**C-152 CHECKLIST**

**VH-RNO**

**Beechcraft Duchess 76**

**VH-BFP**

**CHECKLIST**



**BEECHCRAFT DUCHESS 76 VH-BFP AIRCRAFT SPECIFICATIONS**

Airspeeds for Normal Operations

Take off & Landing Speeds

|  |  |  |  |
| --- | --- | --- | --- |
| **Rotate Speed (Vr)** | 71kts | **Normal Approach** **(Flaps Up)** | 87kts |
| **Take Off Safety Speed**  | 80kts | **Normal Approach** **(Flaps 30°)** | 76kts |
| **Best Angle (Vx)** | 71kts | **Intentional One-Engine Inoperative Speed (Vsse)** | 71kts |
| **Best Rate (Vy) & Blue line (single engine Vy)** | 85kts | **Baulked Approach** **(Max Power & Flap Full)**  | 71kts |

General Speeds

|  |  |  |  |
| --- | --- | --- | --- |
| **Never Exceed (Vne)** | 194kts | **Max Landing Gear Ext (VLe)** | 140kts |
| **Max Normal Operating (Vno)** | 154kts | **Max Landing Gear Retraction** | 112kts |
| **Max Maneuvering (Va)** | 132kts | **Level Stall Speed (Vs) – gear & flap up** | 70kts |
| **Max Flap Extension**  | 110kts | **Level Stall Speed (Vso) – gear & flap down** | 60kts |
| **Air Minimum Control (Vmca)** | 65kts | **Max Crosswind** | 25kts |

Fuel & Oil

|  |  |  |  |
| --- | --- | --- | --- |
| **Fuel Type** | 100LL Avgas | **Engine Type and Horsepower** | Lycoming 180BHP @ 2700RPM each |
| **Maximum Fuel** | 391 litres | **Oil Grade** | Aero W100 |
| **Max Useable Fuel** | 380 litres | **Maximum Oil** | 8 Quarts |
| **Fuel Consumption** | 80 Litres/Hour | **Minimum Oil** | 4 Quarts |

Performance

|  |  |  |  |
| --- | --- | --- | --- |
| **Basic Empty Weight** | 1181Kg | **Max Zero Fuel Weight**  | 1588 kg |
| **Max Take off Weight** | 1769 kg | **Max RPM** | 2700 RPM |
| **Max Landing Weight** | 1769 kg | **Normal Cruise** | 23MP @ 2400 RPM |

**PRE FLIGHT**

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1. **COCKPIT**

Control Locks Remove

Ignition Off

Master Switch On

Flaps Extend

Lights and Strobes On and Check

Master Switch Off

Fuel Check Quantity

Dip and Drain

Flight Record Sheet Record Fuel and VDO

**EXTERIOR**

1. ***Left Wing***

Wing Strut Check condition and security

Flap Check surface condition

 Check linkages and runners

Aileron Check surface condition

 Linkages and hinges secure

 Full free movement

Wing Tip Check condition and Security

Lower Wing Surface Check condition

1. ***Left wing Leading Edge***

Wing Leading Edge Check for Dents along entire length

 Check Pitot tube Clear

 Check Stall Warning horn

 Check fuel Vent Clear

Tie Down and Chocks Remove

Engine Cowling Check condition and Security

Air Intakes Clear

Propeller Inspect

Engine Oil Check Quantity and Cap & Door Secure

Cowl Flap Inspect

Wheel Well, Door, Brake Line

& Strut Inspect

1. ***Nose Section***

Windscreen Condition and cleanliness

Nose Strut Check oleo extension

 Check linkage, nuts and split pins secure

 No leakage from shimmy damper or oleo

Nose Wheel Check tread and general condition

 Check correct inflation

Stand Back and Check Fuel Caps: **ON**

 Tie downs, Covers: **OFF**

 Start Up Area: **CLEAR, NO LOOSE STONES**

 Prop Wash Area: **CLEAR**

 General condition of aircraft: **GOOD**

 Heater Air Intake Clear

 Heater Exhaust and Vents Clear

1. ***Right Wing Leading Edge***

Wing Leading Edge Check for Dents along entire length

 Check Pitot tube Clear

 Check Stall Warning horn

 Check fuel Vent Clear

Tie Down and Chocks Remove

Engine Cowling Check condition and Security

Air Intakes Clear

Propeller Inspect

Engine Oil Check Quantity and Cap & Door Secure

Cowl Flap Inspect

Wheel Well, Door, Brake Line

& Strut Inspect

1. ***Right Wing***

Wing Tip Check condition and Security

Lower Wing Surface Check condition

Aileron Check surface condition

 Linkages and hinges secure

 Full free movement

Flap Check surface condition

 Check linkages and runners

Wing Strut Check condition and security

1. ***Fuselage Right Side***

Skin Check surface condition

Battery Vent Clear

Static Port Clear

1. ***Empanage***

Control Surfaces & Trim Tabs Condition and security

Tail Cone & Position Light Check

Tie Down Remove

Cabin Air Inlet Check

1. ***Fuselage Left Side***

Skin Check surface condition

Cabin Air Outlet Clear

All Antennas Check

Load Distribution Check & Secure

Aft Utility Door Check Secure

**Pre Start**

Pre Flight Inspection: Complete

Position: Clear

Maintenance Release: Check

Flight Manual: On-board

Pax Brief:

* Entry and exit points/emergency exits
* Seat adjustment
* Seatbelt usage
* Stowage of loose items
* Ventilation outlets and controls
* Remain clear of flight controls
* Emergency Equipment and how to use
* No Smoking policy
* Flight details

Security: Check

Seats: Adjusted and Secured

Hatches & Harness: Secure

Emergency Tool: Stowed

Fuel: On and sufficient

Circuit breakers: Set

Gear Selector: Down

Cowl Flaps: Open

Mixture: Rich

Throttle: Open 10mm

Friction Nut: Set

Carby Heat: Off

Switches and Avionics: Off

Trims: Set

Rotating Beacon: On

Battery: On

Gear Position Lights Green

Flaps: Up

Oil Temp: Check

Nav Lights: As Req’d

Brakes: Test and Set

**Clear Prop:** Start Left (Push to Prime as the engine is cranking if required)

**Do not prime if hot, keep fuel pump on if cold start, otherwise turned off.**

Engine Warm up: 1000 – 1200 RPM

Oil Pressure: Above Red Radial within 30 seconds

 Alternator Switch: On & check for Charging

**Clear Prop:** Start Right (Push to Prime as the engine is cranking if required)

**Do not prime if hot, keep fuel pump on if cold start, otherwise turned off.**

Engine Warm up: 1000 – 1200 RPM

Oil Pressure: Above Red Radial within 30 seconds

 Alternator Switch: On & check for Charging

**AFTER START**

**ROVER**

**R**evs Set 1000 – 1200 RPM

**O**il Pressure Green within 30 seconds

**V**acuum Check

**E**lectrics Aux Fuel Pumps – Off & Pressure Green

Alternator On – Charging

**Left Alternator and Battery** – Off

*Check for left alternator-out undervoltage light is illuminated, and indication of less than 40% on right load meter.*

 **Left Alternator and Battery** – On

 **Right Alternator and Battery** – Off

*Check for right alternator-out undervoltage light is illuminated, and indication of less than 40% on right load meter.*

**Right Alternator and Battery** - On

**R**adio Avionic Master On

Radios On & Check Frequency and Squelch

 Transponder SBY …. Code set

 Rotating Beacon…… On

 Taxi/Landing Lights …As Req’d

 Annunciator Warning Lights – Press to Test

**TAXI**

**BAG**

**B**rakes Test and check

**A**vionics Check and set

**G**yro’s Check

**PRE TAKEOFF – BRAKES ON**

**T**rim Check and Set

**M**ixture Rich

**F**uel On and sufficient

 Aux pumps - On

 Check crossfeed

 Fuel back to ON

 Aux Pump – OFF (check pressure)

 Cowl Flaps Open

**I**nstruments Attitude Indicator ……Set

 Altimeter ………. Elevation/QNH set

 Directional Gyro ………. Set

 Turn Co coordinator …….No Flags

 Temps & Pressure …….. GREEN

**S**witches Test Idle

 Set 2200 RPM

 **Magnetos**

* Max Drop ……………. 175 RPM
* Max Difference ……. 50 RPM
* Smooth Running

**Carby Heat**

* Test

**Propeller**

* Exercise (100 – 200 RPM drop)

Set 1500 RPM

* Feather Check – Do not exceed 500 RPM drop. (repeat 3 to 4 times in cold weather)

**Engine Instruments**

* Vacuum ……………………….. GREEN
* Temps and Pressures …….GREEN
* Ammeter & Loadmeters…CHECK

 Set 1000RPM

 Circuit Breakers …………. In

**C**ontrols Full Free and correct

 Flaps … cycle and set

**H**atches and Harnesses Secure

**E**mergency Brief Complete

**D**eparture brief Complete

**LINING UP**

**LIGHTS, CAMERA, ACTION**

**Land Light & Strobes** ON

**Aux Pumps** ON

**Transponder** ON ‘ALTITUDE’

**DI & Compass** CHECK ALIGNED

**AFTER TAKEOFF/ GO AROUND**

**PUFSIT**

**P**ower Climb Power Set

**U**ndercarriage Retract

**F**laps Retract

**S**witches Landing Lights off, Aux Fuel Pump off

**I**nstruments Climb performance, Centreline tracking Check

**T**emps and Pressure Green

**MANOEUVRES**

**HASEL**

**H**eight Sufficient to safely complete all manoeuvres

**A**rea Suitable

**S**ecurity Cabin secure/seats/harnesses

**E**ngine Power and Mixture Checked

 Engine T’s and P’s Green

**L**ookout Area Clear

**ENROUTE**

**CLEAROFFS**

**C**ompass & **C**ourse Align and Tracking

**L**og ETA’s

**E**ngine Lean and Green

**A**ltitude QNH set and correct

**R**adios Frequency set and correct

 Navaids - Tuned

 Identified

 Tested

**O**rientation

**F**uel Log and contents

**F**orced Landing

**S**artime

**PRELANDING/DOWNWIND**

**BUMFISH**

**B**rakes Pressure and off

**U**ndercarriage Extend

**M**ixture Rich

**F**uel On and sufficient

 Aux Pumps - ON

**I**nstruments Altitude

 T’s and P’s Green

**S**witches Landing Lights on

**H**atches and Harness Secure

**FINAL**

**CPUFF**

**C**arby Ht Off

**P**itch Full Fine

**U**ndercarriage 3 Greens

**F**lap as req’d

 **Cowl Flaps** … Open

**F**uel Sufficient for Go-Around

**AFTER LANDING**

FLAPS Identified and Retracted

Carby Heat Off

Transponder SBY

**SHUTDOWN**

Throttle Set 1000RPM

Avionics Radios and Navaids Off

Mixture Idle Cut off

Switches Off, except Rotating Beacon

Ignition Off

Master Switch Off

***EMERGENCIES***

**ENGINE EMERGENCIES**

**DEAD FOOT – DEAD ENGINE**

The rudder pressure required to maintain directional control will be on the side of the good engine.

**Throttle**

Partially retard the throttle for the engine that is believed to be inoperative;

There should be no change in control pressures or sound of the engine if the correct throttle has been selected.

**ENGINE FAILURE DURING TAKEOFF ROLL**

Throttles: Idle

Breaking: Maximum

**ENGINE FAILURE AFTER LIFT OFF AND IN FLIGHT**

Landing Gear: Up

Flap: Up

Identify: Dead Leg = Dead Engine

Confirm: With throttle

Propeller: Feather

Power (operative engine): As Required

*After positive control of the airplane is established execute the secure inoperative engine checklist.*

**SECURE INOPERATIVE ENGINE**

Mixture: Idle cut-off

Fuel Selector: Off

Aux Fuel Pump: Off

Magneto/Start switch: Off

Alternator Switch: Off

Cowl Flap: Closed

Airspeed: Establish Blue line = 85kts

Electrical Load: MONITOR(max load of 100% on remaining engine)

**ENGINE FIRE ON GROUND**

Mixture: Idle Cut-Off

Cranking: Continue

 Fuel Selector: Off

Battery and Alternator switches: Off

 Fire Extinguisher: Use

***Inspect for Damage***

**ENGINE FIRE IN FLIGHT**

Fuel Off

Mixture Idle cut off

Propeller: Feather

Aux Fuel Pump: Off

Magneto/Start switch: Off

Alternator Switch: Off, except wing roots

**ELECTRICAL FIRE**

Alternator and Master Off

Switches All except ignition Off

Vents/Cabin air/Heat Off

If fire appears to be out

Alternator and Master On

Circuit Breakers Check for faulty circuit... do not reset

Radio/Electrical Switches On one at a time with a delay after each until short circuit is localized

Vents/Cabin Air/Heat Open once fire is completely extinguished

**ELECTRICAL POWER LOSS**

Alternator & Master Off

Switches All Off

Alternator On

Essential Equipment On

Land ` As soon as possible

**ABNORMAL PROCEDURES**

**AIR START**

1. Fuel Selector: On
2. Throttle: Set approx. ¼ Travel
3. Aux Fuel Pump: On
4. Magneto/Start switch: Both
5. Propeller Pitch: Move full forward until engine windmills, then back to mid range

*Use starter momenterarily if airspeed is below 100kts*

1. Mixture: Full Rich

***Note:*** *If engine fails to run, clear the engine by allowing it to windmill with the mixture in the full lean position. When engine fires, advance mixture to full rich.*

1. When Engine Starts: Adjust throttle, propeller and mixture controls
2. Aux Fauel Pump: Off
3. Alternator Switch: On
4. Oil Pressure & Temp: Check
5. Warm Up Engine: Approx 2000 RPM and 15 inHg
6. Set power as required and Trim

**LANDING WITH A FLAT MAIN TYRE**

1. Approach: NORMAL
2. Flaps: 30°
3. Touchdown: GOOD MAIN TYRE FIRST, hold airplane off flat tyre as long as

 possible with aileron control.

1. Directional Control: MAINTAIN using brake on good wheel as required.

**LANDING WITH A FLAT NOSE WHEEL**

1. Approach: NORMAL
2. Flaps: AS REQUIRED
3. Touchdown: ON MAINS, hold nose wheel off the ground as long as possible.
4. **When nose wheel touches down, maintain full up elevator as airplane slows to a stop.**

**LANDING GEAR MANUAL EXTENSION**

1. Landing Gear Motor Circuit Breaker: Pull
2. Landing Gear Handle: Down
3. Airspeed: Reduce (100kts max)
4. Emergency Extension Valve: Open
5. Emergency Extension Wrench: Turn counter clockwise

**GEAR UP LANDING**

*If possible, choose firm sod or foamed runway. When assured of making the landing site*:

1. Cowl Flaps: Closed
2. Wing Flaps: As desired
3. Throttles: Closed
4. Fuel Selector Valves: Off
5. Mixture: Idle Cut-Off
6. Battery, Alternator and Magnetos: Off
7. Keep wings level during touchdown.
8. Get clear of the airplane as soon as it stops.