DC-3 Airlines Training Division

This document includes checklists, a specifications sheet and keyboard commands page. The information was compiled from a variety of sources.

I've done my best to keep the data as realistic as possible, but … there are so many models and modifications of the DC-3 flight simulators that the task is virtually impossible.

For example: the checklists do not include the items not modeled in the flight simulator. The real-life checklists contain a great deal more detail. I decided it's of little use to call out a check when the gauge or control does not exist.

I'm sure you will find something you consider unrealistic, not true to "real life." Unfortunately, flight simmers don't live in the real world. We tread a fine line between life-life and sim-life.

Use what you can and ignore what you must. Most of all have fun with the flight simulator hobby.

DOUGLAS DC-3/R4D CHECKLISTS (Condensed)   * = R4D Only

BEFORE STARTING ENGINES	CRUISE (CHT = Cylinder Head Temp)

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
	Desired Cruise - 2000-2150 RPM, 26"
	   Above 3,500'Auto-Lean CHT 232C
	
	Economy Cruise -1750 RPM, 25", Auto Lean
	
	Max Cruise - 2250 RPM, 34",
	   Below 3,500' - Auto Lean CHT 232C
	
	Min Cruise - 1700 RPM, 32" MAP, Auto Lean
	   CHT 232C
	
	Fuel Selector - To Desired Cruise Tanks
	Seat Belt Light - OFF
	* Cowl Flaps - AS REQUIRED or OFF

START ENGINES
   (see detailed checklist)
BEFORE TAXI
   Crew and Passengers Aboard
   Door Secured, Light - OFF (/ (slash) key)
   Radios - ON, and SET
   Clock - SET
   Parking Brake - OFF
 	
ENGINE RUN-UP
   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
	BEFORE LANDING
	   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

BEFORE TAKEOFF
   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
	AFTER LANDING
	   Flaps - Up
	   Fuel Boost Pumps - Off
	   Elevator Trim - Neutral
	   Propellers - Full Forward, High RPM
	   * Cowl Flaps - OPEN
	   Pitot Heat - OFF
	
	     Log landing time

AFTER TAKEOFF AND CLIMB
   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"
 	
   Fuel Boost Pumps - OFF
   Landing Lights - OFF
	PARKING
	   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

DC-3 / R4D

START ENGINES

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

    Repeat for Left Engine

AIRSPEEDS

Vmc (min control)	71k
V1 (decision)	81k
V2 (single engine climb)	84k
Vref (final approach)	80k
Vr (rotate)	84k
Max Extension, Gear Down - Vle	140

Flaps, Max Speeds:
    10（1 / 4）- 130 KIAS
    20（1 / 2/）- 105 KIAS
    30（3 / 4）- 99 KIAS
    40（Full）- 97 KIAS

Engine Runup - Ignition Check

Set brakes
Magneto switches in Both position.
Propellers in the High position--full forward

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

- 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

Repeat for Left Engine

* Propeller Feather Check
    Left Engine - FEATHER, UNFEATHER
    Repeat for Right Engine

Engine Runup - Propeller Check

Magneto switches in the Both position
Propellers in the High position--full forward
Set 1000 RPM on both engines

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

Repeat the prop check for the right engine.

Misc Info
    Carb Heat - Forward is OFF

TOUCH & GO CHECKLIST

After Touchdown

Flaps	1/4
Throttles	SET 30" MAP
Props	FULL INCREASE
Trim	SET FOR TAKEOFF
Power	TOGA (48" 2700 RPM)

For Touch & Go landings, the throttle and trim settings prior to TOGA power are approximate. Don't try to be precise. Control the aircraft on the runway.

Example: For 30" MAP, the throttles are about half open. For trim, roll in a "chunk" of nose down trim and settle for the result.

DOUGLAS DC – 3 / R4D CHECKLISTS
PAX (passenger) Stops - Through Flights

BEFORE LANDING	BEFORE TAKEOFF

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
	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
	
	Take Off - 48" 2700 RPM (DC-3)
	                - 52" 2800 RPM (R4D)
	
	LOG TAKEOFF TIME

AFTER LANDING	AFTER TAKEOFF AND CLIMB

Flaps - UP
Fuel Boost Pumps - OFF
Elevator Trim - Neutral
Propellers - FULL FORWARD, High RPM
Trim - SET
Pitot Heat - OFF
 	
LOG LANDING TIME
 	
Engine #1 – SHUT DOWN
Seat Belt Sign – OFF
Door – OPEN   (/ (slash) key, DC-3)
            (Nav Lights OFF, R4D)
	Gear - UP
	Flaps - UP
	Wheels- Stop Rotation With Brakes
	
	                 DC-3 R4D/1776
	METO (90 kts) 40" 2550 43" 2600
	
	CLIMB (110kts) 36" 2350 35" 2400
	
	   Fuel Boost Pumps - OFF
	   Landing Lights – OFF

BEFORE TAXI	CRUISE

Door Secured, Light - OFF
   / (slash) key (DC-3)
   Nav Lights ON (R4D)
 	
Radios - ON, and SET
Clock – SET
 	
Engine #1 – RESTART
 	
Trim – SET
Flaps - SET
Parking Brake – OFF
	DC-3 R4D/1776
	
	Desired Cruise 26" 2000- 2150
	                             32" 2000
	Economy Cruise 25" 1750 31" 1850
	   Auto Lean
	
	Max Cruise 34 "2250
	Min Cruise 32" 1700
	    Auto Lean
	
	   Fuel Selector - To Desired Cruise Tanks
	   Seat Belt Light - OFF

Microsoft Flight Simulator Keyboard Commands

Autopilot (Not all Aircraft have all functions)

On / Off *	Z
Airspeed Hold *	CTRL+ R
Altitude Hold *	CTRL+ Z
Arm Auto Throttle *	SHFT+ R
Attitude Hold *	CTRL+ T
Back Course Hold *	CTRL+ B
Flight Director	CTRL+ F
Heading Hold *	CTRL+ H
ILS Lock (APP) *	CTRL+ A
Localizer Lock *	CTRL+ O
NAV 1 Hold *	CTRL+ N
Mach Hold *	CTRL+ M
Engage T.O.Power /Go Around (TOGA) *	
	CTRL+SHFT+ G
Wing Leveler (LVL) *	CTRL+ V
Yaw Damper *	CTRL+ D

Autopilot - Setting Select

Airspeed	CTRL+ SHFT+ R
Altitude	CTRL+ SHFT+ Z
Heading Bug	CTRL+ SHFT+ H

Brakes - Apply *. (period) or Button 1

Parking Brakes set * CTRL+ **.** (period)

Release Button 1

Cowl Flaps (increments)

Open	CTRL+ SHFT+ V
Close	CTRL+ SHFT+ C

Radio

ADF **	A, AA, AAA
Com **	C, CC
DME, Select	F + 1 or 2
Nav **	N + 1 or 2
VOR/OBI	V + 1 or 2
Transponder **	T, TT, TTT
Standby Freq, switch	X

** Tune – Letter, then + (plus) or – (minus)

Nav Aid Audio Idents

VOR 1	CTRL+ 1
VOR 2	CTRL+ 2
DME 1	CTRL+ 3
DME 2	CTRL+ 4
ADF	CTRL+ 5

Instruments

Heading Indicator, reset	D
Altimeter, reset	B
EGT, Select reference pointer	U

Aircraft Control

Arm Auto Spoiler *	SHFT+ / (slash)
Carb Heat *	H
Engine	E
Flaps Up / Down	F 6 / F 7
	or Button 3 / Button 4
Flaps - FULL UP / DN	F 5 / F 8
Gear *	G (Button 8)
Gear, hand pump	CTRL+ G
Kneepad	F 10
Lights, All *	L
Lights, Instrument Panel *	SHFT+ L
Lights, Landing *	CTRL + L
Magnetos	M then + (plus)
Magnetos, select 1	M, then – (minus)
Pitot Heat *	CTRL+ H
Push Back (from Gate) *	SHFT+ P
Tail Left	1
Tail Right	2
Start Jet	J, then + (plus sign)
	or – (minus sign)
Smoke *	I
Strobes *	O
Spoilers *	/ (slash)
Trim Nose UP / DN	End / Home or k 1 / k 7
Water Rudder *	SHFT+ W

Engines

Select	E (then 1,2,3,4 etc)
Auto Start	CTRL+ E

Lights *

Landing *	CTRL+ L
Tilt Up	CTRL+ SHFT + k 8
Down	CTRL+ SHFT + k 2
Right	CTRL+ SHFT + k 6
Left	CTRL+ SHFT + k 4
Center light	CTRL+ SHFT + k 5

Simulation

ATC window *	` (accent)
Exit	CTRL+ C
Frame Rate	SHFT+ Z
Full Screen *	ALT+ <enter>
Pause*	P
Rate	R then + (plus)
	or – (minus)
Restart Flight	CTRL+ ; (semi colon)
Save Flight	; (semi colon)
Sound*	Q

Specifications Sheet (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		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			
10⁰ (1 / 4)	15 – 150 / 202	135	135	170
20⁰ (1 / 2)	30 – 140 / 158	99	99	
30⁰ (3 / 4)	45 – 130 / 154	97	87	
40⁰ (Full)				
Gear Max Vle Vlo Oper Dn - Up	156	140	140 140	200
Vmc Min Cont	3 Engine - 95	77	77	1 Eng - 145
Pattern Downwind	Flap 30	20" 2000 125k	20" 2000	
Final AS Vref	130	80	80	
Clean				
Flaps		85	85	
Stall		(24,000 GrWgt)	(24,000 GrWgt)	
- Clean Vs	87	67		
- Gear/Flaps Vso	78	61	61	
Go Around	50" 2700	33" 2300	33" 2300	
Best Glide		115	115	Power Off 125 - 135
Close Exterior Door	SHFT + E	Nav Lights – ON		SHFT + E
Remove Signs / Chocks		Parking Brakes - OFF		Pilot Window SHFT + E