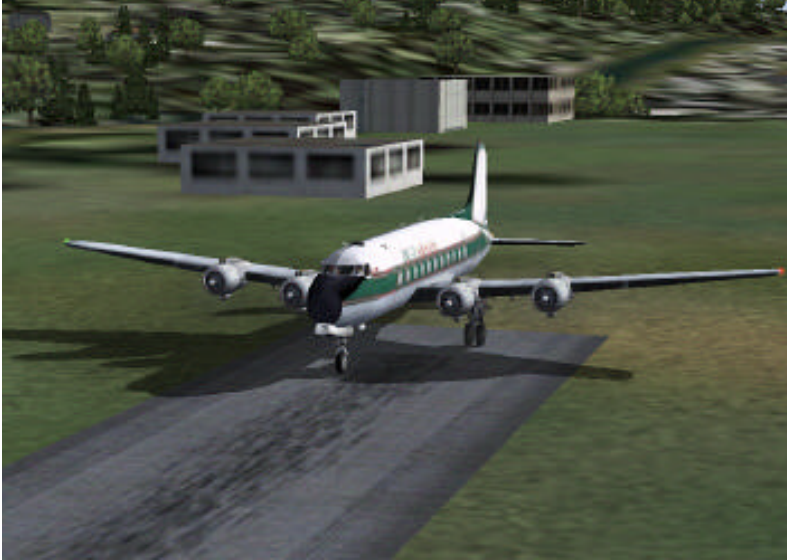


Douglas DC-4 / C-54

Technical Manual and Checklists



DC-4 Version 3 (patch 02)

Also includes Douglas DC-3 / R4D Checklists

Technical Editor – John Achor

DC-4 Manual & Checklists ~ DC-3/R4D Checklists

DOUGLAS DC-4 (C-54) SKYMASTER

FLIGHT PLANNING

Maximum Fuel Load: 3570 USG (21,420 LBS)

Fuel Consumption

Start Engine, Taxi (10 minutes),

Engine Run Up, Take off to 500 ft. 30 USG (180 LBS)

Climb, from 500 ft, **Fuel used per 1,000 ft of climb**

To 10,000 ft	7 USG	(42 LBS)
10,000 to 14,000 ft	9 USG	(54 LBS)
14,000 to 17,000 ft	16 USG	(96 LBS)
17,000 to 18,000 ft	18 USG	(108 LBS)
18,000 to 19,000 ft	25 USG	(150 LBS)

Climb	350 USG	(2100 LBS) PER HOUR
Max Cruise	275 USG	(1650 LBS) PER HOUR
Normal Cruise	240 USG	(1440 LBS) PER HOUR
Long Range Cruise	200 USG	(1200 LBS) PER HOUR
Holding	180 USG	(1080 LBS) PER HOUR

Climb Distance – Per 1,000 feet of climb

3 nm	per 1,000 feet up to 10,000 feet
4 nm	per 1,000 feet from 10,000 feet to 15,000 feet
12 nm	per 1,000 feet from 15,000 feet to 19,000 feet

Cruise Airspeeds KIAS (approximate, heavy gross weights)

	<u>5000 ft.</u>	<u>10000 ft</u>	<u>15000 ft *</u>	<u>19000 ft **</u>
Normal	194	190	180	138
Max	203	198	181	138
Long Range	178	175	171	135

* 32" MAP max available

** 27" MAP max available

Data in this document is for flight simulator use ONLY – NOT for actual flight

FS9 (FS2004) flight planner is calibrated to use 240 GPH for cruise and 195 KIAS as cruise airspeed. Takeoff, climb and destination reserves also need to be added.

POWER SETTINGS

	<u>BHP</u>	<u>MAP</u>	<u>RPM</u>
Takeoff / Go Around (TOGA) 2 minute max	1450	50	2700
Maximum Except Takeoff (METO)			
Sea Level	1200	43	2550
5200 ft	1200	40.5	2550

CYLINDER HEAD TEMPERATURES

5 Minute Max	260 deg C
Continuous Max	232 deg C

AIRSPEED SCHEDULES

<u>Situation</u>	<u>Airspeed (KIAS)</u>
Max Airspeed	260
Max w/ Gear Down	180
Max Fuel Dump (clean config)	220
(accomplish fuel dump via the ALT + A(ircraft), F(uel) dialog box	

GENERAL

Aerobatics are PROHIBITED
NEVER use autopilot below 500 feet

CARB HEAT - Less than 30" MAP and OAT below 5C (40F), use carb heat periodically to clear carburetor ice. Continuous use of carb heat is not recommended.

WARNING - These engines suffer from harmonic vibration. Avoid
2310 to 2510 RPM

This DC-4 is powered by four 1450hp Pratt & Whitney R-2000-9 (2SD1G) Twin Wasp engines which are carbureted and supercharged to give rated power up to 5200 feet. 1450 HP is available for take off (at sea level). Auto mixture control is provided, but may be overridden.

The DC-4 is unpressurized. With passengers aboard, operation above 12,000 feet MSL should be restricted to 30 minutes per flight.

Flap Retraction on Takeoff - CAUTION

Exercise caution retracting flaps after takeoff to prevent loss of altitude and possible contact with the runway. Anticipate the loss of lift plus a sink rate and increase the angle of attack as the flaps come up. To safely retract the flaps after takeoff, momentarily pause at the 10 degree flap. Then bring the flaps to the UP position. Carefully monitor the position indicator next to flap handle.

FUEL TANK MANAGEMENT

The DC-4 eight tank configuration has been simplified to a four tank system, labeled left to right as: main1, main2, main3 and main4. CAUTION: Always turn the cross feed switch(s) ON (Up) before you turn off a Main (1, 2, 3, 4) switch.

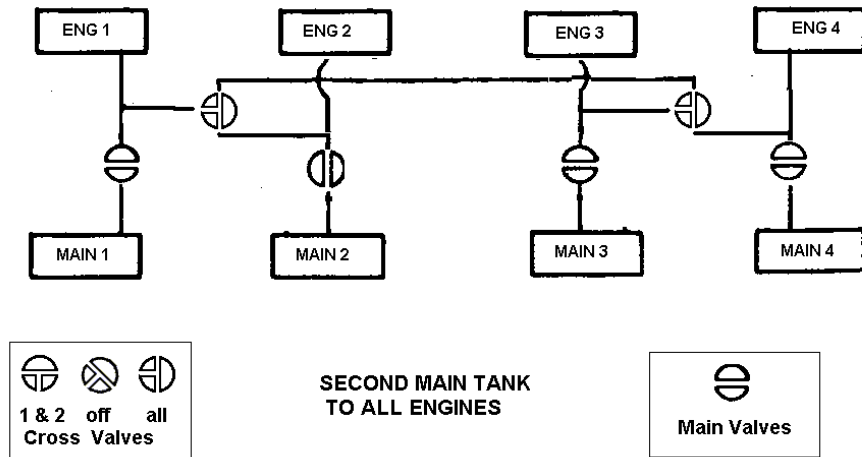
These tanks normally feed the closest engine. There are four two-position levers that open/close the tank flow. Switch UP is flow enabled. To handle cross feeding the engines, there are two three-position levers. The left cross-feed lever is center OFF, DOWN to cross-feed tanks 1 & 2, and UP cross-feeds all tanks. Likewise, the right lever is center OFF, DOWN is to cross-feed tanks 3 & 4, and UP is to cross-feed all tanks. The Pilot's handbook has a detailed description of how these cross-feed levers work, and how to configure all the possible tank-to-engine feeds. As with the real system, you cannot transfer fuel from one tank to another. With the mouse, you may see which tank is feeding which engine, by hovering over the switches on the bottom right of the instrument panel.

The default switching for the DCA DC-4 is that each tank feeds its own engine, which is the real standard configuration for take-off.

If you don't "fiddle" with the tank controls, all the fuel will be used since the tanks are made to be equal in size. This is similar to the "all" tanks condition sometimes set by the flight simulator.

The fuel in each tank may be determined by using the tank gauge selector switch, where the four positions, 1 to 4, match the tank numbers from left to right. Hover the mouse on the fuel gauge for a digital readout of the percent quantity in that selected tank.

DC-4 FUEL TANK LAYOUT



To set the fuel prior to flight, or check the fuel use with the aircraft fuel pull-down menu. Equal fuel quantity for each tank not only balances the aircraft, it allows those not wanting to fiddle with the fuel controls to get the maximum range.

AUTOMIXTURE

The real DC-4 had individual mixture levers for each engine with 3 detent positions: 1. TAKE OFF, CLIMB 2, CRUISE 3 and CUT-OFF. Our DC-4 is labeled: Takeoff & Climb, Cruise and Idle Cutoff.

The simulation simplifies this a bit. When the climb setting is set, the mixture is held at the normal FS9 automixture level. When using the cruise setting, the mixture level is set for maximum fuel burn, and maximum EGT. The range of proper mixture control is from 3000 ft to 18,000 ft. Use “Climb” setting for take off , climb, and for operation at less than 500 ft. AGL.

Automixture controls control all four engines at the same time. To change the mixture of a single engine, use the mouse. Automixture controls should be OFF before taking control (E,1 – E,2 – etc.) of individual engines.

WEIGHT & BALANCE

Maximum gross weight for takeoff is 73,000 lbs.

Maximum landing gross weight (for 45 deg flaps) is 63,500 lbs.

Maximum gross weight of 73,000 lbs for landing requires maximum 35 deg flaps.

QUICK ACCESS COMMANDS AND ICONS

A) These icons are located at the lower left of the instrument panel (just above the DME panel). The icons will display “tool tips” as the mouse pointer is floated over each.



(1)(2)(3)(4)(5)(6)

(Icon #)	Popup Panel	[keyboard command equivalent]
1.	Checklist	[F 10]
2.	Microsoft Map	[Alt + W(orld), M(ap)]
3.	ATC Window	[~ (tilde)]
4.	GPS Panel	[SHIFT + 4]
5.	Digital readouts	[SHIFT + 3]
6.	Engine Start Panel	[SHIFT + 2]

B) Main Cabin Door Open / Close toggle = SHIFT + E

C) Cowl Flaps – controllable using the mouse hot spots or using these keyboard commands:

Open = CTRL + SHIFT + V

Close = CTRL + SHIFT + C

D) See the following pages for the DC-4 Instrument Panel and Overhead Panels.

These panels are based on Version 3 of the FS9 (FS2004) DC-4 panels.

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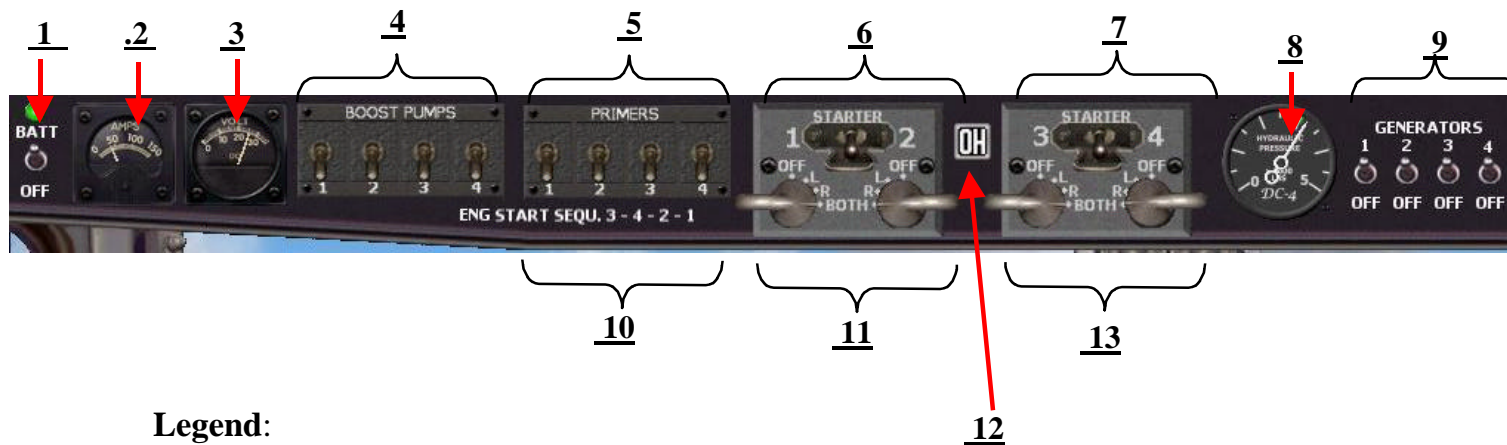


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Legend for Cockpit Instrument Panel (DC-4 FS9 Beta version. Final version and FS2002 panels may vary)

1. Light Switches (l to r):
Panel - Nav – Beacon – Strobe – Landing -Taxi
2. Radio Master Switch
3. Comm 1 Radio Panel
4. VOR 1 Nav Panel
5. VOR 2 Nav Panel
6. ADF/NDB Nav Panel
7. Transponder Panel
8. Battery Switch & ON Light
9. Autopilot Panel
10. Pitot Heat Switch & ON Light
11. Cabin Seat Belt Switch & ON Light
- 11A. Cabin No Smoking Switch & ON Light
12. Low Oil Pressure Warning Lights (Engines 1 through 4)
13. Generator Warning Lights (Engines 1 through 4)
14. Propeller Feather Buttons (Engines 1 through 4)
15. Outside Air Temperature (OAT) Gauge
16. Standby (Whiskey) Compass
17. Rudder Trim Wheel and Deflection Gauge (floating tool tip)
18. Controls (l to r):
Parking Brake Handle
Cabin Fire Extinguisher (non operating)
Cabin Fire Extinguisher (non operating)
Engine 1 & 2 Fire Extinguisher (non operating)
Gear Position Indicators (left Red = UP, Three Green = DOWN)
Engine 3 & 4 Fire Extinguisher (non operating)
19. Cabin Door Open Warning Light (Open/Close toggle is SHIFT + E)
Immediately below is the Analog Clock
20. Marker Beacon Lights
21. VOR 1 RMI
22. Dual RMI, VOR 2 & ADF with rotating card
23. Digital Timer
24. Flight Instruments - Within white outline area – clockwise from top left:
Airspeed Indicator
Attitude Indicator (Artificial Horizon)
Altimeter
Vertical Velocity Indicator
- Heading Indicator with rotating card
Turn & Slip Indicator
25. Five Engine Instruments (l to r)
Manifold Pressure (MAP), Engines 1 & 2
Manifold Pressure (MAP), Engines 3 & 4
RPM, Engines 1 & 2
RPM, Engines 3 & 4
Oil Pressure Gauges, Engines 1 & 2
26. Five Engine Instruments (l to r)
Fuel Flow Gauges, Engines 1 & 2
Fuel Flow Gauges, Engines 3 & 4
Cylinder Head Temperature Gauges, Engines 1 & 2
Cylinder Head Temperature Gauges, Engines 3 & 4
Oil Pressure Gauges, Engines 3 & 4
27. Ten Controls & Gauges (l to r)
4 Red knobs, Main Fuel Switches (Engines 1 to 4)
4 Blue knobs, Carb Heat Switches (Engines 1 to 4)
2 Red knobs, Fuel Cross-feed Switches
- 27A. Eight Controls (l to r)
4 Black (“T”), Throttles (Engines 1 to 4)
4 Gray (“P”), Prop Controls (Engines 1 to 4)
28. Quick Access Icons (see icons defined on previous page)
- 28A. Nav/GPS Switch
29. DME Panel (VOR 1 & VOR 2)
30. Cowl Flap Position Indicators & Controls (Hot Spots) (Engines 1 to 4)
31. Fuel Pressure (Engines 1 & 2)
32. Fuel Pressure (Engines 3 & 4)
33. Fuel Quantity (Left/Right Outboard)
34. Fuel Quantity (Left/Right Inboard)
35. Elevator Trim - Left, Control Wheel
- Right, Position Indicator
36. Mixture Controls (Engines 1 to 4)
37. Aileron Trim Control & Indicator
38. Gear Handle
39. Flap Handle & (right) Position Indicator

Overhead Engine Start Up Panel (SHIFT + 2, or “OH” quick icon)



Legend:

- 1 Battery Switch & ON Light
- 2 Amp Meter
- 3 Volt Meter
- 4 Fuel Boost Pump Switches (Engines 1 through 4)
- 5 Engine Primer Switches (Engines 1 through 4)
- 6 Top - Starter Switch (Engines 1 & 2)
- 7 Top - Starter Switch (Engines 3 & 4)
- 8 Hydraulic Gauge
- 9 Generator Switches (Engines 1 through 4)
- 10 Recommended Engine Start Sequence
- 11 Magneto Switches (Engines 1 & 2)
- 12 “OH” Panel Toggle
- 13 Magneto Switches (Engines 3 & 4)

DC-4 (C-54) CHECKLISTS * Cowl Flaps: CTRL+SHFT+C = CLOSE, CTRL+SHFT+V = OPEN

<p>BEFORE STARTING ENGINES</p> <p>Landing Gear DOWN Parking Brake SET Mixture IDLE CUTOFF Battery Switch OFF Props FULL INCREASE Generator Switches OFF Battery Switch ON Cowl Flaps * OPEN Main Tank Fuel Switches ON (FWD)</p> <p>START ENGINES</p> <p>External Door CLOSED (LIGHT OUT) [SHIFT + E] Seat Belt/No Smoking Lights ON Nav & Strobe Lights ON Ignition Switches OFF Carb Heat COLD #2 or #3 START (to pressurize HYD sys) USE DETAILED START ENGINE CHECKLIST</p> <p>BEFORE TAXI</p> <p>Altimeter, Gyros SET & UNCAGED Entrance doors CLOSED (SHFT + E) Radios SET Parking Brake RELEASE Do not use brakes for steering</p>	<p>AFTER TAKEOFF CHECKLIST</p> <p>Rate of climb POSITIVE (Altimeter & VVI) Gear UP Rate of climb 500 FPM MINIMUM Accelerate 120 KIAS MINIMUM Flaps 10 DEG, THEN UP (see Caution) Climb 300 FEET AGL Accelerate 140 KIAS Power METO POWER (43" 2550) Landing Light OFF</p> <p>CLIMB CHECKLISTS</p> <p>NOISE ABATEMENT (TO 2000' AGL)</p> <p>Power METO Power (1200HP) Cowl Flaps MID Power 43" MAP - 2550 RPM Airspeed 140 KIAS CHT 260C MAX Power SET CLIMB POWER</p> <p>NORMAL CLIMB</p> <p>Cowl Flaps MID Power 40" MAP - 2300 RPM Airspeed 140 KIAS Mixture CLIMB CHT 230C MAX Boost Pumps OFF (above 9500 ft) Seat Belt/No Smoking Lights AS REQUIRED</p>
<p>ENGINE RUN-UP See detailed checklist</p> <p>BEFORE TAKEOFF</p> <p>Carb Heat COLD Cowl Flaps TRAIL Landing Lights AS REQUIRED</p> <p>Log takeoff time</p>	<p>CRUISE (CHT = Cylinder Head Temp) Cowl Flaps – CLOSED, CHT – LESS THAN 230C Mixture: CRUISE</p> <p>NORMAL (720 HP x 4) Power 33" MAP - 2000 RPM</p> <p>MAX CRUISE (825 HP x 4) Power 36" MAP - 2100 RPM</p> <p>LONG RANGE CHECKLIST (600 HP X 4) Power 29" MAP - 2050 RPM</p>
<p>TAKEOFF</p> <p>Brakes APPLY Allow 30 seconds from Line Up to Brake Release Mixture TAKEOFF/CLIMB Trim SET FOR TAKEOFF Flaps Max 15 deg (2 notches) Props FULL INCREASE Power TOGA POWER (50" 2700 RPM) Throttle SLOWLY APPLY FULL THROTTLE Nose Steering UP TO 50 kts, then RUDDER Rotate 105 KIAS (@ 73000 lbs)</p>	<p>DESCENT CHECKLIST</p> <p>Airspeed 218 KIAS MAX Mixture TAKEOFF/CLIMB Cowl Flaps CRACKED Power 2050 RPM Reduce MAP IN STAGES – 3"/MINUTE MINIMUM 20.5" MAP Carb Heat AS REQUIRED Boost Pumps ON (Below 9500 ft) Seat Belt/No Smoking Lights AS REQUIRED</p>

DC-4 (C-54) CHECKLISTS * Cowl Flaps: CTRL+SHFT+C = CLOSE, CTRL+SHFT+V = OPEN

<p>HOLDING CHECKLIST</p> <p>Cowl Flaps * CRACKED Power 2050 RPM MAP REDUCE SLOWLY Airspeed 140 KIAS Flaps 15 DEG MAY BE USED CHT LESS THAN 230C</p> <p>APPROACH AND LANDING CHECKLIST</p> <p>Seat Belt/ No Smoking Lights ON Mixture TAKEOFF/CLIMB Cowl Flaps MID Power 2050 RPM Airspeed LESS THAN 150 KIAS Flap Schedule AIRSPEED 15 deg (2 notches) LESS THAN 150 KIAS 30 deg LESS THAN 140 KIAS</p> <p>Approaching the glide slope or base leg 45 deg LESS THAN 130 KIAS</p> <p>Glide Slope or Final Approach Gear DOWN – 156 KIAS MAX Threshold 87 KIAS (63,500lbs)</p>	<p>AFTER LANDING CHECKLIST</p> <p>Cowl Flaps FULL OPEN Nose Steering AS NEEDED Wheel Brakes AS REQUIRED Flaps UP Mixture TAKEOFF/CLIMB</p> <p>Log landing time</p> <p>ENGINE SHUTDOWN CHECKLIST</p> <p>Parking Brake SET Props FULL INCREASE Cool Engines CHT 150C MAX Mixture IDLE CUT OFF Ignition OFF Cowl Flaps CLOSED All Switches OFF</p> <p>AIRSPEEDS</p> <p>Vmc (min control, 3 engine) 95k V1 (decision) V2 (single engine climb) 117k Vr (rotate) 105k Vref (final approach) 87k</p> <p>See the final page in this document for additional airspeeds.</p>
<p>TOUCH & GO CHECKLIST</p> <p>After Touchdown</p> <p>Flaps 15 DEG Throttles SET 30" MAP Props FULL INCREASE Trim SET FOR TAKEOFF Power TOGA (50" 2700)</p>	

Douglas DC-4 / C-54

EMERGENCY PROCEDURES



DC-4 (C-54) EMERGENCY CHECKLISTS

<p>2 ENGINE FAILURE</p> <p>Two Engine Flight – Fuel 10% (357 USG, 2142 LBS)</p> <p>Expect to maintain level flight at 7000 ft & 180 kts With METO power (43" 2550) on remaining engines</p> <p>If Engines #2, # 3 and #4 have failed, Manual Gear extension is required and the flaps will be inoperative due to loss of hydraulic system pressure.</p> <p>ENGINE FAILURE DURING TAKEOFF and 1 & 2 ENGINE INFLIGHT ENGINE FAILURE</p> <table> <tr> <td>Failed Engine(s) Prop</td> <td>ISOLATE FEATHER</td> </tr> </table>	Failed Engine(s) Prop	ISOLATE FEATHER	<p>3 ENGINE FAILURE –</p> <p>Single Engine Flight– Fuel 10% (357 USG, 2142 LBS)</p> <p>Expect to lose altitude even at max power (50" or max MAP & 2700) down to 3000 ft.</p> <p>At 3000 ft, expect to maintain level flight and 130 to 150 kts.</p> <p>EXERCISE EXTREME CAUTION MANEUVERING WITH A SINGLE ENGINE</p> <p>Airspeed lost in turns is impossible to regain in level flight. Limit bank angle to 5 degrees.</p> <p>When airspeed bleeds off below 130 kts, you will need to sacrifice altitude for airspeed.</p> <p>If an airfield is not within easy gliding distance, prepare for a controlled crash landing. Best glide speed is 120 kts.</p>																																										
Failed Engine(s) Prop	ISOLATE FEATHER																																												
<p>FEATHER PROP (FAILED ENGINE)</p> <table> <tr> <td>Throttle</td> <td>CLOSED</td> </tr> <tr> <td>Feather Button</td> <td>PUSH</td> </tr> <tr> <td>Prop</td> <td>CHECK FEATHERED (button pops OUT)</td> </tr> <tr> <td>Mixture</td> <td>IDLE CUTOFF</td> </tr> <tr> <td>Cowl Flap</td> <td>CLOSED</td> </tr> <tr> <td>Elec Fuel Pump</td> <td>OFF</td> </tr> <tr> <td>Ignition</td> <td>OFF</td> </tr> <tr> <td>Generator</td> <td>OFF</td> </tr> <tr> <td>Prop</td> <td>FULL DECREASE</td> </tr> <tr> <td>Main Tank Fuel Switch - Failed Engine</td> <td>OFF</td> </tr> </table>	Throttle	CLOSED	Feather Button	PUSH	Prop	CHECK FEATHERED (button pops OUT)	Mixture	IDLE CUTOFF	Cowl Flap	CLOSED	Elec Fuel Pump	OFF	Ignition	OFF	Generator	OFF	Prop	FULL DECREASE	Main Tank Fuel Switch - Failed Engine	OFF	<p>UNFEATHER PROP (FEATHERED PROP)</p> <table> <tr> <td>Ignition</td> <td>BOTH</td> </tr> <tr> <td>Throttle</td> <td>1/4 OPEN</td> </tr> <tr> <td>Prop</td> <td>FULL DECREASE</td> </tr> <tr> <td>Mixture</td> <td>IDLE CUTOFF</td> </tr> <tr> <td>Main Tank Fuel Switch -Engine to Restart</td> <td>ON</td> </tr> <tr> <td>Feathering Button</td> <td>PUSH & HOLD UNTIL 800 RPM (DO NOT EXCEED 1000 RPM</td> </tr> <tr> <td>WARNING</td> <td>RPM IN EXCESS OF 1000 MAY CAUSE RUNAWAY PROP</td> </tr> <tr> <td>Feathering Button</td> <td>RELEASE</td> </tr> <tr> <td>Mixture</td> <td>TAKEOFF/CLIMB</td> </tr> <tr> <td>Engine</td> <td>WARM UP (MIN CHT 120C)</td> </tr> <tr> <td>Engine Controls</td> <td>SET PROP & THROTTLE AS NEEDED</td> </tr> <tr> <td>Generator Switch</td> <td>ON</td> </tr> </table>	Ignition	BOTH	Throttle	1/4 OPEN	Prop	FULL DECREASE	Mixture	IDLE CUTOFF	Main Tank Fuel Switch -Engine to Restart	ON	Feathering Button	PUSH & HOLD UNTIL 800 RPM (DO NOT EXCEED 1000 RPM	WARNING	RPM IN EXCESS OF 1000 MAY CAUSE RUNAWAY PROP	Feathering Button	RELEASE	Mixture	TAKEOFF/CLIMB	Engine	WARM UP (MIN CHT 120C)	Engine Controls	SET PROP & THROTTLE AS NEEDED	Generator Switch	ON
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DOUGLAS DC-3/R4D CHECKLISTS (Condensed, * = R4D Only)

<p>BEFORE STARTING ENGINES</p> <p>Battery Switch - ON Generator Switch - ON Fuel Gauges - Amount of Fuel Automatic Pilot - OFF Nav & Strobe Lights - ON Seat Belt/No Smoking Lights - ON Trim Tabs - Neutral Parking Brake - ON Carburetor Heat - As Needed * Cowl Flaps - OPEN Fuel Selector - As required Propellers - Full Forward, High RPM Throttles - Cracked (or 5 keystrokes) Mixtures - Idle Cut-Off (or 5 keystrokes) Pitot Heat - OFF</p>	<p>CRUISE (CHT = Cylinder Head Temp)</p> <p>Desired Cruise - 2000-2150 RPM, 26" Above 3,500' Auto-Lean CHT 232C</p> <p>Economy Cruise -1750 RPM, 25", Auto Lean</p> <p>Max Cruise - 2250 RPM, 34", Below 3,500' - Auto Lean CHT 232C</p> <p>Min Cruise - 1700 RPM, 32" MAP, Auto Lean CHT 232C</p> <p>Fuel Selector - To Desired Cruise Tanks Seat Belt Light - OFF * Cowl Flaps - AS REQUIRED or OFF</p>
<p>START ENGINES (see detailed checklist)</p> <p>BEFORE TAXI</p> <p>Crew and Passengers Aboard Door Secured, Light - OFF (/ (slash) key) Radios - ON, and SET Clock - SET Parking Brake - OFF</p> <p>ENGINE RUN-UP</p> <p>Parking Brake - ON Fuel Boost Pumps - OFF Mixtures - Auto Rich Fuel Selector - All Tanks Carb Heat - ON, Check, OFF Ignition & Propeller Checks, each engine See detailed checklists</p>	<p>BEFORE LANDING</p> <p>Altimeter - SET Fuel Selector - ALL Mixtures - Auto Rich Carburetor Heat - As Needed Pitot Heat - As Needed Landing Lights - ON Fuel Boost Pumps - ON Seat Belt/No Smoking Lights - ON Propellers - 1800-2000 RPM Gear - Down and Latched, Green Light, Check Wheels Visually Parking Brake - Off, brake pressure on pedals Flaps - As Desired Propellers full forward in case of go around. Airspeeds: Downwind - 125k, Base - 105k Final 85k</p>
<p>BEFORE TAKEOFF</p> <p>Altimeter - SET Mixtures - Auto Rich Landing Lights - ON Fuel Boost Pumps - On Pitot Heat - As Required Flaps - SET * Cowl Flaps - TRAIL, then OFF Take Off - 2700 RPM, 48" Log takeoff time</p>	<p>AFTER LANDING</p> <p>Flaps - Up Fuel Boost Pumps - Off Elevator Trim - Neutral Propellers - Full Forward, High RPM * Cowl Flaps - OPEN Pitot Heat - OFF</p> <p>Log landing time</p>
<p>AFTER TAKEOFF AND CLIMB</p> <p>Gear - UP (After Positive Vertical Velocity and Altimeter Indication) Flaps - UP Wheels- Stop Rotation With Brakes 90 KIAS - 2550 RPM, 40" 110 KIAS - 2350 RPM, 36"</p> <p>Fuel Boost Pumps - OFF Landing Lights - OFF</p>	<p>PARKING</p> <p>Parking Brake - ON (chocks in - OFF) Ignition - OFF Mixtures - Idle Cut-Off Fuel Selectors - OFF Battery Switch - OFF Generators - OFF Flap Handle - UP Navigation, Strobe, Landing lights - OFF Pitot Heat - OFF Seat Belt Sign - OFF Door - OPEN</p>

DC-3 / R4D

<p>START ENGINES</p> <p>Right Magneto Lever - Both Right Fuel Boost Pump - On Prime Switch - On Right Start Switch - ON RIGHT, 10 to 15 seconds Mesh Switch - On Right Mesh Switch - Off Start Switch - OFF Right Mixture - Auto-Rich Right Fuel Boost Pump - OFF</p> <p>Repeat for Left Engine</p>	<p>AIRSPEEDS</p> <p>Vmc (min control) 71k V1 (decision) 81k V2 (single engine climb) 84k Vref (final approach) 80k Vr (rotate) 84k</p> <p>Max Extension, Gear Down - Vle 140</p> <p>Flaps, Max Speeds: 10 (1 / 4) - 130 KIAS 20 (1 / 2 /) - 105 KIAS 30 (3 / 4) - 99 KIAS 40 (Full) - 97 KIAS</p>
<p>Engine Runup - Ignition Check</p> <p>Set brakes Magneto switches in Both position. Propellers in the High position--full forward</p> <p>Right Engine throttle to 2350 RPM. Mag switch to Left, note RPM drop Mag switch to Both Mag switch to Right, note RPM drop Mag switch to Both</p> <p>- Max allowable drop (Left or Right magneto) is 65 RPM, 25 RPM is the normal drop. - Allowable difference (left and right magneto) in RPM drop is 40 RPM</p> <p>Repeat for Left Engine</p> <p>* Propeller Feather Check Left Engine - FEATHER, UNFEATHER Repeat for Right Engine</p>	<p>Engine Runup - Propeller Check</p> <p>Magneto switches in the Both position Propellers in the High position--full forward Set 1000 RPM on both engines</p> <p>Set the left engine to 1700 RPM. Left-engine prop control to Low RPM Note that the RPM decreases to 1200 RPM or below. Return prop control to High RPM, back to 1700 RPM Left throttle to 1000 RPM</p> <p>Repeat the prop check for the right engine.</p> <p>Misc Info Carb Heat - Forward is OFF</p>

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DOUGLAS DC - 3 / R4D CHECKLISTS

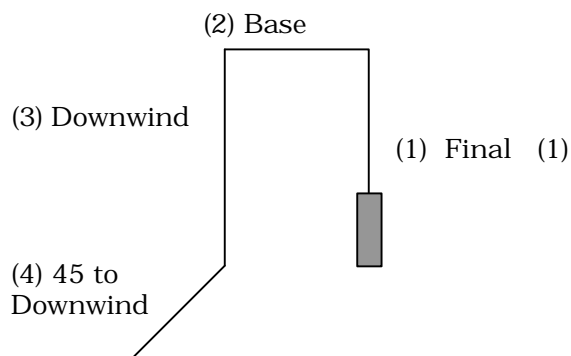
PAX (passenger) Stops - Through Flights

<p align="center">BEFORE LANDING</p> <p>Pitot Heat - As Needed Landing Lights - ON Fuel Boost Pumps - ON Mixture - AUTO RICH Seat Belt/No Smoking Lights - ON Propellers - 1800-2000 RPM Gear - DOWN & LATCHED (Green Light) Flaps - As Desired Propellers – FULL FORWARD Airspeeds: Downwind - 125k, Base - 105k Final 85k</p>	<p align="center">BEFORE TAKEOFF</p> <p>Sperry Autopilot – “Zero” out 3 dials Altimeter - SET Mixtures - AUTO RICH Propellers – Full FORWARD Landing Lights - ON Fuel Boost Pumps - ON Pitot Heat - As Required</p> <p>Take Off - 48” 2700 RPM (DC-3) - 52” 2800 RPM (R4D)</p> <p align="center">LOG TAKEOFF TIME</p>
<p align="center">AFTER LANDING</p> <p>Flaps - UP Fuel Boost Pumps - OFF Elevator Trim - Neutral Propellers - FULL FORWARD, High RPM Trim - SET Pitot Heat - OFF</p> <p align="center">LOG LANDING TIME</p> <p>Engine #1 – SHUT DOWN Seat Belt Sign – OFF Door – OPEN (/ (slash) key, DC-3) (Nav Lights OFF, R4D)</p>	<p align="center">AFTER TAKEOFF AND CLIMB</p> <p>Gear - UP Flaps - UP Wheels- Stop Rotation With Brakes</p> <div style="text-align: right;">DC-3 R4D/1776</div> <p>METO (90 kts) 40” 2550 43” 2600</p> <p>CLIMB (110kts) 36” 2350 35” 2400</p> <p>Fuel Boost Pumps - OFF Landing Lights – OFF</p>
<p align="center">BEFORE TAXI</p> <p>Door Secured, Light - OFF / (slash) key (DC-3) Nav Lights ON (R4D)</p> <p>Radios - ON, and SET Clock – SET</p> <p>Engine #1 – RESTART</p> <p>Trim – SET Flaps - SET Parking Brake – OFF</p>	<p align="center">CRUISE</p> <div style="text-align: right;">DC-3 R4D/1776</div> <p>Desired Cruise 26” 2000-2150 32” 2000</p> <p>Economy Cruise 25” 1750 31” 1850</p> <p>Auto Lean</p> <p>Max Cruise 34 “2250 Min Cruise 32” 1700</p> <p>Auto Lean</p> <p>Fuel Selector - To Desired Cruise Tanks Seat Belt Light - OFF</p>

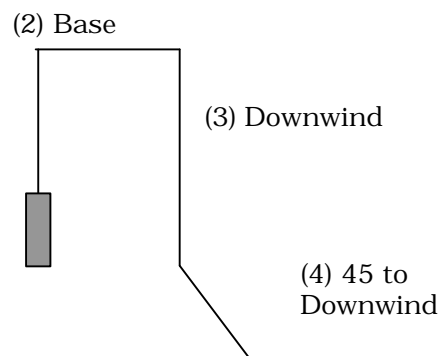
Use these check lists with combined flights. Get the <ne-sked-2.zip> file for New England Schedule, Regrouped into flights of 2 to 4 legs. It's on the Download page of the DC-3 Airways web site.

Compute Headings for VFR Traffic Patterns

Right Hand Pattern



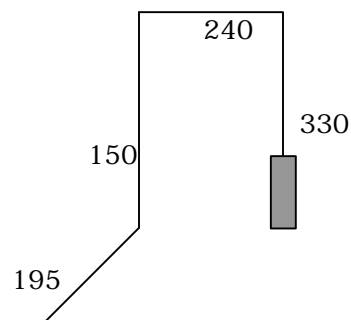
Left Hand Pattern



Enter Pattern Headings Below	Right Traffic		Left Traffic	Enter Pattern Headings Below
	Runway Hdg	Final Approach Runway Hdg (1)	Runway Hdg	
	(1) MINUS 90 degrees	Base Leg (2)	(1) PLUS 90 degrees	
	Runway Reciprocal	Downwind (3)	Runway Reciprocal	
	(2) MINUS 45 degrees	45 to Downwind (4)	(2) PLUS 45 degrees	

Example: Right Traffic Pattern to Land Runway 33

Enter Pattern Headings Below	Right Traffic	
330	Runway Hdg	Final Approach Runway Hdg (1)
240	(1) MINUS 90 degrees	Base Leg (2)
150	Runway Reciprocal	Downwind (3)
195	(2) MINUS 45 degrees	45 to Downwind (4)



Data in this document is for flight simulator use ONLY – NOT for actual flight

Source: manuals, aircraft checklists & placards

Airspeed (AS) in knots (except as noted)	DC-4 / C-54	R 4 D 50819	DC - 3 DCA 1776	B-25J Briefing Time
Take Off				AS = MPH
Flaps	15 deg	0		0 or 1/4
Trim	20% Nose Up	0		0
Power	50" 2700	52" 2800	48" 2800	44.3" 2600
Vr Rotate	105	85		115-130 or 110-130
METO Power	43" 2550	43" 2600	43" 2600	38" 2400
Flaps Up	120 to 300 AGL	105k 41"		Supercharger Low below 9000' High above 9000'
500 Feet		36" 2400	36" 2400	
Climb				165 - 170
Power	40" 2300	35" 2400		Normal 35.5 2400 Ferry 31.5 2100
Vy Best Rate	140	105		155
Vx Best Angle		84		130
Cruise				190 - 230
Power		32" 2000	32" 2000	
Normal	33" 2000	31" 1850	31" 1850	30-35" 1750-2200
Max	36" 2100			31.5" 2100
Long Range	29" 2050			19-21" 1600
AS	See chart in manual	145 – 185	145 - 185	Normal 204-223 Ferry 207-212 Economy 160-170
Va Maneuver	175 – 188 51200 to 73000 #	122		190
Vne Never Exceed	260	180	172 (154 full wgt)	340
Max AS Vno				
Vmo				
Vmo Max Oper				
Landing				
Vfe Flaps	Deg Vfe / Down			
10° (1 / 4)	15 – 150 / 202	135	135	170
20° (1 / 2)	30 – 140 / 158	99	99	
30° (3 / 4)	45 – 130 / 154	97	87	
40° (Full)				
Gear Max Vle	180	140	140	
Vlo Oper	156		140	200
Dn - Up				
Vmc Min Cont	3 Engine - 95	77	77	1 Eng - 145
Pattern	Flap 30	20" 2000	20" 2000	
Downwind		125k		
Final AS Vref	130	80	80	
Clean				
Flaps		85	85	
Stall	(40,000 / 70,000)	(24,000 GrWgt)	(24,000 GrWgt)	
- Clean Vs	72 / 96	67		
- Gear/Flaps Vxo	60 / 78	61	61	
Go Around	50" 2700	33" 2300	33" 2300	
Best Glide	120	115	115	Power Off 125 - 135
Close Exterior Door	SHFT + E	Nav Lights – ON		SHIFT + E
Remove Signs / Chocks		Parking Brakes - OFF		Pilot Window SHFT + E