

Before Start

Times Logged In-Book & Online
 Preflight Inspection & FAR 91.103 Completed
 SMS Preflight Form Reviewed / Submitted
 Passenger "SAFETY" Briefing As needed
 Flight Controls Checked Free & Correct
 Parking Brake SET
 Electrical Equipment OFF
 Circuit Breakers & Fuses In & Checked
 Fuel Selector Fullest Tank
 Master Switch ON
 Beacon ON
 Mixture Enrichen
 Throttle 1/4 inch Open
 Carburetor Heat Cold (IN)
 Ignition ON Left Magneto
 Primer As needed / Locked
 Clear Area Yell & Look

ENGINE START

Starter Button Engage

Run-Up

Frequency Tower/CTAF & Dep SET
 Brake SET
 Flight Instruments SET & Checked
 Fuel Tank Fullest
 *DON'T change tanks just before takeoff
 Mixture Rich
 Throttle 2000 RPM
 Magnetos Check drops
 150&160 models *Max 125 RPM each, Both
 within 50 RPM
 140 model *Max 175 RPM each, Both within
 50 RPM
 Carburetor Heat ON RPM drop & OFF rise
 Vacuum (suction) 5 PSI (+/- 0.2)
 Ammeter Checked & Charging
 Voltmeter Between 12.5V - 14.3V
 Idle Rich Engine Setting Check for 5 secs
 Throttle idle, mixture rich, carb heat ON
 then OFF

Descent / Approach

Weather Info Copied
 Avionics & Flight Instruments SET
 Approach Select (if needed) Setup NAVs
 Arrival / Approach Briefing Completed
 Fuel Pump ON
 Fuel Selector Fullest Tank
 Mixture SET Enrichen
 Carburetor Heat As Needed
 Seats & Safety Belts Locked & ON

Before Landing

Fuel Selector Fullest Tank
 Fuel Pump ON
 Carburetor Heat As Needed
 Mixture Enrichen
 Landing Light (when cleared) ON

After Landing**After clear of all runways**

Carburetor Heat OFF
 Mixture Lean for taxi
 Fuel Pump OFF
 Strobe Light OFF
 Landing Light OFF / As Needed
 Trims SET for Takeoff
 Contact / Call For Taxi

Shutdown / Secure

Throttle 1000 RPM
 Magnetos off then on Grounding Check
 NAV Lights OFF (Centered)
 Radio / Avionics Master OFF (if applicable)
 Comm / Nav Radios except audio panel OFF
 GPS / Transponder OFF
 Mixture Idle Cutoff
 Magnetos OFF
 Beacon OFF
 Master Switch OFF
 Brakes Release
 Control Lock w/ Seat belt
 Tie-downs Complete & Tight
 Times Logged In-Book & Online

Engine Start Fire

Starter Continue Cranking
 If Engine Starts
 Throttle 1800 RPM for 2mins
 "Shutdown Checklist" Complete
 Fuel Selector OFF
 If engine doesn't start
 "Shutdown Checklist" Complete
 Fuel Selector OFF
 Passengers Evacuate
 Fire Extinguish

Before Takeoff

Throttle 1000 RPM
 Trims SET for Takeoff
 Flaps Checked & SET
 Fuel Pump Verify ON (check pressure)
 Takeoff Briefing Complete
 (Rnw, Vr, Vclimb, Flaps, Dep, EMERs
 below)
 Doors & Windows Closed & Latched

Failures During & After Takeoff

During Takeoff roll below VR
THROTTLE IDLE
BRAKES APPLY & STOP STRAIGHT
 Mixture Idle Cutoff
 Magnetos OFF
 Master Switch OFF
After liftoff w/ runway remaining
THROTTLE REDUCE / IDLE
AIRSPPEED BEST GLIDE 80mph (69kts)
LAND ON REMAINING RUNWAY
After Takeoff no remaining runway &
below turning altitude
AIRSPPEED BEST GLIDE 80mph (69kts)
BEST LANDING SPOT SELECT
FUEL SELECTOR SWITCH TANK
PRIMER IN & LOCKED
FUEL PUMP VERIFY ON
MAGNETOS CHECK BOTH, L, R
MIXTURE ADJUST
DECLARE EMERGENCY 121.5 / 7700

After Start / Before Taxi

Magnetos Both
 Throttle 1000 RPM
 Engine Instruments Green (fuel/oil pressure)
 Nav Lights / ADS-B out ON
DOWN Day, UP Night, CENTER OFF
 Mixture Lean for Taxi
 Fuel Pump ON (check pressure)
 Radios / Avionics ON & Freqs / Flight plan
 Transponder ALT Mode & Squawk
 Weather Info Copied
 Flight Instruments SET & Checked
 Airport Diagram Visible
 Contact / Call For Taxi & Brief route
 Brakes Checked (at idle throttle)

During Taxi Flow (during turns)

Attitude- level within 5 degrees
 Turn Coordinator- direction of turn
 Slip/Skid (Ball)- opposite of turn
 Compass & Heading- direction of turn

IFR Flight Equipment Check

Inspections Up to Date
 Navigation/Required Equipment Checked
 VOR Check Complete / Logged
 RAIM & WAAS Checked / Noted
 GPS Database Current / Noted

V Speeds

Vr — 65mph 55kts Rotate
 Vx (150&160) — 75mph 65kts Best Angle Climb
 Vx (140) — 74mph 64kts Best Angle Climb
 Vy — 85mph 75kts Best Rate Climb
Vso — 46mph 40kts Stall Landing Config
***ours**
Vs1 — 55mph 48kts Stall Clean Config *ours
Vfe — 115mph 99kts Max Flaps Extended
Vg — 80mph 69kts Best Glide
 Va — 129mph 112kts @Max WT Maneuvering
 Vno — 140mph 121kts Normal Range
Vne — 170mph 148kts Never Exceed
 Vapp — 75mph 65kts Final Approach

Cleared for Takeoff/Line-Up Flow

Fuel Pump ON
 Mixture SET for Takeoff
 Lights ON (landing & strobe)
 Transponder ALT & code
 Runway Heading Verify inside / outside / rwny #s

After Takeoff / Climb / Go-around ~1000ft

Airspeed Vy or (Vx as needed)
 Flaps (+rate) 0 degrees UP
 Landing Light OFF

Cruise

Pitch, Power, Trim SET (POH Chart)
 Mixture SET (lean above 5,000ft)
 Fuel Manage Tank Selection
 Fuel Pump AS Needed

Engine Failure During Flight

Airspeed & Trim Best Glide 80mph 69kts
Best Landing Spot Select
 Troubleshoot if time & altitude allows
If not "Land w/out Power Memory items
 Fuel Selector Switch Tanks
 Primer In & Locked
 Fuel Pump ON
 Magneto Switches Check (L,R, BOTH) ON
 Throttle Adjust
 Mixture Adjust
 *If failed due to fuel starvation, can take
 10secs to get fuel from other tank after
 switching
If no Engine Power restored,
Complete Landing without Power
Checklist

Landing Without Power

Approach 80mph 69kts trim Normal
Declare Emergency ON Freq or 121.5
Transponder Squawk 7700
Evacuation Plan Briefed
 Before Landing / Impact
 Mixture Idle Cutoff
 Fuel Selector OFF
 Fuel Pump OFF
 Magnetos OFF
 Door Unlatch
 ELT ON
 Flaps As Needed
 Master Switch OFF

Pre-flight Checklist

Interior

Aircraft & Pilot Docs & Certs
"ARROW PECS" Cert, ID, Med
Inspections "AV1ATES" Up to Date
Required & Inop Equipment .. Check (as needed)
Master ON
Lights ON Check OFF
Fuel Quantity Checked (visual & gauge)
Master OFF
Flaps Extend

Exterior Walkaround

Right Wing, Gear, Tire, Tank, Sump Check
Engine Oil Check (6qt local, 7qt XC)
Cowling & Propeller Check
Nose Gear (Strut, tire) Check
Gascolator Sump
Left Wing, Gear, Tire, Tank, Sump Check
Pitot Tube/Mast Check
Stall Warning Tab Check Light
Fuselage (static port) Check
Rudder & Stabilator Check (bolt & trim)
Baggage Door Closed & Locked
Flaps Retract

Plane Info

Engine- Lycoming O-320, 4 cylinder, Horizontally Opposed, Air Cooled, Naturally Aspirated, Direct Drive, 160HP @2700 RPM, Carbureted, Powerflow exhaust, 320cubic in. displacement.
Propeller- Sensenich, metal fixed pitch, 74in.
Landing Gear- Fixed Tricycle, main 24PSI, nose 18PSI
Fuel- Capacity 50 gal, 2.2lb total unusable, 100LL, ~9gph 75% pwr
Weights- (160) Max 2200lbs, (150&140) Max 2150lbs, Max baggage 100lbs
Dimensions- Width 30ft, Length 23.3ft, Height 7.3ft, Between main gears 6.2ft

Acronyms

****ARROW PECS**
Airworthiness Certificate, Registration, Radio Station License (international), Operating Limitations (POH), Weight & Balance, Placards, External Data Plate, Compass Deviation Card, Supplements (installed equipment).
AV1ATES
Annual - 12 cal months, VOR - 30 days *IFR, 100hr - *for hire, Altimeter - 24 cal months *IFR, Transponder - 24 cal months, ELT - 12 cal month inspection & battery replacement 1/2 half battery and/or hour of use, Static Encoder - 24 cal months *IFR

Checklist Usage Philosophy

This is meant to be a Read & Do checklist in the airplane.
Flows are "During Taxi" - done while taxiing & "Cleared for Takeoff/Line-Up" - done while taking the runway for departure.
Emergency "RED" checklists have memory items that are in **BOLD**.

3rd Step Management Personnel

Maintenance Issues / Squawks:
Doug A&P, IA, ATP, CFI: (602) 790-7240
Dale A&P, IA, Commercial IRA: (602) 694-3083
Club Managemnet & Account Info:
Laurie Commercial IRA: (602) 740-3942
Checklist, SOPs, Student Training:
Jakob ATP, CFI(I): (845) 514-7669
Club Safety Manager (SMS):
Tanya Commercial CFI: (480) 528-4179
Website: www.fly3rdstep.club

Engine Fire In-Flight

Mixture Idle/Cutoff
Throttle Idle/Closed
Carburetor Heat OFF
Fuel Pump OFF
Fuel Selector OFF
Cabin Vents, Heater, Defroster .. CLOSED / OFF
If fire persists
Bank 30 degrees For +G Force
Airspeed Increase to 138mph 120kt
Reference Landing without Power Checklist

Electrical Fire

Master Switch OFF
All Electrical Equipment OFF
Cabin Heat, Defrost, Air OFF / CLOSE
Door (if Smoke) Unlatch
Land ASAP

Wing Fire

Slip into Fire **Rudder into fire side**
Wing Lights (strobe/nav) OFF
Land ASAP

Emergency Descent

A Need to Lose Altitude
Throttle Idle
Mixture Enrichen
Fuel Pump ON
Bank 30-45 degrees (+Gs)
Airspeed 140mph 121kts Unless Smooth
Notify ATC
Recover At Safe Altitude

Inadvertent Spin Recovery

Intentional Spins Prohibited
Throttle Idle
Rudder Full Opposite Direction of Spin
Stabilator Full Forward
Ailerons Neutral
Rudder Neutral (When Rotation Stops)
Smoothly Recover from Dive
Throttle As needed

Oil Low Pressure / High Temperature

Throttle Minimum Required
Mixture Rich
Airspeed Increase for Cooling
Oil Pressure Check
Oil Temperature Check
If conditions persist Land ASAP

Electrical / Alternator Failure

Discharge Shown on Ammeter / Low Volts
Note Time For Battery Life ~30mins
Amps & Volts Check
Alternator CB Reset (if Needed 1x)
Alternator Field CB Reset (if Needed 1x)
If Alternator still Failed to ensure 30mins Battery Life
Electrical Load Reduce Nonessential Items
*If Elec Ignition Sys. Partial Engine Loss
Notify ATC Possible Lost Comms
Land **As Soon As Practical**

Traffic Pattern Checklist

Used as a simplified checklist for working in the pattern with touch & go's or full-stop taxibacks.

Before Takeoff

Throttle 1000 RPM
Trims SET for Takeoff
Flaps Checked & SET
Fuel Pump Verify ON (check pressure)
Takeoff Briefing Complete
(Rnwy, Vr, Vclimb, Flaps, Dep, EMERs
Doors & Window Closed & Latched

Failures During & After Takeoff

Be familiar with 3 different possibilities: Failure during takeoff roll, Failure after liftoff with runway remaining, & Failure after liftoff without runway remaining.

Cleared for Takeoff/Line-Up Flow

Fuel Pump ON
Mixture SET for Takeoff
Lights ON (*landing & strobe*)
Transponder ATL & code
Runway Heading Verify inside / outside / rnwy #s

After Takeoff Climb / Go-around ~1000ft

Airspeed Vy or (Vx as needed)
Flaps (+rate) 0 degrees UP
Landing Light OFF

Before Landing

Fuel Selector Fullest Tank
Fuel Pump ON
Carburetor Heat As Needed
Mixture Enrichen
Landing Light (when cleared) ON

After Landing

After clear of all runways
Carburetor Heat OFF
Mixture Lean for taxi
Fuel Pump OFF
Strobe Light OFF
Landing Light OFF / As Needed
Trims SET for Takeoff
Contact / Call For Taxi

KCHD Frequencies

KCHD ATIS (AWOS) — 128.325
KCHD Ground — 124.4
KCHD N Tower (CTAF) — 126.1
KCHD S Tower — 133.1

PHX Area Frequencies & Info

SE & SW Prac Area — 122.85
North Prac Area — 122.75
PHX app/dep — 124.9, 123.7 & 120.7
KPHX ATIS — 127.57
KIWA ATIS — 133.5
KIWA TWR — 120.6
A39 AWOS — 126.9
A39 CTAF — 122.9
KCGZ AWOS — 132.175
KCGZ & TFD stack CTAF — 122.7
PXR VOR — 115.6
IWA VOR — 113.3
TFD VOR — 114.8
KCHD Fuel # — 623-202-7223
KCHD Unicom — 122.95
Practice Training Procedures — www.aftw.org
Emergency — 121.5 & Squawk 7700
Lost Comms — Squawk 7600