

≈ FS2004 ≈

Cloudy's Checklists

A. Historical Pre-WWII Airplanes



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version 21.1, Jan. 2014

I started working on checklists even since Flight Simulator 98, amazed by

- 1) the glaring omissions: if there is a control in your instrument panel, surely the checklist should mention it, especially if the control is mentioned in the real-life checklist and is indeed functional in Flight Simulator!
- 2) inconsistencies between similar actions in similar aircraft.
- 3) differences - sometimes significant - between checklist or reference values and the actual performance of the aircraft in Flight Simulator.

Also, FS2004's kneeboard can be useful for quick info, but given the limited real estate of our PC screens, I find reading checklists from the kneeboard annoying. Besides, in FS2004, when the kneeboard is on, many flight control functions are not available.

So I went for a final result in MS Word format which can be used as a printed booklet. It covers most of the default FS2004 aircraft except the three Boeing airliners. A few outstanding propeller add-ons are also included. This document is meant to be colour-printed in A4 paper. You may print it either in large type at one sheet per page, or better in "booklet two-sided" format, 4 pages fitting into one A4 sheet.

I have tested my checklists with my own Rational Panels, some of which are free for download from the "Cloudy" website. If you use other panels you will find that a few gauges which I mention may not be there: typically the digital trim. However, you can always edit and amend my checklist booklet to suit your tastes: you only need Microsoft® Word (or Office) 2003 or higher versions. Note that some pages have intentionally been left blank, so that each aircraft starts on an even page, thus minimising the page turns needed for a flight. Finally, unless otherwise stated, the checklists are based on the performance at about 80% fuel load. Expect changes when the aircraft gets lighter later during a flight.

Document "A" covers historical aircraft. Document "B" modern piston-engine planes, and document "C" includes the turboprops, jets, helis and sailplanes.

The colour squares relate to how I distribute the commands among my three controlling hardware: Hotas Cougar Joystick-cum-Throttle, Saitek Twin Quadrant and Logitech G13 Gameboard.

Conventions

NORMAL TEXT	check/verify
BOLD TEXT	action/change
GREY TEXT	denotes default values, in checklists for improved flight dynamics
*	data from specs or checklists (most others are from FS test flight)








	Gameboard, Macro 1: Radios, Lights, Heat and Deice, Alternators and Pumps
	Gameboard, Macro 2: Auto-Pilot and Externals
	Quadrant handles: Throttles, Propellers, Mixtures, Reversers, Feather, Prime
	Quadrant switches: Gear, Flaps, Cowl, Prop.Synch., Auto-Feather, Magnetos
	Hotas & Pedals: Flight Controls, Trims, Brakes, Spoilers, Tailwheel, Water Rudder
	Mouse: Calibrators and a few other screen clicks
	Screen: No manual action, just watch the screen

Table of Contents (Manual)

109	Blériot XI
115	Curtiss JN-4D 'Jenny'
126	Lockheed Vega
133	Stearman 75 'Kaydet'
134	de Havilland DH-88 'Comet'
136	Supermarine Spitfire MK1A
138	Piper J-3C-65 'Cub'
217	Vickers F.B.27A 'Vimy'
226	Ford 4-AT-E Tri-Motor
231	Lockheed L10E 'Electra'
232	SM.79 Sparviero
233	de Havilland DH-89 'Dragon Rapide'
234	Douglas DC-3 'Dakota'
235	PBY-5A 'Catalina'
236	Short S.30 Empire LR
237	Beechcraft D18S

AIRCRAFT CHECKLIST

109 Blériot XI

Values valid for the Castagne v.06 model and flight dynamics.








AIRCRAFT BASIC SPECS

Engines n° and type	1 Prop-Piston-Fixed
MTOW	860 lb
Fuel usable capacity	21 gl (real life 11 gl) Tank: Centre 1
Range	78 ml, 2 hs
T.off runway length	800 ft
Notes: Brakes	There are no brakes! Poor maneuverability!
Fuel warnings	Ignore FS "Fuel critically low" warnings
Fuel Valve	Suggested assignment in FS: Shift-F3
Magneto	Not clickable: use M followed by + or -
Throttle Idle	This will stop the engine: keep ≥ 600 RPM
Airspeeds	There is no ASI. Use Shift-Z and read the KIAS


BEFORE STARTING

 Magneto Switch	OFF (M -)
 Fuel Selector	ALL - Horizontal
 Throttle	CRACKED
 Mixture	IDLE CUTOFF
 Trim Tabs	NEUTRAL

STARTING

 Mixture	FULL RICH
 Throttle	OPEN 1/3
 Magneto Switch	ON (M +)
 Starter Switch	ENGAGE (keep + pressed till engine starts)
 Oil Pressure Bulb	HALF-FULL in <20 sec.
 Carburettor Heat	CHECK RPM DROP THEN BACK TO OFF
 Throttle (for warm up)	700-800 RPM






TAKEOFF (sea level or low altitude)

 Throttle	FULL => 1,400+ RPM
 Oil Pressure Bulb	FULL
 Tail Up	35 KIAS
 Rotate	45 KIAS

CLIMB (once clear of obstacles) *Don't bank while climbing!*

 Throttle	KEEP FULL
 Elevator Trim (ave.)	Positive: 1 notch down
 Airspeed	50 KIAS












CRUISE

 Typical Altitude	200 FT AGL (no altimeter: use Shift-Z)
 Throttle	2/3 => ~ 1,400 RPM
 Mixture	FULL RICH
 Elevator Trim	Positive: ~ ½ notch down
 Cruise Airspeed	47 KIAS
<i>Fuel Consumption @ 50% fuel</i>	<i>0.223 GPML, 11 GPH</i>
<i>Max Level Airspeed</i>	<i>54 KIAS</i>
<i>Never Exceed Airspeed</i>	<i>65 KIAS</i>
<i>Service Ceiling</i>	<i>900 FT</i>





GLIDE WITH ENGINE OUT (optimal glide ratio)

 Elevator Trim	Positive: 1 1/3 notches down
 Airspeed	37 KIAS
 Glide Ratio	Abysmal

APPROACH AND LANDING

 Fuel Quantity and Selector	CHECK
 Carburettor Heat	ON
 Mixture	FULL RICH
 Trim Tabs	NEUTRAL
 Initial Descent Airspeed	50-60 KIAS
 Throttle	1,350 RPM
 Final Approach Airspeed	45 KIAS
 Throttle (over runway)	1,250 RPM
 Touchdown Airspeed	40 KIAS
 Throttle (after touchdown)	600 RPM
 Carburettor Heat	OFF
<i>Stall Speed</i>	<i>28 KIAS</i>

ENGINE SHUT-DOWN

 Throttle	CRACKED (engine stops almost immediately)
 Mixture	IDLE CUT-OFF
 Magneto	OFF (M -)
 Fuel Selector	OFF - Vertical








AIRCRAFT CHECKLIST 115 Curtiss JN-4D 'Jenny'

AIRCRAFT BASIC SPECS







Laterally—bank—very unstable

Engines n° and type	1 Prop-Piston-Fixed
MTOW	1,900 lb
Fuel usable capacity	21 gl (real life 11 gl) Tank: Centre 1
Range	150 ml, 2h 24'
T.off runway length	500 ft








BEFORE STARTING

 Magnetos / Ignition	OFF
 Fuel Valve	ON
 Throttle	CRACKED (min)
 Mixture	IDLE CUTOFF
 Trim Tabs	NEUTRAL
 Flight Controls	FREE/Full travel
 Instrument Panel Lights	AS REQUIRED

STARTING (CTRL+E for autostart sequence)

 Mixture	FULL RICH
 Magnetos	ON
 Toe Brakes	ON
 Starter Switch / Magneto	ENGAGE
 Oil Pressure	CHECK OK in <30 sec.
 Oil Temperature	CHECK





WARM UP AND TAXI

 Altimeter	CALIBRATE
 Brakes	CHECK; KEEP ON
 Throttle (for testing)	900 RPM
 Temperatures & Pressures	CHECK
 Throttle (for warm up)	700 RPM
 Taxi Throttle f. steady Speed	870 RPM - 16 MPH
 Taxi Turns for taildraggers	USE TAILWHEEL AT < 10 MPH

PRE-TAKEOFF

 Throttle	IDLE
 Mixture	FULL RICH
 Trim Tabs	NEUTRAL

TAKEOFF (sea level or low altitude)

 Toe Brakes	RELEASE
 Throttle	FULL
 Tail Up / Nose Down (ave.)	45 MPH
 Rotate (ave.)	55 MPH

CLIMB (once clear of obstacles) *Don't bank while climbing!*

Throttle	KEEP FULL
Elevator Trim (ave.)	+20
Airspeed	55 MPH
Climb (Vertical Speed)	+300 FPM
Temperatures & Pressures	CHECK
Mixture: Lean above ...	2,000 FT

CRUISE **NORMAL** | **LOW CITY**

Typical Altitude	4,000 FT	600 FT
Altimeter	SET / CALIBRATE	
Throttle	Keep Full => 1,250 RPM	1,100 RPM
Mixture	LEAN ~ 60%	FULL RICH
Elevator Trim	+13	+19
Cruise Airspeed	65 MPH	58 MPH

*Max Level | Never Exceed
Service Ceiling, Fuel Consum.*

*75 MPH | 100 MPH
11,000 FT, 0.138 GPML, 9 GPH*

DESCENT

Altimeter	SET / CALIBRATE
Fuel Quantity and Valve	CHECK
Throttle	1,000 RPM
Mixture	ENRICH AS NECESSARY
Elevator Trim	+06
Airspeed	70 MPH
Descent Rate (Vert. Speed)	-700 FPM

GLIDE WITH ENGINE OUT (optimal glide ratio)

Elevator Trim	+20
Airspeed	55 MPH
Descent Rate (Vert. Speed)	-800 FPM
Glide Ratio	1 : 6

APPROACH AND LANDING

Mixture	FULL RICH
Final Approach Airspeed	65 MPH
Throttle (idle on touchdown)	1,000 RPM
Touchdown Airspeed	60 MPH
<i>Stall Speed</i>	<i>45 MPH</i>

AFTER LANDING - ENGINE SHUT-DOWN

Trim Tabs	NEUTRAL
Throttle	IDLE
Mixture	IDLE CUT-OFF
Magnetos	OFF AFTER ENGINE STOPS
Fuel Valve	OFF
Panel Lights	OFF

AIRCRAFT CHECKLIST

126 Lockheed Vega

AIRCRAFT BASIC SPECS

Engines n° and type	1 Prop-Piston-Variable
MTOW	4,500 lb
Fuel usable capacity	650 gl Tanks: Left Main , Centre 1/2/3, Right Main
Range	2,500 ml, 20 hs (or more!)
T.off runway length	2,500 ft (this is not an aircraft for short rwys!)

BEFORE STARTING

Master Battery Switch	ON
Generator	ON
Volt / Amp / Light	> 20 V
Nav Lights	AS REQUIRED
Magnetos / Ignition	OFF
Fuel Gauges/Quantity	CHECK
Fuel Selector	MAIN (no need to enlarge the special panel)
Throttle	CRACKED (min)
Propeller Control	HIGH RPM
Mixture	IDLE CUTOFF
Trim Tabs	NEUTRAL
Engine Rest Man.Pressure	NOTED (mostly 29" Hg)
Flight Controls	FREE/Full travel
Instrument Panel Lights	AS REQUIRED
Autopilot	OFF

STARTING (CTRL+E for autostart sequence)

Propeller Control	HIGH RPM
Mixture	FULL RICH (rightmost 5 quadrant levers full up)
Throttle	OPEN 1/4" IF COLD
Prime or Throttle change	3 STROKES IF COLD
Toe Brakes	ON
Starter Switch / Magneto	START
Oil Pressure	CHECK OK in <30 sec.
Fuel Pressure	CHECK
Oil Temperature	CHECK
Vacuum Press. / Suction	CHECK
Generator: Volt/Amp	> 20 V








WARM UP AND TAXI

Temperatures & Pressures	CHECK
Gyro / Heading	CALIBRATE
Altimeter	CALIBRATE
Flight Instruments	CHECK
Brakes	CHECK; KEEP ON
Throttle (for testing)	1,700 RPM
Temperatures & Pressures	CHECK
Propeller	EXERCISE (2-3 times, no more than 400RPM drop)
Generator: Volt/Amp	> 20 V
Magnetos: Maximum Drops	ON EACH 100 PM, BETW. MAGN. 40 RPM
Carburettor Heat	CHECK RPM DROP THEN BACK TO OFF
Throttle (for warm up)	IDLE
Autopilot	OFF
Landing Lights	ON (no Taxi lights)
Taxi Throttle f. steady Speed	18" Hg MAN - 12 MPH
Taxi Turns for taildraggers	USE DIFF.BRAKES ONLY
Taxi Turns: Gyro & Turn Coordinator	CHECK








PRE-TAKEOFF

Throttle	IDLE
Propeller Control	HIGH RPM
Mixture	FULL RICH
Trim Tabs	NEUTRAL









TAKEOFF (sea level or low altitude)

 Toe Brakes	RELEASE
 Throttle	FULL
 Propeller Control	High => 2,000-2,200 RPM
 Tail Up / Nose Down (ave.)	50 MPH
 Rotate (ave.)	80 MPH
 Airspeed (airborne)	110 MPH
 Landing Lights	OFF












CLIMB (once clear of obstacles)

 Throttle	30" Hg MAN.PRES.
 Propeller Control	2,200 RPM
 Elevator Trim (ave.)	+23
 Airspeed	115 MPH
 Climb (Vertical Speed)	+500 FPM
 Temperatures & Pressures	CHECK
 Mixture: Lean above ...	3,000 FT






CRUISE

 Typical Altitude	8,000 FT
 Gyro / Heading	CHECK / CALIBRATE
 Altimeter	SET / CALIBRATE
 Throttle	25" Hg MAN.PRES.
 Propeller Control	2,100 RPM
 Mixture	LEAN ~ 45%
 Elevator Trim	+16
 Cruise Airspeed	120-130 MPH
<i>Fuel Consumption @ 50% fuel</i>	<i>0.260 GPML, 32.5 GPH</i>
<i>Max Level Airspeed</i>	<i>210 MPH</i>
<i>Never Exceed Airspeed</i>	<i>235 MPH</i>
<i>Service Ceiling</i>	<i>22,000 FT</i>





DESCENT

 Gyro / Heading	CHECK / CALIBRATE
 Altimeter	SET / CALIBRATE
 Fuel Quantity	CHECK
 Fuel Selector	MAIN
 Carburettor Heat	ON
 Throttle	20" Hg MAN.PRES.
 Propeller Control	2,050 RPM
 Mixture	ENRICH AS NECESSARY
 Elevator Trim	+02
 Airspeed	140 MPH
 Descent Rate (Vert. Speed)	-500 FPM






GLIDE WITH ENGINE OUT (optimal glide ratio)

 Propeller Control	any setting
 Elevator Trim	+33
 Airspeed	104 MPH
 Descent Rate (Vert. Speed)	-1,200 FPM
 Glide Ratio	1 : 7.5












APPROACH

 Autopilot	AS DESIRED
 Landing Lights	ON
 Propeller Control	HIGH RPM
 Mixture	FULL RICH

FINAL AND LANDING

 Final Approach Airspeed	90 MPH
 Autopilot	OFF
 Throttle (idle on touchdown)	Typically 15-18" Hg MAN.PRES.
 Carburettor Heat	OFF
 Touchdown Airspeed	83 RPM
<i>Stall Speed Clean</i>	<i>72 MPH</i>
<i>Stall Speed All Down</i>	<i>72 MPH</i>

AFTER LANDING - ENGINE SHUT-DOWN









 Trim Tabs	NEUTRAL
 Landing Lights	OFF
 Throttle	IDLE
 Propeller Control	LOW RPM
 Mixture	IDLE CUT-OFF
 Magnetos	OFF AFTER ENGINE STOPS
 Fuel Selector	OFF
 Navigation Lights	OFF
 Instrument Panel Lights	OFF
 Generator	OFF
 Master Battery Switch	OFF

AIRCRAFT CHECKLIST 127 Ryan NYP "Spirit of St. Louis"

AIRCRAFT BASIC SPECS









Engines n° and type	1 Prop-Piston-Fixed
MTOW	5,300 lb
Fuel usable capacity	450 gl Tanks: Centre 1, 2 and 3
T.off runway length	2,500 ft

BEFORE STARTING











 Magnetos / Ignition	OFF
 Carburettor Heat	COLD (off)
 Fuel Selector	ALL
 Throttle	CRACKED (min)
 Mixture	IDLE CUTOFF (up)
 Trim Tabs	ELEVATOR +10
 Flight Controls	FREE/Full travel
 Instrument Panel Lights	AS REQUIRED

This aircraft has no brakes!


STARTING (CTRL+E for autostart sequence)

 Mixture	FULL RICH
 Fuel Boost Pump	3 STROKES IF COLD
 Prime or Throttle change	3 STROKES IF COLD
 Starter Switch / Magneto	START
 Oil Pressure	CHECK OK in <30 sec.
 Fuel Pressure	CHECK
 Fuel Gauges/Quantity	CHECK (<i>gauge only operative with engine running!</i>)
 Oil Temperature	CHECK

WARM UP AND TAXI

 Temperatures & Pressures	CHECK
 Gyro / Heading	SET HEADING (no Gyro)
 Altimeter	CALIBRATE
 Throttle (for testing)	1,200 RPM
 Temperatures & Pressures	CHECK
 Magnetos: Maximum Drops	ON EACH 100 PM, BETW. MAGN. 40 RPM
 Carburettor Heat	CHECK RPM DROP THEN BACK TO OFF
 Throttle (for warm up)	900 RPM
 Taxi Throttle f. steady Speed	1,150 RPM - 12 MPH
 Taxi Turns: Gyro & Turn Coordinator	CHECK

PRE-TAKEOFF

 Throttle	IDLE
 Mixture	FULL RICH
 Trim Tabs	ELEVATOR +10
 Fuel Boost Pumps	5 MANUAL STROKES

TAKEOFF (sea level or low altitude)

Throttle	Full => 1,900-2,100 RPM
Tail Up / Nose Down (ave.)	50 MPH
Rotate (ave.)	85 MPH
Airspeed (airborne)	90 MPH

CLIMB**KEEP FULL THROTTLE and APPLY RUDDER TRIM**

Elevator Trim (ave.)	+37
Airspeed	90 MPH
Mixture: Lean above ...	1,000 FT to 2 (80%)

CRUISE

Typical Altitude	2,000 FT
Gyro / Heading	CHECK / CALIBRATE
Altimeter	SET / CALIBRATE
Throttle	1,900 RPM
Mixture	LEAN ~ 4 (60%)
Elevator Trim	+37
Cruise Airspeed	100 MPH
<i>Max Level Airspeed</i>	<i>129 MPH (no overspeed to the Ryan in FS2004)</i>
<i>Service Ceiling</i>	<i>4,000 FT</i>

DESCENT

Gyro / Heading and Altimeter	CHECK / SET / CALIBRATE
Fuel Quantity	CHECK
Fuel Selector	ALL
Carburettor Heat	ON
Throttle	Typically 1,700 RPM
Mixture	ENRICH AS NECESSARY
Elevator Trim	+20
Airspeed	120 MPH

APPROACH AND LANDING

Mixture	FULL RICH
Fuel Boost Pumps	MANUAL STROKES
Carburettor Heat	OFF
Final Approach Airspeed	80 MPH
Throttle (idle on touchdown)	1,500 RPM
Touchdown Airspeed	75 MPH
<i>Stall Speed</i>	<i>70 MPH</i>

AFTER LANDING - ENGINE SHUT-DOWN

Trim Tabs	NEUTRAL
Throttle and Mixture	IDLE; IDLE CUT-OFF
Magnetos	OFF AFTER ENGINE STOPS
Fuel Selector	OFF
Panel Lights	OFF














AIRCRAFT CHECKLIST

133 Stearman 75 'Kaydet'








AIRCRAFT BASIC SPECS

Engines n° and type	1 Prop-Piston-Variable
MTOW	2,700 lb
Fuel usable capacity	46 gl Tank: Centre 1
Range	505 ml, 5 hs
T.off runway length	1,500 ft

BEFORE STARTING

 Parking Brake	SET
 Master Battery Switch	ON
 Generators	ON
 Nav Lights	AS REQUIRED
 COM Radio	AS REQUIRED
 Ignition Switch & Magnetos	OFF
 Fuel Quantity	CHECK
 Fuel Selector	ON
 Throttle	CRACKED (min)
 Mixture	IDLE CUTOFF (down)
 Trim Tabs	NEUTRAL
 Flight Controls	FREE/Full travel
 Instrument Panel Lights	AS REQUIRED

STARTING (CTRL+E for autostart sequence)

 Mixture	FULL RICH (up)
 Throttle	OPEN 1/4" IF COLD
 Primer	4-8 STROKES IF COLD
 Ignition Switch & Magnetos	START
 Oil Pressure	CHECK OK in <30 sec.
 Oil Temperature	CHECK
 Volt Light	OFF

WARM UP AND TAXI

 Altimeter
 Flight Instruments
 Brakes
 Parking Brake
 Throttles (for testing)
 Temperatures & Pressures
 Volt Light
 Magnetos: Maximum Drops
 Throttles (for warm up)
 Taxi Throttle f. steady Speed
 Taxi Turns
 Taxi Turns: Gyro
 & Turn Coordinator

CALIBRATE (calibrator does not work!)

CHECK

CHECK (disengages parking brakes!)

APPLY

1,500 RPM

CHECK

OFF

ON EACH 100 PM, BETW. MAGN. 40 RPM

1,000 RPM (not idle)

1,000 RPM - 18 MPH

USE TAILWHEEL RATHER THAN BRAKES

CHECK

PRE-TAKEOFF






 Throttle
 Mixtures
 Trim Tabs

IDLE

FULL RICH

NEUTRAL

TAKEOFF (sea level or low altitude)

 Brakes (parking or pedal)
 Throttles
 Tail Up / Nose Down (ave.)
 Rotate (ave.)
 Airspeed (airborne & gear up)

RELEASE

Almost Full => 2,000 RPM

55 MPH

70 MPH

80 MPH

CLIMB (once clear of obstacles)

Throttles	KEEP FULL
Elevator Trim (ave.)	+01
Airspeed	105 MPH
Climb (Vertical Speed)	+500 FPM
Mixtures: Lean above ...	3,000 FT (65%)

CRUISE

Typical Altitude	5,000 FT
Altimeter	SET / CALIBRATE
Throttles	1,950 RPM
Mixtures	LEAN AS NECESSARY (53%)
Elevator Trim	+02
Cruise Airspeed	102 MPH
<i>Fuel Consumption @ 50% fuel</i>	<i>0.0907 GPML, 9.3 GPH</i>
<i>Max Level Airspeed</i>	<i>120 MPH at sea level</i>
<i>Never Exceed Airspeed</i>	<i>190 MPH</i>
<i>Service Ceiling</i>	<i>12,000 FT</i>






DESCENT

Altimeter	SET / CALIBRATE
Fuel Quantity	CHECK
Throttles	1,250 RPM
Mixtures	ENRICH AS NECESSARY
Elevator Trim	+13
Airspeed	80 MPH
Descent Rate (Vert. Speed)	-550 FPM












GLIDE WITH ALL ENGINES OUT (optimal glide ratio)

Elevator Trim	+17
Airspeed	74 MPH
Descent Rate (Vert. Speed)	-980 FPM
Glide Ratio	1 : 6.5

APPROACH AND LANDING

 Mixture	FULL RICH
 Parking Brake	VERIFY OFF
 Final Approach Airspeed	70 MPH
 Throttles (idle on touchdown)	1,250 RPM
 Touchdown Airspeed	55 MPH
<i>Stall Speed Clean</i>	<i>45 MPH</i>
<i>Stall Speed All Down</i>	<i>45 MPH</i>

AFTER LANDING - ENGINE SHUT-DOWN


















 Trim Tabs	NEUTRAL
 Parking Brake	APPLY
 Throttles	IDLE
 Mixtures	IDLE CUT-OFF
 Ignition Switch & Magnetos	OFF AFTER ENGINE STOPS
 Fuel Selector	OFF
 Navigation Lights	OFF
 COM Radio	OFF
 Instrument Panel Lights	OFF
 Generator	OFF
 Master Battery Switch	OFF

AIRCRAFT CHCK. 134 de Havilland DH-88 'Comet'









AIRCRAFT BASIC SPECS

Engines n° and type	2 Prop-Piston-Fixed
MTOW	5,200 lb
Fuel usable capacity	258 gl Tanks: Left main, Centre 1, Right Main
Range	2,000 ml, 13h 20'
T.off runway length	2,500 ft

BEFORE STARTING

 Parking Brake	SET
 Master Battery Switch	ON
 Landing Gear	HANDLE DOWN+LOCKED(GREEN LIGHTS)
 Generators	ON
 Volt / Amp / Light	BATT. LIGHT
 Nav Lights	AS REQUIRED
 Master Ignition Switch	OFF
 Magnetos / Ignition	OFF
 Carburettor Heat	COLD (off)
 Fuel Gauges/Quantity	CHECK
 Fuel Selectors	NORMAL FEED (up)
 Fuel Crossfeed	CLOSED (out)
 Throttles	CRACKED (min)
 Mixtures	IDLE CUTOFF (up!)
 Trim Tabs	NEUTRAL
 Flight Controls	FREE/Full travel
 Instrument Panel Lights	AS REQUIRED

STARTING - for each engine (CTRL+E for autostart sequence)

 Mixture	FULL RICH (down!)
 Magnetos	BOTH
 Starter Switch / Magneto	ENGAGE
 Starter Light	OFF
 Oil Pressure	CHECK OK in <30 sec.
 Oil Temperature	CHECK
 Vacuum Press. / Suction	CHECK (>4)
 Battery Discharge Light	OFF

WARM UP AND TAXI

■ FS: Select Engines	ALL
■ Gyro / Heading	CALIBRATE
■ Altimeter	CALIBRATE
■ Flight Instruments	CHECK
■ Brakes	CHECK (disengages parking brakes!)
■ Parking Brake	APPLY
■ Throttles (for testing)	1,500 RPM
■ Temperatures & Pressures	CHECK
■ Battery Discharge Light	OFF
■ Magnetos: Maximum Drops	ON EACH 100 PM, BETW.
	MAGN. 40 RPM
■ Carburettor Heat	CHECK RPM DROP THEN BACK TO OFF
■ Throttles (for warm up)	1,000 RPM (not idle)
■ Wing Flaps	UP, FULL DOWN, VISUAL CHECK, UP
■ Landing Lights	ON (no Taxi lights)
■ Taxi Throttle f. steady Speed	1,100 RPM - 18 MPH
■ Taxi Turns f. taildraggers	USE DIFF.BRAKES ONLY
■ Taxi Turns: Gyro & Turn Coordinator	CHECK (VERY UNSTABLE WHILE TAXYING!)

PRE-TAKEOFF

■ Throttle	IDLE
■ Mixtures	FULL RICH (down)
■ Trim Tabs	NEUTRAL
■ Wing Flaps	SET: normally 2=50%
■ Tailwheel	LOCKED

TAKEOFF (sea level or low altitude)

■ Brakes (parking or pedal)	RELEASE
■ Throttles	Full => 2,050 RPM
■ Tail Up / Nose Down (ave.)	55 KIAS
■ Rotate (ave.)	85-90 MPH
■ Landing Gear (once positive climb)	RETRACT
■ Airspeed (airborne & gear up)	105 MPH
■ Landing Lights	OFF

CLIMB (once clear of obstacles)

Landing Gear	VERIFY UP
Wing Flaps	RETRACT AND VERIFY
Throttles	KEEP FULL
Elevator Trim (ave.)	+07
Airspeed	160 MPH
Climb (Vertical Speed)	+700 FPM
Mixtures: Lean above ...	7,000 FT IF BOOST <-3

CRUISE

Typical Altitude	10,000 FT
Gyro / Heading	CHECK / CALIBRATE
Altimeter	SET / CALIBRATE
Throttles	2,000 RPM
Mixtures	LEAN AS NECESSARY (40%)
Elevator Trim	≈0
Cruise Airspeed	170 MPH
<i>Fuel Consumption @ 50% fuel</i>	<i>0.114 GPML, 19.4 GPH</i>
<i>Max Level Airspeed</i>	<i>202 MPH</i>
<i>Never Exceed Airspeed</i>	<i>300 MPH</i>
<i>Service Ceiling</i>	<i>22,500 FT</i>






DESCENT

Gyro / Heading	CHECK / CALIBRATE
Altimeter	SET / CALIBRATE
Fuel Quantity	CHECK
Fuel Selectors	NORMAL FEED (up)
Carburettor Heat	ON
Throttles	IDLE
Mixtures	ENRICH AS NECESSARY
Elevator Trim	+16
Airspeed	160 MPH
Descent Rate (Vert. Speed)	-600 FPM
Tail Wheel	LOCKED
Wing Flaps (initial)	1=25%







GLIDE WITH ALL ENGINES OUT (optimal glide ratio)

Elevator Trim	+50
Airspeed	123 MPH
Descent Rate (Vert. Speed)	-880 FPM
Glide Ratio	1 : 12


APPROACH

 Landing Gear	DOWN
 Gear Lock / Lights	LOCKED
 Landing Lights	ON
 Mixtures	FULL RICH
 Wing Flaps (intermediate)	2=50% AT 145 KIAS
	3=75% AT 130 KIAS











FINAL AND LANDING

 Parking Brake	VERIFY OFF
 Wing Flaps: Full Down at ...	115 KIAS
 Final Approach Airspeed	110 MPH
 Throttles (idle on touchdown)	1,050 RPM
 Carburettor Heat	OFF
 Touchdown Airspeed	90 MPH
<i>Stall Speed Clean</i>	<i>77 MPH</i>
<i>Stall Speed All Down</i>	<i>68 MPH</i>

AFTER LANDING - TAXI

 Tail Wheel	UNLOCKED FOR TAXI
 Wing Flaps	UP AND NEUTRAL
 Trim Tabs	NEUTRAL

ENGINE SHUT-DOWN

 Parking Brake	APPLY
 Landing Lights	OFF
 Throttles	IDLE
 Mixtures	IDLE CUT-OFF
 Magnetos	OFF AFTER ENGINES STOP
 Fuel Selectors	SHUTOFF
 Navigation Lights	OFF
 Instrument Panel Lights	OFF
 Generators	OFF
 Master Battery Switch	OFF















AIRCRAFT CHCK.**136 Supermarine Spitfire MK1A**

elevator_trim_effectiveness=0.5 in aircraft.cfg












AIRCRAFT BASIC SPECS

Engines n° and type	1 Prop-Piston-Variable
MTOW	7,000 lb (later models 8,500 lb)
Fuel usable capacity	85 gl Tanks: Centre 1 and 2
Range	325 ml, 1h 20'
T.off runway length	3,000 ft

BEFORE STARTING

 Parking Brake	SET
 Master Battery Switch	ON
 Landing Gear	HANDLE DOWN+LOCKED(GREEN LIGHTS)
 Generator	ON
 Nav Lights	AS REQUIRED
 Magnetos	OFF
 Fuel Gauges/Quantity	CHECK (specs below assume tanks 100% full)
 Fuel Selector	ON (left)
 Throttles	CRACKED (min)
 Propeller Control	HIGH RPM
 Mixtures	IDLE CUTOFF (down)
 Trim Tabs	NEUTRAL
 Cowl Flaps	OPEN
 Instrument Panel Lights	AS REQUIRED

STARTING (CTRL+E for autostart sequence)

 Propeller Control	HIGH RPM
 Mixture	FULL RICH (up)
 Throttle	OPEN 1/4" IF COLD
 Primer	4 STROKES IF COLD
 Magnetos	BOTH ON
 Starter Switch	ENGAGE
 Fuel Pressure Light	OFF after engine has fully started
 Oil Pressure	CHECK OK in <30 sec.
 Oil Temperature	CHECK
 Suction = Attitude Indicator	CHECK
 Volt Light	OFF

WARM UP AND TAXI

■ Altimeter
 ■ Flight Instruments
 ■ Brakes & Brake Pressure
 ■ Parking Brake
 ■ Throttle (for testing)
 ■ Temperatures & Pressures
 ■ Volt Light
 ■ Propeller
 ■ Magnetos: Maximum Drops
 ■ Throttle (for warm up)
 ■ Wing Flaps
 ■ Taxi Throttle f. steady Speed
 ■ Taxi Turns
 ■ Taxi Turns: Turn Coordinator
Power Unit from now on

CALIBRATE

CHECK

CHECK (disengages parking brakes!)

APPLY

1,800 RPM

CHECK

OFF

EXERCISE (2-3 times, min 600RPM)

ON EACH 100 PM, BETW.MAGN. 40 RPM

>=1,200 RPM (idle)

UP, DOWN, VISUAL CHECK, UP

2,400 RPM - 25 MPH

USE RUDDER PEDALS

CHECK

BOOST = MAN.PRESS. PSI









PRE-TAKEOFF

■ Throttle	IDLE
■ Propeller Control	HIGH RPM
■ Mixtures	FULL RICH (up)
■ Trim Tabs	NEUTRAL
■ Wing Flaps	UP
■ Cowl Flaps	CHECK OPEN

TAKEOFF (sea level or low altitude)









■ Brakes (parking or pedal)	RELEASE
■ Throttle	Full => +6.2 PSI
■ Propeller Control	High => 3,000 RPM
■ Tail Up / Nose Down (ave.)	80 MPH
■ Rotate (ave.)	100 MPH
■ Landing Gear	RETRACT
(once positive climb)	
■ Airspeed (airborne & gear up)	> 120 MPH

CLIMB (once clear of obstacles)









 Landing Gear	VERIFY UP - LATCHED
 Wing Flaps	RETRACT AND VERIFY
 Throttle	KEEP FULL
 Propeller Control	High => 3,000 RPM
 Elevator Trim (ave.)	+10
 Airspeed	120 MPH
 Climb (Vertical Speed)	+2,000 FPM
 Mixtures: Lean above ...	4,000 FT

CRUISE






Fuel tanks 75% full

 Typical Altitude	20,000 FT
 Altimeter	SET / CALIBRATE
 Throttle	+3.8 PSI (90%)
 Propeller Control	2,750 RPM (91%)
 Mixture	LEAN AS NECESSARY (21%)
 Elevator Trim	+07
 Cowl Flaps	CLOSE
 Cruise Airspeed	245 MPH
<i>Fuel Consumption @ 50% fuel</i>	<i>0.261 GPML, 64 GPH</i>
<i>Max Level Airspeed</i>	<i>280 MPH @ 18,000 FT</i>
<i>Never Exceed Airspeed</i>	<i>350 MPH</i>
<i>Service Ceiling</i>	<i>25,000 FT</i>










DESCENT

 Altimeter	SET / CALIBRATE
 Fuel Quantity	CHECK (assume about 30%)
 Throttle	IDLE
 Propeller Control	2,000 RPM
 Mixture	ENRICH AS NECESSARY
 Elevator Trim	+02
 Airspeed	150 MPH
 Descent Rate (Vert. Speed)	-1,500 FPM






GLIDE WITH ENGINE OUT (optimal glide ratio)

 Propeller Control	Feathered
 Elevator Trim	+40
 Airspeed	77 MPH
 Descent Rate (Vert. Speed)	-700 FPM
 Glide Ratio	1 : 9.5
















APPROACH

 Landing Gear	DOWN
 Gear Lock / Lights	LOCKED
 Wing Flaps	DOWN (64°) below 150 MPH
 Throttle	+4.0 PSI (86%)
 Propeller Control	HIGH RPM
 Mixture	FULL RICH
 Cowl Flaps	OPEN HALFWAY
 Elevator Trim	-32
 Airspeed	110 MPH

FINAL AND LANDING

 Parking Brake	VERIFY OFF
 Wing Flaps	DOWN
 Final Approach Airspeed	100 MPH (fuel 50%) – 90 MPH (fuel empty)
 Throttle (idle on touchdown)	+0 PSI (63%)
 Touchdown Airspeed	85 MPH (fuel 50%) – 75 MPH (fuel empty)
<i>Stall Speed Clean</i>	<i>75 MPH</i>
<i>Stall Speed All Down</i>	<i>67 MPH</i>

AFTER LANDING - ENGINE SHUT-DOWN

 Wing Flaps	UP AND NEUTRAL
 Cowl Flaps	OPEN
 Trim Tabs	NEUTRAL
 Parking Brake	APPLY
 Throttles	IDLE
 Propeller Control	MIN RPM
 Fuel Pressure Light	ON
 Mixture	IDLE CUT-OFF
 Fuel Pressure Light	OFF
 Magnetos	OFF AFTER ENGINES STOP
 Fuel Selector	OFF (right)
 Navigation Lights	OFF
 Instrument Panel Lights	OFF
 Generator	OFF
 Master Battery Switch	OFF

AIRCRAFT CHECKLIST

138 Piper J-3C-65 'Cub'

140 Piper J-3C Clipped Wing

AIRCRAFT BASIC SPECS

Engines n° and type	1 Prop-Piston-Fixed	
MTOW	1,200 lb	
Fuel usable capacity	12 gl	Tank: Centre 1
Range	180 ml, 2h 40'	220 ml, 2h 30'
T.off runway length	1,000 ft	

BEFORE STARTING

Parking Brake	SET
Magnetos / Ignition	OFF
Carburettor Heat	COLD (off)
Fuel Gauges/Quantity	CHECK
Fuel Valve	ON
Throttle	CRACKED (min)
Mixture	IDLE CUTOFF
Trim Tabs	NEUTRAL
Flight Controls	FREE/Full travel
Instrument Panel Lights	AS REQUIRED
COM Radio	AS REQUIRED

STARTING (CTRL+E for autostart sequence)

Mixture	FULL RICH
Magnetos	BOTH
Prime or Throttle change	PRIME AS REQUIRED (metal knob under Oil Press. gauge)
Starter Switch / Magneto	START
Oil Pressure	CHECK > 10 PSI in <30 sec.
Oil Temperature	CHECK

WARM UP AND TAXI

Temperatures & Pressures	CHECK
Altimeter	CALIBRATE
Brakes	CHECK (disengages parking brakes!)
Parking Brake	APPLY
Throttle (for testing)	1,500 RPM
Temperatures & Pressures	OIL PRESS 30 TO 45 PSI
Magnetos: Maximum Drops	ON EACH 100 PM, BETW. MAGN. 40 RPM
Carburettor Heat	CHECK RPM DROP THEN BACK TO OFF
Throttle (for warm up)	IDLE <= 1,000 RPM
Radios	CHECK and/or SET
Taxi Throttle f. steady Speed	1,100 RPM - 11 MPH
Taxi Turns for taildraggers	USE DIFF.BRAKES ALSO
Taxi Turns: Gyro+Turn Coo.	CHECK

12 MPH

PRE-TAKEOFF

Throttle	IDLE	
Mixture	FULL RICH	
Trim Tabs	NEUTRAL (or as required)	+12

TAKEOFF (sea level or low altitude) – **FUEL TANKS FULL**

Brakes (parking or pedal)	RELEASE	
Throttle	FULL	
Tail Up / Nose Down (ave.)	35 MPH	40 MPH
Rotate (ave.)	40 MPH	50 MPH
Airspeed once airborne	55 MPH	









CLIMB (once clear of obstacles) – **FUEL TANKS FULL**

Throttle	Keep Full => 2,300 RPM	
Elevator Trim (ave.)	+18	+20
Airspeed	65 MPH	77 MPH
Temperatures & Pressures	CHECK	
Mixture: Lean above ...	3,000 FT to 57%	





CRUISE – **FUEL 75%-50%**

	NORMAL		LOW CITY	
Typical Altitude	5,000 FT		600 FT	5,000 FT
Altimeter	SET / CALIBRATE			
Throttle	2,200 RPM		1,800 RPM	2,100 RPM
Mixture	51%		FULL RICH	51%
Elevator Trim	+5		+40	+14
Cruise Airspeed	60 MPH		58 MPH	84 MPH
<i>Fuel Consumption @ 50% fuel</i>	<i>0.0671 GPML, 4.7 GPH</i>		<i>0.0548 GPML, 4.6 GPH</i>	
<i>Max Level Airspeed</i>	<i>85 MPH</i>			<i>107 MPH</i>
<i>Never Exceed Airspeed</i>	<i>120 MPH</i>			
<i>Service Ceiling</i>	<i>11,500 FT</i>			<i>13,500 FT</i>








DESCENT – FUEL LOAD 50%

	Altimeter	SET / CALIBRATE	
	Fuel Quantity	CHECK	
	Carburettor Heat	ON	
	Throttle	Typically 1,800 RPM	
	Mixture	ENRICH AS NECESSARY	
	Elevator Trim	+10	+11
	Airspeed	75 MPH	85 MPH
	Descent Rate (Vert. Speed)	-500 FPM	









GLIDE WITH ENGINE OUT (optimal glide ratio)

	Elevator Trim	+60	+50
	Airspeed	50 MPH	62 MPH
	Descent Rate (Vert. Speed)	-870 FPM	
	Glide Ratio	1 : 5	

APPROACH AND LANDING – FUEL LOAD 50%

	Mixture	FULL RICH	
	Carburettor Heat	OFF	
	Elevator Trim	+12	+30
	Parking Brake	VERIFY OFF	
	Final Approach Airspeed	60 MPH	66 MPH
	Throttle (idle on touchdown)	1,600 RPM	1,500 RPM
	Touchdown Airspeed	50 MPH	60 MPH
	<i>Stall Speed</i>	<i>38 MPH</i>	

AFTER LANDING - ENGINE SHUT-DOWN

	Trim Tabs	NEUTRAL	
	Parking Brake	APPLY	
	Throttle	IDLE	
	Mixture	IDLE CUT-OFF	
	Magnetos	OFF AFTER ENGINE STOPS	
	COM Radio	OFF	
	Instrument Panel Lights	OFF	
	Fuel Valve	OFF	

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AIRCRAFT CHECKLIST 217 Vickers F.B.27A 'Vimy'

AIRCRAFT BASIC SPECS

Engines n° and type	2 Prop-Piston-Fixed
MTOW	12,500 lb
Petrol total capacity	865 gl Tanks: Centre 1 and 2
Range	900 ml, 13h 40'
T.off runway length	2,000 ft

BEFORE STARTING












This aircraft has NO BRAKES!

■ Master Battery Switch	ON
■ Volt / Amp / Light	BATT. LIGHT
■ Magnetos / Ignition	OFF
■ Petrol Gauges/Quantity	CHECK
■ Petrol Valves Port & Starb.	ON
■ Mixture	IDLE CUTOFF
■ Trim Tabs	NEUTRAL
■ Radiator Shutters	OPEN
■ Flight Controls	FREE/Full travel
■ Instrument Panel Lights	AS REQUIRED
■ Petrol Pumps	OFF






STARTING - for each engine (CTRL+E for autostart sequence)

■ Mixture	FULL RICH
■ Petrol Pump	ON
■ Magnetos	BOTH
■ Starter Switch / Magneto	ENGAGE
■ Oil Pressure	CHECK OK in <30 sec.
■ Petrol Pump	OFF
■ Petrol Pressure	CHECK
■ Oil Temperature	CHECK
■ Amp Light	AS PER PANEL LIGHTS
	(if the Panel Lights are on, the Amp.Light is on)

WARM UP AND TAXI





	FS: Select Engines	ALL
	Temperatures & Pressures	CHECK
	Petrol Pumps	CHECK OFF
	Altimeter	CALIBRATE
	Throttle (for testing)	1,500 RPM
	Temperatures & Pressures	CHECK
	Amp Light	OFF
	Magnetos: Maximum Drops	ON EACH 100 PM, BETW. MAGN. 40 RPM
	Throttle (for warm up)	IDLE
	Taxi Throttle f. steady Speed	1,300 RPM - 9 MPH
	Taxi Turns for taildraggers	USE DIFF.BRAKES ONLY

PRE-TAKEOFF

	Throttle	IDLE
	Mixture	FULL RICH
	Trim Tabs	NEUTRAL (or as required)
	Radiator Shutters	OPEN HALFWAY
	Petrol Pumps	ON

TAKEOFF

(sea level or low altitude)

	Throttle	Full => 2,100 RPM
	Tail Up / Nose Down (ave.)	30 KIAS
	Rotate (ave.)	50 MPH
	Airspeed (airborne)	65 MPH

RPM gauge shows up to 2,000 only.

For greater values see mouse tip or mini-panel.

CLIMB (once clear of obstacles)

Throttle	KEEP FULL
Petrol Pumps	OFF (one at a time)
Elevator Trim (ave.)	+15
Airspeed	70 MPH
Temperatures & Pressures	CHECK
Mixture: Lean above ...	2,000 FT

CRUISE

Typical Altitude	3,500 FT
Altimeter	SET / CALIBRATE
Throttle	2,000 RPM
Mixture	LEAN 55%
Elevator Trim	+17
Radiator Shutters	CLOSE
Cruise Airspeed	66 MPH
<i>Fuel Consumption @ 50% fuel</i>	<i>0.933 GPML, 61.6 GPH</i>
<i>Max Level Airspeed</i>	<i>100 MPH</i>
<i>Never Exceed Airspeed</i>	<i>100 MPH</i>
<i>Service Ceiling</i>	<i>8,000 FT</i>







DESCENT

Altimeter	SET / CALIBRATE
Petrol Quantity	CHECK
Throttle	Typically 1,700 RPM
Mixture	ENRICH AS NECESSARY
Elevator Trim	+15
Airspeed	67 MPH




GLIDE WITH ALL ENGINES OUT (optimal glide ratio)

Elevator Trim	+34
Airspeed	52 MPH
Descent Rate (Vert. Speed)	-780 FPM
Glide Ratio	1 : 5.7







APPROACH AND LANDING

 Mixture	FULL RICH
 Petrol Pumps	ON
 Radiator Shutters	OPEN HALFWAY
 Final Approach Airspeed	60 MPH
 Throttle (idle on touchdown)	1,700 RPM
 Touchdown Airspeed	55 MPH
<i>Stall Speed</i>	<i>40 MPH</i>

AFTER LANDING - TAXI

 Radiator Shutters	OPEN
 Petrol Pumps	OFF
 Trim Tabs	NEUTRAL

ENGINE SHUT-DOWN

 Throttle	IDLE
 Mixture	IDLE CUT-OFF
 Magnetos	OFF AFTER ENGINES STOP
 Petrol Valves Port & Starb.	OFF
 Instrument Panel Lights	OFF
 Master Battery Switch	OFF

AIRCRAFT CHECKL.**226 Ford 4-AT-E Tri-Motor****AIRCRAFT BASIC SPECS**

Engines n° and type	1 Prop-Piston-Fixed
MTOW	10,100 lb
Fuel usable capacity	231 gl Tanks: Left Main, Centre 1, Right Main
Range	670 ml, 7h 25'
T.off runway length	2,000 ft

BEFORE STARTING

Parking Brake	SET
Master Battery Switch	ON
Generator	OFF
Volt / Amp / Light	> 30 A
Nav Lights	AS REQUIRED
Master Ignition Switch	OFF
Magnetos / Ignition	OFF
Carburettor Heat	COLD (off)
Fuel Gauges/Quantity	CHECK
Fuel Selectors	LEFT / ON(=all)/ RIGHT
Mixtures	IDLE CUTOFF
Trim Tabs	NEUTRAL
Flight Controls	FREE/Full travel
Instrument Panel Lights	AS REQUIRED
Master Ignition Switch	ON

STARTING - for each engine (CTRL+E for autostart sequence)

Mixture	FULL RICH
Throttle	CRACKED
Magnetos	BOTH
Prime or Throttle change	5 STROKES IF COLD
Starter Switch / Magneto	ENGAGE FOR 1 REV.
Oil Pressure	CHECK OK in <30 sec.
Oil Temperature	CHECK
Vacuum Press. / Suction	CHECK
Generator	ON (center engine only!)

WARM UP AND TAXI

FS: Select Engines	ALL
Temperatures & Pressures	CHECK
Gyro / Heading	CALIBRATE
Altimeter	CALIBRATE
Brakes	CHECK (disengages parking brakes!)
Parking Brake	APPLY
Throttles (for testing)	1,500 RPM
Temperatures & Pressures	CHECK
Generators: Amp	> 30 A
Magnetos: Maximum Drops	ON EACH 100 PM, BETW. MAGN. 40 RPM
Landing Lights	ON (no Taxi lights)
Throttles (for warm up)	1,000 RPM
Taxi Throttle f. steady Speed	850 RPM - 16 MPH
Taxi Turns for taildraggers	USE DIFF. BRAKES ONLY
Taxi Turns: Gyro	CHECK
& Turn Coordinator	

PRE-TAKEOFF

Throttle	IDLE
Mixtures	FULL RICH
Trim Tabs	NEUTRAL

TAKEOFF (sea level or low altitude)

Brakes (parking or pedal)	RELEASE
Throttles	1,000 RPM, then FULL
Tail Up / Nose Down (ave.)	40 MPH
Rotate (ave.)	60 MPH
Airspeed (airborne & gear up)	75 MPH
Landing Lights	OFF

CLIMB (once clear of obstacles)

Throttles	Keep Full => 1,800 RPM
Elevator Trim (ave.)	+26
Airspeed	80 MPH
Climb (Vertical Speed)	+600 FPM
Temperatures & Pressures	CHECK
Mixtures: Lean above ...	4,000 FT to 55%

CRUISE

Typical Altitude	6,000 FT
Altimeter	SET / CALIBRATE
Throttles	1,700 RPM
Mixtures	LEAN to 50%
Elevator Trim	+18
Cruise Airspeed	90 MPH
<i>Fuel Consumption @ 50% fuel</i>	<i>0.337 GPML, 30.3 GPH</i>
<i>Max Level Airspeed</i>	<i>120 MPH</i>
<i>Never Exceed Airspeed</i>	<i>145 RPM</i>
<i>Service Ceiling</i>	<i>14,000 FT</i>

DESCENT

Radios	CHECK FOR ATIS/AIRPORT INFORMATION
Altimeter	SET / CALIBRATE
Fuel Quantity	CHECK
Fuel Selectors	LEFT / ON(=all)/ RIGHT
Carburettor Heat	ON
Throttles	Typically 1,500 RPM
Mixtures	ENRICH AS NECESSARY
Elevator Trim	+10
Airspeed	100 MPH
Descent Rate (Vert. Speed)	-700 FPM

GLIDE WITH ALL ENGINES OUT (optimal glide ratio)

Elevator Trim	+45
Airspeed	74 MPH
Descent Rate (Vert. Speed)	-1,200 FPM
Glide Ratio	1 : 5.2

APPROACH AND LANDING

Landing Lights	ON
Mixtures	FULL RICH
Carburettor Heat	OFF
Parking Brake	VERIFY OFF
Final Approach Airspeed	80 MPH
Throttles (idle on touchdown)	~ 1,200 RPM
Touchdown Airspeed	65 MPH
<i>Stall Speed Clean</i>	<i>58 MPH</i>
<i>Stall Speed All Down</i>	<i>58 MPH</i>

AFTER LANDING - ENGINE SHUT-DOWN

Trim Tabs	NEUTRAL
Parking Brake	APPLY
Landing Lights	OFF
Throttles	IDLE
Mixtures	IDLE CUT-OFF
Magnetos	OFF AFTER ENGINES STOP
Master Ignition Switch	OFF
Fuel Selectors	OFF
Navigation Lights	OFF
Instrument Panel Lights	OFF
Generator	OFF
Master Battery Switch	OFF

AIRCRAFT CHECKL. 231 Lockheed L10E 'Electra'



























This model reproduces the aircraft setup for Amelia Earhart for her World Flight of 1937.

The specs below are valid for the 2006 model by Dave Bitzer, Norman Hancock, J.L. Stubbs and Charles Wood. We assume an instrument panel with a digital elevator trim (to which the model is very sensitive) and the original Cambridge Engine Analyzer. Note: instead of the Carburettor Heat we have a Propeller De-Ice.

AIRCRAFT BASIC SPECS

Engines n° and type	2 Prop-Piston-Variable
MTOW	10,500 lb – nominal with 45% fuel load 14,365 lb – maximum with 100% fuel load
Fuel usable capacity	1,151 gl thanks to additional fuselage tanks Tanks: Left Main, Centre 2, Right Main
Range	3,070 nm (real last flight 4,000 nm), 23 hs
T.off runway length	1,600 ft

BEFORE STARTING

 Parking Brake	SET
 Master Battery Switch	ON
 Landing Gear	HANDLE DOWN+LOCKED(GREEN LIGHTS)
 Generators	ON
 Volt / Amp / Light	VOLT LIGHT ON
 Radio/Avionics Master	OFF
 Nav Lights	AS REQUIRED
 Master Ignition Switch	OFF
 Magnetos / Ignition	OFF
 Pitot Heat	OFF
 Propeller De-ice	OFF
 Fuel Gauges/Quantity	CHECK
 Fuel Selector: Tank	FUSElage - goes to LEFT by default!
 Fuel Selector: Engine	BOTH
 Hydraulic Pressure	CHECK
 Throttles	CRACKED (min)
 Propeller Control	HIGH RPM
 Mixtures	IDLE CUTOFF
 Trim Tabs	NEUTRAL
 Cowl Flaps	OPEN
 Engine Rest Man.Pressure	NOTED (mostly 30" Hg)
 Flight Controls	FREE/Full travel
 Instrument Panel Lights	AS REQUIRED
 Fuel Boost Pumps (*)	OFF
 Master Ignition Switch	ON
 Beacon	ON

(*) Actually just Fuel Pumps. Not the same as the special Boost Pumps of the Beech D18S.

STARTING - for each engine (CTRL+E for autostart sequence)

Propeller Control	HIGH RPM
Mixture	FULL RICH at sea level
Throttle	CRACKED
Fuel Boost Pump	ON
Magnetos	BOTH
Prime	3-5 STROKES IF COLD
Starter Switch	ENGAGE
Oil Pressure	CHECK OK in <30 sec.
Fuel Pressure	CHECK
Fuel Boost Pump	OFF
Fuel Pressure	CHECK
Oil Temperature	CHECK
Vacuum Press. / Suction	CHECK
Hydraulic Pressure	CHECK
Generators: Volt/Amp/Light	VOLT LIGHT OFF

WARM UP AND TAXI

FS: Select Engines	ALL
Fuel Selector: Engine	BOTH
Fuel Selector: Tank	SWITCH TANKS & CHECK
Fuel Boost Pumps	CHECK OFF
Gyro / Heading	CALIBRATE
Altimeter	CALIBRATE
Flight Instruments	CHECK
Brakes	CHECK (disengages parking brakes!)
Parking Brake	APPLY
Throttles (for testing)	1,500 RPM
Oil Pressure	CHECK (RED LIGHT OFF)
Fuel Pressure	CHECK (RED LIGHT OFF)
Generators: Volt/Amp/Light	CHECK (VOLT RED LIGHT OFF)
Propellers	EXERCISE (2-3 times, no more than 400RPM drop)
Magnetos: Maximum Drops	ON EACH 100 PM, BETW. MAGN. 40 RPM
Throttles (for warm up)	1,100 RPM
Propeller De-ice	ONLY IF NEEDED
Radio/Avionics Master	ON
Radios	SET AS PER FLIGHT PLAN
Autopilot	SET AND OFF
Wing Flaps	UP, FULL DOWN, VISUAL CHECK, UP
Landing Lights	ON (no Taxi lights)
Taxi Throttle f. steady Speed	10" Hg MAN.PRES.=> 1,800 RPM -20 KIAS
Taxi Turns for taildraggers	USE DIFF.BRAKES FOR SHARP TURNS
Taxi Turns: Gyro& Turn Co.	CHECK

PRE-TAKEOFF

Throttle	IDLE
Propeller Control	HIGH RPM
Mixtures	Cambridge 0.083
Elevator Trim	+20
Wing Flaps (with many micro steps, best use Range wheel!)	Up for partial fuel and long runway.
Cowl Flaps	Otherwise 1/4=11°
Pitot Heat	OPEN HALFWAY
Fuel Boost Pumps	ON
	ON











TAKEOFF (sea level or low altitude) – FUEL TANKS FULL

Brakes (parking or pedal)	RELEASE
Throttles	FULL => 32-34" Hg MAN.PRES.
Propeller Control	High => 2,200 RPM
Tail Up / Nose Down (ave.)	75 KIAS
Rotate (ave.)	95 KIAS
Landing Gear (once positive climb)	RETRACT
Airspeed (airborne & gear up)	100 KIAS
Landing Lights	OFF













CLIMB (once clear of obstacles) – FUEL TANKS FULL

Landing Gear	VERIFY UP – LATCHED (RED LIGHT ON)
Wing Flaps	RETRACT AND VERIFY
Throttles	Full => 30-34" Hg MAN.PRES.
Propeller Control	High => 2,300 RPM
Fuel Boost Pumps	OFF (one at a time)
Elevator Trim (ave.)	+13
Airspeed	105 KIAS
Climb (Vertical Speed)	+800 FPM
Temperatures & Pressures	CHECK
Mixtures	MAINTAIN Cambridge 0.083






CRUISE – FUEL LOAD 75% to 50%

 Typical Altitude	7,000 FT
 Gyro / Heading	CHECK / CALIBRATE
 Altimeter	SET / CALIBRATE
 Throttles	24” Hg MAN.PRES.
 Propeller Control	1,700 RPM
 Mixtures	SLOWLY LEAN TO Cambridge 0.077
 Elevator Trim	+12
 Cowl Flaps	CLOSE
 Propeller De-ice	AS REQUIRED
 Cruise Airspeed	136 KIAS
<i>Fuel Consumption @ 50% fuel</i>	<i>0.375 GPML, 51 GPH</i>
<i>Max Level Airspeed</i>	<i>170 KIAS</i>
<i>Never Exceed Airspeed</i>	<i>220 KIAS</i>
<i>Service Ceiling (Fuel 75 %)</i>	<i>12,000 FT</i>













DESCENT – FUEL LOAD 50%

 Radios	CHECK FOR ATIS/AIRPORT INFORMATION
 Gyro / Heading	CHECK / CALIBRATE
 Altimeter	SET / CALIBRATE
 Fuel Quantity	CHECK
 Fuel Selector: Tank	SWITCH TANKS AS NEEDED TO BALANCE
 Throttles	Typically 20” Hg MAN.PRES.
 Propeller Control	1,600 RPM
 Mixtures	MAINTAIN Cambridge 0.075
 Elevator Trim	~ +10
 Airspeed	140 KIAS
 Descent Rate (Vert. Speed)	~ -400 FPM
 Wing Flaps (initial)	UP







GLIDE WITH ALL ENGINES OUT (optimal glide ratio)

 Propeller Control	FEATHERED
 Elevator Trim	+15
 Airspeed	110 KIAS
 Descent Rate (Vert. Speed)	-1,250 FPM
 Glide Ratio	1 : 9 (poor)







APPROACH – FUEL LOAD 50%

 Radios	SET FOR APPROACH
 Landing Gear	DOWN
 Gear Lock / Lights	LOCKED
 Autopilot	OFF
 Landing Lights	ON
 Throttles	Typically 22” Hg MAN.PRES.
 Propeller Control	HIGH RPM
 Mixtures	ENRICH TO Cambridge 0.083
 Elevator Trim	+20
 Fuel Boost Pumps	ON
 Cowl Flaps	OPEN HALFWAY
 Wing Flaps (intermediate)	1/4=11° AT 120 KIAS, Elev. Trim +27
	1/2=23° AT 110 KIAS, Elev. Trim +35
	3/4=34° AT 100 KIAS, Elev. Trim +45















FINAL AND LANDING – FUEL LOAD 50%

 Parking Brake	VERIFY OFF
 Wing Flaps: Full Down at ...	95 KIAS
 Elevator Trim	+55
 Final Approach Airspeed	87 KIAS
 Throttles (idle on touchdown)	Keep typically 22” Hg MAN.PRES.
 Touchdown Airspeed	75 KIAS
<i>Stall Speed Clean</i>	<i>70 KIAS</i>
<i>Stall Speed All Down</i>	<i>63 KIAS</i>

AFTER LANDING - TAXI

 Wing Flaps	UP AND NEUTRAL
 Cowl Flaps	OPEN
 Pitot Heat	OFF
 Propeller De-ice	OFF
 Fuel Boost Pumps	OFF
 Trim Tabs	NEUTRAL

ENGINE SHUT-DOWN

	Parking Brake	APPLY
	Landing Lights	OFF
	Radio/Avionics Master	OFF
	Throttles	IDLE
	Propeller Control	LOW RPM
	Mixtures	IDLE CUT-OFF
	Magnetos	OFF AFTER ENGINES STOP
	Master Ignition Switch	OFF
	Fuel Selector: Engine	OFF
	Beacon	OFF
	Navigation Lights	OFF
	Instrument Panel Lights	OFF
	Generators	OFF
	Master Battery Switch	OFF

AIRCRAFT CHECKLIST

232 SM.79 Sparviero

We assume an instrument a panel with a digital elevator trim and a Cambridge Engine Analyzer.

Note also that this model has no: Carburettor Heat, Propeller De-Ice, Fuel Pumps, Cowl Flaps, Engine Primer or Gyro Compass (the gyros in AutoPilot and MiniPanel follow always Magnetic Compass).

Grey = Metric panel

AIRCRAFT BASIC SPECS

Engines n° and type	2 Prop-Piston-Variable
MTOW	24,000 lb
Fuel usable capacity	600 gl Tanks: Left Main, Centre 2, Right Main
T.off runway length	1,600 ft (TBD)

BEFORE STARTING

Parking Brake	SET
Master Battery Switch	ON
Landing Gear	HANDLE OUT+LOCKED(GREEN LIGHT)
Generators × 3	ON (3 BLACK SWITCHES UP)
Battery Voltage	VOLT LIGHT ON
Vacuum Press. / Suction	VAC LIGHT ON
Instruments Power Switch	OFF
Nav Lights	AS REQUIRED
Magnetos × 3	OFF
Pitot Heat	OFF
Fuel Gauges/Quantity	CHECK
Fuel Tank Selector	FUSElage - goes to LEFT by default!
Fuel Valves	ON
Throttles	CRACKED (min)
Propeller Controls	HIGH RPM
Mixtures	IDLE CUTOFF
Trim Tabs	NEUTRAL
Engine Rest Man.Pressure	NOTED
Flight Controls	FREE/Full travel
Instrument Panel Lights	AS REQUIRED
Beacon	ON

STARTING - for each engine (CTRL+E for autostart sequence)

Propeller Controls	HIGH RPM
Mixtures	FULL RICH at sea level
Throttles	CRACKED
Magnetos	BOTH
Starter Button	ENGAGE
Oil Pressure	CHECK OK in <30 sec.
Oil Temperature	CHECK
Vacuum Press. / Suction	VAC LIGHT OFF with 2 Engines Running
Battery Voltage	VOLT LIGHT OFF

WARM UP AND TAXI

FS: Select Engines	ALL
Fuel Tank Selector	SWITCH TANKS & CHECK
Altimeter	CALIBRATE
Flight Instruments	CHECK
Brakes Pressure Gauge	CHECK (disengages parking brakes!)
Parking Brake	APPLY
Throttles (for warm-up)	1,500 RPM
Oil Pressure	CHECK 60 PSI 4 Kg/Cmq
Propellers	EXERCISE (2-3 times, no more than 300RPM drop)
Magnetos: Maximum Drops	ON EACH 100 PM, BETW. MAGN. 40 RPM
Instruments Power Switch	ON
Radios	SET AS PER FLIGHT PLAN
Autopilot	OFF
Wing Flaps	UP, FULL DOWN, VISUAL CHECK, UP
Landing Lights	ON (no Taxi lights)
Taxi Throttle f. steady Speed	1,350 RPM -20 KIAS 37 KMH
Taxi Turns for taildraggers	USE DIFF.BRAKES FOR SHARP TURNS
Taxi Turns: Gyro& Turn Co.	CHECK

PRE-TAKEOFF

Throttle	IDLE
Propeller Controls	HIGH RPM
Mixtures	Cambridge 0.090
Elevator Trim	+20
Wing Flaps	Up for partial fuel and long runway.
	Otherwise 1/3=13°
Pitot Heat	ON

TAKEOFF (sea level or low altitude) – **FUEL TANKS FULL**

Brakes (parking or pedal)	RELEASE	
Throttles	FULL => 8.0 PSI BOOST (MAN.PRESS)	
Propeller Controls	High => 2,700 RPM	
Tail Up / Nose Down (ave.)	75 KIAS	140 KMH
Rotate (ave.)	100 KIAS	185 KMH
Landing Gear	RETRACT	
(once positive climb)		
Airspeed (airborne & gear up)	>120 KIAS	220 KMH
Landing Lights	OFF	

CLIMB (once clear of obstacles) – **FUEL TANKS FULL**

Landing Gear	VERIFY UP – LATCHED (BOTH LIGHTS OFF)	
Wing Flaps	RETRACT AND VERIFY	
Throttles	8.0 PSI BOOST	
Propeller Controls	High => ~ 2,300 RPM	
Elevator Trim (ave.)	+27	
Airspeed	140 KIAS	260 KMH
Climb (Vertical Speed)	+1,100 FPM	+5.5 M/S
Temperatures & Pressures	CHECK	
Mixtures	MAINTAIN Cambridge 0.090	

CRUISE – FUEL LOAD 75% to 50%

Typical Altitude	15,000 FT	4,500 MT
Altimeter	SET / CALIBRATE	
Throttles	0.0 PSI BOOST	
Propeller Controls	MID => ~ 2,500 RPM	
Mixtures	SLOWLY LEAN TO Cambridge 0.085	
Elevator Trim	+16	
Cruise Airspeed	175 KIAS	403 KMH
<i>Max Level Airspeed</i>	<i>235 KIAS @15,000FT</i>	<i>435 KMH @4,500 MT</i>
<i>Never Exceed Airspeed</i>	<i>275 KIAS</i>	<i>500 KMH</i>
<i>Service Ceiling (Fuel 75 %)</i>	<i>23,000 FT</i>	<i>7,000 MT</i>

DESCENT – FUEL LOAD 50%

Radios	CHECK FOR ATIS/AIRPORT INFORMATION	
Altimeter	SET / CALIBRATE	
Fuel Quantity	CHECK	
Fuel Tank Selector	SWITCH TANKS AS NEEDED TO BALANCE	
Throttles	Typically -3.0 PSI BOOST	
Propeller Controls	MID => ~ 2,200 RPM	
Mixtures	MAINTAIN Cambridge 0.085	
Elevator Trim	~ +10	
Airspeed	185 KIAS	343 KMH
Descent Rate (Vert. Speed)	~ -1,000 FPM	-5.0 M/S
Wing Flaps (initial)	UP	

GLIDE WITH ALL ENGINES OUT (optimal glide ratio)

Propellers × 3	FEATHERED	
Elevator Trim	+60	
Airspeed	101 KIAS	187 KMH
Descent Rate (Vert. Speed)	-1,100 FPM	-5.6 M/S
Glide Ratio	1 : 9.3 (poor)	

APPROACH – FUEL LOAD 50%

Radios	SET FOR APPROACH
Landing Gear	DOWN
Gear Lock / Lights	LOCKED (GREEN LIGHT)
Autopilot	OFF
Landing Lights	ON
Throttles	Typically -2.0 PSI BOOST
Propeller Control	HIGH RPM
Mixtures	ENRICH TO Cambridge 0.090
Elevator Trim	+15
Wing Flaps (intermediate)	1/3=13° @ 160 KIAS 295 KMH, Elev. Trim +20 2/3=27° @ 140 KIAS 260 KMH, Elev. Trim +35

FINAL AND LANDING – FUEL LOAD 50%

Parking Brake	VERIFY OFF	
Wing Flaps: Full Down at ...	95 KIAS	175 KMH
Elevator Trim	+55	
Final Approach Airspeed	87 KIAS	160 KMH
Throttles during final	Keep ~ -3.5 PSI BOOST	
Throttles over runway	1,800 RPM – Idle only after touchdown!	
Touchdown Airspeed	80 KIAS	150 KMH
<i>Stall Speed Clean</i>	<i>67 KIAS</i>	<i>125 KMH</i>
<i>Stall Speed All Down</i>	<i>61 KIAS</i>	<i>113 KMH</i>

AFTER LANDING - TAXI

Wing Flaps	UP AND NEUTRAL
Pitot Heat	OFF
Trim Tabs	NEUTRAL

ENGINE SHUT-DOWN

Parking Brake	APPLY
Landing Lights	OFF
Instruments Power Switch	OFF
Throttles	IDLE
Propeller Controls	LOW RPM
Mixtures	IDLE CUT-OFF
Magnetos × 3	OFF AFTER ENGINES STOP
Beacon	OFF
Navigation Lights	OFF
Instrument Panel Lights	OFF
Generators × 3	OFF
Master Battery Switch	OFF
















AIRCRAFT CHECKLIST

233 de Havilland DH-89 'Dragon Rapide'









AIRCRAFT BASIC SPECS

Engines n° and type	2 Prop-Piston-Fixed
MTOW	5,500 lb
Fuel usable capacity	91 gl Tanks: Left main, Right Main
Range	565 ml, 4h 50'
T.off runway length	2,500 ft

BEFORE STARTING

 Parking Brake	SET
 Master Battery Switch	ON (this is labelled "GROUND/FLIGHT")
 Generator	ON (only left engine 1 has a generator)
 Battery Discharge Light	ON
 Nav Lights	AS REQUIRED
 Magnetos	OFF
 Pitot Heat	COLD (off)
 Carburettor Heat	COLD (off=green and orange buttons)
 Fuel Gauges/Quantity	CHECK FOR EACH TANK
 Fuel Selector	ON
 Throttles	CRACKED (min)
 Mixtures	IDLE CUTOFF (up!)
 Trim Tabs	NEUTRAL
 Flight Controls	FREE/Full travel
 Instrument Panel Lights	AS REQUIRED

STARTING - for each engine (CTRL+E for autostart sequence)

 Mixture	FULL RICH (down!)
 Magnetos	BOTH
 Starter Switch	ENGAGE
 Starter Light	ON then OFF
 Oil Pressure	CHECK > 30 in <30 sec.
 Oil Temperature	CHECK between 20° and 100°
 Vacuum Pressure	CHECK > 4
 Battery Discharge Light	OFF

WARM UP AND TAXI

Gyro / Heading
 Altimeter
 Flight Instruments
 Brakes
 Parking Brake
 Throttles (for testing)
 Temperatures & Pressures
 Battery Discharge Light
 Magnetos: Maximum Drops
 Carburettor Heat
 Throttles (for warm up)
 Oil Pressure lamps
 Wing Flaps
 Landing Lights
 Taxi Throttle f. steady Speed
 Taxi Turns for taildragger
 Taxi Turns: Gyro
 & Turn Coordinator

CALIBRATE
CALIBRATE
CHECK
CHECK (disengages parking brakes!)
APPLY
1,400 RPM
CHECK
OFF
ON EACH 100 PM, BETW. MAGN. 40 RPM
CHECK RPM DROP THEN BACK TO OFF
20% (not idle)
OFF
UP, FULL DOWN, VISUAL CHECK, UP
ON (no Taxi lights)
<1,300 RPM - 20 MPH
TAILWHEEL BETTER THAN DIFF.BRAKES
CHECK

PRE-TAKEOFF

Throttle	IDLE
Mixtures	FULL RICH (down)
Trim Tabs	NEUTRAL
Wing Flaps	UP
Pitot Heat	ON

TAKEOFF (sea level or low altitude) – FUEL TANKS FULL

Brakes (parking or pedal)	RELEASE
Throttles	Full => 2,150 RPM
Tail Up / Nose Down (ave.)	55 KIAS
Rotate (ave.)	70 MPH
Airspeed (airborne)	80 MPH
Landing Lights	OFF

CLIMB (once clear of obstacles)

Throttles	KEEP FULL (2,200-2,300 RPM)
Elevator Trim (ave.)	-09
Airspeed	105 MPH
Climb (Vertical Speed)	+950 FPM
Temperatures & Pressures	CHECK
Mixtures: Lean as follows	2,000 FT 65% 4,000 FT 55% 6,000 FT 50% 8,000 FT 44% 10,000 FT 38% 12,000 FT 32%

CRUISE

Typical Altitude	9,500 FT
Gyro / Heading	CHECK / CALIBRATE
Altimeter	SET / CALIBRATE
Throttles	90%=>2,350 RPM
Mixtures	39%
Elevator Trim	-15
Cruise Airspeed	118 MPH
<i>Fuel Consumption @ 50% fuel</i>	<i>0.171 GPML, 19 GPH</i>
<i>Max Level Airspeed</i>	<i>150 MPH</i>
<i>Never Exceed Airspeed</i>	<i>175 MPH</i>
<i>Service Ceiling</i>	<i>19,500 FT (LEAN 20%)</i>


DESCENT – FUEL LOAD 50%

Gyro / Heading	CHECK / CALIBRATE
Altimeter	SET / CALIBRATE
Fuel Quantity	CHECK
Carburettor Heat	ON (green and orange buttons down)
Throttles	1,350 RPM
Mixtures	ENRICH AS NECESSARY
Elevator Trim	-05
Airspeed	95 MPH
Descent Rate (Vert. Speed)	-700 FPM







GLIDE WITH ALL ENGINES OUT (optimal glide ratio)

Elevator Trim	0
Airspeed	90 MPH
Descent Rate (Vert. Speed)	-800 FPM
Glide Ratio	1 : 10


APPROACH

 Landing Lights	ON
 Throttles	Typically 1,400 RPM
 Mixtures	FULL RICH











FINAL AND LANDING

Parking Brake	VERIFY OFF
 Wing Flaps: Down at ...	85 KIAS
 Elevator Trim	+13
 Final Approach Airspeed	70 MPH
 Throttles (idle on touchdown)	1,450 RPM
 Carburettor Heat	OFF
 Touchdown Airspeed	70 MPH
<i>Stall Speed Clean</i>	<i>60 MPH</i>
<i>Stall Speed All Down</i>	<i>55 MPH</i>

AFTER LANDING - TAXI

 Wing Flaps	UP AND NEUTRAL
 Trim Tabs	NEUTRAL

ENGINE SHUT-DOWN

 Parking Brake	APPLY
 Landing Lights	OFF
 Throttles	IDLE
 Mixtures	IDLE CUT-OFF
 Magnetos	OFF AFTER ENGINES STOP
 Fuel Selector	SHUTOFF
 Navigation Lights	OFF
 Instrument Panel Lights	OFF
 Generator	OFF
 Master Battery Switch	OFF

AIRCRAFT CHECKLIST 234 Douglas DC-3 'Dakota'

Values valid for Cloudy's flight dynamics
with Automixture throttle quadrant


























Values for the default dynamics, whenever they are different,
are printed in grey

Note: the Propeller De-ice and separate Carburettor Heats are simultaneously controlled by the G13 De-Ice.

AIRCRAFT BASIC SPECS

Engines n° and type	2 Prop-Piston-Variable
MTOW	25,200 lb
Fuel usable capacity	606 gl Tanks: Left Main, Centre 1, Right Main
Range	1,845 nm, 14h 10'
T.off runway length	2,000 ft

BEFORE STARTING

 Parking Brake	SET
 Master Battery Switch	ON
 Landing Gear	HANDLE DOWN+LOCKED(GREEN LIGHTS)
 Generators	ON
 Volt / Amp / Light	VOLT LIGHT ON
 Radio/Avionics Master	OFF
 Nav Lights	AS REQUIRED
 Master Ignition Switch	OFF
 Magnetos / Ignition	OFF
 Pitot Heat	OFF
 Propeller De-ice & Carb. Heat	OFF (switch down & both blue levers up)
 Fuel Gauges/Quantity	CHECK
 Fuel Selectors	LEFT / RIGHT
 Hydraulic Pressure	CHECK
 Throttles	CRACKED (min)
 Propeller Control	HIGH RPM
 Mixtures	IDLE CUTOFF
 Trim Tabs	NEUTRAL
 Cowl Flaps	OPEN
 Engine Rest Man.Pressure	NOTED (mostly 30" Hg)
 Flight Controls	FREE/Full travel
 Instrument Panel Lights	AS REQUIRED
 Fuel Boost Pumps	OFF
 Master Ignition Switch	ON
 Beacon (includes Strobe)	ON

STARTING - for each engine (CTRL+E for autostart sequence)

Propeller Control	HIGH RPM
Mixture	FULL RICH
Throttle	CRACKED
Fuel Boost Pump	ON
Magnetos	BOTH
Prime	AS REQUIRED
Starter Switch	ENGAGE
Oil Pressure	CHECK OK in <30 sec.
Fuel Pressure	CHECK
Fuel Boost Pump	OFF
Fuel Pressure	CHECK
Oil Temperature	CHECK
Vacuum Press. / Suction	CHECK
Hydraulic Pressure	CHECK
Generators: Volt/Amp/Light	VOLT LIGHT OFF

WARM UP AND TAXI

FS: Select Engines	ALL
Fuel Selectors	SWITCH TANKS & CHECK
Temperatures & Pressures	CHECK
Gear and Hydraulic Pressure	CHECK
Fuel Boost Pumps	CHECK OFF
Tail Wheel or Skid	UNLOCKED FOR TAXI
Gyro / Heading	CALIBRATE
Altimeter	CALIBRATE
Flight Instruments	CHECK
Brakes	CHECK (disengages parking brakes!)
Parking Brake	APPLY
Throttles (for testing)	1,500 RPM
Temperatures & Pressures	CHECK (RED LIGHTS OFF)
Propellers	EXERCISE (2-3 times, no more than 400RPM drop)
Generators: Volt/Amp/Light	VOLT LIGHT OFF
Magnetos: Maximum Drops	ON EACH 100 PM, BETW. MAGN. 40 RPM
Propeller De-ice & Carb. Heat	CHECK RPM DROP THEN BACK TO OFF
Throttles (for warm up)	IDLE ~ 1,000 RPM
Propeller De-ice & Carb. Heat	AS REQUIRED
Radio/Avionics Master	ON
Radios	SET AS PER FLIGHT PLAN
Autopilot	SET AND OFF
Wing Flaps	UP, FULL DOWN, VISUAL CHECK, UP
Landing Lights	ON (no Taxi lights)
Taxi Throttle f. steady Speed	12.5" 15" Hg MAN.PRES. - 16 KIAS
Taxi Turns for taildraggers	USE DIFF.BRAKES ONLY
Taxi Turns: Gyro& Turn Co.	CHECK

PRE-TAKEOFF

Throttle	IDLE
Propeller Control	HIGH RPM
Mixtures	AUTO RICH FULL RICH
Trim Tabs	NEUTRAL
Wing Flaps	SET: normally 1/4=11°
Cowl Flaps	OPEN HALFWAY
Fuel Boost Pumps	ON
Pitot Heat	ON
Tailwheel	LOCKED











TAKEOFF (sea level or low altitude)

Brakes (parking or pedal)	RELEASE
Throttles	Full => 48" Hg MAN.PRES.
Propeller Control	High => 2,700 RPM
Tail Up / Nose Down (ave.)	55 KIAS
Rotate (ave.)	85 KIAS
Landing Gear (once positive climb)	RETRACT
Airspeed (airborne & gear up)	105 KIAS
Landing Lights	OFF

CLIMB (once clear of obstacles)

Landing Gear	VERIFY UP - LATCHED (RED LIGHT ON)
Wing Flaps	RETRACT AND VERIFY
Throttles	36" Hg MAN.PRES.
Propeller Control	2,350 RPM
Fuel Boost Pumps	OFF (one at a time)
Elevator Trim (ave.)	+07
Airspeed	115 KIAS
Climb (Vertical Speed)	+600 +500 FPM
Temperatures & Pressures	CHECK
Mixtures	AUTO RICH Lean at 3,000 FT to 60%, at 6,000 FT to 50%






CRUISE

	Typical Altitude
	Gyro / Heading
	Altimeter
	Throttles
	Propeller Control
	Mixtures
	Elevator Trim
	Cowl Flaps
	Propeller De-ice & Carb. Heat
	Cruise Airspeed
	<i>Fuel Consumption @ 50% fuel</i>
	<i>Max Level Airspeed</i>
	<i>Never Exceed Airspeed</i>
	<i>Service Ceiling</i>

Economic for Cloudy's dynamics with auto mixture,
Standard for default dynamics and normal panel






10,000 FT
CHECK / CALIBRATE
SET / CALIBRATE
31.5" 28" Hg MAN.PRES.
2,200 2,050 RPM
AUTO LEAN LEAN 36%
-07 -10
CLOSE
AS REQUIRED
130 135 KIAS
0.332 GPM, 43.2 GPH
170 KIAS
230 KIAS
24,000 FT

DESCENT

	Radios
	Gyro / Heading
	Altimeter
	Fuel Quantity
	Fuel Selectors
	Hydraulic Pressure
	Propeller De-ice & Carb. Heat
	Throttles
	Propeller Control
	Mixtures
	Elevator Trim
	Airspeed
	Descent Rate (Vert. Speed)
	Tail Wheel
	Wing Flaps (initial)

CHECK FOR ATIS/AIRPORT INFORMATION
CHECK / CALIBRATE
SET / CALIBRATE
CHECK
LEFT / RIGHT
CHECK
ON (switch up & both blue levers down)
Typically 20" Hg MAN.PRES.
2,050 RPM
AUTO RICH ENRICH AS NECESSARY
-10
134 KIAS
-500 FPM
LOCKED
1/4=11°

GLIDE WITH ALL ENGINES OUT (optimal glide ratio)










	Propeller Control	FEATHERED
	Elevator Trim	+37
	Airspeed	94 100 KIAS
	Descent Rate (Vert. Speed)	-800 -740 FPM
	Glide Ratio	1 : 14

APPROACH

 Radios
 Landing Gear
 Gear Lock / Lights
 Autopilot
 Landing Lights
 Propeller Control
 Mixtures
 Elevator Trim
 Fuel Boost Pumps
 Cowl Flaps
 Wing Flaps (intermediate)

SET FOR APPROACH
DOWN
 LOCKED
AS DESIRED
ON
 2,050 RPM
AUTO RICH FULL RICH
+10
ON
OPEN HALFWAY
1/2=23° AT 110 KIAS
3/4=34° AT 100 KIAS

FINAL AND LANDING

 Parking Brake
 Wing Flaps: Full Down at ...
 Propeller Control
 Elevator Trim
 Final Approach Airspeed
 Autopilot
 Throttles (idle on touchdown)
 Propeller De-ice & Carb. Heat
 Touchdown Airspeed
Stall Speed Clean
Stall Speed All Down















VERIFY OFF
95 KIAS
 HIGH RPM
+20
90 KIAS
OFF
Typically 20" Hg MAN.PRES.
OFF (switch down & both blue levers up)
75 85 KIAS
65 70 KIAS
60 62 KIAS

AFTER LANDING - TAXI

 Tail Wheel
 Wing Flaps
 Cowl Flaps
 Pitot Heat
 Fuel Boost Pumps
 Trim Tabs

UNLOCKED FOR TAXI
UP AND NEUTRAL
OPEN
OFF
OFF
NEUTRAL

ENGINE SHUT-DOWN

	Parking Brake	APPLY
	Landing Lights	OFF
	Radio/Avionics Master	OFF
	Throttles	IDLE
	Propeller Control	LOW RPM
	Mixtures	IDLE CUT-OFF
	Magnetos	OFF AFTER ENGINES STOP
	Master Ignition Switch	OFF
	Fuel Selectors	OFF
	Beacon (includes Strobe)	OFF
	Navigation Lights	OFF
	Instrument Panel Lights	OFF
	Generators	OFF
	Master Battery Switch	OFF

AIRCRAFT CHECKLIST

235 PBY-5A 'Catalina'

amphibian. Also PBY-5 seaplane, with no gear.



BASIC SPECS

Engines n° and type
MTOW
Fuel usable capacity
Range
T.off runway length
Special features

LAND OPERATION | WATER OPERATION










2 Prop-Piston-Variable
35,000 lb
1,750 gl Tanks: Left Main, Right Main
2,500 nm, 21h 20'
1,250 ft | 1,850 ft
- retractable gear for land operation in model -5A
- wingtip floats for water operation (w/spoiler button)
- no flaps; short takeoff anyway

BEFORE STARTING

 Landing Gear
 Parking Brake
 Master Battery Switch
 Alternators
 Volt / Amp
 Radio/Avionics Master
 Nav Lights
 Magnetos
 Pitot Heat
 Propeller De-ice
 Fuel Gauges/Quantity
 Fuel Selector
 Throttles
 Propeller Controls
 Mixtures
 Trim Tabs
 Cowl Flaps
 Engine Rest Man.Pressure
 Flight Controls
 Instrument Panel Lights
 Wing Floats

DOWN (LIGHTS GREEN) | UP (LIGHTS RED)
SET | OFF
ON
ON
AMPS and VOLTS
OFF
AS REQUIRED
OFF
OFF
OFF
CHECK
BOTH
CRACKED (min)
HIGH RPM (both)
IDLE CUTOFF
NEUTRAL
OPEN
NOTED (mostly 29" Hg)
FREE/Full travel
AS REQUIRED
UP (LIGHT OFF) | DOWN (LIGHT ON)

STARTING - for each engine (CTRL+E for autostart sequence)

 Propeller Control HIGH RPM
 Mixture FULL RICH
 Throttle CRACKED
 Magnetos BOTH
 Starter Switch ENGAGE
 Oil Pressure CHECK >20 in <30 sec.
 Manifold Pressure CHECK ~ 10
 Vacuum Press. / Suction CHECK 3.7-5.2
 Alternators: Volt/Amp AMPS and V OLT

WARM UP AND TAXI

 FS: Select Engines
 Fuel Selector
 Temperatures & Pressures
 Gyro / Heading
 Altimeter
 Flight Instruments
 Brakes
 Parking Brake
 Throttles (for testing)
 Temperatures & Pressures
 Propellers
 Alternators: Volt/Amp
 Magnetos: Maximum Drops
 Throttles (for warm up)
 Propeller De-ice
 Radio/Avionics Master
 Radios
 Autopilot
 Landing Lights
 Taxi Throttle and Speed
 Gyro & Turn Co. dur. Taxi










ALL
SWITCH TANKS, CHECK, RESELECT BOTH
CHECK
CALIBRATE
CALIBRATE
CHECK
CHECK (disengages parking brakes)
APPLY
1,700 RPM
CHECK
EXERCISE TWICE (no more than 400RPM drop)
AMPS and VOLTS
ON EACH 100 PM, BETW. MAGN. 40 RPM
1,000 RPM * (slightly above IDLE)
AS REQUIRED
ON
SET AS PER FLIGHT PLAN
SET AND OFF
ON (there are no Taxi lights)
1,200 RPM - 16 KIAS | **1,850 RPM - 20 KIAS**
CHECK

PRE-TAKEOFF

 Gear Lights
 Wing Floats
 Throttle
 Propeller Controls
 Mixtures
 Trim Tabs
 Cowl Flaps
 Pitot Heat

DOWN GREEN | **UP RED**
UP (LIGHT OFF) | **DOWN (LIGHT ON)**
IDLE
HIGH RPM
FULL RICH
NEUTRAL
OPEN *
ON

TAKEOFF (sea level or low altitude)

 Brakes (parking or pedal)
 Throttles
 Propeller Controls
 Decision (V1)
 Rotate (ave.)
 Landing Gear (w/posit.climb)
 Wing Floats
 Airspeed (airborne & gear up)
 Landing Lights

RELEASE | **OFF**
Smoothly to Full => 48" Hg MAN.PRES. *
HIGH RPM => 2,700 RPM *
65 KIAS | **70 KIAS**
70 KIAS * | **75 KIAS**
RETRACT (LIGHTS RED)
 | **UP (LIGHT OFF)**
105 KIAS
OFF

CLIMB (once clear of obstacles)

Landing Gear | Wing Floats

Throttles

Propeller Controls

Elevator Trim (ave.)

Airspeed

Climb (Vertical Speed)

Temperatures & Pressures

Mixtures

LATCHED (LIGHTS RED) | UP (LIGHT OFF)

3/4 = 40" Hg MAN.PRES. (42" *)

2,500 RPM

+02

100 KIAS (83 *)

+1,100 FPM (+650 *)

CHECK

Lean above 2,000 FT

CRUISE

Typical Altitude

Gyro / Heading

Altimeter

Throttles

Propeller Controls

Mixtures

Elevator Trim

Cowl Flaps

Propeller De-ice

Cruise Airspeed

Fuel Consumption @ 50% fuel

Max Level Airspeed

Never Exceed / Service Ceiling

NORMAL

6,000 FT

CHECK / CALIBRATE

SET / CALIBRATE

31.5" Hg MAN.PRES. *

1,850 RPM *

48%

-12

CLOSE

AS REQUIRED (slows down 3 KIAS)

119 KIAS (118)

0.703 GPM, 83.6 GPH

160 KIAS (157)

190 KIAS / 18,000 FT

LOW WATER**600 FT****FULL RICH**

(grey = PBY-5 with no gear)

DESCENT@ 25,600 lb

Radios

Gyro / Heading

Altimeter

Fuel Quantity

Fuel Selector

Pitot Heat

Throttles

Propeller Controls

Mixtures

Elevator Trim

Airspeed

Descent Rate (Vert. Speed)

= 40% fuel

CHECK FOR ATIS/AIRPORT INFORMATION**CHECK / CALIBRATE****SET / CALIBRATE****CHECK****BOTH, OR FULLER TANK****ON****Typically 20" Hg MAN.PRES.****2,000 RPM****ENRICH AS NECESSARY****-12 (very sensitive)****112 KIAS****-550 FPM****GLIDE WITH ALL ENGINES OUT** (optimal glide ratio)

Propeller Controls

Elevator Trim

Airspeed

Descent Rate (Vert. Speed)

Glide Ratio

FEATHERED**+24 +28****80 KIAS****-780 FPM -800 FPM****1 : 10**

APPROACH @ 25,600 lb

= 40% fuel

- Radios
- Landing Gear
- Wing Floats
- Autopilot
- Throttles
- Propeller Controls
- Mixtures
- Elevator Trim
- Airspeed
- Cowl Flaps
- Landing Lights

SET FOR APPROACH

DOWN (LIGHTS GREEN) | **UP (LIGHTS RED)**
UP (LIGHT OFF) | **DOWN (LIGHT ON)**

AS DESIRED \ ▶ either Gear or Floats slow KIAS 10%!

Typically 20" Hg MAN.PRES.

2,100 RPM

FULL RICH

-01

99 KIAS

OPEN HALFWAY

ON

FINAL AND LANDING

- Parking Brake
- Propeller Controls
- Elevator Trim
- Final Approach Airspeed
- Autopilot
- Throttles (idle on touchdown)
- Touchdown Airspeed
- Stall Speed*

VERIFY OFF

HIGH RPM => 2,700 RPM

+28

78 KIAS

OFF

11" Hg MAN.PRES. or IDLE

65-70 KIAS

45 KIAS

AFTER LANDING - TAXI

- Cowl Flaps **OPEN**
- Pitot Heat **OFF**
- Propeller De-ice **OFF**
- Trim Tabs **NEUTRAL**

ENGINE SHUT-DOWN

- Parking Brake **APPLY**
- Wing Floats **UP (LIGHT OFF)** | **DOWN (LIGHT ON)**
- Landing Lights **OFF**
- Radio/Avionics Master **OFF**

For every engine:

- Throttles **IDLE**
- Propeller Controls **LOW RPM**
- Mixtures **IDLE CUT-OFF**
- Magnetos **OFF AFTER ENGINES STOP**
- Alternator **OFF**
- Navigation Lights **OFF**
- Instrument Panel Lights **OFF**
- Fuel Selector **OFF**
- Master Battery Switch **OFF**


AIRCRAFT CHECKLIST 236 Short S.30 Empire LR

AIRCRAFT BASIC SPECS

(with 75% fuel load)

Engines n° and type	4 Prop-Piston-Variable
MTOW	48,000 lb
Fuel usable capacity	2,088 gl (see Notes after the Glide section)
Range	1,900 ml, 11h 20'

BEFORE STARTING

Battery and Generators	ON
Fuel Gauges/Quantity	CHECK
 Fuel Valves	ON
Throttles	CRACKED (min)
Propeller Controls	HIGH RPM
Mixtures	IDLE CUTOFF
Trim Tabs	NEUTRAL
Cowl Flaps	OPEN
Flight Controls	FREE/Full travel
Nav and Panel Lights	AS REQUIRED

STARTING - for each engine (CTRL+E for autostart sequence)

Propeller Control	HIGH RPM
Mixture	FULL RICH
Throttle	CRACKED
Magnetos	BOTH
Starter Switch	ENGAGE
Oil Pressure	CHECK OK in <30 sec.
Oil and CHT Temperature	CHECK

WARM UP AND TAXI

FS: Select Engines	ALL
Temperatures & Pressures	CHECK
Gyro / Heading	CALIBRATE
Altimeter	CALIBRATE
Flight Instruments	CHECK
Throttles (for testing)	1,300 RPM
Temperatures & Pressures	CHECK
Propellers	EXERCISE (2-3 times, no more than 400RPM drop)
Magnetos: Maximum Drops	ON EACH 100 PM, BETW. MAGN. 40 RPM
Throttles (for warm up)	900 RPM
Radios	SET AS PER FLIGHT PLAN
Autopilot	SET AND OFF
Wing Flaps	UP, FULL DOWN, VISUAL CHECK, UP
Taxi Lights	ON
Taxi Throttle f. steady Speed	Reduce Boost to 0 (30 KIAS)

PRE-TAKEOFF

Throttles	IDLE
Propeller Controls	HIGH RPM
Mixtures	FULL RICH
Elevator Trim	+15
Wing Flaps	20° = 1/4
Cowl Flaps	OPEN HALFWAY
Landing Lights	ON

TAKEOFF (sea level or low altitude)

Throttles	Full => Boost +5.5 PSI
Propeller Control	High => 2,300 RPM
Level Wings	70 MPH
Rotate	115 MPH
Airspeed (airborne)	130 MPH
Landing and Taxi Lights	OFF

CLIMB (once clear of obstacles)

Wing Flaps	RETRACT AND VERIFY
Throttles	Boost +3.0 PSI
Propeller Control	2,350 RPM
Elevator Trim (ave.)	+17 (precise!)
Airspeed	130 MPH
Climb (Vertical Speed)	+600 FPM
Temperatures & Pressures	CHECK
Mixtures	Lean at 3,000 FT to "X", at 6,000 FT to "T"

CRUISE

	Economic	Fast
Typical Altitude	8,000 FT (cabine not pressurised!)	
Gyro / Heading	CHECK / CALIBRATE	
Altimeter	SET / CALIBRATE	
Throttles	Boost 0 PSI	2 PSI
Propeller Control	2,350 RPM.	
	Reduce as fuel burns off to keep speed constant,	
	Lean between "T" and "U"	
Mixtures		
Elevator Trim	+04	+01
Cowl Flaps	CLOSE	
Cruise Airspeed	160 MPH	180 MPH
<i>Fuel Consumption @ 50% fuel</i>	<i>1.05 GPML, 168 GPH</i>	
<i>Max Level Airspeed</i>	<i>192 MPH</i>	
<i>Never Exceed Airspeed</i>	<i>280 MPH</i>	
<i>Service Ceiling</i>	<i>20,000 FT</i>	

DESCENT

Radios
Gyro / Heading
Altimeter
Fuel Quantity
Throttles
Propeller Control
Mixtures
Elevator Trim
Airspeed
Descent Rate (Vert. Speed)
Wing Flaps (initial)

CHECK FOR ATIS/AIRPORT INFORMATION
CHECK / CALIBRATE
SET / CALIBRATE
CHECK
Boost -3 PSI
2,000 RPM
ENRICH AS NECESSARY
0
160 MPH
-1,000 FPM
20°=1/4

ENGINE FAILURE

Throttle
Feather the engine
Magnetos
Test other engines

=> FS2004: Select failed engine **n** by pressing **E n**
IDLE
Press red button
OFF
Select the other engines (E n m p) and check throttles

GLIDE WITH ALL ENGINES OUT (optimal glide ratio)

Feather the engines
Elevator Trim
Airspeed
Descent Rate (Vert. Speed)
Glide Ratio

Press red buttons
+08
125 MPH
-800 FPM
1 : 14

NOTE ON ORIGINAL PANEL: Some original gauges have been omitted in the Cloudy panel, simply because they are inoperative in this FS model, viz. the RAD temp. and the Pitot Heat.

NOTE ON FUEL: There are six fuel tanks. The FS model first uses fuel from the tanks shown in **bold type** below, until they are empty. Only then FS uses the other tanks.

Left Aux. Left Main Center 1 **Center 2** Right Main **Right Aux.**

APPROACH

Radios	SET FOR APPROACH
Autopilot	OFF
Landing and Taxi Lights	ON
Propeller Control	2,000 RPM
Mixtures	FULL RICH
Elevator Trim	+10
Cowl Flaps	OPEN HALFWAY
Wing Flaps (intermediate)	40°=1/2 AT 145 MPH
	60°=3/4 AT 130 MPH


FINAL AND LANDING

Wing Flaps: Full Down at ...	120 MPH
Propeller Control	HIGH RPM
Elevator Trim	+25
Final Approach Airspeed	100 KIAS
Throttles (idle on touchdown)	Boost -4 PSI (not less!) => 1,800 RPM
Touchdown Airspeed	90 MPH
<i>Stall Speed Clean</i>	<i>85 MPH</i>
<i>Stall Speed All Down</i>	<i>72 MPH</i>

AFTER LANDING - TAXI

Landing Lights	OFF
Wing Flaps	UP AND NEUTRAL
Cowl Flaps	OPEN
Trim Tabs	NEUTRAL

ENGINE SHUT-DOWN

Taxi Lights	OFF
Throttles	IDLE
Propeller Control	LOW RPM
Mixtures	IDLE CUT-OFF
Magnetos	OFF AFTER ENGINES STOP
 Fuel Valves	OFF
Navigation Lights	OFF
Instrument Panel Lights	OFF
Generators	OFF
Master Battery Switch	OFF

AIRCRAFT CHECKLIST

Values valid for the Aerosoft model

BASIC SPECS

Engines n° and type

MTOW

Fuel usable capacity

Range

Range, economic cruise

T.off runway length

Special features: Flaps

BEFORE STARTING

 **Landing Gear**

 **Water Rudder**

 **Parking Brake**

 **Tail Wheel**

 Master Battery Switch

 Pitot Heat

 Carburettor Heat (L/R)

 Boost Pumps (L/R)

 Generators (L/R)

 Radio/Avionics Master


 Navigation Lights


 Instrument Panel Lights

 Landing Lights

 Beacon

 Taxi Lights

 Fuel Pumps (L/R)


 Magnetos / Ignition (L/R)

 Fuel Selectors (L/R)

 Oil Tank Shutters (L/R)

 Throttles

 Propeller Controls

 Mixtures

 Trim Tabs

 Engine Rest Man.Pressure

 Flight Controls

 Master Battery Switch

 Fuel Gauges/Quantity

 Cowl Flaps

 Navigation Lights

 Beacon

237 Beechcraft D18S

* = Aerosoft checklists or .cfg

Wheels

Floats

2 Prop-Piston-Variable

9,800 lb

229 gl Tanks: Left Main, Centre (Nose), Right Main

1,000 nm, 5h 20'

810 nm, 5h 10'

1,160 nm, 6h 50'

2,000 ft

- continuous: 4 gauge marks and ° mousetips:

0/3=0° , 1/3=10° , 2/3 = 21° , 3/3=30°

DOWN

DOWN

SET

LOCKED

OFF

OFF

OFF - **slaved to MH handles: use mouse, not G13!**

OFF

OFF

OFF

OFF

OFF

OFF

OFF

OFF

OFF

OFF

LEFT / RIGHT

ON (**RED**: pulled to shut down tanks for safety)

CRACKED (min)

HIGH RPM

IDLE CUTOFF

NEUTRAL

NOTED (mostly 30" Hg)

FREE/Full travel

ON

CHECK

OPEN (need electricity)

ON

ON

STARTING - for each engine (CTRL+E for autostart sequence)

Propeller Control	HIGH RPM
Mixture	FULL RICH
Throttle	CRACKED
Oil Tank Shutter	OFF (RED : push allowing oil into engines)
Oil Cooler Bypass	ON (GREY : pull to bypass the oil cooler)
Boost Pump	OFF
Fuel Pump	ON
Fuel Pressure	CHECK GREEN LINE & LAMP OFF
Magnetos	BOTH
Starter Switch	ENGAGE
Oil Pressure & Temperature	CHECK OK in <30 sec. & LAMP OFF
Fuel Pressure	CHECK
Suction	CHECK > 4
Generator	ON
Generator: Volt/Amp	VOLT & AMP UP

WARM UP AND TAXI

Boost Pumps (L/R)	ON
Fuel Selectors (L/R)	SWITCH TANKS & CHECK
Boost Pumps (L/R)	OFF
Gyro / Heading	CALIBRATE
Altimeter	CALIBRATE
Flight Instruments	CHECK
Brakes	CHECK (disengages parking brakes!)
Parking Brake	SET
Throttles (for testing)	1,700 RPM 1,500 RPM
Temperatures & Pressures	CHECK
Propellers	EXERCISE TWICE - MAX 600 RPM DROP
Magnetos: Maximum Drops	ON EACH 100 RPM, BETW. MAGN. 40 RPM
Pitot Heat	CHECK MIN RPM DROP THEN BACK OFF
Carburettor Heat (L/R)	CHECK 100 RPM DROP THEN BACK TO OFF
Throttles (for warm up)	1,100 RPM
Radio/Avionics Master	ON
Radios	SET AS PER FLIGHT PLAN- DME=NAV1 only!
Autopilot	SET AND OFF (*)
Wing Flaps	UP, FULL DOWN, VISUAL CHECK, UP
Tail Wheel	UNLOCK
Taxi Lights	ON
Taxi Throttle and Speed	930 RPM - 16 KIAS 1,300 RPM - 18 KIAS
Taxi Turns: Gyro& Turn Co.	CHECK

(*) When turned ON, HDG is also ON, all other functions are OFF. FD and YD are not installed.

PRE-TAKEOFF

Throttle	IDLE
Propellers	HIGH RPM
Mixtures	FULL RICH
Trim Tabs	NEUTRAL
Wing Flaps	SET: normally 1/3=10° - short rwy 13° or 17°
Cowl Flaps	OPEN HALFWAY
Oil Tank Shutters (L/R)	OFF (RED : pushed allowing oil into engines)
Oil Cooler (*) Bypass (L/R)	OFF (GREY: pushed to let oil through cooler)
Boost Pumps (L/R)	ON
Pitot Heat	ON
Taxi Lights	OFF
Landing Lights	ON
Landing Gear	DOWN (LIGHT GREEN)
Water Rudder	UP (LIGHT OFF)
Tail Wheel	UNLOCKED (should lock but the model has issues)
Parking Brake	SET

(*) Fine-tuned by the OS quadrant levers. Unfortunately they are ineffective in this model.














TAKEOFF (sea level or low altitude)

Throttles	Smoothly to 70% => 35" Hg MAN.PRES.
Propellers	HIGH RPM => 2,300 RPM
Parking Brake	RELEASE
Tail Up / Nose Down (ave.)	68 KIAS
Rotate (ave.)	90 KIAS 100 KIAS
Landing Gear (w/pos.climb)	RETRACT (LIGHTS RED)
Airspeed (airborne & gear up)	110 KIAS
Landing Lights	OFF

CLIMB (once clear of obstacles)

Landing Gear	UP & LATCHED (LIGHTS RED)
Wing Flaps	RETRACT AND VERIFY
Throttles	32" Hg MAN.PRES.
Propellers	2,200 RPM
Elevator Trim (ave.)	+15 to +17 ~NEUTRAL
Rudder Trim	RIGHT 1-2
Airspeed	~115 KIAS
Climb (Vertical Speed)	+1,500 FPM +1,000 FPM
Temperatures & Pressures	CHECK
Mixtures	Follow the FS quadrant scale
Boost Pumps (L/R)	OFF (one at a time) AFTER INITIAL CLIMB















CRUISE

	Typical Altitude
	Gyro / Heading
	Altimeter
	Throttles
	Propellers
	Mixtures
	Elevator Trim
	Rudder Trim
	Cowl Flaps
	Oil Cooler Bypass (L/R)
	Carburettor Temperature
	Carburettor Heat (L/R)
	Cruise Airspeed
<i>Fuel Consumption @ 50% fuel</i>	
<i>Max Level Airspeed (Cruis.Alt.)</i>	
<i>Never Exceed Airspeed</i>	
<i>Service Ceiling</i>	

Econ. Wheels | **Std. Wheels** | **Floats**

10,000 FT		8,000 FT
CHECK / CALIBRATE		
SET / CALIBRATE		
26" 30" Hg MAN.PRES.		32" Hg MAN.PRES.
3/4 => 2,050 2,150 RPM		7/8 => 2,200 RPM
38%		44%
-15 -21		-11
NEUTRAL		
CLOSE		
ON (GREY: pulled to bypass the oil cooler)		
CHECK		
AS REQUIRED TO AVOID ICING		
169 187 KIAS		157 KIAS
0.198 0.231 GPM		0.283 GPM
33.4 42.9 GPH		44.4 GPH
193 KIAS		164 KIAS
205 KIAS		
23,000 FT		18,000 KIAS

DESCENT @ 50% fuel















	Radios
	Gyro / Heading
	Altimeter
	Fuel Quantity
	Fuel Selectors
	Pitot Heat
	Carburettor Heat (L/R)
	Wing Flaps (initial)
	Throttles
	Propellers
	Mixtures
	Elevator Trim
	Airspeed
	Descent Rate (Vert. Speed)

CHECK FOR ATIS/AIRPORT INFORMATION	
CHECK / CALIBRATE	
SET / CALIBRATE	
CHECK	
LEFT / RIGHT (or NOSE to compensate)	
ON	
ON	
1/3=10°	
Typically ~21" Hg MAN.PRES.	
3/4 => 2,000 RPM	
ENRICH AS NECESSARY	
-18	-03
~153 KIAS	~127 KIAS
-700 FPM	












GLIDE WITH ALL ENGINES OUT (optimal glide ratio)

	Propellers (L/R)	FEATHERED	
	Elevator Trim	-06	+04
	Airspeed	103 KIAS	75 KIAS
	Descent Rate (Vert. Speed)	-1,000 FPM	
	Glide Ratio	1 : 10	1:7.5











APPROACH @ 50% fuel

 Radios	SET FOR APPROACH
 Landing Gear (slows 10kt)	DOWN (LIGHTS GREEN) below 125 KIAS
 Tail Wheel	LOCKED (except with Crosswind!)
 Wing Flaps (intermediate)	2/3=21° AT < 140 KIAS
 Autopilot	AS DESIRED
 Boost Pumps	ON
 Oil Cooler Bypass (L/R)	OFF (GREY: pushed to let oil through cooler)
 Cowl Flaps	OPEN HALFWAY
 Throttles	20" Hg MAN.PRES.
 Propellers	HIGH RPM
 Mixtures	FULL RICH
 Elevator Trim	-12
 Airspeed	120 KIAS
 Landing Lights	ON






FINAL AND LANDING

 Parking Brake	VERIFY OFF	
 Water Rudder		 VERIFY UP (LIGHT OFF)
 Wing Flaps: Full (30°) at ...	110 KIAS	
 Elevator Trim	-09	
 Final Approach Airspeed	100 KIAS	
 Throttles (idle on touchdown)	~17" Hg MAN.PRES.	 18" Hg MAN.PRES.
 Autopilot	OFF	
 Stick f. Touchdown Airspeed	75 KIAS	
 Stick Forward	TO KEEP TAIL UP	
 Stick Back Full	AT 60" KIAS, TO LOWER TAIL	
 Toe Brakes	ONLY NOW APPLY THEM, FULLY	
<i>Stall Speed Clean</i>	68 KIAS	
<i>Stall Speed All Down</i>	63 KIAS	
















AFTER LANDING - TAXI

 Tail Wheel	UNLOCKED FOR TAXI	
 Water Rudder	--	 DOWN (LIGHT BLUE)
 Trim Tabs	NEUTRAL	
 Wing Flaps	UP AND NEUTRAL	
 Cowl Flaps	OPEN	
 Carburettor Heat (L/R)	OFF	
 Boost Pumps (L/R)	OFF	
 Pitot Heat	OFF	
 Landing Lights	OFF	
 Taxi Lights	ON	

ENGINE SHUT-DOWN

	Parking Brake	SET
	Tail Wheel	LOCKED
	Taxi Lights	OFF
	Radio/Avionics Master	OFF
	Throttles	IDLE

For each engine:

	Oil Temperature	< 170°C
	Throttle	1,500 RPM
	Propeller Control	LOW RPM
	Fuel Pump	OFF
	Mixtures	IDLE CUT-OFF
	Throttle	IDLE
	Magnetos	OFF AFTER ENGINES STOP
	Generator	OFF
	Fuel Selector	OFF
	Oil Cooler Bypass	ON (GREY: pulled to bypass the oil cooler)
	Oil Tank Shutter	ON (RED: pulled to shut down oil tank for safety)
	Beacon	OFF
	Navigation Lights	OFF
	Instrument Panel Lights	OFF
	Master Battery Switch	OFF

