Arrow 180

Speeds (KIAS @ max gross weight)

V_{s0} 55
V_{s1} 59
V_r 65-70
V_x 72/78
V_y 76/86
V_a 114
V_{fe} 100
V_g 75-80
V_{no} 121
$V_{gear\text{-}down}$ 129
V_{ne} 148
Max Crosswind Comp 17

Specifications

Standard empty weight ..... 1380 lbs
Gross weight ..... 2500 lbs
Fuel
- Total ..... 50 gal
- Useable ..... 49.75 gal
- Pressure ..... 0.5-6.0 psi

Oil ..... 6-8 qts
Tire pressure
- Nose ..... 24 psi (6.00x6, 4-ply or 6-ply)
- Main(s) ..... 24 psi (6.00x6, 4-ply or 6-ply)

Gear extension (on ground) ..... 2-3 in

Cabin

Dispatch status ..... Signed/In-progress
Hobbs & tach time ..... record
Required docs (ARROW) ..... on board
Control wheel lock ..... remove
Ignition key ..... on dashboard
Gear selector switch ..... down
Flaps ..... down
Avionics switch ..... off
Master switch ..... on
Fuel gauges ..... verify operational
Avionics cooling fan ..... verify operational
Pitot heat ..... verify operational for IFR
Exterior lights ..... verify operational
Master switch ..... off

Right Wing

Flaps ..... security/attach points/linkage
Ailerons ..... movement/security
Wingtip/nav lights ..... undamaged
Leading edge condition ..... undamaged
Tiedown ..... remove
Overflow vent ..... unobstructed
Right main gear ..... tire inflation/brake lines
Fuel tank ..... sump
Fuel quantity ..... check visually
Fuel cap ..... secured/vent clear

Nose

Engine cowling ..... secure/undamaged
Oil level ..... 6-8 qts
Propeller/spinner ..... undamaged
Engine cooling inlets ..... unobstructed
Alternator belt ..... condition
Air filter inlet ..... unobstructed
Nose gear ..... tire inflation/oleo strut
Fuel strainer ..... sump
Windshield ..... clean/undamaged

Left Wing

Fuel tank ..... sump
Fuel quantity ..... check
Fuel cap ..... secured/vent clear
Left main gear ..... tire inflation/brake lines
Tiedown ..... remove
Overflow vent ..... unobstructed
Emergency gear mast ..... unobstructed
Pitot/static mast ..... unobstructed
Stall warning switch ..... moves freely
Leading edge condition ..... undamaged
Wingtip/nav lights ..... undamaged
Ailerons ..... movement/security
Flaps ..... security/attach points/linkage

Empennage

General surface condition ..... undamaged
Stabilator ..... movement/security/linkage
Rudder ..... movement/security
Tail tie down ..... remove
Baggage door ..... closed/locked

Before Startup

Passenger briefing ..... complete
Seats/belts/harnesses ..... adjusted/secure
Flaps ..... up
Flight controls ..... free and correct
Fuel selector valve ..... fullest tank
Avionics switch ..... off
Gear selector switch ..... down

Engine Start

Brakes ..... applied
Mixture ..... rich
Propeller ..... full forward
Throttle ..... open ¼ inch
Gear selector switch ..... down
Master switch ..... on
Beacon ..... on
Fuel pump ..... on until fuel pressure noted
Prop area ..... clear left/center/right
Ignition switch ..... both/push to start
Throttle ..... 1000 rpm
Oil pressure ..... normal within 20 secs
Ammeter ..... ensure alternator producing
Fuel timer ..... start

Note: This aircraft does NOT cross feed from both fuel tanks. Fuel tanks must be switched periodically in order to maintain an even fuel load.

Mixture ..... pre-lean for ground ops
Avionics switch ..... on
Transponder ..... standby
Radios ..... obtain weather and taxi clearance

Taxi

Brakes ..... check
IFR taxi check (if needed)
- Compass ..... swinging freely
- Turn coordinator ..... opposite of turn
- Directional gyro ..... shows turn
- Attitude indicator ..... 5mins/5°

Ground check/Engine run-up

Aircraft ..... position appropriately
Brakes ..... apply
Door/window ..... closed/latched
Fuel selector valve ..... on fullest tank
Elevator trim ..... set to neutral
Mixture ..... lean for density altitude
Throttle ..... 2000 rpm
- Vacuum gauge ..... normal
- Oil pressure ..... normal
- Oil temperature ..... normal
- Generator ..... producing amperage
- Magnetos ..... 125 rpm drop/run smooth
- Prop ..... cycle
- Idle check ..... verify engine operation

Throttle ..... 1000 rpm
Flight instruments ..... set
Radios ..... notify tower/take-off clearance

Before Takeoff

Landing light ..... on
Anti-collision lights ..... on
Position lights ..... on after dark
Transponder ..... alt
Runway ..... clear on final/ahead/departure

Normal Takeoff

Electric boost pump ..... on
Fuel selector ..... fullest tank
Throttle ..... full
Check instruments and engine gauges
Rotate ..... 75 KIAS
Initial climb-out ..... 75 KIAS
Cruise climb ..... 97 KIAS

Short-field Takeoff

Taxi into position and hold brakes
Flaps ..... 25°
Electric boost pump ..... on
Throttle ..... full
Check instruments and engine gauges, release brakes
Rotate ..... 75 KIAS
Initial climb-out ..... 75 KIAS

Soft-field Takeoff

Use minimal breaking and backpressure while taxiing to keep excessive weight off the nose wheel during taxi and subsequent take-off.
Flaps ..... 25°
Electric boost pump ..... on
Throttle ..... full
Check instruments and engine gauges while maintaining backpressure. As the aircraft leaves the ground, lower the nose and remain in ground effect until V_x or V_y is achieved.

Climb-out (once clear of all obstacles)

Raise gear only after establishing a positive rate of climb
Gear selector switch ..... up
Flaps ..... retract incrementally
Engine gauges ..... check
Airspeed ..... 87 KIAS

Cruise

Throttle ..... 2400-2500 rpm
Mixture ..... lean above 3000' msl
Heading indicator/compass ..... crosscheck
Landing/Taxi lights ..... off

Switching fuel tanks

Aircraft ..... straight and level
Electric boost pump ..... on
Fuel selector switch ..... to other tank
Electric boost pump ..... off after 30 seconds

Descent/Landing

Seatbelts and harnesses ..... secure
Fuel pump ..... on
Fuel selector ..... fullest tank
Mixture ..... enrich as needed
Flaps ..... as desired
Gear selector switch ..... down
Throttle ..... 1500 rpm
Airspeed ..... 80 KIAS

After Landing

Runway ..... clear/exited
Flaps ..... up
Transponder ..... standby
Exterior lights ..... as needed
Fuel pump ..... off
Elevator trim ..... neutral
Radios ..... obtain clearance to taxi

Shutdown

Lights (except beacon) ..... off
Avionics master switch ..... off
Mixture ..... full lean
Ignition switch ..... off
Master switch ..... off
Hobbs & tach time ..... record
Control lock ..... in place
Aircraft ..... tied down/in hangar
Nose gear ..... chocked
Leading edges/surfaces ..... wipe down