Preflight	
	ıids
Magnetos	OFF
Fuel quantity	CHECK VISUALLY
Fuel sumps	DRAIN
Left wing, righ	t wing, fuel strainer.
Inspect for cor	ntamination.
Fuel filler caps	SECURE
Engine oil level	CHECK
	Minimum 6 quarts
Ca	bin
Pitot cover	REMOVE
POH	VERIFY PRESENT
Master	ON
Flaps	EXTEND
Fuel gauges	CHECK QUANTITY
Lights	CHECK
Tach time	RECORD
Pitot heat	TEST
Master	OFF
Fire extinguisher	SECURE
Control lock	REMOVE
	nnage
Rudder gust lock	REMOVE
Control surfaces	CHECK
	vement and security
	ght
Main wheel tire	CHECK INFLATION
Aileron	CHECK
	vement and security
	ose
Propeller, spinner_	CHECK
	or nicks and security
Landing light	CHECK CLEAR
Air filter	CHECK CLEAR
Nosewheel & strut	CHECK INFLATED
Static source	CHECK CLEAR
	eft
Main wheel tire	CHECK INFLATION

Preflight (continued)		
Fuel tank vent	CHECK CLEAR	
Pitot tube	CHECK CLEAR	
Stall warning	TEST	
Aileron	CHECK	
Freedom of moveme	nt and security	
Final		
Flight Circle	DISPATCH	
Tach, Hobbs times	RECORD	
Baggage door	LOCK	
Chocks	REMOVE	
Tie-downs	REMOVE	

Securing	,
Control lock	INSTALL
Tie-downs, chocks	APPLY
Vents, windows	CLOSE
Pitot cover	APPLY
Tach, Hobbs times	RECORD
Flight Circle	CHECK IN
Doors	LOCK

Speeds		
		KIAS
Best glide (V <sub>G</sub> )		65
Best angle of climb (V <sub>x</sub> )	Sea level 10,000 ft	64 62
Best rate of climb (V <sub>Y</sub> )	Sea level 10,000 ft	78 68
Landing approach	Flaps up Flaps 40	60-70 55-65
Normal takeoff climb		70-80
Short-field takeoff climb	Flaps up Flaps 10	59 55
Normal enroute climb	Sea level 10,000 ft	80-90 70-80
Design maneuvering speed (V <sub>A</sub> )	2300 lbs 1950 lbs 1600 lbs	97 89 80

Light Gun Signals	
Aircraft on the Ground	Aircraft in Flight
Cleared for takeoff	Cleared to land
Cleared for taxi	steady green at the proper time)
STOP <b>—</b>	Give way to other aircraft and continue circling
Taxi clear of the runway in use <b></b>	Airport unsafe, do not land
Return to starting point on airport	□ Not applicable
Exercise extreme caution	Exercise extreme caution

### **Operating Checklists**

Start			
Before Start			
Preflight inspection	COMPLETE		
Passenger briefing	COMPLETE		
Brakes	TEST and SET		
Seats, belts, harnesses	SECURE		
Fuel valve	BOTH		
Radios, electrical equipme	ent OFF		
Circuit breakers	CHECK IN		
Beacon switch	ON		
Engine St	art		
Mixture	RICH		
Carburetor heat	COLD		
Prime	AS REQUIRED		
Throttle	OPEN 1/8 INCH		
Master	ON		
Propeller area	CLEAR		
Ignition switch	START		
Release	when engine starts		
Oil pressure	CHECK		
If no pressure in 30			
Mixture	GROUND LEAN		
Before Ta			
Avionics	ON		
Headset	ON		
Flaps	RETRACT		
Weather	OBTAIN		
Altimeter	SET		
EFB Setup	AS DESIRED		
Navigation, landing lights	ON		

CHECK and SET
IF NEEDED
SET
CLOSED, LOCKED
FREE and CORRECT
вотн
RICH (below 3000 feet)
1700 RPM
CHECK
5 RPM, max diff. 50 RPM
neter CHECK
CHECK
TEST
TEST
GROUND LEAN
ADJUST

Before Takeoff	
Radios	SET
Instruments	SET
Takeoff briefing	COMPLETE
Beacon, navigation,	landing lights ON
Carburetor heat	AS REQUIRED
Flaps	0-10°
Trim	TAKEOFF
Fuel valve	вотн
Fuel quantity	CHECK
Mixture	RICH (below 3000 feet)

70-90 KIAS
FULL
RICH (lean above 3000 feet)

Cruise	
Power	2200-2700 RPM
	No more than 75% power
Trim	ADJUST
Mixture	LEAN (for max RPM)

Descent	
Mixture	RICH
Power	AS DESIRED
Carburetor heat	AS REQUIRED
	To prevent carburetor icing

Before Landing	·
Fuel valve	вотн
Mixture	RICH
Carburetor heat	ON
Apply full	heat before closing throttle
Airspeed	60-70 KIAS (flaps UP)
Flaps	AS DESIRED
Airspeed	55-65 KIAS (flaps DOWN)

Balked Landing	`
Throttle	FULL
Carburetor heat	COLD
Flaps	20°
Airspeed	55 KIAS
Flaps	RETRACT slowly

After Landing	
Flaps	UP
Caburetor heat	OFF
Mixture	GROUND LEAN

Shutdown	
Brakes	SET
Tach time	RECORD
Radios, electrical equipment	OFF
Mixture	CUT-OFF
Magnetos	OFF
Master	OFF

**Version 1 PR 64** 

### **Engine Failures, Forced Landings**

## Engine Failure During Takeoff Run Throttle IDLE Brakes APPLY Flaps RETRACT Mixture CUT-OFF Magnetos OFF

# Engine Failure Shortly After Takeoff Airspeed Flaps up: 65 KIAS Flaps down: 60 KIAS Mixture CUT-OFF Fuel valve OFF Magnetos OFF Flaps AS REQUIRED Master OFF

<b>Engine Failure</b>	During Flight
Airspeed	65 KIAS
Carburetor heat	ON
Fuel valve	ВОТН
Mixture	RICH
Magnetos	вотн
	(START if prop stopped)
Primer	IN and LOCKED

Forced	Landing V	Vith Engine Failure
Airspee	d	Flaps up: 65 KIAS
		Flaps down: 60 KIAS
Mixture		CUT-OFF
Fuel val	lve	OFF
Magnet	os	OFF
Flaps		AS REQUIRED
		40° recommended
Master		OFF
Doors	UNLATCH B	BEFORE TOUCHDOWN
Touchdo	own	SLIGHTLY TAIL LOW
Brakes		APPLY HEAVILY

Precautionary L	anding.
Flaps	20°
Airspeed	60 KIAS
Selected field	FLY OVER
Note	terrain/obstructions.
Retra	ct flaps upon reaching
a safe	altitude and airspeed.
Radios, electrical	switches OFF
Flaps	40° (on final approach)
Airspeed	60 KIAS
Master	OFF
Doors UNLATCH	BEFORE TOUCHDOWN
Touchdown	SLIGHTLY TAIL LOW
Magnetos	OFF
Brakes	APPLY HEAVILY

Ditching		
Radio	MAYDAY on 121.5 MHz	
	Give location, intentions	
Heavy objects	SECURE or JETTISON	
Flaps	20°-40°	
Power 300 FT/	MIN DESCENT AT 55 KIAS	
If no power	available, approach	
flaps up 65	KIAS or flaps 10° 60 KIAS	
Strong wind, heavy seas:		
LAND INTO WIND		
Light wind, heavy swells:		
LAND PARALLEL TO SWELLS		
Doors	UNLATCH	
Touchdown	LEVEL ATTITUDE	
at es	stablished rate of descent	
Face CUSHIOI	N at touchdown with coat	
Airplane	EVACUATE	
Life vests/raft	INFLATE	

#### Fires, Icing, Flat Tire, Electrical

Wing Fire

Cranking	CONTINUE
If engine starts:	
Power	1700 RPM for a few minutes
Engine	SHUTDOWN
If engine fails to	start:
Throttle	FULL OPEN
Mixture	CUT-OFF
Cranking	CONTINUE for 2-3 minutes
Fire extinguish	er OBTAIN
Master	OFF
Magnetos	OFF
Fuel valve	OFF
Fire	EXTINGUISH
Use fire	e extinguisher, seat cushion,
wool bl	anket, or dirt. If practical, try
to remo	ove air filter if it is ablaze.
Both cases: inspe	ect and repair damage
before conductin	g another flight.

**Engine Fire During Start On Ground** 

Engine Fire in Flight	
Mixture	CUT-OFF
Fuel valve	OFF
Master	OFF
Cabin heat & air	OFF
(except ov	erhead vents)
Airspeed	100 KIAS
If fire is not extinguishe	d, increase
glide speed to find an a	irspeed which
will provide an incombu	stible mixture
Forced Landing With	FXFCUTF

Engine Failure checklist

Electrical Fire in Flight	
Master	OFF
All other switches (except magnetos)	OFF
Vents/cabin air/heat	CLOSE
Fire extinguisher	USE
If fire appears out and electrical powe	r is
necessary to continue flight:	
Master	ON
Circuit breakers	CHECK
(do not reset faulty	circuit)
Radio/electrical switches	ON
One at a time with delay a	fter
each until short circuit is localize	
Vents/cabin air/heat	OPEN

	Cabin Fire	
	Master	OFF
	Vents/cabin air/heat	CLOSED
		(to avoid drafts)
	Fire extinguisher	USE
WARNING: After discharging exting		ging extinguisher
within a closed cabin, ventilate cabin		
	Land ASAP, inspect for dama	ige

(when fire completely extinguished)

nav lights	Οr
Pitot heat	OF
NOTE: Sideslip to keep flames away from	
fuel tanks and cabin. Land ASAP using fla	ps
only as required.	
Inadvertent Icing Encounter	
Pitot heat	0

	Inadvertent Icing Encounte	er	
	Pitot heat	ON	
	Turn back or change altitude t	o obtain an	
	OAT less conducive to icing.		
	Cabin heat	FULL ON	
	Defroster	OPEN	
	Cabin air	ADJUST	
	Maximize defroster h	neat and airflow	
	Throttle	OPEN	
	Carburetor/air filter icing	MONITOR	
Apply carb heat as required, lean mix			
	for maximum RPM if used	,	
		AREST AIRPORT	
	With very rapid ice build-up, se		
	suitable off-airport With ≥ 1/4 inch ice on the lead	3	
prepare for significantly higher stall spee			
		AVE RETRACTED	
	Open left window and scrape		
windshield, if necessary for visibility			
	Forward slip if necessary for v	•	
	Approach speed	65-75 KIAS	
	Depending on level of	in level attitude	
	Landing Perform	iii ievei attitude	

Static Source blocks	ige	
Alternate static source	valve	PULL ON
Airspeed	Use cal	ibration table
	in POH	section 5

Landing with	a Flat Main Tire
Approach	NORMAL
Touchdown	GOOD TIRE FIRST
Hold airplane	off flat tire as long as possible

Over-Voltage Ligh	nt Illuminates
Master	OFF (both sides)
Master	ON
If over-voltage light	illuminates again:
Flight	TEDMINIATE ASAD

Ammeter Shows Discharge			
Alternator		OFF	
Nonessential	electrical equipment	OFF	
Flight	TERMINATE as soon as	practical	