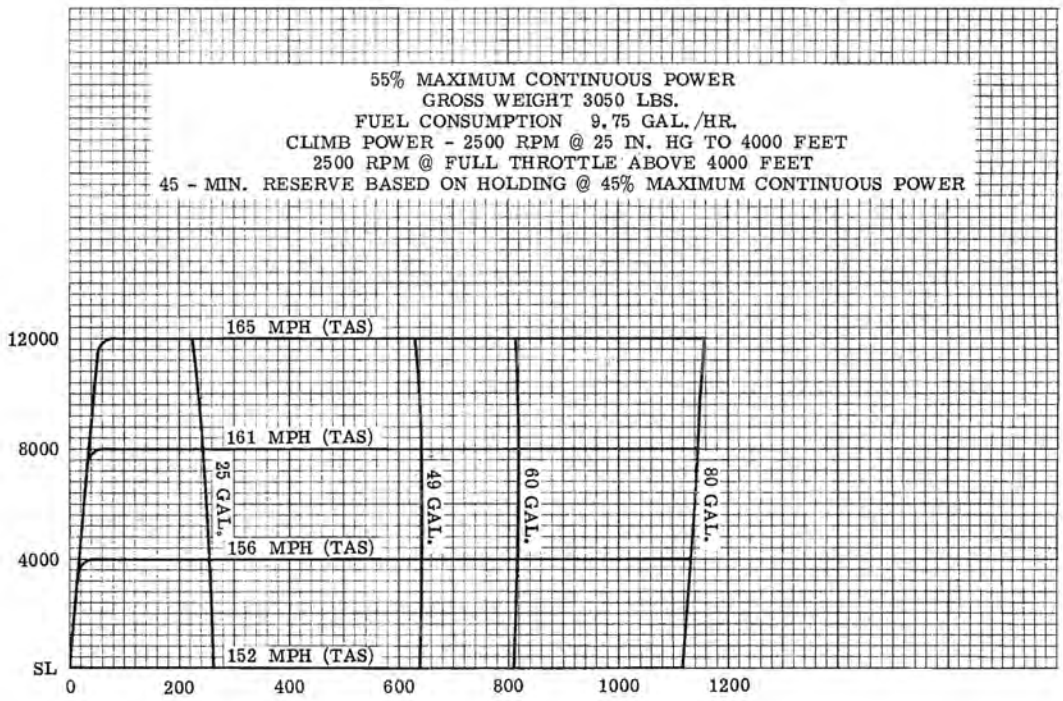


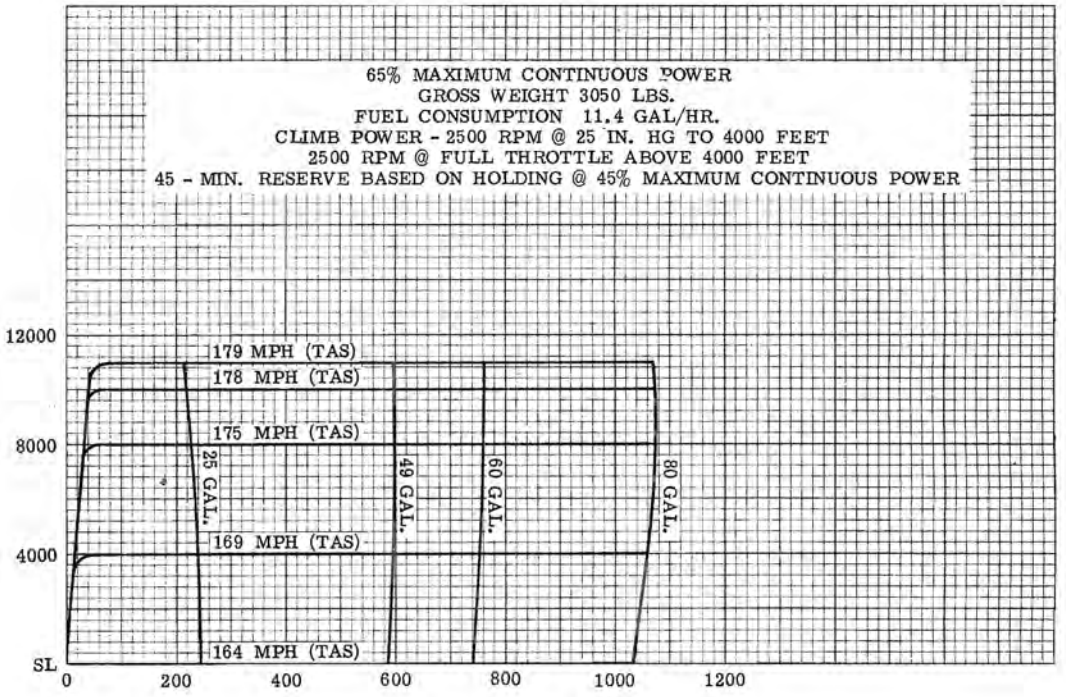
CRUISE OPERATION

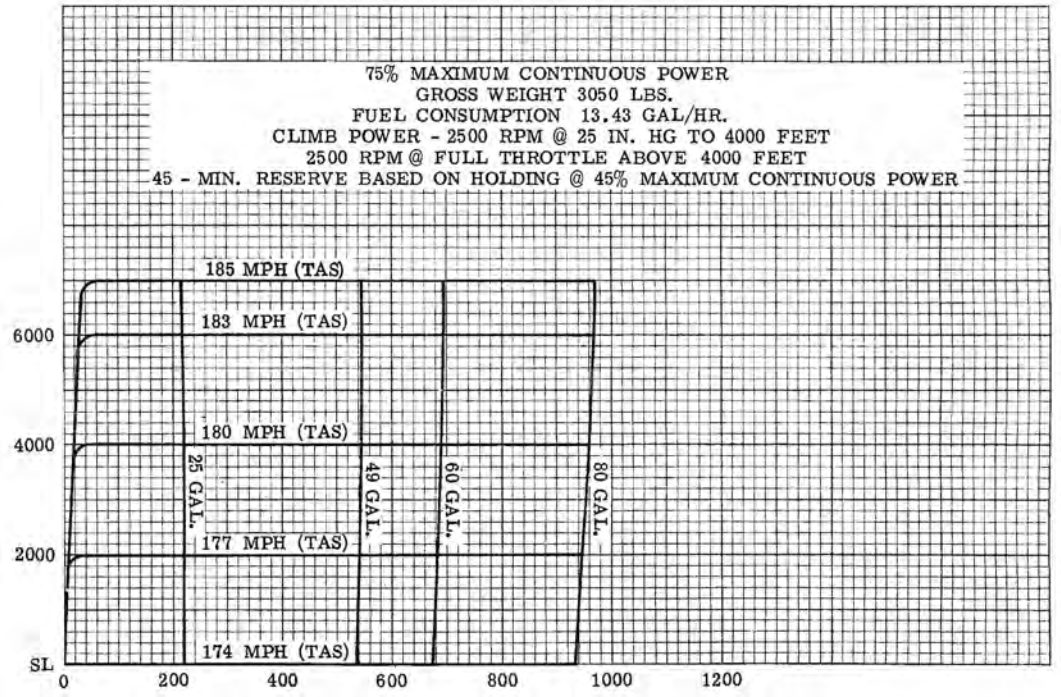
GROSS WEIGHT 3050 LBS.



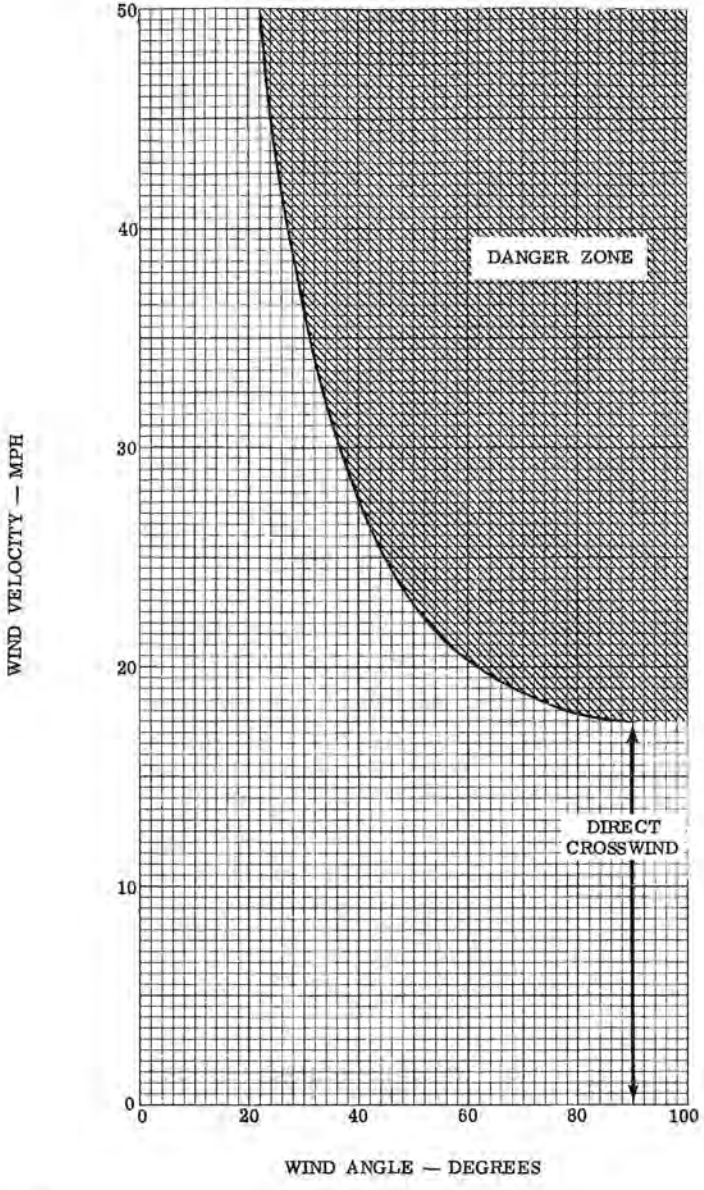

50% MAXIMUM CONTINUOUS POWER
GROSS WEIGHT 3050 LBS.
FUEL CONSUMPTION — 9.00 GAL./HR.
CLIMB POWER — 2500 RPM @ 25 IN. HG TO 4000 FEET
2500 RPM @ FULL THROTTLE ABOVE 4000 FEET
45-MIN. RESERVE BASED ON HOLDING @ 45% MAXIMUM CONTINUOUS POWER
STANDARD ALTITUDE — FEET
12000
8000
4000
SL
155 MPH (TAS)
154 MPH (TAS)
152 MPH (TAS)
148 MPH (TAS)
145 MPH (TAS)
25 GAL.
49 GAL.
60 GAL.
80 GAL.
0
200
400
600
800
1000
1200
RANGE — STATUTE MILES


55% MAXIMUM CONTINUOUS POWER
GROSS WEIGHT 3050 LBS.
FUEL CONSUMPTION 9.75 GAL./HR.
CLIMB POWER - 2500 RPM @ 25 IN. HG TO 4000 FEET
2500 RPM @ FULL THROTTLE ABOVE 4000 FEET
45 - MIN. RESERVE BASED ON HOLDING @ 45% MAXIMUM CONTINUOUS POWER
STANDARD ALTITUDE - FEET
12000
8000
4000
SL
165 MPH (TAS)
161 MPH (TAS)
156 MPH (TAS)
152 MPH (TAS)
25 GAL.
49 GAL.
60 GAL.
80 GAL.
0
200
400
600
800
1000
1200
RANGE - STATUTE MILES

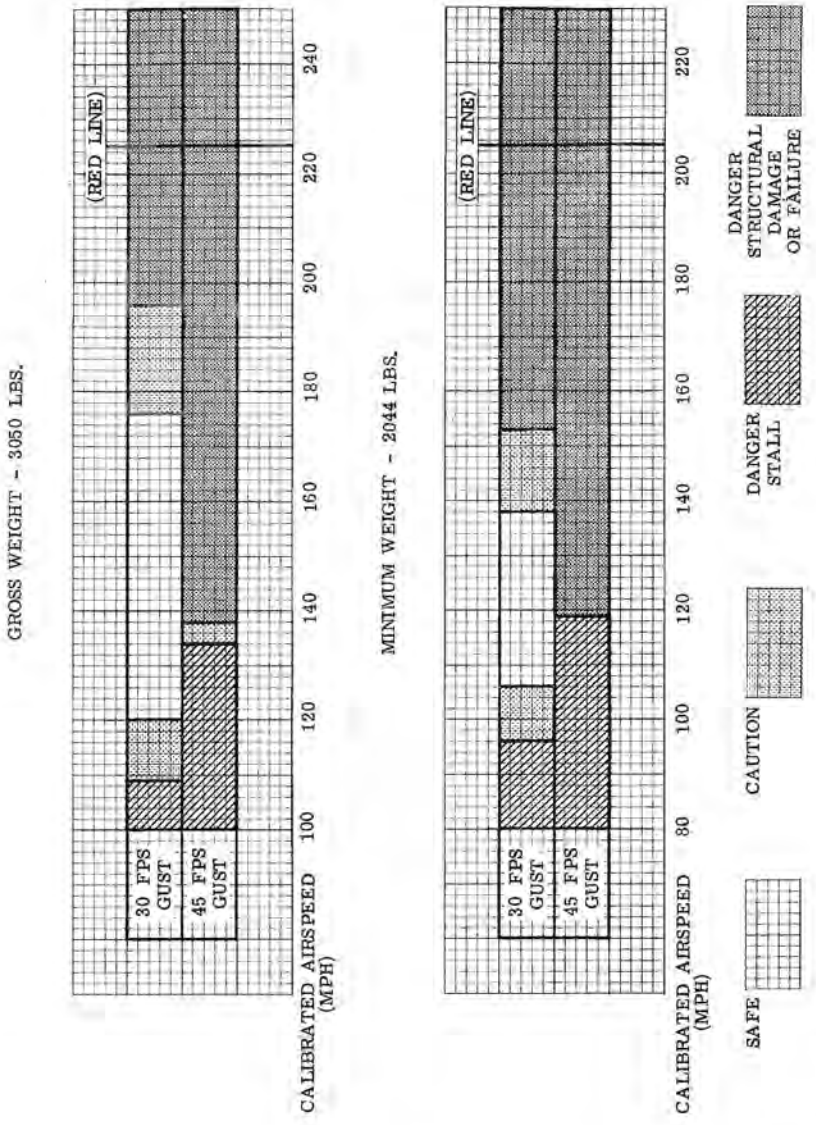

65% MAXIMUM CONTINUOUS POWER
GROSS WEIGHT 3050 LBS.
FUEL CONSUMPTION 11.4 GAL/HR.
CLIMB POWER - 2500 RPM @ 25 IN. HG TO 4000 FEET
2500 RPM @ FULL THROTTLE ABOVE 4000 FEET
45 - MIN. RESERVE BASED ON HOLDING @ 45% MAXIMUM CONTINUOUS POWER
STANDARD ALTITUDE - FEET
12000
8000
4000
SL
179 MPH (TAS)
178 MPH (TAS)
175 MPH (TAS)
169 MPH (TAS)
164 MPH (TAS)
25 GAL.
49 GAL.
60 GAL.
80 GAL.
0
200
400
600
800
1000
1200
RANGE - STATUTE MILES


75% MAXIMUM CONTINUOUS POWER
GROSS WEIGHT 3050 LBS.
FUEL CONSUMPTION 13.43 GAL/HR.
CLIMB POWER - 2500 RPM @ 25 IN. HG TO 4000 FEET
2500 RPM @ FULL THROTTLE ABOVE 4000 FEET
45 - MIN. RESERVE BASED ON HOLDING @ 45% MAXIMUM CONTINUOUS POWER
STANDARD ALTITUDE - FEET
6000
4000
2000
SL
185 MPH (TAS)
183 MPH (TAS)
180 MPH (TAS)
177 MPH (TAS)
174 MPH (TAS)
25 GAL.
49 GAL.
60 GAL.
80 GAL.
0
200
400
600
800
1000
1200
RANGE - STATUTE MILES

MAXIMUM SAFE CROSSWINDS

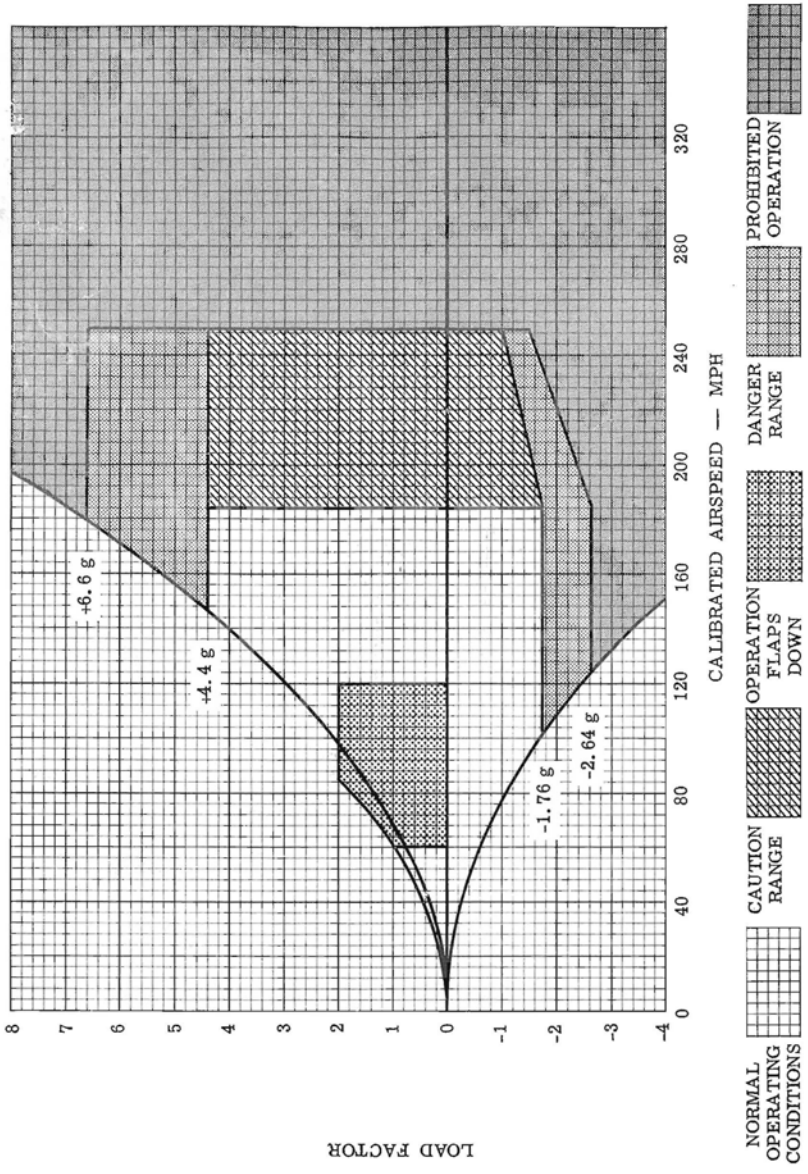


TURBULENT AIR PENETRATION



FLIGHT LOAD FACTORS

GROSS WEIGHT - 3050 LBS



NORMAL LANDING

DISTANCE OVER 50 FEET

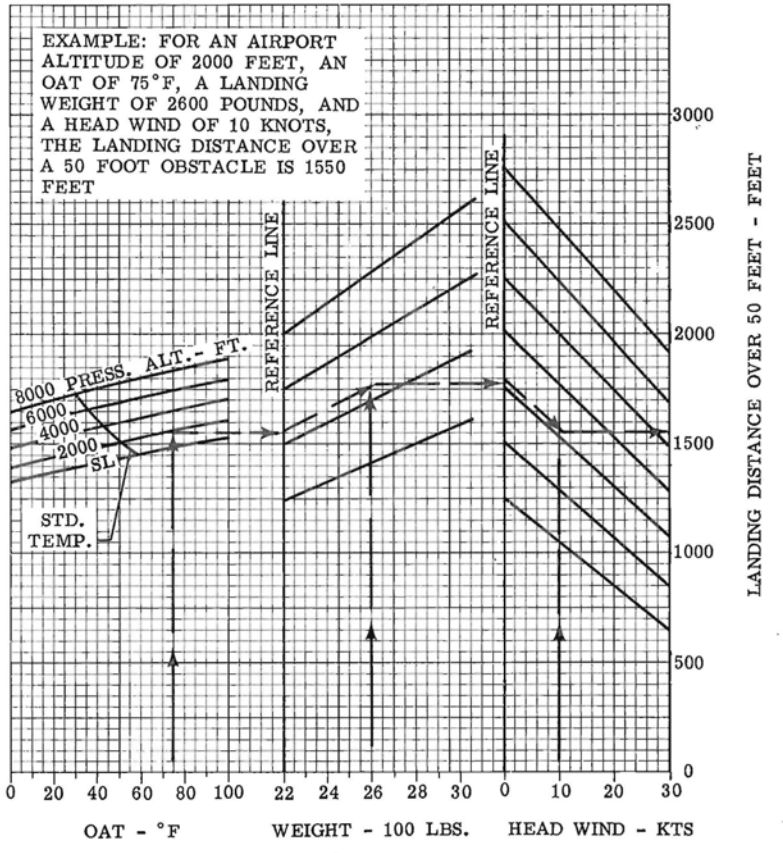
ASSOCIATED CONDITIONS

FLAPS _____ 30°

RUNWAY _____ PAVED, LEVEL, DRY SURFACE

PROCEDURE _____ APPROACH SPEED AT 50 FEET: 85 MPH (IAS)
TOUCHDOWN SPEED: 67 MPH (IAS)

GROUND ROLL ___ GROUND ROLL IS APPROXIMATELY 57% OF DISTANCE OVER 50 FEET



SHORT FIELD LANDING

DISTANCE OVER 50 FEET

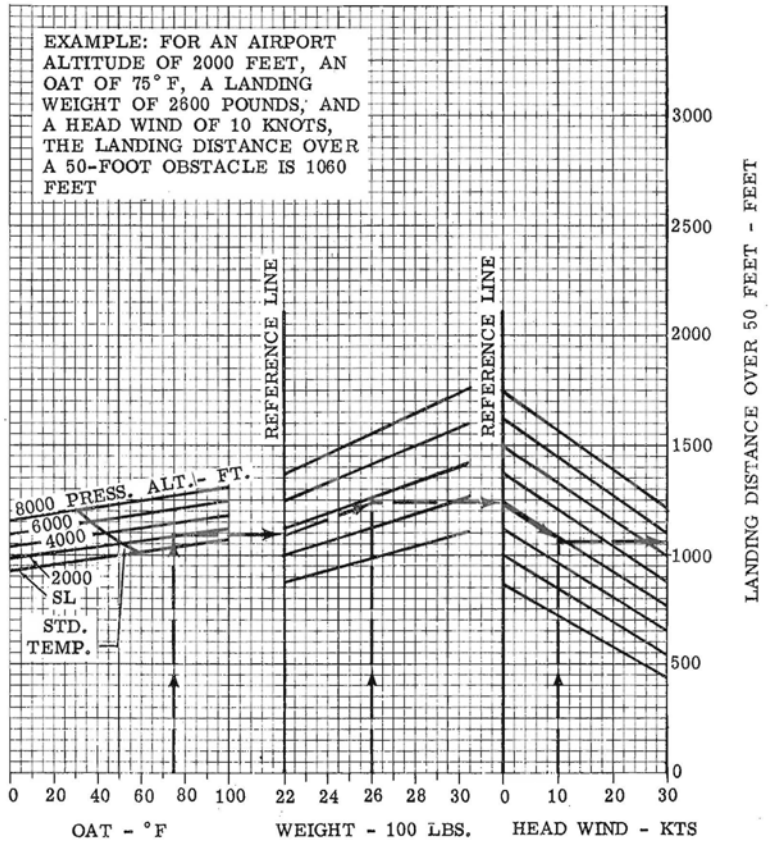
ASSOCIATED CONDITIONS

FLAPS 30°

RUNWAY PAVED, LEVEL, DRY SURFACE

PROCEDURE APPROACH SPEED AT 50 FEET: 78 MPH(IAS)
TOUCHDOWN SPEED: 67 MPH(IAS)

GROUND ROLL GROUND ROLL IS APPROXIMATELY 49.5% OF DISTANCE OVER 50 FEET



HORSEPOWER SETTINGS CHART

MP AT 2450 RPM	MP AT 2300 RPM	MP AT 2100 RPM	OAT °F	% BHP	BHP	MP AT 2450 RPM	MP AT 2300 RPM	MP AT 2100 RPM
SEA LEVEL						2000 FEET		
22.7	----	----	-20	75	169.0	22.3	----	----
20.7	22.1	----		65	146.0	20.3	21.7	----
18.5	19.8	22.2		55	124.0	18.1	19.4	21.7
16.4	17.5	19.5		45	101.0	16.0	17.0	19.1
23.1	----	----	0	75	169.0	22.8	----	----
20.9	22.3	----		65	146.0	20.5	22.0	----
18.8	20.1	22.5		55	124.0	18.1	19.7	22.0
16.7	17.7	19.7		45	101.0	16.2	17.2	19.3
23.4	----	----	+20	75	169.0	23.1	----	----
21.2	22.8	----		65	146.0	20.8	22.3	----
19.0	20.3	22.8		55	124.0	18.6	19.9	22.4
16.8	17.9	20.0		45	101.0	16.4	17.5	19.6
23.8	----	----	+40	75	169.0	23.4	----	----
21.4	23.0	----		65	126.0	21.1	22.6	----
19.2	20.6	23.1		55	124.0	18.8	20.2	22.7
17.0	18.2	20.3		45	101.0	16.6	17.7	19.9
24.1	----	----	+60	75	169.0	23.8	----	----
21.8	23.3	----		65	146.0	21.4	22.9	----
19.4	20.9	23.4		55	124.0	19.1	20.4	23.0
17.2	18.3	20.5		45	101.0	16.8	17.9	20.1
24.3	----	----	+80	75	169.0	24.0	----	----
22.1	23.7	----		65	146.0	21.7	23.2	----
19.8	21.1	23.7		55	124.0	19.1	20.7	23.3
17.4	18.7	20.8		45	101.0	17.0	18.2	20.4
24.7	----	----	+100	75	169.0	24.3	----	----
22.3	23.9	----		65	146.0	22.0	23.6	----
20.0	21.3	24.0		55	124.0	19.6	21.0	23.6
17.6	18.8	21.0		45	101.0	17.2	18.4	20.6
4000 FEET						6000 FEET		
22.0	----	----	-20	75	169.0	21.8	----	----
19.9	21.3	----		65	146.0	19.5	21.0	----
17.8	19.0	21.3		55	124.0	17.5	18.6	20.9
15.6	16.6	18.8		45	101.0	15.3	16.3	18.4
22.4	----	----	0	75	169.0	22.1	----	----
20.1	21.7	----		65	146.0	19.7	21.3	----
18.0	19.2	21.6		55	124.0	17.7	18.9	21.3
15.8	17.0	18.9		45	101.0	15.5	16.6	18.6
22.7	----	----	+20	75	169.0	22.5	----	----
20.4	21.9	----		65	146.0	20.1	21.6	----
18.2	19.6	22.0		55	124.0	18.0	19.2	21.6
16.0	17.2	19.2		45	101.0	15.7	16.8	18.9
23.0	----	----	+40	75	169.0	22.8	----	----
20.7	22.2	----		65	146.0	20.4	21.9	----
18.5	19.8	22.3		55	124.0	18.2	19.5	21.9
16.2	17.4	19.4		45	101.0	15.9	17.0	19.1
23.4	----	----	+60	75	169.0	23.1	----	----
21.0	22.6	----		65	146.0	20.7	22.2	----
18.7	20.0	22.6		55	124.0	18.4	19.7	22.2
16.4	17.6	19.7		45	101.0	16.1	17.2	19.4
23.7	----	----	+80	75	169.0	----	----	----
21.3	22.9	----		65	146.0	21.0	22.5	----
19.0	20.3	22.9		55	124.0	18.7	20.0	22.6
16.6	17.8	19.9		45	101.0	16.3	17.5	19.6
24.0	----	----	+100	75	169.0	----	----	----
21.6	23.2	----		65	146.0	21.3	22.9	----
19.3	20.7	23.2		55	124.0	18.9	20.3	22.9
16.9	18.1	20.0		45	101.0	16.6	17.8	19.8

HORSEPOWER SETTINGS CHART

MP AT 2450 RPM	MP AT 2300 RPM	MP AT 2100 RPM	OAT °F	% BHP	BHP	MP AT 2450 RPM	MP AT 2300 RPM	MP AT 2100 RPM
8000 FEET						10,000 FEET		
21.0	----	----	-40	75	169.0	----	----	----
18.9	20.2	----		65	146.0	18.6	20.1	----
16.9	18.1	20.3		55	124.0	16.5	17.3	19.9
14.8	15.8	17.7		45	101.0	14.5	15.5	17.4
21.5	----	----	-20	75	169.0	----	----	----
19.2	20.7	----		65	146.0	18.8	----	----
17.1	18.3	20.6		55	124.0	16.8	18.0	----
15.0	16.1	18.0		45	101.0	14.7	15.8	17.6
----	----	----	0	75	169.0	----	----	----
19.6	21.0	----		65	146.0	19.1	----	----
17.4	18.6	21.0		55	124.0	17.0	18.2	----
15.2	16.3	18.2		45	101.0	14.9	16.0	17.8
----	----	----	+20	75	169.0	----	----	----
19.8	21.3	----		65	146.0	19.5	----	----
17.7	18.9	21.3		55	124.0	17.3	18.5	----
15.4	16.5	18.5		45	101.0	15.1	16.2	18.1
----	----	----	+40	75	169.0	----	----	----
20.1	21.6	----		65	146.0	19.8	----	----
17.9	19.2	21.6		55	124.0	17.6	18.8	----
15.6	16.7	18.8		45	101.0	15.3	16.4	18.4
----	----	----	+60	75	169.0	----	----	----
20.4	----	----		65	146.0	20.1	----	----
18.2	19.4	----		55	124.0	17.8	19.1	----
15.8	16.9	19.1		45	101.0	15.5	16.7	18.6
----	----	----	+80	75	169.0	----	----	----
20.8	----	----		65	146.0	----	----	----
18.4	19.7	----		55	124.0	18.1	19.4	----
16.0	17.2	19.3		45	101.0	15.7	16.9	18.8
12,000 FEET								
----	----	----	-40	75	169.0			
18.5	----	----		65	146.0			
16.2	17.4	----		55	124.0			
14.2	15.3	17.0		45	101.0			
----	----	----	-20	75	169.0			
18.7	----	----		65	146.0			
16.4	17.7	----		55	124.0			
14.4	15.6	17.2		45	101.0			
----	----	----	0	75	169.0			
----	----	----		65	146.0			
16.7	17.9	----		55	124.0			
14.6	15.8	17.5		45	101.0			
----	----	----	+20	75	169.0			
----	----	----		65	146.0			
16.9	18.2	----		55	124.0			
14.8	16.0	17.7		45	101.0			
----	----	----	+40	75	169.0			
----	----	----		65	146.0			
17.2	18.5	----		55	124.0			
15.0	16.2	18.0		45	101.0			
----	----	----	+60	75	169.0			
----	----	----		65	146.0			
17.6	18.8	----		55	124.0			
15.3	16.4	18.2		45	101.0			
----	----	----	+80	75	169.0			
----	----	----		65	146.0			
17.9	----	----		55	124.0			
15.5	16.7	18.4		45	101.0			

NOTES

1. Below 65% power use under 2450 rpm for best propeller efficiency.
2. Do not exceed manifold pressure and rpm limits shown on "Manifold Pressure VS RPM" graph.
3. Temperatures shown are OAT; altitudes are pressure altitude (altimeter set at 29.92).
4. Check fuel pressure setting after each power change.

SECTION VII
Servicing and Maintenance

PREVENTIVE MAINTENANCE

Preventive maintenance is in part, the responsibility of the airplane's owner or pilot . . . the best service facility is helpless until the airplane is in the shop with instructions to do the necessary work. The purpose of this section is twofold: first, to provide you with the information necessary for you to decide when the airplane should be sent to a shop; and second, to guide you should you choose or be obliged by circumstances to do some minor servicing yourself. It is in no sense a substitute for the services of your BEECHCRAFT Certified Service Station.

Carefully followed, the suggestions and recommendations in this section will help you keep your BEECHCRAFT Debonair at peak efficiency throughout its long, useful life.

BEECHCRAFT CERTIFIED SERVICE

Aware of our responsibility to our customers to insure that good servicing facilities are available to them, Beech Aircraft Corporation and BEECHCRAFT distributors and dealers have established a worldwide network of Certified Service Stations. Service facilities, to qualify for certification, are required to have available special tools designed to do the best job in the least time, on BEECHCRAFT airplanes; to maintain a complete and current file of BEECHCRAFT service publications; and to carry in stock a carefully predetermined quantity of genuine BEECHCRAFT parts. In addition, key personnel must have factory training in BEECHCRAFT servicing techniques, as well as FAA certificates in power plant, airframe, and radio maintenance. A Certified Service Station must be an FAA-approved repair station or employ an A&P mechanic with inspection authorization.

Certified Service Stations also benefit from frequently scheduled mechanics' training schools held at BEECHCRAFT distributors' and dealers' facilities, and from the visits of factory service representatives, to the end that their personnel are kept informed of the latest techniques in servicing BEECHCRAFT airplanes.

BEECHCRAFT SERVICE PUBLICATIONS

To bring the latest authoritative information to BEECHCRAFT distributors and dealers, and to you as the owner of a BEECHCRAFT airplane, the Parts and Service Operations of Beech Aircraft Corporation publishes and revises as necessary the Owner/Flight Manuals, Shop/Maintenance Manuals, and Parts Catalogs for all BEECHCRAFT airplanes, as well as Service Bulletins and Service Letters. All of these publications are available from your BEECHCRAFT distributor or dealer.

BEECHCRAFT PARTS AND SERVICE OPERATIONS

Should a special problem arise concerning your BEECHCRAFT airplane, your BEECHCRAFT distributor or dealer will supply the information, or if necessary, he will enlist the services of factory personnel, through the BEECHCRAFT Parts and Service Operations. His query will be answered by men who are thoroughly familiar with all parts of your airplane, and in addition to their own knowledge, may call on the engineers who designed it and the expert workmen who built it. The Parts and Service Operations maintains service records containing all information received by the factory on all BEECHCRAFT airplanes.

The work of the Parts and Service Operations also includes conducting service schools for BEECHCRAFT mechanics and annual Service Clinics at the facilities of various BEECHCRAFT distributors and dealers, to which you will be invited to bring your airplane each year. During the Service Clinic, factory experts will inspect your airplane and give you a written report of their findings, without obligation to you.

GROUND HANDLING

Knowing how to handle the airplane on the ground is fully as important as knowing how to handle it in the air. In addition to taxiing, parking and mooring, you may find it necessary to maneuver your airplane into a hangar by hand or with a tug, or to jack up a wheel. Doing these jobs is not difficult, but if they are done incorrectly, structural damage may result.

So that you may make certain a strange hangar with doubtful clearances is adequate, the three-view drawing on page *vi* shows the minimum hangar clearances for a standard airplane. You must of course, make allowances for any special radio antennas you have installed; their height should be checked and noted on the drawing for future reference.

If you leave your airplane parked outdoors, proper tie-down is good insurance against damage from strong or gusty winds. A tie-down lug is located on the lower side of each wing; the tail lug serves as a third tie-down point. After bringing the airplane into the desired position (preferably facing into the wind) chock the main wheels,

fore and aft. Then, using nylon line or chain of sufficient strength, secure the airplane at the wing and tail lugs. *Do not overtighten.*

Main Wheel Jacking

If it becomes necessary to replace a wheel or tire, proceed as follows: Make certain the shock strut is properly inflated to the correct height to prevent damage to the landing gear door. Insert a main wheel jack adapter into the main wheel axle. If the strut is not inflated to the recommended height it will be impossible to insert the jack adapter into the main wheel axle. Raise and lower the main wheel as necessary. A scissors-type jack is recommended.

NOTE

Do not walk on the wing walk while the airplane is on the main wheel jack.

Towing

Your BEECHCRAFT Debonair can be maneuvered into a hangar, or on the ramp, with a hand tow bar. The tow bar is attached to lugs on the nose gear and gives sufficient leverage to turn the nose wheel for steering. One man can easily move the airplane on a smooth and level surface with the tow bar.

In the hangar or where movement is restricted, two men can pivot the airplane on the main wheels: one man should be positioned where he can push on the wing leading edge or hold the wing tip, and the other should handle the tow bar.

CAUTION

Do not push on the propeller or control surfaces. Do not place your weight on the stabilizers to raise the nose wheel off the ground.

SERVICING

The following service procedures will keep your BEECHCRAFT Debonair in top condition between visits to your Certified Service Station. These procedures were developed from engineering information, factory practice and the recommendations of engine and parts suppliers.

Magnetos

Ordinarily, the magnetos will require only occasional adjustment, lubrication and breaker point replacement, which should be done by your Certified Service Station.

CAUTION

To be safe, treat the magnetos as hot whenever a switch lead is disconnected at any point; they do not have internal automatic grounding devices. The magnetos may be grounded by replacing the switch lead at the noise filter capacitor with a wire which is grounded to the engine case. Otherwise, all spark plug leads should be disconnected or the cable outlet plate on the rear of the magneto should be removed.

Propeller Blade Maintenance

Due to the high stresses, to which propeller blades are subjected, their careful maintenance is vitally important. The daily preflight inspection, particularly of the leading edge of each blade should be made and all nicks and scratches should be repaired before taking off. Nicks and scratches set up concentrations of stress which can exceed the strength of the blade material and cause a crack to appear in the blade.

Fortunately, good blade maintenance is a simple matter and need consume little time if it is done regularly. Using a fine file and emery cloth, carefully smooth out and polish all nicks and scratches; proper dressing of the sharp edges will relieve stress concentrations.

Oil System

The oil level should be checked daily or before every flight and replenished as necessary. The oil should be changed every 25 hours under normal operating conditions. Under adverse weather conditions or continuous high power settings, the oil should be changed more frequently. To drain the engine sump, remove the right hand engine access plate, and unsafety and remove the sump drain plug at the low point of the engine sump just aft of the engine air intake. Before draining the sump, run the engine until the oil reaches operating temperature to assure complete draining of the oil. Refill the sump, using engine oil as indicated in the Consumable Materials Chart. The sump capacity is 10 quarts.

The engine manufacturer recommends the use of detergent oils (meeting Continental Motors Corporation Specifications MHS-24). However, non-detergent oils are acceptable. When a change is made to detergent oil, the oil should be drained after five or ten hours of operation and the oil pressure screen checked. Excessive sludge indicates that the oil should be changed and the screen rechecked at five-hour intervals.

Fuel System

The leading edge of each wing houses either a 24.5-gallon (standard) or a 40-gallon (optional) fuel cell which is to be serviced with 80/87 grade fuel or next higher grade fuel if 80/87 grade fuel is not available. The total fuel capacity is 49 gallons in the standard configuration; in the optional, 80 gallons. Each optional 40-gallon fuel cell contains a visual measuring tab below the filter neck to permit partial filling when maximum payload is desired. The tab bottom indicates 30 gallons of fuel and the tab slot denotes 35 gallons.

NOTE

Do not allow the fuel cells to remain completely empty for more than a few days, since this may result in cracking and checking of the inner liner of the cell. If fuel cells are to be left empty for longer than a week, a thin coating of light engine oil should be sprayed, flushed or rubbed onto the inner liner of the cells.

The fuel strainer on the bottom of the fuel selector valve should be removed and cleaned every 100 hours. Ordinarily, the finger strainers in the fuel cell outlets should not require cleaning unless there is a definite indication of foreign solid material in the cells or the airplane has been stored for an extended period. At each 100-hour inspection the strainer plug should be removed from the fuel injection control valve and the fuel injection control valve screen washed in fresh, clean solvent. After the strainer plug has been reinstalled and safetied, the installation should be checked for leakage. Any fuel lines or fittings disconnected for maintenance purposes should be capped.

Servicing The Shock Struts

The shock struts are filled with dry compressed air and hydraulic fluid. To service the struts proceed as follows:

1. Remove the air valve cap, depress the air valve core, and allow the strut to fully compress.
2. Raise and block the strut 1/4 inch from the compressed position.

WARNING

Do not unscrew the valve body assembly until all air pressure has been released or it may blow off, causing injury to personnel or damage to equipment.

3. Slowly loosen the valve body assembly, make certain that all air has escaped, and remove the valve body assembly.

4. Fill the strut with hydraulic fluid. (Refer to the Consumable Materials Chart.)
5. Slowly extend the strut from the blocked position. Clean and reinstall the valve body assembly.
6. Depress the air valve core and completely compress the strut to release excess air and hydraulic fluid.
7. With the airplane empty except for full fuel and oil, inflate the shock struts until each main gear piston is extended 3 inches and the nose gear piston is extended 3 1/2 inches.

CAUTION

If a compressed air bottle containing air under extremely high pressure is used, care should be taken not to over-inflate the strut.

8. Rock the airplane gently to prevent sticking or binding of the strut.
9. Remove all foreign material from the exposed piston of the shock strut with a cloth moistened with hydraulic fluid.

Servicing The Tires

The main wheel tires are 6-ply, 6.00-6 tires and require 30 pounds air pressure. The nose wheel tire is a 4-ply, 5.00-5 tire and requires 40 pounds air pressure. Maintaining proper tire inflation pressures will minimize tread wear and aid in preventing tire rupture caused by running over sharp stones and ruts. When inflating tires, visually inspect them for cracks and breaks.

Servicing the Brakes

Your Debonair is equipped with BEECHCRAFT ring-disc hydraulic brakes. No adjustments are required, since the pistons move to compensate for lining wear. The brake discs should be checked periodically for small nicks or sharp edges which could damage the brake lining.

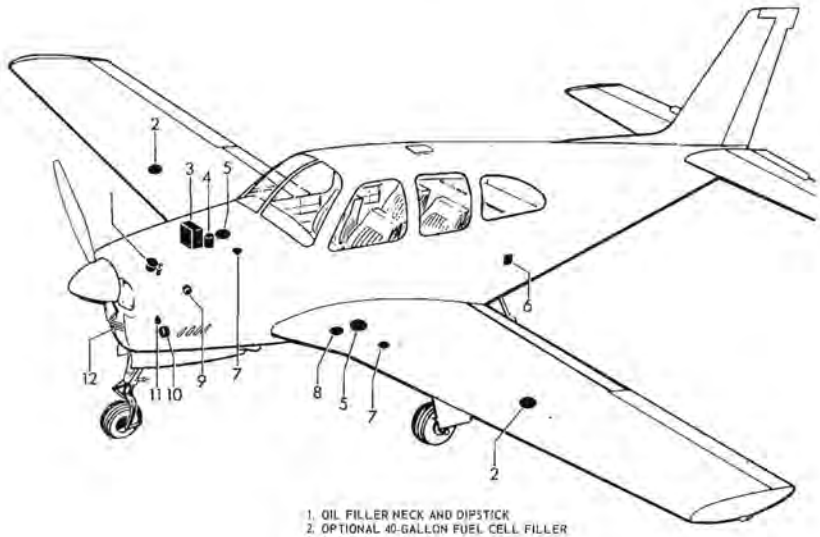
The brake fluid reservoir, located on the forward side of the fire wall, should be checked regularly and a visible fluid level maintained on the dipstick (attached to the reservoir cap) at all times.

Refer to the Consumable Materials Chart for hydraulic fluid specification.

Brake lining thickness should be checked at least every 100 hours. Lining wear checks should be made more frequently if the owner's particular operation requires more than normal brake usage. Replace anvil lining if worn to a thickness of 5/32 inch, as measured from the rubbing surface to the back of the lining center. Replace piston lining if worn to a thickness of 15/16 inch, as measured from the rubbing surface to the bottom of the metal support at the center.

Servicing The Battery

A 12-volt, 33-ampere-hour battery is located forward of the fire wall on the right hand side of the airplane. To service the battery, loosen the fasteners on the side of the box and remove the battery box lid. Add distilled water as necessary. Do not fill battery over 1/2 inch above the separators. Periodically, check the specific gravity of



1. OIL FILLER NECK AND DIPSTICK
2. OPTIONAL 40-GALLON FUEL CELL FILLER
3. BATTERY
4. BRAKE FLUID RESERVOIR
5. STANDARD 25-GALLON FUEL CELL FILLER
6. STATIC AIR PRESSURE LINE DRAIN
7. FUEL SUMP DRAIN
8. FUEL SELECTOR VALVE STRAINER AND DRAIN
9. OIL PRESSURE SCREEN
10. FUEL INJECTION CONTROL VALVE SCREEN
11. OIL SUMP DRAIN
12. ENGINE AIR INTAKE FILTER

each cell in accordance with the specifications placarded on the battery. The battery should be kept fully charged; a fully charged battery will resist freezing and will give a longer service life.

Engine Air Intake Filter

The engine air intake supplies air to the air metering section of the fuel injection system. The air filter is located in the nose cowling and should be inspected frequently for accumulated foreign matter. If dirty, the filter should be removed and cleaned. To remove the filter, remove the nose cowling grille, loosen the wing nuts holding the filter in place, and remove it through the nose cowling. Servicing instructions are provided on the filter. After cleaning the filter do not dry with compressed air, as this will destroy its filtering qualities.

Servicing The Beechcraft Oxygen System (Optional)

WARNING

Keep fire and sparks away and never smoke in the proximity of oxygen. Tools, equipment, and hands must also be kept clean when servicing the oxygen system, since deposits of oil or other hydrocarbons are highly inflammable when exposed to high concentrations of oxygen. Furthermore, the presence of other foreign particles in the oxygen lines may result in leaks that will both exhaust the oxygen supply and present a fire hazard. As an additional safety precaution, use only the anti-seize compounds and leak-testing soaps recommended for breathing oxygen systems.

1. Check cylinder pressure by slowly opening the shutoff valve on the console just forward and to the left of the pilot's seat.

CAUTION

Always open the shutoff valve slowly to prevent damage to the system.

2. Remove the access panel from the center of the partition located directly beneath the forward side of the pilot's and copilot's seats, then close the shutoff valves on both the cylinder and console.
3. Slide the pilot's seat slightly to the rear until the recharge outlet of the filler valve is clear, then remove the cap from the recharge outlet and connect the supply cylinder to the filler neck.
4. Open the cylinder shutoff valve and slowly fill the system to 1800 ± 50 psi at a temperature of 70°F. This pressure may be increased an additional 3.5 psi for each degree of increase in temperature; similarly, for each degree of drop in temperature. reduce the pressure for the cylinder by 3.5 psi.
5. Close the shutoff valve, disconnect the supply cylinder, replace the filler valve cap, and slide the seat forward to its normal position.
6. Slowly open the shutoff valve on the cylinder, leaving the console shut-off valves closed until the system is to be used.

Preservation of Rubber Seals

To prevent deterioration of the seals around the windows, doors, and cowling, coat the seals with Oakite 6 compound. The compound is noninjurious to paint, and may be removed by employing normal cleaning methods.

Exterior Cleaning

Prior to cleaning the exterior, cover the wheels, making certain the brake discs are covered; attach pitot cover securely; plug or mask off all other openings. Be particularly careful to mask off both static air buttons before washing or waxing.

CAUTION

Do not apply wax or polish to the painted surface for a period of 60 to 90 days after delivery. This will give the paint a chance to cure by the natural process of oxidation. Waxes and polishes seal the paint from the air and prevent curing. If it is necessary to clean the painted surface before the expiration of the 90-day curing period, use cold or lukewarm (never hot) water and a mild soap.

Never use detergents or harsh alkaline soap. Any rubbing of the painted surface should be done gently and held to a minimum to avoid cracking the paint film.

The airplane should be washed with a mild soap and water; loose dirt should be flushed away first with clean water. Harsh or abrasive soaps or detergents, which could cause corrosion or make scratches. should never be used. Soft cleaning cloths or a chamois should be used to prevent scratches, when cleaning and polishing. Any ordinary automotive wax or polish may be used on painted surfaces. To remove stubborn oil and grease, use a rag dampened with naphtha.

Interior Cleaning

The seats, rugs, upholstery panels, and headlining should be vacuum-cleaned frequently to remove as much surface dust and dirt as possible. Do not use water to clean fabric surfaces, since it will spot the upholstery surface and will remove the flame-resistant chemical with which the cloth is impregnated. However, if it should be necessary to use water in any form as a cleaner, the entire area should be cleaned to minimize water stain. Commercial foam type cleaners or shampoos can be used to condition rugs, fabrics or upholstery and to remove stains. In using these commercial cleaners you should follow closely the instructions noted on the container.

Cleaning Windshield and Windows

Since the Plexiglas used in the windshield and windows can be very easily scratched, extreme care should be used in cleaning it. Never wipe the windshield or windows when dry. First flush the surface with clean water or a mild soap solution, then rub lightly with a grit-free soft cloth, sponge, or chamois. Use trisodium phosphate completely dissolved in water to remove oil and grease film. To remove stubborn grease and oil deposits, use hexane, naphtha, or methanol. Rinse with clean water and avoid prolonged rubbing.

NOTE

Do not use gasoline, benzene, acetone, carbon tetrachloride, fire extinguisher fluid, deicing fluid, or lacquer thinners on windshield or windows, as they have a tendency to soften and craze the surface.

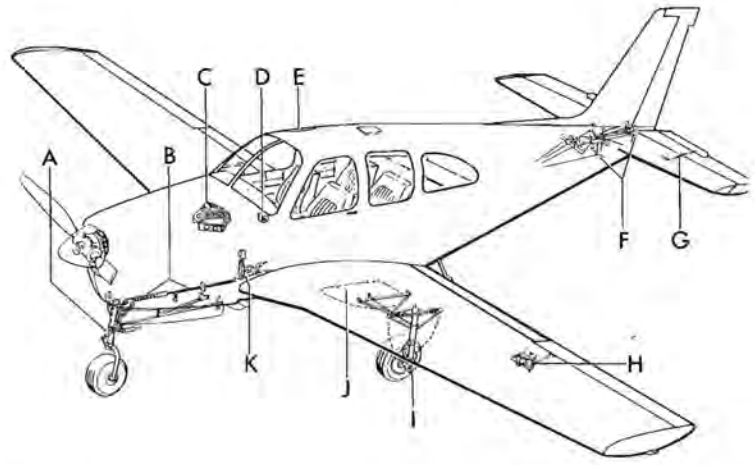
INSPECTIONS

Correct servicing being half the secret of preventive maintenance, the other half is inspection. Proper servicing will prolong the life of your airplane and careful, regular inspections will not only assure that servicing has been done correctly, but will disclose minor troubles so they can be corrected before they become malfunctions. In addition to the daily preflight checks which are made on your airplane, you should have it checked at regular intervals by your BEECHCRAFT Certified Service Station. These checks by experienced BEECHCRAFT personnel will assure you of more dependable trouble-free operation.

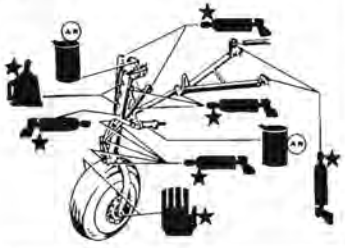
ABOUT THOSE KEYS

When you took delivery of your new airplane, you were provided with two keys. Duplicates can be made from these keys to insure that you always have a key when you need it. If the keys are separated and one of them should be lost, you can always have a duplicate made from the one you still have on hand. If both keys should be lost, a locksmith can prepare a new key, working from the lock on your Debonair. Beech Aircraft Corporation does not keep a record of lock numbers on delivered airplanes.

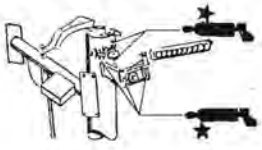
LUBRICATION POINTS



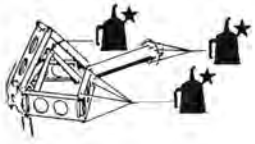
(A) NOSE LANDING GEAR



(B) STEERING MECHANISM

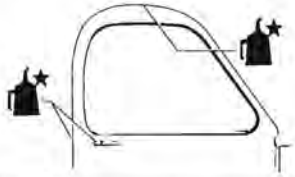


(C) CONTROL COLUMN

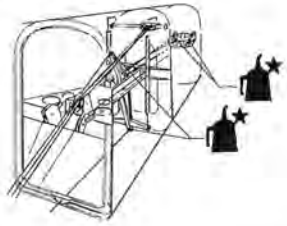


(D) ELEVATOR TAB CONTROL

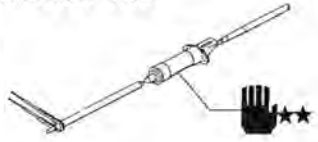
(E) DOOR LATCH



(F) CONTROL ASSEMBLY

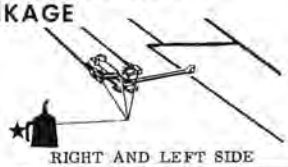


(G) ELEVATOR TAB



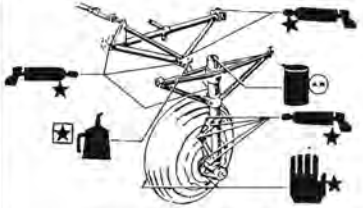
RIGHT AND LEFT SIDE

(H) AILERON CONTROL LINKAGE



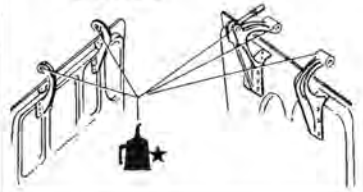
RIGHT AND LEFT SIDE

(I) MAIN LANDING GEAR



RIGHT AND LEFT SIDE

(J) MAIN LANDING GEAR DOORS



(K) CONTROL PEDAL

RIGHT AND LEFT SIDE

1		HAND OR PACK
2		HYDRAULIC FLUID
3		ZERK FITTING
4		SQUIRT CAN

NOTE: Landing gear components may require lubrication every 25 or 50 hours, depending on operation.

★ 100 hours

★ 50 hours (AR) As Required ★★ 1200 hours

NOTE: Numbers refer to items in Consumable Materials Chart.

CONSUMABLE MATERIALS CHART

ITEM	MATERIAL	SPECIFICATION
1.	Lubricating Grease (High Temperature)	MIL-G-3545
2.	Hydraulic Fluid	MIL-H-5606
*3.	Lubricating Grease (General Purpose)	MIL-G-7711
4.	Lubricating Oil	SAE No. 20
**5.	Engine Oil	SAE No. 30 (Below 40°F) SAE No. 50 (Above 40°F)
†6.	Engine Fuel	Grade 80/87
7.	Solvent	P-D-680 (P-S-661)
††8.	Rubber Seal Lubricant	Oakite 6 Compound
9.	Thread Compound, Anti-Seize and Sealing, Oxygen Systems	MIL-T-5542
10.	Soap Solution, Oxygen System Leak Testing	MIL-S-4282

NOTES

*In extremely cold climates, MIL-G-3278 grease should be used in place of MIL-G-7711 grease. Care should be exercised when using either MIL-G-7711 or MIL-G-3278 grease, as they contain a rust-preventing additive which is harmful to paint.

**Detergent oils (meeting Continental Motors Corporation Specification MHS-24) are recommended; however, non-detergent oils are acceptable. See servicing instructions.

†If 80/87 grade fuel is not available, use next higher grade fuel.

††Product of Oakite Products, Inc., New York 6, New York

CONTROL SURFACE RIGGING

CONTROL	CABLE TENSION	SURFACE TRAVEL
Aileron	40 ± 5 lbs. (With bungee springs connected)	20° ± 2° Up and Down
Elevator	25 ± 5 lbs.	25° ± 1° Up 15° ± 1° Down
Elevator Trim Tab	15 + 5 – 0 lbs.	10° ± 1° Up 21° ± 1° Down
Rudder	25 ± 5 lbs.	25° ± 1° Left and Right
Flaps	Take-Off: 10° ± 1° Down; Landing: 30° + 0° – 2° Down	

NOTE

The above cable tensions are based on an ambient air temperature of 59°F. Due to the difference in expansion rates of the steel cables and the aluminum airframe structure, changes in temperature will produce changes in cable tension; the tension will decrease as the temperature decreases and increase as the temperature increases. A graph showing the relationship between cable tensions and ambient air temperatures may be found in the BEECHCRAFT Debonair Shop Manual.

LAMP REPLACEMENT GUIDE

LOCATION	NUMBER
Cabin Dome Light	89
Compass Light	330
Elevator Trim Tab Position Indicator Light	53
Engine Instrument Lights	1891R
Flap Indicator Lights	330
Fuel Selector Valve Placard Light	53
Instrument Flood Lights	89
Instrument Post Lights (Optional)	330
Landing Gear Position Indicator Lights	330
Landing Gear Visual Position Indicator Light	53
Landing Light	4313
Rotating Beacons (Optional)	A-7079B-12 (Grimes) WRM-44K-12 (Whelen)
Tail Navigation Light	93
Wing Navigation Lights	1512 (Grimes)

A

	Page
About Those Keys	7-13
Air Intake Filter, Engine	7-10
Airspeed	
Charts	3-2
Limitations	3-3

B

Balance, Weight and	3-5
Balked Landing	5-3
Battery, Servicing the	7-9
BEECHCRAFT	
Certified Service	7-1
Parts and Service Operations	7-2
Service Publications	7-2
Before	
Landing Check	2-4
Start Check	2-3
Take-off Check	2-3
You Take-off	4-1
Brakes, Servicing the	7-8

C

Certified Service, BEECHCRAFT	7-1
Chart, Oxygen Duration	3-5
Charts, Airspeed	3-2
Check,	
Before Landing	2-4
Before Starting	2-3
Before Take-off	2-3
Shutdown	2-4
Starting	2-3
Cleaning,	
Exterior	7-11
Interior	7-12
Cleaning Windshield and Windows	7-12
Climb	4-5
Power Management	4-5
Speeds	3-2
Cold Weather Hints	4-10
Comfort	1-15
Consumable Materials Chart	7-16

C (Cont'd)

	Page
Controls,	
Flight	1-2
Engine	1-9
Surface Rigging	7-17
Cooling, Engine	1-9
Convenience	1-15
Crosswind Landing	5-3
Cruise	4-5
Cylinder Head Temperature	3-4

D

Data, Operational	6-1

E

Electrical System	1-11
Emergency Extension, Landing Gear	5-5
Engine	
Air Intake Filter	7-10
Controls	1-9
Cooling	1-9
Failure	5-5
Fire During Flight	5-6
Instrument Markings	3-3
Operation Limitations	3-3
Exterior Cleaning	7-11

F

Failure, Engine	5-5
Filter, Engine Air Intake	7-10
Fire During Flight, Engine	5-6
Flap and Landing Gear Indicators	1-16
Flight Controls	1-2
Flight, Instrument	4-6
Flight in Turbulent Air	4-9

F (Cont'd) Page

Fuel
Flow 3-4
and Manifold Pressure
Indicator 1-8
System 1-5, 7-6

G

Gear, Landing 1-3
Gear-up Landing 5-4
General Specifications iv
Gliding
Distance Table 3-4
Ratio 5-4
Graphs, Performance 6-1
Ground Handling 7-3

H

Handling, Ground 7-3
Heating and Ventilating System . 1-13
Horn, Landing Gear Warning . . 1-16

I

Ice, Induction System 4-8
Indicators, Fuel Flow and
Manifold Pressure 1-8
Indicators, Landing Gear and Flap 1-16
Indicator, Stall Warning 1-16
Induction System Ice 4-8
Inspection, Preflight 2-2, 4-2
Inspections 7-13
Instrument
Flight 4-6
Lighting 1-17
Markings, Engine 3-3
Panel 1-10
Instruments 1-11
Interior Cleaning 7-12

J

Jacking, Main Wheel 7-4

K Page

Keys, About those 7-13

L

Lamp Replacement Guide 7-18
Landing 4-10
Landing,
Balked 5-3
Crosswind 5-3
Gear-up 5-4
Landing Gear 1-3
and Flap Indicators 1-16
Emergency Extension 5-5
Safety Switch 1-16
Warning Horn 1-16
Landing Speeds 3-3
Letting Down 4-9
Lighting, Instrument 1-17
Limitation,
Airspeed 3-3
Engine Operation 3-3

M

Magnetos 7-5
Maintenance,
Preventive 7-1
Propeller Blade 7-5
Main Wheel Jacking 7-4
Maneuvers 3-4, 4-8
Manifold Pressure 3-3
Materials Chart, Consumable . . . 7-16
Maximum Endurance 5-2

O

Obstacle Clearance Take-off . . 5-2
Oil
Pressure 3-3
System 1-8, 7-6
Temperature 3-3
Operation Limitations, Engine . 3-3
Operations, Parts and Servicing . 7-2

O (Cont'd) Page

Oxygen
Duration Chart 3-5
Systems, Servicing 7-10
System Operation 4-12

P

Parts and Service Operations,
BEECHCRAFT 7-2
Performance Graphs 6-1
Power Plant 1-5
Preflight Inspection 2-2, 4-2
Preservation of Rubber Seals . . . 7-11
Pressure,
Manifold 3-3
Oil 3-3
Preventive Maintenance 7-1
Propeller Blade Maintenance . . . 7-5
Publications, BEECHCRAFT
Service 7-2

S

Safety 1-15
Safety Switch, Landing Gear . . . 1-16
Seals, Preservation of Rubber . . 7-11
Service, BEECHCRAFT
Certified 7-1
Servicing 7-5
Shock Struts 7-7
the Battery 7-9
the Brakes 7-10
the Oxygen System 7-8
the Tubeless Tires 7-8
Shock Struts, Servicing 7-7
Short Field Take-off 5-1
Shutdown 4-10
Check 2-4
Specifications, General iv
Speeds,
Climb 3-2
Landing 3-3
Stall 3-2
Take-off 3-2
Stall
Speeds 3-2
Warning Indicator 1-16

S (Cont'd) Page

Starting
Check 2-3
the Engine 4-2
Switch, Landing Gear Safety . . . 1-16
System,
Electrical 1-11
Fuel 1-5, 7-6
Heating and Ventilating 1-13
Oil 1-8, 7-6
Oxygen 4-12
System Ice, Induction 4-8

T

Tachometer 3-4
Take-off 4-3
Take-off,
Before you 4-1
Check 2-3
Obstacle Clearance 5-2
Short Field 5-1
Take-off Speeds 3-2
Taxiing 4-3
Temperature,
Cylinder Head 3-4
Oil 3-3
Terrain Flying 5-6
Tires, Servicing the 7-8
Towing 7-4
Turbulent Air, Flight In 4-9

V

Ventilating and Heating System . 1-13
Visibility, Good 1-15

W

Warm-up 4-2
Warning
Horn, Landing Gear 1-16
Indicator, Stall 1-16
Weather Hints, Cold 4-10
Weight and Balance 3-5
Windshield and Windows,
Cleaning 7-12