Engine Failure - Take Off

- Airspeed.....105 MPH
- Fuel Selector.....Switch Tanks
- Electric Fuel Pump.....On
- Mixture.....Rich
- Alternate Air.....On
- Landing Gear.....Up if Necessary

Engine Failure - Enroute

- Fuel Selector.....Switch Tanks
- Throttle.....Full Open
- Mixture.....Rich
- Electric Fuel Pump.....On
- Alternate Air.....On
- Airspeed.....105 MPH
- Find Landing Site.....Stick With It
- Magnetos.....Check
- Propeller.....Low RPM
- Gear Override.....On
- Transponder.....7700
- Communicate.....121.5

Emergency Decent

- Throttle.....Closed
- Flaps.....Full
- Airspeed.....80 MPH
- Bank Angle.....45°

Propeller Overspeed

- Throttle.....Reduce
- Oil Pressure.....Check
- Propeller.....Low RPM
- Airspeed.....Reduce
- Throttle.....Below 2700 RPM

Emergency Gear Extension

- Master Switch ..... On
- Circuit Breakers ..... Check
- Panel Lights ..... Off (Daytime)
- Gear Bulbs ..... Check
- Airspeed ..... Below 100 MPH
- Gear Selector ..... Up
- Gear Lever ..... “Emergency Down”
- Rudder Peddles ..... Yaw Side to Side

Fuel Pressure Loss

- Electric Fuel Pump ..... On
- Mixture ..... Rich
- Fuel Selector ..... Fullest Tank

Alternator Failure

- Electrical Load ..... Reduce
- Circuit Breaker ..... Check
- Alternator Switch ..... Off then On

Engine Fire

- Fuel Selector ..... Off
- Throttle ..... Close
- Mixture ..... Cutoff
- Heater/Defroster ..... Off
- Airspeed ..... 120 MPH

Electrical Fire

- Master Switch ..... Off
- Vents ..... Open
- Heater ..... Off

Reference Data

Va	**131**	**Vs_1**	**71**	**Vy**	**95**
Vfe	**125**	**1.3 Vs_1**	**95**	**Vy[1]**	**100**
Vg	**105**	**1.4 Vs_1**	**100**	**Dnwnd**	**95**
Vle	**150**	**1.5 Vs_1**	**107**	**Final**	**85**
Vlof	**85**	**Vso**	**64**		
Vne	**214**	**Vx**	**85**		
Vr	**60**	**Vx[1]**	**96**		

	RPM	MP (in.)	Flaps	FPM	MPH
Normal Climb	2500	25	--	+900	95 (100)[1]
Cruise Climb	2500	25	--	+500	110
Normal Cruise	2400	21	--	--	135
Low Cruise	2500	18	2+gear	--	90
Normal Descent	2500	10	--	-500	135
Rapid Descent	2500	10	--	-1000	138
Appr. Descent	2400	14	2+gear	-500	90

Fuel (gallons)	**Weight** (pounds)	**Winds** (mph)	**Other**
Usage: 11 GPH	Gross: 2650	Max. Wind: 32	FAA Aircraft Designator for flight plan: P28B/T
Useable: 48	Empty: 1648	Max. Crosswind: 20	Ceiling: 15,000 feet
Tank Capacity: 24 ea. Tank	Useful Load (full fuel & oil): 699		Max. Endurance - 4:25
Total Capacity: 50	Useful Load (empty): 1002		VFR – 3:55
At Tab: 18	Arm (empty): 85.9		IFR – 3:40

[1] Flaps up and gear up

Pre-Flight

Cockpit

- Hobbs Time .....Record
- Gear Selector Handle .....Down
- Mixture .....Lean
- Master Switch .....On
- Fuel Gauges .....Check
- Master Switch .....Off
- Flaps .....Full

Right Wing

- Flap Attach Bolts.....Secure
- Aileron Attachment .....Secure
- Wing Tip.....No Damage
- Fuel Quantity .....Confirm to Gauge
- Tie Down.....Remove
- Fuel Sump .....Drain

Landing Gear Right Side

- Tire Inflation .....Checked
- Right Strut.....Checked
- Brake Pads .....Within Limits
- Gear Doors .....Secure
- Wheel Wells.....Free and Clear
- Gear Actuators.....No Leaks

Engine

- Oil Quantity .....6 Quarts (MIN)
- Right Air Inlet .....No Obstructions
- Right Cowl .....No Obstructions

Pre-Flight (Continued)

Nose

- Windshield ..... No Damage
- Strut Inflation ..... Check
- Tire Inflation ..... Check
- Gear Doors ..... Secure
- Wheel Wells ..... Free and Clear
- Gear Actuators ..... No Leaks
- Landing Light ..... Secure
- Engine Vent/Oil Cooler ..... No Obstructions
- Propeller ..... No Nicks
- Alternator Belt ..... Tight – No Damage
- Fuel Strainer ..... Drain
- Left Cowl ..... No Obstructions
- Left Air Inlet ..... No Obstructions
- Gear Extension Pitot ..... No Obstructions

Landing Gear Left Side

- Tire Inflation ..... Check
- Left Strut ..... Check
- Brake Pads ..... Within Limits
- Gear Doors ..... Secure
- Wheel Wells ..... Free and Clear
- Gear Actuators ..... No Leaks

Left Wing

- Fuel Sump ..... Drain
- Tie Down ..... Remove
- Fuel Quantity ..... Confirm to Gauge
- Fuel Vent ..... Clear
- Leading Edge ..... No Damage
- Stall Vane ..... Free
- Pitot/static vane ..... No Obstructions
- Wing Tip ..... No Damage
- Aileron Attachment ..... Secure
- Flap Attach Bolts ..... Secure

Pre-Flight (Continued)

Fuselage
- Left Side.....No Damage

Empennage
- Stabilator.....Free Movement
- Trim Tab .....Secure
- Tail Cone .....Safety Devices in Place
- Rudder .....Secure
- Tiedown .....Remove

Fuselage
- Right Side .....No Damage
- Baggage Door.....Secure/No Damage

Night
- Lights .....Operational

Starting Engine – Cold

- Preflight..... Complete
- Flaps ..... Up
- Seats..... Adjust
- Seat Belt & Shoulder Harness..... Attach
- Door ..... Closed
- Parking Brake ..... Set
- Fuel Selector..... Fullest Tank
- Avionics ..... Off
- Electrical Equipment..... Off
- Circuit Breakers ..... Check
- Mixture ..... Cutoff
- Propeller ..... High RPM
- Throttle..... Open ½ Inch
- Master Switch ..... On
- Anti-Collision Light..... On
- Electric Fuel Pump..... On
- Mixture ..... Rich
  Until Fuel Flow Meter Indication - then Cutoff
- Audible Warning ..... "Clear Prop"
- Starter ..... Engage
- Mixture ..... Rich as engine starts
- Oil Pressure ..... Green w/in 30 Sec.
- Engine Gauges ..... Check
- Electric Fuel Pump..... Off
- Pressure Change..... Check
- Throttle..... 800 - 1200 RPM
- Mixture ..... Lean for Taxi
- Avionics ..... On
- Lights ..... As Required

Starting Engine – Hot

- Seat Belt & Shoulder Harness.....Attach
- Door.....Secure
- Parking Brake.....Set
- Fuel Selector.....Fullest Tank
- Avionics.....Off
- Electrical Equipment.....Off
- Circuit Breakers.....Check
- Mixture.....Cutoff
- Propeller.....High RPM
- Throttle.....Open ½ Inch
- Master Switch.....On
- Anti-Collision Light.....On
- Audible Warning.....“Clear Prop”
- Starter.....Engage
- Mixture.....Rich as Engine Starts
- Oil Pressure.....Green w/in 30 sec.
- Engine Gauges.....Check
- Electric Fuel Pump.....Off
- Pressure Change.....Check
- Throttle.....800 - 1200 RPM
- Mixture.....Lean for Taxi
- Avionics.....On
- Lights.....As Required

Starting Engine – Flooded

- Seat Belt & Shoulder Harness..... Attach
- Door ..... Secure
- Parking Brake ..... Set
- Fuel Selector..... Fullest Tank
- Avionics ..... Off
- Electrical Equipment..... Off
- Circuit Breakers ..... Check
- Mixture ..... Cutoff
- Propeller ..... High RPM
- Throttle..... Full Open
- Master Switch ..... On
- Anti-Collision Light..... On
- Electric Fuel Pump..... Off
- Audible Warning ..... "Clear Prop"
- Starter ..... Engage
- Mixture ..... Rich as engine starts
- Throttle..... 800 - 1200 RPM
- Oil Pressure ..... Green w/in 30 Sec.
- Engine Gauges ..... Check
- Pressure Change..... Check
- Mixture ..... Lean for Taxi
- Avionics ..... On
- Lights ..... As Required

Taxi

- Brakes..... Test
- Suction..... 4.6" - 5.4"

IFR

- Clock.....Check
- Compass.....Check in turns
- Heading Indicator.....Check in turns
- Attitude Indicator.....Check in turns
- Altimeter.....Check
- Airspeed Indicator.....Check
- Turn Coordinator.....Check in turns
- Vertical Speed Indicator .....Check
- Engine Instruments.....Check
- NAV & COM Radios .....Check
- Transponder .....Check
- DME.....Check
- ADF.....Check
- Marker Beacons.....Check

Ground Check & Engine Run-Up

- Parking Brake .....Set
- Flight Controls.....Free & Correct
- Flight Instruments .....Set & Checked
- Clock.....Wound and Set
- Mixture .....Rich
- Throttle.....2000 RPM
- Alternate Air .....Check – Then Off
- Propeller Cycle .....(3 X's in cold wx)
- Magnetos .....R - Both - L - Both
  (50 RPM Differential MAX – 175 Either MAX)
- Check LASAR light is on – then out after 20 seconds
- Oil Pressure .....Green
- Oil Temperature.....Green
- Ammeter .....Charging
- Electric Fuel Pump.....On
- Vacuum Gauge.....5" HG ± 0.1"
- Throttle ..... 1000 RPM

Auto Pilot

- Switch ..... On
- Turn ..... Left – Right
- Mode ..... Heading Bug
- Turn ..... Left – Right
- Auto Pilot ..... Off

Before Take Off

- Fuel Selector.....Fullest Tank
- Electric Fuel Pump.....On
- Engine Gauges.....Check
- LASAR Light.....OUT
- Mixture.....Rich Below 5000’ MSL
- Quadrant Friction.....Set
- Flaps.....Set
- Elevator Trim.....Slightly Aft of Neutral
- Rudder Trim.....Set
- Door and Window.....Latch
- Seat Belt.....Fasten
- Shoulder Harness.....Attach
- Auto Pilot.....Off

Take Off – Normal

- Transponder.....ALT
- Heading Indicator.....Aligned with Runway
- Clock.....Note Time Off
- Propeller.....High RPM
- Throttle.....Full Open
- Vr.....60 MPH
- Vlof.....85 MPH
- Vy.....95 MPH
- Gear.....Up
- Vy.....100 MPH

Short Field Take Off

- Trim.....Slightly Aft of Neutral
- Fuel Selector.....Fullest Tank
- Electric Fuel Pump.....On
- Flaps .....25° (2nd notch)
- Alternate Air .....Closed
- Propeller .....High RPM
- Mixture .....Rich
- Gear Override .....Latched
- Brakes.....Hold
- Throttle.....Full
- Brakes.....Release
- Vr .....60 MPH
- Vlof.....70 MPH
- Vx.....85 MPH
- Gear .....Up
- Flaps .....Up Slowly
- Vy.....100 MPH

Soft Field Take Off

- Trim.....Slightly Aft of Neutral
- Fuel Selector.....Fullest Tank
- Electric Fuel Pump.....On
- Flaps .....25° (2nd notch)
- Alternate Air .....Closed
- Propeller .....High RPM
- Mixture .....Rich
- Gear Override .....Latched
- Yoke.....Elevator Half Up
- Throttle.....Full
- Liftoff .....In Ground Effect
- Vx.....85 MPH
- Flaps .....Up Slowly
- Gear .....Up
- Vy.....100 MPH

After Take-Off

- Manifold Pressure.....25”
- Tachometer.....2500 RPM
- Flaps .....Up
- Gear.....Up
- Electric Fuel Pump.....Off
- Pressure .....Check
- Engine Gauges.....Check
- NAV & COM Radios .....Check

Descent

- Auto Pilot .....Off
- Mixture.....As Required
- Fuel Selector.....Fullest Tank
- Manifold Pressure.....20”
- Tachometer.....2400 RPM

Landing – Normal

Downwind

- Auto Pilot .....Off
- Seatbelt & Shoulder harness.....Secure
- Electric Fuel Pump.....On
- Fuel Selector.....Fullest Tank
- Fuel Pressure .....Checked
- Gear Lever.....Down (150 max)
- Gear Indication Lights.....3 Green
- Mixture.....Rich
- Propeller .....High RPM
- Manifold Pressure.....20”
- Tachometer.....2400 RPM
- Airspeed.....95 MPH
- Flaps .....10° (1st notch)

Landing – Normal (Continued)

Abeam Touchdown Point
- Manifold Pressure.....11”

Base
- Flaps.....25° (2nd notch)
- Manifold Pressure.....11”
- Airspeed.....90 MPH

Final
- Flaps.....Full
- “GUMP” .....3 Green
- Propeller .....High RPM
- Mixture .....Rich
- Airspeed.....85 MPH

Go Around
- Throttle.....Full Power
- Flaps.....25° (2nd notch)
- Vy.....95 MPH
- Flaps.....Up Slowly
- Gear.....Up (After Positive Climb)
- Vy.....100 MPH

After Landing

- Flaps ..... Up
- Transponder ..... Standby
- Electric Fuel Pump..... Off
- Mixture ..... Lean for Taxi
- Lights ..... As Required
- Trim..... Set for Takeoff

Shut Down

- Avionics ..... Off
- Lights ..... As Required
- Electric Fuel Pump..... Off
- Propeller ..... High RPM
- Mixture ..... Cutoff
- Throttle..... Closed
- Magnetos ..... Off
- Master Switch ..... Off
- Hobbs Time ..... Record