

INTERIOR PRE-FLIGHT INSPECTION	
Documents (AROW).....	On Board
Radio Master	Off
Circuit Breakers	Check
Master Switch	On
Fuel Quantity.....	Check
Aircraft Lights/Pitot Heat.....	All On/Check
Lights/Pitot Heat	Off
Master Switch	Off
Fuel Selector	Mains

EXTERIOR PRE-FLIGHT INSPECTION	
RIGHT-WING, ENGINE, GEAR:	
FLAP	CHECK
AILERON	CHECK
WING TIP & LIGHTS	CHECK
LANDING/TAXI LIGHT	CHECK
FUEL CAP/QUANTITY	CHECK
FUEL VENT	CHECK
FUEL SUMP	DRAIN (FIRST FLIGHT OR NEW FUEL)
TIE-DOWN/CHOCKS	REMOVE/CHECK
COWLING	CHECK
ENGINE OIL	CHECK (MIN 6 QUARTS)
AIR INTAKE	CHECK
PROP/SPINNER	CHECK
COWL FLAP	CHECK/OPEN
WHEEL WELL/DOOR	CHECK
GEAR STRUT	CHECK
TIRE & PRESSURE	CHECK
BRAKES & LINES	CHECK

NOSE SECTION:	
FORWARD CARGO DOOR	CLOSED
NOSE CONE	CHECK
HEATER AIR INTAKE	CHECK
HEATER EXHAUST/ BATTERY VENT/VENTS	CHECK
WHEEL WELL/DOORS	CHECK
NOSE STRUT	CHECK
TIRE & PRESSURE	CHECK

LEFT GEAR, ENGINE, WING:	
WHEEL WELL/DOOR	CHECK
GEAR STRUT	CHECK
TIRE & PRESSURE	CHECK
BRAKES & LINES	CHECK

COWLING	CHECK
ENGINE OIL	CHECK (MIN 6 QUARTS)
AIR INTAKE	CHECK
PROP/SPINNER	CHECK
COWL FLAP	CHECK/OPEN
TIE-DOWN/CHOCKS	REMOVE/CHECK
FUEL CAP/QUANTITY	CHECK
FUEL VENT	CHECK
FUEL SUMP	DRAIN (FIRST FLIGHT OR NEW FUEL)
PITOT TUBE	CHECK
STALL WARNING	CHECK
LANDING/TAXI LIGHT	CHECK
WING TIP & LIGHTS	CHECK
AILERON	CHECK
FLAP	CHECK

REAR CONTROL SURFACES:	
ELEVATOR/WICKS	CHECK
RUDDER LOCK/RUDDER	REMOVE/CHECK
TRIM TABS	CHECK
TAIL CONE	CHECK
POSITION LIGHT	CHECK
TIE-DOWN	REMOVE

FUSELAGE:	
ANTENNAS	CHECK
STATIC PORT	CHECK
REAR BAGGAGE DOOR	CLOSED/LOCKED
WINDOWS	CHECK/CLEAN

BEFORE-START	
Preflight Inspection	Completed
Passenger Brief.....	Complete
Seats / Belts	Adjusted & Locked
Landing Gear Handle	Down
Battery Key	In
Circuit Breakers	Checked
Electrics	Off
Alternators	Off
Avionics Master	Off
Fuel Selector Valve	Main Tanks
Carb Heat	Off

START	
Battery Key Switch	On (x4 clicks)
Gear Lights	Green
Cowl Flaps/Lights	Open/Checked
Fuel Quantities	Verify
Flaps	Up / 0°

ENGINE START CHECKLIST	
Mixtures	Full Forward
Propellers	Full Forward
Magnetos	On
Boost Pumps	On (One at a time) / Check Pres.
<i>If first start of the day</i> Use main Fuel Primer	
<i>..... Left prime x5. Right prime x2</i>	

LEFT ENGINE	
Throttle Prime	Throttle Pump (3x)
Throttle	¼ Open
Starter	Push, 1000 RPM
Oil Pressure	Normal
Left Alternator	On

RIGHT ENGINE	
Throttle Prime	Throttle Pump (3x)
Throttle	¼ Open
Starter	Push, 1000 RPM
Oil Pressure	Normal
Right Alternator	On, Load split

AFTER START CHECKLIST	
Engine Gauges	Normal
Ammeter	Check Positive
Boost Pumps	OFF/Check Pres.
Mixtures	Lean
Avionics Master.....	On
GPS	Checked/ENT
Coms	Set
ATIS	Listen & Copied
Altimeter/Nav.....	Set / Course
Transponder	Verify Squawking 1200

BEFORE TAXI CHECKLIST	
Taxi Diagram	Up
Taxi Clearance	Obtained
Brakes	Checked
Flight Instruments (TC, AI, HSI) ..	Checked in Taxi

RUN-UP CHECKLIST	
Brakes ...	Hold
Flight Controls	Free & Correct
Fuel Selectors	Main Tank
Mixtures	Full Forward
Propellers	Full Forward
Throttles	1700 RPM
Engine Gauges	Normal Range
Prop Feather	Check x2 (Max 500)
Magnetos	Checked (Max 175, Diff. 100)
Carb Heat	Check, then Off
Throttles	IDLE CHECK, then 1000 RPM
Mixtures	Lean
Trim (Elev./Ail./Rud.)	Takeoff (Green)

PRE-TAKEOFF BRIEFING - (Standard Engine Failure Procedures)	
<i>Engine failure or abnormality prior to rotation:</i>	<i>Engine failure after rotation, gear up and the decision made to continue:</i>
<ul style="list-style-type: none"> • Abort - Throttles Closed • Maintain Centerline • Brake as Required 	<ul style="list-style-type: none"> • Maintain Directional Control /Pitch Attitude/Airspeed (100) • Mixture/Props/Throttles FULL FWD • Flaps and Gear Up • Identify with Dead Foot, • Verify by Closing the Throttle Control • Feather Prop • Mixture to Cutoff • Climb at 100 MPH/Blue line • Declare an Emergency & Land
<i>If not enough runway to stop:</i>	
<ul style="list-style-type: none"> • Maintain Directional Control • Mixture to Cutoff • Fuel Selectors, Mags, & Battery Master: ALL OFF 	

START HERE PRIOR TO EVERY TAKEOFF

BEFORE TAKEOFF CHECKLIST	
Engine Failure Brief	Complete
Flight Instruments	Checked/Set
Departure Brief	Complete
Doors/Windows	Closed & locked
Mixtures	Full Forward
Propellers	Full Forward
Boost Pumps	On
Landing light.....	Night Only

NORMAL TAKEOFF CHECKLIST	
Flaps	UP / 0°
Rotate ...	85 (Over Red Line)
Climb	100 (Blue Line)
Positive Rate	Landing Gear: UP
500' AGL	
Power	(25"MP/2500 RPM) Set
Airspeed	Climb 120

SHORT FIELD TAKEOFF CHECKLIST	
Flaps	10° Set
Rotate ...	85 (Over Red Line)
Climb	95 MPH
Positive Rate	Landing Gear: <i>Immediately UP</i>
50' AGL: OBSTACLE CLEAR	
Climb	100 (Blue Line)
Flaps	UP
500' AGL	
Power ...	(25"MP/2500 RPM) Set
Airspeed	Climb 120

AFTER TAKE-OFF CHECKLIST (Out of 1000' AGL)	
Flaps Up / Gear Up	Check
Cowl Flaps	As Required
Mixtures	Lean
Lights	As Required

CRUISE CHECKLIST	
Power ...	(18-20"MP/2300 RPM) Set
Engine Gauges	Normal
Fuel Indicator Switch	Aux, Check Quantity
Fuel Selectors	Aux Tanks
Boost Pumps ..	Off (One at a time) / Check Pres.
Mixtures	Lean

IN-RANGE / DESCENT CHECKLIST	
ATIS/AWOS	Received
Approach Brief	Complete
Mixtures	As Required

GEAR DOWN - BEFORE LANDING CHECKLIST	
Boost pumps	On
Carb Heat	Off or (On Icing cond.)
Fuel Indicator Switch	Main, Check Quantity
Fuel Selectors	Main Tanks
Gear (Below 150).....	Down / Green Light
Mixtures	Full Forward
Propellers	Full Forward
Flaps (Below 120)	As required°
Airspeed	100 (Blue Line), slowing 90 on Final

AFTER LANDING CHECKLIST	
Flaps	Up / 0°
Trim	Centered
Carb Heat	Off
Boost Pumps	Off
Lights	As Required
Cowl Flaps	Open
Mixtures	Leaned
Taxi Clearance	Obtained

SHUT DOWN CHECKLIST	
Throttles	1000 RPM
Avionics Master	Off
Mixtures	Idle Cut-Off
Magnetos	Off
Alternators	Off
Key Switch	Off/Out

SECURE CHECKLIST	
Tie Downs	Secure
Rudder Gust	Installed
Post Flight Inspection	Completed

GO-AROUND	
CRAM IT	Max Power
CLIMB IT	Vx (95)
CLEAN IT	Flaps 20°
COOL IT	Carb. Heat Off
CALL IT	Advise ATC
Clear 50' Obstacle	
ACCELERATE	Vy (100)
FLAPS	Slowly Retract 0°

ENGINE FAILURES

ENGINE FAILURE DURING TAKE OFF ROLL

Throttles Idle/Closed
 Brakes Apply
If there is insufficient runway to stop:
 Mixtures Idle Cut-Off
 Fuel Selectors Off
 Switches (master and alternators) Off

ENGINE FAILURE IN FLIGHT *BELOW 3,000 AGL*

Mixtures Full Forward
 Props Full Forward
 Throttles Full Forward
**Maintain Directional Control/Pitch Attitude/
 Airspeed (100)**

Flaps Up
 Gear Up
 Boost Pumps On
 Identify Dead Foot
 Verify/Throttle Closed
 INOP ENG Prop *Verify/Feather
 INOP ENG Mixture *Verify/Cutoff
 Climb 100 (Blue Line)
Declare Emergency / Land at Nearest Suitable Airport

ENGINE FAILURE IN FLIGHT *ABOVE 3,000 AGL*

Mixtures Full Forward
 Props Full Forward
 Throttles Full Forward
**Maintain Directional Control/Pitch Attitude/
 Airspeed (100)**

Flaps Up
 Gear Up
 Boost Pumps On
 Identify Dead Foot
 Verify/Throttle Closed
 Climb 100 (Blue Line)

TROUBLESHOOT *ABOVE 3,000 AGL*

Magnetos On
 Boost Pumps On
 Fuel Quantity Check/Change
 Fuel Selectors Change Tanks
 Carb Heat On, Check, Off
 Engine Instruments Check

IF UNABLE TO RESTART

INOP ENG Prop *Verify/Feather
 INOP ENG Mixture *Verify/Cutoff
**Declare Emergency/
 Land at Nearest Suitable Airport**
 Engine Securing Checklist Perform

ENGINE SECURING CHECKLIST

INOP ENG Fuel Selector Off
 INOP ENG Boost Pump Off
 INOP ENG Magnetos Off
 INOP ENG Alternator Off
 INOP ENG Cowl Flap Closed
 Cruise Checklist Perform

ENGINE AIR START RESTART

INOP ENG Fuel Selector Mains/Aux
 INOP ENG Boost Pump On
 INOP ENG Magnetos On
 INOP ENG Throttle ¼ Open
 INOP ENG Prop Full Forward
 INOP ENG Mixture Full Forward
 Airspeed Pitch 115 MPH

If engine doesn't windmill start

INOP ENG Starter Engage
When engine begins to run
 INOP ENG Throttle 15" MP
 Maintain 15" until CHT Green
 Alternator On
 Boost Pump Off/Check

ELECTRICAL ISSUES

ALTERNATOR LIGHT ILLUMINATES

Alternator Showing Output Off
 Other Alternator Recheck Output
 Both Alternators On

If Alternator Power is Not Restored

Electrical Load Reduced
 Failed Alternator Off
 Circuit Breaker Check
 Failed Alternator On
 Ammeters Monitor

If Alternator Output Not Restored

Failed Alternator Off
 Electrical Load Reduce as Possible
Land As Soon As Practical
NO FLAP LANDING

GEAR ISSUES

LANDING GEAR FAILS TO EXTEND

***Climb to a safe altitude/location then use checklist**
 Alternators On
 Gear Light Check/Test
 Mechanical Gear Indicator Check
 Landing Gear Circuit Breakers Check In
 Landing Gear Lever Recycle

IF GEAR FAILS TO EXTEND

Landing Gear Relay (3rd from left) Pull
 Landing Gear Lever Down
 Landing Gear Hand Crank Engage
 Hand Crank... Rotate Counterclockwise until stop
 Mechanical Gear Indicator Check Gear Down
 Landing Gear Relay In, Check Green

GEAR UP LANDING

Landing Gear Lever Up
 Landing Gear Circuit Breakers In
 Radio/Electrical Switches Off
 Flaps 0°
 Airspeed Blue Line

PRIOR TO TOUCHDOWN – Landing Assured

Mixtures Idle/Cut-off
 Cabin Door Open
 Touch Down Slightly Tail Low

FIRES

ENGINE FIRE

ON GROUND: Engine has not started

Throttle Full Open
 Starter Engage

IF FIRE CONTINUES...

Mixtures Cut-Off
 Boost Pumps Off
 Fuel Selectors Off
 Ignition Switch Off
 Alternators Off
 Fire Extinguisher Use if Practical

IN-FLIGHT

AFFECTED ENG Fuel Selector Off
 AFFECTED ENG Throttle Closed
 AFFECTED ENG Mixture Idle Cut-Off
 AFFECTED ENG Prop Feather
 AFFECTED ENG Boost Pump Off
 AFFECTED ENG Alternator Off

IF FIRE CONTINUES...

Airspeed Increase (150 MPH)
Declare Emergency / Land at Nearest Suitable Airport

ELECTRICAL FIRE IN-FLIGHT

Alternators Off
 Avionics Master Off
 ALL Electrical Switches Off
 Vents/Cabin Air/Heat Closed
 Fire Extinguisher Activate
Declare Emergency / Land at Nearest Suitable Airport

If fire appears out and electrics needed

Alternators On
 Circuit Breakers Checked (don't reset)
 Electrical Switches On (one at a time)
 Vents/Cabin Air/Heat Open

CABIN FIRE IN-FLIGHT

Alternators Off
 Vents/Cabin Air/Heat Closed
 Fire Extinguisher Activate
Declare Emergency / Land at Nearest Suitable Airport

WING FIRE

Nav / Strobes / Landing Lights Off
 Pitot Heat Off
Perform sideslip to keep flames away from fuel tank & cabin
Declare Emergency / Land at Nearest Suitable Airport

AIRSPEEDS

V _{SO} = 70	V _{MC} = 84	V _{FLAPS} = 130
V _S = 80	V _{XSE} = 90	V _{GEAR} = 150
V _R = 85	V _{YSE} = 100	V _A = 160
V _X = 95	V _{SSE} = 100	V _{NO} = 195
V _Y = 100		V _{NE} = 240

EMERGENCY PROCEDURES

EMERGENCY DESCENT

Throttles Idle/Closed
 Prop (Operating Engine) Full Forward
 Mixtures Adjust
 Gear Below 150, Down
 Maintain 150 MPH
 Bank 30-45°

SPIN RECOVERY

Power Idle
 Ailerons Neutral
 Rudder... FULL OPPOSITE from rotation
 Yoke (Elevator) FULL FORWARD
When Rotation Stops

Rudder... NEUTRAL
 Yoke... AS REQUIRED
 Throttle AS REQUIRED

PROP OVERSPEED

Throttles Idle/Closed
 Oil Pressure Check
 Prop Control Decrease (DO NOT FEATHER)
 Do not feather. Set RPM if any control.
 Airspeed Reduce (Blue Line)
 Throttle (below 2700 RPM) As Required
 Engine Shut down if Necessary

ENGINE ISSUE

ENGINE ROUGHNESS

Mixture Enrich
 Carburetor Heat On
If roughness continues after one min:
 Carburetor Heat Off
 Primers Verify Locked
 Mixture Adjust for Smoothness
 Boost Pumps On
 Fuel Selector Switch Tanks
 Engine Gauges Check
 Magnetos Check
If operation is satisfactory on either, continue on that magneto at Reduced Power & Full Rich Mixture
Land as Soon as Practical

ENGINE OVERHEAT

Cowl Flaps Open
 Mixture Enrichen
 Throttles Reduce
 Airspeed Increase

CLEANING FOULED SPARK PLUGS

**CAUTION: Hold brakes securely stay vigilant for aircraft movement. Only perform in the run-up area.*
 AFF. ENG Throttle 2000RPM
 AFF. ENG Mixture Lean for a slight drop
 Maintain for 60 seconds / Monitor CHT
 AFF. ENG Mixture Full Forward
 Throttle 1700RPM
 Perform Magneto Check