

PA28R-201 ARROW

NORMAL PROCEDURES

GENERAL INFORMATION

ALL SPEEDS in KIAS

Rotate (Vr)65-75
 Best Rate of Climb (Vy) 2750 lbs Gear Up/Gear Down90 / 78
 Best Angle of Climb (Vx) 2750 lbs Gear Up/Gear Down.....78 / 72
 Maneuvering Speed (Va)
 At 2750 lbs 118
 At 1865 lbs96
 Best Glide Speed79
 Stall Speed
 Power Off, Flaps Up (V_{s1}).....60
 Power Off, Flaps 40⁰, Gear Down (V_{s0}).....55
 Approach Speed
 Flaps Up.....85
 Flaps 40⁰.....75
 Maximum Flaps Extended Speed (Vfe).....103
 Maximum Structural Speed (Vno).....146
 Never Exceed Speed (Vne).....183
 Maximum Takeoff Weight.....2750 lbs
 Oil (Min / Max)2 / 8 qts
 Fuel
 Full / Useable.....77 / 72 gal
 Tabs / Useable50 / 45 gal
 HP200 HP
 Maximum Crosswind17

Airport	Desig	Frequency	Elev	TPA	RWY Size	Wx	Runways
Annapolis-Lee	ANP	122.9 CTAF	34	1034	2505x48	122.90	12-30
Bay Bridge	W29	123.0 CTAF	15	1200	2903x60	120.57	11-29
Cambridge	CGE	122.7 CTAF	19	1000	4476x75	120.67	16-34
Carroll Cty	DMW	122.7 CTAF	789	1600	5100x100	121.25	16-34RP
Easton	ESN	122.95 CTAF	74	1100	04-22 5500x100	124.47	04-22RP, 15-33
Frederick	FDK	122.72 CTAF	303	1303	05-23 5220x99	124.87	05RP-23, 12RP-30
Freeway	W00	123.07 CTAF	168	1000	2425x30	--	18-36RP
Hagerstown	HGR	120.3 Twr	703	1700	9-27, 5461x150	126.37	2-20, 9-27
Montgy Cty	GAI	122.7 CTAF	538	1338	4195x75	128.27	14RP-32
Ridgely	1N0	122.8 CTAF	63	1000	3200x50	120.22	12-30
Salisbury	SBY	119.42 Twr	52	800	14-32 5500x150	118.32	5-23, 14-32
Suburban	W18	123.05 CTAF	148	1000	2324x40	--	03-21
Tipton	FME	123.05 CTAF	155	1000	3000x75	127.80	10RP-28

PREPARATION

Airplane StatusCHECK AROW
 Weather SUITABLE
 Baggage WEIGHED, STOWED, SECURED
 Weight and CG WITHIN LIMITS
 Navigation PLANNED
 Current ChartsON BOARD
 Performance and Range..... COMPUTED and SAFE

PREFLIGHT CHECK**COCKPIT**

Hobbs and Tachometer Time (50/100 Hr) CHECK and NOTE
 Control Wheel Release Restraints
 Gear Handle..... DOWN
 Avionics..... OFF
 Parking Brake SET
 Electric Switches OFF
 Magneto Switch..... OFF
 Mixture IDLE CUT-OFF
 BATT Master SwitchON
 Fuel Quantity Gauges CHECK
 Annunciator Panel CHECK
 BATT Master Switch OFF
 Flight Controls..... CHECK
 Flaps CHECK
 Trim CHECK, SET NEUTRAL
 Pitot and Static Systems DRAIN
 Windows.....CHECK, CLEAN
 Tow Bar STOW
 Baggage Door..... CLOSED and SECURE

RIGHT WING

Wing	FREE of ICE, SNOW and FROST
Control Surfaces	CHECK for INTERFERENCE
Hinges.....	CHECK for INTERFERENCE
Static Wicks.....	CHECK
Wing Tip and Lights.....	CHECK SECURE
Fuel Tank.....	CHECK SUPPLY SECURE CAP
Fuel Tank Sump	DRAIN, CHECK for WATER SEDIMENT and PROPER FUEL COLOR
Fuel Vent	CLEAR
Tie Down and Chock.....	REMOVE
Main Gear Strut	PROPER INFLATION (2.5 ±0.25 In)
Tire	CHECK
Brake Block and Discs	CHECK
Fresh Air Inlet.....	CLEAR

NOSE SECTION

General Condition	CHECK
Cowling	SECURE
Oil.....	CHECK QUANTITY
Dipstick	PROPERLY SEATED
Engine Baffle Seals	CHECK
Windshield.....	CLEAN
Nose Gear Strut	PROPER INFLATION (2.75 ±0.25 In)
Nose Wheel Tire.....	CHECK
Prop and Spinner	CHECK for DAMAGE
Air Inlets.....	CLEAR
Alternator Belt.....	CHECK TENSION
Landing Light	CHECK
Fuel Strainer	DRAIN, CHECK for WATER SEDIMENT and PROPER FUEL COLOR

LEFT WING

Wing	FREE of ICE, SNOW and FROST
Fresh Air Inlet.....	CLEAR
Stall Strips	CHECK
Main Gear Strut	PROPER INFLATION (2.5 ± 0.25 In)
Tire	CHECK
Brake Block and Discs	CHECK
Fuel Vent	CLEAR
Tie Down and Chock.....	REMOVE
Pitot Head	REMOVE COVER, HOLES CLEAR
Fuel Tank.....	CHECK SUPPLY SECURE CAP
Fuel Tank Sump	DRAIN, CHECK for WATER SEDIMENT and PROPER FUEL COLOR
Wing Tip and Lights.....	CHECK
Control Surfaces	CHECK FOR INTERFERENCE
Hinges.....	CHECK FOR INTERFERENCE
Static Wicks.....	CHECK

FUSELAGE

Antennas	CHECK
Left Static Vent.....	CLEAR
Empennage	FREE of ICE, SNOW and FROST
Fresh Air Inlet.....	CLEAR
Stabilator and Trim Tab.....	CHECK for INTERFERENCE
Tail Tie-Down	REMOVE
BATT MASTR Switch.....	ON
Cockpit Lighting.....	CHECK
Nav, Strobe, Landing Lights.....	CHECK
Stall Warning.....	CHECK
Pitot Heat.....	CHECK
All Switches.....	OFF

LAST CHECK

Walk around aircraft giving it a last visual check; for general appearance, tie downs, chocks removed, oil or fuel leaks/spills, cowlings closed, icing, etc.

BEFORE STARTING ENGINE

Passengers.....	BOARDED and BRIEFED
Cabin Door	CLOSED and LATCHED
Overhead Latch	SECURED
Seat Belts and Harnesses	SECURE
Inertial Reel	CHECK
Seats.....	ADJUSTED and SECURED
Circuit Breakers.....	ALL IN
Parking Brake	SET ON
Alternate Air.....	OFF
Propeller	FULL INCREASE RPM
Avionics Master.....	OFF
Fuel Selector.....	DESIRED TANK
Flaps	RETRACTED
Anti-Collision Light	ON

STARTING ENGINE WHEN COLD

Throttle OPEN 1/4 INCH
 BATT MASTR Switch ON
 ALTR Switch ON
 Anti-Collision Light ON
 Electric Fuel Pump ON
 Mixture RICH – then IDLE CUT OFF
 Propeller “CLEAR PROP”
 Foot Brakes HOLD
 Starter ENGAGE

*(If engine does not start within 10 seconds
 prime and repeat starting procedures).*

Mixture FULL RICH when ENGINE STARTS
 Throttle ADJUST for 1,000 RPM
 Oil Pressure CHECK
 Electric Fuel Pump OFF
 Fuel Pressure CHECK

STARTING ENGINE WHEN HOT

Throttle ½ INCH OPEN
 ALTR Switch ON
 BATT MASTR Switch ON
 Anti-Collision Lights ON
 Electric Fuel Pump ON
 Mixture IDLE CUT-OFF
 Propeller “CLEAR PROP”
 Starter ENGAGE
 Mixture FULL RICH after STARTING
 Throttle ADJUST for 1,000 RPM
 Oil Pressure CHECK
 Electric Fuel Pump OFF
 Fuel Pressure CHECK

STARTING ENGINE WHEN FLOODED

- Throttle OPEN FULL
- ALTR Switch.....ON
- BATT MASTR Switch.....ON
- Electric Fuel Pump OFF
- Anti-Collision LightON
- Mixture IDLE CUT-OFF
- Propeller “CLEAR PROP”
- Starter ENGAGE
- Mixture FULL RICH after STARTING
- Throttle ADJUST for 1,000 RPM
- Oil Pressure CHECK
- Fuel Pressure CHECK

ENGINE START WITH EXTERNAL POWER SOURCE

- BATT MASTR Switch..... OFF
- ALTR Switch..... OFF
- All Electrical Equipment OFF
- Terminals..... CONNECT
- External Power Plug..... INSERT in RECEPTACLE

Proceed with normal start

- Throttle LOWEST POSSIBLE RPM
- External Power Plug..... REMOVE from RECEPTACLE
- BATT MASTR Switch.....ON
- ALTR Switch..... ON – CHECK AMMETER
- Oil Pressure CHECK

WARM-UP

- Throttle 1400 to 1500 RPM

INSTRUMENT COCKPIT CHECK:

Radio Master SwitchON
 Audio Selector PanelON
 Intercom.....ON
 ADF ON, TEST and TUNED
 Radios ON and TUNED
 Transponder..... ON STANDBY
 VORs ON and TUNED
 Clock VERIFY CORRECT TIME or ADJUST
 Air Speed Indicator..... VERIFY "0" INDICATION
 Attitude Indicator..... SET, VERIFY OPERATION
 Altimeter..... SET, NOTE DISCREPANCY
 Magnetic CompassCHECK
 Slaved HSI.....CHECK w/MAG COMPASS
 Turn Coordinator/Inclinometer..... CHECK
 VSI.....CHECK
 Alternate Static Source..... VERIFY SET CORRECTLY
 Garmin 430..... FLT PLAN ENTERED and ACTIVATED

TAXIING

RadiosCHECK
 Taxi area CLEAR
 Parking brake..... RELEASE
 Propeller HIGH RPM
 Throttle APPLY SLOWLY
 Foot brakes CHECK
 Steering.....CHECK

GROUND CHECK

Parking Brake	SET
Propeller	FULL INCREASE
Throttle	2000 RPM
Magnetos	CHECK
	<i>(Max. Drop 175 RPM Difference 50 RPM)</i>
Vacuum	4.8 to 5.1 inches Hg
Oil Temperature.....	CHECK
Oil Pressure	CHECK
Ammeter	CHECK
Annunciator Panel	PRESS-TO-TEST
Propeller	EXERCISE – then FULL INCREASE
Alternate Air.....	CHECK
Electric Fuel Pump	OFF
Fuel Pressure	CHECK
Throttle	RETARD

BEFORE TAKE-OFF

BATT MASTR Switch.....	ON
ALTR Switch.....	ON
Flight Instruments.....	CHECK
Fuel Selector.....	PROPER TANK
Electric Fuel Pump	ON
Anti-Collision Light	ON
Engine Gauges.....	Check in Green
Alternate Air.....	CLOSED
Seat Backs	ERECT
Mixture	FULL RICH
Propeller	FULL INCREASE
Belts/Harness.....	FASTENED/CHECK
Flaps	SET
Trim Tab.....	SET
Controls	FREE and CORRECT

Cabin Doors..... CLOSED and LATCHED
 Departure Briefing..... COMPLETE
 Time and Timer RECORD/START
 Landing LightON
 Transponder.....ALT
 Parking Brake OFF
 Takeoff Clearance OBTAIN

TAKEOFF

NORMAL

Flaps SET
 Trim Tab..... SET
 Accelerate to 65 to 75 KIAS (*depending on weight*)
 Control WheelBACK PRESSURE to ROTATE

SHORT FIELD TAKEOFF (*over obstacle*)

Flaps 25° (Second Notch)
 Accelerateto 50-60 KIAS (*depending on weight*)
 Control wheelBACK PRESSURE to ROTATE
 Climb 55-65 KIAS (*depending on weight*)
 Gear UP
 Accelerateto 78 KIAS (V_x Gear Up)
 Flaps Retract Slowly
 Accelerateto 90 KIAS (V_y Gear Up)

SOFT FIELD TAKEOFF

Flaps 25° (Second Notch)
 Accelerate to 50-60 KIAS (*depending on weight*)
 Control wheel BACK PRESSURE to ROTATE
 Climb 55-65 KIAS (*depending on weight*)
 Gear UP
 Accelerate to 78 KIAS (V_x Gear Up)
 Accelerate to 90 KIAS (V_y Gear Up)
 Flaps RETRACT SLOWLY

CLIMB

(V_y) Best Rate (2750 lbs) (Gear Up, Flaps Up) 90 KIAS
 (V_y) Best Rate (2750 lbs) (Gear Down, Flaps Up) 78 KIAS
 (V_x) Best Rate (2750 lbs) (Gear Up, Flaps Up) 78 KIAS
 (V_y) Best Rate (2750 lbs) (Gear Down, Flaps Up) 72 KIAS
 En Route Climb 104 KIAS
 Electric Fuel Pump OFF at desired altitude

CRUISE

Normal Maximum Power 75%
 Power SET per power table
 Mixture ADJUST

APPROACH AND LANDING

ATIS/AWOS/ASOS	OBTAIN
Altimeter.....	SET
Communication Radios	SET
Fuel Selector.....	PROPER TANK
Seat Backs	ERECT
Belts/Harness.....	FASTEN
Electric Fuel Pump	ON
Mixture	SET
Propeller	FULL INCREASE
Gear	DOWN – 129 KIAS max
Flaps	SET – 103 KIAS max
<u>G</u> as.....	Fuel Selector Fullest Tank
<u>U</u> nder Carriage	Check Wheels Down
<u>M</u> ixture.....	Rich
<u>P</u> ump	Fuel Pump ON
<u>S</u> eats.....	Seats erect and belts secure
<u>S</u> witches.....	Landing Lights ON
Flaps	Set
Trim.....	SET for 75 KIAS

Flaps Retract
Electric Fuel Pump OFF
Avionics OFF
Electrical Switches OFF
Propeller FULL INCREASE
Throttle CLOSED
Mixture IDLE CUT-OFF
ALTR Switch OFF
BATT MASTR Switch OFF

PARKING

Parking Brake SET
Hobbs / Tachometer RECORD
Control Wheel SECURE with BELTS
Flaps FULL UP
Wheel Chocks IN PLACE
Tie Downs Secure



PA28R-201 (ARROW) EMERGENCY PROCEDURES

ENGINE FIRE DURING START

Starter CRANK ENGINE
Mixture IDLE CUT-OFF
Throttle OPEN
Electric Fuel Pump OFF
Fuel Selector OFF
Abandon if fire continues

ENGINE POWER LOSS DURING FLIGHT

If sufficient runway remains for a normal landing, land straight ahead.

If area ahead is rough or if it is necessary to clear obstructions:

Gear Selector Switch UP
Airspeed MAINTAIN SAFE
Obstructions SHALLOW TURNS to AVOID
Flaps AS REQUIRED

If sufficient altitude has been gained to attempt a restart:

Maintain safe airspeed.

Fuel Selector SWITCH to TANK CONTAINING FUEL
Electric Fuel Pump CHECK ON
Mixture CHECK RICH
Alternate Air OPEN AS REQUIRED

If power is not regained, proceed with power off landing.



PA28R-201 (ARROW) EMERGENCY PROCEDURES

ENGINE POWER LOSS IN FLIGHT

Minimum Airspeed..... 79 KIAS

If at low altitude prepare for power off landing

If altitude permits:

Fuel Selector..... SWITCH to TANK CONTAINING FUEL

Electric Fuel Pump ON

Mixture RICH

Alternate Air..... OPEN

Engine Gauges..... CHECK for INDICATION of
CAUSE of POWER LOSS

If no fuel pressure is indicated, check tank selector position to be sure it is on a tank containing fuel.

When Power is Restored:

Alternate Air..... CLOSE

Electric Fuel Pump OFF

If power is not restored, prepare for power off landing.

POWER OFF LANDING

- Trim for 79 KIAS.
- Locate suitable field.
- Establish spiral pattern.
- 1,000' above field at downwind position for normal landing appr.
- When field can easily be reached slow to 72 KIAS for shortest ldg.



PA28R-201 (ARROW) EMERGENCY PROCEDURES

GEAR DOWN EMERGENCY LANDING

Touchdowns should normally be made at lowest possible airspeed with full flaps

When committed to landing:

Landing Gear Selector	DOWN
Flaps	AS DESIRED
Throttle	CLOSE
Mixture	IDLE CUT-OFF
Ignition	OFF
BATT MASTR Switch	OFF
ALTR Switch	OFF
Fuel Selector	OFF
Seat Belts and Harnesses	TIGHT

NOTE: If battery master switch is OFF, the landing gear cannot be retracted.

GEAR UP EMERGENCY LANDING

Flaps	AS DESIRED
Throttle	CLOSE
Mixture	IDLE CUT-OFF
Ignition	OFF
BATT MASTR Switch	OFF
ALTR Switch	OFF
Fuel Selector	OFF
Seat Belt and Harness	OFF

Contact surface at minimum possible speed



PA28R-201 (ARROW) EMERGENCY PROCEDURES

ENGINE FIRE

Source of FireCHECK

Electrical Fire (Smoke in Cabin)

Master Switch..... OFF

Vents..... OPEN

Cabin Heat..... OFF

Land as soon as practical.

Engine Fire

Fuel Selector..... OFF

Throttle CLOSED

Mixture IDLE CUT-OFF

Electric Fuel Pump CHECK OFF

Heater OFF

Defroster OFF

Proceed with POWER OFF LANDING procedure.

LOSS OF OIL PRESSURE

- Land as soon as possible and investigate cause.
- Prepare of power off landing.

LOSS OF FUEL FLOW / PRESSURE

Electric Fuel Pump ON

Fuel Selector.....CHECK on TANK CONTAINING FUEL

PA28R-201 (ARROW) EMERGENCY PROCEDURES

High Oil Temperature

- Land at nearest airport and investigate the problem
- Prepare for power off landing.

Electrical Failure

ALT annunciator light illuminated:

Ammeter CHECK to VERIFY INOP ALT

If Ammeter Shows Zero:

ALT Switch OFF

Reduce electrical loads to minimum:

ALT Circuit Breaker..... CHECK and RESET as REQUIRED

ALT Switch ON

If Power is Not Restored:

ALT Switch OFF

If alternator output cannot be restored, reduce electrical loads and land as soon as practical. The battery is the only remaining source of electrical power.

Electrical Overload (Alternator over 20 amps above known electrical load)

BATT MASTR Switch..... OFF

If ammeter reading does NOT decrease:

ALTR Switch..... OFF

Land as soon as practical Use Emergency Landing Gear Extension to lower landing gear.



PA28R-201 (ARROW) EMERGENCY PROCEDURES

If ammeter reading DOES decrease:

BATT MASTR Switch..... ON
AmmeterMONITOR

If ammeter reading does NOT begin to decrease within five minutes:

BATT MASTR Switch..... OFF

Land as soon as practical.

CAUTION

If the battery is depleted, the landing gear must be lowered using the emergency extension procedure. The gear position lights will be inoperative

NOTE

Due to increased system voltage and radio frequency noise, operation with the ALT switch ON and BATT switch OFF should be made only when required by an electrical system failure.

If ammeter reading DOES begin to decrease within five minutes:

Proceed with flight

Ammeter Monitor

Propeller Overspeed

Throttle RETARD

Oil Pressure CHECK

Propeller Control FULL DECREASE RPM then SET
if any CONTROL AVAILABLE

Airspeed..... REDUCE

Throttle AS REQUIRED to REMAIN
Below 2700 RPM





PA28R-201 (ARROW) EMERGENCY PROCEDURES

Emergency Landing Gear Extension

BATT MASTR Switch..... CHECK ON
ALTR Switch..... CHECK ON
Circuit Breakers..... CHECK
NAV LIGHT Switch OFF (in daytime)
Gear Indicator Bulbs..... CHECK

If landing gear does not check down and locked:

Airspeed..... REDUCE BELOW 87 KIAS
Landing Gear Slector Switch..... GEAR DOWN POSITION

If gear has still failed to lock down, move and HOLD the emergency lever down to the Emergency Down position.

If gear has still failed to lock down, yaw the airplane abruptly from side to side with the rudder.

If the nose gear will not lock down using the above procedure, slow the aircraft to the lowest safe speed attainable using the lowest power setting required for safe operation and accomplish the following:

Landing Gear Switch..... GEAR DOWN POSITION

If landing gear does not check down, recycle gear through up position and then select gear DOWN.

Spin Recovery

Throttle IDLE
Ailerons NEUTRAL
Rudder FULL OPPOSITE to DIRECTION of ROTATION
Control Wheel as REQUIRED to SMOOTHLY
REGAIN LEVEL FLIGHT ATTITUDE



PA28R-201 (ARROW) EMERGENCY PROCEDURES

Open Door

If both upper and lower latches are open, the door with trail slightly open and airspeeds will be reduced slightly.

To Close the Door in Flight:

- Slow Airplane to 87 KIAS

Cabin Vents CLOSE

Storm Window..... OPEN

If Upper Latch is Open LATCH

If side Latch is Open..... PULL on ARMREST while MOVING
LATCH HANDLE to LATCHED POSITION

If Both Latches are Open..... LATCH SIDE LATCH
then TOP LATCH

Engine Roughness

Mixture..... ADJUST for maximum smoothness

Alternate Air..... OPEN

Electric Fuel Pump ON

Fuel Selector..... SWITCH TANKS

Engine Gauges..... CHECK

Magneto Switch..... L then R, then BOTH

If operation is satisfactory on either one, continue on that magneto at reduced power, with full RICH mixture, to a landing at the first available airport.

If roughness persists, prepare for a precautionary landing.

