C172P (17-02)

Airspeeds for Safe Operation[1]

Normal Climb (after takeoff)	70-80 KIAS
Climb short filed 10° Flap	56 KIAS
Enroute climb flap up	75-85 KAIS
Vr	55 KIAS
Vx (Best Angle Climb)	60 KAIS
Vy (Best Rate Climb)	76 KIAS
Vso (Stall Speed Landing Configuration)	33 KIAS
Vsl (Stall Speed Clean Configuration)	44 KIAS
Va (2400Lbs)	99 KAIS
Va (2000 Lbs)	92 KIAS
Va (1600 Lbs)	82 KIAS
Vfe (10°)	110 KIAS
Vfe (10-30 Deg)	85 KIAS
Maximum Distance Glide (Clean)	65 KIAS
Normal Approach Flap up	65-75 KIAS
Normal Approach 30° Flaps	60-70 KIAS
Short field Approach 30° Flaps	61 KIAS
Balked Landing (Max power, Flaps 20°)	55 KIAS

Initial Cockpit Checks 1

Control Column	Unlocked
Fire Extinguisher	Secured and Checked
First-aid Kit	Checked
Survival Kit	Checked
Pilot Operating Handbook	Checked
Aircraft Documents	Checked
Journey Log (on board if required)	Checked
Unoccupied Seats	Belts Secured
Flight Supplement	Checked
Navigation Charts	Checked
Life Jackets	Checked
Avionics Master	OFF
Circuit Breakers	Checked
Ignition	OFF
Master **Battery** Switch	On
Fuel Gauges	Checked
Fuel Quantity	Check
Avionics Cooling Fan	Check Audibly
Fuel Selector	Both ON
Baggage Door	Lock
Lights	ON

(Taxi light, landing light, Nav lights, strobe and beacon)

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Initial Cockpit Checks Continued

External Lights	Check
Lights	OFF
Flaps	Extend to 30 Deg
Master battery	OFF

Conduct External Pre-flight Inspection

Note: Add oil at the 5 US quarts level.

Passenger Briefing 2

ELT	Location and Function
Door / Emergency Exit	Operation
Fire Extinguisher	Location & Operation
Seat & Seat Belts	Operation
Baggage	Stowage
First Aid Kit	Location
Survival Kit	Location
Smoking	No Smoking
Emergency	Review Procedure

Life Jacket **Briefing**

(Bags - stowed, seat backs- upright, seat belts - tight, sharp objects – remove from pockets, eye glasses - remove, dentures – remove, brief passenger re. opening door prior to landing).

Pre-Start 3

Brake	Apply and maintain toe brakes
Area	Clear
Fuel Selector	Left Tank
Avionics Power	OFF
Hobbs and Time	Record
Beacon light	On
Master Switch	On

Engine Start 4

Cold Engine 4a

Prime	2-6 times
Carburetor Heat	Cold
Throttle	Open 1/8”
Mixture	Set Rich
Propeller	“Clear”
Ignition Switch	START
Ignition Switch	(Release when engine starts)
Oil Pressure	Checked
Throttle	Set 1000 RPM
Master Alternator	-Turn On and Check Ammeter
Flaps	Retract

[1] Speeds are listed here as “indicated” airspeeds. They are based upon Pilot Operating Handbook recommended approach speeds of “60 to 70 knots with flaps up, or 55 to 65 knots with flaps down” Speeds are based upon maximum gross weight.

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Warm Engine 4b

Mixture	Set Rich
Carburetor Heat	Cold
Throttle	Open 1/8"
Propeller	"Clear"
Ignition Switch	START
Ignition Switch	Release when engine starts
Oil Pressure	Checked
Throttle	set 1000 RPM
Master Alternator -Turn On and Check Ammeter	
Flaps	Retract

Very Cold Engine (-18°C and lower) 4c

With preheat: (using external preheater & external power source)	
Ignition Switch	
Throttle	Closed
Prime	4-8 times
(as propeller is turned by hand)	
After priming:	PUSH all the way IN and LOCK
Propeller	
Master Switch	ON
Mixture	Set Rich
Throttle	Open 1/8"
Ignition Switch	START
(Release to both when engine starts)	
Oil Pressure	Checked
Throttle	Set 1000 RPM
Master Alternator -Turn On And Check Ammeter	
Flaps	Retract

Flooded Engine Start 4d

"Weak intermittent firing followed by puffs of black smoke from the exhaust stack indicates overpriming or flooding (POH P. 4-12)."

Caution: A flooded engine start should not be attempted until all fuel at the bottom of the engine cowling has evaporated.

Mixture	Idle Cut-off
Throttle	Full Open
Propeller	Clear
Starter	crank until engine start or 10 Sec
When engine starts:	
Throttle	Closed
Mixture	Set Rich
Oil Pressure	Checked
Throttle	set 1000 RPM
Fuel Pressure	Checked
If Not successful Normal start after starter motor cooled down	

Taxi 5

Avionics Power	On
Transponder	Set Standby and Squawk 1200
ATIS (if available)	Checked
Altimeter	Set To ATIS/Elevation
Communications (as applicable)	Position/Intention
Altimeter (if applicable)	Re-set
Transponder (if applicable)	Set Discrete Code
Fuel Selector	Right Tank
Brakes	Check
Flight Instrument	Ground Roll Check

Warning: The survival equipment on board this aircraft contains minimal content for operational training in the temperate west-coast climatic area. When flying outside this area, Langley Flying School requires that it is the pilot's responsibility to ensure survival equipment appropriate to the climatic conditions as per *CAR 602.61*.**Warning:** With the exception of emergencies, Langley Flying School prohibits the landing of this aircraft at any aerodrome not certified by Transport Canada or the US FAA.

Run-up 6

Brake	Apply and maintain toe brakes
Throttle	Set 1000 RPM
Area	Clear
Fuel Selector	Both ON
Fuel Quantity	Check
Throttle	Set 1700 RPM
Mixture	Check and Set Rich
Suction Gauge	Check
Magnetos	Check
(125 RPM max. drop & 50 RPM max. difference	
Carburetor Heat	Check
Ammeter	Load Check
Engine Instruments	Check
Carburetor Heat	ON
Throttle	Closed
Oil Pressure	Idle Check
Carburetor Heat	Off
Throttle	Set 1000 RPM or less
Throttle friction lock	Adjust
Radio	Set

Pre-takeoff 7

Seats and Harnesses	Secure
Cabin Doors	Closed and Locked
Heading Indicator	Set
Flight Instruments	Check and Set
Magnetos	Both
Fuel	Sufficient
Engine Gauges	Check
Mixture	Set
Flight Controls	Free and Correct
Elevator and Rudder Trim	Set
Flaps	Check and Set

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Pre-Takeoff Checks Continued

Takeoff Briefing

Runway Length	Verify Sufficient
Crosswind Condition	Check Windsock
Rotation and Climb Speeds	Review
Departure Procedures	Review

Engine Failure Vital Actions **Review**

Immediately after takeoff

Airspeed (flap up)	65 KIAS
Airspeed (flap 10°)	60 KIAS
Mixture	Idle Cut-off
Fuel shutoff Valve	Off
Ignition	Off
Wing Flap	As required
Master Switch	Off

Above 800'

Control Gentle Turns avoid fix objects	
Glide Speed	65 KIAS (Flaps up)
Carburetor Heat	ON
Fuel Selector Valve	Both
Mixture	Rich
Primer	In & Locked
Ignition Switch	**Both** (or **START** if prop is stopped)

Holding Short 8

Time	Record
Traffic and Runway	Checked and Clear
Communications	Clearance and/or Intentions[2]

Runway 9

Traffic	Clear
Landing Light	On
Anti-collision Lights	On
Navigation Lights (as required)	On
Transponder	Set ALT
Heading Indicator	Confirm Runway Heading
Aileron Inputs	For Crosswind as required
Maximum Power	Confirmed

Post Takeoff (500' AGL) 10

Oil Pressure	Green
Oil Temperature	Green
Flaps	Retract

Level/Cruise 11

Throttle	Set RPM (2100-2700)
Mixture **(do not lean at or below 3000)(As per POH P 4-16)**	Set
Carburettor Heat	Check
Heading Indicator	Confirmed/Set

[2] Note: All clearance from a Control Tower authorising movement on to a runway or takeoff from a runway must be read-back to the controller.

Pre-descent 12

Mixture	Set Full Rich
Altimeter	Set

Pre-landing 13

Seat, Seat belt, Shoulder Harness	Secure
Fuel Selector	Both On
Mixture	Rich
Carburetor Heat	ON
Brakes	Check

Post-landing 14

Wing Flaps	Up
Trim	Set for takeoff
Landing Light	Off
Anti-collision Light	Off
Transponder	Off
Time	Record

Engine Shut-down 15

Brake	Set
Throttle	Set 1000 RPM
Radio	Select 121.5 & Check ELT
Avionics	OFF
Throttle	Close
Magnetos	Check Dead Mag
Mixture	Idle cut-off
Magnetos	Off
Key	Dash
Master	Off
Hobbs and Time	Record
Control Column	Secure as required
Aircraft	Secure as required

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. Engine Failure during Takeoff Run

Throttle	**Idle**
Brakes	**Apply**
Wing Flap	**Retract**
Mixture	**Idle cut-off**
Ignition	**Off**
Master	**Off**

Engine Failure Immediately after Takeoff

Airspeed (flap up)	**65 KIAS**
Airspeed(flap down)	**60 KIAS**
Mixture	**Idle Cut-off**
Fuel shutoff Valve	**Off**
Ignition	**Off**
Wing Flap	**As required**
Master Switch	**Off**

"The proper action to be taken if loss of power occurs during takeoff will depend on circumstances.

1. If sufficient runway remains for a normal landing, land straight ahead.
2. If insufficient runway remains, maintain a safe airspeed and make only a shallow turn if necessary to avoid obstructions. Use of flaps depends on circumstances. Normally, flaps should be fully extended for touchdown."

Engine Failure In Flight (Restart Procedures)

Glide Speed	**65 KIAS Flaps up**
Carburetor Heat	**ON**
Fuel Selector Valve	**Both**
Mixture	**Rich**
Primer	**In & Locked**
Ignition Switch	**Both**

(Key to starter if propeller is stopped)

If power is not restored, proceed with "POWER OFF LANDING" procedure.

Power Off landing

Glide Speed	**65 KIAS Flaps up** **60 KIAS Flaps Down**
Radio	**Mayday 121.5 MHz**
Transponder	**Squawk 7700**
Mixture	**Idle Cut-off**
Fuel shutoff Valve	**OFF**
Ignition Switch	**OFF**
Wing Flaps	**As required** (30 deg Recommended)
Master Switch	**Off**
Doors	**Unlatch prior to touch down**
Touchdown	**Slightly Tail Low**
Brakes	**Apply Heavily**

Precautionary landing

Wing Flaps	**20 Degrees**
Glide Speed	**60 KIAS**
Selected field	**Flyover and inspect**
Electrical Switches	**OFF**
Wing Flaps	**30 Deg**
Airspeed	**60 KIAS**
Master Switch	**Off**
Doors	**Unlatch prior to touch down**
Touchdown	**Slightly Tail Low**
Ignition switch	**OFF**
Brakes	**Apply Heavily**

Ditching

Radio	**121.50 Transmit MAYDAY**
Transponder	**SQUAWK 7700**
Approach High wind Heavy Seas -	INTO the wind
Light Wind, Heavy Swells	- Parallel to Swells
Wing Flap	**20-30 Deg**
Power	**establish 300Ft/Min at 55 KIAS**

If no power available, 65 KIAS w/ Flaps up or 60 KIAS with 10 deg Flap

Cabin Doors	**Unlatch**
Touchdown	**Level attitude at established rate of descent**
Face	**Cushion at touchdown with folded coat**

Airplane - evacuate through cabin doors. If necessary, open window and flood cabin to equalize pressure so door can be opened.

Life Vest and raft	**Inflate out of plane**

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Engine Fire during Start

Starter	**Continue Cranking Engine**
If engine starts:	
Power	**1700 for few minutes**
Engine - Shutdown & inspect for damage	
If engine fail to start:	
Throttle	**Full Open**
Mixture	**Idle Cut-off**
Cranking	**Continue**
Fire extinguisher	**Obtain**
Engine	**Secure**
Master	**OFF**
Ignition Switch	**OFF**
Fuel Selector	**Off**
Fire Extinguish using fire extinguisher, wool Blanket, or dirt.	
Fire Damage – INSPECT, repair damage, or replace damaged components or wiring before another flight	
Abandon aircraft if fire continues.	

Engine Fire In Flight

Mixture	**Idle Cut-off**
Fuel Selector	**Off**
Master	**OFF**
Cabin Heat and Air	**OFF**
Aircraft Control	**Airspeed 100 KIAS**
(if fire is not extinguished , increase the glide speed to find incombustible mixture)	
Forced Landing	**Execute**

Electrical Fire during Flight

Master	**Off**
Avionics Power	**OFF**
All Other switches (except ignition)	**OFF**
Vents	**Closed**
Cabin Heat	**Closed**

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Fire Extinguisher	**Activate**
After discharging an extinguisher with a closed cabin, ventilate the cabin	
If fire appears out & electrical power is necessary for continuance of flight:	
Master Switch	**ON**
Circuit Breakers	**Check, Do not Reset**
Radio switches	**Off**
Avionics Power Switch	**On**
Radio/Electrical Switches	**ON**
One at the time with delay after each until short circuit is localized.	
Vents/ Cabin Air/Hear	**Open**
When it is ascertained that fire is completely extinguished	

Cabin Fire

Master	**Off**
Vents	**Closed**
Cabin Air/Heat	**Closed**
Fire Extinguisher	**Activate (if available)**
After discharging an extinguisher with a closed cabin, ventilate thee cabin	
Land the airplane as soon as possible to inspect for damage	

Wing Fire

Landing/Taxi lights	**OFF**
Pitot Heat Switch	**OFF**
Navigation lights	**OFF**
Strobe Light Switch	**OFF**

Performed a sideslip to keep the flames away from the fuel tank and cabin, and land as soon as possible using flaps only as requires for final approach and touchdown

ICING

- Pitot Heat	**On**
-Turn back or change altitude	
- Cabin Heat and defroster	**Full Open**
- Throttle	**Open to increase engine speed**

- Watch for the signs of carburetor air filter ice and apply carburetor heat as requires

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- Land at nearest airport, in extreme icing condition plan for off airport landing
- Leave the flap retracted
- Open the left window, if its practical scrape ice from a portion of the windshield for visibility
- Use Forward sleep on approach to increase visibility

Approach	**65-75 KIAS**
Land	**in level attitude**

Static source Blockage

Static Pressure Alternate Valve	**Pull On**

In an emergency on airplane not equipped with Alternate static source, break the VSI glass

Air speed	consult calibration table in Section 5 POH

Landing with Flat Main tire

Approach	**Normal**
Touch down	**Good tire first,**
hold on good tire as long as possible	

Ammeter shows excessive rate of charge (Full Scale Deflection)

Alternator	**OFF**
Alternator Circuit Breaker	**PULL**
Nonessential Electrical Equipment	**OFF**
Flight	**Terminate as soon as practical**

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Low voltage light during flight

(Ammeter Indicates Discharge)

Illumination of low-voltage light may occur during low RPM conditions with an electrical load on the system such as during low RPM taxi. The Master switch should not be recycled.

Avionics Power Switch	**OFF**
Alternator Circuit Breaker	**Check IN**
Master Switch	**OFF (both sides)**
Master Switch	**ON**
Low Voltage Light	**Check OFF**
Avionics Power Switch	**ON**

If Low- Voltage light illuminates again:

- Alternator	**OFF**
- Nonessential radio and equipment	**OFF**
- Flight	**Terminate as soon as practical**

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Operational Requirements

Add oil at the 5 US quarts level. *** (As per Section 4-6 in POH under Checklist Procedures-Preflight Inspection)

Keep cabin doors secured at all times.

Langley Flying School's *Aircraft Status Board* must be reviewed prior to flight

Relay all emergencies through Flight Service (1-800-INFO-FSS).

Also contact Langley Flying School at (604) 532-6461 or (778) 255-2560 after hours.

As per Transport Canada requirements, maintenance on this aircraft (other than the adding of fuel, oil, or air) is prohibited without the consent of the *Maintenance Manager* for Langley Flying School.

The pilot is responsible to ensure that the aircraft is properly equipped with survival equipment as per the *Canadian Aviation Regulation 602.61*.

Operational Phone Numbers:

Langley Flying School	(877) 532-6461
LFS outside office hours	(778) 255-2560
Kamloops FIC	(866) 992-7433
Canadian FSS Toll Free	(800) 463-6377
US FSS Toll Free	(800) WX-BRIEF
Canadian Customs[3]	(888) CAN-PASS
CYNJ TWR (emergency Only)	604-534-9443
CYXX TWR (emergency Only)	604-855-1199
CYYJ TWR (emergency Only)	604-946-0911
VIC TML (emergency Only)	604-586-4500

Useful Local Radio Frequencies:

Caution: Check Current Charts as data may be incomplete or outdated.

Abbotsford		**CYXX**
ATIS	119.8	
Gnd	121.8	
Twr (inner)	119.4	
Twr (outer)	121.0	
MF	119.4	
Boundary Bay		**CZBB**
ATIS	125.5	
Gnd	124.3	
Twr (inner)	118.1	
Twr (outer)	127.6	
MF	118.1	
Chilliwack		**CYCW**
ATF	122.7	
Delta Heritage Air Park		**CAK3**
ATF	123.3	
Fort Langley		**CBQ2**
ATF	123.2	
Langley		**CYNJ**
ATIS	124.5	
Gnd	121.9	
Twr	119.0	
MF	119.0	
Hope		**CYHE**
ATF	123.3	
Nanaimo		**CYCD**
Radio	122.1	
MF/ATF	122.1	
Pitt Meadows		**CYPK**
ATIS	125.0	
Gnd	123.8	
Twr	126.3	
MF	126.3	
Sechelt-Gibsons		**CAP3**
ATF	123.5	
Surrey / King George Airpark		**CSK8**
ATF	123.5	
Vancouver Harbour		**CBC7**
ATIS	126.8	
Twr	118.4	
ATF	118.4	
Vancouver Intl		**CYVR**
ATIS	124.6 / 124.75	
Clnc Del	121.4	
Gnd (South)	121.7	
Gnd (North)	127.15	
Twr (South)	118.7	
Twr (North)	119.55	
Twr (Outer)	124.0	
Victoria Intl		**CYYJ**
ATIS	118.8	
Clnc Del	126.4	
Gnd	121.9	
Twr (Inner)	119.7	
Twr (Outer)	119.1	

[3] Note: Canada Customs must be advised prior to departure for a return flight to Canada, including the estimated ETA, the airport of entry, the citizenship, name, and birthdate of all passengers on board the aircraft, and any declarations related to purchases made in the US. Also note the limited times at which CYXX is a valid airport of entry.

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