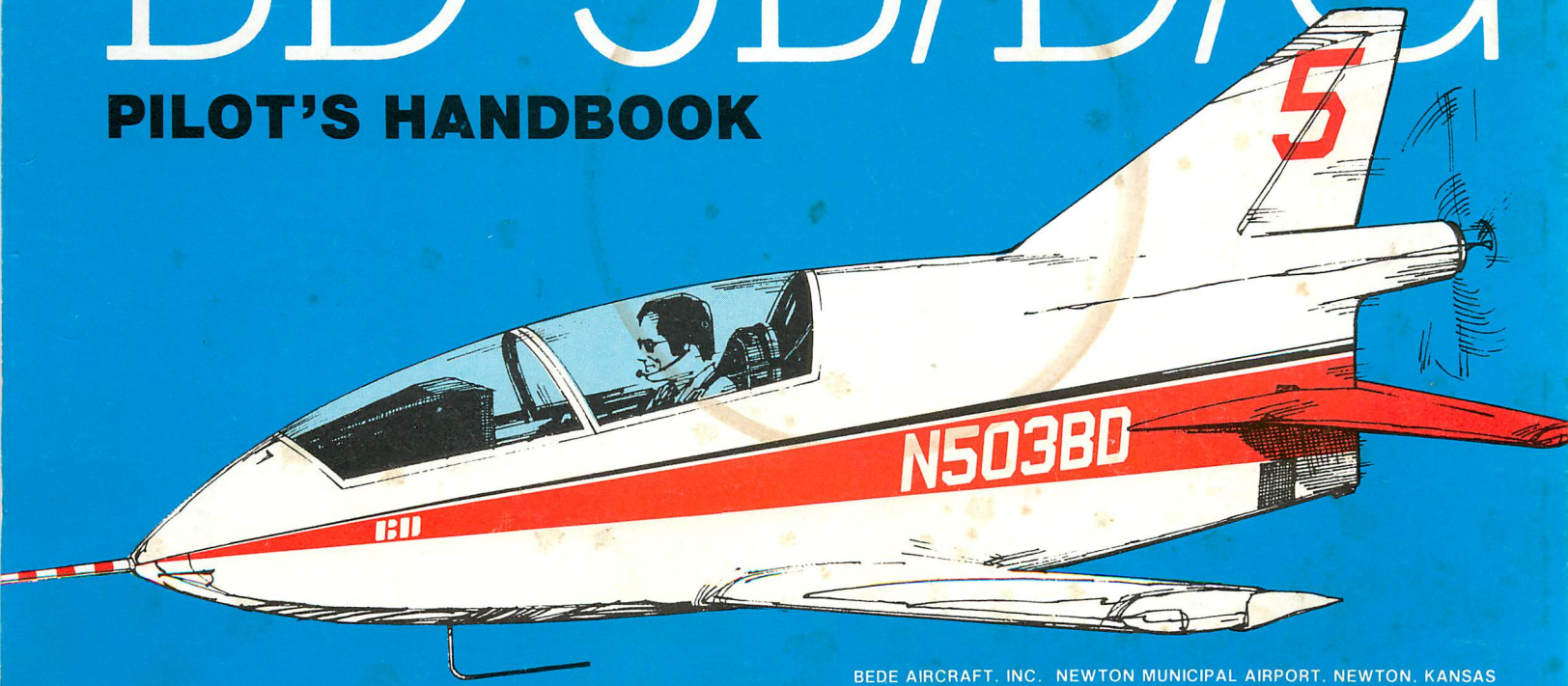
BD-5B/D/G

PILOT'S HANDBOOK



BEDE AIRCRAFT, INC. NEWTON MUNICIPAL AIRPORT, NEWTON, KANSAS

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FOREWORD

SCOPE

This Pilot's Handbook contains the information necessary for the safe and efficient operation of the BD-5B, BD-5D and BD-5G aircraft. These instructions provide you with a general knowledge of the aircraft, normal and emergency operating procedures, limitations, flight characteristics, performance data, maintenance procedures and initial checkout. It is assumed that your flight proficiency is at least equivalent to that required for the issue of a private pilot's license; therefore, basic flight principles are not discussed.

OPERATOR JUDGEMENT

This handbook provides the best possible operating instructions under most circumstances, but it is not a substitute for sound judgment. Multiple emergencies, adverse weather, terrain, etc., may require deviations from the recommended procedures.

PERMISSIBLE OPERATIONS

This Pilot's Handbook takes a "positive approach" and normally states only what you can do. Unusual operations or configurations (objects attached to the outside of the aircraft, flight with canopy removed, etc.) are not recommended unless specifically covered herein. Advice should be obtained from Bede Aircraft, Inc. before any questionable operation is attempted.

OPERATIONAL AND FLIGHT SAFETY SUPPLEMENTS

Information concerning safety will be promptly forwarded to you in the form of Pilot's Handbook supplements. Card is enclosed in the back of the manual for you to order 1 year supplement service subscription for $500. You should remain constantly aware of the status of all supplements to stay current on the latest information.

WARNING, CAUTIONS, AND NOTES

The following definitions apply to warnings, cautions, and notes found throughout the handbook.

WARNING - Operating procedures, practices, etc., which will result in personal injury or loss of life if not carefully followed.

CAUTION - Operating procedures, practices, etc., which if not strictly observed will result in damage to or destruction of equipment.

NOTE - An operating procedure, condition, etc., which it is considered essential to emphasize.

TECHNICAL CHANGES

To help you find technical changes that otherwise might be inconspicuous, the following will be used as identifiers.

- Change bars, located in the outer margins, will be used to identify changes in text.
- Miniature pointing hands will be used to identify changes in illustrations.

HOW TO OBTAIN COPIES

Every pilot should have a personal copy of the Pilot's Handbook with all current Operational and Safety of Flight Supplements. This handbook may be ordered from Bede Aircraft, Inc., Newton Municipal Airport, Newton, Kansas 67114 - Attn: Pilot's Handbook Publications. Your handbook, with one year supplement subscription service, will be mailed to you, postpaid.

YOUR RESPONSIBILITY – TO LET US KNOW

Every effort is made to keep the Pilot's Handbook current. Review conferences with operating personnel and constant reviews of accident and flight test reports assure inclusion of the latest data in the handbook. However, we cannot correct an error unless we know of its existence. In this regard, it is essential that you do your part. Comments and questions regarding this handbook are welcomed.

FIGURE LIST

SECTION 1–DESCRIPTION

CONTENTS

AIRCRAFT

The BD-5D/G is a high-performance, single-place, low-wing, all-metal, pusher-configuration sport aircraft built by Bede Aircraft, Inc. The BD-5B is essentially the same aircraft except for the 21.5 wing length. The BD-5B and BD-5G is manufactured by individual homebuilders with materials and specifications provided by Bede Aircraft, Inc. The aircraft were designed to day-VFR requirements for use in sport and recreational flying, including limited aerobatic capability.

Dimensions

The overall dimensions of the aircraft are as follows:

Wing Span
- BD-5B . . . . . .21.5 feet
- BD-5D/G. . . . . .17.0 feet

Length. . . . . .13.3 feet

Height (at rest) . . . . . .4.2 feet

Gross Weight

The normal gross weight of the aircraft is BD-5D/G 850 lbs; BD-5B, 710 lbs. For factors affecting gross weight limitations refer to Section 5.

ENGINE

The aircraft is powered by a Xenoah 726 cc, three-cylinder, air-cooled, two-cycle engine which develops 65 horsepower at 6250 rpm at sea level. The engine is equipped with a direct-drive starter and three float carburetors, and two pulse-type fuel pumps. Model designation of the engine is G72C. Some BD-5B aircraft are equipped with a 650 cc Hirth engine, 45 horsepower, Model designation F20BA1.

ENGINE CONTROLS

Primary engine controls are conveniently located on the console on the left side of the cockpit.

Throttle

The throttle (Figure 1-1) located on the left hand console is CLOSED aft, OPEN forward, and can be placed in any intermediate position for a desired power setting. A microphone button, for radio transmission, is located on top of the throttle handgrip if your aircraft is radio equipped. Retarding the throttle to idle actuates the landing gear warning switch which sounds a warning horn and turns on the panel warning light when the landing gear is not down (BD-5D only).

Mixture Control

The ratio of the fuel-air mixture delivered by the carburetor to the engine is controlled by the air-bleed mixture knob on the left console (Figure 1-1). Turning the knob fully clockwise provides the richest fuel mixture. See Section 7 for mixture operation.

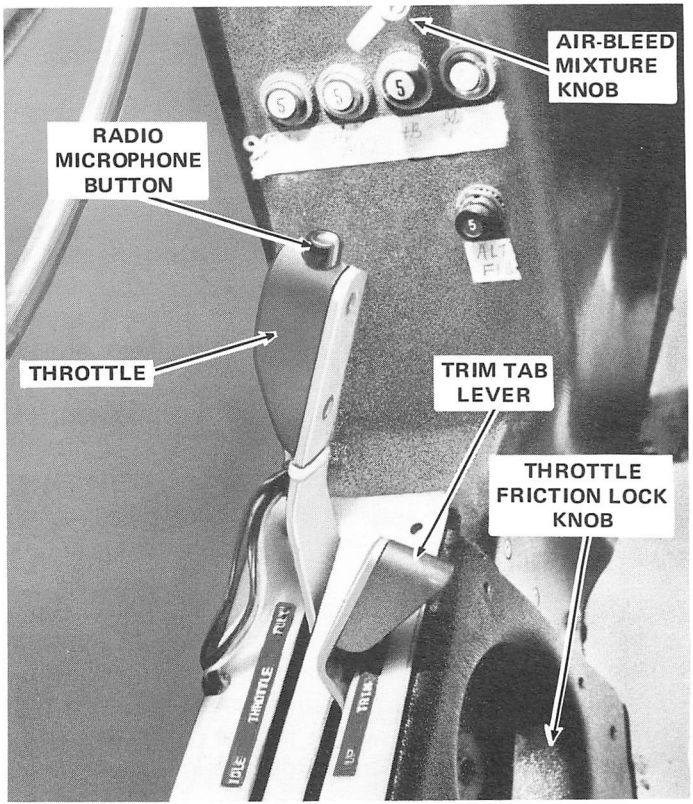


Figure 1-1 Left Console

Enrichment Valve (Choke)

The starting enrichment control is a single knob on the right console which is connected to an enrichment valve in each carburetor metering system.

Throttle Friction Lock

The throttle friction lock knob is located on the inboard side of the left console (Figure 1-1). The friction lock knob can be rotated clockwise to increase friction and to prevent creeping of the throttle; counterclockwise rotation decreases friction and allows free movement.

ENGINE INSTRUMENTS

All of the engine instruments are located on the right side of the instrument panel (Figure 1-2) and provide indications of engine operation or condition.

Tachometer

The tachometer is located on the center, right-hand side of the instrument panel (Figure 1-2). The tachometer indicates engine speed in hundreds of revolutions per minute (rpm) and is energized by the engine's alternator coil, independent of the ignition system.

Cylinder Head Temperature Gage

The cylinder head temperature (CHT) gage is located on the right hand side of the instrument panel (Figure 1-2). Cylinder head temperature is detected by a thermocouple in the center cylinder head and is registered in degrees Fahrenheit. The CHT cyctem is self-generating and independent of the aircraft electrical system.

Fuel Pressure Gage

BD-5D aircraft have a fuel pressure gage as standard equipment (it is optional on BD-5B, BD-5G aircraft). The fuel pressure gage is located on the left console and indicates the fuel pressure at the carburetor pressure chamber in pounds per square inch (psi). Minimum fuel pressure is 0.7 psi at idle and 4.5 psi at 6200 rpm. A failure of one pulse pump will result in a gage indication half of normal pressure.

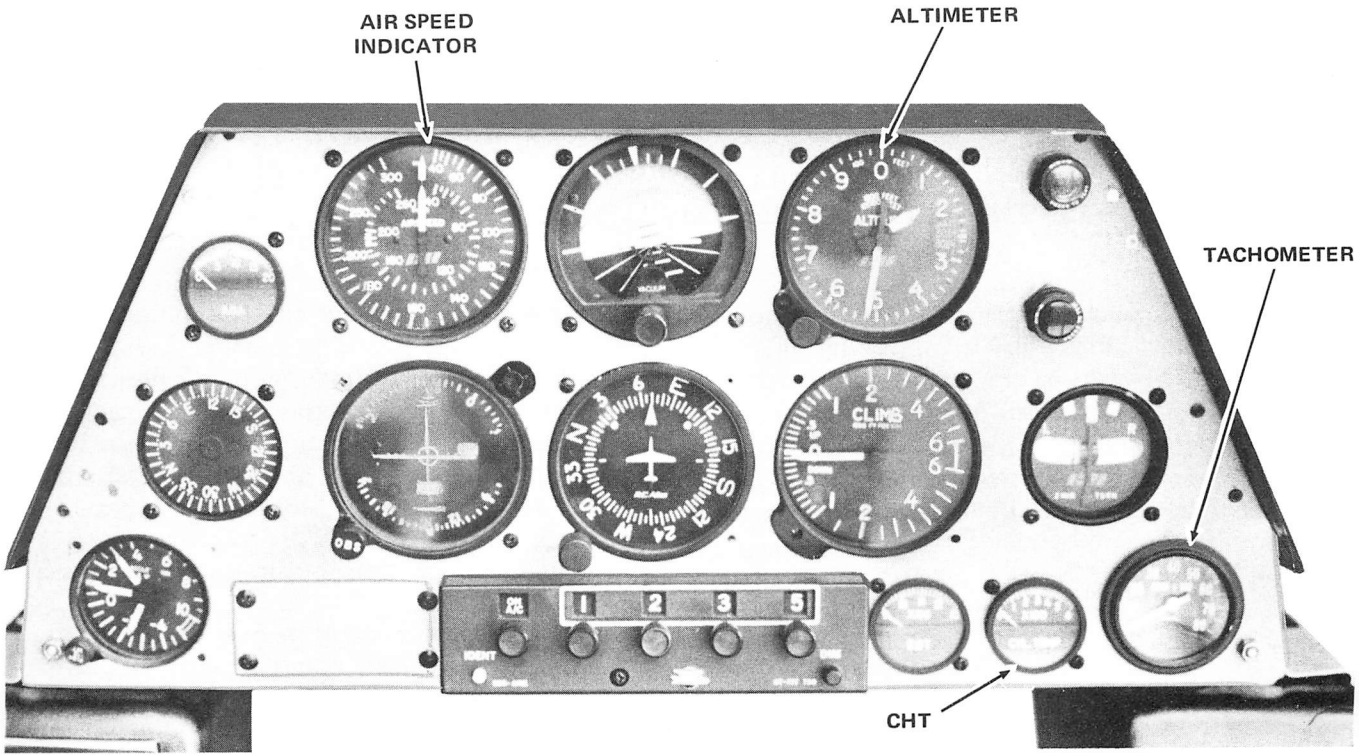


Figure 1-2 Instrument Panel

IGNITION SYSTEM

Ignition is supplied by two individual capacitance discharge (CD) units which are grounded individually through the ignition switches. Each CD unit provides a high intensity spark to all three cylinders.

The ignition switches are located on the right hand console (Figure 1-3). The starter button is spring loaded to the OFF position. Actuation of the switch to ON energizes the starter relay, which in turn completes the circuit to the direct-cranking electric starter. The starter is automatically engaged when the button is pushed and disengaged when the starter button is released. Electrical power for the operation is supplied directly by the main dc bus. The master switch must be on for starter operation.

CARBURETION

The aircraft is equipped with three float-type, single-barrel, side-draft carburetors. The carburetors are located in a fireproof box on the right side of the engine and are isolated from the rest of the engine compartment. The engine is equipped with two pulse-type fuel pumps which use oscillating crankcase pressure to provide the pumping action. The pumps are interconnected so that one pump can supply pressure to all carburetors in the event of one pump or pulse line failure.

ENGINE COOLING

Cooling of the engine is provided by an external ram scoop which, by means of baffling, forces air over the exhaust system, around the cylinder fins and dumps it into the upper engine compartment. The cooling air then circulates around the drive system and is ejected from the aircraft with the engine exhaust under the aft portion of the fuselage by the exhaust ejector.

POWER TRANSMISSION SYSTEM AND PROPELLER

Figure 1-4 shows the power transmission system which connects the engine to the propeller. The lower shaft connects the engine to the lower pulley through two soft rubber couplings which isolate engine vibration from the drive system. A "high torque"

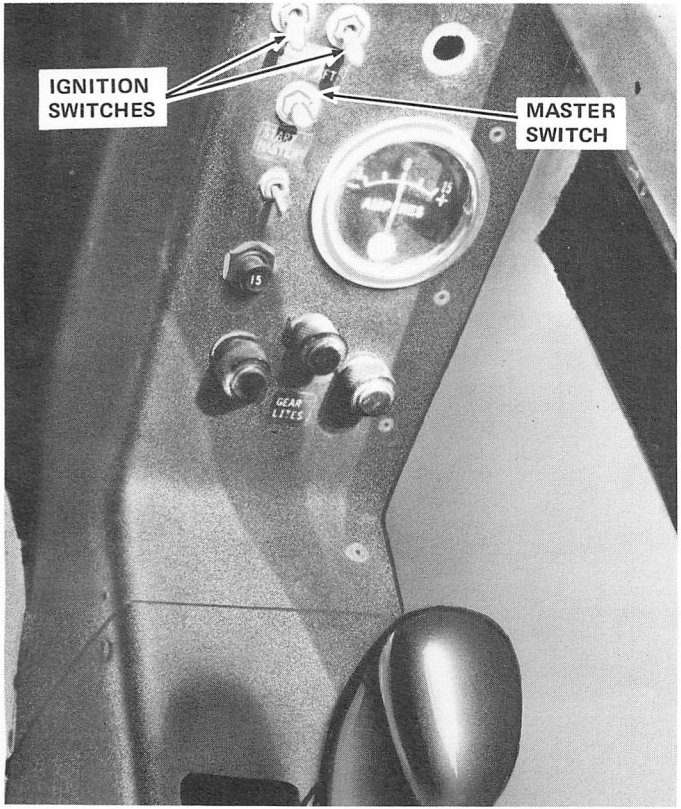


Figure 1-3 Right Console

round-tooth belt is used to drive the upper pulley at 0.625 times the engine rpm. This "gearing down" allows the propeller to run at its most efficient cruise rpm and provides greater thrust for takeoff. Housed within the top pulley is a one-way clutch which allows the propeller to freewheel in one direction. This eliminates all drive system vibration during start-up and shut-down and allows limited soaring flight with the engine shut down, with only a very slight propeller aerodynamic drag. The upper shaft is supported in its outer tube housing with four sealed bearings. The propeller is a 46-inch diameter fixed-pitch, wood design which features fatigue-free safety and light weight. The standard propeller for the BD-5B/DG has a pitch of 53 inches, which gives good take off and climb performance while maximizing cruise speed at 8000 feet. A lower pitch propeller is also available as an option to increase climb and take off performance with a moderate decrease in cruise speed. A ground adjustable propeller also is available which enables pilot selection of pitch (pitch can only be set on the ground prior to engine start up).

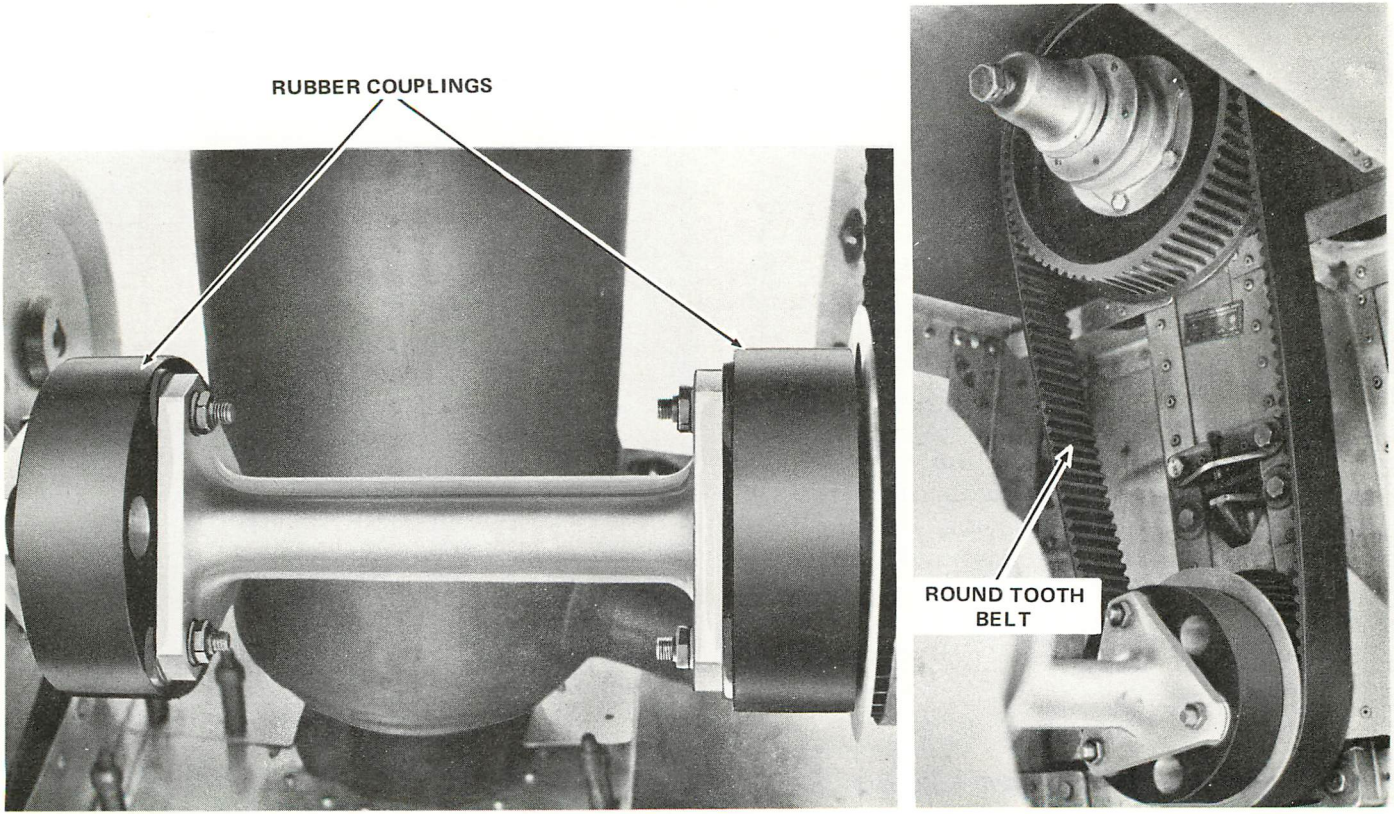


Figure 1-4 Power Transmission System

FUEL SYSTEM

The fuel system (Figure 1-5) consists of two wing tanks, a fiber optic fuel gage, servicing caps, a manual fuel selector valve and a fuel filter. The system is a 'left-right-off' system. Total fuel quantity is 29 gallons, of which 28 is available on BD-5D/G, (26 gallons, of which 24.5 is available on BD-5B). The first wing fuel bay is closed off (except for a small fuel feed hole in the outboard rib) to prevent loss of fuel flow when sideslipping into the wing being used.

FLIGHT CONTROL SYSTEM

The primary flight control surfaces (ailerons, rudder, and elevator) are operated by a "wrist-action" side stick on the right console and by rudder pedals (Figure 1-6). A trim tab on the stabilator is mechanically operated by a lever on the left console.

Rudder Pedals

The rudder pedals, which also include toe brakes, are not adjustable. Individual seat-to-pedal adjustment is provided by fore-and-aft movement of each seat, or by the size of seat cushions.

Trim Tabs

Trim tabs are installed on all flight control surfaces. The aileron and rudder tabs can be adjusted on the ground only, while stabilizer trim tab is a cockpit adjustable anti-servo type. As the stabilator is displaced from neutral, the tab moves in the same direction, increasing stabilizer effectiveness and the force required to deflect it. This feature provides stabilizer control "feel."

Stabilizer Trim Tab Lever

The stabilizer trim tab lever is located on the left console (Figure 1-1). Movement of the lever forward raises the tab, "flies" the stabilator nose up, and lowers the nose of the aircraft; movement aft lowers the tab and raises the nose of the aircraft. Take off position of the trim lever is with the lever one-third of the way forward in its slot.

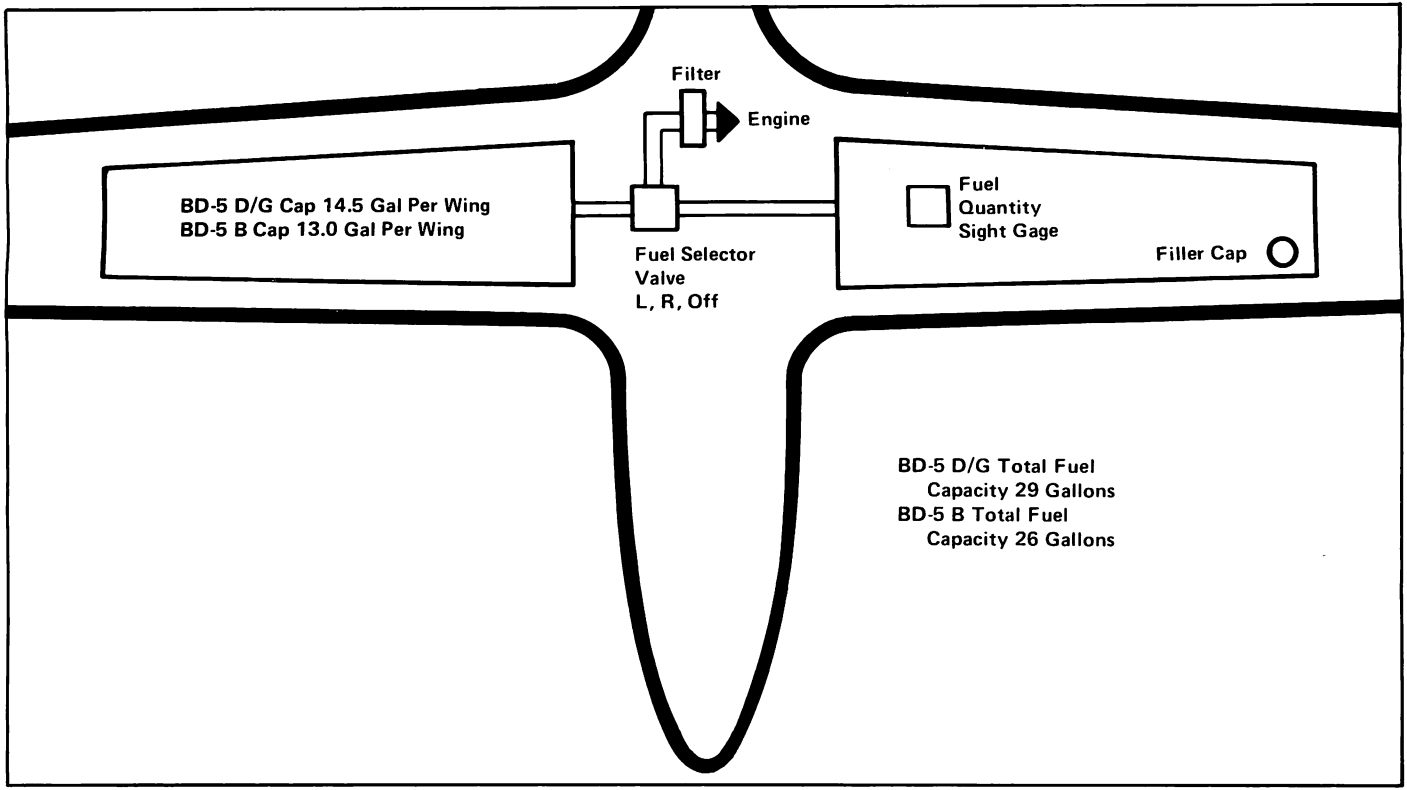


Figure 1-5 Fuel System

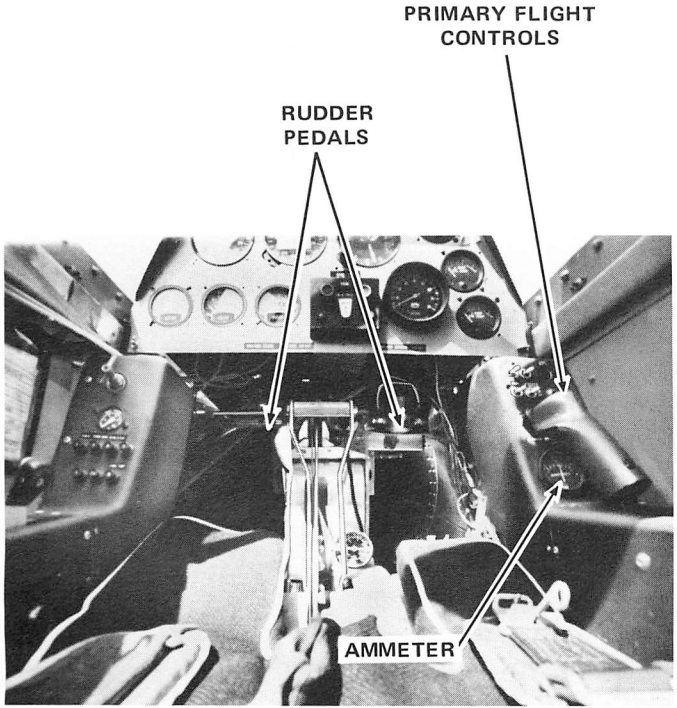


Figure 1-6 Rudder Pedals

Wing Flaps

Manually operated plain flaps extend from the wing root to the aileron on each wing. The flaps are operable from the cockpit by a handle located between the pilot's legs. The handle is pulled forward for flaps up, and pulled aft to lower the flaps. Two flap-down positions are provided: a takeoff position of 20 degrees and a landing position of 40 degrees. The handle must be pulled left to unlock before changing flap position.

LANDING GEAR SYSTEM

The manually operated tricycle landing gear is fully retractable. The main wheels retract inboard into the center fuselage and the nosewheel retracts aft into the forward fuselage. Fairing doors, operated by gear movement, fully cover all wheels when retracted. No downlocks or uplocks are provided since the offset, or over-center pivot, of the linkage provides a geometric locking effect. The linkage is also spring loaded to the offset position. Steering on the ground at low speeds is accomplished by differential braking, since the nosewheel is free to pivot. The landing gear handle is located between the pilot's legs under the

instrument panel, to the right of the flap handle (Figure 1-7). The handle is mechanically connected by cables to the retraction linkages of all three landing gear. Moving the handle forward extends the landing gear and positions the linkages over center, locking the gear down. Moving the handle aft retracts the landing gear and again positions the linkages over center, locking the gear up. Springs at each landing gear linkage serve to hold the gear in the locked position and to overcome its weight, making retraction easier, thus, no separate locking action is required by the pilot. The gear can be retracted or extended in about one second by merely pulling or pushing the handle with a smooth 15 lb. stroke.

Landing Gear Position Indicators

The position of the landing gear is shown by the position of the landing gear handle, and by the gear position indicator lights. Pushing the gear handle forward against its stop assures that all gear are locked down. The landing gear down indicating light system will indicate three green lights when the gear is down and locked.

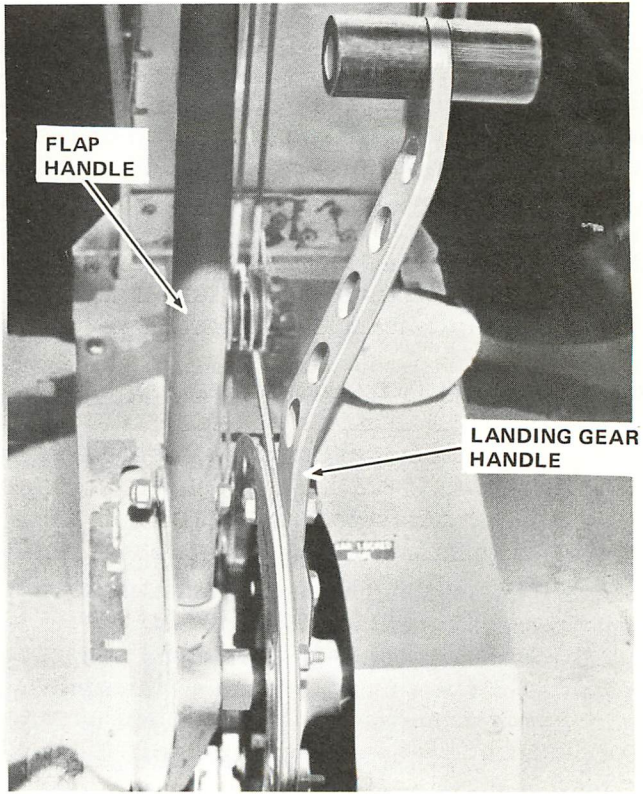


Figure 1-7 Landing Gear Lever

Landing Gear Warning Horn

Retarding the throttle to idle with the gear not fully extended and locked will sound the horn. The landing gear warning horn and light operate directly from the aircraft's main DC bus (BD-5D only).

WHEEL BRAKE SYSTEM

The main landing wheels are equipped with hydraulic brakes, operated by toe pressure on the rudder pedals. Fluid from a reservoir supplies a master cylinder located at each pedal. Toe action on the rudder pedals actuates the cylinder, and applies brake pressure to the corresponding wheel. For operation of the wheel brake system, refer to Section 7.

INSTRUMENTS

The instruments described herein are those supplied as standard equipment.

Pitot Static System

The airspeed indicator and altimeter are operated by the pitot static system. This system is composed of a pitot tube, mounted on the fuselage nose, and static air pressure ports which are located in the skin on both sides of the fuselage. A noseboom, available as optional equipment, provides both a pitot and static pressure source with a more accurate calibration than the basic system. The noseboom is removable by twisting it to the left and pulling forward.

Altimeter

A conventional, sensitive altimeter is installed on the instrument panel (Figure 1-2) for use in determining the indicated altitude of the aircraft above sea level. The altimeter functions on static pressure alone and is equipped wth three pointers which are used to indicate values of altitude as they pass over a dial graduated in units of feet. A barometric dial is also incorporated in the instrument and may be set in conjunction with the altitude pointers by an external adjusting knob. Adjustment is made with the knob so that the reading on the barometric dial will correspond to the sea level barometric pressure in the area in which the aircraft is located.

Airspeed Indicator

The airspeed indicator (Figure 1-2) operates by pressure differential between pitot tube impact pressure and static pressure, and is calibrated in mph/kts BD-5D, mph only BD-5B/G.

CANOPY

The canopy is made up of two sections, the windshield and a movable aft portion. The aft portion opens up and aft on a three-beam suspension system for normal crew entry (Figure 1-8). The forward section is a fixed windshield which is removable for access to avionics, brakes, and rudder pedals. The canopy latch is at the top of the forward canopy bow. The canopy is latched by first pulling the canopy rails down firmly along the sides (crossed arms works best), rotating the handle to the right and pushing down and forward, then rotating the handle to the left to lock.

ELECTRICAL SYSTEM

The basic electrical power distribution system (Figure 1-9) is a 12-volt, direct-current (DC) single-wire system, using the aircraft's structure for a ground return. All equipment powered from the aircraft's electrical system is DC. All circuits except the starter are protected by circuit breakers.

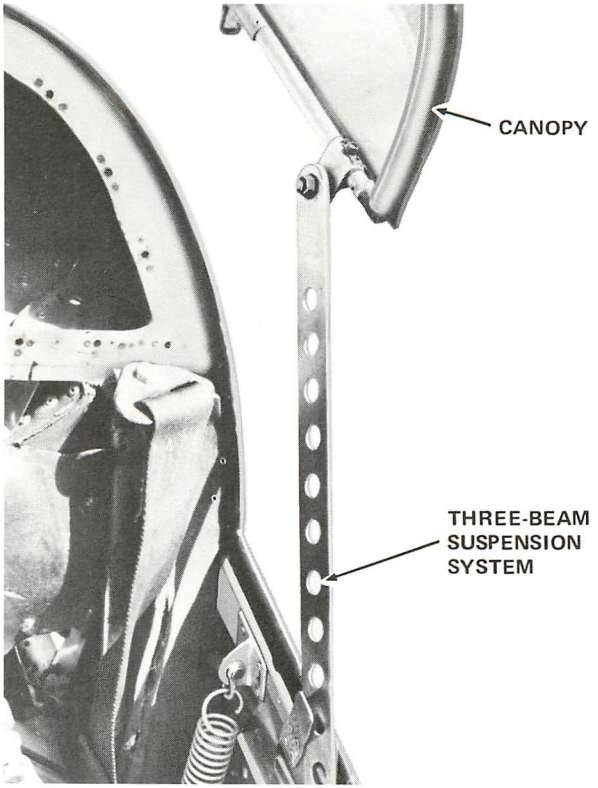


Figure 1-8 Canopy/Suspension System

DC Power Supply

The DC power supply consists of a 35-ampere, engine-driven alternator and a 16-ampere-hour, 12-volt, storage battery. A rectifier converts the AC output from the alternator to DC power.

The 35-amp alternator is sufficient for all types of day-night and/or IFR operation.

Master Switch

The battery is connected to the main bus system through a two-position ON-OFF master switch located on the right console (Figure 1-3). Placing the switch in the OFF position removes battery power from the bus system but does not affect generator operation. Placing the master switch in the ON position furnishes battery power to the main bus system.

Ammeter

An ammeter, located on the right console, indicates output of the alternator.

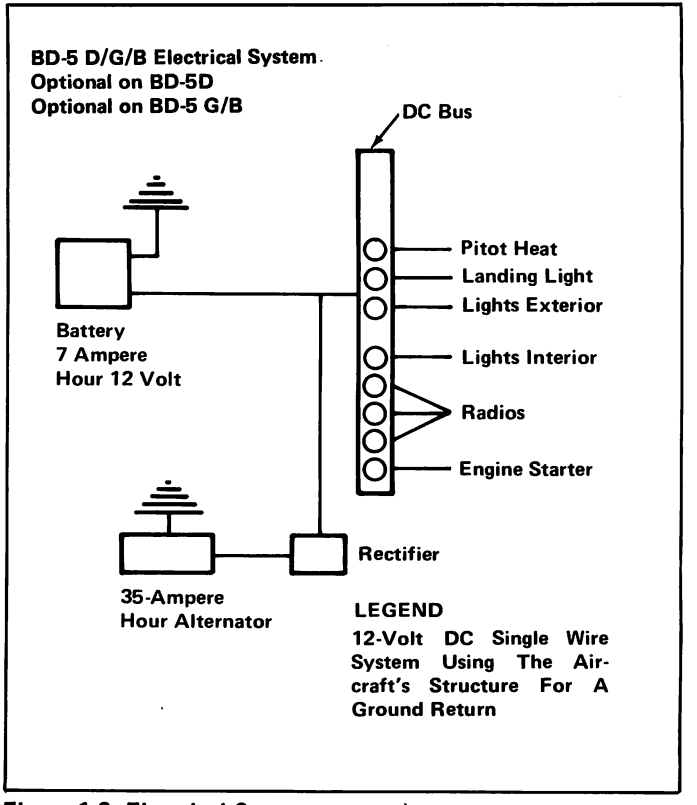


Figure 1-9 Electrical System

EXTERIOR LIGHTING

Exterior lighting includes a combination Nav and strobe light on each wing tip and a Nav light on the tail (optional on equipment). Electrical power for operation of the exterior lighting is furnished directly from the main DC bus.

The Nav and strobe lights are operated by power from the DC electrical system and are controlled by a switch located on the left side of the instrument panel. The Nav and strobe lights are protected by a circuit breaker.

INTERIOR LIGHTING

Interior lighting in the cockpit consists of internally lighted instruments and avionics, and side console floodlights (optional on equipment). Lighting controls are located on the upper left instrument panel.

BAGGAGE SPACE

The space behind the pilot's seat back can be used for storage of baggage. In addition, the space between the instrument panel cover and the sides of the canopy can be used to store charts, pencils, approach plates, etc.

SECTION 2-NORMAL PROCEDURES

CONTENTS

PREPARATION FOR FLIGHT

Flight Restrictions

Refer to Section 5 for all operating restrictions.

Flight Planning

To determine fuel consumption, airspeed, power settings, range, etc., refer to Appendix A.

Weight and Balance

Refer to Section 5 for weight and balance and loading information. Before each flight, check the following:

1. Takeoff and landing gross weight and cg - check within prescribed limits.
2. Fuel quantity and equipment (maps, flashlight, headset, etc.) – check adequate for intended flight.

ENTRANCE TO AIRCRAFT

Because of the relationship between the cg and landing gear position on the BD-5 the aircraft will sit on its tail when the pilot is not on board. The aircraft may be entered from either side by placing one hand on the windshield bow (left hand for left side entrance, right hand for right side), pushing the nosewheel down to the ground, and stepping over the fuselage side into the seat with one foot and then the other. One hand should then be braced on each console, extended as far forward as possible, and the body lowered into a sitting position. To open the canopy from outside the aircraft, grasp the forward lower sides, one with each hand, and pull up and aft.

NOTE: Do not step on the canopy rails or use them as a support. Damage to the canopy rails could prevent proper canopy closure.

PREFLIGHT CHECK

Before Exterior Inspection

1. Required aircraft documents, placards – ON BOARD
2. Fuel valve – ON L or R
3. Trim – NEUTRAL
4. Battery and ignition switches – OFF
5. Flight controls – FREE
6. Fuel gages – CHECK QUANTITY
7. Flaps – DOWN

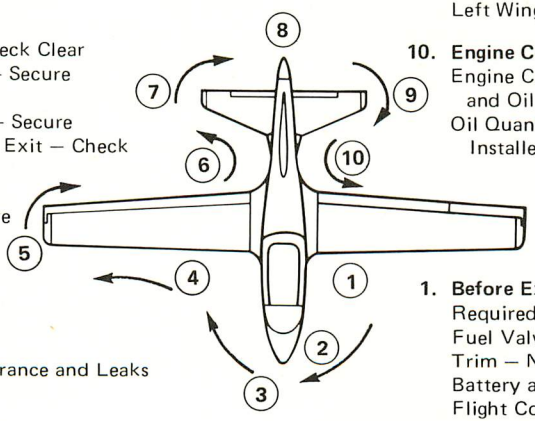
7. Empennage
Right Horizontal Stabilizer — Check for Security and Freedom of Movement
Vertical Fin — Check
Rudder — Check for Security and Freedom of Movement
Navigation Light — Check
Left Horizontal Stabilizer — Check for Security and Freedom of Movement

6. Fuselage Right Side
Engine Air Inlet — Check Clear
Engine Access Door — Secure
Fuel Cap — Secure
Canopy Hinge Arms — Secure
Exhaust and Cool Air Exit — Check

5. Right Wing
Leading Edge — Check
Wing Tip and Navigation Light — Secure
Aileron — Condition and Travel
Flap — Check Condition and Uplock

4. Right Main Gear
Tire — Condition and Inflation
Brakes — Check for Wear
Hydraulic Lines — Check for Clearance and Leaks
Strut — Check for Cracks
Wheel Well — Check
Main Landing Gear Doors — Check Secure

3. Nose Gear and Doors
Nose Gear and Doors — Check Security
Wheel Well — Check
Strut — Clean and Checked
Nose Wheel — Check Tire and Swivel
Pitot Tube — Check Secure and Unobstructed



8. Propeller
Blades — Check for Nicks, Cracks and Delamination
Spinner — Check for Cracks and Security
Drive System — Turn Prop Both Ways to Check Clutch and Engine Compression. Listen for Strange Noises

9. Fuselage Left Side
Left Wing, Left Main Gear — Check Same as Right Side

10. Engine Compartment
Engine Compartment — Check for Security and Fuel and Oil Leaks
Oil Quantity — Check if Oil Injection Engine is Installed.

1. Before Exterior Inspection
Required Documents and Placards — On Board
Fuel Valve — On
Trim — Neutral
Battery and Ignition Switches — Off
Flight Controls — Free
Fuel Gages — Check Quantity
Flaps — Down

2. Exterior Inspection
Angle of Attack Vane — Check For Freedom of Movement
Static Port — Unobstructed
Air Intake — Unobstructed
Windshield — Clean

Figure 2-1 Diagram of Preflight Inspection Route

Exterior Inspection

Starting at the left side of the cockpit, perform the following exterior inspection checks using the inspection route outlined in Figure 2-1. During this inspection, check all exterior surfaces for skin damage or other obvious defects. In addition, check beneath the aircraft for signs of fluid leakage.

1. Nose Section
   a. Angle-of-attach vane (if installed) – check free movement, stall warning and calibration (See Section 4)
   b. Static port – unobstructed
   c. Air intake – unobstructed
   d. Windshield – clean, free from cracks
   e. Nose landing gear doors – secure
   f. Wheel well – unobstructed
   g. Strut – clean, check damping and stiffness
   h. Nosewheel – condition, inflation, and proper swivel torque (See Appendix B)
   i. Pitot tube – straight, secure, and unobstructed

2. Right Main Gear
   a. Tire – condition, proper inflation
   b. Brake – check pucks for wear, hydraulic line for adequate tire clearance, leaks
   c. Strut – check for cracks
   d. Wheel well – unobstructed
   e. Main landing gear doors/attachment – secure
   f. Fuel sumps – drain
   g. Cooling scoop inlet – unobstructed

3. Right Wing
   a. Leading edge – clean, undamaged
   b. Fuel cap – secure
   c. Wingtip and navigation light – secure
   d. Aileron – condition, full travel
   e. Flap – condition, uplock
   f. Wing retaining bolt – secure

4. Fuselage Right Side
   a. Engine access door – secure
   b. Canopy hinge arms – secure
   c. Exhaust/cooling air exit – unobstructed

5. Empennage
   a. Right horizontal stabilizer – check security, freedom of movement, tab for anti-servo action
   b. Vertical fin – check
   c. Rudder – check freedom of movement; trim tab for security
   d. Navigation light – check mounting
   e. Left horizontal stabilizer – check security

6. Propeller
   a. Blades – check for nicks, cracks, delamination
   b. Spinner – check for cracks, security
   c. Drive system – turn prop both ways to check clutch and engine compression; listen for strange noises (See Appendix B)

7. Fuselage left side, left main gear, left wing – check same as right side

8. Baggage compartment – check contents

CAUTION: If aerobatics are to be performed, remove all objects from the baggage compartment.

Interior Inspection

1. Seat back – Adjust
2. Seat belt and shoulder harness – FASTENED
3. Flight controls – Check freedom of movement and response
4. Fuel valve handle – ON L or R
5. Trim lever – 1/3 forward from aft stop
6. Throttle – CLOSED
7. Circuit breakers – IN
8. Mixture – FULL RICH
9. Clock & altimeter – SET
10. Light switches – OFF
11. Radio switches – OFF
12. Cockpit air vent – AS DESIRED
13. Ignition switches – OFF
14. Enrichment valve – OFF
15. Master switch – ON
16. Landing gear position indicators – CHECK

If flight at night is planned:

17. Navigation lights – CHECK
18. Instrument and console lights – CHECK
19. Landing light – CHECK
20. Flashlight on board and operable – CHECK

STARTING ENGINE

Always make sure the propeller area is clear and the brakes are on before starting the engine. Leave the canopy open until the engine is running.

1. Enrichment valve – FULL ON
2. Ignition switches – ON
3. Throttle – CLOSED 2500 to 3000 rpm warmup
4. Starter – ENGAGE

As soon as engine fires, open throttle approximately one inch.

5. Throttle – 2500 to 3000 rpm for warmup
6. Enrichment valve – OFF after 5 to 7 seconds

NOTE: **If engine does not fire after 10 seconds of continuous cranking, or if engine starts then ceases firing, release starter switch and proceed as follows:**
a. Enrichment valve – OFF
b. Throttle – FULL OPEN
c. Starter – ENGAGE
As engine starts, reduce throttle to 2500 to 3000 rpm. If engine does not begin firing after 15 seconds of continuous cranking, return to Step 1 and try again.

ENGINE GROUND OPERATION

Warm up the engine at the lowest speed between 2500 and 3000 rpm at which smooth operation is obtained until the cylinder head temperature reaches 150° F. Do not use full throttle until this temperature is reached.

BEFORE TAXIING

During engine warm-up, make the following checks:

1. Engine instruments – MONITOR
2. Radios – ON
3. Transponder – STANDBY
4. Ammeter – Indicating Charge
5. Wing Flaps – CHECK OPERATION, then UP
6. Pulse pump fuel pressure – CHECK 2.0 to 4.5 psi
7. Idle speed – CHECK, 800 to 1200 rpm
8. Radio – CHECK OPERATION

TAXIING

1. Area – Check clear for taxi
2. Brakes – Check before building up taxi speed by applying firm toe pressure on both pedals.

The good visibility and full swivel nosewheel give excellent ground handling characteristics. The initial roll should be straight ahead, and turns should be started while the aircraft is in motion; turning from a standstill requires more power and shortens tire and brake life. Start turns with full rudder pedal deflection in the desired direction and then add brake as required. Tighter turns will require more engine power to maintain taxi speed. Make sure the other foot does not apply opposite braking as the pedal comes back. When stopping the aircraft make sure the nosewheel is straight.

CAUTION: The low wings on the BD-5 will not clear standard runway/taxiway lights. Make sure adequate lateral separation is maintained.

Downwind Taxiing

Downwind taxiing will usually require little or no throttle after the initial roll is established. To avoid overheating the engine when taxiing downwind, keep the use of power to a minimum. Rather than ride the brakes, let speed build up and apply brakes occasionally.

Crosswind Taxiing

In taxiing crosswind, the aircraft has a significant tendency to "weathervane" (turn into the wind) due to the wind force acting on the vertical tail area and

the propeller. This tendency can be counteracted by holding the brake with pressure as necessary to maintain the desired heading. Use power as required to maintain taxi speed.

ENGINE RUN-UP

Before taxiing onto the runway, turn as near into the wind as practical, stop the aircraft clear of the runway with the nosewheel straight, hold the brakes and perform the following checks:

1. Fuel valve handle – ON fullest tank
2. Fuel quantity – CHECK
3. Mixture control – FULL RICH
4. Throttle – FULL OPEN
5. Engine instruments – CHECK

Engine speed should be at least 4000 rpm with the 4653 propeller and 4500 rpm with the 4250 propeller. If the full-throttle rpm is less than this minimum value, a substantial power loss has occurred and the engine should be inspected by a qualified mechanic prior to flight.

6. Ignition system – Check at 3000 rpm

   Alternately turn each magneto switch off, note the rpm drop, and turn back. Any rpm drop from 0 to 200 is acceptable.

CAUTION: Do not let CHT exceed 350° F during run-up. Perform run-up check quickly to prevent overheating.

7. Throttle – IDLE

   Engine acceleration and deceleration during these checks should be smooth, without backfire, coughing, or roughness.

Before Takeoff

1. Wing flaps – DOWN 15 degrees (first notch)
2. Trim lever – 1/3 forward
3. Mixture Control – Set for smooth engine operation
4. Engine Instruments – CHECK
5. Flight controls – Freedom of movement and proper response
6. Canopy – CLOSED and LOCKED
7. Safety belt and shoulder harness – ADJUSTED